



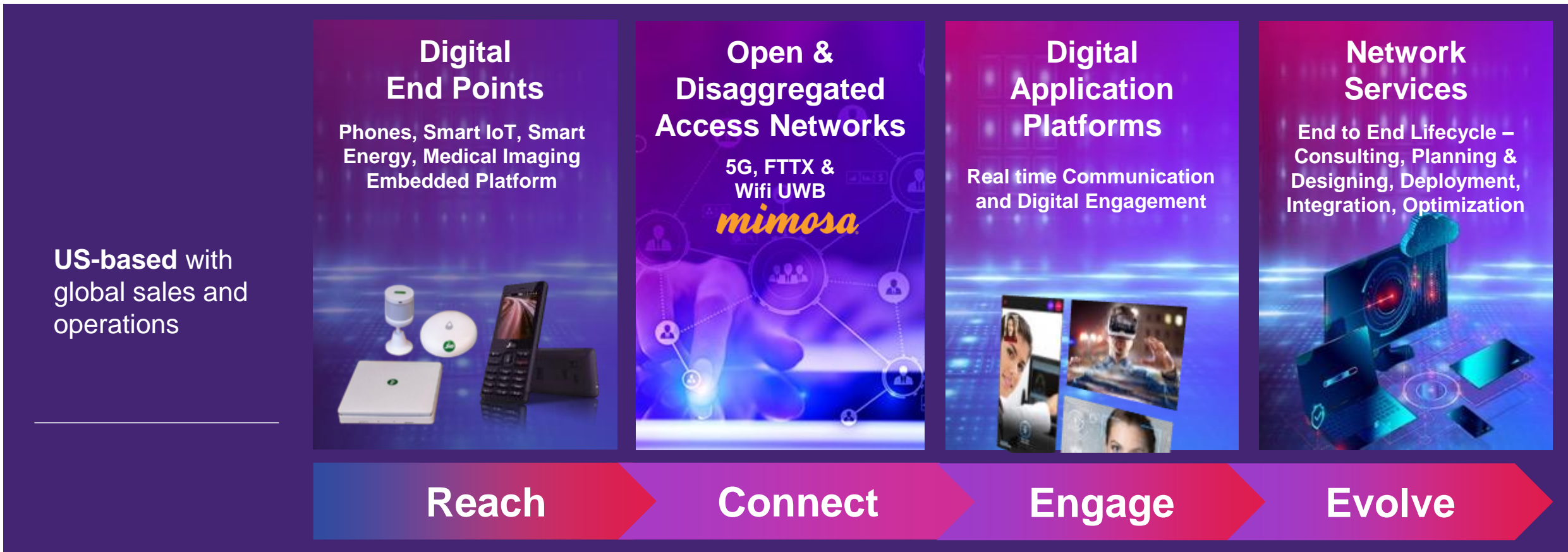
Intel Network Builders Webinar  
Building the Multi-Access Broadband  
Edge with Radisys & Intel

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Radisys: Prakash Siva  
Intel/FPGA: Kevin Cackovic

- Intro to Radisys
- Multi-Access Broadband
  - Why Multi-access Now?
    - Key Challenges & Solutions to Increase Coverage, Broadband Participation Rate, Revenues
  - Network topologies for indoor & outdoor deployments
- Building Multi-Access Products
  - Dimensions & Options
  - Intel Architecture CPU & FPGA based 5G Products: O-DU/CU (PNF and CNF), O-RU
  - FPGA based PON & 5G RAN (Kevin C)
- Use Cases & Applications
  - Telco Macro Mobility & FWA Networks
  - Neutral Host & CBRS
  - 5G Private Networks
  - Industrial Networks & Edge Applications

## Enabling Service Providers to Become Digital Experience Providers



US-based with global sales and operations

**Headquarters:** Hillsboro, OR United States

**Founded:** 1987

**Wholly owned subsidiary of** Jio Platforms Limited (JPL)

## Diverse Portfolio of PTP and PTMP Products based on WiFi 5 and New WiFi 6E Technology



**Disruptive price/performance**  
Mimosa proprietary software on cost-effective WiFi silicon



Fiber-like speed PTP and PTMP products this year based **on 8x8 160 MHz 11ax** technology



Achieving speeds up to **3.4 Gbps** in a PTP link with 11ax technology



**Low-cost unlicensed spectrum** in 5/6 GHz extremely efficient in rural areas



Large scale adoption by **Tier-1 Service Providers and Carriers**

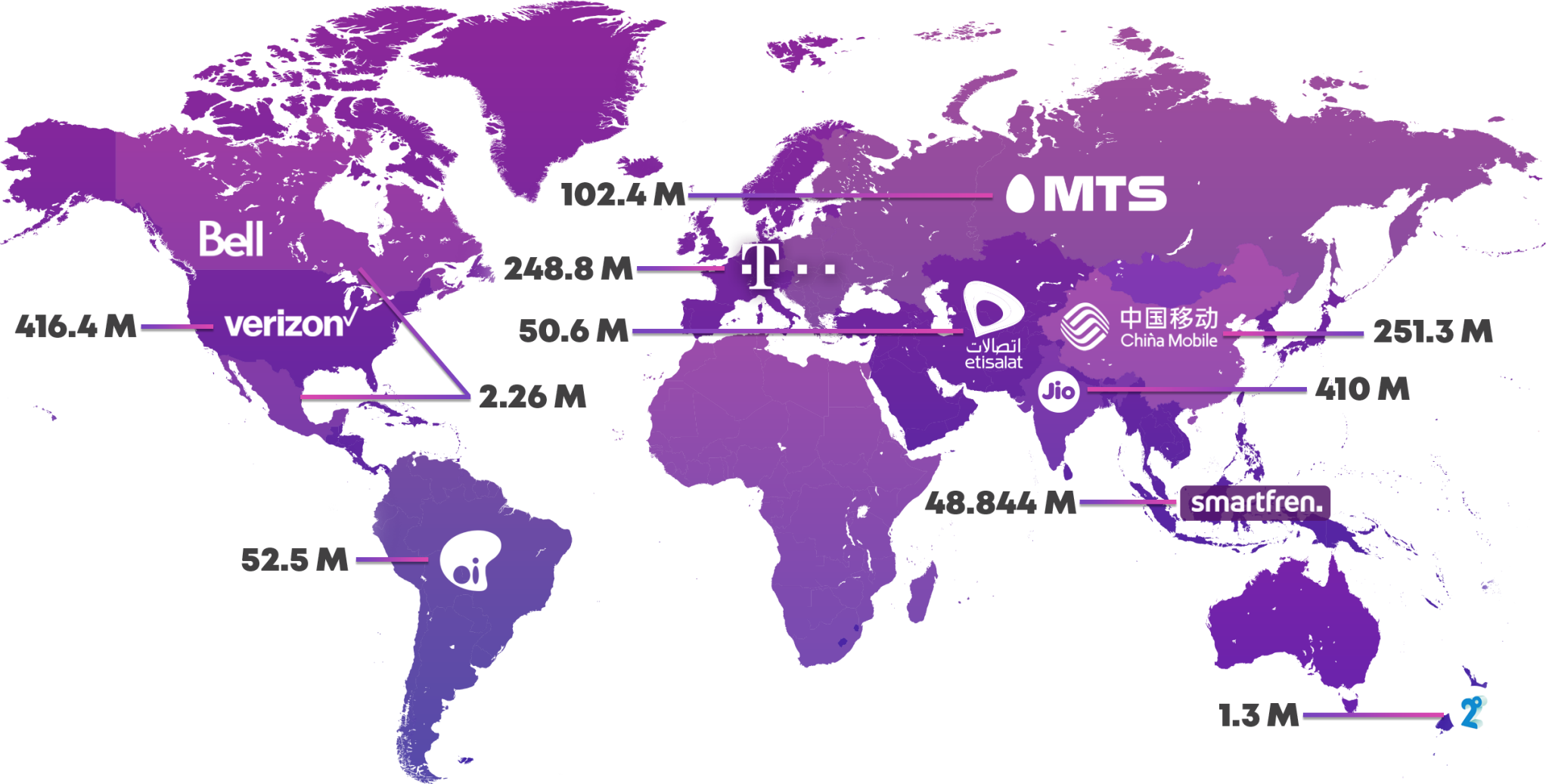


Deployment flexibility and interference immunity through **Mimosa Engineered Antennas**



**Multi-Gigabit Backhaul for 5G and Fixed Wireless Access as low as 1/3 the cost of competing technologies**

# Radisys: Touching over 2B Subscribers @ ~150 Operators



# Open: Our Vision for the Networks of Tomorrow

*Creating new digital experiences*

## Disaggregated

Software / Hardware  
Network Functions  
Control / Media



## Intelligent

Software Defined  
Programmable  
AI / ML

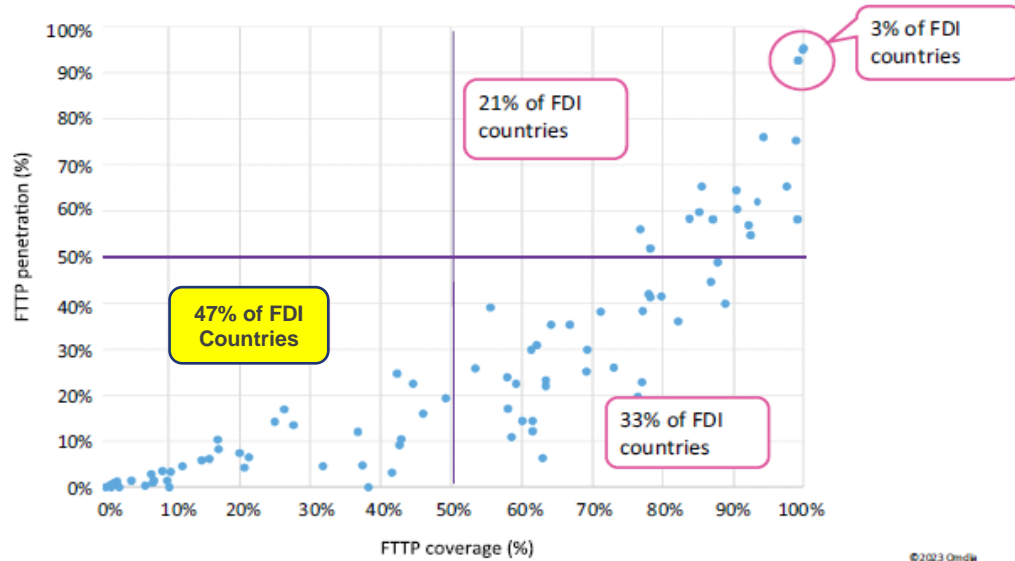
## Open

Software, Hardware, Interfaces

# Challenge #1: Global FTTP Coverage <50%, needs to increase Quickly

Only 24% of countries in the FDI have FTTH coverage and penetration above 50%

FTTH coverage vs. penetration, January 2023



Source: Omdia

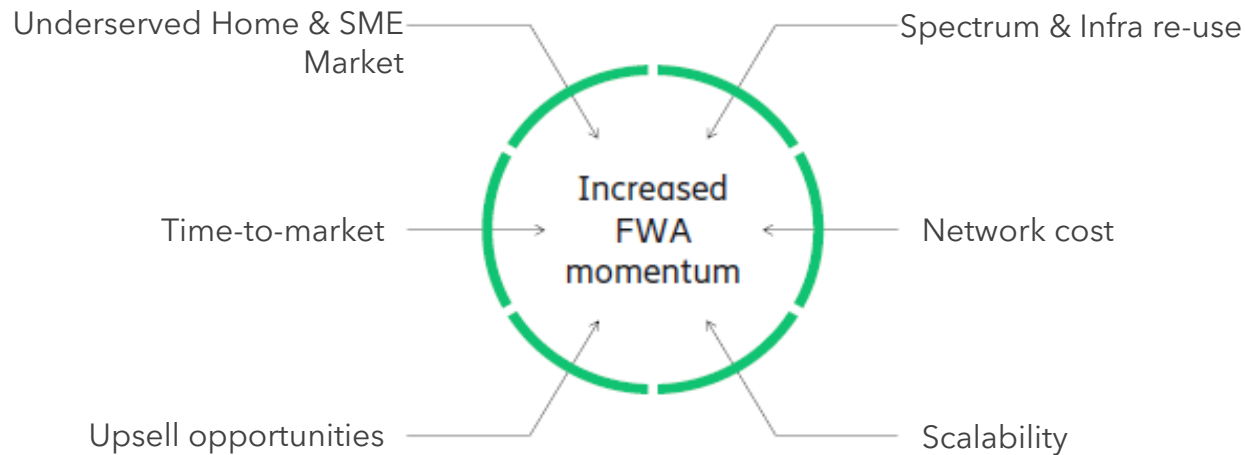
© 2023 Omdia

- How to Increase Broadband Coverage Rate quickly for 47% of countries where FTTP coverage is under 50% ?
  - Complement Fiber based Access with 5G, Wifi Unlicensed Bands
  - Speed of Deployment needs to increase
  - Cost of Deployment (Capex & Opex) has to be reduced
- Solution: Multi-Access Broadband!!
  - Flexible deployment of 3 Forms of Access:
    - FTTH,
    - Licensed 5G FWA &
    - Wifi based FWA
  - Specific deployment form selected based on on cost, location, customer need and network architecture
  - Allows CSPs to offer services in more than a single access domain, outside their traditional geographic area → increase revenue and revenue velocity
- Radisys can help CSPs seamlessly offer all 3 forms of Multi-Access Broadband to their customers

# Global Potential & Growth of FWA based Broadband

- FWA market is expected to reach 230M FWA connections by 2027, with major growth expected from emerging markets <sup>1</sup>
- 75% of service providers globally are offering FWA services, operators offering 5G FWA services has grown by 25% in 6 months
- 45% to 60% households in urban and rural are potential addressable markets for FWA

## Key Drivers



<sup>1</sup> = Ericsson Mobility/FWA Report

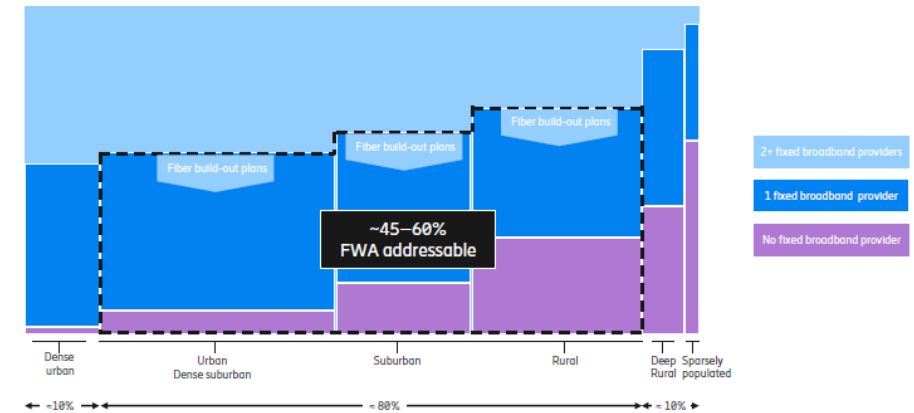


Figure 9: Global FWA service provider adoption: 2020–2023

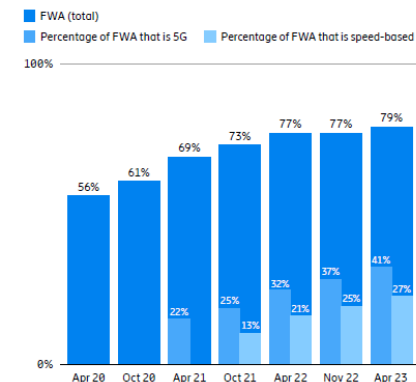
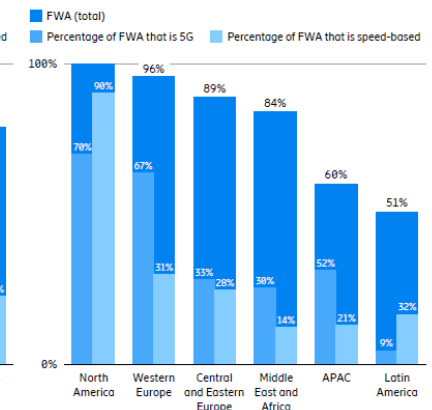


Figure 10: Regional FWA service provider adoption 2023



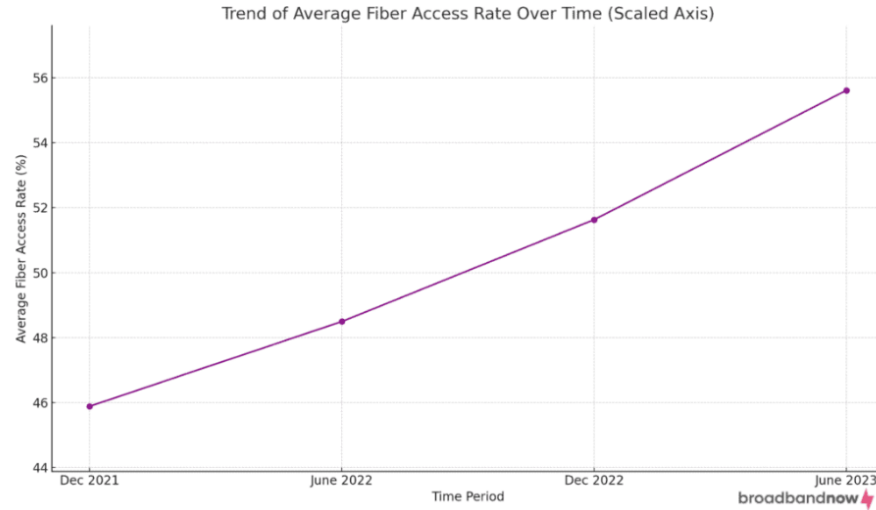
<sup>1</sup> 318 service providers, representing around 98 percent of global mobile revenues.



