



Maximizing the Use of VMware vRealize Operations for Horizon

VMware vRealize Operations for Horizon 6.0

(Previously VMware vCenter Operations
for View Deployment Guide)

TECHNICAL WHITE PAPER

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Introduction

VMware vRealize™ Operations for Horizon® is a monitoring solution that extends the capability of VMware vRealize Operations Manager™ to troubleshoot, monitor, and manage the health, capacity, and performance of VMware Horizon with View environments.

The vRealize Operations family includes Foundation, Standard, Advanced, and Enterprise editions, and vRealize Operations for Horizon is available for the Enterprise edition. VMware vRealize Operations for Horizon and VMware vRealize Operations Manager coordinate seamlessly to provide an intelligent approach to large-scale desktop operations management. This solution is ideal if you have thousands of desktops to manage within a mature environment.

About This White Paper

This white paper describes how to maximize the use of your vRealize Operations for Horizon monitoring solution and includes use-case scenarios and lab exercises. It complements product documentation and is not intended to be a reference architecture guide, or a recommendation for third-party products, or to substitute for product documentation. For detailed information regarding installation, configuration, and administration, see the VMware online documentation. For additional questions, consult the online VMware knowledge base. For further assistance, contact a VMware sales representative or channel partner. The following online resources are available:

- VMware vRealize Operations for Horizon
 - [Product overview](#)
 - [Product documentation](#)
 - [Knowledge base](#)
- VMware vRealize Operations Manager
 - [Product overview](#)
 - [Product documentation](#)
 - [Knowledge base](#)
- VMware Horizon with View
 - [Product overview](#)
 - [Product documentation](#)
 - [Knowledge base](#)

Intended Audience

This document is for information technology professionals and business teams and managers who want to use vRealize Operations for Horizon to meet their respective business objectives.

- Vice presidents of desktop infrastructures who want to lower operating costs and deliver better quality of service to their end users
- Managers of help desk teams who can benefit from automated troubleshooting and better visibility into end-user sessions and back-end infrastructure performance, leading to faster mean time to resolution
- Managers of virtual infrastructure and operations who want to improve team productivity with fewer fire drills and a more proactive management of infrastructure, desktops, and applications
- Administrators of virtual infrastructures and desktops who want better insight into all aspects of the infrastructure, including normal behavior, health issues, and nascent performance bottlenecks

Features

As organizations increase their virtual desktop footprint in the enterprise, a robust and reliable monitoring solution is essential for maintaining a production-quality end-user experience. Administrators need the monitoring solution to warn against resource over-subscription and exhaustion, service outages, and more. Because a virtual desktop deployment has many moving parts, the monitoring solution must be able to scale on demand without compromising the virtual desktop infrastructure that it is monitoring.

Many traditional operations management tools available cannot handle large data sets, provide quality alerts, or adapt to distinguishing between normal and abnormal behavior. They also often lack the comprehensive visibility into the entire stack, thus providing only a partial view into the environment. VMware vRealize Operations for Horizon can meet these challenges by extending the functionality of vRealize Operations Manager Enterprise for Horizon environments. It enables IT administrators and help desk specialists to monitor and manage View virtual desktop infrastructure (VDI) environments. Using vRealize Operations for Horizon, you can improve operational efficiencies and user experience, reduce operating expenses, and improve infrastructure utilization.

Key Features

VMware vRealize Operations for Horizon is based on its underlying platform, vRealize Operations Manager Enterprise:

- **Better user experience** – Quickly find and troubleshoot problems across your end-user computing environment with in-guest metrics and login times, as well as user applications.
- **Performance-optimized infrastructure** – Automatically track the health of your VDI stack to optimize performance. You can monitor storage and network resources across physical and virtual boundaries, including PC over IP (PCoIP) performance, View Connection Servers, and View security servers. This intelligent automation of root-cause analysis and auto-correlation of monitoring data across the entire stack can reduce troubleshooting time, and improve team productivity.
- **Advanced analytics** – Proactively monitor, troubleshoot, and remediate your environment. VMware vRealize Operations for Horizon has the ability to learn normal operating parameters for Horizon with View infrastructure and user workloads. You can get proactive warnings, set alerts based on dynamic rather than hard thresholds that adapt to your environment, and receive advanced notifications before events impact end users.

New Features

VMware vRealize Operations for Horizon now offers

- **Single pane of glass** – Use a single, integrated console with comprehensive visibility into the performance and health of your Horizon environment, from your data center to your devices. Instead of multiple UIs, you can plug in multiple adapters, including the vRealize Operations for Horizon View adapter for a single, fully integrated console. You can manage and monitor the performance of your entire system, eliminate bottlenecks, and improve user experience to enhance workplace productivity.
- **Improved scalability** – Easily scale your instance due to the new vRealize Operations Manager architecture, which provides the underlying platform for vRealize Operations for Horizon. Instead of separate analytics and UI virtual machines (VMs), you now have a single appliance for monitoring both desktops and servers.
- **Out-of-the-box reporting** – Take advantage of built-in reporting capabilities and out-of-the-box usage and license-compliance reports. Use remediation commands to help ensure and enhance SLA compliance. For the VP or CIO, usage-centric reports provide insight into which resources and desktops are being used and how often. To generate a report, you select an object and a report template. The object determines the scope of the generated report. For example, you can run a template against one specific pool or against all pools, depending on the object selected.
- **Improved utilization** – Identify over-provisioned hardware, bottlenecks, and resource constraints, and reconfigure resources and systems as needed to optimize utilization.
- **View compatibility** – Use with View 5 and later, including Horizon 6.
- **Customer-requested enhancements** – Work with enhanced dashboards, alerts and remediation, capacity modeling, and badges. Improved internationalization extends to Germany, Japan, Korea, China, and France.
- **In-guest metrics** – Gain insight into the user environment, and see which applications and processes are running and what users might be experiencing. You can then use this insight to identify potential issues. In-guest metrics for application performance ensure that end users have the best user experience. New metrics and widgets for monitoring login processes are available—important because the login experience impacts a user's overall experience. For example, many CIOs and administrators have SLAs that ensure that 95 percent of users can log in within a minute. By examining detailed in-guest login metrics, you can determine whether the problem is the connection time, a profile load issue, or something else. You can identify which applications and processes are consuming the most resources, and possibly causing increased latency and poor end-user experience. Application data is captured on demand and presented on dashboards.

Architecture

The underlying platform of vRealize Operations for Horizon is vRealize Operations Manager Enterprise. VMware vRealize Operations for Horizon extends vRealize Operations Manager and is available in the Enterprise edition only. The key components of vRealize Operations for Horizon include the adapter, the broker agent, and the desktop agents.

- [Underlying vRealize Operations Manager platform](#)
- [VMware vRealize Operations for Horizon broker agent](#)
- [VMware vRealize Operations for Horizon desktop agents](#)
- [View adapter](#)

Figure 1 illustrates how the vRealize Operations for Horizon components interact with each other (represented by orange tiles), with the underlying vRealize Operations Manager Enterprise platform (blue tiles), and with the Horizon with View environment (green tiles). VMware vCenter Server™ is part of the Horizon with View environment, and can host the View desktops or View Connection Server.

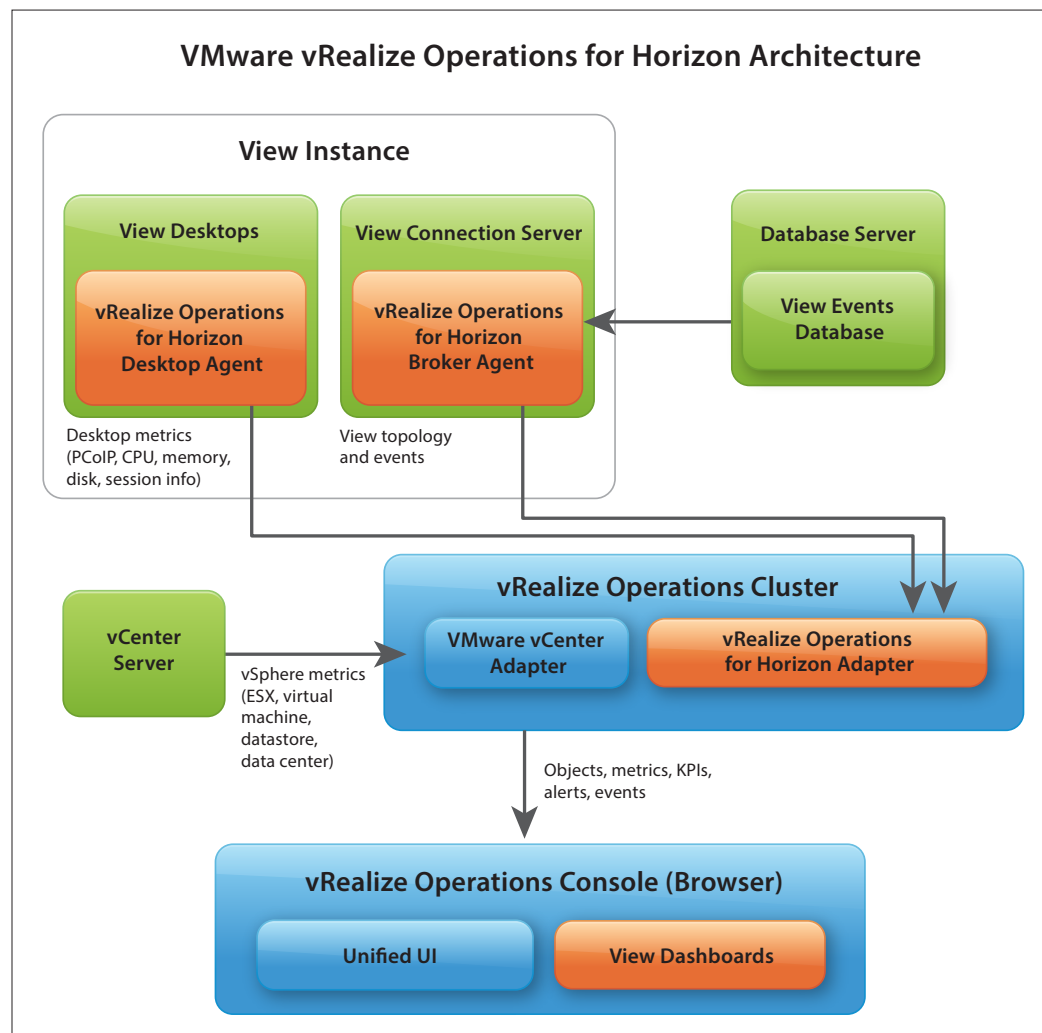


Figure 1: Architecture of a Single Instance of vRealize Operations for Horizon

Underlying VMware vRealize Operations Manager Platform

The vRealize Operations Manager Enterprise monitoring application provides the underlying platform for your vRealize Operations for Horizon installation. VMware vRealize Operations Manager Enterprise is a virtual appliance (vApp), deployable from VMware vCenter™ using a VMware vSphere® client. You can deploy the vRealize Operations Manager Enterprise monitoring application as a single node or a multi-node. VMware vRealize Operations for Horizon is available in the Enterprise edition on either Linux or Windows.

For more information, see the [VMware vRealize Operations Manager documentation](#).

VMware vRealize Operations for Horizon Broker Agent

A key component of vRealize Operations for Horizon is the broker agent, which runs on a View Connection Server in each View pod.

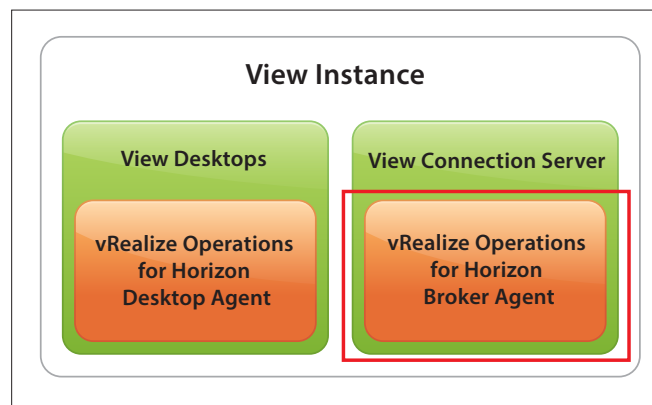


Figure 2: Broker Agent for vRealize Operations for Horizon

The broker agent gathers data from various sources, including the events database, the View API for View 6.0 environments, and the PowerShell for earlier versions of View. It collects information about the topology and View inventory, monitors the View infrastructure, and sends the collected data to the [adapter](#). The broker agent also pushes configuration data to the [desktop agents](#) so that they can communicate with the adapter. If an events database is configured in the View environment, the broker agent can connect to that database and send View event data to the adapter.

VMware vRealize Operations for Horizon Desktop Agents

Another key component of vRealize Operations for Horizon is the desktop agent. One vRealize Operations for Horizon desktop agent runs on each virtual desktop that you want to monitor on vRealize Operations Manager. Desktop agents can also run on any Remote Desktop Services (RDS) host in a View environment that is used for desktop or application pools.

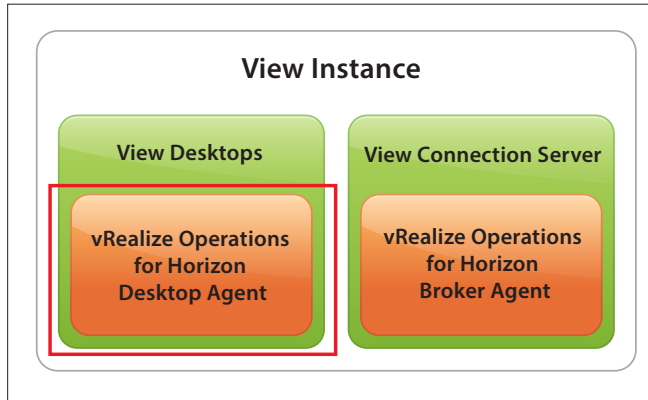


Figure 3: Desktop Agent for vRealize Operations for Horizon

From a variety of sources, the desktop agent collects session metrics, such as CPU, memory, disk, network, and so on. The desktop agent uses the configuration data provided by the [broker agent](#) to connect to the adapter. It sends performance information for the desktop it is running on directly to the [adapter](#). The desktop agent is installed as part of the View Agent in View 5.2 and later.

For more information, see the [vRealize Operations for Horizon Installation](#) guide.

View Adapter

The third key component of vRealize Operations for Horizon is the View adapter, which interfaces with VMware vSphere and VMware vCenter to collect metrics. The adapter runs on vRealize Operations Manager Enterprise and collects virtual desktop performance data from monitored resources in the View environment, such as the [broker agent](#) and the [desktop agents](#). The adapter gets the topology from the View environment, where it collects metrics and other types of resource information from the View desktops. If a View events database is configured, the adapter can collect alerts, connection times, and other event information from that source as well.

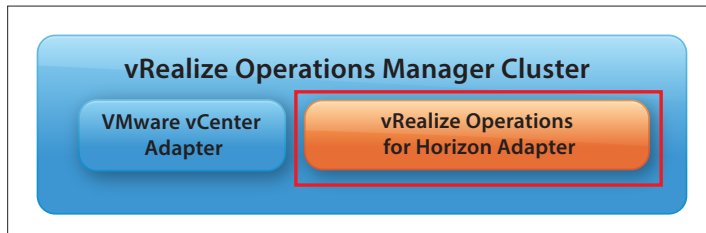


Figure 4: View Adapter for vRealize Operations for Horizon

The adapter works with the vRealize Operations collector to collect and process data. The collector acts as a gateway between the adapter and vRealize Operations. The adapter connects to and collects data from data sources, transforms the data into a format that vRealize Operations can consume, and passes the data to the collector for final processing and predictive analysis. The collected data is then presented in the vRealize Operations Manager console through a supported Web browser. In the console, you can visualize the View environment through alerts and preconfigured dashboards, including real-time information about problems and anomalies.

Dashboards

Dashboards provide one of the keys to maximizing your vRealize Operations for Horizon instance. In addition to the dashboards supplied by the underlying vRealize Operations Manager to display vSphere data, vRealize Operations for Horizon also provides View-specific dashboards. You can customize these out-of-the-box dashboards to meet the demands of your particular environment. The exercises in this section show the default View-specific dashboards and the widgets they contain, how to customize them, and how to use them to resolve issues.

- Exploring dashboards
- Using dashboards to monitor View environments
- Using widgets
- Customizing existing dashboards
- Creating new dashboards
- Monitoring login issues
- Collecting in-guest metrics from desktop sessions

Exercise 1: Exploring Dashboards

Each View-specific dashboard is based on two types of standard vRealize Operations Manager widgets: master or providing widgets, and receiving widgets. Master widgets provide data to receiving widgets, which display the data in the dashboards. The data consists of session metrics gathered by desktop agents from various sources, such as the APIs, operating system (OS), and performance monitor. The broker agent taps into the View API for View 6.0, or PowerShell for earlier versions of View, and gathers topology data, such as how many servers, pools, RDS farms, and VMs are in the environment. The desktop agents tap into the performance monitor, APIs, and OS, and collect metrics for each session, such as CPU memory, disk, and network usage. The View adapter combines this data into the widgets you see in each dashboard.

1. Check the **View Overview** dashboard for the overall status of your View environment, including its underlying environment and active View-related alerts, and assess client performance and user experience.

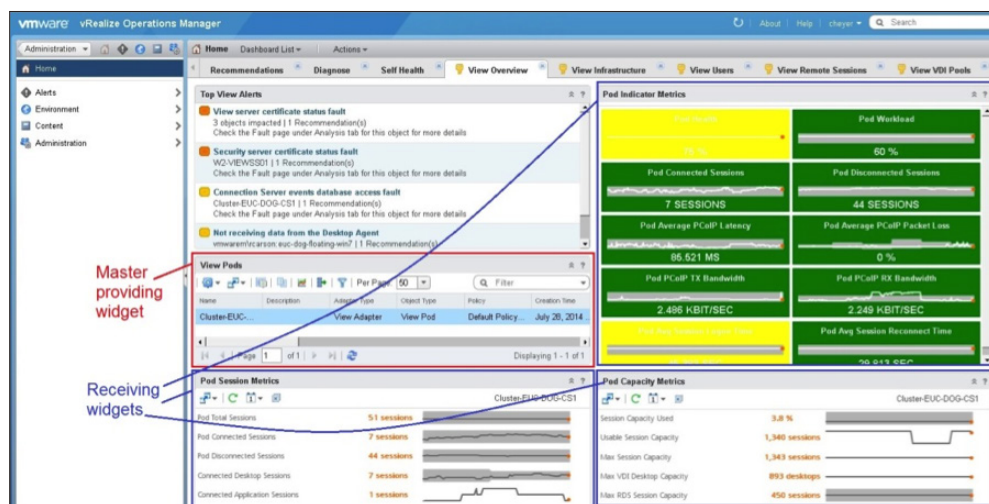


Figure 5: View Overview Dashboard Widgets

- Heat maps provide multiple levels of information. To get more details, double-click a heat map. This opens the Summary page, the common view for all resources, regardless of where they come from. The Summary page contains a variety of information organized by tab, including alerts, specific analysis, and troubleshooting. You can generate reports, conduct what-if analysis, and more. You can navigate to deeper levels for more details, or to other dashboards for more information about the current object. You can also navigate externally to View Administrator and vSphere.

