

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

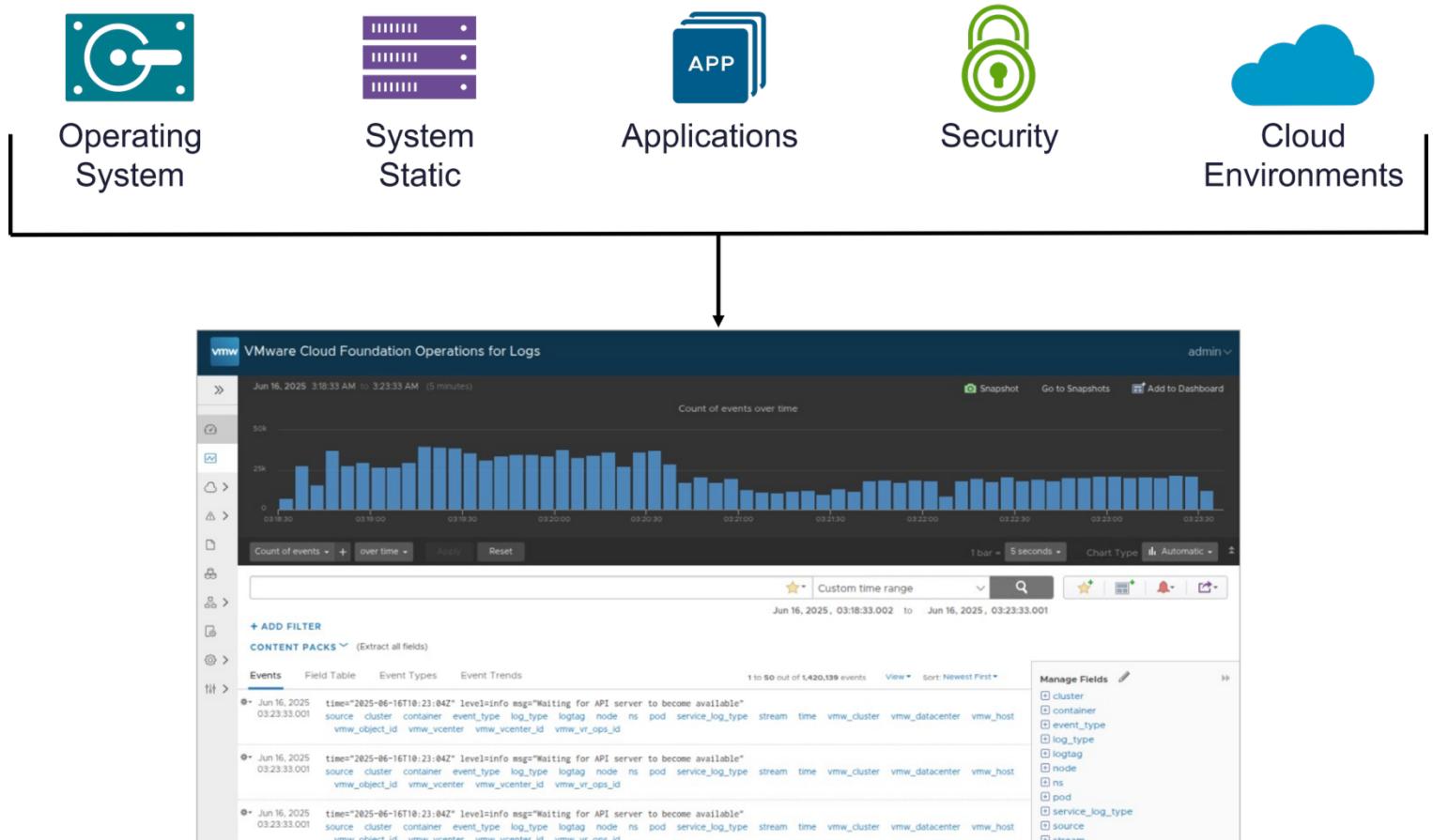
You configure alerts to proactively identify potential problems, and implement preventive measures, ensuring maximum uptime of workloads:

- 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

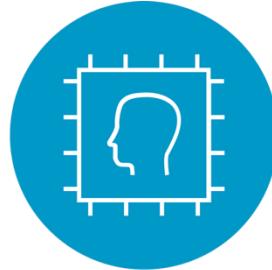
VCF Operations for logs collects, imports, and analyzes logs to provide answers to problems related to systems, services, and applications, and derive important insights.



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.

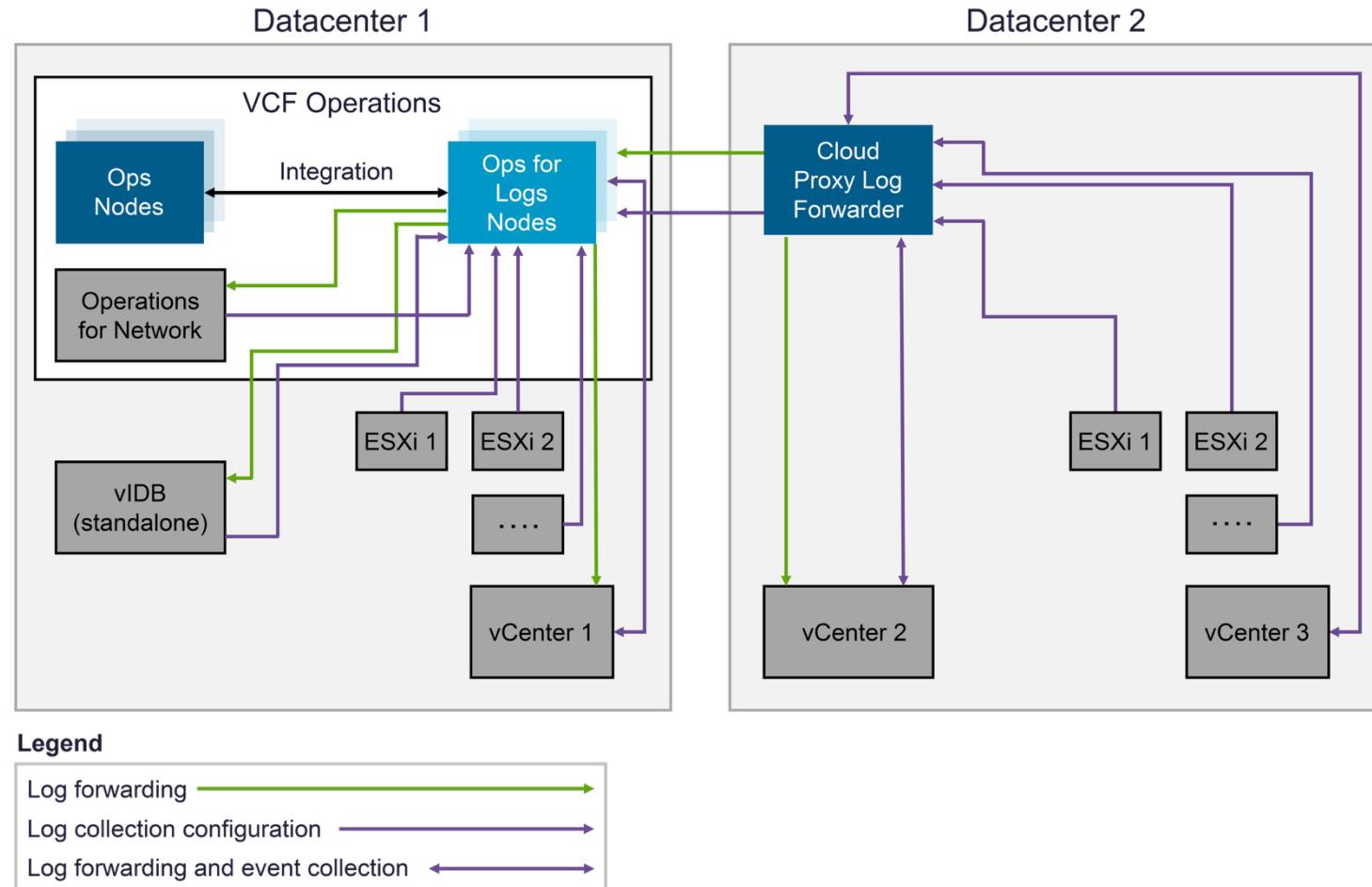
Integrating Logs in the VCF Operations Console

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

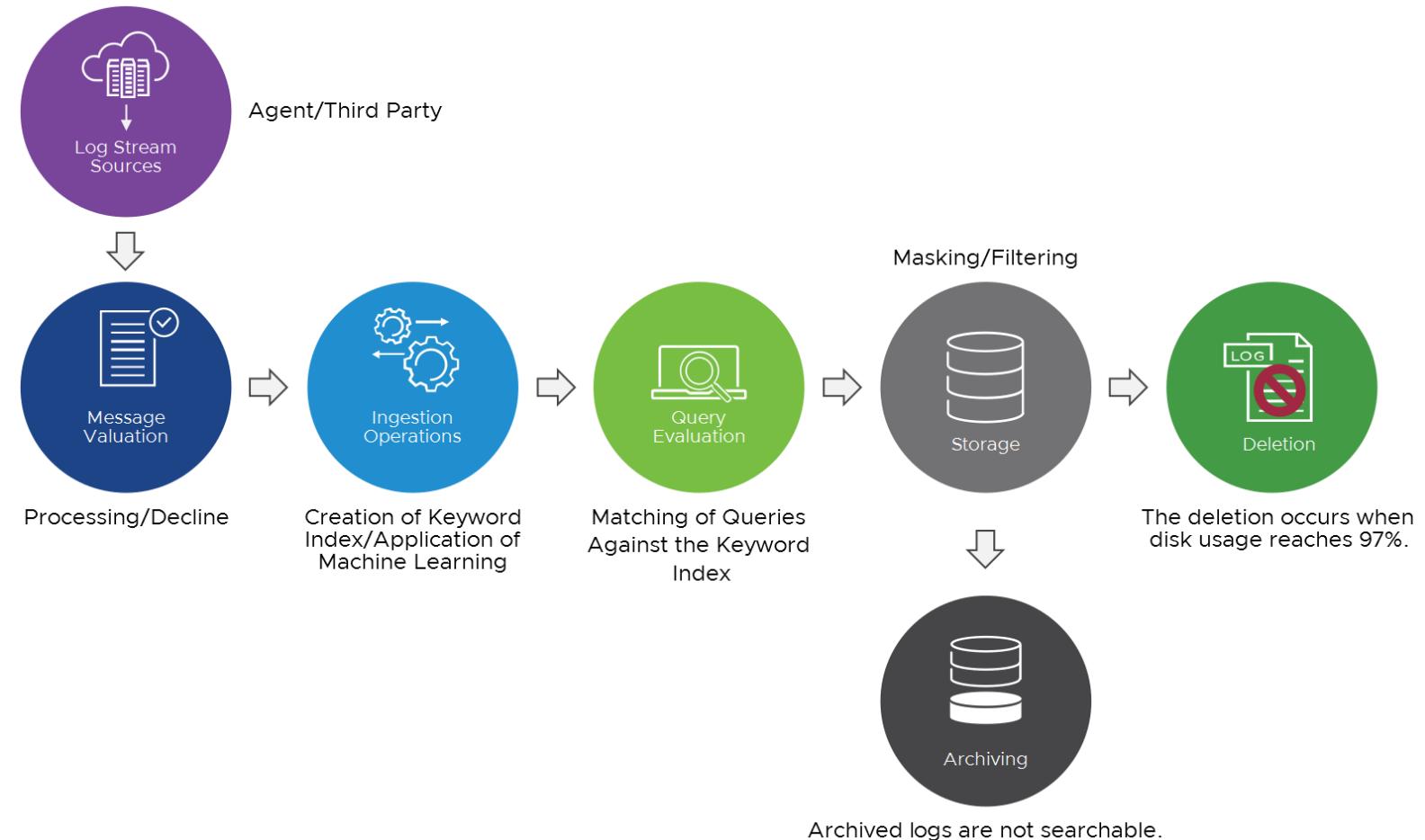
The Agent is preinstalled in the supported VMware Cloud Foundation components.

