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PROSYS

Tech Outlook

Rethinking How We Work

Citrix solutions bring new levels of flexibility and security to the modern workforce.

Businesses used to provide all the technology their workforces needed to do their jobs, but employees today increasingly rely on their personal devices and applications — and expect them to be supported by the IT department.

This "consumerization" trend reflects the simple fact that the average person has become a reasonably sophisticated technology user. As consumers make their own buying decisions about the devices and applications that help them maximize personal productivity, there is a natural crossover into the workplace.

As a result, businesses today are under intense pressure to respond to the demand for consumer-like apps and experience, including instant and seamless access to data and services and BYOD programs that let people use the latest devices for work. Until now, IT solutions have not been flexible enough to easily accommodate those demands, requiring major adjustments to security policies, management processes and end-user access settings in response to new hardware, services and delivery models.

"IT consumerization has brought fantastic innovation to the workplace, but it also imposes significant burdens on the IT department," said Tommy Whatley, VP of Advanced Services, ProSys. "It's hard to manage equipment you don't own, and harder still to se-

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cure and support a diverse collection of hardware and software that is literally changing every day."

On-Demand IT

Citrix has been a frontrunner in the effort to accommodate this new IT paradigm, with breakthroughs in desktop virtualization, cloud services and mobility apps. Recently, the company announced several new solutions and product enhancements designed to help organizations rapidly deploy new resources while enhancing security, user productivity and business agility:

- **Citrix Workspace Cloud** is a platform designed to simplify the on-demand delivery of a range of IT tools and services. It allows organizations to deliver a complete mobile workspace in which apps, desktops and data services are securely delivered to any user, on any device, over any network.
- Enhancements to **XenApp** and **XenDesktop** will make these app delivery and VDI solutions more secure and flexible.
- A new version of the **ShareFile** file-sharing platform allows users to encrypt and send sensitive business documents from Microsoft Outlook, without having to deploy a separate encryption service.
- Enhancements to the **NetScaler** application delivery controller and **CloudBridge** WAN optimization help organizations evolve toward software-defined networks (SDNs) by providing a single access point for all enterprise, web, mobile, cloud and SaaS applications.
- Advances in the **XenMobile** enterprise mobility management solution, including integrations with an expanded partner ecosystem, deliver advanced security and performance management, while ensuring a seamless experience from any mobile device.

The Citrix Workspace Cloud creates a cloud-based control plane based on Microsoft Azure, but allows the rest of the components to reside anywhere. This allows IT administrators to design and compose any number of workspaces with different combinations of apps, desktops, data and mobility to meet the needs of diverse user profiles and contexts. Citrix Workspace Cloud also allows organizations to choose the best locations for their workspaces — the data center, a public cloud or a hybrid cloud — providing control over security, performance, price and data sovereignty.

A key element of Workspace Cloud is Citrix Lifecycle Management, a blueprint-based component that provides a unified and standardized set of management tools for rapid design, deployment and management of enterprise application workloads. It includes out-of-the-box blueprints for XenDesktop, XenApp, XenMobile, NetScaler and Citrix Workspace Suite.

Business executives and frequent travelers often must use Wi-Fi or cellular networks that can be slow and inconsistent, which can paralyze the mobile experience. To ensure seamless application delivery and virtual desktop availability, XenDesktop and XenApp have been enhanced with new optimization capabilities. Framehawk delivery optimization technologies have been integrated into the Citrix HDX virtualization engine, providing unique acceleration capabilities that overcome challenging wireless conditions to deliver a better-than-native user experience.

Eye on Security

While cloud and consumerization have delivered significant cost and collaboration benefits, those opportunities come with some risk. Industry surveys reveal high levels of concern about data protection, regulatory compliance, privacy and more. Citrix has addressed such concerns in several ways.

XenDesktop and XenApp both now meet Common Criteria Certification, providing government agencies and enterprises with the assurance that they are using secure and reliable solutions that have been evaluated against the industry's highest standards. With XenApp and XenDesktop 7.6, Citrix introduced native FIPS 140-2 compliance in HDX technology to provide the highest level of data access security in virtual environments.

