The Cloud at Your Pace

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1. Executive Summary

The cloud has taken many twists and turns on its route to maturity. Along the way, many IT leaders have enjoyed real business advantages, including:

- Lower costs

- Reduced complexity

- Faster roll-out of new apps and capacity

- Streamlined processes

Yet, some CIOs remain hesitant, reluctant to move any computing assets outside the confines of the corporate data center. Security, legacy app support, availability, and licensing costs are among these concerns. And some assume the cloud is an all-or-nothing proposition: either move it all, or don't move anything.

This white paper shows how you can now use the Microsoft technology stack to address those concerns, while minimizing your risks, and moving to the cloud at your own pace. This is now possible with a new offering that provides a cautious path to the cloud using familiar Microsoft tools, called Microsoft Cloud Platform at Rackspace..

Now you can use the Microsoft technology stack to move to the cloud at your own pace.

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2. What Holds Back Cloud Adoption?

According to the 2014 RightScale State of the Cloud Report, 87% of CIOs surveyed are running mission-critical business applications in a public Infrastructure-as-a-Service (IaaS) cloud, or at least experimenting with it.[1]

The report goes on to categorize IT leaders based on their cloud usage:

- Pioneering cloud-focused CIOs have adopted a "cloud-first" policy
- More guarded cloud explorers and cloud beginners have some mission-critical apps in the cloud, or are working pilot projects
- Wary cloud watchers have not yet deployed anything to the cloud, but are opting to stand back and observe others

Make no mistake about the cloud watchers. Though cautious, they are far from indecisive. They know what complexities lie buried in the digital depths of their departments. So the notion of moving sensitive data off-site seems like a radical overhaul of the IT infrastructure they worked so hard to build.

The wary cloud watchers are cautious, but far from indecisive.

For these CIOs, allowing a third party to manage mission-critical data brings up some significant concerns, including:

- Privacy and security
- Legacy application support
- Noisy neighbors
- Availability and reliability
- Learning curve
- Licensing costs
- Flexibility
- Database access

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REFRESHER: THE THREE TYPES OF CLOUDS

A **public cloud** provisions virtual machines (VMs) on servers located at a third-party site. All sys admin services are provided by the third party, including security, connectivity, data access, and backup/recovery.

Since resources are available on demand, this is the most cost-effective solution. But the public cloud doesn't address concerns with security, noisy neighbors, or the need to acquire special skills for the cloud.

A **private cloud** uses virtualization similar to a public cloud, but all resources are dedicated solely to one client. Sys admin services can be performed either by a third-party provider or by a company's own IT staff. The company still owns and maintains all VMs, regardless of where they operate.

A private cloud addresses most of the CIO's concerns, although it does not deliver as much cost savings as the public cloud.

A **hybrid cloud** combines the advantages of both public and private clouds.

Non-mission-critical data can be moved to the public cloud, lowering the cost of keeping it in-house, while not exposing the company to much risk. Sensitive data can stay within the private cloud under close control.

As expected, costs are lower than a private cloud, but higher than a public cloud.

CLOUD CONCERN #1: PRIVACY AND SECURITY

Data centers house confidential data that must never fall into the wrong hands. With your sensitive data tucked away inside a corporate data center, you have some guarded level of comfort.

As well, many enterprises have regulatory and compliance concerns that limit options for locating data.

Outsourcing to a public cloud means relinquishing control of that data to a cloud provider, trusting them to treat it with as much care as your own IT team would. You still have responsibility, but much less authority. This is a popular definition of on-the-job stress; it's been called "a known curse of the working world."[2]

CLOUD CONCERN #2: LEGACY APPLICATION SUPPORT

Legacy apps could well predate the current IT workers who manage them. Even though an older app may be mission-critical, street-smart staffers often keep their distance, knowing how hard it would be to restore if it ever failed. Many IT leaders take the stance, "It runs. Don't touch it."

Legacy apps could well predate the current IT workers who manage them.

