

CONSOLIDATION

A GUIDEBOOK FOR GOVERNMENT

- Why Consolidate
- Where to Start
- Getting It Done
- Driving It Home

Produced by GOVERNMENT TECHNOLOGY®
SOLUTIONS FOR STATE AND LOCAL GOVERNMENT IN THE INFORMATION AGE

For additional copies or to download this Guidebook, please visit:
www.govtech.com/consolidation

CONSOLIDATION

A GUIDEBOOK FOR GOVERNMENT

Table of Contents

Introduction

AT&T is pleased to sponsor *Consolidation — A Guidebook for Government*. We hope you will find it to be an informative resource.

At AT&T, our mission is *to connect people with their world, everywhere they live and work, and do it better than anyone else.* We are fulfilling this mission by creating new solutions for businesses and consumers and by continuing to be a customer-service leader in the communications industry.

Nowhere is it more important to have effective communications solutions than in government. Whether it's issuing drivers' licenses, processing tax returns or maintaining a safe environment, people need to know they can count on their government to be there to meet their needs, regardless of the situation or event. AT&T is proud of the collaborative relationships we have developed over the years with the government entities we serve. Together, we will continue to identify leading-edge solutions that help government agencies serve their constituents more effectively and efficiently.

WHAT TO CONSOLIDATE

Numerous functions can be consolidated for lower costs, more efficiency and other benefits. Some of the most popular areas for consolidation are:

- Networks
- Servers
- Data Centers
- Communications
- E-mail
- Storage
- Wireless
- Procurement
- Payment Engine
- Asset Management
- ERP/Financial/HR
- Help Desk
- Desktops
- Imaging
- Security Services

Consolidation is one of the top issues all governments are facing today. It is our hope that, as a reader of this *Guidebook*, you will gain a better understanding of the key issues involved in consolidating your networks and operations. We would be pleased to work side by side with you to identify solutions for your organization. There is no doubt that, by working together, we can help you meet your objectives in this challenging economic environment.

To learn more about AT&T's Government solutions, visit our Web site at www.corp.att.com/gov.

Donna Scott
Executive Director — Marketing Management
AT&T

WHY CONSOLIDATE

The popularity of IT consolidation has risen rapidly in recent years, and with good reason. It simply makes sense to combine numerous devices or systems. If you take 88 servers and condense those down to 10, you're operating more efficiently and at a much lower cost. You're also taking better care of the environment as you use much less energy for power and cooling.

Technological advances in security, virtualization, Internet protocol (IP), remote management and other areas have made consolidation an obvious choice for many organizations. Businesses and governments are consolidating their networks, servers, data centers, communications, e-mail and many other systems. In many cases, state mandates are calling for it.

Consolidation is becoming a standard protocol for governments that want to improve efficiency. Especially in today's tough economic climate, government must consider what consolidation can offer: economies of scale, significant cost savings, increased efficiency, better information sharing and much more.

The following pages contain useful information on why IT consolidation has become so common — and why government should make maximum use of it.

COST SAVINGS

Consolidation can lower your costs for hardware, software and staff time. Although that's not the only reason to consolidate, it's certainly an important one. Every government is trying to do more with less these days. There's usually no funding for expansion, yet citizens want more services from government.

By simplifying your systems, you can maintain productivity and staff size. If you don't consolidate, you're looking at providing fewer services or operating with fewer people. Neither is a practical option.

Experts say only about 15 percent of servers' capabilities are being used in a typical IT shop. Clearly that's a waste of money. By consolidating with new tools and techniques such as virtualization, servers can be utilized much more efficiently. Fewer machines are needed and costs go down significantly. That's one of many examples of how consolidation brings substantial savings.

By consolidating your systems, you need less equipment and floor space. You also have lower energy costs for powering and cooling your equipment. And by simplifying your environment, you devote far less staff time to daily maintenance. The savings add up in several key areas.

Economies of Scale — Everything costs less when you do it in volume. By consolidating and getting more IT elements on fewer systems, you can do things more economically. Installing a software patch, for example, can be done for all necessary devices much more quickly if they're on one system instead of several. Economies of scale pay off in numerous ways.

Electrical Costs — For many organizations, electricity is a surprisingly large part of IT operation costs. You can certainly lower your energy costs through consolidation.

Expansion Costs — IT is becoming more important to the business of any organization. Leveraging IT capabilities helps the organization offer more services, be more productive and expand. Traditionally that meant adding more systems, which then would eat up more power, cooling and staff time. Consolidation helps you keep

expansion costs under control because consolidated systems are easier and less expensive to expand.

OPERATIONAL EFFICIENCIES

IT systems evolve over time. Pieces are added along the way. New software helps the business, but it may require new hardware to run on. Thus more components are added. Then others are added to make the previous components work better. Having too many components will drag down performance.

Unnecessary complexity also brings unnecessary costs, and may lead to lower productivity. Consolidation can make numerous systems more efficient.

Strategic Consolidation — If you plan well, you can make the consolidation serve the business of your organization. Consolidation should be used as part of an overall strategy to improve efficiency, productivity and service across the organization.

Centralization — Whenever you have one system instead of many, you can manage more tasks from a central location. That means staff will make changes, perform maintenance and take care of other management tasks once instead of several times. Centralization saves a lot of staff time.

Remote Management — New technology makes it easy for IT staffs to manage computers remotely these days. It's more difficult and time-consuming, however, when devices are on numerous, disparate systems. Remote management is most effective when machines are all on the same system. Remote management allows staff to install patches, do upgrades, and even turn machines on and off — all from a remote location. It eliminates a lot of time-consuming desk-side visits by IT staff.

