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Australasia

GSMA Technology Summit

December 2025



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Welcome



Julian Gorman
Head of Asia Pacific
GSMA

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State of the Industry Market Insights

December 2025

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State of the Industry

Market Insights



Julian Gorman
Head of Asia Pacific
GSMA



Shailin Sehgal
Group Executive, Global
Networks and Technology
Telstra



Ludvig Landgren
Head of Australia and New
Zealand
Ericsson



Louise Hyland
CEO
AMTA



Samantha Kight
Head of Industry Security
GSMA

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Telstra Keynote



Shailin Sehgal
Group Executive, Global
Networks and Technology
Telstra



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Unlocking the next wave of innovation

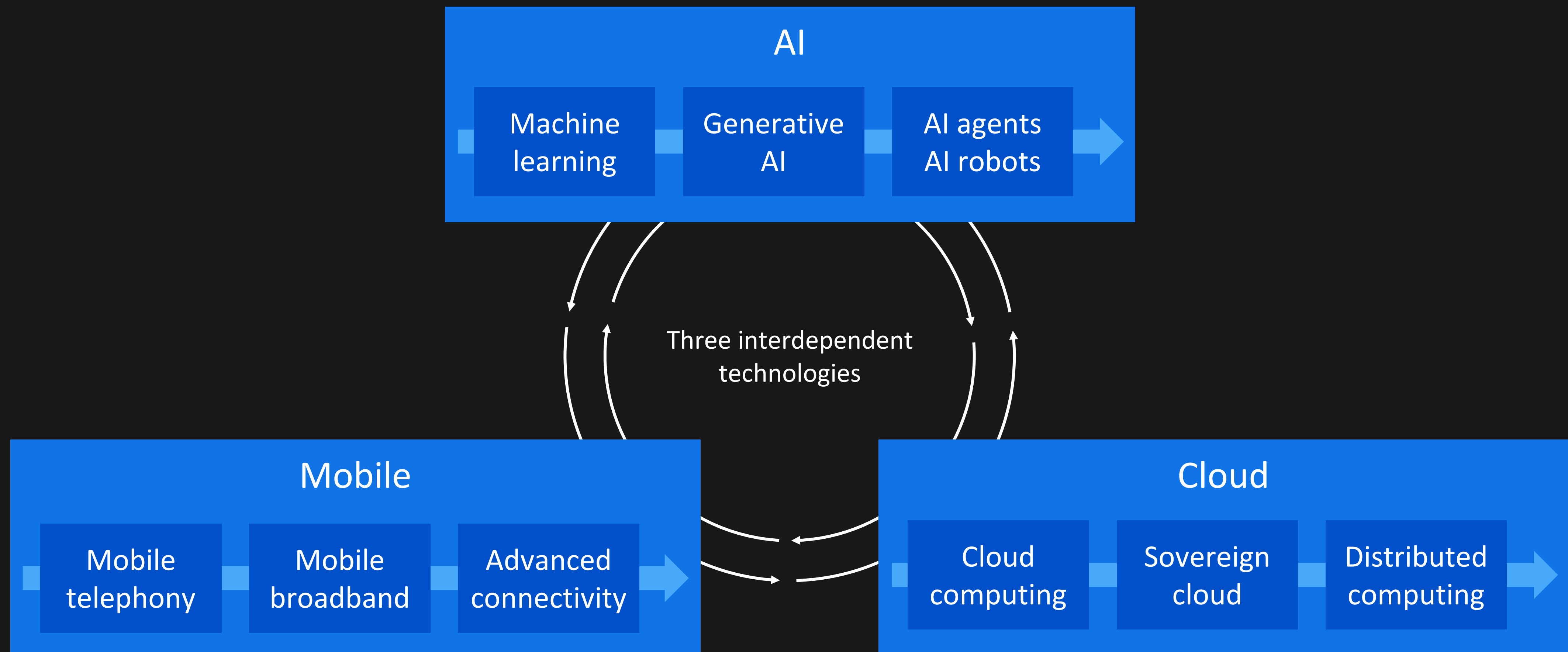


Ludvig Landgren
Head of Australia and New
Zealand
Ericsson

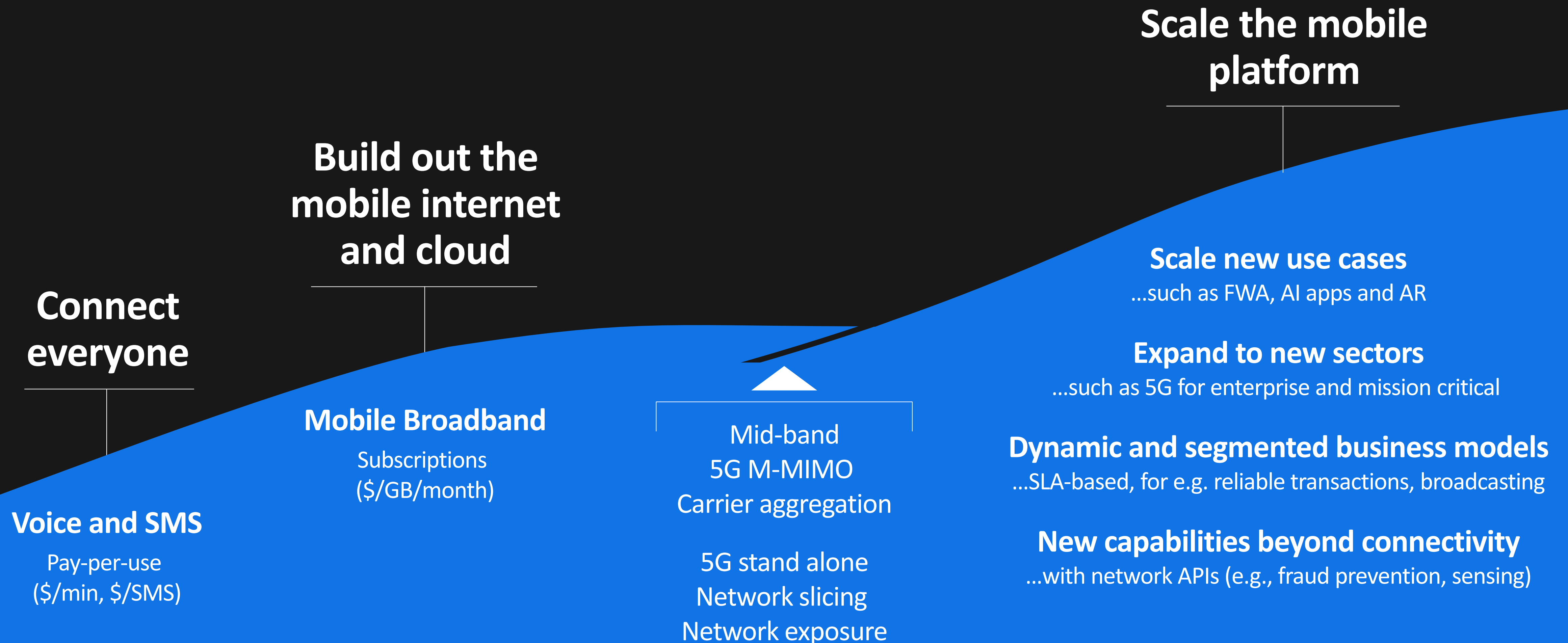
Unlocking the next wave of innovation

Ludvig Landgren
Managing Director
Ericsson Australia and New Zealand

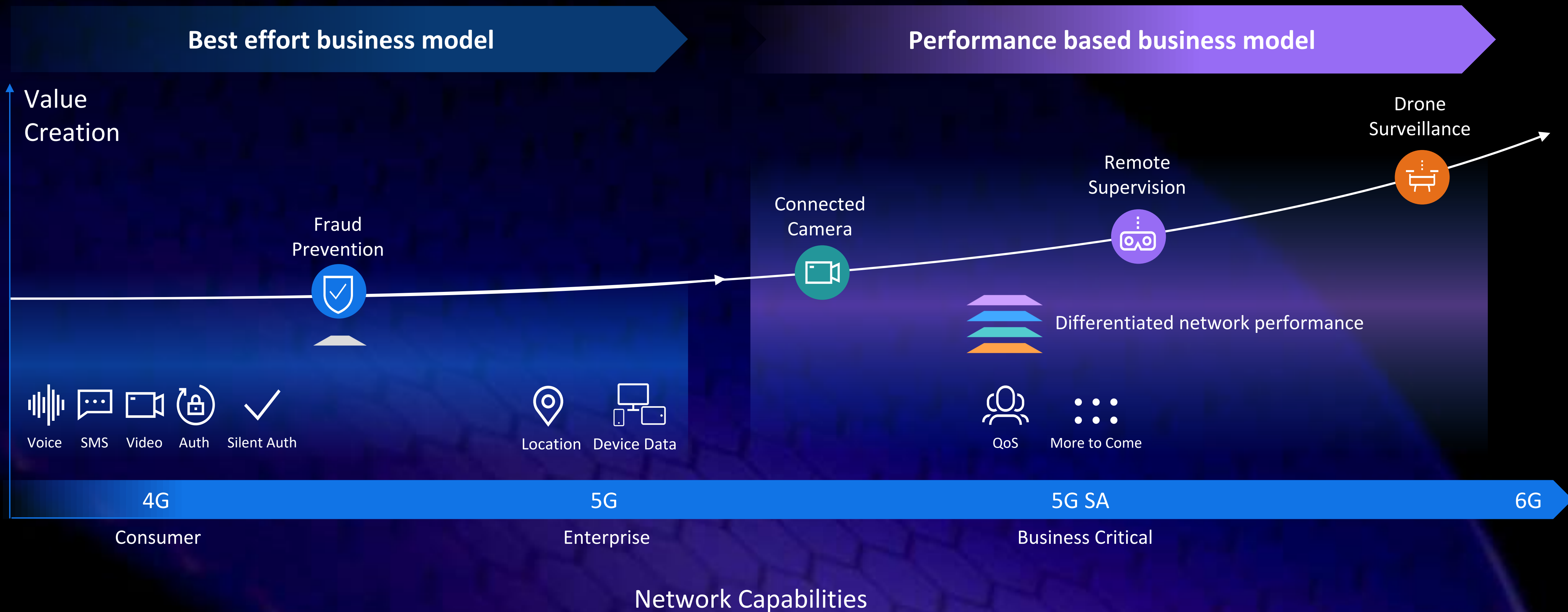
AI, cloud and mobile – the cornerstone of all digitalization



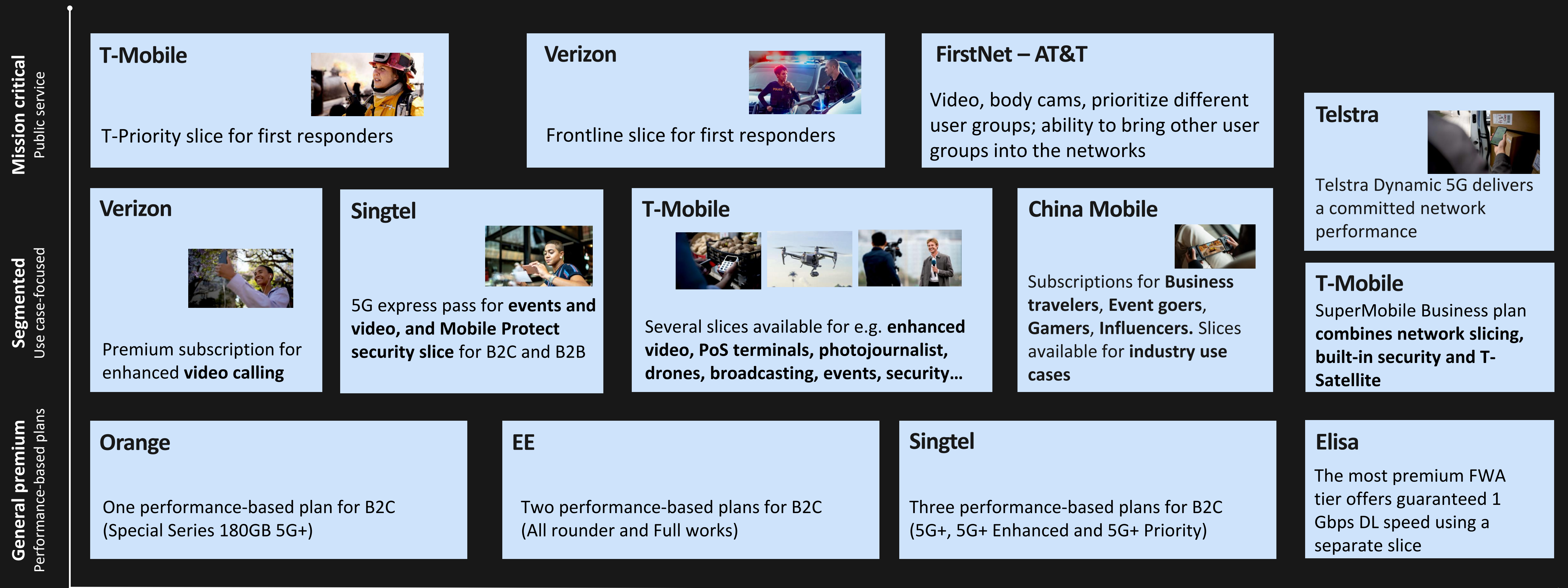
Mobile, unlocking the next wave of innovation



Transition to premium experience



Tailored services with 5G SA



1 in 3

Willing to pay for assured network performance

11%

Are interested in hourly connectivity boosts that could be activated at critical moments. Their monthly total spend could round up to

Willing to pay for connectivity boosts

Willing to pay for network enhanced subscriptions

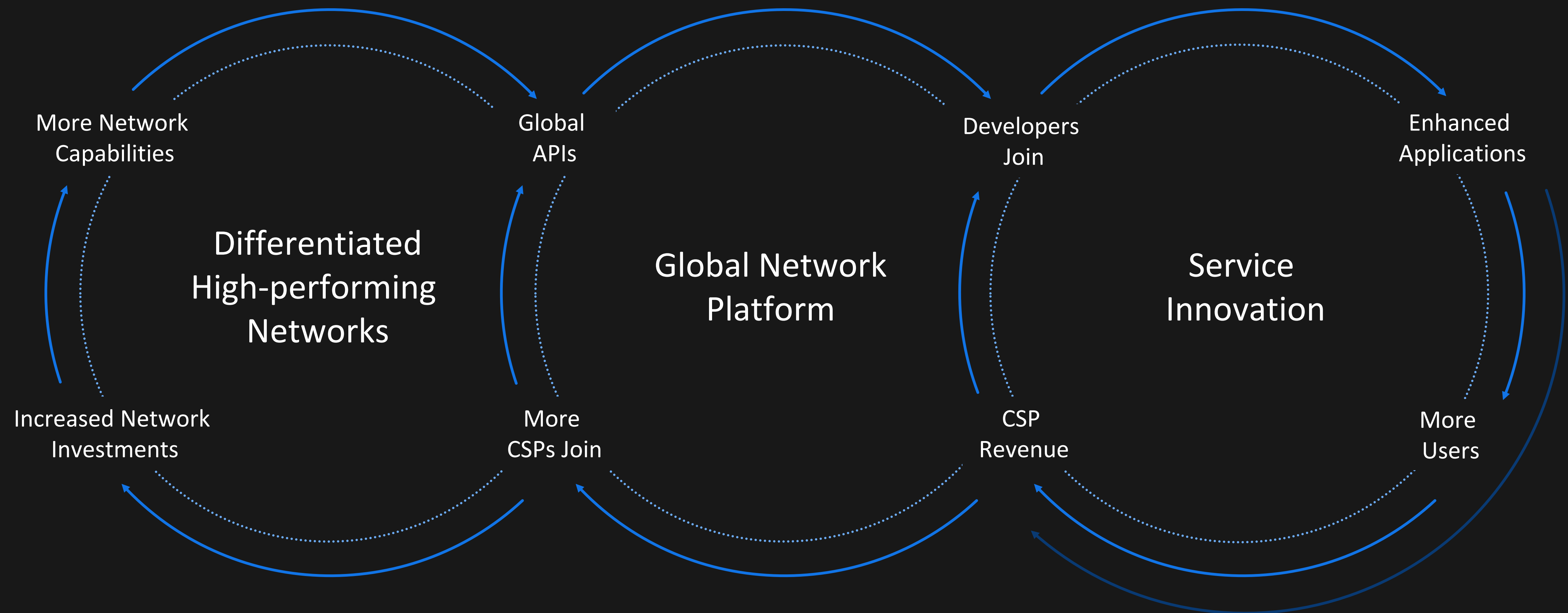
Not interested in connectivity enhancements (70%)

19%

Are interested in monthly subscriptions that offer enhanced connectivity performance, with a willingness to pay of

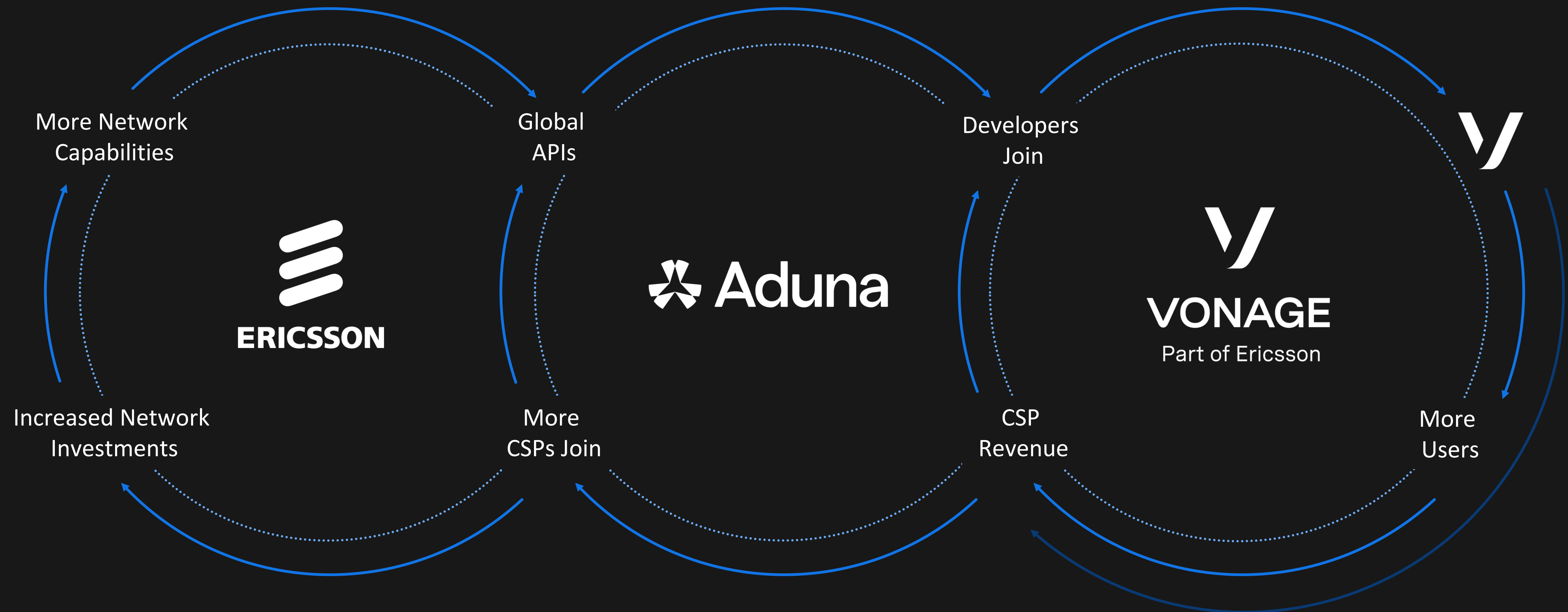
The “Network Effect”

Unlocking the power of the network to drive exponential innovation



The “Network Effect”

Unlocking the power of the network to drive exponential innovation





Unlocking the next wave of innovation

Scale the mobile platform

Scale new use cases

...such as FWA, AI apps and AR

Expand to new sectors

...such as 5G for enterprise and mission critical

Dynamic and segmented business models

...SLA-based, for e.g. reliable transactions, broadcasting

New capabilities beyond connectivity

...with network APIs (e.g., fraud prevention, sensing)





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AMTA Keynote



Louise Hyland
CEO
AMTA



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Telco Market Update



Samantha Kight
Head of Industry Security
GSMA

A photograph of three young women standing on the deck of a ship, taking a selfie. They are all smiling and looking at a smartphone held by the woman on the left. They are wearing winter clothing: beanies, scarves, and jackets. The background shows a vast body of water under a cloudy sky. The ship's railing and metal grating are visible in the foreground.

5.8 billion

unique mobile subscribers

A night cityscape with a network overlay. The background is a high-angle view of a city at night, with numerous illuminated buildings and streets. Overlaid on this is a complex network of white lines connecting various points, resembling a global communication or data network. The sky is dark with some clouds, and the overall color palette is dominated by blues, oranges, and yellows from the city lights and sky.

4.7 billion

cellular IoT connections



\$11 trillion

contribution to global GDP in 2030

A stylized globe with a network overlay. The globe is composed of a grid of blue lines and dots, representing a global network. The background is a dark blue gradient with scattered white dots, resembling a starry sky or a digital space. The text is positioned on the right side of the image.

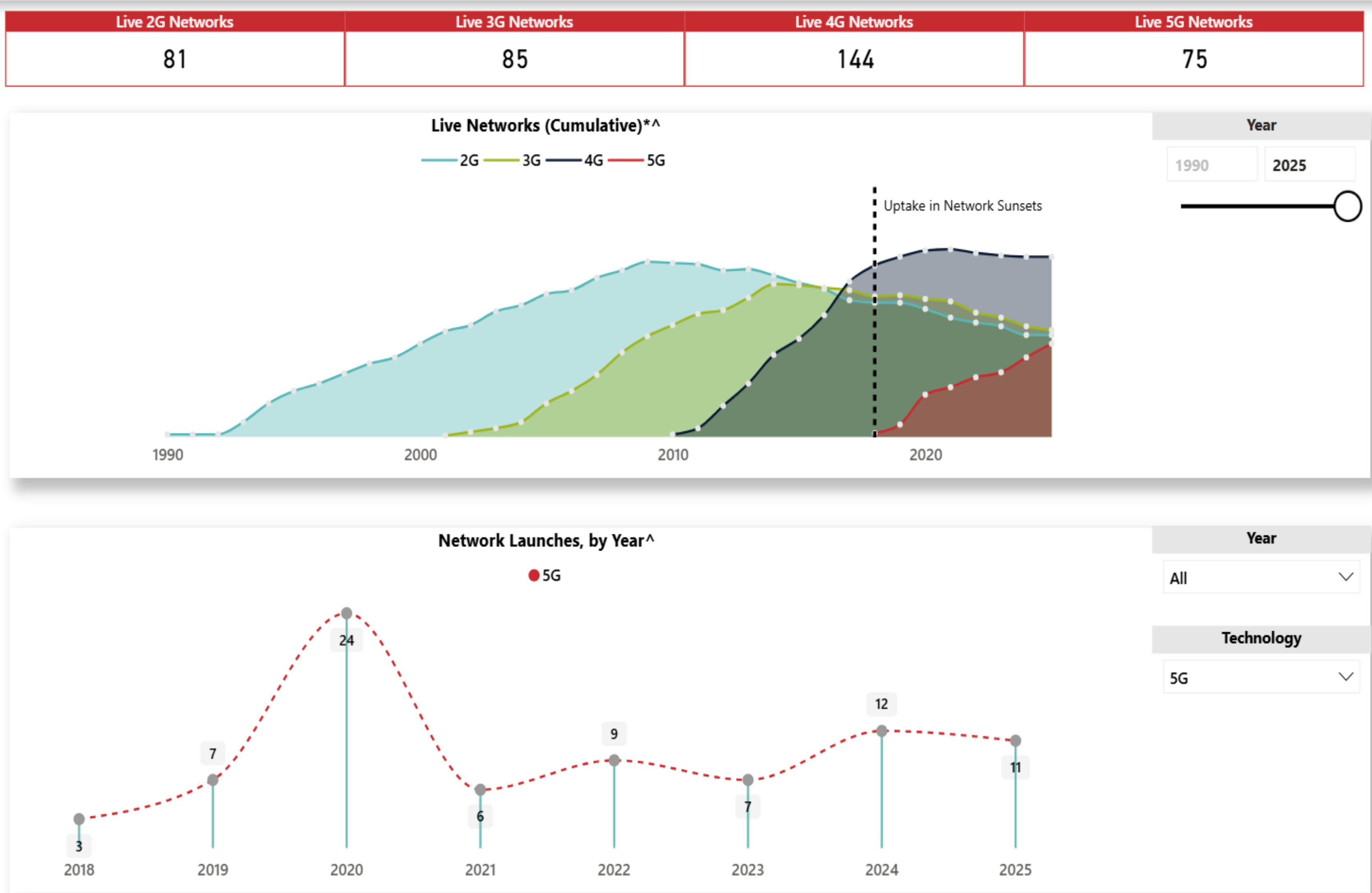
**Mobile networks
cover 94% of the
world's population**

A group of people, including a man in a red plaid shirt and a woman in a grey sweater, are smiling and looking at a smartphone held by the woman in the foreground. The background is blurred, suggesting an indoor setting like a cafe or office.

