Technology Recommendations – Fall 2007

Opinion, supposition, and just plain guessing, by Gary Saake and the DATAIR Staff

Introduction

Each year we attempt to provide an unbiased view of where we think the computer industry is headed over the next few months to years, and to relate what we believe to be some good common-sense guidelines to help you get the most out of your technology dollars. The recommendations are based on our experiences, and those that clients have related to us over the years.

Due to the diversity of our client base, from solo practitioners to Fortune 10 firms, it's impossible to prepare a cookie-cutter "Here's what you should do" type of guide. Rather, we present a discussion of the common issues and allow you to tailor them to your environment.

If you are a veteran of these diatribes, the changes made in this year's edition reflect incremental advancements in technology across the board rather than a significant rethinking of our basic approach to technology.

DATAIR's Technology Initiatives

So you don't have to make your decisions in a complete vacuum, we thought it would be helpful to relate some of the plans we have technology-wise for our products to help you plan. Many of these have been announced previously, and in more detail, elsewhere.

SQL Server

During 2007 we took a detour on our transition to the SQL Server database system to add support for SQL Server 2005 which was required due to the introduction of Microsoft Vista. In 2008 we will complete the transition to SQL Sever for all DATAIR Windows-based systems.

Documentation and tools will be provided to combine all of your data into a single database during the first half of 2008 and by the end of 2008 the transition should be complete.

We encourage you to review the *SQL Server Announcement and FAQ* document available in the Technology Publications section of the datair.com website for complete details. Look for an updated version of that document before the end of the year. The DC/Win Installation Guide is also an excellent source of detailed information.

Microsoft will also be releasing SQL Server 2008 in the next few months. We will announce when DATAIR applications are compatible with it. Until that time, steer clear of it.

Operating System Support

In 2007 we added support for Windows Vista. During 2008, we will be adding support for Microsoft's soon-to-be introduced Windows Server 2008. Please watch the web site for announcements on compatibility with this new operating system.

Software Auto-Update

We receive a significant number of support requests where the answer is "Install the latest update from the web site". In an effort to make your experience using our software as trouble-free as possible, in 2008 we will introduce an internet-based system that will automatically download updates to a central location on your server and keep each workstation with DATAIR software up-to-date.

You'll have control over the deployment of updates if you wish, but you will also be able to set it to automatically install the updates for each of your systems and eliminate problems such as:

- Installing updates in the wrong order;
- Needing to pass CD's around the office; and
- Coordination of updates office-wide

It will also allow us to quickly distribute fixes for issues discovered between major releases which would otherwise not rise to the level of posting an additional web update.

Some form of internet connectivity is required on at least one machine per database location to take advantage of this technology.

DATAIR's Computer Buying Strategy

We're very fortunate to continue to be in a period of time where picking the 'right' computer is pretty much a no-brainer. All but the lowest-end machines available provide more performance than most of us need. These days, things that were once optional such as CD-ROM drives, sound cards, and network cards are now included as basic features in most new machines.

Realistically, a mid to top-of-the-line desktop computer you buy these days has a useful life of four to, possibly, five years. Why is this important? Because it provides a foundation for planning an equipment replacement strategy. The strategy we adopted well over a decade ago, and has served us very well, is to plan to replace 25% of our equipment each year. This makes sense for several reasons:

- It provides a constant influx of new technology into the workplace
- It spreads out capital expenditures
- It eliminates many of the maintenance issues that befall older equipment

A variation on the above theme is to replace 25% of your workstation computers each year for four years, and on the fifth year replace your servers and other networking equipment.

Above all, you need to think of a computer as a disposable asset, and not something you keep until the day it rolls over and dies. The amortized cost of a workstation purchased today is going

to be well under $1 per day. Compare that to the cost of the person using the computer… How much more productive will they be with a blazingly-fast machine? How much better would their morale be?

Upgrading Existing Machines

One simple rule: If your computer needs more than one upgrade, it's time for a new machine.

It's okay to add more memory or a larger hard drive, but anything more than that is probably throwing good money after bad.

If you do upgrade, be aware that motherboards have limitations on the total amount of memory supported, as well as the size and interface type for hard drives supported.

When you buy a new machine, the latest and greatest operating system will be preinstalled, and you can often acquire new office suites such as Microsoft Office at a significantly discounted price when you buy it preinstalled on a new machine. You'll also get a new warranty that, depending on where you buy your computers, will give you up to three years of protection against the cost of replacing hardware that fails.

What Should I Buy?

As we said in the opening, buying a new machine isn't the black art that it once was. It's hard to go too far wrong. There's still a wealth of choices however.

