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1. Getting Started

1.1 About This Guide

The purpose of this document is to support a self-guided, hands-on evaluation of VMware® vCenter™ Operations Manager™ 5.0 (vCenter Operations Manager 5), one component of the VMware® vCenter™ Operations Management Suite. This document focuses on getting the product deployed into an evaluation environment and providing IT professionals with the necessary information to monitor and manage their virtual datacenter evaluation environment using VMware vCenter Operations Manager 5.

The content includes a product overview, deployment and configuration steps recommended for evaluation environments, and sample overview use cases to demonstrate the integrated capabilities of advanced time-series analytics, dynamic thresholds and capacity analytics of vCenter Operations Manager 5.

1.2 Help and Support During the Evaluation

This guide is not intended to be a substitute for product documentation. For detailed information regarding installation, configuration, administration and usage of VMware® products, refer to the online documentation. You can also consult the online VMware knowledge base if you have any additional questions. If you require further assistance, contact a VMware sales representative or channel partner.

The following are some links to online resources, documentation and self-help tools:

**VMware vSphere® and VMware vCenter resources:**
- Product overview
- Product documentation
- White papers and technical papers

**VMware vCenter Operations Manager 5 key resources:**
- Product overview
- Product documentation
- VMware vCenter Operations Manager Advanced Product Getting Started Guide
- VMware vCenter Operations Manager community
- VMware support knowledge base
  [http://kb.vmware.com](http://kb.vmware.com)
2. What Is VMware vCenter Operations Manager 5?

VMware vCenter Operations Manager 5 builds on the revolutionary VMware approach to converging real-time performance, capacity and configuration management of your IT infrastructure. With VMware vCenter Operations Manager 5, virtual infrastructure administrators and enterprise operations center teams are able to identify, diagnose and repair poor operation and high-risk situations as well as identify opportunities to improve infrastructure efficiency problems.

vCenter Operations Manager 5 is designed for vSphere and cloud environments to drive operating efficiencies through:

• Smart Alerts, which inform you when to pay attention to emerging problems and what to pay attention to in order to avoid major performance problems
• Intelligent operations management automation to maximize efficiency and agility
• Proactive performance management across the virtual and physical IT infrastructure
• On-demand analytics for long-term system capacity planning and optimization
• Comprehensive visibility across the IT infrastructure

vCenter Operations Manager 5 delivers these benefits via its robust architectural platform; exceptional data aggregation capabilities; sophisticated, learning-based analytics; and elegant, easy-to-use Web-based interface. The platform enables high scalability for inclusion of diverse time-series data and dispersed environments. With tight integration with vSphere and the ability to leverage existing classic monitoring tool platforms, vCenter Operations Manager 5 reveals insightful information through patented algorithms. These algorithms analyze performance data to discover data trends and are agnostic of the source. By combining these attributes, vCenter Operations Manager 5 creates the capability to correlate performance data to conduct holistic analysis of your environment for real-time performance, risk and capacity management.

For more detailed discussion on the underlying technology in vCenter Operations Manager 5, refer to the VMware vCenter Operations Enterprise: Automated Operations Management for Your Enterprise technical white paper, available in the “vCenter Operations Management Suite” section of the VMware website.

Deployment Architecture Overview

VMware vCenter Operations Manager 5 is shipped as a VMware vSphere® vApp™, or virtual application—a preconfigured set of two virtual machines, complete with operating systems and application software, bundled in a ready-to-use configuration—to be deployed by VMware® vCenter™ into a vSphere environment. The vApp includes the following virtual machines working in unison:

• The analytics virtual machine is responsible for collecting the data from your vCenter Server, VMware® vCenter Configuration Manager™ (if available) and third-party data sources (metrics, topology and change events) and storing them in its scalable file system database (FSDB). The analytics engines for capacity and performance periodically process this raw data and store the results in their respective Postgres/FSDB databases.

• The UI virtual machine provides the user interfaces by which users can access the results of the analytics presented as dashboards composed of badges and scores. The UI access paths for users include via a vSphere plug-in and, with the Enterprise edition, a customizable Web UI. Administrators access vCenter Operations Manager 5 through a Web UI dedicated to administrative functions.
The figure below illustrates the components within the vApp packaging of vCenter Operations Manager 5.

