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Welcome & Introduction

Kelsey Kusterer Ziser
Senior Editor
Light Reading

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SESSION 4:

Driving Supply Chain Resiliency for Open RAN Development

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SESSION 4 AGENDA

Session 4 Speakers

- **Emanuel Kolta**, Lead Analyst, GSMA Intelligence
- **Ramin Attari**, RVP MEA, Parallel Wireless
- **Sadayuki Abeta**, VP, Head of Open RAN solutions, NTT Docomo
- **Partha Seetala**, President of Unified Cloud Business Unit, Rakuten Symphony

Session 4 Panel

- **Ramin Attari**, RVP MEA, Parallel Wireless
- **Dr Doug Pulley**, Chief Solutions Architect, Picocom
- **Prakash Siva,** Head of Technology and Architecture, Radisys
- **Pál Zarándy**, Group Chief Strategy Officer, Mobile & 5G, 4iG

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5G and Transforming RAN Architectures

Emanuel Kolta
Lead Analyst
GSMA Intelligence

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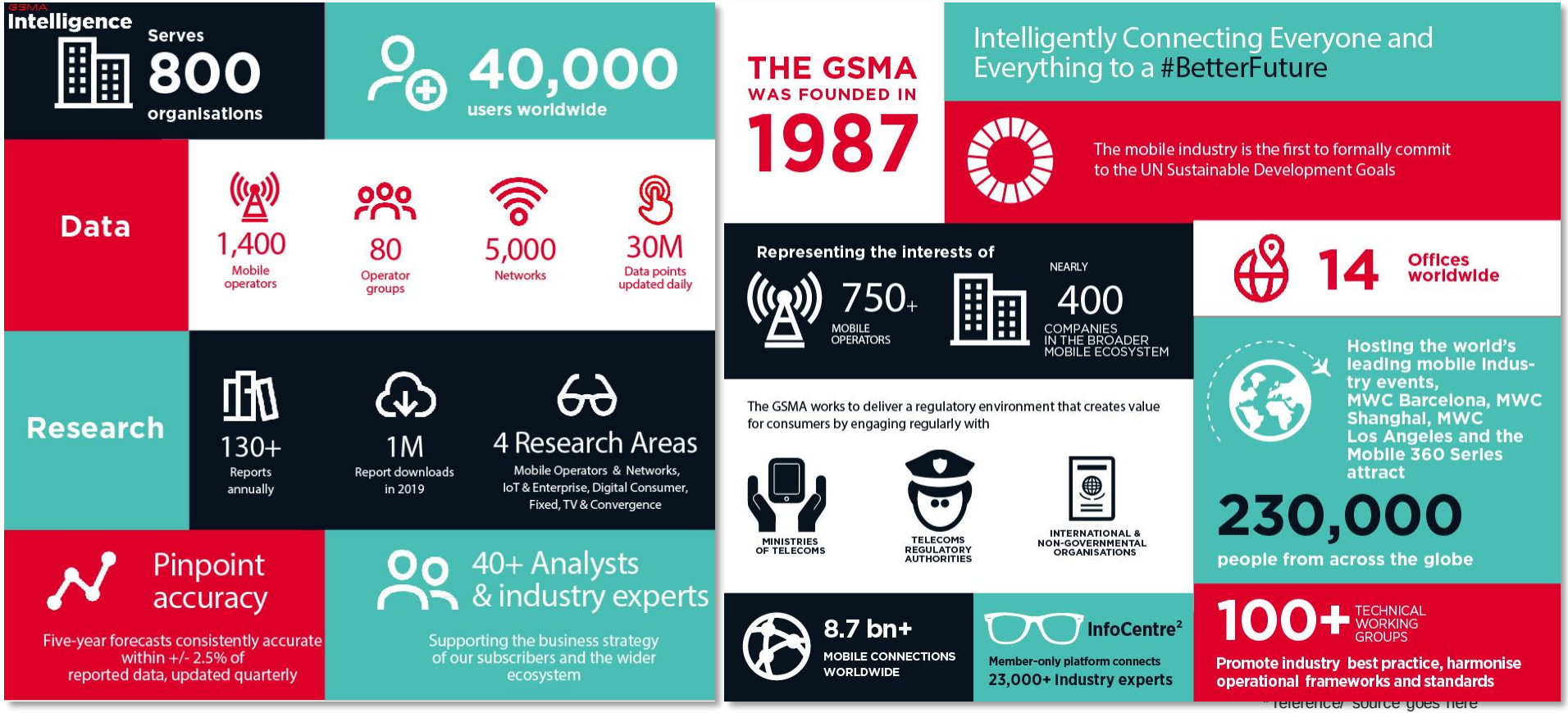

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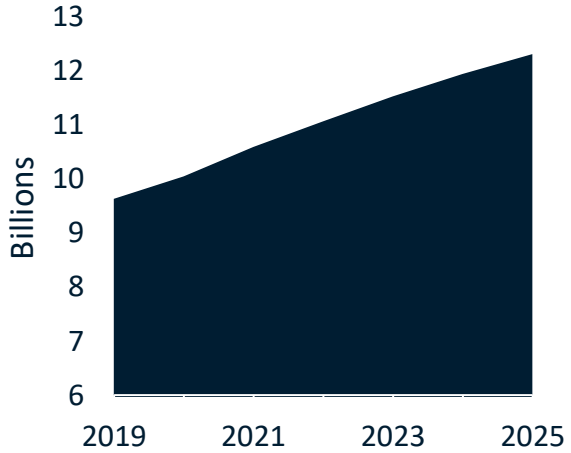
Transforming RAN Architectures: Why?
Growing demand for connectivity and flat CAPEX

