

CONNECTIVITY UNLEASHED

Open RAN Summit

Wednesday 2 March | 14:30 – 17:30

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Henry Calvert
Head of Networks | GSMA

Agenda:

- | | |
|---------------|--|
| 14:30 – 15:30 | Session 1: Open RAN: The Opportunity Use Cases |
| 15:30 – 16:10 | Session 2: Maturity of O-RAN |
| 16:10 – 16:50 | Session 3: Accelerating Open RAN Adoption |
| 16:50 – 17:30 | Session 4: Open RAN Innovation |

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Santiago Tenorio

Fellow and Director of Network Architecture | Vodafone



Henry Calvert
Head of Networks | GSMA

Session 1: Open RAN: The Opportunity Use Cases

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Munish Chhabra

Head of Mobility Software and Services Business | Radisys



Open RAN Evolution: Propelling Forward

Munish Chhabra

February 2022

Agenda

- Radisys and Open RAN
- Open RAN Evolution - Trends to watch
 - Potential – Use cases, deployments and projections
 - Progress – Standardization, Interops, Technology advances
 - Partnership – Policies, Ecosystem, Industry forums and initiatives



US-based with global sales and operations

Leading contributor to **open standards** organizations and initiatives

Digital Endpoints

Smart feature phone, CPEs, Smart home, IoT Sensors and Gateways, Embedded Platforms for DPI, Security, and Medical Imaging



Open & Disaggregated Networks

Converged 4G / 5G and Fixed Broadband Access



Rich Applications

Real time Communication and Digital Engagement, Fixed and Wireless Core



Network Services

End to End Lifecycle – Consulting, Planning & Designing, Deployment, Integration, Optimization



Enable

Integrate

Manage

Headquarters: Hillsboro, OR United States

Founded: 1987

Wholly owned subsidiary of
Jio Platforms Limited (JPL)

Telecom Infra Project

- LTE eNB RAN system integrator in TIP
- Projects at Menlo Park, SKT, TIM (Italy)
- 5G Open RAN community lab contribution



Small Cell Forum

- Leader of 5G nFAPI standardization
- Awarded for Open RAN contributions – 2020, 2021



O-RAN Alliance

- Co-chair of O-RAN WG8 since 2019
- Key contributions to WG3: E2SM and E2AP
- TIFG test specification contributions
- Project lead of Open source 5G DU



Open Networking Foundation

- Open-source EPC contribution to M-CORD
- Multiple CORD based projects with Tier-1 operators
- Founder member of SD-RAN: Integration with ONF near RT RIC



