



Cloud Foundry Container Runtime

Cameron Stewart

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BOSH-POWERED KUBERNETES

CLOUD FOUNDRY

CONTAINER RUNTIME



@CWS322

WHERE I HANG OUT



WE BEGIN OUR TALE...





- ▶ Kubernetes is a portable, extensible open-source **platform for managing containerized workloads** and services, that facilitates both declarative configuration and automation
- ▶ Brought to you by **Google**, open sourced in 2014. Descendant of BORG
- ▶ Cloud Native Computing Foundation - **170** members
- ▶ Certified standards

WHAT MAKES KUBERNETES GREAT

IDEAL FOR PACKAGED APPS, APPS/SERVICES EXPOSING MULTIPLE PORTS AND
WHERE FINER GRAIN CONTROL IS NEEDED

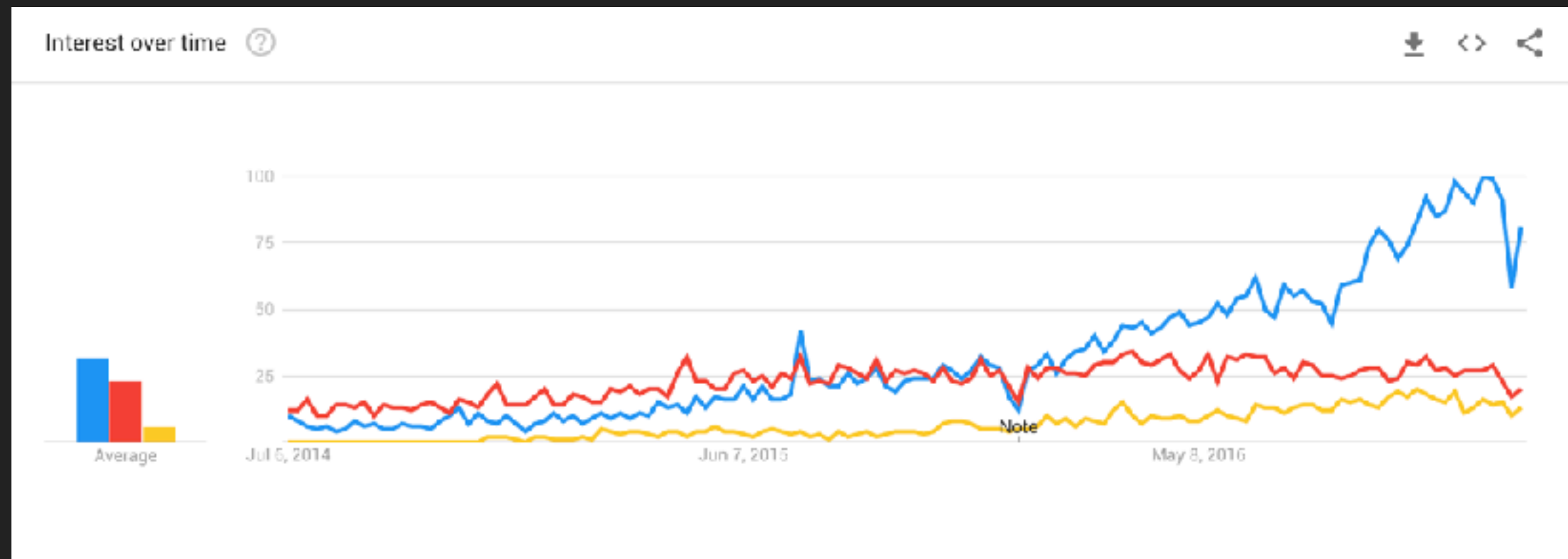


- ▶ Containerized workloads
 - ▶ Custom and ISV packaged apps and services delivered as containers
- ▶ Stateful services
 - ▶ Services using persistent storage
- ▶ Customization
 - ▶ Specify how your app is deployed and operated

“TO GIVE YOU A SENSE OF HOW QUICKLY USAGE HAD INCREASED, 451 RESEARCH DID A CONTAINER SURVEY IN 2015 AND FOUND JUST **10 PERCENT** OF RESPONDENTS WERE USING **SOME SORT OF CONTAINER ORCHESTRATION TOOL**, WHETHER KUBERNETES OR A COMPETITOR. JUST **TWO YEARS LATER** IN A FOLLOW-UP SURVEY, 451 FOUND THAT **71% OF RESPONDENTS WERE USING KUBERNETES** TO MANAGE THEIR CONTAINERS.”

