

TMC Self-Managed Sovereign Cloud

Packaged, Self-Managed Deployment Model for
Tanzu Mission Control with Cloud Director Container
Service Extension

Tanzu Mission Control Self-Managed

VCD/CSE integration with on-prem TMC Self-Managed

Cloud Builder Value

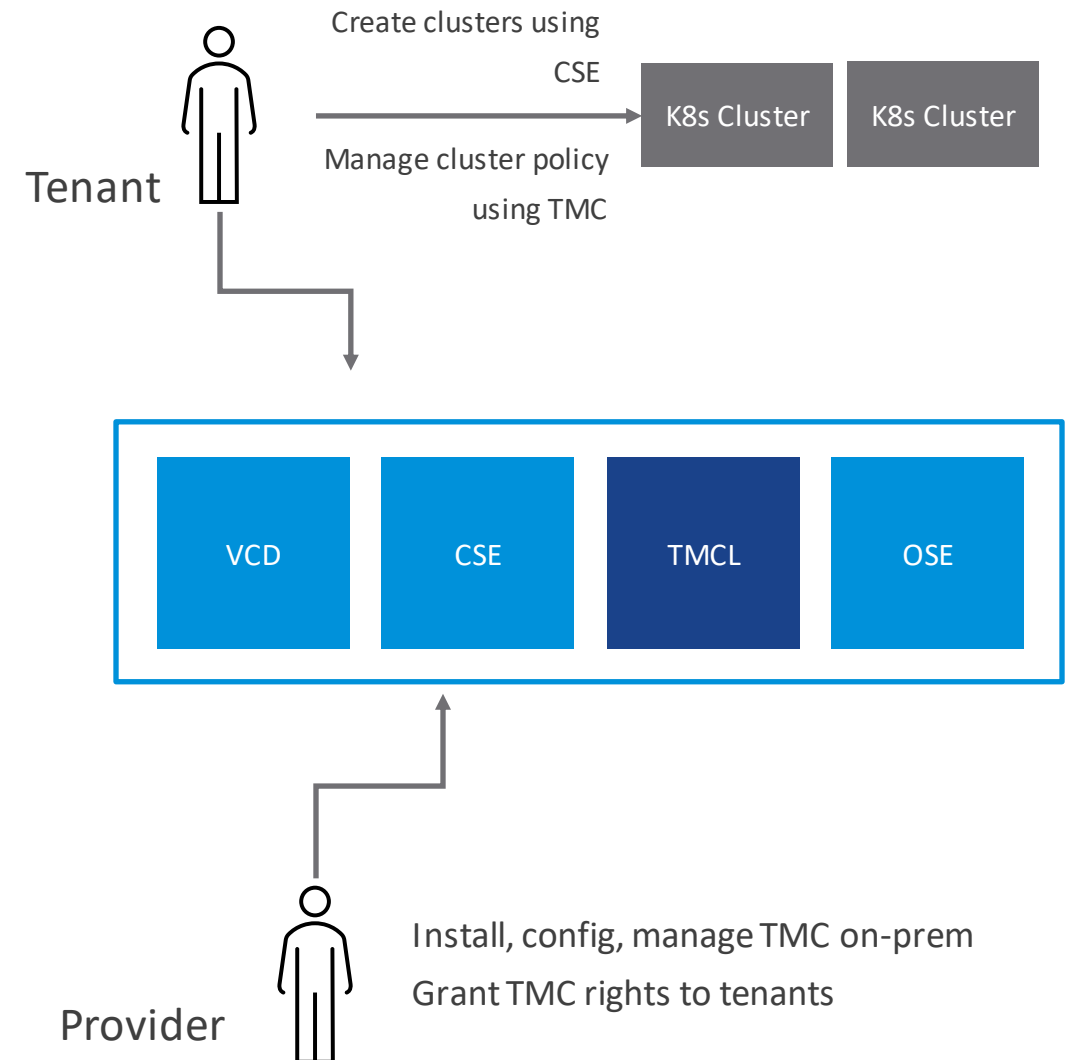
- Extend offering into modern application management
- Strengthen Sovereign Cloud product portfolio

Features

- Deployed on-premises and operated in an air-gapped mode. Select tenants consume TMC functionality using VCD/CSE in a multi-tenant safe way
- Required software stack: VCF/vSphere, NSX-T, Avi, TKG, VCD, CSE, OSE, Harbor, and TMC Self-Managed

