

M1 - VCF Operations Overview

Importance

VMware Cloud Foundation (VCF) Operations encompasses the day-to-day management, monitoring, and life cycle tasks required to maintain a healthy and efficient private cloud infrastructure. Through AI-powered management capabilities and deep integrations into your existing VMware product suite, VCF Operations provides streamlined control over compute, storage, networking, and management services across the entire fleet.

You must understand the capabilities and use cases VCF Operations enables, which help IT teams to manage their entire infrastructure fleet with greater efficiency and reduced risk.

Module Lessons

1. Introduction to VCF
2. Introduction to VCF Operations
3. VCF Operations Architecture
4. VCF Operations Navigation

Introduction to VCF Operations

Learner Objectives

- List the key features of VCF Operations
- Outline VCF Operations use cases

VCF Operations Overview

VCF Operations is the operations management platform that is a part of the VMware Cloud Foundation product suite.

VCF Operations delivers intelligent operations management with application-to-storage visibility across physical, virtual, and cloud infrastructures. It allows you to view and manage your entire fleet and all VCF deployments along with their associated management and workload domains in one place.

VCF Operations provides a more simplified and streamlined experience as organizations move to complex private, hybrid, and multi-cloud IT environments.



VCF Operations Features

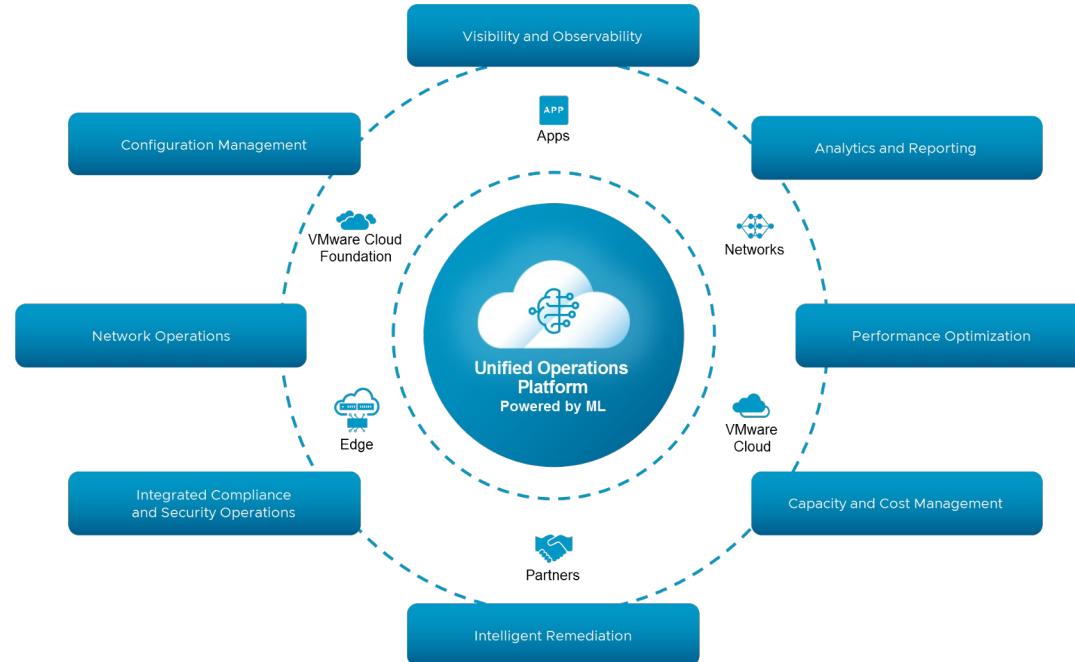
VCF Operations offers several key features:

- Comprehensive monitoring and management capabilities to support your entire fleet
- Predictive analytics for continuous operations management
- Continuous performance optimization and intelligent remediation capabilities
- Real-time, predictive capacity and cost analytics to proactively forecast demand and deliver actionable recommendations
- Cost transparency across private, hybrid, and public clouds to optimize planning
- Automation capabilities to support capacity planning, workload placement, and infrastructure optimization
- Integrated compliance features to reduce risks and ensure regulatory standards compliance
- Support for physical, virtual, and cloud infrastructure and container platforms

VCF Operations Use Cases

With 360-degree infrastructure management capabilities, VCF Operations helps organizations achieve mission-critical use cases:

- Visibility and Observability
- Analytics and Reporting
- Performance and Optimization
- Capacity and Cost Management
- Intelligent Remediation
- Integrated Compliance and Security Operations
- Network Operations
- Configuration Management

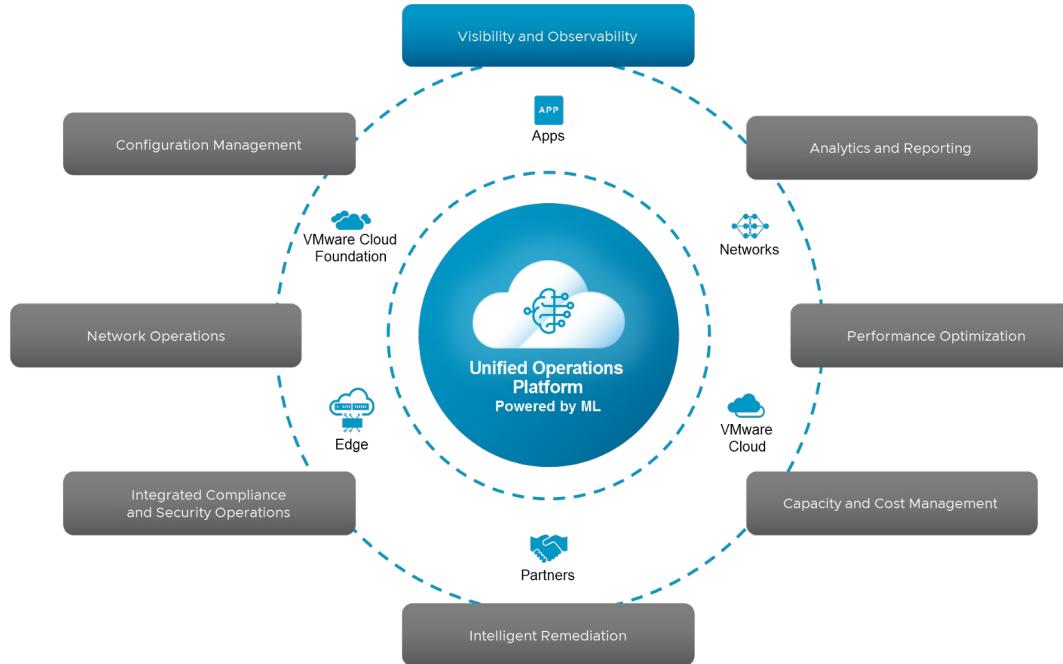


Visibility and Observability

VCF Operations integrates various infrastructure operations features to provide comprehensive visibility and observability into your entire fleet.

A wide range of data metrics are collected from infrastructure objects. These metrics are then used in visibility tools, such as Dashboards, Views, and Reports, to help organizations understand the status of their infrastructure.

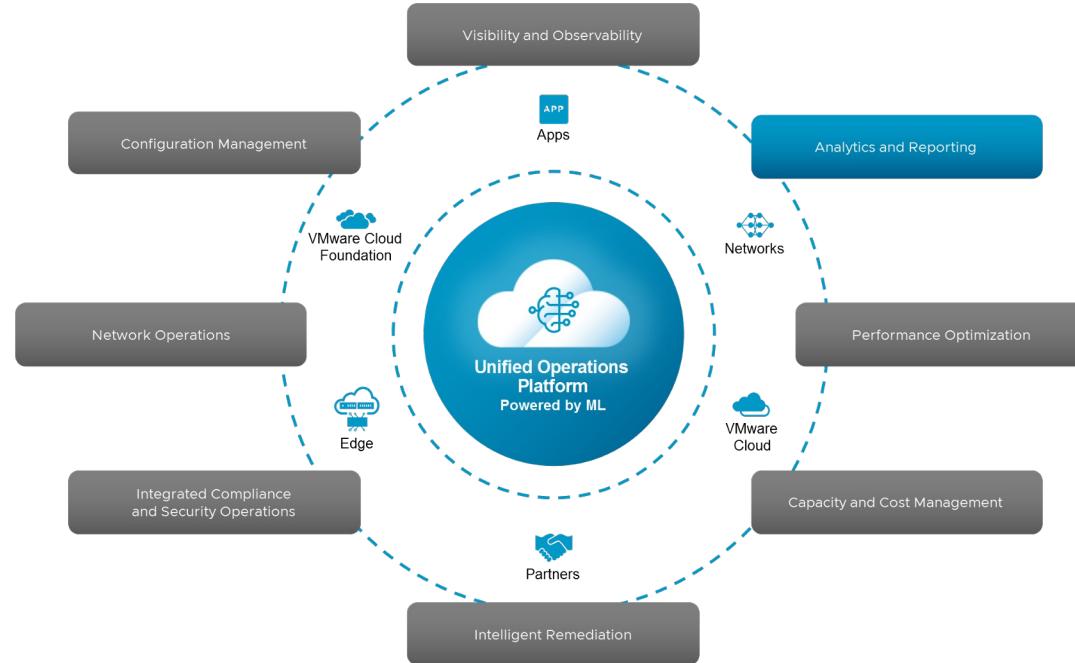
VCF Operations can also help organizations to monitor their Kubernetes deployment and Tanzu workloads from the VCF Operations console.



Analytics and Reporting

With the data and metrics collected from an organization's IT infrastructure, administrators can use the Alerts, Troubleshooting Workbench, and Log Analysis capabilities to remediate issues when they arise.

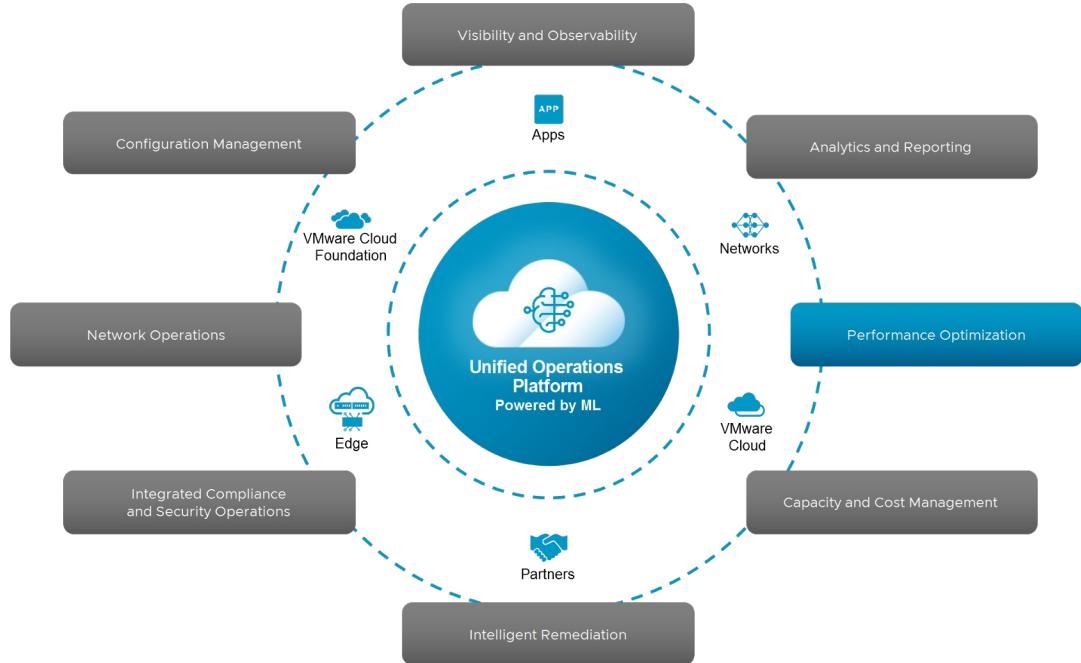
Troubleshooting Workbench enables you to perform advanced troubleshooting tasks on the alerts triggered on objects from your fleet. You can investigate both known and unknown issues in VCF Operations.



Performance and Optimization

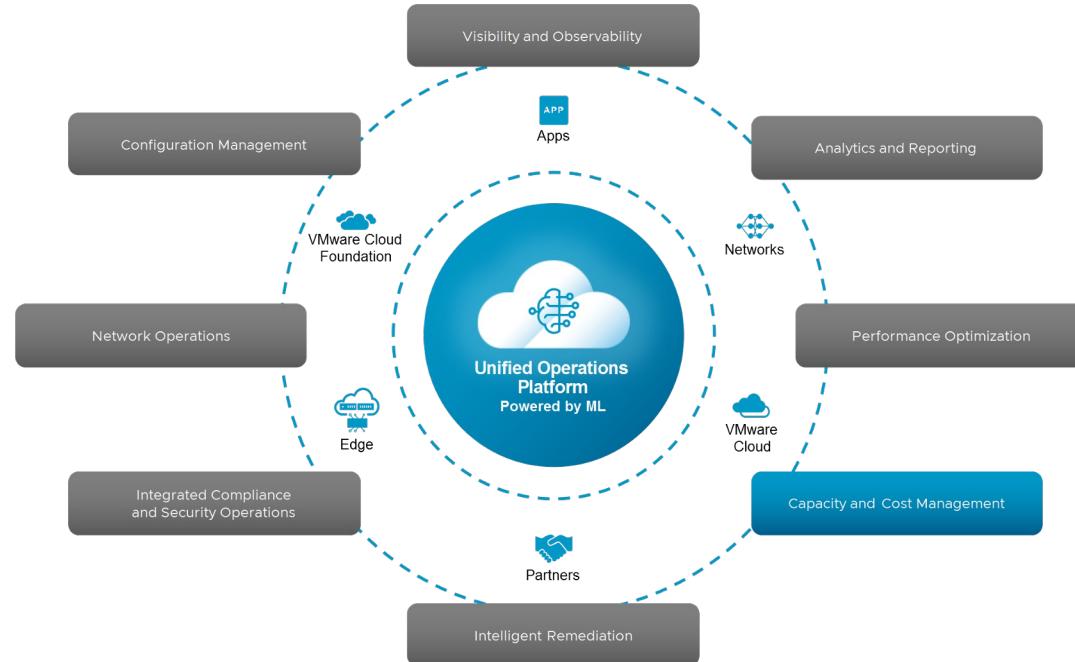
Organizations can use VCF Operations to ensure optimal performance across private cloud environments by leveraging real-time predictive analytics and Artificial Intelligence (AI)-driven insights.

By automatically balancing workloads and avoiding contention, organizations can continuously optimize hyperconverged infrastructure (HCI) and software-defined data center (SDDC) to meet operational and business objectives.



Capacity and Cost Management

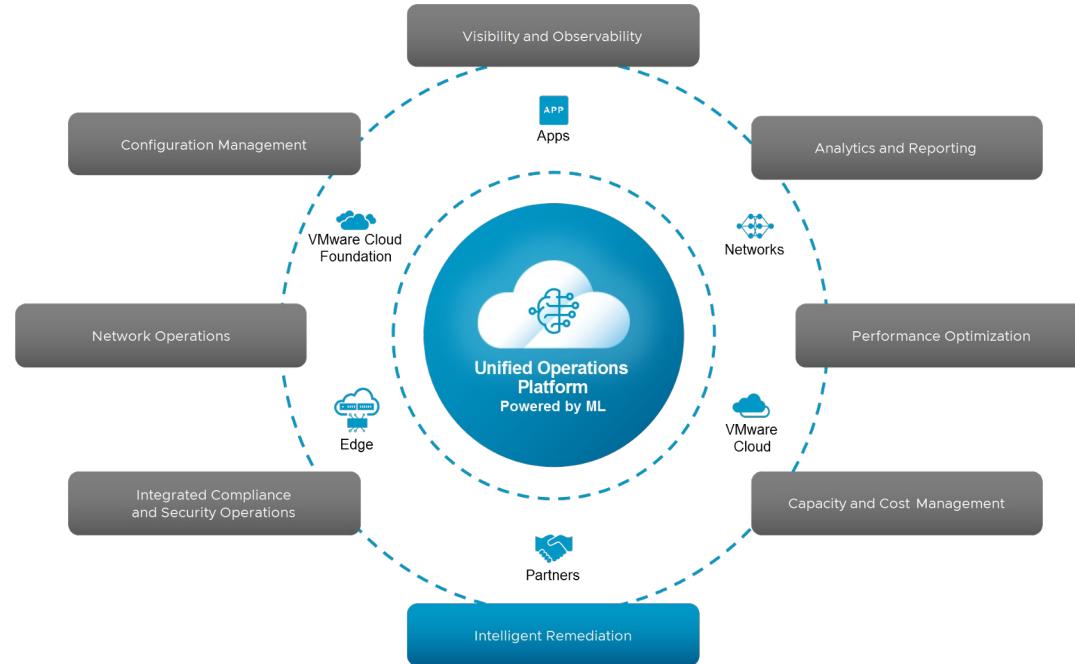
Organizations can reduce costs and improve efficiency through real-time, predictive capacity and cost analytics. By leveraging machine learning and AI, it accurately forecasts future demand, provides actionable recommendations, and automates resource reclamation and rightsizing, optimizing utilization and minimizing expenses across VMware Cloud Foundation.



Intelligent Remediation

VCF Operations enables proactive troubleshooting and remediation by correlating metrics, events, logs, troubleshooting workbench, and configuration data to detect anomalies across your private cloud.

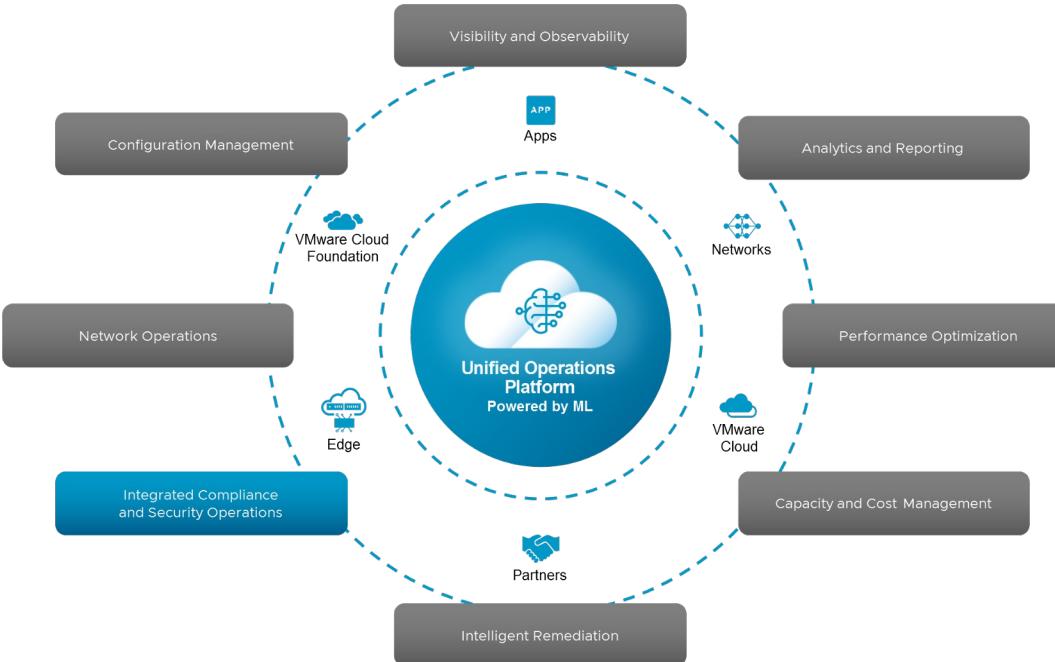
By providing actionable insights, VCF Operations accelerates problem resolution, enhances visibility, and centralizes IT operations management, ensuring smooth and uninterrupted operations.



Integrated Compliance and Security Operations

Organizations can also mitigate risks and ensure regulatory compliance with compliance features integrated with VCF Operations.

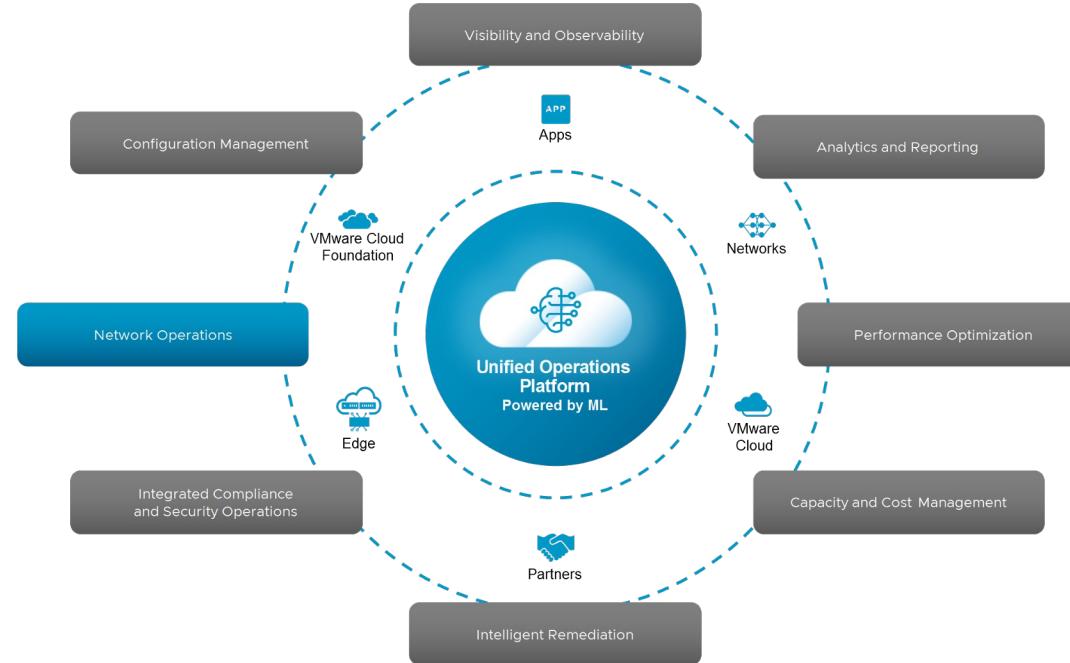
By automating drift remediation and enforcing IT regulatory standards (PCI, HIPAA, or custom standards), VCF Operations helps organizations reduce the likelihood of security breaches and compliance violations.



Network Operations

VCF Operations provides simple end-to-end Network Operations capabilities to troubleshoot and get best practices for their VCF network deployments. Administrators can use VCF Operations to gain visibility into both physical and virtual infrastructure with a comprehensive flow assessment.

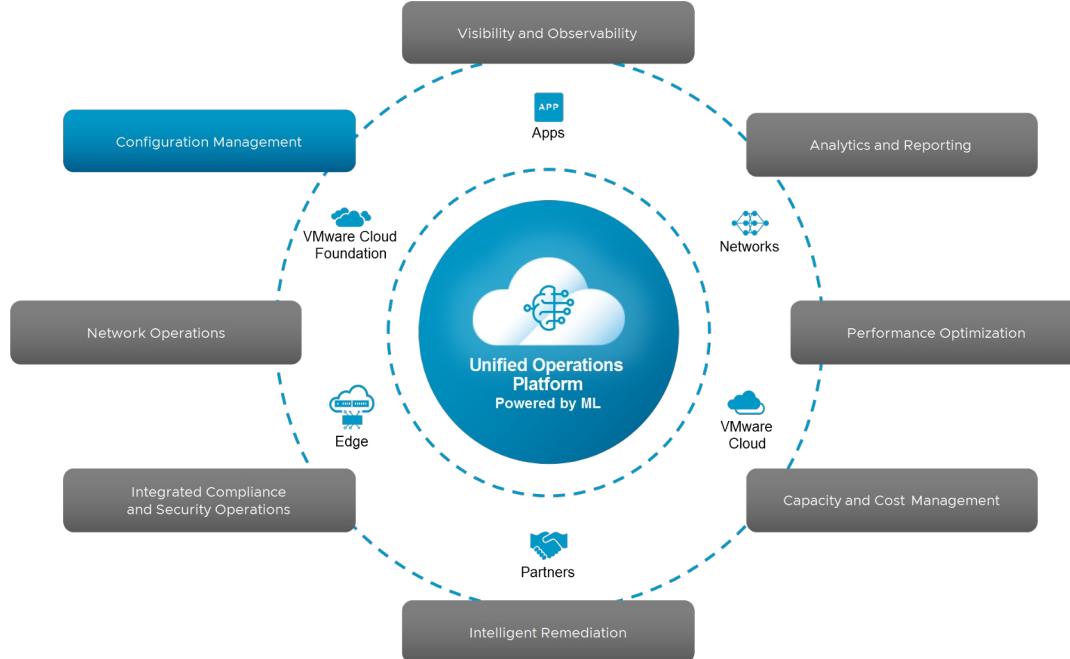
Organizations can also simplify NSX operations management with an intuitive UI and natural language search to quickly pinpoint network issues and troubleshoot, as well as get best practices deployment and compliance recommendations.



Configuration Management

VCF Operations provides Configuration Drift detection capability, enabling Admins to monitor and view vCenter configuration settings that have drifted from assigned templates without needing to track every change manually.

Configuration Drift detection reduces operational costs and complexity, and allows organizations to maintain strong compliance and security.



Review of Learner Objectives

- List the key features of VCF Operations
- Outline VCF Operations use cases

VCF Operations Architecture

Learner Objectives

- Identify the components of a VCF Operations node
- Describe the different roles of the node in a VCF Operations cluster

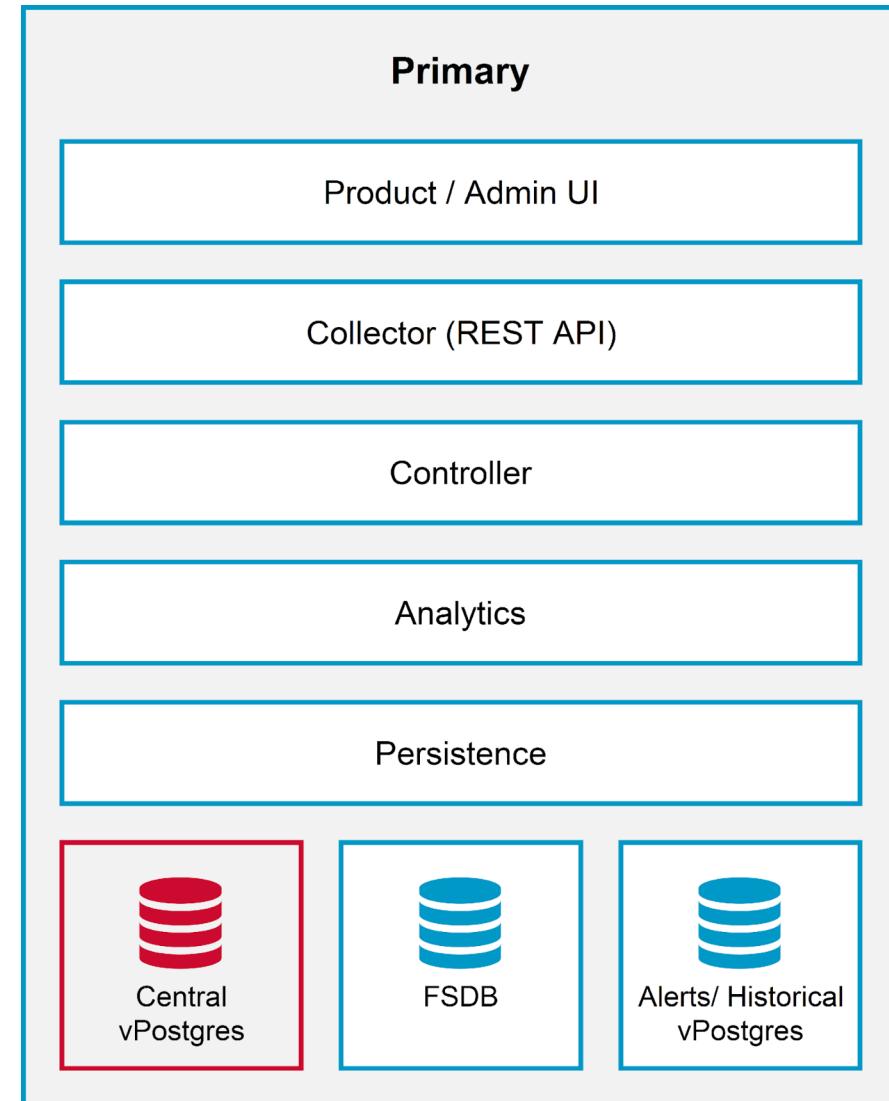
Understanding the Primary Node

A cluster can contain single or multiple VCF Operations nodes. The first VCF Operations node that you deploy is called the primary node.

The primary node is the required initial node in a VCF Operations cluster. It has the following functions and characteristics:

- Collects and processes incoming data and performs administration for the cluster
- Contains the central vPostgres database
- Can function as a network time protocol (NTP) server

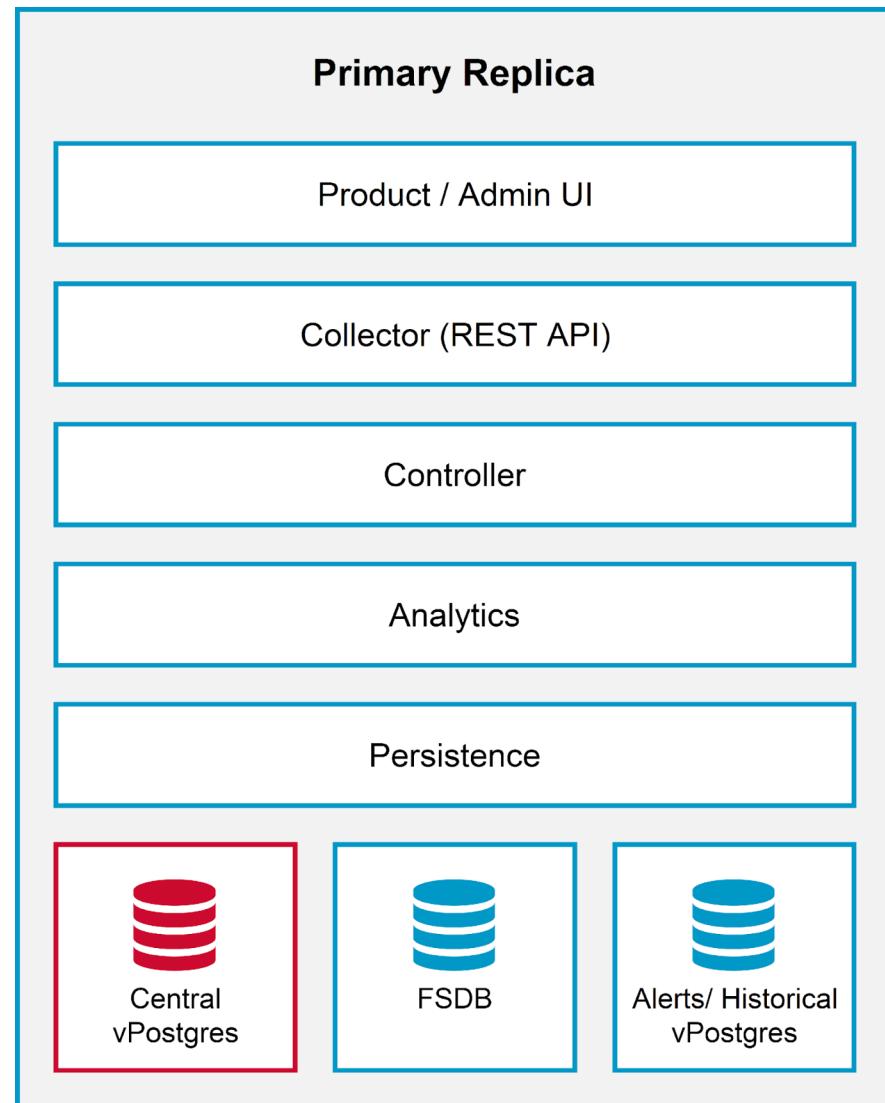
All the components of the VCF Operations software stack are implemented in the primary node. Additional node types have a subset of the components.



Understanding the Primary Replica Node Role

VCF Operations supports high availability by enabling a primary replica node for the VCF Operations primary node.

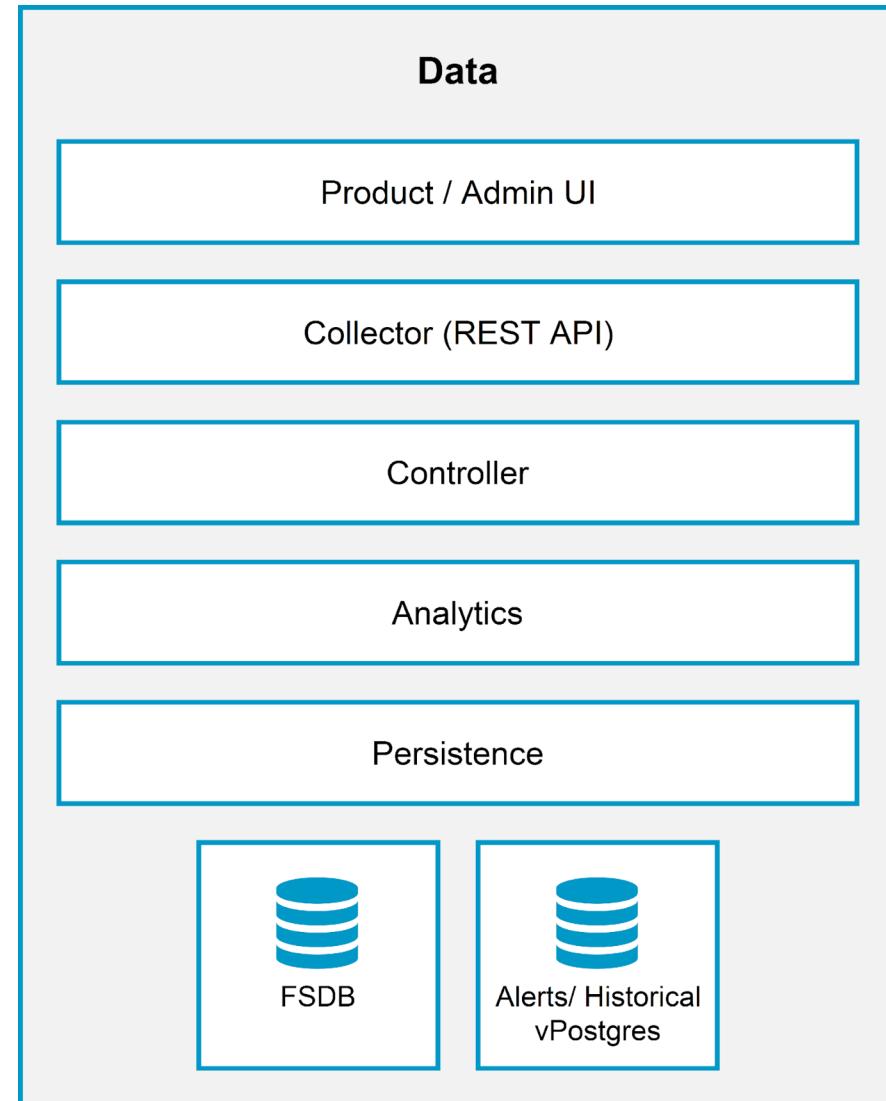
The primary replica node receives redundant copies of data from the primary node.



Understanding the Data Node Role

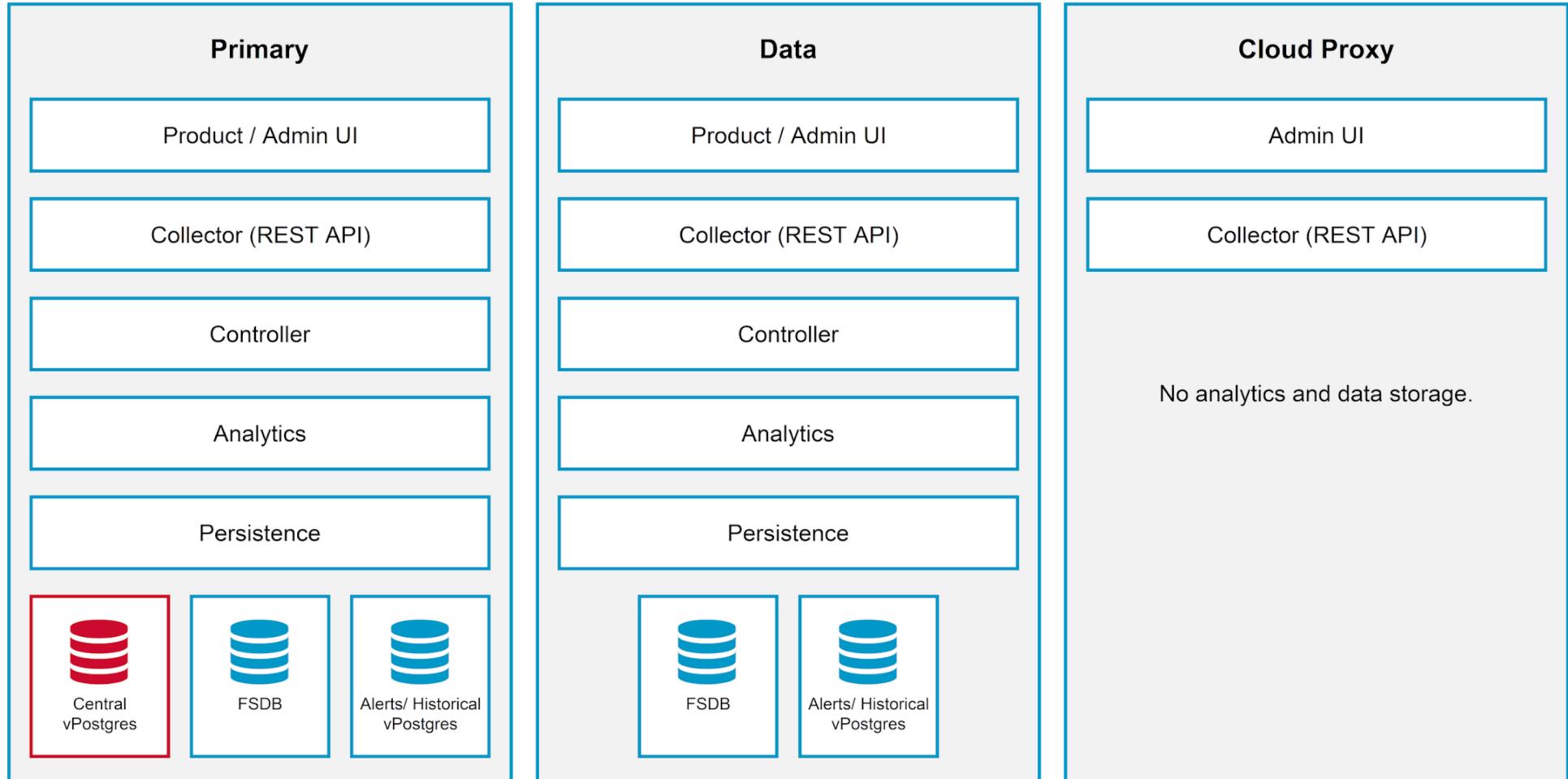
The data node has a similar architecture to the primary node and primary replica node. However, the data node does not have a central vPostgres database and cannot act as an NTP server.

The data node provides the core database functionality of collecting and processing the incoming data.



Understanding the Cloud Proxy Role

A Cloud Proxy node is an extra cluster node that allows VCF Operations to gather more objects in its inventory for monitoring.



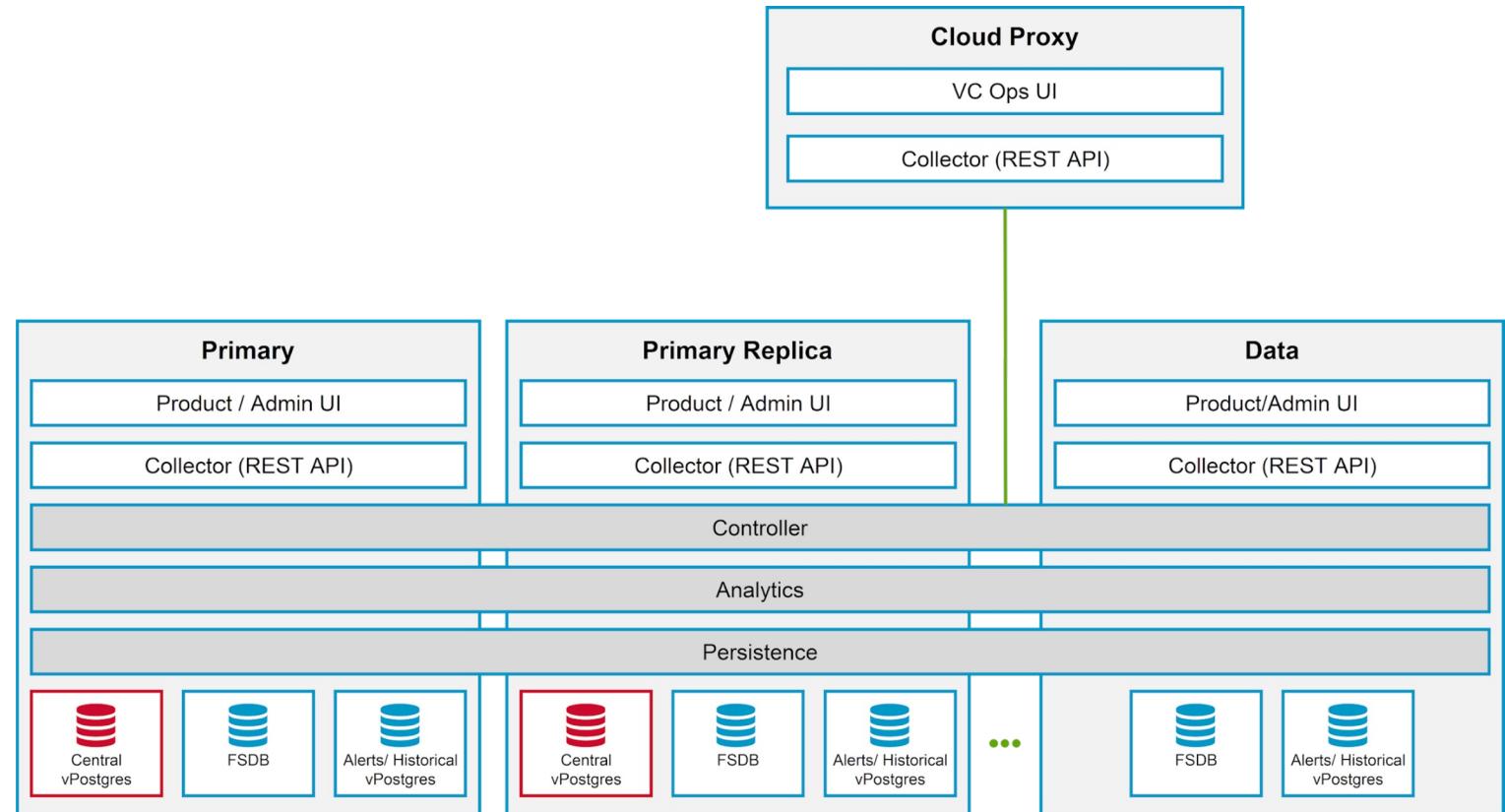
Understanding the Multinode Cluster

You can create a single-node or multiple node cluster depending on your environment.

Every node in the cluster is assigned one or more of these roles:

- Primary
- Primary Replica
- Data
- Cloud Proxy

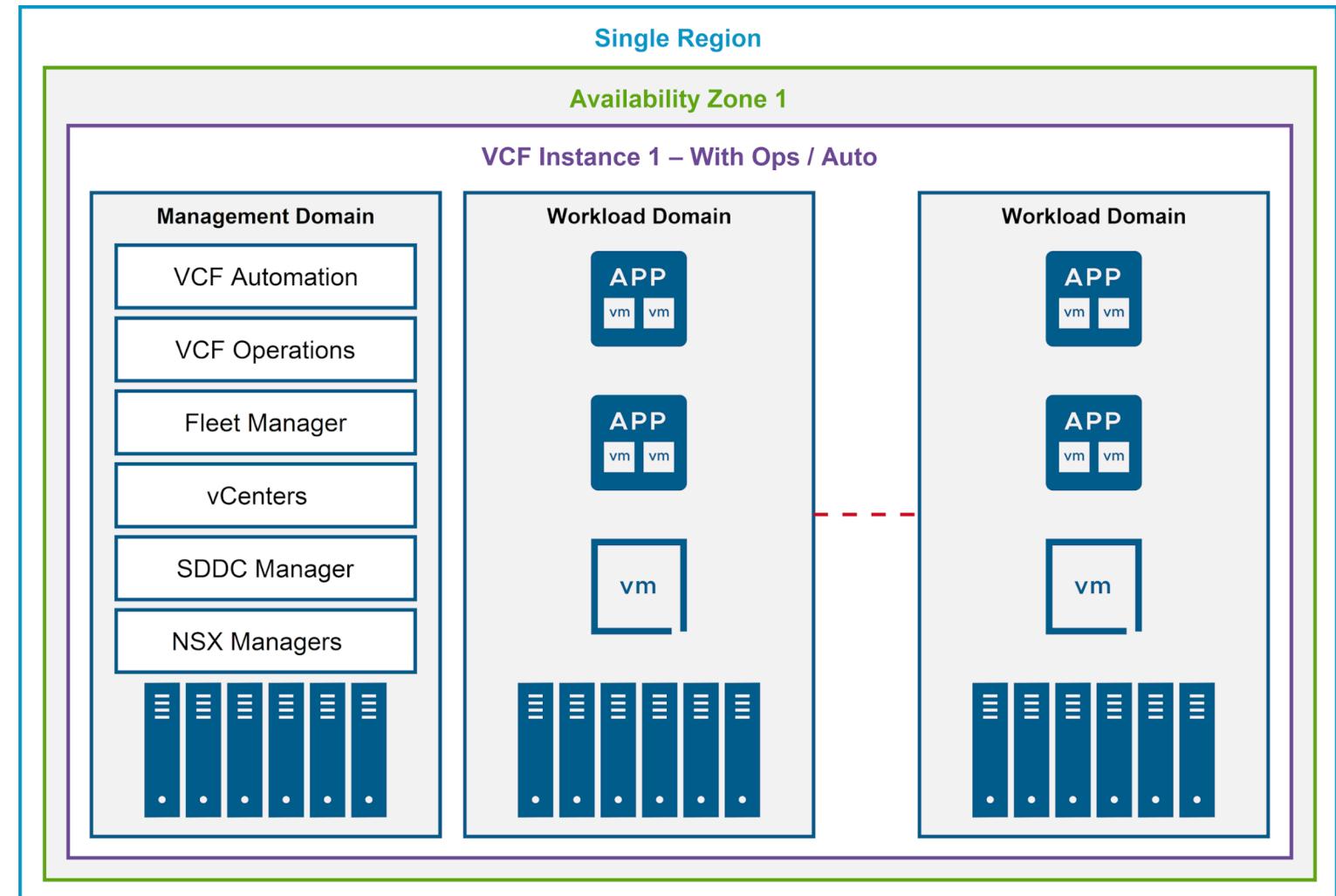
The primary, primary replica, and data nodes collectively called analytics nodes.



VCF Operations Design: Single Region - Single Availability Zone

In a single region - single availability zone (AZ):

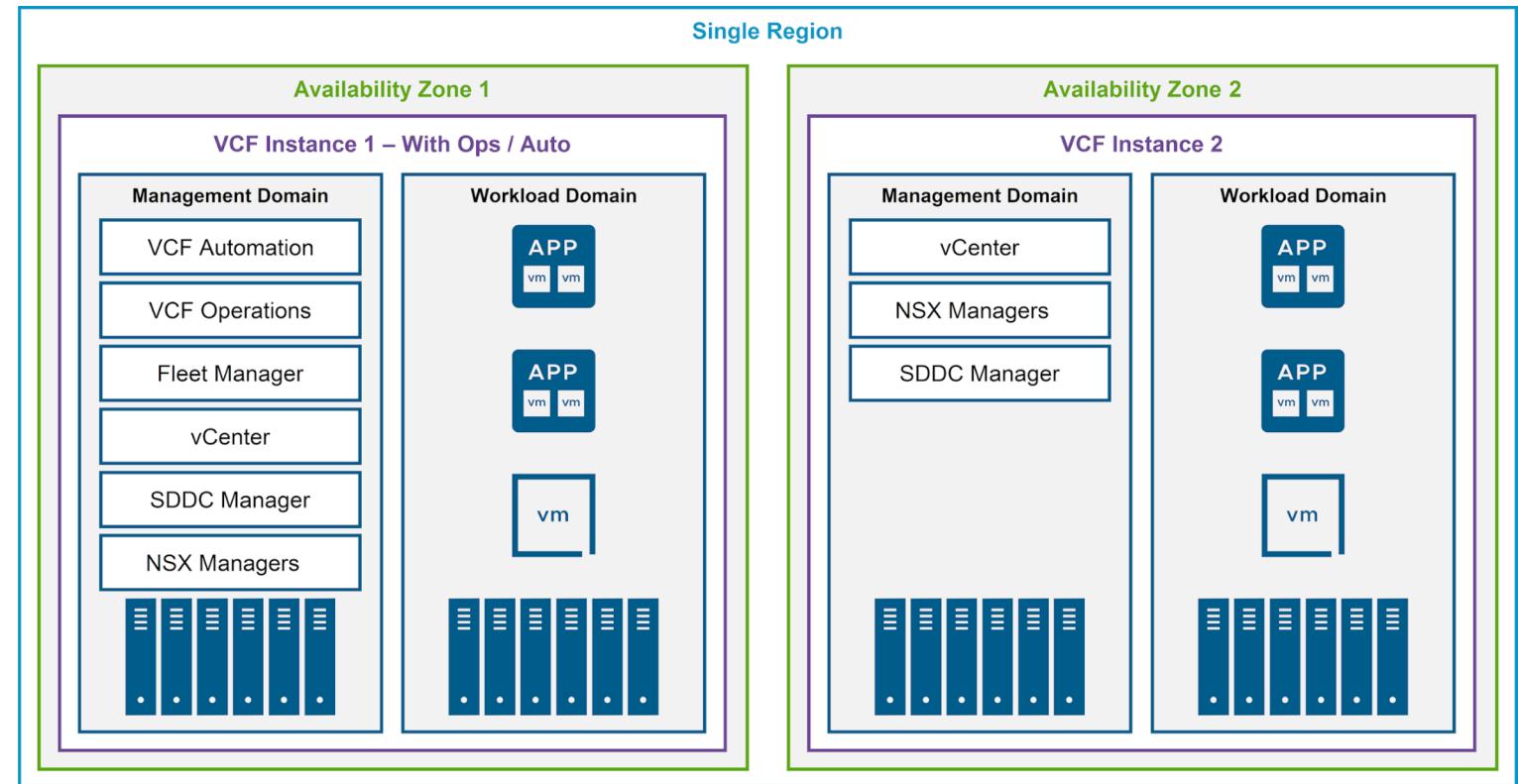
- A single VCF Operations instance is used for fleet management.
- A single VCF Automation instance is used to consume and automate private cloud resources across all VCF instances.
- VCF Operations and VCF Automation instances are deployed to the management domain of the initial VCF instance.



Basic Fleet Management Design: Single Region - Multi AZ

In a single region - multi AZ:

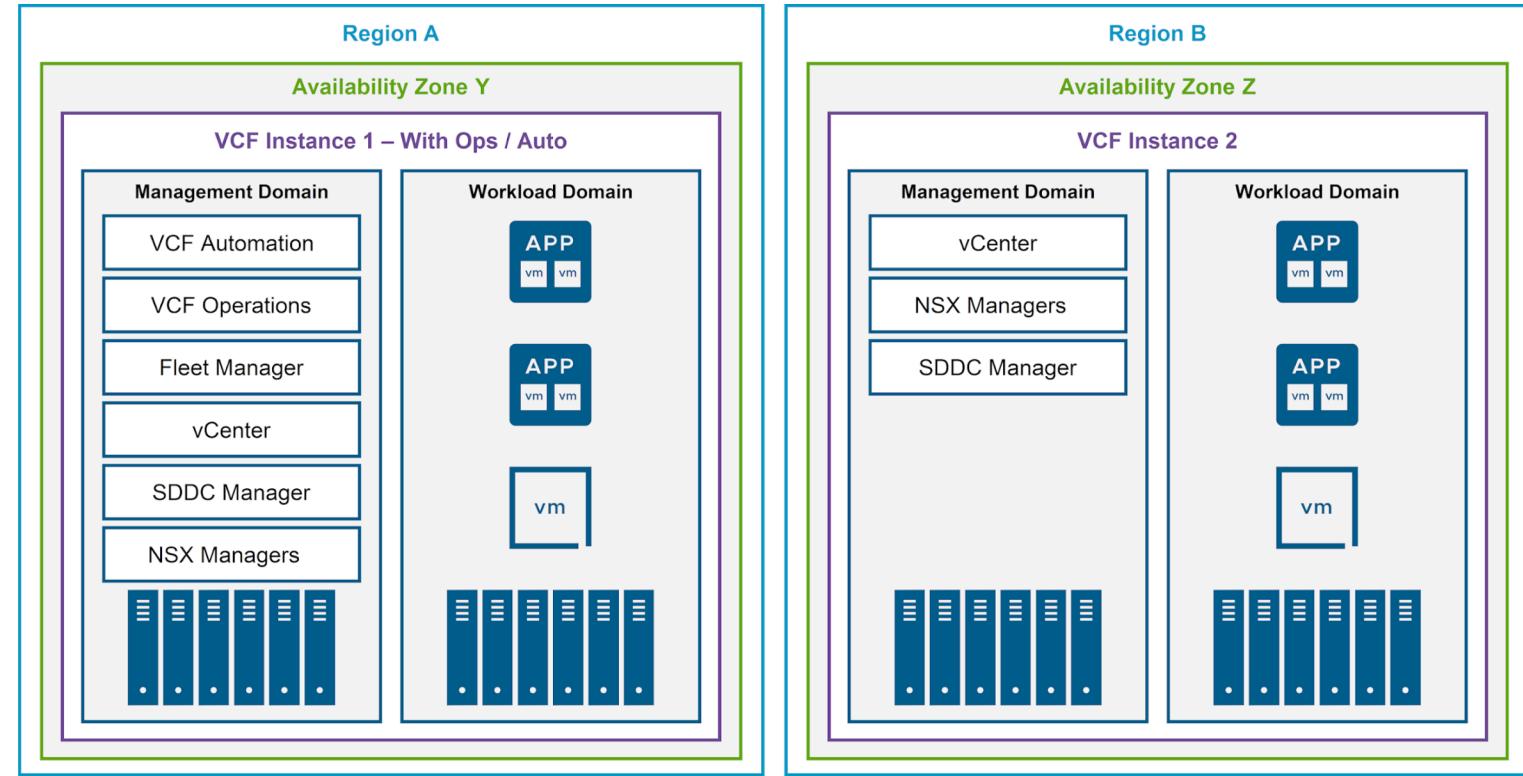
- A single VCF Operations and Automation instance manages the entire fleet.
- VCF Operations collector is deployed to VCF Instance 2 if network latency is above 500 ms.



Basic Fleet Management Design: Multi Region - Multi AZ

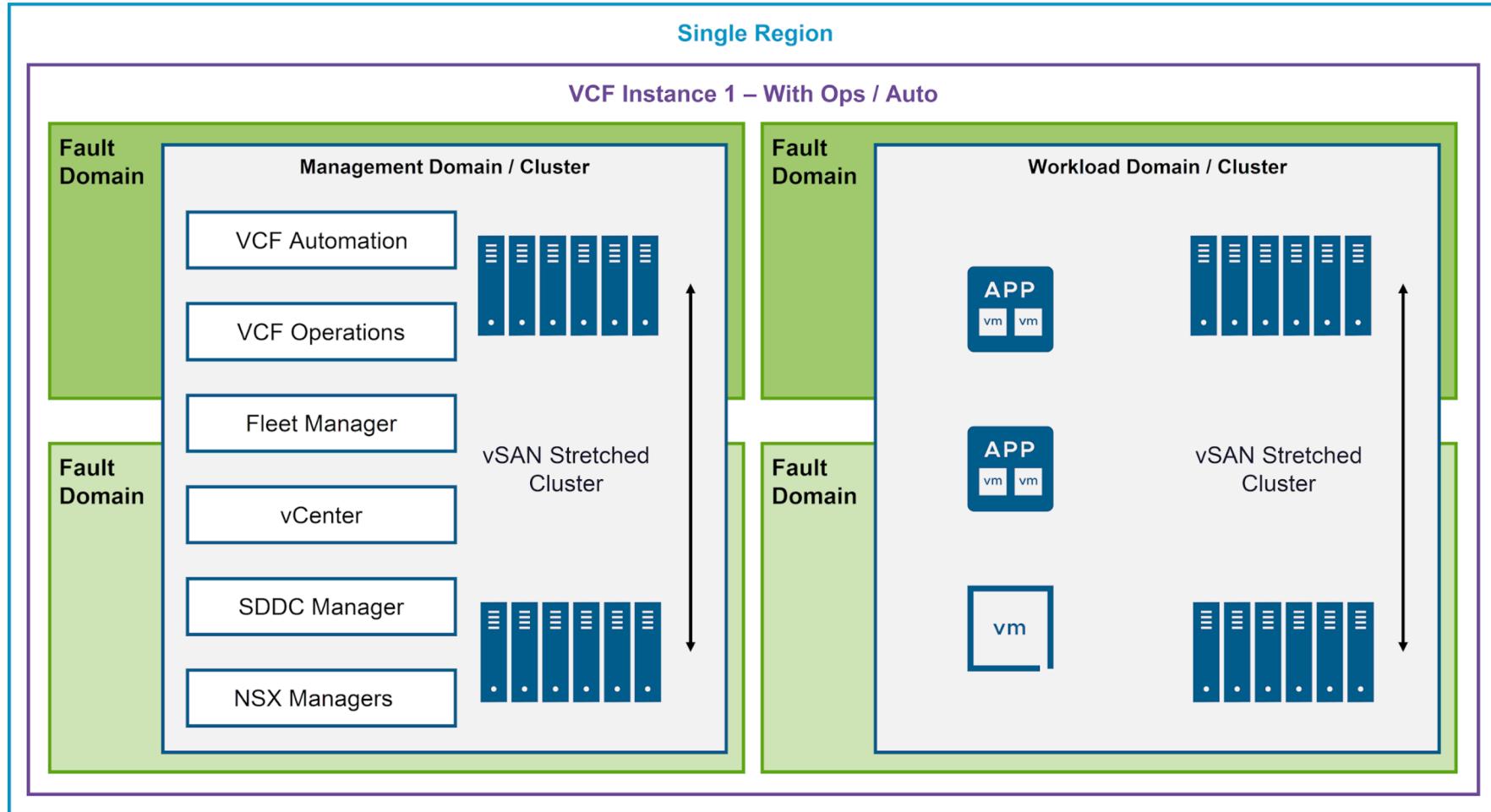
A single VCF Operations and Automation instance managing the entire fleet is not changed by extending to another region:

- Continue to maintain a single VCF Operations instance in region A.
- Add a VCF Operations collector instance to region B if network latency is above 500 ms.



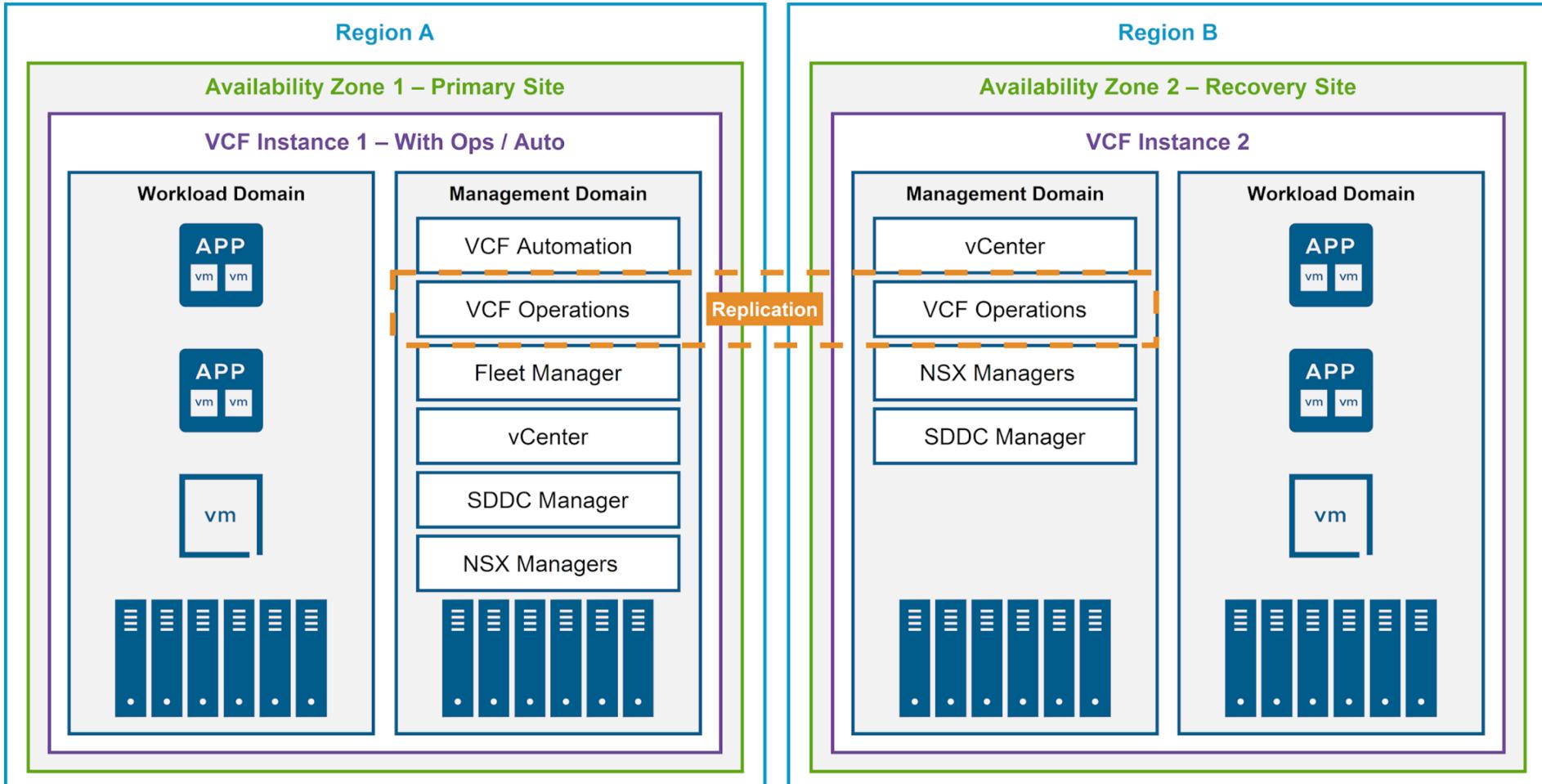
VCF Fleet with Fault Domains Design

A single VCF Operations and Automation instance manages the entire fleet.



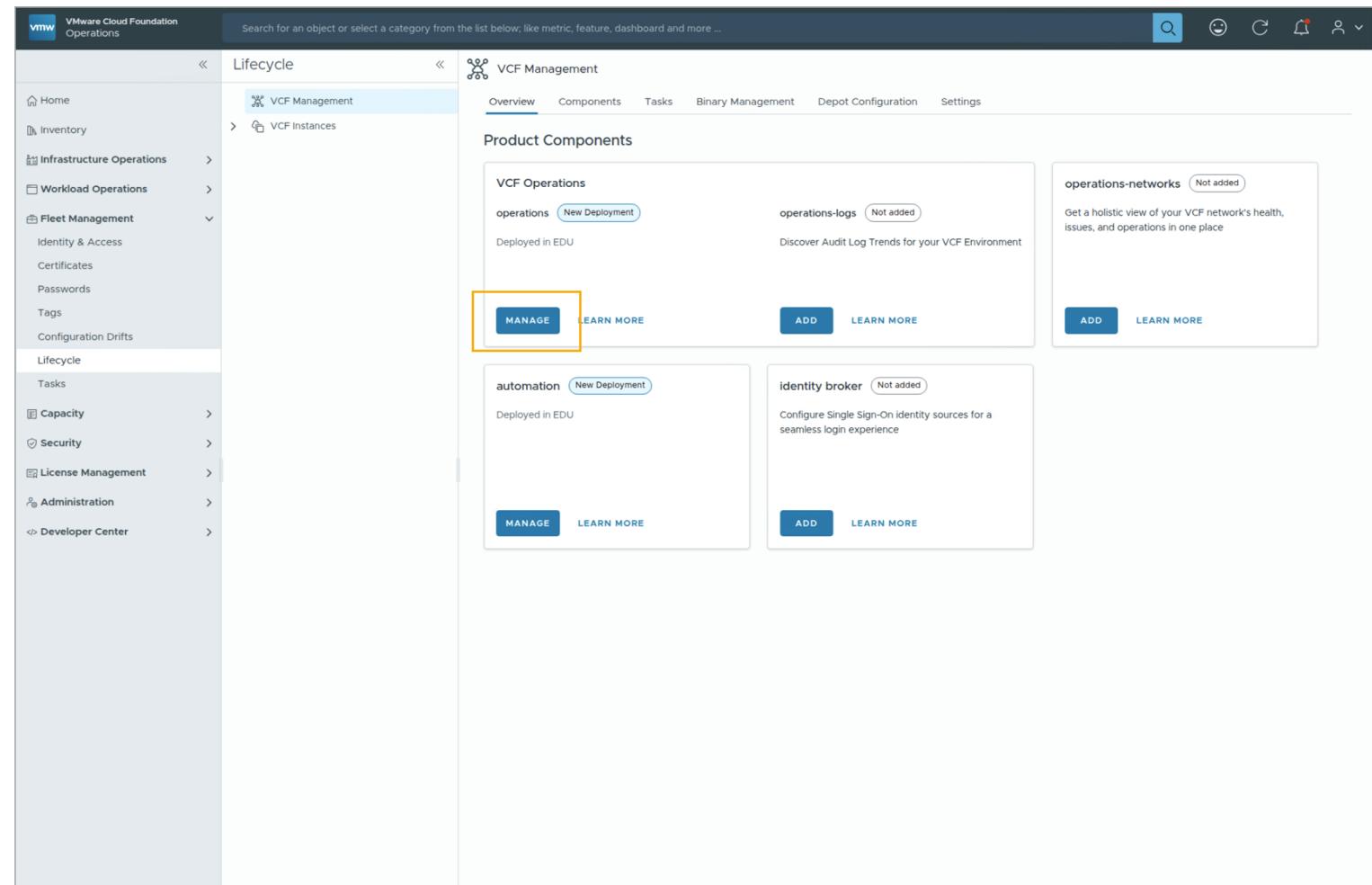
Fleet with Disaster Recovery Management Design

For the design of a fleet with DR management, the guidance for VCF Operations remains unchanged from VCF 5.2.



Examining a VCF Operations Cluster

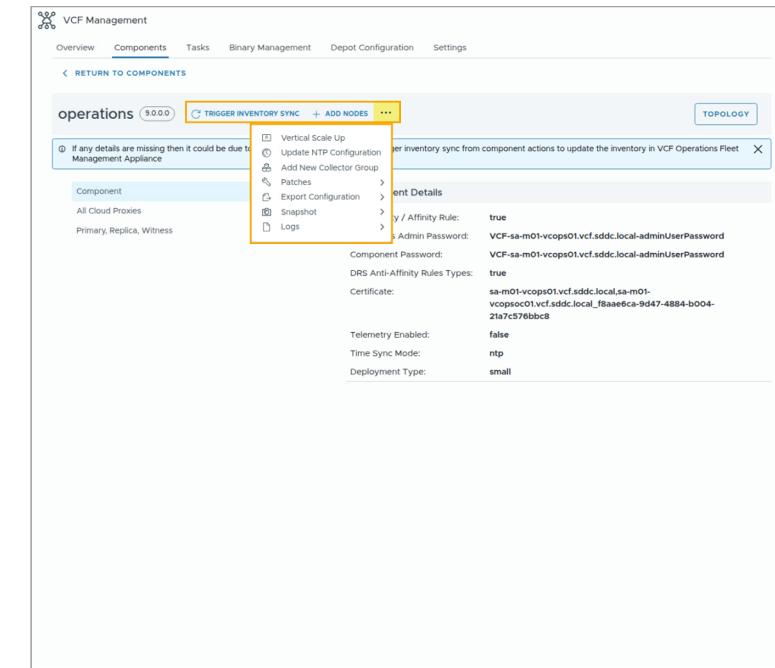
You can examine and manage VCF Operations clusters in the VCF Operations console. To do so, navigate to **Fleet Management > Lifecycle** and click **Manage** under the VCF Operations cluster. You can then view the components, nodes, collector groups, and topology of the selected operations cluster.



Managing a VCF Operations Cluster

You can manage an existing VCF Operations cluster:

- **Trigger Inventory Sync:** Allows you to sync all the components
- **Update NTP Configuration**
- **Add Nodes:** Allows you to add more nodes to this VCF Operations cluster
- **Add New Collector Group**
- **Patches:** Allows you to install patches and review patch history
- **Export Configuration:** Allows you to export the VCF Operations cluster configuration to a JSON file
- **Snapshot:** Allows you to create and manage snapshots of the VCF Operations cluster
- **Logs:** Allows you to generate, download, and delete logs for this cluster



Adding Nodes to a VCF Operations Cluster

You can use the Add Nodes function to deploy more nodes to an existing VCF Operations cluster:

- **Primary replica:** You can add at most one primary replica node.
- **Data:** You can add more than one data node to a VCF Operations cluster.
- **Cloud Proxy:** You can add more than one cloud proxy to a VCF Operations cluster.
- **Collector Groups:** You can add more than one collector group to a VCF Operations cluster.

For each newly added node, you need to specify its VM name, FQDN, and IP address.

The screenshot shows the 'Components' tab of the 'Add Nodes' interface. At the top, there are three tabs: 'Infrastructure' (selected), 'Network', and 'Components'. Below the tabs, a section titled 'Components' lists several components under the heading 'vrops': 'operations replica node', 'operations data node', 'Cloud Proxy', 'operations primary node', and 'Collector Groups'. A note on the right says 'Fill all the nodes with proper details'. Below this, a specific node configuration is shown for 'sa-vcops-01' (an 'operations primary node'). The fields are: VM Name * (sa-vcops-01), FQDN * (sa-vcops-01.vcf.sddc.local), and IP Address * (172.20.10.30). At the bottom of the screen are 'BACK', 'NEXT', and 'SAVE & EXIT' buttons.

Review of Learner Objectives

- Identify the components of a VCF Operations node
- Describe the different roles of the node in a VCF Operations cluster

VCF Operations Navigation

Learner Objectives

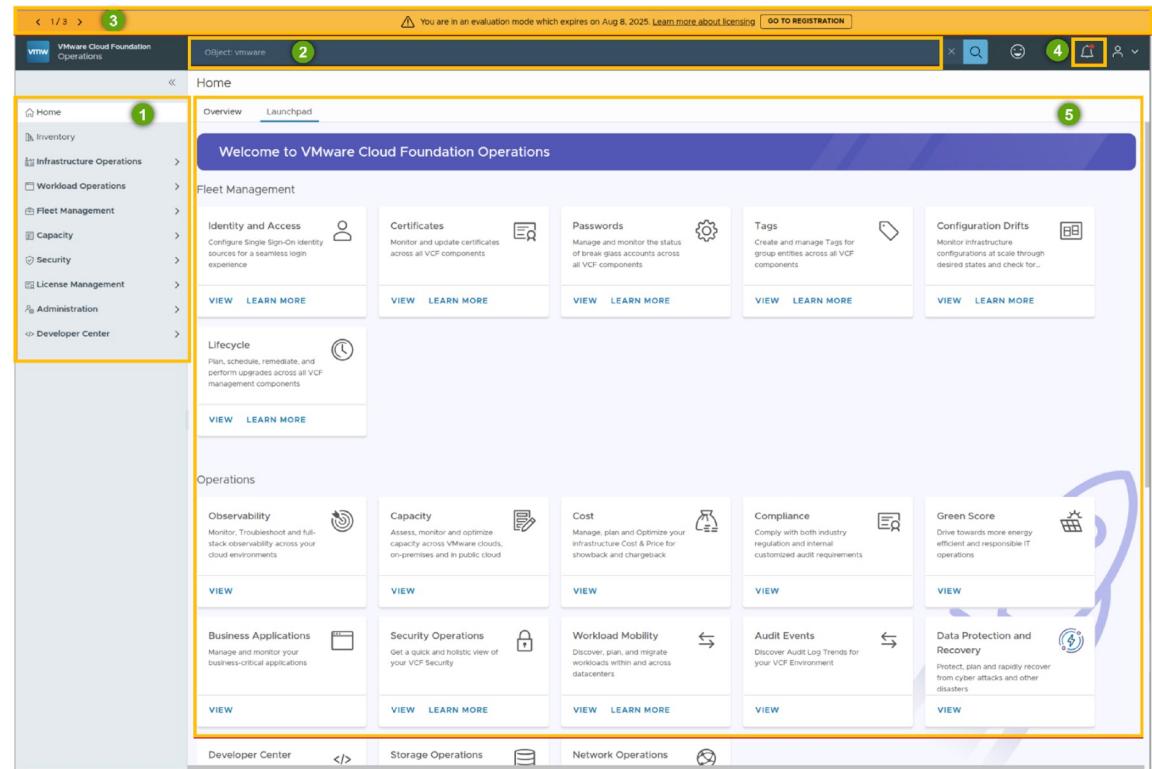
- Perform basic VCF Operations console navigation
- List the different management areas in the VCF Operations UI

VCF Operations Console Navigation

Administrators perform major day-to-day tasks in the VCF Operations console.

The console contains the following core elements:

1. Navigation menu: Allows you to navigate the different operations management domains.
2. Search bar: Allows you to easily find objects in your environment.
3. Warning message banner: Displays important and mission-critical messages.
4. Collection notifications: Allow you to monitor the status of data collection and adaptors.
5. Operations screen: Allows you to perform tasks, processes, and management.



VCF Operations Home Page

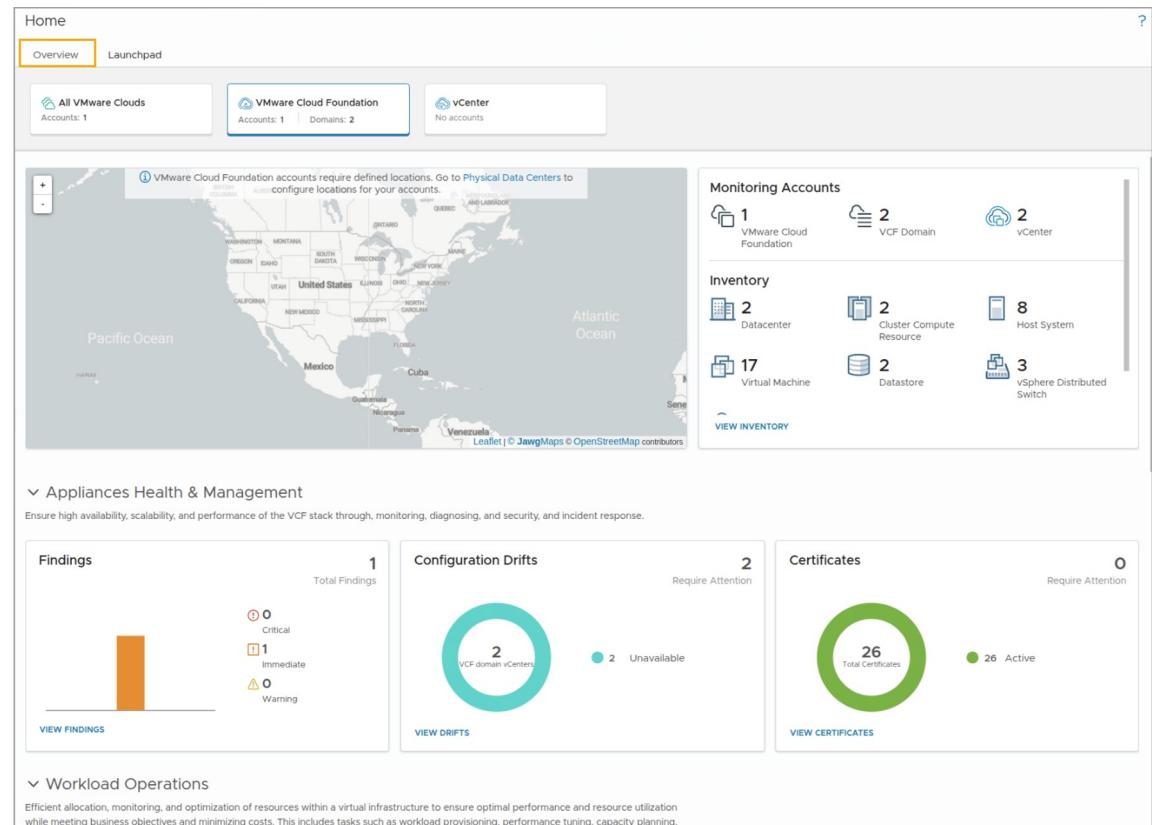
The **Home** page appears when you log in to the product UI for the first time. The **Home** page contains two tabs: **Overview** and **Launchpad**.

The screenshot shows the VMware Cloud Foundation Operations Home page. The top navigation bar includes the VMW logo, the title "VMware Cloud Foundation Operations", a search bar, and various icons for account, notifications, and user management. Below the header, the "Home" tab is highlighted in yellow, while "Overview" and "Launchpad" are shown as tabs. The left sidebar lists several categories: Inventory, Infrastructure Operations, Workload Operations, Fleet Management (Identity & Access, Certificates, Passwords, Tags, Configuration Drifts, Lifecycle, Tasks), Capacity, Security, License Management, Administration, and Developer Center. The main content area features a map of North America with a callout about VMware Cloud Foundation accounts requiring defined locations. It also displays monitoring accounts (1 VMware Cloud Foundation, 2 VCF Domain, 2 vCenter), inventory counts (2 Datacenter, 2 Cluster Compute Resource, 8 Host System, 17 Virtual Machine, 2 Datastore, 3 vSphere Distributed Switch), and links to view the full inventory. Below this, there are three circular dashboards: "Findings" (1 total finding, 0 Critical, 1 Immediate, 0 Warning), "Configuration Drifts" (2 VCF domain vCenters, 2 Unavailable), and "Certificates" (26 Total Certificates, 26 Active). A section titled "Workload Operations" provides a brief description of efficient allocation, monitoring, and optimization of resources. The bottom of the page includes a footer with the VMware logo and "by Broadcom".

Home Page: Overview

The **Overview** tab on the **Home** page gives you a high-level summary of your entire infrastructure. You can view high-level information about the following categories:

- VCF deployment and domain
- Configuration drifts
- Certificates
- Workload operations
- Alerts
- Cost and capacity
- Compliance



Home Page: Launchpad

The **Launchpad** tab on the **Home** page allows you to quickly access the various pillars of operations.

The capabilities of VCF Operations are categorized into separate pillars of operations. These pillars enable you to manage configurations, optimize performance, optimize capacity, and troubleshoot issues.

Home

Overview Launchpad

Welcome to VMware Cloud Foundation Operations

Fleet Management

- Identity and Access
- Certificates
- Passwords
- Tags
- Configuration Drifts

Lifecycle

Operations

- Observability
- Capacity
- Cost
- Compliance
- Green Score

- Business Applications
- Security Operations
- Workload Mobility
- Audit Events
- Data Protection and Recovery

Developer Center Storage Operations Network Operations

Inventory Page

The **Inventory** page allows you to view objects in your entire fleet and infrastructure, such as domains, VMs, data stores, networks, and groups.

You can view and interact with the metrics, alerts, topology, and logs associated with each object.

The screenshot shows the VMware Cloud Foundation Operations interface. On the left, a navigation sidebar lists various operational modules: Home, Inventory (which is selected and highlighted in yellow), Infrastructure Operations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area is titled "Inventory" and displays a hierarchical tree view under "VCF Instances". The tree includes nodes for EDU, sa-m01-vc01.vcf.sddc.local, EDU-dc01, EDU-cl01, and esx-1.vcf.sddc.local. Under esx-1.vcf.sddc.local, there are further sub-nodes like EDU-cl01-ds-vsan01, sa-m01-sddc01, sa-m01-vc01, sa-wld01-nsxt01, vCLS-61c50142-edaa6-c9b1..., esx-2.vcf.sddc.local, esx-3.vcf.sddc.local, esx-4.vcf.sddc.local, Discovered virtual machine, vCLS, and sa-wld01. To the right of the tree view, a detailed card for the host "esx-1.vcf.sddc.local" is displayed. The card includes sections for Summary (Powered On, Model: VMware, Inc. VMware Virtual Plat...), Metrics (Version: 9.0.0, 24734766, CPU: 32 Cores, 67.2 GHz, Memory: 128 GB), Alerts (Active Alerts section showing Critical, Immediate, Warning, and Info levels), and various performance and configuration metrics. The overall interface is clean with a light blue header and a white background.

Infrastructure Operations

The **Infrastructure Operations** page allows you to monitor the entire infrastructure, including VMs, storage, network, licenses, and more.

You can set up dashboards and reports to display the data you deem important to infrastructure health and resources optimization.

You can also activate alerts to capture specific issues or irregular symptoms and use troubleshooting benchmarks to help resolve outstanding issues.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar has a yellow highlight over the 'Infrastructure Operations' section, which includes options like Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery, Automation Central, and Configurations. The main content area is titled 'VCF Health' and shows a summary of infrastructure components: 1 VCF Instance (1 Critical), 8 ESX Hosts, 2 vCenter Instances (2 Critical), 2 vSAN Clusters, and 2 NSX Instances. Below this is a detailed table for 'VCF Instances' with one entry: EDU, Status: Critical, Objects with Critical Issues: 2, ESX Host: 8, vCenter: 2, vSAN Cluster: 2, and NSX: 2. A 'Manage Columns' button is at the bottom of the table, and a note '1 - 1 of 1 items' is in the bottom right corner.

Workload Operations

The **Workload Operations** page allows you to monitor the status of applications, services running in provisioned guest operations systems, and services running in your virtual environment.

Some application monitoring is achieved through the Telegraf agent. You can use options in the **Workload Operations** menus to deploy the Telegraf agents to the target virtual machines.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar has a navigation menu with the following items:

- Home
- Inventory
- Infrastructure Operations
- Workload Operations (highlighted with a yellow box)
- Business Applications
- Applications (highlighted with a yellow box)
- Fleet Management
- Capacity
- Security
- License Management
- Administration
- Developer Center

The main content area has a search bar at the top: "Search for an object or select a category from the list below, like metric, feature, dashboard and more ...". Below the search bar, there are two tabs: "Applications" and "Applications Home". The "Applications Home" tab is selected. A table lists various applications with the following columns:

Name	Source	Object Type
NSX-T-sa-m01-nxst-vip.vcf.sddc.local	Infrastructure Health	NSX App
Operations-https://localhost/suite-api	Infrastructure Health	Operations App
SDDC-sa-m01-sddc01.vcf.sddc.local	Infrastructure Health	SDDC Manager App
vSAN-sa-wld01-vc01.vcf.sddc.local	Infrastructure Health	vSAN App
LifecycleManager-sa-m01-vcopsfm01.vcf.sddc.local	Infrastructure Health	LifecycleManager App
vCenter-sa-wld01-vc01.vcf.sddc.local	Infrastructure Health	vCenter App
vCenter-sa-m01-vc01.vcf.sddc.local	Infrastructure Health	vCenter App
VCF Operations Cluster-sa-m01-vcops01	VCF Operations Adapter	VCF Operations Cluster
vSAN-sa-m01-vc01.vcf.sddc.local	Infrastructure Health	vSAN App
NSX-T-sa-wld01-nxst-vip.vcf.sddc.local	Infrastructure Health	NSX App

At the bottom right of the table, it says "1 - 10 of 10 items".