Our vision

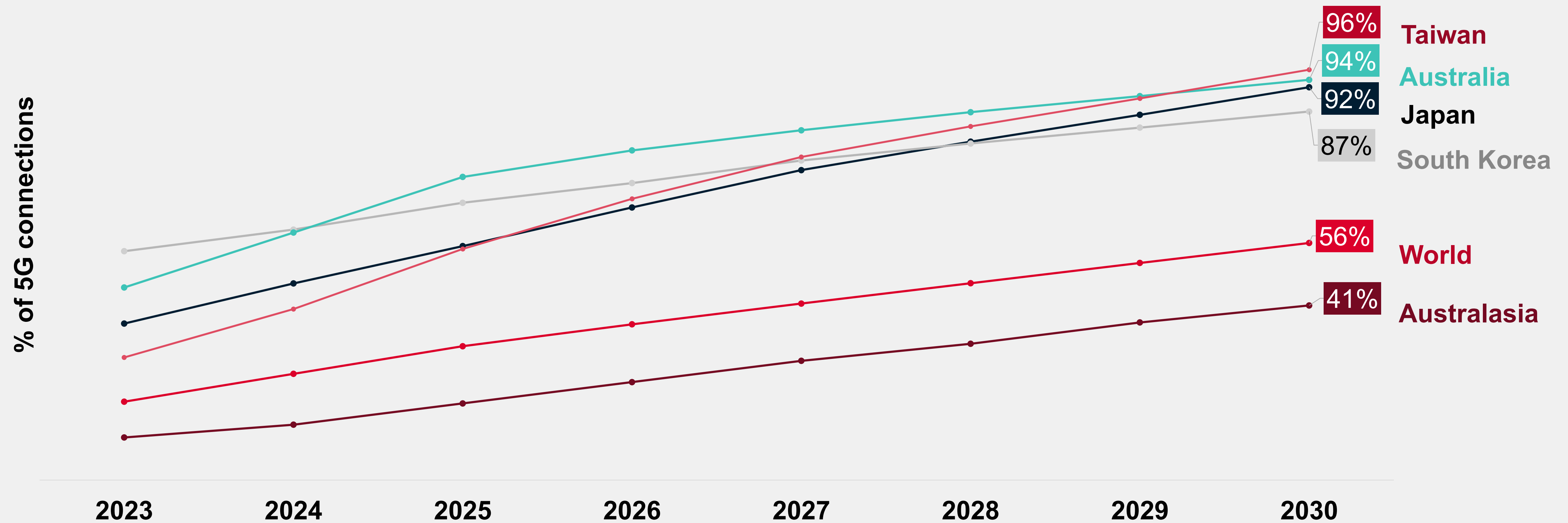
**Unlock the full power of
connectivity so that people,
industry and society thrive**

Evolution of G's: Network Evolution Asia Pacific



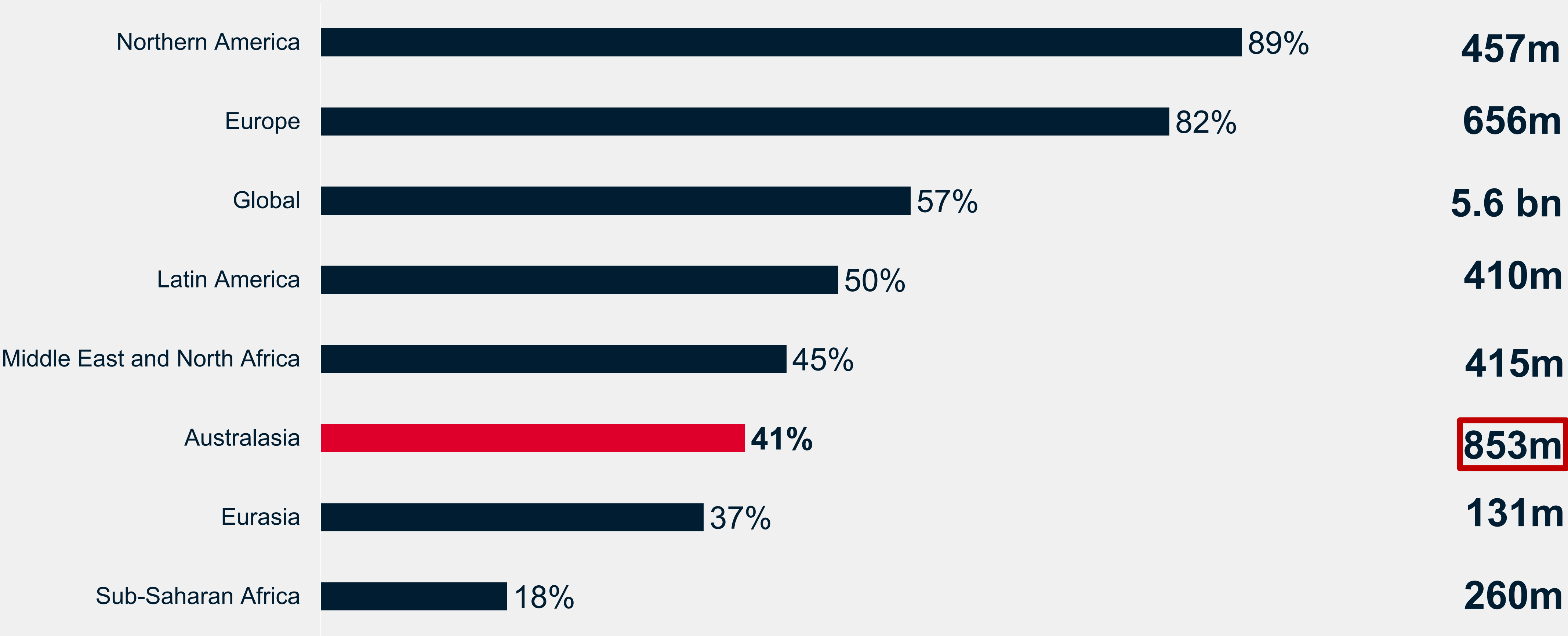
*Also includes Merged/Closed cases where closure date is unavailable.
^Cases where launch date is unavailable are not considered.

Inside 5G: Share of Mobile Connections (2023-2030)

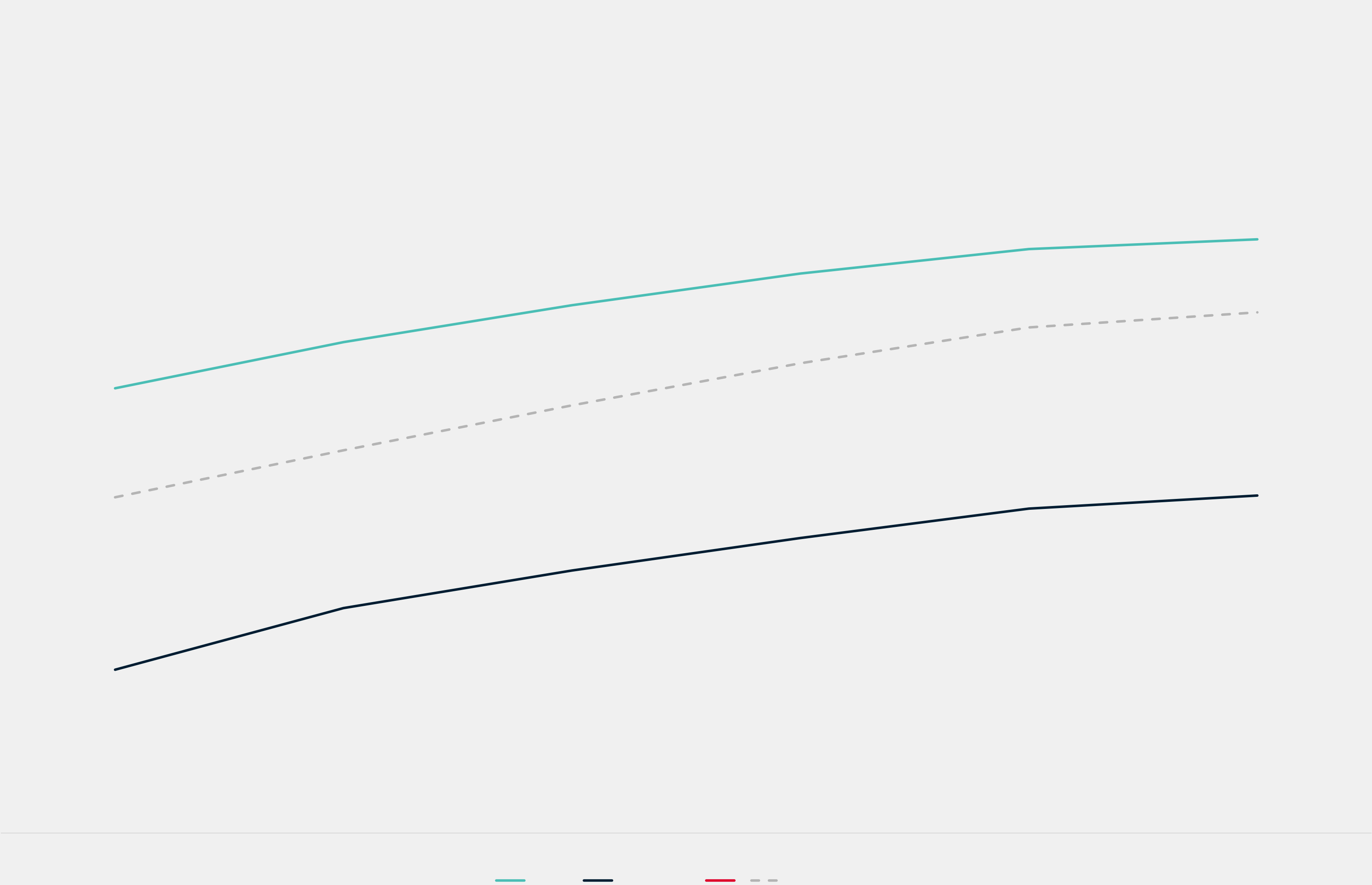


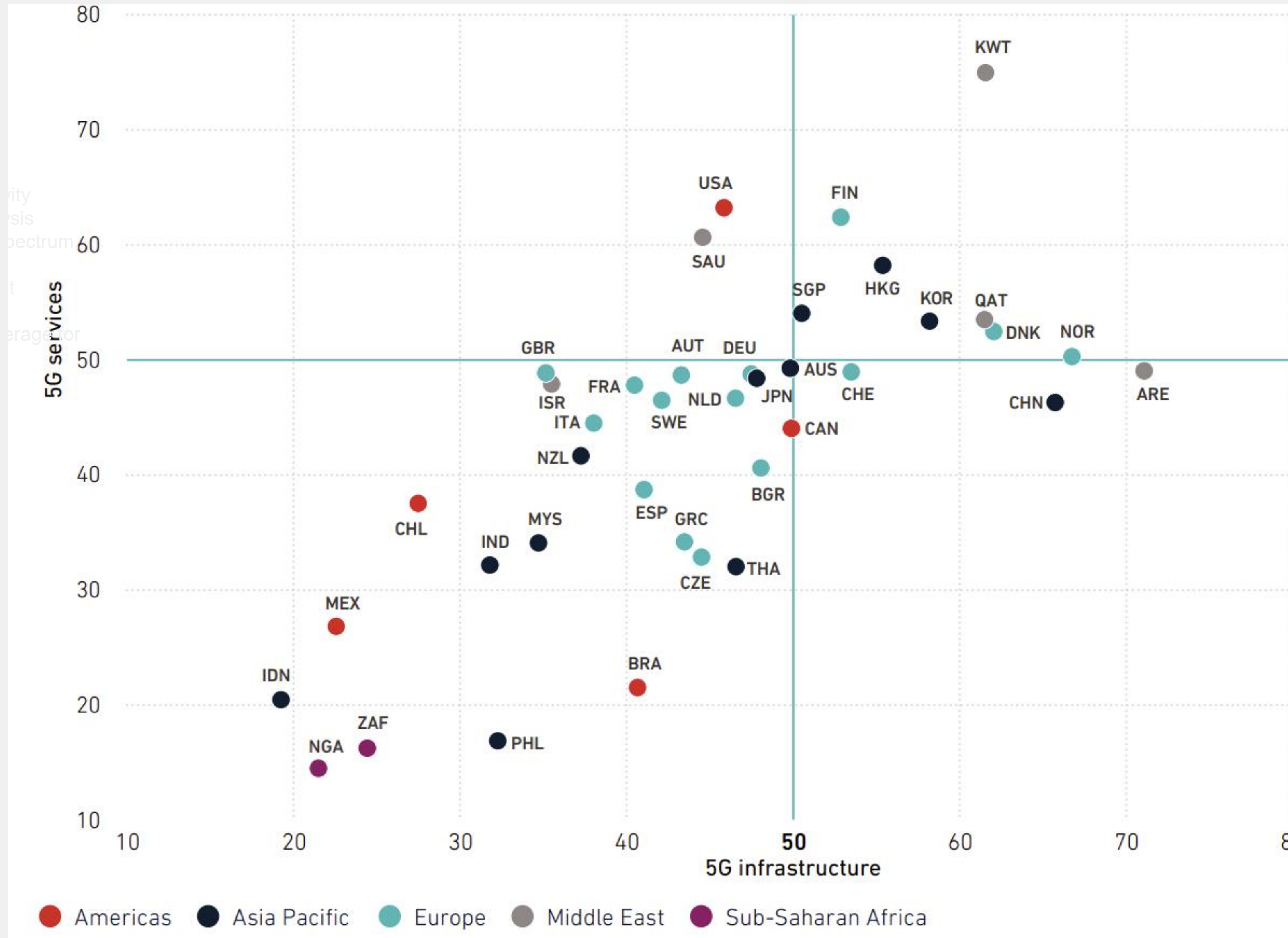
5G Adoption: Australasia in a Global Context

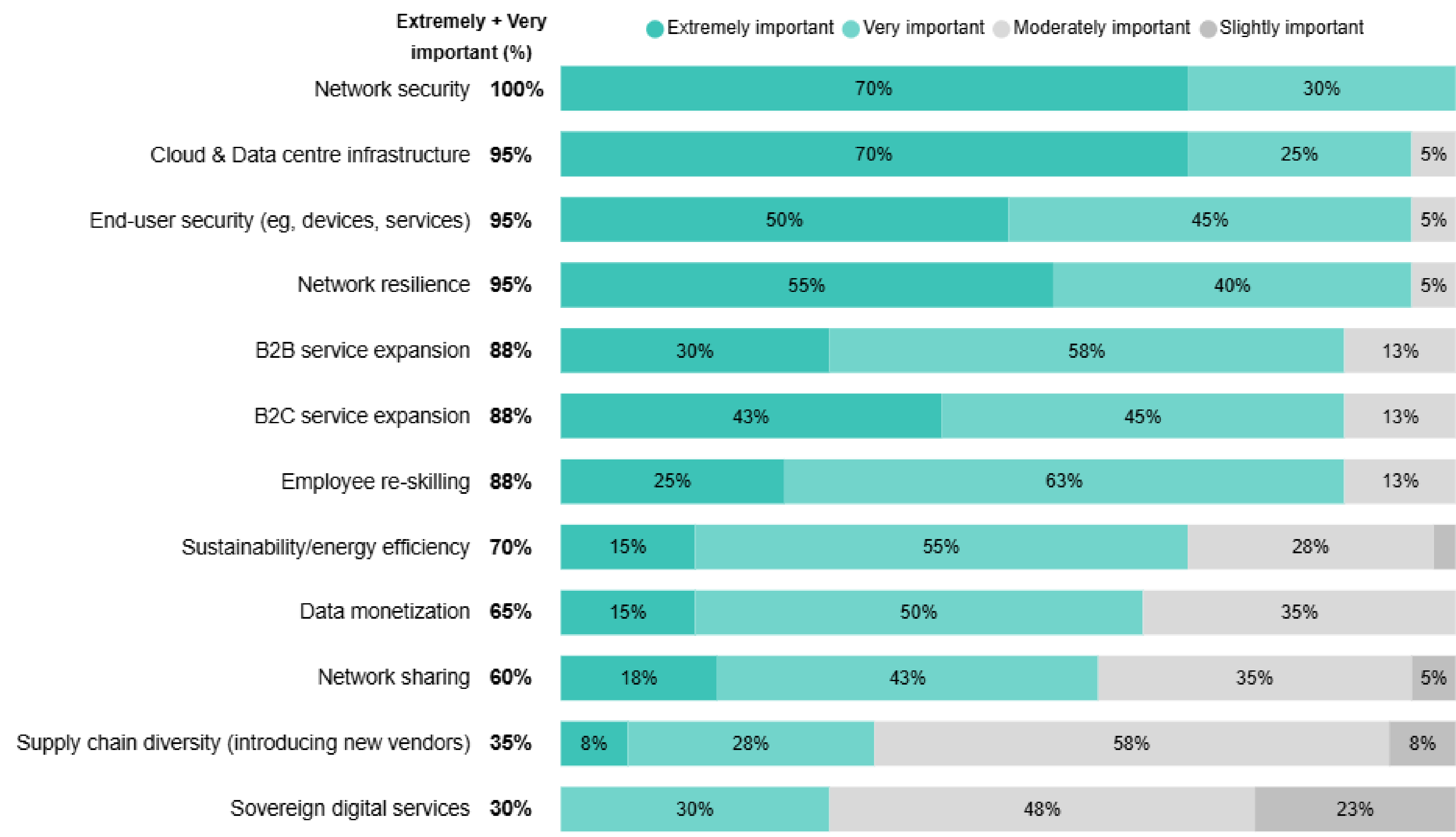
5G adoption and number of connections, 2030



5G Coverage in Australasia: Bridging the gap







"How important are the following BUSINESS priorities as a part of your current network transformation strategy?"
[Select one response in each row] N = 40

A person in a blue suit is holding a tablet that displays a digital control interface with various charts and buttons. In the background, industrial robotic arms are visible, with one arm actively welding a metal part, creating a shower of bright orange sparks. The scene is set in a factory or industrial environment, with the background slightly blurred to emphasize the person and the tablet.

**The digital world thrives
on the strength of the telco industry**

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Coffee Break

10.30 - 11.00



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5G Advanced

December 2025

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5G Advanced



Ian Pannell
Chief Engineer,
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Morteza Kheirkhah
Technical Director in Networks
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Christopher Price
Director of Advanced
Technology
Ericsson



Do Young Kwak
Director AI Analytics, Network
AI and Future Network Lab
KT Corporation



Tony Kalcina
Global Ambassador
TM Forum



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GSMA Mobile AI Community



Morteza Kheirkhah is a
Technical Director in Networks
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Ericsson Presentation



Christopher Price
Director of Advanced
Technology
Ericsson

5G SA: Enabling the Future of 5G Advanced



Do Young Kwak
Director AI Analytics, Network
AI and Future Network Lab
KT Corporation

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5G Advanced - Panel



Moderator

Morteza Kheirkhah
Technical Director in Networks
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Christopher Price
Director of Advanced
Technology
Ericsson



Do Young Kwak
Director AI Analytics, Network
AI and Future Network Lab
KT Corporation



Tony Kalcina
Global Ambassador
TM Forum

Please provide your feedback

Insert
QR
Code

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Lunch

12.15 - 13.15



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5G Slicing

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5G Slicing



Ian Pannell
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Luke Coleman
CEO
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Palash Gupta
Senior Digital Operations
Consultant, Nokia CNS,
Oceania Market
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Dhana Ponnampereuma
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Lead
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David Aders
Group Owner for Mobile
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Ian's Presentation



Ian Pannell
Chief Engineer
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Australia Telecommunication Alliance



Luke Coleman
CEO
Australian
Telecommunications Alliance

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5G Slicing

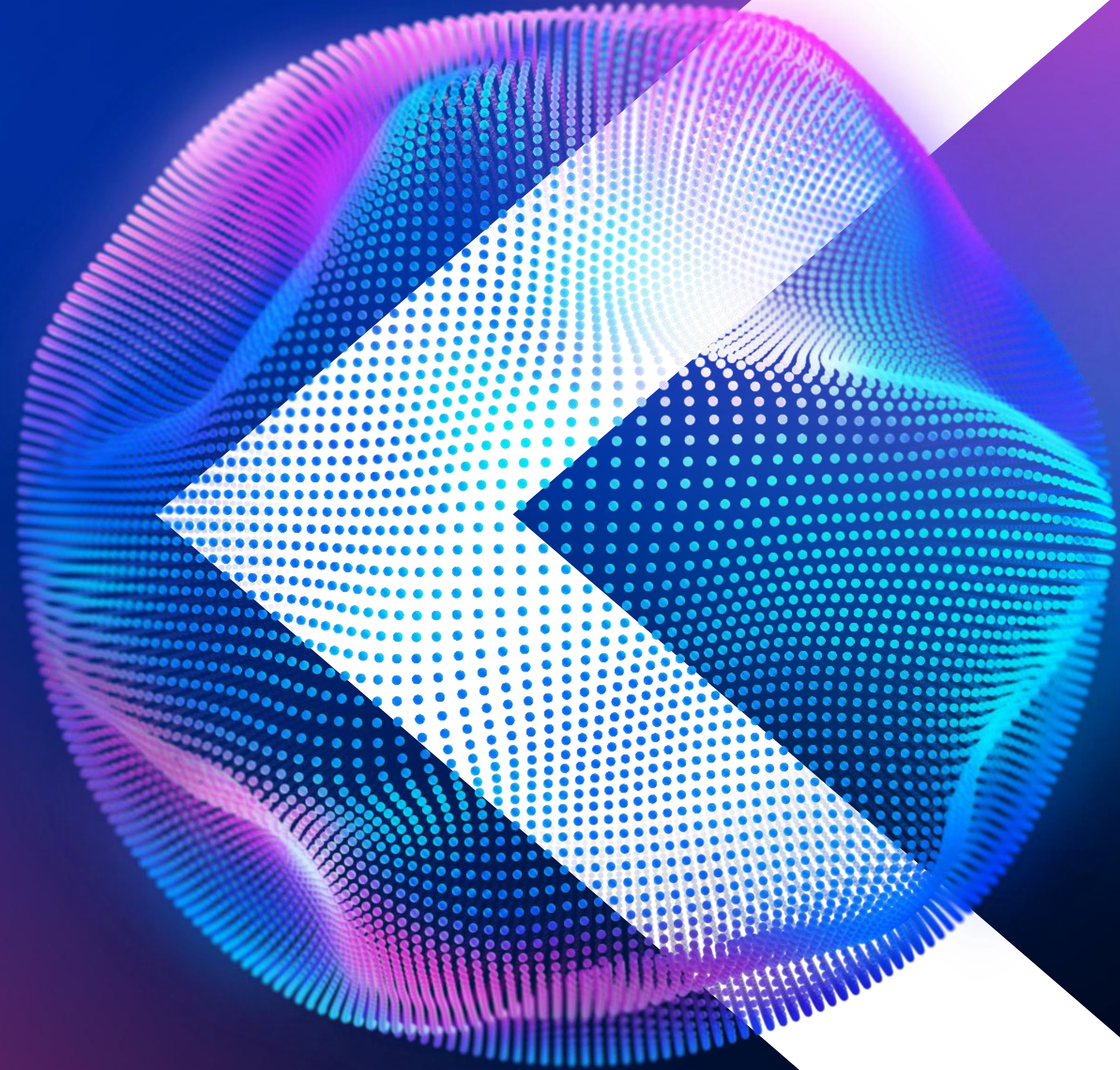


Palash Gupta
Senior Digital Operations
Consultant, Nokia CNS,
Oceania Market
Nokia

NOKIA

5G Slicing

GSMA Technology Summit, Australia
2nd Dec 2025



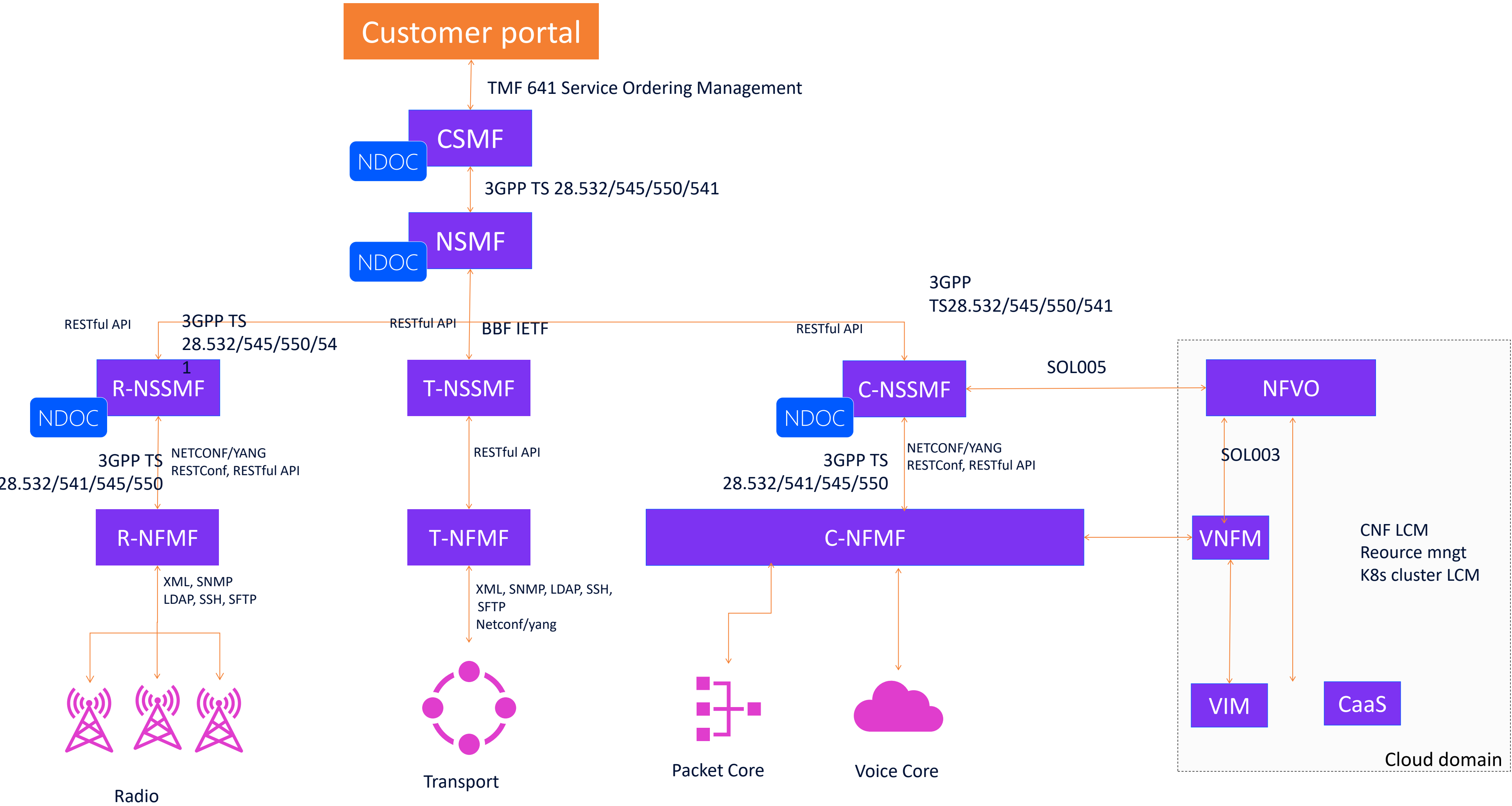
Agenda

- Nokia Autonomous 5G Slice Management
- Product and Solution Experience – based on live deployments
 - Technology innovation: Implemented 5G Network Slicing Use cases beyond Standards
 - Slice Qualifications
 - Closed Loop
 - Bulk Provisioning agent
 - Slice parameter audit and compliance dashboard
 - Discovery of NF's and Slices

