SIGMA SOLUTIONS

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The New Normal

Sigma and Citrix help change the way we work through virtualization, mobility and the cloud.

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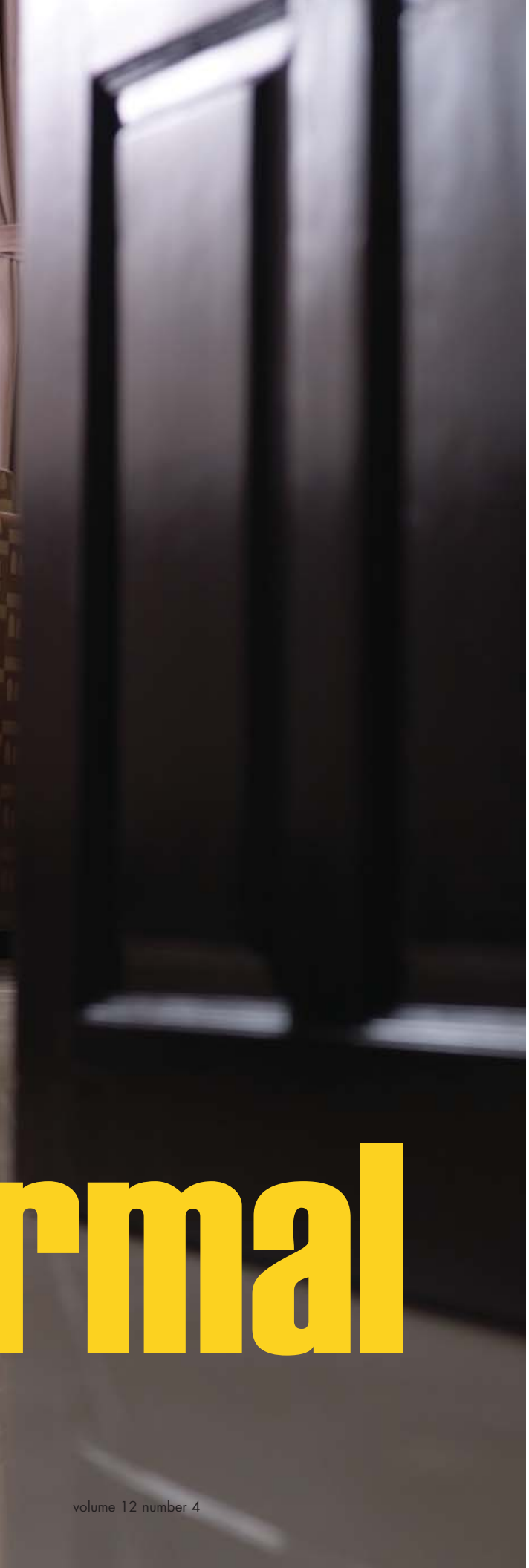
The New Nor



Sigma and Citrix help change the way we work by enabling virtualization, mobility and the cloud.

The way people work has fundamentally changed, driven by a convergence of mobile, social and generational forces. Workers today spend more than a third of their time away from their desks, but that doesn't mean they can get by with limited access to enterprise applications and data. In today's highly competitive 24x7 environment, workers need the ability to stay on the move throughout the day, seamlessly leveraging a diverse mix of devices to collaborate with others and share information.

While this trend creates opportunities for faster and more agile business operations and decision-making, it also creates significant IT management challenges. Sigma and Citrix are helping organizations meet these challenges.

In this special edition of Sigma Uptime, we're taking a look at Citrix solutions that help enabling modern work styles through virtualization, cloud and mobile technologies. For instance, with XenDesktop and other desktop virtualization strategies, Citrix helps organizations shift desktop management to a cloud-enabled service that gives employees easy access to apps and data from any laptop, smartphone or tablet. In addition, Citrix NetScaler is helping organizations move toward a mobile computing environment by transforming today's static networks into flexible, programmable platforms with the intelligence to allocate resources dynamically.

Sigma Solutions is committed to helping customers develop an IT infrastructure that can keep pace with rapid workplace changes to drive improved business value and increased productivity. As a Citrix Gold Partner, we have demonstrated competency in the strategic technologies that enable organizations to reimagine traditional operations and create a framework for innovation and expanded business opportunities.

Turning Heads

Citrix NetScaler SDX opens the door for simpler, more intelligent networks through SDN.

