

Top Ten Considerations For Enterprise Cloud

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Introduction

More than ever before, Enterprise IT must be a strategic partner to the business. By focusing more on innovation and less on operations, the IT organization can help the enterprise achieve a new level of competitive advantage. This re-focusing of priorities changes the way most organizations think about how IT services are delivered and consumed. Companies clinging to traditional strategies of bare metal ownership will find themselves increasingly stuck in the woods as they balance cost, support, and the maintenance of expertise against fragile IT budgets.

Enter **cloud computing**. Limitless capacity and instant capability. Once considered a fad, cloud is proving to be a well-traveled path to achieve more efficiency, agility, and innovation—without the burdens of hardware procurement, lengthy deployment timelines, and ongoing management hassles. Today, cloud is a viable business model delivering real benefits for real-world use cases. In fact, 86% of companies use more than one cloud service.¹

So, what do you need to know about cloud computing in the enterprise?

Enterprise Cloud Considerations

Here are ten considerations as you plan your enterprise IT strategy around the cloud:

#1 POLICY-BASED COMPUTING

System administrators and decision makers need intuitive tools to manage the guidelines and policies that control behavior and interactions on cloud-driven systems. Policy-based computing — the software paradigm for building cloud resource management tools — eases IT management by simplifying the control of remote systems.

Policies can be set at the infrastructure, application, and operational level. Typically, a dashboard of system behavior is constantly updated and available for decision makers.

- Infrastructure-level policies are primarily concerned with the management of the underlying resources and respective utilization levels. For example, you may want to allocate a larger compute instance if the utilization of CPU or memory reaches a certain threshold.
- Application-level policies address the availability, uptime, reliability, and recoverability of application services. For example, a service registry that monitors the application service lifecycle may trigger the allocation of additional infrastructure resources if the response time of the service falls below 200 milliseconds.
- Operational-level policies deal with the arbitration and resource allocation for application services to run your distributed datacenter. For example, an operational policy may resolve the contention of resource requests from two different applications by determining the relative priority and impact on service levels.

#2 CLOUD-AWARE APPLICATIONS

The challenge of migrating existing legacy applications is a common barrier for many enterprises contemplating the cloud. Often, these business critical applications were built on proprietary or outdated platforms and can't benefit from the cloud without re-architecting. Under this scenario, application availability is largely dependent on the underlying computer system and on data center middleware. Keeping these layers resilient over time happens at a significant cost.

In the cloud, there are two important characteristics that can enhance application performance. First, compute resources are inherently abundant and disposable. Second, delivery of services over the Internet entails multiple dependencies.

Properly architected cloud solutions are designed with failure resiliency built into the application itself. A cloud-architected application is composed of loosely coupled, inter-related services that can fail, scale, and recover independently of one another.

For example, a retail software system — designed for the cloud — can withstand service interruption, even during the peak traffic that occurs on Black Friday. Based on exact utilization thresholds, the system can spawn individual catalog browsing

processes, shopping cart instances, or demand generation analytics system processes. If one of the cloud servers providing one of these services becomes unhealthy or unreachable, the system can easily spin up another server, recover the service, and rejoin the system with very limited interruption.

It is important to recognize that cloud represents an environment where there is a shift from a single monolithic application to a distributed application built from orchestrated services. As the cloud continues to proliferate, applications will become increasingly cloud-aware. We can expect them to be designed for resiliency and error tolerance with loosely coupled components and a preserved, recoverable application state.²

#3 SPECIALIZED CLOUDS

The cloud has largely been one-size-fits-all. But as cloud adoption grows from strategic use to daily use, specialized clouds are emerging to provide businesses with a custom-fit approach.

For example, from a basic storage perspective, healthcare Electronic Health Records (EHR) and HR records seemingly have the same general needs. However, factoring in requirements for security, confidentiality, and privacy compliance quickly changes those needs. A specialized cloud can give the healthcare entity and the HR firm a turnkey cloud outfitted with elements that are customized to the specific needs of that industry, workload, or business process.

