

What's new in VMware Cloud Director Availability 4.3?

Overview questions

Q. What has been announced?

A. VMware has announced General Availability of VMware Cloud Director Availability 4.3.

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-premises to VMware Cloud Director and vice versa

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 +

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.

Migration and Protection with replicated VMs and control over retained replications (stored instances) as well as flexible 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. With the latest release providers have the option to enable 1-min RPO for mission-critical applications.

Cold or Warm Migration to provider VMware Cloud Director based Cloud from on-premises via vSphere plugin or via VMware Cloud Director Availability interface in provider cloud.

Warm Migration from vSphere plugin or VMware Cloud Director provider cloud to VMware Cloud on AWS SDDC under Cloud Director service management.

Layer 2 stretch networking for simpler migrations (and/or Disaster Recovery) from on-premises to VMware Cloud Director.

Secure tunneling through TCP proxy between sites with built-in encryption and optional compression availability. Cloud to Cloud replicant encryption is also supported using Cloud Director encrypted storage policies at the target.

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 (and vice versa*), On-Premises to Cloud DR (and vice versa), Cloud-to-Cloud DR, Cross version VMware Cloud Director migration.

*vice versa not available from/to Cloud Director org VDC on VMware Cloud on AWS.

Q. What are the main new capabilities for VMware Cloud Director Availability 4.3?

A. 1 Minute Recovery Point Objective

In 4.3 Cloud Director Availability providers can offer lowest recovery point objective of 1 minute using replication and SLA policies. Tenants have the option to choose an RPO target depending on the business criticality and type of workload. In the past, the minimum supported RPO was 5 minutes. However, with this release, tenants with control over their custom SLA settings - can independently

manage their RPO settings. Although, a 1-minute RPO is most preferred to address Mission-Critical DR requirements, with any low RPO providers are advised to consider the impact of increased stress for all infrastructure components and the connectivity between the source and destination. To meet shorter RPO, verify that you follow the recommendations for lowering the RPO violations occurrence and see the product [documentation](#). An I/O intensive workload protected with shorter RPO can cause RPO violations.

Advanced Retention Policies

VMware Cloud Director Availability abides by the vSphere replication standard of 24 Multiple Point in Time instances (mPIT).

Prior to 4.2, these MPIT were spread evenly across the chosen duration and changes were restricted. With the expansion of retention policies, providers have the autonomy to store instances over different schedules and can set up to five rules to rotate the instances. Providers can define these rules in the SLA profiles assigned to the different Organizations. They can also pass the control into their tenants' hands to specify the exact retention settings when configuring a new protection but still apply limitations through the Replication policies.

DR & Migration Plans

Management of Recovery and Migration is critical to business continuity. The newly added DR & Migration capability in 4.3 allows seamless orchestration of the recovery and migration processes. Providers and tenants can experience a self-service DR & Migration solution with the recently added features such as scheduling initial sync, automation, failover testing, API calls for replication and much more. In the latest version VMs and vApps can be grouped according to their recovery sequencing priority with the addition to delays and manual next stage prompts. The sequencing is very flexible to allow as many steps as necessary in between tasks and can utilize wait timers and automated UI prompts to move to the next sequence step. Similarly, the new scheduled sync feature for migrations makes the overall process quick and efficient.

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 [Product Usage Guide](#)

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

A. You must be enrolled in the Partner Connect program as a VMware Cloud Provider 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>.

Q. How does Flex Core services work for VMware Cloud Director Availability?

A. VMware Flex Core is the VMware Cloud Provider baseline to delivery streamlined cloud infrastructure services for customers, with flexible baseline and add-on solutions made affordable and easy in your datacenter. Partners can migrate customer VMs and vApps inclusive in their Flex Core bundle, using Disaster Recovery protection partners can also sell Disaster Recovery services, but this is charged per protected VM per month. Learn more about the [Flex Core Update](#) for VMware Cloud Director Availability.

Replication 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 (org VDC) 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. Migration in version 4.2 and up also covers Cloud Director service VMware Cloud on AWS SDDC endpoints.

Q. Can you replicate to multiple destinations at the same time?

A. No, VMware Cloud Director Availability only supports replicating to one target at a time.

Q. How is failover (migration) performed?

A. To perform a migration a virtual machine or virtual app must first be protected (replicated) between the source and target locations. 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, a user can choose to configure replication from seed or to perform full initial sync, which can be scheduled. 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 minimum Recovery Point Objective (RPO) supported by VMware Cloud Director Availability?

A. As of 4.3, the minimum RPO is 1 minute. Therefore, the changes in the protected virtual machine can be replicated every 1 minutes to a selected destination. It is worth noting that at each given RPO timeslot, for which the fastest is a maximum of 1 minute, a delta image is created, only the data changed from the previous delta will be written and a maximum of 24 delta Point In Time instances is permitted. Using Advanced Retention Policies, these can be spread over differing durations.

Q. How many restore points can be configured?

A. VMware Cloud Director Availability uses vSphere Replications and hence scheduled block restore points are used the maximum is 24 that can be retained for 12 months. If a user wishes to keep a restore point for longer, they can use the "stored instance" feature to take an adhoc restore point and move it out of the cycle for however long they wish to keep it (note that this will not affect the number of restore points).

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 Clean-up 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.x 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. Additionally, email can be conditioned for 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.x 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. 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 MPLS, VPN, etc.?

A. Yes it does and multi homes tunnel and replicator appliances can be configured to allow traffic management over specific links.

Q. Does VMware Cloud Director Availability support bandwidth throttling for vSphere to Cloud (v2c) replications?

A. Yes, since version 3.x. If enabled, the bandwidth maximum is pushed down and enforced at the on-prem replicator.

Q. Does VMware Cloud Director Availability support bandwidth throttling for incoming replications (both v2c and Cloud to Cloud)?

A. Yes, since version 3.x. If enabled, the bandwidth maximum is centralized and enforced at the Cloud Provider target.

Q. Does VMware Cloud Director Availability support multi-NIC appliances?

A. Yes, for the replicator and tunnel role only.

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 VMware Cloud Director Availability 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. It is advised to always start with compression enabled, but monitor RPOs and if there are RPO windows missed, turn off compression for more binary orientated workloads i.e., media files.

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 4.3 [configuration maximums](#) for the latest guidelines.

Q. What versions of vSphere are supported?

A. Cloud Director Availability 4.3 supports version 6.5U3 up to 7.0 U3. Each release of VMware Cloud Director Availability will impact the interoperability, please check the latest [here](#).

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

A. As of version 4.x of VMware Cloud Director Availability NSX-T 3.0.2 and beyond is supported. 4.3 interop has been validated up to 3.1.3 of NSX-T Data Center. Each release of VMware Cloud Director Availability will impact the interoperability, please check the latest [here](#).

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. In versions 4.1 and up 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.

Q. What's new with vRealize Operation Management pack for VMware Cloud Director 1.1?

A. The latest management pack collects information about the replication jobs in your VMware Cloud Director Availability instances and provides replication-specific properties and metrics that allow service providers to easily see the key insights about the state of the replication jobs and the replications resource consumption. The new pack available to download via [marketplace](#).

Resources

Q. Where can I find more about VMware Cloud Director Availability 4.2?

A. For more information visit:

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

4.3 Release Notes:

<https://www.vmware.com/en/VMware-Cloud-Director-Availability/4.3/rn/VMware-Cloud-Director-Availability-43-Release-Notes.html>

Provider download:

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Tenant download:

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