Additional Key Organizations



Widest Ecosystem of RAN Partners

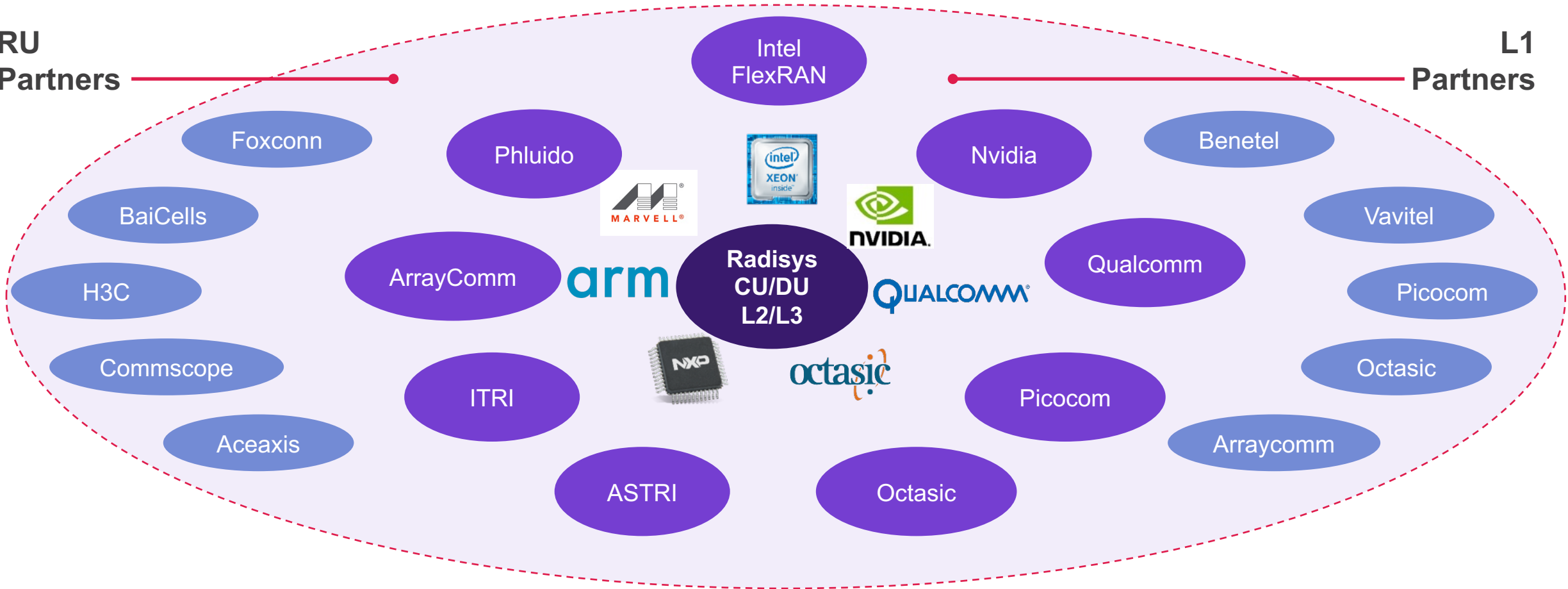
Global ODM Partnerships

RU

Partners

L1

Partners





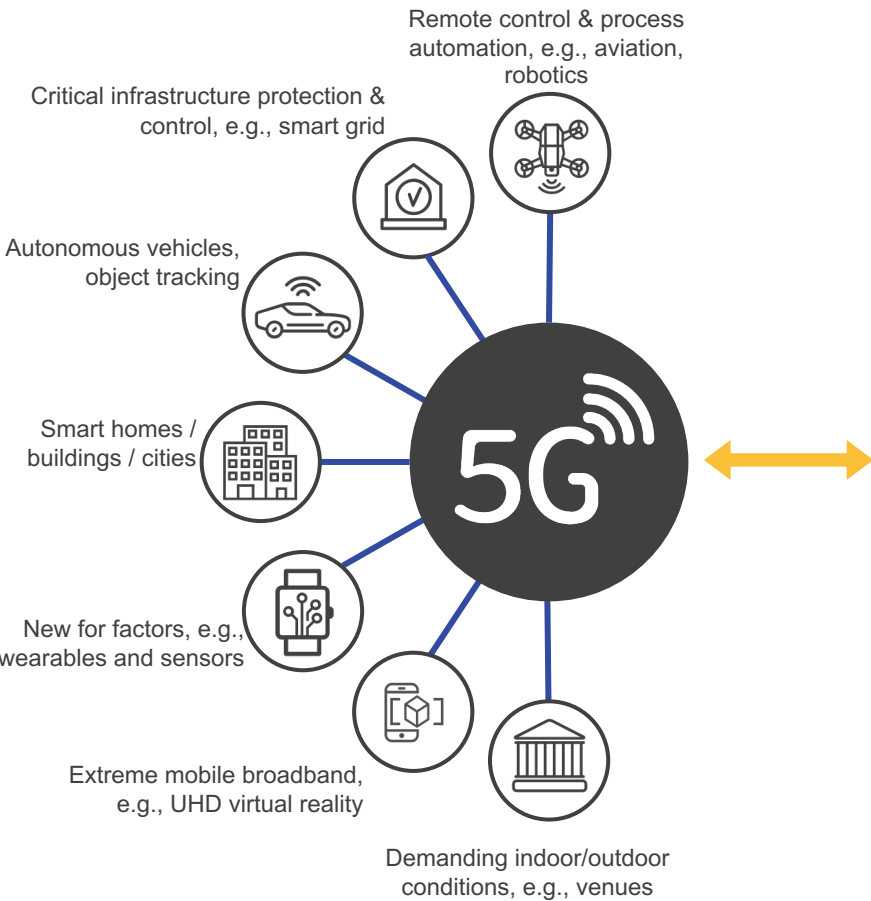
Open RAN Solutions

- Use Cases
- Deployments
- Projections

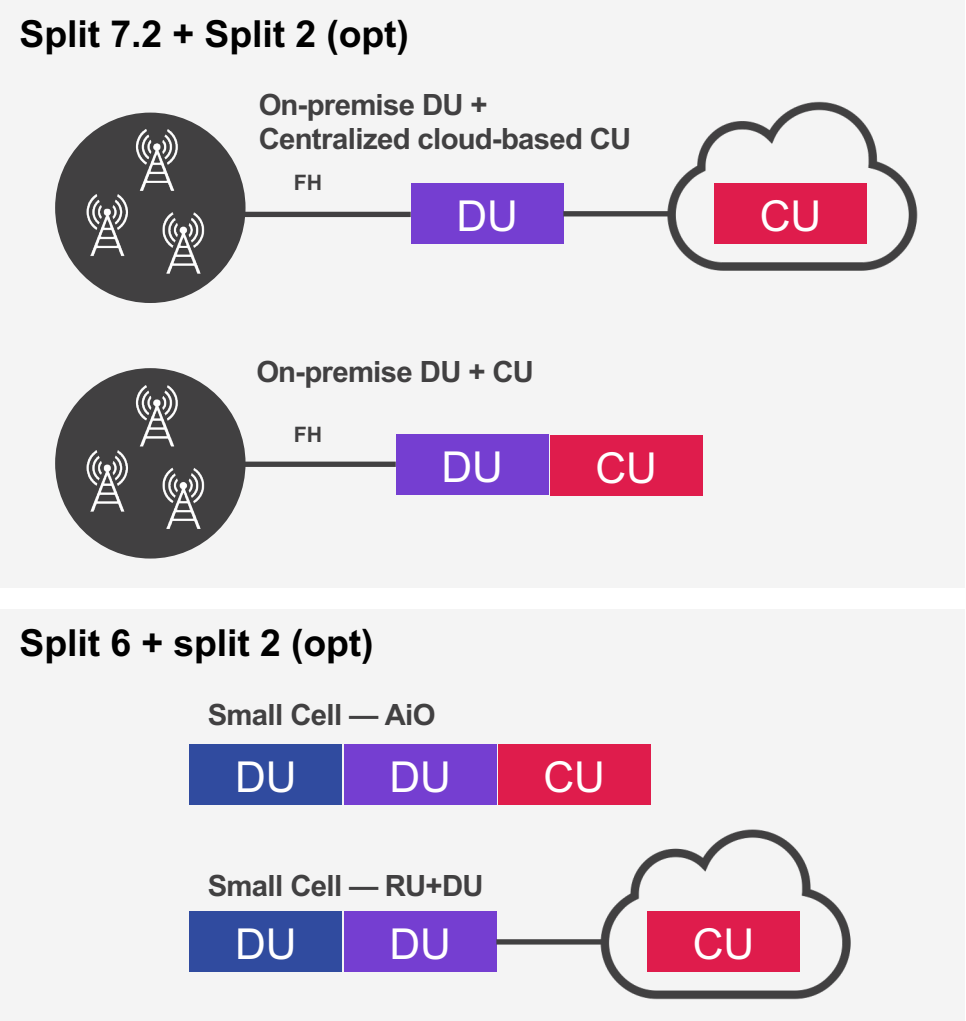


Open RAN For Many Use Cases

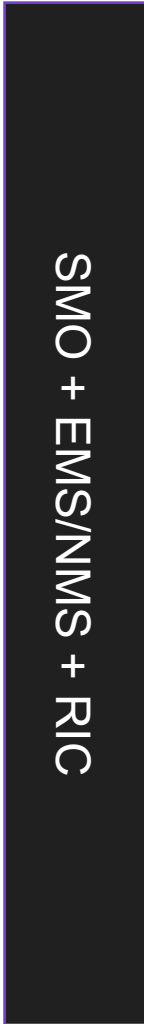
Devices and Use cases



Base Station and RU



Management – Automation – Programmability



What is Driving The Traction

Network Modernization - Public Networks

- Vendor diversity
- Supply chain security
- Benefits of cloud native RAN

Private networks – Many verticals

- Flexibility of disaggregation
- Hardware/software decoupling
- Multi-vendor integration with existing infra

Shared spectrum

- Flexibility of disaggregation
- Hardware/software decoupling
