



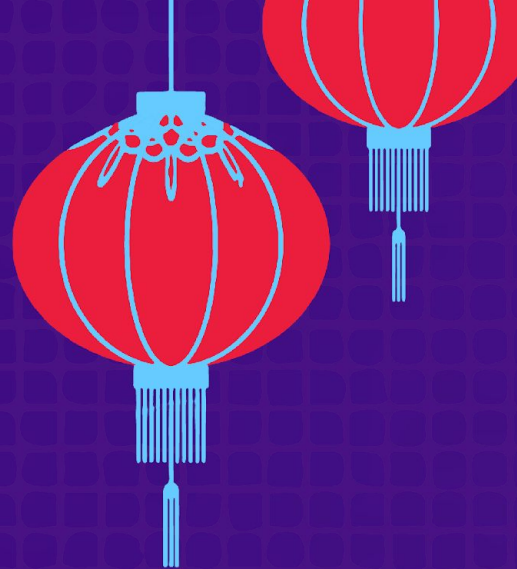
KubeCon

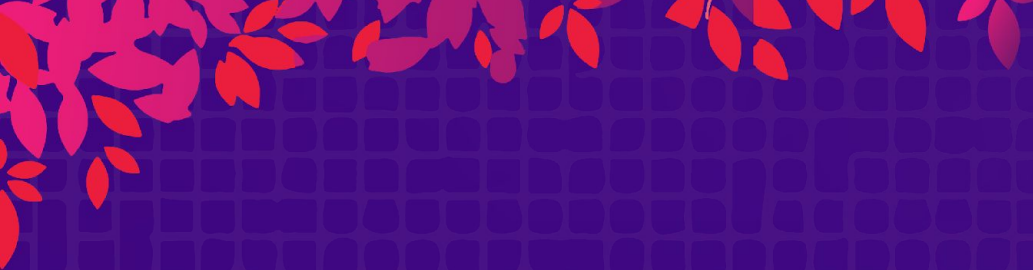


CloudNativeCon

S OPEN SOURCE SUMMIT

China 2019





KubeCon



CloudNativeCon

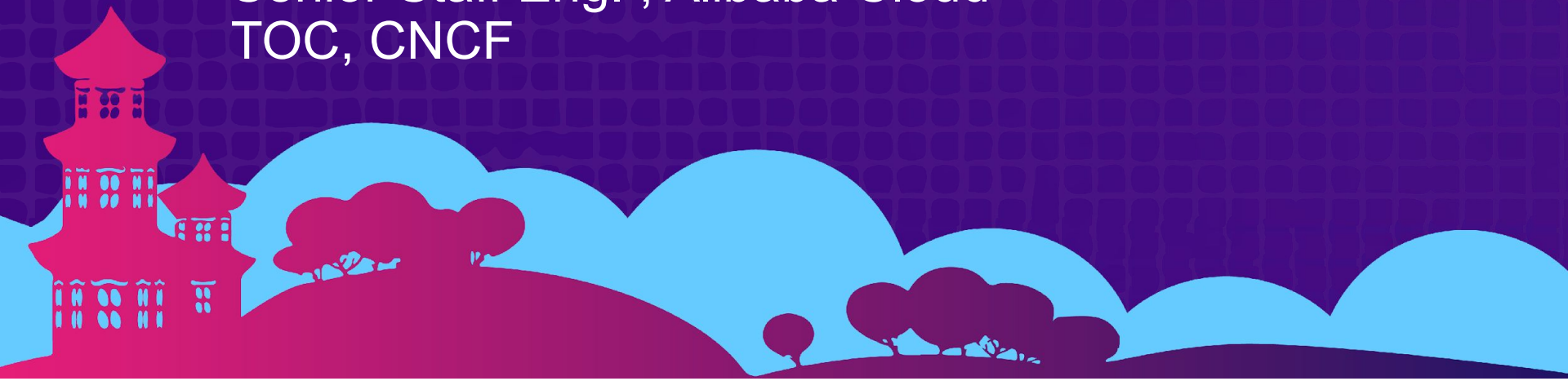


OPEN SOURCE SUMMIT

China 2019

Cloud Native At Alibaba

Xiang Li
Senior Staff Eng. , Alibaba Cloud
TOC, CNCF



Why Cloud Native



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

Cloud integration
Universal API

Cloud migration

Orchestration

Cloud native CI/CD

Service Mesh

Developer
efficiency

Open Source

Ecosystem

Community

Openness

Container

Scheduler

Storage/Network virtualization

Resource