Legacy applications were designed with legacy infrastructure in mind. How a VB5 COM+ app with direct Win32 API calls would perform on a modern 64-bit cloud operating system would require time-consuming research and analysis.

You may be understandably hesitant to move these apps to a new environment where the only migration strategy is deploy it, start it, and hope for the best.

CLOUD CONCERN #3: NOISY NEIGHBORS

In the corporate data center, you can allocate resources however you see fit. In the public cloud, you lose much of this control. Memory, storage, disk I/O, and even CPU cycles must be available for every tenant that shares the same physical server or cluster. This creates the "noisy neighbor" syndrome.

Just like an annoying neighbor blaring his stereo at 3 a.m., a fellow tenant's high-volume website can disrupt everyone in the neighborhood. As ViaWest Product Development Director Matthew Wallace notes, noisy neighbors can cause "spotty performance, unexpected hiccups in service, or frustrating scaling difficulties that keep the ops team up too many nights."[3]

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CLOUD CONCERN #4: AVAILABILITY AND RELIABILITY

We live in an "always on" world where everyone expects fast and reliable access to data and applications. If a cloud application goes down, customers can't buy products, employees can't access critical files, and IT leaders have no choice but to call tech support.

"The most frustrating thing when something goes wrong is not being able to speak directly with an engineer," says April Sage of cloud provider Online Tech in Ann Arbor, MI.

"If you support mission-critical systems, or your online presence is critical for your business to operate smoothly, you have to be prepared to invest in a cloud and cloud provider that is capable of providing a level of protection commensurate with your needs."[4]

CLOUD CONCERN #5: LICENSING COSTS

How much will licensing cost in the cloud? Good question. Most software licenses are based on the hardware where the software runs. That doesn't align well with the cloud's elastic nature.

How much will licensing cost in the cloud? Good question.

You *buy* a software license, entitling you to run that software forever. You *rent* cloud infrastructure for as long as you need it, and pay for only what you use. When you don't need it anymore, that cloud instance goes away, along with software license you paid for.

Many application vendors, including IBM and Microsoft, are experimenting with flexible licensing models that adhere more to the spirit of the cloud.[5] Until then, software licensing in the cloud will continue to be a moving target.

CLOUD CONCERN #6: LEARNING CURVE

You may be unsure what skills you need for a cloud initiative. One thing is for sure: You probably don't have all those skills in-house. This leaves you in an unenviable position: either train your own people, or rely on outside consultants.

Even the CIO of the United States expressed frustration about the federal government's move to the cloud. His 2010 "Cloud First" initiative directs agencies to favor cloud-based infrastructure over in-house data centers. But government agencies are moving slowly, blaming a lack of cloud expertise among federal IT workers.[6]

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CLOUD CONCERN #7: FLEXIBILITY

To maximize your ROI in any migration to the cloud, you must predict what cloud resources you will require. But it's not always easy to know what resources are available, or what quantities you'll need.

Cloud vendors often sell flexibility, but some vendors are more flexible than others. And no CIO wants to get locked into a long-term relationship with a vendor who can't fulfill its lofty promises.

Whether on-premises or in the cloud, your IT infrastructure exists to support your business processes, serve your customers, and enable innovation—both today and in the future. Without flexibility from cloud vendors, you can't deliver on that.

CLOUD CONCERN #8: DATABASE ACCESS

If data is money, then your relational database (RDBMS) is the bank. Everyone in the company needs unfettered access to make deposits (inserts), withdrawals (deletes), and transfers (updates) to get their jobs done. In the corporate data center, all roads to the bank are fast, reliable, and relatively well-patrolled.

If data is money, then your RDBMS is the bank.

However, some CIOs fear that moving the database to the public cloud would be like moving the bank to an island with foreign banking laws, accessible by a single bridge. Without a dedicated local to help them maintain connectivity, even company DBAs can feel like strangers in a strange land.

