



# Cisco Intersight Workload Optimizer

Revolutionize application resource management for multicloud

Vishwanath Jakka

Product Manager, Cloud and Compute

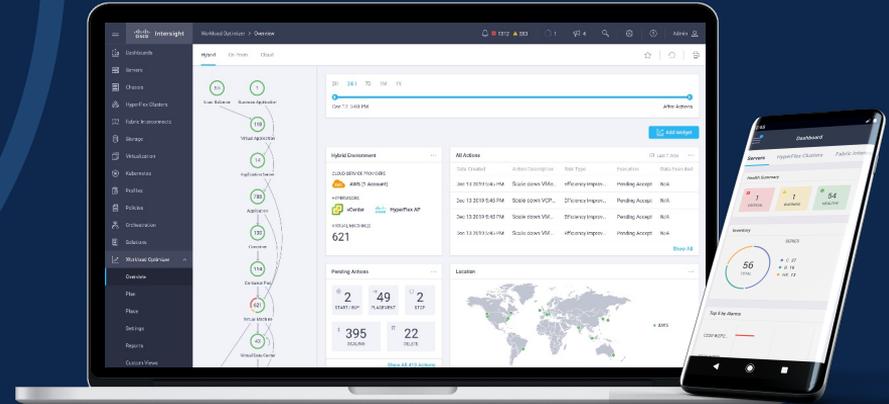
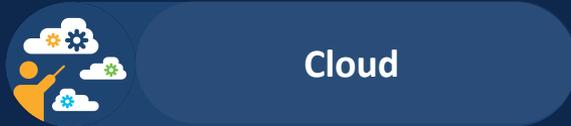
# Cisco Intersight

## Cloud operations platform



Intelligent visualization, optimization, and orchestration for applications and infrastructure across public cloud and on-premises environments.

