

Preparing your business for bisTrack®

Getting from where you are today, possibly in a relatively “low-tech” environment, to a modern, “high tech” platform that will take full advantage of the bisTrack system, can seem like a daunting task.

However, you can bring your people and your systems up to the necessary levels of technical capabilities in a controlled, effective and timely fashion by applying best practices for planning, implementation and maintenance.

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The Overview

What The Business Needs

Depending on the current systems deployed in your organization, you may find that a move forward to accommodate modern, sophisticated applications may be a significant project. Historically, applications required relatively uncomplicated environments to run, workstations were “single purpose” devices, servers needed to provide access to only one application and in general, there was no movement of information into or outside the physical confines of the building. While this simple model has served your business extremely well over the years, the changing landscape of business and the growing sophistication of both the core applications (such as BisTrack) and the users who need them to perform their jobs (your people) must now be installed in order to maximize the growth and success of your business.

New applications require greater connectivity to the outside world; email and internet access are now as fundamental to the operation of your business as telephones and snail mail. New back-office systems need to be installed and workstations may need to be upgraded. While this upgrade process may seem intimidating at first, it actually should be viewed as a unique opportunity to take a fresh look at things. Here’s your chance to consolidate and perhaps cleanup some of the old technology that has begun to age and possibly degrade.

The Foundation - An often overlooked component of any new or upgraded system is the foundation layer. By its very nature, everything else builds upon this foundation, so it stands to reason that this gets the first look when preparing for your new, modern applications. Here you’ll correct existing problems, upgrade portions to meet new demands, and plan for the growth that will accompany your natural expansion and exploration into new feature/functionality modern systems provide. Components of this layer include the physical cabling in your buildings, the electrical environment that powers everything and the physical facilities to house, protect and secure the equipment.

Effective Installation - As with any project, the physical installation process is critical to the overall success of the project. Installation personnel must understand the scope of the entire project and complete their portion of the work in an organized, professional manner. Systems must be installed completely the first time, with clearly defined supporting documentation and labeling that details the finished product.

Proactive Support - Once the systems are in place, maintaining them at maximum efficiency becomes the final layer atop a successful implementation; the proverbial “icing on the cake.” As systems become more complex, so do the monitoring and maintenance tasks associated with them. While some larger organizations may choose to add technical people to keep their systems running smoothly, in most cases a more cost effective and strategic option is to make use of an external organization to monitor and maintain the systems that make up your combined Information Technology resource. An external organization geared exclusively to IT management has the benefit of dedicated IT professionals who are focused 100% on their chosen profession; i.e. they’re not dealing with IT systems in addition to other non-technical jobs. These dedicated IT professionals maintain the very highest levels of training so their skill base is always current with advancing technology and best practices. Additionally, advances in remote monitoring and connectivity tools enable support organizations to head off problems before they impact system availability, and to access systems remotely as quickly and easily as if they were physically located within the building.

The Overview

What Your People Need

In the past, users were able to do their jobs with access to one main application; there was little need to switch between applications or communicate electronically. Today's users are looking to work in new and more productive ways. This means switching to specialized applications as needed and communicating effectively with others both inside and outside the organization. This may also mean that your users need to be able to work in more locations, on the sales floor for instance, or outside the office, at a job site or visiting a customer. Increasingly, users can be given the flexibility they need to take the tools to where the work needs to be done as opposed to the old model of being tied to their desk or workstation.

Increasingly, businesses must find innovative ways to accommodate and retain experienced employees. Modern systems must customize the experience with workflows and desktops they prefer, in ways that make them more effective and successful. Also, a full suite of productivity tools must be available to users in addition to the core application that runs the core business.