3. Some CIOs Are Waiting for a Safer Path

Despite all these concerns, many IT chiefs are finding success in the cloud. According to the Verizon report *State of the Market Enterprise Cloud 2014*, two out of three enterprises are now using cloud computing for production applications.

But it would be a mistake to label the remaining one-third of IT leaders indecisive. On the contrary, they may simply have a lower tolerance for risk.

"Few of the IT leaders that we've spoken to have ever wanted to hold the business back," says the Verizon report. "If they ever showed any hesitation in seizing the opportunities that cloud presented, it was only reasoned caution."[7]

Some CIOs just want a safer way to capture the benefits of cloud computing, at a pace they're comfortable with.

4. Know Your Options

Any service delivery model—cloud or otherwise—has to align with one overall objective: to deliver IT that meets the strategic and operational requirements of the business.

To do this, IT leaders must understand their options, especially the three different types of clouds available: public, hybrid, and private (see sidebar).

DIFFERENT CLOUDS, DIFFERENT BENEFITS

The **public cloud** option generally provides the lowest upfront cost because the provider's infrastructure is shared across multiple tenants. However, it doesn't address the concerns of security, noisy neighbors, or the need to acquire special cloud skills.

A **hybrid cloud** can make sense for a company that has identified applications to move to the cloud, while it retains others in-house. This approach is best suited for IT environments with few dependencies between innocuous data that can move to the cloud, and sensitive data that cannot. High availability and data access questions still loom large with a hybrid cloud.

But for CIOs who require secure, flexible, and highly available infrastructure without the downside of noisy neighbors and high licensing costs, **the private cloud makes the most sense**.

A private cloud is hosted and managed by an experienced cloud provider. This is ideal for CIOs who want to tap the power of the cloud without the pain and expense of managing it themselves. Cloud providers do the heavy lifting of managing the day-to-day operations of keeping workloads up and running.

And because a private cloud dedicated to only one client, concerns over noisy neighbors and governor limits go away.

A **managed private cloud** also serves as an excellent stepping-stone to other cloud options. A skilled cloud provider can federate virtual instances within the company data center, creating a hybrid cloud. Then they can help the client move on to the public cloud, where there are even more performance gains and cost savings available.

Microsoft Cloud Platform is a new offering in cloud computing.

A NEW OFFERING GIVES YOU THE CLOUD, YOUR WAY

Thankfully, there is an option that can deliver all the benefits of the cloud, even while you move at your own speed. That option is the **Microsoft® Cloud Platform at Rackspace**,® a joint offering from two respected, industry-leading vendors.

Microsoft Cloud Platform is a new offering in cloud computing that delivers the agility and efficiency of a public cloud, combined with the enhanced security, control, and performance of a dedicated environment.

Cloud Platform is engineered with scalability in mind to support your high-volume workloads. You get the power of the cloud without the pain and expense of running it, so you can focus on your strategic priorities.

As shown in Table 1 on the next page, this offering addresses most of the concerns of CIOs who until now were reluctant to move to the cloud.

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CIO Concern	Microsoft® Cloud Platform at Rackspace® Features and Benefits
1: Privacy and security	Private cloud with all workloads running in VMs dedicated exclusively to your organization, plus state-of-the-art data protection.
2: Legacy application support	Private cloud with the flexibility to implement custom architectures to house your mission-critical legacy applications through Windows Azure Pack. All Win32 guest operating systems are fully supported.
3: Noisy neighbors	All workloads run on your dedicated servers, isolated from all other companies and workloads.
4: Availability and reliability	Award-winning **Fanatical Support**® by Rackspace with the flexibility to manage selected features and VMs yourself if preferred.
5: Learning curve	Your IT team uses the familiar Microsoft System Management Console giving them centralized management of all VMs.
6: Licensing costs	No additional licensing fees required.
7: Flexibility	• Move at your own pace to the cloud • Move as much or little as you choose • Unlimited Windows Server guest OSs • Supports both Windows and Linux workloads • "Cloud within a cloud" keeps different divisions separate • No hosting vendor lock-in
8: Database access	Supports Microsoft SQL Server and MySQL databases

Table 1: Meeting CIO Concerns about Moving to the Cloud   Source: Microsoft, Rackspace

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5. Microsoft Cloud Platform at Rackspace

By supporting your IT team's existing familiarity with Microsoft Hyper-V, System Center, Windows Server, and Windows Azure Pack, this new offering relieves the concerns that held you back from the cloud, until now.

