



VMware Cloud Director Availability 4.1

General Availability November 2020

Overview questions

Q. What has been announced?

A. VMware has announced General Availability of VMware Cloud Director Availability 4.1.

Q. What is VMware Cloud Director Availability?

A. VMware Cloud Director Availability is a powerful solution used by VMware Cloud Providers to offer simple, secure, and cost-effective onboarding, migration, and disaster recovery as a service to or between multi-tenant VMware clouds.

Q: What are the core capabilities of VMware Cloud Director Availability?

A. Intuitive, Disaster Recovery as a service protection and wizard driven workflows to protect virtual machines (VM) or vApps. Replication and Recovery of VMs and vApps between VMware Cloud Director sites (cloud to Cloud) or on-premise to VMware Cloud Director and visa versa.

A. Single on-premise appliance installation for ease of deployment and simplicity for customers replicating to provider clouds. Supports a migration path and DR functionality from vSphere 6.5+ U3

A. The capability of each deployment to serve as both source and recovery instances (sites). There are no dedicated source and destination sites with symmetrical replication flow that can be started and managed from either the source or the recovery site means the UI can be accessed from anywhere with correct context.

A. Migration and Protection with maximum replicated VMs and retained replications (stored instances) as well as minimum 5min RPO Policy controls for providers to apply to one to many VDC or replications via SLA policies. This helps to control storage costs and provide tiered services to customers.

A. Secure tunneling through TCP proxy between sites with built-in encryption and optional compression availability. Cloud to Cloud replicant encryption is also supported in 4.1

A. Multi-tenant support native within the VMware Cloud Director hierarchy and in-context DRaaS providing administrative simple views and actions directly in VMware Cloud Director.

Q. What use cases does VMware Cloud Director Availability support?

A. On-Premises to Cloud migration, On-Premises to Cloud DR, Cloud-to-Cloud DR, Cross version vCD migration.

Q. What are the main new capabilities for VMware Cloud Director Availability 4.1?

A. *Improved Coverage:*

As VMware Cloud Director continues to grow in capability, there are new versions of the core platform to support, 10.2 and NSX-T 3.0.1 and 3.0.2. Interoperability with these versions of products is now covered in VMware Cloud Director Availability 4.1.

As partners grow their customer base of DRaaS consumers, it has become necessary to be able to provide filtering for situations where there are 100's of customer orgs on a provider Virtual Datacenter (pVDC). Also, in consideration of growth, in 4.1 where VMware Cloud Director is managing vCenter replication in multiple geographies, the provider can now place the VMware Cloud Director Availability components nearer to the vCenters to reduce the number of traffic paths to manage, whilst still managing from a single instance.

The other area of coverage improvement is the API and the number of capabilities that the public API supports has in 4.1 expanded to include a backup and restore function, initial configuration and peering configurations to assist with management and operations. Lastly, examples are now included of common use cases to help jumpstart development.

A. *Improved Controls:*

In 4.0 we provided provider only notifications via Syslog, now in 4.1 notifications are available to tenants and providers by email as well. Tenants have the ability to configure their notifications and events they wish to see via email, or a provider can lock down via policy control what the tenant can configure. This is particularly useful if providers need to filter events that may cause more support than is necessary.

For Providers, syslog to the VMware Cloud Director Availability [content pack for vRealize Log Insight](#) gives them the essential event and escalation capability to manage the service, this is now complimented with configurable and automated email notifications should they need to inform non-operational personal of events.

Configuration controls have been enhanced with backup and initial configuration.

- Backup operations now automate the backup of replications and their status and all services; Management Service, Tunnel Service and Replicator Services to password protected archives. This can be achieved via API or via the new backup UI on-premise appliance.
- Initial configuration of VMware Cloud Director Availability replicator and tunnels used to be achieved with a separate UI for each, now this is all achieved in a single UI wizard directly in the management appliance - adding Replicator Service instances and Tunnel Service details, and future proofing for certificate management to come in later releases.

A: Improved Offering scope

Keeping customer's security cloud requirements in mind, we now support the use of encryption policies in Cloud-to-Cloud replication and encrypt the replications at the target site, providing the source and target are using the same KMS server cluster. This has limited interop at this stage to VMware Cloud Director 10.1.1 and 10.2 and VC 6.7U3 and limited capabilities in disk flexibility.

Multiple VMware Cloud Director authentication mechanisms are now supported, and customers can use their own identity provider SSO / LDAP / SAML, etc. in order to instantly login across the associated orgs in a multi-site VCD environment. In the Cloud-to-Cloud use case this makes for a quicker configuration as you do not have to log in to each organization every time you create a replication.

Lastly in terms of offering, providers are now able to enable or disable Migration and Disaster Recovery replication separately for further granularity to service tiers for the customer offering.

Pricing and Packaging

Q. For cloud providers: How is VMware Cloud Director Availability packaged and how may it be purchased?

A. VMware Cloud Director Availability is available as a Pay-As-You-Go service to Service Providers in the VMware Cloud Provider Program. The service is metered monthly based on

number of VMs protected, migrations are free. Detailed information is available in the VMware Cloud Provider Program Guide at <http://www.vmware.com/partners/service-provider.html>.

