

Compaq AlphaServers Step Up to IT Center Consolidation

An IDC White Paper

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There is great support in the vendor and user communities for consolidating the IT environment, and common acceptance of the benefits to be achieved. Every large systems vendor has a consolidation effort, and IDC research has shown consistently that organizations large and small are streamlining their IT operations. IT managers give many different reasons for consolidating their IT environments, including reduced cost, ease of management, and greater flexibility. The results and benefits that these IT managers can achieve from consolidation depends on the environment and the extent of the changes.

What is the driving force behind consolidation? Traditional mainframe installations were, after all, consolidated environments, offering computing power, centralized management, and security. The proliferation of distributed systems came about to take advantage of faster, cheaper processors, and a user-driven style of computing that put the applications close to the business they supported. Two shifts have occurred, however, — one technological and one strategic — that are fundamental to the consolidation movement. The technological shift deals with the dramatic improvements in efficiency and reductions in cost of communications technology. Communications used to be expensive, slow, and often unreliable, leading to the decentralization of computing in the 1980s and 1990s. However, communication technologies have undergone a radical transformation over the past 20 years. Bandwidth and reliability have increased, while cost has dropped considerably. There has also been a fundamental shift in the strategic value of the IT center. IT organizations used to be process-oriented, but they are now becoming an essential part of the business fabric of the company. With business models relying more on electronic commerce, it is imperative that IT now support a wide range of mission-critical applications. As a result, all of a company's data is now vital to its strategic business objectives.

IT managers often find themselves serving two masters. How can they provide the level of services needed to support the company's strategic business objectives while improving the efficiency of the IT operation? The IT organization is increasingly being asked to implement new strategic applications while demonstrating a viable, and often quicker,

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return on investment. These demands have led many companies to consider consolidation.

IDC believes that most IT organizations could benefit from a consolidation effort and should, at least, assess their environments to determine the potential. Users who pursue a consolidation strategy should choose vendors that currently offer a good foundation of products and services, and present a consistent roadmap for the future. After all, part of the motivation for consolidating is to allow enough flexibility in the IT environment to accommodate changing business requirements. Users need some assurance their chosen vendor solutions will be appropriate down the road.


IDC also encourages users to seek a vendor with a multiplatform solution that can handle existing applications and support new ones. With the introduction of Tru64 UNIX Version 5.0 and TruCluster Server Version 5.0, Compaq Computer Corporation significantly boosts the enterprise capabilities of its Unix AlphaServer platforms by offering the kinds of services that are essential to helping IT departments achieve the benefits of a consolidated environment. In addition, OpenVMS already offers many of these same features, giving Compaq a powerful multiplatform strategy. Compaq also offers a solid NT story, in terms of integration with both the Tru64 UNIX and OpenVMS environments, an important consideration for the future. New enterprise-class servers round out this robust platform offering and, combined with the Enterprise Network Storage Architecture (ENSA), make Compaq AlphaServer systems a very strong contender for consolidation business.

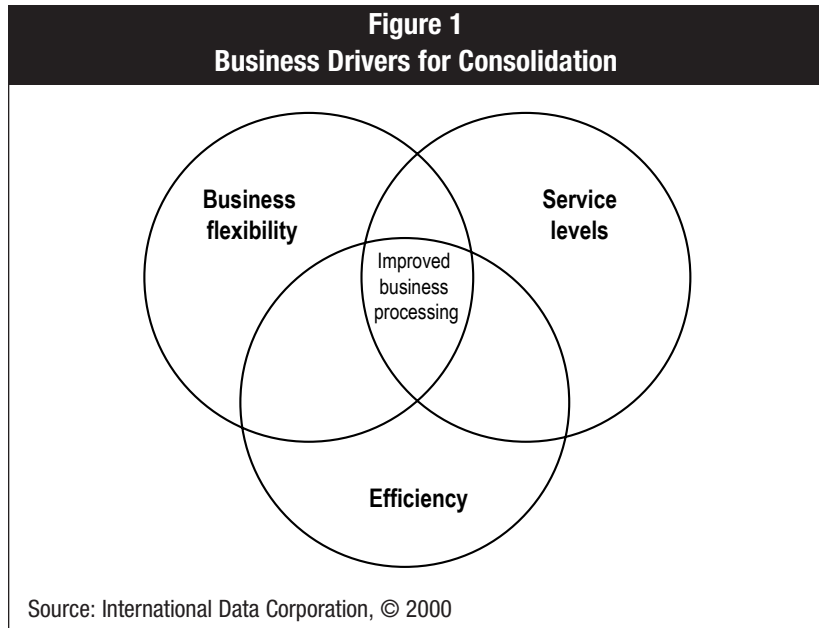
Business Drivers for Consolidation

While nearly every manager points to reduced costs as the reason for pursuing consolidation, the business drivers often go deeper. In reviewing their IT operations to achieve these goals, managers are increasingly turning to consolidation as a way to not only lower costs, but also improve productivity. However, companies view the role of IT in different ways. For companies that compete in mature industries, achieving competitive advantage through the use of IT resources is often not a top priority. In fact, these companies tend to view IT as a cost. On the other hand, growth companies see IT as a central part of their business, supporting the applications that make the company work. IDC has identified three fundamental value propositions for consolidation (see Figure 1):

