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TOTAL SOFTWARE MANAGEMENT

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INSIDE THIS MONTH:

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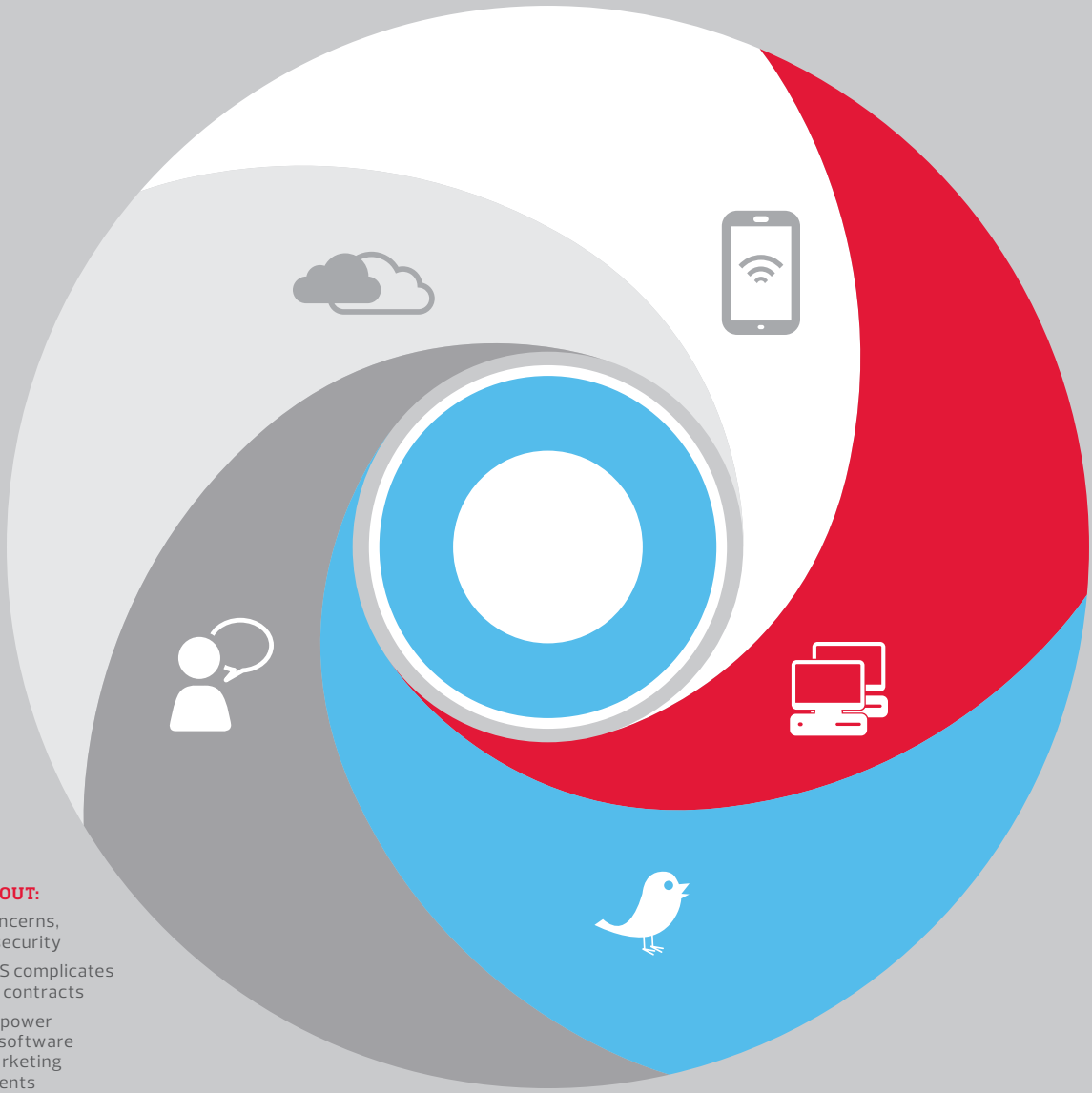
CDW strives to be your go-to resource for all your technology needs. Toward that goal, we are revamping our Reference Guides and relaunching them with a new name — Technology Insights — refocusing the content to better meet your IT information needs, with more articles on the latest trends, best practice tips, and guidance for making informed purchase decisions. We hope you like the new look and feel.

TRENDS SHAPING **SOFTWARE MANAGEMENT:** 2014

Meeting the challenges of mobility, cloud computing and virtualization in the software realm



READ ABOUT:

- BYOD concerns, beyond security
- How SaaS complicates licensing contracts
- The new power users of software tools: marketing departments
- Untangling virtualization's licensing compliance complexities

Most IT executives recognize the relationship between mobile computing and worker productivity, and have long issued notebook computers and other mobile devices to road warriors and employees who work extended hours. In cases where they have no mobile device policy, users often take matters into their own hands.

While the bring-your-own-device (BYOD) trend concerns IT teams for various reasons (most of them security-related), many accepted the inevitable and began issuing usage policies and deploying mobile management solutions. Where they may not be focusing enough attention is on BYOD's software aspects, including application compatibility, usage and effect on license agreements. Where there's device proliferation, there's compliance complication.

MOBILITY AND BYOD

Mobility introduces many variables, including licensing issues. IT teams that provide network access to any application more significant than email are already facing compatibility challenges due to the multiple operating systems that employees run on their mobile devices. Attempts to monitor the matrix of users, devices, applications and usage compliance may feel like an exercise in futility.

Most business software licensing focuses on the device. Per-seat pricing made sense when staff worked primarily on desktop or notebook PCs. Today, more than 50 percent of information workers, on average, use three or more devices for work. If many employees are using multiple devices to connect to multiple applications, and vendors require a license for each device, BYOD becomes a budget killer.

Some organizations are pushing for what they consider a more viable model: user-based licensing, where the user — not the device — becomes the focal point of the software license. Many vendors are starting to offer user-based licenses, allowing an enterprise to buy a single license for a user that covers, perhaps, five devices. Not surprisingly, vendors tend to charge more for this type of agreement, but such deals simplify support and streamline mobile license management.

Meanwhile, IT heads are considering desktop and application virtualization to address application compatibility issues that arise when user devices run operating systems that aren't the organizational standard. However, this approach can further complicate licensing compliance. So any IT group exploring virtualized desktops or apps should consult closely with its software provider or a third-party services specialist.

Now that it's gained traction, don't expect the BYOD movement to stall.

COMPLIANCE SPEED BUMP: MANAGING MOBILE APPS

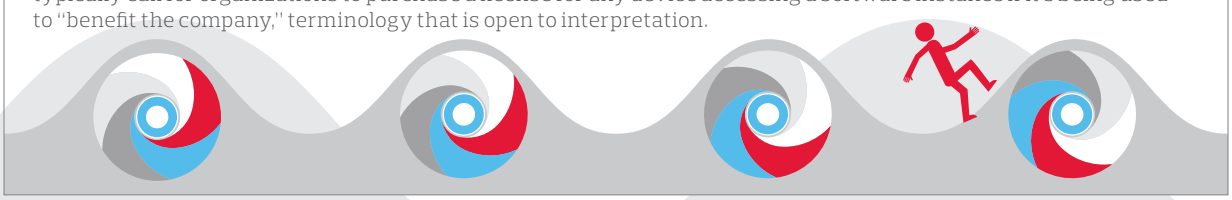
Those in the software industry tend to segment business buyers by their need and willingness to take risks. On one end of the customer spectrum are bleeding-edge and early adopters; and on the other, late adopters who wait until software is proven or they no longer can compete without it.

However, many traditional customer segments are being pushed out of their comfort zone and right into new software license compliance territory. This shake-up is a by-product of IT consumerization and its impact on the workforce. In some cases, it's forcing more risk-averse customers to become earlier adopters.

BYOD is contributing to the fast-growing market for mobile device and application management tools, which include features for controlling app downloads and ensuring license compliance. In a 2012 Forrester BYOD trend survey, 37 percent of IT respondents cited their ability to manage mobile app licenses as a primary mobility challenge.

They have reason to worry — mobile app management is complicated. Most software providers haven't changed their licensing terms to reflect the multiple devices an employee might use, meaning the user needs a license for every device that runs or accesses the software.

Beyond the cost, other intricacies can complicate compliance. If a worker using her own tablet at work logs on to a site that provides free consumer access to applications that a business would be required to license, even if it's for personal use, her actions may run afoul of the vendor's enterprise licensing agreement terms. These agreements typically call for organizations to purchase a license for any device accessing a software instance if it's being used to "benefit the company," terminology that is open to interpretation.



In a 2013 Gartner survey of CIOs, 38 percent said they expected to stop providing enterprise-owned mobile devices to employees by 2016, even as they allow them to run enterprise apps and access network data.

CLOUD COMPUTING

Cloud computing has brought significant changes to IT departments and the environments they manage, challenging basic assumptions and provoking heated debate. Over time, the concept of hosted software assets delivered as a service became commonplace, then strategic. In addition to the popular software-as-a-service (SaaS) model, other IT assets are available in cloud models, including platform as a service (PaaS) and infrastructure as a service (IaaS).

SaaS has a lot to offer. Take the payment model: In-house software, particularly enterprise applications, requires a significant capital outlay. SaaS, on the other hand, can be purchased through a monthly or annual subscription, typically on a per-seat basis. As an operational expense, SaaS is easier to absorb into a budget.

Other advantages: When IT heads want to implement new software, cloud providers can deploy it quickly. The cloud can also deliver frequent upgrades, handle support and offer the ability to scale up seats in boom times and reduce them when need drops. While SaaS best suits enterprises whose applications don't require heavy customization, IT managers can brand application portals and tailor the look and feel of the software for users.

However, cloud computing has some drawbacks, including some attributes that can complicate software asset management (SAM) efforts. Enterprises today often run hybrid cloud environments, with data center and critical resources in a private cloud, and others in the public cloud. Depending on how SaaS apps are configured, they may run both on the internal network and externally, complicating an IT administrator's ability to pinpoint the instances that fall under their licensing contracts.

ENTERPRISE SOCIAL

Marketing departments are pouring significant cash into branded social media and tools designed to help them manage their digital presence. Stand-alone and bundled tools monitor and filter social feeds, analyze sentiment and intent, and measure engagement.

Among the emerging technologies targeting the space is enterprise social media management software (SMMS), a segment with high growth potential. SMMS platforms enable teams to manage an organization's multiple social media accounts through feature-rich consoles. The software is new enough to be considered a differentiator, particularly for large enterprises, which have, on average, 180 separate social media accounts.

The platforms enable marketers to manage a wide range of activities for social engagement, including creating, publishing and moderating content; collaborating with internal teams and external stakeholders; establishing content-related workflows and permissions; and leveraging integrated reports and analytics to measure effectiveness. They also build in governance, intelligence and application programming interfaces to integrate with key systems across the enterprise.

SMMS providers offer a diverse range of SaaS pricing options, including by user, seat, number of networks or individual pages tracked, as well as number of departments or geographical locations using the software. These products are fairly complicated, so potential buyers might consider professional services for training and other needs.

Spending on marketing technology — especially social tools — is growing rapidly. IDC expects spending on enterprise social software applications to grow at a healthy compound annual growth rate of 22.3 percent between 2012-1017.

The social technology segment is influencing software in new, multilayered ways. In 2012, a Gartner analyst caused a stir when she said chief marketing officers would be spending more on IT by 2017 than CIOs. Not everyone agrees with that prediction, but it suggests that the marketing department's role as a business driver is increasing the importance of the CMO.

Many CIOs encourage department heads to make their own software decisions, as long as they're within a SAM framework that centralizes procurement through the IT group. Marketing may be the driver, but IT teams are responsible for ensuring effective, secure software rollouts that account for every asset variable.

[1]SOURCE: *Forecast: Public Cloud Services, Worldwide, 2011-2017, 3Q13 Update*, Gartner, September 2013

VIRTUALIZATION

Virtualization is spreading throughout data centers and across networks. Virtualization efforts started in the data center with server consolidation, where the IT department was able to whittle down a large number of physical boxes to a few, each capable of running numerous virtual machines (VMs). This improves server utilization and reduces costs. An organization that operates fewer servers generally will have lower capital expenditures and more energy-efficient data centers.