TechCrunch

DON'T TAKE MY WORD FOR IT



Container Orchestration Community

OPERATIONS



- ▶ High Availability
- ▶ Scaling
- ▶ Health checks and healing
- ▶ Upgrades

**“IT’S FUN... BUT IT’S ALSO
CHALLENGING”**

Brandon Henry, Garmin
VMWorld 2017



BOSH **IS**...



**OPEN SOURCE TOOL
CHAIN FOR RELEASE
ENGINEERING,
DEPLOYMENT,
LIFECYCLE
MANAGEMENT AND
MONITORING OF
DISTRIBUTED
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BOSH **IS**...



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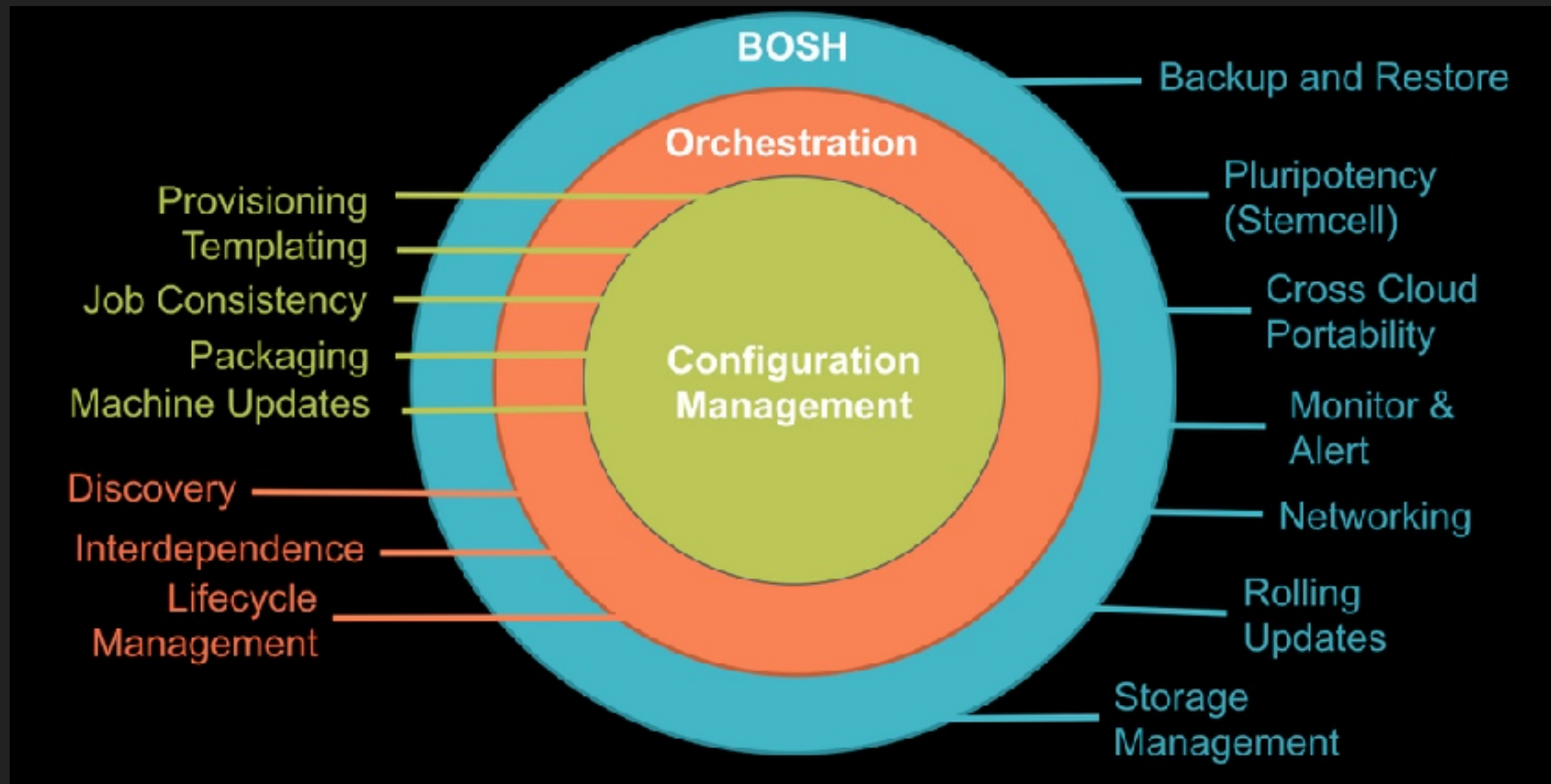
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BOSH VERSUS...



