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IT Systems for the Contractor

Foundation for Competitive Advantage

By: David Brown
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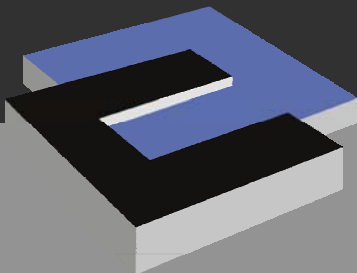
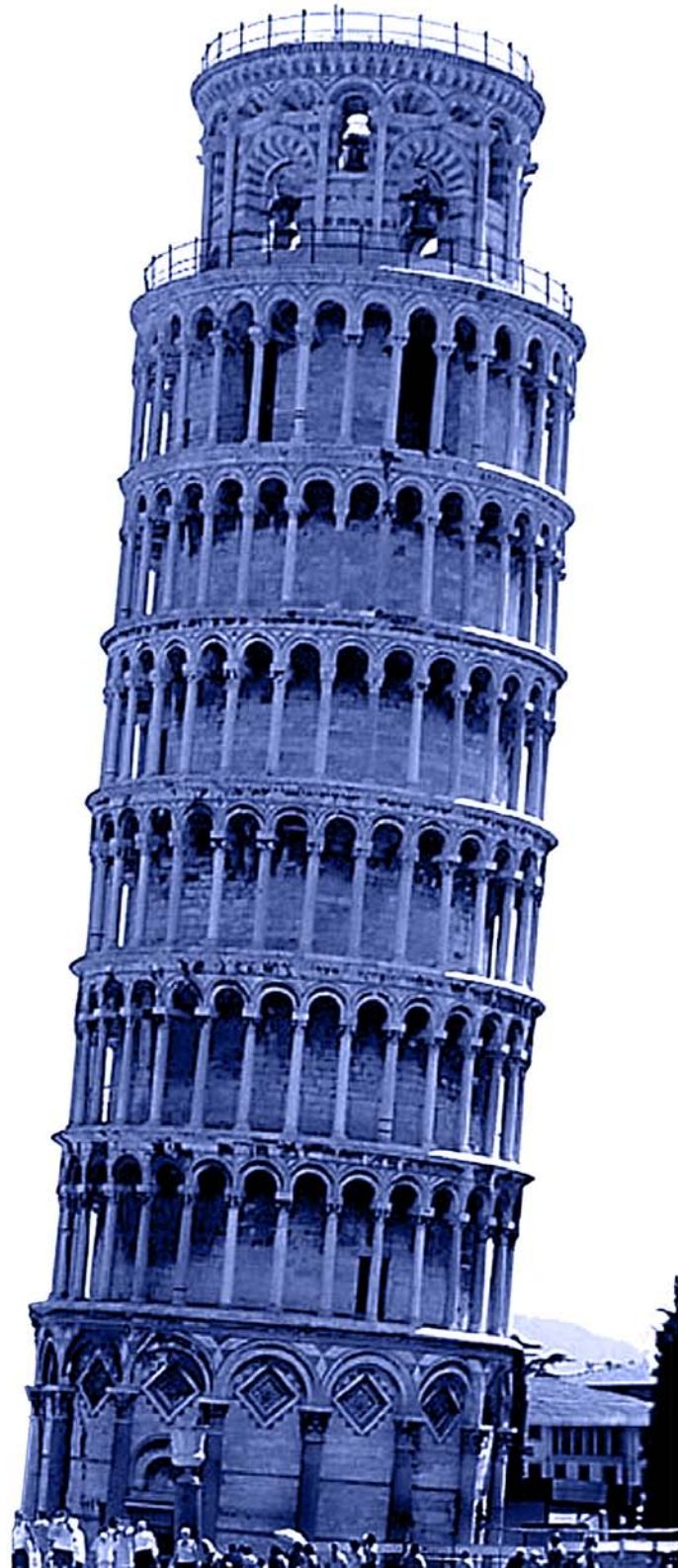
E=mc²

Simply put this means that the faster an object moves the more energy it has. This applies to businesses as well - every small business owner knows this and it was probably the basis for starting 90% of the businesses out there. Technology has been around for a while now and a few PC's meant competitive advantage; today they just represent a baseline. Technology systems previously affordable to only large corporations are now available to smaller businesses. These systems can provide a much bigger impact on a small company's operations because they are already running fast and lean.

