



Is your business ready to adopt a Private Cloud Strategy?

White Paper

Contents

- + INTRODUCTION
- + WHAT IS PRIVATE CLOUD, AND WHEN CAN I HAVE IT?
- + ARE YOU THINKING ABOUT BUILDING A PRIVATE CLOUD? DON'T BELIEVE ALL THE HYPE
- + WHAT'S SO IMPORTANT ABOUT BUILDING THE PRIVATE CLOUD?
- + ELEMENTS OF BUILDING A PRIVATE CLOUD
- + BUILDING THE PRIVATE CLOUD IN PHASES
- + WHAT ELSE DO YOU NEED TO KNOW?
- + WANSTOR'S SUGGESTED APPROACH
- + FINAL THOUGHTS

Introduction

Many businesses have heard the hype around private cloud computing, some have chosen to adopt this technology, others have sat waiting for the right time. But when is it the right time to adopt a private cloud computing strategy?

In this whitepaper, Wanstor explores what private cloud computing means and identifies an approach which can set your business on the right path to private cloud success.

It goes without saying that pretty much all IT professionals have heard the hype about the benefits of public cloud infrastructures. For many IT professionals, questions still exist around public cloud computing across service levels, security, cost management and compliance.

But what if you could have all the benefits of a public cloud computing service and address the concerns? Would your business be interested in moving some of its applications, data and development to the cloud then?

The good news is there is an answer to the above questions it is called private cloud computing. But what is it and when is the right time to develop and execute a private cloud computing strategy?

Over the past 18 months at Wanstor, we have seen many industry commentators say now is the time for private cloud computing. However private cloud is not something you purchase, deploy and then hope it works. It is an iterative purchase and a way of computing which needs to evolve and enable a business throughout its lifecycle.

Private cloud is not just a stopgap or a stopping place on the destination to better public cloud provisions. Private cloud should be treated as an IT strategy in its own right and take up a place of importance alongside other IT infrastructure purchases.

In recognition of the importance of private cloud computing to our customers businesses, Wanstor believes private cloud computing goes beyond virtualization and includes automated workload management, self-service interfaces and some form of usage metering or chargeback.

Private cloud computing also requires the ability to share resources to maximize usage among business units, IT teams, partners, suppliers and sometimes even customers. Many of which do not share resources today. We believe that private cloud computing, if executed correctly, can have a positive impact on a company's culture, processes, operations and relationships.

What is private cloud, and when can I have it?

Forrester defines private cloud as 'a multi-tenant, dynamically provisioned and optimized infrastructure with self-service developer deployment, hosted within the safe confines of the enterprise data centre.'

At a headline level this sounds like an IT department's dream and an answer to their prayers around big data management, digital workloads and application management. However the reality is much different. To truly embrace a private cloud strategy a business needs to go through a series of steps.

These steps include technical, cultural and operational parts to be put in place for private cloud computing to truly make a difference to the IT department and the business. We have seen some businesses dive straight into private cloud adoption thinking it will solve their IT infrastructure problems without thinking about the business priorities first.

Often these projects have failed as private cloud technology has been bought and deployed but no monetary, operational or customer benefits have been realised due to a lack of clarity and direction.

Wanstor believes the right approach to private cloud computing is for a business to treat it as a strategic piece of work.

That means first of all defining the IT and business objectives, developing the right project management team, making sure business decision makers are supporting the programme of work and putting in place clear goals and milestones.

Additionally the private cloud programme should be broken down into manageable steps, so the right data, applications, systems and processes can be identified, tested and then launched into the private cloud one at a time.

By following this approach a business can identify where things are going well, what needs to be improved and where they may need help from a specialist IT partner.

Are you thinking about building a private cloud? Don't believe the hype

If you're learning how to build a private cloud, it's best to begin slowly with an application that can be migrated to a private cloud but is not business critical.

Before you do anything though a word of caution. Private cloud computing has unfortunately in many cases been overhyped by many IT vendors.

IT teams need to remember that a private cloud is defined as a technology concept in its own right. It gives your business the ability to host applications and server or storage space in a private data centre and provide access to these resources on demand.

