Next Gen Infrastructure Core (NGIC)
Hands-On Demo

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Agenda

• Brief vEPC/NGIC Background
• Hands-on Demo
DEMO of NGIC using 3 containers

Diagram:
- S/P-GW-Control Plane (Container)
  - CP-DP_net to S/P-GW-Data Plane (Container)
    - S11_net to MME (tcpreplay)
    - S1U_net to Emulated eNB (tcpreplay)
    - SGI_net to Emulated Internet (tcpreplay)
Setup

• **Prerequisites:**

  • Install Docker (1.13 or higher) and Docker Compose

  • Docker images for NGIC control and data plane
    
    `docker pull ngiccorddemo/ngic-cp`
    `docker pull ngiccorddemo/ngic-dp`
    `docker pull ngiccorddemo/ngic-traffic`

  • Demo folder
    
    `git clone https://github.com/ngiccorddemo/cordbuild2017.git`
Setup

For later: The NGIC Code is available at https://gerrit.opencord.org/#/q/project:ngic
Commit-id: a9e05

For now: In this short 45 minute demo, we will be using prebuilt Docker images

Open 3 terminals and change directories to your Demo folder
Step 1: Start the Data Plane

In terminal #1:

docker-compose -p epc up dp

Wait for DP to print stats
Step 2: Start the Control Plane

In terminal #2:

docker-compose -p epc up cp

You will see a large table of stats printing periodically
Step 3: Start the Traffic Container

In terminal #3: Bring up traffic container in daemon mode (-d)

docker-compose -p epc up -d traffic

Enter the container

docker exec -it epc_traffic_1 /bin/bash
Step 4: Start the traffic

First, get the interface names by running the following commands:

S11_IFACE=$( netstat -ie | grep -B1 10.1.10 | head -n1 | awk '{print $1}' | tr --d :) 

S1U_IFACE=$( netstat -ie | grep -B1 11.1.1 | head -n1 | awk '{print $1}' | tr --d :) 

SGI_IFACE=$( netstat -ie | grep -B1 13.1.1 | head -n1 | awk '{print $1}' | tr --d :)
Step 5: Start the Control traffic

Play the S11 (control plane) traffic to set up the flows

tcpreplay --pps=200 -i $S11_IFACE s11.pcap

Look at the Control Plane (Screen #2) and make sure that the packets appear

There should be 2000 packets sent/2000 received (from the 1000 CreateSession and 1000 ModifyBearer packets)
Step 6: Start the Data Plane traffic

Now start the S1U (Data Plane uplink) traffic

tcpreplay -i $S1U_IFACE s1u.pcap

Check the Data Plane (Screen #1). You should see ~6500 packets received on the S1U and ~6500 packets transmitted on the SGi
Step 6: Start the Data Plane traffic (cont.)

Now start the SGi (Data Plane downlink) traffic

tcpreplay -i $SGI_IFACE sgi.pcap

Check the Data Plane (Screen #1). You should see ~6500 packets received on the SGi and ~6500 packets transmitted on the S1U
Step 7: Clean Up

From the traffic terminal, type ‘exit’ and then type:

```bash
docker-compose -p epc down
```