Pulsant
Connect to your potential

Private Cloud
Service guide

SERVICE GUIDE

**Pulsant**
Connect to your potential

Private Cloud Service Guide

Businesses are justifiably concerned about putting their enterprise workloads into the cloud, but our Private Cloud bridges the gap between standard cloud services and your in-house data centres.

Using enterprise-class hardware platforms, combined with proven cloud delivery and management tools, our private cloud delivers a private, flexible, configurable environment on which you can run your business.

Many of our customers choose to host their services with us rather than doing it themselves, achieving a more secure and resilient service as a result of leveraging our experience in delivering business critical applications.
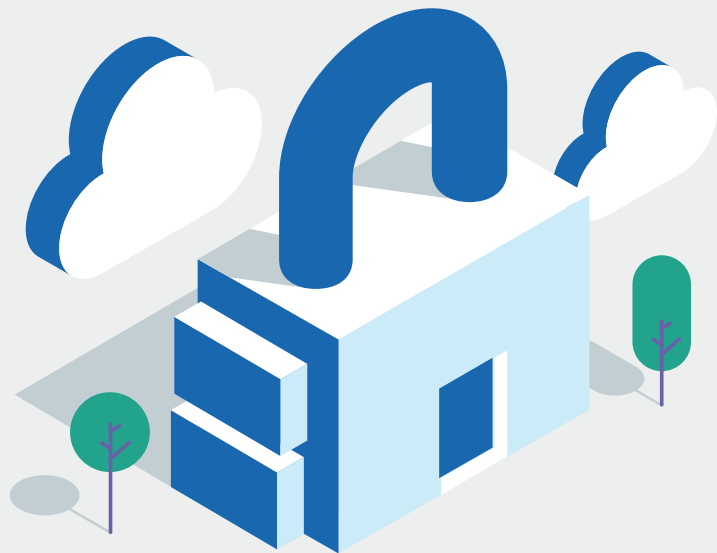
While security features of multi-tenant environments are mature, it is hard to argue that having a private environment isn't more secure when built to the same standards.

SERVICE GUIDE

Pulsant
Connect to your potential

Customer Scenarios

Security is everything

In a world where everything is connected and businesses succeed off the back of their data or their intellectual property, security, trust and risk are everything. This brings specific needs into the requirements placed on infrastructure.

Often, proving maturity against a particular security standard or framework involves modifying the infrastructure to suit, and this can lead to excluding certain more mainstream cloud services and leading towards more specialist services.

Demands on infrastructure are increasingly dynamic

With infrastructure and application services being such a fundamental part of modern business, those services are increasingly being expected to stretch and turn to changing requirements and mould themselves into new shapes to fit the next market trend or business strategy.

Pulsant's Private Cloud is a great step for businesses seeking to improve on their business infrastructure while gaining valuable time that can be spent better elsewhere.

Flexing infrastructure systems is hard work, costly and highly risky where those flexible features have not been considered on day one. Changing a business's direction and systems could render large portions of their infrastructure useless and cause massive delays and unforeseen investment.

Where businesses know they need to be dynamic and flexible themselves, the infrastructure that supports their business must show these characteristics also.

Business efficiency strains IT

Very few businesses have pockets so deep that budgets are limitless. Driving the highest possible profit margins causes businesses to constrain budgets and this causes strain in IT and infrastructure services.

Many ways of reducing costs are associated with the economies of scale yet most businesses do not have the scale to benefit. Using a service provider, who works at scale, affords businesses all of the benefits of a streamlined infrastructure while allowing businesses to continue to work in their normal way.

Pulsant
Connect to your potential

Managing infrastructure is not your business

It is very common for businesses to manage their own IT estates and certainly some degree of self-management will always exist. The real question businesses should ask is whether their managing of infrastructure is adding value to their business.

At Pulsant, we frequently engage with organisations seeking to remove the "distraction" of managing basic IT services, allowing IT team members to invest their time on activities that add greater value to the business. Doing basic infrastructure tasks such as backup tape juggling or hardware repairs often takes time away from more valuable tasks such as user training or innovation and IT strategy.

Cloud services mean application changes

Cloud, unfortunately, is such a broad term that it can be unclear as to its impact on business applications. Some cloud-based alternatives to core business systems require massive change to implement, but others don't. Naturally a business will want to avoid costly and disruptive application changes as much as possible while moving to a cloud environment.

A private cloud gives you high availability at the underlying virtual server layer, meaning that hardware failures are automatically protected against, without changing the application.

Pulsant's Private Clouds are designed only as a high quality virtual server environment. There are no caveats or specific considerations involved in using Private Clouds, and traditional applications can happily run within the private cloud unmodified while, in the majority of cases, out-performing more traditional infrastructures.

Private Clouds also have certain features that can be difficult to engineer into applications, including high availability. Pulsant's Private Cloud environments survive, or automatically recover from, hardware failures. Where you have business-critical applications that do not directly support high availability functionality themselves, a private cloud gives you high availability at the underlying virtual server layer, meaning that hardware failures are automatically protected against, without changing the application.

