Deployment Options of OAI 5gCore

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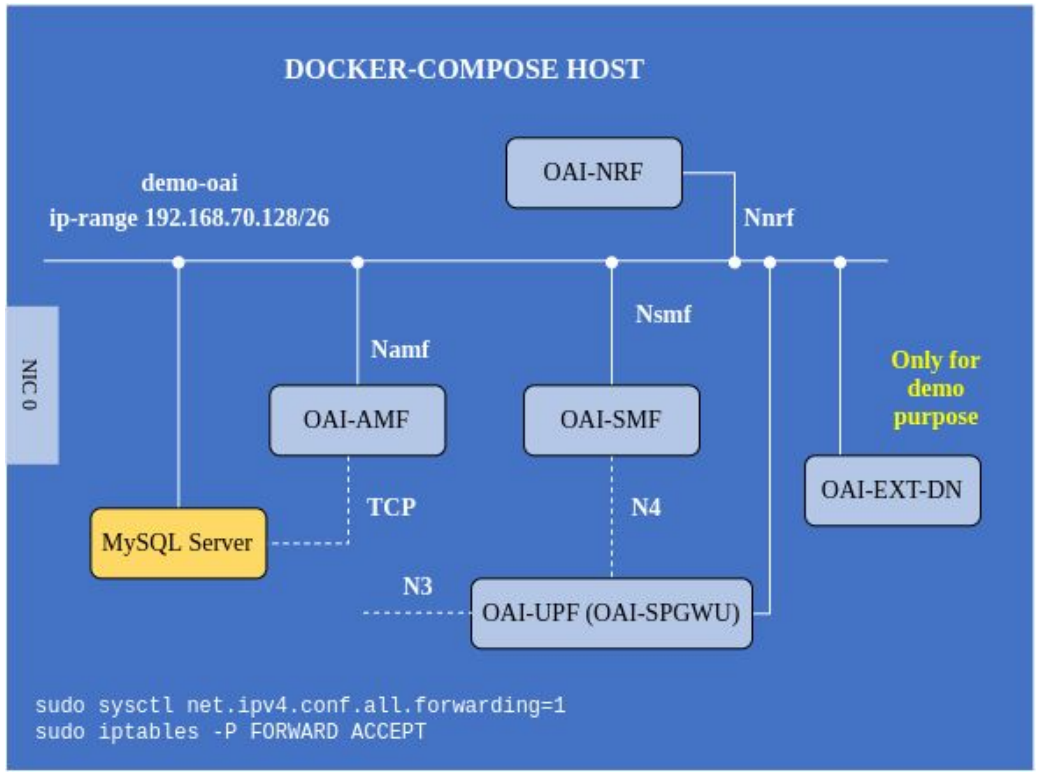
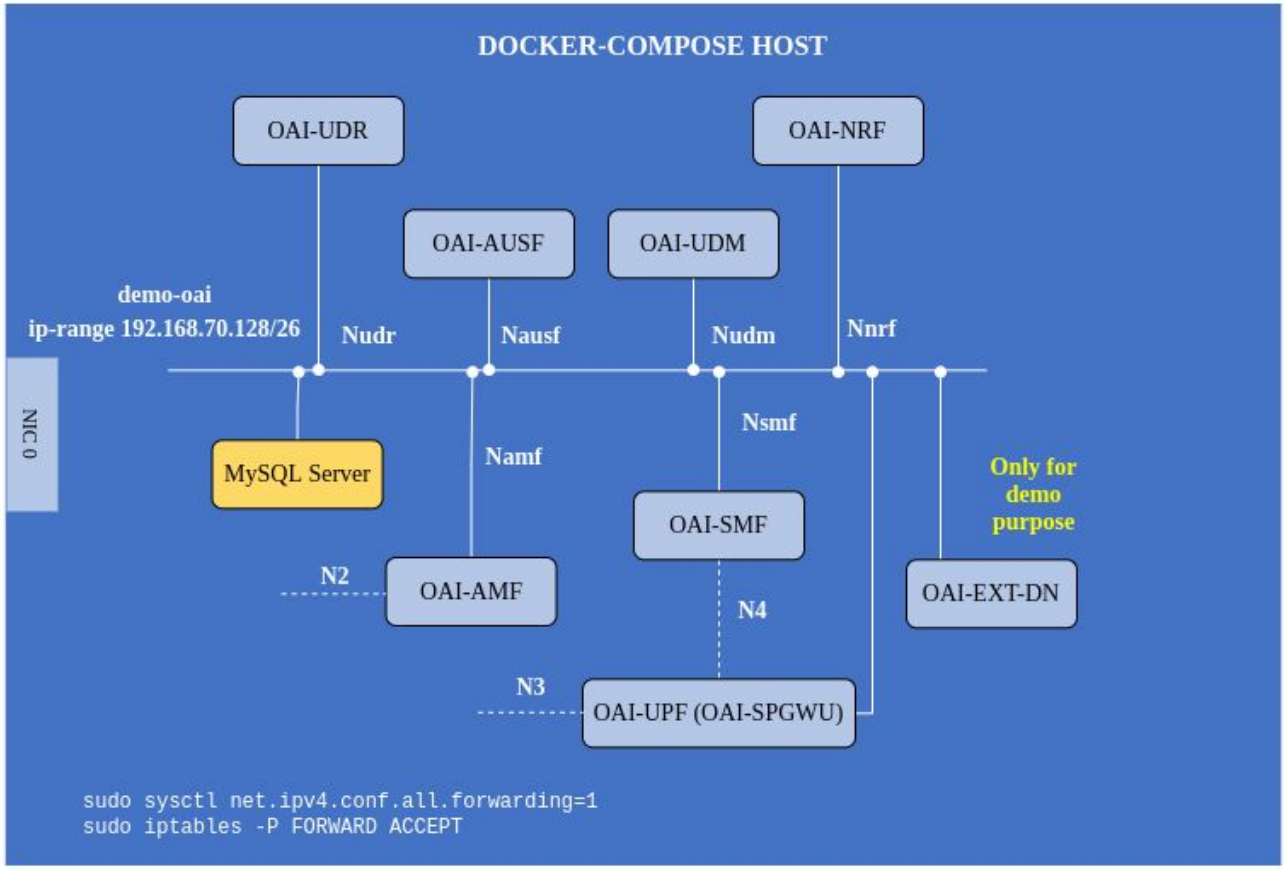
OAI 5g CN Deployment Flavors (4 possibilities)



