



Michel Trudelle
Sales Director (APAC)
michel.trudelle@cloud-ran.ai
+65 9898 8550

cloud-RAN.ai Portfolio

For Private Networks and Fixed Wireless Access

www.cloud-net.ai
www.cloud-ran.ai

Company Overview

Headquarters

Singapore

With offices in Europe and North America

Subsidiary

CloudRAN.AI – specializing in AI-driven Private 5G solutions

Founded

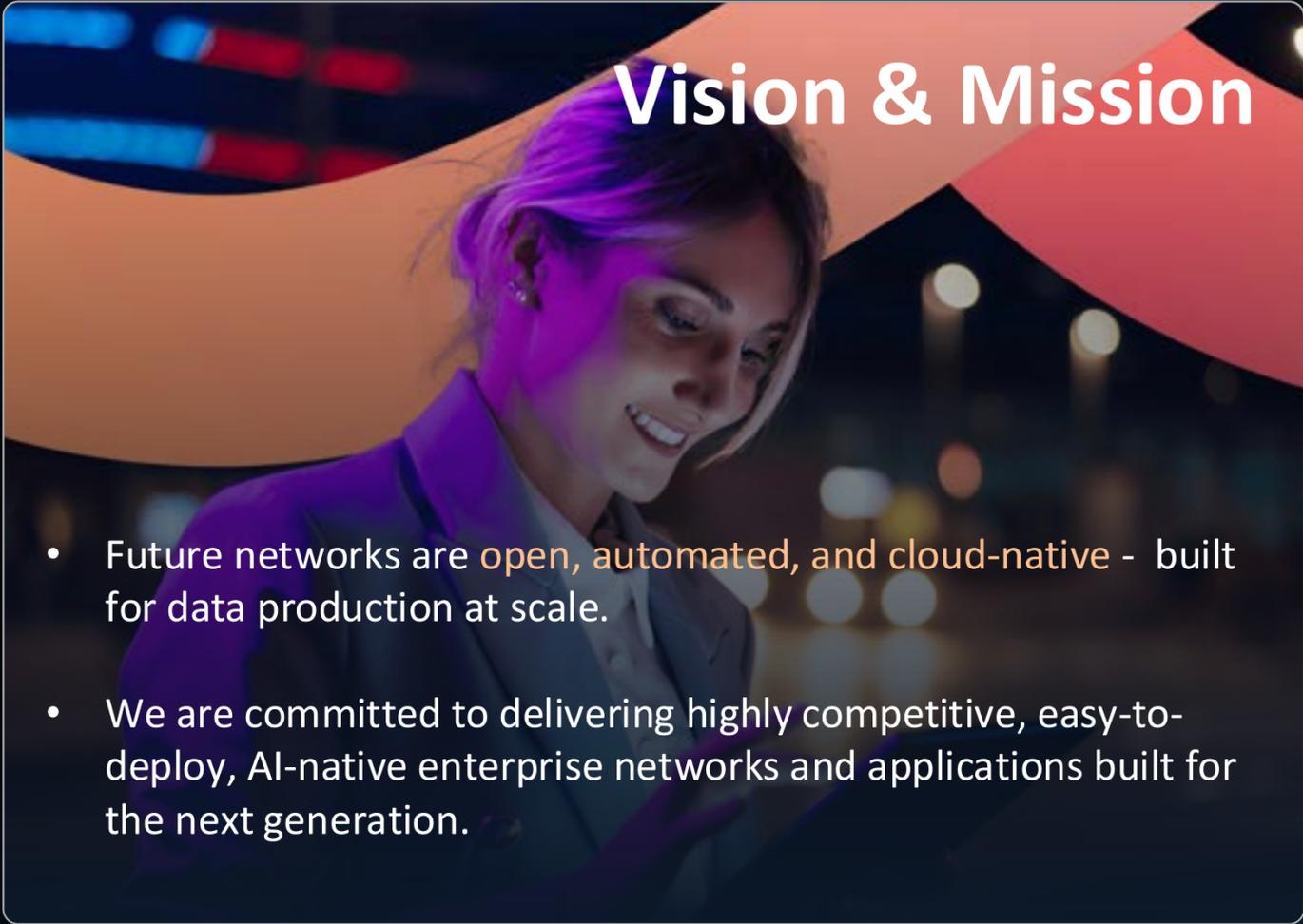
2023

Acquired

AsiaInfo International

2024

Vision & Mission

A woman with blonde hair, wearing a grey blazer, is smiling and looking down at a tablet device. The background is a blurred city street at night with colorful lights and a large, curved architectural element in shades of orange and red.

- Future networks are **open, automated, and cloud-native** - built for data production at scale.
- We are committed to delivering highly competitive, easy-to-deploy, AI-native enterprise networks and applications built for the next generation.



Czech Republic

 Alternetivo

France

 Eutel

Denmark

 Communica

Telenor

Iceland

 Síminn

Germany

 Ambiance_TV

M3Connect

Simalasim

IME

United Kingdom

Green Co

University of Sheffield AMRC

Simpli-Fi

Catapult

AWTG

Digis2

Vodafone

Spain

ITCL

I.T.I

Switzerland

 Absolut Distribution AG

Netherlands

MCS

Terra Mobile

U.S.

Ramen Networks

University of Nebraska

Highway 9 Mobile Cloud

AWS

Gambia

 QCELL

South Africa

 MTN

Zambia

 Zed Mobile

Botswana

 BTCL

Pakistan

 Zong

India

 Airtel

Australia

 Bai Communications

Nepal

 Nepal Telecom

Japan

 Hanshin Electric Wire & Cable Co

Singapore

 Singapore Institute of Technology (SIT)

Fiji

 TFL

Laos

 ST Engineering

ETL

Our Solutions at a Glance

Gen-AI Product Catalog

Enables swift creation and deployment of new services using natural language interfaces.



Veris Cloud BSS

A modular, AI-native platform streamlining business support systems.



Megrez AI

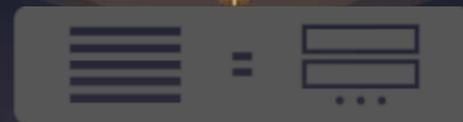
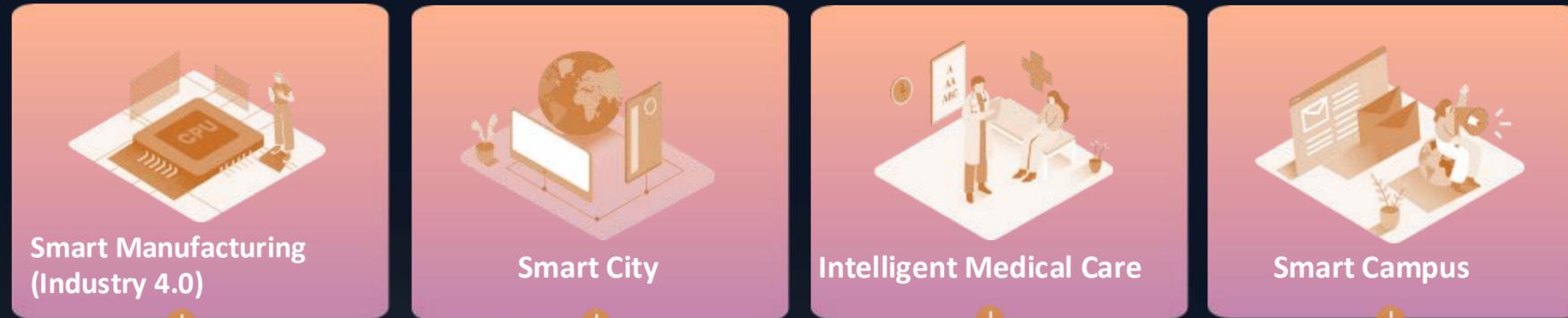
An intelligent tool for rapid and accurate network planning.



Private 5G Stack

End-to-end solutions for deploying and managing private 5G networks.

CloudRAN.AI P5G Solution Framework



CRAI Cloud OMC



CRAI 5G core

CloudRAN.AI
All-In-One gNB



5G



5G OT application as ecosystem

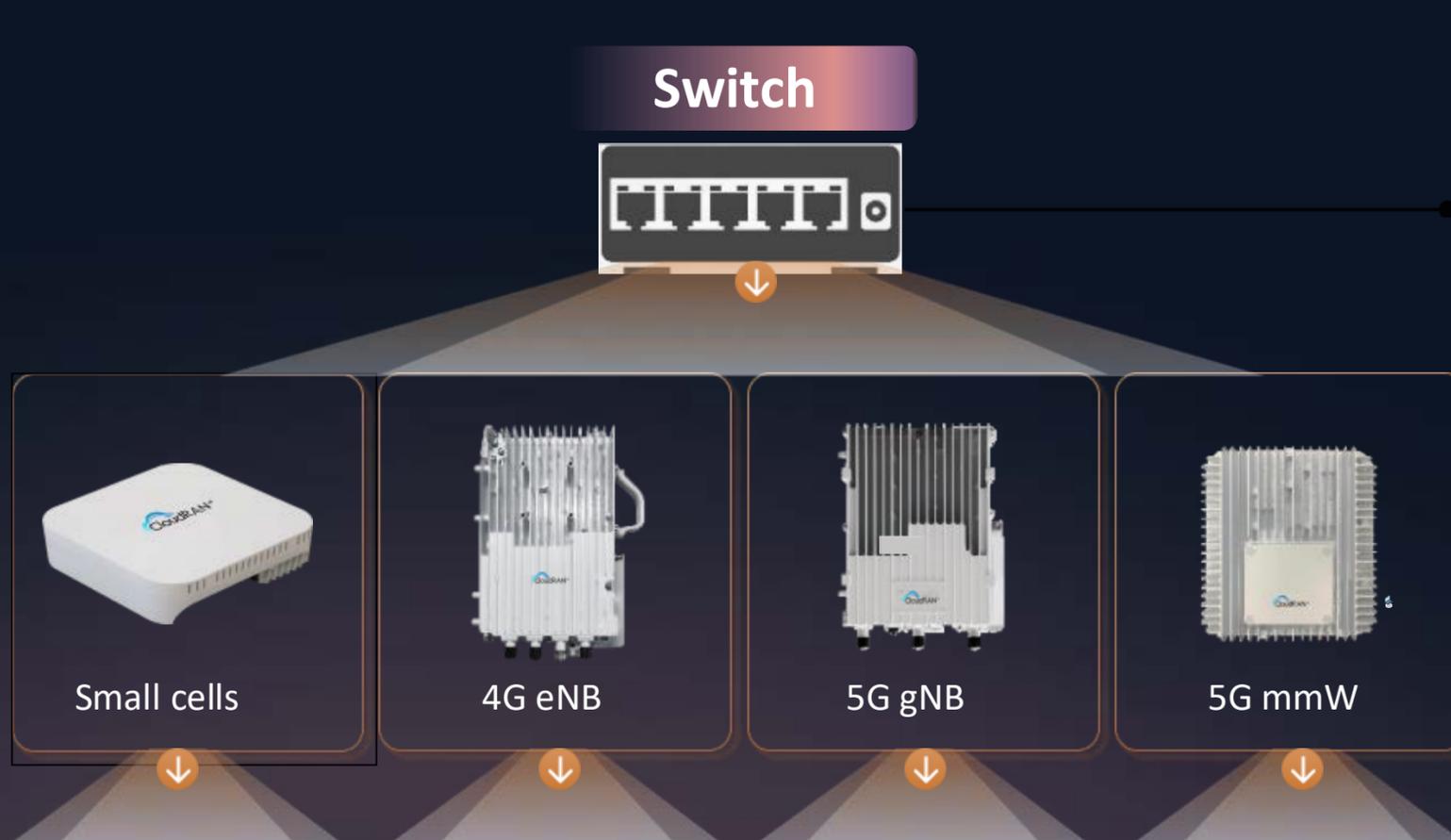
- CRAI supports E2E optimization of the application
- Supports multiple P5G scenarios

Cloud-based OMC system

- Supports core network interfacing
- Support for customized optimization of product performance
- High Quality-Price ratio
- Flexible deployment
- Easy IT Setup
- Zero touch deployment
- Support for customized optimization of product performance

Terminals in various scenarios

Core Network (4G/5G)



NB-IoT/EPC/5GC/IMS



20Gbps+

Max throughput



Internet



2K+

4G/5G base stations



50K+

Online users



1M+

Subscriber users

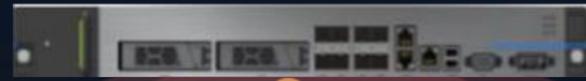
Highlights

- Multi-platform: EPC, 5GC, IMS, NB-IoT core functions.
- 4G&5G&NB-IoT data, VoLTE, VoNR, 4G&5G SMS
- Mobility, Multi-APN, 4G&5G roaming, billing, emergency call.
- Interfacing with PBX.
- Up to 1 Million subscriber and 50,000 online users, with 2,000 eNB/gNB 20Gbps per server

Private 5G Products

5GC With VoLTE

Network Management System



Vega250

2*250mw



Polaris10

2*10w
(2*3W with CE)



Polaris40

2*40w



Polaris440

4*40w



Polaris40m

64*500mw

N77, N78, N79

Power UP!

Our Solutions at a Glance



Megrez AI

Revolutionizing Network Planning

Capabilities

- ▶ AI-driven network design and optimization.
- ▶ Utilizes extensive data points for precise planning.
- ▶ Achieves high planning accuracy, reducing manual efforts.

Impact

- ▶ Cuts planning time significantly.
- ▶ Empowers in-house teams to manage network planning without external dependencies.
- ▶ Facilitates rapid deployment of private 5G networks.



Private 5G Stack

Tailored Connectivity Solutions

Components

- ▶ Cloud-native OpenRAN infrastructure ensuring flexibility.
- ▶ AI-enhanced network management system for efficient operations.
- ▶ Seamless integration with Veris BSS for unified management.

Use Cases

- ▶ Industrial automation.
- ▶ Smart cities.
- ▶ Healthcare facilities.
- ▶ Transportation hubs.

5G Core Network



Description

- Combines the functions of 4G core network Evolved Packet System (EPC), 5G core network (5GC), and converged communication IMS.
- The Core can be deployed on a general-purpose server or cloud environment, it has high throughput and flexible deployment characteristics and can be centrally deployed on the same server. It supports flexible configuration of system capacity to meet the changes of users and business requirements, saving operational investment.