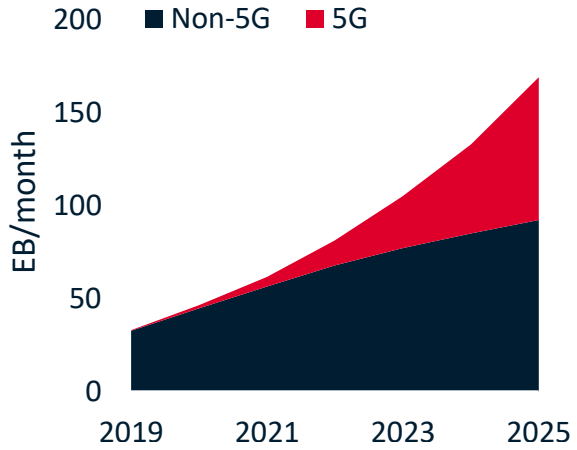
Increasing demand for connectivity

Cellular Connection 2019 - 2025



Source: GSMA Intelligence

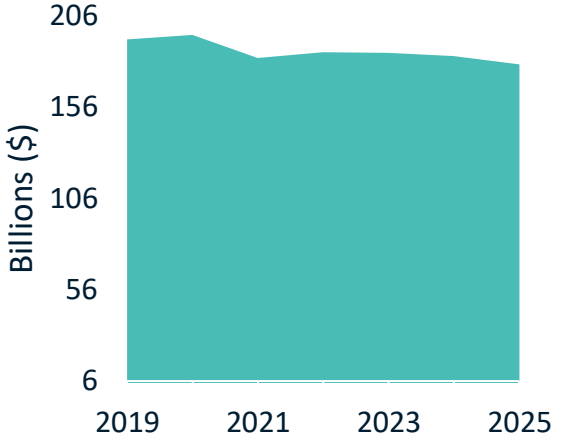
Mobile Data Traffic 2019 - 2025



Source: Ericsson

Flat budget

Total mobile CAPEX



Source: GSMA Intelligence

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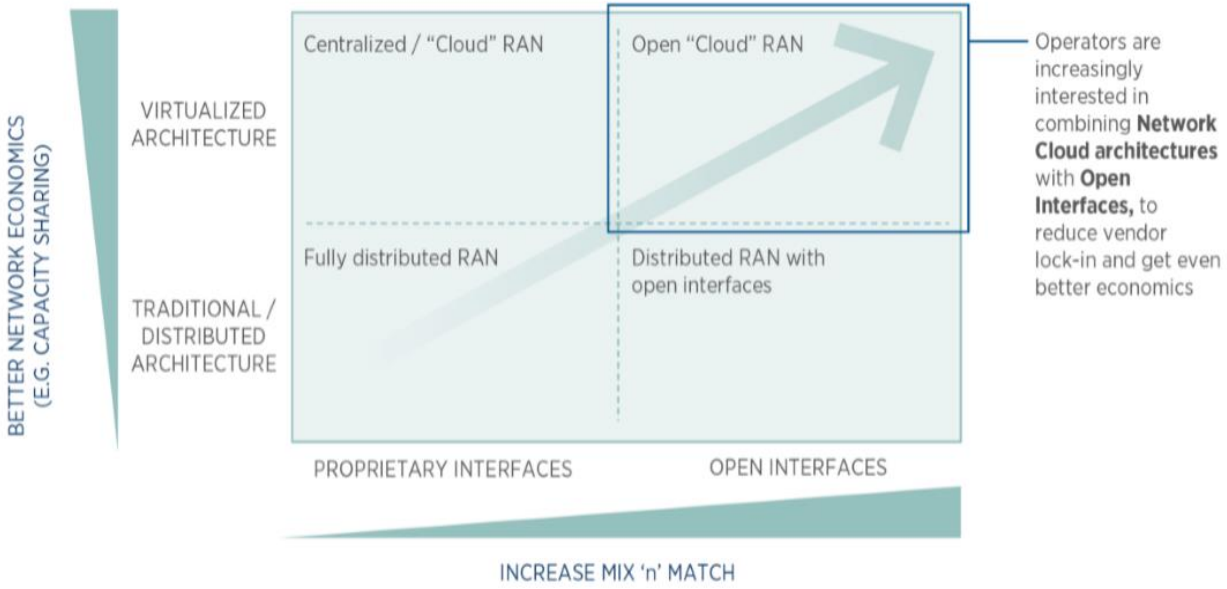
Transforming RAN Architectures: How?
Open vs. virtual vs. cloud vs. pooled vs. distributed



Virtualization and **open interfaces** are different things, and an operator can deploy one without the other, but technology is becoming available to combine RAN virtualization with open interfaces.

- **Virtualisation**: for better economics through capacity aggregation or cloudification with open interfaces

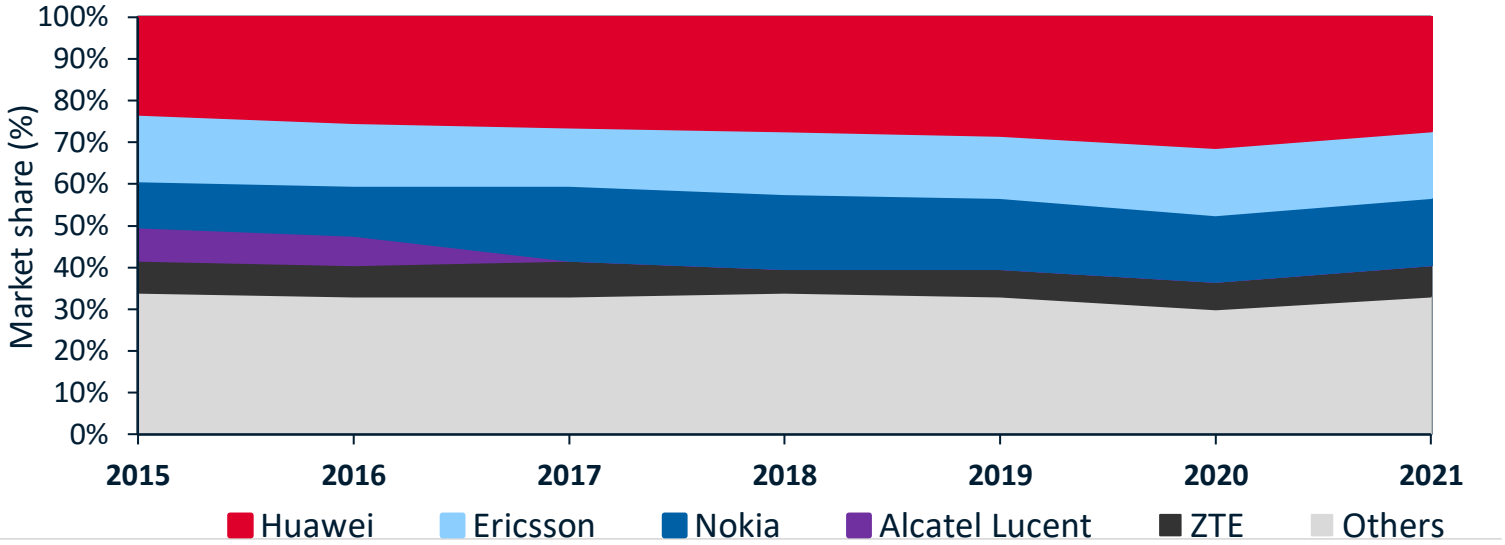
- Open interfaces: for more choice and innovation in the supply chain

