ORACLE

Cloud Native Applications on Oracle Cloud Infrastructure (OCI)

Your challenge

Going cloud native is not merely migrating your compute infrastructure to the cloud. It is getting your applications and data native for that environment. Cloud native applications are typically composed of a set of disparate services. This distributed nature is what helps make them scalable and flexible, as compared to monoliths.

The term "cloud native" refers to the concept of building and running applications to take advantage of 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.

However, cloud native workloads have more moving pieces that need to be connected seamlessly. Service integration is an issue for developers to address as they build cloud native apps. They must ensure that each service is properly sized and adopt best practices to create a distinct service for each type of functionality within a workload, rather than trying to make a single service do multiple things.

Our solution

Cloud native technologies empower organizations to build and run scalable applications in public, private, and hybrid clouds. These features enable loosely coupled systems that are resilient, manageable, and observable. They allow engineers to make high-impact changes frequently and with minimal effort. Cloud native is all about moving fast while also remaining agile.

Oracle's cloud native services drive modern application development by using standards-based technologies such as Kubernetes, Docker, serverless functions, APIs, and Kafka. Cloud native services give developers a comprehensive, standards-based platform for building, deploying, and managing applications, such as microservices and serverless functions.

- **Greater Agility**: Accelerate the delivery of new high-quality services using CI/CD and automation with Oracle's modern application framework blueprint for building modern apps.
- **Faster time to market:** Oracle's cloud platform allows you to build, iterate, and deploy apps faster, and to create low code apps quickly. The complete cloud offering enables moving, optimizing, and modernizing apps.
- **Scalability:** Scale out and in automatically. The Oracle Cloud provides flexible Infrastructure with autoscaling.
- **Platform and language agnostic:** Oracle supports and fosters open source and standards-based, portable cloud native frameworks and technologies. With your choice of programming languages and frameworks to best address your needs, as well as DevOps tooling for streamlining and automation, Oracle offers a comprehensive portfolio of cloud services to support running all your IT in the cloud.
- **Security:** Best security practices that are on by default makes it easy for anyone to run apps from a high security posture. Oracle security is simple, prescriptive, and integrated across IaaS, PaaS and SaaS.

POMPEII

Archaeological Park of Pompeii reopens safely during COVID-19

Built a cloud native app using Kubernetes, and Spatial features of Oracle Autonomous Database in 6 weeks

"Reopening the Pompeii site to tourists after lockdown was tough. With Oracle's help, we delivered the cloud native mobile solution in just six weeks. Oracle Cloud Infrastructure and Oracle Consulting were instrumental in reopening our doors to tourists. With Oracle's technology, we are well-equipped to enhance and preserve tourism within the local area."

Alberto Bruni
COO of the Archaeological Park of Pompeii

NEOS

NEOS builds new cloud native CloudVane app on Oracle Cloud

Managed services provider creates SaaS application for cost visibility and automation using Oracle Cloud Infrastructure and Autonomous Database.

"We decided to design and architect our new native SaaS app, CloudVane, on Oracle Cloud Infrastructure with Oracle Autonomous Transaction Processing at its core from the get-go for fast time to market, low administration and costs, and high performance. Now, we can add more value for our customers with resource automation, as well as data and machine learning predictions that monitor and optimize their costs."

Davorin Capan
CEO, NEOS

AgroScout
Detection Done Right

AgroScout offers sustainable AI agronomy on Oracle Cloud

AgroScout's machine-learning algorithms use Oracle Cloud to analyze drone-captured images of farm fields. By knowing which pests and diseases to treat, growers can save money, improve yields, and feed more people.

Performance: The speed of downloading pictures of crops from fields, thousands of them, has been reduced from minutes to a few seconds. Tagging, viewing and working with pictures is much faster, thereby improving the overall user experience

Agility: Oracle Solution Center engineers and Oracle Cloud Infrastructure technology have made the process of committing code, as well as building and delivering new releases automatically fast and simple. Prior manual processes would take at least a day and included no capability for notifications. The DevOps team now gets notified right away on their cell phone and can fix bugs much faster.

