What's New in VMware Cloud Director Availability 4.6?

Overview questions

Q. What has been announced?

A. VMware has announced General Availability of VMware Cloud Director Availability **4.6** on **15th June 2023**.

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 Cloud Director sites or between vSphere sites.

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 (cloud to cloud) or on-premises to VMware Cloud Director and vice versa. The offering is now available for on-premises vSphere to protect and migrate workloads from the dedicated on-premises vCenter Server site to the Cloud vCenter Server site.

A. Single on-premises appliance installation for ease of deployment and simplicity for customers replicating to provider vCenter Server or VMware Cloud Director cloud endpoints. Supports a migration path and DR functionality from vSphere 7.0.

A. The capability of each deployment to serve as both source and recovery endpoints (synchronous sites). There are no dedicated source and destination sites; symmetrical replication flow can be started and managed from either the source or the recovery site, meaning the interface can be accessed from anywhere with the correct context.

A. Migration, protection, and control over retained replications (stored instances) as well as flexible RPO policy controls for providers to apply to one Virtual Data Center (VDC) or individual replications via predefined or flexible 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-minute RPO for mission-critical applications. Since 4.4, the RPO compliance reporting feature has been introduced to keep cloud providers informed about RPO violations to allow both parties to track, monitor, and audit RPO best practices and aid troubleshooting.

A. 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 the provider cloud. Cloud providers and tenants can carry out a fast-track migration with the new 1-click migration feature that automatically replicates using static, basic replication settings.

A. Warm one-way migration from vSphere plugin or VMware Cloud Director provider cloud to VMware Cloud on AWS SDDC under Cloud Director service management.

A. Layer 2 stretch networking for simpler migrations (and/or disaster recovery) from on-premises to VMware Cloud Director as well as VMware Cloud on AWS.

A. 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.

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 (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; this is a one-way migration only.

A. Cloud providers using VMware Cloud Director Availability can protect and migrate dedicated on-premises vCenter workloads to vSphere cloud (and vice versa).

A. VMware Cloud Director Availability can be leveraged through Cloud Director service to deliver DR and migration services for Google Cloud VMware Engine using a dedicated SDDC endpoint, with the VMware Cloud Director Availability stack deployed into the tenant domain.

Q. **What are the main new capabilities for VMware Cloud Director Availability 4.6?**

A. vSphere DR and migration enhancements Version 4.6 has been designed to improve the security, scalability, and availability of the vSphere DR and migration. Starting with Recovery Plans where users can define the failover order of the replicated VMs, emulating the Cloud-to-Cloud use case. Additionally, Cloud Providers can cap incoming traffic on a specific network interface of the Tunnel appliance. Finally, Public API is now available for more https://developer.vmware.com.

A. Tunnel Appliance High Availability

To ensure higher resiliency and availability, version 4.6 has introduced the capability to add a second tunnel appliance, and in this process, all traffic is load balanced. This prevents any setbacks and supports the efficient delivery of DR services. Please note: The tunnel is set up in active-active mode.

A. vApp Template Replication

It is now easy for Cloud Providers to fully manage vApp template overwrites with options to configure a new replication with the new source automatically.

A. NSX-T vApp Edges Support

With intuitive navigation, cloud providers can modify the destination network settings, manage guest customization with fuller flexibility, and continue to leverage pre-existing network selection and adapter settings.

A. Additional improvements and operational features VMware Cloud Director Availability has made additional improvements to clone a replication policy, define VM sizing policy, monitor the uptime of services and appliances, send a system-wide message, and much more.

Feature: vSphere DR and migration

Q. **Who can use VMware Cloud Director Availability's vSphere DR and migration feature?**

A. This feature is available to VMware Cloud Services Providers who offer dedicated vCenter-based cloud. We have added support for reverse tunnelling, adding external replicators, bandwidth throttling, advanced recovery settings, and replicating encrypted VMs.

