
VMware IT Business Management Standard Edition 1.1

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IT Business Management Standard Edition
User’s Guide

The VMware® IT Business Management Suite™ Standard Edition User’s Guide provides information about the IT Business Management Standard Edition user interface, explains key terms and concepts, and describes various tasks that you can perform to gain better visibility of your infrastructure.

Intended Audience

This information is intended for users or administrators IT Business Management Standard Edition by using the IT Business Management Standard Edition user interface.

VMware Technical Publications Glossary

VMware Technical Publications provides a glossary of terms that might be unfamiliar to you. For definitions of terms as they are used in VMware technical documentation, go to http://www.vmware.com/support/pubs.
VMware IT Business Management Standard Edition provides capabilities that allow users to gain greater visibility into financial aspects of their cloud infrastructure and let them optimize and improve these operations.

This chapter includes the following topics:
- “Challenges Faced by the Manager of Cloud Operations,” on page 7
- “The IT Business Management Standard Edition Dashboard,” on page 8

Challenges Faced by the Manager of Cloud Operations

The manager of cloud operations in an organization constantly faces the following challenges regarding cost visibility and optimization in the delivery of Infrastructure as a Service (IaaS).
- What is the total spending and what is it comprised of?
- What is the cost of delivering a unit of IaaS?
- Who consumes these services and at what cost?
- What are these services used for and what is the cost allocation for each?
- How is my cost efficiency compared to that of other public cloud infrastructures?
- What is the cost of potential alternatives to delivering IaaS?
- How do I use the information above to optimize the cost of my existing and future operations?
- How do I create an accurate showback report to show it to the stakeholders?

IT Business Management Standard Edition Goals

IT Business Management Standard Edition provides business management and cost transparency capabilities to your virtual infrastructure and public cloud.
- Determine pricing of vCloud Automation Center blueprints by using the current cost and utilization levels of virtual machines as a reference.
- Make decisions related to placement of workloads, either in the private or public clouds, based on the cost and the services that are available in your hybrid cloud environment.
- Provide showback cost of virtual machine and blueprints based on business unit and application group across the hybrid cloud environment.
- As infrastructure stakeholders, lets you manage costs based on capital expenditure and operating expenditure.
- Get accurate cost of virtual machines without performing any financial configuration.

### Access IT Business Management Standard Edition by Using vCloud Automation Center

You can access the IT Business Management Standard Edition user interface after logging into the vCloud Automation Center user interface.

The IT Business Management Standard Edition user interface appears as a tab in the vCloud Automation Center user interface.

**Prerequisites**

Verify that you have created a IT Business Management Standard Edition tenant. For more information, see *IT Business Management Standard Edition Installation and Administration Guide*.

**Procedure**

1. Log in to the vCloud Automation Center interface at `https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL` by using credentials of a tenant administrator.
2. On the **Administration** tab, click **Users**.
3. Search and select the user to which you want to add a role.
4. From the **Add Roles to this User** box, assign the **Business Management Administrator** or **Business Management Read only user** privileges to the user.
5. Click **Update**.
6. Refresh the browser.

    The **Business Management** tab is available in the vCloud Automation Center user interface.

**What to do next**

If you are accessing the **Business Management** tab for the first time, you need to provide a valid IT Business Management Standard Edition license.

### The IT Business Management Standard Edition Dashboard

The dashboard provides information about total cloud cost, operational analysis, demand analysis, cost drivers, cloud resources, demand allocation, CAPEX/OPEX, allocation, and demand largest changes.

**Table 1-1. IT Business Management Standard Edition Dashboard**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cloud Cost</td>
<td>Displays the total cost of running a cloud per month.</td>
</tr>
<tr>
<td>Operational Analysis</td>
<td>Displays the average cost per month of running a virtual machine in your cloud environment.</td>
</tr>
<tr>
<td>Demand Analysis</td>
<td>Displays the number of virtual machines that are used over a period of time. This analysis is useful for tracking the demand for virtual machines for planning.</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cost Drivers</td>
<td>Displays the distribution of cost breakdown or your cloud environment in terms of cost drivers. The cost drivers are Server Hardware, Storage, OS Licensing, Maintenance, Labor, Network, Facilities, and Additional Costs. For more information about viewing and editing cost drivers, see Chapter 2, “Computing the Cost of Your Cloud,” on page 11.</td>
</tr>
<tr>
<td>Cloud Resources</td>
<td>Displays the cost breakdown for a virtual machine in terms of CPU, memory, storage, and operating system license and labor cost.</td>
</tr>
<tr>
<td>Demand Allocation</td>
<td>Displays how the allocated costs are spread across different consumer groups of virtual machines. This widget displays only the top consumers of virtual machines in terms of cost.</td>
</tr>
<tr>
<td>CAPEX/OPEX</td>
<td>Displays the total capital expenditure and operating expenditure incurred for your private cloud.</td>
</tr>
<tr>
<td>Allocation</td>
<td>Displays the allocated and unallocated costs for different resource types (CPU, memory, and storage) over the month.</td>
</tr>
<tr>
<td>Demand Largest Changes</td>
<td>Displays the category where the largest change in the cost has occurred month on month. The list is ordered by descending order of change in cost. The widget also provides an idea as to which top level consumer has the highest month on month increase or decrease in IT cost consumption.</td>
</tr>
</tbody>
</table>

**Note** In IT Business Management Standard Edition, the **Overview** tab displays the projected cost of the virtual machine until the end of the current month. All the other tabs display the cost of virtual machines incurred until the current date of the month.

You can print the information that is present in the **Overview** tab by clicking **Print**.
Cost drivers are the costs that are incurred in managing a data center. You can input the cost drivers manually. If you do not input the cost drivers, the cost driver values are obtained from the reference database of the IT Business Management Standard Edition.

This chapter includes the following topics:

- “Overview of Cost Drivers,” on page 11
- “Calculating Depreciation,” on page 11
- “View Information about Cost Drivers,” on page 12
- “Editing Cost Drivers,” on page 13

Overview of Cost Drivers

IT Business Management Standard Edition categorizes the cost drivers into Server Hardware, Storage, OS Licensing, Maintenance, Labor, Network, Facilities, and Additional Costs. The cost driver data that you provide is the monthly cost except for the server hardware host.

You can modify the cost drivers of your data center. These costs can be in terms of percentage value or unit rate, and might not always be in terms of the overall cost. Based on your inputs, the final amount of cost drivers is calculated. If you do not provide inputs regarding cost drivers, the default values are taken from the reference database, which is part of the IT Business Management Standard Edition product.

Calculating Depreciation

IT Business Management Standard Edition calculates the yearly depreciation values and then divides the value by 12 to arrive at the monthly depreciation.

IT Business Management Standard Edition uses the salvage value of zero dollars.

\[
\text{depreciable cost} = \text{original cost}
\]

IT Business Management Standard Edition uses the maximum value between yearly depreciation of declining balance with multiplied depreciation rate and yearly depreciation of straight line over five years.

\[
\text{Yearly depreciation} = \text{Maximum (yearly depreciation of double declining balance method, yearly depreciation of straight line method)}
\]
### Table 2-1. Depreciation Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double declining balance</td>
<td>Depreciation rate = 2 / number of depreciation years</td>
</tr>
<tr>
<td></td>
<td>Yearly depreciation</td>
</tr>
<tr>
<td></td>
<td>- In every year, except the last year of depreciation,</td>
</tr>
<tr>
<td></td>
<td>yearly depreciation = (original cost - accumulated depreciation) * rate</td>
</tr>
<tr>
<td></td>
<td>- In the last year of depreciation,</td>
</tr>
<tr>
<td></td>
<td>yearly depreciation = original cost - accumulated depreciation</td>
</tr>
<tr>
<td>Straight line</td>
<td>Yearly depreciation = (original cost - accumulated depreciation) /</td>
</tr>
<tr>
<td></td>
<td>number of depreciation years</td>
</tr>
</tbody>
</table>

### View Information about Cost Drivers

You can view all the factors that affect the cost of your environment.


#### Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Cloud Cost.
   - The information related to cost drivers is displayed. For all the cost drivers, IT Business Management Standard Edition displays the monthly trend of the cost variations, the actual cost of the cost driver, and a chart that represents the actual cost and reference cost of the cost driver.
4. (Optional) Select the data center for which you want to view the information.
   - The information of all the cost drivers is updated for the data center that you have selected.
5. Click the cost driver for more information about the cost.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Hardware</td>
<td>Displays the server cost information by CPU age. For complete cost information related to server hardware, click the Server Hardware list with full cost information link.</td>
</tr>
<tr>
<td>Storage</td>
<td>Displays the storage cost information for the storage type or storage profile. For complete cost information related to storage, click the Storage list with full cost information link.</td>
</tr>
<tr>
<td>OS Licensing</td>
<td>Displays the operating systems cost distribution of your cloud environment. For complete cost information related to OS licensing, click the OS Licensing list with full cost information link.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Displays the maintenance cost distribution for the server hardware and OS maintenance. For complete cost information related to maintenance, click the Maintenance list with full cost information link.</td>
</tr>
<tr>
<td>Labor</td>
<td>Displays the labor cost distribution for the servers, virtual infrastructure, and operating system. For complete cost information related to labor, click the Labor list with full cost information link.</td>
</tr>
</tbody>
</table>
Option | Description
--- | ---
Network | Displays the networks costs by NIC type. For complete cost information related to network, click the Network list with full cost information link.
Facilities | Displays the facilities costs distribution according to rent, real estate, power, and cooling. For complete cost information related to facilities, click the Facilities list with full cost information link.
Additional Costs | Displays the additional costs details such as backup and restore, high availability, management licensing, VMware software licensing.

