Quest

Foglight®Capacity Manager 5.7.7

User Guide

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Legend

WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death.

CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

IMPORTANT NOTE, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

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Using Foglight Capacity Manager

Foglight® Capacity Manager delivers an essential capacity management for virtual infrastructure. Get deep insight into your environment, including the availability and estimated time left for CPU, memory, storage, and Input/Output Operations Per Second (IOPs). Use historical trends to better forecast resource requirements for clusters, hosts, and workloads—and proactively predict and budget for capital expenditures.

The *Foglight Capacity ManagerUser Guide* is intended for:

- *VMware*: users who have been assigned the *System Administrator*, Advanced *Operator*, *Capacity Management Administrator*, VMware Administrator, or *VMware QuickView User* role.
- *Hyper-V*: users who is a member of a local group administrators.

Foglight Capacity Manager replaces the functionality previously offered in Foglight Capacity Management in the VMware® and Hyper-V environments.

This section introduces you to the Foglight Capacity Manager environment, and provides you with essential information.

For more information, see the following topics:

- Installation requirements
- Data collection
- Dashboard location and UI elements

Installation requirements

Foglight Capacity Manager comes installed on Foglight for Virtualization, Enterprise Edition and can be installed on a Foglight Management Server.

Foglight Capacity Manager requires the following cartridges for data collection:

1. DRP-5.7.7.car
2. Virtual-VMware-5.7.7.car

   NOTE: After installing the Virtual-VMware-5.7.7.car cartridge, existing vCenter agents (VC agents) must be updated using the Update Agent button in the *VMware Environment* > *Administration* tab.
3. Virtual-VMware-Admin-5.7.7.car
4. Virtual-HyperV-5.7.7.car
5. SCVMM.car (optional)
6. OptimizerAutomation-5.7.7.car
7. CommonAnalytics-5.7.7.car
8. Capacity-Director-5.7.7.car

While Foglight for Virtualization, Enterprise Edition comes with these cartridges pre-installed and enabled, a stand-alone Foglight release requires that these components be installed on the Foglight Management Server. The sequence of cartridge installation is important because of their dependencies. For more information about

installing Foglight Capacity Manager, and for details about system requirements and version compatibility, see the *Foglight Capacity Director Release Notes*.

Data collection

The VMware Environment dashboard displays all virtual or physical VMware servers (target machines) being monitored by Foglight for Virtualization, Enterprise Edition. No further setup is required.

Dashboard location and UI elements

After installing Foglight Capacity Manager, the **Capacity Management** tab appears in the VMware Environment dashboard.

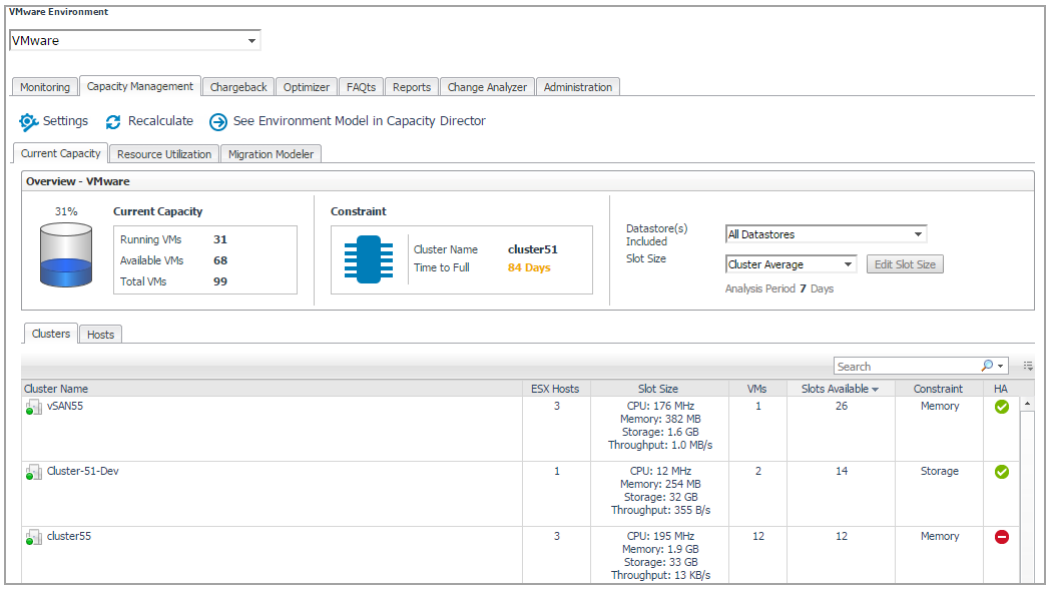
To access the Capacity Management dashboard:

1. Log in to the Foglight browser interface.
2. Ensure that the navigation panel is open.

   To open the navigation panel, click the right-facing arrow on the left.
3. On the navigation panel, under *Dashboards*, click **VMware** > **VMware Environment**.

   The selected dashboard appears with the **Capacity Management** tab.

Figure 1. Capacity Management tab



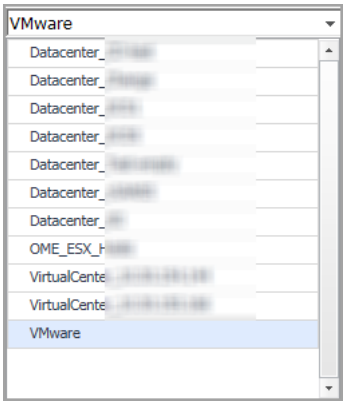
The **Capacity Management** tab consists of the following UI elements:

- Actions bar
- Quick view

Group selector

The Group selector is located at the top of the dashboard and allows you to select the virtual environment that you want to monitor.

Figure 2. Group Selector



Actions bar

The actions bar at the top of the Capacity Management tab contains the following options, “Analysis” and “Recalculating Results”.

Figure 3. Actions bar

Analysis

The Settings menu > Analysis tab allows you to configure the settings to be taken into calculation by Foglight Capacity Manager for analyzing the current capacity and resource utilization, and for predicting future resource requirements.

To configure the analysis settings:

1. In the Settings dialog box, click the Analysis tab.
2. Specify the following values as needed.
   - *Baseline For Forecasting*: Defines the historical period used for the calculations of metric views, current capacity, and recommended resources in the Resource Utilization view. The following options are available: 30 Days Trending (default option), 180 Days Trending, and 365 Days Trending.
   - *Time Frame*: Defines the predicted period for calculating metric views, current capacity, and recommended resources in the Resource Utilization view. The following options are available: Next 30 Days (default option), Next 60 Days, Next 90 Days, and Next 180 Days.

     For example, when Next 30 Days is selected, the Resource Utilization view displays metric views, recommended resources, and additional servers required in next 30 days.
   - *Average Analysis Period*: Defines the historical period used for the calculations of the Slot Size, Slot Available, and Constraint in the Current Capacity view.

The following options are available: Last 1 Day, Last 3 Days, Last 7 Days (default option), and Last 30 Days.

- *Show Getting Started (Use Cases)*: Select this check box to show the *Getting Started* tab, or clear this check box to hide the *Getting Started* tab.

3 Click **Save**.

The settings are saved and applied next time when Foglight Capacity Manager performs calculations.

Recalculating Results

Foglight Capacity Manager allows you to get the latest analytical results for the Current Capacity view and the Resource Utilization view, based on the data collected by the VMware Performance Agents. To get the latest analytic results, click the **Recalculate** menu on the actions bar.

NOTE: Results populated in **Current Capacity > Clusters**, **Resource Utilization > Clusters**, and **Resource Utilization > Hosts and Workload** are impacted if the High Availability (HA) policy is enabled in the vCenter®.