New Unified Gateway features in NetScaler also enhance security by delivering simplified, unified remote access to business applications. Unified Gateway consolidates multiple access gateways — including mobile-specific gateways and classic SSL VPNs — with NetScaler to provide a single URL for secure remote access. In conjunction with NetScaler, Citrix CloudBridge accelerates application delivery across public and private cloud networks. CloudBridge also supports WAN virtualization, helping organizations move toward SDN by allowing network infrastructure to be delivered as a service.

Citrix also has beefed up security in its ShareFile solution through integrations with leading data loss prevention providers. ShareFile will offer the ability to classify items based on their content and enforce sharing restrictions based on data categories. XenMobile combines the essential features of mobile device and mobile application management to deliver control over mobile apps and data and shield the network from mobile threats.

Over the past decade, technology trends such as cloud, mobile, and now the evolution of software-defined environments have influenced the role of IT in business. Networks, desktops, data and even in-person meetings have all been decoupled from physical locations and transformed into fully digital mobile workspaces that provide complete business mobility. Citrix is leading this transition, helping organizations develop effective new ways to work and collaborate securely.

"The reality is that the ever-changing consumer marketplace has come to define the technologies that people want to use at work — and rightfully so, since they offer significant enhancements to productivity and efficiency," said Mark Templeton, president and CEO, Citrix. "We wanted to find a way to help businesses feed the wave of innovation versus having to react to it. By enabling on-demand IT for a workspace world, our customers can now deploy new resources in minutes and manage them with ease, no matter where it resides or what device people are using."

News Briefs

Cybersecurity on Executive Agenda

Cybersecurity is an important board-level priority, with a vast majority of corporate directors and general counsel rating IT-related risks among their top concerns in a recent survey. The annual Law in the Boardroom Study, designed by FTI Consulting and NYSE Governance Services, found that 90 percent of directors and 86 percent of general counsel indicated they are either extremely concerned or concerned about cyber risk.

More than three-fourths (77 percent) of both directors and general counsel believe that the cyber liability risk at their company has increased over the last two years. Nearly all (98 percent) of directors and general counsel indicated that they do not have a high level of confidence that their companies are totally secure and impervious to hackers nor are they entirely confident that their company could quickly detect a cyber-breach. However, 64 percent of directors and 77 percent of general counsel are at least somewhat confident their board knows the right questions to ask management about their company's cyber strategy, marking increased confidence from last year's survey.

"Cyber risk poses a potentially devastating effect on a business' reputation and bottom line," said Thomas G.A. Brown, Senior Managing Director in the Global Risk and Investigations Practice of FTI Consulting, which specializes in cyber security and investigations. "Many companies don't realize the extent to which they are exposed to cyber risk until after they have suffered a cyber-attack. It is important for companies today to have a well prepared response plan in place so that they can quickly address the situation at hand."

Analytics Needed in Supply Chain

Although complexity in global supply chain networks continues to increase, only 26 percent of business executives are using data analytics tools and processes to help manage third-party relationship risks, according to a new Deloitte survey. Thirteen percent of those surveyed are still learning how to use analytics software and 22 percent use no data analytics at all.

"Many market-leading companies leverage advanced data analytics tools and forensic accounting to identify anomalies in their transactional data," said Mark Pearson, principal, Deloitte Financial Advisory Services LLP. "Using a forensic mindset when analyzing big data can provide value to an organization by adding context to suppliers and transactions, potentially adding to increasing profits and mitigating the risk of fraud, waste and abuse."

Nearly one-third (31 percent) of business executives surveyed said their organization has faced supply chain fraud, waste or abuse in the past 12 months. Forty percent of these executives have a program in place to detect and thwart supply chain abuse, while 28 percent of respondents indicated their organizations do not have a program in place. Additionally, 23 percent of respondents monitor their third-party relationships less than once a year (13 percent) or not at all (10 percent).