**Editing Cost Drivers**

You can manually edit monthly cost of all the eight cost drivers from the current month onwards.

The configuration used for cost drivers determines how IT Business Management Standard Edition calculates and displays the cost.

- If the costs are based on the industry benchmark values, a vertical band of orange color is displayed next to the Edit monthly cost icon.
- If the costs are calculated according to the hardware configuration, a vertical band of green color is displayed next to the Edit monthly cost icon.
- If the costs have been manually entered, a vertical band of blue color is displayed next to the Edit monthly cost icon.

**Edit Monthly Cost of Server Hardware**

You can view, add, edit, or delete the cost of each server of a batch and the purchase date of a batch server running in your cloud environment. After you update the server hardware cost, IT Business Management Standard Edition updates the total monthly cost and average monthly cost for each server.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Cloud Cost.
4. All cost drivers are displayed.
5. Click Edit Cost.
6. In the Server Hardware section, click the Edit monthly cost icon.

IT Business Management Standard Edition groups all the server hardware in your inventory for all the data centers according to their hardware configuration.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the server in your inventory.</td>
</tr>
<tr>
<td>Number of Servers</td>
<td>Displays the total number of servers of any particular hardware configuration in your inventory.</td>
</tr>
<tr>
<td>Description</td>
<td>Displays the description of the server group.</td>
</tr>
</tbody>
</table>
6 (Optional) You can select the data center for which you want to view or edit the server hardware cost calculations by using the All Data Centers drop-down list.

IT Business Management Standard Edition categorizes and displays the server hardware information for the data center that you have selected.

7 Create a batch or batches for the server group to change the average cost for each server from average cost that IT Business Management Standard Edition derives from the reference database.

- Upload the CSV containing your server purchase details by clicking Upload a CSV file link. The CSV must be in the `serverModelName,manufacturer,numCpus,cpuType,cpuGhz,memGb,numberOfServers,dateOfPurchase,pricePerServer,batchType,dataCenterName` format.

  NOTE The currency in the CSV file must match the currency you configured during deployment.

- Click the Click to edit icon for server hardware entry for which you want to create the batch.
  
  a Click the Purchased Servers or Leased Servers link to edit server batch according to their price or lease rent.

  b To add server and leased purchase details, click the icon. Update the date, number of servers and cost per server or rent cost per server values.

  c (Optional) To delete a server details, click the icon. The selected server group information is deleted.

The reference cost and batch cost is updated.

8 Click Save.

According to your inputs, IT Business Management Standard Edition updates the total monthly cost and average monthly cost for the server.

**Edit Monthly Cost of Storage**

You can edit the monthly cost of the data stores of your cloud environment. The storage hardware is categorized according to storage profile and storage type.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.

2 Click Business Management.

3 Click Cloud Cost.

   All the eight cost drivers are displayed.

4 Click Edit Cost.

5 In the Storage section, click the Edit monthly cost icon.

   IT Business Management Standard Edition categorizes and displays the storage details according to storage profile and storage type for all the data centers.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Profile</td>
<td>Displays the storage profile name as configured in the vCenter Server if you view the storage cost based on storage profile.</td>
</tr>
<tr>
<td>Storage Type</td>
<td>Displays the storage details in different types - Block Device, Fiber Channel, and SAN if you view the storage cost based on storage type. If the data store is not on any of the storage device type, IT Business Management Standard Edition displays the data store as uncategorized.</td>
</tr>
<tr>
<td>Datastores</td>
<td>Displays the total number of data stores for a specific profile or type.</td>
</tr>
<tr>
<td>Total GB</td>
<td>Displays the total storage for a specific profile or type.</td>
</tr>
<tr>
<td>Reference Cost</td>
<td>Displays the reference cost, which is fixed at $0.1/GB. The reference cost is only available if you view the storage cost according to storage profiles.</td>
</tr>
<tr>
<td>Monthly Cost Per GB</td>
<td>Displays the monthly cost per GB for a specific profile or type.</td>
</tr>
<tr>
<td>Monthly Cost</td>
<td>Displays the total monthly cost for a specific profile or type.</td>
</tr>
</tbody>
</table>

(Optional) You can select the data center for which you want to view or edit the storage cost calculations by using the All Data Centers drop-down list. IT Business Management Standard Edition categorizes and displays the storage according to storage profile and storage type for the data center that you have selected.

7 Edit the total monthly cost per GB for storage either based on storage profile or storage type.
   - Edit the monthly cost per GB for the storage profile. This option is selected by default. The reference cost is only available if you select datastore based on storage profile.
   - Edit the monthly cost per GB for the storage type. No reference cost is available.

According to your inputs, IT Business Management Standard Edition calculates and displays the monthly cost of your storage.

**Edit Monthly Cost of Operating System Licensing**

You can edit the total operating system licensing cost of your cloud environment. You can edit the operating system licensing cost by either selecting the ELA charging policy or selecting the per socket value.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ecac/org/tenant_URL by using credentials of a tenant administrator.

2 Click **Business Management**.

3 Click **Cloud Cost**.

   All the eight cost drivers are displayed.

4 Click **Edit Cost**.

5 In the OS Licensing section, click the **Edit monthly cost** icon.

IT Business Management Standard Edition displays all the operating systems in your cloud environment.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS Name</td>
<td>Displays the category of the operating system, Windows or Linux. If the operating system is not Windows or Linux, IT Business Management Standard Edition categorizes the operating system under <strong>Other Operating Systems</strong>.</td>
</tr>
<tr>
<td>VMs</td>
<td>Displays the number of virtual machines that are running on the specific operating system.</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sockets</td>
<td>Displays the number of sockets on which the specific operating system is running.</td>
</tr>
<tr>
<td>Charged by</td>
<td>Displays whether cost is charged by socket or ELA.</td>
</tr>
<tr>
<td>Total Cost</td>
<td>Displays the total cost of the specific operating system.</td>
</tr>
</tbody>
</table>

6 (Optional) You can use the All Data Centers drop-down list to select the data center for which you want to view or edit the OS licensing cost calculations. IT Business Management Standard Edition categorizes and displays the OS licensing information for the data center that you have selected.

7 Click the Click to edit icon of the operating system for which you want to change the monthly cost. The operating license details page is displayed, which summarizes operating system information running in your environment.

8 Edit the monthly cost of operating systems.
   - Edit the monthly cost for all operating systems of a specific type by selecting CPUs per socket and entering the cost value accordingly.
   - Edit the monthly cost for all operating systems of a specific type by selecting the ELA charging policy and entering the cost value accordingly.

   Note: For the Windows operating system group, an additional option lets you charge for Windows desktops according to the ELA policy.

9 Click Save.

According to your inputs, IT Business Management Standard Edition calculates and displays the total cost and updates the Charged by column with the option that you have selected.

**Edit Monthly Cost of Maintenance**

You can edit the monthly cost of maintaining your cloud environment. Maintenance cost is categorized into hardware maintenance cost and operating system maintenance cost. Hardware maintenance cost is calculated as a percentage of the purchase cost of servers. Operating system maintenance cost is calculated as a percentage of the Windows licensing costs.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.

2 Click Business Management.

3 Click Cloud Cost.
   All cost drivers are displayed.

4 Click Edit Cost.

5 (Optional) You can select the data center for which you want to view or edit the maintenance cost calculations by using the All Data Centers drop-down list. IT Business Management Standard Edition categorizes and displays the maintenance cost calculations information for the data center that you have selected.

6 In the Maintenance section, click the Edit monthly cost icon. 
7 Edit the monthly maintenance cost.
   - Edit the percentage value of the hardware maintenance cost.
   - Edit the percentage value of the operating system maintenance cost.
8 Click Save.

The monthly maintenance cost is updated.

**Edit Monthly Cost of Labor**

You can edit the monthly cost of labor for your cloud environment. The labor cost is combination of the total cost of the server administrator, virtual infrastructure administrator, and the operating system administrator.

**Procedure**

1 Log in to the vCloud Automation Center interface at
   https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2 Click Business Management.
3 Click Cloud Cost.
4 All cost drivers are displayed.
5 Click Edit Cost.
6 In the Labor section, click the Edit monthly cost icon.

The monthly labor cost is displayed.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Displays the categories of labor cost, servers, virtual infrastructure, and operating system</td>
</tr>
<tr>
<td>Calculated by</td>
<td>Displays whether the cost is calculated hourly or monthly</td>
</tr>
<tr>
<td>Total Monthly Cost</td>
<td>Displays the total monthly cost of the particular category</td>
</tr>
<tr>
<td>Reference Cost</td>
<td>Displays the reference cost for the category from the IT Business Management Standard Edition database</td>
</tr>
</tbody>
</table>

6 (Optional) You can select the data center for which you want to view or edit the labor cost calculations by using the All Data Centers drop-down list. IT Business Management Standard Edition categorizes and displays the labor cost information for the data center that you have selected.