The Agent offers key benefits:

- Centralized configuration
- Life cycle management
- Log enhancement

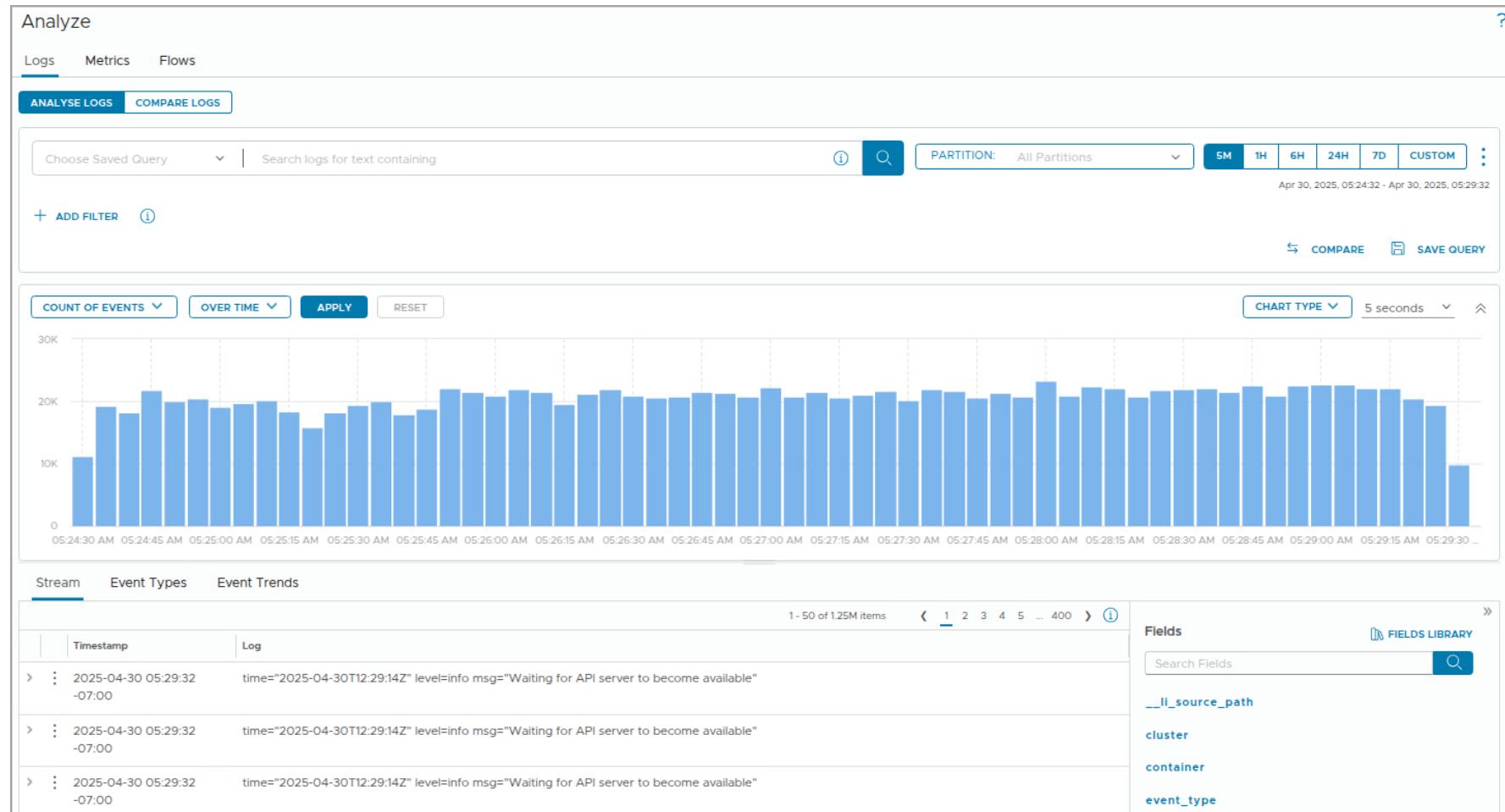
Stages of Log Processing

Events and messages transition through several stages.



