

Cloud Adoption– Barriers, Roadblocks and Belligerence

Learn about the hurdles you'll encounter when promoting cloud technologies in your company... and how to jump over them.

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Introduction

You've probably heard Cloud Computing talked about as a revolution in the world of computing. This is a strong claim but one which has some substance when one sees the changes that the Cloud is powering – the rise of social media, the relative simplicity with which dispersed teams can now collaborate, the agility that organizations have to innovate with technology and the amazing scale that rapidly growing organizations can leverage are all powered, at least in part, by the Cloud.

But as with any revolution, there are barriers put in place by individuals and organizations. Sometimes these barriers are valid, but sometimes they are merely artificial roadblocks designed to protect the status quo.

In this report we will detail some of the business barriers to Cloud adoption, and explore some possible ways to resolve them. This paper is not designed to be a technical report; rather it will help those looking to promote cloud usage in their companies to understand the barriers in their way and the ways around them. from having a clear understanding of knowing the cost of switching from one instance to another."

Barrier #1: Finding a Common Definition for Cloud Computing

Before you can promote cloud usage in your company, you have to help others understand what cloud computing is and how it will affect your organization's daily goings-on.

Given the amount of information and disinformation in the public arena, it is unsurprising that many have a very tenuous understanding of what Cloud Computing actually is.

While a surprising number of different definitions exist, merely being able to define Cloud does not constitute truly understanding it. More education is needed to help others truly understand what Cloud is, what it can do and most importantly the impacts on organizations of moving to the Cloud.

That said it is worthwhile to have a foundational definition to set the scene.

The generally accepted definition of Cloud Computing comes from the National Institute of Standards and Technology (NIST)¹. The NIST definition runs to several hundred words² but essentially says that:

“Cloud Computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

While this definition is technically correct, it does little to aid in understanding the Cloud. We prefer therefore the definition developed by CloudCamp³ creator Dave Nielsen. Nielsen defined Cloud Computing using the acronym OSSM. This simple concept stands for the following:

- **On-demand:** *the infrastructure or hardware is already setup and ready to be deployed*
- **Self-service:** *the customer chooses what they want, when they want it*
- **Scalable:** *customers can choose how much they want and ramp up if necessary*

- **Measurable:** *there's metering/reporting so you know you are getting what you pay for* Now that we have a functional definition of Cloud Computing, it is necessary to establish that Cloud is more than a variation on virtualized computing. It represents a revolution for IT, as well as for society as a whole.

Barrier #2: Establishing Cloud as a Revolution, Not Just Another Gimmick

The technology industry is always quick to call a particular innovation “revolutionary”. Given that fact, it is unsurprising that some people are dubious about accepting that Cloud is anything more than a slight evolution of what has gone before.

While this reluctance is understandable, we also believe that Cloud Computing is indeed worthy of the title “revolutionary”. It is important to have an understanding of the component parts of Cloud – not from a technical perspective but the different aspects that go together to make a product or service. Cloud is essentially a ubiquitous product of service that is enabled through several distinct traits:

- **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*

We have previously written about these traits in detail, but suffice it to say that Cloud is a combination of technological innovations, alongside new business and delivery mechanisms and it is this combination of technical and business traits that is the foundation upon which a revolution is being built.

The key point to understand here is that traditional IT leverages some of these traits but that Cloud Computing, by combining all of them, and delivering IT in an easier way than previously, is fuelling a revolution in the way technology is created, delivered and acquired.

1 <http://csrc.nist.gov/groups/SNS/Cloud-Computing/>

2 <http://csrc.nist.gov/groups/SNS/Cloud-Computing/Cloud-def-v15.doc>

3 www.Cloudcamp.org

Barrier #3: Educating Your Organization About Cloud's Use and Impact

Any time innovation impacts upon a broad swathe of individuals in an organization, as is the case with Cloud Computing, education becomes critical to ensure that all affected parties have a deep understanding of the particular issues and impacts of the shift and are armed to ask the right questions, protect themselves from deleterious effects and best maximize the benefits of the particular change.

We developed the CloudU⁴ Cloud education program and certificate precisely for this reason. Until recently there has been almost no vendor neutral education material available that was designed as an entry-level introduction to the Cloud. We believe that to best ensure the benefits of Cloud can have the widest possible spread, it is important to provide all individuals, not just IT workers, with a base level introduction to the concepts.