# Mission: Delivering a cloud operating model for Hybrid Cloud



Automation

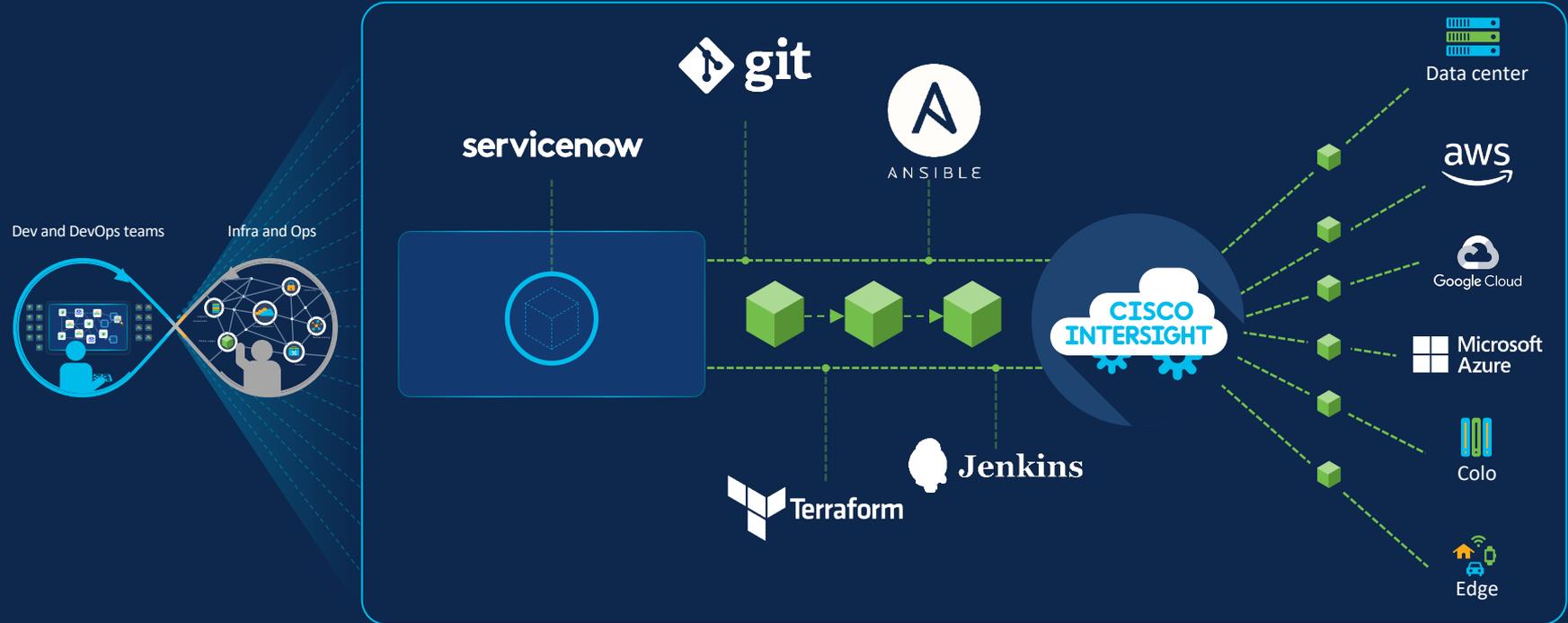
Observability

Cloud Native

# Connecting people and technology in a hybrid world



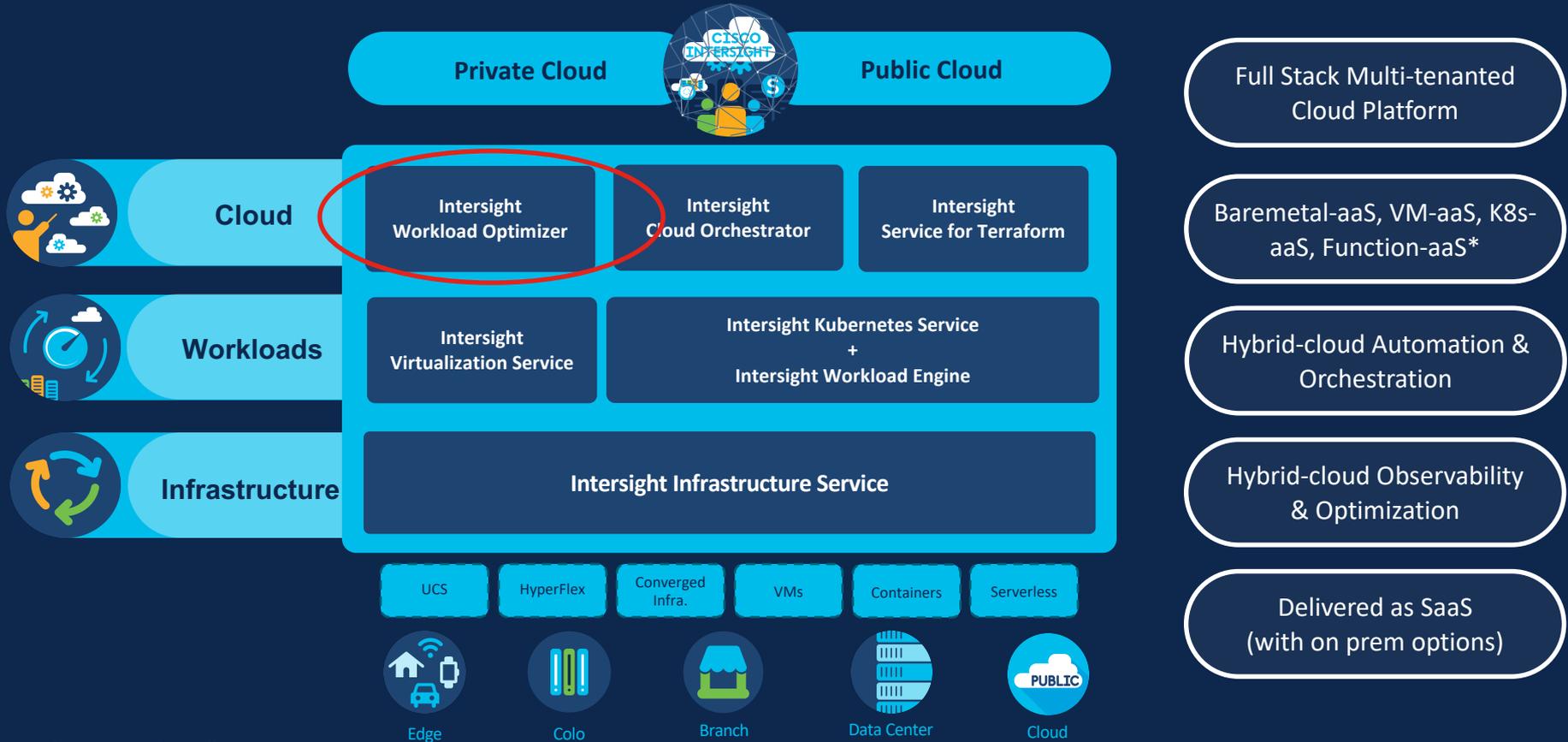
# Integrate with DevOps to accelerate application delivery