7 Click the Click to edit icon beside the data center for which you want to change the monthly labor cost.

The total number of servers, virtual machines, and operating system installations are displayed.

8 Edit the monthly labor cost by either updating the hourly rates or modifying the total monthly labor cost.
9 Click Done.

The total monthly cost is updated. The hourly rate option or the monthly cost option that you select is updated in the Calculated by column.
Edit Monthly Cost of the Network

You can edit the monthly networking expenses of your cloud environment. You can edit the monthly cost for each Network Interface Controller (NIC) type either 1 Gigabit or 10 Gigabit, or can edit the total cost of all the networking expenses associated with the cloud.

Procedure

1. Log in to the vCloud Automation Center interface at [vCloud_Automation_Center_host_name/vcac/org/tenant_URL] by using credentials of a tenant administrator.

2. Click Business Management.

3. Click Cloud Cost.
   
   All cost drivers are displayed.

4. Click Edit Cost.

5. In Network, click the Edit monthly cost icon.

6. (Optional) You can select the data center for which you want to view or edit the network cost calculations by using the All Data Centers drop-down list. IT Business Management Standard Edition categorizes and displays the network cost information for the data center that you have selected.

7. Edit the monthly cost of network.
   
   - Edit the total monthly cost for each NIC card by typing values for the 1 Gigabit NIC and the 10 Gigabit NIC.
   
   - Edit the total monthly cost of all network expenses associated with the cloud.

8. Click Save.

   The total monthly network expenses are updated.

Edit Monthly Cost of Facilities

For your cloud environment, you can specify the total monthly cost of facilities or edit the facilities cost for real estate, power, and cooling requirements.

Procedure

1. Log in to the vCloud Automation Center interface at [vCloud_Automation_Center_host_name/vcac/org/tenant_URL] by using credentials of a tenant administrator.

2. Click Business Management.

3. Click Cloud Cost.
   
   All cost drivers are displayed.

4. Click Edit Cost.

5. In Facilities, click the Edit monthly cost icon.

6. (Optional) You can select the data center for which you want to view or edit the facilities cost calculations by using the All Data Centers drop-down list. IT Business Management Standard Edition categorizes and displays the facilities information for the data center that you have selected.
7 Edit the monthly facilities cost.
   - Edit the detailed cost of facilities by updating the monthly cost of rent or real estate per rack unit and the monthly cost of power and cooling per kilowatt-hour.
   - Edit the total monthly cost of facilities.
8 Click Save.

The monthly facilities cost is updated.

**Edit Additional Costs**

The Additional Costs cost driver lets you add any additional or extra cost that is not covered by other cost drivers categorized by IT Business Management Standard Edition. No reference value is present for this cost driver.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2 Click Business Management.
3 Click Cloud Cost.
   All cost drivers are displayed.
4 Click Edit Cost.
5 In Additional Costs, click the Edit monthly cost icon.
6 Select a datacenter if the cost is related to a specific data center, otherwise select Global.
7 Edit the total monthly costs for cost drivers other than the cost drivers categorized by IT Business Management Standard Edition.
   For example, the cost of management software, disaster recovery, and high availability.
8 Click Save.

The monthly cost for additional costs is updated.
After you determine the total spend for running your cloud infrastructure, you can allocate these costs to the underlying resources that constitute the services. These resources are CPU, RAM, storage, and operating system (license and labor).

This chapter includes the following topics:
- “Understanding Operational Analysis,” on page 21
- “Edit Cost Utilization,” on page 22
- “Virtual Machine Cost Allocation,” on page 24

Understanding Operational Analysis

The operational analysis considers the CPU, RAM, and storage as first class components of the cloud infrastructure.

The operational analysis module accepts the total monthly operating cost in your cloud infrastructure as modeled by using the cost driver component as input, and arrives at base rate for CPU and RAM expressed in terms of dollar per gigahertz and dollar per gigabytes of CPU and RAM respectively. The derived base rates for CPU, memory, and storage configured in the cost driver are then used to attribute the total cloud cost for the month to the virtual machines to arrive at the total cost of operating virtual machines for the month. Certain costs are directly attributed to the virtual machines, for example desktop operating system licenses and labor costs. These are not part of resource base rates, and are classified under the heading of OS (License and Labor).

The Resources table under the Operational Analysis tab displays cost breakdown information in terms of the current month cost, trend, and total percentage value of CPU, RAM, storage, operating system (license and labor) consumption in your cloud environment. You can filter the resource cost information, its generation details and virtual machine cost based on each data center or view all data centers cost information together, by using the All Data Centers drop-down list.

Calculating the Base Rate and the Expected CPU Utilization Percentage

IT Business Management Standard Edition calculates the base rates of CPU and memory so that they can be used for virtual machine cost computation. Base rates are determined for each cluster, which are homogeneous provisioning groups. Hence, base rates might change across clusters, but are the same within a cluster. Unclustered hosts in a vCenter Server are grouped according to their vendor, model, and configuration. If you have enabled the data center mode, unclustered hosts are grouped under data centers.

1. IT Business Management Standard Edition first arrives at the fully loaded cost of the cluster from the cost drivers. After the cost of a cluster is determined, this cost is split into CPU and memory costs based on the industry standard cost ratios for the different models of the server.
The CPU base rate is first computed by dividing the CPU cost of the cluster by the CPU capacity of the cluster. CPU base rate is then prorated by dividing the CPU base rate by expected CPU utilization percentage to arrive at true base rate for charging the virtual machines.

The memory base rate is first computed by dividing the memory cost of the cluster by the memory capacity of the cluster. Memory base rate is then prorated by dividing the memory base rate by expected memory utilization percentage to arrive at true base rate for charging the virtual machines.

You can either provide the expected CPU and memory utilization or can derive the expected CPU and memory utilization based on 3-month utilization average of ESXi hosts.

**Edit Cost Utilization**

You can adjust how the cost allocation happens in your virtual infrastructure. The total loaded cloud cost involves hardware, operating systems, maintenance, network, labor, and facilities costs. You can control how these costs are allocated on to your virtual infrastructure.

Note that you can filter and view the cost information for each data center or view all data centers cost information together, by using the All Data Centers drop-down list.

**View Information for Server Cluster**

IT Business Management Standard Edition categorizes all the ESXi hosts according to their cluster configuration. For ESXi hosts that are not clustered, categorization is based on five parameters, which are server model, CPU model, core count, CPU capacity, and memory size.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Operational Analysis.
4. Click Edit Utilization.

The Server Clusters table provides information on the basis of the cluster configuration.

**Table 3-1: Server Clusters**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Displays the icon that identifies whether this is a group of clustered or unclustered hosts.</td>
</tr>
<tr>
<td>Description</td>
<td>Displays the name of the cluster. If the ESXi hosts are not clustered, IT Business Management Standard Edition displays the server model, CPU model, core count, CPU capacity, and memory size.</td>
</tr>
<tr>
<td>Servers</td>
<td>Displays the total number of servers belonging to a cluster. You can click on the total count to see the server IP address and its description.</td>
</tr>
<tr>
<td>Utilization % of Capacity</td>
<td>Displays the percentage of utilization of the cluster's CPU and RAM capacity in terms of gigahertz and gigabytes respectively for the current month.</td>
</tr>
<tr>
<td>Total Cost</td>
<td>Displays the total cost of the cluster.</td>
</tr>
</tbody>
</table>
Table 3-1. Server Clusters (Continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected CPU utilization %</td>
<td>Displays the percentage of expected CPU utilization. You can set the expected CPU utilization. For more information, see “Set the Expected CPU and Memory Utilization for the Host,” on page 23.</td>
</tr>
<tr>
<td>Expected memory utilization %</td>
<td>Displays the percentage of expected memory utilization. You can set the expected memory utilization. For more information, see “Set the Expected CPU and Memory Utilization for the Host,” on page 23.</td>
</tr>
<tr>
<td>Base rates</td>
<td>Depending on the expected CPU utilization value that you have defined, IT Business Management Standard Edition calculates the base rate for the cluster and displays the information for CPU and RAM in terms of dollar per gigahertz and dollar per gigabytes respectively.</td>
</tr>
<tr>
<td>Unallocated Costs</td>
<td>Derived by multiplying the unused capacity of CPU and RAM by CPU and RAM base rates. Here, unused capacity = total capacity - (used + reserved capacity). Note: The unused capacity is displayed as zero if total capacity is less than addition of used and reserved capacity.</td>
</tr>
</tbody>
</table>

Set the Expected CPU and Memory Utilization for the Host

You can set the expected CPU and memory utilization for the host by using the system defined value, which is computed by using historical averages, by defining a global value, or by defining a value at each cluster level. This value is used for calculating the virtual machine cost allocation.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Operational Analysis.
4. Click Edit Utilization.
5. You can select the data center for which you want to view or edit base rates of CPU and RAM by using the All Data Centers drop-down list.
6. Set expected CPU and memory utilization.
   - You can select the system defined value, which computes the expected CPU and memory utilization by using historical averages. This option is selected by default.
   - You can set the fixed utilization percentages for the expected CPU and memory utilization percentages in terms of percentage value. If you select this option, the value that you type is applied to the all server clusters.
   - You can set the expected CPU and memory utilization percentages for each cluster by typing the value in the Expected CPU Utilization % and Expected Memory Utilization % text boxes. Select the option and then set the expected utilization by navigating to the Expected CPU Utilization % and Expected Memory Utilization % column.
7. Click Save.
IT Business Management Standard Edition uses the value that you have provided to calculate and display the updated base rates of CPU and RAM in terms of cost per gigahertz and cost per gigabytes for the server cluster. IT Business Management Standard Edition also updates the unallocated costs for the server cluster.

