



JAGUAR:

Open Source Solution for Kubernetes Network

GengXingyuan: Expert of Software Engineering, ZTE

Derek Jee: Co-Founder, SDNLAB



- **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 腾讯

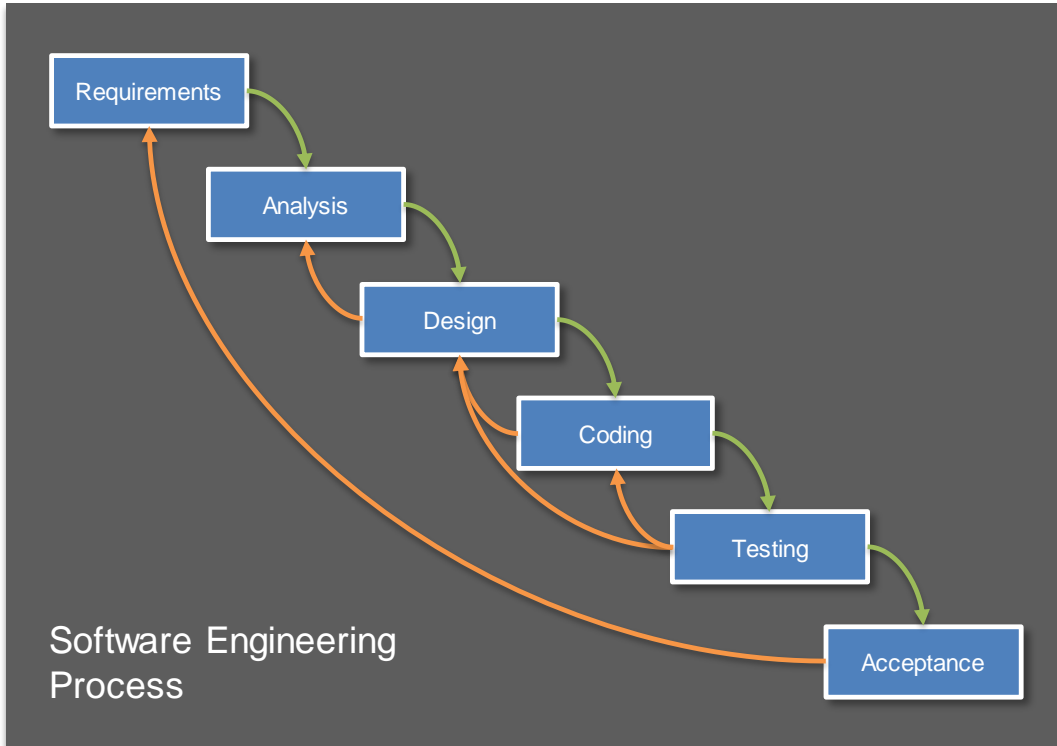
 Alibaba Group

 **江苏省未来网络创新研究院**
JIANGSU FUTURE NETWORKS INNOVATION INSTITUTE

 **北京邮电大学**
Beijing University of Posts and Telecommunications

 **西安电子科技大学**
XIDIAN UNIVERSITY

Project Based Learning



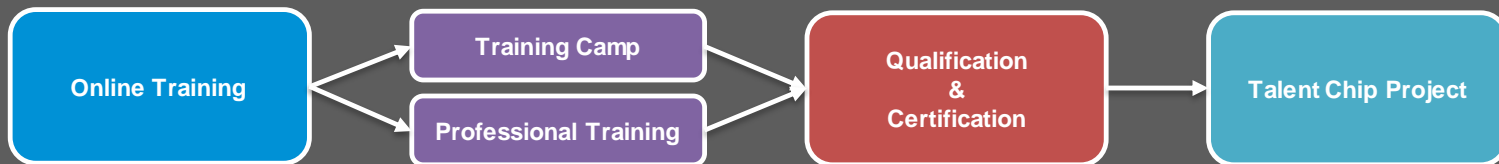
Personal Ability

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



Teamwork

- Conceptual abstraction
- Effective presentation
- Project review
- Team collaborative Tools
- Project Show



