

# Use Cases

## VMware vCenter Chargeback 1.0

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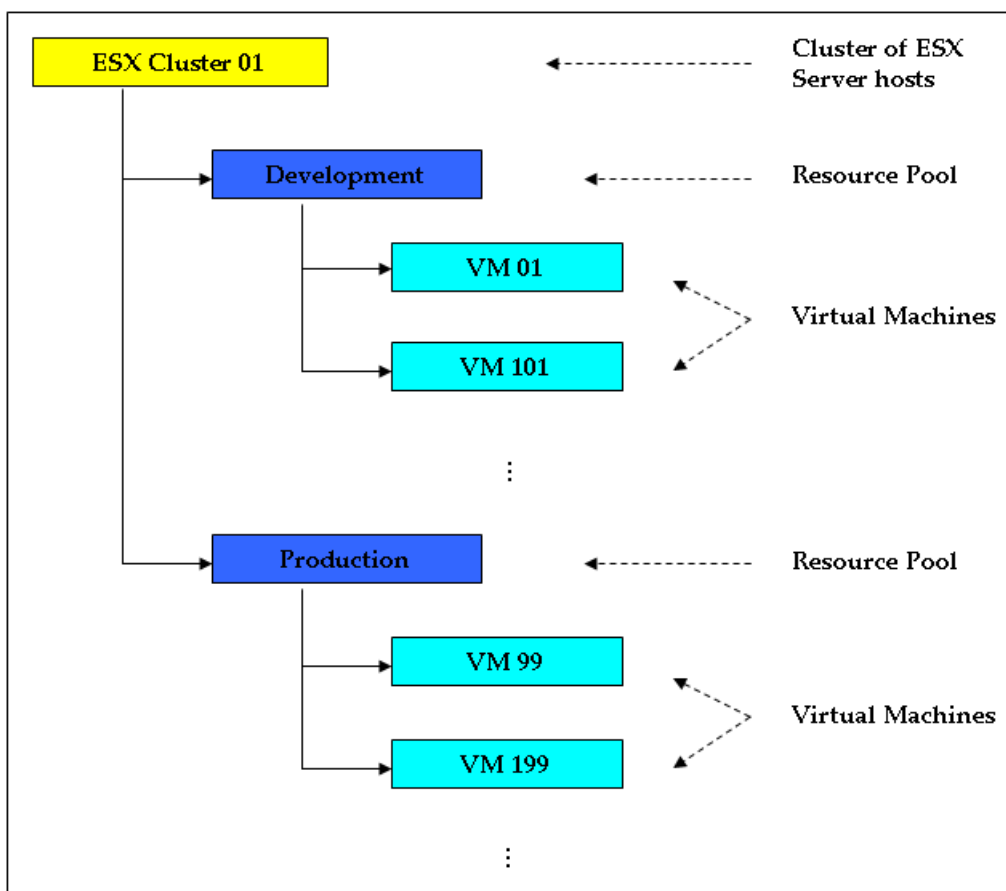
This document provides use cases that cover a few scenarios for using vCenter Chargeback. This document along with the *vCenter Chargeback User's Guide* enables you to understand and use the various functionalities of vCenter Chargeback.

The use cases in this document are based on the following setup:

- **Organization Name:** Company ABC
- **Number ESX Server hosts:** 8
- **Total number of virtual machines:** 400
- **Number of vCenter Server instances:** 1
- **CPU and memory configuration of each ESX Server host:** Four processors of 4GHz and 128GB RAM
- **Storage:** Tier 2 Storage of 2048GB

All the use cases covered in this document assume the following:

- vCenter Chargeback is installed and running.
- A data collector is configured to replicate the information from the vCenter Server database to the vCenter Chargeback database.
- The LDAP and SMTP servers are configured.
- The report template is configured.
- The vCenter Server is added to vCenter Chargeback and stats replication is enabled.
- Company ABC is currently managing the eight ESX Server hosts and the 400 virtual machines through the vCenter Server instance. The company has created two resource pools, Development and Production. The virtual machines are directly added to these resource pools. Consider the vCenter Server hierarchy to be similar to the partial hierarchy depicted in [Figure 1](#).

