HYBRID

Cisco Hybrid Solution for Kubernetes on AWS
Simple. Consistent. Secure

What if deploying, connecting, securing and monitoring hybrid applications was... simpler?

Microservices development. Containers. They've become top of mind for organizations seeking to accelerate application innovation in a hyper-competitive and fast-moving world of heightened user expectations. And Kubernetes? Whether on premises or in the public cloud, it enables your developers to deliver business value faster by packaging everything your applications need—all the services, automation of deployment, scaling, and operations.

But running Kubernetes has its own challenges—with too many different tools for security, management, networking, monitoring, and more. It can be overwhelming.

And leveraging the public cloud often means your teams have to work across two isolated and inconsistent environments. The result? More complexity, more risk, and lack of choice, which slows down development. There is another way. An easier way.

Cisco® Hybrid Solution for Kubernetes on AWS combines Cisco, AWS, and open-source technologies to enable a simple, integrated way to manage Kubernetes-based infrastructure and applications' lifecycle across customer premises and AWS. With a dedicated integration between your on-premises infrastructure and AWS, you get a single control pane, consolidating two environments into one.

Benefits

· **Accelerate application innovation** with freedom to develop and deploy anywhere

· **Shorten time to market** by creating one consistent environment between Amazon Web Services and on-premises investments

· **Decrease complexity and costs** by simplifying Kubernetes-based infrastructure

· **Reduce risk** with a single point of contact for support across all solution components, provided by Cisco

Use cases

With Cisco Hybrid Solution for Kubernetes on AWS you can:

- **Deploy** applications with a simplified and consistent CI/CD experience using common identity and authorization between on-premises and AWS

- **Connect** applications with scalable, robust, and secure connectivity with enterprise-class features

- **Secure** applications with proactive monitoring and threat detection delivered by SaaS-based behavioral modeling

- **Monitor** application and infrastructure performance with real-time analytics and a common set of tools

The innovation challenge

Innovating at the speed of cloud. Organizations want it. Users expect it. The question is how? How do you balance the need to quickly transform the user experiences while maintaining efficiency and mitigating risk through security and compliance? Organizations are constantly striving for competitive advantage, with application innovation and delivery being the new race to win. And reducing infrastructure complexity in order to spend more time on developing and deploying is key.

It then comes as no surprise that containers are now dictating the evolution of on-premises infrastructure. Market intelligence firm IDC (2018)* predicts that 79.5 percent of enterprises are expected to invest in containers by 2020 and 77 percent are prioritizing container management for evolving their infrastructure.
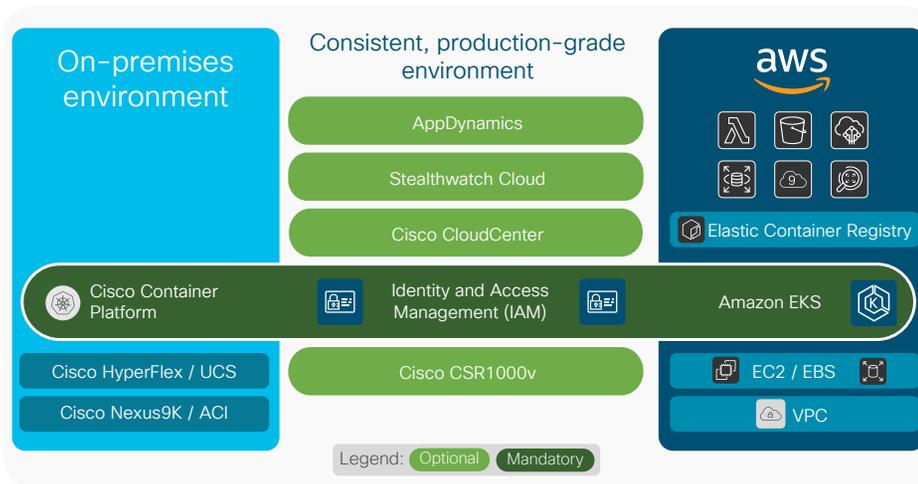
At the same time, containers are a standard service from public cloud providers, with most of them now offering a different flavor and Kubernetes winning the battle as the new de-facto standard for management and orchestration.

But running Kubernetes on premises can be complicated, slow, and siloed from existing applications. With too many different tools for security, management, networking, monitoring, and more. It can be overwhelming.

And yes, the public cloud might be more straightforward, but what about when you want to run and manage containers across your premises as well as the public cloud? Or when you need to move from testing to production fast and repeat, in true Continuous Integration and Continuous Delivery (CI/CD) fashion? What about when your application is taking off and you are looking for that global cloud reach and scale? And since your environment is not your on-premises environment but also in the public cloud, how can you comprehensively secure your application and infrastructure or monitor how they are performing? Or simply, who (and what) is accessing the different services on either side?

All this means more complexity that impacts the speed and cost of application development, posing risks due to inconsistent governance, networking, and security. It ultimately means less freedom to develop and deploy applications anywhere you want.

*Container Management Platforms Accelerate Agility While Enabling I and O Transformation, IDC, January 2018.

