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Driving Business Value from IT Optimization: The Case for Converged Systems

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INTRODUCTION

Enterprises' expectations from their current IT departments are huge, as data processing and storage requirements are growing exponentially, even while the IT budget continues to be flat. The enterprise IT organization is increasingly viewed as a strategic asset, as opposed to overhead, as it is required to act as an enabler of real-time, data-driven decisions for improving business operations. However, for the IT organization to position itself as a strategic asset, it needs to shift its focus from deploying and managing siloed systems to delivering IT services and applications that add value, and that support business goals. The old model, which involved deploying more of everything—servers, storage, space, power and personnel—to meet the growing needs just does not hold good in the current era where IT is expected to do more with less budget.

Businesses need to standardize and optimize their IT to be agile and flexible, and to adapt to the quickly changing operational needs. This can only happen by adopting the technology trends that are revolutionizing enterprise IT—for example, virtualization, cloud computing and Big Data analytics. For enterprises that do not transform their IT to adapt accordingly, it could mean reduced operational efficiency, inability to innovate, and even lost business opportunities. Enterprises have two choices to transform their IT environment:

1. Go the "do-it-yourself" route, wherein:
    - Everything needs to be configured, tested for interoperability and managed separately
    - The process is time-consuming and expensive
    - It diverts limited IT personnel resources towards administrative activities
2. Choose converged systems that:
    - Are pre-engineered, pre-tested and optimized for specific workloads
    - Are quick and easy to procure, deploy and manage as one single unit
    - Most importantly, free-up IT personnel time for strategic activities

In this paper, we discuss the trends driving the need for converged systems; the benefits of converged systems over the traditional do-it-yourself model; and, finally, present an overview of HP's capabilities in this space.

MARKET TRENDS DRIVING THE NEED FOR CONVERGED SYSTEMS

Virtualization

Virtualization enables IT to share physical servers, storage, and networking equipment across data and applications. With virtualization, physical assets are defined in software, and can be pooled and shared. This delivers better asset utilization and the ability to handle periods of peak business demand, as applications can be deployed faster. By leveraging today's leading virtualization technologies, businesses can introduce operational efficiencies, improve application availability, and control costs like never before. Figure 1 shows the key data center challenges indicated by IT decision makers in Frost & Sullivan's 2013 cloud survey; and how virtualization addresses these challenges.

Figure 1: How Virtualization Addresses Key Data Center Challenges

Data Center Challenge	How Virtualization Addresses the Challenge
Capital budget constraints	Virtualization defers investment in additional server hardware by maximizing use of existing equipment.
Growth of data storage requirements	By optimizing existing storage capacity, virtualization allows you to store more on less hardware. Some vendors' solutions accommodate up to three times as much storage in the same footprint.
Slow/poor performance of applications	A lot of factors go into application performance, including network, protocol and coding, and server speed and capacity. To the extent that allocation of server resources plays a role, virtualization can address this challenge. VM portability enables technicians to quickly respond to capacity constraints by moving the VM to another server.
Aging, inefficient servers/ equipment	Virtualization can extend the useful life of your aging servers by maximizing utilization of capacity. As you replace hardware, you can select efficient servers designed for a high-density virtualized environment; this will ensure that you continue to get the most from your infrastructure.
Minimizing downtime/ increasing availability of apps	Virtualization can be a vital part of a high-availability strategy. Portability of VMs can eliminate planned downtime for critical applications. A virtualized environment also should easily integrate into your backup and recovery solution.
Managing multiple environments	The right virtualization solution is not a dead end, but one that offers a path toward effectively managing a heterogeneous environment; one that may include public, private, and hybrid clouds, as well as on-premises and hosted virtualized data center facilities.
Delivering applications to remote users	The right virtualization platform ensures that authorized users have secure access to their applications and data, while guarding against data breaches.