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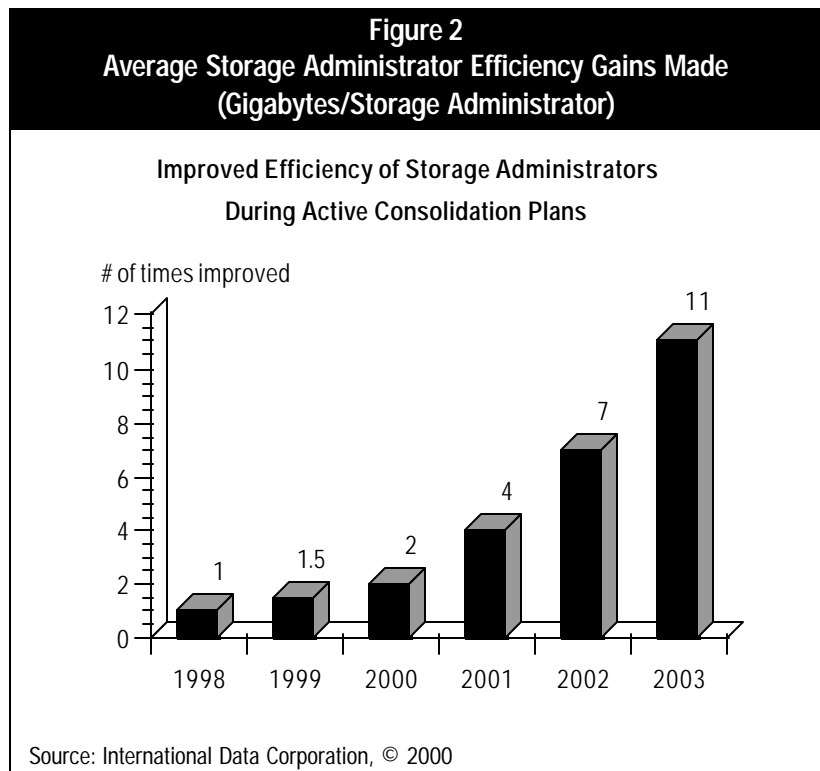


1. **Maximizing efficiency.** Many organizations are striving simply for the lowest possible cost in providing IT services. These organizations view IT less as a strategic investment and more as an overhead cost.
2. **Providing the best possible service levels.** If line-of-business organizations are to trust IT to support their business objectives, they need to know that metrics for performance, availability, and cost will be met. Service-level agreements, which spell out the level of service, have long been common in mainframe establishments, and they are becoming more common in Unix and other environments.
3. **Maximizing business flexibility.** This value proposition offers the highest potential return on investment, but is most complex to implement and measure. It is of most interest to organizations that seek maximum strategic value from their IT investments. Consolidation creates an interdependent network of applications that provides more direct access to data.

The value proposition for consolidation differs according to the organization. For example, IT managers may be driving for lowest cost through better use of IT resources, highest level of service through improved availability, or an increase in business flexibility.

- *Better use of IT resources.* Consolidating people, processes, and equipment leads to a lower overall cost of management. High-cost people resources are often poorly utilized in IT environments because their skills are stretched over multiple technologies and locations. Consolidation allows organizations to establish consistent processes and procedures and reduce the number of technologies present across

the environment. IDC studies have shown a 7:1 cost savings in people management resources when processes and resources are consolidated. Research has shown that traditional server and storage deployments use 20%-40% of available resources. Consolidating hardware resources, employing any-to-any connectivity paradigm, and using advanced load-balancing system and storage management infrastructures can dramatically improve utilization of these resources. For example, implementing storage-area networks (SANs) and their any-to-any paradigm can improve resource utilization even further. Then, storage administrator efficiencies can be fully exploited. In addition, storage management middleware can be exploited to continually raise the ratio of total gigabytes managed per storage administrator. See Figure 2 for an illustration of the benefits of consolidating storage.



- Improved system and application availability.* Today's IT centers must do more for users than simply guarantee that the system is up and running. They must ensure that applications are available whenever users need them, and have appropriate capacity on hand to meet spiked or peak demands. IT managers must be able to manage availability in order to maintain the service-level agreements they establish with their customers. Consolidation enables built-in redundancy. Hardware and process consolidation make it much easier to have spare hardware and people resources available. Simplified and consistent procedures can reduce the chance of sys-

tem failure and improve recovery time. Typically, high availability has come at a very high price, estimated at three to five times the cost of a traditional environment. Consolidation, together with storage-area networks, can eliminate single points of failure, allow fault isolation, and, when combined with a switched fabric implementation, provide automated path selection. This approach dramatically lowers the cost of hardware availability by making it part of the mainstream IT center implementation.