The vendor ecosystem radically changed in the past 20 years

Global market share of network equipment vendors worldwide

Market share of the **top 3 players:**

2015	2016	2017	2018	2019	2020	2021
50%	52%	58%	60%	60%	63%	59%



Source: Dell'Oro Group, GSMA Intelligence estimates

Drivers of the transformation: Benefits impact both costs and lead to a sustainable supply chain

1. Financial pressure

The most attractive 5G use cases require network densification deployments

2. Sustainable supply chain

The current radio equipment supply chain is under stress, as the number of suppliers continues to decline due to market consolidation and geopolitical restrictions

Virtualization and open interfaces improve operators position differently

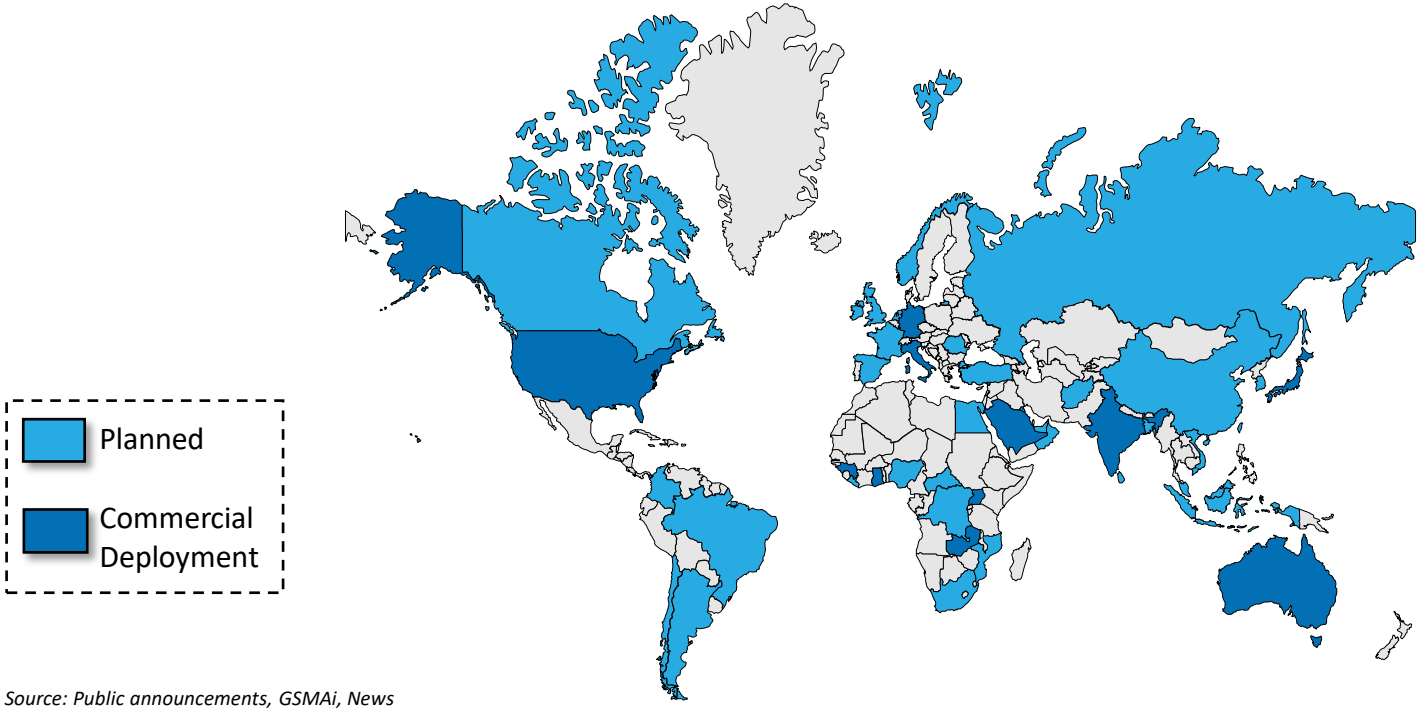
Virtualization

- Number of equipment
- Different levels of pooling
- Energy efficiency
- Space efficiently
- Operations, maintenance
- Cabling, installations

Open interfaces

- Radio equipment
- Flexibility (e.g. Plug n Play)
- Infrastructure competition (e.g. Mix n Match)

Open RAN around the World



Source: Public announcements, GSMAi, News

Updated: February, 2023

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4YFN Connecting Startups

Thank you

Emanuel Kolta

Sr. Analyst, GSMA Intelligence

@EmanuelKolta

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Accelerating Open RAN Deployments & Increase Supply Chain Diversity

Ramin Attari
Regional VP, ME & Africa
Parallel Wireless

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ACCELERATING OPEN RAN DEPLOYMENTS & INCREASING SUPPLY CHAIN DIVERSITY

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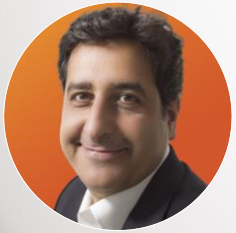