Core Activities — It takes less time to manage one system than it does for 12. With a consolidated environment, much less staff time is needed for maintenance. You can devote more staff time to your organization's core activities and strategic planning.

EXPANDED CAPABILITIES

Consolidation can give you a robust network that enables more capabilities and offers greater availability. A stronger, centrally focused infrastructure provides more flexibility and scalability. That makes it much easier to make changes, expand and launch new projects.

Continuous Upgrades — With a stronger network, you can add even more value per dollar with subsequent improvements. And with fewer parts in the system, each individual component plays a larger role. Upgrading even a single component will have a bigger impact than in the past. Organizations should plan to upgrade their systems on a regular basis.

Reinvestment — Savings brought about by consolidation create an opportunity to reinvest funds in your IT system. It can be a solid boost for the future, since reinvesting can occur regularly and enable increased productivity. The savings from consolidation can let you continually increase your capabilities.

One-Stop Shop — Whether your customers are citizens or other agencies, they want your services to be seamlessly provided. They want to be able to access your services at

their convenience, and they want those services to help them get things done quickly and easily. Consolidation helps you do this by improving your capabilities. By serving customers from one central data repository or portal instead of many, you can provide better service. And it's all in one place where your customers can easily find it.

IMPROVED CONTINUITY OF OPERATIONS

Continuity of operations (COOP) is an organization's ability to operate through a period of significant interruption caused by man-made or natural events such as fire, flood, terrorism, hurricane, tornado or power outage. In a disaster, an effective COOP plan can save you from loss of revenues, property, public confidence and more. The cost of an interruption can be significant.

Preparedness — Consolidation reduces complexity in your system, making it easier to recover from a disaster. Instead of having many systems to prepare, move, back up or restart, you have just a few. Having the most efficient infrastructure possible allows you to deal with disasters in the most efficient way. That will result in far less downtime.

Redundancy — With savings generated by consolidation, you can invest in redundant systems that will support a timely recovery.

Remote Backup Hosting — Once your systems are consolidated and have a smaller data footprint, you may choose to back up your data remotely at a hosted storage facility.

BETTER COLLABORATION AND INFORMATION SHARING

Any IT expert will tell you there is much more information being shared today than ever before. People are collaborating more, and technology is constantly making it easier to share information with co-workers, business partners, vendors and others.

Single Repository — With a consolidated database, every agency pulls its data from the same repository. No more duplicate records. No more different versions. With consolidation, all agencies look at the same, accurate information.

Private Networks — Even with a consolidated environment, agencies dealing with confidential information can still have private networks. Virtualization makes it easy to enable more sharing while also keeping sensitive information safe.

Web Collaboration — Web-based services are growing. People today expect the ease of use that goes with the Internet. By consolidating services across many agencies onto a common Web portal, you make it much easier for people to share information and collaborate.

GO GREEN

From an environmental standpoint, a smaller carbon footprint is everyone's goal, and consolidation helps considerably. A streamlined system means less waste. Less equipment equals lower energy consumption. Fewer materials are used and eventually thrown away. Consolidation should be a big part of any organization's greening program. It really can make a difference.

RECRUIT BETTER

With scores of baby boomers retiring soon, there's a pressing need to bring in new people. Government needs to hire new, younger employees. Young people typically think of the private sector first, so the public sector must compete.

Top-Notch Environment — A streamlined, efficient system is more attractive to young workers. They don't want to be surrounded by an antiquated, decentralized network or inefficient servers. Consolidation, virtualization, remote management and other new techniques will make your shop more appealing.

Solid Employees — With technology-enabled automation and tightening budgets, IT staffs may be smaller in the future. Thus you need to get the best employees possible. A modern, consolidated environment can help attract the people you want.

DOCUMENT ARCHIVAL AND RETRIEVAL

New technologies are constantly allowing people to work faster. More documents are generated by workers every day, and it never stops. Whether you want to retrieve a document from two years ago or last month, it can be a challenge to find it.

Consolidation makes archiving and retrieval more efficient and organized. It's much easier to find things when one system is involved rather than several. E-discovery requirements make this more and more important. It can cost exorbitant amounts of money to produce the required documents for a court case, for example, if you don't have proper archiving set up.

E-Mail Archive — Business is increasingly done via e-mail today. E-mail is actually a good record of things — if you can find individual e-mails when you need them. Many government agencies must follow strict guidelines on how long e-mails should be kept and how secure they should be. Consolidation makes all this easier to manage.

Data Policies — Mandates, such as the Health Insurance Portability and Accountability Act (HIPAA), have made it critical for government to take proper care of data. It's much easier to satisfy these requirements with a consolidated environment. You can set and enforce data policies from a central, common console much more easily than you can over several different systems.

WHY CONSOLIDATE CHECKLIST

- Look hard at energy costs of current IT operations.
- Make a strategic plan for consolidation. Factor in business needs.
- Align consolidation with your continuity of operations planning.
- Look at consolidation from a green IT perspective. Maximize your opportunities.
- Incorporate consolidation into your plans for employee recruitment and retention.

WHERE TO START

IT consolidation takes planning and work. It pays off in the end, but it must be approached carefully. Consolidation involves fundamental changes in the way IT is managed and operated. If it's not planned well from the beginning, cost overruns, downtime and service-level violations can result.

You should have a clear picture of your priorities and goals. As previously mentioned, consolidation should be part of an overall strategy to improve efficiency, productivity and service across the organization.

You need to build a strong business case to get executive buy-in. You should educate staff to help them understand why their processes may change and why the change is good for the organization. These are just a few of the tasks that must be completed. The following pages will help you get off to a good start on consolidation.

