

HRG Assessment: Cloud Computing Provider Perspective

In the fall of 2009 Harvard Research Group (HRG) interviewed selected Cloud Computing companies including SaaS (software as a service), PaaS (platform as a service), and IaaS (infrastructure as a service) providers. Most of those interviewed see Cloud Computing as a significant opportunity for them either as a direct provider of some form or as a potential consumer themselves. A number of those interviewed see Cloud Computing as a potential threat to the traditional “dedicated hosting model” business while others see it as a disruptive technology.

Regardless of opinion Cloud Computing is changing the way that customers consume information (gathering information from a dynamic large heterogeneous pool) and as information becomes more diverse and available it is now going to be easier to solve problems that weren't so easy to solve in the past with the Cloud. Data can be made available to people all over the world yet it's kept in one place and there is one view of the data. The vendor only has one stack to maintain and changes to the code can be rolled out much faster and easier.

With the advent of Cloud Computing customers can now solve complex problems without specialized hardware or large up-front capital expenditure. However security remains a concern and is a key reason for customer preference for private Cloud over public Cloud based solutions.

As they move into the Cloud Computing arena traditional IT shops are increasingly faced with the challenges related to integrating new applications and more traditional legacy environments within the time frame their customers expect. On another note some companies who are either considering Cloud Computing have unrealistic expectations in that they expect to get all of the benefits of significant change without having to deal with the costs and organizational upheaval that such changes typically bring.

One respondent to our study told HRG that in the financial and medical markets customers want their security and privacy data concerns minimized. These same customers also cite more stringent regulatory requirements as one reason for not wanting to go to a less secure public Cloud environment as a result are adopting private Cloud based solutions instead.

A key concern with Cloud Computing, according to one of the respondents, is that if the Internet goes down the Cloud is unavailable. However customers are willing to put up with some downtime because of the cost/benefit associated with the Cloud. In addition the barrier to entry for Cloud Computing is practically nothing because you can start a project for little startup cost and very little risk vs. traditional hosting where you have a large investment up front have no guarantee that the project will be a success.

HRG believes that Cloud Computing has a long way to go before large numbers of customers are willing to bet their businesses on public as opposed to private Cloud computing. This is the case for a number of Fortune 500 companies and to a lesser extent SMBs. Public Cloud Computing potentially would allow companies to abandon their internal IT capabilities in favor of cost reduction, increased agility, increased productivity, and almost real-time responsiveness to changing market and competitive conditions. However, for most large and medium sized enterprises there remain significant concerns about security, availability, and reliability that will need to be satisfactorily addressed before the majority of companies would consider the "public option". For now it appears that the majority of companies are likely to use Cloud Computing where appropriate while choosing to keep their most critical workloads in-house or on a Private Cloud.

Market Maturity

The Cloud Computing market is far from mature and as previously indicated there is a lot of settling out left even though a number of the "Cloud Computing" companies interviewed claim to have been doing this for over 10 years – before it was called Cloud Computing. Cloud Computing gives the appearance of being much more mainstream than it actually is as a result of the promise it holds for cost reduction and productivity improvement in today's down economy. The basic proposition is that by adopting Cloud companies will no longer be forced to maintain their ongoing investments in infrastructure, technical talent, etc.. However, there is a great deal of concern on the part of potential Cloud customers about maintaining control over sensitive intellectual property and whole scale launching mission critical applications and data bases in the Cloud. This in part explains the preference on the part of many customers for moving first to a private Cloud scenario. Cloud computing is evolving and maturing just as customers understanding of Cloud and its benefits is evolving and being incrementally tested. Market education is never a trivial task and for this reason HRG sees Cloud Computing as a process evolving over time rather than being a simple rip and replace all or nothing solution. Based on the interviews conducted for this study it appears that the majority of Cloud service, software, and infrastructure providers are actively striving to define their positions and offers and that this market has quite a way to go before it settles out into a well organized, easily understandable, and mature marketplace.

Cloud Definitions

Defining Cloud Computing through a simplified provider model (IaaS - Infrastructure as a service, PaaS - Platform as a service, and SaaS - Software as a service) is not an easy task due to the continual evolution of Cloud Computing techniques and technologies. Some companies choose alternative brandings (e.g. Cloud enablers, Data as a Service etc.) Some fit into multiple categories and act as IaaS, PaaS or SaaS providers. Perceived competitors are also acting as partners in many cases particularly for smaller companies. Much of what masquerades as "Cloud Computing" today is perhaps more accurately resource virtualization, consolidation, and automated systems and capacity management similar in many respects to the introduction and use of LPARs and automated operations for the main frame.

Cloud Computing comprises system management, networking, all levels of security, application solution software, application development, and more. These and other factors contribute to the current confusion regarding such questions as: Is Cloud good or bad for my business? - and - How much Cloud is enough Cloud?

Cloud misperceptions

Misperceptions exist about Cloud computing definitions - there are a number of cases where, for example, a business executive felt that their company was a SaaS vendor, when the company was actually a seller of on-premise use software only.

