CLOUD U

PLANNING A MOVE TO THE CLOUD
TIPS, TRICKS AND PITFALLS

Through this year-long series of whitepapers and webinars, independent analyst Ben Kepes will be building a Cloud Computing curriculum designed for technologists and non-technical users alike. The mission is to build widespread knowledge about the Cloud revolution and encourage discussion about the Cloud's benefits for businesses of all sizes. Read more CloudU whitepapers and register for upcoming webinars at *www.rackspace.com/Cloud/CloudU*

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Executive Summary

Cloud Computing is a paradigm shift that sees the dawn of a new age of computing driven by distinct benefits. Given the undeniable value to be gained from a move to Cloud Computing, it is hardly surprising that many organizations are contemplating a shift "to the Clouds". Experience has shown however that organizations are concerned around the logistics of the move and worried about unintended consequences and problems.

In this paper we describe three broad areas that organizations need to think about when moving to the Cloud;

- Technical considerations related to specific technology challenges that Cloud Computing may raise
- External business considerations related to dealing with 3rd party Cloud providers
- Internal business considerations related to potential non-technology impacts upon the business caused by the move to the Cloud

Within these three areas we highlight specific topics that organizations should understand prior to a move to the Cloud.

The Benefits of Cloud Computing

In an earlier CloudU whitepaper[1] we discussed the benefits that Cloud Computing brings to an organization. These benefits can be summarized as falling into several distinct categories;

- Virtualization – The ability to increase computing efficiency
- Democratization of Computing – Bringing enterprise scale infrastructure to small and medium businesses
- Scalability and fast provisioning – Bringing web scale IT at a rapid pace
- Commoditization of infrastructure – Enabling IT to focus on the strategic aspects of its role

These individual benefits combine to produce a shift that we believe is revolutionary and will have a permanent impact on organizations.

Given the fundamental shift that Cloud Computing offers, organizations are naturally worried about the potential risks from a move to the Cloud. This paper identifies the three key areas that organizations need to look into. The first of these areas is the technical considerations related to Cloud Computing.

Technical Considerations

There are a number of technical considerations that need to be clarified in order to ensure an efficient and successful move to the Clouds.

Which Apps? How to Decide

Organizations are understandably confused about which applications they should move to the Cloud – part of this confusion is the result of two distinct marketing traits. The first of these is traditional vendors decrying any shift to the Cloud; the second of these traits is Cloud Computing vendors suggesting that organizations should move all of their applications to the Cloud.

While we contend that Cloud Computing will become the dominant delivery mechanism for computing in the future, we also believe that organizations should have a well thought out approach towards moving their apps to the Cloud and should prioritize based on the following;

Most fundamentally, organizations should look for applications that;

- Have significant interaction with external applications or services
- Are not a point of differentiation between the organization and its competitors

These types of applications are prime candidates for a move to the Cloud, but there are a number of other technical considerations that should be examined.

Security Considerations

Organizations should be aware that security is a partnership between the vendor and the user[2]. They should therefore clearly ascertain which aspects of security are the responsibility of the vendor and which are the responsibility of the user.

Compliance Considerations

Depending on the type of industry your organization is involved in, there are a number of different compliance requirements which may need to be met. Examples of these include PCI, HIPAA, GAAP, SOX, and IFRS. Organizations should fully appraise their own compliance requirements, and to what degree the Cloud

Computing vendor meets these requirements. In some instances, only part of an application may be moved to the Cloud due to specific compliance requirements.

Performance Considerations

When contemplating moving an application to the Cloud, it is importantly to accurately assess the performance requirements the organization may have. For example an application with high database transfer rates may prove problematic to move to the Cloud. Similarly, applications that have very high CPU or RAM requirements may be either difficult, or cost prohibitive, to move to the Cloud. Since each situation is different, the best course of action is to speak with vendors about guaranteed performance in their Cloud to ensure the needs of your application are meet.

Migration Strategy

Often overlooked is the cost and time it takes to move an existing workload to the Cloud. Specific things to think about here include;

- The bandwidth cost of moving significant amounts of data to the Cloud
- The time taken to transfer data in the migration process
- In the case of an application, the business process involved in a migration (downtime, business continuity, training etc.)

Architecting for the Cloud

Cloud Computing provides real benefits for organizations but to realize these benefits the applications being utilized sometimes need to be architected to take advantage of the scalable nature of Cloud Computing. While greenfield applications, that is, new applications, should be built with this in mind, often legacy applications are built to take advantage of legacy systems and hence may not be able to truly leverage the benefits the Cloud can bring without significant re-architecting. There are even differences between how much re-architecting is needed from one Cloud Computing provider to the next, so the Cloud provider selection process should include questions about the Cloud provider's technological underpinning, so if re-architecting is needed, it does not come as a surprise.

