

ALTIOSTAR

Leading Network Transformation

AltioStar Open vRAN Overview

June 15th, 2021



Today's Participants

Altiostar Executives



Anil Bhandari, VP
Product Management



Altiosstar Overview

Company Overview

- First commercially deployed Open RAN solution provider for 4G & 5G
- Significant investment in R&D
- Leverage strategic partnerships with industry leaders (Qualcomm, Cisco & Intel)
- Headquarters outside Boston, MA, with additional offices in U.S., Europe, Middle East, Asia and Latin America.

Altiosstar by the numbers

550+
Employees
50 in Greater Boston

40+ Patents

\$320M+
Investments

1st Open RAN
Deployment at
Scale

Industry-Leading Investors



Award-Winning Solution

Best OpenRAN Solution
(Solutions Provider Award)



2021 Network
Transformation Award



Light Reading Leading
Lights 2020



GLOTEL Awards 2020



The 5G 100 Award
2020

Tier 1 Customers



Altiosstar Open vRAN Engagements

More than 40 global operators are engaged with Altiosstar to transform their networks

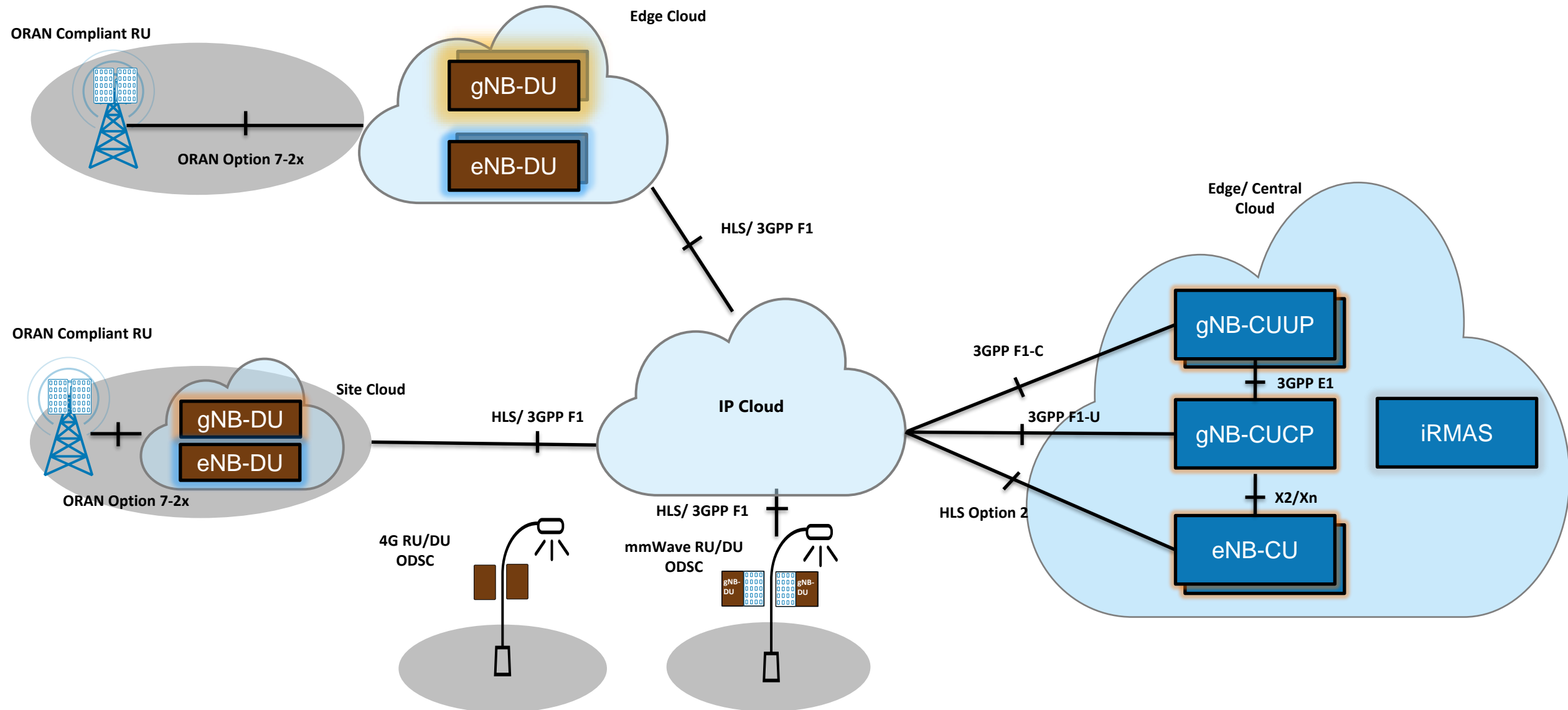
Altiosstar technology driving the innovative E2E cloud-based Rakuten Mobile radio access network

