

Merging Company Networks

Section Seven

“Crossing Cultures”

Introduction

GENERAL

In our next scenario, we examine the merging of our small company (as configured in section six) with an older company that has legacy¹²⁷ technology. It is not simply technology that must learn to coexist but also company cultures that have to learn to work together. There is much to be said on how two (or more) companies go about promoting a merger. There is a great anxiety that grows as the merger evolves from fears of layoffs and cutbacks. We will examine the blending of technologies as well as the preparations needed to protect intellectual property from the effects of downsizing and layoffs.

TECHNICALLY SPEAKING

The need to merge multi-OS environments will increase the complexity of the network environment as well as the overall IT budget. The real balancing act is to minimize complexity while protecting infrastructure and stability. As I have said over and over in previous sections -- the key to maintaining network stability is by keeping standards (in both hardware and software). Many companies have their preferred vendors of choice which can clash when blended with another companies vendor specific hardware. It is important to focus on those things that work best for the whole group (combined strengths).

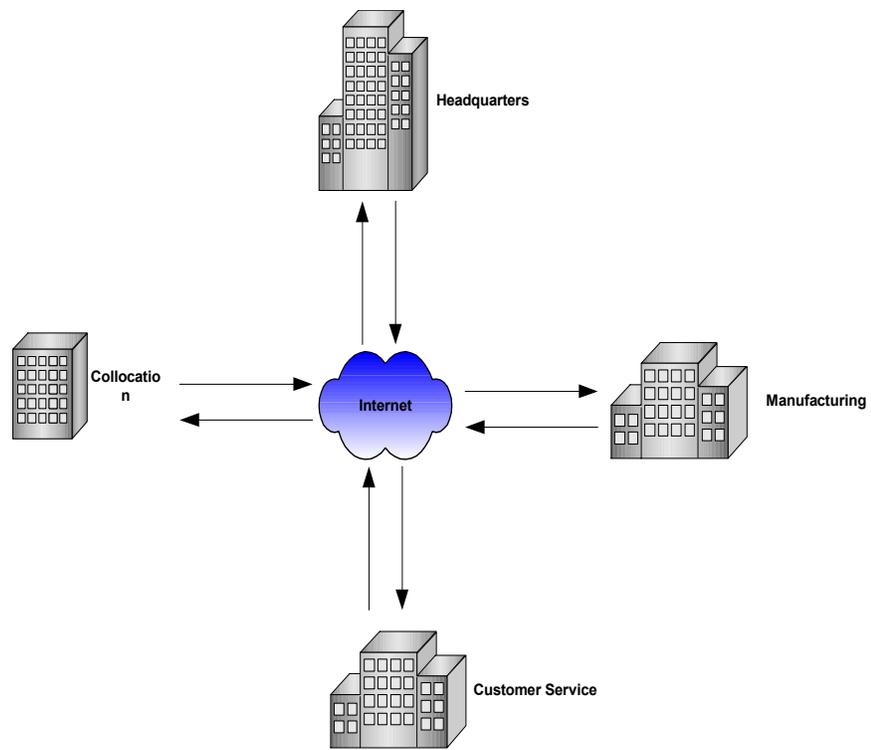
¹²⁷.In information technology, legacy applications and data are those that have been inherited from languages, platforms, and techniques earlier than current technology. Most enterprises who use computers have legacy applications and databases that serve critical business needs.

The Basics

SMALL BUSINESS TOPOLOGY

Generally speaking when two companies merge it's like two icebergs colliding. The best you can hope for is minimal damage and the hope that what results from the crash will be a larger floating object with greater expectation for the future. Taking time to look at the initial setbacks and how to minimize their effect on the final product can be the *make or break* for your company. It is essential to first gauge both of the companies network topologies and assets (like two maps that you can place over each other) so that you can look for duplication.

FIGURE 7- 1. Small Business Topology



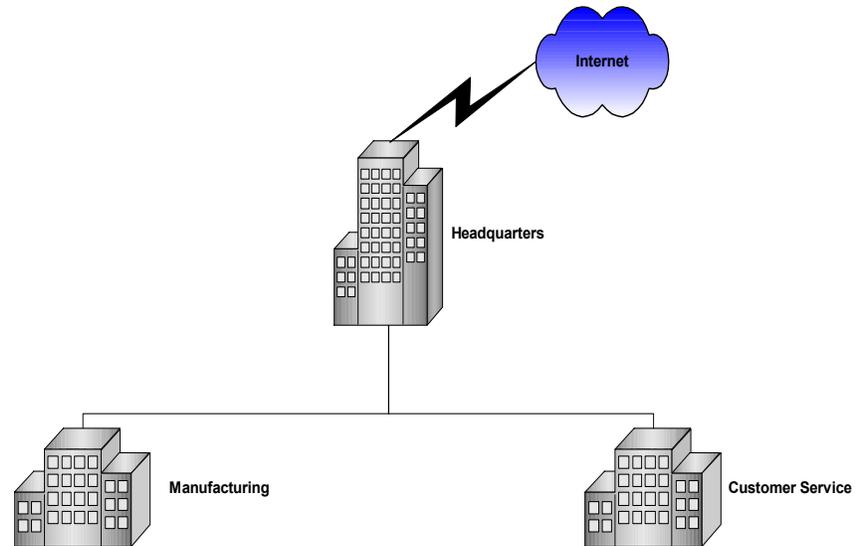
Our small company built everything modularly -- so that it could grow or separate quickly and without great expense. Figure 7-1 presents modular sites that owe their connectivity to the internet and centralization to the collocation. All other sites are negotiable.

