MOVING WORKLOADS FROM YOUR DATA CENTER TO A HOSTED PRIVATE CLOUD

OPPORTUNITIES AND CHALLENGES

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INTRODUCTION

This white paper highlights the results of our new private cloud survey, which is based on in-depth interviews with ten IT directors, managers and other decision-makers at medium and large enterprises. All of the survey participants' enterprises use private, public and hybrid clouds, except for one, whose workloads reside solely in its company-owned data center. This white paper also features additional recent research from Rackspace® and its strategic partner, Cloud Technology Partners; and other third-party cloud data, like the RightScale 2017 State of the Cloud Report.

Today, 95 percent of businesses are using the cloud, according to the RightScale 2017 State of the Cloud Report. These businesses run nearly 8 of 10 workloads in the cloud, using a mixture of public, private and hybrid clouds. However, they are concerned about their own lack of cloud expertise — and costs. In short, many of these companies need a hosting service provider that not only understands their business and industry, but also possesses the ability and expertise to help them achieve their future business and IT goals.

Enterprises are steadily moving more of their workloads from their data centers to the cloud, with a private cloud being the leading solution by nearly one-third (28 percent) of all organizations, according to the 2016 IDG Enterprise Cloud Computing Survey. And enterprises are increasingly comfortable with storing their proprietary apps and sensitive business information in a hosted private cloud as their concerns about security have lessened. Indeed, for most companies today, their second and third leading technology initiatives are IT as a service — including infrastructure as a service (IaaS), software as a service, (SaaS), platform as a service (PaaS) and private clouds — according to the recent Rackspace IT Transformation survey. For these respondents, only enterprise mobility is a more important technology initiative.

WHY WORKLOADS ARE MOVING TO HOSTED PRIVATE CLOUDS

Enterprises that have moved their workloads to the cloud have realized enormous advantages, such as faster access to IT infrastructure. They can also now take advantage of greater scalability and higher availability. And they can more easily create new products and services — and bring them to market faster. Unlike their less cloud-savvy competitors, these enterprises also benefit from improved business continuity and disaster recovery, which helps to keep their customers satisfied and their employees productive.

Interestingly, as businesses transition from being cloud laggards to cloud innovators, they report that their cloud-enabled benefits — like faster access to infrastructure, greater scalability and higher availability — actually continue to increase. In other words, these companies discover that the core benefits of deploying workloads in the cloud increase as they become cloud-mature companies. By 2018, IDC expects the average enterprise will have just 40 percent of its IT infrastructure residing in on-premises systems. The leading destination for these workloads: private clouds.

Worldwide, the amount of money companies spend on cloud IT infrastructure grew by 14 percent during the second quarter of 2016, according to IDC.

SUMMARY

We conducted a qualitative study with IT leaders across 10 industry sectors including finance, healthcare, insurance, global delivery services and entertainment. We discovered:

- These companies, whether they are cloud laggards or cloud innovators, intend to move additional apps, data and other workloads to a hosted private cloud.

- They are deploying more of their business-critical workloads to a hosted private cloud because they want to realize the core benefits of cloud computing, such as faster access to IT infrastructure, improved scalability and higher availability.

- These companies are also facing some challenges, such as institutional concerns about security, cloud costs and a lack of expertise.

- Many of these companies also need a third party, such as a hosting provider, to assist them during their cloud journey so they can focus on running their business.

Meanwhile, investments in traditional (i.e., non-cloud) IT infrastructure decreased by six percent during the same period.

To help business and IT leaders with the process of deciding which workloads they should move to a hosted private cloud, this white paper examines why companies are moving workloads to the cloud. It explains why certain workloads tend to reside in a data center or a hosted private cloud. And it highlights the respective challenges of storing workloads in a data center or a hosted private cloud. Finally, it discusses why companies are deploying more workloads in a hosted private cloud.

