Open Networking: the choice of operators

Liu Hong
Head of Technology, Greater China, GSMA

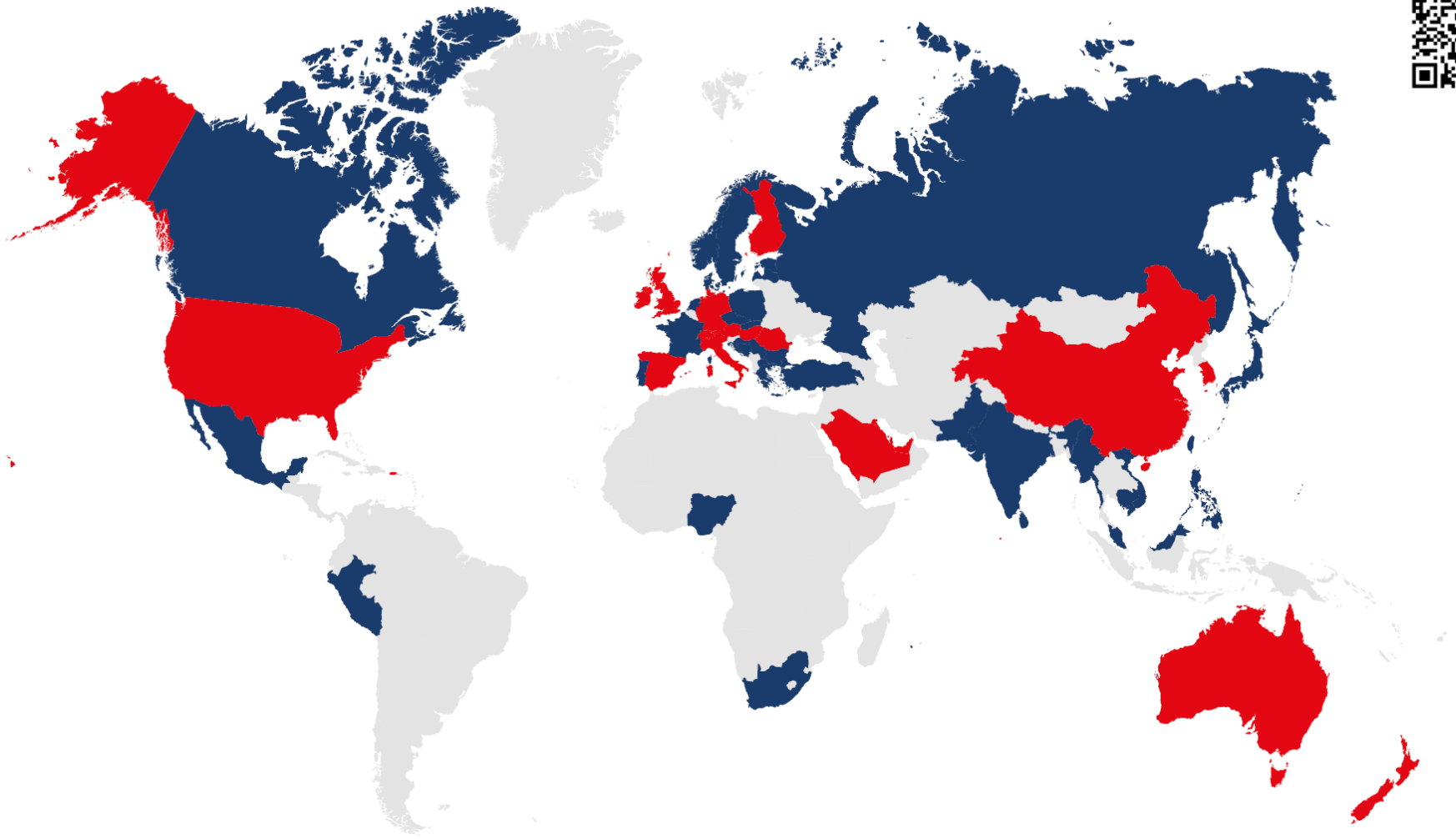
5G Deployment Status

81 COMERCIAL **5G LAUNCHES**

7% POPULATION **PENETRATION**

20% GLOBAL CONNECTIONS **BY 2025**