**Figure 1.** Block Diagram of the Partial vCenter Server Hierarchy for Company ABC

This document provides the following use cases:

- “Case 1: Charge Based on Actual Usage of Resources and Fixed Cost for Licenses” on page 2
- “Case 2: Compare Costs” on page 4
- “Case 3: Consider Reservation While Calculating Costs” on page 5
- “Case 4: Consider Entity-Specific Costs” on page 5
- “Case 5: Create a Geography-Wise Hierarchy” on page 6

Most of the use cases in this document also assume that some or all of the tasks specified in the earlier use cases have been performed. The base rates and fixed costs defined in the use cases are calculated using the `vCenter_Chargeback-Cost_Calculator.xls` file. This file can be downloaded from the vCenter Chargeback Documentation page ([http://www.vmware.com/support/pubs/vcbm\\_pubs.html](http://www.vmware.com/support/pubs/vcbm_pubs.html)).

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**NOTE** In this document, the references to sections and chapters provided are the ones that can be found in the *vCenter Chargeback User's Guide*.

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## Case 1: Charge Based on Actual Usage of Resources and Fixed Cost for Licenses

Company ABC is currently charging a fixed cost for all the virtual machines, which includes the cost for the product licenses and the cost for the usage of the virtual machines and other resources. The vCenter Server has a single cluster with two resource pools, Development and Production. The ESX Server hosts and virtual machines are divided between these two resource pools. The company now wants to charge the virtual machines based on the actual resource usage, and also charge a nominal fixed cost per virtual machine for the software licenses and storage and network connectivity.

To calculate the cost and generate a report for all the virtual machines as per the new billing requirement, the company must perform the following tasks:

- 1 Create a chargeback hierarchy and synchronize it with the vCenter Server hierarchy.

This task can be completed by following the instructions provided in the *Synchronize a Chargeback Hierarchy with a vCenter Server* section of the *Managing Chargeback Hierarchies* chapter.

- 2 Define the fixed costs in vCenter Chargeback.

This task can be completed by following the instructions provided in the *Create a Global Fixed Cost* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume that the company creates the global fixed costs listed in [Table 1](#).

**Table 1.** Global Fixed Costs per Virtual Machine

Name	Value (in \$)	Description	Duration
VMware Product Licenses	7.1	Includes licenses for ESX Server and vCenter Server	Monthly
Microsoft License	3.35	Operating System Licenses	Monthly
Database Cost	1.05	Database managements system license	Monthly
Storage Connectivity	0.25	Fixed cost for the storage connectivity	Monthly
Network Connectivity	0.15	Fixed cost for network connectivity	Monthly

- 3 Create a cost template and add the global fixed costs defined in [Step 2](#) to this cost template.

This task can be completed by following the instructions provided in the *Create a Cost Template* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume the company sets the rate factor for CPU, Memory Usage, and Storage to 1.

- 4 Update the Default Chargeback Cost Model.

This task can be completed by following the instructions provided in the *Modify a Cost Model* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume the company sets the following options when editing the cost model:

- On the **Billing Policy** tab, the **Update from now onwards** option is selected and the billing policy is set to **Fixed Cost and Actual Usage**.
- On the **Base Rates** tab, the **Update from now onwards** option is selected and the base rates are set.
 

For this use case, let us assume the company sets the base rates as follows:

  - **CPU:** \$0.0042 (per GHz-Hour)
  - **Memory Usage:** \$0.035 (per GB-Hour)
  - **Storage:** \$0.0013 (per GB-Hour)

For the remaining computing resources, the base rates are set to 0.

- 5 Configure the costs on the entities in the hierarchy.