These benefits are difficult to ignore. In a 2012 Cisco Systems survey of IT leaders in small to midsize businesses, 77 percent of respondents said they had implemented virtualization technology in some aspect of their IT environment. Public-sector enterprises reported similar adoption rates.

In a 2012 MeriTalk study, 82 percent of federal IT leaders and 77 percent of those at the state and local levels were using server virtualization, with an estimated 37 percent of workloads on VMs. New efficiencies have delivered estimated cost savings of 19 percent, translating to some $15 billion across government sectors. And with VM workloads expected to climb to 63 percent by 2015, governmentwide savings could stand at nearly $25 billion.

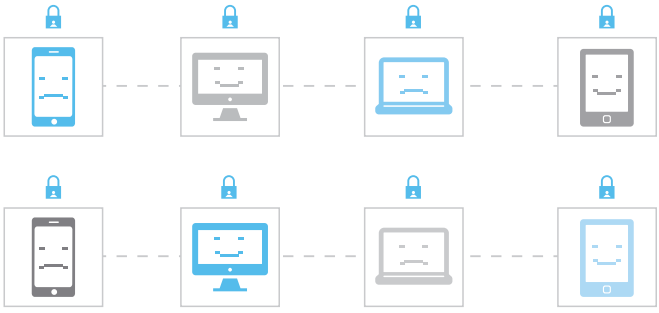
Some IT professionals tend to fixate on infrastructure consolidation (and the resulting cost savings and improved efficiencies) in virtualization initiatives. The vast majority of respondents in the Cisco survey (95 percent) cited these results as the primary benefit of server virtualization. Still, they should aim higher, treating their virtualization efforts as the first step on the road to cloud computing, where they'll combine consolidation and private-cloud initiatives to improve service delivery and scalability.

Typically, successful server virtualization leads IT teams to virtualize storage, networks and basic production apps. As such projects lead to reduced capital expenditures, IT groups are starting to focus on leveraging cloud capabilities (faster provisioning, user self-service, agile workload shifting) to develop high-availability IT services. Advanced virtualization efforts will move beyond cost savings and efficiency improvements to find ways to develop automation capabilities for business agility.

These initiatives reflect, at least in part, a growing desire by IT leaders to optimize and automate their infrastructure so they can free themselves to become more involved in business initiatives. In IBM's 2013 *C-suite Study* series, two-thirds of CIOs responding said their CEOs view them as more than service providers.

They're positioning themselves to spend more time on customer-related activities, including working with sales and marketing on business development and deploying analytics tools for better customer insight. Optimization through virtualization delivers the kind of return on investment that positions them to achieve these objectives.

Like most computing advances, virtualization exacts a price. For instance, it introduces new licensing compliance complexities to an environment full of complications. Some SAM inventory tools that function well in less demanding circumstances struggle to locate all app instances on native and virtual servers, making it difficult to gauge compliance. ■

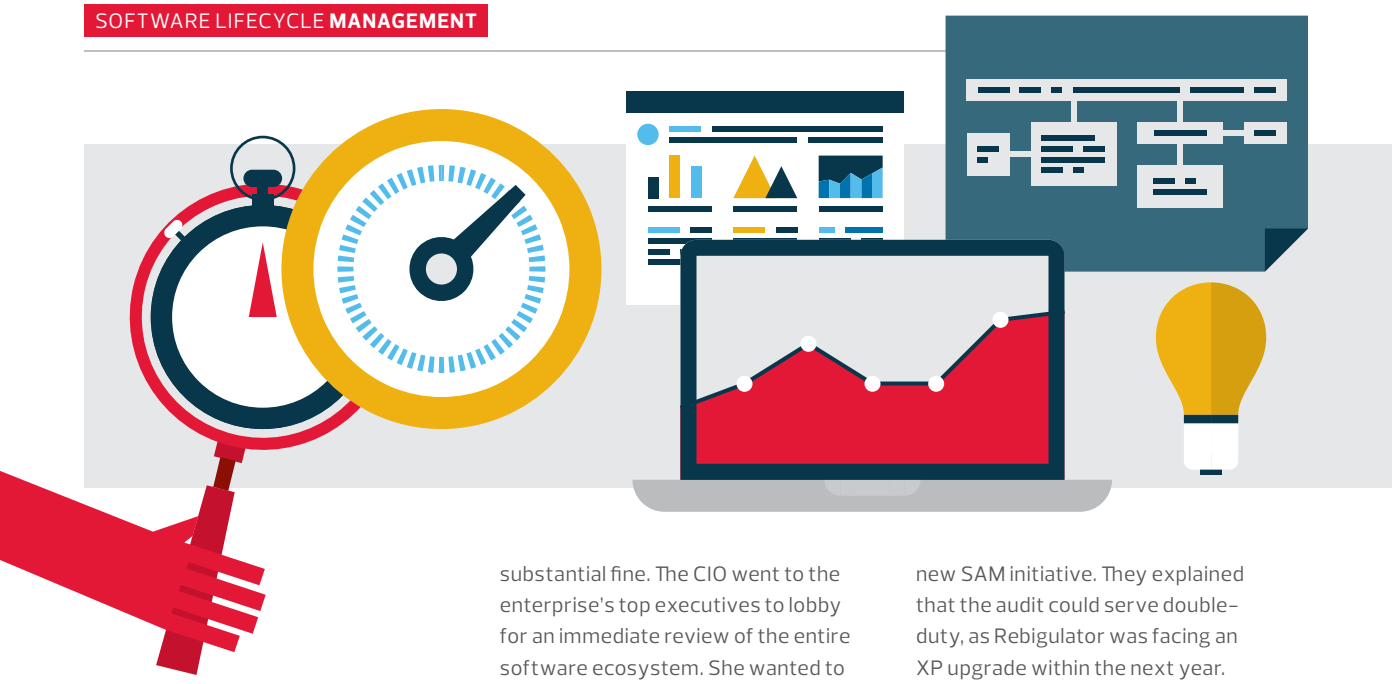


WHERE THERE'S
DEVICE
PROLIFERATION,
– THERE'S –
COMPLIANCE
COMPLICATION.

SOFTWARE LIFECYCLE MANAGEMENT: **LESSONS**

READ ABOUT:

- Building a SAM strategy around software needs, overall IT objectives and budget
- Maximizing ROI through SAM
- Discovery and inventory tools for all digital platforms
- IT as the shot caller on software procurement
- Managing software contracts



A hypothetical scenario: In 2012, Rebigulator, a midsize manufacturer of stereo microscopes and specialized spectroscopy analyzers, found its own infrastructure getting an up-close examination.

CIO Anna Lytics was caught off guard when the enterprise's chief financial officer informed her that Microsoft would be conducting a software license compliance audit. Though she felt the company's Microsoft server and client operating systems, enterprise resource planning software, and Office applications were in compliance, she knew it would take a significant effort to prove it.

In a meeting with executives and legal counsel, she was the primary target of questions — but she wasn't the only one in the hot seat for any issues the audit might uncover. Her team, the finance department, the organization's risk manager and an outside legal firm tracked software assets, information and spending using spreadsheets and various databases, but they weren't integrated. The company had no central repository that offered a cohesive view of installed software and associated licenses.

Following the audit, Rebigulator got its bill: It owed Microsoft $300,000 for noncompliance, in addition to a substantial fine. The CIO went to the enterprise's top executives to lobby for an immediate review of the entire software ecosystem. She wanted to get it right the first time, so she included software lifecycle management (SLM) services in her proposal.

Once the organization approved her plan, the CIO called CDW. When a CDW SLM specialist first met with Lytics, they reviewed the audit findings. Areas of noncompliance included VMs running instances of Microsoft's Dynamics GP ERP software, some unlicensed instances of Office 2010 (which Lytics was slowly replacing with Office 365), and several VMs based on Windows Server 2008 R2 that members of the company's research and development team had created for their own use.

They then discussed Rebigulator's software needs, overall IT objectives and budget. The enterprise's immediate goals were to get a software inventory baseline and check it against licenses. Its long-range objectives were to see how the inventory aligned with requirements and how well the company was using its software, as well as to kick off a SAM initiative that would build a foundation for compliance and governance, while prioritizing IT as a core business function.

The CDW team explained the key stages of SLM and what each entailed. CDW specialists would conduct the work and partner with Lytics to explain best practices for each stage, as well as detail options for the new SAM initiative. They explained that the audit could serve double-duty, as Rebigulator was facing an XP upgrade within the next year.

Here's how the SLM engagement was conducted and the lessons Rebigulator learned.

DISCOVERY/INVENTORY

With 500 employees using various devices, a mix of in-house and cloud software, and VMs, Rebigulator needed automated discovery and inventory tools that could identify native, virtual, mobile and cloud applications. These tools can be purchased as stand-alone products or as part of integrated SAM suites. Available tool options include the following:

- **AGENT vs. AGENTLESS:** Agentless tools save the IT team the effort of installing discovery agents on all inventory equipment, but this simplicity comes with a trade-off. Agent-based tools can give IT staff a more complete picture by, for example, accounting for devices that aren't persistently connected to the network.
- **SEARCH CAPABILITIES:** For a comprehensive inventory, more sophisticated tools accurately locate software instances on both physical and virtual servers, as well as applications on mobile devices used to connect to network resources.
- **CLOUD COMPATIBILITY:** New tools are able to discover and inventory any cloud-based software an organization is using.

Rebigulator chose a cloud-based SAM suite to identify software on its network or connecting to it. The team checked software installed on servers and devices against purchased licenses, as well as whether endpoint images matched their master image. Team members also conducted an inventory of machines still running XP to confirm the information Microsoft provided during its audit.

What they found: Instances of noncompliant marketing automation software, some overprovisioned applications (a number of which the team could reclaim and install in the company's sales offices), old software no longer supported by the manufacturer, unused modules, some apps that weren't terminated during their 30-day trial period and now required licenses, several games that siphoned off enterprise resources and a couple of user-launched software-as-a-service applications with no expense receipts.

PROCUREMENT

CDW worked with Lytics and other executives to develop a centralized procurement plan that would give departments greater control over their software decisions, while the IT group retained sign-off control. Rebigulator chose to further streamline procurement by centralizing all future software and hardware purchases through CDW.

Many CIOs are allowing department heads to make software decisions so the IT team can focus on efficiencies and innovation. However, SAM best practices call for someone to own the procurement process.

CIOs are a good choice, as they're experienced in dealing with vendors, negotiating prices and managing licenses. With policies and procedures in place, all software procurement activity filters through the IT department, which works with finance, human resources, legal and other departments for good governance.

CDW worked with Rebigulator to establish procurement processes, educating department heads on proper procedures for acquiring new software.

CEMENTING THE **SAM FOUNDATION**

Core business functions, such as accounting, human resources, customer service and marketing, have had the benefit of numerous decades to mature. The IT data center/networked desktop paradigm, meanwhile, has been around for just a few decades. But the IT department is saddled with the same high expectations as more entrenched business functions.

"Relative to other departments, IT is the infant in the organization," says Barbara Rembiesa, president and CEO of the International Association of IT Asset Managers (IAITAM). "We didn't have the luxury of maturing at the same rate as other business operations, but we are still expected to function at that level. We had to dive in and swim, and we've caught up very quickly to become a core business driver."

Given technology's importance to operations, SAM is an organizational imperative for ensuring regulatory, industry and licensing compliance, as well as maximum return on IT investments. It's also critical to the organization's stability and growth as IT teams manage the complications created by BYOD, virtualization, cybersecurity threats and other IT developments.

Creating a comprehensive SAM program is a complicated undertaking, but the benefits are clear. "With an IT asset management foundation in place, organizations can easily manage any new development, whether it's a new licensing model for mobile or cloud, technology disposal requirements, new SAM tools, security practices, industry regulations or employee certification," Rembiesa says.

They developed a roadmap for a migration to Windows 8, identifying which users were already running the OS and scheduling when others would be upgraded from Windows XP.