- *Greater business flexibility.* The IT center sees not only a growing number of applications, but also increasing interdependence among them. Managers want to use data from various distributed applications across the organization. The problem is further complicated by the growing number of applications that must share data. Data may be shared synchronously (through an RPC call, for example,) or asynchronously (batch updates from various applications). IT centers are constrained by their ability to make and extend these relationships and do so within the elapsed time of the business cycle. Many of these data movements are serial in nature, and fitting in all of the required steps within a specified time can be difficult, particularly as the number of relationships grows. Batch window overruns (the largest cause of unplanned downtime in the modern IT center) are one of the first symptoms of this kind of problem. Once the IT center reaches its limit, business flexibility becomes increasingly difficult and expensive to achieve. The any-to-any paradigm provides different approaches to solving this problem. Less time spent moving data and transforming it into a usable form means IT centers can respond more quickly to business demands for data availability. Once the IT center has completed the consolidation process and achieved the desired environment, users can expect more rapid deployment of new applications and features, leading to greater flexibility to respond to changing business demands. A large construction company with locations across the United States, for example, chose to consolidate to two Compaq AlphaServers in order to develop a consistent distributed database. **The company names the ability to grow, however, as the primary business driver.** One of the goals of the project was to ensure the IT infrastructure could handle the company doubling in size, if need be. This is a company looking to grow through acquisitions, and it needs to be able to respond quickly to business opportunities.

Industry Trends Drive Consolidation

Many of the benefits of consolidation seem obvious. In fact, many organizations are so convinced of its potential that they have made it a major priority. IDC research has shown consolidation as a trend for some time, initially among larger organizations, but now across a range

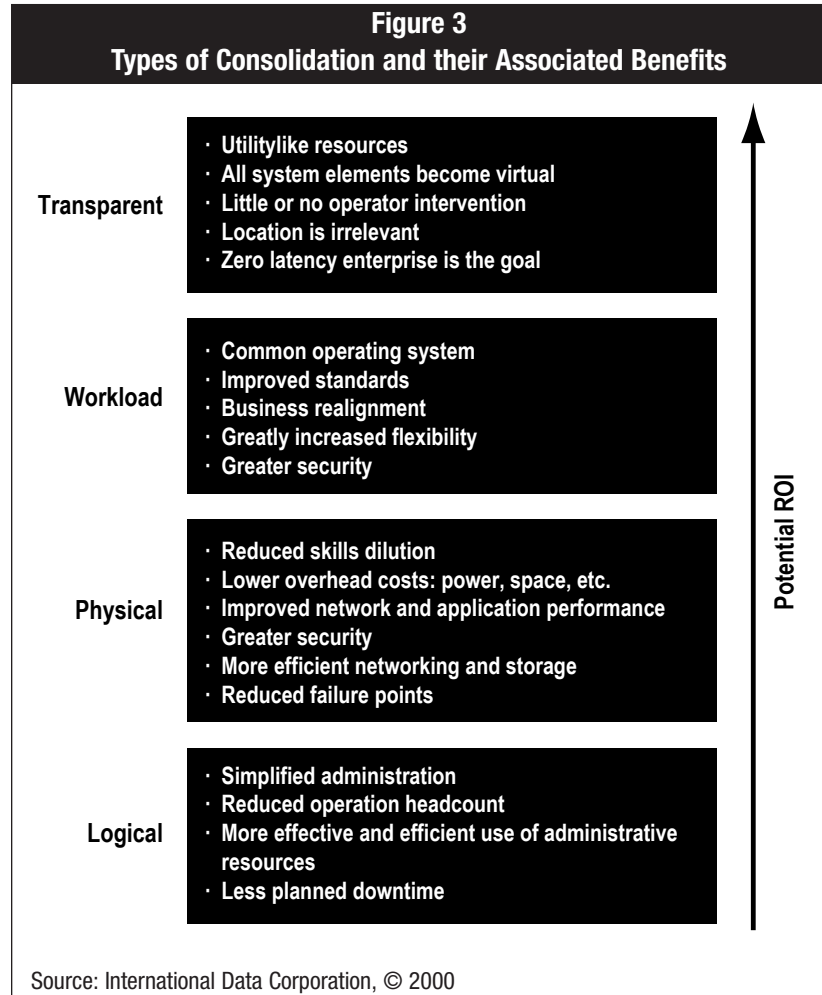
of organizations. The following trends are also helping to accelerate the pace of consolidation at many companies:

- With the growing importance of the Internet, many companies are implementing new electronic commerce applications and assessing their IT environments as part of the project. Internet-based applications have led users to expect a certain level of data and application availability. In addition, Internet applications often require greater security and more sophisticated management. A consolidated environment is a way of achieving these goals.
- Organizations are starting to require a more professional style of IT management than a distributed environment can provide.
- Major IT projects dealing with Y2K and the Euro have influenced consolidation efforts. Many organizations, faced with retooling their systems as part of these projects, have chosen to rebuild their infrastructures. Companies have conducted major reviews of IT environments as part of their Y2K and Euro projects, and they have discovered many opportunities for greater efficiency through consolidation. For example, Y2K has presented a natural opportunity for consolidation, with companies retiring many of their applications. Some organizations have delayed consolidation to deal with Y2K and the Euro, and IDC believes there will be even more opportunities for consolidation as these projects wind down.
- Many IT organizations have shifted their focus from processes and technologies to providing information access. Through the growing use of applications such as enterprise resource planning and business intelligence, which increase the amount and sophistication of business data available to users, and technologies like the Internet, which make data more accessible, users have come to expect information on demand.
- People costs continue to lead IT expenditures, and organizations have seen their people resources increasingly diluted as the technologies in the enterprise proliferate.
- As companies downsize their workforces and physical plants, consolidation is often a result. It may also occur when companies merge or as an organization outsources IT functions.
- Improved performance and scalability in both systems and networks have allowed users to lower cost of ownership by consolidating workloads. Many organizations reduce not only the number of servers involved, but streamline the software, network, storage, and data infrastructures as well.

Types of Consolidation

Just as companies are consolidating for many different reasons, they are also consolidating in different ways. The various types of consoli-

ation should be viewed as steps along a continuum (see Figure 3). At each level, the complexity and risk increase, as does the potential return on investment. While every instance is unique, the degrees of consolidation can be described in four general categories:



1. **Logical consolidation** reduces the number of points of control in the environment to a single administrative stream. The result is higher availability of systems and applications, fewer errors in the system, and a need for fewer administrative resources. With logical consolidation, while the servers remain dispersed, local operations are reduced or eliminated, and management functions such as backup, restore, recovery, maintenance, and user support are performed remotely. A major benefit of logical consolidation is a reduction in operational headcount, or more efficient use of the skills already on hand. CIOs and IT managers face a chronic shortage of skills needed to handle the disparate requirements of their environments. Using fewer people and a consistent set of products and processes can help reduce both the dilution of skills across the

organization and the opportunity for errors. This approach leads to reduced cost and better service to users. Logical consolidation may or may not involve varying degrees of automation, but it is definitely a requirement on the path to automating the management environment.

2. **Physical consolidation** involves uniting components of the IT environment in one place. It leads to greater consolidation of skills by eliminating the need to replicate skill sets across different locations. When systems are in a central location, networking becomes much easier and more efficient, power costs are reduced, backup can be performed more efficiently, and security can be increased. Employing a combination of logical and physical consolidation can reduce costs even further.
3. **Workload consolidation** occurs when the IT organization reduces the number and variety of components in the environment. It involves reducing not only the number of servers, but elements such as tapes, disks, network devices and connections, software, operating systems, peripherals, as well as the number of processes and procedures. Planning the consolidation efforts under these terms and conditions, allows companies to take a rational approach to its implementation. With fewer hardware and software standards to manage, IT departments can more easily move systems, applications, and peripherals. Network performance is enhanced even further, as are security and availability. Common operating system environments allow more applications to share the same server, taking advantage of faster processors. Workload consolidation can be organized by application type, by operating system type, or by line of business.
4. **Transparent consolidation** involves pulling together a number of IT centers across a campus or network, and implementing storage-area networks to create a single set of resources. In the future, IT organizations will move toward this type of consolidation. These environments will be highly automated, and their growth will be driven by the availability of high-speed, low-cost data networks. The customer will not know or care where the resources are being housed or delivered — all that matters is that they arrive at the customer's demand. The benefits of transparent consolidation will be reaped by those companies who value IT as a strategic partner. Modern business models need technology to be flexible to meet their constantly changing demands, and transparent consolidation allows companies to run their business to always meet their customers' needs. Such companies can be considered zero latency enterprises in that they execute business and data processes in near real time.

Companies can organize their consolidation efforts according to line of business, workload, application type, and location. They should choose an approach that reflects their overall corporate business goals.