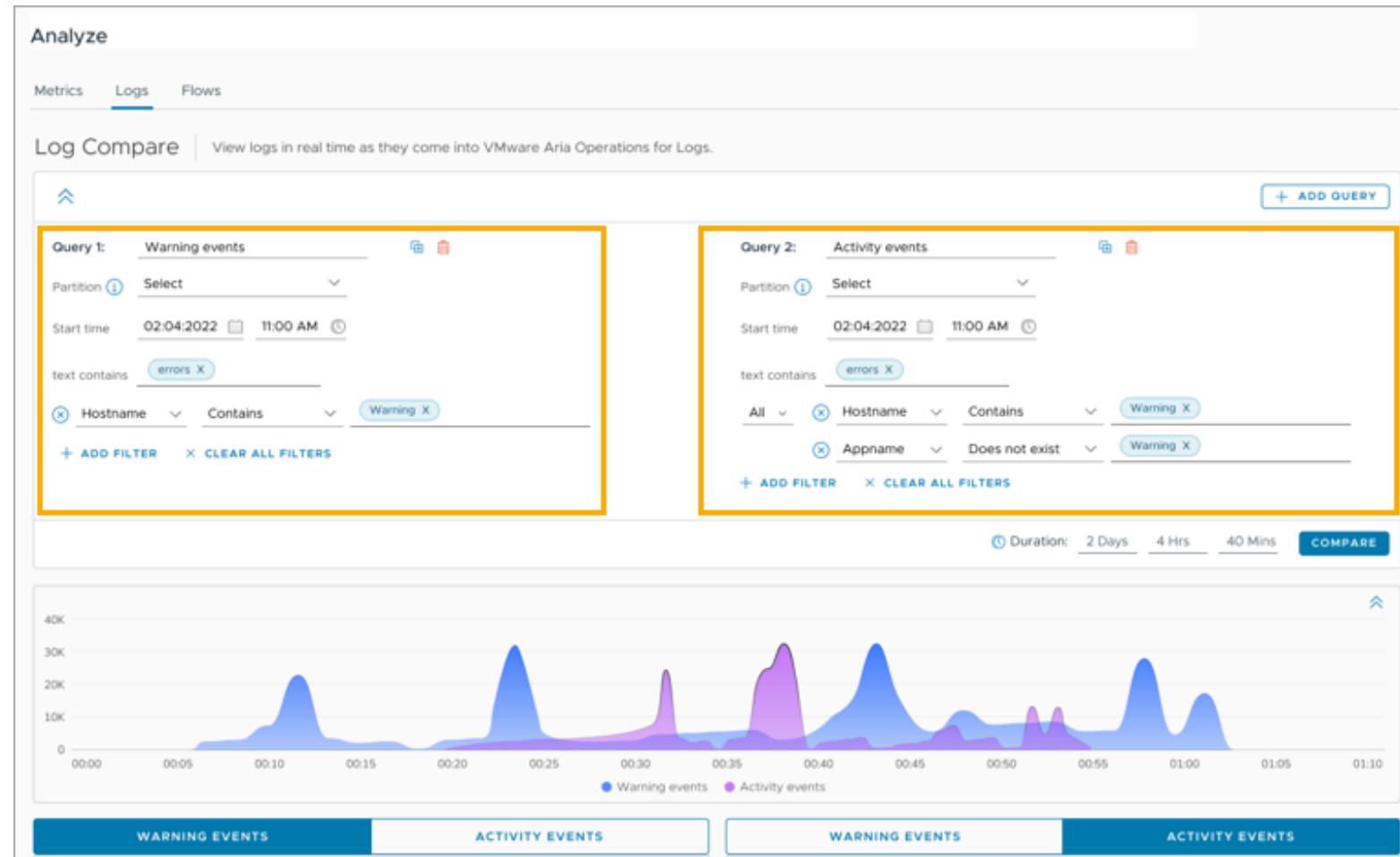
About the Analyze Page

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



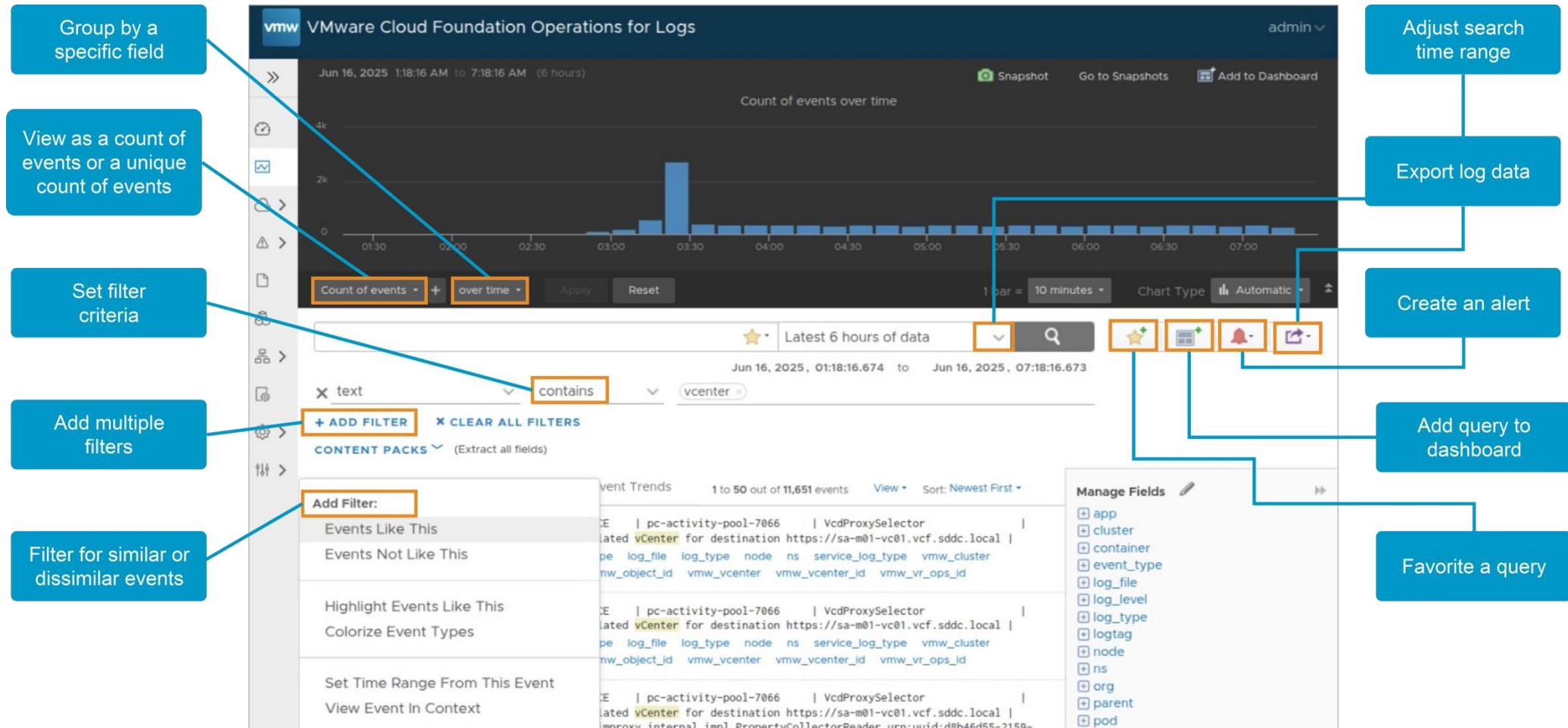
About Log Compare

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



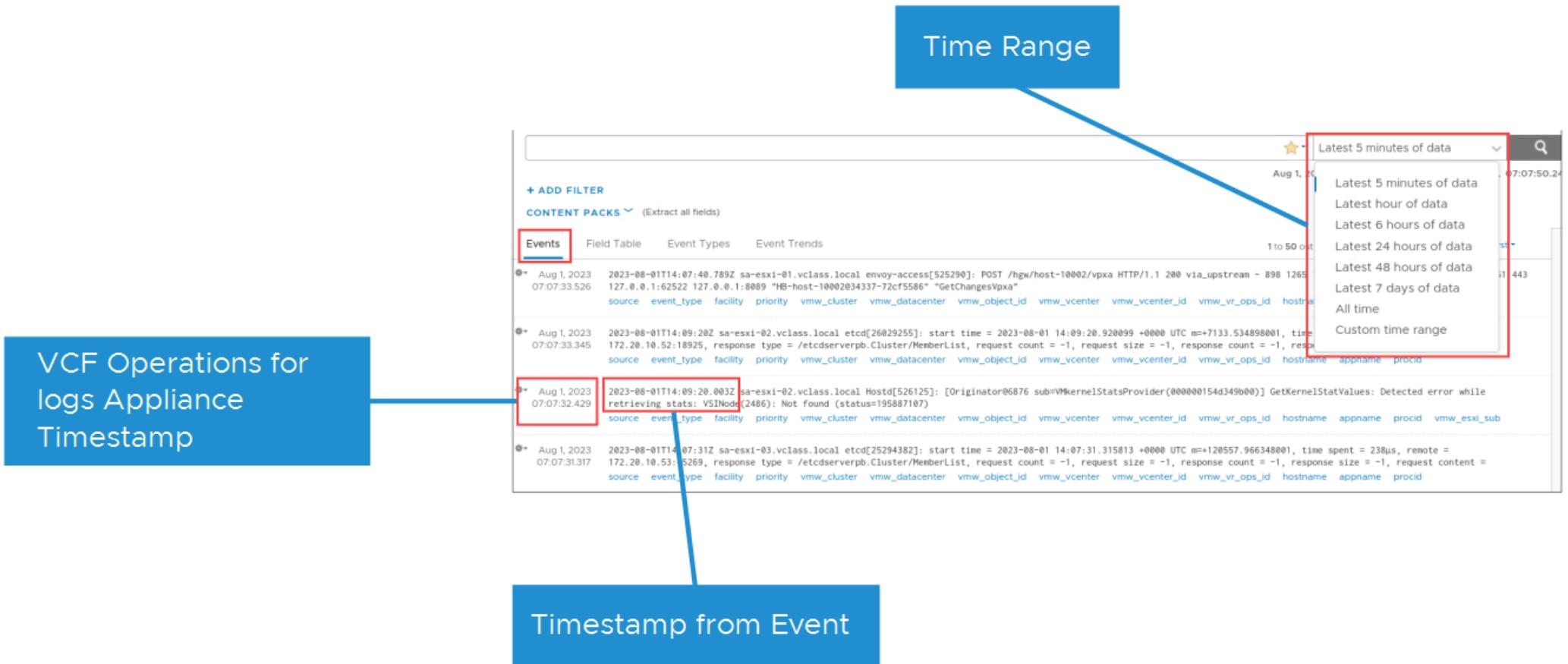
About the Explore Logs Page

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



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

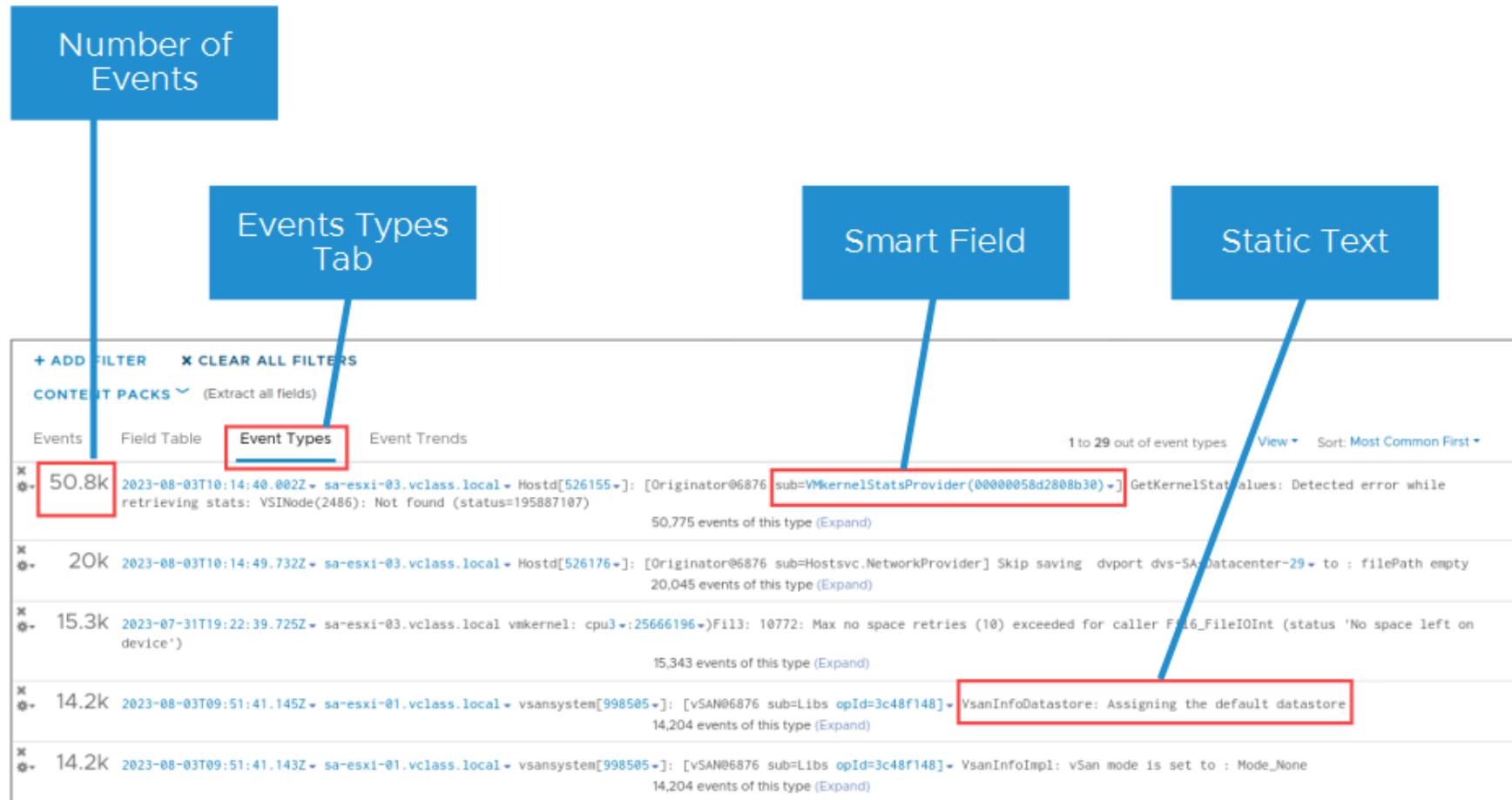
Events are assigned fields when they are ingested. These fields are standard Syslog fields, or they are predefined from a content pack.

The screenshot shows the Event List interface with the following components:

- + ADD FILTER**: A button to add a filter.
- CONTENT PACKS**: A dropdown menu with the option "(Extract all fields)".
- Events**: A tab selected, highlighted with a red box. Other tabs include Field Table, Event Types, and Event Trends.
- 1 to 50 out of 783 events**: A message indicating the number of events found.
- View** and **Sort: Newest First**: Options for viewing and sorting the events.
- Events Tab**: A blue callout pointing to the Events tab.
- Total Matches**: A blue callout pointing to the event count message.
- Standard Syslog Fields**: A blue callout pointing to the event fields listed in each log entry.
- Event Fields**: The event fields listed in each log entry, including source, event_type, facility, priority, hostname, appname, and procid.
- Log Entries**: Four log entries from July 14, 2023, at 05:10:04.672, 05:10:04.492, 05:10:04.492, and 05:10:04.492. Each entry contains a timestamp, source, event type, facility, priority, hostname, appname, and procid.

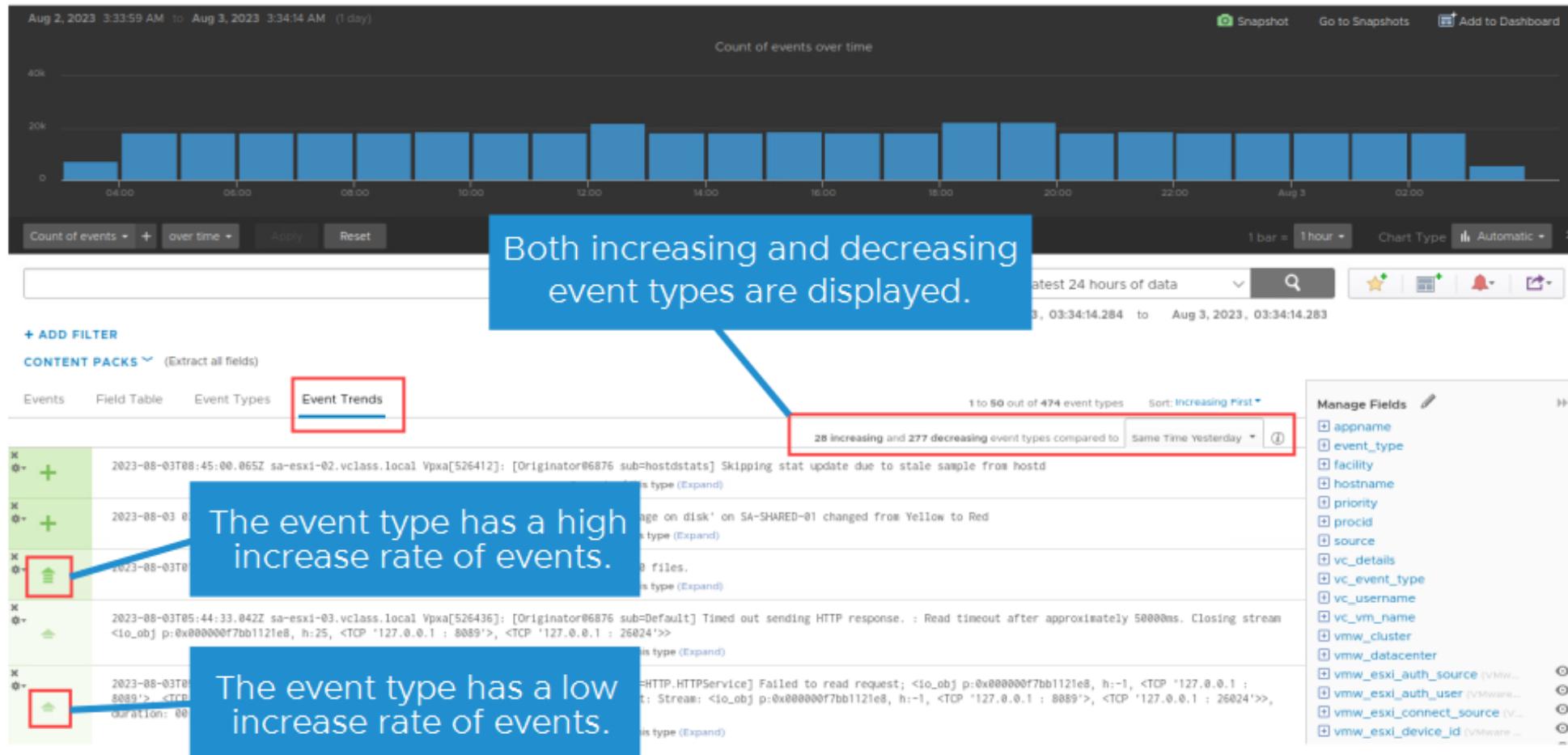
Event Types

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.



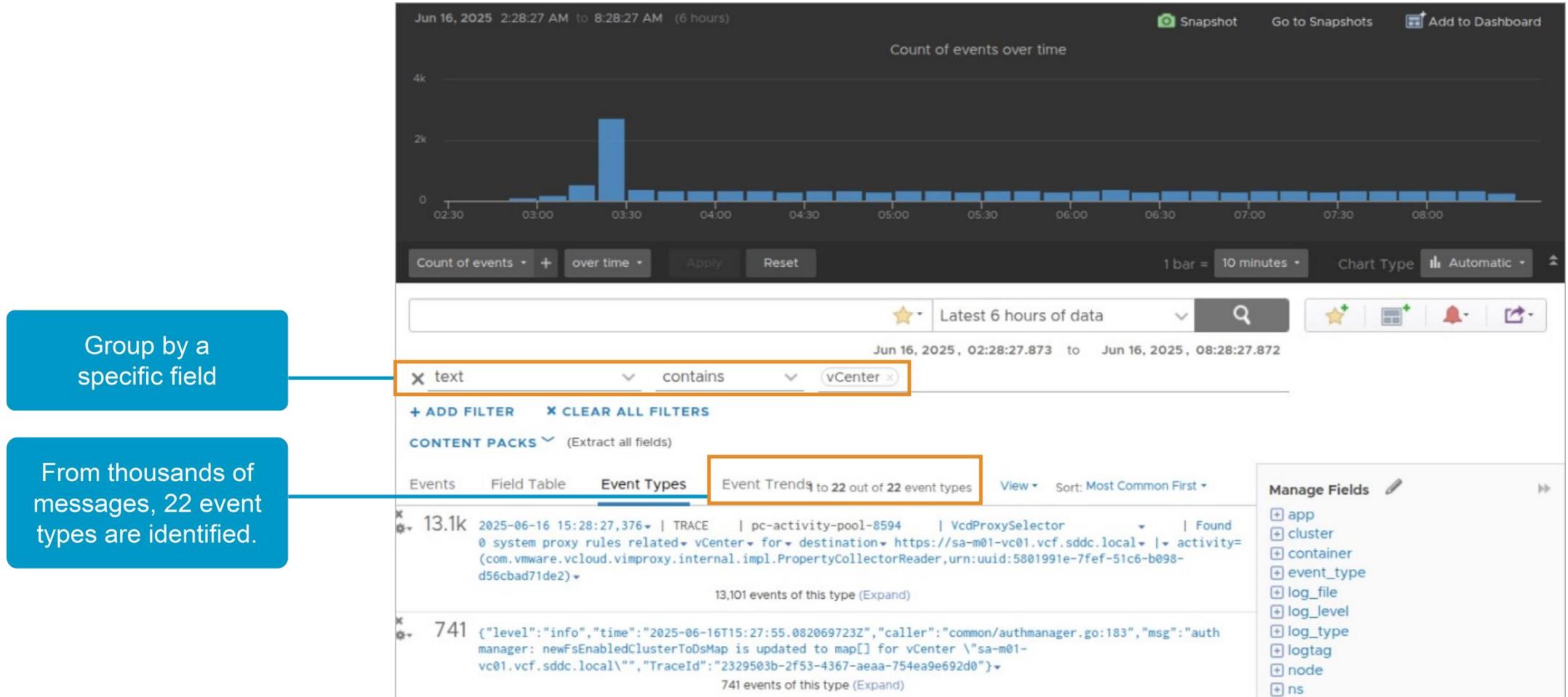
Event Trends Legend

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:

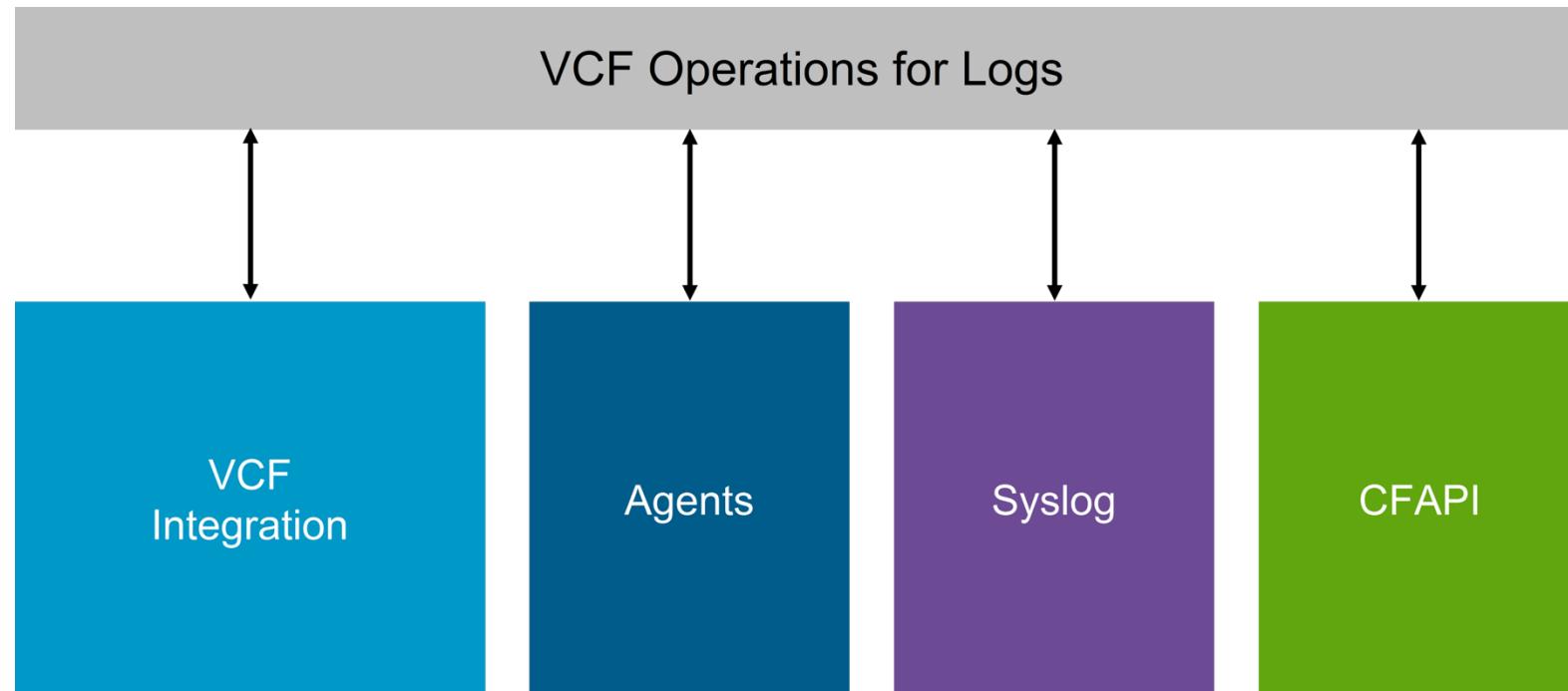
- Keywords: Complete matches or full-text, alphanumeric, hyphen, or underscore matches
- Globs: Complete matches or full-text, alphanumeric, hyphen, or underscore matches
- Regular expressions: Sophisticated string pattern matching based on Java regular expressions
- Field operations: Keyword, regular 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