Fleet Management

The **Fleet Management** page allows you to manage your VCF deployment and your VCF Operations nodes with the following capabilities:

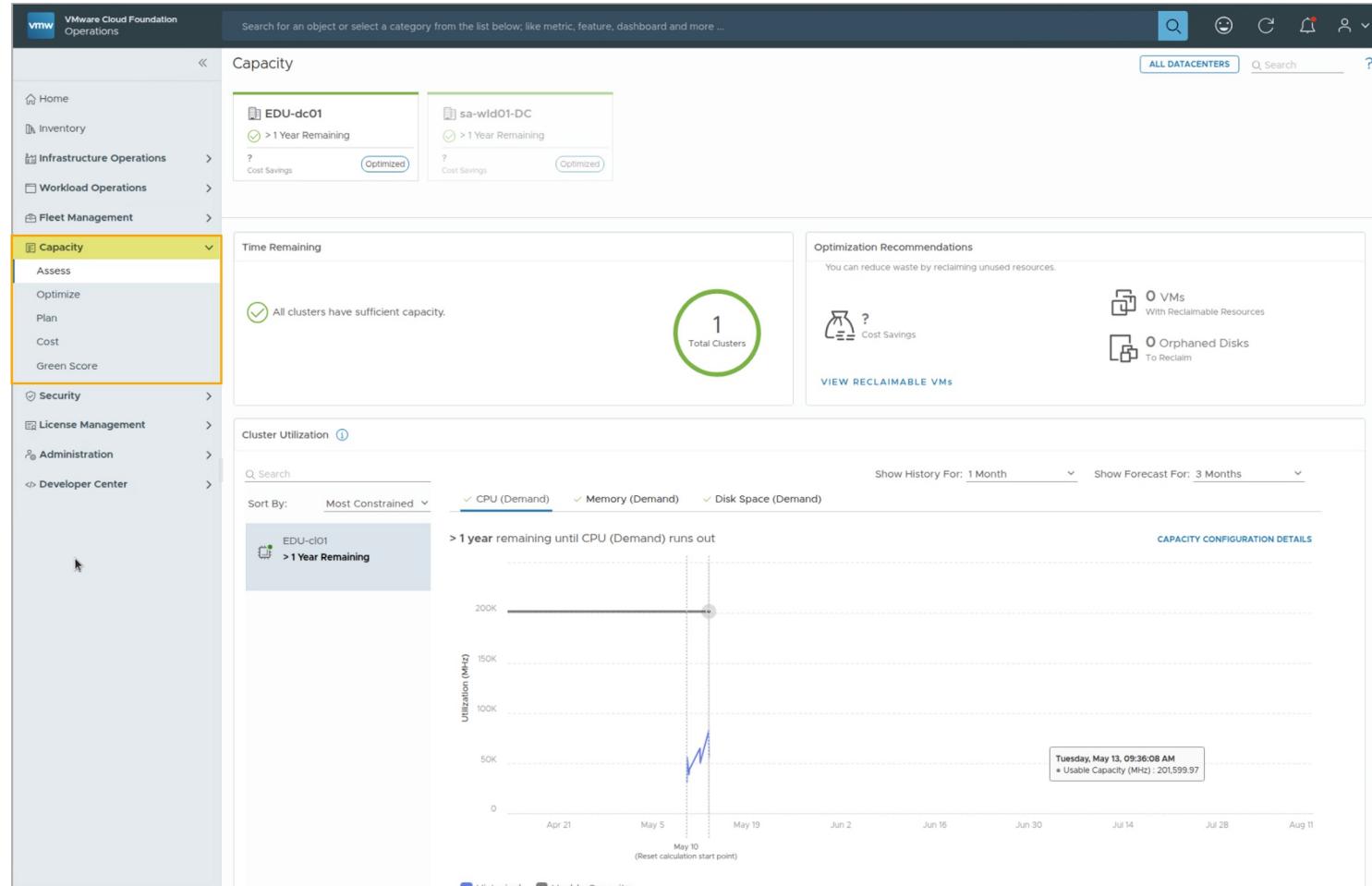
- **Identity & Access**
- **Certificates**
- **Passwords**
- **Tags**
- **Configuration Drifts**
- **Lifecycle**
- **Tasks**

The screenshot shows the VMware Cloud Foundation Operations interface. On the left, there is a navigation sidebar with options like Home, Inventory, Infrastructure Operations, Workload Operations, Fleet Management (which is selected and highlighted in orange), Identity & Access, Certificates, Passwords, Tags, Configuration Drifts, Lifecycle, and Tasks. Below this is a search bar and a list of VCF Instances. The main content area is titled 'VCF Management' and has tabs for Overview, Certificate Status, Auto-Renewal Status, and VCF Components. It displays summary statistics: 6 Total Certificates (6 Active, 2 Deactivated for Auto-renewal), 2 Certificates, and 3 Total Appliances. A legend indicates: 1 Fleet Management (yellow), 1 VCF Automation (green), and 1 VCF Operations (blue). Below these are buttons for 'RENEW CERTIFICATE', 'REPLACE WITH IMPORTED CERTIFICATE', and '...'. A detailed table lists VCF Components, their Appliance IP/FQDN, Status, Type, Expiry, and Auto-renew Status. The table includes rows for VCF Automation, Fleet Management, VCF Operations, and VCF Automation again. At the bottom are 'APPLY' and 'CLEAR ALL' buttons, and a 'Manage Columns' link.

VCF Component	Appliance IP/FQDN	Status	Type	Expiry	Auto-renew Status
VCF Automation	sa-m01-vcfa-h2zzq	Act...	Self Signed...	May 10, 2...	Deactiv
Fleet Management	sa-m01-vcopsm01.vcf.sddc.local	Act...	External CA	Apr 30, 2...	Not Sup
Fleet Management	sa-m01-vcopsm01.vcf.sddc.local	Act...	External CA	May 4, 20...	Not Sup
VCF Automation	sa-m01-vcfa-h2zz	Act...	Self Signed...	May 8, 20...	Not Sup
VCF Operations	sa-m01-vcops01.vcf.sddc.local	Act...	Self Signed...	May 10, 2...	Deactiv
VCF Operations	sa-m01-vcops01.vcf.sddc.local	Act...	Self Signed...	May 8, 20...	Not Sup

Capacity Page

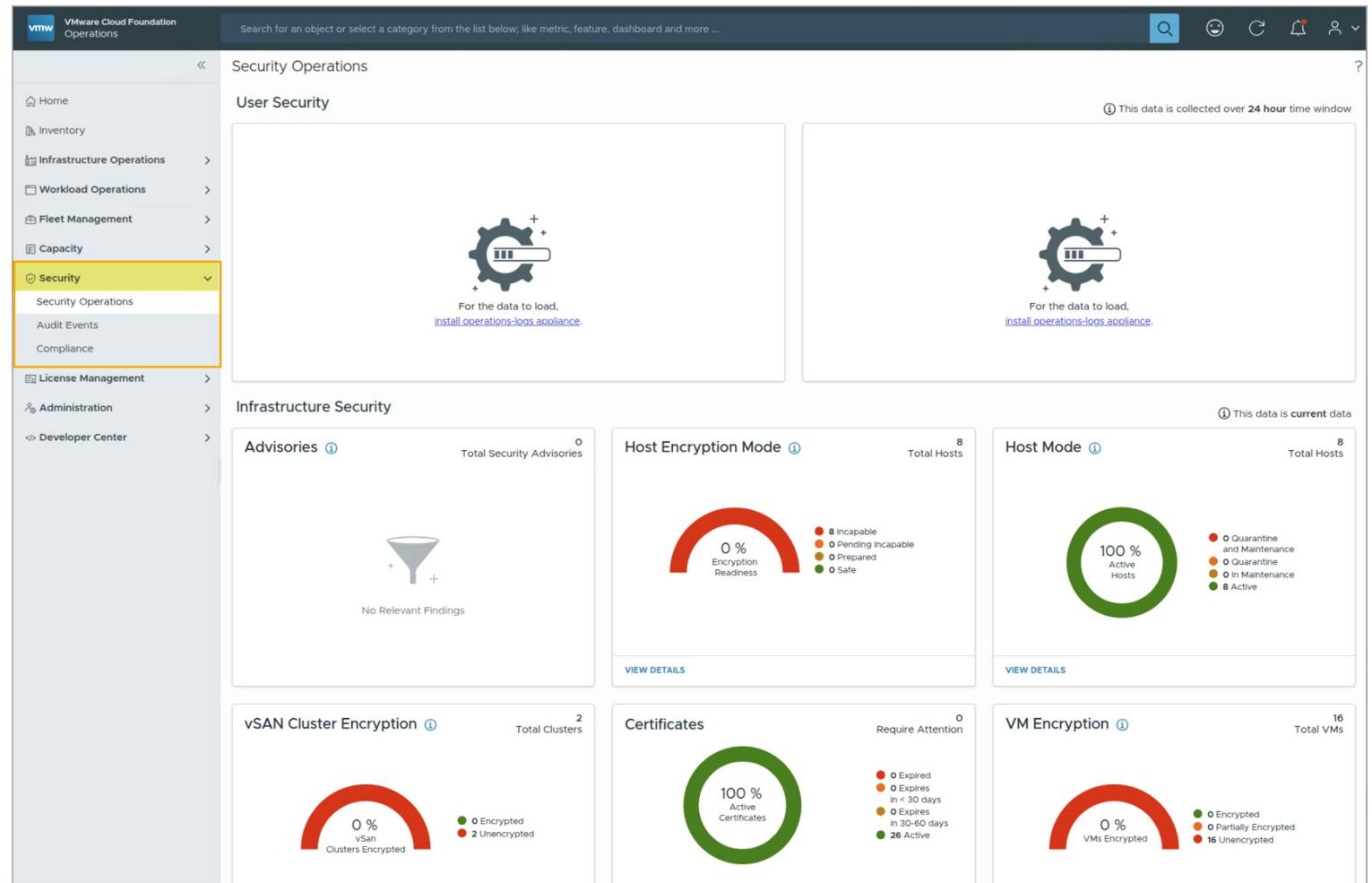
The **Capacity** page allows you to monitor resource utilization, plan for growth, achieve cost efficiency, and maintain performance in a virtualized environment.



Security Page

The **Security** page allows you to gain insights into Security Operations and Audit Events.

You can also enable various VMware predefined benchmarks and regulatory benchmarks to enforce compliance monitoring.



License Management

The **License Management** page allows you to manage the VCF product registrations and licenses for your organization, and monitor product and license usage.

VMware Cloud Foundation Operations

Search for an object or select a category from the list below; like metric, feature, dashboard and more ...

VCF OPERATIONS LICENSING STATE | ?

Home

Inventory

Infrastructure Operations

Workload Operations

Fleet Management

Capacity

Security

License Management

Registration

Licenses

Usage Analytics

Administration

vCenter Systems ⓘ

ASSIGN PRIMARY LICENSE | ASSIGN ADD-ON LICENSE

No Data Found

To add version 9+ licenses to this VCF Operations instance, go to [Registration](#).

Name Product Used Capacity Allocated Capacity vCenter Issues

No Data Found

Manage Columns

No Data Found

Manage Columns

1 - 2 of 2 items

vCenter	Managed by VCF Instance	Primary License Name	Primary License Product	Primary License Used Capacity	Add-on License Name	Fully Licensed
sa-m01-vc01.vcf.sddc.local	EDU	--	--	0 cores	-	No
sa-wld01-vc01.vcf.sddc.local	EDU	--	--	0 cores	-	No

Administration Page

The **Administration** page allows you configure and manage integration accounts, cloud proxies, and collector groups.

You can configure Global Settings for your VCF Operations console, such as data retention history, cost/price unit, session timeout, and more.

The screenshot shows the VMware Cloud Foundation Operations Administration page. The left sidebar has a yellow highlight over the 'Administration' section, which includes 'Integrations', 'Cloud Proxies', 'SDDC Manager', 'Control Panel', 'Global Settings', and 'Release Versions'. The main content area is titled 'Integrations' and shows 4 items. It has tabs for 'Accounts', 'Repository', and 'Marketplace', with 'Accounts' selected. There are buttons for 'ADD' and '...'. A search bar at the top right says 'Search for an object or select a category from the list below; like metric, feature, dashboard and more ...'. Below the search bar are 'COLLECTION STATUS' and 'CREDENTIALS' buttons, and a filter input field. The main table lists integration accounts under 'VMware Cloud Foundation'. One account, 'EDU', is expanded to show three sub-accounts: 'sa-m01-vc01.vcf.sddc.local', 'sa-m01-vc01.vcf.sddc.local - vSAN', and 'sa-m01-nsxt-vip.vcf.sddc.local', all in 'Collecting' status. Other sections shown include 'OS and Application Monitoring', 'VCF Automation for All Apps Organization', and 'vSphere Supervisor', each with 1 Account.

Name	Status	Description	Managed by VCF Operations	Collector	Version
EDU	Collecting	VMware Cloud Foundation Adapter		sa-m01-vcopsoc01.vcf.sddc.local	--
sa-m01-vc01.vcf.sddc.local	Collecting		Current instance	sa-m01-vcopsoc01.vcf.sddc.local	9.0.0
sa-m01-vc01.vcf.sddc.local - vSAN	Collecting			sa-m01-vcopsoc01.vcf.sddc.local	--
sa-m01-nsxt-vip.vcf.sddc.local	Collecting			sa-m01-vcopsoc01.vcf.sddc.local	--

Developer Center

The **Developer Center** page allows you to access useful product APIs and CLI libraries to enable more ways of infrastructure operations and management.

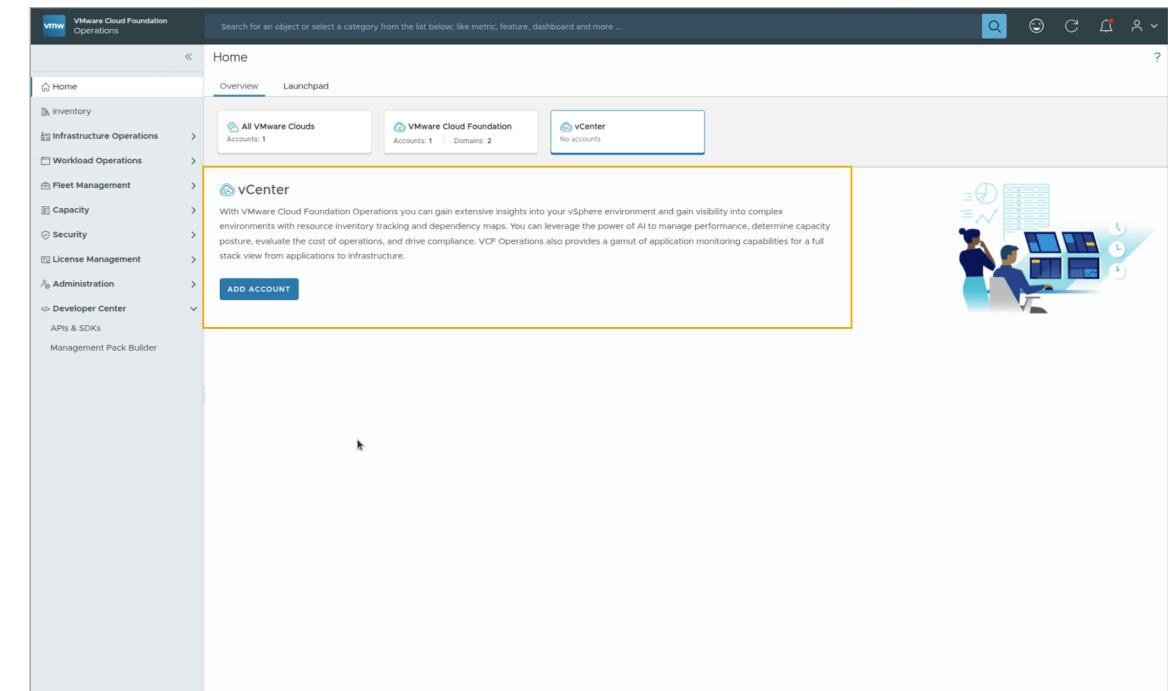
You can also build custom management packs using Management Pack Builder, which is a no-code and user-friendly tool, to help you construct the data sources connectivity and API commands to achieve the desired outcomes.

The screenshot shows the VMware Cloud Foundation Operations Developer Center page. The left sidebar includes links for Home, Inventory, Infrastructure Operations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and the Developer Center, which is currently selected and highlighted in yellow. The main content area features a search bar at the top. Below it, there are sections for APIs & SDKs, APIs and PowerCLI, Management Packs, and Community. The APIs & SDKs section contains cards for the Operations API, SDDC Manager API, and PowerCLI. The Management Packs section contains cards for the Management Pack Builder and Integration SDK. The Community section contains cards for Broadcom Community Sample Exchange and Broadcom Community.

Example: Using the VCF Operations Console

You use VCF Operations to connect and analyze data from other VMware data sources, such as vCenter.

From your VCF Operations console **Home** page, click **Overview**, select **vCenter**, and click **ADD ACCOUNT** to configure your vCenter environment as a data source. After adding the vCenter account, your VCF Operations console begins to display data, such as inventory list, gathered from your vCenter environment.



You can also add more accounts through **Administration > Integrations** on the left side of the VCF Operations navigation menu.

Example: Using the Observability Function Pillar

The **Observability** function pillar provides quick access to the monitoring and troubleshooting options available in VCF Operations. You can click **Observability** on the **Launchpad** tab to access the observability functions.

You can also access the same options through the **Infrastructure Operations** on the left side of the VCF Operations navigation menu.

The screenshot shows the VMware Cloud Foundation Operations interface. The top navigation bar includes a search bar, user profile, and various icons. The left sidebar has a tree view with Home, Inventory, Infrastructure Operations (which is expanded), Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, Developer Center, APIs & SDKs, and Management Pack Builder. The main content area is divided into sections: **Operations**, **Self-service Private Cloud**, and **Virtualized Infrastructure**. The **Operations** section contains cards for Observability, Capacity, Cost, Compliance, Green Score, Business Applications, Security Operations, Workload Mobility, Audit Events, Data Protection and Recovery, Developer Center, Storage Operations, Network Operations, IaaS Self-service and Governance, Chargeback, and VMware Cloud, vSphere, vSAN, NSX, and Kubernetes. The **Observability** card is highlighted with an orange border. The **Self-service Private Cloud** and **Virtualized Infrastructure** sections also contain cards for various operations like metering, billing, and management. A large purple rocket graphic is positioned in the bottom right corner of the interface.

Understanding the Search Function

With the Search function, you can enter one of the listed categories and then search for objects in the category.

The screenshot shows the VMware Cloud Foundation Operations interface. At the top, there is a search bar with the placeholder text "Search for an object or select a category from the list below; like metric, feature, dashboard and more ...". Below the search bar is a list of categories:

- Object
- Metric
- Feature New
- Dashboard
- Report
- View
- Alert definition
- Symptom definition
- Recommendation
- Notification
- IP
- Search Help ?

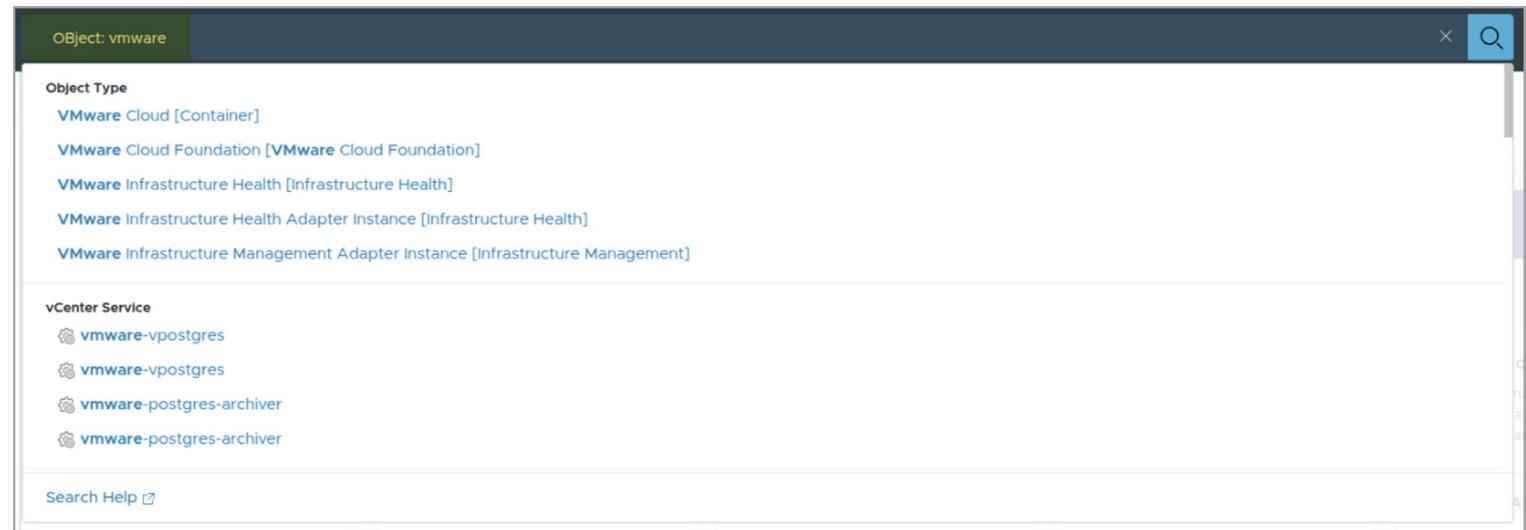
The "Feature" item is highlighted with a yellow box. The rest of the interface includes a sidebar with navigation links like Home, Inventory, Infrastructure Operations, etc., and a main content area with various operational features and infrastructure components.

Example: Using the Search Function

In this example, the user searches for an object with `vmware` in its name.

From the returned list of suggestions, you can click directly on one of the links.

Clicking the link opens the object's summary page.



Lab: Navigating VCF Operations UI

Access your lab environment and review a deployed VCF Operations instance:

1. Log In to the VCF Operations Administration UI
2. Navigate Pages in the VCF Operations Product UI
3. Use the Search Functionality to Find Objects
4. Use Dashboards and Topology to Navigate the Environment

Review of Learner Objectives

- Perform basic VCF Operations console navigation
- List the different management areas in the VCF Operations UI



Metrics, Views, and Reports

Importance

Views and reports provide perspectives on data collected for health, risk, and capacity trending for the objects and fleet in your environment.

Although inbuilt views and reports are available to track metric data, you can also create your own custom views and reports for monitoring your environment.

You must understand the capabilities of views and reports, and when to use each function to monitor your private cloud deployment.

Module Lessons

1. Introduction to Metrics
2. Creating and Managing Views
3. Viewing and Managing Reports

Introduction to Metrics

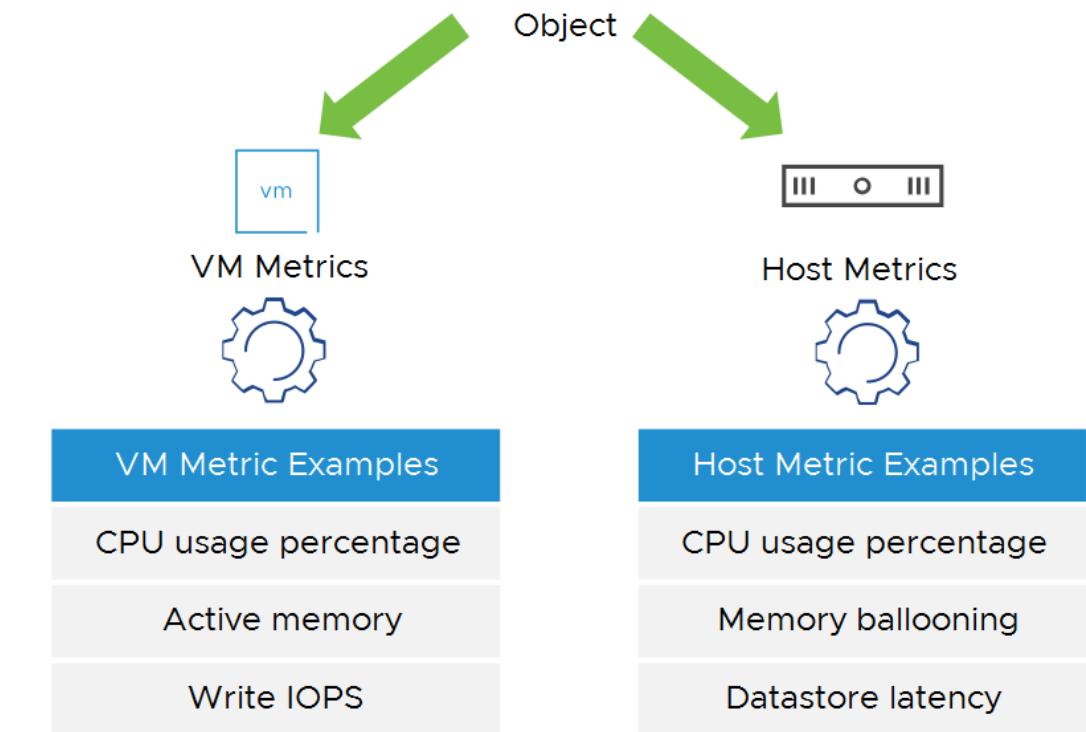
Learner Objectives

- Outline the role of metrics in VCF Operations
- Distinguish between metrics and properties

Understanding Metrics

Metrics are quantitative measurements collected from various objects, such as virtual machine, storage device, and so on. Metrics are usually time-based and numerical. Metrics data can reflect performance and health of the objects, such as CPU utilization, memory usage, network latency, etc.

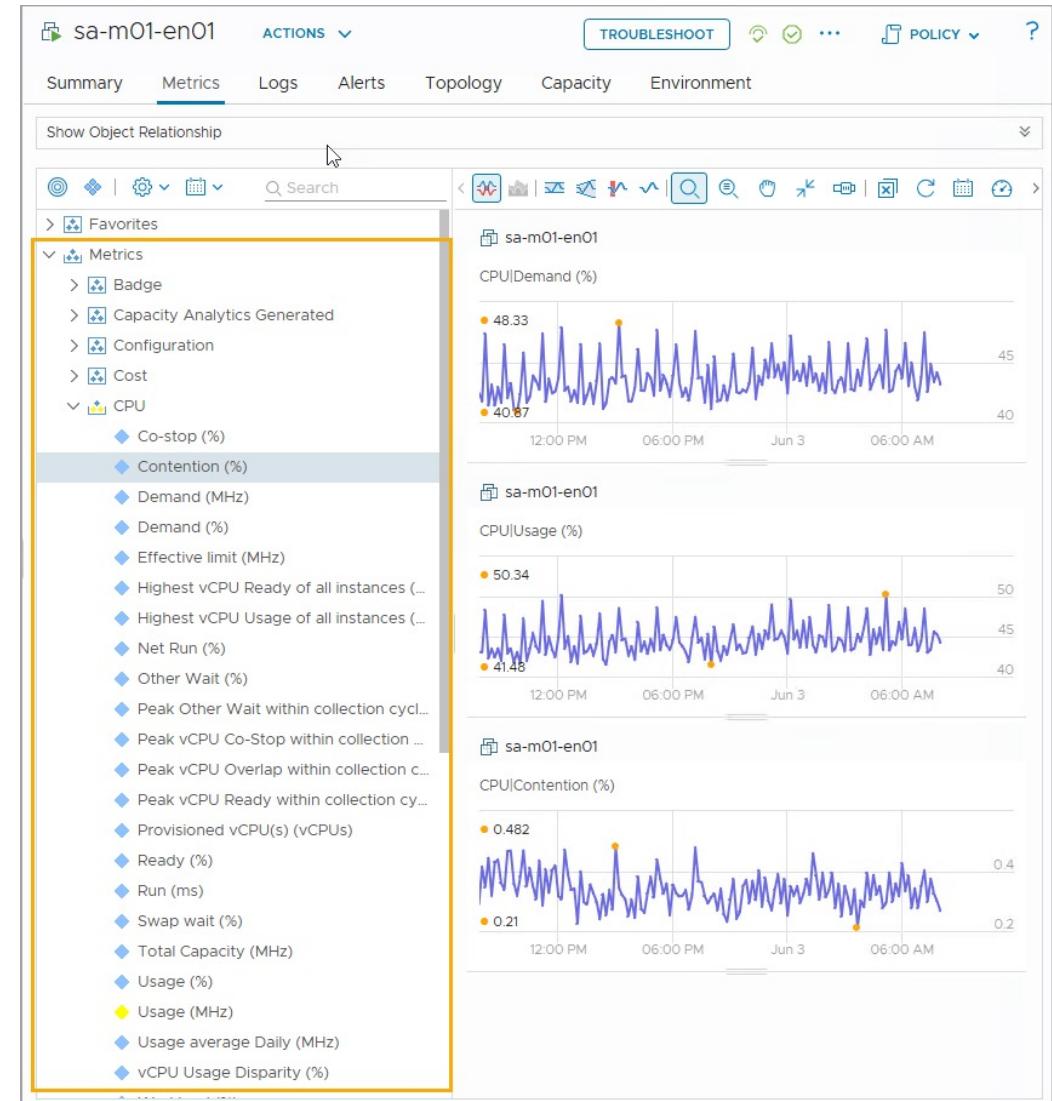
VCF Operations can collect metrics data from such objects in your environment, use the metrics data in analysis, and provide key performance and health insights for environment optimization and troubleshooting.



Understanding Predefined Metrics

VCF and VCF Operations are built to support various types of infrastructure objects powered by VMware and other third-party cloud infrastructure platforms. With this ability, VCF Operations can naturally collect a wide range of metrics from these infrastructure objects. These types of metrics are categorized as predefined metrics.

For example, VCF Operations can collect CPU usage, data store, memory utilization, disk space utilization, and network metrics from a virtual machine for administrators to understand its runtime statistics and performance condition.



Understanding Super Metrics

A Super Metric in VCF Operations is a custom metric that you can create when you want to check the health of your environment but cannot find a suitable metric to perform the analysis.

In a super metric, you can include multiple metrics and formula expressions to calculate the desired metric. For example, you can create a super metric to calculate the average virtual machine CPU utilization across an entire cluster.

The screenshot shows the 'Super Metrics' configuration page in the VCF Operations interface. The top navigation bar includes 'Configurations / Super Metrics', 'MORE SUPER METRICS SAMPLES', and a help icon. A search bar with the placeholder 'Type here to apply filters' and a 'FILTER' icon is located at the top right. Below the header, there are 'ADD' and '...' buttons. A table lists a single super metric entry:

Name
Average Virtual Machine CPU in Cluster

The right panel displays detailed information for the selected super metric:

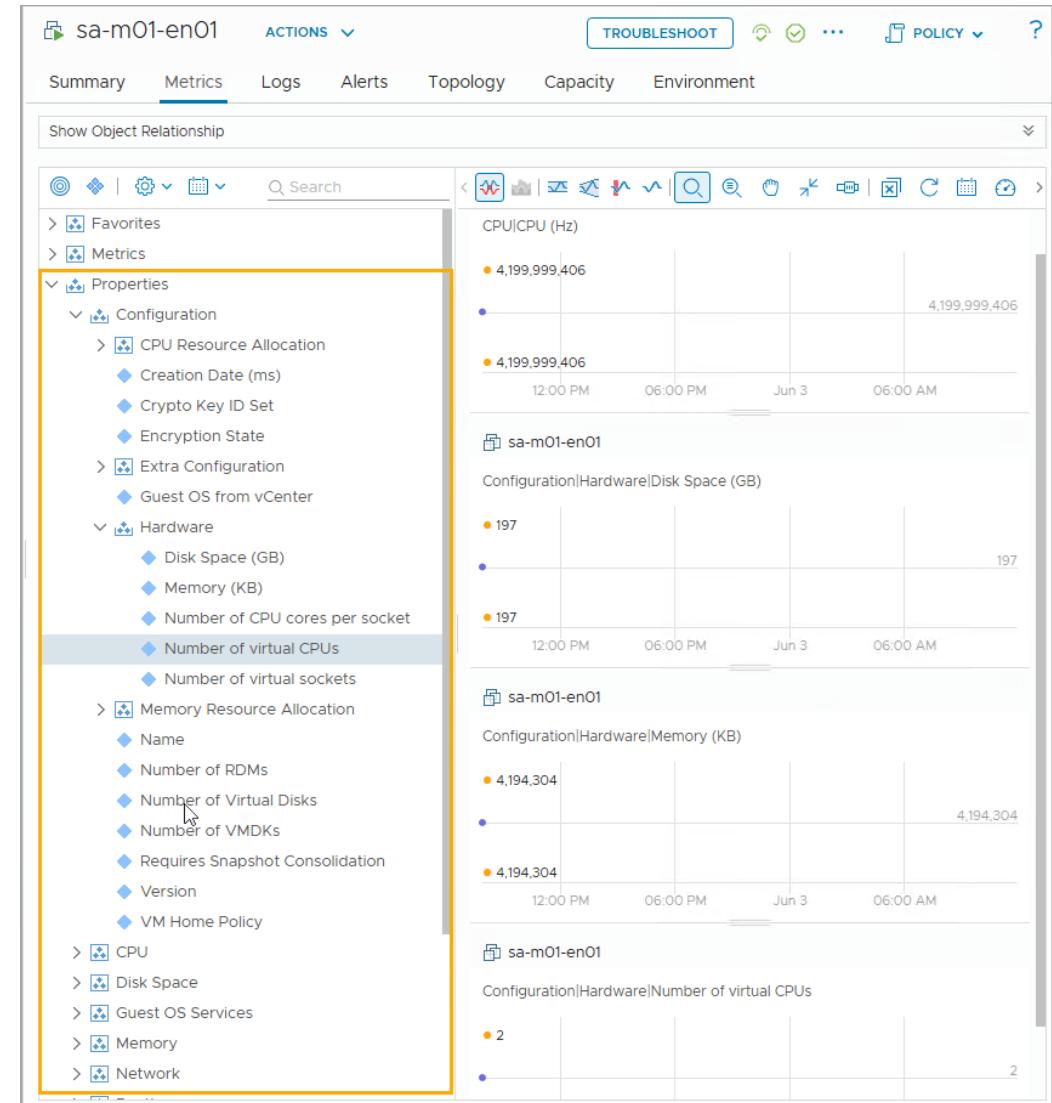
- Average Virtual Machine CPU in Cluster**
- Assigned Object Types (1)**: Virtual Machine
- Formula**: `avg({ Virtual Machine: CPU|Usage , depth=2})`
- Policies Enabled (2)**: Foundation Policy, Default Policy

At the bottom of the table, it says '1 - 1 of 1 items'.

Understanding Property

Properties are attributes or characteristics collected from various objects. Properties are descriptive and non-time-based, and property values usually do not change frequently. Examples of properties include VM names, number of CPU cores per socket, number of virtual disks, etc. Properties data are often useful for planning system setups, grouping, and other high-level decision making.

VCF Operations can collect properties data from objects in your environment. Administrators can use the properties data to understand configuration and state of resources.



Review of Learner Objectives

- Outline the role of metrics in VCF Operations
- Distinguish between metrics and properties

Creating and Managing Views

Learner Objectives

- Outline the role of views in VCF Operations
- Create a basic custom view and configure view settings

Understanding Views

A View in the VCF Operations console can display metrics collected from the environment. Views are also reusable building blocks for building dashboards and reports.

You can display and manage views by clicking **Infrastructure Operations > Dashboards & Reports > Views**.

In the **Views** pane, click **Manage** to see all the views currently available.

The screenshot shows the VMware Cloud Foundation Operations console interface. The left sidebar navigation includes Home, Inventory, Infrastructure Operations (Diagnostic Findings, VCF Health), Dashboards & Reports (Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery), Automation Central, Configurations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area has tabs for Dashboards and Views, with Views selected and highlighted by a yellow box. Below the tabs is a search bar and a 'Manage' button, also highlighted with a yellow box. The main pane displays a table titled 'Views' with columns: Name (sorted up), Type, Description, Subject, Dashboard Used, Report Usage, Last Modified, and Modified By. The table lists 794 items, mostly named '[VCF Automation for All] List' or '[VCF Automation for All] Trend', with various descriptions like 'vSphere Cluster Admins...', 'Show alerts for the sel...', 'Trend line of VM disk t...', 'Namespa...', etc. The last few rows show 'Region Q...' and 'Virtual M...'. At the bottom of the table, it says '1 - 50 of 794 items' and has navigation arrows for pages 1 through 16.

	Name ↑	Type	Description	Subject	Dashboard Used	Report Usage	Last Modified	Modified By
1	[DEP] Admission Control	List	vSphere Cluster Admins...	Cluster C...	1	0	5/10/25 1:11	admin
2	[DEP] Alerts that are curr	List	Show alerts for the sel...	Alert	0	0	5/10/25 1:11	admin
3	[DEP] vSphere VM Disk T	Trend	Trend line of VM disk t...	Virtual M...	0	0	5/10/25 1:11	admin
4	[VCF Automation for All]	Trend	[VCF Automation for ...	Namespa...	2	0	5/10/25 3:34	admin
5	[VCF Automation for All]	List	[VCF Automation for ...	Namespa...	2	0	5/10/25 3:34	admin
6	[VCF Automation for All]	List	This list provides an ov...	VCFA Or...	0	0	5/10/25 3:34	admin
7	[VCF Automation for All]	Trend	[VCF Automation for ...	VCFA Or...	2	0	5/10/25 3:34	admin
8	[VCF Automation for All]	List	[VCF Automation for ...	VCFA Or...	0	0	5/10/25 3:34	admin
9	[VCF Automation for All]	List	[VCF Automation for ...	VCFA Or...	0	0	5/10/25 3:34	admin
10	[VCF Automation for All]	List	This list provides a Dist...	Region Q...	0	0	5/10/25 3:34	admin
11	[VCF Automation for All]	List	This list provides a Dist...	Region Q...	0	0	5/10/25 3:34	admin
12	[VCF Automation for All]	List	[VCF Automation for ...	EDGEGA...	0	0	5/10/25 3:34	admin
13	[VCF Automation for All]	List	[VCF Automation for ...	Region Q...	0	0	5/10/25 3:34	admin
14	[VCF Automation for All]	Trend	[VCF Automation for ...	Project A...	1	0	5/10/25 3:34	admin
15	[VCF Automation for All]	Trend	[VCF Automation for ...	Project A...	1	0	5/10/25 3:34	admin
16	[VCF Automation for All]	List	[VCF Automation for ...	VCFA Or...	1	0	5/10/25 3:34	admin
17	[VCF Automation for All]	List	[VCF Automation for ...	Region Q...	1	0	5/10/25 3:34	admin
18	[VCF Automation for All]	List	[VCF Automation for ...	Virtual M...	1	0	5/10/25 3:34	admin
19	[VCF Automation for All]	List	[VCF Automation for ...	Virtual M...	1	0	5/10/25 3:34	admin

Predefined Views

Predefined views are available in VCF Operations. Each view is based on a subject.

A view presents collected information for VCF and other objects in your environment in a certain way depending on the view type.

The screenshot shows the 'Views' section of the VCF Operations interface. On the left, a sidebar includes 'Dashboards', 'Views' (which is selected and highlighted in grey), 'Reports', and a '+ Create' button. Below these are 'Search', 'Recents', and 'All' buttons. The main area is titled 'Views' and contains tabs for 'Overview' and 'Manage'. The 'Overview' tab is active. It lists several predefined views categorized by subject:

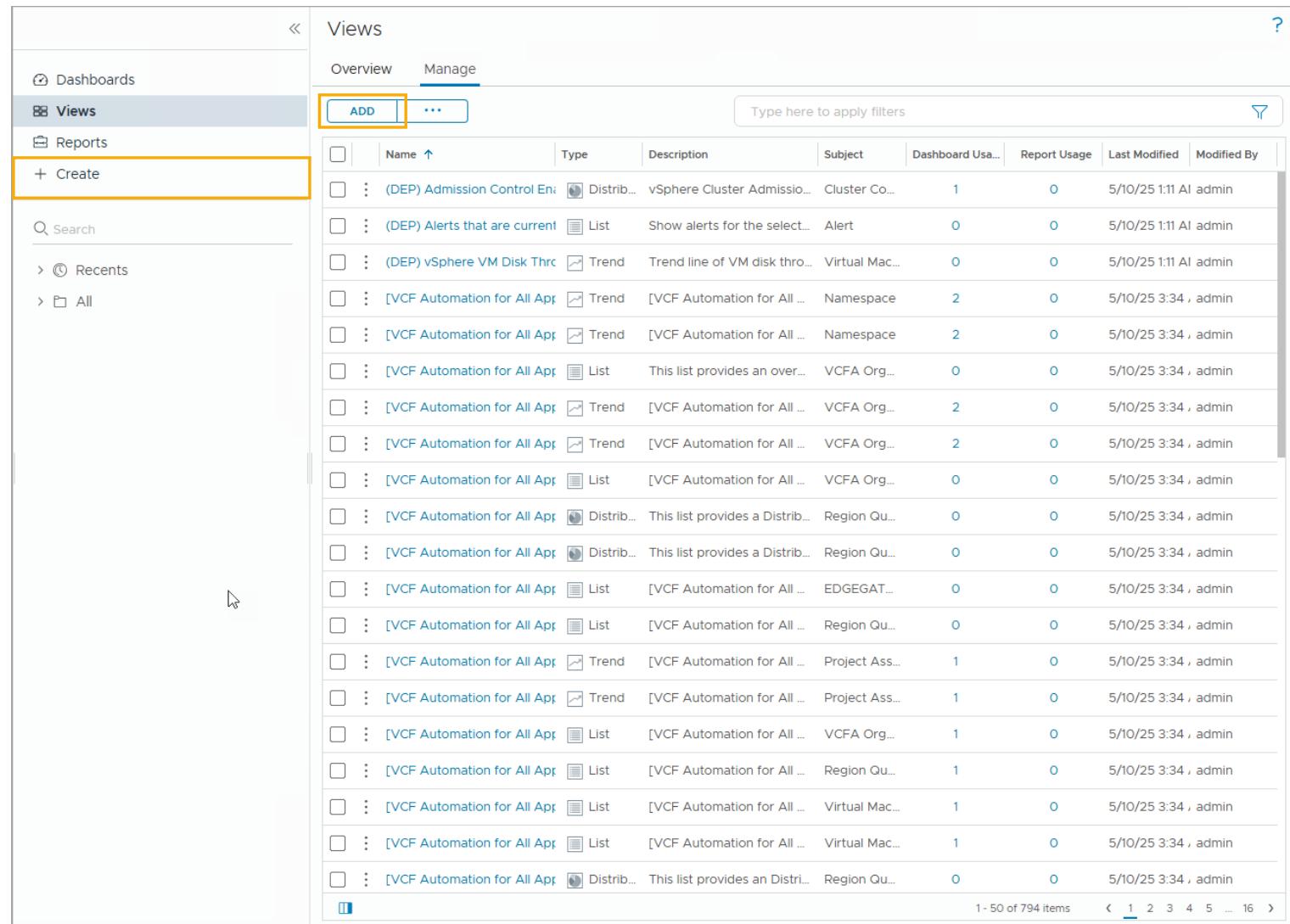
- Availability**: Tables listing the availability of vSphere VM and infrastructure.
- Capacity**: Tables listing the capacity of vSphere VM and infrastructure. Reclamation is highlighted separately as it's potentially significant.
- Configuration**: Tables listing the configuration of vSphere VM and infrastructure. Configuration where the distribution matters are shown in pie chart or bar chart.
 - vSAN Configuration
 - VM Virtual Hardware Versions
 - VM Memory Distribution
 - VM CPU Distribution
 - VM Configuration
 - Network Configuration
 - Guest OS Distribution
 - ESXi Configuration
 - Cluster Configuration
- Inventory**: Tables listing the availability of vSphere VM and infrastructure. Inventory where the trend over time matters are shown as line chart.
 - vSphere Network Inventory
 - Total VM Count Growth
 - ESXi Inventory
 - Datastore Inventory
 - Cluster Inventory
- Performance**: Tables listing the performance of vSphere VM and infrastructure.
- Compliance**: Tables listing the compliance of vSphere VM and infrastructure.

Creating a Custom View

You can create a custom view to collect and display information for a specific object. To add a new view, click the **ADD** button or click **+ Create**.

You need to complete the following tasks when creating a custom view:

1. Specify the view type.
2. Configure subjects and metrics.
3. Configure the time settings.
4. Add any data filter.



The screenshot shows the 'Views' section of the VMware vSphere Web Client. The left sidebar has tabs for 'Dashboards', 'Views' (which is selected and highlighted in grey), and 'Reports'. Below these are 'Create' and 'Search' buttons. The main area is titled 'Views' and has tabs for 'Overview' and 'Manage'. The 'Manage' tab is selected and highlighted in blue. At the top of the main area is an 'ADD' button, which is also highlighted with a yellow box. Below it is a '...' button. A search bar with the placeholder 'Type here to apply filters' is present. The main content area is a table listing various views, each with a checkbox, a preview icon, a name, type, description, subject, dashboard usage, report usage, last modified date, and modified by user. The table has 18 columns. At the bottom of the table, there is a footer with the text '1 - 50 of 794 items' and a page navigation bar with buttons for 1, 2, 3, 4, 5, ..., 16, and >.

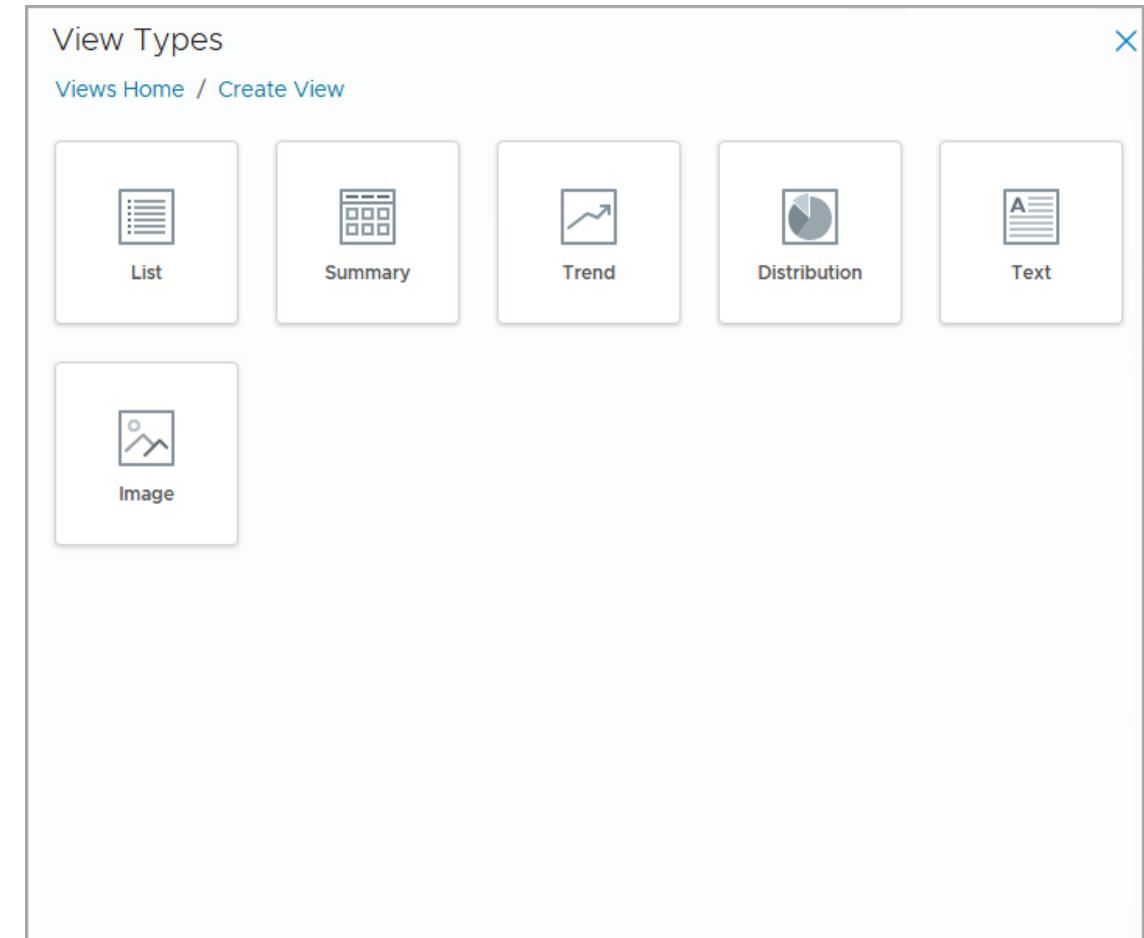
	Name ↑	Type	Description	Subject	Dashboard Usa...	Report Usage	Last Modified	Modified By
<input type="checkbox"/>	(DEP) Admission Control En...	Distrib...	vSphere Cluster Admissio...	Cluster Co...	1	0	5/10/25 1:11	AI admin
<input type="checkbox"/>	(DEP) Alerts that are current	List	Show alerts for the select...	Alert	0	0	5/10/25 1:11	AI admin
<input type="checkbox"/>	(DEP) vSphere VM Disk Thrc	Trend	Trend line of VM disk thro...	Virtual Mac...	0	0	5/10/25 1:11	AI admin
<input type="checkbox"/>	[VCF Automation for All App	Trend	[VCF Automation for All ...	Namespace	2	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Trend	[VCF Automation for All ...	Namespace	2	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	This list provides an over...	VCFA Org...	0	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Trend	[VCF Automation for All ...	VCFA Org...	2	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	VCFA Org...	0	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Distrib...	This list provides a Distrib...	Region Qu...	0	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Distrib...	This list provides a Distrib...	Region Qu...	0	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	EDGEGAT...	0	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	Region Qu...	0	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Trend	[VCF Automation for All ...	Project Ass...	1	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Trend	[VCF Automation for All ...	Project Ass...	1	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	VCFA Org...	1	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	Region Qu...	1	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	Virtual Mac...	1	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	List	[VCF Automation for All ...	Virtual Mac...	1	0	5/10/25 3:34	, admin
<input type="checkbox"/>	[VCF Automation for All App	Distrib...	This list provides an Distri...	Region Qu...	0	0	5/10/25 3:34	, admin

Understanding View Types

When you create a view, you first need to choose a view type. Each type of view helps you to interpret metrics and properties in a different way.

The following view types are available to choose from:

- **List** views: Provide tabular data about specific objects
- **Summary** views: Provide tabular data about the use of resources
- **Trend** views: Use historic data to generate trends and forecasts for resource use and availability
- **Distribution** views: Provide aggregated data about resource distribution
- **Text** views: Allow you to insert provided text



Specifying the View Name and Configuration

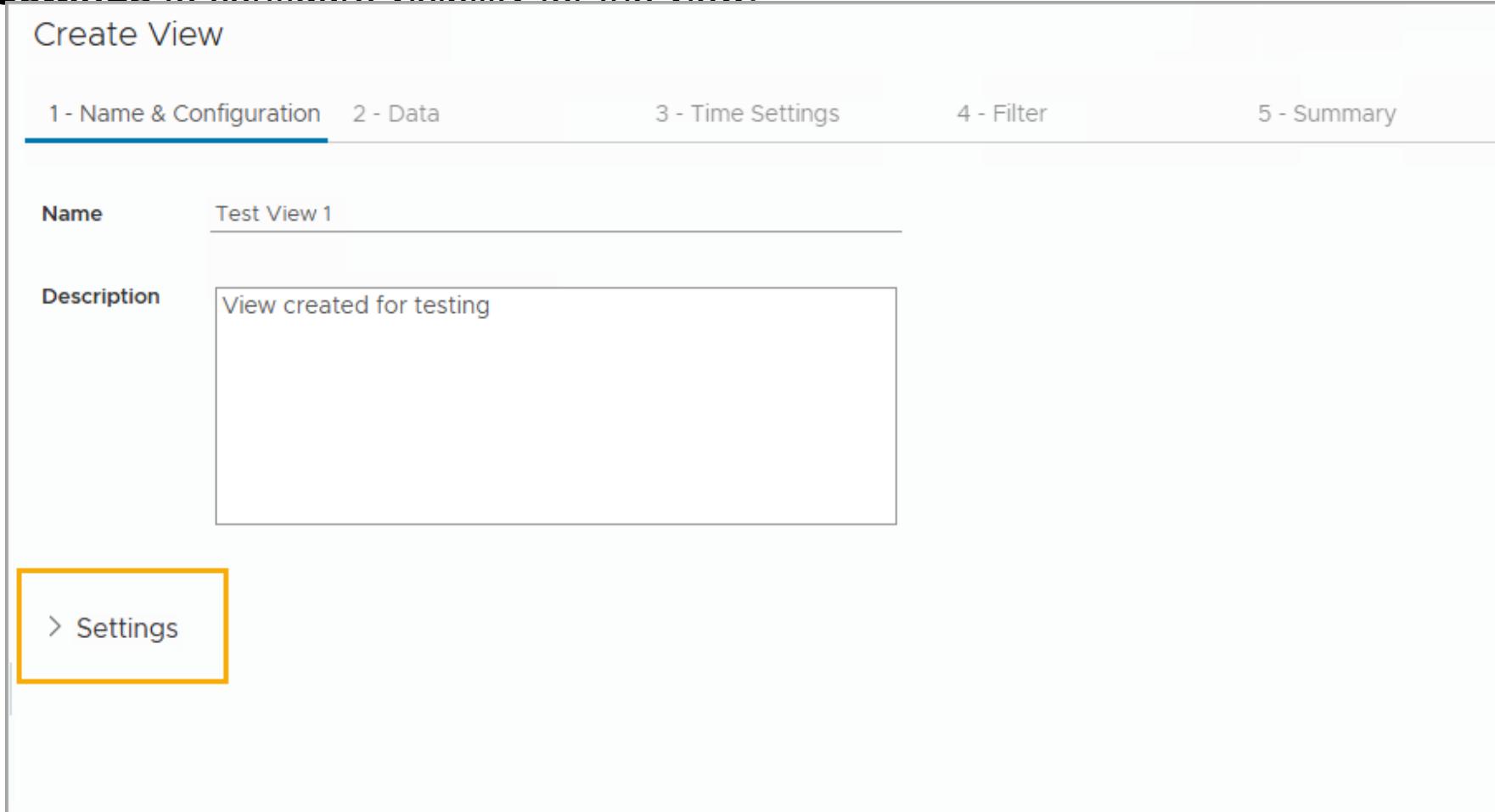
You must specify the name and description of the view as they appear in the list of views on the **Views** page. Click **Settings** to configure visibility for the view.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

Name	Test View 1
Description	View created for testing

> Settings



Configuring View Visibility Settings

In View Visibility Settings, you can specify where the view appears and where it can be reused, such as when creating Dashboards and Reports.

You can customize result display, such as items per page, maximum plot lines, etc. This setting varies based on different view types.

You can also specify object types in which the view is not available.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

Name: Test View 1

Description: View created for test/demo purpose

▼ Settings

Items per page: 50

Top result count:

Show Objects: Existing

Show Object Creation Date:

Make the view available for:

- Dashboards through the View widget
- Report template creation and modification
- Details tab in the environment

Hide the view for the selected Object Types: Select an Object Type

PREVIOUS NEXT CREATE CANCEL

Adding Data Subject

When creating a view, you need to specify the data subjects for this view. A subject is the base object type for which the view shows information.

You can use the **Add Subject** drop-down menu to select the desired data subjects. Or you can enter keywords in the **Add Subject** field and select the desired data subjects from the search result list.

The subject that you specify determines where the view is applicable. If you select more than one subject, the view is applicable for each subject.

Screenshot of the "Create View" interface showing the "Add Subject" step. The "Selected Subject" dropdown is open, showing a list of options under "vCenter". A blue arrow points from the "Add Subject" input field to the "vCenter" section. The "vCenter" section is highlighted with a yellow box. The "Configuration" tab is selected in the "vCenter" section. To the right, there is a preview table showing CPU demand and cost for various hosts.

Name	CPU Demand (%)	Cost/Effective CPU MTD ...
sa-m01-centos-01	2.65 %	0.14 US\$
sa-m01-en01	43.09 %	6.17 US\$
sa-m01-en02	43.39 %	6.17 US\$
sa-m01-nsxt01	47.11 %	19.64 US\$
sa-m01-sddc01	4.29 %	1.22 US\$
sa-m01-vc01	14.4 %	3.92 US\$
sa-m01-vcfah2zzq	35.42 %	65.76 US\$
sa-m01-vcops01	9.34 %	2.09 US\$
sa-m01-vcopsfm01	17.5 %	4.12 US\$
sa-m01-vcopsc01	5.05 %	1.29 US\$
sa-wld01-nsxt01	44.52 %	18.67 US\$
sa-wld01-vc01	8.53 %	4.35 US\$
vCLS-61c50142-ed...	0.53 %	0.04 US\$
vCLS-df180142-1167...	0.61 %	0.04 US\$
vrni-master	-	0 US\$
vrni-collector	38.5 %	5.05 US\$
vrni-platform	46.91 %	13.62 US\$

Selecting Data Subjects

After you select the data subjects, you need to define the data that VCF Operations collects, calculates, and presents in the view.

When defining data, you can include:

- Properties
- Metrics
- Policies
- Adapter-provided data

To add any data, you need to drag the data from the available data list into the view data area.

The screenshot shows the 'Create View' interface with the 'Data' tab selected. On the left, there's a sidebar with sections for 'Add Subject' (Virtual Machine), 'Selected Subject' (Virtual Machine), and 'Available Data'. The 'Available Data' section is expanded, showing categories like 'Metrics' and 'Cost'. A blue arrow points from the 'Available Data' list to the 'View Data' area on the right. The 'View Data' area contains two columns: 'Data' and 'Transformation'. Under 'Data', there are two items: 'CPU|Demand' (Current) and 'Cost|Effect' (Current). Under 'Transformation', it says 'Current' and 'No Timestamp'. To the right of the 'View Data' area is a preview table showing various metrics and their values. At the bottom, there are buttons for 'PREVIOUS', 'NEXT', 'CREATE', and 'CANCEL'.

Name	CPU Demand (%)	Cost Effective CPU MTD ...
sa-m01-centos-01	2.65 %	0.14 US\$
sa-m01-en01	43.09 %	6.17 US\$
sa-m01-en02	43.39 %	6.17 US\$
sa-m01-nsxt01	47.11 %	19.64 US\$
sa-m01-sddc01	4.29 %	1.22 US\$
sa-m01-vc01	14.4 %	3.92 US\$
sa-m01-vcfah2zzq	35.42 %	65.76 US\$
sa-m01-vcops01	9.34 %	2.09 US\$
sa-m01-vcopsfm01	17.5 %	4.12 US\$
sa-m01-vcopsoc01	5.05 %	1.29 US\$
sa-wld01-nsxt01	44.52 %	18.67 US\$
sa-wld01-vc01	8.53 %	4.35 US\$
vCLS-61c50142-ed... vCLS-df180142-1167...	0.53 % 0.61 %	0.04 US\$ 0.04 US\$
vrni-master	-	0 US\$
vrni-collector	38.5 %	5.05 US\$
vrni-platform	46.91 %	13.62 US\$

Configuring Data Metrics

For each metric that you drag to the data area, you can configure the general information, transformation type, and advanced settings.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

Add Subject Select a subject Group by None

Selected Subject
Virtual Machine

Self Add interval breakdown Add instance breakdown

Data Transformation Related to Configuration

CPUIDem... Current Cost|Effect... Current

Configuration

General

Metric name Cost|Effect...
Metric label Cost|Effectiv...
Units US\$
Sort order None

Transformation

Current
No Timestamp

[SHOW ADVANCED SETTINGS](#)

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

Name	CPU Demand (%)	Cost Effective CPU MTD ...
sa-m01-centos-01	2.65 %	0.14 US\$
sa-m01-en01	43.09 %	6.17 US\$
sa-m01-en02	43.39 %	6.17 US\$
sa-m01-nsxt01	47.11 %	19.64 US\$
sa-m01-sddc01	4.29 %	1.22 US\$
sa-m01-vc01	14.4 %	3.92 US\$
sa-m01-vcfa-h2zzq	35.42 %	65.76 US\$
sa-m01-vcops01	9.34 %	2.09 US\$
sa-m01-vcopsm01	17.5 %	4.12 US\$
sa-m01-vcopsoc01	5.05 %	1.29 US\$
sa-wld01-nsxt01	44.52 %	18.67 US\$
sa-wld01-vc01	8.53 %	4.35 US\$
vCLS-61c50142-ed... vCLS-df180142-1167-...	0.53 % 0.61 %	0.04 US\$ 0.04 US\$
vrni-master	-	0 US\$
vrni-collector	38.5 %	5.05 US\$
vrni-platform	46.91 %	13.62 US\$

PREVIOUS NEXT CREATE CANCEL

Previewing a View

You can preview a view with sample data or live data. To preview the view with live data, you select the subject or a container in which the subject exists.

The screenshot shows the 'Create View' interface with the '2 - Data' tab selected. A yellow box highlights the 'Select an Object' dialog, which is open over the main view area. The dialog lists various objects under 'VCF Instances' and 'EDU'. A blue arrow points from the 'Preview source' dropdown in the main view to the 'Select preview source...' option in the dialog's dropdown menu. The main view displays a preview table with 17 items, each showing a metric value and a US dollar amount. The table includes columns for 'sa-m01-centos-01' through 'sa-m01-vcfa-h2zzq', 'sa-m01-vcops01' through 'sa-m01-vcopsfm01', 'sa-wld01-nxst01', 'sa-wld01-vc01', 'vCLS-61c50142-ed...', 'vCLS-df180142-1167...', 'vrni-master', 'vrni-collector', and 'vrni-platform'.

sa-m01-centos-01	43.96 %	6.17 US\$
sa-m01-en01	44.21 %	6.17 US\$
sa-m01-nxst01	52.87 %	19.64 US\$
sa-m01-sddc01	4.32 %	1.22 US\$
sa-m01-vc01	15.06 %	3.92 US\$
sa-m01-vcfa-h2zzq	35.28 %	65.76 US\$
sa-m01-vcops01	11 %	2.09 US\$
sa-m01-vcopsfm01	17.13 %	4.12 US\$
sa-m01-vcopso01	5.29 %	1.29 US\$
sa-wld01-nxst01	42.23 %	18.67 US\$
sa-wld01-vc01	8.57 %	4.35 US\$
vCLS-61c50142-ed...	0.54 %	0.04 US\$
vCLS-df180142-1167...	0.6 %	0.04 US\$
vrni-master	-	0 US\$
vrni-collector	39.05 %	5.05 US\$
vrni-platform	49.14 %	13.62 US\$

Configuring Basic Time Settings

Use the time settings to select the time interval of data transformation. These options are available for all view types, except Image.

In Basic mode, you can select date ranges. You can set a time range for a past period or set a future date for the end of the time period.

When you select a future end date and no data is available, the view is populated by forecast data. Data is collected based on the browser time.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

Time Range Mode: Basic Advanced

Currently selected date range: From May 27, 2025 8:15:34 AM to 8:15:34 AM

Relative Date Range
Last 7 Days

Specific Date Range
Start on: to

Absolute Date Range
Prior

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

Name	CPU Demand (%)	Cost Effective CPU MTD ...
sa-m01-centos-01	2.91 %	0.14 US\$
sa-m01-en01	42.71 %	6.17 US\$
sa-m01-en02	43.16 %	6.17 US\$
sa-m01-nsxt01	45.39 %	19.64 US\$
sa-m01-sddc01	4.2 %	1.22 US\$
sa-m01-vc01	14.38 %	3.92 US\$
sa-m01-vcfa-h2zzq	37.59 %	65.76 US\$
sa-m01-vcops01	9.27 %	2.09 US\$
sa-m01-vcopsfm01	16.91 %	4.12 US\$
sa-m01-vcopsoc01	5.08 %	1.29 US\$
sa-wld01-nsxt01	44.51 %	18.67 US\$
sa-wld01-vc01	8.27 %	4.35 US\$
vCLS-61c50142-ed...	0.55 %	0.04 US\$
vCLS-dr180142-1167-...	0.6 %	0.04 US\$
vrli-master	-	0 US\$
vrni-collector	37.84 %	5.05 US\$
vrni-platform	49.77 %	13.62 US\$

PREVIOUS NEXT CREATE CANCEL

1 - 17 of 17 items

Configuring Advanced Time Settings

In Advanced mode, you can select any combination of relative or specific start and end dates.

To preview the view with live data, you select the subject or a container in which the subject exists.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

Time Range Mode: Basic Advanced

Currently selected date range: From Dec 3, 2024 8:24:27 AM to Mar 1, 2025 1:00:00 AM

Relative Start Date
Start on: Previous ▾ 6 Months ▾

Specific Start Date
Start on:

Business Hours

Day	Start	End
Monday	12:00 AM	12:00 AM
Tuesday	12:00 AM	12:00 AM
Wednesday	12:00 AM	12:00 AM
Thursday	12:00 AM	12:00 AM
Friday	5:00 AM	8:00 PM
Saturday	10:00 AM	4:15 PM
Sunday	10:00 AM	4:15 PM

Relative End Date
End on: Now

Specific End Date
End on: 3/1/25 12:00 AM

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

Name	CPU Demand (%)	Cost Effective CPU MTD ...
sa-m01-centos-01	2.91 %	0.14 US\$
sa-m01-en01	42.71 %	6.17 US\$
sa-m01-en02	43.16 %	6.17 US\$
sa-m01-nsx01	45.39 %	19.64 US\$
sa-m01-sddc01	4.2 %	1.22 US\$
sa-m01-vc01	14.38 %	3.92 US\$
sa-m01-vcfa-h2zzq	37.59 %	65.76 US\$
sa-m01-vcops01	9.27 %	2.09 US\$
sa-m01-vcopsfm01	16.91 %	4.12 US\$
sa-m01-vcopsoc01	5.08 %	1.29 US\$
sa-wld01-nsx01	44.51 %	18.67 US\$
sa-wld01-vc01	8.27 %	4.35 US\$
vCLS-61c50142-ed...	0.55 %	0.04 US\$
vCLS-df180142-1167-...	0.6 %	0.04 US\$
vrl-master	-	0 US\$
vrni-collector	37.84 %	5.05 US\$
vrni-platform	49.77 %	13.62 US\$

PREVIOUS NEXT CREATE CANCEL

1 - 17 of 17 items

Configuring a Data Filter

The filter option allows you to add additional criteria when the view displays too much information.

You can filter based on object metrics and object properties. To configure a data filter, you need to specify the data type, the data, the data value (historical high/low or timestamp), the logical operator, and a reference value.

You can add multiple criteria to the criteria set. The filter returns results that match all the specified criteria.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

Virtual Machine filter

REMOVE CRITERIA

Select the Object Type that matches all of the following criteria: Virtual Machine

Metrics CPUDemand (%) Current is less than 20

Or

REMOVE CRITERIA

Select the Object Type that matches all of the following criteria: Virtual Machine

Metrics Pick a metric Current --Select-- Metric value

ADD ANOTHER CRITERIA SET

PREVIOUS NEXT CREATE CANCEL

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

Name	CPUDemand (%)	CostEffective CPU MTD ...
sa-m01-centos-01	2.91 %	0.14 US\$
sa-m01-en01	42.71 %	6.17 US\$
sa-m01-en02	43.16 %	6.17 US\$
sa-m01-nsxt01	45.39 %	19.64 US\$
sa-m01-sddc01	4.2 %	1.22 US\$
sa-m01-vc01	14.38 %	3.92 US\$
sa-m01-vcfa-h2zzq	37.59 %	65.76 US\$
sa-m01-vcops01	9.27 %	2.09 US\$
sa-m01-vcopsfm01	16.91 %	4.12 US\$
sa-m01-vcopsoc01	5.08 %	1.29 US\$
sa-wld01-nsxt01	44.51 %	18.67 US\$
sa-wld01-vc01	8.27 %	4.35 US\$
vCLS-61c50142-ed... vCLS-df180142-1167-...	0.55 % 0.6 %	0.04 US\$
vrl-master	-	0 US\$
vrni-collector	37.84 %	5.05 US\$
vrni-platform	49.77 %	13.62 US\$

1 - 17 of 17 items

Adding a View Summary

You can add more than one summary row or column and configure each to show different aggregations.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter 5 - Summary

ADD SUMMARY

Summary	Configuration
Summary	Configuration

Summary title: Summary
Aggregation: Average

Select data to include/exclude:

- Data
- CPU/Demand (%)
- Cost/Effective CPU MTD Cost (US\$)

HIDE ADVANCED SETTINGS

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

Name	CPU/Demand (%)	Cost/Effective CPU MTD ...
sa-m01-centos-01	2.91 %	0.14 US\$
sa-m01-en01	42.71 %	6.17 US\$
sa-m01-en02	43.16 %	6.17 US\$
sa-m01-nsxt01	45.39 %	19.64 US\$
sa-m01-sddc01	4.2 %	1.22 US\$
sa-m01-vc01	14.38 %	3.92 US\$
sa-m01-vcfa-h2zzq	37.59 %	65.76 US\$
sa-m01-vcops01	9.27 %	2.09 US\$
sa-m01-vcopsfm01	16.91 %	4.12 US\$
sa-m01-vcopsoc01	5.08 %	1.29 US\$
sa-wld01-nsxt01	44.51 %	18.67 US\$
sa-wld01-vc01	8.27 %	4.35 US\$
vCLS-61c50142-ed...-da...	0.55 %	0.04 US\$
vCLS-dff80142-1167-...	0.6 %	0.04 US\$
vrli-master	-	0 US\$
vrni-collector	37.84 %	5.05 US\$
vrni-platform	49.77 %	13.62 US\$

PREVIOUS NEXT **CREATE** CANCEL

Distribution View Configuration: Visualization

For the Distribution view, you create a pie chart, a bar chart, or donut chart, and specify the Distribution Type. It determines the distribution of objects to buckets.

The colors of the slices in a pie or donut chart appear in the order defined by the default color palette. You can set alternative colors for the chart.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter

Name: VM Distribution View

Description:

Configuration

Visualization: Donut Chart

Coloring: Colorize (selected)

Distribution Type: Dynamic distribution (selected)

Buckets

Count: 10

Size: Simple Max/Min bucketing (selected)

Settings

PREVIOUS NEXT CREATE CANCEL

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

CPUIDemand (%)

Total 16

Bucket Range (%)	Count	Percentage (%)
0.58 - 5.43 (%)	4	25...
5.43 - 10.27 (%)	3	18.75%
15.11 - 19.95 (%)	2	12.5%
34.48 - 39.32 (%)	1	6.25%
39.32 - 44.16 (%)	2	12.5%
44.16 - 49 (%)	2	12.5%

Distribution View Configuration: Distribution Type

The VCF Operations view distribution type provides aggregated data about resource distribution in the monitored environment.

Create View

1 - Name & Configuration 2 - Data 3 - Time Settings 4 - Filter

Name: VM Distribution View

Description:

Preview source: PoweredOn:sa-m01-vc01.vcf.sddc.local

Configuration

Visualization: Donut Chart

Coloring: Colorize (selected)

Distribution Type: Dynamic distribution (selected)

Buckets: Count: 10, Size: Simple Max/Min bucketing (selected)

Settings

PREVIOUS NEXT CREATE CANCEL

Bucket Range (%)	Count	Percentage
0.58 - 5.43 (%)	1	6.25%
5.43 - 10.27 (%)	2	12.5%
15.11 - 19.95 (%)	3	(...)
34.48 - 39.32 (%)	4	25...
39.32 - 44.16 (%)	2	12.5%
44.16 - 49 (%)	4	25...

Trend View Configuration

The **Configuration** pane for a view is specific to the type of view that you select. To configure a Trend view, you specify whether you want to use the historical data, forecast data, or both.



Managing Views

You can perform the following actions on views:

- **Edit** a view: When you edit a view, all changes are applied to report templates that contain the view.
- **Delete** a view: When you delete a view, the view is removed from all the report templates that contain the view.
- **Clone** a view: When you clone a view, the changes that you make to the clone do not affect the source view.

Export a view: You can download and share the view configuration details in ZIP

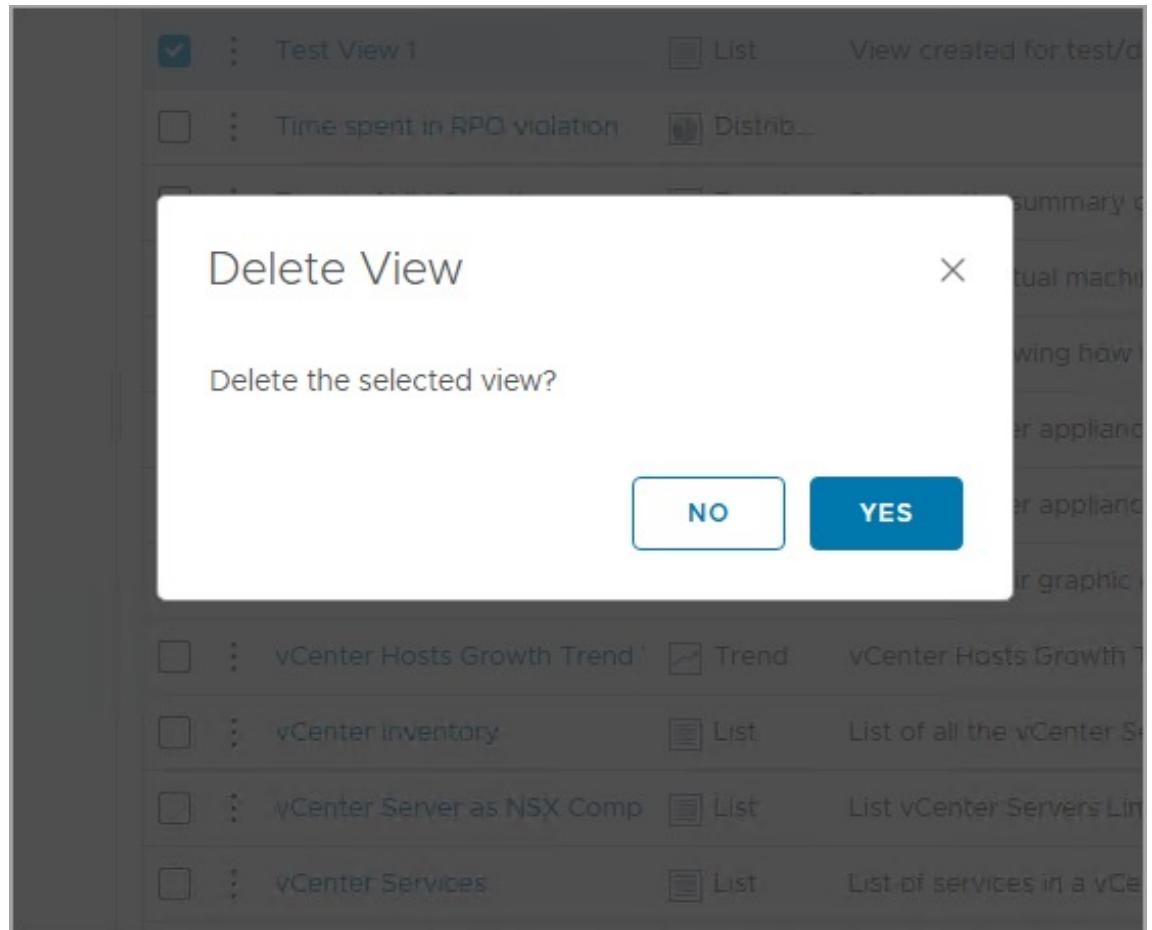
The screenshot shows the 'Views' management interface in the VMware vSphere Web Client. On the left, a sidebar lists 'Dashboards', 'Views' (which is selected and highlighted in grey), 'Reports', and a '+ Create' button. Below these are sections for 'Recents' (listing 'VM Distribution View' and 'Test') and 'All'. The main area is titled 'Views' and contains a table with columns: Name, Type, Description, Subject, Dashboard Used, Report Usage, Last Modified, and Modified By. The table lists 796 items, with page navigation at the bottom showing pages 1 through 16. A specific row in the table is highlighted with a yellow box, and its context menu is open, showing options: 'Edit', 'Delete', 'Clone', and 'Export'. The 'Edit' option is the top item in the list.

Name	Type	Description	Subject	Dashboard Used	Report Usage	Last Modified	Modified By
VIH VCF HRM - Certificate I...	List	Monitors the certificate d...	Automatio...	1	0	5/10/25 1:13 A	admin
VIH VCF HRM - Certificate I...	List	Monitors the certificate h...	Host Syste...	1	0	5/10/25 1:13 A	admin
VIH VCF HRM - Connectivity ...	List	Monitors the connectivity...	Automatio...	2	0	5/10/25 1:13 A	admin
VIH VCF HRM - Connectivity ...	List	Monitors the connectivity...	Automatio...	2	0	5/10/25 1:13 A	admin
VIH VCF HRM - DNS Status	List	Monitors the DNS forwar...	Automatio...	2	0	5/10/25 1:13 A	admin
VIH VCF HRM - Domain	List	Shows the list of domains	VCF Domai...	1	0	5/10/25 1:13 A	admin
VIH VCF HRM - Export	List	Monitors the metrics for f...	SDDC Man...	1	0	5/10/25 1:13 A	admin
VIH VCF HRM - NTP Status	List	Monitors if the NTP Confi...	Automatio...	2	0	5/10/25 1:13 A	admin
VIH VCF HRM - Password H...	List	Monitors the password h...	Automatio...	1	0	5/10/25 1:13 A	admin
VIH VCF HRM - Password H...	List	Monitors the password h...	Host Syste...	1	0	5/10/25 1:13 A	admin
VIH VCF HRM Apps	List	Shows the list of VCF ap...	Automatio...	1	0	5/10/25 1:13 A	admin
Virtual Machine Capacity Ov...	List	Capacity overview of all t...	Virtual Ma...	0	2	5/10/25 1:11 A	admin
Virtual Machine Configurati...	Text	Recommendation about ...		1	0	5/10/25 1:11 A	admin
Virtual Machine Configurati...	List	Virtual Machine Configur...	Virtual Ma...	0	2	5/10/25 1:11 A	admin
Virtual Machine Configurati...	List	Virtual Machine Configur...	Virtual Ma...	0	0	5/10/25 1:11 A	admin
Virtual Machine CPU Demar...	Distrib...	This view shows a bar ch...	Virtual Ma...	0	0	5/10/25 1:11 A	admin
Virtual Machine Disk and Fil...	List	List of VMs with all the di...	Virtual Ma...	0	0	5/10/25 1:11 A	admin
Virtual Machine Disk I/O Lat...	Trend	Show the last 24 hours o...	Virtual Ma...	0	0	5/10/25 1:11 A	admin
Virtual Machine Hardware S...	List	Virtual Machine Hardwar...	Virtual Ma...	0	0	5/10/25 1:11 A	admin
Virtual Machine Inventory	List	List of all the Virtual Mac...	Virtual Ma...	0	2	5/10/25 1:11 A	admin
Virtual Machine Inventory Si...	List	This view provides a list ...	Virtual Ma...	0	0	5/10/25 1:11 A	admin

Deleting a View

When a view is deleted, several areas in the user interface are affected:

- Report templates: The view is removed from the report template.
- Dashboards: The View widget appears. The view does not exist.
- **Further Analysis** pane on the **Analysis** tab: The link to the view is removed.
- **Views** tab for the selected object: The view is removed from the list.



Lab: Creating a Custom View

Create a view to display the VM information:

1. Create a View that Provides the VM Configuration Details
2. Define the Data to Include in the VM Configuration Details View
3. Preview Live Data in the VM Configuration Details View
4. Add a Summary Row to the VM Configuration Details View

Review of Learner Objectives

- Outline the role of views in VCF Operations
- Create a basic custom view and configure view settings

Viewing and Managing Reports

Learner Objectives

- Outline the roles of reports in VCF Operations
- Create a basic report and configure report settings
- Create a custom report template

Understanding Reports

With the VCF Operations reporting functions, you can generate a report to capture details about the current or predicted resource needs.

A report is a scheduled snapshot of views and dashboards. Reports represent objects and metrics and can also contain a cover page, table of contents, and footer.

You can download the report in a PDF or CSV file format for future and offline needs.



Inventory Report - Datacenters

Object:	sa-m01-vc01.vcf.sddc.local
Report Time:	April 17, 2025 at 9:54:36 AM GMT-07:00
Run by:	admin

Report Templates

A report template is a predefined container of one or more views in a specified order. You can access the report templates under **Infrastructure Operations > Dashboards & Reports > Reports**.

The screenshot shows the VMware Cloud Foundation Operations web interface. The left sidebar has a tree view with categories like Home, Inventory, Infrastructure Operations (which is expanded), Diagnostic Findings, VCF Health, Dashboards & Reports (which is selected and highlighted with an orange box), Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery, Automation Central, Configurations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area is titled 'Reports' and contains two tabs: 'Report Templates' (selected) and 'Generated Reports'. Below the tabs is a search bar and a filter bar with the placeholder 'Type here to apply filters'. A large table lists 62 report templates. The columns are: Name (sorted by name), Description, Subject, Generate..., Schedules, Last Modified, Last run, and Modified By. The first item in the list is 'Capacity Report - Datastores', which is checked. Other reports include 'Capacity Report - Distributed Port Group', 'Capacity Report - Distributed Switch', 'Capacity Report - Environment', 'Capacity Report - Pods', 'Capacity Report - Virtual Machines', 'Capacity Report - vSphere Cluster Alloc...', 'Capacity Report - vSphere Clusters', 'Capacity Report - vSphere Hosts', 'Cluster Cost Report', 'Compliance Report - vSphere Security', 'Configuration Report - Datastores', 'Configuration Report - Environment', 'Configuration Report - Namespaces', 'Configuration Report - Pods', 'Configuration Report - Supervisor Cluste...', 'Configuration Report - Virtual Machines', 'Configuration Report - vSphere Clusters', 'Configuration Report - vSphere Distribut...', and 'Configuration Report - vSphere Distribut...'. The last item is 'Configuration Report - vSphere Hosts'.