Features

Multi-platform: EPC, 5GC, IMS, NB-IoT core functions

4G&5G&NB-IoT data, VoLTE, VoNR, 4G&5G SMS

Mobility, Multi-APN, 4G&5G roaming, billing, emergency call

Interfacing with PBX

Up to 1 Million subscriber and 50,000 online users, with 2,000 eNB/gNB
20Gbps per server

Supports virtualized deployment and general server deployment

Supports multiple PLMNs

Supports short number interconnection

Supports VoLTE and VoNR high-definition voice calls

Supports simultaneous data services and voice services

Supports interconnection with voice gateways

Supports conversion between various voice codecs

Hardware Requirement:

CPU: Intel E5-2678 (12C24T) *1

Memory: 32GB DDR4 Hard

disk: 480GB*2 SSD

Network card: 4RJ45, 210G SFP+

Power: 600W

Capacity / Throughput: Number of base stations: 100 Number of users: 10,000 Number of sessions: 40,000 Throughput: 10Gbps

Base Band Unit (BBU)



Highlights:

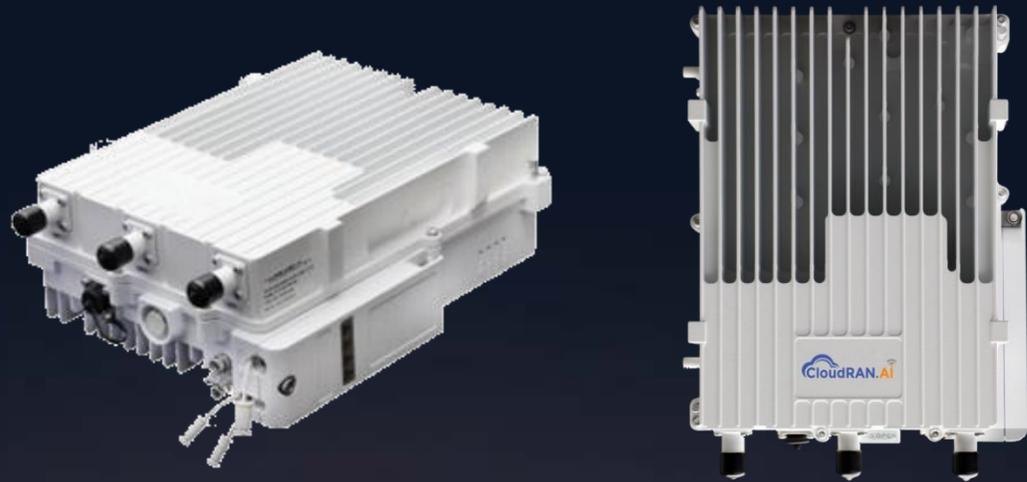
- 4G/5G dual mode
- BBU & RRU Splitting deployment
- CU/DU integrated or split (2 cells per DU)
- Up to 100 MHz bandwidth per cell
- Peak rate (up to): DL 1.5 Gbps, UL 300 Mbps
- Maximum 2 NR 4TR cells or 4 NR 2TR cells, 1200 users per cell
- Dual mode support 1x2TR LTE+2x2TR NR cells
- Cell selection / Reselection and NG-based handover
- SMS and VoNR and EPS fallback

Features

Model	CRAI BBU
Processor System	Maximum dual CPU of Intel Xeon Processor, 2nd scalable, Family up to 28 cores, 205W
Multiplexing	2x2 MIMO or 4x4 MIMO (DL)
Capacity	5G mode: 2 x 4T4R 100Mhz cells 4G and 5G mode: 1x2T2R LTE+2x2T2R NR cells
Synchronization	GPS
Backhaul	1 x 10G optical (SFP+)
Fronthaul	4 x optical (SFP+) (10Gbps) for CPRI
Modulation	UL: QPSK, 16QAM, 64QAM, 256QAM DL: QPSK, 16QAM, 64QAM, 256QAM
Power supply	(AC) 90VAC -264VAC, 12A-10A, 50-60Hz (DC) - 40VDC -57VDC, 40A-25A (optional)
Power consumption	Single mode < 330W, dual mode < 350W
Dimension	3.5 x 16.9 x 16.9 inches 88 x 430 x 430 millimeters
Weight	39.7lbs ~ 44.1lbs / 18kg ~ 20kg
Installation	Standard 19 inches cabinet or wall mount
MTBF	≥ 150000 hours
MTRR	≤ 1 hour
Temperature	23°F to 131°F / -5°C to 55°C
Humidity	5% to 95% RH



Outdoor gNB / Polaris 10



Highlights:

- All-in-one and high-integrated, portable and 0 footprint
- Outdoor 5G integrated gNB (CU+DU+RU)
- Support AC/DC input; external antenna or integrated antenna
- 1200 RRC connected users;
- Peak rate (up to) DL 850 Mbps, UL 660 Mbps
- Modulation: DL:256QAM; UL:256QAM
- (FWA & private network) Coverage distance <2KM

Features

Model	Polaris10 2x10W outdoor gNB
Frequency band	n41/48/77/78/79
Bandwidth	10/20/30/40/50/60/80/90/100 MHz
Carriers	single carrier
Synchronization	GPS
Max Output Power	40 dBm / channel x 2 channels
Antenna	External high gain antenna
Antenna port	2T2R
RF connector type	N-Type connector
Data interface	1 optical (SFP+) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	90VAC to 264VAC, 47Hz to 63Hz or -40VDC to -57VDC, nominal -48VDC
Power consumption	Maximum 150W
Dimension	13.1 x 9.4 x 4.3 inches 333 X 240 X 109 millimeters
Weight	18.7lbs / 8.5kg
Installation	Pole or wall mount
Ingress Protection Rating	IP65
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40°F to 149°F / -40°C to 65°C
Humidity	2% to 95%



Outdoor gNB / Polaris 440



Highlights:

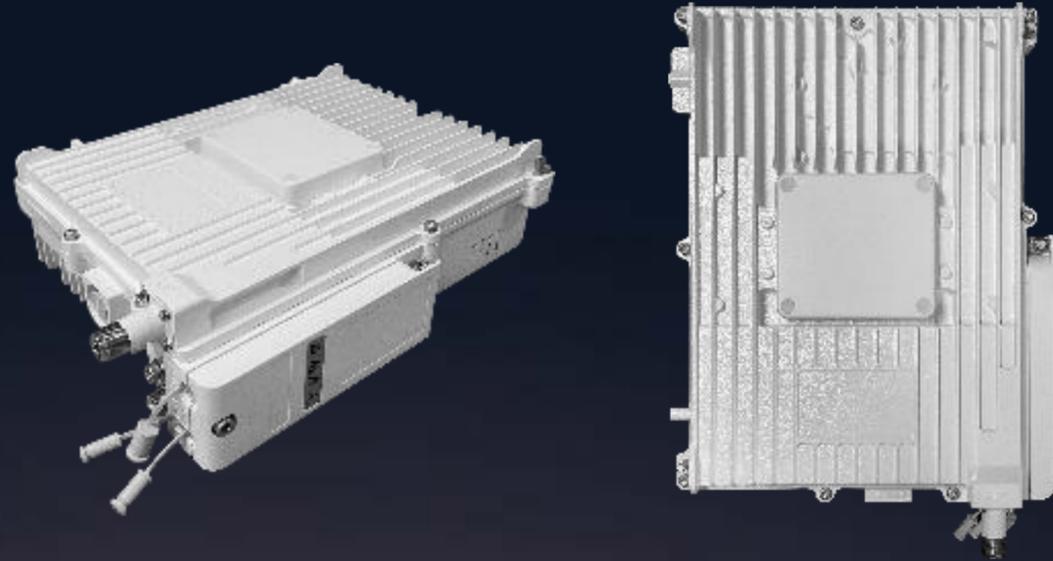
- All-in-one and high-integrated, portable and 0 footprint
- Outdoor 5G integrated gNB (CU+DU+RU)
- Support AC/DC input; external antenna or integrated antenna
- 1200 RRC connected users;
- Peak rate (up to) DL 1500 Mbps, UL 660 Mbps
- Modulation: DL:256QAM; UL:256QAM
- (FWA & private network) Coverage distance 10KM

Features

Model	Polaris440 4x40W outdoor gNB
Frequency band	n78
Bandwidth	10/40/50/60/70/80/90/100MHz
Carriers	dual carrier
Synchronization	GNSS/IEEE 1588V2
Max Output Power	46 dBm / channel x 4 channels
Antenna	External high gain antenna or integrated antenna
Antenna port	4T4R
RF connector type	N-Type connector
Data interface	3 optical (SFP+) and 1 RJ-45 Ethernet interface (2.5 GE)
Power supply	-40VDC to -57VDC, nominal -48VDC
Power consumption	Maximum 650W
Dimension	527 X 308X 120 millimeters
Weight	18kg
Installation	Pole or wall mount
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40°F to 131°F / -40°C to 55°C
Humidity	5% to 95%



Outdoor gNB / Polaris mmW



Highlights:

- All-in-one and high-integrated, portable and 0 footprint
- Outdoor 5G integrated mmW gNB (CU+DU+AAU)
- Urban/ rural broadband coverage
- 64 dual-polarized antenna elements, built-in with Maximum +/-60 degrees
- 4CC and 600 RRC connected users;
- Peak rate (up to) DL 2Gbps, UL 140 Mbps

Features

Model	Polaris 6479m outdoor mmW gNB
Frequency band	n257,n258partially,n261
Bandwidth	100MHz
Carries	4 carriers
Synchronization	GPS
Max Output Power	49dBm EIRP Max. (H+V polarization)
Antenna	64 dual-polarized antenna elements, built-in with Maximum +/-60 degrees
Data interface	1 optical (10G SFP+) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	-40VDC ~ -57VDC, nominal -48VDC
Power consumption	Typical100W, Maximum 120W
Dimension	310 X 240 X 88 millimeters
Weight	5.2kg
Installation	Pole or wall mount
Ingress Protection Rating	IP65
MTBF	≥ 150000 hours
MTRR	≤ 1 hour
Temperature	-40°F to 149°F / -40°C to 65°C
Humidity	5% to 95%



Indoor gNB / Vega 250



Highlights:

- All-in-one and high-integrated, ultra simplified design
- Indoor 5G integrated gNB (CU+DU+RU+antenna)
- Max 24 dBm each port; (2*24dbm)
- 128 RRC connected users;
- Peak rate (up to) DL 850 Mbps, UL 600Mbps
- Latency 10 milliseconds;
- Modulation : DL:256QAM; UL:64QAM
- Coverage area is up to 2,000m²

Features

Model	Vega250 2x250mW indoor gNB
Frequency band	n41/48/78
Bandwidth	n41: 100MHz n48: 10/20/30/40MHz n78: 10/20/30/40/50/60/80/90/100MHz
Carriers	Single carrier
Synchronization	GPS/NL/1588v2
Transmit power	0 to 27 dBm (combined, with 1 dB interval)
Antenna type	Internal 2T2R omni antenna
Backhaul	2 x RJ-45 Ethernet interface (1 GE) 1 x 1GE optical interface (SFP) 1 x 10GE optical interface (SFP+)
Power supply	12VDC/POE++
Power consumption	Maximum 30W
Dimension	7.9 X 7.9 X 1.9 inches / 200 X 200 X 49 millimeters
Weight	1.1kg
Installation	Ceiling or wall mount
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23°F to 113°F / -5°C to 45°C
Humidity	5% to 95% RH

SCN – Small Cell Node



Description

The Small Cell Node (SCN) is a virtualization product which includes a Security (SeGW) and a Signaling gateway (SigGW).

- Supports multiplicity of small cell backhaul to simplify deployment of small cells.
- Provide security gateway function and IPsec protection for signaling and data between small cells and 5GC, as well as management of traffic between OMC and small cells.
- It provides the SigGW function, supports S1/N2 link aggregation, saves transmission resources, and supports the quick deployment of small cells.

Features

Decoupling between software and hardware, can be deployed both on X86 servers with bare metal mode and cloud with virtual machines mode.

Support simultaneous access of 4G LTE small cells, 5G NR small cells, and NB-IoT small cells.

Provide standard S1/N2 interfaces. Support the access of small cells from different manufacturers and to communicate with EPCs/5GCs from all major suppliers.

Comply with 3GPP R16 standard.

It integrates Radius Server functions, supports EAP-AKA authentication, and requires no additional AAA authentication server.

Support high reliability 1 + 1 redundant backup for fast business recovery.

Compact and high performance, a single product can support 20Gbps throughput.

Hardware Requirement:

CPU: Xeon 5317 (12C-24T, 3.0GHz)*2
 RAM: 64G
 Hard Disk: 2TB * 2
 Network port: 1GBE * 2, 10GB SFP+*4

Capacity / Throughput:

Max access small cells:
 10,000
 Max IPsec connections:
 10,000
 Throughput: 10Gbps

Indoor pRU 6250



Highlights:

- Simplified construction, lighter and more flexible
- Plug and play, easy to installation
- Shopping mall / multi-floor coverage
- LTE mode support 4x4MIMO, 256QAM, 512 users per cell
- NR mode support 4x4MIMO, 256QAM, 1200 users per cell

Features

Model	CRAI RU 4x250mW indoor RRU
Frequency band	5G: N41/N78 4G+5G: B3+N41
Bandwidth	4G: 5/10/20 MHz 5G: 100MHz
IBW	100Mhz
OBW	4G: 40Mhz; 5G: 100Mhz
Max Output Power	24 dBm / channel x 4 channels
Antenna	Internal antenna
Antenna port	4T4R/2T2R
Rx Sensitivity	4G: -102 dBm; 5G: -94dBm
Fronthaul	1 x 10GE optical fiber interface (SFP+), LC 1 x 10GE Ethernet interface (RJ-45)
Power supply	-40.5 to 57 VDC, Nominal -48VDC or 48V PoE power supply, comply with IEEE 802.3at standard
Power consumption	Typical 39W, maximum 45W
Dimension	8.1 x 8.1 x 2.3 inches; 205 X 205 X 58 millimeters
Weight	6.6 lbs / 3.0kg
Installation	Ceiling or wall mount
MTBF	≥ 150000 hours
MTRR	≤ 1 hour
Temperature	23°F to 104°F / -5°C to 45°C
Humidity	5% to 95%



Indoor Hub Expansion Unit



Highlights:

- Up to 8 pRRU are supported
- Provide power supply to pRRU with photoelectric composite cable
- Support two layers cascade of rHUBs
- Realize uplink signal centralizing and uplink signal broadcast of pRRUs
- Remote monitor, operate, software upgrade and manage by NMS
- Realizing 4G, 5G, or 4G+5G network coverage

Features

Power Supply	90~264VAC, 47~63Hz
Power Consumption	Typical 45W, maximum 55W
DC 54V Output Power	8 x 100W
Upward /Cascaded	2 x SFP28 with 25Gbps (redundant 2 x SFP28, future software release)
Downward	8xSFP+ with 10 Gbps
Mgmt. Interface	One RJ-45 Ethernet interface (1FE); One RJ-45 interface (1 RS232)
Cascading Level	Maximum 2 rHUBs for cascading
Remote Distance	200 meters of photoelectric composite cable
Dimensions (HxWxD)	1.73 x 17.3 x 9.8 inches;44 x 440 x 250 millimeters (Standard 19 inches cabinet)
Weight	11.0lbs / 5kg
rHUB Distribution	2NR (4T4R) + 2LTE (2T2R); 4NR (2T2R) + 2LTE (2T2R)
MTBF	≥ 15,000hours
MTTR	≤ 1 hour
Operating Temperature	23°F to 113°F / -5°C to 45°C
Humidity	5% to 95%

OMC

Description



Description:

The CRAI OMC is an operation and maintenance center (OMC) system developed for managing network devices. Operators use it to monitor, configure, maintain, and upgrade network devices.

Features

Monitor and maintain all network elements eNB, gNB, CPE, SCN

Alarms and notification

KPI analysis and report

Show network elements on the map

Signaling trace

SAS-DP integrated

Flexible deployed on cloud or server

High stability with 1+1 backup

Hardware Requirement:

CPU: (8C16T, 2.1GHz) *2

RAM: 64G DDR4 ECC

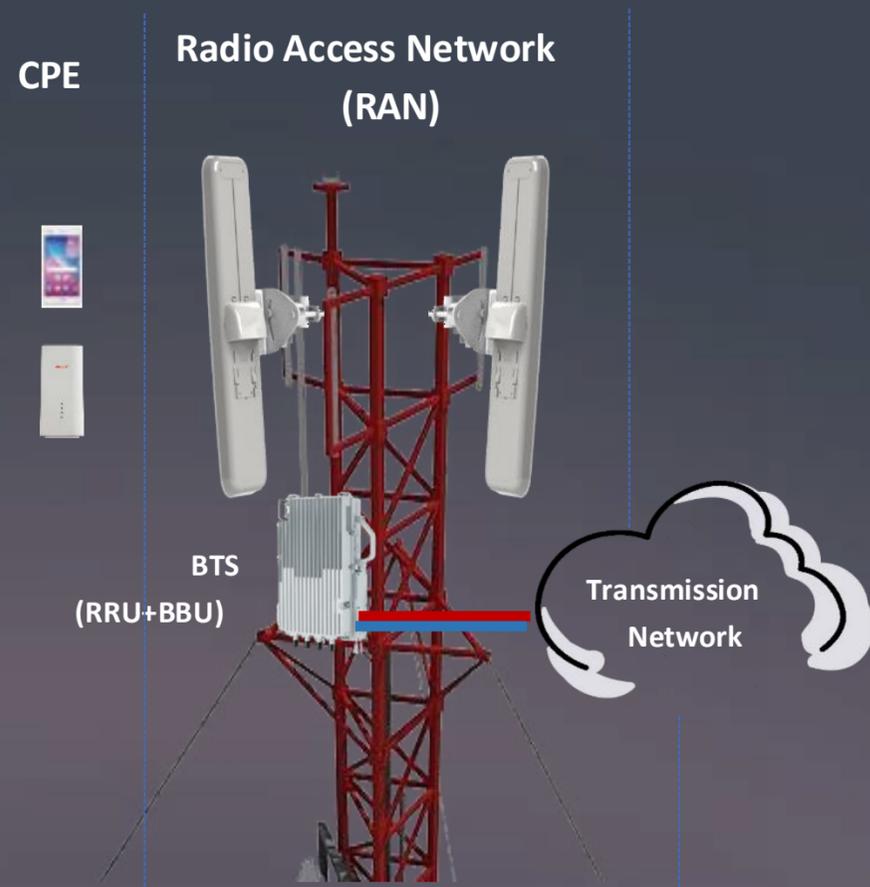
Hard Disk: 2.5" 2T *2 Server Disc

Ethernet Ports: 4*GE RJ45

Capacity:

10,000gNBs

Integrated RAN (BBU+RRU)



Integrated RAN / Models and Bands

Polaris 10: n77(CE), n78 (L/H CE), n79, n48, n41

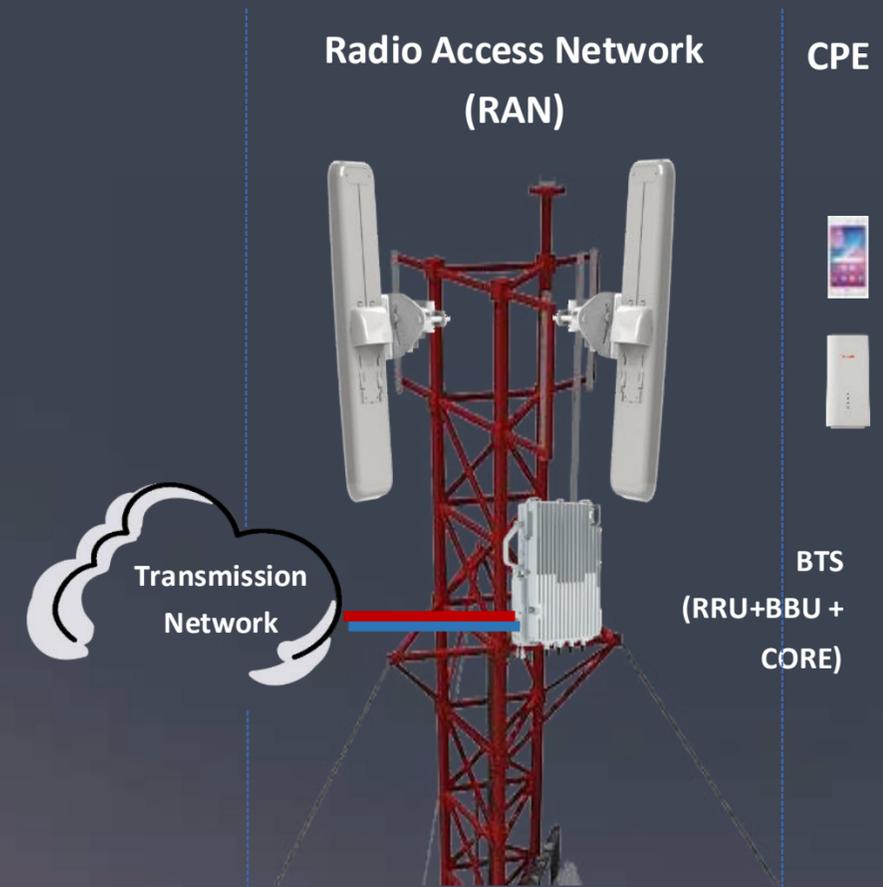
Polaris 440: n78, n40(blocked)

Polaris mmW: n257(CE),n258,n261

Vega 250: n78,n48,n41

CRAI RU4250: n78,n41

All-in-One (BBU+RRU+CORE)



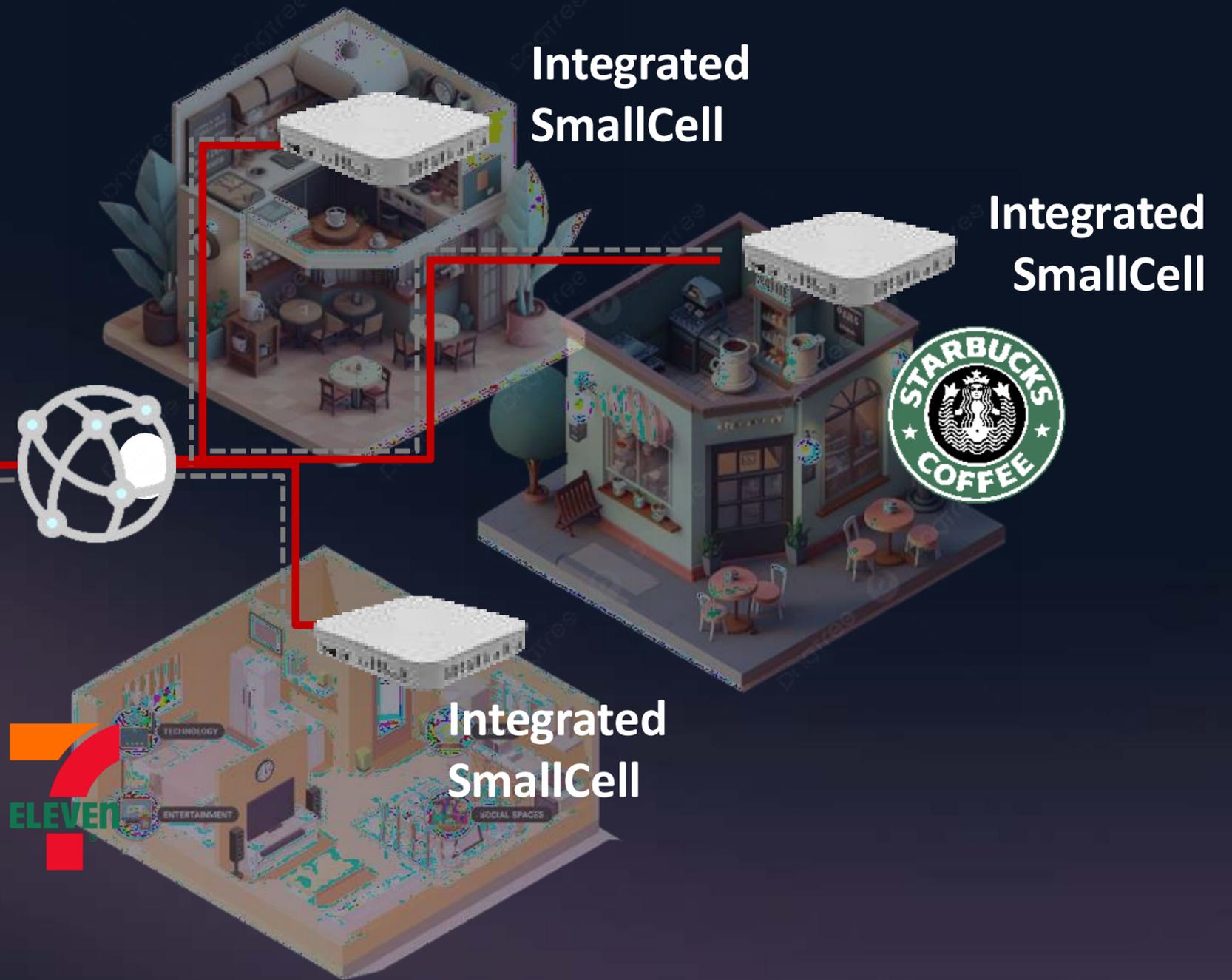
All in One / Models and Bands

Polaris 10: n77(CE), n78 (L/H CE), n79, n48, n41

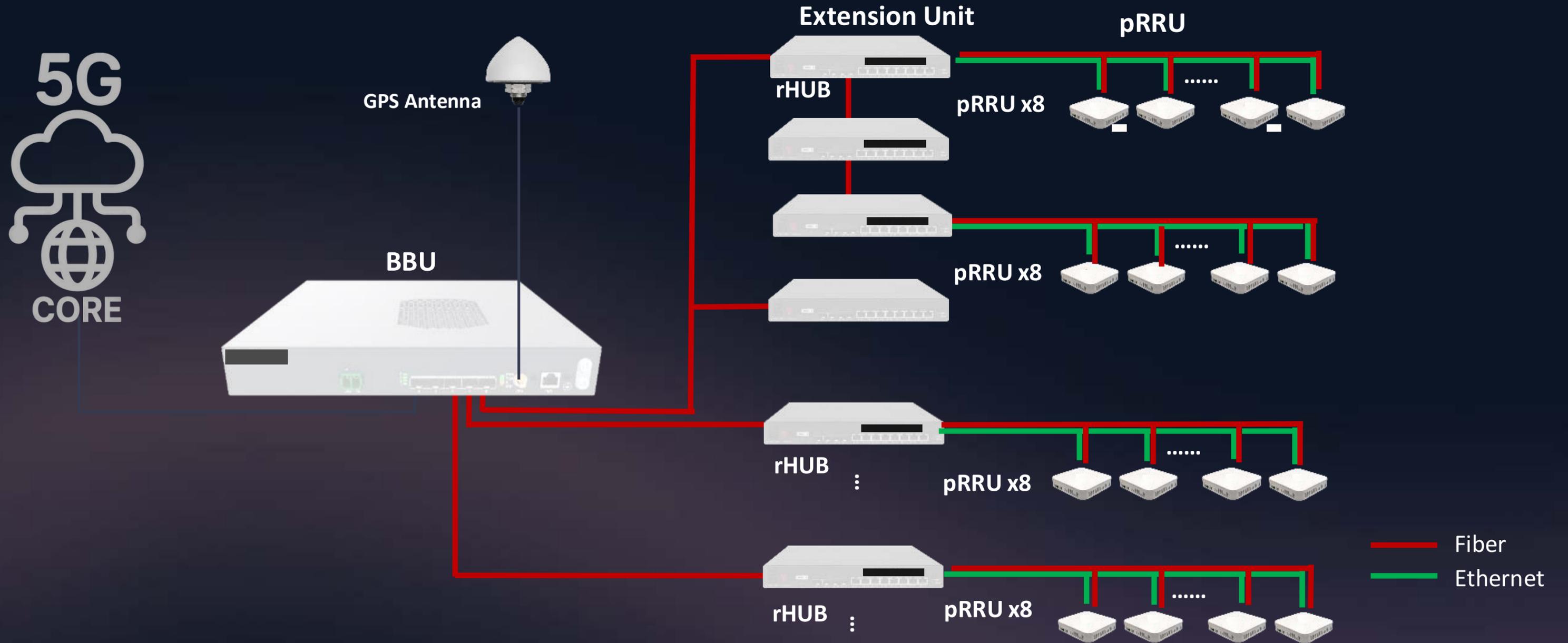
Polaris 440: n78, n40

Polaris mmW: n257(CE),n258,n261

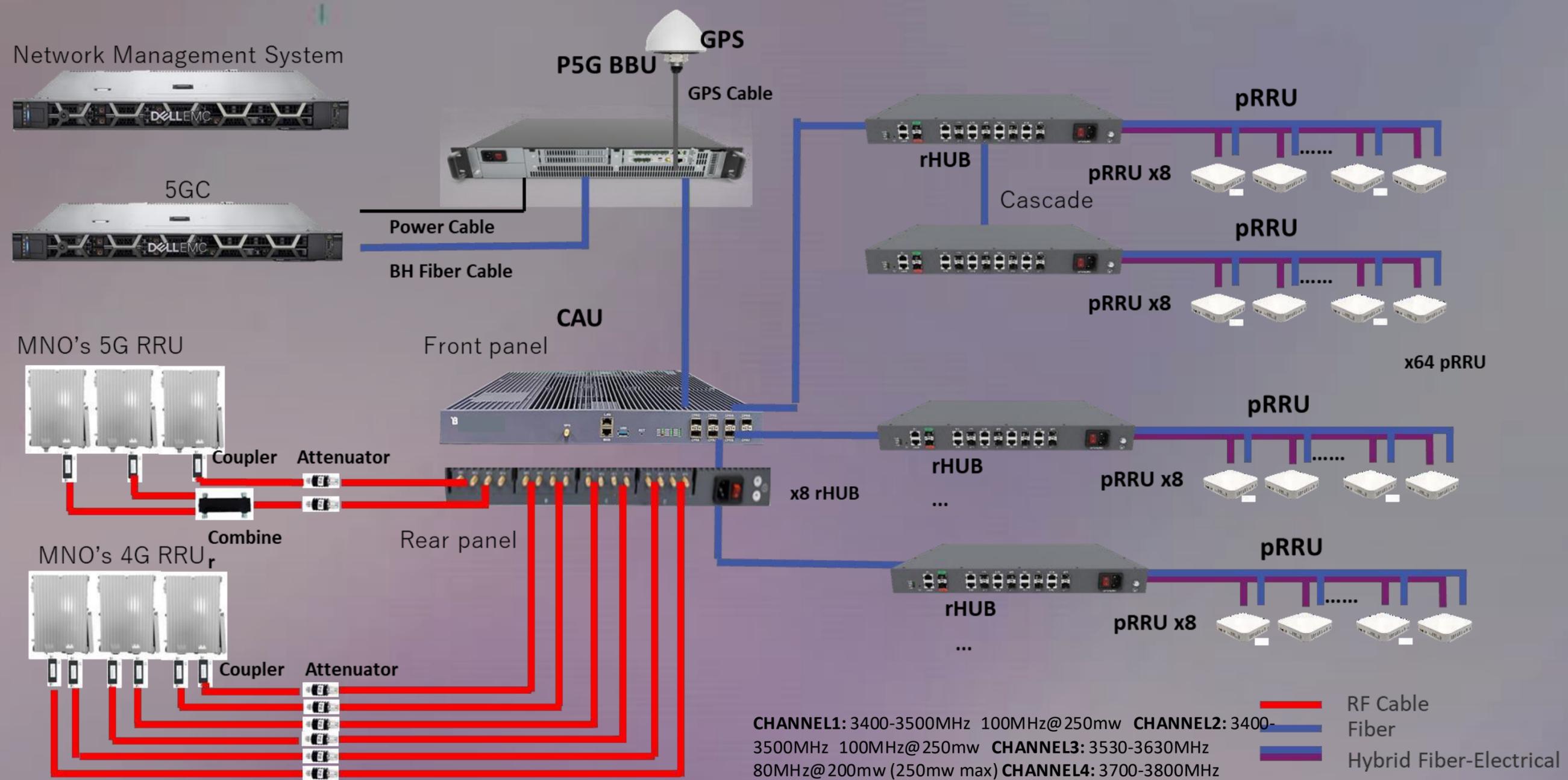
5G Small-Cell Architecture



5G Distributed RAN Architecture



5G Hybrid Private / Public



Maximum Configuration :
1xBBU – 1xCAU – 8xrHub – 64xpRRU
~5,000m²

CHANNEL1: 3400-3500MHz 100MHz@250mw **CHANNEL2:** 3400-3500MHz 100MHz@250mw **CHANNEL3:** 3530-3630MHz 80MHz@200mw (250mw max) **CHANNEL4:** 3700-3800MHz 40MHz@100mw (250mw max) **CHANNEL5:** 832-862Mhz/791-821MHz 30MHz@100mw (125mw max) **CHANNEL6:** 832-862Mhz/791-821MHz 30MHz@100mw (125mw max)
 1w total Tx power allowed by regulation

