What do You want to hear?

What are the:
- Questions you have?
- Issues you would like discussed?
- Topics you want raised?
- This presentation is in Your hands!
AGENDA:

- Hardware and Networking Considerations
- Practical Networking
- Setting up a Peer to Peer Network
- Voice, Photocopy, Print & Scan
- The Paperless Office
- The Virtual Law Office
- Security Concerns
- Digital Video and Pictures
- Conclusions
Hardware and Network Considerations
General Hardware Considerations

- Hardware should reflect software requirements
- Voice Recognition and photo/video software requires higher-end components
- Otherwise no need for bleeding edge
Hardware Considerations

- Concentrate on:
  - CPU
  - DRAM
  - Hard Disk Space
  - Screen size
  - Large wide screen or Dual monitors
  - Video to support dual monitors
  - Networking cards
DON'T BUY MORE HARDWARE THAN YOU NEED RIGHT NOW
“Sweet Spot” is ½ generation back from the ‘bleeding edge’
Consider custom-built
Put $$ into top quality components rather than cutting edge!
Don’t pay for ‘gamer’ video and other needless features
Bleeding Edge Hurts!

- Fast CPU and lots of RAM will be beneficial in the long run
- Plan for external file backup *(at home)*
- Have RAID drives in the office file server
- Consider redundant internet capacity
PRACTICAL NETWORKING
WHICH OPERATING SYSTEM?
Basic Networking Hardware

- Need gigabit network switch, not a hub
- Cabling should be at least 350 MHz category 5E or 500 MHz Cat 6
- Gigabit networking on all computers including user systems
Basic Networking Hardware

- Three – 300 GB Western Digital 10,000 RPM Raptor II SATA hard drives
- Reliable power supply
- High capacity UPS
- Lots of good fans!
- Data offsite data backup
WHAT GOES INSIDE THE FILE SERVER BOX?
Server/Desktop Requirements

- Server OS – MS SBS, Windows XP x64 or Windows Server
- Gigabit speed!
- Central file server with RAID disk array using big 7200, preferably 10,000, RPM SATA or SCSI drives
- AMD Operton or Intel Xeon CPUs
- 4 GB or more RAM
- Security, backup and recovery systems
Server/Desktop Requirements

- Desktop OS – Windows XP or XP x64
- AMD X2 or Phenom 0r Intel Core 2 dual core or quad core CPU
- At least 2 GB RAM
- 500 GB SATA hard disk
- Large wide screen or dual LCD monitors and matching video card
- Desktop Enterprise Search
SETTING UP A PEER TO PEER NETWORK
Peer to Peer Quirks

- Use MS Default workgroup name
- Use only a single network switch
- Install MS Windows XP on all computers
- Designate the shared data folder
- Name each computer uniquely
Peer to Peer Quirks

- Check all file sharing permissions
- Check system security settings and policies
- Check firewall settings
Consider VoIP Telephony

- Voice over Internet Protocol
- Can offer cost savings!
- Need to integrate it into your data network
- Will need VoIP phones
- Internet capability needs to be robust!
Voice, Fax, Photocopy, Print & Scan
Multifunction Devices

- Scanner, printer, fax and copier
- Networkable
- Lexmark multifunction devices are well regarded by law firms
- Kodak ESP 9 multifunction devices include photo grade archival printing
- OR go to dedicated machines
  - Separate scanner
  - Separate fax
  - Color laser printers
  - Choose copier carefully
Scanner Essentials

- Fast sheet feeder
- Fully duplex
- Color and B&W
- Resolution sufficient for OCR
- Scan directly to searchable PDF
- Takes business cards
- Networkable
Flat bed scanners, even with sheet feeders, are slower and less adapted to document scanning.

Consider placing a good quality mid-range scanner like Fujitsu ScanSnap on every attorney and staff desk
Consider Color (or Colour)

- You’ll need fast color laser printers if you plan to use a digital filing system. I prefer Konica Minolta 5670.
- You may be using more color photos for all purposes, including attachments to complaints and pleadings.
- Combining a scanner, Adobe Acrobat, and laser printer also works well as a copier in your office.
Scanner Considerations

- The most efficient scanners for handling document imaging are USB 2.0 high speed sheet-fed scanners.
- Twain or not?
- Put a Fujitsu ScanSnap on each desk. This is inexpensive and efficient due to ease of use and good software, including Acrobat Standard, which is inexpensive to upgrade.
Many digital photocopiers can be upgraded to include direct-to-network scanning, but at a high incremental cost and are not a good value.

A good multi-function device such as HP’s Laserjet 3xxx MFP series combines basic scanning, faxing, laser printing and copying capabilities but is quite unsuitable for regular scanning use.
PRINTERS
Printer Essentials

- Color and B&W capability
- Laser *not inkjet*
- Ensure it is fast…
- Multiple paper selection
- Envelope capacity
- Large format
Printer Essentials

- Test before buying – many printers advertised as workgroup speed are far too slow in reality, especially with Acrobat
- Konica Minolta 5670 is a good choice for affordable, fast color laser printing
The Paperless Office
The Basic Challenge

- You must be efficient AND effective
- Reducing costs while increasing effectiveness is within our control
- Transitioning to the digital law office and to the virtual law office
Effective automation is more critical than ever to a successful law practice.
Efficiency and effectiveness both require good planning and user group input.
Don’t merely throw expensive technology and staff time at what is really a law practice management and planning issue.
Examine and rid your office of comfortable but obsolete practices that are no longer optimal in the electronic era.

Legal profession one of the last to change

Premise – Paper printed only as needed
Abandon the paper file approach to office organization and embrace electronic documents as our primary file – the federal courts did this years ago.

Re-using imaged documents for evolving litigation purposes is very efficient.
Requires substantial cultural change and change in how staff hired and utilized.

Allows remote access and easy coordination with attorneys and clients

But: Follow through is critical to effectiveness, efficiency, and avoiding malpractice through inconsistency.
Legal Transition Not Difficult

- No major difference between photocopied duplicate and scanned and saved document and later printed as needed
Don’t elaborately plan a transition to a digital filing system, just start doing it with new documents as they’re produced and received. Structure files during your day.

Within three months, you’ll find that most documents that you need daily are already imaged in your computer system.
How Fast?

- First decision: how much paper to retain
- Second: staff’s tech knowledge and enthusiasm
- Third: Determine electronic file structure
- Balance short term and long term needs
You Need:

- First: Leadership & Vision, then management
- A well-considered plan with clear interim and long term goals
- Buy-in and innovative spirit by associates and staff
- Good communication within office
You Do Not Need

- Covert resistance to change
- Too many vendors and consultants planning your system around their needs
- Endless talk and slow action
- Buying more than you can digest now
You Do NOT Need

- Slow Internet or private network speed – this is fatal and now unnecessary
- Off-premises storage of primary litigation and other electronic files
  - Slower
  - Privacy and security issues
Cost Efficiency Premise

- When possible, personally perform minor clerical tasks that can be accomplished just as easily by you using technology.
- Often faster, more reliable and less costly.
- Example: Image, annotate, name and store client documents reviewed by you during interviews.
Benefits of the Electronic File

- Restructuring a large electronic case file takes perhaps an hour or two.
- If you retain a paper file, filing that paper is much simpler when you can first search a digital file. File retained paper by date.
- Archiving and deleting electronic files – wiping data, avoiding portable drives.
- Remote access and collaboration with a client is now possible.
Benefits of the Electronic File

- Clerical staff requirements are reduced
- Electronic files confer a substantial litigation advantage and allow you to adapt quickly to new or impeachable evidence.
- Print hard copies only as needed and discard the paper copies when they’re no longer necessary. Use DVD or Flashdrive but BE AWARE OF METADATA.
Role of Adobe Acrobat

- By working with the full version of Acrobat 9 Professional, you’ll be able to annotate and bookmark your PDF litigation files and produce sharp looking exhibits quickly.
- Your clients can use the free Acrobat 9 Reader to comment on documents and markup your Acrobat files and return them.
Litigation Paperless Benefits

- Load your entire case file on to your notebook computer or take it with you on a flash drive
- It’s easy to share a complete file with other counsel or clients by burning a DVD or flash drive
- Email PDF documents and attachments to experts quickly
In The Courtroom

- Complete file instantly accessible
- Electronic trial notebook – bring a paper backup, though!
- Use and reuse Acrobat document collections as in-court visuals – very fast and flexible
BACKUPS!

- CRUCIAL!!
- Most data is lost due to user error
- Also better protection from casualty loss
- Easy now with portable USB hard disks, RAID drives and mirrored drives
After you have imaged incoming documents, send the original incoming documents to your clients with the appropriate informational stamp.

Retain the electronic copy as your original.

On-line collaboration is easier.

Back it all up daily.
Reflect existing practice, use real names
Consistently naming your retained document images is critical.
OCR all Acrobat documents so searchable
Use a document naming convention consistently and train your staff.
Joe’s File Naming Convention:

- YOU must be able to find docs quickly
- Example: Discovery should have the word Discovery as the first word of the name, with appropriate identifying information.
  - Discovery – Plaintiff first Interrogatories to Defendant XYZ served 7–26–04.
- You can also scan or combine all related documents into a single PDF file, such as “accounting motion – complete”.
Use Simplest Feasible Structure

- Current Cases
  - Client XYZ
    - Correspondence
    - Discovery and Disclosures
    - Work product
      - Research
      - Investigation
      - Internal notes
    - Pleadings
    - Witnesses
    - Liability
    - Damages
      - Economic
        - Medical bills
        - Lost income
        - Medical records
You *need* a good file/folder naming structure

Suggest date–first format:
- year/month/day/time “title of document”
- i.e. “2009 07 19 0947 email Rob Dawson Contract.pdf”
- for 2009 July 19 at 9:47 am (use a 24 hour clock)

All documents then appear in proper chronological order
Decide Where the File Lives..

- One e-folder or several?
  - i.e. email stored in Outlook or
  - PDF’d and stored in the client file
- Can use a folder structure or a document management software package (i.e. Worldox...)

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- i.e. email stored in Outlook or
- PDF’d and stored in the client file
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Desktop Search is Key

- Index the files on your network:
  - File and directory names
  - Metadata (titles, authors, comments)
  - Content of documents (searchable PDF’s)
  - Email and IM’s
  - Etc....
Case Management

- Crucial function for effective practice and avoidance of malpractice
- Right-sizing for your style and practice group size
- Internally developed systems common
Case Management Programs

- **PC Based:**
  - ProLaw
  - PCLaw
  - Time Matters
  - Amicus Attorney
  - Abacus
  - Practice Master
  - Client Profiles

- **Mac Based:**
  - LawStream
Or...Do It Yourself

- Really suited only to solo practitioner or small group
- Outlook Exchange
- Google Docs/calendar
- Excel or Access database
Paperless Litigation Support

- Digital Dictation – Dragon Legal
- Documents: Acrobat Pro + desktop search or
  Summation, Searchlight, MasterFile, CaseMap,
  TimeMap, NoteMap, TextMap
- Case Management crucial
DIY Paperless Litigation Support

- Use Simplest Feasible File Structure
- Should be easy to reconfigure
- Should be easy to find documents without a search engine (or use Desktop Search)
- Should match your preferred trial notebook structure, because it will become your trial notebook
- Save PDF copies in multiple locations
Retain original documents to the extent that might be necessary for recording or to prove your case under Evidence Rules 1002 and 1003.

You may need to show that any scanned documents have not been altered, which is clear using a file format such as a locked Acrobat PDF.
Digital Briefs

- Extremely powerful. Include audio testimony, video deposition clips, photos, scanned documents, links to exhibits.
- Requires Acrobat Professional to produce
- Re-used portions of imaged documents key to efficiency and speed. Take disclosures, turn into opening visuals, cross-exam materials, closing visuals
Remote Access

- Highly useful for the virtual law office
- Several cheaper Internet-based methods
  - “Virtual Private Networks” (VPNs)
  - Remote access software, Laplink Gold, PC Anywhere, GoToMyPC
  - Google Docs
- Microsoft Sharepoint Services
  - Basic version free
  - Dave has seen great results using Sharepoint
Paperless Knowledge Management

- Centralized form file and precedent system
- Enterprise level search – Brainware, Worldox or Interwoven

Functions Supported
- Download
- View
- Refresh List
- Search
- Direct Access
- Favorite Files
- Check-Out
- Check-In
- Upload New File
- Version List
- Toggle Comments
- Log Off
Paperless Knowledge Management

- Imaged materials, briefs, research memos etc should be easy to find and reuse
- Increases ROI on intellectual effort!
The Virtual Law Office
The Virtual Law Office

- An old concept with new jargon and hardware that’s suddenly a buzz word
- Characteristics:
  - Stable core group of senior attorneys;
  - Established collaborative relationships
  - Is glued together with technology; and,
  - Expands and reduces personnel as needed
  - May have some off-site support staff
Being Virtual

- The Virtual Law Office is already here in varying degrees
- In a very real sense, you are being virtual whenever you use Email, the telephone or transfer documents on-line
- Are we further ahead with digital offices?
Fewer on-site experienced attorneys, staff
Mentoring will be more difficult
Long term practice group relationships will both expand and loosen
Office structures will become more horizontal rather than pyramidal
Technically proficient staff at a premium
Virtual Office Technology

- Very fast network connections crucial
- Document imaging and central storage
- Free Internet-based applications are handy for light duty work on the go
- Free apps not yet able to fully compete with regular desktop applications, but consider high end products like Catalyst
- Performance, feature and security issues will limit their usefulness
Possible Virtual Office Models

- Cadre style – stable core of experienced personnel who can direct and monitor temporary help as needed
- Traditional style office with a flattened, more horizontal structure
- Specialized boutique offices
Security Concerns
Computer Security

- Major discussion in downloadable comprehensive security article at www.kashilaw.com
- Major issues: wireless networks, remote access, unauthorized user access
- File-ingrained network security
Security Concerns

- Remember physical security
- Lock Acrobat documents
  - See article on Dave’s blog on properly securing a PDF document
- Encryption a mixed bag
  - PGP Whole Disk or flashdrive Encryption
- Firewalls
- Critical data – KPBSD example
Integrate digital photography and videography into your practice.

Our culture is now highly visual – lawyers tend to use too many words.

Easy, inexpensive and surprisingly powerful addition to legal persuasion.
Conclusions
Basic Hardware Premises

- Purchase only the hardware and software that you will be able to install and begin using within the next two months or so.
- Purchasing binges are inefficient.
- Buy mainstream technology and avoid both dead-end and “bleeding edge” technology.
*Everything* Driven by Needs

- Business needs are paramount
- Choose software systems with great care.
- Be particularly careful about ease of use, low demands upon staff, and full user buy-in. Avoid the “last 20%”.
- Paperless (Document imaging) is key to efficiency.
Smart Purchase Principles

- “Sweet Spot” is ½ generation back from the ‘bleeding edge’
- Consider custom-built
- Buy systems with top quality components rather than cutting edge
- Fast CPU and lots of RAM will be beneficial in the long run
- Plan for file backup
- Have RAID drives in the office
- Consider redundant Internet and local capacity
Backup System Considerations

- Store all imaged documents and electronic file on a single network file server.
- Be sure that you have the hardware to completely back up your network file server every evening, and be sure that you actually do. Portable USB hard disks or mirrored drives (office+home) work best.
- Avoid data obsolescence
Hardware Considerations

- Buy fast but still cost-effective computers, particularly for imaging.
- I favor progressive upgrades.
- Hard disk performance is most crucial.
- Use Diskeeper to defragment.
- Plan on a three year replacement cycle.
Computers slow down with use I

- At startup, too many programs load
  - Solution: Use Ace Utilities to control startup

- Hard disks fragment files and slow down
  - Solution: Diskeeper 2009 Pro with bootup defragment

- Bloated programs use more RAM
  - Solution: Replace current RAM with 2 GB + matched RAM
Computers slow down with use II

- Some anti-virus programs degrade speed
- Switch to AVG or other low load scanners
- Hardware driver software often out of date and slow
- Check vendor web sites and Windows Update
Computers often corrupt with use I

- New programs or hardware may cause crashes
  - Solution: Create system restore points

- Critical Windows Registry file gradually corrupts
  - Solution: Use Ace Utilities to scan and clean Registry

- Windows sometimes gets plain weird
  - Solution: Use Dial-A-Fix
Computers often corrupt with use II

- Security patches often incomplete or mismatched
  - Solution: Belarc Advisor
- Newer hardware driver software sometimes incompatible
  - Solution: Boot in Windows Safe Mode and roll back to older driver
Always!

- Turn on automatic Windows Update, but check manually
- Turn on a firewall and anti-phishing filter
- Completely defragment your hard disk regularly
Further Resources:

- [www.kashilaw.com](http://www.kashilaw.com): under Tech Articles for detailed discussions of current computing hardware, scanners, printers, networks etc.
- [www.thoughtfullaw.com](http://www.thoughtfullaw.com): for discussion of leadership, business strategy, technology and finance articles as well as examples of how real lawyers are implementing technology.
Thanks and Questions!

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managing the SECURITY AND PRIVACY of electronic data in a law office
Proficient. Professional. Progressive

practicePRO® is the Lawyers’ Professional Indemnity Company’s innovative risk management initiative. It is designed to help lawyers adapt to the changing practice climate and to the opportunities that change presents.

Programs. Products. Processes.

practicePRO is a multi-faceted program of tools and resources to help you and your practice thrive.

Managing the security and privacy of electronic data in a law office is just one of several booklets in the practicePRO managing booklets series. Other practicePRO resources available to lawyers include: articles and information to assist lawyers in avoiding malpractice claims; “how to” practice aids that assist lawyers in efficient, effective and profitable practices; information on legal technology; education initiatives; and promotion of wellness and balance.

For more information on how you can put practicePRO to work for your practice see the last page of the book or contact practicePRO at 416-596-4623 or 1-800-410-1013

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introduction

if you do nothing else - the lucky 13 things you must do

#1 install latest updates to eliminate security vulnerabilities
#2 make full and proper use of passwords
#3 antivirus software is essential
#4 avoid spyware and adware
#5 install a firewall on your Internet connection
#6 be aware of and avoid the dangers of e-mail
#7 beware the dangers of metadata
#8 lockdown and protect your data, wherever it is
#9 harden your wireless connections
#10 learn how to safely surf the Web
#11 change key default settings
#12 implement a technology use policy
#13 a backup can save your practice

take care with current and departing employees

summary

appendices
1 – Other resources
2 – Other tools and resources from practicePRO
Computers and the Internet have transformed the practice of law, and how lawyers handle confidential client information. Where once paper documents were the norm, today clients, lawyers, and law office staff routinely work with electronic documents and data. Protecting the security and confidentiality of that information, however, is as important today as ever: Both the Rules of Professional Conduct and the Personal Information Protection and Electronic Documents Act (PIPEDA) apply equally to paper-based files and to electronic documents, such as a computer files or e-mail messages.

A failure to take appropriate steps to protect the electronic data in your office could have disastrous consequences. This could include an embarrassing release of sensitive information, a malpractice claim, a complaint to the Law Society, or the theft of your personal identity. At the very least, the theft, loss, or destruction of client or practice-related data will be disruptive to you and your practice. In the extreme case, it could cause your practice to fail.

To minimize the risk of any disclosure or loss of confidential client or practice data, you should understand where the risks are, and implement office management practices and appropriate technology to ensure all of your data remains confidential and secure.

This booklet provides a comprehensive review of various steps you should take to ensure that the electronic information in your office remains confidential and secure. Although some of the suggested steps may not be relevant to every lawyer, all practitioners will find helpful information in this booklet. Even if you do not have the expertise to implement the suggested measures yourself, you’ll be in a better position to direct the work that technology consultants or others must do for you.
An unprotected computer can be infected or hacked within seconds of connecting to the Internet, so protecting your electronic data is a must. The question is: How much time, effort and money are you willing to invest in that task? Ultimately, you need to find a balance between the allowable risk and an acceptable cost and effort. From a best practices point of view, there are thirteen steps that you should systematically take to protect the electronic data in your firm against the most common threats. Most can be completed quickly, and at little or no cost. More detail on each of these steps is provided in the remainder of this booklet.

#1 Install latest updates to eliminate security vulnerabilities: The networking functionality built into software that allows the Internet to operate can create security vulnerabilities that in turn can allow computers to be compromised by hackers. Microsoft products are particularly vulnerable. You must protect yourself by installing the latest security patches and updates. (See page 7)

#2 Make full and proper use of passwords: We all have more passwords than we can remember, and as a result, we get lazy and use obvious ones, or we don’t use them at all. You must use passwords, and use them properly to keep your data safe. (See page 10)

#3 Antivirus software is essential: Computer viruses are a fact of life. Every computer in every law office should have antivirus software on it, and this software needs to be frequently updated, at least weekly. Make sure you understand how to properly use and configure your antivirus software. (See page 13)

#4 Avoid spyware and adware:Viruses used to be the only threat that you had to worry about. Now you need to be aware of several other malicious software threats, including some that will spy on you. Odds are they are already on your computer. You need to take steps to make sure no one is watching your surfing habits, or collecting personal or client information from your computer. (See page 16)
#5 **Install a firewall on your Internet connection:** When you are connected to the Internet, the Internet is connected to you. Information can flow freely both ways across your Internet connection. You need a firewall to act as a gatekeeper to prevent unauthorized access to your computers and network. (See page 18)

#6 **Be aware of and avoid the dangers of e-mail:** E-mail is an essential communications tool in most law offices, but it is also one of the most dangerous tools. E-mail is one of the most common ways that viruses will enter your office, causing breaches of confidentiality and other serious problems. You and your staff must appreciate the dangers of e-mail, and know how to use it safely. (See page 19)

#7 **Beware the dangers of metadata:** Are you unwittingly sending confidential information to clients or opposing counsel? If you have e-mailed a Microsoft Word or Corel WordPerfect document to either, the answer to this question is likely yes, and you need to learn more about metadata. (See page 23)

#8 **Lockdown and protect your data, wherever it is:** Electronic client data is everywhere, both inside your office (on servers and desktop computers), and outside your office (in e-mails, on laptop computers, cell phones, and PDAs). People can access data across networks and even across the Internet. You need to understand who has access to your data, and how to limit or prevent access to it. (See page 28)

#9 **Harden your wireless connections:** Connecting to the Internet with wireless technology is so easy and seductive. However, if not configured properly, wireless can give hackers easy and unimpeded access to the data on your computer and network. Wireless users beware! (See page 35)

#10 **Learn how to safely surf the Web:** The Internet browser is another one of the more dangerous tools in your office. Even casual surfing on the Web can expose you to viruses and worms, and divulge personal data. You and your staff need to know how to safely surf the Web. (See page 37)
#11 Change key default settings: Every computer program and every piece of hardware has certain preset or default settings. These are necessary to make them operate out of the box. However, default settings are common knowledge, and hackers can use them to compromise a computer or network. You can make your systems much safer by changing some key default settings. (See page 41)

#12 Implement a technology use policy: Everyone using law office technology must understand basic do’s and don’ts, and where the dangers are. Every law office should have a basic technology-use policy that clearly informs all staff of what they can and can’t do while using e-mail, surfing the Web, and using other law office systems. (See page 43)

#13 A backup can save your practice: You hope and pray it never happens to you, and you will take all of the above steps to reduce the likelihood of a malware infection or hacker attack, but if your system is ever compromised, nothing will be more valuable to you and your practice than a full backup of your critical practice and client data. (See page 45)

Don’t be tempted to skip or skimp on one or more of the suggested steps. Remember, your data is only as safe as the weakest link in your security plan. When you leave on vacation, you lock every door and window in your house. Leaving just one door or window open gives a thief easy and instant access. To make sure the security and privacy of your electronic information is properly protected, it is critical that you fully and properly implement all of the above steps. Working your way through this booklet will help you complete all the work necessary to protect the security and privacy of your data.

Lastly, look inside your firm for potentially the most dangerous people, your own employees, and be especially careful of departing employees. (See page 48)
Computer software programs sold today are incredibly complex. Microsoft Windows XP, for example, has more than forty million lines of code written by thousands of programmers. Not surprisingly, programs often contain coding errors that were not detected prior to their release, and that can create problems, ranging from non-functioning features or functions to program lockups or crashes that result in data loss or file corruption.

These same coding errors can also cause security vulnerabilities that a hacker can exploit to access or destroy data, or run programs on a vulnerable computer, without the computer owner’s knowledge. Once hackers become aware of a security vulnerability, they use tools to search the Web for computers that are open to attack.

To address these issues, software vendors make available updates or patches – usually as free downloads on the software vendor’s Web site. They are also sometimes called service packs. You should regularly check that you have all the latest updates for all the programs on your computer.

**Microsoft product users beware**

Because Microsoft products are particularly prone to security vulnerabilities, you should update all Microsoft software regularly. Be aware if you are using any version of the Microsoft Windows operating system (Windows 98, Windows Me, Windows NT, Windows 2000 or Windows XP), Word, Excel, PowerPoint, Internet Explorer, Exchange Server, Outlook or Outlook Express.

Updates to Microsoft Windows: Go to [www.windowsupdate.com](http://www.windowsupdate.com) and follow the instructions. The tools on this Web page will review the Windows software on your computer (without sending information to Microsoft), and tell you what updates are available. Those that address security vulnerabilities are identified as *critical updates*. Other Windows and driver updates will also be listed. You don’t have to install all available...
updates, but you should work through and install all security-related updates. Some security updates must be installed individually, and most require that you restart your computer after they have been installed.

Updates for Microsoft Office applications such as Word: Go to http://office.microsoft.com/ and follow the instructions.

Windows Automatic Update

Windows Automatic Update (formerly called Critical Update Notification) streamlines the updating process by notifying you when critical updates are available for your computer. Once activated, Automatic Update periodically checks with the Microsoft Web site for any critical updates for your system. It automatically downloads updates and notifies you when they need to be installed. All you do is wait for the installation prompt to appear and follow the on-screen instructions to complete the installation.

For greater control and automation, there are other products for managing the installation of updates from a central location.

Be careful with Windows XP Service Pack 2

Although Microsoft’s Service Pack 2 update (SP2) for Windows XP contains some important security updates, users have reported problems with various programs and hardware operating properly afterwards. Before you install SP2, do some research to ensure it will not cause problems with the programs and hardware on your computer. For more information see www.microsoft.com/windowsxp/sp2/sp2_whattoknow.mspx.
Update all your software

If you are using non-Microsoft PC software, check for updates on the product’s Web site. Sometimes direct links to an updates Web page can be found on the Help menu. Click on Help, then look for a link to a Web updates page. Otherwise, you should be able to find the product’s site with a search on Google.

You are not immune to vulnerabilities if you use Linux or a Mac; these also need to be updated.

Backup before you install updates

Installing updates can interfere with the way a program works, or with the operation of the computer itself. Back up data on your computer before you install patches or updates. See page 45 for more information on backups.
We all have more passwords than we can easily remember, and as a result, we get lazy and use obvious passwords, or we don’t use them at all. However, like the keys that open your front door or start your car, computer passwords “unlock” your computer. They are essential for properly securing and accessing electronic data so you need to be conscientious about how you set them up and use them.

**How to properly use passwords**

The following are steps you can take to use passwords more effectively:

- Never write down your password, especially on your monitor. Take a walk around your office and see how many passwords you can find on monitors.

- If you absolutely have to write down some of your passwords to remember them, don’t write them out exactly. Write them out so they have to be translated in some way. For example, add or delete a character, transpose letters, or vary them in some other consistent way that only you can figure out.

- Don’t tell anyone your passwords, ever. You are the only one who needs to know your passwords. Once someone else knows your password, you lose control over who can access your computer.

- Change any compromised password immediately. To be completely safe, you should change your passwords even if you only suspect they have been compromised.

- Don’t use the same password for everything as this gives someone full and easy access to your entire system if they know that password. Try to use different passwords for different programs, especially for important or sensitive applications such as network logon or bank accounts.
use of passwords

- On Windows 2000 and XP computers, don’t have identical passwords for your network logon and administrator account passwords.
- Change your network and other important passwords every 60 to 90 days. This will frustrate people who have your password without your knowledge.
- Be careful about where you save passwords on your computer. Too often users have a Word or WordPerfect file with all their passwords in it. This file can be located in seconds, especially if it is called password.doc, or if it contains the word “password.” Consider getting a tool such as Password Manager XP (www.cp-lab.com) which will store your passwords on your computer in an encrypted and password-protected database.
- Be wary of dialog boxes, such as those for remote access and other telephone connections that let you save or remember your password. Do not select this option as it makes your password available to anyone who accesses your computer. Similarly, don’t let your browser remember your Web site passwords.

Creating “strong” passwords

Create passwords that are harder to guess or figure out. These are called strong passwords and they are more difficult for password-cracking tools to determine. Password-cracking software uses one of three approaches: intelligent guessing, dictionary attacks, and automation. Automation is sometimes called brute force as it simply tries every possible combination of characters. Given enough time, the automated method can crack any password. However, it still can take months to crack a strong password.
For a password to be “strong”, it should:

- Be at least eight characters long;
- Contain at least one character from each of the following four groups:
  - Uppercase letters A, B, C, …;
  - Lowercase letters a, b, c, …;
  - Numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, 9; and
  - Symbols (all characters not defined as letters or numerals, including: ` ~ ! @ # $ % ^ & * ( ) _ + - = { } | \ [ ] \ : " ; ' < > ? , . /
- Have at least one symbol character in the second through sixth positions;
- Be significantly different from any passwords you have used previously;
- Not contain your name or your computer user name; and
- Not be a common word or name.

Treating passwords as confidential keys to your computer helps properly secure your firm and client data.
Antivirus software is essential to protect your computer and data from malware – the generic name for computer programs such as worms and viruses that are designed, as the name suggests, solely for malicious purposes.

### Viruses

Like their biological namesakes, viruses are small programs that infect other programs on other computers, and in the process replicate and spread themselves further. Most viruses distribute themselves by e-mail, but they can also be spread by diskettes, and in many types of computer files, including Microsoft Word documents. Viruses bury themselves deep within the executable code in the programs they infect, making it difficult, if not impossible, to detect their presence, often after damage or data loss has occurred. There are tens of thousands of known viruses.

### Worms

Worms are an even bigger threat because they replicate more easily than viruses. They embed themselves in e-mail messages or Web pages, lying dormant until the computer user opens an infected e-mail or accesses an infected Web page, at which time they will spread rapidly. Two of the more recent major worm incidents saw millions of computers across every continent infected in less than ten minutes.

### Trojan Horses

Inspired by ancient Greek mythology, Trojan horse programs sneak malicious code onto your computer by hiding themselves within safe-looking programs, such as screen savers, games, titillating images, and other free downloads. Like other malware, Trojan horses can destroy your computer data or capture and share confidential information. See page 16 for more information on adware and spyware.
Antivirus software

Antivirus software effectively prevents virus and worm infections, although it may slow your computer down a bit. Once installed, the software continuously monitors other programs running on your computer. It will attempt to stop any virus activity it detects, hopefully in time to prevent further infections and data loss or damage.

The type of antivirus software you select depends on your computer. For computers that are not networked or are on a peer-to-peer network, use “personal” versions. Some corporate versions operate from a central server, others protect an e-mail server. No matter which type you select, antivirus software should be installed on all computers in your office — even those not connected to the Internet.

The two most widely used antivirus programs are Norton Antivirus (www.symantec.com) and VirusScan (www.mcafee.com). Expect to pay $40-$60 per computer to buy the software, plus an additional annual fee for virus signature file updates (see below). Buying antivirus software that is bundled with other products, such as firewall and anti-spam software, will save you money.

A free program that is a good option for a home computer is the AVG antivirus program from Grisoft (www.grisoft.com).

To scan a computer that doesn’t have antivirus software on it, consider Housecall (www.trendmicro.com) and ActiveScan (www.panda software.com/activescan).
Installing antivirus software however is only the start: You also need to regularly update your virus definition or signature files. Antivirus programs use the information in these files to recognize virus infections when they are occurring. As there are new viruses being created every day, you need to have the most recently released virus signature file to be protected against all possible infections. The updates to these files are available on your antivirus software’s Web site. Expect to pay about $30-$40 per year for these updates, starting on the first anniversary of your installation.

Most antivirus software programs can be configured to download these updates automatically, without user intervention. Make sure the automatic update feature is enabled in your antivirus software as this ensures that your protection is always up-to-date.

Lastly, and most importantly, run your antivirus software to scan your entire hard disk(s) at least weekly, either manually or automatically.
Of far greater practical threat than any worms or viruses are adware and spyware – two new types of malware that likely have already infected your computers, unless you have taken specific steps to protect yourself and clean them from your systems.

Adware

Adware is software that tracks your surfing habits, and displays targeted pop-up advertisements on your computer based on Web sites visited or search terms used. Pop-ups are the advertisements that appear in separate browser windows while you are surfing the Web. In some cases, adware can also modify the settings on your computer. To protect yourself, you need to disable some types of Javascript and ActiveX controls in your browser. See page 37 for directions on how to do this.

Not all adware is illegal: The licensing agreements of some software programs allow the program to function as adware. Carefully read the licensing agreements of any program that you install on your computer, especially free screensavers and demo games.

Spyware

Spyware is software that surreptitiously installs itself on your computer, usually through dishonest means such as a Trojan horse or an unsolicited file download through your Web browser. Its function is to monitor and log system activity. Some spyware programs record every key a user types, then store that information on the hard drive of a computer. The spyware creator can then access and scan that information for passwords, bank account numbers, SIN numbers and other confidential information or client data. In other words, spyware makes your computer vulnerable to hacking, fraud and identity theft.
Recognizing and avoiding spyware and adware

Is your computer acting strangely? Is it running very slowly? Is there unexplained hard drive activity or Web traffic when you are not actively using it? Was your browser home page changed? If so, you may have a virus, spyware or other sort of malware on your computer. Adware and spyware can be extremely difficult to remove from a computer.

Because current antivirus software has only basic functionality to protect you from adware and spyware, you should use products specifically designed for this purpose. Two good products to consider are Ad-Aware (www.lavasoftusa.com) and Spybot S&D (http://security.kolla.de). They are easy to download and install, and should be used together as they will each catch things the other will miss. The free personal version of Ad-Aware may not be used on business computers.

For maximum protection, run Ad-aware and Spybot every week or two, and, update them regularly. Unfortunately, you’ll have to check the products’ Web sites regularly for updates, as they don’t include an automatic update feature.
Regardless of whether you use a high-speed Internet connection, or dial-up modem, your systems must be protected by a firewall – a type of gatekeeper that ensures all incoming and outgoing communications are legitimate.

For computers to transmit data back and forth over the Internet, lines of communication must be established. These work through ports which are opened on each computer. The problem is that all the computers on the Internet can see one another, and these open ports can allow unauthorized people to access a computer. A firewall watches these ports and will warn you about or prevent unauthorized communications.

Firewalls come in two varieties: software and hardware. Software firewalls are easier to set up, usually protect a single computer, and are adequate for personal use. ZoneAlarm Pro (www.zonealarm.com) is a highly rated software firewall that is easy to install and use, and costs $70 per year. The more basic ZoneAlarm is free for personal use, and suitable for a home computer.

Hardware firewalls are usually used to protect an entire network of computers. D-link, Linksys, Netgear and others make relatively inexpensive hardware firewalls, which are suitable for a small office network, Cisco and others make firewalls for larger networks.

Windows XP’s built-in firewall called the Internet Connection Firewall protects you only from incoming threats; it does not monitor or stop outgoing communications. XP users should consider a more robust hardware or software firewall. Note, you should disable the XP firewall if you use another firewall.

**Probe your ports to test security vulnerabilities**

ShieldsUP! (www.grc.com) is a free online program that scans your computer and its Internet connection looking for disclosure of personal information, open ports and other vulnerabilities. Within minutes, you’ll know if your Internet connection has any security vulnerabilities.
E-mail has become a vital tool in every law practice. Yet its widespread use exposes your firm to significant risks, including embarrassment, Law Society complaints, or malpractice claims due to the unintentional disclosure of confidential information, as well as data loss or destruction due to viruses or the downloading of other malware programs.

Firms should educate their staff on the dangers of e-mail, and have a clear, written policy on the proper use of e-mail. (See page 43 for information on technology use policies).

**Password protected access**

All e-mail programs can be configured to require a password at login. To prevent people from reading other peoples’ e-mail, or from sending a message in someone else’s name, make sure all e-mail account logins require a password.

**Take care before hitting send**

It’s easy to inadvertently send an e-mail to the wrong person, potentially disclosing confidential or privileged information. The following steps can help you avoid making this mistake:

1. Make sure each client’s e-mail address book listing includes the client’s full name. Using generic addresses such as Fred007@aol.com alone can create confusion.
2. Make it an office policy to double-check that e-mail is addressed to the correct individual before it is sent.
3. Educate your staff about the necessity of protecting confidential information, so they can recognize circumstances where information should be protected and not disclosed.
Privacy statements

Many firms include a privacy statement in their e-mail messages, often in the signature text at the end of a message. From a practical point of view, anyone who mistakenly gets the message will have read it before they read the privacy statement. For this reason, some question their real value, but most feel that having such statements are worthwhile. There is also some suggestion that you should only put privacy statements on messages that contain sensitive information as putting them on every message could lessen their credibility.

