

SigmaUptime

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LOOKING GOOD

UPTIME

NetApp meets
storage demands
of data-heavy video
surveillance systems.

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Sigma Uptime

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NetApp storage solutions deliver the capacity, scalability and manageability required for data-heavy video surveillance systems.

The shift from outdated analog video systems to vastly superior IP-based systems has led to an explosion in the use of video surveillance in public and private-sector organizations. By some accounts, video surveillance will be a \$50 billion industry by 2020, with some 300 million professionally installed cameras capturing more than 3.5 trillion hours of video.

“Concerns over security, crime and terrorism have always been drivers for using video surveillance systems, but the incredible improvements in quality, speed, scalability, and real-time analytics and alerting enabled by IP video sys-

tems have taken things to an entirely new level,” said Scott Monroe, Government & Education Practice Manager, Sigma Solutions. “Dashboard cams, body cameras, drone cameras and more are contributing to the growth of these absolutely massive video surveillance infrastructures.

“These systems have proven value in improving safety and security, but they also create significant demands on the IT environment — particularly storage. All of this accumulated video is going to be of limited usefulness without a storage infrastructure that is reliable, scalable and manageable.”

The amount of storage capacity needed depends upon a number of factors, including the number of cameras, the im-



“Storage is the foundation of an effective video surveillance infrastructure, and not a peripheral technology.”

age resolution and frame rate, the type of video compression technology used, and how long the data must be stored. NetApp has developed a line of storage systems designed explicitly to meet these challenges. The company’s video surveillance storage solutions provide a complete line of external storage systems designed deliver unprecedented capacity, speed, and durability.

Storage Foundation

NetApp’s E-Series storage system uses a modular architecture for a true pay-as-you-grow solution to address growing video data storage requirements. The NetApp E5600 is a hybrid array that leverages conventional disk drives with highly optimized flash storage to deliver the performance and throughput needed for I/O-intensive video applications. It delivers up to 825,000 IOPS and sustains 12GBps data trans-

fers to disk. It is supported by NetApp’s SANtricity operating system, which features adaptive caching algorithms for maximum IOPS and throughput.

The E5600 supports a variety of host and network interface options, and provides greater than “five 9s” reliability with fully redundant I/O paths and automated path failover. SANtricity Storage Management software, Dynamic Disk Pools and thin-provisioning technology make the E5600 easy to deploy and manage. Full-disk encryption and SANtricity Remote Mirroring provide advanced data protection and disaster recovery capabilities.

“NetApp understands that storage is the foundation of an effective video surveillance infrastructure, and not a peripheral technology,” said Monroe. “It isn’t just a matter of how much video you store — your storage capacity and per-

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formance has a measurable effect on a video surveillance system's ability to meet the ever-increasing demands being placed on it. The E5600 offers the throughput required for simultaneous playback streams from multiple devices, delivered at megapixel resolution.”

Management and More

Given the vast quantity of data involved, another key to extracting value from video data repositories is effective storage management. NetApp's OnCommand Insight (OCI) management software allows administrators to better control, automate and analyze the storage infrastructure. Within a matter of hours, OnCommand Insight discovers the entire storage environment and reports on the current state of all infrastructure objects such as storage arrays, hosts, switches, volumes, disks and ports. This includes important properties such as zoning, mapping, availability and port status. Because OnCommand Insight works without agents, actionable results are delivered almost immediately.

Based on information gathered from discovery, OnCommand Insight correlates thousands of physical and logical components into service paths that describe the relationship between each application and all its mapped storage. Each service path includes the virtual machines, physical servers, network devices and storage systems required by the application.

NetApp has developed a validated reference architecture that combines its E-Series storage systems with industry-leading video management software (VMS) and video appliances. Video data captured at the “edge” on servers and storage located close to cameras can be efficiently transferred to the “core” centralized storage used for long-term archival and analytics.

VMS solutions can help apply several types of video analytics to captured images. In addition to providing alerts for a variety of events such as a perimeter breach, smoke detection or a disabled camera, advanced analytics allow users to set parameters for a variety of search functions after the fact — for example, the specific size, color or direction of a person or object.