This task can be completed by following the instructions provided in the *Edit Cost Configuration of an Entity* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume that the company performs the following entity-specific cost configuration on the two resource pools, Development and Production, from the Edit Cost Configuration page:

- The Default Chargeback Cost Model is selected and the **Update from now onwards** option is selected.
- The cost template created in [Step 3](#) is selected.
- The **Update Rate Factors** option is deselected.

- The **Update Fixed Costs** option is selected and all the fixed costs defined in the cost template are added.
  - The checkbox in the Distribute column is selected for all the fixed costs.
- 6 Create and schedule the report.

This task can be completed by following the instructions provided in the *Generate a Cost Report* and *Schedule Report Generation* sections of the *Generating Reports* chapter. If the scheduled report has to be sent through an email to one or more persons, follow the instructions provided in the *Email a Scheduled Report* section of the *Generating Reports* chapter.

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**NOTE** If you generate a report immediately after performing the tasks listed in the use case, the report might not display the costs. You must wait for at least an hour after the cost configuration is done for the usage stats and the corresponding costs to appear in the cost report.

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## Case 2: Compare Costs

Company ABC now wants to compare the costs incurred by using the new billing system as defined in the earlier use case with the billing system where they charged a fixed cost for all the virtual machines. Assuming the tasks defined in the earlier use case are performed, to create a cost comparison report, the company must perform the following tasks:

- 1 Create a fixed cost in vCenter Chargeback.

This task can be completed by following the instructions provided in the *Create a Global Fixed Cost* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume that a global fixed cost called Cost per Virtual Machine is created with a value of \$100 and the duration is set to Monthly.

- 2 Create a cost model.

This task can be completed by following the instructions provided in the *Create a Cost Model* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume that the company sets the following options when creating the cost model:

- On the **Billing Policy** tab, the **Update from now onwards** option is selected and the billing policy is set to **Fixed Cost**.
- On the **Base Rates** tab, the **Update from now onwards** option is selected and the base rates is set to 0 for all the computing resources.

- 3 Configure the costs on the entities in the hierarchy.

This task can be completed by following the instructions provided in the *Edit Cost Configuration of an Entity* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume that the company performs the following entity-specific cost configuration on the two resource pools, Development and Production, from the Edit Cost Configuration page:

- The cost model created in [Step 2](#) is selected and the **Update from now onwards** option is selected.
- The **Update Rate Factors** option is deselected.
- The **Update Fixed Costs** option is selected and the Cost per Virtual Machine fixed cost is added.
- The checkbox in the Distribute column is selected for all the fixed costs.

- 4 Create and schedule a cost comparison report.

This task can be completed by following the instructions provided in the *Generate Cost Comparison Report* and *Schedule Report Generation* sections of the *Generating Reports* chapter. For this use case, select the cost models defined in the earlier use case and this use case to generate the cost comparison report. If the scheduled report has to be sent through an email to one or more email IDs, follow the instructions provided in the *Email a Scheduled Report* section of the *Generating Reports* chapter.

## Case 3: Consider Reservation While Calculating Costs

Company ABC wants to ensure that some of the virtual machines in both the resource pools have enough resources. They have, therefore, set reservations for CPU and memory on the required virtual machines. They want to consider the reservation for the virtual machines in the Production resource pool while calculating the costs.

Let us assume the chargeback hierarchy, the fixed costs, and cost template are created as defined in the first use case. To calculate the cost and generate a report for all the virtual machines as per this new billing requirement, the company must perform the following tasks:

- 1 Update the Default Charge Cost Model.

This task can be completed by following the instructions provided in the *Modify a Cost Model* section of the *Creating and Configuring a Cost Model* chapter. For this use case, when modifying the cost model, the **Update from now onwards** option is selected and the billing policy is set to **Fixed Cost and Maximum of Usage and Reservation** on the Billing Policy tab.

- 2 Create and schedule the reports for the two resource pools.

This task can be completed by following the instructions provided in the *Generate a Cost Report* and *Schedule Report Generation* sections of the *Generating Reports* chapter. If the scheduled report has to be sent through an email to one or more persons, follow the instructions provided in the *Email a Scheduled Report* section of the *Generating Reports* chapter.