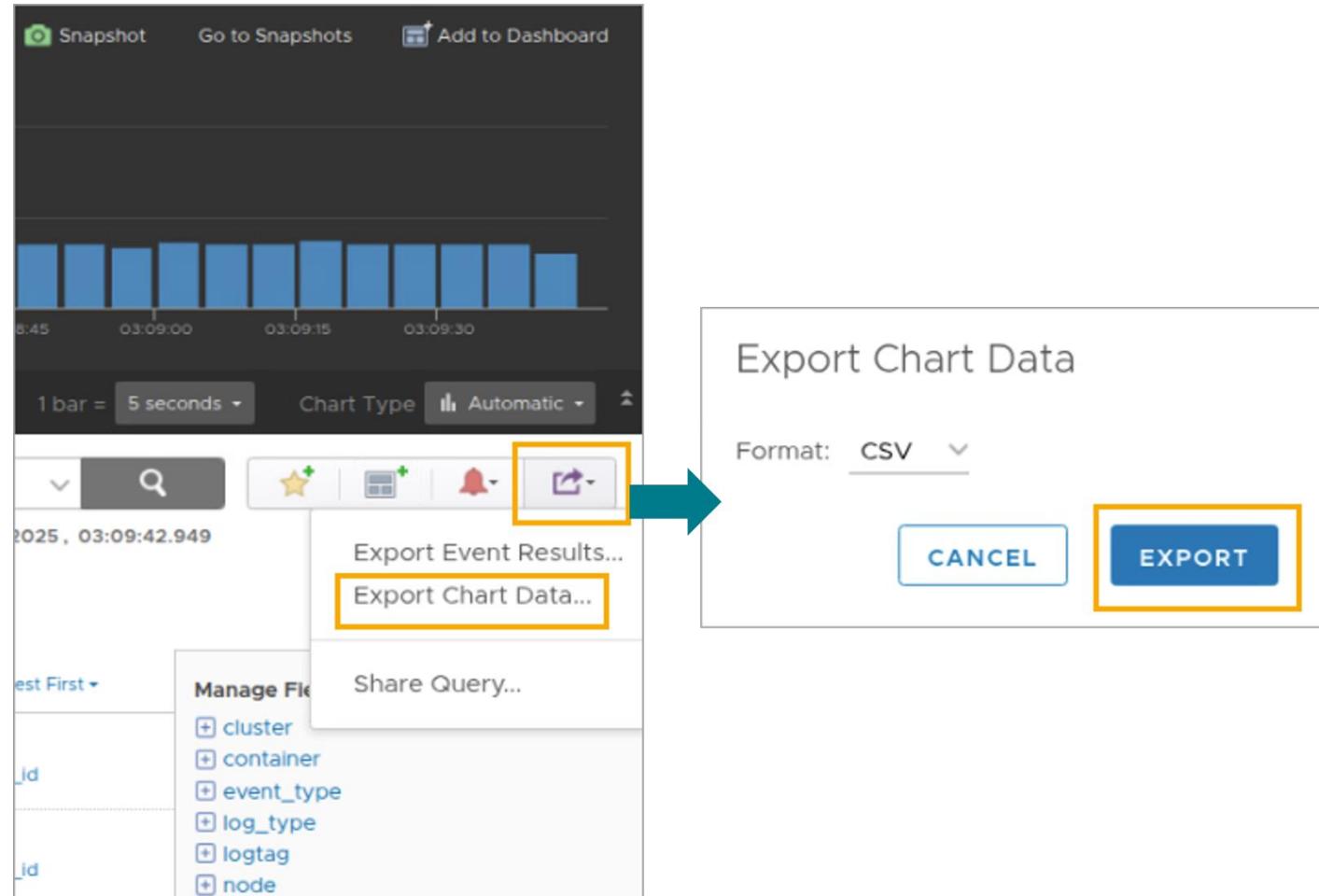
Log Event Details

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.

« Analyze

Logs Metrics Flows

ANALYSE LOGS COMPARE LOGS

Choose Saved Query | error X | PARTITION: All Partitions | 5M 1H 6H 24H 7D CUSTOM | Jun 16, 2025, 02:58:00 - Jun 16, 2025, 03:03:00

+ ADD FILTER | COMPARE | SAVE QUERY

COUNT OF EVENTS OVER TIME APPLY RESET | CHART TYPE 5 seconds

Time	Count of Events
02:58:15 AM	2
02:58:30 AM	1
02:59:00 AM	1
02:59:30 AM	1
03:00:00 AM	2
03:00:15 AM	1
03:00:30 AM	2
03:00:45 AM	1
03:01:15 AM	1
03:01:30 AM	2
03:01:45 AM	2
03:02:00 AM	1
03:02:15 AM	2
03:02:30 AM	1
03:02:45 AM	2
03:03:00 AM	2

Stream Event Types Event Trends

1 - 24 of 24 items

Timestamp	Log
2025-06-16 03:02:45 -07:00	time="2025-06-16T09:01:32Z" level=error msg="Remotedialer proxy error; reconnecting..." error="tls: 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="tls: 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"

Fields FIELDS LIBRARY

Search Fields

_li_source_path

app

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

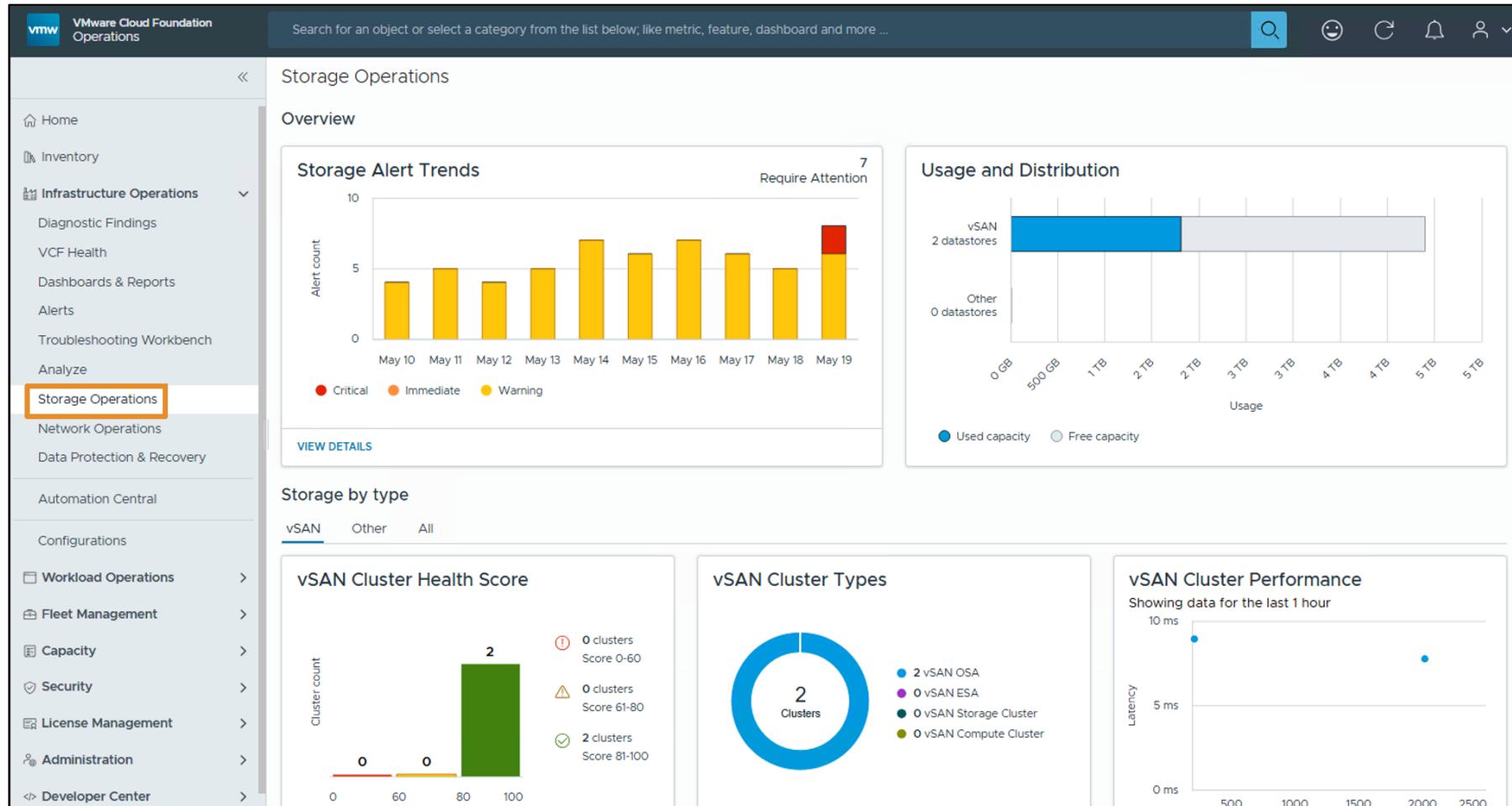


Learner Objectives

- 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 the following data:

- vSAN Cluster Health Score:** A bar chart showing 2 clusters (Score 0-60), 12 clusters (Score 60-80), and 28 clusters (Score 80-100).
- vSAN Cluster Types:** A donut chart showing 75 clusters across four categories: vSAN OSA (30), vSAN ESA (20), vSAN Max (14), and vSAN Compute (8).
- vSAN Performance:** A scatter plot of Cluster IO/latency distribution with Latency on the Y-axis (0 ms to 10 ms) and IOPS on the X-axis (0 to 40). It includes buttons for "VIEW METRICS" and "VIEW INSIGHTS".
- Table:** A summary table for vSAN Cluster 1, showing Datastore (vsanDatastore), vCenter (vcenter.acme.com), vSAN Configuration (Stretched), Health Score (42), VM count (52), Capacity Usage (11.0 TB / 20.00 TB), Space Eff. (1.5x), IOPS (1.5k), and Latency (1.1 ms).

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, Integrations (which is selected and highlighted with an orange box), Cloud Proxies, SDDC Manager, Control Panel, Global Settings, Release Versions, and Developer Center. The main content area is titled 'Integrations' with 4 items. It has tabs for Accounts, Repository, and Marketplace, with 'Accounts' selected. There are buttons for ADD, ... (More Options), COLLECTION STATUS, CREDENTIALS, and a search bar. A filter bar at the top right says 'Type here to apply filters'. Below this is a table for 'VMware Cloud Foundation' accounts:

Name	Status	Description	Managed by VCF Operations	Collector
EDU	Collecting	VMware Cloud Found...	sa-vcopsc-0...	sa-vcopsc-0...
sa-m01-vc01.vcf.sddc.local	Collecting			sa-vcopsc-0...