Education Service Chain

EOP: Education Orchestration Platform

CMP: Cloud Management Platform

Networking Practice Cloud

Networking Security Practice Cloud

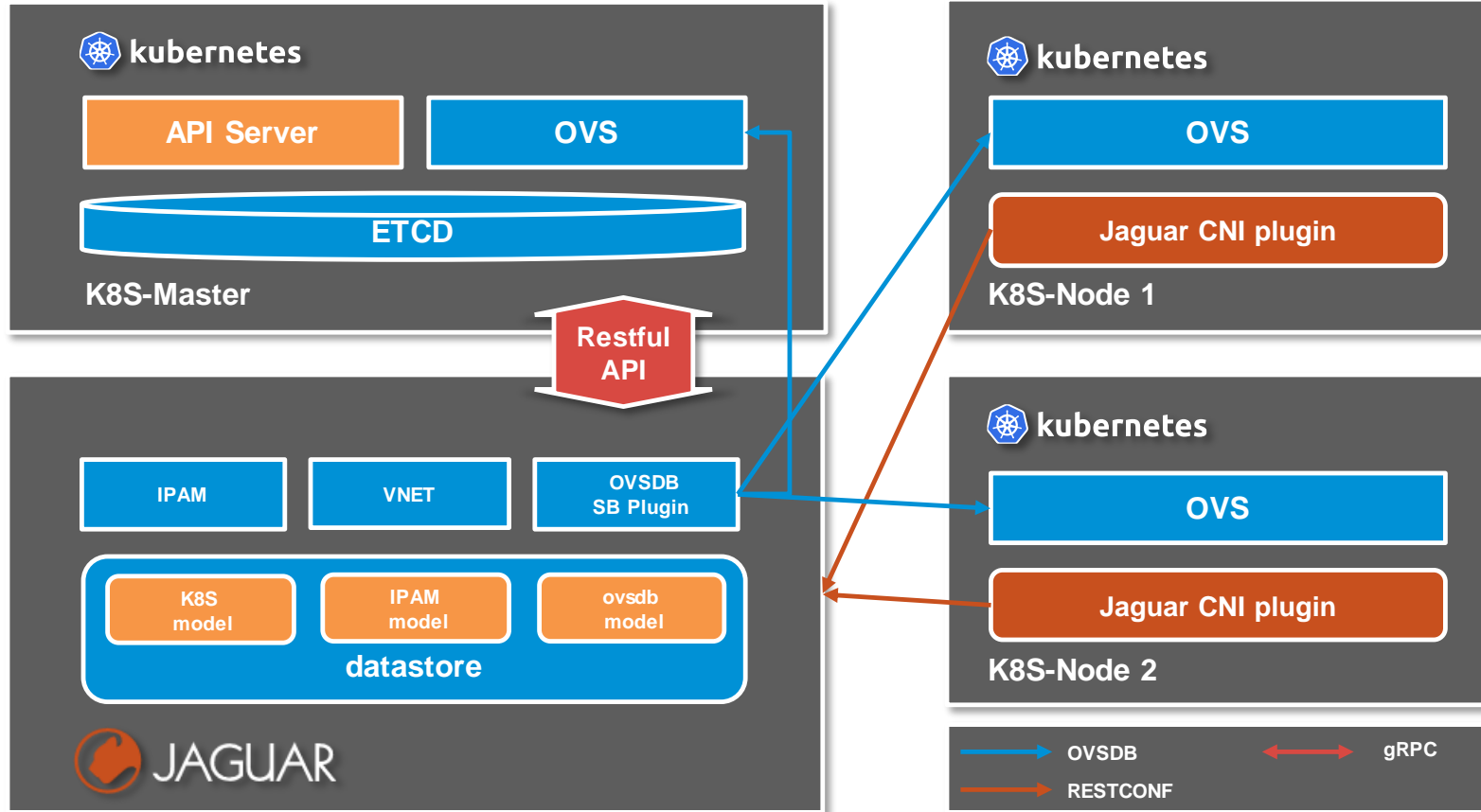
Big Data Practice Cloud

Artificial Intelligence Practice Cloud

Practice Cloud

Infrastructure

OpenDaylight & kubernetes Courses



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



- 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



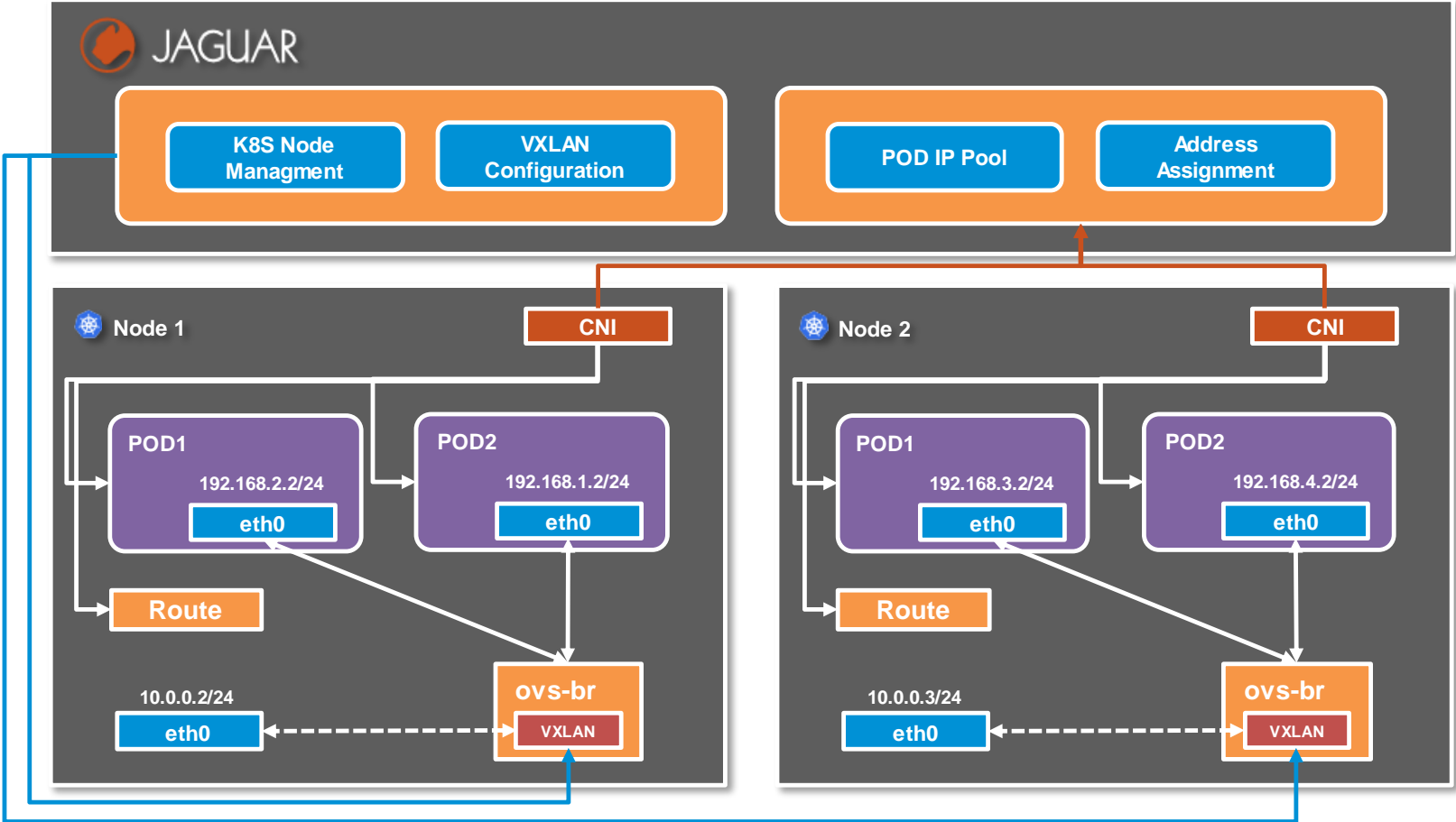
- watcher
- IPAM
- network
- CNIPlugin

Jaguar's Interface



- K8S model
- IPAM model

Jaguar Network Design



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

A world map is centered on a dark blue background. The continents are filled with a dense, hand-drawn style of lines in various colors: North America is light blue, South America is yellow, Europe and Africa are red, and Asia and Australia are teal. White arrows are drawn over the map, forming a circular path that connects the continents in a clockwise direction, starting from the top left and ending at the bottom right. The text 'OPEN SOURCE NETWORKING DAYS' is written in a bold, white, sans-serif font across the center of the map.

OPEN SOURCE NETWORKING DAYS