Future of CRI and Container Runtimes

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About us

- Mrunal Patel (Red Hat)
  - SIG-Node, CRI-O, runc, OCI, Openshift
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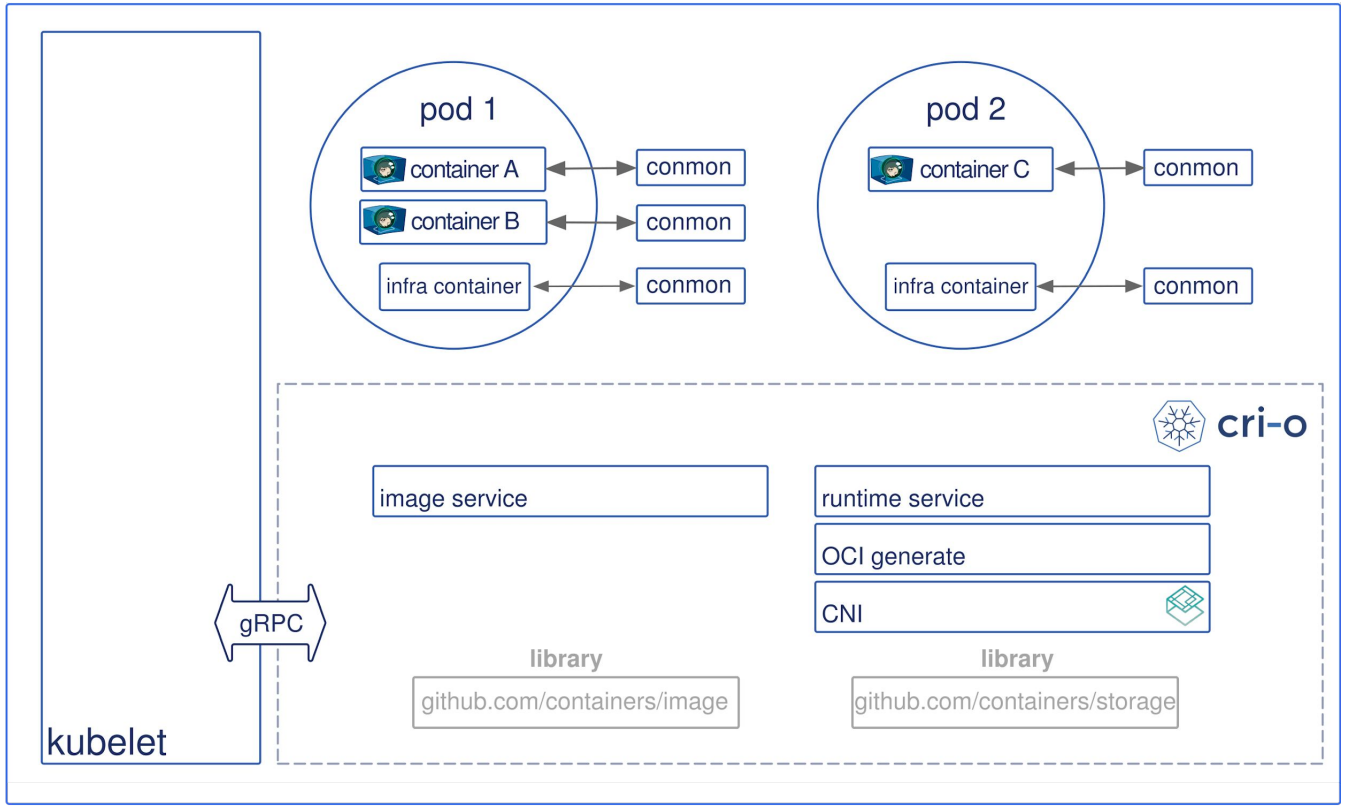
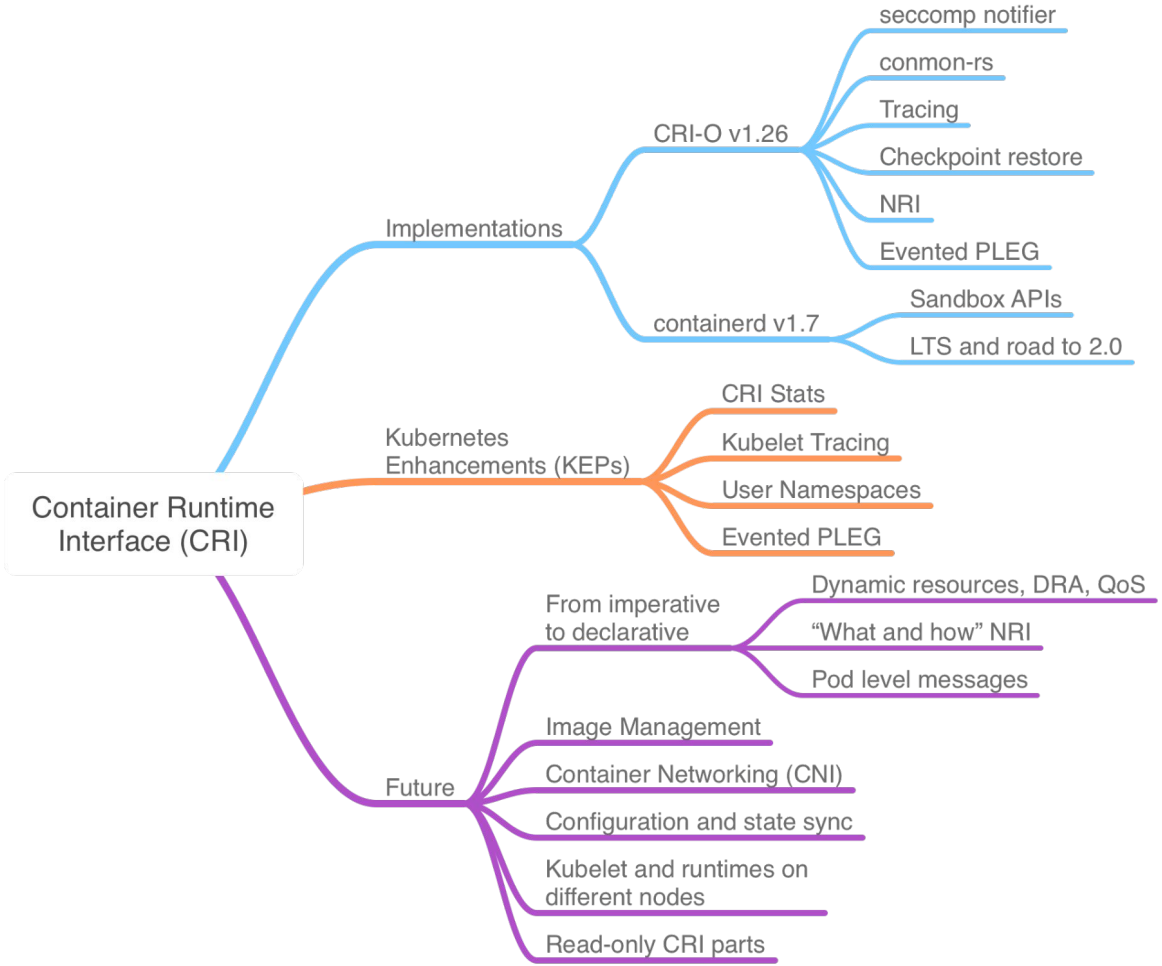
  - CRI-O, Runtimes, SIG-Node, SIG-Release
- Michael Brown (IBM)
  - SIG-Node, containerd, OCI
- Alexander Kanevskiy (Intel)
  - SIG-Node, TAG-Runtime / COD WG

