What's New with VMware Cloud Director 10.1

Feature Overview

vmware®

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Overview

VMware Cloud Director is VMware's flagship cloud services platform for Cloud Providers. It is a pervasive cloud infrastructure control plane for cloud providers' service-delivery needs, and the management entity for a global VMware cloud estate. VMware Cloud Director allows seamless provisioning and consumption of cloud computing resources and services to geographically distributed lines of business and IT teams in an API-driven approach.

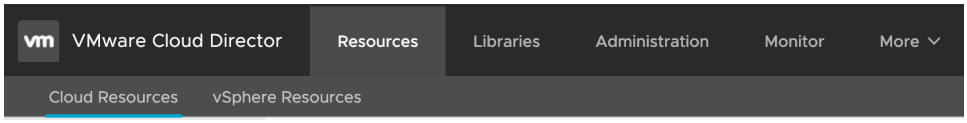
With VMware Cloud Director 10.1, cloud providers will be able to:

- 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

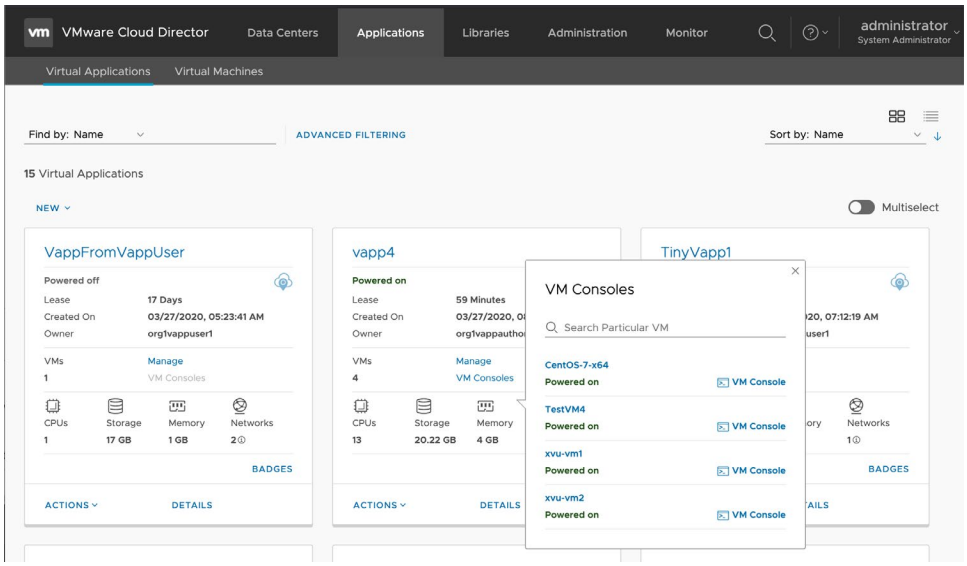
VMware Cloud Director 10.1 includes UI Enhancements, additional NSX-T support, NSX-V to NSX-T migration tool, Appliance updates, VM Encryption, introduces App Launchpad and supports updates for CSE, OSE, Terraform and Tenant App.

UI Enhancements (Provider and Tenant)

In VMware Cloud Director 10.1 the hamburger menu is replaced with a menu bar for both the provider and tenant.

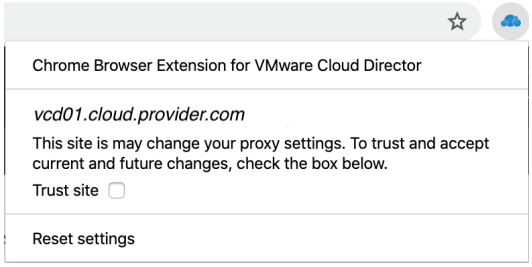


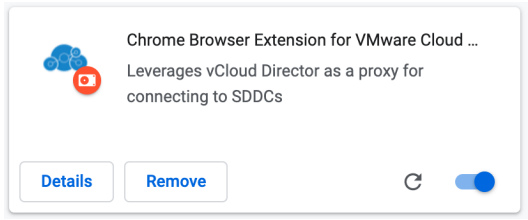
The Tenant UI receives a new Applications menu to manage vApps and VMs across data centers. This update also introduces a new vApp and VM card design.



