

Virtualization for Cloud Native

Kata 2.0 and Cloud Hypervisor



kubelet



kubelet



CRI

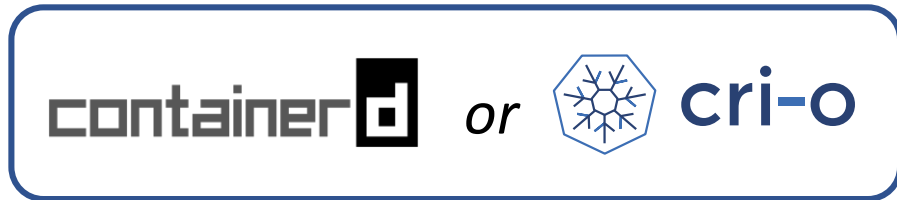
containerd or  cri-o



kubelet



CRI



RuntimeClass

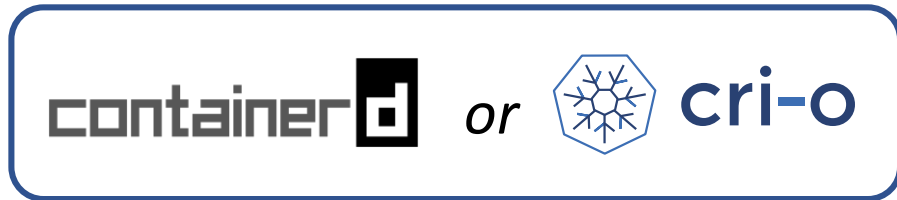




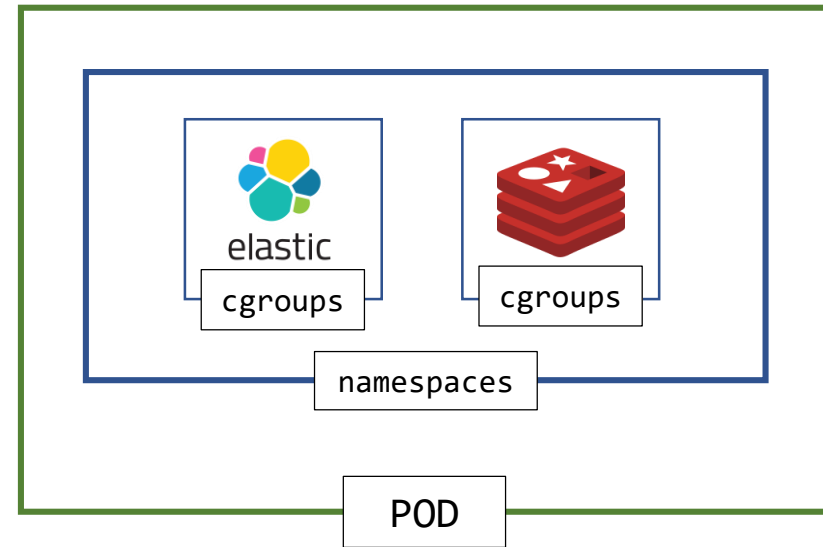
kubelet



CRI



RuntimeClass





kubelet



CRI

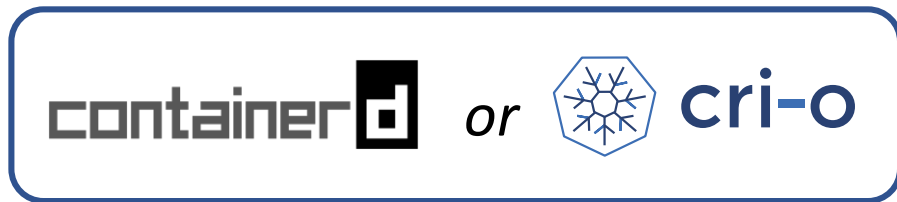
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CRI



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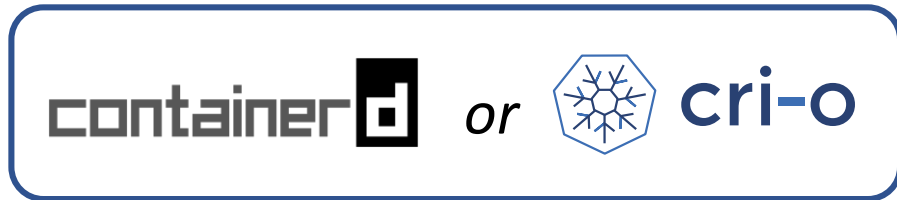