This means that your IT team can deploy new applications, servers and storage (in the form of logical disks) in minutes instead of the old model that took weeks or months to scope the requirements, get the budget approved, select the best offer and get the server delivered and deployed.

ARE YOU THINKING ABOUT BUILDING A PRIVATE CLOUD?



wanstor



What's so important about building the private cloud?

Private cloud is at the top of the agenda on many IT Director's lists of things to do. The reason why is that it enables significant cost reductions by migrating existing applications and server infrastructure to virtualized servers.

Today's high-end blade servers have much better price-to-performance ratios at significantly reduced power consumption than yesterday's standalone servers

Additionally businesses will be able to utilise the space in their data centres better allowing them to deploy more servers in the same space or reduce the data centre footprint and the associated costs.

Elements of building a private cloud

The foundation of the private cloud is server virtualisation and the ability to run numerous virtual machines on the same physical server, usually using Intel's x86 architecture and hypervisor software from VMware, Citrix or Microsoft.

Server virtualization increases CPU and RAM utilisation as numerous virtual machines use the same physical resource that would otherwise be left idle.

High-speed multi-core servers with extended memory architecture with up to 32 cores and 384 GB of memory, can run up to 100 virtual machines, each of them using 4 GB of memory for example.

Apart from optimizing the resource utilisation, server virtualization gives IT Managers instant server creation ability. All they need is a virtual machine definition, specifying the amount of RAM, CPU and external resources a server needs.

Ideally they would also have a library of predefined templates that can be used to create new machines as it doesn't make sense to provision each Windows / Linux server from a CD / DVD ISO image.

The second key element of private cloud architecture is virtualized storage, or the ability to create virtual disks on demand and attach them to virtual machines as needed.

Virtual disks are usually stored as files in a large shared file system; all you need to have to deploy them is server virtualization software (e.g. Hyper-V from Microsoft) and a large enough storage array.

Last but definitely not least, you need a self-service portal that allows your users (departments or application teams) to create new virtual machines and disks themselves.

In smaller businesses the GUI provided by the virtualization software will be adequate. In medium / large businesses, advanced software that provides isolation between users and role-based access control will be required.

Server virtualization increases CPU and RAM usage as numerous virtual machines are using the same physical resource which would otherwise be left idle.

Building the private cloud in phases

At Wanstor, we believe the actual build of a private cloud should take place in three phases:

01. A pilot project
02. Deployment of larger server and storage infrastructure and migration of existing servers into the virtualized environment
03. True private cloud with self-service portal and charge-on-demand mechanisms

The journey through these phases can take months or even years, and it's best to go in measured steps.

To start with the person in charge of the cloud programme at your business should research the market and select the server and virtualization platform. VMware, Fujitsu, Microsoft, HP & IBM are market leaders so it would make sense to choose one of these providers as your server partner.

Remember though, the vendor technology you choose must be interoperable with your existing IT infrastructure.

Too often at Wanstor, we have seen customers pick a vendor technology then realise once it's too late the extra set up and in life management costs associated with keeping the different types of technologies running and working together.

Most businesses will already have a storage array. The IT team just needs to make sure it has enough spare capacity. As a guide you usually have to give each virtual machine several gigabytes of disk space and remember that virtual disks can quickly consume terabytes.

After deploying the new infrastructure and getting familiar with it, the IT team should build a library of virtual disk templates and start fulfilling all new server requests with the virtual machines to get a few easy wins.

When everyone is convinced virtualization is the right way to go, start migrating existing applications to the virtualized environment to improve performance and reduce the data centre costs.



What else do you need to know?

Server / disk virtualization and the private cloud concept are excellent tools. They are however just that - tools to help IT infrastructure run more effectively.

IT professionals should not think that because a private cloud has been deployed, all their storage, application management and digital workload headaches will disappear.

IT professionals must use private cloud resources wisely like any other IT infrastructure purchase, or they could end up wasting time, money and effort with nothing to show for it

Additionally, IT teams need to make sure any private cloud strategy fits with the rest of the IT infrastructure strategy.