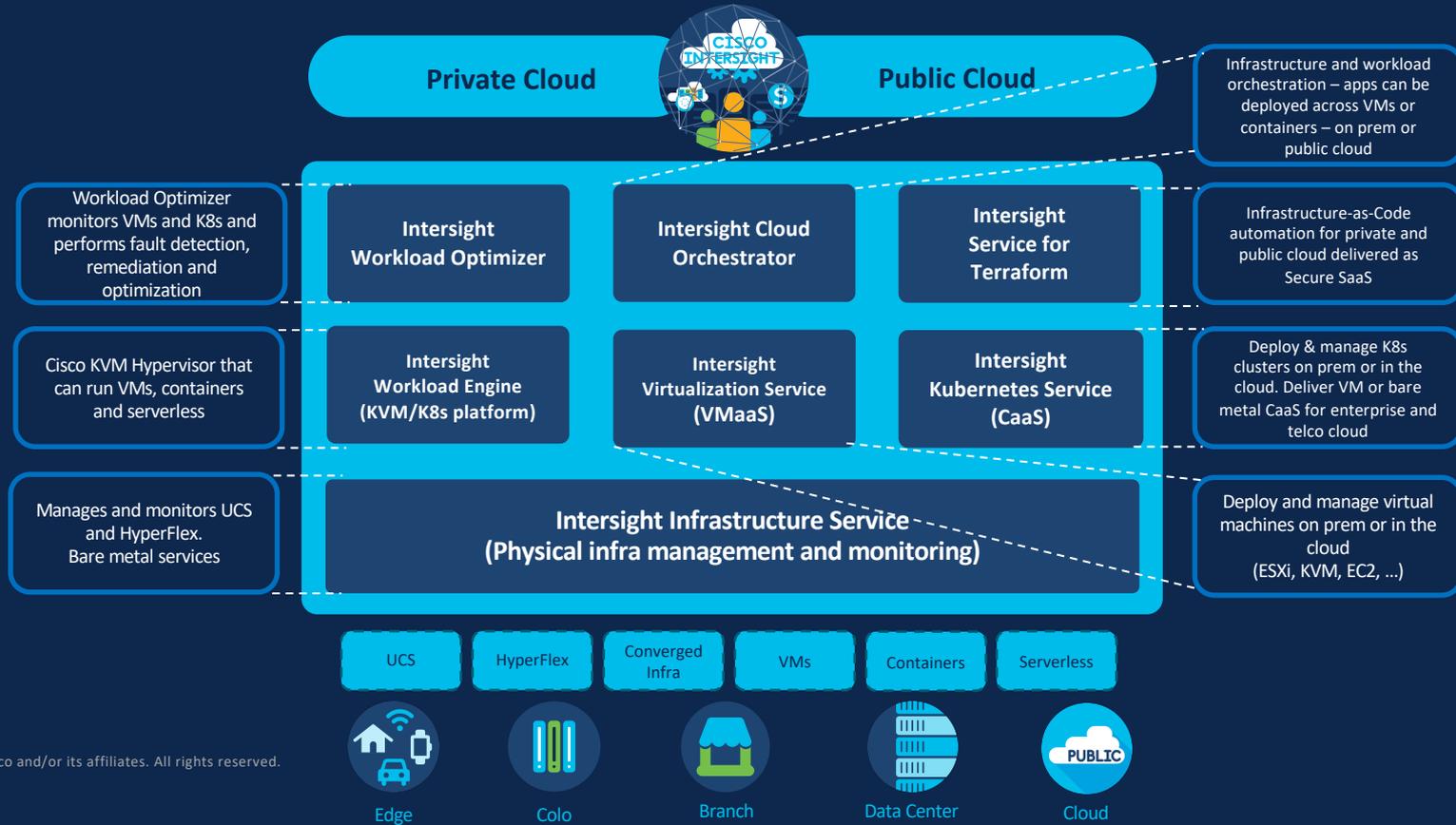
Accelerate CI/CD processes and extend infrastructure as code (IaC) workflows by integrating Intersight into your DevOps toolchains

Simplify lifecycle management with integrated infrastructure and workload orchestration tools