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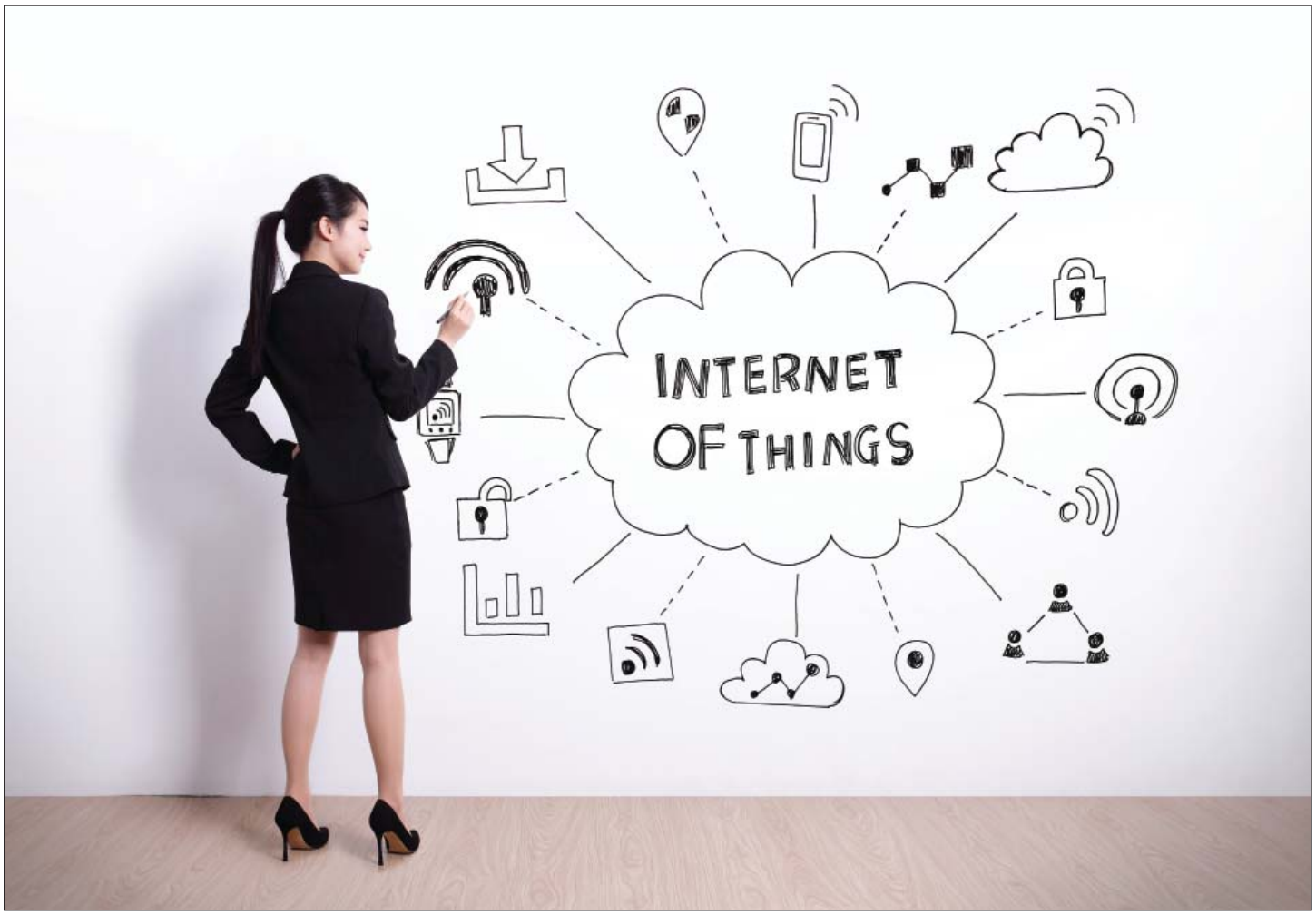

Coping with IP Address Sprawl

DDI solutions offer a unified approach to IP address management.

From fitness trackers and smart thermostats to video games and vending machines, more and more devices are being connected to the Internet with embedded technology for gathering and transmitting data. Gartner analysts say the growing Internet of Things will comprise 4.9 billion connected things by the end of 2015, with that number growing to 25 billion by 2020.

All these connected things pose a management dilemma for IT organizations. Because they require an IP address as a unique identifier, IT must discover, track, manage and report on an explosion of IP addresses in use across an enterprise network.

These requirements are forcing IT organizations to re-evaluate their strategies for IP address management (IPAM), as well as the related technologies of domain name system (DNS) and dynamic host configuration protocol (DHCP). Traditional manual processes of recording static IP addresses on a spreadsheet are fast giving way to a more automated approach.

Conflict Resolution

DDI solutions — a product category combining DNS, DHCP and IPAM — provide a unified management framework for managing and monitoring the entire IP address infrastructure. With support for both IPv4 and IPv6 addresses, these solutions allow IT organizations to remain assured that their inventory of assignable IP addresses remains current and sufficient, reducing the risk of duplicate addresses, human errors and version-control issues.

