

SigmaUptime

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Enabling the Future of the Data Center

UPTIME

VMware's software-defined data center architecture extends the benefits of virtualization across all data center resources.

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Sigma's portfolio of managed services enable you to transfer full lifecycle support of your IT infrastructure to Sigma's highly qualified engineers, freeing up valuable resources for strategic initiatives that are core to your business and customers. All critical components of your data center are protected and maintained including server, storage and network infrastructure, infrastructure applications, backup systems, virtualization and IP communications. Elements of our Sigma One Source Managed Services portfolio include:



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Editorial Correspondence:

7360 East 38th Street, Tulsa, OK 74145

Phone (800) 726-7667 • Fax (918) 270-7134

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Enabling the Future



VMware's software-defined data center architecture extends the benefits of virtualization across all data center resources.

The “software-defined” concept continues to take hold in the IT industry as organizations seek to extend the benefits of virtualization beyond server platforms. Various vendors have introduced software-defined networking and software-defined storage products that promise to create shared pools of network and storage resources that can be allocated dynamically.

VMware is taking these strategies to the next level with its software-defined data center solutions. By expanding virtualization principles to encompass all data center resources and services, the software-defined data center architecture can simplify and speed up the provisioning and management of compute, storage and networking resources through policy-driven automation.

“At VMworld 2013, VMware announced a wave of new products and services designed to help IT accelerate the adoption of a software-defined data center architecture and take advantage of the value of advanced virtualization in areas such as networking, security, storage, availability, management and automation,” said Brad Christian, VMware vExpert and Consulting Architect, Sigma Solutions. “Newly introduced technology, including VMware NSX, Virtual SAN and vCloud Suite 5.5, enables customers to virtualize infrastructure and deliver it as a service, providing efficiency, agility and control for building and operating private, hybrid and public clouds.”

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VMware NSX: The Platform for Network Virtualization

VMware NSX is a network virtualization platform that will deliver the entire networking and security model in software, decoupled from networking hardware. By virtualizing the network, it provides a new operational model for networking that breaks through current physical network barriers and enables customers to accelerate application deployment, lower capital and operational costs, and transform network operations in a non-disruptive manner.

“VMware’s approach to network virtualization enables customers to treat their physical network as a pool of transport capacity that can be consumed and repurposed on demand,” Brad said. “Virtual networks are programmatically created, provisioned and managed, utilizing the underlying physical network for simple IP connectivity. Because NSX delivers Layer 2 through Layer 7 services entirely through software, customers can grow their infrastructure simply by adding more server nodes. In addition, the solution’s virtual networks support existing applications, unchanged, on any physical network infrastructure.”

Similar to other distributed vSphere services, NSX is built upon a groundbreaking distributed architecture in which network services are integrated with the hypervisor kernel. This architecture allows network services to scale out in concert with the hypervisor to meet the application’s needs and enables it to handle as much as 1TBps of network traffic per cluster of 32 hosts.

VMware Virtual SAN: Delivering Simple and Dynamic Storage for VMs

VMware Virtual SAN is a breakthrough technology that extends vSphere to pool compute and direct-attached storage. It delivers a virtual data plane that clusters server disks and flash storage to create high-performance, resilient shared storage designed for virtual machines (VMs). It unlocks a new tier of converged infrastructure that enables rapid and granular scaling of compute and storage resources.

“Similar to NSX, Virtual SAN is built upon a unique distributed architecture that will enable stor-

age services to scale out linearly with the needs of the application,” said Brad. “Through the seamless integration of Virtual SAN and vSphere, VMware has redefined the role of the hypervisor to deliver virtualized compute and storage services in an elastic, flexible fashion. The distributed architecture enables the solution to deliver I/O performance comparable to midrange storage arrays while leveraging the economics of direct-attached storage.”

Virtual SAN offers a policy-driven control plane that automates storage consumption and management via VM-centric policies. Relying on server-side solid-state disks and hard-disk drives, it delivers significantly lower total cost of ownership for virtual desktop infrastructure and test/development environments, among other use cases. Customers can start small and grow storage performance and capacity by adding servers as needed.