# Intersight Hybrid Cloud Platform

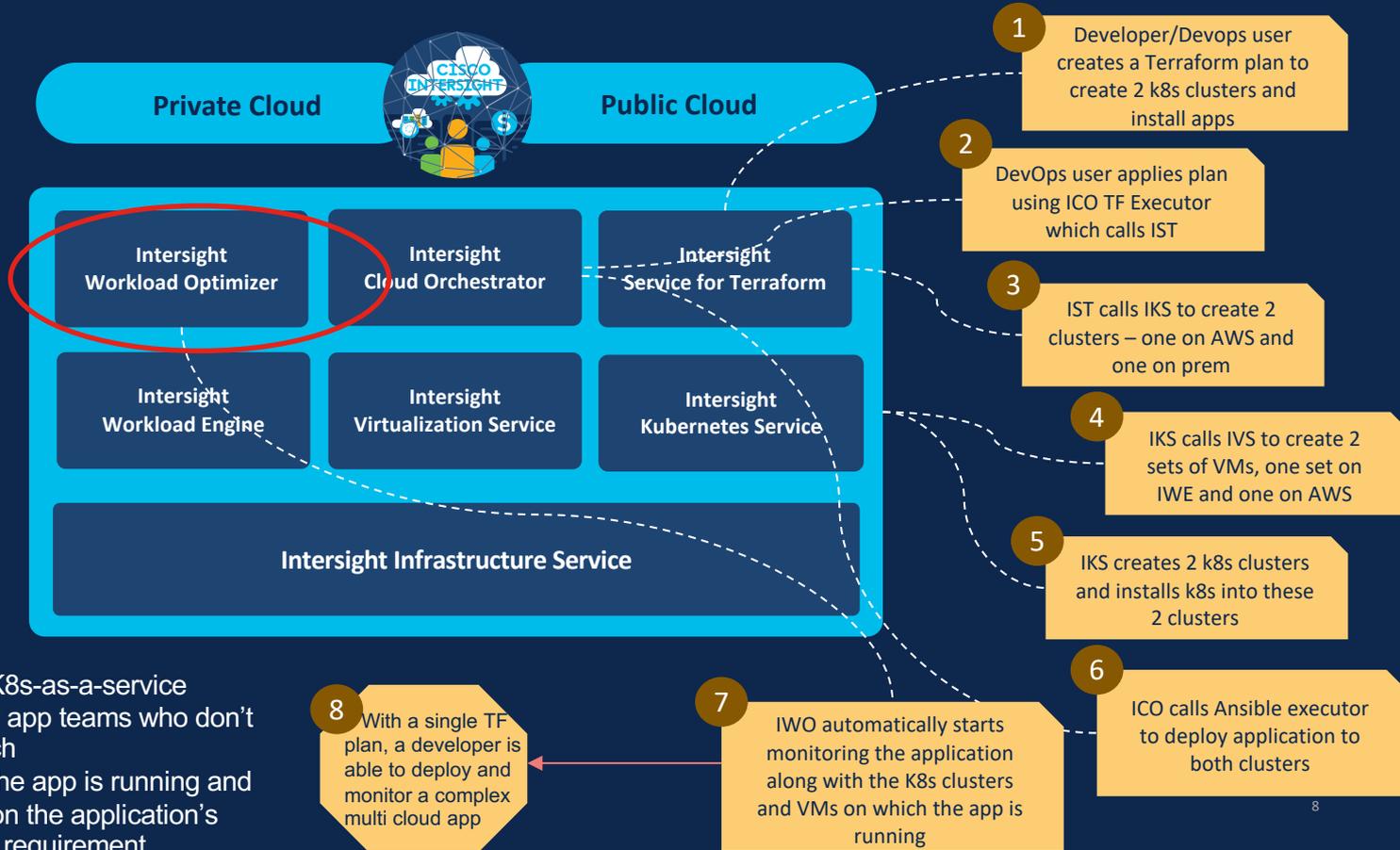


# Intersight Hybrid Cloud Platform



# Putting it all together - Example Application Deployment

Developer/DevOps user wants to deploy a hybrid k8s application. She wants the web tier in AWS for elastic scaling, but the DB needs to be on prem for data sovereignty and cost reasons



Enterprise IT offers this K8s-as-a-service capability to their internal app teams who don't need to worry about which server/hypervisor/cloud the app is running and can pick location based on the application's cost/security/sovereignty requirement

# Apps are exploding and are more important than ever...



55%

Increase in the number of applications over next two years\*



>20

Applications created in the next two years will have an average of over 20 dependencies\*



92%

Report that having visibility and insight into the performance of the technology stack is critical\*\*



77%

See increased demands on their infrastructure and pressure to maximize space and resources\*\*\*

# ...but managing application resources is beyond human scale!

## How can your teams balance app performance and cost when teams are:

- Siloed with different tools for different layers of the app stack
- Flying blind with no unified view of the complex infra and app dependencies across on-prem and public clouds
- Struggling to separate signal from noise and prioritize the constant flow of alerts coming from separate tools
- Challenged to make real-time decisions based on capacity on-prem or in public clouds