Processor:

What speed? There's no such thing as a "too fast" computer. Our general policy is to <u>not</u> buy the absolute fastest machines because there is usually a pretty high premium on the price. Instead, we usually order a couple levels down on the processor speed scale. Don't overdo this theory though. If you accept the notion that a state-of-the-art computer has a lifetime of 4 to 5 years, you don't want to buy a computer that is essentially a year or more old in technology terms since the useful life would be reduced by that amount of time. Thus, instead of 4-5 years, it's more like 3-4 years. It's very likely that you'll find that the amortized cost doesn't vary much since the lower initial cost has to be amortized over a shorter time period.

Keep in mind that you can not compare processors solely on their clock speed (the GHz rating). Each family of processors has unique characteristics, so one model of processor running at 1.7 GHz may outperform another model that's running at 2.4 GHz. If you're geeky enough, there's an excellent web site, www.tomshardware.com that has comparisons of dozens of different model and speed processors.

AMD or Intel? AMD is a worthy competitor to Intel that helps keep computer prices coming down, and we encourage you to consider buying machine with their processors. .

Celeron, Sempron, or Duron? The Intel Celeron and AMD Duron/Sempron series processors were introduced to compete in the low-cost computer market. The performance of these processors has

been significantly outstripped by their big brothers, the Intel Core 2 Duo and Athlon X2. We can not recommend Duron, Sempron, or Celeron processors as a means of saving money.

Dual and Quad Core Processors? For years, servers have incorporated multiple processors to enhance performance. Dual Core processors such as the Intel Core2 Duo and AMD Athlon X2 processors pack two CPU cores into a single CPU package to achieve some pretty significant speed improvements over their immediate predecessors. Quad-core processors for workstations are appearing on the market and they raise the bar even further.

What about notebooks? You'll have to settle for somewhat lower speeds on notebooks as the development of mobile processors lags behind those for desktop machines. This is mostly due to the limited power that batteries can supply, and the heat generated by super-fast processors. This is one factor that results in the life span of a notebook being less than a desktop machine. Plan on replacing notebooks about every 3 years. Intel's Core 2 Duo Centrino processor that is used in many notebooks is excellent in terms of speed and battery life.

What's ahead? For the next couple of years, we expect dual and quad-core processors to account for most of the performance improvements in the computer world.

Memory: Since last year, we've (again) doubled our recommended memory for workstations and servers. You'll want at least 2 GB of memory for new workstations and 4 GB (4096 MB) or more for a server. Even without any applications running, Vista typically uses around 800 MB of RAM. Launch a few applications and you're well over 1 GB.

It wasn't all that long ago that memory sold for $50 per megabyte. These days you can get 512 MB for that same $50. Most people don't realize the impact that memory has on the performance of a computer. With the cost so low, there's no excuse for not having enough. This is the one upgrade for existing computers that we can recommend without reservation. If your machine has less than 512 MB, an upgrade is probably in order if you won't be replacing the machine in the next 12 months.

Hard Drives. For workstations, a Serial ATA (SATA) interface hard disk is the best choice. We recommend at least a 200 GB drive for workstations. Actually, you will have difficulty finding a new machine with a drive smaller than 200 GB, except for on a notebook.

SCSI interface drives are the most popular choice for servers, however server-class SATA-2 drives are now very common and our experience with them has been very positive.

SCSI and server-class SATA-2 drives are constructed with better materials and have advanced capabilities that make them better suited for server applications where simultaneous access is important. First generation (non-server rated) SATA, and IDE drives should never be considered for use in a server.

Disk drives have, in general, followed memory prices in the downward spiral, so don't skimp here either. The size of server drives is completely dependent on what you are going to have on the server. As a rule of thumb, if you are replacing a server, quadruple the storage space you are currently using. Don't worry, you'll fill it soon enough.

In addition to size, one of the options you have in the hard disk arena is the transfer speed of the interface. Examples include 66, 100, and 133 Mbit/sec for Parallel ATA (PATA) drives, 150 and 300 Mbit/sec for Serial ATA drives, and 40 80, 160, and 320 Mbit for SCSI drives. You'll also frequently have a choice of rotational speeds such as 4,200, 5,400, 7,200, 10,000, or even 15,000 RPM. In both cases, faster is better.

For servers, you will want to employ what's referred to as RAID, which is the acronym for Redundant Array of Individual Disks. RAID technology is a way of protecting your data in the event of a drive failure. Without getting to technical, it does this by writing the data to more than one drive so that if single drive fails, your computer will keep running without any loss of data. There are various 'levels' of RAID, such as RAID 1 and RAID 5, which represent different drive configurations, each which have their strengths and weaknesses. With the drop in drive prices, RAID is even becoming popular in higher-end workstation. Since it's the most common part to fail in any computer, it starts to make sense to consider it.