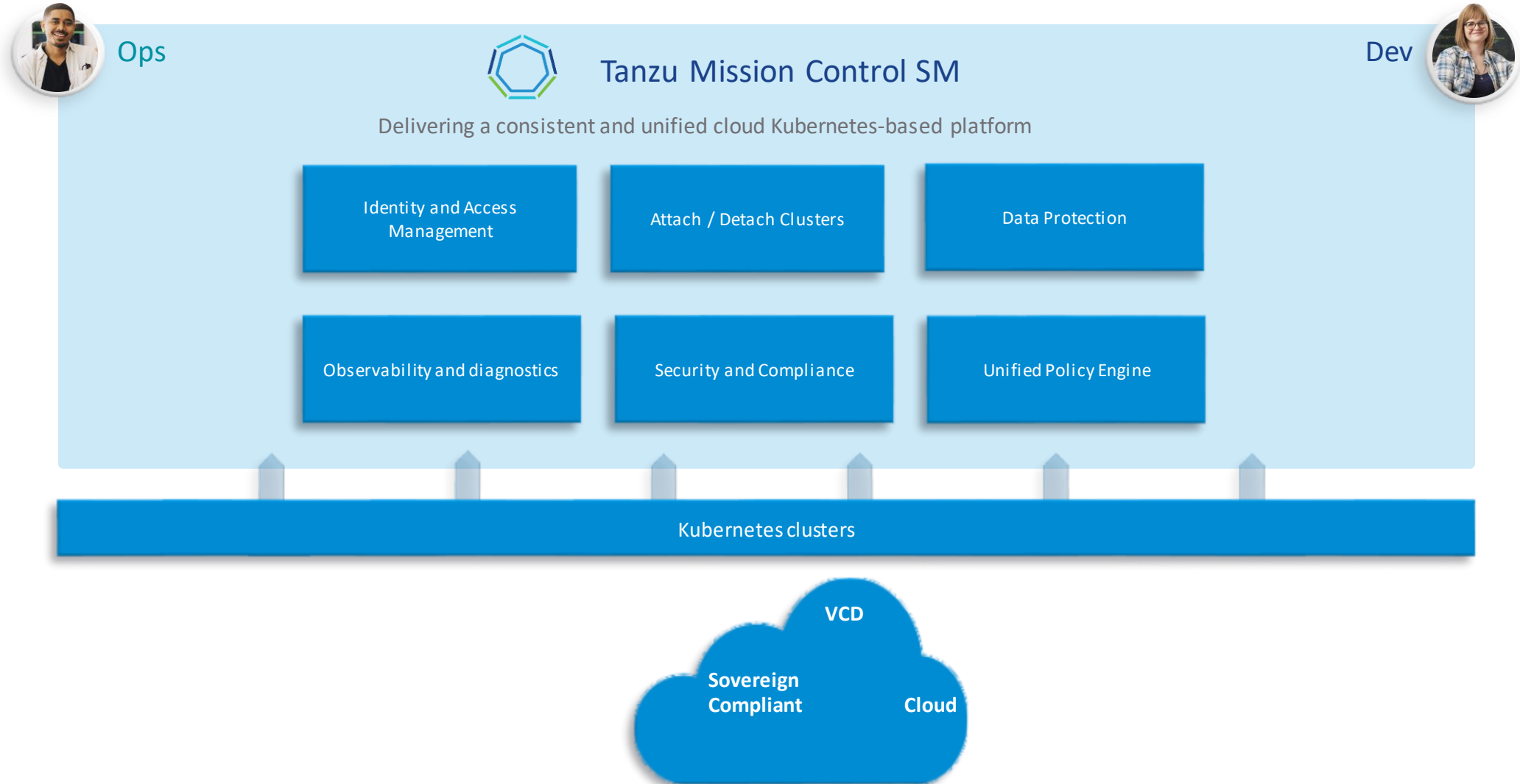
Commercials

- Its is VMware supported and available as a Flex Add-on on a consumption basis
- Tech Preview is LIVE. GA coming soon
- Contact your account rep. to learn more



Sovereign Compliant TMC Self Managed

Solution Benefits / Use Cases



Key Advantages of TMC SM Sovereign Cloud

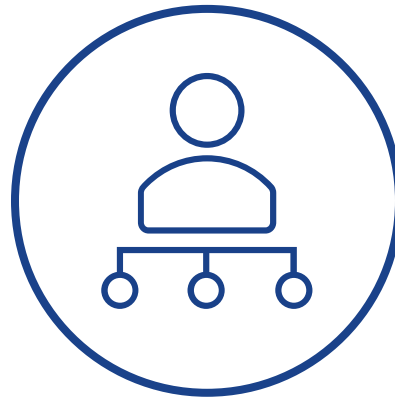
Overview



Centralize
Kubernetes
Management



Day 2
Administration
more efficiently for
clusters



Developer
productivity and
efficiency with
managed Kubernetes
services that include
guardrails



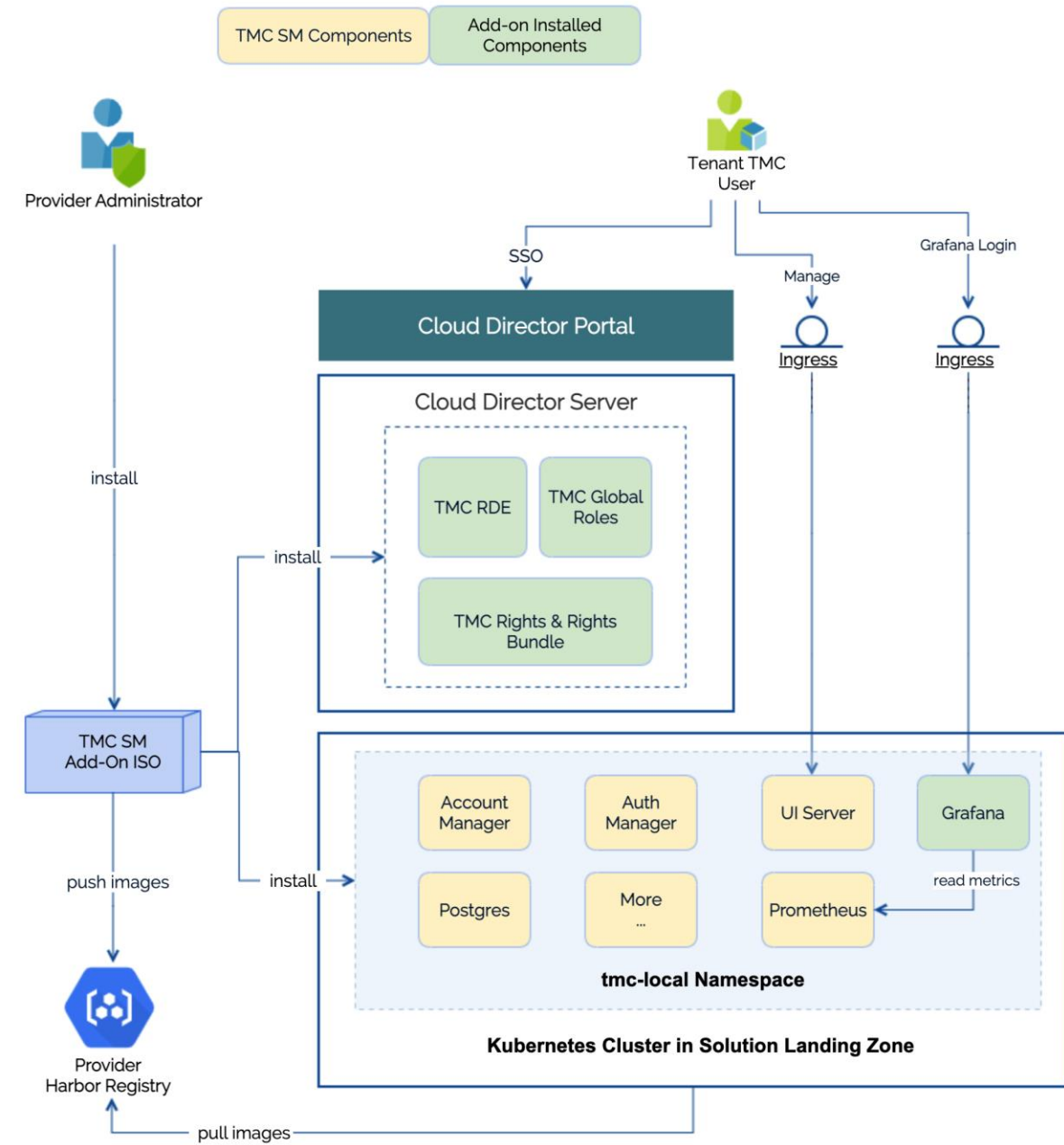
Disconnected
Mode. No
Hyperscaler
dependency. Air-
gapped is also
available



