Cisco Cloud Infrastructure

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Cisco Cloud Infrastructure: Application, Security, and Data Center Architecture

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Cisco Workload Optimization Manager (CWOM) is a real-time decision engine that drives continuous health in the IT environment. Its intelligent software constantly analyzes workload consumption, costs, and compliance constraints. It ensures application performance by giving workloads the resources they need, when they need them. Figure 3-16 illustrates today's workload management.

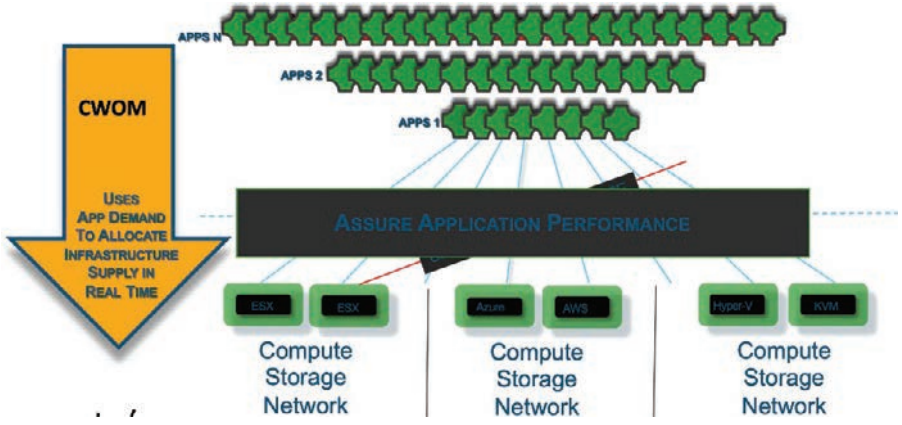

Figure 3-16 *Today's workload management*

Cisco Workload Optimization Manager is an easy-to-install, agentless technology that detects relationships and dependencies between the components in your environment, from applications through the infrastructure layers. Within one hour of deployment, Cisco Workload Optimization Manager delivers a global topological mapping of your environment (local and remote, and across private and public clouds) and the interdependent relationships within the environment, mapping each layer of the full infrastructure stack to application demand. Figure 3-17 illustrates closed-loop infrastructure optimization using CWOM.

Cisco Workload Optimization Manager provides specific real-time actions that ensure workloads get the resources they need when they need them, enabling continuous placement, resizing, and capacity decisions that can be automated, driving continuous health in the environment. Once Cisco Workload Optimization Manager is deployed, you connect to your browser of choice, add the license key, and select your targets. After you have selected your targets, you then add IP addresses, usernames, and password credentials. Targets include hypervisors, cloud platforms, applications, storage, network, and more. Cisco Workload Optimization Manager uses these targets to discover your environment and determine the specific actions that will drive continuous health in your environment.

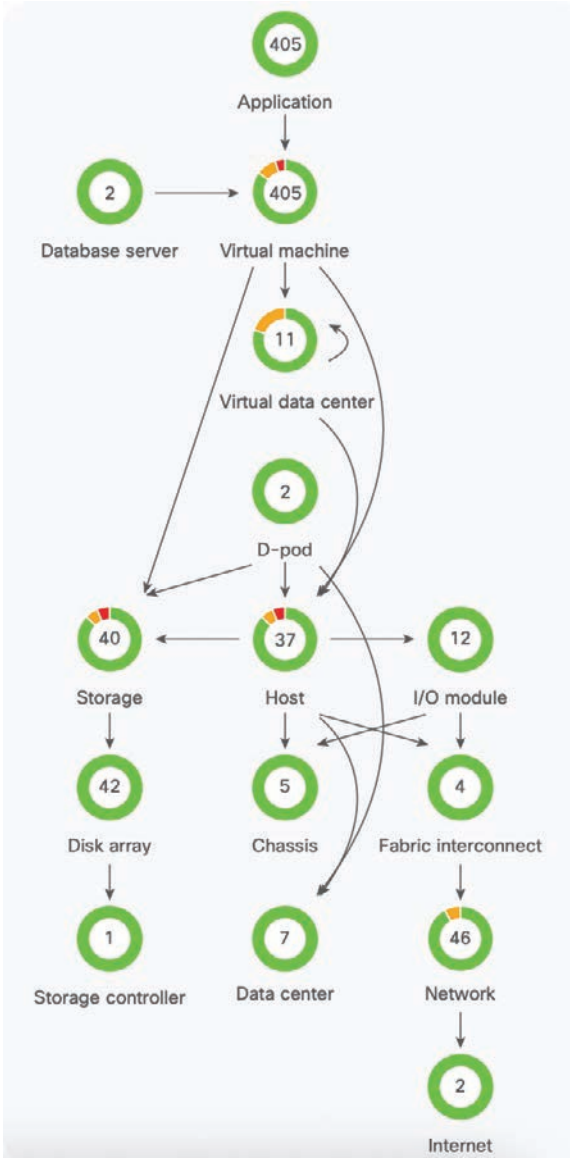

Figure 3-17 *Closed-loop infrastructure optimization using CWOM*

Create More Effective Teams

Cisco Workload Optimization Manager enables your application and IT team to ensure application performance on virtual machine or container platforms without the need for IT involvement. Integration with ServiceNow workflows enables agility and speed without relinquishing control. Your teams have the freedom to create application

