CLOUD NATIVE AI

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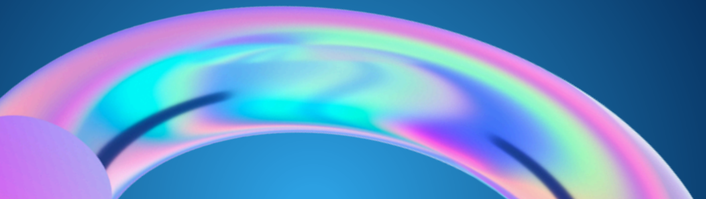
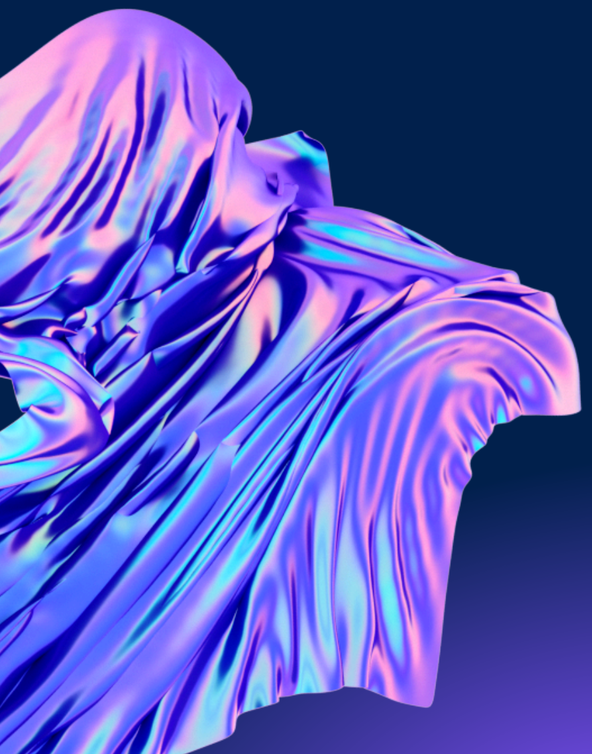
CLOUD NATIVE

The term cloud native refers to the concept of building and running applications to take advantage of the distributed computing offered by the cloud delivery model. Cloud native apps are designed and built to exploit the scale, elasticity, resiliency, and flexibility the cloud provides.





CLOUD NATIVE SERVICES

Cloud native services empower modern application development using technologies such as Kubernetes, Docker, serverless functions, APIs, and Kafka. Industry-leading cloud providers enable cloud tooling and services so that developers can reduce operational tasks and build applications faster. Cloud native services give developers a comprehensive, standards-based platform for building, deploying, and managing cloud native applications such as microservices and serverless functions.

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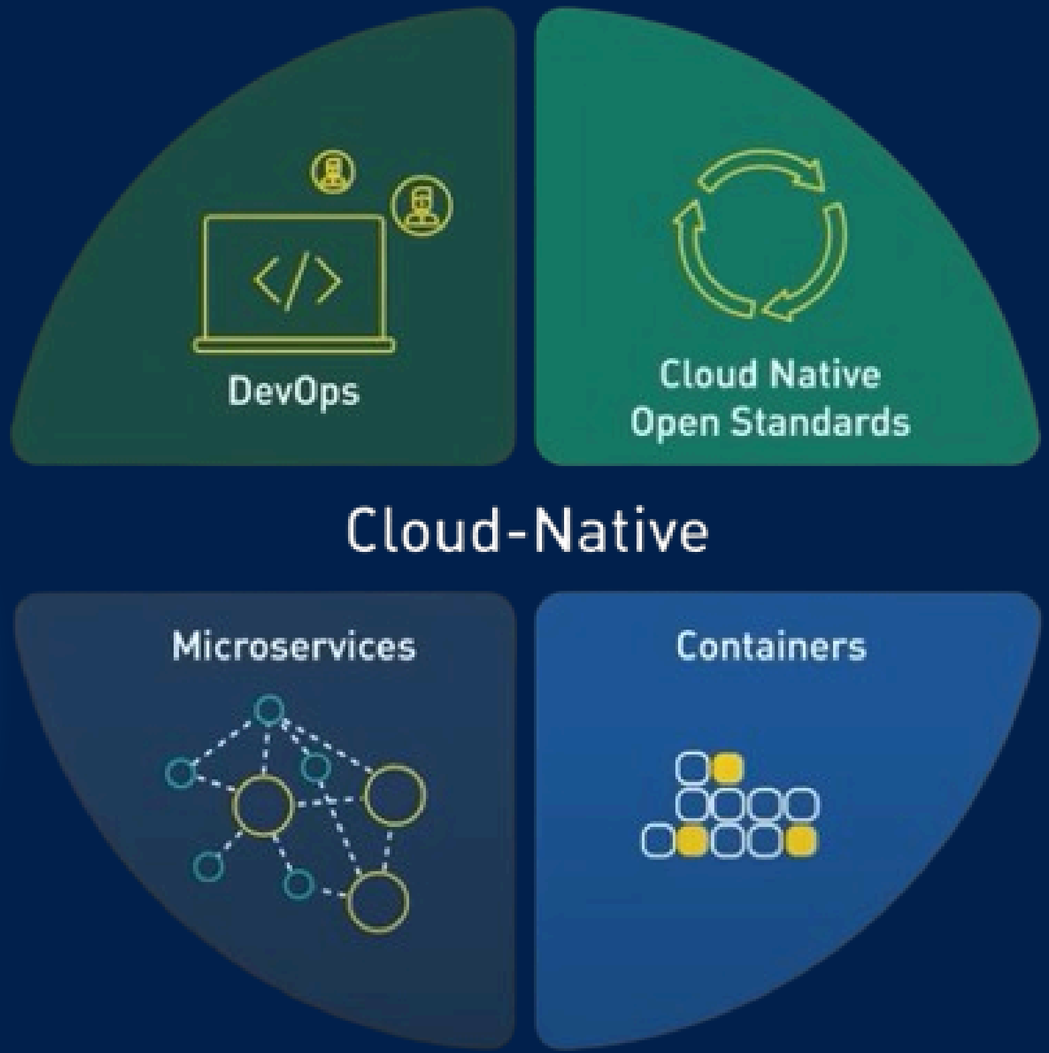
DevOps
Cloud Native
Open Standards
Cloud-Native
Microservices
Containers