3GPP 5G Slice Management

Nokia Solution as CSMF/NSMF, C-NSSMF and R-NSSMF

Adherence Area	Technical Specifications
5G Slice Orchestration CSMF, NSMF, NSSMF	530, 532, 541, 801, 805
5G Slice Monitoring CSMF, NSMF, NSSMF	545, 550, 554

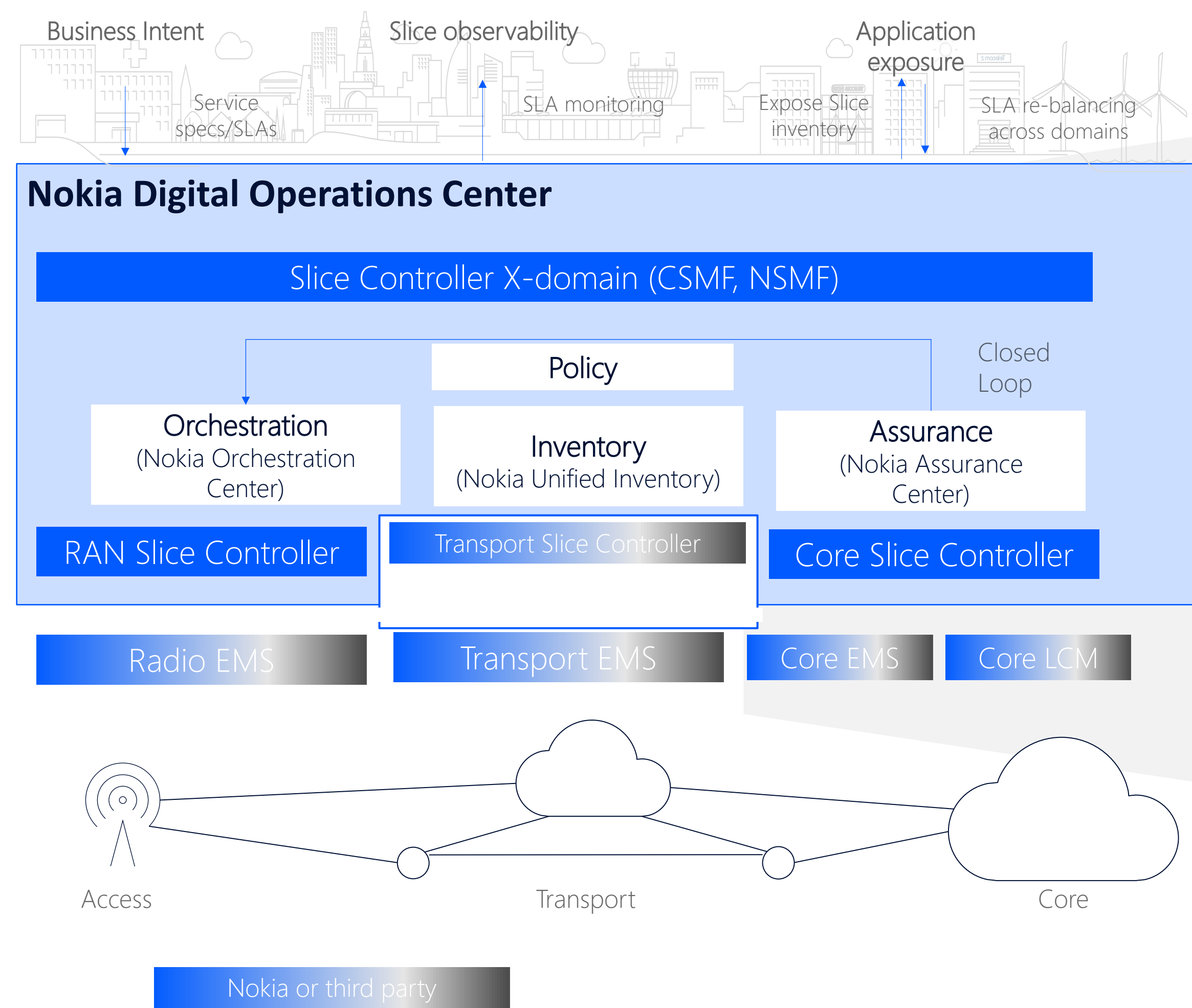


- CSMF, NSMF, R-NSSMF, C-NSSMF capabilities are built on Nokia Digital Operations Framework
- Supports Dynamic Slicing
- Supports Slice SLA Assurance
- Standards compliant



Nokia Autonomous Slice Management

Comprehensive solution with a clear evolution approach



Capabilities

- ❑ Dynamic slicing
- ❑ Policy driven
- ❑ Slice SLA assurance
- ❑ Multivendor
- ❑ Modular

Uniqueness

- ❑ Pre-integrated, validated
- ❑ Open and extensible
- ❑ Unified slice platform
- ❑ Off-the-shelf templates, automations



Implemented Network Slicing Use cases

Beyond Standards

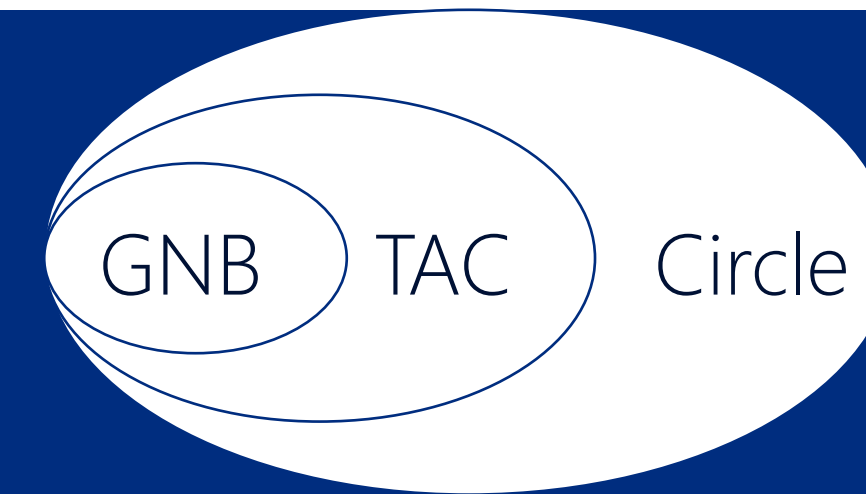
Slice Life Cycle Management

- Order Validation
- Domain Switch



Controlled Rollout

- *Deploy small, Validate fast and scale incrementally*
- Minimize risks, Customer experience protection
- Operational Efficiency



Zero Touch Service Management

- Laying foundation for Autonomous network
- Faster Time to Market
- Operational efficiency and cost saving



Audit And Compliance

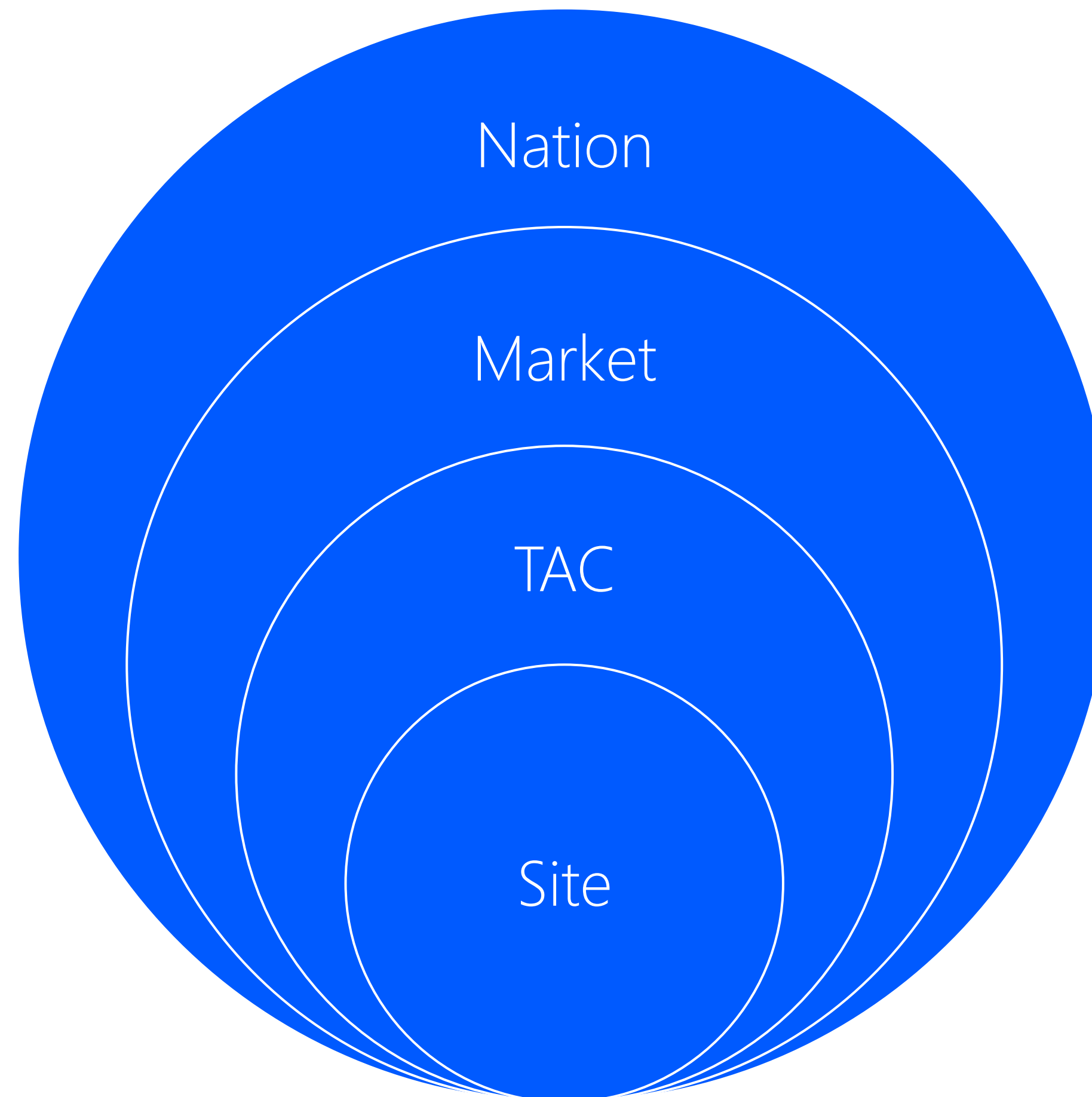
- Service Quality Assurance
- Proactive Assurance instead of reactive troubleshooting
- Regulatory and Security Compliance



Controlled rollout of a slice

Operational feature

- An operator would hesitate to create a slice in very large area in one go
- Fraught with unknown risks
- Hence, operators would like to create/modify a slice in on a small set of gNBs before implementing the requirements in the entire area of interest
- Changes will be progressively enlarged over a wider area



Nation
All markets

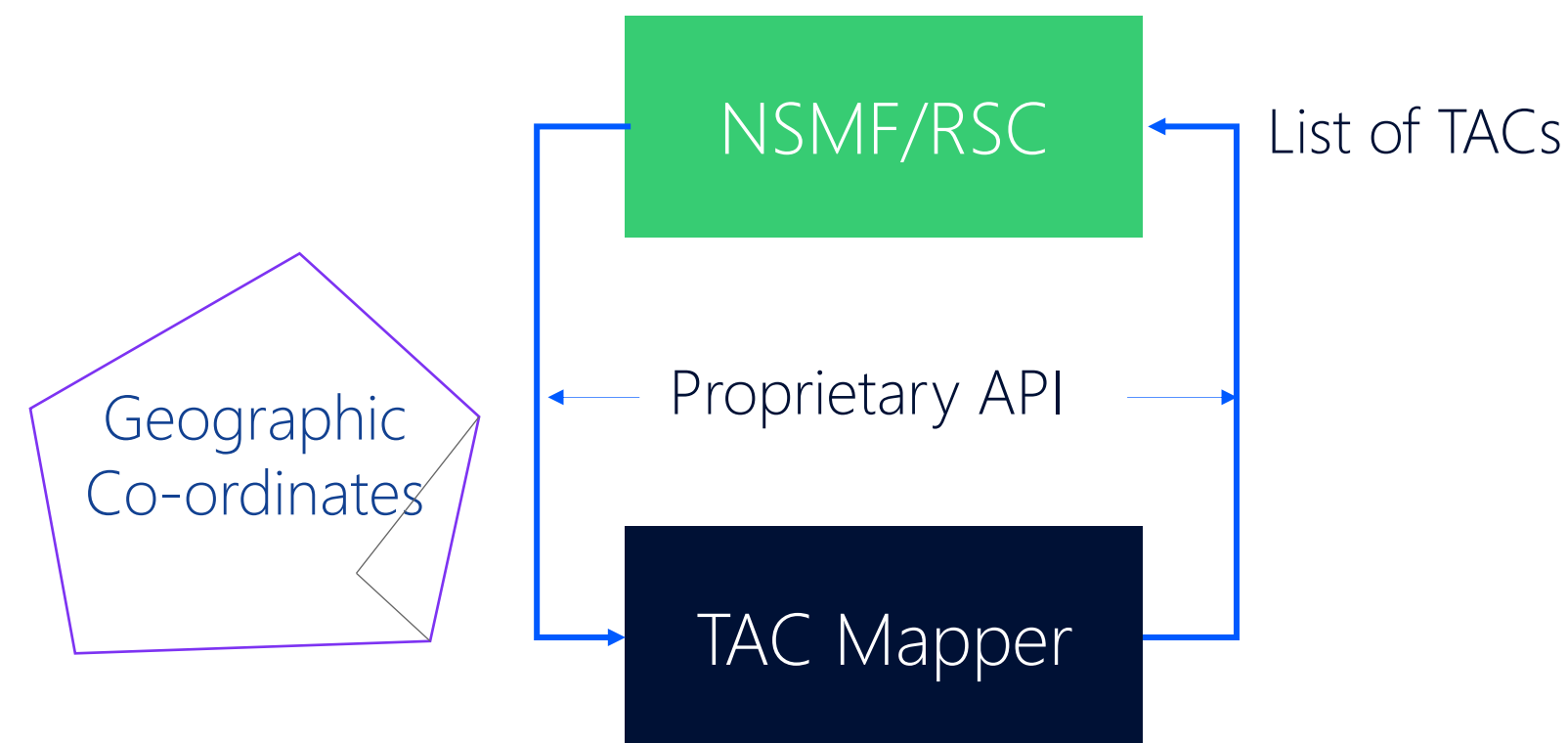
Market
Aggregation of select TACs
and EMS's

TAC
Contains a list of gNBs
A geo area in home PLMN

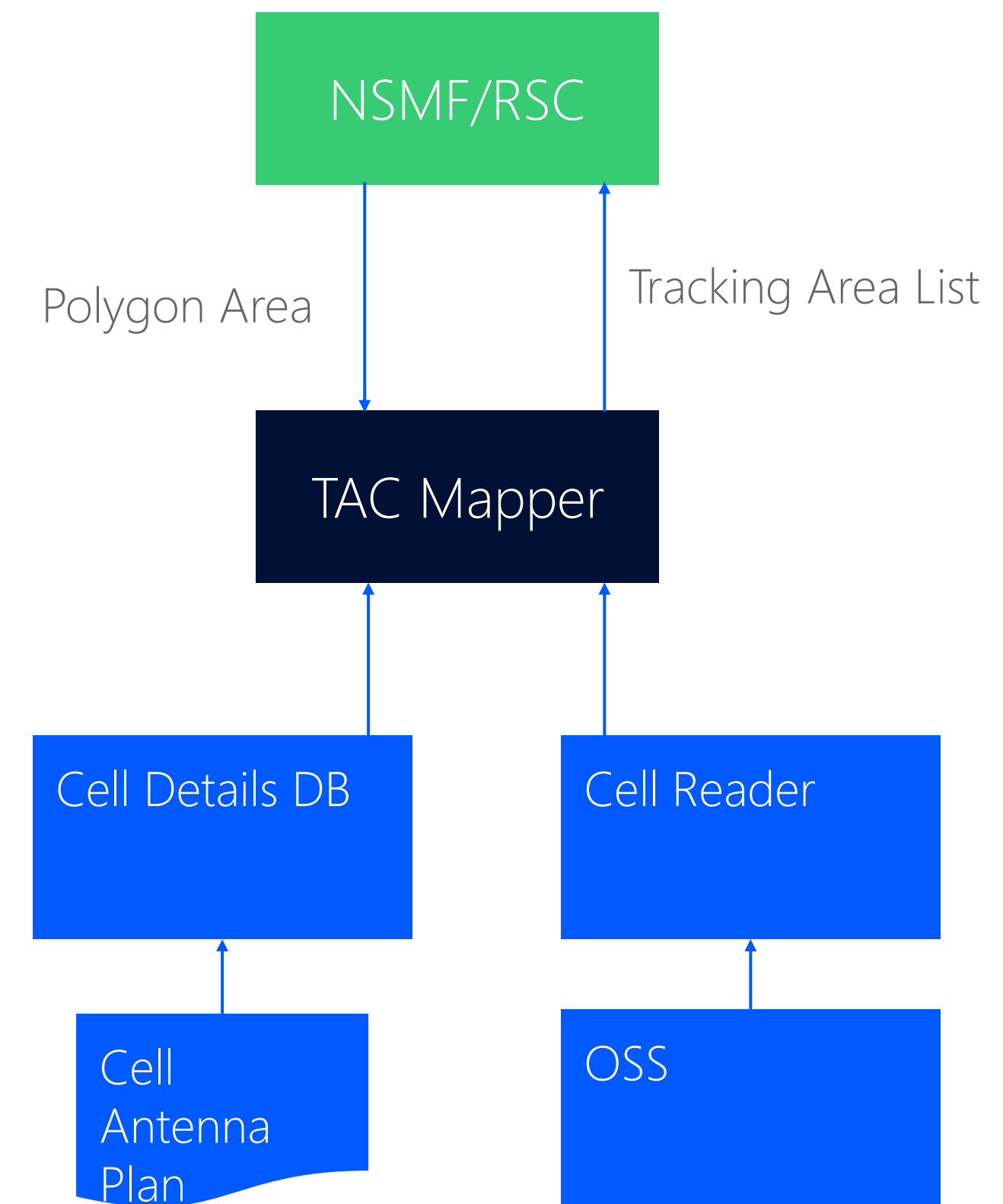
Site
Set of gNBs

TAC Mapper - Converting coverage area input to tracking area list

Operational feature – reduces effort from CSP to provide the TAC list

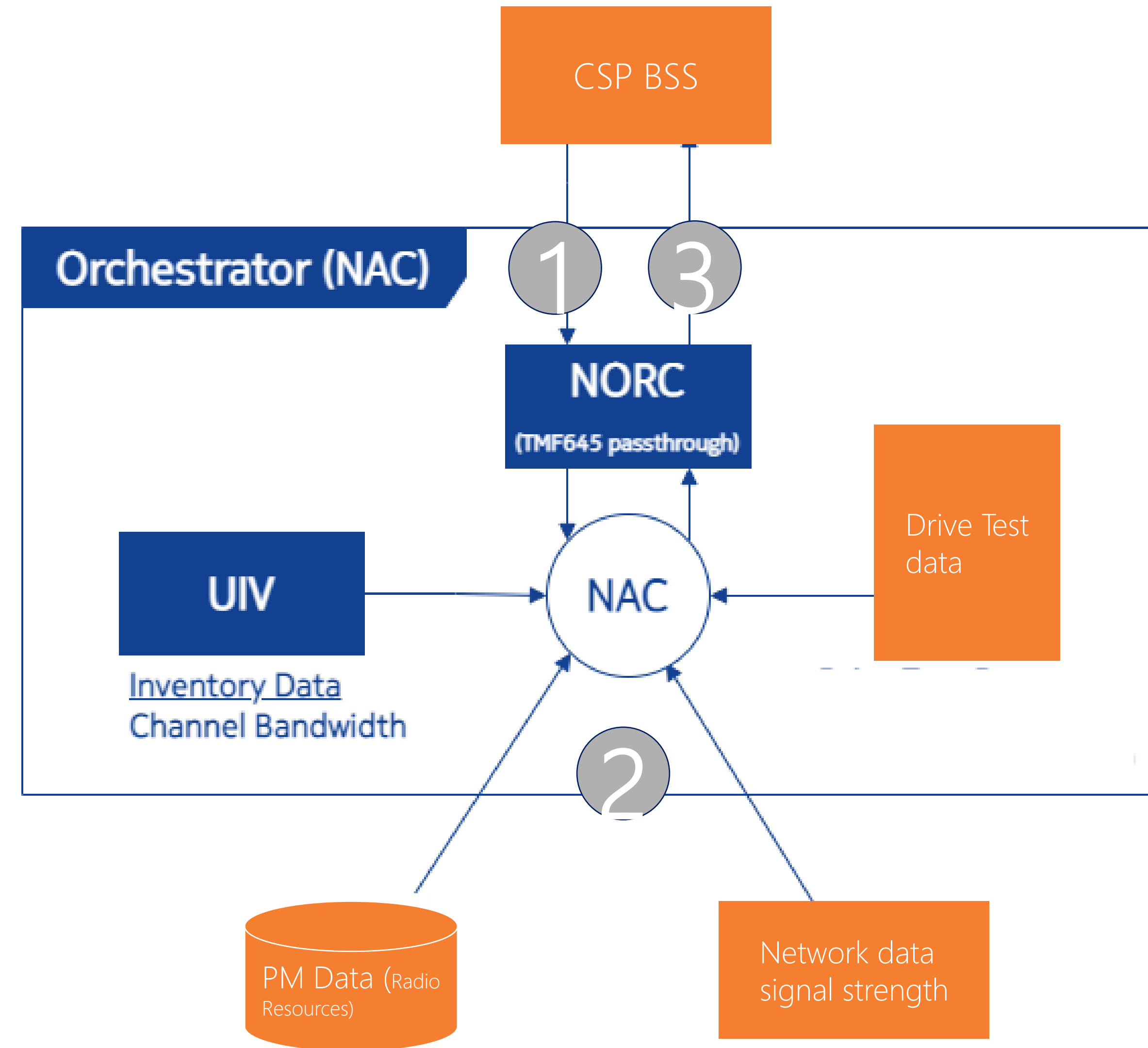


- The input to NSMF/CSMF is the coverage area (geographic area).
- The RSC requires a TAC list as input to comply with standards
- So, the TAC mapper functionality accepts geographic coordinates as input and converts it into a TAC list
- This functionality can reside in NSMF or RSC
- TAC mapper functionality workflow implemented in NSMF as of today



Slice Qualification

1. Request with service requirements is sent by CSP BSS to NORC via TMF645 and it is passed with NAC
 - Location (Point or Area)
 - # Users
 - Type of Device
 - UL/DL Throughput
2. NAC calculates the feasibility of the service
 - Radio Resources Utilization (PM)
 - Verified UL/DL Throughput (Drive test data)
 - Radio Bands Signal Strength
3. Service qualification response is returned to CSP BSS system, Service is:
 - Qualified / NOT Qualified / PARTIALLY Qualified



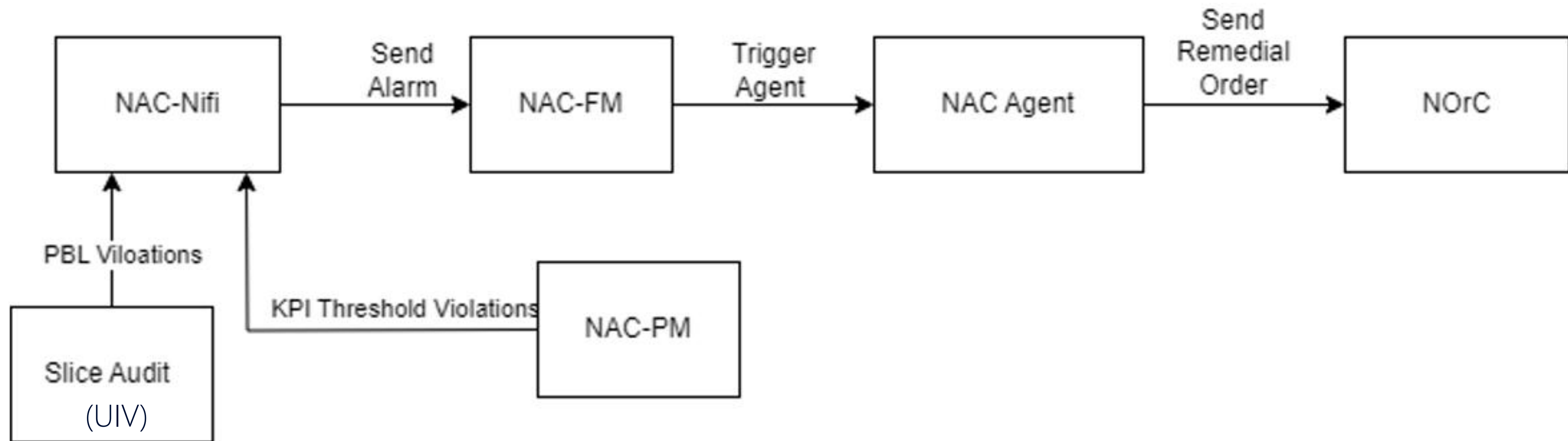
Closed Loop

Use cases

- UC 1 – RAN KPI Threshold Crossing
 - Scenario 1 - In case of congested cell, adjust RRP minQ to increase the average throughput for a Slice using NBR (Nominal Bit Rate)
 - Scenario 2 - In case of congested cell, adjust RRP minQ to increase the average throughput of FWA Slice
 - Scenario 3 - Protect eMBB from FWA traffic spike at congested-cell
- UC 2 – **Missing Slice Configuration** - Detects missing RAN/Core Slice configuration in the respective gNodeBs and modifies and fixes the missing RAN/Core Slice configuration
- UC 3 – **Parameter Baseline Enforcement** - Checks all slice parameters from configured Parameter Baseline in gNodeBs and looks for discrepancies. All divergent values found are modified back to the baseline

