Dimension Data CloudControl™

Dimension Data’s CloudControl™ management system supports the **administration, governance, and automation** of our clients’ Dimension Data Cloud environments. Through CloudControl’s intuitive, **self-service user interface** clients can manage the complete lifecycle for hosting infrastructure that is purpose-built to **accommodate the demanding requirements** imposed by today’s leading enterprise applications. It provides a **consistent user interface and management controls** for both our **private and public clouds** around five continents.

CloudControl is a complete set of technologies that manages our cloud-based service offerings. It includes:

- software that provides service orchestration across compute, storage and networking, to allow account provisioning, infrastructure management, reporting and billing
- enterprise-grade hypervisor software
- tight integration between cloud servers, virtual appliances and physical devices
- out-of-band management access to physical devices and console access to cloud servers
- highly configurable load balancing, firewalling and IP addressing
- server monitoring and auto-scaling
- backups and data replication to other cloud locations
- security controls that underpin compliance requirements and leading certifications

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**Dimension Data CloudControl™**

Best-of-breed technologies, process automation, easy-to-use UI and API, multi-tenancy support.
CloudControl enables organisations to run complex, production, mission critical applications in our agile, opex-based, secure and cost-effective private, public or hybrid cloud environments.

Virtual data centres and network domains

You can create multiple virtual data centres each with a dedicated network domain, private Internet Protocol (IP) address space, and one or more layer 2 Virtual Local Area Networks (VLANs) within that domain. Network domains can be used to segregate application sets, functional areas, or groups. Traffic flows between VLANs in the cloud, existing corporate networks and the public internet can be tightly controlled.

Seamlessly extend your data centre into the cloud

Each network domain has its own private IP address space that isolates your cloud servers from the public Internet. You are not limited to Request for Comment (RFC) 1918 and can therefore configure your IP address space using your organisation’s standards and rules. This simplifies network management and supports the extension of your organisation’s network into the Dimension Data Cloud.

Dimension Data’s cloud with our CloudControl management system securely supports highly complex, multi-tier and high performance applications.

We offer the ability to control and administer:

- physical devices in your cloud environment as needed to accommodate your applications or workloads
- multiple VLANs for secure multi-tier application support
- multiple network interfaces on servers to allow flexible network topologies and to more closely mirror your on-premise environment
- tiered storage and two virtual Central Processing Unit (vCPU) classes supports better mapping of applications to optimise performance and cost
- configurable cores to cost-effectively support applications that are licensed based on cores
- load balancing to deliver better application performance and high availability
- anti-affinity to ensure component parts of complex applications are not dependent on the same virtualisation hosts
- auto-scaling both horizontally and vertically, that allow cloud native and traditional applications to consume more resources when demand increases and less resources when no longer required, all without human intervention
- automated configuration of operating systems

General Architecture

The Dimension Data CloudControl™ software architecture includes four primary tiers:

User Interface (UI) tier: Provides an easy-to-use web-based user interface.

Application Program Interface (API) tier: Provides programmatic support for the UI Tier and for direct function calls.

Integration tier: Houses the underlying orchestration and automation intelligence, and interfaces with the infrastructure to instantiate changes.

Cloud usage tier: Identifies changes in the account environment that impact usage elements such as CPU or Random Access Memory (RAM) hours.
CloudControl features and benefits

User interface: Dimension Data offers an intuitive, web-based user interface that allows full control and administration of cloud-based resources. CloudControl’s user interface provides the ability to:

- build virtual, logically segregated data centres
- create and manage network domains and associated VLANs
- choose a private address space to be used for each VLAN
- deploy cloud servers onto your VLANs using operating system images provided either by you or by Dimension Data
- clone images
- assign tiered storage to cloud servers to meet application data performance levels
- migrate between storage tiers without taking cloud servers out of production
- assign and remove network access translation (NAT)
- configure network load balancing and port forwarding
- use different network domains to allow VLANs with the same private IP address assignments to remain isolated from one another
- support both IPv4 and IPv6
- customise firewalls and load balancing
- determine public Internet connectivity and optional connectivity to non-public networks via Dimension Data’s Network Domain Connect
- launch and control cloud servers
- change cloud server memory, CPU, and storage configuration
- configure the number of cores per socket
- add/remove users from account
- monitor performance of 32 different metrics
- customise your monitoring dashboard
- establish or change vertical and horizontal auto-scaling rules

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 client account.

RESTful API: To provide maximum flexibility and interoperability with non-cloud environments and third-party clouds, Dimension Data CloudControl™ offers three APIs. These APIs enable developers to automate the provisioning, management and reporting associated with cloud resources quickly and efficiently. The APIs include:

- Client API: Allows clients to manage their accounts and the cloud environments associated with their accounts
- Vendor API: Allow private and provider clients to be vendors that can provision and manage their own clients
- Billing API: Allow vendors to access consumption data for their clients

Monitoring: Monitor 32 different metrics for CPU, RAM, storage and network resources to gauge the health of your cloud environment. Create custom dashboards to focus attention on metrics most critical to your organisation.

Metering and billing: CloudControl tracks client usage for backend billing, chargeback and showback. CPU, RAM, storage, networking and software resources can be viewed in aggregate by client 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 client account. Reports log all user actions taken through the UI/API, providing administrators with a complete audit trail for changes made to the cloud environment.

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

Cloud servers: You can provision virtual machines and rightsize RAM (1-256 GB) and CPU (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 applications in the cloud.

Storage: Minimize storage cost by matching disk performance to application requirements. Selectable disk tiers include economy, standard and high performance.

Integration of physical devices: You can integrate and control physical servers, storage devices and other appliances within your cloud environment to support application or workload requirements.

Horizontal and vertical auto-scaling: Our auto-scaling capabilities allow you to add and decommission resources based on utilization over a specified timeframe to improve performance and optimise operational cost. Horizontal auto-scaling is best suited to traditional applications, whereas horizontal auto-scaling is typically used by cloud-native applications.

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 appliances and physical devices.

Firewalls: Use CloudControl’s firewall functionality to block inbound and outbound traffic to your VLANs, whether the traffic comes from, or is destined for, the public internet, existing corporate network or other VLANs. You can manage the firewall by establishing access control list (ACL) rules for your VLANs. You can also group multiple ports or multiple IPv4 or IPv6 addresses into lists that greatly simplify the administration of firewall rules.

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 pools with associated Virtual IP (VIP) addresses that enable both traditional clustering and cloud-native applications by distributing network traffic across multiple servers.

Anti-affinity: CloudControl can ensure component parts of complex applications are not installed on the same virtualization host. This helps you better manage high availability workloads.

NAT: CloudControl makes it easy to map public IP addresses to private IP addresses using NAT. This makes cloud servers, virtual appliances and physical devices on the Dimension Data Cloud accessible over the public internet.

Multicast: Many clustered applications require multicast at layer 2. The Dimension Data Cloud supports multicast.

Partner with Dimension Data. The preferred destination for production workloads and enterprise applications in the cloud.

Due to continuous platform development, all features may not yet be available in all global locations.