Ramin Attari

Regional VP, ME & Africa

AGENDA

01 Open RAN Original Vision and Goals

02 Open RAN Current Status

03 Accelerating Adoption

04 How Can Innovation Help

05 Conclusions

ACCELERATING OPEN RAN DEPLOYMENTS & INCREASING SUPPLY CHAIN DIVERSITY

Parallel Wireless, Inc. Proprietary

Parallel WIRELESS

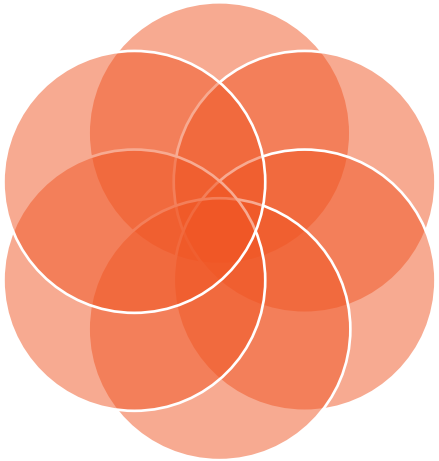
OPEN RAN – THE ORIGINAL VISION

Competition

Break the Oligopoly

Disaggregation of SW and HW

Allow Operators To Own The HW Elements



CAPEX

Reduce Overall Cellular RAN TCO

Supplier Diversity

Encourage More Players To Enter The RAN World

Innovation

Encourage Innovation Through Diversity & Choice

Lock-in

Release Operators From Incumbent Vendors and Provide Choice

OPEN RAN – CURRENT STATUS

Competition → Insufficient deployment of ORAN contracts globally

CAPEX → HW price reduction is directly linked to volume

Innovation → A constant game of catch-up with Incumbent vendors on new features slows further innovation

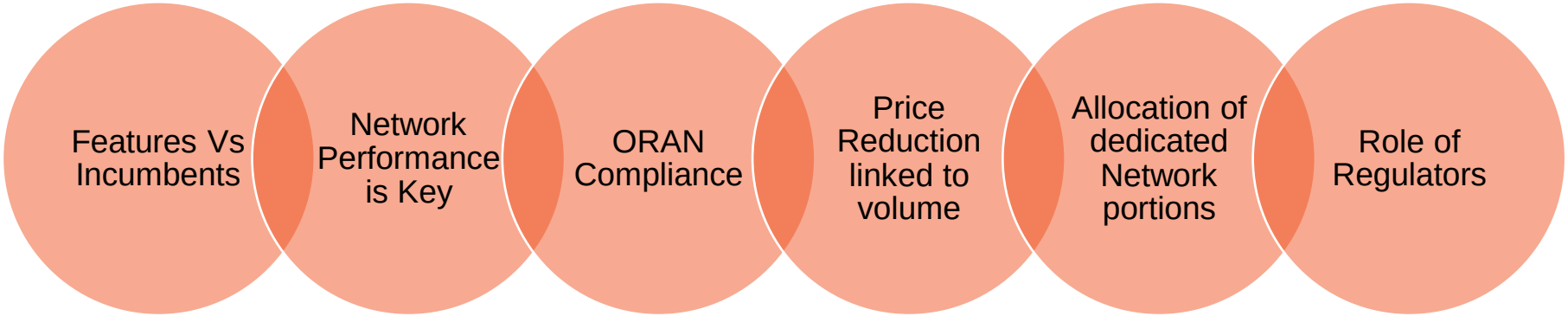
Lock-in → Each SW vendor is adapting to specific HW vendors, and each vendor's Open RAN SW has a different path to orchestrate (RU/DU/CU)

Supplier Diversity → Heavy dependency on momentum in Open RAN deployments, leading to more investment in this technology

Disaggregation → Not happening fast enough as each SW vendor is integrated with specific HW vendors

Parallel WIRELESS

OPEN RAN – HOW CAN WE ACCELERATE ADOPTION?



