OPEN SOURCE NETWORKING DAYS

When Cloud Native Meets 5G/LTE Private Edge Cloud

HungWei Chiu/ MTS of Open Networking Foundation
Hung Wei Chiu

- MTS @ Open Networking Foundation (ONF)
- Kubernetes/Container/Linux/Network/Kernel
- Co-organizer of two Taiwan user group
  - SDN (SDNDS)
  - Cloud-Native (CNTUG)
Live Q&A and polls

Scan me to join live Q&A

You can also use following link.
https://sli.do/event/6cqlagtq/

slido.com
#osn_taiwan
Aether™ – 5G Connected Edge Cloud

Unique platform enabling Enterprise Digital Transformation

Only open source offering
Delivered as a Cloud Managed Service
Catalyst for new business models
Aether
Aether

Small Cell

Aether Connected Edge

Small Cell

Enterprise
Aether Software Architecture

- **IoT**
- **Sensors**
- **Surveillance**
- **Multimedia**
- **Employees**
- **Visitors**

**Connected Edge**

- SD-RAN Open RAN Controller
- Small Cell
- CBRS or Licensed Band
- Distributed Mobile Core User Plane provides local breakout at all remote Aether Edge sites

**Enterprise Edge**

- Edge Apps
- IoT AI/ML Platform(s)
- Mobile Core User Plane

**Central**

- Aether Control and Management Platform
- Mobile Core Control Plane
- Central IoT AI/ML Apps
- Enterprise Control Portal

**Central Cloud**

- Shared Mobile Core Control Plane in central cloud supports all Aether Edge sites
Aether Software Architecture

Connected Edge

- Open RAN Controller
- CBRS or Licensed Band
- Small Cell

Edge Apps
- IoT AI/ML Platform(s)
- Mobile Core User Plane

Central

- Aether Control and Management Platform
- Mobile Core Control Plane
- Central IoT AI/ML Apps

Central Cloud

- Enterprise Control Portal

Distributed Mobile Core User Plane provides local breakout at all remote Aether Edge sites

Shared Mobile Core Control Plane in central cloud supports all Aether Edge sites
ACE Software Architecture
Aether Edge Software Architecture
Aether Edge Software Architecture

Diagram showing the integration of Fabric, Tofino Switch, Stratum, and ONOS.
Aether Edge Software Architecture
Both switch and server are controlled by Kubernetes
- Install the kubernetes agent, kubelet on all nodes.
- Modify the ONL (Open Network Linux) to support the Kubernetes
Kubernetes provides the rules and policies for customized scheduling
- Only schedule the ONOS container to server.
- Only schedule the Stratum container to Tofino switch.
Aether Edge Software Architecture

- Cloud Native Ecosystem
  - Prometheus
  - Grafana
- Monitoring
  - EFK/ELK
  - Loki
- Kubernetes Platform
  - Rancher
Cloud Native Solutions
Aether Software Architecture

Connected Edge
- CBRS or Licensed Band
- SD-RAN Open RAN Controller
- Mobile Core User Plane
- Edge Apps
- IoT AI/ML Platform(s)
- Distributed Mobile Core User Plane provides local breakout at all remote Aether Edge sites

Central
- Aether Control and Management Platform
- Mobile Core Control Plane
- Central IoT AI/ML Apps
- Central Cloud
  - Shared Mobile Core Control Plane in central cloud supports all Aether Edge sites

IoT
- Sensors
- Surveillance
- Multimedia

Employees

Visitors

Small Cell
Aether Management Platform

- A highly available cloud service used to control, configure, monitor and lifecycle-manage
- Define Aether-specific workflows
  - Global infrastructure for collecting monitoring and logging data.
  - CI/CD toolchain for managing the lifecycle of the deployed system.
Aether Management Platform (CI/CD)

- Open source tools to Continuously integrate (CI) and Continuously Deploy (CD)
- Changes are developed and tested in a staging networks and then automatically pushed to the multi-cloud production network.
Aether CI/CD Pipeline
Open Source Networking Days