The mythical Hecatoncheires were three gigantic brothers with 50 heads and 100 hands apiece. Though unsurpassed in size and power and capable of epic feats, they were somewhat dim-witted and considered to be poor communicators, owing to the incessantly repetitive chatter produced by all of those heads.

Today's computer networks have undergone a Hecatoncheire-esque evolution, morphing into massively interconnected systems that deliver enormous benefits and capabilities, but with a degree of complexity that makes them incredibly difficult to understand and manage. Software-defined networking (SDN) is a rapidly emerging concept for regaining control of these behemoth enterprise networks.

A typical corporate network depends on tiers of switches and routers to implement diverse protocols for connecting devices using proprietary interfaces. These protocols tend to be designed to address specific problems, however, and any change to the network requires multiple updates to protocol-based mechanisms using device-level management tools.

These hardware-centric networking designs are increasingly ill-suited for modern data centers that are transitioning to a virtualized, cloud-based and mobility-enhanced world. In a virtualized environment, for example, a single change can mean IT will have to reconfigure thousands of virtual machines. Significant changes can take days or weeks, making it difficult for IT to apply a consistent set of policies covering access, security, QoS and more.

The App-Driven Network

SDN promises to transform today's static networks into flexible, programmable platforms with the intelligence to allocate resources dynamically, the scale to sup-

port enormous data centers and the virtualization needed to support dynamic, highly automated and secure cloud environments.

This is accomplished by placing a layer of software between network hardware components and the network administrators who configure and set them. This layer allows administrators to make device adjustments through a software interface instead of having to physically access and manually configure network devices.

"Beyond easing configuration, this software layer allows administrators to actually shape traffic and control the entire network," said Elias Khnaser, CTO, Sigma Solutions. "A centralized network console integrates control of all network devices into a kind of network fabric from which administrators can easily perform such high-level tasks as creating management scripts, defining routing protocols and provisioning virtual networks."

App Awareness

With the latest version of its NetScaler application delivery controller, Citrix is making it easier for organizations to make the move toward SDN. NetScaler SDX enables the creation of the crucial "application fabric" for SDN, where a range of network services are unified to drive application awareness across the entire network.

Application awareness is one of the central characteristics of SDN. This refers to the capacity of the network to maintain information about connected applications to optimize their operation and that of any subsystems that they run or control. Most SDN controllers focus almost exclusively on Layer 2 and Layer 3 activities involving the movement of data packets. With NetScaler SDX, however, Citrix introduces awareness into L4-L7 services that are critical to delivering apps, desktops and content.

"Without that L4-L7 awareness, the network just sees packets — it doesn't distinguish between the bandwidth needs of an end-user who is surfing the web and somebody else who is conducting a high-definition web conference with a key customer," said Khnaser. "NetScaler's inherent application visibility senses when an application needs more or less capacity and proactively signals to the orchestration platform when to add or reduce capacity."

Key Partners

A key to the Citrix strategy for SDN is that it has opened up NetScaler to support network services from third-party vendors such as Aruba Networks, BlueCat Networks, EMC's RSA security unit, Palo Alto Networks, Trend Micro and more. This allows customers to provision a broad range of best-in-class applications for network visibility, mobile device management, identity management and security through NetScaler, and drive all the appropriate configurations throughout the network.

"Networks exist to deliver applications, and NetScaler SDX really raises the bar on the ability to consolidate delivery and orchestration of best-in-class network services," said Khnaser. "Given the partner ecosystem Citrix has established, customers can feel secure that the apps they deploy have been jointly validated to work with NetScaler and enhance network integration, simplification and consolidation."

Traditional network architectures are increasingly ill-suited for modern data center workloads. An explosion of mobile devices and content, cloud services and server virtualization are placing a significant strain on existing networks. However, as SDN emerges to enable more intelligent, efficient and flexible networks, the unwieldy hardware-centric designs common for the past 30 years are likely to become the stuff of myths and legends.

Key capabilities of the NetScaler SDX platform include:

App-driven control over the whole network by creating a unified application control layer composed of best-in-class L4-L7 network services, and using the control layer to make in-place L2-L3 infrastructure and emerging SDN controllers more app-aware. Turnkey **AppTemplates** for popular applications are provided with integrated L4-L7 policies to ease configuration while also embedding application intelligence into all layers of the network.

