

## Private Cloud

Dimension Data's Private Cloud is a *cost-effective, rapid implementation alternative* to building or buying a do it yourself (DIY) private cloud. Our Private Cloud is fully segregated, dedicated *to each client* and delivered as-a-service.

Our Private Cloud service provides the agility of a public cloud environment with the scalability to grow based on your needs without the capital expense and time required to build, buy, or extend your own private cloud environment. It offers:

- security of a dedicated, physically isolated environment
- consumption-based billing
- multi-tenant capabilities to support multiple divisions or functional groups
- intuitive self-service interface that supports complex production applications
- full transparency into the status of your private cloud environment
- reporting to enable chargeback and showback across departments or groups

### Private Cloud deployed on the premises of your choice

As many require their private cloud to be resident on their premises, we offer that

flexibility with our service. Others constrained by data centre capacity need a secure private cloud in a hosted environment. For these clients, we offer our private cloud service hosted from one of our data centres located across five continents with multiple carrier options to enable seamless connections to on-premise environments with the management tools required to minimize latency.

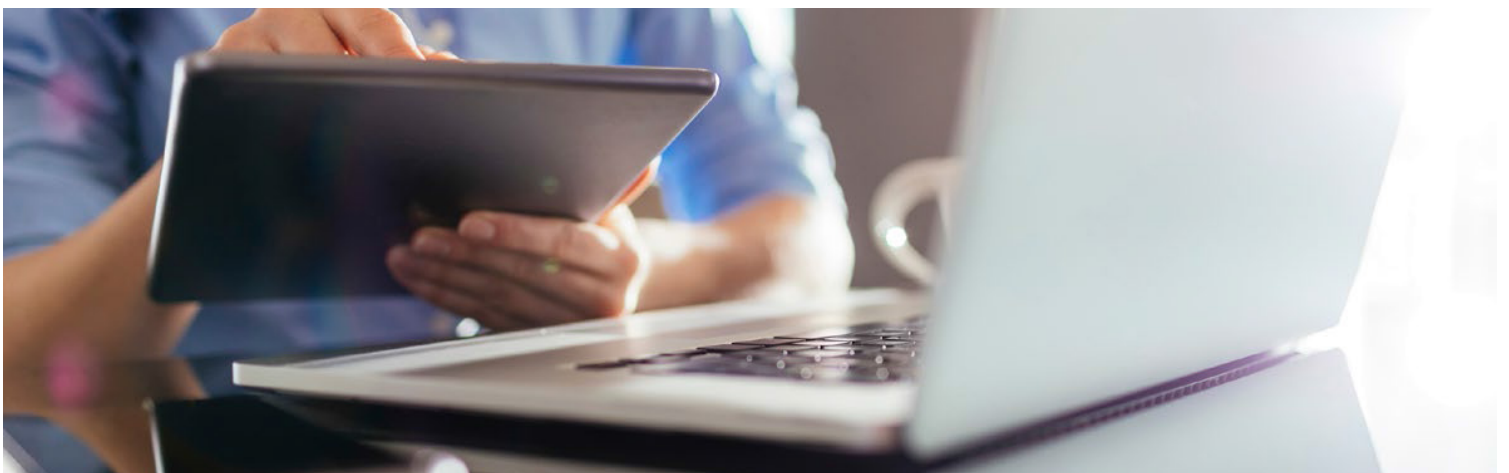
### Private Cloud at the centre of your hybrid infrastructure

Dimension Data's Private Cloud at the centre of your hybrid IT environment allows you to:

