White Paper

Building a Stable Foundation for Today's Virtual Data Centers

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Executive Summary

Widespread adoption of virtualization is rapidly revolutionizing the ways IT departments procure, implement, and operate technology. Though the potential gains achieved via infrastructure virtualization are impressive, they can't occur without a highly automated and scalable environment with tight integration of server, storage, networking, virtualization, and management. Since component integration and validation is often a drain on IT resources, companies are turning to trusted vendors for pre-engineered, pre-integrated, and validated infrastructure solutions. VCE's Vblock Infrastructure Platform is one such solution, offering best of breed technologies and ongoing innovation from VMware, Cisco, EMC, and Intel.

Introduction

The data center of the future is quickly shaping into a self-service, automated environment driven by business policy. At its heart is an immense compute fabric with the ability to expand to the Internet based on demand, cost, and security. When transformations of this magnitude occur, customers naturally look to trusted suppliers. They want solutions and alliances much like those which the Virtual Computing Environment Company (VCE) has created—it's better for business if vendors share a common roadmap. With that in mind, VCE allows IT to shift time-consuming and labor-intensive systems engineering and integration, support, and maintenance to trusted market leaders.

IT is at the threshold of a virtual era, but there is still a long way to go. From a technology perspective, VCE, fueled by constant innovation from VMware, is on to something that is very important and not yet fully understood by the market: infrastructure virtualization. Without infrastructure virtualization, IT will always be less than the sum of its parts. Infrastructure requirements include solutions with infinite dynamic scale that are self-healing, self-tuning, and self- managing. With infrastructure virtualization, the "plumbing" does matter and an integrated solution, such as the Vblock platform from VCE, holds value as having some of the best technologies available, delivered as an integrated solution with common support and services.

The industry as a whole is experiencing rapid innovation driven and fueled by virtualization leaders that are transforming the role of IT. Rather than posing as an impediment to progress, IT is being evermore relied upon to help drive growth, acting as a facilitator rather than a hindrance. Adoption of virtualization and cloud-ready platforms is converting standard infrastructure silos into cohesive, dynamic, and efficient data centers enabling rapid IT responsiveness to changing business demands.

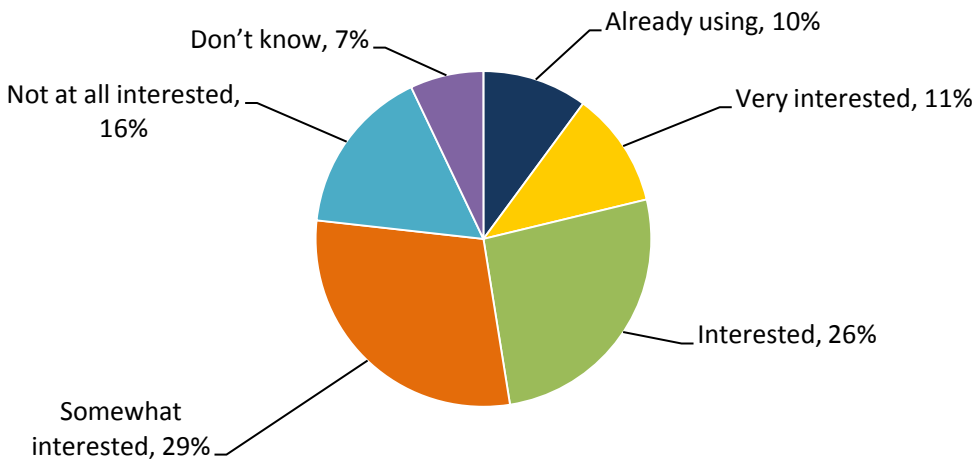
Adoption and Spending Intentions

As part of ESG's *2011 IT Spending Intentions Survey*, respondents were asked about their organizations' usage of or interest in integrated computing technology, defined as platforms in which servers, storage, network connectivity, and (in some cases) software are combined in a single solution. Although only 10% of organizations have already deployed integrated computing platforms, slightly more than three-quarters (76%) expressed some level of interest in the technology (see Figure 1).[1]

[1] Source: ESG Research Report, *2011 IT Spending Intentions Survey*, January 2011.

