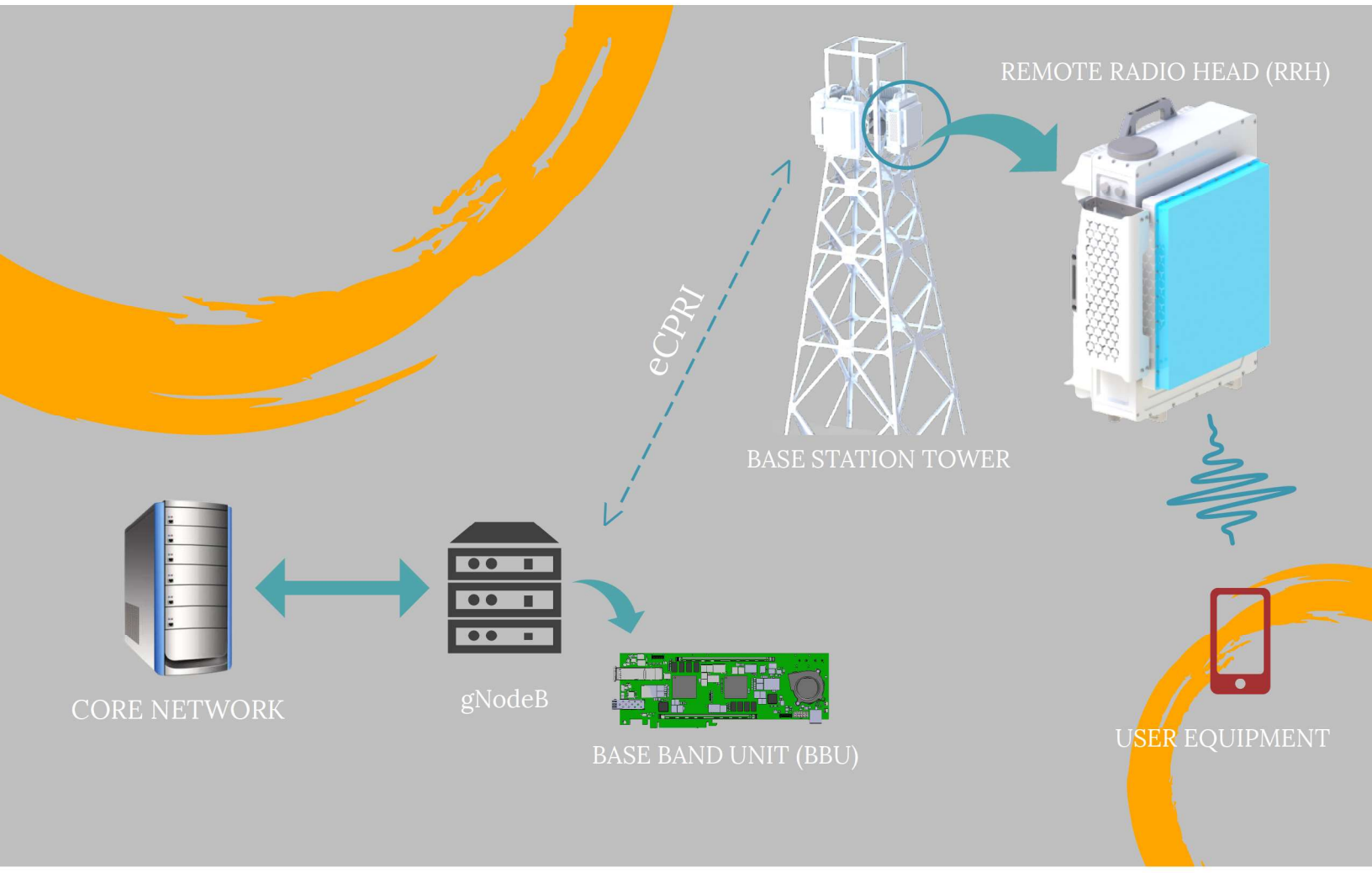

5G
TESTBED
Indigenous 5Gi/5G
Network Solution
Funded by DOT

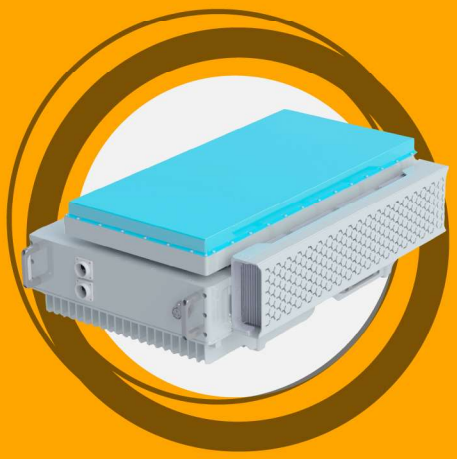
NETWORK DIAGRAM



Swift ranger 16 Antenna RRH

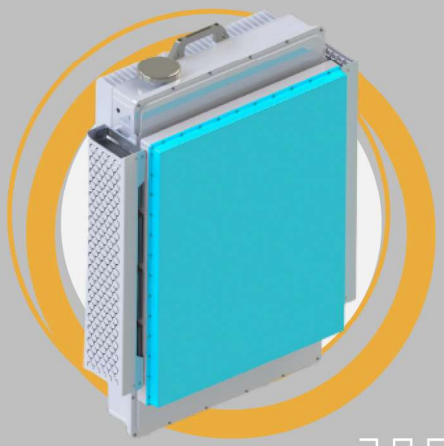
No of Antenna : 16
Tx power: 56dBm
Dimension: 513x366x190mm
Weight: 18Kg

Swift ranger 32 Antenna RRH



No of Antenna : 32
Tx power: 62dBm
Dimension: 740x468x253mm
Weight: 31Kg

Swift ranger 64 Antenna RRH



No of Antenna : 64
Tx power: 68dBm
Dimension: 840x648x260mm
Weight: 52Kg

Band width: 100MHz
Frequency: 3.3GHz-3.8GHz
Software: 5Gi/5G compliant

Swift ranger BBU

Salient features

>BBU for 5Gi/5G baseband processing

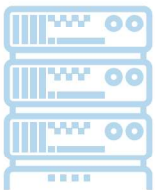
> Support 256 QAM