environments quickly and efficiently, so your IT staff can focus on strategic business initiatives. Cisco Workload Optimization Manager application resource management works with the industry's top platforms, including VMware vSphere, OpenStack, Citrix XenServer, and Microsoft Hyper-V hypervisors as well as Kubernetes, RedHat OpenShift, and Cloud Foundry, to create self-managing and optimized container environments that can do the following:

- Minimize human intervention
- Enable automated scheduling of pods to ensure performance
- Provide intelligent cluster scaling to reduce outages
- Ensure full-stack control to unite DevOps teams and infrastructure

Optimize Your Multicloud Environment

Cisco Workload Optimization Manager can ensure application performance across your data centers and into public clouds. The software does the following:

- Automates workload placement, scaling, and capacity to ensure performance while maximizing efficiency
- Quickly models what-if scenarios based on the real-time environment to accurately forecast capacity needs
- Continuously ensures performance for VMware Horizon virtual desktop users
- Tracks, reports, and views trends for compute, storage, and database consumption metrics, such as CPU, memory, IOPs, latency, and database transaction unit (DTU), across regions and zones

Optimize Public Cloud Costs

Performance cost optimization takes into account your Microsoft Azure and Amazon Web Services (AWS) subscriptions to better utilize these resources in the following ways:

- Scale down AWS instances or Azure virtual machines, storage tiers, and database tiers, reducing costs without impacting performance
- Understand advanced reserved instance (RI) calculations to both purchase new RIs (coverage) and efficiently use existing RIs (utilization)
- Identify ghost and unattached storage instances
- Suspend or terminate unused instances
- Project actual cost of workloads by calculating compute, licensing (OS), IP address, and storage costs
- Aggregate monthly bills across services, regions, accounts, specific workloads, and lines of business

Optimize Hyperconverged Workloads

Cisco Workload Optimization Manager works with many third-party solutions to ensure your applications get the resources they need. However, its deep integration with the entire Cisco environment greatly enhances your Cisco deployments to optimize your data centers. It helps you safely maximize cloud elasticity in Cisco UCS server environments and Cisco Hyperflex systems to gain better performance and efficiency. With Cisco Tetration network awareness, you can confidently re-platform to application architectures that have increased network complexity. Cisco Cloud Center can help you intelligently deploy new workloads anywhere, anytime. Cisco Workload Optimization Manager optimizes initial cloud placement for performance, cost, and compliance. Figure 3-18 illustrates CWOM meeting changing demands.

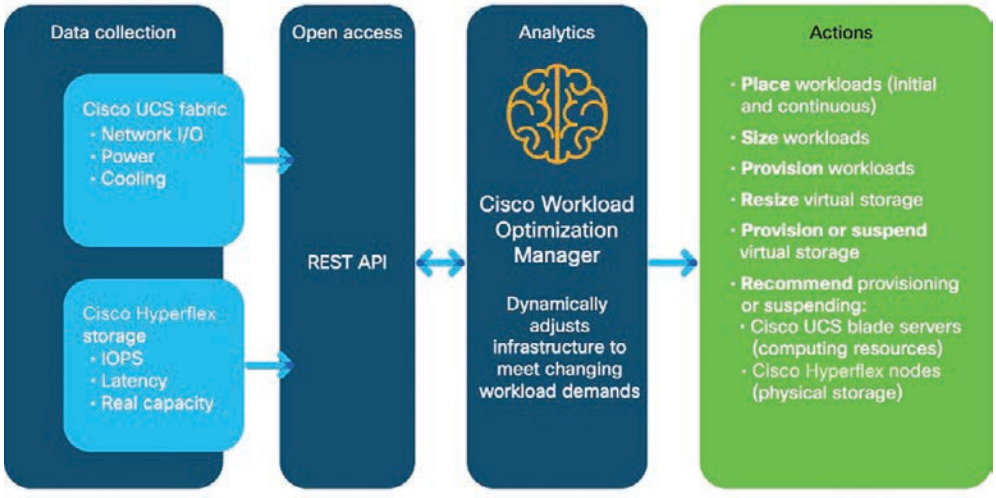

Figure 3-18 *CWOM meeting changing demands*

Ensure Application Performance

Application awareness with AppDynamics metrics complements Cisco Workload Optimization Manager and enables you to do the following:

- Continuously ensure application performance and eliminate application performance risk due to infrastructure
- Show your IT organization's value to the business when infrastructure-resource decisions are directly tied to the performance of business-critical applications
- Bridge the application-infrastructure gap with full-stack control that elevates teams and provides a common understanding of application dependencies

- Accelerate and de-risk application migration with a holistic understanding of application topology, resource utilization, and the data center stack

Figure 3-19 illustrates CWOM meeting AppDynamics.