# Today's independent solutions cannot assure performance...



Siloed teams

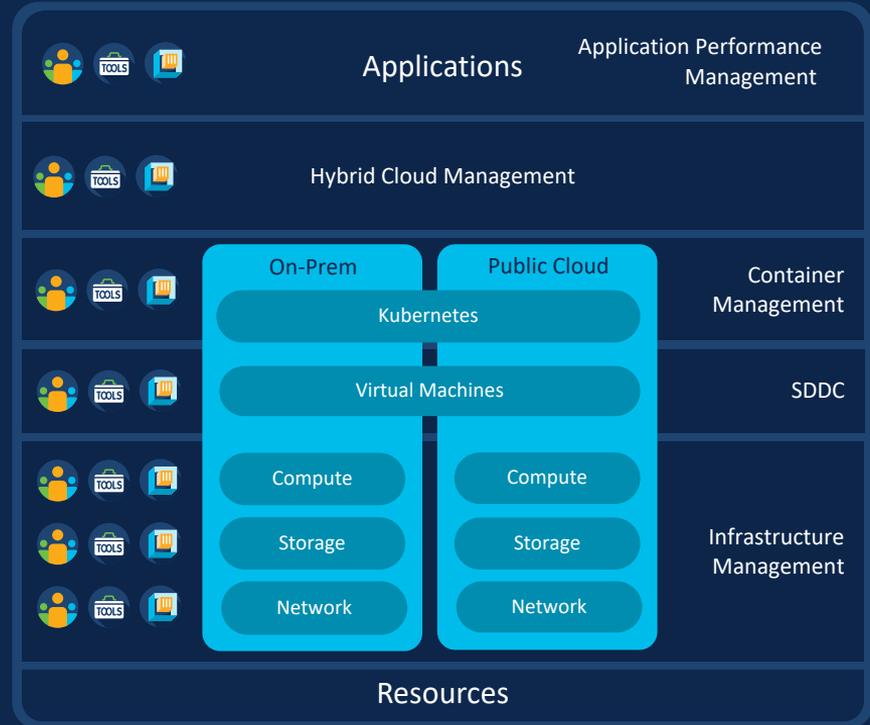


Disparate data



Fragmented tools

Disconnected and reactive operating model



# ...and doing nothing comes at a cost



War rooms resulting from lack of visibility across apps and infrastructure



Unnecessary time and cost wasted with multiple platform-specific tools



Increasing costs from overprovisioning on premises and in the cloud



App performance issues impacting user experience and business



Keeping track of and adhering to compliance rules



Under utilized infrastructure resources

# How can you assure application performance and reduce cost in this complex world?

## Real-time Analytics

powered by AI to drive the right resource decisions



Let intelligent software manage your application resources



## Full-stack Automation

allocates and optimizes resources in real-time

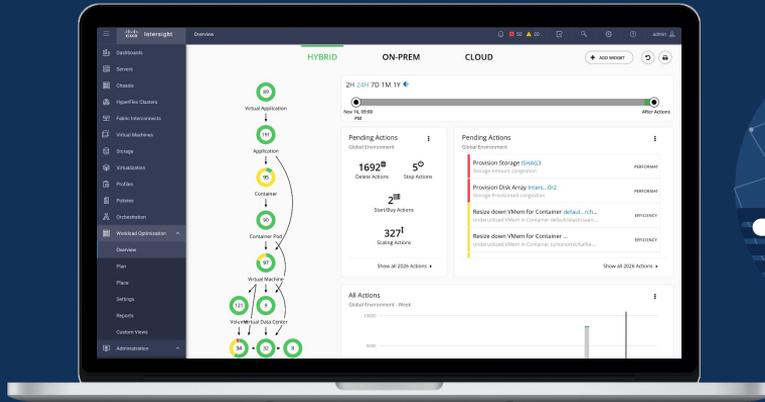
## Complete Visibility

into app/infrastructure interdependencies



# Cisco Intersight Workload Optimizer

## Revolutionize application resource management for multicloud



**Complete visualization across all apps and infra**  
**Mapping of complex interdependencies**

**Real-time, AI-powered analytics**  
**Continuously balancing performance and cost**

**Actionable recommendations**  
**Automated, real-time actions**

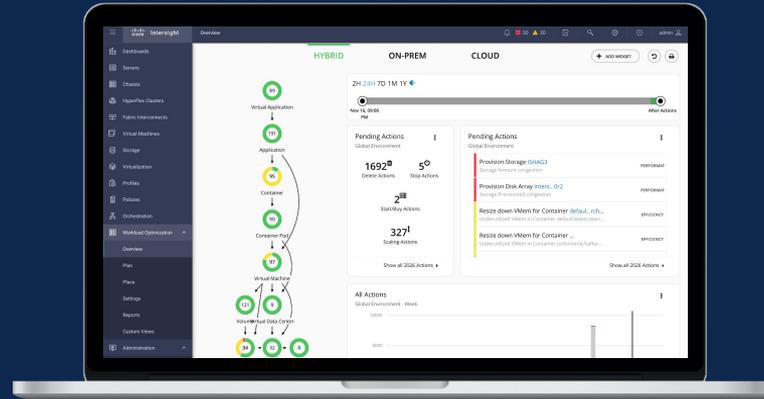
Simplify application  
resource management

Reduce OPEX and  
preserve capital

Adapt to change and  
reduce risk

# Cisco Intersight Workload Optimizer

## Ensure application performance and reduce cost



Simplify application resource management

Collect, analyze and stitch together infrastructure resource telemetry data across all environments with a single tool

Reduce OPEX and preserve capital

Continuously optimize IT app resources for efficient use of existing infrastructure and lower operational costs

Adapt to change and reduce risk

Take the guesswork out of planning for the future with what-if scenario modeling with accurate capacity forecasting to avoid overprovisioning

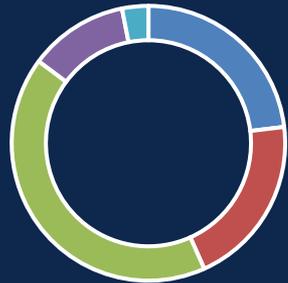
# Proven results:

## Forrester Report: Total Economic Impact of Intersight Workload Optimizer

Through six customer interviews and data aggregation, Forrester concluded that Intersight Workload Optimizer had the following three-year financial impact.

### Summary Of Benefits

Three-year Benefits (\$6.9M)



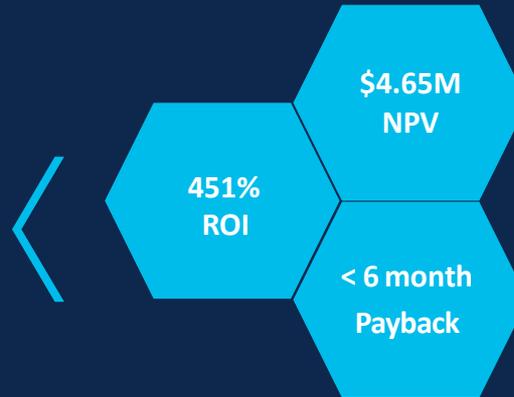
Revenue increase from increased application performance  
**\$2.9M**

Operational Efficiency Savings  
**\$1.4M**

Infrastructure (public cloud and on-premises) TCO savings  
**\$1.6M**

Avoid SW license fees  
**\$214.6K**

Revenue for faster time to market  
**\$811.7K**



### Business Outcomes

- Improvements to revenue generating application performance
- Increased staff productivity from automation and collaboration across infrastructure and application teams
- Eliminate infrastructure and cloud waste

[Forrester Analyst Report - Total Economic Impact of Cisco Intersight Workload Optimizer](#)

# Intersight Workload Optimizer automates decision-making

## 1 Abstraction

App workloads and infrastructure dependencies are captured across the stack

Applications



Infrastructure



## 2 Analytics

Environment is modeled as a market of buyers and sellers. IWO applies principles of supply, demand, and price to match app demand to infrastructure supply.

Application resource demand



\$

Price

Infrastructure supply



## 3 Automation

Resource optimization applies real-time to ensure app performance and minimum cost. Actions can be manual or automated.