VMware vCloud Suite 5.5: New Release of the Leading Cloud Infrastructure and Management Suite

VMware vCloud Suite 5.5 features new and enhanced product functionality as well as broad product integrations. It will enable customers to build and operate a vSphere-based private cloud using the software-defined data center architecture, providing virtualized infrastructure services with built-in intelligence to automate on-demand provisioning, placement, configuration and control of applications based on policies. The comprehensive, integrated private cloud infrastructure solution simplifies IT operations while also delivering the best SLAs for all applications.

Also built on a vSphere foundation, the suite includes the capabilities of vCloud Automation Center and vCenter Operations Management Suite. vCloud Automation Center provides the agility customers need with the control they require through a flexible solution for automating the delivery of IT applications and services. vCenter Operations Management Suite offers integrated, proactive performance, capacity and configuration management capabilities for dynamic cloud environments.

“VMware Cloud Management solutions are helping customers achieve the promise of the software-defined data center architecture,” Brad concluded. “These solutions are recognized for patented analytics and an integrated and innovative approach to policy-based automation, log analytics and IT financial management as well as performance, capacity and configuration management.”

“VMware Cloud Management solutions are helping customers achieve the promise of the software-defined data center architecture.”



vmware

Virtualize Everything

Delivering IT as a Service with
a Software-Defined Data Center

VMware's software-defined data center infrastructure (SDDC) extends the virtualization concepts you know — abstraction, pooling and automation — to all data center resources and services. SDDC dramatically speeds up and simplifies the initial provisioning and ongoing management of fully virtualized compute, storage and networking by applying powerful policy-driven automation. The result is transformational levels of business agility along with operational efficiency, control and choice for IT and the business alike.

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Taking Virtualization to the Next Level

*VMware vSphere with
Operations Management
5.5 helps improve the
performance, health and
utilization of virtualized
environments.*

Server virtualization has become the cornerstone of today's automated, dynamic data center. Recent research shows that virtual infrastructure accounts for 51 percent of enterprise servers and is expected to grow to 63 percent in 2014.

Consolidating workloads from multiple smaller servers to fewer larger ones is a primary driver of virtualization adoption, but it is only the first step. As virtualization deployments grow, it is critical to have visibility into the IT environment's operating performance to ensure that service levels are met. Administrators need effective management tools that create a "single-pane-of-glass" view of the entire virtualized environment and enable them to manage the IT infrastructure through a common set of interfaces.

VMware vSphere with Operations Management (vSOM) unites the leading virtualization platform with patented analytic capabilities to provide insight into the performance, health and efficiency of virtualized environments. By providing

a simple, visual and holistic view of the entire environment, it allows customers to proactively monitor and maintain performance and improve availability while optimizing the virtual environment through integrated capacity planning.

“VMware announced vSOM 5.5, the latest release of this solution, at VMworld 2013,” said Jon Chappell, VMware Brand Manager, Sigma Solutions. “It takes advantage of VMware vSphere 5.5 to help customers achieve greater performance, application-aware availability and support for big data applications and other next-generation workloads.”

Enhancing a Proven Solution

Introduced in February 2013, vSOM helps customers nearly double the operational savings they receive from vSphere and reduce capex costs by up to 30 percent. It also helps optimize capacity, improving utilization by up to 40 percent and consolidation ratios by 37 percent. Improved application availability and performance help cut downtime by more than a third and reduce the time it takes to find and resolve problems by up to 26 percent.

vSOM includes new and enhanced functionality to improve the agility, efficiency and resiliency of customer IT environments. The new release provides customers with even greater insight into workload capacity and health, helping them to achieve higher capacity utilization, consolidation ratios and hardware savings.

It also enables greater scalability — customers can expand vSphere configurations two times more than previous limits for physical CPUs, memory and NUMA nodes. Virtual disk files can now scale to 64TB.

In addition, the new release of vSOM can be tuned to meet the needs of low-latency applications. This new level of customization will provide the best performance possible for applications such as in-memory databases and will deliver the ability to prioritize workloads.

New Features in vSphere 5.5

vSOM 5.5 incorporates new features of vSphere 5.5 to provide customers with the best platform for all applications and workloads. For example, the new vSphere Flash Read Cache virtualizes server-side flash, providing a high-performance read cache layer that dramatically lowers application latency.