Source: <https://content.pivotal.io/blog/comparing-bosh-ansible-chef-part-1>

BOSH VERSUS...



**“DAY 1 IS ADORABLE.
DAY 2 IS FOREVER.”**

Andrew Clay Shafer

OPERATIONAL CHALLENGES WITH ANY PLATFORM

▶ Day 1 - Build

- ▶ **Multi-cloud** Provide a reliable experience for any cloud
- ▶ **Open APIs** Allow platform ops from different toolsets
- ▶ **Consistency** Consistent setup experience
- ▶ **Setup time** How long does it take to setup an environment?

▶ Day 2 - Operate

- ▶ **Patches** Patching platform components with thousands of apps running should feel normal
- ▶ **Scaling** Seamlessly scale platform components
- ▶ **Upgrades** How do you roll out new versions of the platform with the lights on?
- ▶ **Operating Effort** Should be minimal

THE POWER OF BOSH



- ▶ Packaging with embedded OS
- ▶ Server provisioning on any IaaS
- ▶ Software deployment across clusters



- ▶ Service & server state monitoring
- ▶ Self-healing with the Resurrector
- ▶ Rolling upgrades via canaries

ANATOMY OF A BOSH DEPLOYMENT



- ▶ Stemcell
- ▶ Release
- ▶ Manifest

ONE MORE THING...

BORG → BOSH



mark lucovsky

@marklucovsky



BOSH: Designed and built by @vadimspivak and @skaar, influenced by Google's borg. BOSH == borg++ (r+1=s, g+1=h). [twitter.com/cloudfoundry/s...](https://twitter.com/cloudfoundry/status/661111111111111111)

9:11 AM - May 7, 2016

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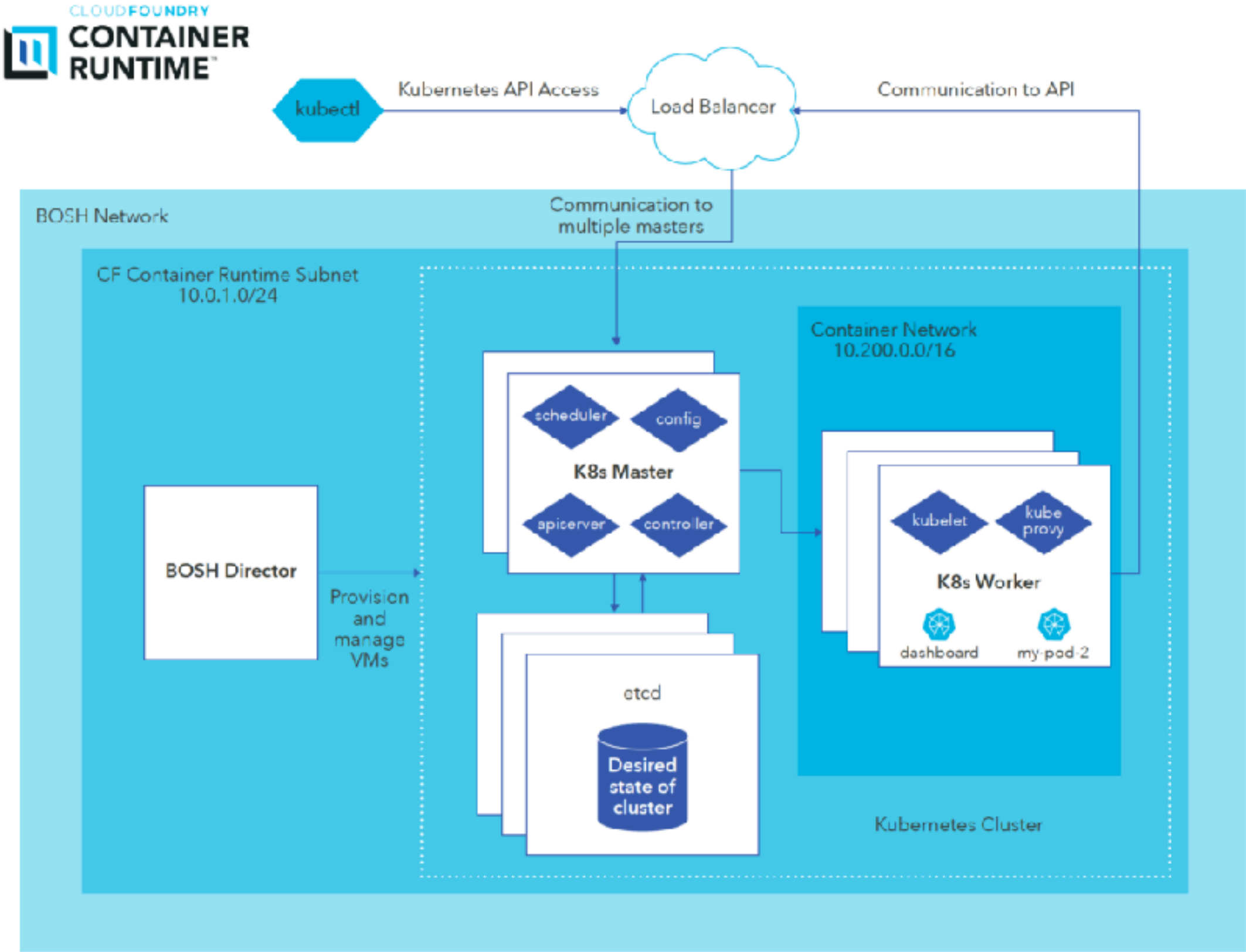
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CFCR GIVES YOU...