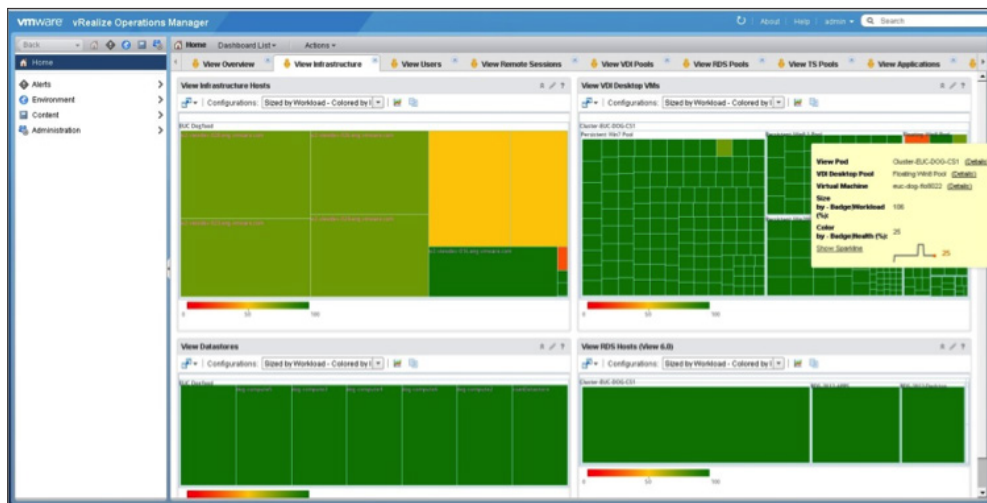


Figure 6: Heat Map Details

3. Click the **Dashboard Navigation** button to select a desktop, application pool, pod, farm, session, or VM object, and select the corresponding **Dashboard Navigation** button to launch View Administrator.

For example, if you are notified that a pool lost provisioning because of an error, you can jump to View Administrator to re-enable provisioning. When you select VM objects, you can use the same Dashboard Navigation button to launch vSphere Client. Within vRealize Operations for Horizon, you can use the context-sensitive Dashboard Navigation button to jump between dashboards.

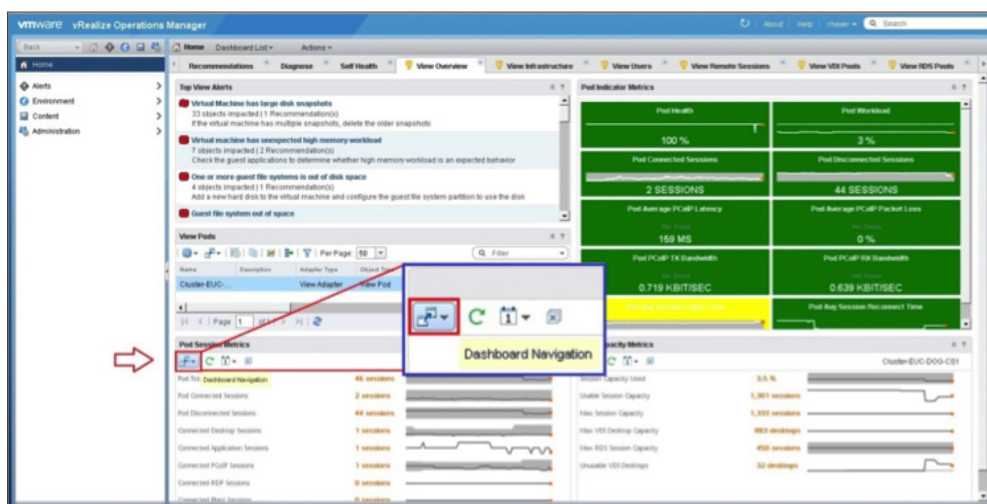


Figure 7: Dashboard Navigation Button

After becoming familiar with the dashboard widgets, proceed to the next exercise to explore each default dashboard and its purpose.

Exercise 2: Using Dashboards to Monitor View Environments

Familiarity with the View-related dashboards and dashboard widgets that vRealize Operations for Horizon adds to vRealize Operations Manager is vital for optimal use of both products.

To view a dashboard:

1. In vRealize Operations Manager, select **Dashboard List > View**.

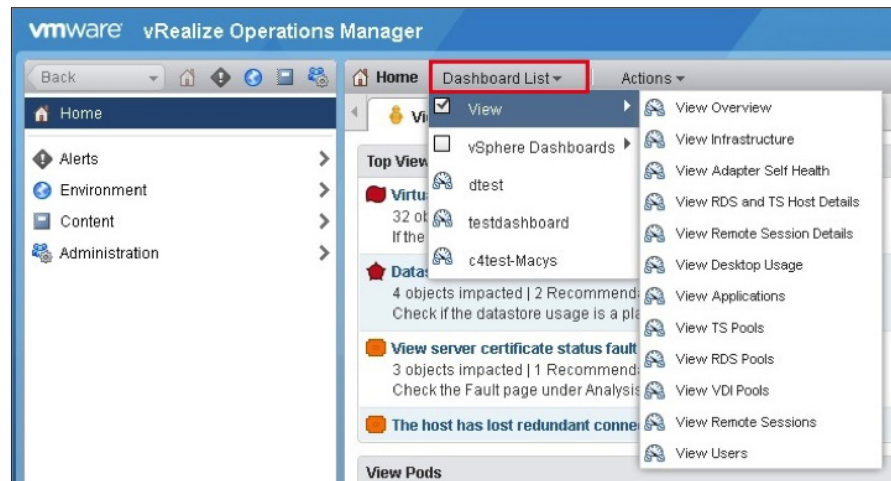


Figure 8: Dashboard List of View Dashboards

2. Select the **View Overview** dashboard from the tab bar or the Dashboard List menu to see the overall status of your entire View environment, active View-related alerts, and the underlying vSphere infrastructure.

Widgets include View Alerts, View Pods, Pod Environment Indicators, View Infrastructure, and User Desktop Workloads. The Pod Indicator Metrics widget shows the status of the selected pod, capacity used, connected and disconnected sessions, and more. Use this widget to assess client performance and user experience.

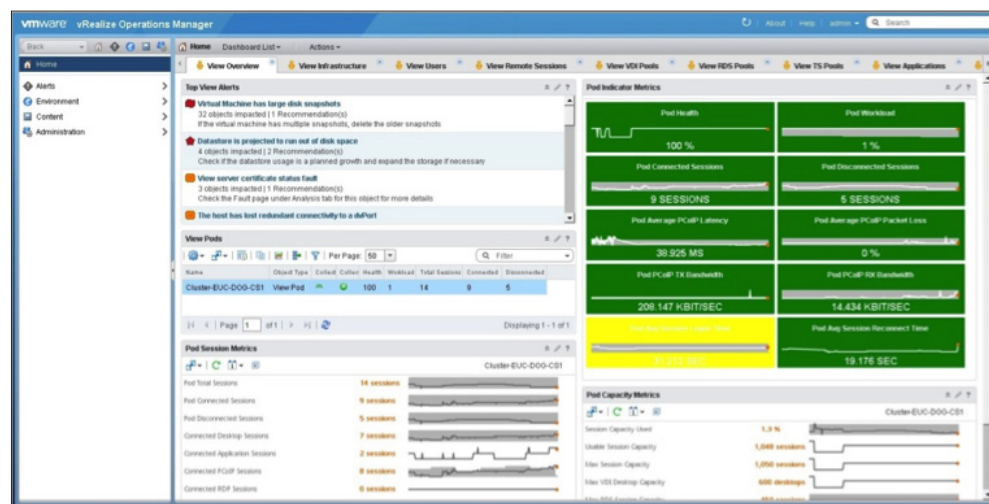


Figure 9: View Overview Dashboard

3. Select the **View Infrastructure** dashboard from the tab bar or the Dashboard List menu to see information about the health, workload, and connectivity of infrastructure hosts, remote desktops, datastores, RDS hosts, and Terminal Services (TS) hosts in your View environment.

Use this dashboard to gain understanding of the relationships between objects in your View infrastructure, as well as to assess the underlying vSphere and View infrastructure.

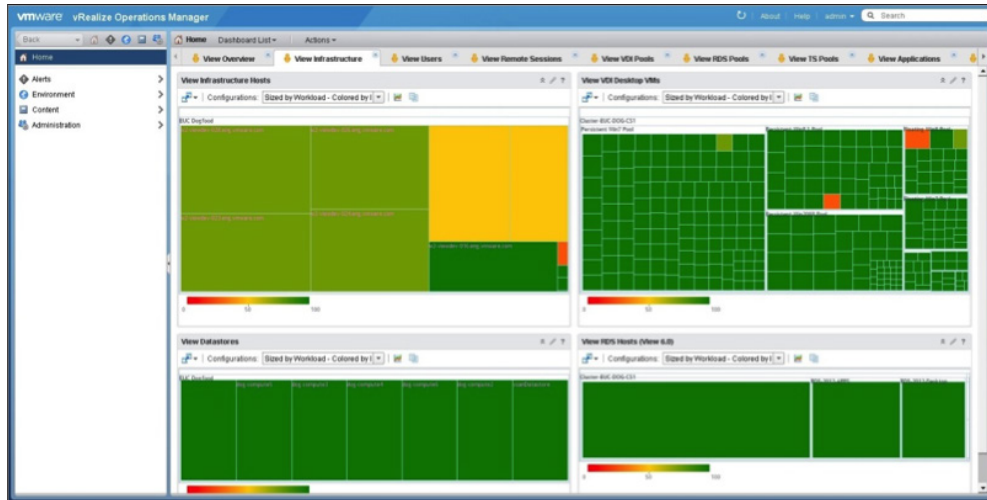


Figure 10: View Infrastructure Dashboard

4. Select the **View Users** dashboard from the tab bar or the Dashboard List menu to see metrics and open alerts for the logged-in user sessions across all monitored View pods in your View environment.

Use this dashboard to troubleshoot user problems and get detailed data about specific users.

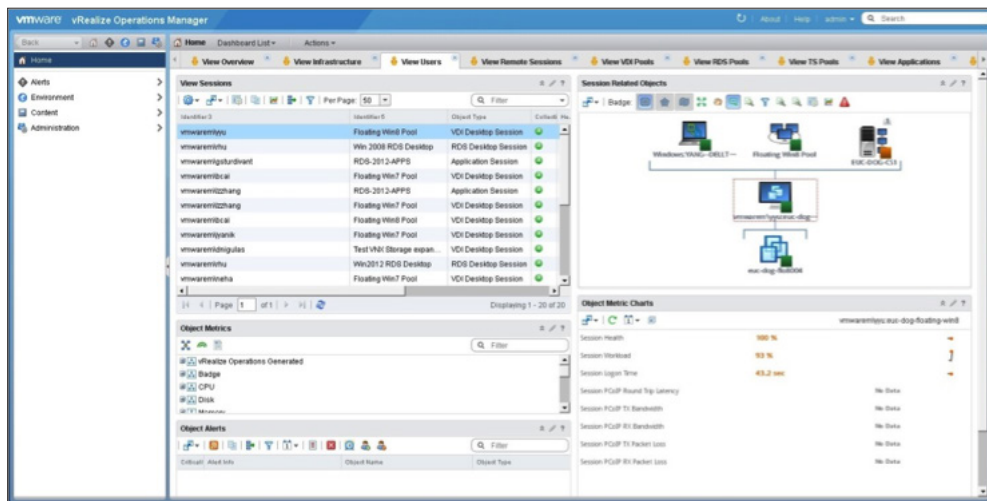


Figure 11: View Users Dashboard

5. Select the **View Remote Session** dashboard from the tab bar or the Dashboard List menu to see details about sessions running in your View environment, such as VDI sessions, RDS sessions, and application sessions.

Use this dashboard to troubleshoot poorly performing sessions and identify when problems occurred in these sessions.

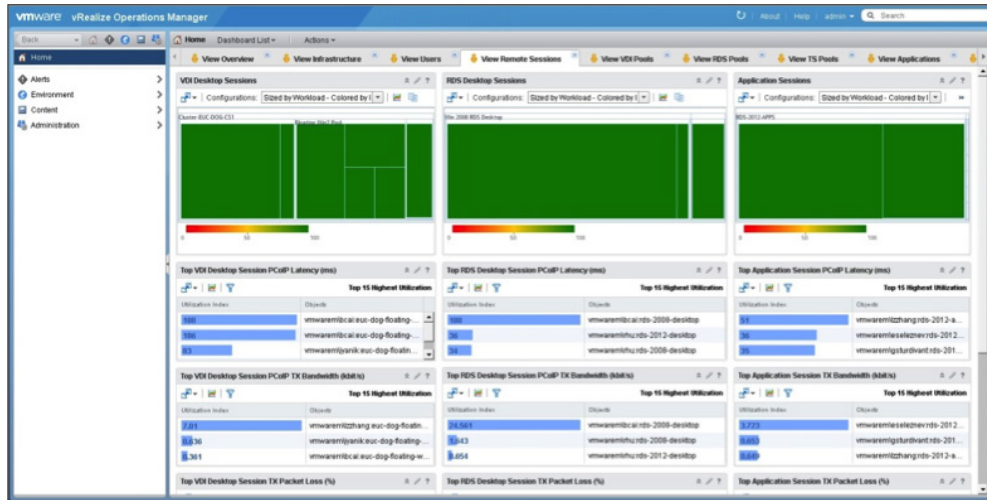


Figure 12: View Remote Sessions Dashboard

6. Select the **View VDI Pools** dashboard from the tab bar or the Dashboard List menu to see metrics and performance data for VDI pools and identify and troubleshoot poorly performing VMs.

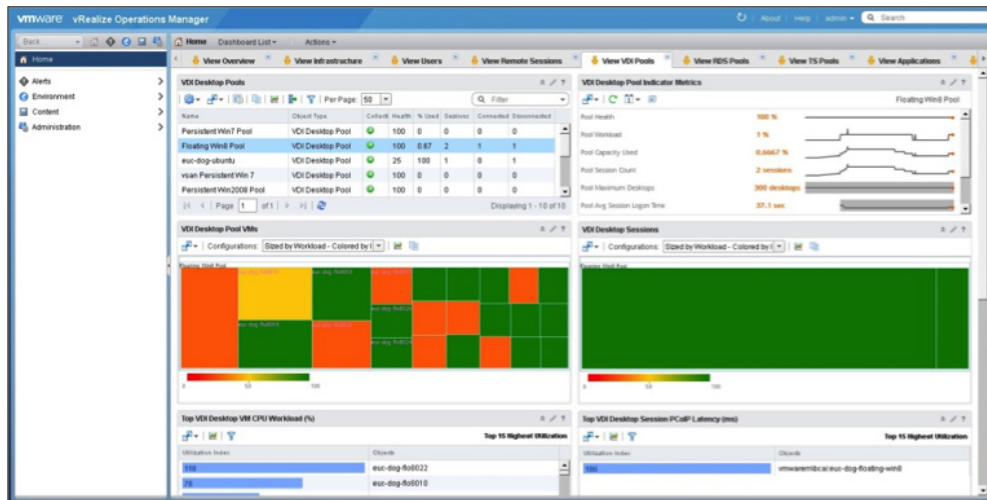


Figure 13: View VDI Pools Dashboard

7. Select the **View RDS Pools** dashboard from the tab bar or the Dashboard List menu to see metrics and performance data, identify the RDS hosts using the most resources, and troubleshoot poorly performing desktop and application sessions.

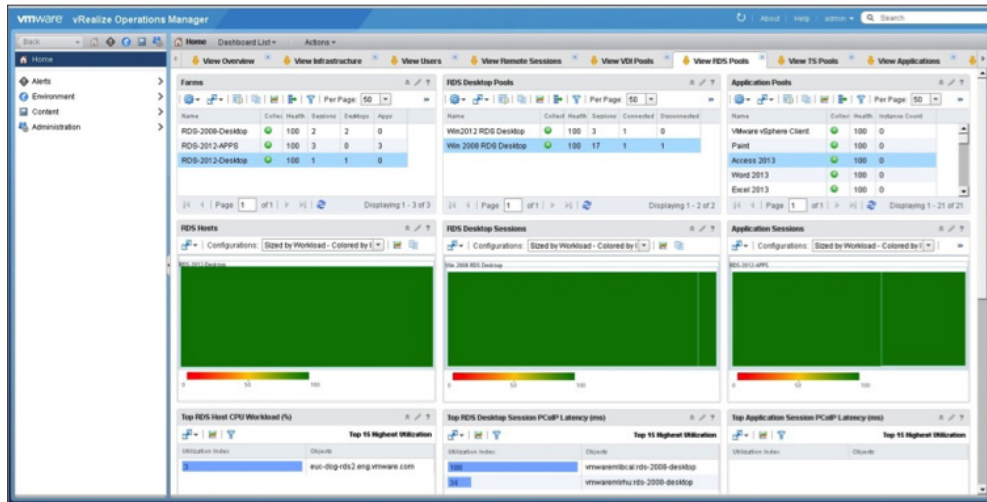


Figure 14: View RDS Pools Dashboard

8. Select the **View TS Pools** dashboard from the tab bar or the Dashboard List menu to see metrics and performance data for Terminal Services pools, identify the TS hosts using the most resources, and troubleshoot poorly performing desktop sessions.

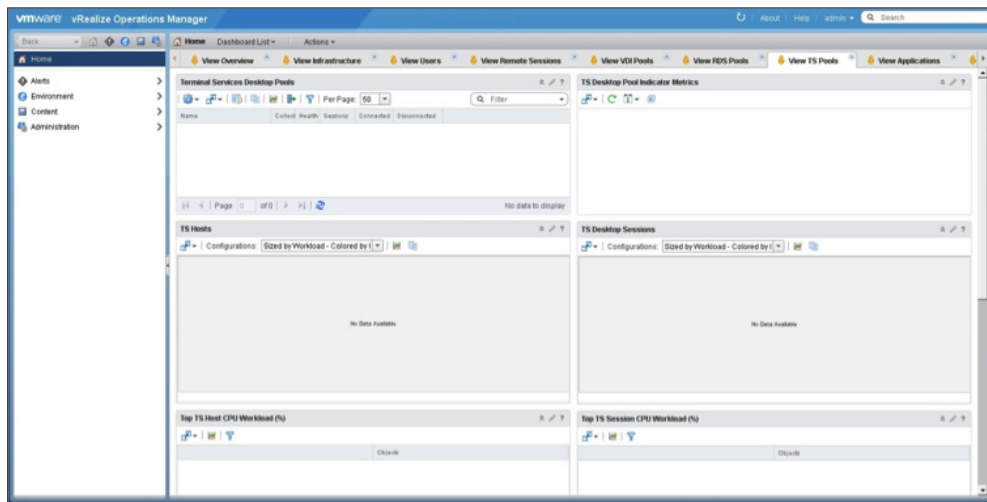


Figure 15: View TS Pools Dashboard

9. Select the **View Applications** dashboard from the tab bar or the Dashboard List menu to see the status and performance data for application pools and the farms that they are associated with, RDS hosts, application sessions, applications, and Horizon Clients.

Use this dashboard to gain understanding about the relationships between objects in your application infrastructure and troubleshoot remote applications.

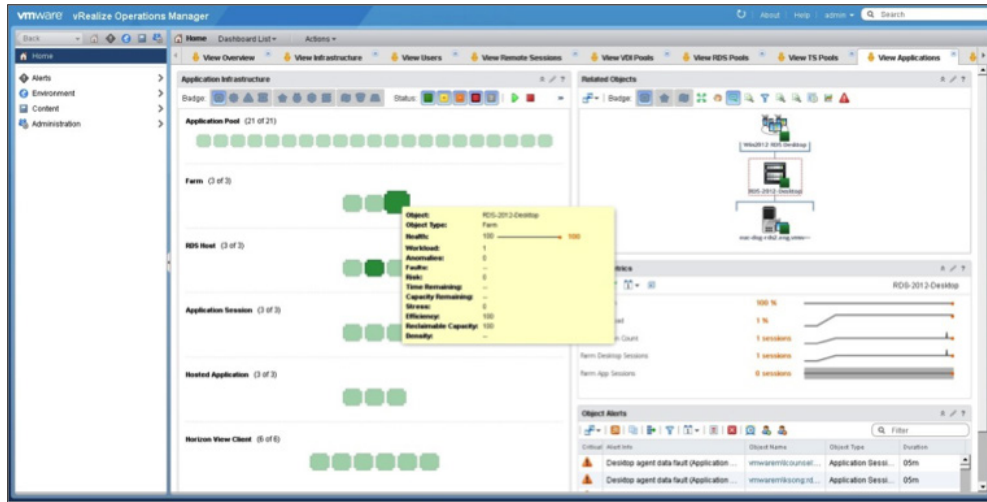


Figure 16: View Applications Dashboard

10. Select the **View Desktop Usage** dashboard from the tab bar or the Dashboard List menu to see usage data for the desktop pools in your View environment, including VDI and RDS desktop pools.

