

SigmaUptime

volume 12 number 6

Improving Data Center Efficiency



UPTIME

Sigma Solutions works with HP to deliver solutions and services designed to eliminate data center complexity.

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HP Moonshot: Designed for the Data Center, Built for the Planet



Today's data centers are nearing a breaking point where further growth is restricted due to the current economics of traditional infrastructure. HP Moonshot servers are a first step organizations can take to address these constraints.

The power, space and cost needed to support the future needs of businesses and governments are putting extreme pressure on Internet-scale data centers. The HP Moonshot System addresses these challenges by delivering the density and power efficiency needed to handle social, mobile, cloud and big data. HP Moonshot servers use up to 89 percent less energy, 80 percent less space and cost 77 percent less, compared to traditional servers.

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S O L U T I O N S

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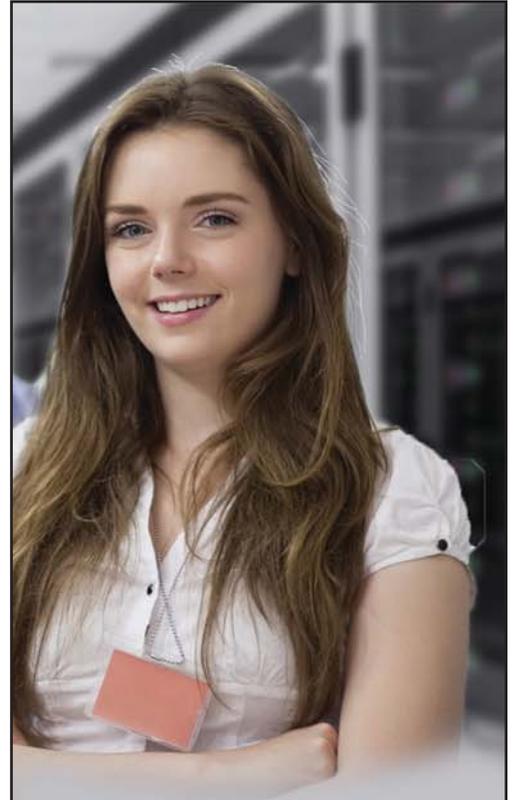
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Sigma UPTIME

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Improving Data Center Efficiency

A man in a light blue button-down shirt is smiling and looking towards the camera. He is standing in a data center aisle, with rows of server racks visible in the background. The lighting is bright and even. The text 'Improving Data Center Efficiency' is overlaid on the left side of the image in a large, white, sans-serif font.

Sigma Solutions works with HP to de
services designed to eliminate data



liver solutions and center complexity.

Organizations of all sizes, industries and regions report increasing complexity within the data center. According to Symantec's 2012 State of the Data Center Survey, key drivers of data center complexity include the growth of strategic IT trends such as mobile computing, server virtualization and cloud computing.

Part of the problem is that most data centers are based upon decades-old design concepts in which commodity x86 servers from a variety of vendors are coupled with separately purchased business and professional software suites. Having evolved in a piecemeal fashion, they lack the overarching rationality needed to streamline management and control costs.

Through its partnership with HP, Sigma Solutions is helping customers leverage numerous technologies and services designed to increase data center resiliency, performance and availability. In this issue of Sigma Uptime, we'll take a closer look at two particularly promising HP solutions —OneView and Moonshot.

OneView is a new management platform for HP Converged Infrastructure, which integrates servers, storage, networking and management software to dramatically increase resource utilization rates and lower costs. Moonshot, meanwhile, combines with HP Converged Infrastructure technology to allow the sharing of resources across thousands of servers, paving the way for high-density, low-energy computing for massive-scale environments. HP backs and enhances both technologies with a variety of support, management and education services.