- Multi-vendor integration with existing infra

Edge computing and IoT use cases

- Co-location of RAN and core user plane for low latency
- Disaggregation and scaling

- Many global operators trialing and deploying Open RAN: Vodafone, DISH, Telefonica, Deutsche Telekom, Orange and Rakuten Mobile
- KDDI announced world's first commercial 5G standalone (SA) Open RAN site with massive MIMO radio
- ABI Research expects the total spending on Open RAN radio units for the public outdoor macrocell network will reach **US\$69.5 billion in 2030**

“Powered by network virtualization, Open RAN helps network operators and various industrial enterprise verticals enable network automation and intelligent radio resource control, therefore reducing network integration expenses and operational complexity.”

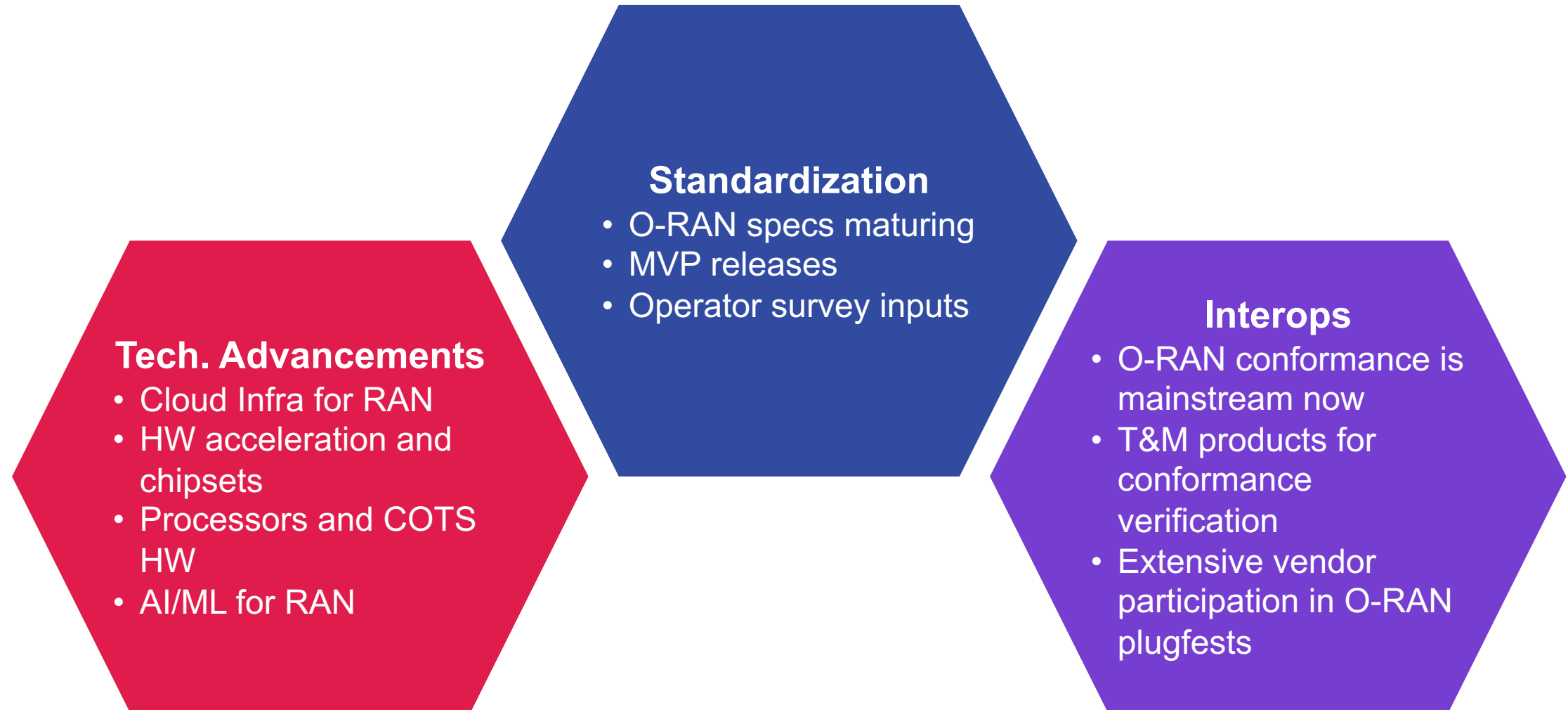
- Jiancao Hou, Senior Analyst at ABI Research



