Cisco Workload Optimization Manager

Enhance workload performance on any infrastructure at any place and at any time.

Overview

Data centers have become highly complex environments. Workloads are growing 26 percent Year over Year (YoY), even while IT budgets are growing at a meager 3 percent. Cloud-based deployments have replaced dedicated infrastructure silos with elastic, shared resource pools, and these pools are divided across multiple tenants and applications, creating contention for finite resources. Reactive monitoring tools inform operations teams only when a problem has occurred, leading to greater risk in meeting performance service levels and potentially placing your revenue stream at risk. IT needs a new set of solutions that connect real-time performance with operation policies, resource availability, and automation to stabilize the infrastructure that supports your workloads.

Cisco® Workload Optimization Manager is a real-time decision engine that instantly scales resources up or down in response to any fluctuations in workload demand **before** service levels are affected. It relieves operations staff from complex decision making by combining operation policies and automation to help ensure that workloads can access and consume any resource on demand.

Benefits

- Ensure workload performance by abstracting resources into a marketplace of buyers and sellers with the goal of continuously equalizing workload demand and infrastructure supply.
- Connect real-time performance with operation policies, resource availability and automation to relieve operations staff from tedious migration, provisioning and scaling tasks.
- Enable operations and capacity planning teams to accurately forecast available or new capacity required to support business initiatives and data center modernization.
- Optimize performance and efficiency across data center, on premise or public clouds by increasing utilization and workload densities. Reduce costs with accurate sizing of workload instances on any environment.

What if you had a unified platform to control any workload, on any platform, at any time? What if your resources automatically scaled up or down in response to real-time changes in workload demand? What if you knew the most cost-efficient hybrid platform to use without comprising performance? Our solution does all that, and more.

The Cisco advantage

Data centers need to move at the speed of business so that your business can move at the speed of the market. Cisco's real-time control system adjusts to changes instantaneously. The single unified platform manages and helps ensure performance of workloads both on your premises and in the public cloud. It allows you to control any workload on any infrastructure, anywhere, at any time.

Figure 1 Cisco Workload Optimization Manager delivers cost comparison when considering moving workloads to public cloud.

Cloud Cost Comparison	Without Cisco Allocation based plan	With Cisco Demand based plan	Difference	%
Undersized VMs	**5** out of **258**	**0** out of **258**	**5**	-
Oversized VMs	**210** out of **258**	**0** out of **258**	**210**	-
Average VM cost	**$73**/MO	**$48**/MO	**$25**/MO	▼ 34%
Existing Cloud Compute cost	**$78**/MO	**$78**/MO	**$0**/MO	0%
Added Cloud Compute cost	**$18,754**/MO	**$12,347**/MO	**$6,407**/MO	▼ 34%
Total monthly	**$18,832**/MO	**$12,425**/MO	**$6,407**/MO	▼ 34%
Total yearly	**$225,988**/YR	**$149,100**/YR	**$76,888**/YR	▼ 34%

Time for software to manage software

Dynamic cloud infrastructure, containers, microservices, and public cloud services are forcing enterprise IT teams to become more proactive and policy driven in monitoring and managing workload performance and Service-Level Agreements (SLAs). Business depends on workload-specific requirements to inform an organization's decision about how best to balance public cloud and on-premises workload placement. The dramatic increase in the number of devices and workloads that need to be monitored and managed has made it nearly impossible for IT staff to make complex decisions in real time.

New solutions are available that deliver the real-time monitoring and advanced analytics needed to help ensure workload performance and service levels without overprovisioning. These solutions instantly adjust resource allocation and workload placement and provide intelligence to capacity planning teams. Intelligence based on your data center's current allocations and available infrastructure can then be used by these teams to conduct optimization exercises to balance cost, performance, compliance, development preferences, and business priorities.

Threshold-based solutions are no longer adequate. It is time for software to actively manage and respond in real time to changes in your data center.

Dynamic optimization required

"As hybrid cloud architectures become more widely adopted across enterprise and service provider datacenters, more and more IT decision makers are investing in solutions that ensure workload SLAs are met; even as infrastructure capacity requirements fluctuate unpredictably. Today's dynamic virtualized, and hybrid cloud environments require real-time monitoring and analysis of workload performance to maintain SLAs by driving rapid adjustments in infrastructure resource allocations."