DATA CENTER OR HOSTED PRIVATE CLOUD: WHERE IT WORKLOADS RESIDE – AND WHY

Enterprises that have moved their workloads to the cloud have realized enormous advantages, such as faster access to IT infrastructure. They can also now take advantage of greater scalability and higher availability. And they can more easily create new products and services — and bring them to market faster. Unlike their less cloud-savvy competitors, these enterprises also benefit from improved business continuity and disaster recovery, which helps to keep their customers satisfied and their employees productive.

"AMONG ENTERPRISES, 75 PERCENT OF THEIR ENTIRE WORKLOADS ARE RUN IN THE CLOUD, WITH 43 PERCENT IN PRIVATE CLOUDS AND 32 PERCENT IN PUBLIC CLOUDS. JUST ONE IN FOUR WORKLOADS LIVES EXCLUSIVELY IN A DATA CENTER."

SOURCE: RIGHTSCALE 2017 STATE OF THE CLOUD REPORT

To determine whether a workload should reside in a data center or a cloud environment, a company needs to evaluate fundamental issues like its infrastructure, IT strategy and business needs. Once they've evaluated the fundamentals, they need to look at specific factors like performance, compliance, return on investment, compatibility and interoperability.

Cloud-friendly workloads can take advantage of the cloud's core attributes, including availability and scalability. Other cloud-friendly workloads include elastic workloads with variable traffic, non-critical storage solutions, test and pre-production systems, backup and restore solutions, and data-intensive workloads with accompanying storage as a service.

SPECIFIC CLOUD-FRIENDLY WORKLOADS

The workloads that enterprises most often deploy in a private or public cloud, in order of popularity, include:

- Email and collaboration software (70%)
- Web apps and websites (54%)
- Application testing and development (52%)
- CRM software (44%)

YOUR FIRST CLOUD APP SHOULD MAKE A DIFFERENCE

For companies that haven't moved to the cloud, the question of what app to deploy first is a looming and important one. Robert Christiansen, a vice president at Cloud Technology Partners, offers some contrarian advice: Don't play it safe.

Christiansen recommends that the first app moved to the cloud should be an important one. It "must be legitimate and be able to gain the attention of all stakeholders across the enterprise," says Christiansen. "If you're thinking of taking the safe path and launching an app that doesn't engage the security, finance and governance teams deeply, you're missing a huge opportunity."

Organizational change is the biggest barrier to moving from a data center to a cloud, says Christiansen. Thus, you need to leverage your first app's momentum by selecting an application that involves key stakeholders.

Cloud Technology Partners' criteria for first apps include:

- Selecting Important Business Data: Pick an app with PCI-classified or other sensitive data. Doing so helps ensure that security, governance and others take notice of your movement of important data to the cloud.

- Aiming for a Small Initial Footprint: Start small. You want the number of workloads and data involved to be manageable.

- Picking a Welcoming Team: For your first app, you want to work with a team that is interested in moving to the cloud. Don't burden yourself with a team that is uninterested, uncooperative or outright hostile to your efforts.

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- Custom business apps (44%)
- Ecommerce tools (40%)
- Business analytics (35%)
- Customer business apps (34%)
- ERP, human resources (32%)
- ERP, finance and accounting (31%)
- ERP, supply chain management (25%)

Business-sensitive workloads, like finance and accounting software and business analytics, tend to be stored in a private cloud. Meanwhile, less sensitive collaboration applications, like Microsoft Office 365 or supply chain management systems, often reside in a public cloud.

FREQUENTLY MISSED OPPORTUNITIES

Enterprises in our private cloud survey are less likely to entrust confidential or proprietary business data to their hosted private cloud. That includes trade secrets that they want to safeguard from competitors, or customer information that must be protected for compliance or regulatory reasons.

This is particularly true for companies in the finance and healthcare industries. They must adhere to government or industry audit, compliance and security regulations, such as payment card industry (PCI) standards or HIPAA and HITRUST™. Other enterprises must adhere to government data-storage regulations pertaining to where certain types of personal data can be physically located.

