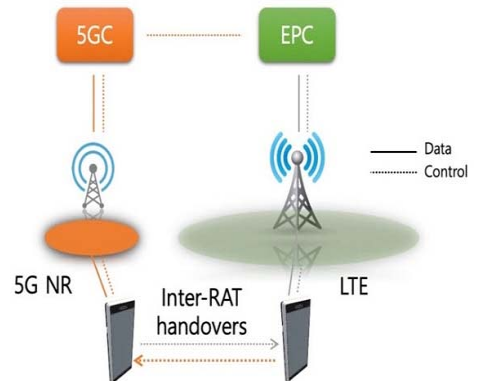


# iNet Mobility 4G and 5G Core

Skycore’s iNetMobility platform is the heart of the system that supports both 5G Standalone (SA) and 5G Non-Standalone (NSA) together with 4G EPC Core enabling MNOs, MVNOs and Enterprises to flexibly deploy in greenfield and brownfield sites.

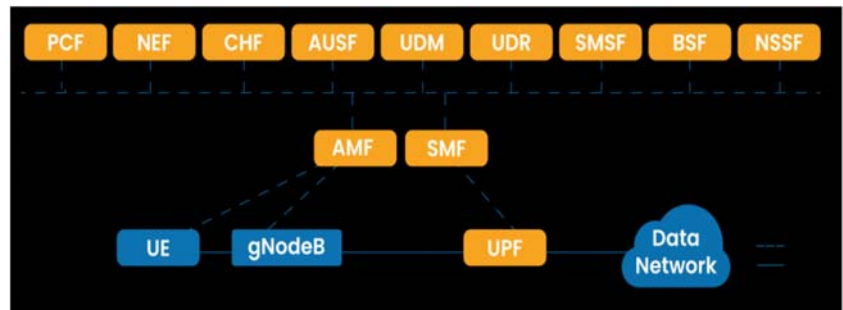
The platform is developed from ground up meaning all the latest features and capabilities are incorporated in the platform to support all the latest features and network requirements. The in-house developed product allows newer features to be added in timely manner with simplified network upgradation.

The Fully virtualized, containerized and optimized, platform is ideal for public deployments and building innovative and scalable Private 5G networks.



## Features of 5G Core NSA and SA Models

- Access & Mobility Function (AMF)
- Session Management Function (SMF)
- User Plane Function/ Packet Gateway (UPG)
- Network Relation Function (NRF)
- Authentication Server Function (AUSF)
- Unified Data Management (UDM)
- Policy Control Function (PCF)



The iNet Mobility 5GC control plane (CP) design is based on services exposed by network functions (NFs) using new service-based interfaces (SBIs). Once a 5GC function registers its services with the new 5G Core Network Functions Repository Function (NRF), it then simply exposes services that any authorized consumer can consume, rather than having to define a new point-to-point interface and the procedures between the two network functions as an EPC requires. This offers operators greater flexibility and more efficiency by decoupling the service consumer from the service producer.

3GPP release 16 Compliant for MNO, MVNO Transportation (autonomous driving V2X, Railways, Maritime), Factory Automation, Healthcare, Public Safety. Ultra-Reliable Low Latency Communications (URLLC), Network Slicing, Edge Computing, Cellular IoT (Internet of Things), Non-public Networks, Positioning Services and LAN-type services.

The iNet Mobility Service-based architecture brings following benefits to 5G operators:

- Easy update of Network:
- Extensibility
- Modularity, Re usability and Openness

### Multi-segment offering



5G Core is built for multiple use cases ranging from 5G device/ application/ network testing, building 5G labs, and enterprise networks.

### Subscriber Data Management



Our Subscriber Data Management (SDM) enables operators to secure their investments by providing a unified platform to store and manage subscriber data.

### Quality of Service



5G-Core ensures the quality of service (e.g., reliability and target delay) by mapping packets to appropriate QoS Flows.

### Multi-segment offering



5G Core is built for multiple use cases ranging from 5G device/ application/ network testing, building 5G labs, and enterprise networks.

# iNet Mobility 4G and 5G Core

## Policy Control



Policy control function enables operators to manage and configure high-value policy use cases effectively.