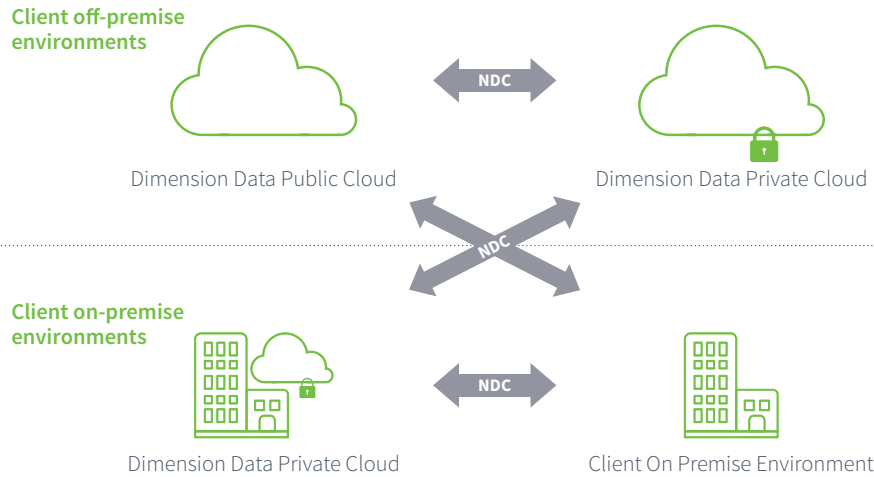
- accelerate IT service delivery
- transition to become a broker of IT services
- meet the security and performance requirements for more of your production applications
- extend your data centre into the cloud using existing network and infrastructure topologies and provide isolation, where needed, from internet access

- leverage our system integration skills and managed service expertise in cloud technology, networking, data centre and security

Our service includes the ability for a private cloud network connection to support secure connectivity between your Dimension Data Private Cloud and your on-premise IT environment. Private Network connections can also connect your Private Cloud service with our Public Cloud or other Private Cloud deployments.



### Private Cloud Network Connectivity



NDC: Network Domain Connect

- ✓ Dedicated/secure hybrid connectivity between:
  - Dimension Data Private Cloud and Dimension Data Public Cloud
  - Dimension Data Private Cloud and your on-premises environment
- ✓ Increased throughput when accessing your cloud services.
- ✓ Consistent network performance and better end-user experience.
- ✓ Compatible with a wide variety of access methods, including MetroE and MPLS networks from providers.
- ✓ Redundant direct connect ports included with each of our Private Clouds.

### Secure, high availability cloud services to power your production applications

Built for security, performance, and reliability, Dimension Data's Private Cloud has a network-centric design and multiple layers of security. Our private cloud provides hypervisor, storage, compute, and network isolation. It also enables you to create and deploy multiple virtual data centres and network domains that are logically segregated. Each network domain supports their own IP addresses, VLANs, firewalls and load balancing characteristics.

All systems within our Cloud are fully resilient, using an N+1 resiliency model. This resiliency is applied to the data centre physical power

and cooling, all network equipment, all virtual server hosting systems, all storage systems, and all components of our CloudControl management environment. We offer a five 9's service level agreement (SLA) for network and server uptime backed up with a service credit cap of up to 100%. Our latency target is less than one millisecond for cloud servers in the same VLAN.

Our Private Cloud service provides a home for all of your production applications as well as a highly secure quality assurance environment for development and testing. The Service supports a wide range of applications including:

- Employee productivity tools such as Microsoft Exchange, Skype for Business and SharePoint,
- Collaboration such as video, web conferencing, messaging and integrated Unified Communications applications from Cisco,
- ERP application suites such as SAP or Oracle,
- Custom applications developed in-house,
- Environments for development, testing, staging and preproduction.

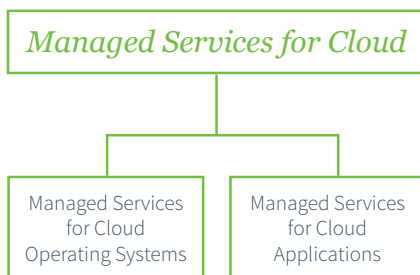
Built for *security, performance, and reliability.*

### Three configurations with flexible manage service options

Three base configurations are available for our Private Cloud Service. The Medium and Large configurations both accommodate additional servers allowing you to meet your needs today and provide ready capacity for growth. With all three configurations, you can add additional storage disks to accommodate growth requirements.