Q. **Is it true that VMware Cloud Director is not required for this feature to work?**

A. Correct. VMware Cloud Director Availability now offers vSphere as its target endpoint for DR and migration. Cloud providers can leverage VMware Cloud Director Availability for DR and migration of dedicated on-premises vCenter workloads to cloud provider vSphere Cloud.

Q. **How is this service metered?**

A. To accelerate quick adoption, tiering, and monetization of vSphere DR and migration metering is implemented in such a way that already released vCloud Usage Meter 4.5 and 4.6 can be used. For metering, a provider must register each cloud-side vCenter Replication Management Appliance the same way as the Cloud Replication Management Appliance. Replications are reported in the following cases:

• Cloud to cloud migrations and protection where the registered VMware Cloud Director Availability appliance is the destination.

• Cloud to on-premises migrations and protection where the registered VMware Cloud Director Availability appliance is the destination.

• On-premises to cloud migrations and protections where the registered VMware Cloud Director Availability is the source.

Q. **Is licensing necessary?**

A. Yes, licensing is mandatory for Provider appliances. In vCloud Usage Meter 4.6 and 4.5 vSphere DR and migration, replications are easily mapped to the old use cases in the Monthly Usage Report. For example, Cloud-to-cloud replication is mapped to vCenter cloud to vCenter cloud replication, etc. All the use cases will be separately reported in the post-vCloud Usage Meter 4.5 version. Furthermore, with the help of Usage Meter, cloud providers can get visibility on diagnostics and the health of the overall process.

Q. **What services are included in the installation? Do I need to configure vSphere replication somehow?**

A. For vSphere-based cloud, cloud providers will need to use the vCenter Replication Management Appliance. It is a new role available while deploying the VCDA OVA template and is a single appliance that runs on one virtual machine. It currently doesn't utilize existing tunnels.

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Q. How does the pricing work?

A. There is no cost associated with adopting VMware Cloud Director Availability. However, vSphere DR and migration is a part of the flex core bundle, and it is priced the same, i.e., 10 points per VM and 0 points for migration.

Q Does it support multi-tenancy?

A. No, multi-tenancy is currently not supported for vSphere DR and migration. Nevertheless, multi-tenancy is supported on VMware Cloud Director-based clouds.

Q. Is throttling supported in the future?

A. Since version 4.6, throttling is supported.

Q. Is 1-minute RPO supported for this feature?

A. Yes, 1-minute RPO is achievable. However, it is worth noting that this capability requires significant resources, and this will in turn mean cost. That is why a 1-minute RPO should be used for mission-critical applications. For more, please refer to our guidelines.

Q. Is 1-click migration available for this feature?

A. Yes, this feature is easily accessible for cloud providers and tenants from the vSphere Client plug-in and VMware Cloud Director Availability portal.

vSphere DR and migration enhancements

Q. When should the public endpoint be accessible in case of pairing?

A. Only in the context of cloud site pairing.

Q. Will the on-premises V2V site support external replicators?

A. Yes, external replicators have been supported since version 4.5.

Backup and restore automation

Q. Is the 'read & write' feature available for SFTP server?

A. Since version 4.6, read and write capability can be checked and verified.

Q. Can a time for the backup schedule be specified?

A. You can enter the start time and the time interval

between each two scheduled backups. The minimum is

30 minutes and the maximum is 1 week.

Recovery settings

Q. What needs to be done for recovery settings to be validated?

A. Recovery settings are validated based on replication settings.

NSX-T vApp Edges Support

Q. What network services are supported for migrating source vApp routed networks?

A. Migrate source vApp routed networks (whether on NSX-V or NSX-T) to destination again as routed vApp network if the network provider there is NSX-T. This includes all network services like Firewall, NAT as well as IpScope and DHCP configurations.

Tunnel Appliance High Availability

Q. Is this feature available for vSphere DR & Migration?

A. Currently, this feature is exclusive to VMware Cloud Director Clouds.

Q. Are all traffic load balanced?

A. Yes, all the traffic is load balanced and requires an external load balancer.

Feature: RPO compliance

Q. Can RPO compliance reports be extracted?

A. Yes, the RPO compliance feature produces a list of all the RPO violations which can be extracted in HTML as well as CSV format.