We expect to see multiple, special purpose clouds continue to develop, especially in areas related to Federal Government, Healthcare, and Financial Services.³

#4 FULLY DISTRIBUTED DATA CENTERS

The fully distributed data center model uses cloud resources to deliver services regardless of source or location. A **hybrid cloud** is the most practical delivery model, involving service provisioning from a combination of on-premise, external cloud providers, and other distributed locations. This business critical functionality is essential in disaster planning, maintaining high availability and scalability. According to a **KMPG benchmarking survey**⁴, more than half of enterprises are seeking a hybrid solution that combines internal and cloud resources to efficiently deliver and run multi-site data center networks. As data centers are replicated, enterprises need service providers who can deliver deeper service-level monitoring, transformation services, and governance capabilities across data centers.

#5 MOVING OFF BIG IRON

Imagine a world without the big iron servers in the data center. It's just around the corner. Many applications being migrated to the cloud are **architected to utilize open source technologies**. These technologies leverage smaller systems that can scale both horizontally and massively.

Open source technology includes a family of document-oriented NoSQL database systems (**MongoDB**, **Cassandra**, **CouchDB**, **Riak**), distributed key-value storage systems

(e.g., [Voldemort](#), [Redis](#), and [memcached](#)) and distributed configuration, synchronization, and naming services such as [ZooKeeper](#), [Hadoop](#) and many others.

This shift towards open source technology provides a tremendous opportunity to enhance IT agility and boost ROI tooling and monitoring capabilities. It allows enterprises to get the most out of IT resources. For larger IT organizations, making this move means wading through a sea of providers. Finding a strategic partner with a portfolio of tools to provide the control, visibility, accountability, security, and scale that you need to run smoothly is essential.

#6 MANDATE FOR DEVOPS

The term DevOps implies a combination of software development and operations. It describes a practice that streamlines the software delivery process and improves the cycle time from inception to deployment with an emphasis on feedback for better quality software. This practice strikes a balance between the need to change (to deliver new features and functions by the software development team) and the fear of change (addressing system stability by the operations team).

Traditionally, development and operations teams have improved their processes independently. Agile software development enables developers to deploy software more rapidly, while ITIL tracks the impact of change as a set of risks.

One can think of DevOps as extending the Agile methodology (which helped to connect developers, testers, and business representatives) to also include operations. In other words, a DevOps approach extends the Agile methodology beyond software release to include the deployment phase.

DevOps for organizations should include shared metrics and measurements between teams, an evolved Agile process, and tools for automating release management. In the cloud era, applications need to be coded to operate in the cloud, which means coding for maximum scale and stateless operation. Secondly, improved operations skills will be needed to drive evolving scripting and coding, take advantage of automation, and employ APIs to programmatically launch tasks.

#7 RISE OF BIG DATA

The term big data refers to the massive amount of unstructured data that are difficult to analyze and manage using common database management tools. They are characterized by their expanding volume size, high velocity of change, and variety of data types and resources. The [2012 presidential election](#)⁵ demonstrated the power of big data as candidates crunched vast amounts of voter data to craft focused messaging and targeted ads.

For most enterprises, the deluge of data from internal and external sources is overwhelming both the traditional infrastructure deployed to store it and the teams responsible for managing it. To mine and repurpose this data to make solid data-driven decisions requires a broader set of tools. By using [cloud storage](#) and management tools to increase the usability of data by just 10%, a median Fortune 1000 company could reap over \$2 billion a year in added revenue.⁶

#8 TRUE CLOUD FEDERATION

Deciding to move an application from your data center to the cloud or between clouds presents challenges. The closed proprietary platforms in some clouds make it difficult, if not impossible, to move an application deployed on Cloud A to Cloud B. To address those challenges and reduce the chance of platform lock-in, emerging industry standards and open platforms in the cloud (like [OpenStack®](#)) enable total cloud interoperability. This interoperability means that moving between clouds becomes less of a chore and gives businesses more freedom and flexibility. Workloads can move between clouds to meet specific requirements and can be optimized for geography, performance, cost, or other variables. If virtualization abstracted hardware, cloud federation will provide abstraction at a much higher level with resulting benefits of elasticity, mobility, and transparency.

