

Using VMware Cost Insight

VMware Cost Insight services



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Contents

1	Using VMware Cost Insight	4
	Why Cost Insight	4
	Viewing Your Infrastructure Expense Across Clouds	5
	Performing the Cost Analysis of your Private and Public Cloud Data	8
	Cost Savings Overview	8
	Adding Public and Private Clouds	9
	About Groups	9
	Deploy a Data Collector for a vCenter Cloud Account	9
	About Cost Drivers	11
	Configuring Cost Settings	17

Using VMware Cost Insight

The Cost Insight service gives you visibility into the cost of your private and public cloud infrastructure. You can track, manage, and plan your expenses across both types of cloud accounts.

This chapter includes the following topics:

- [Why Cost Insight](#)
- [Viewing Your Infrastructure Expense Across Clouds](#)
- [Performing the Cost Analysis of your Private and Public Cloud Data](#)
- [Cost Savings Overview](#)
- [Adding Public and Private Clouds](#)
- [About Groups](#)
- [Deploy a Data Collector for a vCenter Cloud Account](#)
- [About Cost Drivers](#)
- [Configuring Cost Settings](#)

Why Cost Insight

Being an enterprise IT administrator and developer, you might want to precisely attribute costs to applications and Line of Business (LoB) teams. So, to map your investments to the strategic business priorities and to ensure cost accountability, you must clearly understand your costs and the key drivers of these expenses.

Scenario 1: Public Cloud Users

To obtain a quick value in terms of application development, you might have chosen to use Public cloud.

Over a period, you might think:

- Am I using the resources and costs effectively?
- Do I have cost transparency?
- Can I substantiate and validate the expenses?
- Can I optimize the resources and identify cost saving opportunities?

- Do I have to migrate the existing setup into a different cloud?

Scenario 2: Private Cloud Users

If you are using a private cloud, you might have invested on several instances for which you might lose track of its expenses and utilization over a period.

Over a period, you might think:

- How do I track my expenses?
- Who is accountable for these expenses?
- How do I make optimal use of these infrastructure?
- How do I reduce cost?
- Can I consider other clouds to save cost?
- How do I showback my expenses?

In addition, you might also face several challenges.

Challenges in Public Cloud Cost management

- How do I group individual expenses from each team into a single channel for combined visibility?
- How do I analyze the expenses to get clarity based on ownership?
- How do I make business decisions that benefits both organization and individual teams?
- How do I save cost?

Challenges in Private Cloud Cost management

- How do I calculate the total cost expenditure?
- How do I convert total expense into monthly expense?
- How do I allocate or distribute resources (VMs/Hosts) that are providing consumer services?
- How do I aggregate expense based on ownership of resources?

VMware Cost Insight is built with key features to address these private and public cloud challenges and to enable granular visibility into public and private cloud costs, so IT leaders can map investments to strategic IT priorities.

Viewing Your Infrastructure Expense Across Clouds

With the Cost Insight Dashboard, you can view an up-to-date expense summary as well as the projected expenses of your AWS, Azure, and private cloud accounts. You can also get details about your inventory distribution and expense distribution across clouds.

- **Expense Overview:** Displays private and public cloud expense until today and the projected expense for the current month.

- **Inventory Distribution Across Clouds:** Displays the number of configured accounts and the number of virtual machines running on each cloud platform.
- **Most Expensive Groups:** Displays the sum of virtual machine expenses in the group.

Note The expense of private cloud virtual machines is calculated based on their utilization. The expense of public cloud virtual machines is based on their Month-to-Date (MTD) expense.

You can also create groups and organize your resources in your cloud infrastructure.

- **Expenses Distribution Across Clouds:** Displays the expense percentage of private and public cloud for the current month. When you hover over the graph, you can see the total expense and virtual machine count on each cloud platform.

Note VMware Cloud services begin to calculate your private cloud costs when you deploy a data collector. And, VMware Cloud services calculates your public cloud costs based on the historical data available in your public cloud bills.