A context menu is open over the second row (sa-m01-vc01.vcf.sddc.local). The options in the menu are: Edit, Delete, Stop Collecting, and Go to Details. The 'Edit' option is highlighted with an orange box. A callout box on the right provides more details about the selected account:

sa-m01-vc01.vcf.sddc.local

vCenter vSAN Service Discovery

vSAN configuration Activated

Use alternate credentials

Enable SMART data collection

VALIDATE CONNECTION

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 sections of the VMware Cloud Foundation Operations interface:

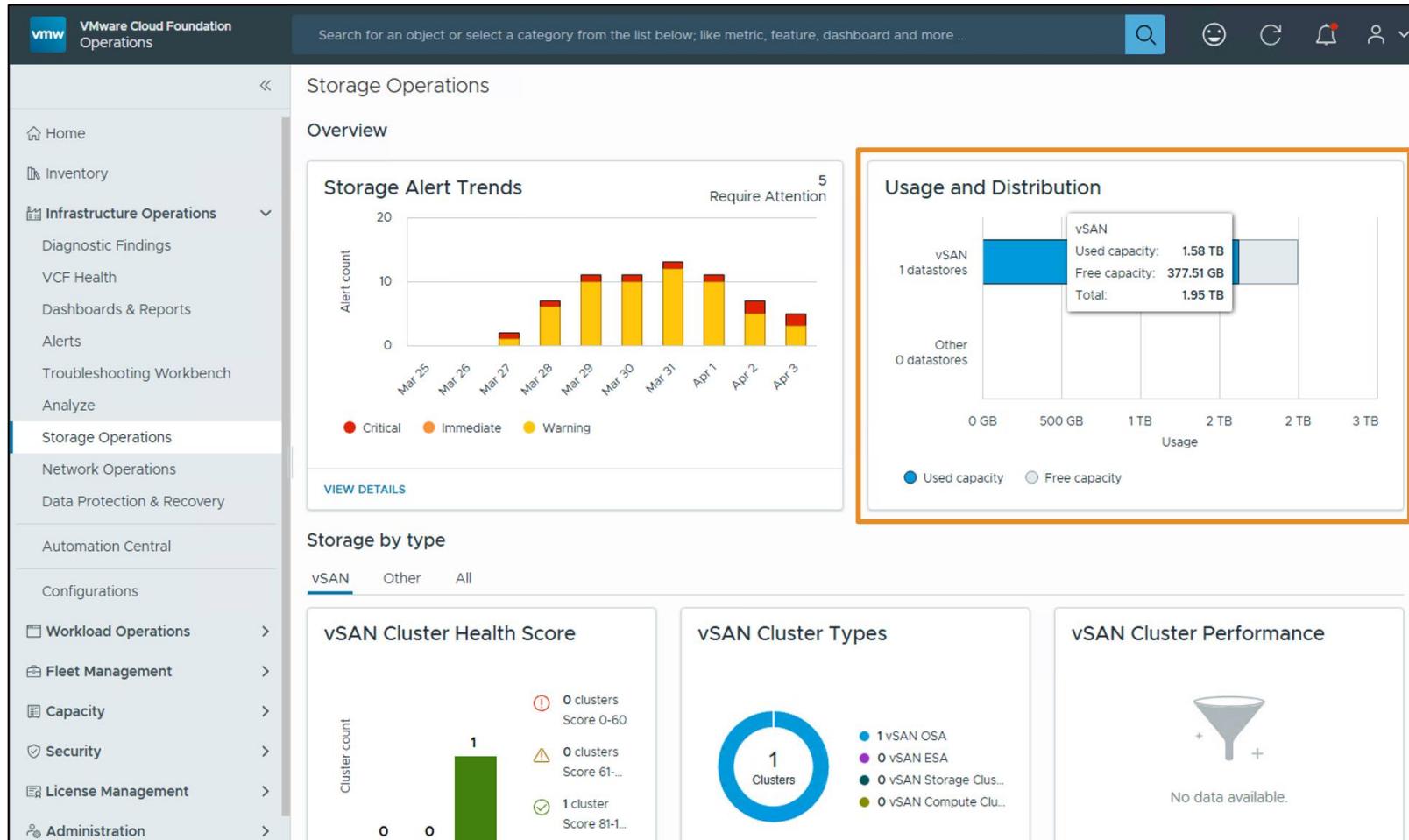
- Storage Operations Overview:** This section features a chart titled "Storage Alert Trends" showing the count of alerts over time. The x-axis represents dates from March 25 to April 3, and the y-axis represents the alert count from 0 to 20. The legend indicates three types of alerts: Critical (red), Immediate (orange), and Warning (yellow). A callout bubble highlights the "Require Attention" count, which is 5 for the period shown.

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

VIEW DETAILS
- All Alerts:** This section lists five active alerts for a vSAN cluster. The alerts are categorized by severity and type:
 - 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)

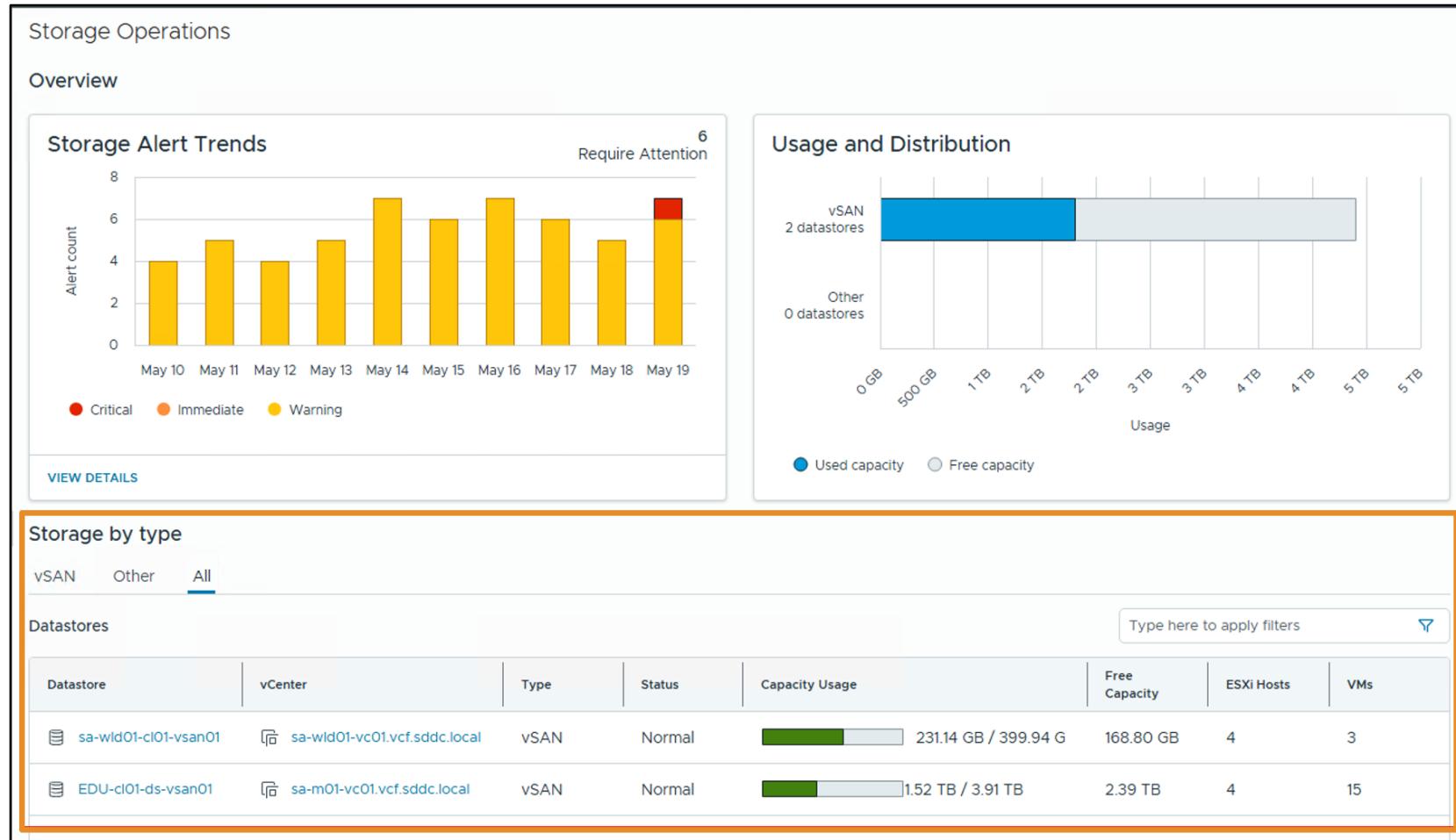
Usage and Distribution Widget

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.

Storage Operations

Storage by type

vSAN Other All

vSAN Cluster Health Score

Cluster count

Health score

Score Range	Count
Score 0-60	0
Score 61-80	0
Score 81-100	1

0 clusters Score 0-60
0 clusters Score 61-80
1 cluster Score 81-100

vSAN Cluster Types

1 Clusters

Type	Count
1vSAN OSA	1
0 vSAN ESA	0
0 vSAN Storage Cluster	0
0 vSAN Compute Clus..	0

vSAN Cluster Performance

No data available.

vSAN Clusters

Type here to apply filters

Cluster	Datastore	vCenter	vSAN Configuration	Health Score	ESXi Hosts	VMs	Capacity Usage	Space Effic
EDU...	EDU-cl01-ds-vsa...	sa-m01-vc01.vcf.sddc.l...	OSA	90	4	11	1.59 TB / 1.95 TB	--

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 'Configure' tab is selected in the top navigation bar. In the main pane, under the 'vSAN' section, the 'Services' tab is selected. A sub-menu for 'vSAN' is open, showing options like 'Disk Management', 'Fault Domains', 'Datastore Management', and 'Desired State'. Below this, the 'Performance Service' option is listed with a status of 'Disabled'. An 'ENABLE' button is visible next to the 'Performance Service' description. A modal window titled 'vSAN Performance Service Settings' is displayed over the main pane. This modal shows a dropdown menu for 'Storage policy' with 'EDU-cl01 vSAN Storage Policy' selected. At the bottom of the modal are 'CANCEL' and 'ENABLE' buttons. The 'ENABLE' button is highlighted with a red box.

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	Latency
EDU-cl01	6 ms
sa-m01-vc01.vcf.sddc.local	4 ms

EDU-cl01
sa-m01-vc01.vcf.sddc.local

IOPS 1830
Throughput 40.51 MB
Latency 6 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 *

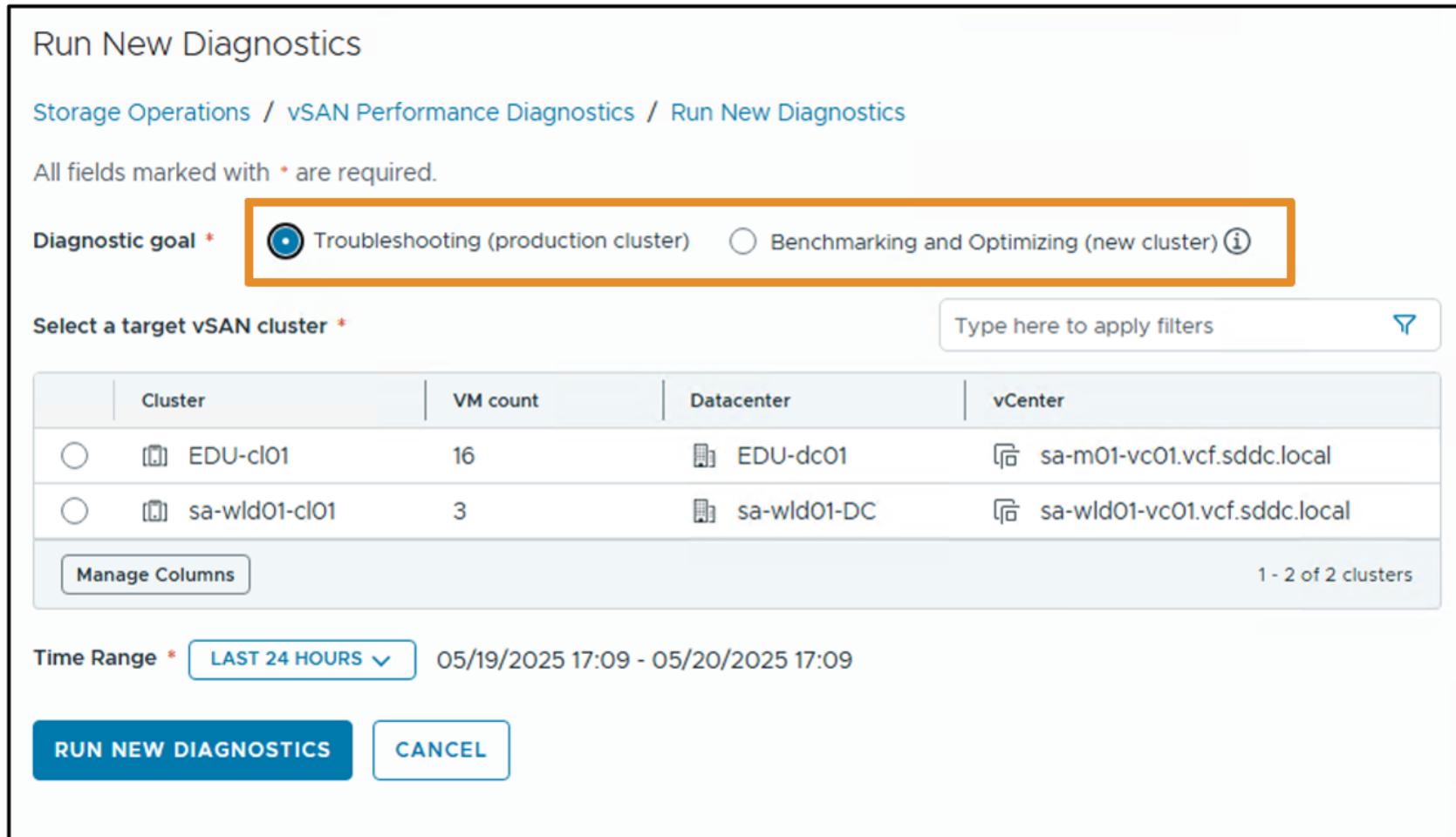
Type here to apply filters (X)