efficiency

Start With Kubernetes



KubeCon

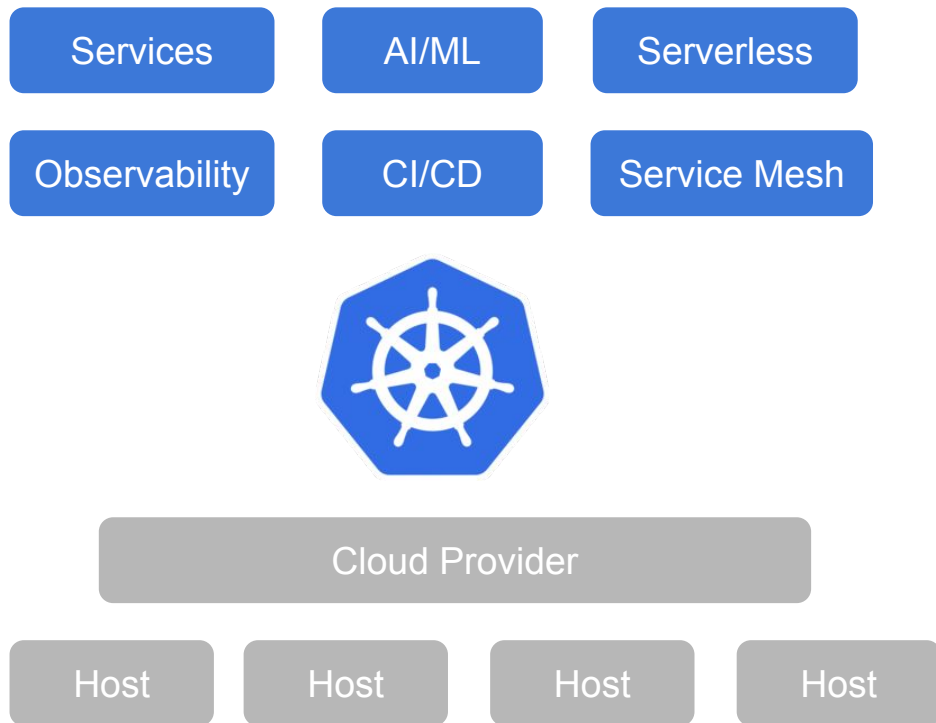


CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



At the center of the stack

Platform for platform builders

Scalability



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

Objects

2
GB

50
GB

- etcd on-disk btree improvement (#141)
- etcd learner (#10537)
- API Server watcher improvements (#75474)

Node

5k

~10k

- Efficient Node Heartbeat (KEP 0009)
- API Server load balance improvements (in progress)

Latency

5s

100
ms

- etcd concurrent read (#10525)
- Pod label index (in progress)
- API Server cache improvements (in progress)

