IOTWeek

Dublin —— June 20-23, 2022

5GMediaHUB: Technical Overview

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GLOBAL VISION:

IoT TODAY AND BEYOND

5GmediaHUB

SETU Ollscoil Teicneolaíochta an Oirdheiscirt South East Technological University

IOTForum

5GMediaHUB main objectives

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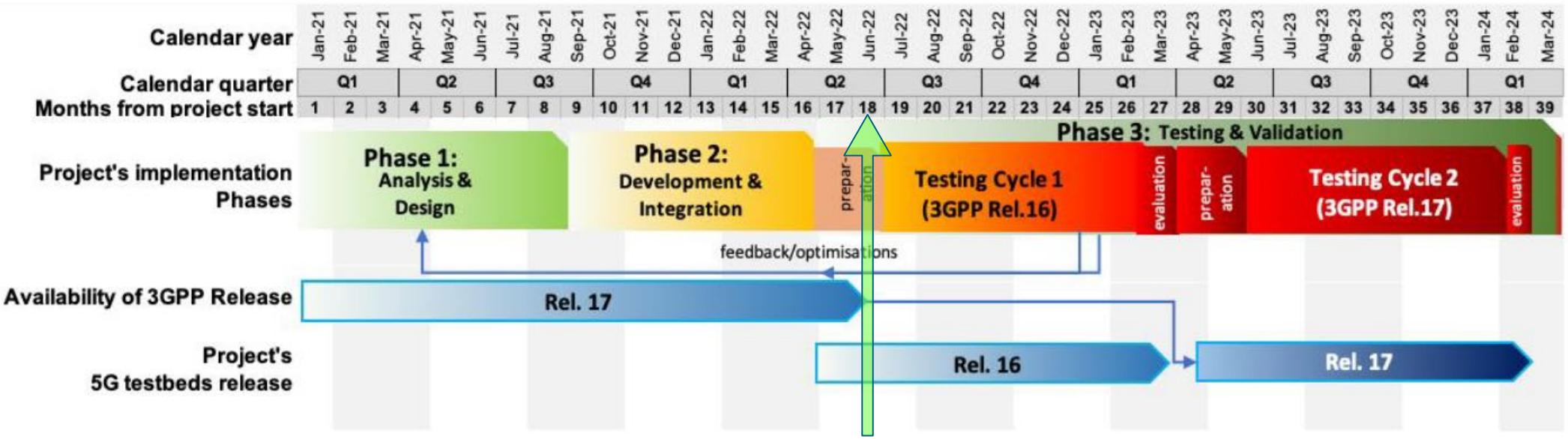
- Open up 5G infrastructures (experimental) and make it accessible to SMEs – Media
- Offer a set of NetApps implementing a PaaS layer similar to AWS & Azure clouds
- Includes DevOps tools to setup and manage experiments via automated testing pipelines
- Web-based Portals which simplify the process of service creation, validation and verification
- Supports automated on-boarding of NetApps providing the dedicated functionality directly within the core telecoms network

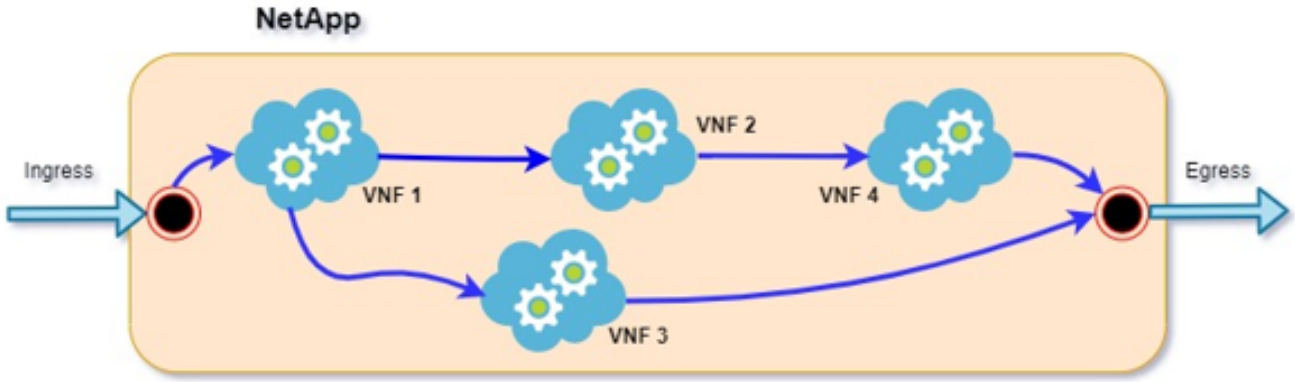
5GMediaHUB main objectives

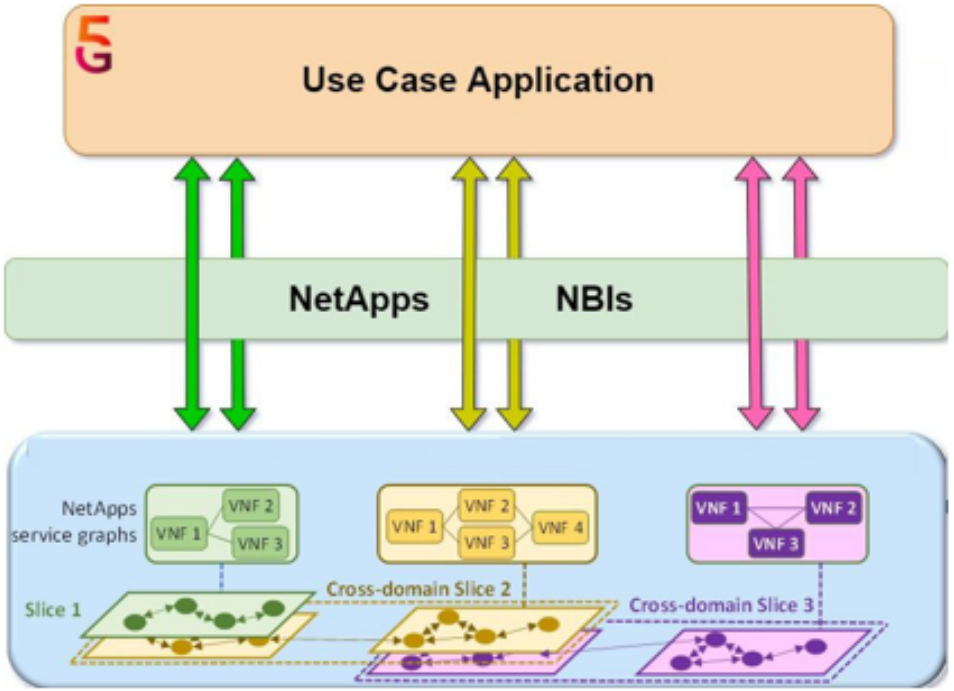
- **Perform 2 test cycles, in 3GPP Rel-16 and Rel-17, in two federated testbeds (CTTC in Barcelona & Telenor in Oslo)**



What is a NetApp?