Survey respondents gave three examples of workloads that are kept exclusively in a company-owned data center:

- A technology company that works with numerous government agencies and possesses highly technical data, like the location coordinates for space shuttles and satellites.

- A healthcare company that must abide by HIPAA and other government regulations pertaining to sensitive patient information like electronic medical records.

- A global delivery services company that uses a proprietary communications system for its fleet of truck drivers. The company doesn't want its business competitors or other parties to access the communications system or the data it generates.

Compliance and security needs are the main reasons that enterprises store workloads in their own data centers. There's a prevailing belief among many businesses that their workloads are safer if they are stored in a company's internally controlled setting. As one of our private cloud survey respondents put it, "It's safe if it's with me."

Given the growing realization that a well-managed cloud environment provides the same or better security than the average data center, it might be just a matter of time before enterprises like the three above start moving their mission-critical workloads to the cloud. One of the advantages of a hosted private cloud is that your hosting provider maintains compliance for HIPAA and other regulations.

HOW COMPANIES CAN INCREASE THEIR CLOUD SECURITY

Data security is one of the chief concerns that every company struggles with when storing important company information in a hosted private cloud. Yet nearly every enterprise stores some of its workloads in the cloud. Here are five recommendations for safeguarding your data in the cloud, courtesy of 200+ cybersecurity experts and IT professionals who participated in Check Point's Cloud Security 2017 Survey. Their suggested best practices include:

- Encrypting your data at rest and in motion

- Using a VPN and encrypting your traffic

- Implementing access-control and user-authorization policies

- Deploying network monitoring, reporting and forensics solutions

- Using an intrusion-prevention system

THE CHALLENGES: THE DATA CENTER VERSUS THE CLOUD

Both data centers and hosted private clouds possess their own unique challenges. While some of these issues are shared by both — such as costs and a lack of expertise or resources — other issues are specific to the data center or the hosted private cloud.

CHALLENGES: THE DATA CENTER

For our private cloud survey respondents, their chief data center challenges fall under four broad categories: cost, expertise, performance and innovation.

The survey participants reported that their main data center challenges were:

- Cost control, including initial capital investments and ongoing operational costs
- Infrastructure maintenance
- A dependence on legacy systems that have not kept pace with new technologies
- IT staff, including the need to hire and retain employees
- A lack of flexibility and scalability

40%	Number of respondents who cited legacy infrastructure or an overallocation of resources to the maintenance of their existing environment as barriers to innovation
68%	Amount of time that IT staff spends on infrastructure maintenance and operations
32%	Amount of time that IT staff spends on innovation.
7 WEEKS	Average amount of time it takes to purchase, procure and deploy a replacement component when data center infrastructure breaks down
24 WEEKS	Amount of time it takes to purchase, procure and deploy a replacement component when data center infrastructure breaks down, according to one in 10 enterprises

CHALLENGES: THE CLOUD

Private cloud survey respondents said that their main cloud challenges fall under three broad categories: cost, expertise and knowledge.

The survey participants reported that their chief cloud challenges were:

- Costs, which can escalate or need to be kept in check
- IT staff, including the need to hire and retain employees who possess the necessary cloud expertise
- Cloud education and training, which is complicated and ongoing
- Rapidly changing hardware and software requirements

Of these cloud issues, controlling costs is a principal problem for many organizations. It's a Top 5 initiative for cloud beginners, cloud explorers and

The Rackspace Approach to Data Security

Rackspace Managed Security Services takes a proactive approach to data security. First, we learn about your business and industry, then we prioritize your business data based on its importance to your company. We also encrypt your data, establish user authorization protocols, and keep a 24x7x365 watch on your private cloud with a security model based on active threat detection and remediation. Learn more.

"WHEN DATA CENTER INFRASTRUCTURE BREAKS DOWN, IT TAKES AN AVERAGE OF SEVEN WEEKS TO PURCHASE, PROCURE AND DEPLOY A REPLACEMENT COMPONENT. FOR ONE IN 10 ENTERPRISES, THEIR WAIT TIME IS MORE THAN 24 WEEKS."