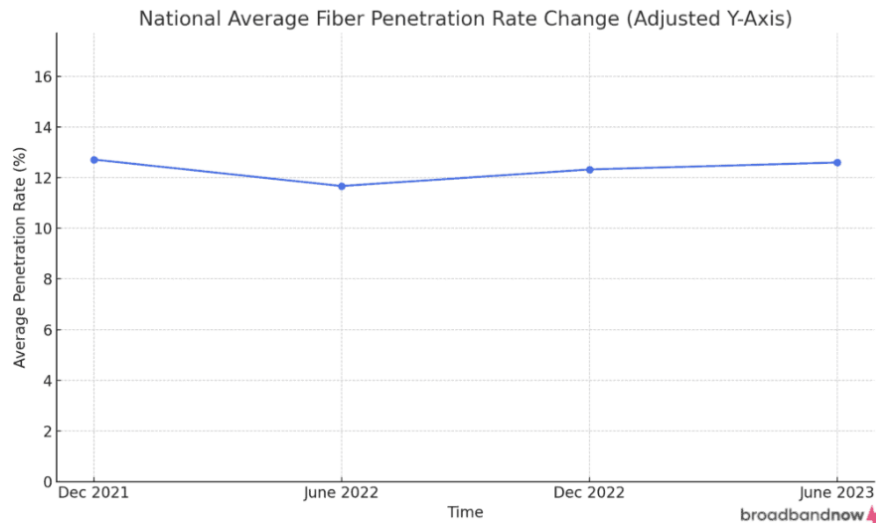
# Challenge #2 (US Example): Divergence of Fiber Access vs. Take-up Rate

## Growth in Fiber Access Population

From December 2021 to June 2023, there has been a consistent rise in the average population with access to a fiber internet connection.



## Growth in Average Fiber Penetration Rates



- How to close the gap between growth in Fiber Access vs. Take-up/Penetration Rates?
  - How to increase the subscriber take-up rate, while controlling costs?
- Solution (A + B):
  - A. Offer Compelling new Services to Subscribers, beyond connectivity
    - New customers and revenue streams for CSP
    - CSP transforms into “Digital Service Provider”
  - B. Reduce Subscriber’s cost of Service
    - Reduce per-customer Opex costs
    - Unified Multi-Access management via “Single Pane of Glass”
    - Efficiency via Automation

## FTTH/B subscribers and Homes passed as of September 2022

As of September 2022 in EU39 (1):

- 108 million FTTH/B subscribers
- 219 million FTTH/B Homes Passed

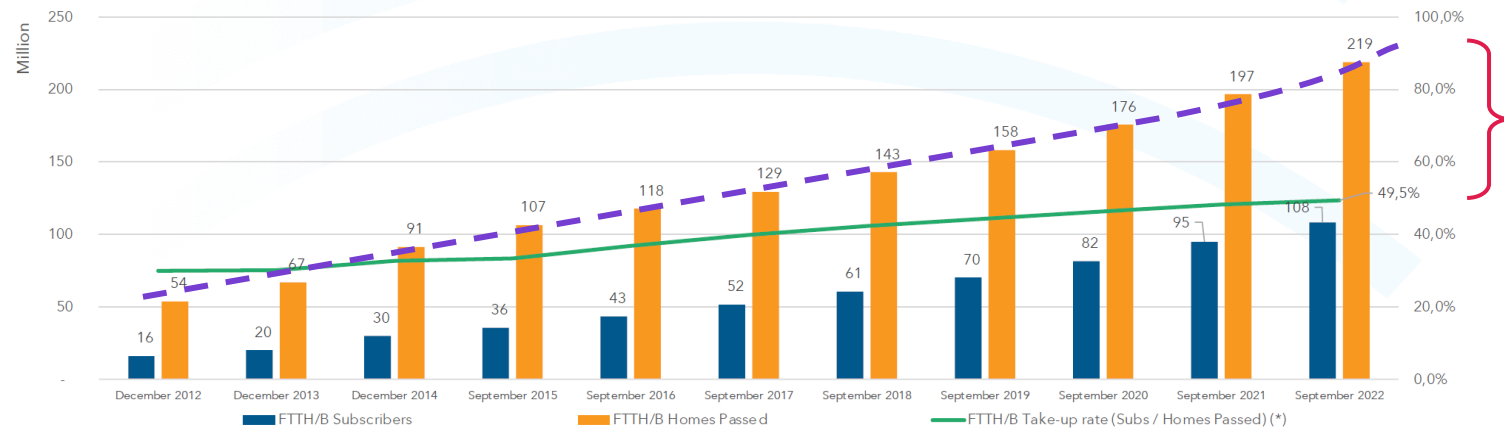
Trends from 2021 to 2022

**Coverage rate**

EU27+UK: **55.3% (+ 6.8% YoY)**  
 EUR39 : **62.3% (+ 5.3% YoY)**

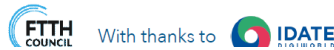
**Take-up rate**

EU27+UK: **52.8% (+ 0.4% YoY)**  
 EUR39 : **49.5% (+ 1.0% YoY)**



YoY Coverage increasing ~6% while Take-up increasing only ~1%!!

(1) EU39 = EU27+UK + 4 CIS countries + Andorra, Iceland, Israel, North Macedonia, Norway, Serbia, Switzerland, Turkey



Source: IDATE for FTTH Council EUROPE

Full fibre for a digital and sustainable Europe

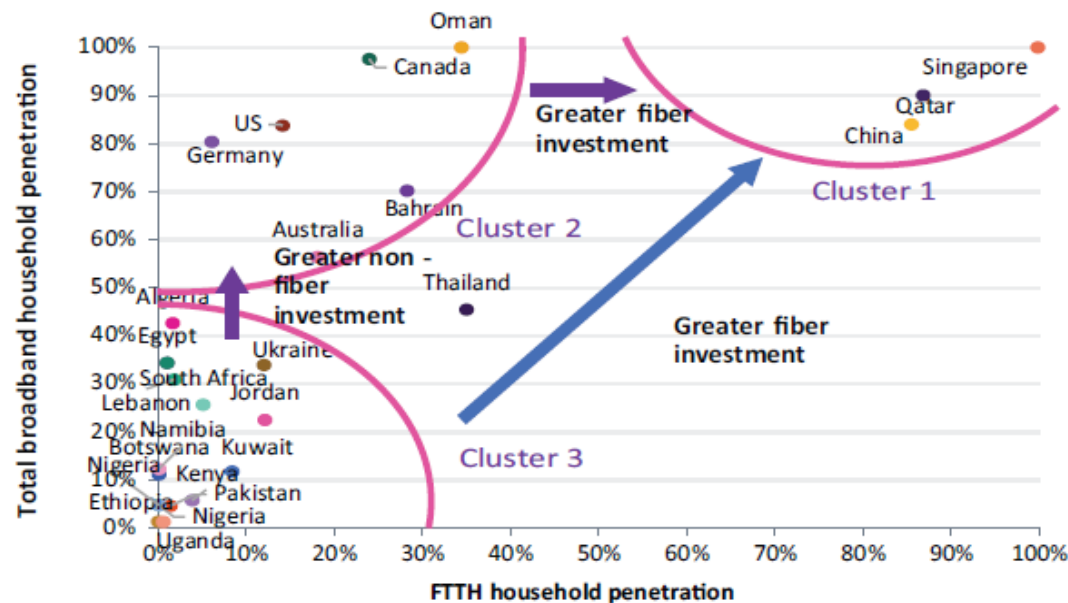


# Challenge #3: Increase Fiber/FTTP based Broadband Adoption

Cluster 1:	Cluster 2:	Cluster 3:
Countries with highly developed fiber-based broadband networks	Developed broadband countries that are moving toward greater fiber broadband adoption	Emerging broadband countries that have a low level of broadband household penetration

Fiber Development clusters enable more focused recommendations

FTTH penetration vs. total broadband penetration, select countries, 2023

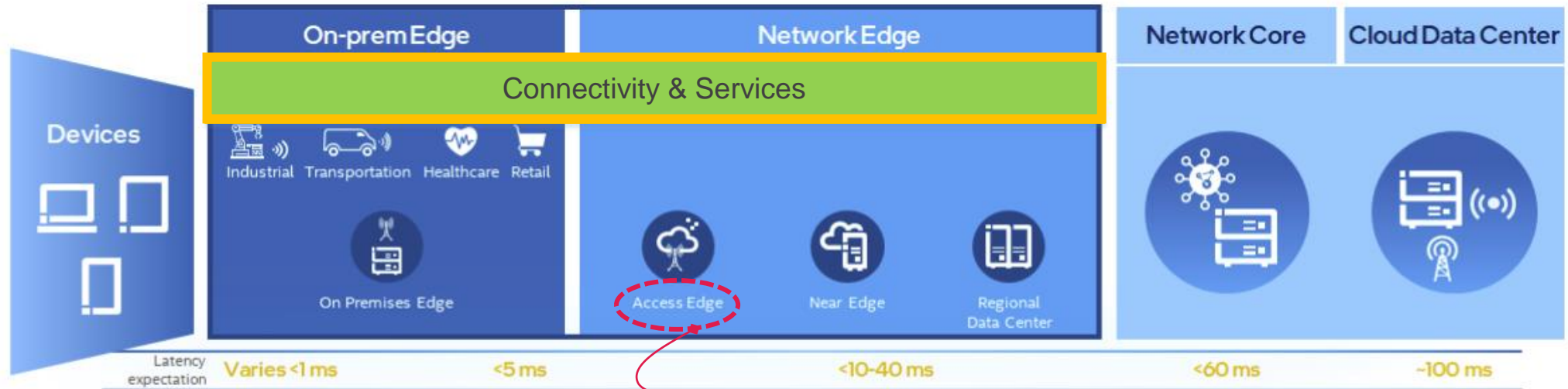


Source: Omdia

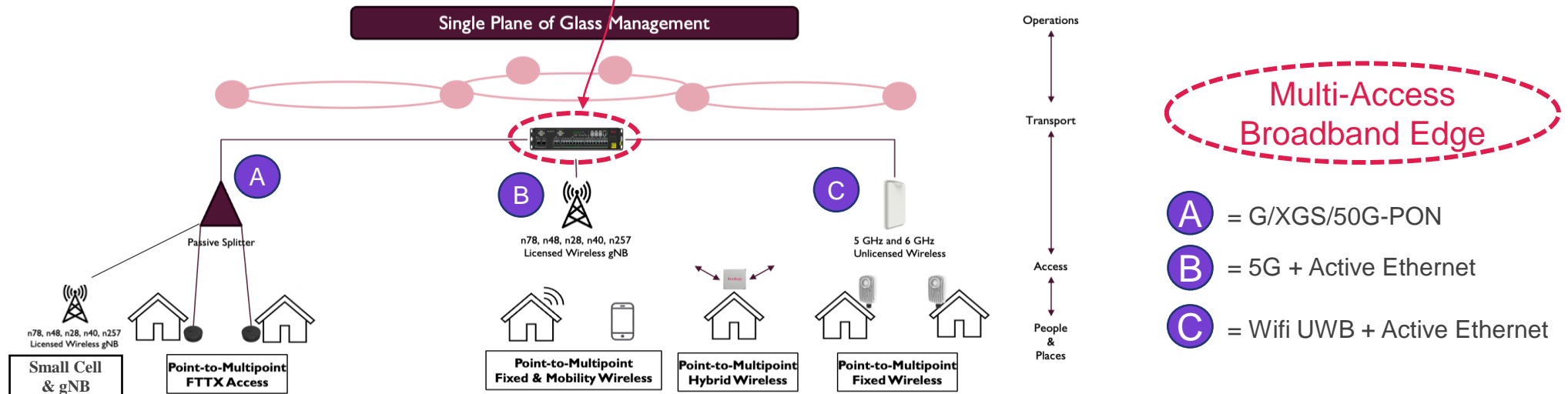
© 2023 Omdia

- How to drive greater Fiber/FTTP based broadband adoption?
  - Speed of Deployment needs to increase
  - Cost of Deployment (Capex & Opex) has to be reduced
- Solution: Greater Fiber Investment
  - Flexible Deployment of
    - Disaggregated or
    - Centralized FTTH Architectures
  - Private & Public Cloud Support
  - Use of White-box HW to drive down costs

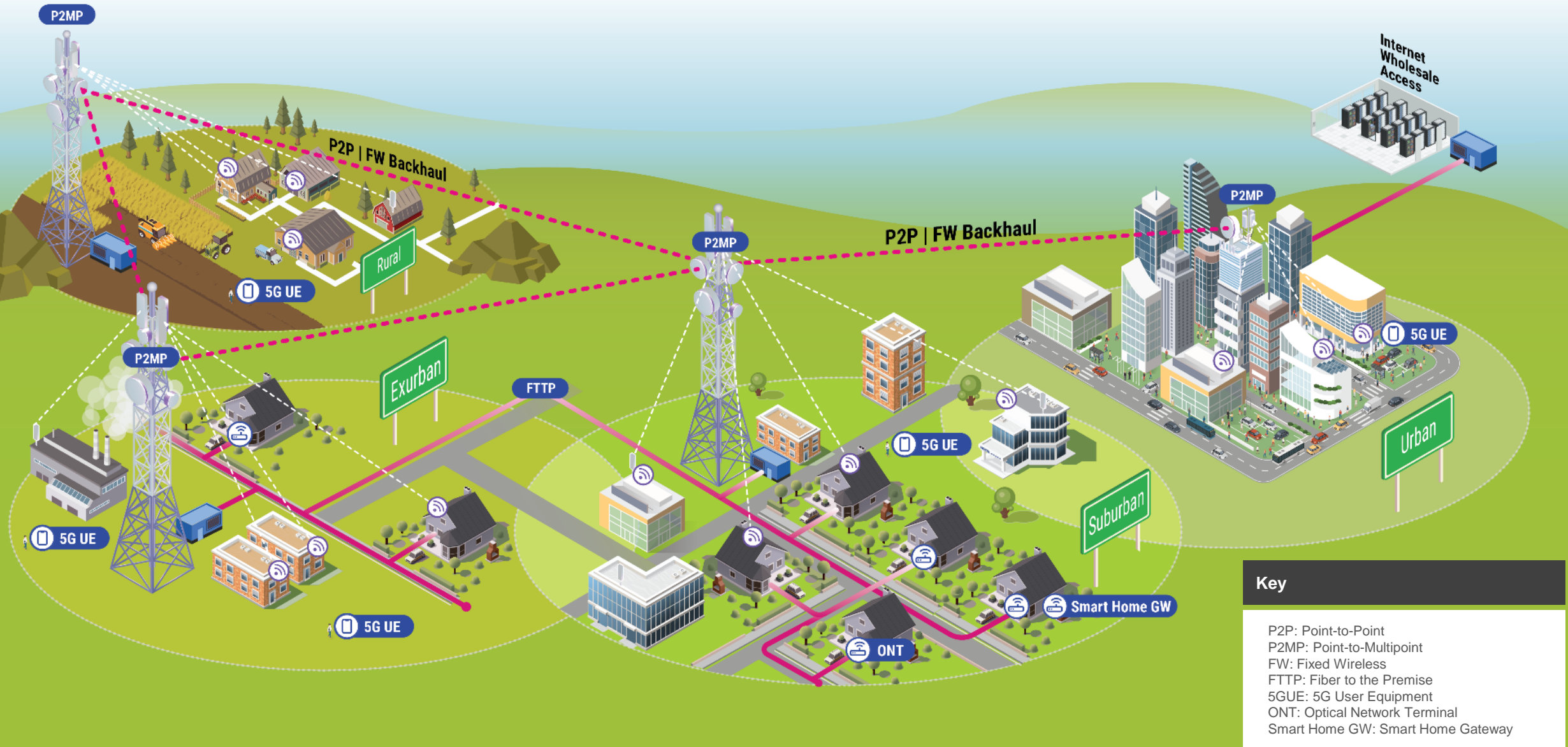
# Multi-Access Broadband Edge



Source: Intel



# Multi-Access Broadband Landscape



**Key**

- P2P: Point-to-Point
- P2MP: Point-to-Multipoint
- FW: Fixed Wireless
- FTTP: Fiber to the Premise
- 5GUE: 5G User Equipment
- ONT: Optical Network Terminal
- Smart Home GW: Smart Home Gateway