Although DHCP servers automatically manage and assign IP addresses, it is still possible to occasionally wind up with duplicate IP addresses. If a PC is misconfigured with a static address that matches the address of another computer or printer, both machines will be rendered unusable until the conflict is resolved. In a worst-case scenario, an IP address

conflict could create a serious network outage if the misconfiguration involved the address of a key server.

Additionally, conflicts have been known to occur when organizations have two similarly configured DHCP servers handing out overlapping addresses. This is particularly common where there are multiple wireless access points or other network devices with embedded DHCP servers, which are usually turned on by default.

Computers, printers or other devices coming back online after an extended period in stand-by mode can also cause problems. If the DHCP server reassigns the device's IP address to a new device in the meantime, a conflict will occur when the original device comes back online.

DDI minimizes the risk of such conflicts through automated address discovery and tracking. Network managers can monitor and issue alerts on address conflicts, DHCP address exhaustion, DNS record mismatches or other critical events.

Gaining Control

DDI is available as software, appliances or hosted solutions. Key vendors include Infoblox, BlueCat, SolarWinds, Microsoft, Cisco and Alcatel-Lucent. Gartner estimates that usage of a commercial solution can reduce operating expenses related to IP address, DNS and DHCP management by 50 percent or more.

In a recent survey of 195 network managers conducted by SolarWinds, respondents said that managing IP addresses has become an increasingly time-consuming task, requiring nearly 50 man-hours per month. They also said their networks are growing and becoming increasingly complex. More than half said they manage more than 2,000 IP addresses, and one-third manage more than 5,000 — many of which are distributed throughout dozens of remote sites. As such, 88 percent of respondents reported that they now consider IP address management to be essential to overall network management.

In its recent "Worldwide DDI Market Update," IDC said that the need to control and track changes and centralize recordkeeping across thousands of IP addresses is a primary reason organizations are investing in DDI solutions.

"The ability to manage the interconnected elements of DNS, DHCP and IPAM from a single platform, along with the incremental shift from IPv4 to IPv6, has led to the market's steady growth," the report said. "The factors driving enterprise-grade DDI adoption will continue to influence growth in the worldwide DDI market for the foreseeable future."

Software-Defined Storage

Decoupling the storage application from hardware creates a fast, flexible platform for managing data growth.

Enterprises have embraced the "big data" era and are actively seeking the ability to mine growing data volumes for business insights. Predictive analytics tools allow them to evaluate large amounts of structured and unstructured data in search of patterns that can help drive the decision-making process.

To fully harness these capabilities, enterprises need a storage infrastructure that can adapt elastically to changing workloads and deliver near-instantaneous access to resources. They need an alternative to the traditional hardware-centric approach to meet capacity growth, application demands and cloud deployments.

Software-defined storage (SDS) is emerging as a potential game-changer for the modern data center. SDS refers to a storage platform in which capacity is pooled on commodity hardware and controlled, provisioned and orchestrated via an independent software stack for high levels of automation.

Industry analyst firm Gartner predicts that by 2020, between 70 percent and 80 percent of unstructured data will be held on lower-cost storage managed by SDS environments. Additionally, the firm says as much as 70 percent of existing storage array products will also be available in "software only" versions by then.

Standalone Software

Still, there is considerable confusion about the technology. After all, data storage infrastructures have always used software to administer hardware — so what makes SDS different?

While it is true that traditional storage systems have always derived much of their functionality from software, they also needed an application-specific integrated circuit, a specialized CPU or a controller to perform some of their storage functions. In SDS, the software stack is completely decoupled from the hardware. Any storage software can be installed on commodity, off-the-shelf hardware.

SDS is also frequently confused with storage virtualization, but there are significant differences. While storage virtualization aggregates the capacity of multiple devices or arrays into a single pool of storage, SDS goes much further. In SDS, the actual storage management programming is separated from the hardware, allowing IT to centrally administer storage services — provisioning, orchestration, change management, monitoring, reporting, de-duplication, I/O optimization and more — for the entire storage infrastructure.