**Virtual Machine Cost Allocation**

IT Business Management Standard Edition uses the utilization cost model to allocate the cost. The utilization cost model allocates the cost in proportion to the actual utilization of server CPU and memory resources of the virtual machines.

After the base rate is computed, IT Business Management Standard Edition reads different attributes of the virtual machine, such as usage, additional services of virtual machine such as fault tolerance, and then prepares the costs by using each parameter. These costs are computed on a daily basis and are added to calculate the monthly costs.

The list of virtual machines in the Resource Cost page are categorized according to the server generation that the virtual machine belongs to. If a virtual machine is deleted, the cost of virtual machine is not considered for the current month. Generation refers to the release date of server in the market. For example, the virtual machines hosted on servers released in the year 2009 appear under a single group heading.

**View Server and Virtual Machine Information**

You can view the information related to total cost of virtual machines in your environment and the average cost of all the virtual machines. You can also view detailed information related to CPU, RAM, and storage cost related to a particular virtual machine.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Operational Analysis.
   - All the live virtual machines in your cloud environment are displayed according to the generation of server that they belong to.
4. Click the link where the number of live virtual machines is displayed.
   - IT Business Management Standard Edition displays all the virtual machines belonging to a particular generation. The number of vCPUs, CPU cost, RAM cost, storage cost, direct virtual machine cost, and total cost of the virtual machine that you have selected is displayed.
5. To view the ESXi host details to which the virtual machine belongs to and to view the virtual machine resource cost history, click the icon.
   - The name or IP address, configuration, and the host cluster information of the virtual machine is displayed. The resource cost history of the virtual machine is displayed in a graphical manner where the X axis represents the month and the Y axis represents the cost in dollars for that month.
6. To view all the servers belonging to a particular generation, click the link where the number of servers is listed.
   - The ESXi host name and description is displayed.
Demand Analysis

Demand analysis attempts to determine who consumes the resources, the purpose for which they are being consumed, and the costs associated with the resources.

IT Business Management Standard Edition follows a business model for classification purpose.

1. IT Business Management Standard Edition classifies the top level consumer, for example, a business unit or a cost center.
2. IT Business Management Standard Edition classifies the context, for example, an application or a service.

This chapter includes the following topics:

- “View Demand Analysis Information,” on page 25
- “Grouping of Consumers,” on page 26
- “View Virtual Machine Information,” on page 30

View Demand Analysis Information

You can view and sort the list of consumers on the basis of the consumer name, total cost, number of virtual machines, CPU cost, RAM cost, and storage cost. You can filter consumer cost information specific to each data center or view all data centers consumers costs together, by using the All Data Centers drop-down list.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccaci/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Demand Analysis.
4. (Optional) Select the data center for which you want to view the information.

   The demand analysis information is updated according to the data center that you have selected.
5. On the Demand Analysis tab, use the Sort By drop-down menu to select the sorting option for the information.

   IT Business Management Standard Edition displays the list of consumers according to the selected option.
Grouping of Consumers

Demand Analysis provides cost visibility of how your virtual infrastructure is being used by different consumers. This helps you in budgeting and comparison across different consumer groups within the enterprise. You can define rules and categorize your consumer lists according to your vCenter Server, vCloud Automation Center, and vCloud Director hierarchies. You can also upload a CSV file describing your vCenter Server hierarchy.

Categorize vCenter Server Hierarchy

You can define rules to categorize your vCenter Server hierarchy. The top level is the business unit, organization, or the cost center consuming your virtual machines. The secondary level displays the projects or applications within a consumer.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Demand Analysis.
4. Click the Edit link.
5. Select the Set rules to categorize your vCenter hierarchy check box and click Next.
6. Select a top-level entity.
   - Folder nomenclature. For example, folders whose name or labels begin with BU_.
   - Hierarchy level in the vCenter Server. For example, all the folders at level 3 in the vCenter Server.
   - Virtual machine tags. For example, all the virtual machines which have tags that belong to a specific tag category.
   - Categorize by regular expression. You can enter a regular expression that matches every virtual machine that you want to assign to that top-level entity. The regular expression must include one group, some subpattern surrounded by parentheses. For example, if you define a regular expression as (.+?)\[_.+.+ and if your virtual machine name is dev_department_vm1, then the first-level consumer name is displayed as dev and it has all the virtual machines that matches this criteria.

   **NOTE** You can also format the top-level display name by omitting the prefix or suffix.
7. Click Next.
8. (Optional) Select the secondary-level entity.
   - For example, if the top-level entity is configured to be a folder named marketing, you can configure one of the following secondary-level entities.
   - All the entities under the marketing folder in the vCenter Server with folder names starting with BU_.
   - All the entities under the marketing folder at level 3.
All the entities under the marketing folder containing at least one virtual machine with a specific tag category.

All the virtual machine under the marketing folder with specified regular expression. For example, if you define a regular expression as .+\[-\](.+\[-\]+ and if your virtual machine is dev_department_vm1, then the secondary-level consumer name is displayed as department.

**NOTE** You can also format the secondary-level display name by omitting the prefix or suffix.

9 Click Save.

Depending on the configuration, IT Business Management Standard Edition displays the consumer name, the number of projects if you select the secondary-level entity, the number of live virtual machines, a graphical representation of resource cost consumption, and the cost rounded off to nearest thousand, for example if the cost is $24,300, IT Business Management Standard Edition displays the cost as $24,000.

**NOTE** If none of the criteria match, all the business units, cost centers, and folders are classified under Others.

**Upload a CSV File**

You can upload a CSV file describing the vCenter Server hierarchy in a specified format to IT Business Management Standard Edition. You can view the consumers of the virtual machine categorized according to Configuration Management Database (CMDB) data that you have maintained.

No direct integration with CMDB is supported by IT Business Management Standard Edition. However, you can upload a CSV file. The acceptable CSV file format is the virtual machine MOID, the vCenter Server UUID, a unique business unit ID, the business unit name, a unique project ID, and a project name.

**Prerequisites**

Verify that the CSV file is saved in Encoding in UTF-8 without BOM format. To get this format, open the CSV file in Notepad++, navigate to **Encoding > Encoding in UTF-8 without BOM** and save the file.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2 Click **Business Management**.

3 Click **Demand Analysis**.

4 Click the **Edit** link.

5 Select the **Upload a CSV file to map virtual machines to Projects and Consumers according to CSV format** check box and click **Next**.

6 Click **Browse** and select the CSV file that you want to upload.

   The CSV file that you are uploading must contain the information under the headings vmMoid, vcServerUUID, businessUnitName, projectId, and projectName.

7 Click **Upload**.

   If all the parameters are correct, a **Consumer list rules saved successfully** message is displayed by the IT Business Management Standard Edition.

8 Click **Done**.
IT Business Management Standard Edition displays the vCenter Server hierarchy information according the uploaded CSV file. Any subsequent upload of a CSV file is treated as an update to the existing CSV file.

**Categorize vCloud Automation Center Hierarchy**

IT Business Management Standard Edition supports data integration with the IaaS component of vCloud Automation Center. You can define rules to categorize your vCloud Automation Center hierarchy.

**Prerequisites**

- Verify that the vCloud Automation Center IaaS component is enabled on IT Business Management Standard Edition and all the services are running.
- Verify that vCenter Server instances that you have added to vCloud Automation Center are added to IT Business Management Standard Edition.
- Verify that tenants, business groups, and blueprints are available and configured in the IaaS component of vCloud Automation Center.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click **Business Management**.
3. Click **Demand Analysis**.
4. Click the **Edit** link.
5. Select the **Use vCloud Automation Center categorization (Tenant, Business Group, Blueprint)** check box, and click **Next**.
6. Select a top-level entity.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenant</td>
<td>Categorizes information according to tenants that you have defined in vCloud Automation Center.</td>
</tr>
<tr>
<td>Business Group</td>
<td>Categorizes information according to business groups that you have defined in vCloud Automation Center.</td>
</tr>
</tbody>
</table>

7. Click **Next**.
8. Select secondary-level entity.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Group or Blueprint</td>
<td>If you have selected Tenant as the top-level entity, you can define the secondary level entity according to a business group or a blueprint of vCloud Automation Center.</td>
</tr>
<tr>
<td>Blueprint</td>
<td>If you have selected Business Group as the top-level entity, you can define the secondary level entity according to blueprints of vCloud Automation Center.</td>
</tr>
</tbody>
</table>

9. Click **Save**.
IT Business Management Standard Edition displays the tenants or business groups of vCloud Automation Center at the top level, business group or blueprints at the secondary level, the number of live virtual machines, a graphical representation of resource cost consumption, and the cost rounded off to nearest thousand, for example if the cost is 24,300, IT Business Management Standard Edition displays the cost as 24,000.

**Note** If none of the criteria for the categorization match, all the virtual machines are displayed under the Others heading.