Scalability



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

**Workload
Tracing**

**Performance
Analysis**

**Customized
Scheduler**

**Image
Distribution**

Alibaba Scale

~10 clusters

~1,000,000 containers

~10,000 nodes per cluster

Integration



KubeCon

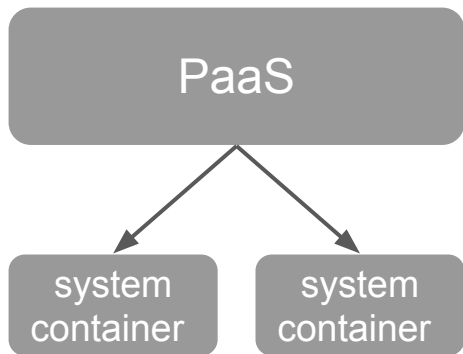


CloudNativeCon

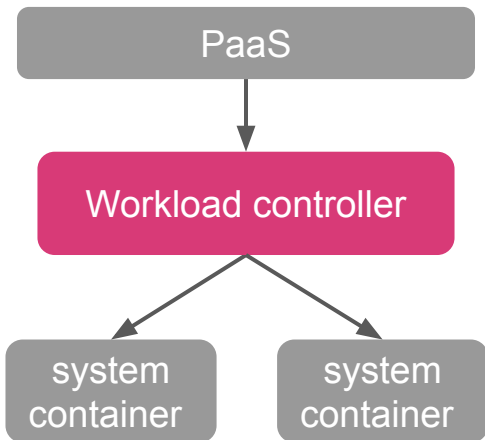


OPEN SOURCE SUMMIT

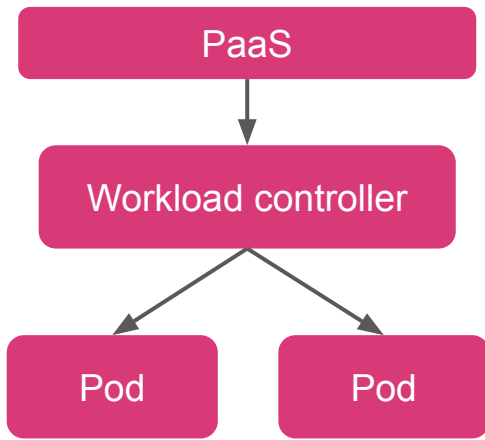
China 2019



Kubernetes



Kubernetes



Kubernetes

Kubernetes Management



KubeCon

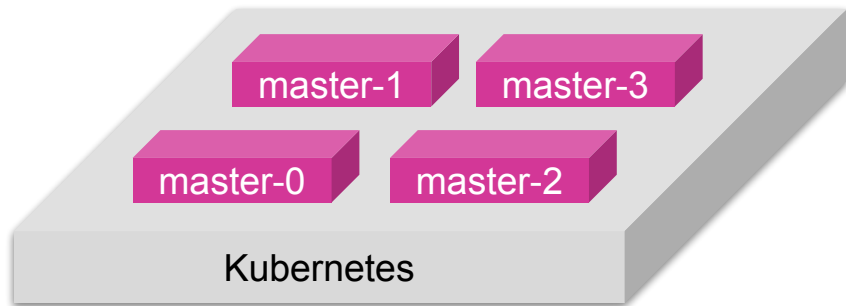


CloudNativeCon

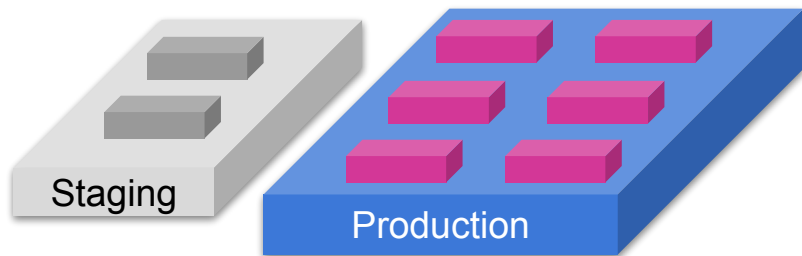


OPEN SOURCE SUMMIT

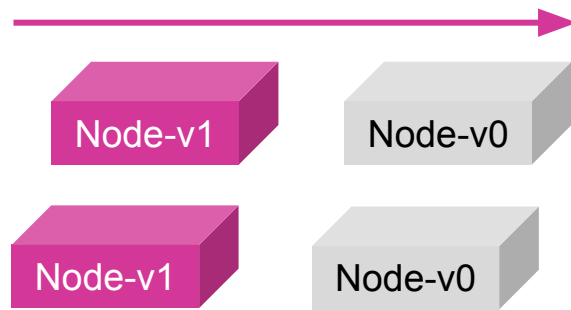
China 2019



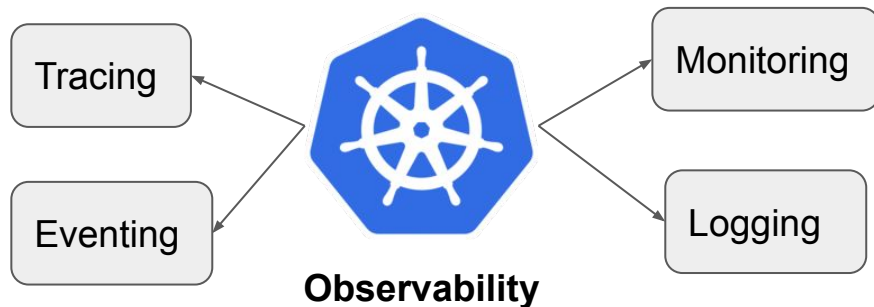
Kubernetes on Kubernetes



Environments



Node rollout strategy



Observability

Cloud Native Strategy



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

New Area

**Cloud
Migration**

**Developer
Happiness**

Community

Cloud Native For Everyone



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

Cloud native works for Alibaba.