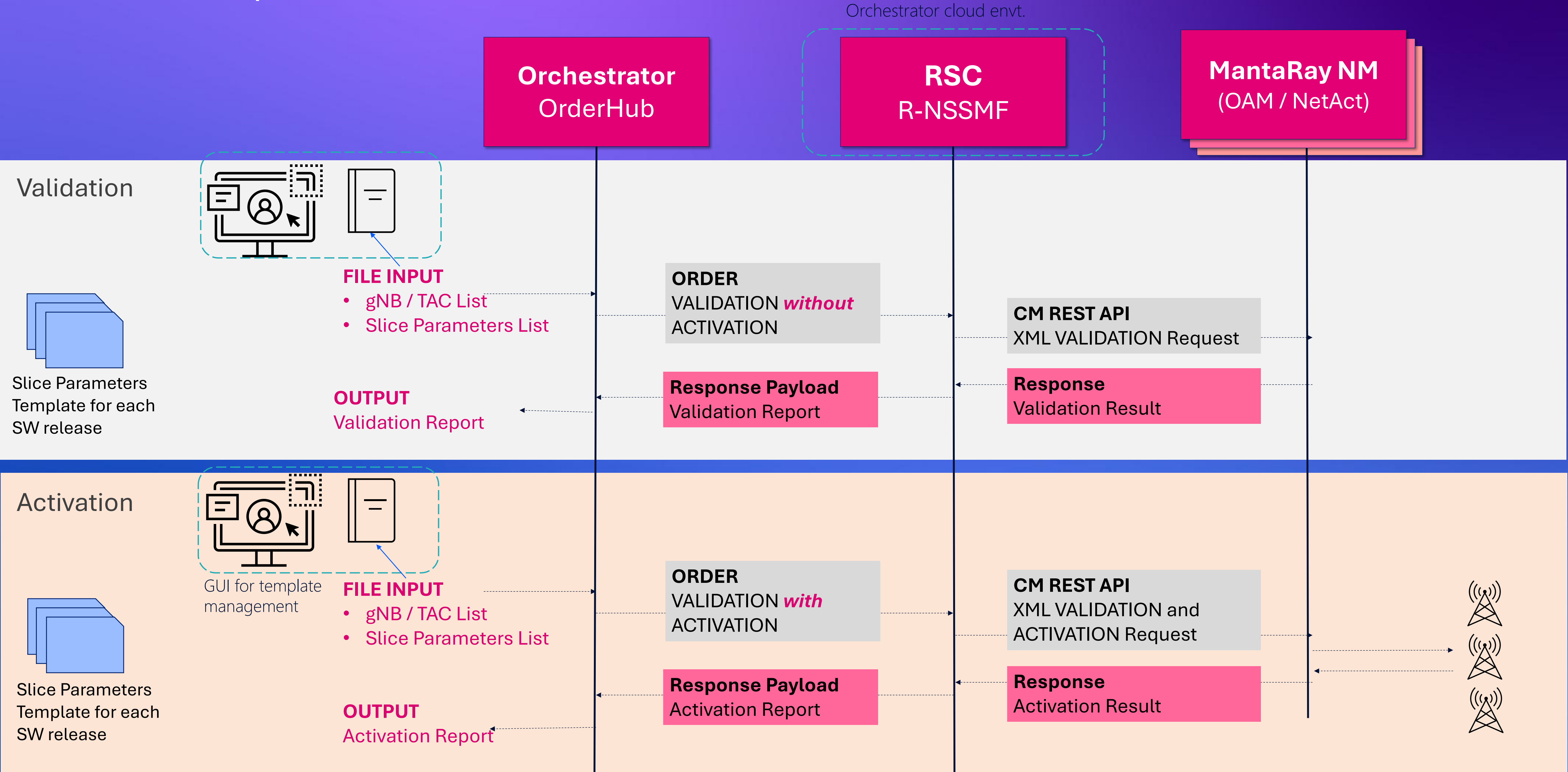
Closed Loop

Components Data Flow in Nokia Assurance or in 3rd party Assurance



Bulk slice provisioning for the RAN ops team

Multi-Slice Operations



Slice parameter audit and compliance dashboard

Fresh Audit Request

Configure and execute real-time compliance auditing

1

Configure Audit Scope

Market Selection

Select Market

Slice Selection

☐ Slice 2000 ☐ Slice 6000 ☐ Slice 6001

Audit Parameters

All Slice Menu Parameters

Run Fresh Audit

Reset Form

2

Scope Validation

Estimated Audit Scope

0

gNBs to Audit

0

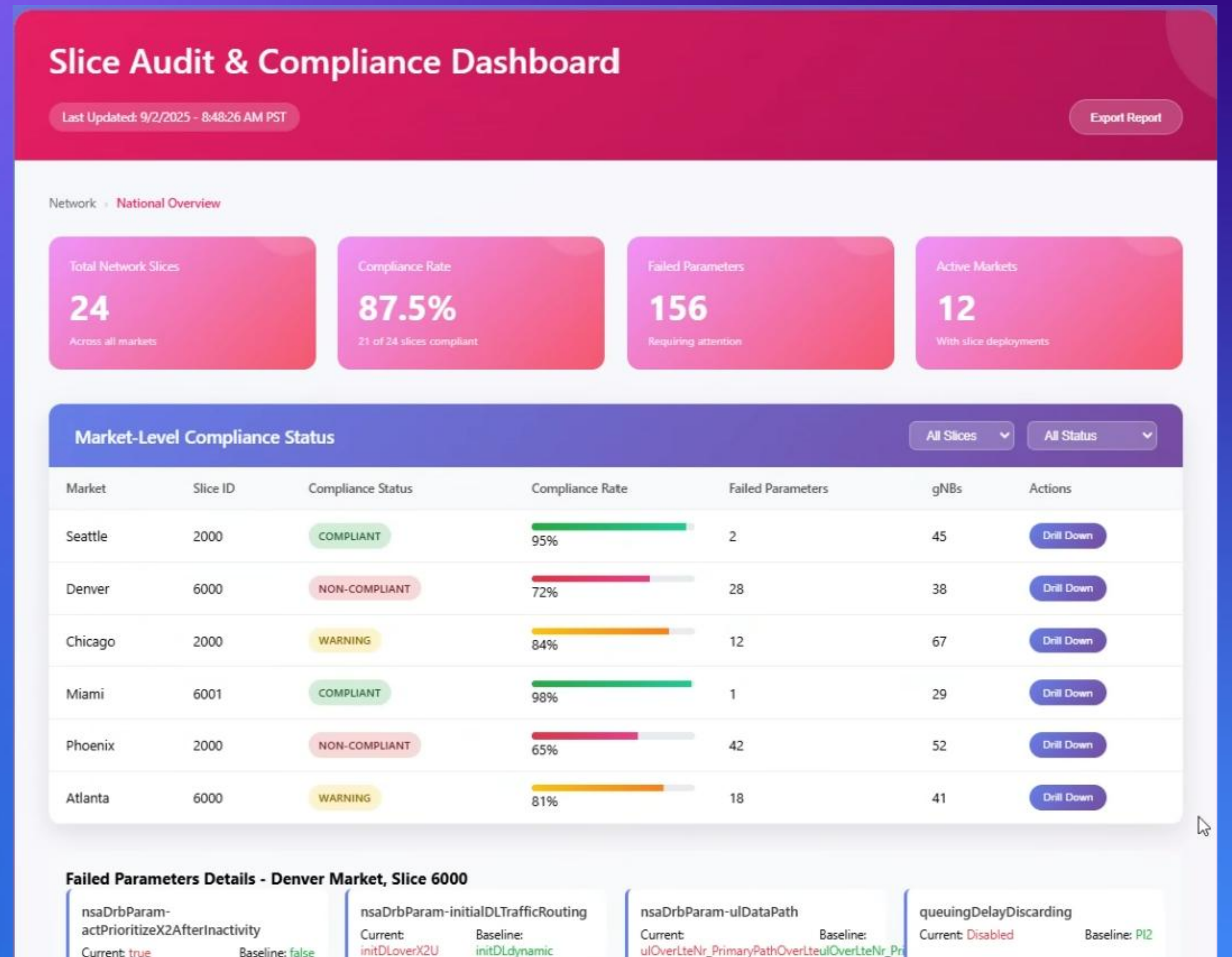
Parameters

0

Est. Time (min)

0%

System Load



Slice audit across MantaRay

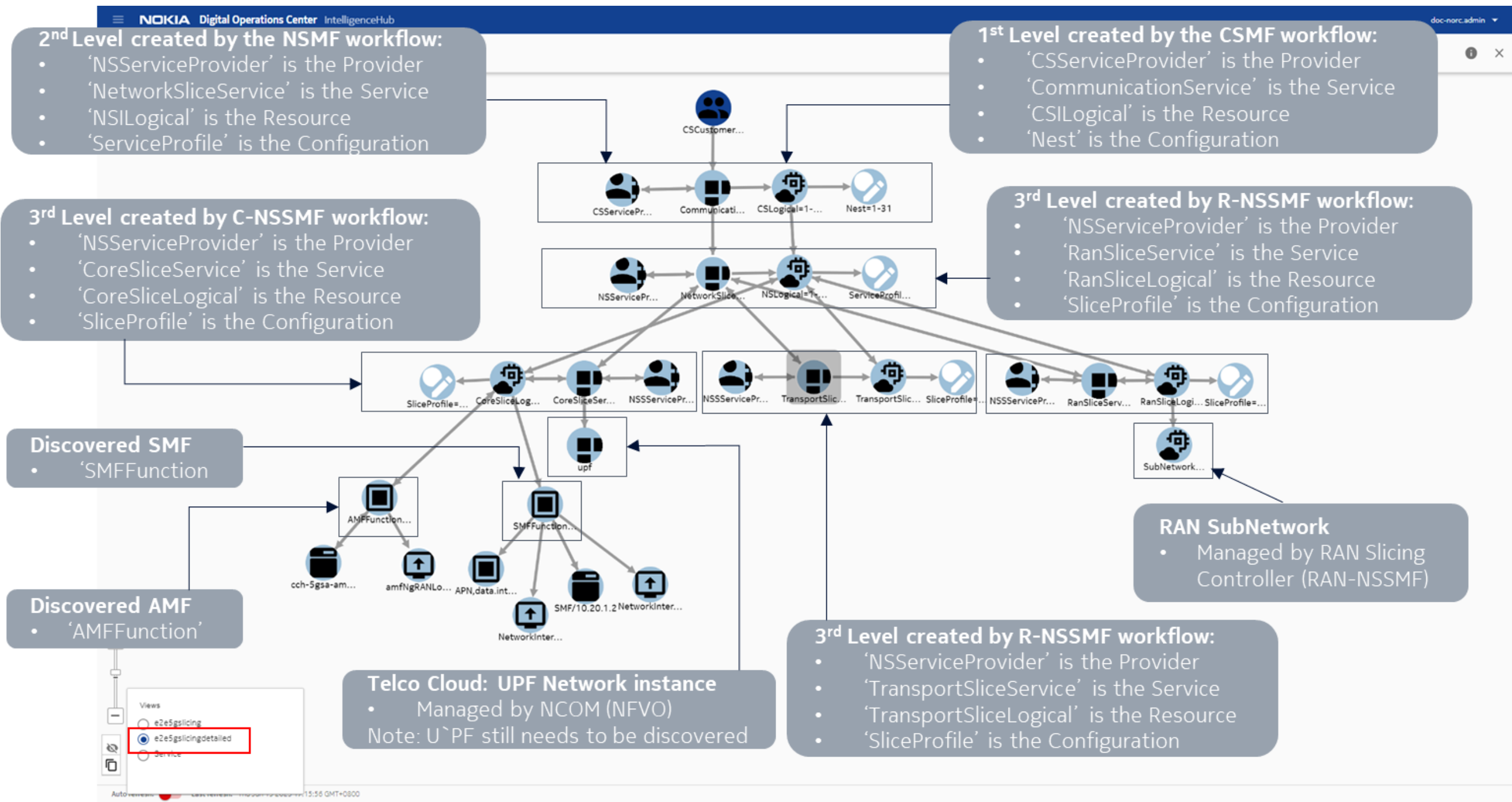
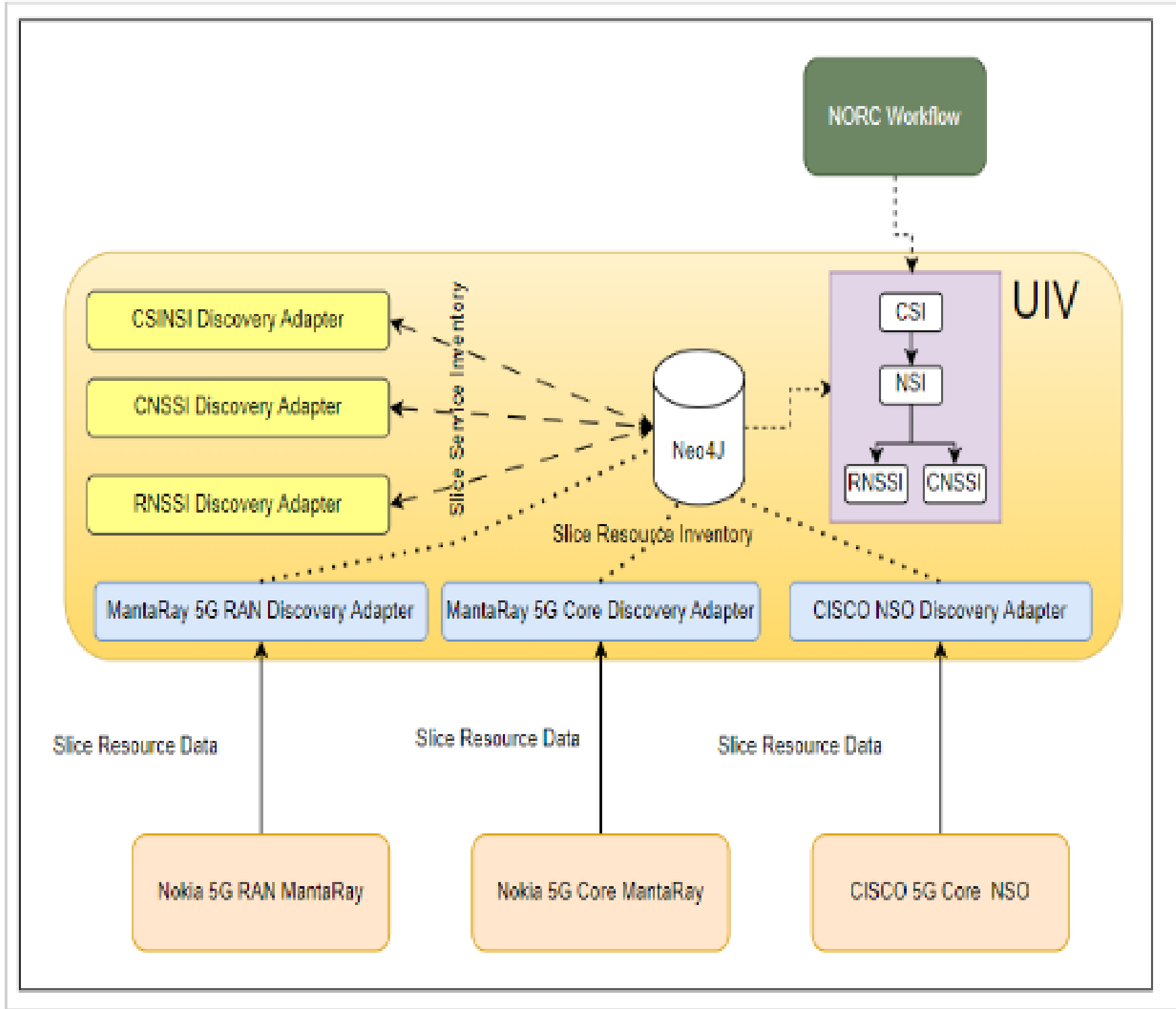
Drill down per slice, per TAC, per gNB, per parameter

Enforcement of non-compliant parameters

Slice Discovery (Onboarding) - Example

Slice Back Filling – Day 0, Initial Upload

Detect the existing slices in the network and update the UIV



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5G Slicing: Differentiated Connectivity

A journey of redefining networks...



Dhana Ponnampereuma
Account CTO
Ericsson Australia

Technology Summit

Australasia

5G Slicing: Telstra



David Aders

Group Owner for Mobile
Development & Product
Engineering
Telstra

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5G Roaming

December 2025

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Moderator

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Jehad Mata
IoT Technical Sales
Vodafone



Simon Fraser
CEO
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IoT Technical Sales
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5G Roaming & Travel eSIM



Simon Fraser
CEO
PNCC



Roaming & Travel eSIM

PITA AGM

April 2025

Palau Roaming Example



Roaming in Palau

- Palau has a 99:1 ratio of Inbound to Outbound Roamers
- ~10% of total subs on PNCC's network at any one time are roamers
- On average 30% of those are silent roamers <\$1 per month (excluding permanent)
- Main roamer donor countries Taiwan, China, Japan, USA, Korea



Roaming Revenue

- Inbound Roaming Revenue as of Mar-25 is 9% of Total Mobile Revenue or ~5% Total Revenue (12 month rolling)
- Inbound Roaming Revenue has increased 27%
- Inbound tourists to Palau have increased by 33% in same period
- Daily ARPU of an active roamer is 70% higher than local subs
- Revenue generated from PNCC maintain local rate affordability
- PNCC meets the ITU threshold for affordability of 2GB of Data for 30 Days (2% of GNI per cap)

Roaming Rates Objectives



- Protect roaming rate per Mbps to maximize roaming revenue
- Only decrease rates to drive net positive revenue via increased volume roaming partners
- Increase roaming partners to increase inbound roamers

Outbound Roaming MNO Example



Outbound Dominant Market MNO Roaming Dynamics

- Most of our roamer donor markets are OB dominant including US, Taiwan, China, Japan, Korea, Australia.
- Example: Australia has an approx. IB:OB roamer ratio of 0.625:1 compared to Palau's ratio of 99:1

Outbound Market MNO Strategy

- Constant Downward Pressure on Roaming rates – push decrease rates every 1-2 years
- The lower the rate the better and offer cheap rates to your own network in exchange
- Push for symmetrical bilateral rates – never asymmetrical regardless of the relative ARPU's or costs of doing business
- Lower rates are used to increase profit margin on Outbound Roaming Plans
- Margins are still high, especially relative to network resources consumed

Example

- AT&T charge their customers US\$12 per day for their roaming plan with 500MB daily allowance then throttle them to 512kbps
- If the customer consumed the entire 500MB per day the cost to AT&T is ~\$5 (@ \$0.01 per MB) – Margin 58% on Mark-up of 140%
- The average data consumed per day on PNCC's network is 250MB/sub = AT&T OB roaming Margin of 79% on a Mark-up of 380%!!!

Outbound MNO Roaming Plans



Optus



AT&T

Use your phone around the world

- ✓ Connect abroad on land
 - ✓ Use your wireless plan in 210+ destinations with unlimited* talk, text, and high-speed data for \$12/day.
 - ✓ \$6 for each additional line used on the same calendar day.
- ✓ Going on a cruise?
 - ✓ For \$20/day you can cruise without worries with unlimited* talk and text, plus 500MB of the best available speed data per day.**
- ✓ Only pay for the days you use

When added to your unlimited plan. Coverage and data speed vary by destination and may be changed. **After 500MB, data speeds are up to a max of 512Kbps.

Travel eSIM Overview



268m



TRAVEL SIM/eSIM USERS

by 2028, as high roaming charges force consumers to seek out cost-efficient alternatives.

International passenger numbers are also expected to recover in 2024, driving further growth.

49%



GROWTH

in the cost of the average travel SIM/eSIM package, from \$15 in 2024 to \$22 by 2028.

MORE THAN

1.5bn



PETABYTES OF DATA

will be used by travel SIM & eSIM packages in 2028 alone, from just 363 million petabytes in 2024.

WEST EUROPE



is the biggest market for travel SIMs & eSIMs, accounting for the majority of spend (25%) in both 2024 and 2028.

35%



SAVING PER GB OF DATA

by using a travel eSIM in 2024, compared to the average cost per GB of traditional roaming services (\$5.50 vs. \$8.57).

OPERATORS WILL LOSE

\$3.9bn

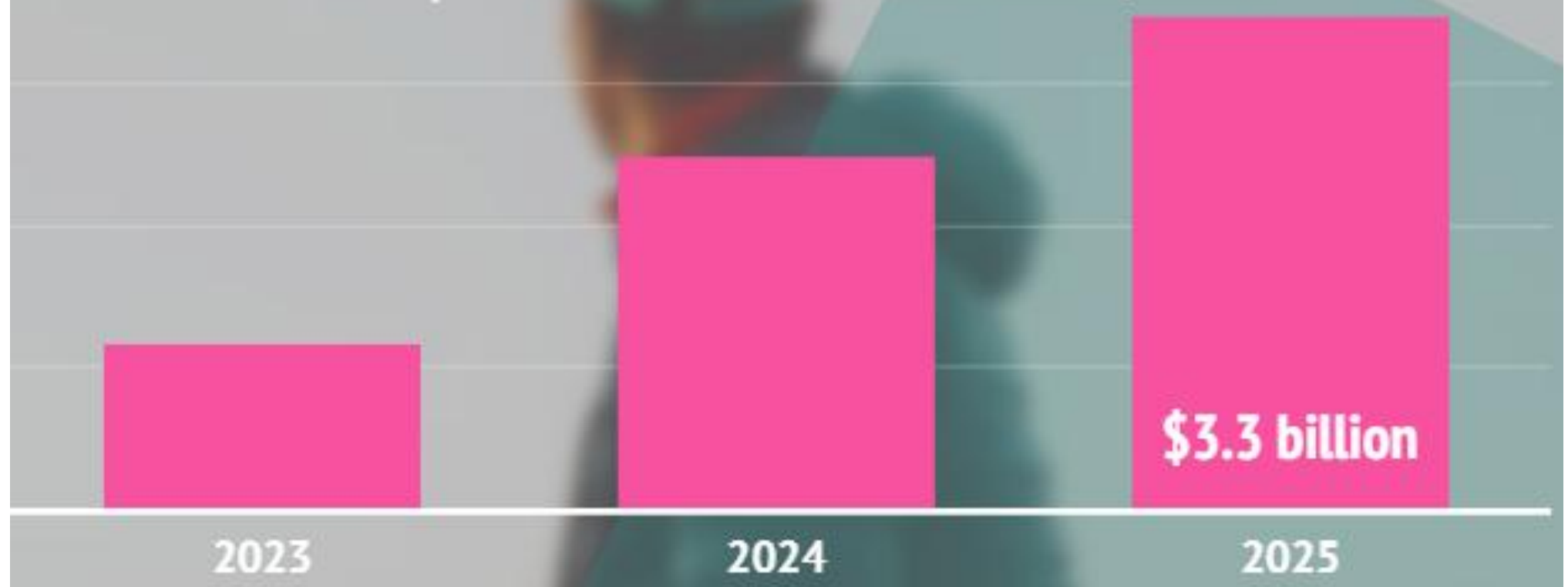


in roaming spend to travel SIM & eSIM packages in 2028.

Operators will see the biggest losses in areas where roaming charges are highest, such as Latin America and Africa & Middle East.

Source: Global Travel SIMs & eSIMs Market 2024-2028

Travel eSIM Retail Spend Annual Growth in USD Billions, Global



Travel eSIM Market

- Research from Kaleido projects Travel eSIM revenue will reach \$3.3B in 2025
- An increase of 165% since 2023
- 28% of total tourist spend on connectivity encompassing roaming, physical SIMs and Travel eSIMs

Source: Kaleido Intelligence https://kaleidointelligence.com/esim-travel-plans-surge-traveller-spending-projected-to-top-3-3-billion-by-2025/?utm_source=chatgpt.com

More Downward Pressure on Roaming Rates



Palau Example

- In late 2023 PNCC started getting pressure from Roaming Partners to lower rates
 - Identified competitor in Palau with just 3 cellsites offering ultra low roaming rates
 - Competitor offered rates as low as \$0.002 per MB – comparable with rates exchanged between large Outbound dominant MNOs
 - Why?
- **Trojan Horse:** Competitor is selling a dummy network in Palau in exchange for cheap access to international networks to sell Travel eSIMs on those carriers networks
- Goal is to gain access to large foreign networks at lowest possible rate – use this to sell Travel eSIMs online for those networks
- Competitor has almost no Inbound roaming revenue so no risk in driving prices down

Travel eSIMs on PNCC's Network

- PNCC investigated travel eSIMs being advertised for Palau and found multiple offers being sold on our own network
- Identified 2 large East Asian MNOs with standard AA12 roaming agreements with PNCC as the originators of the traffic
- Checked the travel eSIM companies – they were not owned by the MNOs originating the traffic

IMSI Leasing & Aggregators



IMSI Leasing

- Currently many carriers are leasing IMSI's and allowing the third party leasing them to access roaming partners' networks via standard AA12 agreements – this is **FRAUD**

Aggregators

- Aggregators generally do not have subscribers of their own – they sell network access to Travel eSIM companies / websites who sell to the consumer/subscriber
- Some Aggregators build their own core networks despite having no RAN or subscribers
- They use this PLMN to enter roaming agreements with carriers to sell travel eSIMs onto their networks
 - Examples here are Telna & 1Global
 - Depending on the structure of the AA12 (if reselling is allowed/intended) this can be legitimate
 - Some business units of MNO's like BICS (Belgacom/Proximus) are also in this business
- Other Aggregators do not enter roaming agreements directly with carriers and instead leverage other donor carriers existing AA12 agreements
- In all cases unless the standard AA12 is modified to allow third party access the sale of access to the VPMN via IMSI leasing is fraud

Standard AA12 Roaming Agreement



Can a Carrier leverage Standard GSMA AA12 Roaming Agreements to sell Travel eSIMs?