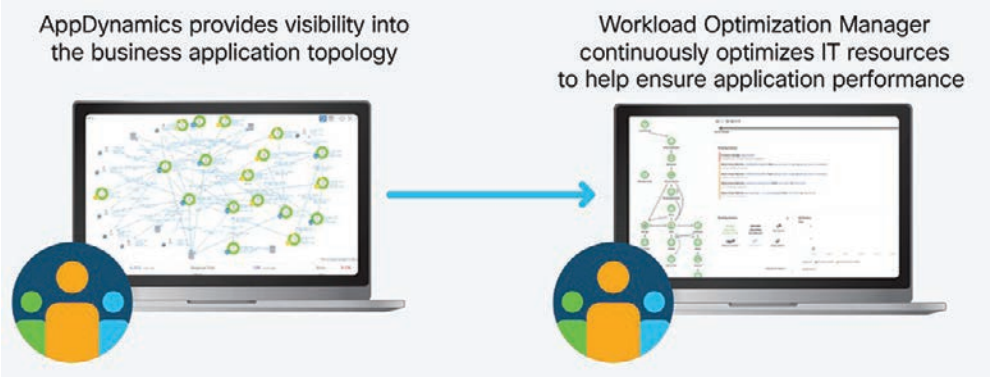

Figure 3-19 *CWOM meeting AppDynamics*

Cisco AppDynamics and Cisco Workload Optimization Manager provide complete visibility and insight into application and infrastructure interdependencies and business performance. The result is application-aware IT infrastructure that is continuously resourced to deliver business objectives. Figure 3-20 illustrates the CWOM and AppDynamics benefits.

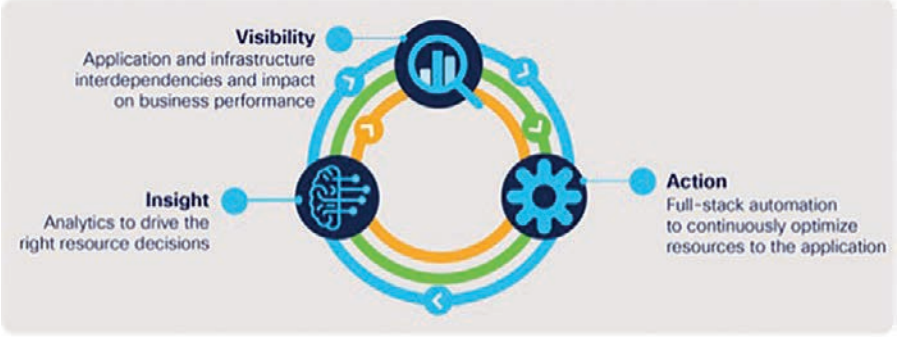

Figure 3-20 *CWOM and AppDynamics benefits*

Cisco Workload Optimization Main Features

Workload Optimization Manager continuously analyzes workload consumption, costs, and compliance constraints and automatically allocates resources in real time. It helps ensure performance by giving workloads the resources they need, when they need them. When fully automated, the self-managing platform promotes a continuous state of health

in the environment by making placement, scaling, and capacity decisions in real time. It empowers data center and cloud operators to focus on innovation—on bringing new products and services to market that promote digital transformation.

Target Integration

A target is a service that performs management in your virtual environment. Workload Optimization Manager uses targets to monitor workloads and to perform actions in your environment. The target configuration specifies the ports that Workload Optimization Manager uses to connect with these services. You must install Workload Optimization Manager on a network that has access to the specific services you want to set up as targets. For each target, Workload Optimization Manager communicates with the service through the management protocol that it exposes: the Representational State Transfer (REST) API, Storage Management Initiative Specification (SMI-S), XML, or some other management transport mechanism. Workload Optimization Manager uses this communication to discover the managed entities, monitor resource utilization, and perform actions.

Use the steps that follow to configure target integration:

Step 1. In the New User interface, click **Try It Now**. Another login page will open.

Step 2. Enter a username and password to log in.

Figure 3-21 shows the CWOM login page.

Figure 3-21 *CWOM login page*

Step 3. Click **Settings** and select **Target Configuration** (see Figure 3-22).