Docker suckless with Kubernetes

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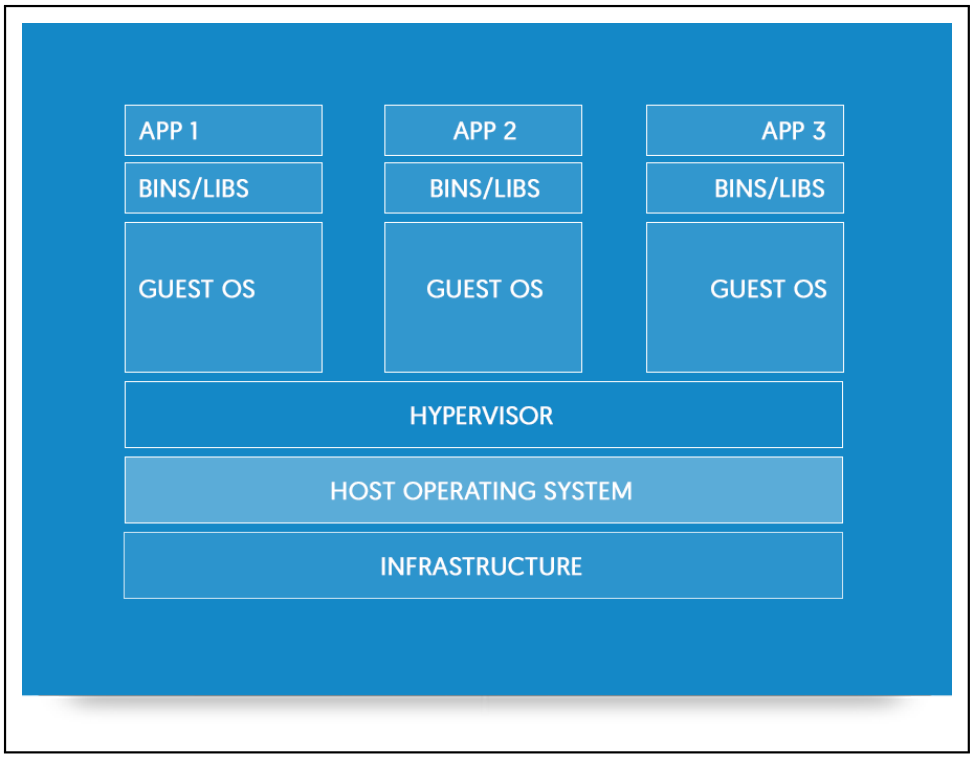
Agenda

1. Docker
2. Kubernetes
   - What is Kubernetes?
   - Concepts
   - Architecture
   - Google Container Engine (GKE)
3. Demo
4. QA

What is Docker?

- An implementation of the container idea
- A package format
- Resource isolation
- An ecosystem

VM and Docker



Virtual Machine

[1] https://www.docker.com/what-docker

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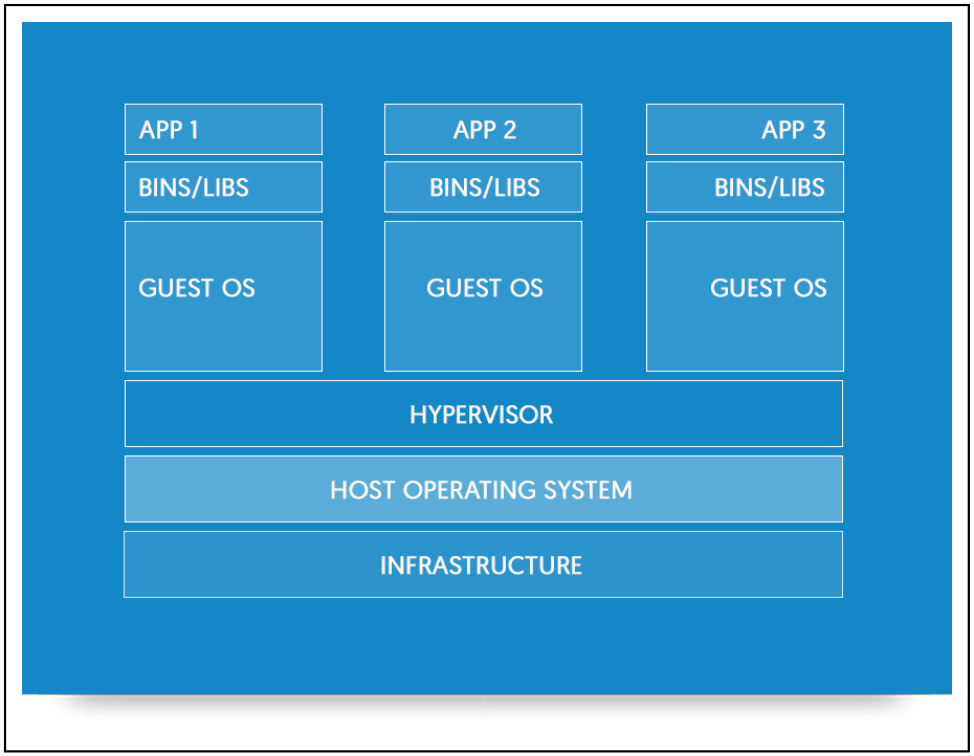