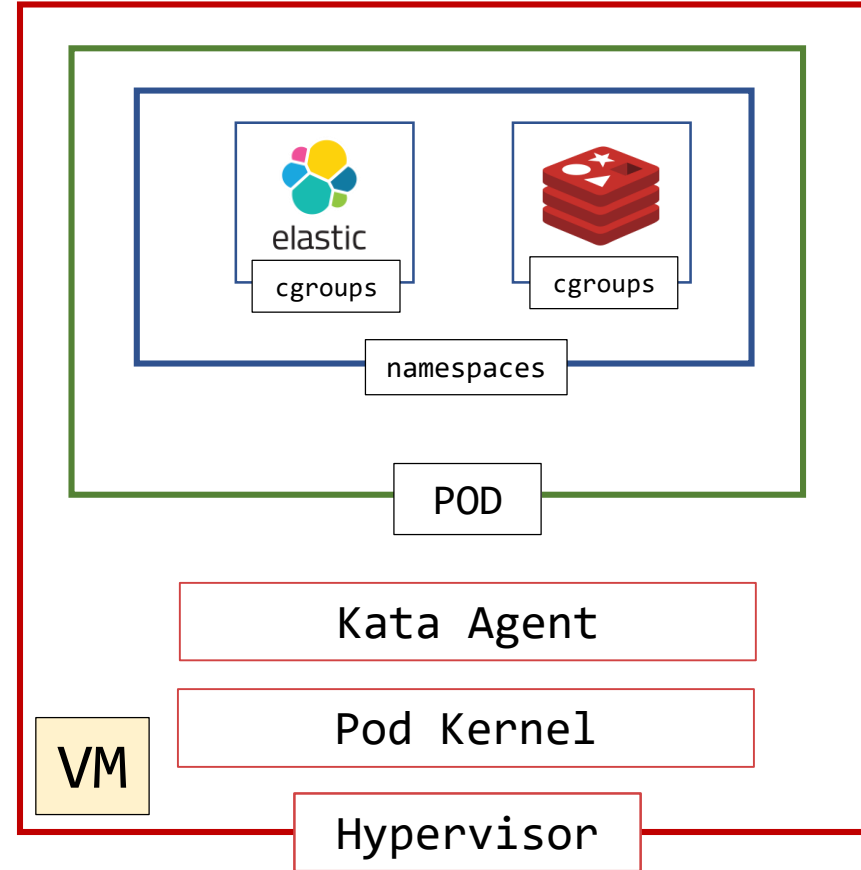
kubelet



CRI



RuntimeClass

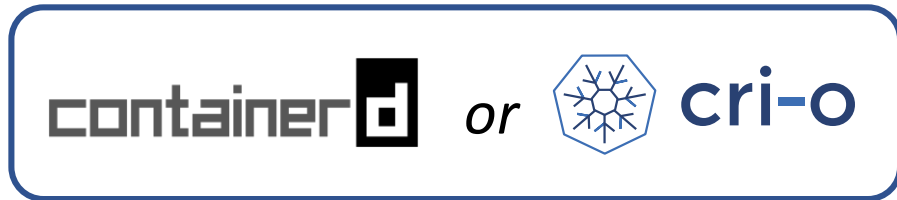




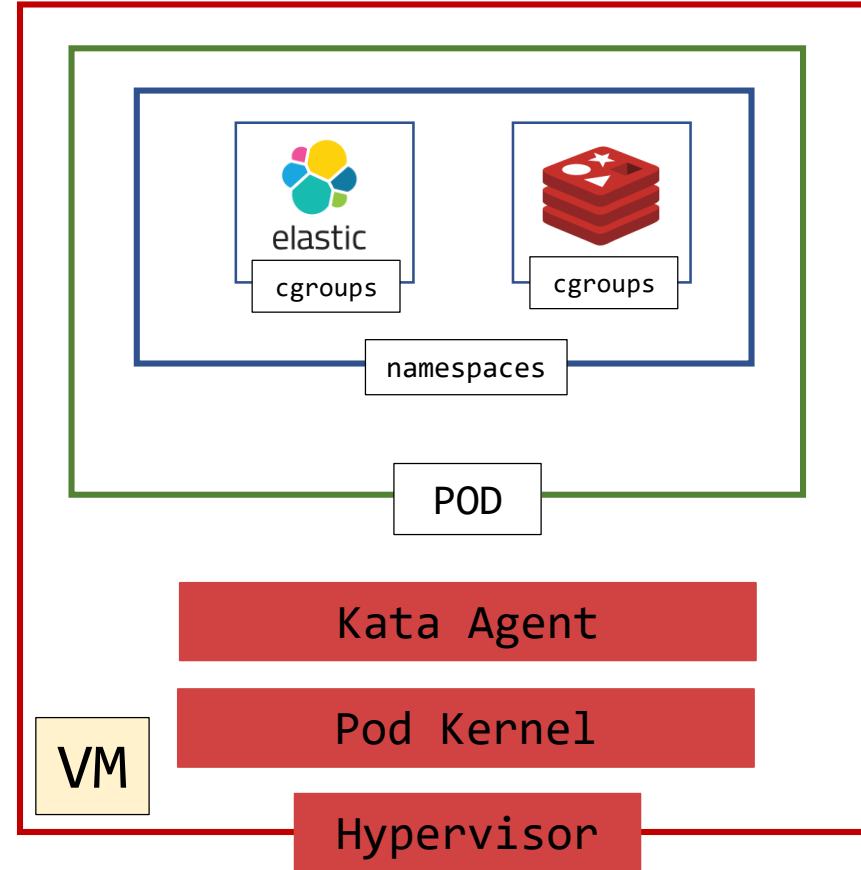
kubelet



CRI



RuntimeClass



Overhead

Overhead
Complexity

Overhead

Complexity

Incompatibility

Overhead
Complexity
Incompatibility

Overhead

Complexity

Incompatibility

Security

Overhead
Complexity
Incompatibility

Security

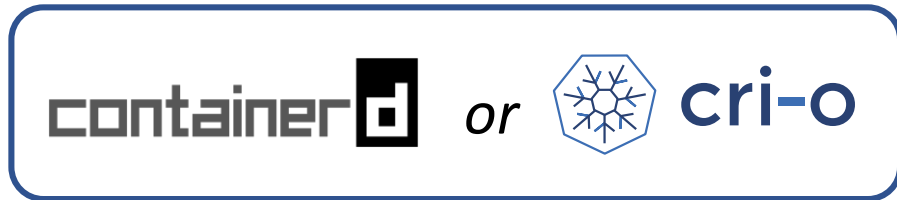
Kata Containers 2.0 + Cloud Hypervisor



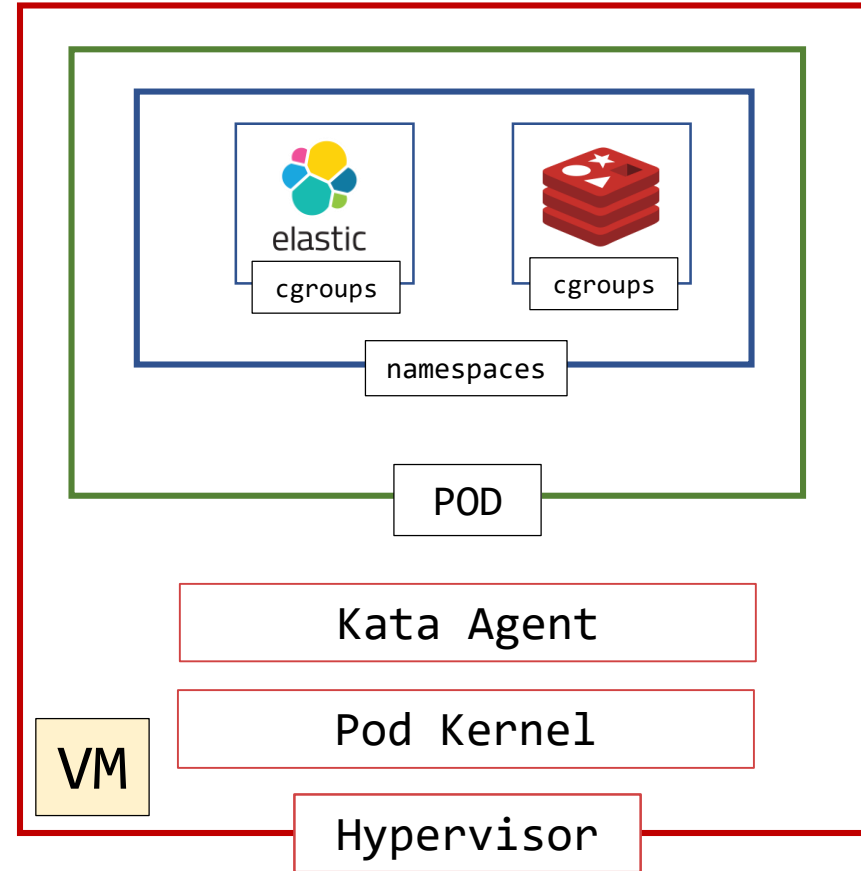
kubelet



CRI



RuntimeClass