“Unpredictable data growth and workload performance demands are forcing organizations to rethink legacy data center architectures,” said Frank Jarzombek, Executive Vice President, Sigma Solutions. “Building on our core expertise in the data center, we continually shape our solution suite with a focus on reducing costs and complexity through emerging technologies that deliver competitive advantage. Sigma believes HP's OneView and Moonshot solutions offer significant value by allowing customers to simplify the data center, allowing them to focus on innovation instead of operations.”

The User's View



Customer-inspired HP OneView offers a streamlined approach to infrastructure management.

Legendary management consultant Peter Drucker once said that quality in a product or service is not what the supplier puts in, but rather what the customer gets out. HP has taken that philosophy to its logical conclusion with the development of a breakthrough IT infrastructure management platform.

HP OneView was developed in collaboration with more than 150 customers across 30 real-world data centers worldwide over four years. The result is a fresh approach to the management of converged infrastructures that shifts the focus from how devices run to how people work.

“HP OneView improves the productivity for IT administrators with an intuitive user interface and automated intelligence that simplifies common tasks,” said Frank Jarzombek, Executive Vice President, Sigma Solutions. “It has a contemporary, web-like design that delivers an instantly familiar workspace for your entire IT team, along with a consistent view of your infrastructure.”

Out of the Tree

Designed for the HP BladeSystem, HP ProLiant Generation 8 and HP ProLiant Generation 7 servers, HP OneView builds upon HP’s mission of driving complexity out of the data center. Over the past several years, HP has pushed sim-

plicity and agility with converged infrastructure solutions that tightly integrate compute, storage and network resources to deliver virtualized, application-aware and highly automated technology environments. However, most converged infrastructures still rely heavily upon legacy network management software.

These legacy management tools largely evolved to serve heterogeneous environments consisting of both HP and non-HP components. They feature a traditional tree-and-branch network representation of selected network devices and their associated modules, which require administrators to drill down through each element to discover and diagnose network issues.

“One of the design principles of OneView is to present to users exactly the information they need, organized in the way they need it,” said Gary Thome, VP and Chief Engineer, HP Enterprise Server Business. “For example, there’s no tree navigation view of the Internet — it just doesn’t exist. How do we find things there? We find it with search. We thought about it and said, ‘Why not borrow the search metaphor and bring it to the IT infrastructure.’”

The HP OneView architecture builds upon the open REST API, the way modern web-based architectures and applications are designed. A dashboard allows users to view the entire data center in seconds. The view is equally simple

whether a customer has 16 devices or 640, and more information is just one click away. With typical tree-and-branch tools, it can take more than 30 clicks to access the same information.

Search, Templates and More

OneView's Smart Search feature allows administrators to find key information in seconds rather than hunting through online and offline records. Smart Search is built into every task to provide immediate access to device, event or task information. Smart Search also allows administrators to search, view and filter all alerts, which can then be assigned to specific users and annotated with notes from the administrator.

Another customer-inspired feature, MapView, examines the relationship between devices, connections and status to help administrators find, triage and fix problems in seconds or minutes.

Customers also wanted the ability to create templates to do much of the heavy lifting in OneView. Workflow templates can be created to capture best practices and policies to increase productivity and enable compliance and consistency. Team leaders can create templates with predefined server and networking profiles to dramatically streamline hardware implementation. These templates can ensure that the infrastructure for thousands of workloads is provisioned consistently, regardless of who does the provisioning.

Such automated intelligence combined with an intuitive interface improves productivity by simplifying common tasks. The most common data center processes, such as deployment, updating, migrating and troubleshooting, are reduced from hours or days to minutes.

For example, provisioning hypervisors across 16 servers with traditional tools requires two hours and 50 minutes of administrative time, on average, compared to just 14 minutes with HP OneView. The process of retiring a virtual LAN (vLAN) requires only four steps and 30 seconds of administrative time with HP OneView, compared to 480 steps and more than two hours with a traditional tool.