With these technical considerations out of the way, it is now time to look at the external business considerations that need to be taken into account.

External Business Considerations

After dealing with the technical considerations involved in a move to the Clouds, it is now time to put our minds to the external factors that impact upon these decisions.

What To Do About Sunk Costs?

Sunk costs are an issue any time an organization considers moving away from a product or process that has required capital expenditure to set up. There is often a reluctance to "throw good money away" and walk away with what, in the case of IT projects, can be significant investments.

Classic economics states that sunk costs, or costs that have already been incurred, should not affect decision making. However, we understand that often this is not the case in businesses and sometimes rightly so. In situations like this, it may make sense for organizations to look to a gradual move to the Cloud. For an example, where existing applications and infrastructure are being well utilized, an approach that sees greenfield development, new applications or excess capacity delivered from the Cloud can be seen as appropriate.

Costs and Planning for Variability

A previous CloudU whitepaper[3] extensively looked at the economics of Cloud Computing. In that paper we made the comment that organizations shouldn't primarily look at Cloud Computing as a cost savings change, but rather one that more closely aligns expenditure to revenue and allows the organization to be more nimble.

We contend, in fact, that Cloud Computing may increase total IT spend[4] but this increase can actually be seen as a positive as increasing expenditure on Cloud Computing can be seen to be directly related to bottom line revenue, since compute resources may be turned off when not needed. The implication is that with proper controls, when compute resources are being used, they are adding value, unlike traditional IT investments that continue to be amortized even if sitting idle.

While we believe that the above case is in fact true, we accept that organizations need some certainty around their ongoing cost and, as such, we would recommend that anyone considering a move to the Clouds pays attention to

their assessments of expected growth in order to truly provide a cost comparison between Cloud and traditional IT. Since most Cloud vendors provide transparent pricing on compute, storage and bandwidth, business forecasting can enable a company to determine their monthly cost for budgeting purposes.

While new technologies such as automatic monitoring and provisioning tools will certainly ease the pressure on IT staff to accurately capacity plan, there are still some base requirements in this area. Organizations should seek to leverage the knowledge of their Cloud vendor as well as similar end users to identify best practice approaches towards capacity planning for the Cloud.

Vendor Lock-In

Many people are rightly concerned about moving to Cloud Computing and being fixed to one provider. This is indeed a concern and one which should not be brushed off lightly. That said however, Cloud Computing tends to be much more transparent when it comes to lock in and so organizations should be able to accurately gauge the risks.

Organizations should look at a number of different factors;

- Does the vendor use industry standard APIs or proprietary ones?
- Does the vendor provide quick and easy data extraction in the event that the customer wishes to shift?
- Does the vendor use open standards or have they created their own ways of doing things?
- Can the Cloud Computing service be controlled by third party control panels?

Choosing a Vendor

We previously published a whitepaper that took a deep look at how to maximize benefits and minimize the pitfalls of moving to the Cloud[5]. In the paper we referenced several areas that customers should appraise themselves of when considering a move to the Cloud. To summarize;

- Billing capabilities – The vendor should provide sufficiently flexible billing to truly meet the variability profile of the customer. Many vendors have inflexible billing options and this has a direct impact on the economic

benefits of a move to the Cloud

- Fixed costs – Some vendors chose to charge an initial setup fee for Cloud Computing users. We contend that in the majority of instances, Cloud Computing costs should be variable and directly related to usage

- Minimum charges – Users should avoid vendors who seek to set a minimum charge for compute or storage as it impacts upon the flexibility of the offering

- Performance – Service Level Agreements and performance dashboards should give users certainty and transparency over the availability and performance of their vendor

- Support – depending on the particular customer situation, a vendor who provides high levels of support may prove a significant benefit and simplify a move to the Cloud.

Having covered off these external business considerations, it is now time to turn our attention to the internal considerations that need to be taken into account before a move to the Cloud.

Internal Business Considerations

While the technological and vendor oversight issues are undeniably vital when moving to the Cloud, it is the internal issues which will remain persistent over time. For that reason it is crucial to identify and deal with the different issues that Cloud Computing raises for the organization.

Planning for Shifting IT Responsibilities

A move to Cloud Computing undeniably changes the face of corporate IT. While it might be challenging for some in those roles, we contend that, in the long run, individual organizations will not have email server administrators, desktop software support personnel or systems administrators.