- NetApps: Chains of VNFs, offering reusable functionality (e.g., video streaming)



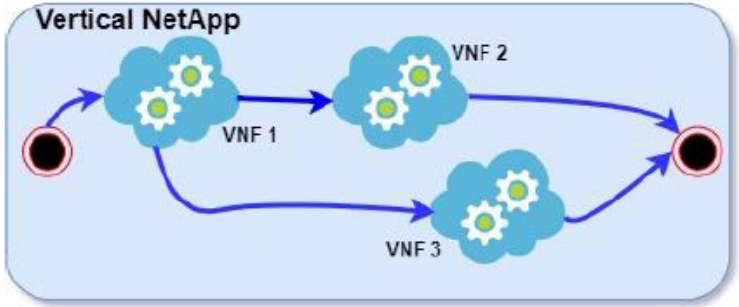


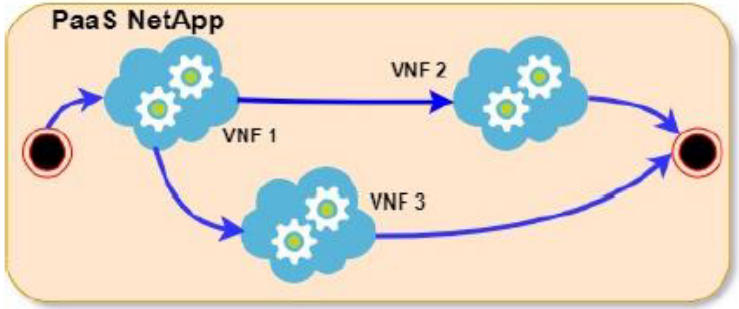
- NetApps are instantiated within Network Slice Subnet Instances (in line with 3GPP 5G management standards)
- NBIs: connecting UC Apps to NetApps via ingress / egress points to the VNF chain (e.g., video streaming APIs)

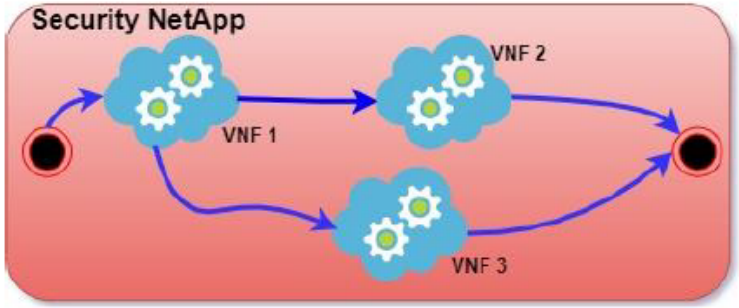
5GMediaHUB's NetApps

NetApps to be generated and their types:

- **Vertical** - ImmersiveMedia NetApp (assisted by NOR)
- **Vertical** - MCDN NetApp
- **Vertical** - StreamSelector NetApp
- **Vertical** - Streaming NetApp
- **Platform** - PaaS NetApp
- **Security** - Web Application Firewall NetApp
  - IDS NetApp (based on Snort IDS)







- Disaggregation of "monoliths" in VNFs/CNFs underway
- Design of Northbound APIs and real-time monitoring APIs for experiments