Prescriptive, automated deployment of network service by using an app-centric approach for defining networking policy and topology and automating network configuration. **AppFormations** simplify initial deployment by programmatically prepackaging the network services necessary to support common use cases and the topology between for common use cases.

Consolidated delivery and orchestration of best-in-class network services onto an open, programmable platform that is integrated with leading cloud orchestration platforms. **AppFabric** provides a common multitenant framework for best-in-class third-party services to seamlessly and securely plug into the platform.

Citrix Synergy 2013 Recap

By DAVID SHARP
Sr. Consulting Engineer
Sigma Solutions

Citrix Synergy 2013 set the stage for an exciting year, positioning Citrix as a leader in cloud service delivery.

To start off the conference, a pumped-up, standing-room-only crowd filled the Anaheim Convention Center Arena to the rafters for the opening keynote by Citrix CEO Mark Templeton, with a guest presentation by the CEO of NVIDA, Jen-Hsun Huang, and amazing live demos by Brad Peterson, Citrix chief demo officer. In addition to the attendees in the arena, nearly 5,000 people viewed the streamed keynote live on SynergyTV and other sites — almost double the number from Synergy 2012 in San Francisco.

Templeton led off by talking about the factors driving business mobilization, including embracing consumerization, meeting expectations of the latest generation of workers and dealing with disruptions — and showcased new Citrix solutions that enable mobile work styles. Leading the lineup of innovations was XenDesktop 7, built on a new, cloud-style architecture. XenDesktop 7, integrated with NVIDIA GRID vGPU technology, is helping customers take advantage of the hosted-shared form of desktop virtualization to deliver rich, graphics-intensive applications such as AutoCAD and Photoshop.

Templeton also focused on XenMobile Enterprise Edition, a comprehensive solution for delivering mobile services, including applications, collaboration, browsing and data sharing. He also highlighted MDX technologies, which enable mobile application management, security and control. The rapid adoption of Citrix NetScaler for cloud networking was also a highlight of the keynote.

Key Citrix and Cisco technologies have been brought together into an integrated solution that helps enterprise and service provider customers deliver true cloud service automation with deep network and application-level intelligence, rapid service deployment and simplified networking services.

Amazon Web Services announced that Citrix NetScaler and Citrix CloudBridge are both available for immediate purchase via AWS Marketplace. NetScaler, the company's advanced cloud networking platform, and CloudBridge, which allows enterprises to connect securely to AWS, can both be deployed directly on AWS. Together, both Citrix products enable enterprises to extend their network to AWS, making it easier to optimize cloud deployments.

Citrix NetScaler on AWS Marketplace lets customers deploy the same L4-L7 services on AWS that they use on premises to help ensure the availability, scalability and security of large public and private clouds onto Amazon Virtual Private Cloud (VPC) within Amazon EC2. Citrix CloudBridge on AWS Marketplace allows enterprises to connect their data centers and private clouds, simplifying application migration, adding security layers and mitigating network latency on AWS.

Today, people want — even demand — access to apps, desktops, data and other people on any device, over any network. Citrix Synergy 2013 showed attendees how to make mobile work styles a reality in their organizations using powerful cloud services and the latest virtualization, networking and collaboration solutions. Whether the goal was a bring-your-own-device policy or executive mobility, Synergy provided strategies, technologies and best practices to help achieve it.