Likewise, private cloud enables easy multi-site DR (disaster recovery) solutions. Should your traditional applications not support high availability across sites, a private cloud can enable business applications to survive a total data centre site loss should the worst happen.

Pulsant
Connect to your potential

Key Features of Private Cloud

Your own private cloud, fully managed

We combine years of cloud management expertise with the very best of server, network and storage hardware and the latest in server virtualisation to create a cloud environment ready to be relied upon for critical business applications. We manage every aspect, allowing you to either directly consume virtualisation resources and manage your own servers or have us manage those virtual servers for you.

Virtualisation is undoubtedly a great thing for businesses, but virtualised platforms have their own particular challenges simply through being fairly complex combinations of technologies themselves.

Pulsant's Private Cloud environment can be updated and upgraded while in live service.

Updating the hardware and software that create cloud platforms, without interrupting the customer services running on them, must be highly planned and tested and such activities may not be comfortable tasks for the majority of business. Pulsant's Private Cloud environments can be updated and upgraded while in live service and so, from a platform perspective, do not incur disruptive refresh periods or suffer from aging hardware capabilities.

Unlike traditional public cloud platforms, Pulsant's Private Clouds are built for resiliency in such a way that you don't need to consider rebuilding or redesigning applications in order to deliver a resilient solution. In fact, deploying your applications on the private cloud will deliver a greater level of resiliency over a traditional dedicated server model. Each and every cluster has in-built resiliency by design, ensuring that in the event of a hardware failure your virtual data centre, and crucially your virtual machines, will automatically recover immediately.

Using the latest HP ProLiant server technology, hardware and software faults in the underlying environment are identified immediately by our advanced monitoring systems. In the event of a failure the host is put into maintenance mode and the workloads that server was running moved to another, spare node. The issue with the hardware is then resolved and only after extensive testing is the server allowed to return back into the pool.
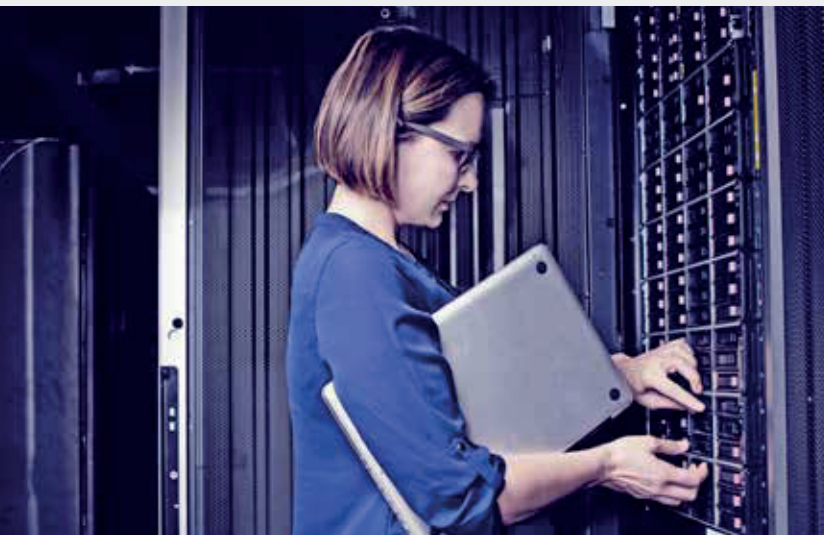
High performance

Private Cloud environments can be designed to offer any level of performance desired. Today's virtualisation technology imposes very little in the way of restrictions or overheads and so sizing performance is simply a case of choosing the correct underlying hardware. Private Cloud comes in all shapes and sizes as a result, but all of these meet the basic design criteria for a resilient piece of infrastructure.

As a private cloud customer, you are not sharing host hardware with other workloads that are outside of your control. Though a lot of multi-tenant environments offer aggressive pricing and guarantees of resource availability there are still subtle caveats with how such sharing and reservations affect headline performance. Private Cloud means that full control is at your fingertips and if that final 1% in application latency is critical to you, you can have it.

Pulsant's Private Clouds can use several additional of our services as required.

The important part, the host resources and configuration, are always private to a customer, but other platform services can be used if desired. If a small amount of very high performance storage is required the private cloud can consume storage from Pulsant Cloud Storage. Likewise, if a small private cloud requires 10Gbps networking, Pulsant Cloud Fabric can be used.

This potential to integrate other Pulsant services into private cloud offers a huge degree of tailoring for every workload. Of course, if your private cloud must be 100% physically dedicated to just you, that is absolutely fine also.

Pulsant's Private Cloud services can be tailored to meet your security and compliance needs.

Consumption not purchase, OpEx replaces CapEx

Typically business infrastructure requires heavy investment to purchase equipment and software, and this repeats, including a service migration, typically every 3–5 years. Using cloud services allows businesses to use only what they need for only as long as they need it.

Pulsant's Private Cloud provides our customers with a flexible environment on which to run business applications but maintains and updates the infrastructure continuously, so avoiding spot investments and smoothing business infrastructure costs into a predictable operational cost.