Proven commercial scale and carrier-grade

Both greenfield and brownfield customers including DISH, Etisalat, Telefónica, Airtel, Rakuten Mobile, STC, Vodafone, etc.

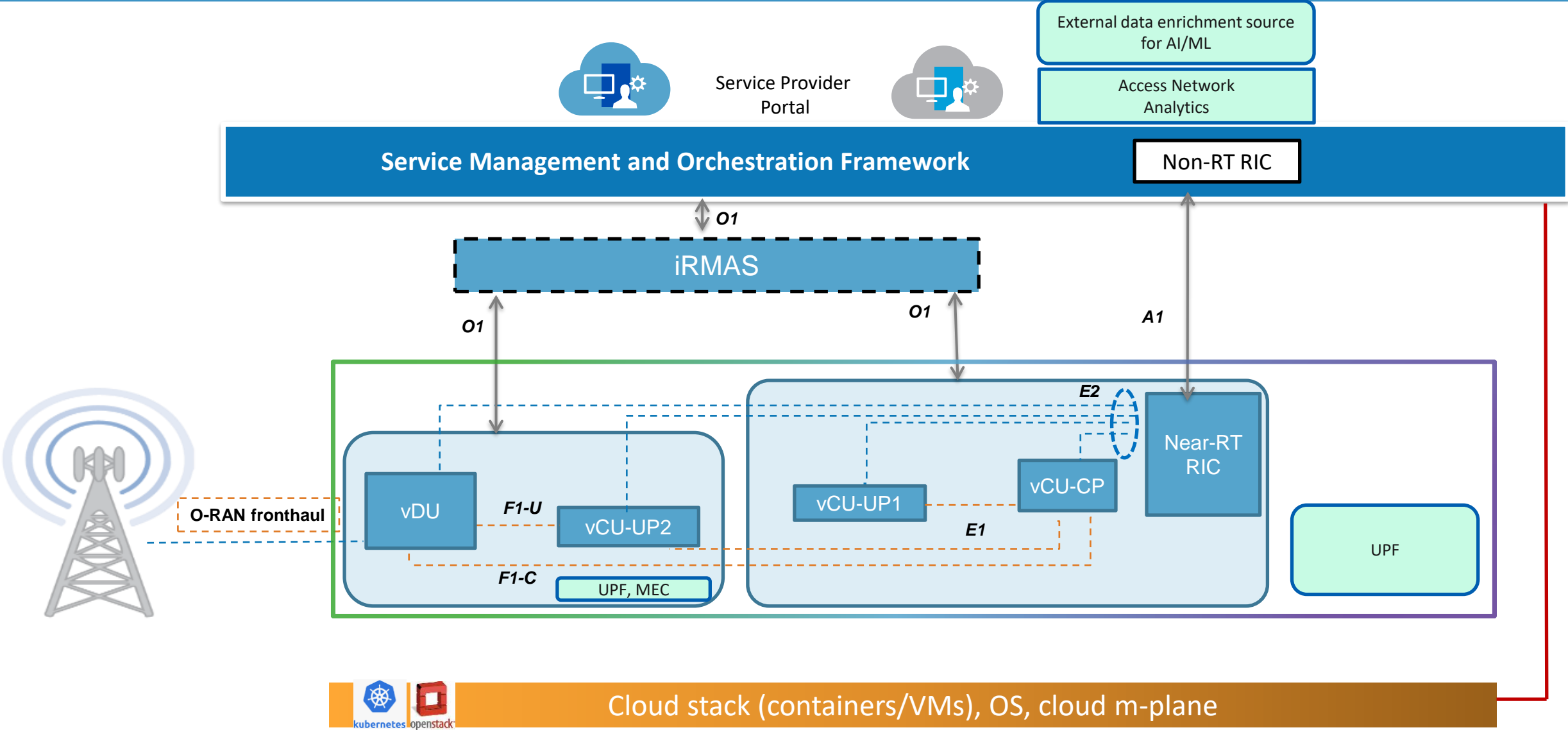


Open vRAN Architecture



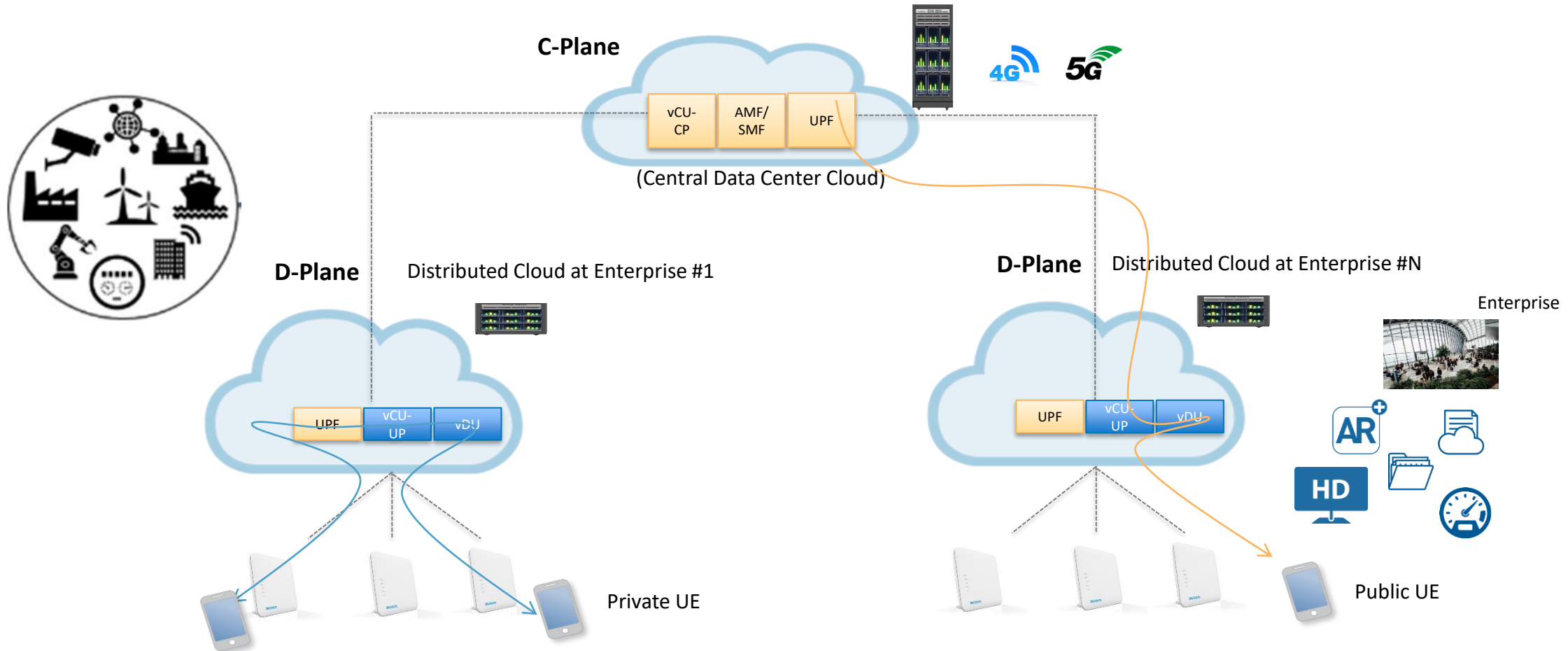
5 Carrier-grade Cloud native RAN architecture for 4G & 5G aligned to O-RAN specs

