D2iQ Kommander

Enterprise Kubernetes Cluster Governance and Control

Overview

Kubernetes has seen widespread, rapid adoption throughout enterprises and large public sector organizations. As these organizations mature in their use of Kubernetes and move from small scale prototypes or experiments into production at scale, they begin to encounter a number of problems:

- Different divisions, groups, projects, or teams adopt a wide range of approaches to using Kubernetes--different infrastructure choices, different distributions, different add-ons--often leading to redundant efforts and lack of learning across the organization

- Because the technology is often adopted spontaneously in a bottoms-up fashion, there is often no centralized, overarching visibility into what is happening with Kubernetes at an enterprise level

- As deployments increase in scale, organizations may find it difficult to manage them or to maintain acceptable levels of performance

- Differing incentives between developers and operations teams, such as the need for innovation on the one hand and the need for management and control on the other, can lead to a mismatch between capabilities desired and capabilities delivered, regulatory compliance, or adherence to security best practices

- Lack of uniformity increases the difficulty of maintenance and support, with knock-on effects on security, stability and performance

The root cause of all of these problems is the rapid growth without centralized planning or control that has been termed "cluster sprawl." Some organizations have already encountered cluster sprawl and have begun to grapple with how to address it; for others, earlier in their Kubernetes journey, it is something they know they will run into in the future.

Introducing D2iQ Kommander

D2iQ Kommander is a federated management plane which empowers organizations to deliver unified visibility and control over a wide expanse of Kubernetes resources and provides the ability to deliver scale, consistency, governance and operational efficiency for disparate Kubernetes clusters, regardless of distribution, across an organization's on-premise and cloud footprint. This capability ensures that an organization can deliver governance and standardization across a wide expanse of Kubernetes resources while ensuring life-cycle management, unified policy and better performance insight.

Key Benefits

Centralized Observability
Provide enhanced visibility and control at the enterprise level, with comprehensive logging and monitoring across all clusters.

Federated Management
Ensure roles and responsibilities can be separated to deliver policy-driven control and secure provisioning of services—even on shared, multi-tenant infrastructure.

Organizational Governance
Empower the organization to govern Kubernetes usage to assist with compliance for regulatory, IP and other unique organizational needs.

Integrated Cost Control
Lower TCO with out-of-the-box Kubecost integration, which allows attribution of costs to departments, applications, projects, or other groups in real time.

Universal Enterprise Grade Kubernetes
Provide any Kubernetes distribution with D2iQ's production ready add-on stack and make it ready for Day 2.

As various parts of the organization require new Kubernetes clusters and associated data services, D2iQ Kommander simplifies the provisioning of new services and creates greater policy-driven consistency across Kubernetes clusters within the environment. This capability allows for greater standardization of Kubernetes and associated add-ons to ensure an easier support path for application services. Further, this level of broad control can help organizations meet risk and compliance demands as they govern how and where new application services are used, as well as who is able to engage in policy and operational needs of those services.

Centralized Multi-Cluster Governance

As organizations deliver a variety of Kubernetes implementations for various project needs, it becomes increasingly difficult to know where clusters exist, how they are performing, and to govern the usage and versions of cloud native software to support application efforts. D2iQ Kommander delivers visibility and management of any Kubernetes cluster, whether on-prem or cloud, regardless of distribution being used. Thus, organizations can gain better control over existing deployments without service interruptions and create standardization around how new clusters are configured and used.

In adopting Kubernetes, many organizations will face regulatory, intellectual property, or even security concerns based on where services and other critical resources are running. To effectively address these challenges, they will need to maintain granular control over how and where they are provisioned by region, cluster type, etc. D2iQ Kommander delivers capabilities to create projects and labels for service usage, which can ensure services are scheduled into appropriate nodes and locations. This level of granular service control is critical in many environments with global regulatory burdens.

In addition, a key topic within security is governing the usage of sanctioned software to ensure that a secure footprint of technologies is being used. This type of version control can ensure that the organization is able to reduce the potential vulnerable surface area of their software in use. D2iQ Kommander delivers a customizable service catalog allowing organizations to leverage a wide array of open source, prevailing technologies within their Kubernetes environment, while governing which versions of cloud native software can be used within project efforts.