The Recalculation Results dialog includes the following recalculating results:

- *Current Capacity*: Capacity of the vCenter® or datacenter, average/maximum slot size for clusters, available slots, and constraint.
- *Resource Utilization*: History data and forecasting data.

See Environment Model in Capacity Director

Click the *See Environment Foglight Capacity Manager* link to navigate to the *Resource Utilization view > Clusters* tab.

Quick view

The quick view is located on the lower part of the Capacity Management tab, and includes the following tabs:

- Current Capacity Tab
- Resource Utilization Tab
- Migration Modeler Tab

Current Capacity Tab

The Current Capacity view displays information about the current capacity of a selected virtual center or datacenter. It includes the following two panes:

- VirtualCenter/Hosts Overview pane: Provides details about Current Capacity and Constraint, and allows you to select the Datastore information and Slot Size.
- Clusters/Hosts pane: Consists of two tabs:
  - Clusters: Provides detailed information about clusters that are available in the selected virtual center or datacenter.
  - Hosts: Provides detailed information about hosts that are available in the selected cluster.

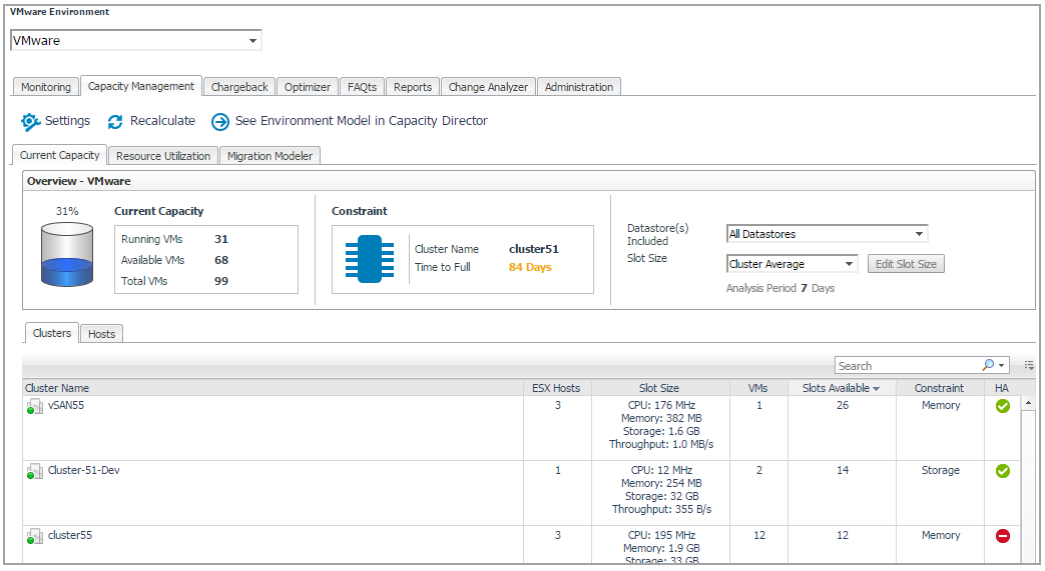
To access the Current Capacity view:

1. On the navigation panel, under Dashboards, click VMware > VMware Environment.

   The VMware Environment dashboard opens.
2. Use the Group selector located at the top of the dashboard to select the virtual environment that you want to monitor.
3. Click the Current Management tab, then click the Current Capacity tab.

   The Current Capacity view appears at the bottom of the VMware Environment dashboard.

NOTE: Enabling or disabling the HA policy, which is configured in the vCenter®, is only applicable for the **Clusters** tab in the Current Capacity view. If the HA policy is enabled for a cluster, Foglight Capacity Manager calculates the cluster resources and reserves the cluster resources that are required to satisfy the HA policy. A green check mark appears in the HA column when the HA policy is enabled.