Getting a Detailed Analysis of Your Costs

Using the specific tabs on the Cost Insight Dashboard page, you can view your AWS, Azure, and private cloud account expenses. VMware Cloud services can display the expenses based on several predefined dimensions or categories such as accounts, regions, services, instance types, and clusters. You can also view the daily expense trend and compare expenses for the current month and the previous month.

Viewing Your AWS Expenses

Once you have set up one or more AWS cloud accounts, you can view your AWS expense details on the AWS Dashboard. Also, you can drill down through the Cost Insight Dashboard to see your AWS expense information. VMware Cloud services can collect your expense data from your AWS bills to display in the Cost Insight service.

You can get a list of all your accounts with their services, regions, and instance types. You can see the linked account name, virtual machine count, and total expense of each AWS account as well as its percentage increase or decrease in expense. You can also pinpoint for the current month:

- The top five most expensive AWS accounts
- The top five most expensive AWS services
- The top five most expensive regions that are consuming EC2 services
- The most expensive EC2 instance types

Note AWS generates the bill by the end of first day of the month. If you try to view your expenses on the first day of the month, your expense may not be up-to-date. You can view your complete expenses starting from the second day of the month onwards.

Viewing Your Azure Expenses

After you add an Azure cloud account, you can view your Azure expense details on the Azure Dashboard. Also, you can drill down through the Cost Insight Dashboard to see your Azure expenses.

VMware Cloud services pull the data from your Azure bills for display in the Cost Insight service.

You can see the Azure expense summary, which includes the current total expense and the projected expense of the month. The summary also includes the virtual machine count, the number of configured accounts and the count of accounts that are unable to fetch data.

You can also see a graphical representation of the top five most expensive accounts and its expense comparison with the previous month values. You can hover the mouse on the graph to see the actual expense values.

In addition, you see the top five most expensive Azure services, its actual cost for the current month and its percentage of contribution for the total expense.

You can see the expensive virtual machines based on regions and VM types.

In addition, you can also drill down to see the complete list of accounts, services, or VMs and its expense details.

Viewing Your Private Cloud Expenses

To collect data from your vCenter Server, you must install data collectors for them. Once you have set up a data collector on your vCenter Server, VMware Cloud services pulls data from the server, and you can view its data on the Private Cloud page or by drilling down through the Cost Insight Dashboard.

The initial data collection takes around 40 minutes to collect and upload into VMware Cloud. Once the data collection process is complete, you get a detailed list of all your private cloud accounts and vCenter Server clusters with their expenses.

You can also see this updated information:

- Daily expense trend
- Projected expenses for the current month

$$\text{Projected Expense} = [(\text{Current expense of the month} / \text{past number of days of the month}) * \text{total number of days of the month}]$$

For example, if you are on the eight day of the month, and the total current expense is \$80, then

$$\text{Projected Expense} = [(80/8) * 31] = \$310$$

- View previous month expenses
- The top five most expensive public cloud accounts
- The top five most expensive clusters

For information about how the private cloud expenses are calculated, see [About Cost Drivers](#).

Performing the Cost Analysis of your Private and Public Cloud Data

Once you add a private or public cloud account into VMware Cloud services, you can perform the filter the details based on different criteria.

By default, you see the AWS data of all accounts, which includes the summary such as, current expense and the projected expense for the month, total number of accounts. You can compare the expense and total number of instances of the top five accounts, and see the daily expense trend of all accounts and each individual account.

You can drill-down to see the summary and expense data of each specific account or specific instance.

By default, you see the expense of the current month. You can filter these data for the previous month and the last three months.

Note As of now, last three months and six months data is available for public cloud accounts only.