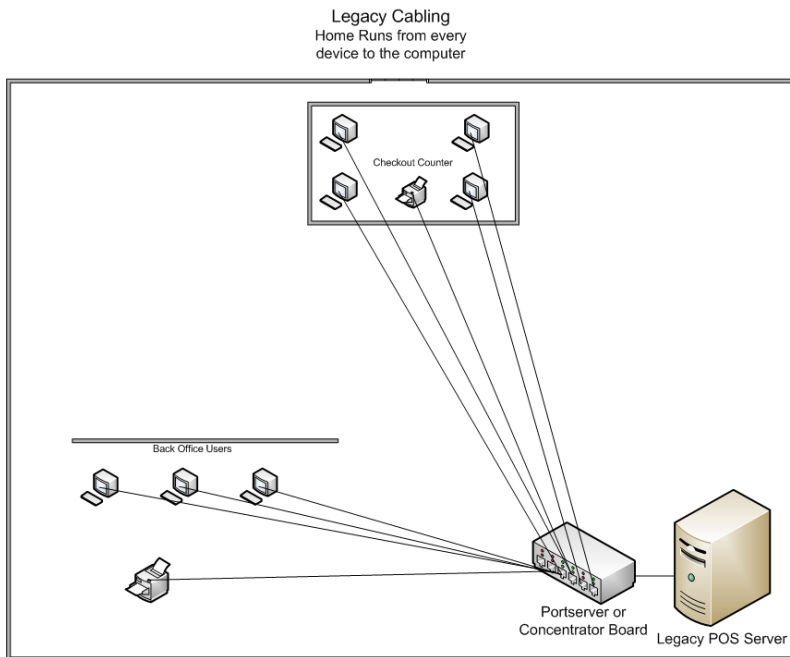
If your system infrastructure is put together with these opportunities in mind, it's possible to allow users access to the tools they need, when and where they need to do the work. Mobile computing within your building can give users the ability to move to the work, with access to software they need while moving around the building. Remote users outside your business can also be integrated seamlessly, while at the same time maintaining security and access control to protect your systems from unauthorized access. Many businesses have found that allowing some users the ability to perform some or all of their work from home has not only increased morale and job satisfaction for these employees, but has also combined the benefits of increased productivity and lower overhead/space requirements inside the building. Mobile workers that can go directly to the customer are also proving to be a significant advantage in the competitive marketplace of today. Mobile and/or home workers are no longer a significant challenge to any business that has taken the proper steps to provide this type of access.

With any major system upgrade, the people who will be most affected should also be the people you involve most in the process. While people often fear that any system changes will negatively affect their ability to do their jobs, you will get more complete participation and "buy in" by involving them up front as much as possible. Personal and comprehensive training and support as the project moves forward is key, and by presenting upgrades to modern technology as increased opportunities for personal growth and success, you can keep your people motivated to embrace and adapt these new technologies.

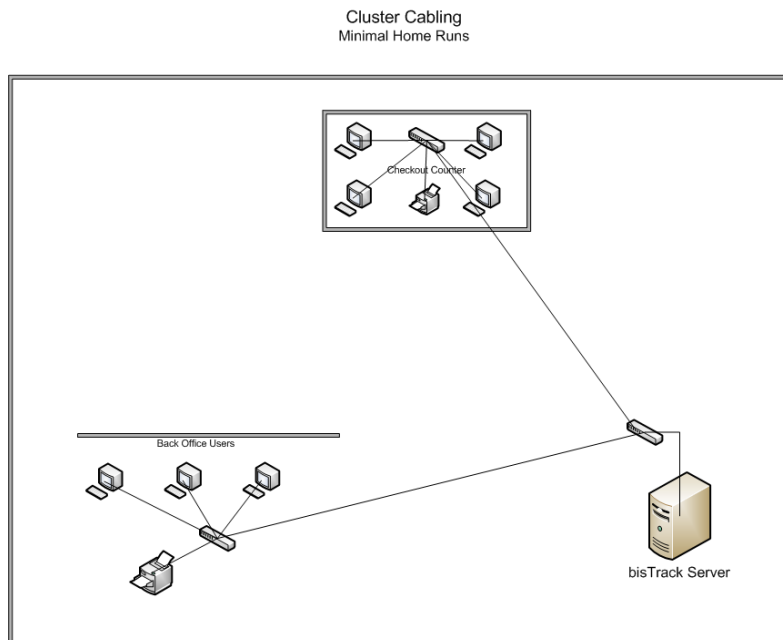
Physical Preparation

Cabling

It's most likely you already have the required physical cabling in your building; it already meets the Cat 5 standard. If so, and if the cable plant was installed correctly and remains in good shape, you can move on with confidence that this aspect of your upgrade is taken care of. However, it is important to remember that cabling can either be a virtually forgotten, solid portion of your foundation layer, or a constant source of problems and frustration. An honest appraisal of your existing cable plant now, combined with any necessary additions or fixes, will pay off down the road as your new system gets installed.