A new Chrome Browser Extension is available to automate proxy configuration for VMware Cloud Director access to stand alone vCenters. This extension will:

- fetch information around proxies & tenant/username/token
- proxy the appropriate connections based on information given by VCD's H5 UI
- provide proxy-authorization
- work for multi-site environments
- work when accessing different VCD instances





Additional Tenant improvements include:

- New Resources view for VMs and vApps
- Ability to change the catalog owner
- Ability to edit the OVF properties of a vApp and VM
- Option to power on a vApp after vApp deployment
- Ability to import a VM, vApp or vApp template from vSphere

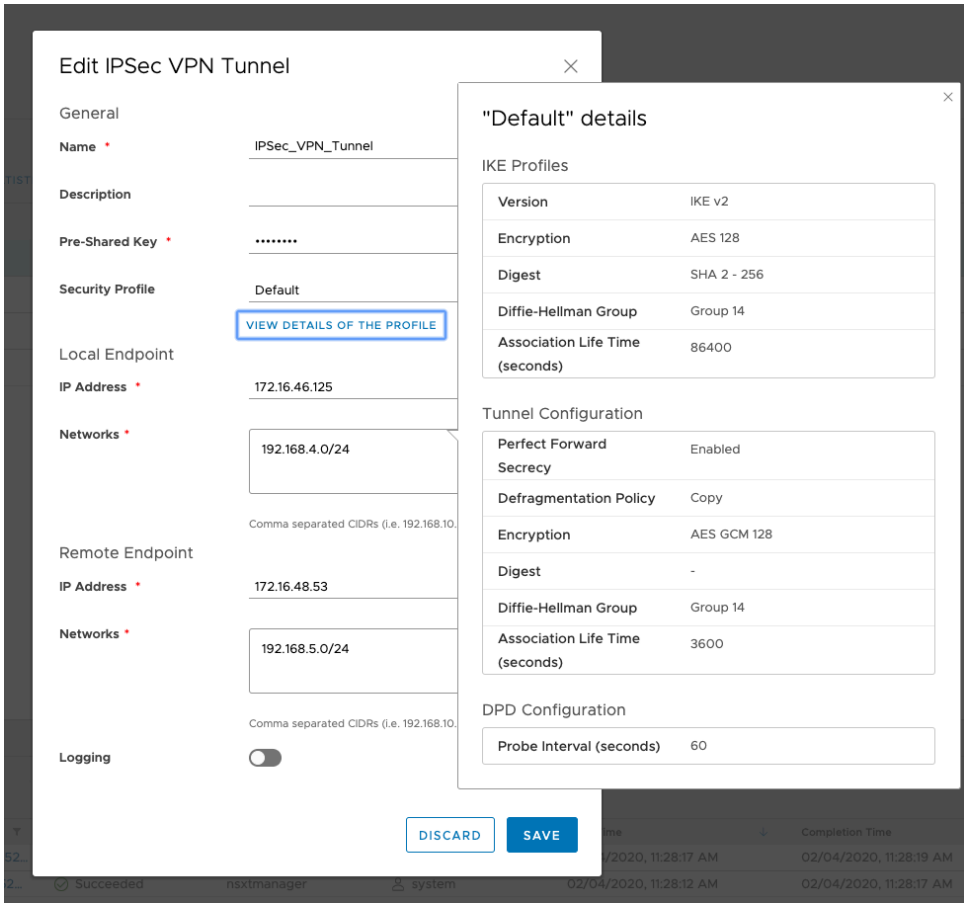
- vApp templates are differentiated from unexpired templates with a new grid column
- External IP is showing on the vApp details page
- Ability to delete Shadow VMs

NSX-T Improvements

Some core NSX-T workflow enhancements included in the VMware Cloud Director 10.1 update include items like simplifying IPSec management, support for dedicated external networks, improved edge cluster management and security group enhancements.

IPSec VPN

IPSec Services will automatically be created if IPSec is enabled on a specific Edge. VCD does this by aggregating all the necessary data tunnel, local endpoint, any associated compliance suite, associated profiles in a single screen. Then VCD makes all the necessary NSX-T API calls.