Flexibility with Open vRAN



Flexible deployment of network functions depending upon the use case

Open vRAN – An Enabler for Enterprise 5G

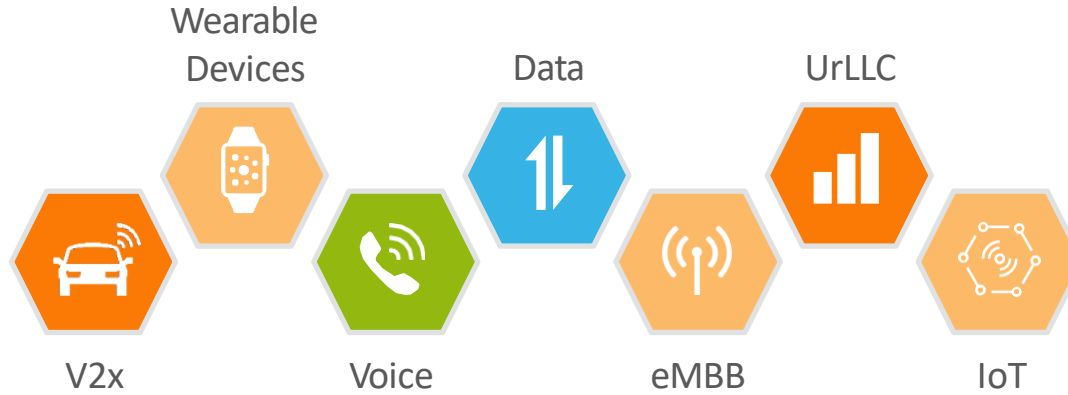


- Unified infrastructure for all network functions – Common cloud-based infrastructure
- Unified management & security across all functions
- Open vRAN provides ability for dynamic placement of network functions as per use case requirement
- Network functions scale up/ down depending on enterprise needs
- Guaranteed QoS

