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Kubernetes
on EDGE DAY

ONAP for xNF Based 5G Service Orchestration

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Net. Slicing
Rel. 6

Closed Loop
Rel. 1

ETSI
Rel. 3

Design



Runtime

Rel. 1

Rel. 1

PNF
Rel. 3

VNF
Rel. 1

CNF
Rel. 4

Amsterdam
11.2017

Beijing
6.2018

Casablanca
12.2018

Dublin
7.2019

El Alto
10.2019

Frankfurt
6.2020

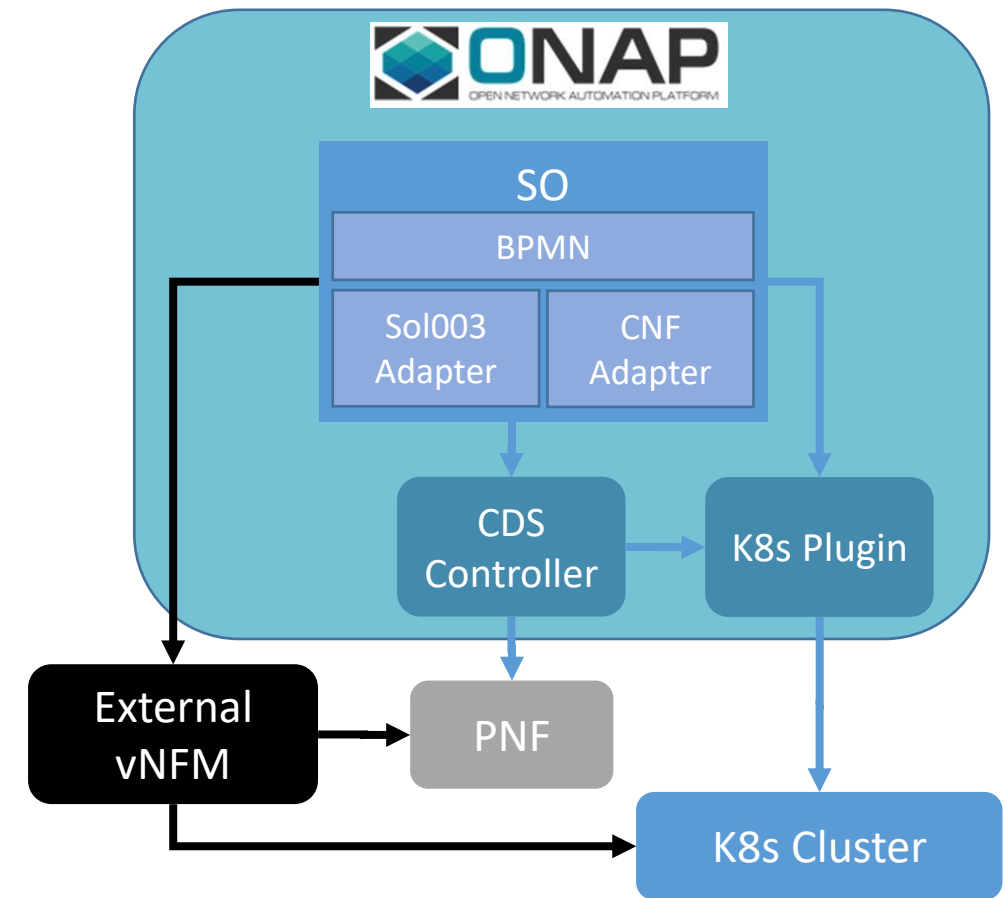
Guilin
12.2020


Honolulu
5.2021

ONAP Orchestration Scenarios: Native vs ETSI



- SO takes decision of the resource orchestration based on the input model
- Currently we manage the flows of the ETSI and the Native Helm as separate entities and call the flow on need basis.
- The idea is to merge them in future, based on the ETSI spec for the CNFs
- The current Demo is using the native orchestration flow for the VNF, PNF and CNF





Towards5GS

Simplified Free5GC Deployment

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Towards5GS rationale & related software

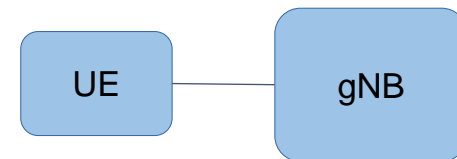
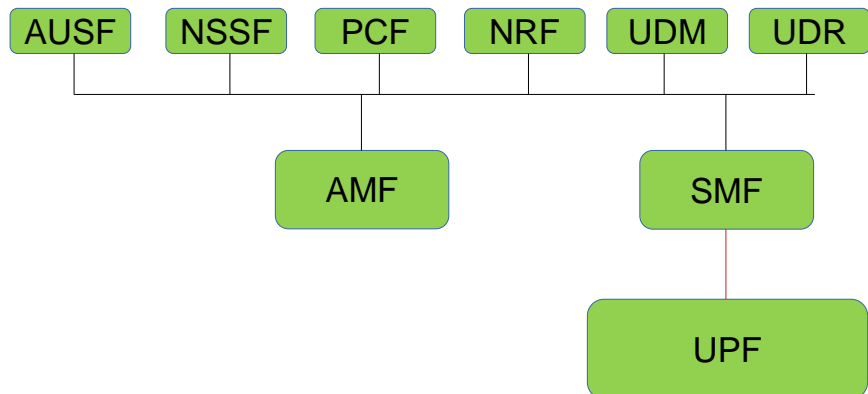


Towards5GS provides **Helm** charts for deploying and testing a **containerized 5G service** on top of **Kubernetes**

- Open source 5G core network based on 3GPP R15
- The ultimate goal of the **kubernetes** implement the 5G core network (5GC) defined in 3GPP Release 15 (R15) and beyond
- Supported versions are v3.0.4 and v3.0.5



- Open source User Equipment (UE) and gNodeB (gNB) implementation
- The project can be used for testing 5G Core Network and studying E2E 5G System
- The latest supported version is v3.1.3



Towards 5G rationale & related software



- Open source 5G core network based on 3GPP R15
- The ultimate goal of this project is to implement the 5G core network (5GC) defined in 3GPP Release 15 (R15) and beyond
- Supported versions are v3.0.4 and v3.0.5



- Open source 5G User Equipment (UE) and gNodeB (gNB) implementation
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- The latest supported version is v3.1.3

