



# 5G HEART

5G-HEART.ORG

## 5G-HEART NETWORK ARCHITECTURE AND SLICING FOR VERTICAL TRIALS 5G-EVE TESTBED

@ 5G-HEART 4<sup>th</sup> Webinar, 19<sup>th</sup> Nov. 2021

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5G HEALTH AQUACULTURE AND TRANSPORT VALIDATION TRIALS

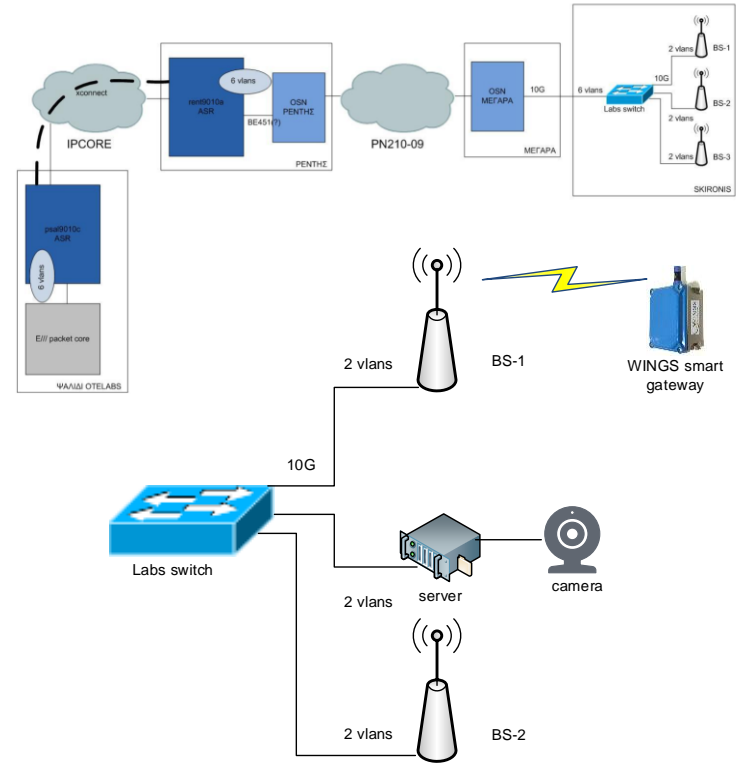
# 5G-EVE Greek Site

## 5G-EVE testbed

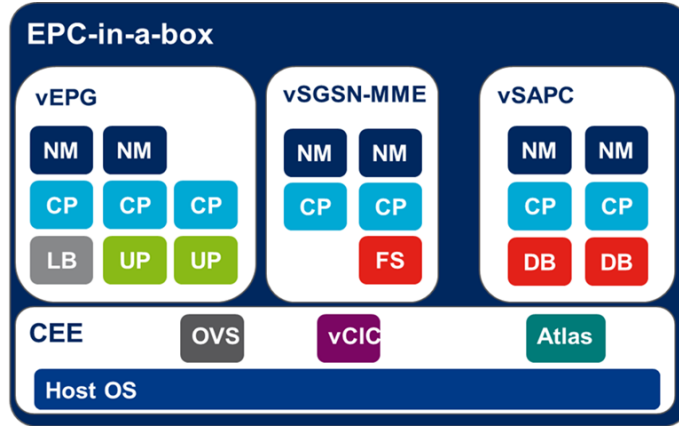
- Lab network infrastructure
- 5G core
- OSM
- probes for KPI measurements

## Extension to aquaculture site

- Extension of Greek Site infrastructure with antennas, cables, BBUs for supporting the Aquaculture UC
- 10GBps line interconnection with 5G-EVE platform
- UC interconnection with 5G core
- UE equipment



