



Cloud Computing; the GOOD, the BAD – and the BEAUTIFUL

The quest for increased cost savings and reduced capital expenditures with comprehensive cloud solutions

Executive summary

Asking the hard dollar questions. That is what IT leaders are doing today. Questions such as how much is really spent on technology infrastructure to serve constituents; are the benefits gained justified by the expenditure; where the gaps are between what is needed and what is provided. Enter cloud services. This much-hyped market has been building exponentially since “cloud computing” became a buzzword more than a decade ago. In fact, according to many research firms, investment in “the cloud” topped \$18.6 billion in 2011 and several analysts estimate that corporate spending on cloud services will reach \$117 billion per year over the next three-to-five years. And with good reason; the business and infrastructure benefits of “building and storing in the cloud” are quite attractive to the vast majority of enterprises – especially with respect to cost savings, revenue growth and complete accessibility.

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If one believes in the hype, we have entered into the third age of IT. Gone are the days of siloed systems, manual processes and blade servers housed within the “IT Cave”. Enter a brand new world of massive savings through centralized purchasing, hosting and support. Within this new age, capital expenditures are non-existent and IT is blissful in its trust of cloud services providers. The reality, however, is quite different. While the promise of cloud services and its benefits are beginning to be born out through the largest enterprises, many IT leaders are still testing the waters to determine if, in fact, cloud services and cloud computing is “right” for their enterprise.

This whitepaper will explore the hard realities of cloud computing - the good, the bad and the beautiful - and will seek to provide insight into what large and small enterprises should look to as they begin their quest for increased cost savings and reduced capital expenditures. With the focus on increased accountability and measurable outcomes, IT Leadership is looking to experts within the technology community to aid in the quest for comprehensive cloud solutions that are built on a platform of growth and can adapt as needs change.

What's cloud got to do with it ...

As the business belt tightens further, IT Leadership is increasingly called upon to further reduce capital expenditures while improving reliability and availability of the IT infrastructure. Some believe that the best approach is to find ways to reduce risk and get the most utility from existing processes and technologies. On the face of it, it makes the most sense. IT can eke out another year or two from its existing infrastructure before being forced to replace legacy servers and applications. Storage is cheap; IT can purchase one more blade server and IT staff can handle the increased workload. While this response may appear valid and possibly suggest that last one standing “wins”, the cost of “doing nothing” may actually impact organizations more than they

recognize. Worse, it may leave them at a distinct disadvantage once things begin to improve.

Enter cloud infrastructure services. This infrastructure deployment model allows the enterprise to reduce IT operational costs by outsourcing hardware maintenance and support to the cloud provider, and enables the business to reallocate IT operations costs away from hardware/software spending and personnel expenses, toward meeting other IT goals. For many enterprises, the value of cloud computing is reinforced by the threat of natural and man-made disasters. Cloud services technology secures data, and ensures that it is there when needed because the infrastructure is stored away from the business. For others, it is the cost reduction delta that occurs when enterprises no longer are required to purchase infrastructure as a capital expense on their P&L lines.

Cost reductions derived from cloud computing aren't new technologies, but a combination of existing ones. Virtualization drives higher utilization of resources and thus lowers capital expenses. Standardization also lowers capital and labor costs, and automation reduces the management costs, as well as many of the manual tasks especially related to system integration and interoperability, and their associated costs. The other key aspect of cloud computing is availability and stability, both of which improve the end-user satisfaction and reduce lost productivity. That said, it is critical for IT Leadership to understand the business requirements first and then understand the various deployment options before making any decisions about cloud services.

Four primary cloud deployment models

With most enterprises seeking to leverage cloud computing to reduce capital expenditure and get a better handle on operation investments, cloud adoption is gaining significant ground. But the reality is that without completely understanding deployment options, it can prove to be more expensive for the organization to deal with, even with the cost savings achieved.

Private Cloud

As with all enterprise-level infrastructure environments, private clouds have many "flavors" from which to choose. Whatever is chosen, private clouds can help to lower IT costs, assist with data center consolidation efforts and support telecommuters. Private cloud solutions span from ones that are managed by IT leadership within the enterprise to hosted as a managed service; to everything in between – or even a combination of two or three types of services. This whitepaper focuses on the Hosted Private Cloud.