VirtualCenter/Hosts Overview pane

After selecting a virtual center or datacenter by using the Group selector located at the top of the dashboard, Foglight Capacity Manager calculates the capacity of the selected center in the background and displays the following information on the VirtualCenter/Hosts *Overview* pane:

- *Current Capacity*: Includes information about the following metrics: Running VMs, Available VMs, and Total VMs.
- *Constraint*: Includes information about the following metrics: Cluster Name and Time to Full.
- *Datastore(s) Included*: Allows you to select from the drop-down list the datastores.

  The following options are available: All Datastores (default option) and particular datastores that varies depending on the virtual center/datacenter selected by the group selector.

  - All Datastores: The Slot Size and available slots are calculated based on all available datastores.
  - Particular datastore: The Slot Size and available slots are calculated based on the cluster/host connected to the selected datastore.

  NOTE: The Clusters/Hosts pane is automatically updated to reflect the selection made.

- *Slot Size*: Allows you to select from the drop-down list the size of the virtual machine (the slot size).

  The following options are available: Based on VM, Cluster Average (default option), Cluster Maximum, and Custom Size.

  For details, see the "Calculating Slot Size Based on VM" and "Calculating Slot Size Using Custom Size" sections.

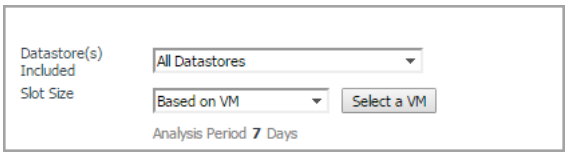
  NOTE: The *Clusters/Hosts* pane is automatically updated to reflect the selection made.

Calculating Slot Size Based on VM

To recalculate the slot size Based on VM:

1. In the VirtualCenter/Hosts Overview pane, select Based on VM from the Slot Size drop-down list.

   The Select a VM button appears on the right side of the Slot Size drop-down list.



2. Click Select a VM.

   The VM Selection Dialog box appears.

3. Select a virtual machine from the table, or by typing its name in the Search box.
4. Click OK.

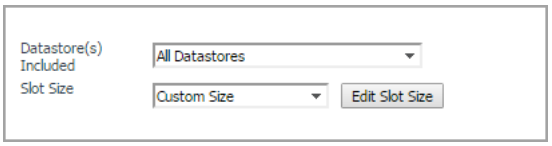
   The VM Selection Dialog box closes and the Clusters/Hosts pane is updated to reflect this change.

Calculating Slot Size Using Custom Size

To recalculate the slot size based on a custom size:

1. In the VirtualCenter/Hosts Overview pane, select Custom Size from the Slot Size drop-down list.

The Edit Slot Size button appears on the right side of the Slot Size drop-down list.



2 Click Edit Slot Size.

The Enter custom values dialog box appears.

3 Specify the values for CPU, Memory, Storage, and Throughput for the custom virtual machine.

4 Click Save.

The Enter custom values dialog box closes and the Clusters/Hosts pane is updated to reflect this change.

Clusters/Hosts pane

The ***Clusters/Hosts*** pane displays the details related to the selected virtual center or datacenter. This information is automatically updated when the Slot Size settings are modified. For more information, see Calculating Slot Size Based on VM on page 10 and Calculating Slot Size Using Custom Size on page 10.

The ***Clusters/Hosts*** pane includes the following capacity data:

- *Filtered by cluster (Hosts tab only): Filter the hosts that contain the selected cluster.*
- *Cluster Name (Clusters tab) or Name (Hosts tab)*: Name of the selected cluster or host.
- *ESX Hosts (Clusters tab only)*: Number of ESX® hosts in the selected cluster.
- *Slot Size*: CPU, Memory, Storage, and Throughput resources available on the virtual machine.
- *VMs*: Number of running virtual machines in the selected cluster or host.
- *Slots Available: Number of available slots in the selected cluster or host.*
- *Constraint: Available constraint in the selected cluser or host.*
- *HA (Clusters tab only):* If the HA policy is enabled for a cluster, Foglight Capacity Manager calculates the cluster resources and reserves the cluster resources that are required to satisfy the HA policy. A green check mark appears in the HA column when the HA policy is enabled.