# Broadband Landscape with Radisys Multi-Access Edge *mimosa* +



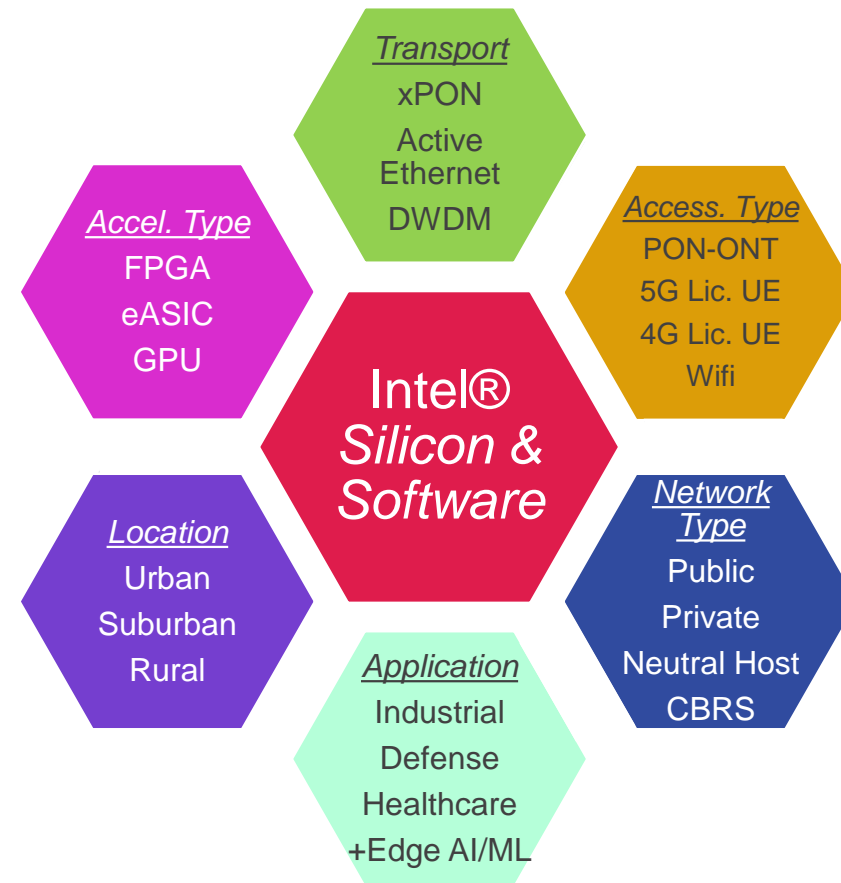
 **Radisys Multi-access Edge**

**Key**

- P2P: Point-to-Point
- P2MP: Point-to-Multipoint
- FW: Fixed Wireless
- FTTP: Fiber to the Premise
- 5G UE: 5G User Equipment
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- Smart Home GW: Smart Home Gateway

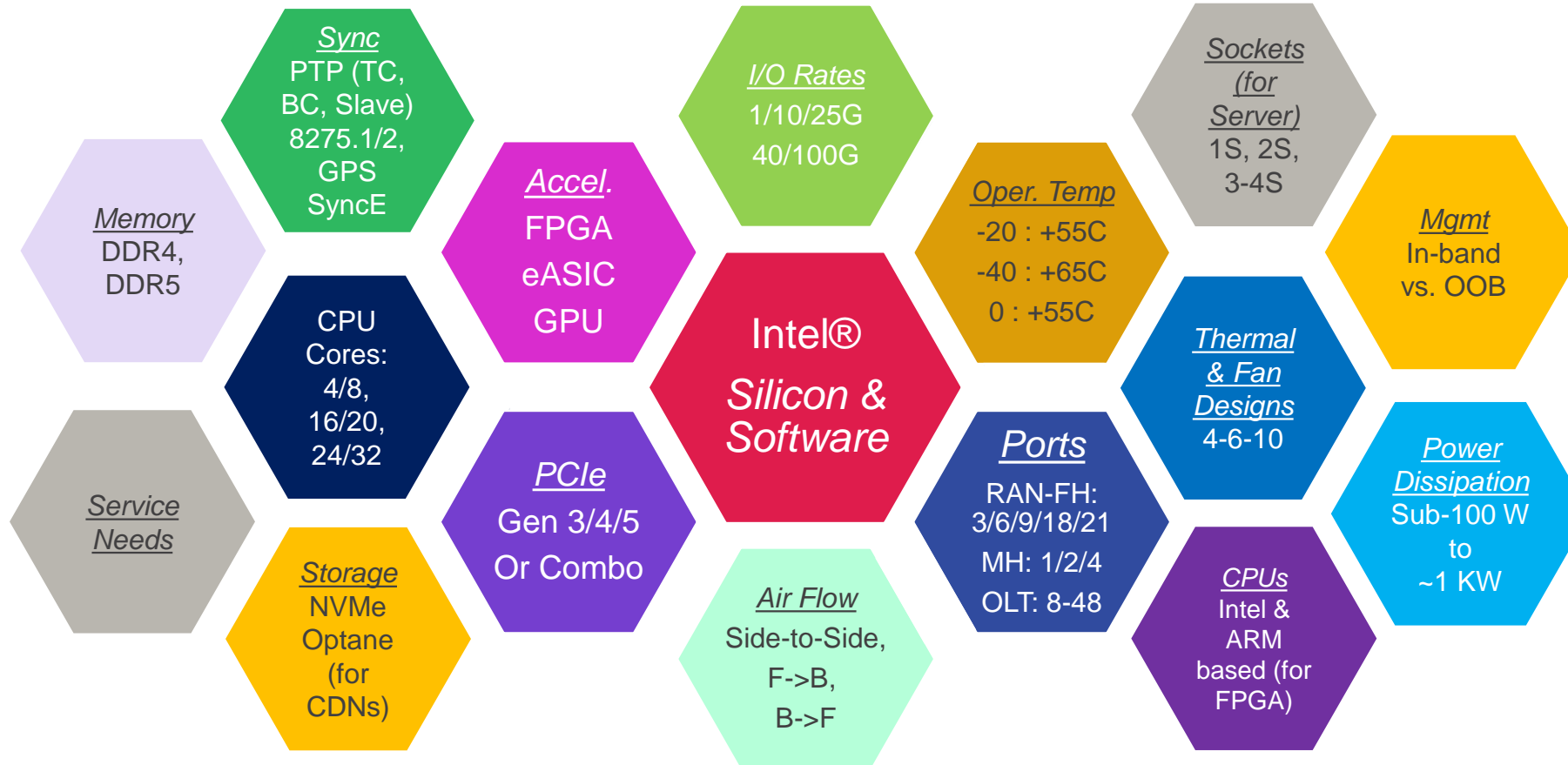
== Strategic Partnership with Intel for HW & Software ==

- **HW Product Portfolio:** OLTs, ONTs, RAN Servers, Ethernet Switches, O-RU
- **Cloud Native Software Portfolio:** CBAC: Access Controller, vCU, vDU, Radisys Mgmt. System (RMS), CDEP/Digital Endpoints
- **Team:** Broad knowledge of Intel Silicon and Software architectures
- **Common (re-useable) HW** building blocks that can be flexibly leveraged across multiple products and designs
- **System Integration:** De-risk HW + Software Disaggregation for telcos and enterprises
- **Retain architecture/design ownership** while leveraging our ODM/CM partners for local (India, US, Taiwan) manufacturing
- **Innovate in specific areas:** outdoor/thermal designs as example
- **Collaborate** with our global Customers to build flexible, reliable & cost effective Broadband Solutions



== Feature, Cost, Performance & Schedule Tradeoffs ==

## == Feature, Cost, Performance & Schedule Tradeoffs ==



### Intel Product/Technology

- 4th Gen Intel® Xeon Scalable processors
- 3rd Generation Intel® Xeon® Scalable Processors
- Intel® Xeon® D Processors
- 4th Gen Intel® Xeon® Scalable Processors with Intel® vRAN Boost
- Intel® vRAN Dedicated Accelerator ACC100
- Intel® Ethernet Controller E810

## == Partnership with Intel for CPU, FPGA & Software ==



# Open Broadband Access Solution

*Enabling the Networks of Tomorrow, TODAY*

## Open Platforms

Reliance on Off-the-Shelf Platforms  
Standards based interop with 3<sup>rd</sup> party

## Open Software Defined Architecture

Separation of hardware and software;  
Separation of Control and Media

## Open Integration

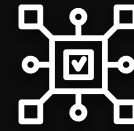
Integration with OSS and vendor ecosystem  
through "Open" API

## Open Standards Community

Leveraging Innovation from Key Open-Source  
Communities

## Open Insights

Derived from best-in-class open network  
analytics



**Leverages Multi-Vendor  
Solutions**



**Cost Efficient Network  
Growth**



**Accelerates Time to  
Revenue**



**Scalable, Future-Proof  
Network**



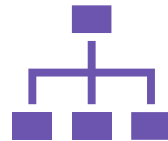
Connect Open Broadband is a comprehensive broadband access solution with a full spectrum of software and hardware components



### Software Management (x86)

Radisys  
Management System  
(RMS)  
& Connect Xperience

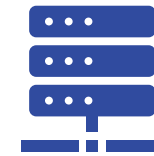
Element Management  
System and Home  
Experience



### Software Control (x86)

Connect Broadband  
Access Controller  
(CBAC)

PON Control and  
Management Software



### Hardware with Embedded Software

Connect OLTs  
(RLT)

Whitebox Hardware with  
Intel CPUs

Connect ONTs

Fully Interoperable with  
Open OMCI

## Open RAN

- Powering multiple OEM solutions
- Containerized solution under deployment

## Innovative solutions with NA Tier-1 Telco

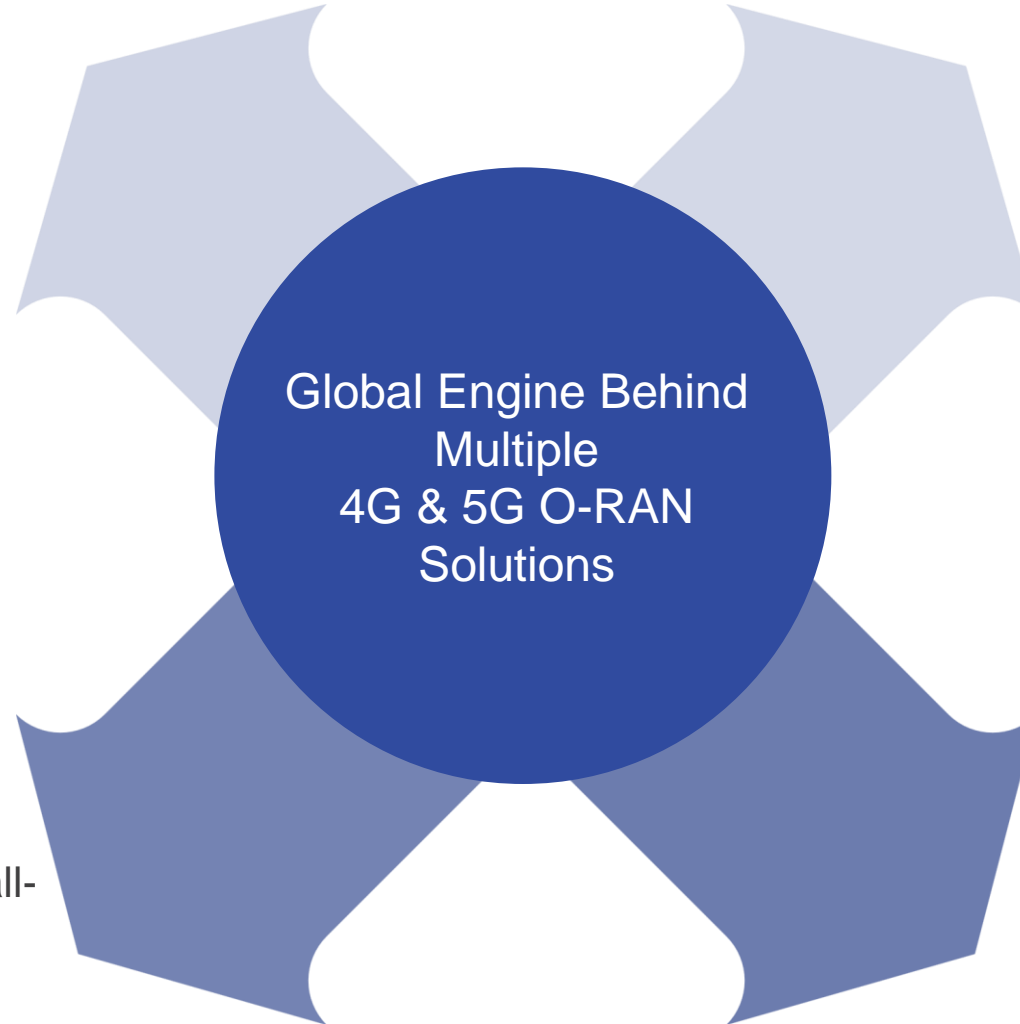
- LTE/Cat-M device certification
- 5G network simulation

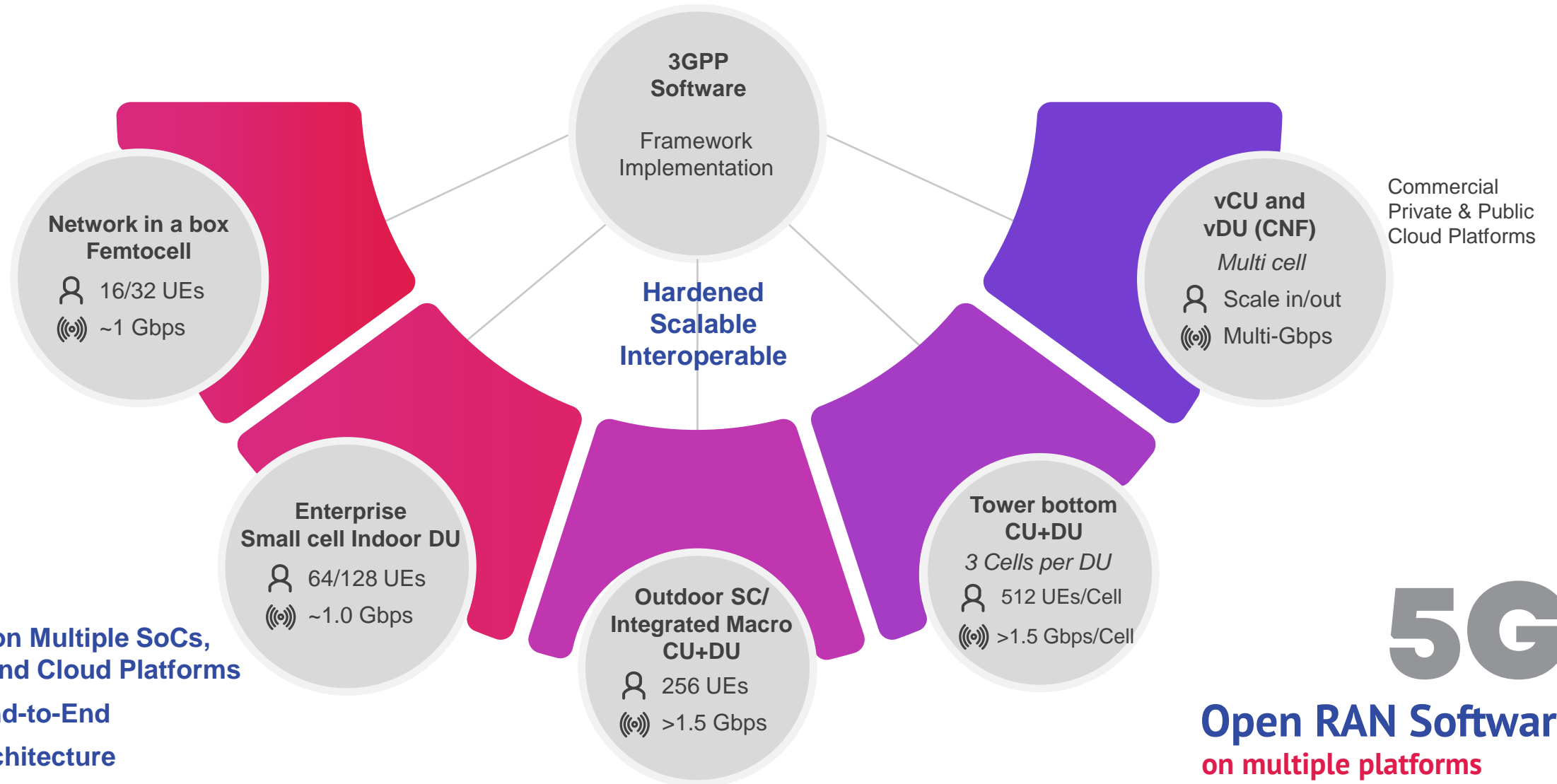
## Small Cells

- Powering >50% 4G small cells deployed across the globe
- 5G Sub-6 and mmWave small-cells in deployment globally since 2021

## Public Safety, Satellite, Tests & Measurements

- Leading software provider for OEMs in US, Canada and UK
- Enabling US based test vendors for LTE and 5G UE and NW simulation test products.