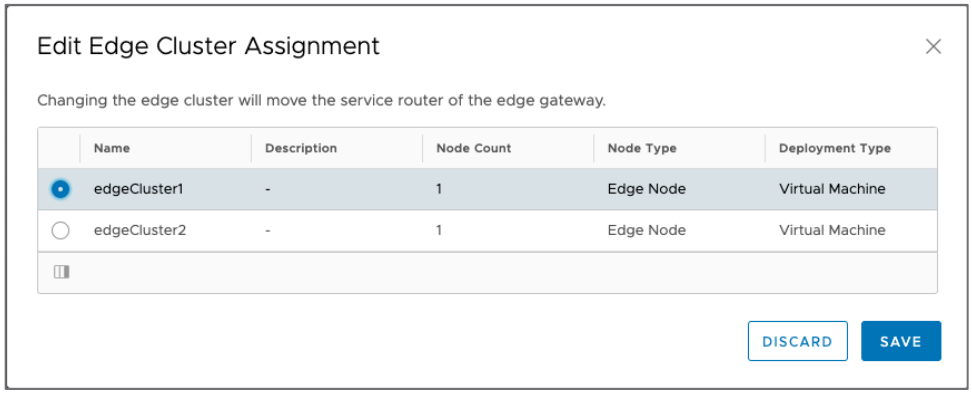
Dedicated External Network

To assist with providers that need to enable data center extensibility in NSX-T data centers, the Provider can now dedicate a one-to-one specific external network to a specific Edge Gateway. The External Network is part of the network routing domain allowing for additional services. These include the ability to specify which subnets will be advertise, and the ability to configure BGP for Dedicated Routing Domains. BGP

configuration can now be applied on the uplink of Tier-0 router backing the dedicated external network and now in the UI and API you can configure IP prefix lists and BGP neighbors.

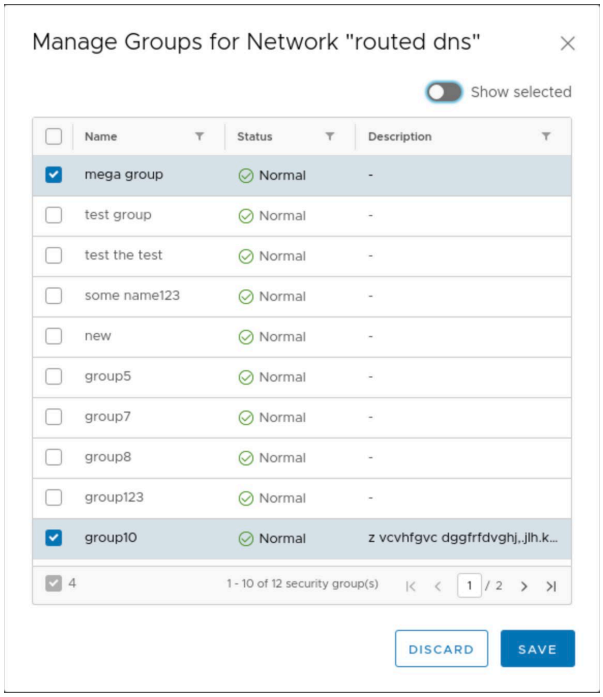
Edge Cluster Management

During Edge Gateway creation and update, the provider can now change the placement of the backing T1. By default, the T1 is placed on the same Edge Cluster of its parent T0. The placement of the backing T1 routers can be tuned to scalability needs.



Security Groups

Further security enhancements are delivered in security groups where subnets can now be grouped for easy configuration.



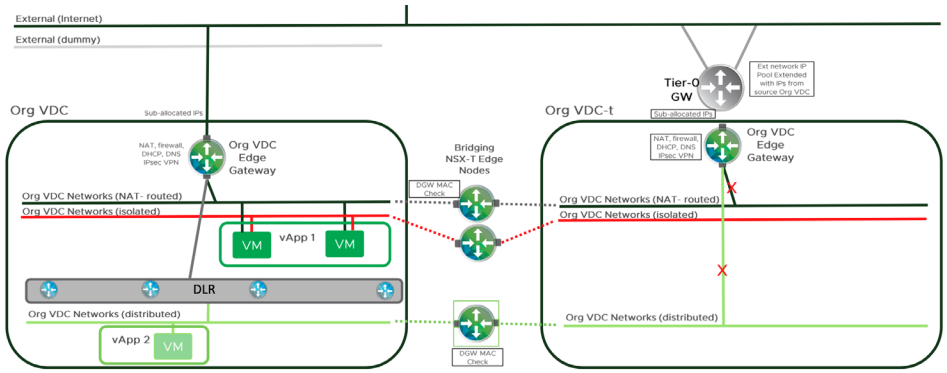
NSX-V to NSX-T Migration Tool

VMware Cloud Director Cloud Providers need to transition from NSX-V to NSX-T within the supported life of NSX-V, and Cloud Providers need a migration solution that migrates tenant by tenant with minimal downtime.