Outdoor Distributed Solution Q2 July



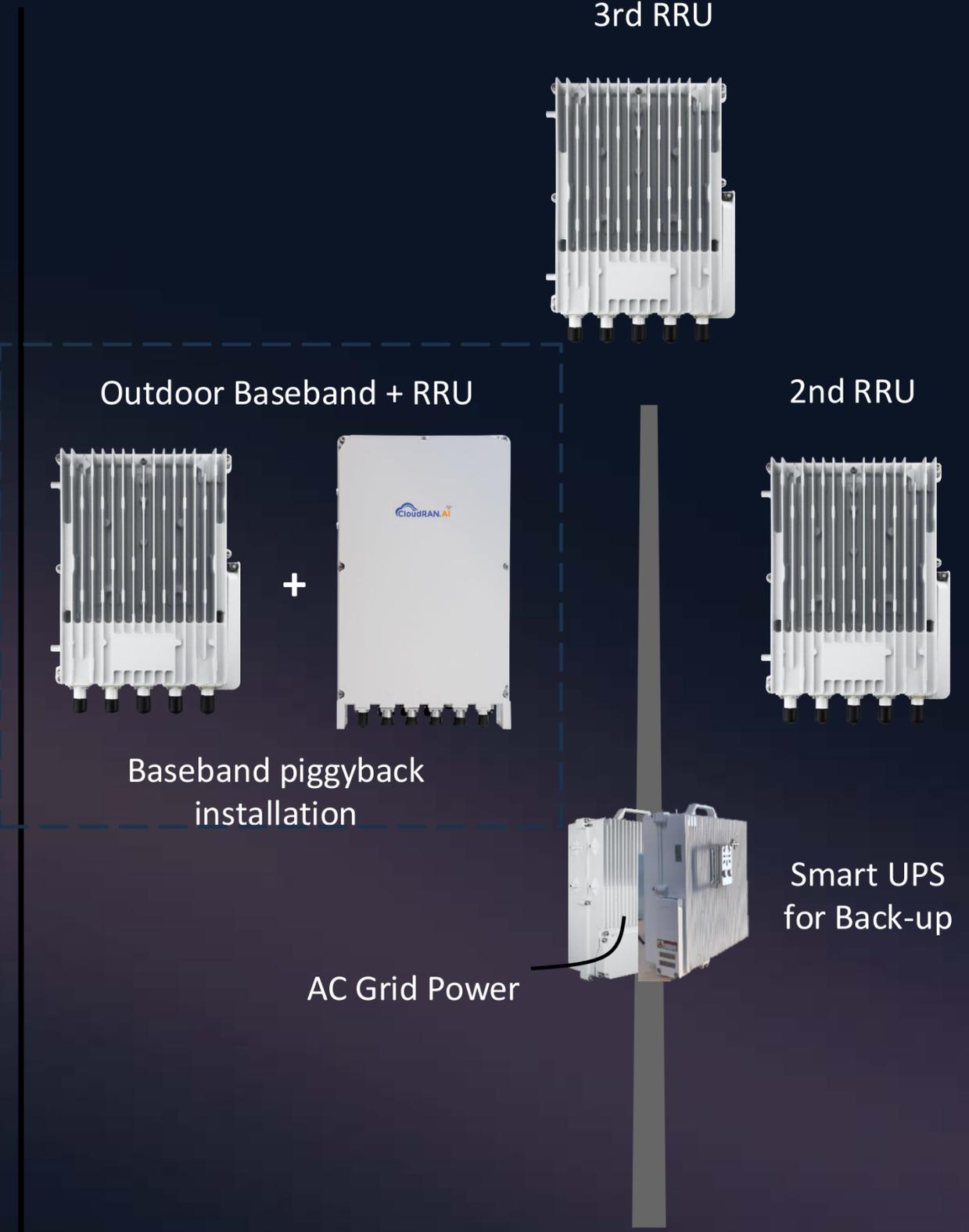
Outdoor Baseband Unit

- NR 3 Cells@8T8R 100MHz or
- Connects up to 3 radio
- 1200 RRC connect users
- DC power supply



Remote Radio Unit

- 8T8R 100MHz, up to 100W RF
- Antenna options
- piggy-back installation



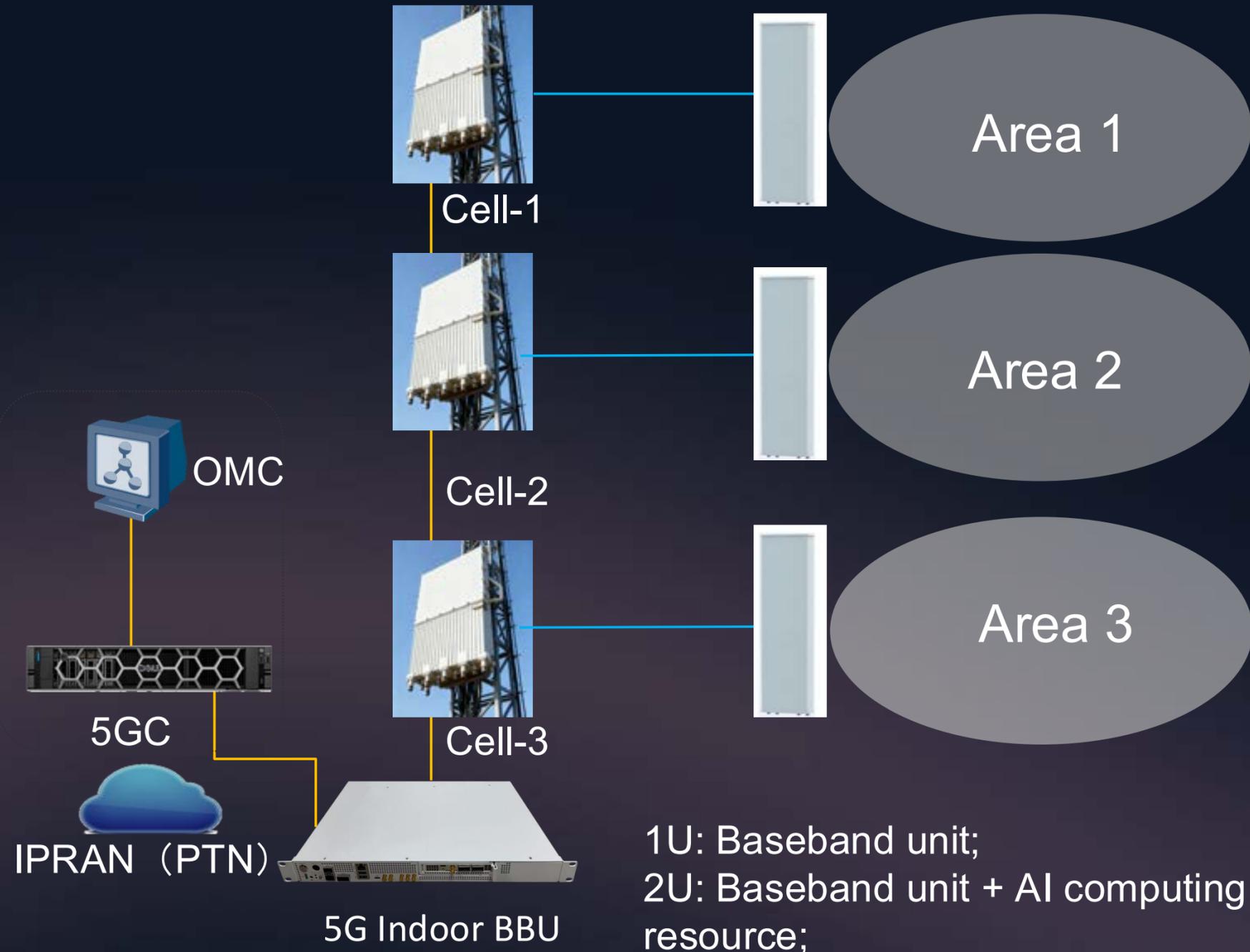
Supported frequency bands:

- N41: 8*40W
- N48: 8*10W (5W) FCC
- N78 (L+H): 8*40W
- N77H (3800-4200): 8*20W

Advantage:

- Continuous coverage in large scenarios, Airports, harbors, etc.
- Suitable for high-power distributed base station and integrated base station solutions;
- Cost-effective solution

Outdoor Distributed Solution Q2 July



— Fiber
— RF Cable

Outdoor Baseband Unit

- NR 3 Cells@8T8R 100MHz or
- Connects up to 3 radio
- 1200 RRC connect users
- DC power supply

Remote Radio Unit

- 8T8R 100MHz, up to 100W RF
- Antenna options
- piggy-back installation

Advantage:

- Continuous coverage in large scenarios, Airports, harbors, etc.
- Larger coverage distance and rapid capacity expansion.
- Flexible deployment;

Warehouse P5G Deployment

Simple & Fast

Customer Profile:

A leading Swedish manufacturing plant

Overview

To improve operational efficiency and logistics coordination, the customer deployed a Private 5G (P5G) network across its outdoor warehouse.

The goal: enable remote scheduling of forklifts and Automated Guided Vehicles (AGVs) to boost safety, flexibility, and automation in daily operations.



Service Requirements

- Ultra-Low latency
- High reliability
- Flexible, scalable networking

Solution Benefits:

Lightweight Deployment:

- All-in-one base station with integrated power and backhaul
- Compact form factor for both indoor and outdoor use
- Panel antenna base station for streamlined installation

Cost Optimization:

- Fewer units needed with integrated hardware
- Network-in-Radio reduces complexity

AI-Driven Site Planning

- Efficient placement and coverage via AI-based design (Megrez)

Performance Comparison

Indicator	Before P5G	After P5G	Improvement
Network Coverage	60%	100%	↑40%
Data Transmission Delay	50-100ms	8-15ms	↓80%-92%
Mean Time to Failure Response (MTTR)	4 hours	25 mins	↓90%
Security	Wi-Fi Wap3	AES-256 encryption with dynamic authentication	↑
O&M Cost	High AP and high upgrade cost	Coverage achieved with 3 units	↓50%-60%

Outdoor Live Streaming with P5G

Stable & Low latency

Customer Profile:

Sport broadcasting company, Germany

Overview

To support live outdoor coverage of a half-marathon event, the customer deployed CloudRAN.AI's private 5G (P5G) solution. By leveraging a dedicated 100MHz frequency band and high-QoS customization, the network delivered stable, low-latency (5–10 ms) performance throughout the race route.

This enabled uninterrupted streaming of real-time video, audio, and data to global audiences. The deployment improved network reliability, coverage, and service quality—critical for large-scale live events.



Service Requirements

- Robust uplink for uninterrupted video feeds
- Low latency to support smooth streaming
- High-bandwidth links for HD content delivery
- Reliable coverage across extended outdoor areas

Solution Advantage:

Quick Deployment:

- All-in-one base station design with simplified cabling
- Plug & Play setup

Cost Efficiency:

- High-power units reduce site count
- Network-in-Radio simplifies operations

Optimized for Broadcast:

- Stable mobility across multiple base stations
- Dedicated 100MHz private band for interference-free performance

Performance Comparison

Feature	Operator 5G	CRAI P5G	Improvement
Exclusive Frequency Band	No	100Mhz	↑80% Dedicated spectrum avoids interference
Latency	20 - 30 ms	5 - 10 ms	Reduced by 50% - 83%
Customization for Streaming	Limited	High-QoS tailored for live events	Significant improvement in quality

Teleoperation with Private 5G: Mixed Reality in Action

TeleOp & Low Latency

Customer Profile: Teleoperation Robotics Demonstration – Spain

Overview

A Spanish customer conducted a real-world demo using our private 5G (P5G) base station to remotely control a mobile robot via mixed reality.

The setup enabled real-time teleoperation while streaming RGB, thermal, and point cloud data from the robot's sensors - all transmitted seamlessly over the cellular network.

The deployment highlighted the strength of P5G in handling precision robotics and data-heavy workloads with ultra-low latency and stable signal quality.



Service Requirements

- Low-latency network for accurate robotic control
- Stable uplink to handle real-time sensor data
- Wide-area coverage for mobile operation zones

Performance Comparison

Feature	Wi-Fi	P5G	Improvement
Latency	50 - 100 ms	5 - 15 ms	Reduced by 70% - 95%
Bandwidth for Multiple Streams	Limited, poor concurrency	High-speed, supports simultaneous data streams	Bandwidth improved by 200%–300%
Signal Stability	Frequent drops, prone to interference	High signal stability, interference-resistant	Improved by 150%–200%
Remote Control Precision	Poor due to lag and jitter	High-precision control via low latency	Precision improved by 120%–180%

Solution Advantages:

Quick Deployment:

- All-in-one base station with simplified power and backhaul cabling
- Plug & Play setup for rapid trials or permanent installs

Cost Efficiency:

- Integrated architecture reduces the number of base stations needed
- Network-in-Radio simplifies operations

Optimized for Robotics:

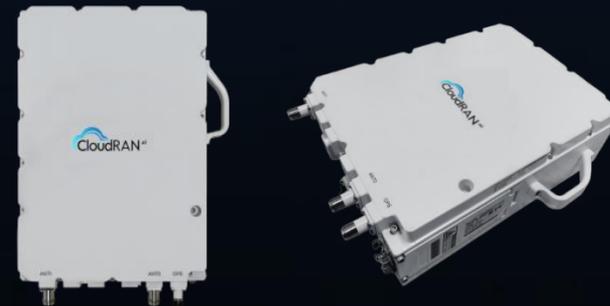
- Seamless handover across coverage zones
- Ultra-low latency improves real-time control and safety

Smart Mining with Private 5G

Customer Profile:
Open-Pit Mining Operation – Ordos, China

Overview

Located in Ordos City, this coal mine spans 6.25 km² and has scaled its annual production capacity from 1.2 million to 2.4 million tons in line with national policy. To support this growth, CloudRAN.AI deployed a private 5G (P5G) network, enabling remote operation of mining trucks, high-bandwidth multi-camera monitoring, and enhanced safety analytics. The solution delivers ultra-low latency, broad device connectivity, and intelligent automation - turning the mine into a data-driven, remotely operable smart site.



Simple & Easy coverage



Service Requirements

- Remote truck and equipment control
- Driver fatigue detection via multi-angle cameras
- Flexible, reconfigurable network coverage
- Rapid on-site deployment

Solution Advantages:

Quick Deployment:

- Compact, all-in-one base station design
- Single cable for power and backhaul
- Plug & play installation

High Scalability:

- Vehicle-mounted CPE supports multi-camera inputs
- Mobility across multiple base stations
- Seamless coverage across shifting terrain

Cost Savings:

- Fewer base stations due to extended coverage radius
- Network-in-Radio for simplified infrastructure

Performance Comparison

Indicator	Before P5G	After P5G	Improvement
Remote Control Latency	50 - 100 ms	5 - 15 ms	Reduced by 70% - 95%
Bandwidth	10 - 50 Mbps	500 Mbps - 1 Gbps	Increased by 1000% - 10000%
Concurrent Devices	50 - 100	500 - 1000	Improved by 1000%
Safety Monitoring Accuracy	70% - 80%	95% - 98%	Enhanced by 35.7% - 22.5%
Mining Efficiency	N/A	Increased productivity by 30% - 40%	30% - 40% improvement

Live Racing Events with P5G

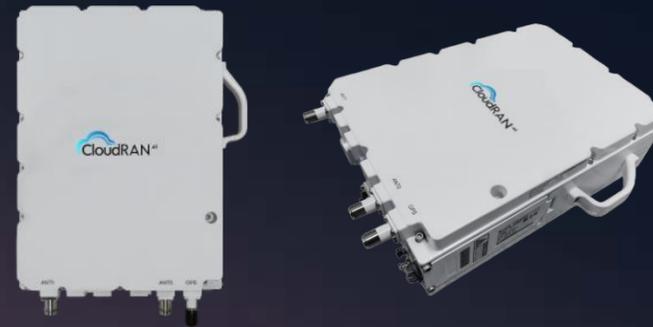
Customer Profile:
Motorsport Broadcast Partner – Brazil



Overview

In Brazil, our private 5G solution powered high-definition, real-time video streaming for an RV racing event. Cameras were installed inside vehicles and in the pit lane to broadcast the race live from multiple angles - including driver POVs - delivering an immersive, low-latency experience to fans worldwide.

Thanks to P5G's high speed and mobile coverage, the system supported continuous HD uplinks from 8 race cars simultaneously, even at speeds of ~180 km/h.



Service Requirements

- Support for up to 8 vehicles streaming in real time
- Low latency and consistent high throughput
- Reliable uplink during fast-motion scenarios
- Fast deployment and full track coverage

Solution Advantages:

- **Fast Setup:** Plug-and-play deployment across the race venue
- **Uplink Performance:** Maintained uplink rates averaging 200 Mbps per car
- **Proven Scalability:** Enabled simultaneous HD video from 8 race cars without interruption





Michel Trudelle
Sales Director (APAC)
michel.trudelle@cloud-RAN.ai
+65 9898 8550

Thank You

www.cloud-net.ai
www.cloud-ran.ai



cloud-RAN.ai Portfolio

For Private Networks and Fixed Wireless Access

www.cloud-net.ai
www.cloud-ran.ai

Company Overview

Affiliate

CloudNET.ai –
Specializing in billing systems

Headquarters

Singapore

With offices in Canada and Denmark.

