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Why you should move core business applications into the cloud.

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Editorial Correspondence:

7360 East 38th Street, Tulsa, OK 74145

Phone (800) 726-7667 • Fax (918) 270-7134

Change of Address: Send corrected address label to the above address.

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Mission-Critical
CLOUD

As technology matures, more organizations are looking to move their core business applications into the cloud.

Since its early days, cloud computing has inspired both hype and skepticism in equal measure. While evangelists touted the cloud's capacity to transform the way businesses use and think about technology, cynics called it an unreliable and over-marketed model with risks that far exceeded any potential benefits.

Early adoption was naturally tentative, with organizations first experimenting with storage and file-sharing services before expanding into testing and development environments. However, it didn't take long for the cloud to evolve into an integral part of the enterprise computing infrastructure — 97 percent of respondents to a recent Tata Communications survey report they have adopted a variety of cloud services.

"By now, even the skeptics would have to agree that cloud computing has lived up to the hype," said Ben Grassmuck, Business Development Manager, Sigma Solutions. "There is no doubt that the cloud model has enabled enterprises to increase productivity, gain better access to data, reduce capital expenditures and more.

"The next step in the cloud's value chain is with mission-critical applications. More and more organizations have determined they can realize a host of benefits by moving these apps off of servers in the data center and putting them in the cloud."

Cost Considerations

This is a fairly new development. As recently as 2013, industry surveys routinely showed that up to 90 percent of IT decision-makers considered it important to keep core business applications and workloads running inside the data center. That perception has shifted dramatically, as illustrated by a November 2014 Forrester Consulting study. The survey found that 81 percent of organizations are either using or planning to use Infrastructure-as-a-Service (IaaS),

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Platform-as-a-Service (PaaS) or Software-as-a-Service (SaaS) for a wide range of business applications within the next two years.

Cost reduction is one compelling reason to move mission-critical apps to the cloud. It isn't unusual for large organizations to be running hundreds or thousands of applications — including core apps such as business intelligence, financial management, procurement, logistics, customer relationship management systems and project management. And enterprises are continually adding new applications to gain business and operational efficiency.

"It is generally accepted that one-third of enterprise IT budgets are spent on application management," said Grassmuck. "New applications place additional strain on network and server resources, and often demand extra storage capacity. As a result, it is becoming difficult and expensive to manage and maintain the core applications that support business needs."

Shifting mission-critical apps such as Microsoft Exchange, SQL Server, SAP and Oracle Database to top-tier cloud providers offers budget relief. Application management costs become predictable, and core staff are freed to pursue more business-enhancing activities. Maintenance costs are shifted to the cloud provider and upgrades become seamless and painless.

Software licensing costs also can be reduced significantly in the cloud, where licensing is often based on a pay-as-you-go or monthly subscription model, rather than on a per-user or per-server model. Cloud platforms often leverage open-source technologies such as OpenStack, Linux and KVM to meet the needs of core apps while slashing the hardware, licensing and support costs associated with traditional on-premises deployments.

Migrating Custom Apps

"Homegrown" legacy applications can present special migration considerations. Some industry surveys show that as much as 40 percent of enterprise apps are custom-built for specific business requirements, based on older operating systems and hardware, and require frequent re-engineering. For these reasons, organizations tend to be reluctant to shift custom apps to the cloud.

However, providers such as Rackspace and Sungard AS offer the enterprise-class framework, tools and services to simplify the migration of custom apps to a cloud platform. In some cases, this could involve re-hosting the application and its components to IaaS servers without making changes. In other cases, it might be better to rebuild the app in a PaaS environment using modern frameworks such as Java or .NET to make it more resilient. Finally, there may be instances in which the legacy app could simply be replaced altogether using a commodity SaaS offering that will deliver improved functionality with the added advantage of automated updates.

"Migrating legacy, custom apps may seem like a painful process, but a cloud deployment will ultimately deliver significant benefits," said Grassmuck. "The fact is, some of these apps are ticking time bombs. While they have served a useful purpose for years, they require operating systems and hardware that aren't going to be supported forever. What's more, they may have been developed using old programming that only employees nearing retirement can still support.

"It is inevitable that these apps will have to be re-hosted, re-architected or simply replaced. The cloud offers an opportunity to upgrade the application while reducing management costs and simplifying support requirements."

Eye on Agility

While the cost advantage is significant, it is no longer the driving force behind the cloud model. In the Forrester survey, 77 percent of respondents identified improved agility as the key motive for moving core apps to the cloud.