Name	Description	Subject	Generate...	Schedules	Last Modified	Last run	Modified By
Capacity Report - Datastores	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Capacity Report - Distributed Port Group	This report provides d...	vSphere Distributed P...	0	0	5/10/25 1:11	-	admin
Capacity Report - Distributed Switch	This report provides d...	vSphere Distributed S...	0	0	5/10/25 1:11	-	admin
Capacity Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Capacity Report - Pods	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Capacity Report - Virtual Machines	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Capacity Report - vSphere Cluster Alloc...	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Capacity Report - vSphere Clusters	This report provides d...	Host System	0	0	5/10/25 1:11	-	admin
Capacity Report - vSphere Hosts	This report provides d...	Host System	0	0	5/10/25 1:11	-	admin
Cluster Cost Report	Report that contains d...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Compliance Report - vSphere Security	This report shows all t...	Symptom	0	0	5/10/25 1:11	-	admin
Configuration Report - Datastores	This report helps track...	Datastore	0	0	5/10/25 1:11	-	admin
Configuration Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Configuration Report - Namespaces	This report helps track...	Namespace	0	0	5/10/25 1:11	-	admin
Configuration Report - Pods	This report helps track...	Pod	0	0	5/10/25 1:11	-	admin
Configuration Report - Supervisor Cluste...	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Configuration Report - Virtual Machines	This report helps track...	Virtual Machine	0	0	5/10/25 1:11	-	admin
Configuration Report - vSphere Clusters	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11	-	admin
Configuration Report - vSphere Distribut...	This report helps track...	vSphere Distributed P...	0	0	5/10/25 1:11	-	admin
Configuration Report - vSphere Distribut...	This report helps track...	vSphere Distributed S...	0	0	5/10/25 1:11	-	admin
Configuration Report - vSphere Hosts	This report helps track...	Host System	0	0	5/10/25 1:11	-	admin

Creating a Report Template

You can create a custom report template based on your requirements. To add a custom template, click the **ADD** button or click **+ Create**.

You need to complete the following tasks when creating a custom report template:

1. Setting name and description.
2. Adding views and dashboards.
3. Configuring layout and format.

The screenshot shows the 'Reports' section of the vSphere interface. On the left, there's a sidebar with 'Dashboards', 'Views', 'Reports' (which is selected and highlighted with a yellow box), and a '+ Create' button. The main area is titled 'Reports' and has two tabs: 'Report Templates' (selected) and 'Generated Reports'. At the top right are a search bar ('Type here to apply filters') and a 'Filter' icon. Below is a table listing 62 items, each with a checkbox, a report name, a description, a subject, generate status, schedules, last modified date, last run date, and modified by user. The first few rows include: 'Capacity Report - Datastores', 'Capacity Report - Distributed Port Group', 'Capacity Report - Distributed Switch', 'Capacity Report - Environment', 'Capacity Report - Pods', 'Capacity Report - Virtual Machines', 'Capacity Report - vSphere Cluster Alloc...', 'Capacity Report - vSphere Clusters', 'Capacity Report - vSphere Hosts', 'Cluster Cost Report', 'Compliance Report - vSphere Security C...', 'Configuration Report - Datastores', 'Configuration Report - Environment', 'Configuration Report - Namespaces', 'Configuration Report - Pods', 'Configuration Report - Supervisor Cluste...', 'Configuration Report - Virtual Machines.', 'Configuration Report - vSphere Clusters.', 'Configuration Report - vSphere Distribut...', 'Configuration Report - vSphere Distribut...', and 'Configuration Report - vSphere Hosts...'. The bottom right corner of the table shows '1 - 50 of 62 items' and page navigation buttons.

Adding Views and Dashboards to a Report Template

To add a view or a dashboard to your report template, select the view or dashboard from the list in the right pane and drag it to the main **Report Template Structure** pane.

You can use the **Views and Dashboards** toggle to switch between a list of views and a list of dashboards. You can add multiple views and dashboards to a single report template.

Create Report Template

1 - Name and Description 2 - Report Content 3 - Layout and Format

Report Template Structure

Views and Dashboards Views Dashboards

cost

Cost Optimization

Cluster Cost Details

PREVIOUS NEXT CREATE CANCEL

1 - 17 of 17 items

The screenshot shows the 'Create Report Template' interface. It has three tabs at the top: '1 - Name and Description', '2 - Report Content', and '3 - Layout and Format'. The '2 - Report Content' tab is active. In the center, there's a 'Report Template Structure' pane containing two items: 'Cost Optimization' and 'Cluster Cost Details'. To the right of this is a sidebar titled 'Views and Dashboards' with a 'Views' tab selected (indicated by an orange border) and a 'Dashboards' tab. Below this are two dropdown menus: one for 'cost' and another for 'Views'. The sidebar lists 17 items, with 'Cost Optimization' being the last one listed under the 'Dashboards' section. At the bottom of the sidebar, it says '1 - 17 of 17 items'. At the very bottom of the interface are buttons for 'PREVIOUS', 'NEXT', 'CREATE', and 'CANCEL'.

Configuring the Report Layout

The report template provides the following layout options:

- Select **Cover Page** to include an image up to 5 MB. The default report size is 8.5 inches by 11 inches. The image is resized to fit the report front page.
- Select **Table of contents** to include a list of the template parts, organized in the order of their appearance in the report.
- Select **Footer** to include the date when the report is created and when VCF Operations creates the report

Create Report Template

1 - Name and Description 2 - Report Content 3 - Layout and Format

Report Template Structure

Cluster Cost Analysis

Object:	Sample Resource Name
Report Time:	6/3/25 4:36 PM
Run by:	admin

vmware

Table of contents

1. Cost Optimization	3
2. Cluster Cost Details	4
3. Cost Summary	5

PREVIOUS NEXT CREATE CANCEL

?

Settings

Layout Options

Cover Page Default Cover Page [BROWSE...](#)
Maximum image size 5MB

Font Color Black White

Table of contents
 Footer

Format

PDF
Good for sharing with people who need to print it out.
 CSV
Good for exporting data to be used by other data analysis applications.

Generating Reports

Any predefined or user-created template is available on the **Report Templates** tab.

Click the vertical ellipsis next to the template name and click **Run** to generate a report.

You can see the number of reports generated from each template and when it was last used.

Reports								
Report Templates Generated Reports		Type here to apply filters						
	ADD	...						
<input type="checkbox"/>	Name ↑	Description	Subject	Generate...	Schedules	Last Modified	Last run	Modified By
<input type="checkbox"/>	Capacity Report - Datastores	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Capacity Report - Distributed Port Group	This report provides d...	vSphere Distributed P...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Capacity Report - Distributed Switch	This report provides d...	vSphere Distributed S...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Capacity Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Capacity Report - Pods	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Capacity Report - Virtual Machines	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Capacity Report - vSphere Cluster Alloc...	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	... Run vSphere Clusters	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Schedule vSphere Hosts	This report provides d...	Host System	0	0	5/10/25 1:11, -		admin
<input checked="" type="checkbox"/>	... Edit vSphere Hosts	This report provides d...	Cluster Compute Reso...	0	0	8:38 AM, -		admin
<input type="checkbox"/>	... Delete vSphere Hosts	Report that contains d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	... Clone vSphere Hosts	-vSphere Security C...	Symptom	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	... Export vSphere Hosts							
<input type="checkbox"/>	Configuration Report - Datastores	This report helps track...	Datastore	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - Namespaces	This report helps track...	Namespace	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - Pods	This report helps track...	Pod	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - Supervisor Cluste...	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - Virtual Machines	This report helps track...	Virtual Machine	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - vSphere Clusters	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - vSphere Distribut...	This report helps track...	vSphere Distributed P...	0	0	5/10/25 1:11, -		admin
<input type="checkbox"/>	Configuration Report - vSphere Distribut...	This report helps track...	vSphere Distributed S...	0	0	5/10/25 1:11, -		admin
1 - 50 of 63 items								

Viewing Generated Reports

You can view generated reports on the **Generated Reports** tab. You can download the selected report or delete any generated reports.

Reports						
Report Templates		Generated Reports				
DELETE		<input type="text"/> Type here to apply filters 				
<input type="checkbox"/>	Completion Date/Time	Report Name	Subject	Owner	Executed for	Status
<input checked="" type="checkbox"/>	21 seconds ago	Capacity Report - vSphere Clusters	Cluster Compute ...	admin	EDU-cl01	Completed  
<input type="checkbox"/>	26 seconds ago	Capacity Report - Virtual Machines	Cluster Compute ...	admin	esx-1.vcf.sddc.loc...	Completed  
<input type="checkbox"/>	35 seconds ago	Capacity Report - Pods	Cluster Compute ...	admin	sa-m01-vc01.vcf.s...	Completed  
<input type="checkbox"/>	38 seconds ago	Cluster Cost Analysis	Cluster Compute ...	admin	EDU-dc01	Completed  

Regenerating Reports

All reports that are generated for a selected object appear on the **Generated Reports** tab.

You can download or run the selected report again from this location.

Regenerating a report increments the Generated reports number. The maximum number of reports generated per template is 10.

Reports								
		Report Templates	Generated Reports					
		Type here to apply filters						
		DELETE						
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Run	Report Name	Subject	Owner	Executed for	Status	Download
		Delete	Capacity Report - vSphere Clusters	Cluster Compute ...	admin	EDU-cl01	Completed	
		20 seconds ago	Capacity Report - Virtual Machines	Cluster Compute ...	admin	esx-1.vcf.sddc.loc...	Completed	
		35 seconds ago	Capacity Report - Pods	Cluster Compute ...	admin	sa-m01-vc01.vcf.s...	Completed	
		38 seconds ago	Cluster Cost Analysis	Cluster Compute ...	admin	EDU-dc01	Completed	
		1 - 4 of 4 items						

Scheduling a Report

To generate a report on a selected date, time, and recurrence, you select the object to run the report against and create a schedule for the report template.

Reports

Report Templates Generated Reports

ADD ... Type here to apply filters ?

Name	Description	Subject	Generate...	Schedules	Last Modified	Last run	Modified By
Capacity Report - Datastores	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
Capacity Report - Distributed Port Group	This report provides d...	vSphere Distributed P...	0	0	5/10/25 1:11, -		admin
Capacity Report - Distributed Switch	This report provides d...	vSphere Distributed S...	0	0	5/10/25 1:11, -		admin
Capacity Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
Capacity Report - Pods	This report provides d...	Cluster Compute Reso...	1	0	5/10/25 1:11, 38 seconds		admin
Capacity Report - Virtual Machines							
Run	Run	vSphere Cluster Alloc...					
Schedule	Schedule	vSphere Hosts	▶				
Edit	Edit						
Delete	Delete						
Clone	Clone						
Export	Export						
Compliance Report - vSphere Security Configuration							
Configuration Report - Datastores							
Configuration Report - Environment							
Configuration Report - Namespaces							
Configuration Report - Pods							
Configuration Report - Supervisor Clusters							
Configuration Report - Virtual Machines							
Configuration Report - vSphere Clusters	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11, -		admin
Configuration Report - vSphere Distributed Port Groups	This report helps track...	vSphere Distributed P...	0	0	5/10/25 1:11, -		admin
Configuration Report - vSphere Distributed Switches	This report helps track...	vSphere Distributed S...	0	0	5/10/25 1:11, -		admin

Schedule Capacity Report - vSphere Hosts

Define Schedule

Set the recurrence and publishing criteria for this report.

1 Select an Object

2 Define Schedule

Recurrence

Time zone: (GMT -08:00) Pacific Time (US & Canada)
Start hour: 8:00 AM
Start date: 6/3/25
Weekly
Every 1 weeks on:
Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Publishing

Email report to it-main-group@vmbeams.com
Email addresses: it-main-group@vmbeams.com
Cc: john.doe@vmbeams.com
Select an outbound rule: SMTP - IT Standard
Save to external location
Select a location: Report Depot
Relative Path: /rs01/report/scheduled

CANCEL BACK FINISH

Reporting Template Actions

You can delete, export, and import report templates from the **Actions** menu.

You can also upload a common default image for the cover page of reports.

The cover pages of user-defined reports do not change when you update the default cover page image.

Reports							
Report Templates		Generated Reports					
ADD		...	Type here to apply filters				
Name	Description	Subject	Generate...	Schedules	Last Modified	Last run	Modified By
<input type="checkbox"/> Capacity Report - Environment	Delete Export	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Capacity Report - Environment	Import Change report font	This report provides d...	vSphere Distributed P...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Capacity Report - Environment	Change default cover image	This report provides d...	vSphere Distributed S...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Capacity Report - Environment	Capacity Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Capacity Report - Pods	Capacity Report - Pods	This report provides d...	Cluster Compute Reso...	1	0	5/10/25 1:11, 38 seconds	admin
<input checked="" type="checkbox"/> Capacity Report - Virtual Machines	Capacity Report - Virtual Machines	This report provides d...	Cluster Compute Reso...	1	0	5/10/25 1:11, 35 seconds	admin
<input type="checkbox"/> Capacity Report - vSphere Cluster Alloc	Capacity Report - vSphere Cluster Alloc	This report provides d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Capacity Report - vSphere Clusters	Capacity Report - vSphere Clusters	This report provides d...	Cluster Compute Reso...	1	0	5/10/25 1:11, 26 seconds	admin
<input checked="" type="checkbox"/> Capacity Report - vSphere Hosts	Capacity Report - vSphere Hosts	This report provides d...	Host System	0	1	5/10/25 1:11, -	admin
<input type="checkbox"/> Cluster Cost Analysis	Cluster Cost Analysis		Cluster Compute Reso...	1	0	8:38 AM a minute ago	admin
<input type="checkbox"/> Cluster Cost Report	Cluster Cost Report	Report that contains d...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Compliance Report - vSphere Security C	Compliance Report - vSphere Security C	This report shows all t...	Symptom	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - Datastores	Configuration Report - Datastores	This report helps track...	Datastore	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - Environment	Configuration Report - Environment	This report provides a ...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - Namespaces	Configuration Report - Namespaces	This report helps track...	Namespace	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - Pods	Configuration Report - Pods	This report helps track...	Pod	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - Supervisor Cluste	Configuration Report - Supervisor Cluste	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - Virtual Machines.	Configuration Report - Virtual Machines.	This report helps track...	Virtual Machine	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - vSphere Clusters.	Configuration Report - vSphere Clusters.	This report helps track...	Cluster Compute Reso...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - vSphere Distribut	Configuration Report - vSphere Distribut	This report helps track...	vSphere Distributed P...	0	0	5/10/25 1:11, -	admin
<input type="checkbox"/> Configuration Report - vSphere Distribut	Configuration Report - vSphere Distribut	This report helps track...	vSphere Distributed S...	0	0	5/10/25 1:11, -	admin
1 - 50 of 63 items							
< 1 2 >							

Understanding Report Template Ownership

By default, the owner of the report template is the user who creates the template. Any VCF Operations user can see the report template and run the template to generate reports. A generated report is user specific.

When the user is deleted, all the report templates owned by the user are automatically transferred to the System account.

Reports							
Report Templates		Generated Reports					
<input type="button" value="DELETE"/>		Type here to apply filters 					
Completion Date/Time	Report Name	Subject	Owner	Executed for	Status	Download	
21 seconds ago	Capacity Report - vSphere Clusters	Cluster Compute ...	admin	EDU-cl01	Completed	 	
26 seconds ago	Capacity Report - Virtual Machines	Cluster Compute ...	admin	esx-1.vcf.sddc.loc...	Completed	 	
35 seconds ago	Capacity Report - Pods	Cluster Compute ...	admin	sa-m01-vc01.vcf.s...	Completed	 	
38 seconds ago	Cluster Cost Analysis	Cluster Compute ...	admin	EDU-dc01	Completed	 	

Best Practices for Creating and Using Views and Reports

When you create or use views and reports, you can follow these best practices:

- Use views and reports that are available and predefined: Use the predefined views and reports that provide the needed information.
- Clone views or reports to make changes and rename with your company's naming convention: If minor changes are needed from a predefined view or report, clone the predefined view or report before making changes and save it with a naming convention that identifies the company. The cloned view or report can be easily identified and exported for future use.
- Create customized views and reports: Customize views and reports based on the dashboards and reports that must show the precise information. Use your customized views for your customized dashboards and customized reports.

Lab: Creating Custom Report Templates

Create report templates that can generate required information about your private cloud environment:

1. Create a Report Template Using the Virtual Machine Configuration Summary View
2. Create a Report Template Using Two Dashboards

Review of Learner Objectives

- Outline the roles of reports in VCF Operations
- Create a basic report and configure report settings
- Create a custom report template

Dashboards

Importance

Dashboards enable you to focus on what is important in your environment.

The VCF Operations console provides a set of predefined dashboards. You can also create custom dashboards to meet the business needs of your users: virtual infrastructure team, executives, application owners, operators, and so on.

You must know how to use dashboards, widgets, and interactions to provide meaningful data and insights to support your day-to-day environment monitoring and optimization.

Module Lessons

1. Dashboards and Widgets
2. Managing Dashboards

Dashboards and Widgets



Learner Objectives

- Describe the functions of dashboards
- Build a custom dashboard
- Configure widget interactions
- Use metric configuration files

Understanding Dashboards

Dashboards present a visual overview of the performance and state of objects in your virtual infrastructure. To access dashboards, you must navigate to **Infrastructure Operations > Dashboards & Reports > Dashboards**.

You can view the predefined dashboards on the **Overview** tab, and view all dashboards (predefined and custom) on the **Manage** tab. The **Manage** tab also enables you to manage and alter any dashboards.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar has a tree view with categories like Home, Infrastructure Operations (selected), and Dashboards & Reports. Under Infrastructure Operations, there are sections for Diagnostic Findings, VCF Health, and several sub-sections under Dashboards & Reports: Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery, Automation Central, Configurations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area is titled "Dashboards" and has tabs for "Overview" (selected) and "Manage". The "Overview" tab shows a list of dashboards with columns for Name, Folder, Description, Active, URL, Shared, Owner, Report Usage, Last Modified, and Modified by. There are 160 items listed. The "Manage" tab allows users to add new dashboards or edit existing ones. A search bar at the top is set to "Dashboards".

Understanding Predefined Dashboards

You can access some of the useful, predefined dashboards from the **Dashboards > Overview** home page.

The predefined dashboards are categorized as follows:

Availability, Configuration, Inventory, Performance, Capacity, and Cost.

To access any predefined dashboard, expand the selected category and click the specific dashboard.

The screenshot displays the VMware Cloud Foundation Operations interface. On the left, a sidebar menu includes Home, Infrastructure Operations (which is expanded to show Diagnostic Findings, VCF Health, and Dashboards & Reports), and various other operational modules like Workload Operations, Fleet Management, Security, and License Management. The main content area is titled 'Dashboards' and shows an 'Overview' tab selected. It lists several categories of predefined dashboards, each with a brief description and a list of specific dashboards. A yellow box highlights the 'Dashboards' section under 'Infrastructure Operations'. The categories listed are:

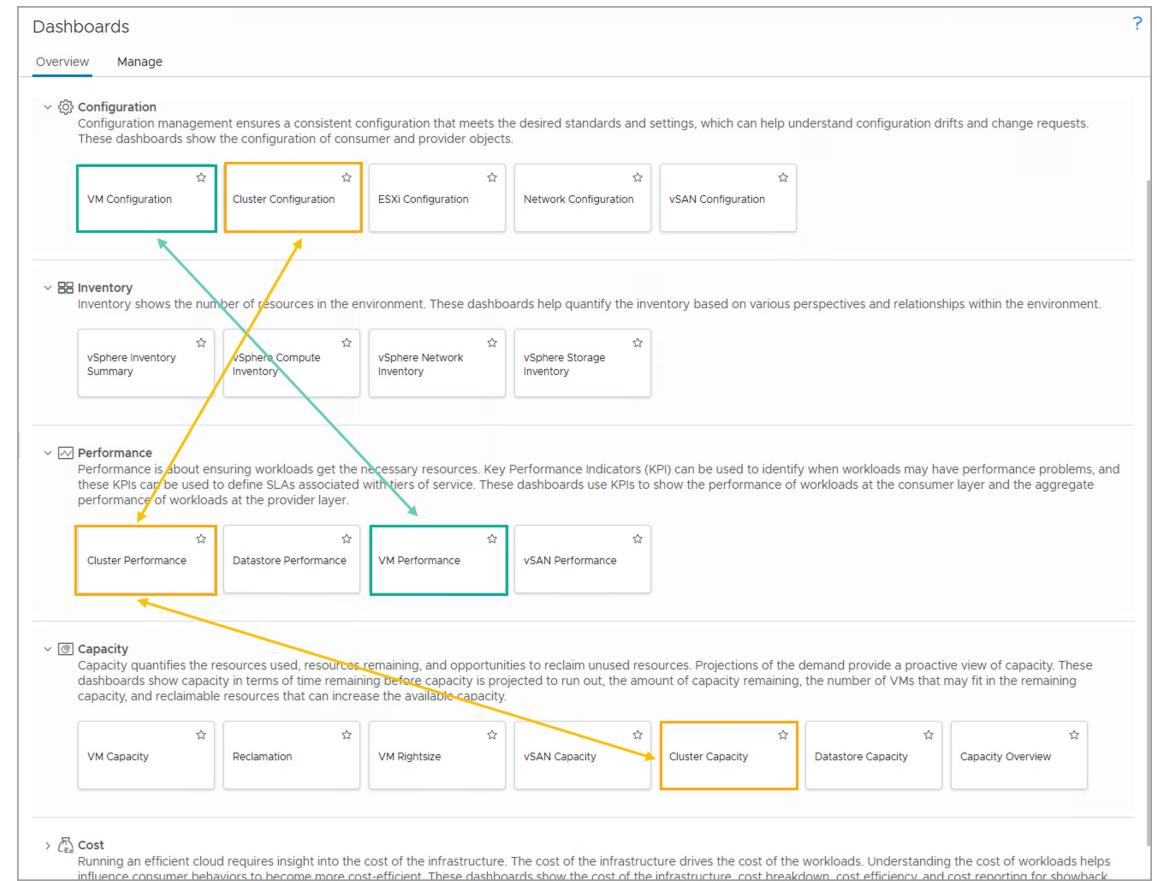
- Availability**: Availability covers uptime of the object now and the uptime trend over time. The availability of hybrid clouds should be tracked at both the provider and consumer layers to understand the availability of the environment. These dashboards show the current uptime and the uptime percentage over the past month.
- Configuration**: Configuration management ensures a consistent configuration that meets the desired standards and settings, which can help understand configuration drifts and change requests. These dashboards show the configuration of consumer and provider objects. Examples include VM Configuration, Cluster Configuration, ESXi Configuration, Network Configuration, and vSAN Configuration.
- Inventory**: Inventory shows the number of resources in the environment. These dashboards help quantify the inventory based on various perspectives and relationships within the environment.
- Performance**: Performance is about ensuring workloads get the necessary resources. Key Performance Indicators (KPI) can be used to identify when workloads may have performance problems, and these KPIs can be used to define SLAs associated with tiers of service. These dashboards use KPIs to show the performance of workloads at the consumer layer and the aggregate performance of workloads at the provider layer.
- Capacity**: Capacity quantifies the resources used, resources remaining, and opportunities to reclaim unused resources. Projections of the demand provide a proactive view of capacity. These dashboards show capacity in terms of time remaining before capacity is projected to run out, the amount of capacity remaining, the number of VMs that may fit in the remaining capacity, and reclaimable resources that can increase the available capacity.
- Cost**: Running an efficient cloud requires insight into the cost of the infrastructure. The cost of the infrastructure drives the cost of the workloads. Understanding the cost of workloads helps influence consumer behaviors to become more cost-efficient. These dashboards show the cost of the infrastructure, cost breakdown, cost efficiency, and cost reporting for showback purposes.

Predefined Dashboard Use Cases

The predefined dashboards in your VCF Operations console cover a great range of use cases to help you understand and manage your virtual environment. Dashboards are powerful proactive tools that help you monitor your environment or troubleshoot any issue.

The following examples show how you can leverage some of the predefined dashboards:

- If you want to understand the status of the clusters in your virtual environment and want to know how many more VMs you can fit into any existing cluster, you can use the combination of **Cluster Capacity**, **Cluster Configuration**, and **Cluster Performance** to help you.
- If you want to understand the performance of your VMs and compare VM configurations to understand the performance difference, you can use a combination of **VM Configuration** and **VM Performance** to help you understand the VMs in your virtual environment.



Understanding Custom Dashboards

If the predefined dashboards cannot meet your organization's business case, you can create custom dashboards to meet your environment needs.

To create a custom dashboard, you can either click **+ Create** or click **ADD** on the **Manage** tab.

Creating a custom dashboard requires the completion of the following tasks:

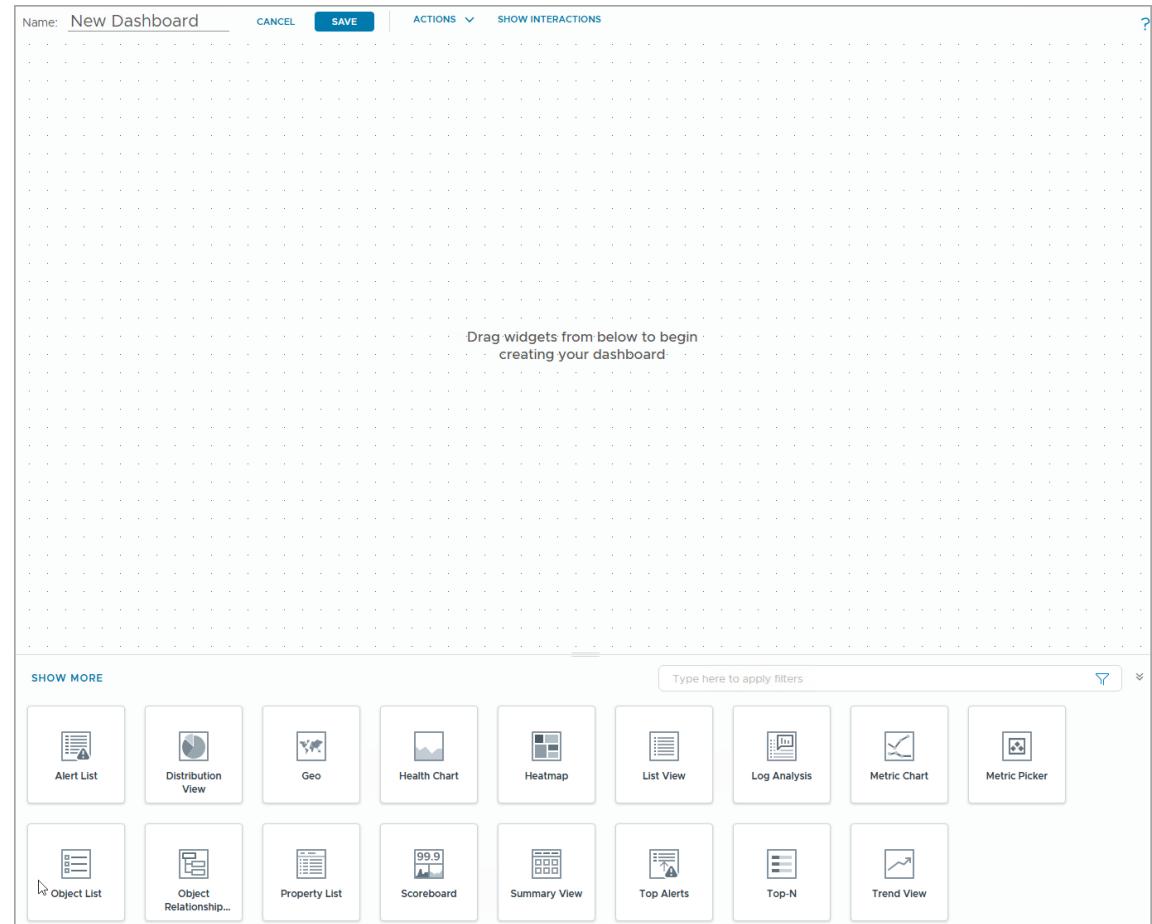
1. Adding dashboard widgets
2. Configuring widget data sources and objects
3. Configuring widget interactions

The screenshot shows the VMware Cloud Foundation Operations interface. On the left, there is a navigation sidebar with various categories like Home, Inventory, Infrastructure Operations, and more. The 'Dashboards' section is currently selected. In the main content area, there is a table titled 'Dashboards' with columns for Name, Folder, Description, Activation, URL, Share, Owner, Report Usage, Last Modified, and Modified by. At the top of this table, there are two buttons: 'ADD' and '...'. Both of these buttons are highlighted with orange boxes. A search bar at the top of the page also has an orange box around it. The overall interface is clean and modern, typical of enterprise management tools.

Designing a Dashboard

When creating a custom dashboard, you must consider its purpose, audience, and required data:

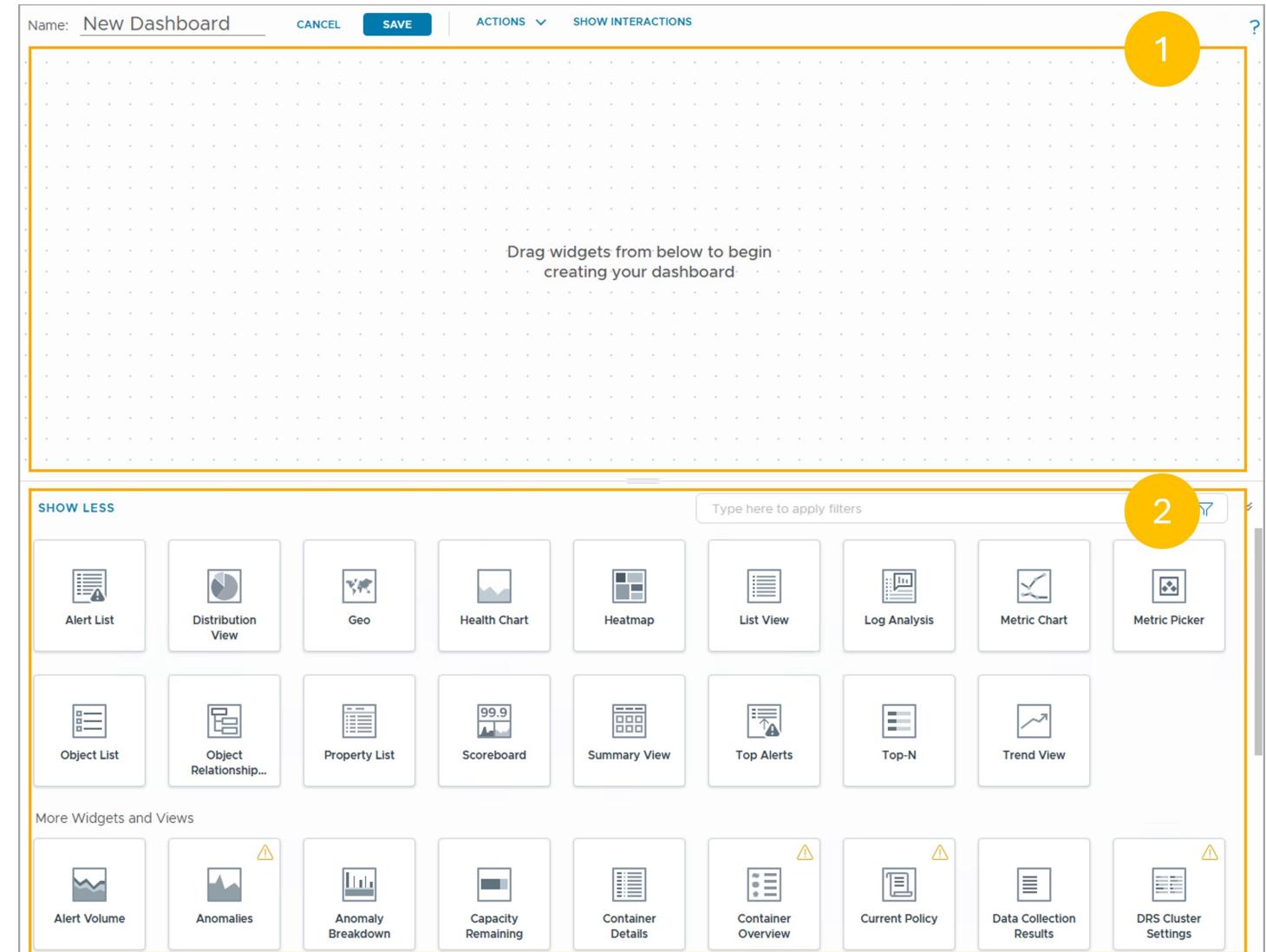
- Identify the audience, or consumers, of the dashboard.
- Define the purpose of the dashboard and how it should be used.
- Define the functional aspects of the dashboard (operations, forensics, and support).
- Identify the data sources.
- Identify the necessary widgets and interactions.
- Build a prototype dashboard.
- Share the dashboard with the intended audience.



Understanding the Dashboard Creation Wizard

The dashboard creation wizard has two main areas:

1. Dashboard canvas: Displays the data from widgets. You can customize the layout of added widgets.
2. Widget and View selection board: Enables you to choose elements to add to the dashboard canvas. You can choose from widgets and views.

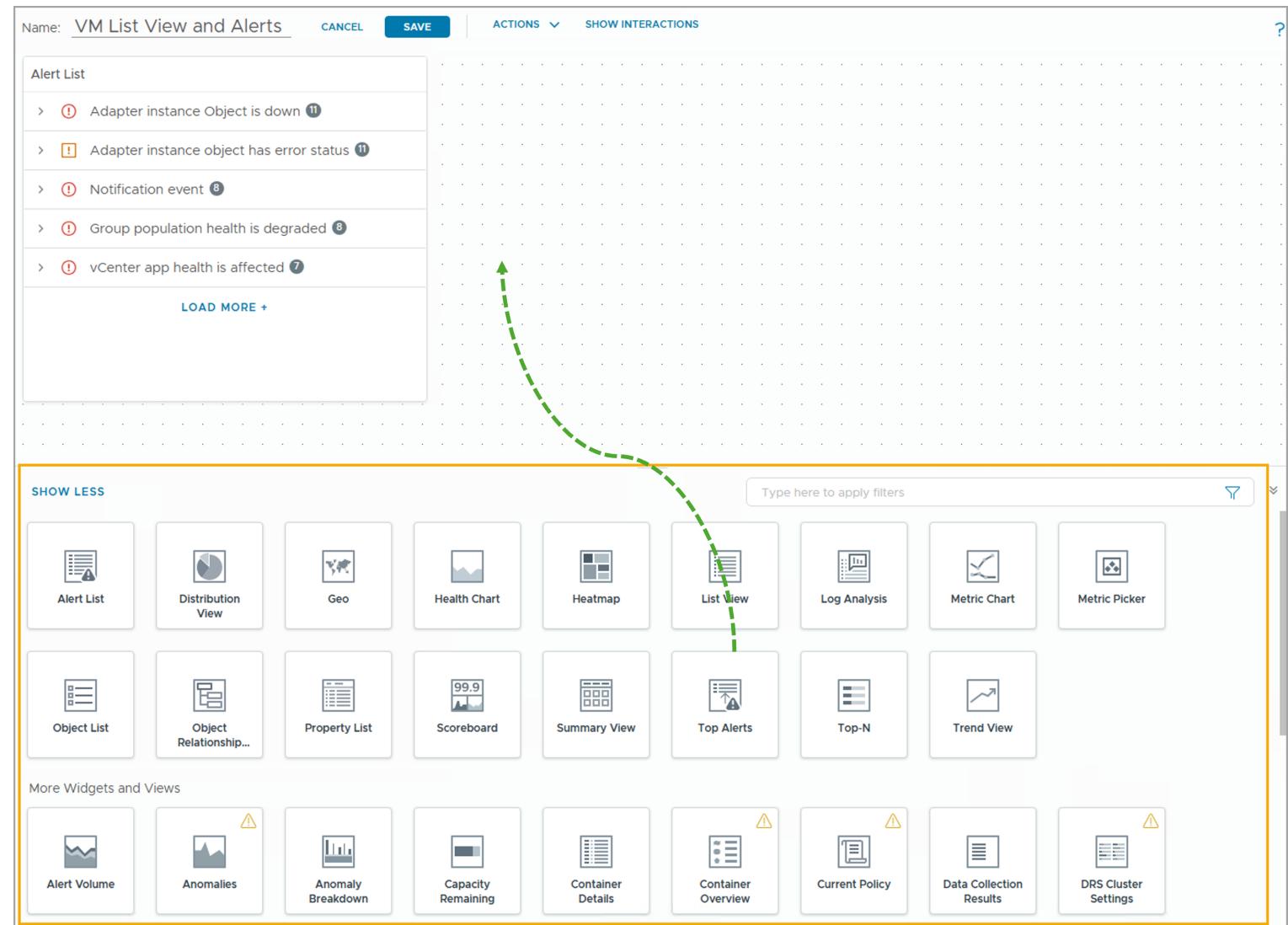


Adding the Dashboard Elements

The widgets list panel displays a list of predefined VCF Operations widgets or views that are commonly used.

You position the dashboard elements (views and widgets) by dragging them to the design canvas.

When you drag the widget or view to the desired location in the layout, the existing elements are automatically rearranged. You can reposition any existing elements that have moved when new views or widgets are added.

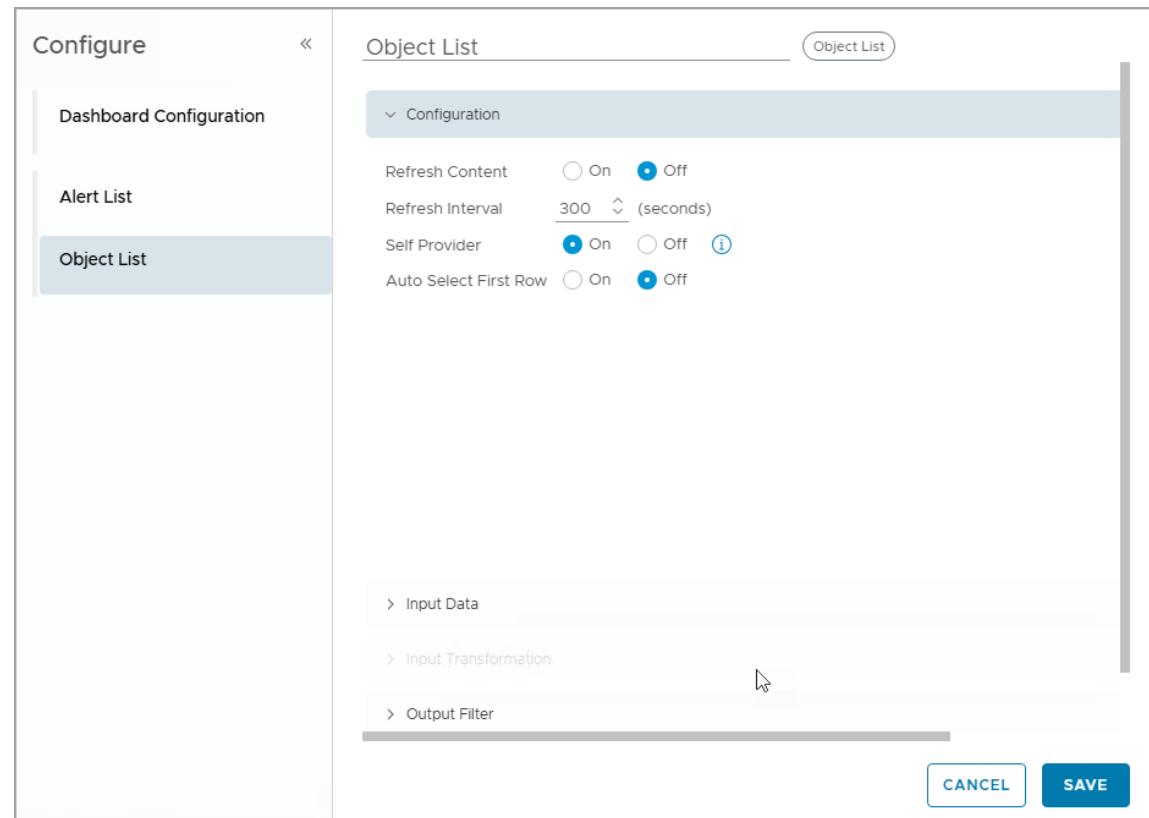


Common Widget Configuration Options

Click the **Edit** icon to configure the widget or view.

A widget uses one or more common configuration options:

- **Title:** A custom title that distinguishes this instance from other instances of this widget.
- **Refresh Content:** Enables or disables the automatic refreshing of the data in the widget display.
- **Refresh Interval:** Specifies how often to refresh the data in the widget display if you enable **Refresh Content**.
- **Self Provider:** Indicates whether objects for which data appears in the widget are defined in the widget or are provided by another widget.



Understanding Widget Interactions

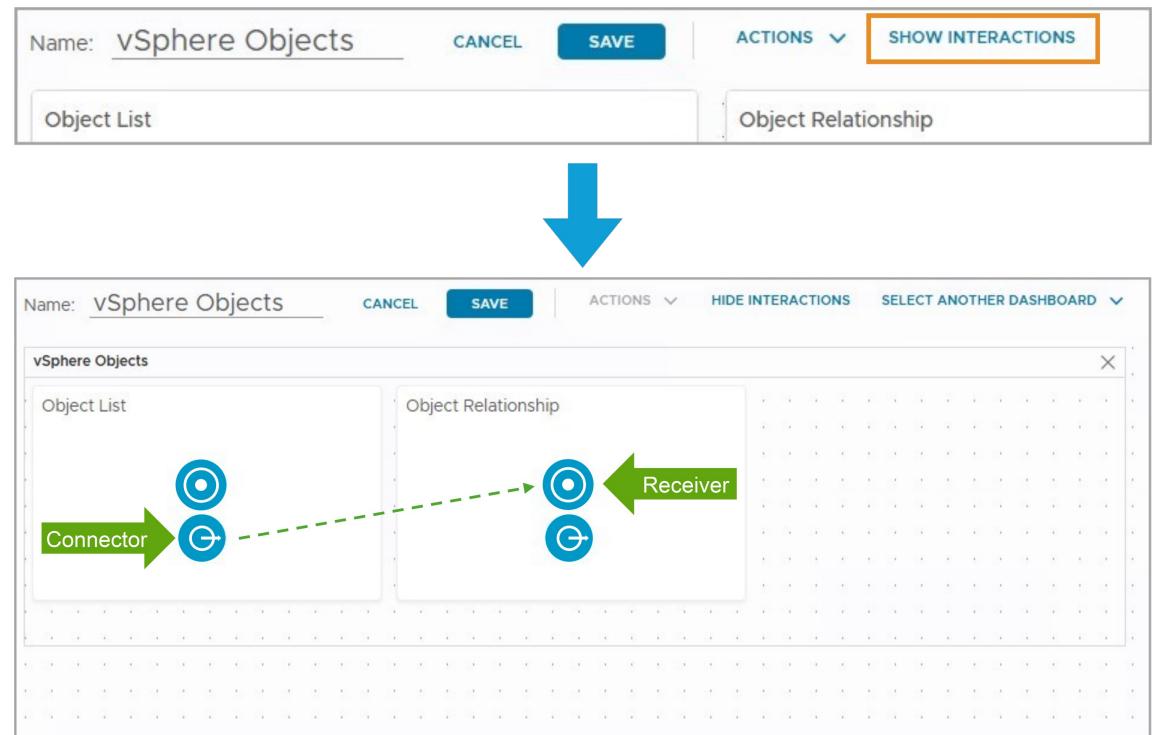
A widget interaction is a configured relationship between two widgets, where one widget provides data to a receiving widget. On the receiving widget, you must set **Self Provider** to **Off** to use interactions.

You must understand the Connector and Receiver concepts:

- **Connector (Outgoing Object Interaction):** Widget that provides data to the receiving widget.
- **Receiver (Incoming Object Interaction):** Widget that receives data from a data source widget.

Click **Show Interactions** to pair the connector icon with the receiver icon.

Drag the pointer from the connector to the receiver.

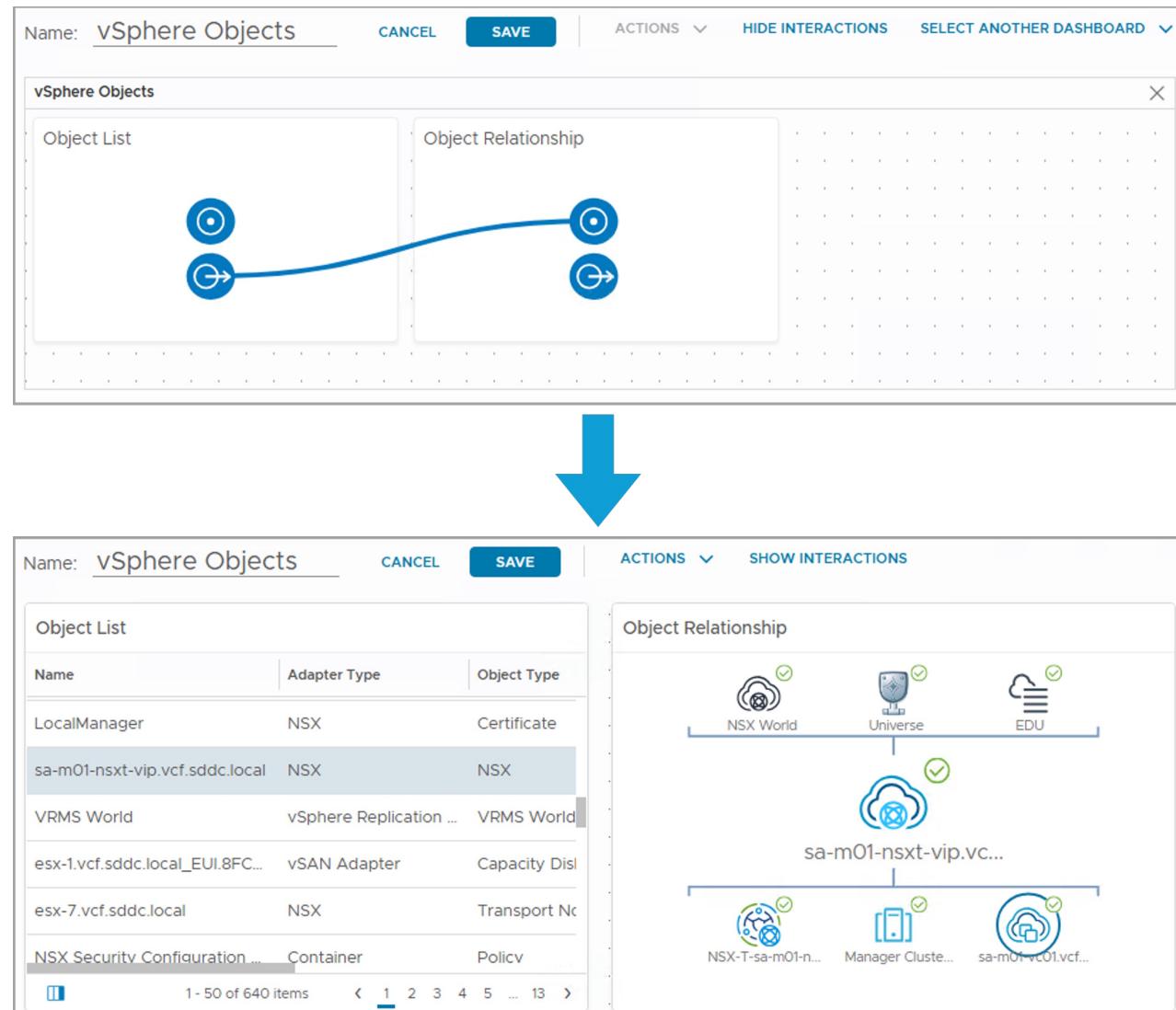


Example Widget Interactions

Widget interactions are indicated by a line between the connector and receiver icons.

Click **Hide Interactions** to return to the design canvas.

You can test the interaction from the design canvas.

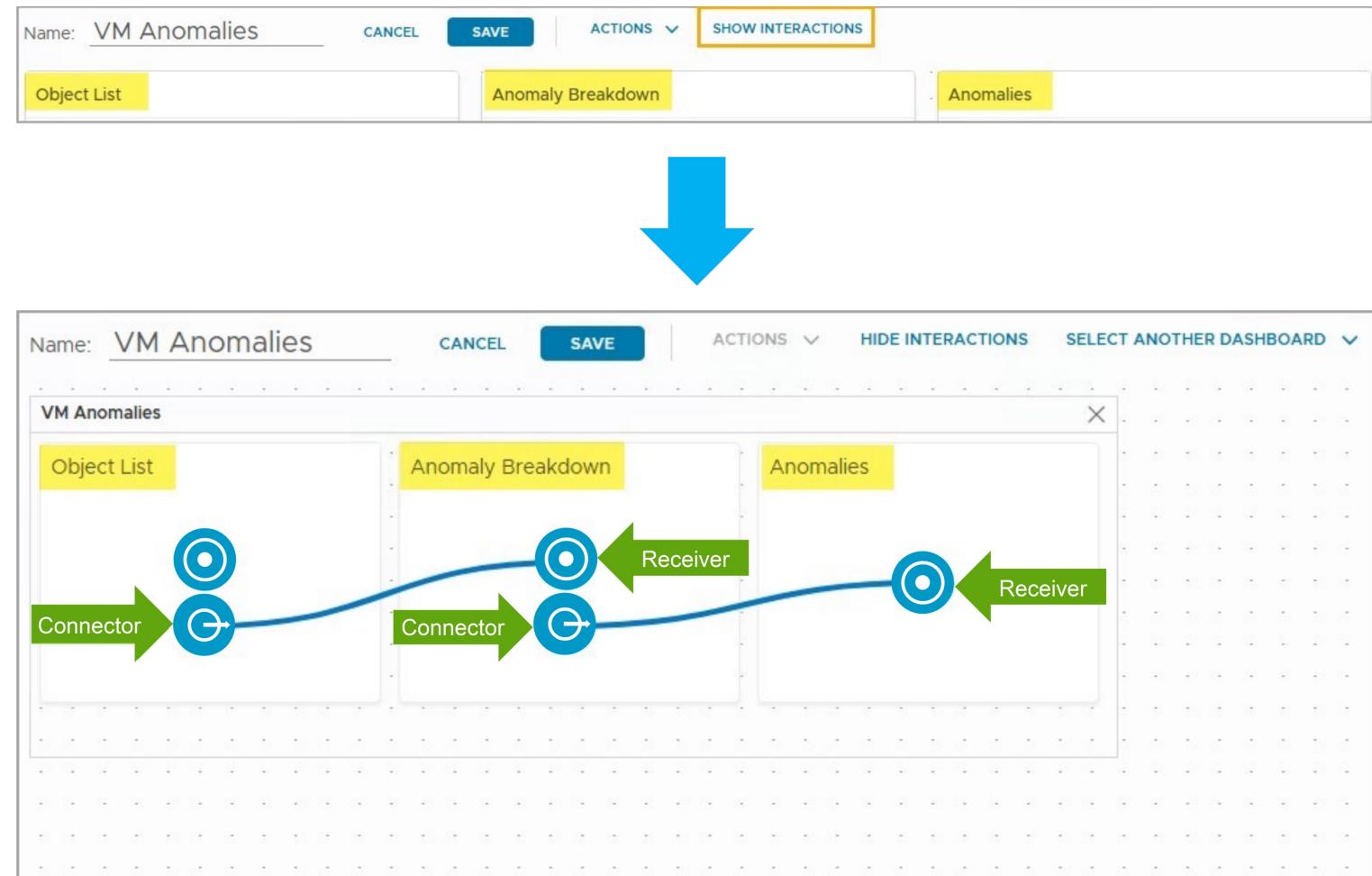


Multiple Widget Interactions

Widgets can be providers or receivers, or both, for object and metrics data.

You can configure interactions between widgets in the same dashboard or between widgets in different dashboards.

In this example, Object List provides data to the Anomaly Breakdown widget, and Anomaly Breakdown provides data to the Anomalies widget.



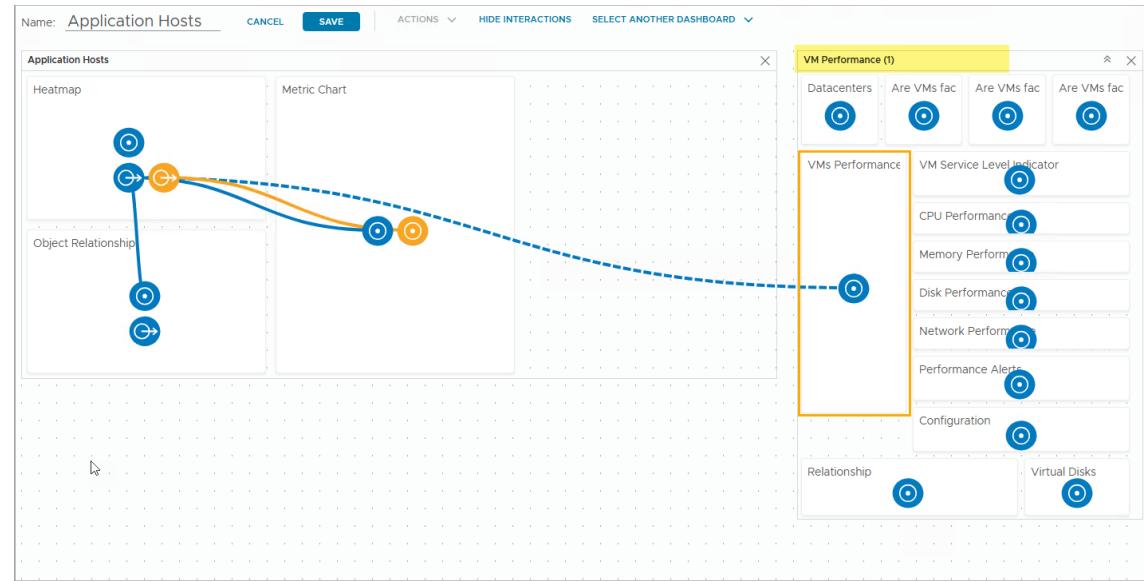
Configuring Interactions between Dashboards

You can configure interactions between widgets in different dashboards.

Click **Select Another Dashboard** and select another dashboard to create a connection with a widget in the other dashboard.

After you select the other dashboard, you configure the interaction with the widget as if the widgets were in the same dashboard.

In the example, the object data from the Heatmap widget is sent to the VMs Performance widget in the VM Performance dashboard.

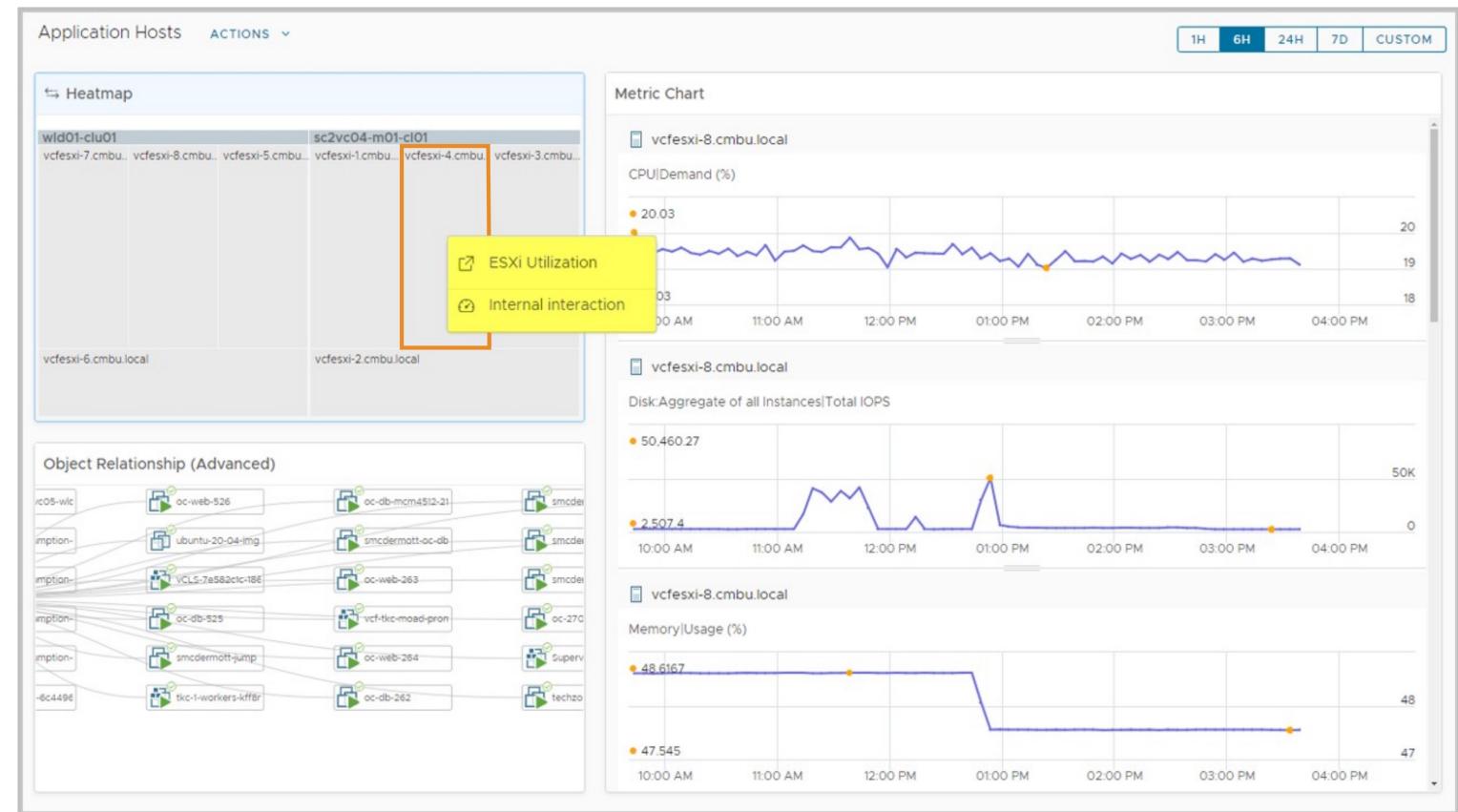


Navigating between Dashboards

When you have configured between-dashboard interactions, you can navigate between the connecting dashboards by clicking the interacting widgets.

To view widget interactions from a dashboard, click an object from a provider widget that has widget interactions defined. A window appears with a link to the external dashboard if it is configured.

In this example, you can click **ESXi Utilization** to open that dashboard for the ESX host system you selected.



Custom Dashboard Use Cases

A custom dashboard enables you to add more granular criteria into your dashboard to display exactly the data you want to see.

For example, assume you need to move VMs from one cluster to another, and want to understand the cluster capacity for this type of operation. Instead of using the combination of Cluster Capacity, Cluster Configuration, and Cluster Performance, you can create one single custom dashboard. The custom dashboard can contain the following widgets:

- A list of clusters with their important capacity properties and metrics.
- A list of ESX hosts from each cluster.
- A list of VMs with their configuration properties and consumption metrics.

In another example, if you want to compare VM performance for two or more VMs in your virtual environment over time, instead of using the predefined VM Configuration and VM Performance, you can create a custom dashboard with the following widgets:

- A list of VMs with their ESX host property and real-time consumption metrics. The list can be configured to support multiple selections so you can select multiple VMs to compare.
- A series of performance widgets such as CPU usage trend, Memory usage trend, Disk Read trend, and so on. The performance widgets receive data from the VM list, so they only display the performance metrics for the selected VMs.

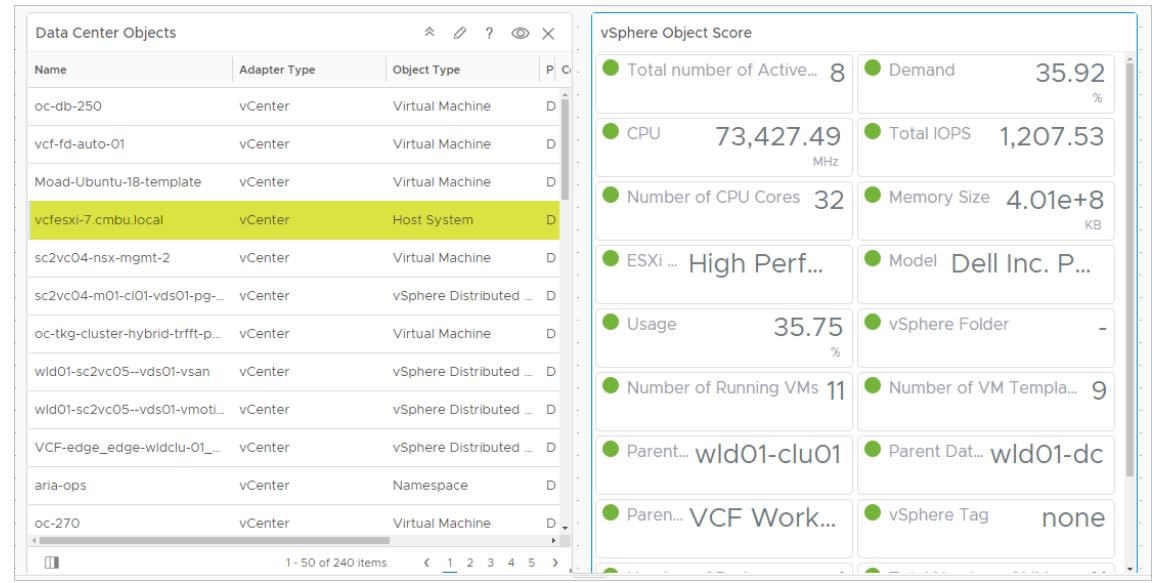
Metric Configuration Files

Metric configuration files can create a custom set of metrics for customizing supported widgets with meaningful data.

Metric configuration files store the metric attribute keys in XML format.

Several widgets support customization using the metric configuration files:

- Scoreboard
- Metric Chart
- Property List
- Rolling View Chart
- Sparkline Chart
- Topology Graph

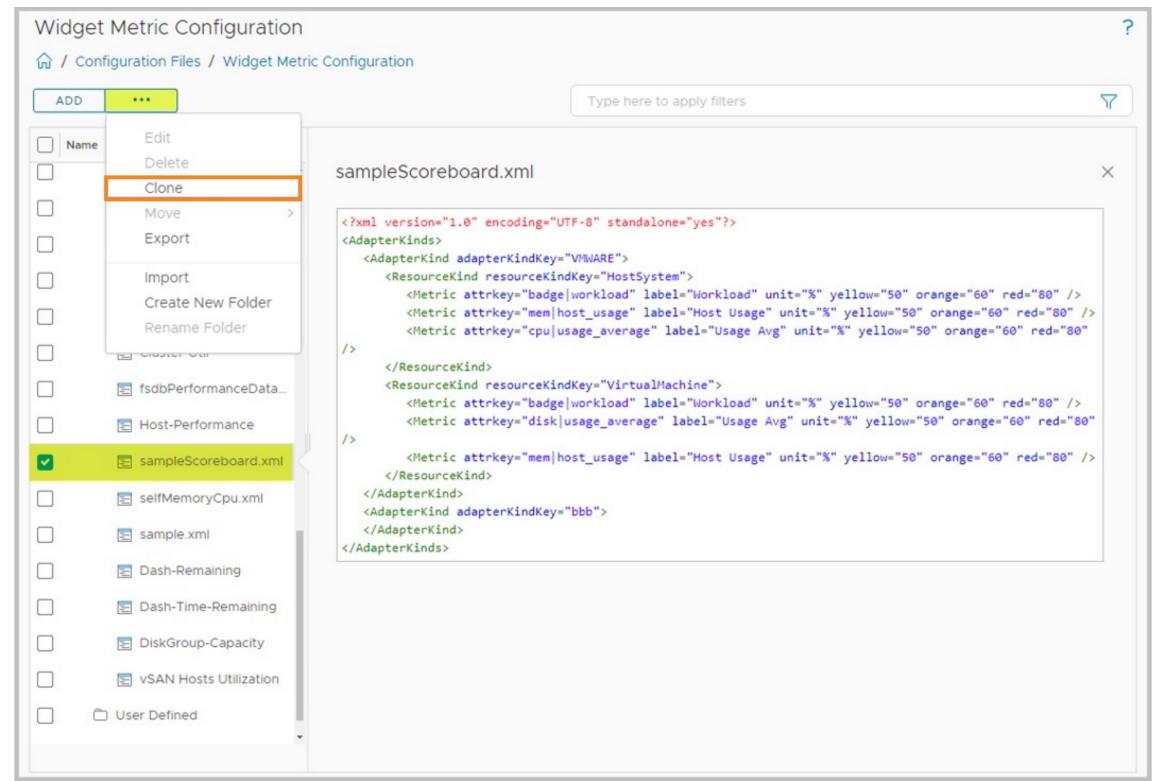


Creating a Metric Configuration File

You create a metric configuration file by using the contents of the sample XML files.

The following example shows how to create the metric configuration file:

1. Open **Infrastructure Operations > Configurations > Widget Metric Configuration**.
2. Expand **System Defined**.
3. Select **sampleScoreboard.xml** and copy its contents.
4. Create a configuration file.
5. Paste the contents of `sampleScoreboard.xml` and edit the required metrics.



Review of Learner Objectives

- Describe the functions of dashboards
- Build a custom dashboard
- Configure widget interactions
- Use metric configuration files

Managing Dashboards



Learner Objectives

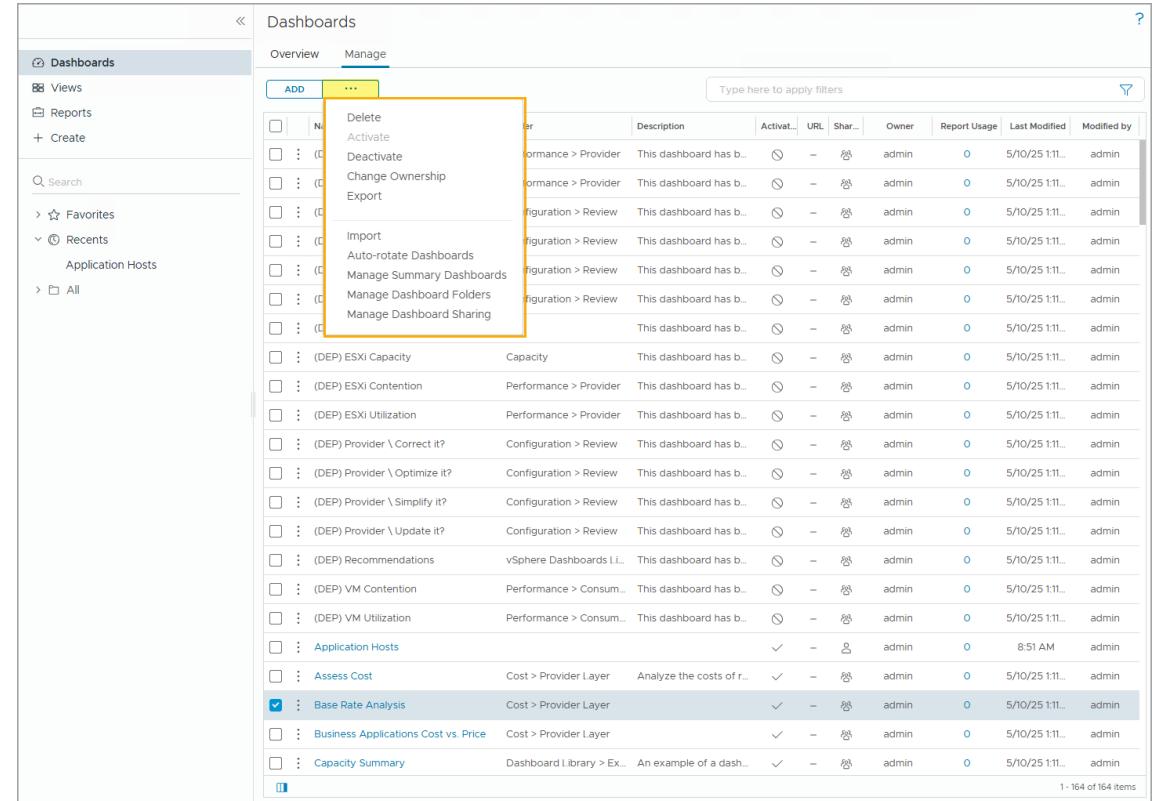
- Configure dashboard sharing options
- Manage dashboards

Dashboard Management Options

To manage dashboards in your VCF Operations console, you must first navigate to **Infrastructure Operations > Dashboards & Reports > Dashboards > Manage** and click the ellipsis icon.

You can access the following dashboard management options:

- **Delete**
- **Activate**
- **Deactivate**
- **Change Ownership**
- **Export**
- **Import**
- **Auto-Rotate Dashboards**
- **Manage Summary Dashboards**



Name	Description	Activat...	URL	Shar...	Owner	Report Usage	Last Modified	Modified by
Type here to apply filters								
(DEP) Performance > Provider	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Performance > Provider	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Auto-rotate Dashboards	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Manage Summary Dashboards	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Manage Dashboard Folders	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) Manage Dashboard Sharing	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin	admin
(DEP) (DEP) ESXi Capacity	Capacity	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) ESXi Contention	Performance > Provider	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) ESXi Utilization	Performance > Provider	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) Provider \ Correct it?	Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) Provider \ Optimize it?	Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) Provider \ Simplify it?	Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) Provider \ Update it?	Configuration > Review	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) Recommendations	vSphere Dashboards I...	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) VM Contention	Performance > Consum...	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) (DEP) VM Utilization	Performance > Consum...	This dashboard has b...	✓	-	admin	0	5/10/25 11...	admin
(DEP) Application Hosts		✓	-	admin	0	8:51 AM	admin	
(DEP) Assess Cost	Cost > Provider Layer	Analyze the costs of r...	✓	-	admin	0	5/10/25 11...	admin
(DEP) Base Rate Analysis	Cost > Provider Layer		✓	-	admin	0	5/10/25 11...	admin
(DEP) Business Applications Cost vs. Price	Cost > Provider Layer		✓	-	admin	0	5/10/25 11...	admin
(DEP) Capacity Summary	Dashboard library > Ex...	An example of a dash...	✓	-	admin	0	5/10/25 11...	admin

Manage Dashboard Folders

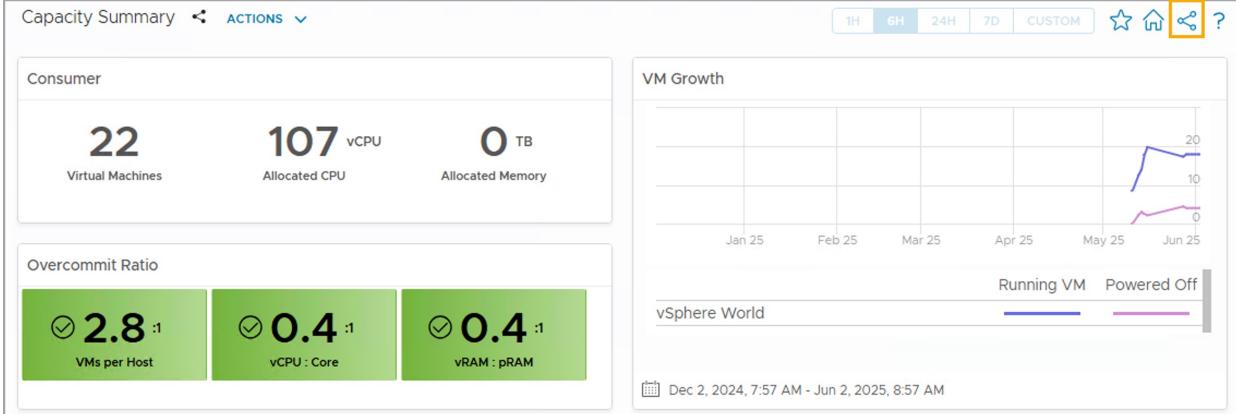
by **Broadcom**

- **Manage Dashboard Sharing**

Understanding Dashboard Sharing Options

Both custom and predefined dashboards can be shared with different users from the **Dashboards** page.

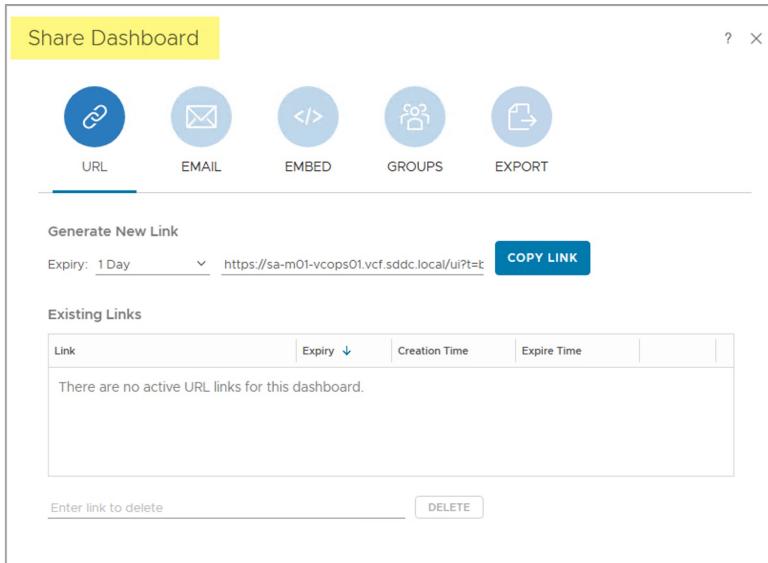
Select an existing dashboard and click the **Share Dashboard** icon in the top-right corner.



The screenshot shows the Capacity Summary dashboard with the following data:

- Consumer:** 22 Virtual Machines, 107 vCPU, 0 TB Allocated Memory.
- Overcommit Ratio:** 2.8 VMs per Host, 0.4 vCPU : Core, 0.4 vRAM : pRAM.
- VM Growth:** A line chart showing the number of VMs over time from Jan 25 to Jun 25. The legend indicates "Running VM" (blue line) and "Powered Off" (purple line). The blue line starts at 10, peaks at 20 in May, and ends at 15. The purple line starts at 0 and remains at 0.
- vSphere World:** A small section showing the date range: Dec 2, 2024, 7:57 AM - Jun 2, 2025, 8:57 AM.

A large blue arrow points down from the dashboard to a smaller window titled "Share Dashboard".



The "Share Dashboard" dialog box contains the following sections:

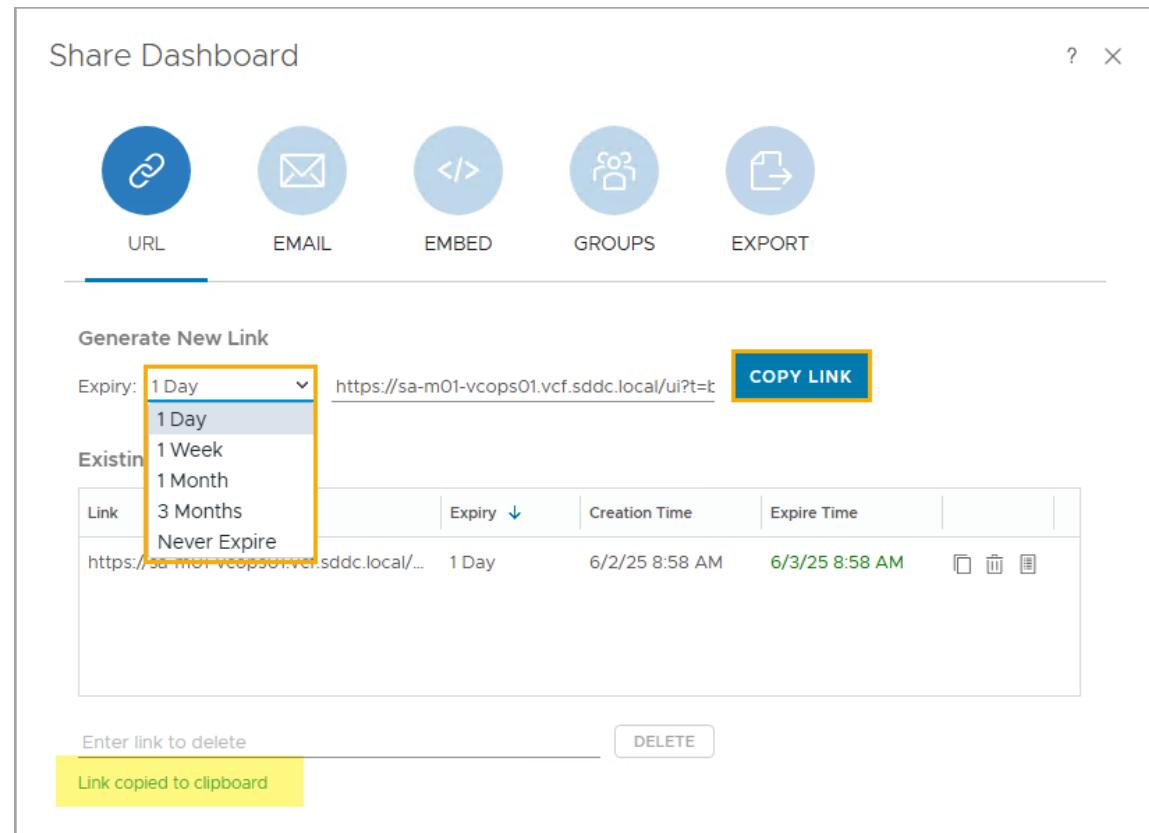
- Sharing Options:** URL (selected), EMAIL, EMBED, GROUPS, EXPORT.
- Generate New Link:** Expiry: 1 Day, Link URL: <https://sa-m01-vcops01.vcf.sddc.local/ui?l=t>, COPY LINK button.
- Existing Links:** A table with columns: Link, Expiry, Creation Time, Expire Time. It displays the message: "There are no active URL links for this dashboard."
- Actions:** Enter link to delete, DELETE button.

Sharing Dashboards Using URL

You can create a URL for the selected dashboard.

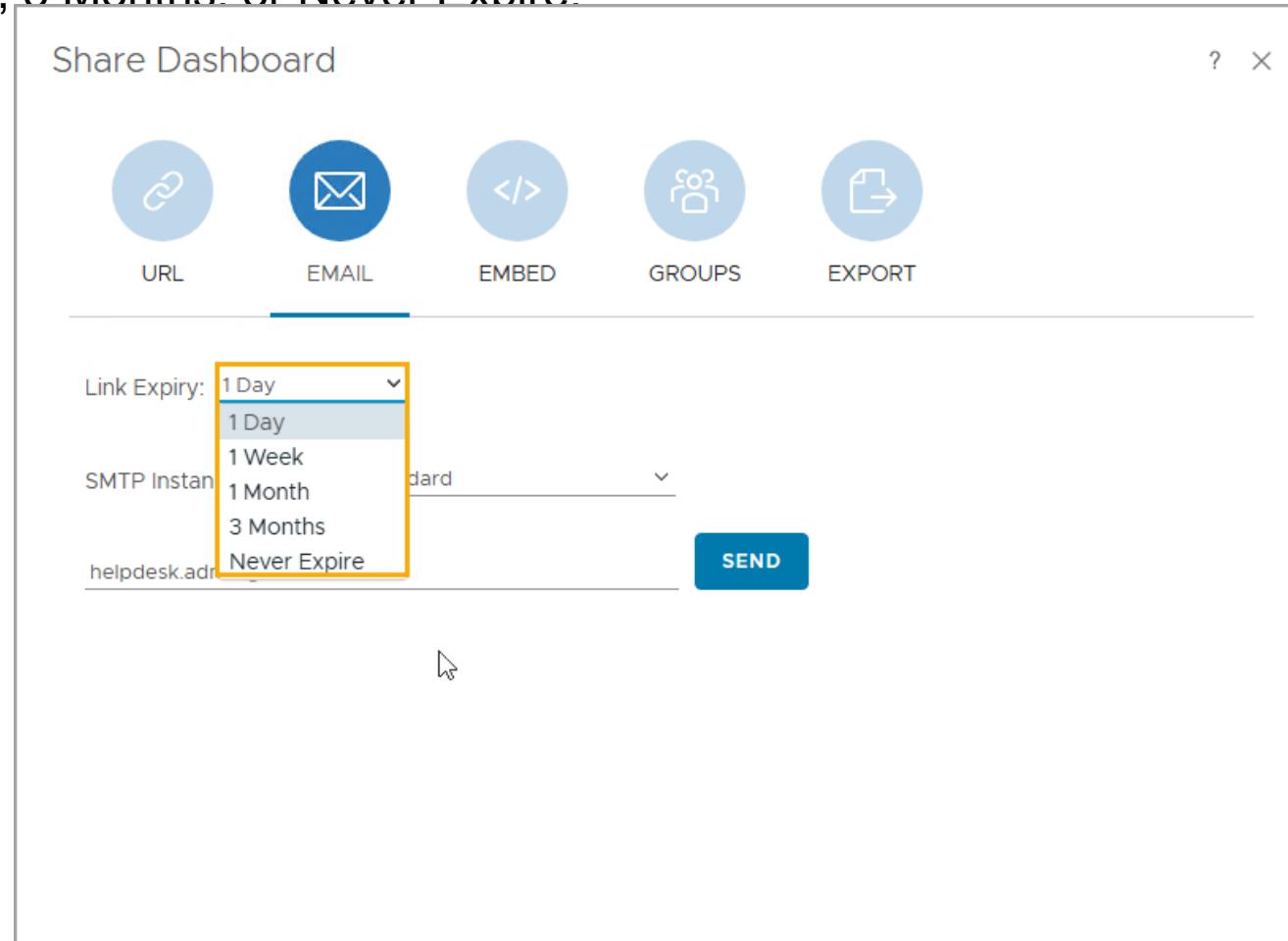
Click **Copy Link** to copy the link to the clipboard.

Link Expiry can be set to 1 Day, 1 Week, 1 Month, 3 Months, or Never Expire.



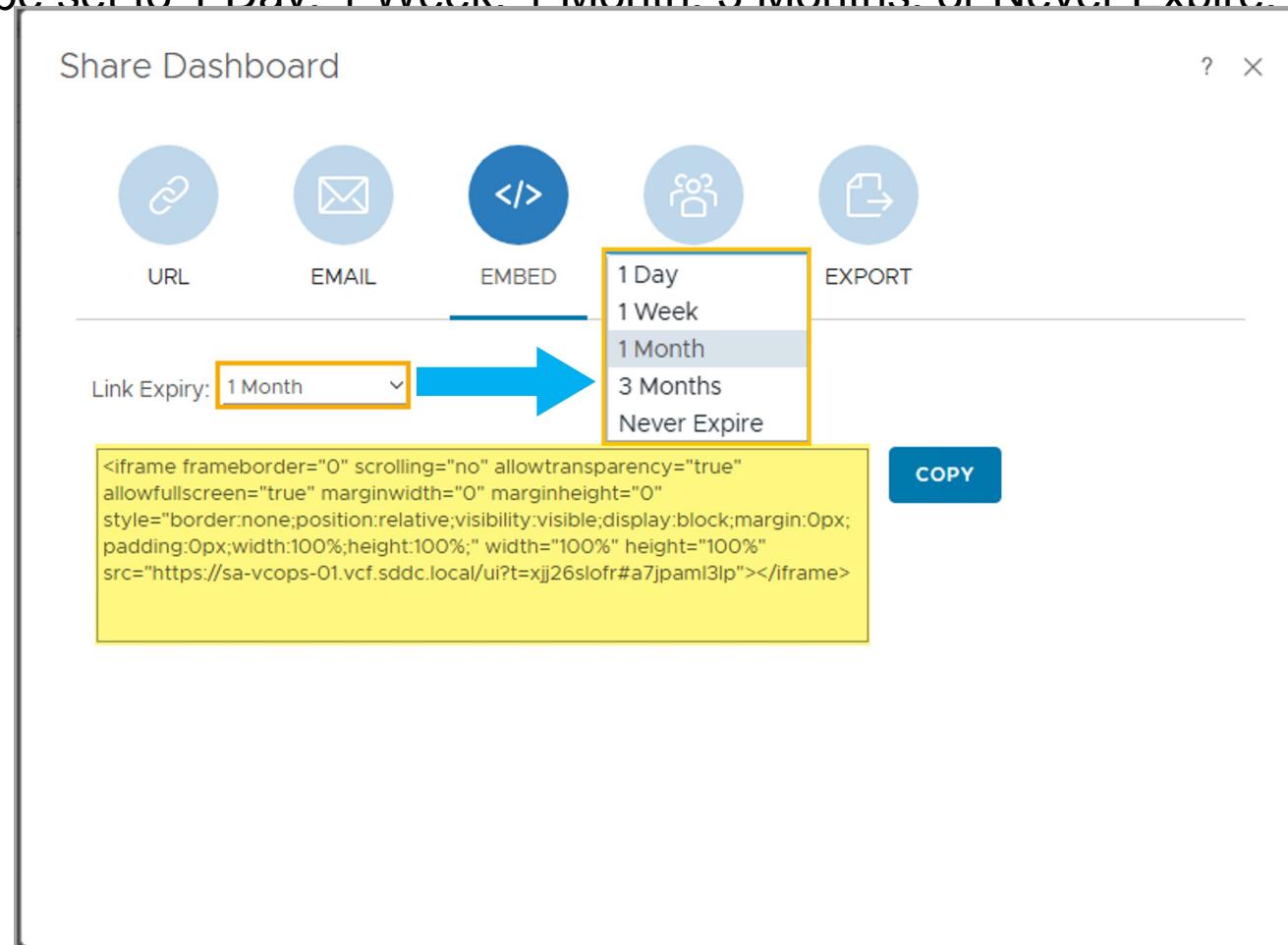
Sharing Dashboards Using Email

Built-in or custom dashboards can be shared through email with different users. Link Expiry can be set to 1 Day, 1 Week, 1 Month, 3 Months, or Never Expire.



