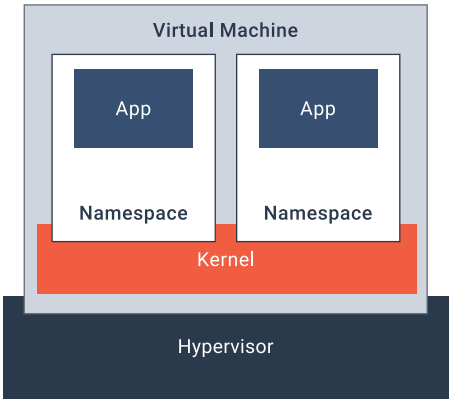
katacontainers

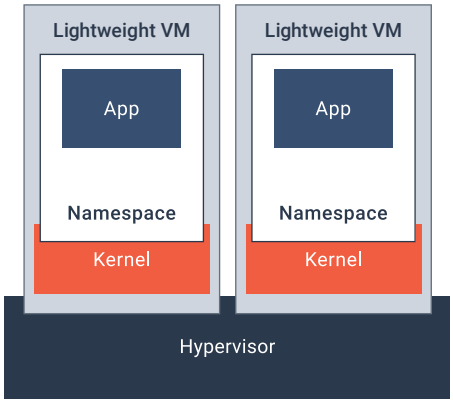
The speed of containers, the security of VMs

Kata Containers is a novel implementation of a lightweight virtual machine that seamlessly integrates within the container ecosystem. Kata Containers are as light and fast as containers and integrate with the container management layers—including popular orchestration tools such as Docker and Kubernetes (k8s)—while also delivering the security advantages of VMs.



Containers in Cloud Today

(Shared kernel, isolation within namespace)



Kata Containers

A lightweight virtual machine isolates each container/pod and provides a separate kernel for each container/pod.

Join The Community

Kata Containers is an independent open source community producing code under the Apache 2 license. Anyone is welcome to join and contribute code, documentation, and use cases.

katacontainers.io

Github: /kata-containers
Freenode IRC: #kata-dev
Slack: bit.ly/KataSlack
Website: katacontainers.io
Twitter: @KataContainers
Facebook: KataContainers
Mailing Lists: lists.katacontainers.io
Email: info@katacontainers.io

The industry shift to containers presents unique challenges in securing user workloads within multi-tenant environments with a mix of both trusted and untrusted workloads. Kata Containers uses hardware-backed isolation as the boundary for each container or collection of containers in a pod. This approach addresses the security concerns of a shared kernel in a traditional container architecture.

Kata Containers is an excellent fit for both on-demand, event-based deployments such as, continuous integration/continuous delivery, as well as longer running web server applications. Kata also enables an easier transition to containers from traditional virtualized environments with support for legacy guest kernels and device pass through capabilities. Kata Containers delivers enhanced security, scalability and higher resource utilization, while at the same time leading to an overall simplified stack.

Kata Containers Features

	**Security**	Runs in a dedicated kernel, providing isolation of network, I/O and memory and can utilize hardware-enforced isolation with virtualization VT extensions
	**Compatibility**	Supports industry standards including OCI container format, Kubernetes CRI interface, as well as legacy virtualization technologies
	**Simplicity**	Eliminates the requirement for nesting containers inside full blown VMs
	**Performance**	Delivers consistent performance as standard Linux containers

Kata Containers Enables

Multi-tenancy	Event-Driven Container-Native	Increased Resource efficiency	Bridge Ecosystems
Enables multiple tenants to share single container orchestration engine.	Can be launched at anytime without any planning or pre-existing VM cluster requirement.	Small footprint increases density dramatically as compared to traditional VMs.	Utilizes both battle tested hypervisor and bleeding edge container technologies, providing an elegant and cohesive integration.

Kata Containers Use Cases

Use Case	Benefits
SaaS, CaaS, CSPs, Edge	Can be launched at anytime without any planning or pre-existing VM cluster requirement.
SaaS, CaaS, CSPs	Offer Kata to customers as an option for increased container security
Telcos, Appliance vendors	Provides multi-tenancy and security for container-based VNF deployments. Allows those reliant upon VMs to run their workloads using popular container orchestration tools while retaining custom kernels and drivers.
CI/CD, Ops	Allows pre-production workloads to be run in isolation using a Container deployment model. Enables use of a single VM cluster for multi-tenancy or a mix of trusted and untrusted workloads (e.g., an app still in test) – all with a container management model.
Regulated industries, Sensitive workloads	Opens door for containers where security issues may currently be preventing their use.