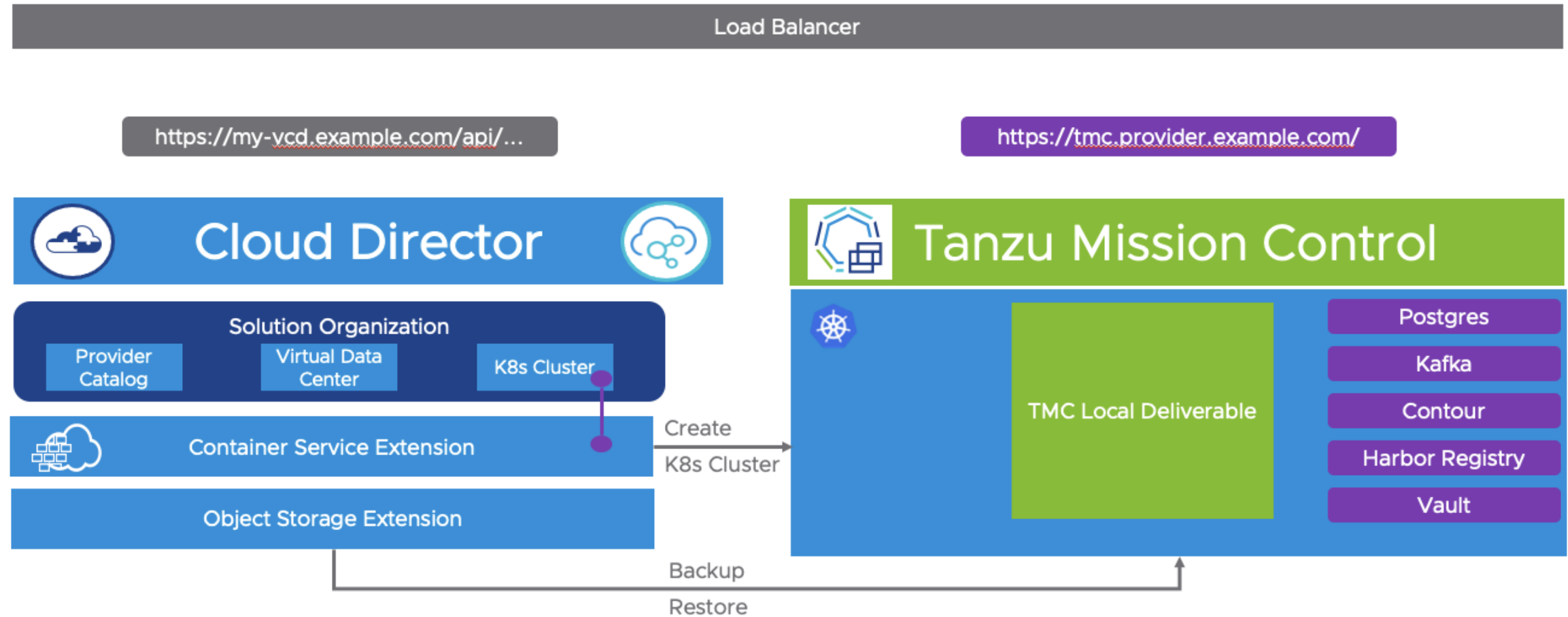
Consistency and
Speed for DevOps

High-Level Solution Architecture

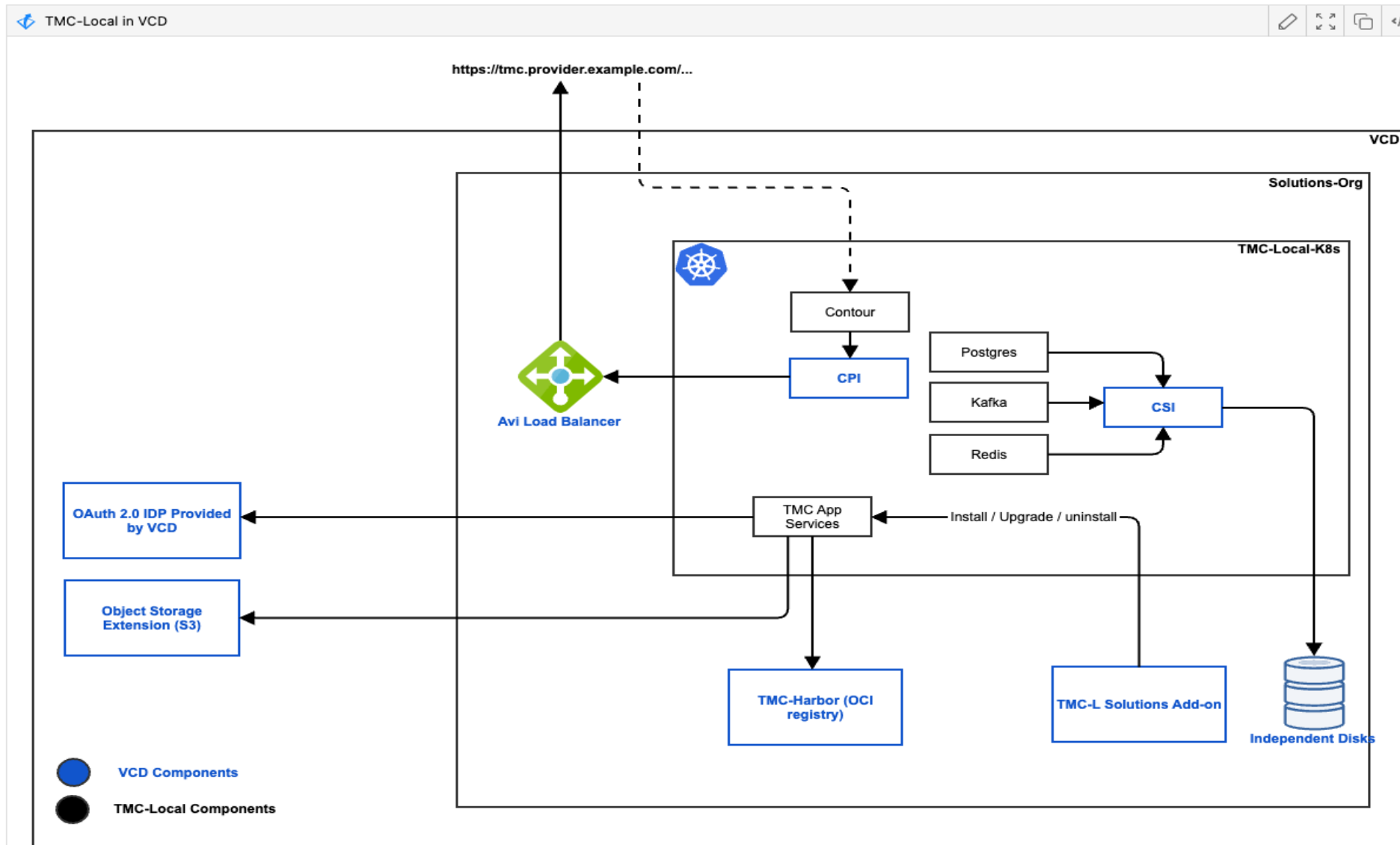
Integration with VMware Cloud Director tenancy structure satisfies multi-tenancy requirement