Over a series of whitepapers, tests and a final examination, CloudU enables non-technical and technical people alike to gain a broad understanding of the Cloud.

This is made all the more important because of the existence of so-called Cloud washing. The term Cloud washing is an adaptation of "Greenwashing"⁵ and is used to describe the purposeful and sometimes deceptive attempt by a vendor to rebrand an old product or service by associating the buzzword "Cloud" with it⁶. As others have pointed out⁷, as the Cloud Computing delivery model becomes more popular and the uses for Cloud services expand, so will the number of vendors hoping to present their offerings as having a Cloud feature or function.

In response to a question about Cloud washing⁸, one commenter pointed out that:

"Essentially, marketing people can call anything "the Cloud" and get attention. Since the definition of the Cloud is fuzzy, and most consumers still think that anything delivered over the Internet is Cloud Computing, it's easy to pull this one off. "

Barrier #4: Making the Business Case By Tying Cost to Return

In difficult economic times, every manager within an organization is feeling the pressure to reduce budgets. Given this fact, it is unsurprising that customers are often looking to cost savings as the primary driver for a move to the Cloud. Given this customer demand, then, it is also unsurprising that vendors are quick to point to cost savings as the primary return on investment (ROI) from the Cloud.

While this is understandable, it is also counter-productive and simplistic. True cost is a relatively easy thing to measure, and it's hard to look past a product claiming a significant cost saving, but we believe the conversation should move far beyond cost savings. Analysts have spent significant amounts of time calculating cost comparisons between Cloud and self-hosted infrastructure⁹ but in doing so they fail to focus on the real benefits of Cloud.

In a recent blog post we detailed some areas where Cloud makes an appreciable non-direct economic positive impact on an organization;

Speed

Very simply, Cloud is faster than a comparable on-premise solution. The time-to-deployment metrics for Cloud applications or Cloud infrastructure overwhelmingly speaks to this point. Users should sign up for a Cloud application and compare the time it takes to buying, installing and learning often unfriendly traditional software. Similarly setting up a server with a Cloud infrastructure vendor is far quicker than the often painful process of requisitioning, getting final approval for, and waiting for deployment of physical hardware. Like for like, Cloud is faster. And that drives indirect economic benefits.

Focus

During difficult economic times, organizations are expecting more from their people for less and everyone is busier than ever before. Any solution that gives organizations the ability to focus on core business and ignore the minutiae of non-strategic matters is beneficial for the organization. It's a somewhat clichéd analogy, but one wouldn't expect a CIO to worry about maintaining the turbines at the company's own power plant; maintaining software and servers is the same. Abstraction equates to focus and that delivers economic benefits.

4 http://www.rackspace.com/knowledge_center/CloudU/

5 <http://searchcrm.techtarget.com/definition/greenwashing>

6 <http://searchCloudstorage.techtarget.com/definition/Cloud-washing>

7 <http://searchCloudstorage.techtarget.com/definition/Cloud-washing>

8 <http://www.itworld.com/answers/topic/Cloud-Computing/question/what-Cloud-washing>

9 <http://gigaom.com/2012/02/11/which-is-less-expensive-amazon-or-self-hosted/>

Agility

Silicon Valley has an overused term – “The Pivot” – to describe the trend of businesses changing who they are and what they do. But even outside of Silicon Valley, all organizations have similar pressures to start quickly, move quickly and change direction quickly. Cloud Computing, with its utility pricing, ease of set up and lesser degree of lock-in than other alternatives, increases an organization's ability to be agile. Agility delivers competitiveness and that drives economic benefit.

