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THE SUPERIORITY OF THE PRIVATE HYBRID CLOUD

What enterprise users need to know when choosing between public, private and hybrid cloud services.

As the software industry continues its move into a cloud-preferred service market, enterprise and IT decision-makers are faced with the question:
Should we choose a public cloud, private cloud, or hybrid cloud solution?

To start, we should define cloud service options using contemporary definitions.

PUBLIC CLOUD:

A public cloud environment is a computing infrastructure offering digital storage and pre-built software services over an Internet-based network that is open for public access and use.

PRIVATE CLOUD:

A private cloud environment is computing infrastructure offering digital storage and customizable software services deployed for a single organization exclusively, and managed/hosted either internally or externally by a third party.

HYBRID CLOUD:

A hybrid cloud environment is a combination of the public and private cloud service models, capitalizing on the unique benefits of each for particular business needs.

Armed with an understanding of the differences between public, private, and hybrid cloud options, enterprise and technology decision-makers face more questions:

- *Which will offer better security, privacy and protection of our data?*
- *What's the price difference? Is one less expensive than the other, and if so, why?*
- *Which one offers the most transparency to potential costs?*
- *Which solution works better in terms of access speed and efficiency?*
- *What methods of data control and administration are offered? What impact do these have?*

When it comes to enterprise technology infrastructure and software needs, the logical solution is most often a private or a hybrid cloud environment. Being able to customize cloud computing resources, or mix and match services based on business needs, provides a more robust, long-term cloud solution compared to a pre-determined public infrastructure.

Unfortunately, the term “hybrid cloud” is often misused by larger players in the public cloud services market to create ambiguity and sway potential clients away from private cloud solutions and toward their own public environment service offerings. This is misleading and can be confusing for decision-makers that aren't aware of the alternatives

when it comes to choosing between cloud solutions. In fact, modern hybrid cloud environments fit into the private cloud deployment model – external and off-premise – but with the option for on-premise capabilities, and more transparent pricing models. Which provides an optimal enterprise solution?

THE “PRIVATE HYBRID” CLOUD

A private cloud solution becomes hybrid when it utilizes public cloud resources, like burstable storage and on-demand compute. This can be an ideal cloud solution for enterprise-level users because it allows them to be flexible while retaining robust security capabilities.

SECURITY VS. PRIVACY

It's important for enterprise cloud customers to understand the differences between data security and data privacy. While often used interchangeably, they are not the same thing.

Data security

These are the physical and programmatic security features that surround and protect your application and data from hacking and unauthorized access.

Data privacy

This refers to the legal collection, storage, use and transfer of your data or personally-identifiable information.

All cloud service providers claim to offer data security, but not all providers have put the necessary controls in place to ensure privacy as well. In Canada, for example, there are specific challenges related to administrative accountability and the flow of data between cloud based systems. Some important question that enterprise administrators need to get answers to before choosing between public, private and hybrid cloud service providers include:

- *Who is accountable?*
- *Are there third parties involved?*
- *Is the cloud service provider's equipment physically located in Canada?*
- *Is any portion of my data being processed outside the country, and what laws apply there?*

Most often, choosing a private or private hybrid cloud solution can eliminate these potential concerns.

TYPICAL PRICING & POTENTIAL HIDDEN COSTS

Public cloud services are often perceived as being inexpensive compared to private cloud services, but when you compare the actual pricing, private cloud service costs are more transparent and affordable in the long-term.

Data transfer fees

In the public cloud, regardless of workload, there are both direct and hidden costs. For example: data transfer fees. When storing data on public clouds there are potential transaction charges associated with esoteric storage activities such as “gets” and “puts”. These activities may seem very nominal on a per unit basis but end up being quite substantial given the sheer volume of activities. The worst aspect is that these activities are systemic in nature and there is virtually no way to control the volumes.

In the end, data storage services on a public cloud can be 40% more expensive than in a private cloud environment.

IN THE END, DATA STORAGE SERVICES ON A PUBLIC CLOUD CAN BE 40% MORE EXPENSIVE THAN IN A PRIVATE CLOUD ENVIRONMENT.

Egress

Public clouds also charge significant “tolls” for reading and extracting files. Not only are users required to pay exorbitant fees to repatriate or read their data, these fees can be as high as 4-12 cents per Gigabyte (GB). And the minimum amount of data required by the provider for transfer often far exceeds what the average enterprise customer will need to move. This is designed to discourage data migration, but it requires a virtual magnifying glass to figure out.