Open RAN

- Standardization
- Interops
- Technology Advance





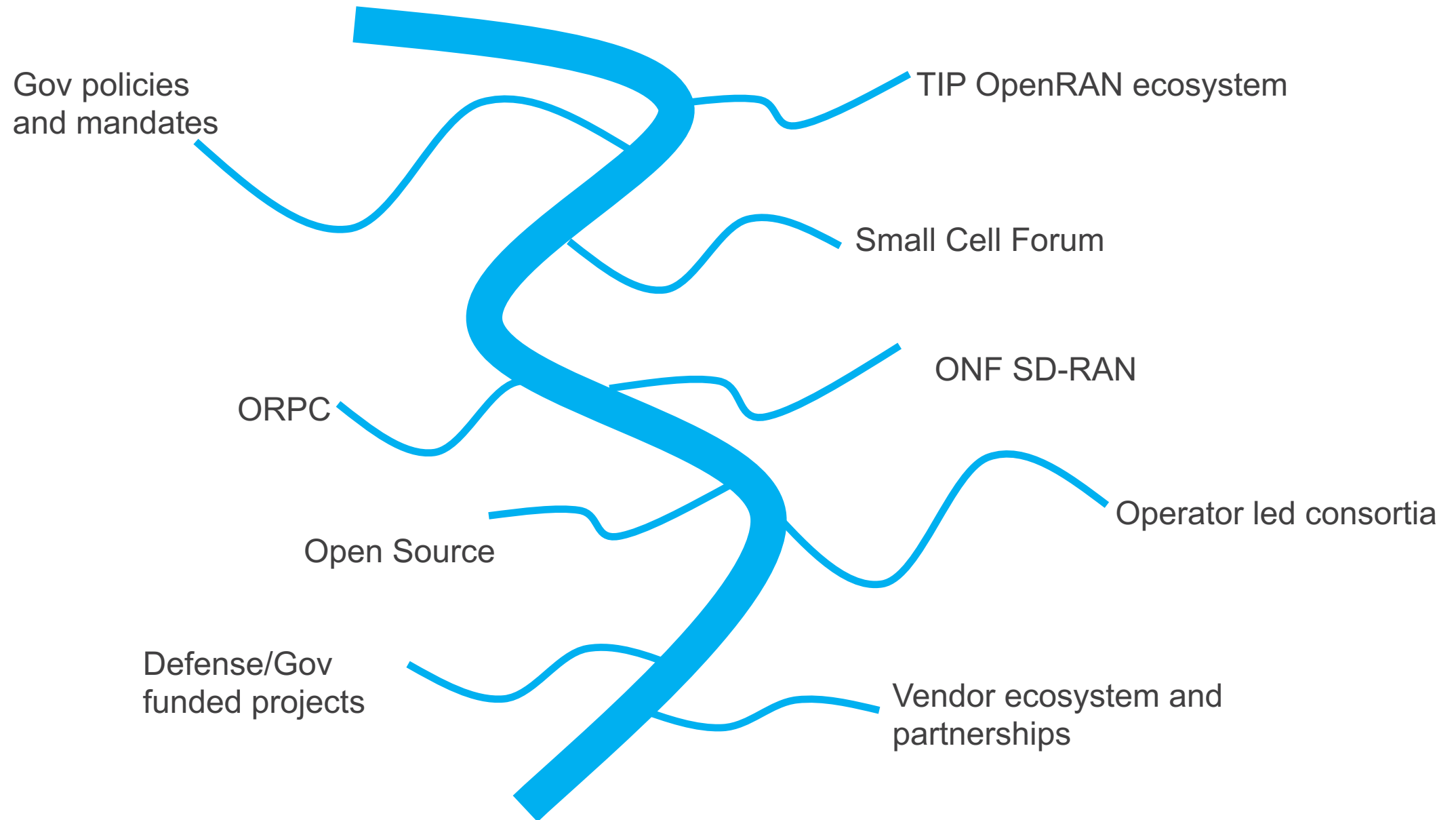


Open RAN

- Policies
- Ecosystem
- Industry Forums



The Many Tributaries of Open RAN



- Across the board and adoption of Open RAN in public and private networks
- Operators and vendors are aligning well to ensure success in early deployments
- Lessons learnt in interops, trials and early deployments leading to more robust and open standards
- Technological advances in HW, SW, AI/ML making RAN richer and more sophisticated, laying the foundation for futuristic networks
- Open RAN is here to stay!