Intro: What is CRI?

- Container Runtime Interface is the gRPC API that kubelet uses to communicate with container runtimes such as CRI-O, containerd and docker.
- It has an image service and runtime service.
- Image service is for managing images i.e. pulling, listing and removing images.
- Runtime service manages the lifecycle of pods and containers i.e. create, start, stop and remove.


pod 1
container A
container B
infra container
conmon
conmon
conmon
pod 2
container C
infra container
conmon
conmon
cri-o
image service
runtime service
OCI generate
CNI
gRPC
library
github.com/containers/image
library
github.com/containers/storage
kubelet

Topics


Container Runtime Interface (CRI)
Implementations
CRI-O v1.26
seccomp notifier
conmon-rs
Tracing
Checkpoint restore
NRI
Evented PLEG
containerd v1.7
Sandbox APIs
LTS and road to 2.0
Kubernetes Enhancements (KEPs)
CRI Stats
Kubelet Tracing
User Namespaces
Evented PLEG
Future
From imperative to declarative
Dynamic resources, DRA, QoS
“What and how” NRI
Pod level messages
Image Management
Container Networking (CNI)
Configuration and state sync
Kubelet and runtimes on different nodes
Read-only CRI parts

How to participate?

- CNCF
  - TAG-Runtime & Container Orchestrated Devices WG
    - Slacks:
      - #tag-runtime
      - #containerd
      - #crio
  - Projects
    - containerd
    - CRI-O
    - NRI & NRI Plugins
- Kubernetes
  - SIG-Node
    - Slack: #sig-node @ Kubernetes

Thank You!