Cloud native works for (almost) everyone.

etcd 3.4



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



+200



- 200+ improvements
- Btree freelist mgmt
 - 25x more storage limit (2GB -> 50GB)
- full read/write parallelization
 - Reduce 90% of p99 latency
- Learner
 - 100% confidence on reconfiguration

Container Ecosystem



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

Containerd

- 1 maintainer & 1 reviewer
- ~1m containers & ~50k nodes in production
- 100+ improvements
 - production-ready image management
 - reliable containerd-shim

Dragonfly

- CNCF sandbox, 30 new production users since joining CNCF
- Go 20% -> 100%
- Decentralized image metadata tracking (in progress)

Kubernetes Multi-Tenancy



KubeCon

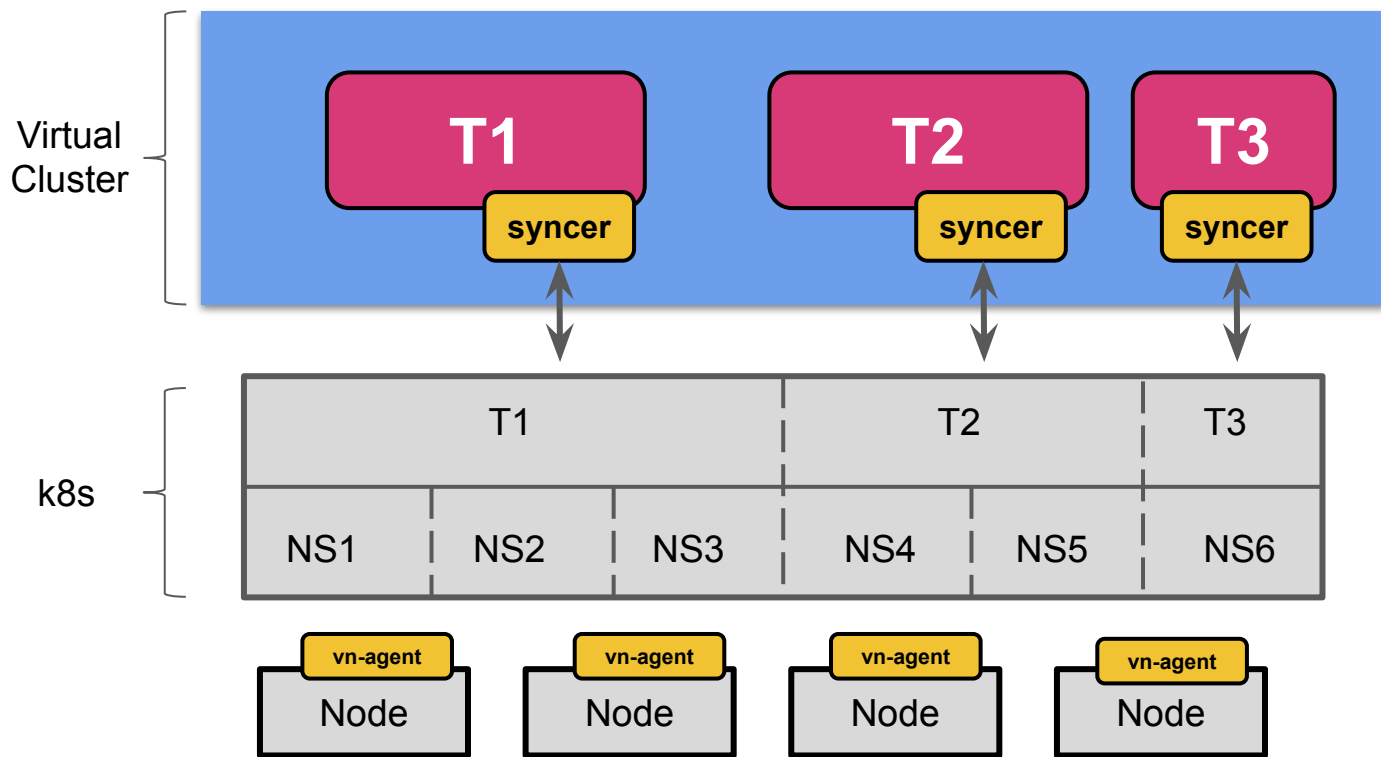


CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



Better Scalability

Strong API
isolation

Better Tenant Mgmt

Better utilization



OpenKruise



Star!