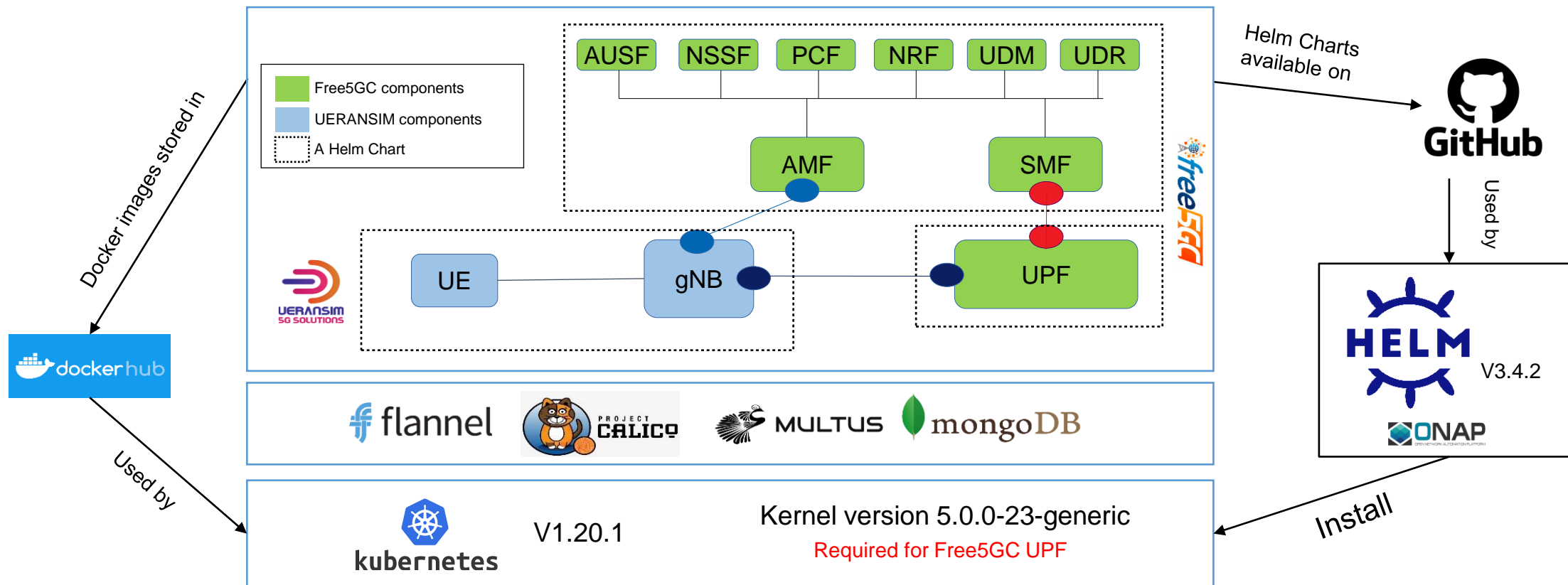


Links:

Free5GC: <https://github.com/free5gc/free5gc>

UERANSIM: <https://github.com/aligungr/UERANSIM>

Towards5GS platform



Links:

Github Repo: <https://github.com/Orange-OpenSource/towards5gs-helm>

Dockerhub Organization: <https://hub.docker.com/u/towards5gs>

Bitnami's MongoDB Helm Chart: <https://github.com/bitnami/charts/tree/master/bitnami/mongodb>

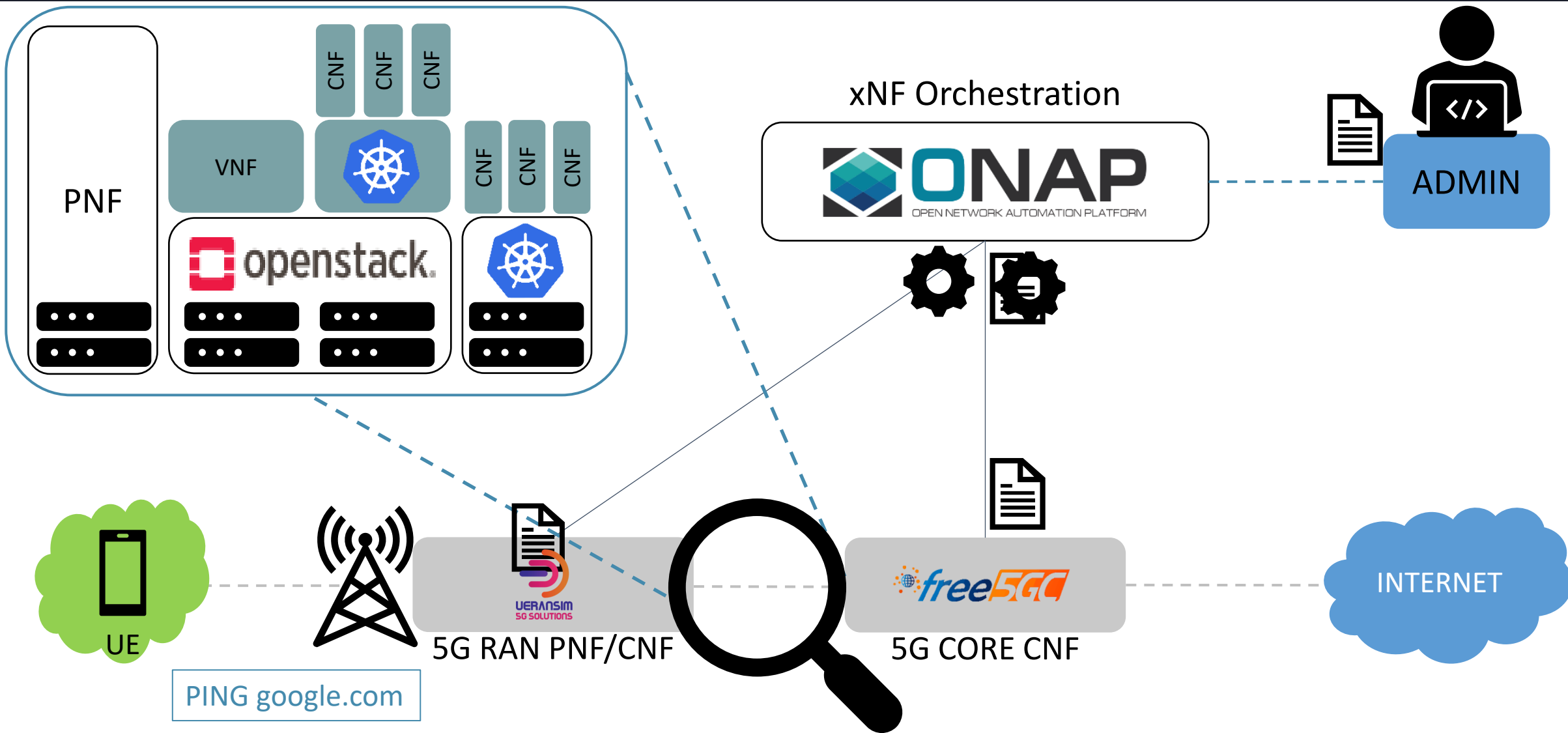
ONAP for xNF Based 5G Service Orchestration