Figure 1. Interest in Integrated Computing Platforms, by Company Size

How would you describe your organization's interest level in integrated computing platforms? (Percent of respondents, N=611)



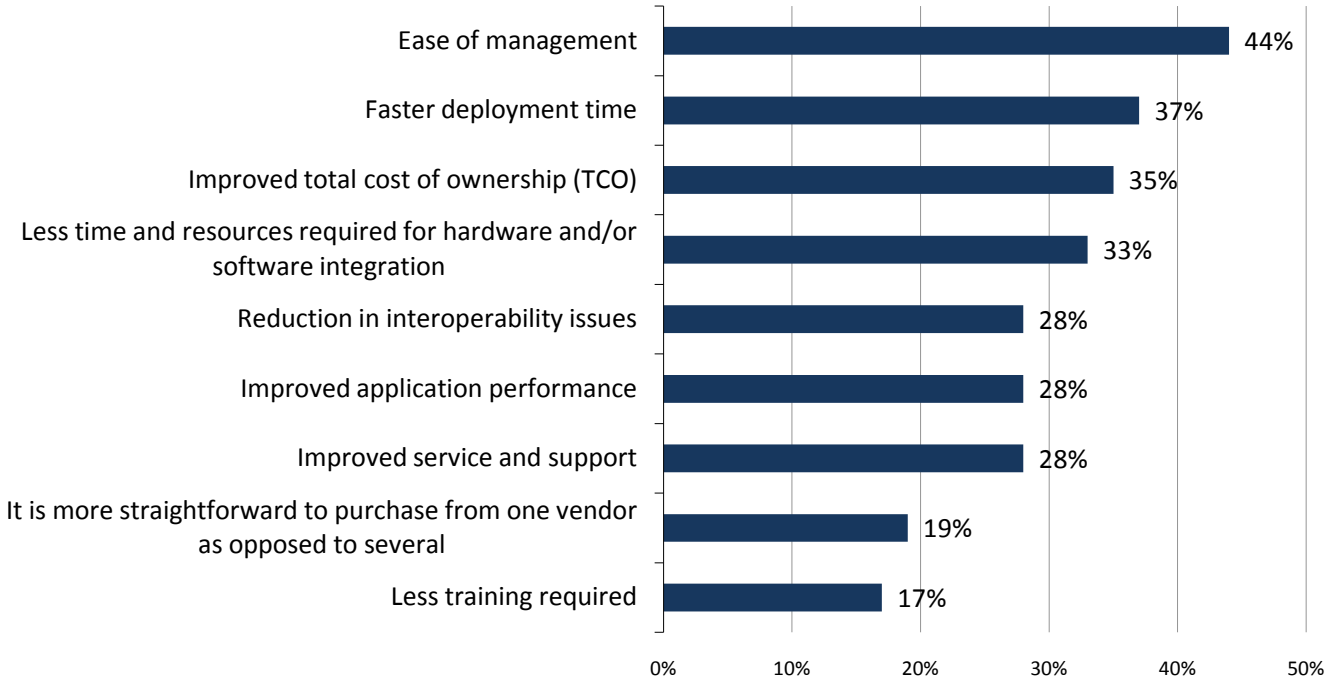
Source: Enterprise Strategy Group, 2011.

Benefits of Integrated Computing

When asked the benefits—both actual (i.e., current users) and perceived (i.e., potential adopters)—associated with integrated computing platforms, respondents indicated ease of management (44%), faster deployment times (37%), improved TCO (35%), and less time required for hardware and software integration (33%). Respondents also recognize benefits associated with interoperability, application performance, and service, and support.

Figure 2. Benefits of Integrated Computing Platforms

What benefits do you believe an integrated computing platform offers your organization? (Percent of respondents, N=471, multiple responses accepted)



Source: Enterprise Strategy Group, 2011.

ESG research further indicates that more than half (51%) of current integrated computing users will make additional investments in integrated computing this year, compared to only 36% of potential adopters, which suggests that the technology works as advertised.[2] Table 1 highlights some key differences between the perceptions and realities of integrated computing platforms, underscoring the point that the market has yet to fully understand their value. As the data indicates, those who have adopted integrated platforms are more likely to acknowledge their benefits.

Table 1. Benefits of Integrated Computing Platforms, Current Users vs. Potential Adopters

What benefits do you believe an integrated computing platform offers your organization?	By interest in integrated computing platforms	
	Currently using (N=64)	Interested in using (N=407)
Faster deployment time	**55%**	37%
Ease of management	**53%**	46%
Improved total cost of ownership (TCO)	**47%**	36%
Less time and resources required for hardware and/or software integration	**43%**	34%
Improved application performance	**37%**	29%
It is more straightforward to purchase from one vendor as opposed to several	**27%**	19%

Source: Enterprise Strategy Group, 2011.