Automate everything on Kubernetes

Workload

Scaling

Utility

Operator

Broadcast Job



KubeCon

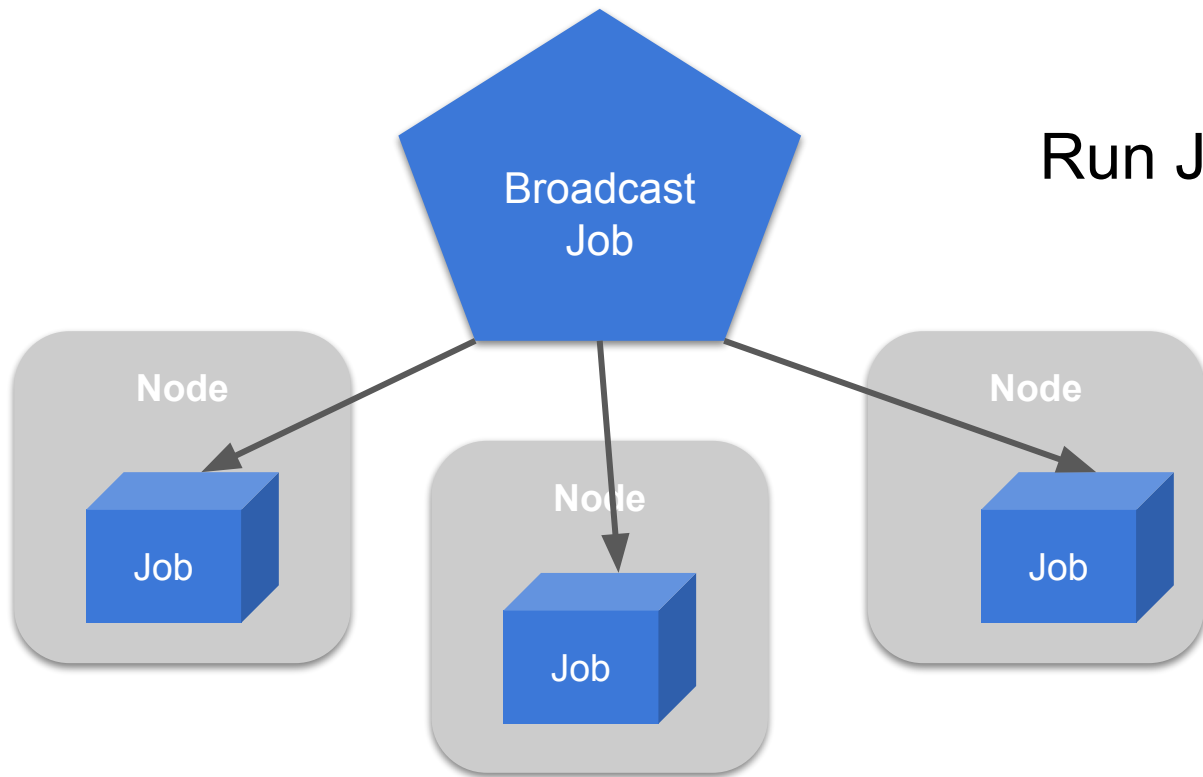


CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



Run Job on every node

Node level operation

- Installation
- Cleanup

Sidcar Set



KubeCon



CloudNativeCon

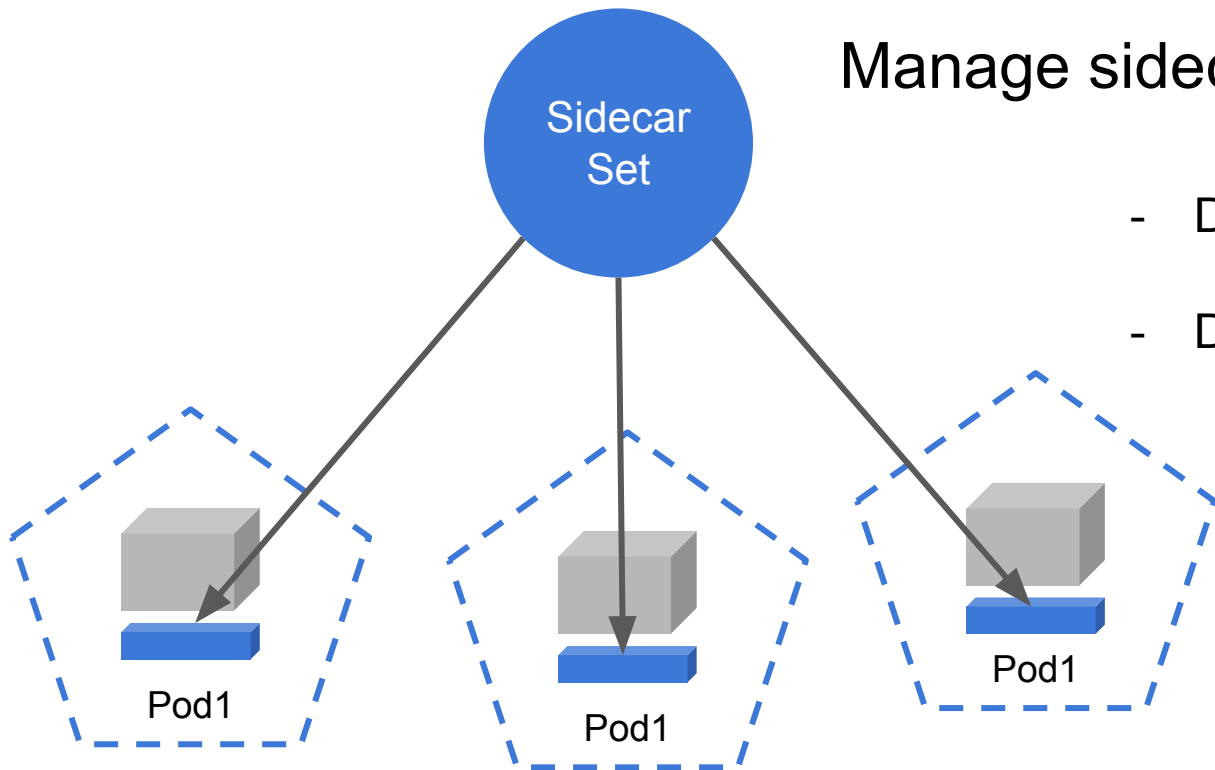


OPEN SOURCE SUMMIT

China 2019

Manage sidcar containers at scale

- Decouple the management
- Decouple the lifecycle



Advanced Stateful Set



KubeCon

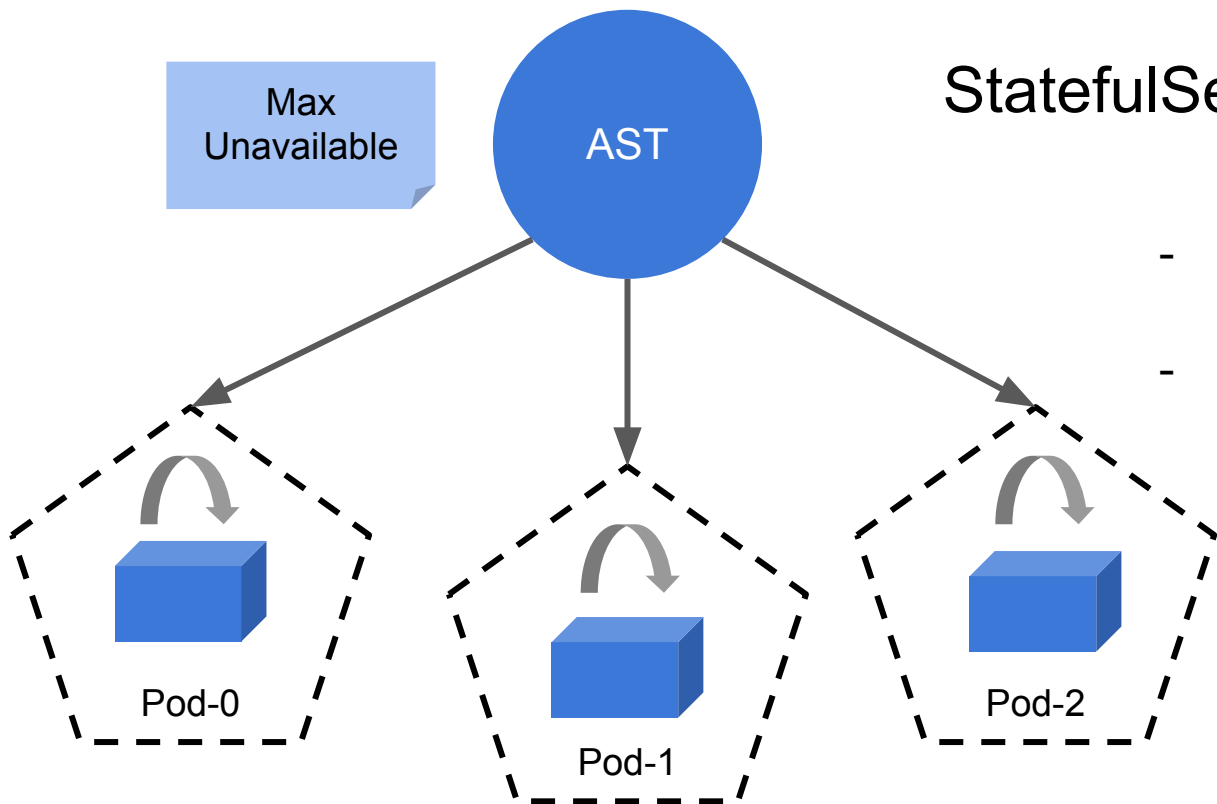


CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



StatefulSet with more features

