



5G HEART

5G-HEART.ORG

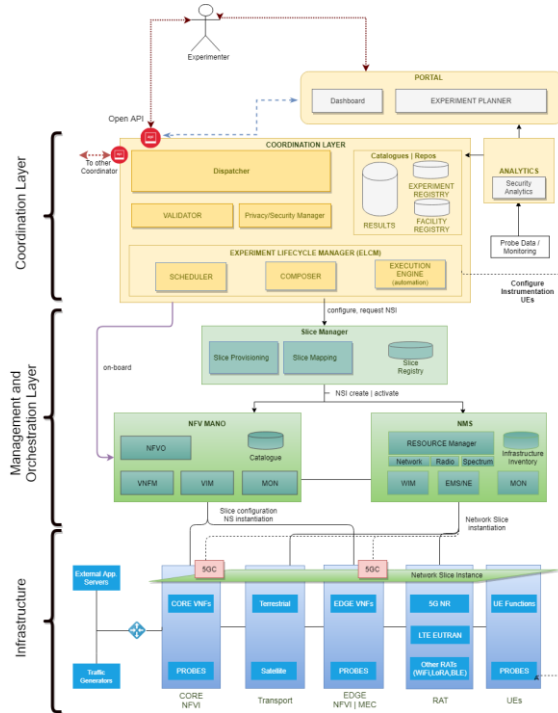
5G-HEART NETWORK ARCHITECTURE AND SLICING

5G-HEART Webinar, 19th Nov. 2021

George Xilouris (NCSR-D) representing 5GENESIS Project

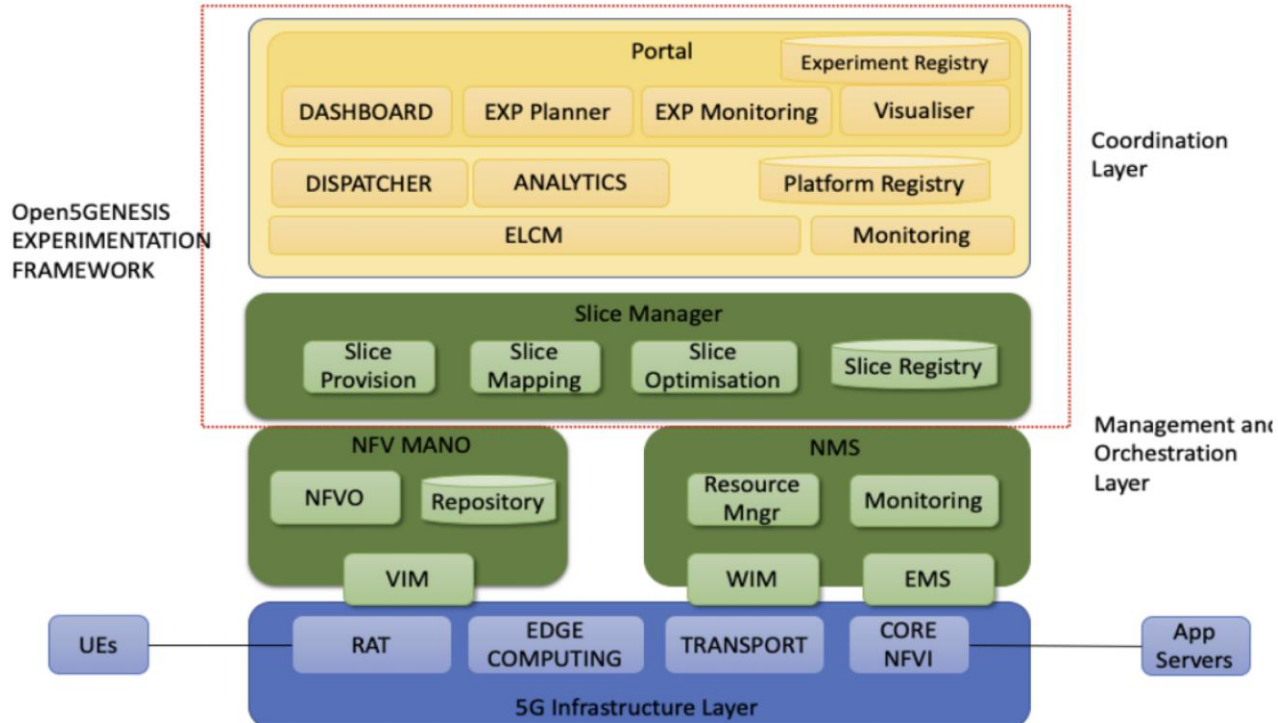
5G HEALTH AQUACULTURE AND TRANSPORT VALIDATION TRIALS

Testbed2: 5GENESIS Platform



- 5 Platforms comprise the 5GENESIS facility
- Each platform has its own infrastructure capabilities, upgrade plan and supported verticals
- All platforms support min 3GPP Rel. 15 and NR SA and NSA
- All platforms support network slicing either via 5GENESIS suite or other
- Surrey 5GENESIS facility supports
 - 5G NR NSA and SA, to be upgraded to Rel.16 SA (M21)
 - Commercial of the Shelf (COTS) 5G NR solution integrated in 5G network infra, support of NB-IoT, Wi-Fi (802.11ac), and LoRa
 - e2e slicing in NSA&SA: eMBB, uRLLC, & mMTC