In some cases it may well prove problematic with personnel feeling challenged and threatened by the shifting workplace paradigm. However, as with previous technological shifts, we believe this change in IT responsibilities actually provides opportunities for IT staff. To justify this contention, we use the example of the accounting profession. Clearly the advent of accounting software, which can automate a previously manual operation, hasn't led to a decrease in the number of CPAs, rather it has led to accounting becoming a more highly-skilled profession, and as such the value of accountants has increased.

We recommend organizations taking a proactive approach to professional development and training. While Cloud Computing certainly limits the opportunities for some skills, it offers up some new ones in the areas of Cloud management, application customization and agile development and personnel should be encouraged to explore these new and exciting areas.

Lack of Formal Qualifications

One issue with the nascent area of Cloud Computing is that there is a distinct lack of formal qualifications. Whereas IT staff can choose from a plethora of formal, specialist training for traditional IT, in the Cloud world this is not the case. While this is unsurprising given the relative newness of the Cloud, nonetheless end users feel uncomfortable with the lack of certification.

We believe that this factor will be resolved in the medium term and, while that not may help customers moving to the Cloud today, we contend that given the

number of informal training opportunities, both vendor specific and vendor neutral, in the short to medium term the lack of formal Cloud qualifications isn't overly problematic.

Dealing with Objections

Unfortunately there will always be a hardy band of practitioners who oppose a move to the Cloud for no other reason than their own feelings of being threatened. This is a trait that is not exclusive to the move to Cloud Computing, indeed it is not exclusive to IT in general.

As in all cases like this, good management practice comes into play here and IT managers need to look at the underlying reasons for the negativity and objections and deal with them at their root cause level.

In the instance of technical objections there is a growing body of work that answers practitioners concerns in these areas. Meanwhile when the issues are simply that the practitioner is reluctant to change there is much writing on HR practice that can aid in bringing the staff member around. We advise organizations facing issues like this to partner with the HR department to work out strategies to achieve employee buy in.

Conclusion

As is an ongoing theme in these CloudU papers, we firmly believe that Cloud Computing is a growing theme and will become the predominate method of delivering computing services going forward. We're cognizant however that a move to the Cloud raises its own particular issues that should not be simply forgotten about.

While we firmly believe that the issues around Cloud Computing should be raised and dealt with head on, we are positive that the obstacles are anything but insurmountable. Developing a methodology that deals with the three distinct areas in which issues can arise will inform and empower the organization to develop strategies to deal with the different issues. In doing so, a successful and beneficial migration to the Cloud will be more likely.

About Diversity Analysis

Diversity Analysis is a broad spectrum consultancy specialising in SaaS, Cloud Computing and business strategy. Our research focuses on the trends in these areas with greater emphasis on technology, business strategies, mergers and acquisitions. The extensive experience of our analysts in the field and our closer interactions with both vendors and users of these technologies puts us in a unique position to understand their perspectives perfectly and, also, to offer our analysis to match their needs. Our Analysts take a deep dive into the latest technological developments in the above mentioned areas. This, in turn, helps our clients stay ahead of the competition by taking advantage of these newer technologies and, also, by understanding any pitfalls they have to avoid.

Our Offerings: We offer both analysis and consultancy in the areas related to SaaS and Cloud Computing. Our focus is on technology, business strategy, mergers and acquisitions. Our methodology is structured as follows:

- Research Alerts
- Research Briefings
- Whitepapers
- Case Studies

We also participate in various conferences and are available for vendor briefings through Telephone and/or Voice Over IP.

About Rackspace

Rackspace Hosting is the world's leading specialist in hosting and Cloud Computing. The San Antonio-based company provides Fanatical Support® to its customers, across a portfolio of IT services, including Managed Hosting and Cloud Computing. Rackspace is also the founder of OpenStack™, an open source Cloud platform with broad industry support, designed to offer Cloud consumers greater choice. For more information, visit http://www.rackspace.com.

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Endnotes

[1] http://broadcast.rackspace.com/hosting_knowledge/whitepapers/Revolution_Not_Evolution-Whitepaper.pdf

[2] http://broadcast.rackspace.com/hosting_knowledge/whitepapers/Elephant-in-the-Room.pdf

[3] http://broadcast.rackspace.com/hosting_knowledge/whitepapers/Cloudonomics-The_Economics_of_Cloud_Computing.pdf

[4] http://diversity.net.nz/will-Cloud-reduce-it-spend-on-moores-law-and-realities/2011/02/09

[5] http://www.rackspace.com/hosting_knowledge/whitepaper/moving-your-infrastructure-to-the-Cloud-how-to-maximize-benefits-and-avoid-pitfalls