- ▶ Multi-cloud
- ▶ High-availability and multi-AZ support
- ▶ Scaling
- ▶ VM Healing
- ▶ Upgrades

- ▶ Availability Zone
- ▶ VMs
- ▶ Processes
- ▶ Workloads



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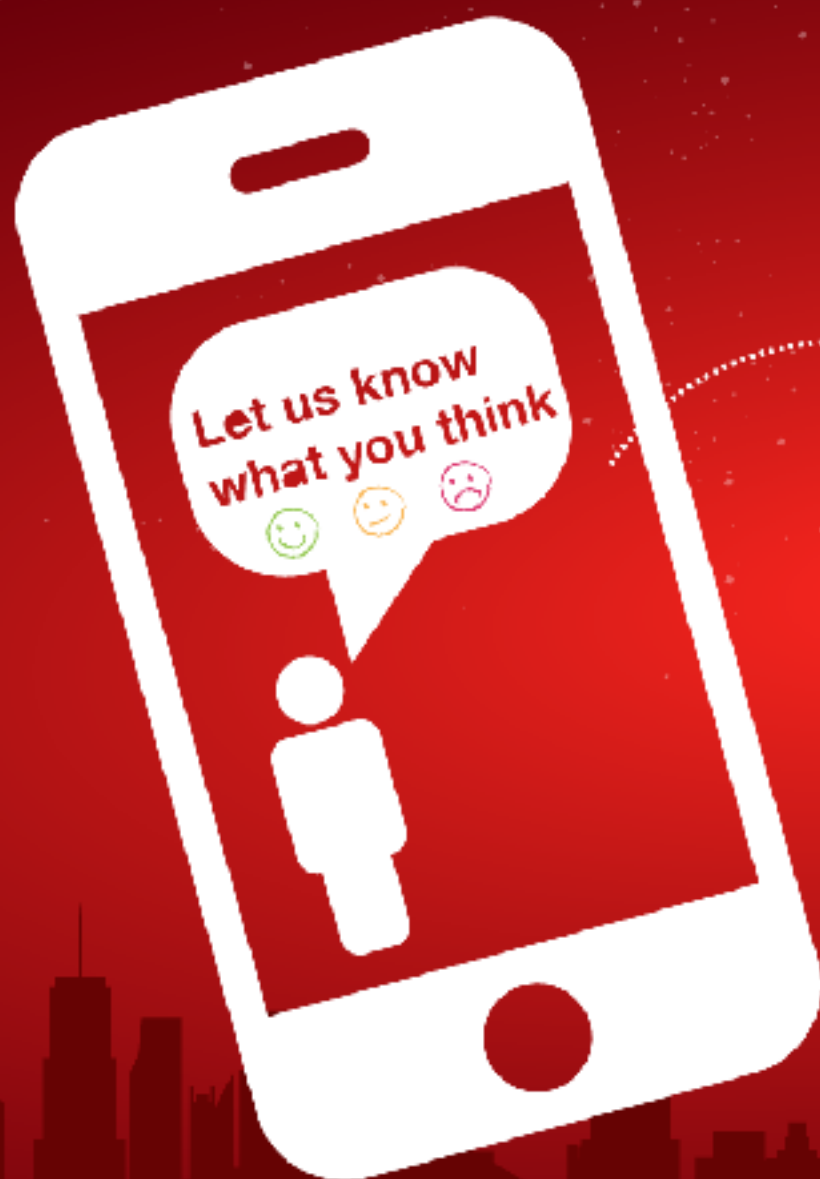
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