IDC, July 2015

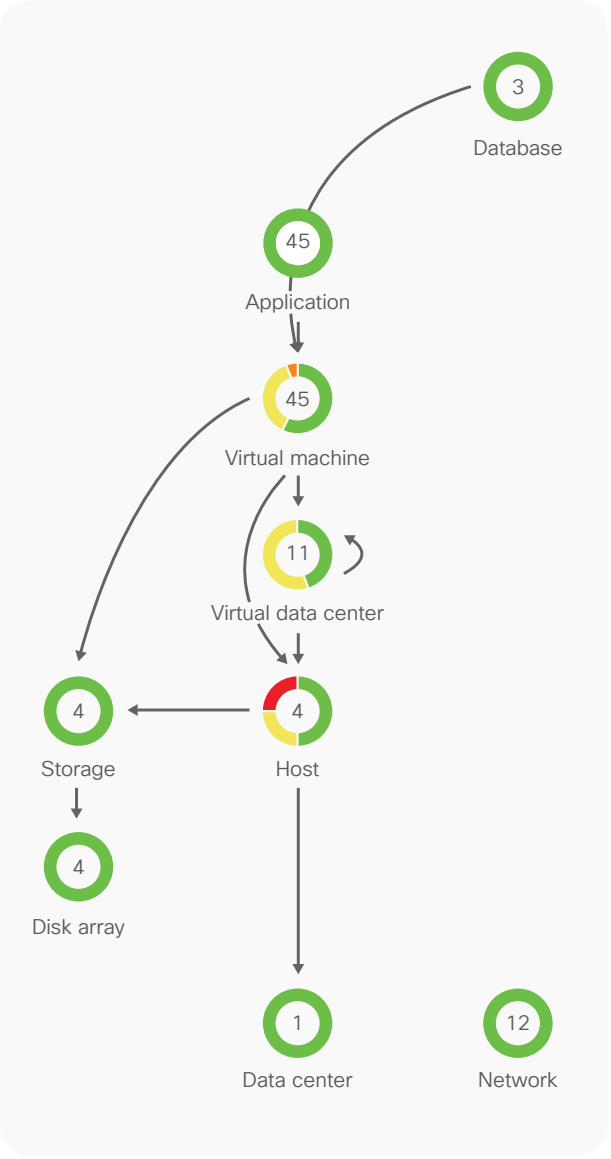
How it works

Workload Optimization Manager is easy to install. Begin by downloading an .ova file, activate your environment, connect to your browser of choice, add the license key, and select your targets. After you have selected your targets, add IP addresses, user names, and password credentials. The agentless technology will instantly begin to detect all the elements in your environment, from the application through individual components, known as service entities. As illustrated in Figure 1, within one hour of deployment, Workload Optimization Manager will deliver a global topological mapping of your environment and the interdependent relationships within the environment.

After all the service entities have been detected, Workload Optimization Manager overlays constraints, such as anti-affinity rules and cluster or storage boundaries. Taking these boundaries into consideration, the solution abstracts your data center into a virtual market of buyers and sellers, as indicated by the arrows in Figure 1. Understanding these buying and selling relationships enables the solution to recommend specific actions designed to optimize your virtual marketplace. The solution focuses on three types of actions:

- **Placement:** These actions are recommended when a service entity needs to move to another location. The purpose of a placement action is not to save a specific host or balance a workload. It is an environmental decision to move a workload for the performance of all workloads in your data center as well as to safely increase utilization and density.

Figure 1. Topology map showing interdependencies across a global data center



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Help ensure workload performance with real-time optimization

How do you ensure the performance of workloads on your premises and in the public cloud? Cisco Workload Optimization Manager can remove the guess work with real-time analytics and modeling so that you know just how much infrastructure is needed to allow your business to keep pace with the marketplace. Download the software to get started.

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- **Scaling:** These actions are applied when the resource allocation for a specific service entity is not adequate to meet service workload demand. The purpose of a scaling action is to scale allocations up or down according to the workload's demand.
- **Provisioning:** These actions are global environmental decisions to provision a new host, virtual machine, or data store because the capacity in the virtual marketplace is insufficient. In these instances, Workload Optimization Manager uses provisioning workflows from Cisco UCS® Director to automatically provision a new instance and increase capacity. After the new host, blade, or data store is available, Workload Optimization Manager optimizes the virtual marketplace to help ensure equilibrium in performance and utilization.

This scenario is well suited for customers using a pay-as-you-grow business model.

What-if scenario modeling

Operations and capacity planning teams can accurately forecast available capacity or new capacity required to support new business initiatives and data center modernization. Using ready-to-use vendor templates, your staff can specify the vendor type and number of devices being refreshed, the vendor type under consideration, utilization rate desired, and growth rates anticipated. This feature can also prepare a cost analysis for workloads that you are considering moving to the public cloud. This analysis enables a full understanding of the factors you need to know to decide whether to rent or buy a solution.

Use cases

Use case	Description
Data center modernization	When migrating from current to newer hardware solutions, Cisco Workload Optimization Manager can accurately forecast the required capacity on the new solutions as well as recommend a quarterly buying program
Data center optimization	Cisco Workload Optimization manager adjusts the configuration, placement and capacity of data center resources in real-time to ensure maximum performance and cost efficiency
Hybrid cloud optimization	Cisco Workload Optimization Manager provides guidance on workload placement to achieve maximum performance and cost efficiency