The Microsoft Cloud Platform at Rackspace is private and secure, cost-effective, and supports familiar Microsoft tools. It is fully extensible, SQL-friendly, extremely flexible, and comes bundled with award-winning Fanatical Support by Rackspace.

PRIVATE AND SECURE

Managed private clouds bring a level of comfort and added security not found in public clouds. All system resources—memory, storage, and bandwidth—are dedicated solely to your IT operation. Sensitive data stays safe, secure, and isolated from noisy neighbors. And with Microsoft Hyper-V, security is designed to be transparent. You secure your VMs exactly the same way you secure your own physical machines, using the same familiar control panel your staff currently uses.

COST-EFFECTIVE

You should never have to pay extra for virtualization, and with Microsoft Cloud Platform at Rackspace, you don't have to. Since you already own the licenses, there is no additional fee to use the virtualization capabilities. License the host machine with Windows Server 2012 R2 Datacenter and provision unlimited Windows Server guest OSs with no additional license requirements. Also, you're not limited to Windows workloads; Hyper-V also supports a full range of Linux operating systems.

FAMILIAR TOOLS

Microsoft Hyper-V and Systems Center take hosting VMs to another level. Offering flexible guest VM support on private and secure hardware makes Hyper-V is the hypervisor of choice for your workloads. Cloud Platform builds on the platform by introducing automation, monitoring, and self-service provisioning through a private implementation of the Windows Azure Pack.

No special training is required to use Microsoft Cloud Platform.

No special training is required; your administrators can use the same Microsoft System Management Console they are already familiar with. This allows you to leverage your existing investments in Microsoft tools and technologies.

To see this familiar management console in action, watch this video:
https://www.youtube.com/watch?v=LSkhvunALqk

EXTENSIBLE

Do you support multiple lines of business that shouldn't overlap one another? With Rackspace, you can meet this requirement by building isolated private cloud networks. This "cloud within a cloud" encapsulates individual lines of business within their own cloudspaces, allowing your security staff to define top-level constraints for the entire group of VMs.

Extending the business couldn't be easier. Rackspace can spin up another isolated network on demand. You can even optimize business policies for each LOB according to specific KPIs like performance, system utilization, high availability, and of course, security measures.

SQL-FRIENDLY

Need a SQL Server instance for a seasonal marketing promotion or unexpected traffic spike? Through the power of Cloud Platform you can utilize Database-as-a-Service (DBaaS) to provision SQL Server or MYSQL databases via a self-service web interface. No DBA required.

Rackspace supports all SQL Server sysadmin functions you use today, including mirroring, log shipping, and clustering. Your DBAs also have complete visibility into the advanced SQL Server options, including physical memory and disk-level settings.

FLEXIBLE

You can move as much or as little of your application catalog as you like, keeping your legacy applications running smoothly in an environment they were designed for. Hardware can be added incrementally and connected across multiple physical data centers.

Microsoft has announced that it will cease to support Windows Server 2003 on July 14, 2015.[8] But with Rackspace, this is a non-issue. Your support team can spin up a 32-bit guest OS on your private cloud like you run today. Your 32-bit apps can then continue to run like they always have, only at a lower cost and with less administrative headaches.

Also, there is no hosting provider lock-in. Your VMs are yours to take with you to any other cloud vendor you choose. You can even federate VMs in your own corporate data center or even move them to Microsoft Azure.

Microsoft will cease support for Windows 2003 in 2015. With Rackspace, that's not an issue.