Sharing Dashboards Using Embed

Built-in or custom dashboards can be shared with different users by copying the HTML code to another web page. Link Expiry can be set to 1 Day, 1 Week, 1 Month, 3 Months, or Never Expire.

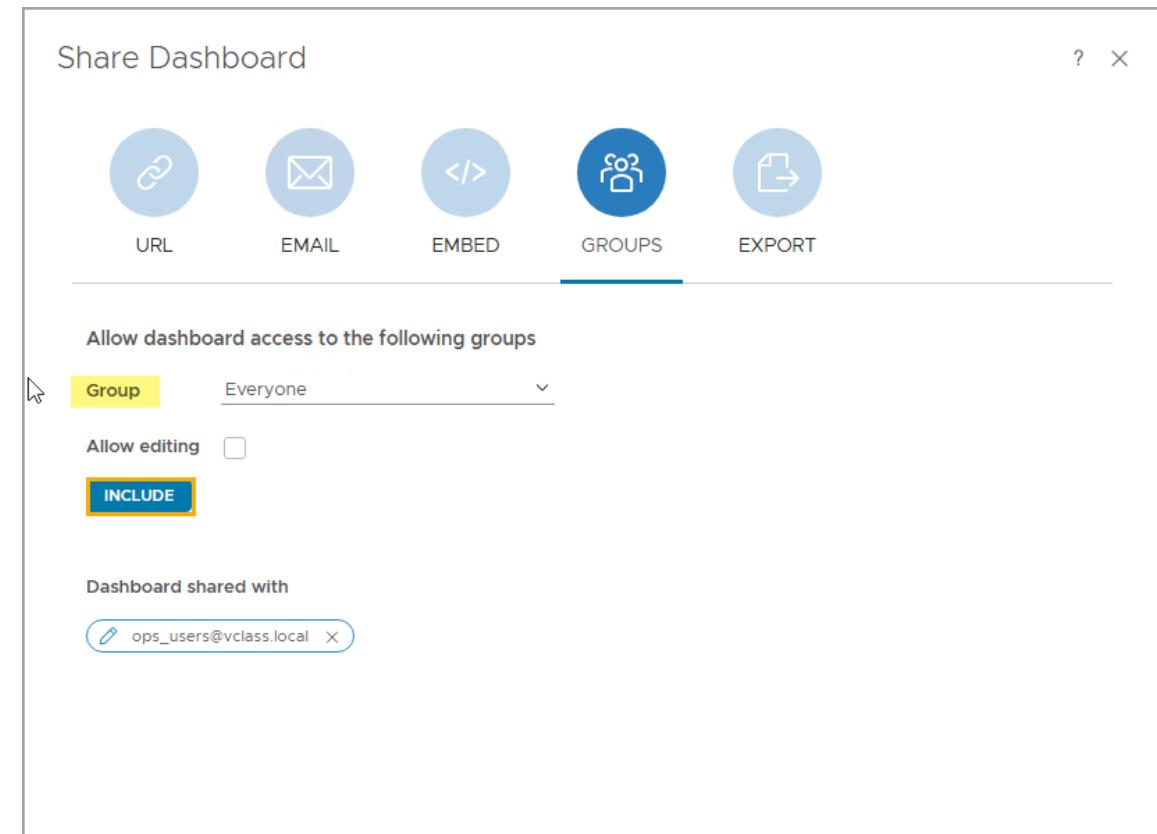


Sharing Dashboards Using Group Sharing

Predefined or custom dashboards can be shared with different authentication groups.

Select the group to which you want to grant dashboard access from the drop-down menu and click **INCLUDE**.

To share dashboard edit privileges with the group, select the **Allow editing** checkbox.

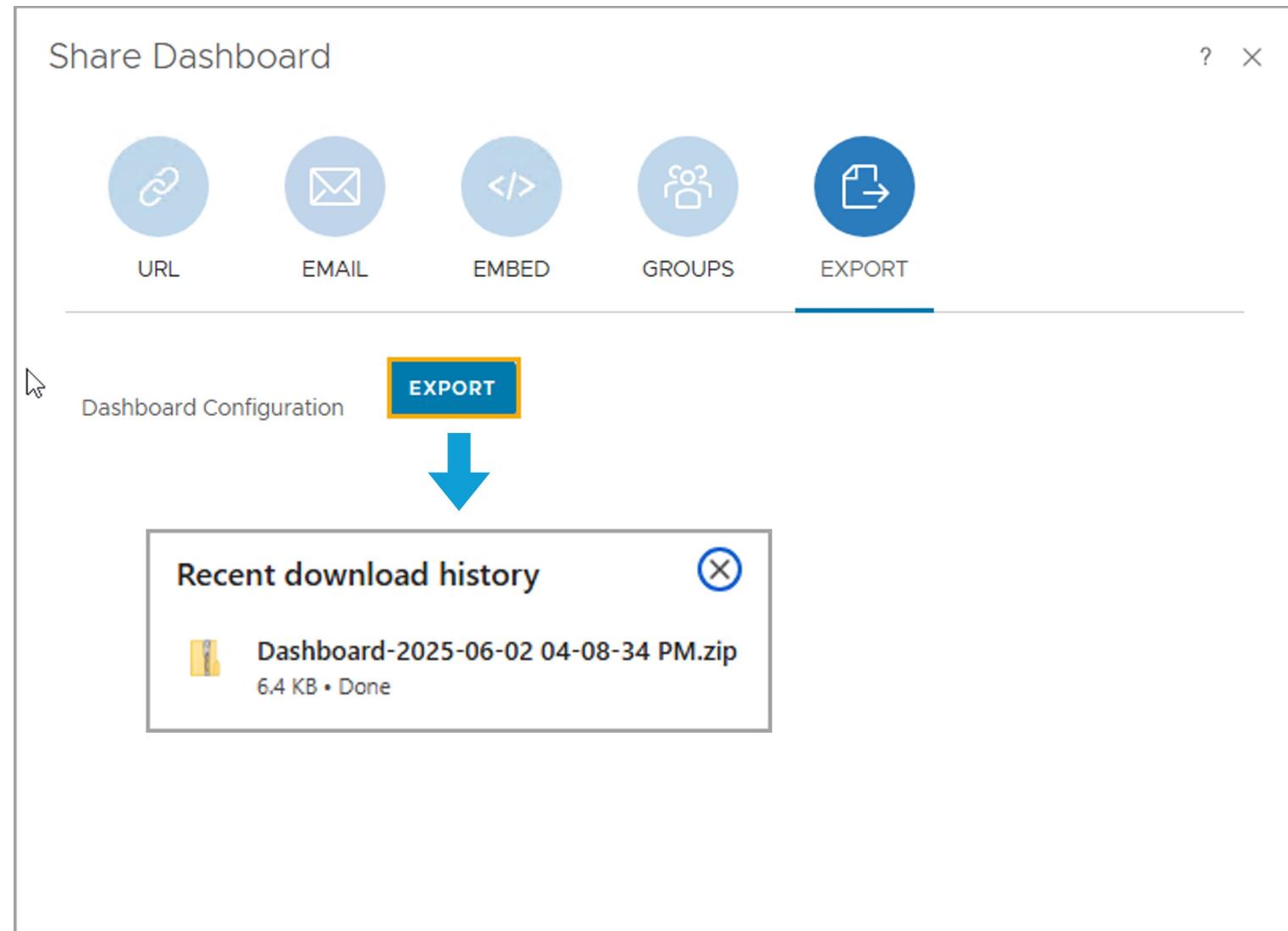


Sharing Dashboards Using Export

Predefined or custom dashboards can be exported to different VCF Operations environments.

Click **EXPORT** to generate a ZIP file containing the dashboard. The ZIP file can be unzipped to an XML file, which can be imported to any other VCF Operations environment.

The Export sharing option can be useful when you need to move complex dashboards between VCF Operations environments, for example, moving a multi-interaction inventory dashboard from your testing environment to a production environment.



Understanding Dashboard Ownerships

When you share a dashboard, it becomes available to all the users in the user group that you select for sharing.

When a dashboard is shared, only the owner of the dashboard can edit it.

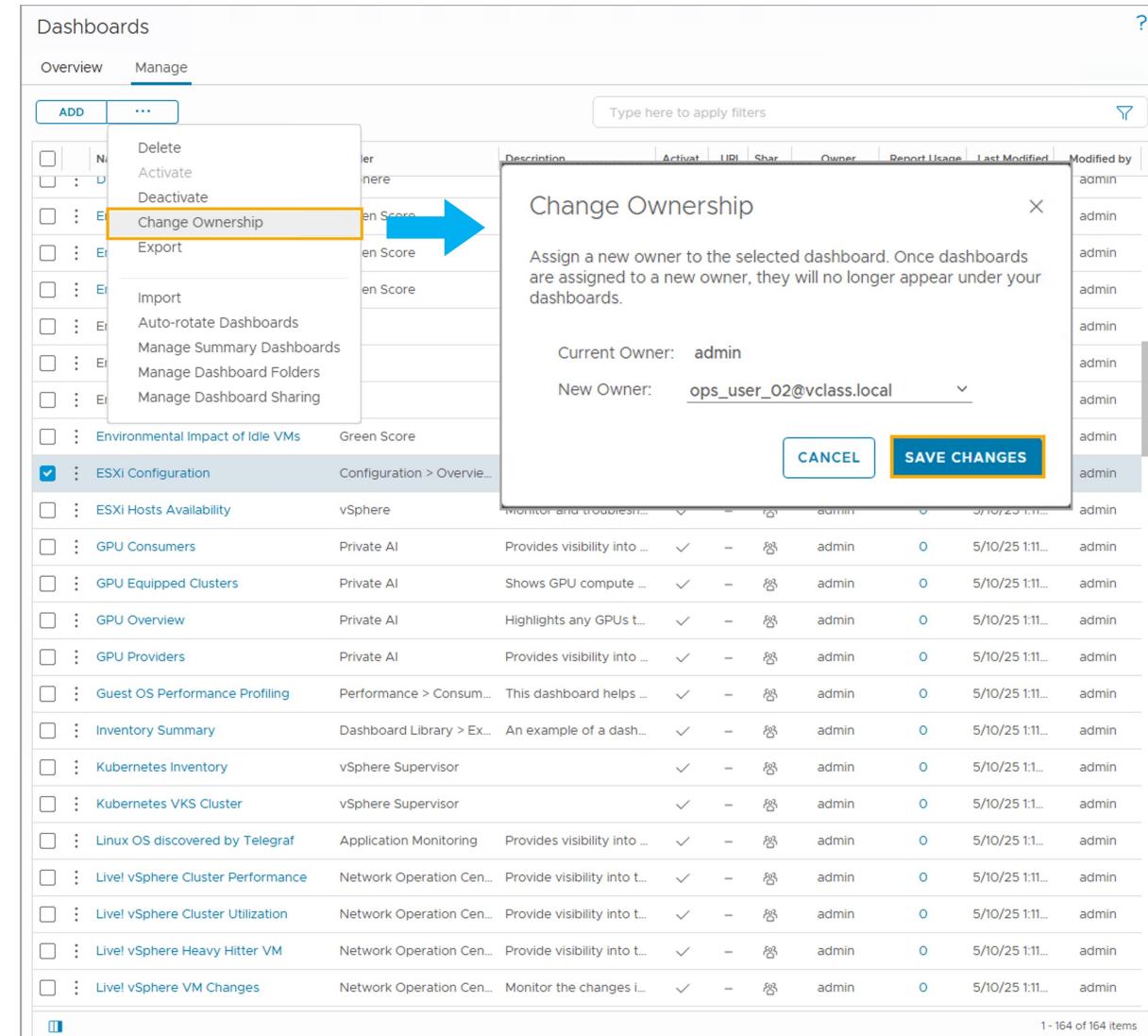
The Shared Dashboards column indicates whether a dashboard is shared or not shared.

Dashboards									
		Overview		Manage					
				Type here to apply filters					
		Name	Folder	Description	Activat...	URL	Shar...	Owner	Report Usage
<input type="checkbox"/>	DNS and NTP	vSphere	Monitor and troubl... eshotting	✓	-	-		admin	0
<input type="checkbox"/>	Energy Efficiency with Virtualization	Green Score	This is part of the set ...	✓	-	-		admin	0
<input type="checkbox"/>	Energy Efficient Clusters	Green Score	This is part of the set ...	✓	-	-		admin	0
<input type="checkbox"/>	Energy Efficient Infrastructure	Green Score	This is part of the set ...	✓	-	-		admin	0
<input type="checkbox"/>	Environment Configuration Summary		Used in Report : Config...	✗	-	-		admin	2
<input type="checkbox"/>	Environment Health Summary			✗	-	-		admin	1
<input type="checkbox"/>	Environment Summary		Used in Report : Exec...	✗	-	-		admin	1
<input type="checkbox"/>	Environmental Impact of Idle VMs	Green Score	This is part of the set ...	✓	-	-		admin	0
<input type="checkbox"/>	ESXi Configuration	Configuration > Overview	Highlight ESXi Host co...	✓	-	-		admin	0
<input type="checkbox"/>	ESXi Hosts Availability	vSphere	Monitor and troubl... eshotting	✓	-	-		admin	0
<input type="checkbox"/>	GPU Consumers	Private AI	Provides visibility into ...	✓	-	-		admin	0
<input type="checkbox"/>	GPU Equipped Clusters	Private AI	Shows GPU compute ...	✓	-	-		admin	0
<input type="checkbox"/>	GPU Overview	Private AI	Highlights any GPUs t...	✓	-	-		admin	0
<input type="checkbox"/>	GPU Providers	Private AI	Provides visibility into ...	✓	-	-		admin	0
<input type="checkbox"/>	Guest OS Performance Profiling	Performance > Consum...	This dashboard helps ...	✓	-	-		admin	0
<input type="checkbox"/>	Inventory Summary	Dashboard Library > Ex...	An example of a dash...	✓	-	-		admin	0
<input type="checkbox"/>	Kubernetes Inventory	vSphere Supervisor		✓	-	-		admin	0
<input type="checkbox"/>	Kubernetes VKS Cluster	vSphere Supervisor		✓	-	-		admin	0
<input type="checkbox"/>	Linux OS discovered by Telegraf	Application Monitoring	Provides visibility into ...	✓	-	-		admin	0
<input type="checkbox"/>	Live! vSphere Cluster Performance	Network Operation Cen...	Provide visibility into t...	✓	-	-		admin	0
<input type="checkbox"/>	Live! vSphere Cluster Utilization	Network Operation Cen...	Provide visibility into t...	✓	-	-		admin	0
<input type="checkbox"/>	Live! vSphere Heavy Hitter VM	Network Operation Cen...	Provide visibility into t...	✓	-	-		admin	0
<input type="checkbox"/>	Live! vSphere VM Changes	Network Operation Cen...	Monitor the changes i...	✓	-	-		admin	0
1 - 164 of 164 items									

Dashboard Ownership Transfers

Dashboards can be transferred to different users. After the dashboard is transferred, the dashboard disappears from the current owner's login account.

Select the dashboard from the Dashboard list and select **Change Ownership** from the dashboard management menu.



Managing Orphaned and Unassigned Content

When the user who created the dashboards, report schedules, and credentials created are deleted, or when the dashboards, report schedules, and credentials are unassigned, this content becomes Orphaned or Unassigned in VCF Operations.

To access the Orphaned and Unassigned content, navigate to **Administration > Control Panel > Orphaned Content**.

As an admin user, you can take ownership, assign ownership, discard orphaned dashboards, or report schedules and credentials from the **ACTIONS** menu.

The screenshot shows the 'Orphaned and Unassigned' section of the VCF Control Panel. The top navigation bar includes 'Control Panel / Orphaned Content'. Below it, a message states: 'You are the new owner of dashboards and report schedules that belonged to deprecated users. Please review to see if you would like to save or discard them. By Default the role with administrator credentials is the owner of all unassigned credentials. Review carefully to decide whether to reassign the ownership to a new user or take ownership.' The main area is divided into sections: 'Deleted Users' (listing 'dc1-admin(dc1-admin dc1-admin) / Local User'), 'Dashboards' (selected), 'Report Schedules', and 'Credentials'. Under 'Dashboards', there are two rows: one for 'All' (with a 'Take ownership' button) and one for 'Unassigned' (with a 'Take ownership' button highlighted by a yellow box). The 'Unassigned' row also has 'Assign ownership' and 'Discard' options. The right side of the screen shows detailed information for the unassigned dashboard, including 'Description', 'Owner Info', 'Shared', and notes about its history.

Understanding the Summary Tab

In the VCF Operations console, you can view the summary of an object by navigating to Inventory and selecting the object.

By default, the **Summary** tab provides an overview of the health, risk, and efficiency states of the selected object, group, or application.

You can change the **Summary** tab to a different dashboard to get information specific to your needs.

The screenshot shows the VCF Operations console interface. On the left, there is a navigation pane titled "Inventory" with a "BASIC VIEW" button. Below it, a tree view lists "VCF Instances" under "EDU". One instance, "sa-m01-en02", is selected and highlighted with a blue background. The main content area is divided into several sections:

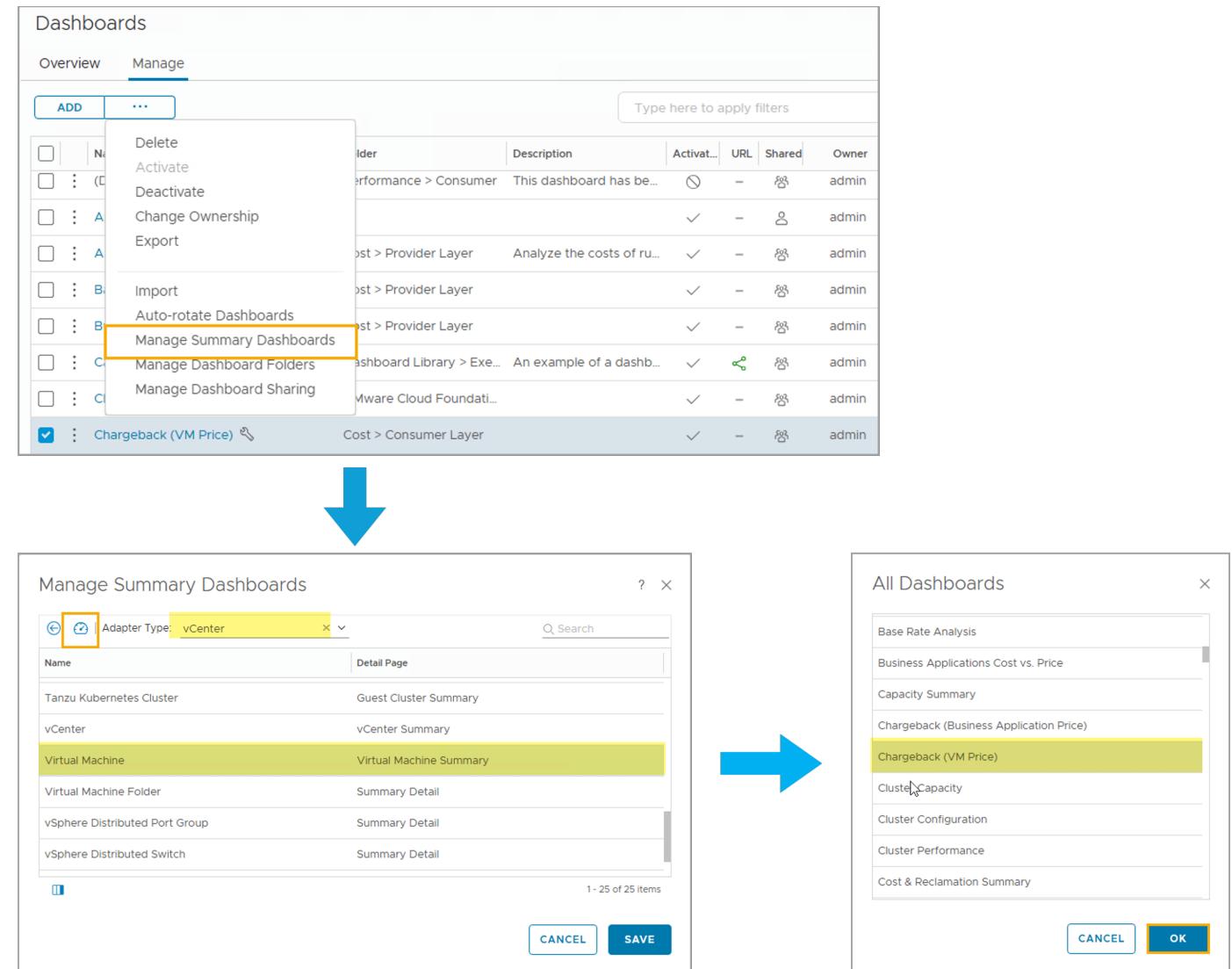
- Top Bar:** Includes tabs for "Actions", "Summary" (which is highlighted), "Metrics", "Logs", "Alerts", "Topology", "Capacity", and "Environment". It also features "TROUBLESHOOT", "POLICY", and a help icon.
- Object Overview:** Shows a summary card for "sa-m01-en02" which is "Powered On" and running "Ubuntu Linux (64-bit)". It displays IP Address (172.20.10.55), Number of virtual CPUs (2), Memory (4 GB), Disk Space (197 GB), and VMware tools (Tools Version 12.1.5, Running).
- Active Alerts:** A section showing alert counts for Critical, Immediate, Warning, and Info levels across Self and All categories.
- Time Remaining:** A card indicating "Time Remaining > 1 Year" with a clock icon.
- Capacity Remaining:** A card showing "37 % (1.47 GB)" capacity remaining, with a note that it is "Most constrained by Memory Demand".
- Utilization:** A table showing CPU Usage (1.85 GHz), Free Memory (168.07 MB), Guest Page In Rate per second (5.33), Page Out Rate per second (489.27), Virtual Disk Total IOPS (39.53), and Virtual Disk Total Throughput (507.6 Kbps).
- Performance:** A table showing CPU Queue (1.13), CPU Context Switch Rate (7,789.93), Disk Queue (1.5), CPU Ready (0.27 %), CPU Co-stop (0 %), Memory Contention (0 %), Virtual Disk Total Latency (4.35 ms), and Network Transmitted Packets Dropped (0).
- Configuration:** A table showing Virtual Hardware (CPU: 2 (1 Socket x 2 vCores)), Resource Allocation (CPU: No Limit, No Reservation, Shar...), Tools (Version: 12.1.5, Guest Tools Unmana...), Network (IP Addresses: 172.20.10.55, 00:50:5...), Guest OS Partition (/boot/efi: 498.98 MB Configured, 4 ...), and Virtual Disk (Hard disk 1: 197 GB).
- Ping Statistics:** A table stating that "Ping monitoring is not activated for this Cloud Account."

Changing the Summary Tab

In the **Manage Summary Dashboards** dialog box, you can assign a dashboard to the object type selected.

To assign a dashboard to an object type:

1. Select **Manage Summary Dashboards** from the dashboard management menu.
2. Select the adapter type and object and click the **Assign a dashboard** icon.
3. Select a dashboard from the list of dashboards and click **OK**.



Managing Dashboard Folders

You can create dashboard folders to group the dashboards in a way that is meaningful to you.

To create a dashboard folder, click **NEW FOLDER** in the **Folders** pane and enter the name of the folder.

You can add a dashboard to the folder by dragging the dashboard to the folder.

The screenshot illustrates the workflow for managing dashboard folders. It consists of two main panels connected by a blue arrow pointing from left to right.

Left Panel: The "Dashboards" screen with the "Manage" tab selected. A sidebar on the left contains various dashboard management options: Delete, Activate, Deactivate, Change Ownership, Export, Import, Auto-rotate Dashboards, Manage Summary Dashboards, **Manage Dashboard Folders**, and Manage Dashboard Sharing. The "Manage Dashboard Folders" option is highlighted with an orange box. The main list shows several dashboards, with "Chargeback (VM Price)" checked and highlighted.

Right Panel: The "Dashboards" screen with the "Overview" tab selected. This panel displays a list of 164 items. On the far right, there is a "Folders" pane. At the top of this pane, there is a search bar and a "Type here to apply filters" input field. Below the search bar, there is a "Folders" section with a "New Folder" button. A blue box highlights the "New Folder" button. At the bottom of the "Folders" pane, there are "CANCEL" and "SAVE" buttons.

Lab: Creating Dashboards and Configuring Widgets

Create a vSphere dashboard and configure widgets:

1. Create the vSphere Metrics Dashboard
2. Add Widgets to the vSphere Metrics Dashboard
3. Configure a Widget Interaction in the vSphere Metrics Dashboard

Review of Learner Objectives

- Configure dashboard sharing options
- Manage dashboards

VCF Operations Policies

Importance

VCF Operations policies help to analyze and display information about the objects in your environment. These policies enable you to create and manage policies for various aspects, including security, sampling, and pricing, to optimize your IT operations and ensure compliance.

VCF Operations Policies



Learner Objectives

- Use policies to analyze information about various object types and objects in your environment
- Configure policies and other components
- Perform the importing and exporting of content

About Policies

A policy is a set of rules that you define for VCF Operations to analyze and display information about the objects in your Private Cloud environment.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar is titled "Infrastructure Operations" and includes sections for Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery, Automation Central, and Configurations. The "Configurations" section is highlighted with a yellow border. The main content area is titled "Policy Definition" and shows a list of policies under "Base Settings". The "Default Policy" is selected and highlighted with a yellow background. The table columns are Name, Status, Priority, Description, Last Modified, and Modified By. The "Default Policy" is marked as Active. Other policies listed include Foundation Policy, NSX Security Configuration Guide, Policy for Virtual Machines - Risk Profile 1, Policy for Virtual Machines - Risk Profile 2, Policy for Virtual Machines - Risk Profile 3, vSAN Security Configuration Policy, and vSphere Security Configuration Guide. Most policies are marked as Inactive.

Name	Status	Priority	Description	Last Modified	Modified By
Base Settings	Inactive			13 days ago	
Config Wizard Based Policy	Inactive			13 days ago	VMware
Default Policy	Active	D		13 days ago	
Foundation Policy	Inactive			13 days ago	VMware
NSX Security Configuration Guide	Inactive		NSX Security Configuration Guide. Recommendation...	13 days ago	VMware
Policy for Virtual Machines - Risk Profile 1	Inactive		This policy applies vSphere Security Configuration G...	13 days ago	VMware
Policy for Virtual Machines - Risk Profile 2	Inactive		This policy applies vSphere Security Configuration G...	13 days ago	VMware
Policy for Virtual Machines - Risk Profile 3	Inactive		This policy applies vSphere Security Configuration G...	13 days ago	VMware
vSAN Security Configuration Policy	Inactive			13 days ago	vSAN Security ...
vSphere Security Configuration Guide	Inactive			13 days ago	VMware

Relating Policies and Environment

VCF Operations policies support the operational decisions for your IT infrastructure and business units:

- With policies, you control the data that VCF Operations collects and reports for specific objects in your Private Cloud environment.
- When you manage policies, you must understand the operational priorities for your Private Cloud environment and tolerances for alerts and symptoms to meet the requirements for your business-critical applications.
- VCF Operations applies the policies in the priority order.

Designing Policies

Implementing policy decisions in VCF Operations is typically the responsibility of the Infrastructure Administrator or the Virtual Infrastructure Administrator, but users who have privileges can also create and modify policies.

You must be aware of the policies established to analyze and monitor the resources in your Private Cloud IT infrastructure:

- If you are a Network Operations engineer, you must understand how policies impact the data that VCF Operations reports on objects and which policies assigned to those objects trigger alerts and issues.
- If you are the person whose role is to recommend an initial setup for policies, you typically edit and configure the policies in VCF Operations.
- If your primary role is to assess problems that occur in your environment, but you do not have the responsibility to change the policies, you must still understand how the policies applied to objects affect the data that appears in VCF Operations. For example, you might need to know which policies apply to objects that are associated with particular alerts.
- If you are a typical application user who receives reports from VCF Operations, you must have a high-level understanding of the operational policies so that you can understand the reported data values.

About Base Settings

The Base Settings policy is the starting point for all policies. All policies are derived from base settings.

Policy Definition					
Configurations / Policy Definition					
ADD		Type here to apply filters		?	
Name	Status	Priority	Description	Last Modified	Modified By
✓ Base Settings	<input type="radio"/>	Inactive		14 days ago	
> Config Wizard Based Policy	<input type="radio"/>	Inactive		14 days ago	VMware
Default Policy	<input checked="" type="radio"/>	Active	D	14 days ago	
Foundation Policy	<input type="radio"/>	Inactive		14 days ago	VMware
NSX Security Configuration Guide	<input type="radio"/>	Inactive	NSX Security Configuration Guide. Recommendation...	14 days ago	VMware
Policy for Virtual Machines - Risk Profile 1	<input type="radio"/>	Inactive	This policy applies vSphere Security Configuration G...	14 days ago	VMware
Policy for Virtual Machines - Risk Profile 2	<input type="radio"/>	Inactive	This policy applies vSphere Security Configuration G...	14 days ago	VMware
Policy for Virtual Machines - Risk Profile 3	<input type="radio"/>	Inactive	This policy applies vSphere Security Configuration G...	14 days ago	VMware
vSAN Security Configuration Policy	<input type="radio"/>	Inactive		14 days ago	vSAN Security ...
vSphere Security Configuration Guide	<input type="radio"/>	Inactive		14 days ago	VMware

About the Default Policy

By default, the default policy is assigned to all vSphere objects. This policy is automatically created when you configure the VCF adapter for the first time.

Policy Definition

Configurations / Policy Definition

ADD ... Type here to apply filters ?

Name

Default Policy

EDIT POLICY X

Parent policy: Base Settings Priority: Default

Default Policy

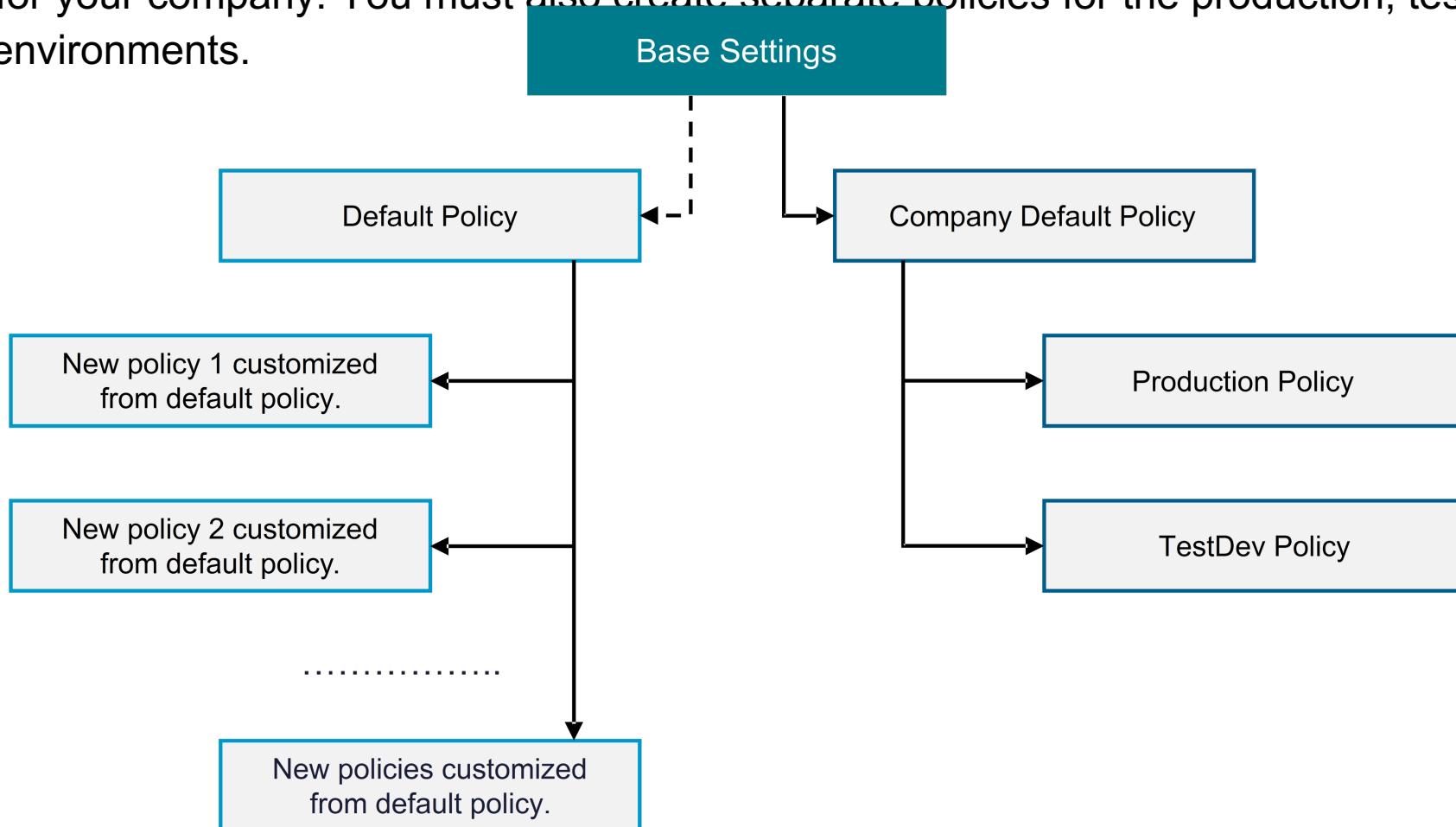
Category	Local: 0 Attributes	Action
Metrics and Properties	Local: 0 Attributes	
Alerts and Symptoms	Local: 0 Alerts / 0 Symptoms	
Capacity	Local: 0 Policy elements	
Maintenance Schedule	Local: 0 Policy elements	
Compliance	Local: 0 Policy elements	
Workload Automation	Local: 0 Policy elements	

Base Settings

- Config Wizard Based Policy
- Default Policy
- Foundation Policy
- NSX Security Configuration Guide
- Policy for Virtual Machines - Risk ...
- Policy for Virtual Machines - Risk ...
- Policy for Virtual Machines - Risk ...
- vSAN Security Configuration Policy
- vSphere Security Configuration G...

Policy Example

You must verify that your private cloud environment confirms to your company's policies. You create a default policy for your company. You must also create separate policies for the production, test, and development environments.



Policy Workspace: Creating Policy

You select a base policy from which your new custom policy can inherit settings.

[Create] TestDev Policy

Configurations / Policy Definition

Name: TestDev Policy ⓘ

Description: Policy for Monitoring Test and Dev Objects ⓘ

Inherit From: Default Policy

The screenshot shows the 'Policy Definition' screen for creating a new policy named 'TestDev Policy'. The 'Inherit From' field is set to 'Default Policy'. Below this, there are six categories represented by cards:

- Metrics and Properties**: Contains 'Locally defined attributes' and 'None'.
- Alerts and Symptoms**: Contains 'Locally defined alerts' and 'None'; also 'Locally defined symptoms' and 'None'. This category is highlighted with a blue border.
- Capacity**: Contains 'Locally defined policy elements' and 'None'.
- Maintenance Schedule**: Contains 'Locally defined policy elements' and 'None'.
- Compliance**: Contains 'Locally defined policy elements' and 'None'.
- Workload Automation**: Contains 'Locally defined policy elements' and 'None'.

Policy Workspace: Metrics and Properties

You can select properties or metrics to include in your policy so that VCF Operations can collect data from the objects in your Private Cloud environment.

[Create] TestDev Policy ? X

Configurations / Policy Definition

Metrics and Properties

Select Object Type: X ▼ Type here to apply filters ?

Select Object Type or use All Filters to view and make changes



Total **32554** Attributes for **345** Object Types are available.
0 Attributes are defined locally in this policy.

Policy Workspace: Alerts and Symptoms

You can override alert definitions by enabling or disabling them. Enabling alert definitions activates alerting conditions.

[Create] TestDev Policy ? X

Configurations / Policy Definition

Alerts and Symptoms

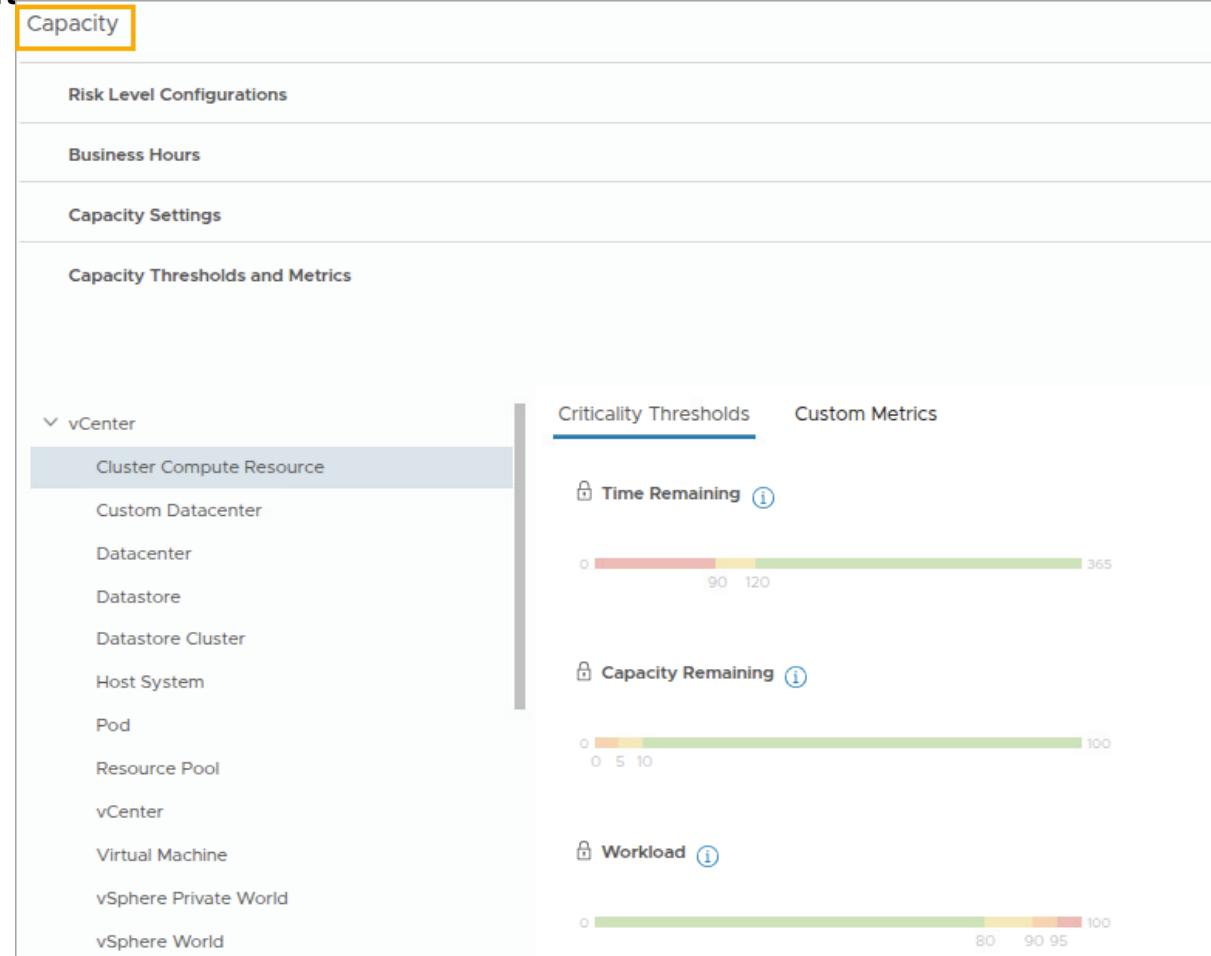
Alert Definitions Symptom Definitions

Select Object Type: Type here to apply filters 

Search for an Object Type	ACTIONS	Page Size:	20			
vCenter		Alert Definition	State	Automate	Symptoms / Conditions	Criticality
Cluster Compute Resource	 (DEP) Application Efficiency is degraded	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	3	
Custom Datacenter	 (DEP) Application Health is degraded	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	3	
Datacenter	 (DEP) Application Risk is elevated	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	3	
Datastore	 (DEP) Tier Efficiency is degraded	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	3	
Host System	 (DEP) Tier Health is degraded	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	3	
Pod	 (DEP) Tier Risk is elevated	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	3	
Resource Pool	 [Platform Safeguards] Frequent changes to prope...	<input checked="" type="checkbox"/> Activated	Inherited	<input type="checkbox"/> Not Applicable	1	
Supervisor Cluster						

Policy Workspace: Capacity Settings

You can configure Time Remaining Calculations, Business Hours, Capacity Settings, and Criticality Thresholds in the Capacity section of the policy.



Policy Workspace: Workload Automation Details

You can set the workload automation options for your policy, so that VCF Operations can optimize the workload in your environment as per your definition.

[Edit] TestDev Policy ?

Configurations / Policy Definition

Workload Automation

Workload Optimization

- Balance
Balance will spread workloads evenly over the available resources, but may move workloads more often. This is good for more stable populations.
- Moderate
Moderate will minimize workload contention, but will not attempt to move workloads to achieve better balance or consolidation.
- Consolidate
Consolidate will place workloads into as few clusters as possible, but allows for less responsive capacity. This is good for populations with steady demand, and may reduce licensing and power costs.

Cluster Headroom

Headroom provides a buffer of space for the cluster, which may cause a rebalance to occur earlier than it would otherwise.

0 %

Change Datastore

- Do not allow Storage vMotion.
- Allow Storage vMotion.

Target Network Policy Setting For WLP

Generate a Target Network mapping

By enabling this setting WLP will generate target network mapping automatically for moving VM workloads.



✓ Avoid Performance Issues
✓ As Few Moves as Possible

Policy Workspace: Configuring Provider Pricing

You can add and assign new pricing cards to vCenter and clusters in VCF Operations. The pricing card can be cost-based or rate-based. You can customize the cost-based pricing card and rate-based pricing card as per your requirement.

The screenshot shows the 'Edit TestDev Policy' screen in the 'Configurations / Policy Definition' section. The 'Provider Pricing' tab is selected, highlighted with a yellow border. A yellow warning bar at the top states: '⚠️ We couldn't find any currency configured.' On the left, a sidebar lists categories: Compute Rate, Storage Rate, Network Rate, Guest OS Rate, vCenter Tag Rate, One Time Fixed Cost, and Rate Factors. The 'Compute Rate' category is expanded, showing 'CPU Rate:' with options for 'CPU GHz Based' (selected) and 'vCPU Count Based'. It also includes 'Charge Period' (set to 'Daily'), 'Charge Based on' (set to 'Usage'), and 'Default Base Rate (per GHz)' (set to 0). Below this is an 'ADD SLAB' button and a condition builder interface with fields for 'Greater than or equal' and 'Base Rate 0'. Further down are sections for 'Fixed Cost' (set to 0) and 'Memory Rate:', which mirrors the CPU settings with its own 'Charge Period', 'Charge Based on', and 'Default Base Rate (per GB)' fields, also set to 0.

Viewing the Effective Policy

In the **Policy** drop-down menu, the **View Policy** option appears in the content pane of the selected object.

The screenshot shows the vSphere interface for a virtual machine named "ubuntu-02a". The "Summary" tab is selected. In the top right corner, there is a "POLICY" dropdown menu with two options: "View Policy" (highlighted with a yellow box and a teal arrow) and "Assign Policy".

The main content area displays the "Policy Definition" for the selected VM. It includes sections for "IP Address", "Number of", "Memory:", "Disk Space", and "VMware to". A "Tim" section indicates a value of "> 1 Year".

The "Policy Definition" section shows a tree view under "Name":

- Base Settings
 - Config Wizard Based Policy
 - Default Policy
 - test** (highlighted with an orange box)
 - Foundation Policy
 - NSX Security Configuration Guide
 - Policy for Virtual Machines - Risk Profil...

Details for the "test" policy are shown:

- Parent policy: Default Policy
- Priority: 1
- Metrics and Properties
- Alerts and Symptoms

At the bottom, it shows "Remaining" disk space: 56 % (7.68 GB), with "Most constrained by Disk Space Demand".

Assigning a Policy for a Single Object

In the **Policy** drop-down menu, the **Assign Policy** option appears in the content pane of the selected object.

The screenshot shows the vSphere Web Client interface. On the left, the Inventory tree is visible with various objects like vSAN Cluster, vSAN Adapter Instance, etc. In the center, the details for a selected object, 'sa-db-01' (Virtual Machine), are displayed. A modal dialog titled 'Assign Policy' is open over the main content. The dialog shows the current policy assigned to the object ('TestDev Policy') and provides options to select a new policy from a list. A large blue arrow points from the text in the previous slide to the 'Assign Policy' button in the dialog. The right side of the screen shows performance metrics for the selected object.

Search for an object or select a category from the list below; like metric, feature, dashboard and more ...

Inventory BASIC VIEW

All Objects

Levels: 7

- 1 vSAN Cluster
- 1 vSAN Adapter Instance
- 1 vSphere Distributed Port Group
- 1 Environment
- 1 VMware Cloud Foundation
- 1 Cluster Compute Resource
- 1 VCF World
- 1 vCenter
- 1 Transport Node
- 1 vSphere World
- 1 Universe

sa-db-01 ACTIONS

Summary Metrics Logs Alerts Topology Capacity Environment

Powered On

Object name: sa-db-01
Current Policy: TestDev Policy
Assignment Type: Direct

Select policy to apply:

- Base Settings
 - Config Wizard Based Policy
 - Default Policy
 - Foundation Policy
 - NSX Security Configuration Guide
 - Policy for Virtual Machines - Risk Profile 1

Apply policy changes to:

- Only this object
- Include child objects

CANCEL OK

TROUBLESHOOT

POLICY

View Policy

Assign Policy

Performance

CPU Usage 16.53 MHz CPU Queue 0.033

Assigning Policies

You can assign policies to your environment to activate controls and view and manage your object assignment scope.

Policy Assignment

Configurations / Policy Assignment

Visualization Type: Fixed Inactive Active Type Policy Name

TestDev Policy

Priority: 1
Directly Assignments: 1
Custom Groups: 0
Affected Objects: 1

Default Policy

Priority: Default
Directly Assignments: 0
Default Assignments: 558
Custom Groups: 0
Affected Objects: 577

Selected Policy: None

All Objects

Drag and drop items from the list below to assign to a policy.

Inventory Custom Groups

Type here to apply filters

VCF Instances

EDU

sa-m01-vc01.vcf.sddc.local

EDU-dc01

EDU-cl01

esx-1.vcf.sddc.local

esx-2.vcf.sddc.local

esx-3.vcf.sddc.local

esx-4.vcf.sddc.local

Discovered virtual machines

vCLS

sa-wld01

Name

sa-m01-vc01

sa-m01-vcopsfm01

esx-3.vcf.sddc.local

sa-wld01-vc01

sa-m01-vcops01

sa-wld01-nxst01

sa-m01-nxst01

sa-m01-sddc01

esx-4.vcf.sddc.local

sa-app-01

sa-m01-vcops01

sa-db-01

esx-2.vcf.sddc.local

vCLS-df180142-1167-2780-5d8e-940008a27...

EDU-cl01-ds-vsanc01

esx-1.vcf.sddc.local

sa-m01-vcfa-h2zzq

vCLS-61c50142-edaa6-c9b1-5ba5-1c05aa9393...

Policy Inheritance

You can determine how a policy applies to an object:

- Identify the group or groups of which the object is a member.
- Identify policies that are assigned to these groups.
- Determine the policy that has the highest priority.

The policy with the highest priority is the effective policy for that object.

Importing and Exporting Content

To reuse content between VCF Operations deployments or back up the custom content, use the export and import functions.

You can export and import the following content:

- Policies
- Dashboards
- Views
- Reports
- Alert definitions
- Symptom definitions
- Recommendations
- Super metrics

Lab: Creating Custom Policies

Create custom policies for TestDev Group and VMSScale Group:

1. Create the TestDev Custom Group
2. Create the VMSScale Custom Group
3. Create the TestDev Policy for Objects in the TestDev Group
4. Create the VMSScale Policy for Objects in the VMSScale Group
5. Review Policy Assignments
6. Export a Policy

Review of Learner Objectives

- Use policies to analyze information about various object types and objects in your environment
- Configure policies and other components
- Perform the importing and exporting of content

Symptoms and Alerts

Importance

Alerts notify operators when object state change, health problems, and performance degradation occur in the environment. Alerts are generated when a metric violates a defined threshold, signaling potential problems or issues on single hosts or across the entire fleet.

VCF Operations provides a comprehensive set of predefined alert definitions. You can also create custom alert definitions and symptom definitions to address specific monitoring needs.

Administrators must understand the underlying work mechanism of alert definitions and how to take actions on alerts.

Module Lessons

1. Alerts Introduction
2. Creating Alert Definition Components
3. Creating Custom Alert Definitions
4. Managing Alerts

Alerts Introduction



Learner Objectives

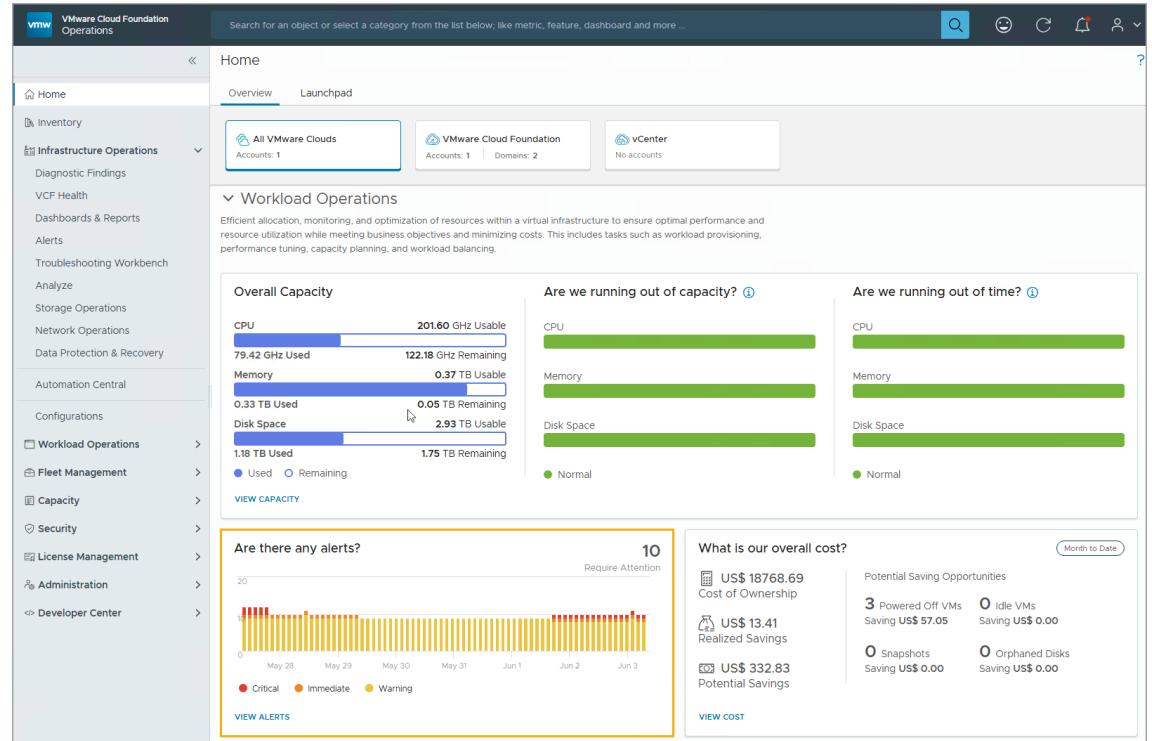
- Describe the purpose of using alerts
- Identify the components of an alert definition

Understanding Alerts

Alerts help you identify performance, capacity, and usage problems, and provide a root-cause analysis across single objects and the fleet.

The Alerts function provides the following benefits:

- Provides notifications for abnormal behaviors to help avoid incidents
- Focuses on the cure (remediation)
- Provides the starting point of a workflow for identifying problems



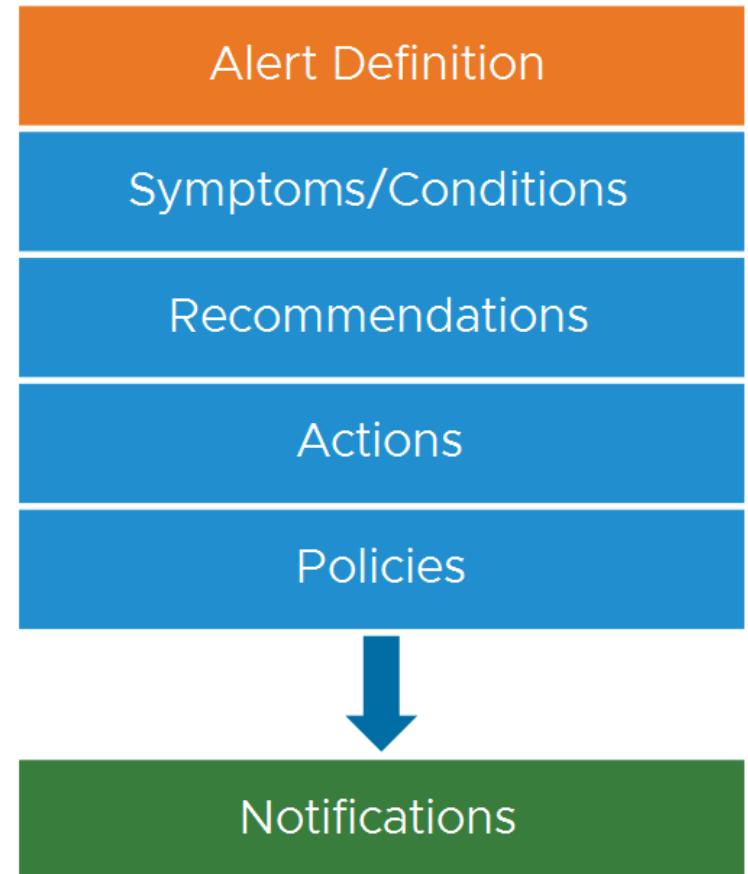
Alert Definitions and Alert Components

Alert definitions are a combination of elements that identify problem areas and generate alerts in VCF Operations.

An alert definition has the following components:

- One or more Symptoms that trigger the alert
- Zero or more Recommendations that might resolve the alert
- Zero or more Actions
- Policies that are enabled for an alert

A notification sends an alert to external applications through a plug-in such as the standard email plug-in.



Understanding Symptoms

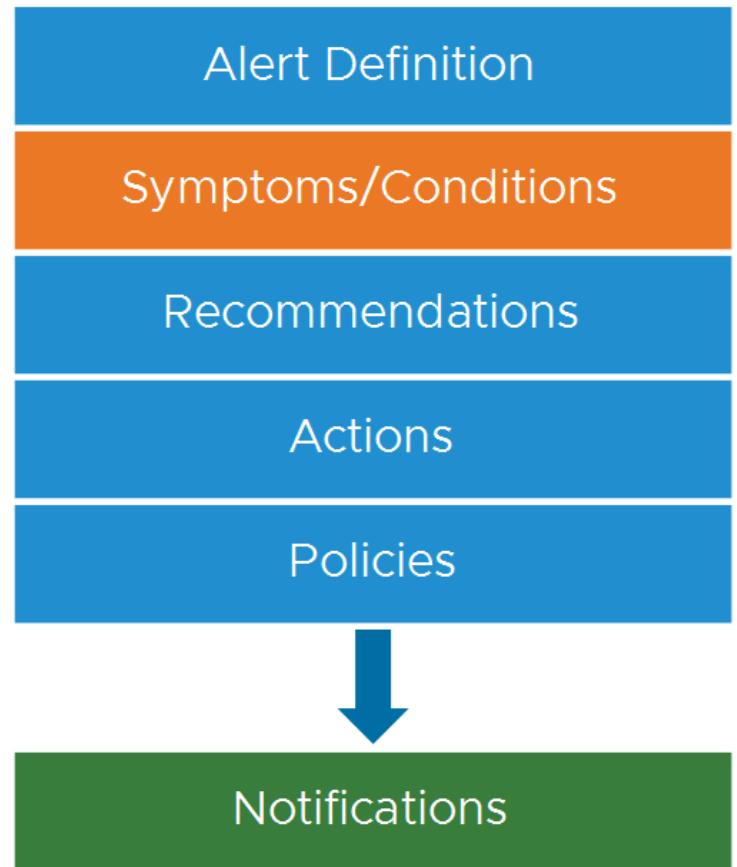
A symptom is a simple condition test that is performed on metrics, properties, message events, fault events, and metric events. A symptom normally indicates problems in your environment.

A symptom can apply to any object type. For example, a host, virtual machine, data store, virtual switch, or application.

The following two faulty conditions are examples of possible symptoms:

- Virtual machine high-ready time on each vCPU
- Host disconnected from vCenter

A symptom is the most basic building block of an alert definition. An alert definition includes a minimum of one symptom. If the condition in the symptom is met, the symptom gets triggered, which eventually triggers the alert.



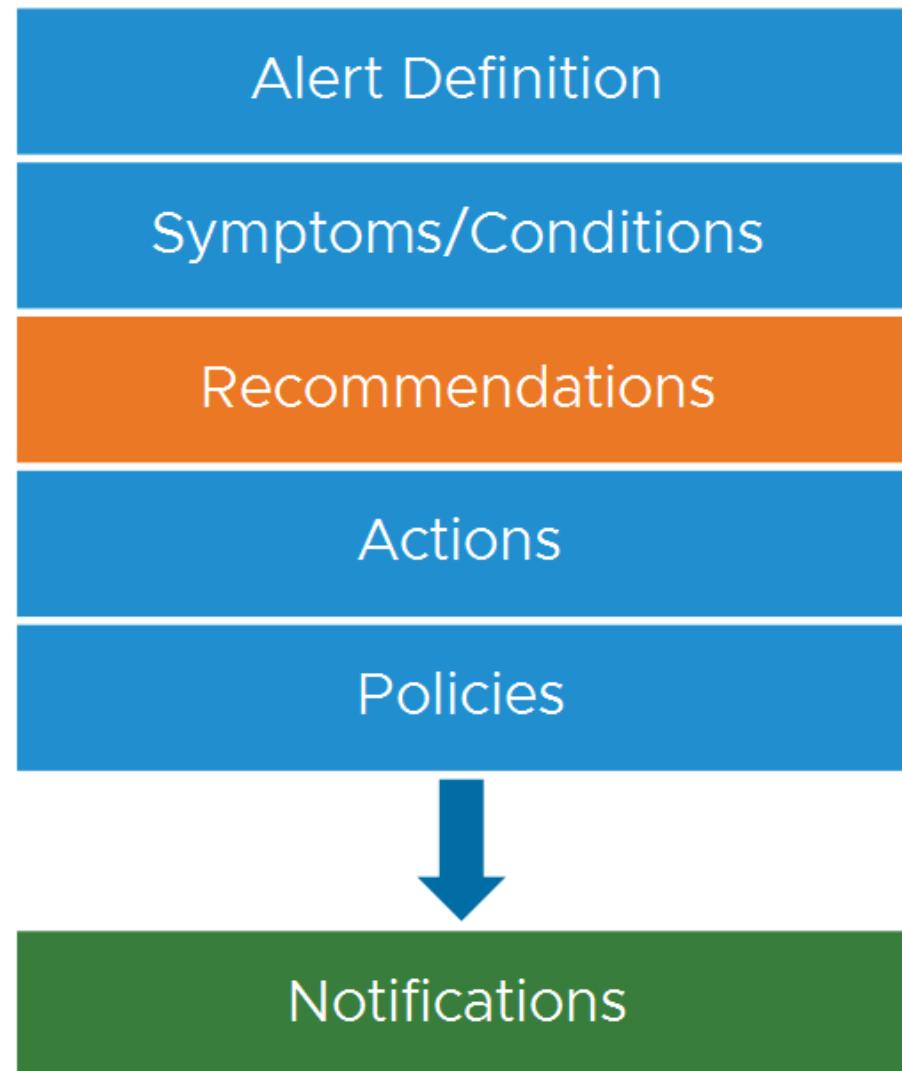
Understanding Recommendations

A recommendation is a probable solution for resolving the problem that triggered the alert.

A recommendation can include the following information:

- Best practices
- Vendor recommendations
- Links to troubleshooting resources

You can use the built-in recommendations in VCF Operations or create your custom recommendations.



Understanding Actions

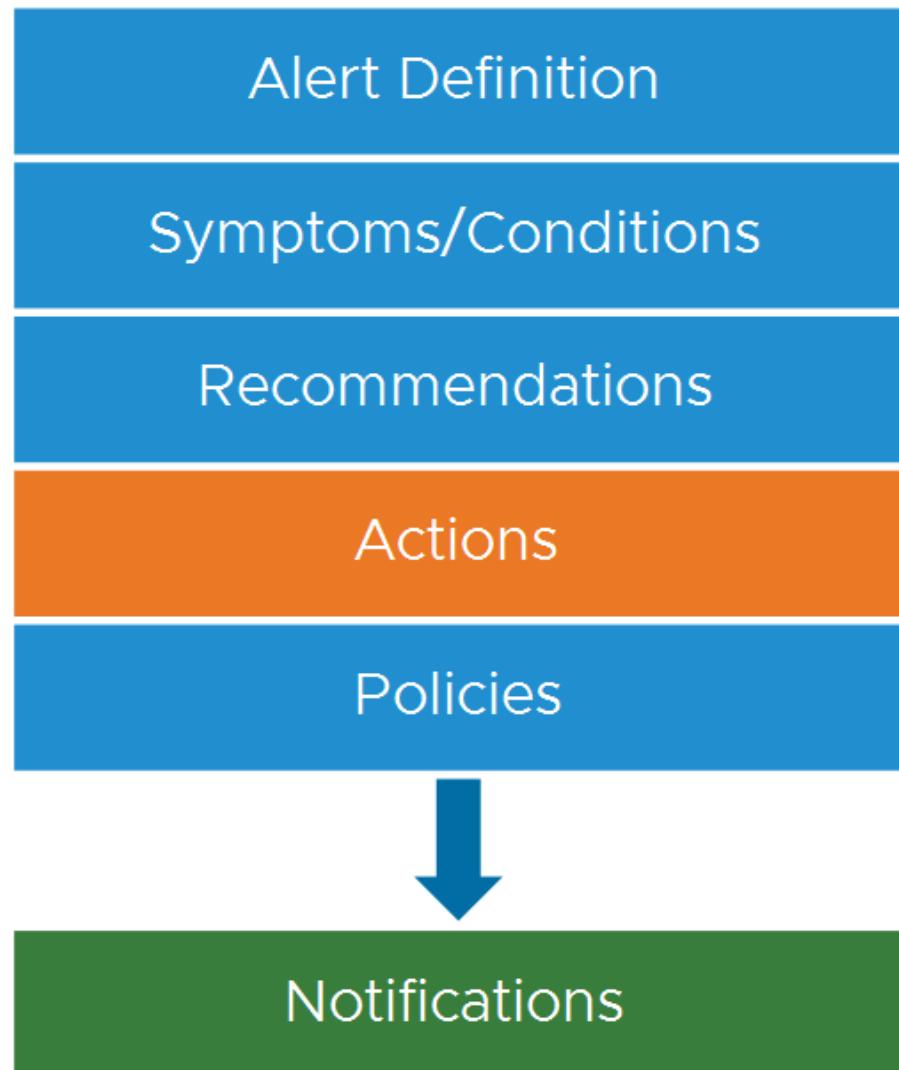
An action provides a single-click method (automated) for fixing the problem that you are trying to resolve.

Actions are associated with recommendations, and actions are optional to an alert definition. A recommendation can include one or more actions.

Actions are from the following sources:

- Built in the product
- Installed solutions

The possible actions include read actions and update actions.



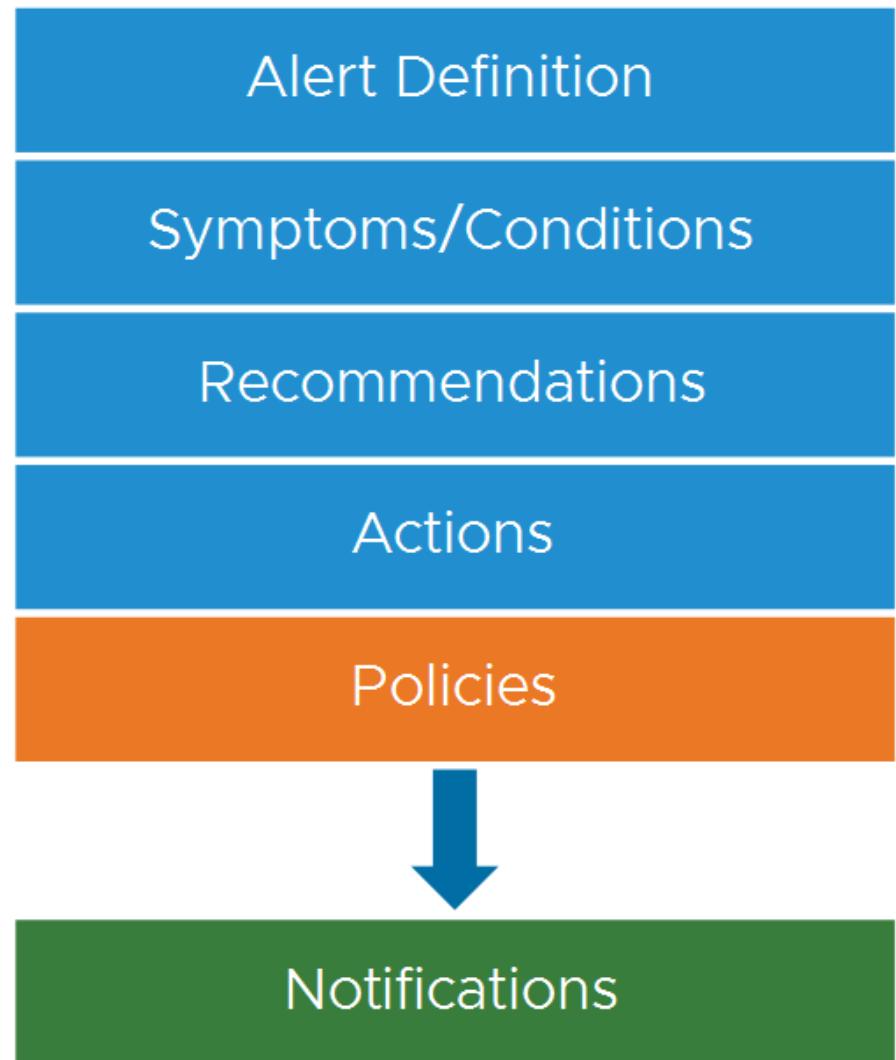
Understanding Policies

A policy in VCF Operations is a set of rules that define how information about objects are collected, displayed, and analyzed.

Each policy can inherit settings from another policy. Then you can customize and override policy settings to support the service-level agreements and business priorities established for your environment.

A policy includes the following settings:

- Metrics or properties for object types such as VM, host, or data store
- Symptom and alert definitions
- Threshold definitions for factors such as workload, time remaining, and capacity remaining



Understanding Notifications

When alerts are generated in VCF Operations, the alerts appear in various places in the VCF Operations console such as the **Alerts** page and the object's **Summary** tab.

You can configure VCF Operations to send triggered alerts to an external alert notification system with a notification.

You connect VCF Operations to the external alert notification system by configuring an outbound alert plug-in. For example, you can send alerts by using email.

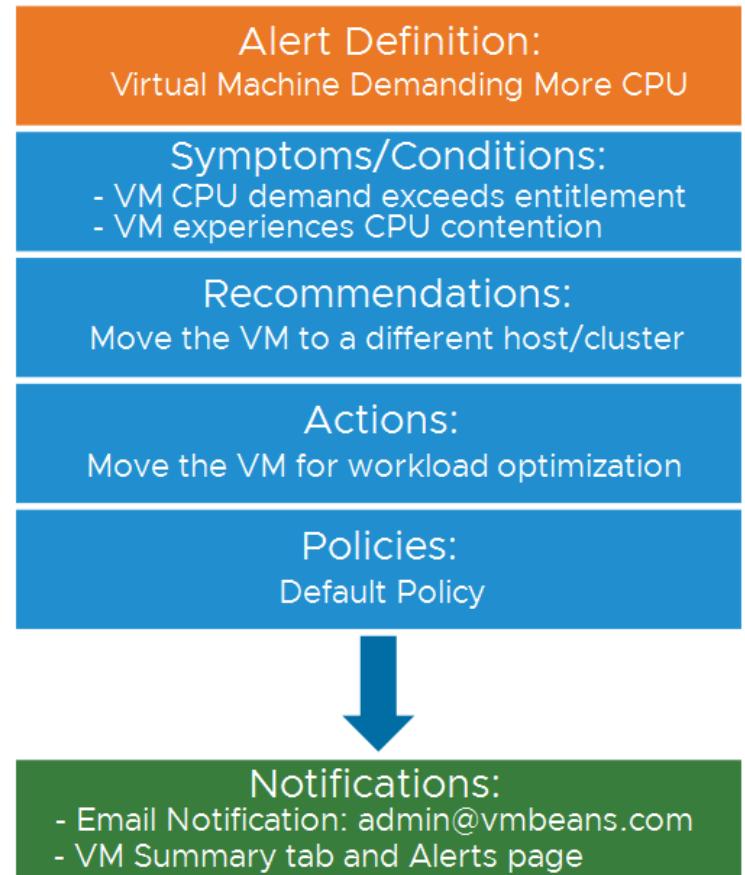


Alert Definition Example

An alert definition provides useful information for resolving problems.

The following example provides details about an alert definition:

- **Name:** Virtual machine in a DRS cluster demands more CPU than its entitlement.
- **Description:** Virtual machine in a DRS cluster demands more CPU than its entitlement.
- **Symptoms:**
 - The virtual machine's CPU demand exceeds its entitlement.
 - The virtual machine experiences CPU contention.
- **Recommendations:** Move the virtual machine to a different host or cluster.
- **Actions:** Move the VM for workload optimization.



Comparing Alerts, Dashboards, and Reports

Alerts, views, dashboards, and reports can all provide data and insights. You must be able to differentiate their distinctive nature and primary use cases to make the best use of these functions.

	Alerts	Views/Dashboards	Reports
Nature	Reactive	Proactive	Passive
Suitability	Exceptions	Exceptions/Big Picture/Details Analysis	Big Picture/Nonurgent Exceptions
Primary Use Cases	Initial Troubleshooting	Further Troubleshooting/Monitoring	Data Export and Sharing
Time/Urgency	Urgent/Important	Regular (daily, SOP)	Nonurgent/Optional/Reports on a set schedule
Roles	Operations Team	Operations Team/Architect	IT Management/Auditor

Review of Learner Objectives

- Describe the purpose of using alerts
- Identify the components of an alert definition

Creating Alert Definition Components

Learner Objectives

- Create static symptom definitions
- Configure different threshold types for symptoms
- Configure recommendations and actions for an alert

Viewing Alert Components in VCF Operations

To view the three core alert components, **Symptom Definitions**, **Recommendations**, and **Actions**, navigate to **Infrastructure Operations > Configurations**.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar is titled "Infrastructure Operations" and includes sections for Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery, Automation Central, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area is titled "Configurations" and contains a search bar. Below the search bar are two sections: "Policies" (Policy Definition, Policy Assignment) and "Alerts" (Alert Definitions, Symptom Definitions, Recommendations, Actions, Notifications, Outbound Settings, Payload Templates). The "Symptom Definitions", "Recommendations", and "Actions" cards are highlighted with a yellow border.

Viewing Symptom Definitions

When creating an alert definition, you must associate one or more symptom definitions.

You can use the built-in symptom definitions or create custom ones. To view all symptom definitions in your VCF Operations console, navigate to **Infrastructure Operations > Configurations > Symptom Definitions**. The following types of symptom definitions are available:

- **Metric / Property**
- **Message Event**
- **Fault**
- **Logs**

Symptom Definitions										
Configurations / Symptom Definitions										
Metric / Property Message Event Fault Logs										
<input type="button"/> ADD ...										Type here to apply filters
Name	Criticality	Object Type	Metric Name	Operator	Value	Defined By	Last Modified	Modified By		
(DEP) At least one host in the...	⚠	Cluster Com...	CPU Demand Highest Hos...	is greater than o...	95	vCenter	5/10/25 1:11 ...	admin		
(DEP) At least one host in the...	⚠	Cluster Com...	Memory Demand Highest ...	is greater than o...	95	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU "demand" ...	⚠	Cluster Com...	CPU Demand Workload (%)	is greater than o...	80	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU contention...	❗	Cluster Com...	CPU Contention (%)	is greater than	15	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU contention...	❗	Cluster Com...	CPU Contention (%)	is greater than	10	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU contention...	⚠	Cluster Com...	CPU Contention (%)	is greater than	5	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU workload ...	❗	Cluster Com...	CPU Workload (%)	is greater than o...	95	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU workload ...	❗	Cluster Com...	CPU Workload (%)	is greater than	90	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster CPU workload ...	⚠	Cluster Com...	CPU Workload (%)	is greater than	80	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster DRS settings ar...	ⓘ	Cluster Com...	Summary DRS Tunable	is	true	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster memory "dema...	⚠	Cluster Com...	Memory Demand Worklo...	is greater than o...	80	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster memory conte...	❗	Cluster Com...	Memory Contention (%)	is greater than	10	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster memory conte...	❗	Cluster Com...	Memory Contention (%)	is greater than	5	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster memory worklo...	❗	Cluster Com...	Memory Workload (%)	is greater than o...	95	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster memory worklo...	❗	Cluster Com...	Memory Workload (%)	is greater than	90	vCenter	5/10/25 1:11 ...	admin		
(DEP) Cluster memory worklo...	⚠	Cluster Com...	Memory Workload (%)	is greater than	80	vCenter	5/10/25 1:11 ...	admin		
(DEP) CPU Demand is greate...	⚠	Pod	CPU Demand (MHz)	is greater than	CPU CPU limi...	vCenter	5/10/25 1:11 ...	admin		
(DEP) CPU Demand is greate...	⚠	Virtual Machi...	CPU Demand (MHz)	is greater than	CPU CPU limi...	vCenter	5/10/25 1:11 ...	admin		
(DEP) Disk command latency ...	⚠	Datastore	Datastore Total Latency (...	is greater than	15	vCenter	5/10/25 1:11 ...	admin		
(DEP) DRS enabled	ⓘ	Cluster Com...	Cluster Configuration DRS...	is	true	vCenter	5/10/25 1:11 ...	admin		
1 - 50 of 842 items										< 1 2 3 4 5 ... 17 >

Understanding Symptom Definition Types

Symptom definitions are categorized into the following types:

- **Metric/Property:**
 - Metric symptoms are based on the operational or performance values collected from the target objects in your environment.
 - Property symptoms are based on the configuration properties collected from the target objects.
- **Message Event:** Symptoms are based on the events received as messages from a component of VCF Operations or from an external monitored system through the monitored system's REST API.
- **Fault:** Symptoms are based on events in the monitored systems that affect the availability of objects in your environment.
- **Logs:** Symptoms are based on log data coming from VCF Operations for logs in the monitored systems that affect the availability of objects in your environment.

Creating Symptom Definitions

To add a new custom symptom definition, click the symptom definition type to verify that you are on the correct symptom definition type tab and click **ADD**.

When you create a symptom definition:

1. Select the base object type.
2. Select the symptom type.
3. Configure the symptom definition.

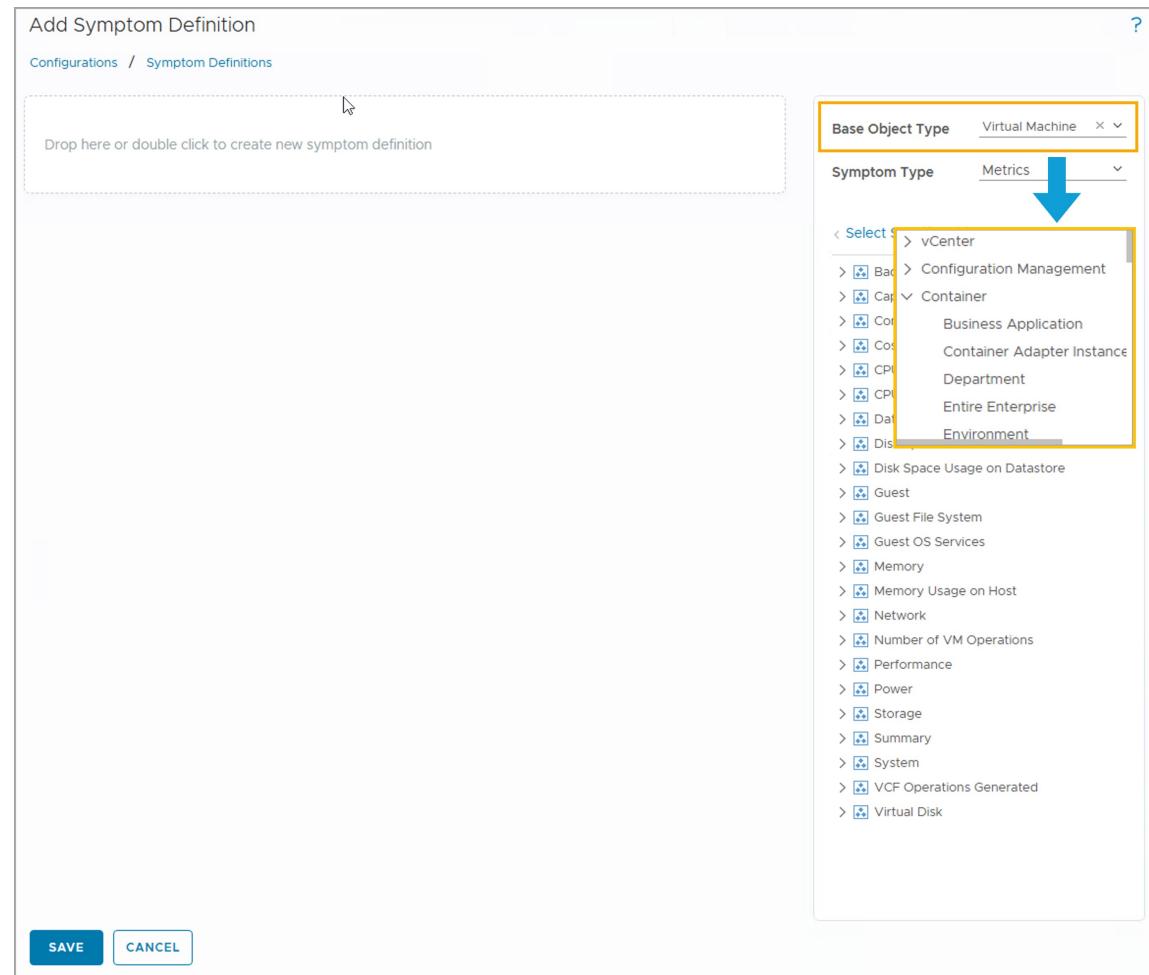
Symptom Definitions										
Configurations / Symptom Definitions										
Metric / Property	Message Event	Fault	Logs							
ADD	...	Type here to apply filters								
	Name ▲	Criticality	Object Type	Metric Name	Operator	Value	Defined By	Last Modified	Modified By	
<input type="checkbox"/>	: (DEP) At least one host in the...	!	Cluster Com...	CPU Demand Highest Hos...	is greater than o...	95	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) At least one host in the...	!	Cluster Com...	Memory Demand Highest ...	is greater than o...	95	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU "demand" ...	!	Cluster Com...	CPU Demand Workload (%)	is greater than o...	80	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU contention...	!	Cluster Com...	CPU Contention (%)	is greater than	15	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU contention...	!	Cluster Com...	CPU Contention (%)	is greater than	10	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU contention...	!	Cluster Com...	CPU Contention (%)	is greater than	5	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU workload ...	!	Cluster Com...	CPU Workload (%)	is greater than o...	95	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU workload ...	!	Cluster Com...	CPU Workload (%)	is greater than	90	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster CPU workload ...	!	Cluster Com...	CPU Workload (%)	is greater than	80	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster DRS settings ar...	!	Cluster Com...	Summary DRS Tunable	is	true	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster memory "dema..."	!	Cluster Com...	Memory Demand Worklo...	is greater than o...	80	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster memory conte...	!	Cluster Com...	Memory Contention (%)	is greater than	10	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster memory conte...	!	Cluster Com...	Memory Contention (%)	is greater than	5	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster memory worklo...	!	Cluster Com...	Memory Workload (%)	is greater than o...	95	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster memory worklo...	!	Cluster Com...	Memory Workload (%)	is greater than	90	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Cluster memory worklo...	!	Cluster Com...	Memory Workload (%)	is greater than	80	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) CPU Demand is greate...	!	Pod	CPU Demand (MHz)	is greater than	CPU CPU limi...	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) CPU Demand is greate...	!	Virtual Machi...	CPU Demand (MHz)	is greater than	CPU CPU limi...	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) Disk command latency ...	!	Datastore	Datastore Total Latency (...	is greater than	15	vCenter	5/10/25 1:1...	admin	
<input type="checkbox"/>	: (DEP) DRS enabled	!	Cluster Com...	Cluster Configuration DRS...	is	true	vCenter	5/10/25 1:1...	admin	
1 - 50 of 842 items										
< 1 2 3 4 5 ... 17 >										

Selecting the Base Object Types

The base object type is the object type against which the symptom is evaluated.

When you add a symptom definition, you select the object for which the symptom is evaluated. A base object type can represent single objects, such as virtual machines, or represent a broader scope, such as clusters. In this case, the objects being evaluated are virtual machines.

Adapters and containers organize and display the object types. You can also search for an object type.