Considering Consolidation

Any organization considering consolidation should have a plan for managing the process, from feasibility through support of the eventual solution. IDC recommends companies begin by reviewing their current IT environments, which may not be as easy as it sounds. However, many companies have already incorporated their consolidation reviews with their Y2K efforts. Careful consideration must be given to the organizational and political fallout that may occur as part of any streamlining effort. The process should begin with negotiating service levels, charge-backs, and control of resources with the business units. Review should consider all parts of the infrastructure. In determining the feasibility of a consolidation effort, organizations need to look at their objectives, measurement criteria, tradeoffs and risks, and resources, and develop a general consolidation plan. Any decision should be based on sound ROI analysis. The design of the new environment should include a system, storage, and network design; specification of new processes; a schedule; and a plan that addresses how the new implementation will be rolled out and specifics of a contingency scenario. The design must also address how administrative resources will be redeployed and deal with any pertinent personnel issues. Organizations should also strongly consider a pilot project, especially for business-critical processes. The implementation plan should cover physical deployment, training and organizational issues, programming work, and data conversion, as well as a support plan for the new environment.

Elements of Consolidation

Although consolidation is often discussed in terms of servers and storage, all elements of the IT environment are candidates for consolidation. A well-designed plan must consider each area in terms of the desired benefit, the state of the current environment, and the applicability of available solutions. In addition to servers and storage, companies must also consider software and service.

Servers

Consolidating at the most basic level involves taking a different view of the IT environment. Individual systems or locations are no longer isolated entities dedicated to a particular function, but elements in a network-based infrastructure that, potentially, serves the entire organization. The systems exist, not for technology's own sake, but to support the applications that drive the organization's business. Server characteristics, then, must be considered with this function in mind. Consolidating at the server level is a matter of degree. It can involve simply colocating servers, replacing multiple servers with a smaller number of large machines, or even consolidating multiple applications

on the same server. The benefits of reducing the number of servers can be mundane, but very real. An agency of the Canadian government, for example, reduced its floor space costs by 80% by replacing five servers with one Compaq AlphaServer system. It also saved considerably on electrical and cooling costs.

Scalability is another important consideration in choosing a server platform. IDC advises users to be generous in estimating the capacity required for the new environment, since so many variables are difficult to predict. In addition, the chosen platform must support future requirements, which are even harder to predict. Systems that offer a good scalability story via SMP and clusters are well-suited to the consolidated environment.

IT managers must ensure that the streamlined hardware environment can support their users' application demands in terms of performance, availability, and headroom for new and existing applications. As a result, performance and scalability are important considerations in choosing the consolidation platform. IT managers must be able to provide — and, in some cases, guarantee — a specified level of service. These availability demands encompass both hardware and applications. Users expect their applications to be available during the required service hours, which may be from 9:00 to 5:00, or on a 24 x 7 basis, depending on their line of business. In addition, the application must perform as expected, with a specified response time. Achieving optimum performance levels becomes even more complicated in an Internet world, where the user base and workload are often difficult to define and predict. The basic reliability of the system is certainly a consideration. Failures in disk, CPU, and memory, must be minimized to achieve high levels of availability. IT managers must also be able to allocate system resources to handle changing business conditions and shifting workload requirements, without rendering the system unavailable.

As part of consolidating, IDC recommends that users move toward deploying clusters of servers to boost availability, performance, and scalability, and simplify systems management. IDC has defined four different types of clusters:

1. **High-availability clustering** allows the workload of a failed system to transfer to another node within the cluster (fail-over).
2. **Administrative clustering** involves clustering systems to simplify administration. Resources are allocated and managed across the cluster, but each application still runs on one node. Administrative clustering includes redundant resources for restarting applications.
3. **Application clustering** provides for management of a specific application across a cluster through tight integration with its own API — for example, SAP/R3.

4. *Scalability clustering* is designed to increase the capacity and growth potential of a system. A specific workload is spread across multiple nodes with the use of system functions, usually using a parallel database. The clustering categories are not mutually exclusive. For example, nodes in a cluster can be used for high availability and for administrative convenience.