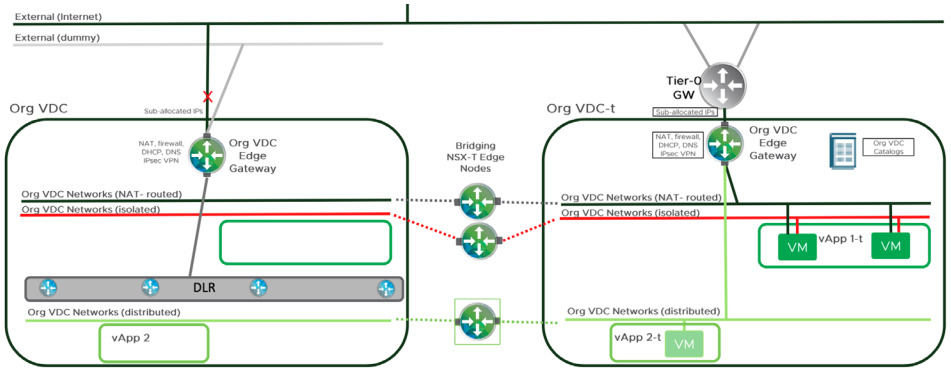
The manual approach includes creating a new cluster / PVDC backed by NSX-T, create a replicate target org VDC and migrating the source workloads. This is now fully automated in a script that:

- Automates migration of vCD metadata and workloads from NSX-V to NSX-T
- Migrate per Org VDC migration to reduce maintenance window to single tenant
- Minimize network downtime with bridged networks during migration
- Live migrate with vMotion to ensure non-disruption to user workloads
- Keep source VDC configuration and V environment as-is to allow rollback

Before Live Migrate



After Live Migrate



Prior to execution of the script, for each existing Provider VDC a new provider VDC within NSX-T must be created as a networking provider. This may require adding vCenters and hosts to the VCD instance and could result in failure if the VDC does not meet migration criteria, please check the supported provider VDC configurations. Then for each Org VDC the migration script can be executed.

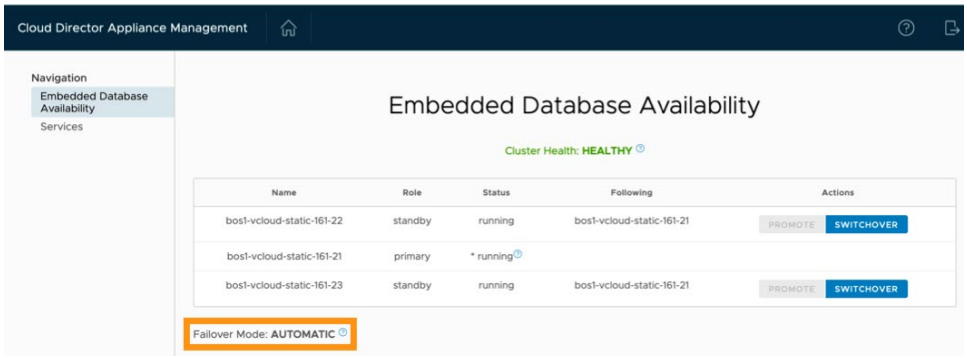
In consideration of migration impact on workloads; NSX-T provides capability enabling the NSX-T edge node to connect to NSX-V and NSX-T v-switch and maintains East-West connectivity when workload is migrated from the NSX-V to NSX-T v-switch. The

downtime should be limited to network disruption when N/S is switched from NSX-V edge to NSX-T edge.

The NSX-V to NSX-T migration script supports many NSX features in VCD 10.1, but not all, please check the documentation first, also the script only supports VCD 10.1.0, NSX-V 6.3.7, 6.4.4 and 6.4.5 and NSX-T 2.5.

Appliance Updates

It is now simpler than ever to monitor the health status of the databases and VCD application for each cell with a database. Automatic failover and recovery are now possible where a cluster consists of one primary and one or more standby nodes, but it is not enabled by default. Other enhancements include appliance cluster management from the UI and API, HA status reporting and improved failover resiliency and stability.