You can see data based on common or saved questions, which are predefined criteria such as:

- Expense details for all vCenters
- Expense details for all clusters
- AWS expenses
- AWS EC2 expenses
- Expense details for all Azure accounts
- Expense details of all Azure instances

You can export the report to the CSV format and also save the report for future use. You can also schedule a report to share your latest or up-to-date data at regular intervals (daily or monthly) to the specific recipients.

Cost Savings Overview

Based on your resource availability and your cost configurations, Cost Insight provides the potential cost saving opportunities of your private and public cloud accounts.

Cost Insight indicates the amount of provisioned capacity that you can reclaim and provision to other objects in your environment without causing stress or performance degradation.

You can see the virtual machines or the instances that are categorized based on the current state (Recommendation types). You can click on each state or type to see the details of the instances or virtual machine details, month to date expense, recommendations to delete or power-off that saves your expense, and also provides the potential saving you can achieve by performing the recommended action. You can also export the report to a CSV file.

Adding Public and Private Clouds

VMware Cloud services supports public and private clouds. You can add AWS and Azure public cloud accounts and also vCenter Server private cloud accounts.

For information about adding cloud accounts, see [VMware Discovery documentation](#).

About Groups

A group is a set of resources (Compute, Storage and Network) that are categorized based on different properties like, account types, instance type, region, resource type, tags.

You can perform cost analysis and review the cost saving opportunities based on these groups. The group expense value is the sum of virtual machine expenses and other services. For example, if the group is created as "Account: valentina-acc" then the expense will comprise not only of EC2 instances but also other services like S3 and relevant taxes as applicable.

Deploy a Data Collector for a vCenter Cloud Account

The first time you add a private cloud account, VMware Discovery prompts you to add a data collector.

You can deploy as many data collectors as you want, one for each vCenter Server. To link your vCenter Servers to the same private cloud and gather information from them all, give each vCenter Server the same private cloud name.

You can also deploy a data collector in VMware Cost Insight and VMware Network Insight. The data collector that you download for use in VMware Network Insight is different from the data collector you deploy in VMware Cost Insight and VMware Discovery.

Procedure

- 1 Sign in to VMware Discovery and click **Manage > Data Collectors**.
You can also perform this step in VMware Cost Insight.
- 2 Click **Add New**.
- 3 Click **Download**.
- 4 Navigate to your vSphere Web Client data center, click the name of your vCenter cluster, and select **Deploy OVF Template**.

5 In the Deploy OVF Template form, perform the following actions.

- a Click **Select template**, then **URL**. Paste in the path to the OVA data collector file you downloaded. Click **Next**.

If you have already installed a data collector to your vCenter and are reinstalling it, click **Local file** and then **Next**.

- b Click **Select name and location**, then enter the name of your OVA file. Select the cluster where you want to install the data collector, and click **Next**.

- c Click **Select a resource** and the cluster where you want to run the data collector, and then click **Next**.

- d Review the details of your data collector deployment. Notice the **Size on disk** text box. The location where you deploy the data collector in the following steps must have enough space available. Click **Next**.

- e **Accept** the License Agreement. Click **Next**.

- f Click **Select storage** and select a datastore from the list with enough free space for the OVA file. Click **Next**.

- g Click **Select networks** and select a destination network, and then click **Next**.

- h Click **Customize template** and enter the required information. Do not click **Next**.

- For **Name of the Remote Data Collector**, use the name of the OVA file.
- For **Root User Password**, choose a unique password. It does not need to match the vCenter password.

- i Return to VMware Cloud services and collect the token key provided by VMware Discovery on the Setup a Data Collector Virtual Appliance form. Click **Copy** to copy the key.

- j When you see the Copied message, return to the vCenter **Customize template** form and paste the token key into the **VMware Cloud Services One-Time Token** text box. Do not click **Next**.

- k Click **Networking Properties**. If you use DHCP in your vCenter network, do not enter any information. If you do not use DHCP, then you must provide information for each setting. Click **Next**.

- l Click **Ready to complete** and review your configuration data. Click **Finish**.