Thank You

Visit Radisys in Hall 5, Booth 5B81



Henry Calvert
Head of Networks | GSMA

PANEL: Open RAN the Opportunity "Use Cases"



Henry Calvert

Head of Networks

GSMA



Munish Chhabra

Head of Mobility Software
and Services Business

Radisys



Francisco Pignatelli

Group Head of Open RAN

Vodafone

BREAK | Up Next

Session 2: Maturity of O-RAN

Open RAN Summit

Resume in 10 minutes

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Session 2: Maturity of O-RAN

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Jan Berglund

Director of Products and Solutions | Comba Telecom



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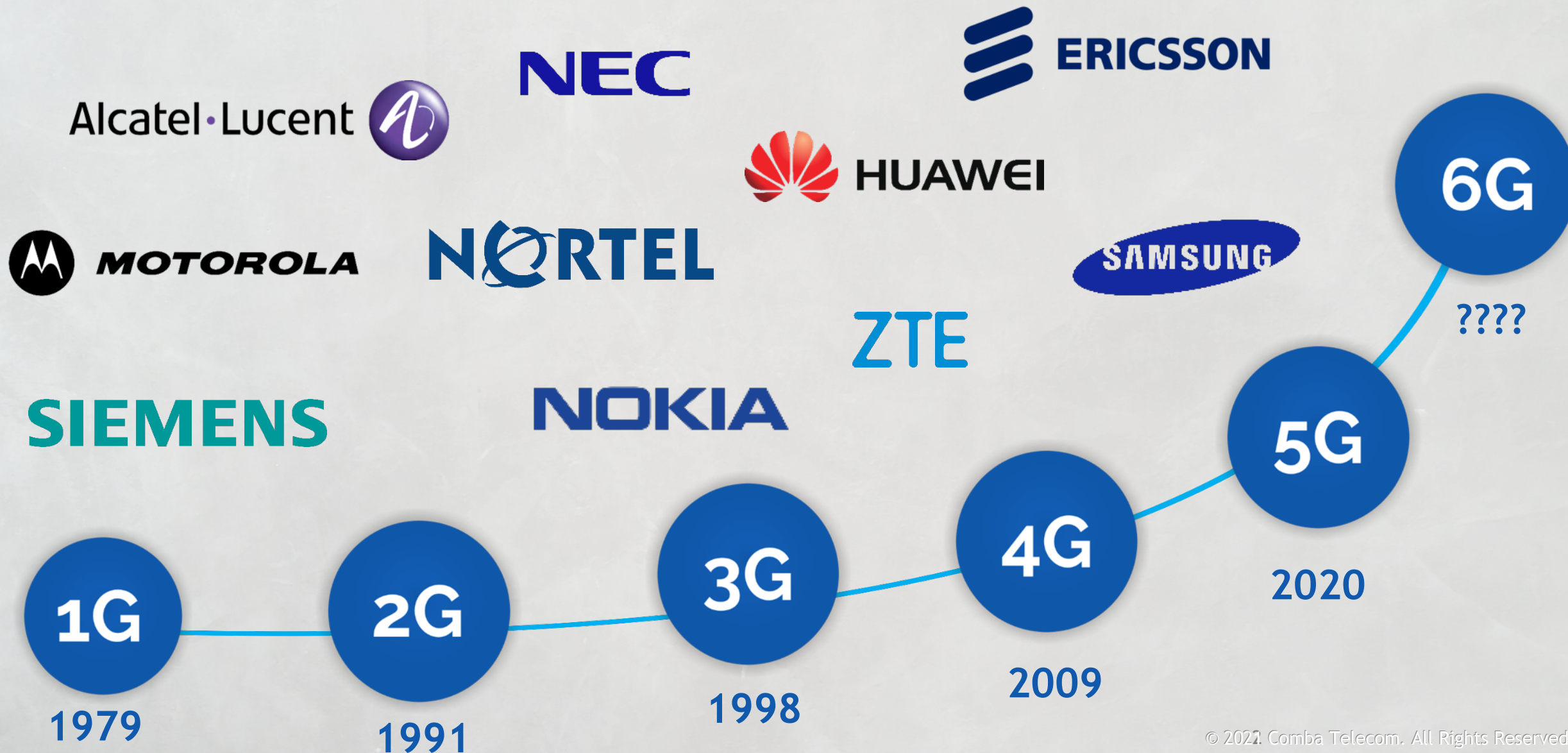
MATURITY OF OPEN RAN SOLUTIONS