On-premises environment

Consistent, production-grade environment

aws

AppDynamics

Stealthwatch Cloud

Cisco CloudCenter

Elastic Container Registry

Cisco Container Platform

Identity and Access Management (IAM)

Amazon EKS

Cisco HyperFlex / UCS

Cisco CSR1000v

EC2 / EBS

Cisco Nexus9K / ACI

VPC

Legend: Optional Mandatory

Components of Cisco Hybrid Solution for Kubernetes on AWS

The Cisco solution can be customized to your needs with optional hardware, suitable for customers with or without existing on-premises infrastructure. It offers:

- **Optimized management, monitoring, networking, and security for AWS** - Cisco CloudCenter™, Cisco Cloud Services Router 1000V, Cisco Stealthwatch® Cloud, AppDynamics®

- **On-premises integrated hardware with a turnkey, 100-percent upstream Kubernetes environment**, with Cisco HyperFlex™ or Cisco UCS®, Cisco ACI™, Cisco Container Platform*

- **API services integration between on premises and public cloud**, leveraging AWS' Identity and Access Management (IAM) feature, integrating the Cisco Container Platform (on-premises) and AWS' Elastic Container Service for Kubernetes (EKS)

*Indicates mandatory components

Cisco software components will be licensed on an annual subscription basis, including 1-, 3-, and 5-year terms. Infrastructure components will be sold on a perpetual basis. For AWS services, customers will be billed directly through AWS or through authorized AWS resellers.

All AWS components are accessible via the AWS Marketplace and pricing is consumption-based.

Key capabilities

The Cisco Hybrid Solution for Kubernetes on AWS is designed to make your life easier. It can simplify how you:

- **Deploy applications.** A core component of the solution, Cisco Container Platform seamlessly integrates with AWS EKS using AWS' Identity and Access Management (IAM). This enables consistency between on-premises infrastructure and AWS, which means you just need one way to authenticate and spin up Kubernetes clusters on either side. This way, your DevOps teams can leverage IAM to create pods and deploy applications with one common toolset, reducing time to market of new releases and features. Cisco CloudCenter further automates deployment to multiple targets, without the need to remodel applications.

- **Connect applications.** Cisco's CSR 1000V optimizes connectivity by creating a unified and secure environment that includes your private network and AWS. Now your deployed applications can globally scale with automated and robust connectivity as they take off, bringing them closer to their users. With Cisco Application Centric Infrastructure (ACI) natively integrating with Kubernetes, you can easily enforce networking policies that move across clouds with your containerized applications, so networking becomes easier to manage and monitor.

- **Secure applications.** Cisco Stealthwatch Cloud delivers proactive security and threat detection by integrating with the AWS Virtual Private Cloud (VPC) and your on-premises environment so you can manage access of users, devices, and workloads with policy enforcement. This way, you can ensure your developers only focus on building applications while you don't have to worry about security or meeting compliance requirements.

- **Monitor applications.** AppDynamics offers end-to-end visibility of your entire application ecosystem for migration validation and improvements in error detection or problem resolution. What's more, you can use the same open-source software monitoring and logging stack, such as EFK, Prometheus and Grafana, both on premises and in AWS, in order to monitor your applications infrastructure's health.

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CISCO

The Cisco Advantage

At Cisco, we believe that cloud doesn't have to be complex, and that organizations should have the freedom to use any cloud the way they want to, adopting the best services available, but also leverage their existing application and infrastructure investments. We are dedicated to working with public cloud providers and a global ecosystem of more than 60,000 partners, one million network engineers, and 500,000 DevNet developers. Our industry-leading expertise in enterprise IT, including networking, security, management, analytics, and hyperconverged infrastructure uniquely positions us to deliver solutions enabling our customers in a multicloud world.

Call to action

Get started

To learn more about Cisco Hybrid Solution for Kubernetes on AWS,
visit: www.cisco.com/go/hybridkubernetes

Services

New! Cisco Advise and Implement Quick Start Service is available for the Cisco Hybrid Solution for Kubernetes on AWS to accelerate hybrid cloud adoption.

Cisco Quick Start Services include setup and configuration of:

- **Cisco CloudCenter** - on premises and in AWS
- **Cisco CSR 1000V** - networking and VPN connectivity
- **Cisco HyperFlex or Cisco UCS** - on-premises compute infrastructure
- **Cisco Container Platform** - IAM authentication with AWS Virtual Private Cloud (VPC) and AWS Elastic Container Registry (ECR), deployment of Kubernetes clusters on premises and in AWS Elastic Container Service for Kubernetes (EKS), setup of monitoring and logging

In addition, based on your selected option, Quick Start Services will cover:

- **Deployment of application in AWS** - infrastructure setup in AWS EKS, leveraging IAM authentication
- **Deployment of application on premises** - infrastructure setup on premises, consuming AWS services
- **Hybrid CI/CD workflow (on premises and AWS)** - configuration of GitLab repository, Artifactory, Jenkins integration with Cisco CloudCenter

In addition, with Cisco Custom Services, you can access a lifecycle of services from Cisco Cloud Advisory, Implementation, and Business Critical Services to Solution Support, Managed Services, and Learning Services, along with selected use cases that can help you accelerate application development, deployment, and portability between any public and private cloud environment.

Cisco also offers Strategy and Assessment Services that can help you assess your current application landscape and develop a plan to modernize or migrate traditional applications.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.