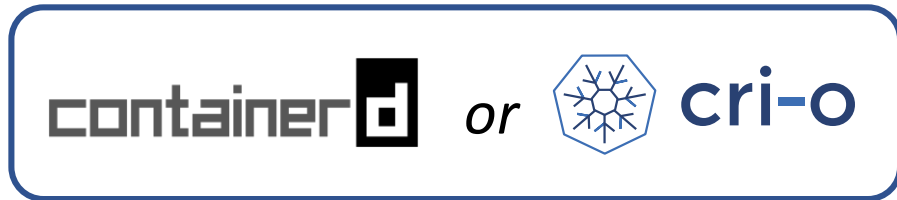




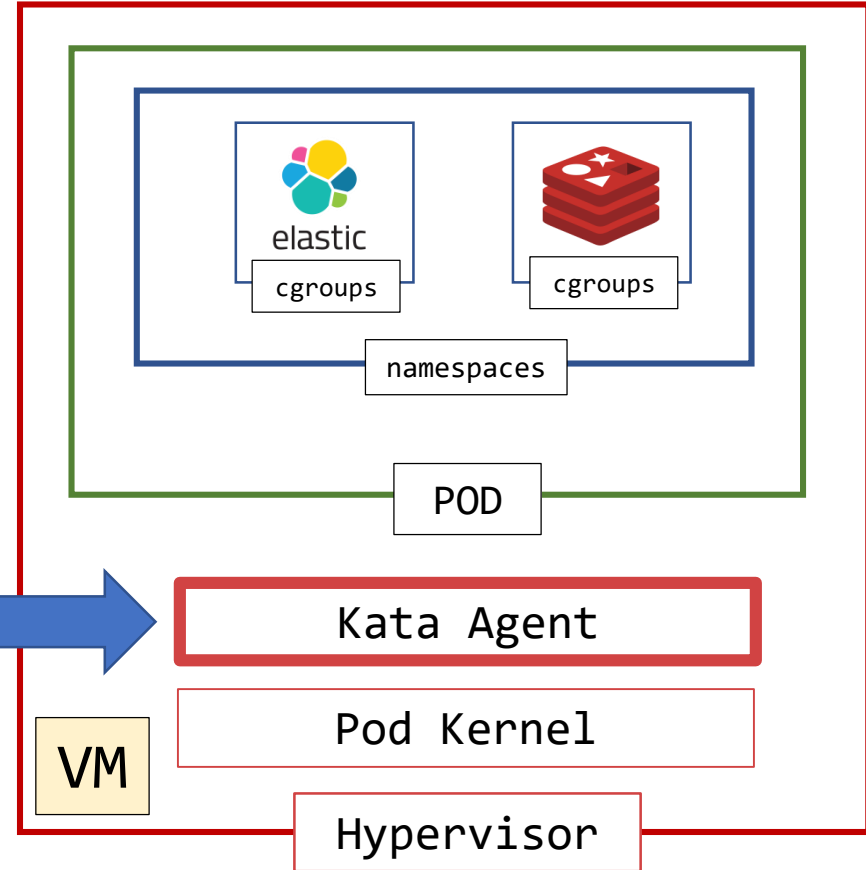
kubelet



CRI



RuntimeClass



From Go to Rust

From Go to Rust

From gRPC to ttRPC

Overhead

Complexity

From Go to Rust

From gRPC to ttRPC

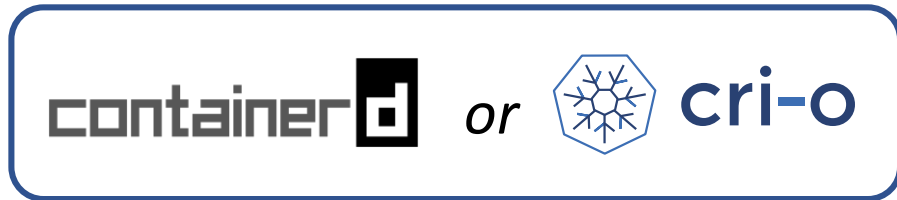
Protocol Simplification



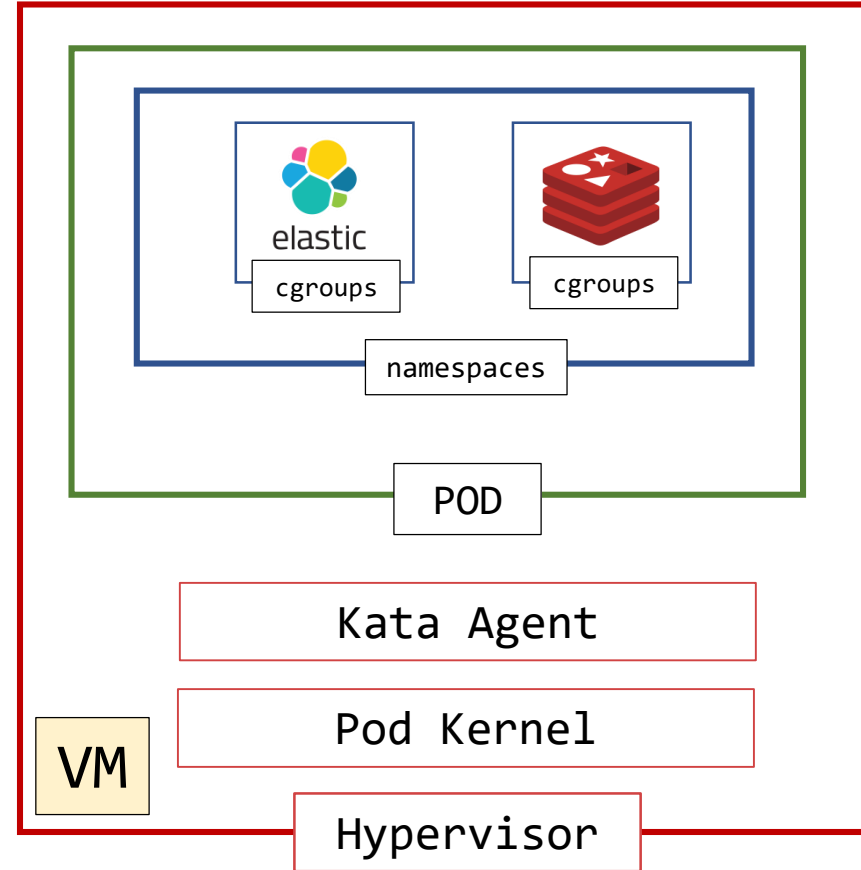
kubelet



CRI



RuntimeClass

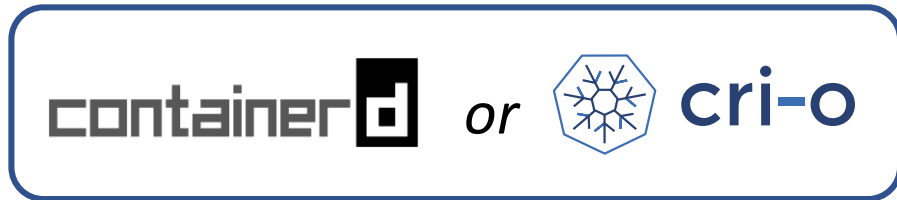




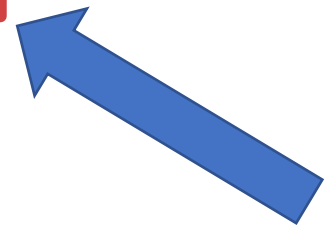
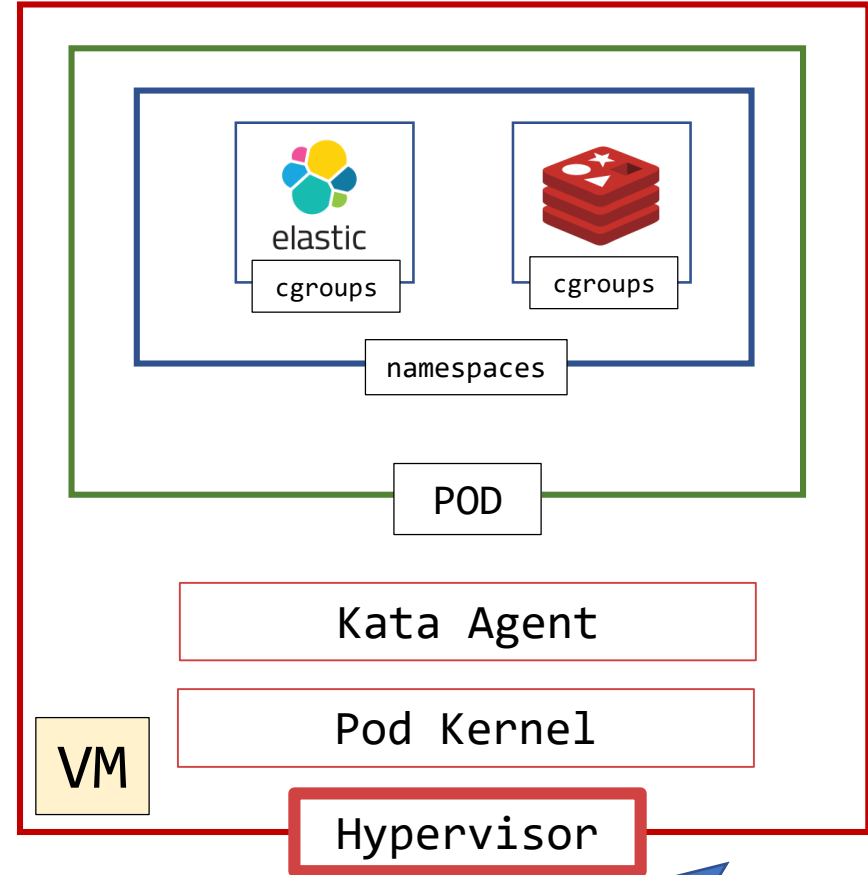
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CRI