They also drafted formal policies for software stewardship to educate all users, as well as electronic statements that workers would sign every year indicating their understanding of policies and risk. To reinforce user compliance, CDW installed a monitoring tool that would block any attempt to install unapproved software and would alert IT staff.

CDW also worked with the IT team to discuss options for controlling mobile apps. One option was to let users purchase through a public app store; another would use a third-party, on-demand platform; and a third option would establish the organization's own enterprise app store.

Rebigulator chose the enterprise option and worked with CDW to determine a good apps portfolio based on the company's user base, which included such diverse members as adminstrative staff, mobile salespeople and molecular biologists. With new mobile device management (MDM) software integrated through the store, the IT team was able to negotiate the best licensing agreements, track user downloads and corresponding licenses, and block the download of unapproved apps.

Finally, CDW helped Rebigulator re-engineer workflow to bring the human resources department into the MDM process. Now, when new employees join the organization, HR works with IT staff to ensure that their mobile devices are properly configured and provisioned. And when users leave, all enterprise apps and data are removed from their devices.

CONTRACT MANAGEMENT

Managing software contracts to negotiate the best licensing terms,

optimize usage and ensure compliance is an intricate, continuous process, not a one-time task. Typically, contracts dictate terms related to usage, quantity, transfer and maintenance.

- **USAGE:** These terms cover how Rebigulator will use the software it has purchased. Beyond general usage, they detail any restrictions on use based on the geographic location of company offices or users.
- **QUANTITY:** These license terms can be described in the total number of users, concurrent users or user devices, as well as the number of servers, processors or cores.
- **TRANSFER:** This dictates whether the organization can relicense or transfer the use of software to external parties, such as contractors and partners. Use transfer is strictly controlled and seldom allowed.
- **MAINTENANCE:** This covers support and maintenance terms, including service-level agreements, support channels, upgrades and annual maintenance fees.

Maintenance on perpetual licenses for ERP, customer resource management and other enterprise software is an important revenue stream for vendors, and the annual industry-standard cost is 20 percent of the total purchase cost. Maintenance and general multiyear software contracts can be costly. CDW explained that it was in Rebigulator's best interest to review actual usage versus licensing and renegotiate contracts on an annual basis.

Many IT heads intentionally purchase more software licenses than necessary because they're not certain how many users will need access. Further, adding licenses prior to an annual review can be thorny because it requires that contracts be modified. For these reasons, many organizations don't optimize their software spending. But having an expert review an enterprise's software needs and negotiate contracts can deliver significant cost savings.

SOFTWARE DEPLOYMENT, SERVICES AND SUPPORT

Following the contract review, Rebigulator worked with CDW to standardize better deployment processes that would streamline rollouts and track license compliance as part of a SAM strategy.

IT administrators have long used automated distribution tools to deploy and update software on their networks, with tool providers often adding new features to simplify the process. These include new management functionality, license reporting and the ability to push or pull packages or updates. Automated application packaging and distribution tools are available as stand-alone products or bundled in SAM suites.

CDW recommended that Lytics formally document a deployment plan that her team could tailor for specific rollouts. The basic components of a deployment plan include:

- Software description
- The software's purpose
- Stakeholder involvement in approval
- Stakeholder responsibility for installation
- Required end-user tasks
- Relevant end-user training

- Processes for IT staff tracking and verifying proper installation
- Processes for backing-out installs should problems arise

Software distribution tools also enable IT teams to create deployment templates. They can configure templates based on the software they're deploying and the end user's desktop image.

For distribution tools to track application instances in today's environments, they must be able to leverage software tags. The ISO working group that created a SAM best practices framework under its 19770-1 standard now has a set of standards (19770-2) for tagging software so SAM tools can track it. Tagging must start at the software publisher level, with the embedding of standard tags.

A growing number of publishers are adopting the standard. With the forthcoming 19770-3, a software entitlement standard, licenses themselves will be tagged so tools can track them.

FOLLOW-UP SERVICES

Post-deployment, the IT group manages a range of software services to keep software updated and secure, whether it's installed on networked machines or mobile devices. These can be automatically pushed by IT staff or pulled by end users.

IT managers are responsible for distributing application updates and security patches. While they can use remote support tools to take control of devices to fix endpoint application issues, they also can leverage services that automatically create trouble tickets when they perceive a software problem. This results in a hand-off to an automated component that triggers services to remediate problems.

From the user side, any staff with authorized access can download new applications, add updates or even spin-up a VM. As more audits find compliance issues related to VMs, CIOs will step up efforts to ensure that users authorized to create VMs are educated about virtualization-related license issues, while preventing those without permission from engaging in these activities.

ACQUISITION POLICIES

IT consumerization provides both IT teams and end users a level of freedom that can increase collaboration, production and innovation. Employees across the enterprise can leverage software with little to no IT intervention to do their jobs more efficiently and effectively, freeing IT staff to focus on strategic initiatives. However, when end users abuse this power, deliberately or unintentionally, they create problems that range from minor annoyances to serious liabilities.

CDW's specialists reviewed existing policies to improve the controls Rebigulator had in place. The company's IT team had instituted controls governing who was authorized to purchase software and what software end users were allowed to employ for business. CDW moved to centralize procurement and licensing authority with the IT department, documenting new acquisition processes for department heads that defined the steps they would follow to request, acquire and deploy software.

As the engagement proceeded, company executives regularly met to consider the SAM options CDW laid out for them. In light of their sustained growth, financial position, planned business development and IT initiatives, as well as their intention to eventually take the company public, Rebigulator's leaders decided to contract with CDW to manage all SAM-related services and develop an enterprise SAM program.

Rebigulator had the option of running its own SAM program, but the IT team already had its hands full on projects that involved the enterprise's supply-chain and manufacturing facility; costly, highly specialized design, modeling and simulation products; and health and safety compliance tracking tools. The organization also had to deal with the fact that Microsoft was ending its support for Windows XP, prompting plans to migrate to a newer OS.

With these challenges in mind — and an informed appreciation of the personnel needed to oversee the planning, launch, management and continuous improvements of a mature SAM plan — Rebigulator's executives decided not to wait any longer. They immediately started to optimize their IT spending by hiring CDW to manage it for them. ■

WHITE PAPER

FROM *CHAOS* TO CONTROL

Read this white paper for additional guidance on how to optimize software management processes:

CDW.com/softwareguide1

[1]Source: Forrester Report: *US Tech Market Outlook for 2012 to 2013*

Each year, organizations spend billions of dollars on software. That's a lot of dough. You need to make sure you're getting your money's worth. But with limited resources, keeping track of software purchases, installations and usage patterns can be challenging and could leave you overspending on applications or licenses you don't use. We get it. We have a team of software asset management (SAM) experts to help your organization navigate the complexities of software licensing and help you get the most bang for your buck.

To learn more about CDW Software Asset Management solutions, contact a CDW account manager at 800.800.4239 or visit CDW.com/SAM

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READ ABOUT:

- Using SAM to inform software investments
- Avoiding software fees and fines
- What's the best approach to SAM?
- Making the most of volume-based licensing
- Hands-free SAM: How vendors can unburden IT leaders

SOFTWARE ASSET MANAGEMENT: PAY ATTENTION OR PAY UP

There is a wide range of options for managing software assets, from in-house solutions to the cloud to managed services providers.

Given their organizations' diverse software portfolios, distributed locations and on-the-go workers, how many CIOs can express complete confidence in their license compliance? They know that software is indispensable to the enterprise and naturally want to manage every software asset (from the commodity app to the big-ticket enterprise suite) so it's optimally leveraged and fully compliant throughout its lifecycle. But that's not easy.

Software asset management was hard enough when IT leaders presided over locked-down environments and a workforce under their control. In today's complex IT environment, it's an even greater challenge.

Software runs on increasingly distributed and virtualized networks, both inside and outside the organization. It's purchased, provisioned and controlled by multiple parties. Within the enterprise, departments and users empowered by IT consumerization make software decisions without IT approval. And outside, cybercriminals are testing networks, finding vulnerabilities, injecting malware and exfiltrating data.

The good news is that an entire industry segment is dedicated to creating SAM standards, best practices and technologies. Organizations in need of IT asset management guidance can turn to service providers, professional associations and other sources.

SAM combines processes with technology for tracking software inventory and associated licensing. IT managers can use the insights from SAM repositories to inform strategic software investments, optimize usage and stay fully compliant with their licenses.

COMPLIANCE & AUDITS

Trying to monitor the entire ecosystem of users, devices, applications and usage that correlate with license compliance may seem a futile exercise. But noncompliance is not only illegal, it also is potentially very expensive.

When the economy falters, software providers focus more attention on revenue leakage, leveraging audits to improve the bottom line. In recent years, some software vendors have watched their profit margins slip as software as a service (SaaS) continues to grab more market share.

In a 2012 IDC survey of IT executives, 64 percent said they'd been audited over the previous two years. Of these, 36 percent submitted to two audits and 10 percent to three or more.

While respondents were mostly from larger companies, smaller enterprises received their share of attention as well. In a 2012 survey conducted by BMC Software and the International Association of IT Asset Managers (IAITAM), 24 percent of respondents with fewer than 500 endpoints had been audited in the previous 18 months.

$15.1 BILLION

Economic value that would be derived by the United States from a 1 percent increase in the use of properly licensed software, instead of pirated software[1]

"Small and midsize businesses are the biggest targets for compliance audits. If you hit a small organization with a $250,000 fine, it's crippling," says IAITAM CEO and President Barbara Rembiesa.

What happens if an audit reveals noncompliance? Situations vary depending on vendor, severity and other criteria. The settlement requires the organization to delete all unlicensed software, purchase new licenses and pay a fine.

In cases where auditors determine that a customer deliberately circumvented licensing, the case can be escalated to BSA — The Software Alliance. Formed by a group of software providers, BSA has the authority to conduct formal audits and take legal action in the form of penalties or lawsuits for copyright infringement.

If BSA gets an insider tip that an enterprise is pirating software and its investigation discovers unlicensed software, it imposes a fine as a matter of course. "Copyright law does allow for damages, but we take care of piracy issues outside of litigation in the vast majority of cases," says Peter Beruk, BSA's senior director of compliance marketing. "Unfortunately, without fines, sanctions wouldn't have any teeth. They're needed to deter businesses from doing the same thing again."

Meanwhile, some vendors charge the full price for each unlicensed instance rather than a negotiated rate, and some make organizations compensate them for the license shortfall from the time the software was installed. However, Beruk says, most vendors elect not to pursue this course of action, often referred to as a "true up."