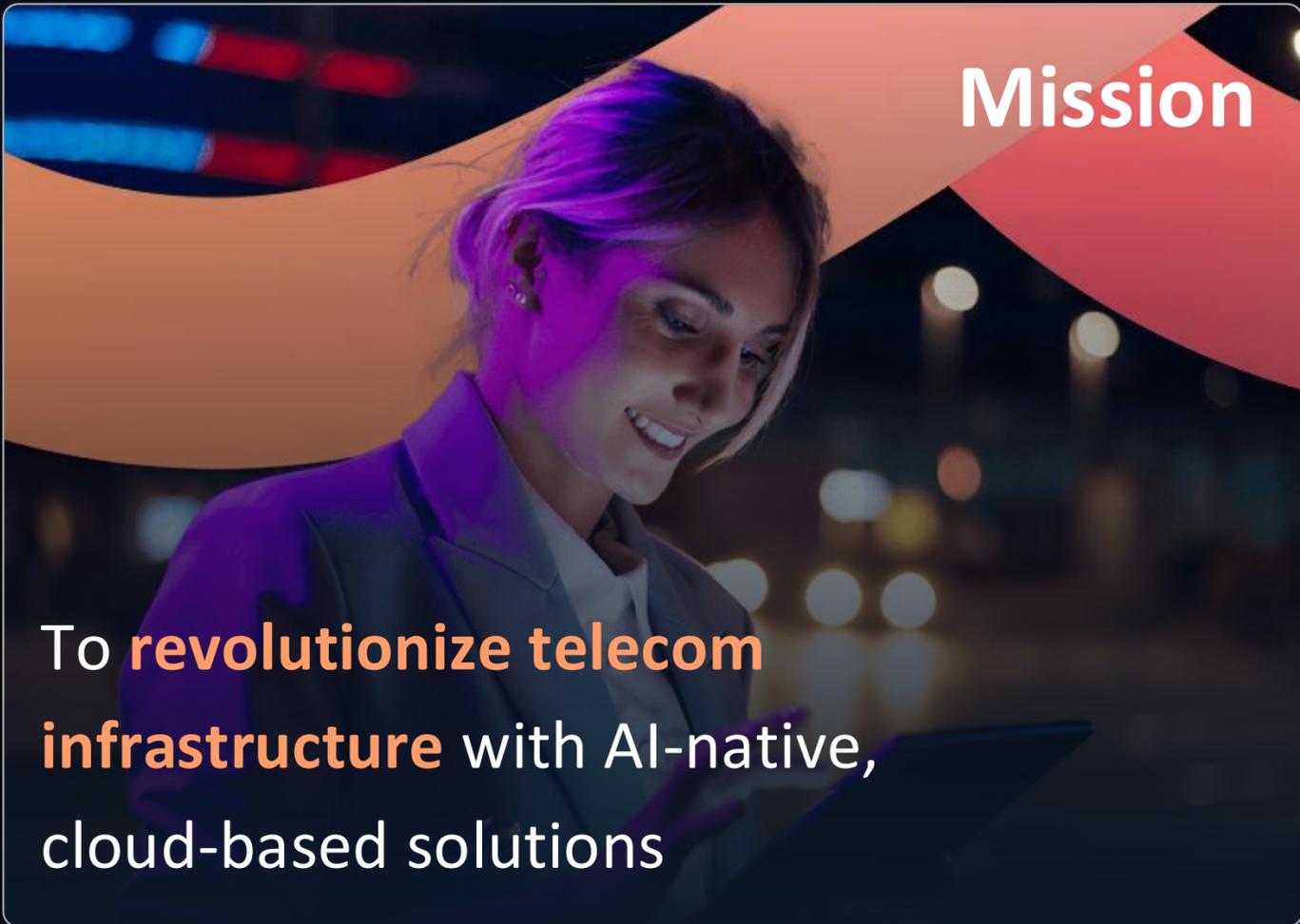
Founded

2023

By Steve Chang

(Founder of Trend Micro)

Mission



To **revolutionize telecom infrastructure** with AI-native, cloud-based solutions

Our Solutions at a Glance

Gen-AI Product Catalog

Enables swift creation and deployment of new services using natural language interfaces.



Veris Cloud BSS

A modular, AI-native platform streamlining business support systems.



Megrez AI

An intelligent tool for rapid and accurate network planning.



Private 4G/5G Stack

End-to-end solutions for deploying and managing private 5G networks.



Outdoor eNB / Arc500i



Highlights:

- All-in-one and high-integrated, portable and 0 footprint
- Medium-range rural broadband coverage
- Baicells signature Plug-and-Play
- Embedded EPC solution(HaloB)
- 32 users, 2x2MIMO, Peak rate is up to DL 150 and UL 50 Mbps
- (FWA & private network) Coverage distance <5KM

Features

Model	Arc500i 2x500mW FDD outdoor eNB
Frequency band	B3
Bandwidth	5/10/15/20 MHz
Carriers	single carrier
Synchronization	GPS (built-in), 1588v2
Max Output Power	0 to 30 dBm (combined, with 1 dB interval)
Antenna	Internal 2T2R high-gain antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	PoE++, comply with IEEE 802.3bt standard
Power consumption	Typical 22.5W, maximum 30W
Dimension	9.8 x 9.8 x 3.2 inches; 248 x 248 x 80 millimeters
Weight	6.0 lbs / 2.7kg
Installation	Pole or wall mount
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	5% to 95% RH



Outdoor eNB / Arc500i



Highlights:

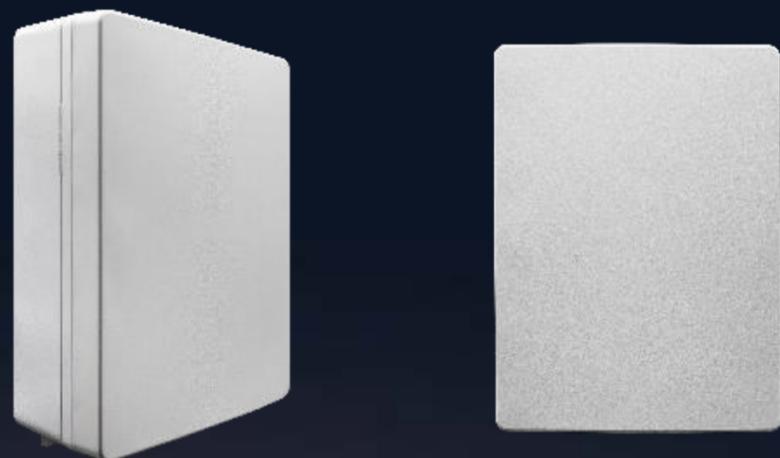
- All-in-one and high-integrated, portable and 0 footprint
- Medium-range rural broadband coverage
- Baicells signature Plug-and-Play
- Embedded EPC solution(HaloB)
- 32 users, 2x2MIMO, Peak rate is up to DL 75 and UL 25 Mbps
- (FWA & private network) Coverage distance <5KM

Features

Model	Arc500i 2x500mW FDD outdoor eNB
Frequency band	B8
Bandwidth	5/10 MHz
Carriers	single carrier
Synchronization	GPS, 1588v2
Max Output Power	0 to 30 dBm (combined, with 1 dB interval)
Antenna	Internal 2T2R high-gain antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	PoE++, comply with IEEE 802.3bt standard
Power consumption	Typical 22.5W, maximum 30W
Dimension	9.8 x 9.8 x 3.2 inches; 248 x 248 x 80 millimeters
Weight	6.0 lbs / 2.7kg
Installation	Pole or wall mount
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	5% to 95% RH



Outdoor eNB / Arc4250i



Highlights:

- All-in-one and high-integrated , portable and 0 footprint
- Medium-range broadband coverage
- Dual Carrier and Carrier Aggregation mode upgradable
- Baicells signed Plug-and-Play
- Embedded EPC solution(HaloB)
- 128+128 users in DC, 2x2MIMO, Peak rate is up to DL 290 and UL 70 Mbps
- (FWA & private network) Coverage distance <5KM

Features

Model	Arc4250i 4x250mW TDD outdoor eNB
Frequency band	B48
Bandwidth	SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Carriers	Dual carriers
Synchronization	GPS (built-in), 1588v2
Max Output Power	0 to 30 dBm (combined, with 1 dB interval)
Antenna	Internal 4T4R high-gain antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	PoE++, comply with IEEE 802.3bt standard
Power consumption	Typical 20W, maximum 25W
Dimension	12.6 x 8.9 x 4.1 inches; 319 x 227 x 104 millimeters
Weight	10.7lbs / 4.85kg (without bracket)
Installation	Pole or wall mount
Ingress Protection Rating	IP65
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	5% to 95% RH



Outdoor eNB / Arc41

Highlights:



Highlights:

- All-in-one and high-integrated, portable and 0 footprint
- Medium-range rural broadband **NLOS** coverage.
- Dual Carrier and Carrier Aggregation mode upgradable
- Baicells signature Plug-and-Play
- Embedded EPC solution(HaloB)
- 128+128 users in DC, 2x2MIMO, Peak rate is up to DL 290 and UL 70 Mbps
- (FWA & private network) Coverage distance <12KM

Features

Model	Arc41 4x1W TDD outdoor eNB
Frequency band	B42/B48
Bandwidth	SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Carriers	Dual carriers
Synchronization	GPS, 1588v2
Max Output Power	0 to 30 dBm (combined, with 1 dB interval)
Antenna	External 4T4R high-gain antenna
Antenna type	N-type
Data interface	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	-40VDC ~ -57 VDC, nominal -48VDC
Power consumption	Typical 60W, maximum 100W
Dimension	11.8 x 9.4 x 4.1 inches; 300 x 240 x 105 millimeters
Weight	16.5 lbs / 7.5 kg
Installation	Pole or wall mount
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	5% to 95% RH



Outdoor eNB / Arc44i



Highlights:

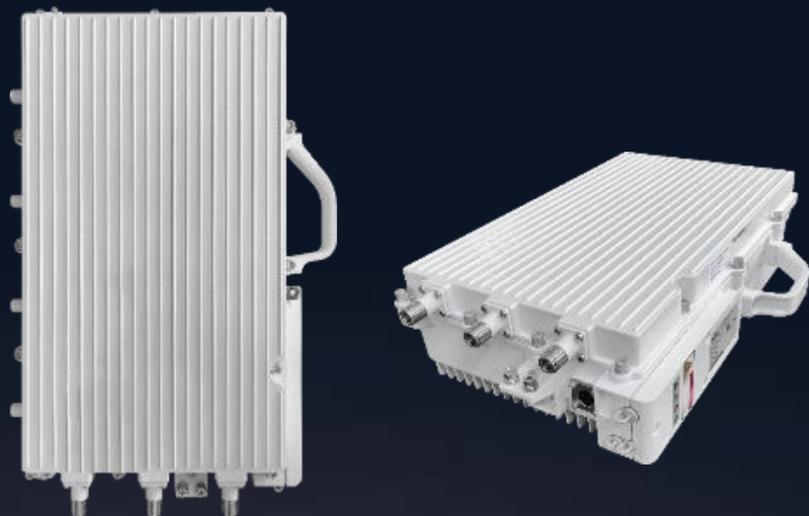
- All-in-one and high-integrated, portable and 0 footprint
- Medium-range NLOS coverage.
- Dual Carrier and Carrier Aggregation mode upgradable
- Baicells signature Plug-and-Play
- Embedded EPC solution(HaloB)
- 128+128 users in DC, 2x2MIMO, Peak rate is up to DL 290 and UL 70 Mbps
- (FWA & private network) Coverage distance <12KM

Features

Model	Arc44i 4x4W TDD outdoor eNB
Frequency band	B40/ B48
Bandwidth	SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Carriers	Dual carriers
Synchronization	GPS, 1588v2
Max Output Power	0 to 42 dBm (combined, with 1 dB interval)
Antenna	Internal 4T4R 12dBi antenna <ul style="list-style-type: none">• Horizontal Beam width 360°• Vertical Beam width 7.5°• Polarization: $\pm 45^\circ$• Electronic down tilt 0° Internal GPS antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	PoE++, IEEE 802.3bt standard
Power consumption	Typical 70W, maximum 90W
Dimension	Diameter: 7.9 inches /200mm Height: with lightning rod: 33.7 inches 857mm
Weight	23.8lbs / 10.8 kg
Ingress Protection Rating	IP65
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	5% to 95% RH



Outdoor eNB / Arc40



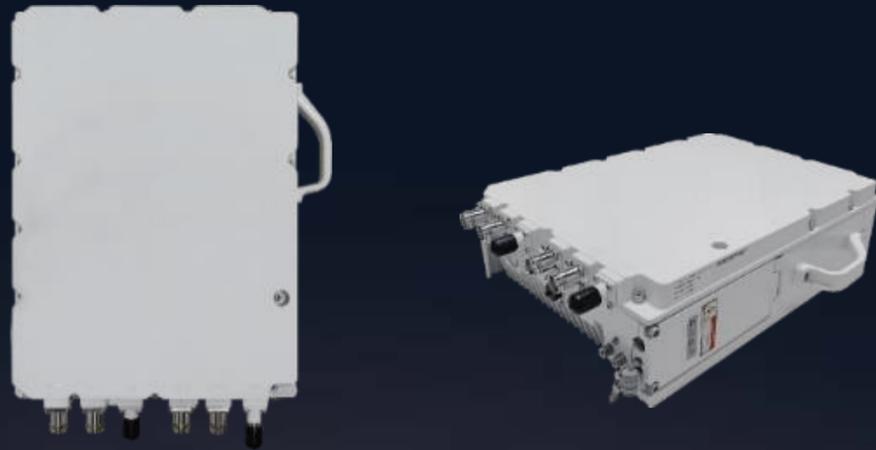
Highlights:

- All-in-one and high-integrated, portable and 0 footprint
- Long-range rural broadband coverage
- Baicells signature Plug-and-Play
- Embedded EPC solution(HaloB), cascading function(HaloD)
- RET function AISG 2.0
- 1024 RRC connected users, 2x2MIMO, Peak rate is up to DL 195 and UL 71 Mbps
- (FWA & private network) Coverage distance <math>< \mathbf{15KM}</math>

Features

Model	Arc40 2x40W TDD outdoor eNB
Frequency band	B1/ B3/ B5/ B7/ B8/ B20/ B28
Bandwidth	5/10/15/20 MHz
Carriers	Single carrier
Synchronization	GPS
Max Output Power	30 to 49 dBm (combined, with 1 dB interval)
Antenna	External 2T2R high-gain antenna
RF connector type	N type
Data interface	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	-40VDC ~ -57 VDC, nominal -48VDC
Power consumption	Typical 200W, maximum 300W
Dimension	B1/3/7: 16.9 x 9.8 x 4.8 inches 430 x 250 x 123 millimeters B5/8/20/28: 16.9 x 9.8 x 5.0 inches 430 x 250 x 127 millimeter
Weight	About 24.9lbs / 11.3kg (With pre-installed bracket)
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	5% to 95% RH

Outdoor eNB / Arc440



Highlights:

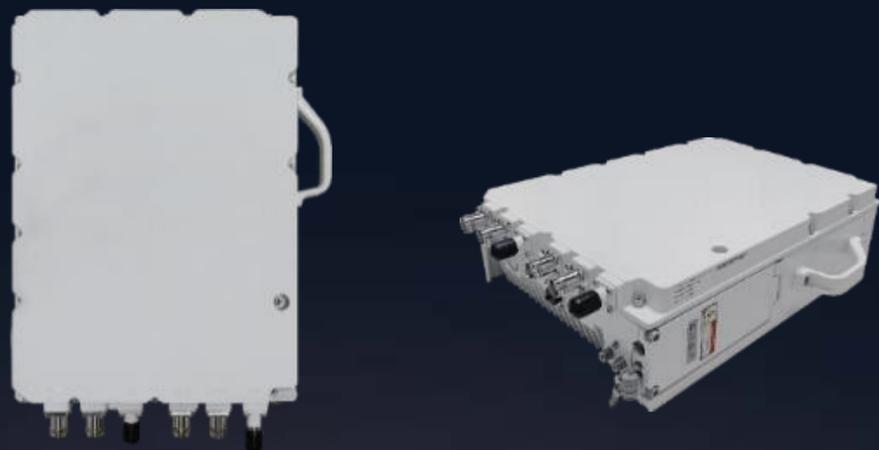
- All-in-one and high-integrated, portable and 0 footprint
- **S1/1/1, S2/2/2** deployment
- Urban/ rural broadband coverage
- Maximum 2 carriers **4x4MIMO**
- 1024 users in DC mode, Peak rate is up to DL 440 and UL 70 Mbps
- (FWA & private network) Coverage distance <**60KM**