E-mail encryption

Theoretically, e-mails are easy to intercept, and as they are usually sent in an unencrypted format, they could be read by anyone who intercepts them. Practically speaking, intercepting an e-mail message is very difficult in most circumstances. The use of encryption software is not mandatory for all e-mail communications. However, the risk of interceptions and the options to encrypt messages should be discussed with any client you intend to e-mail. When information is extraordinarily sensitive, a lawyer should use, and advise the client to use, encryption software to help maintain confidentiality.

Unfortunately there are no universal standards for encryption of e-mail messages. Some e-mail programs can encrypt messages; as well, there are many different third party e-mail encryption programs. Verisign (www.verisign.com) and PGP Personal 8.0 (www.pgp.com) are among the more widely used. Others include FileAssurity (www.articsoft.com), SecExMail Personal (www.bytefusion.com), and CenturionMail 2.0 which integrates with Outlook (www.centurionsoft.com).

Web-based ZipLip (www.ziplip.com) and Hushmail (www.hushmail.com) offer on-the-fly message and file encryption. Both allow replies to be encrypted.
Dangers of e-mail

Don’t be fooled by phishing

Did you know that e-mails appearing to come from companies you trust may actually be from criminals trying to steal your money or identity? So-called ‘phishing’ e-mails have quickly become one of the most devastating scams on the Internet.

Phishing scams use spoofed (faked or hoax) e-mails and Web sites to trick you into providing your personal and financial information. By using the trusted brands and logos of online retailers, banks, or credit card companies, phishing scammers trick surprising numbers of people. The phishing e-mail directs users to visit a Web site where they are asked to update personal information, such as passwords, and credit card, social insurance and bank account numbers.

Legitimate companies will not ask you to update your personal information via an e-mail message. Don’t get tricked by phishing scams.

Spam filters

On a daily basis you undoubtedly receive unsolicited commercial e-mail, commonly know as spam. To combat spam, many firms use spam filters, which detect unsolicited and unwanted e-mail, and prevent those messages from getting into a user’s inbox. Like other types of filtering programs, spam filters use various criteria to identify spam messages. Simple filters will watch for particular words in the subject line or sender’s name, while more sophisticated filters attempt to identify spam through suspicious word patterns or word frequency. Anti-spam products also use blacklists which intercept messages from recognized spammers; and whitelists which let through messages only if they come from your personal list of recognized e-mail addresses.

Given that a significant proportion of spam messages also contain viruses or other malware, spam filters can also help protect your systems, and may prevent phishing scams from getting through.
While spam filters can significantly reduce the amount of spam you receive, they are not perfect. They will sometimes let spam through, and will sometimes block legitimate messages (these are called false positives). If you are using anti-spam software, you should scan blocked messages to ensure an important message wasn’t missed. You also need to consider whether messages you send to others were intercepted by anti-spam software.

Anti-spam software can be installed on e-mail servers and/or on desktop computers. Some e-mail programs include anti-spam features. Popular third-party anti-spam products include Norton’s antivirus software which includes anti-spam functionality (www.norton.com), SpamNet from Cloudmark (www.cloudmark.com), and Postini (www.postini.com).

E-mail savvy staff can help stop infections

Teaching your staff to avoid dangerous activities can also help reduce your exposure to potential infections. Employees should be taught to take great care in opening e-mail attachments, and not to open attachments that they are not expecting. Even if the message is from someone they know, they should not open it because it is easy to fake or spoof the sender’s name. They should also be taught to take extreme care in downloading and running programs on their computers. Implementing a “no downloads rule” is the best protection.
Are you unwittingly sending confidential information to clients or opposing counsel? If you have e-mailed a Microsoft Word or Corel WordPerfect document to either, the answer to this question is likely yes. When you create and edit your Word or WordPerfect documents, information about you and the edits you make is automatically created and hidden within the document file. This information is called metadata. Metadata can be simply described as “data about data.” Think of it as a hidden level of extra information that is automatically created and embedded in a computer file.

On its Web site, Microsoft indicates that the following metadata may be stored in documents created in all versions of Word, Excel and PowerPoint:

- your name and initials (or those of the person who created the file)
- your firm or organization name
- the name of your computer
- the name of the local hard drive or network server where you saved the document
- the name and type of the printer you printed the document on
- other file properties and summary information (see below)
- non-visible portions of embedded OLE objects
- the names of previous document authors
- document revisions, including deleted text that is no longer visible on the screen
- document versions
- information about any template used to create the file
- hidden text, and
- comments.

Similar (although less) metadata exists within WordPerfect files, and metadata data security issues affect the documents created in most other software programs.
While some metadata can easily be viewed within the program that has created a file, in most circumstances hidden metadata can only be seen with special software. However, hidden metadata can become visible accidentally – for example, when WordPerfect opens and improperly converts a Word file, or when a corrupted file is opened. In these instances, both of which are quite possible in a law office, the normally visible text and hidden metadata can appear on a computer screen.

The problem with metadata, especially for lawyers, arises when people electronically share files as an attachment via e-mail, on a floppy disk or CD-ROM, over a network, or through an extranet. Electronic document files include both the information you see on the screen, and all the metadata you don’t see. This metadata can often be sensitive or confidential information, and can be potentially damaging or embarrassing if seen by the wrong eyes.

**Metadata in Word**

How can you view metadata in one of your Word documents? (WordPerfect users should jump ahead to “Metadata in WordPerfect,” on page 25.) Find and open a letter or agreement that you recently e-mailed to a client or opposing counsel. Click on File, then Properties. This opens the Properties dialog box which contains a variety of summary type information about the file.

On the General tab you can see on which hard drive the document was stored, and the time and date it was created, last modified and viewed. On the Summary tab you can see the name of the author, your firm name, as well as the name of the template that was used to create the document.

The Statistics tab contains information about the size and structure of the document, including the Total editing time in minutes. This statistic is really the total amount of time the file was open on a computer, regardless of whether someone was editing it or not. What if a client saw this information, and the time indicated was significantly less than the amount of time you docketed for working on this document? This discrepancy could be completely justifiable, but you could find yourself explaining it to an upset client.
Metadata in WordPerfect

In WordPerfect you can see the basic file summary type of metadata you see in Microsoft Office documents by selecting File, then Properties.

WordPerfect also has a feature called Undo/Redo History. It can allow you to view hundreds of past changes in terms of what text was cut, copied and even deleted from the document. Open a WordPerfect document. Click on Edit, then Undo/Redo. This opens the Undo/Redo History dialog box which lists past changes to that document, assuming Undo/Redo is turned on. Click on the Options button, and then uncheck Save Undo/Redo items with document to turn it off. Look at some of your WordPerfect files to see if you can view summary metadata or the Undo/Redo History.

The danger of using existing documents as precedents

In many instances lawyers will adapt a document they created for a previous client. This makes perfect sense from an efficiency point of view. However, the text deleted from the original document can remain within the revised document. What would happen if your client sees confidential information about the client for whom the document was originally created, or if opposing counsel saw changes that were made in an agreement at the drafting or client review stage?

How do you remove metadata?

Being aware of metadata is just the start. You should also reduce or eliminate the metadata in your documents. Sending a fax or paper copy by regular mail would solve the problem, but will likely not be an option in many circumstances. If you want your client to review and edit a document, sending it electronically is the only practical option. In many cases, clients, opposing counsel and even the courts expect to receive documents electronically. There are a number of options to reduce or eliminate metadata from your documents.
Word, PowerPoint and Excel users should turn off the Fast Saves feature. To do this click on **Tools**, then **Options**, then the **Save** tab, and uncheck **Allow fast saves**. In older versions of Microsoft Office products it will be turned on by default. This feature lets a computer more quickly save a file by not removing deleted text.

If you use features such as tracked changes, document versions or comments, make sure you delete the information that is being kept within the document with these features.

Office XP includes some new features to help reduce the accidental disclosure of metadata. Even more features are included in Word 2003 and the other Office 2003 applications. They now include a Security tab in the Options dialog box (select **Tools**, then **Options** to view this tab). You can specify that some metadata not be saved in a document in this dialog box. The Information Rights Management feature in Office 2003 can also be used to reduce paper trail types of metadata being stored within documents.

Converting files to PDF format with Adobe Acrobat or other PDF creators will usually strip out most metadata. For this reason, many firms have adopted a practice of sending only locked PDF documents to clients or opposing counsel, especially if the recipient doesn’t need to edit the document.

While converting a file to PDF format will help strip out metadata from the original document, remember that PDF files can also contain their own metadata. Select **File**, then **Document Properties** to view the summary metadata information within a PDF file. In this same dialog box you can add further restrictions on how the document can be accessed, used, copied and printed in the **Security Options** settings.

If you want the recipient to edit the document, send it in its native format, but without metadata. Several programs can help identify and clean metadata from your documents.

Microsoft’s Remove Hidden Data Add-In permanently removes hidden and collaboration data, such as change tracking and comments, from Word, Excel, and PowerPoint files in Office XP and Office 2003 only.
For Word, Excel and PowerPoint documents, one of the most widely used metadata scrubbers is the Metadata Assistant, sold by Payne Consulting Group (www.payneconsulting.com) for US$79. Other metadata removal programs for the Microsoft suite of products include: Out-of-Sight (www.softwise.net); ezClean (www.kkl.com); Workshare Protect (www.workshare.net); and iScrub (www.esqinc.com), which integrates with Microsoft Outlook and will prompt a user to clean an outgoing attachment.

Unfortunately there is no software program that easily and automatically removes metadata from WordPerfect documents.

For more information on metadata, see the following resources:

- Word, Excel and PowerPoint users should visit the Microsoft support page at http://support.microsoft.com/. For more detailed information on removing metadata from Word 97, 2000 or 2002, see respectively, Knowledge Base articles 223790, 237361 or 290945.
- WordPerfect users should visit the Corel knowledge base at http://support.corel.com/ and search for “minimizing metadata.”
Gone are the days when you had to worry about only one copy of each document, which you could easily secure by keeping it locked up in a file cabinet. Today, client data exists in electronic form in many different places inside and outside your office. You need to know where that data exists, who can access it, and what steps should be taken to secure and protect it.

**Access to servers, routers and phone switches**

Protecting your server and other key telecommunications equipment such as routers and phone switches starts with physical security. Intruders who have physical access to a server can get direct access to files and data on the server’s hard drives, enabling them to extract usernames and passwords of every user on the system, destroy data, or give themselves a backdoor for accessing the server remotely. Even curious employees who want to change settings can unintentionally cause serious problems. Lock up your servers and other key telecommunications equipment to protect them from unauthorized access.

**Access to individual computers**

To protect information on them and on the network, every computer in a law office should be configured to require a password at startup. Without this password, it is more difficult to access the data on the hard drive. Although all versions of Windows accommodate this requirement, Windows 98 users should note that a login password will not protect data on a computer, as simply pressing the Esc key will bypass the login and give you full access to the hard drive.
Put a password on your screensaver

Activating a password-protected screensaver is a simple and very effective way to prevent an unauthorized user from rifling through the files of a computer that’s been inadvertently left logged on. All versions of Windows include password-protected screensavers.

To activate this feature, click on Start and select Settings to open the Control Panel. Click on the Display icon, and select the Screensaver tab. Check the Password protected checkbox, enter a password, and set a Wait time that is appropriate for you. This is the amount of time the computer will wait after keyboard activity ceases before starting the screensaver. Once started, you require the password to exit the screensaver.

Access across a network

Anyone who has worked on a computer network will recognize that they have the ability to access computer files on another computer in the office, usually a central server. How does this work? The hard drive on a server contains various computer files and folders. To be seen and accessed across a network, folders and files on the server must be configured to be shared. To control access to files or folders (and all the files in them), the level of sharing and access can be limited, by either individual users or groups of users. Files and folders that are not shared can’t be seen or accessed across a network. For example, you might give litigation staff read-only access to the folder with firm precedents so they can access them, but can’t change them. You might limit access to folders with payroll information to your bookkeeper and managing partner. Client work product would go in a folder to which all staff had access.

The configuration of servers and networks will vary from office to office. Take time to understand what information is stored on your servers, and who has access to that information. Configure your network shares and access rights so that access to sensitive information is limited or prevented. Remember
that privacy legislation requires that you limit access to some types of personal information on a need-to-know basis.

Your desktop or laptop computer can act like a server in some cases, and content on your hard drive could be accessed by someone across a network, or from the Internet. To prevent this from happening you need to make sure that File and Printer Sharing is turned off on your computer.

**Encryption of sensitive files**

Many software products, including Word and WordPerfect, contain a feature that will let you password protect documents. Although this feature may prevent casual users from accessing password-protected documents, this type of password protection is easily circumvented. For files that contain extremely sensitive information, you may consider encryption. Encryption tools act as ciphers, converting information into secret code that can only be accessed with a password.

Windows 2000, NT, and XP have built-in functionality for encrypting files, but only on NTFS formatted hard drives. This offers some protection, although some software tools can decode NTFS-encrypted hard drives. Other file encryption products that are more effective than NTFS are listed in the next section.

**Data on laptops and other portable devices**

Laptops and personal data assistants (PDAs) contain large amounts of confidential client and personal information: They are also easily lost or stolen. As a first line of defence you can enable the built-in password protection on these devices. Although this should protect the data on them from the average thief, someone with specialized knowledge can bypass these built-in password-protection features.
For an extra level of security for laptops, consider using: PGP Personal 8.0 (www.pgp.com), PointSec for PC (www.pointsec.com); SafeGuard Easy (www.safeguardeasy.com); or SecureDoc (www.winmagic.com).

To encrypt the data on PDAs, the most widely used products include: PDADefense (www.pdadefense.com); PDASecure (www.trustdigital.com); PointSec for Palm (www.pointsec.com); SafeGuard PDA (www.safeeguardeasy.com); or TealLock Corporate (www.tealpoint.com).

Never leave your laptop unattended in a public place. To be less of a target for theft, use a briefcase or bag that does not look like a standard laptop bag. Inexpensive cable locks from Targus (www.targus.com) and others may deter the casual thief, but are no obstacle for a determined thief with cable cutters.

**E-mail encryption**

E-mail messages carry confidential information outside your office and can, at least in theory, be intercepted. Encryption can prevent intercepted e-mail messages from being read, and is reviewed in more detail on page 20.

**Deleted doesn’t mean deleted**

It’s a misconception that deleted files are gone for good. In fact, deleted files are easy to recover using widely available forensic recovery tools. Even reformatting or repartitioning a hard drive will not completely destroy all the data on it.

This is an issue if you are sending your computer equipment outside the office for repair, or donating your computers to charity or a local school where a classroom of technology savvy students will be itching to recover your data.
To address this issue, you can use specialized software that will “scrub” all data from a hard drive so that it is not recoverable. WipeDrive (www.accessdata.com) is a widely used scrubber. Eraser 5.7 (www.heidi.ie), is a free download and is also a good scrubber. Physically destroying a hard drive with a hammer is the free and low-tech option.

Because the same forensic technology can also restore deleted files on floppy disks, you should always use new floppies when sending data outside your firm.

Remote access

Although a bonus for lawyers who want to work and access data when not in the office, remote access creates opportunities for breaches of confidentiality.

Virtual private networks or VPNs can make remote access more secure. A VPN is a network connection constructed by connecting computers together over the Internet and encrypting their communications so that intercepted data is incomprehensible. VPN's are secure and fast, but are expensive and hard to configure. Windows Terminal Server, which is free with Windows, will allow remote connections, is easy to set up, but is slower and less secure than a VPN.

Accessing your e-mail or network from a public computer

If you rely on Internet cafés, library terminals, or other public computers, be aware that you are likely leaving behind passwords, your surfing history, data in temporary files, cookies and other personal information at each machine you use. Products such as P.I. Protector Mobility Suite 2.0 (www.imaginelan.com) protect against this. The program, which you install on a USB flashdrive or other portable device, creates a portable identity on that device, including your e-mail data. The Protector program then accesses the Internet through the flashdrive or other device, and stores all sensitive information on it. As a result, you can use public computers without leaving a trace.
**Be aware of data theft with thumbdrives**

Tiny, high-capacity USB drives or thumbdrives have become the new floppies. A combination of three things makes them a security concern: (1) they are very easy to use, (2) they are compact, lightweight and ultra-portable, and (3) they can store huge amounts of information. They are, in other words, the perfect tool for a disgruntled or soon-to-be ex-employee who plans to easily and quickly steal firm data.

How do you protect yourself? Make sure you have appropriate security and access rights to the confidential client and firm information on your firm’s computers and servers. Auditing file access may help you spot someone who is accessing information they should not. Consider disabling USB ports on all firm computers. Lastly, take extra care with employees who may be leaving the firm. (See page 48)

**Off site storage**

Storing electronic data with a third party raises a number of obligations to safeguard client property and confidentiality. These concerns also apply to data that is being backed up over the Web, or to matter documents that are being stored on a Web site for collaboration purposes.

Contracts with any third party who is in possession of confidential client information should deal with the various relevant securities issues, including having specific provisions that require all information is properly stored and secured to prevent inappropriate access. This can and should include password-controlled access and encryption of the information. In addition, antivirus software should be used. The third party should also indicate how the facility is prepared for a disaster, that adequate backup systems are in place, and what their contingency plans are if emergencies or disasters make the vendor’s primary facility unavailable. These measures ensure that your clients’ information is protected, and that you will have access to it when needed.
List serves and chat rooms

Through list serves, chat rooms and other virtual electronic communities, the Internet has created new ways to meet and mingle with others, including potential clients.

List serves, sometimes called e-mail lists, let you interact with dozens, hundreds or even thousands of other people. List serves are really nothing more than a group of people with the same address. You reach everyone on a list by sending an e-mail message to a specific e-mail address. List serve software operates by receiving this message, and then automatically sending it to everyone on the list. All replies are automatically sent to the entire list. In effect, this allows a large group conversation via e-mail.

Chat rooms are also called “online forums.” Chat rooms are simply a page on a Web site or online service where people can “chat” with each other by typing messages on their computer. These messages are displayed almost instantly on the screens of others who are in that same “chat room.” When you’re in a chat room you can view all of the conversations taking place at once on your screen.

Saying something in a message posted to a list serve or in a chat room conversation is the same as blurting something in an elevator or at a meeting. All obligations of confidentiality still apply. Be aware of this and don’t disclose confidential information on a list serve or in a chat room.
Wireless connectivity is seductive, cool and offers endless exciting possibilities. You’re no longer tied to your desk. You can take your laptop to a meeting down the hall and access local servers and the Web. At home or the office, you can easily connect multiple computers and printers, without running cables through walls and ceilings. You can stay connected in many public places, including coffee shops, restaurants, hotels, conference centers, and airport terminals. This is all possible because cheap, easy-to-use wireless technology has hit the mainstream.

Before you jump on the wireless bandwagon (and even if you already are a wireless user), you need to know that wireless is fraught with serious security issues. Installing a wireless device is like leaving the front door of your home or office open and unlocked. Anyone who can pick up your wireless signal could potentially access your Internet connection or data. Use wireless with caution, and only after you enable all possible security features on your wireless devices.

**Why is wireless a security nightmare?**

On the hardware side, wireless networking starts at a wireless access point or AP. The AP plugs into your wired network and has an antenna which broadcasts data via radio waves. These radio waves are transmitted to a receiver in a wireless network interface card (NIC) in your laptop or desktop computer, which in turn lets your computer communicate with the network without physically being plugged into it.

To make wireless products easy to use, they are generally shipped with all security features turned off. Although this makes installation a dream, it creates a security nightmare because it potentially allows anyone to connect to your network. So they are easy to locate and connect to, APs broadcast a service set identifier or SSID. This SSID is the name of your wireless network. The radio signal from your AP will radiate in a sphere 20 to 35 metres or more in diameter. Wireless-enabled laptops can scan their surroundings for SSIDs. Someone sitting in a car across from your home or office could easily...
find and connect to your network. Hackers known as “wardrivers” actually cruise around looking for networks they can hack into.

Under older standards (802.11a, 802.11b and 802.11g), wireless device communications are not very secure. They allow easy interception of passwords and other information. A new standard, 802.11i, offers much stronger security, and devices compatible with it are now available.

For security reasons, many law firms will not install an AP on their networks. Firms that are installing wireless networks are using products such as the Aironet Series from CISCO. Although these products have more security features than the widely available consumer brand wireless products, they are much more expensive.

Wireless technologies will become even more common. If you are going to install a wireless network, make sure you get the newest wireless technology and enable all possible security features. Some generic directions for enabling security features on APs are available on our Web site at: www.practicepro.ca/securitybooklet.
Your Internet browser is one of the more dangerous tools in your office. Even casual surfing on the Web can expose you to viruses and worms, and divulge personal data. You and your staff need to know how to safely surf the Web, and how to configure your browser so that surfing is less dangerous. This involves disabling some browser features, controlling which cookies can be stored on your computer, and preventing pop-ups.

**Locking down Internet Explorer**

Malware programs can automatically install themselves while you are browsing or surfing on the Internet. These are called *drive-by downloads*. This can occur when Web sites run *scripts* (small bodies of code designed to perform a specific action) or *ActiveX Controls* (a module of code that adds extended functionality to the browser). You need to configure your browser so that it will warn you when this is happening, and stop it from happening, if necessary.

To do this for Internet Explorer versions 5.0 and later, click on **Tools**, then select **Internet Options**. Next, select the **Security** tab. Click on the **Internet** icon (the globe), and then click on the **Default Level** button to remove any custom settings.

Next, click the **Custom Level** button. This will open the **Securities Settings** dialog box. In the **ActiveX Controls And Plug-Ins** section of that box (at the top), configure the following settings as noted:

- Download Signed ActiveX Controls: Prompt
- Download Unsigned ActiveX Controls: Disable
- Initialize and Script ActiveX Controls Not Marked as Safe: Disable
- Run ActiveX Controls and Plug-Ins: Prompt
- Run ActiveX Controls Marked Safe for Scripting: Prompt

To save your changes, click **OK**, answer **Yes** to the **Are you sure you want to change the settings for this zone** questions, then click **Apply**, and **OK**.
After making these changes, whenever a Web site attempts to run a script or ActiveX Control, you will receive a prompt asking whether you want to allow that script or control to run. Click Yes if the message appears while you are visiting a reputable site. Click No if it appears when you are visiting an unfamiliar site.

**Don’t get eaten by the cookie monster**

Spyware often works with the assistance of a cookie. Cookies are small files that provide a Web browser with information about a user such as identity information or preferences for visits to a particular site. One example would be your language preferences.

To protect yourself, you want to limit the types of cookies that can be stored on your computer. To do this, click on Tools, select Internet Options, and click the Privacy tab. By dragging the slider up or down, you can choose from six different levels of security, ranging from accepting all cookies, to total blockage of cookies, or various levels in between. To be safe, your setting should be at least Medium. This will protect you from third party cookies, which are the malicious type. Medium High or High settings provide greater protection, but may prevent some Web sites from running properly. To save your changes, click Apply, and then OK.

**Preventing pop-ups**

Pop-ups are the annoying windows that appear in separate browser windows while you are surfing the Web. Not only are they annoying, but they can also expose you to various types of malware. There are several software products that will intercept them and prevent them from loading. Pop-up Stopper (www.panicware.com) is very popular. Also widely used are the Google Toolbar (http://toolbar.google.com) and ZoneAlarm (www.zonealarm.com), which both include functionality for preventing pop-ups.

safely surf the Web
Instant Messaging can be insidious

At home and work, especially among younger people, instant messaging (IM) has become a popular form of online communication. IM is faster than e-mail and lets you communicate across the Internet with many people in real time. Although the features vary, at the core, most IM software products have two boxes for text in their main window. One box shows a running list of all comments from all participants in the conversation, the other box allows you to type your message. On pressing Enter, your message immediately jumps into the other box and goes out over the Web. IM products have little or no encryption or security, so IM statements are public and can expose your office to embarrassment. As well, IM makes it very easy to download or share files across the Web, and thus opens the doors for viruses, worms and other malicious code.

Many IM services are available for free on the Internet, including AOL Instant Messenger (AIM) (www.aim.com), ICQ (www.icq.com), and MSN Messenger (http://messenger.msn.ca). They are easily downloaded and installed, and they may already be running on your system.

IM can have a useful business purpose, but at present, it is usually used for personal conversations by office staff, often without permission. When using IM, it actually looks like staff are working hard on their computers. Most law offices will want to prohibit the use of IM in their technology use policy. (See page 43)

If IM is used in your office, be aware of it, and use antivirus, anti-spyware or firewalls to protect yourself from IM-related dangers. For further protection you should configure IM to hide personal information, turn off file sharing and receiving, and prevent downloads.
Disable messenger service

You can block pop-up spam messages in Windows NT, 2000, or XP by disabling the Windows Messenger service (this is unrelated to the MSN Messenger instant messaging program). Open the Control Panel, then click on Administrative Tools, and select Services. One of the running services will be Messenger. Right-click on it and select Properties. Set Start-up Type to Disabled, and press the Stop button.
Changing the default values for hardware and software on your systems is another critical step in safeguarding the security of your data. This is the most technical of the thirteen steps outlined in this booklet.

Every computer program and every piece of hardware has certain preset or default settings. These are necessary to make them operate out of the box. However, default settings are common knowledge, and hackers can use them to compromise a computer or network. You can make your systems much safer by changing the following key default settings:

- Administrator account name
- Domain name
- Workgroup name
- Outlook Web Access port

In the Windows world, the default administrator ID is administrator. Change the default name to something others won’t know. Fortunately with the advent of Windows 2000 Server, there is no longer a default domain name. In Windows NT 4 Server, the default domain name is domain.

However, Microsoft has still held on to defining default workgroup names. The default workgroup name can be WORKGROUP or you may see MSHOME as the default. Workgroups are used to connect computers in a peer-to-peer environment. Change the default workgroup name to something less well-known, especially if you are in a shared office location and connected to other computers. All computers must have the same workgroup name to see each other and share files or resources.

To change or specify the workgroup for Windows XP, go to Control Panel and click on System. If you don’t see System, then select Performance and Maintenance and then select System. Click on the Computer Name tab, and then click Change. Enter the desired workgroup name. Remember that this has to be done on all computers in your peer-to-peer network.

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1 Adapted, with permission, from Security for Small and Mid-size Law Firms by Sharon D. Nelson, Esq. and John W. Simek, an article posted on Sensei Enterprises, Inc. Web site (www.senseient.com).
To change the workgroup in Windows 2000, go to Control Panel, and click on System. Click the Network Identification tab, and then select Properties. Enter the desired workgroup name in the workgroup box.

For Windows ME or 98, go to the Control Panel and then select the Network icon. Click on the Identification tab, and enter the desired name in the workgroup box.

If you are running an Exchange server or have installed Microsoft’s Small Business Server, a few default values should be changed. Exchange allows remote access to a user’s mailbox via a Web browser. Outlook Web Access (OWA) uses the default port 80, like most Web sites. This means that you have to allow port 80 to pass through your firewall to access your e-mail on the Exchange server. Unfortunately, port 80 is one of the most exploited ports by viruses and worms. The default port for OWA is the same as the default Web site on your Windows server. From the server, go to the Administrator Tools, and select the Internet Services Manager. Right click on the Default Web site, and select Properties. Change the TCP Port value to a value other than 80, and one that’s easy for your employees to remember. The last four digits of a phone number is a good choice. Your firewall will have to be changed to allow the port that you configured for OWA. Assuming that you changed the port number to 9902, you access your e-mail by entering a URL in your browser that would be something like: http://mail.yourdomain.com:9902/exchange.
E-mail and the Internet have helped increase productivity in many law firms. But, as outlined in this booklet, they also expose a firm to significant risks. To address these risks, firms should: educate all lawyers and staff; and create a written policy that clearly establishes guidelines and minimum requirements governing the acceptable use of all firm technology resources.

A technology use policy should use simple and non-technical language that all employees can understand. It should be reviewed with new employees, and strictly enforced.

Every technology use policy should cover some basics. It should clearly state that technology resources provided by the firm, including Internet and e-mail access, are to be used for legitimate firm activities. Staff should understand that they have an obligation to use their resources properly and appropriately.

Technology use policies should also direct firm staff to ensure that confidentiality of firm and client information is protected at all times, that there is compliance with network system security mechanisms, and that resources are not used in a manner that would negatively affect others on the system.

Firms deal with personal use in different ways. Some firms allow occasional, reasonable use of Internet and e-mail resources, either on personal time, or even on company time. Other firms do not allow any personal use of these online resources.

Technology use policies should also indicate that the firm retains the right to monitor any and all electronic communications and use of the Internet to ensure the integrity of the firm’s systems and compliance with the firm’s technology use policy. As well, the policy should indicate that there may be sanctions for failure to comply.
The Law Society of British Columbia has a sample Internet and e-mail use policy for law firms on its Web site at www.lawsociety.bc.ca/services/Practice/body_practice_policy-internet.html.

**Family computers are dangerous**

Teenagers are more likely to engage in all the most dangerous activities, including using IM, downloading programs, and file sharing. If you use a compromised computer to log into your office, you can bypass the firewall and other security mechanisms and cause a security breach. Take the steps outlined in this booklet to protect your home computer. To be absolutely safe, avoid using a home computer for work purposes if it is used by others.

Another alternative is to have two partitions on your home computer. This essentially means there are two complete sets of software on the computer, one which only you would use, and one which others in the house would use.
Computers and other legal technologies have become critical to practising law. Every law firm has huge amounts of irreplaceable data on server and/or desktop hard drives. The most critical part of any disaster recovery plan is backing up the data on your firm’s computers. A backup will allow you to recover when hard drives are infected by malware, if they are lost or damaged (due to theft or fire), or when they fail. Computer hard drives are complex pieces of electronic hardware that are subject to failure, and most ultimately will fail if they are used long enough.

To ensure you have a complete and reliable backup, follow these steps:

- **Do a full backup**: Full backups are better than partial backups. Having everything that was on your hard drive is better than finding out you need a critical file that wasn’t backed up.

- **Do backups daily**: Modern backup hardware is able to do complete backups of large hard drives within hours. Backups can be set to run automatically, usually in the middle of the night. Doing a daily backup ensures you are as up-to-date as possible. It will have all of your work and data up until the end of the previous day.

- **Identify responsible person(s) and alternatives**: Doing the backup should be a mandatory responsibility that is assigned to a specific individual, and an alternate individual. You want to ensure that a backup is done every day, without fail.

- **Review the backup log**: Most backup software programs create a log report when a backup is completed. This report details what was backed up, and if there were any problems.

- **Do regular test restores**: Periodically, the backup log will report a successful backup when some or all of the data to be backed up was missed. The only way to truly test your backup is to regularly do a test restore of selected files and folders.
Identify an offsite storage location: Tapes left on top of your server in your office could be destroyed or taken along with your server if there is a fire or theft. Don’t keep all your eggs in one basket. You should store at least some or your backup tapes in one or more safe off-site locations.

Rotate and keep generations of tapes: Don’t use the same tape over and over; rotate your backup tapes. For example, use a series of five tapes, one for each night of the week. This can be helpful when database corruption is detected after it occurred. Having an older backup will allow you to reach back to an earlier date. Some firms keep end of week, end of month or end of year backups.

Replace tapes regularly: Backup tapes degrade over time and with use. Replace them every six months. When tapes get to the end of their life, rotate them out as end-of-month tape etc.

Don’t forget data on other devices: Server backups usually are configured to only backup data on servers. Make sure that data on desktop computers, laptops and PDAs (Personal Digital Assistants) get backed up as well. Also, have staff back up the phone numbers stored in their cell phones.

Make sure open files are being backed up: Some backup software will not back up files that are in use or “open” by other programs. Central accounting systems, e-mail and other database files often remain open 24 hours a day. Make sure that your backup is getting all open files.

Create written instructions for restoring: Many offices have one or two people who know how to do a backup, but none who know how to restore backed up data. Create written instructions and train several people to do this task.
Find a hardware backup buddy: If your backup server and tape unit are destroyed or stolen, you could find yourself with a good backup tape and no compatible tape unit to do a restore. Ideally find someone who has a server and tape unit that is identical to yours.

A full or partial backup from last week is better than no backup at all. If you are not doing full, regular backups, at least back up some of your most important files. It is easy to copy files onto a CD or some type of removable storage device. For a few hundred dollars you can purchase a small portable external hard drive with a very large storage capacity. Maxtor, Seagate and Western Digital are all reputable hard drive manufacturers. These are easy to plug into your computer via a USB port, and you can make a copy of all the data on a hard drive in a few hours or less. Some come with software that will back up an entire hard drive with one push of a button.

If you don’t invest in any backup hardware, consider simply copying data to another computer on your network. This won’t help if your office burns down, but it will help if you have a hard drive failure.
Most of us tend to look outside our offices for threats or dangers. However, you should also be aware of potential inside dangers. Statistics show that the majority of incidents involving the destruction or loss of data were perpetrated by current, soon-to-be dismissed or recently dismissed employees. Few, if any, know more about your firm’s systems than your employees, and few, if any, are in a better position to cause major damage.

In particular, your IT staff, employees with advanced technology knowledge, and outside technology support people are potentially the greatest threat because they have the greatest knowledge about your system configurations, and the technical know-how to be very destructive.

When hiring a new employee, make sure you are diligent and carefully check their backgrounds and speak to references. Look for any red flags on an application letter or resume, and watch for issues during the interview process. Watch for someone that is withholding relevant information, or that has falsified information on the application. Assess the overall integrity and trustworthiness of the candidate.

When any employee leaves your firm, regardless of whether they are leaving of their own accord or are being terminated, ensure that your systems are protected. Promptly close all their points of access to your office and computer systems, including keys and access cards, login accounts and passwords, e-mail accounts or remote access. If you discharge an employee who has access to critical company data, let them go without notice, and don’t allow them any access to a computer.

There are literally dozens of steps you should complete systematically to make sure all points of access for departed employees are closed down. A detailed departure checklist is available on the practicePRO Web site at www.practicepro.ca/securitybooklet.
LAWPRO encourages you to proactively protect the security and privacy of the electronic information in your offices – not only to comply with the Rules of Professional Conduct and privacy legislation, but also to safeguard the viability and integrity of your practice.

A failure to protect the electronic data in your office could have disastrous consequences. This could include an embarrassing release of sensitive information, a malpractice claim, a complaint to the Law Society, or the theft of your personal or firm identity. At the very least, the theft, loss, or destruction of client- or practice-related data will be disruptive to both you and your practice. In the extreme case, it could cause your practice to fail.

Take time to understand where the risks are. Implement office management practices and appropriate technology to ensure all your data remains confidential and secure.

Carefully review and implement the suggestions and steps outlined in this booklet. Seek outside, knowledgeable help if necessary. It is relatively easy and inexpensive to protect yourself from the common threats. Acting now to protect yourself from the most common threats could help you avoid having to spend time and money dealing with security compromises.

Appendix 1 lists other resources that can help you secure the electronic data in your office.
Other resources

**Web sites:**

PC Magazine Security Watch page – [www.pcmag.com/security](http://www.pcmag.com/security)
Various articles on security issues, and reviews of security related technology products.

An easy to use listing of current virus threats and hoaxes.

Symantec Home Page – [www.symantec.com](http://www.symantec.com)
Current information on the latest threats, list of known viruses, and information on how to repair and clean infected computers.

Consumer Web Watch – [www.consumerwebwatch.org](http://www.consumerwebwatch.org)
A good page from Consumer Reports people for current news and information about Web-related security issues.

eBay Security and Resolution Centre – [http://pages.ebay.ca/securitycentre/](http://pages.ebay.ca/securitycentre/)
Helpful information on avoiding online auction fraud and identity theft.

Senseient Publications Page – [www.senseient.com](http://www.senseient.com)
See the Publications Page for detailed articles on variety of law firm related security and forensics issues.

Test the strength of your passwords, and get suggestions on how to make them stronger.

practicePRO article on steps to take to troubleshoot computer problems.

LSUC Practice Management Guidelines – [www.lsuc.on.ca/services/pmg_tech.jsp](http://www.lsuc.on.ca/services/pmg_tech.jsp)
Guidelines to assist lawyers in conducting various aspects of legal work, including management of files and client information.
ABA's Law Practice Management Webzine – www.lawpracticetoday.org
General articles on legal technology and other LPM issues.

Information on complying with PIPEDA.

**Magazines**

Smart Computing Magazine – www.smartcomputing.com
Great magazine for basic information on all types of technology.

