JAGUAR:
Open Source Solution for Kubernetes Network

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Introducing Jaguar

- Project for Kubernetes Network
  - Launched ( Jul. 23, 2018 )
  - First Release ( Oct. 10, 2018 )
  - https://gitlab.com/sdnlab/jaguar

- Project of Education
  - PBL (Project Based Learning)
  - OpenDaylight & kubernetes courses
Developers

ZTE

Tencent

Alibaba Group

Jiangsu Future Networks Innovation Institute

Beijing University of Posts and Telecommunications

Xidian University
Project Based Learning

Software Engineering Process

- Requirements
- Analysis
- Design
- Coding
- Testing
- Acceptance

Personal Ability
- Knowledge reserve
- Code style
- Requirement analysis
- Test design
- Engineering realization
- Release management

Teamwork
- Conceptual abstraction
- Effective presentation
- Project review
- Team collaborative Tools
- Project Show
Getting involved

- Get the Code, Build the Code, Run the Code
- Became a Jaguar Member
- Join the Public Mailing List
- For more details

https://gitlab.com/sdnlab/jaguar/wikis/home
Design Principle

Simplicity
- Simple Design
- Convention over configuration

Flexibility
- Modular(OSGi)
- Event Driven

Interface-Oriented
- Model Driven
- Parnas' Principles - separation of interface and implementation
Simplicity

- Kent Beck’s Four Rules of Simple Design
  - Passes its tests
  - Minimizes duplication
  - Maximizes clarity
  - Has fewer elements
- Convention Over Configuration - Jaguar’s Convention
  - default bridge name – br0
  - default pod’s CIDR – 172.100.0.0/16
  - default IPAM policy
Jaguar’s Module

- watcher
- IPAM
- network
- CNIPlugin
Jaguar’s Interface

- K8S model
- IPAM model
Jaguar Network Design

Node 1
- POD1: 192.168.2.2/24
  - eth0
- POD2: 192.168.1.2/24
  - eth0
- Route: 10.0.0.2/24
  - eth0
- ovs-br: VXLAN

Node 2
- POD1: 192.168.3.2/24
  - eth0
- POD2: 192.168.4.2/24
  - eth0
- Route: 10.0.0.3/24
  - eth0
- ovs-br: VXLAN
Introduction to First Release - Sky

• **Features – Kubernetes’s fundamental requirements**
  – all containers can communicate with all other containers without NAT
  – all nodes can communicate with all containers (and vice-versa) without NAT
  – the IP that a container sees itself as is the same IP that others see it as

• **Code quantity**
  – UT, IT, ST

• **Demo**
  – Eat your own dog food.
Future Plan

• Jaguar 0.2.0-Earth
  – Support Kubernetes Service

• Jaguar 0.3.0-Wind
  – Support Network Policies