Technology: The Nuts and Bolts of a Small Firm's Infrastructure

Today's law firms use technology more than ever. To enable their people to be productive and efficient, and give them a competitive advantage, sole practitioners and small firms need to be aware of what technologies are available to them. They also need to know how to plan for and implement these technologies. This paper will discuss the technological building blocks that small firms require.

Lawrence Cofield, *Woodland Technology Group and Brian Mauch, BMC Networks*

Network Cabling

A new office space has to be cabled for the data and voice networks. The pre-existing cables should be scanned, certified, and any outlets with issues should be rewired. Data cables should be certified for CAT 5E or CAT6. If the premises are being renovated for tenant improvements, cabling should happen before the walls are painted. Most offices have a location where the data cables will or should terminate. This is typically where TELUS also has their demarcation. If this location has electrical outlets and sufficient space, it is a great place for the firm's new server to be installed. If it is in a closet or an enclosed area, some ventilation or good air conditioning has to be provisioned so the equipment does not overheat.

Data outlets should be placed in all computer or network printer locations. It is also good practice to provide outlets where computers or printers are expected in the future to avoid the difficulties of cabling after the furniture has arrived. The data outlets should be well labelled and a wiring floor plan (map) should be left at the terminating patch panel. The voice (telephone) cabling should be done at the same time since data and voice jacks (outlets) are usually close to each other. If the telephone system that is going in is voice over IP (VOIP) system then the voice outlets will be cabled the same as the data outlets using CAT5E or CAT6 cables. To allow for VOIP phones or other networked devices in the future, ideally each workstation will be cabled with 2 data outlets. Low voltage cabling is sometimes done by electrical contractors. Alternatively there are many companies that specialize in low voltage cabling.

Telephone System

This article will not delve too deeply into telephony. However, if you are looking for advanced features such as "voice messages forwarded to email", twining with cell phone, and using remote telephone sets from a remote location (as if you are sitting in your new offices), then you should consider a VoIP telephone system.

Domain Name

You need to register for a domain name as part of your branding strategy. It's always a good idea to think of a couple and then check availability (similar to the process for registering a business name). The new firm's email addresses will be based on this domain name. An email format convention should also be decided on. The most common format is first initial, last name e.g. jsmith@mynewlawfirm.ca. Then a web designer should be selected and given content to start constructing the new firm's website. The firm logos then have to be designed by a graphic artist. Alternatively, a marketing company could be

engaged to develop a new law firms branding, including logo, website, and other marketing materials. One thing to keep in mind about the logos is that they should also look good on the firm's new stationary as well as computer screen to be used as the outgoing email signature. Another issue to note is that the firm's website should not contain a version of the lawyer's email addresses that is easy to farm by spammers.

Internet Service Provider (ISP)

Most ISPs provide an acceptable level of service. Below are a few issues to consider when evaluating the contracts

1. Their service must provide at least one fixed (or static) IP address. Having a fixed IP address facilitates setting up services like email and remote access functionality.
2. The plan should have unlimited data, or a very high data plan. This issue is of high importance if an offsite backup solution is used (that requires high traffic).
3. Often the ISPs offer a bundled package that includes hosting the firm's website.
4. A failover internet connection consisting of two different types of connections (eg. ADSL and cable) will keep the firm online even if one of the connections is down.

Network Infrastructure

The ISP will provide a modem to connect to the Internet. However the new firm will also need a firewall to protect it from hackers. The two best brands of firewall that I recommend to my clients are SonicWALL and FortiNET. A (preferably 1GB) network switch will be needed for all the data connections. These switches come in many sizes with typical configurations of 8, 12 or 24 ports. I usually recommend purchasing either HP or 3COM brands. The network data patch cables (RJ45) connecting all of these together should be rated CAT5E or CAT6.

Server

A server is a powerful and robust computer dedicated to running services for other computers in a firm (e.g. print, mail, accounting software, etc.). For a small to midsize law firm, I would (currently) recommend an HP Proliant ML G8 series server with at least 12GB of RAM, and ideally 24GB. It should have a minimum of 3 hard drives in a RAID5 configuration. If any one of the hard drives fails the other two will continue to function until a replacement is hot swap replaced. It should also have a redundant power supply and cooling fan for extra protection against failure. HP has good "Care Pack Hardware Support" packages that can be purchased with the server. I would recommend the 24X7, 4 hour hardware replacement package. If a part fails in the server, HP will show up with a replacement component within 4 hours.

For the operating system, I would recommend Microsoft Windows Small Business Server 2011 Standard, which includes Microsoft Exchange 2010 for email. An uninterrupted power supply (UPS) should also be installed between the new server and the wall electrical outlet. This will protect the server from power surges and short power outages. It can also be configured to shut down the server gracefully in the event of a power outage. My recommendation for UPS is an APC SmartUPS 1000.