One of the key ways cloud enhances application agility is by allowing developers to conceive, develop, test and release new code rapidly. In traditional "waterfall" development, teams gather all known requirements for the application, develop all elements and finally test the app before release. That not only takes a long time, but it forces the development team to go back to square one when errors are found. In the cloud, organizations can rapidly create multiple virtual test environments without dependencies on backend systems and data stores. Developer teams can test often throughout the development lifecycle without worrying about data or service availability, quickly adding new features, changing functionality or making bug fixes.

The ultimate goal of agile testing is to speed the process of getting high-quality code into production, giving organizations faster access to new apps that can drive productivity and business efficiency. Because cloud resources can be quickly added, applications can be dynamically scaled up or down without excessive administrative overhead.

Cloud providers can also quickly spin up application servers, storage and databases to provide rapid provisioning of scale-out architecture for data-intensive applications such as big-data analytics and business intelligence. Using simple subscription-based tools, organizations can plug into disparate data sources and create useful queries without having to know a database programming language.

"Enterprises are increasingly moving mission-critical applications to the cloud to gain the benefits of agility and cost reduction that comes with the distributed nature of the platform," said Grassmuck. "However, there are challenges, and not all applications are best-suited for the same platform. Through our partnerships with some of the top cloud platform providers, Sigma Solutions can help you evaluate your goals for cloud migration and determine whether IaaS, PaaS or SaaS solutions best suit your requirements."

Be Prepared

Assessment process helps ensure smooth migration of applications to the cloud.

As IT has evolved from a cost center to a business enabler, the focus has shifted from hardware to applications. Success is ultimately measured by how technology helps end-users do their jobs rather than metrics around server, router and switch performance.

Traditional application deployment strategies are increasingly unsuitable for this new model. Old processes of ordering, installing and configuring hardware for each new app slows down business. Migrating key applications to the cloud enables new levels of agility, efficiency and scalability. Application deployment times are reduced from weeks to minutes, code updates take just seconds and demand spikes are handled with the click of a mouse.

"The cloud offers undeniable benefits, but moving mission-critical apps out of the data center and into the cloud is a significant undertaking that requires a formalized plan," said Robert Sargeant, Vice President, Professional Services, Sigma Solutions. "While some applications are cloud-ready, others are not. A key part of any cloud migration strategy is a cloud application assessment to evaluate a variety of considerations that can have a profound effect on the overall success of a migration project."

Gathering Intelligence

An effective assessment process will identify and prioritize exactly which applications can be easily migrated, which may need to be redesigned or replaced, and which are better off remaining in house. The process involves

assessing every application across multiple characteristics, including cloud objectives, technical feasibility and risk. The assessment also should establish a clear business case, identifying specifically for each individual app why migration will deliver value and competitive advantage.

An assessment will help determine which deployment model — public, private or hybrid — is most suitable, based on application requirements and business objectives. The process will also identify the most appropriate service model — Infrastructure-as-a-Service (Iaas), Platform-as-a-Service (PaaS), or Software-as-a-Service (Saas).

The first step is a risk assessment. A risk assessment will identify "show stoppers," or factors that would completely rule out the migration of an application to the cloud. For example, if an organization could potentially suffer heavy financial losses or be subject to a lawsuit if a cloud-based application were to crash, that would be a show stopper. This is why custom-built, mission-critical applications are often the last to migrate to the cloud.

Data Considerations

Data availability and integrity considerations are also part of the risk assessment. In the cloud, applications typically link with other cloud-based applications to deliver functionality. Given this interdependence, organizations must understand how the app handles data requests, how data is exchanged and how much data users can access.

A profile of an application's data usage is also important to ensure "right-sizing" of the app in the cloud. This typically involves profiling an app for several days or even weeks to collect information about its CPU and memory usage, storage throughput and latency, and network connection frequency. In addition to such node-level statistics, it is important to know user connection and transaction rates.

Many organizations explore cloud migration to reduce hardware and operational costs. Applications that tend to deliver the highest return are those that see bursts in demand for brief time periods. The cloud can automatically allocate resources during these bursts, minimizing the need to over-allocate resources during non-peak times.

However, it's important to realize that moving applications to the cloud doesn't guarantee cost savings. Migrating older, complex applications that are closely tied to legacy hardware can actually increase costs. Organizations also need to account for the additional bandwidth required to transfer data to and from the cloud.

