IS PRIVATE CLOUD A UNICORN?

With all of the discussion, adoption, and expansion of cloud offerings there is a constant debate that continues to rear its head: Public vs. Private or more bluntly 'Is there even such thing as a private cloud?' You typically have two sides of this debate coming from two different camps:

Public Cloud Proponents: There is no such thing as private cloud and or you won't gain the economies of scale and benefits of a cloud model when building it privately.

Private Cloud Proponents: Building a cloud IT delivery model in-house provides greater resource control, accountability, security and can leverage existing infrastructure investment.

Before we begin let's start with the basics, The National Institute of Standards and Technology (NIST) definition of cloud:

Cloud computing is a model for enabling ubiquitous, 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.

This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models.

Essential Characteristics:

On-demand self-service: A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

Broad network access: Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

Resource pooling: The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid elasticity: Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out, and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured Service: Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported, providing transparency for both the provider and consumer of the utilized service.

Service Models:

Cloud Software as a Service (SaaS): The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through a thin client interface such as a web browser (e.g., web-based email). The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

Cloud Platform as a Service (PaaS): The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications

created using programming languages and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly application hosting environment configurations.

Cloud Infrastructure as a Service (IaaS): The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, deployed applications, and possibly limited control of select networking components (e.g., host firewalls).

Deployment Models:

Private cloud: The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

Community cloud: The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off premise.

Public cloud: The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services.

Hybrid cloud: The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability (e.g., cloud bursting for load balancing between clouds).

http://csrc.nist.gov/publications/drafts/800-145/Draft-SP-800-145_cloud-definition.pdf

Obviously NIST believes there is a place for private cloud, as do several others, so **where does the issue arise?**

The argument against private cloud:

Public cloud proponents believe in another defining characteristic of cloud computing: Utility Pricing. They believe that the 'pay for only what you use' component of public cloud should be required for all clouds, which would negate the concept of private cloud where the infrastructure is paid for up front and has a cost whether or not it's used. The driver for this is Cloud's benefit of moving CapEx (capital expenditure) to OpEx (Operating Expenditure.) Because you aren't buying infrastructure you have no upfront costs and pay as you go for use. This

has obvious advantages and this type of utility model makes sense (think power grid in big picture terms, you have metered use.)

So public cloud it is?

Not so fast! There are several key concerns for public cloud that may drive the decision to utilize a private cloud:

Data Security – Will my data be secure/can I entrust it to another entity? The best example of this would be the Department of Defense (DoD) and intelligence community. That level of sensitive data can not be entrusted to a private 3rd party.

Performance – Will my business applications have the same level of performance existing in a public offsite cloud?

Up-time – On average a properly designed enterprise data center provides 99.99 (4×9's) uptime or above whereas a public cloud is typically guaranteed for 3 to 4×9's. This means relying on a single public cloud infrastructure will most likely provide less availability for enterprise customers. To put that in perspective 3×9's is 8.76 hours of downtime per year where 4×9's is only 52.56 minutes. An enterprise data center operating at 5×9's only experiences 5.26 minutes of downtime per year.

Exit/Migration strategy – In the event it were necessary how would the applications and data be moved back in-house or to another cloud?

These factors must be considered when making a decision to utilize a public cloud. For most organizations they're typically not roadblocks, but speed bumps that must be navigated carefully.

So which it?

That question will be answered differently for every organization. It's based on what you want to do and how you want to do it. Additionally cost will be a major factor.

Source: http://www.definethecloud.net/is-private-cloud-a-unicorn/