SET PRIORITIES

When setting priorities for consolidation, ask what your organization wants from the transformation. Making the change is a process. By prioritizing needs and wants, you're more likely to end up where you want to be when the process is finished.

Make Consolidation an Integral Part of IT Strategy — Consolidation is an opportunity to improve the entire IT program. It should be a comprehensive effort, by committed people, to make things better across the organization.

Align With the Business — IT should support core missions and daily business activities. Be sure your consolidation plan aligns with business goals.

Research — Find out what other organizations are doing as they consolidate. Learn as much as you can about their projects, methods, lessons learned, successes and failures. You can learn from the experiences of others, and it will help you identify areas to focus on as you move forward.

Develop Your Security Policy — When planning for consolidation, you have the opportunity to improve IT security. Security can be stronger with fewer devices and entry points to your network. But you need to be proactive. How often are passwords changed? What kind of e-mail is allowed in and out? You need to limit some accessibility, but you still want people to have the tools and data they need. It's a balancing act, and fine-tuning your security policy can help you find the right balance.

BUILD BUY-IN

Getting buy-in from executive sponsors, as well as the involved agencies and employees, can be one of the biggest challenges of consolidation. That's because consolidation means fundamental change — not just to infrastructure, but also to longtime processes. People must change their attitudes and habits to a new way of doing things. And everyone involved must be committed to the changes.

People need to realize that departments can no longer plan IT efforts individually. With consolidation, different agencies must leave their silos, come together and collaborate on shared goals and objectives.

Consolidation is not strictly a technical issue; it's also a change issue. The technical challenges are usually surmountable with solid planning, design and implementation. But getting people to change their processes, behavior and thinking can be a more daunting exercise.

Create a Strong Business Case — A consolidation effort must make sense to stakeholders before it is approved. Be thorough when gathering all the data and input you need. Clearly articulate the vision for the project. Help people see the finished, consolidated environment. Don't assume people will understand it easily, and don't leave things to the imagination or require people to make assumptions.

Communicate the Value — When pitching the project, don't just tell what it is and what it will do. Make sure decision-makers understand the tangible benefits. Explain how it will affect them. Make sure everyone understands, in real terms, what will be better after consolidation.

Show Business Units Their Benefits — Although consolidation helps the entire organization, individual units will also benefit from the change. For example, after consolidation, systems will be patched, upgraded and maintained more often because IT staff will be better able to manage systems from a central location. That means less downtime and quicker adoption of the newest applications. Collaboration and data sharing with other agencies will be simpler. And with data residing in only one place, agencies will always know they have the correct version of the data.

Communicate Effectively — The idea of change can scare people. The concept of consolidation may make agencies think they will lose control of their systems and data. Some employees might think they could lose their jobs. These fears are the biggest obstacles to overcome. Allay these fears with effective communication.

Educate Often — Connect with workers in several ways to ensure they understand the reasons for the change. Consider using video, e-mail, face-to-face presentations, posters and more. People appreciate being informed.

Keep Sponsors Engaged Throughout — Don't forget about your executive sponsors once the process is under way. Too often, they're involved at the beginning of the process and again at the end. You increase the chances of a project's success if you keep them engaged along the way.

DEFINE REQUIREMENTS

Before starting consolidation, an organization should clearly define its requirements. What does the system need to accomplish? What processes and technologies and equipment must be used? What outcomes must be delivered?

Self-Assess — Making an accurate assessment should be one of the first steps in the process. The needs of the business should be a big factor in the planning. Also consider the specifics of the existing IT infrastructure and architecture, and the staff that works with it. Consider the number of available staff, skill sets, and staff strengths and weaknesses. Look at assets, capacity and utilization. Once you've looked closely at everything you have, you can better define your requirements.

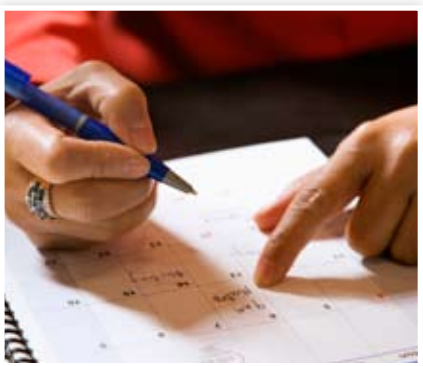
Look at Services — What are the services you provide to other agencies and the public? Always keep these in mind when defining your requirements for consolidation. Look at things from the customer's perspective. What would your average customer want you to accomplish for them?

Be Resilient — Make sure downtime is not an issue. With a centralized system, downtime can affect all departments. Make sure there is solid redundancy built into the consolidation. The design should include a dependable backup system. Fortunately, consolidating your system makes it easier to back up. You'll also need to consider the impact consolidation will have on your existing disaster-recovery plan. Be sure to document the changes to the disaster-recovery plan once your consolidation has been completed.

DETERMINE A TIMELINE

One consolidation project can take many months from start to finish. It's important to build a realistic schedule. Do you want to get everything done quickly, or make the transformations over time? In most cases, it's best not to rush. Be sure to factor in everything that can slow you down, such as funding limitations or staff resources.

Consolidate Incrementally — Too much change can be overwhelming for staff. Keep a steady pace and don't make too many changes at the same time. Give people time to adjust to changes before making more. Put an adjustment period for the consolidation into the timeline.



Do a Pilot Project — In many cases, the best results are achieved by starting with a pilot project. This approach lets you learn on a small scale, and then consolidate more widely from there. Build time into your schedule for a gradual rollout of consolidation projects.