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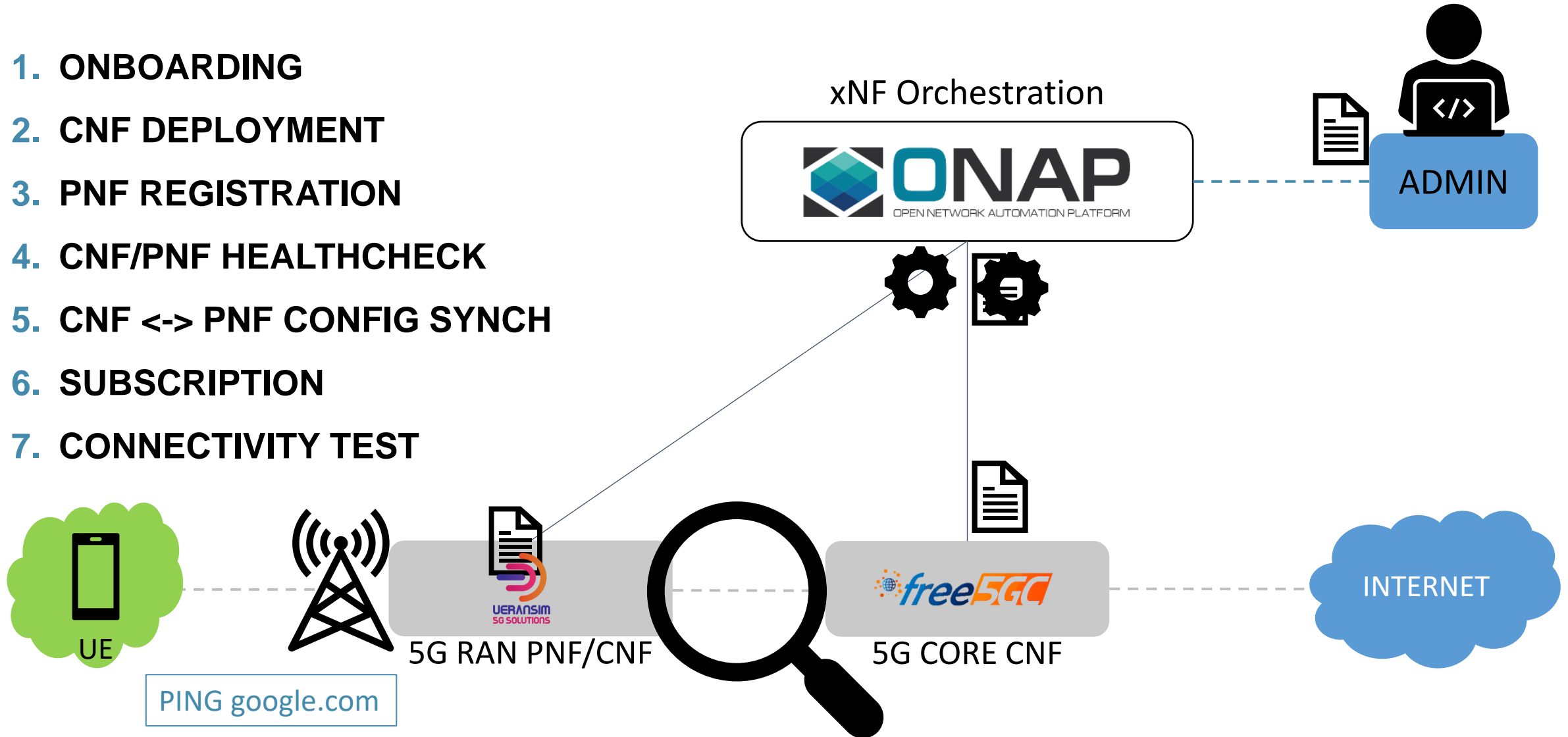
ONAP for xNF Based 5G Service Orchestration



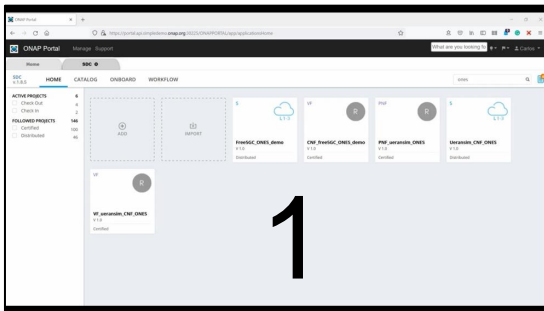
ONAP for xNF Based 5G Service Orchestration



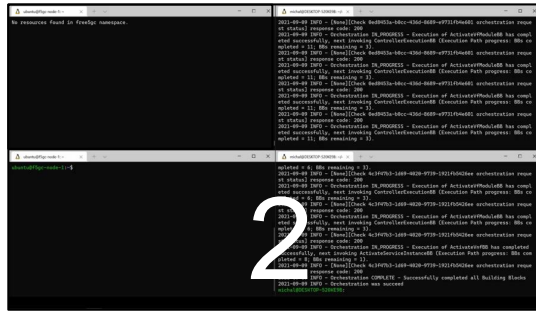
1. ONBOARDING
2. CNF DEPLOYMENT
3. PNF REGISTRATION
4. CNF/PNF HEALTHCHECK
5. CNF <=> PNF CONFIG SYNCH
6. SUBSCRIPTION
7. CONNECTIVITY TEST



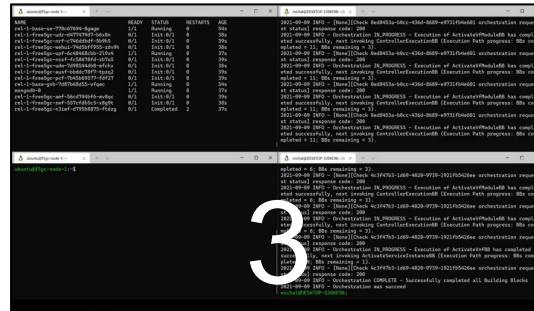
ONAP for xNF Based 5G Service Orchestration