Video. Make sure the video card has at least 64 MB of memory and, preferably, 128 MB or more. Why? Because you need that much memory to make effective use of Windows and higher-resolution monitors. For Windows Vista, a minimum of 128 MB of video memory is required, and 256 MB is recommended. That's JUST for the video card folks!

Many machines include 'integrated video', which simply means the video card is actually a part of the motherboard and it shares system memory rather than having its own dedicated memory. While this is fine for run-of-the-mill business applications, if you will be doing graphics work, opt for a separate high performance video card. If your computer has integrated video, remember that the memory it uses is subtracted from the total memory installed on the computer. Thus, if your machine has 512 MB of memory, and has an integrated video card that uses 128 MB of shared memory, then you really only have 384 MB of memory available to your applications. This needs to be taken into account when deciding the amount of system RAM you purchase for the system. This is another reason we're recommending 2 GB of system RAM.

You may also want to think about buying a machine that supports dual monitors. Windows XP and later operating systems allow you to create a 'virtual desktop' that spans two (or more) monitors. This would allow to, for example, display a spreadsheet on one screen and the pension system on the other screen. It can make entering & reviewing data much less tedious.

Monitors. It's the monitor you're going to be staring at 8 hours a day, so it is one of the most important choices you can make.

The price of LCD monitors has dropped to the point that it makes no sense to buy anything else.

We regard anything less than a 17" as unusable. Larger monitors are a lot easier on the eyes, and can make you more efficient since you'll be able to work at higher screen resolutions like 1024x768, and 1280x1024, even 1600x1200. Using higher resolutions allows you too see more of what you're working on at the same time.

Aside from the "Cool!" factor, LCD monitors have many desirable features, such as taking up less desk space, using less power, generating less heat, no radiation worries, and being much easier on the eyes for people that have to use a computer for long periods each day. Also, CRT-type

monitors are becoming a major environmental hazard due to the lead shield around the CRT. It's illegal to put a CRT-monitor in a landfill… they need to be recycled.

17" LCD monitors are currently available starting at about $100 and 19" ones starting under $130. Quality varies greatly, but more expensive doesn't always mean better. It's helpful to actually see the screen at a local retailer who has many models on display to compare. If buying by mail order, be certain you can return it without a restocking fee if the quality isn't what you expected. Watch for sales at places like buy.com for excellent deals on LCD monitors.

Operating Systems:

In 2007, machines started shipping with the Windows Vista operating system for workstations, replacing Windows XP. There are actually about 8 different "flavors" of Vista. The main one we recommend is Vista Business. The Home versions may be fine for some small offices, but lack the ability to network with more than a handful of machines.

We have a love-hate relationship with Vista. The User Account Control (UAC) feature that Apple mocks in their "Allow or Deny" commercials is poorly implemented in our humble opinion. While it does offer an extra level of security, the pop-up dialogs get really annoying and it will only be a matter of time before users you automatically click "Allow" even when it's warning of something ominous.

Currently, you must turn off the UAC feature of Vista to install DATAIR applications. When off, Vista is a decent operating system with some helpful new features…. which all consume lots of memory and CPU speed.

On the server side, Windows Server 2003 is the predominate operating system. Small Business Server (SBS), which is based on Windows 2003, is also a popular choice for small to mid-size offices. One of the nice things about the Premium version of SBS is that it comes with SQL 2005 Server. For an office that's too large for the free Express version of SQL Server, SBS is an economical way to obtain the full version of SQL Server.

32 Bit or 64 Bit Operating Systems?

Stay clear of 64 bit versions of Windows for workstations. You can not run DOS applications or utilities on 64 bit versions of Windows. Even if you're running DC/Win, things like the DOS/Windows transfer utility employs DOS utilities. Hardware driver support is very spotty for 64-bit versions also.

For servers, where the only related to our applications that will be running is the SQL Server Database, 64-bit versions of Windows 2003 should be okay, but we haven't done testing on it yet.

What about Linux?

As we've mentioned in the past, Linux is worth keeping an eye on, but currently isn't a practical solution for workstations. Most specialized software, including ours, doesn't run on Linux. We do have a couple clients using Linux for file servers with some success, but it isn't for the faint of

heart. Unfortunately, we're unable to provide any support for using our software in conjunction with Linux.