5GMediaHUB Within the 5G Infrastructure

5GmediaHUB

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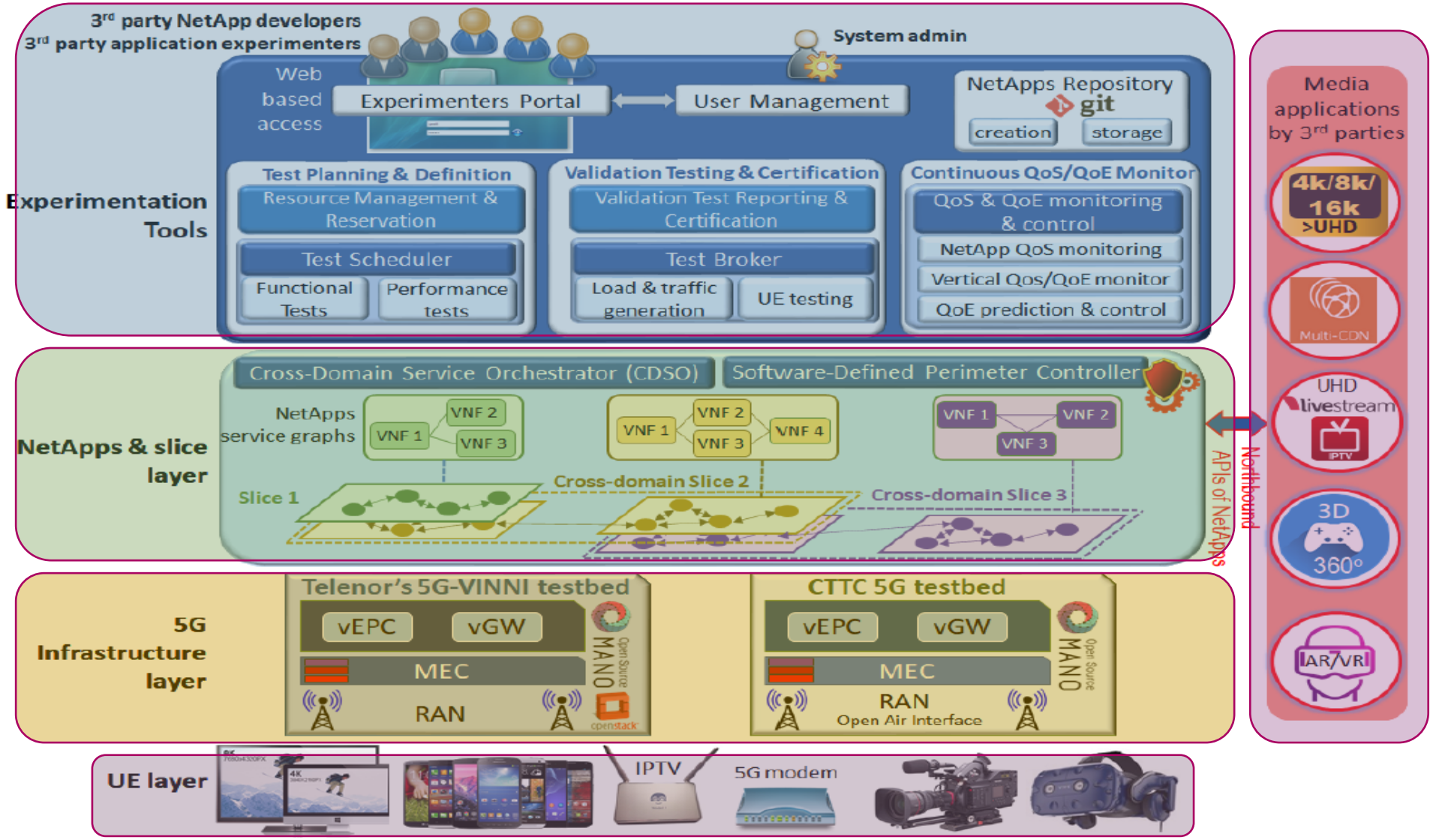
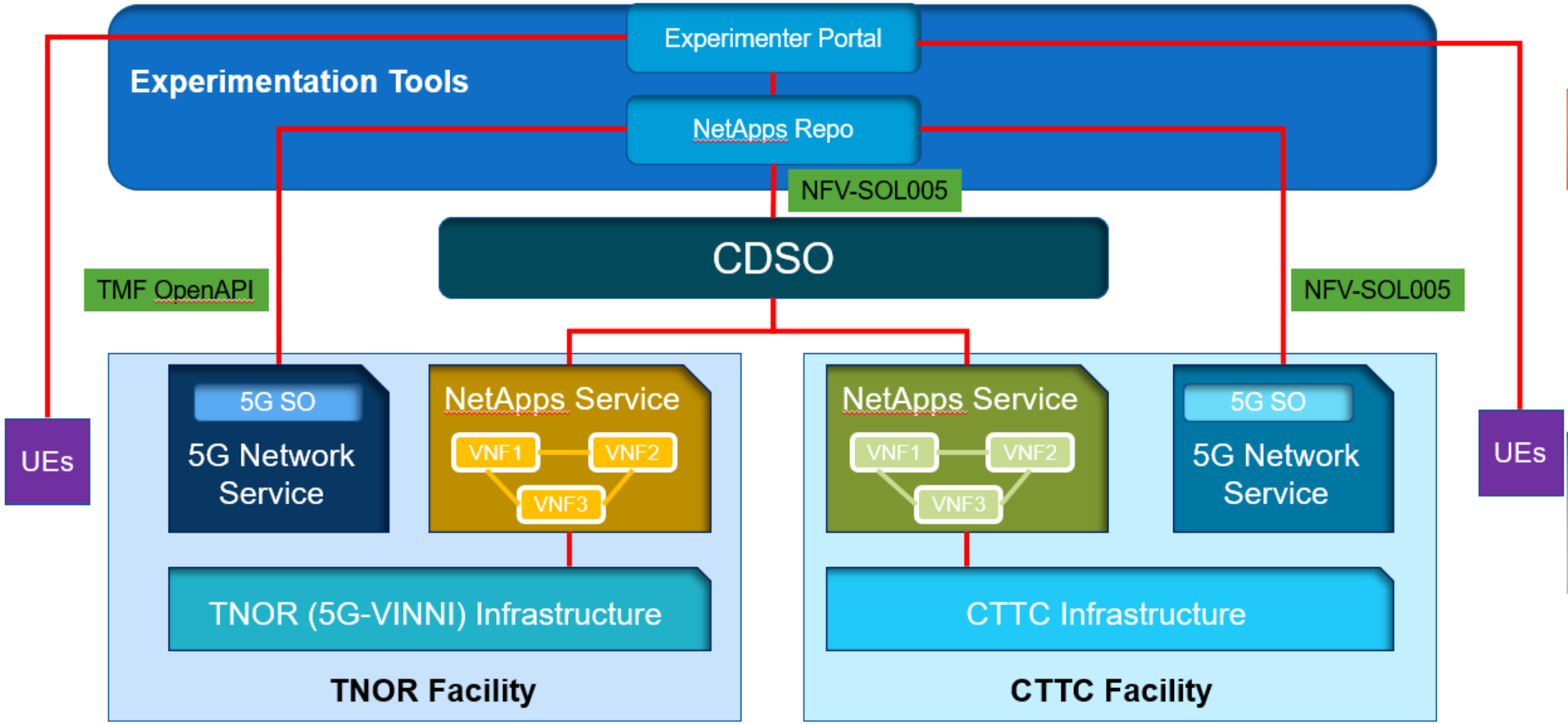
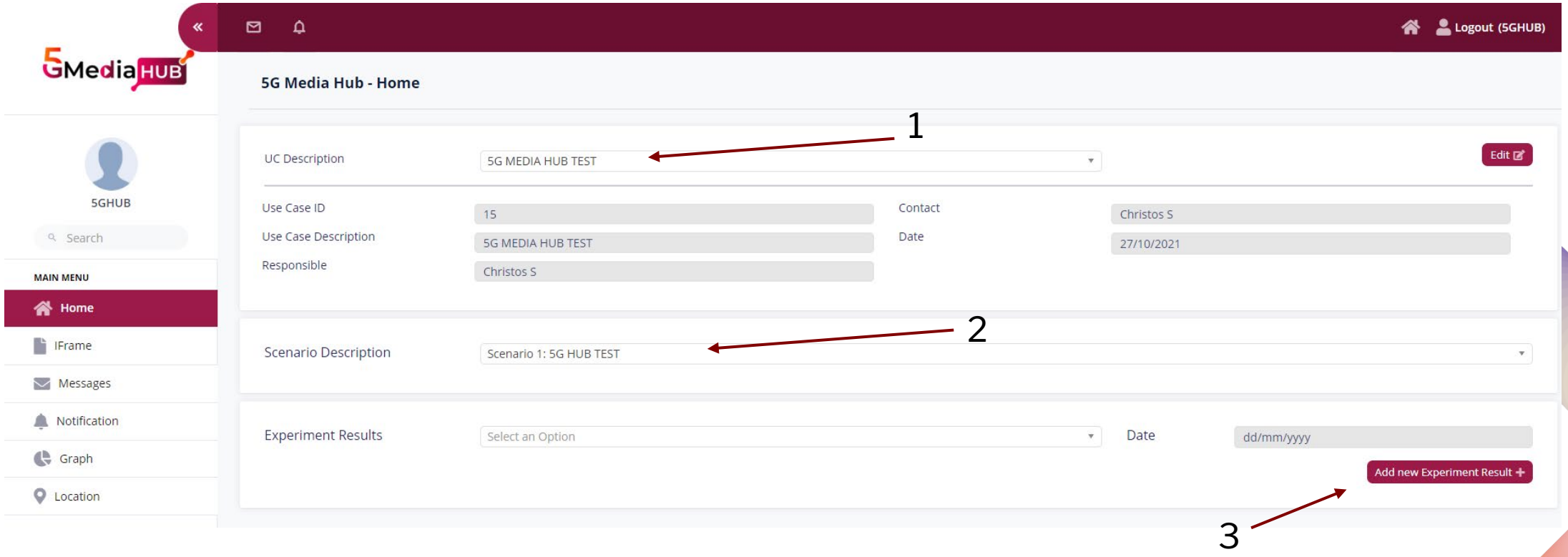