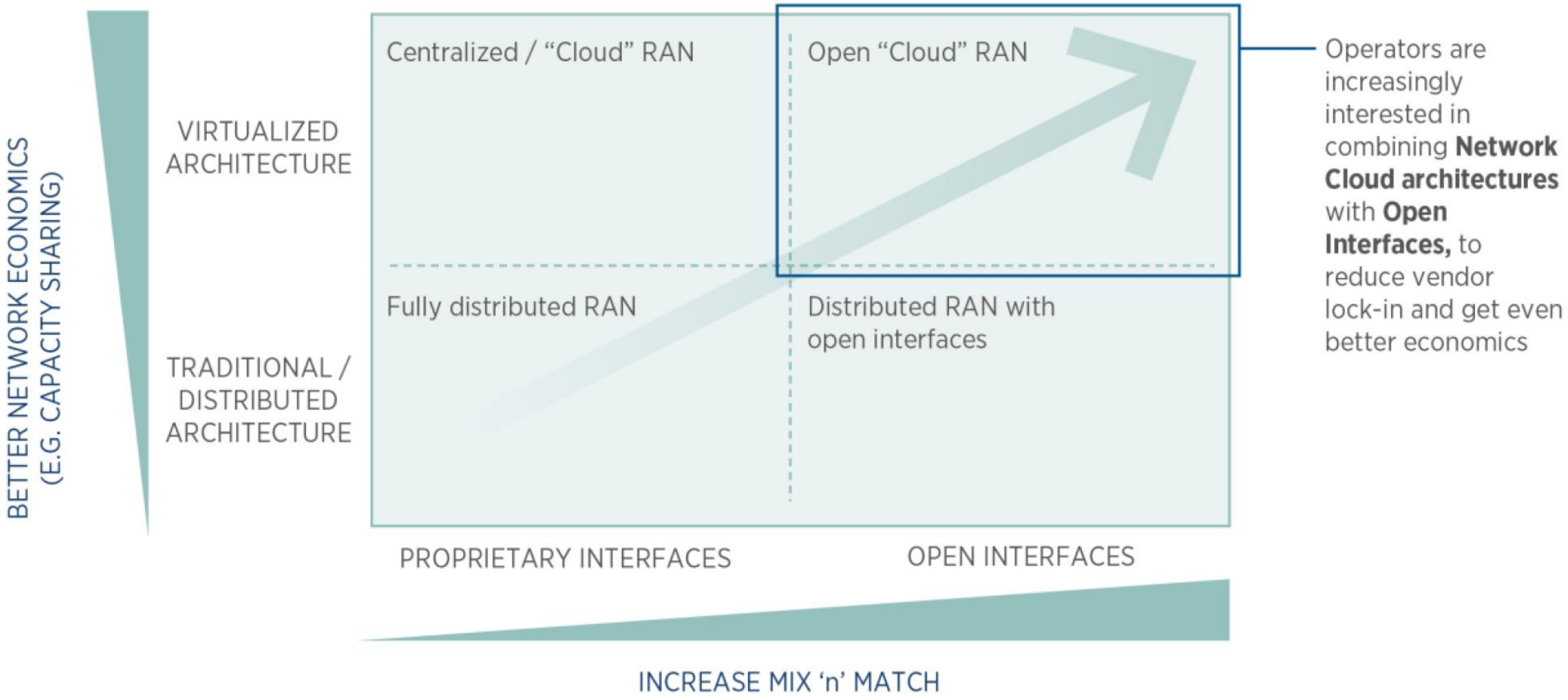
as of 5th June 2020



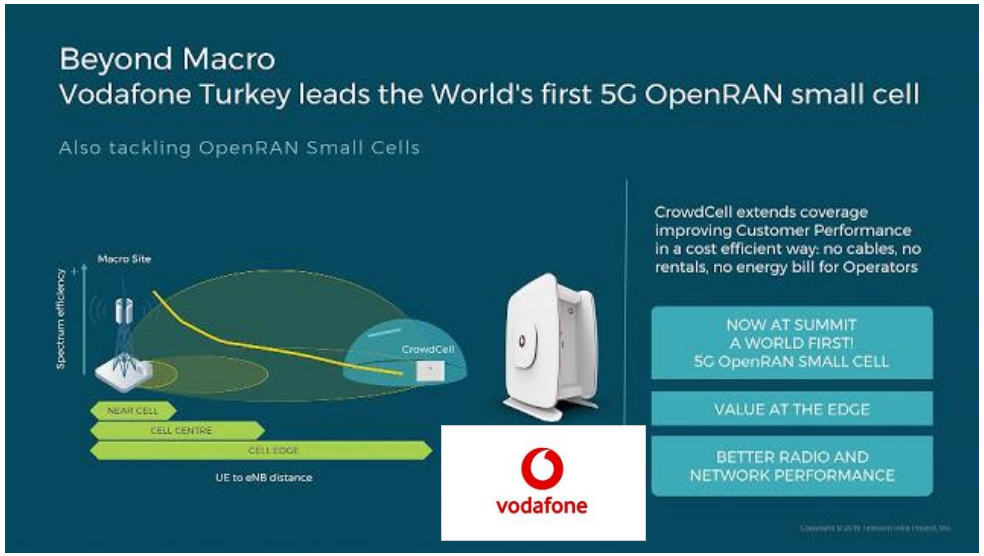
The industry is facing dual challenges…

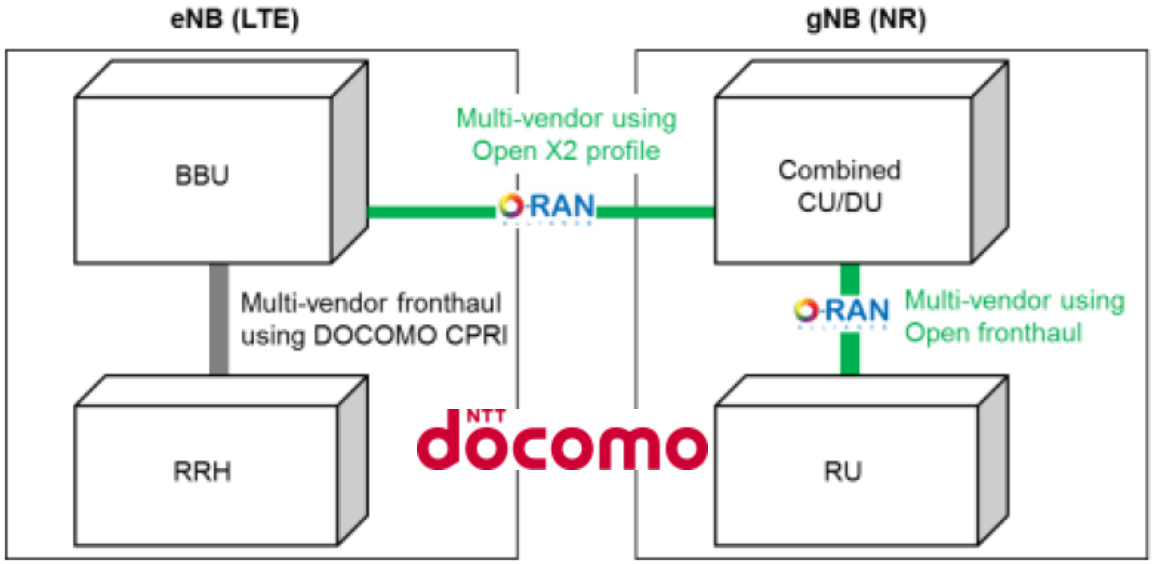
Challenge 1	The most attractive 5G use cases require network densification deployments that are not profitable for operators today.
Challenge 2	The current radio equipment supply chain is under stress, as the number of suppliers continues to decline due to market consolidation and geopolitical restrictions.