Selecting Metrics

After selecting the base object type, you can drag metrics from the expanded metric list to the new symptom definition area.

Add Symptom Definition

Configurations / Symptom Definitions

Virtual Machine : CPU|Demand (%)

Name: CPU Demand > 60% Trigger: Static Threshold

If Metric: > Condition: 60 Value: trigger: Warning Criticality:

> Advanced Settings

Drop here or double click to create new symptom definition

SAVE CANCEL

Base Object Type: Virtual Machine

Symptom Type: Metrics

Select Specific Object: Q Search

- > Badge
- > Capacity Analytics Generated
- > Configuration
- > Cost
- > CPU
 - Demand (%)
 - Co-stop (%)
 - Contention (%)
 - Demand (MHz)
 - Effective limit (MHz)
 - Highest vCPU Ready of all instances (%)
 - Highest vCPU Usage of all instances (%)
 - Net Run (%)
 - Other Wait (%)
 - Peak Other Wait within collection cycle ...
 - Peak vCPU Co-Stop within collection cycl...
 - Peak vCPU Overlap within collection cycl...
 - Peak vCPU Ready within collection cycle ...
 - Provisioned vCPU(s) (vCPUs)
 - Ready (%)
 - Run (ms)
 - Swap wait (%)
 - Total Capacity (MHz)

Understanding Threshold Types

A threshold marks the boundary between normal and abnormal behavior for a metric. You need to configure the threshold for each added symptom.

You can choose the following types of thresholds:

- Static Threshold
- Dynamic Threshold
- Compare

The screenshot shows the 'Add Symptom Definition' dialog box. On the left, there's a configuration card for 'Virtual Machine : CPU|Demand (%)'. It has a 'Name' field set to 'CPU Demand > 60%', a 'Condition' dropdown set to '>', a 'Value' input set to '60', and a 'trigger' dropdown set to 'Warning'. To the right of the card is a dropdown menu for 'Static Threshold' which is currently open, showing three options: 'Static Threshold', 'Dynamic Threshold', and 'Compare'. Below the card is a section titled 'Advanced Settings' with a 'Demand (%)' checkbox checked. At the bottom of the dialog are 'SAVE' and 'CANCEL' buttons. On the right side of the dialog, there's a sidebar with 'Base Object Type' set to 'Virtual Machine' and 'Symptom Type' set to 'Metrics'. Under 'Select Specific Object', there's a search bar and a list of metrics categorized by object type. The 'CPU' category is expanded, showing various metrics like 'Demand (%)' (which is selected), 'Effective limit (MHz)', 'Highest vCPU Ready of all in...', etc.

Configuring a Static Threshold

A static threshold compares the currently collected metric value against the fixed value that you configure in the symptom definition.

For a symptom with a static threshold, you must configure the following settings:

- Symptom Name
- Condition
- Value
- Criticality

For example, you can configure a static metric symptom. When the virtual machine CPU workload is greater than 70, a critical symptom is triggered. You can select the criticality of the triggered symptom.

The screenshot shows the 'Add Symptom Definition' dialog box. The 'Base Object Type' is set to 'Virtual Machine'. The 'Symptom Type' is set to 'Metrics'. The 'Name' is 'VM High CPU Demand'. The 'Condition' is 'If Metric > 80'. The 'trigger' is 'Critical'. A yellow box highlights the 'Condition' and 'trigger' fields. Below the main form, there is a dashed box with the placeholder text 'Drop here or double click to create new symptom definition'. At the bottom are 'SAVE' and 'CANCEL' buttons. On the right side, there is a sidebar titled 'Select Specific Object' with a search bar and a list of metrics under the 'CPU' category, with 'Demand (%)' selected.

Configuring Multiple Symptom Definitions

If you add multiple symptoms to a symptom definition, you must configure the threshold setting for all the symptoms.

Add Symptom Definition

Configurations / Symptom Definitions

Virtual Machine : CPU|Demand (%)

Name VM High CPU Demand

If Metric > 70 trigger Critical

Advanced Settings

Virtual Machine : Memory|Consumed (%)

Name VM High Memory Consumption

If Metric > 80 trigger Critical

Advanced Settings

Virtual Machine : Storage|Read Latency (ms)

Name Storage High Read Latency

If Metric Numeric Value trigger Info

Advanced Settings

SAVE CANCEL

Base Object Type Virtual Machine

Symptom Type Metrics

Select Specific Object

- Capacity Analytics Generated
- Configuration
- CPU
- CPU Utilization for Resources
- Datastore
- Disk Space
- Disk Space Usage on Datastore
- Guest
- Guest File System
- Guest OS Services
- Memory
- Memory Usage on Host
- Network
- Number of VM Operations
- Performance
- Power
- Storage
 - Read Latency (ms)
 - Write Latency (ms)
- Summary
- Super Metrics
- System
- VCF Operations Generated
- Virtual Disk

Configuring a Dynamic Threshold

A dynamic threshold is based on VCF Operations Dynamic Threshold calculation values, which are calculated by the analytics components daily. The triggering value is determined through analytics.

The following values define the relationship of the current value to the trend range:

- **Above Threshold:** If the current value is above the trend range, the symptom is triggered.
- **Below Threshold:** If the current value is below the trend range, the symptom is triggered.
- **Abnormal:** If the current value is either above or below the trend range, the symptom is triggered.

The screenshot shows the 'Add Symptom Definition' dialog box. At the top, it says 'Virtual Machine : CPUDemand (%)' and 'Dynamic Threshold' (which is highlighted with a yellow box). Below that, there's a 'Name' field containing 'VM CPU Demand Above Trend'. Under 'If Metric is', there are dropdown menus for 'Condition' (set to 'Above Threshold') and 'trigger' (set to 'Immediate'). A 'Base Object Type' dropdown is set to 'Virtual Machine'. A 'Symptom Type' dropdown is set to 'Metrics'. On the right, there's a sidebar titled 'CPU' with various metrics listed, including 'Demand (%)' which is also highlighted with a yellow box. At the bottom of the dialog are 'SAVE' and 'CANCEL' buttons.

Configuring a Compare Threshold

A compare threshold is based on the comparison of two metrics.

Example comparisons that you can evaluate using the greater than symbol (>) include:

- CPU Demand > CPU Entitlement
- Memory Demand > Memory Use

Add Symptom Definition

Configurations / Symptom Definitions

Virtual Machine : CPU|Demand (MHz) Compare ×

Name VM CPU Demand Higher Than Effective Limit

If Metric is > Condition CPU|Effective limit (MHz) trigger Warning Criticality

> Advanced Settings

Drop here or double click to create new symptom definition

SAVE CANCEL

Base Object Type Virtual Machine

Symptom Type Metrics

Select Specific Object Search

CPU

- Demand (MHz)
- Demand (%)
- Effective limit (MHz)

Base Object Type Virtual Machine

Symptom Type Metrics

Select Specific Object Search

CPU

- Demand (MHz)
- Demand (%)
- Effective limit (MHz)
- Highest vCPU Ready of all in...
- Highest vCPU Usage of all in...
- Net Run (%)
- Other Wait (%)
- Peak Other Wait within colle...
- Peak vCPU Co-Stop within c...
- Peak vCPU Overlap within c...
- Peak vCPU Ready within coll...
- Provisioned vCPU(s) (vCPUs)
- Ready (%)
- Run (ms)
- Swap wait (%)
- Total Capacity (MHz)

Configuring Symptom Wait and Cancel Cycles

For each symptom, you can click **Advanced** to show the following additional configurations:

- **Wait cycle:** The test condition must remain true for a fixed number of polling cycles before the symptom is triggered.
- **Cancel cycle:** The symptom is canceled after the test condition is false for a fixed number of polling cycles.

Add Symptom Definition

Configurations / Symptom Definitions

Virtual Machine : CPU|Demand (MHz)

Name: VM CPU Demand Higher Than Effective Limit

If Metric is: > Condition: CPU|Effective limit (MHz) trigger: Warning Criticality: Warning

Advanced Settings

Wait Cycle: 3 Cancel Cycle: 3

Evaluate on instanced metrics

Drop instances to exclude

Drop here or double click to create new symptom definition

SAVE CANCEL

Base Object Type: Virtual Machine

Symptom Type: Metrics

Select Specific Object Search

CPU

- Co-stop (%)
- Contention (%)
- Demand (MHz)
- Demand (%)
- Effective limit (MHz)
- Highest vCPU Ready of all in...
- Highest vCPU Usage of all in...
- Net Run (%)
- Other Wait (%)
- Peak Other Wait within colle...
- Peak vCPU Co-Stop within c...
- Peak vCPU Overlap within c...
- Peak vCPU Ready within coll...
- Provisioned vCPU(s) (vCPUs)
- Ready (%)
- Run (ms)
- Swap wait (%)
- Total Capacity (MHz)

Viewing and Creating Recommendations

A recommendation can be a user-defined text. A recommendation can also include HTML links to the external resources such as knowledge base articles.

To view all recommendations in your VCF Operations console, navigate to **Infrastructure Operations > Configurations > Recommendations**.

The recommendation list displays all predefined and custom-built recommendations. To add a new custom recommendation, click **ADD**.

A recommendation can include an optional action.

The screenshot shows a 'Create New Recommendation' dialog box. At the top, it says 'Create New Recommendation' and 'Configurations / Recommendations'. Below that, a placeholder text reads 'Add a description and select an action to your new recommendation.' A 'Description' field contains the text 'Modify the CPU Limit for this virtual machine'. An 'Action (Optional)' section includes an 'Adapter Type' dropdown set to 'vCenter' and an 'Action' dropdown set to 'Set CPU Count for VM Power Off Allow'. At the bottom, there are 'SAVE' and 'CANCEL' buttons.

Viewing the Inbuilt Actions

The Actions overview is a list of actions available in your environment that can be added to alert recommendations.

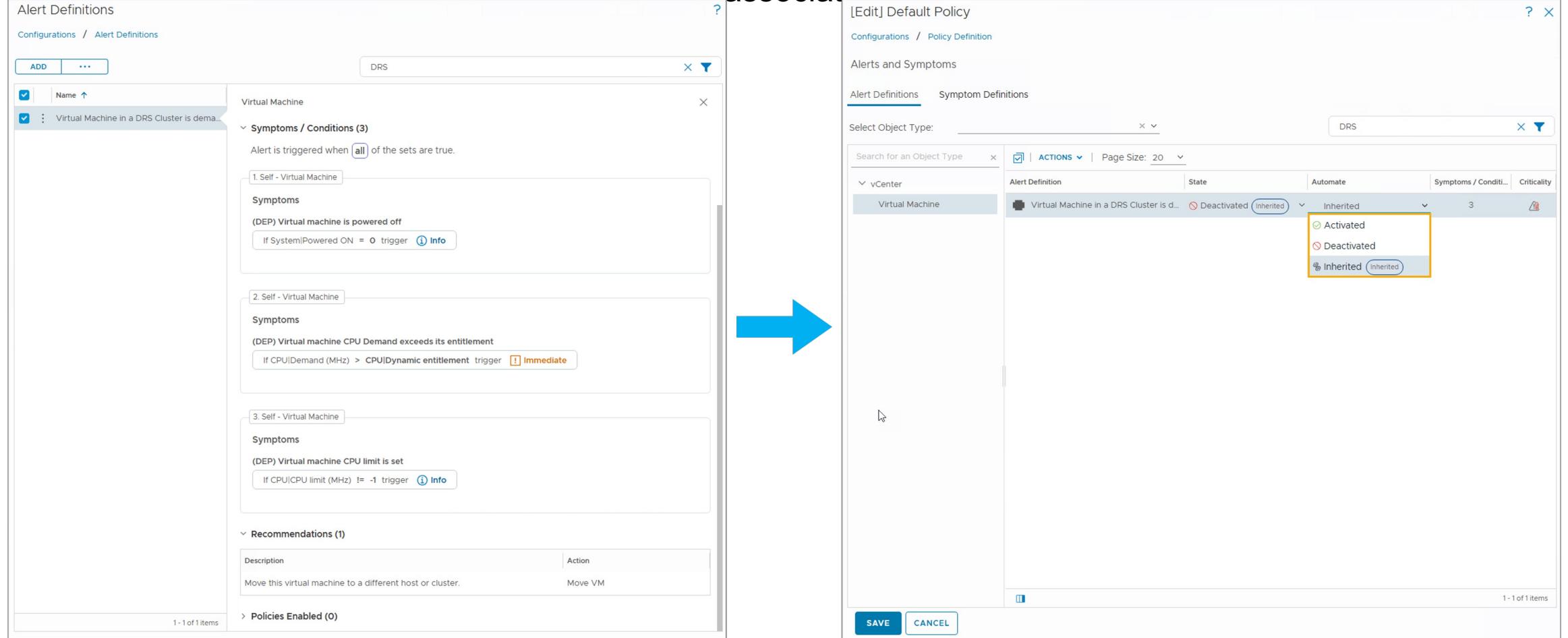
To view all the actions in your VCF Operations console, navigate to **Infrastructure Operations > Configurations > Actions**.

The number of times an action has been assigned to a recommendation is recorded in the Recommendations column.

Action Name	Action Type	Adapter Type	Resource Adapter Type	Associated Object Types	Recommendations
Set DRS Automation	update	vCenter	vCenter	Cluster Compute Resource	3
Set Memory Resources for VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	3
Set CPU Count for VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	3
Set CPU Resources for VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	2
Delete Unused Snapshots for VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	1
Set Memory for VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	1
Power Off VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	1
Delete Unused Snapshots for Da...	update	vCenter	vCenter	Datastore, Host System, Cluster ...	1
Move VM	update	vCenter	vCenter	Virtual Machine	1
Optimize Container	update	vCenter	vCenter	Custom Datacenter, Datacenter	1
Configuring Horizon Tomcat plug...	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
Power On VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	0
Configuring HTTP Remote Check...	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
Configuring Ping Check plugin	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
Configuring Java plugin	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
Download Bootstrap Context	update	OS and Application Monitoring	OS and Application ...	OS and Application Monitoring A...	0
Configuring VeloCloud Gateway ...	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
Delete Powered Off VM	update	vCenter	vCenter	Virtual Machine, Host System, Cl...	0
Configuring MySQL plugin	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
Configuring Custom Script plugin	update	OS and Application Monitoring	vCenter	Virtual Machine, Endpoint	0
1					1 - 50 of 66 items
					< 1 2 >

Automation Action Framework

You can configure actions to be triggered from alert recommendations automatically. As they are disabled by default, you must enable the action in the object's associated policy.



The image shows two side-by-side screenshots of the VMware vSphere Web Client interface. A large blue arrow points from the left panel to the right panel, indicating a flow or relationship between the two screens.

Left Panel (Alert Definitions):

- Header: Alert Definitions, Configurations / Alert Definitions.
- Buttons: ADD, ...
- Search: DRS
- Table:
 - Virtual Machine (selected)
 - Symptoms / Conditions (3)
 - 1. Self - Virtual Machine
 - Symptoms: (DEP) Virtual machine is powered off
Action: If SystemPowered ON = 0 trigger
 - 2. Self - Virtual Machine
 - Symptoms: (DEP) Virtual machine CPU Demand exceeds its entitlement
Action: If CPUDemand (MHz) > CPUDynamic entitlement trigger
 - 3. Self - Virtual Machine
 - Symptoms: (DEP) Virtual machine CPU limit is set
Action: If CPU|CPU limit (MHz) != -1 trigger
 - Recommendations (1)
 - Description: Move this virtual machine to a different host or cluster.
Action: Move VM
 - Policies Enabled (0)

1 - of 1 items

Right Panel (Policy Definition):

 - Header: [Edit] Default Policy, Configurations / Policy Definition.
 - Search: DRS
 - Table:
 - Select Object Type: vCenter
 - Search for an Object Type: Virtual Machine
 - Actions: ACTIONS | Page Size: 20
 - Alert Definition: Virtual Machine in a DRS Cluster is d... State: Deactivated (Inherited)
 - Automate: Inherited
 - Activation Status: Activated (highlighted with a yellow box)
 - Deactivation Status: Deactivated
 - Inheritance Status: Inherited (highlighted with a yellow box)
 - Buttons: SAVE, CANCEL

Lab: Creating Custom Symptoms

Create and test symptom definitions:

1. Prepare for Event and Log Collection
2. Create a Symptom Definition to Check for Medium CPU Demand of a VM
3. Create a Symptom Definition to Check for High CPU Demand of a VM
4. Create a Symptom Definition to Check for High CPU Demand of a Host System
5. Enable Custom Symptoms in the Policy
6. Test the Symptom Definitions

Review of Learner Objectives

- Create static symptom definitions
- Configure different threshold types for symptoms
- Configure recommendations and actions for an alert

Creating Custom Alert Definitions



Learner Objectives

- Configure a custom alert using the Create Alert Definition workflow
- Add symptoms, conditions, and recommendations to an alert definition
- Create notifications for a custom alert definition

Viewing Alert Definitions

The Alert Definitions page lists all the alert definitions configured for your environment. To view alert definitions, navigate to **Infrastructure Operations > Configurations > Alert Definitions**.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar navigation includes Home, Inventory, Infrastructure Operations (Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery), Automation Central, Configurations (Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, Developer Center), and Logical Groupings (Custom Groups, Custom Datacenters). The main content area is titled 'Configurations' and contains sections for Policies (Policy Definition, Policy Assignment), Alerts (Alert Definitions, Symptom Definitions, Notifications, Outbound Settings), Super Metrics, and Logical Groupings. A large blue arrow points from the 'Alert Definitions' section in the 'Alerts' category towards the right-hand table. The table is titled 'Alert Definitions' and has columns for Name, Adapter Type, Object, Alert Type, Alert Subtype, Criticality, Impact, Defined By, Last Modified, and Modified By. It lists 1465 items, with the first few entries shown below:

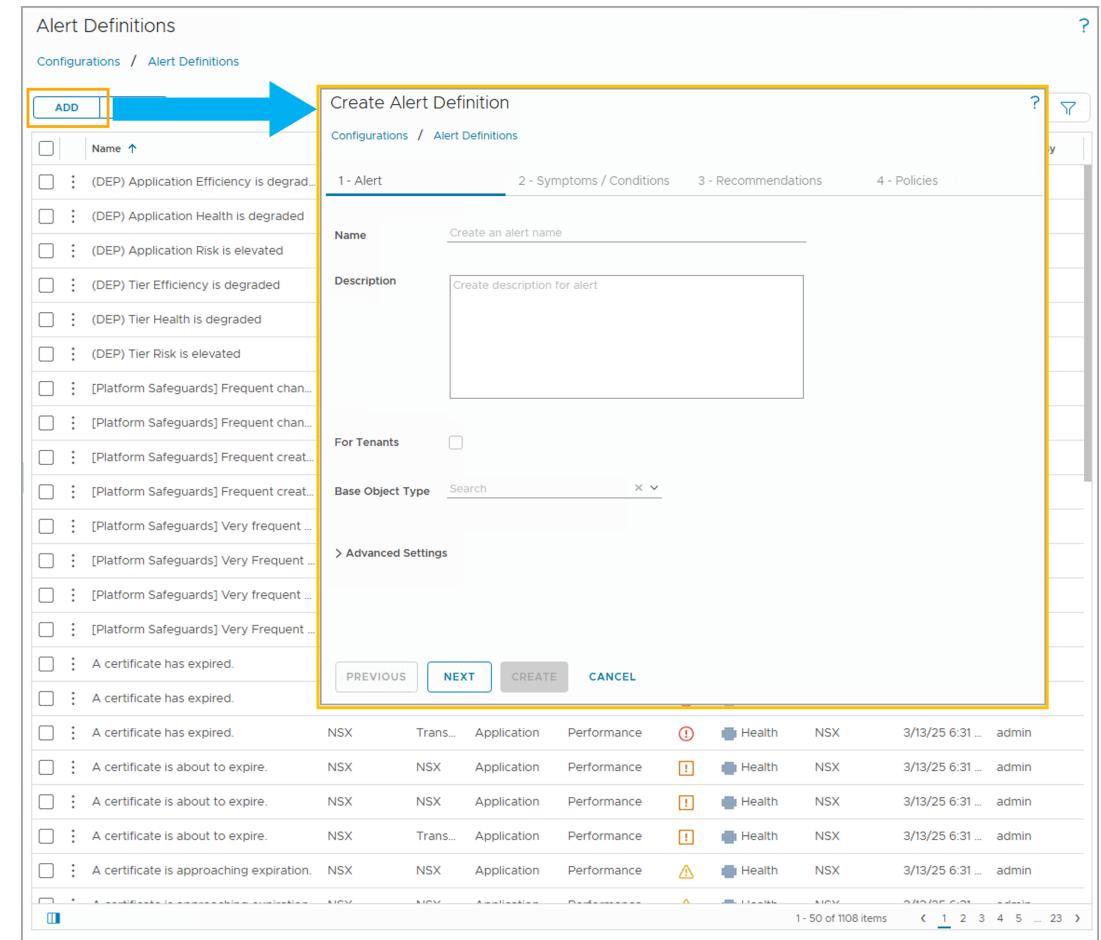
Name	Adapter Type	Object	Alert Type	Alert Subtype	Criticality	Impact	Defined By	Last Modified	Modified By
(DEP) Application Efficiency is degr...	Container	Busin...	Application	Performance	Red	Efficiency	Container	5/10/25 109...	admin
(DEP) Application Health is degra...	Container	Busin...	Application	Performance	Red	Health	Container	5/10/25 109...	admin
(DEP) Application Risk is elevated	Container	Busin...	Application	Performance	Red	Risk	Container	5/10/25 109...	admin
(DEP) Tier Efficiency is degrad...	Tier	Application	Performance	Performance	Red	Efficiency	Container	5/10/25 109...	admin
(DEP) Tier Risk is degraded	Container	Tier	Application	Performance	Red	Health	Container	5/10/25 109...	admin
(DEP) Tier Risk is elevated	Container	Tier	Application	Performance	Red	Risk	Container	5/10/25 109...	admin
[Platform Safeguards] Frequent c...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Frequent c...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Frequent cr...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Frequent cr...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Very Frequ...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Very Frequ...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Very Frequ...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
[Platform Safeguards] Very Frequ...	VCF Oper...	VCF ...	Administrative	Performance	Red	Risk	VCF Oper...	5/10/25 109...	admin
A certificate has expired.	NSX	NSX	Application	Performance	Red	Health	NSX	5/10/25 112...	admin
A certificate has expired.	NSX	NSX	Application	Performance	Red	Health	NSX	5/10/25 112...	admin
A certificate has expired.	NSX	Trans...	Application	Performance	Red	Health	NSX	5/10/25 112...	admin
A certificate is about to expire.	NSX	NSX	Application	Performance	Yellow	Health	NSX	5/10/25 112...	admin
A certificate is about to expire.	NSX	NSX	Application	Performance	Yellow	Health	NSX	5/10/25 112...	admin
A certificate is approaching expira...	NSX	NSX	Application	Performance	Yellow	Health	NSX	5/10/25 112...	admin

Alert Definition Creation Workflow

The alert definition creation process includes adding symptoms that trigger an alert and recommendations that help resolve the alert. To add a new alert definition, click **ADD**.

To create an alert definition, you must complete the following tasks in the Alert Definition Creation wizard and VCF Operations console:

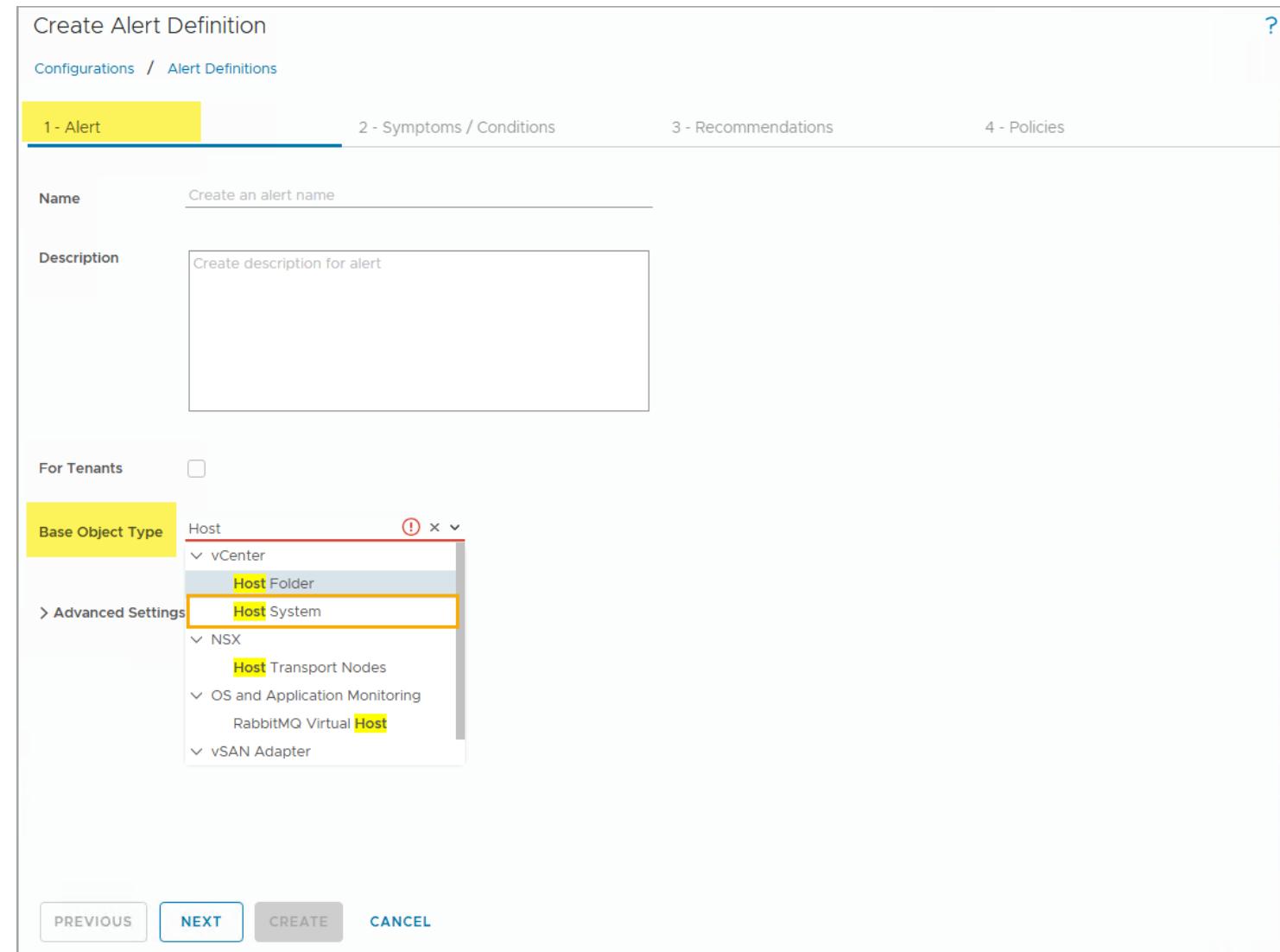
1. Configure an alert name, description, base object type, and advanced settings.
2. Add or create one or more symptom definitions.
3. Add or create one or more recommendations.
4. Specify the policies where the alert is used.
5. Add notifications (completed from **Infrastructure Operations > Configurations > Notifications**).



Selecting the Base Objective Type

The base object is the object around which the alert definition is created. In the example, the base object type is Host System.

The base object types for the alert definition and the symptom definitions need not match. The base object types must be related in the inventory tree.



Advanced Settings: Selecting the Impact of the Alert

To reveal additional Alert Definition settings, you can click **Advanced** to expand more settings.

You use the **Impact** setting to specify the badge with which you associate the alert. The following settings are available:

- **Health:** Alert requires immediate attention.
- **Risk:** Alert must be addressed soon after it is triggered, either in days or weeks.
- **Efficiency:** Alert must be addressed in the long term to optimize your environment.

Create Alert Definition Host System ?

Configurations / Alert Definitions

1 - Alert 2 - Symptoms / Conditions 3 - Recommendations 4 - Policies

Name

Description

For Tenants

Base Object Type Host System x v

Advanced Settings

Impact Health Health Risk Efficiency

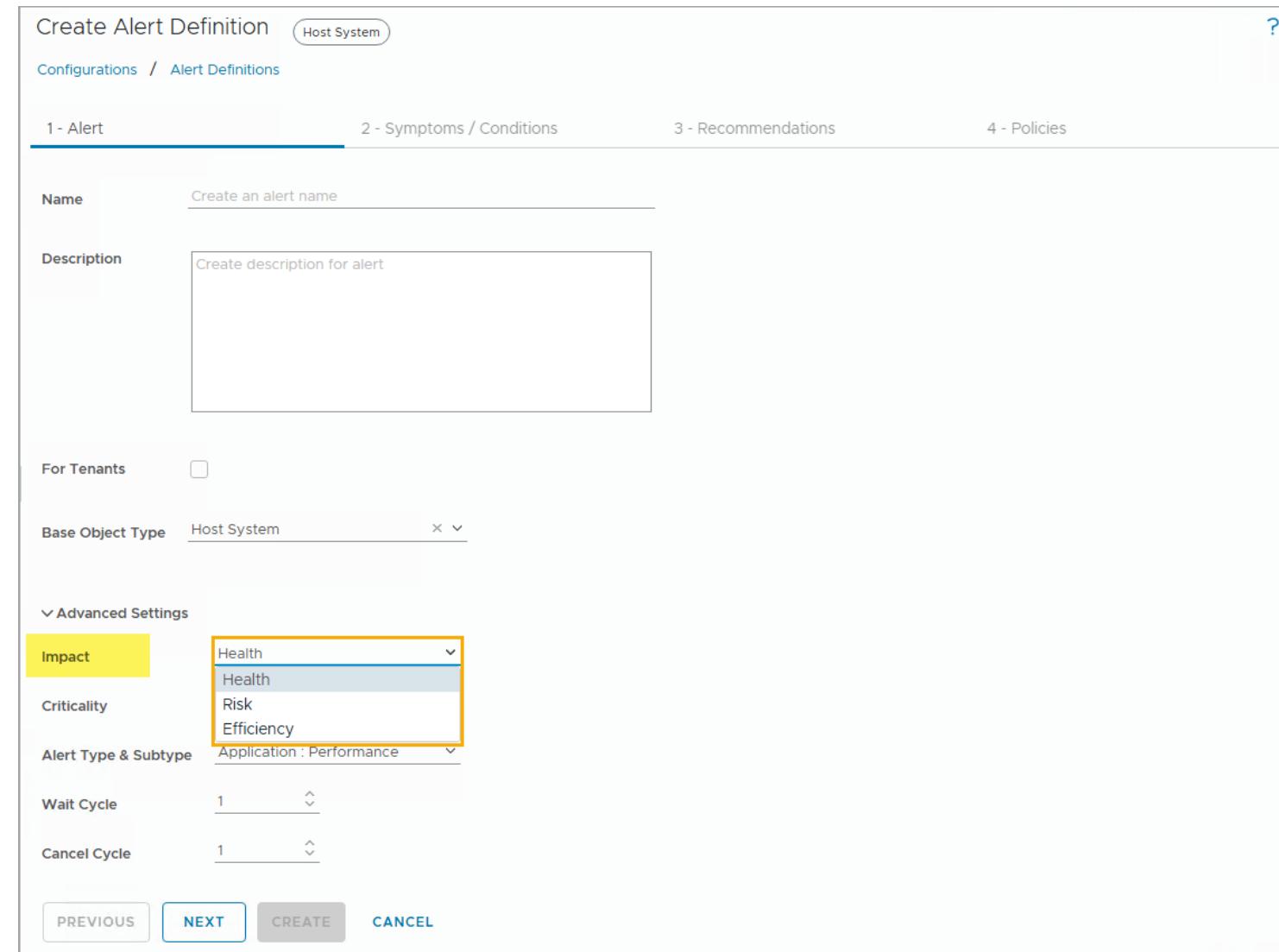
Criticality

Alert Type & Subtype Application : Performance v

Wait Cycle

Cancel Cycle

PREVIOUS NEXT CREATE CANCEL



Advanced Settings: Selecting the Criticality of the Alert

You use the Criticality setting to define the alert severity. The following settings are available:

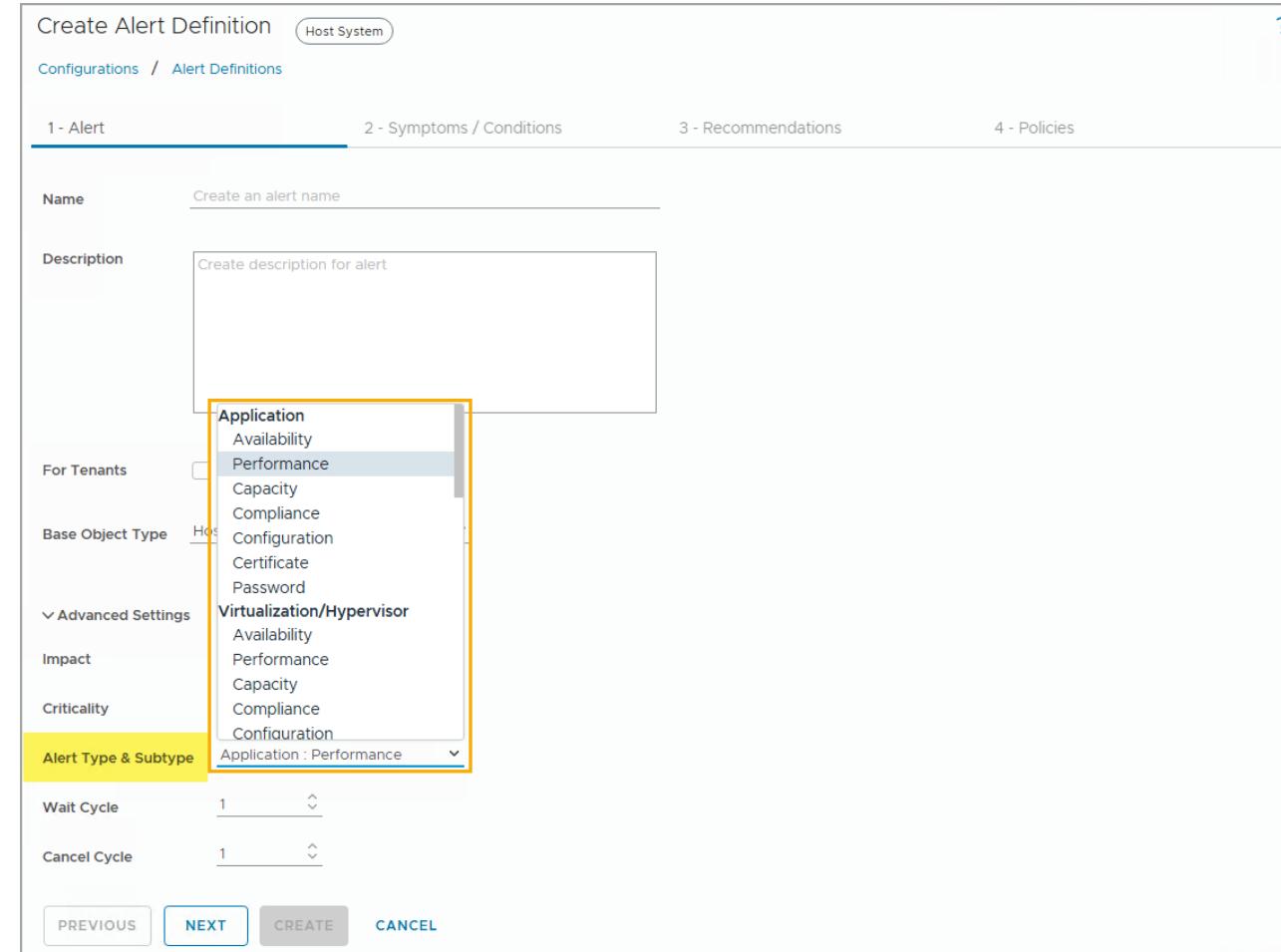
- **Info**
- **Warning**
- **Immediate**
- **Critical**
- **Symptom Based**

Alert criticality determines the **Health**, **Risk**, and **Efficiency** badge colors.

The screenshot shows the 'Create Alert Definition' interface for a 'Host System'. The 'Name' field is empty, and the 'Description' field contains placeholder text. A checkbox for 'For Tenants' is unchecked. The 'Base Object Type' is set to 'Host System'. Under 'Advanced Settings', the 'Impact' dropdown is set to 'Health'. The 'Criticality' dropdown is highlighted in yellow and shows a list of options: 'Symptom Based' (selected), 'Info', 'Warning', 'Immediate', 'Critical', and 'Symptom Based' again at the bottom. The 'Alert Type & Subtype' dropdown is also visible. At the bottom, there are 'PREVIOUS', 'NEXT', 'CREATE', and 'CANCEL' buttons.

Advanced Settings: Selecting the Alert Types and Subtypes

Alert types and subtypes categorize the alert. They are useful when filtering or sorting alerts in the user interface.



Advanced Settings: Configuring the Alert Wait Cycles and Cancel Cycles

The **Wait Cycle** determines when an alert is generated. The symptoms included in the alert definition remain triggered for the number of collection cycles before the alert is generated.

The **Cancel Cycle** determines how long an alert remains active. The alert is not canceled until the number of polling cycles has passed, after the last symptom is detected.

Create Alert Definition Host System

Configurations / Alert Definitions

1 - Alert 2 - Symptoms / Conditions 3 - Recommendations 4 - Policies

Name

Description

For Tenants

Base Object Type x v

▼ Advanced Settings

Impact

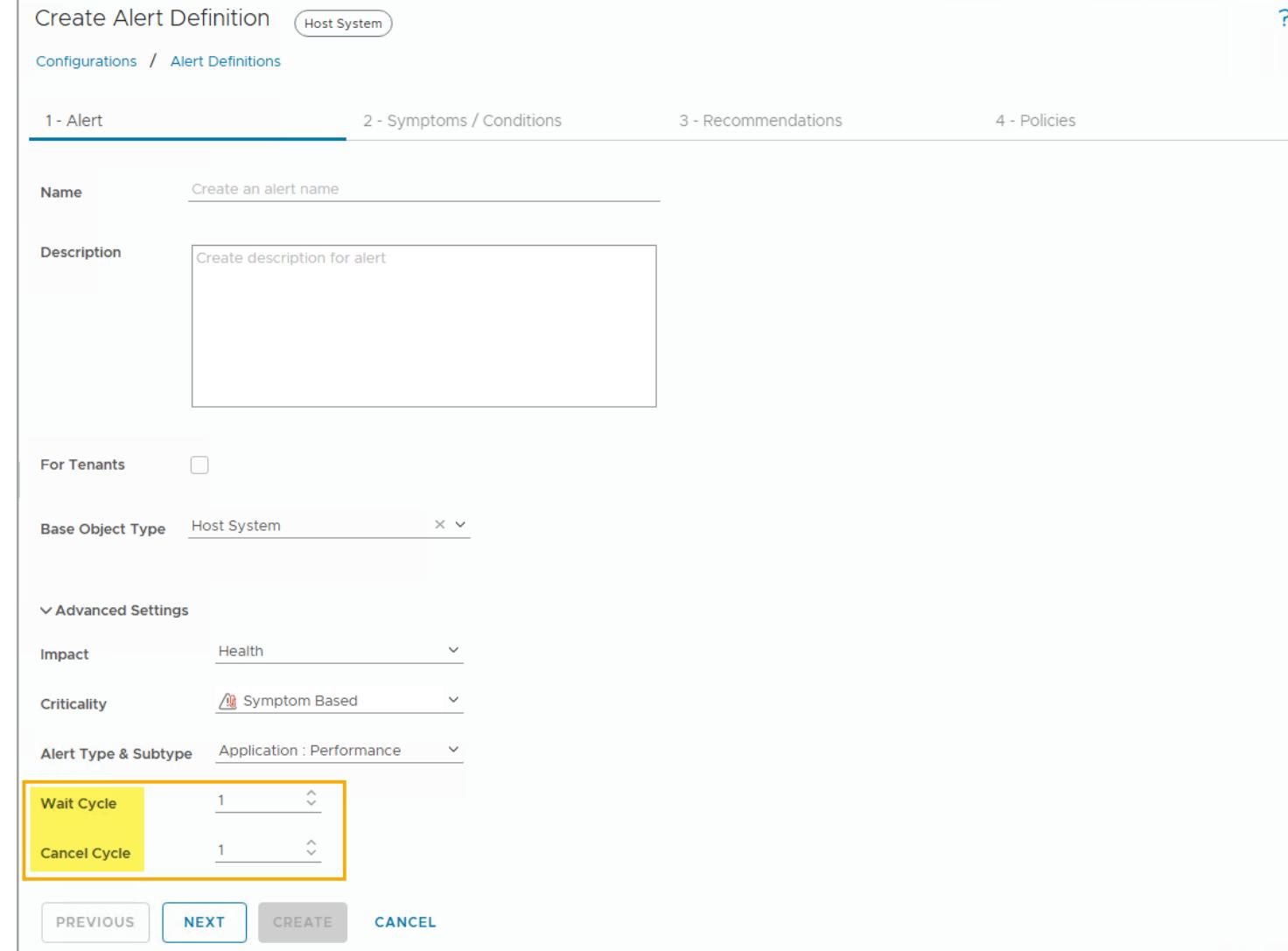
Criticality

Alert Type & Subtype

Wait Cycle

Cancel Cycle

PREVIOUS NEXT CREATE CANCEL



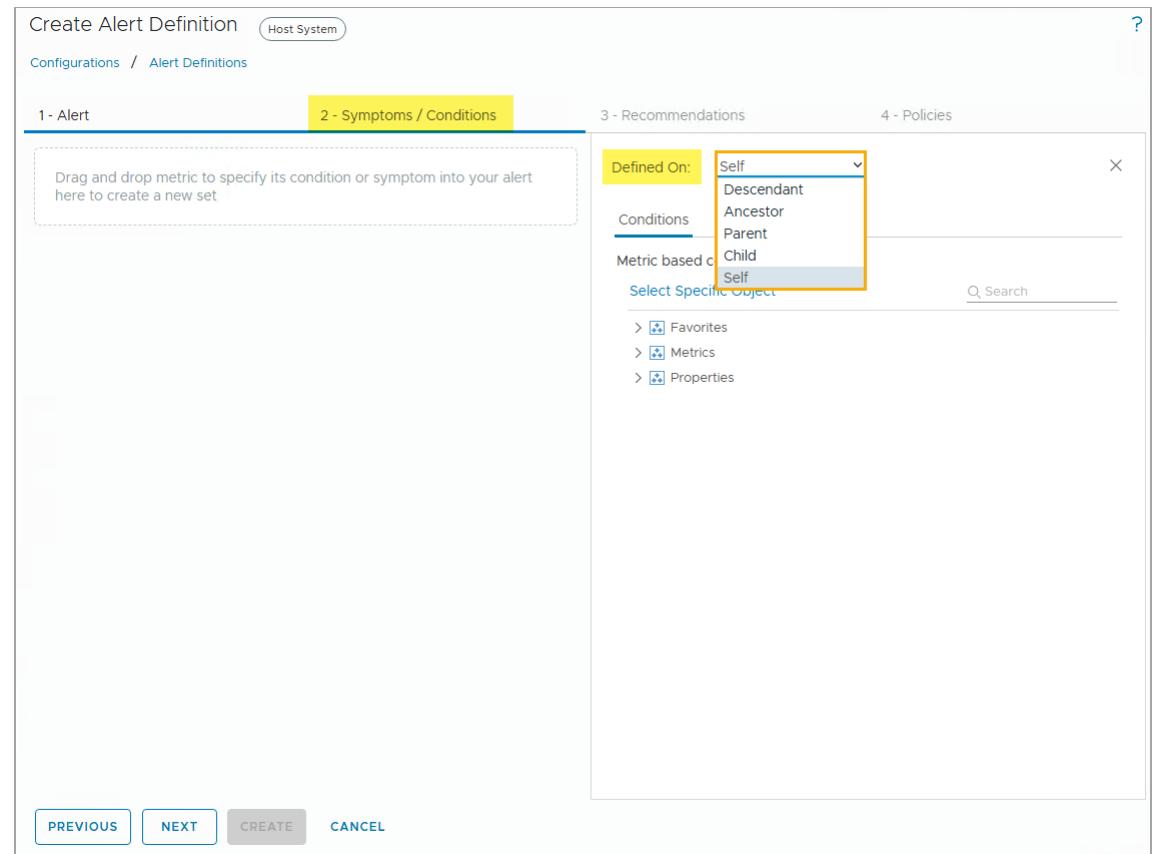
Configuring Alert Evaluation Targets

The **Defined On** option defines the object type that the symptom evaluates.

The following selections are available:

- **Descendant:** N levels down the tree
- **Ancestor:** N levels up the tree
- **Parent:** One level up the inventory tree
- **Child:** One level down the tree
- **Self:** Symptom base object type, same as the alert base object type

If you do not know the relationships, you can go to the **Environment** page to view the inventory tree for that object.



Adding Symptoms to an Alert Definition

An alert definition requires one or more symptoms for an alert definition. To add a symptom, you can drag the desired symptoms from the symptom list to the symptom/condition specification area.

In the example, you can filter the symptom definitions based on child object types of the base object type Host System. Because **Child** is selected, you can add a virtual machine symptom to the alert definition.

Create Alert Definition Host System

Configurations / Alert Definitions

1 - Alert 2 - Symptoms / Conditions 3 - Recommendations 4 - Policies

Defined On: Child Virtual Machine X

Conditions Symptoms

Select Symptom Metric / Property + CREATE NEW SYMPTOM

Type here to apply filters X

	Symptom Name ↑	Criticality	Metric Name
...	(DEP) Virtual machine CPU cont...	!	CPUContention (%)
...	(DEP) Virtual machine CPU cont...	!	CPUContention (%)
...	(DEP) Virtual machine CPU cont...	!	CPUContention (%)
...	(DEP) Virtual machine CPU dem...	!	CPUDemand (%)
...	(DEP) Virtual machine CPU dem...	!	CPUDemand (%)
...	(DEP) Virtual machine CPU dem...	!	CPUDemand (%)
...	(DEP) Virtual machine CPU De...	!	CPUDemand (MHz)
...	(DEP) Virtual machine CPU I/O ...	!	CPUOther Wait (%)
...	(DEP) Virtual machine CPU I/O ...	!	CPUOther Wait (%)
...	(DEP) Virtual machine CPU I/O ...	!	CPUOther Wait (%)

PREVIOUS NEXT CREATE CANCEL

Configuring the Symptom Test Condition

After you add a symptom definition to an alert definition, you must configure the symptom test condition.

You can choose from the following value types:

- **Count:** A specific number of child objects exhibit this symptom.
- **Percent:** A certain percentage of child objects exhibit this symptom.
- **Any:** Any child object can exhibit this symptom.
- **All:** All child objects must exhibit this symptom.

The screenshot shows the 'Create Alert Definition' wizard on the 'Host System' tab, specifically the '2 - Symptoms / Conditions' step. The alert is defined for a 'Child - Virtual Machine'. The symptom set is configured to trigger when more than 50 child virtual machines exhibit a specific condition. The dropdown menu for 'Value Type' is open, showing options: Count, Percent, Any, and All. The 'Percent' option is selected. The alert triggers if CPU Contention (%) is greater than 30, level Critical. Below this, there's a placeholder for dragging additional symptoms. To the right, there are tabs for '3 - Recommendations' and '4 - Policies'. Under 'Conditions', the 'Symptoms' tab is selected. A list of symptoms is shown, including various CPU contention and demand metrics. The table has columns for Symptom Name, Criticality, and Metric Name. The 'CPU|Contention (%)' metric is highlighted in blue. Navigation buttons at the bottom include PREVIOUS, NEXT, CREATE, and CANCEL.

Symptom Name	Criticality	Metric Name
(DEP) Virtual machine CPU co-s...	⚠️	CPU Co-stop (%)
(DEP) Virtual machine CPU cont...	❗	CPU Contention (%)
(DEP) Virtual machine CPU cont...	ⓘ	CPU Contention (%)
(DEP) Virtual machine CPU cont...	❗	CPU Contention (%)
(DEP) Virtual machine CPU cont...	⚠️	CPU Contention (%)
(DEP) Virtual machine CPU dem...	❗	CPU Demand (%)
(DEP) Virtual machine CPU dem...	❗	CPU Demand (%)
(DEP) Virtual machine CPU dem...	⚠️	CPU Demand (%)
(DEP) Virtual machine CPU De...	❗	CPU Demand (MHz)
(DEP) Virtual machine CPU I/O	❗	CPU Other Wait (%)

Adding Conditions to an Alert Definition

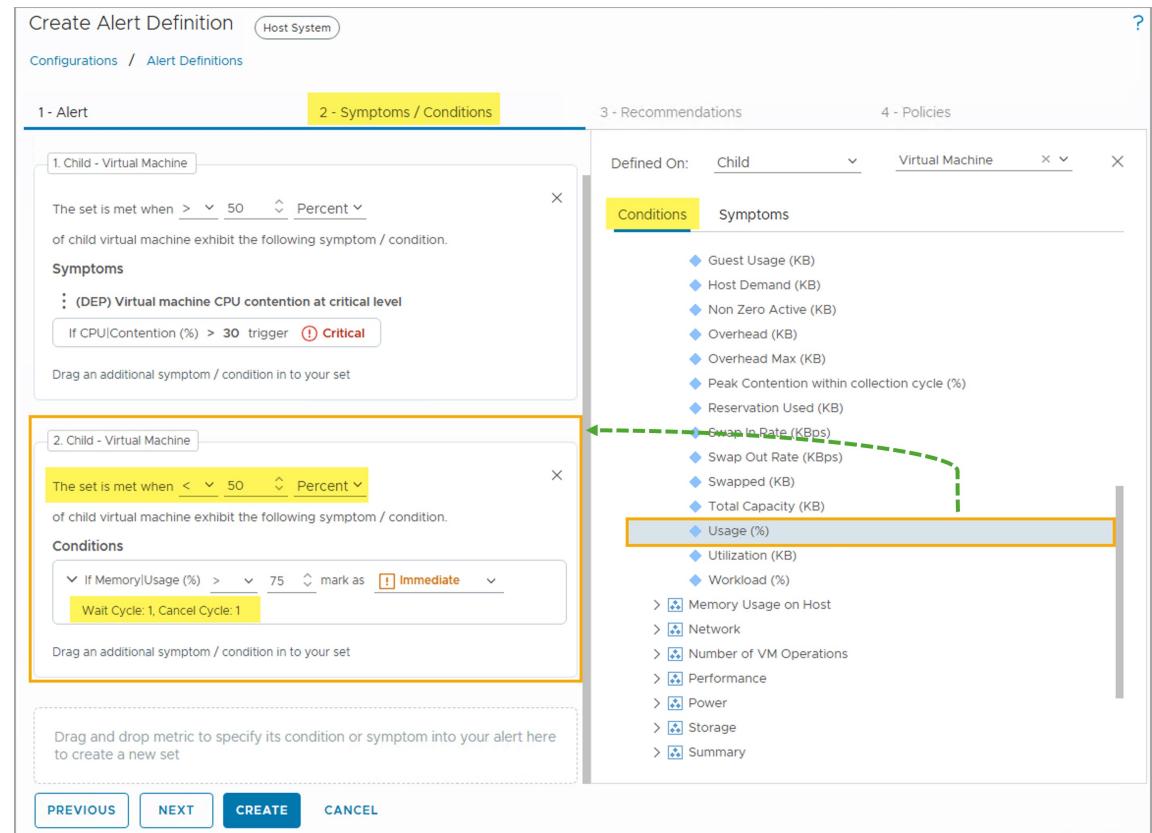
You can combine conditions and symptoms in an alert definition.

To add a condition to the alert definition, click the **Condition** tab and drag any condition you need to the Alert Definition area.

Conditions support static thresholds only and do not have advanced customization options (such as wait, cancel cycle, and instanced metrics). All conditions have a default wait cycle of 1 and a default cancel cycle of 1.

You must configure the test condition, static threshold, and the criticality of the added condition.

When any or all of the conditions and symptom tests are met, the alert is generated.

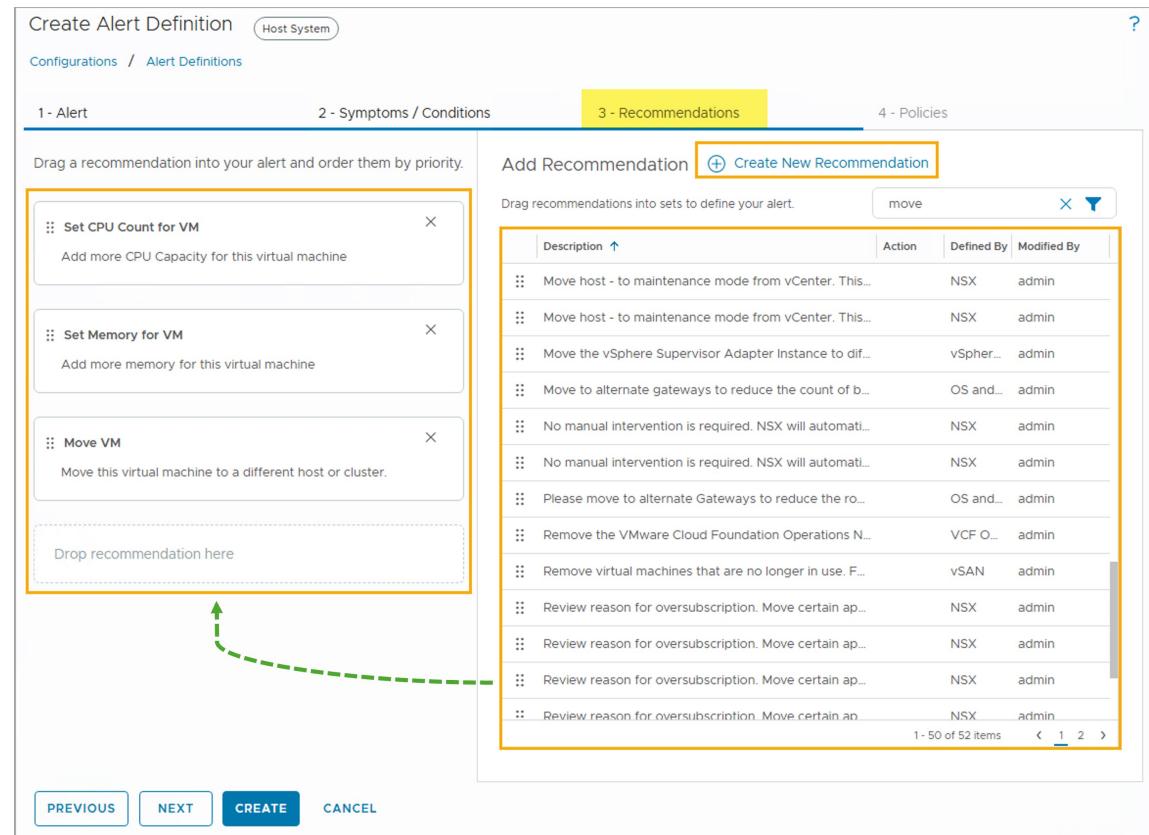


Adding Recommendations to an Alert Definition

Assigning recommendations to an alert definition enables you to provide useful troubleshooting information or resources to alert viewers. Adding recommendations is optional. You can assign zero or more recommendations to the alert definition.

If you add more than one recommendation, you can prioritize the recommendations.

If none of the existing recommendations fits your use case, you can also click **+ Create New Recommendations** to create custom recommendations.

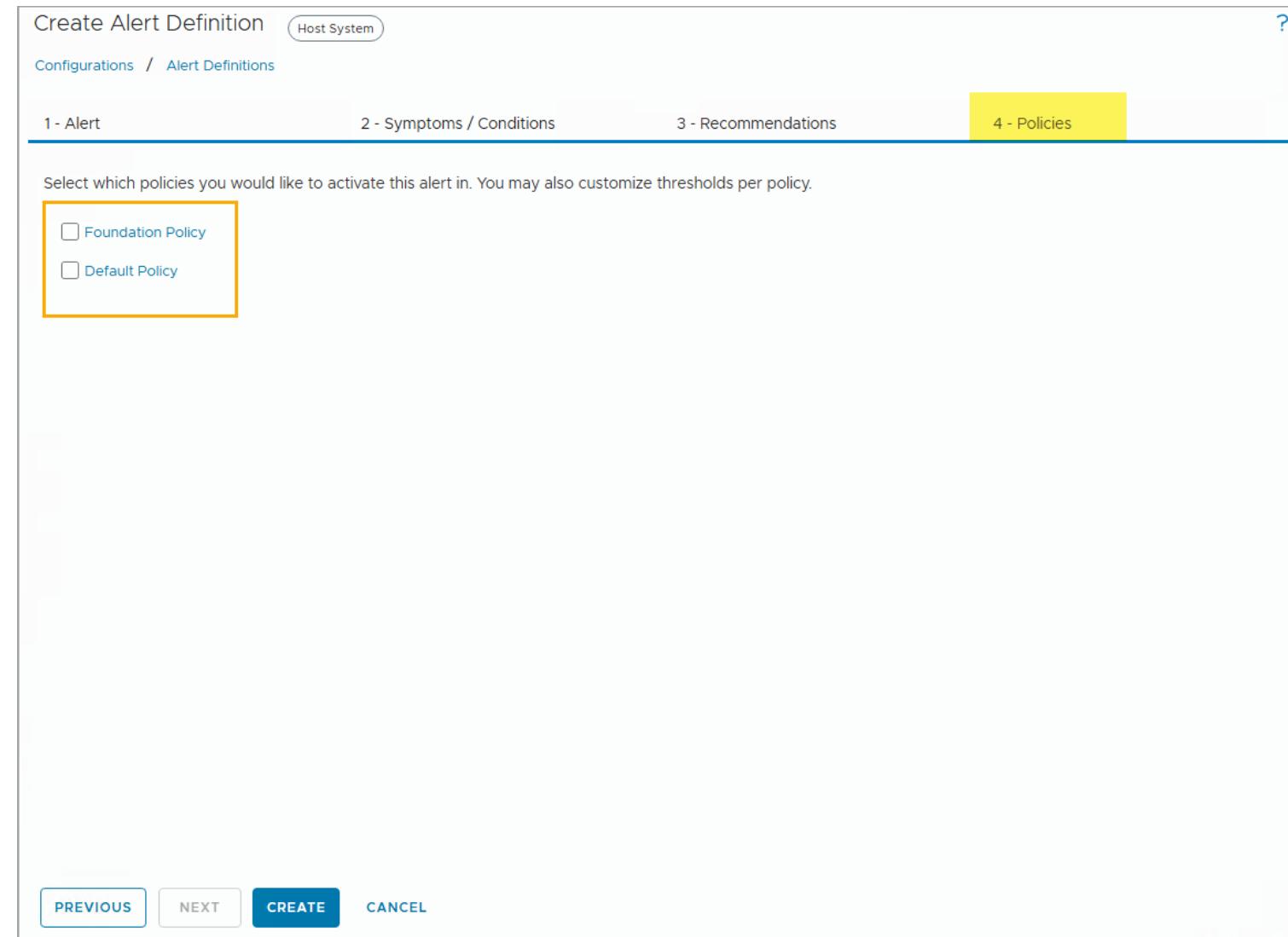


Assigning the Alert Definition to a Policy

You can select the policies in which you want to activate this alert. To associate this alert definition to any policy, select the checkbox beside the policy.

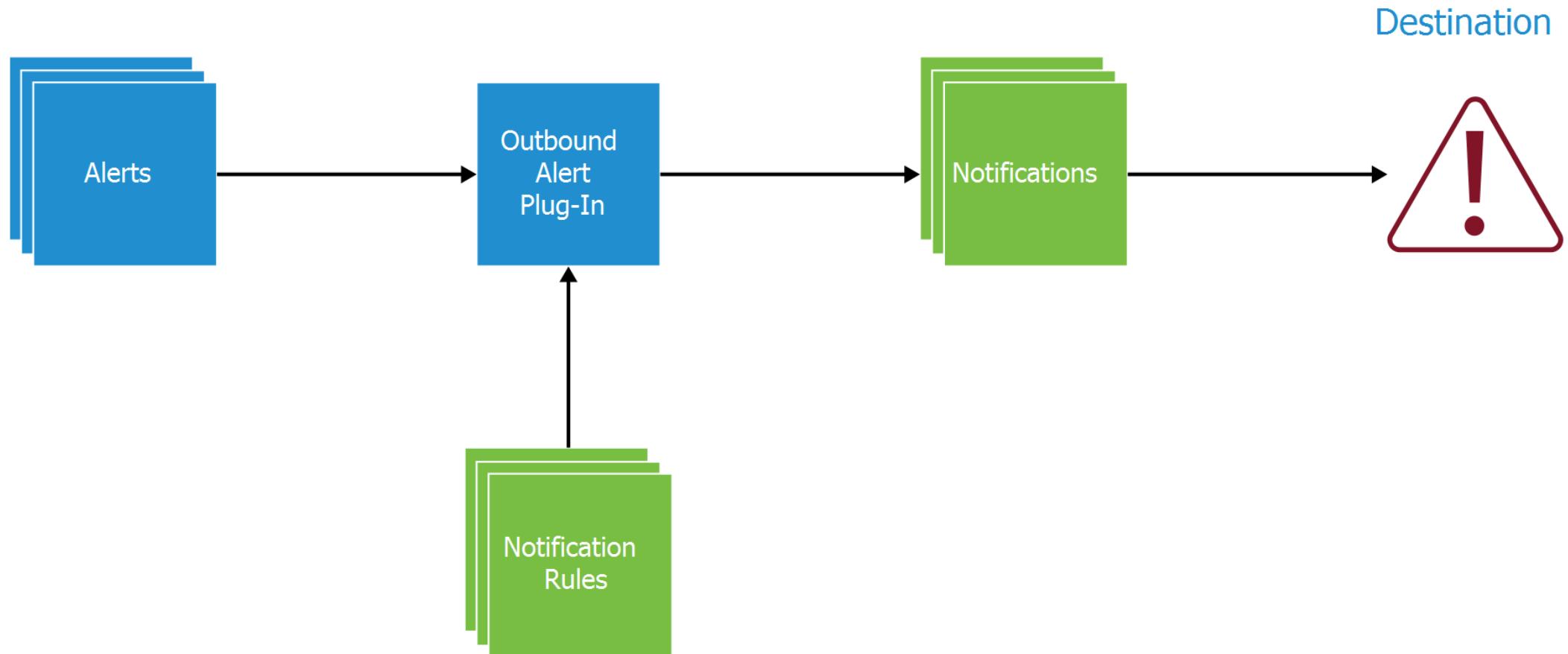
Assigning the alert definition to a policy is optional at the alert definition creation phase.

You can select multiple policies.



Sending Alert Notifications

VCF Operations can send alert notifications to emails and external destination monitoring systems with the help of outbound alert plug-ins.



Outbound Alert Plug-in Types

To send alert notifications externally, you need to configure one or more outbound alert plug-ins. VCF Operations supports several types of outbound alert plug-ins.

Alert Plug-in	Use Case
Standard Email	Email alert notifications to any interested individuals, for example, storage administrators or network operations engineers
SNMP Trap	Logs alerts on an SNMP trap server in your environment
Webhook Notification	Sends outbound payload to any endpoint REST API
Log File	Logs alerts to a file on a VCF Operations instance
Network Share	Sends reports to a shared location
Service-Now Notification	Creates a Service Now incident when an alert is triggered
Slack	Forwards alerts to different Slack channels

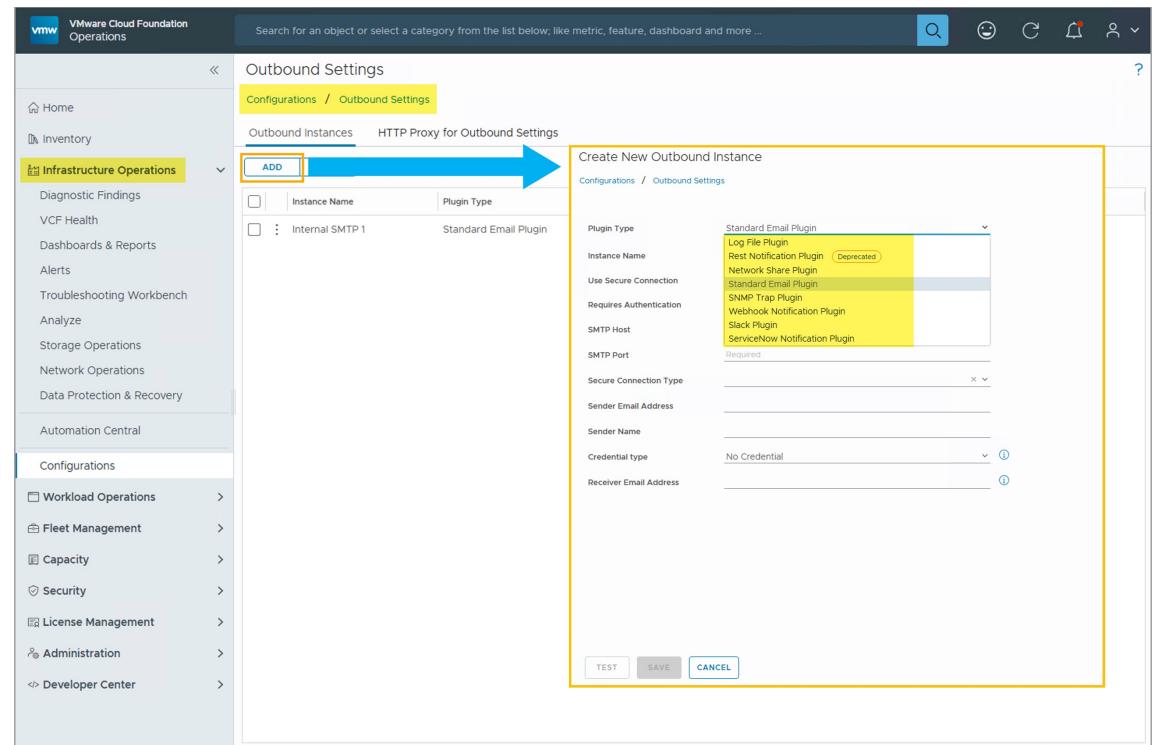
Creating Outbound Alert Plug-In Instances

Outbound Settings is used to manage your communication settings so that you can send information to users or applications external to VCF Operations.

To access the outbound alert plug-in settings, navigate to **Infrastructure Operations > Configurations > Outbound Settings**.

To add a new outbound instance, click **ADD** and complete the following tasks:

1. Select the plug-in type.
2. Provide a plug-in instance name.
3. Configure the settings specific to the outbound instance selected, such as host name, port number, SSL/TLS type, authentication, domain, file share path, and so on.



Configuring the Log File Plug-Ins

The log file plug-in has a simple configuration. You configure an instance name and the name of an existing directory on the VCF Operations node.

To configure the log file plug-in, you specify the output folder on the VCF Operations node.

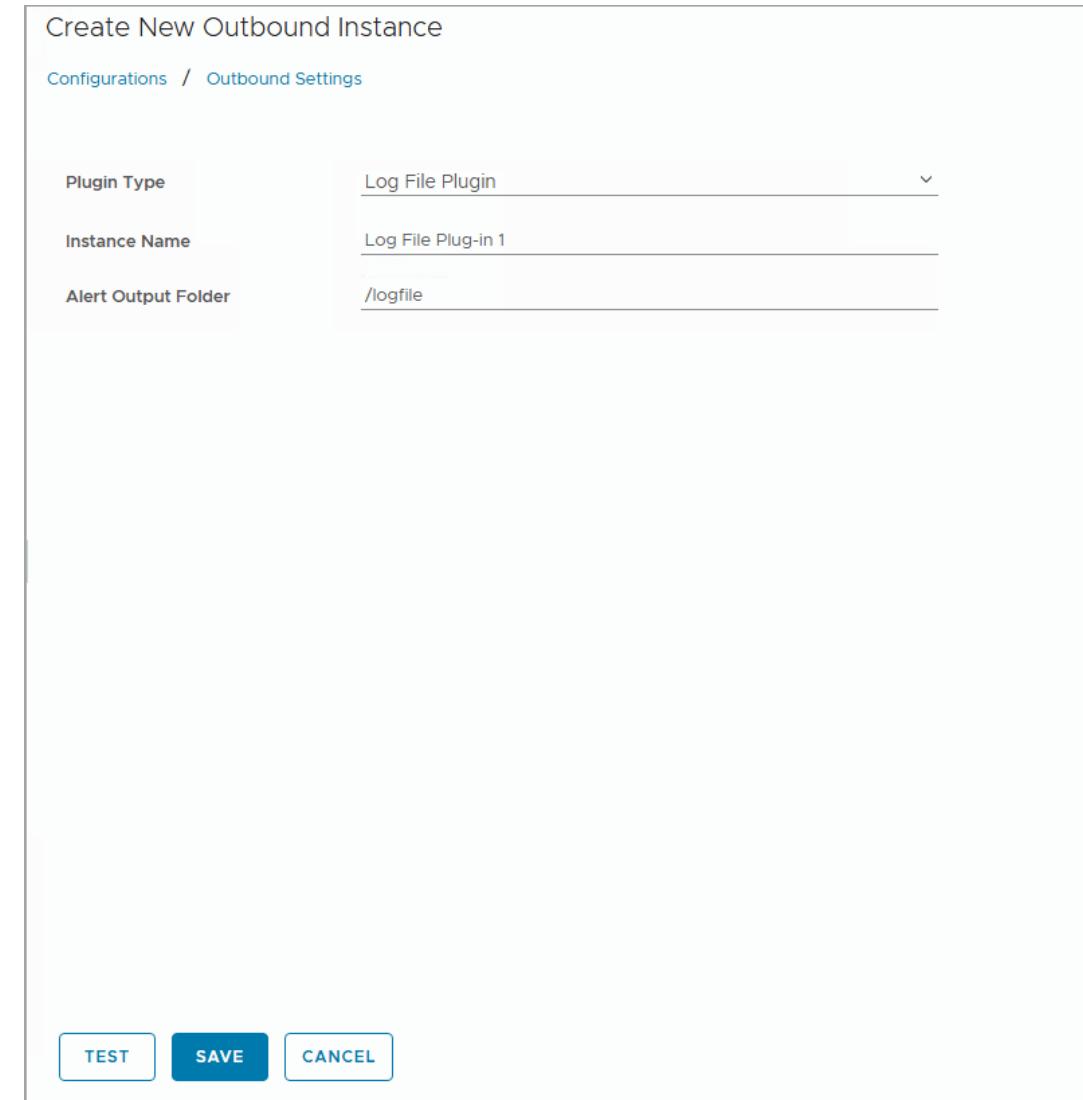
All alerts from the VCF Operations adapter are forwarded to the log file. No rules are required.

Create New Outbound Instance

Configurations / Outbound Settings

Plugin Type	Log File Plugin
Instance Name	Log File Plug-in 1
Alert Output Folder	/logfile

TEST **SAVE** **CANCEL**



Configuring the Standard Email Plug-Ins

With a Standard Email Plug-In, you enable the VCF Operations environment to send alert emails to the designated recipients, such as infrastructure administrators or support desk email lists.

To configure the Standard Email Plug-In, you must gather the following configuration information:

- SMTP host and port
- Secure connection type
- Authentication details
- Sender email and name

You can use a secure connection and require authentication for the Standard Email Plug-In.

Create New Outbound Instance

Configurations / Outbound Settings

Plugin Type	Standard Email Plugin
Instance Name	Internal SMTP Server 2
Use Secure Connection	<input checked="" type="checkbox"/>
Requires Authentication	<input checked="" type="checkbox"/>
SMTP Host	102.10.1.128
SMTP Port	443
Secure Connection Type	TLS
Sender Email Address	no.reply@vmbeans.com
Sender Name	No Reply
Credential type	Basic Authentication
Credential	no.reply@vmbeans.com
Receiver Email Address	admin1@vmbeans.com

TEST **SAVE** **CANCEL**

Creating Notification Rules

Notification rules control how different types of alert notifications are sent to which recipients by what outbound methods.

After creating the alert definitions and adding the outbound alert plug-in instances, you must configure notification rules so that alert notifications can be sent externally.

To create a notification rule, navigate to **Infrastructure Operations > Configurations > Notifications**, click **ADD**, and complete the necessary notification rule settings.

The screenshot shows the 'Notifications' configuration screen with the 'Criteria' tab selected. The top navigation bar includes links for 'Configurations / Notifications', '1 - Notification', '2 - Define Criteria' (which is highlighted in green), '3 - Set Outbound Method', '4 - Select Payload Template', and '5 - Test Notification'. Below the tabs, there are sections for 'Criteria' and 'Object Type'. The 'Criteria' section contains a note: 'The alert triggers on ANY of the selected object types:' followed by a dropdown menu containing 'Virtual Machine'. The 'Object Type' section has a dropdown menu labeled 'Select an Object Type' with a 'CLEAR' link. A hand cursor icon is positioned over the 'Object Type' dropdown. The 'Alert Scope' section allows selecting alerts about specific categories like Application, Virtualization/Hypervisor, Hardware, and Storage. It also includes dropdowns for 'Category', 'Alert Type', 'Criticality' (set to 'Immediate'), and 'Control State' (set to 'All States'). The 'Notify On' section lets users select alert status changes. At the bottom, there are buttons for 'PREVIOUS', 'NEXT', 'CREATE' (which is highlighted in blue), and 'CANCEL'.

Understanding Payload Templates

Payload templates are alert notification message templates that are used when sending an alert notification.

VCF Operations provides a set of default payload templates for various outbound methods, including Email, Log, SNMP Trap, ServiceNow, Slack, WLP Action, and Webhook.

To view existing payload templates and to add new custom payload templates, navigate to **Infrastructure Operations > Configurations > Payload Templates**.

You can also create a customized payload template for alert notifications to meet your needs.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar is titled "Infrastructure Operations" and includes sections for Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery, Automation Central, and Configurations. Under Configurations, there are links to Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area is titled "Payload Templates" and shows a table of existing configurations. The table has columns for Template Name, Description, Object Types, Attached Notifications, Attached Outbound Methods, Modified By, and Last Modified. Seven default payload templates are listed:

Template Name	Description	Object Types	Attached Notifications	Attached Outbound Methods	Modified By	Last Modified
Default Email Template	Description for Default Email...	2	Standard Email...			
Default Log Template	Description for Default Log ...	0	Log File Plugin			
Default SNMP Trap Template	Description for Default SNM...	0	SNMP Trap Plu...			
Default ServiceNow Template	Description for Default Serv...	0	ServiceNow No...			
Default Slack Template	Description for Default Slac...	0	Slack Plugin			
Default WLP Action Webhook	Description for Default WLP...	0	Webhook Notif...			
Default Webhook Template	Description for Default Web...	0	Webhook Notif...			

Review of Learner Objectives

- Configure a custom alert using the Create Alert Definition workflow
- Add symptoms, conditions, and recommendations to an alert definition
- Create notifications for a custom alert definition

Managing Alerts



Learner Objectives

- Examine and manage triggered alerts

Viewing Alerts in VCF Operations

All alerts generated in the environment are grouped and listed on the **Alerts** page in the VCF Operations console. To view the **Alerts** page, navigate to **Infrastructure Operations > Alerts**.

The **Alerts** page provides the following options to help you group and locate alerts:

- **Group By:** You can change how alerts are grouped and displayed based on criteria such as Criticality, Definition, Object Type, and so on.
- **Filter:** You can use filter options to only view alerts that match certain criteria such as owner, alert types, impact, and so on.

To view the generated alerts, click the **Expand** button next to each alert group.

The screenshot shows the VMware Cloud Foundation Operations console with the 'Alerts' page selected. The left sidebar lists various operational domains. The main pane displays a list of alerts, with one alert expanded to show its details. The 'Group By' dropdown is highlighted, and a specific item in the dropdown menu is also highlighted. The alert list includes columns for criticality, alert type, triggered on, status, created on, alert type, alert subtype, and importance.

Criticality	Alert	Triggered On	Status	Created On	Alert Type	Alert Subtype	Importance
Medium	After one additional host failure, vSAN Cluster will not have enough resources to rebuild all objects.	vSAN Cluster(EDU-cl01)	Active	4/17/25 8:12 AM	Storage	Capacity	Medium (40%)

Examining Alert Details

On the **Alerts** page, you can click any alert to view the details of the selected alert.

On the alert details view, you can easily access the following information:

- Object name
- Alert definition triggered
- Recommendations
- Alert basis
- Related alerts
- Potential evidence
- Notes

The screenshot shows the 'All Alerts' page with a specific alert selected. The alert is for 'After one additional host failure' on 'vSAN Cluster(EDU-cl01)'. The alert details view includes sections for 'Recommendations' (link to VMware KB 2108743), 'Alert Basis' (1. Self - vSAN Cluster, any), 'Symptoms' (Critical symptom: Check of the vSAN component limits, disk space and RC reservations assuming one host failure, resulted in error. Observed on vSAN Cluster(EDU-cl01)), and 'Notes' (text input field). The alert is categorized under 'Storage Capacity'.

Taking Actions on an Alert

To view the available actions that you can take towards an alert, select an alert and click **Actions**.

You can use the following available actions to manage a selected alert:

- Cancel Alert
- Delete Canceled Alerts
- Suspend
- Assign to ...
- Take Ownership
- Release Ownership
- Go to Alert Definition
- Deactivate

The screenshot shows the 'All Alerts' interface in the vSphere Web Client. A context menu is open over a specific alert for 'LogInsightAdapter'. The menu items listed are: Cancel Alert, Delete Canceled Alerts, Suspend, Assign to ..., Take Ownership, Release Ownership, Go to Alert Definition, and Deactivate... . The alert itself is titled 'LogInsightAdapter' and describes a 'health is degraded' issue.

Criticality	Alert	Triggered On	Status	Created On	Alert Type	Alert Subtype	Importance
<input checked="" type="checkbox"/>	Adapter instance object has error status	sa-m01-sup	!	4/17/25 8:07 AM	Administrative	Availability	Medium (40%)

Accessing Object Details View from an Alert

From the alert details view, you can click the object name to access the object details view.

The screenshot illustrates the process of navigating from an alert to its corresponding object details view. In the top-left corner, the 'All Alerts' interface is shown, listing various alerts. One specific alert, 'After one additional host failure, vSAN Cluster will not have enough resources to rebuild all objects.', is highlighted with a yellow box and a blue arrow pointing down to its object details view. The object details view, also highlighted with a yellow box, provides detailed information about the vSAN Cluster(EDU-cl01), including its configuration, capacity summary, and health score. The 'Active Alerts' section shows the current status of the cluster across different categories.

All Alerts

Alerts Administrative Alerts Intelligent Alerts

ACTIONS ▾ | Group By Definition

Status: Active

View Description

vSAN Cluster(EDU-cl01)

After one additional host failure, vSAN Cluster will not have enough resources to rebuild all objects.

Started on: Apr 17, 2025 8:12:13 AM | Assigned To: admin

Inventory BASIC VIEW

All Objects

Levels 7

1 - 1 of 1 items

1. vSAN Adapter Instance

1. Environment

1. VMware Cloud Foundation

1. Cluster Compute Resource

1. VCF World

1. vCenter

1. vSAN World

1. Universe

1. vSphere World

1. Supervisor Cluster

1. Datacenter

1. VCF Domain

1. NSX

1. NSX World

1. vSAN Cluster

vSAN Cluster(EDU-cl01)

Object Type: vSAN Cluster

TROUBLESHOOT POLICY

Active Alerts

Critical: Self 1 / All 1

Immediate: Self 0 / All 0

Warning: Self 4 / All 10

Info: Self 0 / All 0

Config: All-flash

Space Efficiency: None

ESXi: 4

Virtual Machine: 11

Disk Group: 4

Capacity Disk: 20

Remote Datastores: 0

Client Clusters: 0

Client Virtual Machines: 0

Capacity Summary

Total Capacity: 1,999.84 GB

Used Capacity: 1,583.9 GB

Remaining Capacity: 415.94 GB

Percentage Remaining: 20.8 %

vSAN Health Score: 90%

Health Score Trend

DAILY WEEKLY MONTHLY

Critical Alerts

Status Occurred On Category Impact

Accessing Troubleshooting Workbench for an Object

From the object details view, you can click **TROUBLESHOOT** to access the **Active Troubleshooting** session page for this object.

The screenshot shows the vSAN Cluster(EDU-cl01) details view. At the top, there are tabs for Summary, Metrics, Logs, Alerts, Topology, Capacity, and Environment. The Summary tab is selected. In the top right corner, there is a 'TROUBLESHOOT' button, which is highlighted with a yellow box and a blue arrow pointing down to the Active Troubleshooting section. The 'TROUBLESHOOT' button has a tooltip 'TROUBLESHOOT' above it. Below the tabs, the object type is listed as 'vSAN Cluster' and the context is 'vSAN Cluster(EDU-cl01)'. The 'Selected Scope' dropdown is set to 'All Objects'. On the left, there is a sidebar with sections for Capacity, Performance, and vSAN Health. The 'vSAN Health' section shows a summary of 1 issue. The main content area is titled 'Troubleshooting Workbench' and 'Active Alerts'. It includes tabs for Potential Evidence, Alerts, and Metrics. Under 'Potential Evidence', there are three cards: 'Events' (No events found), 'Property Changes' (Shows a log entry for a protocol link layer discovery port description change from port 19 to 18 on dvSwitch EDU-cl01-vds01 to dvSwitch EDU-cl01-vds01 at 2:13:06 AM), and 'Anomalous Metrics' (Shows a graph of vSAN Disk Space/Disk Space Used (%) for esxi-4.vcf.sddc.local, with values fluctuating between 79.05% and 79.08% over the time range 03:00 AM to 09:00 AM). Below these cards, there are two more cards: 'vSAN Cluster(EDU-cl01)' (Shows a log entry for a protocol link layer discovery port name change from 00:50:56:01:29:a6 to 00:50:56:01:29:a7 at 6:28:26 AM) and 'esxi-1.vcf.sddc.local' (Shows a graph of Summary/Worst VM Disk Latency (ms) for esxi-1.vcf.sddc.local, with values fluctuating between 0 and 10 ms over the same time range). At the bottom, there is a table for 'Critical Alerts' with columns for Status, Occurred On, Category, and Impact.

Lab: Creating Custom Alert Definitions

Create a virtual machine alert and a host alert:

1. Configure a Virtual Machine Alert
2. Test the Custom Alert Definition
3. Manage Generated Alerts
4. Create a Log File Plug-In Instance

Review of Learner Objectives

- Examine and manage triggered alerts

VCF Health and Diagnostics

Importance

With VCF Operations diagnostics, you can quickly diagnose and address issues to minimize their impact and improve operational efficiency, security, and reliability of your VCF platform.

You can discover and remediate known issues, and monitor the operational state of the private cloud infrastructure in VCF Operations Diagnostics.

VCF Health and Diagnostics



Learner Objectives

- Outline the role of VCF Health and Diagnostics
- Describe the Diagnostic Findings feature
- Describe the VCF Health feature
- Monitor the operational state of VCF Instances
- Explain Troubleshooting Workbench
- Enable support teams with full context using Log Assist

VCF Health and Diagnostics

VCF Health and Diagnostics provides an In-Product experience to discover, troubleshoot, and remediate issues.