Toggling between manual and automatic failover can only be done through the API.

curl -X POST -H "Accept: application/json" -H "Authorization: Basic [[basicHash]]" "https://localhost/api/1.0.0/nodes/failover/{desired-mode}"

Where the {desired-mode} can be either "manual" or "automatic"

A manual "Switchover" action is available to perform a planned operation making a standby node the new primary. A switchover performs the following steps:

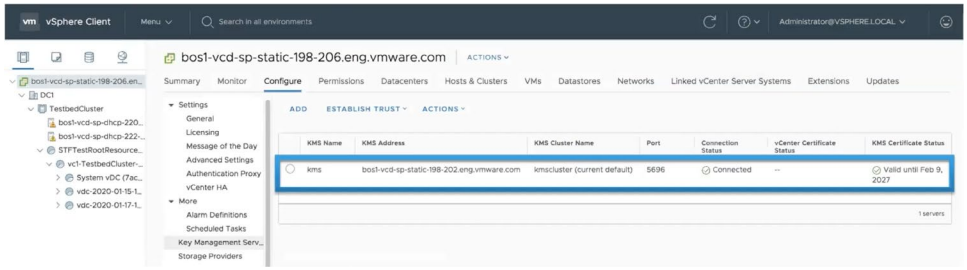
- Graceful shutdown of current primary
- Promote of a standby (specified when pressing "switchover" button on UI)
- Converting old primary to new standby that is following new primary

VM Encryption

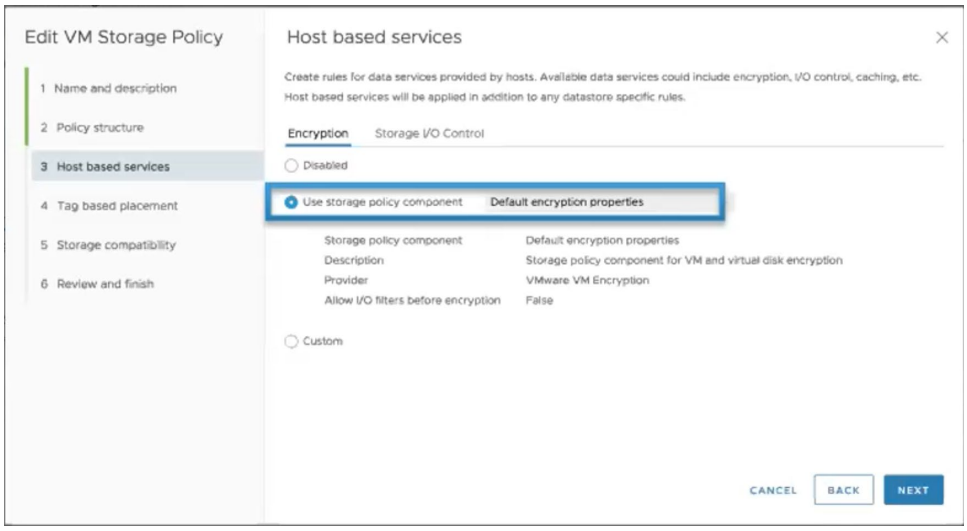
Encryption has existed for vSphere since version 6.5 and now can be executed from within VMware Cloud Director as a native service to offer tenants. Providers can configure storage policies with the capability of encryption that can be exposed to tenants so that they can assign a VM or a VMs disk to an encrypted storage policy.

The steps to enable VM encryption in VCD in Yorktown will be the following:

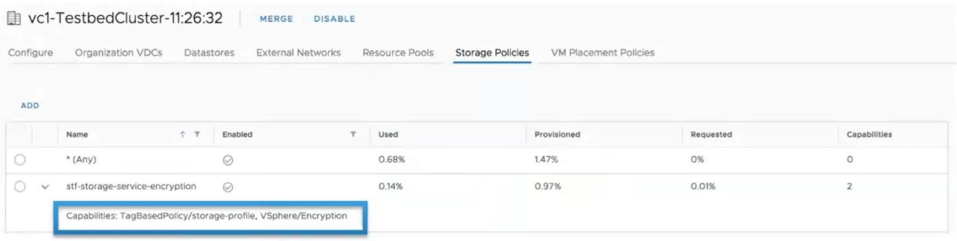
1. Add a KMS to vCenter Server in the vSphere Web Client



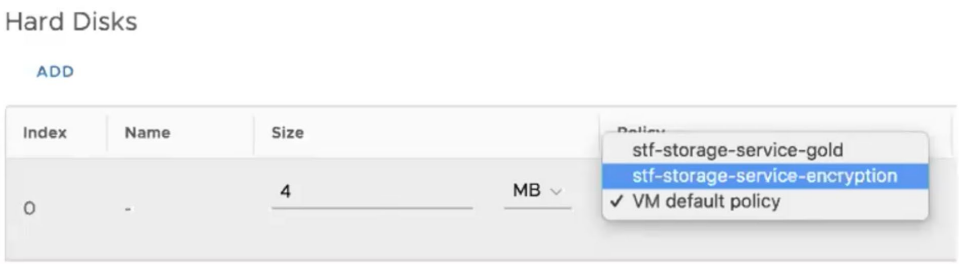
2. Create an encryption storage policy in vCenter.