Video surveillance has proven effective in detecting and preventing crime, and advances in camera and networking technologies are sparking widespread adoption. Because these newer solutions operate over the data network, they place a premium on having a storage infrastructure that can support the volume of data being generated. NetApp's solution is designed to deliver the capacity, scale and manageability to meet those requirements.

“NetApp has crafted a solution that can handle the demands of a modern video surveillance infrastructure,” said Monroe. “Even more, they surround that with a partner ecosystem that allow customers broad choices in camera hardware, management software and analytics capabilities. It is a comprehensive, open and enterprise-ready solution.”



Reliability matters.

Your organization relies on core applications that are critical to business success, which makes continuous availability and consistent application performance business imperatives. A proven storage system that works with your application software is a must for achieving this reliability.

That is why the NetApp® E5600 hybrid storage system was developed. It supports high-performance mixed workloads, databases, file systems, data analytics and bandwidth-intensive streaming applications, backup, and archive — all with equal ease. Combine these high-availability features with SANtricity® patent-pending Dynamic Disk Pools (DDP) and thin-provisioning technology, and the result is a simple-to-deploy, simple-to-manage data storage solution.

Today's storage must not only meet today's demanding requirements, but must also keep up with continuous growth. The NetApp E5600 system is storage you can count on.

Contact your Sigma representative to learn more.



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Mobile App Security

Mobile device usage opens door to new types of threats.

Various studies reveal that mobile devices now outnumber the world's human population — roughly 9 billion devices to 7.4 billion people. The ubiquity of tablets and smartphones has fundamentally changed how business is conducted by providing unprecedented connectivity and driving new levels of productivity, efficiency and job satisfaction.

What makes these devices powerful business tools rather than just fun electronic toys is the ever-expanding ecosystem of mobile applications. Billions of purpose-built apps are downloaded each year, allowing users to access real-time business data, automate key processes and gain powerful insights. Equally important, organizations have greatly expanded efforts to create mobile versions of all the enterprise apps they've been using for years.

However, the growth of mobile apps is matched with an inevitable rise in security issues.

Attackers are increasingly seeking — and finding — vulnerabilities in mobile apps that can expose both business and personal data to risk. In recent analysis of 126 of the most popular mobile health and finance apps from the U.S., U.K., Germany and Japan, IBM partner Arxan Technologies found that nearly all of them contained significant vulnerabilities.

The analysis found that 98 percent of the apps tested lacked binary protection, and 83 percent had insufficient transport layer protection. Such vulnerabilities could result in application code tampering, reverse-engineering, privacy violations and data theft. In addition to the risk of data ex-

posure, the vulnerabilities could lead to an app being reprogrammed for a variety of nefarious purposes.

“Mobile apps are often used by organizations to help keep customers ‘sticky,’ yet in the rush to bring new apps to market, organizations tend to overlook critical security measures,” said Arxan executive Patrick Kehoe.

Mobile Malware on the Rise

Other recent reports find a disturbing increase in mobile malware infections. In September, Nokia's biannual Threat Intelligence Report claimed that smartphone malware infections nearly doubled in the first half of 2016, reaching an all-time high in April when one out of every 120 smartphones being tracked had some type of malware infection. Devices based on the Android operating system were the most targeted mobile platform by far, representing 74 percent of all mobile malware infections.

The report claims mobile malware is increasing in sophistication, with more robust command and control protocols. Nokia reports that new variations attempt to root the phone in order to provide complete control and establish a permanent presence on the device. The top three mobile malware threats —

Uapush.A, Kasandra.B and SMSTracker — together accounted for 47 percent of all infections.

Despite the threat, many companies are not investing in mobile app security. According to the IBM Security and Ponemon Institute research paper “The State of Mobile Application Insecurity,” 50 percent of organizations allocate no budget for mobile security. Device owners do not seem to be



taking proper precautions, either. A survey by Motive Security Labs survey found that 65 percent of users expect their service provider to protect both their mobile and home devices.

Businesses can't afford to depend solely upon software vendors and service providers for the security of their mobile computing environment. Gartner says it is imperative that organizations develop their own methods and technologies for mobile application security testing and risk assurance.