If by chance you are installing new cable, insure it is at least Cat 5e compliant. An upgrade to Cat 6 cabling supports gigabit Ethernet traffic (i.e. very high volume data transmissions, such as high-definition video feeds), but would rarely be required to every workstation. Also, if you are having new cable installed, you may be able to reduce the number of individual cable runs by strategically placing small switches in the building where you may have a cluster of devices. "Home Runs", a single cable going from every device back to the location of the computer system itself are no longer always necessary.



Physical Preparation

Power

As with cabling, in most cases you have already provided dedicated power for your computer systems. But if your new system is going to be installed in a different location, or if the existing system has been less than stable over time, this is a good opportunity to invite your electrician back to make any necessary changes before your installer shows up with the new equipment.

Current UPS technology should be put in place to insure that your equipment is fully protected from voltage fluctuations and surges. UPS systems being installed today also carry onboard monitoring and shutdown capabilities, so that in the even of an outage, your systems are shutdown in an orderly manner.

Rack Enclosures

In the past, where there was typically a single computer being installed to perform all of the work, there was little need for rack enclosures. Today's environment is more geared towards multiple, more specialized computers, and so in order to contain and control the space requirements for multiple systems a rack mount enclosure makes good sense. By installing a rack enclosure, all of the main servers you get can be thin, rack mount systems, allowing for an economical use of space, common access to a single, large capacity UPS and clean, controlled cabling. When appropriate, the keyboard, mouse and monitor can even be sized such that they slide into a small tray inside the rack, laying flat when not in use so as not to require additional counter space for a bulky monitor that is only used occasionally. These enclosure also allow for complete securing of your systems, allowing all your most expensive components to be locked up.

A rack enclosure should be sized such that all existing computers, tape drives, system monitors, and other related equipment can be consolidated and secured in one area, while allowing room in the rack for future growth. Typically, most systems will require either a 24 or 48 unit freestanding rack, however in certain instances a small rack may be attached to a wall or otherwise installed in some fashion other than freestanding. For environments where space is at a premium, or where there are only a few physical components being added, smaller racks can also be installed.



Specific Elements

Application Server

The bisTrack application will reside on this server, along with the Microsoft SQL database and the document imaging system. The Application Server will be the primary “mission critical” server; therefore, the physical makeup of this machine must be configured to provide maximum performance, availability and fault tolerance (i.e. “it rarely, if ever, goes down”). This machine should be sized for excellent performance at today’s user count, with an eye towards future growth in step with your business plans. Whenever possible, this machine should be free of additional network related tasks; however, in a small environment, network duties such as Domain Control and User Administration can reside on this server without negatively impacting performance.

Terminal Server

A Terminal Server is required if you’ll be using Thin Clients (basically, scaled down PCs) instead of full-blown PCs on the desktops. In many cases, a Terminal Server / Thin Client environment is simpler to maintain and has a lower Total Cost of Ownership (TCO) compared to PCs. Full-blown PCs have more moving parts (disk/tape/CD drives), need to be backed up separately (ever had an employee lose months of work because they never backed up?), and can introduce viruses and spyware into your network (because that game they just loaded was infected). Thin clients have none of these issues because there are no moving parts, each person’s data is stored centrally, and therefore backed up automatically, and they can’t load games and other unauthorized software onto their systems.

To be sure, there may be employees who need a PC, such as those running compute-intensive applications like truss engineering and whole house takeoff packages. In fact, it is very likely you’ll have a mixed environment; i.e. Thin Clients for most of the workstations and a few PCs for those who need them.

As with the main bisTrack application server, the Terminal Server is a mission critical machine, and must be built with maximum availability and fault tolerance as top priorities.