- In a standard unmodified GSMA AA12 agreement currently Carrier A could sell travel eSIMs online onto Carrier B's network if they are selling direct to the consumer, ie. they claim the travel eSIM buyer is their customer (grey area)
- The AA12 agreement is clear on which corporate entities can access the VPMN: the signatories and their 'Affiliated Companies'

Standard AA12 Roaming Agreement Clause 3.2:

3.2 An "Affiliated Company" of a Party means any other legal entity:

- 1. Directly or indirectly owning or controlling the Party, or*
 - 2. Under the direct or indirect ownership or control of the same legal entity directly or indirectly owning or controlling the Party, or*
 - 3. Directly or indirectly owned or controlled by the Party,*
- For so long as such ownership or control lasts.*

Ownership or control shall exist through the direct or indirect ownership of more than 50 % of the nominal value of the issued equity share capital or of more than 50 % of the shares entitling the holders to vote for the election of directors or persons performing similar functions.

Standard AA12 Roaming Agreement



Customers must have equivalent services on HPMN

- Clause 6.1.2 (Service Access on HPMN and VPMN): Parties to a standard AA12 agree that their roamers on the VPMN will have ‘valid legal relationships’ on their HPMN
 - 6.1.2 The Services made available to individual Roaming Customers shall only be those for which the Roaming Customers have valid legal relationships in their HPMN.
- Travel eSIM provider must allow equivalent services on their home network
 - Aggregators with their own Core but no RAN cannot do this
 - Many travel eSIMs using a donor network’s roaming agreement will not be provisioned to allow service on the HPMN (harder to test!)
- If SIM registration is required in the HPMN country and the Travel eSIM seller has not registered the customer then it is not a valid legal relationship on the HPMN

No Third Party Access

No other third party network is allowed access to either network under the standard AA12 clause 12.3:

12.3 Neither Party shall transmit to the other Party traffic originating from any third party network unless such traffic is explicitly covered by an interworking agreement.

Pacific Travel eSIM Comparison



7 Day Plan Comparison					
Country	Local Operator	Local Operator	Travel eSIM Provider		eSIM Provider
Guam/CNMI	All Operators	15	3	-80%	Supera
Wallis & Futuna	Manuia	9	4.33	-52%	Simfinity
Papua New Guinea	Digicel	5.15	4.5	-13%	Airalo
Vanuatu	Both Operators	5	4.5	-10%	Airalo
Nauru	Digicel	4.8	4.5	-6%	Airalo
Samoa	Digicel	4.69	4.5	-4%	Airalo
Samoa	Vodafone	4.69	4.5	-4%	Airalo
Tonga	TTC	4.2	4.5	7%	Airalo
Tonga	Digicel	4.06	4.5	11%	Airalo
Fiji	Vodafone	3.94	4.5	14%	Airalo
French Polynesia	Vini	7.5	9	20%	MobileSIM
Papua New Guinea	Vodafone	3.6	4.5	25%	Airalo
Fiji	Digicel	3.5	4.5	29%	Airalo
New Caledonia	Mobilis	13.5	17.95	33%	Roamless
Kiribati	Oceanlink	5.43	9.5	75%	AlooSIM
Solomon Islands	BeMobile	5.02	8.99	79%	Saily
Papua New Guinea	bMobile	2.4	4.5	88%	Airalo
French Polynesia	Vodafone	4.78	9	88%	MobileSIM
Solomon Islands	Our Telekom	3.58	8.99	151%	Saily
Kiribati	Vodafone	3.2	9.5	197%	AlooSIM
Palau	PNCC	8	42.08	426%	YoHo
Cook Islands	Vodafone	10	56.75	468%	SIM Local / Smartroam VN
Marshall Islands	MINTA	5			
FSM	FSMTC	5			
Tuvalu	Tuvalu Telecom	6.41			
Niue	Telecom Niue	8			
Tokelau	Teletok	5.99			

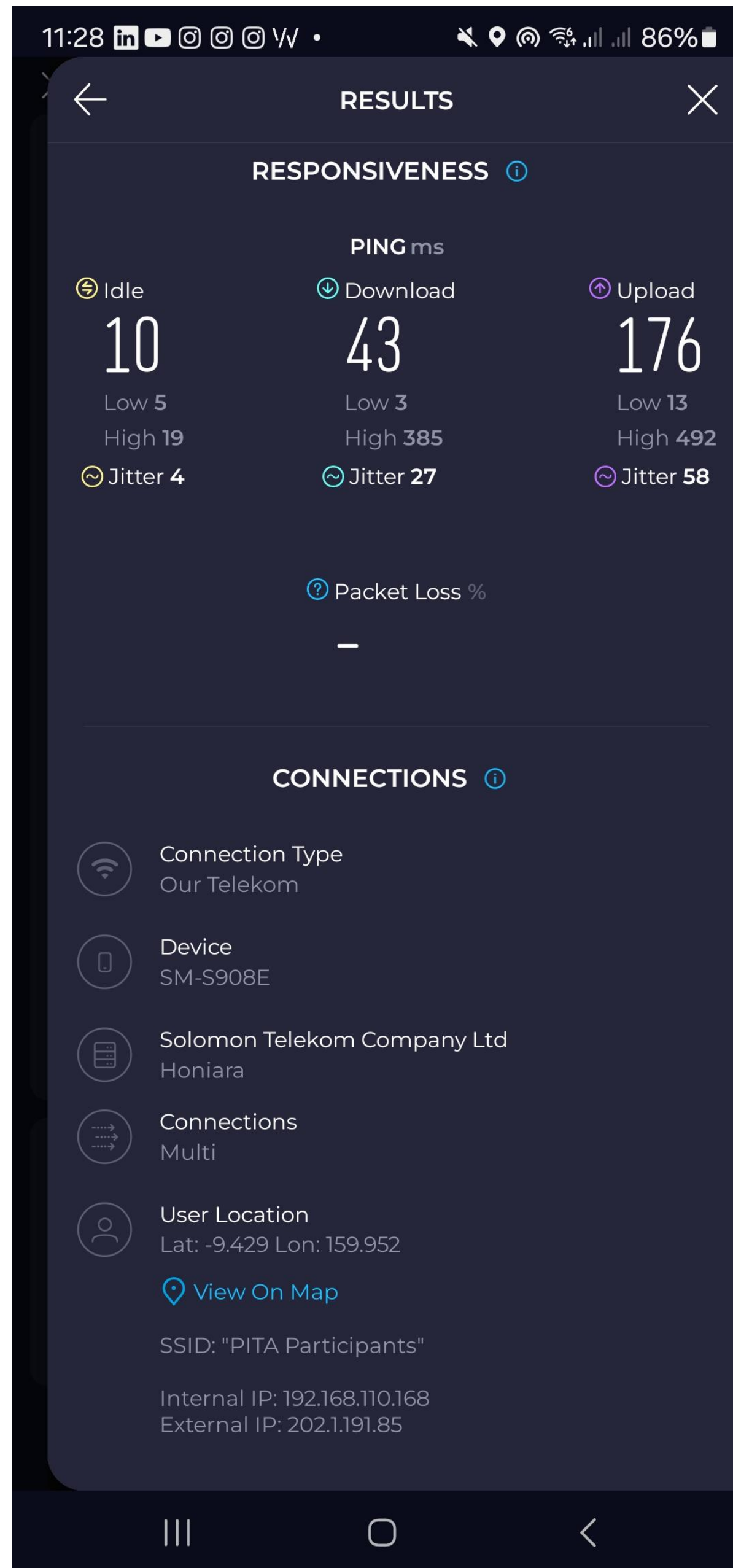
Negative numbers show the % by which Travel eSIM options are cheaper than direct local offers from the MNO

Positive numbers show Travel eSIM offers are still more expensive than direct local offers

Blanks show no Travel eSIM offer available

Note: Cost of physical SIM not considered

How to Find Travel eSIM Fraud



Test Travel eSIMs to find originators

- Go to <https://esimdb.com> and search your country
- If unwanted travel eSIMs are identified on your network / in your country
- Buy Travel eSIM provider's cheapest plan and activate the eSIM on your phone
- Set it to be your Mobile Data and turn off WiFi and any VPNs
- Go to Speedtest.net app (not webpage) and run a speedtest
- Click 'Detailed Result' and under 'Connection Type' will be the name of the originating carrier (not the travel eSIM company)

Stopping Travel eSIM Fraud



Engage IMSI Donor MNO

- Engage originating carrier to inform and request immediate cessation
- Send the originating carrier a letter (PNCC template available) informing them of the fraudulent activity
- Require they confirm if the Travel eSIM company is an 'Affiliated Company' under the AA12
- Require a log of all Travel eSIMs that have been sold on your network and revenue generated from same (claim this back)
- Inform them that failure to act will see termination of roaming agreement among other actions

Customise Clause 6 of AA12 to include clear No Travel eSIMs/No Reselling. Sample:

- *Both Parties, as HPMN, acknowledge and agree that this IOT Discount Addendum shall apply only to traffic generated by their subscribers residing within their geographical area and in possession of a valid service subscription.*
- *Additionally, both parties, as HPMN, agree not to offer or extend any part of this Addendum to any Third Party that is not an Affiliated Company.*
- *Any infraction of this provision shall be treated as a material breach.*

Maximising Visitor Revenue



Controlled Decline of Rates with Commitments

- For any rate decrease ensure a revenue commitment at least equal to the prior 12 months rolling
- Tourism is not back to pre-covid but continues to increase – take into account when negotiating commitments (higher)
- In a competitive market don't go lower than you have to - talk to your Competitor and your Regulator

Asymmetrical Rates

- The costs of doing business in Pacific Island nations is higher than our roamer donor markets
- The ARPU's in Pacific Island nations are lower than our roamer donor markets
- Why do we agree to symmetrical bilateral roaming agreements?

Increase Quantity of Roaming Agreements

- Meet Roaming Partners at GSMA WAS for in-person meetings with most international carriers
 - For PNCC GSMA WAS 2x p/a at cost of 0.1% of Total Opex protects 5% of Total Revenue
- Modify all AA12's to make clear no reselling and state penalties for breach
- Pacific wide eSIM adoption, block aggregators, potentially aggregate our own – own your own customers

PITA Member Collaboration



Pacific-wide eSIM adoption to maximise direct tourist eSIM sales

- Capture inbound visitors via own eSIM maximises share of visit revenue
- SMDP+ from Tier 1 SIM vendors and specialists are affordable
- Hosted SMDP+ options even cheaper
- Maintain SIM key security

Regional Pricing Approach

- All PITA members are Inbound Dominant markets – agree a regional approach to pricing including sharing guidance on rates
- The costs of doing business in Pacific Island nations is higher than our roamer donor markets
- The ARPU's in Pacific Island nations are lower than our roamer donor markets
- Why do we agree to symmetrical bilateral roaming agreements?

PITA Member Inter Roaming Agreement Framework

- PITA member inter-roaming with no resale, no domestic roaming and no online sales outside market
- VPMN Market's Prepaid Daily Plan +X%
- Protects HPMN daily rate and encourages inter-island roaming

Sulang!

GSMATM

Technology Summit
Australasia

Private Networks

December 2025

Hosted by



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Technology Summit

Australasia

Private Networks



Moderator

David Turkington
Head of Technology, APAC
GSMA



Ian Ross
Head of Enterprise, Australia
and New Zealand
Ericsson



Edward Ting
Senior Director
Askey



David Montillet
Senior Solution Architect
Airbus



Paul Johnson
Partner Sales Manager,
Mobile Networks, Oceania
Nokia



Technology Summit

Australasia

Private Networks: Welcome



Moderator

David Turkington
Head of Technology, APAC
GSMA

Technology Summit

Australasia

Private Networks: Pushing further with 5G Teleremote Dozing

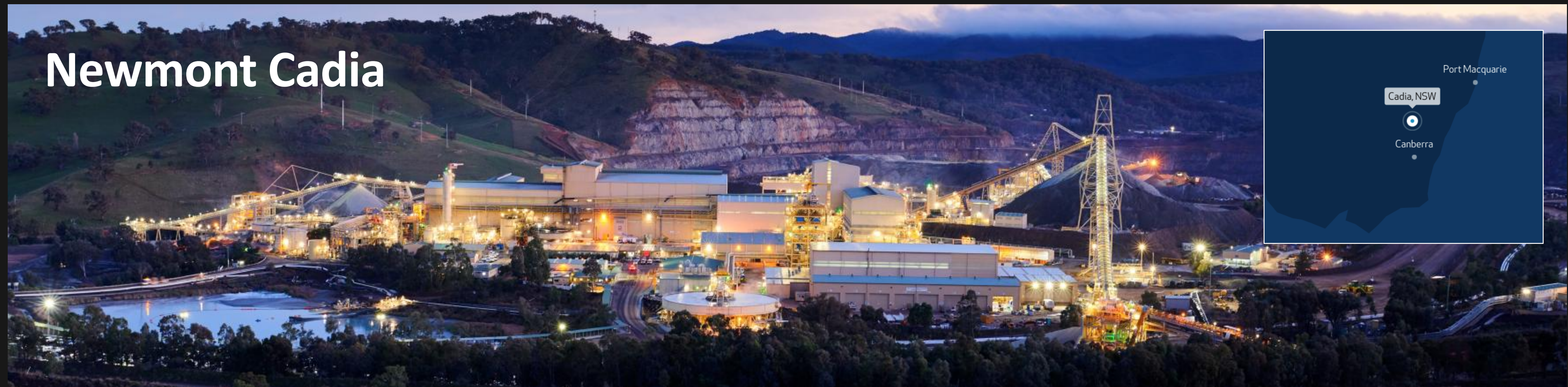


Ian Ross
Head of Enterprise, Australia
and New Zealand
Ericsson

Pushing further with 5G Teleremote Dozing

Insights from the world's first production **5G Teleremote Dozer Push** and how Newmont is using 5G to take them further into safer, smarter mining than has been possible with Wi-Fi or 4G.

- World's leading gold company. Producer of Cu, Zn, Pb, Mo and Ag
- World-class portfolio of assets in Australia, Papua New Guinea, Africa, Latin America & Caribbean, and North America



- One of the world's largest gold and copper operations
- Underground panel cave, supported by surface gold, copper and molybdenum processing

World's first production 5G Teleremote Dozer Push

Tailings Dam Remediation Project



Background
Challenges
5G Solution
Outcomes



Project Background

2018 NTSF Embankment Failure

March 9, 2018



March 1, 2018



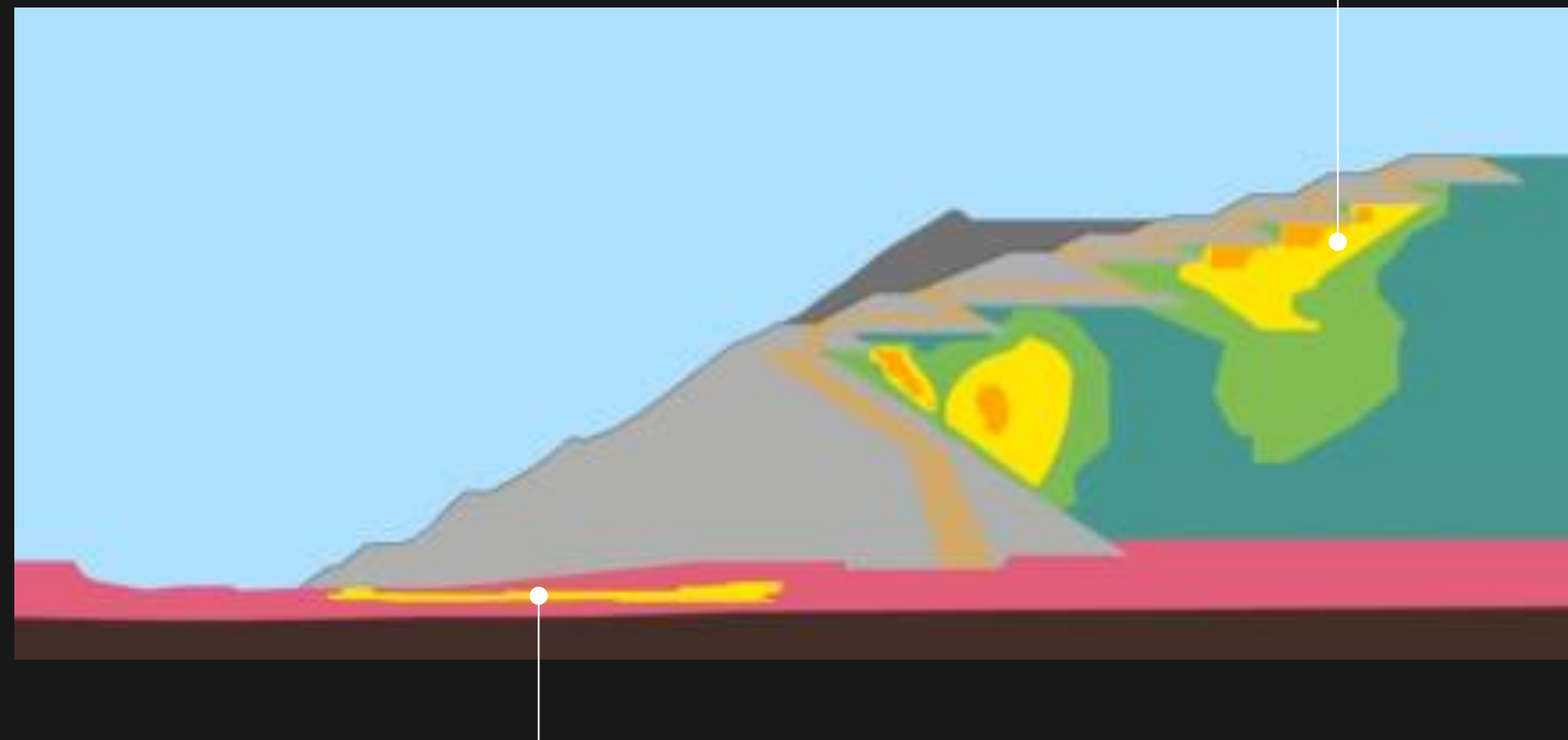
March 9, 2018



Underlying Geomechanical Factors



- Earthquake-induced liquefaction of tailings
- Water-logged soil loses strength
- Loading on embankment exceeded resisting force of slope



- Strain weakening in foundation
- Loss of shear strength when loaded beyond peak loading
- Embankment gradually moving forward

8.5M+ m³ of material to move



Challenges

Challenge 1

Limited Time



Pit / PTSF Capacity Utilisation

September 2018



December 2021



August 2025



Challenge 2

Low Factor of Safety



- Lower than 1.3 for manned equipment (ANCOLD)
- Dozers need to be remotely operated

Challenge 3

Wireless Performance Requirements



>6Mbps
UL throughput

<50mS
Latency

16 machines
>64 cameras

132Mbps
Uplink throughput

<1.5s
Disconnect

<2
lost packets

Auto-brake & restart trigger



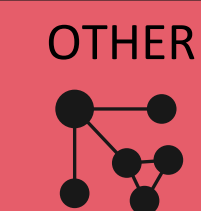
2.4GHz
Exhausted.
Max 2 Dozers



20-30Mbps UL



5GHz
Exhausted.
2.4GHz backhaul



5GHz
Exhausted.
2.4GHz backhaul



1.8GHz
Spectrum in-use
Insufficient UL



76Mbps UL

Fundamental Wi-Fi Technology Issues



SHORT OPERATING DISTANCE

- **Slots limited to 100m length**
- **Unreliability increased >100m**
- **FoS line needed to be moved regularly**
- **Moving & repositioning trailers**
 - Loss of 1-2 hours production

CONNECTION INSTABILITY

- **Line-of-sight dependence**
 - Minor obstructions, rock bunds, changing angle, other machines caused drop-outs
- **Weather sensitivity**
 - Rain, wind, cloud degraded signal stability
- **Camera feed loses near edge**
 - Increased machine harm potential
- **Outages could take up to 6 hours to troubleshoot**



5G Solution

5G was the Answer

with Ericsson Private 5G



5G FOR DOZING

Access to more radio spectrum (90MHz)

More Capacity

Greater uplink efficiency

More speed

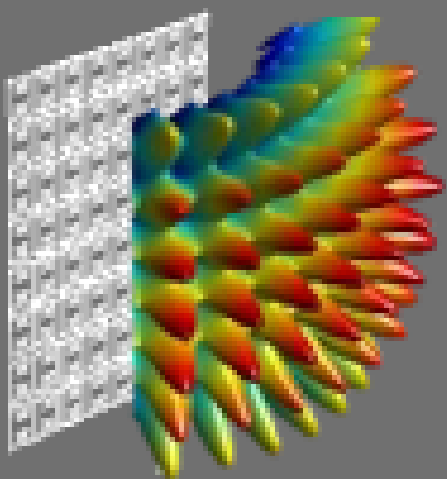
New 5G radio technologies

Extended range

Ericsson Private 5G AAS & M-MIMO

64T64R Radios

Beamforming & Beamsteering



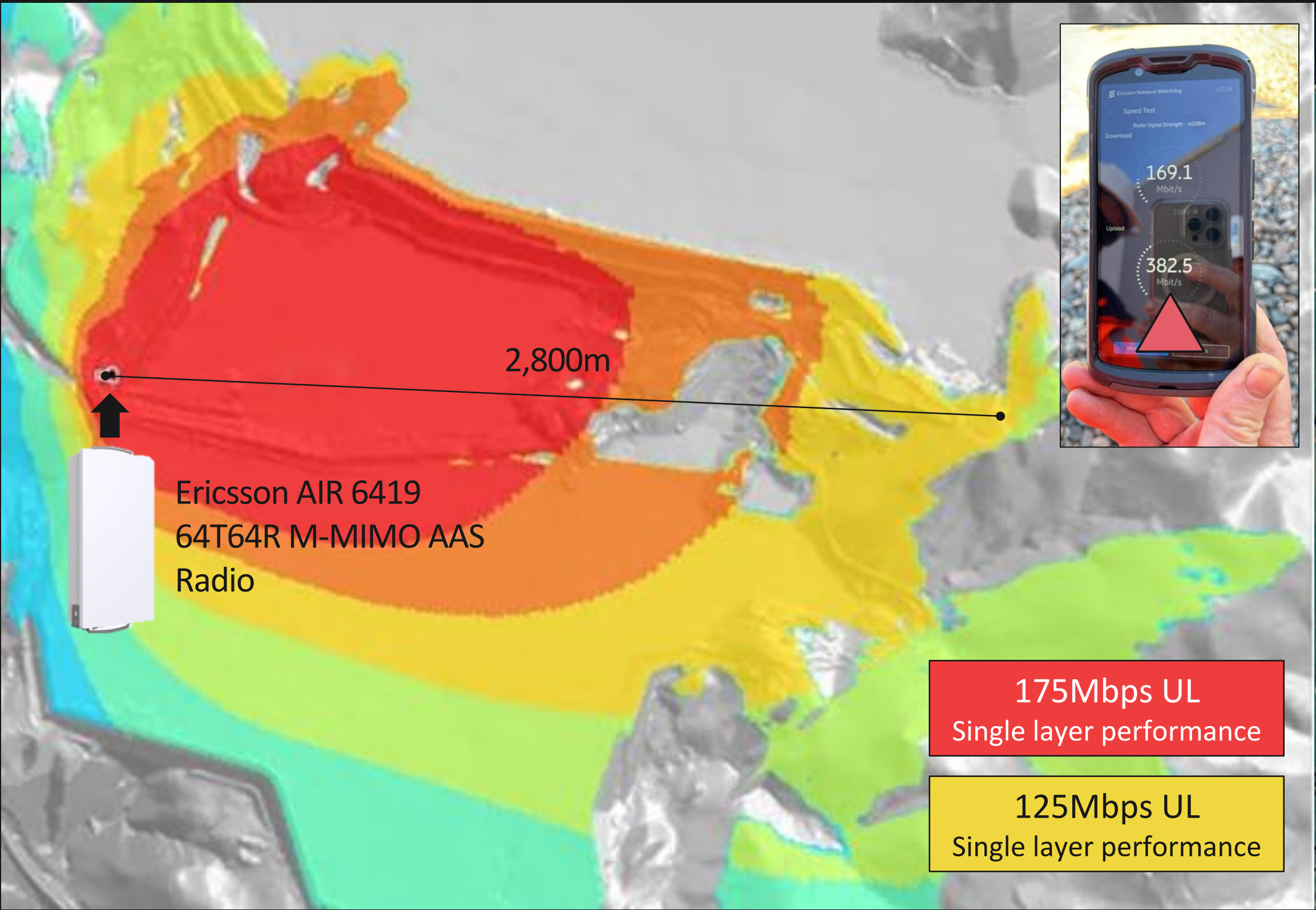
Ericsson Uplink Booster

x10

Spectrum Re-Use

x3

COVERAGE & PERFORMANCE



Outcome

Production Insights

50% increase in dozer push capability
Capability increase up to 500% with fleet expansion
Grow to other machines inc. trucks, excavators

Extension of operational range
From ~100 meters to ~3,000 m non-line of sight
Uplink speeds preserved at >100mbps

Up to 25% more material moved per shift
Increase from 10K m³ target per day to 12-13K m³
Eliminate pauses to reconfigure network

Simplified Deployment and Management
Minimal technical skill to stop/stop/relocate
Specialist network engineers not needed



Fewer drop-outs and disconnects

Longer continuous operating stints
Fewer interruptions and hours-long outages

Improved machine safety

Not left blind at critical times, better hazard awareness
Reduced wear from sudden emergency stops

Operator wellbeing

Less frustration and stress chasing connectivity issues
Out of harm's way without sacrificing productivity

More natural operating experience

Less delay between controls and machine response
Closer to conventional control

Replication to 16 x
autonomous drills at
Newmont Boddington, WA

A new era of limit-free uplink connectivity



“More time pushing earth,
not chasing signal.”



tinyurl.com/5GDozerPush



Private Networks: How 5G Small Cells Improve Private 5G



Edward Ting
Senior Director
Askey

5G Private Network Backpack

Askey launched "5G Private Network Backpack",

Agenda

- Askey and Small Cell Introduction
- Advanced Technical Features of Small Cell
 - 5G LAN
 - AI for RAN (Energy Saving)
- Askey's Private 5G Network Solution