Jan Berglund
Director of Products & Solutions



RAN MARKET _ INTRODUCTION

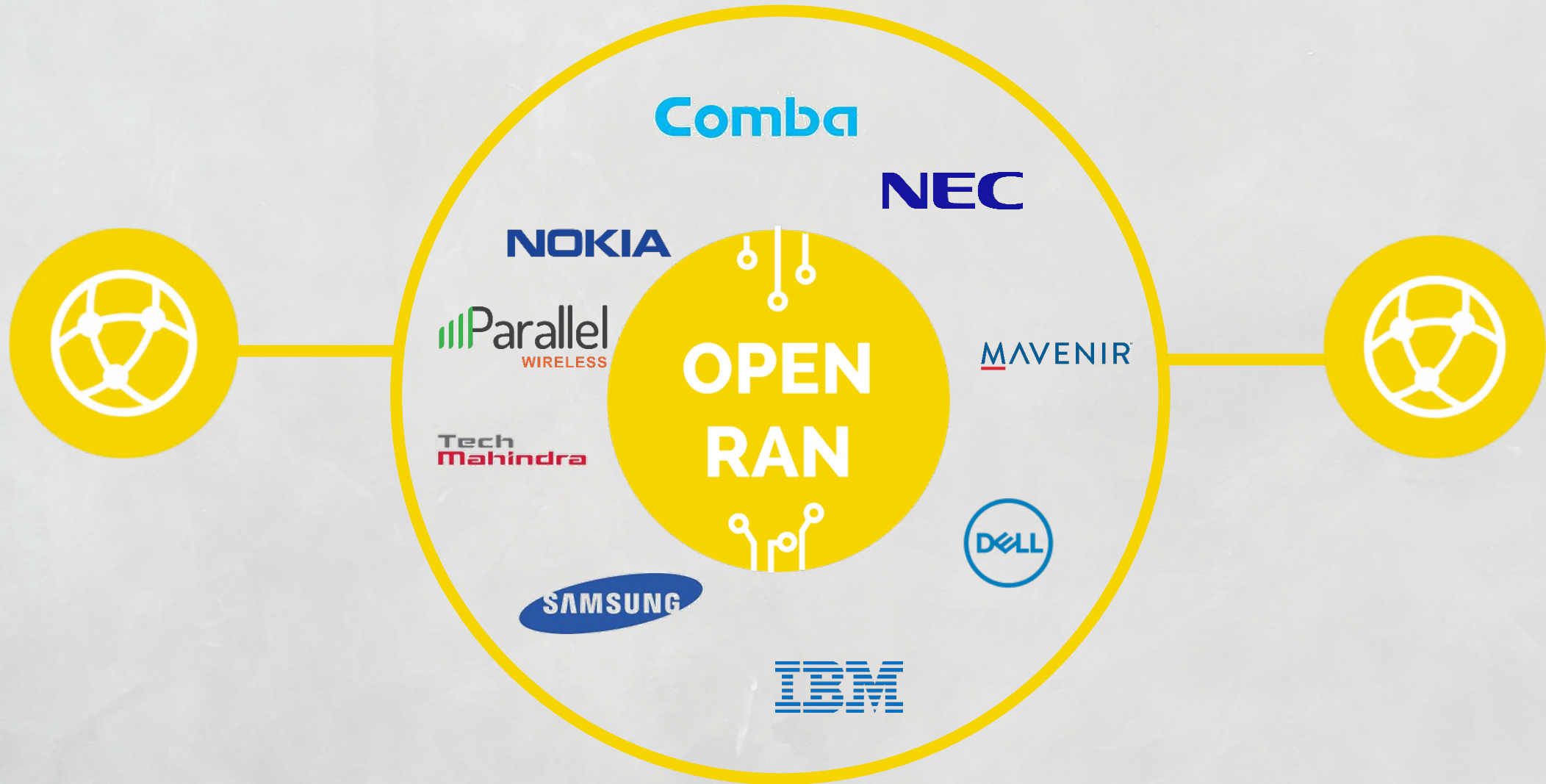
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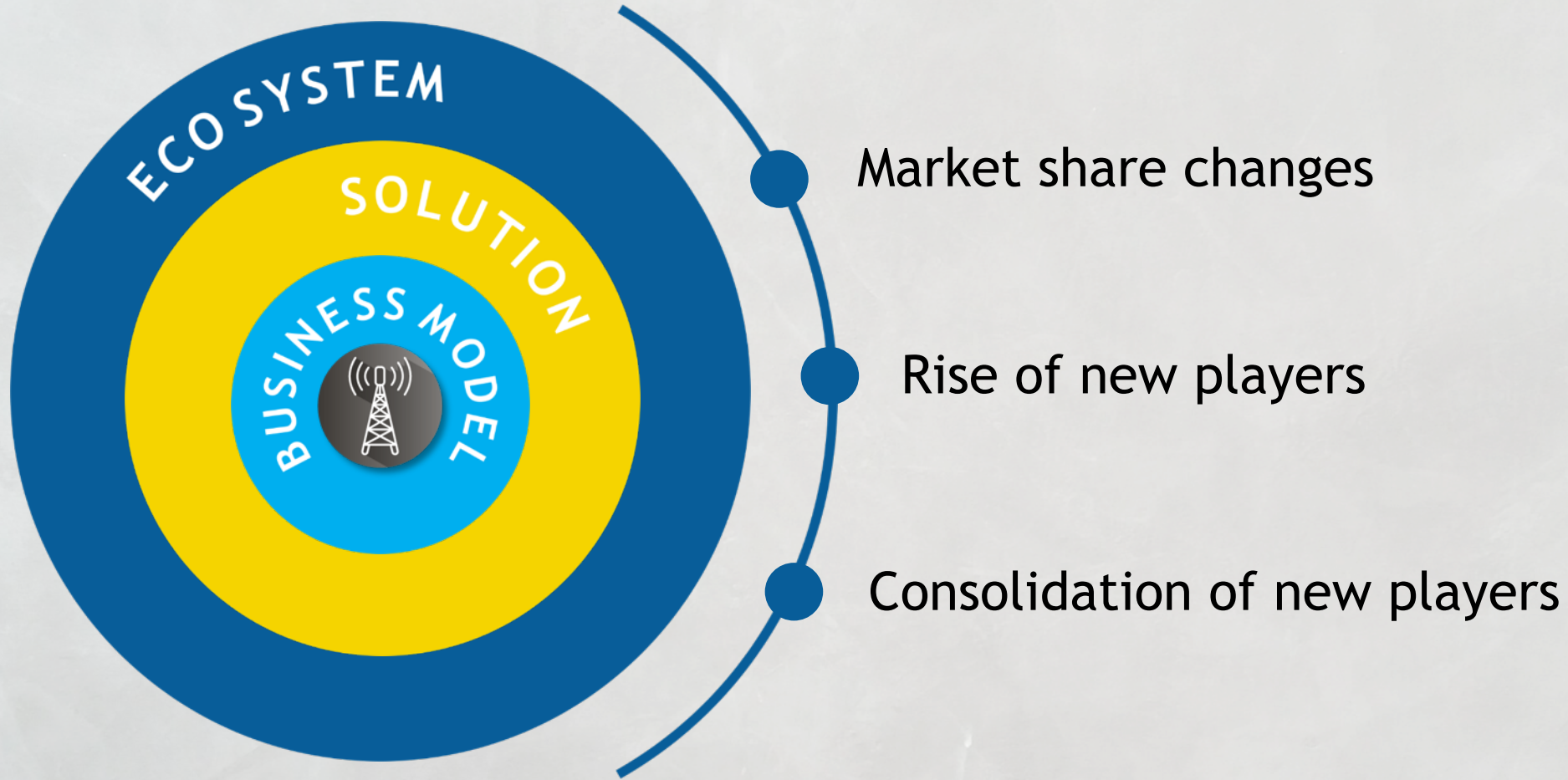