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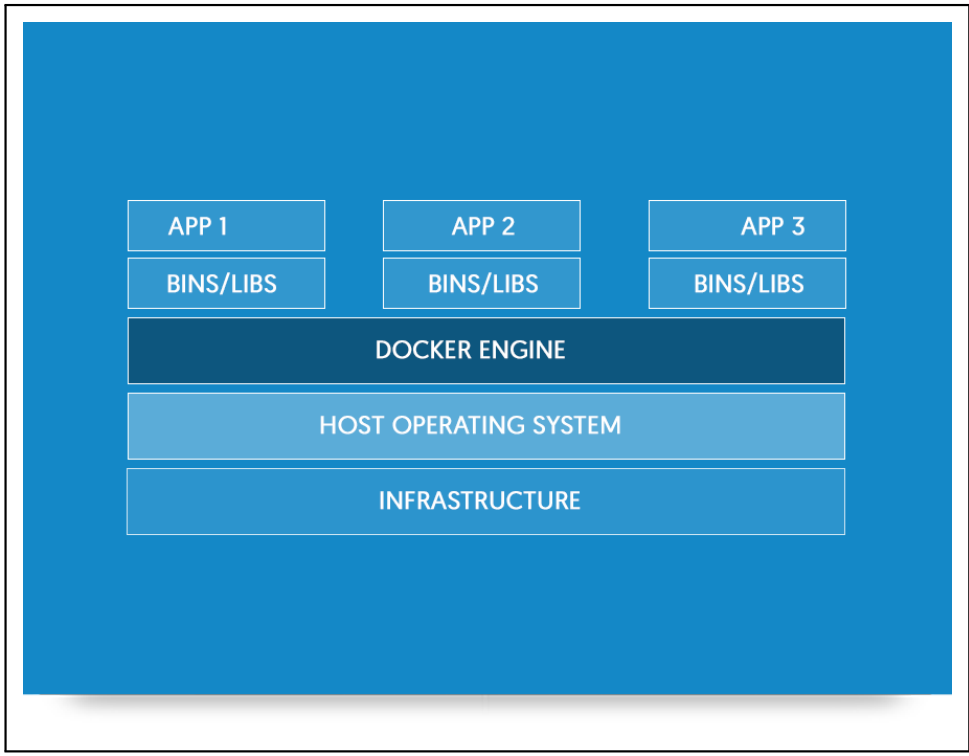

Docker

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Resource isolation

Implemented by a number of Linux APIs:

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  - CPU, memory, disk IO, ...

[1] Cluster Management with Kubernetes `https://goo.gl/er33Gn`

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- **chroot**:
  Determines what parts of the filesystem a user can see.

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We need more than just packing and isolation

- **Scheduling**: Where should my container run?
- **Lifecycle and health**: Keep my containers running despite failures
- **Discovery**: Where are my containers now?
- **Monitoring**: What's happening with my containers?
- **Auth{n,z}**: Control who can do things to my containers
- **Aggregates**: Compose sets of containers into jobs
- **Scaling**: Make jobs bigger or smaller
- ...