Q. I am a Cloud Provider and am not currently enrolled in the VMware Cloud Provider Program. Can I purchase this product directly from VMware?

A: You must be enrolled in the VMware Cloud Provider Program in order to purchase VMware Cloud Director Availability. To learn more about the VMware Cloud Provider Program, please visit <http://www.vmware.com/partners/service-provider.html>.

Q. For Enterprise Customers: How is VMware Cloud Director Availability packaged and how may it be purchased?

A: Enterprise customers must consume this offering through a VMware Cloud Provider Partner that is offering this service in their VMware Cloud Director VMware clouds. All prices for these services will be quoted by the VMware Cloud Provider Partner. To find a VMware Cloud Provider Partner offering DRaaS please use the assisted search here: <https://cloud.vmware.com/providers/guided-search>.

Migration features

Q. What is the VM/vAPP migration feature?

A. VMware Cloud Director Availability allows end users to protect and migrate virtual machines and vApps from on-premises to VMware Cloud and between different VMware Cloud environments. End users can select an organization virtual data center (oVDC) as a destination and migrate virtual machines from source data center in a few simple steps including assigning destination networks. This provides for a predictable way to migrate workloads in a self-service manner.

Q. How is failover (migration) performed?

A. To perform a migration the virtual machine or virtual app must be protected (replicated) between the source and target location. Once replicated, an optional resync can be initiated prior to failover (migration) to get real-time data migrated before failover to the destination site. This ensures that the latest changes of the source vApp/VM are present in the recovered instance.

If you are migrating a vAPP, it is important to manage the state of all VMs in the vAPP for a stable state; this can be validated simply in the UI and corrective actions can be taken. Migration jobs additional conditioning to allow for customization post failover of IP and other characteristics such as networks to join.

Q. How are VMs initially replicated between clouds?

A. During the configuration or replication workflow, you can choose to configure replication from seed or to perform full initial synch. Once the workflow is configured to start VM or vAPP replication the VMware Cloud Director Availability vApp Replication Manager ensures that only delta information is sent from one ESXi host to another ESXi host. Management and monitoring information for the replication is available from the vApp Replication Manager portal and APIs.

Q. What is a test failover?

A. Test failovers allow you to verify whether the source data is replicated correctly on the destination. You can test network connectivity and application (VM) behavior. vAPP can also be powered on to test.

Q. What is the maximum Recovery Point Objective (RPO) supported by VMware Cloud Director Availability?

A. As of today, the minimum RPO is 5 minutes. Therefore, the changes in the protected virtual machine can be replicated every five minutes to a selected destination.

Q. What actions can be taken by users?

A. By using the Actions pane in the DR Workloads page, you can perform the following tasks:

- Failover workloads among to-destination sites
- Failback workloads among from-destination sites
- Reverse Failover workloads to synchronize data between source and destination sites
- Reverse Failback workloads to synchronize data between source and destination sites
- Test replication tasks and Cleanup test data

Q. What functionality is available to monitor DR operations?

A. You can monitor the overall VMware Cloud Director Availability status by using the VMware Cloud Director Availability Portal home page in VMware Cloud Director or in the native VMware Cloud Director event window. 4.0 introduced a syslog feature to be able to send syslog event data about replications and status to a central syslog server.

All this information is also available from the API. 4.1 introduces an email function whereby providers can condition what events a tenant can select (self-serve) to send emails when events are triggered.

Q. How are vApp configurations transferred from source to destination?

A. VMware Cloud Director Availability supports vApp aware migration and DR. Automated transfer of vApp settings and configurations such as vApp networks, guest OS customization and properties etc. happens from source to destination.

Q. Does VMware Cloud Director Availability support VM grouping for accelerated recovery?

A. VMware Cloud Director Availability provides intelligent recovery of the entire VM group accelerating recovery. You can also prioritize boot order of critical machines over less critical VMs

Policy Control Features

Q. What policies can be used to control / limit functionality?

A. A Cloud Provider can assign replication policies to local one to-many VDC organizations:

- Allow migrations or protections or both
- Assign an vCD organization as a replication source and/or destination
- Minimum Recovery Point Objective (RPO)
- Maximum number of VM replications
- Maximum number of point-in-time instances per VM replication
- Maximum number of stored instances per VM replication

Out of the box VMware Cloud Director Availability 4.1 installs 3 default SLA policies. Cloud Administrators and Users who have permissions can option to modify these policies:

- **Gold:** RPO 30m, retention 14 instances over 2 weeks, Quiescing off, Compression enabled, initial sync no delay.
- **Silver:** RPO 2h, retention 7 instances over 1 weeks, Quiescing off, Compression enabled, initial sync no delay.
- **Bronze:** RPO 4h, retention Disabled, Quiescing off, Compression enabled, initial sync no delay.