Law Office Computing Magazine – www.lawofficecomputing.com
Great magazine for legal technology articles and product reviews.

**Books**

**Computer Security for the Home and Small Office** by Thomas C. Greene.
Covers many of the topics covered in this booklet in more detail. 405 p.

**Information Security: A Legal, Business, and Technical Handbook** by
Kimberly Kiefer, Stephen Wu, Ben Wilson and Randy Sabett; 82p.
This book reviews security threats, includes information on security best practices
and how to respond to security incidents. It also has standards, guidelines and
best practices precedents.
other tools and resources from practicePRO

practicePRO provides lawyers with a variety of tools and resources, in both print and electronic formats, designed to help your practice grow and thrive.

The “managing” series of booklets
These booklets provide insights and checklists to help lawyers better manage the risk associated with specific practice issues. Titles include: managing the lawyer/client relationship; managing conflicts of interest; managing the practice of investing in clients; managing a mentoring relationship; managing practice interruptions, and managing the finances of your practice.

The Online COACHING CENTRE (OCC)
The OCC is an online, self-coaching tool, comprising more than 150 modules, to help lawyers become more productive and effective in their professional and personal lives. Topics covered include: communicating powerfully; managing stress; overcoming procrastination; managing practice more efficiently; developing new business opportunities; and capitalizing on emotional intelligence.

Technology resources
practicePRO helps lawyers integrate technology into their practices through a variety of technology resources and articles.

Wellness resources
The practicePRO Web site provides links to assessment tools, guides and resources to help lawyers address wellness and balance issues.

Special Reports
Special Report on Litigation explores the increase in litigation claims, the forces driving change in litigation practice and the types of errors that underlie litigation claims, and provides practice management tips to help reduce exposure to claims.

Special Report on Fraud (Updated in 2004) examines real estate fraud, which increasingly targets lawyers, and provides tips to help lawyers recognize fraudulent transactions and how to avoid being a victim of fraud.

For more information on how you can put practicePRO to work for your practice contact us at 416-596-4623 or 1-800- 410-1013 or see our Web site at www.practicepro.ca
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Legal Technology for Tough Times

A Comprehensive Approach

By Joseph Kashi, J.D., M.S. and David Bilinsky, BSc., LLb., MBA
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Legal Technology for Tough Times

**General Introduction**

When times get tough, the tough go looking for solutions. One solution to improve your profitability in tough times is to seek to lever your technology to work for you. Compared to other steps that you can take in your practice, your prudent investment in technology can produce large ROI’s. Accordingly, this session will explore the strategic application of technology to help you improve your profitability not only in the short term but in ways that ensure the longer-term success of your firm. We will focus on technologies that assist in the production of work product as well as technologies that assist in the ‘back office’ that traditionally are not given the same attention as the ‘front office’ or production side of the practice.

**PLANNING FOR YOUR DIGITAL LAW PRACTICE**

Suppose that you have taken a bit of time, thought about where you want your practice to go and as a result, totally overhauled how you practiced law and tried to be as efficient and effective as possible? What technology makes the most practical sense, how much should it cost, and how would you do it?

For an increasingly large number of lawyers, that’s not an abstract concept. Recent ABA studies show that the majority of all practicing lawyers are solo and small firm practitioners and that an increasing number of large firm lawyers are joining their ranks as tough economic times and major layoffs are bringing large firm expectations to small firm practice.

In the small firm context, the firm’s front line technical support person and system administrator is, more often than not, yourself, and the firm’s technology budget and the partners’s vacation plans are likely pulling in different directions. With that in mind, we’ll discuss what makes sense for the small firm revamping its technology. (You can supplement these general materials...
by accessing our more detailed articles on specific automation topics that will be posted by the Washington State Bar Association.)

**A General Business Model:**

We often get asked the question: “What is the best software and hardware for me to buy in my practice?” Invariably the person asking the question is looking for a quick answer to something that he/she regards as a fairly easy question. In reality, the practice (or rather the plan for the growth of the practice) drives the choice of software; and the software (and how someone chooses to practice) drives the choice of hardware. In this section we will look at the interplay between your computing resources and your business plan.

**1. Overview: Business Strategy of Low Volume/High Margin Work:**

Most small to medium sized law businesses would do well by following Michael Porter’s business strategy work at Harvard Business School by concentrating on low-volume, high-margin legal work. This movement to this type of higher-value ‘niche’ practice has been demonstrated to work particularly well in small to mid-size law firms and is particularly appropriate for “virtual law firms”. We’ve included a discussion of virtual law firms further down in these materials.

The temptation in this type of practice is to open up and take on more varied work (the ubiquitous ‘general practice’) – unfortunately this almost always works against all but the largest firms by diluting the strong business focus of the firm and results in lower-value work being performed. The firm also loses its market focus, since by being all things to all people; it is also seen as not having any competencies that distinguish it from the competition. Accordingly it would be a tactical objective to ensure that your systems positively reinforce the move towards existing high-value work done in the firm by making such work efficient and effective.

In light of your strategy, your financial systems should produce the financial reports, billings and management reports on a ‘real time basis’ that allow both management and individual lawyers to set financial and work targets and monitor their progress against their goals and the budget.
expectations of the firm.

Your accounting system should support the entire workflow cycle – from opening files, recording time, recording disbursements, calculating interest on outstanding and unbilled disbursements, handling the file, producing pre-bills, producing final bills and following up on accounts receivable and payables. Lawyers should be able to access trust and disbursement data ‘on the fly’. Lastly it should assist in budgeting for the firm, for setting both billable time and billable revenue targets for all lawyers and assist in tracking and reporting on the same. For example, in a personal injury practice, it is important that the amount of billable time put into a file does not exceed the approximate % fee value of the file – otherwise the firm is putting financial and personal resources into what are commonly known as ‘dog’ files.

Furthermore, it should also assist in the cataloguing of ‘knowledge management’ which in your case would be the assembly of excellent legal precedents, opinion, settlement briefs and the like to be shared among all the lawyers of the firm.

As a result, your technology should focus on supporting discrete, highly profitable practice areas and should not seek to support a wide range of commodity legal services (which are high-volume, low-margin work). In the longer term, your ‘technology spend’ should be concentrated in building discrete practice systems that support your niche practice(s) and improve on its effectiveness and efficiency, both from a practice standpoint as well as from a financial standpoint.

2.Foundation Issues:

In this part of the paper, we are starting right from basics and proceeding from there. Your firm may be much further advanced along these lines; if so, feel free to jump ahead to the next section unless you wish a quick overview of these issues.

First Priority: Your Network:

Although we discuss networking in much greater detail elsewhere in these materials, it’s worth reiterating here the importance of a solid local area network in even the smallest law office. This
may seem almost too basic, but the authors have seen good sized law firms operating without a centralized computer network - instead they use the Internet to transfer around files and documents between discrete lawyers and staff in the firm. Accordingly, we are starting right from the beginning and talking about the benefits of an office network.

There are a number of advantages to systematizing over an office network. For one, all your files can be saved onto a central server in a common file structure and backed up from there. This results in the office having resiliency against any singly hard-drive failure and resultant file and data loss on any single PC. Furthermore, they permit access to peripherals such as networked printers and scanners (important when considering moving to a paper-less office). In a law office environment, a LAN (local area network) allows case or practice management software to be installed to run across the network, providing centralized calendaring, To-do’s, file and contact management, call and time tracking, messaging and much more. Various practice management software packages are: Amicus Attorney, LawStream, Practice Master, Client Files, Time Matters, NEEDLES and the like. A LAN will also support a computerized accounting system integrated into the case or practice management software.

Few of the enabling technologies discussed below work very effectively if your office is not already networked. As a practical matter, wiring a law office with a highly capable local area network, whether based upon a simple peer to peer network or dependent upon a central file server, is an obvious necessity. Without networking, a law office cannot communicate effectively and without effective communication, a law office cannot operate efficiently.

Generally accessible data files such as case notes, prior word processing documents, contact and conflict of interest information, internal Email, and calendaring are about the most basic networking applications imaginable. These basic programs so greatly improve the cost and efficiency of routine intra-office communication that any office that has not already implemented such programs is basically just waiting around for the giant asteroid to hit and cause them to become selectively extinct.

To this short traditional list of networked applications, one should add a few more recent
developments, including imaging every document in every new case file with Adobe Acrobat, networking your time, billing and accounting data entry so that every attorney and staff member directly enters his or her own time, shared litigation analysis and database programs, and case management programs. None of these are very useful unless everyone directly contributes toward the data pool and works with the same data set. That can only be done on a network.

Given the ubiquity of Microsoft Office and the increasing interconnection between Microsoft Outlook and various third party legal application programs, a small office probably should choose Microsoft Outlook if you’re starting from scratch.

**Second Priority: Your Accounting System/Computerized Accounting System:**

The number of lawyers practicing using a pure paper-based accounting system is rapidly diminishing, being limited in our experience to solo lawyers and some smaller firms at this point. To repeat what should be obvious, there are many advantages to moving to a computerized accounting system and in particular, a specially developed legal accounting system that has full trust and general accounting features and which can integrate with the common case or practice management systems available to lawyers today. Notwithstanding these advantages, the authors have found many firms that simply want: ‘the cheapest accounting system they can get.’ With respect, we feel that this is penny wise and pound-foolish.

Most law firms (even personal injury ones) track billable time to determine a number of financial metrics that relate to the profitability of the firm. Even if the firm does not bill by time, tracking logged billable time is one determinant of effort being placed by lawyers. You can compare effort placed into the file with the results achieved and reflect on the overall success, client selection and overall financial goal achievement.

For example, every lawyer should have both a billable time expectation as well as a results (or revenue based) expectation, on at least a monthly and an annual basis. When you break it down by months, realize that in a litigation practice, months can vary. However, over the long-term, if
a lawyer is not achieving their revenue-goals, then they are not meeting their partnership or associate career expectations. This kind of information should be in the hands of management when determining not only partnership admission but also an associate career path and future in the firm.

It is almost impossible to provide any meaningful feedback on a lawyer’s effort and results without the financial metrics that track these indicators. Lastly, the financial health of a practice is dependent on meeting stated financial goals for the firm and for each person therein. Furthermore, any law practice needs access to real time financial and management reports, such as:

- accounts receivable (aged),
- accounts payable,
- WIP outstanding (aged), by lawyer and by file,
- trust account balances,
- outstanding payables,
- salaries and bonuses payable,
- cash in bank relative to accounts payable over the next 30 days,
- disbursements outstanding, by file and aged,
- and the like..

This kind of information is easily generated using a computerized accounting system. Without this kind of management information that helps set and determine progress towards daily, weekly, monthly and annual financial goals, a firm in our experience, would tend to exist solely on their overdraft on their general account as they are blown about by the winds of practice. This leaves a firm vulnerable to financial pressures, such as a sudden downturn in the success rate of a file or files.

Dealing with personal productivity, without a computerized accounting and time and billing system, individual lawyers will be hard-pressed to pull up individual financial reports on the fly. There would be almost no ability to check on their goals and numbers to ensure that they were...
‘on track’ with their financial progress (without having to bother the accounting department to generate an accounting report). This is certainly one aspect of performance management that is to be encouraged! Most, if not all, legal accounting packages are able to generate at least a minimum standard set of financial reports on the fly, given that the accounting data is regularly input into the system.

Without a computerized accounting system, lawyers and management would face these problems:

- Unable to obtain real-time listings of disbursements by category on a file (this would have to be generated by the accounting staff)
- Unable to download bank data directly from the bank website for reconciliations (this is a significant time saver at other firms)
- Unable to print trust balances by file (this would have to be generated by the bookkeeper or accounting staff based on the paper trust records)
- No centralized collection of time and billing data - in most cases with paper-based systems, lawyers must dive into paper chits or excel spreadsheets to determine their billable time on files)
- No automatic collection and posting of office disbursements to the file (such as with www.Copitrak.com).

Accordingly, your time and money spent on a good legal and accounting financial package is time and money well spent.

**Third Priority: Practice Support - Collaboration/Knowledge Management/Precedents**
In most firms, it is apparent that each lawyer has developed their own set of precedents. One of the financial “levers” of profitability is the ability to resell existing work product. There are a number of reasons why this is difficult to achieve in a law office; typically one cause is the compensation system in use in a firm does not reward the time spent on taking a specific document and reworking it into a more generalized precedent for reuse. Another factor is that firms are not generally organized to place documents in an organized structure on the network for reuse. A third is that the systems in place in the firm do not support sharing of documents and information.

Microsoft has developed a product called Sharepoint that provides users with an interface for users to collaborate on documents and office files/cases, build shared calendaring, discussion forums, Wikis (a online repository of information only open to members of the firm), blogs (if you wish) and more. The best thing is that once you have your Microsoft network up and running, you can install Windows SharePoint Services (WSS), currently at version 3.0, for free (the full version of Sharepoint Server is a purchasable product, but there is no need to start at that level).

There is a document library that is built into WSS that is particularly important for smaller firms: it incorporates versioning, required checkout (so that only one person can be making changes to a document at a time and such changes are tracked) and content approval (so that a precedent is not changed unbeknownst to anyone).

Furthermore, Microsoft is intending on using WSS as a building block for further functionality and as such, it is a good platform upon which to build a document repository.


There are reports now on the internet that law firms that have deployed Sharepoint services in their offices have seen their development of document precedents and collaboration on files soar.
Furthermore, younger lawyers benefit from the knowledge collection which results from the collaboration.

The top benefits that are attributed to Sharepoint include:

- A simple, familiar and consistent user experience. Sharepoint is integrated with the Microsoft family of products, so that the learning curve is flattened.
- It integrates a common workflow environment.
- It allows for the management and reuse of knowledge content for increased financial return.
- It allows an organization to gain wider access to both structured and unstructured information (that typically was only shared on a 1-1 personal level).
- It allows people to connect ‘who knows what’.
- It creates a single centralized source for the aggregation of precedents and other information.

Sharepoint can also be used to create collaborative spaces for clients and lawyers to work together. Clients these days are asking for greater involvement in their files; Sharepoint allows a firm to create separate collaborative spaces for clients to see the documents on their closing, to view the pleadings and evidence on their litigation file etc.

I would note that Sharepoint is not a document generation product; rather it is a collaboration product that allows for the hosting and organization of a document precedent system.

**Fourth Priority: Automatic Collection of in-office Disbursements:**

In a paper-based firm, staff would use paper sheets for recording of photocopies and the like. While this system works (so long as people follow the system for recording of the copies) there are more efficient and effective ways to proceed. For example, Copitrak: http://www.copitrak.com offers terminals for copiers, scanners etc that log copies against file.
numbers and can transmit this information directly to the accounting system. They also have systems that track phone calls, documents scanned, pages printed etc.
THE DIGITAL LAW OFFICE

Although the concept of the paperless law office has been around for many years, a more appropriate organizational metaphor is that of the electronically organized law office because the root causes of continuing lawyer inefficiency are fundamentally archaic attorney attitudes (e.g., that staff should do most clerical chores) and of court systems, and consequently legal organizations that continue to rely in fair part upon legacy paper records despite their attendant inefficiency and inflexibility. Moving to the next level of law office efficiency requires abandoning paper files as our basic organizational approach and instead embracing electronic documents as our primary or even sole files.

In a sense, making the transition to an electronic filing system is less difficult than you might imagine, given that Evidence Rules 1001(3) and 1003 already make explicit provisions for the use of printouts, electronic records, and duplicates and given the Congressional mandate that the federal government move toward an electronically-centered organizational approach. And, given that modern digital photocopiers are nothing more than a limited functionality combination of scanner, storage, and laser printer, there is no fundamental technological difference between a photocopied duplicate and a document that is scanned, stored on your hard disk in a locked format such as Adobe Acrobat, and later printed as needed.

Of course, you will need to retain original documents to the extent that might be necessary for recording, to prove your case under Evidence Rules 1002 and 1003, or for other similar reasons. You may need to show that any scanned documents have not been altered, something that is reasonably clear using an authenticated file format such as Acrobat PDF. However, beyond that point, there is little reason to rely upon a paper file as your primary office organizational paradigm. Indeed, there is little reason to retain much of the paper file at all.

At this point, I personally image any documents provided by the client and then return those documents immediately to the client. Similarly, rather than making photocopies of all materials
for a client, I image incoming materials, such as disclosures, and then send to the client the copies received from the opposing party, with a stamped notation that we have electronically imaged the enclosed documents and that the client should retain the paper copies. Client copies of documents prepared by our offices are simply PDF attachments to Emails or, if necessary, laser prints of whatever we have prepared, scanned into our electronic imaging case file, and then sent to the opposing party. When a subset of records must be produced to the opposing party, I find that it’s far faster to personally review and print the pertinent record sections rather than manually go through a file, mark documents to be copied, provide instructions to clerical staff, and then check to ensure that everything was done correctly and that no privileged materials were inadvertently disclosed.

Making the decision to change your office procedure attitudes and paradigms, and then initially and consistently following them, is the critical part. Transitioning to a digital law office initially requires a little more effort and discipline by both the attorney and the client. However, within months, you’ll never consider going back to the old, more costly paper paradigm. Why, for example, should you pay someone to file a paper document in the first place, pull it out whenever you need a particular part of a file, refile the document, make photocopies, reorganize the paper file from time to time, and then repeat this process throughout a case?

Too often, lawyers or their staff misfile paper documents and then use additional staff time searching for that misfiled paper document. Studies done some years ago suggested that as much as 10% of a paper-based office’s staff time was used to find misfiled or difficult to find paper documents.

Thus, the traditional law office’s organization and management problem is finding and exchanging the information contained in paper records, which are more difficult to search and perhaps improperly filed and re-filed by inexperienced staff. Even in the context of a paper-based office filing system, using your computer systems as the primary means of electronically organizing your office simplifies the use of paper files. For example, scanned PDF documents are readily organized by date on your computer system and, indeed, the same document can be
stored in several different file locations to ensure that it is not overlooked. Restructuring a large electronic case file takes perhaps an hour or two, not a few days as with a paper file and, when done by an associate attorney rather than a secretary, is fully and appropriately billable. If you elect to retain a paper file throughout the litigation, filing that paper is much simpler when you can first search a digital file. Because it’s fast and easy to first find the electronic version and ascertain its date, you can simply file any retained paper documents by date without sorting them into different categories such as pleadings and correspondence. This approach saves time compared to filing, retrieving, and sometimes losing paper documents that are filed by category. Clerical staff requirements are reduced commensurately. My experience indicates that the ability to rapidly reorganize a file and to quickly and facilely reuse electronically imaged documents in variety of ways confers a tremendous litigation advantage to the electronically organized side, particularly when you need to be able to adapt instantly in trial to new or impeachable evidence.

Most often, reviewing any documents or information on your computer system will be sufficient for in-office use. When you do need a hard copy, such as attachments to a letter or pleading or for exhibits, you can print out documents on an as needed basis and then discard the paper copies when they’re no longer necessary. You can simply load the case file on to your notebook computer or take it with you on a DVD or flash drive.

Rather than elaborately planning a transition to a digital filing system, just start doing it with new documents as they’re produced and received. As with computer CPUs and data caches, the most recent information is that which will be used most frequently. Within a few months, you’ll be seeing significant benefits, particularly if you start imaging the most important existing paper materials from current cases as time permits. Assuming that you have a fast scanner and fast laser printer in your office, you’ll find it faster and more efficient to print and sign a document, such as a letter or pleading, on the spot and then immediately scan the executed copy into your filing system before taking it out to your clerical staff to fax, mail, or file with the court. Doing so is an important step that takes perhaps an additional minute of the attorney’s time while substantially reducing inefficiency, staff overhead costs, and possible oversight.
Email is obviously a major time saver and important Emails should be treated just like formal business letters, converted to PDF files, and stored in the case directory. Recently, I’ve found that many attorneys accept and appreciate informal service of pleadings in PDF format as Email attachments.
Buying Law Office Technologies

Good Planning and Purchasing Practices
Buying Law Office Technologies

Good Planning and Purchasing Practices

You don’t need to spend yourself into bankruptcy to acquire effective computer hardware: high performance computer systems are no longer expensive nor unreliable. In this section, we’ll discuss how you might initially plan a transition to a high tech small or medium law firm.

Effective automation is a cornerstone of any successful law practice but ill-conceived automation can be an expensive solution in search of the right problem. Law office automation's long term usefulness and profitability depend greatly upon how we plan for the future.

Even though simple approaches and programs often provide the best return for your automation investment, it's far too easy to simply throw a lot of immature bleeding edge technology, expensive hardware and even more expensive staff time at what is really a law practice management problem. The solution is to plan, purchase and implement technology acquisitions carefully and buy only the hardware and software that you will be able to install and begin using within the next two months or so. Purchasing binges are inefficient. By the time that you get around to installing some of your purchases, you likely can buy a newer, better version of the same product for less money.

Choose your technology with a weather eye upon long term, low cost usefulness. Buy mainstream technology wherever possible and avoid dead-end and “bleeding edge” hardware and software - you’ll not only save money by purchasing mature, proven software and hardware but likely also spare yourself an expensive, frustrating experience installing and using immature technology. The personnel costs and disruption attendant to installing complex technology usually costs more than the actual purchase price. Use the least complex technology that efficiently does the job for you, provided that it has reasonable long term growth potential.

Investigate the spectrum of available technology before becoming looked in. At a minimum, you should buy medium-high performance computer hardware. Try to avoid systems that use wholly proprietary “system” or “mother” main boards. Unlike systems that use “ATX” or “Micro-
ATX" main boards, proprietary systems usually can’t be upgraded. A fast new system that’s more than adequate for almost all foreseeable law office needs can usually be purchased for about $1,000 or less. And, everything will be new and up to date, compatible and covered by warranty. A note regarding terminology: throughout this paper, we use the common term “desktop” computer system. Our use of this term does not mean that we prefer computers whose main processing unit actually sits on top of your desk rather than the preferable vertical computer resting on the floor.

Basic engineering and overall system performance doesn’t vary very much from brand to brand anymore, even though brand name manufacturers often use system boards that are proprietary in how they mechanically attach to the computer case, an approach that unfortunately precludes less costly third party upgrades later. Although brand name systems from first tier vendors are often excellent buys, if you anticipate later making periodic upgrades to your systems then you should at least consider purchasing generic systems that use high quality components mounted inside an industry standard ATX-style system case. Again, the system case ideally would be a vertical floor-mounted system that’s capacious and well-cooled.

High end pricing is no longer synonymous with high end performance; rather, more expensive systems typically include consumer frills such as very fast video cards primarily useful for computer gaming rather than business. Such “features” are of no significant business use. System performance now is largely dictated by generic features such as the CPU, DRAM memory, network cards, system board chipset and hard disk performance. Most major manufacturers including HP and Dell use many of the same third party brand name components.

**DON'T BUY MORE HARDWARE THAN YOU NEED RIGHT NOW**

Avoid advertising-driven computer consumerism. You are buying a business tool, not a hobby whose main purpose is emotional satisfaction, even though most people enjoy the latter. Typically, on-line and retail dealers push their most expensive, highest margin units. The extra cost of higher-priced computers derives primarily from highly-touted consumer features that have little benefit to any office.
Historically, system performance increases rapidly while prices simultaneously plummet. There's no immediate end in sight to either trend although the rate of useful improvement has been diminishing lately as the technology matures. Make your purchasing decisions based upon current needs rather than upon perceptions of what you might need in a year or two. Cutting edge technology is typically over-priced, immature and unreliable while it's still hot. Many manufacturers try to sell you their higher margin, top of the line systems and fastest components by promising that purchasing marginally more computing power ostensibly avoids the need to upgrade hardware as often. That's false economy at best, and it's probably not true. We believe that it’s most sensible to buy good quality, mature technology that's about 1/2 generation behind the current top of the line. Buying about one-half generation behind the leading edge saves you a lot of money while providing more reliable technology with enough performance to work satisfactorily for at least two to three years. These cost savings alone should allow you to regularly upgrade the critical computer system components, the CPU, DRAM and hard disk or to replace the system more often - a policy that both saves money and keeps your hardware more generally current for the overall life of the system.

We usually recommend a three year hardware replacement cycle although you might want to make partial upgrades more frequently, given today's very low component prices. It's false economy to retain or to not upgrade a too-slow system until it's been fully depreciated based upon an artificially long depreciation schedule. Remember, modern computer and communications technology are now the basic tools and lifeblood of any law practice.

**BUSINESS NEEDS ARE PARAMOUNT**

All technology exists to support a business’s core function, in this case practicing law effectively and efficiently, and technology must be chosen and implemented with those core business functions in mind. Law firms, particularly litigation firms, are somewhat different than other businesses: ultimately, we must be effective above all else. Efficiency is important to the bottom line but is secondary to winning those cases that, on their facts and law, should not lose for lack
of effectiveness. Where feasible, choose software that is flexible and able to meet evolving substantive needs and that is based upon “open” software standards.

**CHOOSE SOFTWARE SYSTEMS WITH GREAT CARE**

Major software changes, particularly accounting, billing, and practice management systems, are actually much more complex than hardware changes, so you should choose very carefully before making any decisions. For all practical purposes, almost all Windows-based computers are basically interchangeable and compatible. Software, on the other hand, includes all of your data, probably going back many years. Most legal specific software programs use proprietary data file formats that by and large cannot be converted to another vendor’s format. Once you’ve decided upon a particular vendor’s program, making a major change is wrenching, expensive, and disruptive. Hence, be sure that you choose programs that use open file formats, or that can export data to open file formats.

Be sure that your vendors have the commitment and the resources to be around and actively developing their products in ten years. You don’t want to be in the same position as one court system with which I am familiar: six days before Wang filed bankruptcy, this particular court system ordered and paid for enough Wang computers to equip the entire state court system from end to end. It took months to get the paid-for Wang computers and the systems were obsolete by the time that they were delivered. Choosing products from software start-ups that use unique data file formats runs much the same risk.

As a practical matter, choosing a major software system is part of your overall strategic planning for your law firm. Before making any commitments, try to ascertain where your firm anticipates positioning itself in the market ten years from now and the types of practice that your firm envisions pursuing. A firm specializing in real estate documentation will have very different needs from a litigation-oriented firm and the most appropriate software systems will be very different. First and foremost, any new software system should clearly provide a major increase in your firm’s effectiveness within its primary practice areas and it should do so with minimal disruption and drain on staff time. Purchase costs are probably the smallest portion of overall

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system cost – setup, staff training, disruption, maintenance and upgrade are ultimately higher than initial purchase costs although such costs are not obvious when you are considering a software purchase. Thus, ease of use without extensive setup and training, overall reliability and easy maintenance will be critical. These factors, and the overall substantive suitability of a product, should be evaluated by a smaller group of users, both staff and lawyers, whose technical knowledge is accepted throughout your firm. Using a respected sub-group will ease acceptance by various firm members, some of whom will probably be championing some other favorite practice software.
Basic Law Office Technologies

Using enabling technologies to reduce staff requirements
Basic Law Office Technologies

REDUCING OFFICE STAFF WITH “ENABLING” TECHNOLOGY

My long time, extremely competent and patient paralegal Rose Chidester had announced her well-deserved retirement. No longer could I simply ask Rose where she had filed a particular document nor expect as a matter of course a flawless billing and accounting cycle, nor could I simply send an e-mail to Rose asking her to work out the medical liens in a personal injury case. And, in our rural area, experienced paralegals are few and far between. It was time to start from scratch and to rethink all aspects of my office’s automation. Every law office has to face this problem at one time or another.

Starting from scratch entailed many decisions, including the overall level of automation and the extent to which I was willing to personally perform tasks formerly done via support staff. Clearly, though, it was time to fully implement some basic enabling technologies that more efficiently perform certain tasks such as typing dictation and filing on a much more consistent basis. Rather than spending a lot time and money on frills, toys or bleeding edge technology, it seemed important to focus on solid, substantive ways to automate basic day-to-day law office functions in a way which both increases each person's effectiveness and also, by reducing unnecessary effort by skilled staff, increases my office's -basic economic efficiency and cost effectiveness.

My nominations for most useful and productive law office “enabling” technology are pervasive networking, voice dictation directly into your word processor, converting your law practice into one based upon digital imaging of your documents, legal-specific litigation support and case management programs, and digital photography.
NETWORK YOUR DATA

Few of the enabling technologies discussed below work very effectively if your office is not already networked. As a practical matter, wiring a law office with a highly capable local area network, whether Microsoft, Apple or Novell, whether based upon a simple peer to peer network or dependent upon a central file server, is an obvious necessity. Without networking, a law office cannot communicate effectively and without effective communication, a law office cannot operate efficiently. Because it’s so important, we’ve devoted an entire section later in this paper to networking.

1. DIGITAL DICTATION

First and foremost among automation initiatives to reduce overhead should be the use, to the maximum extent possible, of voice recognition and dictation programs. Switching to voice recognition is relatively easy in some ways because Nuance’s Naturally Speaking Legal version is quite effective and accurate. Although accurate voice recognition has seemingly been just around the corner for years, I believe that this technology is finally mature enough for efficient everyday use.

I found that accuracy considerably improved when I used a high end Plantronics DSP 500 USB headset. I found that voice recognition was best to my own working style when I used a digital recorder optimized for voice recognition. Sony and Olympus make compatible models, costing between $190 and $300 retail. The new Naturally Speaking Legal version’s single best feature is its voice macro capabilities, which preserve fonts, rich text and other formatting when standardized text is converted into voice macros. That makes it useful for easy access to calling up pleading captions or letterhead already addressed to the appropriate party and in devising standard boiler plate language that can be assembled into a complete document with a few voice commands. I recently saw a physician friend start doing his medical chart notes on the spot each day rather than spending hours in the evening dictating chart notes to be later typed, often inaccurately, by some third party. That sold me.
There is another, complementary approach. Simply save almost all of your word processing documents, even routine letters, in separate client directories and then just editing them, or block copying portions, as later need dictates. Experience shows us that a surprising high percentage of letters are repetitively sent to the same people in the same cases and that portions of pleadings are often reusable as a case progresses. An attorney with even modest keyboard skills, which almost everyone has acquired by now, can take an existing letter or pleading and directly edit it on the keyboard as needed in the same or less time than he or she required to dictate that same letter or pleading, given instructions to a secretary, and then review and sign that letter or pleading. Eliminating manual dictation transcription saved me about 20 staff hours per week along with a few hours per week of my own time explaining what I wanted done rather than doing it myself.

2.DIGITAL IMAGING AND FILING

Imaging every pertinent document in your office, in essence becoming a “paperless” practice, is now highly mature and practical. Reducing the cost of filing and retrieving paper documents is another major approach to reducing unnecessary staff overhead, allowing highly trained paraprofessional staff to focus on the skilled tasks for which they are best suited. Over the years, I have worked with quite a number of paperless office concepts, scanners, and programs, but for too long was ultimately content to rely upon experienced professional staff with a deep knowledge of each case. That approach is no longer cost-effective. Adobe Acrobat Professional, currently in version 9, is clearly the most flexible and useful approach to document imaging. Acrobat PDF is the de facto standard for most government documents and the official standard for the federal courts and federal government and the mandatory means of filing pleadings with most federal courts. I have found that transitioning to an office where every document is imaged and stored as a readily printed and reusable PDF file has been by far the single most productive step that I have taken in the past fifteen years. In a later section, I will discuss how to implement a paperless office based upon document imaging. One common concern about imaged
documents concerns whether such documents will be treated in the same fashion as traditional photocopies. I do not know any law office that has ever found this to be a problem, particularly after the passage of the 2004 Electronic Transactions Act, which legitimizes most electronic transactional records.

There are several other major benefits of converting to a document-imaged filing system:

- It’s less expensive than photocopying
- You can use the commenting and markup functions in Acrobat Professional to easily turn regular imaged documents and photographs into persuasive exhibits that are easily shared with Acrobat’s Email function.
- You can take an entire case file home using an inexpensive flash drive.
- Assuming that you back up your data properly and regularly, a digital law office is far less likely to suffer a catastrophic loss from fire, weather or other casualty.
- Finding documents is much easier. You don’t need to worry about someone else taking an important file folder, it’s all on the network to be shared by everyone. If you run the OCR function in Acrobat Standard or Professional, the entire contents of each document will be directly searchable, enabling you to find that vaguely remembered material. There are some excellent indexed search programs available for a modest charge. I prefer Copernic Desktop Search because it’s very fast and can search the content of files stored on network drives as well as the drives on your desktop computer.

3. LITIGATION SUPPORT

First and foremost, Adobe Acrobat itself can be a very powerful litigation tool. Beyond Acrobat, there are many powerful litigation-specific programs available but I believe that the CaseSoft products, recently acquired by Lexis-Nexis, stand out as particularly useful for the sorts of cases which might be handled by a small to medium law firm. The CaseSoft product are also used
extensively by the SEC, Department of Justice, and other federal agencies involved in major litigation.

There are four separate CaseSoft programs that I find particularly useful:

- **CaseMap**, which is essentially like a spreadsheet or database for litigation facts, issues, persons, and dates. I try to use CaseMap for every case. CaseMap can link seamlessly with documents imaged with Adobe Acrobat.
- **NoteMap**, a highly flexible outlining program. Outlining is one of the best ways to flexibly think through and organize a case.
- **TimeMap**, which can take a range of dates and facts, whether directly input or transferred from CaseMap, and construct a sophisticated graphical timeline suitable for use in pleadings or as an exhibit.
- **TextMap**, a sophisticated transcript handling program.

Using straightforward litigation support programs such as these not only greatly improves the quality of your litigation efforts but also reduces the need for paralegal assistance in preparing service copies, trial notebooks, exhibits, attachments to pleadings, discovery and disclosures. Basically, you can easily reuse anything that you’ve already imaged, slicing and dicing it as needed. You'll still need paralegal support for your litigation efforts unless you're willing to do all of the initial data analysis and entry yourself, but overall, programs such as these will substantially reduce the paralegal time required to prepare a case for trial.

### 4. OFFICE SUITES

It’s not even a race anymore. Microsoft Office 2007 is well organized and the de facto standard. Even though I am a die-hard WordPerfect user since 1985, where I to choose a new office suite at this time, I’d choose MS Office 2007, mostly because Excel is such a good spreadsheet and PowerPoint is an excellent tool for legal presentations. Corel WordPerfect Office X4 is now
out and it’s probably still the most powerful word processor for formatting legal documents. If you travel a lot or have several branch offices, then check out the shared Internet-based office programs available without charge for registered Google users. I find them to be somewhat anemic but more than adequate for day to day use.

However there is OpenOffice (www.openoffice.org) and its Mac counterpart NeoOffice (www.neooffice.org). These office suites offer a word processor, spreadsheet, presentation application, drawing and database programs. They are ‘open source’ and completely free. They are not second class applications – I have been using NeoOffice on my Mac for months now and continue to be impressed – I find it to be faster and much more user friendly than Microsoft Office. Both these applications can open Word and WordPerfect files – and save to Word, OpenDocument (an open source format that will soon be used by all word processors) and other formats including .rtf.

There is no better bang for the buck these days – particularly for lawyers opening a new office. I highly recommend these products for both new and existing offices.

5.BILLING, ACCOUNTING AND CASE MANAGEMENT

Billing, accounting and case management were the next areas where more highly integrated technology seemed cost-effective. Previously, my office staff had done my billing in Timeslips, my accounting in Quickbooks Pro, and my case management using a basic calendaring program and contact database program not too different from Outlook. After considering several programs, I chose PCLaw, now owned by Lexis-Nexis, primarily because of its tightly integrated accounting and billing functions. Integrated accounting and billing saves about 10 hours of staff time during an average week, although some outside contract accounting became necessary to perform some tasks that the attorney could not economically perform. Improved accounting and billing probably saves, on average, about 5 hours per week.
6. CASE MANAGEMENT SOFTWARE

You really need good case management software and your malpractice carrier is going to insist upon it. There are about ten useful integrated case management and accounting packages specifically designed for law offices. This is one area where the legal-specific programs are more useful and effective than attempting to customize a general purpose program to fit the legal environment. Time Matters, Amicus, and ProLaw have been the market leaders and all of them are well regarded. Of these three, only Amicus remains an independent company, Lexis-Nexis having acquired Time Matters and Thomson-West having acquired ProLaw. Each of these programs will require a substantial amount of setup and customization; you should probably use a specialized vendor to install and customize any of these programs. Which of the three that you choose is mostly a matter of preference. They all perform basically the same functions. Amicus has often been thought of as better adapted to smaller firms, with Time Matters occupying the middle ground and ProLaw being better suited to larger firms.

