Cloud Native Ecosystem in China

Tao Ma, Alibaba Cloud
How Cloud Native affects us in China
DAILY LIFE

- Shopping
- Amusement
- Eating
- Transporting
- Housekeeping

Alibaba Cloud Container Registry
Double 11 Global Shopping Festival 2017

- Peak Database TPS: 42 Million TPS
- Peak Orders: 325 Thousand Orders/s
- Peak Payments: 256 Thousand payments/s
- Full Containerization: Millions of containers
Container scales in Alibaba Group

- Speed up app’s delivery with more than 10 times
- promote app’s operation way highly automated
- standardize cluster management as a single computer
- Gain more computing power with limited resource
- protect applications in multi-tenancy environment
- provide stable service within large scales
Dragonfly Distribution Network Traffic Trend in Alibaba 2017
(File VS Image)

- reduce bandwidth costs
- increase download speed
- distribute large images (>10GB) within minutes
- distribute in a large-scale within minutes
- protect applications from concurrent downloading tasks
- prevent data from leaking in transmission
Dragonfly Joins CNCF
ELEME

- One of the largest food delivery platform
- TiKV as a unifying KV storage layer
- TiKV affects 80% of platform’s traffic
- 25+ TBs, 10+ clusters
- 4 IDCs, 100+ nodes
- Dynamic Range-based Partition
- ACID Transaction
Autonomous Solution For Sweeping Robots

Smart Speaker
Mobile Devices
Sweeping Robot

Voice Service

SLAM TEC ROBOCLOUD

Alibaba Cloud

GATEWAY

Device Service
User Service
Message Service

Kubernetes

ECS
ECS
ECS

HARBOR
HARBOR

- An open source trusted cloud native registry project.
- Address challenges in container image management
- Originated in VMware China.
- First adopted in China and popularized worldwide
- 100+ contributors, 5700+ stars
- Donated to CNCF in July 2018.

Role Based Access Control

Image Replication

Vulnerability Scanning

Notary
Bicycles 10 Million  Cities >250  Countries >20

One of the most popular bicycle sharing company
RulyPaaS - ofo's high performance PaaS based on K8S

- Large Hybrid Cloud PaaS based on K8S
  - 8000+ Cores 1500+ Pods
  - 80%+ Client 50%+ Total
  - 30%+ Utilization
  - 10% Performance Loss

- Platform
  - High performance network plugin
  - Custom Logging/Monitoring solution
  - Component Robustness Enhancement
  - Linux Kernel Performance Tuning

- Business
  - Application Dockerization Optimization
  - Application Performance Tuning
WEIBO

430 Million
MAU

190 Million
DAU

One of the most popular social media platforms in China

Monthly Active Users (Millions)
Weilearn - Weibo's Deep Learning Training Platform

- Heterogeneous resources management and AI job scheduling
  - Manage large scale CPU/GPU clusters using Kubernetes
  - Supports diverse deep learning frameworks and domain apps using Arena (https://github.com/kubeflow/arena)
- Easy operation
  - GPU monitoring and auto scaling, real time training visualization and logging
- Efficiency
  - Setup GPU cluster in 10 min, start deep learning job in 1 min

Sample Data
- CTR Data
- NLP data
- Video/Image

Weilearn Framework
- Data pre-processing
  - Spark
  - NLP
  - LSTM
  - GRU
- CTR
  - Deep & Wide
  - Deep FM
  - Deep Cross Network
- NLP
  - Inception
  - Resnet
- CV
  - VGG
  - Yolo

AI Job Scheduling
- Arena + Kubernetes
- YARN

Models
- CTR
- DNN
- NLP
- RNN
- Image
- CNN
- Video
- Speech
Thanks