Enterprises that do end up being audited are obviously taking a gamble

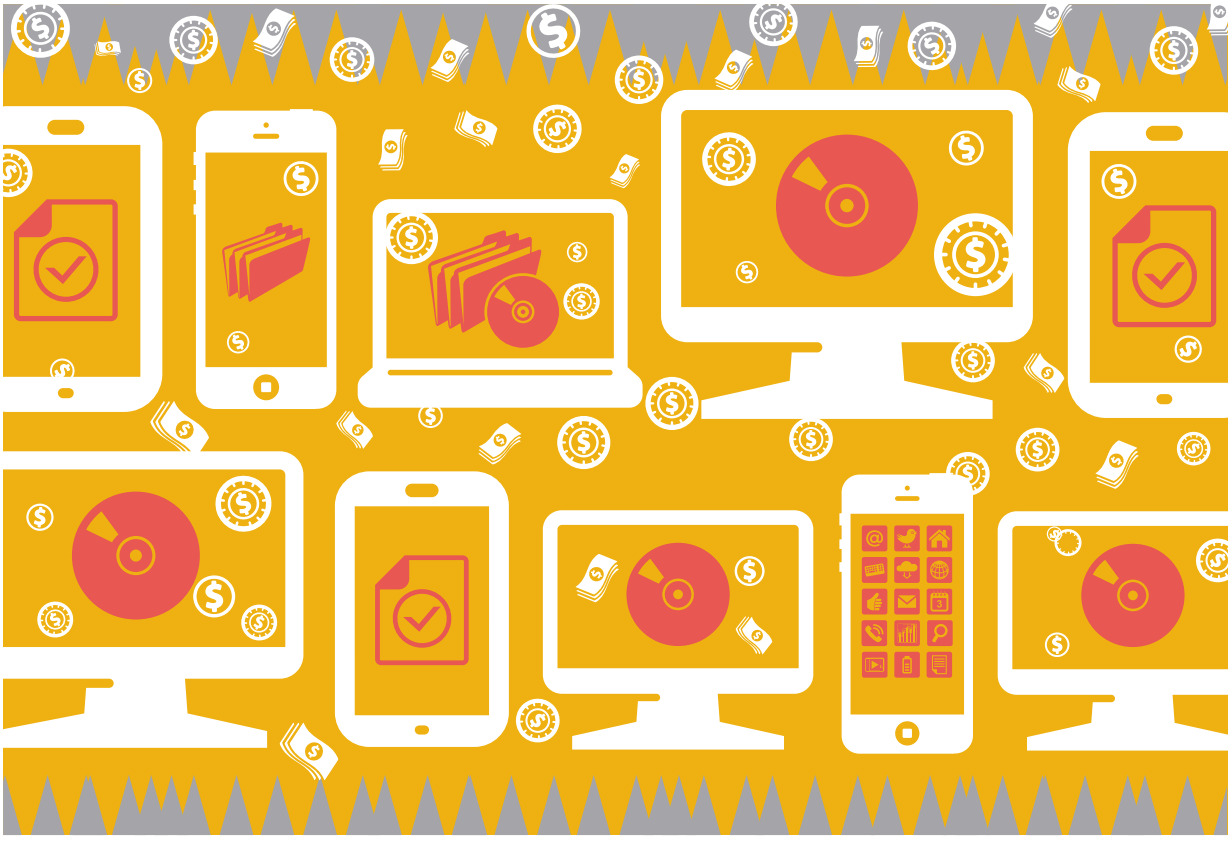
SAM Keys to Software Lifecycle Management

CDW's software lifecycle management services include a dedicated software asset management practice. Through a partnership with Snow Software, it offers agent-based and agentless SAM solutions. With its Software Asset Manager, CDW can conduct a comprehensive audit to capture a complete inventory of all software and hardware on or connected to an organization's network.

The practice can leverage inventory data from its hosted Snow solutions, as well as from the Microsoft Assessment and Planning (MAP) toolkit and System Center Configuration Manager (SCCM), and Symantec's Altiris. Vendor license analysis services for Autodesk and Adobe are also available.

CDW's teams of account managers, systems engineers and field solution architects deploy and configure asset discovery tools. They also provide license reconciliation that compares what's installed in the enterprise's environment against licenses purchased. CDW specialists can review current software agreements to determine if money can be saved by consolidating agreements or moving to a more cost-effective pricing tier.

[1]SOURCE: "A Competitive Advantage: The Economic Impact of Properly Licensed Software" (BSA — The Software Alliance, May 2013)



when it comes to facing a true up. Based on industry studies, they are just as likely to avoid a true up as to get hit with one (as well as fines) and end up paying up to $250,000. Some unlucky organizations have paid out even more, up to $5 million.

Organizations with recently launched or poorly maintained SAM programs will probably have to scramble for an audit. In Forrester's *Software Asset Management in 2013: State of SAM* survey, 32 percent of organizations hadn't yet implemented SAM, and 39 percent said they had a program in place for less than three years.

Still, an audit can catalyze an enterprise's SAM program. A robust SAM program should define the objectives, people, processes and technologies needed to stay compliant, optimize use and deliver a holistic view of the software ecosystem for intelligent decision-making. This insight can identify troublesome personnel, as well as security vulnerabilities.

An organization's IT, legal, finance and other departments should work together to conduct self-audits to identify cases of noncompliance. An enterprise that builds a reputation for compliance through sound governance might even keep auditors at bay.

Some industry studies have suggested that this could be the case. Organizations that employ IT asset management (ITAM) tools can likely expect to be audited at a lower rate than those who have not. Such a lower audit rate may be attributed to a history of compliance based on previous reviews, signaling to providers that the resources they'd expend on an audit weren't likely to result in revenue recovery. Some organizations also may avoid an audit by providing compliance reports upon receiving the audit request.

ADDRESSING UNDER- & OVER-PROVISIONING

IT groups juggle, on average, more than 70 software contracts. Without the visibility that SAM provides, they'll find it nearly impossible to optimize licensing. Organizations may squander money by buying more licenses than they need, paying fines for buying too few, negotiating poor contracts or failing to reclaim usable software during hardware disposal.

If an enterprise's software is under-provisioned, the chief financial officer should expect to write what could be a very large check at some point. Those with over-provisioned software will likewise waste money. Over-provisioning is common in situations where IT shops don't have a handle on users' needs for particular software packages or don't understand licensing agreements. They either inadvertently overspend, or deliberately overshoot

TECH TIP

WHY USE A **SAM** PROVIDER?

Read this article to determine if utilizing a SAM provider makes sense for your organization:

CDW.com/softwareguide2

the mark rather than risk sanction.

Appropriately provisioning software while ensuring compliance requires IT staff to know what software has been installed, what's being used, the number of licenses purchased, their specific terms and conditions and contract renewal dates.

INVENTORYING THE SOFTWARE ENVIRONMENT

A SAM baseline starts with identifying the software installed and how it aligns with licenses purchased. Conducting a manual software inventory is slow, prone to error and insufficient for today's dynamic environments.

Automated inventory tools are available as stand-alone products or bundled in SAM suites, and can be installed in-house or hosted by a cloud provider. Organizations can also turn the entire SAM program over to a managed services provider, an option that market analysts say more enterprises will choose once they establish SAM as an essential part of their IT governance.

Inventory tools should be able to discover all software instances, including version, upgrade and patch history, regardless of where it resides. Newer, more sophisticated tools are able to uncover application instances on virtual servers and mobile devices, a big step forward for compliance, management and security. These products then compare inventory data with licensing agreements to pinpoint situations where software is overused, underused or not used at all.

To ensure full compliance, organizations must do more than just match their software installation with associated licenses. They need software metering tools to track usage for such situations as concurrent-user licensing. These tools capture usage data — app launch times, log-off times and idle time, as well as such metrics as peak usage and use frequency. Analyzed properly, these metrics can provide granular insight into usage patterns that savvy IT pros can translate to licensing optimization.

If they're violating contracts due to under-provisioning, IT teams can purchase the licenses that make them compliant. If they're over-spending, they can adjust their licensing during the annual review or possibly redeploy software to underserved parts of the enterprise. For software that hasn't been used for an extended period, they can simply let licenses expire.

LICENSE SCENARIOS: PER SEAT, CONCURRENT USE OR VOLUME

A key component of strategic SAM is choosing the right software licensing model based on organizational needs. Vendors offer several licensing options, with various subcategories, for server- and client-based software. To make an informed choice among per-seat, concurrent-user or volume licensing, IT teams must understand organizational and end-user requirements.

Per-seat licensing contracts specify a set number of named users and devices authorized to run or access software. Application access is controlled by the enterprise directory, which authenticates and authorizes users.

Concurrent-user licensing isn't concerned with the number of users, but with how many use the software simultaneously. Some SaaS providers use this model. To control usage, the software runs on a server and monitors how many users are logged in. Some applications merely alert users who create an over-usage situation but let them continue if they choose, while others deny access to anyone exceeding the set number of licenses.

Volume-based licensing can deliver significant cost savings to enterprises that require larger numbers of specific applications. The more licenses they buy, the deeper the discounts they can negotiate. The purchase can be a one-time financial transaction or a longer contract that sets pricing for the length of the agreement.

SERVER/VIRTUAL MACHINE SOFTWARE COMPLEXITIES

The virtualization of data center infrastructure, networks, desktops and applications delivers significant cost savings, efficiencies and even competitive advantages. Server virtualization has delivered promising returns, and efforts to virtualize other areas are expanding quickly.

However, VM licensing models — per-server, per-VM, per-core — can be virtual wild cards. Some SAM tools

Volume Licensing Can Deliver Big Savings

Organizations that require a large number of licenses for certain applications may want to consider volume licensing. Depending on the number of licenses needed, healthy discounts on software packages can be obtained. Under this model, organizations pay only for the software, not the packaging, user documentation and additional media that increase the cost of retail software.

Through its volume-licensing program, CDW can help. Enterprises can purchase volume licenses for software through a single transaction, or can opt for an agreement that enables them to purchase the software as needed. Depending on the IT team's ability to accurately predict future needs for various software, a contract can potentially increase the savings that volume licensing provides.

aren't able to distinguish between applications running on physical servers and virtual servers.

IT administrators who apply an inventory tool to VMs, for example, might see a higher application count than they're licensed for, making it appear as if they're not in compliance with software agreements. When applied to physical servers, these tools may not accurately count applications on VMs, leading an organization to believe it is compliant when it is not.

However, newer SAM tools can account for the vagaries of VMs, providing enterprises with a higher level of certainty that they're in compliance as their virtualization efforts expand. To untangle the intricacies of licenses for virtual servers, vendors are starting to develop more "virtual-friendly" licensing.

MANAGING MOBILE APPS

As part of a compliance strategy, organizations with bring-your-own-device (BYOD) programs require mobile device management (MDM) solutions with mobile application management (MAM) capabilities.

MDM software covers the entire device lifecycle, from enrollment to retirement. From a centralized MDM dashboard, IT pros can manage user- and IT-owned devices, provide remote support (including remotely unlocking a device) and enforce security policies by locking lost or stolen devices and wiping them of all data. A 2013 Gartner study estimates that 65 percent of enterprise mobile device programs will have MDM technologies in place by 2017.

MAM solutions help enterprises oversee internally developed, commercially available and free mobile applications, regardless of who owns the device. Through centralized MDM consoles, IT teams can manage procurement, app and update provisioning, and associated licenses and certificates. An MDM console can consolidate views of all downloaded applications, versions and licensing for tracking and compliance purposes, as well as generate application inventory and usage reports.

This software generally integrates with public app marketplaces for purchasing applications and associated licenses. In addition, the IT department can track the apps that users download from these stores and disable access to those that pose security or other risks.

The best way for an IT shop to manage its mobile software assets and licenses is to build its own enterprise app store. SAM and similar technologies provide management tools that direct users to job-specific software, automate license processes and cross-check license availability when software is requested.

For some IT shops, the best option to manage a mobility program is to contract with a managed service provider that understands all stages of both device and application lifecycles. A managed provider can ensure that users and licenses are in compliance, apply security best practices and provide all support functions.

CONSOLIDATING SOFTWARE SPEND WITH A SINGLE VENDOR

IT executives must be adept at choosing the infrastructure software, IT management tools and user applications that enable their organizations to perform at the highest level. They have to consider enterprise, departmental and end-user requirements, budget constraints, the customer or constituent base, market drivers and other criteria in their software decision-making. But choosing software is only part of the software lifecycle. IT teams must manage these assets so they maximize return on investment while remaining compliant with licensing contracts.

With what's at stake, enterprises may want to consolidate their software spending through a single, third-party provider that specializes in SLM. From gathering software requirements through the retirement phase, a provider works with the organization to identify the appropriate infrastructure software and licensing options based on budget and objectives. SLM specialists can negotiate licensing contracts, guide compliance efforts starting with acquisition, and help align licensing with usage throughout the software lifecycle. ■

ON-PREMISES SOFTWARE COULD BE **WEIGHING YOU DOWN.**

As IT departments look to cut costs and build efficiencies, they often focus their attention on servers, networks, storage and telephony but tend to overlook their legacy software systems. It's not surprising. Without any other alternative, premises-based software has traditionally been accepted as the norm. Increasingly, however, organizations are shifting away from these on-premises models in favor of a cloud-based alternative — Software-as-a-Service (SaaS) solutions.

SaaS solutions have created quite the buzz in recent years among IT decision-makers. And it's no wonder. The concept is a compelling one: organizations subscribe to software that is maintained and delivered by an external host, benefitting from a standard rate of cost that can scale up and down according to use. In contrast to on-premises software, which is loaded onto individual computers or client devices, SaaS software is offloaded to the data center of a third-party service provider; and instead of accessing applications from the data center, users simply access them via the Internet. The result is fast deployment, high scalability and on-demand accessibility.