5GMediaHUB main objectives and provisions



5GMediaHUB Tools - Experimenters Portal

- Login page for the portal with options to (1) select UC, (2) select UC scenario, Description, (3) upload data file.
- iFrame functionality for integration of Web Interfaces of other Experimentation Tools



5GMediaHUB Tools

- Experimenters Portal
  - Test Planning & Definition Engine
  - Validation Testing and Verification Engine
  - Continuous QoS/QoE Monitoring Engine
- Secure User Management
- NetApps Repository Application

- Deliver a set of Media & Security NetApps
  - Vertical NetApps fulfil the set of Use Cases and their Related Scenarios
  - Security are agnostic to the vertical domain

5GMediaHUB QoS/E Engine

5GmediaHUB

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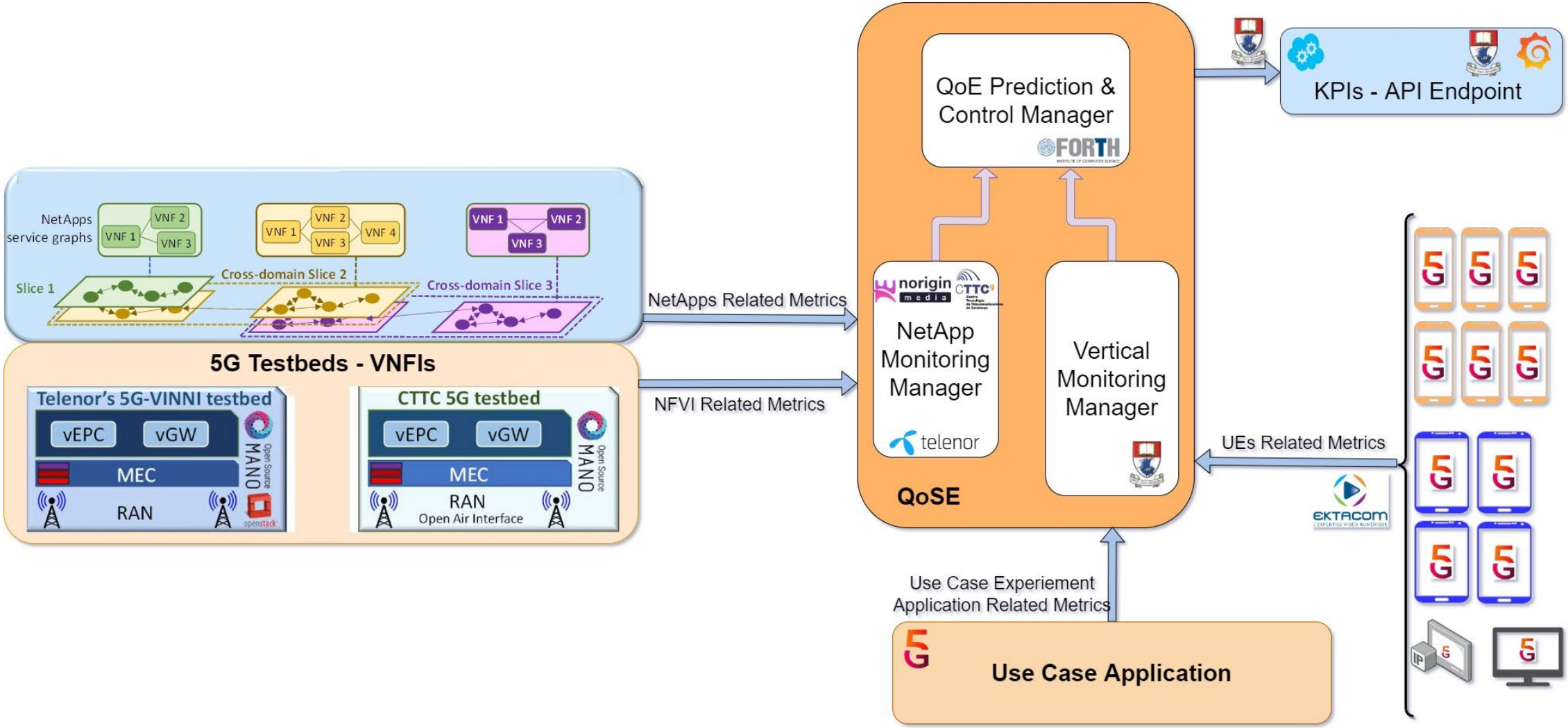