Source: Frost & Sullivan analysis

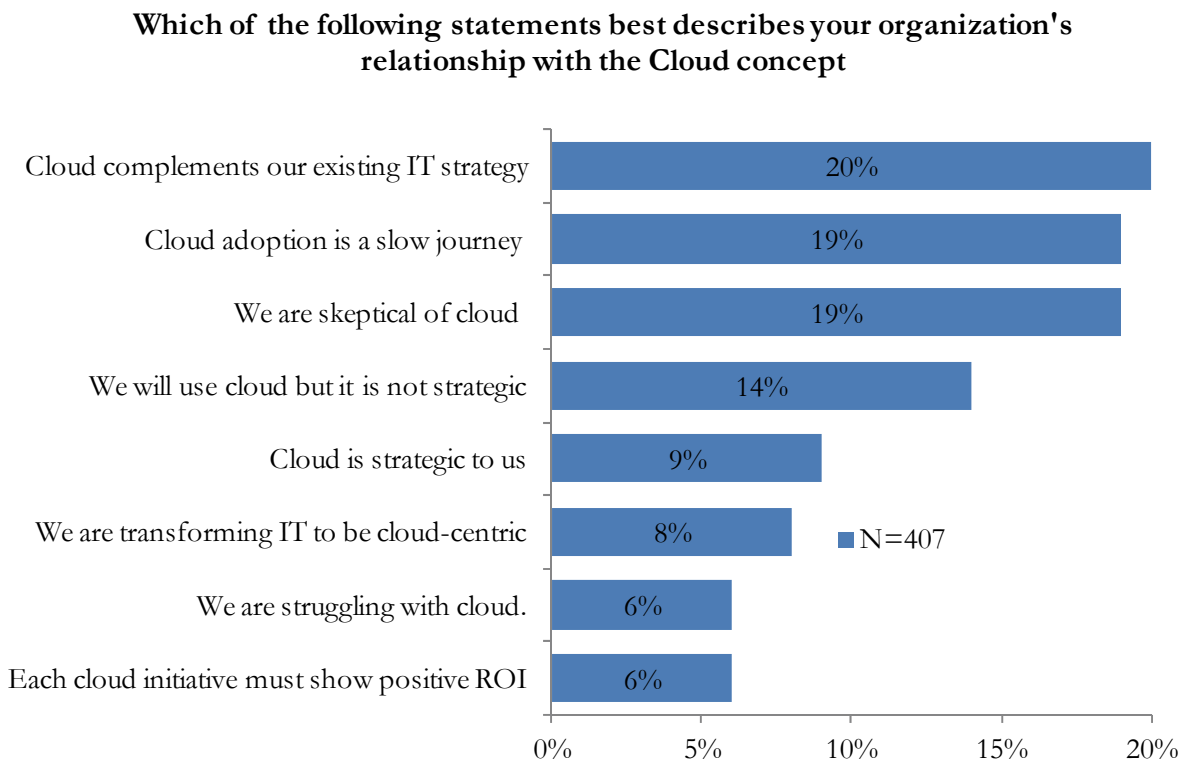
Market adoption of virtualization continues to grow, and is validated by our cloud survey results: 52 percent of the respondents indicated that they have implemented server virtualization. However, while virtualization can introduce tremendous efficiencies into data center infrastructure, it can be time consuming for the IT staff when organizations take the DIY approach. The IT staff gets burdened with configuring hardware and software, instead of focusing on application services. Choosing off-the-shelf pre-engineered, pre-tested converged systems for virtualization can simplify the procurement, deployment and management of virtual environments.

Cloud Computing

In the 2013 Frost & Sullivan Cloud User Survey 20 percent of IT decision-makers indicated that they expect the cloud to complement their existing IT strategy. This confirms that cloud is now a part of broad IT transformation strategy for more enterprises than it was in the past.

Figure 2 shows the cloud survey results for enterprise approach to cloud.

Figure 2: Enterprise Approach to Cloud, 2013



Source: Frost & Sullivan 2013 Cloud User Survey

The top ranked statement or response reflects businesses' desire to maintain heterogeneous environments consisting of on-premises data center and hosted cloud facilities. For these businesses, cloud is not considered a disruptive technology, but a complementary technology.

Virtualization is a foundation to cloud architecture; and the most flexible virtualization platforms are designed to support various cloud configurations (private, public, and hybrid). As a result, IT can evolve from a virtualized data center to cloud architecture simply by implementing additional platform layers. A converged cloud system is purpose built for faster deployment of cloud (private or hybrid), and for integration with existing deployments. It also offers a single point of control for managing service delivery to the cloud, which greatly simplifies management.