Small	Medium	Large
One rack (fixed)	Two racks (max 4)	Three racks (max 6)
vCPU: 256	vCPU: 320 (max 2400)	vCPU: 842 (max 6315)
RAM: 510	RAM: 1022 (max 7680)	RAM: 2046 (max 15360)
Storage: 14.3 TB (useable) <ul style="list-style-type: none"> <li>standard: 10.2 TB</li> <li>high performance: 4.0 TB</li> </ul>	Storage: 24.5 TB (max 208.8 TB useable) <ul style="list-style-type: none"> <li>standard: 20.48 TB</li> <li>high performance: 4.0 TB</li> </ul>	Storage: 55.2 TB (max 664.5 TB useable) <ul style="list-style-type: none"> <li>standard: 51.2 TB</li> <li>high performance: 4.0 TB</li> </ul>

With Dimension Data's Managed Services for Cloud, you determine the level of support you require for each application. We can take on the routine maintenance and management tasks to keep your operating systems and applications running at optimal performance levels. Leveraging our Managed Services for Cloud provides scalability of skilled technical resources to support day-to-day operations in addition to infrastructure so that your in-house teams can focus their time on higher value tasks.



**Managed Service for Cloud Operating Systems** provides administration, server deployment, patching, systems monitoring, and availability management for your operating systems.

**Managed Service for Cloud Applications** delivers application maintenance and management support, release and deployment management, in addition to operating systems support.

Our Cloud Services for Security deliver turnkey solutions that provide real-time threat management protection and email security as a service. Our services include 24/7 technical phone support, around-the-clock security monitoring and maintenance, client access to a security portal, and comprehensive reporting.

### Intuitive, self-service interface to support complex production applications

Dimension Data's CloudControl management system offers the intuitive, self-service user interface to provision, deploy, and govern IT resources and complex, multi-tier, high performance production applications.

We offer the ability to control and administer:

- broad range of operating system images and their configurations
- multiple VLANs for cost-effective multi-tier application support
- multiple network interfaces to improve redundancy and more closely mirror your on-premise environment
- tiered storage and two virtual CPU classes to better map application requirements to the infrastructure and optimise cost
- configurable cores to cost-effectively support applications that are licensed based on cores

- load balancing to deliver better application performance and higher availability
- anti-affinity to ensure component parts of complex applications aren't installed on the same physical server and better manage high availability workloads
- automatic scaling horizontally and vertically to support both cloud native and non-native applications when demand fluctuates
- physical devices in your cloud environment as needed to accommodate your applications or workloads
- open VM tools to simplify OS maintenance

You can tailor our UI (user interface) with your own brand logo for your private cloud.

### CloudControl functionality Service delivery

**Web console:** Dimension Data offers an intuitive, web-based user interface that allows full control and administration of cloud-based virtual data centres, network domains, servers and storage. CloudControl's web console provides the ability to:

- build virtual, logically segregated data centres
- create and manage network domains and cloud networks
- deploy virtual servers onto your VLANs using operating system images provided either by you or by Dimension Data
- clone images
- assign and edit network access translation (NAT)
- open VM tools to simplify OS maintenance

We can take on the routine maintenance and *management tasks* to keep your *operating systems and applications running* at optimal performance levels.

- build firewall rules and configure network load balancing and port forwarding
- allow VLANs with the same private IP address assignments to remain isolated from one another
- control IPv4 and IPv6 traffic
  - between different VLANs in the same network domain
  - between the public Internet and VLANs in the network domain
  - between any connected IP space and the VLANs and public Internet connection of the network domain
- launch and control cloud servers
- change cloud server memory, CPU, and storage configuration

**RESTful API:** To provide maximum flexibility and interoperability between cloud and data center-based applications, Dimension Data CloudControl offers a comprehensive set of Cloud REST APIs. These APIs enable developers to automate the provisioning and management of cloud resources, including servers, network, administration and reporting quickly and efficiently using scripts.

### Service administration

- **User authentication:** Use existing corporate credentials for authenticating users to your private cloud.
- **Monitoring:** Monitor 32 different metrics for vCPU, RAM, storage and network resources to gauge the health of your cloud environment. Create custom dashboards to focus attention on metrics most critical for review for your organisation.
- **Metering and Billing:** CloudControl tracks customer usage for back-end billing and/or chargeback and show back. CPU, RAM, storage, and software resources can be viewed in aggregate by customer and analyzed by vendor-defined pricing plans.
- **Reporting:** CloudControl provides detailed reporting and an audit trail. Administrators can view a daily summary as well as detailed usage reporting for every asset in the customer account. Reports log all

user actions taken through the admin UI/API, providing administrators with a complete audit trail for changes made to the environment.

