What’s New with VMware vCloud Director 9.5

Feature Overview
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Overview
VMware vCloud Director (vCD) is the central Cloud Management and Orchestration platform within the VMware Cloud Provider Platform, enabling Service Providers to orchestrate the provisioning of software defined, modular, and ready for consumption Virtual Data Centers in a matter of minutes.

Version 9.5 of vCD adds features that leverage the features of server virtualization capabilities of VMware vSphere and the Software Defined Data Center (SDDC) functionality to offer Service Providers with a powerful platform for delivering Infrastructure as a Service (IaaS) solutions.

VMware vCloud Director 9.5 includes these new features and functionalities:

- Fully Functional HTML5 Tenant Portal
- Cross-OrgVDC and Multi-Site Cross-VDC Networking
- Initial Support for NSX-T
- Enhanced Role Base Access Control (RBAC)
- vCloud Director Appliance
- IPv6 Support for Guest VMs
- Updated Plugin for vRealize Orchestrator
- API and SDK Enhancements
- Container Service Extension (CSE) 1.2
HTML5 Tenant Portal Enhancements
Version 9 of vCloud Director introduced a new tenant facing web portal based on HTML 5 technology, so no need for a Flash browser plugin anymore. In vCloud Director 9.5 the HTML 5 tenant portal now has feature parity with the legacy flash-based Flex client.

In addition, enhancements have been added to the tenant portal:

- **Support for Independent Disks:**
  Formerly only available via API, it’s now possible for a tenant user to create and manage Independent Disks.

- **Support for Affinity Rules:** Tenants can now define Affinity Rules and Anti-Affinity Rules in self-service fashion in the UI.
Cross-OrgVDC and Multi-Site Cross-VDC Networking

vCloud Director 9.5 supports stretched L2 networks across OrgVDCs, backed by a NSX Universal Transport Zone. This allows Service Providers to offer better support for

- Distributed applications and resource pooling across data centers
- Application level redundancy or clustering across different data centers (OrgVDCs)
- Disaster Recovery scenarios

The OrgVDCs connected to the stretched L2 network can even be managed by different vCloud Director installations, if they are associated using the existing multi-site capabilities.

The Service Provider sets up the cross-vCenter networking in NSX, creates the Universal Transport Zone(s), and (to span multiple vCD installations) associates the vCD sites.

The tenant administrator then can create a stretched network and select active and stand-by egress points. An aggregated network view is available in the tenant UI.
Initial Support for NSX-T

vCloud Director 9.5 is the first version to support NSX-T, which can be combined with the existing support for NSX-V in the same vCloud Director installation. You can add a NSX-T Manager and the corresponding vCenter(s) as a resource in vCD (via API) and create a Provider VDC (PVDC) that is backed by NSX-T. All the vCenters in this PVDC should be backed the same NSX-T manager. All the hosts in these vCenters then will be installed with the DPDK switch. A VLAN backed network pool for each OrgVDC can be created, from this the network configuration on tenant side is the same as with NSX-V.

Enhanced Role Based Access Control (RBAC)

vCloud Director 9.5 contains a redesigned (but backwards compatible) multi-tenant Role Based Access Controls (RBAC) system. It is possible for the Service Provider to create Global Tenant Roles and Rights Bundles.

Global Tenant Roles:
System administrators can create and edit global tenant roles and publish them to one or more organizations. Global tenant roles can be assigned to tenant users in the organizations to which they are published. Organization administrators cannot edit global tenant roles.

Rights Bundles:
System administrators can use rights bundles to manage the rights that are available to each organization. A rights bundle is a set of rights that the system administrator can publish to one or more organizations. The system administrator can create and publish rights bundles that correspond to tiers of service, separately monetizable functionality, or any other arbitrary rights grouping. Only system administrators can view and manage the rights bundles. You can publish multiple bundles to the same organization.

Tenant Self-Service RBAC
For the tenant administrator it is possible to define their own tenant specific roles in the Tenant UI. This allows self-service management of permissions for tenant users by their own administrators, without the need of service provider involvement.
vCloud Director Appliance

vCloud Director is being installed as a binary .bin file, that must be installed on a supported Linux operating system. To simplify the installation and maintenance of a vCloud Director cell, as of vCloud Director 9.5 there is an OVA based appliance available, based on the Photon 2.0 operating system. The appliance contains the vCloud Director cell and can be directly deploy to an ESXi host using the vSphere Client.

Prerequisites for using the vCloud Director 9.5 .ova Appliance:

- An external DB exists and is ready for vCD to use it.
- An NFS server exists with an export setup to be used as the server group’s transfer space.
- A load balancer that will stand in front of the cells.
IPv6 Support
vCloud Director 9.5 introduces support for IPv6 for Guest Virtual Machines, external networks, Org VDC networks and vApp networks, and lets VMs connect to physical IPv6 networks.

New Plugin for vRealize Orchestrator
With vCloud Director 9.5 there is a new plugin for vRealize Orchestrator available. This new plugin allows workflows to interact with the latest version of the vCD API (version 31.0). This enables the workflow developer to automate all the new functionality in vCD 9.5.

The new plugin version supports multi-site vCD environments, so workflows can be executed on connections to normal as well as on multi-site enabled vCD connections.

Note: Due to the changes in the plugin API some Actions have been modified, so existing custom workflows have to be reviewed and the current version of the Action re-added if needed (for details see the Release Notes of the vRO Plugin for vCloud Director).

API and SDK Enhancements
vCloud Director 9.5 introduces a new version 31.0 of the vCloud API, adding new functionality like oAuth 2.0 SSO support and an API to change of ownership of catalog items.
Support for vCloud API versions less or equal than version 19.0 has been removed, API versions 20.0 to 26.0 are deprecated in vCloud Director 9.5.
With the new API version also the Python SDK (Latest Version 20.0.0) https://pypi.org/project/pyvcloud and the VCD-CLI (Latest Version 21.0.0) https://pypi.org/project/pyvcloud have been released.

The new versions include:
- Support for registration and un-registration of NSX-T with vCD.
- Enhancements to Provider VDC commands.
- Automated Test Framework alongside full robust test coverage.
- OpenAPI support.
- Documentation improvements (Swagger UI and Swagger Doc)
- Enhanced Exception Handling.
- vCloud Director API Version Compatibility Hardening.
- Security and Bug fixes

Container Service Extension (CSE) 1.2
Along the new vCloud Director release a new version of the Container Service Extension (CSE) has been published on GitHub: https://github.com/vmware/container-service-extension
This new version of CSE includes:
- Support for Kubernetes Version 1.10
- Implementation of Static Persistent Volumes via NFS
- Documentation improvements
- Security and Bug Fixes
Additional Resources
For more information about the VMware vCloud Director software solution, visit the product pages at https://www.vmware.com/products/vcloud-director.html

For vCloud Director case studies, whitepapers, customer testimonials, and more visit https://www.cloudsolutions.vmware.com/

Access the documentation for vCloud Director software at https://docs.vmware.com/en/vCloud-Director/index.html

Access reference design and architecture documentation at https://www.vmware.com/solutions/cloud-computing/vcat-sp.html

To purchase the vCloud Director software solution or to find out how you can join the VMware Cloud Provider Program (VCPP), visit https://www.vmware.com/partners/service-provider/