VMware vCloud Air Key Concepts

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About This Key Concepts Guide

This document defines terms as used in the vCloud Air (formerly known as vCloud Hybrid Service). VMware® vCloud® Air is a secure, dedicated infrastructure-as-a-service cloud, owned and operated by VMware and built on the trusted foundation of VMware vSphere® and the software-defined data center architecture.

Intended Audience

This document is intended for anyone who wants to understand the critical components and key terminology of vCloud Air.

Related Publications

The vCloud Air User’s Guide contains detailed information about the vCloud Air and more about the concepts referred to in this document.

To access this guide and other VMware books, go to http://www.vmware.com/support/pubs.
Key Terminology

This list contains a collection of terms relevant to understanding the vCloud Air. These terms are included because they might be new to the reader, uncommon, or specialized.

A-F

catalog

Used for storing content. Each organization has its own catalog to which users can add templates and share content with other users. Using vCloud Director, ISO media files can also be uploaded and shared via catalogs.

CPU resources

Virtualization of CPU (vCPU) adds varying amounts of overhead depending on the percentage of virtual machine workload that can run in direct execution, and the costs of virtualizing the remaining instructions that cannot be directly executed. The amount of available CPU therefore impacts performance.

colocation

Locating customer equipment in a third-party data center. Service providers or cloud computing providers furnish the floor space, electrical power and high-speed links to the Internet for a customer’s Web servers. Colocation provides power and air conditioning for servers and may also include equipment maintenance and troubleshooting. Colocation can facilitate interconnections and improve turnaround time.

Data Protection

An optional data backup feature available for purchase that backs up virtual machines every 24 hours. You can restore a virtual machine using its backup image by working with Technical Support.

Dedicated Cloud service option

A service option of vCloud Air that provides a single tenant private cloud with dedicated computing servers, layer-2 network isolation for workload traffic, persistent storage volumes, and a dedicated cloud management instance. Infrastructure capacity can be allocated to a single virtual data center or multiple virtual data centers, at your discretion.

Direct Connect

In vCloud Air, you can order a direct network connection between your premises or colocation center and your vCloud Air region. Using a direct network connection ensures a degree of dedicated bandwidth to a Dedicated Cloud service or a Virtual Private Cloud service.
**G - L**

**gateway**
Provides a routed connection between a virtual data center's network and an external network. It can provide network services such as DHCP, firewall, NAT, VPN, static routing, and load balancing.

**guest operating system**
An operating system that runs inside a virtual machine.

**limits**
In vCloud Director, you can specify limits for an upper bound for CPU and memory resources that can be allocated to a virtual machine, but you might waste idle resources. A virtual data center can allocate more than the reservation to a virtual machine, but never allocates more than the limit, even if there are unused resources on the system. When the memory limit is unlimited, the default, the amount of memory configured for the virtual machine when it was created becomes its effective limit in most cases.
### M - R