A Hosted Private Cloud has the advantage of "traditional" cloud computing but is owned by the enterprise, is capable of mission-critical applications, can handle packaged applications and has high security compliance. As well, a Hosted Private Cloud is

typically third-party operated which removes the challenge of managing the virtual infrastructure from the organization itself. This concept is a very different way of receiving and using resources and it is especially important when there are needs to scale up and down depending on business needs.

The Hosted Private Cloud can address security, compliance and other deployment concerns while delivering the ability to scale up or down based on need, and includes significant cost reductions and better IT resource utilization. During initial adaptations to the cloud, many organizations face challenges and have concerns related to data security. These concerns are alleviated by this model, and what's more, it is easily adopted by organizations where data or applications are required to conform to various regulatory standards such as SOX, HIPAA, SOC Audits or the Gramm-Leach-Bliley Act (GLBA) which may require data to be managed for privacy and audits that govern the organization. Aside from data security, there are several key advantages to a Hosted Private Cloud. A key use case is system integration and interoperability. Many organizations tackle this challenge by provisioning their own hardware, wrestling with operating systems, loading software and meeting the infrastructure management challenges on a day to day basis which can actually contribute to the data / process silos that make environments costly for many organizations. With a Hosted Private Cloud, the provider maintains infrastructure and operating systems, as well as the storage management and support activities. This frees up talent within the enterprise to focus on more strategic tasks and better allocate limited resources.

Another important use case is scalability. The Hosted Private Cloud can scale up development, testing or next version production environments as needed or on-demand ... and can scale down as well. This deployment saves time because the business achieves better resource utilization and avoids waiting on new hardware acquisition or simply loading of operating systems (provisioning) just to get a project started. What's more, this particular environment is ideal for organizations that prefer to prototype new applications and then scale them up to production.

Finally, a Hosted Private Cloud can help the enterprise to leverage IT resources more effectively. Cloud technology has unique advantages to support this need: economies of scale, better resource utilization and the security of a private organizational ownership. The connections to the various units of the organization from the Hosted Private Cloud would be secure, private, and always available with the burden of infrastructure provisioning and day-to-day management of the environments falling to the cloud provider. However, perhaps the biggest benefit of all to leveraging a Hosted Private Cloud is that it is designed for the 24x7x365 nature of most businesses, especially in those geographic areas where IT infrastructure skills are scarce or costly due to competition for talent.

The Public Cloud

The public cloud deployment model represents what many believe to be true or traditional cloud hosting. In this model, services and infrastructure are provided to various clients and can be provided as part of other cloud services or on a pay-per-user license policy. Enterprises are encouraged to explore this model when they are just beginning their cloud deployments or for requirements to manage load spikes, host SaaS applications, utilize interim infrastructure for developing and testing applications, or manage applications which are consumed by many users that would otherwise require large investment in infrastructure from businesses. One Secured Cloud account can run applications on an as-needed basis for multiple users while offering consumption-based pricing with no commitments. This deployment is flexible, with the enterprise only using server resources when they are needed and cost effective; organizations only pay for usage with no need to maintain hardware.

The Hybrid Cloud

This deployment model helps businesses to take advantage of secured applications and data hosting on a private cloud, while still enjoying cost benefits by keeping shared data and applications on the public cloud. This model is also used for handling “cloud bursting”, a scenario where the existing private cloud infrastructure is not able to handle load spikes and needs a fallback option to support the load.

The Community Cloud

In the community deployment model, the cloud infrastructure is shared by several organizations from a specific community with common goals and concerns (security, compliance, etc.) whether managed internally or by a cloud service provider. The costs are spread over fewer users than a public cloud but may be a viable option to a Hosted Private Cloud.

One does not simply walk into a data center ...

And expect the right cloud services to magically begin to achieve cost savings for the enterprise. Cloud computing is not a “silver-bullet”. What this means is that any investment in the various outlined deployment models should be made based on business requirements, the criticality of the application(s), and the level of required support. Moreover, it is important to keep in mind that not all of the benefits of cloud services are always a fit for all organizations. For some, it is more important to develop or purchase the applications knowing that they will reside on a cloud infrastructure rather than making the move just because it is the next “hottest” idea.

There is no doubt that the future of application consumption and infrastructure will be done through the cloud, but like everything else there is the good and the bad – which can translate into the beauty of tangible business benefits. Change is challenging and for a business that already has established standards and processes, it could prove costly if done hastily or incorrectly. That being said, organizations should look to cloud service providers that have service guarantees, are cost effective and are solely in the cloud service business. Given recent events, it can prove scary to an enterprise if the cloud service provider has added additional focus on building the components rather than relying on trusted hardware providers so that it can concentrate on the competitive edge.

