

Oracle Linux

Cloud Native Environment

Enterprises are looking for technologies that can help them achieve faster time to market and keep ahead of the competition. Cloud native microservices-based applications can provide the agility and increased productivity needed. However, most IT operations are overwhelmed with the changing cloud native technology landscape. One option is to build your own cloud native environment from open source software. But, that requires dealing with the complexity of picking the right software and getting it all to work together, without any vendor support. The other approach is to use a stack or distribution from a software vendor. This option offers support but that could mean lock-in with that vendor, which may also not be up to date with the latest technologies.

Oracle offers a better alternative—one that can give you the best of both worlds by delivering software that supports the open standards, specifications, and APIs defined by the Cloud Native Computing Foundation® (CNCF®).

EVOLUTION OF DEVELOPMENT AND DEPLOYMENT

For a number of years we have seen the decomposition of applications into microservices, running on container infrastructure and developers and operations collaborating using DevOps methodologies.

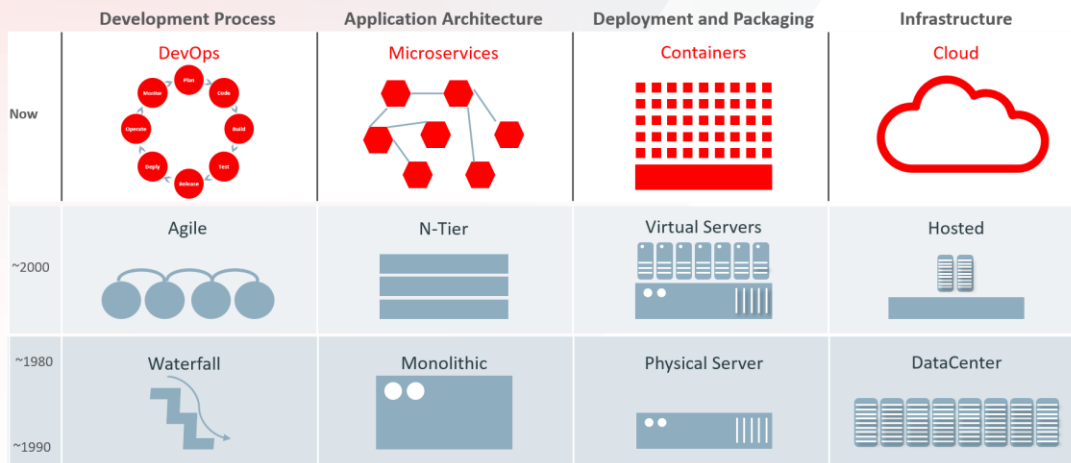
Oracle Linux Cloud Native Environment

Oracle offers an open integrated operating environment that is popular with developers and easy for IT operations to deliver:

- Containers and orchestration
- Management tools
- Development tools

Key Benefits

- Accelerates time-to-value and delivers agility through modularity and developer productivity
- Modernizes applications and lowers costs by fully exploiting the economic advantages of cloud and open source
- Vendor independence



Related Products

- Oracle Linux
- Oracle VM VirtualBox

Related Services

- Oracle Linux Premier Support
- Oracle Premier Support for Systems

CLOUD NATIVE COMPUTING FOUNDATION

Critical to this approach is the existence of an industry organization, the [Cloud Native Computing Foundation](#) or CNCF. The CNCF promulgates guidelines and defines certifications for cloud-native microservices software. Oracle is a platinum member of CNCF as well as a platinum member of the Linux Foundation.

Oracle closely tracks the CNCF as well as the OCI initiative, and contributes to and abides by the standards defined by both. For example, Oracle Container Runtime for Docker is compliant with the Open Containers Initiative (OCI) and Oracle Container Services for use with Kubernetes is CNCF Conformance certified. Both offerings have been included with Oracle Linux for several years.

ORACLE LINUX CLOUD NATIVE ENVIRONMENT

With Oracle Linux Cloud Native Environment, Oracle provides the features for customers to develop microservices-based applications that can be deployed in environments that support open standards and specifications.

Container Infrastructure

Containers are the fundamental infrastructure to deploy modern cloud applications. Oracle delivers the tools to create and provision OCI-compliant containers with Oracle Container Runtime for Docker..