### Categorize vCloud Director Hierarchy

You can define rules to categorize your vCloud Director hierarchy. IT Business Management Standard Edition integration with vCloud Director lets you view organization constructs from vCloud Director instance.

**Prerequisites**

Verify that vCloud Director is integrated with IT Business Management Standard Edition. You can add more than one vCloud Director. For more information about adding vCloud Director, see *IT Business Management Standard Edition Installation and Administration Guide*.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Demand Analysis.
4. Click the Edit link.
5. Select the Use vCloud Director categorization (Organizations, Organization VDCs, vApps) option and click Next.
6. Select a top level entity and click Next.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Categorizes information according to organization construct that you have defined in vCloud Director</td>
</tr>
<tr>
<td>Organization VDC</td>
<td>Categorizes information according to organization virtual data center construct that you have defined in vCloud Director.</td>
</tr>
</tbody>
</table>

7. Select a secondary level entity.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization VDC</td>
<td>If you have selected Organization construct as the top level entity, you can select and define the secondary level entity according to organization virtual data center construct or vApp construct.</td>
</tr>
<tr>
<td>vApp</td>
<td>If you have selected Organization VDC construct as the top level entity, you can select and define the secondary level entity only according to vApp construct.</td>
</tr>
</tbody>
</table>

8. Click Save.
IT Business Management Standard Edition categorizes and displays organization constructs of vCloud Director according to the criteria that you have defined.

**NOTE** The virtual machines that are not part of vCloud Director are displayed under the Others heading.

### View Virtual Machine Information

IT Business Management Standard Edition categorizes and displays the virtual machines according to the hierarchy that you defined. You can view the detailed information related to CPU, RAM, storage, and operating system costs of all the live virtual machines.

**Prerequisites**

Define and categorize vCenter Server, vCloud Director, or vCloud Automation Center hierarchy by which you want to view the information.

**Procedure**

1. Log in to the vCloud Automation Center interface at 
   https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click **Business Management**.
3. Click **Demand Analysis**.
   Depending on the hierarchy that you have defined, all the live virtual machines are listed.
4. (Optional) Select the data center for which you want to view the virtual machine information.
5. Click the link where the number of live virtual machines is displayed.
   IT Business Management Standard Edition displays all the virtual machines according to the selected criteria. The number of virtual CPUs that belong to the virtual machine, the total cost, CPU cost, RAM cost, storage cost, and direct virtual machine cost of the virtual machine that you have selected is displayed.
6. To view the details of the ESXi host to which the virtual machine belongs, and to view the virtual machine cost history, click the icon.
   The name or IP address, the configuration, and the host cluster information for the virtual machine is displayed. The cost history of the virtual machine is displayed in a graph where the X axis represents the month and the Y axis represents the cost for that month.
Comparison of Cloud Costs

You can view the cost of virtual machines in your private cloud and then compare it with the pricing models for Amazon Web Services, Windows Azure, and vCloud Hybrid Service public cloud.

IT Business Management Standard Edition estimates the costs of running a completely new instance or an existing instance of a virtual machine in the private cloud by using the cost drivers of your private cloud, and then provides you with a comparison of the cost of the same configuration in Amazon Web Services, Windows Azure, and vCloud Hybrid Service cloud models.

Comparing Clouds models in
IT Business Management Standard Edition

The Cloud Comparison option lets you add virtual machine groups or import virtual machine groups from your private cloud to IT Business Management Standard Edition for cost comparison purpose.

IT Business Management Standard Edition compares the cost of the virtual machine groups in the private cloud with that of similar groups in the public cloud models. The costs are updated in all the service models if you change the virtual machine configuration. IT Business Management Standard Edition calculates the virtual machine cost for the private cloud on the basis of CPU cores, CPU speed, RAM, price plan, up time, operating system for a single virtual machine, and Network Attached Storage (NAS) and Storage Area Networks (SAN) for group storage. IT Business Management Standard Edition searches the instance type to get the configuration requirements with the smallest CPU and memory, and have available prices for the requested operating system, region, and policy.

Manage Cloud Providers

By default, you can see Amazon Web Services (AWS), Windows Azure and vCloud Hybrid Service are added in IT Business Management Standard Edition. You can also add your own public cloud account to IT Business Management Standard Edition and then compare the cost of virtual machine groups against the private cloud and with other public clouds like AWS, Azure, or vCloud Hybrid Service.

Prerequisites

Verify that you have a DRL file or an XLS file with all the requisite information in the specified format to add your public cloud.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4 Under **Manage Public Cloud Accounts**, select **Manage Cloud Providers for Comparison**, and click to add your own public cloud.

5 In the **Add Cloud Provider** dialog box, update the cloud provider details.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Provider Name</td>
<td>(Optional) Type the cloud provider name.</td>
</tr>
<tr>
<td>URL</td>
<td>(Optional) Type the URL of the cloud provider.</td>
</tr>
<tr>
<td>Logo</td>
<td>(Optional) Upload the logo of your cloud provider.</td>
</tr>
<tr>
<td>Upload settings file</td>
<td>Click the <em>Browse to locate the file</em> link and select the settings file. You can also download the template of the DRL file or the XLS file to enter the configuration of your cloud according to the specified format. To download the template, click <em>You can download the template to start the process</em>.</td>
</tr>
</tbody>
</table>

6 Click **Save**.

If the DRL file or the XLS file is valid, the public cloud account is added to IT Business Management Standard Edition.

**What to do next**

You can use this account in the **Cloud Comparison** tab to compare the cost the private cloud cost with other public clouds such as AWS, Azure, or vCloud Hybrid Service.

**Comparing Private Cloud Providers with Public Cloud Providers**

You can compare cost of private cloud providers with public cloud providers in IT Business Management Standard Edition to plan the cost of virtual machines.

**Prerequisites**

If you want to compare with your own public cloud, add a public cloud. For more information, see “**Manage Cloud Providers**,” on page 31.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.

2 Click **Business Management**.

3 Click **Cloud Comparison**.

4 Click **Manage Cloud Providers**.

5 Drag and drop the cloud providers that you want to compare with the private cloud.

   If you have added your own public cloud, scroll down to drag and drop.

6 Click **Done**.

The account that you have selected is added to IT Business Management Standard Edition Cloud Comparison tab for both the Compare new VMs to Cloud and Compare existing VMs to Cloud links, and accordingly, the cost calculation for the selected virtual machines is updated.
View Cloud Comparison Information

IT Business Management Standard Edition lets you compare the cost of running a virtual machine group in your private cloud environment with that of running the group in other public clouds that you have added to IT Business Management Standard Edition.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Cloud Comparison.
   By default the information related to the Compare new VMs to Cloud link is displayed.
   IT Business Management Standard Edition displays a sample group with the configuration of 2 cores, 1.6GHz CPU, and 3.5GB RAM. IT Business Management Standard Edition displays a suitable cluster and storage with the minimum price for the configuration.
4. (Optional) Select the data center for which you want to view cloud comparison information.
   The cost comparison information for your private cloud and other public clouds is displayed according to the data center that you have selected.

Compare Cost of Cloud by Adding New Virtual Machines to Your Cloud

You can compare the cloud cost by adding new virtual machines to your private cloud or by using the existing virtual machines as a template. IT Business Management Standard Edition calculates and displays the cost of running virtual machines with similar configurations in your private cloud, Amazon Web Services, Windows Azure, vCloud Hybrid Service, or any other public cloud provider that is added and imported in IT Business Management Standard Edition.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Cloud Comparison.
4. Click the Compare new VMs to Cloud link.
5. (Optional) Select the data center that contains the virtual machines for which you want to compare and analyze costs.
6. Click the Add VM Group link to add new virtual machines group.
7. Modify the virtual machine settings according to your requirements and click Save.
   The new virtual machine group is added. The corresponding cost details are updated for your private cloud and for other public cloud providers that you have imported in IT Business Management Standard Edition.
8 Click the **Use current VMs as template** link to use the virtual machines from your private cloud as templates.

- Browse and select the virtual machine that you want to import.
- Search and select the virtual machine that you want to import. You can search the virtual machines according to name, tag, or folder.

The selected virtual machine is added. The corresponding cost details are updated for your private cloud and other public cloud providers. If you select more than one virtual machine, IT Business Management Standard Edition groups the virtual machines together according to their CPU, RAM, and operating system configurations, and shows the number of virtual machines in this group. IT Business Management Standard Edition names the group according to the search phrase or the category selected in the browse option.

### Compare Cost of Cloud by Using Virtual Machines from Your Private Cloud

You can compare the cloud cost by importing virtual machines from your private cloud. IT Business Management Standard Edition calculates and displays the cost of running virtual machines with similar configurations in your private cloud, Amazon Web Services, and Windows Azure, vCloud Hybrid Service, or any other public cloud provider that you had already added and imported in IT Business Management Standard Edition.

#### Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click **Business Management**.
3. Click **Cloud Comparison**.
4. Click the **Compare existing VMs to Cloud** link.
5. Click the **Import VMs** link to browse or search the virtual machine that you want to import. You can search for virtual machines based on the name, tag, or folder.

   Each virtual machines gets its own group after import. The selected virtual machine is added. The corresponding cost details are updated for your private cloud and other public cloud providers.

