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IDEAS rebrands to better reflect its values, strengthening market position, and innovative products suite.
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VMware's New Prices Refined to Attract Small Organizations

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VMware recently announced a new version of its virtualization platform called VMware vSphere 4. At the heart of the new release, which is planned for shipment later in the second quarter of 2009, is a new version of VMware's ESX hypervisor, its fourth major release. ESX 4.0 introduces several basic functional improvements, particularly in the area of scalability. Virtual machines can now have a maximum of eight virtual CPUs per virtual machine, compared to four before, and 255 GB of virtual memory per virtual machine, compared to 64 GB previously. The new release also significantly increases the maximum I/O throughput to more than 300,000 I/O operations per second (IOPS), up from 100,000 IOPS before, and up to 30 Gb/s of network bandwidth, compared to 9 Gb/s in the past.

Features Review

The vSphere platform also introduces several new layered server virtualization functions built on the ESX hypervisor, including:

- » VMware Fault Tolerance – a mechanism that allows a virtual machine to continue running in the event of host hardware failure. The mechanism works by creating “shadow” instances of virtual machines on a separate host that run in virtual lockstep with the primary instances, which take over processing if the primary host fails.
- » VMware Data Recovery – a centralized management interface for performing disk-based backup and recovery of virtual machine storage, optimized to protect data in SMB environments.
- » VMware Hot Add – the ability to add virtual CPUs, virtual memory, and virtual devices to virtual machines, as well as extend their virtual disks, without interrupting their processing.

- » VMware vStorage Thin Provisioning – a storage management mechanism that defers the allocation of storage to virtual machines until it is needed, in order to reduce storage costs. vStorage Thin Provisioning also uses monitoring and alerting to trigger proactive procurement of storage when necessary.
- » VMware vShield Zones – a network security mechanism that allows administrators to monitor, log, and block network traffic between virtual machines either on a single ESX host, or between multiple hosts in a cluster. Administrators can organize virtual machines into different network “zones” defined by organizational boundaries.
- » VMware vNetwork Distributed Switch – a framework for managing virtual networks across an entire datacenter from a centralized interface, allowing administrators to monitor and maintain the security of virtual machines as they move from one physical server to another. VMware vNetwork Distributed Switch typically works with third-party virtual switches such as the Cisco's Nexus 1000V. The integration between vSphere and virtual switches gives network managers complete visibility over traffic emanating from virtual machines, enabling virtual machine-based networks to be managed the same way as physical networks.
- » VMware Host Profiles – a provisioning mechanism to help automate the configuration of vSphere hosts by registering the resources, networking, storage, and security settings that they need to operate correctly. Using these profiles, a new host can be deployed quickly and easily.

These functions significantly strengthen the ability for users to deploy virtual

infrastructure on ESX server (i.e., allowing multiple virtual machine hosts to be treated as a single, flexible pool of resources that can be allocated dynamically in response to changing workload conditions or downtime events). VMware positions the functions as key enablers for the implementation of internal clouds within customer IT environments. Such internal clouds would allow IT to be delivered as a service more efficiently, flexibly, and reliably than before.