Askey At a Glance

ASUS

Member of
ASUSTEK Group

5430+

2023
Employment

1600+

R&D Engineers
Worldwide

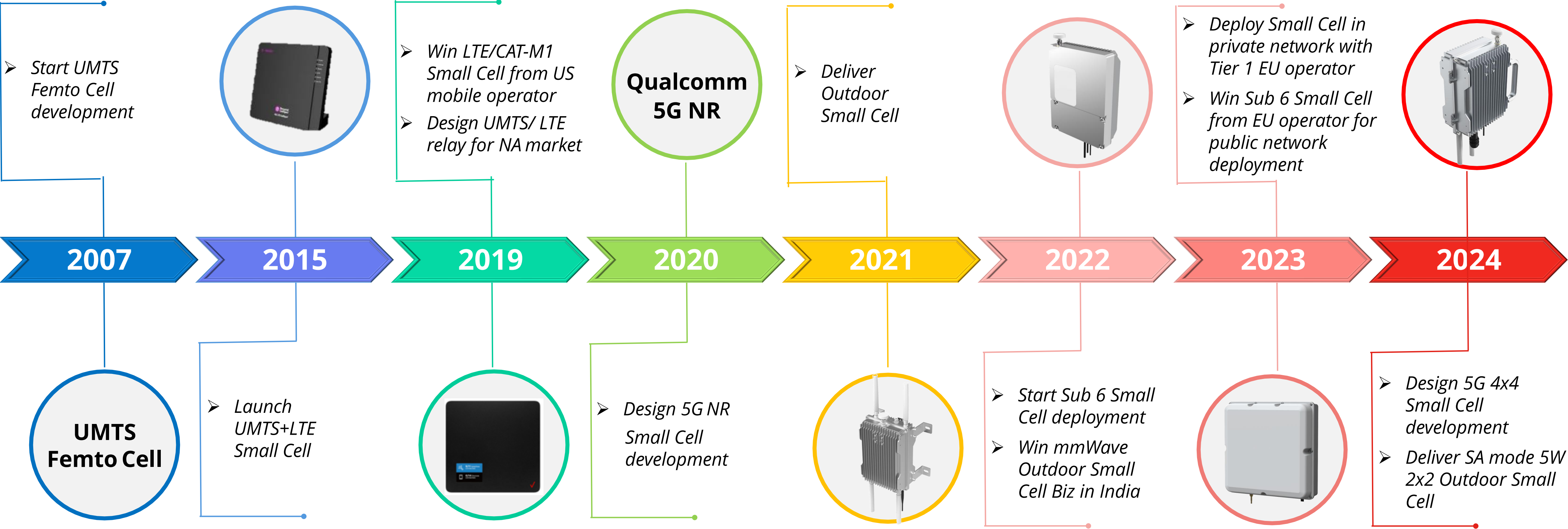
3

Advanced
Manufacturing Sites

International Presence



Product Innovation Milestone



3GPP Experiences 15+ years UMTS/LTE/5G NR Experiences for Small Cell Devices
3 Million+ units Product Shipping Record

Small Cell Interoperability Testing Experience

AT&T SAMSUNG
Hewlett Packard Enterprise CISCO
Druid NEC ERICSSON
obvios. fw NOKIA
Meta
Cumucore
Google
Saviah
Connecting Intelligence

Core

中華電信 Chunghwa Telecom
verizon Telefonica
COMCAST T STAR 台灣之星
KDDI
Charter COMMUNICATIONS free T
SoftBank
dense air 遠傳 FET
NTT EAST 亞太電信 GT 4G

Telco/Cable

Acelleran 翔宇科技 EAGLETEK
obvios. node H
firecell MESH LINK ITC
celona
igt 互動國際數位 Interactive Digital Technologies
WAYE IN
Panasonic KYOCERA
ADLINK
Frequenc 3 NEC

SI/Others



Askey 5G Private Network Solution



ASUS Smart Factory



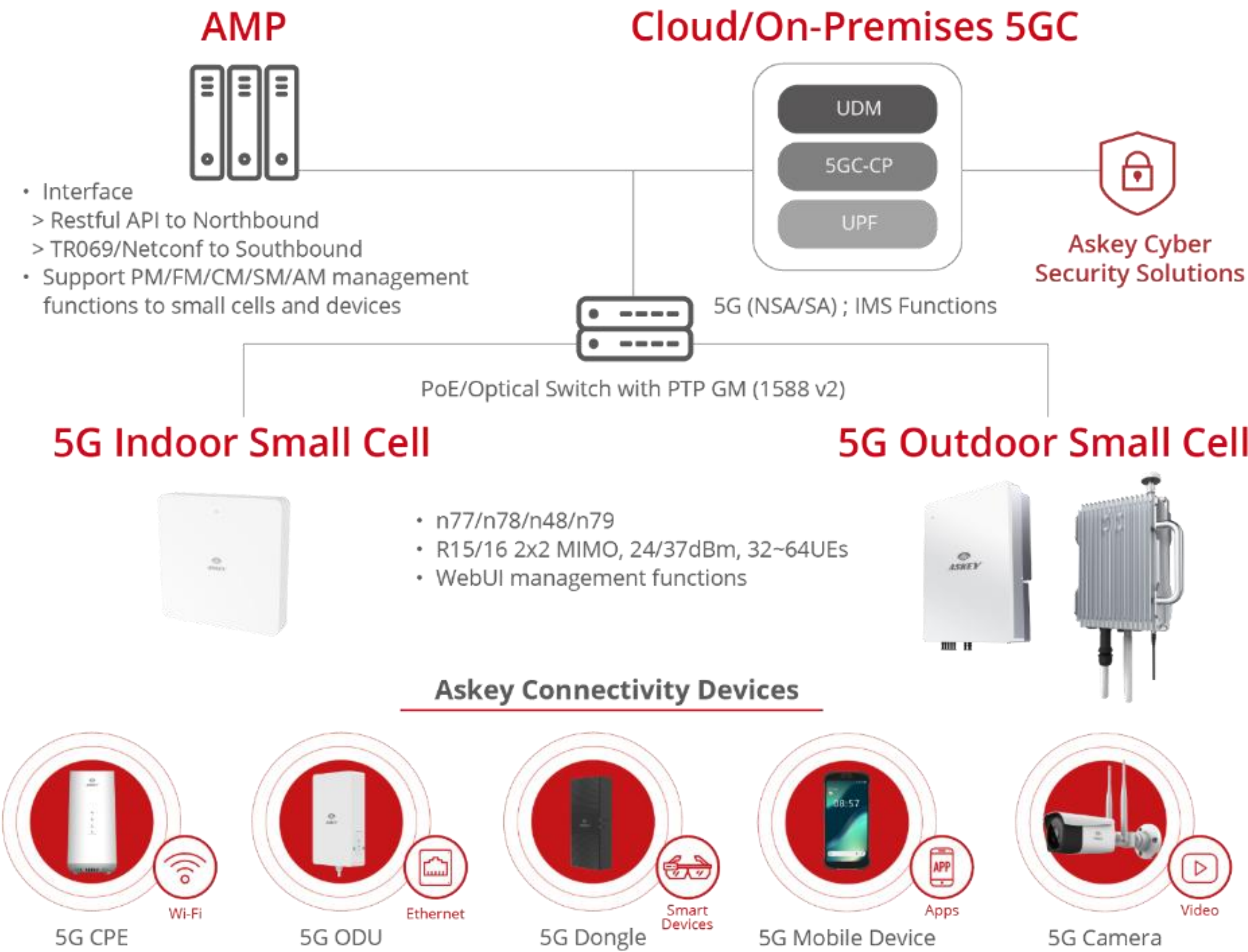
Askey Smart Factory



NTT-East Niigata 5G Application



Smart 5G Logistic Application



Basic Product Portfolio

High
16 core
NPU

Middle
8 core NPU

Entry
4 Core
NPU

250mW	5W
 SCU2050	 SCU2060 SCU2070 SCU2080
 SCE2200	
 SCU2140 SCE4110N SCE2120	

2x2 Small Cell

250mW	5W
 SCU5000	 SCU5050

↓

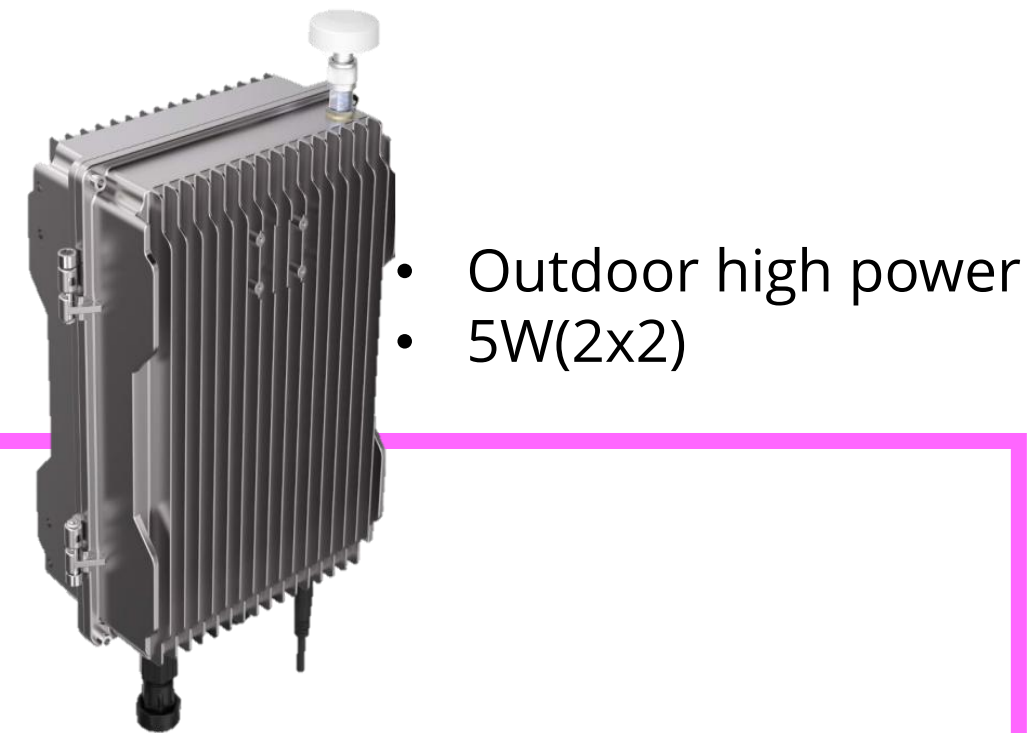
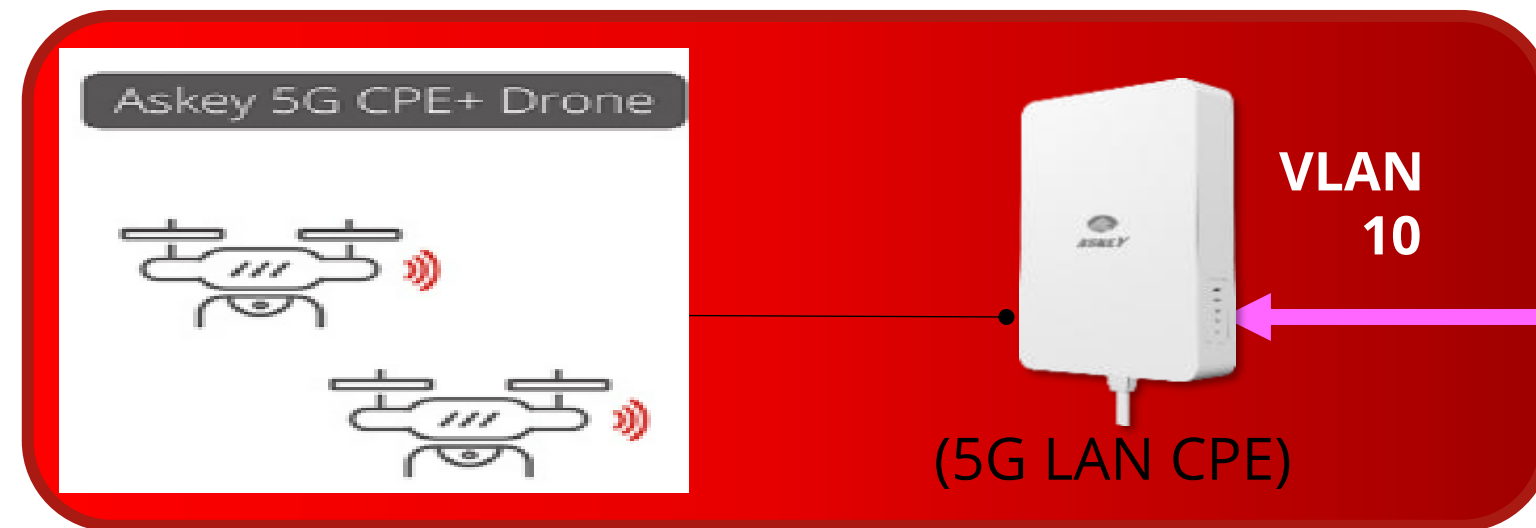
Support different bands including n77,n78,n48,n79 for 2x2 and 4x4

→

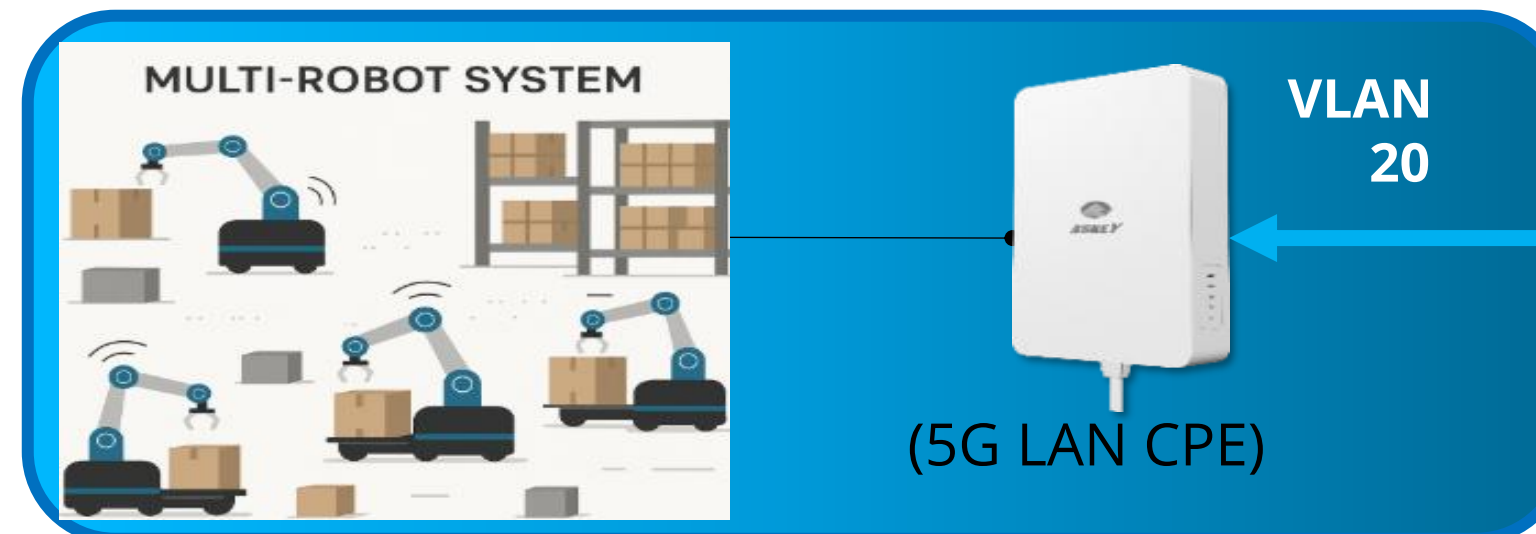
4x4 Small Cell

Use Case Examples for 5G-LAN Functionality

■ Use Case#1 : Drone Surveillance



■ Use Case#2 : Multiple Robot Control



5GC

Router/Switch

VLAN 30

VLAN 20

VLAN 10

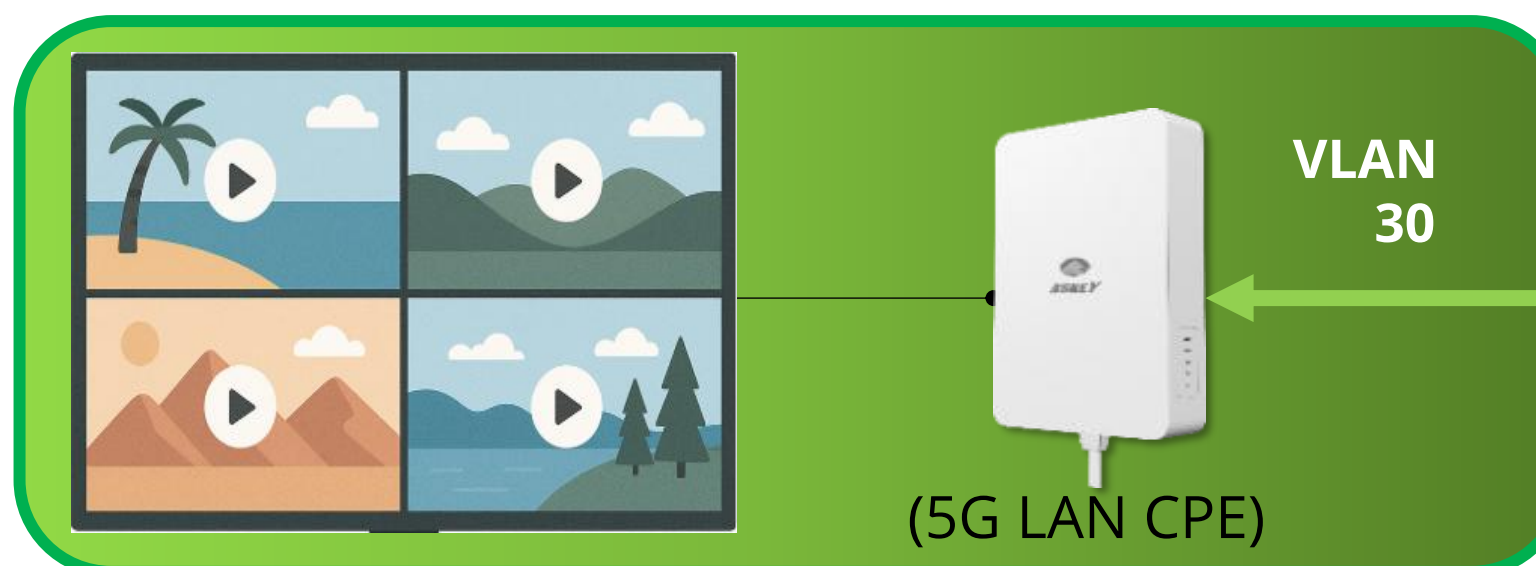
Video

Robot

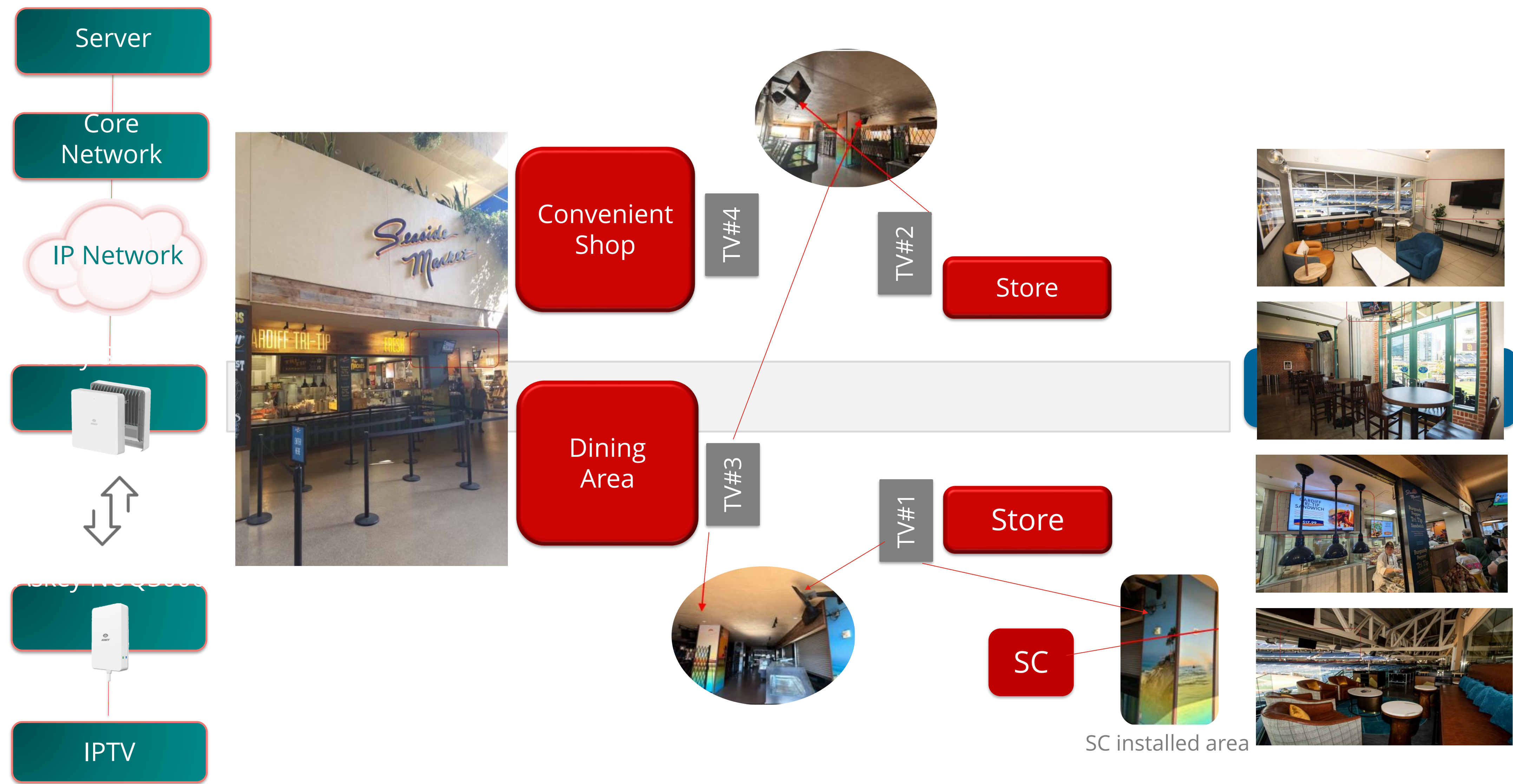
Drone

AI Edge Computing Server

■ Use Case#3 : Video Multicasting



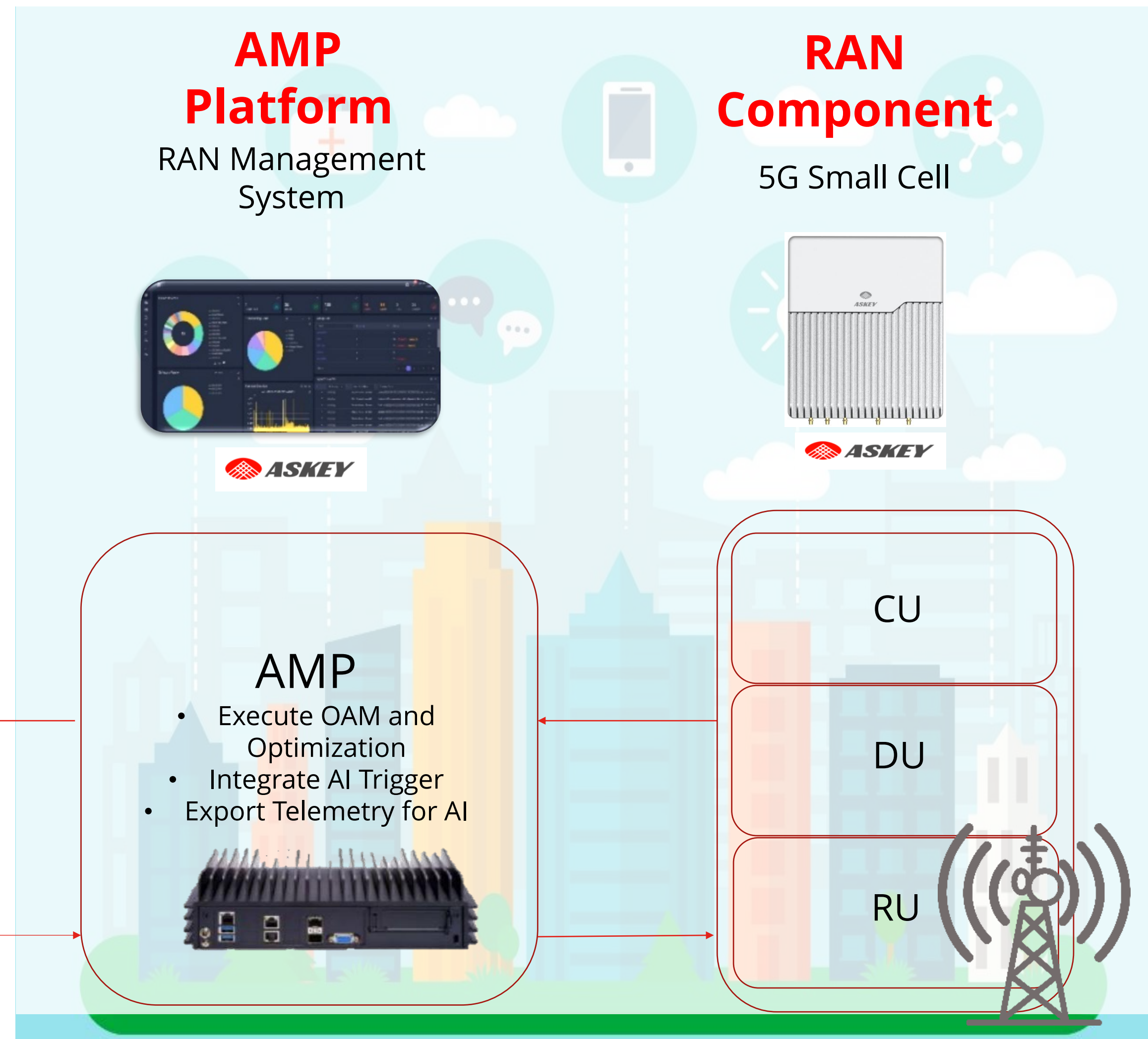
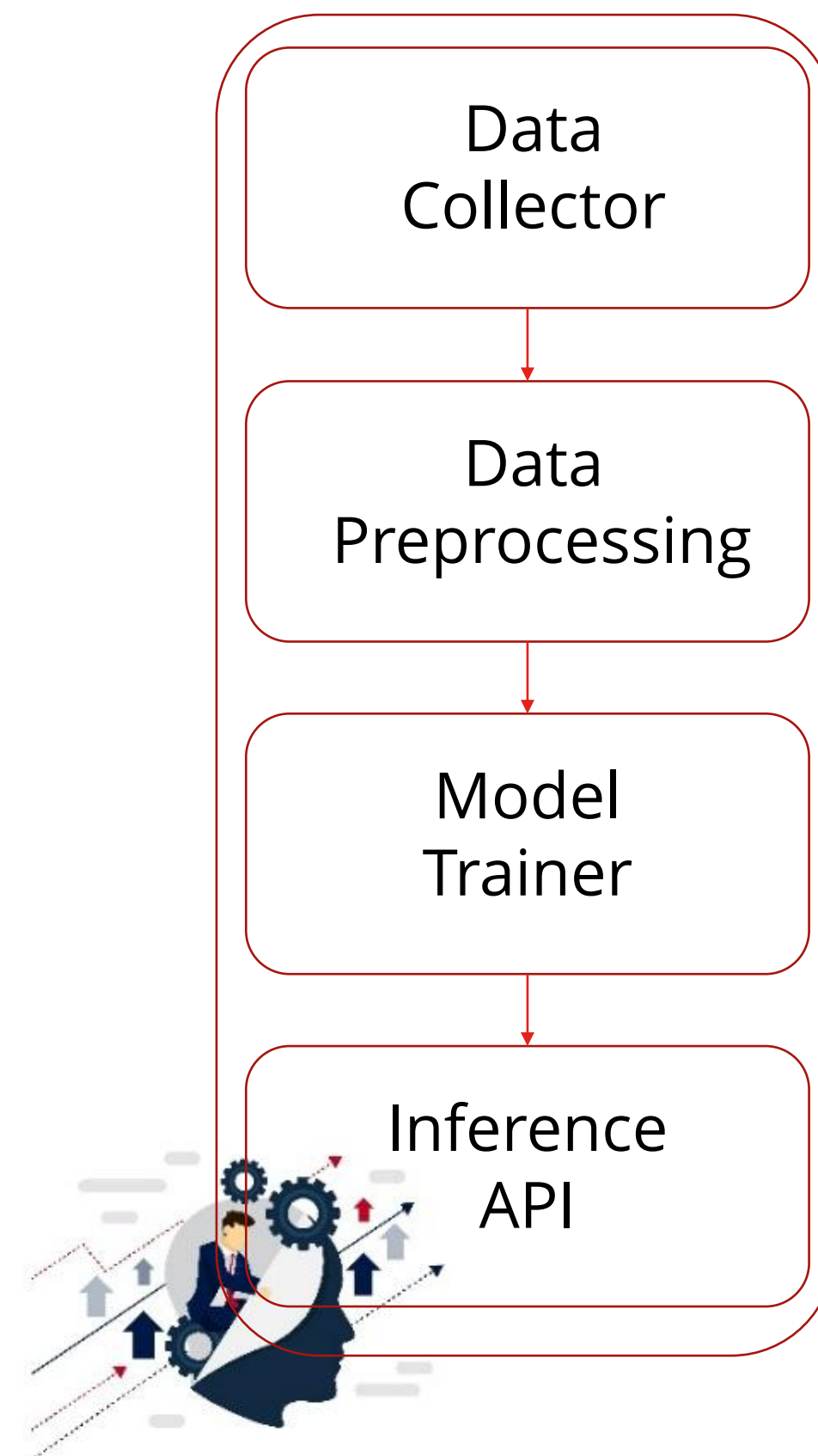
Stadium Use Case