RAN MARKET _ INTRODUCTION

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ECO SYSTEM _ BIGGER THAN EVER

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OPERATORS



SYSTEM INTEGRATOR



SOFTWARE



SMALL CELL



RRU & AAU



DU/CU HARDWARE



DO WE HAVE A SOLUTION?

IS THE ECO SYSTEM HEALTHY?



WHERE ARE WE TODAY? (A MACRO NETWORK VIEW)

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ARE WE MATURE? → 3 WAY TO ASSESS

ABILITY TO PROVIDE EQUIVALENT END USER SERVICES.



ABILITY TO USE EXISTING GRID AND PROVIDE EQUIVALENT COVERAGE.



ABILITY TO MATCH SAME QUALITY LEVEL OF SERVICE.



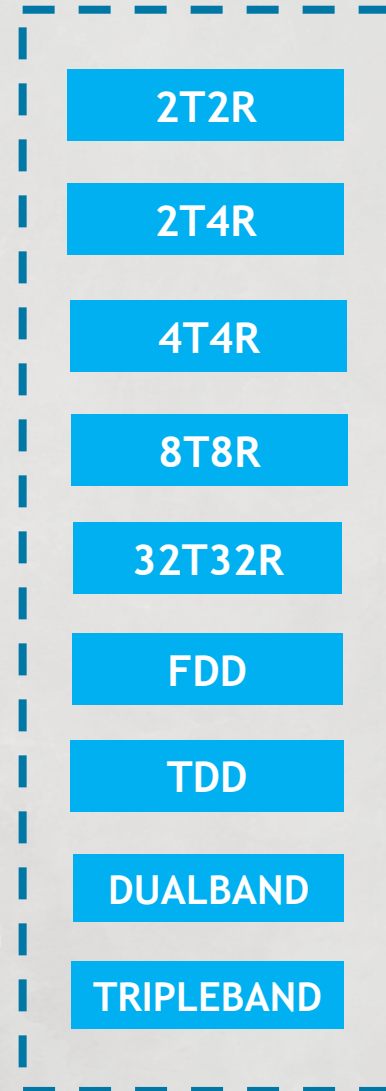


RADIO HARDWARE_ AVAILABILITY APPROACHING INCUMBENTS

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Ability to use existing grid and provide equivalent coverage.



OPEN RAN



INCUMBENT

PLATFORMS



ENERGY CONSUMPTION



PRODUCT PORTFOLIO

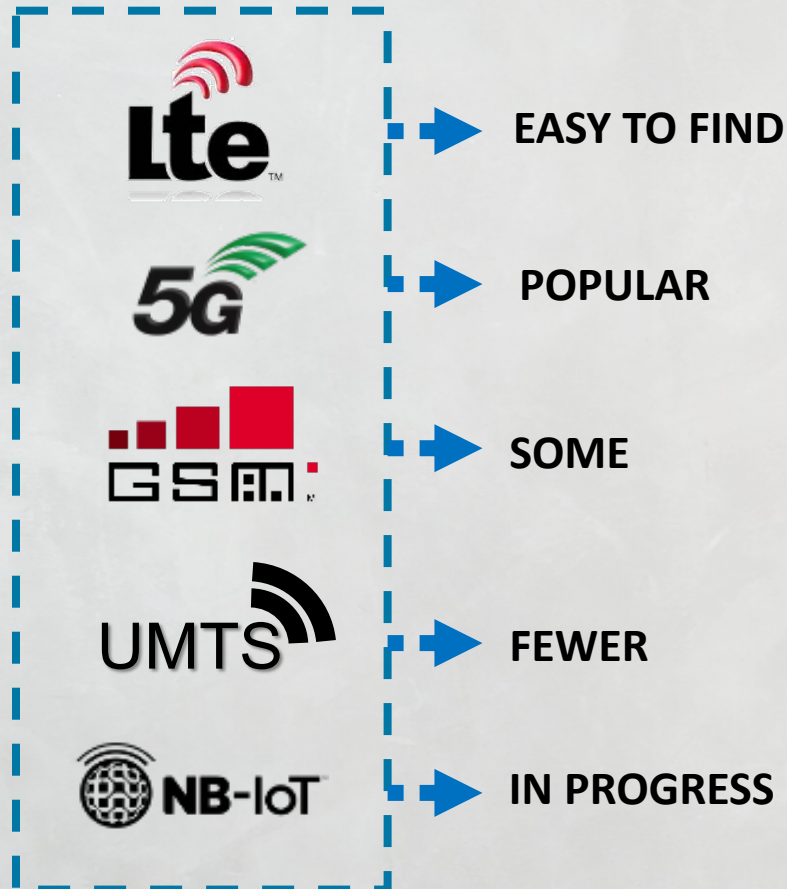
Most common.
New variant on
existing platform
= 6 months

Almost all
combinations
of interest

RADIO HARDWARE NOT BLOCKING
IF ONE IS SERIOUS ABOUT VOLUME



MIND THE GAP GAP WILL CLOSE 2022



ABILITY TO PROVIDE
EQUIVALENT END USER
SERVICES.



