

Technologies for Solo/Small Firm, Home, and Mobile Lawyers - 2009 Update

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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

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 PCMCIA 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 differential 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 mother board, 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, spread sheet, 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), GoToMyPC (www.GoToMyPC.com), PC Anywhere (www.Symantec.com), and LapLinkEverywhere (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 tthe 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 scannersvery useful in the mobile office as a means of processing and sending hard copy documents through your computer's fax modem. The Fujitsui 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 spreadsheets, 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 Balckberry 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

Technology Compatibility Guide

Technology Description	Solo	Home	Mobile
Computer - Central Processing Unit (CPU)			
286/386/486	XX	XX	XX
Pentium	XX	XX	XX
Pentium II/AMD/Celeron	XX	XX	XX
Pentium III/Athlon	XX	XX	XX
Pentium IV/Athlon	✓	✓	✓
Pentium Core2 Duo/Athlon X2	✓✓	✓✓	✓✓
Computer - RAM			
< 1 GB	XX	XX	X
1 GB	✓	✓	✓
2 GB	✓✓	✓✓	✓✓
4 GB or greater	✓✓✓	✓✓✓	✓✓
Computer - Hard Drive			
less than 100 GB	XX	XX	XX
250 GB	X	X	✓
500 GB	✓	✓	✓
750 GB	✓✓	✓✓	✓✓✓
Greater than 1 TB	✓✓✓	✓✓✓	✓✓✓
Computer - Floppy Disk Drives			
3 ½ "	XX	XX	XX
Zip Drive	XX	XX	XX
Super Drive		XX	XX
Computer - CD Rom Drive	X	X	X
Computer - CD/DVD Read-Write Drive	✓✓	✓✓✓	✓✓✓
Computer - DVD Drive	X	X	X
Computer - Network Card 10/100/1000	✓✓	✓✓	✓✓
Computer - Fax Modem	✓	✓	✓✓
Computer - Tape Drive	X	X	X
Monitor - 12"	XX	X	✓
Monitor - 14"	X	X	✓✓
Monitor - 15"	X	X	✓✓
Monitor - 17"	X	X	X
Monitor - 19"	✓	✓	n/a
Monitor > 20"	✓✓	✓✓	n/a

Technology Description	Solo	Home	Mobile
Monitors - Dual	✓✓	✓	n/a
Keyboard Ergonomic Keyboard	✓✓	✓✓	✗
Mouse:			
Scrollable Mouse	✓✓	✓✓	✓✓
Optical Mouse	✓	✓	✓
Cordless Mouse	✓✓	✓✓	✓
Touchpad	✓	✓	✓✓
Pointing Stick	n/a	n/a	✓
Connection Ports:			
LPT	✓	✓	✗✗
Serial	✗✗	✗✗	✗✗
USB	✓✓	✓✓	✓✓
Operating System:			
DOS	✗✗	✗✗	✗✗
Windows 3.1	✗✗	✗✗	✗✗
Windows 95	✗✗	✗✗	✗✗
Windows 98 (Second Edition)	✗✗	✗✗	✗✗
Windows ME	✗✗	✗✗	✗✗
Windows NT	✗✗	✗✗	✗✗
Linux	✗	✗	✗
Windows 2000	✓	✓	✓
Windows XP	✓✓	✓✓	✓✓
Windows Vista	✗	✗	✗
Office Suites	✓✓	✓✓	✓✓
Case Management Program	✓✓	✓✓	✓
Legal Accounting Program	✓✓	✓✓	✗
Internet Browser (Internet Explorer, Firefox, Opera, etc)	✓✓	✓✓	✓✓
Fax Modem Software	✗	✗	✓✓
File Security (Encryption) Software	✓✓	✓✓	✓✓
Internet Firewall	✓✓	✓✓	✓✓
Backup Software	✓✓	✓✓	✓✓
Voice Recognition	✓	✓	✓
Remote Access	✓	✓	✓

Technology Description	Solo	Home	Mobile
Printer:			
Laser Printer	✓✓	✓✓	✗
Ink-Jet Printer	✓	✓	✓
Dot Matrix Printer	✗	✗	✗
ISP Connection:			
Cable Modem	✓✓	✓✓	✗
ADSL	✓✓	✓✓	✗
ISDN	✗✗	✗✗	✗✗
56 K Modem	✗✗	✗✗	✓✓
Less than 56K Modem	✗✗	✗✗	✗✗
Smartphone	✓✓	✓✓	✓✓
Multi-Function Device	✓✓	✓✓	✗
On-Line Research Service	✓✓	✓✓	✓✓
Digital Camera	✓	✓	✗
Training	✓✓✓✓	✓✓✓✓	✓✓✓✓

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.