Some Basic Options

Sound Cards and Speakers? Most machines come with basic sound capabilities which are perfectly fine for typical business use. Multimedia presentations, training tutorials, and PC-based communications are becoming more commonplace, so sound capabilities have become a "must-have" item on every workstation.

DVD? DVDs aren't just for movies. More and more reference materials are coming in DVD rather than several CD-ROMs, including our Pension System Training Program. Thus, a DVD drive should be included on any new computer.

CD-R or DVD-R Drives? Sure, you can burn your own music CDs with them, but in the business environment CD-R/RW and DVD-R/RW drives are a great tool for disaster recovery, and can be used as a secondary backup system.

We suggest getting a DVD-R/RW drive for your new machines which can read and write both CD and DVD disks.

Network Cards? Virtually any machine you buy will have a 10/100 or 10/100/1000 Ethernet network card pre-installed. If you have, or are considering upgrading to, a Gigabit network, look for a 10/100/1000 network card.

Modem? Modems are still necessary evils, and many machine come with them pre-installed. While you don't necessarily need a modem in every machine, having one or two around the office is a good idea. EFAST electronic filing still requires a modem be used. That will change with EFAST2 for 2009 forms which will use internet-based electronic filing.

Floppy Drives? You will note that most new machines do not include floppy drives. DATAIR no longer requires diskette drives since the introduction of our internet-based licensing system. If you are buying a server, make certain it has a floppy drive. Servers often require special drivers be installed while setting up the Windows operating system. These drivers may only be loaded using a diskette. And, take it from my experience; a USB floppy won't do the trick in most cases.

Networks

Do I need a server? Yes! End of discussion.

If you have fewer than 10 workstations, you might want to consider using Windows 2000/XP/Vista Pro/Business as an operating system for your "server". You won't get all the features of the Server version, but you'll also save quite a bit of money. The Pro/Business version has a limit of 10 connections, so if you have more computers connected, you'll need the Server version. You'll have to forgo some of the bells and whistles with the Pro/Business versions but, for a small network, it's worth considering. What's important is that you have a dedicated machine that acts as a server.

Having a server do double-duty as a workstation for someone to use is a recipe for frustration. The adage "Something designed to do two jobs, does neither well" comes to mind.

Network Cards and Wiring. 100BaseT (100 Mbit) Ethernet is the most common network configuration today. Gigabit Ethernet (1000 Mbit) is gaining in popularity and commonality, and the prices for it have dropped significantly in the last year. If I were installing a new network today, it would support Gigabit. Keep in mind that even if you install a Gigabit Ethernet network, it will also support mixing of 10BaseT, 100BaseT, and 1000BaseT devices simultaneously, so you don't have to replace all your network cards, etc. at once.

Even if you don't decide to go for Gigabit Ethernet right away, make sure your wiring is rated "Category 5e" (also called Cat 5 Enhanced) or Cat 6. This will allow you to upgrade later without having to replace the wiring, which is often the most expensive part of a network if you have more than a handful of people in a single room and wires running along the floor.

If you have an older 10BaseT (10 Mbit) network, you may want to think about upgrading if your network seems sluggish, even though servers and workstations have been upgraded over the years.

Even if you currently have a 10BaseT network now, be sure to order new machines with "10/100" or 10/100/1000 network cards which will work on both your current and upgraded 100 Mbit or Gigabit networks.

802.11b/g/nWireless? Business-critical applications should not be used across a wireless network. This is particularly true of applications that are highly data-intensive such as our systems. Wireless networks are prone to frequent brief interruptions in communications. While that's fine for email or web browsing that are designed to be operated in such a manner, these interruptions in a database-oriented application will lead to error messages, data corruption, and data loss. Stick to wired network if you are sharing a database over the network. Security (or lack thereof) is a prime concern on wireless networks also.

Hubs vs. Switches. A network hub and a network switch perform the same basic function, to connect multiple computers together, but they do it in two slightly different ways. A hub simply 'repeats' the signal sent out by one computer to all other computers. The other computers must handle the packet of information regardless if the information is destined for that computer or not. A switch is smarter and just forwards the data to the machine or machines it is destined for. These virtual connection 'paths' are more efficient and translate to a faster network overall. It's getting harder and harder to find anything but switches on the store shelves these days, and the price of both is essentially equivalent. So, our advice is, go with switches.

Printers

Buying a printer was once an easy task. You bought a HP LaserJet, and that was that. The choices of printers are now vast, and it's really difficult to tell which is the best deal.