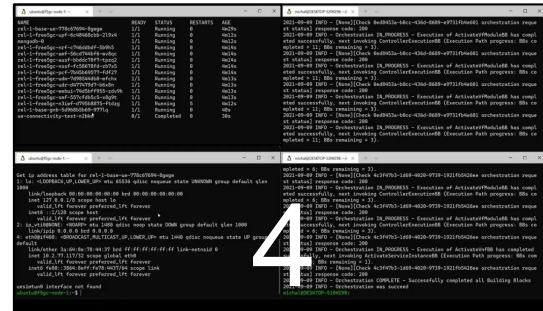
ONBOARD 5G SERVICE



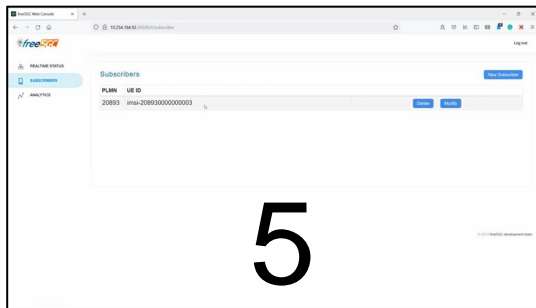
DEPLOY 5G CORE CNF



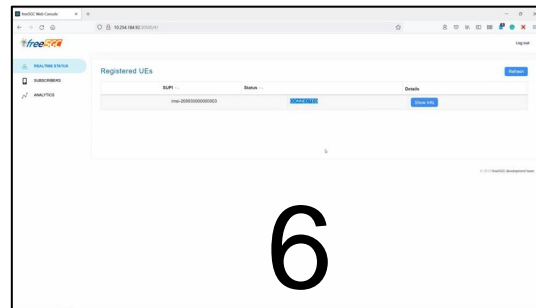
REGISTER 5G RAN PN



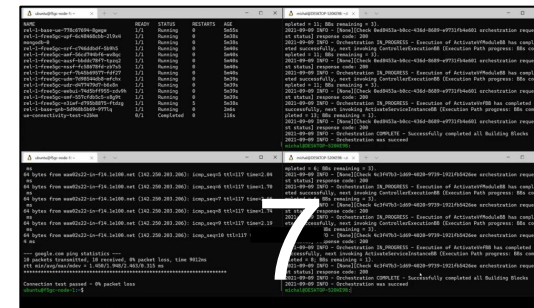
START CONNECTIVITY TEST



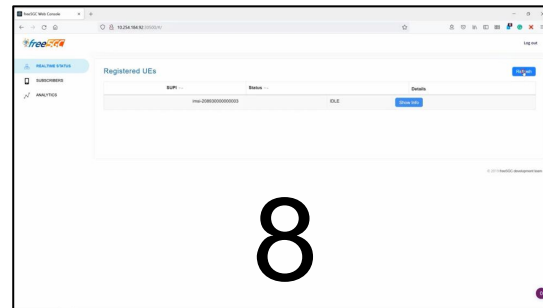
SUBSCRIBE UE



CONFIGURE 5G RAN PN



CONNECTIVITY TEST VERIFY



DISCONNECTION RAN



Demo

Orchestration of Free5GC using ONAP

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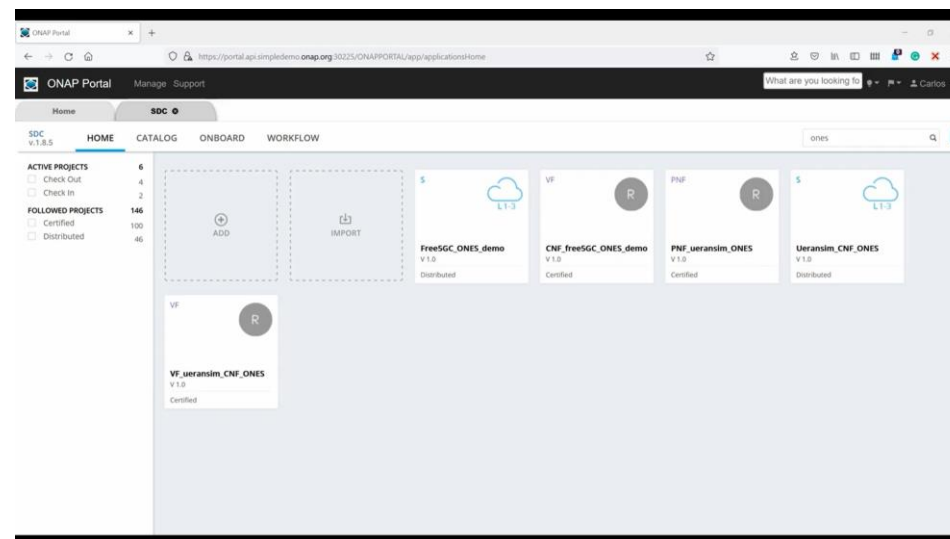


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#1



ONBOARD 5G SERVICE



michal@DESKTOP-520KE9B: ~/c



michal@DESKTOP-520KE9B:|





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#2

```
shant@f5gc-node-1:~$ kubectl get pods -n free5gc
No resources found in free5gc namespace.

shant@f5gc-node-1:~$ kubectl get pods -n free5gc
NAME                                READY    STATUS    RESTARTS   AGE
cel-1-base-ue-778c67694-8yqpe        1/1      Running   0           54s
cel-1-free5gc-ufc-0477479d7-b6d8n    0/2      Init:0/2   0           38s
cel-1-free5gc-nrf-704d6d4f-509t5     0/2      Init:0/2   0           39s
cel-1-free5gc-webui-74d5d5ff95-zdv9h  0/1      Init:0/1   0           38s
cel-1-free5gc-urf-5c4080c3b-2l9w4    1/1      Running   0           37s
cel-1-free5gc-nssf-c280794e3-357d5   0/2      Init:0/2   0           39s
cel-1-free5gc-udm-7498544db8-efcfx   0/2      Init:0/2   0           38s
cel-1-free5gc-usf-4b0d678f7-4p2q2    0/2      Init:0/2   0           39s
cel-1-free5gc-pcf-7b49a60577-dff27    0/1      Init:0/1   0           39s
cel-1-base-gnb-7d87b6b55-vfqcc        1/1      Running   0           54s
cel-1-free5gc-nmf-56cd70dbf6-wdgcq    1/1      Running   0           37s
cel-1-free5gc-nmf-557cfd86c-8g9pc     0/2      Init:0/2   0           38s
cel-1-free5gc-nlbf-479588875-ftdaz    0/1      Completed 2           37s

shant@f5gc-node-1:~$ kubectl get pods -n free5gc
NAME                                READY    STATUS    RESTARTS   AGE
cel-1-base-ue-778c67694-8yqpe        1/1      Running   0           54s
cel-1-free5gc-ufc-0477479d7-b6d8n    0/2      Init:0/2   0           38s
cel-1-free5gc-nrf-704d6d4f-509t5     0/2      Init:0/2   0           39s
cel-1-free5gc-webui-74d5d5ff95-zdv9h  0/1      Init:0/1   0           38s
cel-1-free5gc-urf-5c4080c3b-2l9w4    1/1      Running   0           37s
cel-1-free5gc-nssf-c280794e3-357d5   0/2      Init:0/2   0           39s
cel-1-free5gc-udm-7498544db8-efcfx   0/2      Init:0/2   0           38s
cel-1-free5gc-usf-4b0d678f7-4p2q2    0/2      Init:0/2   0           39s
cel-1-free5gc-pcf-7b49a60577-dff27    0/1      Init:0/1   0           39s
cel-1-base-gnb-7d87b6b55-vfqcc        1/1      Running   0           54s
cel-1-free5gc-nmf-56cd70dbf6-wdgcq    1/1      Running   0           37s
cel-1-free5gc-nmf-557cfd86c-8g9pc     0/2      Init:0/2   0           38s
cel-1-free5gc-nlbf-479588875-ftdaz    0/1      Completed 2           37s
```