- Sizing and placement actions
- Provisioning actions
- Retiring resources



# A balancing act



# Under the hood

Intersight Workload Optimizer navigates multiple, complex tradeoffs across hybrid cloud environments to ensure performance

Actions are executed automatically to assure app performance

Scale

Place

Move

Configure

Start/Stop

Optimize Cloud

Workloads (RIs)

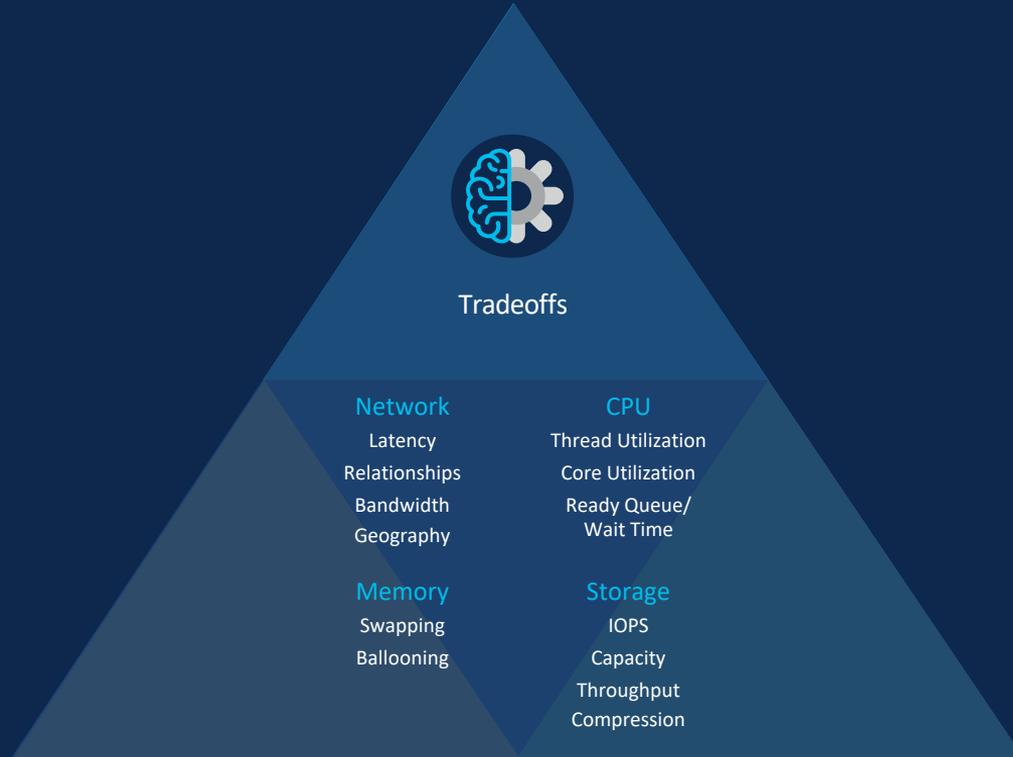


# Under the hood

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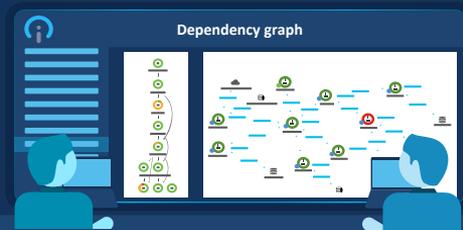
- Scale
- Place
- Move
- Configure
- Start/Stop
- Optimize Cloud Workloads (RIs)



# Transform data into insights for end-to-end optimization



Improve situational awareness with dynamic visualization of workload and infra interdependencies



Get in front of problems before they happen



Optimize for performance and cost



# A powerful combination

## Intersight Workload Optimizer and AppDynamics

### Application Resource Management Intersight Workload Optimizer



Visualize application resource dependencies (Infrastructure)

Automate application resourcing decisions (Infrastructure)

Continuously optimize application resources on-demand



### Application Performance Management AppDynamics



Visualize application component dependencies

Automates anomaly detection down to line of code

Continuously optimize applications

Deliver continuous business and application performance

# IWO - Broad and growing ecosystem of supported targets

Apps, DBs and App  
Performance  
Management



Public Cloud and  
Cloud Native



Compute and  
Container Platforms



Storage Arrays and  
Hyperconverged (HCI)



[Intersight Workload Optimizer Target Configuration Guide](#)

# Microservices architectures and DevOps operating models increase application resource management complexity



Assuring modern application performance can be even harder

# Operating Kubernetes at scale is extremely challenging

As Kubernetes deployments grow and complexity increases, it gets more and more difficult to answer key questions to ensure smooth operations.



How should you size containers?



When do you need to reschedule (move) pods?  
To which nodes?



When do you need to scale out (or back) the cluster?  
By how much?



Do you have enough capacity to onboard  
new services?