7. DIGITAL PHOTOGRAPHY AND VIDEOGRAPHY

Digital photography and videography has become cheap, effective and easy over the past few years, enabling even sole practitioners to easily and inexpensively produce visually effective exhibits for every case. I believe that digital photography and videography will be the next “big thing” in useful legal technology. Lawyers are still using too many words when the rest of our culture has moved on to a highly visual style. Elsewhere in these materials, I have discussed the sort of printers that are economical and effective when used to print exhibits. You can find a discussion of appropriate digital photography and videography hardware and software, and of a method to authenticate digital photographs, in my several recent 2006-2007 articles posted on the American Bar Association Law Technology Today (www.abanet.org/lpm/ltt) and Law Practice Today (www.abanet.org/lpm/lpt) web sites. The information is too extensive to include here but your firm really should be alert to using digital photography as a basic part of its persuasive
arsenal. Digital photos are especially useful for producing exhibits or for inclusion in briefs when marked up and used with Adobe Acrobat Professional.

**WHAT TECHNOLOGY CANNOT EASILY DO**

There are some tasks where technology cannot, or should not, be substituted for trained staff. Technology cannot mail your letters nor physically file them with the Court, where that is required, nor make photocopies nor greet clients and make them feel welcome, comfortable and important to you and your staff. Technology cannot keep your paper files in order - and, along with imaged documents, we undoubtedly will maintain our paper files for some years to come. Technology cannot notarize a document for a client nor listen to, and reassure, a client. These tasks require trained and caring staff. What enabling technologies can do, however, is to allow your staff to focus upon those matters needing a human touch and human hands without being diverted into time-wasting tasks that the attorney can perform faster and less expensively using enabling technologies.
Practicing Law At A Distance

The Virtual Law Office
THE VIRTUAL LAW OFFICE

Let’s start with a basic question: what is a “virtual law office.”

I believe that it is:

- Has a stable core group of attorneys;
- Has established collaborative relationships with other, specialized law firms that possess expertise that’s occasionally needed;
- Is glued together with appropriate computer and telecommunications technology; and,
- Expands and reduces personnel as needed.

Frankly, there is nothing new, or even frightening, about the virtual law firm, provided you use due care. Indeed, most attorneys have already had at least some experience working in a “virtual” law firm setting, often without even realizing it. For example, attorneys regularly associate with, and work closely with, local counsel in other states or distant cities as the need arises. Attorneys also regularly associate with other attorneys who have known expertise in specialized areas. It’s common for several law offices scattered across the country to join forces on major cases that are too big for any single law firm or share generalized work product.

Attorneys also regularly work with professional and paraprofessional staff who either telecommute or otherwise work off-premises. We are comfortable working with temporary contract investigators, court reporters, attorneys, expert witnesses and researchers whom we may not physically meet very often, if at all. Likewise, in larger legal entities, we often have little physical contact with co-workers upon whom we depend and with whom we frequently work.

In a very real sense, the voice telephone and later the fax machine were the first transitions away from working exclusively face to face with people. Over the past several years, however,
efficient long distance collaboration among attorneys who may never physically meet have dramatically increased as high bandwidth Internet technologies finally made the process fast, easy, and efficient.

I’ll examine several possible models of how attorneys can leverage new technology to realize the "virtual law firm" as a viable means of organizing law practices. I anticipate that we will see some or most of these general changes and opportunities:

**Hiring and Training Employees:**

We may see a premium placed upon hiring attorneys with substantive specialized backgrounds in education, administration, psychology, and possibly some social sciences. Such attorneys will:

(a.) be able to better understand the overall scope of the client’s objectives and problems;
(b.) avoid the need to first become educated in depth about the client’s substantive issues;
(c.) be better able to communicate with the client; and,
(d.) be better able to effectively coordinate and combine the efforts of the different disciplines needed to solve the client’s problem.

Quality control and the training of associates will become even more important, but also more difficult, in the virtual law office. We’ll lose some of our ability to informally and efficiently review intermediate work and discuss it with staff, attorneys, and experts who are not physically located in our offices. Mentoring will become more difficult. I believe that quality control issues are an under-appreciated problem arising in connection with virtual law offices.

The traditional law firm placed great emphasis upon grooming promising attorneys and staff for the long haul, training less experienced staff, and gradually giving them more authority as they
gained experience and ability. Generally, the more experienced senior attorneys understood, and could do, everything assigned to new staff, and thus could effectively mentor and supervise less experienced staff. Senior partners met with the client and set strategy, often being the only persons who really understood the Big Picture. Small portions of a matter, along with explicit directions, were given piecemeal to less senior staff. Later, as information slowly worked its way to senior attorneys, the efforts of many junior people were gradually combined and sharpened by more experienced senior associates and junior partners. Ultimately, the finished product arrived back on the desk of the partner in charge of the case, who theoretically checked the work for quality and judgment.

The days of the generic junior attorney and staffer are gone along with the pencil-and-paper era. We need to hire and retain better-trained, technically adept staff, particularly paralegals with extensive technology experience. Many of these staff members must have skills that many lawyers currently comprehend only with difficulty. In good economic climates, such employees are in high demand and very mobile. Rather than directing such employees in detail, we need to motivate and lead them. We’ll need to adapt our management style to a more collegial, democratic approach that better suits an increasingly professional support staff.

The virtual law office ipso facto needs employees who are comfortable working with advanced computer systems and who can readily learn new techniques and approaches. Because advanced technology requires advanced skills, we'll have to invest a substantial amount of time money in training employees to a mix of constantly evolving skills through specialized outside trainers. And, rather than training new staff, the senior partners will need to take the same training themselves. Employees with specialized knowledge are no longer interchangeable and, unless we maintain a professionally rewarding place of employment, employee mobility will increase as law firms compete for better-educated, more productive paraprofessional staff. Losing such employees is not only expensive, in terms of hiring and training replacements, but also very debilitating on our productivity.
However, the virtual law office also has some real staffing advantages. Although there is a strong premium upon highly knowledgeable senior staff, routine clerical chores such as filing and low-level data entry, conversely, either disappear or become simpler and require less case-specific knowledge. That allows a firm to be less dependant upon clerical employees for routine chores.

A BAD ECONOMY IS FORCING LAW OFFICES TO RSTRUCTURE

There is obviously a great premium placed upon cost-effective legal work when the economy has yet to bottom out. Yet, given the natural tendency in most people to stick with a routine that seems to work “good enough”, such crises are often useful as prods to overdue structural reform that can increase productivity even while decreasing fixed costs. Students of history may recall that the broad-reaching 1904-1905 technological and procedural reforms of the British Navy by Admiral Jackie Fisher not only increased its effectiveness several-fold while reducing annual budgets. Law offices have a similar opportunity now.

Internet-based legal applications and general office applications, such as those offered by Google, are handy for light duty work on the go but are not yet able to fully compete with the features, stability, and maturity of tried-and-true desktop applications. Until then, performance and security issues will limit their usefulness and range of features. However, as mainstream web-based legal applications mature, they’ll clearly influence not only how we practice law but also how we organize our law offices, or should I say our practice associations. One thing is sure, though: traditional legal organizations will change greatly over the next decade or so.

Law offices will likely change into radically different, flexible practice associations that respond more quickly to market and technological changes and likely adopt a more flexible and democratic horizontal structure that facilitates the quick and efficient flow of critical information, something that’s critical to the quick parry and thrust of almost any law practice.
Almost every other industry has found that flexible business structures also lend themselves to better financial efficiency.

I've identified below several possible models of how the forward-looking law office might consider structuring itself. Law offices - particularly litigators - need to "re-engineer" their operations to emphasize excellent internal communications and fast, precision delivery by a small, often ad hoc team. Information has always been power, metaphorically, but it's now king.

Why are a law office’s structure and internal communications becoming so important? In the paper-and-pencil era, we used the brute force of many associates and paralegals to manually collect and process the vast amount of information required by any significant litigation or transaction. Because the raw data could not be readily analyzed by a single person in the pencil-and-paper era, we resorted to extensively summarizing the data.

We added intermediate layers to supervise employees and to control the quality of the basic paperwork as it gradually flowed to the ultimate users. Nasty surprises resulted in court or negotiations when our summaries did not match our evidence. Potentially important raw data and research, and a coherent overview of the entire matter, was often blurred or lost in the paper-based summarization process. Information may get to the decision makers too late. Staffing costs have become prohibitively expensive and clients have become less willing to pay such costs. Continuing to insert several potentially superfluous layers of associates and staff between the senior litigator and those gathering the raw data simply causes critical information to move too slowly. Too many intermediate lawyers and clerical staff not only reduce the office's productivity and responsiveness but badly hurt its overhead, increasing costs to the point where effectiveness is lost due to inefficiency.

To a decreasing extent, traditional law firms continue to employ these vertical "channels" as the primary conduits for information flow within a firm. But those sorts of law offices are
expensive, counter-productive anachronisms in an era where a fast Internet connection makes a paralegal on the other side of the continent almost as accessible as one down the hall and one can get quick advice about how to handle a particular sort of case from a colleague’s Email or an internal blog. As a result, an Internet-based virtual law office can leverage the effectiveness of a few highly experienced attorneys and staff, regardless of where they live. In this era of web-hosted document-imaging files, we don’t even need to be overly concerned about where the paper files, if any, are located.

**THERE ARE SEVERAL POSSIBLE STRUCTURAL SOLUTIONS**

One approach may be to form small ad hoc action teams. Such teams would form and dissolve in response to individual projects or to specific aspects of a very large case, with their results quickly available to the ultimate decision makers. These teams should include professionals already knowledgeable in specialized areas, to ensure a competent immediate response. Action teams should have their own budgets and their choice of the firm's personnel. The team's members would cooperatively process and share information through remote networking technologies. This approach might be particularly useful in medium-to-large litigation offices. Web-hosted applications are particularly useful to this sort of action team on the go for light duty word processing and centralized document and case files. Trial notebooks could be posted and commented upon using Adobe’s commenting and comment collation features.

Another solution might be to form a separate, highly specialized “boutique” office that already has the specialized knowledge, research, and forms to work quick-breaking projects, particularly legislative affairs. Here, the premium on specialization and fast reaction probably places this option beyond the immediate reach of most general. Smaller offices could joint-venture as needed with other similar firms possessing complementary expertise, again an option made feasible primarily by Internet technology.
Most commonly, the law office of the future will likely tend toward the virtual law firm, combining a small permanent core group similar to military cadres or large construction contractors, drawing upon contract professionals and paraprofessional staff as necessary for particular projects. This office's ability to maintain a broad network of cooperating joint venture partners with expertise in different areas of the law will be crucial to future effectiveness. This model, heavily dependent upon high bandwidth Internet connectivity and centralized imaged files, has a number of economic advantages as well. Telecommuting and teleconferencing become a practical norm, reducing space rent, travel and commuting costs.

I believe that this model will prove the most feasible for the average small-to-medium law office of the future. This approach will only work efficiently if and when the data, documents, and case management and collaborative technology are immediately available across the Internet in a responsive, high-bandwidth technological environment. Although practicing with people we rarely meet physically may seem unnerving, upon reflection we see that we do it all of the time using plain, old-fashioned telephone service. The only difference is that Internet technology makes the process smoother and more efficient. One possible advantage to this structure, compared to the preceding two law firm structural models, is that the core group will already be familiar with working with each other, possibly reducing personal clashes, startup times, and initial confusion.

Another possible intermediate solution might be to generally retain the same vertical law office structure but flatten it by reducing the number of associate lawyers and paraprofessionals who actually research, process, and summarize data, and also by reducing clerical staff. Instead, we'll involve senior lawyers more directly with processing and using the raw data through advanced technology. We can minimize the burden upon senior lawyers through the use of a few associates and paraprofessionals who develop raw information and then input it into advanced document assembly, case management and litigation support programs such as CaseMap and NoteMap.
These programs help key lawyers find evidentiary items quickly and spot critical information and important patterns. Easily-accessed legal research materials allow the senior litigator to more quickly research questions at his or her desk. This model has worked for me personally and my own sense is that the quality of litigation may even improve as intermediate overhead costs decrease.

Not all, nor even many, of these thoughts about structuring a virtual law office will be directly applicable to your situation. However, cost-effective technology is pushing the entire economy, and thus law firms, to become much more streamlined and efficient. Making the leap is now more a question of changing our mindset and working habits than a technological issue.

Most likely, a slimmed-down traditional law firm structural model will hybridize with the pure Internet-based virtual law firm to produce an intermediate law firm model that has both solidity and flexibility, a model that I believe will retain long term viability.

Regardless of which approach is taken, we'll see law offices adopting an increasingly horizontal structure that emphasizes networking, shared document imaging, and electronic communication. Expect to see radically different law offices that feature reduced litigation staffing, lower overhead, and reductions in the number of clerical staff, associates, and mid-level partners. There’s little future in simply hunkering down and waiting for the asteroid to hit.

**TECHNICAL ASPECTS**

Traditionally, remote offices were networked using really expensive dedicated T1 phone lines whose bandwidth was slower than most DSL Internet connections. The widespread use of high speed Internet connections, even at home, makes remote networking quite a bit less expensive and fundamentally easier.
There are several major remote access approaches of which lawyers should be cognizant but not necessarily technically adept:

- Virtual Private Networks (VPNs) use the public Internet infrastructure to connect with other specifically designated computers but VPNs act like a private network through the use of encryption and firewall settings that prevent unauthorized access by persons trolling the Internet. A VPN requires that router hardware on each end be properly configured in order to allow authorized traffic to access the system.

- An Internet-based secure document storage repository such as www.acrobat.com or for larger cases, higher repository systems like Catalyst.com

- Google Gmail accounts offer what is believed to be secure document storage and version control.

- Windows Remote Desktop Access – this means of controlling another computer is built into every recent copy of Windows and is basically intended for technical support use. However, it can be used for remote access to application software. The potential security compromises inherent to this approach scare me.

- Third party remote access software programs are a very mature technology by now. Among the more reputable remote access programs are Laplink Gold, GoToMyPC, and Symantec PC Anywhere.

- There is an excellent discussion of remote access network at www.about.com
Document Imaging

Tips for converting to a law practice based upon documents digitally imaged with Adobe Acrobat
Basing my litigation practice upon Adobe Acrobat, I have been able to simultaneously improve my ability to quickly, effectively and efficiently handle fairly complex litigation while reducing my non-billable overhead by about fifty percent. Here are some tips that I learned along the way.

The most important concept is that how you use Acrobat, and what it can do for you in a litigation practice, is almost infinitely mutable. There’s no single right way to use, only the way that is right for you. Experiment and see what works best for you and your staff rather than taking my thoughts as gospel. Remember, though, that properly and fully exploited, Acrobat can be a transformational technology - whether you ease into Acrobat or simply jump in head-first, think about how you can leverage its many capabilities. Because Acrobat can work in so many different ways, it is difficult to state an overall “Litigating with Acrobat” theme beyond its great flexibility and adaptability. So, I’ll content myself with simply setting out some of the ways that my litigation practice has evolved in its use of Acrobat:

1. Make Acrobat your primary filing system. Use Acrobat documents in preference to paper wherever possible. We retain only original paper documents such as recorded instruments, notes, or signed discovery and disclosures.

2. Discard your fears about discarding your paper-based filing system. A recent University of California study found that about 99% of all original business data and documents are now stored as “Electronically Stored Information” - that’s the new buzz word used by the new Federal Rules of Civil Procedure recently adopted by the US Supreme Court. Congress mandated years ago that the federal courts, as with the rest of the US Government, convert over to a electronic case file and reduce its use and retention of paper. I suspect that a large portion of that remaining 1% may be the legal profession!
3. So long as you store all electronic case data in a central location and back up all data nightly, your files and law practice are less vulnerable to fire, natural disaster, and other loss compared to paper files that cannot simply be copied from a backup hard disk to a new computer. Besides, it is good practice to store all backup media off-premises and that may save you a midnight trip to your office to get a file that you forgot.

4. It is NOT easier to store and maintain unsearchable box after box of paper records. It is NOT cheaper to pay clerical staff to (perhaps inaccurately!) file, find, refile, and then again find mis-placed documents.

5. It is NOT easier and cheaper to keep pulling out, and refiling, the same documents over and over when you need to make copies of them throughout a case.

6. It IS much easier and cheaper to prepare a single multi-file Acrobat binder and print out as needed complete, already collated copies using a modern high speed laser printer, which have become much faster and much less expensive over the past few years. Besides, many of us have had, in years past, the unsettling, tedious and frustrating experience of photocopying a large quantity of documents only to find that they had somehow gotten out of order.

7. It IS much more efficient to make color copies using your own fast scanner, Acrobat, and color laser printer, compared to running to the local office store and paying $.79 per page.

8. After you scan your paper documents, avoid the temptation to retain the paper. We stamp already-scanned incoming paper as a client copy and then re-send it to the client.

9. Scan and handle documents only once. We will scan any documents presented by the client during a meeting and then return them immediately to the client.

10. Use your scanner and laser printer as your basic photocopying machine, particularly for large documents that you must keep in order, such a service copies of disclosures. We found that this was less expensive than a traditional photocopier and ultimately far easier and faster to use.

11. Use a very fast network with fast hard disks and gigabit Ethernet connections to the desktop. Some Acrobat documents can be very large indeed, particularly briefs with embedded video and audio clips and attached exhibits. We built our file server using a 10,000 rpm SATA RAID disk array, lots of RAM on the server, and switched gigabit
connections. Most newer computers include a gigabit Ethernet connection on the system board and full-speed gigabit network switches are now quite inexpensive.

12. Your Acrobat filing system will quickly grow large. Be sure that your server hard disks are big enough – 600 to 1200 Gigabytes would be a good start, especially if you plan to use a lot of digital photography and videography.

13. Store all documents in one place, on a central file server. The electronic filing system is your complete office - back it up completely and reliably every day. This is easy to do with fast and inexpensive USB-based shirt pocket hard disks. Be sure to verify that a backup is a good one. We use the basic backup accessory in Windows XP because it is universal and can be run on almost any computer in a pinch.

14. Use the latest available version of Acrobat Professional. At the moment, version 9.1 is currently shipping. Acrobat’s Professional versions have many commenting and document markup features that make them particularly useful in exchanging information with clients and in preparing discovery, exhibits and other basic law office tasks.

15. Keep track of the time spent scanning and coding any documents. These costs are listed as recoverable, and hence billable, under Civil Rule 79 cost recovery provision.

16. Ease into using Acrobat. Start scanning new cases and any documents that you are likely to need in the near future. Within three months, you will find that most of the documents that you might need on a day to day basis are already scanned and available across your local area network. Scan older cases as needed or when you are about to archive them. Set a target date when you will be scanning everything.

17. Make the contents of all documents text-searchable by enabling OCR as you scan each document. Alternatively, if you find that this takes too long or is inconvenient at that time, then set up a batch command to OCR multiple documents or entire folders in one operation.

18. Search the content of Acrobat documents by using a good indexed desktop search program. We like the Brainware and Coperic programs. Change the default parameters to also search your network drives and to completely search PDF documents as a text document rather than merely searching on the file name.
19. Put a scanner on each desk. Scanning documents is a task for everyone, not just clerical staff. Attorneys should consider scanning each document when a client provides it to them and then immediately annotating the document with pertinent information by way of comments, bookmarks or annotations in Acrobat Professional. You can either print out a document with the markups showing or simply the raw scanned document.

20. As a desktop scanner, we like the Fujitsu ScanSnap series, which is very flexible and convenient, and adequately fast, for light duty scanning. For heavier scanning and as a departmental scanner, we like the Canon DR-2580 and Xerox DocuMate 252/262/272 series. You really need fast sheet-fed document scanners, not flatbed scanners with an attached Automatic Document Feeder. These do not work nearly as well. Any fast Windows XP computer connected to your network should be sufficient.

21. You will also need a high quality flat bed scanner that accurately scans photographs and similar materials. You should not skimp here because most scanners do a pretty bad job on photographs. After several false starts, I got the Epson 4990 Pro flatbed scanner, which does an excellent job of accurately rendering flat materials. The Epson V series is Epson’s current higher end scanner series.

22. Get the newest versions of Corel WordPerfect X4 or Microsoft Word. Both of these programs have enhanced PDF file capabilities, including the ability to read and revise the contents of a PDF file.

23. Start exchanging documents as PDF attachments. This has saved me a tremendous amount of time and hassle when working with clients, experts and cooperative opposing counsel.

24. If you are sending PDF copies of materials to clients, experts or other attorneys on the same side of a case, then you can use the “Enable Commenting and Analysis in Acrobat Reader” function if you have Acrobat Professional, Version 8 or Version 9. This function enables another person who may only be using the free Acrobat 8 or 9 Reader to enter comments upon a document sent to them and to search a document for works or a particular text string. Doing so makes preliminary document review and exchanging information much more efficient. Use Acrobat’s commenting collation and review feature to pull together everyone’s comments about a particular document section.
25. Organize your electronic client file structures in any way that works for you but avoid overly complex directory structures. You don’t really need them once you have standardized file content names and run an indexed desktop search program, and you will waste time searching through too many different directories. Remember, one of the biggest advantages of an Acrobat-based filing system is that you can totally rearrange an entire case file quickly and easily to suit an evolving litigation situation.

26. Keep in mind that you will be using the same scanned documents for everything: initial client intake, the preparation of pleadings, disclosures and discovery, trial briefs, exhibits, and in-court presentations. For example, the same Acrobat “binder” that I used to put together initial document disclosures became, with annotations adding exhibit labels and numbers, the materials sent to an out of state expert, the exhibits for the expert’s testimonial preservation deposition, the materials used to depose the other party, and my actual exhibits.

27. Wherever possible, avoid scanning lengthy Acrobat documents after you have prepared and signed them. That can be time-consuming and actually less accurate. Instead, if you are filing in US District Court, simply print initially to the Acrobat PDF printer when choosing your printer, digitally authenticate your document, and file with the Court using a PACER account. Email a copy to your client FYI and, most likely until service rules change, print out and mail a copy to opposing counsel. It’s much easier, though, if counsel agree to simply serve documents as Email attachments and send an Email read receipt.

28. In state court, many states still don’t have the luxury of any sort of electronic filing and you will need to print, sign and file an original paper document. However, even under these circumstances, you can greatly improve your efficiency. Most of these steps will be applicable to producing any final legal document that includes any attachments.

29. Rather than scanning the printout of a lengthy word processing document and all of its attachments, scan only the pages that are actually physically signed by your office.

30. The remainder of the document can be printed directly from your word processor, spreadsheet, web browser, Email, photographic or other primary program directly to an Acrobat file using the Acrobat PDF printer function.
31. As a bonus, documents printed directly to Acrobat will be inherently OCR’d and text searchable without additional time-consuming processing and will also take up much less file storage space on your office system.

32. Simply replace the blank signed pages with the scanned pages actually signed by you.

33. If you are faxing a document, then later scan and append the fax confirmation printout to prove actual receipt by the other party.

34. If you wish to attach exhibits or other already scanned documents, then initially prepare them by first adding and ordering any attachments and exhibits into a single multi-file “Binder”. Then, use the Drawing Markup text box tool to add an appropriately colored and labelled exhibit sticker directly on the scanned documents that you’ll be using. You can copy and re-use such an exhibit sticker page by page and exhibit by exhibit as needed. This is a lot faster than using paper exhibit stickers and then trying to rescan each such document after the paper exhibit sticker has been attached. Remember, you can later edit and change the contents of any text box exhibit sticker or entirely delete it if desired.

35. Finally, use Acrobat’s Document, Insert Pages function to append each exhibit or attachment in the desired order so as to build your complete document.

36. Print paper copies of the final compound document as needed on a fast color laser printer. I like the Konica Minolta 5670 series for its fast performance and high quality printed output.

37. Get and use a digital signature in order to lock down and later authenticate, if necessary, any Acrobat documents that you may be retaining as your original file copy.

COST-EFFECTIVE ELECTRONIC TRIAL PRACTICE

An Acrobat-based litigation practice is so flexible that it can easily be whatever you need it to be - you can be as traditional or as avant garde as fits a particular situation and you can do this very
quickly and easily. Here are some general tips and tricks that I found useful in a litigation practice based upon Acrobat Professional.

The major principal of electronic cost-effectiveness is simple: reuse your imaged documents as much as possible. Here’s an example from a recent construction claim trial in which my clients, originally the defendants, not only defeated the claim, but prevailed on their counterclaim in an amount six times higher than the Plaintiff’s original claim.

As with many construction claims, the case was factually complicated relative to the amount in question and thus very much needed a highly cost-effective approach. Losing was not an option in this instance. As documents were brought in by the client, I scanned them directly into Adobe Acrobat and added annotations based upon information from my client. These same documents were later consolidated and became the attachments to our mandatory pretrial disclosures and requests for admission. After annotating the consolidated documents, particularly photographs of the construction, the same documents were among the most important attachments to a summary judgment motion, which in turn morphed into our trial exhibits, our trial brief, and, with some selection and editing, the visuals for our opening and closing statements. They also became the basis, when quickly edited on the fly, for a fast and effective cross-examination of the opposing party’s expert witness.

This technique works especially well with already prepared video clips from video depositions and audio clips from testimony.

There is a fundamental military maxim that urges commanders to get “inside your opponent’s decision cycle” so that you force them into a chaotic and ineffective defensive posture because you are acting faster than they can appropriately react. Not only is this highly effective, but it is demoralizing to your adversary. You certainly don’t want this to happen to your case. Structuring your imaged documents so that they can be quickly and easily re-used helps you
retain the ability to act and react faster than your opponent. Electronic trial practice, based upon
an Adobe Acrobat filing system and trial notebook whose content is easily chosen and morphed
as necessary, provides you with precisely that ability.

There are a number of secondary electronic technologies that I’ve found to be extremely useful
in trial practice. In long bench trials, we use CaseSoft’s outlining program “NoteMap” to briefly
summarize sequentially each testimonial point by every witness as the trial progresses, with a
citation to the date and time in the Court’s log notes. These can be moved easily as needed into
a topical outline showing the documentary and testimonial evidence on each side of each point.
Once these testimonial outlines have been created, we convert them into Adobe Acrobat format
and then embed actual audio clips of the critical testimony in the correct place in the Acrobat
document. These sound and video enabled documents also can be used as on-the-fly cross-
examination materials, closing arguments, final briefing, and an appeal record as well.

There are several secondary financial benefits to moving to a digital law office. Scanning and
printing out paper copies is often less than the direct cost of making photocopies of the same
documents, and your equipment purchase and maintenance costs will likewise be lower. It’s
much easier to exchange documents with clients, co-counsel and opposing counsel as PDF
attachments to e-mail messages. Disclosure and Discovery attachments are much more
economically prepared if you gather your applicable Acrobat documents, consolidate them into a
PDF binder, and then send them as a CD or DVD rather than a box full of dead trees.

By loading a flash drive or burning a CD of the case file, you can take your entire case file with
you at home or when traveling on a disc or two loaded on your notebook computer rather than
lugging around cases of paper documents for the airlines to smash or lose. If you forget to bring
something critical, or if documents arrive while you’re on the road, your office staff can image
them into PDF and send them to you as e-mail attachments or, if you have remote access to your
network, directly download them. Should another attorney take over the case, you can retain a
complete copy of the file without any stress at all. As you transition to a digital filing system, your dead-file storage space requirements and costs will drop dramatically. Finally, assuming that you back-up your computer systems regularly, your practice will be much less vulnerable to the disruption that would otherwise occur in the event of fire, flood, or other natural disaster.

It’s critical that you be consistent, particularly when naming documents. Even if you store everything in a single, unsubdivided folder, you can find what you need quickly on a list display of all related documents start with the same first word. For example, all discovery should use "discovery" as a first word. A motion for accounting might have its component documents named "accounting - motion," "accounting - memo," "accounting - affidavit in support," etc. However, you can scan all related documents into a single PDF file, such as "accounting motion - complete" and avoid that potential problem entirely. Alternatively, using Acrobat’s capability to combine several PDF files into a single document accomplishes the same end.

This same ability allows you to scan all related documents, say a complete motion package one time, simply print them out as needed to attach to a hard copy of a letter or pleading, and then only scan the executed letter or pleading itself, along with any fax transmission confirmation sheet. Then, combine all of the PDF files into a single document that includes the letter or pleading, all attachments, and the fax confirmation sheet. This is a neat and fast solution that minimizes any chance that related documents would become separated.

An electronically organized office and litigation practice gives you very substantial operational and financial advantages. The cost savings, when coupled with appropriate changes in the attorney’s attitudes and work habits, will likely repay within months the costs of upgrading to faster computers, efficient scanners and laser printers. You’ll be able to practice more effectively, particularly in a litigation setting.
Remember to keep your electronic office organization as simple as possible and treat legacy paper printouts as transient materials to be used and discarded as needed. Tips to keep in mind:

1. Remember that an Acrobat-based filing system is very flexible. Avoid spending a lot of time up front setting up an elaborate, highly subdivided filing system up front. Not only will this time likely be wasted, but you may spend so much time looking in 15 different folders for a particular document that you negate the efficiency advantages of an electronic file system. I’m speaking from experience on this one. Early on, I had a staff member get so carried away with creating a filing system that nothing else got down and I could never find anything very quickly.

2. Instead, set up a directory for current cases, a separate subdirectory for each current case, and then a few basic directories in each matter subdirectory. I use Correspondence, Disclosures and Discovery, Investigation, Internal, Evidence, Pending, Payables and Pleading, but that basic structure is merely a personal preference. Make further subdirectories as needed for a particular case. For example, I often make a further subdirectory for dispositive motions.

3. Make all documents text-searchable by OCRing them and then search for documents as needed with a good text search program such as Copernic Desktop Search. Text recognition is very demanding on your computer. If you or your staff use default settings and render a document text-searchable at the time that it is scanned, you will need a very fast computer or a lot of patience.

4. Personally, I find it best to set up a batch program to run the Capture tool on many documents at once. If you have a spare computer, then you can run that batch process and walk away while it runs. Sometimes, you will be able to OCR an entire directory while, under other circumstances, you may only be able to OCR 20 to 40 documents in each iteration of the Capture batch process. By the way, using a batch process later is an excellent way to bring earlier, non-OCR files up to snuff.

5. Title your documents in a consistent and information fashion - e.g., Kashi to Opposing Counsel accepting $100K Settlement Offer. This may seem obvious but it is obviously often violated.
6. Hard disk space is cheap. File copies of a document that you will not change in the future in all directories in which someone might be likely to look.

7. Use a litigation support program, such as CaseMap, that can work directly with Acrobat documents and import them into a CaseMap matter. Once you have CaseMap set up properly for a particular case, with people, documents, issues and links already defined in CaseMap, then imported Acrobat documents that have been OCR’d may be automatically categorized and properly filed in CaseMap.

8. Remember that one of the major efficiencies of Acrobat-based law practice is the ability to re-use whatever you have scanned. For example, if your client brings in a bunch of documents during the initial consultation, then scan them on the spot as the client explains them to you. Retain a clean original copy of each scanned document and then put explanatory notes and comments on a working copy of every scanned document, thus reducing your need to take separate notes. Later, you can pull these same documents, and other later-developed materials such as photographs, into a single “binder” for discovery and disclosure purposes. It’s easy to review your binder for privilege.

9. You can mutate and re-use this same document-inclusive document disclosure binder at later times as a quick way to prepare exhibits to motions, deposition exhibits, trial exhibits, cross-examination materials, and visuals for opening statements and closing arguments.

10. Combine all related pleadings into a single sequential file. For example, if you are dealing with a summary judgment motion, then rather than storing all of the documents separately, which become more time-consuming and harder to finder, make a single summary judgment file, starting with the Motion, then appending the memo, affidavits, exhibits, and other supporting documents. When any opposition, Rule 56f motion, reply, orders, etc are filed, then append these documents as well, in consecutive order. At the conclusion, you will have a complete history of the entire motion in one file and in consecutive order.
Infrastructure

AVOIDING DATA OBSOLESCENCE AND LOSS

There’s one potential drawback to converting to a digital law practice - data obsolescence, the inability to physically access data or to electronically use it in the future. Law office automation focuses upon the immediate retrieval and use of data during the daily course of business. Unfortunately, most office automation efforts to date have failed to adequately provide for the long term use and re-use of data over a period of years and decades.

Because of the rapid advance in hardware and software, programs and data that we use today will likely not be usable in fifteen years without a great deal of effort. Even NASA has experienced difficulties in this regard: fifteen year old computer tapes containing data from planetary exploration missions cannot be used readily on currently available mainframe tape drives. NASA has been forced to spend millions of dollars converting these tapes to modern formats and cataloging their contents.

Long term data usage provides an excellent example of why strategic business planning has become so important in the digital age. Suppose that you have moved your case files and other record away from legacy paper or microfilm to document imaging. One obvious reason to make this move is to do away with costly, hard to research, bulky paper records. However, a paper record has one crucial advantage relative to electronic imaging: paper lasts many decades without special treatment and anyone can determine all the information existing in that record simply by holding the page and reading it. No special equipment or software is necessary to use a paper record and there will be no difficulty with "backward compatibility" twenty five years from now.

Document imaging and a digital law practice are clearly the wave of the present, let alone the
future. Both document imaging and a more general digital law practice require that the electronic document archiving media remain usable for decades and that the necessary hardware and software still exists to use those electronic documents. Given the rate at which technology advances and file formats change, and given the inevitable failure of heavily used devices like the hard disks in your computers, there are only a few things of which we can be sure. In ten to fifteen years, it will be essentially impossible to find new drives which can read CD or perhaps even DVD formats or backup tapes made today. Also, there is a good chance that the computer components that you are using today will have failed within several years and finding replacement components or repair parts five years hence will be essentially impossible. Thus, an important aspect of long term digital law practice infrastructure will be ensuring is that your data will be usable and accessible into the foreseeable future.

Accessibility involves several factors. Firstly, data must remain usable by both current and future software. You should standardize your entire firm upon well-known and broadly popular programs made by a company that's likely to be continuing development of their products many years hence. At the moment, this implies using Adobe Acrobat, which has become a de facto imaging product standard that’s been licensed by other software vendors. Adobe has recently implemented an archival version of its standard PDF document format, and that appears to be the best bet at this time. Future data usability also implies the desirability of using programs that either store or export data in a standardized format that can be accessed by evolving software from other companies. Standardized data formats include RTF and ASCII text files, SQL databases, Adobe Acrobat PDF imaging formats, Adobe DNG photo format for RAW data files, and traditional JPEG and TIFF photo formats. Converting standardized data to new program file formats will be smoother and less expensive ten years hence. I opted for the universally accessible PDF format. It’s not readily altered and PDF files are extremely compact compared to bit-mapped file formats such as TIFF. That will save a huge amount of file server data storage capacity, speed up digital filing retrieval, and generally make digital filing practicable, which it’s not when using image file formats such as TIFF.
Your data must be physically accessible and transferable to more modern storage media from time to time. Given the rapid evolution of computer software and hardware standards, physical accessibility must be a primary concern. If your data cannot be read into the computer for lack of a functioning drive, all the conversion software in the world will do you little good. For example, if you store old billing records on a backup tape, the magnetic recording on that tape will fade within a few years. If your tape drive breaks (and it will, sooner or later), you'll not be able to replace the drive with a model which can compatibly read a five year old tape format and access the data. You will have thousands of pages of documents and no means to read them. These same concerns arise in connection with fire, theft or other casualties affecting the data storage in your office. There are several lessons to be drawn. Firstly, you'll need to carefully choose the hardware and software which you implement with an eye toward future upgradability. Secondly, you should expect to implement a comprehensive data conversion and hardware upgrade procedure every three or four years while backward compatible software and hardware remains available and conversion is relatively straightforward. Plan for smooth data and hardware migration and you’re less likely to be orphaned.

At this time, the most reliable, easiest and least expensive method of preserving and protecting law office data are large 500MB to 1,000 MB external hard disks that simply plug in to a high speed USB or Firewire port. Portable USB or Firewire hard disks are greatly superior to tape backup drives and do not have hardware obsolescence issues to the same degree as tape backup drives, which are essentially obsolete.

**TELEPHONE SYSTEMS:**

There are a lot of really expensive telephone systems on the market and, speaking from personal
experience, they’re mostly overkill for the small law firm and even harder to use than a VCR with 100 functions controlled by two unlabelled buttons. There’s a fairly easy and not very expensive long-term alternative for small law firms: virtual phone systems based upon Centrex, where a series of separate hard-wired outside phone lines are integrated at the phone company’s central exchange. Centrex-based phone systems are often easier to use and richer in useful features; they’re worth exploring but be aware that your base monthly charge may be higher than the phone company might suggest and that you may be charged for wiring the installation despite representations to the contrary. There are some less-expensive short term alternatives. You can use your cell phone as a primary contact because that avoids any problem with locating you, you can forward calls from the office system, and your cell phone number is portable from carrier to carrier. You may want to add caller-ID so that you can ignore unnecessary calls.