RuntimeClass



CRI Specs

gRPC

LinuxContainerConfig struct

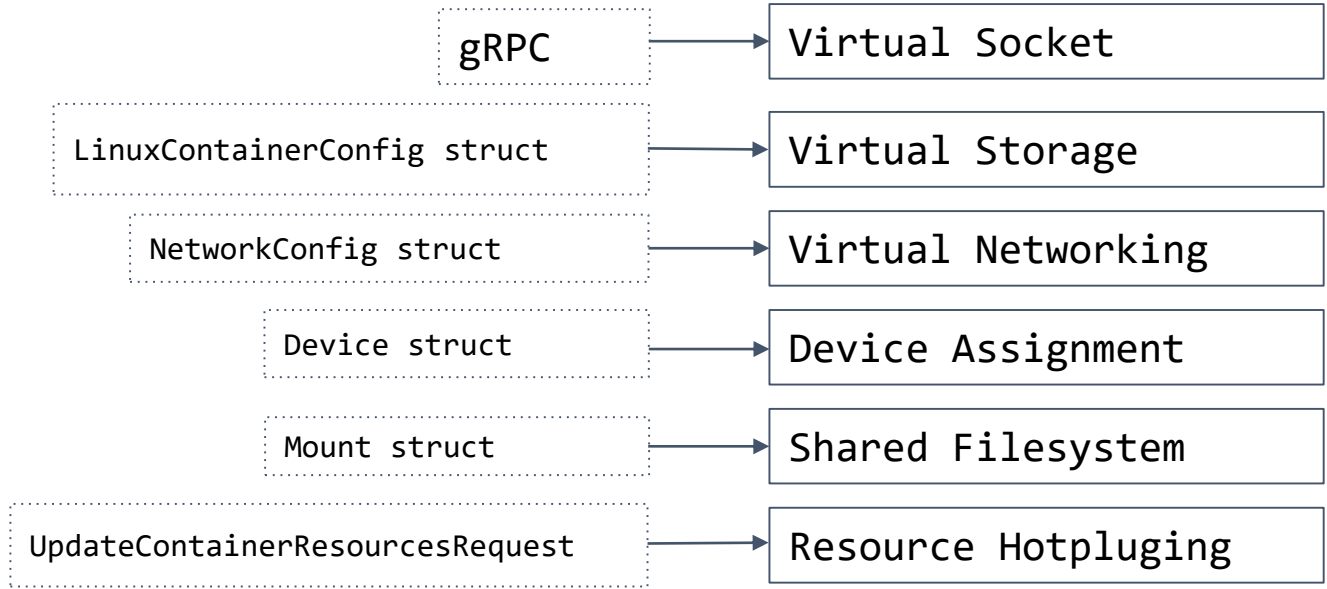
NetworkConfig struct

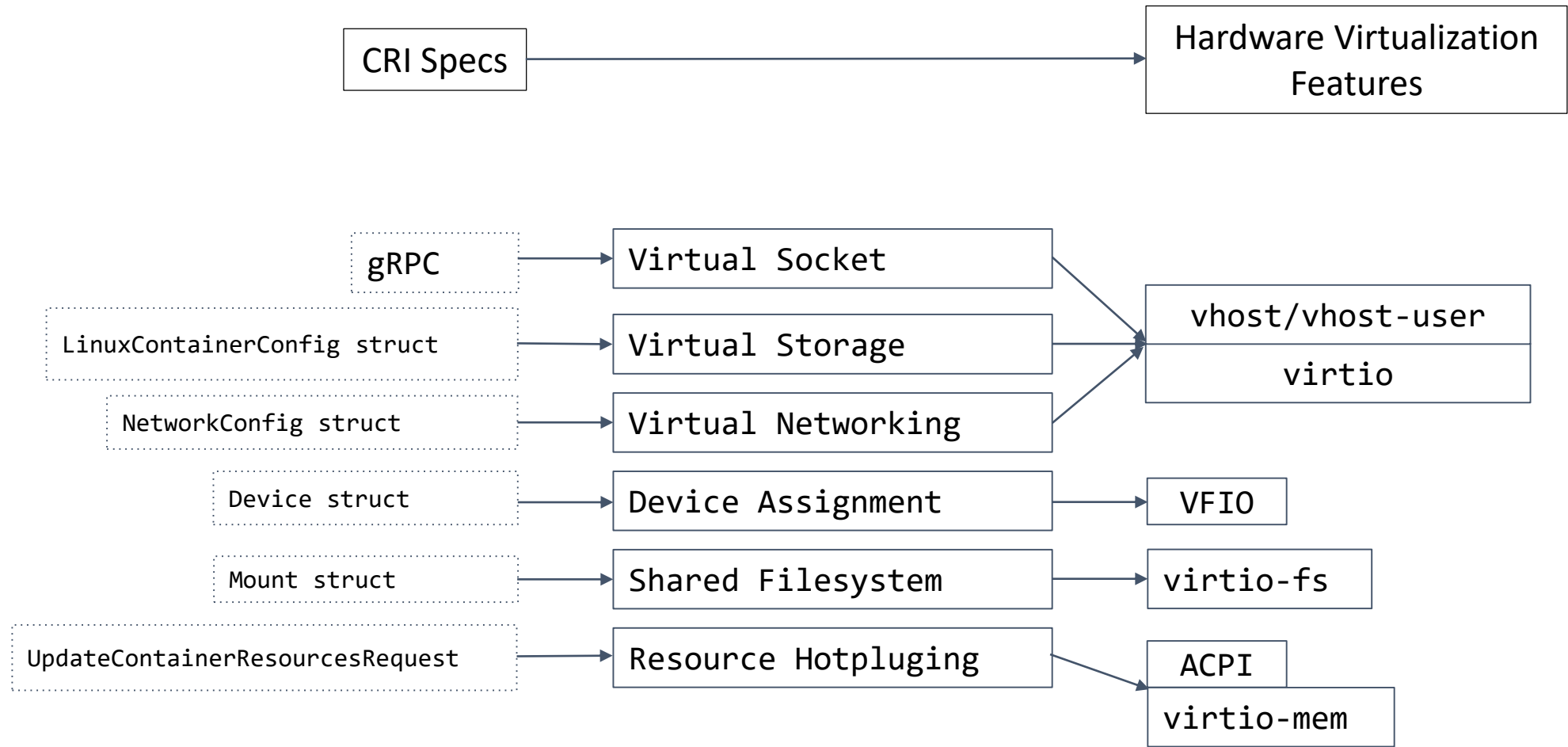
Device struct

Mount struct

UpdateContainerResourcesRequest

CRI Specs





Cloud Hypervisor

Cloud Hypervisor
Full CRI support

Compatibility

Security

Cloud Hypervisor
Full CRI support
From C to Rust

Cloud Hypervisor
Full CRI support
From C to Rust
Fast and minimal

Compatibility

Security

Overhead



Prometheus