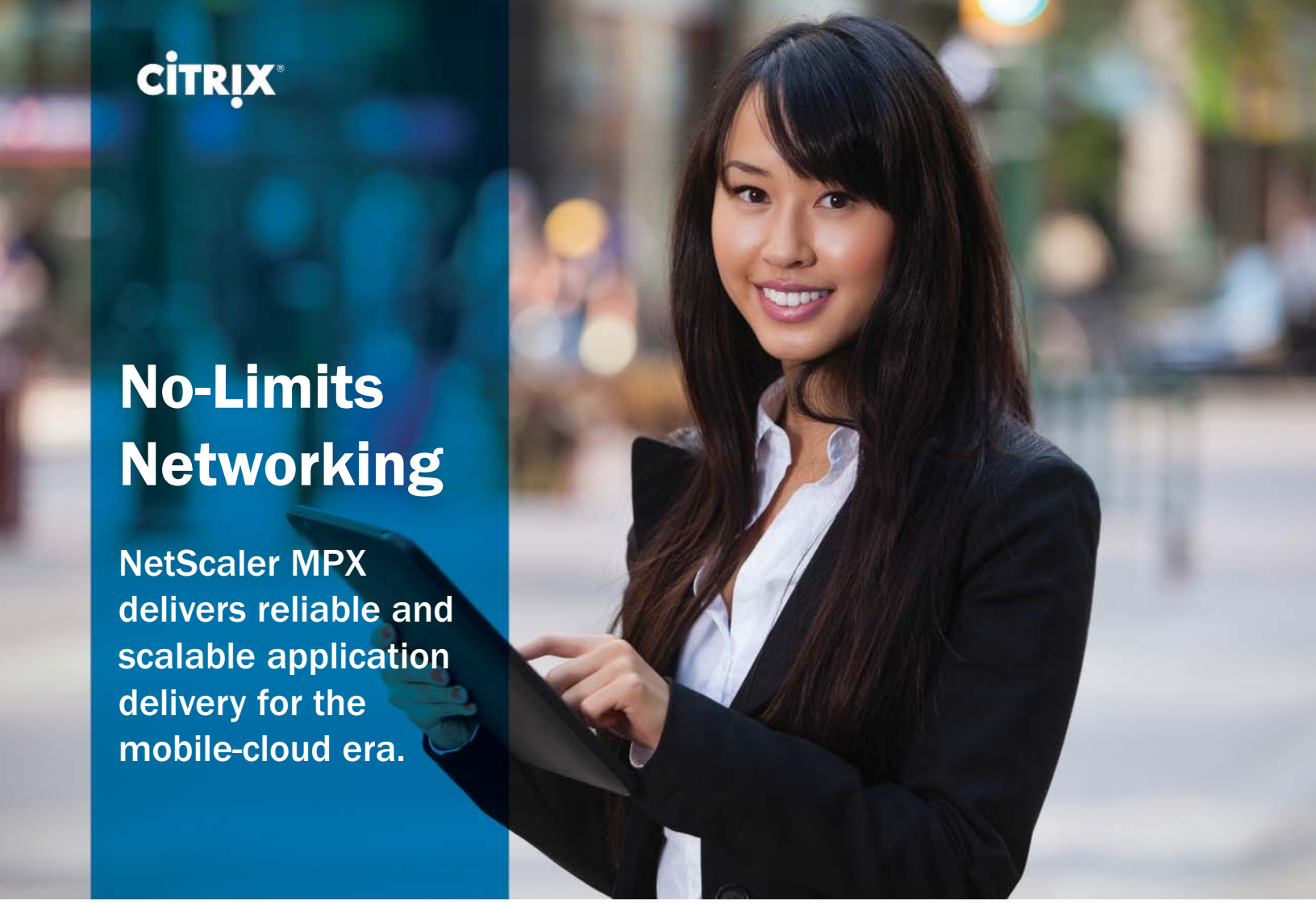
Sigma Engineers Earn Top Certifications

Several engineers from Sigma's Professional Services Data Center group achieved significant certifications while attending Citrix Synergy 2013. Jayan Menon earned both the Citrix Certified Integration Architect (CCIA) certification and the Citrix Certified Enterprise Engineer (CCEE) certification, while David Sharp and Mike Herff obtained the CCEE Certification.

The CCIA certification is the highest level of certification an engineer can obtain from Citrix. It validates the knowledge and skills required to analyze, design and implement dynamic virtualization environments, from the data center to the desktop.

The CCEE certifies engineers have demonstrated a high level of knowledge and experience, allowing them to build Citrix environments that include data centers, private clouds and desktops. As a prerequisite, an engineer must hodl five separate Citrix certifications. The CCEE certification is therefore difficult to obtain and represents a high level of proficiency in XenDesktop, XenApp and XenServer.

These three engineers join an elite group. There are only about 3,000 CCEEs and fewer than 1,000 CCIAs worldwide. Congratulations!



No-Limits Networking

NetScaler MPX delivers reliable and scalable application delivery for the mobile-cloud era.

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Citrix's family of NetScaler® MPX™ web application delivery controllers (ADCs) deliver the industry's fastest web application delivery and load balancing to help companies address even the most demanding service delivery requirements.

All NetScaler MPX appliances support Citrix nCore technology, which enables customers to tap the power of multi-core CPU systems to realize multi-gigabit performance and massive scalability for all application delivery workloads. Flexible Pay-As-You-Grow licensing helps customers protect their investment, avoid costly hardware upgrades and reduce overall TCO. NetScaler MPX appliances support small enterprises, massive global web sites and everything in between.