5GMediaHUB - User Management Module

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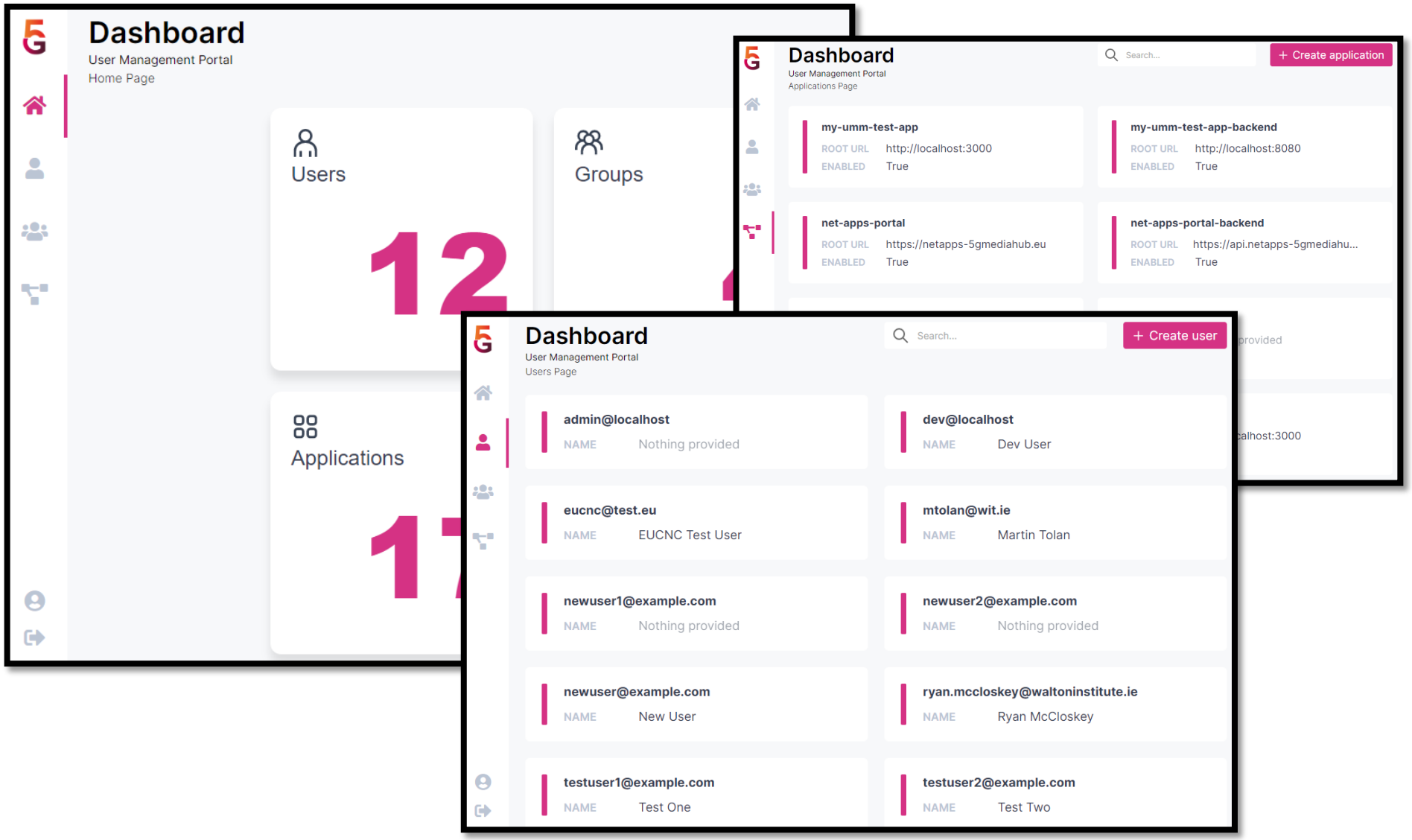

5GMediaHUB – NetApps Repository Application

5GmediaHUB

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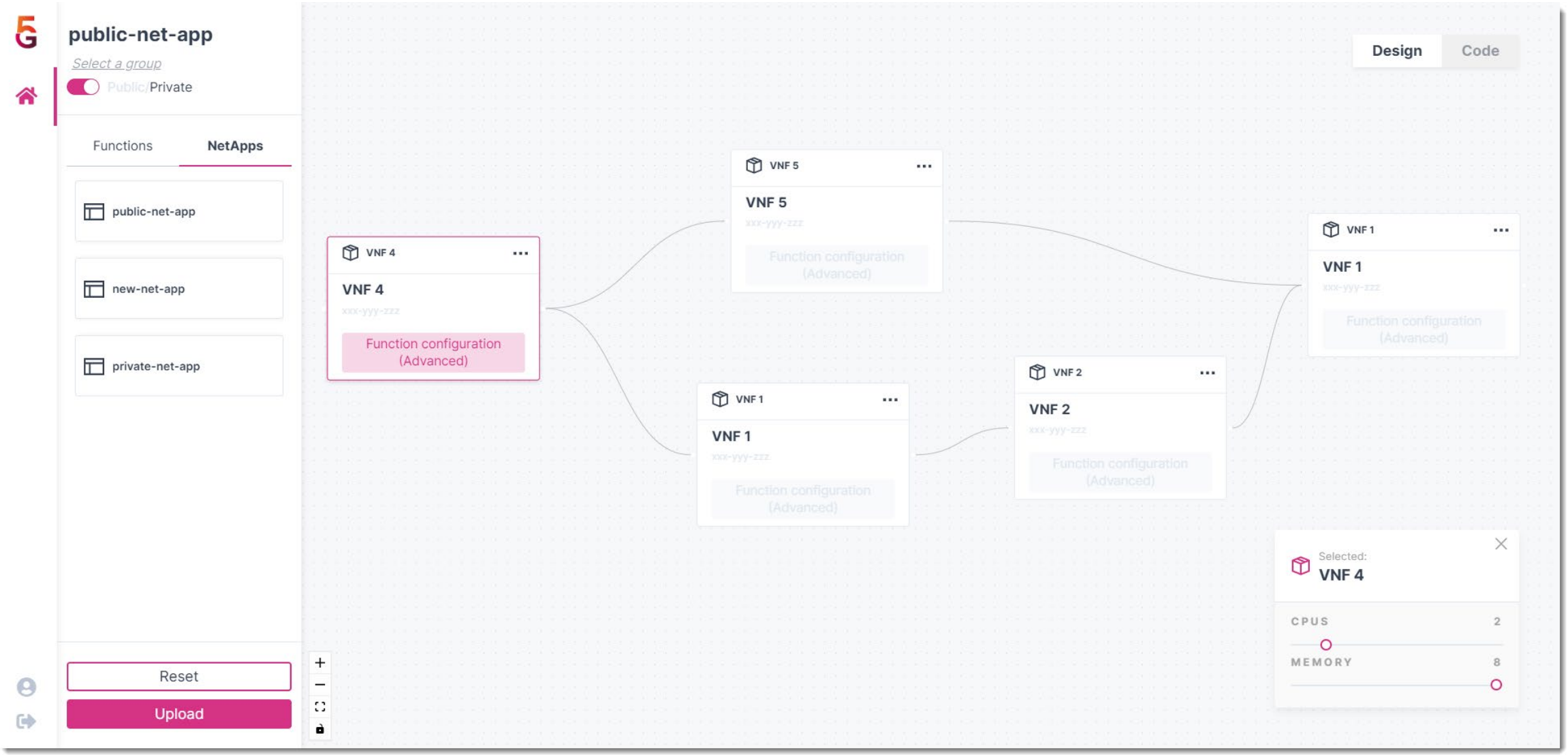