There are three main issues that are often overlooked in the purchase of a printer;

1) Cost of Operation. When buying a printer, check out the cost per page for the disposables. That is, the cost of the toner and any other parts (like printer drums, which some printers use) that need to be replaced every so many thousand pages. If you print a lot of paper, and you probably do, even a half-cent per page over the lifetime of the printer may make a huge difference in the total cost of owning and operating that printer.

2) Duty Cycle. Check out the rated capacity of the printer in terms of pages per month. Some of the less expensive printers are designed solely for personal, low-volume, usage. If you print out hundreds of pages per day, you may well exceed the capabilities of the printer which will cause it to malfunction, or just plain roll over and die very quickly. Just because a printer is rated for 30 pages per minute, it doesn't mean it can pump out 30 pages a minute 8 hours a day, day after day.

3) Compatibility. This is the most misused and abused term when it comes to printers. Many printers *claim* Hewlett Packard (HP) compatibility, but what that may really mean is that the printer uses the same PCL (Page Control Language) as the HP printer uses. It may not mean, as is typically the case, that the printer has the same number and type of built-in printer fonts, or uses identical font selection codes to select those fonts. If in doubt, make sure you get a 30-day no-cost return policy in case it's not quite as 'compatible' as the sales person claims.

Be very wary of the very low-end laser printers that you see advertised, sometimes for under $100. Often these printers are software-driven instead of hardware-driven and just do not have the 'horsepower' necessary to print complicated forms, such as the EFAST 5500 forms with the barcode. Similarly, avoid USB-connected printers if you need to print to it from one of our DOS applications, and won't be using PrintView. While PrintView bridges the gap between most of our DOS applications and Windows printers, it's not a universal solution. PrintView does not work for Cafeteria Docs/DOS, Plan Accountant, and the 1099 portion of the Pension System/DOS

You certainly don't have to spend thousands of dollars on a printer, but there is such a thing as being "too cheap". Anything under about $300 should probably be avoided.

These days, many copiers can do double-duty as high-speed network printers. Our primary copier, a Ricoh 2090, can duplex-print, punch, and staple up to 90 pages per minute. The cost to add network printing capabilities to a digital copier is next to nothing, and the price per page is likely going to be half of what a ordinary 24 page per minute workgroup printer would be. Some of these digital copiers can also serve as high-speed document scanners that allow you to convert mountains of paper into PDF files in no time at all. That's something to think about if you're in the market for a new copier.

For the record, we still strongly recommend genuine Hewlett Packard LaserJet series printers. We purchased a number of low-end Okidata printers for use as personal printers with lower-volume needs over the last several years, but found that they didn't hold up nearly as well as the nearly-indestructible HP LaserJets.

Any printer you buy these days includes a power-save mode where the printer goes to sleep after not being used for a while. This both saves electricity, and extends the life of the printer. Make sure the printer has at least 24 MB of memory, and preferably 48 MB or more. Many Windows-

based applications really need a lot of printer memory to print anything even somewhat complex.

Note that we didn't mention ink jet printers in this discussion. This is for several reasons. The cost of operation is 3 to 6 times the cost of a laser printer. You may save a couple hundred dollars on the initial cost over a moderately-priced laser printer, but you'll spend that in ink cartridges after printing only a few hundred pages. These printers are generally too slow, and have low duty cycles making them unsuitable for most business applications. In a previous year's diatribe, we urged you to "leave the inkjets at home for the kids". Well, we'll change our tune here slightly… Color inkjet printers are useful tools when employed for specific tasks such as client proposals, marketing materials, and other low-volume tasks. Just don't try to use them in place of a LaserJet for high-volume routine printing tasks.

Color laser and dry wax printers have come way down in price and are easily within the reach of any business, and are excellent for marketing materials and client proposals. We are also selectively adding color to our reports to aid in readability. As with black and white printing, the cost of laser color is significantly less per page than inkjets. Your initial investment in a color laser printer can be under $500.

Modems & Internet Connections

We believe that the internet is an absolutely necessary business tool. Research and communications are just two of the uses that make it indispensable. In an ideal world, each one of your computers would have internet access. Yes, there's the potential for abuse, but the benefits will almost certainly outweigh the drawbacks. At the very least, make sure that at least one machine in your office has internet access, and that your staff has easy access to it.

How to Connect?

A "T1" digital connection is the best route if you truly depend on the internet for your business. The cost of a T1 line has dropped over the past few years, but you'll still pay $400 per month or more. If your business depends on the internet as a means of communication, a T1 line fits the bill. Even though T1 service is substantially more expensive than DSL or cable modem service, if your T1 line goes down, most providers guarantee restoration within 4 hours. This may be important depending on how long of a service outage you can tolerate.