In most small- mid-sized companies, the benefit lies in not having to spend critical administrative time and valuable resources on commoditized IT issues. In most cases, these organizations seldom do well on IT by themselves and the use of cloud services empowers the administrative and management teams to focus more of their time building the company and generating revenue. But there are distinct benefits to larger organizations as well. Newly developed tools such as cloud-based client portals enable greater visibility into the entire ecosystem of their enterprise which, in turn, can translate into expansion of new services and levels of business. So, what do top IT leaders recommend for other organizations seeking to gain advantages by leveraging cloud services? Here are a few of the more pragmatic suggestions:

the **GOOD**

Cost

Cloud services are built with a relatively low cost of entry. For the most part there are no capital expenses required and enterprises do not need to add additional talent resources to build and configure the infrastructure. The majority of expenses to design, develop and provision are relatively non-existent. For small businesses, cloud services means that they can focus on employees and ideas without having to invest in the expense of processors and servers. For larger companies, cloud services transforms the capital expense to an operating expense, empowering employees to be more efficient and technology more usable.

Scalability

Because of its very nature, cloud services can scale radically from the small needs of home businesses to huge corporate demands. As well, because of its pay-to-use model, clients will only need to pay for what they need and scale up if their needs ever grow. In addition, once the business requirements are determined, the hosting environment can be quickly implemented and scaled

up or down depending on needs, including multi-platform development environments.

Simplicity

Solutions that can simplify any part of business operations are a welcome addition to the enterprise. Cloud services can streamline and simplify the IT ecosystem itself, as well as the processes of provisioning and design. Moreover, there is no specific expertise needed within the enterprise for architecture, infrastructure, or network services, as the provider already takes care of much of the work normally faced within the “IT Cave.”

the **BAD**

Control

One of the biggest issues for not leveraging cloud services is control or lack thereof; control of data, control of availability, control of costs. If the cloud services provider is no longer in business or the enterprise decides to terminate the contract, many wonder about what happens to the data and infrastructure. In general, cloud service providers have become quite sophisticated with respect to availability and uptime; however, there is still a fear that if the enterprise does not control the processes then they cannot control how long the infrastructure might be unavailable. Finally, most cloud service providers charge more for usage spikes which can lead to a different bill every cycle. The question about how to leverage the expertise of the cloud provider without feeling as if the enterprise has lost control remains consistent. These are certainly valid concerns and should be considered seriously when choosing providers.

Cost

Cloud hosting providers give the enterprise a hands-free method to scale; however, it is up to the business and to the service provider to have consistent communications in place to avoid financial surprises. For example, automatic scaling can financially creep up on the business if there are no parameters in place to inform. As with any investment, it is critical to understand all of the concerns and ensure that whatever cloud service provider is chosen, it has answers for the inevitable questions.

Security

Security of the IT infrastructure can be an issue. In a cloud services industry that still does not have a code of conduct, there is little outside of a legal contract to ensure that client data is secure from hacking and other probing eyes. It is vital that any cloud services provider prove security levels which could include various in-place physical security systems, firewalls and a discreet location.

the **BEAUTIFUL**

While cloud computing has become “just good business”, there are clearly both benefits to be attained and issues to be concerned about in making a shift. A shift, leaders in the cloud movement believe, is inevitable. This paradigm shift has made it easy to transition business processes into the cloud and have made it especially easy and cheap because the expertise requirement will no longer be the burden of the organization.

But seeing value from cloud services is about resource optimization and what is best for a particular business. A large enterprise firm may see the value in Hosted Private Cloud services diminished somewhat because IT is already optimized, but might see extreme value in a public cloud ecosystem. In contrast, small firms may see tremendous value in the public cloud, but a Hosted Private Cloud infrastructure may be “too much” for their business at a particular given moment. The bottom line for any organization looking to reduce costs while improving reliability and better allocating valuable IT resource talent is to explore cloud services. Chances are the benefits that the “cloud” brings to a business far outweighs the concerns.

“There is no doubt that the future of application consumption and infrastructure will be done through the cloud, but like everything else, there is the good and the bad – which can translate into the beauty of tangible business benefits. Look toward cloud service providers who will assist in determining the best solution for the enterprise rather than suggesting change “just because”.”

About Phoenix NAP

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