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>media file</strong></td>
<td>Media refers to ISO images, such as boot and installation CDs or DVDs. Media can be uploaded or imported into a catalog in vCloud Director. A media image in a catalog can be attached to a vApp and mounted by a virtual machine.</td>
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<tr>
<td><strong>memory resources</strong></td>
<td>Virtual memory that is mapped to physical memory on a host.</td>
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<tr>
<td><strong>My VMware</strong></td>
<td>Your account management portal to manage entitlements, purchase new add-ons, and file support requests.</td>
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<tr>
<td><strong>Network Address Translation (NAT)</strong></td>
<td>Modifies the source/destination IP Addresses or packets arriving to and leaving from an edge gateway. SNAT or DNAT stand for source or destination network address translation.</td>
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<tr>
<td><strong>network</strong></td>
<td>In vCloud Air, virtual connections between a virtual machine and other virtual machines, between a virtual machine and a virtual data center, and between a virtual data center and the host's physical network. These networks, like physical networks, require information about virtual machines such as machine names, IP, and VPN settings. Virtual data centers can use multiple networks.</td>
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<tr>
<td><strong>Offline Data Transfer Service</strong></td>
<td>An optional data migration service available for purchase that transfers large files from local information systems to vCloud Air environments. VMware provides a physical storage device that you load with your data and then return to VMware. Upon receipt of the loaded storage device, VMware transfers the data for you.</td>
</tr>
<tr>
<td><strong>OVF</strong></td>
<td>Open Virtualization Format (OVF) packages are based on the Open Virtualization Format Specification. OVF is an industry standard format that describes metadata about virtual machine images in XML format. OVF facilitates the use of vApps. If you upload an OVF file that includes OVF properties for customizing its virtual machines, those properties are preserved in the vApp template.</td>
</tr>
<tr>
<td><strong>quotas</strong></td>
<td>How many virtual machines can be stored and powered on in the virtual data center.</td>
</tr>
<tr>
<td><strong>regions</strong></td>
<td>Distinctly separate geographic areas. You select a region or regions when you purchase cloud services. Regions enable you to run workloads closer to your business specific customers or comply with various regulations and other legal requirements. Multiple regions can also enable redundancy of your data or workloads.</td>
</tr>
<tr>
<td><strong>restore in place</strong></td>
<td>Provides data protection to your virtual data centers and to the virtual machines maintained within them by allowing you to choose a backup image and restore that image onto the same vApp.</td>
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</table>
**restore out of place**

Provides data protection to your virtual data centers and to the virtual machines allowing you to choose a backup image and create a new vApp out of that image. You can create the new vApp in the same data center used by the original vApp or in a different virtual data center. Performing an out-of-place restore, does not restore vApp configuration data, virtual machine configuration data, or virtual machine networking configuration.

**restore point**

When a vApp gets backed up (either automatically by the system or when you back it up manually), the Data Protection Service retains that backup as a restore point for 30 days by default. When the retention period expires, the Data Protection Service automatically deletes and overwrites the oldest restore point.

**S - Z**

**snapshot**

A reproduction of the virtual machine just as it was when you took the snapshot, including the state of the data on all the virtual machine's disks and the virtual machine's power state (on, off, or suspended). You can take a snapshot when a virtual machine is powered on, powered off, or suspended. You can revert the configuration or virtual machine to a snapshot.

**SSD-Accelerated Storage**

SSD-Accelerated storage provides higher performance block storage for virtual machines. SSD Accelerated storage is appropriate for all tiers (1, 2, and 3); though, it is most recommended for tier 1 data. Tier 1 includes data that is mission-critical, frequently accessed, or requires a high degree of security. Examples of tier 1 data include a high-access database, which is part of a three-tier application, a host cache, or a virtual machine boot (primary) disk.

**Standard Storage**

Standard storage provides traditional block storage for virtual machines. Standard storage is lower cost and appropriate for storage of tier 2 and tier 3 data. Tier 2 and tier 3 include data that is seldom-used or event driven. Examples of tier 2 and tier 3 data include large data sets, such as log file storage and archival of large sets of static data.

**storage tier**

In vCloud Air, a block level persistent storage capacity allocation, enabling custom and flexible storage resource distribution and management at the virtual machine layer within a virtual data center. vCloud Air lets you direct storage for your virtual machines to either higher performance or lower cost.
storage tiers. Tiered storage is the assignment of different categories of data to different types of storage media in order to reduce total storage cost. vCloud Air offers two storage tiers for virtual machines—Standard and SSD-Accelerated storage.

**template**
A virtual machine image that is loaded with an operating system, applications, and data. A template can be created from a vApp in vCloud Director.

**vApp**
A preconfigured virtual machine in vCloud Director that packages applications and parameters that define operational details. A vApp packages applications with their required operating system.

**vCloud Air Customer Success Team**
Subscription Service Representatives for vCloud Air customers who welcome new customers into the service and coordinate onboarding activities. Representatives also work with customers ongoing to help fully utilize the service and act as liaison for necessary VMware resources.