If a T1 line is a little too pricy for you, and you're in an area that has DSL or Cable Modem service, by all means, go for it! These two services offer fast connections for about the same price as what you'd pay for a second phone line and regular dial-up internet service. The cost of these services ranges from $25 to $125 per month depending on the speed and type of service. Keep in mind that most internet service providers will not allow you to run web or mail servers on these types of connections without selecting a business-class service plan. If you plan to do that, be sure to check their terms of service before deciding on a particular provider or service. Cable modem and DSL service usually come with poor service guarantees, so if you lose service it may be 24 or more hours before it gets repaired. This is particularly true of cable modem service.

Keep in mind that even if you have "always-on" internet instead of dial-up, you will still need an analog modem for filing 5500's electronically as these can't be filed over the internet yet. Many banks still require modem for ACH/Direct Deposit transmissions also.

If a dial-up modem connection is the only way you can connect to the internet, make sure you have a 56K V.90 model. The actual speed you'll connect at will depend on a variety of factors, including the quality of the phone lines in your area.

Many machines come with modems built-in, but if yours doesn't and you need to buy one you have a couple options…. Internal modems are cheaper ($15 to $30), but require you to open the machine up to install it. You also should be sure that you have an available slot of the proper type to insert the modem in your computer. External modems are more expensive ($40-$60), and require an available serial or USB port on the computer, but don't require you to open the computer up.

How about Security?

Security is JOB ONE when any "always-on" internet connection is involved. A survey of 10,000 computers connected to the internet revealed that 32% exposed their files to the internet, and 68% exposed security information. Those are staggering numbers. Investing in a hardware firewall is an absolute must. Our internet firewall intercepts literally thousands of (mostly) random (automated) attacks every day. Units designed for DSL and cable modem service for small offices can be purchased for well under $100. Buy one now if you have an always-on internet connection. Do not rely on personal software-type "firewall" products that run on each machine. Some of them are better than others, but you really need a hardware-based firewall.

It's also imperative that Microsoft's Critical Security Updates be installed as soon as they are released to stay a step ahead of the hackers. Recent versions of Windows allow you to set them up to automatically download and install these critical updates. We highly recommend doing this. The Windows Update web site also allows you to install "Microsoft Update" which, in addition to updates for the operating system, also detects and installs updates for other Microsoft products such as Office and others. We highly recommend using this service to keep both your workstations and servers up to date.

Microsoft seems to be getting serious about security with the release of Windows XP Service Pack 2 and Windows Server 2003 Service Pack 1. It's good to see them get more proactive in the security arena, but there's still a lot more to be done.

If you are running older operating systems, you're at an increased risk since they don't contain these newer security technologies.

Security isn't just a single thing you do, but everything you do. Hardware, software, and the human element all play critical roles in how secure your computing environment is.

Backup Systems

If you are a veteran of these missives, you already know that we get 'preachy' when it comes to backing up your data. Here's this year's sermon…

Data is the life-blood of your business. Not having a backup system in place to regularly (meaning EVERY DAY) back up this vital information is one of the biggest problems we see. Hardly a week goes by here at DATAIR where we don't get a call from a frantic client who just had a computer failure, or human error, that caused them to lose one or all of their plans. Their last backup was-- well, let me think now-- months ago.

Ask yourself where you'd be if there was a fire, or if all your computers were stolen. What would happen if that 'trusted' employee deleted all the data off of their computer before quitting? If those things sound far-fetched, they aren't – all of these are things that have actually happened to our clients or to us personally. Would you be able to recover? It would cost far more than a tape backup unit and tapes to manually reenter all the data—if the data was available at all. Be sure to take backup tapes off site (i.e.: a trusted employee should take them home) so that a fire in the office wouldn't destroy the computers and the tapes at the same time.

Personal confession time… My notebook computer is never at the office when our network backups are running, so I regularly make a copy of my hard drive to the hard drive in another computer so that I always have a recent copy of my data. Sounds reasonable, right? Nope…

One evening I was making one of those backups when the impossible happened… my notebook's hard drive went belly-up. Not only had I lost the data on my notebook's hard drive, but because I was overwriting the previous backups, I had nothing to restore from. I was fortunate that a data recovery company was able to retrieve the data from my failed hard drive, but it was a rather expensive reminder that I was violating many of the very precepts that I've been advocating for years.

If you don't have a tape backup unit, go out and buy one TODAY!