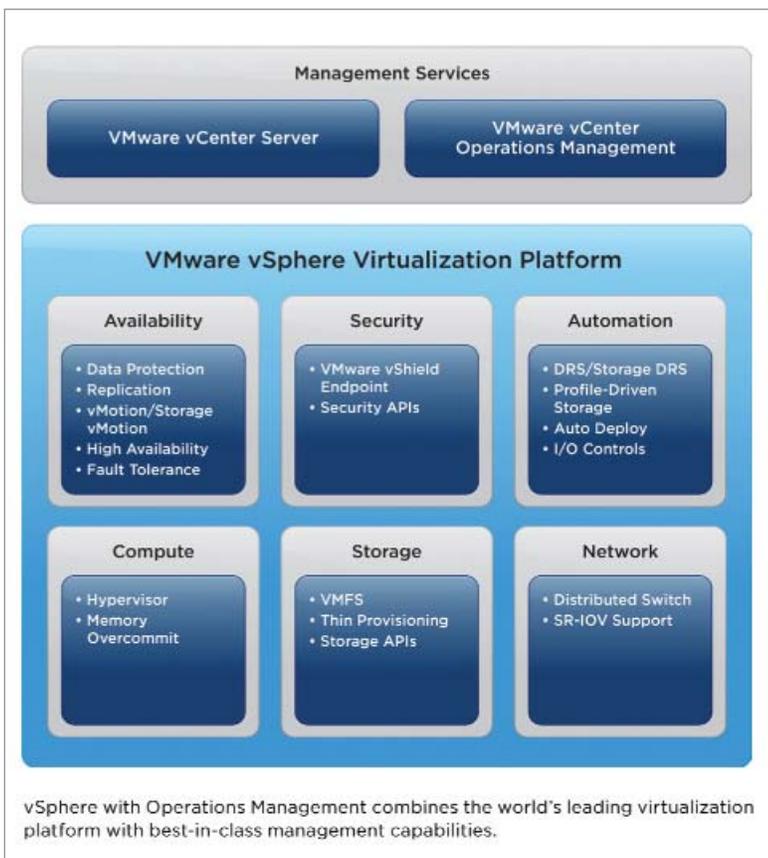
The new vSphere App HA feature provides new levels of availability by enabling vSphere to detect

and recover from application or operating system failure. It supports the most common applications on the market and can extend to the VMware ecosystem through its APIs.

With the new vSphere Big Data Extensions, customers can run Apache Hadoop workloads on vSphere to achieve higher utilization, reliability and agility. vSphere Big Data Extensions support multiple Hadoop distributions and enable IT to seamlessly deploy, run and manage Hadoop workloads on one common platform.

vSphere Replication delivers multiple point-in-time snapshots for more granular recovery. For greater scalability, multiple appliances for replication are supported per vCenter Server. vSphere Replication is also supported for use with vSphere Storage vMotion and Storage DRS.

“VMware continues to evolve vSphere to provide customers with the best platform for all their applications through new and enhanced compute, availability, storage and backup capabilities,” said Chappell. “vSphere with Operations Management 5.5 incorporates these enhancements and offers even deeper insights into the performance and capacity of the data center infrastructure, giving customers the confidence to continue to grow their virtualized environments.”



IaaS Goes Mainstream

Data shows production systems rapidly moving into cloud-services environments.

Public cloud adoption appears to have moved beyond the testing and development phase, with more than two-thirds of organizations in a recent study reporting they are now running mission-critical workloads in Infrastructure-as-a-Service (IaaS) environments.

The study, commissioned by virtualization specialist VMware and conducted by analyst firm Enterprise Strategy Group (ESG), examined the public-cloud usage patterns of 243 IT and business professionals in North America and Western Europe. More than 80 percent reported that they are running production workloads on IaaS, with 67 percent characterizing the workloads as “mission-critical.”

In addition, 70 percent said they use cloud storage services, 58 percent said they are using cloud servers, and 53 percent are leveraging disaster recovery services using IaaS.

Compatibility Important

In the IaaS model, users pay a provider for access to virtual servers, storage and networks on which they are able to deploy and run operating systems and applications of their choice. This allows companies to avoid hardware and software investments in return for paying usage fees.