**FAXING AND PHOTOCOPYING:**

A dedicated laser fax machine makes a lot of sense even for a small law office and is usually quite inexpensive. For years, I used $700 HP 33xx series multifunction devices for years as our office’s fax machine, replacing them every two years or so as the automatic document feeder wore out. Finally, I realized that I never really used the scanner, printer or copier functions and simply bought a Brother laser fax machine at Costco for $188. It’s proven more than satisfactory. Be sure to get a fast, modern 33.6Kbit fax system. You’ll save money in the long term. For authentication reasons, I still prefer using a paper fax with a confirmation printout in any case where I believe that I later may need to prove receipt, something that’s not a reliable when using Email. After all, the Email recipient only needs to refuse to send the receipt acknowledgment.

Traditional photocopiers are dead as the Dodo except for low-end convenience machines. Vendors often don’t even want them back when the lease runs out. It’s worth remembering that a photocopier is basically a laser printer hooked up to an integrated scanner. There are now
much more effective and reliable alternatives that are also more effective.

At the low end, a multipurpose machine usually combines a scanner, printer, fax, and copier functions. I don’t like them because I’ve found that the low end devices are great for occasional home use, their intended purpose, but that low end devices are much too limited to be effective for every function in the office over the long term. High end networked multifunction devices typically cost several thousand dollars, can be quite effective, but usually have their own operational limitations. I personally find it inconvenient to run down the hall to scan documents being handed to me by a client or to retrieve a document that I’m printing. These higher end multifunction devices tend to be effective but expensive to purchase and maintain because there is less competition than in the computing device market. You’ll typically find high end multifunction devices at business machine dealers and, depending upon features, they may make a lot of sense for a small law office whose mindset still depends upon a traditional photocopier rather than worked with imaged document files in PDF. I think that these devices are not an optimum purchase and are well on their way to obsolescence.

By and large, I personally believe that it’s more convenient, more reliable, and less expensive to put a medium speed scanner and color laser printer on everyone’s desktop and to also use the scanner/printer combination as a quick photocopier when needed. A centralized high speed scanner in the staff work area handles big copying jobs much more effectively and efficiently than a traditional photocopier when used with high capacity network file storage and a very fast networked color laser printer like the Konica Minolta 5670.

Scanning all documents into Adobe Acrobat with a separate scanner and printing them as needed with a fast laser printer is both more efficient and less expensive than buying and servicing a standalone photocopier for 8.5" wide documents. Although basic laser printers do not collate per se, you can easily achieve the same end result by controlling how you combine an print a series of imaged documents in Adobe Acrobat: this is actually a lot faster and easier than standing over
a “collating” copier and feeding 25 documents at time in proper order and far more flexible and effective as a basic approach to practicing law.

**SCANNERS**

It makes a lot of sense to put a scanner on everyone’s desk rather than run down the hall to use a faster centralized scanner. Unfortunately, there’s no perfect solution and this area of technology does not appear to be advancing very rapidly.

One of the better and more broadly compatible scanners that I’ve used recently is the Canon DR-2580 series, which scans 25 sheets per minute, either single sided or duplex. Although the DR-2580 allegedly can scan 11x17 sheets in a folded scanning mode, I’ve found that this claimed feature is not reliable. The Xerox 252/26/272 series, which is made by Visioneer, has nearly bullet-proof paper handling and 25 sheet to 33 sheet per minute scanning speeds, single-sided or duplex. Prices for the Xerox Documate scanners typically range between $750 and $1,100.

The most cost-effective desktop document scanners are those in the Xerox ScanSnap series, which usually cost about $400 or so. These scanners are shipped with a full-featured copy of Adobe Acrobat Standard version 8. The scanning interface software provided by Fujitsu, even with their less expensive ScanSnap scanners ($420 Internet price), is much more sophisticated than the software provided by Xerox. Fujitsu’s software including automatic color and paper size detection, automatic re-orientation of upside down documents, and automatic blank page deletion when used in duplex scanning mode. The Fujitsu’s 18 sheet per minute (single or double sided) scanning speed is more than adequate for most desktop uses. Unfortunately, recent ScanSnap models seem more prone to paper misfeed and jamming as a result of simple design flaws with the paper feed path.
Wider 11"x17" documents, so-called “B-size”, are frequently used in the real estate and construction industries for plats and construction plans and you may need some means of scanning and printing such documents. Unfortunately, most full-size 11" wide scanners and laser printers are inexplicably far more expensive. If you use larger B size documents only rarely, then by far the most cost-effective approach is to simply take the occasional large document to a local UPS Store or Kinko’s and have the requisite number of copies made along with a high resolution copy reduced to 8.5"x11" suitable for high resolution scanning and storage back at your office. If you anticipate scanning a lot of 11” wide documents, then your best current bet is the Mustek A3 Scan Pro 1200, which Amazon.com typically sells for about $150 plus shipping. This scanner is a bit clunky but definitely does the job for scanning larger than letter sized documents. It even works directly with Windows XP x64.

PRINTERS

You’ll need several printers, particularly if you’ve designed your office around the concept of document imaging. Firstly, you’ll need some fast color laser printers to produce printouts of imaged documents as needed for disclosure, discovery and trial purposes. I found that the use of color photographs is very effective in a litigation practice; I also found that separately printing and then collating color pages is tedious and prone to error. Other litigators have had the same experience and we all arrived at the same time-saving solution: buy a fast color laser printer and use it for everyday use. Unfortunately, the print quality and effectiveness of color lasers and their cost per page vary a great deal even among different models from the same manufacturer. You’ll need to do your homework before buying any of them. Be sure that you get a fast one, though. There’s nothing more excruciating than a slow printer and a rapidly approaching filing deadline. Be sure that your intended laser printer easily feeds and prints envelopes one at a time; that will save a lot of hassle when you are short on staff. Unfortunately, this is another area where the technology does not appear to be advancing very quickly. After a lot of trial and error, I found that the HP and Lexmark color laser printers generally are rather slower than advertised,
especially when printing out Adobe Acrobat documents and that their per page costs are rather high. Dell and Konica Minolta now seem to offer the most effective and cost-efficient color laser printers. My own personal choice is a 37 page per minute Konica Minolta 5670.

In the digital age, it’s now easy and inexpensive to make your own enlargements for use as in-court exhibits rather than using the traditional approach of sending them out to a lab, which might result in a few days delay and a few hundred dollars per print. However, you’ll need an economical wide format color printer. A printer with a maximum print size of 13"x19" is the bare minimum for making enlargements useful in Court but is probably too small for presentation to a jury. Among the readily available 13"x19" printers, the Canon Pixma 9000, at about $400, is probably the least expensive and the Epson R2880 probably has the best photo print quality. I did not like the folded paper feed path on the more expensive HP 9180 but its high quality printed output and functionality are well-regarded.

For legal purposes, a dye based ink printer is probably preferable to a pigment based ink printer. Pigment based inks have a longer life span and potentially higher quality but these are primarily attributes for the fine art printing market. The often better print speed, lower cost, and adequate longevity of dye based ink prints sometimes makes these printers more suitable to the demands of day to day law practice.

Larger exhibits require a really wide carriage printer, preferably at least 24" wide. The HP z3200 has received excellent reviews but is quite expensive, with a base price of nearly $3,500. I use an HP DesignJet 130nr, which will make excellent, highly cost-efficient 24"x36" or wider prints. Although the cut sheet feed tends to jam or scratch prints, the DesignJet 130’s roll feed option works beautifully and at a much lower cost per print. I prefer to use 24" rolls of HP Photo Satin for everything although heavyweight coated paper is much less expensive and probably just fine for exhibits. A 50 foot roll costs about $80 and the thick paper and tough finish greatly reduce damage. HP’s high capacity 84/85 series inks are rated as having an 82 or
longer year archival print life. The ink tanks last a long time, even with 24” wide prints and that greatly reduces the cost per print. Overall, I found that a 24” x 36” print cost me about five to ten dollars to produce, which is trivial compared to the cost using a third party lab. Using big prints in a courtroom, especially when they’re made on photo roll paper, can be a problem unless they are mounted on rigid foam board. The best and most economical way to mount and handle big prints is to buy a box of 32"x40" foam mounting board that incorporates a self-adhesive layer that will bind the print to the underlying foam core board.

Any large format printer like the DesignJet 130 series is a big, heavy printer that should be setup and calibrated professionally before you can use it to full effect. You’ll do best if you buy the printer from a local HP professional products dealer who can set it up at your location and run a color calibration. The basic DesignJet 130r with roll feeder and cutter has a base price of about $1,550.

**Desktop Computers:**

This area of law office equipment has been beaten to death and decent computers are generally pretty inexpensive anymore. We all need one but the proliferation of models can seem bewildering. Buying an instantly recognizable brand name like Dell or HP may be a good idea but even then, you can customize your system rather extensively. At this time, Intel’s Core 2 Duo dual core and quad core CPUs and AMD’s quad core Phenom II x4 series both perform extremely well at a fairly reasonable cost. As with your file server, you’ll want a very fast hard disk as your boot drive, at least a 7200 RPM SATA drive. Western Digital drives are excellent, among the fastest on the market, and generally quite reliable. You’ll need at least two, and preferably four, gigabytes of RAM. Recent studies suggest that the productivity gains from providing each user with a large, high quality LCD monitor are very high compared to the slightly increased purchase cost. Get a nice 24” or larger widescreen monitor. These only cost about $250 for a name brand like Viewsonic when bought over the Internet and the wide screen
allows you to have two windows simultaneously visible, which allows you to view a PDF file at the same time that you are drafting a letter or pleading pertaining to the PDF file. A Logitech wireless mouse and keyboard combination will give you a lot of flexibility about where you locate your computer and desktop. You can find more detailed hardware discussions at www.kashilaw.com under the tech articles tab or among our papers being posted by the Washington Bar Association.
PRACTICAL NETWORKING

Every law office now depends upon robust desktop computing and networking capabilities, including both local area networking within the office and also high performance Internet access.

WHICH OPERATING SYSTEM?

The first question, of course, is should one use Windows, Linux, or Mac, and which flavor? Although the Apple Macintosh is a most useful and interesting platform, certainly more technically advanced given is UNIX underpinnings, and although both Macintosh OS 10 and Linux are both more robust, I felt compelled to stay with Windows, but not because of any particular fondness for slower performance, higher cost and lower stability/reliability. The sad truth is that lawyers, unlike graphics designers or industrial applications, are locked into Windows XP or Windows Vista. The old adage that useful application software dictates the choice of operating system, rather than the other way around, is especially true for lawyers. Most of the really useful programs specific to the legal industry run only within pretty recent versions of the Windows operating system.

Windows 7 looks promising – in many ways, its underlying structure has been simplified, accelerated, and generally much more like the small basic “kernel” structure used by Linux to such advantage. However, this newer operating system, which will replace the much-reviled Windows Vista, is not yet shipping and will, if history serves, probably have compatibility and reliability problems for about a year after its initial release.

So, Windows it was. Three versions remain currently available: Windows XP Service Pack 2 for 32 bit processors, the 64 bit version of Windows XP, and Windows Vista. Given Vista’s
voracious demand for computing power devoted to secondary features of little value to the business user and Vista’s broad reputation for the instability and poor performance, I chose Windows XP, which is finally pretty reliable. Now that the faster and technically superior 64 bit version of XP (dubbed XP x64) is finally supported by most printers, all flash drives, and many fast document scanners like the Canon DR-2580 and the Mustek A3 Scan Pro 1200 11x17 flatbed scanner, I recently started upgrading computers still using the reliable but somewhat slowly 32 bit version of Windows XP, Service Pack 3. However, Windows XP is still shipping by popular demand among large corporate customers who distrust Vista and who pressured Microsoft to put 32 bit Windows XP back on life support despite Microsoft’s desire to shift users to Windows Vista, which in scheduled to be phased out instead. An OEM copy of Windows XP x 64 will set you back about $140 per computer.

A NEW NETWORK INFRASTRUCTURE:

Your network infrastructure is now the key component of your law office. Proper network specification requires more precision and care than deciding which desktop computers to buy. Desktop computers are, within reason, pretty fungible commodities these days so long as they are stable and fast enough.

I used the 64 bit version of Windows XP as the operating system for my file server. Windows XP x64 version actually uses Microsoft’s stable and useful Server 2003 network operating system code without the high price. If you have more than five or ten computers, though, then it makes sense to get a regular copy of Microsoft’s latest server software. A very small office would likely find the latest Small Business Server package, which includes Outlook Exchange, a web server, and other network-based software, to be cost-effective.

Although every version of Windows XP or Windows Vista allows you to network every computer and printer in the office to your heart’s content, such free-wheeling ways have a
tendency to spin out of control and have always concerned me. It’s much better to keep all of your data on a single high-end server computer, even if that computer is only acting as a host for Microsoft’s peer to peer networking inherent to Windows XP. Sharing printers, especially expensive items like high speed color laser printers or USB attached network backup devices, makes a lot of sense, though.

There are several good reasons to keep all of your data on a single central file server. It’s definitely a faster and more stable arrangement. Application programs do cause desktop computers to lock up from time to time and if someone’s workstation is also acting as a file server for others, then any freeze or crash brings down the entire network and everyone loses their work. In addition, it’s harder to keep track of the latest version of any file or operating system when different versions are scattered through dark corners of all the computers in your office. Finally, your data backups will be more complete and reliable if all data is maintained, used, and backed up from a single location.

**SETTING UP A PEER TO PEER NETWORK**

Setting up a peer to peer network in theory should be easy. After you’ve installed Windows XP on each computer, run the Network Setup Wizard found under “Accessories” “Communications” and set up peer to peer sharing. I prefer to share only a single comprehensive network data folder on the designated file server. Then, using the My Network Places, Tools, Map network drive option, designate the shared data folder as a drive letter to be reconnected each time that you start your computer. Be totally consistent with shared folder and drive letter designations to avoid any confusion or conflicts. Be sure that each computer has a unique name and identifier.

Initially, even though I have had many years of networking experience, I could not get Windows x64 peer to peer networking up and running without some quirks. It turns out that my network
cabling and hardware, simple though it was, was too sophisticated for Microsoft’s peer to peer networking right out of the box. Ultimately, I found that, for hassle-free initial installation, one should use Microsoft’s default workgroup name and use only a single network switch to connect all of the computers, printers and Internet access. I avoided sharing everyone’s printers and documents with everyone else. It’s just too easy, under those circumstances, to misfile and misplace documents. After you’ve gotten everything communicating properly, then go back and be sure that you have set up the system security, including nuanced sharing rights and firewalls. Ultimately, with quick DSL connections and the right kind of routers at the office and at home, you can set up a “Virtual Private Network” (VPN) that allows you to securely access your entire network from a remote location. That’s definitely worth the extra effort and experimentation.

**NETWORKING HARDWARE**

I used an inexpensive 24 port gigabit speed network switch that directly connects a file server, five desktop and one notebook computer, and my high speed Internet connection. The 64 bit Windows network file server discussed here can handle a fair sized office, so the practical limitation upon the ultimate size of a peer to peer network will be the number of direct connections available on the network switch. Low cost brand name switches are available with up to 24 individual connections. If you’re not sure about how many connections you’ll need, then buy a larger model to accommodate future demands. Earlier, I maxed out an 8 port switch with just myself, four employees, a notebook computer, file server and Internet access.

Be sure that you get a gigabyte speed Ethernet “switch” rather than a slightly less expensive “network hub”. Unlike a switch, which can connect any Ethernet device to any other Ethernet device at the optimum speed for each, a network hub cannot detect and adapt to Ethernet devices running at different speeds. That means that a hub either runs your file server’s connection to the rest of your network at excruciatingly slow speed or that it cannot communicate with DSL
modems and printers, both of which typically include only slow Ethernet connections. Using a
gigabit speed switch avoids all such problems without any hassle.

Why bother with a fast network connection? Network connection speed really didn’t matter
very much when we only used a network to store retrieve small word processing files. Now,
although perhaps five or seven years behind the rest of the world, the legal profession is
becoming very visual, with high resolution photographs, video depositions, paperless filing
systems using Acrobat, and high speed Internet access all vying for the same network bandwidth.
Only gigabit speed networking can provide adequate performance for these modern network
demands, even in the smallest law office. Luckily, gigabit networking is really quite
inexpensive. Most new computers include at least one built in gigabit speed Ethernet port
without extra charge. If needed, you can always buy an add-in card; I paid $15 for my last add-
in gigabit Ethernet card. Even if your notebook computer only has a 100 megabit Ethernet
connection, it will connect, albeit more slowly, to a gigabit speed switch. Connecting network
cabling should be at least 350MHz Category 5E or, better yet, more modern 500 MHz Category
6. A modern gigabit switch and proper cabling are the only hardware that you need, aside from
the computers and printers that you will connect, for a completely modern network.

WHAT GOES INSIDE THE FILE SERVER BOX?

You can buy a generic file server or you can have one built to your custom specifications using
the best quality, most reliable and fastest components. I chose to build my own but unless you
are fairly expert, don’t try assembling this at home. I used the following components, which I
believed to provide the best value, reliability and performance for the money that I allocated for
a new file server. I bought most of the products mentioned here from www.newegg.com, which
I consider to be one of the most reliable, low cost and best-stocked Internet vendors. Chances
are that you’ll prefer to have a competent local shop build and service your law firm’s file server
rather than doing it yourself. Here are a few suggestions but these are not cast in concrete
because technology prices are again dropping even as performance rises, given the current market conditions:

1. **AMD Quad-core Opteron.** This is a fast but inexpensive four core CPU intended for file servers although it also works very well in a desktop computer. I prefer it to Intel’s more expensive Xeon file server CPU. Use at least 4, preferably 8, gigabytes of matched high speed DDR2 RAM memory. Processors aimed more toward end user desktop computing often don’t perform as well in a file server setting, whose primary function is to move a lot of data to and from network storage to end user computers. The extra RAM is a cheap way to improve overall network performance.

2. **Matching AM2+ or AM3 style system board from a solid component company like ASUS, Abit, or Gigabyte.** Be sure that your file server system board includes a high quality built-in RAID disk array controller for modern high speed SATA disks. That allows you to set up a high-end failure-resistant disk array in about five minutes with minimal cost and hassle. Not too long ago, setting up a RAID disk array was akin to rocket science: an expensive black box, whose internals were known mostly to wizards and that blew up with a certain regularity. You’ll need to include four gigabytes (4 GB) memory.

3. **The RAID disk array:** take four 750 gigabyte Western Digital Black Caviar SATA hard disks, which are among the fastest and reliable hard disks available at a rational price (about $80 each). Then, attach a powered hard disk cooler to each one, and connect them to the power supply and to the system board SATA data connections. In only a few minutes, you can electronically combine these four discrete hard disks, whose individual capacities total 3,000 gigabytes, into what appears, to your operating system, to be a single 1,500 GB hard disk. Why, you might reasonably ask, would any reasonably sane person spend about $320 to turn 3,000 gigabytes into 1,500 gigabytes, especially when you can buy a perfectly good 1,500 gigabyte hard disk for under $150? Data security and fast
performance. A RAID hard electronically spreads all of its data over all four disk drives, reading and writing simultaneously, and achieving even better performance than any of its individual fast hard disks. That’s important when many people are trying to access the same hard disk for large Acrobat or multimedia files.

Even more important, though, is a RAID disk array’s redundancy and consequent high level of resistance to data loss when disk drive hardware fails. Any one of a RAID array’s individual hard disks can fail and your system will continue working without data loss. When you replace the failed hard disk, the RAID array uses special data stored on the remaining disks in the array to reconstitute the third hard disk as a fully functioning disk array component without any data loss. Even though you are undoubtedly backing up your network data every day, you still need this sort of operational reliability. Down time is just too costly for a law firm.

4. A big reliable power supply and lots of cooling fans. You’ll need a top end voltage stabilized 600 watt or higher power supply for any file server. Although vendors typically use the least expensive power supply that they can find, don’t fall into that gambit. Failing power supplies are probably the most common reason that network file server hardware fails.

Be sure that you have a large battery-powered uninterruptible power supply (UPS) to ensure continued operation if there wall outlet power fails. I prefer APC brand UPS devices - they’re reliable and are recognized as a USB device capable of shutting down the file server when the battery runs low. Best of all, they’re readily available at Costco and not too expensive.

Use as many fans and as large a tower case as feasible. All of this hardware
generates a lot of heat, so you’ll need as many fans and as much unobstructed interior case volume as possible. Large 120 mm fans exhausting hot air from the file server case tend to do a better job cooling a computer’s interior than smaller fans or fans that blow outside air into the case. Where possible, use fans that are powered and controlled by the system board through small three pin connectors that plug directly into the system board. These are monitored and controlled by your system board hardware as your hardware heats up. Fast hard disks run very hot. Attach a hard disk cooler to each: I like the Coolmax products that are screwed into the bottom of each hard disk and that blow cool air on to the exposed hard disk electronics, which seems to be the most common point of hard disk failure. I also install all the RAID hard disks in a position where one large fan blows cool outside air across all three disk drives.

Finally, here’s a trick that I used to cool the file server’s tightly packed RAM. Most modern tower cases include a side-mounted fan on the removable panel. Usually, this fan is almost perfectly placed to blow cool outside on to the RAM memory. Modern RAM runs hot and is highly susceptible to heat failure. The colorful little heat spreaders that most RAM vendors now put on their chips are helpful but more a marketing ploy. You’ll need to supplement those bright red or serious-looking black heat spreaders with cool outside air. Determine which way the side-mounted fan is blowing. If it’s blowing from the outside inward, then that’s great; your RAM cooling problem is probably already solved. If it’s exhausting hot air, then simply reverse the action. These fans are simply attached by four self-threading screws. Remove the screws, reverse the fan, and then re-attach the other side with the self-threading screws.

5. Simple data backup. Back up your data every day, even if your new file server has a RAID disk array. The RAID array only protects against hardware failure and that’s very critical. However, most studies suggest that about 80% of
business data loss occurs because of employee error. A RAID array responds to the delete command just as promptly as a single hard disk and the data will be just as “gone”. A RAID array has no value in protecting against fire, theft, disaster, or other casualty loss. Only a proper daily “full” backup, stored off-premises, fully protects against operator error, theft and casualty loss. Incremental or other forms of partial data backup are often unreliable and may not restore all data correctly.

Tape drives used to be the backup device of choice but are now totally obsolete, at least for the small law firm. Far better, far less expensive, and far more reliable are portable hard disks. These plug into a high speed USB 2.0 port and are recognized as just another hard disk when plugged into the file server or other computer with full rights to all data. Up to 400 gigabytes or so, you can use a small 9.5 mm hard disk generally intended for notebook computers. Although a little more expensive, these have the advantage of being powered by the USB port itself and do not require any other external source of electrical power. As such they are highly portable. If you need more storage space than that, then you can buy a fully configured 1000GB or 1,500 GB external hard disk from Costco for $100 to $150. These work well when used either with the ubiquitous Windows backup accessory program or when simply dragging and copying the entire set of data folders in Windows. Regardless of what hardware you choose, use it every day and store the backups off premises.
Overview

This paper is an update of previous papers I have prepared and presented on technologies used by lawyers and will focus on the functions of the respective technologies and will not specifically focus on price alternatives. In each category of functions there are price alternatives and feature alternatives. This paper will address each of the functions and at the end of each will present alternatives with compatibility to “Solo/Small Firm”, “Home”, and “Mobile” situations. The compatibility will be two check marks (TT) - very suitable, one check mark (T) - okay; (X) – likely unsuitable; (XX) - don’t go there. In looking at a “computer”, examination will be made of each element as these components are often common to desktop and laptop models. In addition to examining hardware and software, we will also look at peripheral technology services (internet, email, telephone, remote access, maintenance, training, etc.) and discuss them from these same perspectives. In the end, look for a sample shopping list which can, if you like, be converted into a specification for a proposal request from your local or online technology supplier.

Take the time to speak with other users of technology, not just the vendors or their sales personnel; see what is working, what is not working well in the marketplace.

1. Computers

For present, don’t think in terms of the case which houses the “computer”, but rather think of the components which make up the “computer” whether housed in a case beside your desk or miniaturized into a folding notebook which you can carry in your briefcase.

   A. Central Processing Unit (CPU)

   This is the heart of the computer as it controls the speed at which the computer can process computing function. For mere word processing, it is doubtful that the needs of the lawyer cannot be served by any of the processors presently in the computer stores. It is only when one looks to simultaneous operation of programs (multitasking) and technologically complicated programs (for example voice recognition) that the speed of the processor becomes a real factor. The CPU speed might be analogized to the speed at which you think (not necessarily the capacity of your short or long-term memory which in computer terms are represented by the amount of random access memory (RAM) and hard disk space, respectively).

   Serious consideration should be given to Intel Core 2 or AMD x2 CPUs (or their equivalent) -- these processors have 2 processors that function simultaneously to process programs and

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data. Computers are presently being engineered to accommodate "quad core" processors, accommodating 4 simultaneous processors, but as of the writing of this paper, none are in common distribution. Common these days are dual core CPUs having a “thinking speed” of 2.5 GHZ or more. The bleeding edge will take you beyond 3.0 GHZ but at this time don’t settle for less than 2.0 GHZ in a dual core processor.

B. Random Access Memory (RAM)

This component is ordinarily provided by memory chips which are fitted into the computer. Most computers currently come with a minimum of 2 GB of RAM. The size of your computer’s RAM is equivalent to the amount of information that you are able to keep in your brain’s short-term memory without having to go back to and refer to notes in a file. Not only is the amount of RAM important, so too is the speed of access. When computer information is loaded into and stored in its RAM memory, it is instantly available to the processor without having to seek out information stored in files (which will, obviously, reduce the speed at which the computer processes information). Be aware that there are different “kinds” of RAM (SDRAM, RDRAM, DDR, DDR2, DDR3) and some computers use proprietary RAM components. Check carefully BEFORE you buy as to the price and availability of RAM upgrades.

Each time a program is loaded and remains running, it uses RAM, and therefore if you are planning on concurrently running a word processing program, a contact management program, and a voice recognition program, it is obvious that you will need to provide far more RAM than if you are simply doing word processing. If you are considering doing multiple applications, check to ensure that the computer memory is expandable to accommodate as much RAM as you may reasonably need. Given the size of current operating systems, it is likely advisable to consider between 4 and 8 GB of RAM, but look for a system which is able to accommodate more than that. Also be careful of processors which share RAM for Video memory... they can cut down processor speed and capacity.

C. Hard Drive

This is your computer’s filing cabinet, the place where it stores your information. It also stores the programs which are necessary to retrieve, modify, print, and transmit these pieces of file information. The size and number of programs that you will operate will dictate in part the amount of hard disk space that you require as well the number and size of files you store on an ongoing basis. Given the cost of hard drives and the increasing size of new programs and updates, you should consider the largest hard drive possible, or alternatively adding a second hard drive to allow for storage of information or backup information. A minimum hard drive is in the 250 GB range and 500 GB+ is recommended.

If your hard drive has not been replaced within the last 4-5 years buy a new hard drive ($150-200) and copy your present HD to it; you will likely find the excess storage space to be needed and should the old drive crash, you have a backup of its operating system. Consider this expense as insurance “insurance”.... as most insurance policies exclude the cost of restoring data onto hardware damaged or lost. Another solution for the storage capacity
crunch is an external hard drive which connects to the computer through a USB or parallel port. These external drives can obviously be used to transport files and data from portable computers to home or office desktops or can easily be used for backup storage.

Of recent vintage are solid state drives (SSD) – these have no moving parts and are like oversized thumb drives. At this time they are quite costly $500 (US)+ for a 250 GB storage drive (vs $50 US for a conventional hard drive). They are lighter and have no moving parts to fail and operate silently.

D. Floppy Disk Drive (FDD)

Once upon a time the size of files and the limitations of hard disk storage allowed for use of 3 1/2" removable diskettes for temporary storage and transport of files. These disks stored 1.4 MB of information. Given changes in file size and the reduced cost of other media, it is rare to find these kind of drives built into current computers. They are still available as external devices connect via a USB connection. Unless you have particular need for one of these.... they are likely a waste of funds.

E. CD, DVD and Blu-Ray Rom Drives

Rom drives (Read Only Memory) permit the user to read data from 5.25" disks but not to write to or change the contents of the disks. The data may be computer data, audio recordings or video recordings. The data is conventionally stored on a single layer. Some DVD Drives can read a Dual Layer discs which employ a second physical layer of recordable media within the disc itself. The capacity of a dual layer disk is double that of a conventional disk.

CD Rom Drives - A CD will hold approximately 650 MB of data or approximately 72 minutes of audio sound. Many computer programs and audio recordings are still distributed on CD however these "read only" drives have for the most part been replaced by DVD Drives which will also read CD formatted disks.

DVD Rom Drives - Although physically similar to an ordinary CD, digital video disks can hold up to 6 GB of data (12 GB dual layer). This capacity is sufficient to contain the entire video and audio portion of a two hour movie. DVD Drives also act as CD Rom Drives and will read (but not write) conventional CDs.

Blu-Ray Rom Drives - The BluRay format will store up to 25 GB (50 GB dual layer). This media is most commonly in use for proprietary high definition movie and video distribution

F. CD Read-Write (CDRW) and DVD Read-Write (DVDRW)

These drives not only permit your computer to “read” data from, but also to "write" or "burn" data to a CD or a DVD which can be accessed from any other computer with a CD or DVD Rom Drive. A RW drive also allows the creation and use of re-writable CD’s or DVD's which can be used in the same manner as a very large floppy disk by other computers.
with similar RW drives. This technology can be used to create backups of large files or information. This technology is also useful in creating a disk containing precedent or file information which can be accessed from a portable computer which may have limited hard disk space. Although available as external components (simply attached by cable to the back of a desktop or laptop computer), most commonly, this technology is built into a desktop case. The current speed for RW disks is slower than the Rom drive speeds) but the ability to re-write to the same disk is a more ecofriendly alternative than use of new disks each time one wishes to store data. RW drives are available in CD format (up to 650 MB) or DVD format (6 gb of data) on a single transportable disk.

G. Zip/Super Drives

These devices are for the most part only of historical interest and are not in common use at this time. (If the computer you have is equipped with this kind of drive, it is likely worth buying a new computer than try to run the risk of these kind of drives failing). These drives are like floppy disk drives in that they store information on special 3 1/2" diskettes which will store between 80 and 250 MB of information depending on the model of Zip drive and 120 MB in the case of a Super Drive. A Super Drive also acts as an ordinary floppy disk drive and will read and write to standard 1.4 MB diskettes.

I. USB/Flash/Smart Drives

These are small devices about the size of two AAA batterie which attach to the USB port on any computer. Sometimes called memory sticks, they allow for compact and highly portable data transfer. The cost of this kind of device makes it idea for temporary storage or transfer of files. In 2003 a 128 MB USB drive cost in the range of $110 ..... in 2009 a 16 GB USB drive can be purchased for approximately 1/2 the cost of that. The price of these portable storage devices seems to be descending daily.

J. Network Cards/Network Hubs

Even as a solo or home office lawyer, you may find it important to set up a “network” to allow sharing of data, printers, modems, and other components amongst various computers users. The network can be wired -- involving a wired connection between the computer and the network "hub" (the electronic device to which all computers, etc are connected) and/or wireless -- where there is no physical connection, but only a data signal connecting the computer to the "hub". A wireless network router can also be used for both hard-wired computers to create a small network of wireless and “cabled” connections.

In order to connect to a network, your computer must have a network card or a wireless network card depending on the type of network you set up. Network cards communicate at speeds of 10, 100 or 1000 MB per second and wireless network cards at speeds of 4.3 -300 MB/sec. Virtually all desktop and laptop computers come equipped with network cards but wireless network cards are only commonly installed in laptops. If you are buying or replacing a network card, seriously consider one which will handle up to 1000 MB/sec . 10 MB / sec will leave you languishing with the size of current downloads. If your laptop does
not have a wireless card you can add wireless network connectivity using a separate installable PMCIA card or USB attachment.

If you are attempting to connect to the internet outside your office you will need to make that connection through a wired connection or through a wireless (WI-FI) connection. Be aware that when you connect to the internet using an external hub or wireless router, other computers sharing that connection may also be able to access any shared drives or storage devices on your computer. If you are going to become a road warrior or are going to work from home, consult an expert as to how to best protect and secure your computer against intrusions.

The use of a software or hardware "firewall" on your network is also a good idea to protect all the computers on your network against external intrusions (Sonicwall, DLink, Linksys).

NOTE: If you are considering a wireless network solution be aware that there are special network cards required and special security considerations to be taken into account. **Do not assume that when you take a wireless router out of the box that it will come configured with security settings enabled.** That will not satisfy your professional obligations to maintain client privilege and privacy. On the contrary work from the assumption that it will not be secured in any way and that if you connect it to the internet anyone will be able to fully access both the internet and other computers attached/connected to that router. Have a professional assist you in configuring any wireless network connections.

K. Modem/Fax Modem

Most laptop computers come equipped with a Fax Modem. These 56K modems will allow a computer to connect to the internet via a dial-up telephone service. This same telephone connection also permits you to send a fax of information contained on your computer’s hard drive to a fax machine, or to receive a fax from someone else.

L. Tape Drives/Network Attached Storage Devices

This is a drive either housed inside a desktop computer or attached by cable to a computer which allows a computer user to store large quantities of data onto a magnetic tape or onto a hard drive. Tape drives are suitable for doing “backups” of large hard drives, however as you can only read the tapes created on another tape drive, and given that the tape drives are relatively slow, it is not the best way of communicating information between computers. Given the small cost of more reliable hard drives many firms have moved to external hard drives attached to their network as a repository for backups of client and file data.

2. Monitors

Computer Monitors come in a variety of sizes, shapes, and colors, with 19" (diagonal measurement) monitors being bare minimum entry level monitors for a desktop system, and 15" on laptop computers. Virtually all monitors sold now are flat screen monitors which use less energy and take up less room than the old style CRT monitors. In addition to the
physical size of the monitor screen, it is important that the resolution (clarity of the screen) be as high as possible. Resolution on computer screens is measured on the basis of dot pitch, with the smaller the dot pitch, the higher the resolution. Resolutions of .28 mm or less are most common. Although a 19" monitor may be sufficient for simple word processing or single application use, where the user of a computer is going to have multiple programs running, the cost deferential to upgrade to a 22" or a 24" monitor, or to even go with dual monitors is small and the eye strain will be less.

On a laptop computer, the largest available screen is a 18" (diagonal) screen. This limit is based on physical size as to go much larger than 18" would make the laptop barely transportable. The sizing of a 3-ring binder appears to be the practical limitation computer manufacturers have placed on the size of laptop computers. Most common laptop screens are the “wide” screens which are 15.4" wide and are suitable for watching DVD Movies in original format. Tablet PC’s (a flavour of laptop computers) come, for the most part, with a 12-14" display. These light, transportable units are especially suitable for use on airplanes and for those who are used to making notes on the document they are reading (as one can make handwritten notations onto the electronic documents without affecting the original documents). As well some lawyers prefer to read documents on their desk, not on their wall (which is how some think of computer monitors).

As important as the performance of the monitor may be, it is important that the video card which is contained in the computer, or the video processor which is built into the motherboard, have a large memory (minimum 128 MB) in order to process graphical information being received from programs or the internet. If the video memory of a computer is very small, the monitor display will be slow to bring up graphical information. Be aware that on some laptop computers the memory of the computer is shared with the video memory and therefore if the computer says it has 1 GB MB of memory and is running the Vista operating system, virtually no memory will be available for programs, with the rest being used for the video processing and the basic operating system.

For a desktop computer, it is recommended that you chose a 19-22" monitor with a resolution of not less than .28 mm. For a laptop, if you are going to use this as your everyday computer, then consider a 15" screen.

3. **Keyboard**

Most computer manufacturers supply a keyboard with the CPU at the time of sale. These keyboards often contain a variety of collateral features including programmable keys, scroll buttons, touch pads, etc. Chances are that until this keyboard breaks or encounters problems, you will not consider a replacement keyboard, and when you do you may want to look at some of the ergonomic keyboards which are now on the market, or a wireless keyboard (which allows you to move the keyboard away from the processor without the umbilical cord connection to it). There are also keyboards on the market which have an integrated pointing device which may be of interest if locating or moving a mouse is a challenge for the user.
If the user of a computer starts to encounter physical symptoms with hands or shoulders, check carefully the height of the keyboard and the angle at which the fingers reach across the keyboard to access function or programmable keys as these are often a source of repetitive use injuries. If the user of the computer has broad shoulders, give serious consideration to the use of an ergonomic keyboard, as the wrist angle necessary to utilize a standard keyboard will prove problematical for these users.

Keyboards, as with mice can be connected to the CPU by a wire connection or can be connected in a wireless way. The wireless connectivity allows more flexibility in placement of the keyboard/mouse but will consume batteries along the way.