WHEN IT COMES TO THE BENEFITS OF THIS CLOUD-BASED MODEL, **THE SKY'S THE LIMIT.**

REDUCED I.T. COSTS

Because SaaS applications are delivered and maintained by an external provider, they eliminate many hardware, software and maintenance expenses associated with traditional software. This, in turn, frees up your data center and your IT staff.

RAPID DEPLOYMENT

SaaS can be deployed in a fraction of the time it takes for on-prem software. Simply load your data into the software running on the vendor's site, and you're good to go.

ANYWHERE ACCESSIBILITY

SaaS makes your applications easily accessible online. Because most workers are familiar with using the Internet, SaaS solutions are associated with high adoption rates and a low learning curve.

SIMPLIFIED UPGRADES

Your SaaS provider handles all updates, upgrades and backup tasks for you. There's no wait time for updates or patches either; your software is upgraded instantly without any demand on your resources.

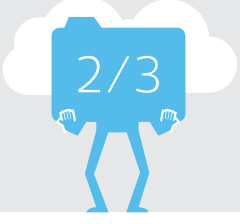
PAY-AS-YOU-GO STRUCTURE

Flexible SaaS subscription terms and fees make it simple and easy to add new users to your system as your organization's needs grow. (And you won't need to worry about adding hardware, software or bandwidth when they do.)

EASY INTEGRATION

Unlike most organizations, SaaS providers can scale indefinitely to answer demand. Many even provide customization to better meet specific needs, including integration with your existing internal applications.

BY 2017, NEARLY **TWO-THIRDS OF ALL WORKLOADS** WILL BE PROCESSED IN THE CLOUD.[1]



Adobe

CDW.com/creativecloud

Adobe Creative Cloud for teams has all the tools that you love, totally re-imagined. Enhancing creativity with cloud storage, one-stop publishing, expert training and support, flexible license management, hassle-free compliance and lower costs. Creative Cloud for teams lets you maximize your budget and leverage centralized administrative tools that make it easy for IT to purchase, deploy, and manage Creative Cloud along with the changing needs of your team.

Microsoft

CDW.com/microsoft

Microsoft Office 365 for large and small organizations is a subscription service that combines the familiar Microsoft Office Apps with a set of web-enabled tools that are easy to learn and use, that work with your existing hardware, and that come backed by the robust security, reliability and control you need to run your organization.

vmware

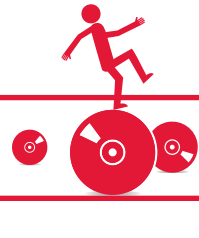
CDW.com/vmware

VMware vCloud Hybrid Service is a secure, dedicated hybrid cloud service built on VMware vSphere. The hybrid service is available in two service types – Dedicated Cloud and Virtual Provate Cloud. CDW was named the 2013 Global vCloud Hybrid Cloud Service Provider of the Year.

box

With Box, say goodbye to the frustrations of sharing documents through email and FTP and hello to simple, fast, cloud-based collaboration and content sharing. Maintenance, shared logins, downtime and bandwidth limitations become a thing of the past – simply get your work done anywhere, on any device.

Get started at CDW.com/SaaS



[1]Source: Cisco Global Cloud Index: *Forecast and Methodology*, 2012-2017

COMBATTING SECURITY THREATS WITH SAM

Your data is facing more threats than ever before — and traditional anti-virus software is no longer enough to keep it safe. Malware like Trojans, spyware and worms are growing in number and complexity. Devices like smartphones, notebooks and tablets are taking data mobile. And technologies like virtualization and cloud computing are obscuring your perimeter.

In addition to securing the network perimeter, corporate desktops and mobile devices, organizations must also monitor the software that users are installing and accessing and ensure that only authorized individuals are using programs with access to sensitive information.

The U.S. Computer Response Team estimates that insiders — whether malicious or just careless, are responsible for almost 40% of IT security breaches. Security technology such as firewalls, content security appliances and anti-virus software can't entirely compensate for people's ability to deliberately or innocently bypass the rules.

43%

OF I.T. DECISION-MAKERS ARE AWARE OF PEOPLE IN THEIR ORGANIZATIONS WHO HAVE **USED CLOUD SERVICES INDEPENDENTLY** OF THEIR I.T. DEPARTMENT[1]

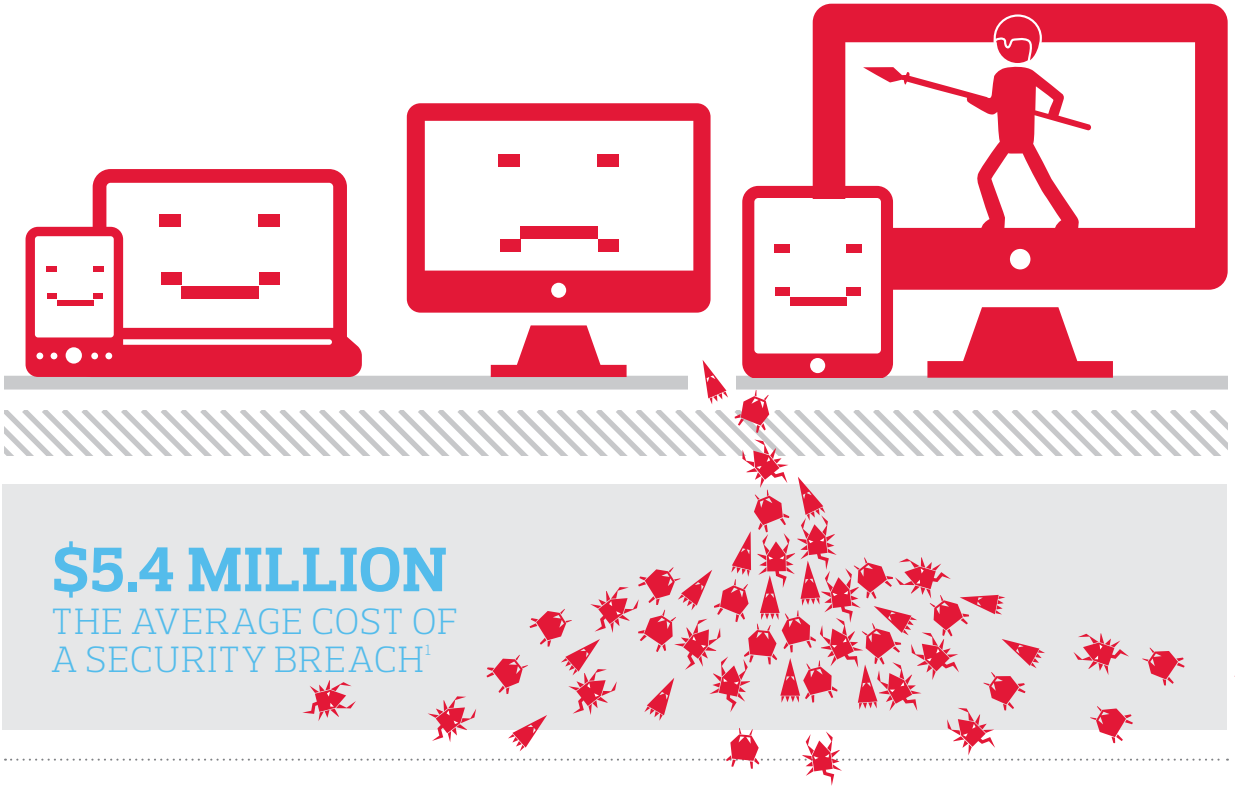
A BETTER **APPROACH**

In addition, changes in workplace habits, bring-your-own-device (BYOD) movements, and the use of multiple devices have upped the security stakes. With so many access points, the network perimeter remains porous, leading IT security managers on a constant search for additional protection and monitoring capabilities.

Many of them are adding software asset management (SAM) tools to their security lineup. SAM helps tackle potential risks from the software usage perspective, and gives IT managers the ability to detect and halt threats. SAM tools give your organization the ability to:

1. Identify malicious programs, hacking tools and other unauthorized software
2. Prevent the use of suspicious or malicious applications
3. In the event of a breach, examine application usage data to see who was running suspect applications
4. Identify and reduce the number of underused software licenses so IT can support and patch fewer applications

[1]Source: McLaughlin & Associates, 2012 Cloud Computing Adoption Survey



$5.4 MILLION

THE AVERAGE COST OF A SECURITY BREACH[1]

TREND MICRO

CDW.com/trendmicro

Trend Micro Deep Security provides a server security platform that simplifies security operations while accelerating the ROI of virtualization and cloud projects. Tightly integrated modules expand the platform to ensure server, application and data security across physical, virtual and cloud servers, and virtual desktops.

McAfee An Intel Company

CDW.com/mcafee

Effective security starts with real-time visibility into all activity on all systems, networks, databases and applications. McAfee Enterprise Security Manager/SIEM enables your business with true, real-time situational awareness and the speed and scale required to identify critical threats, respond intelligently and ensure continuous compliance monitoring.

KASPERSKY lab

CDW.com/kaspersky

Kaspersky provides a complete, fully integrated platform that combines anti-malware protection, robust application, device and web control tools, plus systems and patch management, data encryption and mobile device management — all managed from a single console and available for a single cost.

Symantec.

CDW.com/symantec

Symantec offers products to help you improve threat monitoring, manage web traffic, prevent data loss, and reduce the IT burden of protecting critical endpoints such as desktops, servers, notebooks and mobile devices. You'll be able to maximize the accessibility, availability and security of your IT infrastructures while protecting confidential data.

CDW can help you put together a better strategy for defense.
Learn more at CDW.com/security

[1]Source: Verizon 2013 *Data Breach Investigations Report*, 2013

REAP THE REWARDS OF CLIENT VIRTUALIZATION

Faced with mounting IT costs and rising security concerns, businesses are increasingly looking to client virtualization as a worthwhile infrastructure model. This innovative approach moves data processing and storage to a server in a data center, which connects to each user's desktop device.

Users typically notice little difference in the look and feel of their interface with the organization's computing infrastructure. But IT departments benefit from improvements in managing and maintaining computers, including sharp reductions in the frequency of desk-side service calls.

70% THE PERCENTAGE OF ORGANIZATIONS THAT HAVE ADOPTED CLIENT VIRTUALIZATION AND SEEN **MEASURABLE COST REDUCTION**[1]

Client virtualization, in any of its available flavors, offers IT the opportunity to gain more control over endpoint devices, which means you can dramatically reduce the costs of supporting these devices and users, while at the same time, improving security, compliance and disaster readiness throughout your organization.

What's more, client virtualization offers a highly scalable solution that reduces IT overhead and simplifies IT management, enabling the organization to be more flexible when rolling out new applications and services as needs change.

THE BENEFITS ARE CLEAR:

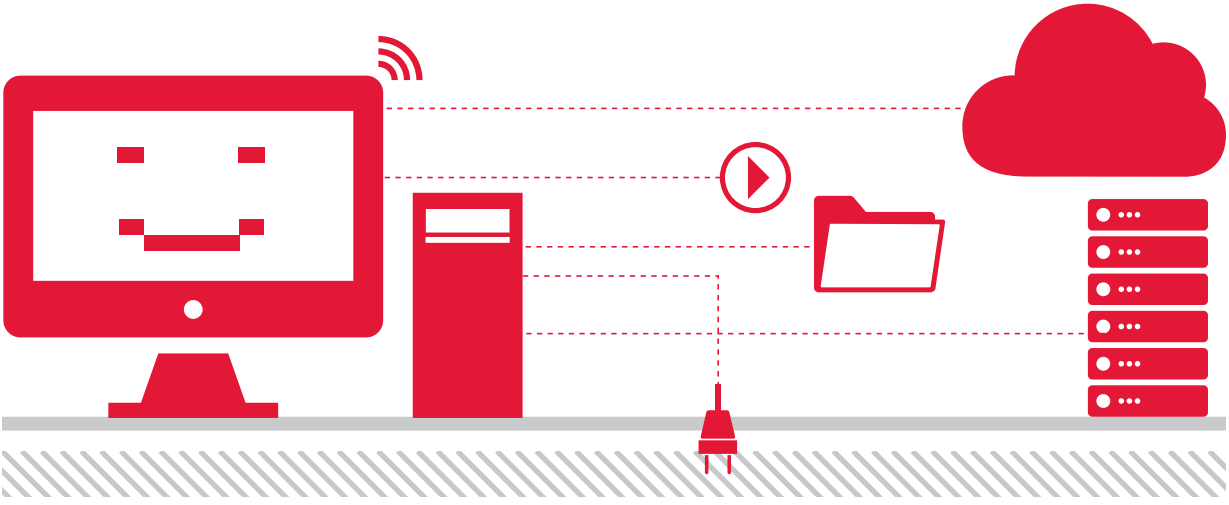
SIMPLIFIED PATCH MANAGEMENT

Client virtualization – and, in particular, desktop virtualization – greatly simplifies the process of patch management. Because a centralized image is used, patching desktops is much easier and more predictable, enabling patch management to be rolled out to all end users in a matter of minutes.