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CENTRALIZED RAN ADVANTAGES

Better Network Utilization

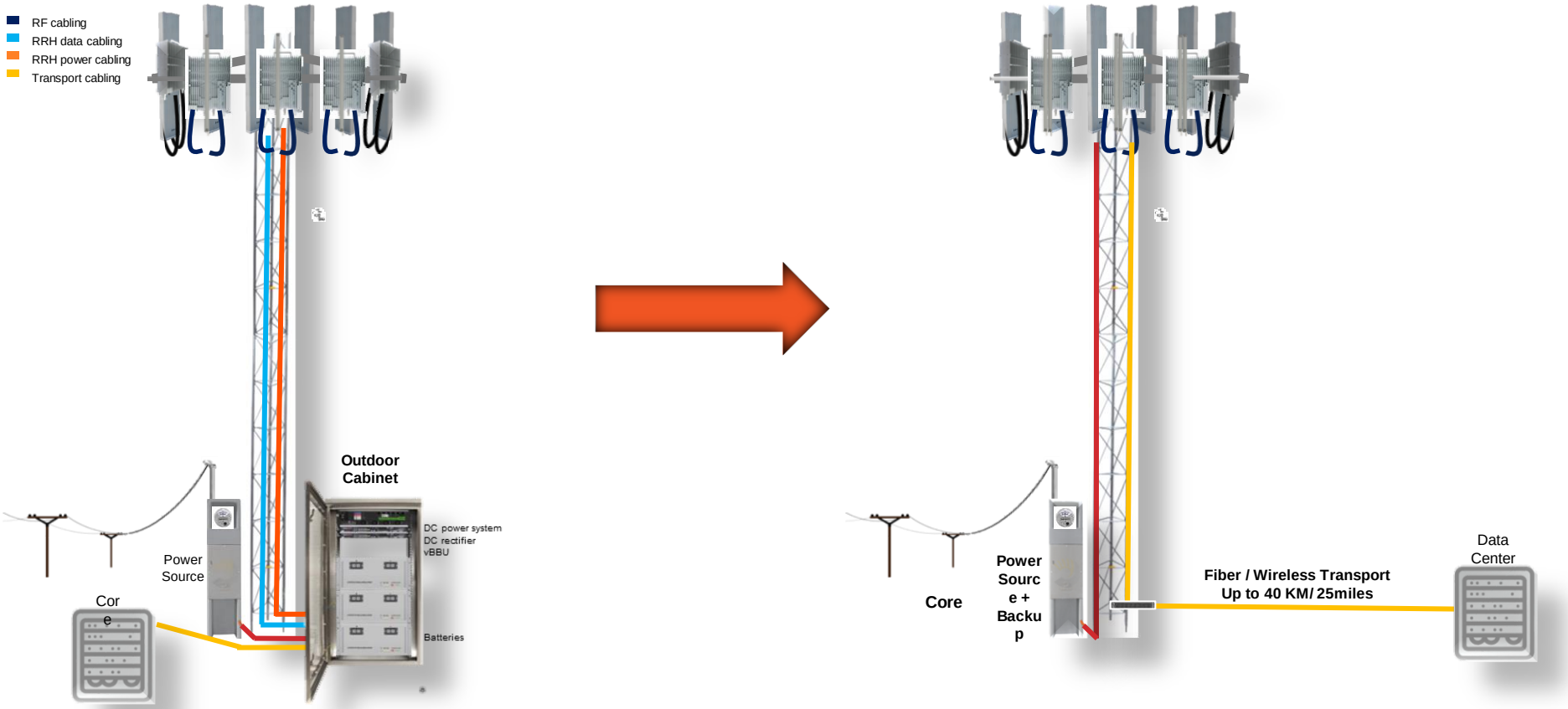
Spectrum Efficiency

Power Efficiency

Network Elasticity

Network Agility

ON-SITE TO CLOUD TRANSITION AND ENABLING CENTRALIZATION



RAN CENTRALIZATION

Distributed

Vs.

Centralized

Better Use Of Available RAN Resources Leading to Accelerated Deployments

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Multivendor Open RAN - DOCOMO's Experience

Sadayuki Abeta
VP, Head of Open RAN Solutions
NTT Docomo

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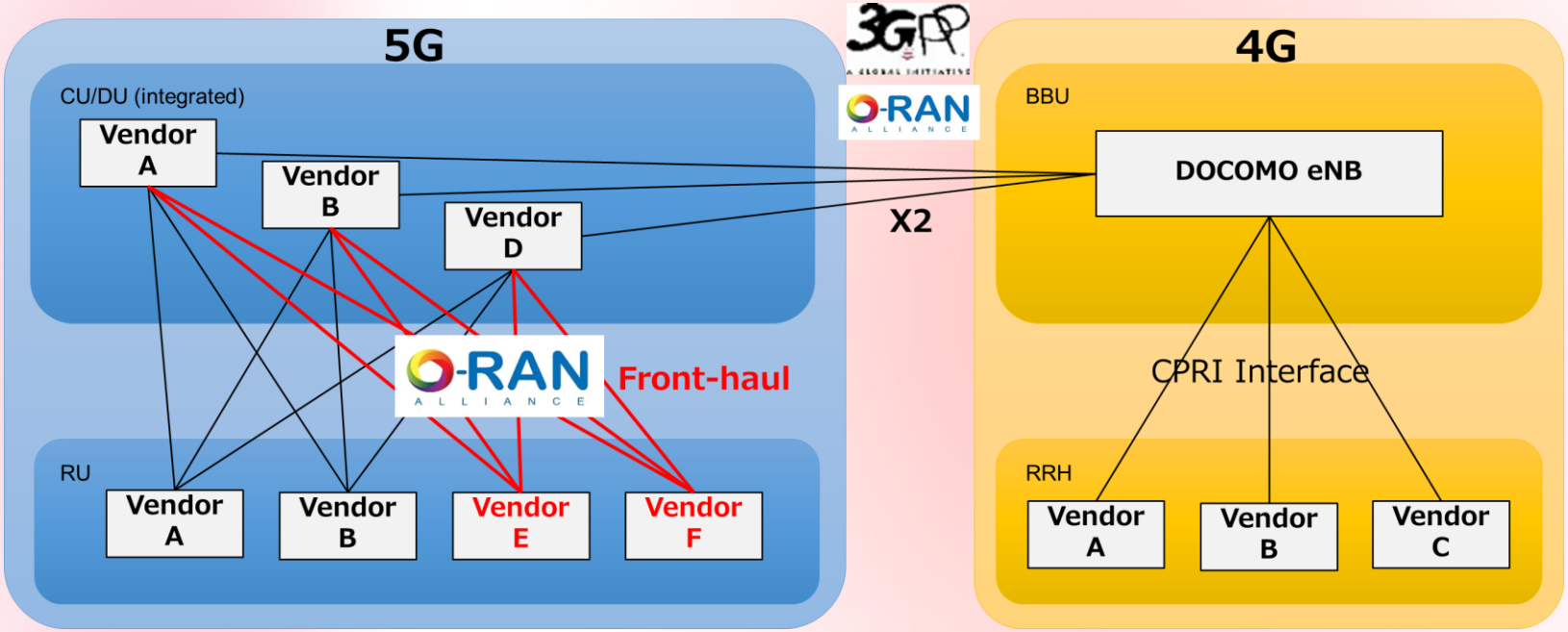
Multivendor Open RAN
- DOCOMO’s experience -