HP says OneView will allow organizations to manage HP infrastructure with a 42 percent lower TCO and a 220 percent ROI. HP also claims that workloads can be migrated up to five times faster than with manual operations, server configuration is nine times faster and network configurations are 24 times faster.

“Resource-strapped organizations today are looking for infrastructure management platforms that will unchain them from spending countless hours on mundane administrative tasks to focus more on innovation,” said Matt Eastwood, group vice president and general manager, IDC. “The market is primed and ready for an infrastructure management platform that is more intuitive and built for the needs of IT today — not the days gone by.”



HP OneView: Bridging the IT Gap



A better way to manage IT infrastructure

Most data centers today use 10 or more tools to monitor their infrastructure and applications. Some organizations use 50 or more tools. Each tool operates differently — different user interfaces, different APIs, different data models — and none of them help your administrators work together.

HP OneView is designed to help you overcome today's IT management gap by allowing teams to work in a more natural and collaborative way. By shifting the focus from “how devices run” to “how people work,” HP OneView delivers unprecedented ease of use so you can deploy and manage infrastructure faster, at lower cost, and at virtually any scale.

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HP Brings Data Tiering to Software-Defined Storage

In a traditional storage environment, tiered storage solutions allow organizations to utilize different types of storage media for various categories of data. Tier-1 storage might hold mission-critical or frequently accessed files on primary disk arrays; tier-2 storage might house seldom-used files on less-expensive disks; and tier-3 storage might maintain archived files on tape.

HP has brought these capabilities to software-defined storage, with industry-first innovations that improve the agility and efficiency of virtualized environments. HP StoreVirtual Virtual Storage Appliance (VSA) software features automated sub-LUN (logical unit number) storage tiering that enables organizations to maximize the return on investment of their virtual infrastructure by lowering costs while increasing capacity utilization.

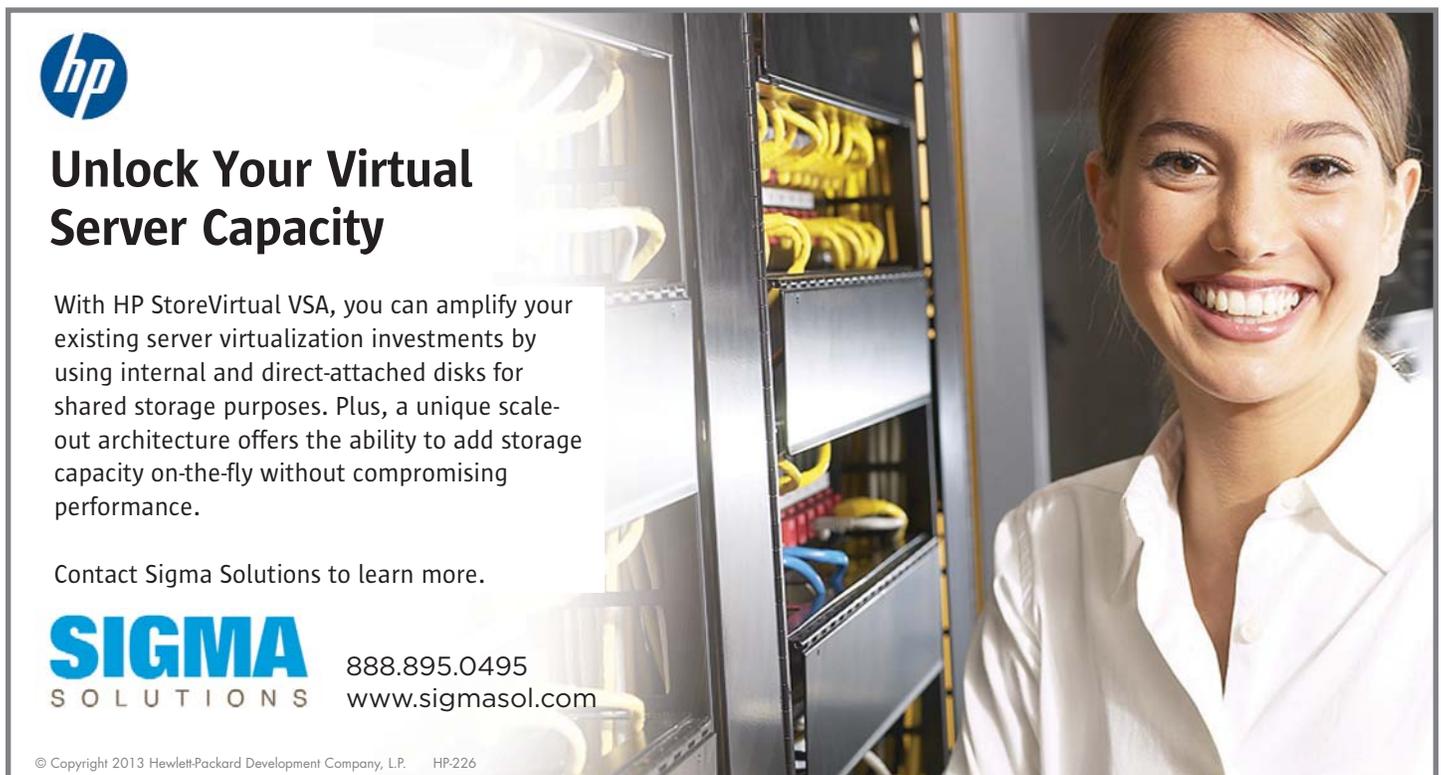
“Organizations with virtualized environments are turning to software-defined storage for cost-effective high availability and other data services on