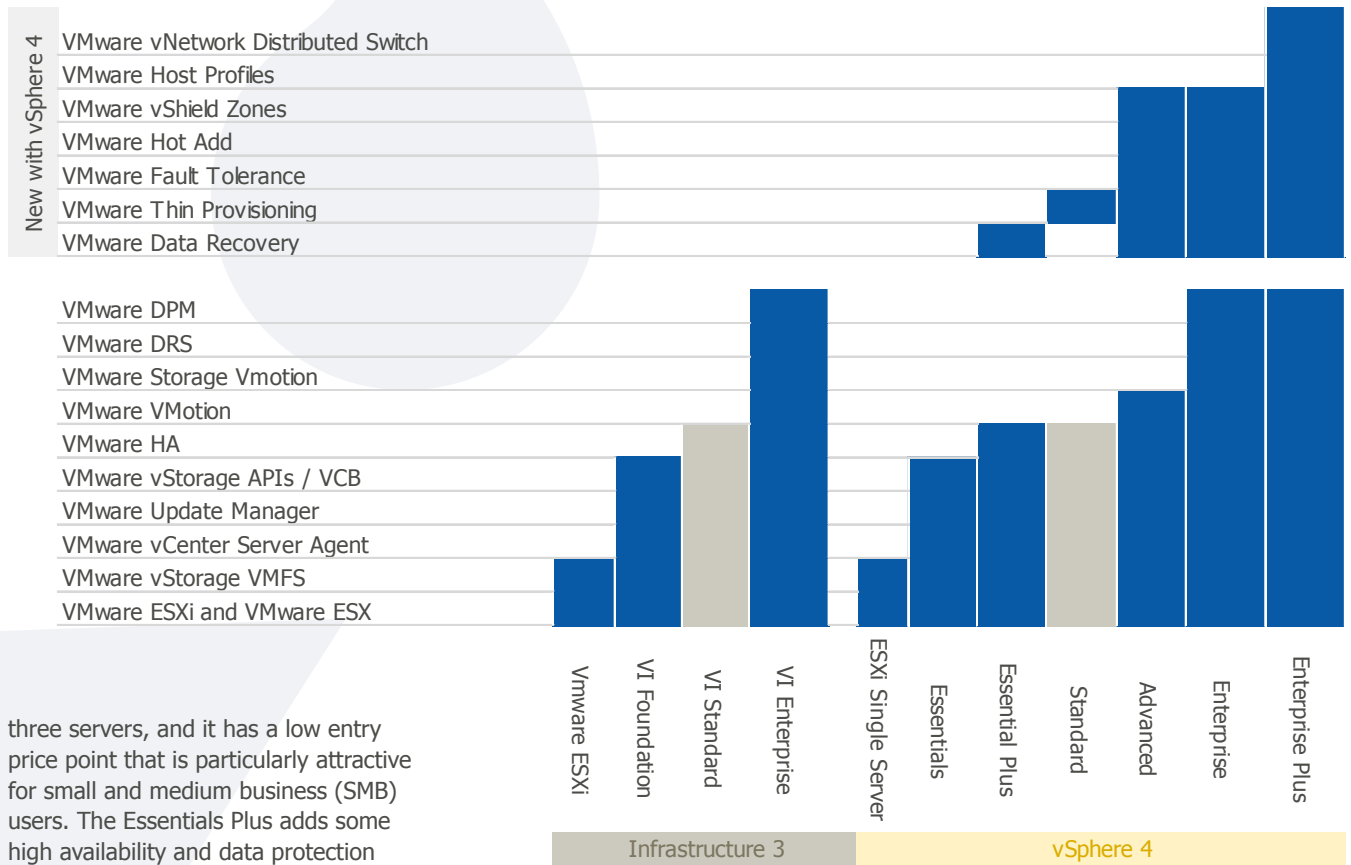
Pricing Implications

As part of its vSphere announcement, VMware also adjusted the pricing and packaging of the new platform (see Figure 1, next page). In terms of functional capabilities, the Standard package of vSphere 4 is nearly equivalent to the Standard package of the previous version, VMware Infrastructure 3 (VI3), except that it also includes the new vStorage Thin Provisioning functions. Most of the advanced new functions of vSphere 4 are introduced in the Advanced, Enterprise, and Enterprise Plus packages. The Advanced package is new, and adds a suite of availability and data protection features to the Standard package, including VMotion, Fault Tolerance, vShield Zones, and Data Recovery. The vSphere 4 Enterprise Plus package is also new, and extends the vSphere 4 Enterprise package with two of the new advanced functions, the vNetwork Distributed Switch and Host Profiles.