Company	Product(s)	Website(s)
3Com	Network Cards & Hubs, Modems, PDA's	http://www.3com.com
Abacus Data Systems	Abacus Law (Case Management Software)	http://www.abacuslaw.com
Adobe	Acrobat, TypeManager, Photo Deluxe, PageMill (WebPage Designer)	http://www.adobe.com
Alumni computer Group	PcLaw, PC Law Jr., ProLaw	http://www.pclaw.com
AMD	AMD-K6-2, AMD-K6 III, Athlon, Durn (CPU's)	http://www.amd.com
AOL	AOL Messenger - Communication Program, ISP	http://www.aol.ca
APC	Uninterruptible Power Supplies, Surge Protectors	http://www.apc.com
Artisoft	i.share KoJack (Proxy Server Software)	http://www.artisoft.com
Belkin	Mice, Keyboards, USB Hubs, UPS, Surge Protectors	http://www.belkin.com
Brother	Printers, MFD's	http://www.brother.com
Butterworths	Technology publications	http://www.butterworths.ca/
Canon	Printers, Scanners, Cameras	http://www.usa.canon.com
Cardscan	Cardscan - Business Card Scanning software/hardware	http://www.cardscan.com
Carswell Thompson Professional Publishing	ecarswell (Online legal research), texts on internet and technology and automated legal software	http://www.carswell.com
Casio	PDA's, Cameras	http://www.casio.com
Compaq/HP	Computers, PDA's	http://www.compaq.com
Corel	Office Suites, Graphics and Photo Editors(Various), Operating System - Linux	http://www.corel.com
D-Link	D-Link (Network cards, hubs, phonline networks)	http://www.dlink.com
Dell	Computers, Printers, Scanners, Input Devices (Mice, Keyboards), Software	http://www.dell.ca
Dragon Systems (now a Nuance division)	Dragon Dictate (Voice Recognition)	http://www.nuance.com
Emergent Technologies	Estate Planning, Estate Administration and Corporate Records ASP	www.emergenttech.ca
Esi-Law	Esi-Law (Accounting Software)	http://www.esilaw.com
Gavel & Gown	Amicus Attorney (Case Management Software)	http://www.amicus.ca
Hewlett Packard/Compaq	Computers, Printers, MFDs, Scanners, PDA's,	http://www.hp.com
I Star (now inter.net)	istar (ISP)	http://www.istar.ca
IBM	Computers, Printers, Scanners, PDA's, ViaVoice (Voice Recognition Software)	http://www.ibm.com
Intel	Network Cards & Hubs, Pentium & Celeron	http://www.intel.com

Company	Product(s)	Website(s)
Laplink.com	Processors (CPU's) Laplink (Remote Access Software)	http://www.laplink.com
LS Canada	Legal Suite Software	www.leagal-suite.com
Lexis-Nexis	Online Legal Research	http://www.lexis-nexis-canada.com/
Linksys	Linksys (Network cards, Hubs and Firewalls)	http://www.linksys.com
Logitech	Mice, Trackballs, Keyboards, Cameras	http://www.logitech.com
McAfee	PGP (Encription Software), Personal Firewall, Antivirus and PC Maintenance Software	http://www.mcafee.com
Microsoft	Operating Systems, Office Suites, Internet Explorer (Browser), Mice, Keyboards	http://www.microsoft.com
MSN	MSN Messenger - Communication Program	http://www.msn.com/
My Bookmarks	My Bookmarks (Internet Based Browser Bookmark Service)	http://www.mybookmarks.com
Netscape	Netscape (Browser)	http://www.netscape.com
Network ICE	BlackICE - Internet Security/Firewall	http://www.netice.com/
Palm Inc	Palm Pilots/ Treo Smartphones	http://www.palm.com
PowerSoft Innovations	Integra Law Office Management (Case Mgmt & Accounting Software)	http://www.powerinn.com
ProLaw Software	ProLaw (Case Mgmt & Accounting Software)	http://www.prolaw.com
Quicken	Quicken/Quick Books (Accounting Software)	http://www.quicken.ca
Quicklaw	Quicklaw (Online leagl research)	http://www.quicklaw.com
Ramp Networks	Webramp (Network Hub, Proxy Server & Internet Router)	http://www.webramp.com
ScanSoft	Omnipage, Textbridge, Pagis Pro	http://www.nuance.com
Sonicwall	Proxy Server/Firewall	http://www.sonicwall.com
Symantec	PC Anywhere, PC Telecommute, Norton SystemWorks (PC Maintenance Software), Internet Security (Firewall Software), WinFax, Antivirus	http://www.symantec.com
Time Matters	Time Matters (Case Management Software)	http://www.timematters.com
Tripp-Lite	Tripp Lite UPS	http://www.tripplite.com/
Visioneer	Scanners	http://www.visioneer.com
Xerox	Printers, MFDs	http://www.xerox.com
Yahoo	Yahoo Messenger - Communication Program	http://www.yahoo.com
ZoneLabs	Zone Alarm	http://www.zonelabs.com
GENERAL TECHNOLOGY SOURCES		
Office Depot	General Source - Computers, Printers, Scanners, PDA's, Software and Computer Accessories	http://www.officedepot.ca
Staples	General Source - Computers, Printers, Scanners, PDA's, Software and Computer Accessories	http://www.staples.ca
FutureShop	General Source - Computers, Printers, Scanners, PDA's, Software and Computer Accessories	http://www.futureshop.ca