## kubernetes

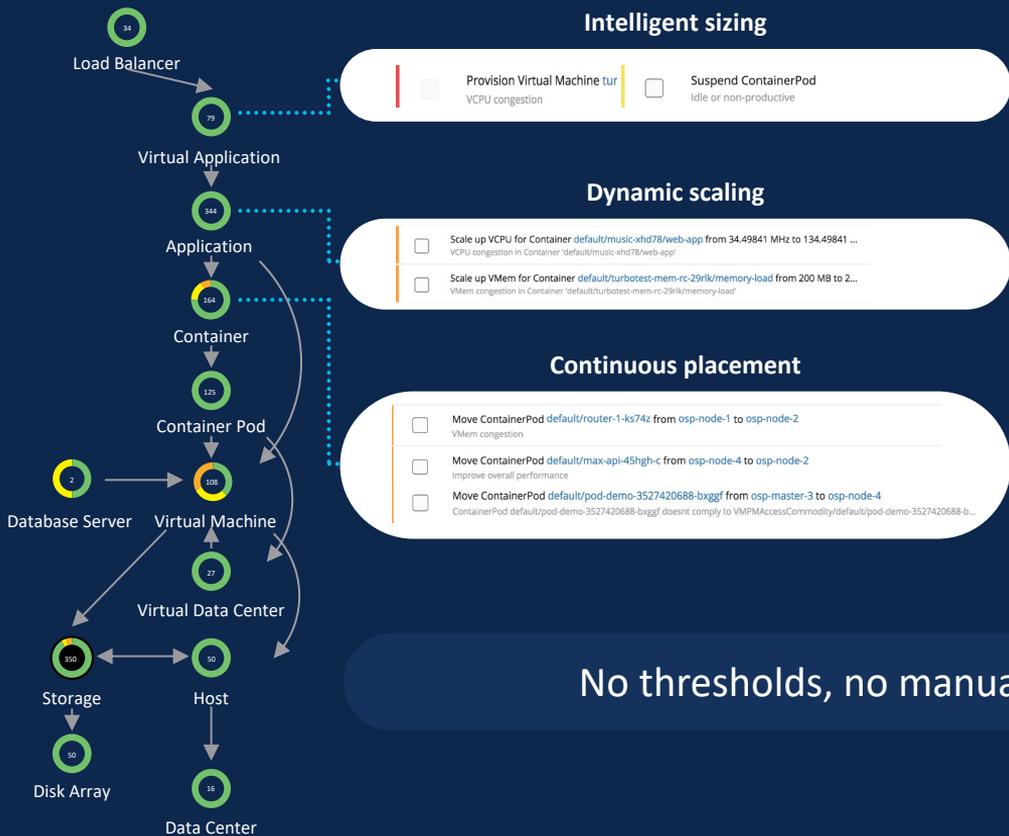
A circular progress indicator with a blue arc and the number 41% in the center.

41%

Identified complexity as a top challenge  
in using and deploying containers.

Source: [Cloud Native Computing Foundation Survey 2020](#)

# Managing Kubernetes performance at scale



## Intelligent sizing

- Provision Virtual Machine tur VCPU congestion
- Suspend ContainerPod Idle or non-productive

## Dynamic scaling

- Scale up VCPU for Container default/music-xhd78/web-app from 34.49841 MHz to 134.49841 ... VCPU congestion in Container 'default/music-xhd78/web-app'
- Scale up VMem for Container default/turbotest-mem-rc-29rlk/memory-load from 200 MB to 2... VMem congestion in Container 'default/turbotest-mem-rc-29rlk/memory-load'

## Continuous placement

- Move ContainerPod default/router-1-ks74z from osp-node-1 to osp-node-2 VMem congestion
- Move ContainerPod default/max-api-45gh-c from osp-node-4 to osp-node-2 Improve overall performance
- Move ContainerPod default/pod-demo-3527420688-bxggf from osp-master-3 to osp-node-4 ContainerPod default/pod-demo-3527420688-bxggf doesnt comply to VMPPMAccessCommodity/default/pod-demo-3527420688-b...

## Optimize the management of Kubernetes cluster resources

### Continuous integration



- Install
- Deploy
- Harden

### Continuous deployment

Monitoring & alerts



Workload Optimizer

How should you size containers from Day 1?

Dynamic placement & scaling to assure application performance on Day 2

No thresholds, no manual setup, no guessing, just actions

# IWO Kubernetes features and benefits

## Capabilities

## Workload Optimizer Benefits

### Container rightsizing



Scale containers up or down based on application demand. Actions can be executed automatically in real-time, freeing developers to focus on application features and functionality, not resources.

### Pod redistribution



Reschedule pods while maintaining service availability to avoid resource fragmentation and/or contention on the node. Safely increase density and assure cluster efficiency

### Cluster scaling based on app demand



Ensure you always have exactly the right amount of infrastructure to ensure your services continuously perform.

### “What if” scenario planning



Determine how much headroom you have in your clusters, or simulate adding (or removing) demand (Kubernetes pods) so you're always ready to onboard new services

Full stack, multi-cluster, hybrid cloud visibility

# As public cloud adoption accelerates...complexity and cost increase

## More clouds



87% of organizations have a hybrid cloud strategy. 93% have a multicloud strategy.\*

## More workloads



By 2022, 50% of mission critical apps will be hosted in public cloud. \*\*

## More cloud waste



Executives estimate that at least 30 percent of their cloud spending is wasted\*

## More uncertainty



7 in 10 organizations have experienced higher-than expected cloud costs, demonstrating the need for effective cloud planning\*\*\*

# Hybrid cloud resource management challenges

## Beyond human scale



Lack of visibility into resources and associated costs in the cloud



What resources do I have available in which clouds and what are they costing me?