Sadayuki Abeta
NTT DOCOMO

What's new for operators to introduce open RAN

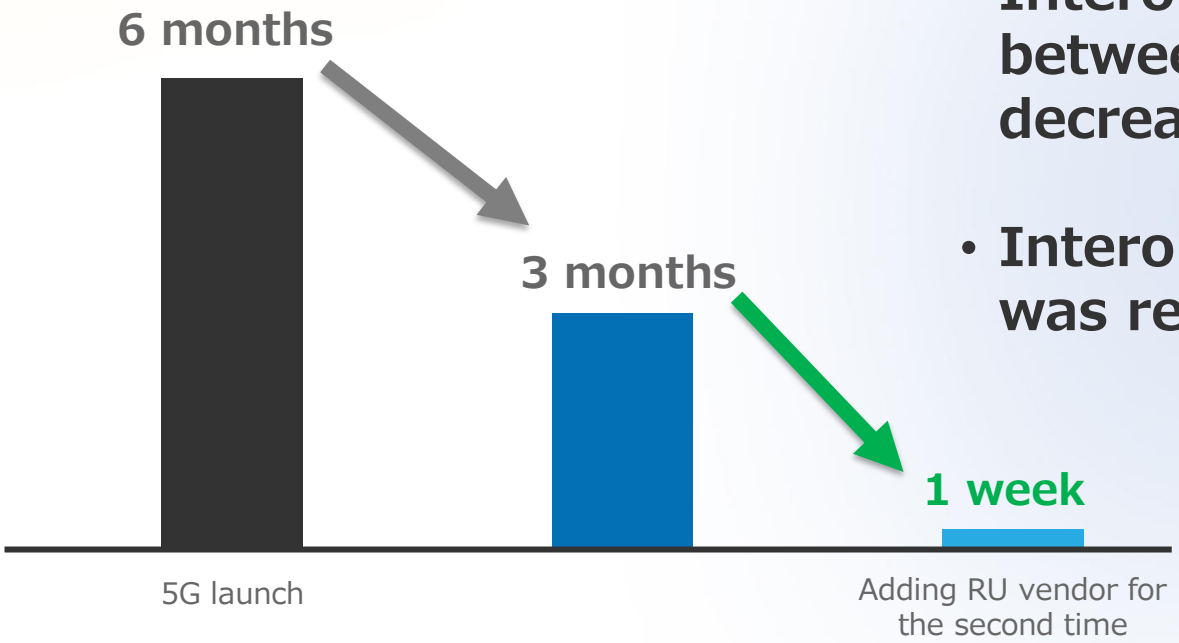
- **System Integration**
- **Inter-operability test**
- Cost structure
- New operation scheme
- ..

DOCOMO's commercial RAN



> 16 Million 5G Subscribers / > 20,000 gNB

IOT period has been decreased

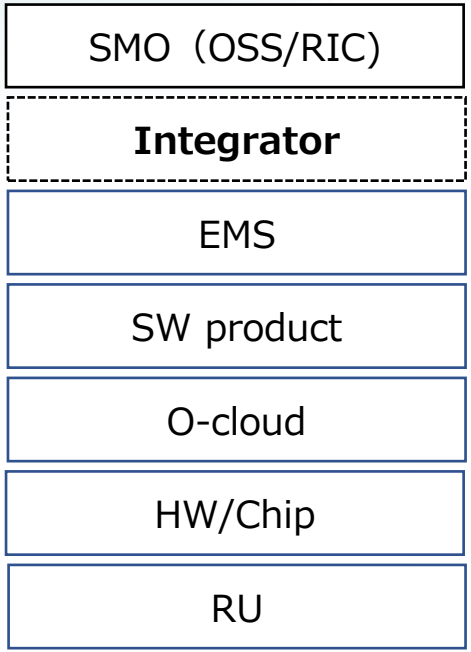


- Interoperability test period between RU and DU was decreased.
- Interoperability test cost was reduced.

What's benefits DOCOMO achieved

- Select best vendor after Day1
- Avoid supply chain risk
- Select the solution in the world

Keep flexibility, reduce integration cost

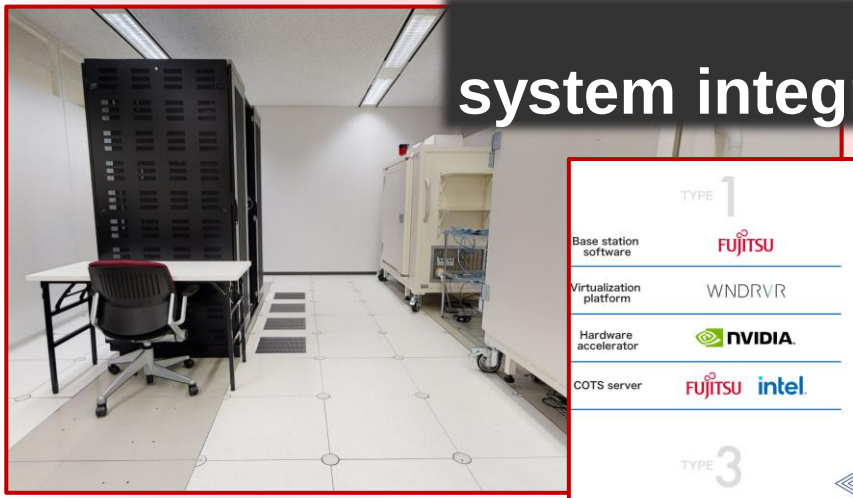


System integration is costly?

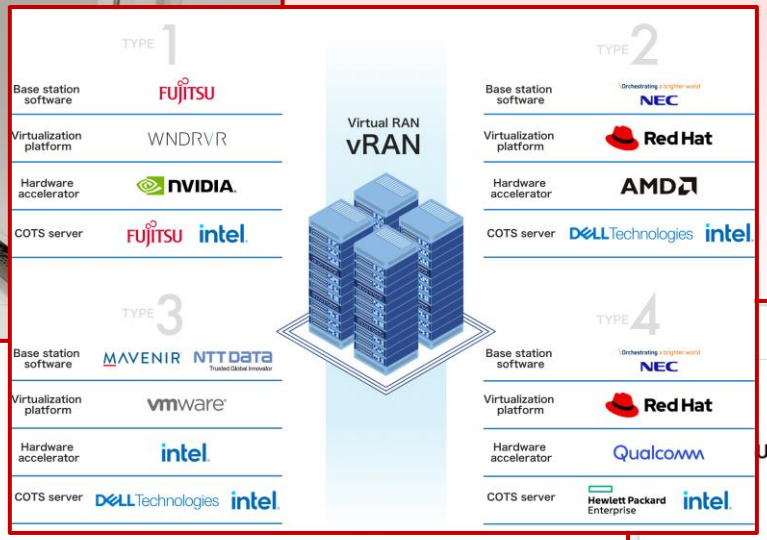
How can we reduce the cost?