Mail Server

Mail Servers allow the internal hosting of email accounts for your users. The Mail Server will handle the task of transporting email into and out of the network, and will scan email messages for viruses, spyware and other nuisances. While email is a vital component of the overall network environment, the movement of email is less “mission critical” than other types of network services; therefore, the Mail Server can be configured somewhat smaller than the typical application server and can have some of the other network control duties delegated to it.

In addition to the basic movement and scanning of email, this server, when installed with the iMail Premium application, will give everyone access to a Shared Outlook calendar, a global Address book and secure internal Instant Messaging. As with most applications of this nature, where anti-virus and anti-spam filters are being used, there will be ongoing annual license fees associated with those filter updates.

An increasingly popular option is doing away with the Mail Server completely and hosting your email remotely. Not only does this eliminate the initial cost and ongoing maintenance of a server, for a very nominal monthly fee your email administration is handled by someone else who “just takes care of” that part of your system. You can equate the benefits of remote hosting to those achieved by the Post Office; sure, you could run your letters all over town yourself, but for the price of a stamp, why bother?

Specific Elements

Thin Clients

Thin clients can best be described as workstations that can have all the software capabilities of a PC, without the ongoing maintenance of the individual PC. Thin Clients don't have physical hard drives in them that data is stored on, instead, they have a bare bones copy of an Operating System on them, just basically enough to get up and running and then to allow them to be connected to a terminal server. Once connected to the Terminal Server, the user is presented with a Windows login prompt, and using their own account, they log in to their own "Windows environment" that is being served up by the Terminal Server machine. The user can then use any Windows applications that have been loaded onto the Terminal Sever, they can store documents in their own "My Documents" folder just as if the documents were on a local PC, but instead of data being located all around the facility on individual disk drives, it is all stored on the disk drive(s) inside the terminal server.



*Customer Service Counter
Thin Client Installation*

*Thin Client installed in
Bracket under counter.*



Thin Client devices themselves are very small in size, solid state in their construction with no moving parts, and so can be installed in a variety of ways to minimize the counter top clutter. In the images shown here, the Thin Client device has been mounted under a Customer Service counter, so that on top of the counter there is only a monitor, keyboard, mouse and bar code scanner. This allows us to create a neat, organized counter top workspace, with the cables neatly routed through one single access hole in the counter.

There are many benefits to creating a network based on a Terminal Server / Thin Client model. User environments are easy to maintain, individual user data is stored in one central area and can be backed up on a regular basis and there is little or no chance of users infecting your systems by loading rogue applications on their own machines. However, there are some limitations that need to be taken into consideration when this type of environment is being implemented. As mentioned before, some applications are very CPU intensive and should have their own dedicated PC to run efficiently. Also, some vendor developed tools such as graphic intensive window design packages may also require their own PC. In order for applications to work well in a Terminal Server environment, the application developer must adhere to strict rules for how the application accesses and modifies the system registry. As we've rolled Terminal Servers into Lumber Yards and Hardware Stores, we've found that some of these "vendor developed" applications weren't written in accordance with these guidelines, and as a result, certain of these applications don't "play well" when installed on a Terminal Server. However, the bisTrack Client applications are all designed to fit well into this environment, as are the most commonly used applications such as the Microsoft Office suite.

Specific Elements

Wireless Access

In the ongoing process of trying to give users less restrictive access to the tools they need, where they need them, adding a wireless network layer to your building as you plan your upgrade should be part of the overall strategy. Wireless access within the building is now quite straightforward to implement, and is no longer a security risk. Wireless encryption allows for tight control of who can access your network over a wireless connection. Once installed and locked down, your network will be available to any user who has any device that is wireless compatible and who has the proper security encryption key.

Adding wireless access to your network can be done either through the addition of a single purpose wireless access point, or in many cases, the same hardware component that is installed as the firewall on your Internet connection can also provide the secure wireless layer.

Once the wireless layer is in place, you can use Windows Mobile based handheld devices to run bisTrack applications designed for stock control activities such as physical counts and price verification within the store.