#9 THE GROWTH OF SAAS

The Software-as-a-Service (SaaS) space, one of the key consumption models for cloud, is positioned to become the primary method of distributing and utilizing software. Many Independent Software Vendors (ISVs) are working to architect their software to take advantage of the cloud delivery model. [According to Gartner⁷](#), the top growth areas in SaaS through 2016 are office suites, digital content creation, and business intelligence tools. For the growing number of SaaS operators, cloud adoption is essential for building infrastructure that scales with growth instead of making large CAPEX investments for infrastructure ahead of the curve or holding on to unused capacity.

#10 MISSION CRITICAL IN THE CLOUD

As cloud technologies evolve and businesses get more comfortable with security and governance, more top tier applications and workloads are expected to find a home in the cloud. For example, complex Enterprise Resource Planning (ERP) applications that have been a staple in the backend of large enterprises are transforming to cloud ERP.

Cloud ERP can serve as an affordable, customizable, and collaborative environment where financial and operational capabilities are integrated with social and mobile technologies. Other examples of enterprise software delivered through the cloud include backend payment, settlement and clearing, customer relationship management, payment systems, business intelligence, content management, business process, and data management.

Enterprises are being forced to rethink the organizational value of high-maintenance elements like databases, email, and collaboration in light of the resource savings, reliability, and expert support delivered in the cloud.

Summary

With the focus in IT changing from operations to strategic partnership, enterprises are looking to the cloud to help them become more agile and responsive to the needs of the business. From hybrid clouds that span multiple geographies to consuming Software-as-a-Service in the public cloud, large organizations continue to make the cloud an integral part of their IT strategy. As cloud adoption accelerates, innovation and evolution will be central themes. Enterprises that understand the limitations, capabilities, and potential of the evolving cloud are well positioned to enhance their position in the marketplace.

About Rackspace Enterprise Cloud Solutions

Powered by an elite team of Sr. IT Strategists, Architects, Solution Engineers and Sr. IT Consultants, the Rackspace Enterprise Cloud Solutions team enables enterprises to harness the power of the hybrid cloud. Our extensive [Advisory & Professional Services](#) portfolio offers end-to-end solutions for our customers. Begin your Fanatical Support® experience with a complimentary [IT Evolution Workshop](#), where our strategists help to define a cloud strategy and actionable roadmap that will propel your organization toward its optimized solution. Contact us at 1-800-440-1249 or send us an email at advisory_services@rackspace.com to schedule your workshop today.

Continue the conversation in the [Enterprise Cloud Forum on LinkedIn](#). Along with 670+ other IT professionals, our Rackspace Senior IT Strategists and Cloud Solution Architects debate some of the most controversial topics facing the enterprise.

Reference

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- 1 According to a 2012 Cloudability survey of more than 3,200 customers in more than 80 different countries.
- 2 Background information on this trend can be found at <http://searchcloudcomputing.techtarget.com/feature/Business-continuity-moves-to-the-cloud-as-applications-become-resilient>
- 3 As one example of this trend, see <http://techandscience.com/techblog/ShowArticle.aspx?ID=1676>
- 4 According to "Continuity Insights & KPMG LLP Present The 2011-2012 Global Business Continuity Management (BCM) Program Benchmarking Study." <http://www.kpmg.com/US/en/IssuesAndInsights/ArticlesPublications/Documents/2012-cin-kpmg-management-study.pdf>
- 5 <http://www.rackspace.com/blog/election-2012-powered-by-the-cloud-infographic/>
- 6 http://www.rackspace.com/knowledge_center/whitepaper/turning-big-data-into-big-dollars
- 7 According to Gartner's "Forecast: Public Cloud Services, Worldwide, 2010–2016, 2Q12 Update"

About Rackspace

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