Wanstor's suggested approach

Now you have read about private cloud and some headline tips in the text above, Wanstor would like to provide you with our suggested approach to developing, designing, deploying and managing a private cloud strategy.

The steps below will help IT professionals in medium and large businesses to get to grips with what they need to do at each stage of the private cloud lifecycle.

Assessment

The first step for a business investigating private cloud strategies is an assessment. At this stage, the IT team should assess existing infrastructure, people and other assets regarding its IT portfolio.

IT assets should be benchmarked in terms of performance, availability and scalability, so that a cost-benefit analysis can be carried out based on the target private cloud platform.

An ROI model and a high-level strategy document should also be prepared.



Consolidation

The next step in a private cloud set up is consolidation. All avenues for consolidation of IT infrastructure and budgets should be explored and implemented. For instance, if a business has multiple data centres, it may consider discarding some of them. The business should then look to consolidate the data in a central location to cater to requirements for the entire region.

The central data centre must have cloud properties, so that it is robust enough to cater to all the data from different regions.

Virtualisation

After consolidating IT assets, consider virtualization of IT infrastructure. This stage in the private cloud setup will help optimize consolidated infrastructure. Generally, hardware sizing is done with a view to peak requirement / usage of that hardware.

Businesses should ascertain the extent to which hardware is underutilised. For example, if during assessment it is found that only 10% of the overall computing power is being utilised, then ways to utilise the remaining 90% of the capacity must be found. Here, virtualization solutions such as VMware hypervisor could help. By doing this, the business can maximize the usage of the IT infrastructure and exploit underutilized resources on the way to a successful private cloud setup.

Migration

Application standardization

Once the infrastructure is virtualized and the data centre consolidated, consider application migration. Applications are assessed from a functional and non-functional perspective and accordingly selected or rejected for migration to the cloud.

Application architecture standardization is an important factor. This involves building standard reference architecture, comparing it with the current application architecture, and establishing the gap between the two.

Any anomalies have to be eliminated at this stage, modifying the applications as required, to conform to the reference cloud architecture.

Application performance

On a virtualized cloud platform there are certain qualities that are expected from applications. Let's assume the application accesses a file using a specific URL and a specific path. The cloud has no standard specific location of files because if the machine goes down, the file is lost and the application too goes down.

On a cloud platform, IT professionals cannot expect applications to access files using uniform paths, when the same file can be located in multiple places in the cloud. The application needs modification so that it doesn't expect the file to be in a specific location.

Automation

The next step in a private cloud setup journey is automation, wherein qualities like self-provisioning are incorporated in applications.

For instance, if a load on an application unexpectedly increases while it is running, a traditional environment would demand procurement of a new server, installation of the application and connection to the network, for the additional load to be handled.

In a private cloud setup, the application should have the self-scaling capacity to form a new virtual machine (VM), install itself in the virtual environment and commence servicing the new request. Automation could also be carried out with respect to management and monitoring. In case a machine is down, an alert can go out automatically to the administrator.

Ideally, without manual intervention, the cloud could create a new instance on its own and start the application as required. Automation built into applications also enables self-healing and scaling.

Optimisation

The move to a private cloud setup is invariably prompted by potential cost and performance benefits. The final, optimization stage involves scrutiny of the metrics.

After three months of running the applications on the private cloud setup, IT teams should observe the metrics generated and evaluate whether targets are being met. Based on this analysis, modifications can be incorporated to attain the maximum benefit.

Final thoughts

In this white paper, we have outlined some private cloud considerations and a suggested best practice approach.

At Wanstor we believe enterprise IT teams see private cloud as an alternative to cheaper public cloud offerings as it offers a more secure, controlled, personalised service.

To help our customers choose the right private cloud service for their business, Wanstor provides a range of assessment services to help businesses plan their cloud strategy from assessment to in life management.

By taking the time to work with a specialist cloud partner like Wanstor businesses will be able to develop a business case and private cloud model which delivers real tangible value.

For more information about Wanstor's cloud services, please contact us on **0333 123 0360**, or email us at info@wanstor.com and one of our cloud computing experts will give you a call back.