5GMediaHUB - NetApps Repository Application

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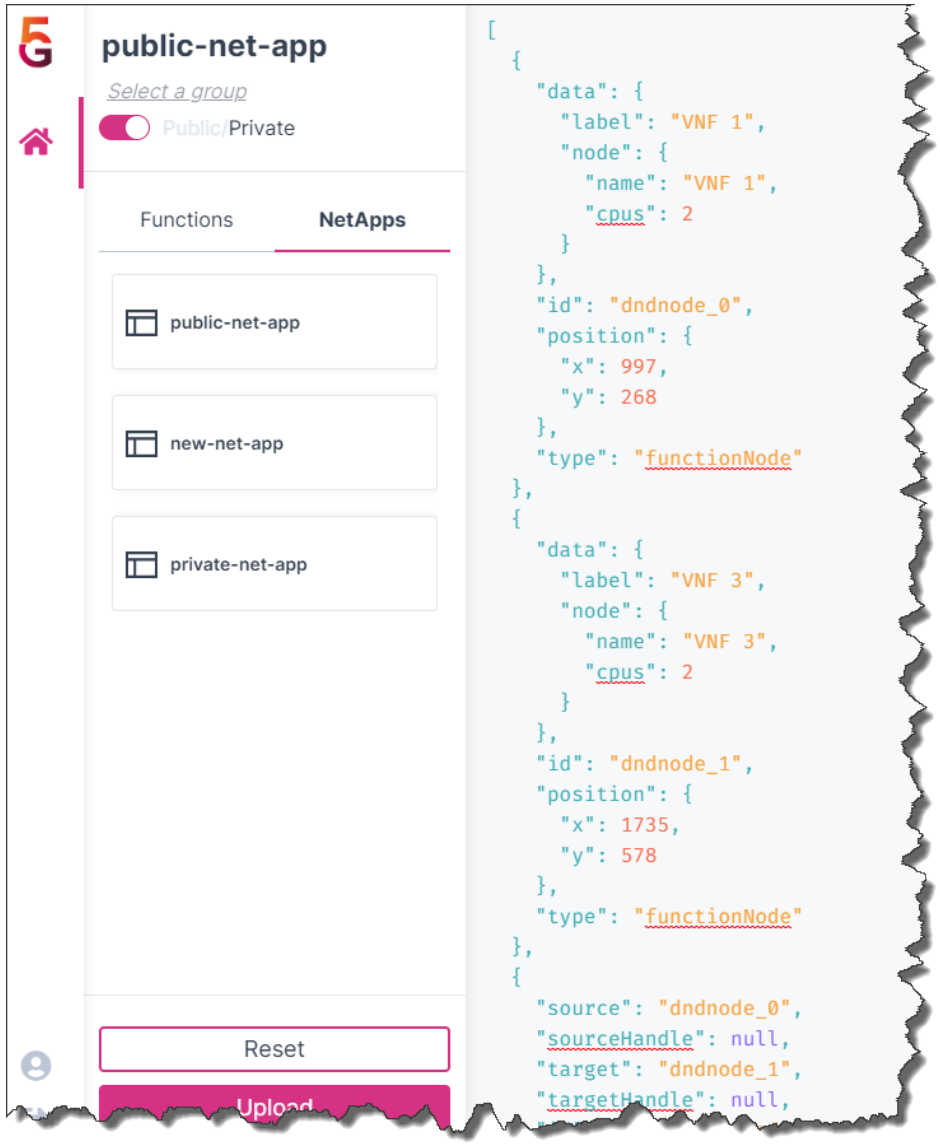

5GMediaHUB - NetApps Repository Application

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NetApps Repository Portal verification utilising the APIs exposed by the OSM NBI.