Consult this dashboard to see active and disconnected sessions and identify session trends for selected desktop pools, as well as to see top alerts for the selected desktop pools.

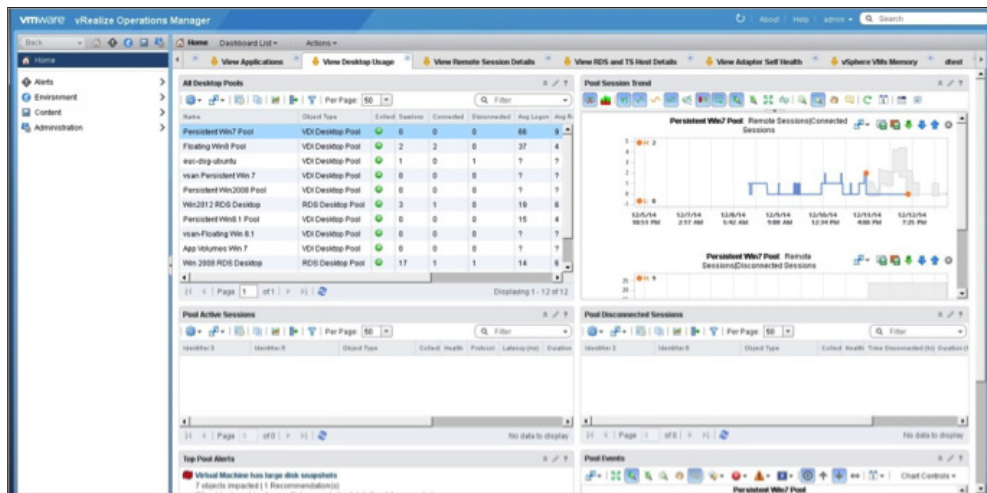


Figure 17: View Desktop Usage Dashboard

11. Select the **View Remote Session Details** dashboard from the tab bar or the Dashboard List menu to see details about sessions running in your View environment, such as VDI sessions, RDS desktop sessions, and application sessions, troubleshoot poorly performing sessions, and identify problems.

This dashboard shows all sessions, both active and inactive. Click a session to see important indicator metrics in the Session Indicator Metrics widget, such as desktop health, workload, login time, PCoP round-trip latency, bandwidth, and packet loss.

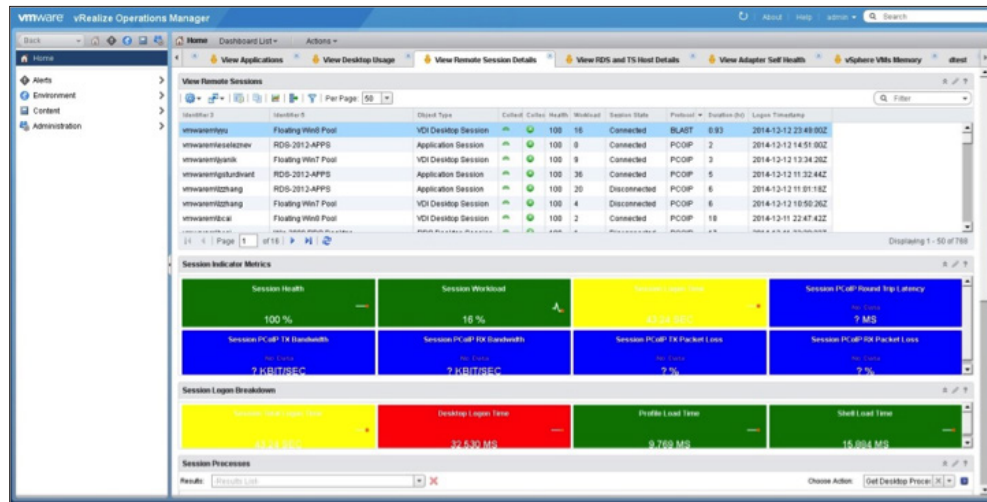


Figure 18: View Remote Session Details Dashboard

Scroll down to see the new **Session Logon Breakdown** widget, which now includes both the total session login time and desktop login time. Desktop Logon Time is collected from the guest desktop and includes only the time that it takes to start the OS. Session Logon Time also includes how long it takes to broker the connection, indicating the overhead imposed by View Connection Server. This widget shows how long it takes your user profile to load and the Windows Shell to start up.

12. Select the **View RDS and TS Host Details** dashboard from the tab bar or the Dashboard List menu to see desktop and application sessions that are currently running on RDS or TS hosts and identify problems.

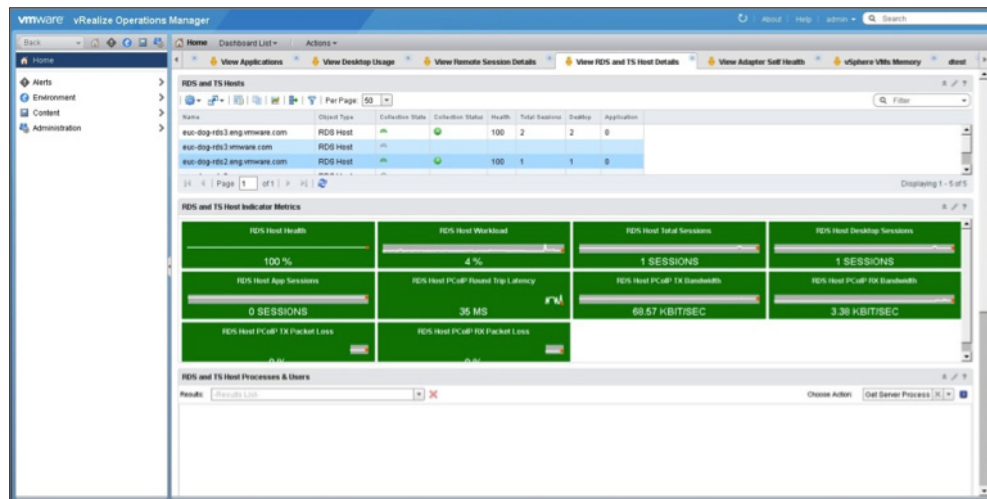


Figure 19: View RDS and TS Host Details Dashboard

13. Select the **View Adapter Self Health** dashboard from the tab bar or the Dashboard List menu to see health information about your View adapter and the broker agents connected to that adapter, as well as license information. You can use it to troubleshoot View adapter problems and monitor license compliance.

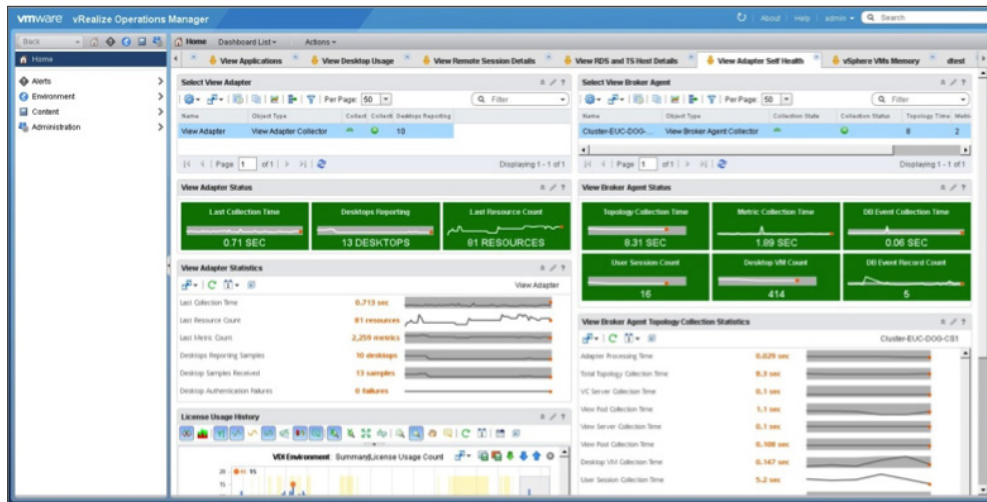


Figure 20: View Adapter Self Health Dashboard

For more information about widgets, badges, skittles, and metrics, see the [VMware vRealize Operations Manager Administration](#) and [VMware vRealize Operations for Horizon Administration](#) guides.

After reviewing the View-related dashboards, proceed to the next exercise to explore the different widgets.

Exercise 3: Using Widgets

Widgets are panes on dashboards that display specific information about attributes, resources, applications, and processes. Widgets display the same kind of information in real time that you can generate in historical reports. Each dashboard includes multiple widgets that display related information, and you can include the same widget on multiple dashboards. You can add or remove widgets from your dashboards to display the information most relevant to you in your preferred order of priority.

To explore the dashboard widgets:

1. In vRealize Operations Manager, select the **View Users** dashboard.

- The **View Sessions** widget in the upper left shows all users connected to the View environment. This widget provides insight into your end users' experience. You can see the status of the desktops, including top metric information, and which sessions are using the most bandwidth and have the longest latency. In this example, the highlighted user is experiencing a normal workload.

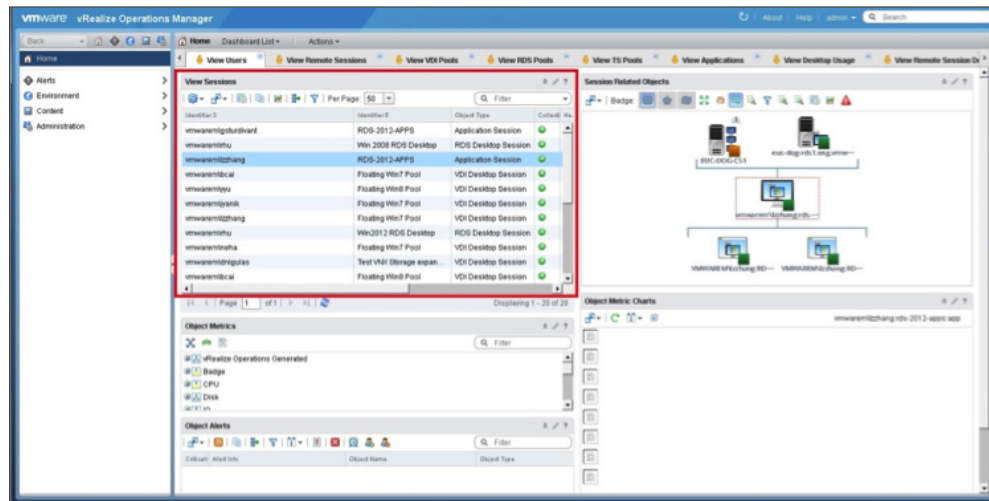


Figure 21: View Sessions Widget

- The **Session Related Objects** widget in the upper right shows that the health of the View Connection Server on which this user depends is at 50 percent.

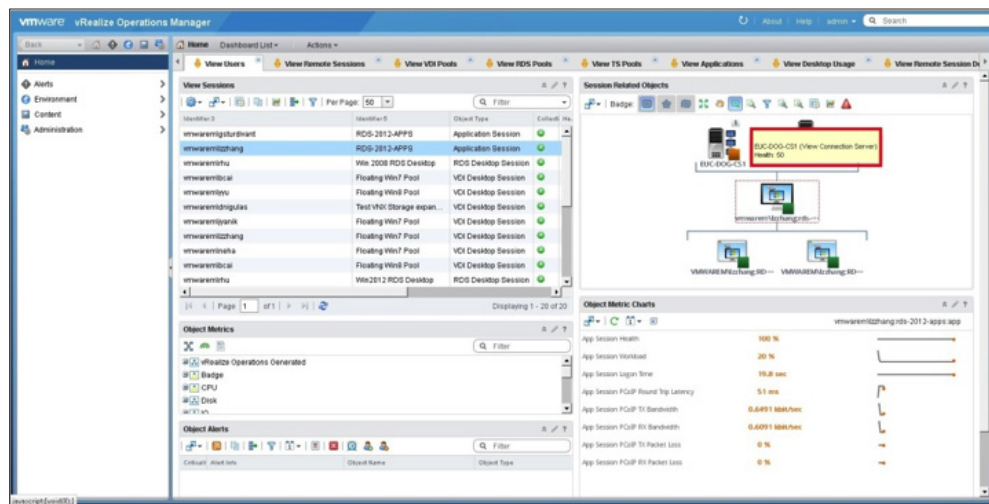


Figure 22: Checking the Health of the View Connection Server

- The **Object Metric Charts** in the lower right shows that the PCoIP latency for this user is within normal limits (less than 200 ms), but could become an issue if the bandwidth required increases.

For more information about the View dashboards and user interface, see the [VMware vRealize Operations for Horizon Administration](#) guide.

After you become familiar with dashboard widgets, proceed to the next exercise to customize an existing predefined dashboard.

Exercise 4: Customizing Existing Dashboards

You can modify existing dashboards by adding or removing widgets to display the information that is most relevant to your environment.

To customize an existing dashboard:

1. In vRealize Operations Manager, open the dashboard that you want to modify, and select **Actions > Edit Dashboard**.

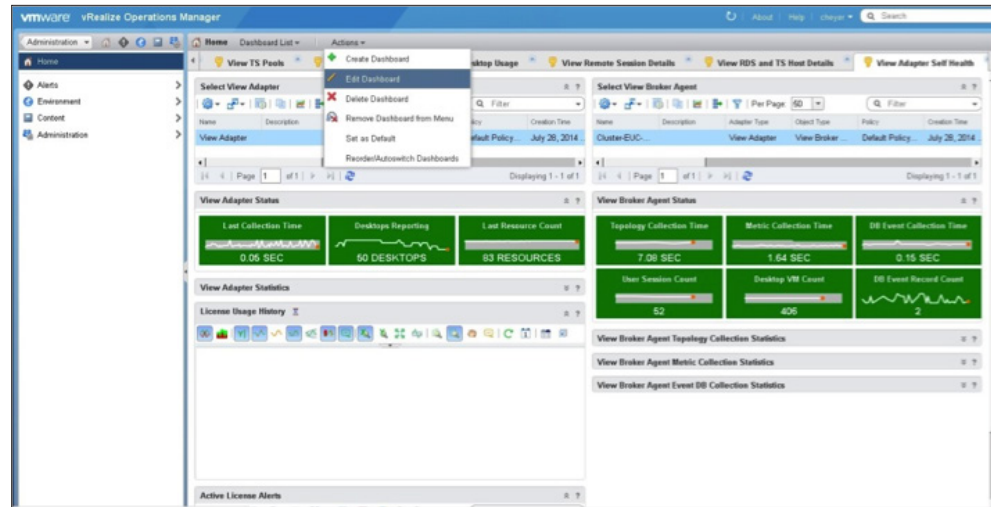


Figure 23: Editing a Dashboard

2. In **Widget List**, choose which metrics, KPIs, heat maps, and widgets to display by selecting from the left pane, and dragging to the right pane where the selected dashboard is displayed.

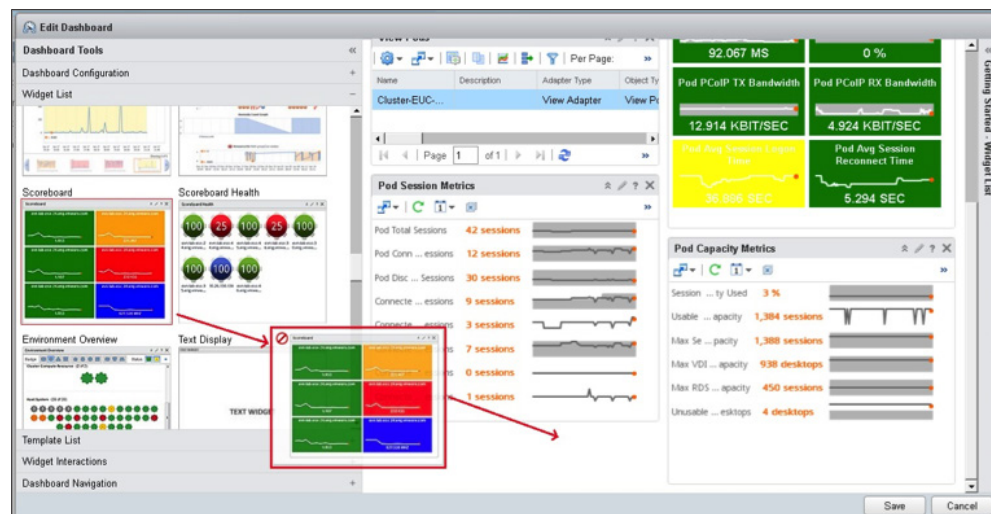
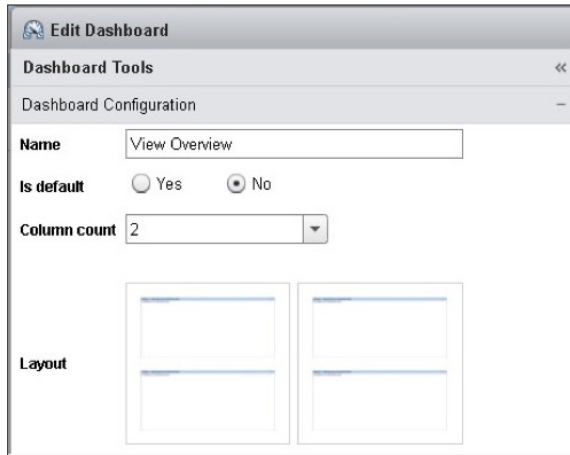


Figure 24: Changing Dashboard Widget Display

3. To reconfigure, click **Dashboard Configuration** and edit the defaults:



The screenshot shows the 'Edit Dashboard' dialog box with the 'Dashboard Configuration' tab selected. The 'Name' field contains 'View Overview'. The 'Is default' section has two radio buttons: 'Yes' (selected) and 'No'. The 'Column count' is set to 2. The 'Layout' section shows a 2x2 grid of dashboard widgets.

Figure 25: Editing Dashboard Configuration

- **Name** – Rename the dashboard.
 - **Is default** – Indicate whether this dashboard is default or not.
 - **Column count** – Change the number of columns.
 - **Layout** – Change the predefined layout.
4. When finished, click **Save**.

The dashboard immediately updates to reflect the changes.

For more information about dashboards, see the [VMware vRealize Operations for Horizon Administration](#) guide.

After familiarizing yourself with how to customize existing dashboards, proceed to the next exercise to try your hand at creating a new dashboard to meet the needs of your View environment.

Exercise 5: Creating a New Dashboard

You start with a collection of View-related, predefined dashboards provided by vRealize Operations for Horizon, as well as the vSphere-related dashboards provided by vRealize Operations Manager. You can add custom-built dashboards by modifying a predefined dashboard or creating a new one to provide the data that is most important to you. You can also enable and disable dashboards for specific roles, and set the permissions for users in that role to restrict them from seeing or tampering with other dashboards. For example, you can set up a single dashboard in which kiosk users see only the data that is relevant to them.