	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

Select a target vSAN cluster

Maximize IOPS

Maximize throughput

Type here to apply filters

Cluster	Datacenter	vCenter
EDU-cl01	EDU-dc01	sa-m01-vc01.vcf.sddc.local

1 - 1 of 1 clusters

Manage Columns

Time Range * CUSTOM 04/13/2025 13:23 - 04/14/2025 13:23

RUN NEW DIAGNOSTICS CANCEL

EDU-cl01

EDU-dc01

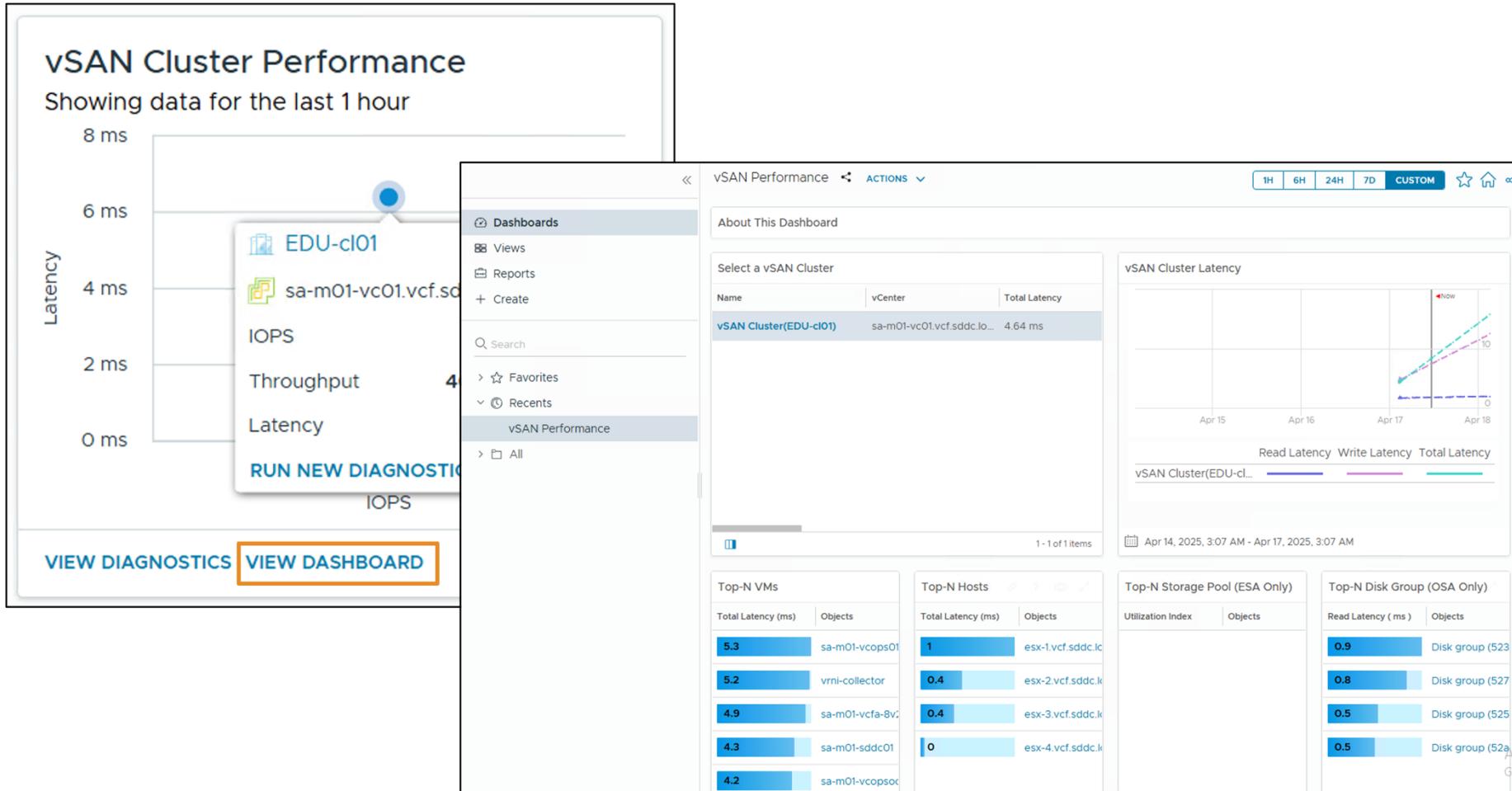
sa-m01-vc01.vcf.sddc.local

1 - 1 of 1 clusters

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 shows the VMware Cloud Foundation Operations interface. The left sidebar has 'Inventory' selected. The main area shows a tree view of VCF Instances, with 'sa-m01-vc01.vcf.sddc.local - vSAN' expanded, and 'vSAN Cluster(EDU-cl01)' selected. The right panel displays the 'vSAN Cluster(EDU-cl01)' details under the 'Summary' tab. It shows the object type as 'vSAN Cluster' and 'vSAN OSA HCI'. The cluster is labeled as 'Stretched Cl...'. Configuration details include: Config: All-flash, Space Efficiency: None, ESXi: 4, Virtual Machine: 11, Disk Group: 4, Capacity Disk: 20, Remote Datastores: 0, Client Clusters: 0, and Client Virtual Machines: 0. Below this is a 'Capacity Summary' section with metrics: Total Capacity 1,999.84 GB, Used Capacity 1,697.22 GB, Remaining Capacity 302.62 GB, and Percentage Remaining 15.13 %. The 'Alerts' tab is highlighted, showing an 'Active Alerts' section with four categories: Critical (Self: 3, All: 3), Immediate (Self: 0, All: 0), Warning (Self: 2, All: 16), and Info (Self: 0, All: 0). There are also 'Metrics', 'Logs', 'Topology', 'Capacity', and 'Environment' tabs. A search bar at the top is empty.

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. A large callout box highlights the 'Datastore Performance' and 'vSAN Performance' cards in the 'Performance' section of the right-hand dashboard panel. The bottom of the interface shows a 'Capacity Summary' chart with metrics like Total Capacity (1,999.84 GB), Used Capacity (1,697.22 GB), Remaining Capacity (302.62 GB), and Percentage Remaining (15.13%).

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

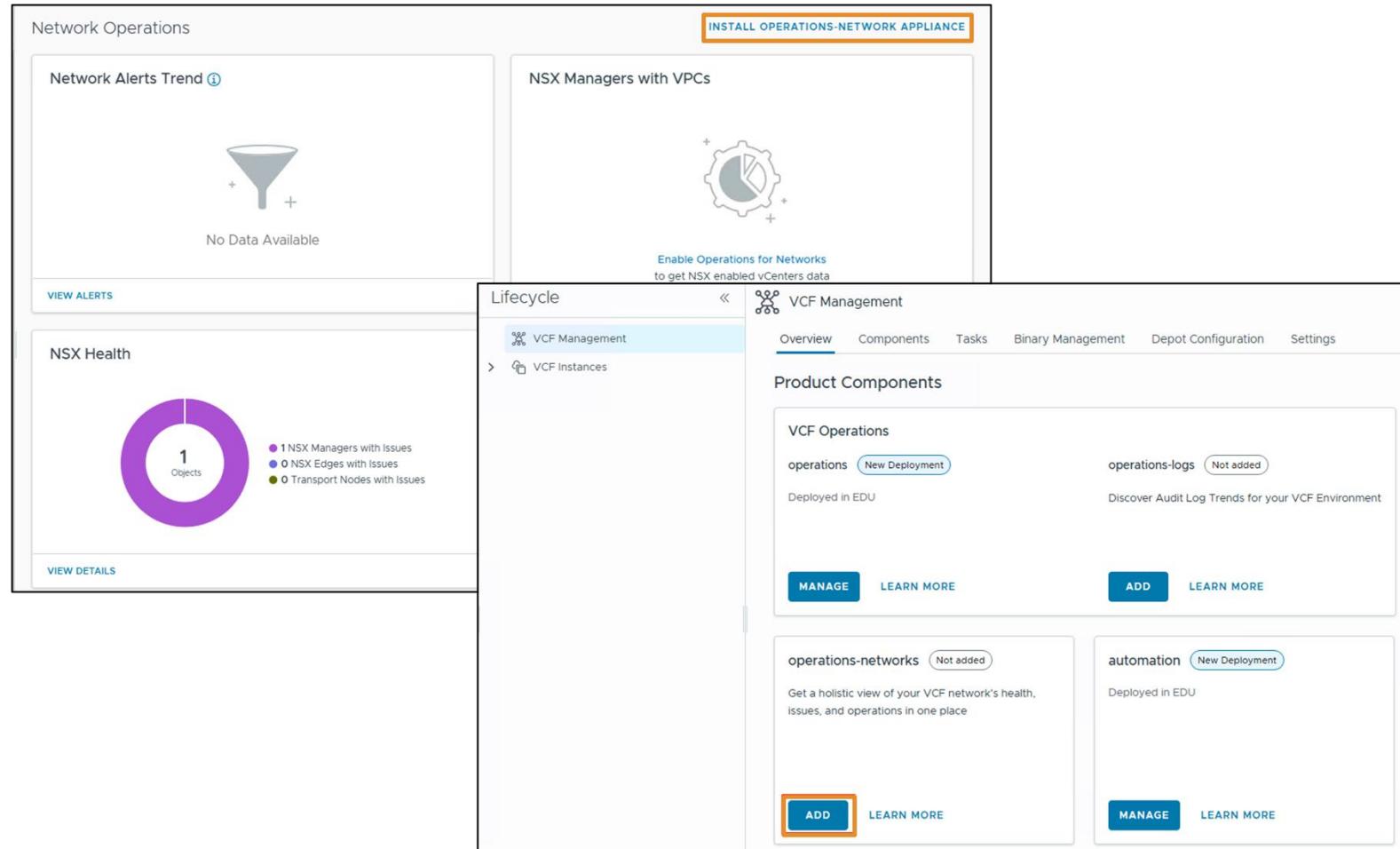
About VCF Operations for Networks

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 includes 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 Developer Center. The Network Operations link is highlighted with an orange box. The main content area features a search bar at the top right. Below it, the "Network Operations" section contains a "Network Inventory" card with counts for NSX Instances (2), Transport Nodes (12), Edge Clusters (2), Gateways (1), Segments (4), NSX Projects (2), VPCs (2), and VDS (3). It also includes "VIEW NSX INVENTORY" and "VIEW VSPPHERE NETWORK INVENTORY" buttons. The "Network Alerts Trend" card shows a bar chart from May 16 to May 22 with a total of 10 alerts requiring attention, categorized by severity: Critical (red), Immediate (orange), and Warning (yellow). The "NSX Managers with VPCs" card is a donut chart showing 2 NSX Managers, with 1 without VPC (blue) and 1 with VPC (purple). The "NSX Health" card shows a donut chart with 3 objects, categorized as 0 NSX Managers with Issues (purple), 2 NSX Edges with Issues (blue), and 1 Transport Nodes with Issues (green). The "Business Applications with Flows" card features a funnel icon with plus signs on either side.

Operations for Networks Prerequisites

To view network details events in VCF Network Operations, deploy the VCF Operations for networks appliance.



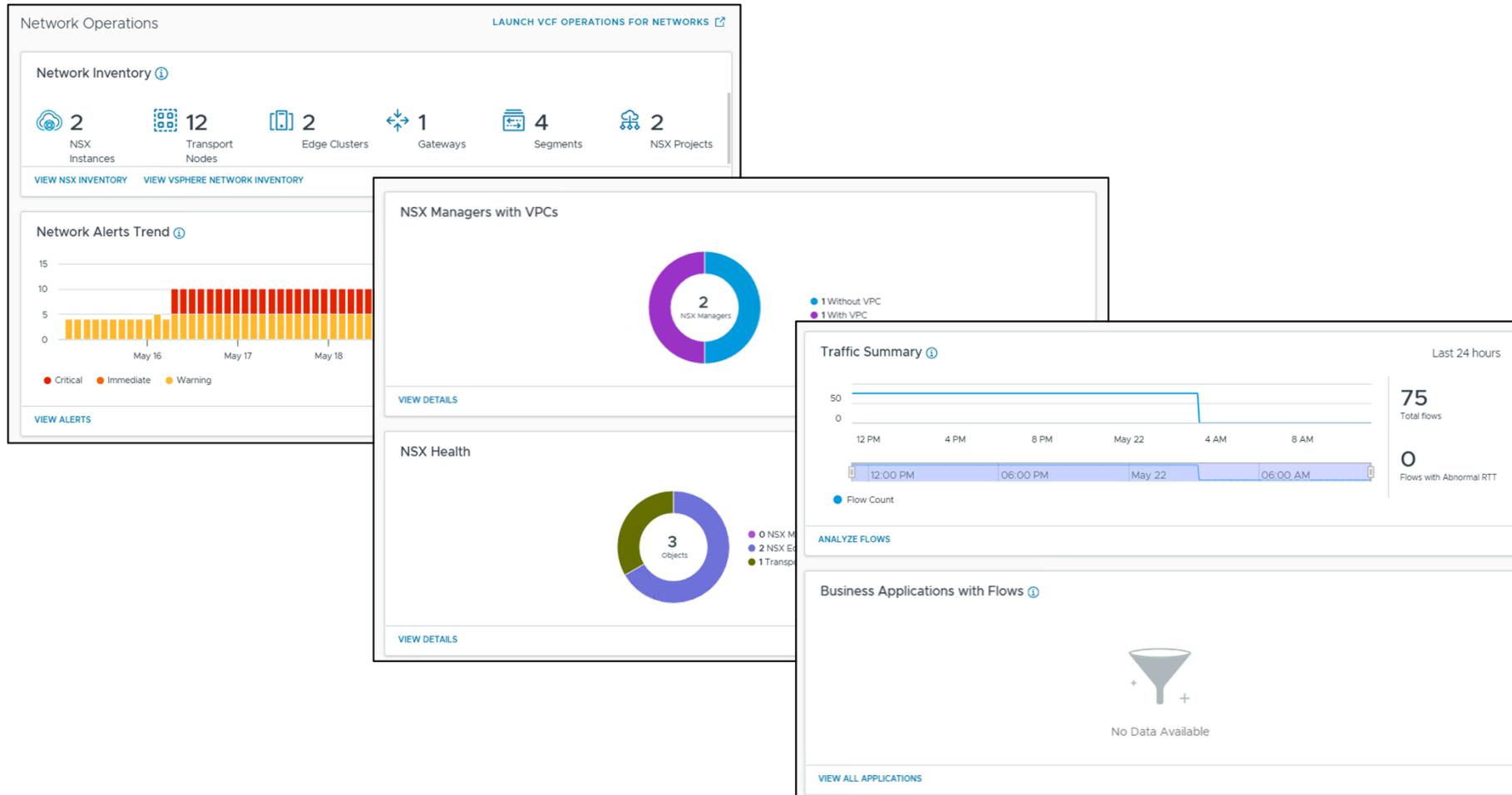
Turning on Flow Collection for vCenter and NSX

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 three accounts: 'VMware Cloud Foundation', 'VCF Automation for All Apps Organization', and 'VCF Automation for All Apps Organization'. The 'VMware Cloud Foundation' account is selected, and its context menu is open, with the 'Edit' option highlighted. The right panel is titled 'EDU' and shows the configuration for this account. It has tabs for 'Account' and 'Domains', with 'Domains' selected. A message says 'Configure each domain to enable it for monitoring.' Below this, the 'EDU' domain is listed with a green checkmark. There are four tabs at the bottom: 'vCenter' (selected), 'vSAN', 'NSX', and 'Service Discovery'. Under 'Network & Flow', there is a checked checkbox labeled 'Activate Network & Flow Collection'. Below it, another checked checkbox is labeled 'Enable NetFlow (IPFIX) on this vCenter'. A note states: 'Selecting this option will update the vCenter NetFlow settings on the VDS selected below.' At the bottom, there is a link to 'Customize VDS Selection' and a status message '0 of 1 VDS selected'.