DEPLOY 5G CORE CNF

#3

```
shant@f5gc-node-1:~$ kubectl get pods -n free5gc
NAME                                READY    STATUS    RESTARTS   AGE
cel-1-base-ue-778c67694-8yqpe        1/1      Running   0           54s
cel-1-free5gc-ufc-0477479d7-b6d8n    0/2      Init:0/2   0           38s
cel-1-free5gc-nrf-704d6d4f-509t5     0/2      Init:0/2   0           39s
cel-1-free5gc-webui-74d5d5ff95-zdv9h  0/1      Init:0/1   0           38s
cel-1-free5gc-urf-5c4080c3b-2l9w4    1/1      Running   0           37s
cel-1-free5gc-nssf-c280794e3-357d5   0/2      Init:0/2   0           39s
cel-1-free5gc-udm-7498544db8-efcfx   0/2      Init:0/2   0           38s
cel-1-free5gc-usf-4b0d678f7-4p2q2    0/2      Init:0/2   0           39s
cel-1-free5gc-pcf-7b49a60577-dff27    0/1      Init:0/1   0           39s
cel-1-base-gnb-7d87b6b55-vfqcc        1/1      Running   0           54s
cel-1-free5gc-nmf-56cd70dbf6-wdgcq    1/1      Running   0           37s
cel-1-free5gc-nmf-557cfd86c-8g9pc     0/2      Init:0/2   0           38s
cel-1-free5gc-nlbf-479588875-ftdaz    0/1      Completed 2           37s

shant@f5gc-node-1:~$ kubectl get pods -n free5gc
NAME                                READY    STATUS    RESTARTS   AGE
cel-1-base-ue-778c67694-8yqpe        1/1      Running   0           54s
cel-1-free5gc-ufc-0477479d7-b6d8n    0/2      Init:0/2   0           38s
cel-1-free5gc-nrf-704d6d4f-509t5     0/2      Init:0/2   0           39s
cel-1-free5gc-webui-74d5d5ff95-zdv9h  0/1      Init:0/1   0           38s
cel-1-free5gc-urf-5c4080c3b-2l9w4    1/1      Running   0           37s
cel-1-free5gc-nssf-c280794e3-357d5   0/2      Init:0/2   0           39s
cel-1-free5gc-udm-7498544db8-efcfx   0/2      Init:0/2   0           38s
cel-1-free5gc-usf-4b0d678f7-4p2q2    0/2      Init:0/2   0           39s
cel-1-free5gc-pcf-7b49a60577-dff27    0/1      Init:0/1   0           39s
cel-1-base-gnb-7d87b6b55-vfqcc        1/1      Running   0           54s
cel-1-free5gc-nmf-56cd70dbf6-wdgcq    1/1      Running   0           37s
cel-1-free5gc-nmf-557cfd86c-8g9pc     0/2      Init:0/2   0           38s
cel-1-free5gc-nlbf-479588875-ftdaz    0/1      Completed 2           37s
```

REGISTER 5G RAN PNF

```
ubuntu@f5gc-node-1: ~  
No resources found in free5gc namespace.
```

```
ubuntu@f5gc-node-1: ~  
ubuntu@f5gc-node-1:
```

```
micchal@DESKTOP-520KE9B: ~/fi  
micchal@DESKTOP-520KE9B:
```

```
micchal@DESKTOP-520KE9B: ~/fi  
micchal@DESKTOP-520KE9B:
```




```
NAME READY STATUS RESTARTS AGE
rel-1-base-us-776c769a-8gwz 1/1 Running 0 4m29s
rel-1-freeg-us-upf-6c4a86d3c-2l9v4 mongod-0 1/1 Running 0 4m12s
rel-1-freeg-us-rf-7c6d46df-5d9f5 1/1 Running 0 4m14s
rel-1-freeg-us-ncf-56c7494f6-vdqic 1/1 Running 0 4m14s
rel-1-freeg-us-afw-bbdc787f-2np1 1/1 Running 0 4m14s
rel-1-freeg-us-uf-6c499f6-a7f5 1/1 Running 0 4m14s
rel-1-freeg-us-rcf-7b9d50577-fd727 1/1 Running 0 4m14s
rel-1-freeg-us-ud-7098544a6-efchx 1/1 Running 0 4m13s
rel-1-freeg-us-udr-077797f-b6xin 1/1 Running 0 4m13s
rel-1-freeg-us-wbi-7c6d549d3-cdydh 1/1 Running 0 4m13s
rel-1-freeg-us-55f-67c5d53-xyg9t 1/1 Running 0 4m12s
rel-1-freeg-us-jfr-7f3b587f5-ftdzg 1/1 Running 5 4m12s
rel-1-base-us-5d98d36c-5771q us-connectivity-test-n3bha 1/1 Completed 0 30s

2021-09-09 INFO - [None][Check 0ed8453a-b0cc-436d-8689-e9731fb4601 orchestration
at status] response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModule8B has com
pleted successfully, next invoking ControllerExecution8B (Execution Path progress: BBS co
mpleted = 11; BBS remaining = 3).
2021-09-09 INFO - [None][Check 0ed8453a-b0cc-436d-8689-e9731fb4601 orchestration
at status] response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModule8B has com
pleted successfully, next invoking ControllerExecution8B (Execution Path progress: BBS co
mpleted = 11; BBS remaining = 3).
2021-09-09 INFO - [None][Check 0ed8453a-b0cc-436d-8689-e9731fb4601 orchestration reque
st at status] response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModule8B has com
pleted successfully, next invoking ControllerExecution8B (Execution Path progress: BBS co
mpleted = 11; BBS remaining = 3).
2021-09-09 INFO - [None][Check 0ed8453a-b0cc-436d-8689-e9731fb4601 orchestration reque
st at status] response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModule8B has com
pleted successfully, next invoking ControllerExecution8B (Execution Path progress: BBS co
mpleted = 11; BBS remaining = 3).

ubuntu@fsg-node-1:~$
Get ip address for rel-1-base-us-776c769a-8gwz
1. lo: addressACK, up, LOWER_up, net 65536 qdisc none state UNKNOWN group default qlen
1000
Link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
valid_lft forever preferred_lft forever
2. ip_v1910NOME - NOARP, mtu 1400 qdisc noop state DOWN group default qlen 1000
link/loopback 0.0.0.0 0.0.0.0
3. eth0/eth0 - BROADCAST, MULTICAST, up, LOWER_up, net 1400 qdisc none state UP group
default
Link/ether 3a:64:8e:78:4c:37 brd ff:ff:ff:ff:ff:ff link-metns id
inet 10.2.97.21/22 scope global eth0
valid_lft forever preferred_lft forever
inet6 fe80::3664:8eff:fe78:4c37/64 scope link
valid_lft forever preferred_lft forever

ussint000 Interface not found
ubuntu@fsg-node-1:~$
```