From individualized, user-defined dashboards to one-size-fits-all multi-user dashboards, you can organize complex information in a way that is readily comprehensible to your end users, including custom metrics, charts, tables, and other dashboard widgets for relevant overviews and drill-down options. End users can consume and comprehend key indicators quickly, which can lead to greater self-sufficiency, more efficient decision-making, and more strategic use of IT resources.

To create a new dashboard template, or modify a predefined template, you need appropriate access rights and familiarity with dashboard widgets. Administrators generally have access rights, as do end users who are granted permission. Kiosk users are usually not granted the rights to create or modify dashboards.

1. In the left pane of vRealize Operations Manager, select **Content** > **Dashboards**.

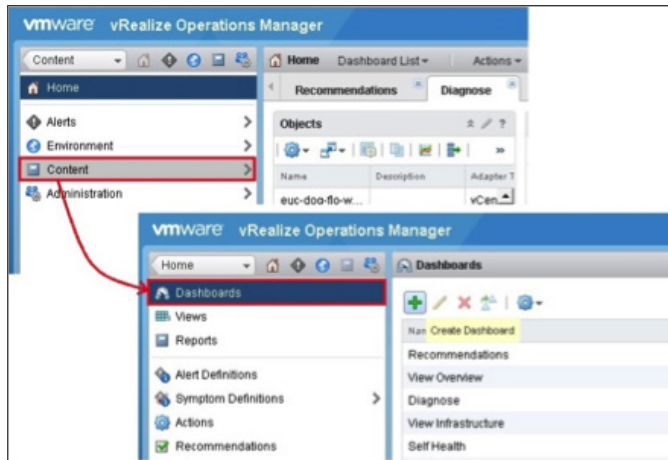




Figure 26: Creating a New Dashboard

2. On the Dashboards toolbar, click the plus sign  to create a new dashboard, or click the pencil icon  to modify the selected dashboard.

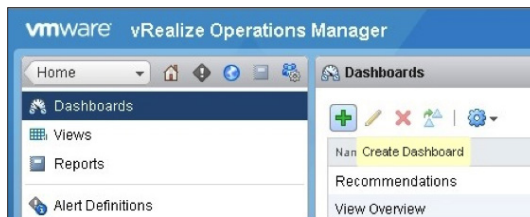


Figure 27: Options for Creating a New Dashboard

3. In the New Dashboard dialog box, configure the dashboard as follows:

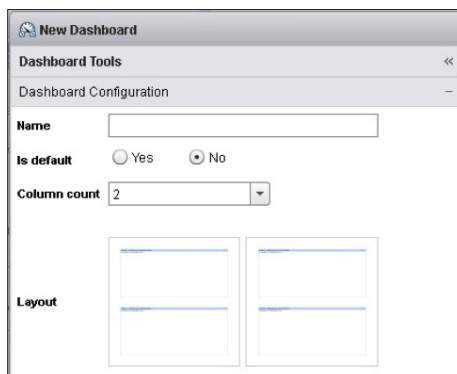


Figure 28: Configuring a New Dashboard

- a. **Dashboard name** – Provide a name.
 - b. **Dashboard default** – Indicate whether the dashboard is default or not.
 - c. **Column count** – Select the number of columns.
 - d. **Layout** – Select a predefined layout.
4. Click **Widget List** to see the different types of available widgets.

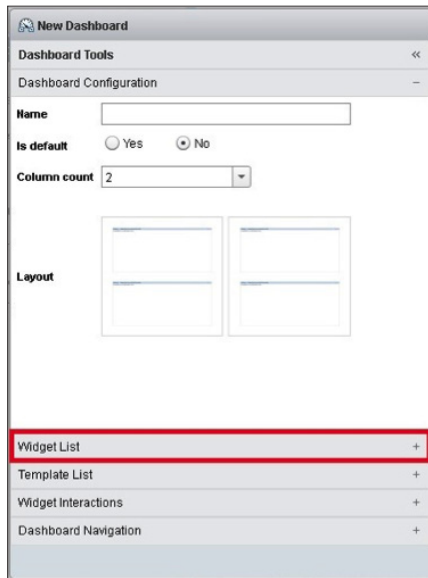


Figure 29: Opening the Widget List

5. From the Widget List, click and drag widgets into the right panel to add them to the dashboard, such as:
- **Object List** – Displays all defined resources
 - **Metric Chart** – Shows the most recent performance metrics in a line graph
 - **Alert List** – Lists the alerts for objects that the widget is monitoring, and if none, it shows all alerts in your environment
 - **Mashup Chart** – Displays assorted data, such as a health chart, anomaly count graph, and metric graphs for key performance indicators (KPIs)

6. In the upper right of each added widget, click the pencil icon  to configure the widget.

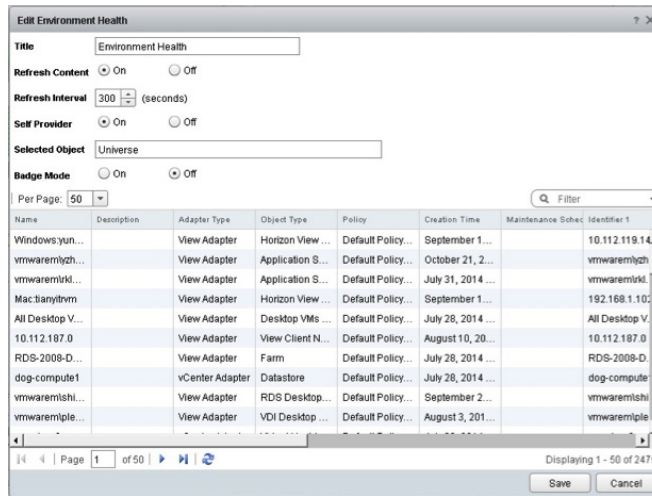


Figure 30: Editing a Widget

Note: This screenshot shows the configuration window for one widget type. Each widget type has different configuration settings.

- a. **Title** – Provide a new name or accept the default name.
 - b. **Refresh Content** – Click **On** to make the widget refresh, based on the refresh interval.
 - c. **Refresh Interval** – Select the refresh interval.
 - d. **Self Provider** – Choose one of the following options:
 - i. Click **On** to indicate which objects to include in the widget data display
 - ii. Click **Off** to configure other widgets to provide the objects to the widget using the dashboard widget interactions options.
 - e. **Badge Mode** – Leave the ability to display as a badge **Off** for this exercise.
7. To configure communications between widgets, expand **Widget Interactions**.

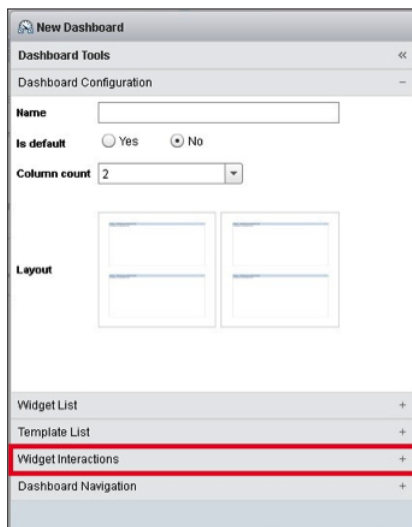


Figure 31: Opening the Widget Interactions

- From the Selected Object(s) menu, select **Object List**. Depending on the object selected, the widgets update.
- Click **Apply Interactions**, and then click **Save**.

For more information about creating dashboard templates, modifying predefined templates, and setting up role-based dashboard access, see the [VMware vRealize Operations Manager Administration](#) guide.

After you create a new dashboard with interactive widgets, proceed to the next exercise to see how to use the dashboards and widgets to track trends and potential issues during login.

Exercise 6: Monitoring Login Issues

A user's first interaction with the View environment is during login. Experiencing delays or other issues during login often adversely affects the user's entire experience. You can keep track of potential login issues and trends in the View Desktop Usage dashboard.

- In vRealize Operations Manager, click the **View Desktop Usage** dashboard.

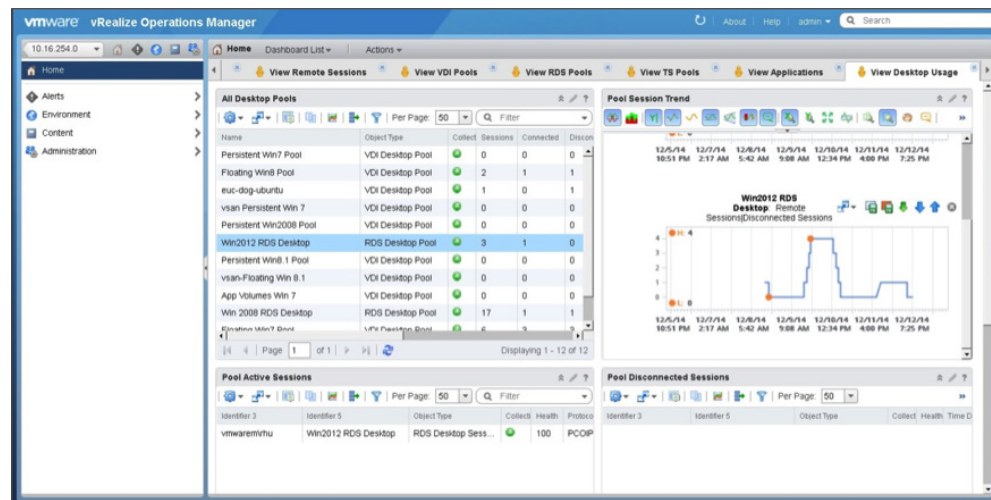


Figure 32: View Desktop Usage Dashboard and Corresponding Widgets

- In the All Desktop Pools widget in the upper left, select a desktop to see the corresponding normal indicator metrics.
- Scroll to the right to see the average login time to track user login experience.

All Desktop Pools

Per Page: 50

Q

Filter

ions	Connected	Disconnected	Avg Logon	Avg Reconnect	Avg PCoIP Latency	Health	% Used
0	0	66	9	84	100	0	
1	1	31	6	186	100	0.67	
0	1	?	?	?	25	100	
0	0	?	?	?	100	0	
0	0	?	?	?	100	0	
1	0	19	6	35	100	?	
0	0	15	4	41	100	0	
0	0	?	?	?	100	0	
0	0	?	?	?	100	0	
1	1	14	6	34	100	?	
0	0	51	6	84	100	?	

Page 1 of 1

12

12

Displaying 1 - 12 of 12

Figure 33: Scrolling to View Average Login Time

4. To view the active sessions for the desktop, see the Pool Active Sessions widget in the lower left, and the disconnected sessions are shown in the Pool Disconnected Sessions widget in the lower right.

After familiarizing yourself with using the information displayed in the View Desktop Usage dashboard, you can proceed to the next exercise to collect in-guest metrics from desktop sessions.

Exercise 7: Collecting In-Guest Metrics from Desktop Sessions

Virtual machines (VMs) typically consist of one host and one or more guests. The host is the underlying hardware that provides computing resources. The guests are independent instances of an operating system (OS) and the application software that resides on the virtual machine host server. The guests share the server's computing resources, including memory, processing power, disk and network input/output (I/O), and more. The host server must meet or exceed the minimum hardware requirements for its guest VMs. Therefore, it is important to monitor the host server and anticipate possible resource shortages. If computing resources become exhausted, guests can experience performance issues or even crashes.

Virtualization platforms or monitors (VMM), such as vSphere, include an abstraction layer between the host and guest that is called a hypervisor, which isolates each guest from the others. The abstraction layer makes it possible to run multiple guests on the same host at the same time, and the guests can have different operating systems and application software requirements. For example, a security breach in the OS of one guest threatens only that guest instead of compromising all guests.

VMware vRealize Operations for Horizon has long provided tools to find and troubleshoot problems using in-guest metrics and login times. With new metrics and widgets, you can see which applications and processes are running and consuming the most resources, monitor more complete login processes, and identify potential issues, such as increased latency and poor end-user experiences. Application data is captured on demand and presented on dashboards.

Viewing Remote Session Details Dashboard

Run actions in the Session Processes widget to obtain information about in-guest desktop processes and their resource usage, including CPU, memory, and I/O use. The Get Desktop Processes and Get Desktop Services actions can help you determine which desktop processes and applications are using the most resources.

To monitor in-guest process data from desktop sessions and RDS hosts:

1. In vRealize Operations Manager, click the **View Remote Session Details** dashboard.
2. In the lower right corner, choose an option from the **Choose Action** drop-down menu, and click the blue arrow to run the action.

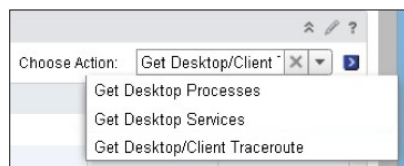


Figure 34: Selecting an Action

3. Examine the results.

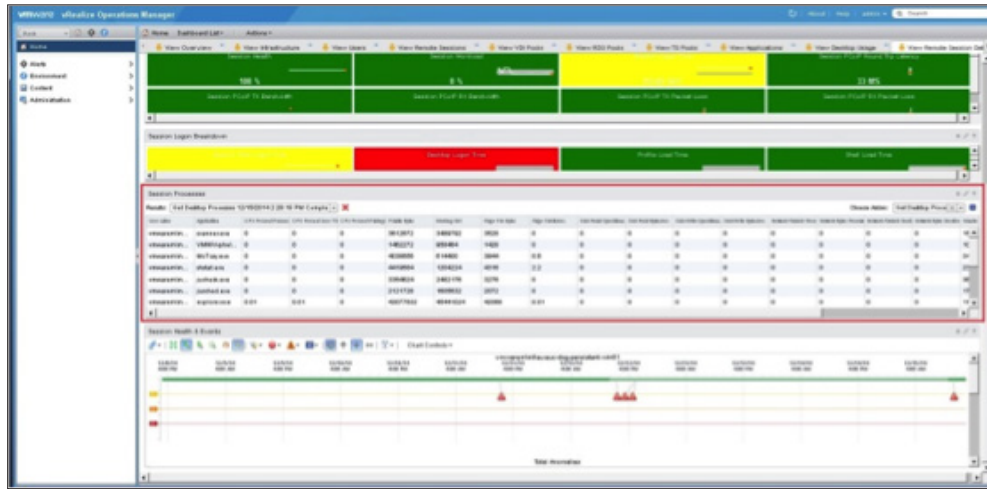


Figure 35: Examining the Action Results

4. Scroll to see the highest CPU usage.

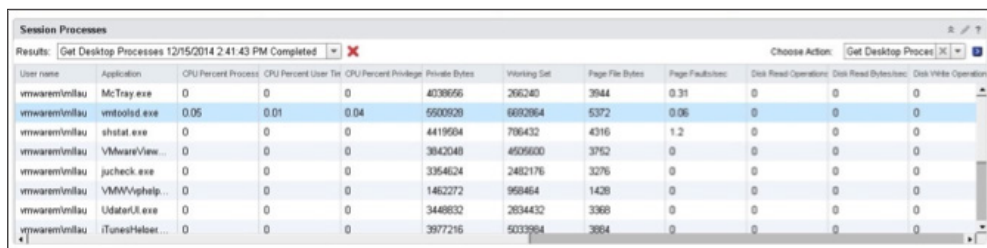


Figure 36: Scrolling to See More Results

5. To sort the information, click the down arrow and select ascending or descending order.

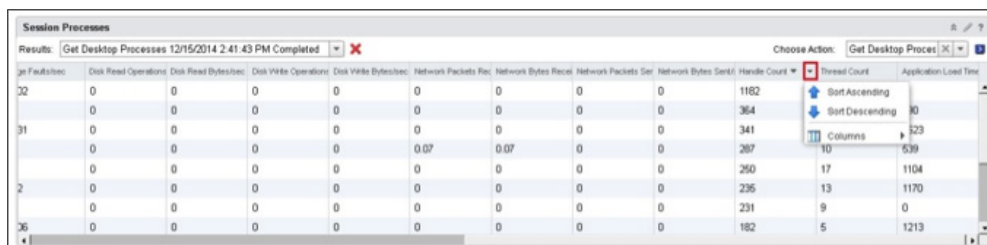


Figure 37: Sorting to Organize Results

Viewing RDS and TS Host Details Dashboard

Run actions in the RDS and TS Host Processes & Users widget to obtain information about in-guest host processes and their resource usage, including CPU, memory, and I/O use. The Get Host Processes, Get Host Services, and Get Host Users actions can help you determine which host processes, applications, and users are using the most resources.

To monitor in-guest process data from desktop sessions and RDS hosts:

1. Click the **View RDS and TS Host Details** dashboard.
2. In the lower right corner, choose an option from the **Choose Action** drop-down menu and click the blue arrow to run the action.

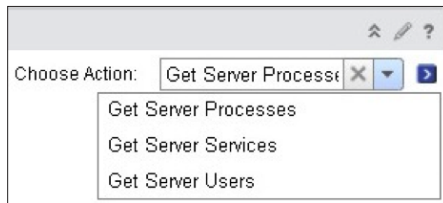


Figure 38: Selecting an Action

- a. **Get Server Processes**
 - b. **Get Server Services**
 - c. **Get Server Users**
3. Wait as the action runs, and then examine the results, scrolling and sorting to display the results in your preferred order.

User name	CPU Percent Priv	CPU Percent User	Private Bytes	Working Set	Page File Bytes	Page Faults/sec	Disk Read Operations	Disk Read Bytes/sec	Disk Write Operations	Disk Write Bytes/sec
vmware\mhu	1.92	0.27	800894976	1269346304	782124	304.15	53.69	27034.24	51.39	27719.17
vmware\myun	0.27	0.21	91803648	178384896	89652	60.98	0.33	98.7	0.19	1.37
euc-dog-rds3...	0.21	0.09	261718016	521142272	255584	201.88	0.52	805.35	0.11	5.01
vmware\mbliu	0.19	0.05	93462528	185896860	91272	172.45	0.15	196.79	0.28	46.6
vmware\bcac	0.15	0.05	164081664	446066688	160236	130.38	0.31	224.08	0.15	1.35

Figure 39: Examining the Results in the Preferred Order

For more information about the View dashboards and user interface, see the [VMware vRealize Operations for Horizon Administration](#) guide.

You have now examined the monitoring capabilities and the dashboards and widgets in the custom user interface. To explore other features that will help you maximize your use of vRealize Operations for Horizon, go to:

- [Alerts](#)
- [Reports](#)
- [Policies](#)

Alerts

You can maximize your use of vRealize Operations for Horizon by customizing alerts with site-specific recommendations to meet the unique demands of your particular environment. For example, you can set an alert that is triggered when the desktop pool level dips below a certain threshold or is near capacity.

Alerts are notifications indicating that a problem has occurred. Alerts are based on one or more symptoms that you can customize to respond more appropriately to your unique environment. Symptoms often include thresholds, such as user latency over 250 ms. An alert is triggered when an object in your environment exhibits a symptom or a set of symptoms. When the conditions that triggered the symptom are resolved, the alert is canceled.

You can add or modify symptoms and create new alerts. For example, you can set an alert to trigger whenever all desktops in a pool display the symptom, or when only 50 percent display the symptom. You can set notifications to indicate state, such as Up, Down, or OK, and to let you know when thresholds are breached. You can add recommendations to an alert, which are directions about what to do when an alert is generated.

The generated alerts are reflected in the Health, Risk, and Efficiency badges, which are icons that indicate the level of criticality. Problems that need immediate resolution generate health alerts, and issues that require attention before they become more serious generate risk alerts. Efficiency alerts indicate opportunities to improve efficiency, such as reclaiming wasted space or improving performance.