## Subscriber Data Management



Our Subscriber Data Management (SDM) enables operators to secure their investments by providing a unified platform to store and manage subscriber data.

## Mobility



Control plane can easily predict mobility and enable proactive decision-making, making operations more efficient, valuable, and agile.

## Roaming



An essential tool for operators, roaming feature ensures that the subscriber can have the best possible roaming experience.

## Key Management



The 5G Core components are deployed in containers as N+k redundant systems, fully orchestrated by Kubernetes.

## Virtual Network Functions



Supports the virtualization of network functions, increasing network scalability & agility and eliminating the need for expensive purpose-built hardware.

## Cloud-native Functions



Cloud-native functions improve the scalability and efficient creation and consumption of network resources.

## Cloud-native Functions



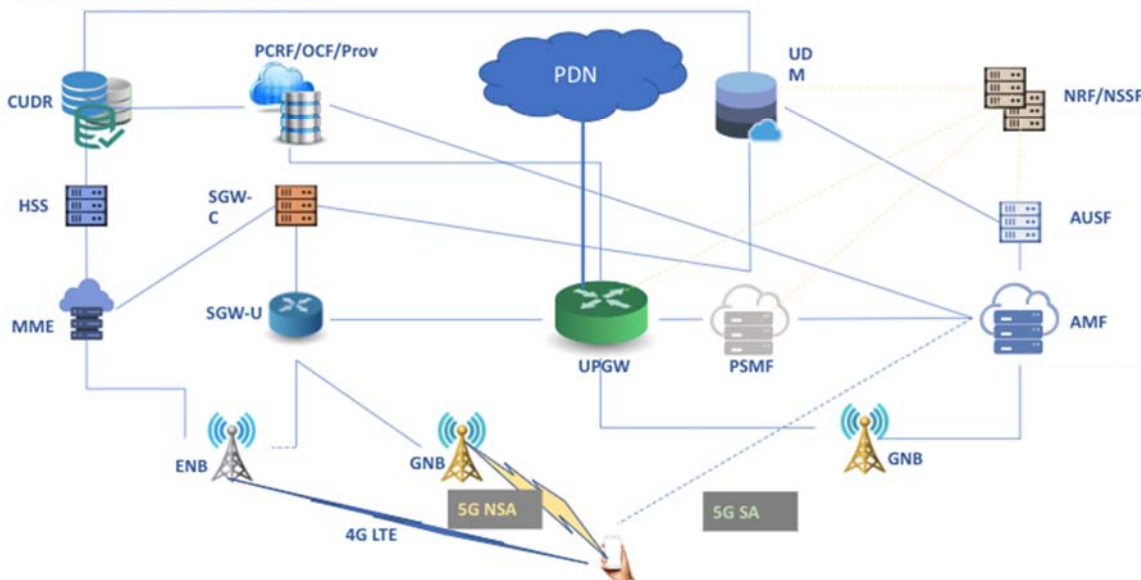
Cloud-native functions improve the scalability and efficient creation and consumption of network resources.

## KPI Monitoring



Measure how effectively the 5G Core network serves the user with KPI monitoring feature

# Network Architecture



## iNet Mobility 4G and 5G Core

<b>AMF</b>	Registration, connection, reachability and mobility Management, RAN CP Termination, NAS Termination ciphering & integrity protection, UE Authentication and Authorization, 5G GUTI allocation and distribution
<b>SMF</b>	UE Session and Tunnel Management, IP Address Allocation and MS Routing Management and, UP Function Management, Control Policy enforcement and QoS, DDN
<b>UPF</b>	PDU and PDN interconnection, Fast-Path Packet routing and Forwarding, UE Data report, Traffic-flow to DN Routing, QoS Enforcement and SDF mapping, DL Packet buffer
<b>UDM</b>	3GPP AKA Authentication credential and SSUCI Generation, User Identification handling, User Access Authorization, SMS Delivery Support, subscription Management
<b>UDR</b>	UDM Subscription data Storage, PCF Policy Data Storage,
<b>AUSF</b>	EAP Authentication Server Function, Retrieve UE subscription info from UDM, Send Security info to SMF, Perform UE Authentication
<b>PCF</b>	Post-paid Pre-paid Policy management, Distribute policy bw CP functions, Storage Subscription and policy data in UDR
<b>NSSF</b>	Network Slice and UE instance serving Management, Network Slide selection assistance information management, UE AMF Allocation
<b>NRF</b>	Service Discovery Function, Available NF Information Management, Support PLM, Shared and Specific Slice deployment
<b>CHF</b>	Inter and Intra-AMF N2 handover,4G to 5G and 5G to 4G N26 Handover, SMF UE session creation and modification ,Session level and rating-group level charging trigger, Charging update notification