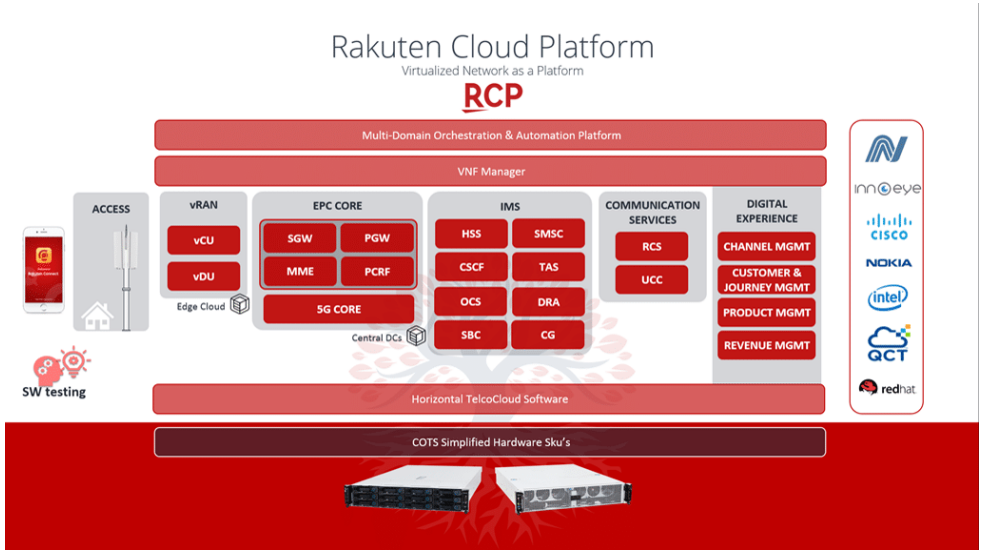
Virtualized Architecture + Open Interface is the solution…