Inability to correlate app demand to the millions of cloud configuration options



How do I pick the right configuration/tier to run my workload without overprovisioning?



Pressure to reduce cloud costs/OPEX without impacting performance



How do I assure application performance for workloads running in public cloud while minimizing cost?



Dynamic and uncertain times make it difficult to plan for the future



How much cloud capacity will I need in the future and how can I be ready for what comes next?

# Master application resource management for hybrid cloud with Intersight Workload Optimizer



Lack of visibility into resources and associated costs in the cloud



Single tool with full-stack visibility and proactive IT resource optimization across on-premises and public clouds environments



Inability to correlate app demand to the millions of cloud configuration options



Continuous monitoring of cloud provider catalogs for new additions/configurations. Maps workloads to best-fit resources



Pressure to reduce cloud costs/OPEX without impacting performance



AI-powered analytics deliver intelligent insights and recommendations to ensure application performance while reducing cloud costs



Dynamic and uncertain times make it difficult to plan for the future



Adapt quickly and reduce risk with data-driven capacity planning and “what if” scenario modeling

# Assure performance and minimize cost in Amazon Web Services and Microsoft Azure environments



Continuously optimize cloud compute, storage, and database resources based on application demand



Eliminate idle and forgotten assets with real-time insight into your cloud environment



Make scaling and placement recommendations based on the resource needs of the workload to ensure performance while minimizing costs



Matches your Reserved Instances (RIs) to the right instance type/SKU and guides you to purchase the right RIs



Integrates and manages performance of all upstream versions of Kubernetes including OpenShift, Amazon EKS, Azure AKS, and Google GKE

# Revolutionize application resource management with Cisco Intersight Workload Optimizer



## Infrastructure and Operations Teams

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- Reduce complexity
- Less time spent in war rooms and firefighting
- More time to support delivery of new services



## CIO

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- Visibility and efficient operations across on-prem and public cloud
- Ability to adapt quickly and reduce risk
- Reduce Opex and preserve capital



## DevOps and Application Owners

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- Ensure app performance
- More time spent coding and innovating
- Increased velocity and satisfied end users



Global leader in insurance, annuities  
and employee benefits

## Challenge

- Highly manual monitor, evaluate and response process for workloads
- Business application performance and delivery not linked to infrastructure
- Under utilized infrastructure and unpredictable cloud spend

## Solution

Optimize IT resource management and ensure application performance with Cisco Workload Optimizer and AppDynamics

## Results

- Identified over 10K performance & compliance risks, now mitigated with automated actions
- Immediate reduction in Azure spend by \$1.6M by optimizing templates and eliminating wasted resources
- Placement actions increase efficiencies and save \$4.8M in SQL license costs



Global firm that operates in the world's financial, energy and commodities markets.

## Challenge

- Assure performance of applications as they migrate workloads from on-premises to cloud.
- Operationalized for traditional data center principles rather than cloud IaaS and lack the processes to effectively manage cloud costs

## Solution

Establish cost management best practices and processes supported by Workload Optimizer

## Results so far

- \$2M in amortized AWS savings (in 4 months)
- 363 AWS workloads resized for efficiency
- Over 50 unused workloads deleted



## Consumer finance leader transforms business model

### Challenge

- Transform longstanding business model
- Expand and modernize customer engagement channels
- Implement hands-free, cloud-enabled IT infrastructure

### Solution

- Infrastructure (HCI)
- Cisco Intersight™ SaaS Systems Management Platform
- Intersight Workload Optimizer
- Cisco Application Centric Infrastructure (Cisco ACI®)
- Cisco AppDynamics

### Results

- Reduced IT OpEx by more than \$3.5 million over three years
- Established hybrid cloud infrastructure with single-pane-of-glass management
- Shifted staff resources from IT administration to business enablement



Healthcare provider

Transforming their IT operations from a cost center to a business partner with workload optimization technology

**\$2M**

reduction in Microsoft software licensing costs

**\$1.5M**

in hardware cost savings as a result of increased VM density

“This [CWOM cost analysis] gave us real confidence. It’s a little scary to use the cloud because you’re not sure what will happen, and what the cost will be. CWOM did the analysis, and based on our application history, it told us where to reduce CPU and memory for potential savings in the cloud too.”

-Senior Manager of Servers and Virtualization



Cloud-based Healthcare Technology company

## Improving infrastructure efficiency on-premises and in the cloud with Cisco Workload Optimization Manager

**\$200K**

Reductions in Microsoft Windows licensing costs

**\$500K**

Savings in Microsoft SQL Server licensing costs

“CWOM has provided tangible benefits in terms of infrastructure efficiency. But there have been other benefits that we didn’t expect: reducing and adjusting our workforce, better planning, and better application performance.”

- Senior Technology Manager and Lead Engineer

# Service Offers for Intersight Workload Optimizer



Proof of Value

8 to 10 hour remote engagement



Quick Start

Design & deployment service



Use Cases

Library of use cases



Custom

Custom engagements

# Next steps



- Schedule a call with a specialist
- Try a [demo](#)
- Start a trail

To learn more about how Cisco InterSight Workload Optimizer can help you simplify application resource management visit:

[cisco.com/go/optimizer](https://cisco.com/go/optimizer)