IMPROVED SECURITY

Endpoint security has become a nightmare, both figuratively and literally, for many IT professionals. And as more users bring their own devices and add them to the corporate network, the threats become more complicated. With client virtualization, desktops and applications can be centralized in the data center, thereby offering more granular controls over what end users have access to.

[1]Source: Enterprise Management Associates



IMPROVED SOFTWARE DISTRIBUTION MANAGEMENT

With client virtualization, software distribution management becomes simple because applications can be accessed from within the data center. This allows IT departments to take advantage of the increased speed of the network core and of going to a centralized location. It also alleviates many application compatibility issues because the applications can be isolated from the operating system.

No single desktop virtualization solution is right for everyone. But by evaluating your needs, environment and future goals, we can help you determine which type of virtualization makes the most sense for your organization.

vmware

CDW.com/vmware

VMware Horizon Suite is a desktop virtualization solution with newer technologies built for a mobile and collaborative workforce. It enables IT to optimize the current environment while safely embracing innovation and emerging trends to maintain a productive workforce and secure environment.

redhat AUTHORIZED VOLUME RESELLER

CDW.com/redhat

Red Hat Enterprise Linux has been delivering performance levels that IT organizations trust and rely on for more than 10 years. In the same way, Red Hat Enterprise Virtualization, powered by the people who brought you enterprise Linux, takes you beyond bare metal to meet your critical virtualization demands for today and the future. The combined solution of Red Hat Enterprise Linux and Red Hat Enterprise Virtualization enables organizations to virtualize mission-critical applications while delivering unparalleled performance, scalability and security features.

VEEAM

CDW.com/veeam

Veeam Backup & Replication provides fast, flexible and reliable recovery of virtualized applications and data for both VMware vSphere and Microsoft Hyper-V. Unifying backup and replication in a single solution and leveraging virtualization to its fullest, Veeam Backup & Replication enhances data protection and disaster recovery for more than 25,000 customers and protects more than 2,000,000 virtual machines (VMs) across the globe.

CITRIX

CDW.com/citrix

Citrix XenServer is an open source virtualization platform for managing cloud, server and desktop virtual infrastructures. Organizations of any size can install XenServer in less than ten minutes to virtualize even the most demanding workloads and automate management processes – increasing IT flexibility and agility and lowering costs.

Learn more at CDW.com/client

THE CLOUD: TAKING THE COMPLEXITY OUT OF BACKUP AND RECOVERY

Today's IT infrastructures are complex. There's more data and more devices than ever before. Whether to complement a storage strategy or replace it, cloud computing offers cost-effective models for optimizing today's complex IT environments.

But before you kick off a cloud infrastructure solution, consider what your team is up against.

THREE OBSTACLES TO **TACKLE:**

1. **LEGACY INFRASTRUCTURE**
   Before you can migrate your legacy infrastructure to the cloud, you must first modernize and converge it to prepare for the trip.
2. **CONFIDENTIALITY FEARS**
   Organizations may question the security and privacy of the public cloud, as it requires the sharing of data center resources with other organizations.
3. **AVAILABILITY CONCERNS**
   While the private cloud may help alleviate security and privacy concerns associated with the public cloud, its finite resources could prove problematic during times of high demand.

AIM FOR THE **PRIVATE CLOUD**

CONVERGE
Before you can take advantage of the cloud, you must first converge your existing infrastructure. This unifies compute, networking and storage capabilities into a single virtualized system that can be migrated to the cloud more easily.

SECURE
The private cloud offers the flexibility, cost-efficiency and manageability of the public cloud with the control, customization and security of a dedicated structure. Private servers, databases, storage and applications offer a great option for those who want to embrace the cloud without the multitenancy risk.

PREPARE
Occasionally, your needs might spike beyond what your private cloud can deliver. A hybrid model provides the security of a private model during periods of regular demand but can be supplemented with resources from the public cloud if needed.

[1]Source: Gartner

WHY **CDW?**

OUR PEOPLE

Put our team on your team. Your dedicated CDW account manager receives regular training in converged infrastructure and private cloud deployments. Backed by our dedicated cloud team, they can help guide you through the process and compare private cloud deployment options to find the best fit for you.

OUR PARTNERS

We partner with all the major players in private cloud and converged infrastructure, giving you access to the latest and best solutions for your needs, whether they come from a single vendor or a combination of many.

OUR PLAN

We know the Xs and Os of private cloud infrastructure and convergence. In addition to offering full lifecycle support, we can help guide you through the convergence process and help you decide whether an on-prem, hybrid or managed private cloud delivery model is right for you.

Acronis

CDW.com/acronis

Whatever the size of your business, Acronis Backup gives you the competitive edge you need to protect your data and systems wherever they're located. Acronis solutions address disaster recovery and data protection needs across physical, virtual and cloud environments.

ca technologies ARCserve

CDW.com/ca

With extensive management features that work together to help reduce the time you spend managing your backups, CA ARCserve Backup provides functionality that is optimized to support your IT architecture, including virtual and cloud-based technologies, no matter how simple or complex your data or your IT infrastructure is.

Premier Business Partner IBM

CDW.com/ibm

IBM Tivoli Storage Manager gives you centralized, automated data protection to help reduce the risks associated with data loss. This highly scalable software helps you manage more data with less infrastructure and simplified administration. Now you can save money, improve service levels and comply with data retention regulations.

Symantec.

CDW.com/symantec

Symantec Endpoint Protection Small Business Edition 2013 offers simple, fast and effective protection against viruses and malware. Available as a cloud-managed service, it sets up in just minutes with no hardware needed, so securing your business is simple and quick. And it updates automatically, so you always have the latest security available. This single product offers an on-premises management option as well.

Learn more about migrating your infrastructure to the cloud at CDW.com/cloud

SOFTWARE SEGMENTS:

KEY SOLUTIONS

The right applications can provide serious competitive advantage.

READ ABOUT:

- The productivity benefits of BI software
- Capitalizing on collaboration tool features
- Successfully migrating away from Windows XP
- Overseeing widespread virtualization
- Harnessing SaaS, IaaS and PaaS cloud platforms

There's not much point in optimizing software management if an organization makes subpar software choices. The objective is to manage software assets, not liabilities. But having so many options can make software decisions difficult.

Building a high-performance operation requires knowledge of software trends, market segments and key products available to meet organizational needs. Here's an overview of primary application segments, based on user type and function, fueling today's fast-moving enterprises.

INFORMATION WORKERS

These employees, whether they're information producers, consumers or both, rely on a range of applications to create, share, manage and present knowledge, including the following.

ENTERPRISE CONTENT MANAGEMENT: These platforms come in a variety of flavors. They typically include a suite of applications that enable organizations to create,

capture and manage content.

Products such as Adobe CQ-Experience Manager enable workers to create multichannel content — even pulling in third-party Internet content — and publish it to a variety of platforms, such as websites, branded social media or mobile devices.

More important, it's not just content for content's sake. Tools such as Adobe CQ include analytics capabilities to measure how content connects with website, social and other user-engagement points.

BUSINESS PROCESS MANAGEMENT: At its core, BPM's goal is to bring a disciplined approach to identifying, designing, monitoring and controlling organizational processes so they consistently reach defined results. Targeted results align with the enterprise's strategic goals. BPM continuously refines processes and leverages technology to automate them. It also employs modeling, testing, simulation and continuous feedback mechanisms for performance improvement.

New, user-friendly features, such as wizards and drag-and-drop tools, have encouraged more users to contribute to BPM activities.

Solutions such as IBM's WebSphere Operational Decision Management product integrate decision management into business processes and applications, including mobile apps, to make decision-making a natural part of process workflows. It also brings stakeholders and experts into the change response effort via social collaboration tools so they can provide input.

BUSINESS INTELLIGENCE: Once the province of power users, BI is being simplified through usability features that extend basic reporting and analysis to a broader user base. Self-service BI is a key step toward the pervasive, in-depth knowledge that many organizations demand. These BI tools bring user-friendly features to reporting and analysis, encouraging users to contribute insight.

Microsoft is driving self-service BI by making it available in Excel. Combining Excel 2013, SharePoint 2013 and SQL Server 2012 via Power Pivot enables users to compile, analyze and share data. An in-memory analytics engine speeds data processing for analysis. These Excel capabilities also extend to Microsoft's Office 365 cloud software suite.

Another noteworthy offering is IBM's Cognos suite, which includes Insight (a personal analytics tool for analyzing and sharing data visualizations) among its group and enterprise offerings. IBM's SPSS portfolio includes, among collaboration and analysis results management applications, an analytics tool for mining unstructured textual data sources.

ENTERPRISE SEARCH: "What did we ever do before Google?" It's a common refrain for workers who have saved countless hours by using search to filter millions of pages and sites to home in on information.

The same might be said of enterprise search engines. Studies show that the average employee spends significant time searching for organizational information or content. Microsoft, among many others, provides an enterprise search tool integrated with SharePoint.

PROJECT MANAGEMENT: This wide-ranging category of software has manual and automated solutions that address specific stages of enterprise projects — from definition to closure — as well as end-to-end, feature-rich management solutions that cover the project cycle. Use of project management applications has expanded beyond power users to workers throughout organizations.

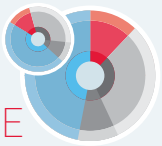
This tool class includes IBM's Rational Suite, which has the ability to render models of final products or other project deliverables and present stakeholder feedback in real time at various project stages. Another is Microsoft Project, which integrates enterprise projects with its productivity applications.

OFFICE PRODUCTIVITY APPS: Longevity, ubiquity and usability — it's difficult to mount a believable argument that Microsoft Office won't sit atop the productivity suite market for some time to come. It had 94 percent market share as of 2012, according to Trefis financial analysts, a percentage the firm believes will dip to 92 percent by 2016.

Office has made its way to the mobile platform on iOS- and Android-based devices, and even in cases where the Windows operating system is losing ground to other OSs, Office remains the leading suite for these platforms.

Meanwhile, Microsoft offers

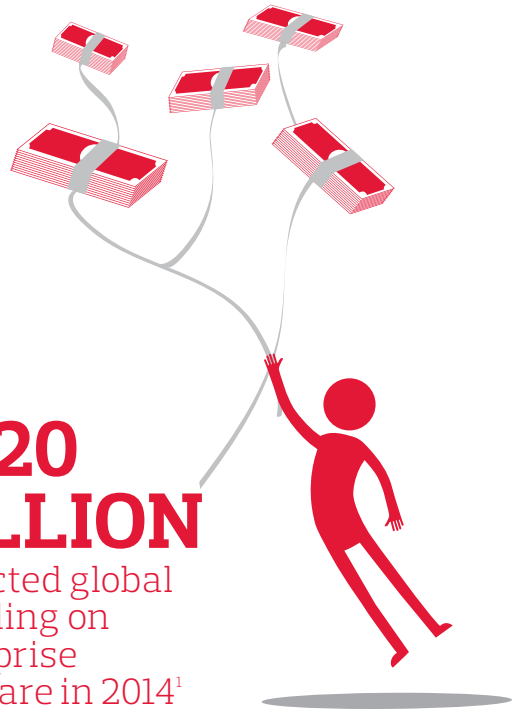
A LITTLE SLICE OF SOFTWARE



Software consumption in the enterprise continues to rise, with collaborative applications and analytics, as well as SaaS deployments, leading the charge.