Lastly, a critical part of running an application in production is supportability. D2iQ Kommander's push button catalog of prevailing cloud native services ensures organizations have the latest software versions so they can quickly deploy services to multiple clusters. This ability significantly reduces the support burden, since there can be dozens of potential software versions across cloud native services in use. D2iQ Kommander provides both visibility into which versions are operating where, as well as a highly automated, granular upgrade capability. Without these capabilities, the chaos of managing an unpredictable set of technology services and versions across the organization is nearly impossible to overcome.

Distributed Computing Is In Our DNA

The founders of D2iQ are some of the earliest innovative minds in the world of sophisticated distributed computing environments. Their innovations are a driving factor in the success of the largest application deployments in the world.

This experience and insight into the complexities of managing and operating expansive cloud native application services at massive scale are foundational to the development of D2iQ's Kommander. By applying this unique experience to the world of Kubernetes, D2iQ ensures that your organization is able to swiftly move towards a successful Day 2 outcome.

Reduced Operational Overhead

As organizations begin the effort of deploying broad sets of clusters, it becomes quite difficult even at a basic level to manage the individual logins and permissions the resources teams need to perform their roles. D2iQ Kommander addresses these challenges by providing single sign-on and federated role-based policy across all of an organization's Kubernetes clusters. This capability helps ensure that as services are being managed, organizations can delegate management and operational responsibilities at various levels to those who require them. Now, various parts of an organization can manage and build policy for their own application resources, while at the same time being governed by centralized and standardized policy and guardrails at the top level.

In addition, as organizations configure the operation of new service needs, it is critically important to centrally govern and create visibility over such things as security policy. Core security capabilities within Kubernetes, such as secret management, are traditionally performed in silos within each cluster. This isolation makes things like password and key management exceptionally complex. D2iQ Kommander helps ensure that the organization can simplify these types of efforts to serve the needs of a wide range of organizational clusters with centralized policy-driven capabilities.

Finally, as the organization stands-up new applications, most will require additional cloud native services, such as open source Kafka, Cassandra and Spark, amongst many other services, for their operation. In most environments, the configuration of such stateful data services is exceptionally complex, and it can take months to create custom Kubernetes service operators. Kommander leverages the integrated capabilities of D2iQ's KUDO open source project to simplify the delivery of stateful data services, such as these within Kubernetes environments. With KUDO's universal declarative framework, organizations can easily consume a wide array of stateful data services in a much more unified and consistent way to rapidly empower additional services for application requirements.

Empowering IT and Development Responsibilities

One of the core factors in the success of Kubernetes is the flexibility and speed by which it empowers a team of developers to rapidly deliver application code at significant scale. Any discussion over centralized governance can certainly create concern over limiting speed and efficiency of individual efforts. However, an organization may require lines of separation between clusters to empower division of labor for particular use cases, such as intellectual property needs, regulated data, or other situations. D2iQ Kommander's role-based access control capabilities can empower division of labor across a wide variety of roles, including developers and IT operations, to ensure the greatest management flexibility for specific organizational needs. This granular control extends to multi-tenant environments, ensuring that each team has visibility of and access to only those services and resources that are appropriate for its role.

Driving Day 2 Success With D2iQ

The Leading Independent Kubernetes Platform

As you move swiftly to adopt new Kubernetes based applications and cloud native services, needs will arise for simplifying ongoing operations and ensuring organization control over an expanding Kubernetes footprint. D2iQ Kommander is designed from the ground up to help organizations rein-in wasted resources and lower TCO, deliver organization-wide governance over cluster use, and empower greater division of labor within the organization for both tremendous control and flexibility.

Whether you're in need of capabilities to govern Kubernetes usage, require an opinionated Kubernetes distribution that reduces time-to-market from months to days, depend on assistance managing or operating your production deployment, or just need someone to pick up the phone in the middle of the night, D2iQ can deliver a complete spectrum of technology solutions and services to enable an enterprise-grade Kubernetes experience that is ready to meet Day 2 operational expectations.

Further, within the context of leveraging Kubernetes within an organization, developers require very simple capabilities for deploying new code into development, testing, and production environments.

Continuous Integration/Continuous Deployment (CI/CD) is a topic that is front-and-center of ensuring tremendous developer agility with their coding efforts. To empower CI/CD efforts, D2iQ Kommander also delivers D2iQ's Dispatch product as an add-on service to deliver a foundation of best-in-class, open source services fully integrated for out-of-the-box CI/CD pipelining. This further empowers IT control and ease of CI/CD service deployment, while delivering complete CI/CD capabilities to development audiences.

