Business transformation with private cloud

White Paper

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Contents

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Introduction

No longer is it just a trend or a fad, it has actually started to mature to the point where businesses are actually incorporating cloud computing as part of their wider IT infrastructure strategy.

According to IDC 2016, nearly 70% of businesses are using cloud in their IT mix - a 60% jump since 2015. The main reason for this is because cloud computing helps businesses to accelerate their IT projects and programmes of work as they no longer have to wait for infrastructure to be built instead it is available where they need it, when they need it.

Ultimately, it is helping many businesses transform the way they work and making them more efficient in day to day business operations and more effective in how they serve their customers.

Business transformation involves making fundamental changes to business processes in order to better adapt to changing market environments.

Moving to a cloud platform can help businesses become more efficient, accelerate innovation and help reduce IT operational costs.

Cloud computing provides:

On-demand self-service: Developers can automatically provision server, network and storage resources

Resource pooling: IT teams gain location independence and higher resource utilisation

Express elasticity: Resources can be provisioned quickly and then released according to demand

Measured Service: Businesses can optimise resource use and report usage via a pay as you go model

Accelerate Innovation: Cloud technology enables IT administrators to focus on improving IT services back to the business they work for and innovation instead of manual tasks and maintenance

Although cloud technology is rapidly maturing, complexity does still exist. There are dozens of platforms and vendors competing for attention and market share, including public clouds from companies like Microsoft and Amazon.

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Many businesses have concerns about public cloud performance, security and uptime. Others have compliance or regulatory problems with public cloud solutions and are evaluating issues around data protection and data sovereignty.

These concerns are motivating thousands of businesses to seek a fully functional alternative that provides single-tenant IaaS.

Many businesses think the answer lies in a hybrid cloud model, and are adopting a multi-cloud strategy that relies on public cloud for some workloads and private cloud for others.

In choosing a private cloud model, they are looking for an IaaS solution that addresses the limitations and restrictions of public cloud solutions.

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The case for private cloud

A private cloud provides infrastructure-as-a-service (IaaS) in a single-tenant environment, which helps businesses meet specific performance, stability, security, compliance and data sovereignty requirements.

Private clouds offer location flexibility and can be deployed in a customer's data centre or a third-party data centre. They can also be hosted by a service provider. This flexibility allows IT teams to get close to the customer base whilst adhering to specific regulations in a given geographical area.

The single-tenant model also eliminates the performance and "noisy neighbour" issues commonly found in multi-tenant environments. However there still remains some challenges with private cloud. The technology is complex and requires significant operational experience and expertise.

For many businesses, it is not just a case of finding a private cloud provider and sticking some data into it, the learning curve goes beyond technology, extending to operations, processes, culture change and toolkits.

At Wanstor, we believe businesses which get their *cloud mix* right, will by 2020 have a serious competitive advantage in the markets they operate in. In this whitepaper we will specifically be investigating private cloud.

But a private cloud alone should not be your cloud strategy instead it should be a blend of public and private cloud making your cloud strategy a hybrid one.

What are the benefits of Private Cloud?

Most businesses are moving to private cloud to gain two benefits: increasing agility (deploying features and applications faster) and reducing costs. At the same time, they hope to meet fundamental goals in the areas of reliability, performance, security, compliance and data sovereignty.

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To remain competitive, businesses need to accelerate innovation and deploy features and applications faster. At Wanstor we know that many of our customer's legacy IT environments are significant inhibitors to agility.

In the cloud, businesses can provision resources and redeploy resources much faster than they can in legacy IT environments.

Provisioning

Let's start by looking at a specific customer example — a fast food restaurant company that runs mission-critical processes to cook and deliver food to millions of people across London.

In the company's non-cloud environments, a feature request requires a developer to enter a ticket requisitioning a development environment.

It takes over 20 steps to complete the request, which includes physical server assets as well as software licenses. On average, the ticket sits in an approval queue for five business days.

Once the approval has been given, the ticket is passed to the procurement teams for sourcing, purchasing and contract negotiations.