QUANTIFY GOALS

What are your organization's goals for consolidation? Is it to cut operational costs by 10 percent per year? Improve productivity by 12 percent? Or is it to have more satisfied customers? Whatever you're aiming for, you need to quantify it so you can measure how well you're doing. Also, if appropriate, you should communicate your success to all stakeholders.

Metrics can vary greatly. They depend on your organization and processes, and the systems you're consolidating. You need to figure out what can be measured within your organization after the consolidation.

Return on investment (ROI) is a common way to quantify an organization's goals. For the investment you make in consolidation, how much do you get back?

Be Realistic About ROI — Get all the information about costs before calculating return on investment. That means talking to every agency using IT systems — human resources, procurement, help desk and others. Find out how each cost will be altered by consolidation. Once you know the details are accurate, you'll know the total ROI should be accurate.

Quantify Time Savings — Putting a number to the value of saved time can be difficult, but it will be helpful. It can help get buy-in up front. It also can be helpful when telling a success story after all is said and done. Consolidation should save a lot of time for the IT staff. Try to quantify that.

WHERE TO START CHECKLIST

- Make consolidation a key part of your overall IT strategy.
- Thoroughly assess your current capabilities.
- Study other consolidation projects. Learn from others' experiences.
- Get the buy-in you need at all levels. Make sure people are aligned with consolidation goals.
- Communicate upcoming changes and benefits to everyone. Communicate often.

GETTING IT DONE

Old IT infrastructure is everywhere. Most organizations have it. Some are in many ways stymied by it as greater demands are put on IT. The infrastructure is being pushed harder every day, and often it's not flexible enough to respond sufficiently.

Consolidation offers the chance to move past that and into a more efficient, productive future. Consolidating hardware, software, networks, communications and other systems opens many opportunities. It's also financially responsible and better for the environment.

Fortunately the technology and techniques available today enable a variety of approaches and methods toward achieving consolidation success. There's a different solution for every organization.

It's hard to imagine an entity continuing to do things the old way. So many new technologies are available today, and the financial stakes are too high to not take advantage of them.

So how do you do it? How do you consolidate? This section gives some best practices for getting consolidation done.

SINGLE PLATFORM

A platform is a base computer system upon which application software and system software can run. The platform holds the operating system and other elements necessary to software operation. A platform can be any technological base upon which other systems, technologies or processes operate.

Get as many systems as you can onto a single platform whenever possible and practical. Security, storage and network connectivity, for example, are often on three different platforms. Getting them onto one can greatly increase efficiency.

A single platform lets IT staff monitor applications, network performance, Web activities, service-level agreements and more — all from a single management console. Managers get an in-depth view of what's happening on network devices. Problems can be found and fixed without users even knowing about them. It's a much more efficient way to work. Organizations can no longer afford to have numerous, disparate systems.

Optimize Information Flow — Work from a single platform and simplify everything. That will help many processes flow more smoothly. Manage everything from one console, so you can instantly spot trouble, fix problems, expand or make changes. With one platform, your systems are more flexible. You have more power to support the business.

Get People on the Same Page — When consolidating onto a single platform, you need to build a team. A team of functional subject-matter experts can help guide the consolidation process and address questions or issues involving storage, networking, applications and other key areas. The larger your organization, the more effort you should devote to this. You'll also need to work across agencies, since a single platform will entail many operations crossing organizational boundaries.

Consider Managed Services and Outsourcing — Sometimes you can consolidate quickly and economically by outsourcing or choosing managed services. It all depends on the needs and resources of your organization. For more information, see Managed Services and Outsourcing later in this section.

VIRTUALIZATION

Virtualization technology is a powerful tool with many benefits. It's been very effective in consolidation. Virtualization allows the separation of a device's functions from its physical elements. This can be as basic as the decoupling of hardware and software.

Traditionally each application had to have a dedicated operating system and run on a dedicated physical server. This one-to-one relationship was extremely inefficient, as a server running only one application would often be 85 percent underutilized. Multiply that by hundreds of servers in a large organization, and huge amounts of space, energy and money are being wasted.

Virtualization condenses things considerably. A virtualization layer between hardware and software frees up each element to be re-distributed in any number of ways. A physical server can then have numerous virtual servers within it, running many applications and operating systems. The one-to-one relationship can become 10-to-one or more. Virtualization dramatically reduces the number of physical devices needed for IT. That frees up space, significantly lowers costs for purchasing and powering equipment, and simplifies system management.

Since virtualization divides things up and keeps them independent of each other, there's a lot more flexibility. It allows infrastructure to be set up much more efficiently. It's much easier and faster to make changes in a virtualized environment than it is in a traditional system. Virtual servers can actually be created in minutes, while traditional servers require physical changes that could take many hours or even days.

Virtualization is very scalable. You can virtualize your entire infrastructure, or just selected components. Virtualization has become most popular in four key areas: servers, storage, networks and desktops.

Server Virtualization — This is a big driver for consolidation. Virtualization can help you consolidate from 100 servers down to 10, for example. It's the most common way for organizations to get a big boost in consolidation. Server virtualization saves a lot of space and money. It also gives flexibility that IT just didn't have in the pre-virtualization era.

Storage Virtualization — This is rapidly growing in popularity. It makes several physical storage drives appear to be a single unit. That makes them easier to man-

age from a central console. It provides tremendous flexibility, allowing storage administrators to work more efficiently. This is a huge factor, since storage needs are growing every day.