- ▶ **Overview of Architecture**
- ▶ **Easy To Use Infrastructure**
- ▶ **Anytime/Anywhere Access**
- ▶ **Secure Systems**
- ▶ **Reliable Data Backup**
- ▶ **Remote Access**
- ▶ **Mobile Users**
- ▶ **Intranet**

INFRASTRUCTURE

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A Hands-On Approach

What You Should Expect From Your IT

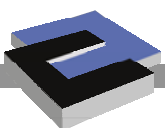
Don't set your expectations low. In today's market all major technology players from Cisco to Microsoft to HP and Dell all focused on their next biggest growth market – Small and Medium sized Businesses (SMB's). Since they have recovered their R&D costs and made substantial profits by focusing on huge customers with huge expectations and huge budgets as well as focusing on the lower end consumer market they now have a huge market in the millions of SMB's.

The market you have now is one which you can build a fantastic IT architecture on a reasonable budget that can serve as a great foundation for the growth of your company. The minimum things you should expect from your IT system are:

Ease of Use: To your users the technology and network should be almost transparent. They should not be burdened with cumbersome login procedures, dial-up services, inability to access information when and where needed, etc. None of these things translate into better customer service, employee satisfaction, or profitability.

- **Anytime/Anywhere:** There are very few businesses that require as much off-site work as a construction company. All of our money is made off-site on construction sites. The home office just serves as a hub for coordination of these efforts. You need an architecture that is dynamic and can provide seamless access and communication to your remote sites and mobile users such as PM's and Superintendents. If your IT systems only work at the main office you are missing a lot of opportunities.
- **Secure** Unfortunately with all the upsides of technology also comes the real downside of hackers, viruses and worms. These can all be dealt with through proper implementation of the right technologies including VPN's, firewalls, server/client security and antivirus software. The threats will not go away if you just ignore them. Electric lighting caused more fires in homes but that doesn't mean we are going back to living in caves.
- **Data Backup:** Over time the value of all companies has gradually shifted from hard assets and real property to intellectual property and data. Think how much data is stored electronically in your company. Let's suppose you are a typical small construction company. You probably have 2-3 people entering data into or working in an accounting database all day and another half dozen people spending up to 25% of their time creating electronic documents ranging from purchase orders to customer proposals to writing RFI's. That translates into a data entry cost of approximately \$1,500 per day! How secure is your data? How often and securely do you back it up? How fast can you restore your data? And the most critical factor is whether as a small business if you can even afford to have your already busy team spend an extra few days recreating data that got lost or corrupted.

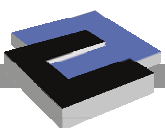
This is just a quick summary of the basics of the underlying IT Architecture. The applications that run on this architecture are part of a completely different discussion.