What to look for:

1) Make sure the unit has a high enough capacity that you can back up all your data without having to manually change tapes. Anything that gets in the way of an automated backup is bad, bad, bad.
2) Check the cost of tapes. Some of the least expensive tape units use the most expensive tapes, and vice versa.
3) Don't plan to only have a couple tapes. While it's okay to re-use tapes, remember that it may be months, or even a year between working on a particular plan. Be sure that you can go back a year or more to recover the previous version of that plan.
4) Design your tape rotation schedule so that you have more than one copy of every file so that if you have a bad tape, you aren't without a backup.
5) Pay particular attention to backing-up notebook computers. It's not uncommon for portable computers to be away from the office when backups are run, they may be missed. Backup software exists that can automatically back up computers whenever they attach to your network.

Be sure to test your backup system periodically. Make sure you can restore a file from tape. The time to find out it hasn't been working right for months is not the week 5500s are due and you have a hard disk fail.

A note about backing up SQL Server databases is in order here. Normal file-based backup software can not back up SQL/MSDE databases. That means that, unless you have taken special steps to backup your SQL server, you probably don't have any backups of your Pension System/Win data.

Do we have your attention now? I thought so!

Our DC/Win system includes a utility to help you set up an on-disk backup of your SQL database. However, that is only one step of the process however. Please see the Tech Note "Backing up your SQL Database" in the Technical Publications section of the web site for detailed information.

Preparing for Disaster

Look around your office and pretend that all the computers, file cabinets, phones, fax machines, and even the office itself were gone. Where would you be? The answer is that, unless you're in the small minority of businesses that do disaster recovery planning, you're probably out of business.

2005 was the year of Katrina, Rita, and Wilma. We've always highlighted the need to backup your data and store a copy of it off-site… usually at the home of a trusted employee. Katrina, in particular, taught us that's not enough. The thought of a regional disaster wasn't really at the front of our minds as a serious threat that needed to be prepared for.

Are you ready for a Katrina-level disaster? You owe it to your clients, employees, and business partners to be able to answer "Yes!" to that question. While not all of us are in a place were hurricanes are an issue, we are all subject to risk from some form of devastating natural or man-made disaster.

Disaster planning is a much bigger topic than we could possibly cover in this document, but we urge you to give serious thought to the question we opened this topic with. There is a wealth of information available online on the topic. Some of the things you may wish to consider are:

- Use of internet-based online data backup services (i.e. idrive.com)
- Scanning and archiving of important documents
- Ability to redirect phone, fax, web and email to alternate sites and services
- Ability to relocate to an alternate business location on a temporary basis

Virus, Spam & Spyware Protection

With the explosion of data communications via the internet, antivirus software is an absolute must. Some of the exploits being developed can compromise 100's of thousands of machines in a matter of hours.

Just having antivirus software isn't enough. You also need to keep it up to date. Hundreds of new viruses and new strains of existing viruses and spyware are released into the wild every week. All virus software vendors offer subscriptions to virus 'signature' or 'pattern' updates that can be automatically download and installed. It is imperative that your software be configured to check for updates at least daily, and preferably even more often if possible. Of course, you need to have internet connectivity for this to occur automatically.

If you're exchanging disks, files, or email with your clients, be particularly cautious. Giving a client a diskette or file with a virus would be a quick way to lose their business in a hurry.

Virus scanners we've used include Trend Micro PC-Cillin/OfficeScan, Norton Anti-virus (now Symantec), McAfee Anti-Virus, and Cheyenne Inoculan. Some are better than others, but any one of them is better than not having one at all. Our primary virus-scanning tool is Trend Micro's OfficeScan, which has found several viruses missed by other products we've used. We also use Trend's ScanMail to protect our email server from attachments that carry viruses, such as Word documents, scripts, and executable files.

One note of caution about Norton (Symantec) Anti-virus… we have received several reports of people having problems with running DOS applications, particularly with regards to printing. Symantec indicates they are aware of the problem, but haven't chosen to resolve it.

If you're comfortable fooling around in your computers' BIOS setup program, and still have computers with floppy drives, all modern-era computers have the option of booting from the hard disk first rather than the floppy disk. This little change will help prevent boot sector viruses on floppy disks from infecting your machine should you ever inadvertently reboot your machine with a floppy disk in the drive. It only takes seconds to name this change, and is well worth the time. It also eliminates the panic that ensues when you inadvertently leave a diskette in the drive when rebooting the machine and get the dreaded "NTLDR Not Found" message on the screen.

Most viruses and spyware these days are spread through email, and the days of having to open up an attachment for a virus to infect your machine are long gone. Simply viewing a message in the preview pane of your mail reader can be enough to activate a virus. This is particularly true if you have not installed the latest security patches for Windows, Outlook, and Internet Explorer.