**virtual data center**
A logical construct that provides compute, network, and storage resources to an organization. Virtual data centers provide an environment where virtual machines can be created, stored, and operated, enabling complete abstraction between the consumption of infrastructure service and underlying resources. Data centers also provide storage for virtual media.

**virtual machine**
A software computer that, like a physical computer, runs an operating system and applications. Virtual machines can be treated like physical computers, for example, powered on and off, reset, backed up, and more.

**Virtual Private Cloud service option**
A vCloud Air service option that provides a multi tenant virtual private cloud with logically isolated resources on a shared physical infrastructure, configured as a single virtual data center with networking resources. A customer cannot have multiple virtual data centers with a Virtual Private Cloud service, because the Virtual Private Cloud service is provided as a single virtual data center.

**VMware vCloud Connector**
A virtual appliance that allows you to extend compute capacity and visibility from vSphere or vCloud Director to private and public clouds. It also allows access and use of vApps and templates in private and public clouds, and copying of virtual machines, vApps, and vApp templates between vSphere and private and public clouds.

**VMware vCloud Director**
A Web console that provides access to your virtual data center's catalogs, templates, and virtual machines in order to perform advanced management tasks.

**VMware Global Services**
VMware technical support teams, including Technical Incident Engineers and Solutions Architects. Technical Incident Engineers act as main technical contact and maintain ownership of support requests, engaging other VMware teams where necessary. Solutions Architects are in-depth and experienced technical consultants handling the design and implementation of complex customer scenarios and the resolution of more demanding technical issues within the vCloud Air environment.
**VMware Tools**
A suite of utilities that enhances the performance of the virtual machine’s guest operating system and improves management of the virtual machine.

**VMware vSphere High Availability**
An optional feature that supports distributed availability services in an environment that includes ESXi and vCenter. If VMware Distributed Resource Scheduler™ is configured and one of the hosts that vCenter Server manages becomes unavailable, all virtual machines on that host are immediately restarted on another host.
About vCloud Air User Roles

This section provides some general information about vCloud Air user roles.

For more detailed information, see vCloud Air User Management in the vCloud Air User’s Guide.

This chapter includes the following topics:

- “vCloud Air User Management,” on page 13
- “User Privileges by Role,” on page 13

vCloud Air User Management

Administrators add new users in vCloud Air and assign one or more roles to them. User roles have a default group of privileges. If your cloud has multiple virtual data centers, administrators assign access to each virtual data center using the available list of users.

Administrators can manage users and their details, and view their activities in the activity log.

User Privileges by Role

A user in vCloud Air can either have administrator privileges or end user privileges, but not both. Administrator privileges are grouped into specific administrator roles. The individual acting as an administrator can be assigned multiple administrator roles.

Specialized Administrator Roles

Specialized administrator roles allow you to assign one or multiple individuals to perform these tasks.

**Virtual infrastructure administrator**

Virtual infrastructure administrators can add and modify virtual data centers in a Dedicated Cloud service. Virtual infrastructure administrators can manage virtual machines. They can also view gateways, networks, activity logs, and users.

**Account administrator**

Account administrators can add users and reset passwords. This role has the ability to create users with any and all administrator privileges. Account administrators can also view virtual data centers, virtual machines, gateways, networks, and activity logs. Account administrators can manage user accounts in My VMware and have permissions to file support requests.
Network administrator

Network administrators can manage networks and gateways. Network administrators can also view virtual data centers, virtual machines, activity logs, and users.

Read-only administrator

Read-only administrators can view but not alter settings in administration areas. Read-only administrators can view virtual data centers, virtual machines, gateways, networks, activity logs, and users.

End User Role

End users create and manage virtual machines within virtual data centers to which they are assigned access. The end user role includes the following procedures.

- Add virtual machines based on a template from VMware catalog and from My Catalog, your organization's custom templates.
- Create a virtual machine in vCloud Director.
- Power on, power off, reset, and suspend virtual machines in a virtual data center.
- Use snapshots of virtual machines.
- Delete virtual machines from the virtual data center.
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