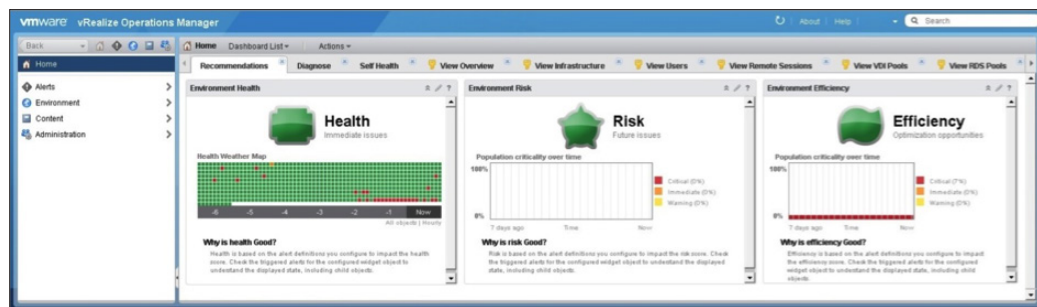


Figure 40: Top-Level Badges Reflect the Level of Generated Alerts

Alerts are displayed in several places in the user interface. You can choose from a number of ways to monitor your alerts. You can use the toolbar to see all alerts and access links to drill down for details.

This section describes the properties, rules, and criteria for alerts and events, and the attributes that drive them. The following exercises explore and describe the existing alerts and what they do to help you decide how to manage your alert library to meet the demands of your environment, when to enable or disable an alert, or to modify it by creating new policies or editing existing policies.

- [Viewing alerts](#)
- [Understanding notifications](#)
- [Understanding pool launch errors](#)
- [Understanding pool provisioning errors](#)
- [Understanding View provisioning errors](#)
- [Understanding pool events](#)
- [Understanding View events](#)
- [Setting symptoms to get alerts](#)

Exercise 1: Viewing Alerts

This exercise provides an overview of the active alerts in the View environment displayed on the Alerts Overview window. This window displays alerts relating to hosts, datastores, desktops, VMs, and all other objects that have a relation to the View and vRealize Operations environments. Symptom icons specify the type of metric violation that activated the symptom. The light bulb icon indicates whether the symptom is still active or no longer observed.

To view active alerts:

1. Navigate to the **Alerts** option on the menu bar, and select **Alerts Overview**.

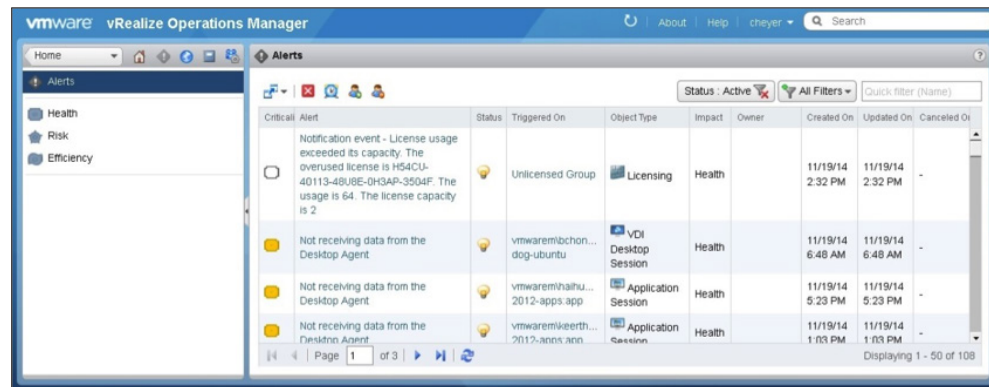


Figure 41: Alerts Overview Window

2. Click the displayed alerts to see the results.
 3. To trace an alert, select the objects related to the resources that are exhibiting abnormal behavior.
- After examining alerts, proceed to the next exercise to explore notifications.

Exercise 2: Understanding Notifications

A notification is an alert that informs you of an abnormal condition or behavior that might require attention. A notification is generated when a metric violates its threshold or an anomaly indicates a problem. Many of the following notifications correspond to the status shown in the View Admin Console dashboard.

- **Connection server down**
 - Added when **isAlive** property is **not true**
 - Cancelled when property returns to **true**
- **Security server down**
 - Added when **isAlive** property is **not true**
 - Cancelled when property returns to **true**
- **Domain/AD access lost** – Tests the connection server access to the domain controller or AD
 - Added when **isProblem** property is **not true**
 - Added when connection status is **error**
 - Added when contactable is **not accessible** or **cannotbind**
 - Cancelled when property returns **true**
 - Cancelled when connection status is **ok**
 - Cancelled when contactable is **fullyaccessible**
 - Domain problem
- **vCenter access lost** – Tests the connection to the vCenter Server
 - Added when **state** property is neither **OK** nor **UNKNOWN**
 - Added when connection status is **Status_down**
 - Cancelled when property returns to **OK** nor **UNKNOWN**
 - Cancelled when connection status returns to **status_up**
- **Events database access lost** – Tests the connection to the View events database
 - Added when **Connected** property is **not true**
 - Added when state is **disconnected** or **reconnecting**
 - Cancelled when property returns to **connected**
 - Cancelled when state returns to **true**
 - View Event database problem { **DISCONNECTED** }
- **Broker agent status** – Indicates whether the adapter is receiving data from the broker agent
 - Added when adapter does not receive data from the broker agent during a collection cycle
 - Cancelled when adapter receives data from the broker agent during a collection cycle
- **Desktop agent status** – Indicates whether the adapter is receiving data from the desktop agent for a VDI desktop session, RDS desktop session, or RDS application session
 - Added when adapter does not receive data from the desktop agent for a session during a collection cycle
 - Cancelled when adapter receives data from the desktop agent for a session during a collection cycle

- **Certificate status** – Indicates a problem with the certificate for a View Connection Server, View security server, View Composer™ server, or vCenter Server
 - Added when certificate status is **invalid**
 - Cancelled when certificate status returns to **valid**
- **Composer server health** – Tests the Composer server health
 - Added when health state is **error** or **cert_error** or **malformed_url**
 - Cancelled when health state returns to **ok**

After examining notifications, proceed to the next exercise to explore vRealize Operations for Horizon pool launch errors.

Exercise 3: Understanding Pool Launch Errors

Pool launch errors are View events collection metrics sent to vRealize Operations. The metric path is **View Events:DB Query Results|Pool Launch Errors**. These events are added as hard threshold breach (HT Breach) alerts on the **View Pool->Error Events->Desktop Launch – last interval** metric.

“BROKER_DESKTOP_LAUNCH_FAILURE”

“BROKER_MACHINE_ASSIGNED_UNAVAILABLE”

“BROKER_MACHINE_CANNOT_CONNECT”

“BROKER_MACHINE_NOT_READY”

“BROKER_MACHINE_PROTOCOL_UNAVAILABLE”

“BROKER_MACHINE_REJECTED_SESSION”

“BROKER_POOL_CANNOT_ASSIGN”

“BROKER_POOL_EMPTY”

“BROKER_POOL_NO_MACHINE_ASSIGNED”

“BROKER_POOL_NO_RESPONSES”

“BROKER_POOL_OVERLOADED”

“BROKER_POOL_PROTOCOL_UNAVAILABLE”

“BROKER_DESKTOP_NOT_ENTITLED”

“BROKER_DESKTOP_PROTOCOL_NOT_SUPPORTED”

“BROKER_APPLICATION_LAUNCH_FAILURE”

“BROKER_APPLICATION_MISSING”

“BROKER_APPLICATION_NOT_ENTITLED”

“BROKER_APPLICATION_PROTOCOL_NOT_SUPPORTED”

After examining pool launch errors, proceed to the next exercise to explore vRealize Operations for Horizon pool provisioning errors.

Exercise 4: Understanding Pool Provisioning Errors

Pool provisioning errors are View events collection metrics sent to vRealize Operations. The metric path is **View Events:DB Query Results|Pool Provisioning Errors**. These events are added as HT Breach alerts on the **View Pool->Error Events->Desktop Provisioning – last interval** metric.

```
"BROKER_PROVISIONING_ERROR_CONFIG_SET"
"BROKER_PROVISIONING_ERROR_DISK_LC_RESERVATION_SET"
"BROKER_PROVISIONING_ERROR_DISK_SET"
"BROKER_PROVISIONING_ERROR_LICENCE_SET"
"BROKER_PROVISIONING_ERROR_NETWORKING_SET"
"BROKER_PROVISIONING_ERROR_RESOURCE_SET"
"BROKER_PROVISIONING_ERROR_TIMEOUT_CUSTOMIZATION_SET"
"BROKER_PROVISIONING_VERIFICATION_FAILED_VMNAME_IN_USE"
```

After examining pool provisioning errors, proceed to the next exercise to explore vRealize Operations for Horizon View provisioning errors.

Exercise 5: Understanding View Provisioning Errors

View provisioning errors are View events collection metrics sent to vRealize Operations. The metric path is **View Events:DB Query Results|Pool Launch Errors**. These events are added as HT Breach alerts on the **View Server->Error Events->Desktop Provisioning – last interval** metric.

```
"BROKER_PROVISIONING_ERROR_VM_CLONING"
"BROKER_PROVISIONING_ERROR_VM_CUSTOMIZATION_ERROR"
"BROKER_PROVISIONING_ERROR_VM_CUSTOMIZATION_NETWORKING"
"BROKER_PROVISIONING_ERROR_VM_CUSTOMIZATION_TIMEOUT"
"BROKER_PROVISIONING_SVI_ERROR_COMPOSER_AGENT_INIT_FAILED"
"BROKER_PROVISIONING_SVI_ERROR_RECONFIG_FAILED"
"BROKER_PROVISIONING_SVI_ERROR_REFIT_FAILED"
"BROKER_PROVISIONING_SVI_ERROR_REMOVING_VM"
```

After examining View provisioning errors, proceed to the next exercise to explore vRealize Operations for Horizon pool events.

Exercise 6: Understanding Pool Events

Pool events are View events collection metrics sent to vRealize Operations. These events are added as change events on the View Pool resource.

```
"BROKER_PROVISIONING_ERROR_CONFIG_SET"  
"BROKER_PROVISIONING_ERROR_DISK_LC_RESERVATION_SET"  
"BROKER_PROVISIONING_ERROR_DISK_SET"  
"BROKER_PROVISIONING_ERROR_LICENCE_SET"  
"BROKER_PROVISIONING_ERROR_NETWORKING_SET"  
"BROKER_PROVISIONING_ERROR_RESOURCE_SET"  
"BROKER_PROVISIONING_ERROR_TIMEOUT_CUSTOMIZATION_SET"  
"BROKER_PROVISIONING_VERIFICATION_FAILED_VMNAME_IN_USE"  
"ADMIN_DESKTOP_EDITED"  
"ADMIN_ENABLE_DESKTOP_SUCCEEDED"  
"ADMIN_ENABLED_DESKTOP_PROVISION_SUCCEEDED"  
"ADMIN_POOL_POLICY_UPDATED"  
"BROKER_DESKTOP_LAUNCH_FAILURE"  
"BROKER_MACHINE_ASSIGNED_UNAVAILABLE"  
"BROKER_MACHINE_CANNOT_CONNECT"  
"BROKER_MACHINE_NOT_READY"  
"BROKER_MACHINE_PROTOCOL_UNAVAILABLE"  
"BROKER_MACHINE_REJECTED_SESSION"  
"BROKER_POOL_CANNOT_ASSIGN"  
"BROKER_POOL_EMPTY"  
"BROKER_POOL_NO_MACHINE_ASSIGNED"  
"BROKER_POOL_NO_RESPONSES"  
"BROKER_POOL_OVERLOADED"  
"BROKER_POOL_PROTOCOL_UNAVAILABLE"
```

After examining pool events, proceed to the next exercise to explore View events.

Exercise 7: Understanding View Events

View events are collection metrics sent to vRealize Operations. These events are added as change events on the View Infrastructure Tier resource.

```
"BROKER_PROVISIONING_ERROR_VM_CLONING"
"BROKER_PROVISIONING_ERROR_VM_CUSTOMIZATION_ERROR"
"BROKER_PROVISIONING_ERROR_VM_CUSTOMIZATION_NETWORKING"
"BROKER_PROVISIONING_ERROR_VM_CUSTOMIZATION_TIMEOUT"
"BROKER_PROVISIONING_SVI_ERROR_COMPOSER_AGENT_INIT_FAILED"
"BROKER_PROVISIONING_SVI_ERROR_RECONFIG_FAILED"
"BROKER_PROVISIONING_SVI_ERROR_REFIT_FAILED"
"BROKER_PROVISIONING_SVI_ERROR_REMOVING_VM"
"BROKER_SECURITY_SERVER_ADD_FAILED"
"BROKER_SECURITY_SERVER_ADD_FAILED_PASSWORD_EXPIRED"
"BROKER_SECURITY_SERVER_ADD_FAILED_PASSWORD_INCORRECT"
"BROKER_SECURITY_SERVER_ADD_FAILED_PASSWORD_NOT_SET"
"BROKER_SVI_ARCHIVE_UDD_FAILED"
"BROKER_SVI_ATTACH_UDD_FAILED"
"BROKER_SVI_DETACH_UDD_FAILED"
"BROKER_VC_DISABLED"
"BROKER_VC_ENABLED"
"BROKER_VC_STATUS_CHANGED_CANNOT_LOGIN"
"BROKER_VC_STATUS_CHANGED_DOWN"
"BROKER_VC_STATUS_CHANGED_INVALID_CREDENTIALS"
"ADMIN_DATABASE_CONFIGURATION_ADDED"
"ADMIN_DATABASE_CONFIGURATION_DELETE_FAILED"
"ADMIN_DATABASE_CONFIGURATION_UPDATED"
"ADMIN_DESKTOP_ADDED"
"ADMIN_EVENT_CONFIGURATION_UPDATED"
"ADMIN_GLOBAL_CONFIGURATION_UPDATED"
"ADMIN_GLOBAL_POLICY_UPDATED"
"ADMIN_PERFMON_CONFIGURATION_UPDATED"
"ADMIN_REMOVE_DESKTOP_SUCCEEDED"
"ADMIN_SECURITY_SERVER_ADDED"
"ADMIN_SECURITY_SERVER_REMOVED"
"ADMIN_SVI_ADD_UDD_SUCCEEDED"
```

"ADMIN_SVI_DELETE_UDD_SUCCEEDED"

"ADMIN_VC_ADDED"

"ADMIN_VC_EDITED"

"ADMIN_VC_REMOVED"

After examining View events, proceed to the next exercise to explore setting symptoms to get alerts.

Exercise 8: Setting Symptoms to Get Alerts

You can customize existing alerts or create new ones to meet the demands of your environment and proactively address issues.

An alert definition is a template for tracking problems. To create an alert, you start with a base object, which your new alert monitors for a specific problem. Next, you define the impact of the problem by rating its criticality. You define the symptoms that trigger the alert. Finally, you select one or more recommendations to resolve the problem.

For more information, see [Defining Alerts in vRealize Operations Manager](#).

To create an alert:

1. Log in to vRealize Operations Manager with admin credentials.
2. In the navigation bar on the left, click **Content**.

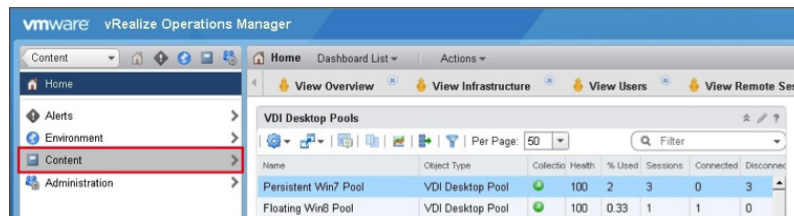


Figure 42: Navigating to Content

3. Click **Alert Definitions**, and then click the **plus sign** to add a new alert definition.

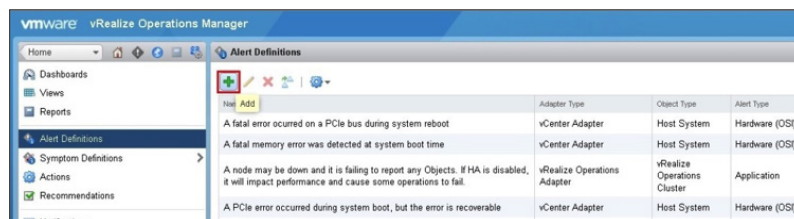


Figure 43: Adding a New Alert Definition

4. In the Alert Definition Workspace, name the alert and provide a description including all useful details.
The name and description are what the recipient sees first when the alert is generated.

Alert Definition Workspace

1. Name and Description - Enter the name and description of this alert definition.

Name:

Description:

2. Base Object Type +

3. Alert Impact +

4. Add Symptom Definitions +

5. Add Recommendations +

Figure 44: Naming and Describing the Alert

5. In the Alert Definition Workspace navigation bar, expand **Base Object Type**, and select the type of object for the alert to monitor from the list.

This object determines which attributes and properties are available when you define the symptoms later.

Alert Definition Workspace

1. Name and Description +

2. Base Object Type -

Base Object Type:

Container

vCenter Adapter

View Adapter

Http Post

vRealize Operations Adapter

vRealize Operations Adapter Inst

vRealize Operations Admin UI

vRealize Operations Analytics

vRealize Operations CaSA

3. Alert Impact +

4. Add Symptom Definitions +

5. Add Recommendations +

Figure 45: Selecting the Base Object Type

6. Expand **Alert Impact** and configure the metadata to determine how your alert is classified and triggered.

The screenshot shows the 'Alert Definition Workspace' interface. On the left, a sidebar lists five steps: 1. Name and Description, 2. Base Object Type, 3. Alert Impact, 4. Add Symptom Definitions, and 5. Add Recommendations. Step 3, 'Alert Impact', is expanded. The main area contains the following configuration options:

- Impact:** A dropdown menu with 'Health' selected.
- Criticality:** A dropdown menu with 'Symptom Based' selected.
- Alert Type and Subtype:** A dropdown menu with 'Application : Performance' selected.
- Wait Cycle:** A numeric input field with '1' and up/down arrows.
- Cancel Cycle:** A numeric input field with '1' and up/down arrows.
- At the bottom, there is a button labeled 'Add Symptom Definitions that should trigger to cause this alert'.

Figure 46: Defining the Impact of the Alert

- a. **Impact** – Indicate whether the problem impacts system health, risk, or efficiency.
 - b. **Criticality** – Indicate how serious the problem is.
 - c. **Alert Type and Subtype** – Indicate the type and subtype with which your alert most closely aligns.
 - d. **Wait Cycle** – Specify how many data collection intervals to wait until the alert is raised. By default, the View adapter is called every 5 minutes.
 - e. **Cancel Cycle** – Specify how many data collection cycles must occur before the alert is cancelled.
7. Expand **Add Symptom Definitions** and configure the conditions that trigger the alert.

The screenshot shows the 'Alert Definition Workspace' interface with step 4, 'Add Symptom Definitions', expanded. The main area is divided into two sections:

- Left Section:**
 - Defined On:** A dropdown menu with 'Self' selected.
 - Filter by Object Type:** A dropdown menu with 'X' selected.
 - Symptom Definition Type:** A dropdown menu with 'Metric / Supermetric' selected.
 - Symptom Definition List:** A list of symptom definitions with a search bar 'Quick filter (Name)'. The list includes:
 - Anomaly is critically high
 - Anomaly is critically high
 - Anomaly is moderately high
 - Anomaly is moderately high
 - Anomaly is starting to get high
 - Anomaly is starting to get high
 - Average Efficiency of group members is critically low
 - Average Efficiency of group members is moderately low
 - Page Navigation:** 'Page 1 of 2' with navigation arrows.
- Right Section: Alert Definition Summary**
 - Name:** Test
 - Base Object Type:** vRealize Operations Adapter Instance
 - Impact:** Health
 - Criticality:** Symptom Based
 - Alert Type:** Application : Performance
 - A dashed box with the text: 'Drag a Symptom Definition here for this Alert Definition'.