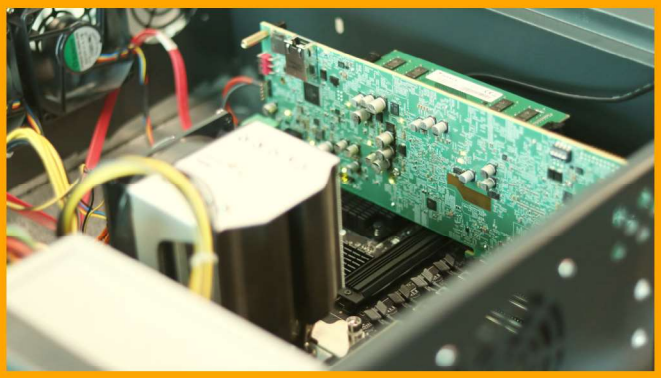
> 25 users/TTI (0.5 ms)

>MIMO support

>Pcie form factor for cloud deployment

>ORAN/FAPI compatible





Secure Indigenous 5G Core

Fully virtualized cloud enabled core subsystem for 5G networks

Developed grounds-up using the latest technologies and software framework

> Control plane using Service Based Architecture

> Modular, Software-based Virtual Network Functions (VNFs) on commodity hardware, in accordance with the Network Function Virtualization (NFV)

> User plane - Control plane segregation as in Software Defined Networks

> High performance data plane over DPDK (Data Plane Development Kit) and programmable hardware

> Network Slicing of 5G core

3GPP Releases 15 and 16

Interfaces:

N1 towards UE/Device NAS

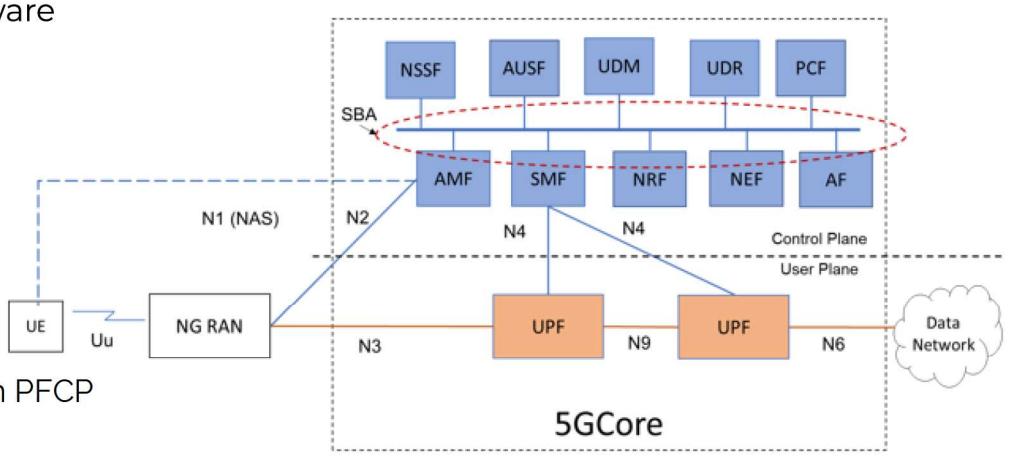
N2 towards RAN for Control Plane

N3 towards RAN for User Plane

N4 between SMF and UPF based on PFCP

N6 from UPF to the Data Network

N9 between two UPFs



Virtual network functions

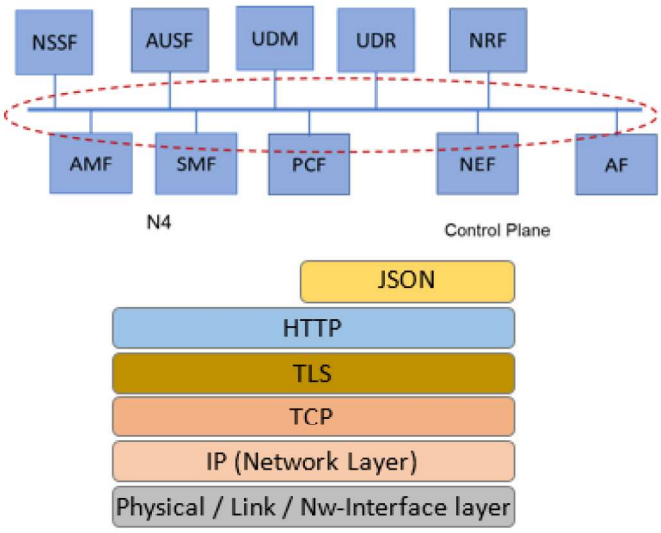
COVERING ALL MAJOR FUNCTIONS OF THE 5G CORE

AMF - Access and Mobility Function
SMF - Session Management Function
UPF - User Plane Function
AUSF - Authentication Server Function
UDM - Unified Data Management
NRF - Network Repository Function
NEF - Network Exposure Function
PCF - Policy Control Function
UDR - Unified Data Repository

Salient features

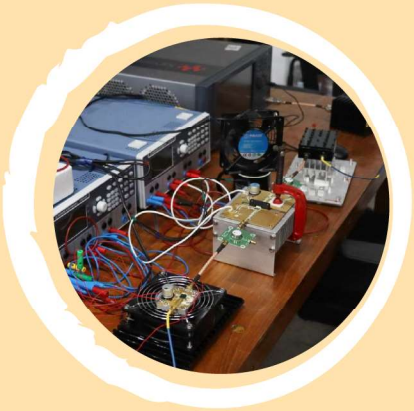
> Registration management
> PDU session management
> 5G QoS
> Service request/paging
> Mobility management
> Network slicing
> Network exposure
> Facility for MEC (Multi access Edge Computing)
> Non3GPP access over untrusted WiFi

Service based architecture



Performance specs

Number of Users : 64000 users
PDU Sessions : 10000 sessions
Data throughput: 10's of Gbps



RF Testing

Board Testing

5G core

RRH Field Testing

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