This central control promises to significantly improve the efficiency of the data storage infrastructure by creating a shared storage pool that is controlled and automated through a single interface. Changes are made in the common software layer rather than in multiple individual storage devices, greatly reducing repetitive administrative functions. Centralized management will also make it easier to balance workloads to avoid performance degradations and outages.

Dynamic and Agile

Sophisticated orchestration capabilities provide IT with the flexibility and agility to automatically provision storage according to current workloads

for the entire storage pool. SDS requires no tuning or configuration, allowing administrators to dynamically add storage capacity in minutes rather than the months it takes today to configure and implement storage hardware systems. As a result, SDS enables organizations to better utilize storage resources in a simplified, efficient and scalable infrastructure while reducing hardware costs and increasing storage capacity.

The software layer can also help provide business continuity for all committed data in the event of a disaster, compared to the risk of losing 15 minutes of data or more with traditional storage software. Both speed and data protection are essential to organizations in data-driven industries such as financial services, healthcare, retail and telecommunications as they seek to deploy new workloads.

The ability to leverage new storage solutions while continuing to utilize existing infrastructure also sets SDS apart. Freed from proprietary operating systems and interfaces, organizations can use open APIs to aggregate storage from existing and new storage arrays, while also federating storage from many underlying resources — including disk, tape, flash and cloud-based platforms. This facilitates a scale-out architecture with practically limitless virtual capacity, regardless of location or device.

Because the SDS controller is compatible with any vendor's hardware, organizations avoid being locked in to a single vendor and can utilize less expensive commodity hardware without sacrificing performance. It also provides IT with a holistic view of the entire storage environment, making it easier to proactively forecast, plan and budget for future storage needs without overprovisioning.

Worth Watching

As the amount of data being produced grows each day and IT infrastructures become more complex, it is becoming clear that traditional storage methods are unsustainable. A new approach is necessary to not only store this data, but to secure, find and access the data in order to extract business value from it. Although SDS is still an emerging market lacking clear definition, it bears watching. With the potential to reduce hardware costs, expand capacity, optimize performance and centralize management, software-defined storage offers a compelling proposition for organizations looking to drive growth through data-driven decisions.

"Software-based storage will slowly but surely become a dominant part of every data center, either as a component of a software-defined data center or simply as a means to store data more efficiently and cost-effectively," said Ashish Nadkarni, Research Director for IDC's Storage Systems and Software market research practice. "With a consistent and coherent set of definitions, suppliers can collectively help buyers realize the vision for SDS platforms."

OpenStack Puts SDS in the Cloud

Storage cost is compelling most organizations to at least consider a cloud storage option. Some industry studies claim that once all the costs are included, in-house storage is at least five times more expensive to own and run per gigabyte than cloud storage.

With a significant amount of enterprise data likely to move out of the data center and into off-premises clouds in the coming years, analyst firm Neuralytix says it is becoming increasingly critical for software-defined storage (SDS) platforms to integrate off-premises capacity. The firm predicts that within two years, all SDS solutions will need to manage both on-premises and cloud-based capacity as a unified data storage architecture.

One way organizations are accomplishing this now is through the use of OpenStack, an open-source cloud software platform. OpenStack provides a set of software tools for building and managing public and private clouds.

OpenStack's block storage option, Cinder, supports SDS services in private, hybrid and public clouds — but only those built with OpenStack. OpenStack Swift offers more flexibility for object storage options with its own application programming interface (API) as well as support for the Amazon Simple Storage Service API. OpenStack's recently developed Manila file-share service works with NetApp, Red Hat and IBM storage and supports SDS for OpenStack clouds.

"As a leader in the Manila community project, we recognized early on the value of an open, software-defined storage shared file system service for OpenStack," said Ranga Rangachari, vice president and general manager, Red Hat Storage. "IT professionals acknowledge open, software-defined storage as a good fit for cloud."

Citrix Workspace Cloud enables new ways to work better.

Workspace Cloud debuts cloud-based services that provide the apps, documents and collaboration services that people use for work. Bring a fast, unified approach to designing, publishing and delivering complete workspaces. Create services that leverage on-premises data infrastructure, private and public clouds, or a hybrid model to maximize existing enterprise investments. Workspace Cloud offers flexibility to build from the ground up or follow a pre-defined blueprint – Citrix IT administrators of all levels can design, build and deliver complete workspaces. Contact ProSys to learn more about how Citrix Workspace Cloud can help enhance the classroom experience.

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