The data collector is installed into your vSphere Web Client.

6 Return to the vSphere Web Client to run the data collector.

When you run the OVA file in the vSphere Web Client, the data collector works with the vCenter Server to push data to the VMware Cloud services.

7 If the data collector is not running when you return to your vSphere Web Client, click the **green arrow** at the top of your page.

8 To verify that your data collector is running, look under the **VMs** tab at the list of your virtual machines to ensure it is **Powered On**.

- 9 In VMware Discovery, wait for a connection to be made with your vSphere Web Client, and click **Next**.

It might take several minutes until a connection is made.

About Cost Drivers

Cost Drivers are the aspects that contribute to the expense of your business operations. To provide a granular cost visibility and to track accurate expenses of virtual machines in a private cloud, Cost Insight has identified key cost drivers.

Cost Insight maintains the reference costs for each of these cost drivers based on the industry standards.

These reference costs enable Cost Insight to calculate the cost of your setup. However, the cost of your cloud based on reference cost might not be accurate to your actual cost. For example, you might have received some special discounts during a bulk purchase or you might have an ELA with VMware that might not match the socket based pricing available in the reference database. To get accurate costs, you can modify the reference cost of cost drivers in Cost Insight, which overrides the values in the reference database. Based on your inputs, Cost Insight recalculates the total amount of private cloud expenses.

After you add a private cloud, Cost Insight automatically discovers one or more vCenter Servers that are part of your private cloud. In addition, it also retrieves the inventory details from each vCenter Server. The details include:

- Associated clusters: Count and names
- ESXi hosts: Count, model, configuration, and other host machine details.
- Data stores: Count, storage, type, capacity
- VMs: Count, OS type, tags, configuration, utilization

Based on these configuration and utilization of inventory, and the available reference cost, Cost Insight calculates the estimated monthly cost of each cost driver.

The total cost of your private cloud is the sum of all these cost driver expenses.

Calculating Server Hardware Cost

The Server Hardware Cost is the amortized cost of all servers present in the vCenter Server of your private cloud setup. You can track the total expenses related to server hardware and reduce it to a monthly amortized value.

By default, Cost Insight lists all server models in your configured vCenter Server and assigns the market rate for each server from the reference database. Cost Insight allows you to edit these values based on your actual batch purchase. You can add one or more batches for each server model. The total number of servers in all the batches must match the sum of servers in the vCenter Server for that specific model.

Cost Insight uses a depreciation method over a period to compute the amortized monthly cost of Server Hardware. Cost Insight supports two types of yearly depreciation methods and depreciation period from two to seven years.

For more information, see [Configuring the Depreciation Methods](#).

Calculating Storage Cost

Cost Insight calculates storage cost at the level of a datastore based on tag category information collected from vCenter Server.

For example, assume that you have create a tag category named Storage_tiers in the vCenter Server. Then, you create tags named Gold, Silver, and Bronze and assign cost to each tag and assign them to the datastores. Cost Insight discovers the datastores automatically and groups them based on tags.

Tags	Reference Cost (\$ per month Per GB)	Datastores
Gold	0.3	34
Silver	0.2	78
Bronze	0.1	100

Cost Insight groups the datastores based on the assigned tags and calculates the storage cost of each tag category according to the assigned values.

By default, the monthly storage reference cost in Cost Insight is set to \$ 0.1 per GB per month. Cost Insight calculates the storage costs automatically by multiplying the reference cost by the volume of the datastores. However, you can change these rates or switch to datastore profiles.

Storage Cost = estimated cost * datastore volume

: 1TB SAN disk costs \$5K (standard rate in market) Monthly cost after depreciation for 5 years = 5000/50 = \$100 per TB per month Which is \$0.1 per GB/month Note: The storage cost does not include the vSAN expense.