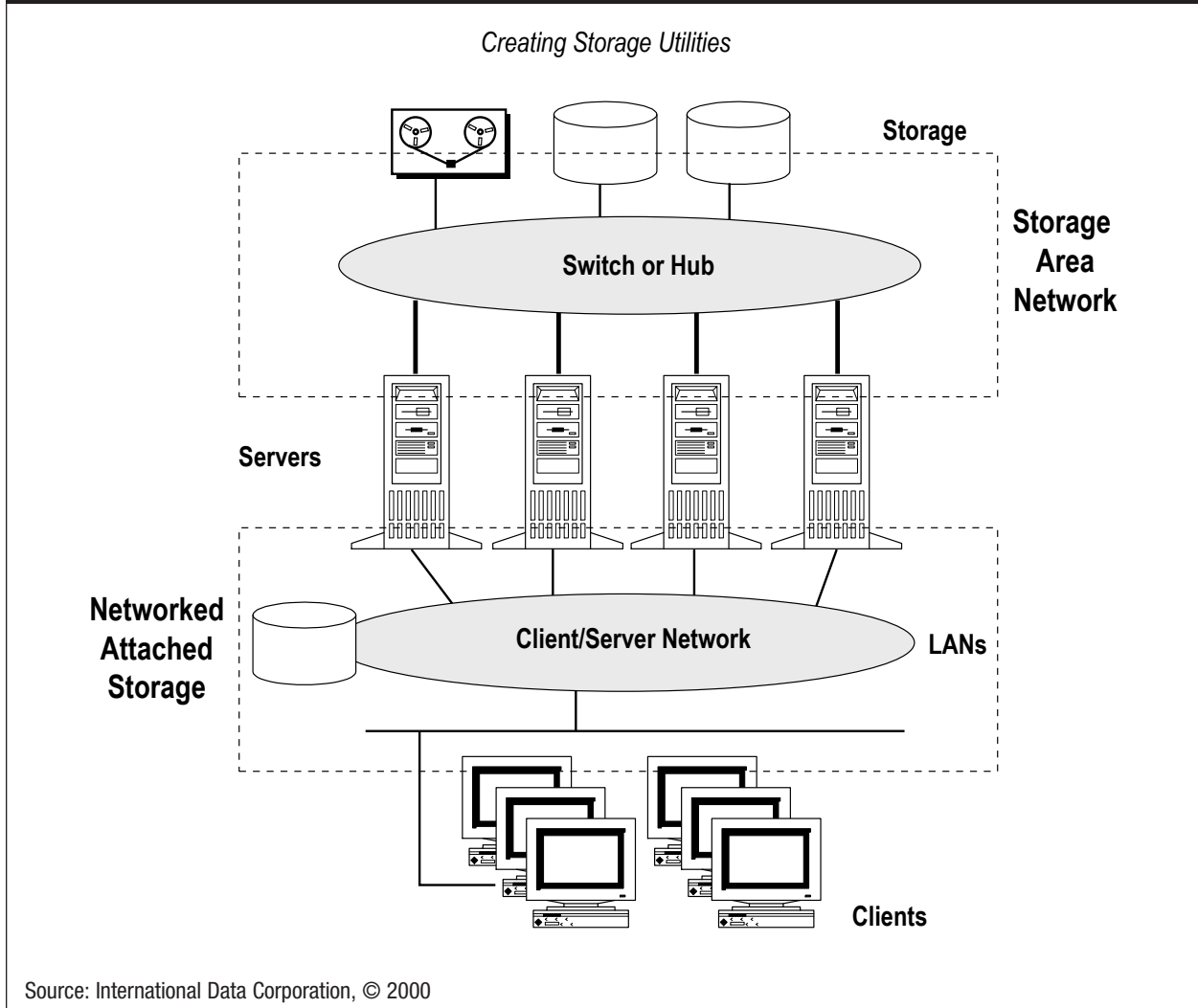
To help applications spread or run across servers, a hardware feature called partitioning is gaining acceptance within all ranks of the server industry. Hardware partitioning is a feature common to mainframes that has made its way down to smaller systems. It is attractive in a consolidated environment for a number of reasons. It allows administrators to partition one large multiprocessor system to act like several smaller systems, supporting different workloads, applications, or operating system versions. Failures in one partition are isolated from the others, increasing reliability. Administrators have greater flexibility to configure the system to support changing workload demands, or to support service-level agreements with different customers. Static partitioning requires a partition reboot to reconfigure the partitions, while dynamic partitioning allows readjustment of the partitions while they are running.

Storage

As servers have proliferated, so has server-dependent storage, where each storage system serves only the single server to which it is attached. Many organizations are now looking to consolidate their islands of data storage for improved management and capacity utilization. Like servers, storage can be consolidated in different ways (see Figure 4). Organizations can, for example, manage their distributed storage with common sets of practices and automated tools, or colocate their storage in the IT center, while keeping it server-dependent. In addition, they can move toward consolidated enterprise storage, an environment where a single storage system can serve multiple types of platforms and operating systems.

For many organizations, the ROI from storage consolidation is tremendous. By centrally managing distributed storage, companies can have low-cost storage and highly efficient use of their administrative resources. While enterprise storage can cost twice as much as server-dependent storage to deploy, IDC believes the total cost of storage is lower with enterprise storage, due to improved management efficiency. In both cases, management becomes much more efficient, and the labor costs associated with storage management can be reduced significantly. Organizations see improvements in asset tracking, capacity planning, and performance monitoring and tuning when they manage storage centrally. Consolidated management of storage can significantly improve the backup and recovery process, reducing the time needed to complete backups and, thus, improving the availability of the system. Managing

Figure 4
Emerging Storage Architectures



storage centrally also increases the reliability and completeness of the backup procedure.

Software

Although server and storage requirements often drive an organization's overall consolidation plans, streamlining the software environment is a natural result. Consolidation can be as simple as adopting a consistent software environment across the enterprise, whether distributed or local. Greater efficiency, however, can be gained from examining the products installed and looking for ways to eliminate redundancy and reduce the overall number of products in use. The savings in license fees, asset management, maintenance and upgrades, and administration costs can be quite significant.