SOURCE: RACKSPACE IT TRANSFORMATION SURVEY

cloud-focused companies, according to RightScale's 2017 State of the Cloud Report. Collectively, these businesses say that 30 percent of their cloud spending is wasted. And the issue of controlling costs is a concern among all user groups (53 percent), but it's noticeably higher among mature cloud users (63 percent).

THE SHIFT FROM THE DATA CENTER TO THE CLOUD

As companies move more workloads to the cloud, they are also shifting their budget dollars away from data centers and toward cloud environments. Our IT Transformation survey respondents said they are currently spending 68 percent of their budgets on data centers but expect that figure to drop to 47 percent over the next two years. Those budget dollars would instead be invested in private, public and hybrid clouds, with private clouds being the top destination.

"ENTERPRISES ARE CURRENTLY SPENDING 68 PERCENT OF THEIR BUDGETS ON DATA CENTERS, BUT EXPECT THAT FIGURE TO DROP TO 47 PERCENT OVER THE NEXT TWO YEARS. THOSE BUDGET DOLLARS WOULD INSTEAD BE INVESTED IN PRIVATE, PUBLIC AND HYBRID CLOUDS, WITH PRIVATE CLOUDS BEING THE TOP DESTINATION."

SOURCE: RACKSPACE IT TRANSFORMATION SURVEY

EVERYBODY'S DOING IT: MOVING MORE WORKLOADS TO A HOSTED PRIVATE CLOUD

Not surprisingly, deploying additional workloads to the cloud is the second-leading cloud initiative, shared by cloud beginners, cloud explorers and cloud-focused companies, according to RightScale's 2017 State of the Cloud Report. The only cloud initiative that is more popular: optimizing existing cloud usage and cost savings.

The decision of whether to move a workload from a data center to a hosted private cloud is carefully considered on a case-by-case basis, according to our private cloud survey respondents. As one survey participant noted, "You need to not only think about what kind of cloud infrastructure you're putting in place, but also what kind of catalog, what kind of platform, what kinds of workloads and services you're going to offer, and what kind of governance model. If you don't have a road map, particularly one with a land-and-expand scenario, cloud management can be tough. On my end, I have to be constantly thinking about what the cloud is doing and where it is going."

Our private cloud survey respondents realize a stock private cloud model often isn't suitable for their business-specific workloads. And they are understandably apprehensive about whether a cloud or hosting provider truly understands their company's particular requirements. Likewise, these enterprises are concerned about a cloud or hosting provider's ability to deliver a customized private cloud solution, manage and support it, and solve the inevitable problems in a timely and efficient manner.

REDUCING PRIVATE CLOUD COSTS

Whether a company is a cloud newcomer or a cloud veteran, cutting cloud costs is a leading technology initiative. According to the RightScale 2017 State of the Cloud report, here are some of the top ways to reduce cloud operating costs:

• Monitor utilization and right-size instances

• Automate the shutdown of temporary workloads

• Halt workloads during specified hours

• Watch for non-active storage volumes

• Select clouds or regions based on cost

• Move workloads to cheaper regions

Our private cloud survey respondents are also concerned about their dependence on a cloud or hosting provider that manages an ever-growing proportion of their daily business operations. Not only does the cloud or hosting provider need to understand the business and IT needs of their company and industry, but the provider also must anticipate how both the company and its industry sector will evolve over time. Thus, it is critical for companies to team up with a provider that is experienced and reliable, has worked with other companies in its industry and is willing to share and apply the business and industry insights it has gained.

"PRIVATE CLOUDS BY MICROSOFT AND VMWARE HAVE A LOWER TCO WHEN LABOR EFFICIENCY IS LESS THAN 400 VIRTUAL MACHINES PER ENGINEER. AND WHEN THE LABOR EFFICIENCY IS GREATER THAN THIS, OPENSTACK® IS A BETTER MODEL."