Assumptions

- 1TB SAN disk costs \$5K (standard rate in market)
- Monthly cost after depreciation for 5 years = 5000/50 = \$100 per TB per month

which is \$0.1 per GB/month

Note The storage cost does not include the vSAN expense.

Calculating License Cost

The License cost is the total cost of all licenses present in the vCenter Server. You can track your expense on licenses including Operating System and VMware licenses.

Cost Insight estimates the license cost based on several components:

- license type (ELA or per-socket)
- server operating system running on each virtual machine
- desktop licensing cost
- number of sockets in the physical server

The Enterprise License Agreement (ELA) cost is the total licensing cost of an operating system type. Note that for the cost allocation purposes, ELA costs are divided between physical servers based on the number of sockets on each server.

Here is the current cost of Windows server according to the industry standards.

Windows server 2016 edition	Licensing model	Price
Datacenter	Core-based	\$6155
Standard	Core-based	\$882
Essentials	Server license	\$501

Based on these current market values, Cost Insight calculates the reference cost for the Standard edition of Windows operating system as \$9 per socket.

Price for 16 cores is \$882
 Amortized cost over 2 years (per month cost) = $(882 / 24) = 36.75$
 Price per socket per month = $(36.75 / 4) = 9$,
 assuming 4 cores per socket, like Intel i7.

Similarly, the reference cost of VMware licensing is set to \$22 in Cost Insight.

vSphere on-prem licensing cost is \$776
 Amortizing cost over 3 years = $(776 / 36)$ is \$22 (approx.)

Cost Insight calculates the monthly cost of operating system based on the number of sockets from Windows, Red Hat, SUSE and other operating systems. For example, if you have 10 sockets for Windows at the cost of \$ 9 per socket, then the total operating system cost will be \$90.

The desktop licensing cost is the cost of each operating system on a virtual machine. These costs are applied directly on the virtual machines and do not contribute to fully loaded cost of the server.

The cost of the physical server (ESXi host) depends on the number of sockets in the host. The socket count is calculated based on the Guest Operating System (GOS) running on the virtual machines for each ESXi host.

Example: Example

Assume that there are three ESXi hosts, Host_1, Host_2 and Host_3 with 5 virtual machines and 5 sockets for each host. Virtual machines on Host_1 are running with Windows operating system, virtual machines on Host_2 are running with Linux operating system and virtual machines on Host_3 are running both windows and Linux operating system. The total number of sockets will be as follows: Windows Sockets: 5 (from Host_1) + 5 (from Host_3) =10 Linux Sockets: 5 (from Host_2) + 5 (from Host_3) =10

Calculating Maintenance Cost

The maintenance cost is the cost you incur to maintain your server hardware and operating systems. You can track your total expense with hardware and operating system vendors.

Cost Insight allows you to define the expenses on maintenance as a percentage value of hardware and ELA license procurement cost.

- The hardware maintenance cost is the small percentage of the Server Hardware cost. For example, assume that the total cost (NOT monthly cost) of all the groups in server hardware is \$1200. If the Hardware Maintenance is set to 10%, the yearly maintenance cost will be 120, i.e. \$10 per month. The maintenance cost of each server is computed and attributed to fully loaded cost of the server.
- Operating System maintenance cost is the small percentage of the Windows server licensing cost. For example, if the Windows server licensing cost is 100\$ and operating system maintenance is set to 10%, then the cost will be \$10. The Windows server type operating systems on the virtual machines adds this maintenance cost as part of their fully loaded cost.

Calculating Labor Cost

The labor cost is the sum of expense that is incurred on employees who maintain the datacenters. You can track all expenses spent on human resources to manage the datacenters.

Cost Insight can estimate the cost spent on labor to manage server, VMs and operating systems.