Network Virtualization — Routers and switches can be made virtual. That way, a single physical router could support many virtual routers. The same can be done with switches. As with any other virtualization, it all streamlines the system and reduces costs. It also creates a more dynamic environment for connectivity. With that kind of flexibility, changes and additions can be done much more quickly than in the past.

Desktop Virtualization — This trend continues to gain momentum. Also known as client virtualization, desktop virtualization lets IT run virtual desktops from a data center. Users get personalized desktops they can run on any device, while IT staff can use the centralized infrastructure to manage desktops more efficiently. Patches, security issues, regulatory compliance and other matters are handled much more quickly with desktop virtualization. Since data is in the center instead of on various devices, there's more flexibility, and security is much stronger.

SERVERS

There are so many benefits to consolidating servers, it's one of the leading activities for organizations wanting to operate more efficiently. With 85 percent of server capacities traditionally not being used, it's a huge opportunity to condense, save money, operate more efficiently and provide a greener environment.

Consolidation drastically lowers the number of servers an organization needs. Virtualization and other technological advances are making servers more productive than ever before. Today's servers provide much more value per dollar spent than they did in the past. Consolidation enables that value to be realized at its highest level.

Most organizations have added numerous servers over the years, as business needs have expanded. Disparate agencies have added servers for their own needs. Many organizations don't even know how many servers they have. This out-of-control growth over the years has led to server sprawl. Server consolidation reverses that costly trend.

Consolidate Physical Servers — No matter how much virtualization you use, you'll still need physical servers. Blade servers require much less space than older servers. That's because blades are actually thin circuit boards. Thus numerous blades can be housed within one server chassis. Blade servers take up much less rack space. Use blade servers whenever you can.

Assess — Before consolidation, determine how many servers you have and what they're doing. What is the workload of each? How are they being utilized? When does usage peak on each server? This kind of data is vital to proper planning. This is a key step; be thorough about this and you'll save much time and money later.

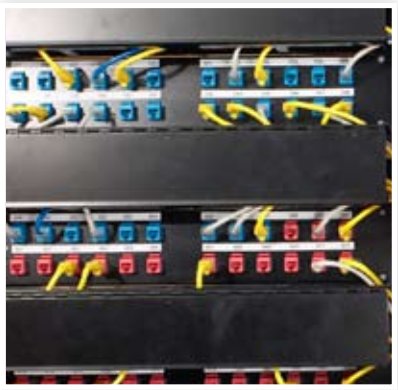
Be Flexible — With virtualization, you can move entire systems in just a few seconds. You can move them from one physical server to another to reach optimum workload as things evolve. Or you can move things around for maintenance without any downtime. Take advantage of virtualization capabilities for maximum efficiency.

Avoid VM Sprawl — Virtual machines (VMs) are virtual servers, several of which reside on one physical server. The danger with VMs is that they're so easy to deploy, an organization could create lots of them — each one for a specific project — and then forget about them once the project is done. A sea of unneeded VMs would be highly inefficient. Have a system for keeping tabs on them and keeping them under control.

Let Virtualization Aid COOP — Any organization's continuity of operations (COOP) efforts can be helped greatly by server virtualization. That's another big driver for organizations moving to server virtualization. Following an IT failure, virtualized servers can restart applications much more rapidly than traditional servers. It can even happen automatically. Look at server virtualization as a key enabler for improving disaster preparedness and recovery.

NETWORKS

Network consolidation is another area in which virtualization excels. It enables optimum sharing of network resources by multiple agencies. It also enables allocation of bandwidth to user groups or applications as they need it. A virtualized, consolidated network using the latest technology can also give the appropriate resources to high-priority traffic, per the organization's policies.



Realize That Voice Is Data — Especially with Internet protocol (IP) being used for voice communications now, voice, video and data are increasingly moving from point to point on the same converged network. As networks are consolidated, this trend will continue. We're moving to a world where it all becomes data, and can all be treated as data.

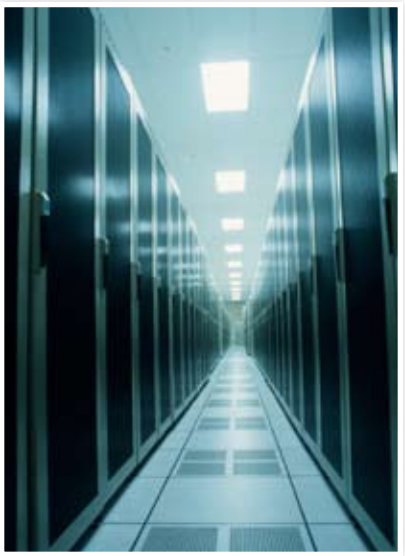
Use MPLS — Multi-Protocol Label Switching (MPLS) provides flexibility and enables consolidation. It's a technology that speeds up network traffic flow. MPLS recognizes what type of data is coming across the network, and gives each data packet the proper emphasis. E-mail goes through more security. Video and audio are in sync. MPLS makes these and other tasks happen faster, with better dependability. Organizations are turning more to MPLS to strengthen and streamline their networks. It's a hot technology that's expected to remain popular.

Partition Bandwidth — Network bandwidth can be partitioned virtually. Thus different user groups or business units can have their own private, secure access to bandwidth according to their specific needs.

DATA CENTERS

Organizations have saved many millions of dollars by consolidating their data centers. Older data centers have run out of floor space, while power and cooling concerns are increasing. Before consolidation, most data centers are mixes of different types of servers, operating systems, applications and data. And they cost a lot of money to operate. A single organization can have numerous data centers spread over several sites. When an organization consolidates into one data center, it can realize huge savings.