Sharing is Key

OREX | NTT docomo

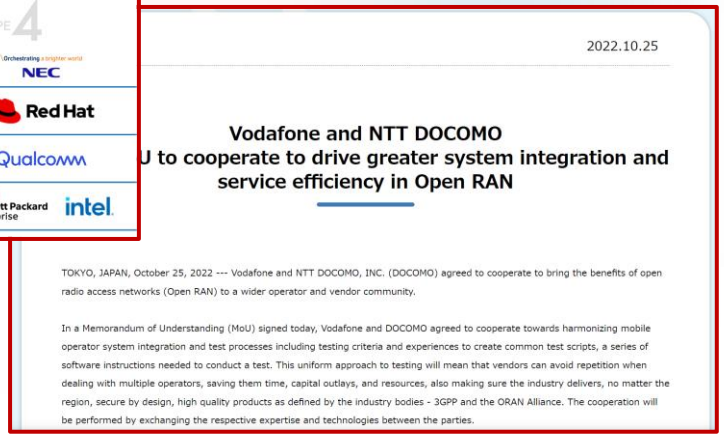


Sharing
system integrated solution/result



Sharing
test Lab

Sharing
test process



2022.10.25

Vodafone and NTT DOCOMO
U to cooperate to drive greater system integration and service efficiency in Open RAN

TOKYO, JAPAN, October 25, 2022 --- Vodafone and NTT DOCOMO, INC. (DOCOMO) agreed to cooperate to bring the benefits of open radio access networks (Open RAN) to a wider operator and vendor community.

In a Memorandum of Understanding (MoU) signed today, Vodafone and DOCOMO agreed to cooperate towards harmonizing mobile operator system integration and test processes including testing criteria and experiences to create common test scripts, a series of software instructions needed to conduct a test. This uniform approach to testing will mean that vendors can avoid repetition when dealing with multiple operators, saving them time, capital outlays, and resources, also making sure the industry delivers, no matter the region, secure by design, high quality products as defined by the industry bodies - 3GPP and the ORAN Alliance. The cooperation will be performed by exchanging the respective expertise and technologies between the parties.

Move next stage

BRAND-NEW OREX (Open Ran Ecosystem Experience)

DOCOMO, aiming to eliminate telecommunications gaps in a global society where everyone is always connected, launched a project to popularize Open RAN worldwide in 2021.
Joined by 13 global vendors, DOCOMO is now conducting verifications with operators worldwide in order to develop new technologies that are expected to lead to more open fronthaul, virtualized and intelligent RAN.
The initiative will advance to the next stage this year with the introduction of the OREX brand, which will provide operators worldwide with a transformed experience.

NTT docomo
Changing worlds with you.
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Cloud-Native Deployment Powers Open RAN Adoption

Vivek Chadha,
SVP Telco Cloud
Rakuten Symphony

MWC GSMA

Telecom Transformation with Open RAN

Open Interfaces

Open RAN uses open standard interfaces between components enabling interoperability

Hardware-Software Disaggregation

Open RAN separates hardware and software through virtualization of network functions

Cloud-Native

Open RAN is designed to run in the cloud for greater flexibility, efficiency and scalability

Automation & Orchestration

The software-driven approach of Open RAN enables automation and E2E orchestration

Disaggregation Enables Wide-Reaching Hardware Standardization & Simplification

HW Standardization

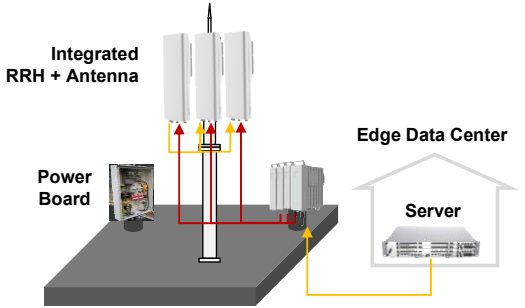
Moving towards a SW-defined NW with standardized HW

- **Reduced Complexity:** minimize number of SKUs with COTS HW
- **Transparency:** full cost transparency – no more black boxes
- **Flexibility:** choose most cost-effective solution for specific needs
- **Upgrades:** unlock “generation-free” CAPEX model
- **Innovation:** profit from innovation dynamics of e.g. silicon industry

Significant hardware cost reductions

Simplified Site Design

Removing electronics from the cell site – no more cabinets



‘Open Interfaces’ Set Stage for ‘Mobile as a Software’