Testbed2: Open5GENESIS Suite

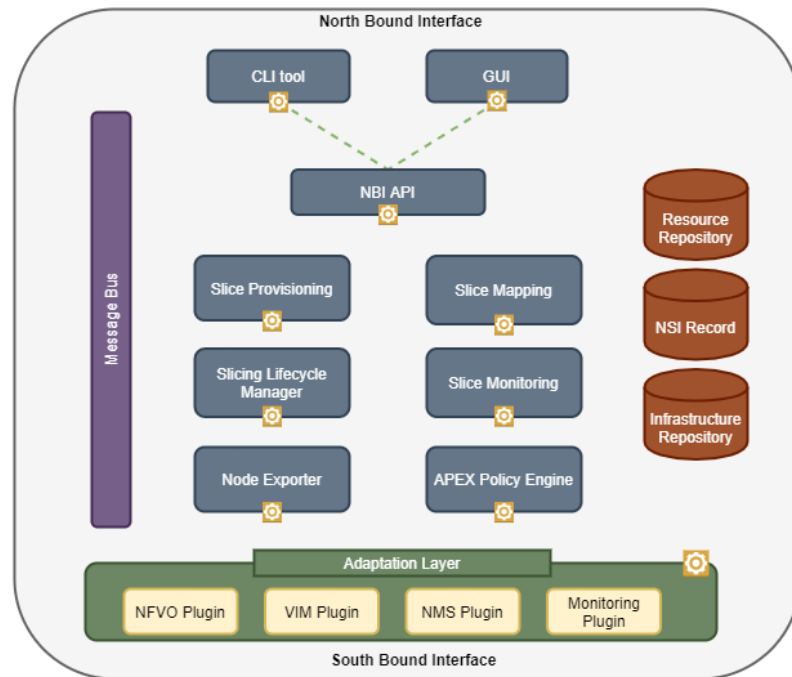


Testbed2: Open5GENESIS Suite Features

- **Network Slicing** supporting GSMA NG.116 Generic Slice Template
- **Crossplatform Experimentation**
- **Concurrent Slicing** (limited by UE and gNB capabilities)
- **Analytics Framework**, such as time series-, statistical-, and correlation-analysis, to easily inspect the behaviour and relations between KPIs to ensure a correct functionality of the experiment setup.
- **Automation:** KPI test cases in the form of executable scripts (OpenTAP) that automate network slice provision, component deployment, data collection agents and traffic probes as well as any additional configuration

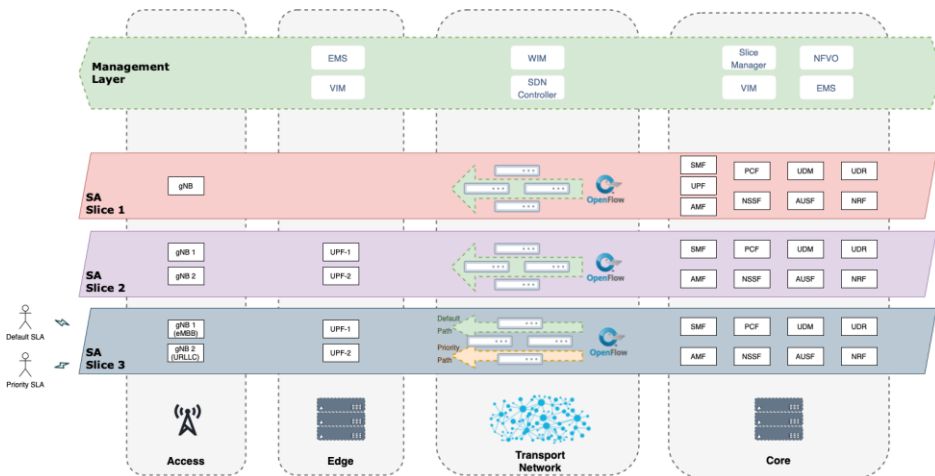
Testbed2: Katana Slice Manager

- Start, Stop, Inspect End-to-End Network Slices
- OpenAPIs supported by Swagger-io tool
- Modular architecture for supporting different infrastructure technologies
- Integrated CLI tool
- Prometheus and Grafana Monitoring modules
- Slice Deployment and Configuration measurements
- CI/CD procedures
- Deployment of eMBB, URLLC, mMTC depending on infrastructure capabilities