At the low end, the Foundation package of VI3 is effectively replaced by two new packages: vSphere 4 Essentials and vSphere 4 Essentials Plus. The Essentials package allows some virtual infrastructure to be deployed on up to

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Fig 1 – Virtual Infrastructure 3 vs. vSphere 4: Comparison of features



three servers, and it has a low entry price point that is particularly attractive for small and medium business (SMB) users. The Essentials Plus adds some high availability and data protection capabilities to the low-end package.

In addition to changing its packaging with vSphere 4, VMware adjusted the way its software is licensed based on hardware capabilities. In previous versions, VMware was licensed in increments of two sockets. If customers wanted to install the software on a single-socket box, they would need to purchase software licenses in increments of two sockets, although they could split a two-socket license and deploy it on two separate single-socket servers, if necessary. By contrast, vSphere 4 is licensed per single socket, making its deployment more cost-effective on systems with fewer sockets, which VMware expects will appeal to SMB users. However, the pricing could also have an impact on total cost of acquisition (TCA) as customers deploy the software on newer x86 processors, since these processors increase the number of cores per socket to six and more. While it seems intuitive to assume

that VMware’s new pricing model would result in a lower cost for the packages themselves, how does the actual cost compare to previous versions at different hardware configurations?

To determine the impact on of VMware’s revised pricing on various classes of servers, IDEAS calculated the equivalent cost per processor for deploying VI3 and vSphere 4 on three servers with one, two, and four sockets, respectively (see Figure 2, next page).

Based on this analysis, several outcomes of vSphere 4’s pricing become apparent:

- » vSphere 4 Standard, which is clearly similar in features to VI3 Standard, becomes a lot cheaper in all three configurations. With vSphere 4, the two- and four-socket configurations are 47% cheaper, while the one-socket configuration is 73% cheaper than VI3.

- » The new Essentials offerings create a new entry price point for SMB users with up to three servers. These users can obtain the same level of functionality as the VI3 Foundation license (i.e., VI3 Standard minus HA functionality) for around one third of the cost.
- » vSphere 4 Enterprise is priced the same as VI3 Enterprise at two- and four-socket configurations, and costs 50% less on one-socket configurations, while including many new features.
- » vSphere 4 Enterprise Plus costs more than VI3 Enterprise at two- and four-socket configurations, but costs 40% less than VI3 Enterprise on one-socket configurations, while including all of the new features.