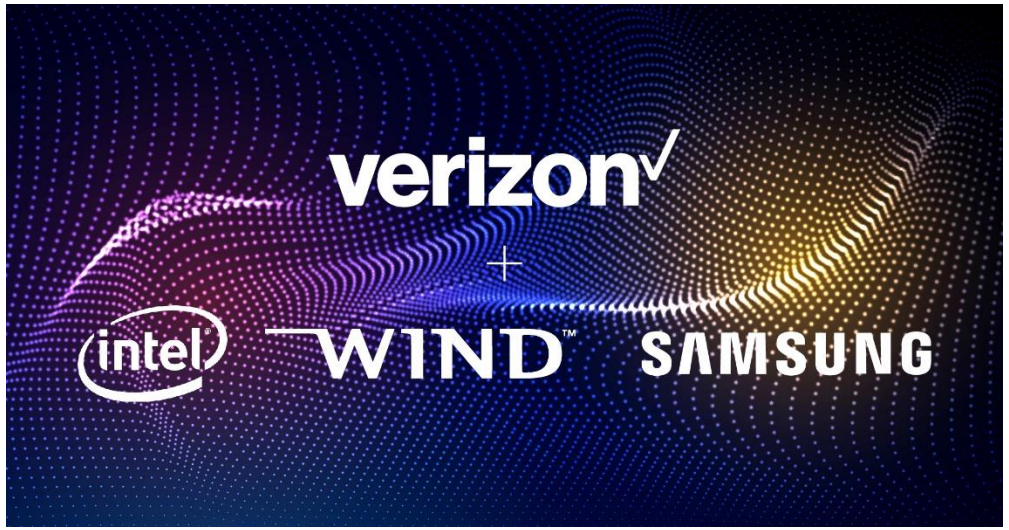


Operators have started testing and deploying…

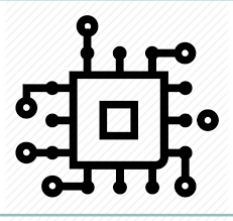




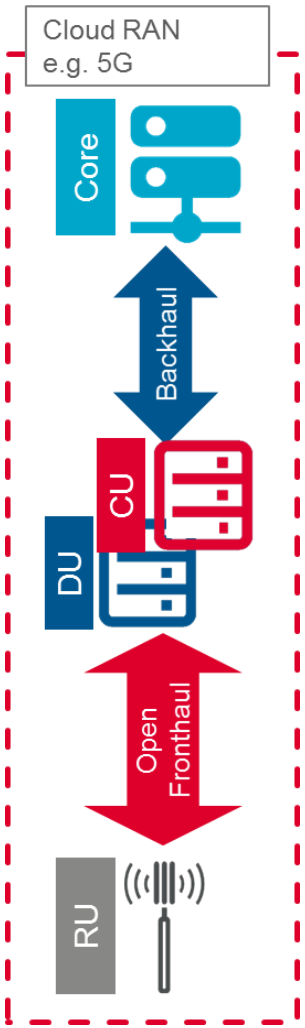




Several barriers remain for operators' adoption…

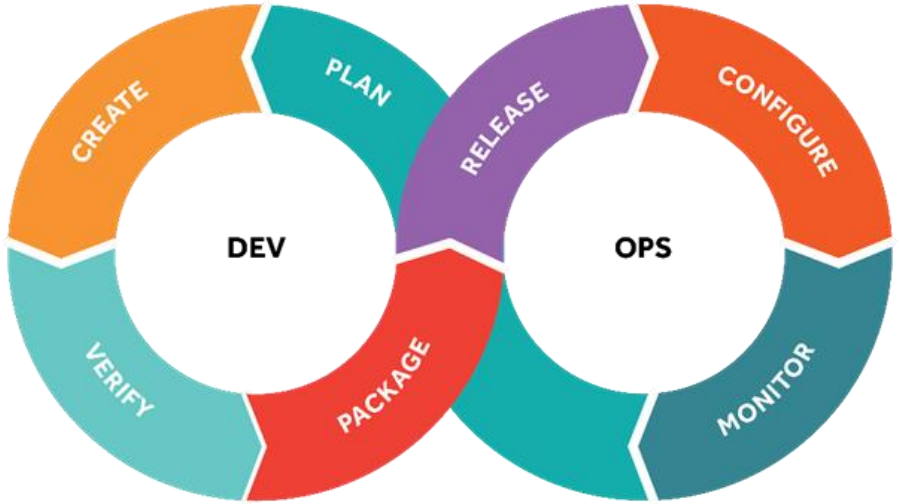
1. TECHNOLOGY NOT YET MATURE		Both hardware and software technologies need to be ready. Open interface standardisation is essential
2. INDUSTRY SKILLS AND PROCESSES		A radically different architecture will require a transformation of the way operators do things
3. INTELLECTUAL PROPERTY ISSUES		Clear rules for Intellectual Property could facilitate innovation and competition in the market

Technology – Gap Analysis



Deployment Demand	**GAPs**: Demand for new base stations, densification, non-public, etc **Mitigations**: GSMA use Cases, O-RAN/TIP for deployment solutions
Network Transformation • RAN Evolution • Open Transport • IT World • Function Virtualization • Orchestration • Open Organisations	**GAPs**: Open Interfaces (e.g. X2 & Front haul) consistency & adoption to deliver mix n match vendor options **Mitigations**: Sign post O-RAN/TIP specifications, GSMA promote **GAPs**: Open Transport **Mitigations**: GSMA scope and define requirements **GAPs**: Virtualized functions and Infrastructure profile **Mitigations**: GSMA 'CNTT' Permanent Reference Documents
Technology Maturity	**GAPs**: Agrees roadmap for technology **Mitigations**: GSMA requirements, O-RAN/TIP for standardisation
Security Framework	**GAPs**: Security by Design framework **Mitigations**: GSMA requirements, specification and adoption

Industry Skills & Processes – Gap Analysis



IT-world Paradigms	**GAPs**: Adoption IT infrastructure deployment and DevOps **Mitigations**: GSMA guidelines to IT Standards and Re / Up skilling toolsets
System Integration	**GAPs**: Changes in network supply chain model **Mitigations**: GSMA guidelines and specification requirement to SDOs + O-RAN / TIP **GAPs**: R&D Testing and Operator Open Test Labs **Mitigations**: GSMA Guidelines and Holistic Test Lab framework of all labs (e.g. O-RAN, Community Labs)

INTELLECTUAL PROPERTY – Gap Analysis

Procurement	**GAPs** Changing Priorities for the Procurement of Open Networks ○ Unprecedented consolidation of the incumbent supplier base. ○ trust in the global telecommunication supply chain is diminishing. ○ 5G Procurement a question of national security result in limitations to procurement choices. **Mitigations** Opening the market by: ○ incentivising technology owners by fair compensation for technology on a global scale; and ○ Implementers being able to use technologies at predictable and comparable rates
Standardisation	**GAPs** Standardisation away from 3GPP. Danger of fragmentation/nationalisation of standardisation landscape **Mitigations** Reliance on a mixture of bodies is critical. Coordination within industry required.
Intellectual Property Rights	**GAPs** ○ Keep networks safe from intellectual property attacks ○ Industry-wide agreed rules on objective global licensing ○ Common international set-up for dispute resolution **Mitigation** A industry-wide agreed Intellectual Property framework capable of supporting the deployment of 5G and beyond.