Provides APIs for SOL-006 compliance for the descriptors (all in YANG):

- VNFD
- NSD
- NST

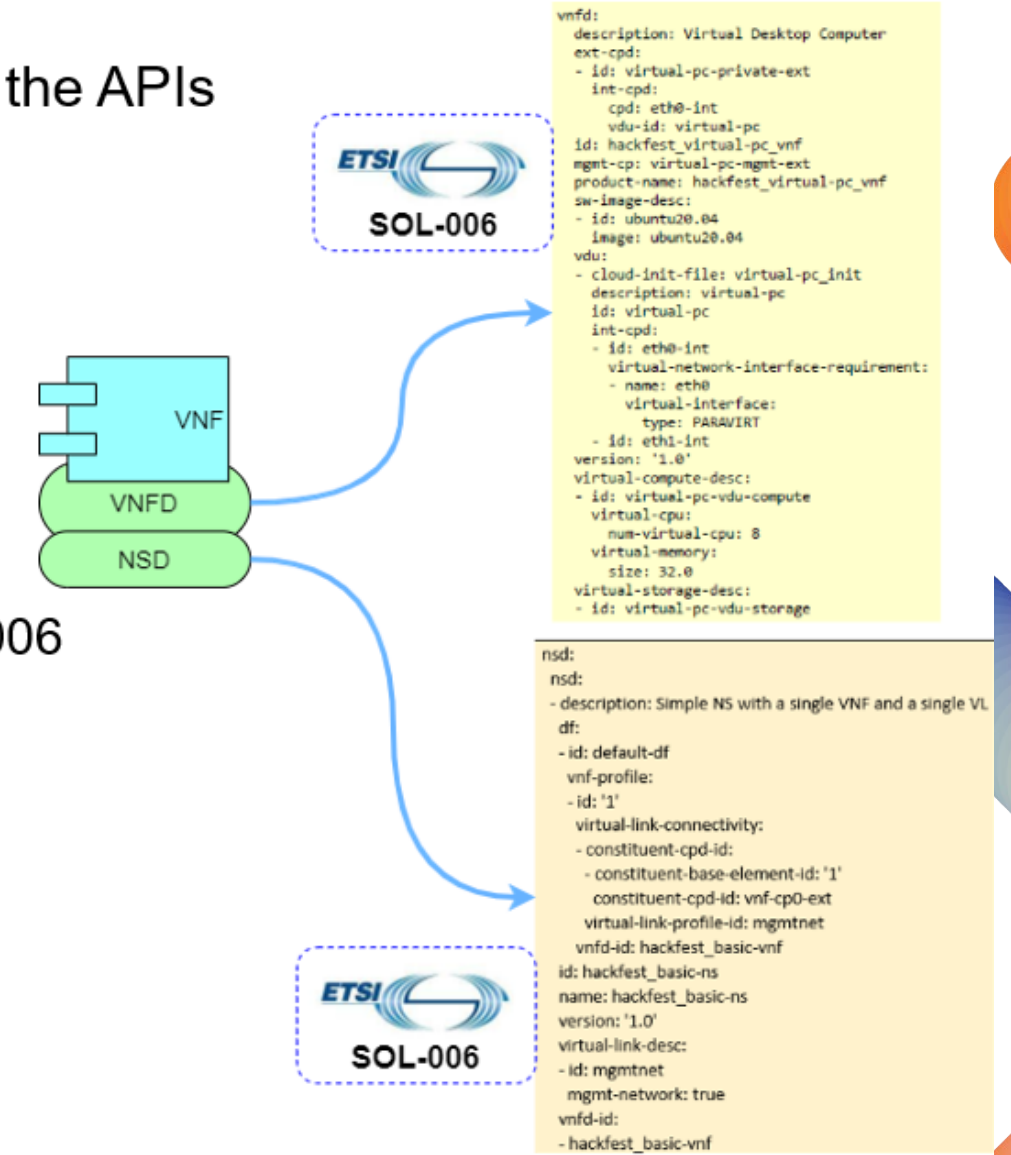
OSM IM aligned with ETSI NFV, derived from SOL006 (which, in turn, derives from IFA011 and IFA014).

VNF descriptor specification => IFA011

NS descriptor specification => IFA014

IFA (stage 2 specs) development of architecture, interfaces and information model aspects

SOL (stage 3 specs) specification of the implementable protocol and data model solutions