Both viruses and spyware can do real damage, whether it be the destruction of files, or exposure of your data to the internet. Think about all the Excel and Word files you have with very sensitive confidential information being randomly mailed to all your clients and other contacts. If that doesn't send shivers up your spine, it should.

Although spam is generally more annoying than dangerous, we have been seeing more spyware being spread by innocent looking spam email. Having good spam filtering software is absolutely necessary, and what's available on the market ranges from "really bad" to "good". "False Positives", whereby non-spam is detected as spam, are inevitable in any filtering system, so periodically monitoring the quarantine folder is important—particularly after switching to a new spam filtering product.

Currently we use a combination of Server Side Solution's eWall, Sunbelt Software's IHateSpam Server Edition and Cloudmark Desktop edition for our spam protection since they have the lowest false positive detection rate of anything we've tried. In our opinion it's more important to select anti-spam software on the basis of fewest false positives than based on detection rate. You'd rather have 10 spams get through than a single email from a client routed to the spam folder.

That said, no system is perfect. We've added a fairly sophisticated filtering system that uses our client and forum databases as a source for known email addresses to help prevent false positive detections. More information about our spam filtering system is available online at www.datair.com/spam.htm.

If you don't have spam, antivirus, and spyware protection… get some TODAY. If you have it, make sure it is set up to automatically download the latest signature files TODAY. If you haven't downloaded the latest Windows Updates and security patches, do so TODAY.

Remote Computing

If you have full-time telecommuters, or people that just do some work from home from time to time, we can heartily recommend using the Terminal Server feature of Windows 2000 or 2003 Server to support these remote users. The primary advantages are that you do not need to keep home computers updated with current versions of application software, or need to transfer plans back and forth.

The remote location only needs a DSL or cable modem internet connection, and low-end workstation using virtually any operating system. Even a Mac can connect to a Windows Terminal Server!

We use Terminal Server extensively on a day-in and day-out basis to support remote users for DATAIR applications, as well as for general-use applications such as Microsoft Office, and find it to be an excellent solution.

Keep in mind that if you allow remote users to access DATAIR software on more than an itinerant basis, a second-site or telecommuter license may be required.

We do not recommend or support running our software on Citrix.

The Knowledge Base section of our web site contains articles with additional important considerations that you should be aware of if you're thinking about using Terminal Server.

Must-Have Utility Software

Here's a list of software products that we've found useful, and are worth adding to your toolbox:

WinZip	Every machine should have WinZip. This handy little utility is a file compression and decompression tool that can be used to compress files before emailing or placing them on a diskette. We include a trial copy of WinZip in the "Extras" directory of our Windows-based product CDs. Cost: $29 from http://winzip.com.
SyncBackSE	*Looking for an inexpensive, yet automatic, disk-to-disk backup utility? SyncBackSE does it flawlessly. Our only criticism is that it's slightly more complex to set up than our previous pick in this category, SecondCopy. Available from http://www.2brightsparks.com for $30*
UltraEdit	The best ASCII text editor around. Great for writing DIS and RPT files and looking at data files. Cost: $30 from http://ultraedit.com.
Zone Alarm	Although we don't recommend software firewalls as your only line of always-on internet defense, ZoneAlarm is the best of the ones available. Cost: $40 from http://zonealarm.com.
GoBack	Symantec has announced that a Vista-compatible version of this invaluable disaster recovery utility will not be developed. Vista comes standard with

some, but not all, of GoBack's functionality. You can still buy version 4.0 which supports Windows 2000 & XP operating systems. Price has increased from $39 to $69 online.

In Closing

These recommendations are for the purchase of new computers. They should not be taken as requirements for running DATAIR software. Slower and older machines that you are using effectively can continue to be used, although we hope we've given you some reasons to consider replacing some of the less-capable ones. You have to judge that for yourself though.

As mentioned earlier, the state-of-the-art is a rapidly moving target. By the time you're reading this, the rules may have changed. Keep an eye on our web site (http://www.datair.com) for updated information throughout the year.

What to Buy

	Minimum	Suggested
Processor	Intel Core 2 Duo 1.8 GHz	Intel Core 2 Duo 2..4 GHz
RAM	1 GB	2 GB
Hard Disk	200 GB	250 GB+
Video	XGA 32 MB	XGA 128 MB+
Monitor	17" LCD	19"+ LCD
Extras	CD, Sound, Modem	DVD-RW, Sound, Modem
Approx. Cost	$650	$1,100 - $1,300

Prices include Microsoft Vista Business operating system and network card.