GSMA Open Networking Taskforce

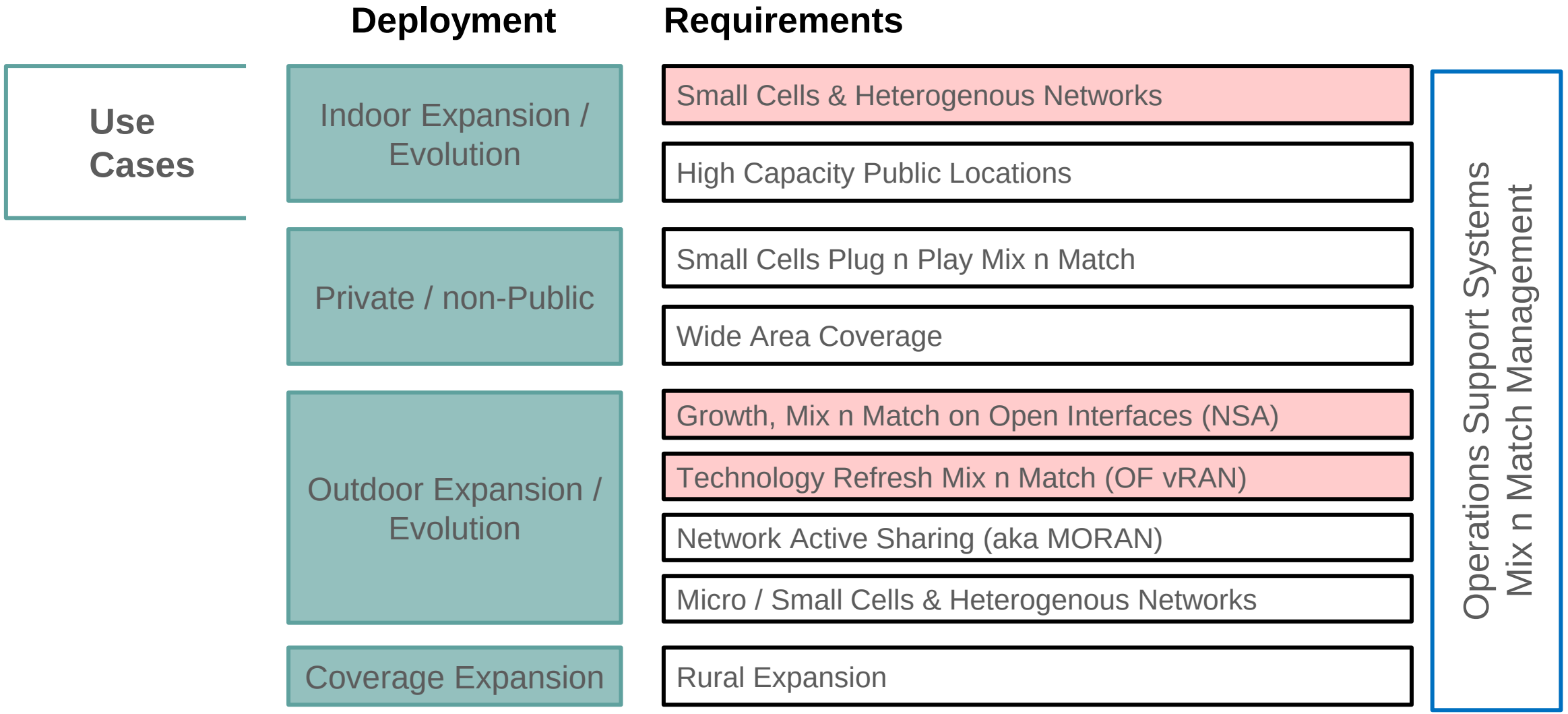
Technology Roadmap – use case demand and minimum viable product industry alignment

Intellectual Property Rights (IPR) – transparency for use of standard essential patents

Security – virtualisation and open interface principles

Economic Model – implications of business transformation to system integration and DevOps

