AWS EKS and D2iQ Kubernetes Platform: Better Together

Overview

AWS and D2iQ are partners who work closely together to provide the most scalable, reliable, secure, and flexible Kubernetes solutions for customers. Although the AWS Elastic Kubernetes Service (EKS) gives customers an excellent base Kubernetes platform, enterprises that require a richer set of production-level capabilities must supplement EKS with add-on services.

Although AWS enables enterprise EKS customers to obtain these missing capabilities either on their own or through various solutions and modules (EKS Blueprints, integration with AWS Managed Services), each of these approaches requires customers to select and integrate services as piecemeal add-ons, which can mean additional labor, cost, and varying degrees of support.

The value that D2iQ brings to EKS customers is to provide all the components needed for a production-ready Kubernetes environment in a complete, fully integrated, fully automated, fully tested, easy-to-deploy, easy-to-manage, and cost-effective turnkey solution.

Capabilities not included in the base EKS offering include multi-cloud, hybrid cloud, and multi-cluster management, integrated GitOps, a comprehensive set of fully integrated and configured turnkey Day-2 services, and artificial intelligence (AI) and machine learning (ML) based on enterprise Kubeflow.

The DKP Difference

The D2iQ Kubernetes Platform (DKP) gives EKS customers the most feature-rich, easy-to-deploy, easy-to-manage, and cost-effective multi-cluster Kubernetes environment available. DKP enables organizations to be up and running in minutes and hours rather than weeks and months, with stability, reliability, ironclad security, and rapid time-to-value. Complexity is reduced through packaging, automation, integration, and elegant design.

Architected around Cluster API (CAPI), DKP provides top-to-bottom declarative API programming and integrated GitOps, capabilities that simplify Kubernetes management, bolster security, and increase developer productivity. DKP leverages the CAPI provider for AWS, which provides native EKS lifecycle management support.

EKS Enhancement Options

Following is a comparison of the ways in which AWS customers can enhance EKS:

Do It Yourself (DIY) Kubernetes — While some organizations believe a DIY Kubernetes approach gives them better control and lower cost, more than 80% of DIY projects falter and yield higher costs because of lack of skills, work required to keep up with the Cloud Native Computing Foundation and Amazon EKS ecosystems, and work and tooling required for monitoring, logging, access control, policy management, backups, maintenance, and support. For example, adding a single service like Prometheus requires the customer to download, install, configure, deploy, integrate, manage, upgrade, and support the application.

Amazon EKS Blueprints — A collection of Infrastructure as Code (IaC) modules that can help customers configure and deploy EKS clusters across accounts and regions. This approach requires labor on the part of the customer to assemble and integrate individual services and is not production-ready out of the box. For example, adding a single service like Prometheus requires the customer to download the service as part of a larger solution pack (blueprint) if included, and Install, configure, deploy, integrate, manage and support the application.

AWS Managed Services — Hosted services available directly from Amazon. Although this option eliminates a good amount of DIY work, it depends on an AWS toolchain and is a piecemeal approach that requires the integration of services into your EKS environment. For example, adding a single service like Prometheus requires the purchase of a managed service from Amazon that will have Prometheus installed and configured. Integration and support options will vary.

D2iQ Kubernetes Platform (DKP) and Kaptain AI/ML with AWS EKS — A complete solution that is production-ready out of the box. This is the best option for a majority of customers who want to accelerate Day-2 success with less labor, cost, and risk. D2iQ deploys in minutes and is unique in its ability to enable customers to meet all Day-2 operational challenges, including logging, monitoring, security, stability, resilience, upgradability, and governance.

Elevating EKS with DKP

DKP adds value on top of EKS deployments by providing additional enterprise-grade functionality to any Kubernetes cluster. DKP enables EKS customers to quickly achieve Day-2 operations competency by providing a reliable, secure, and consistent approach to the management, governance, and compliance of disparate Kubernetes clusters. This includes centralized metrics and logging for all clusters, cross-cluster federated role-based policy enforcement, multi-cluster application rollout, granular upgrades, and fine-grained real-time cost analysis.

DKP can enhance cloud-service-provider Kubernetes clusters with DKP platform services, and with Kaptain AI/ML can simplify Kubeflow-based AI/ML operations. These enhancements enable customers to harness the full power of Kubernetes and create smart cloud-native apps.

The DKP control plane provides centralized visibility and management of all clusters and workloads running on a single cloud or across multiple cloud provider services. This includes federated cluster management, lifecycle automation, and cross-cluster observability. With DKP, you can onboard, manage, and operate multiple clusters in production and at scale and govern them all in a unified way across multiple on-premises and cloud services.

The unique benefits that can be achieved by managing EKS deployments with DKP include:

• Multi-cluster management: Provide centralized monitoring and alerts, and create federated rules for network policy, quotas, identity management, role-based access control (RBAC) secrets, and ConfigMaps.