SaaS providers take the lead

SaaS companies are leading the way in promoting and implementing innovative business models spawned by the increasing interest in Cloud Computing – specifically subscription service and/or pay per usage models. Many companies took as a matter of fact the implementation of subscription services as synonymous with Cloud Computing. Many SaaS vendors provide their own managed Cloud because of security concerns

Partner Selection

Many SaaS providers interviewed indicated they were agnostic when it came to selecting a Cloud partner. Many provide their own Cloud. Interestingly, many interviews indicated the “softer” criteria as very important. In any case, some of the most important criteria were:

- Scalability, robustness (reliability) – rock solid infrastructure
- Security (although interestingly some interviews made the assumption that security was a “given” – some enterprise customers also assumed the IaaS would provide that as a minimum not burdening the other partner e.g. a SaaS company with providing it)
- Open standards, APIs (strong API backbone). If you are a PLATFORM provider, open standards and APIs are a “HAVE TO HAVE”. If you are a SaaS provider, open standards are “GOOD TO HAVE”.
- Ability to integrate applications
- “Easy to use” – no hand-holding
- Accessibility – the data, servers and people don’t need to be in one or a few particular places – no need to replicate resources
- While pricing is typically seen as a key decision factor for customers it was one of the less mentioned criteria when talking with providers. The startup costs for a provider to create a Cloud infrastructure or to launch their business into the Clouds successfully can be huge. In addition deciding which pricing model to use will be an ongoing discussion for many providers. HRG believes that Cloud Computing pricing models will evolve in order to keep pace with market evolution.
- Clouds need to be interoperable with other Clouds

- The “soft” attributes of a partner:
 - Overall attitude (progressive, trusted, has proven expertise, perceived market leader)
 - Synergy with interviewed company’s target market and business strategy
 - Brand recognition
 - Simplified business practices and pricing model(s)
 - Flexibility both in terms or architecture as well as in the relationship
 - Overall ROI and low TCO to justify model. Not all interviews perceived an immediate ROI advantage for themselves despite off-loading costs being a major reason for enterprises to move to Cloud Computing in general.

Application Development

When choosing a platform for application development, many of the same criteria apply as when choosing a Cloud partner. Additional criteria include:

- How quickly and easily can you build and change applications on it? Presumably using a Cloud development platform should save time and allow applications to be released with “just in time” functionality unlike traditional application releases.. Interestingly, many of the SaaS companies interviewed already tout this as their own market differentiator – being able to improve time-to-development and deployment. The addition of a Cloud environment can be complementary but should not overshadow the marketing message of the SaaS company.
- Open standards, APIs, open software languages and tools – publicly available software tools and published, not just publicly available APIs
- Training and support. For the most part this was considered a key element but this varied and was partly dependent on company size. The use of a development community forum around the platform was important as an ad hoc support mechanism.
- Ability to integrate applications on/with the development platform. The platform technology needs to integrate across multiple applications rather than simply acting as a “Data Center” (one interview derided Amazon as the latter).
- Can you trust it to be secure, reliable and scalable?

Conclusion: Clouds ahead - Approach with caution

Many companies see a trend in their enterprise customers toward keeping critical applications off the Cloud initially and testing the waters - similar to what took place when UNIX and then Linux appeared on the scene. A number of large Enterprises are adopting and using the Cloud primarily for newer non-mission critical applications. Today NextGen and Startup SMBs don't need huge investment in infrastructure to get started and as a result HRG expects that they will migrate to Cloud Computing as early adopters while more established enterprises will take a more cautious approach and move to private Cloud initially. Sorting hype from reality in the Cloud Computing Market will be an ongoing battle for years to come and a battle that

must be fought and won before large scale adoption of public Cloud computing can prevail as a viable whole scale replacement for internal IT departments.

Today with Cloud Computing applications can be built about 5 times faster at about ½ the cost of traditional computing. With budgets being cut and companies having to do more with less, this can be a driver to the Cloud business. Cloud is a disruptive and newer, better, faster way to get things done especially for SMB and startups where the cost of building infrastructure in-house is high. SMB and startups are more willing to take a risk on uptime vs. the cost of computing. Security issues don't seem to be an issue any longer depending on the type of information that is accessible in the company (i.e. health care vs. financial institutions). Enterprise companies already have the infrastructure so Cloud Computing is not as rewarding as it might be to SMB.

One key benefit of Cloud Computing for technical teams is that now customers are all running on a single version of the software which greatly facilitates system management and maintenance. Now vendors can deliver a totally stable environment unlike more traditional legacy models where customers run different versions of HW, OS and applications which really complicates systems management and support.

Vendors are also able to monitor how customers are using the data and that gives Cloud vendors the ability to make huge improvements in the application to meet customer requirements. With the traditional model engineers and product managers had very little idea which features and functions were really being used so new product releases contained many functions that were never used. In traditional models new releases and functions are updated about 1 year to 18 months. With Cloud computing new functions can be released monthly and are customer driven. As far as the support staff, vendors can simply log into the customer site to see what issues they are having and can be resolved more quickly because the vendor is dealing with the same release, same environment i.e. vendors don't have to replicate the customer's environment as with traditional models.

However, startups and SMB companies appear to be embracing private Clouds for their mission-critical applications more readily because the cost of building infrastructure in-house is high. SMB and startups are more willing to take a risk on uptime vs. the cost of computing. Enterprise companies already have the infrastructure so Cloud Computing is not as rewarding as it might be to SMB. Also, these companies that are embracing the Cloud don't tend to suffer from a corporate culture resistant to change.