According to Forrester Research, business and government global software spending hit $542 billion in 2013, representing the single largest chunk — 26 percent — of the year's total IT spend of nearly $2.1 trillion. Drilling down, $234 million was spent on applications, $141 million on middleware and $132 million on custom software.

Related to these investments is the $411 million dedicated to IT outsourcing and support, with $343 million earmarked for network, infrastructure, application and management outsourcing, and hosting services.



$320 BILLION

Projected global spending on enterprise software in 2014[1]

Office 365 as a contender in the cloud. Microsoft stores the Office software on its own servers and delivers applications to user desktops. The suite will be available through subscription licensing, can run on up to three devices and will store data in the cloud.

Another high-profile productivity application suite, Adobe's Creative Suite, has become Adobe Creative Cloud. This Adobe offering is delivered via a web browser and priced on a subscription basis, but is installed on the desktop. Adobe made headlines when it announced that its entire suite of design, photography, video and audio products would be available only on a subscription basis.

The move illustrates software's metamorphosis. Even if Creative Cloud programs don't actually run in the cloud, they use the same pricing model. In addition, users now enjoy more frequent feature upgrades, patches and fixes, with Adobe providing support.

UNIFIED COMMUNICATIONS

Unified communications (UC) represents a common IT trend, where a number of technologies converge. Numerous individual communications channels have taken root over decades and grown in size and scope. People enthusiastically adopted each in turn, but used different hardware and software to leverage them.

Communication took a giant step forward when manufacturers developed the capability to converge various channels — data, voice and video — on a single pipe. Enterprises themselves made great strides as employees gained the means to collaborate through a choice of UC channels, such as Voice over Internet Protocol (VoIP), email, instant messaging, video conferencing and social media, from a workspace computer or mobile device.

The social networks that first connected the general population have matured and morphed into social platforms within the enterprise, enabling collaboration across the office and across the world.

With presence awareness capabilities on devices and in apps, a senior team leader in the Midwest, for example, logging on for the day can ping an engineer in Germany about the status of a project. Faced with challenges that could delay the project, the team lead contacts two project managers on the East Coast to gauge the likelihood of quickly obtaining the resources necessary to address these challenges versus the need to postpone the next step in the project.

Products such as SharePoint 2013, integrated with Yammer, Microsoft's enterprise social tool, enable project stakeholders to take collaboration to a whole new level. IBM Connections extends social networking collaboration to mobile devices so that users can connect with other stakeholders to track project updates, action items, meeting times and other information.

MONITORING & MANAGEMENT

IT teams need an arsenal of tools to manage infrastructure, network devices and system software, as well as user applications. These duties focus on ensuring availability, performance and security, as well as capturing asset data.

OPERATING SYSTEMS: As organizations migrating from Windows XP have found, desktop OSs are inextricably linked with the apps they run. Many IT experts say they'd run XP indefinitely if support weren't ending. Not only is XP a reliable, hardened OS after years of security patches, but the hundreds of applications still running on the OS now must be compatible with Windows 7 and Windows 8.

The good thing about the migration is that it has forced IT teams to inventory their applications and ensure their compatibility with newer Windows versions. This process typically uncovers applications rarely or never used, which many enterprises might decide to remove. This improves the organization's software asset position and establishes

[1]SOURCE: *IT Spending Forecast* (Gartner, January 2014)

a baseline for moving forward.

Windows 8 represents a significant change for users, but the touch screens on their mobile devices are easing the transition. Furthermore, Windows 8 creates a unified customer experience across desktops, tablets and smartphones by virtue of its integrated mobility features.

APP DEVELOPMENT TOOLS: Monolithic applications developed on different platforms are not only inflexible, but also expensive to monitor and manage. IT pros can manage these services if they consolidate views through a single monitoring system using standard protocols, such as the Simple Network Management Protocol (SNMP). App development focus, meanwhile, is shifting toward mobility, cloud computing and social interactions.

HIGH-AVAILABILITY SUPPORT: Server uptime has long been an IT priority, and with emphasis on high-availability applications, it's getting increased attention. The high computing uptime promised through service-level agreements is challenged by the fluidity of network environments, which require monitoring of physical and virtual servers that are delivering services across private and public networks. And these networks connect a variety of operating systems, device types and virtualized components.

To manage these challenges, more IT teams are adopting systems management technologies, such as Symantec's Altiris Server Management Suite, which enables end-to-end management of performance, security and usage through a centralized console.

Secure backup and recovery is likewise critical to IT environments. With the massive amount of data transmitted over networks and limitations on many organizations' storage capacity, WAN optimization requires tools such as Symantec Backup Exec, which can deduplicate and compress data, intelligently handle virtual and physical machines and be configured quickly using proven default options. In the event a server does fail, the IT group may want the mirror backup to reside on a different server make and model so administrators can see if the failure is caused by a widespread hardware issue.

APPLICATION VIRTUALIZATION: Virtualized applications, like virtual servers and other infrastructure, bring new efficiencies. IT teams that virtualize apps can turn them into services, which they can rapidly provision to users.

Further, by virtualizing applications, the IT team doesn't have to worry about application compatibility or the systems running on the user devices accessing them. Using Microsoft Application Virtualization or App-V creates apps that don't have to be installed in order to run and share data with other applications.

Microsoft's System Center, with its management console, enables IT managers to monitor app traffic and flow patterns via a standard web browser. Beyond providing the IT department the ability to monitor virtual and physical apps, System Center includes capabilities for maximizing application usage, while simultaneously monitoring software assets to confirm license compliance and meet other SAM directives.

Virtual apps, like virtual machines, demand new monitoring and management techniques, as they create similar licensing issues. They must comply with licenses, just like traditional applications, and thus should be regularly monitored.

SERVER VIRTUALIZATION

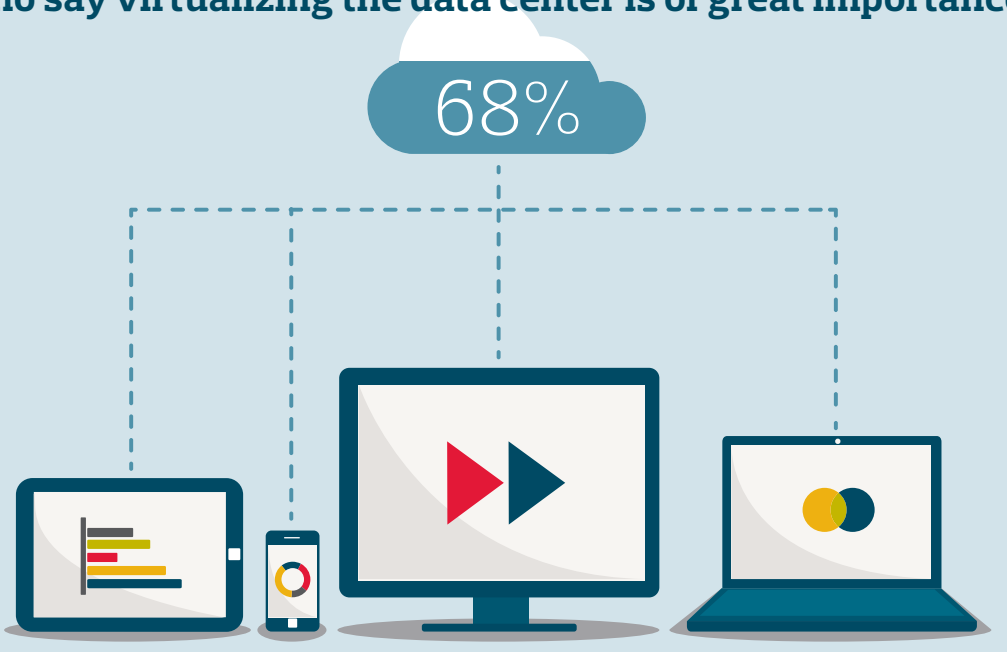
The benefits of virtualizing servers (not to mention, the entire data center) are well documented. The software-defined data center is yet another step toward a highly efficient, cost-effective computing environment.

To create, manage and gain the high-level oversight needed to leverage virtual servers, the IT shop needs a complete solution, such as VMware's vCloud Suite, which combines virtualization functionality, cloud infrastructure and management. Not only does virtualization software from developers such as VMware and Microsoft create the software containers for VMs, it provides the hypervisor that enables one physical server to handle the workload of many virtual servers, maximizing capacity while minimizing space.

The vCloud suite enables administrators to build, manage and

THE SOCIAL NETWORKS THAT FIRST CONNECTED THE GENERAL POPULATION HAVE MATURED AND MORPHED INTO SOCIAL PLATFORMS WITHIN THE ENTERPRISE, **ENABLING COLLABORATION ACROSS THE OFFICE AND ACROSS THE WORLD.**

The percentage of IT decision-makers in the United States **who say virtualizing the data center is of great importance**[2]



secure a software-defined data center and treat both internal and external resources as a single entity. Through integrated management capabilities, the product can bring the benefits of virtualization to every domain — including computing, storage and networking — in the data center.

To handle security in these environments, enterprises rely on the same directory services they rely on in a network environment. Directories house information related to users, devices, applications and other resources on the network, allowing the IT team to establish policy-based user access rights, monitor security and manage the allocation of resources.

Products that provide directory services include Microsoft Active Directory and IBM Tivoli Directory Server, which manage user authentication, authorization and identity management based on the organization's security policies.

CLOUD COMPUTING

The cloud has changed the nature of computing. The improved efficiencies and utilization it offers have organizations flocking to it. Vendors (from the smallest startup to the biggest software provider) are heading there as well. Beyond software as a service (SaaS), these companies offer numerous IT functions as services. After software, the largest segments are infrastructure as a service (IaaS) and platform as a service (PaaS).

SaaS: With SaaS, the most popular of the shared-use services, organizations get access to applications hosted and supported by software providers. They license these on a per-user subscription basis. A wide variety of applications are available from SaaS vendors.

IaaS: With IaaS, IT teams can outsource their entire data center infrastructure and focus more on strategic functions, as well as maximize their infrastructure spending by turning administrative functions over to specialists.

PaaS: This cloud service virtualizes the computing platform. For instance, enterprises can use a virtual platform to run applications for access by external parties, and integrate these public-cloud apps within the IT environment. PaaS is also popular with developers, who can have their own environment to test and run applications without affecting internal operations.

Microsoft, VMware and HP, among others, offer PaaS options. Microsoft's Azure allows customers to develop new apps in a range of languages and deploy them over the vendor's extensive network of data centers. As part of its vSphere platform, VMware offers the Pivotal One PaaS, built on Pivotal's Cloud Foundry product. HP, meanwhile, offers the HP Cloud Application PaaS, powered by ActiveState's Stackato platform. ■

[2]SOURCE: *2013 Cisco Global IT Impact Survey* (Cisco Systems, May 2013)

SaaS APPEAL: GATHERING CLOUDS

As vendors move to the cloud, a variety of operational and business benefits await those that follow.

READ ABOUT:

- New cloud-native products and SaaS-based versions
- Taking advantage of SaaS's subscription pricing
- Cloud provider data security tips
- Uncovering SaaS challenges
- Wider SaaS offerings

Today's software-as-a-service computing model has roots dating back as far as the 1960s, when mainframe vendors offered database and other time-sharing services, and more recently, in the 1990s, when application services providers (ASPs) hosted third-party applications for remote access.

Today, SaaS providers host their own software, primarily in a multitenant architecture able to serve a large number of customers. They charge on a subscription basis, usually a flat monthly fee per seat. However, many are switching to pricing on an annual basis, requiring upfront payment.

Following the trail blazed by SaaS-only providers, the biggest software providers in the world have also taken to the cloud. Their offerings include new cloud-native products and SaaS-based versions of their other products.