### Select a Cluster and Data store

For all the configurations that you plan to run in your private cloud, multiple clusters or unclustered ESXi hosts and data stores might have the required capabilities. You can change the cluster or data stores on which the configuration runs.

#### Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click **Business Management**.
3. Click **Cloud Comparison**.

   You can change the cluster configuration only for the virtual machines that are either added or imported by using **Compare new VMs to Cloud** link.
4 Change the cluster configuration.
   a To change the cluster for the virtual machine group, click the link where the cluster name or host
      name is displayed.
      By default, IT Business Management Standard Edition selects the cluster with the least price.
   b Select the Select Cluster option.
   c Select the cluster that you want to assign to the virtual machine group.
   d Click Save.

5 Change the data store configuration.
   a To change the data store configuration for the virtual machine group, click the link where the data
      store name is displayed.
      By default, IT Business Management Standard Edition selects the data store with the least price.
   b Select the Select datastore option.
   c Select the data store that you want to assign to the virtual machine group.
   d Click Save.

IT Business Management Standard Edition assigns the selected cluster or data store to the virtual machine
group. After changing the cluster or data store, if the group configuration, cluster capabilities, or data store
capabilities change, the selected cluster or data store is no longer suitable for this configuration, and the
price is returned to be the default least price.

View or Edit Virtual Machine Group

You can view or edit the virtual machine settings for the group that you have added or imported from your
private cloud environment. The corresponding cost details are updated in the public clouds that you have
added to IT Business Management Standard Edition.

Procedure

1 Log in to the vCloud Automation Center interface at
   https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant
   administrator.
2 Click Business Management.
3 Click Cloud Comparison.
4 Click the link from where you want to view or edit virtual machines.
5 Click the Edit Group icon ➤ beside the group name for which you want to view or edit the settings.
   The cost of virtual machine in your private cloud and other public clouds is displayed.
   You can change general settings such as location, VMs, CPU cores, CPU speed, RAM and group storage
   information directly on the screen. For additional settings, click More... to open the Edit Vm Group
dialog box.
6 Edit the virtual machine settings as required and click Save.
   The cost related to the virtual machine is updated in your private cloud and other public clouds.
Delete Virtual Machine Group

You can delete the virtual machine group that you have added or imported from your private cloud environment.

Procedure

1. Log in to the vCloud Automation Center interface at 
   https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Cloud Comparison.
4. Select the link from where you want to delete the virtual machine group.
5. To delete the virtual machine group, click the Delete Group icon.

The virtual machine group along with its cost details is deleted from your environment.

Reset the Cloud Comparison Information

You can restore the default configurations by using the reset feature. After a reset operation is completed, IT Business Management Standard Edition displays the default configuration.

Procedure

1. Log in to the vCloud Automation Center interface at 
   https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Cloud Comparison.
4. Click Reset.

In the Compare new VMs to Cloud link, the default configuration of the sample virtual machine group of 2 cores, 1.6GHz CPU, 3.5GB RAM is restored. In the Compare existing VMs to Cloud link, IT Business Management Standard Edition deletes all the added virtual machine groups.
Collecting Public Cloud Information

IT Business Management Standard Edition integrates with AWS and Windows Azure and provides detailed analysis of the AWS and Azure bills. IT Business Management Standard Edition provides the users an overview of how their investments are spread across Amazon Web Services (AWS) and the Windows Azure.

This chapter includes the following topics:

- “Configuring Amazon Web Services,” on page 37
- “Configuring Microsoft Azure Account,” on page 40

Configuring Amazon Web Services

Before you add AWS to IT Business Management Standard Edition, you need to configure an AWS account. After configuring AWS, you should see the CSV bills in the S3 bucket that you have configured.

**Note** If you have upgraded IT Business Management Standard Edition from earlier version, you must reconfigure your AWS account.

You must have the AWS account ID, access key, secret key, and S3 bucket name.

- You must have an AWS account name and account ID. For more information, see [http://docs.aws.amazon.com/awsaccountbilling/latest/about/programaccess.html](http://docs.aws.amazon.com/awsaccountbilling/latest/about/programaccess.html).

**Important** The account ID is a 12 digit number (for example 1234-1234-1234) that you can see after you log in to the Web portal of an AWS account [https://portal.aws.amazon.com/gp/aws/manageYourAccount](https://portal.aws.amazon.com/gp/aws/manageYourAccount). Do not use hyphens when you attempt to add or update the AWS account in IT Business Management Standard Edition.

- You must have an access key and secret key for your AWS account. For more information, see [http://docs.aws.amazon.com/general/latest/gr/managing-aws-access-keys.html](http://docs.aws.amazon.com/general/latest/gr/managing-aws-access-keys.html).

- You need to follow the programmatic billing access process after getting an access key and secret key so that you can build applications that reference your billing data from a CSV file stored in an Amazon S3 bucket. For more information about getting the programmatic billing access, see [http://docs.aws.amazon.com/awsaccountbilling/latest/about/programaccess.html](http://docs.aws.amazon.com/awsaccountbilling/latest/about/programaccess.html).
You need to configure cost allocation report. To get a cost allocation report, first sign up for programmatic billing access, and then opt for the cost allocation report. AWS publishes the report as a CSV file to the Amazon S3 bucket you specify for Programmatic Billing Access. AWS publishes the report several times each day. CSV files are stored in your designated bucket using the following naming convention. 123456789012-aws-cost-allocation-yyyy-mm.csv, where 123456789012 is account ID, y is year, m is month.

---

### Note
During the current billing period (monthly), AWS generates an estimated cost allocation report. The current month's file is overwritten throughout the billing period until a final report is generated at the end of the billing period, and then, a new file is created for the next billing period. The final reports for the previous months remain in the designated Amazon S3 bucket.

You can see two sets of reports in your bucket, one is the downloadable CSV Report for Programmatic Billing Access, and the other is your cost allocation report. For more information about cost allocation report, see [http://docs.aws.amazon.com/awsaccountbilling/latest/about/getbill.html#allocation](http://docs.aws.amazon.com/awsaccountbilling/latest/about/getbill.html#allocation).

---

(Optional) You can also tag your Amazon resources. Tags let you categorize your AWS resources in different ways, for example, by purpose, owner, or environment. When you apply tags to your AWS resources (such as Amazon EC2 instances or Amazon S3 buckets), AWS generates a cost allocation report as a comma-separated value (CSV) file with your usage and costs aggregated by your tags. You can apply tags that represent your business dimensions (such as cost centers, application names, or owners) to organize your costs across multiple services. For more information about tagging your Amazon resources, see [http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Using_Tags.html](http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Using_Tags.html).

---

(Optional) You can use cost allocation to organize and track your AWS costs. When you apply tags to your AWS resources (for example, Amazon EC2 instances or Amazon S3 buckets), AWS generates a cost allocation report as a comma-separated value (CSV) file with your usage and costs aggregated by your tags. You can apply tags that represent your business dimensions (such as cost centers, application names, or owners) to organize your costs across multiple services. When you select tag keys to include in your cost allocation report, each key becomes an additional column and includes the value for each corresponding line item. You might use tags for more than just your cost allocation report (for example, tags for security or operational reasons), and so, you can include or exclude individual tag keys for the report. This ensures that you are viewing meaningful billing information that helps organize your costs. For more information about configuring cost allocation reports with tag, see [http://docs.aws.amazon.com/awsaccountbilling/latest/about/getbill.html#allocation](http://docs.aws.amazon.com/awsaccountbilling/latest/about/getbill.html#allocation).

---

### Note
Verify that the CSV bills according to the format 123456789012-aws-cost-allocation-yyyy-mm.csv are being generated in the S3 bucket that you have configured.

---

### Manage Amazon Web Services Account
You can add and modify the AWS account that you plan to track and analyze by using IT Business Management Standard Edition.

#### Prerequisites
Verify that you have an account ID, access key, secret key, and S3 bucket name. For more information, see “Configuring Amazon Web Services,” on page 37.

#### Procedure
1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ecac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4 Click the **General** link.

5 Under Manage Amazon AWS accounts, to add the AWS account details, click the add icon.

6 Type the name, description, account ID, access key, secret key, and S3 bucket name.

7 Click **Save**.

   If the information for AWS account that you provided is correct, IT Business Management Standard Edition adds the AWS account.
   IT Business Management Standard Edition starts populating the dashboard information after a few minutes. Currently, IT Business Management Standard Edition refreshes its data by connecting to AWS every 30 minutes. You can force run the AWS collection job from the System Status menu.

8 (Optional) To modify the AWS account details, click the entry, edit the information, and click **Save**.

   If the information that you have provided is correct, the AWS account details are modified and saved.

9 (Optional) To delete an AWS account, click the **X** icon and click **Continue**.

   You can retrieve the AWS account that you have deleted by clicking **Revert**.

### View Amazon Web Services Information

After you add an AWS account, IT Business Management Standard Edition displays the information related to the AWS cloud along with account specific information.

**Prerequisites**

Verify that you have added the AWS account to IT Business Management Standard Edition. For more information, see “Manage Amazon Web Services Account,” on page 38.

**Procedure**

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2 Click **Business Management**.