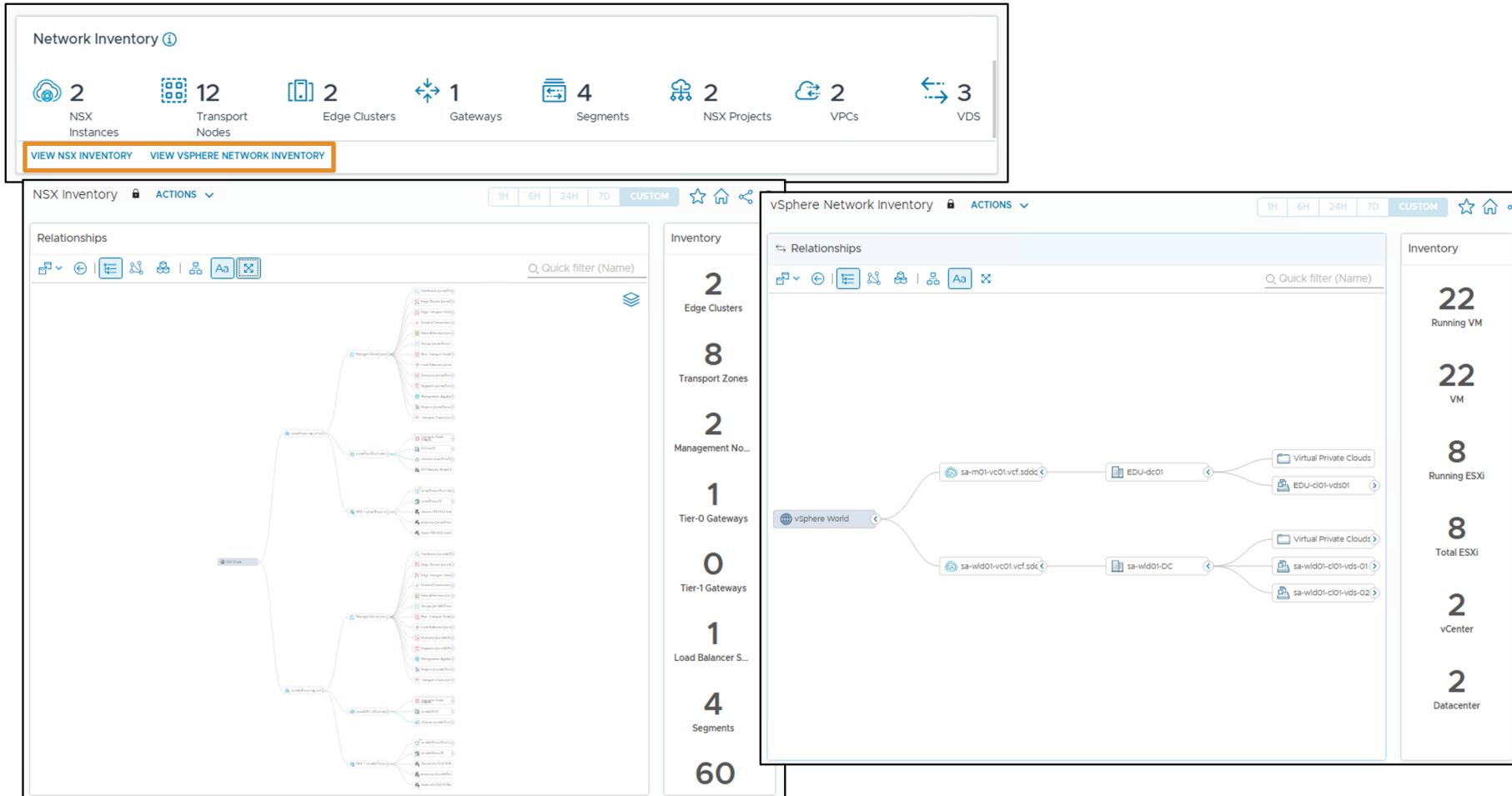
Network Operations Page

The **Network Operations** page includes several useful widgets that provide information about your deployments' networking status and resources.



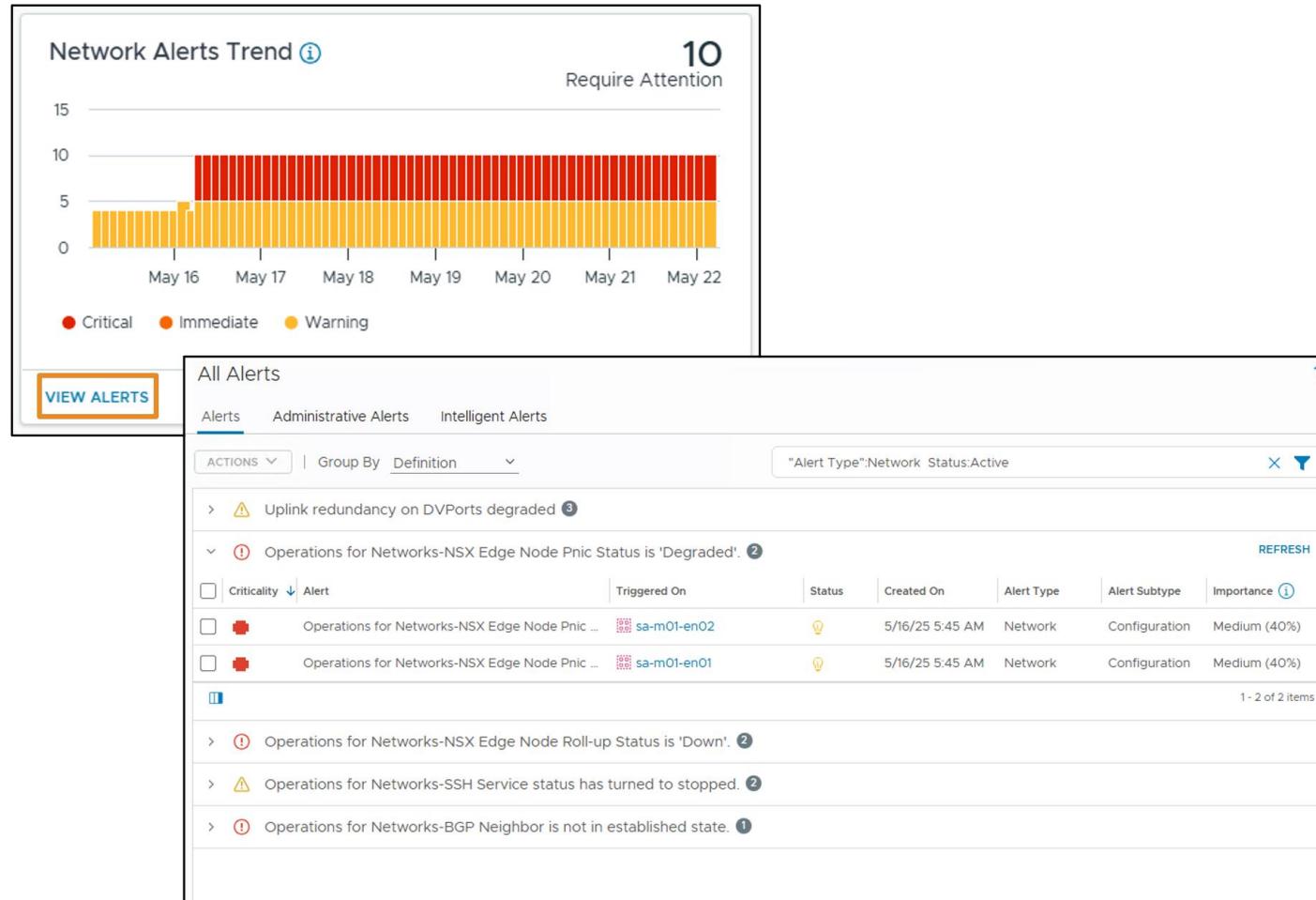
Networking Inventory Widget

The Networking Inventory widget includes the networking objects in your inventory such as NSX instances, transport nodes, and edge clusters.



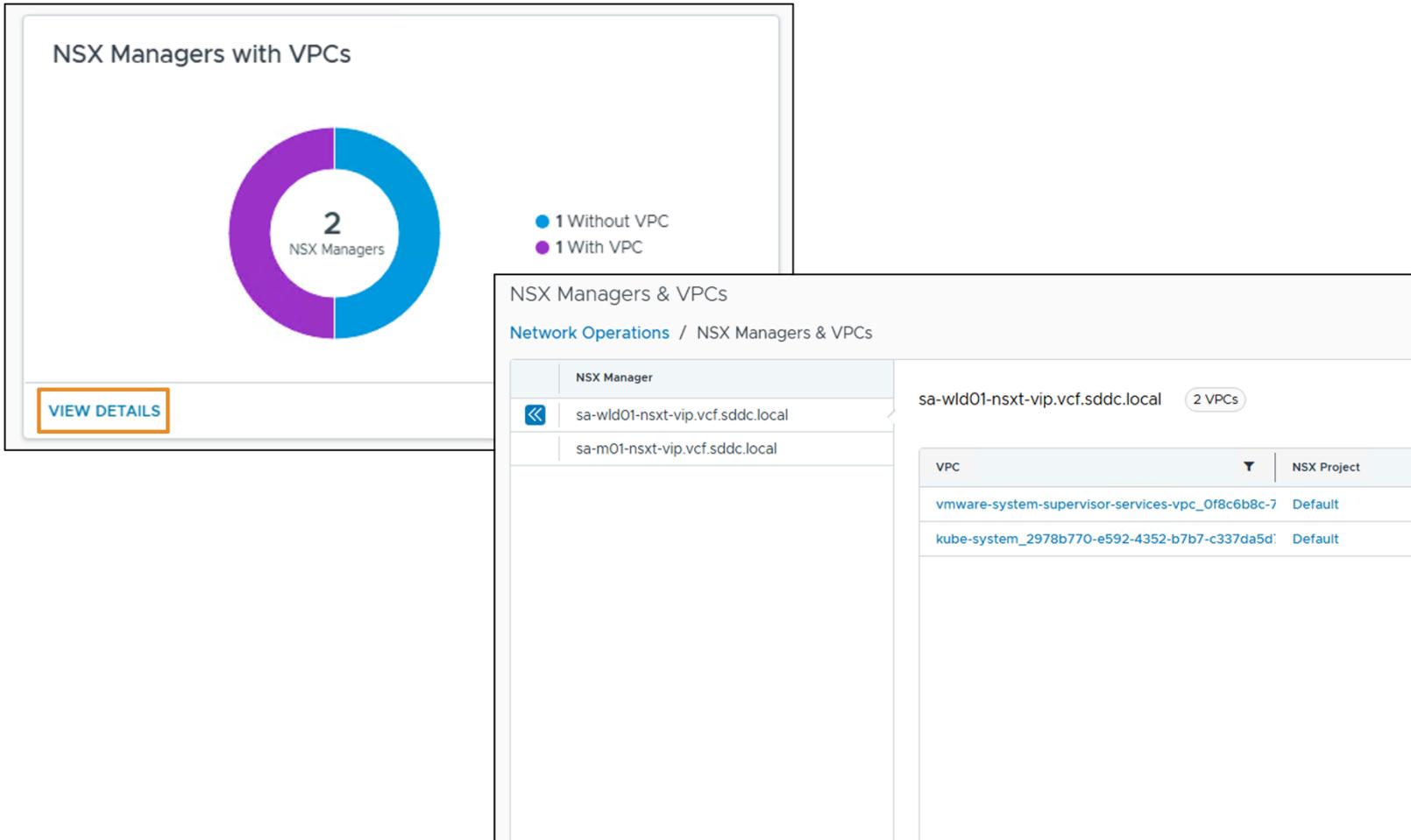
Network Alerts Widget

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 two views of the NSX Manager & VPCs interface:

Top Left: Summary of NSX Project

- Properties:**

Name	Default
Vendor ID	1327815c-d509-48f3-a3c6-5525861720cc
Manager	sa-wld01-nsxt-vip.vcf.sddc.local
Default DFW Rules Activated	Yes
Short Id	Default
Default	Yes
- Entities:**
 - VPCs: 2
 - TGWs: 1
 - NSX Project VMs: --
 - IP Block by Type: 4
 - Private-TGW 1
 - Private-VPC 3
 - Flows Summary: No Data Available