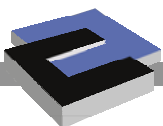
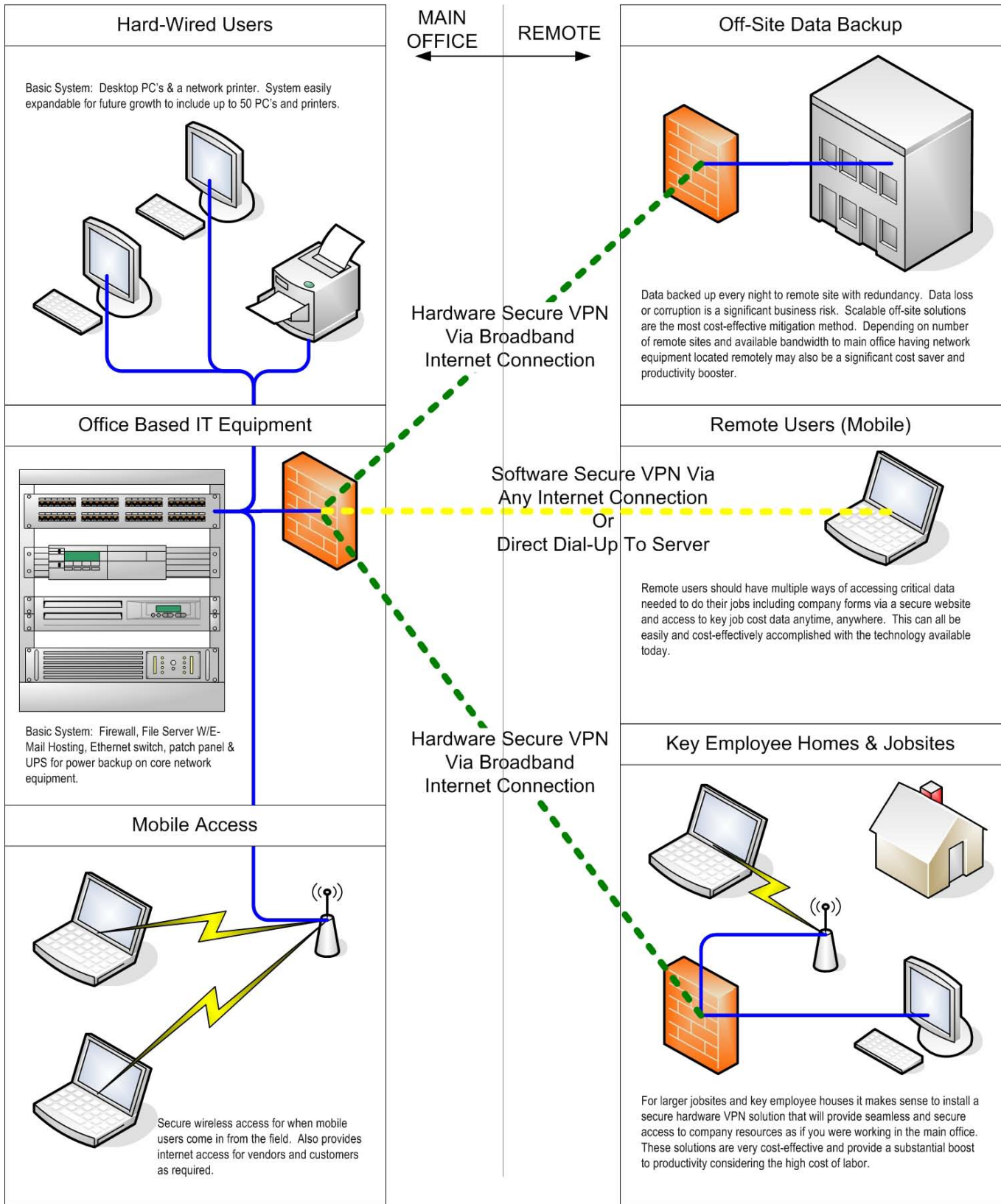


What Would This Architecture Look Like?

The diagram on the following page shows the basic components of a first-class small business IT architecture. The key components of the system include:

- **Server:** This is the center of your IT systems. For most small businesses a single server can be designed to be a multi-function device. As your company scales this single server may need to be split-up into two or more services dedicated to fewer functions. Your server will handle the following functions:
 - **File Management:** All your company files should be stored and organized in a structured central file system. By making most of your documents electronic, centralizing the storage and providing remote access you will make sure all employees have access to all information they need when they need it.
 - **E-Mail Hosting:** Managing your own e-mail server will allow you to manage things like central company calendars, central contact lists and be able to do things like automatically forward accounts in the event of employee vacations or turnover. The additional flexibility, data storage and archiving you get from hosting your own server is well worth the cost.
 - **Databases:** You probably have several central company programs that multiple users access including accounting, material pricing such as Tra-Ser and estimating systems. Your server should be able to centrally handle these loads and backup the data.
 - **Website/Intranet:** The internet provides a lot of opportunities for the small business. It can be used to communicate both internally and externally. It can be tied to your other marketing efforts. While your website could be hosted somewhere else you are giving up on a lot of the flexibility of managing it yourself. The biggest mistake most marketers make is thinking the web is just like print advertising. The biggest difference is that web content can and should be dynamic and regularly updated. See more information on what a company intranet can do for you.
- **Wireless Access:** This is relatively easy to add to your network and there are a variety of products available. It will provide instant access to your resources for anyone in your company with a laptop. This is great for field oriented employees coming to meetings or for planning sessions. The biggest risk is security. Make sure the device is configured properly to keep your network secure.
 - **Firewalls:** These are the hardware devices that act as the gateway to your network for security purposes. They also allow remote connection to your network to create a Virtual Private Network (VPN) which means that users can seamlessly and securely access the network from anywhere. Firewalls, like access points are available from a variety of sources but all the functionality and security is in proper configuration.
 - **Remote Sites (VPN):** For jobsite offices, key employee homes and for remote data backup you will want your network extended through local firewalls. This will enable seamless access to your network for employees at these locations and rapid data backup and retrieve. The firewalls will keep your data secure.