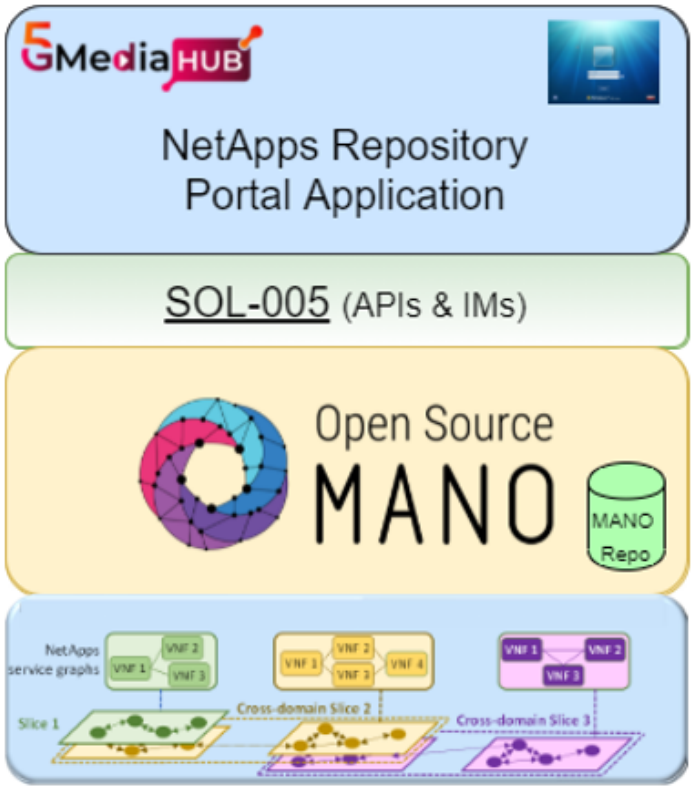


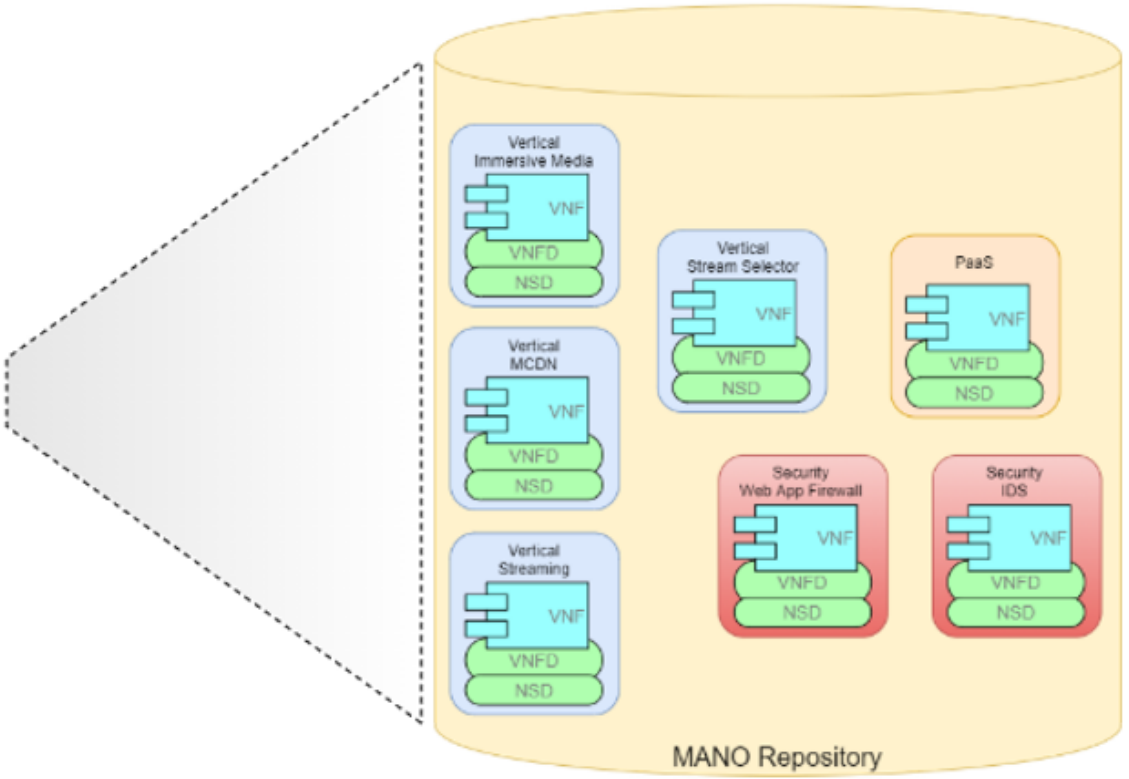
5GMediaHUB - NetApps Repository Application

NetApps Repo Portal will make full use of the **SOL-005** specification for MANO communications

IMs & APIs

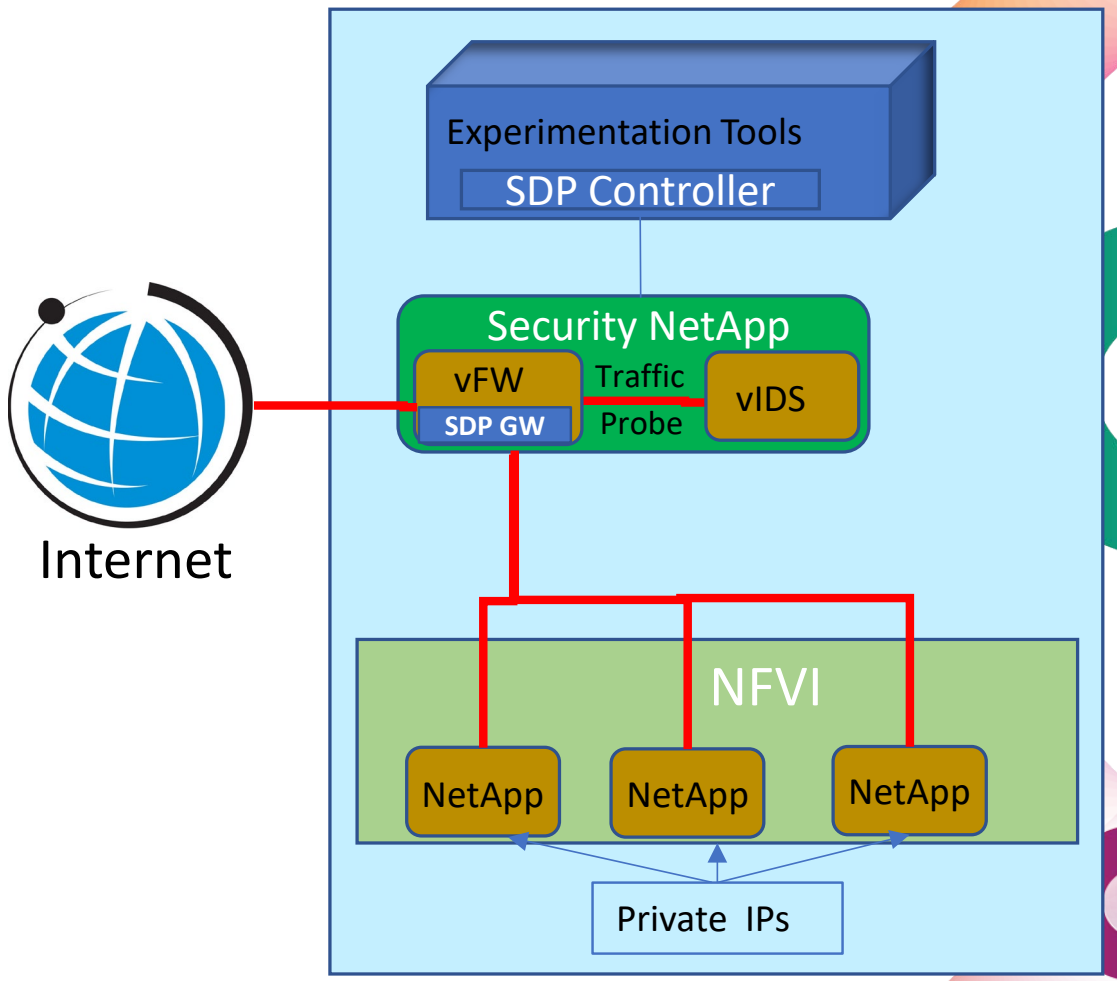
- Add
- Update
- Query
- Delete
- Verify





5GMediaHUB – Security NetApp

- SDP – First use within 5G
- SDP Gateways control accessibility with the NetApps
- UMM Integrated for user access control
- Default firewall to drop all
- SPA packet to knock on the door



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Thank you!

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Find more:

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