CONNECTIVITY TEST FAIL

```
ubuntu@f5gc-node-1: ~  
NAME READY STATUS RESTARTS AGE  
rel-1-base-ue-746fd86c64-bp2mf 1/1 Running 0 3m38s  
rel-1-free5gc-upf-547bbd5658-s76ch 1/1 Running 0 3m19s  
rel-1-base-gnb-6c77ddb9f9-lb8wq 1/1 Running 0 3m38s  
mongodb-0 1/1 Running 0 3m19s  
rel-1-free5gc-nrf-9fc84ff49-pdbds 1/1 Running 0 3m21s  
rel-1-free5gc-amf-6994f765d4-fr5lh 1/1 Running 0 3m21s  
rel-1-free5gc-ausf-6b6cfbb98f-zph15 1/1 Running 0 3m21s  
rel-1-free5gc-nssf-5cc6f6585d-ccggq 1/1 Running 0 3m21s  
rel-1-free5gc-pcf-5d8dddc977-dn8bb 1/1 Running 0 3m20s  
rel-1-free5gc-smf-768d684887-vczsn 1/1 Running 0 3m20s  
rel-1-free5gc-udm-59988764b8-v27tz 1/1 Running 0 3m20s  
rel-1-free5gc-udr-7998f4cc87-dhmd5 1/1 Running 0 3m20s  
rel-1-free5gc-webui-67494bddff-lvb5s 1/1 Running 0 3m19s  
rel-1-free5gc-n3iwf-594f77456c-f7m8f 1/1 Running 5 3m19s
```

```
ubuntu@f5gc-node-1: ~  
ubuntu@f5gc-node-1:
```

```
michal@DESKTOP-520KE9B: ~/fi  
mpleted = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).
```

```
michal@DESKTOP-520KE9B: ~/fi  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Successfully completed all Building Blocks  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks  
2021-09-12 INFO - Orchestration was succeed  
michal@DESKTOP-520KE9B:
```

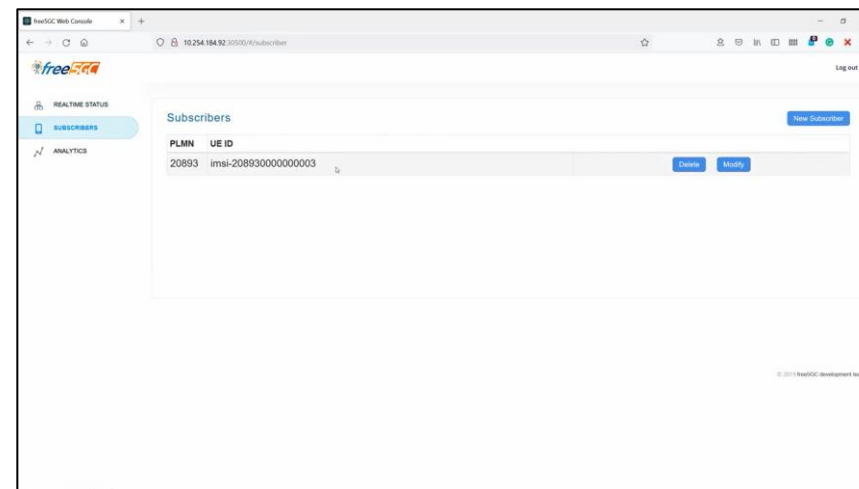


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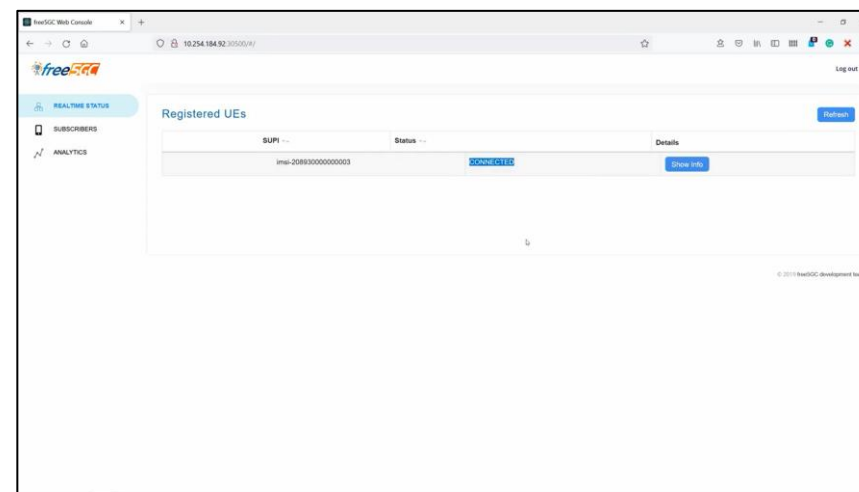
Kubernetes
on EDGE DAY