To provide additional security and isolation of workloads, Oracle has adopted an OpenStack Foundation project, Kata Containers. Oracle is using Kata container software to deliver the framework for creating lightweight virtual machines that can easily plug into a container ecosystem. A combination of Intel's Clear Container initiative and the Hyper runV project, Kata Containers offer additional levels of security while maintaining the development and deployment speed of traditional containers. Kata Containers software is available as a developer preview with Oracle Linux.

Container Orchestration and Management

Oracle Container Services for use with Kubernetes is based on the upstream Kubernetes project and is released under the CNCF Kubernetes Certified Conformance program. Oracle Container Services for use with Kubernetes simplifies the configuration and setup of Kubernetes with support for backup and recovery. This solution is developed for Oracle Linux and integrates with Oracle Container

Runtime for Docker to provide a comprehensive container and orchestration environment for the delivery of microservices and next generation application development.

CRI-O is a Kubernetes container runtime interface and is available in preview with Oracle Container Services for use with Kubernetes. CRI-O allows you to run containers directly from Kubernetes - without any unnecessary code or tooling. As long as the container is compliant with the Open Containers Initiative (OCI) specification, CRI-O can run it, cutting out extraneous tooling and allowing containers to do what they do best: fuel your next-generation cloud-native applications.

Cloud Native Networking

The CNCF project Flannel is a networking technology used to connect Linux Containers and today provides the overlay network used in Oracle Container Services for use with Kubernetes.

The Container Network Interface (CNI) project, under CNCF, seeks to simplify networking for container workloads, by defining a common network interface for containers. The CNI plugin is available as a developer preview.

Coming soon, additional features, like Calico, will deliver options for secure network connectivity for containers and virtual machine workloads and will further enhance network options for customers.

Cloud Native Storage

There are a number of storage projects associated with CNCF and several providers are included by default in Oracle Container Services for use with Kubernetes, including GlusterFS which is included in Gluster Storage for Oracle Linux Release 3.12.

In the future, the integration of storage will happen through the use of a new plugin, referred to as the Container Storage Interface (CSI) which is in Alpha beginning with Kubernetes 1.9. The new plugin will adhere to a standard specification and allow storage vendors to manage their plugins against their own timelines versus alignment with upstream Kubernetes releases. The CSI plugin is available as a developer preview.

Continuous Integration / Continuous Delivery

The increased adoption of microservices and the development of cloud native applications requires continuous integration and delivery options to keep pace with growing release frequencies. Jenkins X, available in preview, is a CNCF project which rethinks how developers should interact with CI/CD in the cloud with a focus on making development teams more productive through automation, tooling and DevOps best practices.

Observability and Diagnostics

Prometheus is a powerful, flexible, instrumentation solution for monitoring container environments. It provides time-series dimensional data, powerful query tools and alerting features to improve visibility across the environment. In addition, integration with 3rd party “exporters” allow users to collect additional data and turn it into a metric in Prometheus. One example of this would be with Fluentd which is a data collector that decouples data sources from backend systems by providing a unified logging layer in between. Fluentd provides an exporter for Prometheus, allowing for a more simple integration experience. Both Prometheus and Fluentd are available as previews.

ORACLE LINUX FOR DEVELOPMENT

Tried, tested, and tuned for enterprise workloads, Oracle Linux is used by developers worldwide. Oracle Linux yum server provides easy access to Linux developer preview software, including the latest Cloud Native Environment software.

Thousands of EPEL packages also have been built and signed by Oracle for security and compliance. Software collections include recent versions of Python, PHP, Node.js, nginx, and more. In addition, Oracle Cloud developer tools such as Terraform, SDKs, and CLI are available for improved experience. And finally, Oracle VM VirtualBox helps customers get started with Oracle Linux Cloud Native Environment quickly.

GREATER VALUE

Oracle Linux Cloud Native Environment support is included with [Oracle Linux Premier support](#) at no additional cost. Components available in preview are made available via [Oracle Linux yum server](#) or [Oracle Container Registry](#).

GETTING STARTED

[Oracle Linux](#) is freely available to everyone at [Oracle Software Delivery Cloud](#). Updates can be obtained from [Oracle Linux yum server](#).

[Oracle VM VirtualBox](#) is the most popular cross-platform virtualization software for development environments. You can download a copy of VirtualBox to run Oracle Linux and the cloud-native software on your desktop and easily deploy to the cloud.

Oracle is offering [up to 3,500 free hours on Oracle Cloud](#) to developers that would like to use our cloud for their development environment.

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Integrated Cloud Applications & Platform Services

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