Since we started out with a fairly new network (with a singular vision for technology) there is little complication in merging operating systems or blending old technologies with newer equipment. If we wished to break apart, each site could simply go their own way and regroup quickly. While this may seem unsettling to employees it is both cost effective and just plain good business practice for small companies.

On the other hand, older/larger companies grew up during a time where business was testing the waters with computer technology. The cost of equipment was higher and migrating from legacy technologies to modern infrastructure was difficult to manage. Most large companies were willing to prolong change in order to make sure that the change would truly benefit the profit margin.

LARGE BUSINESS TOPOLOGY

FIGURE 7- 2. Traditional Company Infrastructure



Traditional business network infrastructure relied on dedicated (secure) network constructs that did not envision the Intranet as an option nor a backbone. This strategy was costly and rigid. Many older companies based their sites around the world as opposed to newer companies which kept most of their management resources centralized. There was a lot more duplicity in older companies. Newer companies were more willing to take a chance and focus on a leaner and more agile construct. The main focus on older/larger companies was highly dependable and scalable technologies regardless of the cost.

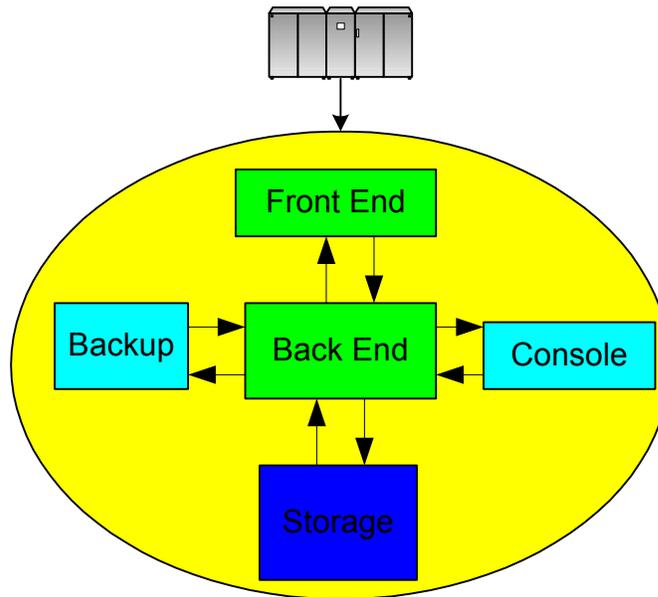
MAINFRAME TECHNOLOGY

Usually the central component of older companies was the mainframe¹²⁸ computer which was proprietary¹²⁹ in design and required a large group of highly trained technicians and engineers to manage and maintain. Software was very expensive and usually

^{128.}*Mainframe* is an industry term for a large computer, typically manufactured by a large company such as IBM for the commercial applications of Fortune 1000 businesses and other large-scale computing purposes. Historically, a mainframe is associated with centralized rather than distributed computing. Today, IBM refers to its larger processors as large servers and emphasizes that they can be used to serve distributed users and smaller servers in a computing network.

tailored for the individual company. Service contracts cost almost as much as the software itself (and usually more than the hardware).

FIGURE 7-3. Mainframe Technology



In a generic mainframe topology, there is a front end, back end, and separation of console, backup and storage resources that incorporate specialized personnel to manage each module.

- The front end acts as an interface for users to access data and run processes (a.k.a. programs).
- The back end works as the main processor.
- Backup resources are usually large tape resources (reel to reel tape devices once filled a room).
- The console is the main CRT (Cathode Ray Tube) and keyboard for the operator to run the facilities.
- Storage could be SAN, or on-board disk storage that the mainframe uses to house data processed by the mainframe.

TERMINAL EMULATION

The mainframe links remote consoles through terminal technologies (programs) that share ethernet bandwidth and work as a program within a personal computers software suite. Common program types that are used by many companies are:

129. In information technology, proprietary describes a technology or product that is owned exclusively by a single company that carefully guards knowledge about the technology or the product's inner workings. Some proprietary products can only function properly if at all when used with other products owned by the same company.