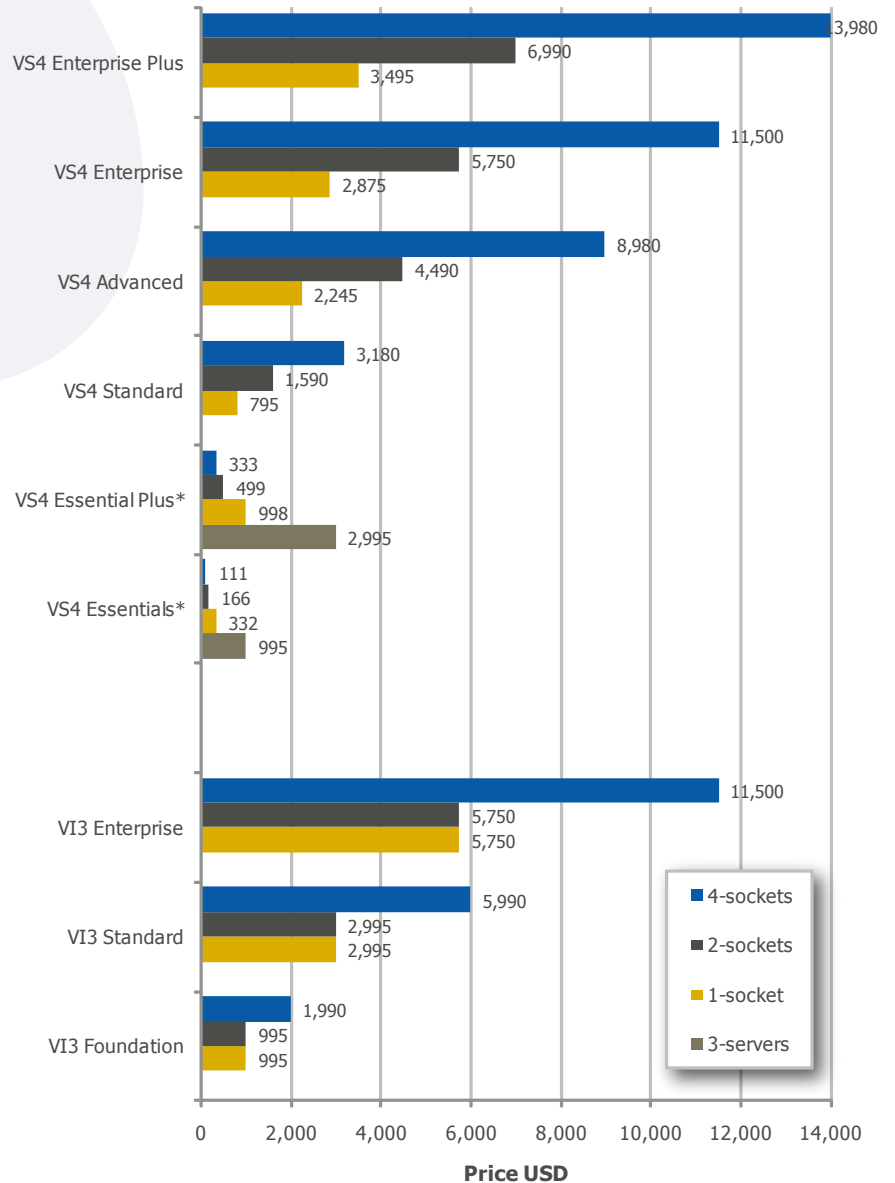
(Continued on page 4)

At the high-end, users are most likely to run vSphere 4 on a four-socket system, and at this level, users can obtain many of the most advanced functions in vSphere 4 Enterprise for about the same price as VI3 Enterprise – for now. VMware will discontinue vSphere 4 Enterprise after December 15, 2009, at which point users will have to buy vSphere 4 Enterprise Plus. vSphere 4 Enterprise Plus costs 21% more than vSphere 4 Enterprise, for which users get VMware’s most advanced features, including VMware vNetwork Distributed Switch and VMware Host Profiles.

Another consideration is that the packages also vary in terms of the number of cores per socket that they can be deployed on. While most versions of vSphere can be deployed on processors that contain up to six cores per socket, vSphere Advanced and vSphere Enterprise Plus editions can be deployed on processors that contain up to 12 cores per socket. Most 4-socket servers today have 4 cores per socket, but Intel and AMD have each announced processors with 6 cores per socket. Further, Intel has pre-announced processors with 8 cores per socket, which are expected in early 2010, while AMD has previewed processors with 12 cores per socket, and it is promising 16-core processors in the future.

When systems with these processors become available, they will require the installation of vSphere Advanced or vSphere Enterprise Plus. The price-performance implications of this requirement will not become apparent until systems with larger numbers of cores begin shipping, and their capacity for hosting virtual machines becomes clear. Although more cores can give more computational performance, the cores could be constrained in terms of the chip module’s ability to feed their insatiable demand for data, since there are only so many pins that a chip can physically package. Even if

Fig 2 – Virtual Infrastructure 3 vs. vSphere 4: Comparison of pricing per socket



* The two Essentials versions are sold as \$995 or \$2,995 packages for use on up to three servers. The price-per-socket outcomes in Figure 2 are estimates of the per-socket cost of software installed on three servers of that socket type. That is, the cost of vSphere 4 Essentials on three 4-socket servers would be the equivalent of \$111 per socket, compared with the per-socket price of \$795 vSphere 4 Standard.