3. In VCD, add the encryption-enabled policy to a PVDC/OrgVDC just like any other storage policy.



4. A tenant can then associate the VM/disk to be encrypted with the VM Encryption enabled storage policy.



5. To decrypt a VM/Disk, simply associate that VM/disk with a storage policy that doesn't have encryption enabled.

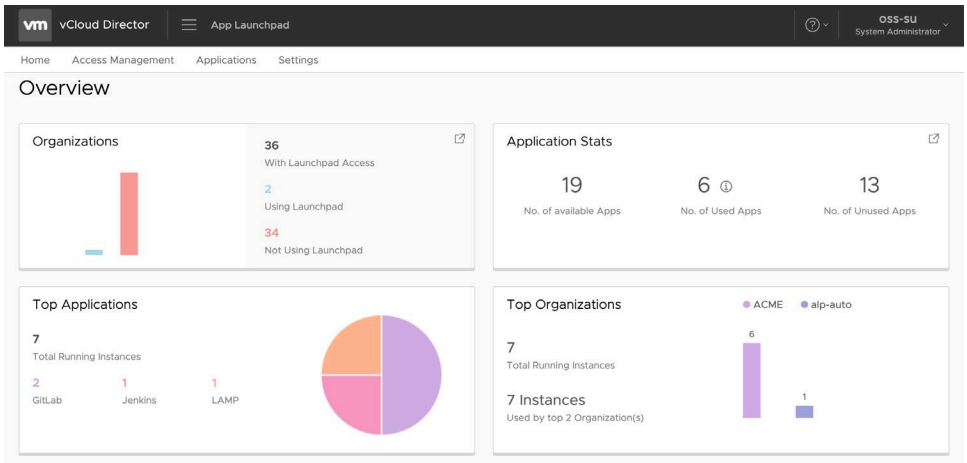
This allows a service provider to manage keys as a service for their tenants. A provider can choose to expose the encryption to tenants via Rights management as an optional storage capability. Per-tenant encryption requires a dedicated vCenter with the provider still managing the keys.

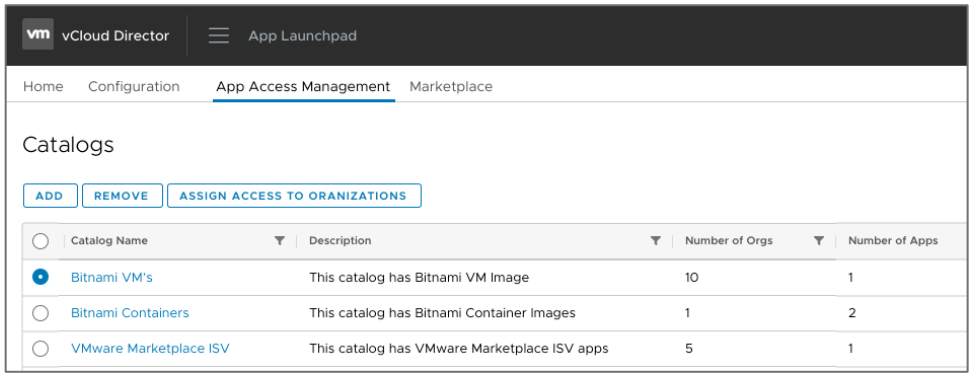
More information: https://docs.vmware.com/en/VMware-vSphere/6.7/com.vmware.vsphere.security.doc/GUID-A29066CD-8EF8-4A4E-9FC9-8628E05FC859.html