The Basics

- 3270 Emulator (IBM mainframe)
- X-Windows clients (unix)
- VT-Emulator (VMS)

Depending on the mainframe system format, (sometimes two or more of these mainframe types) there can be quite a complex mixture of terminal emulators used by personnel in a legacy operation. One of the added problems with terminal emulation is keyboard mapping. Each mainframe supports unique keyboards that are not common to personal computer technology -- requiring the terminal emulator to provide a conversion for the keyboard mapping to take place. For instance, VMS uses PF# keys to perform unique operations common to the VMS system interface -- there are no PF# keys on the average PC keyboard. The terminal emulator changes key values so that the PF# keys can be used. This can create problems since none of the keys are labeled PF#. Usually a template is placed over the keyboard during operation of the terminal emulator program so that users can be more capable of using those keys when accessing VMS system resources.

IT STAFFING

Not only does supporting technologies have to be in place for the mainframe, so does specialized staffing, training and logistics. Most people are familiar with PC technology, but the same can not be said of mainframe technology. While PC technology tends to mirror that of a mainframe, the complexity of structure and equipment requires a whole different level of knowledge and understanding. Mainframes are noted for their stability, redundancy and scalability while PCs are not. Specialists maintain individual components in a mainframe environment while an individual maintains a whole PC.

Trying to combine mainframe staffing with that of a modern PC networking department usually leads to cultural disputes as well. Mainframe specialist commonly look at PC technicians as a lesser bread of computer user -- not really a professional. There are obvious differences in opinion when it comes to migrating resources from mainframe to a PC network. Usually an arbitrator (independent of both groups) must make the hard decisions over who should be managing what information. This becomes more of a business decision than anything else. There are very good reasons on both sides of the isle and only the business model can define which way technology should transition.

BINDING TECHNOLOGY DEPARTMENTS

Obviously, information technology must move forward encompassing newer more cost effective systems. But there lies the problem. A technological analysis of the migration process must encompass the risks of uprooting older technology -- replacing it with newer technology.

As an example, I once worked for a large company that had locations world wide - based on older mainframe type technology. This company was bought out by a company based on newer PC type networking technology. The first thing the purchasing company did was to lay off most of the mainframe staff and start replacing older technology with newer PC networking technology. This became an obvious mistake in that the global infrastructure began to fall apart. The newer PC technology (at that time) could not keep up with the needs of the infrastructure designed for the mainframe and performance dropped dramatically. It became evident to the Purchasing company that they had to try and hire back all those people they had previously laid off to get things back on-line.

Needless to say, the few people who were willing to come back to work were given much larger paychecks and still work for that company today. Before removing an existing technology (and its infrastructure) it is imperative that an exit plan be in place so that when problems like this crop up there is always a way to go back.

Merging Cultures

GENERAL

Hopefully, both companies have researched the cultural backgrounds of their merging entities so there is clarity and understanding of the differences and similarities being merged. Many companies have drastically different approaches to how their IT departments work and what authority is granted to them in performing their jobs. Newer companies are willing to take chances while older companies are less willing to do so. Newer companies are more likely to jump on the technology bandwagon while older companies are more willing to wait until technology is proven.

MAINFRAME CULTURES

Generally speaking, mainframe environments are more strict about policies and procedures and take longer to incorporate change. They have learned from experience that IT is more stable when decisions are based on time-tested technologies that are generated from older more reliable companies (such as IBM, Burroughs, Unisys, and NCR). They are willing to pay more for reliability, scalability and security. The IT organization is larger, more structured and follows traditional standards. One word puts it all into prospective “conservative”.

PC NETWORKING CULTURES

The PC generation is mostly a younger breed of technicians who embrace newer technologies more quickly because they have grown up in an environment that is ever changing and evolving. Their less conservative and willing to take that chance knowing that if it does not work there is always another company that will hire them. There has been a trend over the last few years to make LAN IT organizations more like that of the traditional mainframe IT department.

COMMON GROUNDS

What both organizations have in common is that they are moving data and processing information across a common communication medium that requires stability and structure. They both have great pride in their abilities to “get the job done”. They are logical, methodical and in most ways practical in their professional application. They have many duties that overlap (data management, data storage, reporting, migrating technologies, maintaining operations and stability, disaster recovery, etc.) which will have to evolve into one sound solution that may result in a leaner more responsive organization.

Usually, a team combined of managers from both sides go over each position in IT and evaluate the value of continuing that position in the merged company. A migration plan is generated along with an exit strategy in case the migration fails to go the way they plan. Increased costs are added into the mix to help pay for the transition and severance packages are incorporated in such a way as to minimize the overall cost of migrating from two companies to one.