VCE Vblock Infrastructure Platform

Pre-integrated Solution with Support

The architecture and design of a virtualized infrastructure requires a complex end-to-end framework. To this end, VCE leverages ongoing innovations from Cisco, EMC, and VMware—along with its own orchestration and management software solutions—to connect and integrate individual roadmap features and incorporate them into a cohesive and certified system. Right out of the box, Vblock platforms come engineered, integrated, and validated based on pre-defined systems built for specific use cases. The individual iterations involve varying degrees of compute, storage capacity, automation, and management functionality from some of the most respected names in the industry.

So, how does it work? The IT customer identifies profiles, sets performance characteristics, and establishes availability requirements. VCE matches those with a pre-defined platform based on those specifications and required throughput. VCE claims that Vblock platforms are validated by 1500 man hours and over 700 test scenarios in an effort to guarantee integration.

VCE delivers and supports an end-to-end approach, including continuous system maintenance for the Vblock platform post-deployment through a seamless support model; this includes regular automated upgrades with detailed documentation of system performance. By providing support throughout the lifecycle of the product, VCE enables IT to focus on other business strategies rather than infrastructure performance and maintenance, allowing IT to transform, improve, and introduce new services to drive business growth.

Value Proposition

Business and IT benefits are driving interest, initial adoption, and continued deployment of Vblock Infrastructure Platforms. Organizations implementing Vblock platforms should consider their value in terms of:

- Strategy
- Economics

[2] Source: ESG Research Brief, *Integrated Computing Trends*, March 2011.

- Technology
- Operations

Strategically, the Vblock platform is pre-engineered, pre-integrated, validated, and aligned with leading cloud technologies. An extensible and fully integrated stack of best of breed compute, network, and storage, the Vblock platform should be considered a trusted foundation for public, private, and hybrid cloud infrastructures. Broad industry support, along with built-in simplified management services, further free IT to support new projects, enable faster time to market, and drive business growth.

From a business and operations standpoint, VCE's turnkey infrastructure solution ensures rapid deployment for quicker time to market, simplified upgrades, and accelerated problem resolution. An integrated and virtualized platform, VCE's Vblock transforms siloed IT clusters into consolidated pools of resources to create highly virtualized data centers. With rapid provisioning of applications and resources optimizing infrastructure efficiency, organizations can address the ensuing operational costs of running larger, more complex, and potentially inefficient IT environments.

Vblock platforms also come backed by end-to-end security. VMware vShield provides a comprehensive set of services at the host, network, application, data, and endpoint levels via a single management framework, reducing the need to piece together a patchwork of point solutions associated with legacy equipment.

According to a recent ESG survey, these benefits—namely, cost reduction initiatives, business process improvements, and security management initiatives—rank as the top three business initiatives impacting IT spending decisions for the next 12-18 months.

Figure 3. Top Five Business Initiatives Impacting IT Spending Decisions

Source: Enterprise Strategy Group, 2011.

Virtualizing Mission-critical Applications with VMware vSphere 5 and VCE Vblock Platforms

Mission-critical applications drive business. As a result, maintaining application service levels and availability is integral in ensuring employee productivity and IT ability to respond to top priority business requests. Traditional methods of running mission critical apps tend to involve a multi-tier server environment with complex hardware and software clustering. Along with added management responsibilities, these applications further require significant capital expenditures, both for server scalability options and backup servers for disaster recovery. Even

for the most sophisticated IT environments, these requirements leave some highly important applications vulnerable to failure and data loss. VCE is focused to help solve these IT challenges.

As a result, conventional methods of ensuring high availability of mission-critical applications are often expensive, insufficient, and cumbersome to manage. Additionally, performance concerns have slowed adoption of top-tier application virtualization. Some organizations worry that a shared hardware model through virtualization will produce bottlenecks or impose functional limitations that will affect performance and reliability—VMware vSphere 5.0 and VCE have set out to allay these concerns with:

- **Support for up to 1 TB of memory and up to 32 virtual CPUs.** vSphere 5.0 is designed to run the most resource-intensive applications. In terms of network throughput, it supports in excess of 350,000 IOs per second, creating a scalable architecture that surpasses the technical requirements of the most powerful applications.
- **A robust set of managerial solutions for improved application and system uptime.** vSphere High Availability protects against downtime due to hardware or operating system (OS) failure by automatically provisioning a downed application to a functional VM. vSphere Fault Tolerance (FT) and vSphere Site Recovery Manager (SRM) provide added reliability without the cost and complexity of traditional clustering solutions.
- **Automated data recovery with failover and failback.** An organization experiencing unplanned downtime can fail its data center over to a service provider and then have it automatically fail back when its data center comes back online.
- **Day one support of VMware vSphere 5 on Vblock platforms.** Current and potential VCE customers can take advantage of immediate benefits in vSphere 5 since all the certification and testing has been completed prior to its general availability. Testing and certification of hardware and software updates is greatly streamlined, enabling IT to continue to accelerate the value of virtualization.