### Core Functionality and Features:

<b>Functionality</b>	<b>AMF</b>	<b>SMF</b>	<b>UPG</b>
Core Functions	Support authentication function User equipment identification function 5G-GUTI distribution function NAS (N1 interface) signalling and its security AS security context issuance function Registration area management Connection management function Registration and deregistration Service request, storage , Modify, delete user mobility context and bearer context	Supports PDU session establishment PDU session modification PDU session release Activation or deactivation of UP connections Service continuity (SSC) Network element selection UPF, UDM selection PCF selection QoS Flow binding Policy control request event reporting function 5GS and EPC policy integration control function Reflection QoS function Basic location management function	Support PDU session management function Manage PDU session information Support multiple SMF control UPF Session level (APN-AMBR, TDF session UL and DL bit rate, or UL and PDN connection DL rate) bearer level (GBR, MBR carried by GBR) QoS Flow level (for 5GC), service data flow (SDF) or application, support upstream and downstream traffic classifiers and merge functions
Interface Support	N1, N2, N8, N12, N11, N15	N1, N2, N4, N7, N10	N3, N4, N9, N6, S5,S6
Service Oriented Interface	NAS, NGAP	NAS PFCP/GTP-U, Nudm	GTP-U, PFCP
Security			

## iNet Mobility 4G and 5G Core

Web Based GUI Management System for config and Reports:

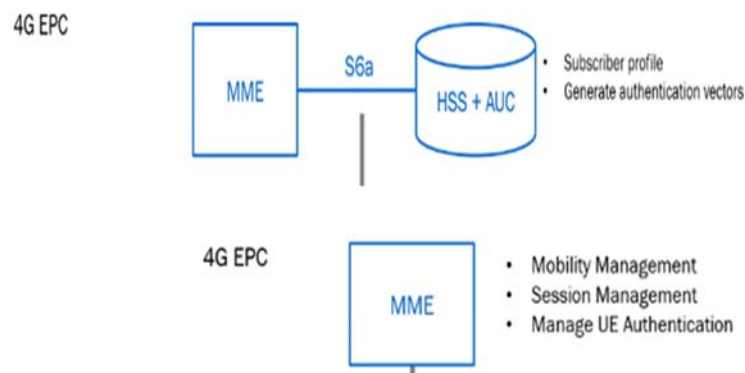
Highly secure and Very cost effective solution with light on budget, ability to scale from few thousand to million subscribers.

iNET mobility fully supports cloud based solution and can work on AWS/AZURE/Google cloud, we also support with complete redundancy on COTS servers using Intel based processor or on private cloud also.