Features

Model	Arc440 4x40W TDD outdoor eNB
Frequency band	B40/ B41/ B42
Bandwidth	5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Carriers	Dual carries
Synchronization	GPS
IBW/OBW	100Mhz
Max Output Power	46 dBm / channel x 4 channels
Antenna	External high gain antenna
RF connector type	mini-DIN 4.3-10
Antenna port	4T4R
Data interface	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	-40VDC ~ -57 VDC, nominal -48VDC
Power consumption	Typical 360W, maximum 480W
Dimension	16.5 x 12.4 x 4.8 inches 420 X 315 X 123 millimeters
Weight	32.2lbs/14.6kg
Installation	Pole or wall mount
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	2% to 95% RH



Outdoor eNB / Arc440 FDD



Highlights:

- All-in-one and high-integrated, portable and 0 footprint
- **S1/1/1, S2/2/2** deployment
- Urban/ rural broadband coverage
- Maximum 2 carriers **4x4MIMO**
- 1024 users in DC mode, Peak rate is up to DL 600 and UL 140 Mbps
- (FWA & private network) Coverage distance <**60KM**

Features

Model	Arc440 4x40W outdoor eNB
Frequency band	B3
Bandwidth	5/10/15/20 MHz DC: 20+20Mhz
Carriers	Dual carries
Synchronization	GPS
Max Output Power	46 dBm / channel x 4 channels
Antenna	External high gain antenna
RF connector type	mini-DIN 4.3-10
Antenna port	4T4R
Data interface	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	-40VDC ~ -57 VDC, nominal -48VDC
Power consumption	Typical 360W, maximum 480W
Dimension	20.7 x 12.1 x 4.7 inches 527 X 308 X 120 millimeters
Weight	38.4lbs/17.4kg
Installation	Pole or wall mount
Ingress Protection Rating	IP66
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	-40° F to 131° F / -40° C to 55° C
Humidity	2% to 95% RH



Indoor eNB / Flare50



Highlights:

- All-in-one and high-integrated, ultra simplified design
- It is suitable for small shops, homes, small office
- Baicells signature Plug-and-Play, SON function
- Flexible Backhaul, Embedded EPC solution(HaloB)
- 32 users, 2x2MIMO, Peak rate is up to DL 150 and UL 50 Mbps
- Coverage area is up to **100m²**

Features

Model	Flare50 2x50mW indoor eNB
Frequency band	B1/3/5/40
Bandwidth	B1/3/40: 5/10/15/20 MHz B5: 5/10 MHz
Carriers	single carrier
Synchronization	1588v2, Network Listening (NL)
Max Output Power	0 to 20 dBm (combined, with 1 dB interval)
Antenna	Internal 2T2R omni antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	12VDC, AC adaptor (multiple standards optional)
Power consumption	Typical 9W, maximum 12W
Dimension	5.5 x 7.1 x 1.9 inches;140 x 180 x 47.5 millimeters
Weight	0.9 lbs / 410g
Installation	Desktop
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 113° F / -5° C to 45° C
Humidity	5% to 95% RH



Indoor eNB / Flare125E



Highlights:

- All-in-one and high-integrated, ultra simplified design
- It is suitable for Medium offices, Internet cafes, small supermarkets
- Baicells signature Plug-and-Play, SON function
- Flexible Backhaul, Embedded EPC solution(HaloB)
- 32 users, 2x2MIMO, Peak rate is up to DL 150 and UL 50 Mbps
- Coverage area is up to **200m²-500m²**

Features

Model	Flare125E 2x125mW indoor eNB
Frequency band	B1/2/3/5/8/40
Bandwidth	B1/3/40/41: 5/10/15/20 MHz B5/8: 5/10 MHz
Carriers	single carrier
Synchronization	GPS, 1588v2, network listening (NL)
Max Output Power	0 to 24 dBm (combined, with 1 dB interval)
Antenna	Internal 2T2R omni antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	12VDC, AC adaptor (multiple standards optional) PoE+, comply with IEEE 802.3at standard
Power consumption	Typical 11.25W, maximum 15W
Dimension	8.3 x 8.3 x 1.9 inches; 210x 210 x 45 millimeters
Weight	1.3 lbs / 570g
Installation	Ceiling or wall mount, or desktop
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 113° F / -5° C to 45° C
Humidity	5% to 95% RH



Indoor eNB / Flare125



Highlights:

- All-in-one and high-integrated, ultra simplified design
- It is suitable for Medium offices, Internet cafes, small supermarkets
- Baicells signature Plug-and-Play, SON function
- Flexible Backhaul, Embedded EPC solution(HaloB)
- 32 users, 2x2MIMO, Peak rate is up to DL 150 and UL 50 Mbps
- Coverage area is up to **200m²-500m²**

Features

Model	Flare125 2x125mW indoor eNB
Frequency band	B1/2/3/5/7/8/38/40/42/48
Bandwidth	B1/3/40/41: 5/10/15/20 MHz B5/8: 5/10 MHz
Carriers	single carrier
Synchronization	GPS, 1588v2, network listening (NL)
Max Output Power	0 to 24 dBm (combined, with 1 dB interval)
Antenna	external 2T2R omni antenna
Data interface	1 RJ-45 Ethernet interface (1 GE)
Power supply	12VDC, AC adaptor (multiple standards optional) PoE+, comply with IEEE 802.3at standard
Power consumption	Typical 11.25W, maximum 15W
Dimension	5.8 x 6.9 x 7.1 inches 146.5 x 175 x 180.4 millimeters
Weight	1.0 lbs / 455g
Installation	Ceiling or wall mount, or desktop
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 113° F / -5° C to 45° C
Humidity	5% to 95% RH



Indoor eNB / Flare4250



Highlights:

- All-in-one and high-integrated, ultra simplified design
- It is suitable for office buildings, large retail outlets, venues, stadiums, hotels.
- Baicells signature Plug-and-Play, SON function
- Dual Carrier and Carrier Aggregation modes
- Flexible Backhaul, Embedded EPC solution(HaloB)
- **128+128** users in DC, 2x2MIMO, Peak rate is up to DL 290 and UL 70 Mbps
- Coverage area is up to **1000m²**

Features

Model	Flare4250 4x250mW indoor eNB
Frequency band	B48
Bandwidth	SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Carriers	Dual carriers
Synchronization	GPS, 1588v2(default)
Max Output Power	0 to 30 dBm (combined, with 1 dB interval)
Antenna	Internal 4T4R omni antenna
Data interface	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
Power supply	12VDC 2A, PoE+/48V 0.6A, comply with IEEE 802.3at standard
Power consumption	Typical 15W, maximum 20W
Dimension	8.7 x 8.7 x 1.9 inches;220 x 220 x 48 millimeters
Weight	3.3 lbs / 1.5 kg
Installation	Ceiling or wall mount
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 113° F / -5° C to 45° C
Humidity	5% to 95% RH



Indoor eNB / Crowcell



Highlights:

- All-in-one and high-integrated, ultra simplified design
- It is suitable for scenarios without wired backhaul .
- Baicells signature Plug-and-Play, SON function
- Only need three steps and 10 minutes. to complete the installation and use.
- 32 users, 2x2MIMO, Peak rate is up to DL 150 and UL 50 Mbps
- Coverage area is up to **200m²**

Features

Model	Crowcell 2x200mW indoor eNB
Frequency band	B7
Bandwidth	5/10/15/20 MHz
Carriers	Single carrier
Synchronization	GPS
Max Output Power	0 to 26 dBm (combined, with 1 dB interval)
Antenna Tx	Internal 2T2R omni antenna
Data interface	Wireless LTE FDD CAT6/7/12
Backhaul bands	Band1/3/8/20(Can be customized)
Channel Bandwidth	10MHz/20MHz
MAX Tx Power	23dBm
Antenna Rx	Internal 1T4R omni antenna
Power supply	12VDC 2A
Power consumption	Typical 15W, maximum 20W
Dimension	9.3 x 3.3 x 7.2 inches; 235 x 85 x 182 millimeters
Weight	3.3 lbs / 1.5 kg
Installation	Desktop
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 113° F / -5° C to 45° C
Humidity	5% to 95% RH



Description:

The CRAI OMC is an operation and maintenance center (OMC) system developed for managing network devices. Operators use it to monitor, configure, maintain, and upgrade network devices.

Features

Monitor and maintain all network elements eNB, gNB, CPE, SCN

Alarms and notification

KPI analysis and report

Show network elements on the map

Signaling trace

SAS-DP integrated

Flexible deployed on cloud or server

High stability with 1+1 backup

Hardware Requirement:

CPU: (8C16T, 2.1GHz) *2

RAM: 64G DDR4 ECC

Hard Disk: 2.5" 2T *2 Server Disc

Ethernet Ports: 4*GE RJ45

Capacity:

10,000 gNBs



Megrez AI

Revolutionizing Network Planning

Capabilities

- ▶ AI-driven network design and optimization.
- ▶ Utilizes extensive data points for precise planning.
- ▶ Achieves high planning accuracy, reducing manual efforts.

Impact

- ▶ Cuts planning time significantly.
- ▶ Empowers in-house teams to manage network planning without external dependencies.
- ▶ Facilitates rapid deployment of private 5G networks.



Michel Trudelle
Sales Director (APAC)
michel.trudelle@cloud-RAN.ai
+65 9898 8550

Thank You

www.cloud-net.ai
www.cloud-ran.ai



5G&4G Distributed and DAS Series



5G BBU



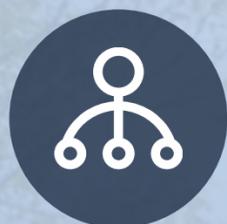
5G+4G CAU



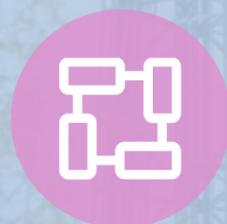
HUB



5G+4G RU



Minimalist
architecture



Easy to
deploy

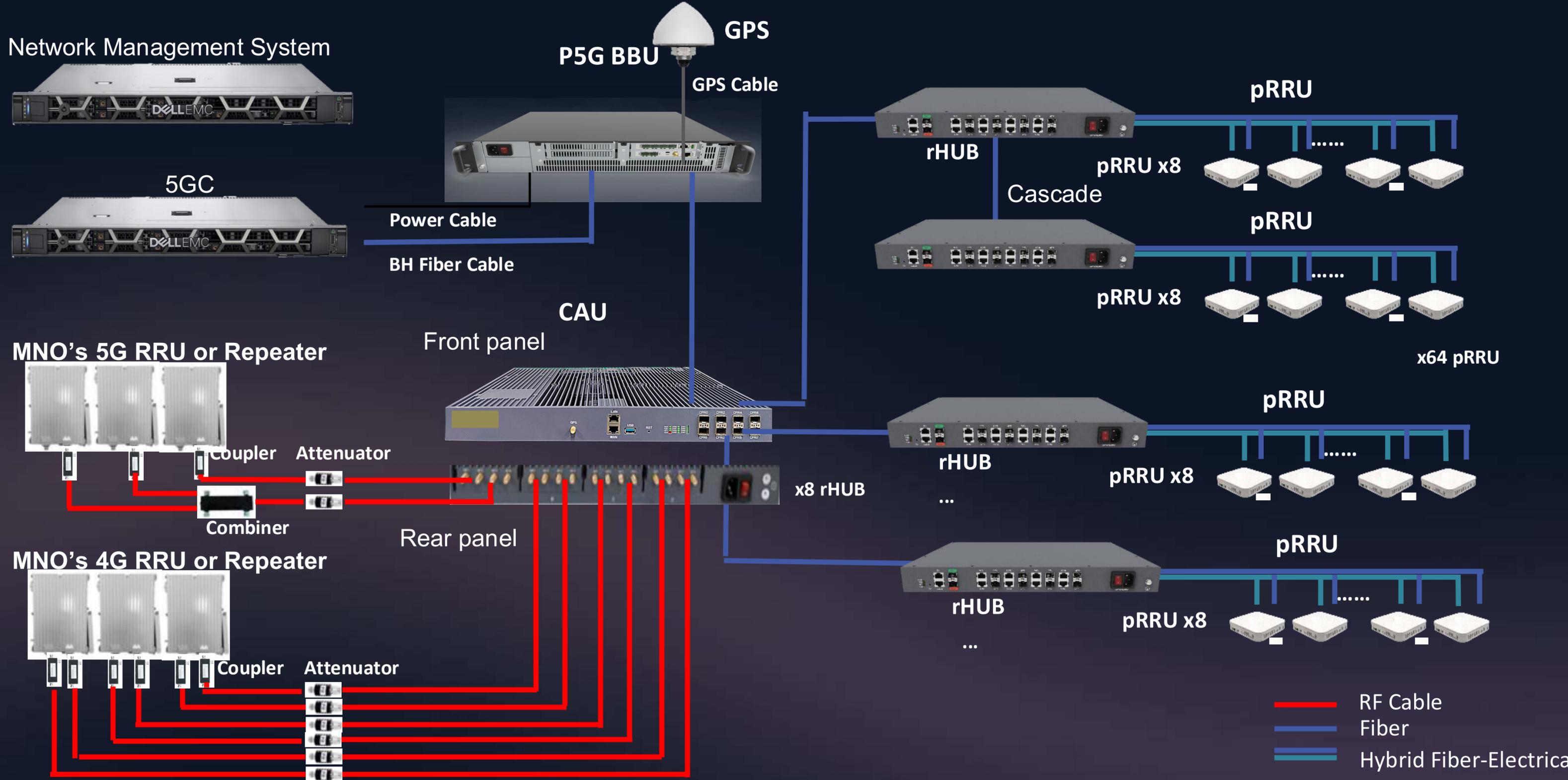


low energy
consumption



Super
Experience

Public Network and Private Network sharing





CAU spec



Highlights:

- Multiple Operator RAN share
- Up to 4 RF-Plugin, support flexible frequency bands
- Up to 8 SFP+ channel, can connect up to 8 rHUBs
- Support RF signal combine with BBU's CPRI stream
- Support Network Listening synchronization

Mode	NR/LTE
FreqBand	NR:4channel100Mhz LTE: 4channel80Mhz
Bandwidth	100MHz
RFchannel	Max.8(SMA)
Fronthaulchannel	Max.8x10Gbps
Mgmt.Interface	OneRJ-45Ethernetinterface
Powersupply	ACorDC
PowerConsumption	<80W
Installation	Standard19inchescabinetorwallmount
Dimension(HxWxD)	44x440x275mm
Weight	5.5kg
Temperature	-10~50deg
Humidity	5%~95%
Sync	GPS/NL



Model	CRAI model
Processor System	16-core 64-bit ARM processso
Multiplexing	MIMO: 2x2, 4x4
Capacity	2 x 4T4R 100Mhz cells 4 x 2T2R 100Mhz cells
Synchronization	GPS / IEEE 1588v2
Backhaul	1 x 10G optical (SFP+)
Fronthaul	4 x optical (SFP+) (10Gbps) for CPRI
Modulation	UL: QPSK, 16QAM, 64QAM, 256QAM DL: QPSK, 16QAM, 64QAM, 256QAM
Power supply	(AC) 90VAC -264VAC, 12A-10A, 50-60Hz (DC) -40VDC -57VDC, 40A-25A (optional)
Power consumption	Single mode (5G) < 100W, dual mode < 150W
Dimension	3.5 x 16.9 x 16.9 inches;88 x 430 x 430 millimeters
Weight	33.1lbs / 15kg
Installation	Standard 19 inches cabinet or wall mount
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 131° F / -5° C to 55° C
Humidity	5% to 95% RH

Highlights:

- 5G SA mode
- BBU & RRU Splitting deployment
- CU/DU integrated or split (max 4 cells per DU)
- Up to 100 MHz bandwidth per cell
- Peak rate (up to): DL 1.5 Gbps@4T4R or 750Mbps@2T2R, UL 230 Mbps
- Maximum 4 NR cells, 200 active users per cell
- Cell selection/Reselection and NG-based handover
- SMS and VoNR



Hub Spec



Indoor/floor coverage

Highlights:

- Up to 8 pRRU are supported
- Provide power supply to pRRU with photoelectric composite cable
- Support two layers cascade of rHUBs
- Realize uplink signal centralizing and uplink signal broadcast of pRRUs
- Remote monitor, operate, software upgrade and manage by NMS