- Curated Findings from VCF Operations Diagnostics
- Remediate based on curated recommendations



- Discover if features work as expected
- Remediate based on action recommendations



- Upload log bundles with full context for faster support engagement

About VCF Health

VCF Health is effectively a consolidated view of your VCF deployment where you can proactively monitor the operational state of your VCF stack.

The structure of VCF Health enables you to navigate the hierarchy from a management domain to its workload domains, vCenter and NSX instances, vSAN clusters, and ESX hosts.

The VCF Health screens cover the top support ticket drivers, such as expiration of certificates, to avoid support requests, eliminate downtime, and increase resilience.

The screenshot shows the VCF Health interface. At the top, there are two navigation tabs: "VCF VIEW" (highlighted with a blue border) and "COMPONENT VIEW". To the right, there are "Findings" status indicators (0 Critical, 1 Warning, 0 Minor) and links for "CHECK FINDINGS" and "?".

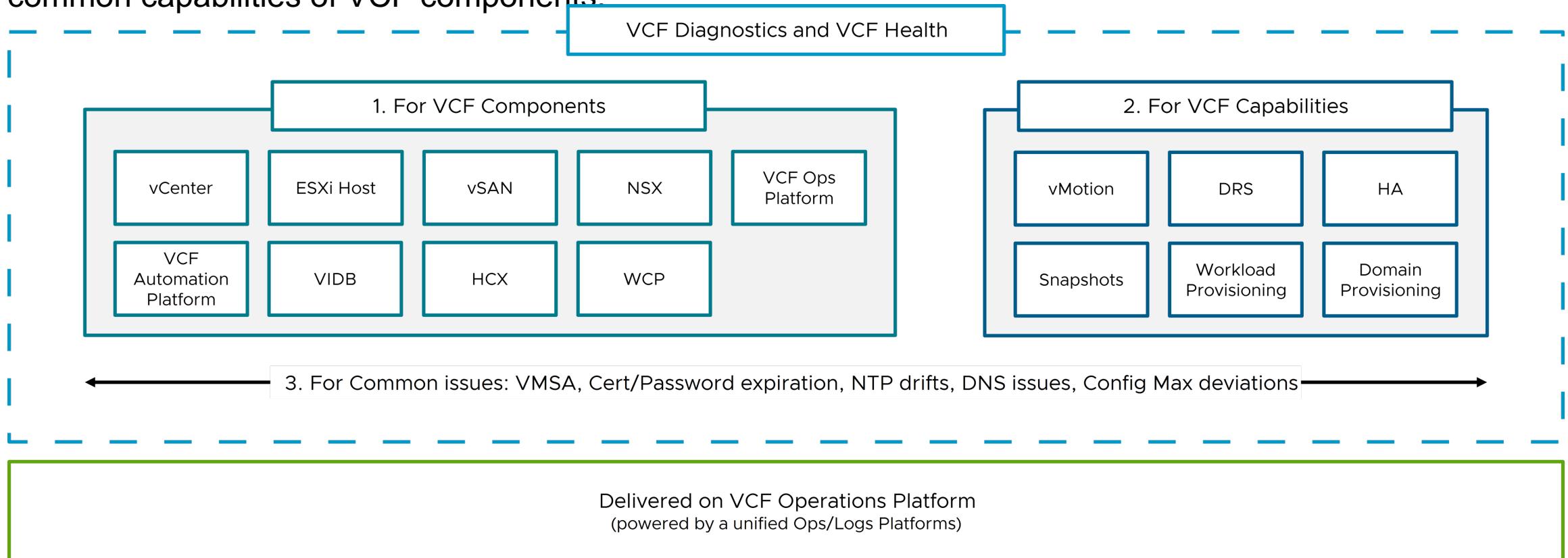
The main area is divided into sections:

- Summary**: Displays counts for various components:
 - VCF Instances: 1 (1 Critical)
 - ESX Hosts: 8
 - vCenter Instances: 2
 - vSAN Clusters: 2 (1 Critical)
 - NSX Instances: 2
- VCF Instances**: A table showing details for the single VCF instance named "EDU".

Name	Status	Objects with Critical Issues	ESX Host	vCenter	vSAN Cluster	NSX
EDU	Critical	1	8	1	1	2

Unified Health and Diagnostics for VCF

Diagnostics for VMware Cloud Foundation is designed to help you analyze and troubleshoot the most common capabilities of VCF components.



Setting Up and Maintaining VCF Operations diagnostics

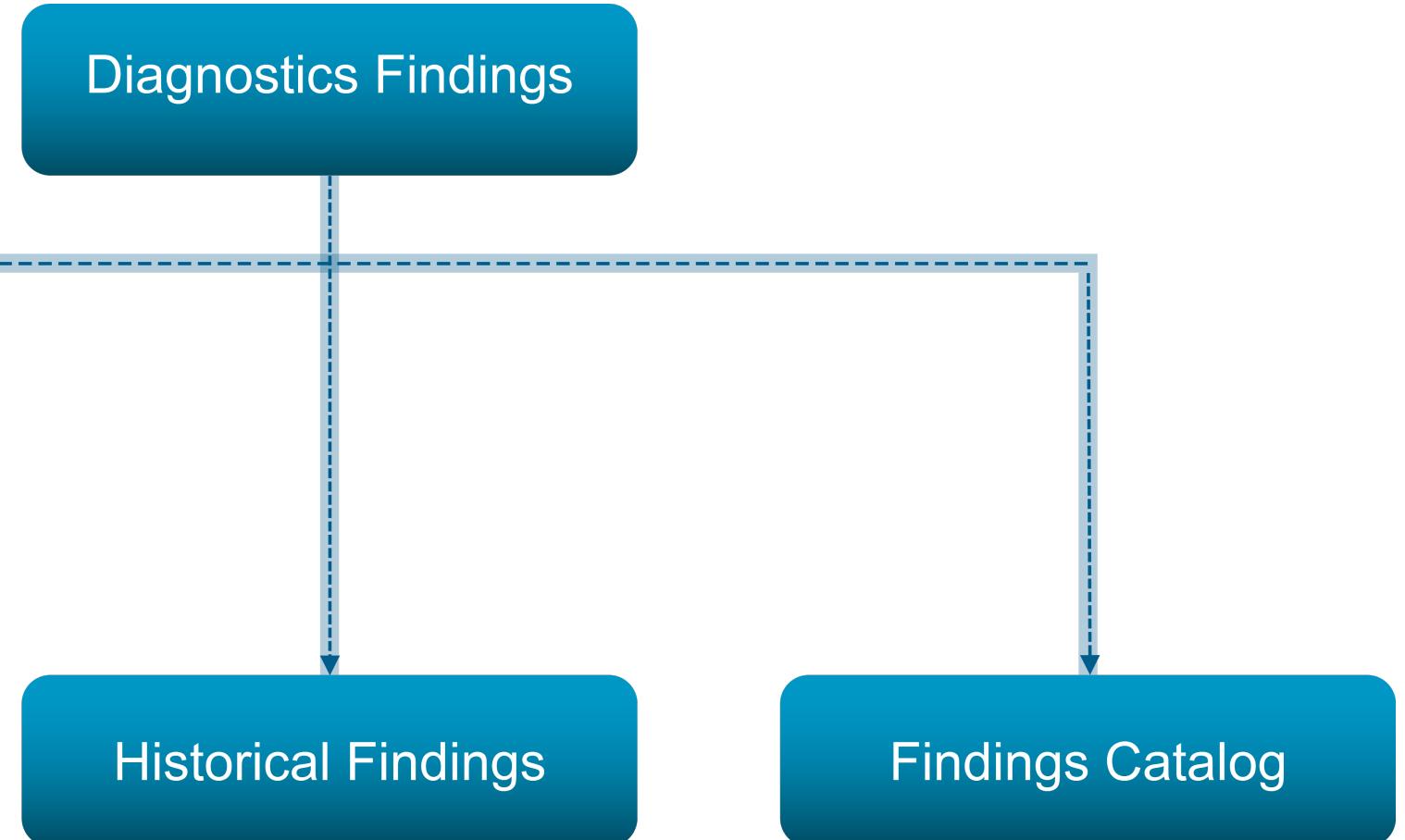
You complete VCF Operations diagnostics for your VCF environment by installing and configuring VCF Operations for logs and setting up integration between components.

VCF Health works solely on systems deployed by using the VCF Installer and requires a VCF license:

- The Diagnostic Findings capability has no license dependency and works on both VMware vSphere Foundation and VCF.
- You can apply only the diagnostic capabilities relevant to your setup.

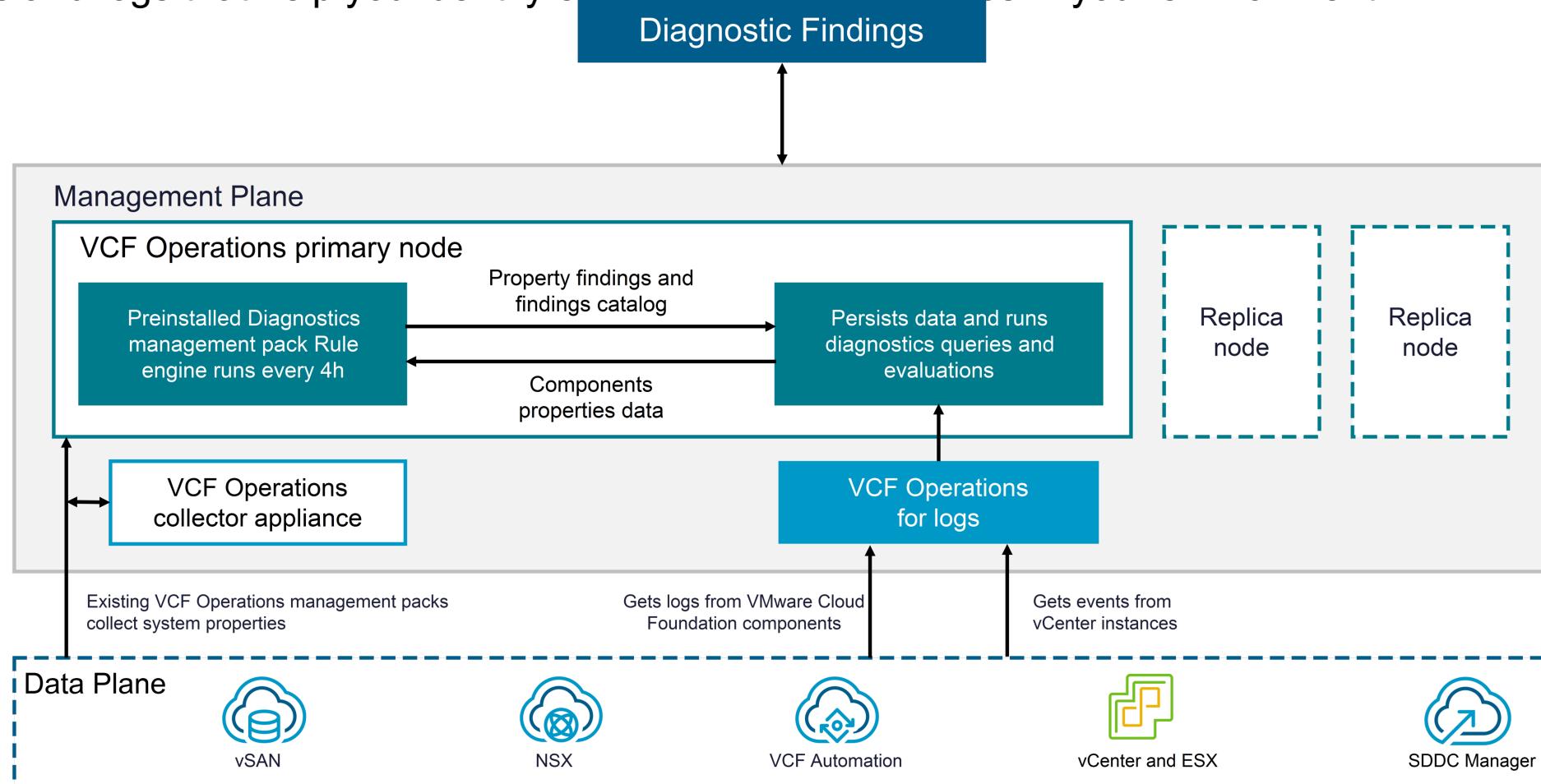
About Diagnostic Findings

Diagnostic Findings consolidates a list of log and property-based findings with specific resolution, also called diagnostic rules or signatures.



Architecture Diagram and Data Flow of Diagnostic Findings

Diagnostics Findings collects data from all VMware Cloud Foundation platform components such as properties and logs that help you identify existing or potential issues in your environment.



Active Findings

Checks against property-based signatures run every 4 hours, scanning your VCF environment. Within 24 hours, whenever a condition in your setup matches a signature, it appears in the Active Findings grid.

VMware Cloud Foundation Operations

Search for an object or select a category from the list below; like metric, feature, dashboard and more ...

LOG ASSIST ?

Home

Inventory

Infrastructure Operations

- Dashboards & Reports
- Alerts
- Troubleshooting Workbench
- Analyze
- Storage Operations
- Network Operations
- Data Protection & Recovery

Diagnostic Findings

Active Findings

Historical Findings

Findings Catalog

REFRESH FINDINGS

Overview

Diagnostic Findings (0 Critical, 2 Immediate, 1 Warning)

Security Advisory Findings (No Current Findings)

Best Practice Findings (0 Critical, 3 Immediate, 0 Warning)

Total per finding subtype (2 Availability, 1 Pre-Upgrade Checks, 3 Operation Diagnostics)

Total per component (1 vCenter, 5 ESXi Hosts)

Showing 6 Findings

Finding	Description	Severity	Finding Type	Subtype	Refresh	Check Last Run	Affected Objects
ESX_RemoteSysLogRule_KB_318...	Remote logging both per...	Immediate	Best Practice	Operation Diagnos...	Auto	Apr 8, 2025, 11:12:58 PM	5
vCenter_vCLSandDRS_KB_317709	DRS functionality impacte...	Immediate	Diagnostic	Availability	Auto	Apr 8, 2025, 11:12:58 PM	1
ESX_ActivateHA_KB_318069	Use vSphere HA to prote...	Immediate	Best Practice	Operation Diagnos...	Auto	Apr 8, 2025, 11:12:58 PM	1
ESX_vMotionTCPPort_KB_321012	vMotion TCP/IP port 800...	Immediate	Diagnostic	Operation Diagnos...	Auto	Apr 8, 2025, 11:12:58 PM	5
ESX_VMMonitoring_KB_318068	Enable VM Monitoring for...	Immediate	Best Practice	Availability	Auto	Apr 8, 2025, 11:12:58 PM	2
ESX_execInstalledOnly_KB_318467	vSphere ESXi with execut...	Warning	Diagnostic	Pre-Upgrade che...	Auto	Apr 8, 2025, 11:12:58 PM	5

Historical Findings

Diagnostic Findings collects data from all VCF components, such as events, properties, and logs, which help you identify existing or potential issues in your environment.

The screenshot shows the Diagnostic Findings interface with the following details:

- Top Navigation:** LOG ASSIST ?
- Tab Selection:** Active Findings, **Historical Findings** (highlighted with an orange box), and Findings Catalog.
- Status Bar:** Historical Findings, GENERATE FINDINGS, 2% completed.
- Left Sidebar:** Findings are produced, Filters, Finding, Inventory, Components, Capabilities, Type, Subtype, Refresh, Severity, Description.
- Central Content:**
 - Header:** Historical Findings
 - Description:** Historical Findings evaluate log-based signatures for a specified time in the past. To view historical findings, click Generate Findings and enter the start and end dates.
 - Note:** If the historic logs do not indicate a possible cause of the issue you are investigating, refer back to the property-based active findings that refresh every 4 hours.
 - Note:** You can trigger just one historical finding request at a time and results from each request overwrite the results from the previous run.
- Table Headers:** Description, Severity, Finding Type, Subtype, Refresh.
- Message:** No Relevant Findings (accompanied by a funnel icon).
- Bottom Buttons:** APPLY, CLEAR ALL, Manage Columns, and a status bar indicating No Relevant Findings.

Findings Catalog

Findings Catalog lists potential issues that can impact your environment. Each finding provides guidance for remediation.

The screenshot shows the VMware Findings Catalog interface. At the top, there are tabs: Active Findings, Historical Findings, and Findings Catalog, with the latter being the active tab. A callout box points to the 'Findings Catalog' tab with the text: 'View the list of the findings checked against your environment'.

The left sidebar contains a 'Filters' section with the following options: Finding, Components, Capabilities, Type, Subtype, Refresh, Severity, and Description. There are 'APPLY' and 'CLEAR ALL' buttons at the bottom of the sidebar.

The main area displays a table of findings:

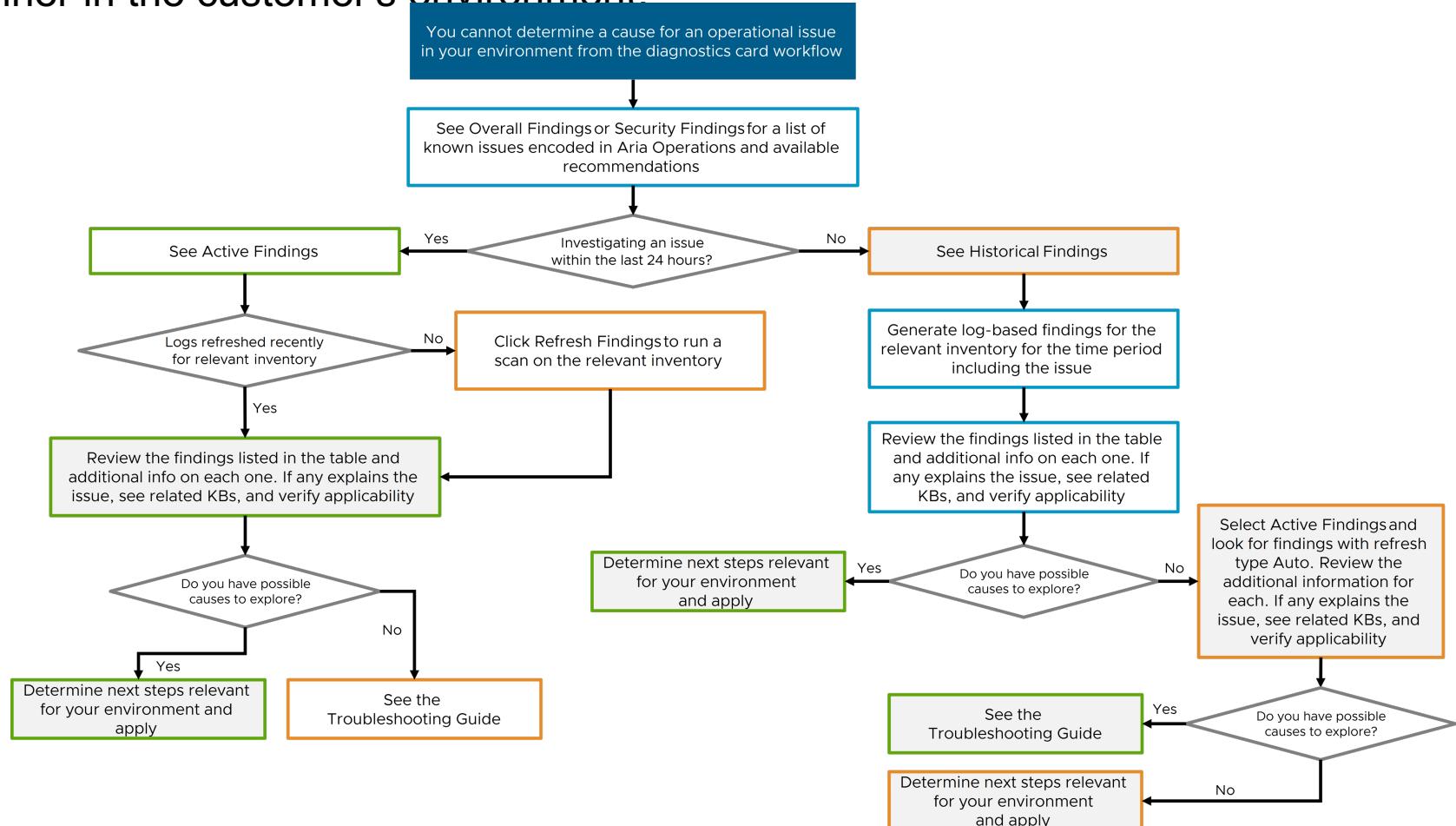
Finding
» ESX_HACfgFail_KB_316293
» ESX_3rdPartyVIBha_KB_322825
» vCenter_InventoryDisappears_KB_318212
» vCenter_CheckNotification_KB_318195
» vSAN_NetworkLatencyTest_KB_326408
» SDDCManager_CustomCACert_KB_316056
» vCenter_VMScanUnsupported_KB_345048
» SDDCManager_NSXTAuthentication_KB_318195
» ESX_Hostdlogspew_KB_318048
» vCenter_SkylineHlthChk_KB_318568
» vSAN_Witnesspartitioned_KB_317856
» vCenter_unsupportedTLS Ciphers_KB_3693
» VCFAutomation_AnsibleRemove_KB_31834
» ESX_HPEredalerts_KB_318688
» vCenter_svmotionDiskFail_KB_315419
» vCenter_Tagassociations_KB_344960

A callout box highlights the first finding: 'vCenter_CheckNotification_KB_318195'. The detailed view shows:

Summary	Recommendation		
Finding vCenter_CheckNotification_KB_318195			
Severity ⚠ Warning	Finding Type Diagnostic	Subtype Operation Diagnostics	Product Area Compute
Description VMware vSphere Lifecycle Manager Check Notification task cannot be re-created in vSphere 7.x.			
Additional Information The "VMware vSphere Lifecycle Manager Check Notification" task has been deprecated from the 7.0 release. The vSphere Client does not have the option to edit this task. In 7.0 U2, the UI to set the check-notification schedule is removed. However, on the upgrade from 6.7 to 7.0, this task and schedule may remain in the DB. This creates an issue, as this cannot be edited from UI and keeps sending emails.			
VCF Component vCenter	VCF Capability • Other		

Diagnostic Findings Self-Help Flow

The idea behind a VCF Health flow is to surface issues that require immediate attention in a simple and structured manner in the customer's environment.



Monitoring the Operational State

The idea behind a VCF Health flow is to surface issues that require immediate attention in a simple and structured manner in the customer's environment.

VCF Health [i](#)

Findings 0 1 0 [CHECK FINDINGS](#) [i](#) [?](#)

[VCF VIEW](#) [COMPONENT VIEW](#)

Summary [i](#)

 1 1 Critical	 8 1 Critical	 2	 2 2 Critical	 2
---	---	--	---	---

VCF Instances [i](#)

Name	Status	Objects with Critical Issues	ESX Host	vCenter	vSAN Cluster	NSX
EDU	0 Critical	3	0 1	0 7	0 1	0 2

Monitoring VCF Health Status

You can view the overall health status of the VCF deployment and navigate to individual components to get more detailed information.

VCF Health ?

[/ Infrastructure Operations / VCF Health](#)

☰ VCF VIEW ☷ COMPONENT VIEW

⚠ One or more adapters can't connect to their components. Check the list of adapter instances.

Summary ⓘ

10 4 Immediate Attention	3457 128 Immediate Attention	48 12 Immediate Attention	28 2 Immediate Attention	13 4 Immediate Attention
---	---	--	---	---

VCF Instances Show only requiring attention

Name	Status	↓ Components Requiring Immediate Attention ⓘ	Domains Requiring Immediate Attention ⓘ
vcf_instance_1	 ⓘ Critical	23	23
vcf_instance_2	 ⓘ Critical	14	14
vcf_instance_3	 ⓘ Critical	12	12
vcf_instance_4	 ⓘ Critical	11	11
vcf_instance_5	 ⚠ Warning	None	None
vcf_instance_6	 ⚠ Warning	None	None
vcf_instance_7	 ⚠ Warning	None	None
vcf_instance_8	 ⓘ Good	None	None
vcf_instance_9	 ⓘ Good	None	None
vcf_instance_10	 ⓘ Good	None	None

Manage Columns Instances per page: 10 ▾ 25 instances < 1 / 3 > >

VCF Instance Health

The idea behind a VCF Health flow is to surface issues that require immediate attention in a simple and structured manner in the customer's environment.

The screenshot displays the VCF Health interface for the 'EDU' instance. At the top, it shows basic instance details: Domain (EDU), Type (Management), Instance (EDU), and Version (9.0.0.0.24703748). It also lists four ESX Hosts, one vCenter Instance, one vSAN Cluster (with 1 Critical issue), and one NSX Instance.

Below this, there are three monitoring cards:

- Certificates**: 11 Total Certificates, 0 Critical Issues, 11 Active. Includes a green circular progress bar.
- NTP**: No Issues. Shows a grey checkmark icon.
- DNS**: No Issues. Shows a grey checkmark icon.

Under the heading 'vSphere', there are two main sections:

- vCenter Instances**: One instance listed as 'sa-m01-vc01.vcf.sddc.local'. It shows 0 vCenter Health Issues, 0 Capability Issues, and 1 vSAN Issue.
- ESX Hosts**: A timeline from July 12 to July 18 showing the status of hosts. A purple horizontal bar spans from July 15 to July 18, labeled 'Unresponsive Hosts'. A legend indicates a purple dot for 'Unresponsive Hosts'.

NTP and DNS Configuration Dashboard

With Diagnostics, you can see if NTP is not configured or is out of sync, as well as the DNS lookup issues for each object in your environment.

The dashboard provides a comprehensive overview of network time protocol (NTP) and domain name system (DNS) configurations across various VMware components. It includes real-time monitoring and historical data for each object, allowing users to quickly identify and resolve configuration issues.

SDDC Managers: Displays information for the SDDC Manager named "EDU". The table includes columns for Name, VCF Version, DNS Issues: ESXi, and DNS Issues: NSX. Both rows show 0 issues.

Name	VCF Version	DNS Issues: ESXi	DNS Issues: NSX
EDU	9.0.0.0.24703748	0	0

Domains: Shows two domains: "EDU" (Management, Active) and "sa-wld01" (VI, Active). Both domains have 0 NTP issues.

Name	DomainType	Domain State	NTP Issues: ESXi	NTP Issue
EDU	MANAGEMENT	ACTIVE	0	0
sa-wld01	VI	ACTIVE	0	0

vCenter Appliances: Lists two vCenter appliances: "vCenter-sa-m01-vc01.vcf.sddc.local" and "vCenter-sa-wld01-vc01.vcf.sddc.local", both connected to 172.20.10.10. Forward and reverse lookup status are shown as Success, and NTP drift is at 172.2.

Name	DNS Server(s)	Forward Lookup Status	Reverse Lookup Status	NTP Drift
vCenter-sa-m01-vc01.vcf.sddc.local	172.20.10.10	Success	Success	172.2
vCenter-sa-wld01-vc01.vcf.sddc.local	172.20.10.10	Success	Success	172.2

NSX Managers: Lists two NSX managers: "NSX-T-sa-m01-nsxt-vip.vcf.sddc.local" and "NSX-T-sa-wld01-nsxt-vip.vcf.sddc.local", both connected to 172.20.10.10. Forward and reverse lookup status are shown as Success, and NTP drift is at 1.

Name	DNS Server(s)	Forward Lookup Status	Reverse Lookup Status	NTP Drift
NSX-T-sa-m01-nsxt-vip.vcf.sddc.local	172.20.10.10	Success	Success	1
NSX-T-sa-wld01-nsxt-vip.vcf.sddc.local	172.20.10.10	Success	Success	1

About the vCenters Pane

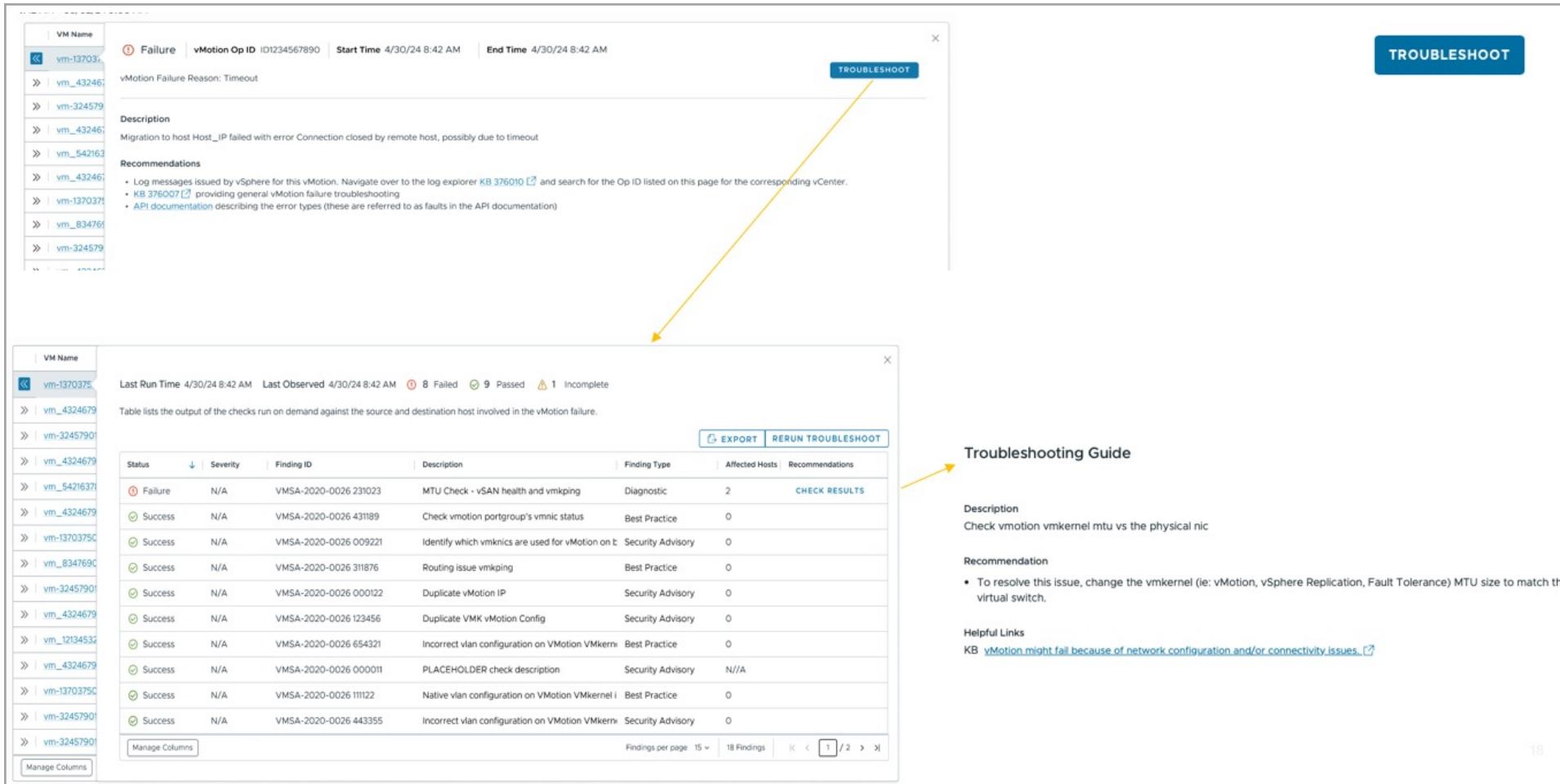
The vCenters widget displays the vCenter Health and a few capabilities such as Connectivity, Utilization, and Services.

The screenshot shows the vCenters pane with the following details:

- vSphere** section:
 - vCenter Instances**: sa-m01-vc01.vcf.sddc.local
 - vCenter Health Issues**: 0
 - Capability Issues**: 0
 - vSAN Issues**: 1
- vCenter Health** summary:
 - vCenter**: sa-m01-vc01.vcf.sddc.local
 - Domain**: EDU
 - Instance**: EDU
 - Version**: 9.0.0-24755230
 - Collection Status**: VIH Adapter (green), Data receiving; vCenter Adapter (green), Data receiving
- Utilization** section:
 - Critical Issues**: 0
 - Good**: CPU, Memory, Disk
 - Warning**: Database: Overall Space Utilization, Database: Seat Space Utilization
- Services** section:
 - Services Unhealthy**: 0
- VM Operations** chart:
 - Total Failures**: 1
 - Line graph from Jul 12 to Jul 18 showing a single failure on Jul 15.
 - Legend: Total VM Operations (blue), VM Operation Failures (purple).
- vMotion** chart:
 - Total Failures**: 0
 - Line graph from Jul 12 to Jul 18 showing no failures.
 - Legend: Total vMotion Events (blue), vMotion Event Failures (purple).
- Snapshots** chart:
 - Total Snapshots**: 0
 - Line graph from Jul 12 to Jul 18 showing no snapshots taken.
 - Legend: Total Snapshots (blue), Failed Snapshots (purple).

vSphere vMotion

The screenshot shows how the vMotion Event List helps troubleshoot issues faster.



The screenshot illustrates the vMotion Event List and Troubleshooting Guide interface in vSphere.

Top Panel (Event Detail):

- VM Name: vm-13703, vm_43246, vm-324579, vm_43246, vm_542163, vm_43246, vm-1370375, vm_83476, vm-324579, ...
- vMotion Op ID: ID1234567890
- Start Time: 4/30/24 8:42 AM
- End Time: 4/30/24 8:42 AM
- vMotion Failure Reason: Timeout
- Description: Migration to host Host_IP failed with error Connection closed by remote host, possibly due to timeout.
- Recommendations:

 - Log messages issued by vSphere for this vMotion. Navigate over to the log explorer KB 376010 and search for the Op ID listed on this page for the corresponding vCenter.
 - KB 376007 providing general vMotion failure troubleshooting.
 - API documentation describing the error types (these are referred to as faults in the API documentation)

Middle Panel (Event List):

- Last Run Time: 4/30/24 8:42 AM
- Last Observed: 4/30/24 8:42 AM
- Status: 8 Failed, 9 Passed, 1 Incomplete
- Table:

Status	Severity	Finding ID	Description	Finding Type	Affected Hosts	Recommendations
Failure	N/A	VMSA-2020-0026 231023	MTU Check - vSAN health and vmkping	Diagnostic	2	CHECK RESULTS
Success	N/A	VMSA-2020-0026 431189	Check vmotion portgroup's vmnic status	Best Practice	0	
Success	N/A	VMSA-2020-0026 009221	Identify which vmnics are used for vMotion on t	Security Advisory	0	
Success	N/A	VMSA-2020-0026 311876	Routing issue vmkping	Best Practice	0	
Success	N/A	VMSA-2020-0026 000122	Duplicate vMotion IP	Security Advisory	0	
Success	N/A	VMSA-2020-0026 123456	Duplicate VMK vMotion Config	Security Advisory	0	
Success	N/A	VMSA-2020-0026 654321	Incorrect vlan configuration on VMotion VMkernel	Best Practice	0	
Success	N/A	VMSA-2020-0026 000011	PLACEHOLDER check description	Security Advisory	N/A	
Success	N/A	VMSA-2020-0026 111122	Native vlan configuration on VMotion VMkernel i	Best Practice	0	
Success	N/A	VMSA-2020-0026 443355	Incorrect vlan configuration on VMotion VMkernel	Security Advisory	0	

Right Panel (Troubleshooting Guide):

Troubleshooting Guide

Description: Check vmotion vmkernel mtu vs the physical nic

Recommendation:

 - To resolve this issue, change the vmkernel (ie: vMotion, vSphere Replication, Fault Tolerance) MTU size to match the virtual switch.

Helpful Links: KB [vMotion might fail because of network configuration and/or connectivity issues.](#)

Troubleshooting Workbench

The **Troubleshooting Workbench** home page includes active troubleshooting sessions and recent searches. The active troubleshooting sessions do not persist after you log out of VCF Operations.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar has a 'vmw' logo and the title 'VMware Cloud Foundation Operations'. It includes a search bar at the top right. The main menu on the left includes 'Home', 'Inventory', 'Infrastructure Operations' (with sub-options like 'Diagnostic Findings', 'VCF Health', 'Dashboards & Reports', 'Alerts', 'Troubleshooting Workbench' which is selected), 'Analyze', 'Storage Operations', 'Network Operations', 'Data Protection & Recovery', 'Automation Central', and 'Configurations'. The main content area is titled 'Troubleshooting Workbench'. A search bar at the top of this section contains the text 'sa-m'. Below it, under 'vCenter', is a list of entities starting with 'sa-m01-vc01.vcf.sddc.local', which is highlighted with an orange border. Further down, under 'Virtual Machine', there is a list of VMs: 'sa-m01-vc01', 'sa-m01-nsxt01', 'sa-m01-sddc01', 'sa-m01-logs01', 'sa-m01-vcops01', 'sa-m01-vcopsfm01', 'sa-m01-vcopsoc01', 'sa-m01-vcfa-5k2pl', and 'sa-m01-net01-platform.vcf.sddc.local'. At the bottom of the content area is a 'Search Help' link.

Troubleshooting Workbench: Reviewing Potential Evidence

The **Troubleshooting Workbench** home page includes active troubleshooting sessions and recent searches. The active troubleshooting sessions do not persist after you log out of VCF Operations.

The screenshot shows the Troubleshooting Workbench interface. On the left, there's a sidebar titled "Selected Scope" with a dropdown set to "All Objects". Below it is a tree view of selected objects:

- Transport Node (4 items): esx-4.vcf.sddc.local, esx-2.vcf.sddc.local, esx-3.vcf.sddc.local, esx-1.vcf.sddc.local
- vCenter App (1 item): vCenter-sa-m01-vc01.vcf.sddc.local
- Datacenter (1 item): EDU-dc01
- Identity Broker Health (1 item): EDU Identity Broker Embedded
- vCenter (1 item): sa-m01-vc01.vcf.sddc.local
- VCF Domain (1 item): EDU
- vSphere World (1 item): vSphere World
- NSX (1 item)

The main area is titled "Potential Evidence" and contains four tabs: Potential Evidence (selected), Alerts, Metrics, and Logs. It includes a search bar and a time range selector set to "Last 24 hours". There are three main sections: "Events", "Property Changes", and "Anomalous Metrics".

- Events:** Shows a chart for "Memory|Percentage of Usage (%) DT above (%)" for "esx-4.vcf.sddc.local" on Jul 17, 2025, 7:00:54 PM. The Y-axis ranges from 50 to 60. The chart shows a step increase from ~58% to ~60% at 12:00 PM on Jul 18.
- Property Changes:** Shows a change for "VCF Management Information|VCF Certificate Management Information|No. of Days to Expire" from 687.0 to 688.0 for "vCenter-sa-m01-vc01.vcf.sddc.local" on Jul 16, 2025, 9:32:23 PM.
- Anomalous Metrics:** Shows a chart for "Agents|SHA1Memory Used (KB)" for "esx-4.vcf.sddc.local" on Jul 16, 2025, 1:10:26 AM. The Y-axis ranges from 254,700 to 255,000. The chart shows a sharp drop from ~254,900 to ~254,700 at 12:00 PM on Jul 18.

Other cards show similar metrics for "vCenter-sa-m01-vc01.vcf.sddc.local" (password management change) and "esx-3.vcf.sddc.local" (certificate summary change).

Troubleshooting Workbench: Changing the Potential Evidence

By adjusting the time range, you can uncover additional evidence that helps your troubleshooting efforts.

Troubleshooting Workbench
Context: sa-m01-vc01.vcf.sddc.local

Selected Scope
All Objects

Levels: 1
CUSTOM

Transport Node (4)
esx-4.vcf.sddc.local
esx-2.vcf.sddc.local
esx-3.vcf.sddc.local
esx-1.vcf.sddc.local

vCenter App (1)
vCenter-sa-m01-vc01.vcf.sddc.local

Datacenter (1)
EDU-dc01

Identity Broker Health (1)
EDU Identity Broker Embedded

Potential Evidence Alerts Metrics Logs

Select the desired object scope and time range to see potential evidence.

Time Range: Last 24 hours Hide Consequential Evidence [i](#)

Range: Last 24 hours
From: Jul 17, 2025
To: Jul 18, 2025

Memory|Percentage DT above (%)

Property Changes
vCenter-sa-m01-vc01.vcf...
Jul 17, 2025 9:32:23 PM
CF Management Information|VCF Certificate Management Information|No. of Days to Expire changed from 687.0 to 688.0

Anomalous Metrics
esx-4.vcf.sddc.local
1:10:26 AM
Agents|SHA|Memory Used (KB)

Property Changes
vCenter-sa-m01-vc01.vcf...
Jul 16, 2025 5:01:48 PM
VCF Management Information|VCF Password Management Information|No. of Days to Expire changed from 87.0 to 88.0

Anomalous Metrics
esx-4.vcf.sddc.local
1:10:26 AM
Agents|SHA|Memory Used (KB)

Troubleshooting Workbench: Changing the Scope

You can select only the object that you are investigating or include several upstream and downstream relationships by increasing the scope.

Troubleshooting Workbench

Context: sa-m01-vc01.vcf.sddc.local

Selected Scope

All Objects

Levels: 1

CUSTOM

Transport Node

- esx-4.vcf.sddc.local
- esx-2.vcf.sddc.local
- esx-3.vcf.sddc.local
- esx-1.vcf.sddc.local

vCenter App

- vCenter-sa-m01-vc01.vcf.sddc.local

Datacenter

- EDU-dc01

Identity Broker Health

- EDU Identity Broker Embedded

Potential Evidence Alerts Metrics Logs

Select the desired object scope and time range to see potential evidence.

Time Range Hide Consequential Evidence

Events Property Changes Anomalous Metrics

esx-4.vcf.sddc.local Jul 17, 2025 7:00:54 PM
Memory|Percentage of Usage (%) DT above (%)
12:00 PM Jul 18

vCenter-sa-m01-vc01.vcf... Jul 16, 2025 9:32:23 PM
VCF Management Information|VCF Certificate Management Information|No. of Days to Expire changed from 687.0 to 688.0

esx-4.vcf.sddc.local 1:10:26 AM
Agents|SHA|Memory Used (KB)
12:00 PM Jul 18

vCenter-sa-m01-vc01.vcf... Jul 16, 2025 5:01:48 PM
VCF Management Information|VCF Password Management Information|No. of Days to Expire changed from 87.0 to 88.0

The screenshot shows the VMware Troubleshooting Workbench interface. On the left, a sidebar titled 'Selected Scope' displays a tree view of objects under 'All Objects'. A 'CUSTOM' node is highlighted with a yellow box. Below it, nodes for 'Transport Node', 'vCenter App', 'Datacenter', and 'Identity Broker Health' are listed. The main pane is titled 'Potential Evidence' and contains three sections: 'Events', 'Property Changes', and 'Anomalous Metrics'. Each section shows a summary card with a timestamp, a brief description, and a chart or graph. For example, the 'Events' section shows a step change in memory usage for 'esx-4.vcf.sddc.local' at 12:00 PM on July 18. The 'Property Changes' section shows a configuration update for 'vCenter-sa-m01-vc01.vcf...' regarding VCF certificate expiration. The 'Anomalous Metrics' section shows a sharp drop in memory usage for 'esx-4.vcf.sddc.local' at 1:10:26 AM on July 18. The 'Time Range' dropdown is set to 'Last 24 hours'.

About Log Assist

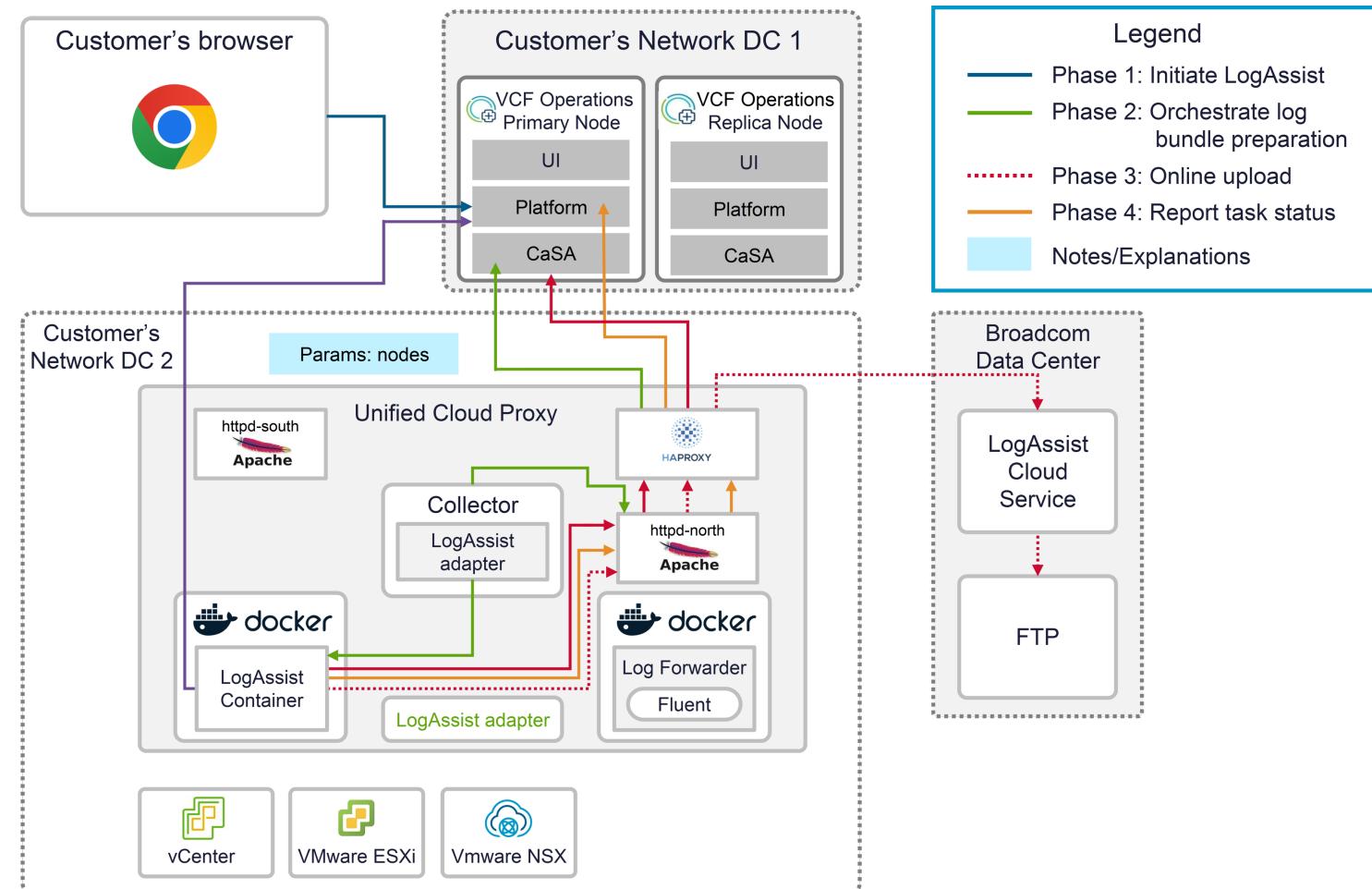
VCF Operations Log Assist provides an efficient and convenient method to attach diagnostic bundles to a support request.

You perform the following tasks with VCF Operations Log Assist:

- Generate log bundles for vSphere components.
- Attach diagnostic bundles to a service request and upload to the Broadcom Support Portal.
- Monitor log transfers and review previous log uploads.

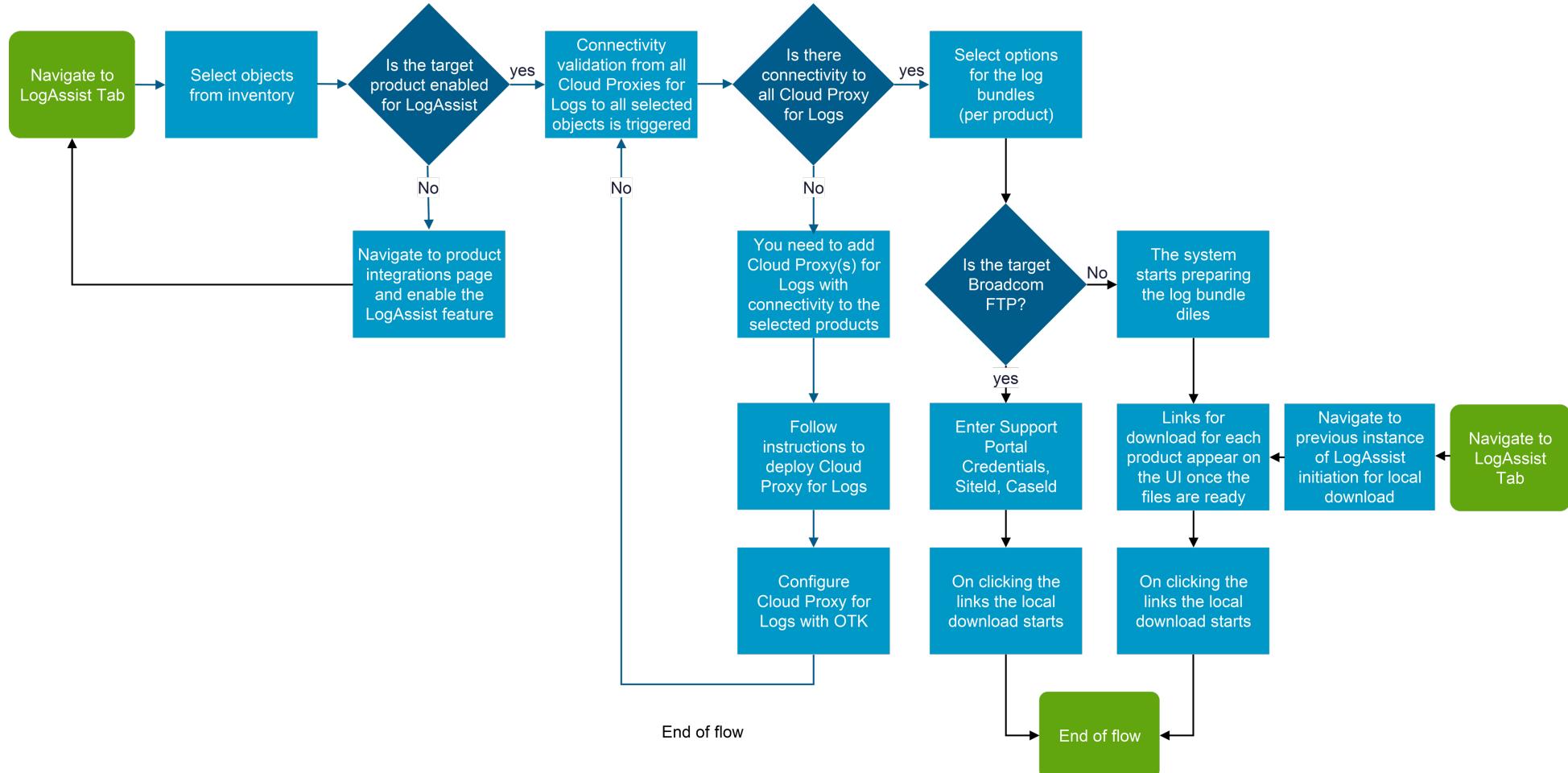
Log Assist Architecture

You can generate a log bundle for any selected inventory object, and link and upload it to your support case.



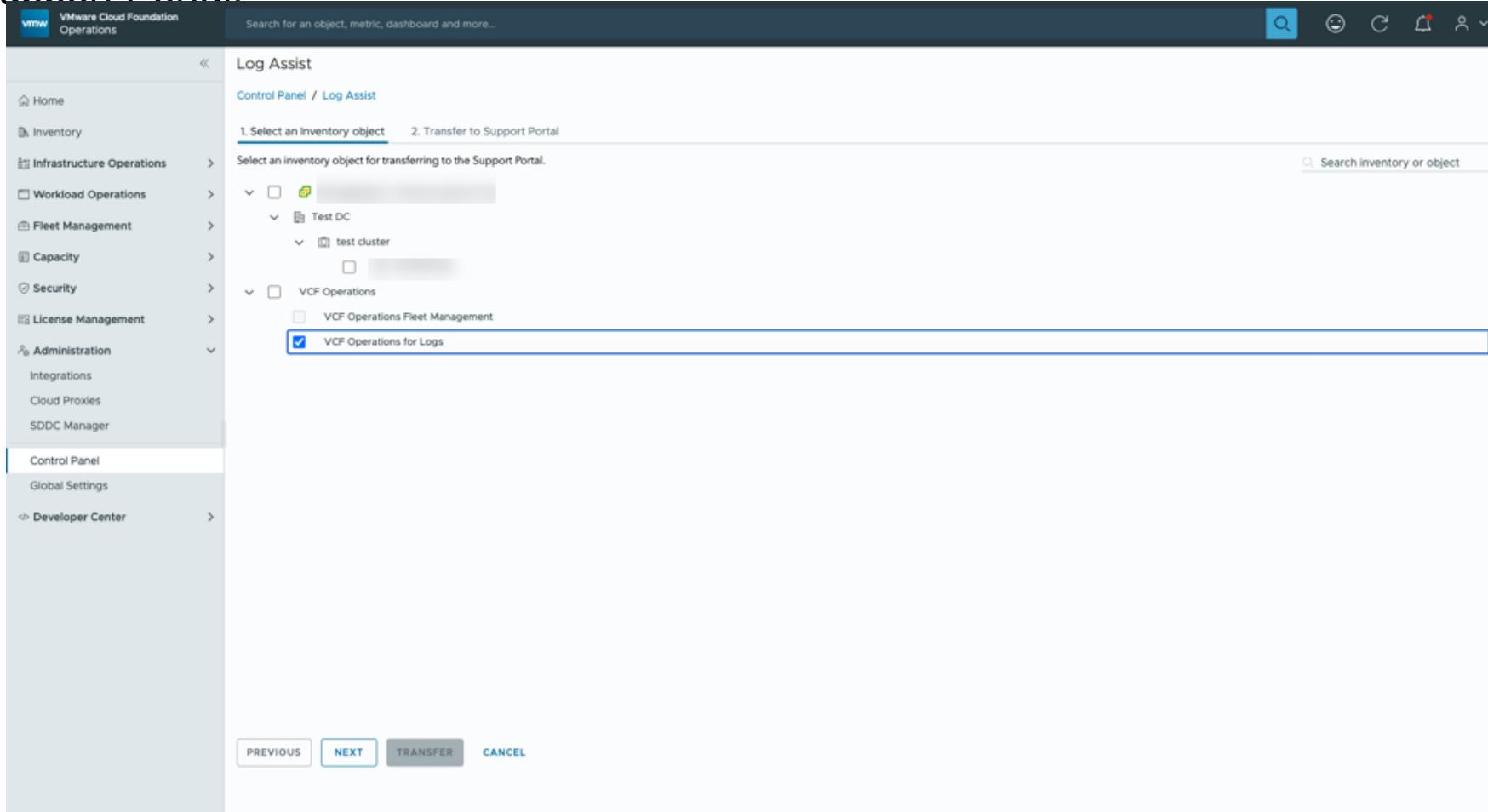
Log Assist Flow

You can generate a log bundle for any selected inventory object, and link and upload it to your support case.



Log Assist Diagnostic Bundle Transfer

Under Log Assist in the Operations console, select the individual component log files to upload to the Broadcom Support Portal.



Need to replace the screenshots from a Log Assist configured lab

Contacting Broadcom Support with Full Context

You can generate a log bundle for any selected inventory object, and link and upload it to your support case.

Generate log bundles

Transfer Logs

Control Panel / Log Assist / Cloud Transfer

1. Select an Inventory Object 2. Transfer to Support Portal

Select an inventory object for transferring to the Support Portal. Search inventory or objects

Items marked as disabled have missing privilege. Navigate to Integrations and enable privilege for the specific items. Revisit this section to continue with inventory selection.
[Learn more about setting privileges.](#)

edvc55.edone.lab
 └ Datacenter59
 └ Cluster55gpu
 └ Cluster55gpu
 └ ds-tse d225.dsl.vmware.com
 └ ds-tse d225.dsl.vmware.com
 └ ds-tse d225.dsl.vmware.com

bm-mst-man.brmstorage.com
 └ bm-nx1-man1
 └ bm-nx1-man2
 └ bm-nx1-man3
 └ BM-Edge-Cluster-TD
 └ bm-nx-edge2
 └ bm-nx-edge3

bm-prod-vc.brmstorage.com
 └ Datacenter59
 └ Datacenter59
 └ Cluster55gpu
 └ Cluster55gpu
 └ local_esx-04a
 └ local_esx-10b
 └ local_esx-07e

PREVIOUS TRANSFER CANCEL

Attach to support requests

Transfer Logs

Control Panel / Log Assist / Cloud Transfer

1. Select an Inventory Object 2. Transfer to Support Portal

Enter Support Portal credentials

BROADCOM
Support Portal

Username: admin
Password:

Enter Support Case Details

Enter Support Case Details for initiating transfer.

Party site number: 114393224
Support case ID: 91208891

PREVIOUS TRANSFER CANCEL

View all log transfers

Log Assist

Control Panel / Log Assist

Log Assist allows you to seamlessly transfer your logs to the support team.

Select an inventory object to generate a log bundle and attach it to your support case in the Broadcom Support Portal.

INITIATE TRANSFER

Transfer/Download History

Support Case	Party Site Number	Created by	Requested Date	Last Updated	Status
» 91208848	16069245	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	In progress
» 91208849	16069242	Anita Bhatt	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91204531	16069238	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91204531	16067285	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	In progress Queued
» 91208002	16051614	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91204531	16098976	Steven Gayle	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91208002	16051614	Robert Brown	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91208002	16051614	Robert Brown	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91204531	16051614	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	In progress Completed Failed Queued
» 91208002	16051614	Robert Brown	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed
» 91208008	16051614	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed Failed
» 91208012	16067285	Priyanka Gour	4/30/24 8:42 AM	4/30/24 8:42 AM	Completed Failed
» 91208002	16067285	Robert Brown	4/30/24 8:42 AM	4/30/24 8:42 AM	Failed
» 91208002	16067285	Robert Brown	4/30/24 8:42 AM	4/30/24 8:42 AM	Failed

Cases per page: 14 | 14 Cases | 1 / 1 > |

Lab: Monitoring VCF Health and Diagnostics

Use VCF Health and Diagnostics to monitor the environment:

1. Navigate the VCF Health Dashboard
2. View the NTP and DNS Widgets
3. View the vSphere Widgets
4. Review the Diagnostic Findings

Review Learner Objectives

- Outline the role of VCF Health and Diagnostics
- Describe the Diagnostic Findings feature
- Describe the VCF Health feature
- Monitor the operational state of VCF Instances
- Explain Troubleshooting Workbench
- Enable support teams with full context using Log Assist



VCF Logs, Storage, and Network Operations

Importance

VCF Operations for logs helps organizations manage data at scale with centralized log management, and it provides deep operational visibility and intelligent analytics for troubleshooting and auditing across private, hybrid, and multicloud environments.

VCF Operations for logs delivers heterogeneous and highly scalable log management with intuitive, actionable dashboards, sophisticated analytics, and broad third-party extensibility. It provides administrators with a deeper look into the operations that occur in their physical, virtual, and multicloud environments. Administrators can use predictive analytics, machine learning, and root-cause analysis tools for faster problem resolution.

Module Lessons

1. VCF Operations for Logs Overview
2. VCF Storage Operations
3. VCF Network Operations

VCF Operations for Logs Overview

Learner Objectives

- Describe the VCF Operations for logs overview
- Describe the requirements for a log analytics solution
- Describe the key benefits of VCF Operations for logs overview
- Access the VCF Operations for logs UI

Log Analysis

The Log Analysis function in the VCF Operations console provides access to the required logs and relevant operational data in one place, eliminating the need to connect to several hosts to analyze logs.

The Log Analysis dashboard:

- Displays the collected events from all VCF components with powerful queries and visualization charts
- Enables grouping of events by type
- Enables custom filter creation to focus analysis
- Provides event trend analysis based on collected events

VCF Operations Log Analysis Tools

You monitor the logs of the VCF components with log-based dashboards and an analysis tool in the VCF console. You can use the detailed filters to identify events and objects.

Creating your operation analysis:

- Specify the refresh interval.
- Query details and logs.
- Specify the filter criteria and grouping.
- Specify the visualization mode and type.

About VCF Operations for Logs

VCF Operations for logs is an intelligent log management platform for cloud, infrastructure, and applications.

Analyze Logs in One Place



Monitor all your log sources
High performance, plain text, search
Quickly understand the health of SDDC environments by identifying anomalies across infrastructure and applications

Google Cloud Microsoft Azure
AWS VMware vSphere

Support for Broad Range of Applications



Support for SDDCs and numerous applications using Content Packs for VMware, Microsoft, Apache, Cisco, F5, Dell, Kubernetes, Puppet, GitHub, Jira, Linux, Nginx, Oracle, MySQL, OpenStack, Synology, and more

Native Azure services
Native AWS services
Native GCP services



Troubleshooting and Root Cause Analysis



Accelerate troubleshooting with inbuilt dashboards, queries, and alerts for numerous log sources and applications

Alerts based on custom triggers
Custom dashboards to visualize trends
Multiple notification methods on alerts



Log-Based Alerts

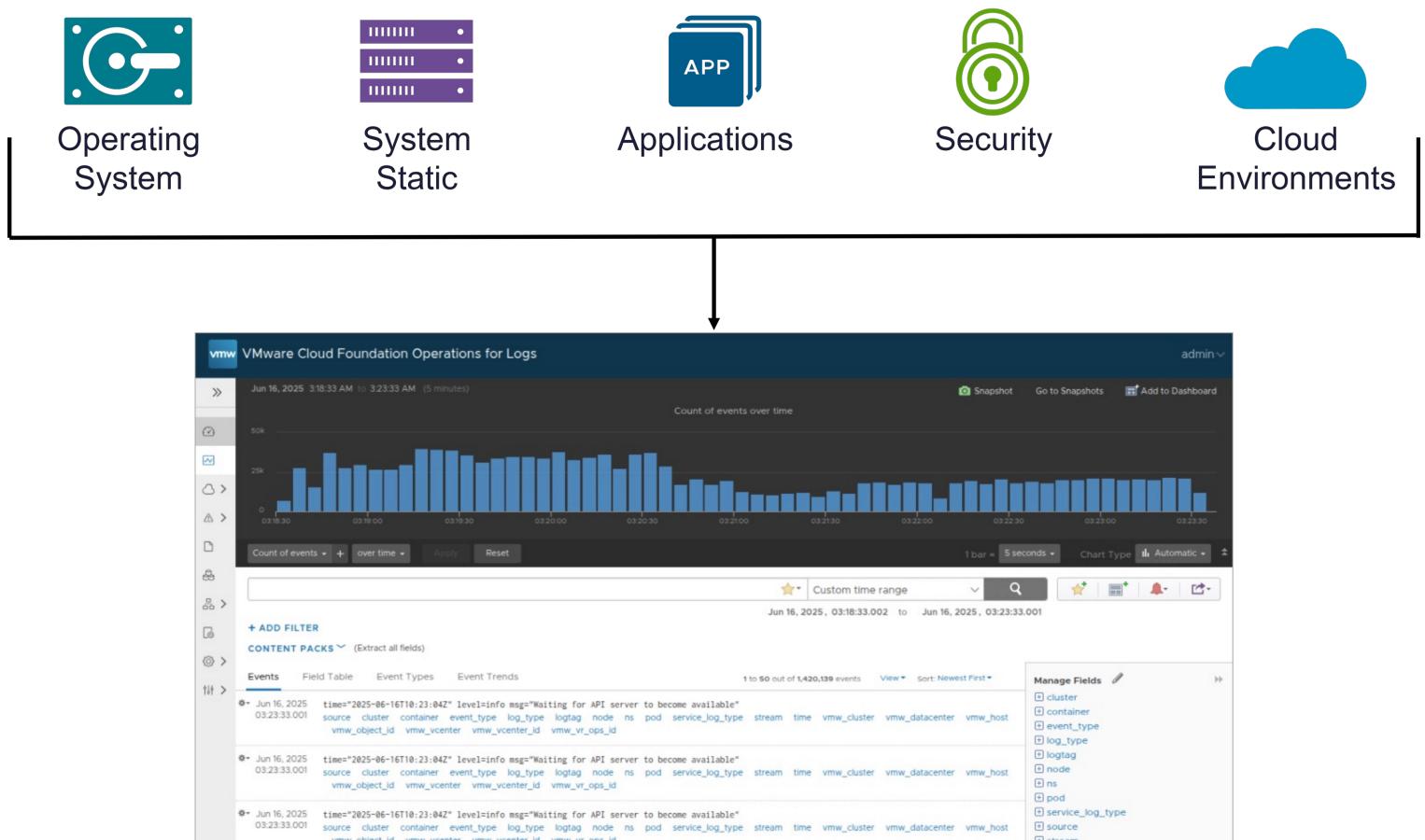
You configure alerts to proactively identify potential problems, and implement preventive measures, ensuring maximum uptime of workloads:

- Alerts created based on log entries across vSphere components.
- Simplified alert creation using previously saved queries.
- Triggered alerts, customized using time intervals, specific events, and thresholds.
- Centralized location for alerts, metrics, and log queries, providing comprehensive monitoring and notification.

Importance of Efficient Log Management

VCF Operations for logs provides a single location to collect, store, and analyze unstructured data at scale from operating systems, applications, storage, network devices, and more:

- All significant data center events are recorded and saved in log files.
- The data in log files is typically vast and unstructured, making the interpretation of log files challenging.
- Filtering and reviewing logs can be difficult and time-consuming.



Key Capabilities of VCF Operations for Logs

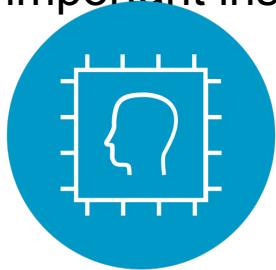
VCF Operations for logs collects, imports, and analyzes logs to provide answers to problems related to systems, services, and applications, and derive important insights.



Collects and analyzes all type of machine-generated log data



Delivers real-time monitoring, search, and log analytics



Provides machine learning-based Intelligent Grouping



Integrates with VCF



Allows customizable data retention

Anatomy of Log Messages

A log file message has unstructured text.

```
2025-05-02T13:35:59.834Z    info    hostd [2099674] [Originator@6876
sub=Vimsvc.ha-eventmgr] Event 346662 : Firewall configuration
has changed. Operation 'enable' for rule set ntpClient succeeded.
```

Timestamp	2025-05-02T13:35:59.834Z
Severity	info
Application	hostd
Message	Firewall configuration has changed. Operation 'enable' for rule set ntpClient succeeded.

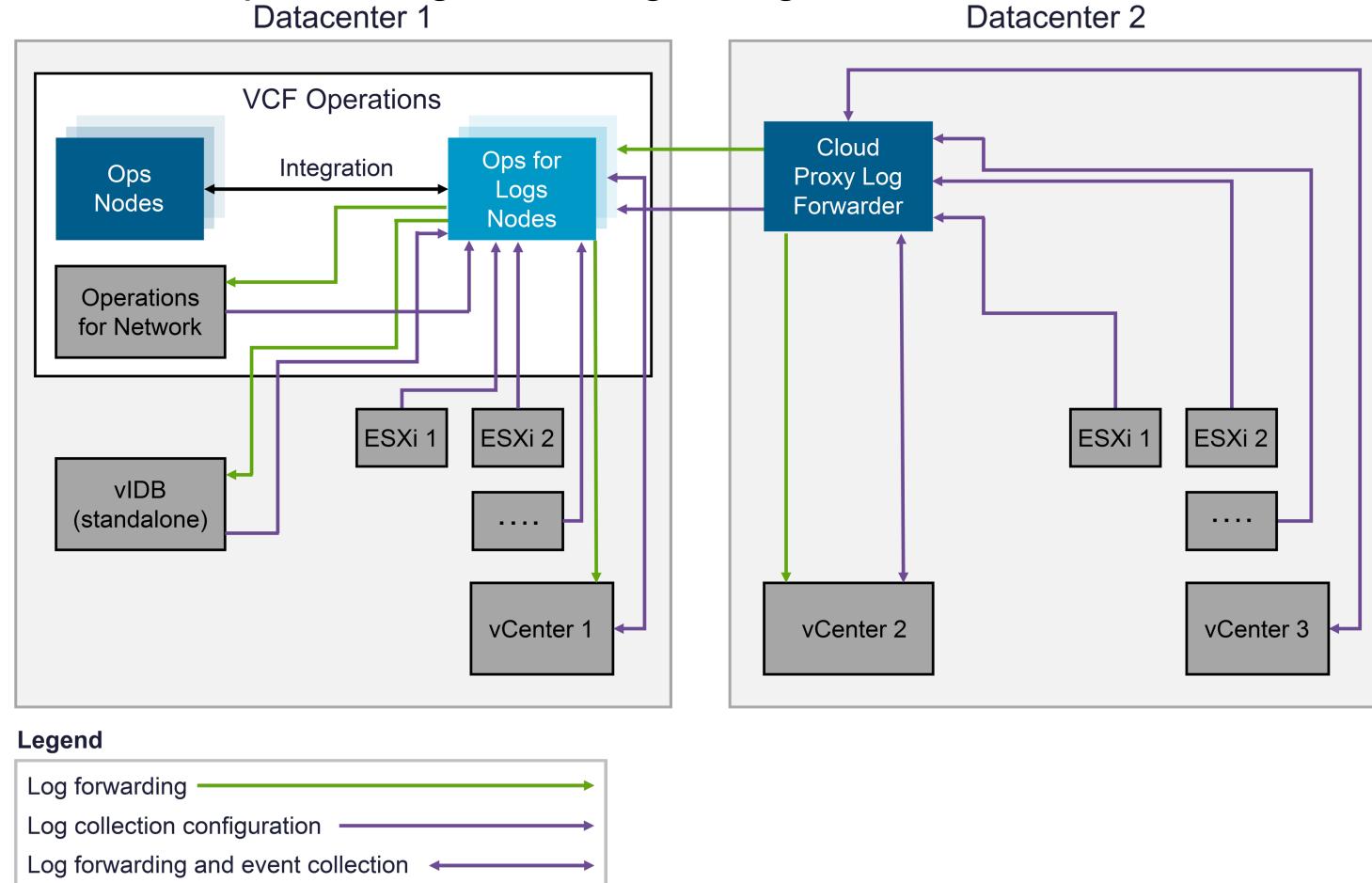
Integrating Logs in the VCF Operations Console

VCF 9.0 converges the Aria logs and the VCF Operations user experience for managing and analyzing log data for the VCF environment:

- Log Analysis
- Log Compare
- Log widgets
- Dashboard framework ability to create log-based alerts
- Cloud proxy enhancements data sets in RBAC

Log Collection Configuration Architecture

The new centralized logs collection architecture provides the benefits of log collection across different VMware Cloud Foundation components, granular log configuration, and cross data center log collection.



About the Agent

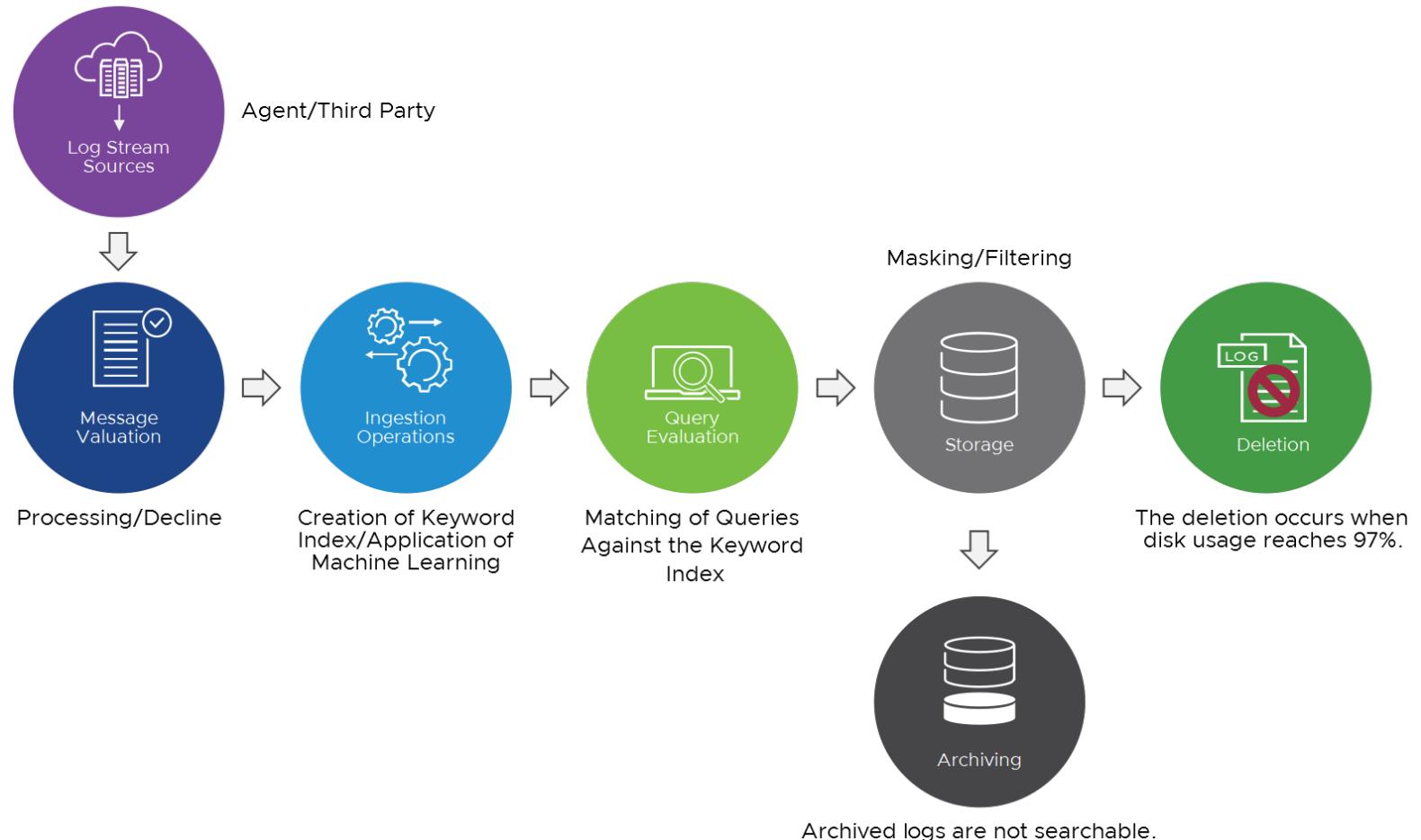
The Agent is preinstalled in the supported VMware Cloud Foundation components.

The Agent offers key benefits:

- Centralized configuration
- Life cycle management
- Log enhancement

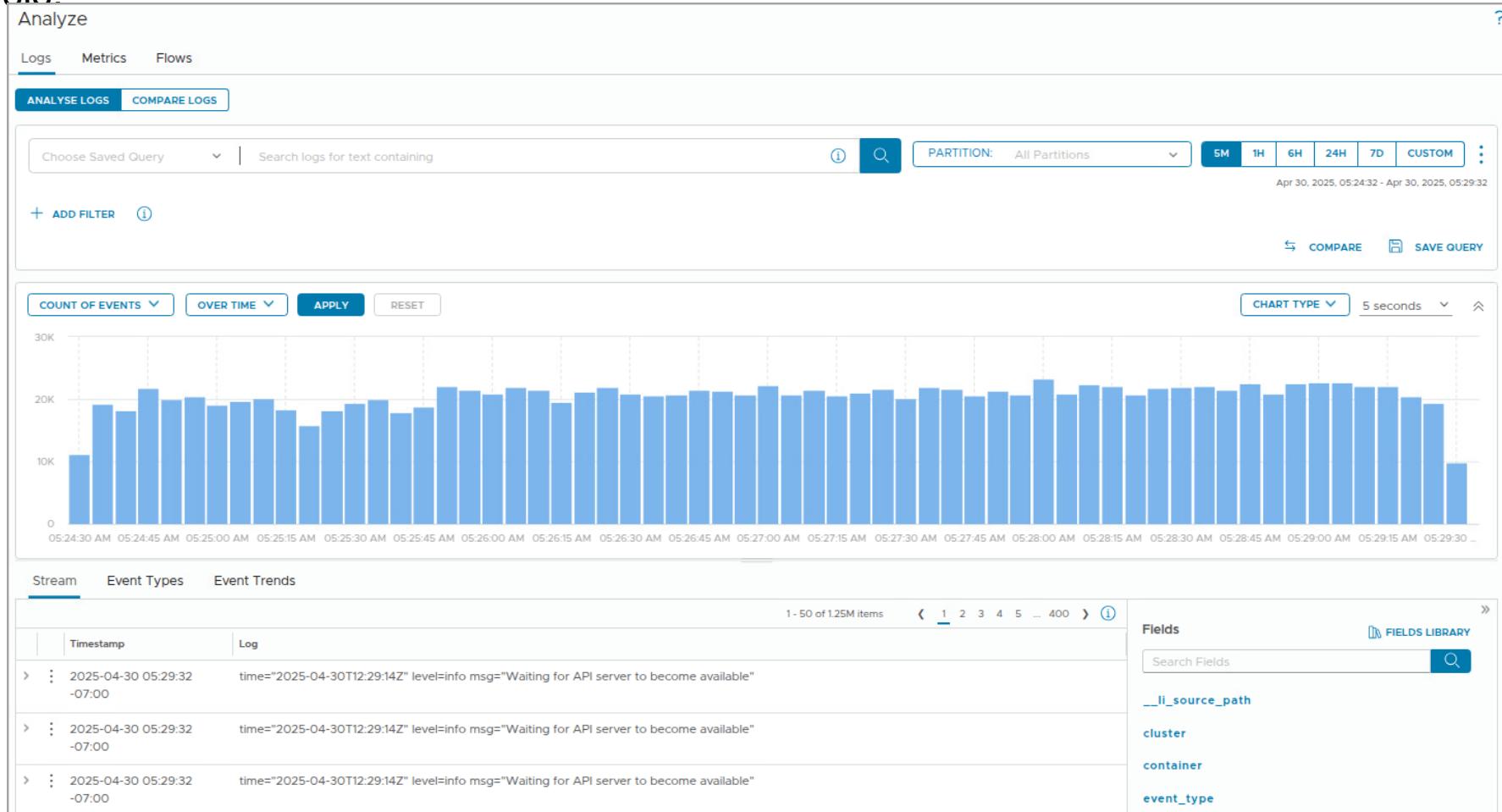
Stages of Log Processing

Events and messages transition through several stages.



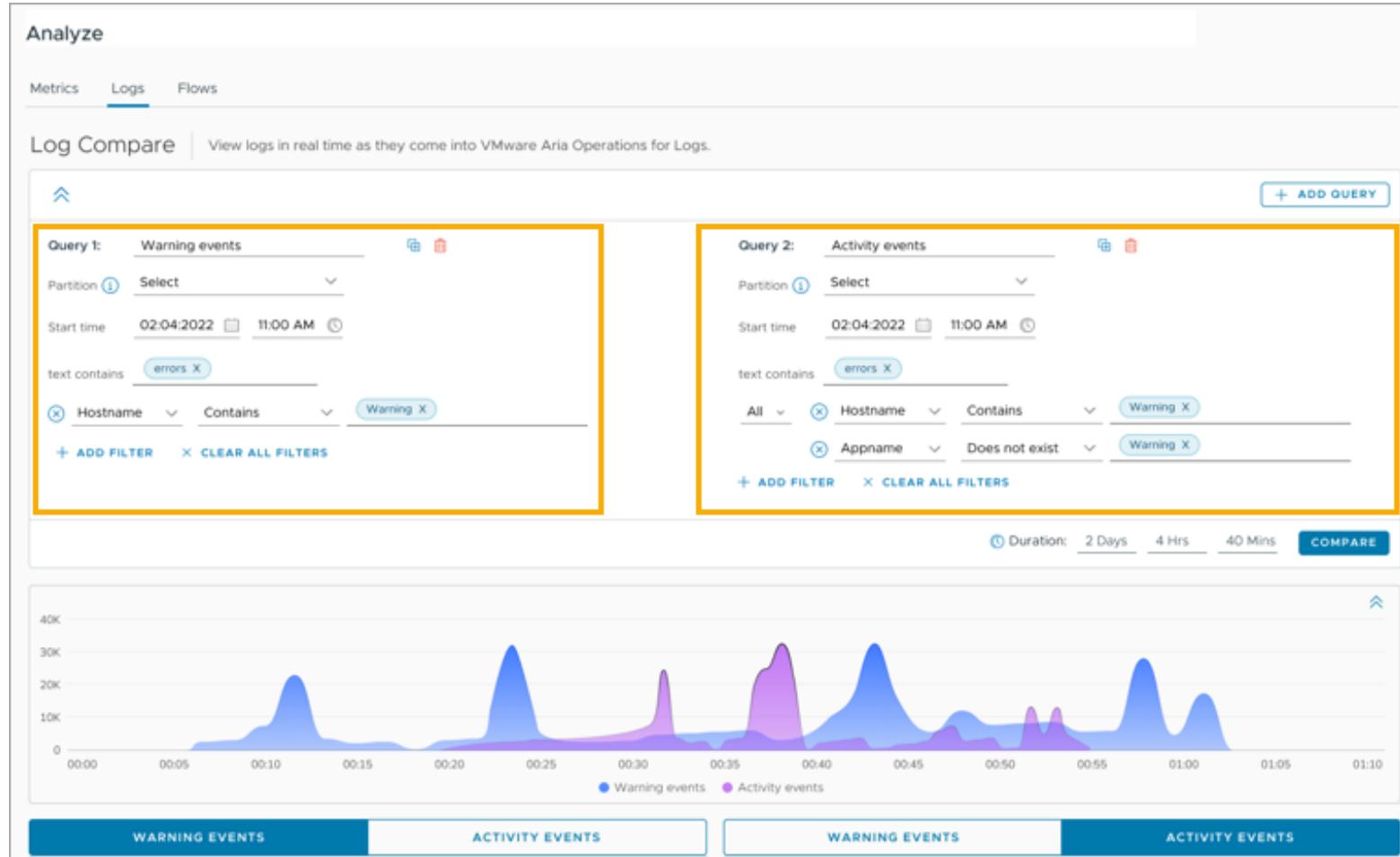
About the Analyze Page

The **Explore Logs** page enables you to view log messages, determine problem areas, and perform root cause analysis.



About Log Compare

With the Log Compare feature, you can compare logs from different time periods or log sources to identify anomalies.