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 the 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 also covers Cloud Director service VMware Cloud on AWS and Google Cloud VMware Engine SDDC endpoints.

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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 vApp, it must first be protected (replicated) between the source and target locations. Once replicated, an optional resync can be initiated before 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 interface, 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 Replication Management Appliance 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 management portal and APIs.

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.

We have 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 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.

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. The minimum RPO is 1 minute. Note that this shouldn't be offered as default as there are considerable architectural requirements to meet the volume of delta images created. Therefore, the changes in the protected virtual machine can be replicated every 1 minute 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 Replication, and hence scheduled block restore points are used. The maximum is 24, and these 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 ad hoc 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).

Policy Control Features

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 organizational 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.

VMware Cloud Director Availability is available as a Pay-As-You-Go service to cloud 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 Services 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 Services Provider in order to purchase VMware Cloud Director Availability. To learn more about the Partner Connect Program, please visit http://www.vmware.com/partners/service-provider.html.

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

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

- Allow migrations or protections or both
- Assign a VMware Cloud Director 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 installs three 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 week, 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)

Pricing and Packaging

Q. I am a cloud services 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 bandwidth throttling for on-premises to cloud replications?

A. Yes. If enabled, the bandwidth maximum is pushed down and enforced at the on-premises appliance.

Q. Does VMware Cloud Director Availability support bandwidth throttling for incoming replications?

A. Yes. 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.

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 Partner Connect program offering this service in their VMware Cloud Director and vSphere VMware clouds. All prices for these services will be quoted by the VMware Partner Connect Program. To find a VMware Partner Connect Program offering for DRaaS please use the assisted search here: https://cloud.vmware.com/providers/guided-search.

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

A. VMware Flex Core is the Partner Connect Program baseline to deliver streamlined cloud infrastructure services for customers, with flexible baseline and add-on solutions made affordable and easy in your data center. 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.

Architecture

Q. What services are included in the installation? Do I need to configure vSphere replication somehow?

A. For VMware Cloud Director-based cloud: The architecture of the solution uses a Cloud Director Replication Management Appliance, a Replicator Appliance, and a Tunnel Appliance.

A. For vSphere DR & Migration: The architecture uses vCenter Replication Management Appliance and a Replicator Appliance.

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 an on-premises appliance.

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 Replicator appliances?

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 always to start with compression enabled but monitor RPOs and if there are RPO windows missed, turn off compression for more binary-oriented workloads, i.e., media files.

Multiple replicators can be added to your DR environment to suit 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 4.6 configuration maximums for the latest guidelines.

Q. What versions of vSphere are supported?

A. Cloud Director Availability 4.6 supports vSphere 7.0 and later. 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. VMware Cloud Director Availability supports NSX-T. Please check the latest interop here.

A. For on-premises site, NSX-T is not required.

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 their 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. Providers can 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. 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?

A. VMware vRealize Operations Management Pack for Cloud Director Availability 1.3 supports VMware vRealizeOperations Compliance Pack for Sovereign Cloud 1.0 and can trigger alerts for compliance rules. The new pack is available to download via VMware Marketplace and requires vRealize Operations to be available in the provider data center.

Resources

Q. Where can I find more about VMware Cloud Director Availability 4.6?

A. For more information: Please visit

A. 4.6 Release Notes: Read now

A. Provider download: Access now

A. Tenant download: Access now

A. Upgrade to VMware Cloud Director Availability 4.6 supports an in-place upgrade directly from 4.4.xand 4.4.5x Cloud Director sites.

4.3.1. For the exact upgrade steps or in case you need to upgrade from an older version, download the official document now

If you would like to connect with the VMware Cloud Director Availability team, please use Slack, Facebook, Twitter, and LinkedIn.