Scalability: With Oracle Cloud, AgroScout can scale dynamically, based on demand. They expect to have tens of thousands of users in the next 2-5 years.

"Robotics and AI, along with cloud computing, are allowing us to do this on a global scale."

Simcha Shore
CEO and Founder, AgroScout

Oracle simplifies the Cloud Native journey

Optimize existing applications

Improve and add cloud native optimizations

- Automate with platform and autonomous services
- Add new interfaces such as Digital Assistant
- Extend applications using cloud native services

Build new cloud native apps

Design principles, best practices, and tech recommendations

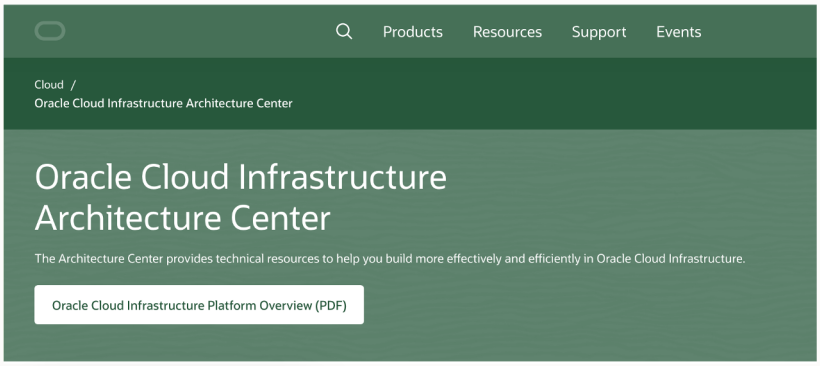
- Accelerate cloud native application development
- Build highly scalable, available, and secure apps
- Reduce complexity using well defined patterns

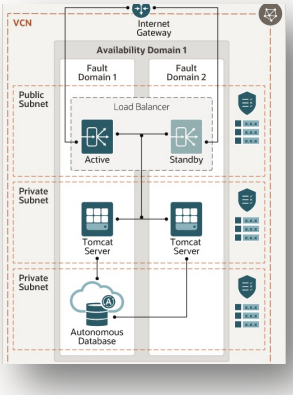
Low Code Development

Accelerate development of apps

- Less code leads to faster development of apps
- Expand app use with new APIs and integrations
- Simplify development to lower costs and maintenance

Get started today with the Oracle Architecture Center





Oracle Architecture Center provides:

- reference architectures and diagrams
- solution playbooks
- vetted architecture solutions
- best practices frameworks
- quick start guides
- learning paths
- and more!

Oracle's broad set of OCI services

Interfaces and automation

Console, CLI, API/SDKs, cloud shell, resource manager (Terraform)

DevOps

Continuous development, deployment, observability, management, monitoring

Databases

Oracle Autonomous Database, MySQL services

Containers, Serverless

Container Registry, Container Engine-Kubernetes, Functions

Machine learning

Full lifecycle ML service (data prep, training, inference)

Serverless

Functions for serverless code execution

Streaming

Kafka-compatible service

API management

API design
API gateway

Deep tools ecosystem

Terraform
ANSIBLE
GitHub
GitLab
paloalto NETWORKS
TREND MICRO
FORTINET
PagerDuty
RANCHER
cybereason
DATADOG
Grafana

More details

SNAP TECH

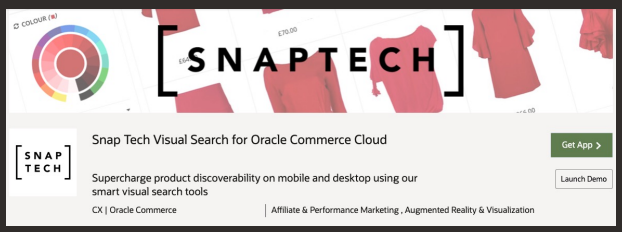
Snap Tech changes the way the world searches with OCI

- 4-5X time savings on deployments
- Improved performance running on bare metal GPU compute shapes in the cloud
- Eased DevOps processes with Kubernetes, Registry, and File Storage.
- OCI registry and file storage with more than 30 million items in database

"OCI really let us push the boundaries, so we've been able to achieve things this year that just felt like fiction last year."