Gartner expects existing static application security testing (SAST) and dynamic application security testing (DAST) vendors will modify and adjust these technologies to address mobile application cases and meet mobile application security testing challenges. Although SAST and DAST have been used for the past six to eight years and have become reasonably mature, mobile testing is a new space, even for these technologies.

New Tests Emerging

In addition to SAST and DAST, a new type of test — behavioral analysis — is emerging for mobile applications. The testing technology monitors a running application to detect malicious or risky behavior in the background. For example, this test would raise a red flag if an active audio player accesses a user's contact list or geolocation and initiates data transmission to some external IP address.

Testing the client layer — the code and graphical user interface — of the mobile application that runs on the mobile device is not enough. The server layer should be tested as well. Mobile clients communicate with servers to access an enterprise's applications and databases. Failure to protect a server creates the potential for highly damaging database breaches. Code and user interfaces of these server-side applications should therefore be tested with SAST and DAST technologies.

Gartner predicts that through 2017, 75 percent of mobile security breaches will be the result of application misconfigurations rather than deeply technical attacks on mobile devices. A classic example of misconfiguration is the misuse of personal cloud service through apps residing on smartphones and tablets. When used to convey enterprise data, these apps lead to data leaks that typically go undiscovered.

"Today, more than 90 percent of enterprises use third-party commercial applications for their mobile BYOD strategies, and this is where current major application security testing efforts should be applied," said Gartner analyst Dionisio Zumerle. "App stores are filled with applications that mostly prove their advertised usefulness. Nevertheless, enterprises and individuals should not use them without paying attention to their security. They should download and use only those applications that have successfully passed security tests conducted by specialized application security testing vendors."


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Cover Your Apps

More than 80 percent of today's cyber attacks target applications. An integrated, holistic, approach to application security is crucial for agile development. You need to systematically test and scan all applications, whether they're developed in-house, by a third-party, open source or off-the-shelf. HP Fortify offers application security solutions on-premise and on-demand to cover all of your software security needs including mobile app security and web security.

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CLOUD FOCUS

Enhancements make Windows Server 2016 a cloud-ready operating system.

Although the cloud computing model has undeniably transformed business technology, the vast majority of organizations still struggle with questions of how to best integrate cloud-based systems into their data center environment. The new iteration of Microsoft's workhorse server operating system is designed to resolve such challenges.

Released to manufacturing during the Microsoft Ignite event in Atlanta Sept. 26-30, Windows Server 2016 marks a fundamental shift in focus toward cloud scenarios. Microsoft engineers say the architecture of the server OS is "deeply refactored" with a host of features that address evolving IT priorities such as "born-in-the-cloud" applications, software-defined computing, container-based microservices and increased security for virtual machines.

While Microsoft describes Windows Server 2016 as a "cloud-ready" operating system, it notes that it also delivers new levels of performance and reliability for traditional workloads while introducing new technologies that make it easy to transition to cloud computing down the road.

Small Footprint; Big Benefits

One highly anticipated new feature is Nano Server, a lightweight installation option designed to streamline cloud workflows. It is essentially a scaled-down version of Windows Server, stripped of a graphical user interface (GUI), applica-

tion stack and command shells. It requires 93 percent less disk space than a full-on Windows Server deployment.

The reduced footprint translates to better performance by eliminating unneeded services and processes that consume memory and CPU cycles. It also boosts security by shrinking the attack surface and reduces performance issues by limiting the number of functions each server instance must perform. Ultimately, these tiny, single-purpose Nano Server deployments will require fewer patch and update events, while delivering faster restarts, better resource utilization and tighter security. Microsoft expects 92 percent fewer critical bulletins and 80 percent fewer required reboots compared to a traditional server deployment.

Much of the reduced footprint comes from the removal of a GUI — a so-called "headless" deployment. Instead, users access a free set of web-based remote GUI tools that can be used to manage server installations from anywhere — whether they are in a data center or running in a virtual machine (VM) or in the cloud. Users can log into a web-based portal using a browser from any Windows, Mac OS or Linux PC and begin managing their Windows servers remotely.

The obvious downside of a headless deployment is reduced functionality. For instance, you can't run traditional Windows applications on Nano Server. However, the upside is that it allows a huge increase in the number of VMs running on your hardware by eliminating much of the overhead of a traditional server implementation running lots of complex code.