#5



SUBSCRIBE UE

#6



CONFIGURE 5G RAN PNF


```
ubuntu@f5gc-node-1: ~  
NAME READY STATUS RESTARTS AGE  
rel-1-base-ue-746fd86c64-bp2mf 1/1 Running 0 3m43s  
rel-1-free5gc-upf-547bbd5658-s76ch 1/1 Running 0 3m24s  
rel-1-base-gnb-6c77ddb9f9-lb8wq 1/1 Running 0 3m43s  
mongodb-0 1/1 Running 0 3m24s  
rel-1-free5gc-nrf-9fc84ff49-pdbds 1/1 Running 0 3m26s  
rel-1-free5gc-amf-6994f765d4-fr5lh 1/1 Running 0 3m26s  
rel-1-free5gc-ausf-6b6cfbb98f-zph15 1/1 Running 0 3m26s  
rel-1-free5gc-nssf-5cc6f6585d-ccggq 1/1 Running 0 3m26s  
rel-1-free5gc-pcf-5d8dddc977-dn8bb 1/1 Running 0 3m25s  
rel-1-free5gc-smf-768d684887-vczsn 1/1 Running 0 3m25s  
rel-1-free5gc-udm-59988764b8-v27tz 1/1 Running 0 3m25s  
rel-1-free5gc-udr-7998f4cc87-dhmd5 1/1 Running 0 3m25s  
rel-1-free5gc-webui-67494bddff-lvb5s 1/1 Running 0 3m24s  
rel-1-free5gc-n3iwf-594f77456c-f7m8f 1/1 Running 0 3m24s  
ue-connectivity-test-8wzqf 0/1 ContainerCreating 0 0s
```

```
ubuntu@f5gc-node-1: ~  
ubuntu@f5gc-node-1: curl -X POST -k https://10.254.184.164:30283/api/multicloud-k8s/v1/v1/instance/objective_keller/healthcheck  
{ "healthcheck-id": "infallible_zhukovsky", "status": "Running" }  
ubuntu@f5gc-node-1: |
```

```
michal@DESKTOP-520KE9B: ~  
mpleted = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).
```

```
michal@DESKTOP-520KE9B: ~  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Successfully completed all Building Blocks  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks  
2021-09-12 INFO - Orchestration was succeed  
michal@DESKTOP-520KE9B:
```



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#7

```
ubuntu@k8s-node-1:~$ kubectl get pods --all-namespaces
NAME                                READY   STATUS    RESTARTS   AGE
rel-1-base-ue-778c67694-8gmgw       1/1     Running   0           5m55s
rel-1-free5gc-uef-6c8468cbb-219x4    1/1     Running   0           5m38s
mongodb-0                            1/1     Running   0           5m38s
rel-1-free5gc-nrf-c76dd4d4f-5b9h5    1/1     Running   0           5m40s
rel-1-free5gc-aarf-56c074dbf-wv8qc    1/1     Running   0           5m40s
rel-1-free5gc-aarf-bbdc78f7-tpzq2     1/1     Running   0           5m40s
rel-1-free5gc-nssf-c58078fd-zb7s5    1/1     Running   0           5m40s
rel-1-free5gc-pnf-7a328a9377-fd472    1/1     Running   0           5m40s
rel-1-free5gc-udm-7d9854adb8-mfchx    1/1     Running   0           5m39s
rel-1-free5gc-udr-d477479d7-b6x8n    1/1     Running   0           5m39s
rel-1-free5gc-mbsi-7a45d4f9d5-rdy9h   1/1     Running   0           5m39s
rel-1-free5gc-smf-557cfd5c5-xdy9t     1/1     Running   0           5m39s
rel-1-free5gc-nlief-d7958876-ftdzz    1/1     Running   5           5m38s
rel-1-base-gnb-3d96b3d69-9771q       1/1     Running   0           2m5s
ue-connectivity-test-n2bkm            0/1     Completed 0           116s

ubuntu@k8s-node-1:~$ kubectl exec -n kube-system nsx-lb-decktop-sinkbox-0 -- nsx-lb-decktop-sinkbox-0
mpleted = 11; BBs remaining = 3).
2021-09-09 INFO - [None](Check 0ed0453a-b0cc-436d-8689-e9731fb4e601 orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has compl
eted successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs co
mpleted = 11; BBs remaining = 3).
2021-09-09 INFO - [None](Check 0ed0453a-b0cc-436d-8689-e9731fb4e601 orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has compl
eted successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs co
mpleted = 11; BBs remaining = 3).
2021-09-09 INFO - [None](Check 0ed0453a-b0cc-436d-8689-e9731fb4e601 orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has compl
eted successfully, next invoking ActivateServiceInstanceBB (Execution Path progress: BBs co
mpleted = 13; BBs remaining = 1).
2021-09-09 INFO - [None](Check 0ed0453a-b0cc-436d-8689-e9731fb4e601 orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks
2021-09-09 INFO - Orchestration was succeed
nsx-lb-decktop-sinkbox-0

ubuntu@k8s-node-1:~$ kubectl exec -n kube-system nsx-lb-decktop-sinkbox-0 -- nsx-lb-decktop-sinkbox-0
mpleted = 6; BBs remaining = 3).
2021-09-09 INFO - [None](Check 4c3f47b3-1d69-4820-9739-1921fb5426ee orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has compl
eted successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs co
mpleted = 6; BBs remaining = 3).
2021-09-09 INFO - [None](Check 4c3f47b3-1d69-4820-9739-1921fb5426ee orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has compl
eted successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs co
mpleted = 6; BBs remaining = 3).
2021-09-09 INFO - [None](Check 4c3f47b3-1d69-4820-9739-1921fb5426ee orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has compl
eted successfully, next invoking ActivateServiceInstanceBB (Execution Path progress: BBs co
mpleted = 8; BBs remaining = 1).
2021-09-09 INFO - [None](Check 4c3f47b3-1d69-4820-9739-1921fb5426ee orchestration requ
st status) response code: 200
2021-09-09 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks
2021-09-09 INFO - Orchestration was succeed
nsx-lb-decktop-sinkbox-0
```