App Launchpad

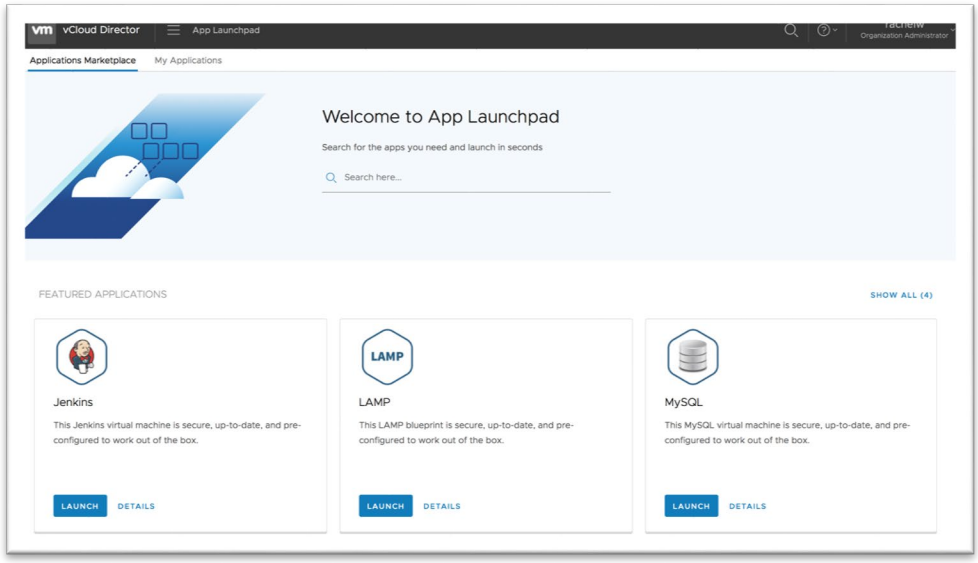
VMware Cloud Director App Launchpad is a free new feature that integrates with the VMware Cloud Marketplace. App Launchpad enables Cloud Providers to offer VMware Cloud Marketplace and in house single VM apps to their tenants, also the Bitnami Community Catalog is available to App Launchpad (MSP contract required). This makes it easy for Cloud Providers' tenants to find, deploy and manage software – across any physical or virtual environment, in any format (VM, container, and public cloud images), and for any cloud platform.

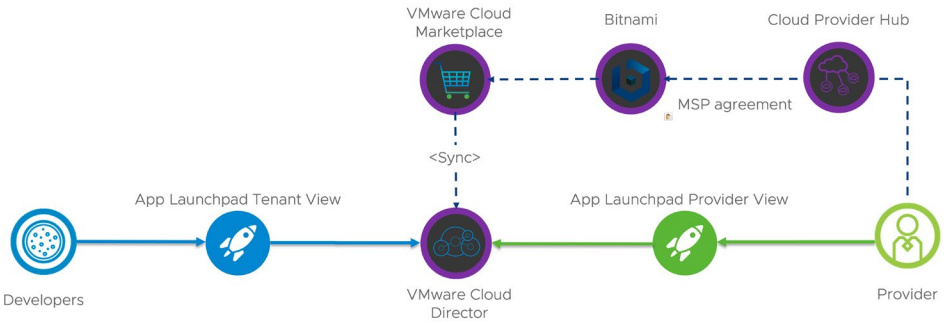
Provider View





Tenant View and Workflow





Container Service Extension (CSE 2.6)

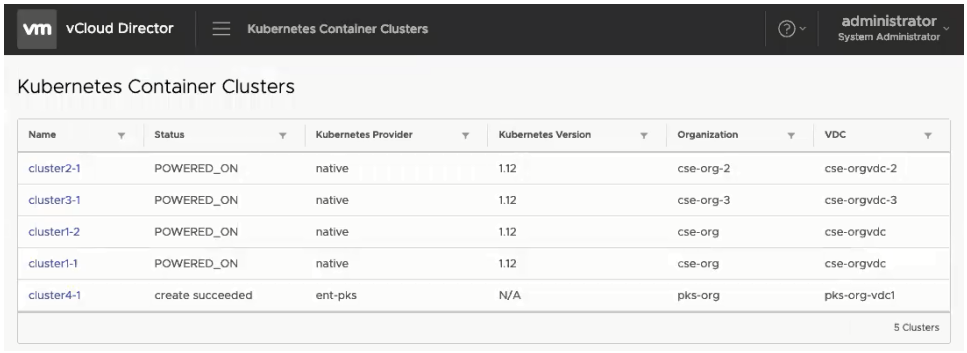
VMware Enterprise Container Service Extension (CSE) is fully integrated with VMware Cloud Director, enabling tenants to create and work with Kubernetes clusters in order to orchestrate the resources required by containerized applications.