For example, Cost Insight calculates the number of hours required to manage the physical servers and virtual machines by using the following ratios:

- admin hours to physical servers
- admin hours to operating system instances
- admin hours to virtual machines

The resulting value is multiplied with the hourly rate based on the region and total number of hours per month.

$$\text{Labor Cost} = \text{Total number of hours} * \text{Hourly rate} * \text{number of hours per month}$$

Note that the hourly rate is not only the salary, but includes the fully loaded cost. The fully loaded cost of each distinct physical server is the sum of all relevant cost driver cost after applying a depreciation method.

However, you can modify or override the values by providing total monthly costs for each labor category like physical server, virtualization and operating system administration. You can also specify the hours per server and hourly rates or enter the total labor cost directly.

The labor cost contains three sections named Servers, Virtual Infrastructure and Operating System. Each section has two methods to set the cost, either based on hourly rates or the monthly labor hours. If you enter the cost based on the hourly rates, the calculation is done based on the hours of labor and labor hourly rate. Total server labor cost is equally distributed among all servers and added to their fully loaded cost.

Note Virtual Infrastructure and operating system cost will be the Direct VM cost.

Reference Calculation	Value
Salary - Yearly	60000
Salary Monthly	5000
Total no. of Hours in a Month	160
Salary - Per Hour	31.25
No. of VMs Managed	2000
Monthly hours of labor spent per VM	0.04
Monthly hours of labor spent per server	0.08

Calculating Network Costs

The Network Cost is the expense spent on network connections. You can track all expenses related to network.

Cost Insight allows you to track network expense based on different types of NICs attached to the ESX server.

Network cost is distributed based on the capacity of the NIC card. The 0-1 Gigabit NIC cards are considered under the 1GB NIC category and 1-10GB NIC cards are considered under the 10GB NIC category. For example, if one server is having three 1GB NICs and other one is having one 10GB NIC and if the price for 1GB is \$50 and 10GB is 100\$, the total network cost will be $150+100=\$250$.

If you enter the cost manually as \$100 for one server with three 1GB NICs and one 10GB NIC card, then the \$100 is distributed among both of the servers in the ratio based on the capacity and number of cards in respective servers.

The network cost for a physical server is estimated based on the price per network port and the number of ports on the host. Cost Insight collects the price per network from the reference database and categorizes between the port types (1 GB and 10 GB network ports).

You can enter the total monthly network cost directly into Cost Insight, instead of providing cost per network port.

Calculating Facilities Cost

The facilities cost includes the real estate costs, such as the rent or cost of data center buildings and racks, power and cooling costs, and associated facility management labor cost.

Cost Insight encapsulates all facility related costs into the rent cost per rack unit, except the power cost. Hence, Cost Insight calculates the facilities cost based on monthly:

- the operational cost for each rack
- the power and cooling system cost for each kilowatt per hour (kWh)

The reference database maintains these monthly costs for each rack and for each kWh. Alternatively, you can enter the total facility costs directly into Cost Insight.

Operational Monthly Cost

By default, Cost Insight provides the reference operational monthly cost as \$50 per rack unit, based on the Uptime Institute's costing model. Uptime Institute is an American professional services organization focused on improving the performance, efficiency, and reliability of business critical infrastructure through innovation, collaboration, and independent certifications.

The uptime Institute cost model for on-premises use two components:

- Power consumption by each rack or the kw component by desired level of functionality: \$23,000/kw of redundant UPS (with assumption of Tier III datacenter)
- Real estate or the computer room component: \$300/sq. ft. added in all cases

Assumptions

- Tier III data center with a 15 years useful life
- Standard rack occupies 28 Sq. Ft.
- Standard rack uses 10 kW of power
- Standard rack consist of 42 rack units
- Standard overhead on 42 rack units is about 30%. So, actual rack consists of 28 rack unit per unit

```
Standard monthly rack cost
= (cost of kw * power usage + real estate * rack area) / (no. of yrs * no. of months in a yr)
= ($23,000 * 10 + 300 * 28) / (15 * 12)
= 1400 (apprx.)
Actual monthly cost per rack (considering overhead)
= Standard monthly rack cost / actual no. of racks
= 1400 / 28
= $50
```

Power and Cooling Monthly Cost of a Datacenter

Based on the Average Retail Price of Electricity in the US as published by EIA.gov, Cost Insight is configured with the reference power and cooling monthly cost as \$ 0.08 per kWh.