On laptop computers, obviously the keyboard size is even smaller and therefore more problematical for use on a day-to-day basis especially if your hands and fingers are large. Consideration should be given to attaching a keyboard to the laptop when used in an office setting. (Microsoft, Logitech, Belkin)

4. **Mouse/Curser Control**

Windows uses a curser (an on-screen indicator) coupled with a mouse or other pointing device to perform a variety of other functions. Relocating this curser around a screen requires a measure of dexterity and given the extent of curser use by an operator, you will soon become keenly aware that the fit and feel of a mouse is fundamentally important. Again, most computers come equipped with a mouse or pointing device of one of the following kinds:

A. **Optical Mouse**

This type of mouse normally has 2 main buttons as well as a central rotating wheel which allows a user to “scroll” or move down a computer window without having to physically move the mouse. Some types also have additional buttons which with a single click will perform other operations.

B. **Cordless Optical Mouse**

Rather than being connected to the computer by a cord, these communicate with the computer via an infrared or bluetooth connection. The devices come with various features and some are powered by rechargeable batteries.

C. **Trackballs**

These “mice” are controlled by the user moving a ball which is on the top of the mouse; they require more dexterity to use, but because one does not have to move the mouse to roll this ball, the mouse requires less physical space and movement to use.

All of the "species" of mice come in varying shapes, weights, colours, and "feels". The key is to find one that fits the hand of the user and that has appropriate features.
In addition to a “conventional” mouse, there are also pointing devices such as touchpads and “eraserheads” which are common on laptop computers. There are also other kinds of writing "tablets" which can be attached to a computer. Either a touchpad or an eraserhead tend not to have the degree of fine control which a mouse does, and repeated use over an extended period of time may be frustrating for some users. When selecting a laptop, try or even borrow a computer having an eraserhead or a touchpad and see which you prefer before you buy. There are a handful of computers on the market which are built containing both kinds of cursor controls (HP and Dell).

D. Cordless Pointing Devices/Presentation Controllers

When you are making a presentation from a laptop you may not always like to be sitting near your laptop as you change slides. Various manufacturers have come out with portable “mice” which will allow you to control the slides in a presentation from a distance of up to 25 or 30 feet.

5. Computer Connections

Most computers have had two kinds of “ports” which allow connection of other devices to a computer. These are called LPT Ports (parallel ports) which are most commonly used for connections to printers, and USB (universal serial bus) Serial Ports used to connect mice, modem, or various other kinds of devices. USB ports can be connected to USB hubs to allow a user to connect many devices to a computer using a single kind of port.

It is now common for scanners, mice, keyboards, printers, headsets, and other devices to be connected to a USB Port. In order to connect an older printer or scanner to current computers you may have to purchase a converter to adapt a USB Port into a Serial or Parallel Port. Don’t be buying a computer with less than 4 USB connectors.

USB has also gone into a “second” generation and USB 2.0 ports have established a new and faster standard (480 Mbit/s) for these connections. Just announced at the 2009 Consumer Electronics Show (January 2009) is the a third generation of USB ports -- USB 3.0 with transfer speeds of up to 5 Gbit/s

6. Operating System

There exist three dominant operating systems used in the legal environment, they are Windows 2000, XP and Vista. In addition, there is limited use of the Macintosh and Linux operating systems. (The fact that the current Intel based Macs can also run Windows based programs has resulted in greater uptake of the Mac platform than previously experienced). At present it appears most advisable for the solo/home/mobile practitioner to stay with a common place operating system that you can easily get technical support for, such as Windows XP. Although most new computers ship with the Vista operating system, some allow for "downgrade" to Windows XP at an additional cost.
Mixing operating systems within your firm will only cause greater challenges for software and technical support personnel ... if possible, keep your base operating system standard, whatever the standard is to be.

7. **Computer Software**

A. **Office Suites**

Here you have two basic choices, whether to go with the business standard and more expensive Microsoft Office Suite of applications (word processing, spreadsheet, and presentation software) or go with the historical legal industry standard and less expensive Corel (Word Perfect) Suite of products. Your choice of software will depend in large measure on what your clients use and what software you and your staff (if any) are comfortable using. With each new release of either program, you will see similar features incorporated. As for converting from one family of programs into the other, there are relatively decent conversion programs available to allow the user of only one kind of program to translate products backwards and forwards between other applications.

In both Microsoft Office 2007 and Corel Office X4 there have been substantial changes to the interface as well as the features of the programs, particularly with the “look and feel” of the Microsoft Suite. Both programs have built in features or add-ins which allow users to create PDF files from Word/Wordperfect documents.

The key element for any user of software, and particularly the user of these “base” applications, is training whether that training is provided by the user working through a tutorial program on-line, attending at a computer centre for a training course or logging onto an interactive web-based training program.

**NOTE:** Without training in the use of these programs, the sole/home/mobile lawyer is at a substantial disadvantage.

B. **Case Management Software**

There are a variety of generic industry programs available to keep track of client information, calendar, time inputs, etc., however for the money, consideration should be given to one of the legal specific programs. The current dominant players in this market are Amicus Attorney and Time Matters. Abacus Law and Integra also appear to have some presence. Amicus Attorney now has its own Amicus Accounting software and Pro Law also adds accounting, document management, calendaring and other features to the practice/case management features, however Prolaw’s use in Canada at this point is limited.

C. **Accounting Software**

Especially important for the solo and home user is the ability to keep track of both office/general bank as well as trust transactions. Depending on the nature of the lawyer’s practice, it may be possible to keep the trust portion of the accounting function non-
computerized, however the advantages and relatively low cost of computerized accounting to keep track of general office expenses would seem to dictate the utilization of a financial accounting package.

There are packages which are tailored to the legal industry and which integrate with the time-keeping functions of a case management software application. Commonly in use in Canada are PC Law/PC Law Jr., Integra Office Management System and Esi-Law. Amicus Accounting is a new entrant in the market. If keeping track of time on files is not important to the practice you have, then Quick Books or Quicken may be the only software you need, and often a version of these will come loaded with your computer for free when you purchase it. That said, for the money and the set up costs, a legal specific accounting program is recommended for the solo/small firm practitioner.

8. Internet Browser

Once upon a time, people wishing to go onto the internet had to purchase a particular computer program to access the it. This kind of program was called a Browser. Now the two dominant programs, Internet Explorer and Firefox, are freely distributed by the manufacturers and can be downloaded off the internet. Also free and in use are Netscape, Google Chrome, Opera and Safari. More than anything else which program to use is a matter of personal preference, however obviously IE is designed to work very closely with Outlook and other “Microsoft” programs.

9. Telephony/Voicemail/Fax/Modem Software

In addition to the conventional “copper wired” telephone, law firms have the option of VOIP (Voice over Internet Protocol) and cellular telecommunication technologies. Which make the most sense for you will be a matter of cost, system reliability and flexibility.

Small firms may wish to use software which when loaded onto your computer will allow it to send or receive faxes. This may be particularly useful to a solo user, however there are configuration issues which you will have to address, for example, do you want to use a single telephone number for both voice and fax communications? There are programs which will allow you to re-direct incoming faxes to individual email accounts. (www.electrasoft.com, www.efax.com, www.venali.com, et al)

10. File Security

The obligation to keep client communications and information confidential likely requires that you as a lawyer also take steps to ensure that even if your computer is stolen, that the client information contained on it cannot be accessed by a third party. To do this you will have to consider adding passwords onto each client file as it is created, or alternatively, to store all of the client information in an encrypted partition (portion) of your hard drive. Consider encryption software from www.pgp.com, www.securstar.com, and freeware offerings at www.truecrypt.org and www.freebyte.com/security. All of these create an encrypted area on your hard drive which can only be accessed if a user password is entered.
into the computer as the encryption algorithm and password are created by the user and therefore is extremely difficult to “hack”. Therefore, if your laptop or desktop computer is stolen no one would be able to access this portion of the hard drive without knowledge of your particular password. This kind of encryption is even MORE important on PDA’s which often carry nearly a whole client list and database.

11. Internet Security

While your computer is connected to the internet whether through a cable or dial-up modem, there is risk that the communications you send can be intercepted by third parties, or alternatively that a “hacker” can access information on your computer or your network. As a matter of practice or to respond to client needs, you may wish to move towards using only encrypted email transmissions to clients (this necessitates that your client must have a password in order to open communications which you transmit to it) and therefore if anyone should intercept the transmission en route to its destination, they will not be able to read its contents.

In addition, to protect your computer from the intrusion of a hacker, you should install some form of firewall software or hardware into your computer or computer network (Sonic Wall). With the intrusions and viruses which have become more and increasingly common on the internet, there will be a proliferation of these programs in future, however some of the stand alone products include Zone Alarm, McAfee Internet Security, Norton Internet Security, and Webroot Internet Security.

12. Backup

Critical to a sole/home/mobile lawyer is the creation of a backup of critical files from your hard drive. That way if your hard drive should be damaged, destroyed, or stolen, you would still have the critical information available to you to carry on your practice. Most operating systems come loaded with backup software to permit you to create a backup file of information onto a variety of media including floppy disks, tape drives, CD/DVD-R, CD/DVD-RW disks or other hard drives. Here the key is discipline and routine: the discipline to do a backup and the routine to do it regularly. This necessitates keeping your rotating group of backup media, some available for immediate use and others protected against major catastrophe, in a vault or otherwise off site. Retrospect (www.emc.com), Norton Ghost (www.symantec.com), Genie Backup Manager (www.Genie-soft.com) Acronis True Image (www.Acronis.com) are other commercially available backup software programs.

You may wish to use an online data storage service for backup - these are normally mirrored to several secure locations: Dropbox (www.getdropbox.com), SOSOnlineBackup (www.SOSOnlineBackup.com); Mozy Remote Backup (www.mozy.com).
13. Miscellaneous Software

1. Voice Recognition

Dragon Dictate and IBM’s Via Voice appear to be the dominant products in this area. This software may be critical to the sole/home lawyer who does not have keyboarding skills. When coupled with the digital recording devices, the programs are capable of acting as an electronic secretary to transcribe a lawyer’s dictation into digital, editable, formatable text. Of interest to those who may have visual impairment is the reverse capability, in which the programs are able to aurally transcribe written text back to a lawyer. Dragon Dictate (now owned by Nuance) appears to be the industry leader in this category.

2. Remote Access Software

Particularly for the mobile lawyer or the lawyer who likes to work from home, the use of software which allows you to communicate back to your office and obtain file information or to transfer information back to your base office and to printoff information there can be an important feature. If you are a solo practitioner, the same software can allow you to keep your practice files on your office computer but access them from your home computer or laptop while travelling to a client’s place of business. LogMeIn (free from [www.LogMeIn.com](http://www.LogMeIn.com)), GoToMyPC ([www.GoToMyPC.com](http://www.GoToMyPC.com)), PC Anywhere ([www.Symantec.com](http://www.Symantec.com)), and LapLinkEverywhere ([www.LapLink.com](http://www.LapLink.com)) are products which allow you to communicate in this fashion. This software installs on both the base computer and the remote computer and can, in conjunction with the other hardware, allow for the creation of a virtual private network (VPN) “on” the internet. If you wish simply to transfer a file or have immediate written communications back to your office, the use of a program like AOL/Yahoo/MSN Messenger/Skype will allow you to communicate back to your office and to send and receive file information. These latter programs are all free and can be downloaded from the internet.

14. Other Hardware

Network

For the solo practitioner who has a secretary or for the home based practitioner whose family may have a second computer for other uses, it is recommended that a network be installed to connect these computers. This allows each of the computers on the network to share information, peripheral devices, or even internet connections. In order to set up a network, the computers must be attached to the network using an ethernet card and a cable which is plugged into a network hub. There are solutions which use infrared technology to connect computers to a wireless network and also systems which use ordinary telephone cable to connect computers in a home or small office environment. Major players in this area are Linksys, D-Link, and Intel. Security is a concern in the use of wireless networks by law firms and users contemplating such application would be wise to retain an expert networking consultant.
15. Printers

As paperless as we might wish to be, lawyers produce paper, and there is no more economic way of producing this paper than using a laser printer. This is the heart of the solo/home office. The cost of producing ink-jet copies is significantly higher on an operating basis than a laser printer, however ink-jet technology does allow for the production of color materials. For a solo or home office, a laser printer printing at not less than 10 pages per minute is desirable, and printers from Hewlett-Packard, Lexmark, Brother, Xerox, and Canon are commonly available at office supply stores or through online sources. (See also discussion of multi-function devices)

When in doubt, talk to a service technician and ask them which products they historically have the fewest service requests on. Let this be your guide to purchasing a printer to meet your requirements. A dot matrix printer may be useful if your practice requires you to fill out multi-part forms or if you wish to generate mailing labels, however increasingly Governments and businesses are moving toward computer based forms which are then simply printed out in multiple copies. If you are going to connect more than one printer to your computer, you will either need to use a USB connection or add additional LPT Ports to your computer.

For the mobile practitioner there are only a few printing choices available in ink-jet technology. These are available from Hewlett-Packard, Canon, and Brother. The weight of these printers and the cabling necessary makes transportation and true portability an issue. It is not uncommon therefore that mobile lawyers do not carry their own printers with them, but rather “fax” their documents to their own hotel’s fax machine as a means of “printing” documents. The use of a business centre (Kinko’s, Office Depot, Staples) or a copy shop to run off copies of documents may also be more cost effective, feasible, reliable and “professional looking” than the “convenience” of a portable ink jet printer.

16. Internet Connection

One of the key elements to operating as a solo/home/mobile lawyer is your ability to access the internet. This access, in the context of lawyers, is most commonly provided by cable modems, ADSL connections, or analog dial-up modems. Assess your need for speed and the cost of that service. If you are a mobile lawyer, your ability to access the internet service provider from multiple locations that you will be travelling to becomes a factor. “National” ISP’s such as AOL Canada, NetZero.net, Bell, Rogers and Telus. If your travels take you internationally, you should inquire as to the cost and availability of dial-up service from those jurisdictions. Be aware that many countries by the minute even for local service and increasingly hotels have started to charge for extended connection time through their networks (> 1 hour). These rates can be staggering.
17. **Multi-Function Devices (MFD)**

These devices act as a printer, fax machine, scanner, and copier when attached to a computer. The printing engine is either a black and white laser printer or a color ink-jet printer. There are also versions which just act as printer/scanners/copiers. Although the purchase of one of these units leaves the solo/home user in a vulnerable position should the equipment malfunction, the cost and space efficiency of these units makes them a nearly irresistible alternative. By, for example, purchasing a laser MFD, one could also have a low cost ink-jet printer as a backup printer.

The major suppliers of these devices are Hewlett-Packard, Xerox, and Brother.

18. **Scanners**

A scanner allows you to take a document or photograph and convert it into an editable digital file. In the context of documents, this means that they can be processed using optical character recognition software into an editable text file or, in the case of an image, into a graphic image which can be included in a document, presentation, or website. Scanner sources include Hewlett-Packard, Fujitsu, Canon and Visioneer. Fujitsu, Visioneer and NeatCo also make small portable sheet-fit scanners .... very useful in the mobile office as a means of processing and sending hard copy documents through your computer’s fax modem. The Fujitsu ScanSnap 1500 and the Neatco ADF Scanner process stacks of up to 50 documents through their feeders to be processed through duplex scan lenses ... 20+ sheets per minute. If you are considering using the scanner for input of multi-page documents for OCR purposes, a feeder is essential (otherwise you will spend a long time changing individual sheets as they scan into the computer).

Many manufacturers make ultra high speed scanners (65 ppm ++) which make them viable input devices for converting physical paper into electronic digital files whether for online retrieval or for litigation management.

There are a variety of programs which add extra utility to your scanner, these are sometimes bundled into a suite of products, however the OCR function is performed by a software program like Omnipage or ABBYY Fine Print; and the photo image editing would be provided by a program like Corel Paint Shop Pro Photo or Adobe Photoshop Elements(amongst many others). Products like PaperPort allow users to organize scanned materials into files and folders; programs like Cardscan allow users to process specialized information from business cards into usable data bases of information. Programs like Neat Receipts (bundled with NeatCo Scanners) recognize and organize receipts, business cards and documents into spreadsheeds, contact managers and folders.

19. **Digital Imaging**

The addition of a digital camera to your solo/mobile office will allow you to take instant photographs of clients, accident scenes, or other information that you may wish to put on your website. In addition, a stationary camera situated on your computer (commonly called
a web cam) may allow you to have live video/audio communication with clients. They can also be used to provide three dimensional demonstration in the context of speaking engagements without telephone or long distance costs. These again are available from a variety of sources at local computer stores and are manufactured by companies like Logitech and 3Com. In addition, a digital camera or a digital video camera may also serve as an input device for your computer.

20. Uninterruptible Power Supply

If you are in an area where the reliability of your power source is questionable, or if you are leaving your computer on unattended, it is more than recommended that you have an uninterruptible power supply (UPS) attached between your computer and the wall plug-in. These systems have a variety of features ranging from surge protection (to prevent a power surge from damaging computer components) to an internal battery supply which will continue to provide needed power in the event of power loss or reduction. At the very least your computer should have a surge protector attached to its power supply (APC, Belkin and Tripp Lite are companies that supply UPS and surge protectors.

21. Fax Machine

The need for a dedicated fax machine in the context of a home office is doubtful if one uses a multi-function device and a fax modem, as these will allow for communication of both paper and electronic information by fax. If a separate fax machine is required, consider a used scanner or fax machine to send faxes, but utilize your computer’s fax modem to receive and laser print incoming faxes.

22. Legal Research Sources

In addition to a variety of free legal sites where one can research legislative provisions and case authorities, the use of electronic research services such as Quicklaw (now part of Lexis-Nexis) and eCarswell provide cost effective and competitive advantages to the solo/home lawyer, and are essential components of being able to practice law as a mobile lawyer.

23. Smartphones/Personal Digital Assistants

The integrated power of telecommunications and contact management software has lead to the evolution of the smartphone which can wirelessly connect to the internet (accessing email and other online information), while using and synchronizing with Outlook contact management software to allow you to take a whole variety of client and other contact information in the palm of your hand. Whether it is the Blackberry format, the I-Phone, or a variety of MS compatible smartphones, these simple, reliable devices integrate well with computer based diaries and client information sources and allow a lawyer to carry in his or her pocket a vast quantity of client and scheduling information. For some lawyers, this is the only computerization necessary to travel with them on an on-going basis.
24. Other Tricks and Tips for the Solo/Home/Mobile Lawyer

A. Purchase your hardware using a “Gold Card” or “Platinum Card” and routinely the manufacturer’s warranty will be automatically extended by the credit card company.

B. Subscribe to SOLOSEZ (the discussion group of the American Bar Association focussed on solo and small firm practice), PracticeLink (a Canadian Bar Association initiative to provide practice focussed resources to lawyers) and Law Practice Today (the free webzine of the American Bar Association’s Law Practice Management Section).

C. Record the serial number and “PIN” numbers of computer software, along with the manufacturer’s help number in a file on your computer, and leave a backup or hard copy of this information in another location.

D. If you want to be a totally mobile lawyer consider the smartphone technologies that will allow you to connect to the internet on a wireless basis to retrieve email and information.

E. Most software companies allow a 30-day trial version of their software to be downloaded from the internet onto your computer before you are required to complete your purchase decision. Use this opportunity to check and make sure that you like the way the software works.

F. Once you have purchased software, check the manufacturer’s home page monthly for updates to the software. When possible set core programs like OS, Anti Virus and Office Suites to auto-update.

G. Always keep a log of dates when you load software onto your computer as well as any troubles or error messages that you may receive (these are invaluable when talking with tech support or having a technician investigate computer problems you are having).

I. Use an online server to transport Browser bookmarks wherever you access the net (eg. MyBookmarks.com).
25. Sample Hardware Configuration for Solo/Home Legal Practice

1. Computer
   Pentium Core 2 Duo IV or Athlon x2
   CPU - 2.0+ GHZ
   Ram - 2+ GB
   Hard Drive - 500 GB
   Fax Modem - None
   DVD Read/Write Drive
   Blu-Ray Drive
   Ethernet Network Card (10-100-1000)
   USB Microphone and Headset
   Standard Keyboard
   Scrolling Mouse
   Minimum 4 USB Ports

2. Laser Multi Function Device - Printer/Scanner/Fax/Copier
   OR
   Laser Printer and Sheetfed Desktop Scanner

3. Inkjet Color Printer (Optional)

4. Software
   Corel Office and Microsoft Office Software Suites
   Case Management Software
   Legal Accounting Software
   Hard Disk Encryption Software
   AntiVirus, AntiSpyware, Firewall Software

5. Unlimited cable or ADSL internet service

6. Minimum 40 hours computer training - 8 hours hardware and 32 hours software

7. Smartphone including encryption program

26. Typical Mobile Office Configuration

1. Laptop Computer:
   CPU - Dual Core 2 GHZ or more
   Ram - 2+ GB
   Hard Drive - 250+ GB
   Ethernet 10-100-1000
   Fax Modem - 56K
   Built-in DVD/CDRW
   Integrated Cursor Control
   15" display

2. Portable sheet-fit scanner
3. Unlimited national/international dial-up internet account
4. Case Management Software
5. Smartphone With encryption Software
<table>
<thead>
<tr>
<th>Technology Description</th>
<th>Solo</th>
<th>Home</th>
<th>Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer - Central Processing Unit (CPU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>286/386/486</td>
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<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Pentium</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Pentium II/AMD/Celeron</td>
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<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Pentium III/Athlon</td>
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<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Pentium IV/Athlon</td>
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<td>✓</td>
<td>✓</td>
</tr>
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<td>✓✓</td>
<td>✓✓</td>
</tr>
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<td>XX</td>
<td>x</td>
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<td>✓✓</td>
<td>✓✓</td>
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</tr>
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<td>✓✓✓</td>
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<td>Computer - CD Rom Drive</td>
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<td>Computer - CD/DVD Read-Write Drive</td>
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<td>Computer - Fax Modem</td>
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<td>Computer - Tape Drive</td>
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<td>Technology Description</td>
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<tr>
<td>------------------------</td>
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<td>Operating System:</td>
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<td>Windows Vista</td>
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<tr>
<td>Office Suites</td>
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<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Case Management Program</td>
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<td>✔️</td>
<td>✔</td>
</tr>
<tr>
<td>Legal Accounting Program</td>
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<td>✔️</td>
<td>✗</td>
</tr>
<tr>
<td>Internet Browser (Internet Explorer, Firefox, Opera, etc)</td>
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<td>✔️</td>
<td>✔️</td>
</tr>
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<td>Fax Modem Software</td>
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<td>✔️</td>
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<tr>
<td>File Security (Encryption) Software</td>
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<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Internet Firewall</td>
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<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Backup Software</td>
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<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Voice Recognition</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Remote Access</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Technology Description</td>
<td>Solo</td>
<td>Home</td>
<td>Mobile</td>
</tr>
<tr>
<td>-----------------------------</td>
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<td>------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Printer:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser Printer</td>
<td>✓✓</td>
<td>✓✓</td>
<td>×</td>
</tr>
<tr>
<td>Ink-Jet Printer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dot Matrix Printer</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td><strong>ISP Connection:</strong></td>
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<tr>
<td>Cable Modem</td>
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<td>56 K Modem</td>
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<td>Less than 56K Modem</td>
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<tr>
<td>Smartphone</td>
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<td>✓✓</td>
<td>✓✓</td>
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<tr>
<td>Multi-Function Device</td>
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<td>✓✓</td>
<td>×</td>
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<tr>
<td>On-Line Research Service</td>
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<td>✓✓</td>
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<td>Digital Camera</td>
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<td>Training</td>
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<td>✓✓✓✓</td>
<td>✓✓✓✓</td>
</tr>
</tbody>
</table>
**TECHNOLOGY SOURCES**

The following table provides a non-exhaustive listing of hardware and software sources of technologies which may be appropriate for use in a law office as well as websites where you can go to obtain additional information about products and pricing.

<table>
<thead>
<tr>
<th>Company</th>
<th>Product(s)</th>
<th>Website(s)</th>
</tr>
</thead>
<tbody>
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<td>3Com</td>
<td>Network Cards &amp; Hubs, Modems, PDA's</td>
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<td>Adobe</td>
<td>Acrobat, TypeManager, Photo Deluxe, PageMill (WebPage Designer)</td>
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<td>Alumni computer Group</td>
<td>Pclaw, PC Law Jr., ProLaw</td>
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<td>AMD</td>
<td>AMD-K6-2, AMD-K6 III, Athlon, Durn (CPU's)</td>
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<td>AOL</td>
<td>AOL Messenger - Communication Program, ISP</td>
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<td>APC</td>
<td>Uninterruptible Power Supplies, Surge Protectors</td>
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<td>Artisoft</td>
<td>i.share KoJack (Proxy Server Software)</td>
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<td>Brother</td>
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<td>Butterworths</td>
<td>Technology publications</td>
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<td>Canon</td>
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<td>Cardscan</td>
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<td>Carswell Thompson Professional Publishing</td>
<td>ecarswell (Online legal research), texts on internet and technology and automated legal software</td>
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<td>PDA's, Cameras</td>
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<td>Dragon Systems (now a Nuance division)</td>
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<td>Gavel &amp; Gown</td>
<td>Amicus Attorney (Case Management Software)</td>
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<td>Linksys (Network cards, Hubs and Firewalls)</td>
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<td>Logitech</td>
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<td>McAfee</td>
<td>PGP (Encryption Software), Personal Firewall, Antivirus and PC Maintenance Software</td>
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<td>Microsoft</td>
<td>Operating Systems, Office Suites, Internet Explorer (Browser), Mice, Keyboards</td>
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<td>My Bookmarks</td>
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<td>Netscape</td>
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<td>Palm Inc</td>
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<td>PowerSoft Innovations</td>
<td>Integra Law Office Management (Case Mgmt &amp; Accounting Software)</td>
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<td>Quicken</td>
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<td><a href="http://www.quicken.ca">http://www.quicken.ca</a></td>
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<td>Quicklaw</td>
<td>Quicklaw (Online legal research)</td>
<td><a href="http://www.quicklaw.com">http://www.quicklaw.com</a></td>
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<td>Ramp Networks</td>
<td>Webramp (Network Hub, Proxy Server &amp; Internet Router)</td>
<td><a href="http://www.webramp.com">http://www.webramp.com</a></td>
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<td>ScanSoft</td>
<td>Omnipage, Textbridge, Pagis Pro</td>
<td><a href="http://www.nuance.com">http://www.nuance.com</a></td>
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<td>Sonicwall</td>
<td>Proxy Server/Firewall</td>
<td><a href="http://www.sonicwall.com">http://www.sonicwall.com</a></td>
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<td>Symantec</td>
<td>PC Anywhere, PC Telecommute, Norton SystemWorks (PC Maintenance Software), Internet Security (Firewall Software), WinFax, Antivirus</td>
<td><a href="http://www.symantec.com">http://www.symantec.com</a></td>
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<td>Time Matters</td>
<td>Time Matters (Case Management Software)</td>
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<td>Tripp-Lite</td>
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<td>Visioneer</td>
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<td>Yahoo</td>
<td>Yahoo Messenger - Communication Program</td>
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<td>ZoneLabs</td>
<td>Zone Alarm</td>
<td><a href="http://www.zonelabs.com">http://www.zonelabs.com</a></td>
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**GENERAL TECHNOLOGY SOURCES**

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<td>Staples</td>
<td>General Source - Computers, Printers, Scanners, PDA’s, Software and Computer Accessories</td>
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<td><strong>Access to Justice Network</strong></td>
<td>ACJ Net - Statutory and other case authority and links sources</td>
<td><a href="http://www.acnet.org/">http://www.acnet.org/</a></td>
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<td><strong>Air Canada</strong></td>
<td>Flight Information and Reservation</td>
<td><a href="http://www.aircanada.ca/home.html">http://www.aircanada.ca/home.html</a></td>
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<td><strong>American Bar Association</strong></td>
<td>Legal Technology Centre - Reference</td>
<td><a href="http://www.abanet.org/tech/ltrc">http://www.abanet.org/tech/ltrc</a></td>
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<td><strong>American Bar Association</strong></td>
<td>LPM Section - Techshow</td>
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<td><strong>American Bar Association</strong></td>
<td>LPM Section - Seize the Future</td>
<td><a href="http://www.futurelaw.com/">http://www.futurelaw.com/</a></td>
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<td><strong>British &amp; Irish Legal Inf. Inst.</strong></td>
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<td><a href="http://www.bailii.org/">http://www.bailii.org/</a></td>
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<td><strong>Canada Post</strong></td>
<td>Postal Codes and Postal Rates and Services</td>
<td><a href="http://www.canadapost.ca">http://www.canadapost.ca</a></td>
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<td><strong>Canadian Securities Administrators</strong></td>
<td>Online Corporate/Securities Information</td>
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<td>Trademarks and Patents Search Database</td>
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<td><strong>Canadian Association of Law Libraries</strong></td>
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<td><strong>Case Central</strong></td>
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<td><strong>Comics.com</strong></td>
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<td><strong>CSALT</strong></td>
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<td><strong>Dennis Kennedy</strong></td>
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<td><a href="http://www.denniskennedy.com/ltprimer.htm">http://www.denniskennedy.com/ltprimer.htm</a></td>
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<td><strong>Department of Justice</strong></td>
<td>Federal Justice Info and Links</td>
<td><a href="http://www.canadajustice.gc.ca/">http://www.canadajustice.gc.ca/</a></td>
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<td><strong>Law.com</strong></td>
<td>Legal Information and news services</td>
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<td><strong>Legal Technology Institute</strong></td>
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Top Ten Technology Tools 2009
(And Tips On How to Use Them)

Updated By Reid Trautz

Originally Authored by Dan Pinnington, Richard G. Ferguson,
David J Bilinsky and David Masters

Are you familiar with the various available legal technology options, and are you using everything you should be? Legal technology is essential for communicating with and serving clients, for completing law-related tasks, and for running and managing your practice. This session will review, on a continuum from most basic to most advanced, the top 10 essential technologies that you should be using in your practice.

*This paper was adapted from papers originally written for the Colorado Bar Association's "The Best of ABA Law Practice Management" CLE program, Denver, Colorado, January 24, 2003 and from "Building an Automated Practice – It's Not so Tough!" Parts I and II, Practice Resources, www.lawsociety.bc.ca. See author bios at page 43.

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TOP TEN TECHNOLOGY TOOLS AND HOW TO USE THEM

1. Introduction

For all lawyers, technology has become an essential tool for the provision of legal services. As the practice of law evolves into the business of law, technology will become even more essential. Are you doing everything you can and should be doing with legal technology? This paper should help you answer that question. First, by giving you an understanding of the key legal technologies that are available, and second, by providing you with some helpful practical advice for implementing and using these technologies.

The paper reviews what the authors feel are the "top ten legal technologies," that is, technologies that all law offices should be using or working towards implementing. The list presented is based on the authors' opinions and experiences, with some input from legal technologists and other lawyers. Others may have different opinions as to what should or shouldn't be on this list. Some of the technologies reviewed may not be helpful in some practice areas.

To help you assess how far along you are in integrating technology into your practice, the "top ten" technology tools are organized in a continuum, from the more basic to the more advanced. Most law offices are well on the way to implementing the more basic technologies. Many are contemplating the technologies that are in the middle of the list, and to reflect this, more detail will be provided in these areas.

The top ten technologies reviewed in this paper are:

1. The Foundation: A Decent Computer System;
2. The Core Systems:
   2.1. Communications: Telephony and E-mail;
   2.2. Finances: Integrated Trust Accounting, Time & Billing and General Ledger Software;
   2.3. Systems: Practice Management Software;
   2.4. Mobility: Personal Digital Assistants, Smartphones, Blackberries and Cell Phones;
   2.5. Workflow: The Paperless Office and Document Management;
3. The Next Level:
   3.2. Strategy, Tactics and Execution: Litigation Software;
   3.3. Specialty Software;
   3.4. Advocacy: Presentation Tools;
   3.5. No Hands: voice recognition and digital dictation software.

2. The Foundation: A Decent Computer System

2.1. A Decent Computer System

When it comes to computers, at the most basic level you have the choice between a
desktop or laptop model. This choice is easy. If you want portability, pay the extra cost to get a laptop, otherwise get a desktop.

2.2. Desktops computers

On the outside most personal computers ("PCs"), look much the same. But they are not all created equal. You need to do some homework to find the PC with the right mix of performance and features to meet your needs. Most vendors have many different models and will configure a system to your specifications, allowing you to add or delete options according to your computing needs.

To get a reliable PC with enough power and features to last a few years, you have to spend a little money. Generally desktop prices, including monitor costs, can be broken down into three categories: budget PCs (less than $750), midrange systems ($750 to $1,500), and high-end systems ($1,500 and up).

For most solo and small law office purposes, a midrange system will do. Desktops in this price range can fill the needs of a reasonably skilled user using the common law office applications. This type of system should feature at least 2 GB or more of memory (preferably 3-4 GB), a 250 GB or larger hard drive (running at 7200 rpm), a 64MB, 4X AGP video card, and a Intel Core 2 Duo or Athlon X2 series processor running at 2.13 to 3.0 GHz. Add one or preferably two LCD monitors (at least 19 inches) As you add more memory, get a larger monitor, upgrade the video capability, or install CD-RW and DVD drive, the price will hit the top of the range.

A budget system will have a slower CPU, less memory, a smaller hard drive, a smaller monitor, etc.; and the converse is true for a high-end system. A user doing only basic things with limited software can get away with a budget computer. A power user or someone working with a large number of applications, voice recognition, or document imaging or video, should consider buying a higher end system.

A more detailed discussion of the various hardware and software options follows:

• Operating system: Most business desktops ship with Windows Vista, but it has proven to be an unstable system. Therefore, when buying ask for a “downgrade” to Windows XP Home or Windows XP Professional. This may save you hours of frustration. Microsoft has recognized that Vista has been a commercial flop, so they are rushing their next operating system—Windows 7—into early release on or after June 1, 2009. Early reports are much more positive than with Vista, so stay tuned to sites such as cnet.com and pcworld.com for more information.

• Processor: For Windows-based desktops, the major processor players are Intel and AMD. To avoid compatibility problems you should stick to a CPU from one of these two manufacturers. Don't get caught up in all the hype over processor speed. Clock speed isn't the only factor that determines a system's performance. Most law office users don't need the latest and greatest CPU. However, we do not recommend purchasing a Celeron processor at this point – that would be too far from the 'sweet spot' unless you are prepared to tolerate increasing delays using the machine. If you want to use voice recognition software, and for some computer servers, the extra performance you get from the fastest available processor is worth the extra cost.
• Memory: Memory has a huge impact on system performance. You should get at least 1 GB of RAM, and ideally 2GB, or even more. You can never have too much RAM, and spending a few extra dollars here will get you more bang for your buck than spending it on a faster processor (especially if you are going to do voice recognition on a computer with Windows XP). If you run Windows Vista, you need 3-4 GB of RAM.

• Hard drive: Don't skimp on mass storage. Especially with the increase in scanning and document storage, big hard drives are better. The difference between a 120GB and a 250GB hard drive may be as little as $50 when you order your desktop. Thus you should configure your system with as big a drive as your budget allows. Upgrading to a larger drive later on will cost much more, and can be a technically difficult task.

• Monitor: Some low-end PCs are still bundled with 17-inch LCD monitors but most bundled systems currently ship with 19-21” flat panel LCD (liquid crystal display) monitors. If your budget permits (and even if is doesn't), you should opt for at least a 22-inch monitor or two monitors at least 19-inch each. Many of us are spending the vast majority of our day looking at computer screens with multiple software applications running at once. Furthermore, today's software is getting more complex and you really need a larger screen to properly see and use these software applications. Finally, if you are still using the old CRT monster monitors, get rid of them now.

• Media drives: Almost all desktop PCs, regardless of price, come with combination DVD-RW/CD-RW drives (increasingly floppy drives are an 'extra' and not really necessary). CD-ROM drives will let you install new software, play audio CDs, and record/write information back to the DVD or CD.

• Internet or network hardware: Most desktop systems ship with a network interface card or NIC. A NIC is necessary for connecting the computer to a network and is a must for all law office computers. Being on a network allows you to share and access data on other computers in the office. The latest standard is the 10/100/1000 NIC. Older cards will only connect at a slower speed of 10 or 100 Mbps. Make sure the NIC you are getting can connect at either 100 or 1000 Mbps.

• Input devices: People tend to pay the least attention to keyboards and mice, and often select the cheapest available option on these two devices. These can be hard to use and unreliable. Some keyboards now include extra keys for common functions or tasks. These can be helpful. Some mice have extra buttons and wheels designed to make browsing the Web and working within some applications faster and easier. More expensive keyboards and mice tend to be more ergonomic and reliable, and as such can justify the extra cost. Consider a wireless keyboard and mouse – the convenience of avoiding the cords and wires is worth the smaller increase in cost.

• Bundled software. Many desktop manufacturers offer to preinstall a suite of applications on their systems. These bundled packages vary from company to company, and may include a suite of office applications such as Microsoft Office, as well as computer security applications. (See Essential Software, below) This is often one of the cheapest ways to purchase software, although it will add to the total cost of a desktop, so shop for the package that works for you, and exclude the ones that don't.