Organizations can consolidate data centers by utilizing server virtualization, eliminating unused files and downsizing the application portfolio. Consolidating the data center cuts costs in many ways, but it takes solid planning. Do you need a new space, or can you use an existing one? Can you have a mirrored backup at another site? Do you have room to grow? These are but a few of the questions you'll need to answer.



Prepare to Transition — When transitioning to a consolidated data center, be ready for all needs in the new environment. That includes space requirements for new servers coming in and old servers being phased out. Also prepare for necessary changes in networking and connections. Be sure to train employees properly; they will be a key factor in making a smooth transition.

Test — When moving workloads to the new data center, put them in a test environment before moving to production. That will allow for thorough testing in a safe, offline place. You don't want to move to production servers until you're sure everything is working.

Make the Physical Environment Secure — Don't cut corners on the security. Have policies in place and enforce them. Put the data center in the best possible location within the building. Consider every aspect of security.

Engage Users — Make sure users know how they will be affected by data center consolidation. If they're going to be impacted, let them know. Inform users on how they'll be affected before, during and after the consolidation.

STORAGE

Storage costs are rising. Every day, organizations are generating new information that must be stored. For many organizations, IT departments have tried to keep up, but the myriad systems and devices have become hard to manage. Ad hoc growth for storage solutions is no longer practical.

Storage consolidation and virtualization is the best approach for solving this ongoing problem. These techniques save space while also making the entire storage environment easier to manage.

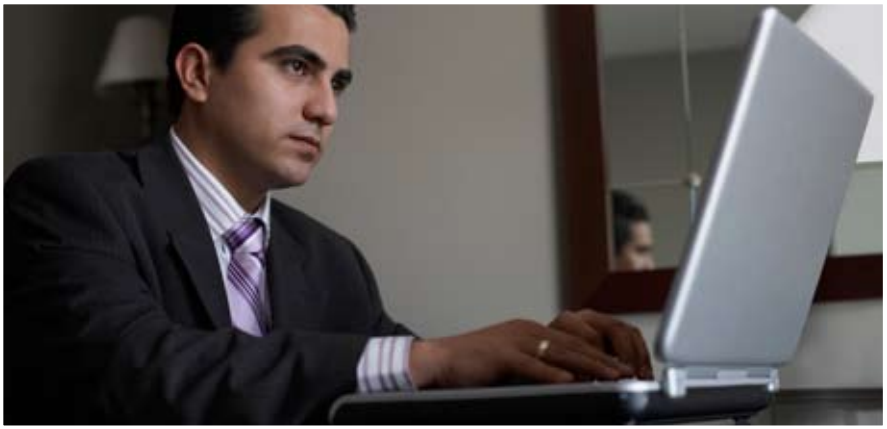
Take a Holistic Approach — Create a comprehensive storage strategy. Avoid the quick fix; focus on long-term solutions that best serve the business and your organization's core mission. Don't focus just on technology. Improving your storage processes and using new management tools can make a big impact also.

Virtualize — A typical storage environment for a large organization has numerous types and models of different devices, supplied by a variety of vendors. Virtualization makes it much easier to manage all that, because several devices can look like one device in a virtualized environment. Virtualization has numerous other benefits as well. It makes it much easier, for example, to make changes or do data migrations without downtime.

Use a Tiered System — Virtualization maximizes tiered storage. In a tiered system, high-priority, current data is kept on a highly accessible storage system, while older or low-priority data can be on older, slower devices. That's more efficient most of the time, but if you need data from those low-level drives, it can be a problem. Virtualization makes it easier by providing greater access to storage drives.

E-MAIL

Too many large organizations have multiple e-mail platforms. By consolidating those down to one or two, an organization can save significant amounts of money and also make the entire organization work more efficiently. E-mail is now a major



part of getting everyday work done. Employees at all levels of the organization, up through senior management, depend on it. It's time for the aging infrastructure to catch up.

Make It a Priority — E-mail is a huge enabler today. It's a high-priority system. Consolidation of e-mail systems should be a priority too.

Improve Efficiency and Security — Consolidating e-mail systems should result in cost savings and better efficiency. It should also make the entire organization more secure and better protected against viruses and other cyber-attacks.

Seize the Opportunity — Because e-mail is so ingrained in daily work now, consolidating it gives you the chance to improve numerous services — better interaction with the public, increased services for mobile workers and better information-sharing between agencies, to name just a few.

COMMUNICATIONS

Many organizations are consolidating communications. Voice, video, data and wireless services can be consolidated for lower costs. Getting these all on one platform enables economies of scale and ease of management. Now that voice, video and data can run together on converged networks, it makes even more sense to consolidate communications.

Consolidated communications can keep workers better connected to their co-workers and workplace — even when traveling or working from home or another location. Consolidated communications enables everything from instant messaging to video conferencing.

Go With IP Telephony — Money can be saved by sending voice communications over the Internet instead of phone lines. Voice over Internet protocol (VoIP) changes voice signals to data, and sends that data over the Web — free of charge.

Develop a Unified Communications Strategy — With unified communications, messages can be sent in one medium and received in another. A voice message can also show up as an e-mail, for example. Seamless integration of phone, e-mail, chat, voicemail and fax can enable more efficient communication, while eliminating the need to use a specific device or medium in order to communicate.

Keep Up With the Times — Communication is changing. Having a consolidated communications system will make it easier for any organization to evolve with the times. New technologies, methods and devices will be easier to integrate into your system if it's consolidated.

SHARED SERVICES

Organizations share services with other organizations to achieve economies of scale. Instead of doing all its own payroll or IT infrastructure, for example, an organization might choose to share these with several other entities, so everyone involved gets a lower cost for the work. It's a business model that also results in

less redundancy and more efficiency. After being widely accepted in the private sector, sharing services has gained popularity in the public sector in recent years. It's definitely worth considering.