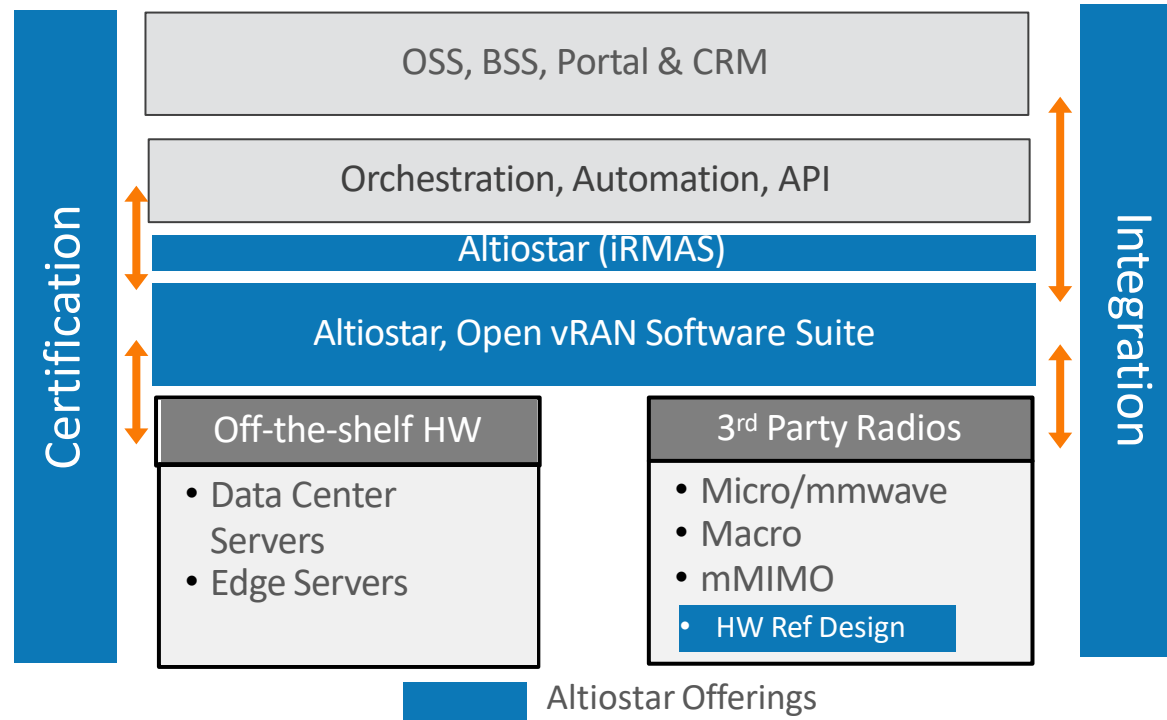
A Disruptive New Model

Open Architecture

- HW/SW disaggregation
- Virtualized Software
- Open Interfaces
- Zero Touch
- Modular Functions
- Dynamic Dimensioning



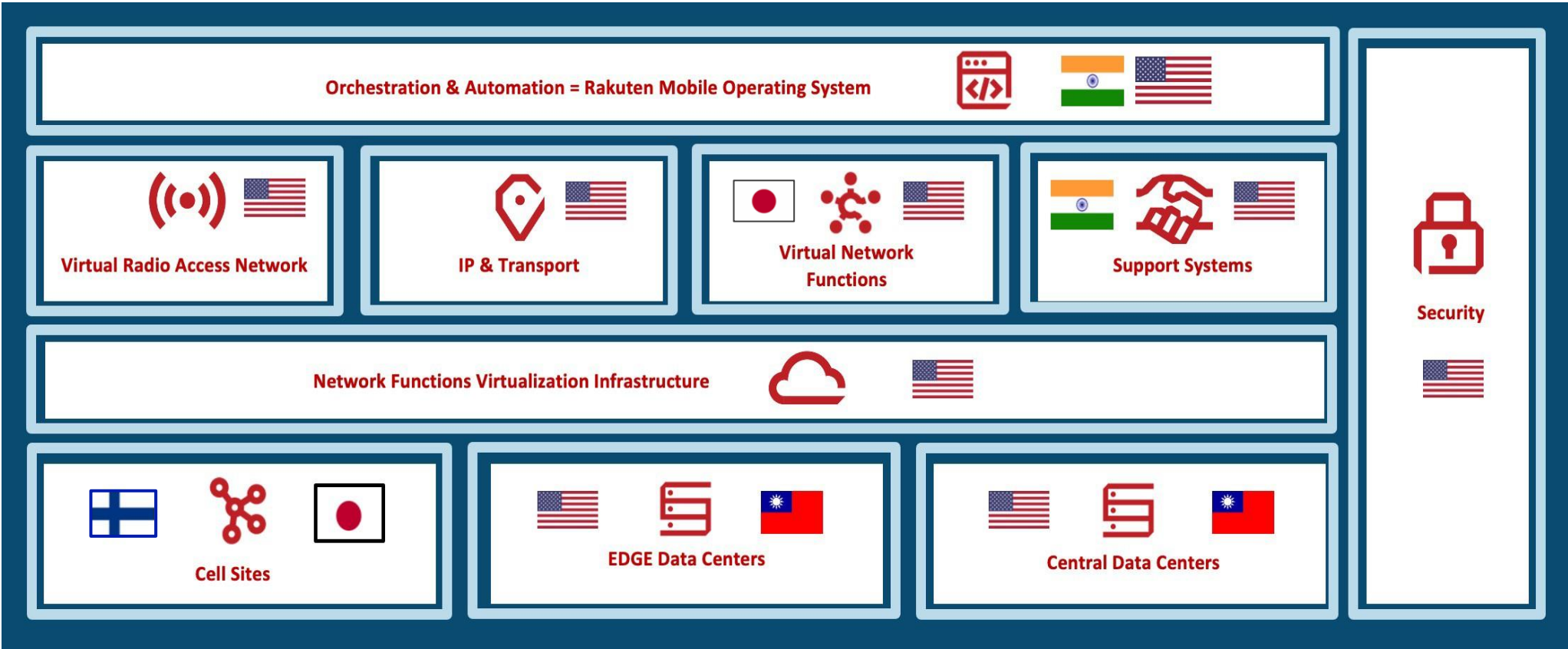
4G & 5G Use Cases



New Business Model

- Service creation velocity
- More choices Best-of-Breed
- Source code licensing
- White-Label supply chain
- Lower TCO