kata
containers



Prometheus



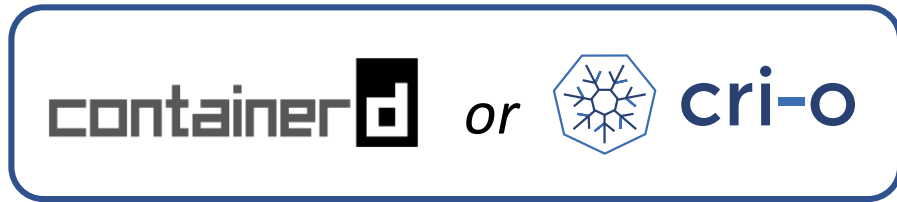
kata
containers



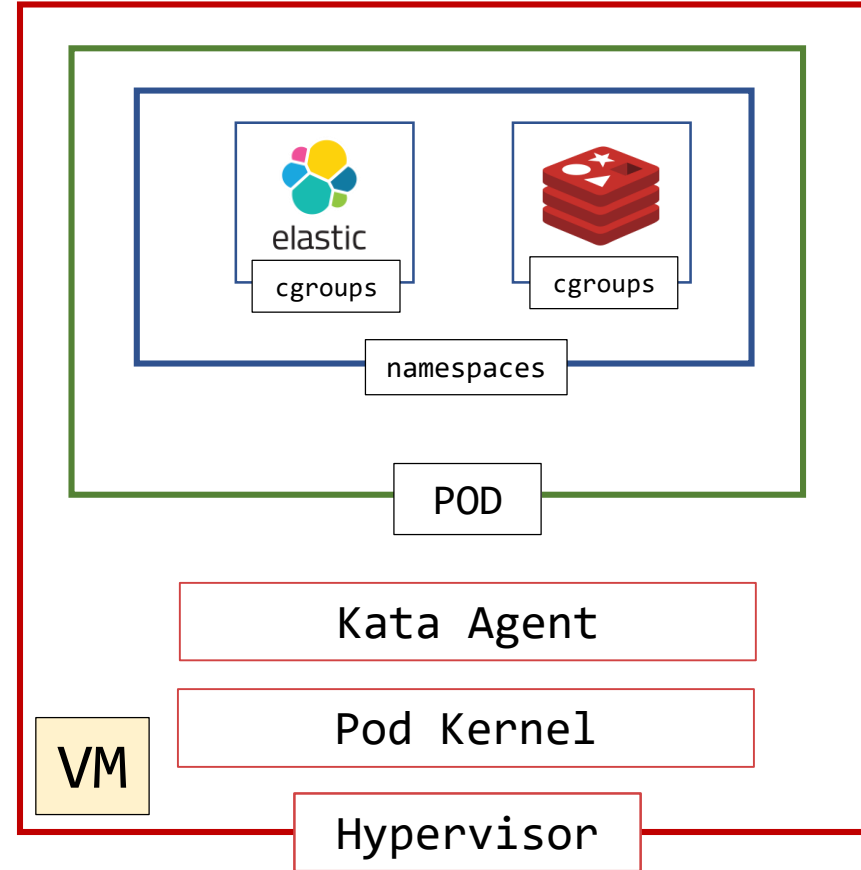
kubelet

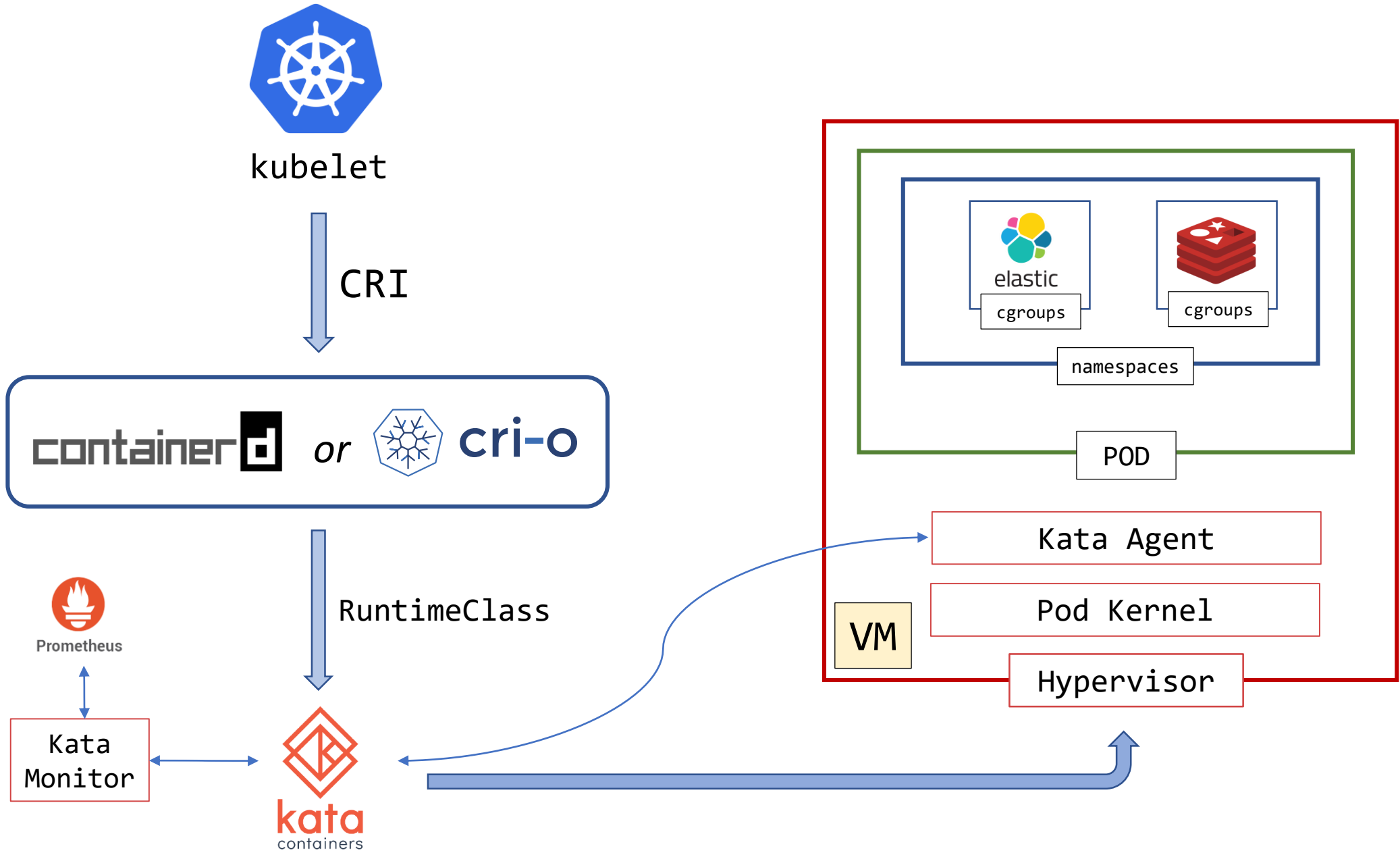


CRI



RuntimeClass





Prometheus integration

Compatibility

Complexity

Prometheus integration

Hypervisor, agent and VM metrics

Compatibility

Complexity

Prometheus integration

Hypervisor, agent and VM metrics

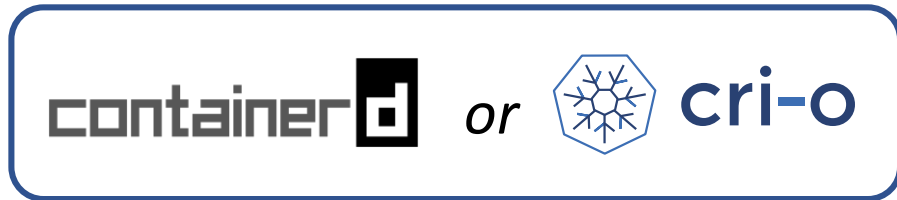
Pod Overhead



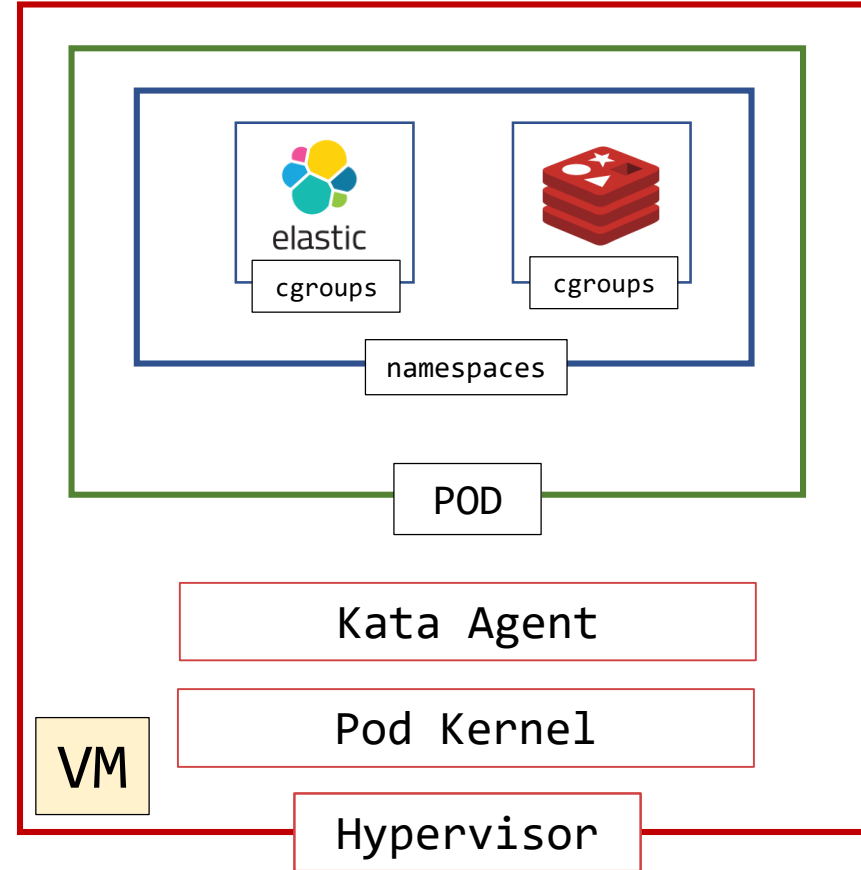