There is currently a trend in many businesses to use virtual servers (use companies that provide shared servers for many clients over the Internet) referred to as cloud solution. The key benefit of this approach is avoiding the initial capital cost of installing a server. On the downside, the recurring services charges per subscriber add to the firm's operating costs. The firm's data will be stored in these virtual servers and out of your physical premises. If you choose to use cloud computing services, you have to use only Canadian-based providers to protect your client's data. On a functional base, lost or reduced Internet services (which can happen for example with a faulty switch or problems with your ISP) could slow down or paralyze your firm's business at a critical time.

Data Transfer

If a lawyer is leaving an existing firm they may want to transfer over their data. With the cooperation of their existing firm's IT support this data can typically be exported, and then be imported into the new server. This usually includes documents, databases and email (Outlook) data.

Workstation Computers

For the workstation computers, I recommend Microsoft Windows 7 Professional, 64 bit for the operating system. They should have INTEL processors and at least 4GB of RAM. They should also have a DVD drive and a 1GB network card. If 2 monitors are going to be connected to the computer then a dual monitor configuration should be considered during the procurement of the computers. Monitors are very inexpensive and I would suggest at least a 21 inch screen. Mice and keyboard are also required; whether they are wireless or ergonomic is a personal choice.

The computers should have Microsoft Office 2010 Standard, 32 bit installed. This package includes Word, Excel, PowerPoint and Outlook. Office 2010 Professional is more expensive than the Standard version, but the additional Access software is rarely used in law firms. Word would be for word processing and Outlook for email. The lawyer's calendars can be shared out to their assistant's. There could also be Public Folders created for Boardroom & Holiday Calendar's. Also there should be a firm wide contact list, and perhaps a holiday greeting card list. For antivirus I would recommend the free Microsoft Security Essentials. It does daily updates and it is a light application (does not cause any noticeable speed issues with the computer).

Spam Filter

Over the years, I have tested many spam filters and have found the Barracuda spam filter device to be the best. It is an external device, and therefore filters the email before it even hits the firm's server. You can easily search and release false positive emails. Whitelist additions are quick and it updates its blacklist every 15 – 20 minutes. Alternatively, an ISP can provide anti-spam and anti-virus services for incoming email, on a pay-as-you-go basis.

Document Management

While many small firms do without a dedicated document management system and use the Windows file-and-folder system to organize their client files, a document management system can provide standardization and efficiencies for lawyers and staff. In my experience, Worldox is the most efficient and cost effective document management system for a small to mid-size firm. Some thought has to be

put into the implementation as to the client and matter number structure the firm is going to use. This should match the same structure as the firm's accounting system. A simple dedicated workstation computer would need to be used for the Worldox Indexer. The training is very straightforward. It will save Word documents, PDF's, Outlook emails and more.

Accounting Program

The accounting software packages we see in most firms are PCLaw and ESI Law. They are used for time tracking, billing and accounting management.

Electronic Data and Transcript Review

Summation is a widely used program for managing and collaborating on electronic data for law cases. Data can be ingested, searched and exported with ease. Summation has real time integration with the court reporters for taking transcription notes. This is a good piece of software to have installed on the firm's travel laptop.

Document Comparison and Metadata Removal

Workshare Professional is a great program for comparing two documents and tracking changes. It can also be used to remove metadata (hidden information) buried in your documents.

Digital Dictation

There are a couple of great digital dictation and transcription programs available by Phillips or Olympus. Both have a handheld device a lawyer can use that will then dock into a docking station connected to a computer. That will then transfer the voice file to the assistant's computer and they can listen to it with a headset and foot pedal connected to their computer.

Speech Recognition

Dragon Naturally Speaking is by far the most widely used program for speech recognition. If a lawyer takes the time to train it and acquires a high-quality microphone, this can be a very efficient tool. However, expect that the created document will need some editing.

Adobe

Most government documentation online is moving towards the PDF format. Microsoft Office 2007 and 2010 does have the ability to save documents to PDF, and the free Adobe Reader will open most PDF's. However if an editing, digital signatures or security features are required then Adobe Acrobat will be needed. Adobe Acrobat comes in two versions: Standard and Professional. The main difference between these two versions is that Standard allows users to add digital signatures, whereas Professional also allows users to redact and digitally sign PDF documents, and provides extended editing capability.

Printing and Scanning

The most efficient way to setup printing in a small to mid-size firm is with a multiple-tray copier. It should have a network card so that it can also be used as the firm's network printer. One of the trays can be for plain paper for drafts. The other two trays could be for the pre-printed letterhead page 1 and page 2. The optional feeder can then be used for legal size paper. Copiers have other features that can

be helpful to your practice like; stapling, sorting, collating and three-hole punching. Copiers also have a per page cost ration typically lower than laser jet or inkjet printers (for black and white printing). Some copiers come with an option to print colour, but it is more expensive per page.

The copier should come with a scan feature. Scans can typically happen in black and white, or colour. They can be sent to a network shared folder for retrieval for larger jobs, or the scan can be emailed to a user's Outlook as an attachment.