Cloud Director Deployment for TMC Local




TMC Local Kubernetes Cluster in VCD



TMC Solutions Add On

Provider Portal – Tanzu Mission Control Add-On

 tmc

Resources

Libraries

Administration

Monitor


More ▾

Add-Ons (2)

↑ UPLOAD

CONFIGURE LANDING ZONE

Q Tanzu

 **Tanzu Mission Control**

vmware | v0.1.0-21897297 | Instances: 1

Cloud Director Extension for TMC

DETAILS

NEW INSTANCE ⓘ

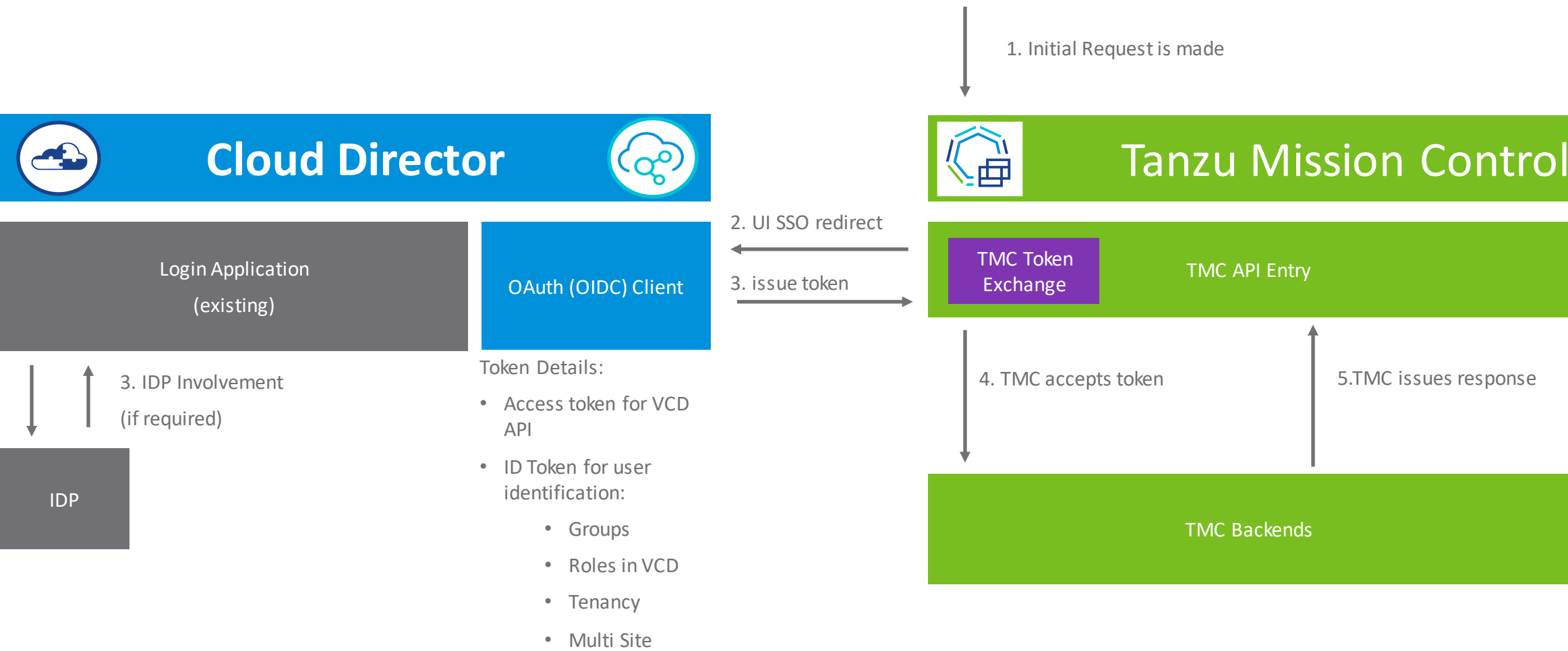
⋮

SSO via VCD to TMC

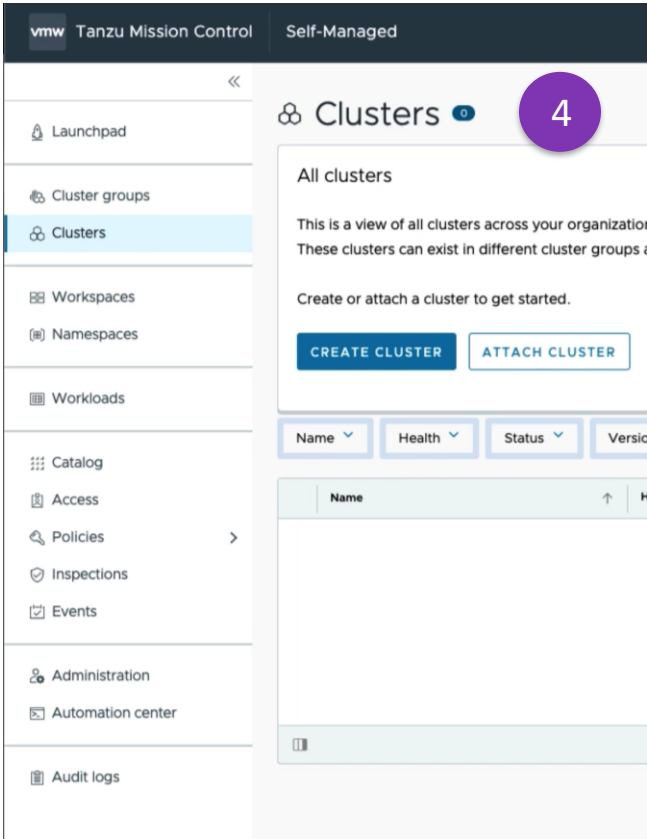
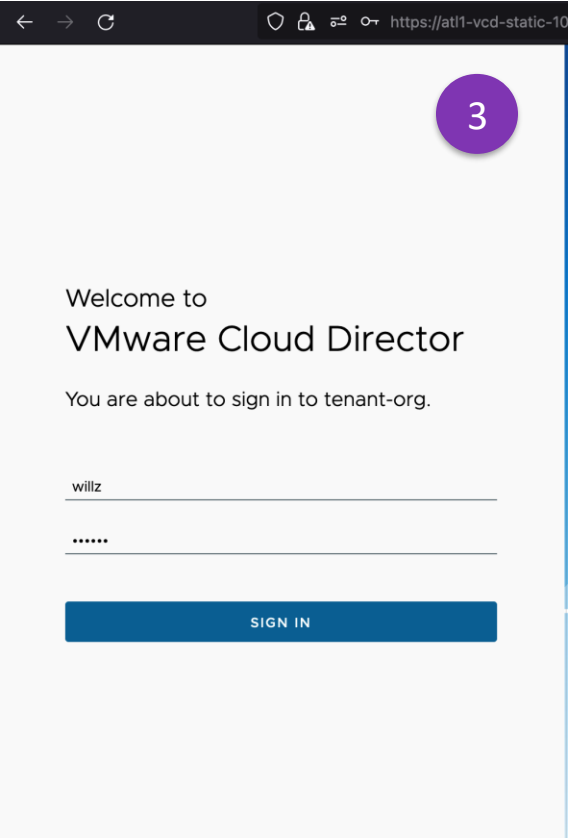
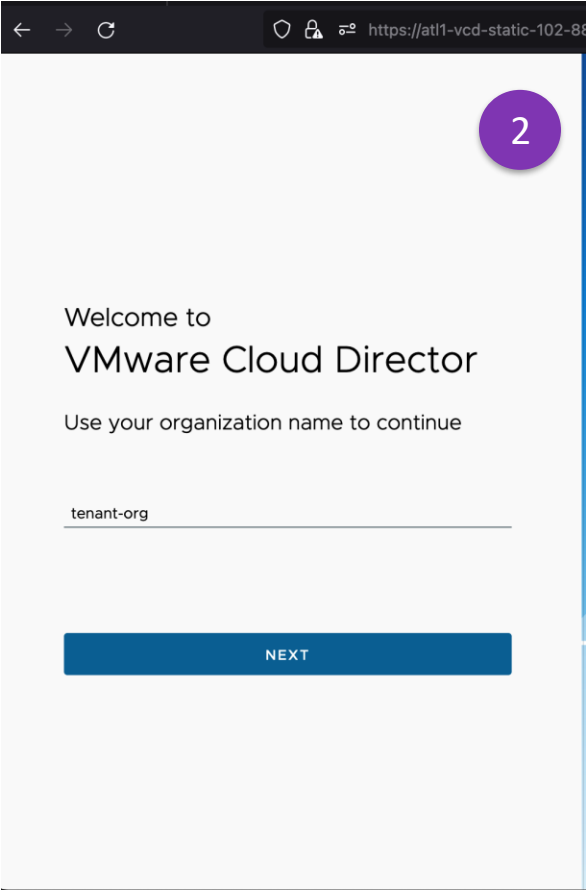
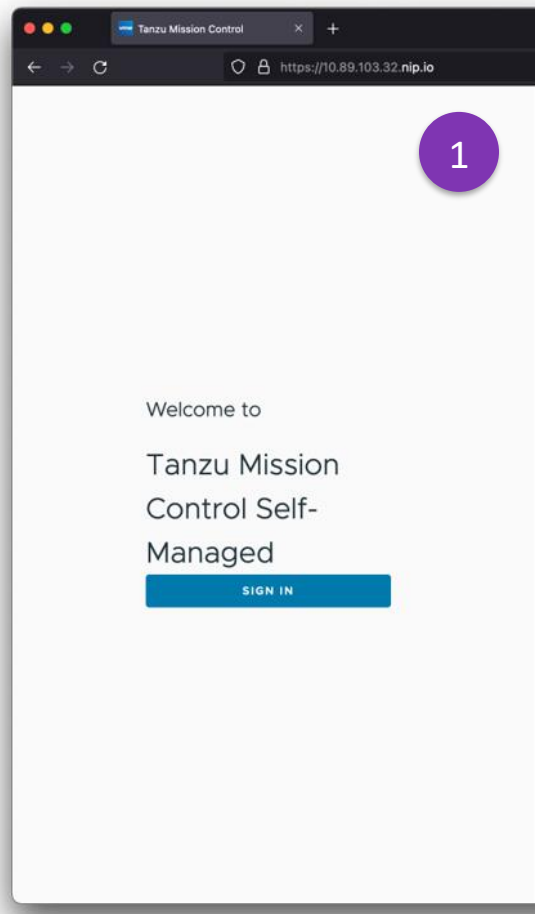
IDP Proxy for TMC Local Sovereign Cloud

- As part of this integration between VCD and TMC, TMC requires a method for authenticating users that both provides tenancy information for the user and is hosted locally in the sovereign's jurisdiction.
- VCD will facilitate this integration by adding the functionality of an OpenId Connect (OIDC) 1 server that TMC can configure as its IDP.

Cloud Director / TMC Local Request flow





TMC-SM Single Sign-on – IDP Proxy




Attach/Detach Cluster


CSE: Create TKG Clusters

 tmc

[Data Centers](#) [Applications](#) [Networking](#) [Libraries](#) [Administration](#) [Monitor](#) [More](#) 