Resource Utilization Tab

The *Resource Utilization* view displays information about the resource utilization of a selected virtual center or datacenter. It includes the following tabs:

- Clusters: Provides detailed information about clusters that are available in the selected virtual center or datacenter.
- Hosts and Workload: Provides detailed information about hosts that are available in the selected cluster.

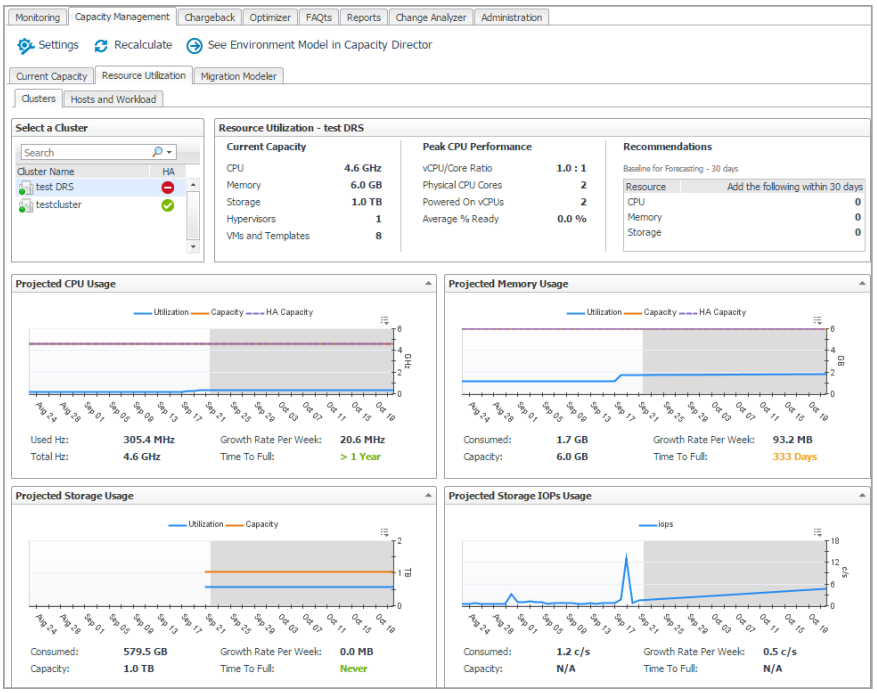
To access the Resource Utilization view:

1. On the navigation panel, under Dashboards, click *VMware* > *VMware Environment* or *Hyper-V* > *Hyper-V Environment*.

   The *VMware Environment* or *Hyper-V Environment* dashboard opens.
2. Use the Group selector located at the top of the dashboard to select the virtual environment that you want to monitor.
3. Click the Current Management tab, then click the Resource Utilization tab.

   The *Resource Utilization* view appears at the bottom of the *VMware Environment* or *Hyper-V Environment* dashboard.

NOTE: Enabling or disabling the HA policy, which is configured in the vCenter®, is applicable for both the **Clusters** tab and the Hosts and Workload tab in the Resource Utilization view. If the HA policy is enabled for a cluster, Foglight Capacity Director calculates the cluster resources and reserves the cluster resources that are required to satisfy the HA policy. A green check mark appears in the HA column when the HA policy is enabled.



Clusters/Hosts and Workload tabs

The **Clusters** tab and the **Hosts and Workload** tab display the details related to the selected virtual center or datacenter. This information is automatically updated after selecting a cluster.