# Core and RAN

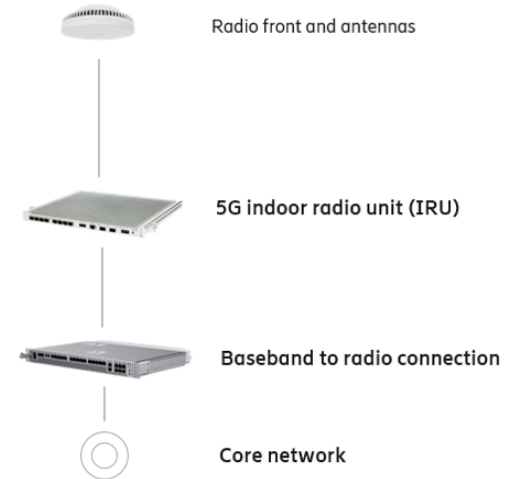


## Packet Core

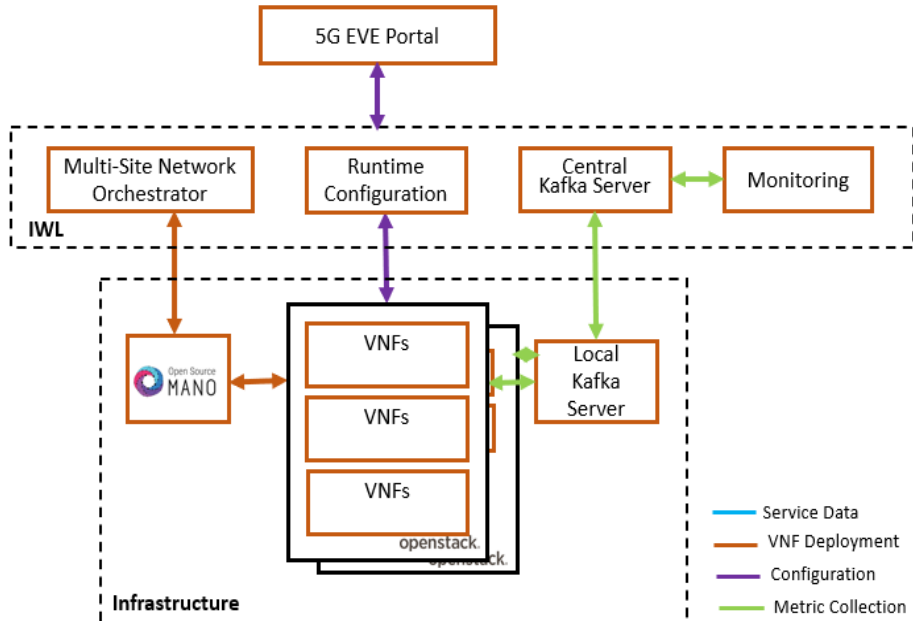
- NSA architecture
- EPC-in-a-box
- run on top of Ericsson OpenStack IaaS
- efficient when all VNFs are running
- built on Ericsson Cloud Execution Environment

## RAN

- Centralized Cloud RAN approach
  - baseband node
  - radio units
- Software to support LTE (up to 3GPP Rel-14) and 5G (3GPP Rel-15 and upwards)