Model	CRAI model
Power Supply	100VAC ~240VAC, 50Hz ~60Hz
Power Consumption	Typical 45W, maximum 55W
DC 54V Output Power	8 x 50W
Upward /Cascaded	2 x SFP+ with 10Gbps
Downward	8 x SFP+ with 10Gbps
Mgmt. Interface	2 x RJ-45 Ethernet interface (GE)
LED Indicators	4 x status LED ;PWR/ACT/RUN/ALM
Cascading Level	Maximum 2 rHUBs for cascading
Remote Distance	200 meters of photoelectric composite cable
Dimensions (HxWxD)	1.73 x 17.3 x 11.9 inches;44 x 440 x 302.5 millimeters
Weight	11.0lbs / 5kg
Installation	Standard 19 inches cabinet or wall mount
MTBF	≥ 15000hours
MTTR	≤ 1 hour
Operating Temperature	23°F to 113°F / -5°C to 45°C
Humidity	5% to 95%



pRRU spec



Indoor/floor coverage

Highlights:

- Simplified construction, lighter and more flexible
- 4G/5G dual mode
- Plug and play, easy to installation
- Shopping mall / multi-floor coverage

Model	CRAI model
Frequency band	4G+5G: B20+n78
Bandwidth	4G: 5/10/20 MHz 5G: 40/80/100MHz
IBW	100Mhz
OBW	4G: 30Mhz; 5G: 100Mhz
Max Output Power	NR: 23 dBm / channel x 4 channels NR: 21 dBm / channel x 2 channels
Antenna	Internal antenna
Antenna port	6T6R
Rx Sensitivity	4G: -102 dBm; 5G: -94dBm
Fronthaul	1 x 10GE optical fiber interface (SFP+), LC
Power supply	-40VDC ~ -57 VDC, nominal -48VDC
Power consumption	Typical 45W, maximum 50W
Dimension	59.4mm(H)x205mm(W)x205mm(D)
Weight	<3.0kg
Installation	Ceiling or wall mount
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Temperature	23° F to 104° F / -5° C to 45° C
Humidity	5% to 95%



Michel Trudelle
Sales Director (APAC)
michel.trudelle@cloud-RAN.ai
+65 9898 8550

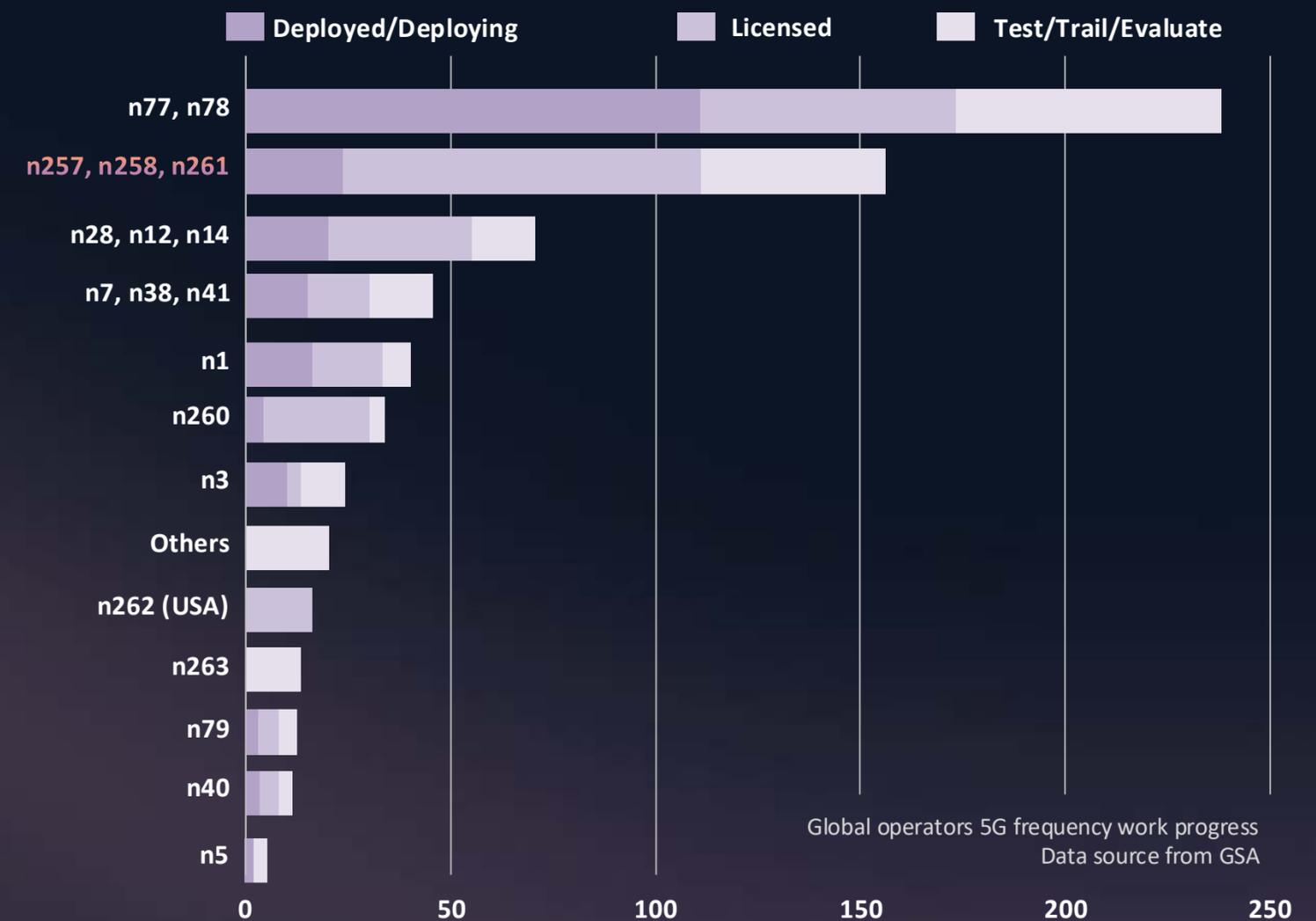
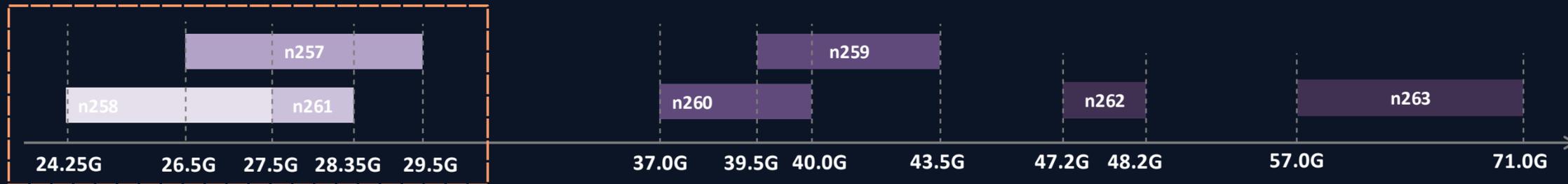
5G mmWAVE Solutions

For Private Networks and Fixed Wireless Access

www.cloud-net.ai
www.cloud-ran.ai

Global mmW Spectrum Allocation

5G mmW Frequency bands



Global operators 5G frequency work progress
Data source from GSA

28+ Countries / Regions issued 5G mmWave Spectrum
cloud-RAN.ai 5G mmWave product support n257/n258/n261 currently



Residential Area



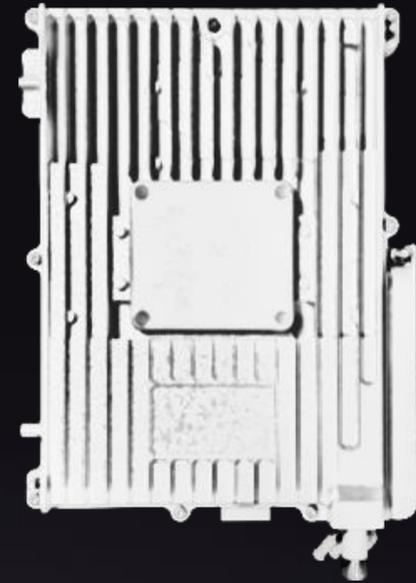
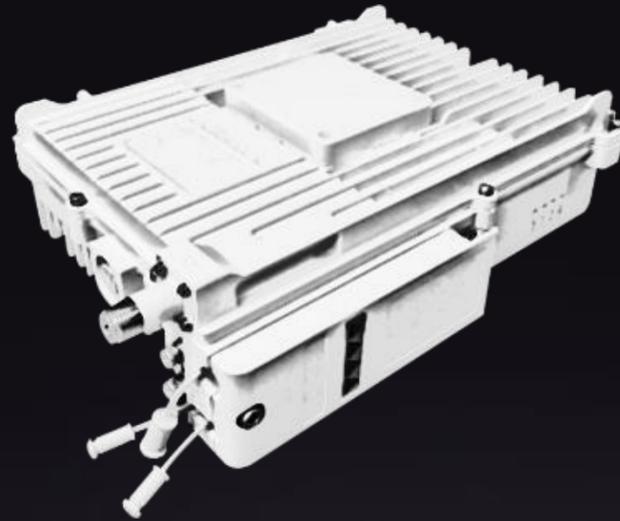
Stadium



Transportation



Shopping Malls



Highlights:



All in one Box



Plug and play



600 users



4CC



Economical



Flexible Backhaul



Low latency

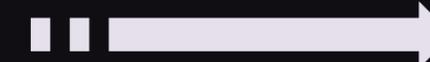


DL 2Gbps/
UL 140Mbps

Current version support demo test for 2cc, but the chipset already support 4cc and will upgrade to 8cc in next version.



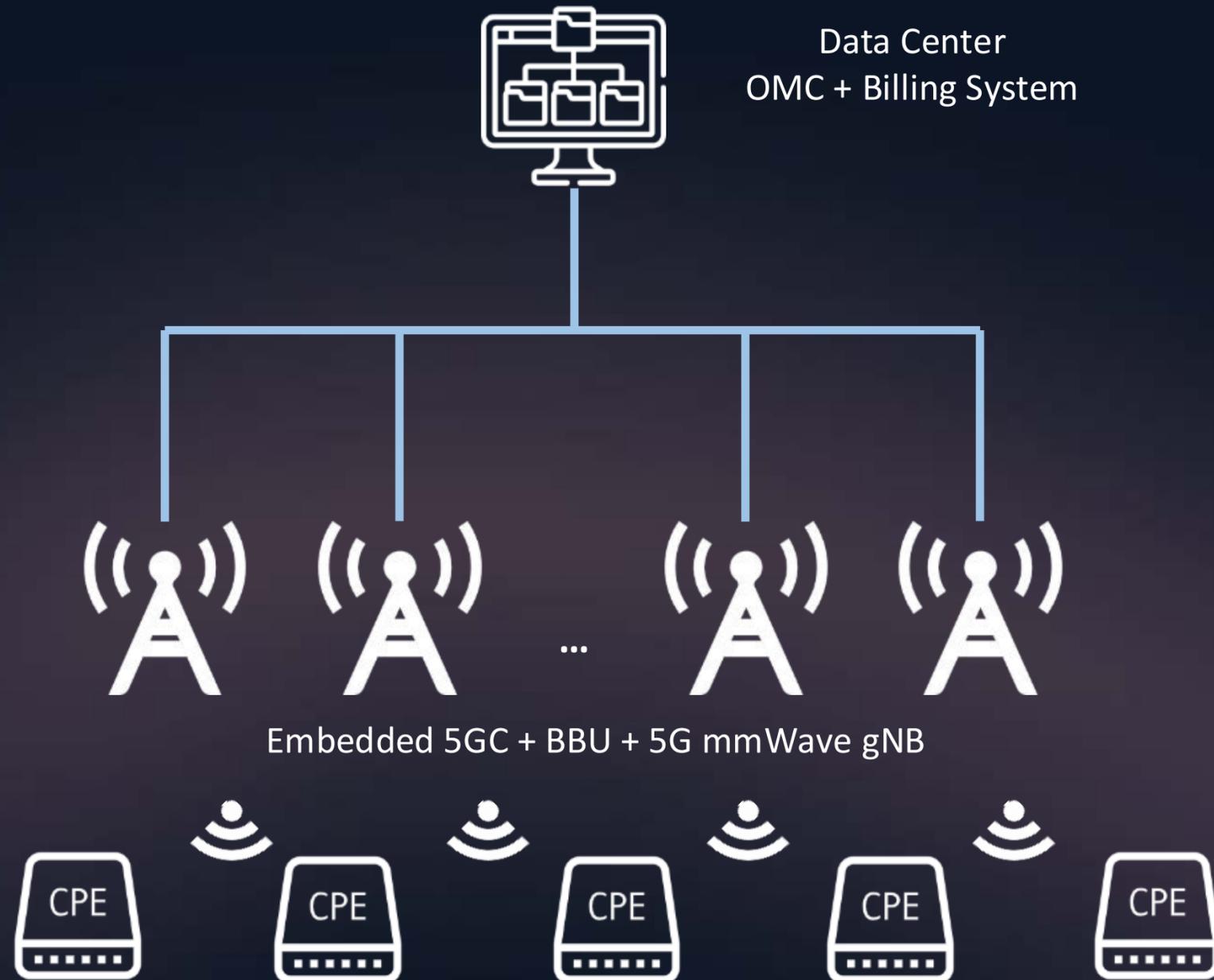
Enhanced capabilities



Major Parameters	Current Version	Roadmap
Weight	5.6kg (with bracket) 5.2kg (without bracket)	< 7kg
Band Supported	n257, n258 partially, n261	n257, n258, n261
Bandwidth	4*100MHz	8*100MHz
Output Power	49 dBm	58 dBm
Interface	1*10Gbps + 1G Ethernet Interface	10Gbps - 25Gbps
Modulation	64QAM (256 QAM Q4)	256QAM
Antenna	64 * 2 antenna array (120°)	128 * 2 antenna array (120°)
Core Network	Embedded / Independent 5GC	Embedded / Independent 5GC
Peak Throughput	DL 2Gbps @ 4CC UL 140Mbps @ 2CC	DL 8.1Gbps @ 8CC (DDDSU) UL 8.1Gbps@ 8CC (DSUUU)
Capacity	200 active users 600 RRC connect users	200 active users 600 RRC connect users
Chipset Size	10 nm	4 nm
Consumption	100w	< 130w
Volume	6.5L	< 8L