**What to Expect After Deploying**

Without additional configuration beyond the scope of this evaluation guide, vCenter Operations Manager 5 begins collecting performance data shortly after installation, using standard vSphere APIs. Data collection continues unless you stop vCenter Operations Manager 5. VMware vCenter Operations Manager 5 collects performance and capacity data from each object at every level of your virtual infrastructure, from individual virtual machines and disk drives to entire clusters and datacenters. After storing and analyzing the data, vCenter Operations Manager 5 provides operators with real-time information on current problems, potential problems, and opportunities to optimize throughout the IT infrastructure.

**3. System Requirements for a Successful Evaluation**

The following information is intended to aid in the successful deployment of vCenter Operations Manager 5 into an evaluation environment.

**3.1 Evaluation System Environment Guidelines**

The *vCenter Operations Manager 5 Deployment and Configuration Guide* provides a detailed discussion of system hardware and software requirements. This document provides recommended guidelines for typical evaluation environments. For development, test or production environments, refer to system requirements in the *vCenter Operations Manager 5 Development and Configuration Guide*, chapter 2, “System Requirements,” or contact your VMware representative for guidance.
To deploy vCenter Operations Manager 5, you will need a vCenter-managed vSphere environment. As previously mentioned, vCenter Operations Manager 5 is packaged as a vApp to be deployed through and associated with a vCenter Server system.

The vCenter Operations Manager 5 vApp package requires the following minimum vSphere environment levels:

- **vCenter Server requirements for vCenter Operations Manager 5 vApp**
  The vCenter Operations Manager 5 vApp requires vCenter Server systems of 4.0 U2 or later. Refer to the *vCenter Operations Manager 5 Deployment and Configuration Guide* for full details.

- **Resource requirements for vCenter Operations 5 Manager vApp**
  Aggregate computing resources for the two virtual machines that compose the vCenter Operations Manager 5 vApp in an evaluation in an environment with fewer than 1,500 virtual machines is four (4) vCPUs of 2.4GHz or faster, 16GB vRAM of memory and 1,000 IOPS of disk I/O. If you are considering evaluating the product in an environment that exceeds 1,500 virtual machines, consult the *vCenter Operations Manager 5 Deployment and Configuration Guide* for vApp vCPU or vRAM memory sizing requirements.

- **Sizing requirements**
  The vCenter Operations Manager 5 vApp requires a range of virtual disk space for the UI and analytics virtual machines. For a typical evaluation environment and period, the following recommendations are appropriate in most cases:
  - 128GB of disk space should be sufficient for the UI virtual machine.
  - 208GB of disk space should be allocated to the analytics virtual machine.

  If you are considering evaluating the product in an environment that exceeds 1,500 virtual machines, consult the *vCenter Operations Manager 5 Deployment and Configuration Guide* for vApp disk space sizing requirements.

- **Supported browsers for client access**
  The VMware vCenter Operations Manager 5 administrator portal supports the following browsers:
  - Internet Explorer 7 and 8
  - Mozilla Firefox 3, 4 and 5

  Refer to the VMware vCenter Operations Manager 5 product page for the latest compatibility matrices.

VMware offers a free 60-day evaluation for VMware vCenter Operations Manager 5. Follow the instructions at the *VMware vCenter Operations Management Suite Product Evaluation Center* to download the necessary licenses and the following binaries:

<table>
<thead>
<tr>
<th><strong>BINARY</strong></th>
<th><strong>USAGE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>VMware vCenter Operations Manager 5 (VMware-vcops-5.x.x.x-vapp.ova file)</td>
<td>Download the vApp OVA for VMware vCenter Operations Manager 5 to a temporary folder. Before pointing to this file for deployment, consult the <em>vCenter Operations Manager 5 Deployment and Configuration Guide</em>.</td>
</tr>
</tbody>
</table>
3.2 Sample Installation Walk-through

The following series of steps is a validated example to support your evaluation deployment of VMware vCenter Operations Manager 5. The walk-through is provided as an evaluation-specific supplement to the general installation instructions described in the vCenter Operations Manager 5 Deployment and Configuration Guide, chapter 3, “Installing vCenter Operations Manager,” available for download from VMware.com.

Step 1: Deploying the vApp

1. Launch VMware vSphere® Client™ and log in.

2. Add an IP pool for vCenter Operations Manager 5 vApp.

**NOTE:**

- The IP pool facilitates the future use of static IP addresses during the vApp deployment process. A DHCP deployment can work without an IP pool, but it generates warnings in the vSphere Client interface.
- **Enabling the IP pool is optional and not selected in this scenario.**
- We are not configuring a real pool of IP addresses here; we need only the subnet and gateway associated with the static IP address to be used.
- DNS and proxy settings (optional)
- The IP pool must be configured at the *datacenter* level in vCenter.
2.1. Click datacenter.