System management is another area that deserves attention. Reducing the number of hardware platforms can lead to the use of fewer operating systems and software products. Over the years, point products have proliferated in the IT environment. IT managers should look not only for ways to reduce the total number of products, but also for the opportunity to create a single administrative stream to improve the effectiveness of administration.

Networks have also grown in complexity for many of the same reasons. Consolidation should involve reducing the complexity of networks, by involving fewer elements. A smaller number of devices, protocols, and network technologies may translate into lower maintenance and administration costs, as well as improved performance and reliability.

Service

A successful consolidation strategy will depend on effective services as much as on the products involved. Companies looking to consolidate should seek a vendor that can provide a comprehensive set of services and products; a vendor that will be a partner through project completion and beyond.

While some companies say they “wing it” when dealing with consolidation, IDC recommends a more thoughtful approach that is founded on business drivers and desired outcomes. Companies should begin by carefully assessing their current environments, identifying opportunities for eliminating redundancy and improving efficiency. This approach includes considering all elements of the infrastructure: systems, storage, networks, system software, databases, and applications. They must identify their business objectives, separate from their technology assessment, and outline clear goals for the consolidation effort. Goals must also be specified for availability, capacity, performance, security, and growth. In the design and implementation phases, each project will require different services, whether they be custom solutions, packaged services, systems integration services, or management and outsourcing of services. Companies should continually assess progress against specified objectives throughout the project and post-implementation.

The Compaq AlphaServer Approach to Consolidation

While Compaq’s AlphaServer systems support all consolidation types defined by IDC, they offer particular value for workload and transparent consolidation. Compaq’s strategy is to provide a broad range of AlphaServer systems that can support compute-intensive commercial and technical applications; enterprise storage products that maximize customers’ storage ROI; high value, complementary partners; and services that address customer consolidation needs, wherever they are in the process. In adopting the Compaq AlphaServer approach, a customer has the ability to achieve a “non-stop” business model.

AlphaServer systems and clusters are designed to provide the highest levels of performance, reliability, scalability, and availability on both Tru64 UNIX and OpenVMS. Compaq also offers StorageWorks storage products, designed to address the requirements of enterprise storage. In addition, Compaq provides a set of services, from needs assessment to management and outsourcing.

AlphaServers As the Platform for Consolidation

Based on powerful 64-bit Alpha processors, AlphaServer systems offer a level of application performance that supports a consolidation strategy. Since applications tend to run better on faster processors (rather than across several smaller ones), a powerful base platform is the best foundation for consolidating. The construction company mentioned earlier, for example, is in the process of replacing 18 systems from another vendor with two AlphaServer GS140 systems running Tru64 UNIX. Midway through the project, the company reports improved workload throughput and better resource utilization.

Building on the performance and scalability attributes of AlphaServers, both the Tru64 UNIX and OpenVMS environments support IT managers' needs for systems that combine a high degree of capacity and performance with flexibility and ease of management. Looking forward, Compaq will expand its capabilities in system performance, capacity and workload management. The latest generation of high-end AlphaServers will scale to 32 processors and, ultimately, beyond. In addition, Compaq offers NUMA-based access (Non Uniform Memory Access) with advanced technology to ensure SMP scalability. Partitioning capabilities will become heterogeneous with support for multiple instances of different operating systems. These types of capabilities are important considerations in consolidation efforts. To support business flexibility, IT managers must choose platforms that can manage not only today's workloads, but also unknown and unpredictable future workloads. Growth potential and flexibility become important elements of the server platform.

Tru64 UNIX 5.0 brings major changes to the operating system in a number of areas that are important for consolidation: system management, clustering, and reliability, availability and serviceability (RAS). Of note are the improvements to the TruCluster Server software, which give Compaq a very sophisticated offering, along with system partitioning and alternate pathing capabilities.

With its enhanced management capabilities, TruCluster Server 5.0 now features the cluster capability that OpenVMS has provided for years, and supports the cluster types defined by IDC. Version 5.0 features a cluster file system and single system image, and is more tightly integrated with the base operating system. As a result, clusters are managed as a single system, greatly simplifying system administration and lowering management costs, while providing high availability. In

addition, storage is managed clusterwide, resulting in improved data management and availability, as well as reduced costs. Compaq has also greatly improved the failover time.

In addition, TruCluster Server provides automated load balancing for applications running on these systems via the cluster alias. As clients connect to the cluster, they are assigned to the least loaded node, and this rebalancing on client connections ensures optimal performance and utilization of resources. As the workload demand grows, systems can be added easily and remain transparent to users. Compaq also offers NT integration capability that works in the cluster to provide strong Unix and NT management integration and availability.