## Case 4: Consider Entity-Specific Costs

Company ABC has bought a licensed software that they are running on some of the virtual machines in the Production resource pool. They want the cost for this software to be charged to the virtual machines on which the software is running. Also, for these virtual machines they want to charge 1.5 times the regular storage cost. Assuming tasks covered in Case 1 is already performed, to calculate the cost and generate a report for all the virtual machines as per this new billing requirement, the company must perform the following tasks:

- 1 Create a global fixed cost.

This task can be completed by following the instructions provided in the *Create a Global Fixed Cost* section of the *Creating and Configuring a Cost Model* chapter. For this use case, let us assume that the global fixed with the following details is created:

- **Name:** New Software License
- **Value:** \$1.05
- **Description:** License for the new software for the production machines.
- **Duration:** Monthly

- 2 Configure the entity-specific costs.

This task can be completed by following the instructions provided in the *Edit Cost Configuration of an Entity* section of the *Creating and Configuring a Cost Model* chapter.

For this use case, let us assume that the following entity-specific cost configuration is also done on each virtual machines in the Production resource pool that runs the new software:

- The cost model created in [Step 2](#) is selected and the **Update from now onwards** option is selected.
- The **Update Rate Factors** option is selected and the rate factor for **Storage** is set to 1.5.
- The **Update Fixed Costs** option is selected and the new global fixed cost created in [Step 1](#) is added.

- 3 Create and schedule the report.

This task can be completed by following the instructions provided in the *Generate a Cost Report* and *Schedule Report Generation* sections of the *Generating Reports* chapter. If the scheduled report has to be sent through an email to one or more persons, follow the instructions provided in the *Email a Scheduled Report* section of the *Generating Reports* chapter.

## Case 5: Create a Geography-Wise Hierarchy

Company ABC has acquired another company called Company XYZ and now has two vCenter Server machines, 15 ESX Server hosts, and around 800 virtual machines. The company now wants to create a chargeback hierarchy that organizes the virtual machines and ESX Servers hosts geography-wise. For each geographical location in the chargeback hierarchy, the development and production virtual machines must be grouped under two different folders. Also, all the ESX Server hosts and virtual machines that belong to Company XYZ must be tagged as a property of Company XYZ in the chargeback hierarchy.

To create a chargeback hierarchy as per this requirement, the company must perform the following tasks in vCenter Chargeback:

- 1 Create a custom chargeback hierarchy. If the tasks specified in the first use case have been performed, then this chargeback hierarchy must have a different name.

This task can be completed by following the instructions provided in the *Create a Custom Chargeback Hierarchy* section of the *Managing Chargeback Hierarchies* chapter.

- 2 Create a folder for each geographical location that has to be added to the chargeback hierarchy.

This task can be completed by following the instructions provided in the *Add a vCenter Chargeback Entity* section of the *Managing Chargeback Hierarchies* chapter.

- 3 Under each of these folders, create two folders, **Development** and **Production**.

This task can be completed by following the instructions provided in the *Add a vCenter Chargeback Entity* section of the *Managing Chargeback Hierarchies* chapter. These folders are different from the resource pools defined in the vCenter Server hierarchy.

- 4 Add the required virtual machines to the **Development** and **Production** folders under each geographical location folder.

This task can be completed by following the instructions provided in the *Add a vCenter Server Entity* section of the *Managing Chargeback Hierarchies* chapter. If an ESX Server host has some virtual machines used by the Development department and the rest by the Production department, then the virtual machines must be added individually to the respective folders in the chargeback hierarchy.

- 5 Create an attribute in vCenter Chargeback.