Company	Product(s)	Website(s)
Visions	General Source - Computers, Printers, Scanners, PDA's, Software and Computer Accessories	http://www.visions.ca

OTHER LEGAL LINKS AND RESOURCES

Access to Justice Network	ACJ Net - Statutory and other case authority and links sources	http://www.acjnet.org/
Air Canada	Flight Information and Reservation	http://www.aircanada.ca/home.html
American Bar Association	Legal Technology Centre - Reference	http://www.abanet.org/tech/ltrc
American Bar Association	LPM Section - Techshow	http://www.techshow.com/
American Bar Association	LPM Section - Seize the Future	http://www.futurelaw.com/
American Bar Association	Law Practice Management Section	http://www.lawpractice.org/
Australasian Legal Information Inst.	Case and Legislation Database - Australia, NZ, UK. Ireland	http://www.austlii.edu.au/
British & Irish Legal Inf. Inst.	UK and Ireland Cases and Legislation	http://www.bailii.org/
Canada Post	Postal Codes and Postal Rates and Services	http://www.canadapost.ca
Canadian Securities Administrators	Online Corporate/Securities Information	http://www.sedar.com/
Canadian Patent Office	Trademarks and Patents Search Database	http://strategis.ic.gc.ca/sc_cons/trademarks
Canadian Bar Association	Canadian Bar Association and Links	http://www.cba.org
Canadian Association of Law Libraries	Information and Legal Research Links	http://www.callacbd.ca/
Case Central	ASP - Information Management System	http://www.casecentral.com/
Comics.com	Online Cartoons	http://comiczone.com
CSALT	Canadian Society for the Advancement of Legal Technology	http://www.csalt.on.ca/
Cybersettle.com	Online Settlement Services	http://www.CyberSettle.com/
Dennis Kennedy	Legal Technology Primer	http://www.denniskennedy.com/ltprimer.htm
Department of Justice	Federal Justice Info and Links	http://www.canada.justice.gc.ca/
Findforms	Free Legal Forms Online	http://www.findforms.com/
Findlaw	Free Online Legal Research and Resource Database, Legal Forms, Lawyer Locator	http://www.findlaw.com/
Gibson Research	Online Internet Security Checker	http://grc.com
Jeff Flax	Legal Links	http://www.jflax.com
Jefren Publishing	Legal forms Online	http://www.jefren.com
Law.com	Legal Information and news services	http://www.law.com/
Legal Portal.ca	Legal Links	http://www.gahtan.com/
Legal Technology Institute	Internet Tutorial	http://www.internetlawyer.com/tutorial/index.htm
MapBlast	Map and Location Website	http://www.mapblast.com
Net Tech Inc	Palm Resources for Lawyers	http://www.nettechinc.com/palm.htm
Nolo.com	Lawyer Jokes	www.nolo.com/humor/jokes
OpenAir.com	ASP - Time Bills	http://www.openair.com/home/servicesTimeBills.html
Randy Singer	Law Office Software for MacIntosh Computers	http://www.mother.com/~randy/index.html
RefDesk.com	Virtual Reference Materials Site	www.refdesk.com
Siskind, Susser & Co.	Visalaw Website	http://www.visalaw.com/
Transparent Language	Online Translation Services	http://www.freetranslation.com/

OTHER LEGAL LINKS AND RESOURCES

Inc.
University of Montreal

LexUM -Virtual Canadian Law
Library

<http://www.lexum.umontreal.ca/>

Wierdfacts.com
Ziff Davis Publishing

Weird Facts
Technology Information Database

<http://www.weirdfacts.com/page1facts.html>

<http://www.zdnet.com/>