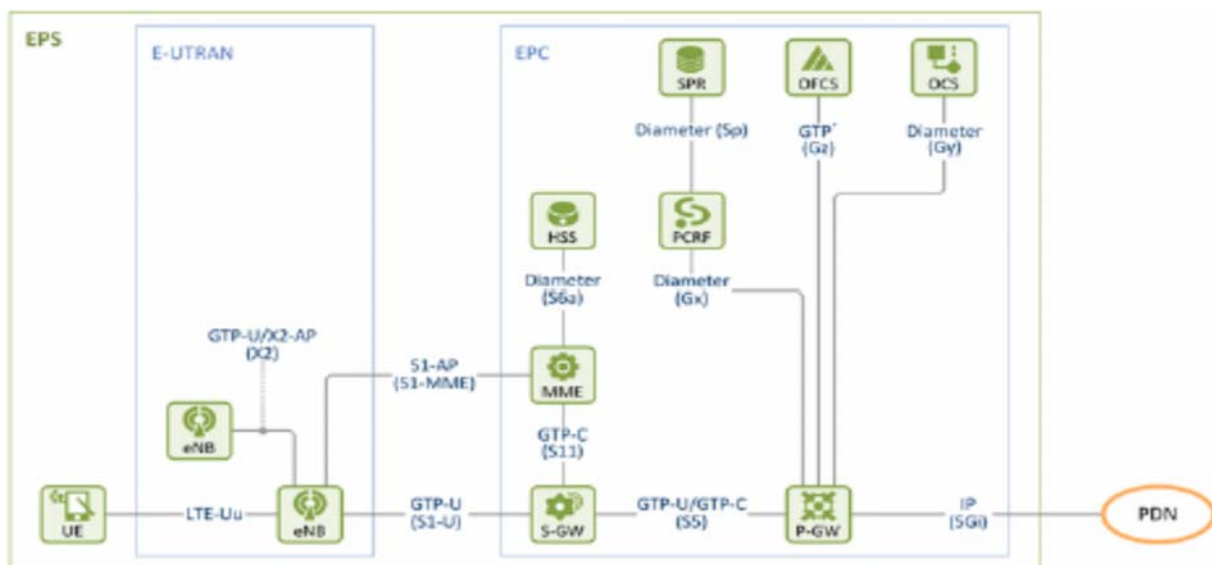
## 4G EPC Solution

Spectrum Home Subscriber Server (HSS) fulfils the central role of user data management in Evolved Packet Core (EPC) and IP Multimedia Core Network Subsystems (IMS). HSS holds vital user information (such as identification, location, and profile and security information) and manages subscription-related information in real time for multi-access and multi-domain offerings in an all-IP environment. As specified by 3GPP specifications, HSS supports the network control layer with subscription and session handling, providing capabilities for:

- mobile management
- user security
- user identification handling
- access authorization
- service authorization
- service profiles



HSS is built as part of our EPC Signalling solution, decoupling the data storage from the application logic. HSS is Subscriber Data Management solution for every service and every access, moving the focus away from access-oriented subscriber management towards a consolidated handling of user data to enable a wider access and usage of the data.



# iNet Mobility 4G and 5G Core

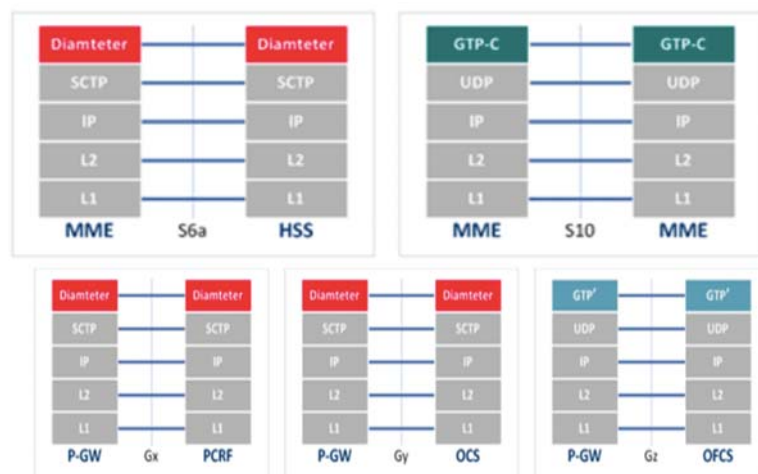
## Mobility Management Entity(MME)

Mobility Management Entity(MME) is a key component of the standards-defined Evolved Pack Core (EPC) for LTE. It provides mobility session management for the LTE network and supports subscriber authentication, roaming and handovers to other networks.

Spectrum MME is a fully standards-compliant core network product and has been integrated with the hardware and software of all telecom suppliers. It is the control plane node of EPC and deals with the signalling plane and completes the authentication with HSS.

## Mobility Management Control Panel Stacks Functions

- State model
- Attach
- Detach
- Handover
- TAU
- Purge UE
- Access Restriction function
- Multi-PDN connection
- ODB function



iNet Mobility core 4G network components

- Mobility management Entity (MME)
- Home Subscriber Service (HSS)
- Serving Gateway CP (SGW-C)
- Serving Gateway UP (SGW-U)
- Policy Based & Charging Function (PCRF)
- Central User Data Repository (CUDR)