Figure 47: Adding Symptom Definitions

- a. **Defined On** – Indicate whether the symptom is defined on the descendant, ancestor, parent, child, or self object. This option specifies the relationship of the symptom object with respect to the base object. The relationship produces results based on how the objects are placed in the relationship hierarchy—for example, data center, host, datastore—from higher to lower. For more information, see the [VMware vRealize Operations Manager Customization and Administration Guide](#).
 - b. **Filter by Object Type** – Specify the object type to filter by, if any.
 - c. **Symptom Definition Type** – Select the symptom category, such as Metric/Supermetric, Property, Message Event, Fault Event, Metric Event, or Smart Early Warning.
8. Click the **Add** button to open the **Symptom Definition** list, select one or more symptom definitions in the list, and drag them into the area on the right.

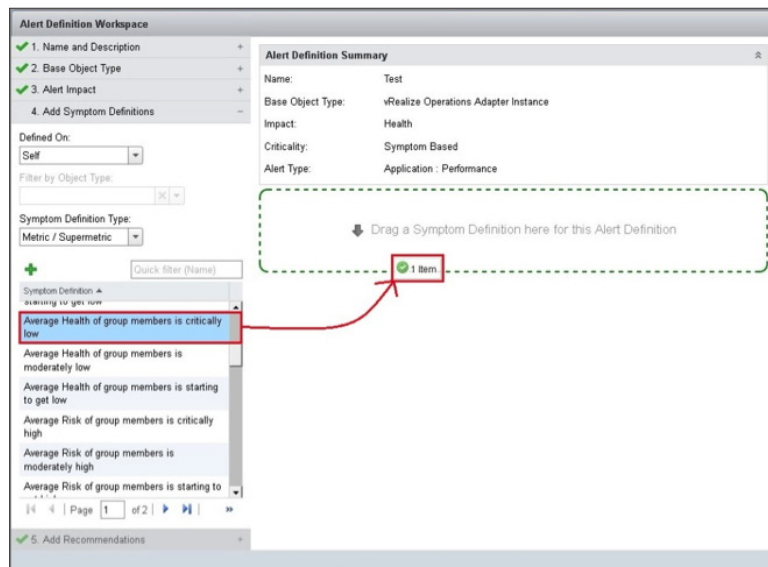


Figure 48: Dragging Symptom Definitions to the Alert Definitions Summary

9. Optional: Apply advanced logic to match any or all of a subset of your symptoms.

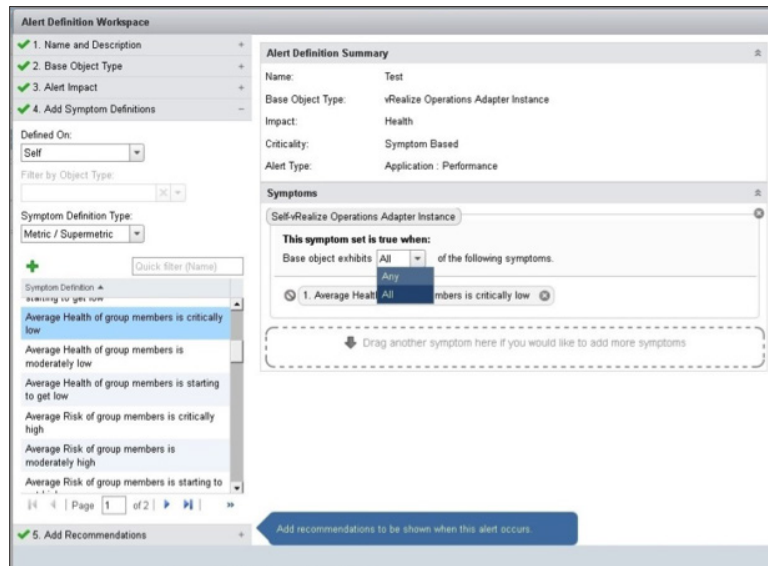


Figure 49: Applying Advanced Logic

10. Expand **Add Recommendations** and configure the metadata to advise operators how the alert symptoms can be resolved.

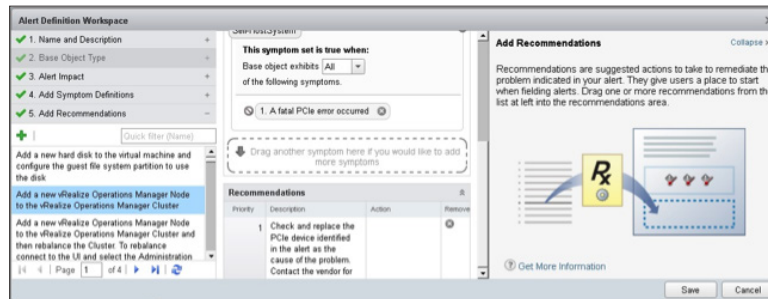


Figure 50: Adding Recommendations to Resolve Issue

11. Click **Save** to add the symptom.

You have now examined the alerts and notifications in the custom user interface, and defined a set of symptoms for the new alert. You can add more symptom sets to this alert by repeating steps 6 through 10. To explore other features that will help you maximize your use of vRealize Operations for Horizon, go to:

- [Dashboards](#)
- [Reports](#)
- [Policies](#)

Reports

VMware vRealize Operations for Horizon provides default reports that focus on desktop and application pool usage, pool configuration details, and license compliance. In past releases, vRealize Operations Manager only supported reports for vSphere environments. In this release, it supports View-specific reports. You can also create your own reports or modify the out-of-the-box reports to present the combination of metrics most relevant to your specific circumstances. This specific historical data can help provide insights into your VDI environment.

Reports display data in lists, tables, and graphs. Each presentation type displays information gathered for a set of objects over a period of time. The same data can be featured in multiple reports, and the same data can be displayed in multiple presentation types. For data that is displayed in the View dashboards in real time, you can generate reports that reflect the same data over a given period of time.

- [Accessing reports](#)
- [Exploring the report templates](#)
- [Managing reports and report templates](#)

Exercise 1: Accessing Reports

The predefined report templates for each type of object are listed on the Reports tab.

To access the **Reports** tab for any View object:

1. Select **Environment** > **Horizon View Environment**.

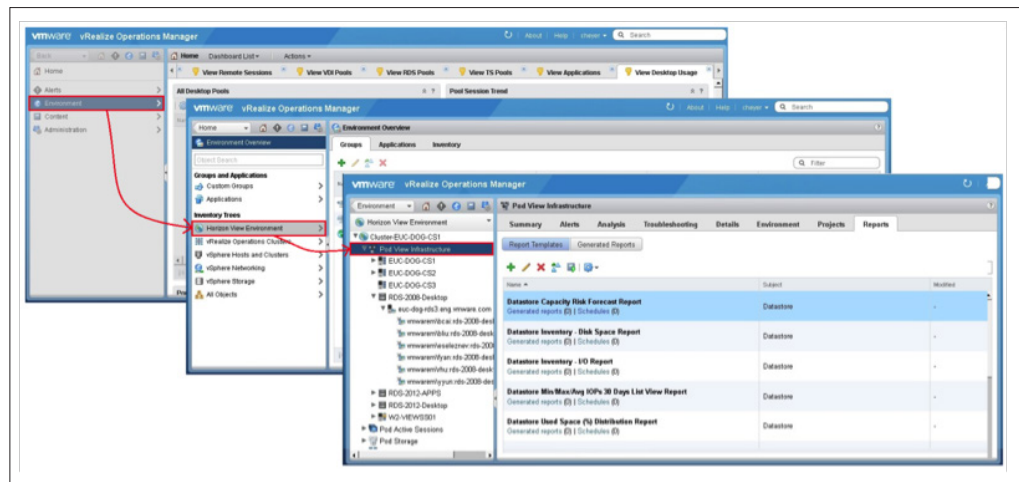


Figure 51: Navigating to the Object of a Report

2. Select the object and click the **Reports** tab to view the associated reports.

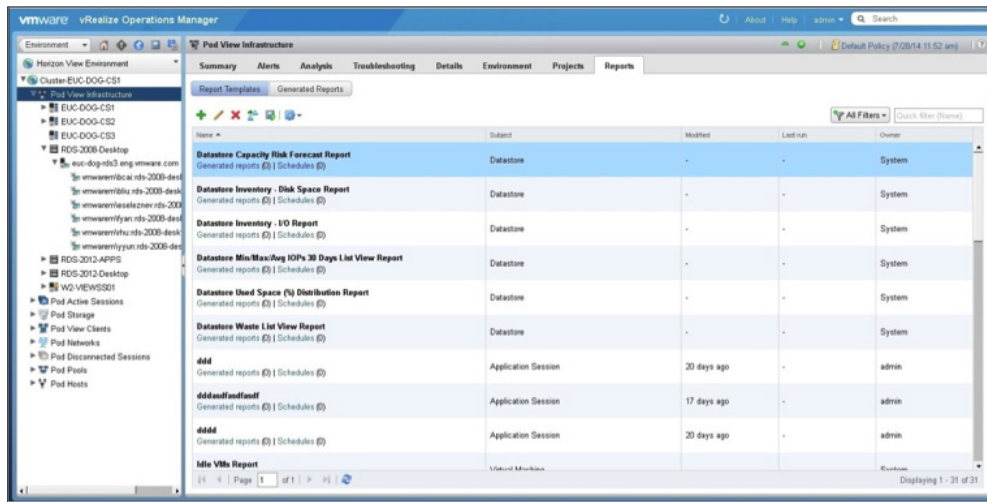


Figure 52: Available Reports for the Selected Object

3. To view past reports, click the **Generated Reports** tab, click the **Download** icon in the far right, and then click **OK**.

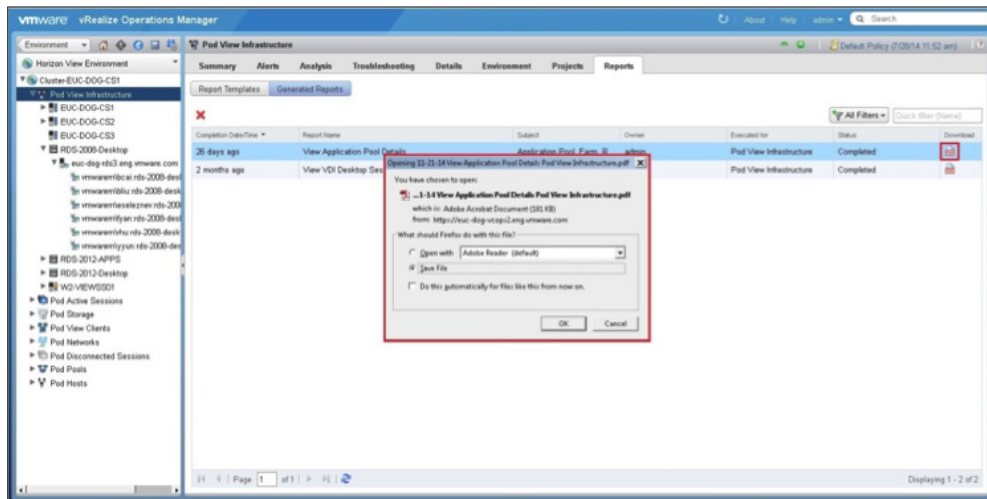


Figure 53: Downloading a PDF File of a Generated Report

For information about how to schedule reports, see [Exercise 3: Managing Reports and Report Templates](#). For more information about reports, see the [VMware vRealize Operations for Horizon Administration](#) guide.

Now that you know how to access the default reports, proceed to the next exercise to explore each default report and its purpose.

Exercise 2: Exploring Report Templates

The predefined View reports provide information about remote desktop and application usage, desktop and application pool configuration details, and license compliance. This section briefly describes each report template and the types of objects that the report can be run against. The object determines the scope of the generated report. For example, depending on which object you select, you can run a report on a specific pool or on all of the pools in a pod.

1. You can run the **View Application Pool Details** report for the Application Pool, Pod Pools (tier), and View Pod objects.

1. View Application Pool Configuration View Pools Tier: Pod Pools			
Name	App Executable Path	App Version	App Publisher
Internet Explorer	C:\Program Files\Internet Explorer\iexplore.exe	-	-
Calculator	C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Accessories\Calculator.lnk	6.3.9600.16384	Microsoft Corporation
Paint	C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Accessories\Paint.lnk	6.3.9600.16384	Microsoft Corporation
WordPad	C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Accessories\Wordpad.lnk	6.3.9600.16384	Microsoft Corporation
Adobe Reader XI	C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Adobe Reader XI.lnk	11.0.06.70	Adobe Systems Incorporated

Figure 54: Example of a Pool Configuration Page in a View Application Pool Configuration Report

This report includes the following pages:

- View Application Pool Configuration
- View Application Pool Usage
- View Pool Entitlements
- View Application Pool 30 Day Usage Trend
- View RDS Farm Usage
- View RDS Host Usage

- You can run the **View Application Pool Usage** report for the Application Pool, Pod Pools (tier), and View Pod objects.

1. View Application Pool Usage Application Pool: Calculator 2008	
Name	Application Instances Running
Calculator 2008	1
Pool Totals	1

Figure 55: Example of a Pool Usage Page in a View Application Pool Usage Report

This report includes the following pages:

- View Application Pool Usage
 - View Application Pool 30 Day Usage Trend
 - View Connected Application Sessions
 - View Disconnected Application Sessions
- You can run the **View Desktop Pool Usage** report for the VDI Desktop Pool, RDS Desktop Pool, TS Desktop Pool, Pod Pools (tier), and View Pod objects.

1. View VDI Desktop Pool Usage View Pod: Cluster-EUC-DOG-CS1									
Name	Pool Capacity Used (%)	Usable Capacity	Maximum Desktops	Session Count	Connected Sessions	Disconnected Sessions	PCoIP Sessions	RDP Sessions	Blast Sessions
vsan-Floating Win 8.1	0	20	20	0	0	0	0	0	0
vsan Persistent Win 7	0	20	20	0	0	0	0	0	0
Windows 8.1 Cloud Volumes	0	20	20	0	0	0	0	0	0
Floating Win7 Pool	0.336	298	300	1	0	1	0	0	0
Floating Win8 Pool	1.667	300	300	5	1	4	0	0	1
Persistent Win2008 Pool	2.083	48	50	1	0	1	0	0	0
Test VNX Storage expansion	10	10	10	1	0	1	0	0	0
Persistent Win7 Pool	12.766	141	150	18	1	17	1	0	0
Persistent Win8.1 Pool	20	50	50	10	0	10	0	0	0
Windows 7 Cloud Volumes	23.333	30	30	7	0	7	0	0	0
euc-dog-ubuntu	100	1	3	1	0	1	0	0	0
Pool Totals	170.185	938	953	44	2	42	1	0	1

Figure 56: Example of a Pool Usage Page in a View Desktop Pool Usage Report

This report includes the following pages:

- View Desktop Pool Usage
- View Desktop Pool 30 Day Usage Trend
- View Connected Desktop Sessions
- View Disconnected Desktop Sessions

4. You can run the **View Pod License Compliance** report for View Pod objects.

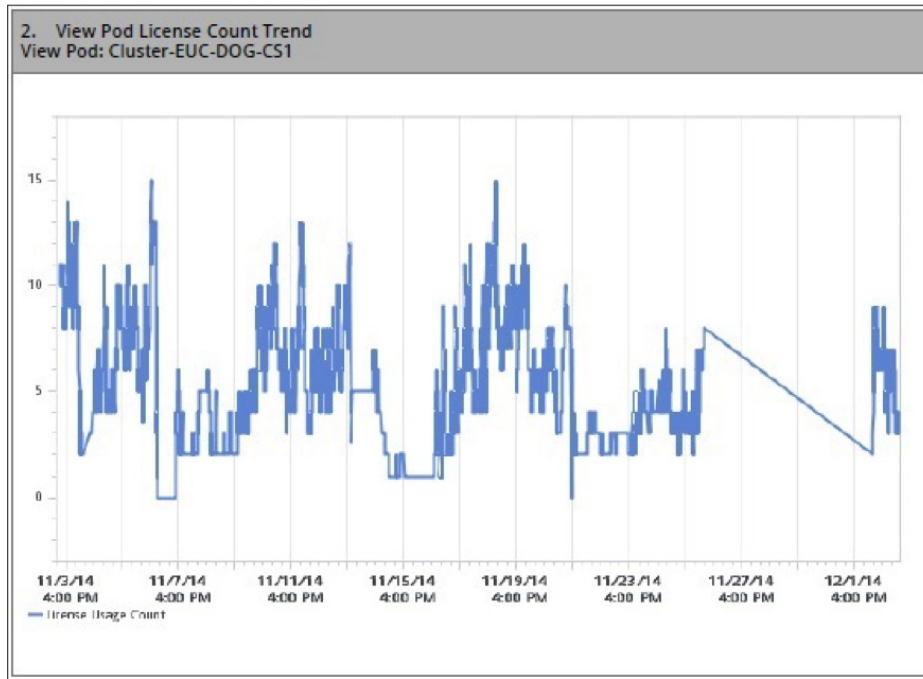


Figure 57: Example of a License Count Trends Page in a View Pod License Compliance Report

This report also includes the following pages:

- View Pod License Count
 - View Pod License Count Trend
5. You can run the **View Pool Usage Overview** report for the Pod Pools (tier) and View Pod objects.

1. View Desktop Pool Usage View Pod: Cluster-DEMO-VIEW60			
Name	Session Count	Connected Sessions	Disconnected Sessions
test	0	0	0
Windows 7 Linked Clone (x64)	1	1	0
Windows Server 2012 R2 RDSH Desktop	2	2	0
Windows 7 Full Clone (x64)	2	1	1
Windows Server 2008 RDSH Desktop	2	1	1
Session Totals	7	5	2

Figure 58: Example of a Desktop Usage Page in a View Pool Usage Overview Report

This report includes the following pages:

- View Desktop Pool Usage
- View Application Pool Usage
- View VDI Desktop Pool Usage

6. You can run the **View RDS Desktop Pool Details** report for the RDS Desktop Pool, TS Desktop Pool, Pod Pools (tier), and View Pod objects.

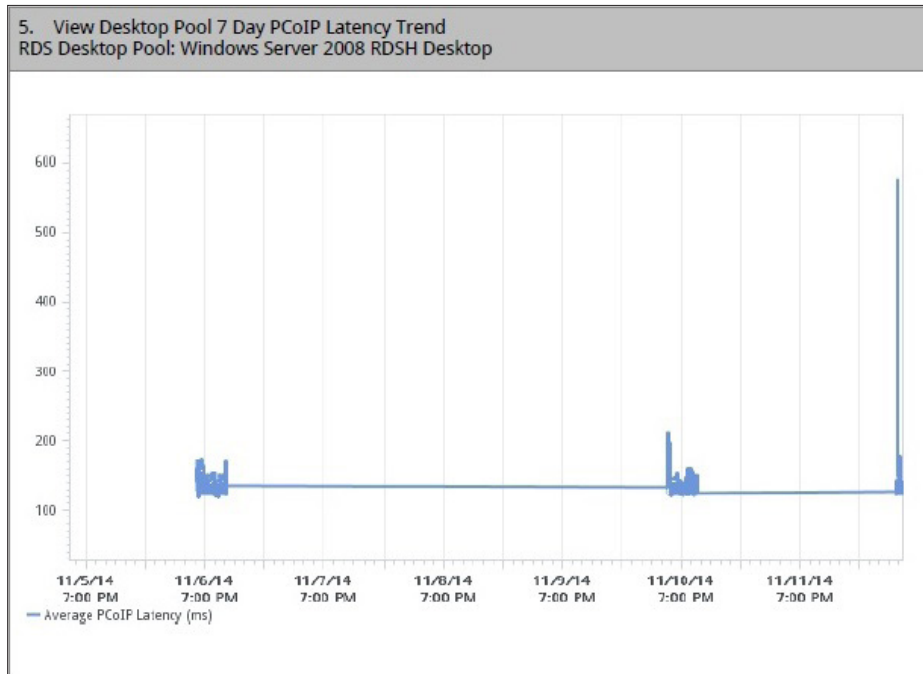


Figure 59: Example of a 7 Day PCoIP Latency Trend Page in a View RDS Desktop Pool Details Report

This report includes the following pages:

- View Desktop Pool Usage
- View Pool Entitlements
- View Desktop Pool 30 Day Usage Trend
- View Desktop Pool 7 Day Connection Time Trend
- View Desktop Pool 7 Day PCoIP Latency Trend
- View RDS Farm Usage

7. You can run the **View VDI Desktop Pool Details** report for the VDI Desktop Pool, Pod Pool (tier), and View Pool objects.

