Lightning Talk: Observability for Containerized NW with OSS vEPC

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Agenda

1. Background / PoC Architecture
2. Demo
3. Challenges
4. Summary
Background / PoC Architecture
Background

- **5G Network**
  - Improve Quality of Life

- **5G Core Architecture**
  - Complex
  - Cloud Native Networks

- **Requirements**
  - Observability

Start PoC to clarify requirements and challenges

3GPP TS 23.501
PoC Architecture

- **Purpose**
  - What’s missing function
  - How to implement

- **CD/ACA**
  - Spinnaker/kayenta

- **NW**
  - Calico/Flannel
  - Multus, bridge plugin

- **vEPC**
  - NextEPC
  - Open Air Interface

- **UE/eNB**
  - Open Air Interface SIM

- **Monitoring**
  - prometheus
  - istio
Demo
Backup (Offline)
Backup (Offline)
Challenges
Challenges

■ Observability
  ● considering total metrics from Infra layer to App layer
    • Sx Attach/Detach Requests, Response Time...
    • modernize telecom app for Cloud Native manner
  ● Automated Canary Analysis

■ K8s NW
  ● Multi NW
  ● Service Mesh

■ Skills
  ● tcpdump
  ● standards
Challenges: Observability

- To collect App layer metrics, not using specific EMSs
  - Especially for 5G Core

- Which metric should you use in the process of Automated Canary Analysis?
How to send packets into ReplicaSets that have the additional NIC?
- Directly assign a IP address of Pod?
- To use K8s service for additional NICs?
  - [https://github.com/intel/multus-cni/issues/256](https://github.com/intel/multus-cni/issues/256)

**Challenges: Multi NW**

Figure 4.2.3-1: 5G System architecture

- AMF POD
- Service
- Namf?
- N1/N2?
Challenges: Service Mesh

- Istio gateway doesn’t support SCTP
- Istio VirtualService doesn’t support UDP

Figure 4.2.3-1: 5G System architecture
Summary

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Next

- For considering directly 5G Core Architecture using Cloud Native Technology
  - I expect OpenAirCN-5G to be a PoC level
Thank you!