3 Click **Public Cloud**.

4 Click **Amazon Web Services (AWS)**.

   The Accounts pane of IT Business Management Standard Edition lists all the accounts that are added, and displays the total monthly cost of the entire AWS cloud, the cost trend for the last 12 months since the account was added, the average virtual machine cost of the entire AWS cloud, and the total number of virtual machines in the entire AWS cloud.

5 From the Account pane, click the account for which you want to view the information.

   Information related to the account that you have selected, for example AWSDataTransfer, AmazonS3, AmazonEC2, or AmazonSNS appears in the Service Type pane.
6 Categorize and view the information of service types.

- Select AWS Services option to sort the information in the AWS cost details pane according to service type. The usage details of service type categorized according to Usage Type, Start Time - End Time, Usage, and Total cost is displayed.

- Select AWS Tags option to sort the information in the AWS cost details pane according to AWS tags that you have defined for the account. The information in the Cost Details pane is sorted according to the tag that you have selected. If service type does not match the tag that you have selected, the usage details appear under Uncategorized. The usage details of service type categorized according to the tag that you have selected into Usage Type, Start Time - End Time, Usage, and Total cost.

7 (Optional) To print the information that is present in Amazon Web Services (AWS), click Print.

Configuring Microsoft Azure Account

You can create, modify, delete and configure the Microsoft Azure account through IT Business Management Standard Edition.

IT Business Management Standard Edition analyzes and displays the cost information for the Microsoft Azure cloud.

Create and Manage Microsoft Azure Account

You can create and manage your Microsoft Azure account to compute cost details for your account.

Procedure

1 Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.

2 Click the Administration tab.

3 Click Business Management.

4 Click the General link.

5 Expand Manage Microsoft Azure Accounts and add an account by clicking the icon.

6 Provide an account ID and name of your choice, and click Save.

7 Click OK.

8 To modify the Microsoft Azure account details, click the icon, edit the information, and click Save.

9 To delete the Microsoft Azure account, click the icon and click Continue.

A success message is displayed.

10 Click OK.

Download Usage Details from Microsoft Azure

You must download a usage details report from Microsoft Azure for all the accounts that you have subscribed for in Windows Azure.

Prerequisites

Ensure that you have a valid Microsoft Azure account with at least one subscription. You can have multiple subscriptions for the same account.
Procedure
1. Log in to the Windows Azure account.
2. Click the subscription for which you want to download usage details report.
3. Click Download usage details.
4. Click Download Usage for the period that you want to download usage details.

A usage details report in CSV format is downloaded. The report contains information about provisioning status, statement for the period that you have selected, and daily usage details.

What to do next
You must upload the CSV file in IT Business Management Standard Edition.

Upload Usage Details to IT Business Management Standard Edition
After you download the usage details report, you can upload the report in IT Business Management Standard Edition. IT Business Management Standard Edition analyzes the information and computes the cost details of your Windows Azure account. If you upload the new report for the current month, the data entries overrides the one already uploaded for the current month.

Prerequisites
Download a usage details report from Windows Azure.

Procedure
1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click the Administration tab.
3. Click Business Management.
4. Click the General link.
5. Select the Manage Microsoft Azure Accounts option.
6. If you have already created an account, select the account. Otherwise create a Microsoft Azure account. For more information, see “Create and Manage Microsoft Azure Account,” on page 40.
7. Click the icon to upload the bill that you have downloaded from Microsoft Azure account.
   A success message is displayed.
8. Click OK.

IT Business Management Standard Edition analyzes and displays the cost details of Microsoft Azure account. Refresh the IT Business Management Standard Edition application to see the updated data.

View Microsoft Azure Account Information
After you add or create a Microsoft Azure account, IT Business Management Standard Edition displays the total cloud cost information of Microsoft Azure.

Procedure
1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2 Click the **Administration** tab.

3 Click **Business Management**.

4 Click **Public Cloud**.

5 Click **Azure**.

   IT Business Management Standard Edition displays the cost information for the Microsoft Azure cloud. The cloud cost information is categorized into **Cloud Cost, Average VM Cost, Accounts, Service Type, and Cost details of all the service types in Microsoft Azure**.

6 To view detailed information about the service type, click the service type from **Cost details pane**.

   The usage details of the service type are displayed. They are categorized according to **Usage Type, Start Time - End Time, Usage, and Total cost**.

7 (Optional) To print the information that is present on the **Azure** tab, click **Print**.
You can generate reports from IT Business Management Standard Edition to get cost details of vCenter Server, vCloud Director, vCloud Automation Center, and virtual machines of the public cloud. You can export the reports in a CSV format.

This chapter includes the following topics:

- “View Report for vCenter Server,” on page 43
- “View Report for Data stores,” on page 45
- “View Report for Virtual Machines,” on page 45
- “View a Report for Clusters,” on page 46
- “View a vCloud Director Report,” on page 46
- “View a vCloud Automation Center Report,” on page 47
- “View Report for Services in a Public Cloud,” on page 48
- “View Allocation Efficiency Metrics,” on page 48
- “Private Cloud Metrics,” on page 49
- “Export Reports,” on page 50
- “Filter and Search Reports,” on page 50

**View Report for vCenter Server**

You can view the report of cost details of vCenter Server. You view the information related to vCenter Server categorized according to server hardware, OS licensing, maintenance, physical server labor, network, facilities, and additional costs. IT Business Management Standard Edition also displays the total loaded costs of servers that are running in your environment.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4 From the **vCenter Server** drop-down menu, select **Servers**.

Information related to servers is displayed. Along with total loaded costs of the servers
IT Business Management Standard Edition displays the vCenter Server ID, vCenter Server name, host
name, data center ID, data center name that the server belongs.

5 Click ▶️ and select the specific cost aspect that you want to view in the server details cost. Note that the
selected aspects are highlighted in different colors and the report scrolls you to the selected specific
section in the report.

By default, server hardware check box is selected.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server hardware</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays the server hardware details according to processor type, manufacturer, model name, speed of CPU in gigahertz, RAM in gigabyte, number of CPUs, CPU cores, cluster name, cluster ID, and launch date. IT Business Management Standard Edition calculates and displays the total monthly cost of server hardware.</td>
</tr>
<tr>
<td><strong>OS licensing costs</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays the operating system licensing details according to operating systems that are running on the virtual machines for a specific server and Windows desktop operating system. Operating system details for a specific server include sockets, cost for each socket, operating systems, Windows server cost, Red Hat cost, SUSE cost, and other operating system cost for the virtual machines that are running on this server. Windows desktop operating system details include desktop cost and total cost of Windows desktop. IT Business Management Standard Edition calculates and displays the total operating system cost.</td>
</tr>
<tr>
<td><strong>Maintenance costs</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays the maintenance costs details according to hardware and software maintenance cost. IT Business Management Standard Edition also calculates and displays the total maintenance cost.</td>
</tr>
<tr>
<td><strong>Physical server labor Costs</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays the physical server labor costs details according to physical server labor hours and hourly cost. IT Business Management Standard Edition calculates and displays the total labor cost.</td>
</tr>
<tr>
<td><strong>Network costs</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays the network cost details according to ports, cost for each port, and total network cost for 1 gigabit and 10 gigabit networks. IT Business Management Standard Edition calculates and displays total network cost by adding the total networking cost for 1 gigabit and 10 gigabit network.</td>
</tr>
<tr>
<td><strong>Facilities costs</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays details of rent, power, and cooling. IT Business Management Standard Edition calculates and displays the total facilities cost.</td>
</tr>
<tr>
<td><strong>Additional Costs</strong></td>
<td>Along with server details, IT Business Management Standard Edition displays the details of additional costs.</td>
</tr>
</tbody>
</table>
View Report for Data stores

You can view a report about all the data stores that are running in your environment. IT Business Management Standard Edition displays the data store details along with their total monthly cost.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. From the vCenter Server drop-down menu, select Datastores.

IT Business Management Standard Edition displays the data store details such as the data store name, data store path, storage type, storage profile, monthly cost per GB, reference cost per GB, total capacity in GB, and the total monthly cost. IT Business Management Standard Edition also displays vCenter Server ID, vCenter Server alias, data center ID, data center name to which the data store belongs.

View Report for Virtual Machines

You can view the details of all the virtual machines that are running in your environment such as the number of CPUs, CPU and RAM configured and reserved size, the vCenter server information, size and cost of storage, virtual machine backup cost.

IT Business Management Standard Edition displays the virtual machine details in a grid or in a vCenter Server folder.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. From the vCenter Server drop-down menu, select VMs.
5. Select the way that you want to view the virtual machines report.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shows VMs in a grid display</td>
<td>Displays the virtual machines report in a tabular form</td>
</tr>
<tr>
<td>Show VMs in vCenter Server folder structure</td>
<td>Displays the virtual machines according to folder structure of vCenter Server where all the ESXi hosts are listed.</td>
</tr>
</tbody>
</table>

Along with total monthly cost, IT Business Management Standard Edition displays the details of the virtual machines, including virtual name and entity ID. IT Business Management Standard Edition also displays the vCenter Server ID, vCenter Server alias, data center ID, and the name of the data center that the virtual machine belongs to. IT Business Management Standard Edition considers the cost of each vSphere Data Protection (VDP) virtual machine that is used for backup service and the cost is uniformly distributed among other virtual machines that resides in the same vCenter Server.
View a Report for Clusters

You can view the report of all the clusters of your virtual environment. IT Business Management Standard Edition displays the total monthly cost of running a cluster in your environment.