Compaq has beefed up system management capabilities on the Tru64 UNIX AlphaServer platform for both single systems and clusters. The company has made great strides in improving capabilities that promote flexibility and improved availability such as event management, which is very important in reducing unplanned downtime. Compaq has added event management capability that works on a single system or cluster, allowing users to track events such as system panics, disk and CPU failures, full disks, and application errors. Improvements in dynamic system tuning and diagnostic tools support higher availability by reducing planned downtime. In addition, these systems can be managed from any location via Web-based remote management with a Java interface.

With Tru64 UNIX, Compaq offers static partitioning for increased reliability and configuration flexibility on its GS Series models. In a consolidated environment, this capability allows the running of multiple instances of the operating system on a single server. For example, a production application could run on one partition while development, testing, or quality assurance executes on others. Going forward, dynamic partitioning will be available, allowing users to change the resources within a partition at runtime for increased efficiency.

Tru64 UNIX also offers single system availability features such as alternate I/O pathing for storage and network devices. This capability is attractive in a consolidated environment because it allows I/O to be redirected from failed components, eliminating a single point of failure.

The OpenVMS operating system has offered outstanding clustering and availability capabilities for many years. Last year, Compaq rolled out the first phase of its Galaxy software for OpenVMS, which also supports partitioning and dynamic resource allocation. One Compaq customer chose AlphaServers as the platform for consolidation because of the increased application availability offered by clustered systems. This agency of the Canadian government replaced 40 servers with five OpenVMS servers, supporting over 7,000 users. Its application is mission-critical, so having it accessible to end users at all times is essential. As a secondary benefit, the agency has seen its application performance increase by 80%. Based on the success of the project to date, the

agency plans to consolidate even further — down to three regional servers — using the OpenVMS Galaxy capabilities to eventually consolidate operating system platforms.

The Compaq Enterprise Network Storage Architecture

Compaq continues to drive its storage solutions toward virtual network storage through its Enterprise Network Storage Architecture (ENSA). ENSA's vision is to treat storage as a utility, where a pool of storage capacity is independent from the servers it supports. Applications have transparent access to this pool, and administrators can manage the pool as a single entity, regardless of location.

Compaq has implemented a phased rollout for ENSA, beginning with the fibre channel products in 1998. The second phase, introduced in 1999, allows multiple hosts to share common storage. Scheduled for 2000 and beyond are enhancements that allow sharing of virtual storage pools. Along the way, Compaq is focusing on security, scalability, availability, ease of management, and compatibility within existing storage installations. A key benefit of ENSA is its support for multiple operating system environments. In particular, enterprises can choose solutions for both Unix and NT to support future application needs.

Full-scale deployment of transparent consolidation and virtual storage is several years away, but users should align themselves now with a supplier that has a clear roadmap, is delivering elements of that roadmap, supports multiple environments, and promises to meet its customers' future needs. With ENSA, Compaq has outlined a consistent vision and appears to be meeting its commitments. As the market leader in disk storage, Compaq has a large stake in securing its position in the network storage market.

Compaq Services Support Consolidation

Compaq provides a range of services that support consolidation, from assessment through management and outsourcing. The assessment phase includes a workshop that explores the customer's current environment and business drivers. Capacity planning, availability requirements, and a TCO assessment may be included.

The design and architecture phase focuses on requirements definition, transition plans, and a project pilot (if required). The implementation is tailored to the customer's situation and may include testing and validation. Based on the requirements established in the design and architecture phase, migration, upgrades, backup and recovery, and physical consolidation may be included. This phase can be built from packaged service solutions or custom solutions, or could be a systems integration project. Beyond implementation, Compaq offers ongoing support, as well as management and outsourcing services. Consolidation services can be combined with other Compaq service offerings, as appropriate, such as the 99.99% uptime guarantee.

Conclusion

Once they have cleared the Y2K hurdle, IT organizations should consider undertaking a consolidation review, if they have not already done so. The potential ROI may be significant, and the effort will lay the groundwork for a more efficient, business-oriented IT organization in the future. Consolidation involves more than just eliminating servers and moving the remaining ones closer together. Organizations should look for a hardware platform that offers a high degree of performance and scalability, and a solid roadmap for the next several years. Multiple operating system support is important as well. Clustering and partitioning capabilities will become much more important in the near future, as users recognize their value in improving availability and flexibility. Users should select a storage vendor that has a good solution today and demonstrates a clear path to storage-area networks. With its recent operating system enhancements and its forthcoming systems, Compaq offers a winning consolidation alternative on the AlphaServer platform. In addition, Compaq's ENSA storage vision is on track to meet IT's need for consolidated enterprise storage now and into the future. Compaq's announcement of its Zero Latency Enterprise (ZLE) initiative is an example of what an organization can achieve when it is serious about creating a non-stop business environment. Today's customers expect data and processing power to be there on demand. Compaq's ZLE solution meets those needs.

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