According to a recent Gartner survey of businesses worldwide, 71 percent of IT respondents are using SaaS for enterprise software solutions, and 77 percent expect to increase their SaaS spending. The public sector, too, is increasingly taking advantage of cloud services. Twenty-five percent of federal agencies have adopted SaaS, while 56 percent are planning SaaS deployments, according to *InformationWeek's* 2013 *Federal Government Cloud Computing Survey.*

The maturing SaaS model has bolstered buyer confidence. According

to the *InformationWeek* survey, U.S. and European respondents are replacing their existing in-house applications with SaaS offerings, including supply-chain management, web conferencing, collaboration platforms and social tools. Many organizations are blending cloud with in-house software.

THE APPEAL

As a business decision, SaaS makes a lot of sense. In-house software and the server and desktop hardware needed to run it represent significant capital expenditures. SaaS's subscription pricing, on the other hand, makes it a predictable operational expense. Not only does this make it easier to budget for, it also helps IT and other departments justify software investments.

SaaS provides several other advantages. A SaaS provider can get new software up and running quickly. The model also reduces overall support and license compliance headaches, as the SaaS provider supports its applications and manages associated licensing. Enterprises also benefit immediately from any upgrades the vendor makes to its software, rather than waiting for security patches, bug fixes and other improvements.

Further, because it doesn't require a large upfront investment, SaaS offers IT teams and other departments more flexibility in launching pilot projects to prove their value. IT teams also can scale up the number of seats during peak periods, such as a product launch, and reduce them when customer demand trails off.

66%

The percentage of organizations using cloud services who report that they have **two to five service providers**[1]

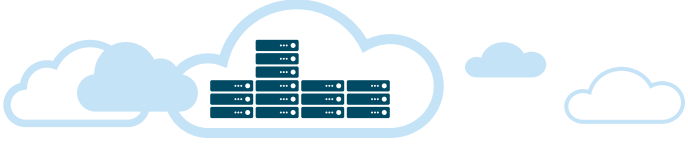
ADDRESSING SECURITY

From a security standpoint, IT chiefs view SaaS with two areas of concern: users and providers. The user component is more under the IT team's control, but the provider's approach to securing data is something organizations need to research carefully. They should review a provider's model for securing applications, data and facilities; its cybersecurity strategy and tools; and its business viability.

APPLICATION CONSIDERATIONS: IT heads will want to review how a provider manages authentication, authorization and user identities. They should also examine the methods employed for user login.

DATA: Enterprises should ask how the service provider stores and transmits data. For instance, is it encrypted both in-transit and while at rest? What are the parameters for viewing stored data?

CYBERSECURITY STANCE: Organizations should carefully research a SaaS provider's cybersecurity policies and safeguards. For example, does it have a defense-in-depth strategy? What network and server security technologies does it use to monitor traffic and prevent breaches? What is the process if the provider discovers a breach? Finally, if an enterprise wants to terminate the relationship, how does the vendor remove customer data from its servers?



SAAS **GOT YOUR SERVER?**

It's no secret that IT teams are high on server consolidation – the practice has been popular for years. However, this trend may not be playing out precisely as observers envisioned.

Server revenues declined 3.5 percent in 2013, a drop primarily attributed to the emergence of SaaS offerings. IDC predicts that 25 percent to 30 percent of all servers shipped in 2014 will go to cloud service providers. What's more, by 2017, cloud providers will be responsible for nearly 45 percent of total server revenues.

The growth in SaaS adoption is shifting a great deal of workload capacity – and therefore server spending – to the cloud. Meanwhile, IDC says, data center consolidation is both reducing the number of servers and driving the purchase of larger boxes that can handle much bigger workloads.

[1]SOURCE: *2013 State of Cloud Computing* (*InformationWeek*, May 2013)

OPERATIONAL VIABILITY: Smart providers operate in a physical structure that is state of the art, both from a security and data protection standpoint. They should run a low-profile operation that doesn't advertise what happens inside, has secure physical access and lock-down procedures and an around-the-clock security presence. To handle disasters, natural or otherwise, SaaS providers should have water and fire damage control systems, backup power systems and a secondary facility that provides network and data center redundancy for disaster recovery.

BUSINESS VIABILITY: The biggest software providers have invested in state-of-the-art data centers to run IT services. In addition, managed service providers whose specialties include SaaS have built sophisticated operations. Companies that provide cloud services have optimized infrastructure and processes, and they hire some of the top specialists in the field.

CLOUD-BASED CHALLENGES

For all its benefits, SaaS also has some downsides to consider. To maintain high-speed data access to applications over a wide area network as part of a cloud deployment, an organization often will need to tinker with input-output settings to address latency.

IT leaders also don't want to end up creating new data silos on top of those that already exist. Application programming interfaces offered by established SaaS vendors go a long way toward helping administrators integrate cloud software with in-house apps, and they can also leverage Simple Object Access Protocol (SOAP) and other integration methods.

A lack of standards — which commonly hampers interoperability — has also affected many SaaS deployments. It can be difficult to migrate some applications to the cloud based on the platform they're built on or the tools used.

Virtualization, one of the key components of cloud computing, relies on a hypervisor's proprietary platform. If an enterprise wants to move its application data to a provider whose software is built on a different platform, the transition can be difficult.

The same applies if the organization wants to bring its application back in-house. Not only does it have to consider the internal IT environment, but also its staff composition, as well as systems, database, application and other management tools.

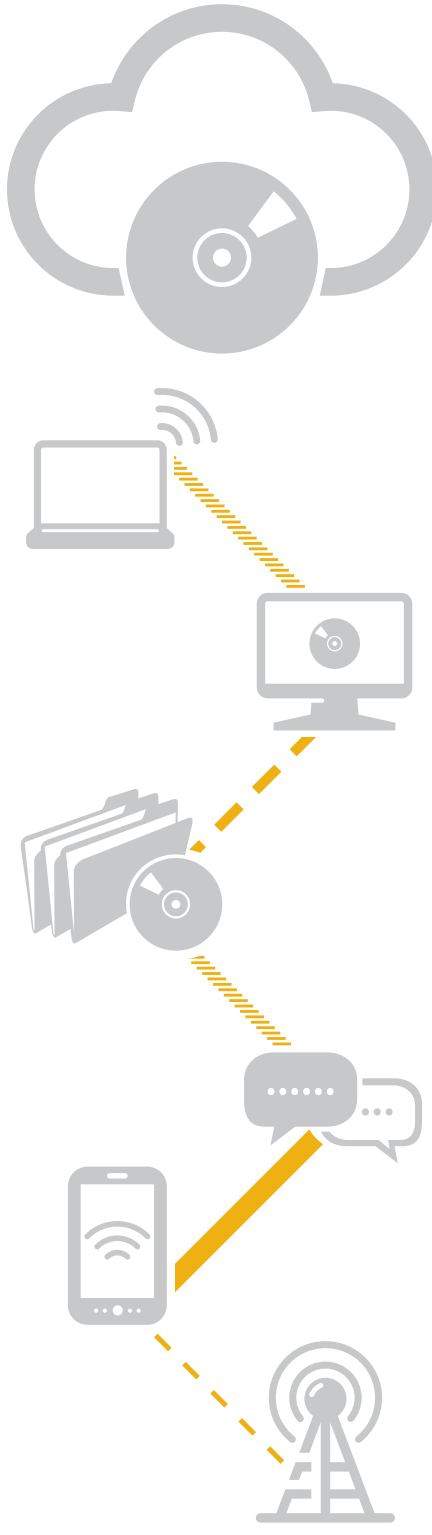
SaaS pricing models are straightforward, especially compared with in-house software licensing. But some usage cases drive up costs that exceed the monthly fee. SaaS does simplify compliance, because usage metering is a built-in feature that is unaffected by the user's device. However, organizations can find their costs increasing rapidly if more users log on to a SaaS offering than they have subscriptions for.

STARTING SaaS: GOOD CANDIDATES

The list of business applications and software available through SaaS providers is growing. Email was one of the first SaaS offerings that was widely adopted.

Other communications and collaboration tools likewise make good SaaS candidates. Applications for video conferencing, multichannel contact center automation, enterprise social collaboration and social media monitoring and measurement have all done well in the cloud.

Data backup and archiving functions are also good cloud candidates, as they don't require a lot of IT intervention and customization. Cloud-based backup provides built-in business continuity and disaster recovery.



On the enterprise software front, customer resource management suites have been popular offerings. Other enterprise application and infrastructure tools that have done well in the cloud include human resources, accounting and payroll. More recently, enterprise resource planning has received the cloud treatment.

Some SaaS applications have been developed from the ground up for specific verticals, focusing on, for instance, patient scheduling or pharmacy ordering for healthcare, event planning management for the hospitality industry, and seat booking for air travel.

Highly customized applications or those that are organization-specific, such as business intelligence and analytics tools, are less well-suited candidates for public SaaS. These traditionally require a great deal of IT involvement to create data warehouses optimized for online analytical processing, so queries don't affect transaction system performance.

Even though there's a push to make analysis capabilities available to a wider range of employees, sophisticated analytics such as predictive modeling require specialized skill sets. Moreover, with Big Data emerging as an important element of many organizations' IT operations, analytics are now applied to high-volume, unstructured data.

Crunching huge data sets requires server clusters or high-performance computers. Further, data transfer time might be a bit slower, even if an enterprise isn't already averse to putting sensitive data in the public cloud.

IN-HOUSE OR SERVICE HOSTING?

Several considerations factor into software hosting decisions. These include the organization's industry, customer or constituent base; regulatory constraints; the kind of data being processed; and IT operation costs.

Enterprises must review what they are currently running, the software's requirements, what can readily move to a SaaS environment and what can't. These decisions always involve trade-offs, and some organizations may consider making the leap when it's time to renew a license contract or purchase an entirely new application.

A common first step is to consider software that's suited to the cloud and then compare the costs of subscription pricing versus licensing. IT teams are well aware of the ongoing, multifaceted costs associated with licensing software, even if acquisition costs drop over time. With a cost baseline to work from, they can feed in other factors on a case-by-case basis.

One cost consideration is software support. Beyond vendor-provided support, what is the IT group's support burden and cost? If an application is simple to run and learn, support costs may not be high. Even with low support

ORGANIZATIONS SHOULD CAREFULLY RESEARCH A SaaS PROVIDER'S CYBERSECURITY POLICIES AND SAFEGUARDS.

For example, does it have a defense-in-depth strategy?

What network and server security technologies does it use to monitor traffic and prevent breaches?

What is the process if the provider discovers a breach?

costs, it might not make sense to keep an application in-house in light of the IT staff's overall support burden.

For an enterprise software suite that is used by multiple departments, considerable maintenance costs may be involved, as well as any support the IT department contributes. Opting for a SaaS version of the software may be a good business decision.

However, if the software requires significant customization, it may be better kept in-house. That being said, many IT teams find they don't need to customize applications to the extent they had thought, and a standard version of the application can meet most of their needs. The decision becomes even easier when weighed in light of the resources needed to address customizations when the IT staff must perform an upgrade or administer security patches.

IMPROVING INFRASTRUCTURE TO SUPPORT SaaS

Application response requirements are another SaaS consideration. If an app demands ultrafast response time and users aren't widely dispersed, the IT team may be better off running it in-house. If a provider facility is far from the primary user population, latency factors may force the decision.

However, if a workforce is highly mobile or distributed in branch offices, a service provider whose core competency is ensuring high availability and response times might be better equipped to meet access requirements. And if IT staff has to continuously monitor and tune network performance to improve remote worker access, the associated costs versus SaaS pricing may favor hosting.

Organizations also have the option of running SaaS applications in third-party data centers, which have made hefty investments to optimize the infrastructure and employ a stable of specialists to manage it.

Regardless of their SaaS approach, IT departments should review their infrastructure's ability to handle the demands that come with introducing cloud services to the application mix and make necessary improvements. For example, they'll want to tune WAN input/output settings as cloud-based apps are added in order to address specific latency issues. But, as they offload physical servers by adding more SaaS offerings to the portfolio, IT staff have the opportunity to streamline operations and improve service delivery and efficiency. ■

SHARE IT!

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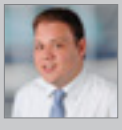

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