2.2. Click Add... to add an IP pool.

2.3. Enter the appropriate information to configure the IP pool. Do not enable the IP pool.

2.4. Enter the appropriate DNS information for the IP pool.

2.5. Associate the IP pool with the appropriate network.
2.6. Click **OK** and verify your IP pool details.

3. **Deploy the vCenter Operations Manager 5 vApp.**

**NOTE:**
- Deploy only from vCenter Server. Do not deploy vCenter Operations Manager 5 from a VMware® ESX® host.

3.1. Select **File→Deploy OVF Template..** from the menu.

3.2. Navigate to and select the following vCenter Operations Manager 5 vApp OVA file:

VMware-vcops-5.0.0.0-xxxxxx-vapp.ova
3.3. Choose the datacenter (e.g., vC Ops Bootcamp DC) as the location to deploy the vApp.

3.4. Choose the Small configuration for the first evaluation deployment. The configuration screen will show the sizing limit guidelines. If the sizing guidelines for a Small deployment are insufficient, refer to the vCenter Operations Manager 5 Deployment and Configuration Guide for further details to ensure the availability of appropriate resources.

3.5. Choose the cluster (e.g., BootcampCluster) for deployment.
3.6. Select the datastore and choose **Thick Provisioning**.

**NOTE:**
- Other storage provisioning options are for special circumstances and are not recommended for simple evaluation deployments.

3.7. Choose the **VM Network** for vApp connectivity.

3.8. Choose **Fixed** for the IP allocation.

**NOTE:**
- **Fixed** is the preferred and recommended option. **DHCP** addressing for the vApp is also an option.
- **Transient** is **not** recommended for evaluation environments.
- **Fixed** requires the IP pool creations completed previously in step 2.
3.9. Set the **Timezone** and **IP Addresses**.

3.9.1. Choosing the incorrect **Timezone** can cause data troubles later. The vApp synchronizes time with the ESX host time. Choose the **Timezone** corresponding to the vCenter Server system.

3.9.2. Assuming the selected **Fixed** setting, choose a **UI VM IP Address** in the associated IP pool defined in step 2 (e.g., 192.168.110.240).

3.9.3. Assuming the selected **Fixed** setting, choose an **Analytics VM IP Address** in the associated IP pool defined in step 2 (e.g., 192.168.110.241).

3.10. Verify the vApp settings.

3.10.1. If something is not correct, click **Back** and fix the setting.

3.10.2. Check **Power on after deployment**. **Do not power on or off the individual machines.**

3.10.3. Click **Finish** to start the deployment.

**NOTE:**

- This process can take up to 15 minutes, but it normally takes much less in a typical environment.
3.11. Verify that the vApp deployment has completed successfully.

![Deployment Completed Successfully](image)

4. Configure vCenter Operations Manager 5 via the admin UI through the startup wizard.

4.1. Wait for both the UI and analytics virtual machines to power on.

**NOTE:**

- This can take several minutes to complete.

![Recent Tasks](image)

4.2. Select **UI VM** and click the **State: Available** link on the **Summary** tab.

This will launch IE to the UI VM IP (e.g., 192.168.110.240).

![UI VM](image)

4.3. Log in to the system as **admin/admin**.

**NOTE:**

- The start-up first-boot wizard will launch automatically.

4.4. Change the admin and root passwords.

4.4.1. Set the passwords for both.
4.5. Configure vCenter Operations Manager 5 to connect and register to vCenter.

4.5.1. Display name (e.g., vC Ops Bootcamp vCenter)

4.5.2. vCenter FQDN (e.g., vc-w8-01a.corp.local)

4.5.3. Registration user and password.

**NOTE:**

- The first username must be of an administrative user.
- The “collection” username can be of the same administrative user or of a different (read-only) user that you can use to limit the collection of data to a subset of virtual machines.

4.6. Click **Yes** to verify the vCenter Server certificate.

4.7. Verify that vCenter Server registered successfully.

**NOTE:**

- The registration process can take several minutes.
5. License vCenter Operations Manager 5.
   
   5.1. Apply the vCenter Operations Manager 5 license key downloaded from the VMware vCenter Operations Management Suite Product Evaluation Center.
   
