Study of Public and Private Clouds in Indian Environment

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Abstract :

The Cloud computing is a general term used to describe a new class of network based computing that take place over the internet. These platform hide the complexity and details of underlying infrastructure from users and applications by providing very simple graphical interface.

Basically, clouds are of three categories. IT organizations can choose to deploy applications on public, private, or hybrid clouds. In this paper we are studding Private and Public Cloud

Introduction:

There is no debate that most businesses are adopting cloud services at a rapid pace. In fact, a recent 2012 study conducted by KPMG found that 81% of businesses were either evaluating cloud services, planned a cloud implementation or had already implemented a cloud solution. No matter how businesses decide to move to the cloud, one thing is clear: they are moving to the cloud.

Organizations realize the benefits that are delivered with the cloud. The "cloud" has allowed organizations to enjoy scalability, flexibility, and agility along with better distribution of workload without significantly increasing IT budget. The debate waging between public and private cloud services has remained to be a major worry and source of confusion among IT managers and even CIO's.

The decision to create a private cloud, use a public cloud, or a hybrid cloud is based on various factors. Companies will want to consider things such as the business criticality of the applications they want to move to the cloud, regulatory issues they may need to comply with, required service levels, usage patterns for the workloads, and how integrated the application must be with other enterprise functions. It's important to define and differentiate between private and public cloud services in order to make a well-informed decision on which service to implement.

Public Cloud Service Overview

A public cloud service is provided "as a service" over the Internet and the customer's infrastructure or applications are hosted by a cloud service provider at the cloud provider's premises. The customer has no visibility and control over where the cloud services are being hosted.The core infrastructure is shared between many organizations, but each organization's data & application usage is logically segregated so only authorized users are allowed access. Public cloud service is appealing to many decision-makers as it reduces complexity and long lead times in testing and deploying new applications.It is generally cheaper, too, as there is little or no capital expenditures needed.

Private Cloud Service Overview :

A private cloud service, which can also be called an

internal cloud or enterprise cloud, means that the computing infrastructure is hosted on a private platform in the customer data center. It is dedicated to a particular organization and not shared with other organizations.A key technology to help organizations enable a private cloud is virtualization. Virtualization helps organizations realize cost savings by letting them leverage their existing hardware infrastructure and not have to purchase additional equipment similar to a public cloud. The difference, of course, is that the private cloud resides at the customer's location and offers customers more control over the infrastructure. It's important to keep in mind that a private cloud also offers on-demand capability where more services can be added quickly as needed.

Public Cloud Service Advantages

In considering the dilemma to either deploy a public or private cloud service, there are certain advantages and disadvantages that a company has to take into account.

Public clouds provide the following advantages over a private cloud service. Simplicity and efficiency are the overarching benefits of having a public cloud service.Public cloud services are offered as a service, usually over an Internet connection. An off-site third party provider hosts and manages the system. Users connect to the system via the web. Public clouds usually charge a monthly or yearly usage fee.

Low cost - Having a public cloud service in place, organizations can trim their IT budgets because they don't have to purchase physical hardware (which also saves on energy costs), as the servers are virtual - hosted at a third party. Organizations can customize their public cloud service with specific options such as the amount of users so that they only pay for what they need (pay-as-you-go model). Since the public cloud is hosted by a third party, the organization doesn't need to spend money to have an IT employee monitor the system; it is taken care of by the host.

Reduced time - In-house servers take time to maintain. If hardware or software configurations need to be changed, or if a server crashes or needs to be restarted, the process can often take a couple of hours or couple of days depending on the situation. With a public cloud service, because everything is virtualized, reconfiguring the cloud can take minutes. Also - because the servers are hosted in the cloud, if one server fails, another can instantly be activated, reducing down time.

No maintenance - Due to the fact that the public cloud service is hosted off site, internal IT employees are not responsible for maintaining the system. The design lets users update or introduce technologies into the system at a much faster rate as everything is managed at the host company. Having a public cloud service means never having to deal with physical hardware; it can be maintained from a simple configuration screen.

No contracts - Along with the pay-as-you-go model, there are no long-term commitments. Once your monthly or yearly subscription is over, you're under no obligation to continue your public cloud service.

In general, in terms of scalability, versatility, simplicity of use, and price, public cloud service usually beats a private cloud service. The chance to make use of all services, including infrastructure, on a pay-per-use basis, and be free of the problems connected to their daily management represents what most enterprise customers denote as the most significant benefit of public cloud services.

Public Cloud Service Disadvantages

Companies will need to keep in mind the following disadvantages of a public cloud service before making a decision.

Lack of control - Due to the fact that third party providers are in charge of the data systems, many organizations feel as if they don't have enough control over their personal data with a public cloud service.

Slow speed - Public cloud services are based on Internet connections, meaning the data transfer rate is limited to that of the Internet Service Provider. If an organization is storing and transferring large amounts of data and needs, a public cloud service may not be the best bet. In addition, the public cloud service's servers must ensure fast access of information to customers' trying to access their data. For example, many customers won't tolerate slow page loading times.

Lack of investment - Although a great cost saving method by reducing the need to invest upfront, renting the service from an outside provider also means that there is little capital gained. Having items residing in-house such as servers and network equipment can pay off in the long run as assets and tax advantages.