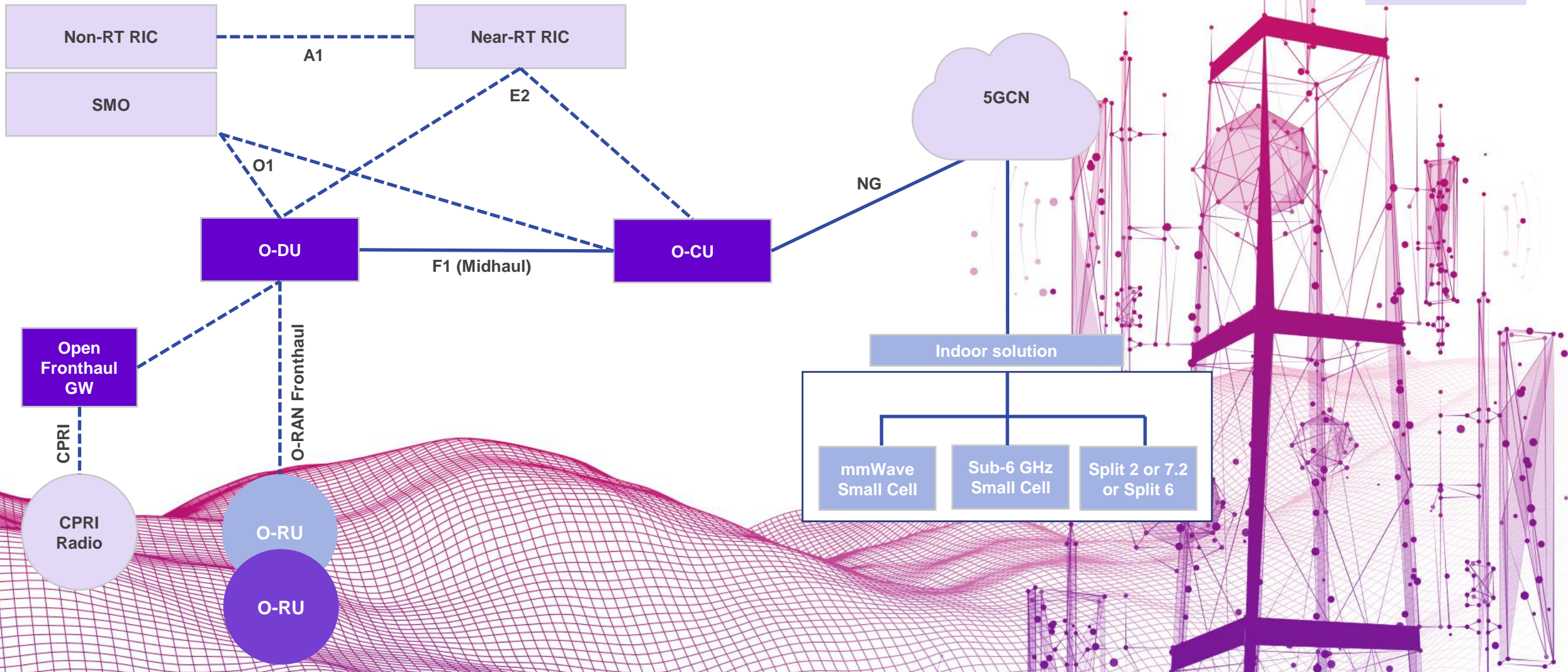


**Integrated on Multiple SoCs,  
Hardware and Cloud Platforms**  
**Scalable End-to-End**  
**Flexible Architecture**

**5G**  
**Open RAN Software**  
on multiple platforms

# 5G Open RAN Software Solution

- RadisyS
- RadisyS + Partner
- Partner

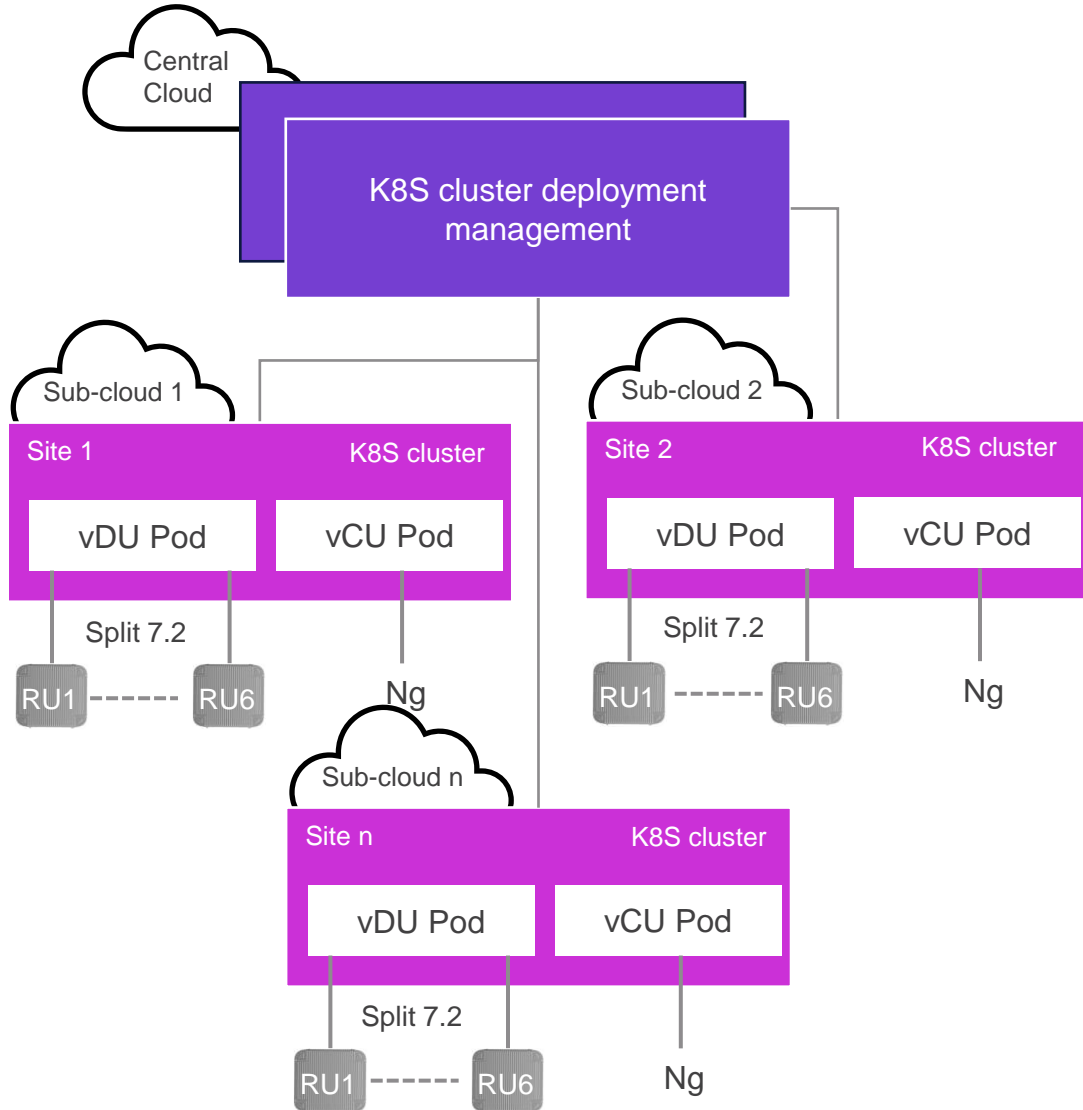


# Cloud Native deployment of RAN Functions

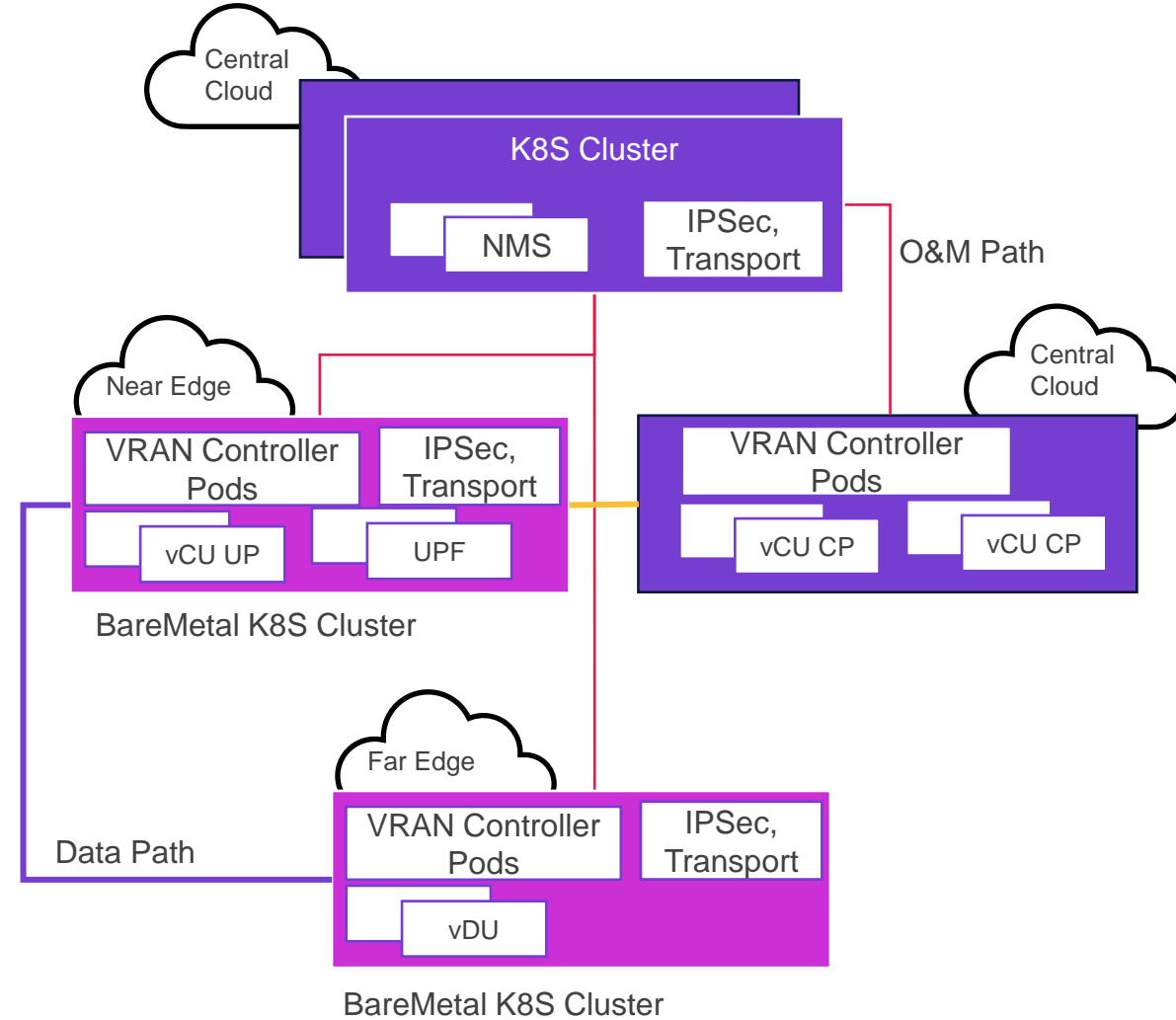
Multiple Commercial Private & Public Cloud Platforms



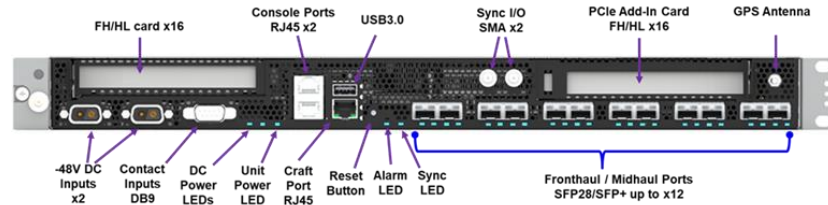
## Tower bottom deployment



## Central-Edge cloud deployment



## 5G RAN Server Unit for O-DU and O-CU



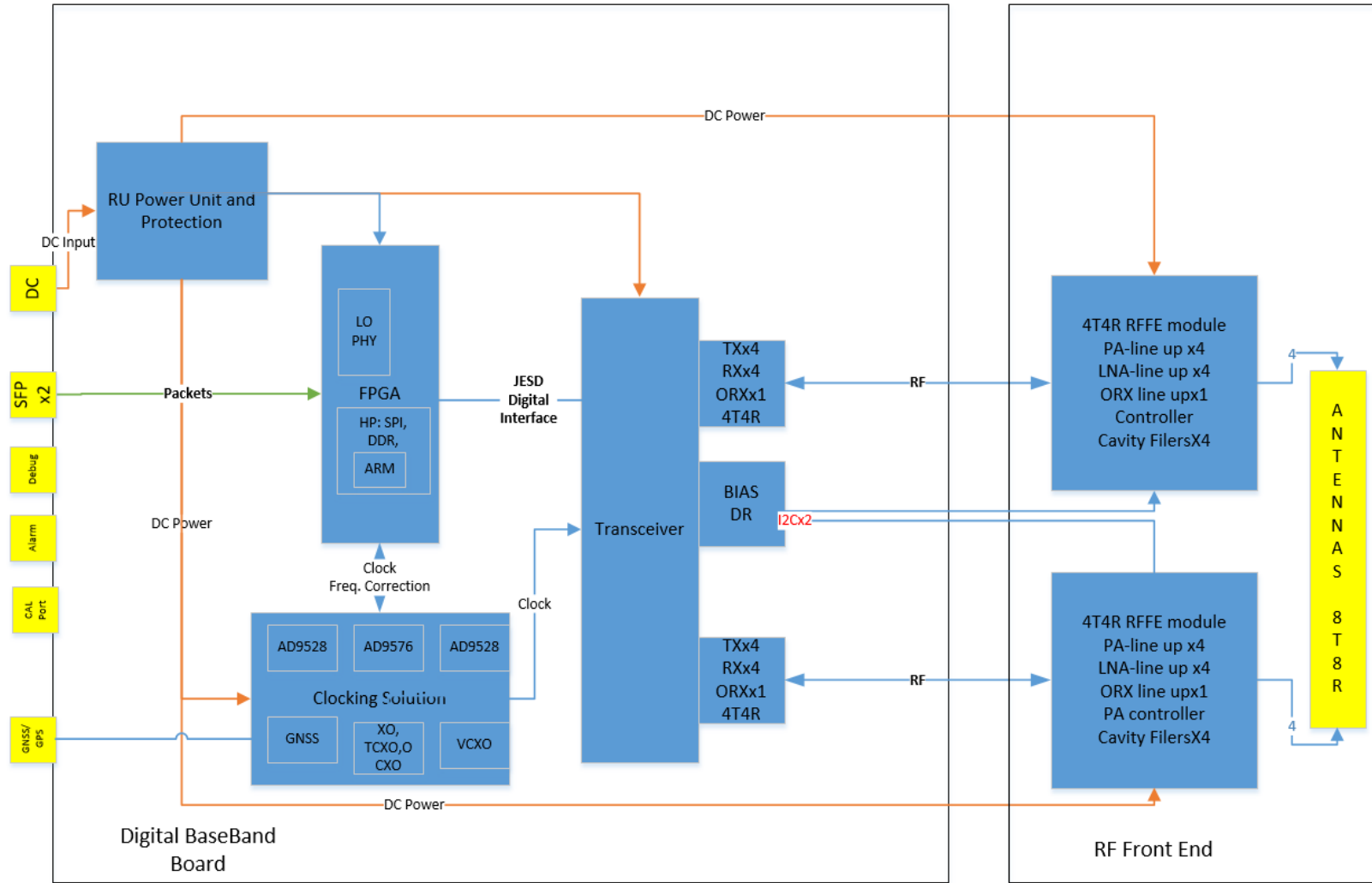
- Based on 3<sup>rd</sup> Generation or 4th Gen Intel® Xeon® Scalable processors
- Supports up to 12 ports (4x25G, 8x10G) which can be shared between FH and BH
- Supports TDD and FDD
- Compact, 1U high and capable of working in extended temperature range from -40 to +55 deg C
- Supports up to 4 External Alarms
- GPS Antenna for LLS-C1/C3 Sync