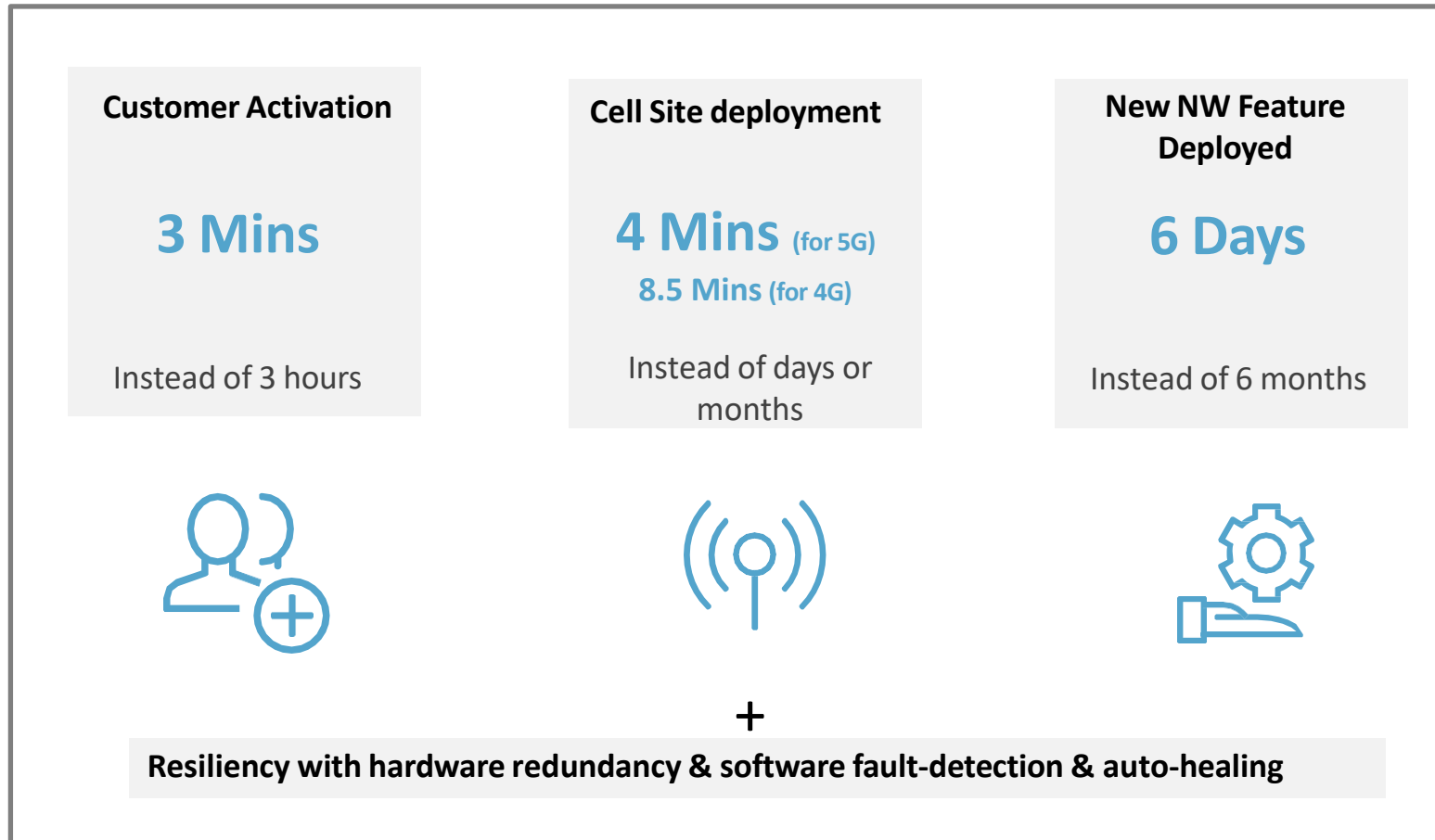
Rakuten Cloud Native Architecture



 Country of origin of main technology partner (source Rakuten)