SOURCE: 451 RESEARCH 2017 CLOUD PRICE INDEX

As enterprises become less dependent on their own IT staff and deploy more workloads to a hosted private cloud, they are concerned about their staff's ability to fully understand their organization's hosted private cloud solution. They also worry about their staff's ability to work intelligently with their cloud or hosting provider to attain the greatest advantages of their cloud.

Finally, cloud costs are always top of mind, according to our private cloud survey participants. Enterprises know they can save money by moving more workloads from their data center to a hosted private cloud but are worried that they are missing out on additional savings.

While the above concerns are legitimate, as you'll see below, they pale in comparison to the numerous advantages gained by deploying workloads in a hosted private cloud.

THE BENEFITS OF MOVING ADDITIONAL WORKLOADS TO THE CLOUD

The workloads a company moves from the data center to a hosted private cloud will depend on a host of internal and external factors. Aside from external issues like compliance and security regulations, the chief determining factors are where an organization lies on the cloud computing continuum — whether a cloud laggard or cloud innovator — and its level of expertise and resources.

Despite their previously noted concerns, enterprises are steadily moving more workloads to a hosted private cloud because the cloud's advantages have proven themselves to surpass their disadvantages. The benefits of moving additional workloads to a hosted private cloud noted by our private cloud survey respondents include:

INSTANT AVAILABILITY
The hosted private cloud provided the employees of these cloud-enabled businesses with instant access to apps, data and other resources anywhere, anytime.

WHEN A PRIVATE CLOUD IS MORE COST-EFFECTIVE THAN A PUBLIC CLOUD

Public clouds often cost less than private clouds, but this isn't always the case. In certain instances, particularly for large enterprises, a private cloud can provide a better return on investment, according to 451 Research's 2017 Cloud Price Index.

451 Research recently studied the total cost of ownership (TCO) for private clouds, public clouds and managed cloud services. It found that, thanks to an abundance of qualified administrators, private clouds by Microsoft® and VMware® have a lower TCO when labor efficiency is less than 400 virtual machines per engineer. And when the labor efficiency is greater than this, OpenStack is a better cloud model.

Total cost of ownership isn't the only factor to consider when selecting a cloud environment. For instance, a private cloud also enables a company to better control the cloud's underlying infrastructure, which can create additional cost savings over time.

ON-DEMAND SCALABILITY

Likewise, a hosted private cloud enabled these organizations to quickly scale servers up or down based on spikes in traffic due to advertising campaigns, seasonal sales and other events. As one of our private cloud survey respondents said, "We can't predict today what we will need tomorrow. There's an advantage to know it's available … it makes our lives a little bit saner."

IT EFFICIENCY

Many IT tasks can be conducted more efficiently in a hosted private cloud. Data center backups, for instance, can be particularly labor-intensive and time-consuming. In a hosted private cloud, data backups can be automated, requiring much less hands-on assistance.

COST SAVINGS

Many enterprises realize significant savings by moving additional workloads to a hosted private cloud as they reduce or eliminate the need for IT staffers and infrastructure investments and maintenance. "We have the benefit of greater capabilities without having to hire more people," one private cloud survey respondent noted. "We employ fewer people on-site and that provides cost savings."

These survey results dovetail nicely with the expected benefits of cloud deployments noted by the respondents of our IT Transformation survey. The top five benefits cited by these IT leaders are improved data security, ease of use, greater business agility, lower capex and opex, and faster development and innovation.

Of course, once a new workload is moved from a data center to a hosted private cloud and deployed, it requires constant monitoring and support. Or as one of our private cloud survey respondents put it, "It's not a set-it-and-forget-it scenario."

BEEN THERE, DONE THAT: HOW RACKSPACE CAN HELP YOUR BUSINESS

Rackspace possesses nearly two decades of hands-on experience managing the world's leading clouds. Since 1998, we've provided support to companies ranging from small regional businesses to the world's largest enterprises. Today, more than half of the Fortune 100 relies on Rackspace for its cloud computing needs.