Secure cloud for your important data

Pulsant's Private Cloud services can be tailored to meet your security and compliance needs. All are delivered within a security framework designed to provide ultimate peace of mind that your data is safe and that security is maintained to a high standard. Where specific standards need to be met these can be designed into the private cloud and Pulsant can assist with any validation work.

We are ISO 27001 (Information Security Management) accredited across all facilities and services, including our cloud services.

Tailored architectures for every requirement

We have many technology options which private cloud environments can be built from, but all of Pulsant's Private Clouds meet our core design principles of enabling a resilient, secure infrastructure.

We define a private cloud as a virtualisation platform that has:

- A dedicated private cloud controller which allows complete flexibility in configuration of the platform resources.

- Dedicated private host resources on which virtual machines run.

Pulsant
Connect to your potential

Service Dependencies

Pulsant's Private Clouds are built from a combination of Pulsant services with a particular management experience overlaid. The technical capability of the private cloud is subject to the capabilities of the services which it is composed of.

Private Cloud combines their capabilities into a platform which is both more specialist in its operation but greater than the sum of its parts (e.g. adding virtual machine hardware resiliency across multiple physical servers). The features of these dependent services are available in addition to the features provided by private cloud.

Perimeter security provided by:

• Pulsant Managed Firewall (where virtual firewalls are used their resources can be provided by the private cloud itself or by Pulsant Enterprise Cloud if Cloud Fabric based networking is used)

Physical networking provided by:

• Pulsant Cloud Fabric
• Pulsant Managed Switch

Host servers provided by:

• Pulsant Dedicated Server with Pulsant Managed Hypervisor

Control servers provided by:

• Pulsant Dedicated Server
• Pulsant Enterprise Cloud
  (with Cloud Fabric network only)

Storage fabric provided by:

• Pulsant Cloud Fabric
• Pulsant Managed Switch

Storage provided by:

• Pulsant Cloud Storage
• Pulsant Managed Storage System

Service Dependencies and/or Related Services

Our services are designed to be both flexible and modular in order to promote tailored solutions which directly meet customer requirements.

As part of a Pulsant solution several services may be related or even dependent on one another to achieve the customer's desired outcome.

Where solutions are created to meet a specific purpose it is essential that all scenarios are considered relating to failure conditions of each service so that other services which may be dependent continue to function.

Recommended specific considerations

The following are recommended for specific consideration as part of a solution involving this service:

Private Cloud provides a resilient virtual server hosting platform however servers form only one part of a full hosted solution

- Connectivity is required from the private cloud solution to external networks e.g. the Internet

- Network security is as important in virtual solutions as physical security, and items such as perimeter firewalls must be considered

- Though all private cloud platforms are resilient, data backup should still be applied to protect from software data corruption, user error, etc.

- Management of the virtual servers, if required must be applied to each virtual server created

Sizing virtual servers, due to their flexible nature, must be carefully considered

- Virtual servers have virtual CPUs (vCPUs) which run on the physical host CPUs. vCPUs can be specified in various quantities and dictate the maximum processing power for the virtual server (noting that in virtual data centre environments the processing capability can be further limited beneath this potential performance)

- Virtual servers have virtual RAM (vRAM) which specifies the size of memory available to the operating system that runs on the virtual server

- Virtual servers have one or more virtual disks (vDisk) that are shown as normal hard drives in the guest operating system. vDisks use storage from a storage system dedicated to the customer (Pulsant Managed Storage System) or Pulsant's Cloud Storage product set

These products offer different performance profiles for storage and thus the storage requirements, both in size and type, must be thought through carefully

Pulsant
Connect to your potential

Included with our private cloud service

Private Cloud provides the capability to create complex and multi-tiered network environments including internal routing and access control. Where requirements using this facility occur, complexity of configuration, flexibility and performance impacts should all be carefully considered.

What's included?

As part of our private cloud service, we will do the following:

- ✓ Provide a resilient virtualisation platform on which virtual servers can be provisioned

- ✓ Provide configuration and support of:
  - Virtual server hardware and network connections
  - Virtual networks

- ✓ Perform basic installation of supported operating systems and configure them to the minimum required for remote administrative access.

Supported operating systems are vendor supported or latest stable versions of:

- Windows Server
- Redhat Enterprise Linux
- CentOS
- Debian
- Ubuntu Server

- ✓ Support virtual servers that fail to start to boot where the operating system is supported by Pulsant. Further support requires Pulsant Managed Server to be applied to the virtual server.

- ✓ Manage resource reservations and prioritisation of virtual hardware

- ✓ Manage logical storage volumes and capacity utilisation

- ✓ Managed resiliency configuration including ensuring that capacity deployed remains within the constraints of specified resiliency policies

- ✓ Monitor the availability of the platform

- ✓ Managed the physical network

- ✓ Configure virtual networks through the physical network

Pulsant
Connect to your potential

Technical Data

SLA Data - Service
Colocation Services

Measure	Description	Value
Service Hours	The hours during which the service and SLA is provided	24/7/365
Availability	The percentage of the service hours during which service availability is guaranteed not including scheduled maintenance.	**99.995%**

SERVICE GUIDE

Pulsant

Connect to your potential

Pulsant

Connect to your potential