## 5G RAN O-RU (TDD) using Agilex FPGA



Band	n78, n40, n48
MIMO Configuration	4T4R
Output Power	4x40W
Physical Fronthaul	2x 10G SFP+
Power Input	-36VDC to -60VDC

Band	n78, n77
MIMO Configuration	8T8R
Output Power	8x40W
Physical Fronthaul	2x 25G SFP+
Power Input	-36VDC to -60VDC



- TDD n78 Radio Units (O-RU) product with partners
- 3300MHz - 3670MHz
  - IBW/OBW = 200MHz
- Feasible to modify the O-RU (tuning for alternate spectrum required by global markets)



# O-RAN Global PlugFest 2023

## O-RAN Global PlugFest Spring 2023 has finished

- 60 (47 unique) participated companies in total, **~20% increase** than last Spring
- Presentation/read-out week took place June 5 – June 9
- O-RAN PlugFest PR was published on June 12

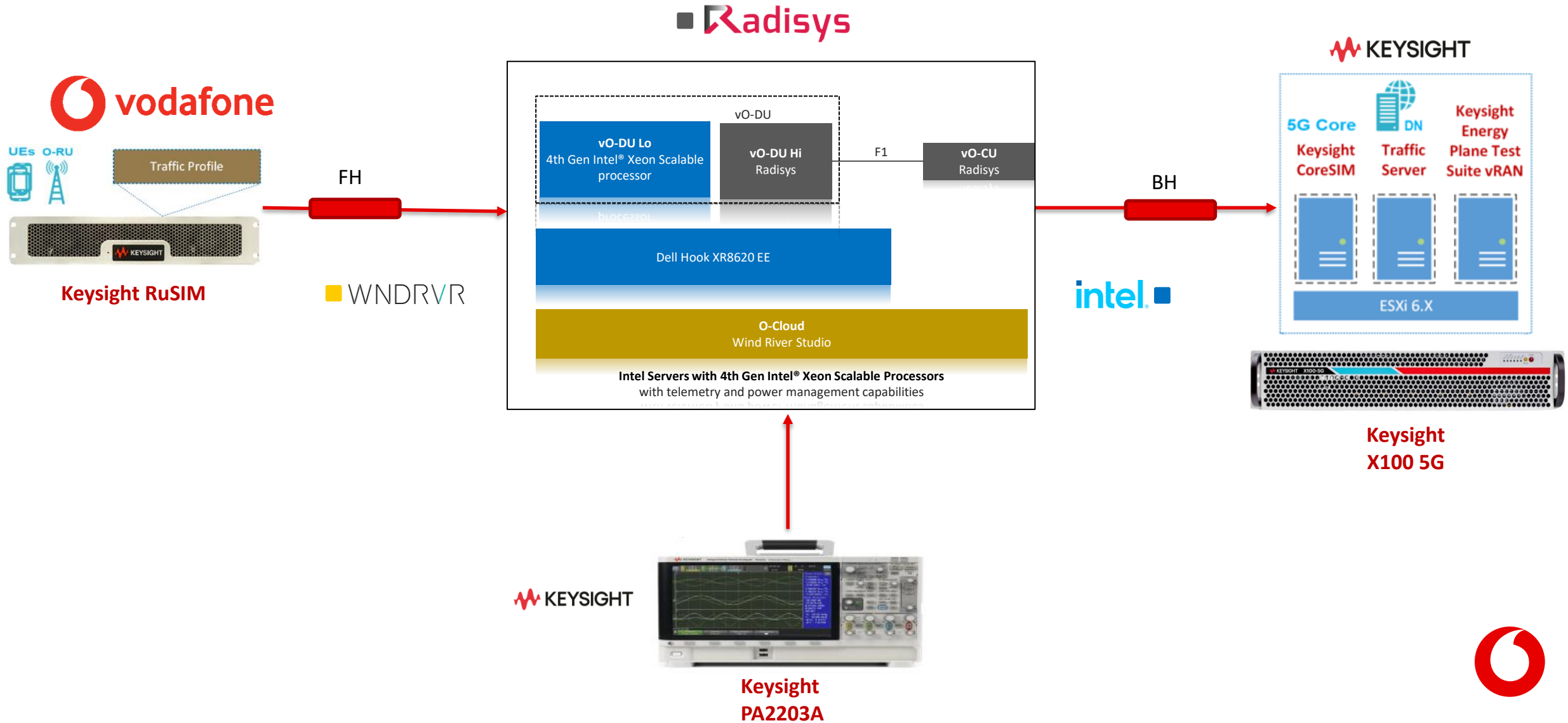
	PlugFestSpring 2023	PlugFestFall 2023
Call for hosting	Jan 30- Feb 3	Jul 24- Jul 28
Call for participation	Feb 20- Mar 10	Aug 14- Aug 25
PlugFest duration	Jan 30- May 26	Jul 24- Nov 17
Presentation week	Jun 5- Jun 9	Nov 27- Dec 1

## 4 PlugFest venues (with 9 labs) in total, **30% increase in number of venues and 50% increase in number of labs** than last Spring

- Taiwan venue hosted by Auray
  - Auray OTIC and Security Lab, Taoyuan, Taiwan
- European venue hosted by DT, EANTC, EURECOM, Orange, Vodafone (3 labs)
  - EURECOM Lab in Sophia-Antipolis, France
  - i14y Lab in Berlin, Germany
  - Vodafone Central ORAN Lab, Newbury, UK
- North America venue hosted by University of New Hampshire (4 labs)
  - COSMOS/WINLAB at Rutgers University, USA
  - Kyrio O-RAN Test and Integration Lab, USA
  - POWDER at University of Utah, USA
  - University of New Hampshire InterOperability Laboratory, USA
- South Korea venue hosted by KT
  - KT Infra DX Lab, Seoul, Korea

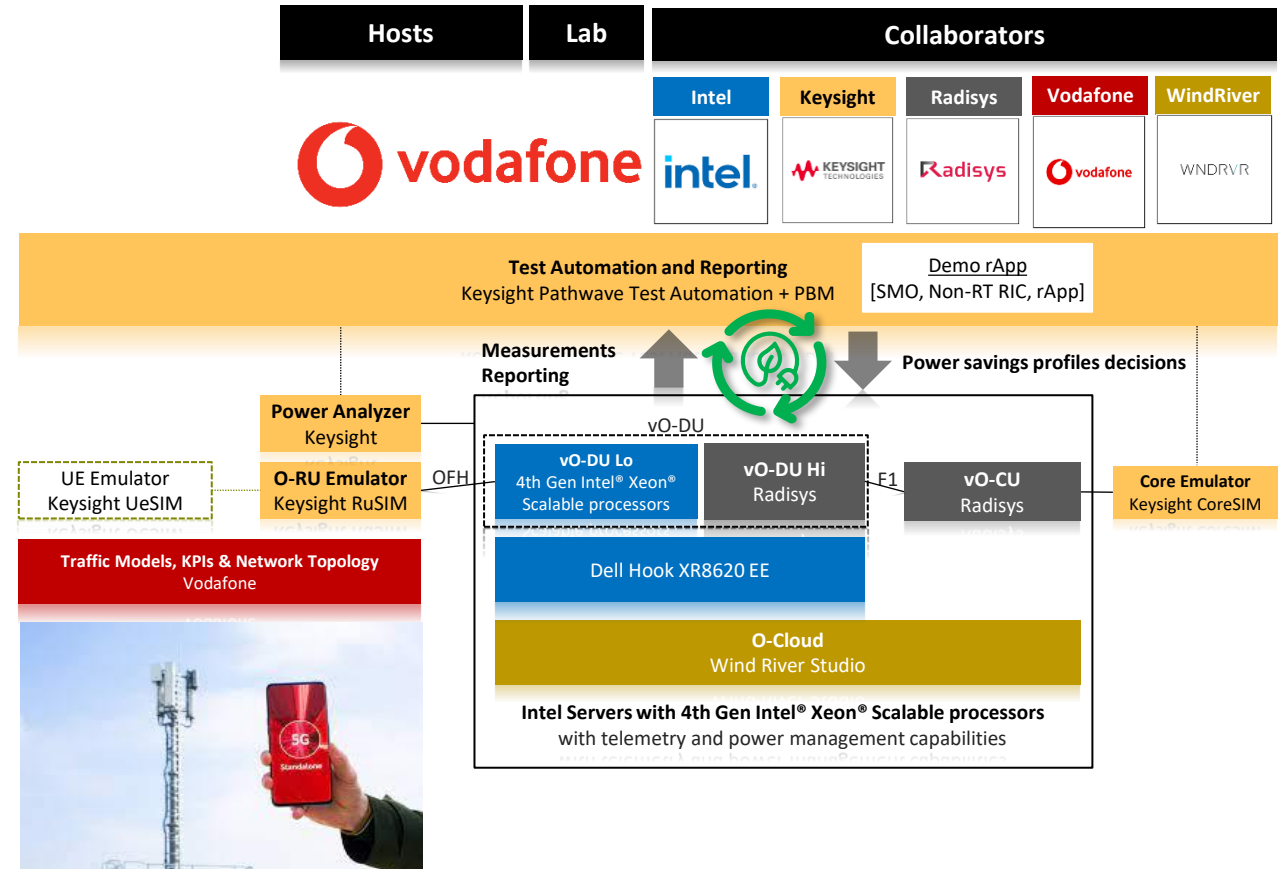


# Nov 27<sup>th</sup> O-RAN Plugfest: Test Setup

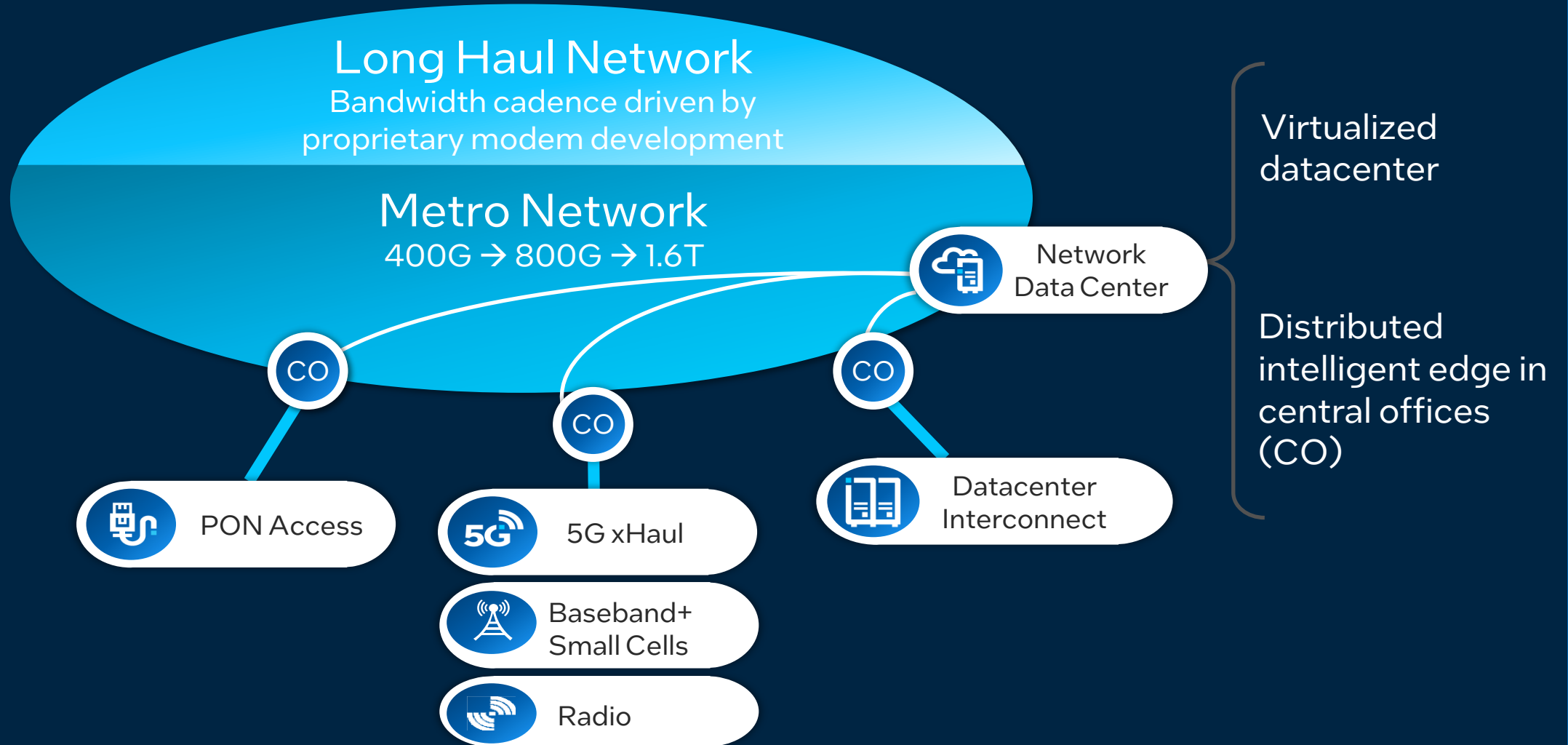


# O-Cloud Platform HW, Sw and Virtual Resources

Collaborators	Components
Intel	<ul style="list-style-type: none"> <li>• <b>O-DU and O-CU hardware</b> including servers based on <b>4th Gen Intel® Xeon Scalable processors</b> with telemetry and power management capabilities</li> <li>• <b>Intel® vRAN Accelerator ACC200 Adapter (DU)</b></li> <li>• <b>Intel® QuickAssist Adapter 8970 (CU)</b></li> <li>• <b>Intel® FlexRAN™ software</b> implements the <b>O-DU Lo</b> and <b>O-RAN Fronthaul</b> functionality, executing as NFs in containers in the Wind River CaaS platform</li> </ul>
Keysight	<ul style="list-style-type: none"> <li>• <b>O-RU (RuSIM) and UE Emulator (UeSIM)</b></li> <li>• <b>Core Emulator (CoreSIM)</b></li> <li>• <b>Power Analyzer (PA2203A IntegraVision)</b></li> <li>• <b>Test Automation (Pathwave Test Automation)</b></li> <li>• <b>Reporting Application (PBM)</b></li> <li>• <b>Demo rApp</b> for energy savings policy decisions</li> </ul>
Radisys	<ul style="list-style-type: none"> <li>• <b>Containerized O-DU Hi and O-CU software</b> that automatically allocates vCPU and VF resources from a resource pool provided by Wind River CaaS Platform running on a server with Intel Xeon processor and hardware acceleration</li> </ul>
Dell	<ul style="list-style-type: none"> <li>• <b>2x Dell Hook (XR8620)</b></li> </ul>
Vodafone	<ul style="list-style-type: none"> <li>• <b>Live network traffic models, KPIs &amp; Network topology</b></li> </ul>
Wind River	<ul style="list-style-type: none"> <li>• <b>O-Cloud</b> using Wind River Studio</li> </ul>



# Drivers of Next-Gen Networks



# The FPGA for the Data-Centric World



## PROCESS DATA

~2X Increased Fabric Performance per Watt<sup>1,4</sup>

Average 50% Higher Performance<sup>2,4</sup>

Up to 40% Lower Power<sup>2,4</sup>

Up to 40 TFLOPS DSP Performance<sup>3,4</sup>

## STORE DATA

DDR5 & High Bandwidth Memory (HBM2e)

## MOVE DATA



Hard IP : 400G Ethernet, Compute Express Link (CXL)<sup>5</sup> and PCIe Gen4/5 x16