Benifits

Independence:

- Independent architecture
- Individual management
- Deployment flexibility

Resiliency:

- Resilient design
- Continuous availability
- Infrastructure-independent
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Automation:

- DevOps automation
- Continuous delivery
- Regular software releases
- Blue-green deployments
- Canary deployment

What does it mean for a technology to be cloud native?

- Independent microservices packaged in lightweight containers ensure modularity and flexibility.
- Portability and rapid scalability are facilitated by containerization, allowing seamless deployment across various environments.
- Containerization isolates the application and its dependencies, enhancing reliability and reducing dependency conflicts.
- Kubernetes efficiently manages the lifecycle of containers, ensuring optimal resource utilization and high availability.
- DevOps CI/CD pipelines automate building, testing, and deployment processes, enabling rapid and reliable delivery of updates and improvements.
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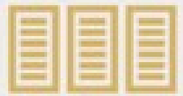
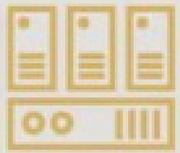
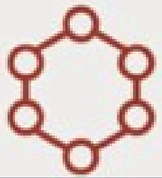
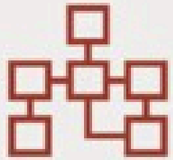
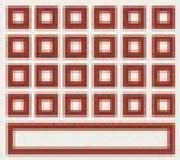
CLOUD NATIVE ARCHITECTURE

	Development Process	Application Architecture	Deployment & Packaging	Application Infrastructure
~ 1980 ~ 1990	Waterfall 	Monolithic 	Physical Server 	Datacenter 
~ 2000	Agile 	N-Tie 	Virtual Servers 	Hosted 
~ 2010	DevOps 	Microservices 	Containers 	Cloud 

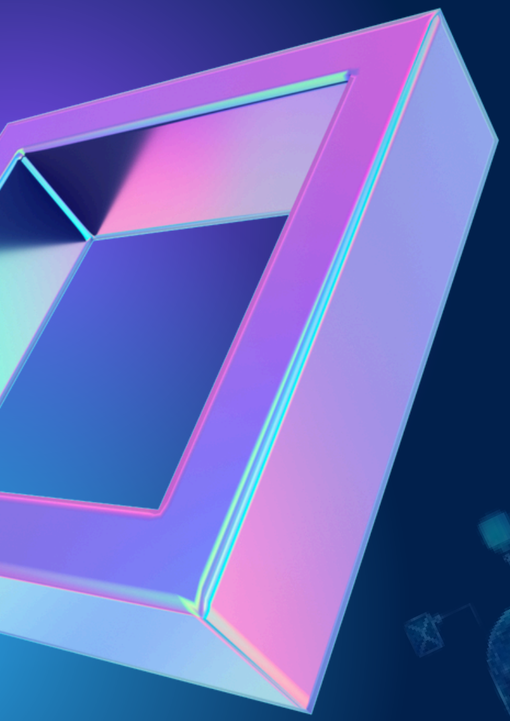
CLOUD NATIVE SERVICES

Cloud-native services are at the core of digital innovations and are key to advanced analytics, mobile apps, and chatbots. DevOps practices remove most of the management tasks associated with building, operating, and maintaining a complex software platform. Software development, deployment, and testing activities reside in the cloud and can be expanded or contracted at will. Shifting applications, DevOps, and workloads to a cloud native architecture is integral to keeping your business competitive.

Kubernetes?

Oracle's cloud native services drive modern cloud native application development by using standards-based technologies such as Kubernetes, Docker, serverless functions, APIs, and Kafka. Often described as the "operating system for the cloud," Kubernetes is an open source platform for managing clusters of containerized applications and services. The key components of Kubernetes are clusters, nodes, and the control plane. Clusters contain nodes. Each node comprises a set of at least one worker machine. The nodes host pods that contain elements of the deployed application. The control plane manages nodes and pods in the cluster, often across many computers, for resiliency and high availability.

A little more about services:



- **OCI Container Registry:**
  - Open standards-based Docker registry service
  - Securely store and share container images
  - Supports Docker CLI and API
  - Integrates with Oracle's Container Engine for Kubernetes and other tools

- **OCI Notifications:**
  - Highly available pub/sub service
  - Sends alerts and messages to various channels
  - Integrates with Oracle Cloud Functions, email, SMS, and more
  - Ensures message delivery during traffic bursts

- **OCI Streaming:**
  - Real-time, serverless event streaming platform
  - Apache Kafka-compatible
  - Ingests, stores, and processes streaming data at scale
  - Compatible with widely used Kafka APIs

- **Container Engine for Kubernetes (OKE):**
  - Oracle-managed container orchestration service
  - Free service running on high-performance compute shapes
  - Supports unmodified open-source Kubernetes
  - Simplifies operations with automatic updates and patching

Thank You

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next session me

till then keep

learning and keep exploring :)