Deployment Options of OAI 5gCore

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OAI 5g CN Deployment Flavors (4 possibilities)

Minimal Functional Core Network (MFCN): MYSQL, AMF, SMF, UPF (SPGWU), NRF (optional)

Basic Functional Core Network (BFCN): MYSQL, AMF, SMF, UPF (SPGWU), NRF (optional), AUSF, UDM, UDR
Orchestrators and operating system possibilities

- Production grade kubernetes (Openshift), vanilla kubernetes: [helm chart tutorial](#)
- Docker single node deployment using docker-compose: [docker-compose tutorial](#)
- Operating system, Red Hat (UBI8) and Ubuntu 18.04: [Building images tutorial](#) or pull from [docker-hub](#)
  - Develop tag: image is built from develop branch
  - Version tag: image is built from master branch
- Everything is verified with an automated CI/CD framework
Cloud-native oriented FQDN/service exposure feature

- In cloud native environment there should not be static ip-addresses but the traditional deployment methods were highly based on static ip-addresses of the component.
- Network functions can consume the services of other network functions using NRF or using FQDN/service name (kubernetes or docker-compose).
- When NRF is used it is possible to provide static ip-address of NRF or FQDN/service name of NRF.
- This feature removes the dependency on static ip-address and increase the availability of a network functions if load balancing can be used.
- Example configuration of AMF
End to End OAI Stack Deployment Scenario

Each network function is deployed in a pod and these pods are distributed among different host machines.
Important points

- OAI-gNB RF simulator needs to be allocated with a predefined static ip-address.
- The configuration file of OAI-gNB RF Simulator also requires AMF ip-address and it can not resolve for the moment FQDN provided by Kubernetes service exposure. Even AMF needs to be configured with a static ip-address.
- Two ways to configure static ip-address
  - We provide the possibility to create extra multus interfaces in embedded in helm chart
  - Using the option provided by CNI some CNI like calico and Kube-OVN they provide the possibility to allocate static ip-address on eth0 (managed by primary CNI) interface.
Calico Extra Interface

- Check the subnet provided to Calico
- In the deployment.yaml file of oai-gnb and oai-amf you have to add below line in `annotation` section
  "cni.projectcalico.org/ipAddrs": "["X.X.X.X"]"
- For more information follow this [official link from calico](#)
OAI-gNB RF Simulator Configuration

```python
config:
    timeZone: "Europe/Paris"
    rfSimulator: "server"
    useSATddMono: "yes"
    gnbName: "gnb-rfsim"
    mcc: "208"  # check the information with AMF, SMF, UPF/SPGWU
    mnc: "95"   # check the information with AMF, SMF, UPF/SPGWU
    mncLength: "2"  # check the information with AMF, SMF, UPF/SPGWU
    tac: "1"     # check the information with AMF
    nssaiSst: "1"  # currently only 4 standard values are allowed 1, 2, 3, 4
    nssaiSd0: "1"  # values in hexa-decimal format
    nssaiSd1: "112233"
    amfIpAddress: "192.168.18.177"  # amf ip-address currently we can not provide the amf service name to be used by gNB
    gnbNgaIfName: "net1"  # ngap interface
    gnbNgaIpAddress: "192.168.18.178"
    gnbNguIfName: "net1"  # gtu interface for upf/spgwu
    gnbNguIpAddress: "192.168.18.178"
    useAdditionalOptions: "--sa -E --rfsim"
```