About the Explore Logs Page

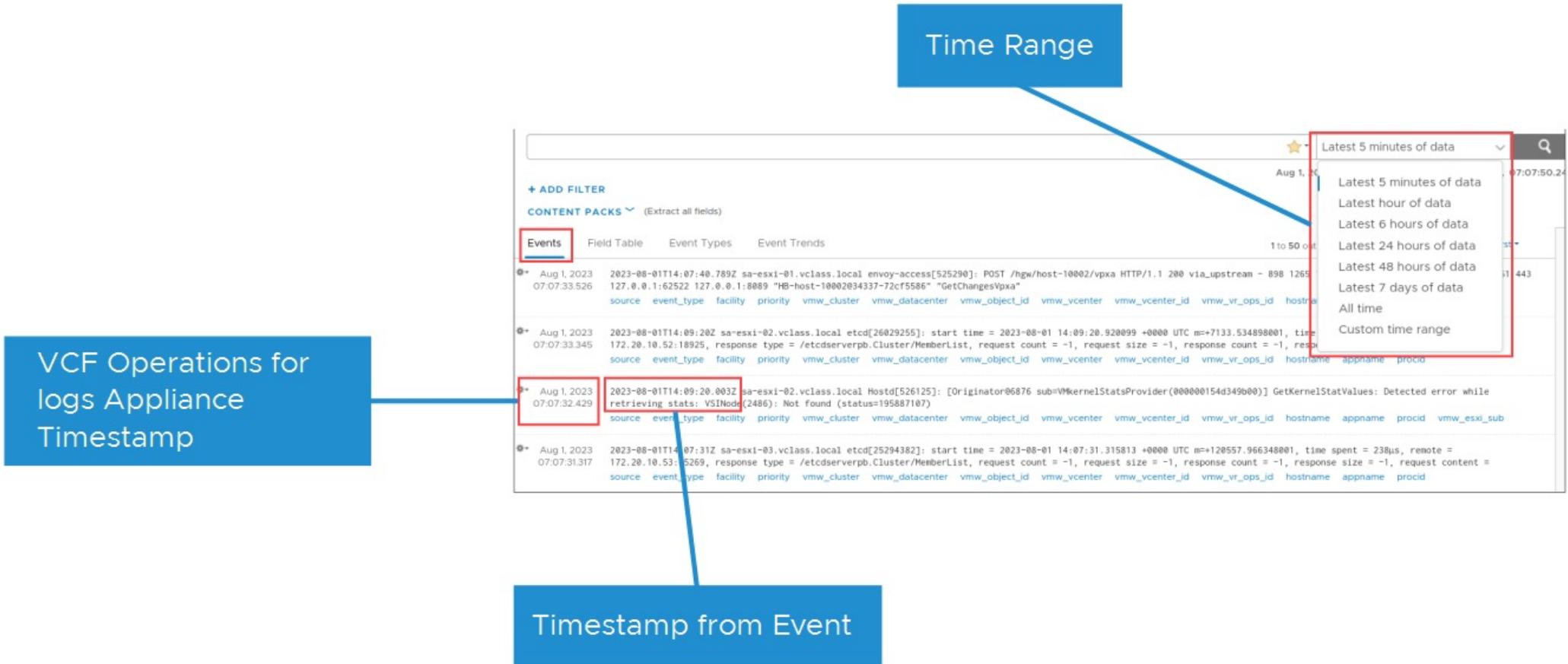
The **Explore Logs** page enables you to view log messages, determine problem areas, and perform root-cause analysis.

The screenshot shows the VMware Cloud Foundation Operations for Logs interface. A central chart displays the 'Count of events over time' from June 16, 2025, at 1:18:16 AM to 7:18:16 AM (6 hours). Below the chart, a search bar shows 'Latest 6 hours of data' and a filter section for 'vcenter'. To the left, a sidebar provides navigation and filtering options. A main content area lists event trends with sample log entries. On the right, there are several management and alerting tools. Callout boxes with arrows point to specific features:

- Group by a specific field**: Points to the sidebar icon for grouping.
- View as a count of events or a unique count of events**: Points to the chart legend.
- Set filter criteria**: Points to the filter input fields.
- Add multiple filters**: Points to the '+ ADD FILTER' button.
- Filter for similar or dissimilar events**: Points to the 'Events Like This' and 'Events Not Like This' buttons.
- Adjust search time range**: Points to the search bar.
- Export log data**: Points to the 'Add to Dashboard' button.
- Create an alert**: Points to the alerting icons.
- Add query to dashboard**: Points to the 'Manage Fields' section.
- Favorite a query**: Points to the 'Content Packs' section.

About Timestamps

Timestamps are critical to analyzing events. VCF Operations for logs uses the appliance time stamp when the incoming data is ingested.



Event List

Events are assigned fields when they are ingested. These fields are standard Syslog fields, or they are predefined from a content pack.

The screenshot shows the 'Events' tab selected in the navigation bar. A red box highlights the 'Events' tab, and a blue box highlights the 'Total Matches' text. Another red box highlights the event count '1 to 50 out of 783 events'. A blue box highlights the 'Standard Syslog Fields' label, which points to the source line of each event log. The logs themselves show various system messages with their corresponding standard syslog fields.

+ ADD FILTER

CONTENT PACKS ▾ (Extract all fields)

Events Field Table Event Types Event Trends

1 to 50 out of 783 events

View ▾ Sort: Newest First ▾

Events Tab Total Matches Standard Syslog Fields

Jul 14, 2023 2023-07-14T12:11:01.279Z sa-esxi-02.vclass.local healthd[526427]: [Originator@6876 sub=HealthdHandler] Report Path: 05:10:04.672 /var/lib/vmware/osdata/healthd/vmw.ssdStorageHealth

source event_type facility priority hostname appname procid

Jul 14, 2023 2023-07-14T12:11:01.101Z sa-esxi-02.vclass.local healthd[526427]: [Originator@6876 sub=PluginLauncher] Launching binary: 05:10:04.492 /usr/lib/vmware/healthd/plugins/bin/ssd_storage.py ++group=healthd-plugins,mem=40 -u http://localhost:9996 --loglevel=error

source event_type facility priority hostname appname procid

Jul 14, 2023 2023-07-14T12:11:01.101Z sa-esxi-02.vclass.local healthd[526427]: [Originator@6876 sub=PluginLauncher] Peak requested 05:10:04.492 reservation (MB): 40, Peak requested reservation of children groups (MB): 40

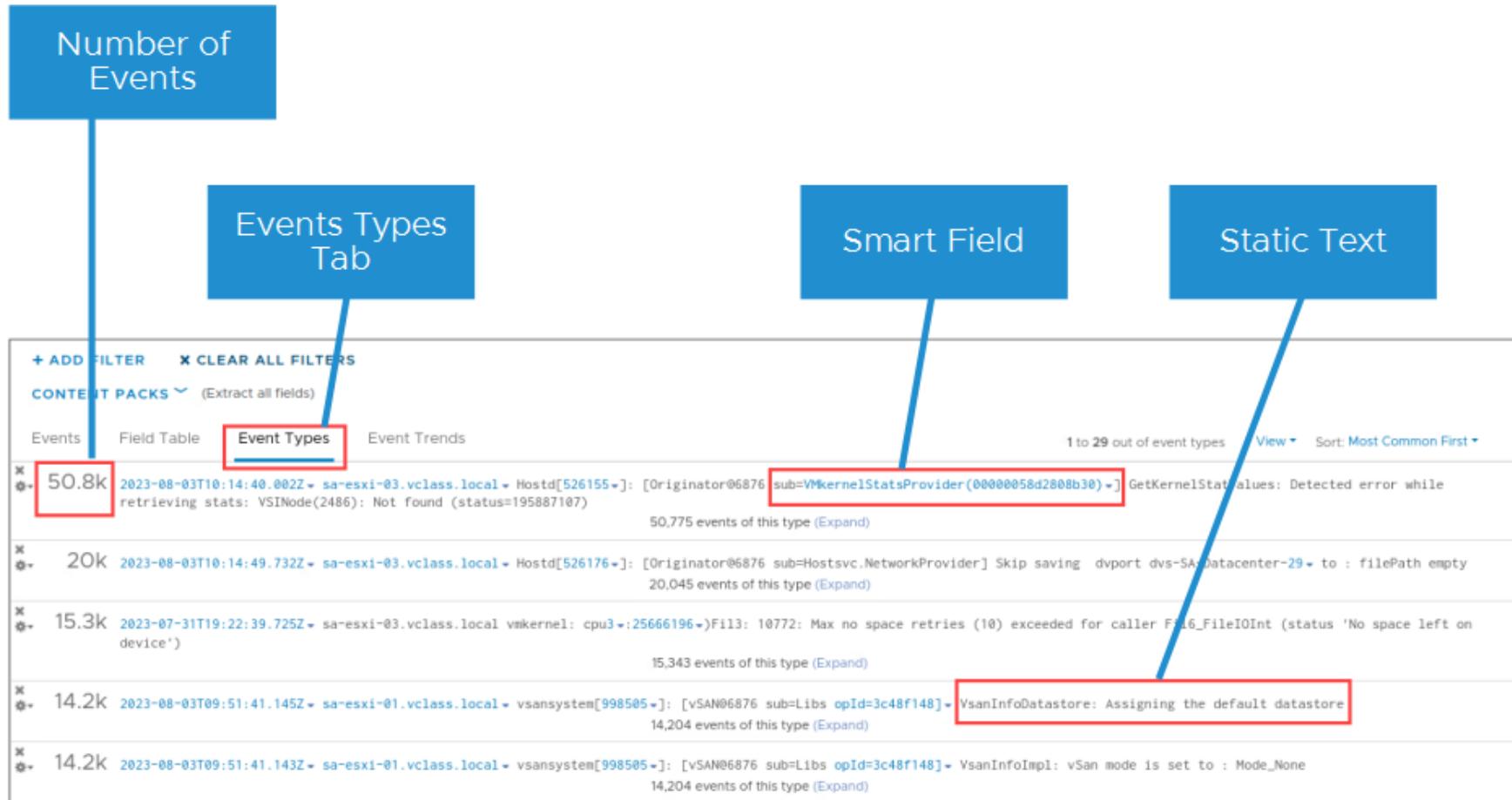
source event_type facility priority hostname appname procid

Jul 14, 2023 2023-07-14T12:11:01.101Z sa-esxi-02.vclass.local healthd[526427]: [Originator@6876 sub=PluginLauncher] 0 subgroups present 05:10:04.492 in group 641

source event_type facility priority hostname appname procid

Event Types

Event types (smart fields) are fields that are automatically extracted and categorized by VCF Operations for logs. Static fields have black text, whereas event fields have blue text.



Event Trends

You can use the **Event Trends** tab to analyze the log events for trends and anomalies with the event history.



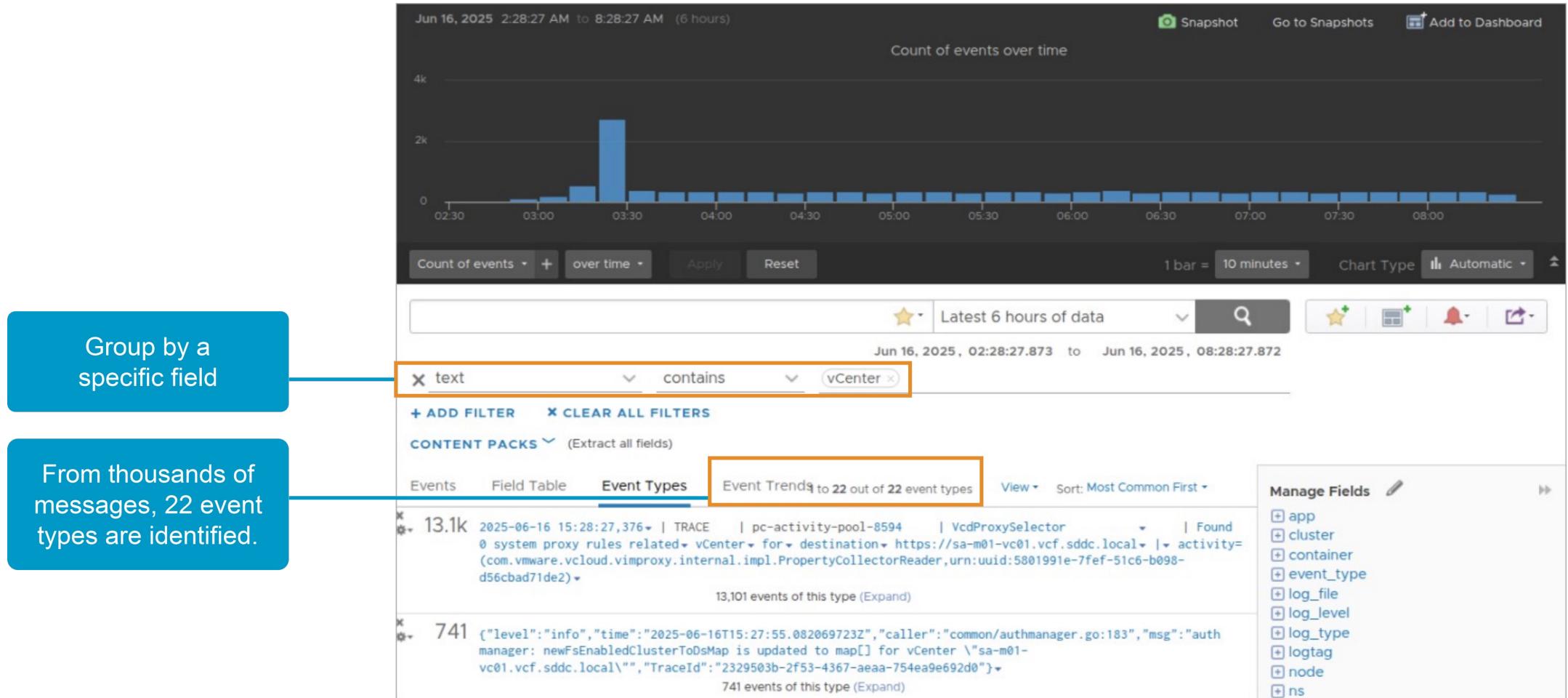
Event Trends Legend

Event trends use the following icons for new, existing, and deleted events in each event type, comparing the current event rate to the event rate at the time that you select in the first drop-down menu. You can point to these icons to view the increase and decrease rates.

Icon	Description
+	The event type has newly added events.
↑↑	The event type has a high increase rate for events.
↑↑↑	The event type has a moderate increase rate for events.
↑↑↑↑	The event type has a low increase rate for events.
=	The event type has the same number of events.
↓↓	The event type has a low decrease rate for events.
↓↓↓	The event type has a moderate decrease rate for events.
↓↓↓↓	The event type has a high decrease rate for events.
-	The event type no longer has any events.

Machine Learning

VCF Operations for logs uses the machine learning technology to group similar events.



About Queries

Queries in VCF Operations for logs can retrieve and summarize events.

You can create and save queries on the **Explore Logs** page. A query includes one or more of the following pieces of information:

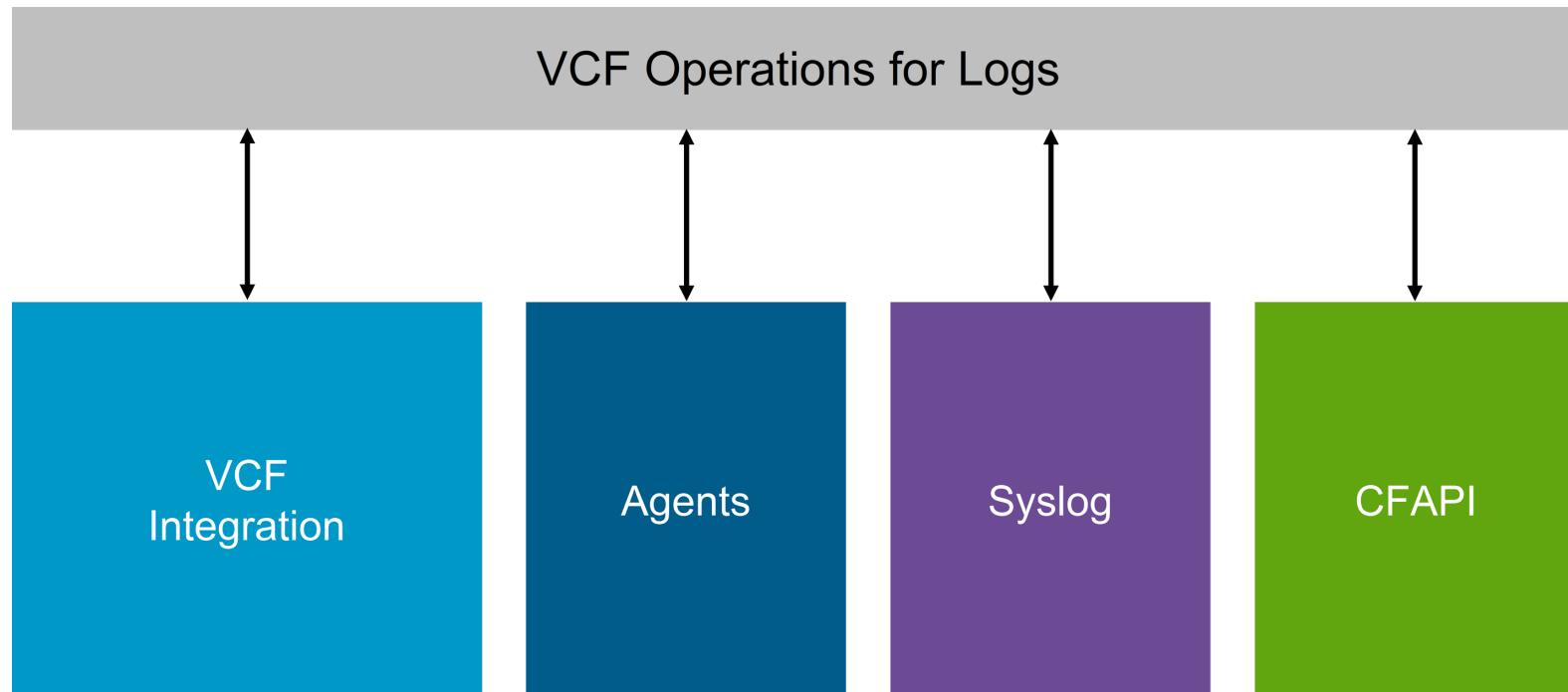
- Keywords: Complete matches or full-text, alphanumeric, hyphen, or underscore matches
- Globs: Complete matches or full-text, alphanumeric, hyphen, or underscore matches
- Regular expressions: Sophisticated string pattern matching based on Java regular expressions
- Field operations: Keyword, regular expression, and pattern matches applied to the extracted fields
- Aggregations: Functions that are applied to one or more subgroups of the results

VCF Operations for logs supports the following types of queries:

- Message: Queries that include keywords, regular expressions, or field operations
- Regular expression or field: Queries that include keywords or regular expressions
- Aggregation: Queries that include a function, one or more groupings, and any number of fields

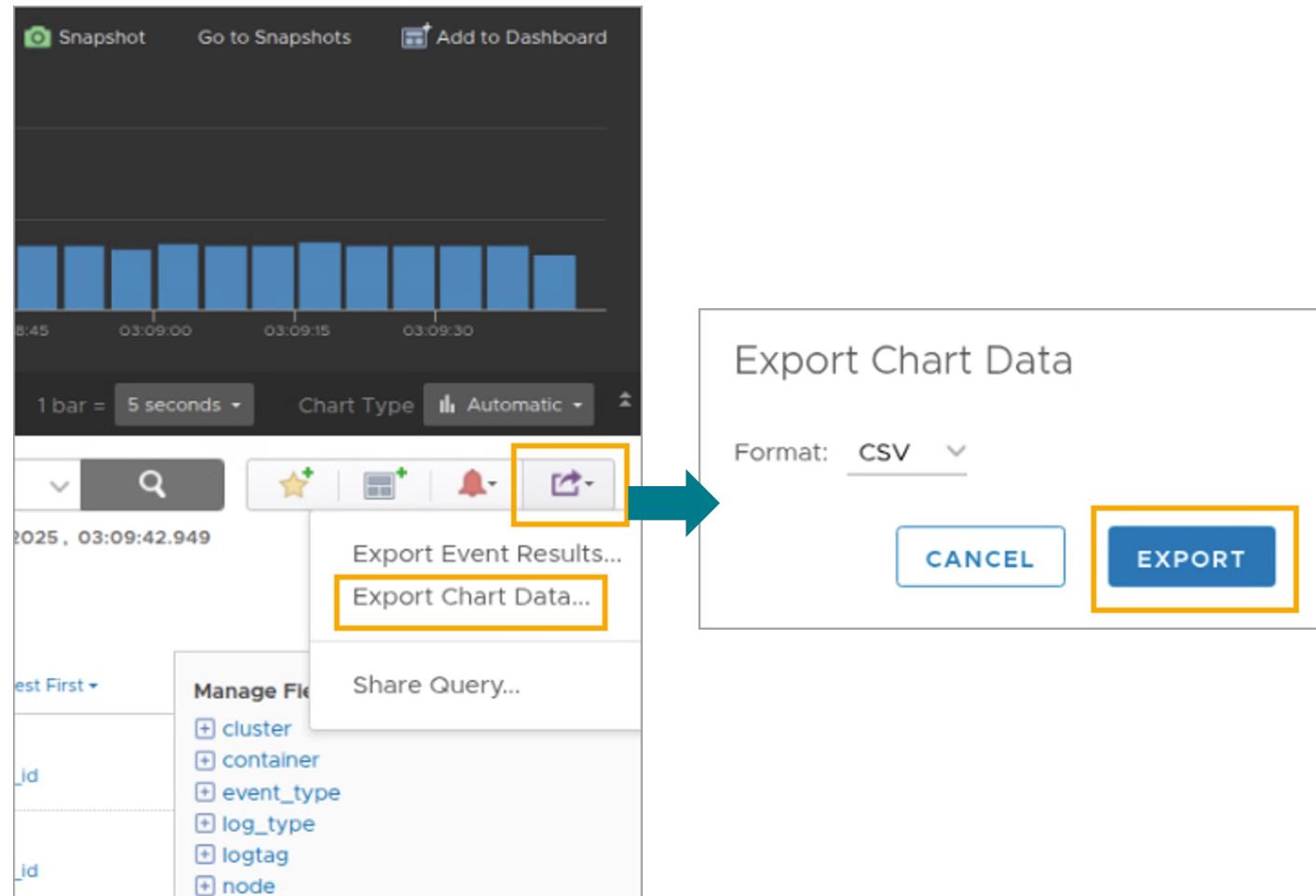
Log Event Details

You can connect VCF Operations for logs to everything in your environment, including operating systems, applications, storage, firewalls, and network devices, for enterprise-wide visibility using log analytics.



Exporting Data

You can export data from a chart to CSV and JSON formats.



Example: Filter on Error

A common query is to search for **error** in the collected log files.

The screenshot shows the VMware Log Analyze interface. On the left, there's a navigation sidebar with sections like Home, Inventory, Infrastructure Operations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The Infrastructure Operations section is expanded, showing Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, and Troubleshooting Workbench. The main area is titled 'Analyze' and has tabs for Logs, Metrics, and Flows. Under Logs, it shows 'ANALYSE LOGS' and 'COMPARE LOGS'. A search bar contains the word 'error'. Below it is a histogram titled 'COUNT OF EVENTS' over a 5-second interval, showing event counts at various times. The chart shows several peaks, with the highest being around 2 events between 02:58:15 AM and 02:58:30 AM. Below the histogram is a table titled 'Stream' with columns 'Timestamp' and 'Log'. It lists 24 items, with the first two entries highlighted by orange boxes:

Timestamp	Log
2025-06-16 03:02:45 -07:00	time="2025-06-16T09:01:32Z" level=error msg="Remotedialer proxy error; reconnecting..." error="ts: failed to verify certificate: x509: certificate is valid for 127.0.0.1, 198.18.0.151, 198.19.0.1, ::1, not 198.18.0.51" url="wss://198.18.0.51:6443/v1-k3s/connect"
2025-06-16 03:02:45 -07:00	time="2025-06-16T09:01:32Z" level=error msg="Failed to connect to proxy. Empty dialer response" error="ts: failed to verify certificate: x509: certificate is valid for 127.0.0.1, 198.18.0.151, 198.19.0.1, ::1, not 198.18.0.51"

On the right, there's a 'Fields' section with a 'FIELDS LIBRARY' button and a search bar. It lists fields like '_id', '_source_path', 'app', and '_index'.

Lab: VCF Operations for Logs Appliance

Check the operations-logs status and configure the log collection settings for VCF Operations:

1. Examine the VCF Operations for Logs Appliance
2. Set Up Log Collection for VCF Operations
3. Create Log Events
4. Review and Analyze Logs with Simple Queries

Review of Learner Objectives

- Describe the VCF Operations for logs overview
- Describe the requirements for a log analytics solution
- Describe the key benefits of VCF Operations for logs overview
- Access the VCF Operations for logs UI

VCF Storage Operations

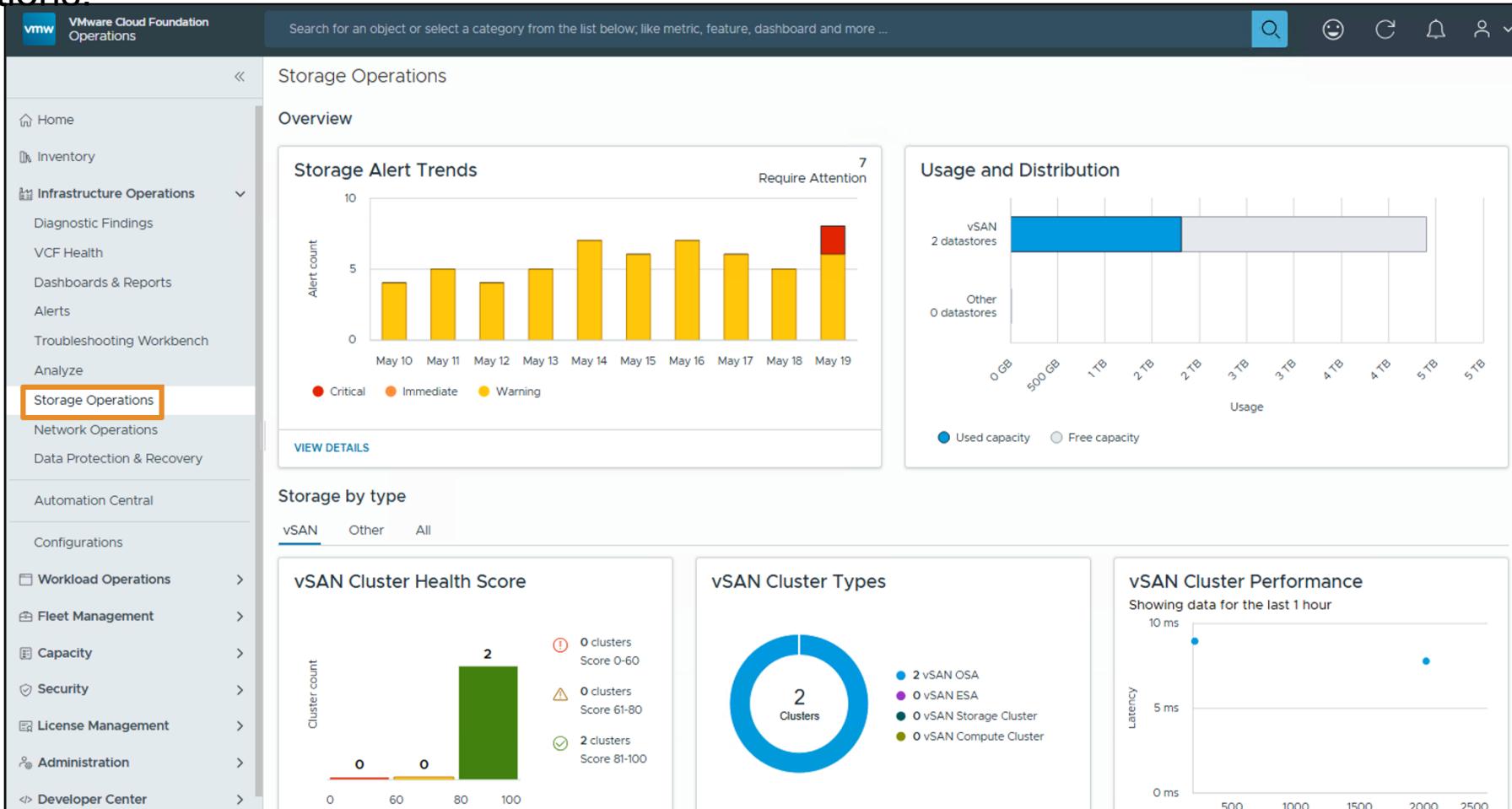


Learner Objectives

- Describe the VCF Storage Operations overview
- Identify performance and health issues with the Storage clusters
- Recognize the benchmarking and optimization tool to detect issues for a new cluster

About Storage Operations

The **Storage Operations** page is a centralized storage dashboard for vSAN and other storage options in VCF Operations.



About the Onboard vSAN Page

The **Onboard vSAN** page provides information about vSAN planning and deployment and describes how to design and deploy a vSAN cluster.

Storage Operations

Available now

Onboard vSAN

Unlock the full potential of your IT infrastructure with vSAN, a robust and scalable storage solution designed to seamlessly integrate with your existing VMware environment.

- ✓ VMware native storage
- ✓ Storage Policy based Management
- ✓ Deduplication, compression, and encryption
- ✓ Advanced health and performance troubleshooting
- ✓ Flexible and scalable with vSAN Max and remote datastore

Create your first vSAN cluster to start monitoring the service here.

[LEARN VSAN](#)

1 Plan and Design vSAN

- [Requirements for Enabling vSAN](#)
- [vSAN HCI Design Guide](#)
- [vSAN Max Design Guide](#)

2 Create vSAN clusters

- [Prepare and create a vSAN Cluster](#)

3 Start using vSAN

- [Migrate workload to vSAN](#)
- [Configure vSAN Data Protection](#)

The screenshot shows the Onboard vSAN page with several key sections: 1. A summary bar at the top with a green 'Available now' button. 2. A main heading 'Onboard vSAN' with a brief description. 3. A list of features: VMware native storage, Storage Policy based Management, Deduplication, compression, and encryption, Advanced health and performance troubleshooting, and Flexible and scalable with vSAN Max and remote datastore. 4. A 'Create your first vSAN cluster to start monitoring the service here.' button. 5. A 'LEARN VSAN' button. 6. Three numbered steps: 1. Plan and Design vSAN (with links to Requirements for Enabling vSAN, vSAN HCI Design Guide, and vSAN Max Design Guide). 2. Create vSAN clusters (with a link to Prepare and create a vSAN Cluster). 3. Start using vSAN (with links to Migrate workload to vSAN and Configure vSAN Data Protection). 7. A large central panel titled 'Storage Operations' containing three charts: 'vSAN Cluster Health Score' (bar chart), 'vSAN Cluster Types' (donut chart), and 'vSAN Performance' (scatter plot of IOPS vs Latency). Below these charts is a table with columns: vSAN Cluster, Datastore, vCenter, vSAN Configuration, Health Score, VM count, Capacity Usage, Space Eff., IOPS, and Latency. One row is visible: vSAN Cluster 1, vsanDatastore, vcenter.acme.com, Stretched, 42, 52, 11.2 TB / 20.00 TB, 1.5k, 1.1 ms. At the bottom of the central panel is a search bar: 'Type here to apply filters' and a 'VIEW METRICS' button.

vmware®
by Broadcom

Configuring a vCenter Cloud Account

To view data related to vSAN on the storage operations page, you must configure a vCenter account that is enabled by vSAN.

The screenshot shows the VMware Cloud Foundation Operations interface. The left sidebar navigation includes Home, Inventory, Infrastructure Operations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and Integrations. The Integrations section is highlighted with an orange box. The main content area displays the 'Integrations' page with tabs for Accounts, Repository, and Marketplace. Under the Accounts tab, there is a list for 'VMware Cloud Foundation' showing one account named 'EDU'. A context menu is open over this account, listing options: Edit, Delete, Stop Collecting, and Go to Details. The 'Edit' option is highlighted with an orange box. A modal window titled 'sa-m01-vc01.vcf.sddc.local' is displayed, containing tabs for vCenter, vSAN, and Service Discovery. The vSAN tab is selected. Inside the vSAN tab, the 'vSAN configuration' toggle switch is shown as 'Activated' (green). Other options in the modal include 'Use alternate credentials' and 'Enable SMART data collection', both of which have checkboxes next to them. A 'VALIDATE CONNECTION' button is at the bottom of the modal.

Storage Alert Trends Widget

The widget shows a chart with historical data about the storage alerts in the past 10 days.

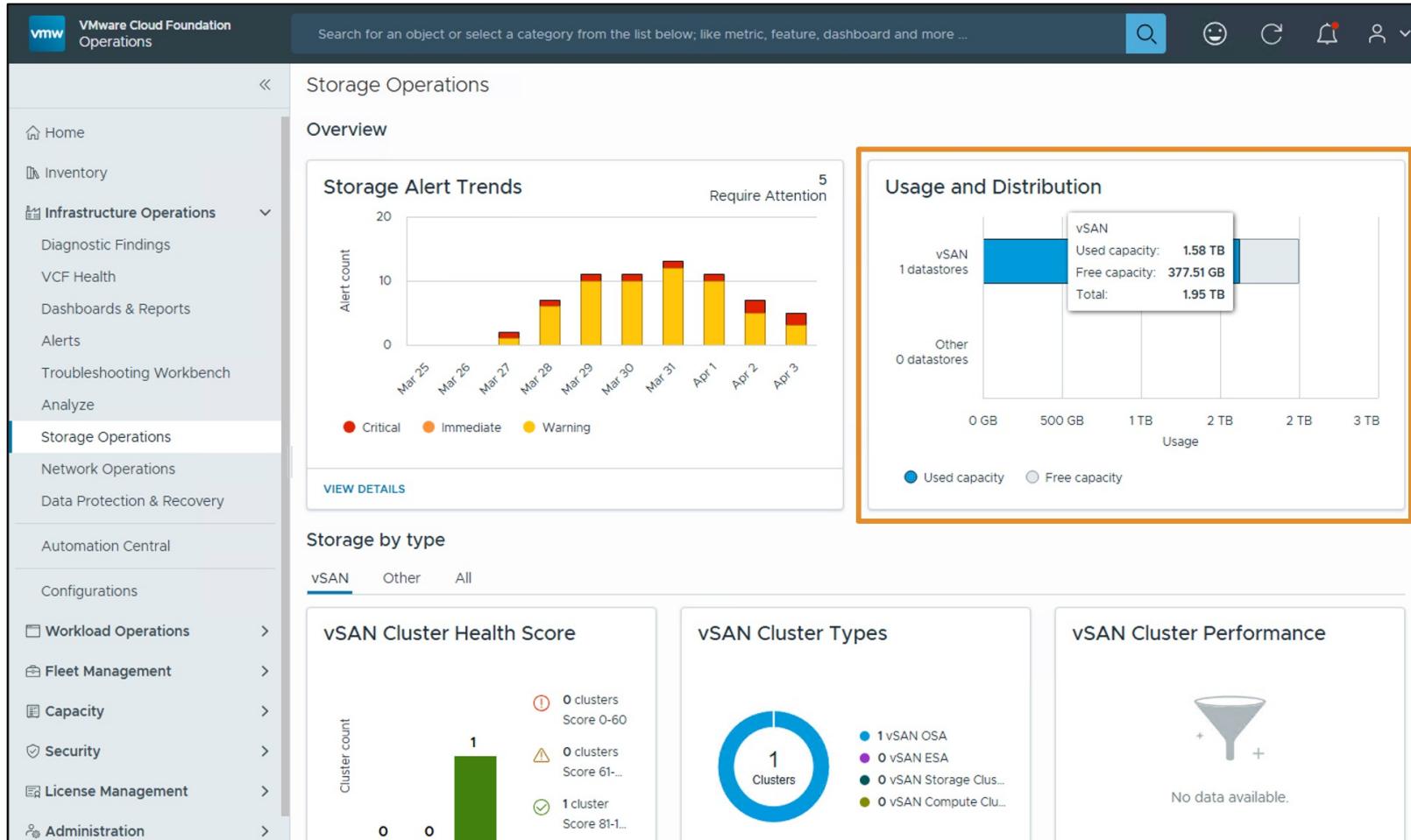
The screenshot displays two main views from the VMware Cloud Foundation Operations interface:

- Storage Operations Overview:** This section features a chart titled "Storage Alert Trends" showing the count of alerts over time. The x-axis represents dates from March 25 to April 3, and the y-axis represents the alert count from 0 to 20. The legend indicates three types of alerts: Critical (red), Immediate (orange), and Warning (yellow). A total of 5 alerts are shown across the period, with a notable peak on March 31.

Date	Critical	Immediate	Warning	Total
Mar 25	0	0	0	0
Mar 26	0	0	0	0
Mar 27	0	0	1	1
Mar 28	0	0	7	7
Mar 29	0	0	11	11
Mar 30	0	0	11	11
Mar 31	0	0	14	14
Apr 1	0	0	11	11
Apr 2	0	0	6	6
Apr 3	0	0	4	4
- All Alerts:** This section lists five active alerts related to vSAN cluster health:
 - Some disk(s) free space in vSAN Cluster is less than 10% (Critical)
 - The usage of vSAN cluster capacity tier disks or vSAN managed datastore under the cluster are beyond the thresholds. (Warning)
 - After one additional host failure, vSAN Cluster will not have enough resources to rebuild all objects. (Critical)
 - Check the free space on physical disks in the vSAN cluster. (Warning)
 - Overall health of the physical disks in a vSAN Cluster is impacted. (Warning)

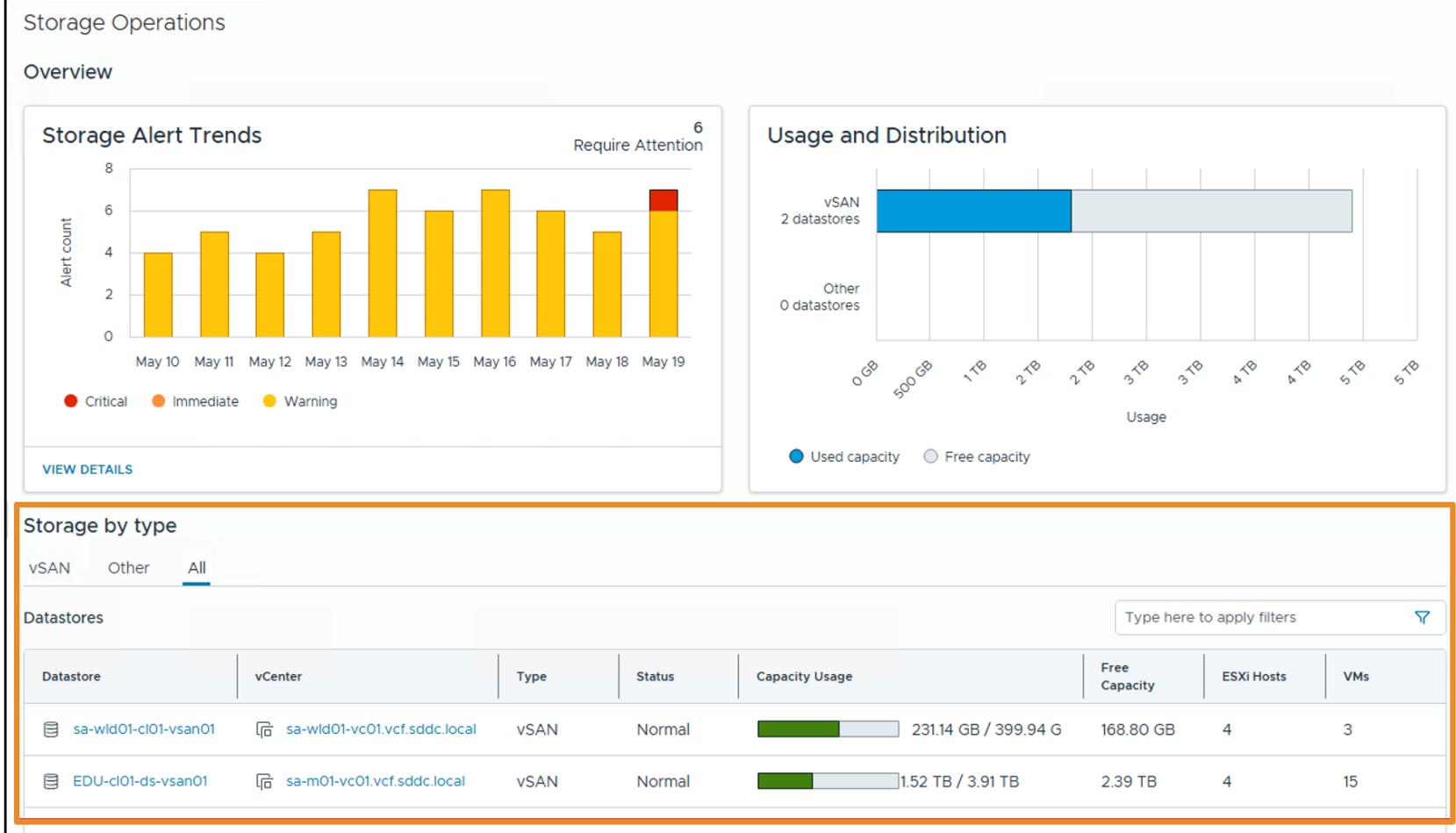
Usage and Distribution Widget

The Usage and Distribution widget shows the storage distribution and its utilization by type: vSAN and other data stores.



Storage by Type Widget

The Storage by Type widget shows three tabs: **vSAN**, **Other**, and **All**. When selected, each tab shows information about the selected data store type.



vSAN Inventory Widget

When the **vSAN** tab is selected, three widgets related to vSAN appear.

The screenshot displays the vSAN Inventory Widget interface. At the top, there's a navigation bar with tabs for "Storage Operations", "Storage by type" (with "vSAN" selected), "Other", and "All".

vSAN Cluster Health Score: A bar chart showing cluster counts based on health scores. The x-axis ranges from 0 to 100. The legend indicates: 0 clusters (Score 0-60) in red, 0 clusters (Score 61-80) in yellow, and 1 cluster (Score 81-100) in green. The chart shows 0 in the first two categories and 1 in the third.

vSAN Cluster Types: A donut chart showing the distribution of vSAN clusters across different types. The legend includes: 1 vSAN OSA (blue), 0 vSAN ESA (purple), 0 vSAN Storage Cluster (dark blue), and 0 vSAN Compute Clus.. (green). The chart shows 1 cluster under the vSAN OSA category.

vSAN Cluster Performance: A section with a funnel icon and the message "No data available."

vSAN Clusters: A table listing details for a single vSAN cluster. The columns are: Cluster, Datastore, vCenter, vSAN Configuration, Health Score, ESXi Hosts, VMs, Capacity Usage, and Space Effic. The data row shows: EDU..., EDU-cl01-ds-vsa..., sa-m01-vc01.vcf.sddc.l..., OSA, 90, 4, 11, 1.59 TB / 1.95 TB, and --. A search bar at the top of the table says "Type here to apply filters".

Configuring the vSAN Performance Service

If the vSAN Performance charts are empty, enable and configure the vSAN Performance Service in vCenter.

The screenshot shows the vSphere Client interface for a cluster named 'EDU-cl01'. The left sidebar displays various hosts and datastores. The main pane shows the 'Configure' tab selected, specifically the 'Services' section under 'vSAN'. A sub-menu for 'vSAN Services' is open, showing options like 'Disk Management', 'Fault Domains', 'Datastore Management', and 'Performance Service'. The 'Performance Service' option is currently disabled. Below this, a detailed description of the vSAN performance service is provided, stating it allows monitoring of vSAN environment performance and collecting statistics. An 'ENABLE' button is present. A modal dialog box is overlaid on the main pane, titled 'vSAN Performance Service Settings' for 'EDU-cl01'. It shows a dropdown menu for 'Storage policy' with 'EDU-cl01 vSAN Storage Policy' selected. At the bottom of the dialog are 'CANCEL' and 'ENABLE' buttons. The entire configuration process is highlighted with a large orange rectangle.

Performance Diagnostics

The vSAN cluster performance tile provides an overview of the performance of the vSAN clusters in relation to one another.

vSAN Cluster Performance

Showing data for the last 1 hour

Cluster	IOPS	Throughput	Latency
EDU-cl01	1830	40.51 MB	6 ms
sa-m01-vc01.vcf.sddc.local			0 ms

RUN NEW DIAGNOSTICS

VIEW DIAGNOSTICS **VIEW DASHBOARD**

vSAN Performance Diagnostics

Storage Operations / vSAN Performance Diagnostics

[Learn more about vSAN Performance Diagnostics](#)

Run new vSAN Performance Diagnostics on a cluster to view results

RUN NEW DIAGNOSTICS

Running Performance Diagnostics

The Performance Diagnostics screen enables the user to analyze and troubleshoot potential performance issues and anomalies.

Run New Diagnostics

Storage Operations / vSAN Performance Diagnostics / Run New Diagnostics

All fields marked with * are required.

Diagnostic goal *

Troubleshooting (production cluster) Benchmarking and Optimizing (new cluster) (i)

Select a target vSAN cluster *

Type here to apply filters (X)

	Cluster	VM count	Datacenter	vCenter
<input type="radio"/>	EDU-cl01	16	EDU-dc01	sa-m01-vc01.vcf.sddc.local
<input type="radio"/>	sa-wld01-cl01	3	sa-wld01-DC	sa-wld01-vc01.vcf.sddc.local

Manage Columns 1 - 2 of 2 clusters

Time Range * LAST 24 HOURS ▼ 05/19/2025 17:09 - 05/20/2025 17:09

RUN NEW DIAGNOSTICS **CANCEL**

Troubleshooting a Production Cluster

Run performance diagnostics for a cluster that is already in use and has a workload running on the cluster.

Run New Diagnostics

Storage Operations / vSAN Performance Diagnostics / Run New Diagnostics

All fields marked with * are required.

Diagnostic goal * Troubleshooting (production cluster) Benchmarking and Optimizing (new cluster) (i)

Select a target vSAN cluster * EDU-cl01 16 sa-wld01-cl01 3 Type here to apply filters

Cluster	VM count	Datacenter	vCenter
EDU-cl01	16	EDU-dc01	sa-m01-vc01.vcf.sddc.local
sa-wld01-cl01	3	sa-wld01-DC	sa-wld01-vc01.vcf.sddc.local

Manage Columns 1 - 2 of 2 clusters

Time Range * 05/19/2025 17:09 - 05/20/2025 17:09

Presets

LAST 1 HOUR

LAST 6 HOURS

LAST 12 HOURS

LAST 24 HOURS

Custom Range

Select a time range within 48 hours.

Start date: Start time: (i)

End date: End time: (i)

Benchmarking and Optimizing

To run benchmarking and optimization for a new cluster, before adding any workload, select a Diagnostic goal and select the target vSAN cluster.

Run New Diagnostics

Storage Operations / vSAN Performance Diagnostics / Run New Diagnostics

All fields marked with * are required.

Diagnostic goal *

Troubleshooting (production cluster)

Benchmarking and Optimizing (new cluster) ⓘ

Benchmark goal

Maximize IOPS

Minimize latency

Maximize throughput

Select a target vSAN cluster

Type here to apply filters

Cluster	Datacenter	vCenter
EDU-cl01	EDU-dc01	sa-m01-vc01.vcf.sddc.local

Manage Columns

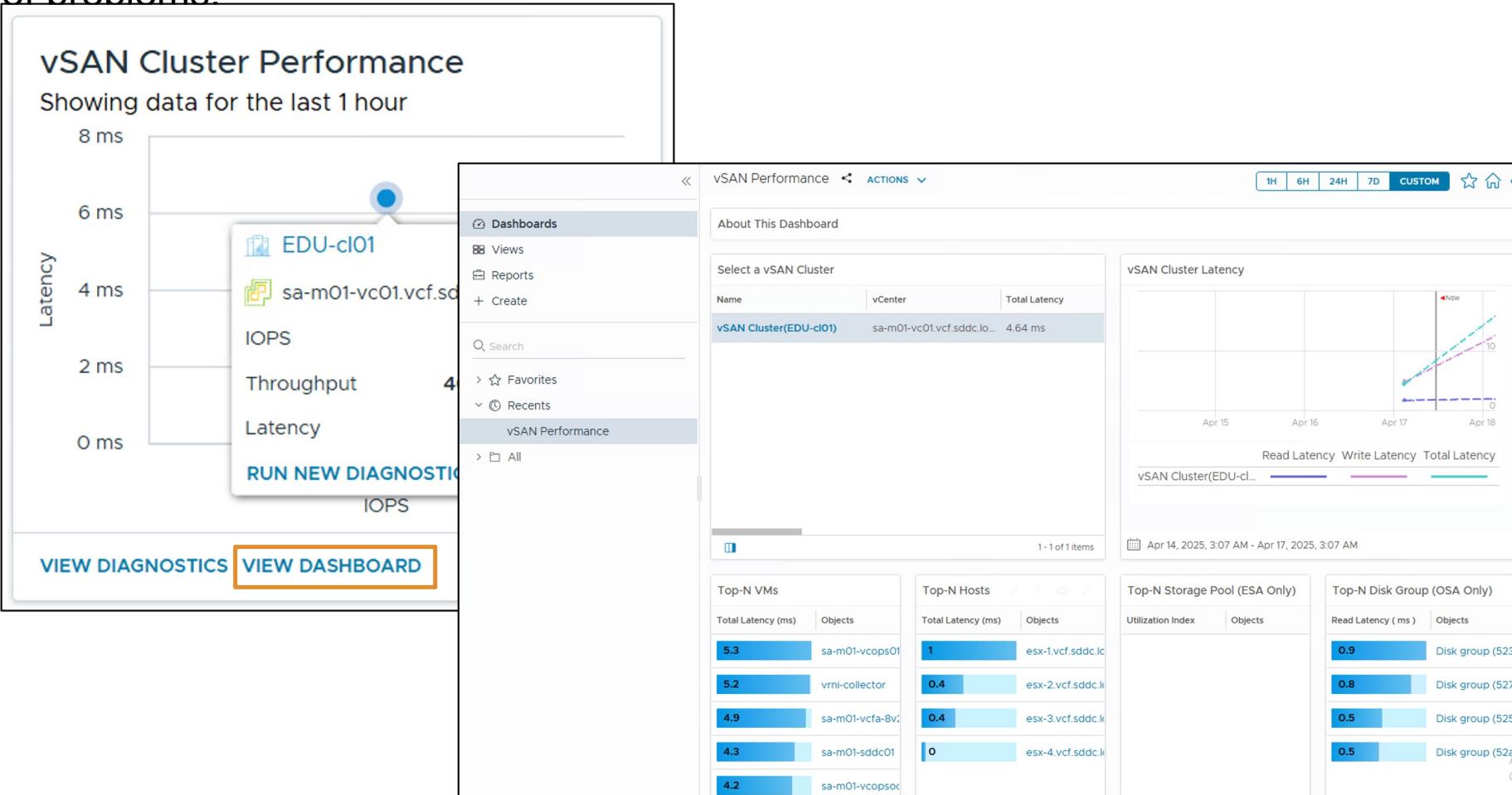
1 - 1 of 1 clusters

Time Range * CUSTOM 04/13/2025 13:23 - 04/14/2025 13:23

RUN NEW DIAGNOSTICS CANCEL

vSAN Performance Dashboard

You can use the vSAN cluster performance charts to monitor the workload in your cluster and determine the root cause of problems.



VCF Operations Inventory

You can manage and monitor the health and performance of your vSAN clusters and remediate alerts in VCF Operations.

The screenshot displays the VMware Cloud Foundation Operations interface. The left sidebar shows navigation options like Home, Inventory (which is selected and highlighted), Infrastructure Operations, and various monitoring and management tools. The main content area is titled 'Inventory' and shows a tree view of 'VCF Instances' under 'EDU'. A specific 'vSAN Cluster(EDU-cl01)' node is selected and highlighted with a red box. The right side of the screen provides detailed information about this cluster, including its configuration (All-flash), space efficiency (None), and various metrics like ESXi count (4), Virtual Machine count (11), and Disk Group count (4). It also displays 'Active Alerts' for different severity levels (Critical, Immediate, Warning, Info) and a 'Capacity Summary' chart showing total capacity (1,999.84 GB), used capacity (1,697.22 GB), remaining capacity (302.62 GB), and percentage remaining (15.13%). Below these are sections for 'vSAN Health Score' (represented by a gauge) and 'Health Score Trend' (represented by a bar chart).

Storage Performance Dashboards

The Datastore and vSAN Performance dashboard helps identify storage-related performance issues such as high latency, high outstanding I/O, and low utilization.

The screenshot displays the VMware Cloud Foundation Operations interface. On the left, a navigation sidebar includes Home, Inventory, Infrastructure Operations (Diagnostic Findings, VCF Health), Dashboards & Reports (selected and highlighted with a red box), Alerts, Troubleshooting Workbench, and Analyze. The main content area shows the 'vSAN Cluster(EDU-cl01)' details and an 'Active Alerts' section. To the right, a 'Dashboards' panel is open, showing sections for Configuration, Inventory, Performance, and Capacity. The 'Performance' section is expanded, featuring four cards: Cluster Performance, Datastore Performance (highlighted with a red box), VM Performance, and vSAN Performance (highlighted with a red box). The 'Datastore Performance' card includes a sub-section titled 'Performance is about ensuring workloads get the necessary resources. Key Performance Indicators (KPI) can be used to identify when workloads may have performance problems, and these KPIs can be used to define SLAs associated with tiers of service. These dashboards use KPIs to show the performance of workloads at the consumer layer and the aggregate performance of workloads at the provider layer.'

Lab: Monitoring Storage Operations

Practice storage monitoring in the VCF Operations console:

1. Review the vSAN Cluster Details in VCF Operations
2. Monitor Storage Operations in VCF Operations

Review of Learner Objectives

- Describe the VCF Storage Operations overview
- Identify performance and health issues with the Storage clusters
- Recognize the benchmarking and optimization tool to detect issues for a new cluster

VCF Network Operations



Learner Objectives

- Describe the VCF Network Operations overview
- Discuss the different widgets available in VCF Network Operations
- Identify performance and health issues with the VCF Networking objects

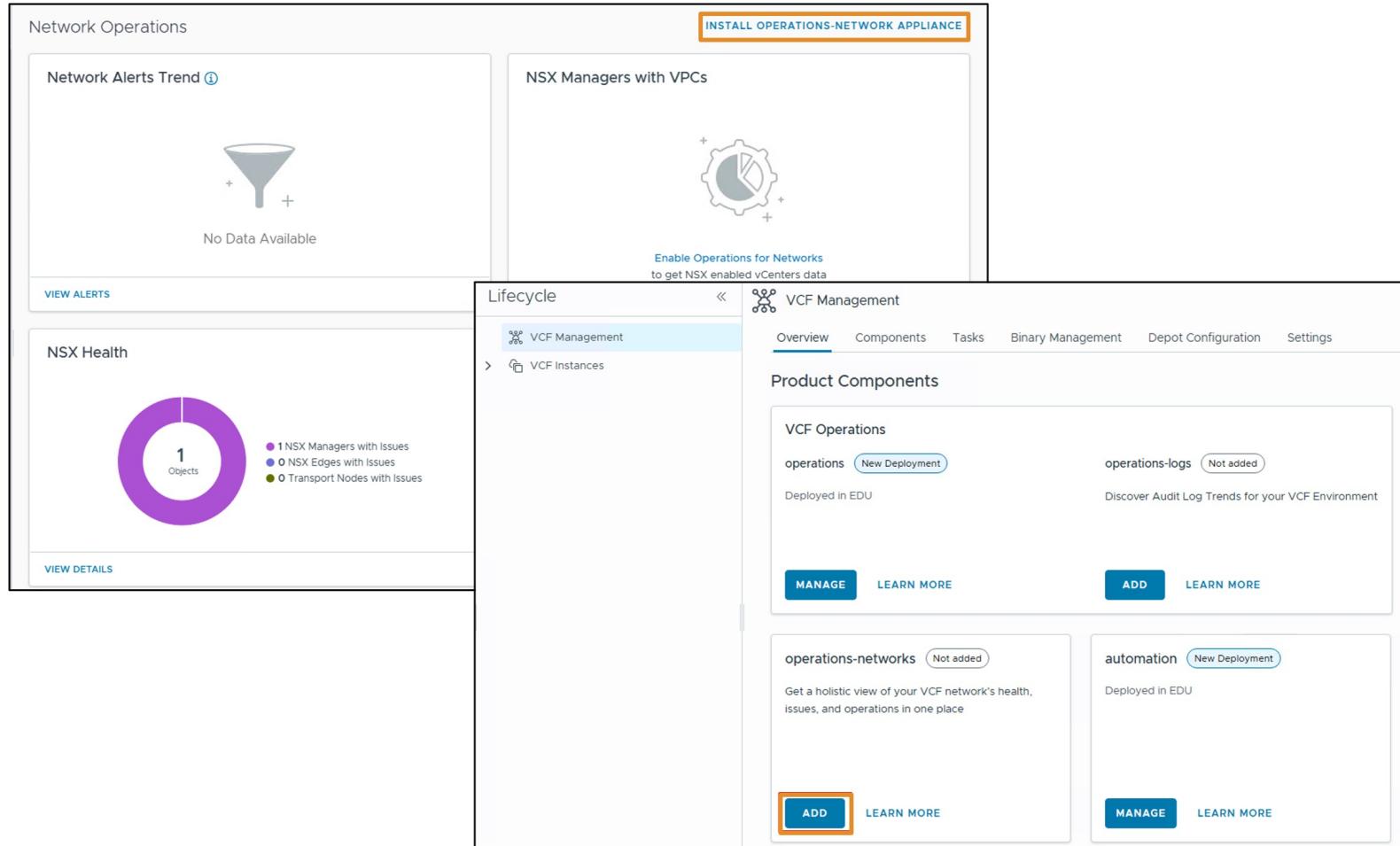
About VCF Operations for Networks

Network Operations provides you with an overview of your VCF Operations network resources and quick access to the VCF Operations for networks console.

The screenshot shows the VMware Cloud Foundation Operations Network Operations dashboard. The left sidebar contains navigation links for Home, Inventory, Infrastructure Operations (Diagnostic Findings, VCF Health, Dashboards & Reports, Alerts, Troubleshooting Workbench, Analyze, Storage Operations, Network Operations, Data Protection & Recovery), Automation Central, Configurations, Workload Operations, Fleet Management, Capacity, Security, License Management, Administration, and DevOps Center. The 'Network Operations' link is highlighted with an orange box. The main content area includes a search bar at the top right, a 'Network Inventory' section with counts for NSX Instances (2), Transport Nodes (12), Edge Clusters (2), Gateways (1), Segments (4), NSX Projects (2), VPCs (2), and VDS (3), and buttons to 'VIEW NSX INVENTORY' and 'VIEW VSPPHERE NETWORK INVENTORY'. Below this is a 'Network Alerts Trend' chart showing a count of 10 alerts requiring attention from May 16 to May 22, with categories Critical (red), Immediate (orange), and Warning (yellow). A 'VIEW ALERTS' button is below the chart. To the right is a 'NSX Managers with VPCs' donut chart showing 2 NSX Managers, with 1 Without VPC (blue) and 1 With VPC (purple). A 'VIEW DETAILS' button is next to the chart. At the bottom are sections for 'NSX Health' (3 Objects: 0 NSX Managers with Issues, 2 NSX Edges with Issues, 1 Transport Nodes with Issues) and 'Business Applications with Flows' (represented by a funnel icon).

Operations for Networks Prerequisites

To view network details events in VCF Network Operations, deploy the VCF Operations for networks appliance.



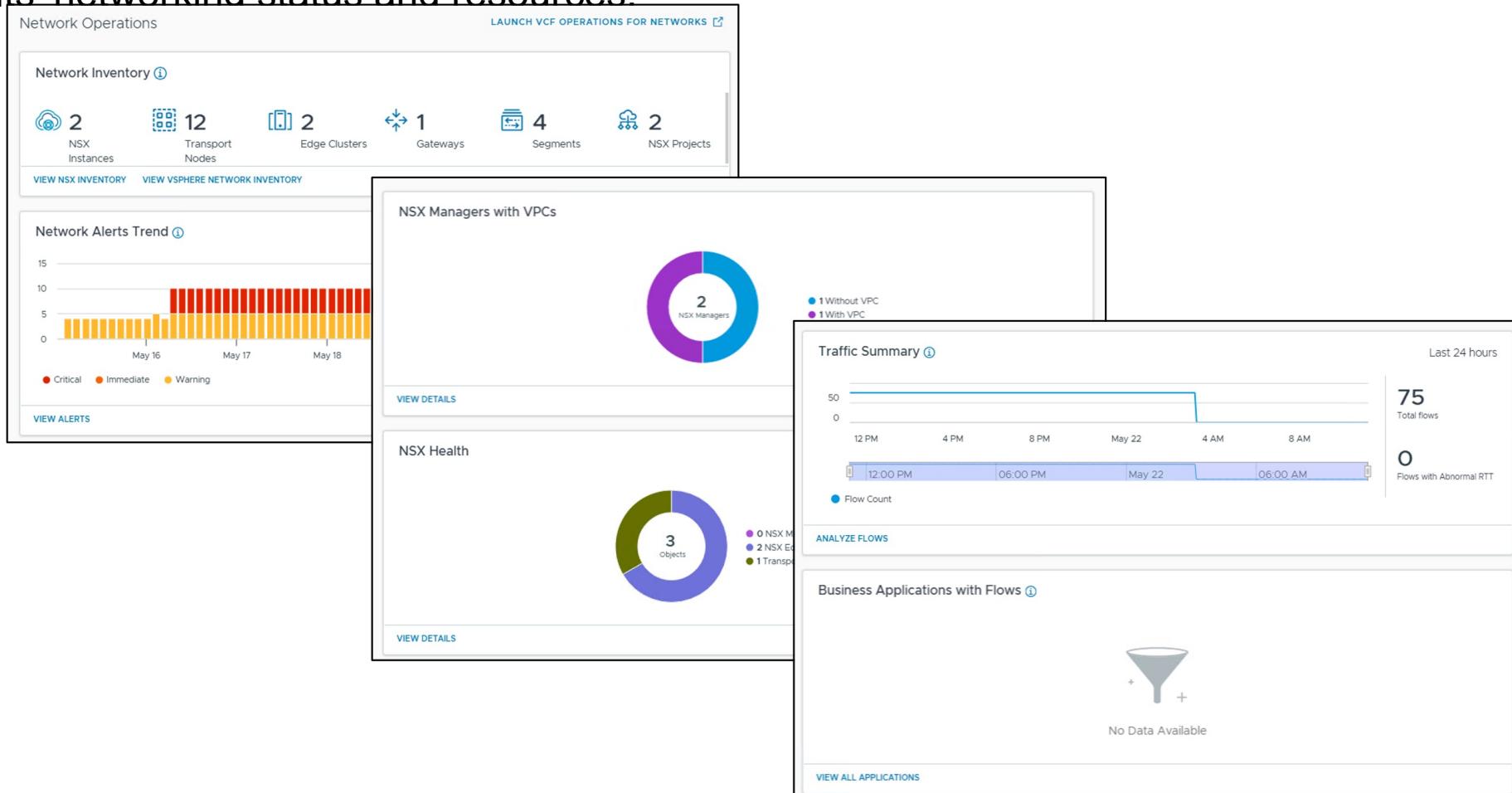
Turning on Flow Collection for vCenter and NSX

To enable data sync between the vCenter data source and VCF Operations for networks, select the data source and activate network and flow collection.

The screenshot shows two overlapping UI panels. The left panel is titled 'Integrations' and lists data sources: 'VMware Cloud Foundation' (selected), 'VCF Automation for All Apps Organization', and 'VCF Automation for All Apps Organization'. The 'VMware Cloud Foundation' entry has a context menu open with 'Edit' highlighted. The right panel is titled 'EDU' and shows the configuration for the selected vCenter account. It includes tabs for 'Account' (selected) and 'Domains'. A note says 'Configure each domain to enable it for monitoring.' Below this, the 'EDU' domain is listed with status 'Configured' (1). Under 'Network Operations', there are sections for 'Network & Flow' (with 'Activate Network & Flow Collection' checked) and 'Collector' (set to 'Collector_172.20.10.45'). A note below the collector says 'Default collector cannot be used for collection. To use this option, select an advanced collector/group'. Another note says 'Selecting this option will update the vCenter NetFlow settings on the VDS selected below.' At the bottom, there's a link to 'Customize VDS Selection' and a note '0 of 1 VDS selected'.

Network Operations Page

The **Network Operations** page includes several useful widgets that provide information about your deployments' networking status and resources.



Networking Inventory Widget

The Networking Inventory widget includes the networking objects in your inventory such as NSX instances, transport nodes, and edge clusters.

Network Inventory

2 NSX Instances 12 Transport Nodes 2 Edge Clusters 1 Gateways 4 Segments 2 NSX Projects 2 VPCs 3 VDS

[VIEW NSX INVENTORY](#) [VIEW VSphere NETWORK INVENTORY](#)

NSX Inventory ACTIONS CUSTOM Relationships Inventory

Relationships: A complex network graph showing relationships between various NSX components like Manager Domains, Edge Clusters, Transport Nodes, and Segments.

Inventory:

- 2 Edge Clusters
- 8 Transport Zones
- 2 Management Networks
- 1 Tier-0 Gateways
- 0 Tier-1 Gateways
- 1 Load Balancer Services
- 4 Segments
- 60 Subnets

vsphere Network Inventory ACTIONS CUSTOM Relationships Inventory

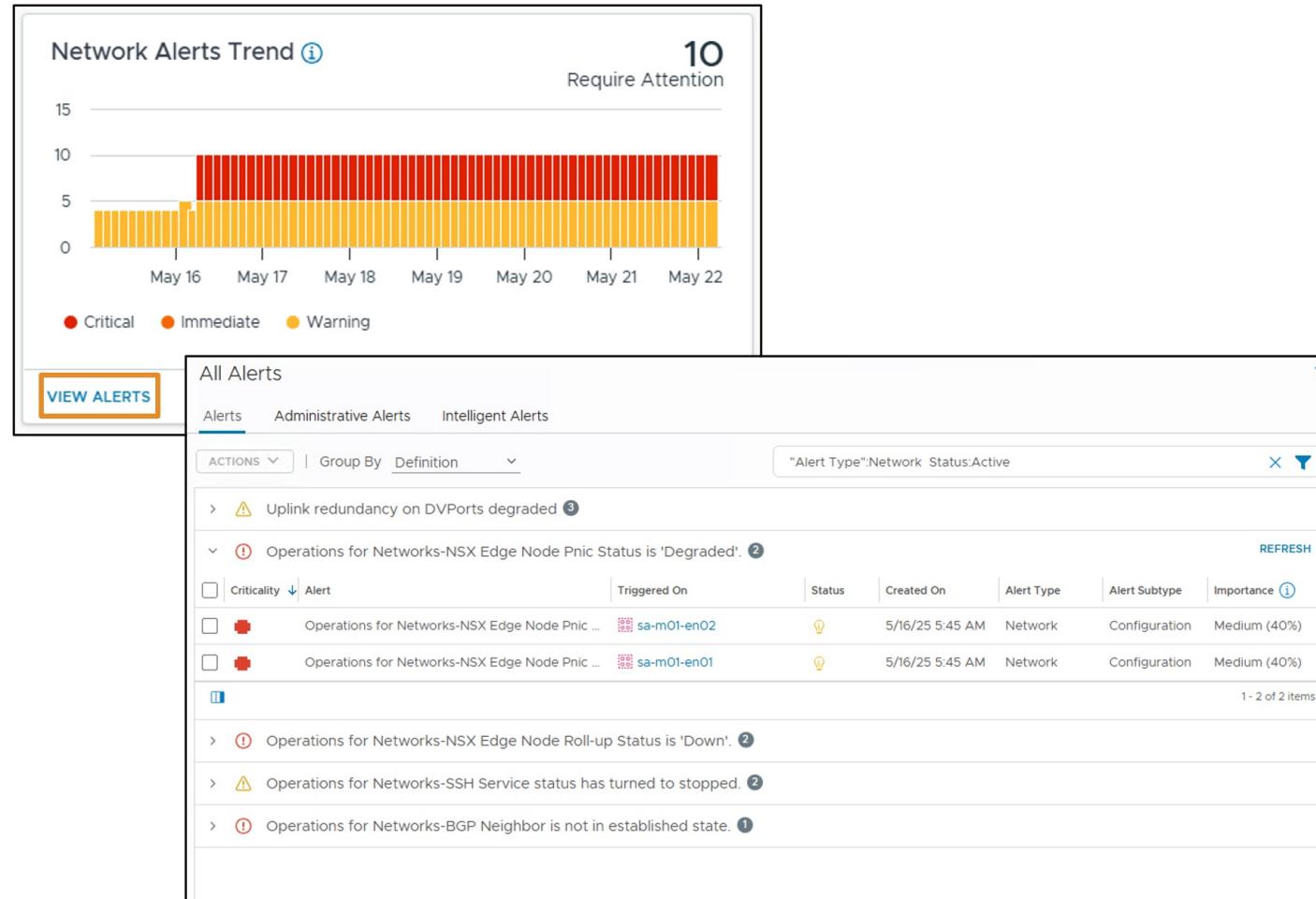
Relationships: A network graph showing connections between vsphere World, Virtual Private Clouds, and Datacenter components.

Inventory:

- 22 Running VM
- 22 VM
- 8 Running ESXi
- 8 Total ESXi
- 2 vCenter
- 2 Datacenter

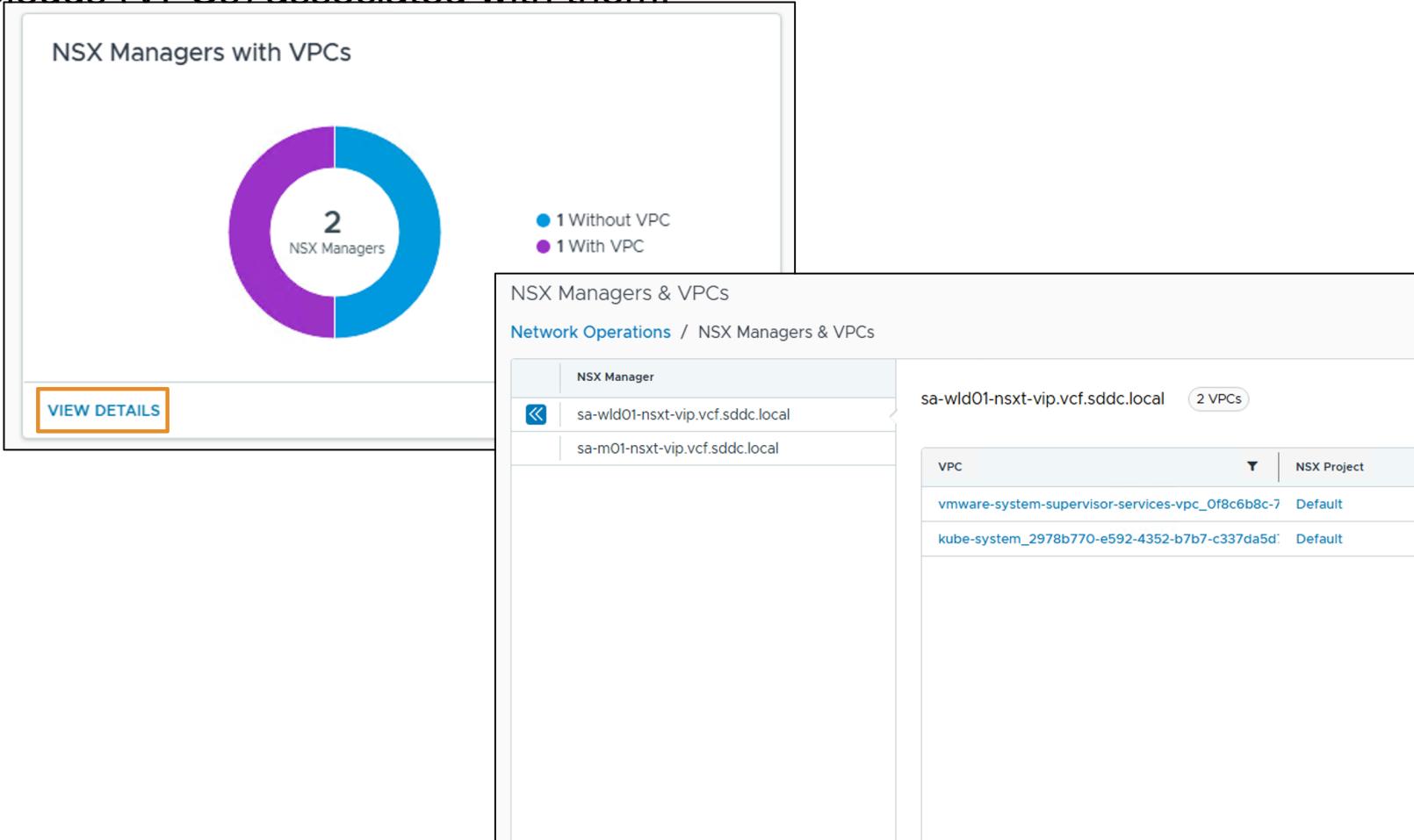
Network Alerts Widget

The Network Alerts widget includes a metric overview of the alerts in your environment.



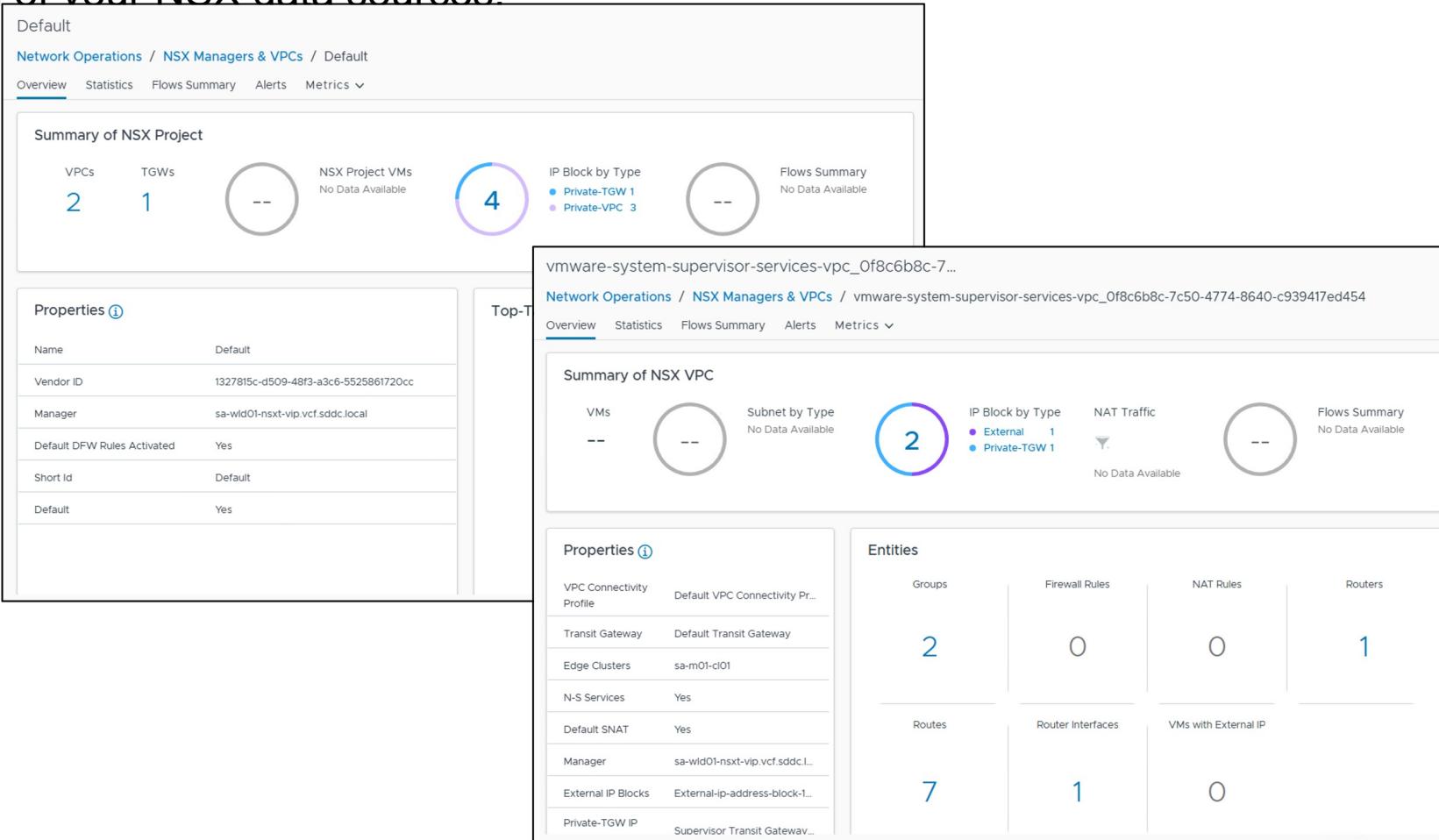
NSX Managers and VPCs Widget

The NSX Managers and VPCs widget includes information about the NSX Manager instances and the Virtual Private Clouds (VPCs) associated with them.



NSX Projects and VPC Details

You can use the data provided from Projects and VPCs to perform more granular analysis and troubleshooting of your NSX data sources.

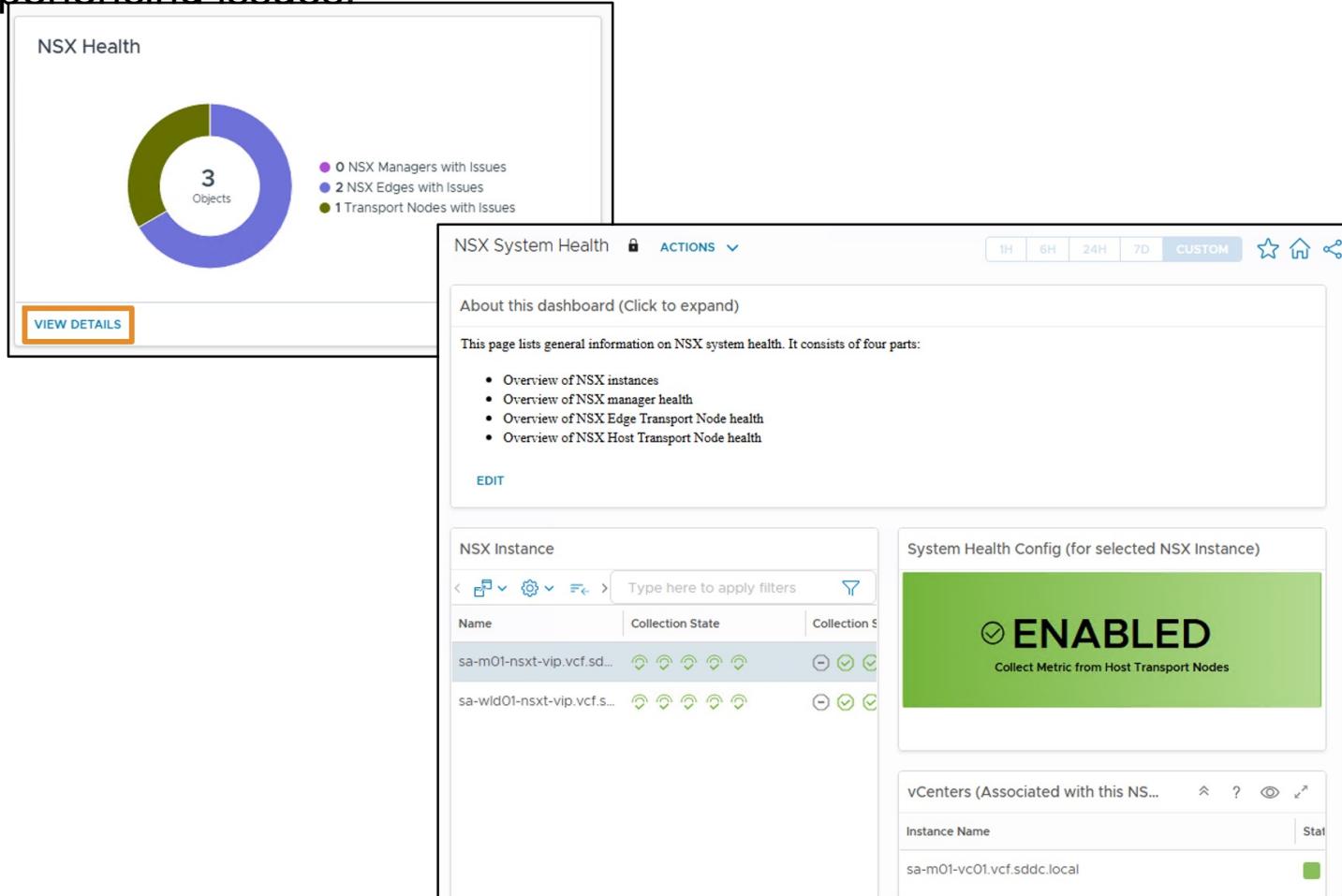


The screenshot displays the NSX Manager & VPCs interface with two main project cards:

- Default Project:** Overview card showing 2 VPCs, 1 TGW, and 4 IP Blocks by Type (Private-TGW 1, Private-VPC 3). It also includes sections for NSX Project VMs (No Data Available), Flows Summary (No Data Available), and Properties (including Name, Vendor ID, Manager, Default DFW Rules Activated, Short Id, and Default).
- vmware-system-supervisor-services-vpc_0f8c6b8c-7... Project:** Overview card showing 2 VMs, 2 Subnets by Type (External, Private-TGW 1), and 1 NAT Traffic. It also includes sections for Properties (VPC Connectivity Profile, Transit Gateway, Edge Clusters, N-S Services, Default SNAT, Manager, External IP Blocks, and Private-TGW IP), Entities (Groups, Firewall Rules, NAT Rules, Routers, Routes, Router Interfaces, and VMs with External IP), and a Top-Tier Entity section.

NSX Health Widget

The NSX Health widget includes information about any NSX Manager instances, transport nodes, or edge nodes, which are experiencing issues.



Business Applications Based on Flows

A Business Application is a container construct that represents a collection of interdependent hardware and software components that deliver a specific capability to support your business.

The screenshot displays two views of the VMware Cloud Foundation Operations interface. On the left, the 'Business Applications' page shows a sidebar with 'Workload Operations' selected, and 'Business Applications' highlighted. A dropdown menu offers 'Define Manually' and 'Based on Flows', with 'Based on Flows' highlighted by an orange box. The main area lists various applications under 'Business Applications'. On the right, the 'Flow Based Discovery' page shows a search bar, a list of discovered applications, and a hexagonal network diagram. The application list table is as follows:

Application Name	Confidence	Tiers	VMs	Status
ShaMonitorProfile_AllESXiGroup...	High	4	7	<button>SAVE</button> <button>+</button>
vRNI-Node_Group_Profile_RFhY...	High	2	2	<button>SAVE</button> <button>+</button>
vRNI-Node_Group_Profile_RFhY...	High	5	7	<button>SAVE</button> <button>+</button>
PROJECT-Ecom_Project-default...	High	4	6	<button>SAVE</button> <button>+</button>
MetricsSystem_NSGroup-ShaMo...	High	4	7	<button>SAVE</button> <button>+</button>
ShaMonitorProfile_AllESXiGroup...	High	4	6	<button>SAVE</button> <button>+</button>
Auto_PG2	High	2	3	<button>SAVE</button> <button>+</button>

Business Applications with Flows Widget

The Business Applications with Flows widget includes information sourced from VCF Operations for networks, which is used for the flow analysis of your applications.

The screenshot shows the VMware Cloud Foundation Operations interface. On the left, there is a summary card titled "Business Applications with Flows" with the following data:

Category	Count
Talking to Internet	25 APPS
Unprotected Flows	25 APPS
Applications with Problems	2 APPS

Below the card is a button labeled "VIEW ALL APPLICATIONS".

