Organizations have derived substantial benefits from the standardization of servers, storage, operating environments, and applications over the last several years. In particular, price/performance advantages of Intel® architecture-based servers versus proprietary legacy systems have helped enable enterprises to satisfy a growing number of IT processing needs using cost-effective, industry-standard x86-based server architectures and related storage hardware. Based on a robust platform of modular computing components, Dell’s enterprise strategy focuses on standardizing core elements of the data center to deliver superior value.

However, along with the price/performance advantages of standards-based systems have come some challenges. Many organizations now must contend with a proliferation of x86-based servers that were deployed with a “one application, one server” mindset. Meanwhile, administrators must address skyrocketing data and related storage requirements while grappling with IT environments that are hard to manage and resources that are underutilized. Challenged to do more with less, IT organizations still must plan for the future and find a way to unleash the underlying horsepower and interoperability that business-critical enterprise applications demand.

What are the key elements of Dell’s enterprise strategy?

Our enterprise strategy is, in effect, the scalable enterprise. We are working toward standardization of core elements of the data center to provide superior value. The Dell vision of the scalable enterprise comprises three key components: simplified operations through increased standardization and automation; improved utilization enabled by the consolidation and virtualization of server and storage platforms; and finally, the capability to scale incrementally by adding computing and storage capacity as business needs arise. A significant amount of the core building blocks to realize the scalable enterprise are proven and available today, and we are working to deliver additional elements in the very near future.

What initiatives has Dell taken to help simplify IT operations?

Dell is working with leading systems management software providers and key standards bodies to streamline and automate the provisioning, monitoring, and change management requirements for deploying and operating Intel processor–based servers. Dell believes that organizations should be able to simplify their operating environments and reduce the number of tools required to manage those environments through standardization.

To that end, Dell has led standardization efforts to consolidate systems management capabilities through the integration of Dell™ OpenManage™ software with systems management software from leading providers, including Microsoft® Systems Management Server (SMS) and Altiris® Server Management Suite™ software. Beyond that, the company is working on a Dell OpenManage software development kit (SDK) that will allow other third-party vendors to enable their systems management software to manage Dell servers as well as operating systems and applications. We view this approach as delivering the power of many best-of-breed technologies with the ease of one management tool.

Automating the deployment of servers and storage can help allow organizations to reduce the number of resources required to manage their IT infrastructure, and lay groundwork that enables

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1 For more information about the price/performance benefits of enterprise applications on standards-based systems versus proprietary legacy systems, see “Comparing Oracle® Database Performance on Dell and Sun Servers” by Dave Jaffe, Ph.D., and Todd Muirhead in Dell Power Solutions, August 2003.
How can enterprises improve resource utilization?

Many of today’s Intel x86-based servers are underutilized because they were deployed to run a single application. In fact, average utilization rates of x86-based servers can be as low as 15 percent, according to a recent IDC report. Storage resources are often underutilized as well—particularly when they are attached directly to individual servers. Direct attach storage can lead to an imbalance in storage capacity across the enterprise that is difficult to manage, resulting in some servers being over provisioned while others are under provisioned.

Two complementary approaches can help organizations improve resource utilization: consolidation and virtualization. Consolidating disparate server and storage systems into a more centrally managed facility—and aggregating compatible applications onto more powerful servers and centralized storage—can enable organizations to achieve considerable improvements in processor utilization, systems management, and storage capacity.

In addition, the virtualization of servers and storage can help organizations increase processor utilization by running different applications in isolated partitions—or virtual machines—on the same physical server, and by provisioning storage capacity across the enterprise storage area network (SAN) as needed. Applications such as VMware® ESX Server™ and VirtualCenter software, and VMware VMotion™ technology, are designed to help organizations move their smaller legacy applications into a consolidated environment and provide IT administrators with the capability to provision server cycles as needed and balance workloads across the enterprise.

This virtualization technology is rapidly approaching enterprise strength. In Dell’s engineering labs, recent testing with the latest releases of VMware ESX Server and VMotion virtual machine migration technology demonstrated how virtual machines can be easily relocated from one physical server to another while running heavy production loads—an important prerequisite for the dynamic data center of the future.

How can Dell help organizations scale cost-effectively?

To be competitive, organizations must be able to add modular computing and storage capacity easily and flexibly when needed—and not be required to invest ahead of their needs, as can be the case when implementing larger, legacy midrange and mainframe systems. The Dell commitment to industry-standard servers and storage arrays is designed to help organizations pay as they grow, adding only the incremental capacity they require.

This modular, building-block approach is particularly attractive to enterprises that want to preserve capital for other business needs. It also helps provide excellent scalability because unplanned needs can be fulfilled quickly using powerful, industry-standard server and storage components.

Organizations migrating from more expensive, proprietary systems to cost-effective industry-standard servers and storage can expect substantial benefits in both price and performance. For example, deploying clusters of small, industry-standard servers is a key element of the scalable enterprise strategy, and can help provide redundancy for high availability, reduced hardware costs, and the option to increase processing power simply by inserting another server into the cluster. Dell testing indicates that scaling out with a pair of four-processor industry-standard servers in this manner can produce a formidable 42 percent performance gain over a single eight-processor server.

What paths to the enterprise of the future does Dell envision?

Several paths lead to the enterprise of the future, where servers and storage are dynamically provisioned, or even self-provisioned. Dell’s path is one of open standards and integration—enabling enterprises to exercise choice and flexibility when designing their IT infrastructure. Dell recognizes the importance of time to market and the cost of today’s IT infrastructure, and realizes that enterprises must pave the way to the dynamic data center of the future in practical phases.

By developing an enterprise strategy based on standardizing core elements of the data center, Dell can enable organizations to build a dynamic IT infrastructure that is designed to provide superior value and scalability well into the future.

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2 For more information about the dynamic data center of the future, see “Optimizing the Virtual Data Center” by J. Craig Lowery, Ph.D., in Dell Power Solutions, November 2003; and “Virtualization as an Enterprise Computing Infrastructure” by J. Craig Lowery, Ph.D., in Dell Power Solutions, June 2004.


4 For more information about VMware virtualization software performance on Dell PowerEdge servers, see “Introducing VMware ESX Server, VirtualCenter, and VMotion on Dell PowerEdge Servers” by Dave Jaffe, Ph.D.; Todd Muirhead; and Felipe Payet in Dell Power Solutions, March 2004.

5 Performance gain based on tests of orders performed per minute on two Dell PowerEdge 6650 servers. For more information about scaling out on four-processor industry-standard Dell servers, see “Scalable Enterprise Computing: Testing a Clustered Database on the Dell PowerEdge 6650” by Dave Jaffe, Ph.D., and Todd Muirhead in Dell Power Solutions, March 2004.