In the VMware/ESG study, 83 percent of respondents indicated the underlying technology used to deliver IaaS was of some level of importance to them, with nearly half citing it as a very important or critical factor. More than three-quarters (78 percent) of respondents reported that it was also important that their cloud service providers’ infrastructure technologies were compatible with their internal private cloud/virtualized data center.

“The study demonstrates that IaaS from cloud service providers is seeing broad adoption by mainstream business for business-critical applications and data, moving beyond test and development,” said Mathew Lodge, VMware’s vice president of cloud services. “As IaaS adoption grows, so does the importance of strong customer service and support, as well as the quality of the underlying technology. Compatibility with existing virtualized data centers and private clouds was also key.”

IaaS Spending Surges

A separate report by the global research firm Pierre Audoin Consultants (PAC) notes that the IaaS market is expanding rapidly, forecasting that it will generate roughly



\$39 billion in worldwide expenditures in 2012 — up from \$27 billion in 2011 — and is set to reach \$90 billion by 2016. Those figures cover both public and private IaaS deployments.

“Traditional IT services have been widely based on complexity and heterogeneity, while cloud represents standards and ease of use,” said Karsten Leclerque, PAC principal consultant for outsourcing and cloud. “This is why practically all suppliers are currently trying to determine their future positioning along the cloud value chain, aiming to defend existing business, and looking to tap new revenue streams. There will be a new competitive landscape as well as new cooperation models emerging from the cloud trend.”

Despite the impressive growth of public IaaS services there have still been obstacles to broader adoption. Privacy and availability of data and resources are often at the heart of cloud discussions. CIOs also fear an increased complexity of IT services management when including third-party cloud solutions into their IT architectures. Nevertheless, IaaS and other cloud models are likely to remain on top of IT agendas in the coming years.

“Users are well aware of the various benefits and are strongly interested in exploiting them; but they should not blindly follow the cloud trend,” Leclerque said. “Cloud usage promises many advantages such as potential cost reduction, scalability, usage-based pricing, and access to resources without the need to invest in your own infrastructures. The concept is still emerging; however, there are many different concepts and offerings in the market, with different security and service levels, that might or might not fit your needs.”

VMware Delivers the Hybrid Cloud

VMware's vCloud Hybrid Service is an Infrastructure-as-a-Service (IaaS) cloud operated by VMware and built on the trusted foundation of VMware vSphere. Delivered by VMware partners such as Sigma Solutions and compatible with other VMware-based cloud services, it gives customers a common platform to seamlessly extend their data centers to the public cloud without changing their existing applications or management tools.

"The vCloud Hybrid Service enables customers to leverage the same skills, tools, networking and security models across both on-premises and off-premises environments," said Sasha Vrajich, director of Managed Services, Sigma Solutions. "It offers the easiest, fastest path for customers who have built their virtualized environments on VMware software. Additionally, our IT Operations Services team is well versed in supporting our customer's on-premises infrastructure in addition to the new vCloud Hybrid Service. Our solution provides a single pane of glass to manage and support any virtualized environment."

vCloud Hybrid Service will support thousands of applications and more than 90 operating systems that are certified to run on vSphere. As a result, customers can get the same level of availability and performance running in the public cloud without changing or rewriting their applications.

It offers automated replication, monitoring and high availability for business-critical applications, leveraging the advanced features of vSphere, including VMware vMotion, High Availability and vSphere Distributed Resources Scheduler. It also offers a simplified approach to management, allowing administrators to view, manage and migrate virtual machines from the client using the free vCloud Connector plug-in.

At VMworld 2013, VMware announced the general availability of the vCloud Hybrid Service, with new U.S. data centers in Santa Clara, Calif., and Sterling, Va., complementing its existing location in Las Vegas, Nev. New capabilities include Direct Connect, which allows customers to connect their data center network directly to vCloud Hybrid Service over private dedicated networks, providing secure, consistent, high-bandwidth connectivity.

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VMware vCloud Hybrid Service

Extend Your Data Center to the Cloud with the Platform You Use, Know and Trust.



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through IT as a service



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- On-Demand IT
- Consumerization/BYOD
- Collaboration
- Big Data
- Mobile Device Management

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