**Procedure**

1. Log in to the vCloud Automation Center interface at [https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL](https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL) by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. From the vCenter Server drop-down menu, select Clusters.
   
   Along with vCenter Server ID, vCenter Server alias, data center ID, and data center name that the virtual machine belongs to, IT Business Management Standard Edition displays all the cluster details, whether clustered or unclustered, and information about cluster cost allocation.
   
   IT Business Management Standard Edition also displays the weighted average cost of the virtual machines in the cluster along with the total monthly cost of the cluster.

View a vCloud Director Report

You can view the cost details of vCloud Director constructs that are categorized according to organization, organization virtual data center, virtual machines, and vApps.

**Prerequisites**

Verify that IT Business Management Standard Edition is configured with the IaaS component of vCloud Automation Center and all the services are running.

*NOTE* The recent cost updates might not appear in IT Business Management Standard Edition. You must click Cost Calculation from System Status to view the latest cost values.

**Procedure**

1. Log in to the vCloud Automation Center interface at [https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL](https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL) by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. From the vCloud Director drop-down menu, select the construct for which you want to view the report.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Org</td>
<td>Along with total monthly cost of the organization construct, IT Business Management Standard Edition displays the organization ID, organization name, vCloud Director ID, and vCloud Director server name that the organization belongs to.</td>
</tr>
<tr>
<td>OrgVDC</td>
<td>Along with total monthly cost of organization virtual data center construct, IT Business Management Standard Edition displays the organization virtual data center ID, organization virtual data center name, vCloud Director ID, and the vCloud Director server name that the organization virtual data center belongs to.</td>
</tr>
</tbody>
</table>
### Option Description

**VMs**
Along with total monthly cost of virtual machines, IT Business Management Standard Edition displays the virtual machine ID, virtual machine name, vCloud Director server ID, and the vCloud Director server name that the virtual machine belongs to.

**vApp**
Along with total monthly cost of vApps, IT Business Management Standard Edition displays the vApp ID, vApp name, vCloud Director server ID, and the vCloud Director server name that the vApp belongs to.

---

**View a vCloud Automation Center Report**

You can view the report of cost details of vCloud Automation Center entities. You view the information categorized according to tenant, business group, blueprint, and virtual machines of vCloud Automation Center.

**Prerequisites**
Verify that IT Business Management Standard Edition is configured with the IaaS component of vCloud Automation Center and all the services are running.

**Note** The recent cost updates might not appear in IT Business Management Standard Edition. You must click **Cost Calculation** from **System Status** to view the latest cost values.

**Procedure**

1. Log in to the vCloud Automation Center interface at `https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL` by using credentials of a tenant administrator.
2. Click **Business Management**.
3. Click **Reports**.
4. From the **vCloud Automation Center** drop-down menu, select the entity for which you want to view the report.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenant</td>
<td>IT Business Management Standard Edition displays the tenant details that are categorized according to tenant ID and tenant name. IT Business Management Standard Edition also displays the total monthly cost of the tenant.</td>
</tr>
<tr>
<td>Business Group</td>
<td>IT Business Management Standard Edition displays the business group details, categorized according to business group ID, business group name, and tenant name. IT Business Management Standard Edition also displays the total monthly cost of the business group.</td>
</tr>
<tr>
<td>Blueprint</td>
<td>IT Business Management Standard Edition displays the blueprint details and total monthly cost of the blueprints.</td>
</tr>
<tr>
<td>VMs</td>
<td>IT Business Management Standard Edition displays the details of all virtual machines and total monthly cost of virtual machines.</td>
</tr>
</tbody>
</table>
View Report for Services in a Public Cloud

You can view a report of all the services that are running in the public cloud. Along with service details, the total monthly cost of services in your public cloud is displayed.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. Click the Public Cloud Services link.
   
The details of services in your public cloud are displayed along with invoice, storage, and monthly uptime information. IT Business Management Standard Edition also displays the total monthly cost of service in your private cloud.

View Allocation Efficiency Metrics

Using allocation efficiency metrics, you can find how allocation costs affect your overall cloud cost. Also you can compare your total cloud allocation with industry benchmarks. The benchmarking data is based on the number of virtual machines in your IT Business Management Standard Edition environment.

**Prerequisites**

Import or update your cost data into IT Business Management Standard Edition.

**Procedure**

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. From the Metrics drop-down menu, select Allocation Efficiency.

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Server Allocation</td>
<td>Displays the average server allocated cost and unallocated cost based on data uploaded in IT Business Management Standard Edition.</td>
</tr>
<tr>
<td>CPU Cost Allocation</td>
<td>Displays the CPU cost allocation percentage based on the industry benchmark and private cloud. You can hover over the graph to see the allocated cost and unallocated cost in the defined currency.</td>
</tr>
<tr>
<td>Memory Cost Allocation</td>
<td>Displays the memory cost allocation percentage based on the industry benchmark and private cloud. You can hover over the graph to see the allocated cost and unallocated cost in the defined currency.</td>
</tr>
<tr>
<td>Storage Cost Allocation</td>
<td>Displays the storage cost allocation percentage based on the industry benchmark and private cloud. You can hover over the graph to see the allocated cost and unallocated cost in the defined currency.</td>
</tr>
</tbody>
</table>
## Allocation

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Allocation</td>
<td>Displays the cloud cost allocation percentage based on the industry benchmark and private cloud. The total gap displays the difference between the industry benchmark values and allocation costs data uploaded in IT Business Management Standard Edition. You can see the difference values in the defined currency and also in percentage. It also breaks down difference values for each resource such as CPU, RAM and storage.</td>
</tr>
<tr>
<td>Resources Cost Distribution</td>
<td>Displays the organization expenditure on resources such as CPU, RAM and storage. You can hover over the graph to see the base rate for each resource.</td>
</tr>
</tbody>
</table>

### Private Cloud Metrics

Using private cloud metrics, you can view the expenses of operating a virtual datacenter compared with industry benchmark. The average expense cost is segregated into different cost driver domains. You can also see the cost driver ratio and analyse the allocation cost ratios over various resources and server hardware groups.

#### Prerequisites

Import or update your cost data into IT Business Management Standard Edition.

#### Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/ccac/org/tenant_URL by using credentials of a tenant administrator.

2. Click Business Management.

3. Click Reports.

4. From the Metrics drop-down menu, select Private Cloud Metrics.
   
   The cost is displayed for various cost drivers and also compared with industry benchmark values.

5. Hover over each cost driver on the graph to see the cost breakdown for cost drivers. You can compare your cloud environment values with industry benchmark values and private cloud values.

<table>
<thead>
<tr>
<th>Cost Driver</th>
<th>Cost Breakdown Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Hardware</td>
<td>Displays the server hardware breakdown percentage for different server models such as 2010 and older, 2011-12, 2013 and 2014. The tool tip shows the total server hardware cost.</td>
</tr>
<tr>
<td>Storage</td>
<td>Displays the total storage cost for your cloud environment.</td>
</tr>
<tr>
<td>OS Licensing</td>
<td>Displays the breakdown percentage for the operating systems in your cloud environment such as Windows, Red Hat, SUSE and other operating systems. The tool tip shows the total operating system licensing cost of your cloud environment.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Displays the maintenance breakdown percentage for your server hardware and operating systems. The tool tip shows the break down maintenance cost for each server hardware and operating system on your cloud environment.</td>
</tr>
<tr>
<td>Labor</td>
<td>Displays the labor breakdown percentage for physical servers, virtual infrastructure and operating systems. The tool tip shows the break down labor cost for each physical server, virtual infrastructure and operating system on your cloud environment.</td>
</tr>
<tr>
<td>Network</td>
<td>Displays the network breakdown percentage for 1 gigabit and 10 gigabit networks. The tool tip shows the break down network cost for each network type on your cloud environment.</td>
</tr>
<tr>
<td>Facilities</td>
<td>Displays the network breakdown percentage for rent, power, and cooling. The tool tip shows the total facilities cost of your cloud environment.</td>
</tr>
</tbody>
</table>
Export Reports

You can export the reports from IT Business Management Standard Edition in a CSV format for further analysis. The export functionality transfers the reports related to entities that you have selected.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. Click the entity such as vCenter Server, vCloud Director for which you want to export the reports, and click Export.
5. Select the location where you want to save the CSV file and click OK.

A report related to link that you have selected is exported in a CSV format.

Note If you have defined filter criteria when exporting the report, entries specific to the filter condition are exported to the CSV file.

Filter and Search Reports

You can filter and search specific entries according to criteria that you define. If you define any filter criteria, entries specific to filter condition are displayed.

Procedure

1. Log in to the vCloud Automation Center interface at https://vCloud_Automation_Center_host_name/vcac/org/tenant_URL by using credentials of a tenant administrator.
2. Click Business Management.
3. Click Reports.
4. To filter the reports, in the column header for which you want to apply a filter, click the icon.
5. Type or select the filter criteria as required.
   You can also define multiple filtering criteria.
   IT Business Management Standard Edition filters and displays the report according to criteria specified.
6. To clear all the filters that you have defined, click Clear Filters.
7. To search any data entry in the report, type the search criteria and click icon.
   Entities matching the search criteria is displayed.
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