Monitoring and Management

Administration

As you move into a more complex software and hardware environment, it's quite possible you'll find the technical aspects of system management surpasses the experience and expertise of your internal people. Many times, companies are reluctant to install these new, modern systems because they assume that means adding their own internal IT staff to the payroll to keep the systems running.

While you can expect some increase in the amount of basic system administration that is required with a more sophisticated environment, do not assume you'll be required to add those expensive IT professionals. Of the new administrative tasks associated with modern systems, one of the most significant tasks is also one of the easiest to master by existing personnel — security. In the past, individual user accounts were not always necessary, system security was not a large issue and so there was little or no administration necessary to accommodate changes to your personnel. As you move forward into an environment where individual users must now have their own secure access to specific feature/functionality, there are administrative tasks that resemble, for example, payroll adds and deletes you're doing now as a normal part of business. When you hire a new employee, you'll add them to your payroll *and* to the system; when an employee leaves the company, you'll likewise *delete* their access to the system.

With careful attention to best practices for both security and stability, coupled with a well designed and executed installation, remaining system admin tasks should be infrequent and easily handled by your support provider.

Monitoring

By adapting models used by the very largest companies to manage their complex and geographically dispersed systems, it is possible to monitor nearly every aspect of your systems and respond to system issues in a proactive manner. Here's what this means to you: when sophisticated monitoring tools detect an outage or pending failure, these tools will automatically call, email, and/or fax a detailed trouble report *directly to the technician*. Instead of reacting to panicked calls with systems down and countless users affected, these highly trained technicians are working on the problem *in many cases before you even know you have one!* It's not uncommon for techs to call you in the morning to report your printers went down overnight but they restarted them remotely before your first employees arrived.

This is made possible by coupling those sophisticated monitoring tools with the robust Internet connections a modern system will have. A relatively small group of experienced IT professionals can monitor and manage large numbers of remote systems from anywhere there's wireless and/or internet connections. This combination of sophisticated tools and experienced people is the ultimate model for leveraging a highly skilled pool of talent across a very large number of businesses. Just as your remote workers gain access to the systems they need from wherever they need, remote administrators can get that same immediate access to keep your business running smoothly. You don't have to have a "local guy just down the street" to keep things running well, your "local guys" can now be as close as the Internet connection within your building.

While remote access and monitoring works well to keep your system running, it is also the best method for keeping your systems secure in a landscape of malicious software and unauthorized intrusions. The best way to maintain security on an ongoing basis is with constant vigilance and continuous updates to the software layers in place to face new threats. Secure systems are no longer a "set it and forget it" scenario. Today's environment demands ongoing diligence and protection. Again, keeping the bad guys away is a job best left to those who can be focused on it all the time.

Summary

Progress

One of the most exciting aspects of moving from the legacy systems of yesterday into the current, very capable software and hardware world of today is the opportunity to take a huge stride forward in the overall productivity and profitability of your company. It could be argued this type of step forward will prove to be every bit as significant as the step you first took when you moved from a hand system many years ago to the first computer based system that is probably still in place today.

If approached positively, these changes will not only increase the efficiency of your business processes, but will also offer your employees an exciting opportunity to increase their own set of professional skills. Rarely are there opportunities such as these that have such potential for positive growth of your business and your people. Sure, the project you are moving forward with will have its challenges, but with the proper steps taken from day one, the overall project should move forward in a stable, orderly fashion and you and your people should quickly begin to see the rewards of your combined efforts.

Partnership

Business partnerships are of such strategic importance to long term success that each one should be carefully considered. Your software provider needs to understand your business needs, and supply software to meet those needs. Your hardware provider similarly needs to understand the systems that your business will be reliant on, and must be capable of implementing and maintaining those systems over the long haul. You should be able to trust the depth of experience these partners have, their commitment to your long term success with their systems, and their ability to continuously deliver the services you require.

You must also expect your software and hardware providers to work closely together, with your success always identified as the primary goal of the collaboration. Teaming with Progressive Solutions and Applied Integration offers an unprecedented opportunity to join forces with people with long track records of working together, with years of experience meeting the needs of businesses just like yours and with a shared vision of how to move forward into the future together.