1. View VDI Desktop Pool Usage View Pod: Cluster-EUC-DOG-CS1									
Name	Pool Capacity Used (%)	Usable Capacity	Maximum Desktops	Session Count	Connected Sessions	Disconnected Sessions	PCoIP Sessions	RDP Sessions	Blast Sessions
vsan-Floating Win 8.1	0	20	20	0	0	0	0	0	0
vsan Persistent Win 7	0	20	20	0	0	0	0	0	0
Windows 8.1 Cloud Volumes	0	20	20	0	0	0	0	0	0
Floating Win7 Pool	0.336	298	300	1	0	1	0	0	0
Floating Win8 Pool	1.667	300	300	5	1	4	0	0	1
Persistent Win2008 Pool	2.083	48	50	1	0	1	0	0	0
Test VNX Storage expansion	10	10	10	1	0	1	0	0	0
Persistent Win7 Pool	12.766	141	150	18	1	17	1	0	0
Persistent Win8.1 Pool	20	50	50	10	0	10	0	0	0
Windows 7 Cloud Volumes	23.333	30	30	7	0	7	0	0	0
euc-dog- ubuntu	100	1	3	1	0	1	0	0	0
Pool Totals	170.185	938	953	44	2	42	1	0	1

Figure 60: Example of a Pool Usage Page in a View VDI Desktop Pool Details Report

This report includes the following pages:

- View VDI Desktop Pool Usage
- View VDI Desktop Pool Configuration
- View VDI Desktop Pool Source
- View Pool Entitlements
- View Desktop Pool 30 Day Usage Trend
- View Desktop Pool 7 Day Connection Time Trend
- View Desktop Pool 7 Day PCoIP Latency Trend
- View VDI Desktop Pool 7 Day Error Trend
- View VDI Desktop Pool Usable Status
- View VDI Desktop Pool Error Status
- View VDI Desktop Pool Other Status

8. You can run the **View VDI Desktop Session Statistics** report for the VDI Desktop Pool, Pod Pool (tier), and View Pool objects.

1. View VDI Desktop Connection Statistics View Pod: Cluster-EUC-DOG-CS1				
Name	Session Duration (hours)	Session Status	Protocol	Last Logon Timestamp
vmwarem\dnigulas:euc-dog-vmx-test	1,219.615	-	-	2014-10-13 18:43:03Z
vmwarem\tehuynh:euc-dog-persistent-win7	452.692	-	-	2014-11-14 17:38:26Z
vmwarem\dnigulas:euc-dog-cv-win7	452.063	-	-	2014-11-14 18:16:11Z
vmwarem\avaidun:euc-dog-persistent-win81	433.278	-	-	2014-11-15 13:03:18Z
vmwarem\rhaed:euc-dog-persistent-win7	396.421	-	-	2014-11-17 01:54:43Z
vmwarem\mllauc:euc-dog-persistent-win81	388.1	-	-	2014-11-17 10:13:56Z
vmwarem\eseleznec:euc-dog-cv-win7	381.691	-	-	2014-11-17 16:38:30Z
vmwarem\sankarac:euc-dog-	379.746	-	-	2014-11-17 18:35:13Z

Figure 61: Example of a Connection Statistics Page in a View VDI Desktop Session Statistics Report

This report includes the following pages:

- View VDI Desktop Connection Statistics
- View VDI Desktop Logon Statistics
- View VDI Desktop PCoIP Statistics
- View VDI Desktop Workload Statistics

After becoming familiar with the default View-related reports that vRealize Operations for Horizon adds to those already included in vRealize Operations Manager, proceed to the next exercise to explore how to create, modify, and delete report templates.

Exercise 3: Managing Reports and Report Templates

You can create report templates and modify, clone, and delete existing ones. You can schedule when to generate reports or run them manually. You can also import or export report templates.

To manage your reports:

1. Select **Environment > Horizon View Environment**.
2. Select an object in the left pane, such as a cluster, pod sessions, pod networks, View clients, disconnected sessions, pool storage, pool hosts, and more:

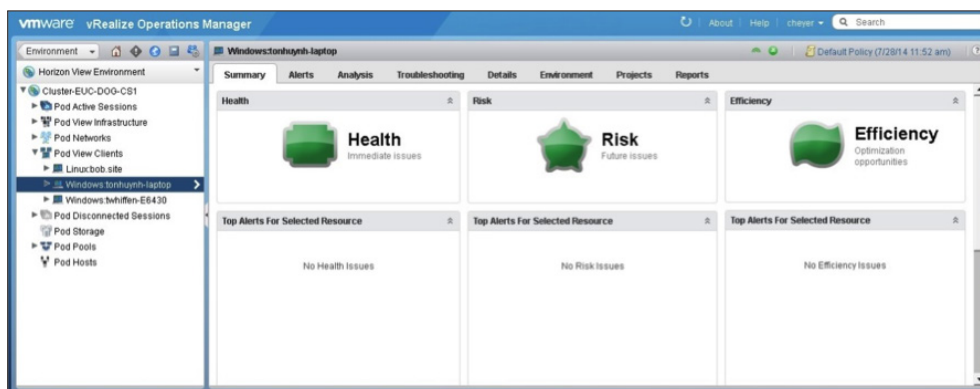


Figure 62: Object Summary

3. Click the **Reports** tab, and choose one of the following options.

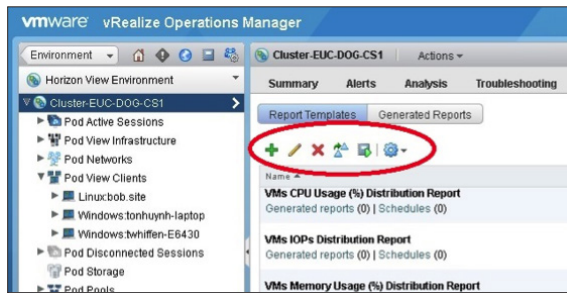


Figure 63: Report Template Options

- **Add a new report template** – Click the plus icon.
 - **Edit a report template** – Click the pencil icon.
 - **Delete a report template** – Click the red X icon.
 - **Clone a report template** – Click the clone icon.
 - **Generate a report** – Click the generate icon.
 - **Choose settings options** – Click the gear icon.
4. Click the menu arrow next to the gear icon to select a settings option.

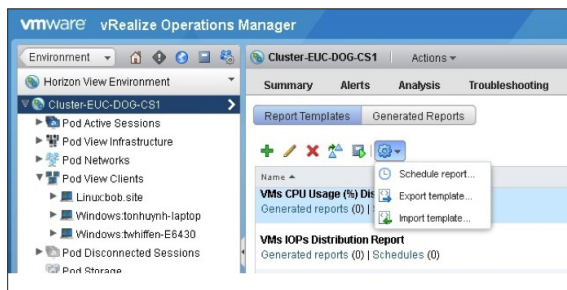


Figure 64: Scheduling, Importing, or Exporting a Report

- **Schedule report**
- **Export template**
- **Import template**

The selected object determines the list of available reports and the scope. For more information about reports, see the [VMware vRealize Operations for Horizon Administration](#) guide.

You have now examined the vRealize Operations for Horizon reporting capabilities. To explore other features that will help you maximize your use of vRealize Operations for Horizon, go to:

- [Policies](#)
- [Dashboards](#)
- [Alerts](#)

Policies

You can use the variety of out-of-the-box policies to maximize vRealize Operations for Horizon. You can customize the default policies and alarm triggers, or create new policies to meet the demands of your particular environment. For example, you can create a policy to control which metrics are collected and displayed, which alerts are monitored or executed at a given time, or whether to deliver an email notification when an alert is triggered. You can use policies to set alert thresholds, or determine which alerts are active. You can add remediation actions and recommendations to alerts that you created, as well as to out-of-the-box alerts.

It is possible to gather a huge number of metrics, not all of which are actively collected by default. A subset of the possible metrics is enabled by default to be more manageable. After your vRealize Operations for Horizon environment is set up, you can use policies to pick and choose which metrics you want to enable, collect, and display.

For example, the default policy includes an alert that notifies you when a pool has no more available desktops. If you have a pool of 50 desktops and 75 users, this notification can indicate a shortage that you need to address. However, if you have a pool of 50 desktops and 50 users, this notification indicates that every user is working, which is not a problem. One way to avoid receiving this alert is to create a policy that disables the alert or sends it less often. You can also change the thresholds on alerts, such as getting an alert when the threshold is over 90 percent.

- [Managing policies](#)
- [Customizing policies](#)
- [Importing and exporting policies](#)

Exercise 1: Managing Policies

To manage your policies:

1. Log in to vRealize Operations Manager with administrative privileges.
2. In the navigation bar on the left, select **Administration > Policies**.

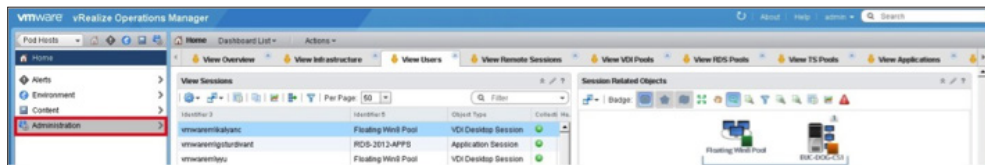


Figure 65: Selecting Administration

3. In the upper right, select one of the following tabs:
 - **Active Policies**
 - **Policy Library**

- On the **Active Policies** tab, select a policy to see details about that policy in the lower right.

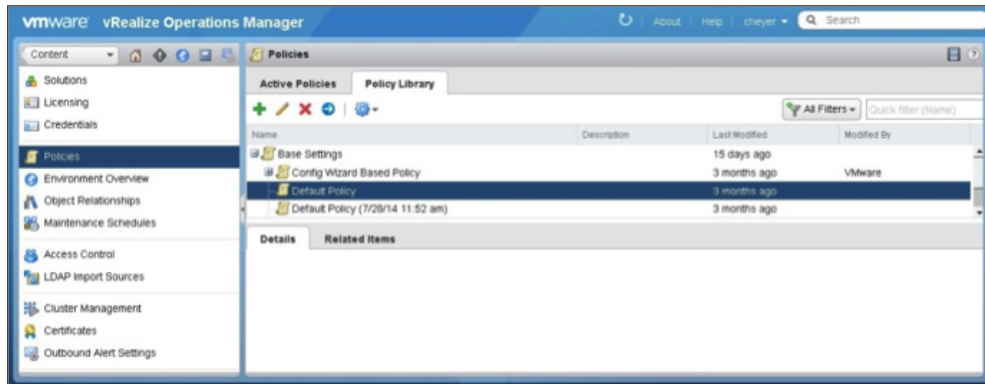


Figure 66: Selecting a Policy to View Its Details

After finding out how to access and manage policies in the user interface, proceed to the next exercise to find out how to add, modify, and delete policies.

Exercise 2: Customizing Policies

You can override default policies by creating new ones or by modifying or deleting existing policies.

To add, modify, and delete policies:

- Log in to vRealize Operations Manager with administrative privileges.
- In the navigation bar on the left, select **Administration > Policies > Policy Library**.
- Choose one of the following options.

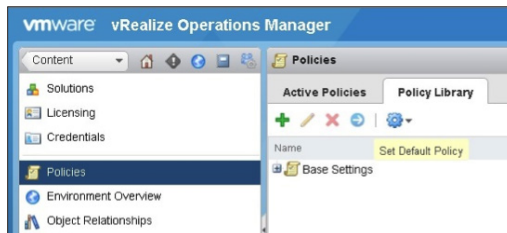


Figure 67: Managing Policy Options

- Add** – Click the plus icon to create a new policy.
- Edit** – Click the pencil icon to modify an existing policy.
- Delete** – Click the red X icon to delete a policy.
- Set as default** – Click the blue circle icon to set the selected policy as the default.

For more information about policies, see the [VMware vRealize Operations Manager Administration](#) guide.

After exploring how to add, modify, and delete policies, proceed to the next exercise to see how to import and export policy sets.

Exercise 3: Importing and Exporting Policies

You can export a policy from one vRealize Operations Manager instance and import it to another vRealize Operations Manager instance.

To import or export policies:

1. Log in to vRealize Operations Manager with administrative privileges.
2. In the navigation bar on the left, select **Administration > Policies > Policy Library**.
3. Click the blue gear icon, and choose one of the following options:

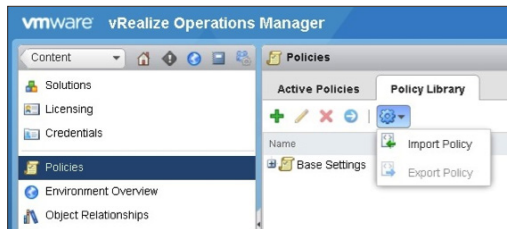


Figure 68: Importing or Exporting Policies

- **Import Policy**
- **Export Policy**

For more details, see the [VMware vRealize Operations Manager Administration](#) guide.

You have now examined the policies feature, which completes the exploration of features described in this guide. Proceed to the troubleshooting tips that will help you further maximize your use of vRealize Operations for Horizon.

- [Troubleshooting your vRealize Operations for Horizon instance](#)
- [Using vRealize Operations for Horizon to troubleshoot a View environment](#)

Troubleshooting vRealize Operations for Horizon

If you experience problems with your vRealize Operations for Horizon instance, such as lack of communication between the desktop agent, broker agent, and adapter, or missing metric values or blue Health badges in the object tree, you can use the methods outlined in this section to resolve the issues.

- [Verifying that the adapter is receiving data from the broker agent](#)
- [Verifying that the adapter is receiving data from desktops](#)
- [Resolving failure to display login or reconnect times](#)
- [Resolving failure to display PCoIP metrics](#)
- [Troubleshooting PowerShell errors in the broker agent log](#)
- [Verifying that the adapter instance is listening for connections](#)
- [Troubleshooting the network](#)
- [Generating a traceroute](#)

Exercise 1: Verifying That the Adapter Is Receiving Data from the Broker Agent

If you are missing data, there might be a problem with the communication between the adapter and the broker agent.

To check whether the adapter is receiving data from the broker agent:

1. Verify that the broker agent service is running using the broker agent configuration utility. (See the [VMware vRealize Operations for Horizon Installation](#) guide for details.)
2. If you have trouble pairing the broker agent and the adapter, do the following:
 - a. Verify that the address entered in the configuration utility is correct.
 - b. Check whether the broker agent can communicate with the adapter by entering the following command from a command prompt on the View Connection Server:


```
telnet <ip_address> 3091
```

Include the IP address of the vRealize Operations node or remote collector where the adapter instance is installed.
 - c. Check the results:
 - If a blank screen appears, the desktop and broker agent are communicating.
 - If an error message appears, the desktop and the broker agent are not communicating. Make sure that all necessary ports are open. Check for firewall issues or other reasons that would hinder communication.
 - d. From the vRealize Operations node or remote collector, verify that port 3091 is in the listening state by running the following command:


```
netstat -pltn
```
3. In the View Adapter Self Health dashboard, note the health score of the broker agent in the View Broker Agent widget.

The health score of the broker agent should not be blue. The widget should be populated with valid collection times and counts. By default, the graphs show a six-hour time period and should extend all the way to the edge of each box.

4. To verify that the broker agent is configured properly to send data to the adapter:
 - a. Using the configuration utility, verify that pairing is successful.
 - b. Using the **Test** button, verify connectivity with the View adapter.
5. Check the broker agent log, located by default at **ProgramData\VMware\vCenter Operations for View\logs**.
6. If you are using View 5.3 or earlier, check for the known bug 1072009 by searching the broker agent log for **GetTopology task results**.

The line should look something like the following, with appropriate values for your environment:

GetTopology task results: Pods 1; VCs 1; Brokers 1; Pools 6; Desktop VMs 9; Sessions 1

If the View Administrator shows sessions, but the session count is 0, restart the broker agent.

7. If you are using View 5.3 or earlier, check for a timeout issue.

In larger environments, the PowerShell call to collect the session data can take a long time, and the call has a timeout of 5 minutes. If the call takes longer than 5 minutes, the broker agent does not report session data to the adapter. Check this either from the View adapter or from the broker agent.

a. From the adapter:

- i. On the View Adapter Status dashboard, select the broker agent in the View Broker Agent Status widget.
- ii. Expand the View Broker Agent Topology Collection Statistics widget, and look at the User Session Collection Time.
- iii. If the collection time is greater than 300 seconds and the User Session Count is 0, the call is probably timing out.

b. From the broker agent:

- i. You might see something like the following:

Timed out waiting for task to complete: TaskGetViewRemoteSession.

- ii. Alternatively, you can search for the most recent line containing

GetTopology task timing

This line shows the time taken to collect each part of the topology, including the sessions. If the time is greater than 300 seconds, a timeout might be occurring. To confirm, check the next line for the following, which indicates the number of sessions collected:

GetTopology task results

If the time is greater than 300 seconds and the number of sessions in this line is 0, the call is timing out.

You have now verified that your View adapter is receiving data from the broker agent. If you continue to have problems, see [Exercise 6: Verifying that the Adapter is Listening for Connections](#). To continue to maximize your use of vRealize Operations for Horizon, see the following additional troubleshooting tips:

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 2: Verifying That the Adapter Is Receiving Data from Desktops

Communication between the View adapter the broker agent is essential for the adapter to receive data from the desktops. Even if the desktop agents successfully send data to the View adapter, if the adapter does not receive the correlating information from the broker agent, it discards the desktop data. You can verify that your adapter is receiving data from desktops by first verifying that your adapter is receiving data from the broker agent. If no topology information is displayed, the broker agent is not communicating with the adapter. If the broker agent fails to send data, the number of desktops can appear to be 0, even if the desktops are sending metrics.

To check whether the View adapter is receiving data from your desktops:

1. Examine the View Adapter Self Health dashboard, and note the number of desktops reporting.
2. Verify that the adapter is receiving data from your broker agent.
3. Verify that the vRealize Operations for Horizon Agent service is running.
4. Verify that the desktop is configured properly to send data to the adapter by checking for the registry entry that specifies where the desktop agent should send its data.

• For View 5.2 or later:

The registry value is set on each desktop by the broker agent. Check the following registry location for the value of **VCops Server URL**:

HKLM\Software\VMware, Inc.\VMware VDM\Node Manager

If you do not find the **VCops Server URL** value, make sure that the broker agent configuration is complete.

• For earlier than View 5.2:

- a. The registry value is set by the group policy object (GPO). Check the following registry location for the value of **MessageServerURL**:

HKLM\Software\Policies\VMware, Inc.\vCenter Operations for View\Agent

If the registry entry is present, it should follow the format:

rmi://<Analytics VM IP>:3091

- b. If you do not find the **MessageServerURL** value, make sure the GPO is set up properly.

- i. In Windows, run **rsop.msc**.