E2E Network Automation

Rakuten Mobile operates like no other existing telco in the world



Source: Rakuten

Open RAN in Action



*World's first large-scale Open vRAN deployment
Deployed in some of the densest metro areas in the world*

Network meeting demands of data-hungry customers

99.7%
AVAILABILITY

99.7%
ACCESSIBILITY

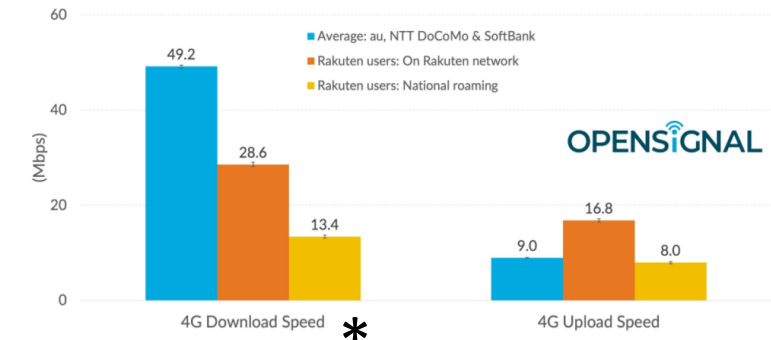
99.8%
RETAINABILITY

Software Availability **99.999%**

Automation & hierarchical auto-healing

Source: Rakuten & Altiostar

96% Population coverage (2021)
4G: Small cells & macros
5G: mmWave & mMIMO



Data collection period: 1 October - 29 December 2020. © Opensignal Ltd

Highest upload speeds among all Japanese operators, building credibility with quality conscious consumer base

Successfully reached max throughput of 1.77 Gbps in mmWave on 5G network

*Rakuten has a single 5Mhz/20Mhz carrier while competing operators have multiple carriers

Open RAN and 4G & 5G Deployments

- Open RAN based 4G/5G deployments are already in-progress addressing both FR1 (Sub-6GHz) and FR2 (mmWave) spectrums
- The deployments support both 5G NSA and SA based architectures
- Support Open Fronthaul interface 7-2x defined by O-RAN alliance with containerized cloud native CU & DU
- Notable examples of Open RAN 4G/5G deployments are DISH Networks in the US and Rakuten Mobile in Japan
- Telefonica in Europe has committed to the deployment of Open RAN based 4G/5G networks starting 2021

Open RAN based 4G/5G solutions are commercially deployed at scale and offer performance/ availability at par with traditional RAN

Open RAN System Integration Approach



Rakuten dish

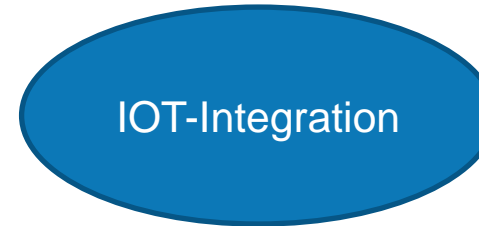
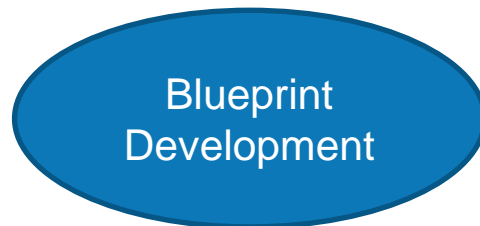


IBM Tech Mahindra World Wide Technology NEC FUJITSU



RCP

AltioStar is the trusted advisor to design, certify, integrate & support End-to-End Open RAN solutions





Thank You

ALTIOSTAR