Kubernetes Container Clusters

[NEW](#)  [RESIZE](#) [DOWNLOAD KUBE CONFIG](#) [UPGRADE](#) [DELETE](#)

	Name	Status	Kubernetes Provider	Kubernetes Version
	testcluster	Available	VMware Tanzu Kubernetes Grid	v1.23.10+vmware.1

TMC: Attach CSE Cluster

The screenshot shows the 'Attach cluster' wizard in the Tanzu Mission Control interface. The browser address bar shows the URL `https://10.89.103.32.nip.io/clusters/attach`. The left sidebar contains navigation links: Launchpad, Cluster groups, Clusters (selected), Workspaces, Namespaces, Workloads, Catalog, Access, Policies, Inspections, Events, Administration, Automation center, and Audit logs. The main content area is titled 'Attach cluster' and contains two steps:

- 1. Name and assign** (Choose your cluster's name and assign it to a cluster group)
 - Cluster name**: `tmc-tp06`
Name must start and end with a letter or number, contain only lowercase letters, numbers, and hyphens, and be a max length of 63 characters.
 - Cluster group**: `default`
 - Description (optional)**:
 - Labels (optional)**:
 - key : value
 - ADD ANOTHER LABEL
 - NEXT
- 2. Install agent** (Install the Tanzu Mission Control agent on your cluster and verify its connection)
 - VIEW YOUR CLUSTER