industry-standard server infrastructure,” said Frank Jarzombek, Executive Vice President, Sigma Solutions. “HP StoreVirtual VSA is the industry’s first scale-out software-defined storage solution to offer data tiering. Its Adaptive Optimization capabilities move data blocks to high-performance or cost-optimized storage automatically, based on application needs, for improved efficiency and performance.”

With HP Adaptive Optimization, continuous workload monitoring migrates actively used data to faster storage such as solid-state disk (SSD), and inactive data to lower-cost storage such as hard-disk drive (HDD) storage. This granular approach eliminates the need to move entire application volumes to more expensive SSD. For inactive data, HP StoreVirtual VSA enables customers to further reduce costs by repurposing and virtualizing their legacy third-party storage, treating that capacity as a secondary tier within HP Adaptive Optimization.

Easily managed by IT generalists in VMware and Microsoft environments, HP StoreVirtual VSA installs three times faster and scales capacity 11 times faster than competitive software-defined storage options. Support for VMware ParaVirtualized SCSI Controller delivers efficient CPU utilization, minimizing ongoing infrastructure investments. Integration with Microsoft Windows Server with Hyper-V enables clients to provision storage from Microsoft System Center Virtual Machine Manager for faster deployment.

HP offers multiple licensing options for HP StoreVirtual VSA, providing flexibility to support current workloads as well as future growth requirements. In addition to the 10TB standard license, the company offers a 4TB license for small sites and a 50TB high-capacity license. As a result, customers can start small and upgrade to a larger VSA or the HP StoreVirtual 4000 appliance as needed, without business disruption.





Unlock Your Virtual Server Capacity

With HP StoreVirtual VSA, you can amplify your existing server virtualization investments by using internal and direct-attached disks for shared storage purposes. Plus, a unique scale-out architecture offers the ability to add storage capacity on-the-fly without compromising performance.

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Soaring Servers

Burgeoning data center workloads get a lift with high-density HP Moonshot platform.

Modern data center workloads are increasingly constrained by the limitations of traditional server hardware. The converging trends of mobility, cloud and big data have created a need for skyrocketing amounts of computational resources, which in turn is sending data center energy costs soaring to stratospheric levels.

With the launch of its Moonshot System, HP has delivered a new class of server that it says will help organizations rise above current hardware limits while fundamentally changing the trajectory of data center economics.