Lastly, simplified integration across a myriad of clustered environments is becoming a rapid requirement for organizations deploying disparate clusters across a variety of physical, virtual, and cloud infrastructures. Service-mesh integration standardizes ways to discover, leverage, and deploy services wherever they may be. To ensure the greatest integration flexibility, Kommander delivers integrated Istio service mesh capabilities to ensure a simplified and consistent infrastructural environment and operational experience, while also delivering the programmatic integration power that developers require across application services. This capability can empower a wide variety of use-cases for developers and IT organizations alike, including service discovery, deployment across clusters, and opening greater possibilities for multi-cloud application infrastructure.
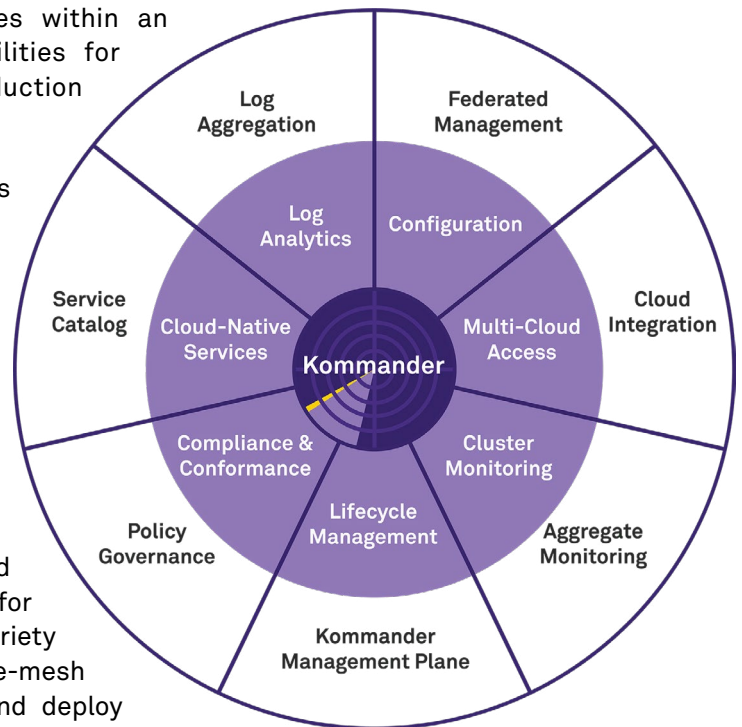
To learn more about about how D2iQ can be your partner in the cloud native journey, go to **www.D2iQ.com**.

Features and Benefits

Features	Benefits
Operations Dashboard	Provides instant visibility and operational efficiency into Kubernetes cluster landscape, helping an organization understand resources and utilization.
Centralized Observability	Enables central monitoring and alerting of issues arising within operational and application infrastructure, as well deep cross-cluster logging for easier troubleshooting. As issues are detected, they can be resolved before they escalate, thereby saving valuable time.
Cluster Configuration Manager	Enables zero downtime during service upgrades. Simplifies and delivers consistent configuration for services and cross cluster operations.
Services Catalog	Push button catalog of prevailing cloud native services which helps the organization to quickly deploy services to multiple clusters, while governance-based access to data services ensures roles and responsibilities are adhered to.
Service-Mesh Integration	Support multiple clusters for larger "as-a-service" needs across many different project teams by combining D2iQ's Kommander with integrated service mesh.
Granular Cost Control	Out-of-the-box Kubecost integration provides real time cost management and attribution of costs to the right departments, applications, projects, or other organizational groups, for reduced waste, better forecasting, and lower TCO.
Service Version Control	Ensures conformance to sanctioned service versions of both Kubernetes and its supporting add-ons to help reduce security exposure and provide simplified supportability of services.
Integration with KUDO Operators	Ease the deployment of stateful data services for use in Kubernetes with push-button deployment of services as well as professional support offerings leveraging the KUDO framework.
Governance and Policy Administration	Assert centralized delegated role based access control and cluster policy to govern clusters, associated services, geographic limitations and to create lines-of-separation across various project initiatives.
Centralized Authentication	Leverage existing authentication and directory services for secure access and single sign-on to broad cluster based resources.