Envelopes should be pre-printed along with the firm's letterhead. The firm can then get a great little label printer called a Dymo in order to print off client address labels. It can also be used to print labels for file folders.

If the letterhead can be replicated in a Word template, then the extra cost of using pre-printed letterhead can be eliminated.

Fax

The firm can handle faxing either buy using a standalone fax machine or through the server via a program like GFI FaxMaker, or using the built-in functionality of Small Business Server. The standalone option requires a telephone line to be connected to the fax machine, so it should be located near where the fax line is terminated. Software solutions receive faxes via the telephone line connected to the server and then deliver the faxes either as a tiff or PDF attachment directly into Outlook via email. Faxes can also be sent directly from each person's workstation computer via Outlook.

Copy and Scan Tracking

Faxes, pages copied, pages printed, or scans can be tracked via disbursement software such as Copitrak. The totals can then be imported into your accounting software and disbursed back to the client at a predetermined rate.

Backup Solutions

There are 3 layers of backups that should be considered.

1. An onsite regular backup of the firm's data and email to one of the following; backup tapes, NAS or external USB drives.
2. An offsite, regularly synchronized encrypted copy of the firm's data and email. This could be to a NAS at another secure office location that is not in the same building in case of fire etc.
3. An encrypted copy of the firm's data and email to a cloud-based service. This is to protect against a major natural disaster, like an earthquake, in the firm's geographical area. (This has to be to a Canadian owned company only, with their servers located within Canada.)

There are costs to be considered for number 2 and 3, like monthly subscription fees and the potential cost of higher monthly data usage with the firm's internet service provider.

Firm Travel Laptop

If the new firm has anybody that will be traveling or going to court, it is a good idea to set up a travel laptop. The hard drive of the laptop should be encrypted and the login password should be strong. If the laptop is going to be taken to court then it is a good idea to install a program on it that will collect data from the court reporter; like Summation. The laptop can also be used to connect back to the workstation computers in the firm using Microsoft Remote Desktop Connection.

Webinars and Presentations

If the firm has a TV in the boardroom then the laptop could also be used to connect to it for presentations (example; PowerPoint) or to watch webinars (example; CLE).

Handheld Devices

The two most commonly used handheld devices in a firm are Blackberry's and iPhones (and iPads). Cell phones running the Android operating system will connect in a similar fashion as the iPhones. Blackberry's can connect to the firm's email system. This will allow users to receive/send email and synchronize their Outlook calendar, contacts & tasks wirelessly. Blackberry's connect to the firm's email system via a program called "Blackberry Enterprise Server". The software is free from RIM, but it takes a couple of hours to install and configure. The Blackberry should be setup with a password to log into it in case the device is lost. There is also a feature on the "Blackberry Enterprise Server" to remotely wipe a lost unit. The iPhones can connect to the firm's email system via a SSL certificate. Once connected, they will have similar features to the Blackberry. This will allow users to receive/send email and synchronize their Outlook calendar, contacts & tasks wirelessly. The iPhone should be setup with a login passcode (password) in case the device is lost. It should also be registered online, which then allows the phone to be located via the GPS function or a remote wipe command set to it in the event that it is lost. However the Apple iCloud should not be used to actually store data since the serves are located in the U.S.

Wireless

A basic consumer grade wireless router, like a Linksys (by Cisco) will provide wireless coverage for the firm in most cases (if the square footage isn't too large or if there isn't any large metal impediments in the way, like an elevator shaft). The wireless router should be connected outside of the firm's internal firewall, but can use the existing internet connection. This is to give the firm extra protection against someone trying to hack into their network. The wireless network should be encrypted and its encryption key should be changed on a regular basis. Having a wireless network has two nice benefits. First it can provide internet access to clients or other lawyers that might temporarily bring their laptops into the office. Secondly so that people with handheld devices, like Blackberry's and iPhones, can connect to the data network without using 3G and thereby save on their monthly data usage cost.

Remote Access

If somebody in the firm wants to work remotely then their office computer can be setup to accept Remote Desktop Connections. The user of this compute should use a strong login password. The firm's firewall would have to also be configured to do a "port forward" to this computer. The user would then connect to their office computer from a remote location using Microsoft Remote Desktop Connection.

Outlook Web Access

The firm's server can be configured to allow a user's email to be viewed from a browser using "Outlook Web Access". If this is setup then a strong login passwords should be used.

FTP Site

If a case requires large amount of documents to be transferred back and forth the server can be configured to have an FTP site. Security and passwords should be carefully thought through to make sure it is as secure as possible. Most email servers will only allow a single maximum email size, including attachments, to be 20MB. Online programs like SugarSync and Dropbox should not be used for this purpose since the servers reside in the United States and your client information would therefore be discoverable under the Patriot Act.

Conclusion

In this paper, we discussed most essential technologies required to set up a new law firm's IT infrastructure. It is always a good idea to plan ahead and to discuss your options with one (or a few) experienced IT consultants to determine the best configuration for your new firm's immediate and future needs.