Among the businesses we've helped transition from a colocation facility or data center to a private cloud are:

FEEDING AMERICA

The nation's largest hunger-relief organization, Feeding America, switched from running its data center operations in a colocation center to a Rackspace Private Cloud powered by VMware. Now, Feeding America's IT staff can focus on core business priorities instead of coping with hardware, server and storage issues. Plus, Feeding America is benefiting from Rackspace's services to support its business continuity and disaster recovery planning.

"ON AVERAGE, RACKSPACE CLOUD CUSTOMERS SAVE NEARLY $260,000 PER EVERY 20 SERVERS IN THEIR CLOUD IN ANNUAL EMPLOYEE COSTS AS OPPOSED TO DOING IT THEMSELVES, AND RACKSPACE HELPS INCREASE CUSTOMERS' USER PRODUCTIVITY BY 15 PERCENT."

SOURCE: SUSE

PARKER SOFTWARE

A UK digital engagement and sales enablement business, Parker Software, was suffering constant problems with its data center in Manchester, including outages, slow responsiveness and inadequate security, thanks to its prior hosting provider. With help from Rackspace and Alert Logic, Parker Software now possesses its own Microsoft Hyper-V-powered private cloud. Its service uptime has grown from 97.97 percent to 98.8 percent across all servers. And scheduled maintenance downtime dropped from 15 hours to only 1.5 hours.

PRIVATE, PUBLIC AND HYBRID CLOUDS

For customers who are interested in a private cloud, many of them come to us because we are the only managed service provider to support the three leading private clouds: Rackspace Private Cloud powered by Microsoft Cloud Platform, OpenStack Private Cloud and Rackspace Private Cloud powered by VMware.

In addition to our private cloud options, we also offer managed support for the three leading public clouds: Amazon Web Services, Microsoft® Azure® and, starting late 2017, Google Cloud Platform. And if you want to avoid vendor lock-in, we offer Rackspace Public Cloud powered by OpenStack. Finally, if you need to link your company's data center with your private cloud or public cloud, we also support hybrid clouds.

MANAGED SERVICES AND SUPPORT

We provide around-the-clock managed support for our private clouds. Fanatical Support® is available 24x7x365 via phone, chat and email. Whenever an issue arises, regardless of the time of day, we're here to help.

MANAGED SECURITY

Cloud security is a leading concern for every enterprise, and our Managed Security Services help provide 24x7x365 protection. We take a proactive approach to security and actively search for intruders and signs of illegal activity. Once detected, we implement a preapproved set of actions to minimize the amount of time a bad actor has to cause damage.

Rackspace is also HITRUST certified, so healthcare customers who want to store electronic Protected Health Information in a Rackspace private cloud can be assured that we are providing them with a secure online environment for their confidential patient information.

CLOUD INFRASTRUCTURE

RackConnect® is a secure way to connect your data center to one of our fully managed clouds, enabling you to quickly scale your compute power, storage and other important resources. Our other cloud infrastructure options include dedicated hosting, bare metal and virtual cloud servers, network options like cloud load balancers, storage options like cloud block storage and cloud backup, and Microsoft Exchange and other email hosting options.

ABOUT RACKSPACE

Rackspace, the #1 managed cloud company, helps businesses tap the power of cloud computing without the complexity and cost of managing it on their own. Rackspace engineers deliver specialized expertise, easy-to-use tools, and Fanatical Support® for leading technologies developed by AWS, Google, Microsoft, OpenStack, VMware and others. The company serves customers in 150 countries, including more than half of the FORTUNE 100. Rackspace is a leader in the 2017 Gartner Magic Quadrant for Public Cloud Infrastructure Managed Service Providers, Worldwide, and has been honored by Fortune, Forbes and others as one of the best companies to work for.

Learn more at www.rackspace.com or call us at **1-800-961-2888**.

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