The high availability of these mission critical workloads is backed by VCE's SLAs. For service providers—both internal IT and third-party hosts—this can help create a new service portfolio and net new revenue stream with reduced time to value.

A Foundation for the Cloud

The Vblock platform's predictable yet dynamic infrastructure can also lead to a new business model. A virtualization-based infrastructure, the Vblock solution is a great foundation for a cloud platform (public or private), allowing customers to consume IT as a service and manage their governance, risk, and compliance (GRC). Management of GRC is derived from VCE's ability to provide IT innovations as they become available, including the installation of certified, tested, and trusted patches and upgrades. In the same vein of streamlining tech innovations, customers would be able to upgrade their Vblock platforms when VCE rolls out next generation improvements twice yearly, helping them constantly and consistently improve on already great performance and capacity utilization.

Questions Surrounding Adoption

As with any significant shift in IT and business operations, companies are left with big questions surrounding how these changes affect them, how and where they plan to implement and deploy these new technologies, and where and when they can expect benefits to be realized. More so, companies must decide whether to be among the early adopters of new innovations or to wait for maturity before implementing.

While IT operations have goals to keep pace with technology innovation and put it in service in a systematic fashion, they must approach this end prudently. For unfamiliar and nascent technologies, it is always sensible to rely on professionals with expertise in the area of development. Third-party analysis and consulting is one means of achieving unbiased visibility into untried markets. Another way is to rely on the support services provided by vendors to render end-to-end advice from planning, to implementation, to post-deployment services. VCE

leverages the expertise of its own company along with that of VMware, Cisco, EMC, and Intel to minimize the risk of deploying a virtualized infrastructure.

Nonetheless, the responsibility of balancing all of an organization's priorities falls on IT. It is ultimately IT's job to perform a cost benefit analysis and assess the time and resources required to adopt and implement new technology. As a sound disclaimer, simply because an innovation is new and trendy does not necessitate its installation.

The Bigger Truth

VCE's integrated computing platform maximizes the value each component part—and each vendor—has to offer, creating a best-of breed virtualized infrastructure in which the whole is significantly greater than the sum of its parts. Cisco, EMC, and VMware have long been known as industry leaders in their respective fields. Their collaboration and innovation in creating Vblock platforms have revolutionized the industry and set the precedent—and the standard—for integrated computing.

Vblock platforms help manage the explosion of data growth taxing traditional data centers, shrink power consumption by reducing hardware, and vastly improve infrastructure efficiency, all contributing to bottom line results. With the added functionality and scalability of vSphere 5.0 surpassing the requirements of even the most resource-intensive applications, organizations can virtualize their business-critical applications with greater reliability, performance, and unified support than offered by traditional methods. With an added management and orchestration layer provided by VCE, virtualizing mission-critical applications not only lowers complexity, it also lowers cost.

Packaged as pre-integrated, pre-engineered solutions with comprehensive design and implementation guides, Vblock platforms are quick to deploy, allowing customers to be faster to market and faster to value. Since VCE provides end-to-end services and support backed by VMware, Cisco, EMC, and VCE's partner community, IT is able to shift its focus away from complex infrastructure design, maintenance, and support toward solving complex business problems and driving growth. These factors allow organizations to become leaner—particularly in terms of hardware—more efficient, and, ultimately, more productive.

The Vblock platform is also a foundation for organizations considering transitioning some internal processes to the cloud. Decreasing flexibility and increasing costs have made organizations a lot more receptive to new modes of thinking, and in particular, to new models of consuming IT. Recent ESG research has shown that organizations in cost reduction or containment modes indicate a significant increase in their willingness to consider cloud computing services (23% in 2011, up from 17% in 2010 and 13% in 2009) as a way to control IT costs. As data continues to proliferate and create complexity, management issues, and inflexibility, organizations will look to virtualization and, potentially, cloud innovations for solutions. VCE's industry leading Vblock platforms are a foundation worth considering, both for the present and the future.

Enterprise Strategy Group | **Getting to the bigger truth.**

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