• Backups: You should have backup software running on your network, and be doing full nightly backups of all essential law firm data. This does not have to be included at the time of your PC purchase, but it is recommended that you do this as soon as possible after setting up
Essential Software: There are two classes of software that are “must-haves” on any computer connected to the Internet. One is firewall software that prevents hackers from gaining access to your computer; the other is anti-virus software. Furthermore, anti-virus should be installed on every machine in the office—even if you are not connected to the Internet. Since viruses are spread by many kinds of documents, you can unwittingly receive and transmit a virus simply by being sent a disk from a trusted client or by receiving an email (it used to be that you had to open an attachment to activate a virus—alas, no longer!). You must also take precautions such as downloading and installing all security updates on software on your computers (such as those from Microsoft).

The leading anti-virus contenders today are Norton’s Anti-Virus (www.symantec.com), McAfee anti-virus products (www.nai.com), and TrendMicro’s family of products (www.trendmicro.com). These days we would only install anti-virus software that automatically looks for updates of the anti-virus files and installs those without user intervention—ensuring that your systems are as up-to-date as possible. We would advise ensuring that your antivirus systems are configured to take advantage of this ability.

The other software that we would acquire in addition to anti-virus and firewall software is anti-intrusion software (malware/spyware prevention/detection/removal software). Microsoft’s Windows Defender (formerly Antispyware) is currently a free download which helps protect your computer against pop-ups, slow performance, and security threats caused by spyware and other unwanted software (www.microsoft.com). Ad-aware 5.83 software from Lavasoft is also a free multi-spyware removal utility that scans your memory, registry, and hard drives for known spyware and scumware components and lets you remove them safely. It is updated frequently. Webroot Internet Security and Webroot Spy Sweeper have been highly acclaimed as anti-spyware weapons. For more info, go to SpywareWarrior.com.

OTHER CONSIDERATIONS. You may be tempted by the low prices and high-end features offered by less well-known computer makers, or even nameless boxes. These so-called clones can be a good deal if you’re an advanced user and you know exactly which components you're looking for (and can look inside and verify you are getting them). However, most computer users are better off purchasing a computer from a major brand name. Advice from trusted friends and colleagues is helpful, as long as you keep in mind that a single person’s experience with a company doesn't guarantee that yours will be the same.

When you order your PC, carefully run through all of the specifications and features with the salesperson or the online listing. Get or print a copy of the specifications, and carefully check your system when it arrives to make sure you get what you ordered.

Look for bundled extras when comparing prices. Free software, printers, and other peripherals can add hundreds of dollars to the value of your desktop package. Check the cost of consumables, though, especially for printers. The cost of ink cartridges for some "free" inkjets, for example, can quickly outstrip the total expense for an equivalent or better printer from another manufacturer. (also be aware that a growing fraud issue is fake ink cartridges – that can cause your printer to cease operating - verify your ink refills are genuine).

Don't forget to factor the shipping cost into the equation, especially if you purchase online. Before surrendering your credit card number, find out the final cost of the system including shipping, handling, and sales tax. Always use a credit card so you don't forfeit your
rights as a consumer. If you pay by check, money order, check card, or debit card, you forfeit
the most practical way to enforce those rights -- through a credit-card company's clout -- if
there's a problem with the product or its delivery. If you use a Gold or Platinum credit card for
your purchase, your warranty is normally automatically extended for up to a year beyond the
standard manufacturer's warranty at no additional cost.

Be aware of restocking fees. They can be 15 to 20 or more percent of your total purchase
price -- and thus can take a big bite out of a money-back return policy. Be sure to ask about the
existence and terms of any restocking policies before you buy. Often, different restocking fees
apply to different types of products or even to different parts of a system purchase. PC
hardware, for instance, might be returnable without a restocking fee, but bundled software might
be subject to a fee or be non-returnable once opened.

Before you commit to buying a new PC, check out the manufacturer's support policies,
because warranties can vary widely. On some mid-range and all high-end systems, look for a
three-year warranty on parts and labour, and at least one year of on-site service. On-site service
may add several hundred dollars to the cost, but how much is your time worth to take your
computer to a superstore to leave it for 5 days? Budget PCs will typically include shorter
warranties and often no on-site support, so in the event of a problem you'll have to ship your PC
or hand-deliver it to the closest technical support centre. Ask for a thorough and written
explanation of the company's warranty, including which contractor or subcontractor it uses to
provide on-site service in your area. Ask questions such as, who decides when phone support
has failed and on-site service is necessary? Must you install replacement parts yourself? Who
pays for return shipping for major repairs? Is a loaner system available during downtime?

2.3. Laptop computer

Based on personal preferences and current specifications (meaning good for maybe
another six to twelve months), a laptop computer capable of replacing the desktop computer
should have the following:

• Processor: Intel Core 2 Duo processors (T7300 to T9600) and Athlon X2 Series (TL-62)
  are currently the sweet spots in laptop/notebook PCs. Faster processors allow better
  multitasking (running more than one computing process at the same time).

• Memory: 1GB as a minimum, 2 GB is better, and 4GB would be awesome.

• Hard Disk: 120GB or larger. Hard disk speed is also important so consider a model that
  offers a disk that turns at 7200RPM rather than 5400RPM.

• CD/DVD: Many current laptops ship with DVD-RW drives (which will also read from and
  write to ordinary CD disks). DVD drives are useful for playing back video depositions and great
  for watching movies while on the road. It seems that DVD standards have consolidated and that
  most disks written on a particular drive will be readable on most other drives, however ask your
  supplier to be sure.

• Screen Size: Perhaps the factor that most shoppers look at first. Consider that bigger is
  not necessarily better. Bigger screens mean shorter battery life and more weight to carry.
  Opening and working on a laptop with a 15 inch screen on an airplane is practically impossible.
Many people a 12.1 inch screen is just too small (Although one of the authors prefers this size for portability and weight considerations, and finds that this size is fine for most tasks). For most that leaves 14.1 inch screens in the sweet spot (and you get the benefit of the longer battery time!). Recently released computers with smaller but wide screen displays combine an optimal viewing width while conserving space, weight and battery life. Look for computers able to display SXGA (Super XGA) resolution, or higher.

• What will this cost? For example only, a good intermediate class Dell Latitude notebook (E5400) with a T7250 Core 2 Duo processor, 1 GB RAM, 160 GB Hard Drive, 14.1" SXGA wide screen, DVD/CD-RW, Windows XP (downgrade), and a 3-year on-site warranty carries a price of $1200.00. Compare this to a higher-end version with Dell XPS M-1530 with T8300 Core 2 Duo processor, 4GB RAM, 15.4-inch screen, 120GB solid state hard drive, Windows XP (downgrade), 3-yr on-site warranty, and built-in biometric reader is $1,800.

The laptop computer is now replacing the desktop computer (PC) as a lawyer’s primary work computer for several reasons. First, the familiarity factor carries a lot of weight (a laptop with the Core 2 Duo processor can drop about 2 lbs compared to the laptop compared to the Pentium processor. Using the same computer in and out of the office, day in and day out, maintains familiarity with the keyboard layout, customizations (toolbars, macros, etc.), and individual quirks. Second, using just one computer reduces the cost of hardware ownership. Third, using only one computer reduces the number of copies of software applications that must be purchased. Fourth, synchronizing network files to the laptop provides another layer of backup protection.

2.4. Backups

The terrible events of 9/11 and Hurricane Katrina served to highlight how vulnerable we all are to unexpected accidents and disasters. Accidents or disasters that have the potential to interrupt or destroy a law practice come in many forms. They can be natural, technology related, or man-made (both intentional and accidental). They may affect just a single person, everyone at a firm, or even a whole city or region.

Foresight, along with some planning and preparation beforehand is critical to minimizing the impact of any accident or disaster, large or small. LAWPRO's Managing a practice interruption booklet (www.practicepro.ca/disasterbooklet) provides a comprehensive review of the steps you can take to prepare for unexpected minor and major practice interruptions, and how you should respond to them. It reviews what you have to do to protect your people, your practice, and your premises and property, including what steps you must take to protect your data.

PracticePRO has also created a spreadsheet chart that you can use to help identify and assess your vulnerabilities. It is available at the above URL in either Acrobat PDF format or Microsoft Excel format. Included in both of these downloads are instructions on how to use this chart, and a sample chart that includes sample information on a number of common emergencies.

2.5. Word Processing
Any foundation system will have word processing at the center. The two leaders and current versions are Word 2007 (www.microsoft.com) and WordPerfect X4 (www.corel.com), with a handful of other solutions out there (Star Office Suite, AbiWord - similar to MS Word, iWork Pages for Mac) and the newer on-line options of Zoho Office, Google Docs, Thinkfree, and others. While the choice of a word processing program may seem to be a rather routine matter, the choice of word processing vendor and product can have a direct impact on how you automate your office. Each product has a different price tag, focus and emphasis and each product integrates with other products in different ways (such as Word and the database program MS Access). While many offices state that they wish to have the same program as their clients (which usually leads them to Word), compatibility with clients is but one issue (and not necessarily determinative – as the ability to work with documents created in one product in the other is increasing all the time). Here the productivity gains can be quite high if you wish to invest time and effort into creating precedents using styles, merges, macros and other “higher order” functionality to build sophisticated precedents and further integrate these precedents using data databases. Each product does this slightly differently. The important point to remember is that you do have a choice regarding a word processing system.

2.5.1. Office 2007:

Here is a quick overview of what you will find in Outlook and Word 2007—the latest from Microsoft. Although many lawyers continue to use Office 2003, those that have updated to 2007 have done so without regret:

2.5.2. Outlook 2007:

Among the new features: improved user interface, instant search capabilities to find that lost e-mail very quickly, preview attachments without having to open them, calendar integrates with on-line calendars and Microsoft Sharepoint services (extranet), better integration with Exchange Server 2007 and mobile devices such as Blackberries, enhanced junk mail filtering, improved folder archiving, and additional e-mail security features.

2.5.3. Word 2007

The biggest feature is the new user “ribbon” that is an improvement on the task bar system. Further enhancements include easier formatting, ability to add graphics quickly and easily, better reading flexibility, ability to add digital signatures, and the new Document Inspector to help find metadata and unwanted comments attached to the document.

2.5.4. Corel WordPerfect X4

Corel iWordPerfect X4, still has all the viewable formatting (reveal) codes and the ability to convert its documents into shareable PDF files. New features include the ability to edit PDF files within WordPerfect and the ability to strip metadata from a document before saving it. WordPerfect also includes the ability to open, edit and create Word, Excel and PowerPoint files.
If you and your staff are WordPerfect users, the features and the price point of this upgrade make it a worthwhile consideration.

3. The Core Systems

At the core of every practice are 5 automated systems that in our opinion form the foundation for an automated practice and when implemented, go a far way towards achieving this objective. These core systems are:

- Communications (telephony and e-mail),
- Finances (integrated trust accounting, time & billing and general ledger),
- Systems (practice management software)
- Mobility (personal digital assistants, Smartphones, Blackberries and Cell Phones) and
- Workflow (The paperless office and document management)

What is interesting is the growth of interconnections between these systems resulting in the integration of two or more of these systems within one product or the linking of two products.

3.1. Communications: Telephony and E-mail

Voice mail and e-mail have greatly changed how lawyers and their clients communicate. Both have become essential tools for lawyers and law office staff alike. They allow faster and easier communications between lawyers and their clients, and for many have become acceptable and preferred ways of communicating. This part of the paper reviews what you should be doing to make the most of voice mail and e-mail.

Before we jump into the discussion about voice mail and e-mail, both authors felt it was important to not lose sight of the importance of the receptionist. Remember that this person is the first and last person a client sees when they arrive and leave your office, and they are the first point of contact for incoming calls (assuming incoming calls go through the receptionist). It is essential that that this person be well spoken, presentable, professional and knowledgeable at all times. Do you know how your receptionist answers the phone? Do they know details of when you are coming and going? Are they delivering an acceptable and consistent message when you are in the office but otherwise unavailable? You should know the answers to all these questions.

3.1.1. Voice mail.

Although many initially struggled with whether it was appropriate to use a voice mail system, it is clearly now considered an almost essential tool. To avoid frustrating clients and to make the most of this tool you should do a number of things.

If your calls go through a receptionist, the caller should be given the option of leaving
either a traditional message or a message on voice mail. Doing this will make sure that those people that remain uncomfortable or unwilling to use voice mail are not forced to do so.

Your voice mail message should provide the caller with several things. It should encourage the caller to leave a detailed message, and indicate when you expect to be back in the office (especially if you are away for an extended period). Ideally it should be updated on a daily basis, including details of your schedule. It should also give the caller an option to transfer to a live person (your assistant or the receptionist). Lastly, you should have a policy that messages left on voice mail will be returned within 24 hours or by the next business day (unless the message indicated you are away etc.). Let the client know about this policy, and abide by it.

When you leave a message on voice mail, make the most of it by leaving a detailed message, state the date and time of your call, indicate if there are specific times when you will be available for a return call, and lastly, state your phone number clearly and slowly. Doing this will allow the person to understand why you called, and depending on the circumstance, to get back to you with the information you require, even if they have to leave a detailed message on your voice mail. If used properly, voice mail can eliminate telephone tag.

3.1.2. E-mail.

It is amazing how quickly e-mail has become a preferred way of communicating. Through e-mail, lawyers and their staff can save time by avoiding telephone tag and voice mail jail, and can save money by avoiding long-distance telephone calls and the transmission of documents by costly methods such as faxes or long-distance couriers. Moreover, use of e-mail says to clients that your firm knows how to take advantage of the latest communication methods for everyone’s benefit. However, while communicating more efficiently via e-mail has led to a gain in productivity, there is no doubt that dealing with large numbers of e-mail messages is now causing losses in productivity. Although estimates vary, in round numbers approximately nine billion e-mails are sent daily in North America. That means that just over 100,000 people hit “Send” every second of every day. All those messages end up in someone’s inbox.

It is key that you and your staff know how to use e-mail as effectively and efficiently as possible. You should also appreciate that e-mail can also expose a law firm to embarrassment, unwanted media exposure and litigation. Increasingly lawyers are becoming adept at discovery of electronic evidence such as email, including email the user thought had been deleted, but in fact has remained in data back-ups or on unerased hard drives. For this reason is prudent for a law firm to have a written policy on the how e-mail and the internet should be used in the office. This will help ensure that Internet resources are used in a productive manner, and guard against inappropriate use.

The Law Society of British Columbia has a sample technology use policy that firms can adapt for their own circumstances. It is available at: http://www.lawsociety.bc.ca/services/Practice/body_practice_policy-internet.html

3.1.3. Remember: e-mails are lawyer/client communications.

It is very important to remember that e-mails are lawyer/client communications. Practically speaking, e-mails fall somewhere between phone calls and letters. On one hand, e-
mail is like correspondence written on paper and probably should be kept. On the other hand, some e-mails are like phone message slips and are not important to keep (unless you ever need to confirm the date or time when a client called or left a message at your office). Use your own judgement. When in doubt take the cautious approach and keep the e-mail in question.

Consider having a system to print and file each e-mail in the proper client file, or create a system to store all e-mails electronically, which gives you the ability to retrieve them later – up to many years later, if necessary. Most case management products allow you to do this very easily. You may also consider as part of your closing procedure for a file, printing up all the e-mail communications on the file and storing those with the closed file. Alternatively, Adobe Acrobat (Standard and Pro editions) provides an easy way to save all e-mails and their attachments in one labelled file for easy electronic storage. Further, document management software such as iManage or Worldox has the ability to import Outlook or Groupwise email and index it in the same manner as other office documents.

The Rules of Professional Conduct specify that lawyers shall ensure that client confidentiality is maintained - this includes circumstances where electronic or e-mail communication is used. The steps required include understanding how to minimize the risks of the disclosure, discovery or interception of confidential client information, as well as using technology and creating office management practices to maintain confidentiality and minimize the risk of disclosure.

The use of encryption software is not mandatory for e-mail communications, although it is something that should be discussed with any client with whom you intend to e-mail. However, when information is extraordinarily sensitive, a lawyer should use, and advise a client to use, encryption software to help maintain confidentiality.

3.1.4. Avoiding inbox overload.

To avoid inbox overload don’t use your inbox as a catch-all folder for everything you need to work on. Doing this almost guarantees that at some point you will miss something important. Read items once, and answer them immediately if necessary, delete them if possible, or move them to task or matter-specific folders. Consider setting up one or more temporary holding folders. For example, put messages that need to be dealt with in a “current” holding folder, and put wait-and-see messages that are not time sensitive in a “wait” folder. Putting all messages to or from a specific client into one folder makes it easier to review the messages relevant to just that client.

Most e-mail programs have a “Rules” feature. Rules can help you manage your Inbox by automatically moving incoming messages to various sub-folders based on specific criteria. You create Rules to meet your own needs by specifying your own criteria. They can be set to run automatically without your intervention. Rules are especially helpful if you are on an e-mail list, and in particular a high-volume list.

For example, if messages from a list you are on always have the text [Solosez] in the subject line, you create a rule that checks the subject line of every incoming message, and automatically moves any message with this text into the appropriate folder. This removes them from your Inbox. You simply go to this folder whenever you want to review the messages from the list.
Note that most case management products and document management programs have features that allow you to associate, store and organize e-mails by client matter.

### 3.1.5. E-mail etiquette.

Everyone using e-mail should use proper "netiquette". What is netiquette? It is simply etiquette in the electronic world of e-mail and the Web. Exercising good netiquette means you should do the following:

- **Use proper spelling and grammar:** E-mail messages that have proper spelling and grammar are more professional and easier to read. Avoid using shortforms for words.

- **Exercise good manners and be polite:** Keep in mind that there is a real person on the other end that will receive and read the message you are sending. Be respectful and polite, and don’t say anything you wouldn’t say in person.

- **Count to ten before you hit “Send”:** Every lawyer has dictated an overly aggressive letter in a moment of anger or frustration, only to tone it down later with the benefit of some time to cool off while the letter was being typed. The instantaneous nature of e-mail doesn’t give you this built-in cooling off period. Be careful not to send an inappropriate message in a moment of anger.

- **Clearly describe the message contents in the “Subject” line:** A clear and concise description of the message in the “Subject” line helps ensure your message actually gets read.

- **Help people find the relevant parts:** E-mail makes it very easy to forward long messages or large attachments to others. To help the recipient of your e-mail quickly get to the key points, forward only the necessary parts of the original message, or identify where the relevant parts can be found in an attachment (e.g. “See pages 3 and 45-48 of the attached document”).

- **Don’t use e-mail when it is inappropriate:** E-mail is not the same as a phone or a face-to-face conversation. At the top of the hierarchy of communications are face-to-face meetings, then phone calls, then voice mail, and lastly e-mail. Face-to-face meetings have the most impact. Not only can you hear and talk back to the other person, you also have the ability to see gestures and facial expressions etc. E-mail has the narrowest communications bandwidth – it is only words on a screen. Make sure the mode of communication you use fits the circumstance.

- **Clean up messages before you forward them:** Many e-mail programs have a feature that highlights or indents the original text of a forwarded message. This can be helpful in distinguishing between new comments and original text. However, it can make messages that have been forwarded many times unreadable. To avoid this problem, clean up all text in any message you forward.

- **Check before sending attachments to anyone:** Downloading large attachments can be time consuming. Although less of a concern now as more people have high-speed Internet connections, it is a common courtesy to ask someone if they want to receive a large attachment.

- **Use correct document extensions on all attachments:** Document extensions are the three letters at the end of a file name. For example, Word files have the .doc extension (e.g. letter.doc), and WordPerfect files have the .wpd extension (e.g. letter.wpd). These extensions are important as they tell a computer what program should open the file. Including the proper
extension on an attachment helps insure that it can be opened by the recipient.

3.1.6. E-mail don'ts.

There are some common bad habits that many people fall into when it comes to using e-mail. The following list reviews some of the most common e-mail "don'ts":

• Don’t “cc” people or use group mail unless it is absolutely necessary: “cc”, “bcc”, “reply-to-all” and group addressing make it extraordinarily easy to send messages to large groups of people. You should use these addressing features sparingly, especially the “Everyone” group. Whenever you use one of these addressing options, ask yourself, do all these people absolutely need to read this message?

• Don’t forward jokes, spam or chainmail messages: They waste not only the recipient’s time, but also valuable network and Internet capacity.

• DON'T TYPE EVERYTHING IN CAPITALS: In Web-speak this is the equivalent to shouting. You can occasionally use capitals to emphasize an important word or point.

• Don’t forward virus warnings!: As 99.999999% of them are hoaxes, you are simply wasting your time, and the time of the people you are forwarding the warning to. Go to www.symantec.com/avcenter/hoax.html or www.antivirus.com or a similar site to verify if a virus warning is legitimate.

• As a general rule, don’t reply to spam: Doing so confirms that there is a live body at your e-mail address, and this will likely result in even more Spam being sent to you.

If you get spam from a reputable company, it is safe to use the spam opt-out option that is usually included in messages.

3.1.7. Listserves.

Email lists, or listserves, can be a tremendous resource for lawyers. There are many excellent lists covering all areas of the law and other law-related topics. Before actively participating on a list you should keep in mind the following:

• Keep the initial message you get confirming your subscription to a list. It will contain list rules, instructions on how the list operates, and how to get off the list. Carefully review the contents of this message when you get it.

• All lists have spoken and unspoken rules of conduct; take time to learn them, and follow them. To learn the style and content of the posts on a specific list, be a “lurker” when you first join. Don’t send anything to the list until you feel you can send a post to the list that will not seem out of place.

• Don’t send jokes or off topic posts to a list. They are simply not tolerated on many list. Sending something inappropriate can get you hundreds or even thousands of unfriendly messages reminding you of your mistake.

• Lists are great for communicating with large groups of people, but be careful to use a
personal reply to only the sender when it is appropriate.

• As a general rule, don’t send attachments to e-mail lists.

Some useful list serves for lawyers that focus on legal technology include: ABA LawTech (www.abanet.org); Technolawyer (www.technolawyer.com); and Solosez (http://www.abanet.org/discussions/slists.html) and CSALT – the Canadian Society for the Advancement of Legal Technology (http://www.csalt.ca/).

3.1.8. Telephony tools.

Telephone headsets; once you use one, you'll never go back. Working hands-free increases your personal productivity, you are free to use your computer, handle documents, make notes, type, and move around. When you wear a headset, you work with your head and spine in the correct position for long-term comfort. This reduces the risk of neck and back injury and prevents the stress induced by tense muscles; time on the phone is less tiring. You sound better because the flexible boom holds the microphone at a constant distance from your mouth, even when you move your head around. In addition, with a noise-cancelling microphone the background noise of a busy office is reduced or even eliminated; your caller hears only you. You hear better because you can adjust the volume of the caller's voice. Some headsets use electronic circuitry to enhance the caller’s voice or cut out the hiss and clicks of a poor connection.

These days there are wireless headsets made by Plantronics and others. These free you from being tied down by wires.

Cell phones and personal digital assistants (PDAs) have converged into powerful tools for voice, texting (Short-message-service) and e-mail communications, as well as surfing the Internet. These tools are a must for almost every lawyer, and are discussed more fully in Section 3.4 below.

3.2. Finances: Integrated Trust Accounting, Time & Billing and General Ledger Software

Every firm must have a financial recording and reporting system – yet all financial systems are not created equal. Furthermore, while accountants need access to accounting tools that produce balance sheets and yearly income and expense statements, lawyers need access to financial tools that produce meaningful monthly or more frequent reports for managing their law business. We are also seeing a trend develop where traditional accounting systems, which only used to concern themselves with general and trust accounting issues, are now integrating their product into other systems in the lawyer’s office and are attentive to issues such as the production of management resources. For example, the ability to do conflicts checks and calendaring including bring-forward systems, are now available in accounting systems. PCLaw, for example, has expanded their client database to now include expanded contact management – allowing you to create a database of contacts – clients, lawyers, experts, witnesses – so when you do a conflict search, these references will pop up. Practice management tasks have been being linked to accounting software to share resources (client and file names, billable time links) for several years now (for example, Amicus Attorney and Time Matters will link to accounting
software such as PCLaw or Quickbooks, MYOB and others, and also now have their own accounting and time and billing functionality – Amicus Accounting and Billing Matters.

This integration falls along the “Better” axis (Better, faster or cheaper) – you can eliminate the paper systems in the office and do more with your existing automation system – and “Faster” – since BF’s and conflict checks take less time if done using a shared database. To the extent that sharing data eliminates repetitive keystrokes, they can also be “cheaper” – but there is an offset - integrated accounting systems cost more and take more time to learn and apply in practice than basic systems.

What are your options for financial systems? There are non-legal packages such as: QuickBooks, MYOB (Mac and Windows) and Simply Accounting. Then there are integrated general, trust and time and billing packages such as: PCLaw, ESI-LAW, Brief Accounting (Mac and Windows). Also, there are fully integrated, case management and financial accounting systems with time and billing – these products are ProLaw and LawStream. We are also seeing the rise of on-line case management/financial accounting systems such as Total Practice Advantage, Clio, and RocketMatter. These systems are web-based, so that you can access them on-line without any software to host and update. There are discussed in Section 3.3. below.

Financial recording, reporting and billing systems are a cornerstone of every law firm. Notwithstanding the importance of these systems for the management and profitability a firm, many firms do not appreciate the power of the features, functions and integration available in the newer financial and other law office accounting and practice management software products that are now available.

The key point is that firms need to understand how these products are starting to work together, and the greater efficiencies that can be obtained by using them. The problem is that firms are reticent to change from their originally adopted programs given the huge investment of time in learning and implementing them, and the large amount of data that is subsequently stored within them. Therefore changing accounting software is a big job that most firms are unwilling to consider tackling. A switch in accounting programs is also difficult as the available choices and options are overwhelming.

Products could originally stand on their own by more effectively and efficiently completing a particular task or function. For example, a time and billing package performed all that was necessary for time and billings, and a separate package handled the general ledger entries, and perhaps even another package handled trust accounts. However, as time went on, people got tired of manually entering the same data in two or more different places. In response to this, accounting, billing, financial and other legal software products have developed and evolved. They are becoming more integrated, firstly through links that share data, and more recently by individually becoming full feature products that stand on their own. At this stage you should be using trust and general ledger accounting packages that are either linked, or ideally, one in the same product. Running separate systems for these two critical functions is not very efficient. The commonly used integrated accounting packages include PCLaw and PCLAWPro (www.pclaw.com), ProLaw and LawStream (www.lawstream.com)

Practice/Case management software is the ultimate tool software tool for the central nervous system of a law office - see the next section. Ultimately look for the full integration in one product of case management, financial and trust accounting functions, as well as word
processing, document assembly, e-mail, correspondence tracking, knowledge management, and research.

3.3. Systems: Practice Management Software

These products have now matured and gone on to incorporate some of the “higher order” functions that are described in the second part of this article.

The leading products here are Amicus Attorney and Time Matters. LawStream and ProLaw are two products that have incorporated some and in some circumstances, most of the functionality offered by case management, reflecting the greater integration between applications.

Recently, new practice management products are coming on-line as an alternative to the leading software products above. The new breed are on-line systems that are accessed via your web-browser; all software and data reside on each company’s server, not on the law firm’s server. Generically speaking, this is known as Software as a Service (SaaS). Your firm and client information is accessible (securely) 24/7 from any Internet-enabled computer. The rise of these companies is due to the fact that Internet connectivity and download speeds have dramatically increased for most lawyers, making these on-line products very attractive. However, we have been here before—in an earlier generation of SaaS came and bombed in the late 90s—so we encourage you to do your research. Make sure the companies have taken steps to ensure 24/7 access, secure transmission of data, regular back-ups, and firm ownership of the data. Currently emerging contenders in this marketspace include Clio, RocketMatter, and Total Practice Advantage by Lexis.

These products fall along the “better” and “faster” axis. The start by taking the traditional file orientation of a law office (thereby distinguishing them from the contact managers such as Outlook, Maximizer, GoldMine and others) and mirroring this by creating an electronic file system. Case managers then take this electronic file system and populates them with all the people associated with the files (other lawyers, clients, witnesses, experts, adjusters etc) thereby providing contact management capability, integrating this into an electronic calendar, a billable time module, a communications center that tracks and logs all incoming and outgoing calls, messages and emails, a document management system and more. These different systems work together to provide a law office with most of the essential systems required by law offices by the Rules of the Law Societies (conflict checks, Bring Forwards and To-Do’s, they track detailed time entries for billing purposes and the like) and by the requirements of practice. The integrated file and contact database allows you to search on any potential client’s name and not only see if they have been associated with any file in the office (not just as a client but also as a witness, an opposing party, an expert, an adjuster etc) but also to see the file on which the reference arises.

The file and calendar modules allow you to maintain your To-Do list and integrate this into your calendar and alarms and BF reminders. The “chaining” and “bring forward” precedent ability in Case Management allows you to build a series of reminders (for example, in advance of a trial, there are production of evidence dates, certification of trial forms to be filed, pre-trial hearings to be held, witnesses to be prepared etc – all these dates and reminders can be placed into one pre-trial reminder precedent that automatically enters the requisite dates into your calendar once you know your trial date) that you can reuse again and again in your practice. I have seen one Intellectual Property lawyer use this Chaining of Dates feature in ProLaw’s
BF/Calendar module to establish over 200 future date reminders and deadlines, once a patent filing date is known. Moreover, since his procedures are standardized, these reminders in turn generate documents to clients and to patent filing offices that move the patent application forward. No question that this is a superb example of automating a practice along both the “better” and “faster” axis. Case management is undoubtedly another “Better” and “Faster” example.

Furthermore, case management is now integrating email capability (Time Matters and Amicus Attorney), document management and knowledge management capabilities into their products – they are demonstrating the increasing integration of higher-order capabilities right onto the lawyer’s desktop. Amicus Attorney calls itself “The Law Office on a Computer” and this motto is very apt.

Case management programs, sometimes called practice management systems, are powerful tools for bringing efficiency to any size law practice. Generally speaking these programs allow law offices to collect and organize information around a single matter or contact. Case management programs (like Time Matters (www.timematters.com), ProLaw, and Amicus Attorney (www.amicusattorney.com)), are more than fancy calendars, with e-mails and addresses. They have evolved into "practice management systems" that contain in one database almost all the information you need to run your law practice. When used properly, a case management program unifies all the data about a client, potential client or matter into a single point of reference. What this means for the practitioner is the ability to draw relations between events and information gathered over long periods of time by many people, and bring them to bear on a particular issue in an instant.

For example, Time Matters uses the metaphor of a time-line. From the time-line tab on a particular matter, the entire history of a particular matter can be viewed. The time-line displays all billing, email, notes, phone calls, documents created, documents scanned, legal research, events, and to dos (open and completed), showing the state of these items, who did the work, how long it took, and when it was done. Other information pertaining to a matter or contact can be viewed through the related tab.

The PCLaw and LawStream accounting packages now include basic practice management functionality. They are not as full featured as the dedicated practice management products, but can help you better manage your critical client information.

The ability to quickly identify all of the people related to a given matter, to review the history of e-mail communications and notes related to that matter, to view all of the past and upcoming events and deadlines, brings a high degree of efficiency to these necessary if mundane tasks. The status of a given matter can be assessed with a few clicks of a pointing device. For those willing to put more effort into customizing a particular application the rewards can be even greater. Practice management programs can be customized to create rules based scheduling. For example, when a matter has been set for trial, the program can calculate all of the case management deadlines based on the trial date. Changing a “contact” record from a potential client to a client code can launch a word processing application, prepare an engagement letter and even a first set of draft documents for a particular type of client.

Most of the practice management programs allow for quick and easy synchronization of the information hosted on the office server with a remote version of the program run off the network while away from the office. Taking a synchronized data set on a laptop computer
generally provides far more case management information than can be synched to a personal digital assistant. Of course, you can still synchronize a subset of the data to a small PDA if the laptop is too bulky to carry, but you will lose the richness of the information.

Not only can case management software help you better manage your practice and be more profitable, it can help minimize the chance of a malpractice claim. To understand why this is so, it is necessary to appreciate the most common types of mistakes that lawyers make. Under the LAWPRO insurance program all claims are categorized with a description of loss representing the type of error that was made. From this information it becomes apparent where the common mistakes are being made across the whole profession.

Most lawyers are surprised to learn that failures to know or apply substantive law account for a relatively small portion of LAWPRO claims. For claims that occurred in the years 1996-2007, by both count and cost, law-related errors were only the fourth most common cause of claims. In most areas of the law, lawyer/client communication problems are the number one cause of claims, followed by basic deadline and time management issues.

Communications-related errors #1 claims concern Lawyer/client communication-related errors are the biggest cause of malpractice claims. Over the last eleven years, by cost and count, more than one-third of LAWPRO claims involved this type of error—almost $22 million or close to 7,200 claims.

It is interesting to note that for sole, small, medium and large firms alike, one-third of claims were communications-related. This is a profession-wide issue.

Missed deadlines and time management-related errors are the second biggest cause of LAWPRO claims at all sizes of firms. Over the last eleven years they represented 17.3 per cent of claims by count (3,566 claims) and 14.2 per cent of claims costs ($8.8 million).

The most common time-related error is a failure to know or ascertain a deadline—missing a limitation period because you didn’t know it. The good news is that this specific error has declined by almost 50 percent over the last ten years. The bad news is that the other time and deadline-related errors are holding stable or increasing slightly.

While in the longer term we expect that the new Limitations Act will result in fewer limitations period claims, at this stage it does not appear to have had any impact. Indeed, over the last year it may have resulted in more claims due to confusion over transition provisions.

A failure to calendar is the second most common time-related error (a limitation period was known, but it was not properly entered in a calendar or tickler system). The fourth most common time-related error is the failure to react to calendar error. In this case the limitation period was known and entered into a tickler system, but was missed due to a failure to use or respond to the tickler reminder.

These deadline and time management errors are easily preventable with better time management skills and the proper use of tickler systems. Practice management software programs such as Amicus Attorney and Time Matters are excellent tools for helping lawyers manage deadlines and tasks, and for helping them better manage client communications and relationships.
The third biggest cause of claims is procrastination. It accounts for just over 15% of the errors that occurred. The predominance of this cause is not a surprise to most lawyers. The next three most common types of errors are conflict of interest/acting for more than one party, failure to calendar, and poor communication with client, respectively at approximately 9%, 8% and 7%.

All these errors share a number of common characteristics - they are all related to practice management and communication issues. The key point is that using a case management product can make them easily preventable. Case management software helps you to better manage time and dates, make more detailed searches for conflicts, and manage and record all client communications and correspondence.

Ultimately lawyers should consider using a case management product that is specifically designed for lawyers, as compared to general purpose contact management programs like Microsoft Outlook. The products designed for law offices are simply better at assisting lawyers in managing the information and tasks related to the practice of law.

3.4. Mobility: Personal Digital Assistants, Smartphones, Blackberries and Cell Phones

Handheld devices run the gamut from web-enabled cell phones, Blackberries to iPhones to Windows Mobile devices and Windows tablets to portable scanners. Depending on how big your pocket is, and how much you want to carry, there is a device for you. Handheld devices are useful when you can't pull out your laptop or take it with you. And when these devices are wire-less enabled, you can often have access to most of the information on your desktop/network without taking it with you.

Just a few years ago, the business world embraced two separate devices: The cell phone and handheld personal computers, also known as Personal Digital Assistants (PDA). PDAs include Palm devices and Pocket PCs from Dell, HP, and others. Today, PDAs have taken a backseat to the “converged” devices that include the cell phone and the functionality of the PDA in one device. Known as “smartphones”, these all-in-one devices include the Palm Treo, Blackberry Curve, Apple iPhone, and the Nokia N-95, among others, are serious tools for practicing law. Even the most basic smartphone can help make you more effective and efficient.

The most common applications on a smartphone include one of more of the following: calendar, contact manager, notepads, e-mail reader, web browser, camera, document reader and editor, and GPS service.

These tools allow you to take information with you wherever you go to make your personal and professional life much easier. For example, if you need to call a client to discuss tomorrow’s deposition, but you are out of the office it’s not a problem if you have the client contact information on your smartphone.

These converged devices are the smallest way to carry most of your office with you. The functionality and capabilities grow almost daily. A lawyer can now do as much work from a smartphone as from a desktop or notebook computer. You can carry much of your needed information stored on the phone or have it accessible from the phone, with the capability to edit
documents, communicate via email or voice, and even complete billable time entries. However, many users find the screens too small for meaningful document creation and heavy editing. Others complain the connectivity service provider is lacks decent coverage. That continues to get better, but varies by geographic region.

So is it time to enjoy the freedom of a smartphone, and, if so, what do you buy? It's hard to say because everyone's needs and abilities are different, but here are a few tips:

• If you find yourself out of the office more than once per week saying "@#*! I wish I had brought “X” information with me, then you are a candidate for a smart phone.