   5.2. In vCenter Server, switch to Home→Administration→Licensing.
   
   5.2.1. Click the Asset radio button.
   
   5.2.2. Add the license key to the newly added and unlicensed vCenter Operations Manager 5.

6. Launch vCenter Operations Manager 5 and log in.

   6.1. Launch the vSphere UI and log in using the login and password set earlier in the deployment.
   
   6.2. Verify that data is being collected—vCenter Operations Manager 5 starts collecting data immediately. As analyzed data becomes available, more information is displayed in vCenter Operations Manager 5. This process might take a few minutes. The availability of some metrics depends on the vCenter Server and ESX host versions.
7. Optional post-deployment configuration items. (Refer to the VMware vCenter Operations Manager 5 Deployment and Configuration Guide for additional details.)

7.1. Verify the vCenter Operations Manager 5 installation from the vSphere Client.
7.2. Verify the vCenter Operations Manager 5 installation from a browser.
7.3. Configure SMTP and SNMP settings.
7.4. Install the custom SSL certificate.
7.5. Grant additional access.

4. Sample Analysis Scenario Walk-throughs

4.1 Overview

This section provides sample walk-throughs of vCenter Operations Manager 5 functionality for scenarios that exist or are easily replicated in your evaluation environment. To facilitate your evaluation, these examples illustrate how to investigate performance, capacity or change concerns related to similar objects in your environment.

The following sample investigations are described in this guide:

- Begin by looking at the entire World from a vCenter Operations Manager 5 perspective. Understand the general state and begin to identify problems.
- Locate and investigate an object with a low-performance health score to determine what is causing the problem. Identify the next steps for remediation.
- Investigate an object with capacity risk to understand why it is at risk and how soon action is required. Provide a sample workflow to identify options to remediate the risk.
- Investigate an object identified as unhealthy due to fault alerts originating from a vCenter Server.

These sample cases combine several of the discrete workflows described in the vCenter Operations Manager 5 Advanced Getting Started Guide to investigate these real-world illustration scenarios. For more details on the discrete workflows, refer to the guide.
This document will help you see how vCenter Operation Manager 5 enables you to understand your environment in new, integrated ways and will help you address current and future problems through a new lens.

After completing this evaluation, you should be able to quickly assess the health of your environment and identify problems, risks and opportunities to manage your infrastructure through an integrated, coherent management approach based on using vCenter Operations Manager 5 as your consolidated view. From that introduction, you will be ready to explore the rich capabilities of vCenter Operations Manager 5 in helping you make other assessments of the health of your environment, identify impacts to future risk and take advantage of opportunities to improve the efficiency of your environment.

After logging in, you will be presented with a Dashboard view of your entire environment in context of the vCenter Operations Manager 5 World. The vCenter Operations Manager World context calculates the Health, Risk and Efficiency badges based on data analysis of all objects known to vCenter Operations Manager 5. When you choose a different context, such as a datacenter or cluster object, the dashboard will show the health, risk and efficiency as calculated for that particular context object.

As a reminder, the major badges are defined as the following:

- **Health** describes the current operation of the environment and any problems that must be addressed immediately. It is composed of workload, anomalies and faults. **Workload** is a measure of how hard the virtual machine is working relative to the resources it requires and what it is entitled to using. **Anomalies** is an expression of the number of metrics trending above or below normal, which is a leading indicator of upcoming performance problems. **Faults** is the number of “hard” thresholds that have been crossed when there is an availability issue or a hardware failure has occurred.

- **Risk** describes the potential for future problems. It is a combination of scores for time and capacity remaining before resources are exhausted. It also includes a new metric for stress, which shows patterns of chronic strain. For example, during certain times of the week, there is more demand for resources in one cluster while other clusters are at or below capacity. You can use this information to optimize virtual machine placement or to allocate resources in advance.

- **Efficiency** describes optimal utilization of resources in your environment. It includes scores of reclaimable waste, such as idle, over- and underprovisioned virtual machines, and virtual machine density. Virtual machine density shows current consolidation ratio versus maximum possible ratio without performance degradation. The following screenshot shows a generally healthy environment in the vCenter Operations Manager 5 World context. Your environment will have different measures of Health, Risk and Efficiency, but you should be able to follow along with similar steps.
In our sample environment, the major badge scores of Health - 89, Risk - 28 and Efficiency - 39 indicate a generally healthy but inefficient environment. For evaluation or lab environments, this is not unusual and yours might have similar scores.

Let’s locate an object within the World that receives a poor Health score. Looking at the Health badge and its associated weather map, we can get a sense of how our World is faring. The weather map shows the current state of all objects within the selected context.

In the Health screenshot, we see many objects in either healthy (green) or off (gray) states. The following objects are displayed:

- Red represents object failure, or imminent failure, and need for immediate action.
- Orange represents serious problems that require action as soon as possible.
- Yellow represents issues that require investigation.