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What is Kubernetes?

- Container orchestrator
- Builds on Docker containers also supporting other container technologies
- Multiple cloud and bare-metal environments
- Support existing OSS apps
- Inspired and informed by Google's experiences and internal systems
- **100% Open source**, written in **Go**
- Let users manage **applications**, not machines

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- **Service**: A set of pods that work together

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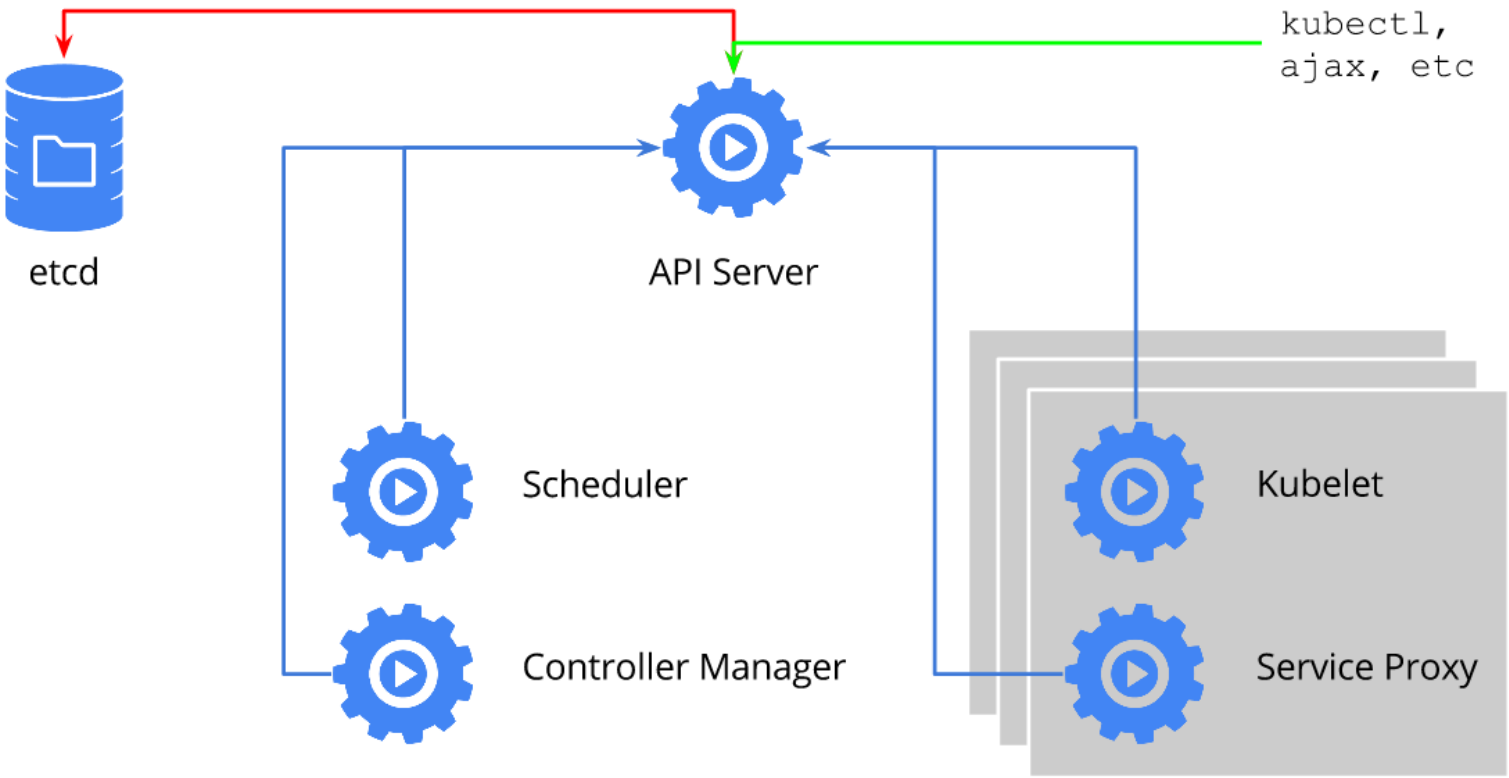
Kubernetes Architecture