Perceived weaker security - Perceived weaker security sometimes is viewed as the main
disadvantage in public cloud service. This is not to say that the public cloud doesn't have any
security - most of them have excellent measures in place - but for customers with sensitive personal information (e.g. financial institutions), the notion of trusting this information to a third party is often intolerable and considered a liability.

Private Cloud Service Advantages

Private cloud service offers a number of advantages that make it a more viable cloud solution instead of a public cloud service option.

Greater control - Due to the fact that the hardware is on-site, organizations have more control over their data. The organization is in charge of monitoring and maintaining the data giving them complete oversight of their data.

More security - Because private cloud services are dedicated to a single organization, the

hardware, data storage, and network can be designed to assure high levels of security that cannot be accessed by other clients in the same data center. To be clear, this is not say that public cloud service is not secure. It's just that certain companies will feel the data is more secure by having it reside in-house. Another reason that a private cloud would be desirable has to do with country regulatory issues. In certain countries, the data center hosting a public cloud service must reside within the local country where its users reside as well. When there is no public cloud option that   can be provided from the local country, a private cloud is the only option that can be used.

Higher performance - The private cloud is deployed inside the firewall on an organization's intranet, meaning that transfer rates are dramatically increased versus using the Internet. In addition, there's no worry of slow page access times that may happen with using a public cloud service.

Deeper compliance - Sarbanes Oxley, PCI DSS and HIPAA compliance data may be delivered through a public cloud service deployment, but sometimes the data may not be as detailed or customizable. Because the hardware, storage and network configuration is dedicated to a single client, compliance data is much easier to attain.

Customizable - Hardware performance, network performance, and storage performance can be specified and customized in the private cloud since it's owned by the company.

As shown above, more customer control equals fewer security worries for private cloud service users. By moving traditional hardware-based old IT system over to the cloud, the customer is still able to enjoy the benefits of scalability, flexibility and higher productivity, but will be able to do so without sacrificing any of the accountability for data security that may sometimes be viewed with a public cloud service.

Private Cloud Service Disadvantages

While the advantages of greater control and security seem to be associated with a private cloud service, it does bring some disadvantages to take into account.

Higher cost - Private cloud services are in general more expensive than public ones because they require both hardware and maintenance personnel. To build a private cloud service, an organization needs to invest in hardware or

use already existing systems whereas a public cloud service is all handled off site. Private clouds also require system administrators leads to higher administration costs.

On-site Maintenance - Since the private cloud is hosted at the company's site, the organization

needs to provide adequate power, cooling, and general maintenance. The host organization also runs the risk of data loss due to physical damage of the unit (i.e. fire, power surge, water damage). Also, if a company has multiple data centers with each data center having a private cloud, the onsite maintenance and the associated costs go up significantly.

Capacity Ceiling - There will always be a capacity ceiling due to the limitations of the physical hardware in the organization's data center. There can only be so much space available within a company's environment to deploy a certain amount of hardware servers

Which Cloud Service is Most Appropriate for any Organization?

A public cloud service is popular with organizations looking to cut IT costs and time (i.e., reduces capital expenditures, no need to worry about upgrades and backups). These organizations are concerned with security but scalability, efficiency, and affordability are the most important features. These organizations may lack in-house IT administration and expertise or may have distributed locations where IT simply cannot scale to manage those locations. Public cloud services offer great levels of efficiency and affordability, as well as the ability to scale on-demand, as customers share the larger cloud. However, public clouds can be more vulnerable than private cloud services as they are public hosting platforms, and may have limited flexibility - configuration, security, and service level - as they are hosted a shared cloud infrastructure.

For small businesses and startups, public cloud service makes all the sense in the world. These companies often do not have much capital and have less risk in losing information due to theft or security breaches. For SMBs, public cloud service saves them a lot of money and the need to build extra infrastructure. Smaller businesses and startups really enjoy the pay-as-you-go flexibility that public cloud service offers and the cost savings associated with it. Most service providers offer the ability for great scalability so businesses can scale only to the needs that they have. A private cloud service would likely be chosen when organizations feel they need greater control of their business-critical data and applications. A private cloud service is popular with highly regulated industries such as financial institutions as they are more comfortable having their data hosted privately and physically separated from other businesses. Even though public cloud service providers have strict security measures in place, certain companies (some of it because of their culture or management) will prefer private cloud

capability. However, setting up a private cloud will be more expensive and time consuming than deploying a public cloud service. The organization

Conclussion:

Cloud services are much more complex and varied than meets the eye at first. There can be self-hosted private cloud networks running within companies' own ranks, and public cloud service providers companies that are offering the cloud services over the Internet. Cloud services, both public and private, will continue to evolve and offer more options for both smaller companies and large companies.

When your organization begins using cloud services, it's important that you consider which type of cloud service best meets your business requirements. Essentially, there is no "one solution fits all" when it comes to determining to use public or private cloud service and it's important to carefully consider the options available from your cloud service provider to see what works for you. At the end of the day, the decision often comes down to cost vs. control. That is why many companies use a mixture of public and private (hybrid cloud) cloud deployments; sometimes the answer is a little of both and can be customized to get the costs down but still have control over the more important data.

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