- **User permissions:** Each account has a Primary Administrator who controls the account, and can grant or deny full access and control the role of sub-administrators.

### Resource management

- **Servers:** You can provision virtual machines and right size RAM (1-256 GB) and vCPU (1-32 vCPUs). Two vCPU classes are offered, allowing for cost vs. performance optimisation to better fit specific workload requirements.
- **Configurable cores:** Configure the number of cores per socket that are presented to the operating system to reduce operating costs for hosting licensed application in the cloud.
- **Cluster awareness:** Provides the ability for private cloud locations to have multiple clusters with the same or different server configurations to reduce licensing costs or support physical isolation between workloads.
- **Storage:** Minimise storage cost by matching disk performance to applications requirements. Selectable disk speeds include standard and high performance.
- **Integration of physical devices:** You can integrate and control physical servers, storage and/or appliances within your cloud environment to support application or workload requirements.
- **Horizontal and vertical scaling:** Our scaling capabilities allow you to add and decommission resources based on utilisation over a specified time frame to improve performance and optimise operational cost. Horizontal scaling activates more VMs and vertical scaling expands a specific VM.
- **Networking:** With CloudControl, you can deploy network domains as well as layer 2 VLANs. Servers can have up to 10 virtual network interfaces.
- **IP address reservation:** Define IPv4 and IPv6 addresses that should not be used for cloud servers. Use cases include: physical servers in your cloud environment; out-of-band management interface of a physical server; cloud servers where IP aliasing results in multiple IPs per vNIC; and manually deployed virtual and physical devices. IP address reservation is a critical enabler for hybrid IT implementation.
- **Firewalls:** Use CloudControl's firewall functionality to block inbound and outbound traffic to your cloud network, whether the traffic comes from, or is destined for, the public internet or other cloud networks. The firewall can be managed by establishing access control list (ACL) rules for your cloud network. You can group multiple ports or multiple IP4 or IPv6 addresses into a list that can be used in an individual firewall and combine multiple port and address lists into single firewall rules. This functionality enables efficient administration of single or multiple applications and data bases.
- **VPN:** Establish a secure client-to-site (C2S) VPN connection that allows secure access and administration of deployed cloud servers via Secure Shell (SSH) or Windows Remote Desktop Protocol (RDP).
- **Load balancing:** CloudControl can be used to create server farms with associated Virtual IP (VIP) addresses that distribute workloads to a group of servers.
- **Anti-infinity:** CloudControl can ensure that component parts of complex applications aren't installed on the same physical devices to meet higher availability standards.
- **NAT:** CloudControl makes it easy to map public IP addresses to private IP addresses associated with a cloud server using NAT. This makes cloud servers on the Dimension Data Cloud visible and accessible over the public internet.
- **Multicast:** Many clustered services require multicast at layer 2 to work properly. However, the multicast groups created for these services themselves require management. The Dimension Data Cloud can be enabled to manage multicast groups on a per-network basis.

## Why Dimension Data Private Cloud

- Private cloud without the capital expense, skilled resources and time required to build, buy or extend your own private cloud.
- Built-in redundant, high available server and network resources backed up with 99.999% service level agreement.
- Rapid deployment in your data centre or one of ours located across five continents.
- An intuitive UI along with governance, management controls, reporting and automation functions of Dimension Data's CloudControl management system.
- Operations and applications support as needed on a usage basis.
- Consistent and seamless integration between your on premise IT and our Private and Public cloud services enabling a hybrid IT or hybrid cloud environment.
- Our Cloud Surround services supports and simplifies moving complex production applications to the cloud.

We offer a *five 9's SLA* for network and server uptime *backed up* with a *service credit cap* of up to 100%.

Partner with Dimension Data. The preferred destination for production workloads and enterprise applications in the cloud. To learn more go to [dimensiondata.com/cloud](https://dimensiondata.com/cloud) and check out our View User Interface demo for CloudControl [here](#).