- In place updates
- Max unavailable support

* push stable features to upstream



OpenKruise

Utility operator

Autopilot

Pod Marker

DaemonDeployment

Advanced HPA

Learning



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



Free! Free! Free!

20+ Chinese cloud
native experts



CNCF x Alibaba
Open Course



Begin to Learn!



Content aligned with CKA

Hands on labs
and interesting quiz



Sharing



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019



Cloud Native Meetup

4 cities, 800 attendees, 11k+ online viewers

- < Migrate from Docker to Containerd >
- < Flink on K8s, Stream Processing Practices >
- < Edge computing via Kuberentes >



Cloud Native Weekly

8 weeks, 222k reads+

- < Java 8 ❤️ Docker >
- < All in K8s, the cloud native story of Twitter>



Cloud native needs everyone



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

Contribute to the open source projects.

Grow the cloud native community.

Cloud native needs everyone



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

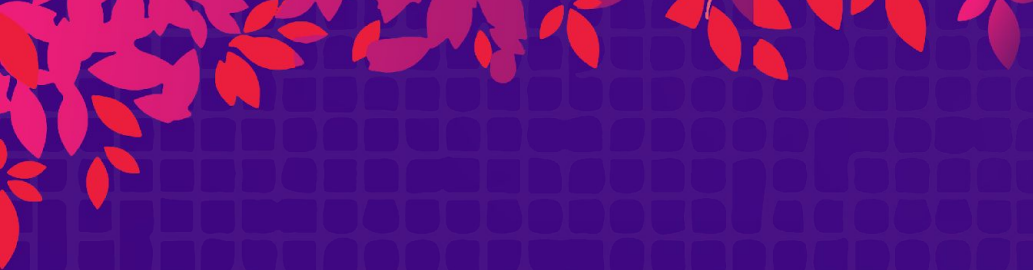
China 2019



关注“阿里技术”



关注“阿里巴巴云原生”公众号
获取 KubeCon 阿里云所有 PPT



KubeCon



CloudNativeCon



OPEN SOURCE SUMMIT

China 2019

Thank you!

Xiang Li
Senior Staff Eng. , Alibaba Cloud
TOC, CNCF