Given these individual benefits of Cloud, we need a system that can match cost with outcomes. This is a two-step process and for this to occur, some problems need to be resolved:

- **Transparency Over Spend** – *With individual users often signing up themselves for Cloud services, it is difficult to get a single picture, across the entire organization, of where Cloud spend is actually occurring. A number of vendors are looking at this problem space and trying to build a “single pane of glass” in terms of Cloud spend.*
- **Spend Not Yet Tied to Revenue** – *The second stage of tying cost to return is to integrate this complete picture of Cloud spend to the actual revenue line of the organization. This is a deeper challenge and one which financial software companies need to resolve. Having the ability to directly pin particular Cloud cost with a particular revenue line will aid in the delivery of a true measure of ROI rather than a simplistic cost saving.*

Barrier #5: The Sunk Cost Conundrum

Another barrier to the adoption of Cloud is the significant sunk cost that organizations have in traditional infrastructure and software. It is an issue that many organizations out in the real world face every day¹⁰. The biased logic within the organization dictates that, since significant capital expenditure has already occurred on a particular system, there is a need to continue using it to ensure it achieves economic payback. This is a perfect example of the sunken costs conundrum; the situation that stops change when it requires a move away from products or processes that have taken capital expenditure to set up. It stems from 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 business decisions aren't always rational. It's frustrating (albeit understandable) from

the outside to see an organization deny itself a strong competitive advantage, and a great opportunity to innovate, all because of a wrong buying decision a couple of years ago.

Sunk costs are a fact of life when it comes to technology. While in an ideal world they would in no way impact buying decisions, the reality is that they do. Organizations need to look at solutions that allow them to both make the most of existing investments and still achieve the particular benefits that Cloud solutions can bring them.

Barrier #6: Resistance to Change is Toxic (and Futile)

A major, and unfortunate, barrier when it comes to the adoption of Cloud Computing comes from within the organization. Quite simply, 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. There are opportunities for IT workers who feel threatened by this changing landscape¹¹, because they have the option to:

- *Get informed about Cloud Computing and learn as much as they can about it*
- *Get hands-on experience with Cloud Computing and experiment with it*
- *Learn how the Cloud can help their business and help foster their own professional growth*
- *Understand that Cloud Computing, like other ‘disruptive technologies,’ doesn’t spell the end of IT*
- *Lead by example, and envision themselves as a concierge for end users*

We recommend organizations take 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.

10 <http://www.diversity.net.nz/sunk-costs-are-just-that-sunk-forget-em-2/2012/06/26/>

11 <http://www.diversity.net.nz/advice-for-it-workers-threatened-by-the-Cloud/2011/04/18/>

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.

Barrier #7: Ulterior Motives – Vendor FUD

FUD is an acronym for Fear, Uncertainty and Doubt and is an oft-used strategy by legacy vendors to cast doubt on the security, stability or general safety of a disruptive product or technology. It is difficult for an organization that relies on vendors to be their primary source of information, when those same vendors manipulate the truth to achieve their own individual aims. Some vendors decry Cloud as risky, minimize the benefits and call it immature

For this reason organizations need to appraise themselves about the perceived and actual risks of Cloud Computing, and to view these risks in light of their particular situation.

Alongside vendor FUD comes another, yet associated trait, Cloud washing. Cloud washing has been defined as:

“Cloud washing (also spelled Cloudwashing) is the purposeful and sometimes deceptive attempt by a vendor to rebrand an old product or service by associating the buzzword ‘Cloud’ with it.”

It is sometimes difficult for organizations to correctly identify a true Cloud product from merely Cloud washing. The key is to look at a product in light of the OSSM definition we detailed earlier. In a blog post¹², noted technology commentator and thinker Simon Wardley

offered up a simple checklist for organizations to assess the true nature of a technology system in order to assess its “Cloudiness.” Wardley suggests that if:

✓ “Your data center is full of racks or containers each with volumes of highly commoditised servers”

✓ “You’ve stripped out almost all physical redundancy because frankly it’s too expensive and only exists because of legacy architectural principles due to the high MTTR (Mean Time to Recover – a measure of how long a device will take to recover from failure) for replacement of equipment”

✓ “You’re working on the principle of volume operations and provision of standardised ‘good enough’ components with defined sizes of virtual servers”

✓ “The environment is heavily automated”

✓ “You’re working hard to drive even greater standardisation and cost efficiencies”

✓ “You don’t know where applications are running in your data centre and you don’t care”

✓ “You don’t care if a single server dies”

“...then you’re treating infrastructure like a commodity and you’re running a Cloud.”

As with many barriers to Cloud adoption, FUD is a trait that is best dealt with by ensuring a well-informed customer who understands what Cloud really is, and the genuine risks that it may introduce for the organization.