kubelet



CRI



RuntimeClass

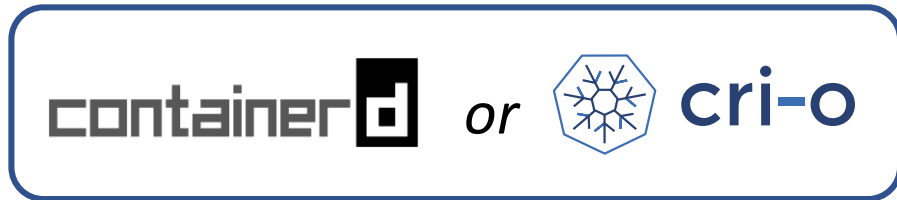




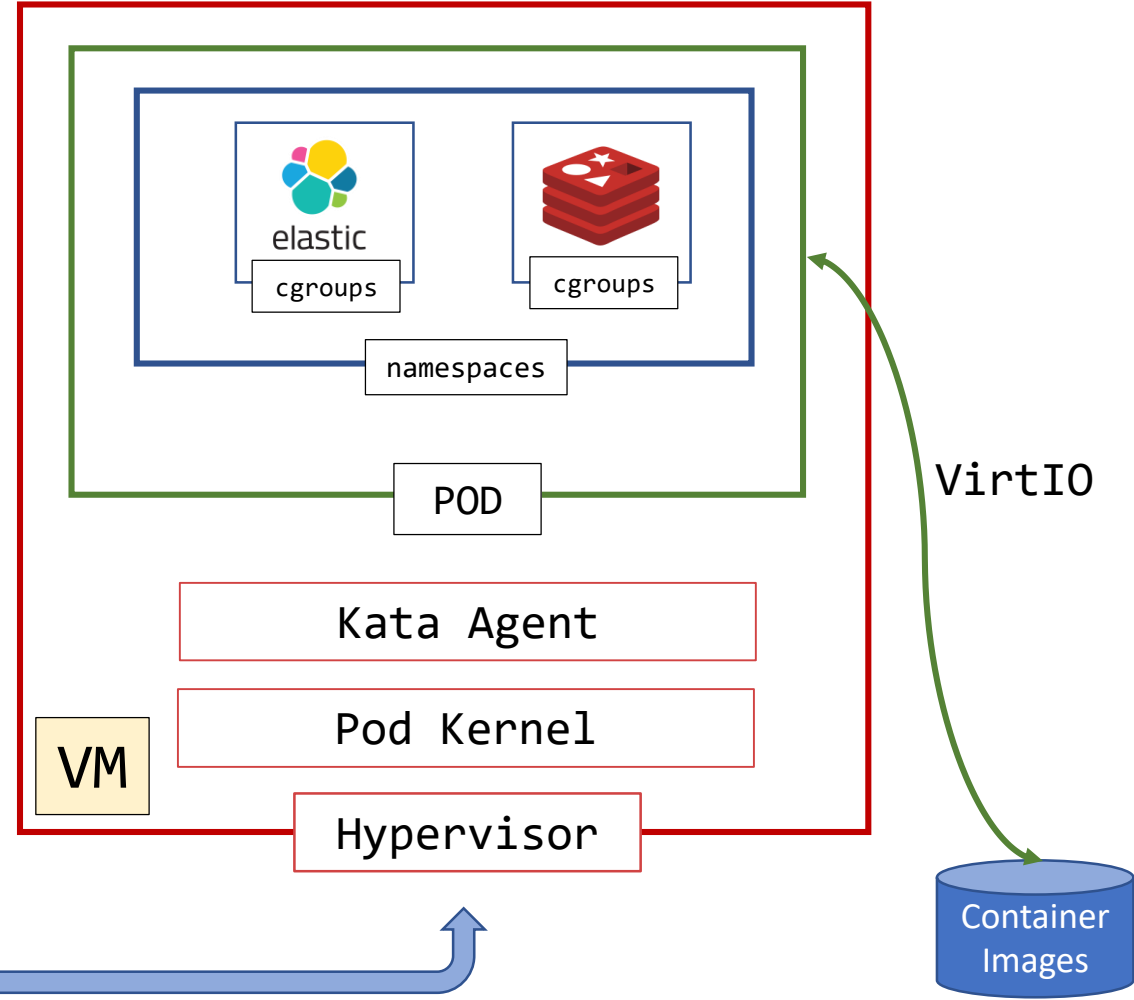
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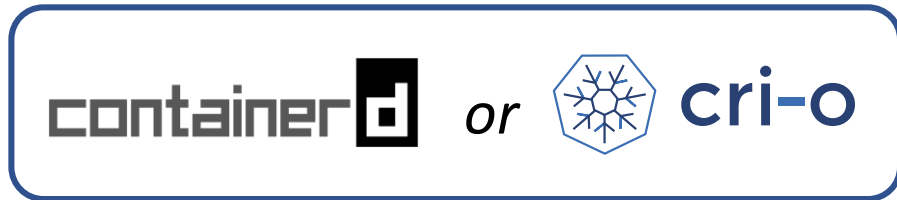




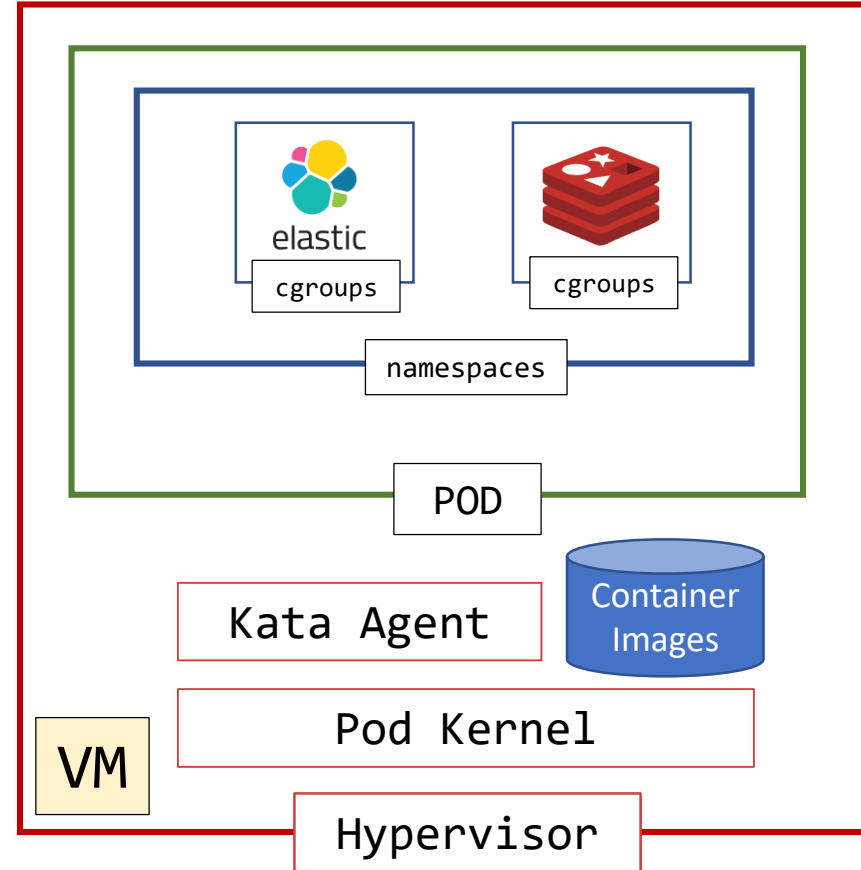
kubelet



CRI



RuntimeClass



Pull images from the pod

Pull images from the pod
Threat model extension

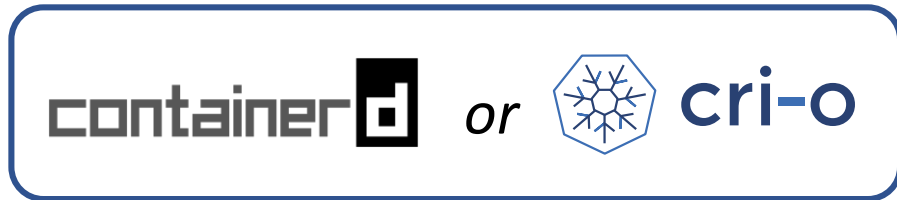
Pull images from the pod
Threat model extension
Do not trust your CSP