• Hybrid cluster management: Manage multi-cluster and hybrid clusters across AWS and any other cloud or on-premise environments.

• Military-grade security: Manage clusters behind firewalls and in air-gapped deployments in full compliance with NSA Kubernetes security hardening guidelines.

• Multi-tenancy: Enforce rules and policies for consistency with security, networking, RBAC, and application control. Using DKP with EKS can simplify Kubernetes multi-tenancy and reduce the risk of "noisy and nosey" neighbors.Provides centralized governance and user access controls to enable consistent multi-cluster, multi-cloud, and multi-tenant management.

• Centralized GitOps: Create federated platform services to deploy applications and environmental configurations consistently to enable continuous integration and continuous delivery (CI/CD).

- Catalog service: Provide cluster lifecycle and service delivery of complex distributed systems and fast data pipelines, including Apache Kafka, Apache Cassandra, Apache Spark, Elastic, and Jenkins.

- Observability: Out-of-the-box configured metrics, visualization, and alerting for all managed Kubernetes clusters to enable detection and resolution of operational issues.

- Kaptain AI/ML: An add-on service that simplifies AI/ML modeling and deployment for data scientists through modified Kubeflow, eliminating the need to configure a complex underlying Kubernetes infrastructure.

- Insights Technology Preview: Codifies D2iQ expertise to enable predictive and self-service problem identification and resolution faster than submitting support tickets.

Kubernetes Done Right = Top-to-Bottom Declarative APIs + GitOps

Combining declarative APIs with GitOps workflow is the most bulletproof way to manage a Kubernetes infrastructure. GitOps eases Kubernetes management and provides a single source of truth. DKP employs CAPI from top to bottom to simplify infrastructure management through GitOps, automating many of the formerly manual processes required to keep systems running and scaling. DKP also integrates FluxCD to enable GitOps for applications and infrastructure, supporting canary deployments and A/B rollouts.

Although EKS provides a scalable, flexible hosted framework for Kubernetes deployments, DKP provides a more mature, comprehensive, automated, and integrated approach. This includes workspace and project-level constructs to a Kubernetes cluster so that application teams have division of resources, security, and cost optimization at the project and namespace level.

- Projects deliver applications via built-in GitOps powered by FluxCD. Just provide a Git repository and DKP does the rest.

- Through integration with Kubecost, DKP monitors utilization of project resources and provides real-time reporting for performance and cost optimization.

- Security is defined through DKP integration of customer authentication methods and is reinforced through several layers of application security.

Through the use of CAPI, DKP gives AWS customers full lifecycle management of their EKS clusters with the ability to instantiate new EKS clusters through a unified API. This enables administrators to deploy new EKS clusters through code and deliver consistent cluster configurations. Benefits include:

- Time to application value is greatly reduced by minimizing the steps necessary to provision a cluster segment clusters through integrated permissions

- Secure and reliable cluster deployments

- Automatic Day-2 operations of EKS clusters (monitoring, logging, centralized management, security, cost optimization)

- Day-2 GitOps integration with every EKS cluster

Combined EKS and DKP solutions provide the consistent end-to-end experience our joint customers are eagerly seeking. DKP is an ideal solution for customers interested in working with Kubernetes, while the flexibility, scalability, and reliability of EKS provides an ideal supplement or alternative to on-premise data centers.

AWS + D2iQ: A Better Together Alliance

In recognition of the value that D2iQ brings to AWS customers, AWS has designated D2iQ as a member of the following AWS Partner Programs:

- AWS Partner Network Select Tier Services Partner

- AWS ISV Accelerate Program

- AWS Container & Enterprise Container Management Competency*

- AWS Marketplace for Containers Anywhere launch partner (fully transactable listing)

Following are ways in which D2iQ supplements and enhances AWS:

- AWS EKS: D2iQ has been certified for AWS Enterprise Container Management Competency for multi-cluster, multi-cloud Kubernetes cluster management.

- AWS Services: D2iQ drives consumption of Amazon Elastic Compute Cloud (EC2), Amazon Virtual Private Cloud (VPC), Elastic Load Balancing (ELB), Network Address Translation (NAT) Gateway, Elastic Block Store (EBS), and AWS Identity and Access Management (IAM).

*AWS Container Competency Partners help AWS customers better run their container workloads on AWS. These partner solutions extend AWS container services by providing additional security, monitoring, and management capabilities. To achieve AWS Container Competency, AWS Partners' container offerings are validated against AWS best practices by AWS containers experts.

Learn More

Learn how D2iQ enhanced customer EKS environments at **Cerved**, **Lavego AG**, and **TrustedChoice.com**.

To learn more about the D2iQ Kubernetes Platform (DKP) and how D2iQ can enhance your organization's AWS EKS environment, **contact the experts at D2iQ.**

D2 IQ   **To learn how D2iQ can help you succeed in your cloud-native journey, visit D2iQ.com.**