- **Wireless Access (Continued):**

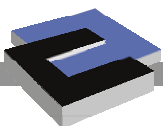
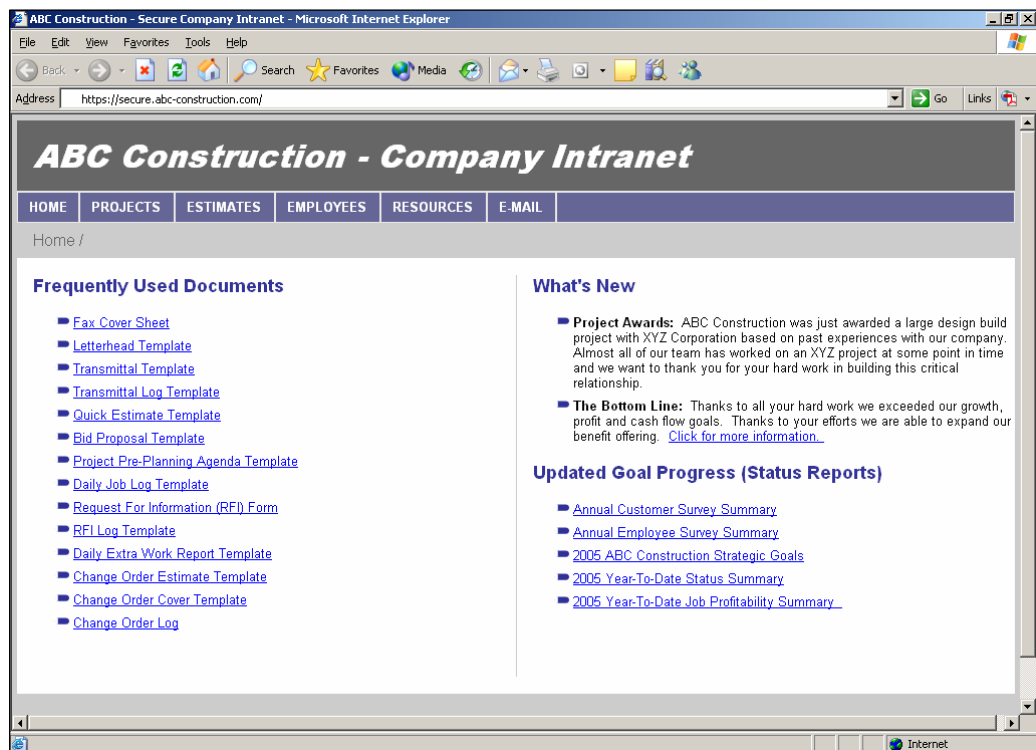
- **Mobile Users (Laptops):** In construction all the action happens away from the main office. It is important to make sure your mobile workforce is as effective as possible and in today's market that means using technology and communication tools effectively. Your mobile users should be able to access your network through a variety of available options including any broadband internet connection, a dial-up connection or in some cases it makes sense to use the cellular networks for true anytime, anywhere access.

There are other details but this is an overview of an IT architecture that will support your current operations more efficiently and allow for stable growth. Our intent was not to go into details of all the systems that this architecture can support but one aspect worth touching on is what an intranet site can offer your company.

Intranet Site – Anytime, Anywhere Access

What is the cost of information – or to put it better what is the cost of not having critical information available? How much time do you and your team spend looking for the basic information they need to do their jobs? Do you have standardized templates for all your basic documents to improve productivity and provide a consistent message to your customers? Do all your employees have rapid access to these templates from anywhere they may be working? What methods do you use to communicate new company information?

An intranet site is not the end-all answer but it is probably the most effective tool for improving everything from communication to access to standardization. If the right foundation is in place even a very simple intranet site such as the example shown below can be very effective.



The IT Architecture outlined in this document can very easily support your company intranet site. There are many different approaches to designing an intranet site. One size does not fit all. If you are budgeting for an intranet site you should plan on only about 20% of the cost/time going into the site organization and design itself. This is the easy part. 30% should go into the content development, forms, report formats, how-to instructions and 50% should go into employee training on accessing and using the site effectively.

Designing, Building & Maintaining This Architecture

This paper was only designed to provide a quick overview. While the cost of these systems has come way down and a lot of the lower-level setup has been automated there are still a lot of higher level configuration issues to deal with regarding functionality, data backup and most importantly security. More resources including links to manufacturers, other papers and implementation specialists can be found at www.dbrownmanagement.com.

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