• Analyze what you need the most? Do you need to view document or edit it? Do you need a phone number to call a client or the ability to send an email? Do you have to have view a report in Excel format or create one? Analyzing your usage when away from your primary productivity computer can help focus you on the features you need in a smart phone.

• Spend time looking, and be prepared for some head-spinning. There are lots of choices today, with more on the horizon. Get your list of possible phones down to 2-3, then go test them at phone stores and/or “big box” electronics stores. Spend time walking through some of the tasks you will want to be able to do with the phone. It will be important to note the ease of use of the software and the size and function of any keyboard.

• It is important to analyze the voice and data plans that are available with the smartphones you are interested in purchasing. Smart phones usually require a “voice” plan for phone and a data plan for sending and receiving information via the same smart phone.

3.5. Workflow: The Paperless Office and Document Management

The threshold rule at The Masters Law Firm, L.L.C.: when a piece of paper comes through the door it goes through the scanner. It is a simple rule with few exceptions. Electronic filing systems begin with the commitment to capture digital images of all incoming paper, from there it becomes a matter of storing the images in appropriate folders. We use Adobe Acrobat to convert paper to PDF (portable document format).

Implementation of the threshold scanning rule follows a simple process. When the mail arrives the lawyer or legal assistant looks at each item and sends a fair amount directly to the recycle bin. The “real” mail (correspondence, pleadings, bills, etc.), then goes to an assistant who scans each piece, stores the image to the appropriate client or administrative folder and then distributes the paper to the proper recipient within the office (lawyer, paralegal, bookkeeper). For example, when a letter arrives from opposing counsel the lawyer sees it first, it then goes through the scanner, and then goes back to the lawyer. The lawyer then writes a letter to the client that discusses the enclosure and typically begins “Enclosed for your review and records please find an item of correspondence that we received from opposing counsel. We have retained a digital copy in our records.” Following this procedure, paper comes in - goes through the scanner - then goes out to the client. In some cases, with the right client, we simply send an e-mail message and attach a digital copy; the original letter then goes to the recycle bin or shredder depending on confidentiality considerations.

The threshold scanning rule has a corollary in that all items of out-going work product are printed to PDF. Printing to PDF can be as simple as clicking a button on a tool bar that invokes
the PDFWriter print driver; you are then prompted to select the folder where the PDF version of
the document will be stored. In many cases we file pleadings electronically with the court,
copies are served on the other parties by the filing service (either electronically or by mail), and
we send a copy of our pleading to the client as an attachment to an e-mail message. Looking at
the process from our perspective, the work product never exists in paper form.

With both rules implemented we have PDF documents that are copies of all incoming
paper and all outgoing work product. That brings us to consideration of how to store and
organize all these documents. As high tech as scanning and printing to PDF may sound, the
storage and organizational system adheres to an old fashion filing cabinet metaphor. The filing
cabinet exists in virtual space (on a computer hard disk drive shared over a local area network).
The filing cabinet has a name, “Work” (we also have filing cabinets for Closed Files, AdminFiles,
etc.). Each computer on the network links to the filing cabinet by mapping a network drive,
X:\Work. Now each desktop has access to the filing cabinet “Work.” Within the filing cabinet are
scores of folders, one for each client, e.g. X:\Work\Smith. If a client has several matters then
that client folder has a subfolder for each distinct matter, e.g., X:\Work\Smith\Corporation and
X:\Work\Smith\Wills. Within each client matter folder are folders for various types of documents,
such as correspondence, pleadings, expense receipts, research, privilege, etc.

In order to maintain a digital file that looks like a paper file we keep dual folders for
correspondence and pleadings. One folder contains the native application files, the other the
PDF versions. For example, correspondence files created with WordPerfect are stored in a
subfolder named “CorresWPD.” All correspondence files in PDF format are stored in a subfolder
called “CorresPDF.” A similar dual folder system exists for pleadings. There are two reasons for
maintaining dual folders. First, keeping the original work product in its native format allows for
easy reuse. Second, the PDF folder acts like the old paper file, it contains all of the incoming
and outgoing correspondence or pleadings, as the case may be. The files within the folders are
named following another simple convention; the first part of the name always contains the date
of the document in reverse year-month-day order, followed by a few descriptive terms, e.g.
X:\Work\Smith\PleadPDF\020327 Complaint. By inserting the date at the beginning of the file
name all documents in a given folder are sorted in year-month-day order.

Following a few simple rules any office can switch from paper to digital filing. Scan all
incoming documents to PDF; print all outgoing work product to PDF; create a virtual filing
cabinet with folders for each client matter; segregate document types within the client matter
folders into appropriate subfolders; use dates or a numbering system when naming files so that
they display in chronological order. Of course you will back up these digital files, something you
could not do with paper files.

To go paperless, you will need an appropriate scanner. There are many scanners on the
market, not all are suitable for substantially reducing the amount of paper in the law office.
Inexpensive flat bed scanners generally lack automatic document feeders (“ADF’s”).
As a result this type of scanner cannot process paper quickly enough to be useful. Desktop,
egg-carton style, sheet fed scanners likewise are too slow to provide much benefit. However,
this type of device may be useful for individual members of the firm to acquire images of
individual documents.

An appropriate scanner for the law office has an ADF and should be able to acquire
images at the rate of not less than ten (10) pages per minute (ppm). Scanners in this category
start at around $800 and the prices go up from there. Consider whether you will need to acquire
colour images. Some of the faster scanners acquire gray-scale images only. Also, consider the
frequency at which you receive and may need to image documents printed on both sides of the page. Some higher priced scanners come with a manual duplexing feature; some of the lower priced high speed scanners can handle two sided documents through software (feed the documents through, acquire image of side one then turn the stack over and acquire image of side two, the software will then collate the pages).

The available space for document storage continues to grow while prices continue to drop (digital documents only, definitely does not apply to paper documents). Document collections should be stored on a network drive, whether an internal hard disk drive or a storage appliance such as a Snap Drive. When planning or acquiring storage devices consider the speed at which documents can be retrieved. Fast hard disk drives (7200 RPM or 10,000 RPM) are much preferred. If stored documents will be available across a network, fast Ethernet (100MB/Second) provides good performance. Standard Ethernet (10MB/Second), and 801.11(g) wireless (54MB/Second), do not provide sufficient bandwidth if you create large scanned documents (documents in excess of 1,000 pages).

As a general rule, when scanned at 300dpi (dots per inch, a measure of resolution), a single scanned page (8½ by 11 inches) requires storage space of approximately 50KB (kilobytes). This is an average and assumes the image was acquired and stored as “black and white” or “line drawing,” not color or gray scale. A single drawer in a filing cabinet will hold approximately 10,000 pages. To store the same 10,000 pages electronically requires 500MB (megabytes) of storage space. A single compact disc (CD-ROM, CD-R, or CDRW), will hold 700MB, or the equivalent of 1.4 drawers. An entire four-drawer filing cabinet (40,000 pages), then requires only 2GB (gigabytes). A single DVD will hold 4.3GB, or the equivalent of two four-drawer filing cabinets. Need to store more? 250GB hard disk drives currently sell for less than $150.00; that’s the capacity of three four-drawer filing cabinets. If you think in terms of boxes, instead of filing cabinets, one box (15½” x 12” x 10”) holds approximately 2,500 pages. Those same 2,500 pages require only 125MB of digital storage space. Five boxes of documents will fit on a single CD-ROM with room to spare. Even if the space required for a single page, scanned at 300dpi, was doubled to 100KB, 10,000 pages (one full file cabinet drawer or four boxes), would only require 1GB of electronic storage capacity.

The discussion of storage space requirements to this point has addressed only scanned documents. Documents printed to PDF require much less storage space. For example, a six page word processing document 30KB in size, grew to 70KB when printed to PDF but would have been 300KB if scanned.

If you commit your files to the digital realm you must back them up. Why is that? Offices with paper files don’t back up the paper. Reason number one: Because you can. Reason number two: You’ll sleep better at night. Backup rule number one: Perform full backups daily; do not rely on differential or incremental backups. Back up rule number two: Keep one or more fairly current full back ups off site. Back up rule number three: Test the process to make sure that back ups are actually being made and that you can indeed restore files.

4. The Next Level:

Regardless of the area of law you practice in, there will be at least a handful, if not many documents, that you generate over and over again. Thus, anything that lets you increase the speed, accuracy and consistency of document production will be helpful and of interest.

Document automation or document assembly is the solution to more efficient document creation. Document assembly is important for solo lawyers as it is a tool that enables them to compete with larger firms. Document assembly could be defined as a computer based system that allows you to automate the intelligent creation of documents. This intelligence involves properly incorporating document text and clauses along with client data into more or less final form documents. In some cases you provide the intelligence, in some cases it is programmed right into the document itself.

There are several different ways to automate document production. They include:

- Specialized form and document generation products
- Basic "macro" utilities
- The Word and WordPerfect merge feature
- Dedicated document assembly programs
- Integrated case management document generation

These different ways to automate document production vary in what they can produce, their cost, their level of complexity and customizability, and the level of interactivity or intelligence they use in creating documents. The choice you make will depend on your needs, and the skills of the people that you have to implement and use document automation. The following comments quickly review each of these options.

For many areas of the law there are great software products that automate the creation of specialized forms and documents for that particular area of the law. See Section 4.3 below for a list of some of these products. These products can vary from reasonably priced to very expensive, and usually do an excellent job of creating the forms or documents they are designed to create. Many are easy to use and can be implemented with little or no special expertise. Their shortcoming is that they usually don't allow you to access the client data you may have stored in other firm applications or databases, and thus you must enter the same data twice, although they sometimes contain their own sophisticated databases and can help manage the process on these matters. You may also have limited or no options for customization of document contents.

There are several basic "macro" utilities that you can use to some extent to automate the generation of documents. One of the more popular of these programs is ActiveWords (www.activewords.com). It is a piece of shareware and costs US$29.95. In essence it is much more powerful version of the AutoCorrect feature in Word. ActiveWords allows you to create keyboard shortcuts for the insertion of standard wording such as contact information into a letter form, or standard clauses into a contract. A program such as this can speed up the production of some documents, although they are much less sophisticated in terms of what they can do relative to the other options for automating documents.

Both Word and WordPerfect include a merge feature. A merge feature allows you to
create document templates. These templates basically function as precedents for documents that you create. It is very easy to create and use simple merge templates, which will in turn create simple documents. You can do very advanced things and create far more complex documents if you spend the time to learn the more advanced merge commands and some programming. Most lawyers will not have the time or inclination to do this, although some might have support staff that could tackle this type of project. For most, the dedicated document assembly programs are an easier option for creating more advanced documents.

There are several excellent dedicated document assembly programs that are designed to help you automate document assembly from scratch. These programs work with your word processor and allow you to create documents that become automated forms, which will prompt you for input specific to the document that is being created. At the same time you can create data files or access databases or other applications that contain client data. It is easy to create basic automated documents with these programs. Doing more advanced documents requires some effort to learn the more advanced features. Once you do this there is almost no limit to the complexity and intelligence you can build into document creation with these programs. The most widely used document assembly programs is HotDocs (www.hotdocs.com).

The major case management programs (TimeMatters, Amicus Attorney, ProLaw) now all contain basic document generation functionality. This is either built in, or integrated with the Word or WordPerfect merge facilities. Some of the case management programs also integrate the dedicated document assembly programs (TimeMatters with Hotdocs; Amicus Attorney with Ghostfill). With this document assembly functionality you can easily generate documents such as standard retainer letters, pleadings, fax cover sheets and the like using the information stored in their contact database. This is much more efficient as it allows you to create documents with existing client data.

The bottom line is that most document automation options involve a considerable investment of time to learn and implement. However, at the end of the day this investment is worth it as it allows you to generate documents much more efficiently that doing it manually. For many lawyers, working to implement case management software to get the many benefits of using it would be worthwhile, as one of these benefits is document assembly functionality.

4.2. Strategy, Tactics and Execution: Litigation Software

Generally speaking, litigation support programs can be divided into two groups: those that provide transcript management and search functions; and, those that provide a database for gathering, organizing and searching other case information. Some programs, like Summation, combine these features in a single program.

Litigation support has undergone a tremendous transition due to the web. We are seeing a proliferation of group work solutions facilitated by Internet document and evidence depositories, evidence analysis, and document management solutions.

The favourite litigation support software today remains Summation—with Blaze LG, Blaze LG Gold, iBlaze and CaseVault. Summation offers the ability to bring together transcripts, document summaries, document images, and OCR-scanned text. In this database, you can search, highlight, add comments, and use an outlining tool to prepare your case. Furthermore, you can create and access document depositories on the web, load selected portions onto your laptop and then work off-line. With iBlaze and CaseVault you can either access your case
information using the Internet or host the case information for group-work situations (www.summation.com).

The runner-up is Concordance 9 with iCONECT software and Opticon. Concordance is a close competitor to Summation with corresponding features that can search PDF documents as well as email and other data formats. With iCONECT software you gain the ability to access your documents via the web.

The "Made in British Columbia" competition to Summation and Concordance is Searchlight, which offers similar features to Concordance and Summation at a fraction of the cost. Searchlight was used in the Glen Clark case and selected for the Air India case, which is expected to be the longest and most complex trial in Canadian history. Searchlight has been used to take digitized data, evidence, pleadings and other documents to produce a true "paperless trial" in British Columbia. Searchlight is a local Vancouver company and provides imaging, indexing and other litigation support and services. Searchlight now offers group work access via extranet capability from your network. Visit their website for a fuller description of this information and litigation management system (www.searchlight.ca).

RealLegal Binder can perform full-text searches on all imported transcripts, on the current transcript, or on user-defined group or transcripts. Boolean and proximity operators help pinpoint key testimony. Previous searches are automatically stored for future reference. Binder automatically generates a linked table of contents, as well as a hyperlinked word index. These features accelerate and simplify transcript navigation. Binder supports real-time reporting through a universal connection. Counsel can use real-time chat technology to communicate and strategize with remote participants. Review, annotate, and transcript text as it scrolls by on your computer, and synchronize final transcripts with your real-time annotations. Transcripts (with annotations and issue codes) and reports (in HTML or XML) can be sent via e-mail directly from the RealLegal Binder interface to your recipient. The received materials can be imported directly into another copy of RealLegal Binder or viewed with just the recipient's browser. Binder provides options for full or condensed printing of transcripts, annotations, search results, reports and the word index. It integrates with CaseMap®, Trial Director®, Sanction II®, and JFS Litigator's Notebook®. RealLegal Binder is also compatible with Timaro Video Systems for transcript-to-video synchronization. As you work in RealLegal Binder, you're able to export single or multiple transcript annotations directly to these applications.

RealLegal Binder allows for synchronization of “projects” maintained on desktop or network drives with laptop computers. Project synchronization means a group of personal computers or laptops use a server to store a case, and anytime a change is made on any of the computers, the case is updated without deleting critical information. But what happens when someone loads a case on a laptop, flies to Japan, and works on the case during the trip? Meanwhile, people at the office continue to work on the project. What happens then? Upon return, the person connects his or her computer to the server, and the server synchronizes the case with all of the updates: Those made in Japan and those made at the office. When you create a project, Binder prompts you to synchronize it. Answering “Yes” to the prompt synchronizes the case; that is, it makes all transcripts available offline so that if someone leaves the office he or she can take the case and work on it at the same time people who are at the office work on it. Synchronizing a project causes Binder to copy the database that is on the server to your local hard drive. For example, if you have a laptop computer connected to the network server and you synchronize a project, Binder makes a copy of the transcripts and annotations that are in the case, and stores the copy on the hard drive of your laptop. You can
then take the case offline, for example, on a business trip, to work on it. After you create a project and opt to synchronize it, Binder prompts you to synchronize each time you open and close the project. That is all there is to it.

As for legal strategy analysis, there is CaseMap 8, TimeMap, and NoteMap (www.casemap.com). These related products help lawyers determine the relationships between facts, witnesses, documents and issues, produce timelines and show the relationships or links between related information and events. CaseMap 8 maintains all links to TimeMap timeline-graphing software and TextMap transcript-management utility. It also integrates with Adobe Acrobat, Summation, LiveNote, Concordance, Binder, Opticon, Doculex, Sanction and Trial Director. CaseMap 8 comes with two new spreadsheets: an Authorities spreadsheet and an Authority Extract spreadsheet. The Authorities spreadsheet would be used to manage top-level information about precedents, statutes, and other types of case research. The Authority Extracts spreadsheet is used to capture details about particular sections of interest excerpted from important case law and statutes. CaseMap also now comes with live spell checking, case exploration tools, and outline enhancements.

CaseMap, (from Lexis Nexis www.casesoft.com), makes it easy to organize and explore the facts, the cast of characters, and the issues in any case. For example, you can organize your fact chronology by date, by issue, by source, by whether or not facts are disputed, by your evaluation of which facts are weak or strong, and in dozens of other ways. CaseMap helps organize, evaluate, and explore the facts and issues in a case. CaseMap is a central repository for information about case facts and issues. It’s the place to record what you know about the witnesses, organizations, and documents around which the case revolves. It’s the place to trap the questions you have about the case, including who should find the answer and by when. It helps keep you, your client and any other folks on your side of the case informed. CaseMap is a litigation-specific program, built to help you develop case strategy. It is designed for use with all types of cases and by all types of litigators. CaseMap integrates with TimeMap, and other transcript management applications.

As a knowledge management tool, CaseMap contains features for replication and synchronization to permit working with case information while out of the office. Replication and synchronization is a CaseMap feature that permits trial team members to work in different copies of a case file that can be merged to create one updated version. A replica is a special copy of the case file that merges back into the master copy. Synchronization is the process of merging the changes made to the information in a replica back into the master version of the file. When trial team members go on the road, they can take replicas of the case file along, and make additions and updates to the facts, objects, issues, and questions in it. While these individuals work in replicas, trial team members back in the office can make changes to the master version of the case. When a replica is returned to the office it can be synchronized with the master version of the case file, thereby automatically melding changes made in the replica with changes made in the master. CaseMap is $495 per user license. Discounts are available for purchases of two or more licenses. Each license comes with a no-charge phone training session and with three months of technical support.

NoteMap allows you to build outlines and collapse extraneous branches when not needed to aid your thinking and case preparation. While CaseMap is definitely aimed at the complex case, it need not be confined to such cases. It is the leading product in a new class of applications called case knowledge management software or case strategy management.
CaseMap allows a litigator to evaluate the strengths and weaknesses of a case and to make decisions resultant on the outcome of that analysis. Where a case is less than straightforward and the evidence is lengthy, CaseMap offers litigators the equivalent of a scalpel to cut through the forest to view the essentials of a case.

TimeMap is a litigation tool that creates graphic chronological timelines that you can print and enlarge—adding charts to your persuasive arsenal. In particular, you can explore and demonstrate the time-based relationships between key case events.

TimeMap visuals contain three items only: Fact Boxes, Text Boxes and the horizontal time scale—clean and simple. TimeMap will generate the visuals with “fact boxes” shown above the relevant timeline dates. You can change colours or line weights to emphasize key matters. The graphics themselves can be saved as JPEGs, bitmaps and Windows metafiles.

An example of the use of TimeMap is to prepare a visual display of two conflicting accounts of events. Here you can supplement oral testimony by producing a graph to be used at trial that visually demonstrates the differences in testimony on critical incidents between two different witnesses.

The beauty of TimeMap is its simplicity—it allows you to take chronological data and display it in a graphical form—with all the persuasive power that a picture can convey.

TextMap is their transcript manager utility and requires CaseMap. TextMap can be used to create a database of electronic transcript files from examinations for discovery and other proceedings. In reviewing the transcripts, when you find transcript passages that contain important facts, you can directly place those into your CaseMap case chronology using TextMap.

4.3. Specialty Software

There are literally hundreds of software products specifically aimed at the legal market. Individually these products usually focus on doing specific tasks for a specific practice area. In particular they tend to assist in document creation and/or records or information management for a specific area of practice or matter type. Many of these products excel at completing the tasks they are designed to complete, and they can often help lawyers more quickly and less expensively provide better legal services. It is worth your effort to find out if there are specialty software products available that might help your practice. Ask others that practice in your area of the law what products they are using. A good legal technology consultant may also help you find a product that can help you.

There are software packages that are continually being developed to support lawyers in specific practice areas. These range from Corporate Records Management Software to Real Estate, Estates, Family Law and others:

www.doprocess.com,
www.emergenttech.ca,
www.data-care.com, www.e-incorp.ca,
www.divorcemate.com,
www.childview.ca,
4.4. Advocacy: Presentation Tools

As people receive more and more information via a television and computer screen, they will come to expect more legal information delivered in the same manner. The day is not far off when jurors and judges will expect the multimedia experience in the courtroom. If you have not already started to use multimedia presentations, chances are you have run into a lawyer who does, perhaps on the opposite side of a trial. When you decide to jump into the pool, you may need hardware and you will need software to support your creation of multimedia presentations.

Presentation tools are not just for the courtroom. By simply connecting a projector to a computer, you get instant access to electronic information like websites and network files for client meetings and firm meetings. With digital projection, everything you need is as close as your keyboard. By projecting data from your laptop onto a screen, meetings can be used as real-time editing and revision sessions; simply make changes and project them on screen before participants' eyes. Meeting participants can even create documents together in a working session.

The best part is that presentation tool help make you more professional. The crisp, bright images displayed by digital projectors capture and hold an audience's attention — and that makes a difference whether you're meeting with staff, other lawyers or presenting a case to a jury. Digital projectors provide an enhanced ability to persuade during presentations.

Most portable projectors are very easy to use. While purchasing one may not be an option for everyone, you should be familiar and able to use them when necessary. They come with about as much hardware as a laptop. Usually just two to three cords (power, mouse, and audio/video cables) and the projector itself pack into a bag small enough to carry on the plane, and some small enough to fit into your briefcase. They are plug-and-play, user-friendly and they can be set-up in a matter of minutes.

Brightness. Projector brightness is measured in ANSI lumens. Ultra-portables start as low as 500 lumens (best for lights-off presentations) all the way up to a stunning 3000. Low or lights off presentations are not generally desirable, as you may be inviting a few to doze (or pass notes) during your presentation. A projector with at least 2000 lumens is desirable for use in rooms where there will be some ambient light that cannot be eliminated. A 2200 or more lumen projector would put you just ahead of the pack or average however, and these brighter projectors have now become the industry standard.

Resolution. A lot of people think first about resolution when fretting over image quality. The quick and easy answer is simply match your projector's resolution to your laptop's resolution. New laptops are moving away from SVGA into XGA resolutions, so keep that in
mind. Another way to think about image quality is uniformity. Uniformity is measured by percentage. The higher uniformity rating will give you better quality throughout your image, thus eliminating hot spots and distortion around the edges. A good range to shoot for is about 85-95%. The best quality projectors produce such a sharp picture that you can also use your projector for home theatre use.

Evidence cameras: The P30S (ELMO), a high-resolution document/visual presenter is engineered as an ideal companion for your multimedia data projector. Its analog RGB output connects directly to a data projector for True-XGA or 720p HD live presentations. 2.4 pounds. Non-mobile, desktop models are 15+ pounds. Expect to pay $1,500.00 and up, and remember, that evidence or document cameras generally require a separate digital projector.

Microsoft PowerPoint will meet the needs of most people, especially for marketing and general meeting purposes. For litigators there are products like Sanction and Trial Director that have more power and features than PowerPoint. They are ideal for presenting information electronically in a courtroom.

Sanction II. Sanction will not win a case for you. No software can replace preparation and hard work in trial; however, Sanction can enhance your presentation to give you a persuasive edge. The learning curve for Sanction is measured in hours, not weeks. The familiar tree and list views found in Windows Explorer are found in Sanction. Extensive use of drag-and-drop and right-click menus are found throughout the program. Sanction provides for web connectivity, bullet lists and video clip editing. LiveNote, CaseMap, iCONECT, Concordance, Summation, Realegal, Microsoft Access, Timaro Technologies, WINFORCE and IPRO are some of the many legal software packages that integrate with Sanction. Price, $595 with free technical support.

Aimed at small- to mid-sized law firms, Sanction certainly lives up to its reputation of being within the budgets of many small firms while providing an effective alternative to expensive programs used by large firms. Sanction is a document and video presentation program for trial, not a trial preparation manager. If you are looking for a way to enhance your courtroom line of attack with electronic documents, deposition sound-bytes and colourful presentations, then this is your program.

Sanction accepts text files of document images, deposition transcripts and MPEG files of digitized deposition videos, using the drag-and-drop feature. You need a scanner to load documents into your computer yourself. Images also can be added through several methods including industry standard load files as well as dragging and dropping from Windows Explorer. Sanction will convert regular ASCII files of deposition transcripts to TIFF images.

Once the files to be used have been generated and saved, they are added to Sanction to create the courtroom presentation. Presentation files can be saved directly on the hard drive, or on a CD-ROM for use in the courtroom. The presentation folders allow a user instant access to exhibits in the presentation mode with the click of a mouse. When going to court, you will need a large display device such as a multimedia projector or a large monitor in order to output your presentation from your laptop.

Sanction has features for searching document data and deposition transcripts. It’s useful, but less powerful than a database product like Summation, RealLegal Binder, or CaseMap. It’s probably helpful for last minute searches, but would not be useful for case management. Stick
with industrial strength databases for that task. If you use Summation or Concordance to index your documents, you can import data from those programs to Sanction.

Sanction has a feature called “Exhibit Studio,” which is similar to Microsoft PowerPoint. With this feature, you can create colorful slides with bullets and hyperlinks to documents. Creating the hyperlinks is a multi-step process that requires the linked files to be saved in Sanction; you cannot link to documents outside the program. Exhibit Studio itself is built into Sanction and is exceptionally easy to use. For those who prefer PowerPoint however, Sanction allows you to import complete slide shows.

Creating deposition clips is by far the premier feature of Sanction. If you want to play back only a few lines of a deposition during a closing argument, all you need to do is type in the page and line numbers from the deposition transcript and the system displays the video and sound. The simplest way to create a video clip is to highlight the desired text, click on “create clip” and give it a name. The clips can be saved with easy to identify titles. It is a seamless process that produces professional-looking results.

Sanction also allows you to open a TIFF image of a document, highlight the portion of the text you want to use in your presentation or type the text directly into the text clip window. When you save the text clip, it’s converted to a TIFF giving you the option to annotate further when you present the clip in court. You can add colours and highlighting to make it more dramatic.

TrialPro II Presentation System. TrialPro II gives the lawyer and support staff the ability to organize a variety of anticipated trial exhibits ranging from documents to depositions to video clips, not to mention graphics, pictures and synchronized deposition transcripts. In addition, the program allows you to emphasize specific portions of the exhibit, preview the exhibit, link exhibits for presentation and present the exhibits in a courtroom using a variety of presentation hardware. Although the program’s designers intended it primarily for courtroom use, the software’s organization and presentation capabilities make it useful in other areas of practice such as negotiations, mediations and teaching. The system consists of a database application, a toolbar builder, a presentation viewer and Timaro PTS-LT Synch software for synchronization of video depositions and associated transcripts.

TrialPro allows you to incorporate exhibits into its database, reorganize them for presentation, modify them and then use the program as the master program to control the presentation. Your exhibit database can include MPEG and other full-motion video formats, computer animations, charts, graphics and pictures. You also can include third-party files such as Microsoft PowerPoint, portable document format (PDF) files, Microsoft Word, Apple QuickTime as well as Macromedia Director. The database’s organizational structure looks somewhat like an Access spreadsheet. You can access the database through Windows Explorer and drag-and-drop to bring exhibits into the database and organize them. Once you have the exhibit in the database, you can enlarge portions of it for display. You also can highlight portions of the document, identify them with arrows or augment them with sticky notes. The user selects the desired features through the self-explanatory toolbar buttons.

4.5. **No Hands: voice recognition and digital dictation software**

Someone once said "voice recognition has been about one year away for about ten years now." Until recently there remained a great deal of truth in this statement. At last however,
functionally useful voice recognition is finally here, although it isn't perfect and it does have a learning curve. For these reasons it isn't on the top ten list—yet.

Computer literate people will find voice recognition software relatively easy to learn and use. Those with limited computer skills will really struggle with it. Among lawyers the Dragon Naturally Speaking product is the most widely used, although the IBM Viva Voice product can provide comparable results.

During installation Dragon integrates into almost every other program on your computer. This means that you can use your voice with many other programs. It doesn’t matter what word processor you use (Word or WordPerfect), although it works better with Word in terms of learning from the corrections you make. It works well in Excel, and also in Outlook e-mails without any difficulty. You can say “click send” to send an email.

Training the software to recognize your voice and certain words used to be much more of a chore; however, the latest versions of the software will read a sample of documents on your computer (with permission) and use those to pre-train the software to recognize words you use. For example, the first words I spoke after the software read my hard drive (but without training) were my name, Reid Trautz. It spelled it perfectly even though it could easily have produced “read trouts”.

Voice recognition products work best if you can get a lot of data transfer between the RAM and CPU, so newer computers support the product considerably better than older ones do. Get the fastest computer and maximum amount of RAM you can afford 2 GB at a minimum, and ideally 4 GB. You can never have too much RAM, and additional RAM makes it faster. Consider bypassing the soundcard completely by using a USB microphone, especially if you are using a laptop. This improves accuracy. Use a noise-cancelling microphone to reduce background noise. Remember that a consistent position of the microphone is critical. If move you move the microphone back and forth, even a bit, you will get very erratic results. Dragon is extremely memory hungry, so if you are going to run more than one application, you’re much better off in terms of accuracy and speed to start Dragon first.

One of the resistances of the use of voice recognition technology is that it is not as accurate as people would like it, and that is absolutely true. The problem is that people have expected the technology to meet the sales hype. If people are thinking about the complete elimination of staff, or if they are thinking about producing picture-perfect documents in their final form, then they are going to be disappointed.

It comes out of the box about 95% accurate, and with training can become 98-99% accurate. Version 10 of Dragon self-recognizes corrections, but you must highlight the whole word for this to happen. Doing this is key to improving the accuracy of the product. However, even 99% accurate is simply not accurate enough for lawyers. If you are dictating 250 words per page, then even 1% is a lot of corrections if you are looking to have a perfect final document. You must spell-check and carefully proof the final document. Know that incorrect words—such as “two” for “to” are not that common; however, they will not be highlighted by the spellchecker, and they may not be caught by the grammar checker, hence the need to proof carefully

For this reason many find it useful for creating documents that do not need to be in final form. For example, if you have a client in for an initial intake, use it to do a memo to file. You
could dictate this and have your assistant type it up. However, doing raw input is probably not the best use of his/her time. You still take notes during the interview, but afterwards, dictate a lengthy memo to file. In this case I don’t have to worry about recognition errors, because if I’ve got 98% of it down, it’ll be fine. Some find it very useful when used in this way, especially if the text from the intake can be used in other documents by a simple cut and paste.

In like fashion it can be useful for preparing checklists, and preparing for hearings. For example, you could use it to dictate questions for witnesses. These don’t have to be letter perfect, and they don’t even have to get the names accurate. In the same way it can be used for creating draft letters or pleadings.

Just a comment on terms of dictating styles. It is the case that when dictating you tend to speak slower and more deliberately. The thing with voice recognition, even though this product is called “Naturally Speaking”, is it is not truly natural. When speaking naturally we tend to slur and run things together. So you do have to speak with a more deliberate voice. Slowing down just a little improves accuracy. It will catch some um’s and ah’s, but it depends on the spacing and placing of them. If you add an um to the end of the sentence, it will not pick it up, but if you are in a middle of a sentence and you pause then say um, it will record it. Also, don’t talk in a monotone voice because it won’t recognize it well. Its accuracy will drop if you catch a cold.

It will pick up punctuation very well. The program defaults to the most common word. The whole program is built around statistical probability of words. So if you say “I am going to the store too for two loaves of bread”, it will default to the most common use of to, and looks at context, but there may be some corrections that need to be made.

Note that there are all kinds of special commands available. “Scratch that” which allows you to go back and get rid of what you just said is useful. If it types in the wrong word, and you say “correct that”, it will come up with list of several options to change it to, and usually one of the options is the correct one. You can select the correct option with a your voice. If you are a reasonably fast typist you should avoid the pretty up and formatting commands - using the keyboard will be faster. This is also the case for most common Windows commands. For example, it is not a good use of the technology to say “print that”. It is simpler, easier and faster to press the “print” key. Also, many of the other basic keyboard shortcuts are probably faster.

In terms of documents that need to be prettied up, most find that having an assistant do this task, or have them produce shells of letters for correspondence complete with Re: lines, the addresses, and the signature lines makes more sense. You can train the product to recognize exotic words, including client names. If you want to spend the time to create macros, you can have it create documents that have extensive formatting already incorporated in them. This can be time consuming and requires more advanced computer skills, but will allow you to create documents that are closer to final form.

The bottom line is that the cost of the computer hardware has come down so much and improved so much, and the cost of voice recognition software has come down so much that, while it probably won’t change your life, it can save you a whole lot of keystrokes, which is the whole idea.

Voice Recognition comes in two flavours:
4.5.1. Dragon NaturallySpeaking 10:

Dragon Naturally Speaking 10 is the latest release in this leading VR product. The accuracy has been increased yet again, and allows you to communicate via voice with almost any Windows-based application. It can speed up routine tasks on the PC, such as creating documents, entering data, launching applications, sending e-mail, completing forms, and browsing the Web. Once you and the system have collectively trained, you should be able to complete all of these tasks three times faster than typing — by speaking at up to 160 words-per-minute.

Dragon 10 can further increase your productivity when away from the office by transcribing recorded dictation from mobile devices, including Microsoft Pocket PC and commercial digital recorders.

4.5.2. IBM ViaVoice

IBM ViaVoice Pro USB Edition is the flagship offering of the ViaVoice for Windows, Release 10 product line. There is also a Via Voice line for MacIntosh computers for OSX. IBM originally developed this product, but gave the exclusive distribution rights to Nuance—developer of Dragon Naturally Speaking—in 2003. It has not been updated in several years, so does not run on Vista PCs—only XP, ME and 2000 operating systems.

4.5.3. Digital Dictation

While some legal professionals are adopting VR, others are moving to a technology midway between traditional dictation and VR — Digital Dictation & Transcription Technology.

Phillips and Dictaphone are two leading contenders in this area.

Digital dictation allows you to dictate into a digital recorder or directly into your PC using a hand-mike. The digital voice file can then either be processed by VR technology by yourself, or sent to a secretary for VR processing and correction.

An effective digital dictation and transcription solution offers the following:

- Clearer recordings (leading to more accurate transcription),
- Quicker handling of recordings (no tapes to hunt through for a specific dictation resulting in faster turnaround time),
- Transfer of dictation via Internet, E-mail or network server (providing more options to deliver the dictation for speedy transcription), as well as the ability to transcribe dictation from a location other than the law office.
- Assign your dictation a priority or subject matter so your transcriptionist can efficiently handle the recording (offering you improved workflow), and
- Can be used effectively with speech-recognition (Dragon NaturallySpeaking or IBM Via Voice).
Dictaphone’s Boomerang PC Dictate offers a hand microphone and dictation software that lets you dictate directly to network-connected PCs. The Boomerang hand-mike includes a slide switch for record, rewind and playback, as well as soft-keys for Priority, Fast Forward, End dictation, Insert, or Delete. A LCD display offers visual feedback, including indication of current position within dictation—in minutes and seconds.

An added benefit of digital dictation is that your office network is used to create, manage, route and store all voice and associated document files—thereby eliminating one entire system (namely cassette tapes). You can send voice files to different transcriptionists using the office email system to distribute workloads.

5. Summary

There is no doubt about it, technology is critical for surviving and thriving in the practice of law. The ten technologies reviewed in this paper should be an integral part of most law practices. Start with a good foundation, then assess where you are or want to be on the technology continuum, and work towards incorporating further technologies into your practice. Some of these technologies are very complex. You should seriously consider engaging the services of a legal technology consultant to help you implement and make the most of these technologies. Good luck with your efforts.

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Dan has presented at ABA Techshow in Chicago, The Pacific Legal Technology Conference, LegalTech Toronto and many other conferences. He currently Chair of the Ontario Bar Association’s Law Practice Management Section, and is on the Practice Management Advisors and Web Core Committees of the ABA LPM Section. He is a past President of The Canadian Society for the Advancement of Legal Technology.

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Top 10 Legal Technologies for Solo and Small Firms

The Importance of Securing Your Electronic Data
by Deborah E. Gillis, Q.C.

www.kashilaw.com - under Tech Articles for detailed discussions of current computing hardware, scanners, printers, networks etc

www.thoughtfullaw.com - for discussion of leadership, business strategy, technology and finance articles as well as examples of how real lawyers are implementing technology.

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www.techshow.com