“With nearly 10 billion devices connected to the Internet and predictions for exponential growth, we’ve reached a point where the space, power and cost demands of traditional technology are no longer sustainable,” said Meg Whitman, President and CEO, HP. “HP Moonshot marks the beginning of a new style of IT that will change the infrastructure economics and lay the foundation for the next 20 billion devices.”

New Heights in Efficiency

Designed to specifically address IT challenges created by mobile, cloud and big data, Moonshot promises to deliver levels of speed, efficiency and scale that far surpass that of traditional servers. HP claims that, compared to its traditional ProLiant DL380 servers, Moonshot reduces energy

usage by 89 percent, space requirements by 80 percent, costs by 77 percent and complexity by 97 percent.

Moonshot achieves these numbers through a high-density architecture in which many low-power servers share management, power, cooling, networking and storage — unlike traditional servers that rely on dedicated components. A Moonshot system consists of an HP Moonshot 1500 Chassis capable of accommodating up to 45 application-optimized HP ProLiant Moonshot server cartridges. With support for up to 1,800 servers per rack, HP Moonshot servers occupy one-eighth the space required by traditional servers.

HP calls Moonshot “the world’s first software-defined server,” but that terminology should not be confused with the trend toward software-defined networking, which involves moving the control plane of the network from each network device to a controller that works with all the devices. For Moonshot, the “software-defined” terminology refers to the HP Integrated Lights-Out (iLo) management software used to dynamically assign and efficiently manage workloads across all servers in a chassis.

iLO management and processor choice make it possible to tailor each Moonshot System for specific data center workloads. For instance, Moonshot servers with the Intel Atom S1200 “Centerton” processor are targeted at static web applications, while server cartridges with Intel’s

new Atom C2000 “Avoton” eight-core processor can handle much heavier workloads such as big data applications and web hosting. Servers running on 64-bit ARM-based processors from both Calxeda and Applied Micro are expected to ship in early 2014 and target high-performance computing, financial services, genomics, facial recognition, video analysis and other applications.

Countdown to Hyperscale

The processors are important to the energy savings delivered by Moonshot. The Intel Atom and ARM chips are low-power processors developed specifically for use in devices such as tablets, smartphones, netbooks, hybrids and consumer electronics. Because these chips require significantly fewer transistors than typical processors in average computers, experts say the reduced costs, heat and power use could usher in an era of “hyperscale computing.”

Analysts at Moor Insights & Strategy describe hyperscale computing as IT services that run “specialized workloads at such scale” that they do not share infrastructure with other workloads. Organizations with such requirements therefore need an infrastructure designed for exclusive tasks rather than one optimized to run any workload at a “least-common denominator” level of service.

Until now, such requirements might be met using cluster techniques to run massively parallel workloads across multiple nodes. However, using traditional servers designed for compute-intensive enterprise applications for such tasks can result in significant costs for power, CPUs, licenses and floor space.

“Faced with constraints for energy efficiency and analytic compute capacity to support world-leading geosciences research, we absolutely require technological innovations from leading companies like HP,” said Chris Hill, principal research engineer, Massachusetts Institute of Technology. “Innovations such as HP Moonshot are providing us with confidence that infrastructure can continue to scale out to support fundamentally insatiable requirements — all with less energy, a smaller footprint, increased integration and lower cost.”

As a proof of concept, HP is itself using Moonshot servers to support its hp.com environment, which receives approximately 3 million visits per day.

“Testing results show that with Moonshot servers we can expect to run hp.com with the energy equivalency of a dozen 60-watt light bulbs, which is a game changer,” said John Hinshaw, executive vice president, Technology and Operations, HP. “We also plan to deploy Moonshot for additional applications to lead the next wave of transformation in the data center.”

Getting the Most from OneView and Moonshot

Sigma Solutions and HP work hand in glove to deliver comprehensive services and support for HP products.