Manually installing the TMC Agent

```
jmace@jmaceW12FV tb-64426 % kubectl create -f "https://10.89.103.32.nip.io/installer?id=b1380f8dea146c8eb30a669d0a7f04eaa8a3f24031c45c60da41eb345a991a88&source=attach"
namespace/vmware-system-tmc created
configmap/stack-config created
secret/tmc-access-secret created
serviceaccount/extension-updater-serviceaccount created
Warning: policy/v1beta1 PodSecurityPolicy is deprecated in v1.21+, unavailable in v1.25+
podsecuritypolicy.policy/vmware-system-tmc-agent-restricted created
clusterrole.rbac.authorization.k8s.io/extension-updater-clusterrole created
clusterrole.rbac.authorization.k8s.io/vmware-system-tmc-psp-agent-restricted created
clusterrolebinding.rbac.authorization.k8s.io/extension-updater-clusterrolebinding created
clusterrolebinding.rbac.authorization.k8s.io/vmware-system-tmc-psp-agent-restricted created
service/extension-updater created
Warning: spec.template.spec.affinity.nodeAffinity.requiredDuringSchedulingIgnoredDuringExecution.nodeSelectorTerms[1].matchExpressions[0].key: beta.kubernetes.io/os is deprecated since v1.14; use "kubernetes.io/os"
instead
deployment.apps/extension-updater created
customresourcedefinition.apiextensions.k8s.io/agents.clusters.tmc.cloud.vmware.com created
customresourcedefinition.apiextensions.k8s.io/detachconfigs.intents.tmc.cloud.vmware.com created
customresourcedefinition.apiextensions.k8s.io/extensionconfigs.intents.tmc.cloud.vmware.com created
customresourcedefinition.apiextensions.k8s.io/extensionintegrations.clusters.tmc.cloud.vmware.com created
customresourcedefinition.apiextensions.k8s.io/extensionresourceowners.clusters.tmc.cloud.vmware.com created
customresourcedefinition.apiextensions.k8s.io/extensions.clusters.tmc.cloud.vmware.com created
serviceaccount/extension-manager created
clusterrole.rbac.authorization.k8s.io/extension-manager-role created
clusterrolebinding.rbac.authorization.k8s.io/extension-manager-rolebinding created
service/extension-manager-service created
deployment.apps/extension-manager created
serviceaccount/agent-updater created
clusterrole.rbac.authorization.k8s.io/agent-updater-role created
clusterrolebinding.rbac.authorization.k8s.io/agent-updater-rolebinding created
deployment.apps/agent-updater created
Warning: batch/v1beta1 CronJob is deprecated in v1.21+, unavailable in v1.25+; use batch/v1 CronJob
Warning: spec.jobTemplate.spec.template.spec.affinity.nodeAffinity.requiredDuringSchedulingIgnoredDuringExecution.nodeSelectorTerms[1].matchExpressions[0].key: beta.kubernetes.io/os is deprecated since v1.14; use "
kubernetes.io/os" instead
cronjob.batch/agentupdater-workload created
jmace@jmaceW12FV tb-64426 %
```

Confirm TMC Agent is installed

```
jmage@jmageW12FV tb-64426 % kubectl get pods -n vmware-system-tmc
```

NAME	READY	STATUS	RESTARTS	AGE
agent-updater-5447c5495-8t1p5	1/1	Running	0	4m42s
agentupdater-workload-28023452--1-8vfhw	0/1	Completed	0	106s
agentupdater-workload-28023453--1-xnjwp	1/1	Running	0	34s
cluster-health-extension-765f7f7fcc-8fc8t	1/1	Running	0	49s
cluster-secret-7d8dc67498-s2q72	1/1	Running	0	30s
extension-manager-5897d84d7b-vtx8g	1/1	Running	0	4m44s
extension-updater-785b469bfb-tc22d	1/1	Running	0	4m49s

```
jmage@jmageW12FV tb-64426 %
```

TMC: Attached CSE Cluster Details

Tanzu Mission Control

Self-Managed

Launchpad

Cluster groups

Clusters

Workspaces

Namespaces

Workloads

Catalog

Access

Policies

Inspections

Events

Administration

Automation center

DARK

tmc-tp06

Healthy

Last updated 6 minutes ago

ACTIONS

Overview

Nodes

Namespaces

Workloads

Add-ons

Inspections

Events

Cluster group	default	Provider	Unknown	Node count	7	Created	Thursday, April 13, 2023, 01:27pm
Management cluster	attached	Type	Attached	Total memory	55.70 GB		
Provisioner	attached	Kubernetes version	v1.22.9+vmware.1	Total cores	14 CPUs		

Labels

tmc.cloud.vmware.com/creator: Jeff_Mace

Requested/Allocatable CPU

74%

10.37 CPUs / 14 CPUs

Requested/Allocatable memory

27%

15.28 GB / 55.70 GB

Component health

controller-manager

etcd-O

kube-apiserver

scheduler

Worker nodes

Agent and extensions health

Inspection

Run your first inspection to ensure your cluster follows best practices

RUN INSPECTION

Data protection

Data protection is not enabled

Back up your cluster data and persistent volumes

ENABLE DATA PROTECTION

Backup and Restore

OSE: Bucket and Security Credentials

Object Storage

Dashboard

Buckets

Security Credentials

Kubernetes Clusters

vApps

Catalogs

Users

Settings

About

Create Bucket

Asterisk(*) denotes required

Region *us-north-1 (local)

Name *tmc-backup-bucket

Activate Versioning

Object Lock

SAVECANCEL

Object Storage

Dashboard

Buckets

Security Credentials

Kubernetes Clusters

vApps

Catalogs

Users

Settings

About

Security Credentials

Security credentials are used to visit current user's object storage via below s3 API. [SHOW DETAIL](#)