Jenny Griffiths
Founder and CEO, Snap Tech

Cloud Marketplace Snapshot



Optimize existing applications

Greater efficiency

Autonomous services: Automate database and Linux tasks & improve operational efficiency w/ ML

Flex Infrastructure: Precisely provision compute resources with no waste

Infrastructure-as-Code: Improve DevOps productivity with open standard Terraform

Observability

Monitoring, Diagnostics, Tracing: Visibility and rapid performance insights across all layers of the stack, deployed anywhere

Logging and Analytics: Unify your application logs at lower cost for more holistic analysis, optimization, and security

Cloud native optimization

Containers and DevOps: Docker container based end-to-end application development and deployment CI/CD lifecycle for continuous improvement

Blockchain Extensions: Optimize and extend data sharing transactions seamlessly across your ecosystem

Simple, prescriptive, integrated security

On-by-default: Encryption, network isolation, Hardware root of trust

Cloud Guard: Quickly/continuously monitor & report on security posture at no extra cost

Security Zones: Easily enforce maximum infrastructure security with all your applications

Build cloud native apps using Oracle Modern App Framework

Beyond migrating existing applications to the cloud, our customers are building a diverse range of cloud native applications that look nothing like the software of the last 30 years. These apps have very different technology requirements, and OCI offers great support for them, as well.

We've got you covered whether you're building applications running in Kubernetes containers, serverless architectures using functions to run code on demand and in parallel, machine learning, NoSQL data models, and open source databases. We offer cloud services to support all of these types of applications and also have a deep tools ecosystem. Odds are, your favorite tools are already integrated with OCI, and we can run them securely, with great price-performance.

Design Principles Oracle supports light-weight, open source application frameworks so that you can build microservice-based apps that communicate over APIs. Package and ship apps as lightweight containers to maximize flexibility.

Core Requirements Automate the build, test and deployment phases, leverage managed services to run apps and data stores, and have full visibility of application performance with instrumentation for end-to-end monitoring and tracing. Rest easily knowing that automated data replication, failure recovery, and active security are online to detect, contain, and prevent vulnerabilities.

Application Patterns Oracle provides solutions that integrate the best practices available today:

- Web/Mobile
- Messaging
- Event-driven
- Big Data and Analytics
- AI/ML
- SaaS Extensions
- Low Code

Technology Recommendations The Oracle Cloud Platform allows you to act with great speed, agility, and scale across every pillar of cloud native computing.

CI/CD: DevOps, VB Studio

Runtime: OKE, Functions, Serverless K8S, APEX

Data: ADB, Object, Block, Caching, MySQL

Observability: Monitoring, Logging, APM, Analytics

Build apps faster with less code

Minimal Coding

Oracle APEX

Smarter Apps

Digital Assistant

SaaS Extensions

OIC Visual Builder

Oracle Cloud Observability and Management Platform

Visibility and rapid performance insights across all layers of the stack, deployed anywhere

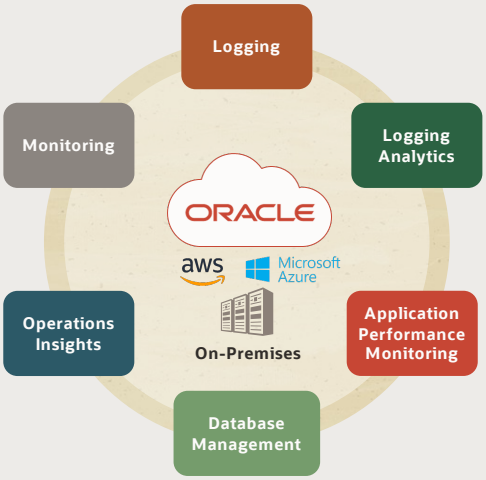
Cloud native and traditional technologies supported at every layer of the app stack