32/58/116G

Transceiver Data Rates



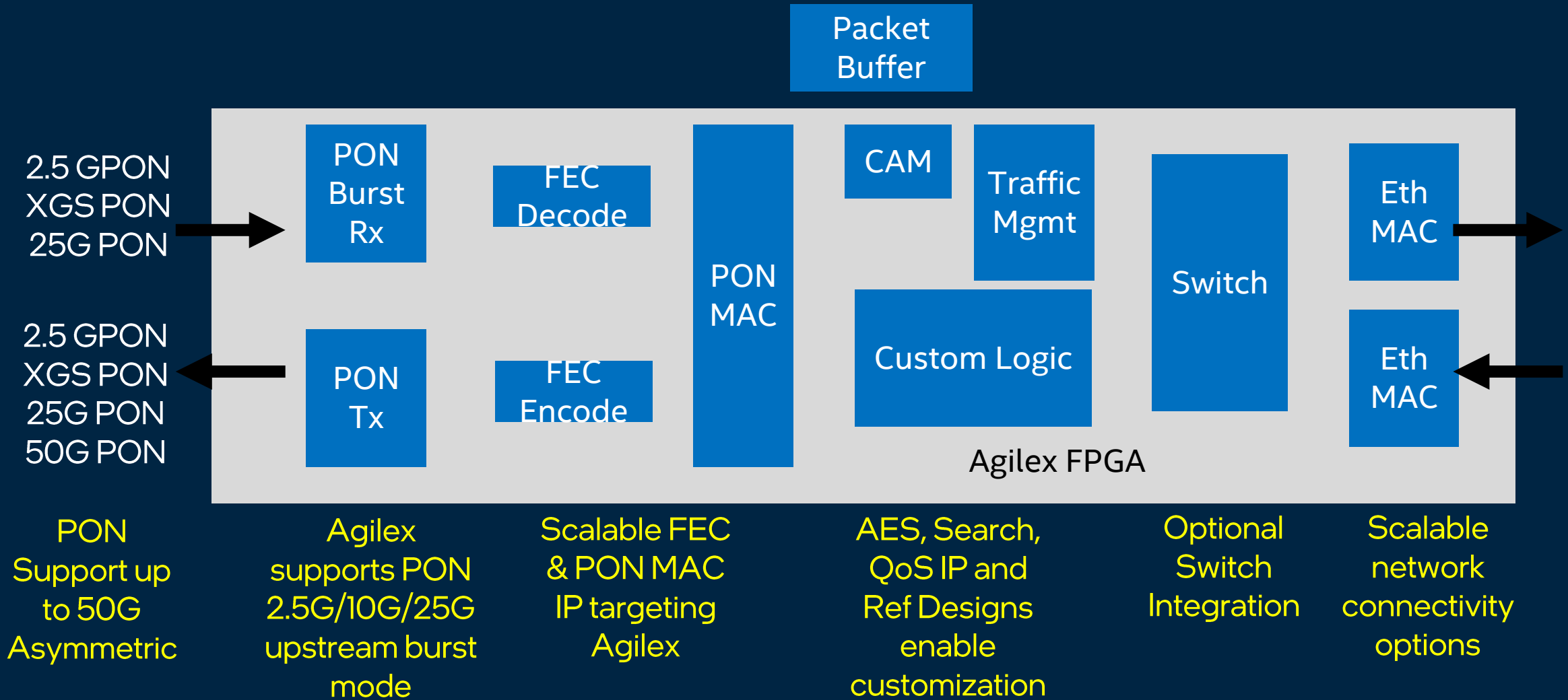
<sup>1</sup> Compared to competing 7 nm FPGA  
<sup>2</sup> Compared to Intel® Stratix® 10 FPGAs  
<sup>3</sup> With FP16 configuration  
<sup>4</sup> Based on current estimates  
<sup>5</sup> Consult rollout schedule

See [FPGA - Performance Index](#) for workloads and configurations. Results may vary.

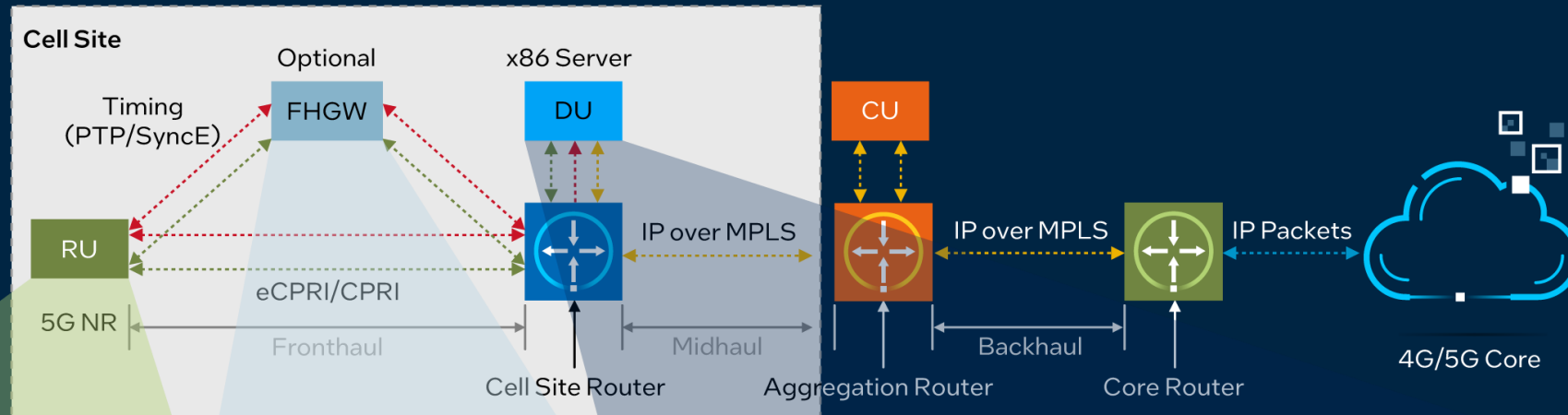
# Intel in PON

- Fiber Broadband Everywhere driving Access network investments
  - New use cases enabled by next-gen PON (5G Fronthaul, 6G, etc)
  - Higher bandwidth PON connectivity needed (25G, 50G, 100G) while supporting scalability from legacy deployments
- Intel FPGAs optimized for PON OLT platforms
  - Production deployments across GEOs supporting multiple standards
  - Burst mode transceiver support to enable
    - GPON, 10G EPON, XGS-PON, 25G PON and 50G asymmetric PON
  - Architecture can scale to be optimized for varying port densities / rates
  - Integration of switch functionality into FPGA for streamlined architecture
  - Path to structured ASIC for reduced power & cost in high volume deployments

# 2.5/10G/25G/50G PON OLT Block Diagram



# Radio Access Network Overview



### Radio Unit (RU)

Silicon + Hardware + IP/Software

**Applications:**  
 Small Cell  
 Macro/Mirco  
 mMIMO  
 Open Radio  
 mmwave

- F-Tile 25GE
- CPRI/eCPRI
- ORAN
- LowPHY
- Beamforming
- JESD204x

### Fronthaul Gateway (FHGW)

Silicon + Hardware + IP

Validated Enablement Package

- F-Tile 25GE
- eCPRI
- CPRI
- ORAN

### Distributed/Centralized Unit

#### Virtualized RAN

Silicon + Hardware + IP

### Baseband

#### Traditional RAN

- Networking Tiles
- E&F Tile
- Processor Attach Tiles
- P&R Tile
- LDPC-V



# Intel in 5G Radio

## Radio OEM Problem Statement

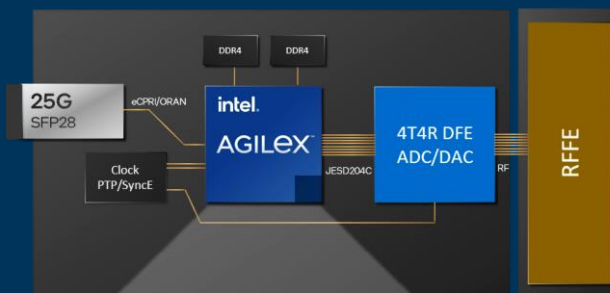
- Time to Market challenges
  - 9-15 months design to production
- Fragmentation leads to multiple SKUs
  - Many geo/bands require RU design scalability/portability/customization
- Complexity requires large R&D
  - Digital, SW, RF and PA, Thermals

## Intel 's Solution

- Market leading Agilex silicon (perf/watt)
- Enablement packages supporting common use cases: Macro 4TR-8TR & mMIMO
- Common set of tools and IP building blocks
- Reduce development cost & TTM
- Leverage \$Millions invested by Intel

## Macro / Micro Cell

80% of all radios today

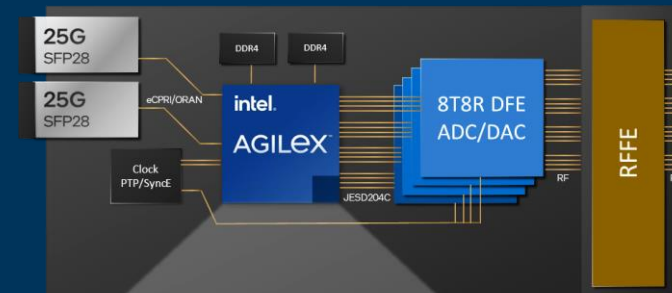


O-RU (Sail River) Workload



## mMIMO (Massive MIMO)

Fastest growing radio market



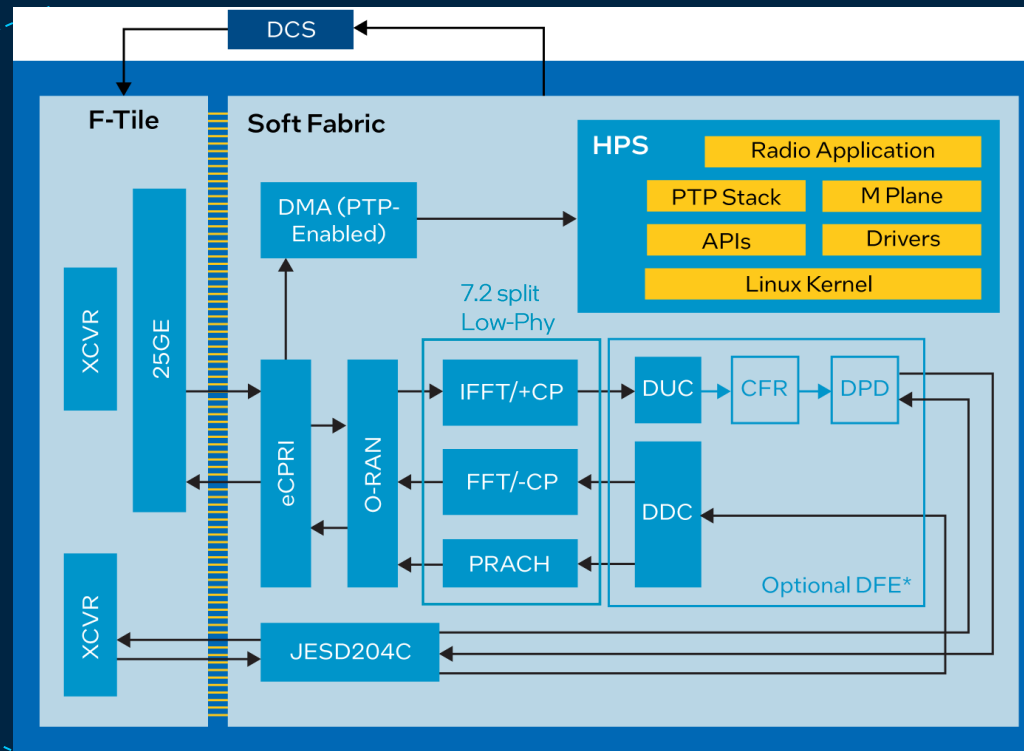
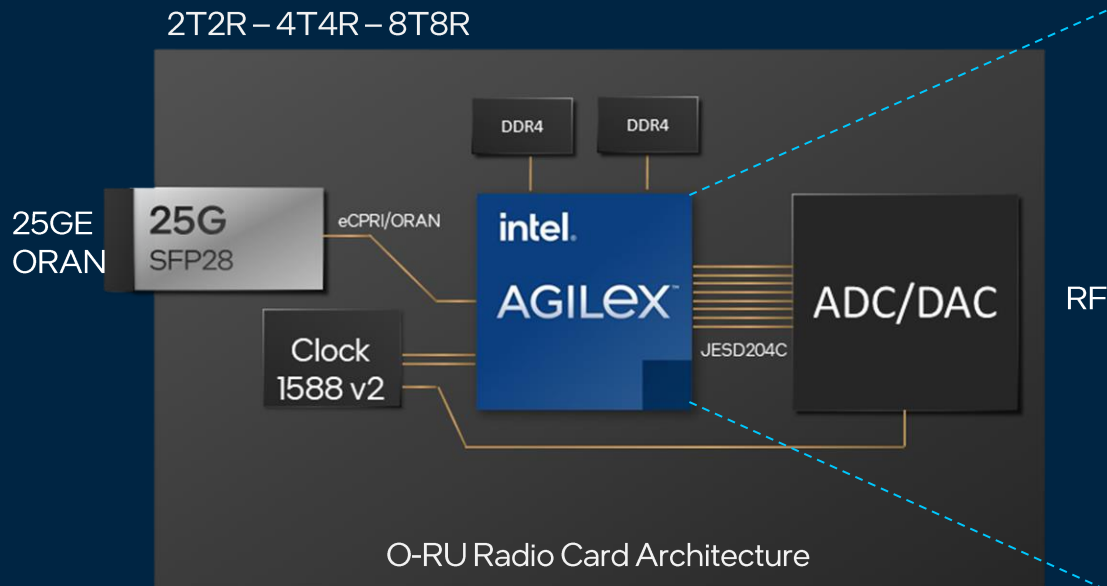
Olympia Bridge Workload



## Radio Enablement Packages include:

- E2E implementation of O-RU digital functions
- Designs are validated on hardware platform
- Conform to Open RAN standard
- Includes synchronization & timing validation (IEEE1588)

# ORAN RU (O-RU) Architecture



\*Radio configuration & architecture may vary depending on use-case

## Dynamic Functional Split

- Broad range of functional splits (Split 8, Split 7, Split 6) drives different compute requirements
- Enable evolving fronthaul standards, from legacy (CPRI Split 8) to Open RAN (Option 7.2x)
- Enable market differentiation through custom radio functions - Beamforming, DFE, AI/ML, user logic

## Continuous Standard Evolutions

- 4G, 5G, 6G – every new standard brings a new race to leadership, making TTM and development cost key metrics
- Intel's FPGAs, enablement packages, and hardware Whiteboxes offer high programmability and flexibility with low development cost and faster TTM.

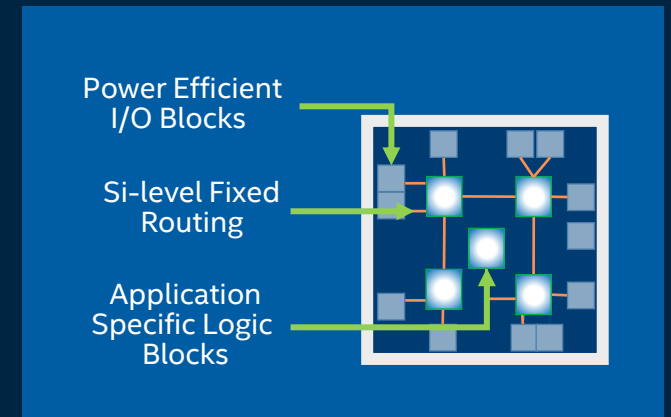
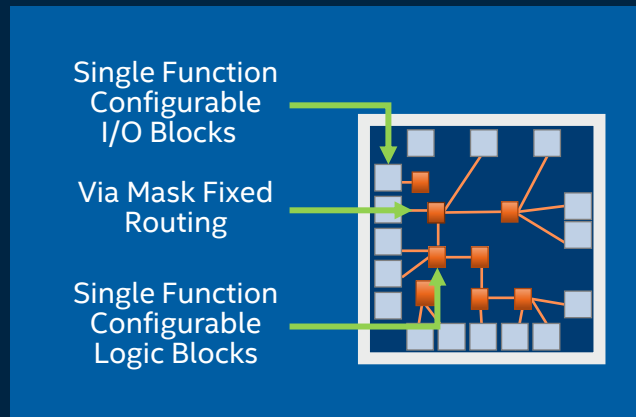
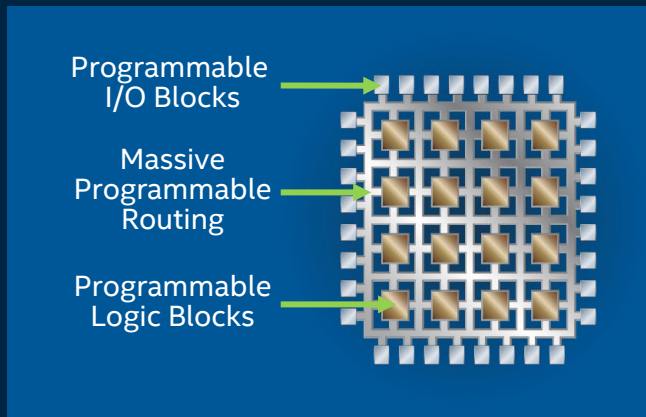
# The Intel® Custom Logic Continuum

Only Intel Offers Choice to Optimize Flexibility, Power, Cost, and Time-to-Market for Custom Logic Solutions