Bottom Right: Summary of NSX VPC

- Properties:**

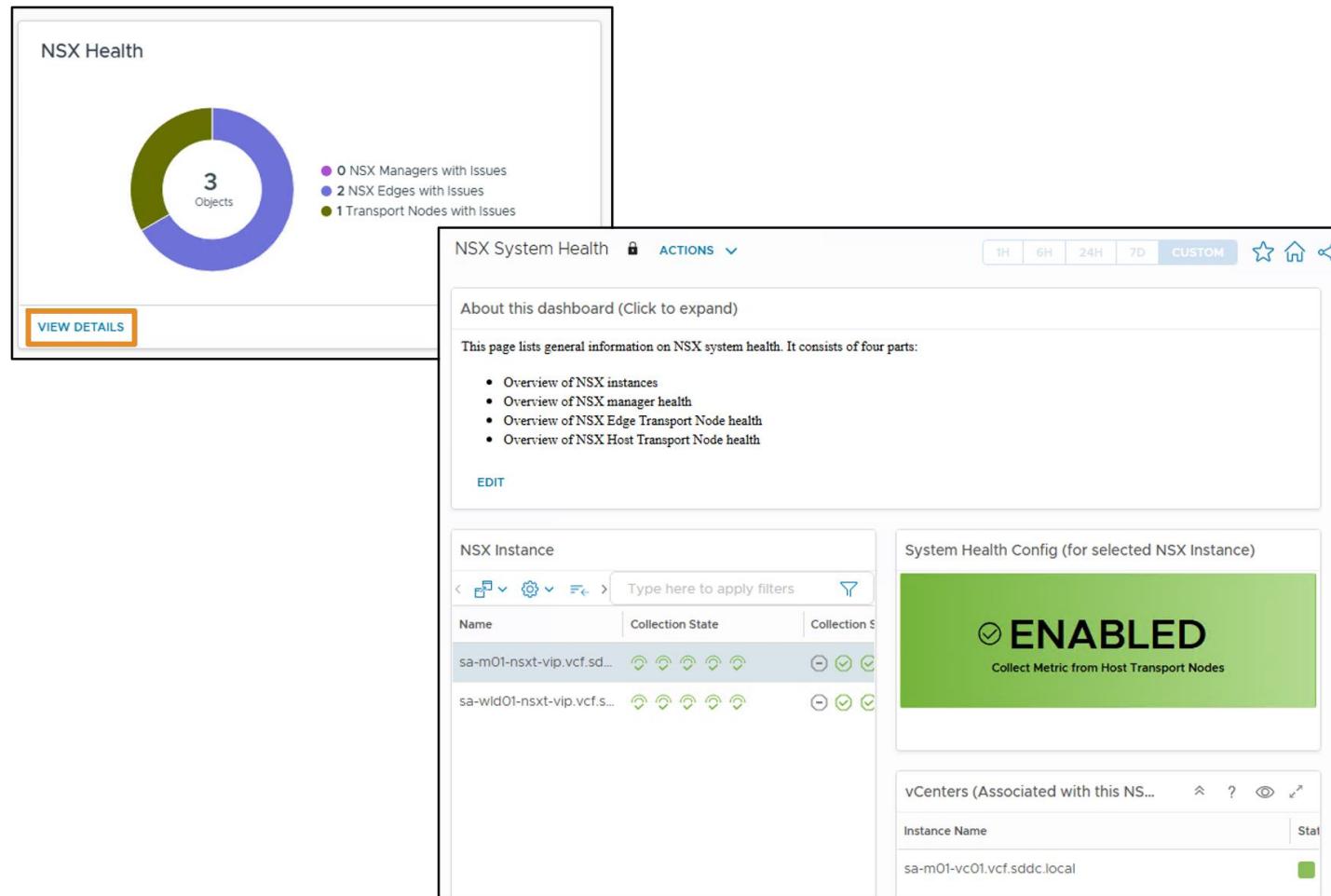
VPC Connectivity Profile	Default VPC Connectivity Pr...
Transit Gateway	Default Transit Gateway
Edge Clusters	sa-m01-cl01
N-S Services	Yes
Default SNAT	Yes
Manager	sa-wld01-nsxt-vip.vcf.sddc.l...
External IP Blocks	External-ip-address-block-1...
Private-TGW IP	Supervisor Transit Gateaw...
- Entities:**

Groups	Firewall Rules	NAT Rules	Routers
2	0	0	1

Routes	Router Interfaces	VMs with External IP
7	1	0

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 'ADD APPLICATIONS' options: 'Define Manually' and 'Based on Flows', with 'Based on Flows' highlighted. The main pane 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 metrics:

- Talking to Internet: 25 APPS
- Unprotected Flows: 25 APPS
- Applications with Problems: 2 APPS

A large bar chart indicates 28 Apps in total. 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 "ADD APPLICATIONS" with two options:

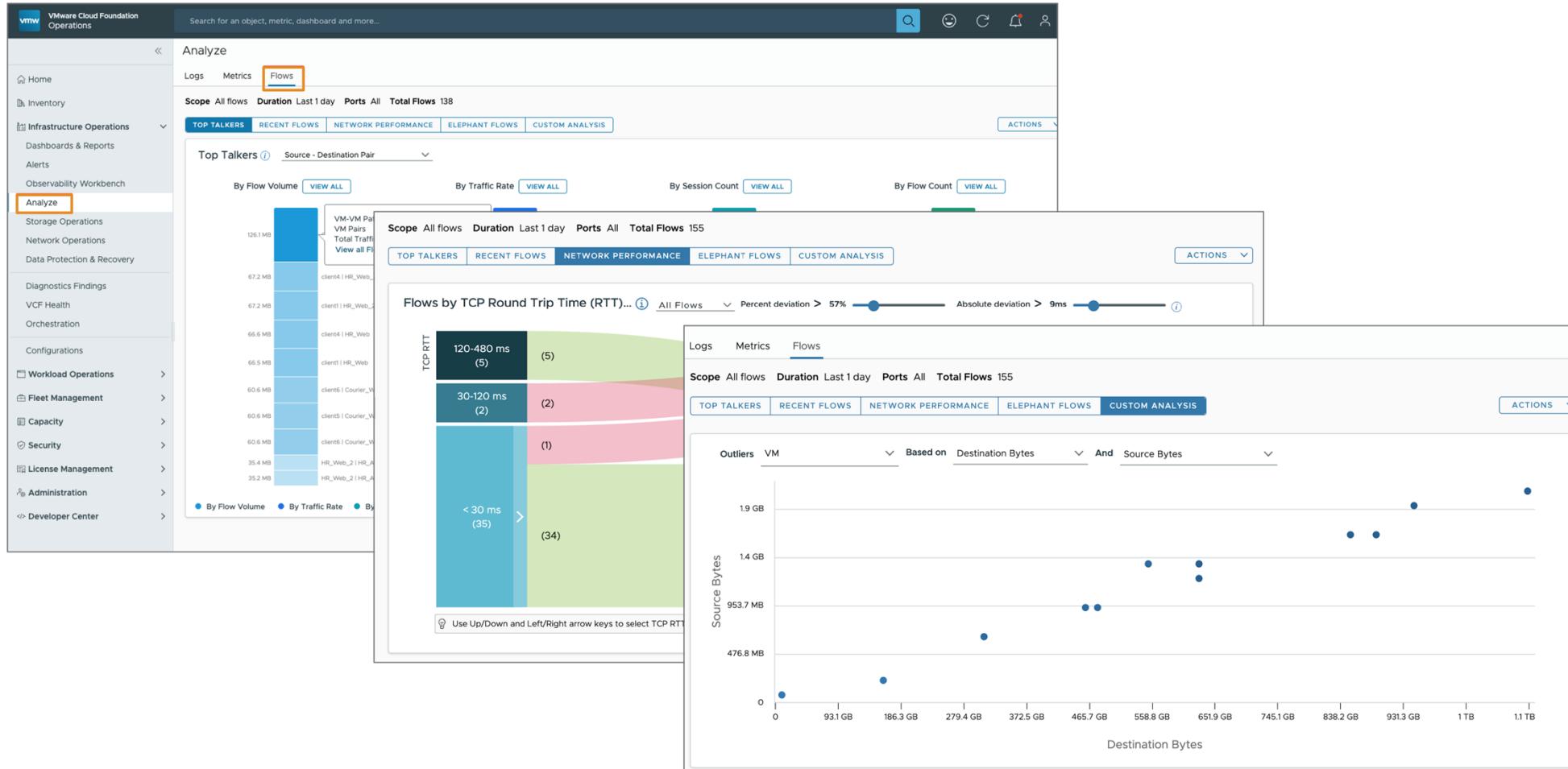
- Define Manually
- Based on Flows

The "Based on Flows" section lists several applications, each with a status icon and a description:

- 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

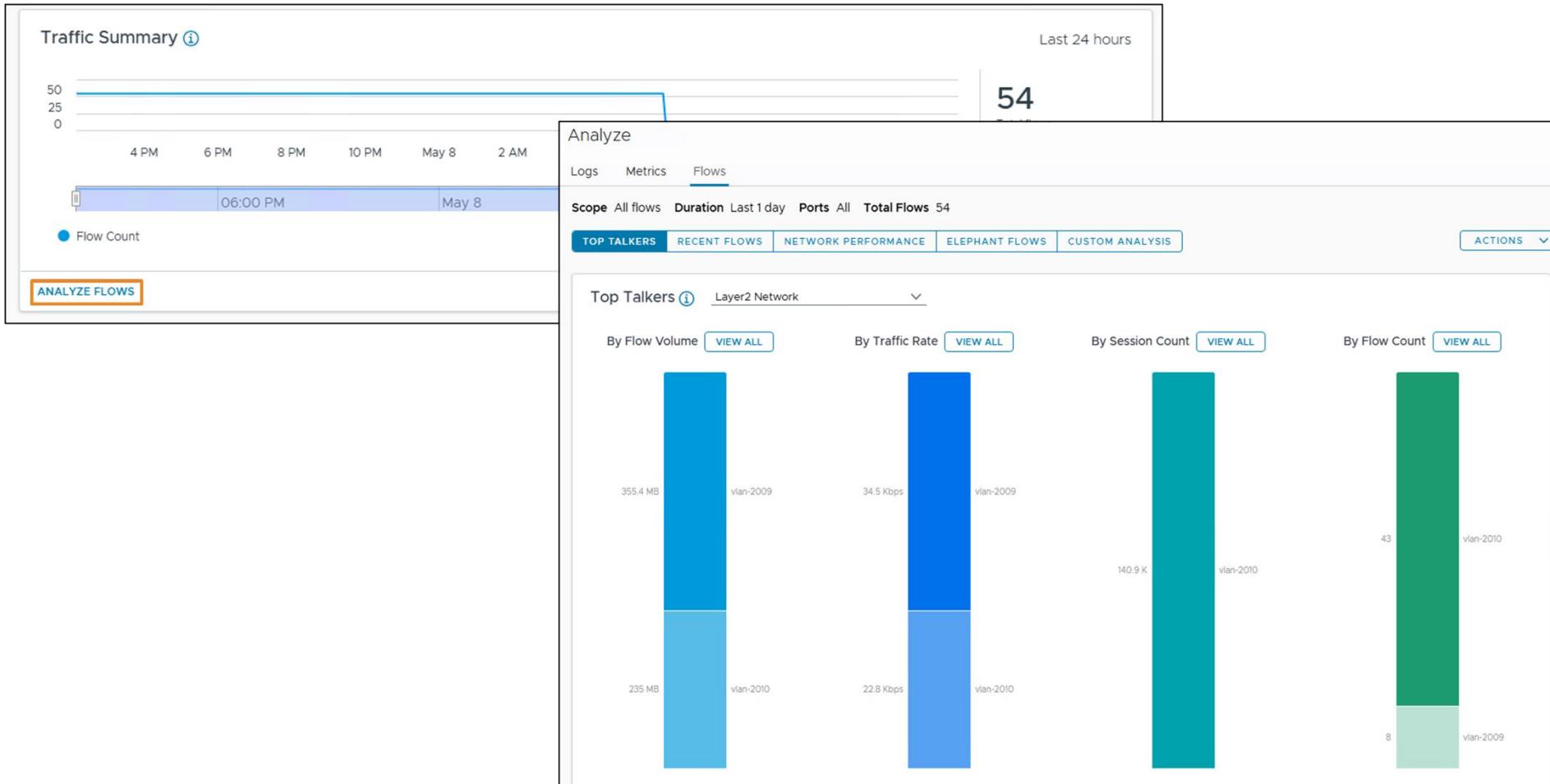
Flows in VCF Operations for networks

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. At the top left, there's a Network Operations section with metrics for NSX Instances (1), Transport Nodes (4), and Edge Clusters (0). It includes links to 'VIEW NSX INVENTORY' and 'VIEW VSPPHERE NETWORK INVENTORY'. Below this is a 'Network Alerts Trend' chart from May 1 to May 4, showing a constant value of 2 across all three days. A legend indicates: Critical (red dot), Immediate (orange dot), and Warning (yellow dot). A 'VIEW ALERTS' button is also present. To the right of the alerts is a 'LAUNCH VCF OPERATIONS FOR NETWORKS' button.

The main dashboard area features several cards:

- Performance:** Shows processing lag (276 ms), indexer lag (4.7 s), and grid usage (0.09%).
- System:** Shows collector VMs (1), platform VMs (1), and platform capacity (0%).
- Alerts:** Displays a circular gauge with the number 11, indicating 1 critical and 10 warning alerts.
- Quick Links:** Includes links to 'Secure your flows', 'Plan Micro-segment', 'Migrate your workloads', 'Start Planning', 'Troubleshoot your critical entities', 'Start Troubleshooting', 'Manage Applications', 'Add Applications', 'View path between VMs', 'Path Topology', and 'Manage intent'.
- Environments:** Shows environments: NSX (1) and vCenter (1). A specific environment card for 'sa-m01-nsxt-vip.vcf.s...' is highlighted in red.
- Insights:** Lists 2 empty security groups, 6 masked firewall rules, and 1 VMs talking to the internet.
- Anomalies:** A section for managing anomalies, currently showing 'No data to show'.

At the top right, there are navigation icons for 'Now', search, notifications, and more. The top bar also includes 'CREATE NEW DASHBOARD', 'REFRESH DISABLED', the date 'May 8, 14:39', and buttons for 'DUPLICATE' and '...'. The overall interface is dark-themed with blue and yellow highlights for important data points.

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