Share Instead of Own — Participating in shared services usually means buying a service instead of generating it yourself. It can help with consolidation by freeing up your space and other resources. You can share a data center, for example, cutting your own heating and cooling costs while also creating a greener environment.

Split the Work — You can split the work between shared and nonshared services. For example, an organization might share applications or management of servers with other entities, while providing other IT services itself.

MANAGED SERVICES

A managed services provider can help an organization consolidate in a cost-effective manner by taking over several of the organization's network-based operations. The provider can supply both delivery and management of networks, applications and equipment. By hosting these for you, managed service providers can often provide you with more services than you could yourself. Security, for example, could be tighter and more comprehensive with the managed services provider taking care of it for you.

Managed services can aid consolidation and free up your staff for other duties. And because it reduces your need for equipment on your premises, it helps you with your greening efforts.

Strategize — Think about some strategies that might be incorporated with a managed services provider. Does the provider have strong relationships with key vendors? Are strategic partnerships a possibility? How can we best work together to achieve our goals?

Get Reports — A managed services provider should be able to monitor its systems and report to you regarding overall performance on a regular basis. Reports should also occur for specific events that are pre-defined. Make sure you have visibility of what's happening. A good provider will enable that.

Ask Questions — When choosing a managed services provider, be sure to shop around. Ask questions. Does the provider have a wide range of services or just a few? What are the service-level agreements like? How secure is their environment? How quickly can new technologies be added? Can services be scaled up and down according to demand? Give it a lot of thought. Create a list of questions.

OUTSOURCING

Outsourcing is a viable alternative for many organizations wanting to consolidate. Contracting with a third party for application development or data center operations, for example, can ease the pressure on IT departments that are ex-

pected to provide more services with limited resources. Outsourcing also allows an organization to stay more focused on its most important mission.

Collaborate — Outsource to an entity that listens. Make sure they'll be responsive to your needs and will work with you toward your overall goals.

Be Accountable — Once you've outsourced something, don't forget about it. You still need to be engaged and make sure things are running as they should. Your organization needs to know it's working.

Try for a Good Cultural Fit — When you outsource, you could be working with that entity for a long time. Try to find a group you will like working with.

GETTING IT DONE CHECKLIST

- Prior to consolidation, thoroughly assess what you have, where you are and where you want to be.
- Consolidate servers for a dramatic impact on space and energy costs. Use blade servers where possible.
- Deploy virtualization wherever you can.
- Converge voice, video and data. Incorporate IP-based communications.
- Have MPLS working for you at every opportunity.
- Think green. Keep heating, cooling and power consumption at maximum efficiency.
- Consider shared services, managed services and outsourcing. These can be cost-efficient and provide better services.

DRIVING IT HOME

Once the core consolidation work is done, you're still not finished. You need to take all the new capabilities and tools and make something of them. You must drive this home. That means keeping your eye on the instrument panel as you fine-tune every aspect of your new environment and maximize productivity.

You need to find and maintain peak performance of the new system as you move forward in support of the organization's mission. It's an ongoing process. In many ways, there's no defined endpoint. You should constantly be improving operations in the new, consolidated environment.

You need to measure performance against your goals, review dashboards regularly and check your progress often. Then you should make adjustments and repeat the cycle. Then adjust some more. Finally, you should publicize your success because it will help you get more projects funded in the future.

The following pages show how to keep your eye on the gauges and get optimum performance out of your newly consolidated systems.

MEASURE AGAINST GOALS

Key performance indicators (KPI) vary by organization, but they always exist to help gauge success against an organization's core mission. They indicate when things are working well and when changes are needed to improve performance.

If you're measuring productivity in a call center, you'll be looking at average call time, abandon rate, cost and other metrics specific to call centers. If you're in a consolidated data center, you'll be examining metrics on CPU utilization, memory utilization, length of process queues and other such items. The important thing is to know which metrics you need to use to be successful.

Compare to Pre-consolidation Numbers — Prior to consolidation, you should give yourself a base line to start from. Acquire numbers on all the things you'll be measuring after consolidation, such as staff time spent on maintenance or cost per unit. Look at your post-consolidation numbers against the base line figures.

Create New Metrics — With a newly consolidated environment, you'll likely be measuring some new things. Planning for new metrics can occur throughout the consolidation process. You may even find it useful to measure parameters you hadn't planned on, once the consolidated systems are running and you see how things are working.

Apply Business Metrics — Identify metrics that can show how closely aligned IT is with business. Whatever kind of consolidation you've undertaken, that's a key area in which to measure.

Give It Some Time — Because many things have changed, you need to give the numbers some time before they are ready for assessment. People will be using new processes and will have new tasks — and the people themselves might be new. Thus things are likely to improve naturally after a few months of operation. The metrics you're using will be more meaningful once things have settled a bit.

Know What You're Looking At — Whatever the new metrics are, you must understand what they mean. Be certain you're reading things accurately. Be sure the new data is accurate. You need to have confidence in the metrics so you can effectively communicate them to executives and other stakeholders.

Look Back to ROI Estimates — Too often, organizations forget about the ROI estimates once the project is under way. While the ROI goal is an important part of planning in the early stages, it should be kept in mind throughout the life of the project. And it's important to look at it once the consolidations are in place and you've had a chance to measure things. Also be sure you're measuring the items the ROI said you would measure.