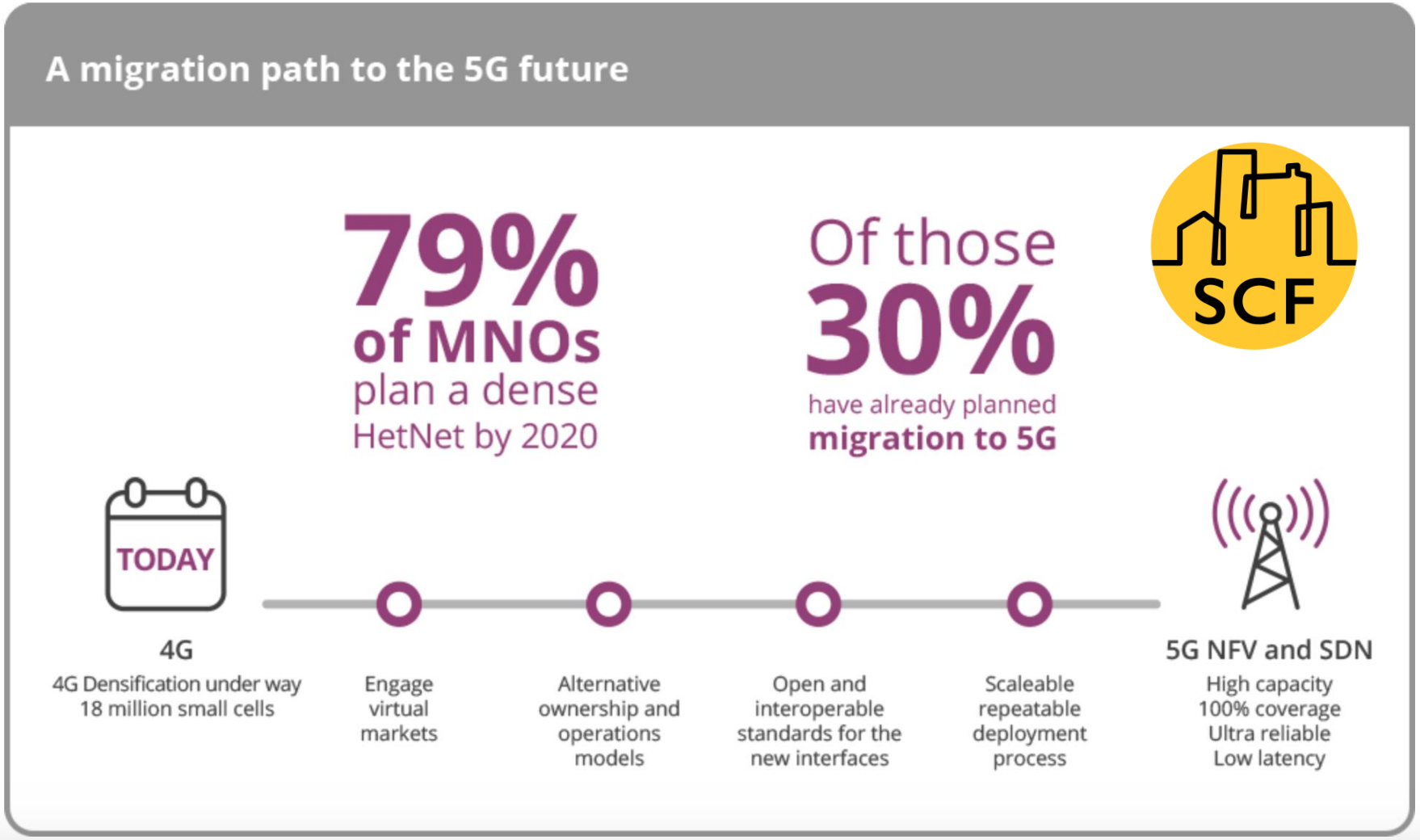
We are working on detailing the implementation of the use cases…



The low-hanging fruit: Open Small Cells

Reasons:

1. Most of the mobile data is consumed indoor
2. Higher frequency band requires denser deployment
3. Small cells are easier to deploy/manage and have better capacity at lower costs
4. Small cells are flexible to meet enterprise needs
5. Mix&Match and Plug&Play are naturally required by small cells



Thank you

hliu@gsma.com