Flexibility – Industry-wide standardization to eliminate vendor lock-in

Software first – Reducing dependency on HW & opening up new possibilities

Innovation – Opening the market for accelerated innovation

Automation – reducing manual interventions during operations

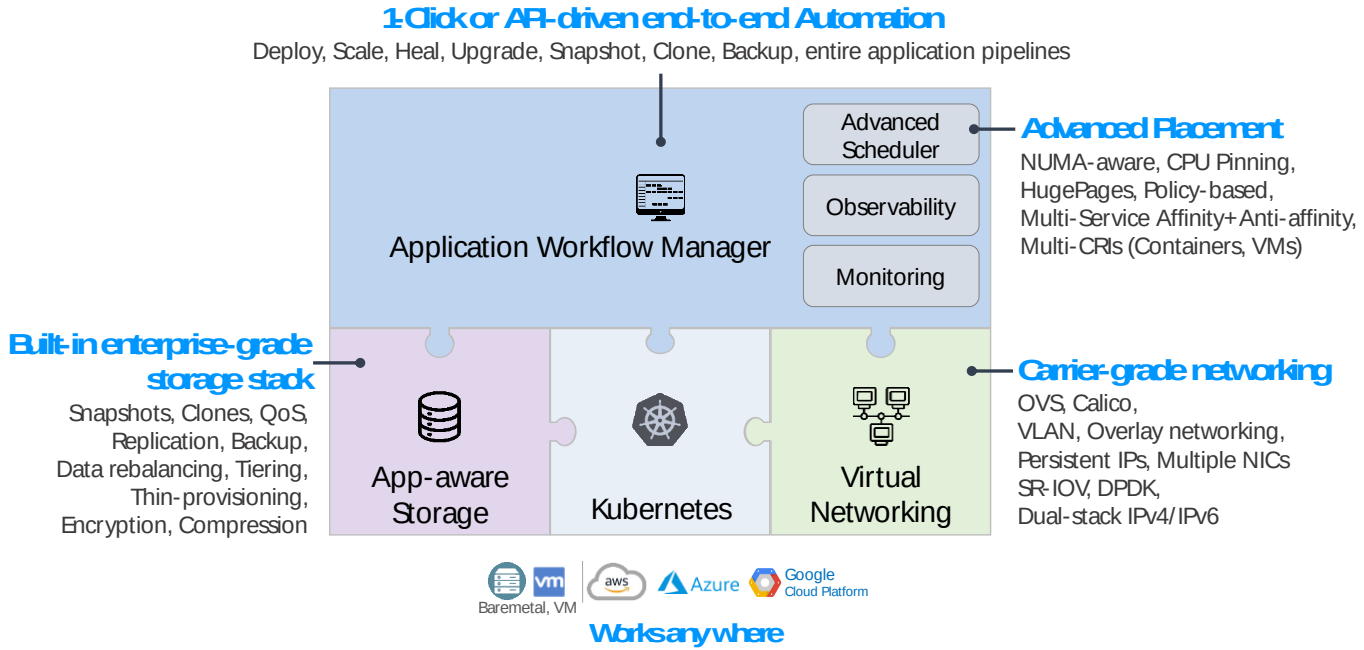
Unprecedented Efficiency

Massive TCO Reduction

New Business Opportunities

Cloud Native – One Operational Abstraction for Telco Transformation

All underlying infra – Compute, Storage, Networking and any cloud available on demand via single click or a single API call



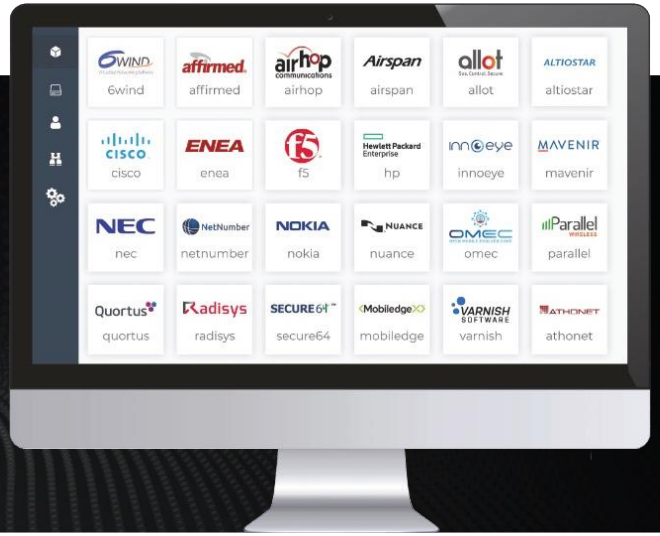
Extreme Simplification

On board applications in hours and deploy in minutes.

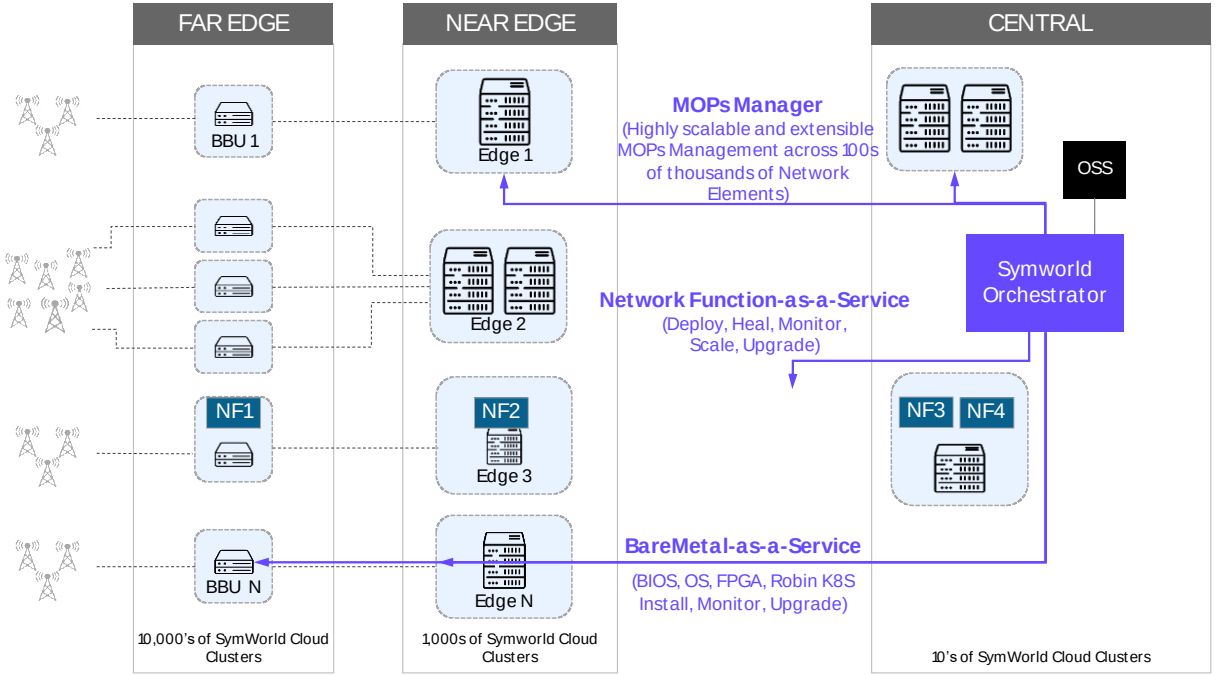
HIGH-PERFORMANCE
CLOUD-NATIVE PLATFORM (CNP)

CARRIER-GRADE DATA MANAGEMENT &
NETWORKING CAPABILITIES

Experience single-click deployment of your entire 5G stack



Horizontal Cloud - One Single, End-to-End Unified Cloud From Cell Sites to Central Data Centers



Centralized Management of 10,000s of RAN, Edge & Core clusters

Policy based Closed-loop Automation

Define & Execute Complex DAG based Workflows across RAN, Edge, Core

MULTI DOMAIN SERVICE ORCHESTRATION

Centrally manage distributed infrastructure, 3rd party applications, network functions (VNFs + CNFs) and service chains.

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Thank You.

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Group Chief Strategy Officer, Mobile & 5G
4iG Group

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THANK YOU

Join us from 5:45pm today at the Industry City stage for networking drinks - see you there!

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