Expertise Required

Once the decision has been made about which applications to move to the cloud, organizations should conduct a cloud layer assessment to determine where each application should reside. This is largely determined by the level of control IT wishes to retain over the application. For example, if an organization would prefer to be able to refactor and load balance an application, they might choose a PaaS model. If they only want to manage end-users, they would choose a SaaS model. In an IaaS model, the cloud provider not only hosts the application but also handles tasks such as system maintenance, backup and resiliency planning.

"Assessing applications, designing migration plans and finally migrating applications to a targeted cloud computing model is a demanding endeavor," said Sargeant. "Our team of engineers and IT professionals have experience with application analysis and migration, as well as a deep understanding of the various cloud computing models and the underlying infrastructure. We help our customers conduct the rigorous preparation required to minimize the risk and maximize the effectiveness of a cloud migration."

"While some applications are cloud-ready, others are not. A key part of any cloud migration strategy is a cloud application assessment to evaluate a variety of considerations that can have a profound effect on the overall success of a migration project."

Unified Communications in the Cloud

Unified communications (UC) once was viewed as a way to reduce costs and simplify administration by bringing together communications tools for telephony, email, text, instant messaging, videoconferencing and presence into a single platform. However, UC quickly evolved into a valuable, strategic resource, capable of boosting productivity and innovation by enhancing the quality of collaboration and improving access to data and services.

Today, the technology is evolving once again with the migration of UC applications and services to the cloud, allowing organizations to take advantage of a Unified Communications-as-a-Service (UCaaS) delivery model. The ability to deliver a set of business communications services through a highly scalable IP communications infrastructure makes UCaaS an increasingly attractive alternative to on-premises communication platforms.

Rapid growth of subscription-based UC expected.

"There's a growing preference for cloud-based services, particularly in mid-to-large enterprises, and UCaaS is riding that demand," said Bill Haskins, Senior Analyst & Partner for Massachusetts-based Wainhouse Research. "Putting unified communications in the cloud makes great economic sense: the infrastructure is there, the support mechanisms are in the place, the training program is ready. Plus, fewer IT and purchasing resources are required to manage it."

Cost Savings and More

In a recent report on the global UCaaS market, Wainhouse Research noted that all signs point to rapid growth in the industry as both telephony and non-telephony service providers compete for market share. While there are hundreds of providers currently in the market, analysts expect a great deal of consolidation over the next few years. Key players now include Cisco, Avaya, Alcatel-Lucent, Microsoft, IBM, HP, CSC, Voss, Verizon Communications and Polycom. Wainhouse Research predicts the market will be worth approximately $5.3 billion by 2018, with a five-year compound annual growth rate of 24 percent.

Not surprisingly, the cost factor makes UCaaS attractive to many organizations. Instead of purchasing, configuring, deploying and managing an on-premises solution, those costs and responsibilities are assumed by the service provider. For a monthly fee, users can simply access enterprise-class UC technology and applications on any Internet-connected device. Users enjoy a consistent UC experience anytime, anywhere, which allows for greater business agility and productivity.

UCaaS provides the flexibility to quickly scale services up or down according to business needs, creating operational efficiency by enabling organizations to pay only for what they need. Service provider data centers typically have more resiliency and redundancy than customer environments, making it possible to maintain high levels of performance and minimize the risk of downtime and data loss. Similarly, UC support is handled by the service provider's team of IT specialists, which often improves the speed and quality of support.

Weighing Options

It's important to recognize that UCaaS is one approach to UC, and organizations need to determine if cloud-based UC is the right fit. Many IT managers are leery of moving mission-critical applications to the cloud, especially when dealing with increasingly complex regulatory compliance requirements. Organizations need to make sure the service provider understands and is capable of maintaining compliance.

In addition to regulatory compliance, existing technology investments must be considered. UCaaS makes the most sense in new facilities that have no communications service, or when a total overhaul is needed. Otherwise, organizations should make sure their UCaaS strategy is compatible with existing applications and user equipment. Employees should also be ready to embrace a new communications system, which should be trialed and tested before making a final decision.

Still, there is a widespread perception among telecommunication experts and industry analysts that UCaaS will inevitably overtake on-premises solutions as the platform of choice for organizations of all sizes.

"As the use of mobile devices within organizations grows, employees need the ability to collaborate from any device and from any connected location," said Audrey William, Frost & Sullivan's head of research for information and communications technologies. "Many organizations are reluctant to continue investing in on-premises solutions, which often have multi-year contract agreements. There is a significant shift toward third-party hosted and managed models, and service providers are playing an important role in the overall UC market."

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