Be Free of "Analysis Paralysis" — It's possible to be so consumed with looking at what's happened in the past that you forget to keep an eye on the future. While measuring the organization against its goals is a valuable thing to do, don't get too bogged down with it. Give the process the time it deserves, but keep moving forward.

MAXIMIZE DASHBOARDS

After consolidation, you'll still want to make more improvements to your processes. You'll be working toward even more standardization, while also seeking additional improvements in efficiency and economies of scale. You'll want to bring costs down further. Dashboards can help tremendously with all of these.

Dashboards are graphic representations — often Web-based — that show how numerous functions are working. A dashboard can help IT staff monitor service-level agreements, network availability, server capacity and numerous other key areas.

A good dashboard gives you a real-time look at performance and availability of IT systems. It also allows you to drill down into any area for a more granular view. You can easily take a closer look at server performance, application defects or infrastructure capacity, for example. Dashboards often allow you to compare current performance with historical data.

They also help IT staff notice problems early, get to their root causes and take action quickly to resolve them. They help keep IT systems healthy in a proactive manner.

Dashboards take a mix of disparate information and summarize it in an organized way so managers can always see what's happening in the consolidated environment. When it comes to making quick, informed decisions, there's no substitute for instant access to in-depth data. Dashboards are a key tool in support of constant improvement. They can also help show others the value of IT.

Customize Dashboards — Design dashboards to tell you what you need to know. Make sure they're intuitive for the user. Consider the various configurations and choose the setup that will help you the most. Take the time to optimize dashboards, so you get maximum value from them. For example, if you can sort information by status, you can instantly see problem areas. If you can sort by owner, you have a clear picture on accountability. Ensure that your dashboards can capture data from the wide variety of hardware and software sources in your system.

Use Dashboards to Stay Aligned with Business — In the newly consolidated environment, you'll need to check often to make sure IT is still aligned with business goals. The dashboard is an effective way to keep that on track. Be sure to include features in your dashboards that call this out. Then you can also use the dashboards to report to the business.

Report to Management — High-level dashboard views can help report on the value of consolidation to senior management. They can show management how consolidation is providing the desired services to end-users. Be sure to show the data that managers need to see, with the ability to go deeper if they so choose. Make sure the information isn't too technical for the intended audience.

Share Dashboards — You can use dashboards to share with other agencies how well the consolidation is working. Your dashboards can help educate clients, partners, executives and others regarding the new technologies you're using and what they're doing for you.

REVIEW PROGRESS

While you're always moving forward following consolidation, you still need to stop and evaluate your progress thus far. There's always more work to do. What to work on next can be determined in part by how things have gone previously.

Slow Down — The speed of work today is so much faster than it's been before. It takes a conscious effort to slow down and evaluate how things have been going and how they can go better. Sometimes it's hard to take the time to do that, but it's helpful in the long run. Things are changing quickly. You can implement something new and by the time it's all in, something better has come along. Slowing down to evaluate can keep those occasions to a minimum.

Go Back to Your Customers — How has the consolidation gone for your customers, clients or users? Ask them many questions. Get a sense of what their experience has been. You can get valuable input from this group. Use the information to make things

work better in the future. If you're rolling out consolidation in a phased approach, this input can help tremendously when implementing subsequent phases.

Help Your Finance Team — By reviewing progress and considering the metrics, you can help your financial team determine where to spend money next year. Then the things that are working will get the attention they deserve to keep them on track. You'll also know which areas need to be shored up with more spending.

REPEAT THE CYCLE

As consolidation moves you toward an optimized environment, a key part of the process is repetition. By repeatedly testing, evaluating and otherwise prodding the new system, you can fine-tune it for maximum efficiency and productivity. Of course, it takes time to do this. By repeating tests, reporting and evaluation, you work out the kinks and push the system and processes to higher productivity.

Find the Gaps — By repeatedly testing and evaluating the system, IT managers can find productivity gaps that need to be bridged, and can then fix the problems.

Document Your Changes — Through the entire consolidation process, documentation is critical. Your procedures have been changing and will continue to change. Ensure your documentation is up to date. It will save time for many people in the long run. It's all part of operating more efficiently at all times.

PUBLICIZE YOUR SUCCESS

Publicizing your success with consolidation can lead to more funding for future projects. Don't be shy. Let people know what you've accomplished and how you did it. Develop an organized plan that integrates all your publicity efforts. Focus on key themes.

Consider Several Methods — There are many different ways to communicate your success story. Consider them all, and use more than one. Issue a press release, make a video, create a Web site or publish an e-newsletter. These are just some of the ways you can get the word out.

Also Market Internally — You want people outside your organization to know about successes, but it's also wise to share the good news internally. This raises the profile

of consolidation within the organization and helps create opportunities for more. Don't assume everyone internally knows what you've accomplished. Be proactive and push the word out. Sharing dashboards or e-mail updates can be a good way to keep people within your organization informed. Voicemail blasts are another option.

Join Online Forums — Use social networking Web sites to spread the word about your success. Numerous online forums and groups let IT people and other interested parties discuss things like consolidation. Find out which ones can best help you get the word out about what you've been doing. While promoting your organization's projects, you can also learn about what other organizations are doing. And you can connect with people who can help answer the occasional question you may have about best practices. There are many benefits to having a social network of peers.

DRIVING IT HOME CHECKLIST

- Strive for continuous improvement of the new systems and processes. Work on all parts so you can truly maximize efficiency.
- Create new metrics for the consolidated environment.
- Use metrics and dashboards to keep IT aligned with the business.
- Ask your customers to help you gauge your progress.
- Be aggressive in marketing your success story, both internally and externally.

For additional copies or to download this Guidebook, please visit:
www.govtech.com/consolidation