5GENESIS Network Slice Support

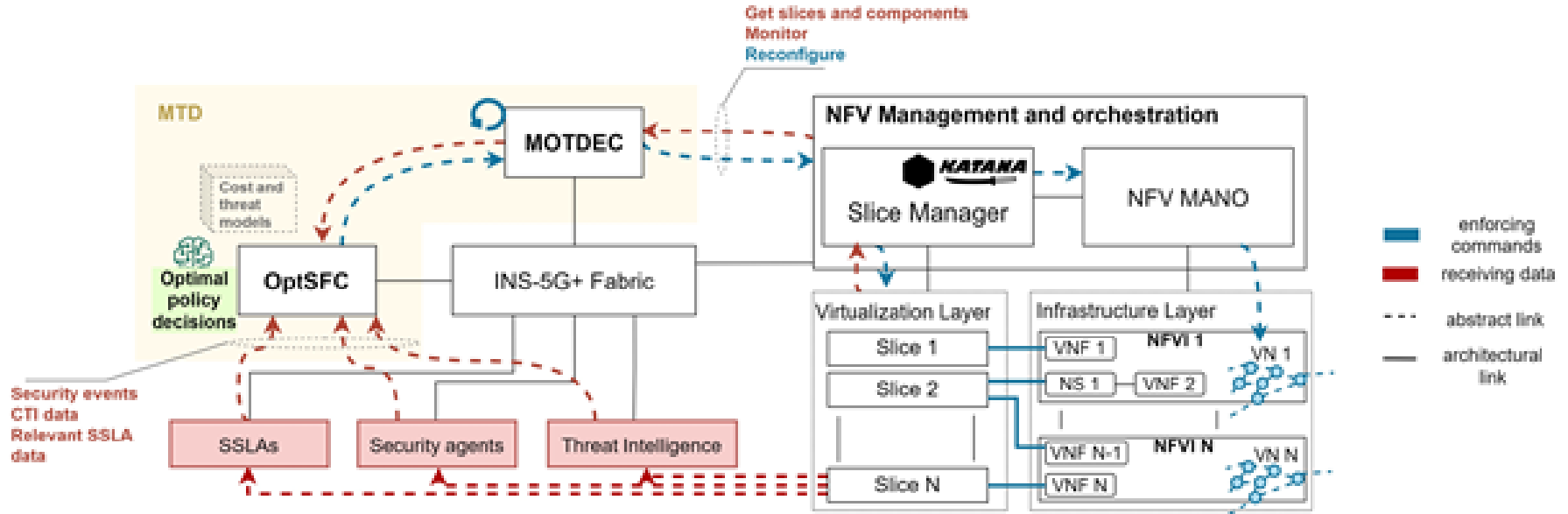
TESTED SCENARIOS (MAP TO EQUIPMENT)



- Deployment and configuration variations depend on the underlying infrastructure capabilities
- Examples refer to 5GENESIS Athens Platform
- Surrey, Limassol and Athens will showcase slicing leveraging Katana by the end of 5GENESIS.

- **SA Slice 1:** This option includes a 5GC deployment on Core Cloud and APN-DNN based slicing (eMBB SST) - Deployed with Amarisoft & Open5GS 5GC coupled with Amarisoft gNBs
- **SA Slice 2:** Open5GS-Based 5GC Network coupled with Rel.16 Radio. Setup is designed to utilize 5GCs SBA which allows for decoupling control and data plane and moving internet GW closer to the end-user
- **SA Slice 3:** This setup offers **SA eMBB and URLLC** slices. Deployment includes Open5GS 5GC with decoupled UPF - 2 Rel.16 gNBs (Amarisoft), Traffic Priority rules both on mobile and transport network to optimize performance.
- **(Optional SA+NSA) Slice 4:** NSA eMBB - SA URLLC (Amarisoft MME on Core, 5G on Edge with multiple Paths)

Exemplary Integration: Case of MOTD



Testbed2: Katana Slice Manager



You can grab KATANA Slice Manager at:

- Release B stable: https://github.com/medianetlab/katana-slice_manager/tree/master
- Development branch: https://github.com/medianetlab/katana-slice_manager/tree/develop

- Wikipage: https://github.com/medianetlab/katana-slice_manager/wiki
- Demo: <https://www.dropbox.com/t/t1zdwPa1k7F9JsuT>
- Information on GSMA NEST Template Version:
<https://www.gsma.com/newsroom/wp-content/uploads//NG.116-v4.0-2.pdf>

THANK YOU FOR YOUR ATTENTION



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