CONNECTIVITY TEST SUCCESS


```
ubuntu@f5gc-node-1: ~  
NAME READY STATUS RESTARTS AGE  
rel-1-base-ue-746fd86c64-bp2mf 1/1 Running 0 4m30s  
rel-1-free5gc-upf-547bbd5658-s76ch 1/1 Running 0 4m11s  
mongodb-0 1/1 Running 0 4m11s  
rel-1-free5gc-nrf-9fc84ff49-pdbds 1/1 Running 0 4m13s  
rel-1-free5gc-amf-6994f765d4-fr5lh 1/1 Running 0 4m13s  
rel-1-free5gc-ausf-6b6cfbb98f-zphl5 1/1 Running 0 4m13s  
rel-1-free5gc-nssf-5cc6f6585d-ccggq 1/1 Running 0 4m13s  
rel-1-free5gc-pcf-5d8dddc977-dn8bb 1/1 Running 0 4m12s  
rel-1-free5gc-smf-768d684887-vczsn 1/1 Running 0 4m12s  
rel-1-free5gc-udm-59988764b8-v27tz 1/1 Running 0 4m12s  
rel-1-free5gc-udr-7998f4cc87-dhmd5 1/1 Running 0 4m12s  
rel-1-free5gc-webui-67494bddff-lvb5s 1/1 Running 0 4m11s  
rel-1-free5gc-n3iwf-594f77456c-f7m8f 1/1 Running 5 4m11s  
ue-connectivity-test-8wzqf 0/1 Error 0 47s  
ue-connectivity-test-z4r45 0/1 Error 0 45s  
ue-connectivity-test-4zhxc 0/1 Error 0 35s  
rel-1-base-gnb-67d48cb6c7-857pl 1/1 Running 0 39s
```

```
ubuntu@f5gc-node-1: ~  
ubuntu@f5gc-node-1:
```

```
michal@DESKTOP-520KE9B: ~/fi  
eted successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ControllerExecutionBB has completed successfully, next invoking ActivateVnfBB (Execution Path progress: BBs completed = 12; BBs remaining = 2).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks  
2021-09-12 INFO - Orchestration was succeed  
michal@DESKTOP-520KE9B:
```

```
michal@DESKTOP-520KE9B: ~/fi  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Successfully completed all Building Blocks  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks  
2021-09-12 INFO - Orchestration was succeed  
michal@DESKTOP-520KE9B:
```

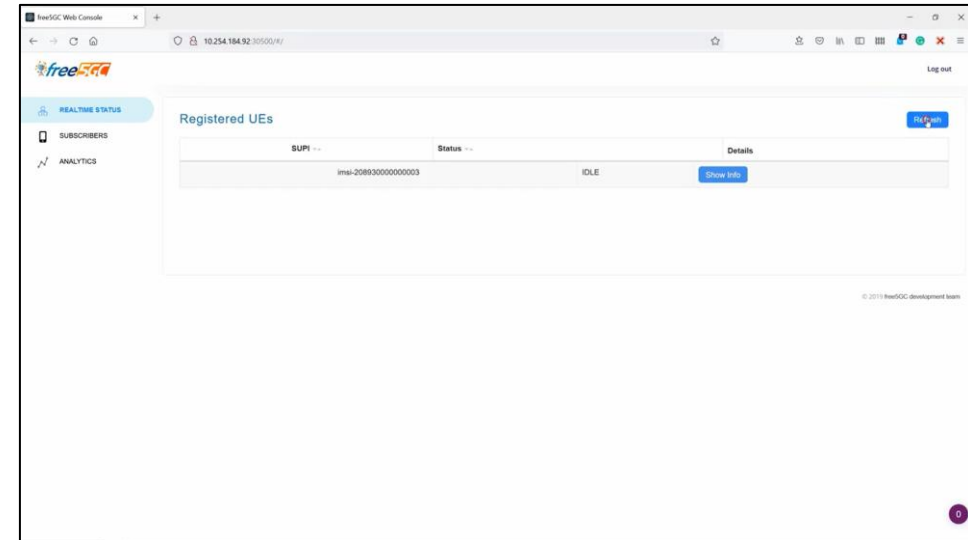


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#8



DISCONNECT RAN

```
ubuntu@f5gc-node-1: ~  
NAME READY STATUS RESTARTS AGE  
rel-1-base-ue-746fd86c64-bp2mf 1/1 Running 0 4m24s  
rel-1-free5gc-upf-547bbd5658-s76ch 1/1 Running 0 4m5s  
mongodb-0 1/1 Running 0 4m5s  
rel-1-free5gc-nrf-9fc84ff49-pdbds 1/1 Running 0 4m7s  
rel-1-free5gc-amf-6994f765d4-fr5lh 1/1 Running 0 4m7s  
rel-1-free5gc-ausf-6b6cfbb98f-zphl5 1/1 Running 0 4m7s  
rel-1-free5gc-nssf-5cc6f6585d-cgggq 1/1 Running 0 4m7s  
rel-1-free5gc-pcf-5d8dddc977-dn8bb 1/1 Running 0 4m6s  
rel-1-free5gc-smf-768d684887-vczsn 1/1 Running 0 4m6s  
rel-1-free5gc-udm-59988764b8-v27tz 1/1 Running 0 4m6s  
rel-1-free5gc-udr-7998f4cc87-dhmd5 1/1 Running 0 4m6s  
rel-1-free5gc-webui-67494bddff-lvb5s 1/1 Running 0 4m5s  
rel-1-free5gc-n3iwf-594f77456c-f7m8f 1/1 Running 5 4m5s  
ue-connectivity-test-8wzqf 0/1 Error 0 41s  
ue-connectivity-test-z4r45 0/1 Error 0 39s  
ue-connectivity-test-4zhxc 0/1 Error 0 29s  
rel-1-base-gnb-67d48cb6c7-857pl 1/1 Running 0 33s  
rel-1-base-gnb-6c77ddb9f9-lb8wq 0/1 Terminating 0 4m24s
```

```
ubuntu@f5gc-node-1: ~  
ubuntu@f5gc-node-1:
```

```
michal@DESKTOP-520KE9B: ~  
eted successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 11; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
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2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ControllerExecutionBB has completed successfully, next invoking ActivateVnfBB (Execution Path progress: BBs completed = 12; BBs remaining = 2).  
2021-09-12 INFO - [None][Check 6194ef03-ce37-40ad-9ad5-01ff1d9bfe24 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks  
2021-09-12 INFO - Orchestration was succeed  
michal@DESKTOP-520KE9B:
```

```
michal@DESKTOP-520KE9B: ~  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Execution of ActivateVfModuleBB has completed successfully, next invoking ControllerExecutionBB (Execution Path progress: BBs completed = 6; BBs remaining = 3).  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
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2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration IN_PROGRESS - Successfully completed all Building Blocks  
2021-09-12 INFO - [None][Check 25142b64-09a5-45fb-b4a9-7b99c1d31c73 orchestration request status] response code: 200  
2021-09-12 INFO - Orchestration COMPLETE - Successfully completed all Building Blocks  
2021-09-12 INFO - Orchestration was succeed  
michal@DESKTOP-520KE9B:
```


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Merci

Thank you

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