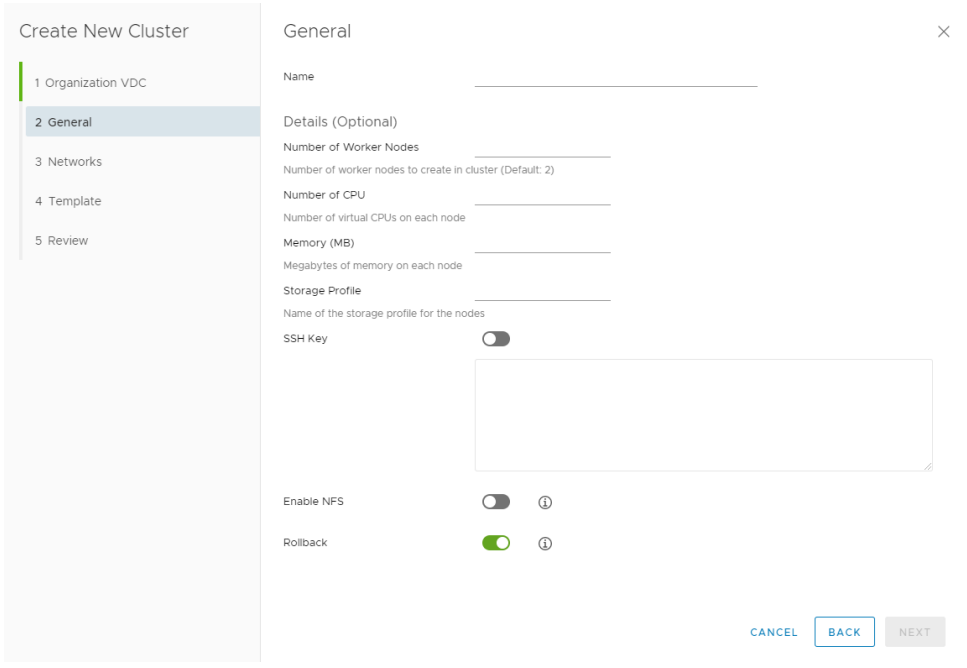
Version 2.6 brings a number of enhancements to CSE:

Previous versions left authorization credentials in clear text from the CSE installation in the configuration files for AMQP, VCD and vCenter. Now these can be encrypted and decrypted at installation and command line.

Support for in place Kubernetes cluster template updates addressing patch version upgrades and minor version updates, negating the need to flush nodes, redeploy and migrate anymore.

Includes a UI plugin for VMware Cloud Director that provides a UI for Kubernetes management. Enabled by a new top-level menu item tenants can drop down into Kubernetes management screens to view, create, and manage clusters. The existing methods of CLI and API remain.





Object Storage Extension (OSE 1.5)

The Object Storage extension provides Cloud Providers the option to use S3 compatible providers as a storage destination for tenants. In this release support for Dell ECS 3.4 has been provided as another object storage vendor that Cloud Providers can configure to use. OSE now supports Cloudian and Dell ECS.

This service can be enabled for tenants and relies on external Dell ECS storage to be available and configured. Tenants can create, list and delete their own buckets, manage ACL and metadata for their objects.

Terraform vCloud Director Provider (2.8)

Terraform Provider enables Cloud Providers' and/or their customers to access "Infrastructure-as-code" e.g. virtual infrastructure that be built, modified and retired entirely by executing code and using the configuration file as the input.

In this update of Terraform vCD Provider prioritization has been given to user requests from public usage and forum feedback, also there has been focus on more completeness of existing workflows and extending the vCD objects supported. Support has been enhanced for many new items including Organization lease time policies and Flex allocation model for Org VDC (API >= vCD 9.7).

- Add routed and direct vApp network types
- VM disk management in vcd_vapp_vm resource
- NIC adapter type for VM
- Report IP assigned by DHCP of a created VM
- Support all Guest Customization options
- Support for Cloud Director 10.1

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

vRealize Operations Tenant App (2.4)

vRealize Operations Tenant App (TA) meters infrastructure and provides options to configure different models for pricing metered infrastructure and services. It also provides tenant specific views that help tenants validate their charges by looking at usage via the VCD UI Plugin.

New capabilities in Tenant App focus around new monitoring and metering capabilities providing more network metrics from NSX, coverage for usage metrics for PAYG Org VDCs and independent disk metrics. New pricing and billing capabilities include 95th percentile network bandwidth, volume discounts, and VM level storage billing for PAYG. Finally, there are some general product enhancements with scheduling and exporting bills, UX/UI enhancements for scale deployments and a whitepaper providing guidance on accurate metering setups.

Additional Resources

For more information about the VMware Cloud Director software solution, visit the product pages at https://www.vmware.com/products/vcloud-director.html

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

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

To purchase the VMware Cloud 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/

Custom Design and Automated Deployment of VMware Cloud Director using Cloud Provider Pod: https://www.vmware.com/products/cloud-provider-pod.html

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