Big Data

Big Data is gaining traction across industries, and is driving the need for data analytics processes that are faster and more scalable, compared to traditional data warehousing implementations. Organizations are looking to big data analytics to unleash the insights from their IT operational data. The impact of virtualization on Big Data is further confirmed by our end-user survey. In our Cloud survey 46 percent of the respondents indicated that they have implemented virtualization for Business Intelligence and Analytics workloads in their private data center. As enterprise IT scrambles to integrate big data analytics software and tools, converged systems can help in speeding up Big Data solution deployments. For example, a purpose-built converged system for Apache Hadoop comes fully integrated (server, storage, networking, software) and optimized to enable IT staff to cut down Big Data deployment time from weeks to a few days—or even minutes, in some instances.

THE BUSINESS CASE FOR CONVERGED SYSTEMS

What are Converged Systems?

Converged systems are pre-engineered systems that come with hardware and software elements that are engineered to work together, for specific applications. They combine servers, storage, software, networking, and services into a simple package. They can be ordered as one single unit, and can be seamlessly integrated into the customer's IT environment.

Converged Systems vs. Do-It-Yourself

When it comes to optimizing your data center, it makes sense to compare converged systems with traditional, do-it-yourself (DIY) infrastructure configurations. Key considerations include:

Time to deploy: Converged systems minimize time and labor associated with infrastructure deployment, by compressing cycle time from ordering to installation, and freeing up IT personnel to focus their efforts on IT services delivery. Depending on the solution, converged systems can save months on the deployment process, vs. a DIY virtualization, cloud or big data solution.

Error-free applications: With converged systems, the system is factory-engineered and tested for optimal performance. The systems are prequalified by the vendor for interoperability—offloading that concern from the IT team. DIY requires your technical staff to invest time in multiple rounds of testing and tweaking for each software or management component, or application that is loaded or upgraded, thus increasing the chance of introducing errors into the system.

High performance: By selecting a converged system that is performance-optimized for specific applications—VMware, SAP, Microsoft—you are assured that your apps always have access to the capacity they need. In a DIY system, your team is responsible for allocating the resources as needed.

Flexibility: Converged systems enable you to standardize your IT infrastructure, due to the pre-engineered, performance-optimized nature of the systems. This offers immense flexibility for IT personnel, as they can accelerate the deployment time for infrastructure provisioning and capacity expansion. You purchase the same standardized infrastructure every time, and it is easily integrated into your IT environment. In a DIY system, the IT staff gets tasked with procuring, deploying and managing the hardware, software, and networking components separately.

Cost: To accurately compare costs, you need to calculate not just the initial cost of the system, but also the time and cost involved in deployment. Most businesses find that the time and labor required for a DIY deployment result in a total cost that is significantly higher than a converged system.

Simplicity of Operations: A well designed converged system is managed as one single unit, wherein a single vendor takes on the accountability for the entire system. You don't have to work with multiple vendors, which simplifies support, while improving your IT organization's productivity. By choosing converged systems with the right management platform, you can lay the foundation for software-defined data centers (SDDC), wherein all data center components can be defined in software, delivered as a service, and managed by a robust orchestration platform. SDDC allows IT to optimize the infrastructure, and scale services as needed. In contrast, a DIY system does not necessarily allow all layers of data and all functionality to be managed through a single console.

Problem prevention: You can easily keep converged systems current with new firmware and software patches and updates, as a first-step toward preventing problems. Unlike a DIY configuration, the system will continue to operate optimally as updates are deployed—no need to go back and test each component. Also, by doing continuous analysis, it is easy to monitor performance, and pinpoint and address issues. When a problem occurs, there's no finger-pointing— the problem is visible, which makes it easier to resolve.

Converged Systems Drive Operational Efficiency

A converged system almost forces you to break down the silos that separate your application development and infrastructure teams. Starting from planning and procurement, and extending through implementation, the converged system draws on the expertise from various areas of the IT department. Lifecycle management is no longer a series of hand-offs; the pre-engineered system ensures that it will remain optimally tuned, even as software is upgraded. Also, compliance with approved configurations can be easily ascertained and corrected using converged systems.

In a converged system, management and administration are simplified, as the system is managed and supported as one, instead of islands of storage, servers and network; thus enabling you to minimize training, and allowing you to deploy your IT resources wherever they are needed (rather than specializing in a particular system).

WHY HP CONVERGEDSYSTEMS?

HP ConvergedSystems are modular systems that are engineered from the ground up for convergence, and performance-optimized for specific applications. Businesses can use these complete, integrated systems to deploy workloads like virtualization, cloud, and Big Data—in days; and focus on their business, not on IT integration.