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FANATICAL SUPPORT

Having a support staff that can make your private Microsoft Cloud Platform work for you is vital to your success. Rackspace developed Fanatical Support and has applied the same commitment to Microsoft Hyper-V and Systems Center support. You can rest easy, knowing your mission-critical apps are managed by a four-time Microsoft Partner of the Year with deep roots in the Microsoft ecosystem.

Microsoft Partner
Gold Hosting
Gold Collaboration and Content

Rackspace has also engineered flexible guest OS support into this offering which provides its award winning Fanatical Support. You choose which VM's receive the support and which ones you prefer to support on your own. You can turn this option on and off based on your needs. This versatile support offering applies to both Windows and Linux servers.

6. Conclusion

Many CIOs have concerns about moving workloads from out behind their firewalls to the cloud. But the benefits of doing so are proven. It makes sense to start slowly, moving low-priority workloads to virtualized instances using familiar tools on a familiar operating system. And now you can, using the new offering called Microsoft Cloud Platform at Rackspace.

Down the road, if you feel comfortable moving to a hybrid cloud or public cloud, you have all the flexibility and control you need to do so.

For a more detailed discussion on what apps can move to the cloud in which order, see the Rackspace guide called "Getting Started with the Cloud: A Step-by-Step Enterprise Implementation Guide" **available here**.

Moving to the cloud may appear daunting, but you don't have to go it alone.

To find out more about how Rackspace can help you enjoy the benefits of the cloud on your own terms, call 800-961-2888 to schedule a demo today.
Or visit **http://www.rackspace.com/microsoft/cloud-os**.

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7. Endnotes

1. "State of the Cloud Report," RightScale Corporation, February 2014, accessed 17 November 2014
   from http://www.rightscale.com/blog/cloud-industry-insights/cloud-computing-trends-2014-state-cloud-survey

2. Kasia Moreno, "Curse Of The CMO: Responsibility Without Authority," *Forbes.com*, 24 July 2014, accessed 5 December 2014
   from http://www.forbes.com/sites/forbesinsights/2014/07/24/curse-of-the-cmo-responsibility-without-authority/

3. Matthew Wallace, "The Problem of Noisy Neighbors in the Cloud," All Things D, Feb 2013, accessed 17 November 2014
   from http://allthingsd.com/20130225/the-problem-with-noisy-neighbors-in-the-cloud/

4. Sara Angeles, "8 Reasons to Fear Cloud Computing," *Business News Daily*, 1 Oct 2013, accessed 18 Nov 2014
   from http://www.businessnewsdaily.com/5215-dangers-cloud-computing.html

5. Dan C. Marinescu, "Cloud Computing, Theory and Practice," Elsevier Science, Morgan Kaufmann, May 2013, Sec 3.11

6. Larry Freeman, "The Benefits of Implementing a 'Cloud First' Strategy'," Tech Target, accessed 17 November 2014
   from http://searchstorage.techtarget.com/NetAppSponsoredNews/Should-You-Adopt-a-Cloud-First-Strategy

7. "State of the Market Enterprise Cloud 2014," Verizon Corporation, accessed 17 November 2014
   from http://cloud.verizon.com/enterprise-cloud-report

8. Windows Server 2003 support is ending July 14, 2015, accessed 6 February 2015
   from http://www.microsoft.com/en-us/server-cloud/products/windows-server-2003/

About Rackspace

Rackspace® (NYSE: RAX) is the #1 managed cloud company. Its technical expertise and Fanatical Support® allow companies to tap the power of the cloud without the pain of hiring experts in dozens of complex technologies. Rackspace is also the leader in hybrid cloud, giving each customer the best fit for its unique needs — whether on single- or multi-tenant servers, or a combination of those platforms. Rackspace is the founder of OpenStack®, the open-source operating system for the cloud. Based in San Antonio, Rackspace serves more than 200,000 business customers from data centers on four continents.

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