Through its partnership with HP, Sigma Solutions can provide an array of services that help customers gain maximum advantage from the HP OneView and Moonshot offerings. Uptime spoke with Sean Bailiff of HP to learn more about these services.

Uptime: *What HP services can Sigma customers draw upon with regard to these solutions?*

Bailiff: Let’s start with OneView, the management tool that HP just launched. We have several services that are wrapped around helping customers install and utilize One View to its full potential. We can help configure the appliance and create an enclosure group, virtual connect templates and server profiles. We also have integration services where we help HP Insight Control and Virtual Connect Manager customers migrate their existing managed environment to OneView.

Uptime: *Is implementing the One-View solution a disruptive process?*

Bailiff: That’s a great question. We actually have a 10-minute video to illustrate how HP OneView enables customers to manage their infrastructure faster, at a lower cost and with a greater skill. It is not disruptive at all because we make it very simple to use.

Knowledge transfer is part of our configuration and integration services to help the customer get up to speed. We also have a vast portfolio of education services, including new hands-on training for OneView. Three-year software technical support and updates are available, and OneView, is supported by the new HP Proactive Care program.

Uptime: *Can you tell our readers about HP Proactive Care?*

Bailiff: We designed HP Proactive Care around the feedback we received from our customers. A common complaint in this industry — and this affects all manufacturers, not just HP — is that service calls are being routed overseas. With Proactive Care, we have created what we call the Advanced Solution Center, which is in Georgia. We have a smart telephony system for rapid response to get customers connected to the right HP professionals within 15 minutes. With Proactive Care, we are able to provide a 95 percent first-time fix rate.

Uptime: *What services are wrapped around Moonshot?*

Bailiff: We offer many of the same services that we provide for OneView — installation, startup services, education services, things that help customers get up to speed. Through HP Proactive Care we also perform proactive scanning and trend reporting twice a year. We review the customer's environment and look at firmware, patching, BIOS, operating system version, things like that. We deliver a report that tells the customer where they are and what we can do to help improve efficiency.

A technology called Insight Remote Support lets us proactively manage the customer's environment and sends information back to HP for analysis. We can proactively identify problems or irregularities in the customer's environment and help prevent downtime.

We provide these services for our traditional servers, storage devices and networking as well as for Moonshot. It's an all-encompassing service platform that allows customers to pick and choose the level of support they need.

Uptime: *So these services can be customized?*

Bailiff: Absolutely. For mission-critical systems we can provide 24x7 support with four- or six-hour onsite repair — we will have someone onsite with the part to fix the hardware and have the customer back up and running within that window. Or we can provide next-business-day repair for less-critical systems.

Then we can customize even deeper. In addition to the remote technical account managers in the Advanced Solutions Center, we have account support managers around the world who know the customer's environment. The account support managers augment the customer's IT support staff with the resources they need when they need them. These are the people who work proactively day in and day out to help mitigate risk.

Uptime: *How do these offerings interact with the comprehensive services Sigma brings to customers?*

Bailiff: Sigma provides that local, hands-on knowledge of the customer's environment, and helps to coordinate the appropriate HP services as needed for specific expertise. Since OneView is brand new, we have put a lot of thought into developing a service suite that complements and supports partners such as Sigma. The OneView solution and the programs surrounding it have been in the works a long time.

We are also providing our partners with comprehensive training and certification programs so they can gain the qualifications to deliver services and support directly to the customer. The bottom line for both Sigma and HP is to ensure that customers have the expertise and support they need to get the most from these solutions.

Enabling

TRANSFORMATION

through IT as a service



Sigma has been providing industry-leading data center solutions since 1992. Our consultative approach amplifies our engineering and integration skills, helping you to reduce costs and risks while maximizing the business benefits of your technology investments.

Sigma delivers value through an agile IT environment that responds to changing business objectives and market conditions. We can help you meet all of today's business technology challenges, including:

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

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