ABILITY TO MATCH SAME
QUALITY LEVEL OF
SERVICE



WHY DO WE NEED ALL SERVICES?
Brownfield MNOs

DOES OPENRAN NEED TO DO ALL?
Probably to be cost effective.

NUMEROUS TRIALS HAVE REACHED ACCEPTABLE KPIS



ABILITY TO PROVIDE
EQUIVALENT END
USER SERVICES.



ABILITY TO USE
EXISTING GRID AND
PROVIDE EQUIVALENT
COVERAGE.



ABILITY TO MATCH
SAME QUALITY LEVEL
OF SERVICE.



**WORK
IN
PROGRESS**

DEDICATED BASEBAND
~0.2W/MHz ABW(*)
COTS DU
~1.6W/MHz ABW(**)

Energy consumption



Thermal budget



DU cost



Now that 30% of the
computational workload
been moved to the O-RU
the cost should go down

**! POINTS OF
ATTENTION**

Energy is money and carbon footprint...

How do you fit a DU into an existing cabinet...

Even if you are looking at a DC/CO to host your DU/CU you challenged with a cooling bill.

Freedom - Freedom to change the SW supplier

(*) Including the low phy computation workload
(**) no low phy

COTS DU in the site context: Most power on a site is consumed by RF



SO WE DISAGGRATED THE RAN

... BUT VERY LITTLE CHANGED IN BUSINESS

MNO CATEGORY 1 (most)

- Want OpenRAN
- Want to continue dealing with OpenRAN like any another incumbent RAN supplier ie no connection between technical disaggregation and business

CHALLENGE

Even the most understanding CFO in a Solution provider will require margin to move kit though the books.
If disaggregation don't show in business practice how does help?

MNO CATEGORY 2

- Governments pressure on creating home grown alternatives.
Sovereignty through business independence
- OpenRAN is the key for execution
- Home grown CU/DU SW

CHALLENGE

Economy of scale
Many SW integration tracks



BUSINESS MODEL MATURITY?

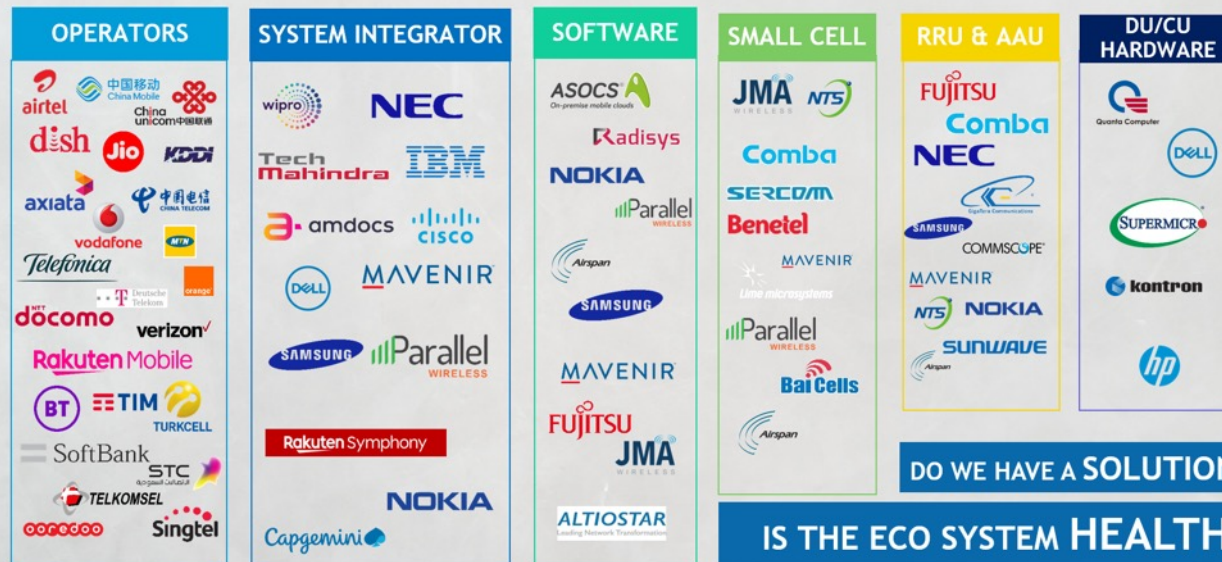
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THIS IS A CHALLENGE FOR BUSINESS MATURITY.



ECO SYSTEM _ BIGGER THAN EVER

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WHAT IS NEXT? Change how the Open RAN is procured?

Consolidation with creation of one to two new SRAN like players?

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PANEL: Maturity of Open RAN Adoption



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Eugina Jordan

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Patrick Lopez

Global VP Product Management
5G, NEC

Session 3: Accelerating Open RAN Adoption

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David Hutton

Chief Engineer | Telecom Infra Project

PANEL: Accelerating Open RAN Adoption



David Hutton

Chief Engineer
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Caroline Chan

VP, Network and Edge Group
General Manager, Network
Business Incubator Division,
Intel Corporation



Katja Henke

Senior Innovation Project
Manager i14y Lab
Deutsche Telekom



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Session 4: Open RAN Innovation

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PANEL: Open RAN Innovation



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Vice President of Marketing
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Renu Gupta

Chief Executive Officer
Rencomm Teleservices LLP



Renuka Bhalerao

Connectivity Technologies and
Ecosystems Manager
Facebook



Jillian Kaplan

5G and Telecom Thought
Leadership
Dell Technologies



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Head of Networks | GSMA

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