User CredentialsApplication Credentials

Create Application Credential

Asterisk(*) denotes required

Application Name *key-tmc-backup

☐ Apply the credential to all buckets

☒ Apply the credential to selected buckets

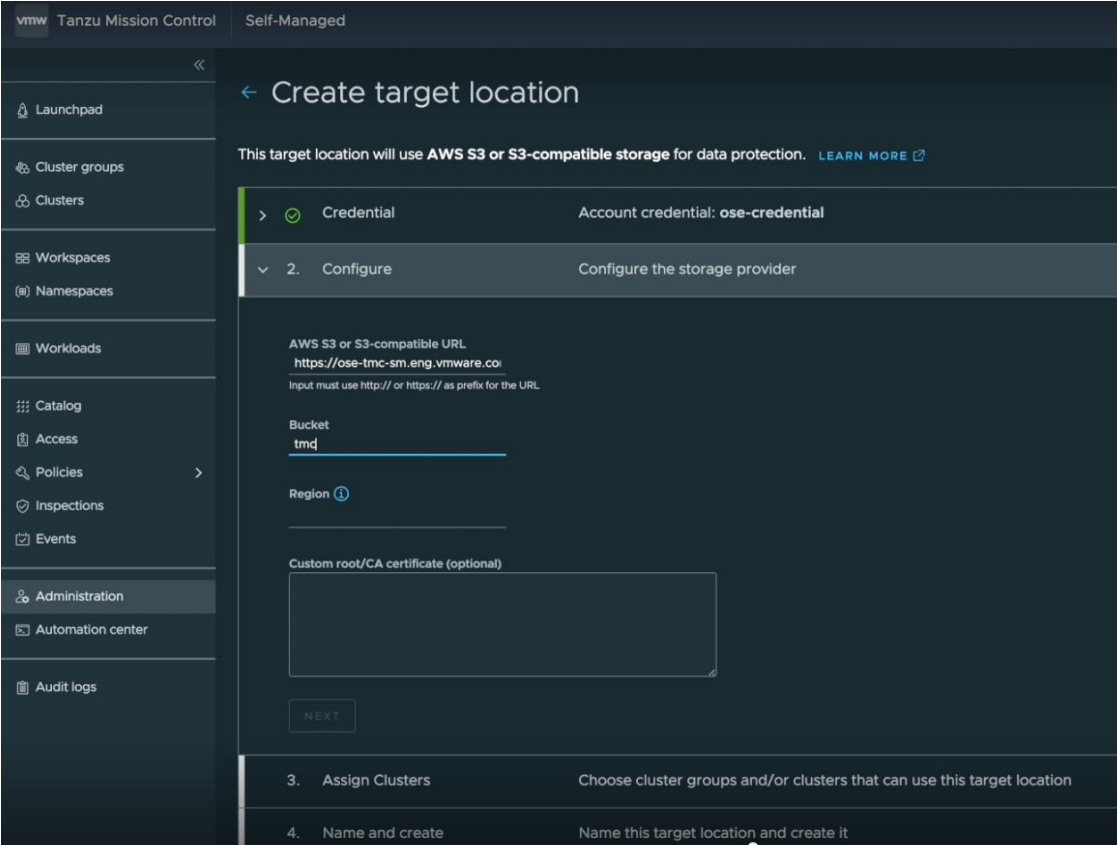
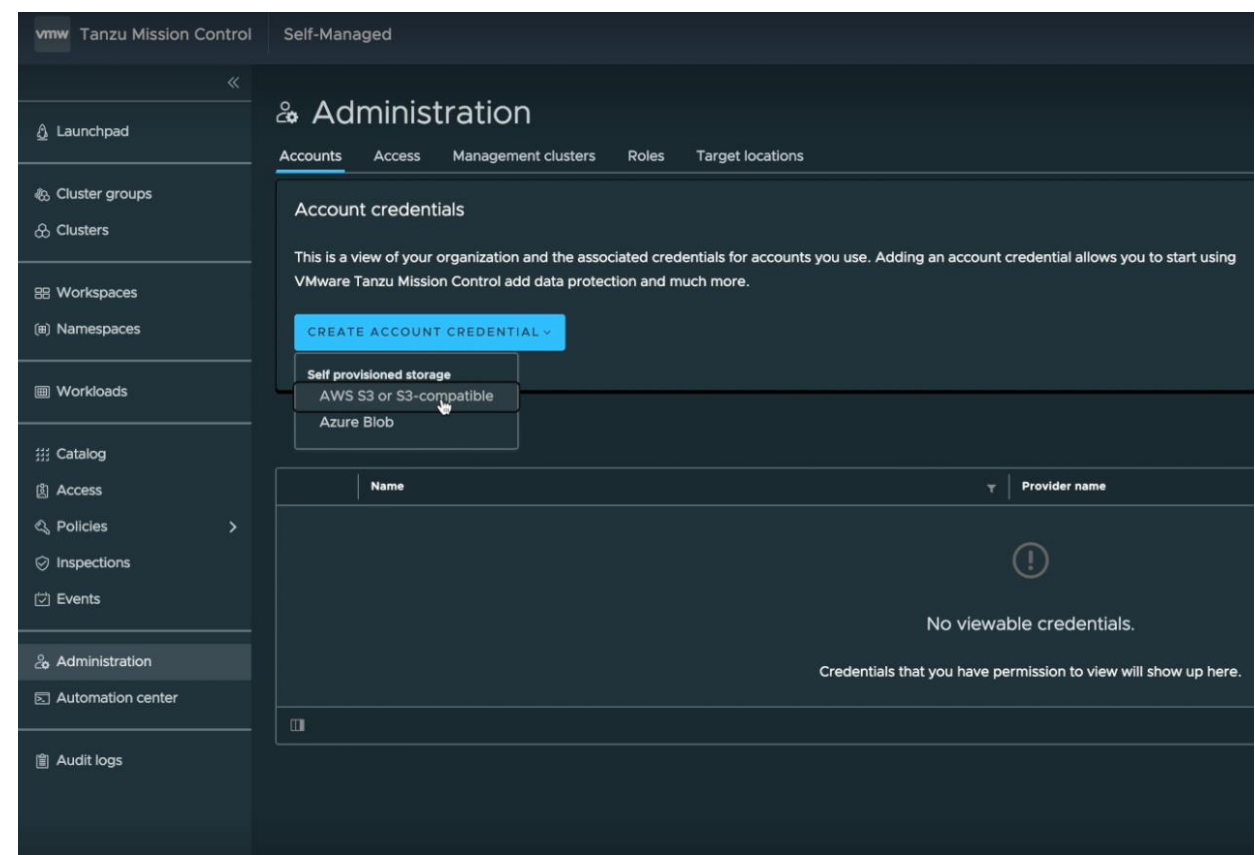
Region *us-north-1

Buckets

tmc-backup-bucket

CREATECANCEL

TMC: Configure S3 Account Credentials and Target Location



TMC: Enable Cluster Data Protection

vmw Tanzu Mission Control

Self-Managed

Launchpad

Cluster groups

Clusters

Workspaces

Namespaces

Workloads

Catalog

Access

Policies

Inspections

Events

Administration

Automation center

Audit logs

← alp-vcd102-tkg Healthy

Last updated less than a minute ago

OverviewNodesNamespacesWorkloadsAdd-onsInspectionsEvents

Cluster groupdefault

Management clusterattached

Provisionerattached

Labelstmc.cloud.vmware.com/creator: tmc-admin

ProviderUnknown

TypeAttached

Kubernetes versionv1.22.9+vmware.1

Node count4

Total memory64.04 GB

Total cores16 CPUs

Created

Friday, June 09, 2023, 12:41pm

Description

alp-vcd102-tkg

Requested/Allocatable CPU

54%

8.58 CPUs / 16 CPUs

Requested/Allocatable memory

Component health

controller-manager

etcd-0

kube-

Agent and extensions health

agent-updater

cluster-auth-pinniped

package-deployment

policy-insight-exte

Inspection

Run your first inspection to ensure your cluster follows best practices

RUN INSPECTION

Data protection

⚠ Data protection is not enabled

Back up your cluster data and persistent volumes

ENABLE DATA PROTECTION

Enable data protection

To enable data protection, we will install Velero on your cluster.