This process, from ticket approval to hardware delivery at the data centre takes 30 business days on average.

After the hardware has been delivered, the operations team needs 10 business days on average to install the hardware, provision operating systems onto the hardware, and apply security standards to the operating systems.

At this point, the environment is finally available and the development team can begin work on the original feature request. Once the development team has completed its work, it will file a ticket to have those resources decommissioned. That process takes an average of five business days.

So from start to finish, this non-cloud provisioning process takes:

- 20 steps to provision a development environment
- Five-day wait for approval of initial request
- 30-day wait for hardware to be procured
- 10-day wait for environment to be installed and configured
- Five-day wait for decommissioning the environment

This equals a 45-day provisioning time, on average. When you include the decommissioning process, you have a time investment of 50 business days (Over two full working months).

A private cloud infrastructure can eliminate almost all of this waiting time. A core capability of cloud infrastructure is self-service provisioning. When a feature is requested, a developer can immediately provision all infrastructure required in order to accomplish the task.

Here's a summary of the private cloud provisioning process:

- Understand the size of the environment
- Validate that the current project quota has necessary capacity
- Deploy the environment from a pre-built application or solution template

The environment will be provisioned, installed and configured a few minutes after completion of these three steps. Once the development team completes its work, it can decommission the environment in a few minutes.

What does this equal? A provisioning time of less than one day, on average and an accelerated path toward completing work and releasing new features. Saving the company over 49 business days compared to them doing it themselves.

Resourcing

In non-cloud businesses, reallocating and redeploying IT assets can be a challenge. Let's examine another scenario of how the fast food restaurant company's legacy IT resources impeded its business agility.

Planning tools are abundant in business, but many businesses allocate resources for planning tools statically. This means that, for a given timeframe, each tool is restricted to a finite number of jobs.

IT Administrators at the fast food restaurant company frequently have to double the size of tools environment in response to an event. In a legacy system, this mismatch between environment sizing and workload causes serious friction for the IT team, leaving IT Directors scrambling to pull resources from any IT unit with excess capacity.

Once resources are collected, an operations team spends days redeploying those resources into the example environment and letting the planning job run take place. Then it spends several more days reversing its previous actions.

To mitigate this inefficiency, most planning tool environments have been provisioned with some amount of excess capacity. This excess capacity provisioning, coupled with an inability to quickly redeploy resources where they are needed, imposes severe limits on operational agility.

For this fast food restaurant business, simulating different types of customer orders in different restaurants across the UK and different storage or distribution scenarios is a critical step in ensuring a successful deployment.

Having fixed capacity severely limits the number of simulations that can be run at any given time. Staff members are forced to pick "best" scenarios to simulate, instead of being able to look at hundreds of approaches.

The opportunity cost here is high. The IT team simply can't respond to business changes effectively. Additionally, the limit on scenarios decreases accuracy, since accuracy corresponds to the number of simulations run.

Private cloud infrastructure allows businesses to rapidly deploy additional resources to environments that need them. It also enables rapid de-provisioning and re-provisioning of compute, storage and network resources.

This resource elasticity can cut the amount of time spent by operations in half, enabling firms to respond to the needs of their consumers in real time.

Resource elasticity makes overprovisioning unnecessary; instead, the IT Director can optimise for right-size provisioning, increasing and decreasing capacity as needed, running more simulations in parallel, and accelerating time to value.

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Cost Savings: Show me the money

Moving from a traditional IT environment to private cloud can mean significant cost savings (evidenced by various studies over the past 5 years), a fact not typically driven by any individual standout factor. Private clouds can reduce cost in various ways, including:

Higher utilisation	Infrastructure is less expensive	Improved provisioning times	Reduced errors through standardisation
A private cloud platform lowers the cost per virtual machine by pooling resources and aggregating demand from multiple users across one resource pool.	Moving to a private cloud enables a business to minimise expensive, proprietary hardware in favour of standards-based commodity hardware.	Faster access to resources not only increases a business's agility but also eliminates costly downtime for developers and IT operational teams.	Moving to IaaS and establishing a continuous integration / continuous deployment (CI / CD) software development cycle reduces errors by keeping development, staging & production environments synced.
Standardised processes across application teams	**Reduced troubleshooting time and effort**	**Modularity**	**Security**
Add efficiency with a standardised set of tools and a standardised build and test pipeline process across all application development and integration teams. A standards-based CI / CD approach enables developers to move quickly between teams.	A standardised IT environment decreases the time needed for support and operations teams to troubleshoot the environment if things go wrong.	Clouds become increasingly modular to incorporate innovation. Businesses using OpenStack IaaS can leverage this as projects (capabilities) are separate & autonomous. Over 24 months, as firms have embraced container use in dealing with workloads and microservices, OpenStack projects have accessed this technology without disrupting existing cloud infrastructure, management tools or admin workflows.	Moving to a private cloud creates a single control surface with a standardised set of infrastructure, lowering the number of variants within a business's environment. With fewer variables to manage, it's easier to establish security controls and processes.

For our fast food restaurant company, we quantified several benefits of moving to a private cloud for developer environment provisioning. The cost savings look like this:

- Initial Approval £400
  0.5 Development Team days / 0.5 Operations Team days
- Hardware Procurement £5,000
  4 Development Team days / 10 Operations Team days
- Environment Configuration £3,500
  10 Operations Team days
- Environment Decommission £1,800
  5 Operations Team days
- Time to Value Loss £9,000

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45 Days Total £19,700

The new cloud process results in savings of £19,700 for each new request, based on hard cost savings and the benefits of improved time to value.

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Challenges in moving to a private cloud

As mentioned earlier in this whitepaper, moving from a traditional IT environment to a private cloud is not easy.

It requires a significant investment, and as with any major change, there is a potential risk of failure. This can make IT leaders reluctant to pursue private cloud. Complicating matters is the complexity of private cloud technology, which requires significant operational expertise and experience to manage.

There are additional challenges associated with operations, processes, culture change and toolkits. To make sure of a successful private cloud implementation, businesses must address the following challenges alongside the technical ones they will encounter:

Organization and culture change: Businesses will need to adopt new tools and processes to successfully operate on cloud infrastructure.

Security: Businesses will have to evaluate whether new skills and technology are required to secure their cloud infrastructure, and make sure their security policies govern resource provisioning across their network.

Compliance: Businesses have to understand how to apply compliance requirements on a platform where resources are rapidly provisioned, used and destroyed.

Availability: Companies must learn how to architect their applications to achieve their desired uptime goals on cloud infrastructure that requires applications to accept failure at the infrastructure component level.

Operations: It's essential for IT organisations to understand how to operate and maintain the health of their clouds, which includes monitoring, patching, upgrading and capacity planning.

Many businesses look to an operating partner to help them address these challenges. That way they can succeed in the cloud while freeing up resources for core business challenges.

Final thoughts

The benefits of moving to the cloud have been well documented, not only in this white paper but by numerous industry commentators and vendors.

Many businesses recognise that cloud computing can be a catalyst for change and a major driver of innovation and efficiency. Faster provisioning and redeployment times in the cloud will lead to greater developer productivity and enable businesses to quickly respond to fluid market conditions.

Given that the digital experience has become critical for virtually every business, getting features defined, developed and deployed quickly isn't just beneficial, it is necessary so your business can compete and satisfy customer requirements.

Finally, increased agility through cloud technology helps boost employee morale. Employees can use cutting-edge technology to eliminate frustrating downtime and non-core tasks (project managing tickets, gates and approvals for procuring resources).

But achieving those benefits isn't always easy. Wanstor has over 15+ years of private cloud experience from design to deployment to management for hundreds of customers across the UK.

As thought leaders and trusted advisors, we're here to help IT Directors understand how to move forward with cloud services.

Our portfolio of cloud capabilities helps to make IT more relevant and 'in control', whilst delivering the agility and cost savings that businesses need.

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.

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