Merging Technologies

MODULARITY

In merging technologies, it is imperative to maintain some separation of IT assets. If the merger does not work you may need to dissolve the linkage between both IT departments. Over time, (if everything works out and the merger becomes one) the natural progression and evolution of business practices will ultimately blend the two together. It is best not to push too quickly and force a marriage of technologies that may lead to disaster.

FIGURE 7-4. Mixed Environment

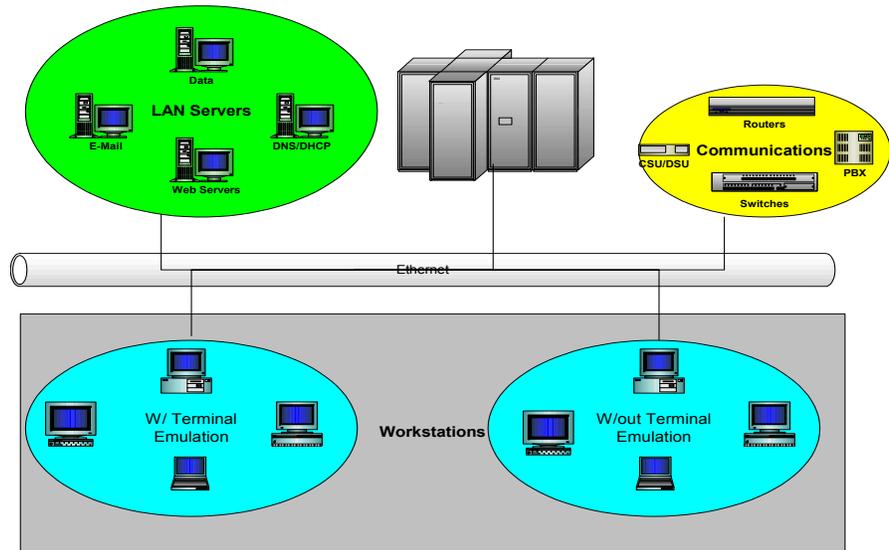


Figure 7-4 does not fully express the importance of the mainframe in a legacy environment. One would think that it could easily be removed without little fanfare or grief, but in reality there is a world of applications, processes and data that must somehow be migrated to newer technology before you can take it away.

Terminal emulation only opens a portal for users to work with data on the mainframe -- there is no conversion tool that can suck the data out into your favorite PC applications. Work needs to take place converting data to ASCII¹³⁰ or CSV¹³¹.

130.ASCII (American Standard Code for Information Interchange) is the most common format for text files in computers and on the Internet. In an ASCII file, each alphabetic, numeric, or special character is represented with a 7-bit binary number (a string of seven 0s or 1s). 128 possible characters are defined. Unix and DOS-based operating systems use ASCII for text files. Windows NT and 2000 uses a newer code, Unicode. IBM's S/390 systems use a proprietary 8-bit code called EBCDIC. Conversion programs allow different operating systems to change a file from one code to another.

Further, many mainframe applications are made in-house (meaning that no one else has those programs) and have no pre made application that can use the data on a PC. New programs have to be designed and tested so that they can migrate and maintain the data after it is converted into PC readable information. These applications can include (but are not limited to) payroll, purchasing, customer data, and personnel. While programs can be found in the PC world for these applications they won't be as customized as the ones on the mainframe for the company they were written for.

So while the topology and layout of the mixed environment seems an easy enough thing to merge and upgrade older technology too, it has hidden milestones that must be tackled before anything works the way it used too. The goal of the merging company may seem simple enough on the top but it is less so in practice.

SUMMARY

Merging companies is a challenging and costly process that can make or break companies. While most companies provide a strong infrastructure that can change with the times it is much more difficult to merge personnel and data processing designs. Migrating data does not simply require the process to do so but also an end solution, exit strategy and retraining of personnel. Time, resources and vision -- all of which must be calculated as precisely as possible in order to just break even in the end.

There will surely be a loss of productivity during the process as well as lack of motivation and profit. Hopefully the end game is to place your company in a more strategically viable business solution for the future and that this migration process does not weaken the company too much before it achieves its' goal of unity.

Along the way there has to be many evaluations to determine if the company should go further (risk evaluations) and that proprietary data be protected during this process in case a breakup should occur -- kind of like a fledgling relationship. You can look at a successful marriage to find the basics for a successful business merger.

131. In computers, a CSV (comma-separated values) file contains the values in a table as a series of ASCII text lines organized so that each column value is separated by a comma from the next column's value and each row starts a new line. Here's an example:

```
Doe,John,944-7077  
Johnson,Mary,370-3920  
Smith,Abigail,299-3958  
(etc.)
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