All policies can control:

- Allow or deny migration
- Allow or deny replication protections
- Outgoing and incoming replications
- Maximum incoming replications
- Maximum stored instances
- Maximum throughput
- All custom SLA setting (this allows a user to modify the setting for a replication job).

Q: Can a provider understand a tenant compute resources and storage usage and limit it?

A. A cloud provider can monitor a tenant's storage consumption reporting by organization and individual workloads. Equally they can see the tenant org compute requirements and disk capacity to ensure they have enough to start workloads at the target site.

A tenant can view their own disk usage over time and for every replication from within VMware Cloud Director Availability.

Architecture

Q. What services are included in the installation; do I need to configure vSphere Replication somehow?

A. This is where a lot of improvements have been made. The architecture of the solution uses a VMware Cloud Director Availability Replicator appliance, a Replication Manager and a vApp Replication Service/Manager together to support replication, secure communication, and storage of the replicated data.

Each service provider can support recovery for multiple customer Org Virtual Data Center environments that can scale to handle increasing loads for each tenant, and for multiple tenants.

All replication matters are handled within the VMware Cloud Director Availability user interface (or API) and are simple workflow configuration driven tasks for one-to-many VMs and vAPP.

Q. I am a cloud provider using a single VMware Cloud Director across multi data centers. Does VMware Cloud Director Availability support this architecture?

A. Yes. The centralized topology provides simpler management to control replication across multiple data centers. Please refer to the technical documentation for more information.

Q. Does VMware Cloud Director Availability support multiple provider connection options?

A. Yes, VMware Cloud Director Availability offers flexible connection options for providers to support multiple northbound connection types (MPLS, VPN, etc.) with discrete controls of replication traffic and bandwidth. New controls in 4.0 offer Multi-NIC traffic conditioning enabling advanced network setups and bandwidth throttling on-premise to cloud egress traffic.

Minimum Requirements

Q. What are the minimum requirements for VMware Cloud Director Availability?

A. For system requirements and interoperability, see VMware Cloud Director Availability documentation.

<https://docs.vmware.com/en/VMware-Cloud-Director-Availability/index.html>

Service Deployment

Q. Does VMware Cloud Director Availability require any agents to be deployed at the customer site?

A. No, the solution is agentless and uses host-based replication, inherent in the VMware vSphere hypervisor. All that is required at the client site is the deployment of a replicator and tunnel appliance and configuration to connect to the provider cloud.

Q. How is the product installed in the provider data center?

A. VMware Cloud Director Availability can be deployed using the VMware OVF Tool. Alternatively, you can use the vSphere Web Client to install the VMware Cloud Director Availability service; all DR services are deployed via a single installation VMware-Cloud-Director-Availability-OnPrem-release.number-xxxx-build_number_OVF10.ova package.

Q. Why would a provider need multiple vCAv replicators?

A. Replication in terms of volume will impact the capacity and performance of the appliance. When each VM is compressed and encrypted there is an overhead on CPU. Whilst encryption is mandatory, compression can be optional, and both tax system resources.

Multiple replicators can be added to your DR environment to suite processing needs while scaling out supported workloads to protect or migrate.

Q. What are the tested scale limits for a deployment?

A. Please check the configuration maximums for the latest guidelines.

Q. Does VMware Cloud Director Availability work with NSX-T?

A. As of version 4.0 of VMware Cloud Director Availability NSX-T 2.5.0 and 2.5.1 is supported, later versions of NSX-T will be supported in future releases and patches for VMware Cloud Director Availability.

Management

Q. Does VMware Cloud Director Availability support bandwidth monitoring?

A. VMware Cloud Director Availability has natively integrated bandwidth monitoring and reporting on historical bandwidth consumption, allowing providers to analyze the volume of transferred data per org for provider, and for own data as a tenant.

Q. Does VMware Cloud Director Availability support Usage Meter for automatic metering?

A. Yes, VMware Cloud Director Availability has supported automatic metering from [Usage Meter 3.6.1. Hot Patch 3](#).

There is an indication in the management interface that vCloud Usage Meter is configured to meter the Cloud service instance. When vCloud Usage Meter has not requested metering information for more than three days, you now see a warning message in the management interface. To collect product consumption data and generate reports for the VMware Cloud Provider Program, see [Add vCloud Availability](#) in the vCloud Usage Meter documentation.

Q. Does VMware Cloud Director Availability support event forwarding?

A. As of 4.0 you could configure syslog event forwarding regarding the following notifications: RPO violations and certificate expiry, Events are also supported in VMware Cloud Director portal, where a system admin can monitor all events if required. Events are either on-demand system events or user-initiated events. Please check the [documentation](#) for a complete list of possible event notifications. Now in 4.1 events can also be sent by email, these are naturally not intended to be as many as syslog and hence are conditioned and can be restricted by the provider for each tenant.

Resources

Q. Where can I find more about VMware Cloud Director Availability 4.0?

A. For more information visit:

<https://www.vmware.com/products/cloud-director-availability.html>