The **Clusters** tab includes the following data:

- *Select a Cluster*: Lists available clusters in the selected virtual center or datacenter.
- *Resource Utilization*
  - *Current Capacity*: Displays the current capacity of the selected cluster, which includes the following data: CPU, Memory, Storage, Hypervisors, and VMs and Templates.
  - *Peak CPU Performance*: Displays the current CPU data of the selected cluster, which includes the following data: vCPU/Core Ratio, Physical CPU Cores, Powered On vCPUs, and Average % Ready.
  - *Recommendations*: Displays recommendations on the resources (CPU, Memory, and Storage) to be added in the future to ensure that the resource utilization is balanced. Use the **Settings** dialog box to edit the Baseline for Forecasting.
- *Resource utilization related views*: *Projected CPU Usage view*, *Projected Memory Usage view*, *Projected Storage Usage view*, and *Projected Storage IOPs Usage view*. The metric line in the white area is the history data, while the metric line in the gray area is the predicted data. For more information, see Resource Utilization related views on page 14.

The **Hosts and Workload** tab includes the following data:

- *Select a Cluster:* Lists available clusters in the selected virtual center or datacenter.
- *Overview*: Summarizes the CPU capacity and memory capacity of the selected cluster. Both capacities are calculated based on the value selected from the Host Size drop-down list. The Host Size drop-down list includes the following options: average host size (default value) and based on specific host. The Host Requirement - Average Host Size view is refreshed automatically after changing the Host Size value. For more information, see Calculating Host Size based on specific host on page 13.

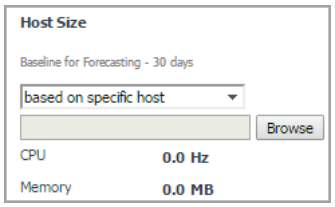
  The value of Baseline for Forecasting on the display area can be edited using the **Settings** dialog box.
- *Host Requirement - Average Host Size*: Displays the number of Required Hosts and Available Hosts, if the existing server is used as the calculation benchmark.
  - *Required Hosts*: Shows with the blue line, indicating how many hosts are required to support the current number of virtual machines. This number is populated based on the value selected from the Host Size drop-down list.
  - *Available Hosts*: Shows with the amber line, indicating the number of hosts, available in the selected cluster.
  -

Calculating Host Size based on specific host

To recalculate the host size based on specific host:

1 In the Hosts and Workload Overview pane, select based on specific host from the Host Size drop-down list.

  The Browse button becomes available on the right side of the Host Size drop-down list.



2 Click Browse to select a host in the Specific Host Selector dialog box, and click OK.

The Specific Host Selector dialog box closes and the Host Requirement - Average Host Size view is refreshed automatically.

Resource Utilization related views

This section provides a detailed description of the following metrics presented in the embedded views in the Resource Utilization > Clusters tab.

- Projected CPU Usage view
- Projected Memory Usage view
- Projected Storage Usage view
- Projected Storage IOPs Usage view

Projected CPU Usage view

This embedded view is part of the Resource Utilization > Clusters view. To display this view, click the Clusters tab in the Resource Utilization view, and select a cluster from the Cluster Name table.

Table 1. Projected CPU Usage view

Description	This view displays CPU utilization metrics on the selected cluster. • **Utilization:** This chart shows the actual CPU usage (in GHz). • **Capacity:** This chart shows the total CPU capacity (in GHz**).** • **HA Capacity: If the HA policy is enabled on the selected cluster, this chart is plotted to show the actual CPU usage** (in GHz)**.** • Used Hz: Shows the current CPU usage (in GHz). • Growth Rate Per Week: Shows the growth rate of CPU capacity per week. • R-squared: Indicates the accuracy of the forecasting data. This value is ranged from 0 to 1, and a higher value indicates that the forecasting data of utilization is more accurate.
Data displayed	• Total Hz: Shows the current CPU capacity (in GHz). • Time To Full: HA enabled: Shows the period when the actual CPU usage (the Utilization metric) exceeds the HA capacity metric. This metric is calculated based on the Growth Rate Per Week. HA disabled: Shows the period when the actual CPU usage (the Utilization metric) exceeds the total CPU capacity (the Capacity metric). This metric is calculated based on the Growth Rate Per Week. • P-value: Indicates the dependency between the utilization and history time. This value is ranged from 0 to 1, and a lower value indicates that the utilization has a more significant dependency with the history time.

