What’s New with VMware vCloud Director 10

Feature Overview
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Overview
vCloud Director is VMware’s flagship cloud service-delivery platform for cloud providers. It is a cloud provisioning and management interface for any VMware-based environment, forming a pervasive cloud fabric that can bring any vSphere endpoint under its management umbrella. vCloud Director has certain core capabilities – one-click deployment, multi-site management capabilities, multi-tenant operational efficiencies, Kubernetes support, workflow automation, tight interoperability with VMware’s SDDC stack, and more. vCloud Director is open and extensible with robust service integration capabilities.

With vCloud Director 10, cloud providers will be able to:

- Save on operational costs with hyper-efficient data center management capabilities
- Increase revenue and profitability with a suite of differentiated cloud services
- Target new customer personas with a developer-ready cloud

vCloud Director 10 includes UI Enhancements, Intelligent Workload Allocation, additional NSX-T support, management of dedicated vCenter Servers, Object Storage Extension and improved developer and automation functionality.

HTML 5 UI Enhancements (Provider and Tenant)
In vCloud Director 10 the legacy Flash based UI is deprecated and disabled by default. The HTML 5 UI now includes a complete provider UI and improvements to the existing Tenant UI.
The Tenant UI adds support for creating and attaching named disks.

**Intelligent Workload Allocation**

vCloud Director 10 increases the flexibility and automation of workload allocation. Cloud providers can define placement and sizing policies for VMs, and allocate them to specific organizations and clusters.

This optimizes workload assignment by licenses, service-tier, fault-domain or special hardware requirements of the application.

**VM Sizing Policies**

Sizing policies for VMs can be defined via UI or API, and allocated to specific Org VDCs.
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During VM creation a Tenant then can select one of the allocated policies.

### New VM

**Sizing Policy**

- **Small**

**Select a Size**

- Virtual CPUs: 2
- Cores per socket: 1
- Sockets per CPU: 2
- Memory: 2048 MB

### Storage

- Disk: ADD

**Storage Policy:**

- VM default policy

- Size (GB): 64

**Use custom storage policy:**

- [ ]

### Networking

**Network**

- 1: Not connected
- DHCP: Auto-assigned

VM Placement Policies

Placement Policies use vCenter DRS capabilities to specify destination hosts in a provider vDC. The Policies then can be assigned to specific Org VDCs, and selected by the tenant during creation of a VM.
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Create VM Placement Policy

1. What is VM Placement Policy?
2. Name: SQL Servers
3. VM Groups
4. Ready to Complete

Ready to Complete

You are about to create a VM Placement Policy with these specifications. Review the settings and click Finish.

<table>
<thead>
<tr>
<th>Name</th>
<th>VM Groups</th>
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<tbody>
<tr>
<td>SQL Servers</td>
<td>TestbedCluster : SQL VM</td>
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Organizations

Organization VDCs

Provider VDCs

Cloud Cells

Edge Gateways

External Networks

Network Pools

VM Storage Policies

Acme1

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Metrics

CPU (Allocation Used/Quota) | Unlimited
Memory (Allocation Used/Quota) | 0 MB / 1 GB (PA)
NSX-T Integration

NSX-T integration continues to improve in vCloud Director 10. Provider and Tenant UIs have been added for:

- Registration of NSX-T Manager
- Creation of Edge Gateways
- Configuration of Edge Firewall rules
- NAT configuration
- IP Allocation and Management
- DNS Forwarder/Configuration
- OrgVDC Network Creation/Configuration

External Networks in vCD are represented as Tier-0 (T0) router in NSX-T, ESGs (T1) can be connected to a given external network.
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IPSec VPN configuration can be done through the CloudAPI.

GET /1.0.0/edgeGateways/{gatewayId}/ipsec/tunnels
Retrieves all IPSec tunnels for a given edge gateway.

POST /1.0.0/edgeGateways/{gatewayId}/ipsec/tunnels
Creates an IPSec tunnel on the Edge Gateway.

edgeGatewayIpSecVpnTunnel

GET /1.0.0/edgeGateways/{gatewayId}/ipsec/tunnels/{tunnelId}
Retrieves a specific IPSec tunnel for a given edge gateway.

PUT /1.0.0/edgeGateways/{gatewayId}/ipsec/tunnels/{tunnelId}
Updates a specific IPSec tunnel for a given edge gateway.

DELETE /1.0.0/edgeGateways/{gatewayId}/ipsec/tunnels/{tunnelId}
Deletes a specific IPSec tunnel for a given edge gateway.

GET /1.0.0/edgeGateways/{gatewayId}/ipsec/tunnels/defaultConnectionProperties
Retrieves the default connection properties that are used for a given IPSec Tunnel in NSX-T when default is set or no security type is specified.
Central Point of Management

vCloud Director Central Point of Management (CPOM) manages dedicated vCenter Server that service providers publish to their tenants. In vCloud Director 10 connecting and publishing of vCenters can be done through UI or API. This also includes inventory and proxy management.

Tenants can access their dedicated vCenter Server(s) through the vCloud Director UI, including a documentation of the proxy configuration.
Object Storage Extension

vCloud Director Object Storage Extension (OSE) allows service providers to offer S3-compatible Storage-as-a-Service to their tenants, using a supported storage provider as backend (like Cloudian Hyperstore). Tenants can use the vCloud Director UI or the S3 compatible API to access the storage buckets.

The object storage buckets can also be used to store catalog items or to archive vApps.


Enterprise PKS support for Container Service Extension (CSE)

Container Service Extension (CSE) allows cloud providers to enable their customers to rapidly deploy, orchestrate, and manage Kubernetes clusters into their vCD resources.

With CSE 2.0, vCloud Director now supports both VMware Enterprise PKS backed Kubernetes clusters as well as native upstream Kubernetes clusters deployed as vApps into an OrgVDC.
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CSE Cluster Provisioning Workflow
Workflow for Native vs Enterprise PKS

More details on CSE: https://vmware.github.io/container-service-extension/INTRO.html

Terraform vCloud Director Provider
The Terraform vCloud Director Provider 2.4.0 adds new resources, vcd_org_user and vcd_edgegateway. These can be used to automate creation of working and usable tenant organizations from scratch.

For network automation, the provider now has several new resources and data sources for load balancer configuration.

There are also internal improvements in the handling of parallel operations, for faster and more stable operations.

See more details in the changelog and the documentation:
https://github.com/terraform-providers/terraform-provider-vcd/blob/master/CHANGELOG.md
https://www.terraform.io/docs/providers/vcd/index.html
API Enhancements and vRealize Orchestrator Plugin

vCloud Director 10 provides a new API version 33. The Python SDK, vcd-cli and vRO Plugin for vCD have been updated accordingly.

Python SDK: https://github.com/vmware/pyvcloud
VCD-CLI: https://github.com/vmware/vcd-cli

The vRealize Orchestrator Plugin now can access the users JWT token for workflows started from the vCD Service Library. This information can be used for tenanted access to the vCD inventory, which simplifies the creation of tenanted input presentation forms. The plugin also enables workflow developer to make REST calls against the OpenAPI of vCD using the vClHost object, and adds support for clustered vRO servers.
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://cloudsolutions.vmware.com/

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