The average cents per kWh for commercial segment in December 2013 was about 10.62. On an average basis over the years, Cost Insight considers as 8 Cents.

Monthly cost of power and cooling for a datacenter = Actual kWh consumed by each ESXi host * average price of electricity.

The kWh details are obtained from ESXi server directly.

Configuring Cost Settings

You can configure the depreciation preference for the Server Hardware cost driver and also configure resource utilization parameters of private cloud and AWS to calculate the accurate cost and improve the efficiency of your environment.

Cost Insight analyzes the resources and the performance of your virtual environment. Based on the values you define, Cost Insight can identify reclamation opportunities and can provide recommendations to reduce wastage of resources and cost.

You can also define an expense threshold for AWS and Azure so that Cost Insight can notify users about the spike in expense with comparison with the previous day.

About Alerts and Notifications

To monitor your increase public cloud expenses, you can set a threshold value.

When you exceed the configured expense percentage, Cost Insight sends an email notification to a set of defined recipients with the details, which includes cloud account and type, current expense and the spike value when compared with the previous day.

Configuring the Depreciation Methods

To compute the amortized cost of the Server Hardware cost driver, you can configure the depreciation method and the depreciation period. Cost Insight supports two yearly depreciation methods and you can set the depreciation period from two to seven years.

Note Cost Insight calculates the yearly depreciation values and then divides the value by 12 to arrive at the monthly depreciation.

Method	Calculation
Straight line	Yearly straight line depreciation = [(original cost - accumulated depreciation) / number of remaining depreciation years]
Max of Double or Straight	Yearly max of Double or Straight = Maximum (yearly depreciation of double declining balance method, yearly depreciation of straight line method) Yearly depreciation of double declining method = [(original cost - accumulated depreciation) * depreciation rate]. Depreciation rate = 2 / number of depreciation years.
	Note Double declining depreciation for the last year = original cost - accumulated depreciation

Example: Example for Straight Line Depreciation Method

Year	Original Cost	Accumulated Depreciation	Straight Line Depreciation Cost
Year 1	10000	0	$[(10000-0)/5] = 2000$
Year 2	10000	2000	$[(10000-2000)/4] = 2000$
Year 3	10000	4000	$[(10000-2000)/3] = 2000$
Year 4	10000	6000	$[(10000-2000)/2] = 2000$
Year 5	10000	8000	$[(10000-2000)/1] = 2000$

Example: Example for Max of Double and Straight Line Depreciation Method

Year	Original Cost	Depreciation Rate	Accumulated Depreciation	Straight Line Depreciation Cost
Year 1	10000	0.4	0	$\text{Maximum}([(10000-0)*0.4], [(10000-0)/5])$ $= \text{Maximum}(4000, 2000) = 4000$ which is 333.33 per month.
Year 2	10000	0.4	4000	$\text{Maximum}([(10000-4000)*0.4], [(10000-4000)/4])$ $= \text{Maximum}(2400, 1500) = 2400$ which is 200 per month.
Year 3	10000	0.4	6400	$\text{Maximum}([(10000-6400)*0.4], [(10000-6400)/3])$ $= \text{Maximum}(1440, 1200) = 1440$ which is 120 per month.
Year 4	10000	0.4	7840	$\text{Maximum}([(10000-7840)*0.4], [(10000-7840)/2])$ $= \text{Maximum}(864, 1080) = 1080$ which is 90 per month.
Year 5	10000	0.4	8920	$\text{Maximum}([(10000-8920)*0.4], [(10000-8920)/1])$ $= \text{Maximum}(432, 1080) = 1080$ which is 90 per month.