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

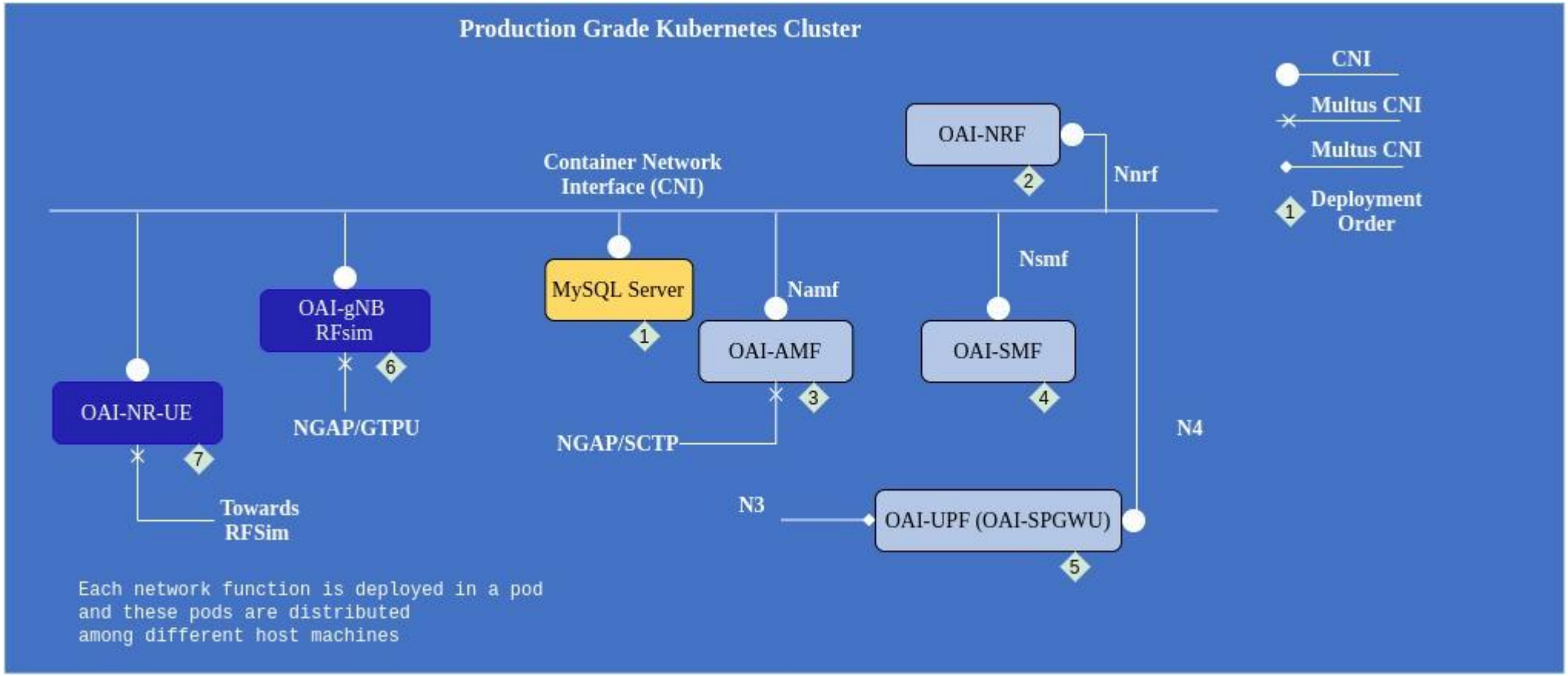
Orchestrators and operating system possibilities

- 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



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

```
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"
```