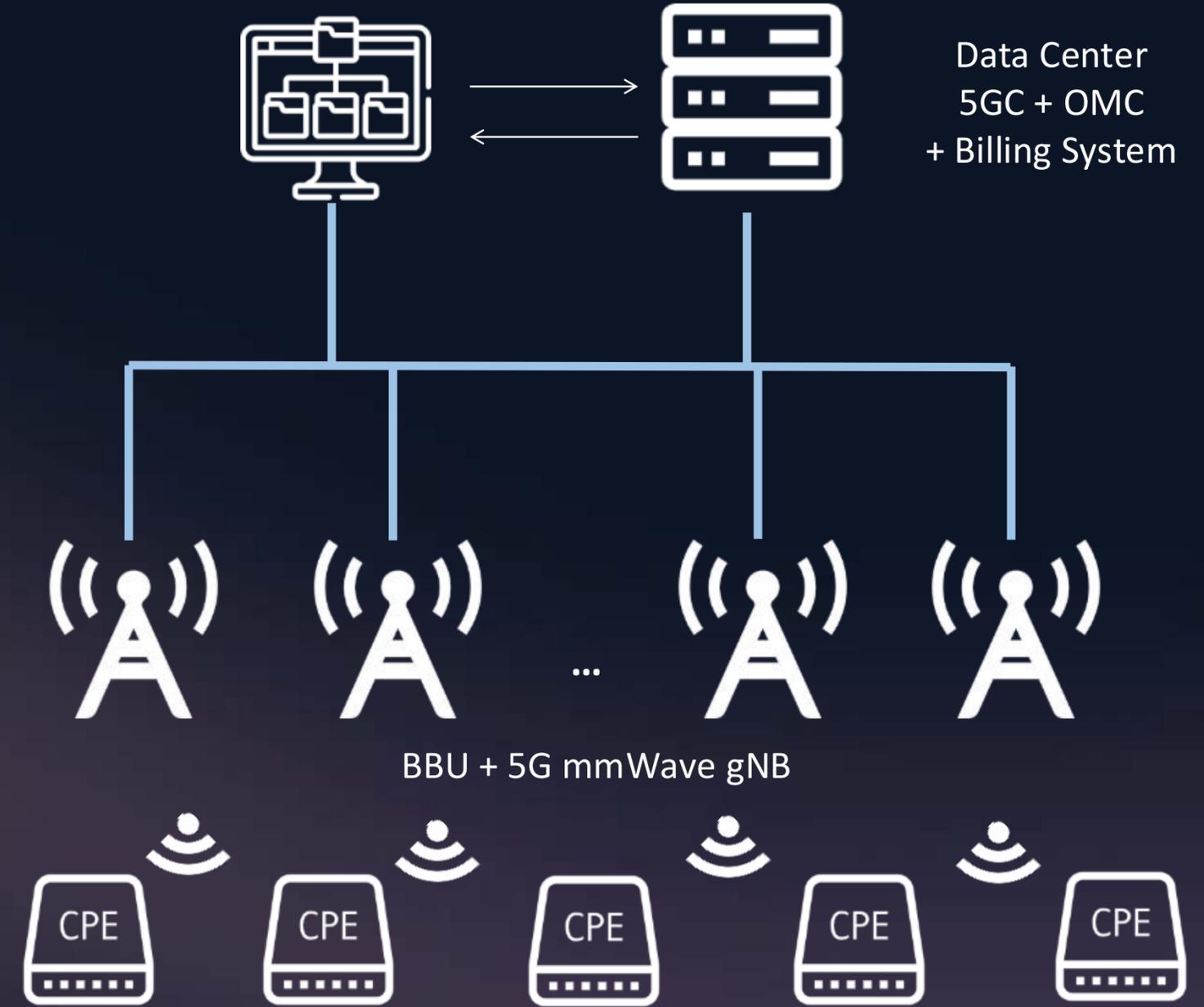
Option1

Recommended Solution for FWA Network



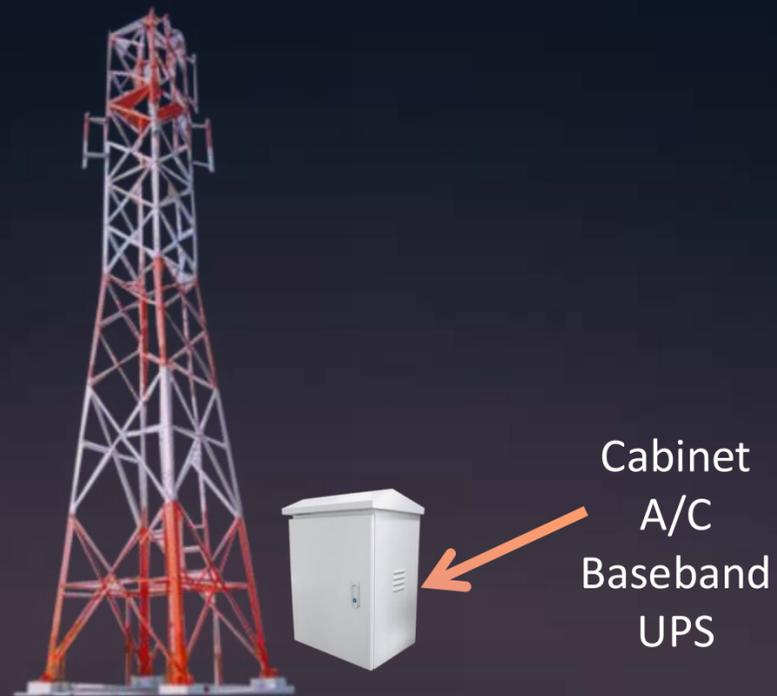
Option2

Recommended Solution for Mobile Network



Connect More With Less

Traditional Vendor 5G mmWave Solution



Cloud-RAN 5G mmWave Solution



	Transport Network	Power Plan	Rack	Tower	Cost	Install Team
Macro 5G mmWave	IPRAN / SPN	compact	yes	yes	\$30k+ level	>5 person
CRAI 5G mmWave	no	simple	no	simple	\$18k – \$20k level	1~2 person
Cost	Save	Save	Save	Save	Save	Save

CRAI end-to-end solution can save ~30%+

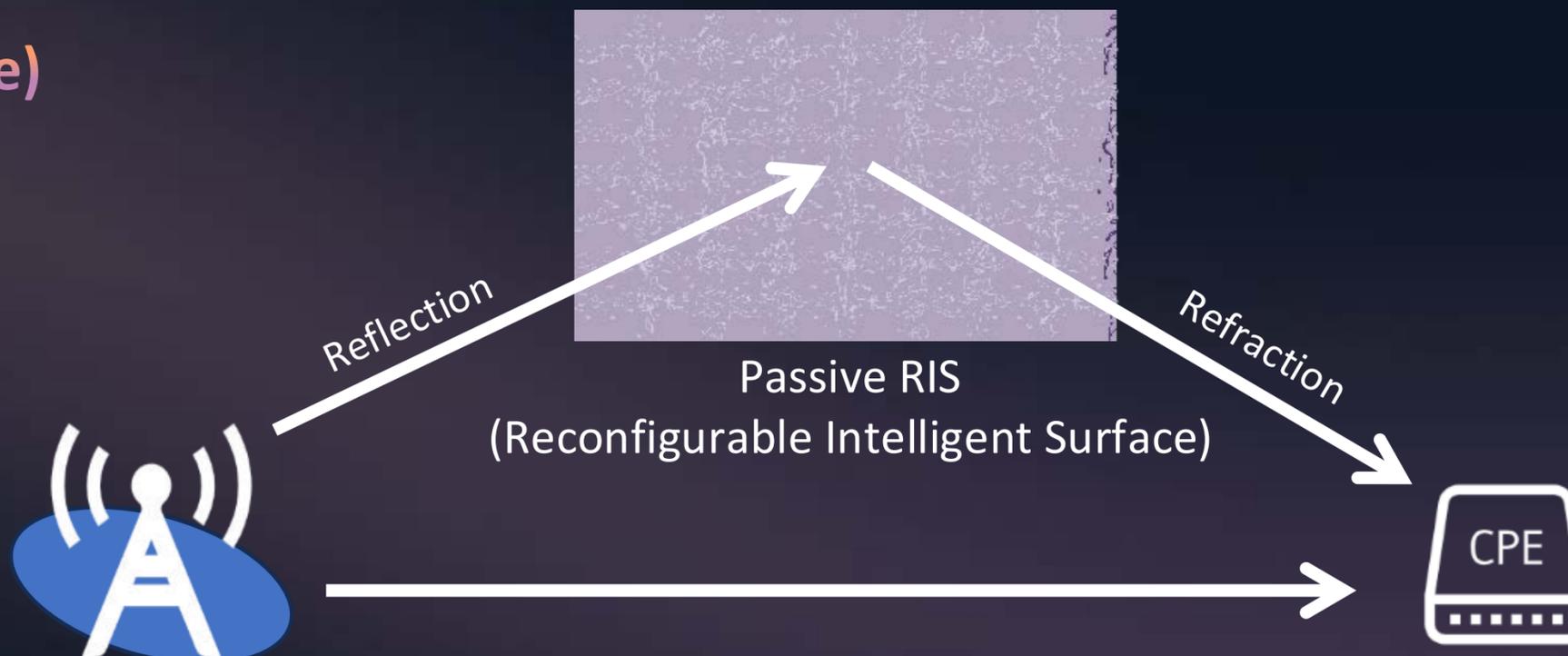
128 elements (64 dual-polarized) and 2*256 elements (2*128 dual-polarized)

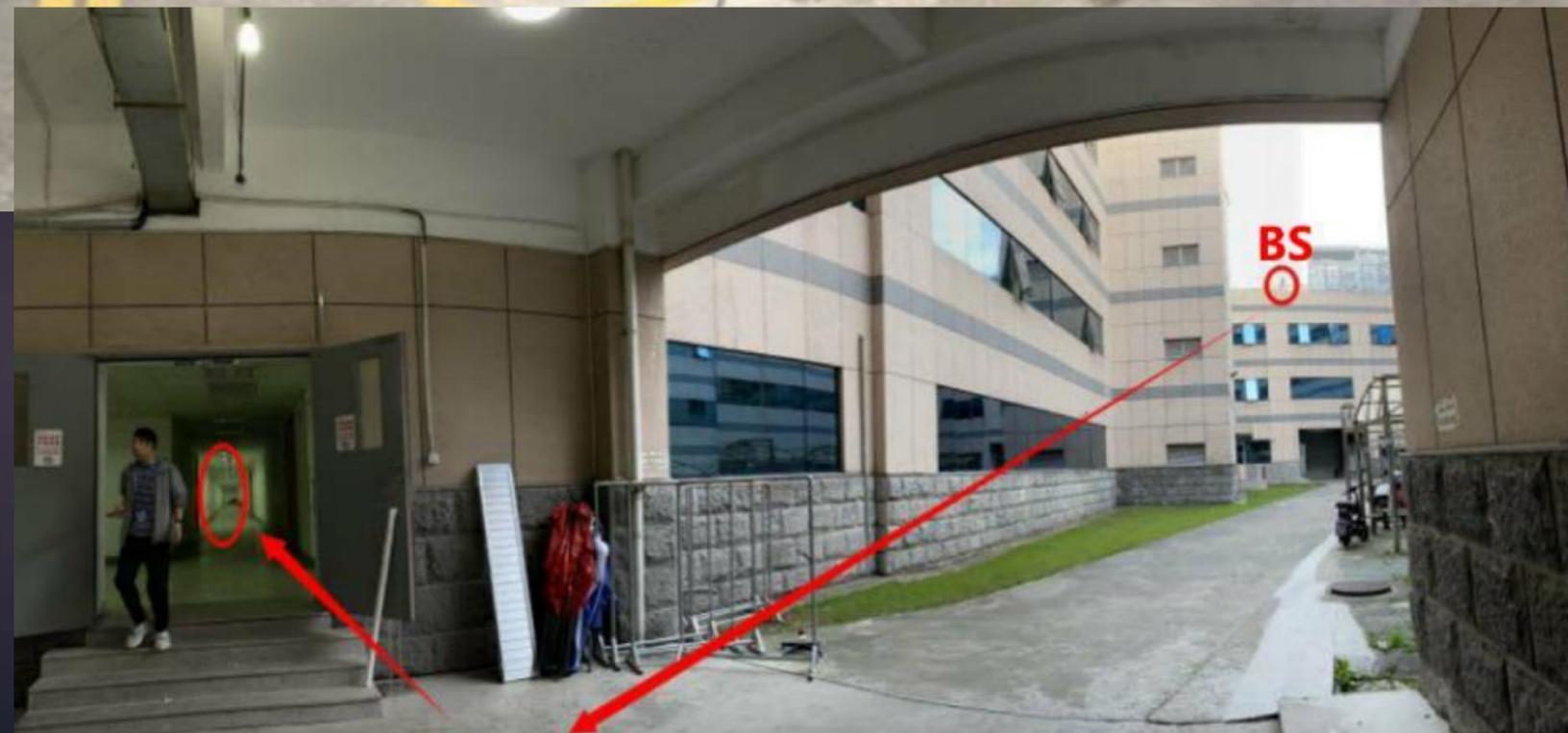
- Significantly improve spectrum efficiency
- Narrower lobes, and more concentrated energy, and increased coverage distance
- Stronger Multipath diversity, and improving edge user speed and link reliability



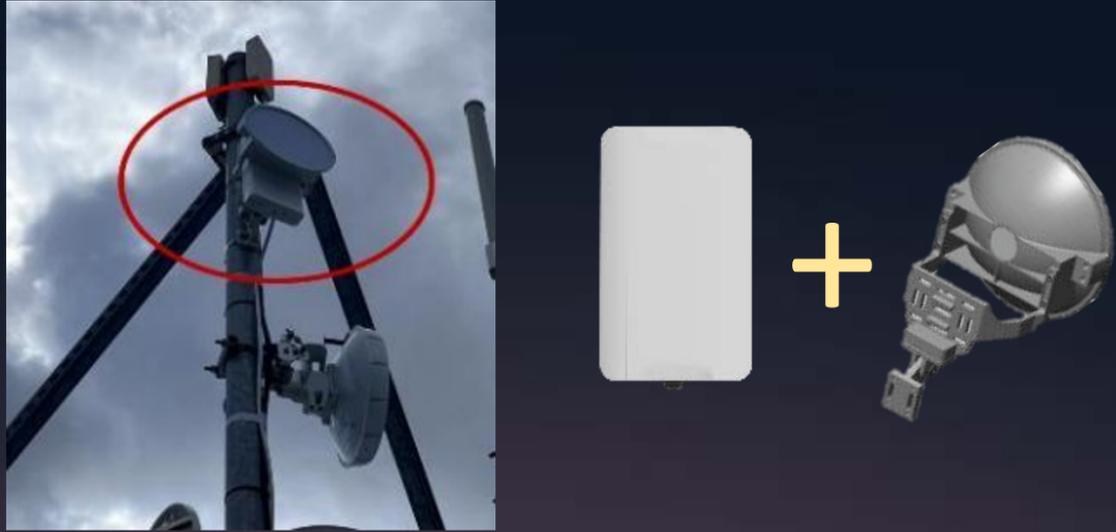
RIS (Reconfigurable Intelligent Surface)

- Improve indoor weak coverage
- Enhance spectrum efficiency
- Reduce CAPEX for the network





5G mmWave CPE (ODU)



Models	Estimated Coverage Distance	Antenna Gain
Model M (Internal Antenna)	Maximum 0.5 km	8dBi
Model L (Internal Antenna)	Maximum 1.4 km	18dBi
Model L + Parabolic antenna	Maximum 3.0 km	29dBi~31.3dBi

Models	Model M	Model L
Dimension	186*111*35 mm	186*111*35 mm
Weight	850g	About 850g
Technical Standard	5G mmW NSA/SA(*)/5G Sub6 SA/5G Sub6 NSA 5G/LTE/DC-HSPA+/HSPA+/HSPA/UMTS	5G mmW NSA/SA(*)/5G Sub6 SA/5G Sub6 NSA 5G/LTE/DC-HSPA+/HSPA+/HSPA/UMTS
Operating Frequency	5G mmW: N257/N258 5G Sub6: N1/N3/N5/N7/N8/N20/N28/ N38/N40/N41/N77/N78/N79 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42 WCDMA: B1/B5/B8	5G mmW: N257/N258/N261 5G Sub6: N1/N3/N5/N7/N8/N20/N28/ N38/N40/N41/N77/N78/N79 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42 WCDMA: B1/B5/B8
Peak Data Throughput	DL: BW 400MHz, up to 4.3Gbps (mmW) UL: BW 200MHz, up to 2.3Gbps (mmW) DL: BW 100MHz, up to 2.4Gbps (Sub6G) UL: BW 100MHz, up to 0.9Gbps (Sub6G)	DL: BW 800MHz, up to 10Gbps (mmW) UL: BW 400MHz, up to 3.38Gbps (mmW) DL: BW 100MHz, up to 4.9Gbps (Sub6G) UL: BW 100MHz, up to 0.9Gbps (Sub6G)
MIMO	DL 4x4 MIMO	DL 4x4 MIMO
BB Chipset	Qualcomm SDX62	Qualcomm X65
ERIP	5G mmW: 36dBm/5G Sub6: 28dBm	5G mm Wave: 45dBm/5G Sub6: 28dBm
USIM	1*4FF SIM (nano card)	1*4FF SIM (nano card)
Power consumption	<30W	<60W
Ethernet	2.5G LAN	10G LAN
Power	POE (nonstandard default)	POE (nonstandard default)
Antenna	Internal Antenna:5G/4G*5, QTM547*1	Internal Antenna:5G/4G*5, QTM547*2
Operating Temperature	-40°C ~ +50°C	-40°C ~ +50°C
Humidity	5%~ 95%	5%~ 95%

170+ 5G mmWave devices launched or announced by 65+ vendors

Chipsets



Smart Phones



Modules



CPEs & IoT





Michel Trudelle
Sales Director (APAC)
michel.trudelle@cloud-RAN.ai
+65 9898 8550

Thank You

www.cloud-net.ai
www.cloud-ran.ai