The bottom row displays the time period being viewed. The default view is now. By clicking -1, -2, -3, and so on, you can view the changes to the weather map over hourly periods. For example, -1 represents the weather map one hour previous to the now state, -2 is two hours prior, and so on.

While maintaining the World context, we can move from the Dashboard tab to the Operations tab. vCenter Operations Manager 5 now shows us how the Health badge breaks down by tier.
In this example, you see our environment has two vCenter Server systems. By selecting one of the vCenter Server systems, we change the context focus onto all clusters, hosts, virtual machines and datastores associated with the selected vCenter Server. These are highlighted in the following screenshot:

On the pop-up on the screen, you see a summary breakdown of this vCenter Server system’s Health components. The cause for the unhealthy rating is the Faults component value of 100.
4.2 Looking at Impacts from Fault Events

The currently selected vCenter Server system has severe fault events associated with it. In this section, we will examine those faults before moving to other problems.

Double-click the icon for the unhealthy vCenter Server system object or click the Details sub-tab. vCenter Operations Manager 5 will display a variety of detailed operating analyses of the object. The first page follows:

The Workload and Anomalies minor badges are healthy: green scores of 16 and 3, respectively. There are three (3) faults associated with this object. At least one of them is a critical event: a score of 100. Before investigating the faults, we scroll to the bottom portion of the screen. The lower screen area tells us the state of the parent, peer and child objects. In this example, all of these objects are generally healthy and not impacted by the unhealthy state of our current object.

Knowing that no other objects are impacted, we investigate the faults by clicking the Fault icon on the upper-left portion of the window. vCenter Operations Manager 5 will change its focus and display the fault event information on the right side, as shown in the following screenshot.
The events are listed along with their relevant data such as criticality, source, time, and so on. Appropriate steps can be taken based on the information contained in the fault event details.

4.3 Performance-Impaired Object Analysis

Having investigated the faults causing the poor health of the vCenter Server system, we return to the operations environment view to investigate health degradation done to a virtual machine by workload or abnormality causes. In this example, we will start from the following view:

In this screenshot, we see an impaired virtual machine with the following characteristics:

- **Health** score of 14 out of 100 (very sick)
- **Workload** score of 103 out of 100 (very overworked)
• **Anomalies** score of 75 out of 100 (unusual occurrences)
• **Faults** score of 0 out of 100 (no known issues from vCenter Server)
• Healthy parents (except for the vCenter Server system that we investigated previously)
• Healthy datastore

Double-clicking the selected object as we did in the previous section, we are taken to the *Operations Details* view for this unhealthy virtual machine. This time we see a very different picture in the top portion of the screen.

We see this virtual machine’s health broken down into the metrics that compose Health: the virtual machine workload is very high and is CPU bound; its performance is currently “abnormal,” or outside of standard operation, and is registering zero faults from vCenter Server. Zero faults suggest a change in performance demand. Is this high workload expected? Is it an anomaly? Is it being caused by any peers or other dependencies?

By looking quickly at the bottom portion of the screen, we see that the virtual machine’s parent is in good health and that the peer virtual machines are generally healthy as well.

Selecting the abnormalities badge in the upper-right portion of the screen, we see that the high anomalies score is caused by the high CPU workload.
To investigate further, click the **Workload** badge in the upper-right portion of the screen. This displays a breakdown of the workload metric. As you can see in the following screenshot, several analytical components are broken out for **CPU**, **Memory**, **Disk I/O** and **Network I/O**. CPU demand and usage for this host are above the configured levels.

The virtual machine in your environment will likely have different specifics. For instance, it might be memory or disk I/O bound rather than CPU. If you have questions about what you are seeing in your environment, refer to the **vCenter Operations Manager 5 Getting Started Guide**.

In this sample environment, at this point we know that workload is high (bounded by the CPU) and that this situation is abnormal, based on past data. Another source of useful information is the **Events** sub-tab. Does **vCenter Operations Manager 5** detect any events that might have affected this virtual machine? Depending on your environment and whether a VMware or other configuration change event stream is feeding vCenter Operations Manager 5, the console might provide insight into a possible event that is causing the current degraded health state. After selecting the **Events** sub-tab, while keeping focus on the same virtual machine, we see a dramatic jump in the **Workload** metric, as shown in the following screenshot.
It appears that a number of events occurred right before the high CPU workload was registered. The workload has remained high since those events.