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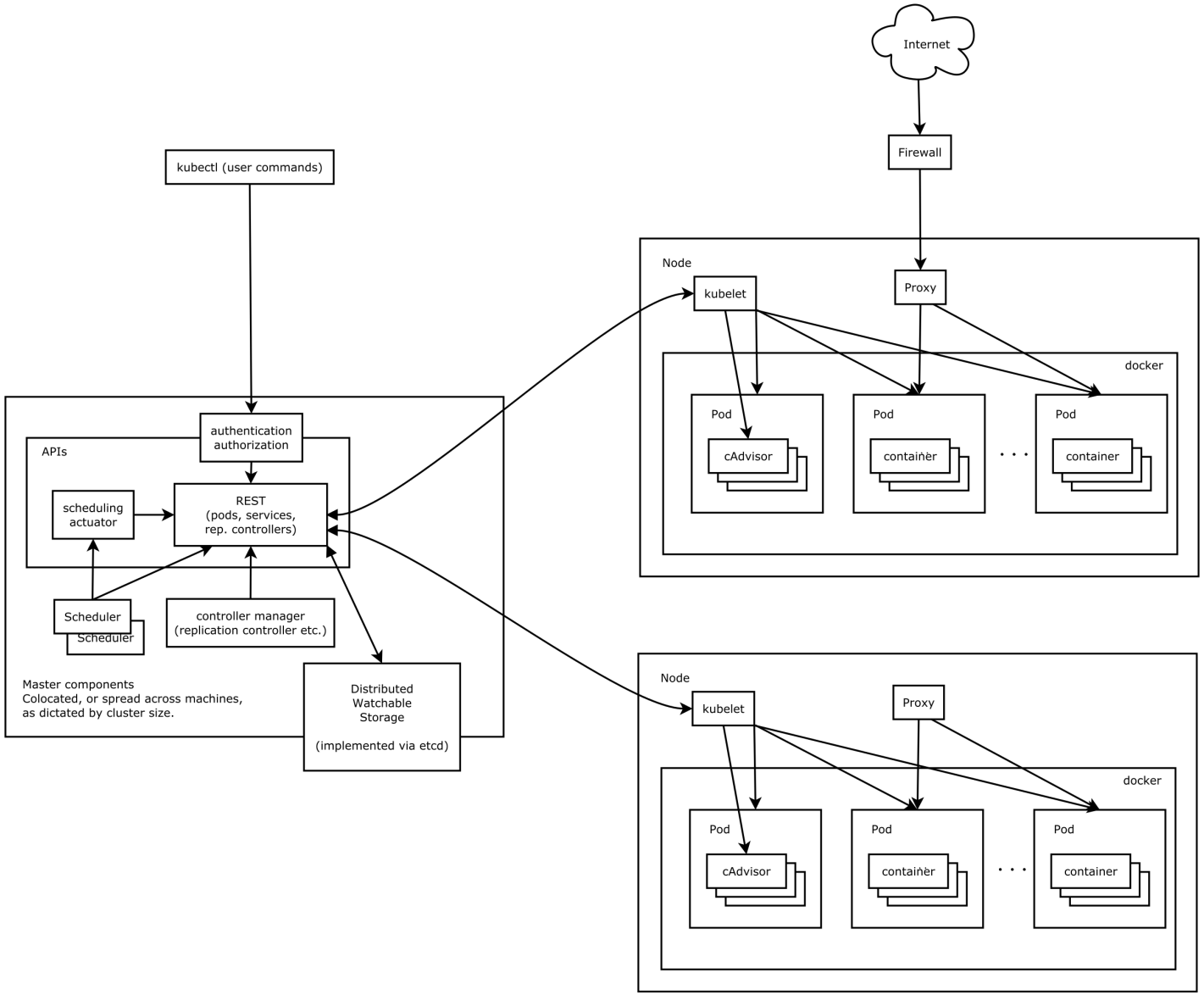
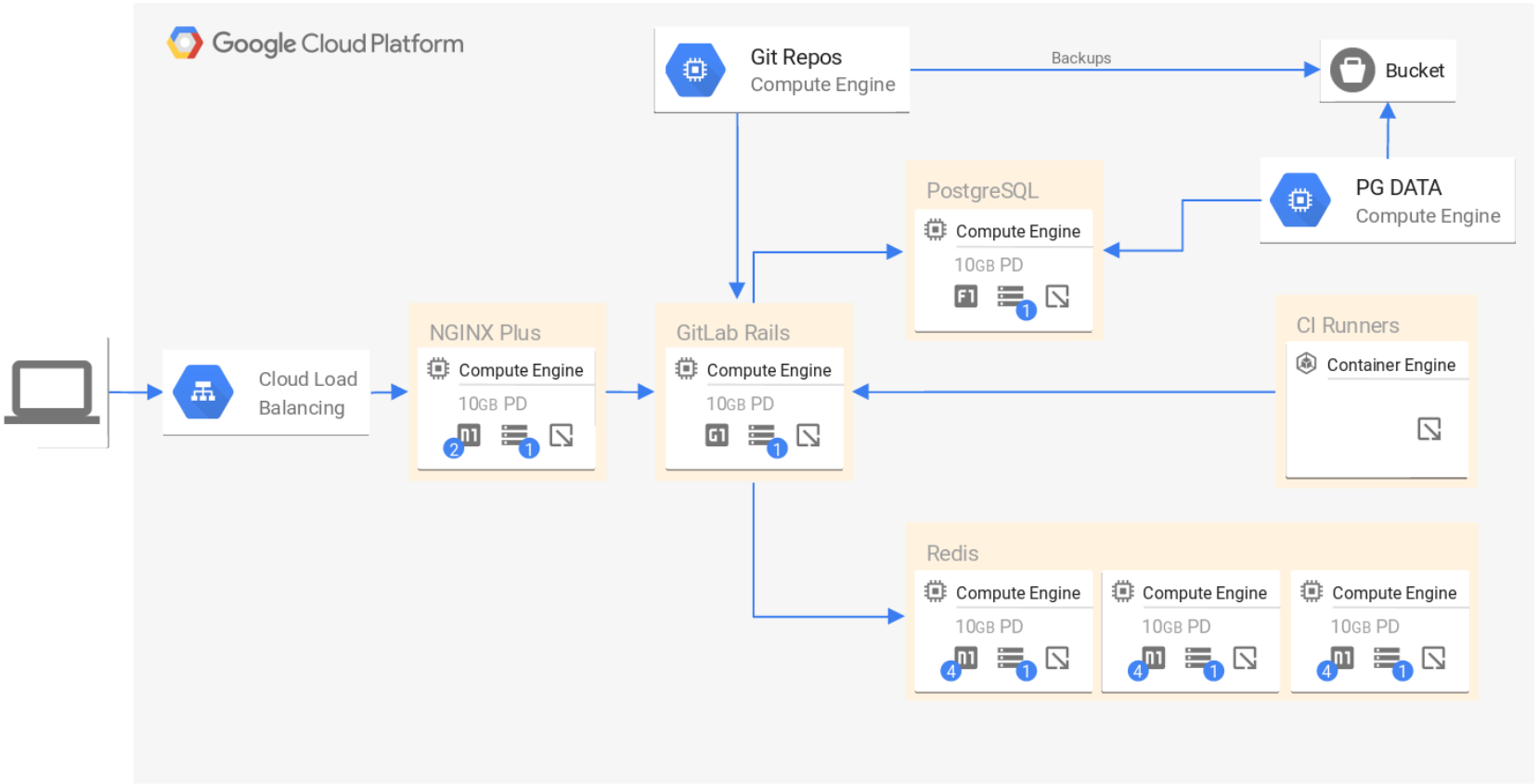


Google Container Engine (GKE)

GKE is a powerful cluster manager and orchestration system for running your Docker containers. Container Engine schedules your containers into the cluster and manages them automatically based on requirements you define (such as CPU and memory). It's built on the open source Kubernetes system, giving you the flexibility to take advantage of on-premises, hybrid, or public cloud infrastructure.

Example: Gitlab CI/CD on GCP



Google Container Engine

Questions?