## FPGA

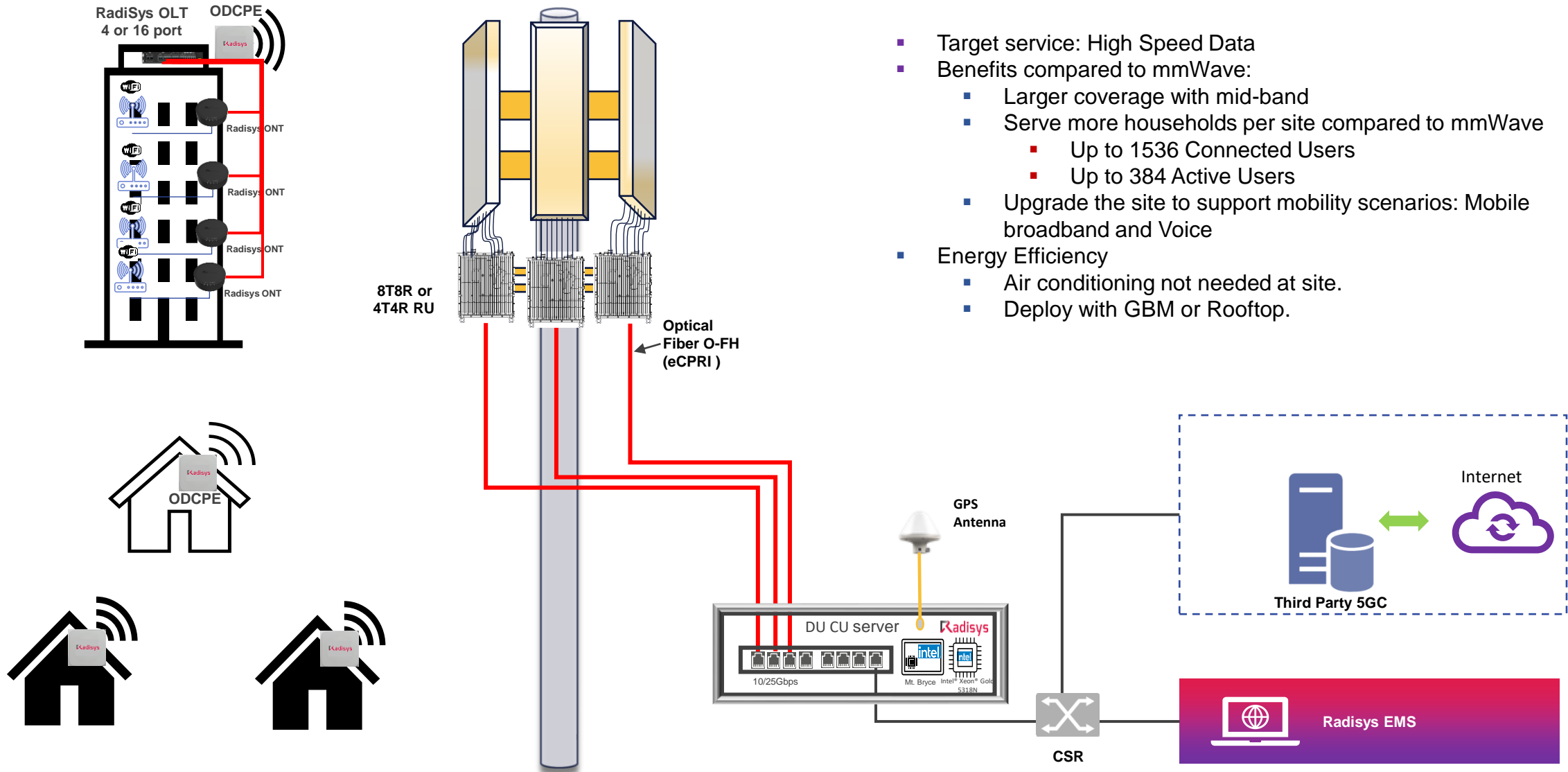
## Structured ASIC

## ASIC

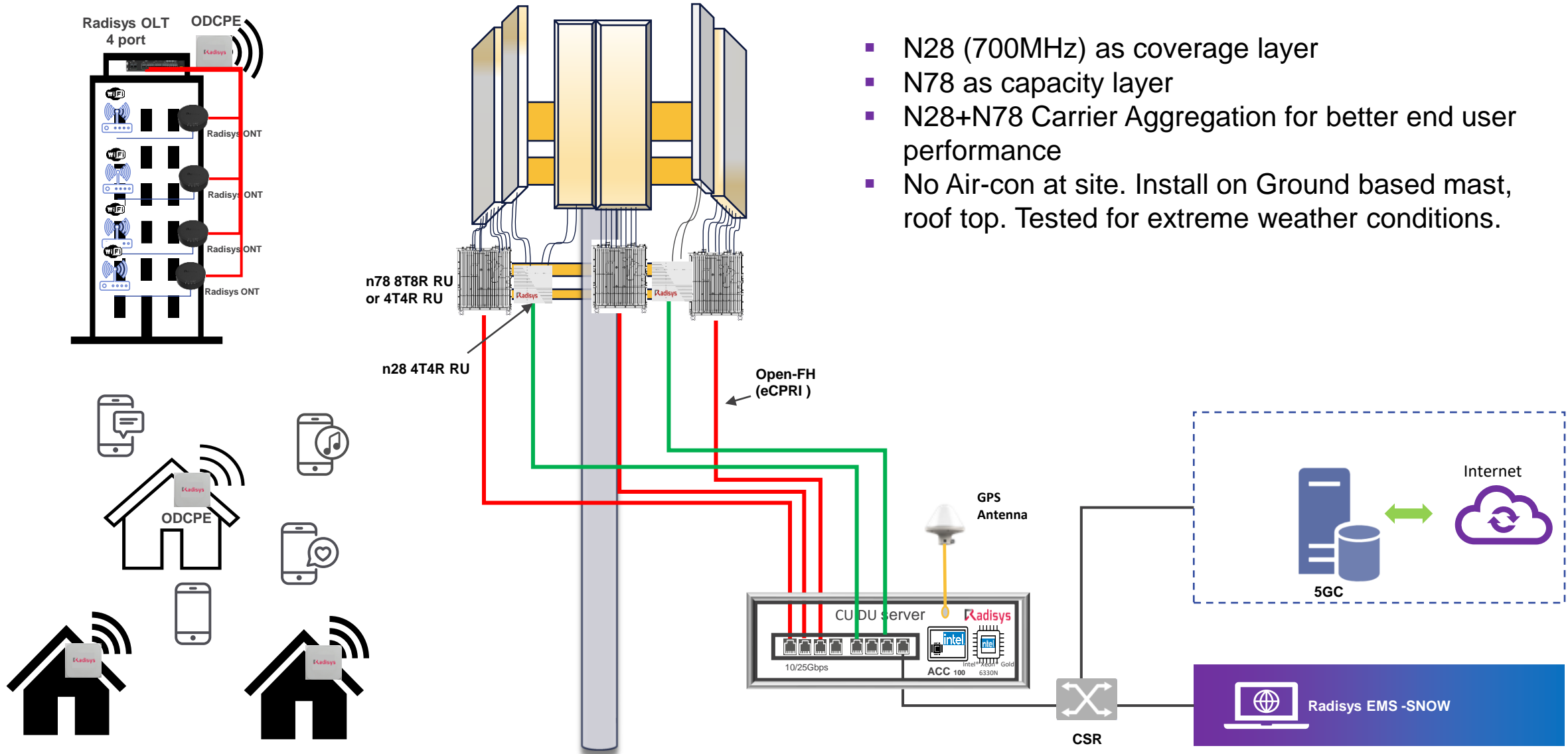


# 5G Fixed Wireless Access (FWA): n78, 100MHz, 3 Sector Solution

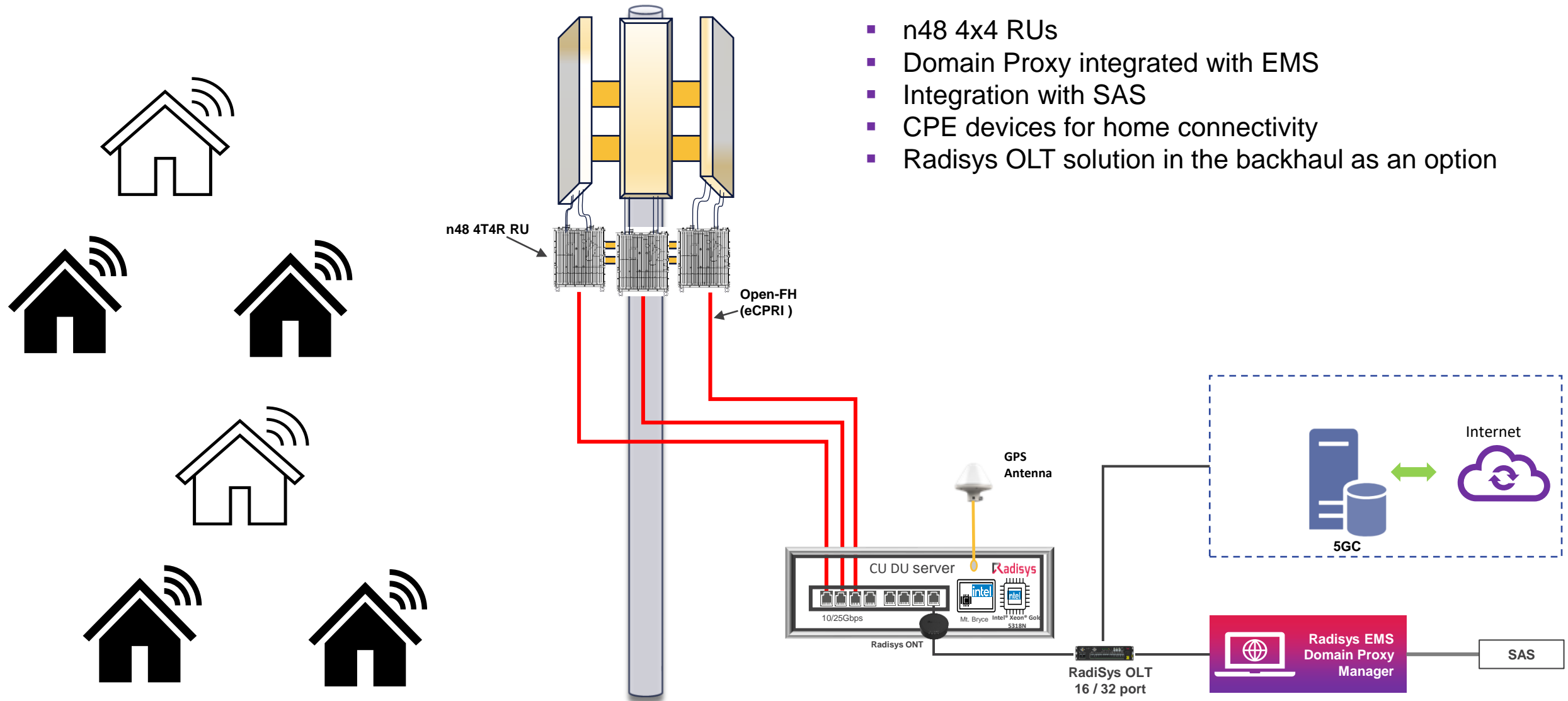
## Fixed Wireless Access



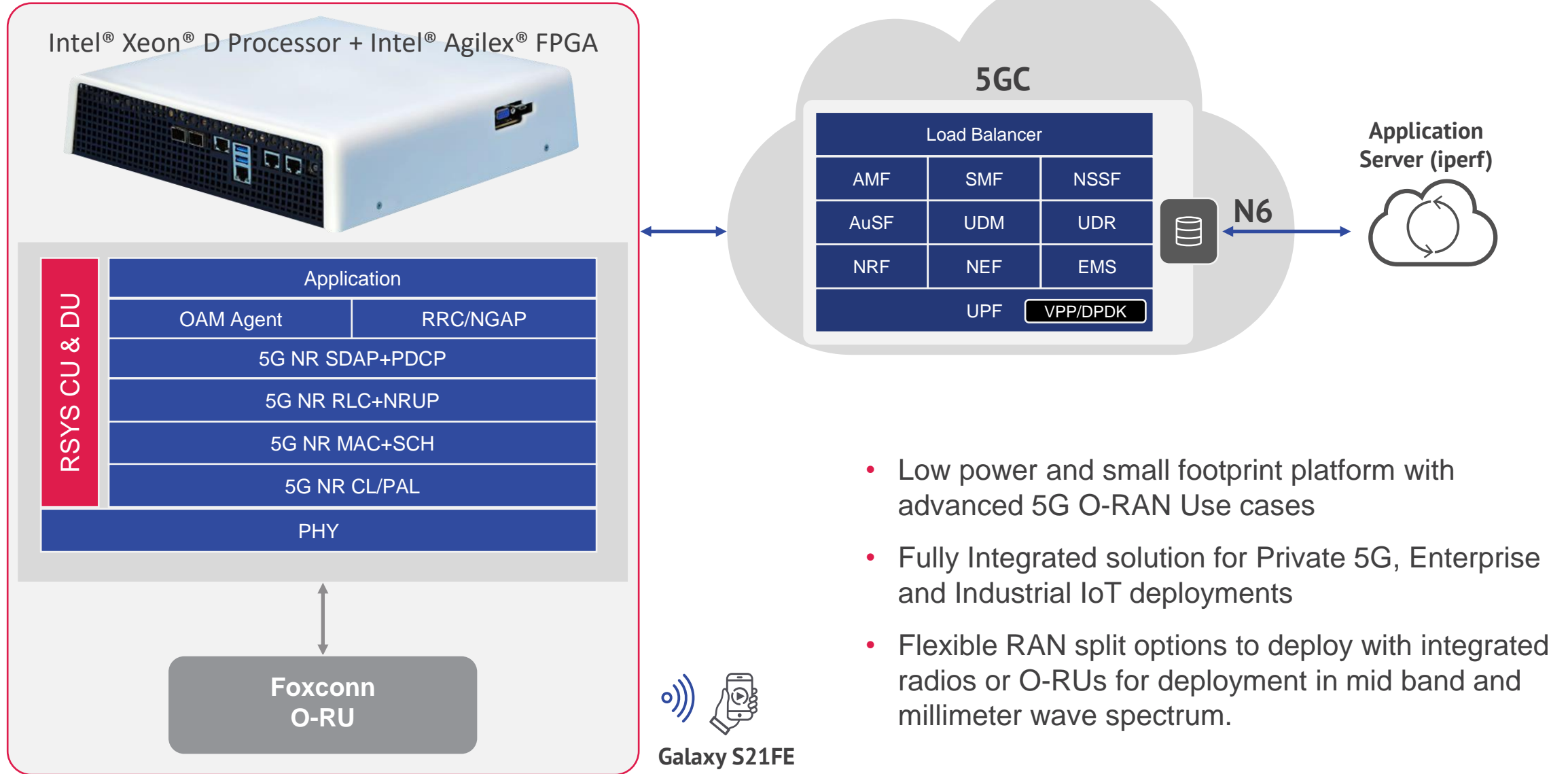
- Target service: High Speed Data
- Benefits compared to mmWave:
  - Larger coverage with mid-band
  - Serve more households per site compared to mmWave
    - Up to 1536 Connected Users
    - Up to 384 Active Users
  - Upgrade the site to support mobility scenarios: Mobile broadband and Voice
- Energy Efficiency
  - Air conditioning not needed at site.
  - Deploy with GBM or Rooftop.



- N28 (700MHz) as coverage layer
- N78 as capacity layer
- N28+N78 Carrier Aggregation for better end user performance
- No Air-con at site. Install on Ground based mast, roof top. Tested for extreme weather conditions.