To learn more about how we use Velero to provide data protection, [click here](#)

CANCEL

ENABLE

TMC: Create Cluster Backup

vmw

Tanzu Mission Control

Self-Managed

Launchpad

Cluster groups

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Workspaces

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Audit logs

←

alp-vcd102-tkg

Healthy

Last updated less than a minute ago

Overview

Nodes

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Events

Cluster group

default

Management cluster

attached

Provisioner

attached

Labels

tmc.cloud.vmware.com/creator: tmc-admin

Provider

Unknown

Type

Attached

Kubernetes version

v1.22.9+vmware.1

Node count

4

Total memory

64.04 GB

Total cores

16 CPUs

Created

Friday, June 09, 2023, 12:41pm

Description

alp-vcd102-tkg

Requested/Allocatable CPU

54 %

8.58 CPUs / 16 CPUs

Requested/Allocatable memory

Component health

✓ controller-manager

✓ etcd-0

✓ kube-...

Agent and extensions health

✓ agent-updater

✓ cluster-auth-pinniped

✓ package-deployment

✓ policy-insight-exte

Inspection

Run your first inspection to ensure your cluster follows best practices

RUN INSPECTION

Data protection

⚠ Data protection is not enabled

Back up your cluster data and persistent volumes

ENABLE DATA PROTECTION

Enable data protection

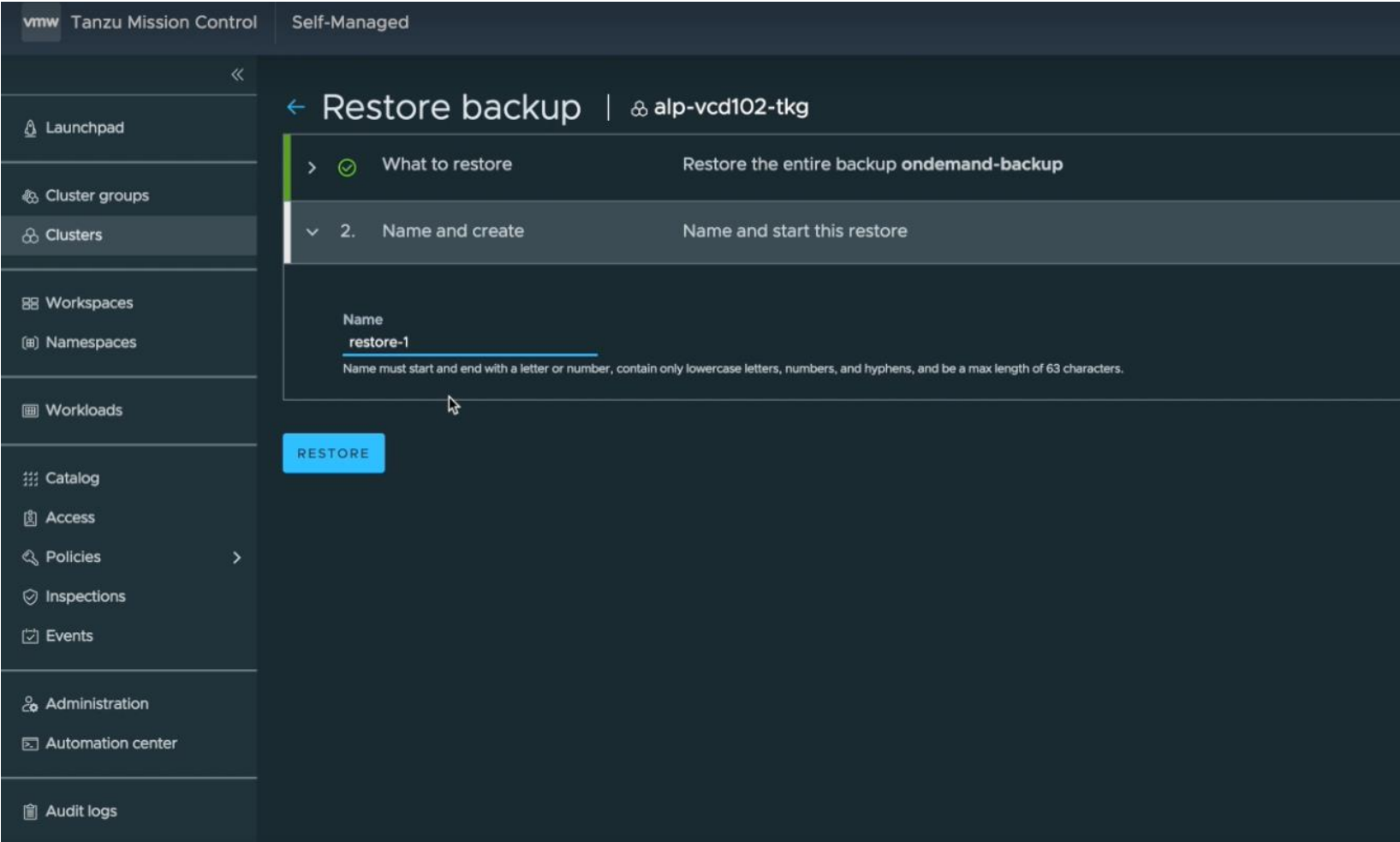
To enable data protection, we will install Velero on your cluster.

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CANCEL

ENABLE

TMC: Restore Backup



Feature Set

What's in Tech Preview ?

Tech Preview

- Basic TMC end user UX workflows including
 - TMC and VCD SSO provider/tenant flow
 - Tanzu package deployment*
 - Policy Management
 - Data Protection
 - Inspections*

*requires customer to pull corresponding images/imgpkgs into their container repo

TMC-local Tech Preview VCD Requirements

Providers Pre-requisites

- Bring your own Harbor
- VCD 10.4.2 or higher
- CSE 4.0.3 based TKG 1.6.1 k8s 1.23.
- CPI, CSI, CAPVCD versions should be the one that are used out of the box with CSE 4.0.3 Fresh-Install GA.
- CSE 4.0.400 - UI plugin*
- OSE 2.2.1
- Github Personal API Token (Requires an account on GitHub)
- TMC services DNS zone (e.g., tmc.slz.vcd.local and *.tmc.slz.vcd.local)
-

*One-off build for Tech preview

Tech Preview Delivery – LIVE !!

- Tech Preview is launched on [VMware Community Site Page](#)
- VCD delivery will be available on Customer Connect and includes Install Guide, Software Binaries etc.
- Timeline
 - Providers ready with the non-production or lab environment **by June 12th, 2023**,
 - The Tech Preview team will communicate via email the release of binaries and documentation by **June 15th, 2023**
- Customer feedback will be shared at VMware Community Site Page (Optionally with Manish/Rohan/Girish)
- Engineering will track feedback and bugs

TMC-SM GA Features

- Auto discover TMC-Self-Managed (SM) through UI
- Tenant onboarding to TMC-Self-Managed (SM) using publishing and unpublishing mechanism of roles and rights
- Auto-attach clusters to TMC-Self-Managed (SM)
- UI can direct tenants to manage clusters in TMC-Local UI through SSO.
- Detach clusters from TMC-Self-Managed (SM)
- RDE Upgrade and CSE Upgrade

Thank you