A comparison of typical public cloud vs. private cloud pricing.	Public	Private
Instances	5	Unlimited
vCPU	12	12
RAM	32GB	96GB
Storage	10TB	10TB
IPs	10	10
Monthly transfer	100GB	Unlimited
Load balancers	5	5
Pricing	On-demand (per month): \$2,895.81 One-year contract (per month): \$2,605.990	First month: \$3,218.00 2nd month and onward: \$1,659.00

Source: AWS pricing calculator July 5, 2016 and ThinkOn MSRP pricing calculator

Perceived flexibility vs. budget predictability

On the surface, costs associated with public cloud services are lower than that of private cloud services. This is partly due to the lack of hardware leasing costs. But hidden charges can be found everywhere. While public clouds provide flexibility to manage costs if you have an application with little network or storage interactivity, you'll pay less, but this is rarely a good solution for enterprise-level customers. Unfortunately, this reality does not become obvious until after the 2nd or 3rd invoice has far exceeded the company's pre-determined budget. Alternatively, private cloud services can provide controls on the elements of cloud services that drive cost variability.

Public clouds can sometimes appear more attractive because the initial costs seem low, but in the long-term public clouds tend to sprawl and cause operational costs to explode. By contrast, private cloud service costs stay predictable.

RELATIVE PERFORMANCE vs. ACTUAL PERFORMANCE

Comparing an enterprise application's performance in its home environment vs. its performance in an advertised public cloud system can be telling.

Performance of a re-built environment and the associated pitfalls

In a public cloud, applications may experience performance issues depending on what other users and organizations are doing in the shared environment. Just like a website that runs slowly on a shared server during peak hours, a public cloud can slow noticeably at peak usage times. But in a private hybrid cloud environment, users have control over those resources to ensure a consistent experience.

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Expectations regarding enterprise migration

Public cloud service providers inflict unexpected usage fees meaning, charges associated with data synchronization and bulk data transfer can be exorbitant and unpredictable. But private cloud service providers allow users to transmit data in a variety of ways, enabling them to minimize unexpected fees. Some of these methods include:

- *Data seeding with external hard drives*
- *Dedicated network connections*
- *Speciality devices like TOMA (to enable data transfers larger than a typical hard drive is capable of)*

It's important to understand the expected costs of data transfer and how the methods of upload provided can affect those costs.

Knowing how many resources your workload consumes in your own production environment is one thing. That same capacity, that same logical environment built in a public cloud, can experience a degradation in application performance due to parasitic workload that would normally run in the hyper-visor. Examples of this workload include anti-virus applications and data backup. In both examples, these services would have been deployed within the hyper-visor in an enterprise's own environment but on a public cloud the resources need to be accounted for.

The fix:

Add more resources

The cost:

30-50% more to deliver the same performance

The take-away:

A private hybrid cloud solution can keep costs down while ensuring full predictability.

CONTROL & GOVERNANCE

Control and governance of cloud resources is one of the biggest issues facing enterprise-level technology administrators. As computing infrastructures become more diverse by necessity, and as software requirements grow more and more complex, the need for dedicated technology expertise and cloud-based services increases. With that you lose some degree of control.

Mechanisms to control and govern accountability

Public cloud service providers offer administration consoles, however, they are rarely customized to suit the needs of individual tenants. Public cloud environments do not allow users to run any product that requires direct access to the hypervisor, and they use pre-built products that are not customizable and lack robust capability. Furthermore, you cannot isolate the deployment of expensive software licenses to a small number of available servers. As a result, you may be forced to relicense the software from the public cloud provider or risk being out of compliance with respect to your software licensing standards.

By contrast, private hybrid cloud environments allow access to the hypervisor level, meaning you have the ability to move and manage workloads to and from your private environment regardless of hardware.

The importance of budget controller approving resources

There is a great deal of confusion amongst administrators, developers and engineers regarding hidden fees and the true costs associated with using public cloud services. As an example, infrastructure sprawl can lead to unplanned usage and costs.

Imagine an enterprise-level user building a workload in a development environment, testing and scaling up. Then at the end of the week that same person goes home and forgets to turn off the scalability testing. By

Monday morning, the organization has accumulated thousands of dollars in charges.

Enterprise users need to consider control and governance risks, and then choose cloud solutions that can meet their accountability and budget needs.

CONCLUSION

Enterprise-level businesses looking for cloud solutions should consider private hybrid cloud service options over public for a variety of reasons. Private hybrid cloud service providers can offer privacy measures by using Canadian-based servers and technology, and by processing data within Canada, instead of through

out-of-country third party vendors. Private clouds offer more budget-conscious solutions with transparent pricing models, predictable fees, and by maintaining application performance levels. Private cloud service providers can also help enterprise users manage their workflows and control costs by implementing governance strategies and budget approval processes.

Hyper cloud providers offer great and flexible solutions, but businesses need to measure the risks before going all in. A private cloud solution offers the flexibility of cloud technologies, while ensuring you get the control and security of an onsite deployment.

ABOUT THINKON

ThinkOn delivers critical data management and information asset protection solutions that help companies optimize their IT infrastructure investment. We help organizations leverage cloud technology to maximize compute, network, and storage resources. We work with vendor partners to deliver secure, fast, and scalable solutions.

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