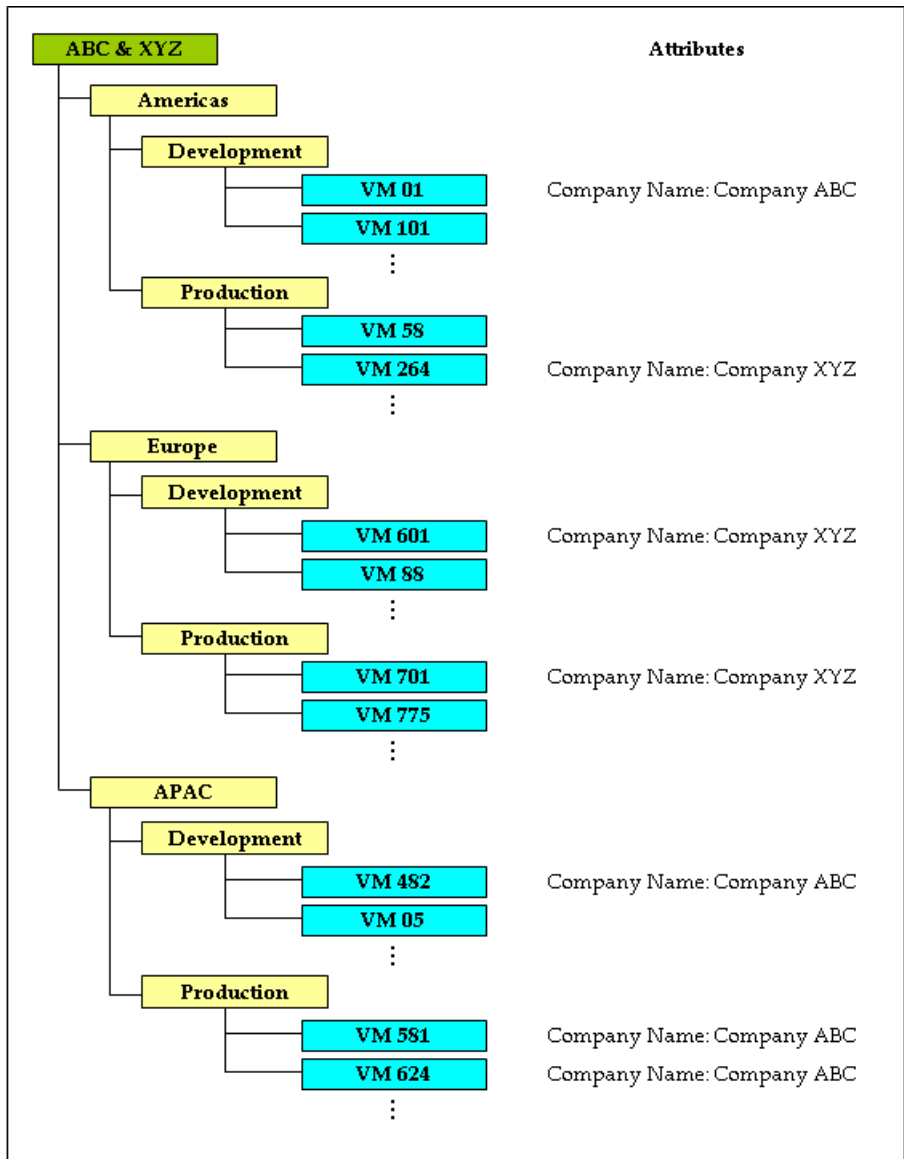
This task can be completed by following the instructions provided in the *Add Attribute* section of the *Configuring Administration Settings* chapter. For this use case, let us assume the attribute created has the name **Company Name**.

- 6 Assign the attribute **Company Name** to the virtual machines and define a value for the attribute.

This task can be completed by following the instructions provided in the *Assign Attributes* section of the *Managing Chargeback Hierarchies* chapter. For this use case, let us assume the attribute can take the values **Company ABC** and **Company XYZ**.

After completing these tasks, the chargeback hierarchy will be similar to the partial hierarchy depicted in [Figure 2](#)

**Figure 2.** Partial Block Diagram of the Chargeback Hierarchy



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