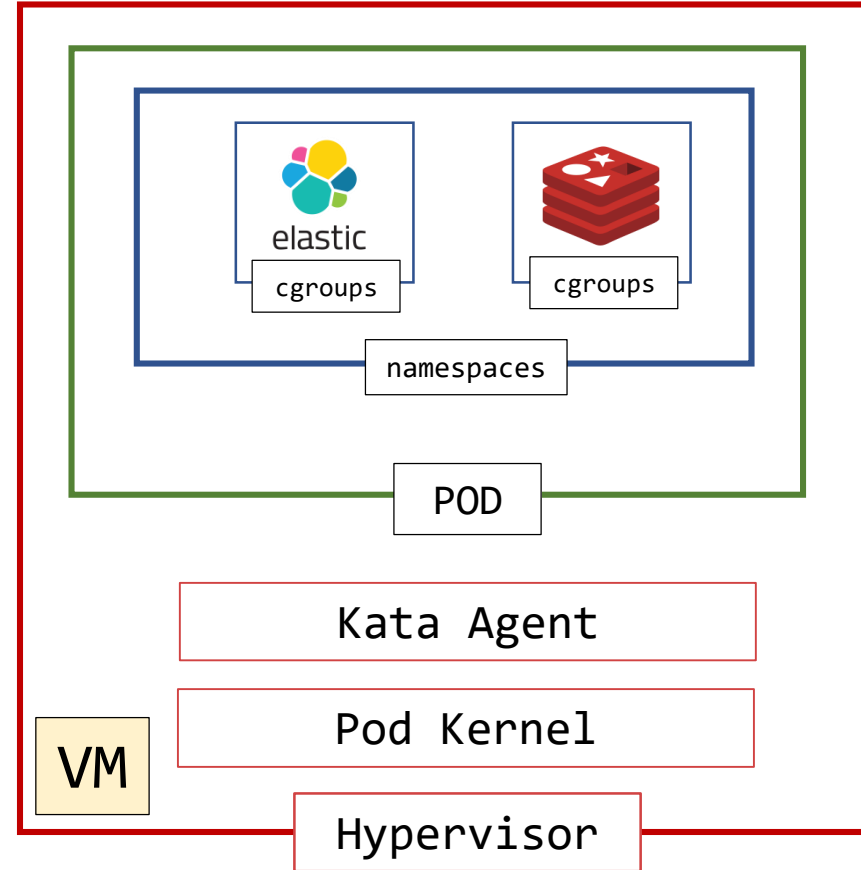
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CRI