Projected Memory Usage view

This embedded view is part of the Resource Utilization > Clusters view. To display this view, click the Clusters tab in the Resource Utilization view, and select a cluster from the Cluster Name table.

Table 2. Projected Memory Usage view

Description	This view displays memory utilization metrics on the selected cluster. **NOTE:** Unless otherwise indicated, the units of measurement for the following metrics are automatically converted for better plotting. • **Utilization:** This chart shows the actual memory usage. • **Capacity:** This chart shows **the total** memory **capacity.** • **HA Capacity: If the HA policy is enabled on the selected cluster, this chart is plotted to show the actual** memory **usage.** • Consume: Shows the current memory usage. • Growth Rate Per Week: Shows the growth rate of memory capacity per week. • R-squared: Indicates the accuracy of the forecasting data. This value is ranged from 0 to 1, and a higher value indicates that the forecasting data of utilization is more accurate.
Data displayed	• Capacity: Shows the current memory capacity. • Time To Full: HA enabled: Shows the period when the actual memory usage (the Utilization metric) exceeds the HA capacity metric. This metric is calculated based on the Growth Rate Per Week. HA disabled: Shows the period when the actual memory usage (the Utilization metric) exceeds the total memory capacity (the Capacity metric). This metric is calculated based on the Growth Rate Per Week. • P-value: Indicates the dependency between the utilization and history time. This value is ranged from 0 to 1, and a lower value indicates that the utilization has a more significant dependency with the history time.

Projected Storage Usage view

This embedded view is part of the Resource Utilization > Clusters view. To display this view, click the Clusters tab in the Resource Utilization view, and select a cluster from the Cluster Name table.

Table 3. Projected Storage Usage view

Description	This view displays storage utilization metrics on the selected cluster. **NOTE:** Unless otherwise indicated, the units of measurement for the following metrics are automatically converted for better plotting.
Data displayed	• **Utilization:** This chart shows the actual storage usage. • **Capacity:** This chart shows **the total** storage **capacity.** • Consume: Shows the current Storage usage. • Growth Rate Per Week: Shows the growth rate of storage capacity per week. • R-squared: Indicates the accuracy of the forecasting data. This value is ranged from 0 to 1, and a higher value indicates that the forecasting data of utilization is more accurate. • Capacity: Shows the current Storage capacity. • Time To Full: Shows the period when the actual storage usage (the Utilization metric) exceeds the total storage capacity (the Capacity metric). This metric is calculated based on the Growth Rate Per Week. • P-value: Indicates the dependency between the utilization and history time. This value is ranged from 0 to 1, and a lower value indicates that the utilization has a more significant dependency with the history time.

Projected Storage IOPs Usage view

This embedded view is part of the Resource Utilization > Clusters view. To display this view, click the Clusters tab in the Resource Utilization view, and select a cluster from the Cluster Name table.

Table 4. Projected Storage IOPS Usage view

Description	This view displays storage IOPS) utilization metrics on the selected cluster.
Data displayed	• **iops:** This chart shows the actual storage IOPs in the unit of connections per second (c/s). • Usage Changes: storage • Consumed: Shows the current storage IOPs (in c/s). • Growth Rate Per Week: Shows the growth rate of storage IOPs usage per week. • R-squared: Indicates the accuracy of the forecasting data. This value is ranged from 0 to 1, and a higher value indicates that the forecasting data of utilization is more accurate. • Capacity: This metric is not collected for the Projected Storage IOPs Usage view. • Time To Full: This metric is not collected for the Projected Storage IOPs Usage view. • P-value: Indicates the dependency between the utilization and history time. This value is ranged from 0 to 1, and a lower value indicates that the utilization has a more significant dependency with the history time.