Barrier #8: Cloud Vendor Maturity (or Lack Thereof)

Cloud Computing has undoubtedly lowered the barriers to entry for technology companies. This democratization of technology is positive but has meant that vendors can go to market without a corresponding organization or technical robustness – it is easy enough to create an application and market it without spending the time to ensure sufficient robustness and reliability are built into the system.

It should be noted that there are a number of third party vendor certifications that may be relevant to the particular workload and may indicate product robustness. One example of this comes from The Cloud Security Alliance and is a measure of the security of the Cloud vendor.

Despite the existence of these certificates however, it is important to note that Cloud Computing is a nascent market and the most reliable measure of vendor robustness probably comes from a due diligence process which checks such factors as:

- *The vendor's uptime*
- *Reference customers*
- *A detailed description of security and privacy policies the vendor holds*
- *Investigation into the corporate structure and long term stability of the vendor*
- *Investigation of the Service Level Agreement the vendor commits to meeting*
- *Information regarding the anonymized use of customer data for advertising and other purposes*

This list is far from exhaustive and the key thing to remember is that organizations need to look at their own particular situation and map that to a particular vendor. Where the organization is looking to move core and critical data to the Cloud, there will obviously be a far higher degree of maturity required from the vendor. This is also the case when the particular workload is complex, has multiple dependencies or is highly customized.

Conclusion

Cloud Computing can deliver real advantages to your organization – while it is undeniably an emerging trend, and hence one which people need to ensure they do their due diligence on, it's hard to deny the benefits it brings.

As with any change, however, there are barriers to its success – some of these are related to the solutions themselves, some are related to the way the industry likes to use particular buzzwords and some are simply the reality of resistance to change from stakeholders who have some rational or irrational negativity towards the Cloud.

The key to removing these barriers is, as is often the case, education and for that reason we believe encouraging open and honest conversations around the issues relating to Cloud adoption is a useful and important strategy.

About Diversity Limited

Diversity is a broad spectrum consultancy specializing in SaaS, Cloud Computing and business strategy. Principal and founder Ben Kepes provides various services including:

Commentary

Ben is a noted commentator about Cloud Computing and enterprise software – he has written for a broad selection of media outlets, and is often quoted as a subject matter expert and influencer.

Consulting

Ben is in demand with large organizations who turn to him for advice on technology starting. He spends time with both customers and vendors advising on all aspects of their strategy.

Advisory

Ben sits on a number of boards, both formal and informal. He enjoys helping startups get to market and grow to scale.

Investment

Ben is an investor in a number of different companies. These investments revolve around Ben's focus of delivering technology that can make a difference in how organizations work.





About the author

Ben Kepes is a technology evangelist, an entrepreneur, a commentator and a business adviser. Ben covers the convergence of technology, mobile, ubiquity and agility, all enabled by the Cloud. His areas of interest extend to enterprise software, software integration, financial/accounting software, platforms and infrastructure as well as articulating technology simply for everyday users.

He is a globally recognized subject matter expert with an extensive following across multiple channels.

His commentary has been published on ReadWriteWeb, GigaOm, The Guardian and a wide variety of publications – both print and online. Often included in lists of the most influential technology thinkers globally, Ben is also an active member of the Clouderati, a global group of Cloud thought leaders and is in demand as a speaker at conferences and events all around the world.

As organizations react to the demands for more flexible working environments, the impacts of the economic downturn and the existence of multiple form-factor devices and ubiquitous connectivity, Cloud Computing stands alone as the technology paradigm that enables the convergence of those trends. Ben's insight into these factors has helped organizations large and small, buy-side and sell-side, to navigate a challenging path from the old paradigm to the new one.

Ben is passionate about technology as an enabler and enjoys exploring that theme in various settings.

About Cloudability

Cloudability tracks, analyzes and predicts cloud usage and costs so companies can spend less time managing their cloud resources and more time building on them. More than 6000 users across more than 100 countries, including Adobe, PegaSystems and KISSMetrics, have used Cloudability to manage more than \$300M in cloud spending, and those numbers are going up every day.

Want to find out more? Check out cloudability.com and start a free, 30-day trial.



“In the first month, we saw substantial gains in our spend efficiency.”

Larry Phillips, VP of Engineering - Syncapse

“Pega uses Cloudability to manage 170+ cloud accounts, across 25 departments in 6 countries.”

Jason Fuller, Head of Cloud Service Delivery - Pega