Normal operating procedures dictate investigation into each of the events to determine whether this abnormal workload is to be corrected (bad configuration change) or whether this performance is the “new normal” and requires a virtual machine resource configuration adjustment to account for the workload increase.

Another interesting observation can be made across the seven-day timescale in the Event graph in the preceding screenshot. There appears to be extraordinary performance. Before investigating all the events, can we see if this is a true anomaly or if this virtual machine is placed under this workload every week or every week at the same time? In short, is the current state a chronic issue?

Going back to the Dashboard tab, with this virtual machine as our context, the major badges under Health and Risk show us that vCenter Operations Manager 5 detects the current state to be more than an anomaly: the virtual machine has been at risk since the change in workload earlier in the week.

Expanding the Why is Risk 95? label shows the Stress minor badge over the past six weeks. This is a drastic virtual machine workload increase over the previous six-week averages. Prior to the changes, the six-week-average calendar is green. After the changes, the stress is very high, indicating substantial probability of virtual machine failure.
Having identified an extraordinary workload to be the cause of the performance degradation, remediation would involve proactively contacting the virtual machine owner to determine if this workload is transient or if the virtual machine must have additional CPU resources assigned.

In the next example, we will assume that the virtual machine owner has requested a change to the virtual machine’s resources. We will modify the virtual machine's resource configuration in consideration of the current infrastructure capacity and existing resource allocations.

4.4 Making Changes in the Context of Allocated Resources

Continuing with our previous example, we review the unhealthy virtual machine’s state by revisiting its Dashboard view.

We know we must change the resource allocations for this virtual machine. To make an informed decision on which resources to change, we navigate to the Planning tab with the context kept on the threatened virtual machine.
The environment sub-tab under Planning shows us the risk of the single virtual machine in the context of its infrastructure. The following screenshot shows us that the virtual machine is not the only object under risk. There is also risk to the Host and Cluster that are home to the unhealthy virtual machine.

Quickly selecting the Cluster at risk and looking at its Dashboard view, we see the following:

28 days of capacity remain before all CPUs in the cluster are consumed! The following are screenshots for the minor badges that compose Risk for the cluster in the Planning and Environment tab and sub-tab, respectively. From left to right, the badges are Time Remaining, Capacity and Stress.
As seen in the preceding dashboard and leftmost screenshot, Time Remaining analysis is the source of risk for the cluster. Which resource constraint is it? The dashboard gives us a quick visual cue: CPU bound. By navigating to the Planning Summary sub-tab, we gain deeper insight into the constraints. As shown in the following screenshot, Host CPUs are the limiting constraint. This cluster has 28 days before the present vCPU allocations consume all host CPU capacity in the cluster.

A graphical chart can also be selected, as shown in the following:
To understand how the risk is allocated across the cluster, we can look at a virtual machine capacity versus workload versus host/cluster heat map as shown in the following:

The high workloads putting the cluster at risk seem to be balanced across the hosts in the cluster. Distributing virtual machines might have already been done, but little can be accomplished by further distribution within this cluster. The Efficiency of the cluster in an earlier screenshot was shown to be 19 out of 100.

Let’s see if the high levels of waste are putting any of the cluster’s virtual machines at risk. In the Planning Views sub-tab, the Oversized Virtual Machines view shows vCenter Operations Manager 5 recommendations to rightsize some of the virtual machines in the cluster.

By right sizing the virtual machines, we can extend our time remaining while we contact the various system administrators to identify a more comprehensive plan for addressing this capacity constraint.
5.0 Next Steps

In this guide, we have presented the key evaluation concepts for VMware vCenter Operations Manager 5. As mentioned earlier, for a more detailed walk-through of specific workflows, refer to the *VMware vCenter Operations Manager Enterprise Getting Started Guide*.

5.1 VMware Contact Information

For additional information or to purchase VMware vCenter Operations Manager 5, the global network of VMware solutions providers is ready to assist. If you would like to contact VMware directly, you can reach a sales representative at 1-877-4VMWARE (650-475-5000 outside North America) or email sales@vmware.com. When emailing, include the state, country and company name from which you are inquiring.

5.2 Providing Feedback

VMware appreciates your feedback on the material included in this guide—in particular, any guidance on the following topics:

- How useful was the information in this guide?
- Which other specific topics would you like to see covered?
- Overall, how would you rate this guide?

Send your feedback to the following address: tmdocfeedback@vmware.com, with “VMware vCenter Operations Manager 5.0 Evaluation Guide” in the subject line. Thank you for your help in making this guide a valuable resource.