Sigma CTO among Citrix 'Visionaries'

By HEATHER REAL
Marketing Communications Specialist
Sigma Solutions

Sigma Solutions' commitment to Citrix goes beyond just certification and training — Chief Technology Officer Eli Khnaser is recognized as a Citrix CTP. That places Eli in an exclusive, by-invitation-only group of technology visionaries and professionals with deep knowledge of Citrix products and insights. Eli's many books, video training courses, whitepapers, blogs, public speaking engagements and large deployments have prompted Citrix to recognize his leadership and influence among the virtualization and mobility communities.

The CTP group is essentially an advisory board for Citrix that meets several times a year and interacts with Citrix at many different levels. CTPs affect Citrix product roadmaps, provide feedback on existing products and are privileged to preview advanced product development. Many of the features that make it into Citrix products are a direct result of the feedback and input of the CTPs.

Eli's participation in the CTP program ensures that Sigma stays on the cutting edge of Citrix's technology innovations. This distinction also demonstrates to customers Sigma's unmatched capabilities in the design and deployment of Citrix solutions.

Eli is also committed to Sigma's position of being a true trusted advisor to our customers and offering an advanced, independent view of solutions. Because of this commitment, Eli is also part of an even more exclusive group — he is one of only three individuals worldwide who are recognized as Citrix CTP, Microsoft MVP and VMware vExpert.

Software Defined: What Is It and Where Did It Come From?

By CHRIS NORRIS
Systems Architect
Sigma Solutions

The newest buzzwords in IT all seem to be focusing on "software defined" — the term is everywhere. You have software-defined data centers, software-defined networking and the latest in this trend, software-defined storage. To understand what software-defined storage is we first have to clarify what "software defined" means in general.

It could be argued that the first example was software-defined computing. Of course, it was not called software-defined computing, it was called server virtualization. This technology allows multiple physical servers, all running different operating systems, applications and workloads, to be consolidated onto very few physical servers. It allows us to customize the needs of each server in terms of memory, processor and storage allocation using software (the hypervisor) without requiring separate hardware for each system.

Software-defined storage promises to bring similar efficiencies to the data center storage administrator. It claims to increase the ease of provisioning, management and troubleshooting while decreasing complexity. This is achieved by allowing central management of multiple systems and a higher level of automation. Other examples such as software-defined networking and software-defined data centers promise similar increases in productivity.

Take this example:

Company A uses three different brands of storage. To manage this, Company A employs several storage administrators, each of whom specializes on one of the storage products. Company B uses three different brands of storage. To manage this, Company B has each system set up and fully provisioned when it is initially installed so that administrators can manage all of the systems with a single storage admin. An automated, policy driven tiering system allows the proper storage to be used for each new workload. This is achieved by automating day-to-day administration tasks and providing a single tool to manage the system.

Which of these solutions appears to be more scalable and efficient in the long term? The answer seems obvious, doesn't it?

But what makes something software-defined storage, and not just a new array with a software management package? This is where the industry is divided and two different definitions present themselves. One definition is that a storage array that can manage other arrays using a central management console is software-defined storage. This is hardly a new concept — companies such as EMC, NetApp and HDS have had the ability to do this for years. The other definition, however, is one that could cause a real shakeup in the storage world. This definition calls for a central software storage controller that can run on commodity hardware with nothing preconfigured at the factory and all storage configurations defined in policies. Wow, that sounds like a mouthful, but how would that work in practice?

In order to achieve the latter definition of software-defined storage we would have to use industry-standard hardware for the controller, which could be an x86-based server or VM. This system would act as the control plane for the overall system. We then add our various storage arrays to be controlled. Because the software control is built in, the storage arrays would simply be installed and run initial setup, and the software controller would take over and do the rest. At this point, the admin no longer has to manage the individual systems. Instead, the admin would simply build out the tiering policies, set up the automation and provisioning processes, and monitor the system's performance.

Software-defined storage is still very much in its infancy, and there are a number of ways that it could evolve as more companies continue to develop new systems and technology. It will be interesting to see the direction that this technology goes in the coming years.

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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:

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- Consumerization/BYOD
- Collaboration
- Big Data
- Mobile Device Management

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