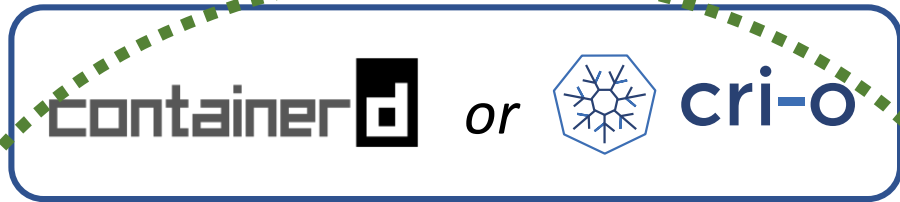
RuntimeClass



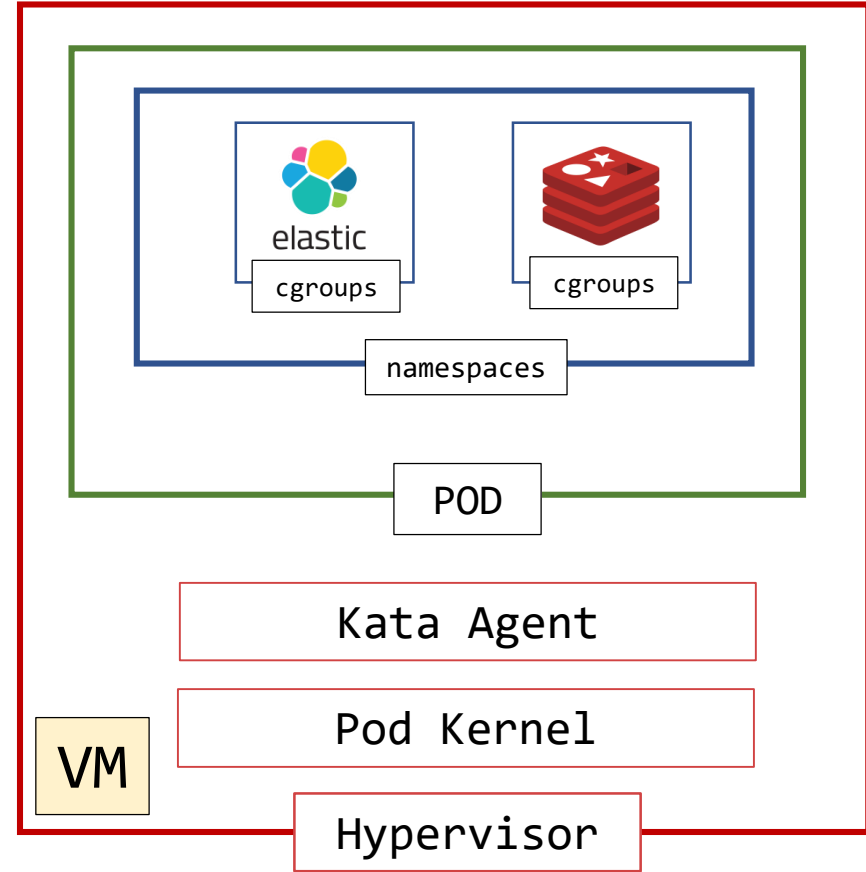


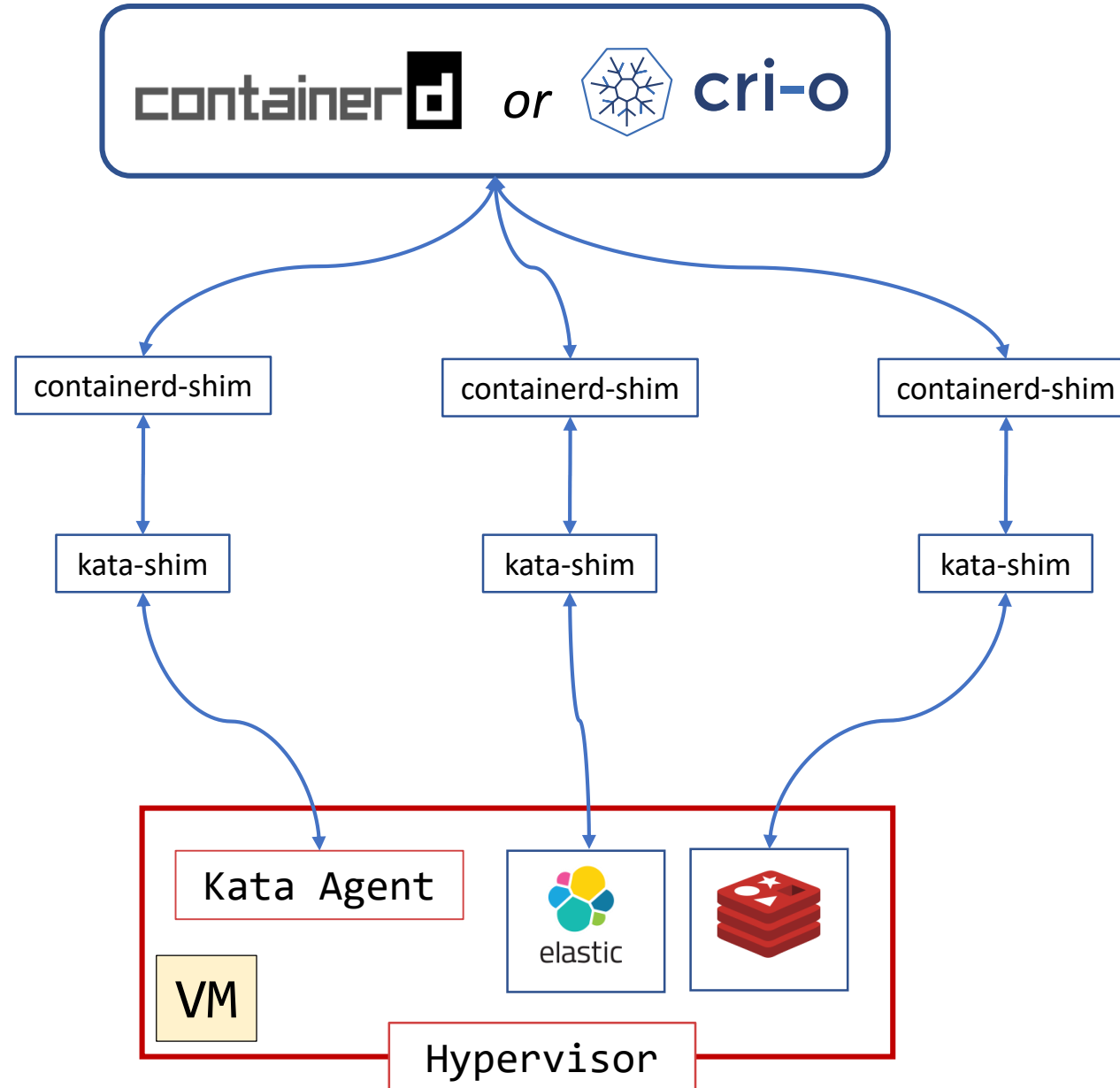
kubelet

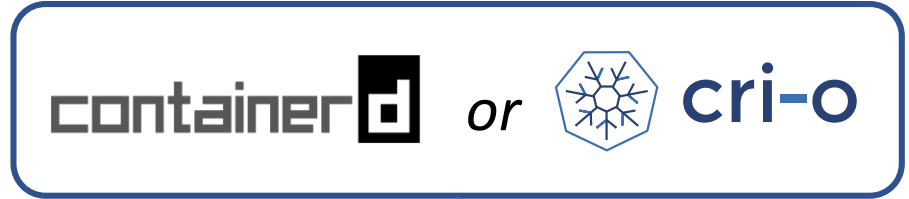
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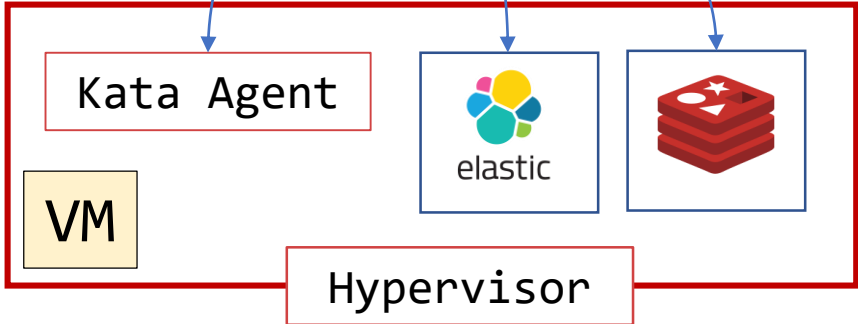
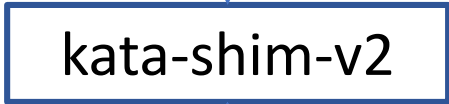
RuntimeClass

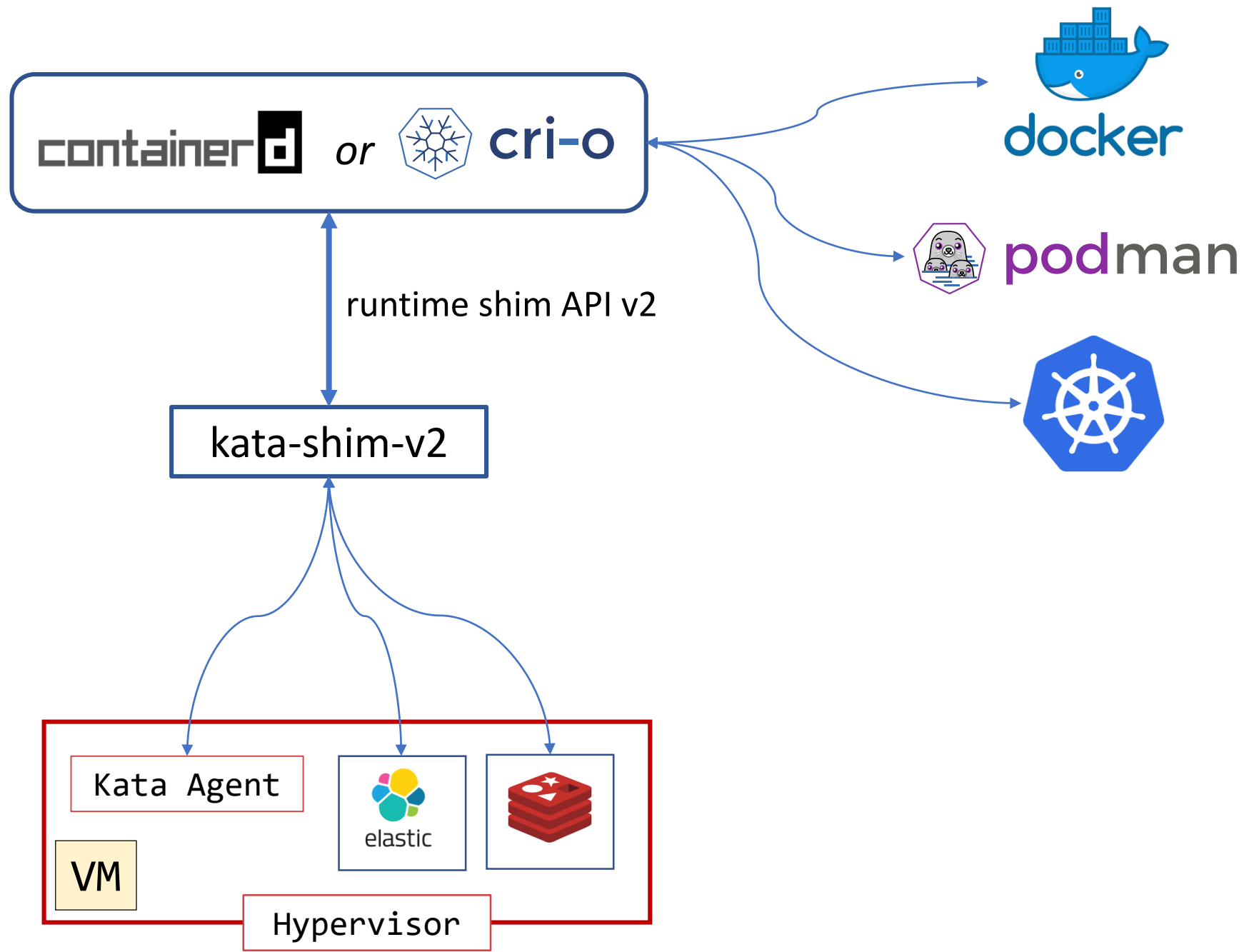






runtime shim API v2





shim-v2 all the things

Overhead

Security

shim-v2 all the things

One single Kata process per Pod

Overhead

Security

Complexity

shim-v2 all the things

One single Kata process per Pod

Thanks for all the fish, cli

Kata Containers 2.0

Cloud Hypervisor