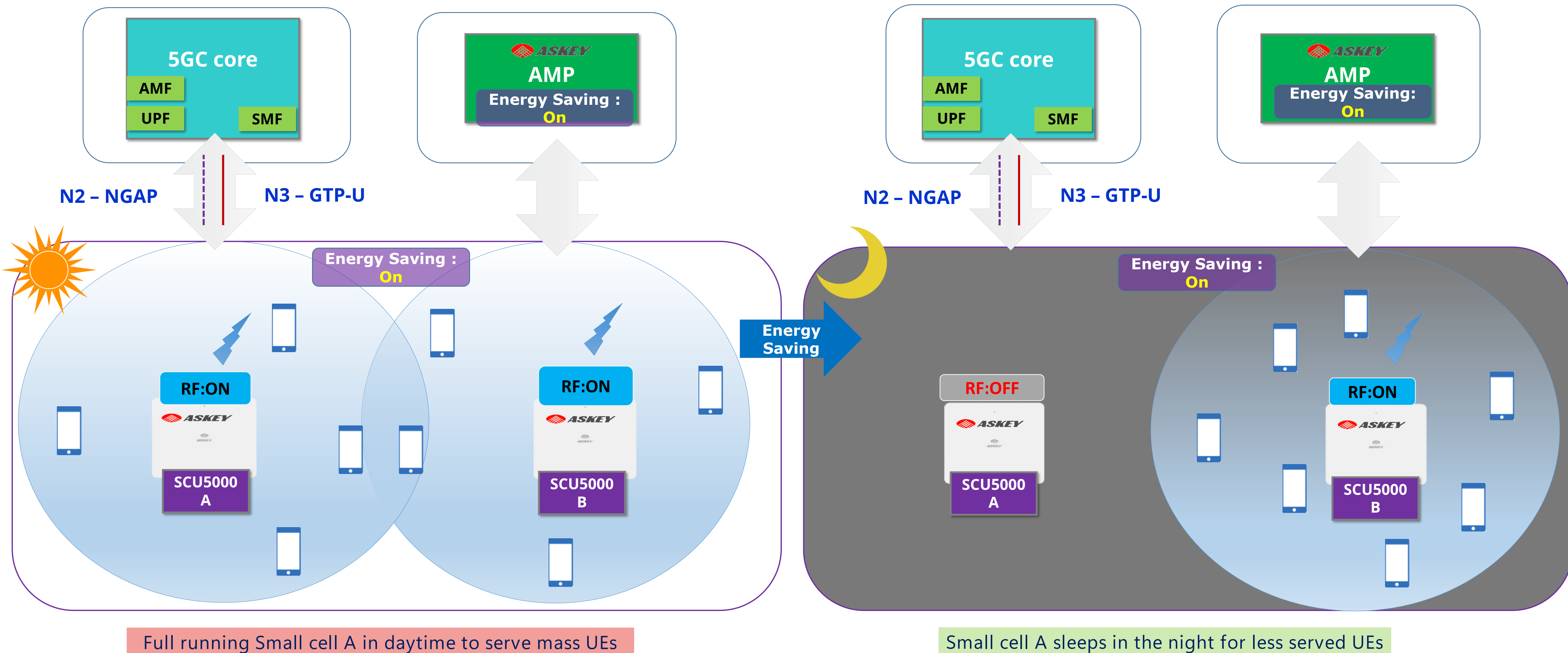
Conceptual AI-for-RAN Approach to Energy Saving Optimization

AI Platform

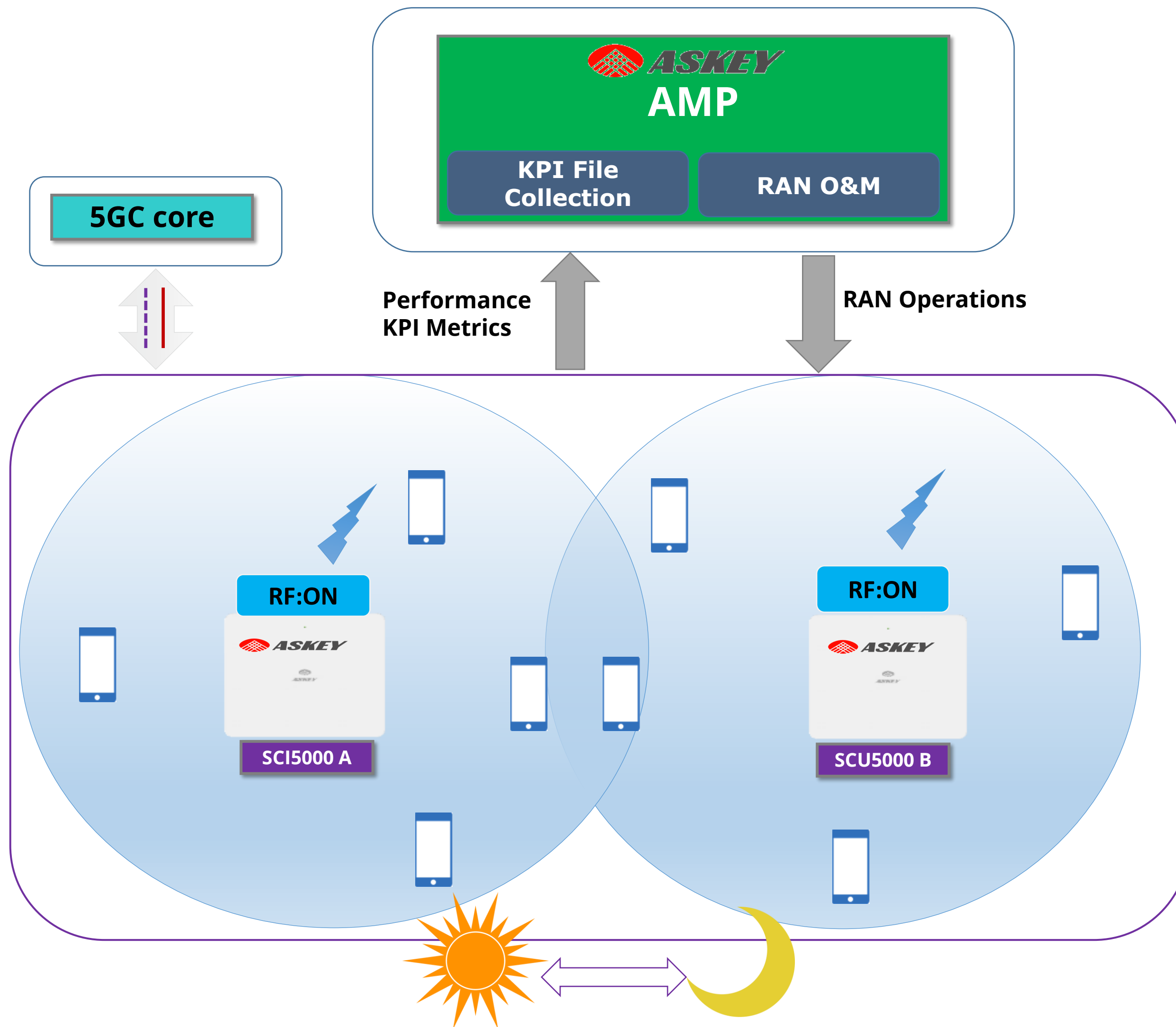
- Energy Saving for RAN
- Performance Improvement for RAN



Energy Saving with AI - 1/2



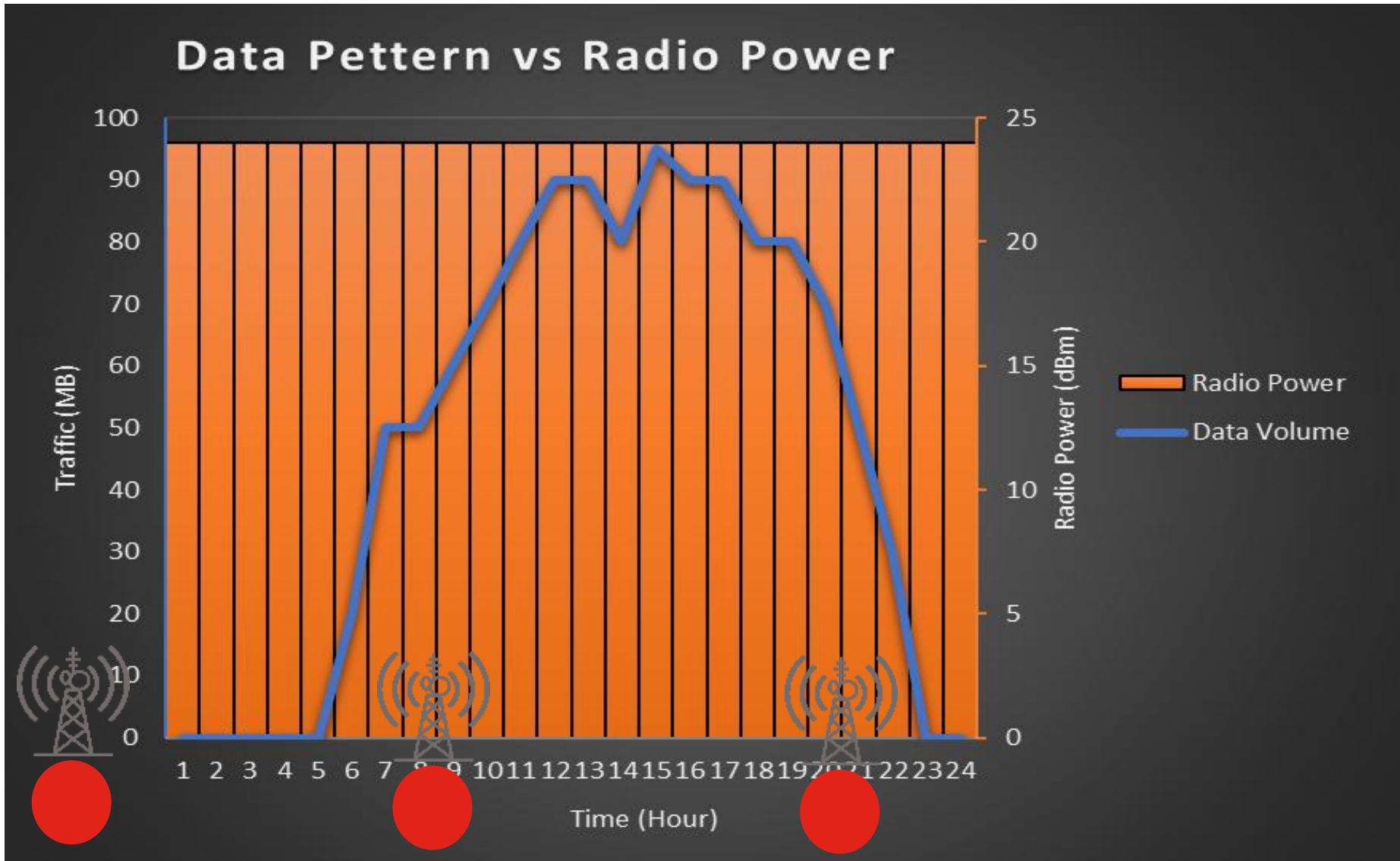
Energy Saving with AI - 2/2



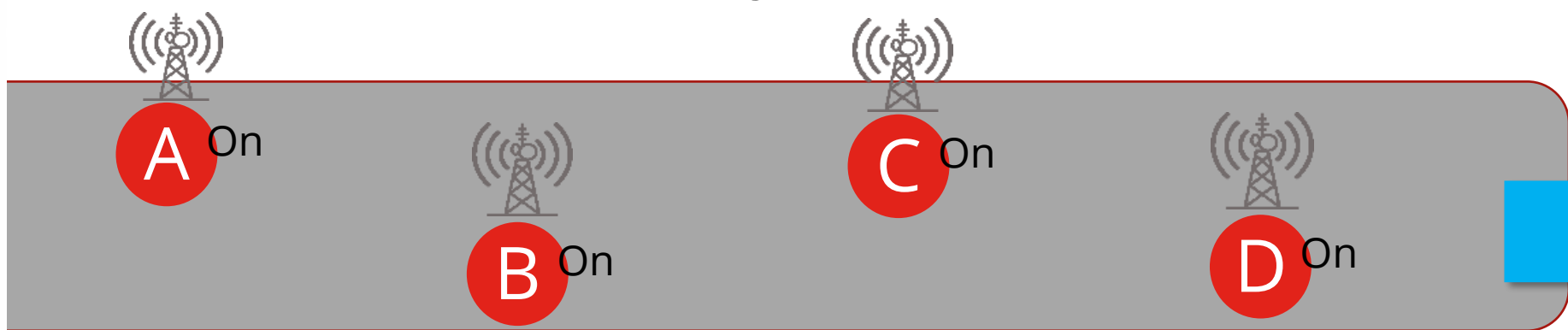
- Askey AMP monitors and predicts the usage of mobile network equipment based on the KPI metrics reported by Small cells
- The different energy-saving policies are applied to the Small cells to achieve the effect of reducing energy consumption for the network
 - ✓ Reduce Tx Power
 - ✓ Turn-off Radio
 - ✓ Activate Sleep Mode
- Comparing with fixed scheduling, Askey AMP with KPI monitoring prevents Small cell from entering energy-saving mode when the network is still in high loading which provides better balance between performance impact and energy management.
- **Resulting in a 20 ~ 30% reduction in energy consumption per week**

AMP with AI Enabling for 5G RAN Power Saving Proposal

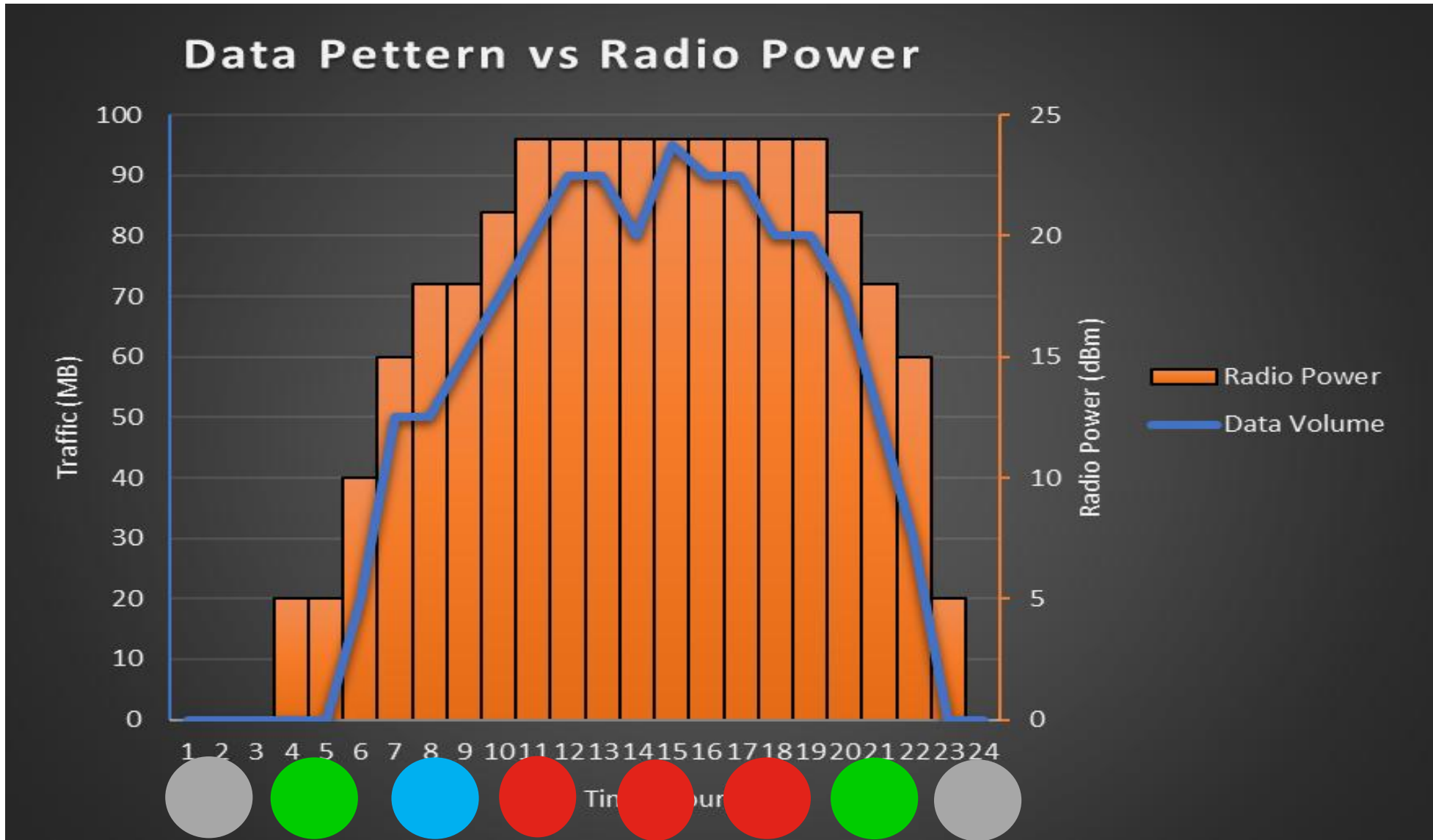
(Figure1) Without AMP



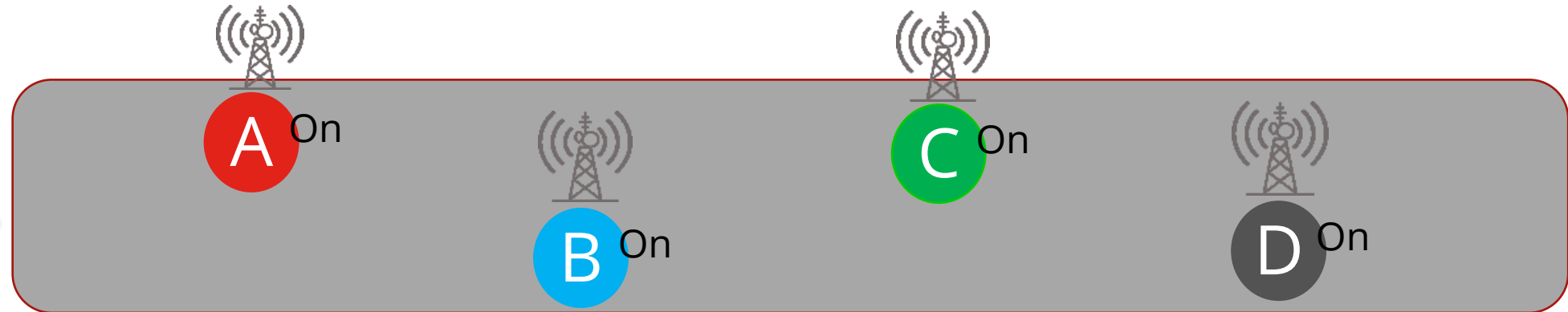
Full Power always "On"



(Figure2) AI enabled on AMP



Power-on-"Demand"



A High Power (Load>75%)

B Medium Power (Load<75<20%)

C Low Power (Load<20%)

D Power Off (Load=0%)

The Diversity of 5G Private Network Solutions

Suitcase Solution  The image shows a black ASKEY suitcase with its handle and latches. To the right, the suitcase is open, revealing internal components. Labels point to a '5G Dongle', '5G ODU', and '5G Small Cell'. Below these, a diagram shows an 'Edge Server' connected to 'The Second Layer'.	Backpack Solution  The image shows three views of a green and black backpack-mounted 5G private network solution. It features a large antenna on top and a ruggedized device on the front.
Application Scenarios  - Useful tool for Exhibition Demonstrations  - Robust Indoor Small Area Coverage  - For Remote or Signal-Challenged Area Applications  - Resilient Military Communications  - Earthquake Disaster Response  - Fire Disaster Response  - Typhoon Disaster Response	
Features - All-in-One Suitcase Including Small Cell, 5G ODU, 5G Dongle, Edge Server - Portable - Plug and Play - Robustness - Compactness - Portability and Mobility - Heat Dissipation - Waterproof	
Size & Weight - W480 x D380 x H200 mm 8.8 kg - W296 x D153.5 x H638 mm - Without frame carrier weight : 15kg - With frame carrier weight : 18kg	

Q & A

Edward Ting(Taiwan/New Taipei City)
Edward_ting@askey.com

Gary Yuen (Australia/Melbourne)
Gary_Yuen@askey.com





Manufacturing Experiences.
Since 1989.

Private Networks: Private Networks for Critical Communications



David Montillet
Airbus Public Safety and Security
Airbus

Airbus Public Safety and Security

We accompany our customers in their transition from narrow to broadband providing them with end-to-end secure and cyber-resilient mission critical collaboration solutions and services.