Azure Integration

Windows Server 2016 also features tight integration with Microsoft's Azure cloud service. The server OS makes significant chunks of the Azure code available on premises. This means developers can build applications that can run either in the data center or in the Azure public cloud. Other enhancements include gateways for connecting to Azure and other remote sites and a converged network fabric supporting both remote direct memory access (RDMA) and tenant traffic.

The Azure influence is evident in a number of cloud-inspired networking enhancements. A scalable network controller allows workloads to be deployed and maintained with a number of networking policies available within seconds. Networks can be dynamically segmented based on workload requirements using a distributed firewall, and network security groups can apply rich policies within and across those segments.

Another cloud-focused feature is Windows Containers, which delivers advanced support for microservices and application containers. In this approach, apps are broken down into small bits of code that perform a single function, such as routing traffic, and then packaged in lightweight and portable containers that provide access to the CPU, memory, block I/O and network resources of the host operating system. This drives developer productivity and agility by allowing application code changes to move from development to production in minutes, enabling real-time change.

More Enhancements

Windows Server 2016 includes numerous improvements to the Hyper-V hypervisor. The Rolling Cluster Upgrades feature allows users to upgrade clusters of Hyper-V virtual machines running on Windows Server 2012 R2 to Windows Server 2016 without any disruption. The new Hyper-V Replicas (HVR) feature dramatically improves replication features. Previously limited to asynchronous replication of virtual hard disks, HVR enables either synchronous or asynchronous replication of entire volumes at the block level.

The new OS also features software-defined computing capabilities across storage, networking and compute that help reduce costs and increase agility. New security features help address evolving threats and new threat vectors, and enhanced toolsets enable automated deployment and management of workloads across their entire lifecycle.

Windows Server 2016 is available in three main editions. The Datacenter edition is meant for highly virtualized data center and cloud environments, and includes powerful new features such as shielded virtual machines, software-defined storage and software-defined networking. The Standard edition is ideal for organizations that need limited virtualization but require a robust, general-purpose server OS, and the Essentials edition is designed for smaller organizations with fewer than 50 users.

Service Center 2016 Enhancements Boost Hybrid Cloud Management

As part of the Windows Server 2016 rollout, Microsoft is also updating its System Center server management suite. Among the significant changes in System Center 2016 is integration with the cloud-based Operations Management Suite (OMS) to add support for managing and monitoring workloads in a hybrid cloud environment.

OMS is a Software-as-a-Service (SaaS) platform that allows an administrator to manage both on-premises and cloud IT assets from a single console. Log analytics features give administrators the ability to diagnose and troubleshoot hardware infrastructure, workload or application issues before they result in costly downtime or slow performance.

OMS automates backup and recovery, security, and compliance tasks across all applications, workloads and infrastructure, including Office 365 and Microsoft's Azure cloud platform. In System Center 2016, OMS will also deliver broader support for Linux environments.

System Center 2016 includes Virtual Machine Manager (VMM), which delivers new capabilities for the software-defined data center, including managed Nano clusters, shielded virtual machines and rolling cluster upgrades. VMM makes it easy to deploy software-defined networking components such as network controllers, gateways and software load balancers using customizable templates.

Configuration Manager comprises tools to automate software deployment, data protection and compliance enforcement across all devices. Enhancements in System Center 2016 include support for the latest Windows 10 features, a Windows in-place upgrade, more frequent and easier updates, a unified end-user portal and more.

Automation features in Service Manager create significant speed and performance increases for tasks such as incident resolution, change control and service requests. Microsoft says users can expect 75 percent faster performance for scheduling Active Directory group expansion, and a four-fold improvement in incident processing capacity. Additionally, administrators can create rich reports and slice data based on a variety of dimensions using Service Manager's data warehouse cubes.

A recent study on software utilization by Austin-based Spiceworks finds that Windows Server 2003 is still being used by 60 percent of North American companies — even though Microsoft ended support for that version last July. Even if a major upgrade isn't on the immediate timeline, the improvements in Windows Server 2016 are so compelling that it is worth investigating. An upgrade will give organizations the opportunity to work with a system that was designed from the ground up to take advantage of leading-edge technologies.

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