Nutanix Karbon Platform Services

KPS

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With Karbon Platform Services, organizations can unleash developers' full potential, enable streamlined multicloud Kubernetes lifecycle management for IT operations, and optimize for their unique cloud strategy.

KUBERNETES-BASED PLATFORM-AS-A-SERVICE FOR THE MULTICLOUD ERA

Every organization's cloud native journey unfolds differently, but the end goal remains the same: capitalize on the substantial business agility and scalability advantages that containers, Kubernetes, and the growing ecosystem of cloud native technologies yield. Enterprises like yours that try to accelerate time to market but are challenged by putting the right frameworks, tools, and technologies in place in order to be able to deploy cloud native applications faster. Furthermore, all of those solutions (Kubernetes, especially) take a lot of time and effort to master and operate properly.

Simplifying Kubernetes lifecycle management to adequately serve developers' resource needs is just the beginning of what cloud native organizations need to accomplish. Today's microservices-based applications leverage a broad set of compute and data services-- many of which take time to properly operationalize. And, given the distributed nature of these applications, development teams are burdened with cobbling together the necessary stack of data, observability, connectivity, and security services. Developers also want to develop their applications with services without having to deal with the underlying infrastructure.

Lastly, cloud native organizations routinely employ a variety of different cloud infrastructures on which to run their applications. While flexibility and choice are critical, they often come at the expense of a consistent and secure deployment and management experience.

KARBON PLATFORM SERVICES

Karbon Platform Services (KPS) is a Kubernetes-based Platform-as-a-Service (PaaS) that delivers cutting-edge developer services and secure, unified management for clusters and applications on any infrastructure-- on premises, in the public cloud, or at the edge. KPS unleashes the potential of software developers, simplifies multicloud Kubernetes management for operators, and enables organizations to optimize for their specific cloud strategy.

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BENEFITS

Accelerates development of applications (ranging from simple stateful containerized applications to complex microservices-based applications) by leveraging simple, open abstractions of rich services.

Simplifies operations and offers uniform application, data, and security lifecycle management, regardless of the underlying cloud-- at scale.

Enables cross-cloud data mobility and hybrid application management through transparent, WAN-optimized data pipelines and extensible data interfaces.

Provides automated, system-managed security with built-in multi-tenancy and role-based access control (RBAC) for its set of services.
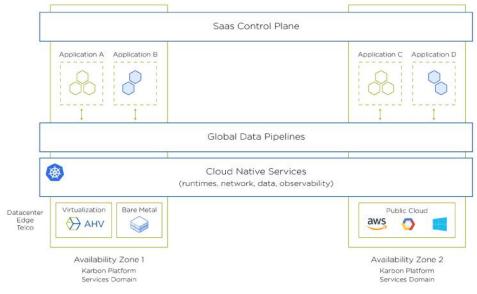

FIGURE 1: Karbon Platform Services Architecture

DEVELOPER SERVICES

At the heart of the Karbon Platform Services PaaS is a rich set of simple, open abstractions of managed services. These services are easily self-provisioned by application developers and don't require any lifecycle management. From basic stateful applications to complex web-scale applications based on microservices, this palette of services enables you to innovate to your full potential.

Application Runtime Services

- Containers-as-a-Service: provision, run, manage, and monitor Kubernetes applications as pods of isolated containers without having to deal with the underlying Kubernetes orchestration or complexity.

- Kubernetes-as-a-Service: The Kubernetes Cluster Management Service seamlessly enables the launch of native Kubernetes tooling like Kubernetes Dashboard on remote Kubernetes clusters, directly from the KPS UI.

- Functions and Data Pipeline Services: Run business logic packaged as raw code directly by leveraging built-in runtimes or custom uploads with Functions-as-a-Service. Invoke functions based on incoming data triggers and publish the transformed data to local service domain or external service endpoints through KPS's built-in connectors.

- ML and AI Inferencing: Machine learning model management and AI inferencing runtime (though abstraction of underlying GPUs and HW accelerators) is shared across Containers and Functions services.

Ingress Control
- **Nginx:** Content-based routing, load balancing, SSL/TLS termination
- **Traefik:** Content-based routing, load balancing, SSL/TLS termination

Service Mesh
- **Istio:** Traffic management, policy enforcement, and telemetry collection

Data Streaming | Messaging
- **Kafka:** Persistent high performance messaging
- **NATS:** In-memory high performance messaging

Logging | Monitoring | Alerting
- **Prometheus:** Application metrics and monitoring
- **Logging:** Centralized real-time log monitoring, log bundle collection and external log forwarding

WAN-OPTIMIZED DATA PIPELINE

The KPS PaaS features transparent, WAN-optimized data pipelines to enable cross-cloud data mobility and management for applications which span multiple clouds. Users can securely connect to existing data lakes in any cloud (AWS S3/Kinesis/SQS, Azure Blob Storage, GCP CloudStorage, etc.) using KPS's built-in data interfaces.

SAAS-BASED MULTICLOUD CONTROL PLANE

Using KPS's ISO-certified SaaS-based infrastructure and application lifecycle manager, operators benefit from simplified operations and uniform application, data, and security lifecycle management, regardless of the underlying cloud-- at web scale. KPS offers a unified view of Kubernetes clusters from Nutanix, AWS, Azure, GCP, and other infrastructure, allowing users to manage and monitor clusters from a single user interface. Developers benefit by having to write their applications only once before deploying them on multiple clouds.

INTEGRATED SYSTEM-WIDE SECURITY

With Karbon Platform Services, IT operations teams can leverage a consistent security and API model with unified observability for data and applications across cloud. KPS provides automated, system-managed security and access control with built-in multi-tenancy. Administrators can securely partition service domains to serve different use cases or group multiple service domains to comprise different environments (development, staging, production, etc.).

ACCELERATE YOUR CLOUD NATIVE JOURNEY WITH NUTANIX

Through Nutanix's Cloud Native offerings, enterprises will be able to take advantage of simple, reliable tooling and automation required for fast development and continuous integration and continuous delivery (CI/CD) of scale-out applications for a cloud-like Kubernetes experience on premises. In addition to simple and fast deployment of Kubernetes with Karbon, customers can leverage Volumes & Files for adding high-performance storage, Objects for S3-compatible backups, and Era for database provisioning and lifecycle management.

For those in the process of planning their cloud native strategy, connect with Nutanix for a deep dive into Karbon Platform Services to understand how to enable developers, simplify multicloud Kubernetes management for operations teams, and optimize for your organization's unique cloud strategy.

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