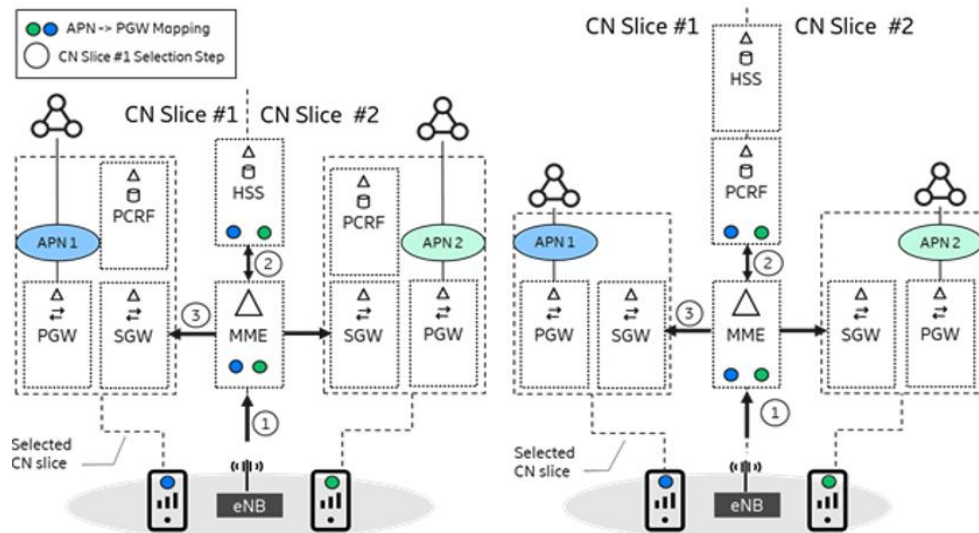
# Management and Orchestration



- ETSI-hosted OSM
  - mature framework
  - production readiness
  - ease of initiation
- OpenStack
  - key infrastructure platform for NFV
  - interface for managing, monitoring and assessing resources within the NFV infrastructure

OSM characteristic	Specification
<b>Virtualization environment</b>	Virtual Machines
<b>VNF life-cycle operations</b>	Modelling, On-boarding, NS creation, NS operation, NS configuration, NS finalization
<b>NS actions</b>	instantiate, start, stop, delete
<b>VNF descriptors</b>	YAML and Json
<b>VNF images</b>	QCOW
<b>OSM Messaging bus</b>	RabbitMQ
<b>OSM &amp; VIM Interfaces</b>	Dashboard (Web UI), CLI

# Slicing mechanism

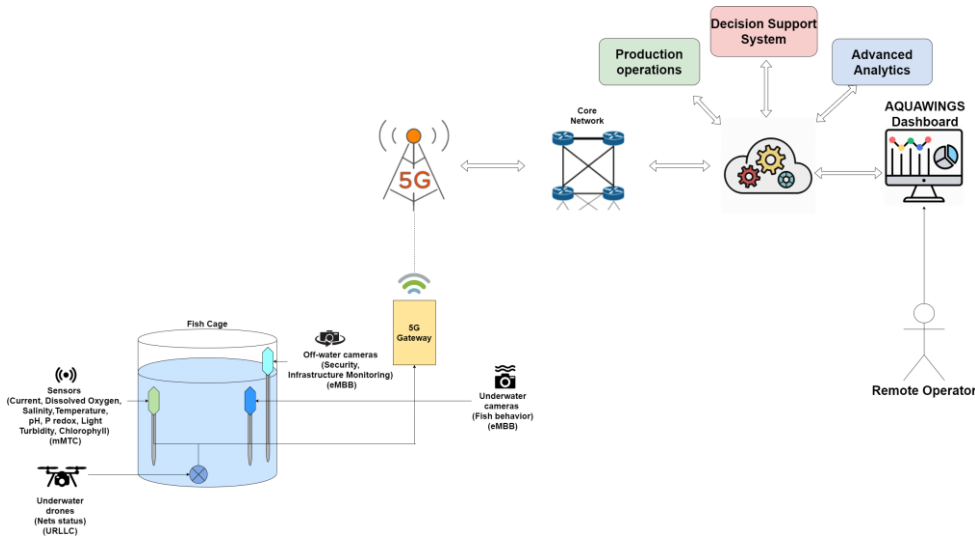


APN differentiation slicing mechanism

- different APNs on different PGWs
- handling of the traffic
- apply when the network slices belong to the same mobile operator APN

1. static APN/PGW selection based on APN configuration in HSS
2. dynamic APN/PGW selection based on mobility policies configured in PCRF

# 5G-HEART use cases



1. Devices/cameras/sensors,
2. data management functionality,
3. AI/ML analytics functionalities and image processing,
4. dashboard for visualization purposes

Vertical	Subcases/Scenarios	Description	Service Type
Healthcare	H1E	Aquaculture remote health monitoring	eMBB uRLLC mMTC
	A1S1	Sensory data monitoring	mMTC
Aquaculture	A1S2	Camera data monitoring	eMBB
	A1S3	Automation and actuation functionalities	eMBB uRLLC

# THANK YOU FOR YOUR ATTENTION



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