# 5G NR SA Private Network using Intel Ft. Columbia

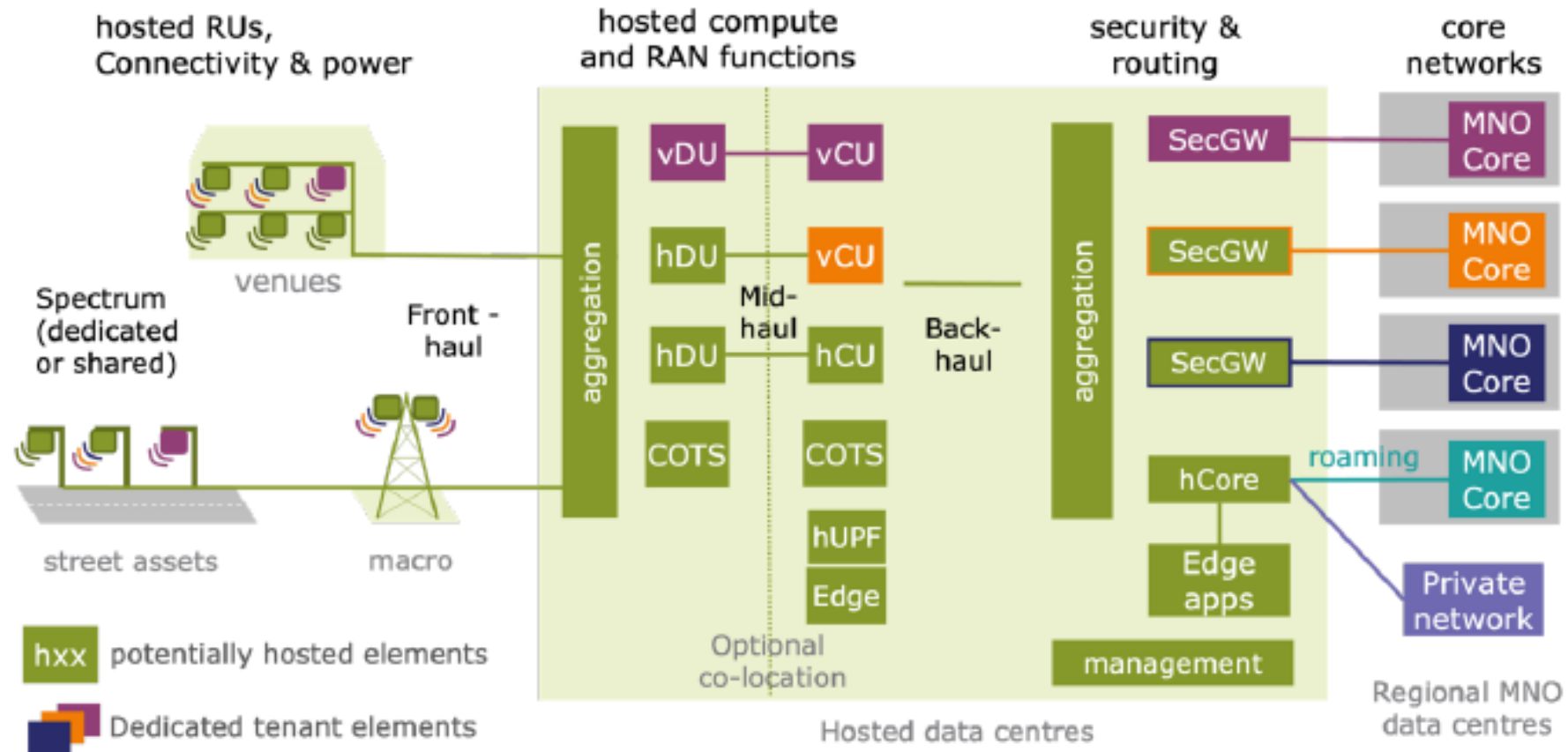


Configuration	Values
Mode	SA
SCS	30kHz
Duplexing Mode	TDD
UE per TTI	Single UE
Bandwidth	100MHz (273 RBs)
NR Frequency Band	n78
DL UL Transmission Periodicity	2.5ms ( DDDSU)
Number Of Downlink Slots	3
Number of Uplink Slots	1
Number of Downlink symbols	10
Number of Uplink symbols	2
Downlink QAM Table	256 QAM
No of Layers	4T4R

Demo Scenario
Downlink iperf traffic ~1.4Gbps, 256 QAM
Uplink Iperf traffic ~61 Mbps (higher rate possible with different slot configurations)



# 4G/5G Neutral Host Applications with Split-6 Architecture

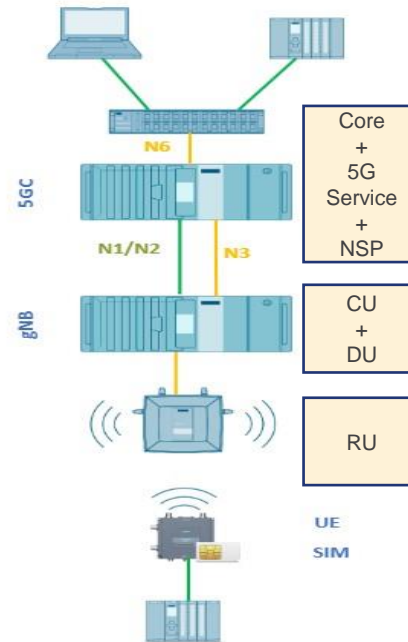
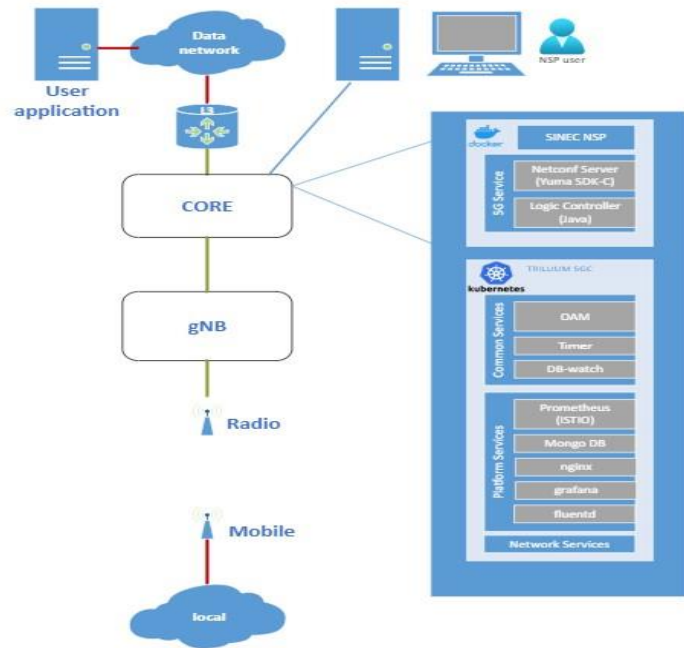


Source: Small-Cell Forum (SCF)

<https://www.businesswire.com/news/home/20230226005093/en/Dense-Air-and-Radisys-Partner-on-ORAN-Based-Actively-Shared-5G-Small-Cell-Infrastructure-Software-Solutions>

# FlexRAN based Industrial 5G Solution

- 5G NR Private 5G Industrial Network Solution for Sub-6GHz frequency range (FR1) supporting SA mode
- Executing on Intel Architecture platform with FlexRAN Layer-1



Industrial	Performance
IP Address Assignment	Maximum number of registered UE per RU
Dual DNN	Intra-frequency handover
Onboarding	Intra-DU handover
PROFINET over VxLAN	Inter-frequency handover (two 40MHz bands)
AGV simple/with camera	MIMO use cases
Software/Firmware download	
Latency Measurement	
Throughput Measurement	

Deployment and System Operation
Initial Deployment
Software Upgrade
Release maintenance
Licensing

# Engage Digital Platform

## Programmable Communication & Digital Engagement Platform

### Digital Devices



Smart Phone/  
Tablet



Cameras



Sensors



Drones /  
Vehicles



Wearables



Kiosks

*Enabling CSPs to offer innovative services that combine the best of cloud communications, media analytics, and telecom network assets*

**engagedigital.ai**

Simple APIs, Plug & Play SDKs, and  
Low-Code/Node Visual Design



Programmable  
Voice & Video



Programmable  
Messaging



Programmable  
Media Analytics

### Digital Experiences



Communication  
& Collaboration



Computer  
Vision Face /  
Object Video  
Recognition



Augmented  
Reality



Speech Rec &  
Analytics



IoT Triggered  
Real Time  
Communication

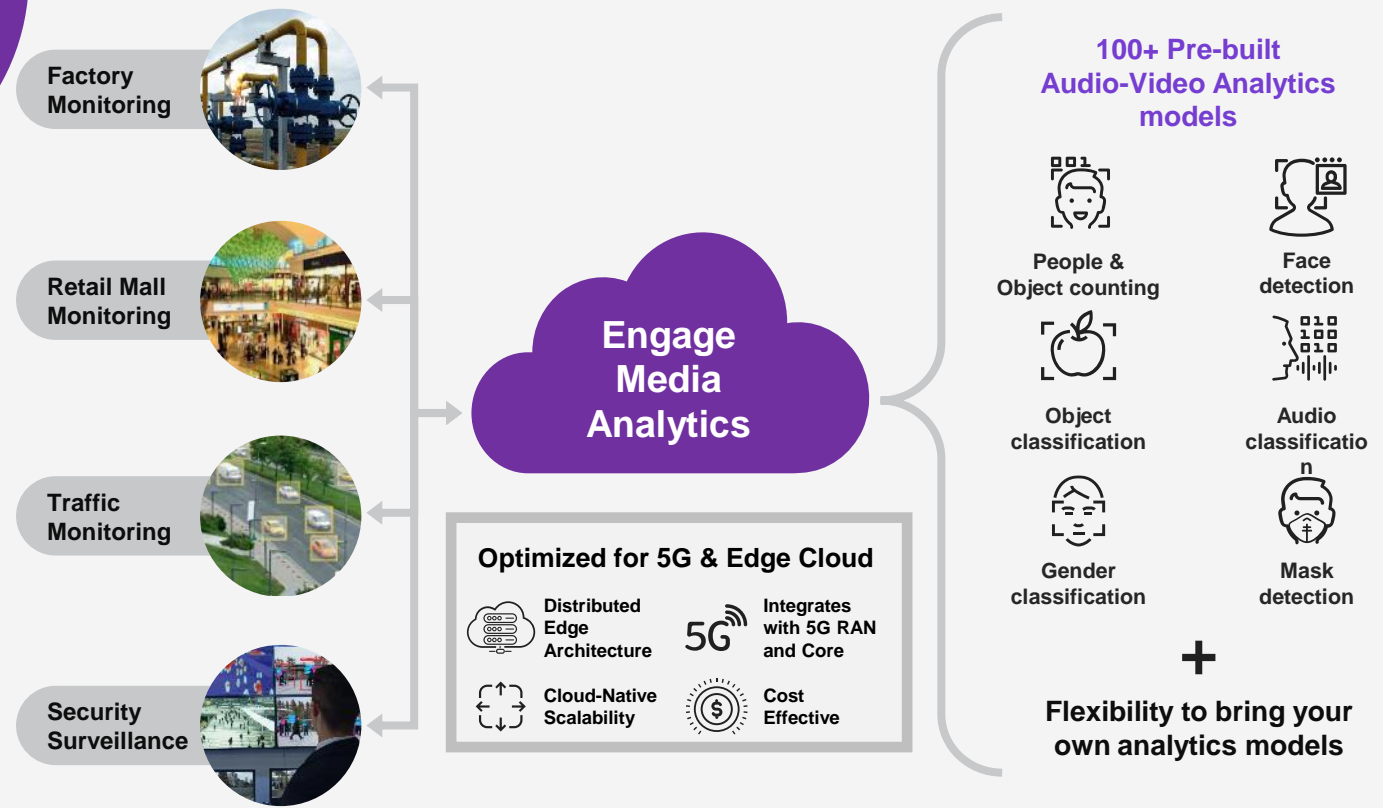
Based on carrier-proven underlying technologies deployed by 200+ mobile operators globally

ENGAGE MEDIA ANALYTICS

## Monetize 5G & Edge Cloud Investments














- ✓ Integrated Programmable Audio-Video AI Analytics & Communications
- ✓ Intuitive Low-Code / No-Code Visual Design Tool, REST APIs, SDKs
- ✓ Open & Extensible Platform
- ✓ Data Privacy & Control

### Programmable Computer Vision Analytics

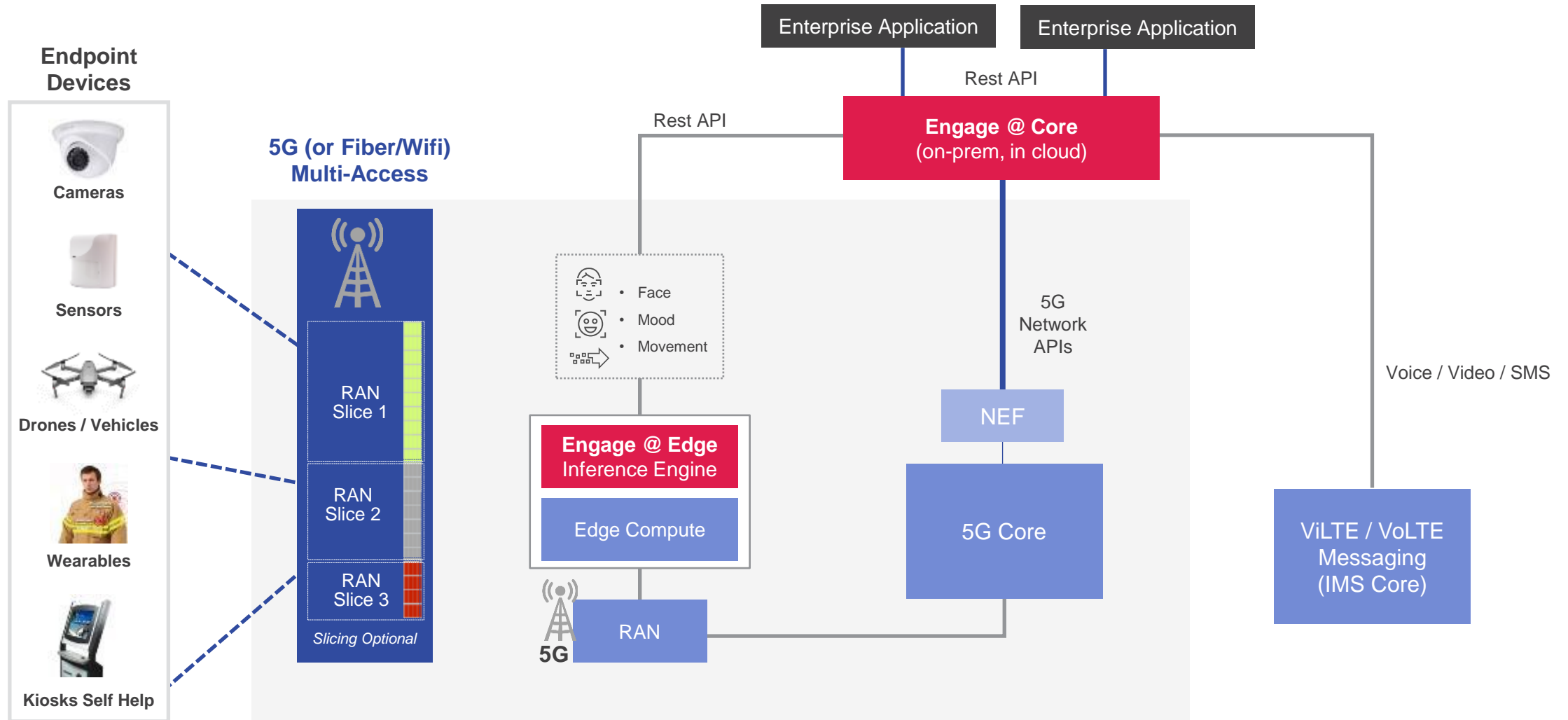


Removes Complexities to Create and Scale Industry 4.0 Applications

## Communications + Computer Vision

 <p><b>Expedite Airport</b> or stadium entry based on Face Match</p>	<b>Vertical Specific Digital Automation Applications</b>	 <p><b>Monitoring Drive</b> through lines for wait times and cars leaving for revenue loss analysis</p>	 <p><b>Monitoring emotions</b> of people in retail shop, classroom, stadiums, public meetings</p>	
 <p><b>Demographic analysis</b> of people (age, gender, sex) in crowded places</p>	 <p><b>Notifying concierge</b> when a guest in a wheelchair needs assistance</p>		 <p><b>Notifying assistant</b> when an elderly at-home patient has fallen from the bed</p>	 <p><b>Augment emergency</b> call live agent discussion by identifying critical keywords or background sounds</p>
	 <p><b>Detecting a fire</b> in a factory, campus building and alerting emergency services personnel</p>	 <p><b>Detecting a gun shot</b> in a building and immediate alert law enforcement services</p>	 <p><b>Monitoring warehouse</b> shelves for inventory management</p>	 <p><b>Identify Shopper</b> traffic volume in retail aisles and send special deals/ coupons</p>

# Distributed Deployments @ Multi-Access Edge



Distributed: uServices and Container Workloads

# US DoD/ NTIA 5G Challenge: Consecutive wins



**Winner of Grand Prize  
Stage 4 Mobility**



**Winner of Second Prize  
Stage 3 End to End Test**



Distributed Unit (DU)

**\$250,000 WINNER**

**Winner  
Stage 3 Network Integration**



Software Bill of Materials (SBOM)

**\$200,000 WINNER**

**Winner  
Best SBOM**

2023



2022

- Send them to
  - Prakash Siva (psiva@radisys.com)
  - Kevin Cackovic (kevin.cackovic@intel.com)





# Radisys

Thank You