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the application's working set can be contained in cache, at some point data needs to enter and leave the chip and memory bandwidth constraints could impact the number of virtual machines that they can host. Also, processors with the largest number of cores may run at a slightly slower clock speed, due to heat concerns. The performance gain delivered by doubling the number of cores could be anywhere in the range of 1.3 to 1.7x, depending on the workload.¹

The IDEAS Bottom Line

VMware describes vSphere as the industry's first cloud operating system, akin to a "mainframe for the 21st century," and emphasizes its value as a foundation for next-generation datacenters that can bridge users' internal IT infrastructures with future cloud platforms. Indeed, the features in the high-end versions of vSphere provide unique capabilities for users who want to deploy virtual infrastructure as rapidly and comprehensively as possible. However, some users may not be as ready to embrace next-generation virtualized datacenters. Rather, given the current economic climate, these users may be most concerned with reducing their costs in the short term, while pursuing more modest virtualization deployments. VMware's pricing for vSphere 4 clearly reflects its priority to attract entry users in SMB environments. At the same time, though, VMware has increased its premium for users at the high-end who are likely to exploit its most advanced features, and deploy it on the most advanced hardware as it becomes available. ■

A Brand New Look for IDEAS

Stephen Bowhill, CEO

Since the company's inception over 20 years ago, Ideas International has matured and grown into a market leader of comparative intelligence on enterprise IT infrastructure, with operations offices on three continents and a global presence with 40,000 registered users of its online systems. With the omnipresence of web-based services, we felt the word "international" has become less important to our clients – global support and service is expected these days and is not a differentiator.

Coinciding with several significant product developments in 2008, including enhancements to the Competitive Profiles portal and the launch of Server CAR, IDEAS started development of a new visual identity and branding strategy. The new logo is a strong platform for future branding and marketing initiatives that will support IDEAS' communication with customers, and clearly identify – and distinguish – the brand in the marketplace. We want the "i" logo to become synonymous with IDEAS and to be recognized as a clear symbol of intelligence, ideas, and innovation in the global IT market space. We are launching it now with the revamp of the Competitive Profiles portal, through which we aim to distill and dispense clear outcomes and added-value tools in addition to delivering the data.

With transformation in mind, IDEAS needed an innovative and creative design company and, having our roots in Australia, we decided to go for local talent Flycatcher Design. None of the rebrand could have happened without the dedication to detail of Jill Reinfeld and Peter Cullen of IDEAS, who helped bring the rebrand exercise to fruition. ■

We want the "i" logo to become synonymous with IDEAS and to be recognized as a clear symbol of intelligence, ideas, and innovation in the global IT market space.

IDEAS Global Symbol: Just one click to essential product and competitive information.



¹ For workloads that depend less on I/O, such as computationally intensive High Performance Computing (HPC) applications, the ratio could be slightly higher. I

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IDEAS InsightsBlog Bites (<http://www.ideasint.blogs.com>)

... the simple act of **replacing a server** just a few years old, one that is just about to run out of warranty for example, can have a **big impact** on **your costs**. It's the same logic that we all use with mobile (cell) phones. **So why treat servers any different?**

From “**Keeping Afloat or Keeping Abreast – The SMB Dilemma**”

Gary Burgess | May 11, 2009

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Simplifying operations and active processor power savings can be essential to reducing costs in the **current economic climate**, while the new **Serviceguard Toolkits** and improved licensing terms will help customers respond more rapidly and cost-effectively to **emerging business opportunities** once the economy starts to recover

From “**New Release of HP-UX Demonstrates Appeal of UNIX Reliability**”

Tony Iams | April 24, 2009

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About Ideas International

Ideas International (IDEAS) is the leading global supplier of comparative intelligence on enterprise IT infrastructure. Servicing both IT vendors and large-scale IT users, IDEAS' products focus on: servers; storage; virtualization and consolidation; and software and infrastructure services.

IDEAS' online products are backed up by expert industry analysts who can also deliver specialized advisory and consulting services.

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