Migration Modeler Tab

The Migration Modeler view uses historical data to simulate what would have happened if a specific Virtual Machine was running on a specific Host during that time period. This can be useful to predict what impact the virtual machine would have on the Host if it were moved to it. It includes the following elements:

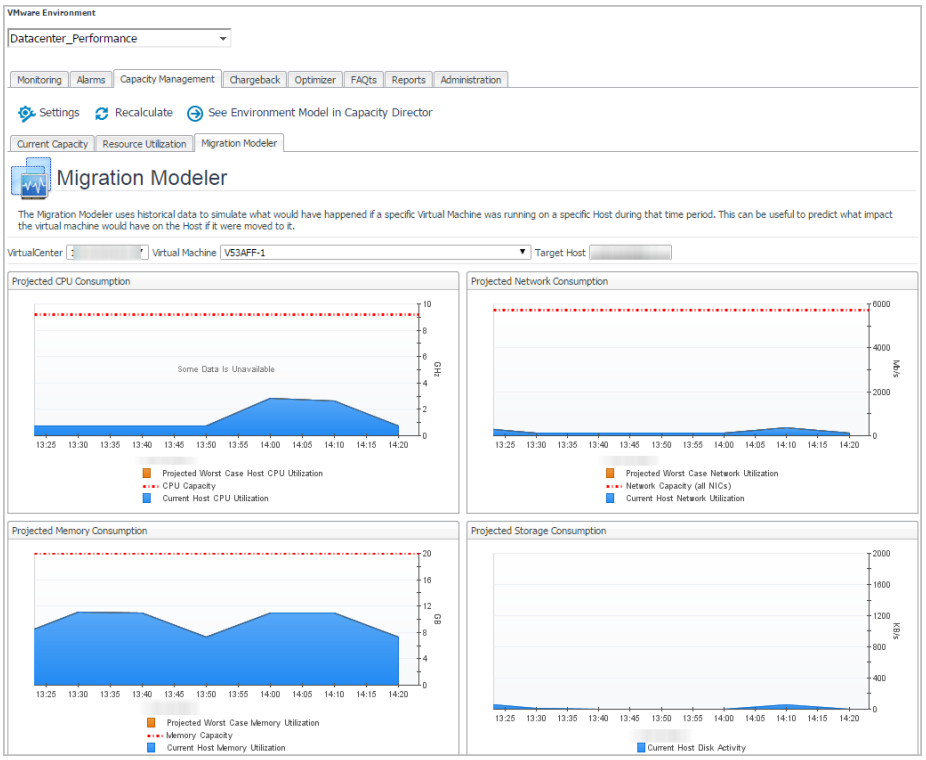
- VirtualCenter: Lists available VirtualCenters in the selected virtual center or datacenter.
- Virtual Machine: Lists available virtual machines in the selected VirtualCenter.
- Target Host: Lists available target hosts in the selected virtual center or datacenter.
- *Resource utilization related views*: *Projected CPU Consumption view, Projected Network Consumption view, Projected Memory Consumption view, and Projected Storage Consumption view*. These views are automatically refreshed after selecting a VirtualCenter or a virtual machine.

To access the Migration Modeler view:

1. On the navigation panel, under Dashboards, click *VMware* > *VMware Environment* or *Hyper-V* > *Hyper-V Environment*.

   The *VMware Environment* or *Hyper-V Environment* dashboard opens.
2. Use the Group selector located at the top of the dashboard to select the virtual environment that you want to monitor.
3. Click the **Migration Modeler** tab.

   The *Migration Modeler* view appears at the bottom of the *VMware Environment* or the *Hyper-V Environment* dashboard.



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Our logo reflects our story: innovation, community and support. An important part of this story begins with the letter Q. It is a perfect circle, representing our commitment to technological precision and strength. The space in the Q itself symbolizes our need to add the missing piece—you—to the community, to the new Quest.

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Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at https://support.quest.com.

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- View how-to-videos.
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- View services to assist you with your product.