Integrated platform enables seamless analysis across all software components

Cross-tier view of applications, databases and infrastructure performance

Enterprise-wide visibility across Oracle Cloud, on-premises, and all other clouds

Ecosystem interoperability through standards-based data exchange and collection



Security from core-to-edge

Oracle Cloud Infrastructure employs a security-first design that is resilient to firmware-based attacks and offers a comprehensive set of security solutions from core all the way to edge services. Architected from the ground up for maximum isolation and protection, Oracle Cloud Infrastructure re-envisioned security with:

Isolated network virtualization

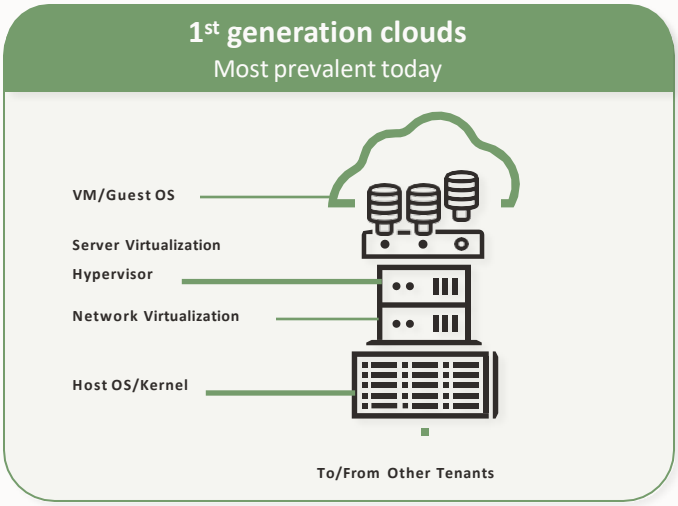
In OCI, Oracle can't see customer data and customers can't see Oracle management code. Oracle uses custom hardware to guarantee clean resources for each customer.

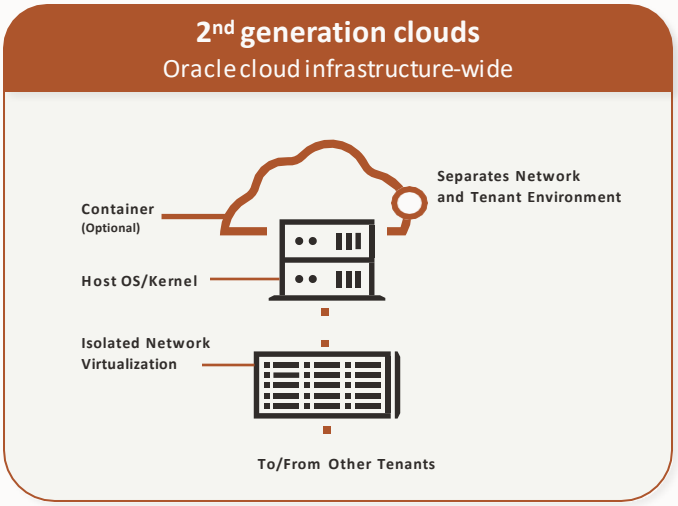
Maximum security zones

Preconfigured mandatory security best practices for critical production workloads, which helps eliminate customer misconfiguration.

Zero-trust architecture

OCI offers identity and access management, data and application security, visibility into data movement, and automated threat response.





Resources

Learn more about the solution

- Oracle Cloud Native Services
- What is Cloud Native?
- Explore Developer Live
- Customer Success

Demos & Workshops

- Try our Free Tier
- Explore guided cloud native workshops
- Develop, debug and deploy applications on OKE with CI/CD
- Get started with Arm-based Kubernetes clusters

Blogs, Technical Briefs, & Industry Reports

- O'Reilly Ebook: Cloud Native for the Enterprise
- Blogpost: After COVID-19 outbreak, OCI was instrumental in reopening Pompeii
- Blogpost: AgroScout Improves Development and DevOps with Oracle Cloud Native Services
- Blogpost: Oracle Cloud helps accelerate COVID testing in the US

Technical Assets

- Oracle Architecture Center
- Cloud native reference architectures
- Oracle LiveLabs

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