Nationwide/regional authority networks



...and more

Applications, devices and solutions for authorities in 80 countries



European #1

Critical Communications

20+

delivered nationwide mission critical networks

300+

Networks for local authorities and business critical

3M

daily users
80 countries

100+

Metro lines

20

Airports

Private Networks for Critical Communications

Key considerations

- Critical Communications user organizations traditionally operate Private LMR Networks (Tetra, P25, DMR)
- Expectations upon broadband evolution

- Private operation whatever the actual network and MCX application setup

- ✓ MCX - SaaS, On-premise
- ✓ Network – Private, MVNO, Slice

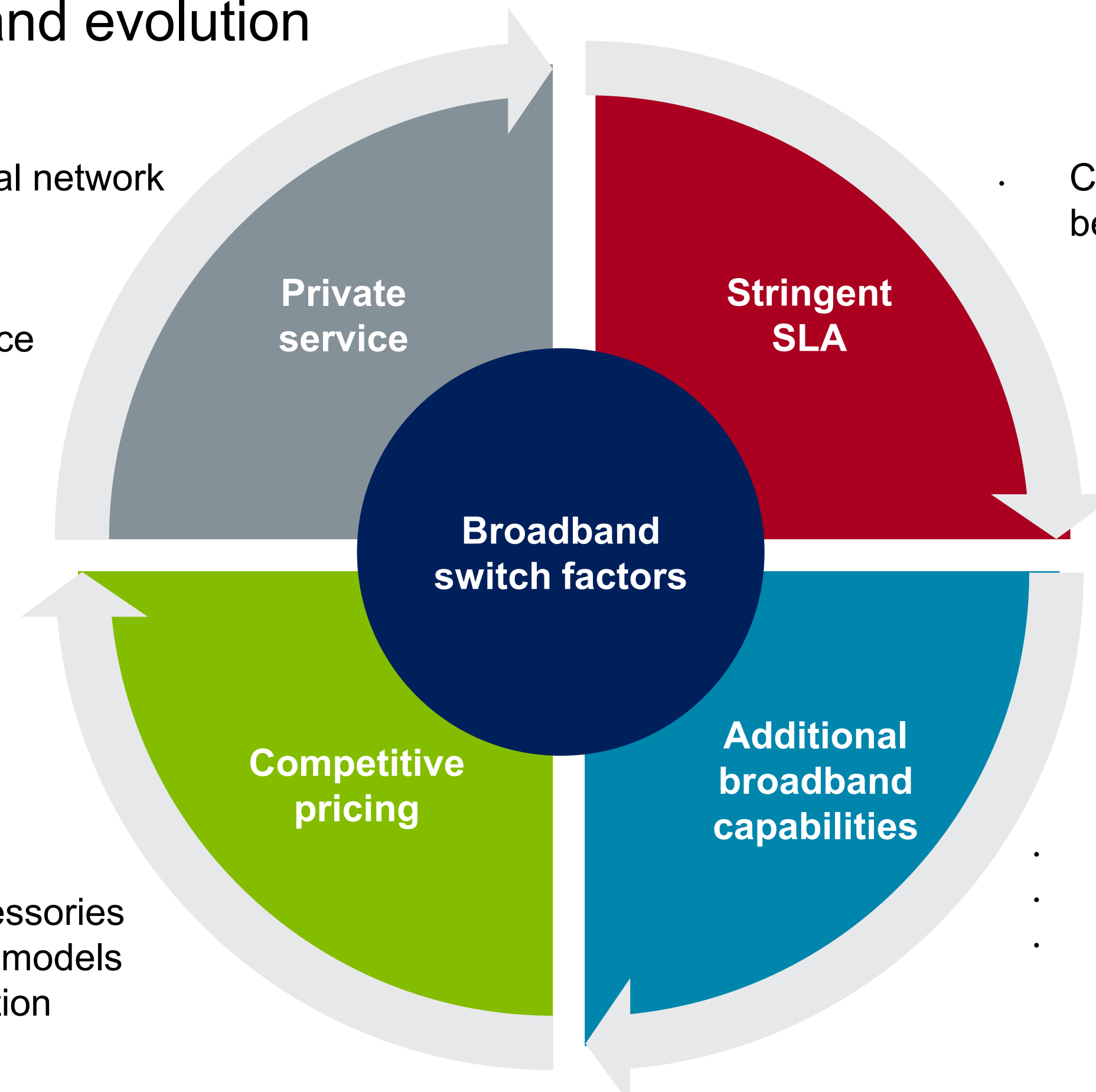
- Critical communications requirements at LMR level or better

- ✓ Reliability, encompassing specific capabilities (Direct Mode, Isolated Operations)
- ✓ Security
- ✓ Quality of service (QoS/QPP)
- ✓ Density of users

- Open and competitive ecosystem

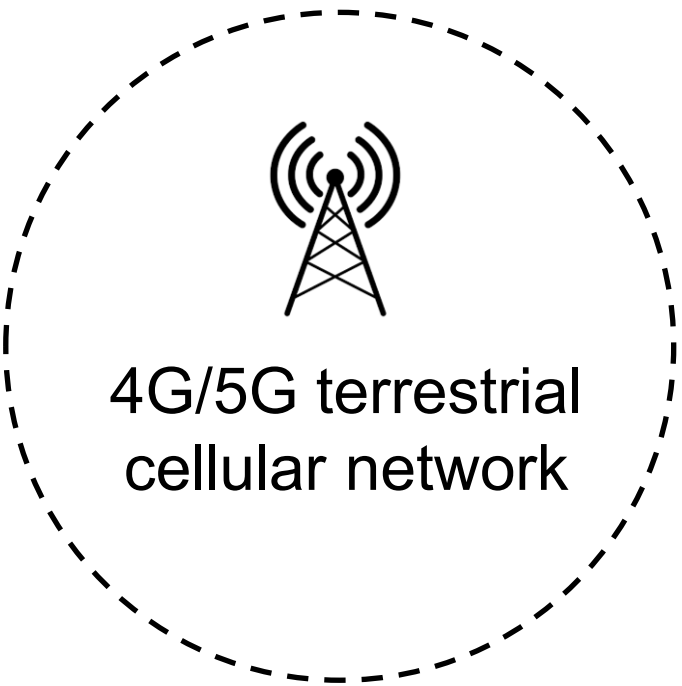
- ✓ Off the shelf devices and accessories
- ✓ CAPEX, OPEX (Pay per use) models
- ✓ Segmentation of the e2e solution

- File/images sharing
- Video
- Situational awareness (Analytics, AI)



Private Network for Critical Communications

Reliability through ubiquitous and flexible Access network

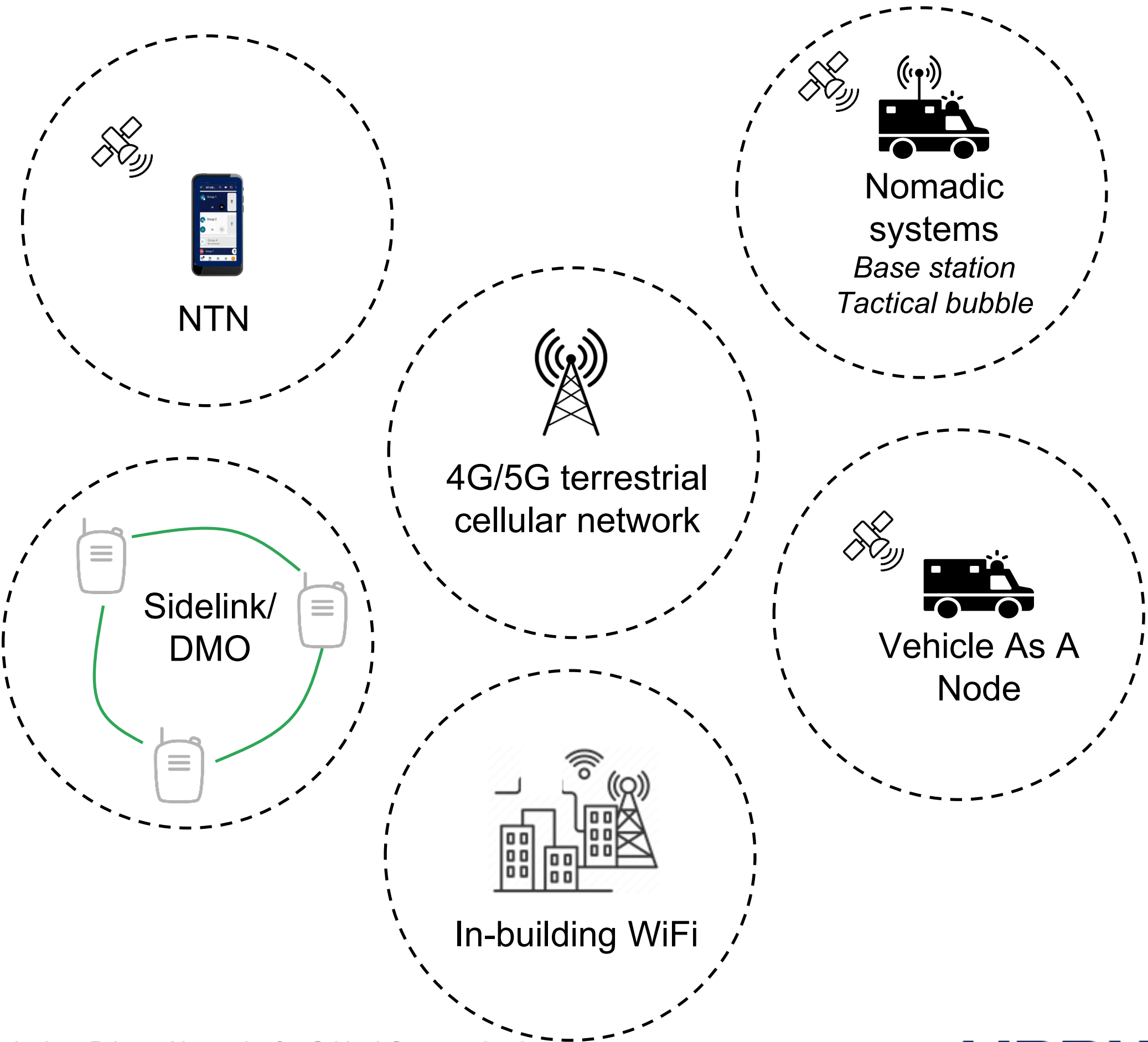


- 4G/5G access for MCX may be
- ✓ Primarily for MCX
 - ✓ Combined with other business applications
 - ✓ Subsequent to other business applications' deployment

Spectrum availability strongly influences the deployment model

Multiple deployment models	Future evolution
Private Network (4G/5G) with on-premise MCX [Network Design for high availability/Hybrid with MNO coverage] [Privately operated or MNO service, 5G Slice/QPP]	Standalone NPN
MVNO with on-premise MCX [National Roaming/RAN sharing/Multi-MNO/5G slice/QPP] [Public Safety]	Public Network Integrated NPN
MNO access with on-premise or SaaS MCX [LTE APN/5G slice/(QPP)]	Public Network Integrated NPN

Complemented by hybrid access



Private Networks for Critical Communications

Reliability-linked capabilities - Direct Mode (DMO)



Current

- No capability in current 4G/5G ecosystem
- Specific implementations fulfill the need

Agnet Direct



Smartphone agnostic
Direct Mode solution

Future

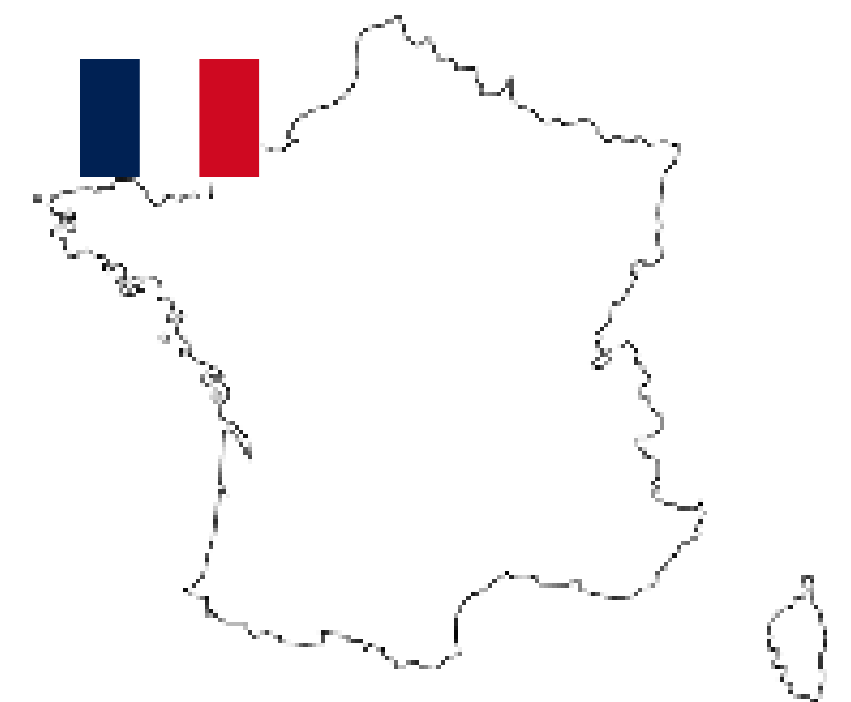
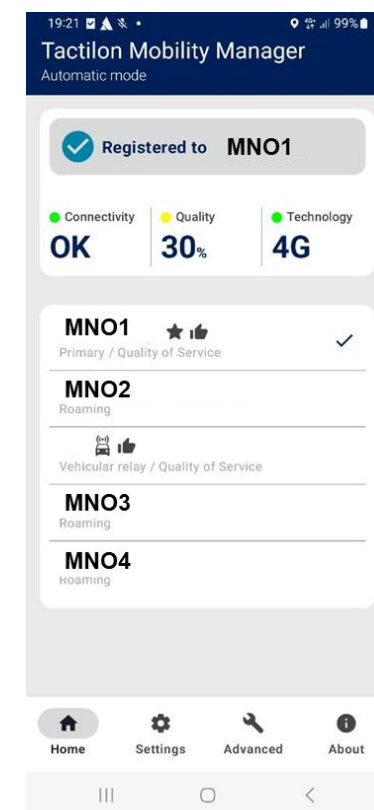
- 5G Sidelink awaited as mainstream solution
- Capabilities expected at LMR level or better
 - Range
 - Price
 - Form factors

Private Networks for Critical Communications

Reliability through multiple Radio Access Networks

- Objective – Get required SLA from Radio Access Network (Private/MNO)
- Multiple Radio Access Network(s) to address
 - Single RAN reliability concerns
 - Coverage footprint
 - Consistent Quality of Service throughout coverage
- Optimization of inter-networks mobility through a dedicated application

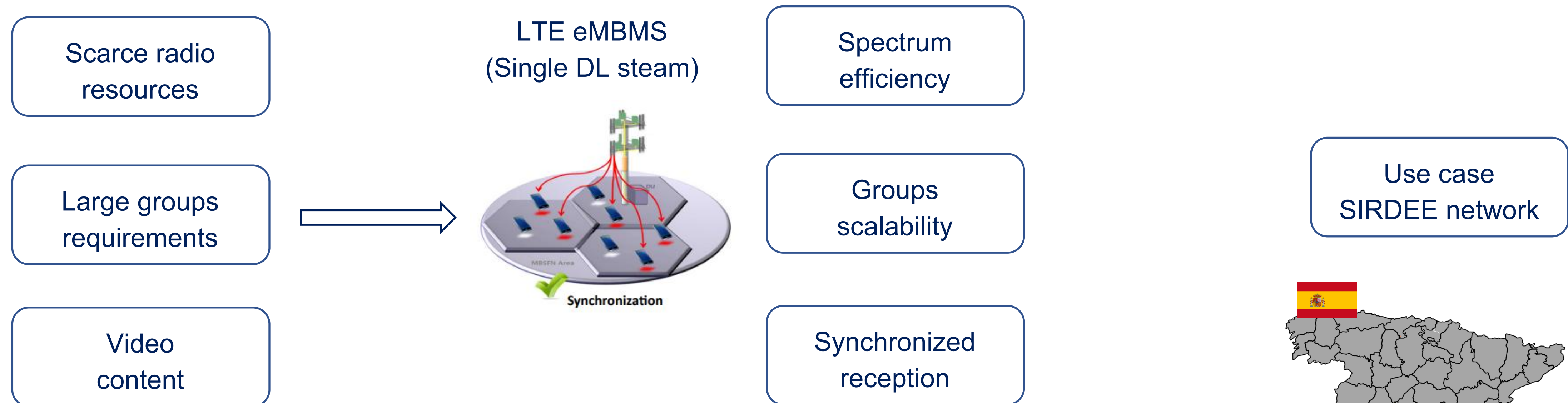
Use case
RRF network



Private Networks for Critical Communications

Density of users

- Relevance of eMBMS for Private Critical Communications networks



- 5MBS will bring additional efficiency and flexibility to Multicast

Private Networks for Critical Communications

Conclusion

- Private Networks for Critical Communications require stringent reliability, security and service assurance while enabling broadband capabilities - all at a competitive price tag
- Deployment models both for MCX application and underlying Mobile Network are diverse, and will be reinforced by additional 5G capabilities
- Broadband is the future of critical communications



Thank you

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Private Networks: Connecting at Scale: Nokia's Massive IoT That Matters



Paul Johnson
Partner Sales Manager,
Mobile Networks, Oceania
Nokia

Connecting at Scale: Nokia's Massive IoT That Matters

Paul Johnson

Partner Sales Manager, Oceania

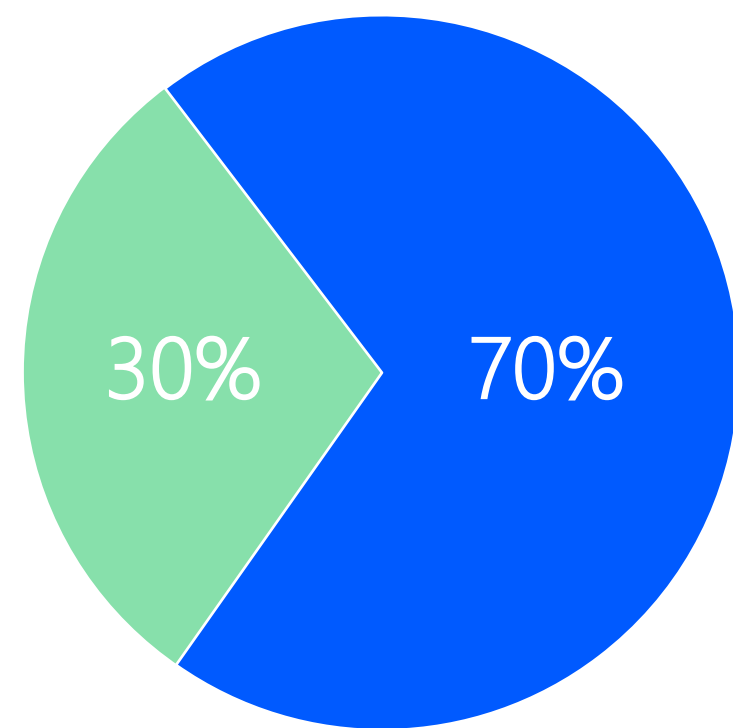
NOKIA

Agenda:

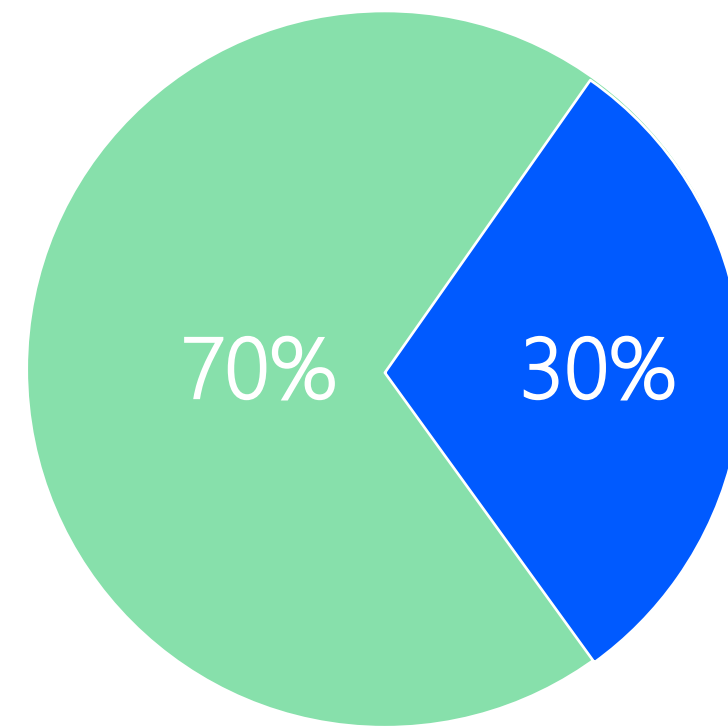
1. Industry 4.0
2. From CapEx to cash flow: Why revenue matters
3. Wireless sailing on the seven seas
4. Harmonizing policy for seamless mobile connectivity

Industry 4.0 is key for driving productivity

Investment in ICT



Share of GDP



Physical industries Digital industries

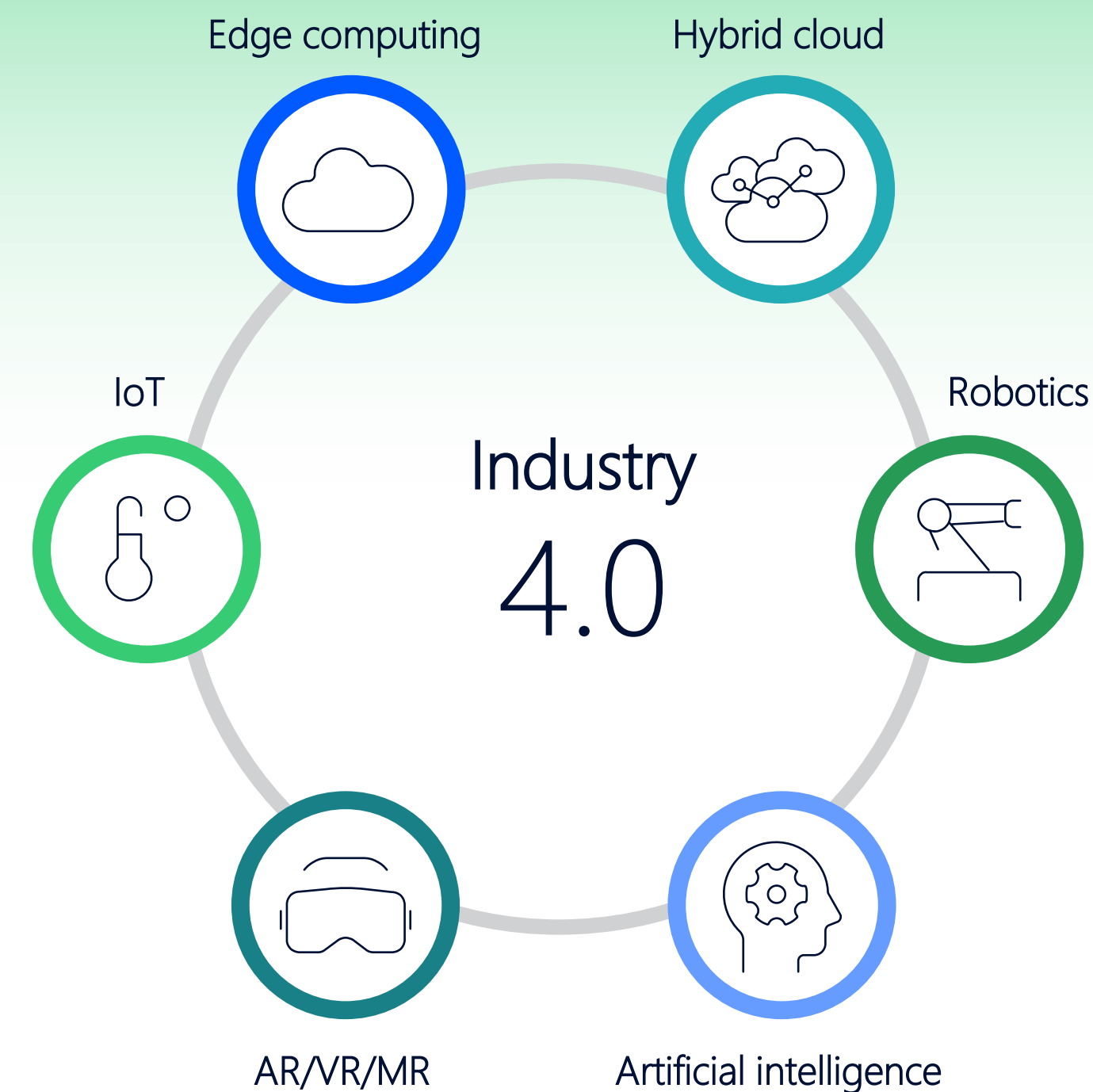


Annual productivity growth
(15-year average)

Source: The Technology CEO Council

Confluence of key technologies enablers

create the perfect environment
for Industry 4.0



>70%

Enterprise are investing
in IoT
today

<https://www.pwc.pt/pt/temas-actuais/pwc-apresentacao-iot.pdf>

53%

Plants & systems in
production, logistics and
warehousing are
equipped with sensors

MHP – A Porsche Company / LMU
Industry 4.0 Barometer 2024

From CapEx to cash flow

Why revenue matters

Economic gains funded by revenue



Monetization aligns incentives: When outcomes are paid for, they are measured, improved, and scaled.



Productivity and automation: Less downtime — translating into GDP uplift and competitive exports.

Societal benefits unlocked



Safety and sustainability: Fewer onsite incidents, lower energy, reduced emissions from optimized logistics.



Sovereignty and resilience: Funded solutions improve data protection and critical-infrastructure readiness.

THE VIRTUOUS CYCLE



Wireless sailing on the seven seas - Onomondo

Private wireless for real-time cargo tracking

Challenge

Limited onboard infrastructure restricted Maersk’s ability to support scalable, real-time IoT connectivity across its global, highly mobile fleet.

“With our next-generation connectivity platform, we will be able to offer our customers notable benefits, including real-time cargo tracking, enhanced supply chain visibility, and improved operational efficiency. This platform is designed to support thousands of IoT devices, ensuring optimal performance for reefer tracking and fleet IoT.”

Solution	Use cases	Outcome
- Private wireless network solutions across 450 vessels, using Shikra small cells, Tuuli 6 basebands, and MantaRay NM for network management - Solution includes satellite backhaul and supports seamless interoperability with public networks	Real-time cargo tracking: Monitors shipment conditions such as temperature and humidity for perishables. Reefer container monitoring: Ensures optimal performance and connectivity for refrigerated units. Fleet-wide IoT connectivity: Supports thousands of IoT devices across Maersk's global vessel fleet. Supply chain visibility: Provides end-to-end tracking from sea to port to land. Operational optimization: Enhances vessel performance and logistics efficiency.	Scalable IoT platform: Supports thousands of connected devices for future-ready operations. Reliable global monitoring: Ensures seamless cargo visibility across sea, port, and land. Enhanced operational efficiency: Enables real-time decision-making and optimized logistics. Centralized network control: Streamlines management through MantaRay NM for full fleet oversight. Future-proof connectivity: Establishes a unified mobile network ready for evolving maritime needs.

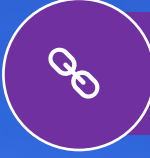


EUR

Maritime



Nokia PR



Maersk PR

Harmonizing policy for seamless mobile connectivity

Varying spectrum solutions within the global supply chain



Global Transit

- Global Roaming
- Leo-Sat



Intermodal

- AWL
- Network Slicing



Domestic Transit

- Roaming
- Network Slicing
- Neutral Hosting
- MOCN



Warehouse &
Manufacturing

- AWL
- Network Slicing
- Neutral Hosting

anyRAN for Enterprise: Nokia RAN enabling connectivity with any cores



Nokia RAN baseband + radio



Private wireless core

Thank you!

Connect with us on LinkedIn.



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Oceania



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Private Networks – Panel



Moderator

David Turkington
Head of Technology, APAC
GSMA



Ian Ross
Head of Enterprise, Australia
and New Zealand
Ericsson



Edward Ting
Senior Director
Askey



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Senior Solution Architect
Airbus



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