These purpose-built systems are based on open standards, and incorporate the industry's leading server and blade technologies, and best-in-class storage and networking solutions. Offerings within the converged systems portfolio include HP ConvergedSystems for Virtualization, which is an integrated virtualization system that supports multiple data center deployment models, including physical or virtualized data centers, or private cloud. The open, modular design simplifies management across the stack, enabling IT managers to focus on innovation. Organizations can simply choose the right system based on the capacity they need, from 50 to 1000 virtual machines, or more. They get an optimized infrastructure with servers, storage, networking, management software, virtualization software, factory integration, onsite installation and startup, and 3 years of hardware and software support services for VMware virtualization. The system is easy to manage, with deep integration between HP and VMware management.

Another example is the HP CloudSystem, which is a complete, integrated, and open platform that enables organizations and service providers to build and manage services across private, public, and hybrid clouds. CloudSystem is optimized for HP infrastructure, but also protects customers' existing investments by supporting the inclusion of other vendors' servers (Dell, IBM and Cisco), storage (EMC and NetApp), and Cisco networking components. Customers can also choose from various hypervisor platforms—VMware ESX, Microsoft Hyper-V, Red Hat KVM, and HP Integrity—for virtualization.

HP converged systems are designed to integrate with existing environments to eliminate creating new silos of technology. The company says its systems can be operational in as few as 20 days of ordering, so IT can deploy applications faster, and accelerate time to value. The systems also come with reliability built into them to meet enterprise-grade requirements, which includes built-in redundancy with no single point of failure.

Backed by HP's Comprehensive Solutions Expertise

HP ConvergedSystems are backed by the company, through a full lifecycle of services, from consulting to implementation to support. With system level support and expertise, you don't need to worry about the support of the individual components, or about your organizational and process adaption. Aligned to your business needs and solution strategy, HP's converged systems can be fully integrated into your broader cloud, big data or virtualization solutions, backed by HP's decades of expertise in engineering solutions for applications like VMware, Microsoft and SAP.

To help you with entire lifecycle management of the systems, HP's converged systems portfolio is backed by its Proactive Care support that helps customers identify and address IT issues before they cause performance problems or downtime. Customers also are directly connected with HP solution

experts who help support end-to-end solutions for speedy resolution, should any problems arise. The company offers automated 24x7 monitoring and case creation, with personalized online dashboards, which means fewer staff-hours devoted to configuring, testing, and deploying infrastructure resources. That means your staff is freed up to engage in new, strategic projects and/or to spend more time understanding and serving business goals.

Future-proof Investment

Converged systems are strategic to HP, and therefore an investment in an HP ConvergedSystem is a safe one for the long term. HP delivers single vendor accountability and investment protection, compared with the fragility of a multi-party venture with competing interests, losses and people/process churn.

THE LAST WORD

In today's fast paced business environment, it is impossible for organizations to ignore the technology trends—virtualization, cloud computing and Big Data—that are revolutionizing IT departments. IT decision-makers have to look for ways to take advantage of these trends, which offer an opportunity to improve operational efficiency, reduce IT costs and, most importantly, drive innovation by re-casting IT resources for strategic initiatives.

Converged systems can help your IT department do exactly that and more. By deploying these pre-engineered, pre-tested and performance-optimized solutions, your IT departments can fast-track deployment of virtualization, cloud and Big Data solutions. Cutting down implementation times from months and weeks to days is too great a benefit to ignore in the current business environment where IT staff is expected to do so much more with limited time and budget.

Converged systems are also more cost-effective when you take into consideration the time and effort involved in a DIY model. Converged systems reduce the risks involved in a DIY model (for example, the IT team introducing errors during testing) as the systems are prequalified by the vendor for interoperability—offloading that concern from the IT team. Your IT team can focus its efforts on strategic activities, as the performance optimized systems ensure your apps always have access to the capacity they need.

However, the optimization efforts are not always easy, as the traditional data center environment is strewn with multiple hardware, software and networking components that have been procured and managed in a siloed fashion by the IT staff. That is why companies are advised to work with vendors like HP, which not only offers a solid portfolio of converged systems, but also brings to market a well-rounded solution offering. By combining its proven consulting and end-to-end management and support expertise in data center services, HP differentiates itself in the market, and is well positioned to cater to your data center solutions needs.

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