- ii. Under Computer Configuration, expand **Administrative Templates > Classic Administrative Templates (ADM) > VMware View Agent Configuration**, and then click **vRealize Operations**.

- iii. Double-click **View Adapter Location** on the right, and verify that **Enabled** is selected.

- iv. Verify that the **View adapter URL** text box contains the IP address of the VM where the vRealize Operations for Horizon adapter is installed.

See the [VMware vRealize Operations for Horizon Installation](#) guide for more details.

5. Verify the URL of the adapter: vRealize Operations node or remote collector.

6. For VMware View 5.1 or earlier, make sure that RMI authentication is disabled.
 - a. Open the console of the vRealize Operations node where the adapter is installed, and log in as the root user.

- b. Verify that the line

```
disable-authentication = true
```

has been added to the following file:

```
/usr/lib/vmware-vcops/user/plugins/inbound/V4V_adapter3/work/msgserver.  
properties
```

For more details, see the [VMware vRealize Operations for Horizon Administration](#) guide.

7. Verify that the desktop can communicate with the adapter by entering the following command from a command prompt in the desktop, using the IP address in the registry (server URL):

```
telnet <ip_address> 3091
```

A blank screen indicates successful communication.

An error message indicates a communication issue. Check for firewall issues that might hinder communication between the desktop and adapter.

8. Check the desktop agent log:

- By default, the Windows XP log is at the following location:

```
Documents and Settings\All Users\Application Data\VMware\VDM\logs\v4vagent-  
<date>.log
```

- By default, the Windows 7 log is at the following location:

```
programdata\vmware\vdm\logs\v4v-agent-<date>.log
```

If the registry shows that the desktop agent is configured with the proper address to the VM, and the desktop log shows errors indicating that the connection was refused due to timeout issues, check for firewall issues that would hinder communication from the desktop agent to the VM. Ports 3091 through 3094 must be open for TCP traffic.

You have now verified that your View adapter is receiving data from the desktop agents. To help you maximize your use of vRealize Operations for Horizon, see the following additional troubleshooting tips:

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 3: Resolving Failure to Display Login or Reconnect Times

Login and reconnect times rely on information from the View event database. If the View Overview dashboard is populated but fails to display login or reconnect times, the following steps might help resolve the issue.

1. On the View Server, run the broker agent configuration utility.
2. Verify that the event database credentials are entered.
3. Click the **Validate DB Credentials** button to confirm access to the event database.

Credentials for the View event database must use SQL Server authentication, not Windows authentication.

For additional troubleshooting tips, see

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 4: Resolving Failure to Display PCoIP Metrics

If the View Overview dashboard is populated, but PCoIP metrics are not displayed, the following steps might help resolve the issue.

1. Verify that the adapter is receiving data from the desktops (see [Verifying Adapter Receives Data from Desktops](#)).
2. Confirm that at least one desktop is connected using PCoIP.
3. Confirm that the PCoIP metrics are present for a specific desktop by verifying that the following counters are present in Perfmon on the desktop:
 - PCoIP session audio statistics
 - PCoIP session general statistics
 - PCoIP session imaging statistics
 - PCoIP session network statistics
 - PCoIP session USB statistics

For additional troubleshooting tips, see

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 5: Troubleshooting PowerShell Errors in the Broker Agent Log

If the broker agent log contains PowerShell errors, use the following steps to resolve them.

1. Run the View PowerCLI shell, and confirm that the following cmdlets return the expected results.
 - `Get-remotesession`
 - `Get-monitor`
2. If the View PowerShell cmdlets do not work from the PowerCLI shell, try one of the following options.
 - `Restart View services.`
 - `Restart the server.`

3. Confirm that PowerShell is installed on the View Connection Server.
4. Review the broker agent logs for other error messages, keeping in mind that some error messages are benign.

For additional troubleshooting tips, see

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 6: Verifying that the Adapter Is Listening for Connections

If you cannot pair the broker agent and the adapter, verify that the adapter communication is initialized properly.

1. Verify that the necessary ports are in the listening state on the adapter VM.
 - a. At the VM console, press **Alt+F1** to get to the login prompt.
 - b. Log in as root.
 - c. From the command prompt, enter the command

```
Netstat -ltn | grep 309
```

The results should show that ports 3091, 3092, 3093, and 3094 are in the listening state. If you have changed the default ports, check for the ports that you have selected. If you do not see the ports in the listening state, the adapter instance did not initialize properly.

2. Verify that the adapter instance is created.
3. Check the adapter log for errors.

For troubleshooting tips such as creating support bundles, downloading log files from broker or desktop agents, viewing the status of View adapter objects, and more, see the [VMware vRealize Operations for Horizon Administration](#) guide.

For additional troubleshooting tips, see

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 7: Troubleshooting the Network

The PCoIP remote display protocol provides real-time delivery of a rich user desktop experience using UDP. A variety of dashboard widgets provide PCoIP metrics to help you troubleshoot your network.

Using the View Overview dashboard, you can determine the connection quality between Horizon clients and remote desktops. This dashboard contains the Pod Indicator Metrics widget, which displays pod metrics for average PCoIP latency and packet loss, TX bandwidth, and RX bandwidth.

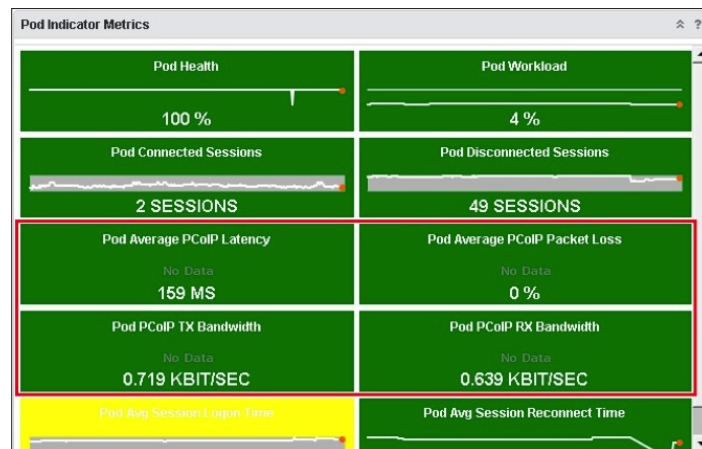


Figure 69: PCoIP Metrics Displayed in the Pod Indicator Metrics Widget

The View Overview dashboard also includes the Pod Session Metrics widget, which displays Connected PCoIP Sessions metrics, as well as desktop, application, RDP, and Blast HTML session metrics.

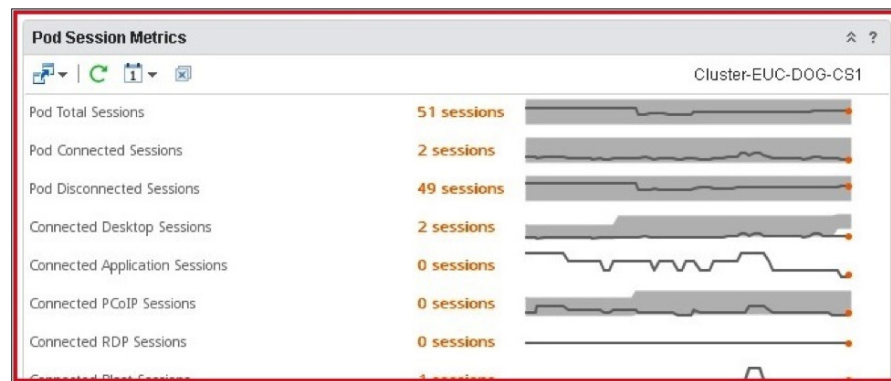


Figure 70: PCoIP Metrics Displayed in the Pod Session Metrics Widget

In the View Remote Session Details dashboard, use the Session Indicator Metrics widget to view PCoIP session latency, as well as other important session metrics such as health, workload, login time, bandwidth, and packet loss.

In the View RDS and TS Host Details dashboard, use the RDS and TS Host Indicator Metrics widget to view PCoIP latency, as well as other important host metrics such as health, workload, total sessions, desktop sessions, application sessions latency, bandwidth, and packet loss.

For additional troubleshooting tips, see

- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Exercise 8: Generating a Traceroute on Demand

To get information about network distance and the quality between the desktop and client, you can now run a traceroute on demand from the Sessions Processes widget in the View Remote Session Details dashboard. When you run a traceroute from the widget, you get the same results as running the traceroute from the command line. There are four types of traceroute actions: Desktop/Client, RDSS/Client, APPS/Client, and TSS/Client.

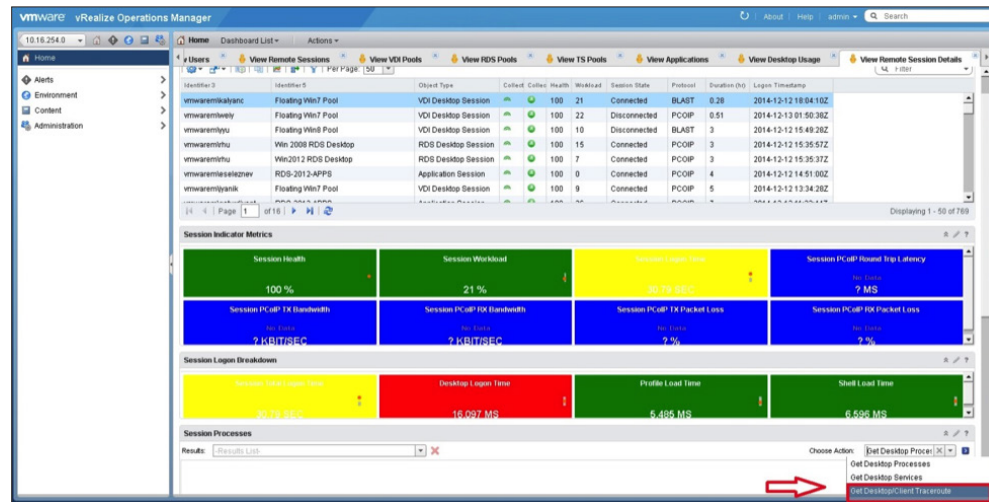


Figure 71: Getting a Traceroute

To generate a traceroute on demand:

1. Log in and navigate to the View Remote Session Details dashboard.
2. Scroll down to the Session Processes widget, and click the **Choose Action** down arrow to open the drop-down menu.
3. In the drop-down menu, select **Get Desktop/Client Traceroute**, and click the blue arrow to run the traceroute action.



Figure 72: Selecting the Get Desktop/Client Traceroute Action

4. Observe the results.



Figure 73: Session Processes

Depending on the type of connection, the result provides a traceroute between your desktop VM and the View client device that is connected to that desktop. If you are on the same network, it provides a complete traceroute. If you are connecting through a View security server, it traces to the gateway that leads to the client.

You can use the traceroute to troubleshoot issues such as a slow network, slow response time, network latency, network packet loss, and so on. If you are familiar with your network, you can note the route and see deviations from the route or particularly long times between hops. You can recognize if the user is connecting remotely over the Internet or a VPN or internally on the land network.

You have now completed the troubleshooting exercises for maximizing use of vRealize Operations for Horizon. For additional troubleshooting tips to resolve issues in your View environment, proceed to [Troubleshooting View Environments](#).

Troubleshooting View Environments

This section describes several scenarios for using vRealize Operations for Horizon to troubleshoot issues that occur when monitoring View desktops. You can simulate these exercises by selecting similar objects from your own environment.

- [Troubleshooting a degraded View desktop VM](#)
- [Monitoring a second View environment](#)

Exercise 1: Troubleshooting a Degraded View Desktop VM

While monitoring your View desktops, if you notice a desktop VM exhibiting abnormal behavior, this might indicate a degraded View desktop.

To troubleshoot a degraded View desktop VM:

1. Navigate to **View VDI Pools** and select a VM that is behaving abnormally.
2. Select the degraded View virtual desktop and look for indications of high overall workload and high CPU workload.

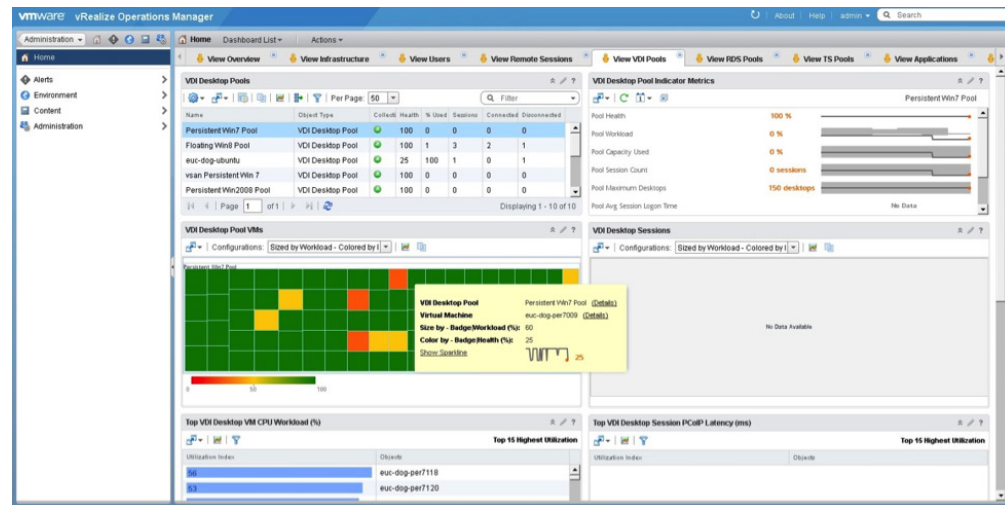


Figure 74: Degraded View Pool Statistics Showing High Overall Workload and High CPU Workload

3. Navigate to the VM resource details from the heat map.

- On the VM Summary tab, select the **Analysis** tab, and confirm that the workload badge is selected. You should see the CPU workload details in the lower middle pane.

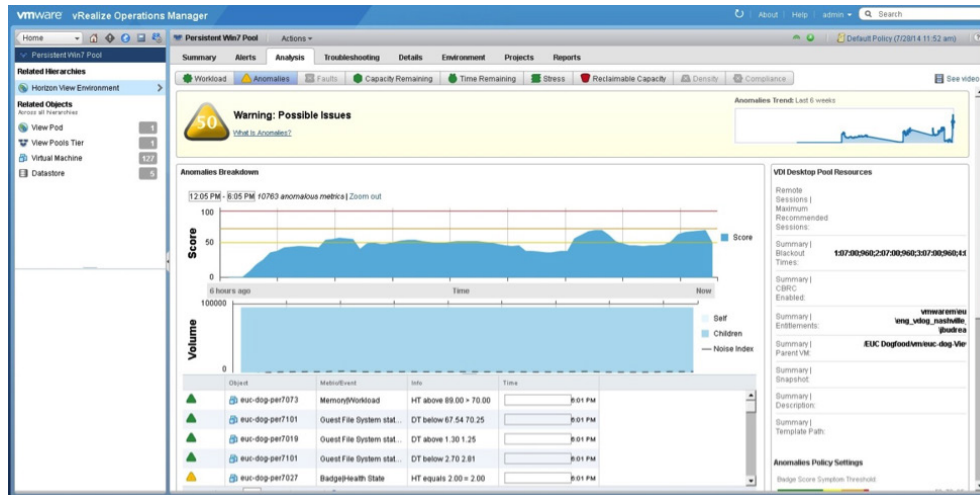


Figure 75: Analysis Tab Showing Resource Detail

- Select the **Faults** tab for fault details.

The details in the example lead to a diagnosis that the View virtual desktop machine is out of virtual disk space and the CPU is thrashing due to memory swapping.

For additional troubleshooting tips, see [Troubleshooting vRealize Operations for Horizon](#).

After troubleshooting a degraded View virtual desktop, proceed to the next exercise to monitor a second View environment.

Exercise 2: Monitoring a Second View Environment

You can use the same vRealize Operations for Horizon monitoring infrastructure to monitor multiple View environments (pods). You first install vRealize Operations for Horizon and its components on machines in your View and vRealize Operations Manager environments. After you install and configure the View adapter, broker agent, and desktop agents, you pair the broker agent with the View adapter, which enables the authentication required for the broker agent and desktop agents to communicate with the View adapter.

To monitor a second View pod, install a broker agent into the second pod and pair that broker agent with the existing View adapter. Broker agents from different View pods can connect to the same View adapter instance.

Configuring vRealize Operations for Horizon to monitor multiple View pods involves the following steps:

- Verifying that licensing, configuration, and sizing are sufficient to support monitoring additional desktops
- Installing and configuring the broker agent onto the second View Connection Manager Server
- Installing vRealize Operations for Horizon in vRealize Operations Manager
- Adding a vRealize Operations for Horizon license key in vRealize Operations Manager

5. Creating an instance of the View Adapter in vRealize Operations Manager

Note: You use a single View adapter instance to monitor multiple View pods. Creating multiple View adapter instances on a single collector node to monitor multiple View pods is not supported. You can install multiple View adapter instances as long as each View adapter instance is on a unique collector node.

6. Installing and configuring the vRealize Operations for Horizon Broker Agent

Note: You install the vRealize Operations for Horizon broker agent on one View Connection Server host in each View pod. Installing the broker agent on a View security server is not supported.

7. Pairing the vRealize Operations for Horizon broker agent with the View adapter in the Broker Agent Configuration wizard—to monitor additional View pods, pair the broker agent in each pod with the same View adapter instance

8. Associating objects with your vRealize Operations for Horizon license key

If a View adapter or broker agent is not operating as expected, see the [VMware vRealize Operations for Horizon Administration](#) guide for troubleshooting tips.

For more information, see the [VMware vRealize Operations Manager Customization and Administration](#) and [VMware vRealize Operations for Horizon Installation](#) guides.

You have now completed the exploration of features and troubleshooting tips described in this guide. To review any topics that will help you maximize your use of vRealize Operations for Horizon, go to:

- [Dashboards](#)
- [Alerts](#)
- [Reports](#)
- [Policies](#)
- [Troubleshooting vRealize Operations for Horizon](#)
- [Troubleshooting View Environments](#)

Summary

VMware vRealize Operations for Horizon is an extension of the vRealize Operations Manager Enterprise product. It uses the vRealize Operations advanced analytics engine to collect metrics from the View environment, and it processes those metrics to create baseline data of normal behavior. These metrics are presented in View-specific vRealize Operations for Horizon dashboards. With these collected metrics and known baselines, vRealize Operations for Horizon can determine what is outside the normal behavior for resources in a View environment. It is this predictive analysis that can help reduce the time spent troubleshooting and correcting impending issues before they affect the end-user experience.

Additional Resources

For more information, see the VMware documentation.

Resources for vRealize Operations for Horizon

- [VMware vRealize Operations for Horizon documentation](#)
- [VMware vRealize Operations for Horizon product overview](#)
- [Knowledge base](#)

Resources for vRealize Operations Manager

- [VMware vRealize Operations documentation](#)
- [VMware vRealize Operations product overview](#)
- [Knowledge base](#)
- [VMware vSphere documentation](#)

Resources for Horizon with View

- [VMware Horizon with View product overview](#)
- [VMware Horizon with View documentation](#)
- [Knowledge base](#)

Authors and Contributors

Cindy Heyer, Technical Writer, End-User Computing, VMware, updated this paper for vRealize Operations for Horizon 6.0.

Contributors to this document include

- David Homoki, Staff Engineer for vRealize Operations for Horizon, Management Business Unit, VMware
- Karthik Lakshminarayanan, Director, Product Manager, Desktop Product Management, End-User Computing, VMware
- Tim Whiffen, Staff Engineer for vRealize Operations for Horizon, Management Business Unit, VMware

The original white paper was written by Charles A. Windom, Sr., Solutions Architect, Management Business Unit, VMware, and Cindy Heyer, Technical Writer, End-User Computing, VMware.