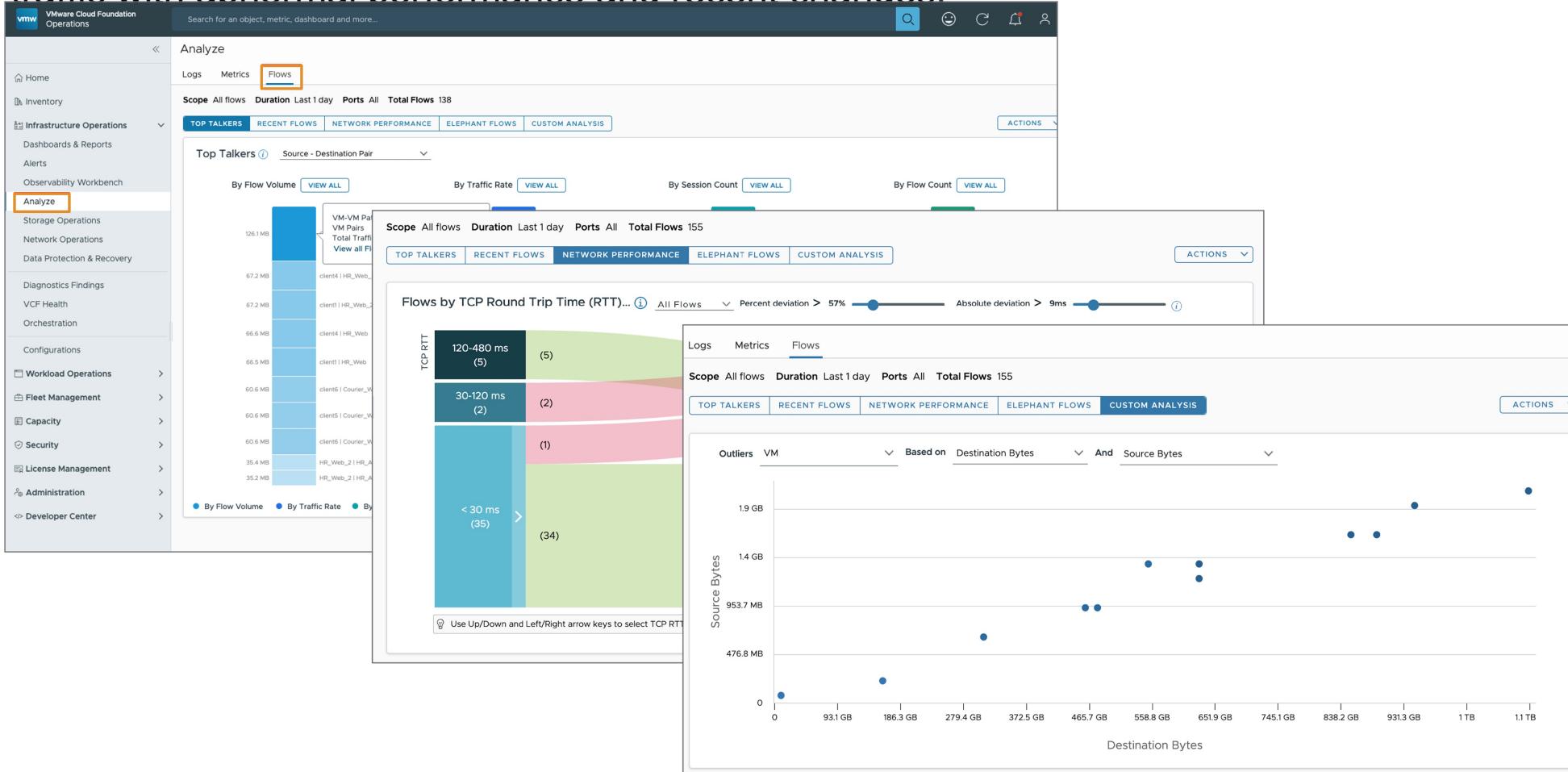
The main pane is titled "Business Applications" and contains the following text:
Manage and monitor your business-critical applications in VMware Cloud Foundation Operations. With application-aware management, you can quickly identify and troubleshoot issues across your entire infrastructure data.

On the right, there is a table titled "Business Applications" with the following data:

Action	Application Name
ADD APPLICATIONS	Define Manually
	Based on Flows
	Operations for Networks - analytics
⋮	Operations for Networks - Auto
⋮	Operations for Networks - Auto-PG2
⋮	Operations for Networks - big app
⋮	Operations for Networks - client-courier-web
⋮	Operations for Networks - client-courier-web_17366249861...
⋮	Operations for Networks - client-courier-web_1737053360...
⋮	Operations for Networks - client-hr-web
⋮	Operations for Networks - client-hr-web_1737053360953
⋮	Operations for Networks - client-logistics-web

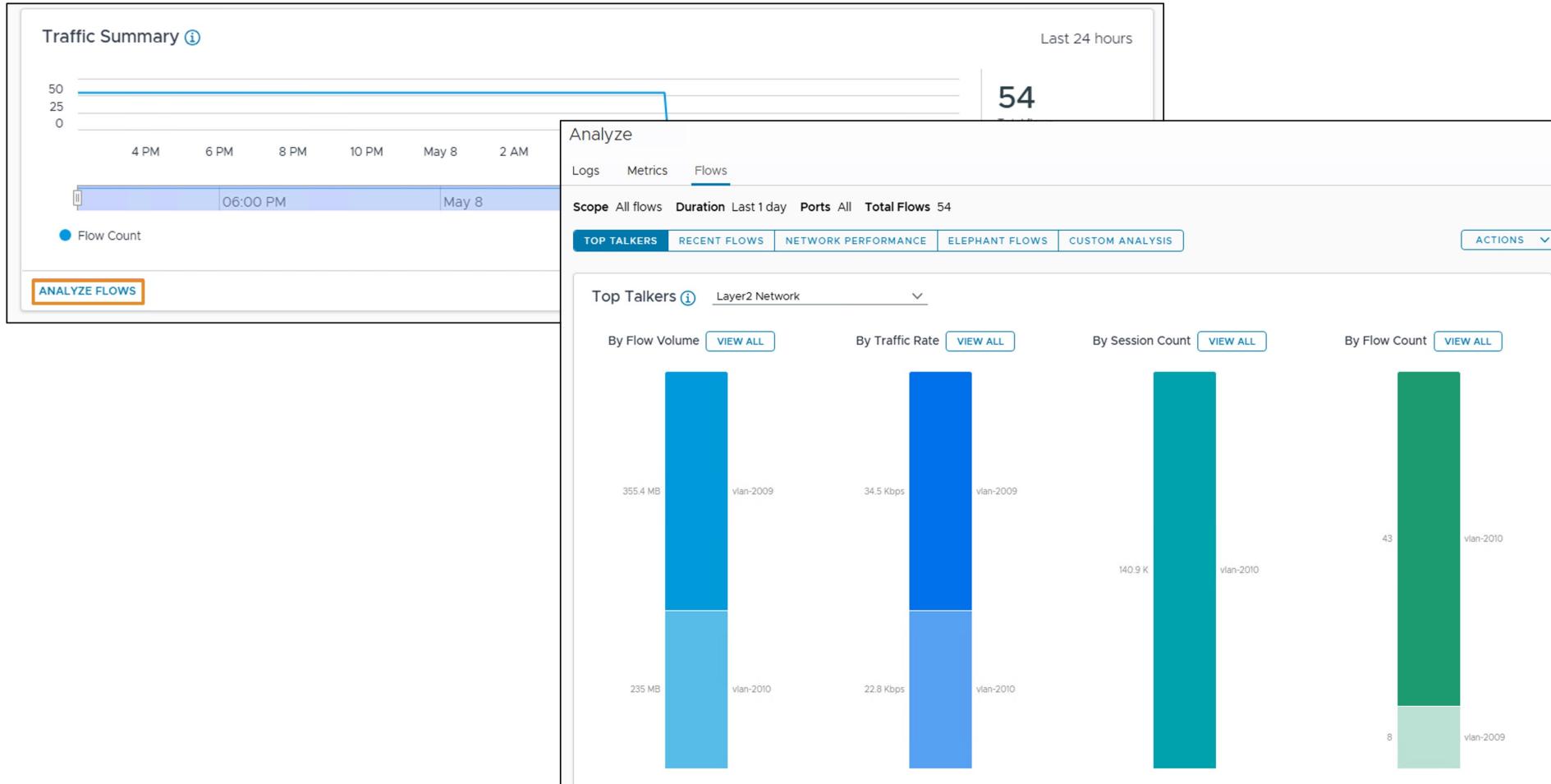
Flows in VCF Operations for networks

Flows provide an overview of entities contributing to the most traffic in the network and quick insight into network traffic with abnormal performance and recent changes.



Traffic Summary Widget

The Traffic Summary widget includes an overview of the flow of traffic in your environment for the last 24 hours.



VCF Operations for Networks Home Page

The home page enables you to create, view, and manage dashboards in VCF Operations for networks.

The screenshot displays the VCF Operations for Networks Home Page. On the left, there is a sidebar titled "Network Operations" with sections for "Network Inventory" (1 NSX Instances, 4 Transport Nodes, 0 Edge Clusters), "Network Alerts Trend" (a bar chart from May 1 to May 4 showing mostly yellow bars), and "VIEW ALERTS". Above the sidebar is a "LAUNCH VCF OPERATIONS FOR NETWORKS" button. The main content area features a "GET STARTED" dashboard with sections for "Performance" (Processing Lag: 276 ms, Indexer Lag: 4.7 s, Grid Usage: 0.09%), "System" (Collector VMs: 1, Platform VMs: 1, Platform Capacity: 0), "Alerts" (11 total alerts, 1 Critical, 10 Warning), "Quick Links" (Secure your flows, Migrate your workloads, Troubleshoot your critical entities, Manage Applications, View path between VMs, Manage intent), "Environments" (NSX: 1, vCenter: 1), and "Anomalies" (Type: Application, Metrics: Average T...). The top right of the main area shows the date (May 8, 14:39), refresh status (REFRESH DISABLED), and a "CREATE NEW DASHBOARD" button. A search bar at the top says "Search your environments".

Review of Learner Objectives

- Describe the VCF Network Operations overview
- Discuss the different widgets available in VCF Network Operations
- Identify performance and health issues with the VCF Networking objects

Centralized Monitoring

Importance

VCF Operations collects data for the applications and services running in your virtual environment with Cloud Proxy and Telegraf agent.

As a VCF Operations administrator, you must understand the concepts of application monitoring and service discovery in VCF Operations. Then you must use these capabilities to ensure and optimize the performance of your environment.

Module Lessons

1. Infrastructure and Application Monitoring Overview
2. Service Discovery
3. Application Monitoring

Infrastructure and Application Monitoring Overview

Learner Objectives

- Describe the infrastructure services monitoring capabilities
- Describe the application monitoring capabilities
- Outline the requirements to enable service discovery
- Outline the requirements to enable application monitoring

Understanding Service and Application Discovery

You can discover services and applications using the Workload Operations capabilities in the VCF Operations console.

The screenshot shows the VMware Cloud Foundation Operations console interface. The left sidebar has a navigation menu with sections like Home, Inventory, Infrastructure Operations, Workload Operations (which is selected and highlighted in yellow), Business Applications, Applications, Fleet Management, Capacity, Security, License Management, Administration, and Developer Center. The main content area is titled "Applications Home" and displays a list of discovered services and applications. A search bar at the top says "Search for an object or select a category from the list below; like metric, feature, dashboard and more ...". Below the search bar are icons for smiley face, refresh, bell, user, and help. The main list table has columns for Name, Source, and Object Type. The table contains 12 items, each with a small icon and a detailed description. The items include NSX-T-sa-m01-nsxt-vip.vcf.sddc.local (Source: Infrastructure Health, Object Type: NSX App), Operations-https://localhost/suite-api (Source: Infrastructure Health, Object Type: Operations App), SDDC-sa-m01-sddc01.vcf.sddc.local (Source: Infrastructure Health, Object Type: SDDC Manager App), vSAN-sa-wld01-vc01.vcf.sddc.local (Source: Infrastructure Health, Object Type: vSAN App), LifecycleManager-sa-m01-vcopsfm01.vcf.sddc.local (Source: Infrastructure Health, Object Type: LifecycleManager App), Logs-sa-m01-logs01.vcf.sddc.local (Source: Infrastructure Health, Object Type: Logs App), 172.20.10.44 (Source: Infrastructure Health, Object Type: Networks App), vCenter-sa-wld01-vc01.vcf.sddc.local (Source: Infrastructure Health, Object Type: vCenter App), vCenter-sa-m01-vc01.vcf.sddc.local (Source: Infrastructure Health, Object Type: vCenter App), VCF Operations Cluster-sa-m01-vcops01 (Source: VCF Operations Adapter, Object Type: VCF Operations Cluster), vSAN-sa-m01-vc01.vcf.sddc.local (Source: Infrastructure Health, Object Type: vSAN App), and NSX-T-sa-wld01-nsxt-vip.vcf.sddc.local (Source: Infrastructure Health, Object Type: NSX App). At the bottom right of the table, it says "1 - 12 of 12 items".

Name	Source	Object Type
NSX-T-sa-m01-nsxt-vip.vcf.sddc.local	Infrastructure Health	NSX App
Operations-https://localhost/suite-api	Infrastructure Health	Operations App
SDDC-sa-m01-sddc01.vcf.sddc.local	Infrastructure Health	SDDC Manager App
vSAN-sa-wld01-vc01.vcf.sddc.local	Infrastructure Health	vSAN App
LifecycleManager-sa-m01-vcopsfm01.vcf.sddc.local	Infrastructure Health	LifecycleManager App
Logs-sa-m01-logs01.vcf.sddc.local	Infrastructure Health	Logs App
172.20.10.44	Infrastructure Health	Networks App
vCenter-sa-wld01-vc01.vcf.sddc.local	Infrastructure Health	vCenter App
vCenter-sa-m01-vc01.vcf.sddc.local	Infrastructure Health	vCenter App
VCF Operations Cluster-sa-m01-vcops01	VCF Operations Adapter	VCF Operations Cluster
vSAN-sa-m01-vc01.vcf.sddc.local	Infrastructure Health	vSAN App
NSX-T-sa-wld01-nsxt-vip.vcf.sddc.local	Infrastructure Health	NSX App

Service Discovery Overview

Service discovery helps you discover services running in each VM and builds a relationship or dependency between the services from different VMs.

You can also use the service discovery dashboards and basic metrics to monitor the services.

Service discovery is agentless and relies on VMware Tools to gather data.

The screenshot shows the 'Manage SDMP Services' interface in the vSphere Web Client. On the left, a sidebar displays a tree view of VCF Instances, including EDU, sa-m01-vc01.vcf.sddc.io..., and several discovered virtual machines like esx-1.vcf.sddc... and esx-2.vcf.sddc... On the right, a main panel titled 'Manage SDMP Services' lists discovered services across three VMs:

VM Name	Operating System	Authentication Status	Power State	Collection State	Collection Status	vCenter Name
vrl-master	Other 3.x Linux (64-bit)	Unknown	Powered Off			sa-m01-vc01.vcf.s...
sa-m01-vcopsoc01	VMware Photon OS (64-bit)	Credential-less	Powered On			sa-m01-vc01.vcf.s...
sa-m01-vcops01	VMware Photon OS (64-bit)	Credential-less	Powered On			sa-m01-vc01.vcf.s...
sa-m01-vc01	VMware Photon OS (64-bit)	Common Credentials	Powered On			sa-m01-vc01.vcf.s...
vrni-collector	Ubuntu Linux (64-bit)	Common Credentials	Powered On			sa-m01-vc01.vcf.s...

Each VM entry includes a 'Services Discovered' section listing specific services and their counts. For example, the first VM has 2 services (Apache Tomcat, VCF Operations Collector), the second has 8 services (Apache HTTP, Apache Tomcat, VCF Operations Analytics, VCF Operations Collector, VCF Operations GemFire, VCF Operations Postgres Data, VCF Operations Postgres Repl, VCF Operations UI), and the third has 2 services (Nginx, VMware vCenter (Appliance)).

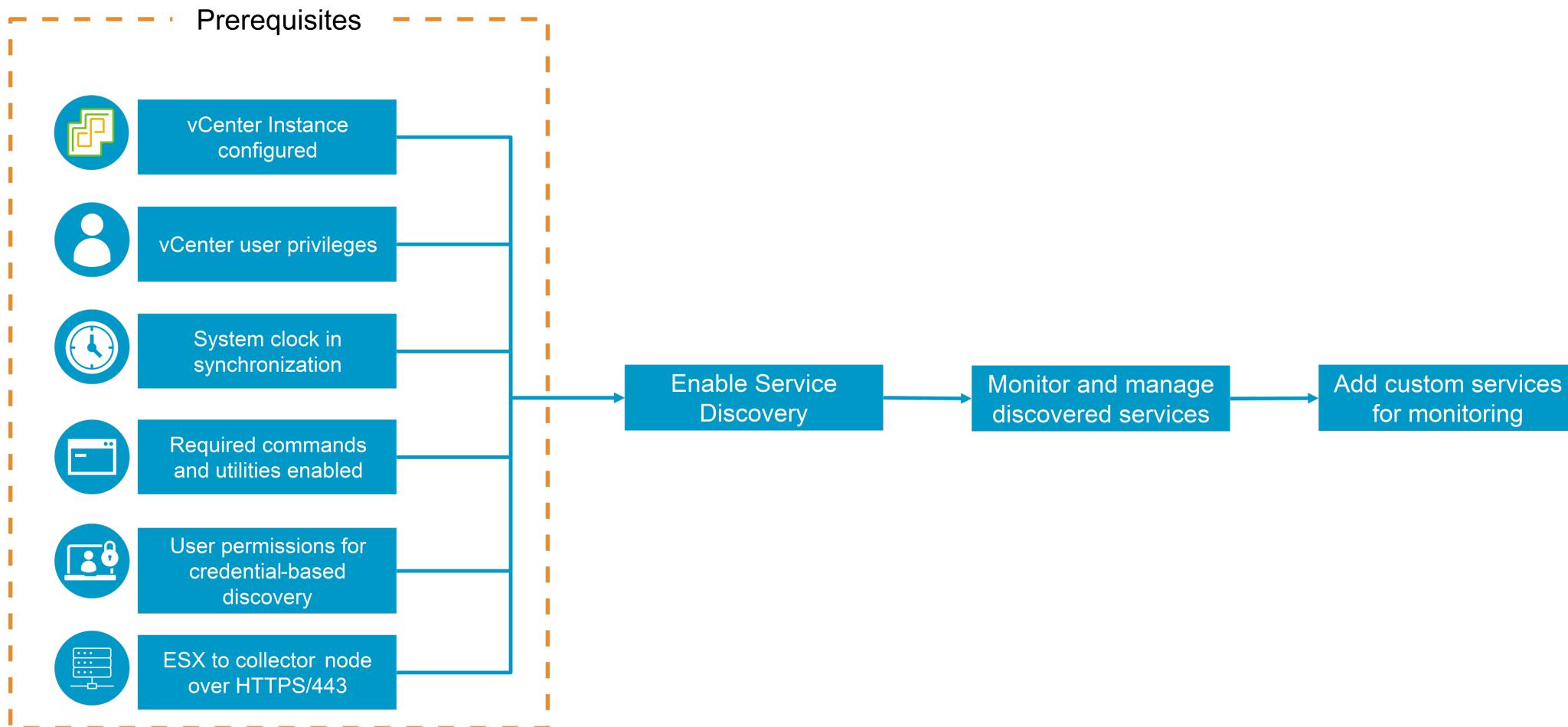
Supported Services

Service and application discovery supports several services that are supported in VCF Operations. The following list shows some supported services:

- Active Directory
- Apache HTTP and Apache Tomcat
- Cassandra
- Exchange Server
- MySQL DB
- Nginx
- RabbitMQ
- SharePoint
- vCenter

Service Discovery Prerequisites

To use the service discovery function in your environment, you must ensure that the prerequisites are fulfilled.



Application Monitoring Overview

Application and operating system monitoring enables virtual infrastructure administrators and application administrators to discover operating systems and applications at scale and collect run-time metrics for monitoring and troubleshooting.

You can monitor application services in the VCF Operations console. You can also manage the life cycle of Telegraf agent and application services on virtual machines.

The screenshot shows the 'Applications' section of the VCF Operations console. On the left, a sidebar lists management options: 'Manage Telegraf Agents', 'Manage SDMP Services', and 'Manage Applications'. Below these are icons for 'VCF Instances', 'EDU', and 'Discoverd virtual...'. Under 'EDU', there are further sub-folders: 'EDU', 'EDU-dc01', 'EDU-cl01', and 'Discoverd virtual...'. Under 'EDU-cl01', several virtual machines are listed with icons: 'sa-m01-vc01.vcf.sddc.local', 'esx-1.vcf.sddc.local', 'EDU-cl01-d...', 'sa-m01-en01', 'sa-m01-en02', 'sa-m01-sdd...', 'sa-m01-vc01', 'vml-platform', 'vCLS-61c50...', 'esx-2.vcf.sddc...', 'esx-3.vcf.sddc...', 'esx-4.vcf.sddc...', and 'sa-wld01'. The main panel, titled 'Applications Home', displays a table of monitored applications. The columns are 'Name', 'Source', and 'Object Type'. The table contains 12 items, each with a small icon and a tooltip-like description. The items are:

Name	Source	Object Type
NSX-T-sa-m01-nsxt-vip.vcf.sddc.local	Infrastructure Health	NSX App
Operations-https://localhost/suite-api	Infrastructure Health	Operations App
SDDC-sa-m01-sddc01.vcf.sddc.local	Infrastructure Health	SDDC Manager App
vSAN-sa-wld01-vc01.vcf.sddc.local	Infrastructure Health	vSAN App
LifecycleManager-sa-m01-vcopsfm01.vcf.sddc.local	Infrastructure Health	LifecycleManager App
Logs-sa-m01-logs01.vcf.sddc.local	Infrastructure Health	Logs App
172.20.10.44	Infrastructure Health	Networks App
vcCenter-sa-wld01-vc01.vcf.sddc.local	Infrastructure Health	vCenter App
vcCenter-sa-m01-vc01.vcf.sddc.local	Infrastructure Health	vCenter App
VCF Operations Cluster-sa-m01-vcops01	VCF Operations Adapter	VCF Operations Cluster
vSAN-sa-m01-vc01.vcf.sddc.local	Infrastructure Health	vSAN App
NSX-T-sa-wld01-nsxt-vip.vcf.sddc.local	Infrastructure Health	NSX App

At the bottom right of the table, it says '1 - 12 of 12 items'.

Supported Application Services

OS and application monitoring can collect run-time metrics of the operating system and application for monitoring and troubleshooting respective entities.

The following list shows some supported application services:

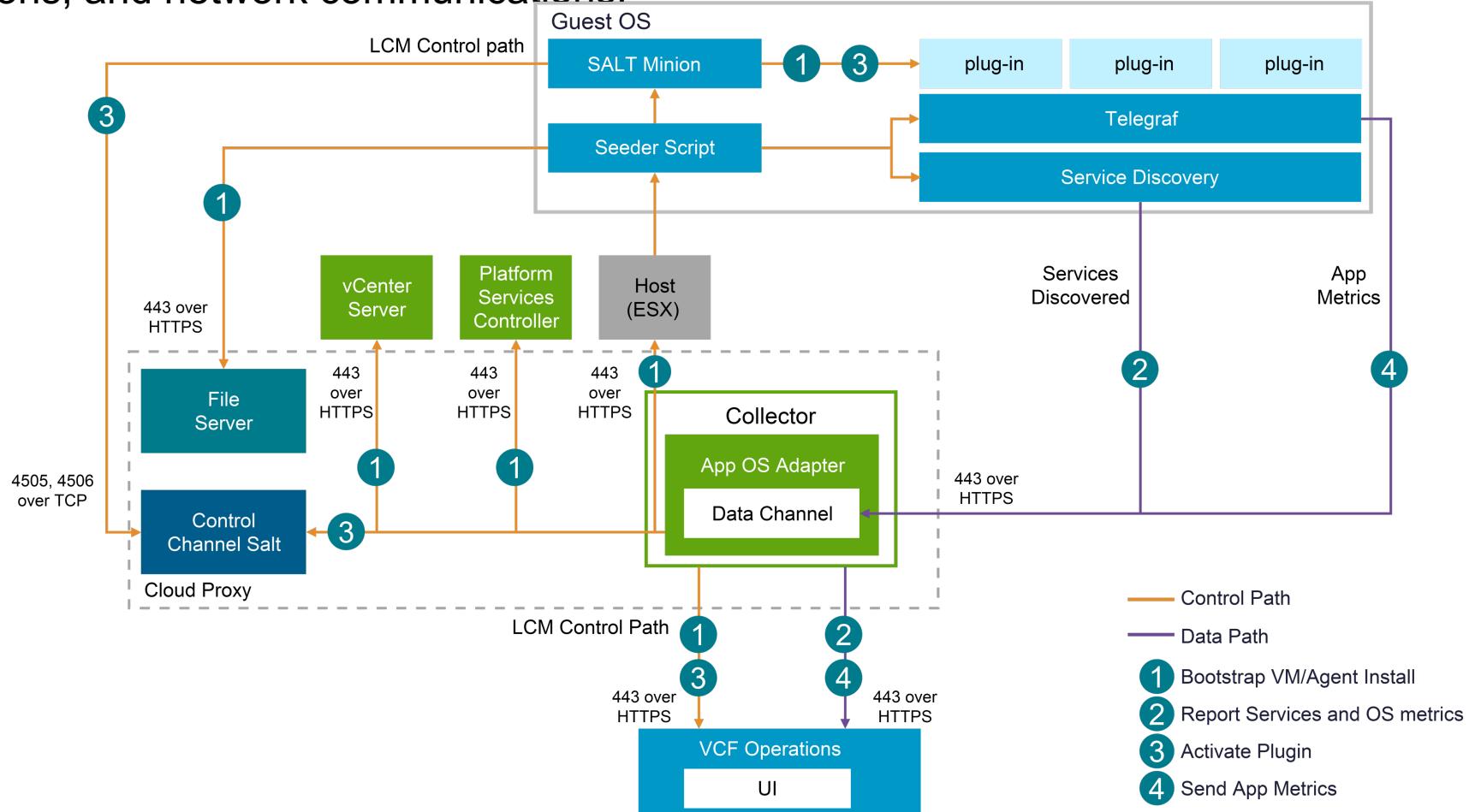
- Active Directory
- Apache HTTPD
- HyperV
- Java Application
- Mongo DB
- MS Exchange
- Oracle DB

The following list shows the supported VeloCloud application services:

- VeloCloud Orchestrator
- Nginx
- Clickhouse
- Network Time Protocol
- MySQL
- Redis
- Java Application
- VeloCloud Gateway

OS and Application Monitoring Prerequisites

A successful OS and application monitoring requires the completion of a series of prerequisites on ports, user permissions, and network communications.



About Cloud Proxies

Cloud Proxies can collect and monitor data from your remote data centers and public clouds by creating one-way communications between your environment and VCF Operations.

Deploy the Cloud Proxy appliance in the same vCenter instance as the VMs that you want to monitor. You can deploy multiple cloud proxies in your environment.

To view existing cloud proxies and deploy new ones, navigate to **Administration > Cloud Proxies**.

Name	IP	Status	Accounts	Type	Collector Group	Netwo...	Data Persistence...	Log Assist
sa-m01-vcopsoc01.vcf...	172.20.10.32	Online	2 accounts	Unified	-	-	-	-

Review of Learner Objectives

- Describe the infrastructure services monitoring capabilities
- Describe the application monitoring capabilities
- Outline the requirements to enable service discovery
- Outline the requirements to enable application monitoring

Service Discovery



Learner Objectives

- Enable service discovery for a VCF deployment
- Perform actions enabled by the native service discovery
- Enable service monitoring
- Describe the different types of service metrics
- Use collected metrics to interpret the status of services

Activating Service Discovery in VCF Operations

To use Service Discovery in your VCF Operations console, you first need to enable and configure the Service Discovery settings.

The screenshot shows the VCF Operations interface. The left sidebar is collapsed. The main area has a header bar with a search field and various icons. Below the header is a navigation bar with tabs: Accounts, Repository, and Marketplace. The 'Integrations' tab is selected, showing a list of items with 5 items. An 'ADD' button and a three-dot menu button are at the top of the list. The list includes:

- VMware Cloud Foundation (selected)
- EDU (highlighted with a blue arrow)
- sa-wlq01
- Networks Adapter
- OS and Application Monitor
- VCF Automation for All Apps
- vSphere Supervisor

On the right, a detailed configuration dialog for the 'EDU' integration is open. It has tabs for vCenter, vSAN, NSX, and Service Discovery (which is selected). A yellow warning box states: "The Service Discovery works with specific versions of VMTools. For details, see KB78216". Below it, a note says: "The Service Discovery feature discovers what services are running on virtual machines of the managed infrastructure. In order to identify a service, its version, dependencies, as well as corresponding performance metrics, the product will gather information from guest processes, ports and the file system. You can then monitor these services to ensure that the services have sufficient infrastructure." A toggle switch labeled 'Service Discovery' is set to 'Activated'. Below it are checkboxes for 'Use alternate credentials' (unchecked) and 'Enable Application Discovery' (checked). There are also fields for Default Windows Username (admin), Default Windows Password (redacted), Default Linux Username (root), Default Linux Password (redacted), Default SRM Username (root), and Default SRM Password (redacted). At the bottom are 'VALIDATE CONNECTION', 'SAVE', and 'CANCEL' buttons.

Examining Service Discovery Collection Status

When the Service Discovery settings are activated and configured, a Service Discovery adapter instance is created.

You can monitor the collection status from the **Administrations > Integrations** page. You can use the management options to:

- **Edit:** Modify the Service Discovery adapter instance settings.
- **Delete:** Delete the Service Discovery adapter instance.
- **Start/Stop Collecting:** Start or stop the Service Discovery collection.
- **Go to Details:** View the details of the Service Discovery adapter instance.

The screenshot shows the 'Integrations' page with the 'Accounts' tab selected. There are 5 items listed under 'VMware Cloud Foundation':

Name	Status	Description	Managed by VCF Operations	Collector	Version
EDU	Collecting	VMware Cloud Foundation Ad...		sa-m01-vcopsoc01...	
EDU	Collecting		Current instance	sa-m01-vco...	9.0.0
sa-m01-vc01.vcf.sddc.local - vSAN	Collecting			sa-m01-vcpso...	
sa-m01-vc01.vcf.sddc.local - Service Discovery	Collecting			sa-m01-vcpso...	
sa-m01-vc01.vcf.sddc.local	Collecting			sa-m01-vcpso...	

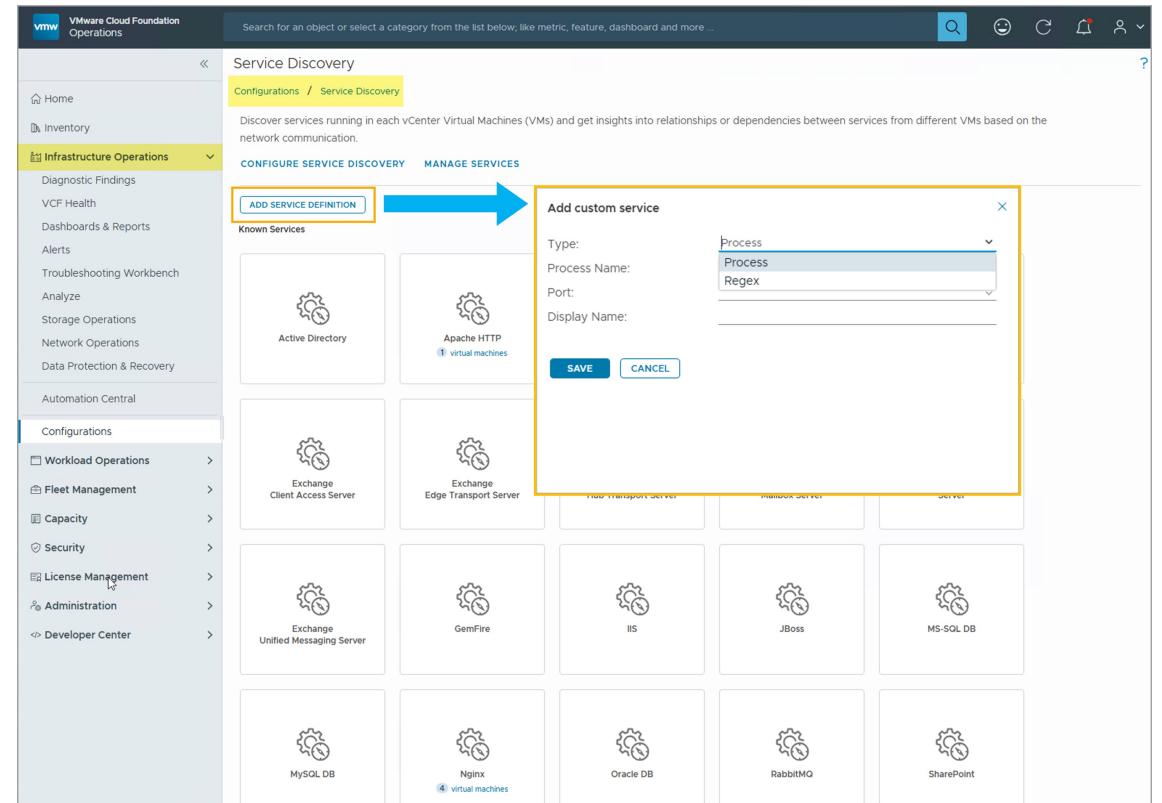
A context menu is open over the fourth row ('sa-m01-vc01.vcf.sddc.local - Service Discovery'), with options: Edit, Delete, Stop Collecting, and Go to Details. The 'Stop Collecting' option is highlighted with a yellow background and a red border.

Adding Custom Service

You can add one or more custom services for monitoring. The custom services are evaluated against all virtual machines where service discovery is enabled.

To add a custom service, navigate to **Infrastructure Operations > Configurations** and click **Service Discovery**.

1. Click **Add Service Definition**.
2. Specify the process details (**Process**) or use a regular expression (**Regex**) to add the custom service.



Custom Services Defined by Process Details

When you create a custom service by providing process details, you must specify the process name, a port, and the custom service display name.

The screenshot shows the 'Service Discovery' configuration interface. On the left, there's a grid of 'Known Services' including Active Directory, Apache HTTP, Apache Tomcat, Exchange Client Access Server, Exchange Edge Transport Server, Exchange Hub Transport Server, Exchange Unified Messaging Server, GemFire, and IIS. On the right, a modal dialog titled 'Add custom service' is open. It contains fields for 'Type' (set to 'Process'), 'Process Name' (set to 'ntpd'), 'Port' (set to '123'), and 'Display Name' (set to 'NTP Service'). At the bottom of the dialog are 'SAVE' and 'CANCEL' buttons. A yellow box highlights the 'Add custom service' dialog.

Service Discovery

Configurations / Service Discovery

Discover services running in each vCenter Virtual Machines (VMs) and get insights into relationships or dependencies between services from different VMs based on the network communication.

CONFIGURE SERVICE DISCOVERY MANAGE SERVICES

ADD SERVICE DEFINITION

Known Services

- Active Directory
- Apache HTTP (1 virtual machines)
- Apache Tomcat (2 virtual machines)
- Exchange Client Access Server
- Exchange Edge Transport Server
- Exchange Hub Transport Server
- Exchange Unified Messaging Server
- GemFire
- IIS

Add custom service

Type: Process

Process Name: ntpd

Port: 123

Display Name: NTP Service

SAVE CANCEL

Custom Services Defined by Regular Expression

Custom services defined by a regular expression are a great option in cases where the port bindings might be variable.

When choosing to add a custom service by regular expression, you use the regular expression corresponding to the name of the service that you see in the guest OS when you run the `ps` command in Linux or the `wmic` command in Windows.

The screenshot shows the Service Discovery configuration page. On the left, there's a grid of cards for known services: Active Directory, Apache HTTP (1 virtual machine), Apache Tomcat (2 virtual machines), Exchange Client Access Server, Exchange Edge Transport Server, Exchange Hub Transport Server, Exchange Unified Messaging Server, GemFire, and IIS. A modal dialog box titled 'Add custom service' is open on the right. It has fields for 'Type' (set to 'Regex'), 'Regex' (containing '^.*FNPLicensingService64.*'), and 'Display Name' (FlexNet Licensing Service). There are 'SAVE' and 'CANCEL' buttons at the bottom of the dialog. The entire 'Add custom service' dialog is highlighted with an orange border.

Troubleshooting Actions

Service discovery enables the following additional VM troubleshooting actions:

- Execute Custom Script** enables you to run a script or a one-time command in the monitored VM's guest OS.
- Get Top Processes** fetches the top processes from the monitored VM's guest OS.

The screenshot shows the VMware Cloud Foundation Operations interface. On the left, the Inventory tree displays various VCF Instances, including EDU, EDU-dc01, EDU-cl01, and several hosts like esx-1.vcf.sddc.local, esx-2.vcf.sddc.local, esx-3.vcf.sddc.local, and esx-4.vcf.sddc.local. A specific VM, sa-m01-en01, is selected in the tree.

In the center, the Summary card for sa-m01-en01 shows it is Powered On. It provides basic information: IP Address (172.20.10.54), Number of virtual CPUs (2), Memory (4 GB), Disk Space (197 GB), and VMware tools (Tools Version 12.1.5). A note indicates a Time Remaining of > 1 Year.

The Actions menu, located at the top right, is open and highlighted in yellow. It lists several troubleshooting actions:

- Delete Unused Snapshots for VM
- Execute Custom Script
- Get Top Processes
- Move VM
- Power Off VM
- Reboot Guest OS For VM
- Set CPU Count and Memory for VM
- Set CPU Count for VM
- Set CPU Resources for VM
- Set Memory Resources for VM
- Set Memory for VM
- Shut Down Guest OS for VM
- Suspend VM

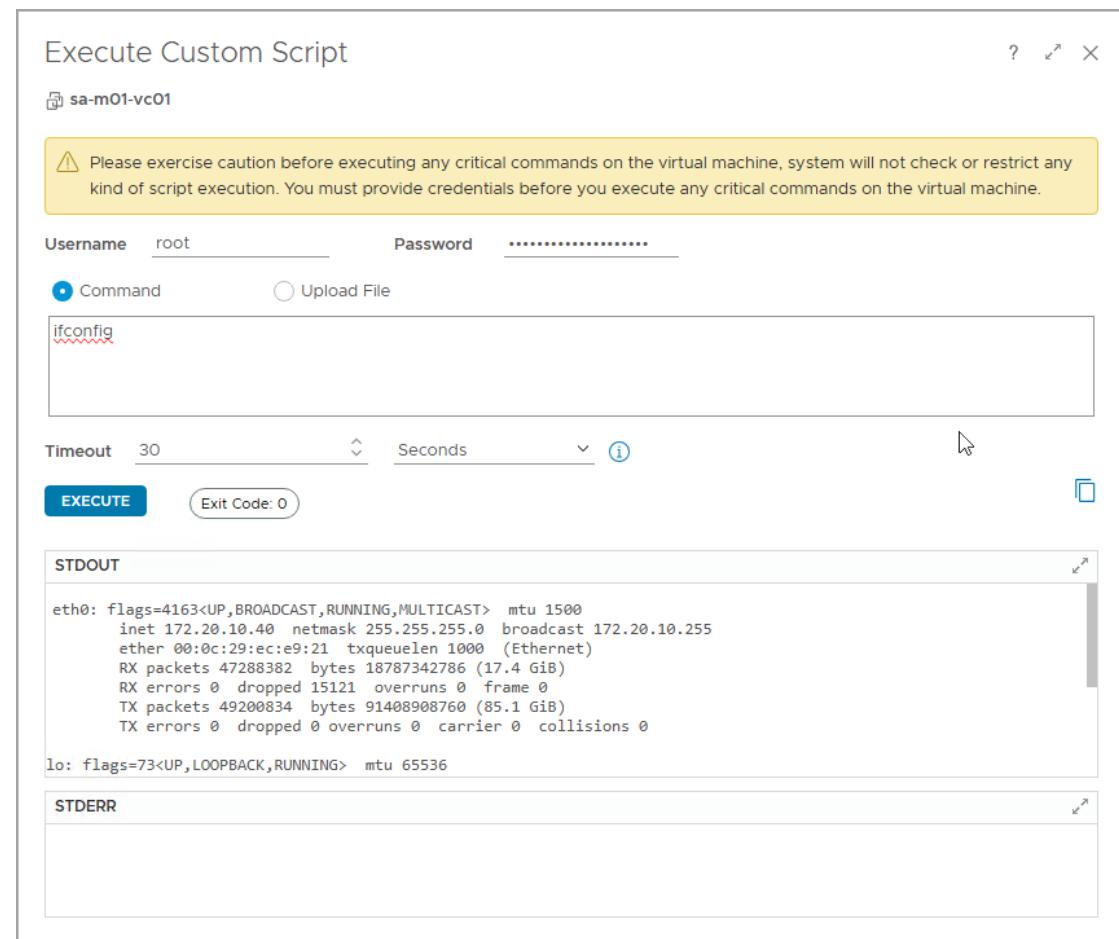
Below the Actions menu, there are sections for Utilization, Performance, Configuration, and Ping Statistics. The Utilization section shows metrics like CPU Usage (1.96 GHz), Free Memory (95.7 MB), and Virtual Disk Total IOPS (64.07). The Performance section shows metrics like CPU Queue (3.87), CPU Context Switch Rate (7,522.07), and Network Transmitted Packets Dropped (0). The Configuration section lists Virtual Hardware (CPU: 2 (1 Socket x 2 vCores)), Resource Allocation (CPU: No Limit, No Reservation), Tools (Version: 12.1.5, Guest Tools ...), Network (IP Addresses: 172.20.10.54, ...), Guest OS Partition (/boot/efi: 498.98 MB Config...), and Virtual Disk (Hard disk 1: 197 GB). The Ping Statistics section notes that Ping monitoring is not activated for this Cloud Account.

Example: Execute Script Actions

The Execute Script action enables you to run a one-time script or command in a monitored virtual machine.

Execute Script provides the following features:

- Runs a script once in the monitored VM's guest OS
- Returns STDOUT, STDERR, and exit codes
- Variable timeout for long-running scripts



Example: Get Top Processes Actions

Get Top Processes retrieves the top process information such as process status, PID, and owner of the process from a monitored VM guest OS.

Get Top Processes provides the following features:

- Fetches top processes from the monitored VM's Windows or Linux guest OS.
- Supports Windows and Linux-native process reporting
- Shows the limit that you can set on the number of processes

The screenshot shows a 'Top Processes' window with the following details:

Top Processes

sa-m01-vc01

Last time updated: May 28, 2025 6:09:21 PM REFRESH

Number of Processes: 10

top -: 17:09:42 up 1 day, 3:10, 0 user, load average: 8.78, 2.79, 1.49
Tasks: 427 total, 1 running, 426 sleeping, 0 stopped, 0 zombie
%Cpu0 : 19.0/9.5 29[||||] %Cpu1 : 10.0/10.0 20[|||]
%Cpu2 : 0.0/0.0 0[] %Cpu3 : 9.5/38.1 48[|||||]
GiB Mem : 76.4/20.5 [] GiB Swap: 0.9/25.0 []

COMMAND	PID	CPU (%)	MEM (%)	USER	STATUS
:/usr/l+	4438	41.2	2.2	trustma+	S
:/usr/l+	2691	11.8	0.5	vmafdd+	S
:/usr/j+	4456	11.8	4.8	sts	S
:/usr/l+	13169	5.9	2.6	content+	S
:/opt/l+	2601	5.9	0.1	root	S
+	3820	5.9	2.2	idmserv+	S
:/usr/l+	2747	5.9	0.3	vmdir	S
+	1404710	5.9	0	root	R
:/usr/l+	7043	0	2.8	vpxd	S
:/usr/sbin/+	1311	0	0	root	S

Viewing Discovered Services

To view all discovered services, navigate to **Workload Operations > Applications > Manage SDMP Services** and expand the VM to view the services discovered from the selected VM.

You can use the following management options:

- Access the VM Actions to manage the selected VM.
- Activate/deactivate service monitoring for the selected VM.
- Provide a password to the selected VM for credential-based service discovery.

The screenshot shows the 'Manage SDMP Services' interface. On the left, a tree view displays various applications and their components. A yellow box highlights the 'sa-m01-vc01.vcf.sddc' node under 'EDU'. An orange arrow points to the 'sa-m01-vc01' row in the main table, which is also highlighted with a yellow box. This row shows the VM details: 'sa-m01-vc01' (Powered On), 'VMware Photon OS (64-bit)', and 'Common Credentials'. The 'Services Discovered' section for this VM lists several services, each with a status indicator (green circle with a checkmark) and a count of 1.

VM Name	Operating System	Service Monitoring	Authentication Status	Power State	Collection State	Collection Status	vCenter Name
vrl-master	Other 3.x Linux (64-bit)	Unknown	Powered Off	?	?	?	sa-m01-vc01.vcf.s...
sa-m01-vc01.vcf.sddc	VMware Photon OS (64-bit)	Credential-less	Powered On	?	?	?	sa-m01-vc01.vcf.s...
sa-m01-vc01	VMware Photon OS (64-bit)	Credential-less	Powered On	?	?	?	sa-m01-vc01.vcf.s...
vml-collector	Ubuntu Linux (64-bit)	Common Credentials	Powered On	?	?	?	sa-m01-vc01.vcf.s...

Services Discovered	
Apache HTTP	1
Apache Tomcat	1
VCF Operations Analytics	1
VCF Operations Collector	1
VCF Operations GemFire	1
VCF Operations Postgres Data	1
VCF Operations Postgres Repl	1
VCF Operations UI	1

Activating Service Monitoring

Activating Service Monitoring enables the VCF Operations Service Discovery adapter to provide performance and connectivity metrics and properties for the target services with a 5-minute collection cycle.

By default, Service Monitoring is disabled. To activate Service Monitoring, select the target services, click **More Options**, and select **Activate Service Monitoring**.

The screenshot shows the 'Manage SDMP Services' interface in a web-based management tool. On the left, a sidebar lists 'Applications' (Applications Home, Manage Telegraf Agents, Manage SDMP Services, Manage Applications) and 'VCF Instances' (EDU). The 'Manage SDMP Services' item is selected. The main panel is titled 'Manage SDMP Services' and displays a table of VMs. A yellow box highlights the 'More Options' menu for a selected row, which includes 'Activate Service Monitoring', 'Deactivate Service Monitoring', and 'Provide Password'. The table columns include VM Name, Service Monitor Status, Authentication Status, Power State, Collection Status, Collection Status, and vCenter Name. Below the table, sections for 'Services Discovered' list various services like Apache HTTP, Apache Tomcat, VCF Operations Analytics, etc., each with a count of 1. At the bottom, there are footer links for '1 - 15 of 15 items'.

Viewing VM and Services Relationship

When the service monitoring is activated, VCF Operations collects and displays services and service types in the VM topology.

The image consists of three side-by-side screenshots from VMware Cloud Foundation (VCF) Operations:

- Left Screenshot:** "Manage SDMP Services" interface. It shows a list of services discovered by SDMP. A context menu is open over the "VCF Operations Collector" entry, with the "Activate Service Monitoring" option highlighted. A yellow box highlights this option, and a blue arrow points from it to the middle screenshot.
- Middle Screenshot:** "Inventory" screen in "BASIC VIEW". It lists various objects across different levels. A blue arrow points from the "Activate Service Monitoring" step to the "Services" object at Level 7, which is highlighted with a yellow box. This indicates that activating monitoring triggers the collection of service information.
- Right Screenshot:** "Topology" view for a specific host named "sa-m01-vc01". The topology graph shows the relationships between the host, its virtual machines, and the services running on them. Two specific services, "Apache HTTP" and "Apache Tomcat", are highlighted with yellow boxes. These services are shown as components connected to their respective virtual machines in the topology graph.

Understanding Service Discovery Metrics

When Service Discovery is activated, VCF Operations discovers and collects service-related metrics from the eligible VMs, including:

- Virtual Machine metrics
- Service Summary metrics
- Service Performance metrics
- Service Type metrics

It also discovers CPU and memory metrics for discovered services.

The screenshot displays the VCF Operations UI interface. On the left, a sidebar titled 'Applications' shows navigation options like 'Applications Home', 'Manage Telegraf Agents', 'Manage SDMP Services' (which is selected and highlighted in yellow), and 'Manage Applications'. Below this are sections for 'VCF Instances' and 'EDU'. The main content area is titled 'Manage SDMP Services' and shows a table of VMs with columns for 'VM Name', 'Operating System', 'Service Monitoring', 'Authentication Status', 'Power State', 'Collection Status', and 'vCenter Name'. A specific row for 'vrni-master' is highlighted with a yellow box and has three context menu options: 'Activate Service Monitoring', 'Provide Password', and 'Go to Details'. A blue arrow points from this menu to a larger yellow box covering the central part of the screen. This central area includes a 'Services Discovered' section with lists for 'Apache HTTP', 'Apache Tomcat', 'VCF Operations Analytics', 'VCF Operations Collector', 'VCF Operations GemFire', 'VCF Operations Postgres D...', 'VCF Operations Postgres R...', and 'VCF Operations UI'. Another 'Services Discovered' section shows items for 'sa-m01-vc01' and 'sa-wld01-vc01', with 'Nginx' and 'VMware vCenter (Appliance)' listed under 'sa-wld01-vc01'. To the right, there's a 'VCF Operations UI' dashboard with tabs for 'Summary', 'Metrics', 'Logs', 'Alerts', 'Topology', 'Capacity', and 'Environment'. The 'Metrics' tab is active, showing a green circular progress bar indicating 1 object. The 'Alerts' tab shows 'No Results Found'. On the far right, a sidebar provides detailed information about the selected 'VCF Operations UI' object, including badge compliance (1), efficiency (100%), health (100%), risk (0%), category (Virtualization Manager), connection type (Both), dynamic port status (false), install path (/usr/lib/vmware-vco), type (VCF Operations UI), and ports ([8080, 45153, 4083]).

Virtual Machine Metrics

Service Discovery discovers the following Guest OS Services metrics for virtual machines:

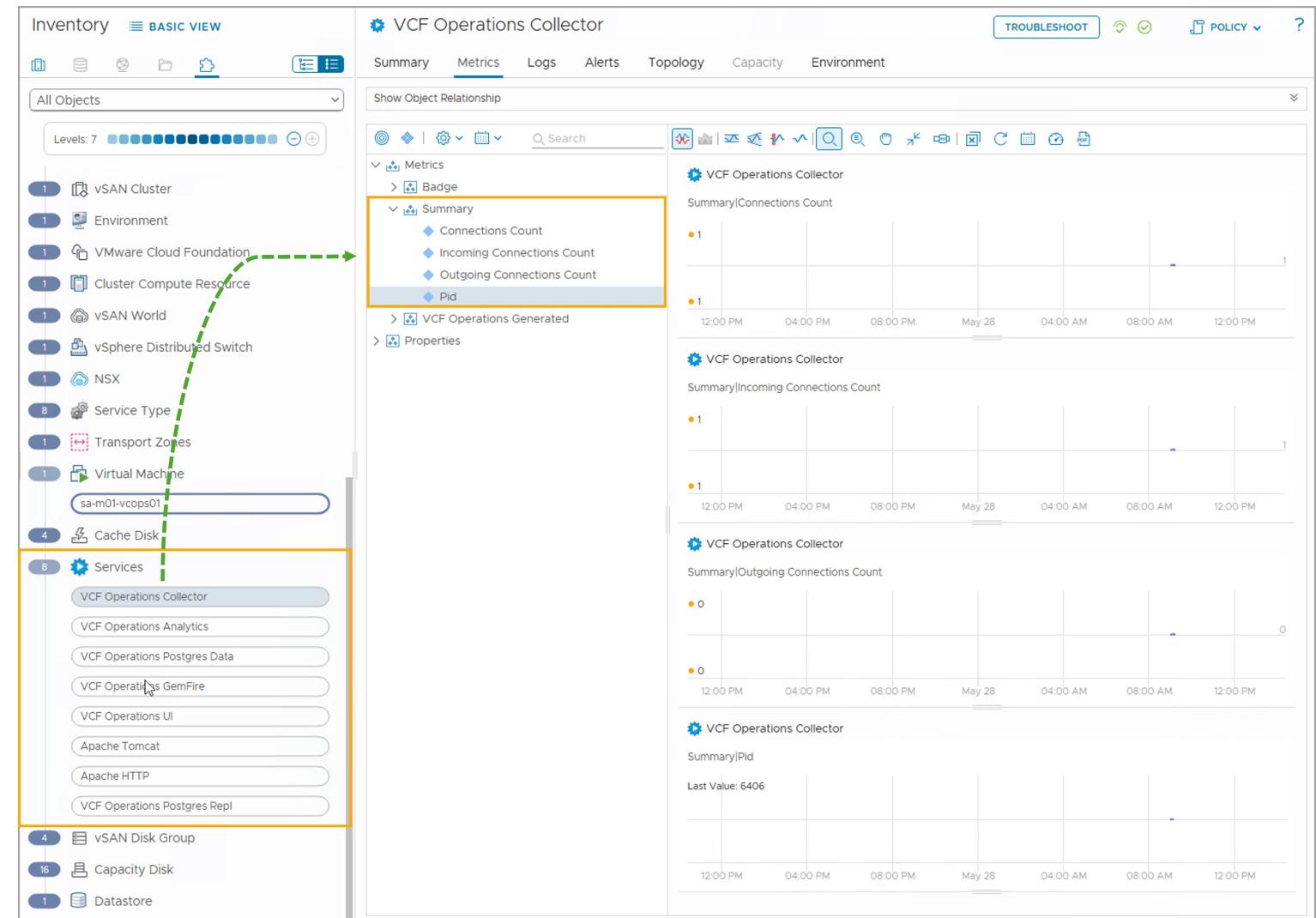
- Total Number of Services
- Number of User Defined Services
- Number of OOTB Services
- Number of Outgoing Connections
- Number of Incoming Connections

The screenshot illustrates the VMware vSphere Client interface, specifically focusing on Service Discovery metrics for a virtual machine named 'sa-m01-vcops01'. On the left, the 'Inventory' pane displays a tree view of various objects, including 'Virtual Machine' and 'sa-m01-vcops01'. A dashed green arrow points from the 'Virtual Machine' node to the 'Metrics' tab in the main content area. The 'Metrics' tab is selected, showing a detailed list of metrics under 'Guest OS Services': 'Number of Incoming Connections', 'Number of OOTB Services', 'Number of Outgoing Connections', 'Number of User Defined Services', and 'Total Number of Services'. These metrics are highlighted with a yellow background. To the right of this list are four corresponding line charts for each metric over time, spanning from May 28 to June 1. The charts show constant values: 9 for Incoming Connections, 8 for OOTB Services, 10 for Outgoing Connections, and 0 for User Defined Services.

Service Summary Metrics

Service Discovery discovers the following additional Summary metrics for virtual machines:

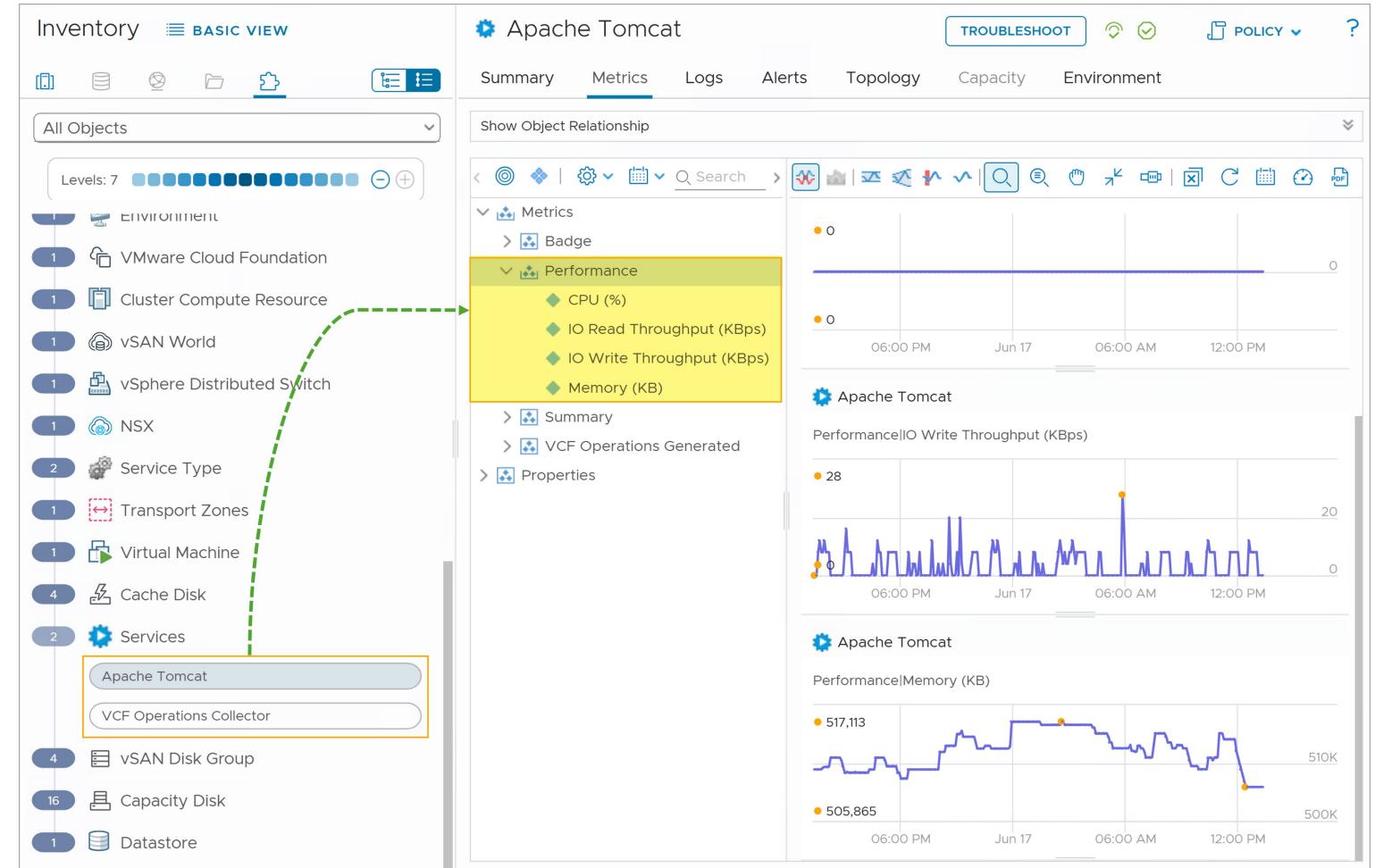
- Incoming Connections Count: Number of incoming connections.
- Outgoing Connections Count: Number of outgoing connections.
- Connections Count: Number of incoming and outgoing connections.
- Pid: Process ID.



Service Performance Metrics

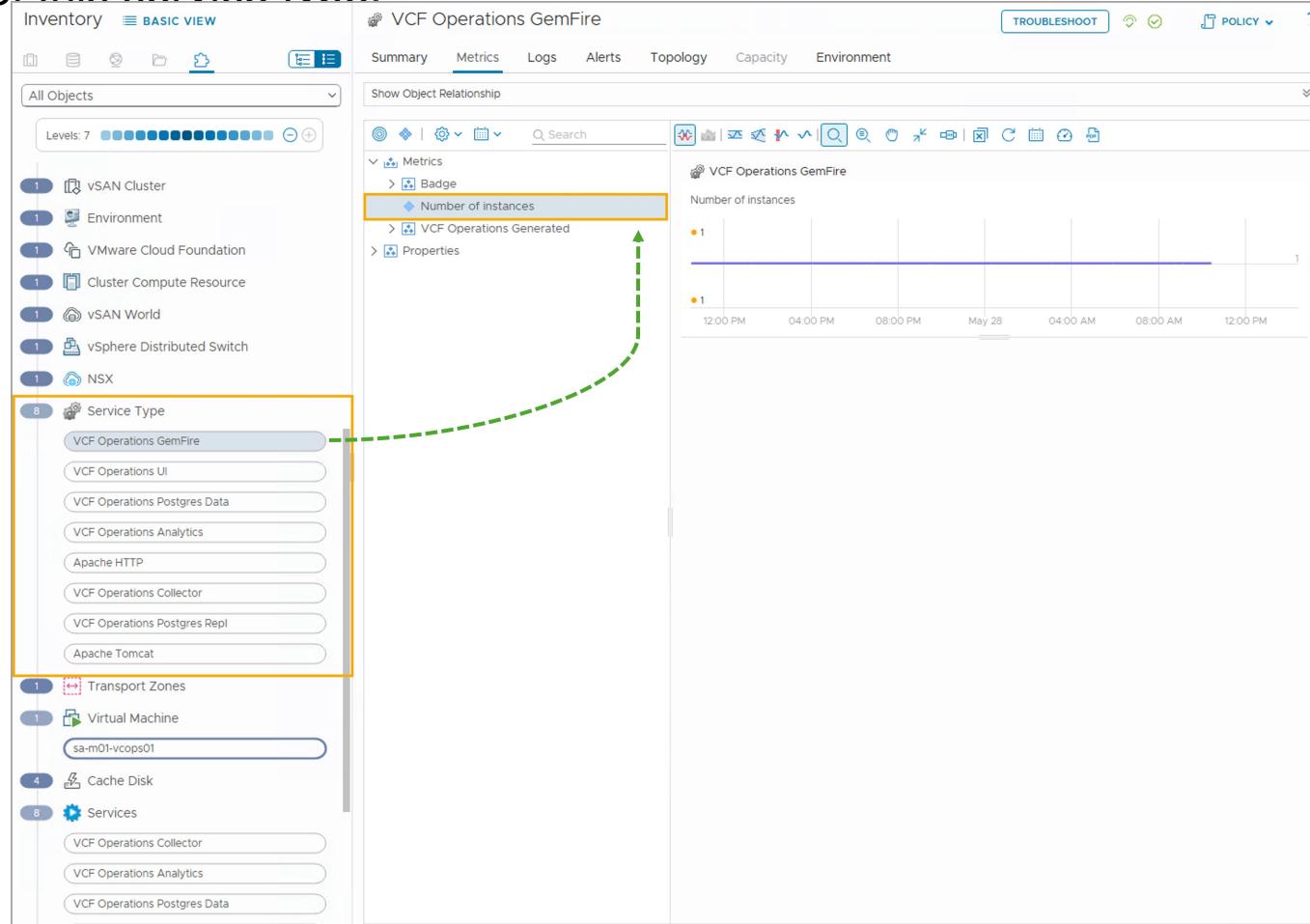
Service Discovery discovers the following additional performance metrics for the services discovered from the target virtual machines:

- CPU: CPU usage in percentage.
- Memory: Memory usage in KB.
- IO Read Throughput: I/O read throughput in KBps.
- IO Write Throughput: I/O write throughput in KBps.



Service Type Metrics

Service Discovery can discover a Service Type metric called Number of Instances. This metric records the number of instances of this service type.



Lab: Configuring Service Discovery

Configure and use the Service Discovery feature to monitor services:

1. Configure Service Discovery
2. Add a Custom Service for Discovery
3. Activate Service Monitoring

Review of Learner Objectives

- Enable service discovery for a VCF deployment
- Perform actions enabled by the native service discovery
- Enable service monitoring
- Describe the different types of service metrics
- Use collected metrics to interpret the status of services

Application Monitoring

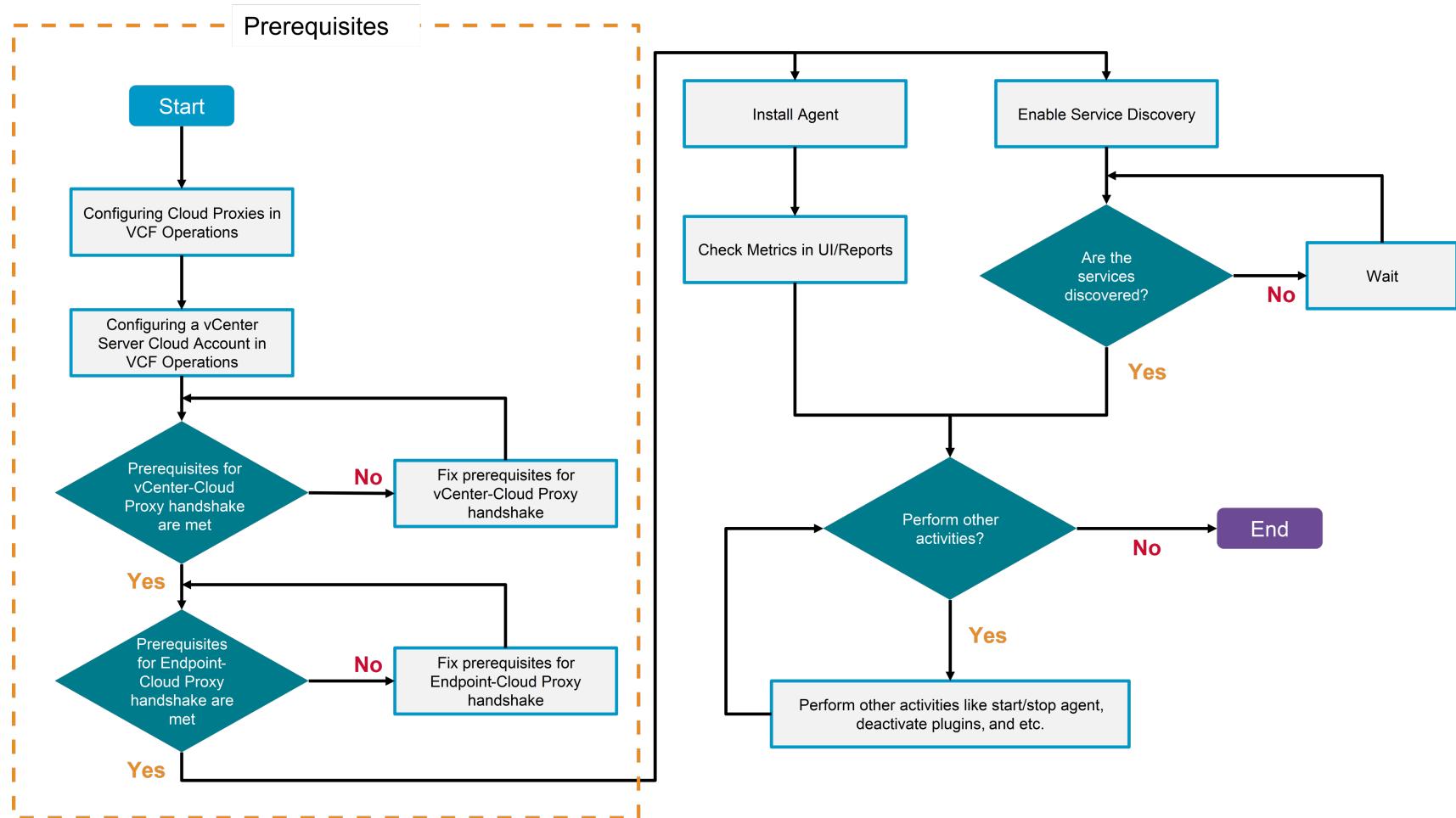


Learner Objectives

- Install Telegraf agents to target VMs
- Enable application service monitoring
- Describe the different types of application metrics
- Examine OS and application status from collected metrics

Steps to Monitor Applications

To monitor applications with VCF Operations, you must complete the prerequisites and Telegraf agent installation.



Installing Telegraf Agents for VMs

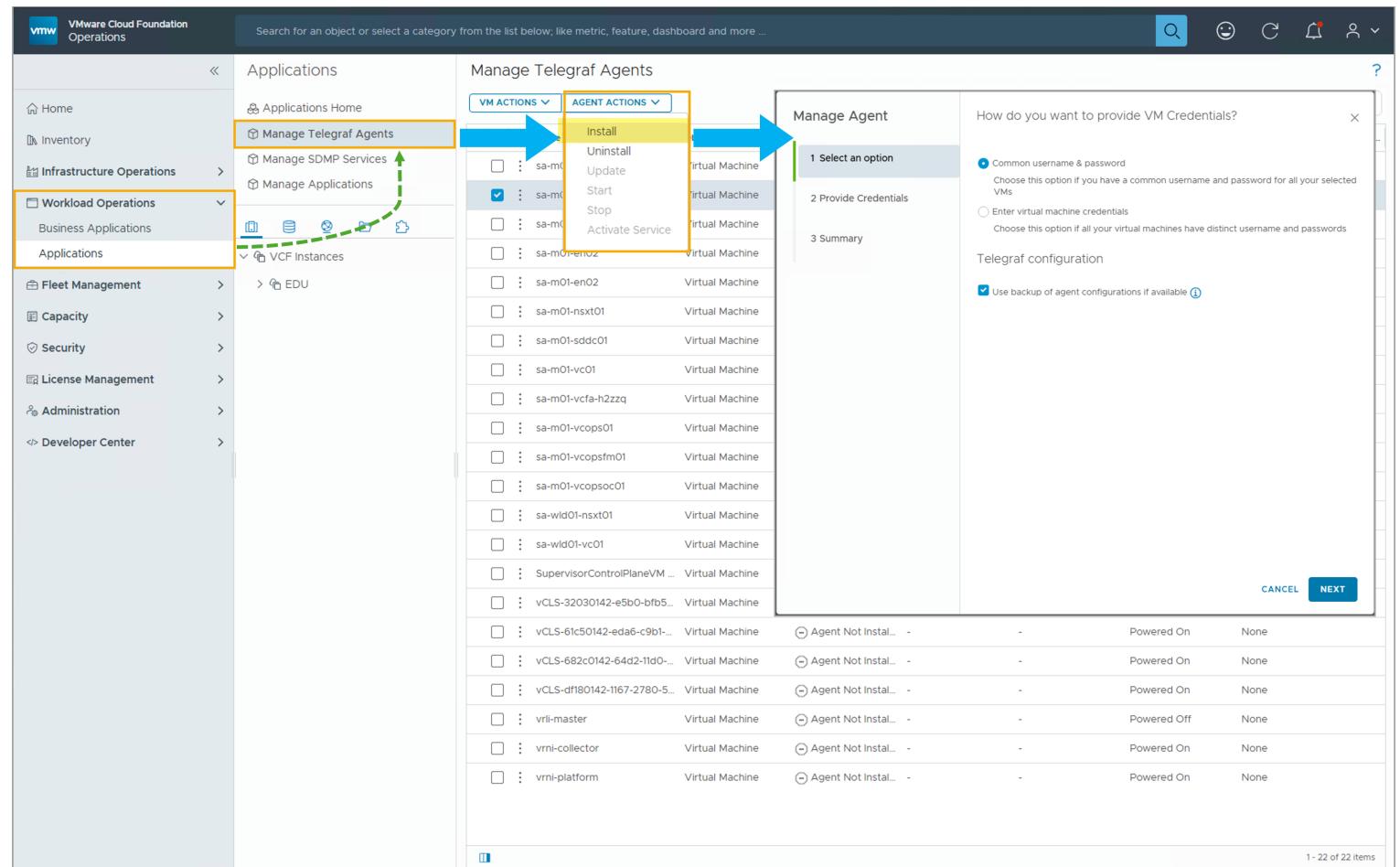
To install the Telegraf agent:

1. Select the cloud proxy (without HA) or cloud proxy group (with HA).

2. Provide the install credentials.

You can either use a common user name and password for all selected VMs or choose to provide distinct user names and passwords for each VM.

3. Complete the Telegraf agent installation.



Managing Telegraf Agents on VMs

To view the available agent management options, first select a Telegraf agent-installed VM and click either **Agent Actions** or the vertical ellipsis icon.

You can perform the following additional management actions:

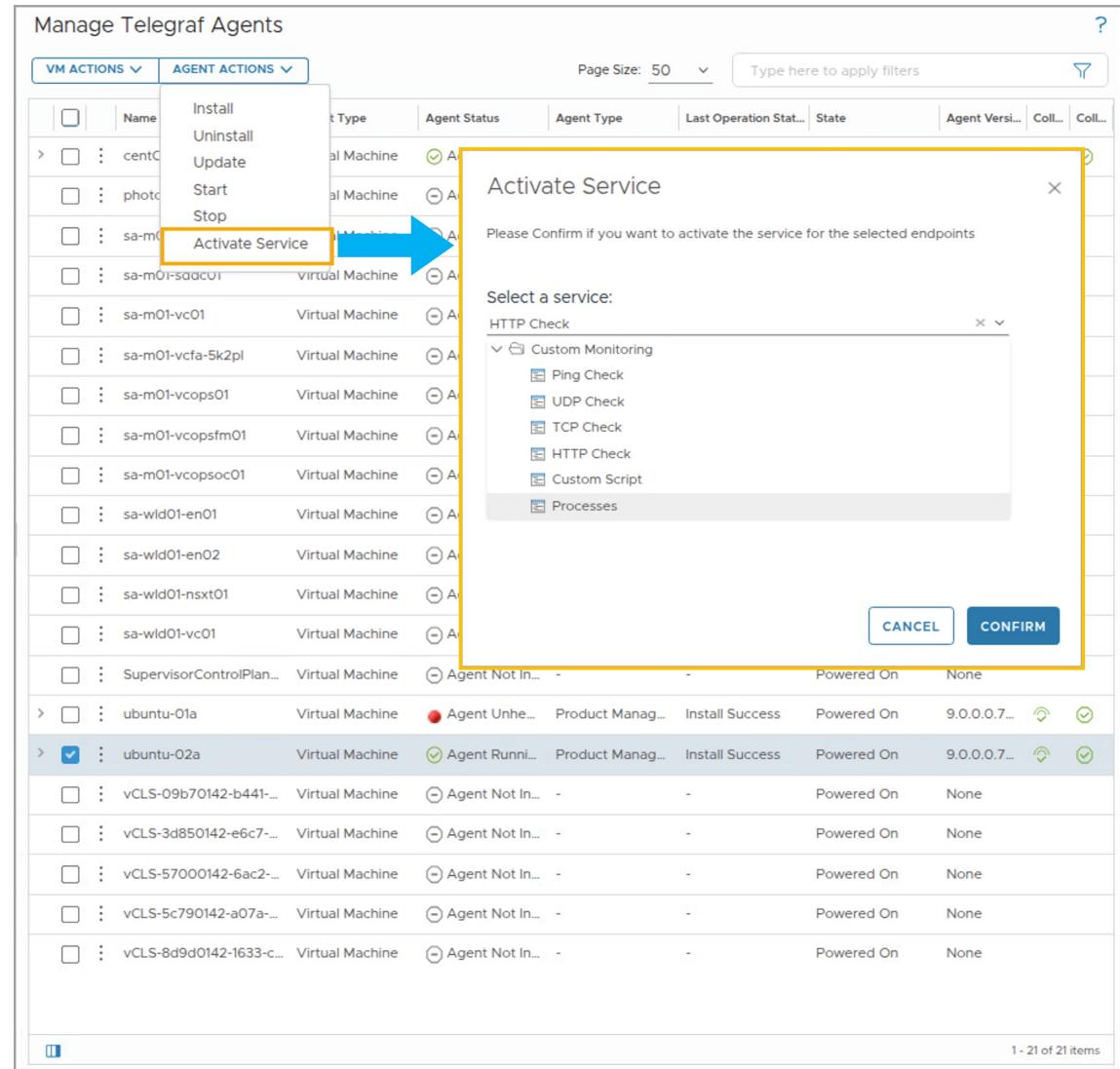
- **Install**
- **Uninstall**
- **Update**
- **Stop**
- **Start**
- Additionally, you can use the **Filter** options to only view VMs that meet your defined criteria.

Manage Telegraf Agents								
VM ACTIONS		AGENT ACTIONS		Actions				
	Name	Object Type	Agent Status	Agent Type	Last Operation Stat...	State	Agent Versi...	Coll...
>	centOS-01a	Virtual Machine	Agent Running	Product Manager	Install Success	Powered On	9.0.0.0.7...	?
	photon-01a	Virtual Machine	Agent Not In...	-	Install Failed	Powered On	None	
	sa-m01-nsxt01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-m01-sddc01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-m01-vc01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-m01-vcfa-5k2pl	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-m01-vcops01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-m01-vcopsfm01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-m01-vcopsoc01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-wld01-en01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-wld01-en02	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-wld01-nsxt01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	sa-wld01-vc01	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	Install	an...	Agent Not In...	-	-	Powered On	None	
>	Uninstall	Virtual Machine	Agent Unhe...	Product Manager	Install Success	Powered On	9.0.0.0.7...	?
> <input checked="" type="checkbox"/>	Update	Virtual Machine	Agent Runn...	Product Manager	Install Success	Powered On	9.0.0.0.7...	?
>	Start	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	Stop	Virtual Machine	Agent Not In...	-	-	Powered On	None	
	Go to Details	Virtual Machine	Agent Not In...	-	-	Powered On	None	

Activating an Application Service

After successfully installing the Telegraf agent on a target VM, you can activate plug-ins to monitor application services on Telegraf agent-installed VMs. To activate application service monitoring:

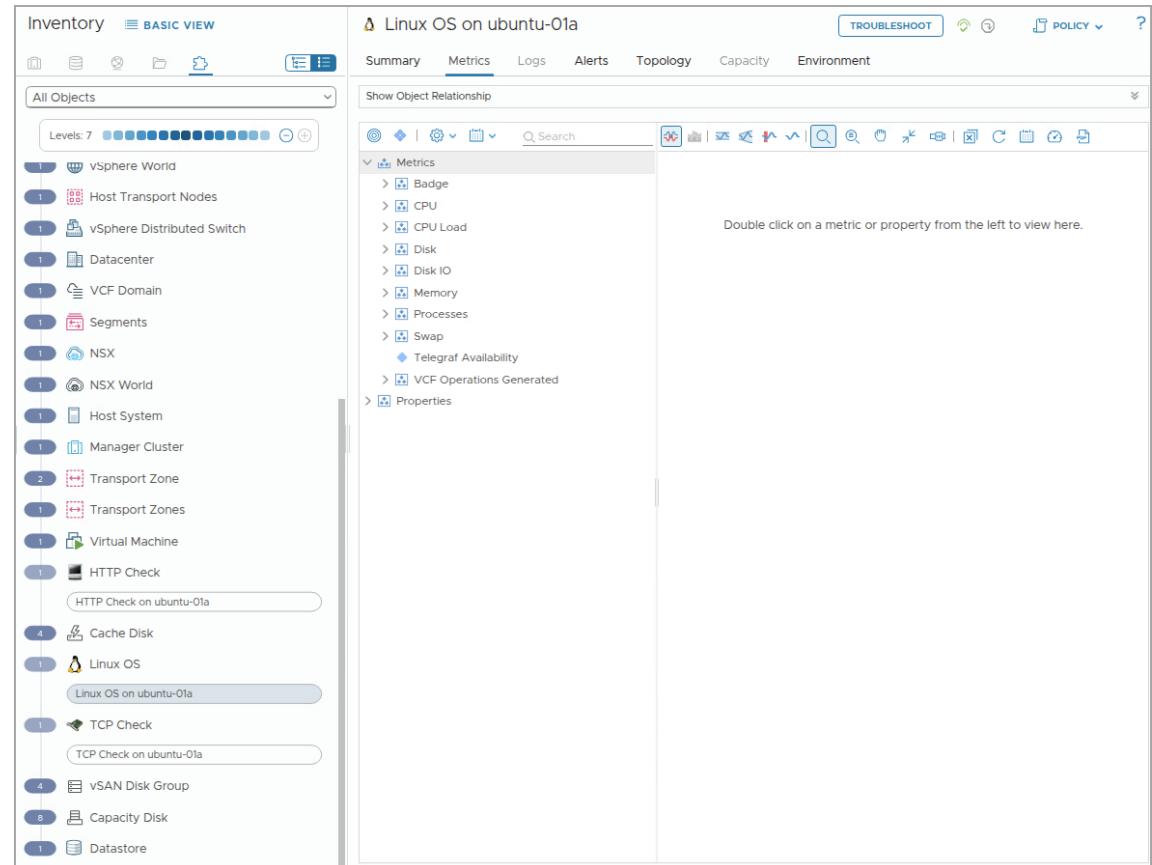
1. Add a **Filter by Agent Status > Agent Running** to only view the VMs where Telegraf agents are installed and running.
2. Select a Telegraf agent-installed VM, click **Agent Actions**, and select **Activate Service**.
3. Select the service to monitor and click **Confirm**.



Understanding Applications Metric Collection

With the OS and Application Monitoring capability, VCF Operations can collect the following types of metrics from the target VMs:

- Operation System metrics: Are collected for Linux and Windows operating systems.
- Application Service metrics: Are collected for 23 application services to help understand the application performance and runtime status.
- Remote Check metrics: Are collected for object types such as HTTP, ICMP, TCP, and UDP.
- Linux Process metrics: Are collected for Linux services.
- Windows Service metrics: Are collected for Windows services.



Operating System Metrics

VCF Operations can collect additional metrics on the operating system level from Telegraf agent-installed VMs.

The following metrics are collected for Linux operating systems:

- <instance name> | Usage Guest (%)
- <instance name> | Usage Active (%)
- <instance name> | Read Time
- <instance name> | Write Time
- <instance name> | Disk Used (%)
- Running (Processes)
- Telegraf Availability

The following metrics are collected for Windows operating systems:

- Usage Guest
- Usage System
- Disk Read Time
- Disk Write Time
- IO Read Bytes per sec
- IO Write Bytes per sec
- Telegraf Availability

Application Service Metrics

VCF Operations can collect metrics for the following application services:

- Active Directory
- ActiveMQ
- Apache HTTPD
- Apache Tomcat
- Microsoft IIS
- Java Application
- JBoss Server
- HyperV
- Oracle DB
- Cassandra
- MS Exchange
- Microsoft SQL Server
- MySQL
- NGINX
- Network Time Protocol
- Oracle WebLogic Server
- Pivotal TC Server
- PostgreSQL
- RabbitMQ
- Riak KV
- SharePoint
- WebSphere

Remote Check Metrics

VCF Operations can collect the following Remote Check metrics:

- HTTP Metrics:
 - Availability
 - Content Length
 - Response Code
 - Response Time
 - Result Code
- TCP Metrics:
 - Availability
 - Result Code
 - Response Time
- ICMP Metrics:
 - Availability
 - Average Response Time
 - Packet Loss (%)
 - Packets Received
 - Packets Transmitted
 - Result Code
- UDP Metrics:
 - Availability
 - Response Time
 - Result Code

Linux Process and Windows Service Metrics

VCF Operations can collect several Linux processes and Windows service metrics.

Metric Name	Category	KPI
Linux		
Availability Resource Availability	Processes	False
Utilization Memory Usage (%)	Processes	False
Utilization CPU Usage (%)	Processes	False
Utilization Number of Processes	Processes	False
Windows		
Availability Resource Availability	Services	False
Utilization Memory Usage (%)	Services	False
Utilization CPU Usage (%)	Services	False

Lab: Configuring Application Monitoring

Install agents to a target VM to monitor applications and services:

1. Verify the Cloud Proxy Details
2. (Optional) Install an Agent
3. Configure a Custom Remote Check

Review of Learner Objectives

- Install Telegraf agents to target VMs
- Enable application service monitoring
- Describe the different types of application metrics
- Examine OS and application status from collected metrics