5GMediaHUB: Technical Overview

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5GMediaHUB main objectives

• 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 main objectives and provisions

Experimenter Portal

NetApps Repo

NFV-SOL005

Experimentation Tools

TMF OpenAPI

CDSO

UEs

5G SO
5G Network Service

NetApps Service
VNF1
VNF2
VNF3

TNOR (5G-VINNI) Infrastructure
TNOR Facility

NetApps Service
VNF1
VNF2
VNF3

5G Network Service

NetApps Service

CTTC Infrastructure
CTTC Facility

UEs
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 - User Management Module
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
NetApps Repo Portal will make full use of the SOL-005 specification for MANO communications.

- IMs & APIs
  - Add
  - Update
  - Query
  - Delete
  - Verify
• 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
Thank you!

Find more:
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