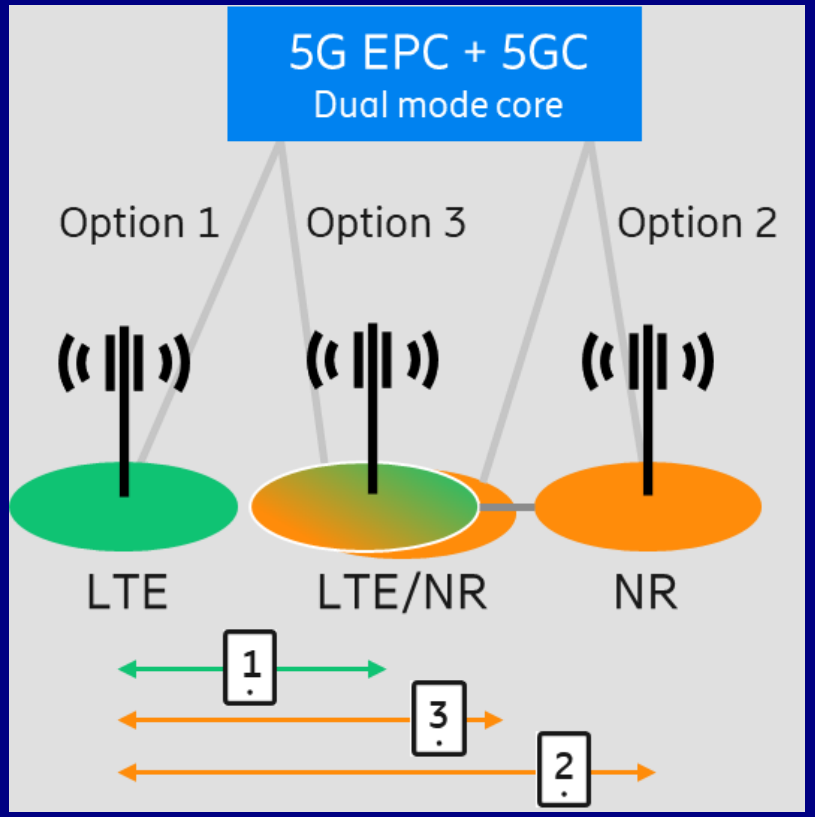
Standalone
a kulcs az 5G alkalmazásokhoz

Novák Csaba Ericsson Magyarország 2022-11-08

5G Standalone - Agenda

- Technical advantages
- Best Practices
- Monetization
- Q&A

5G Standalone Technical advantages



Enhanced end-user experience
With NR Standalone

Faster connect with RRC inactive

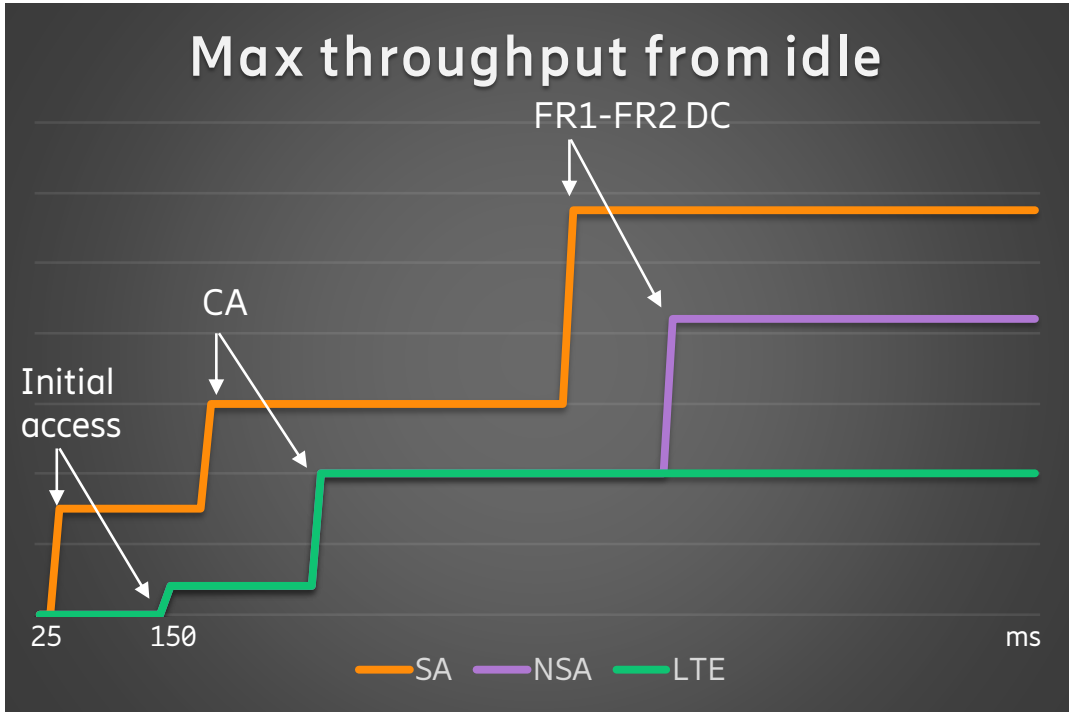
- Down from 150 ms to 25 ms idle to connect time
- End-user will perceive as always connected

6x
faster to connect

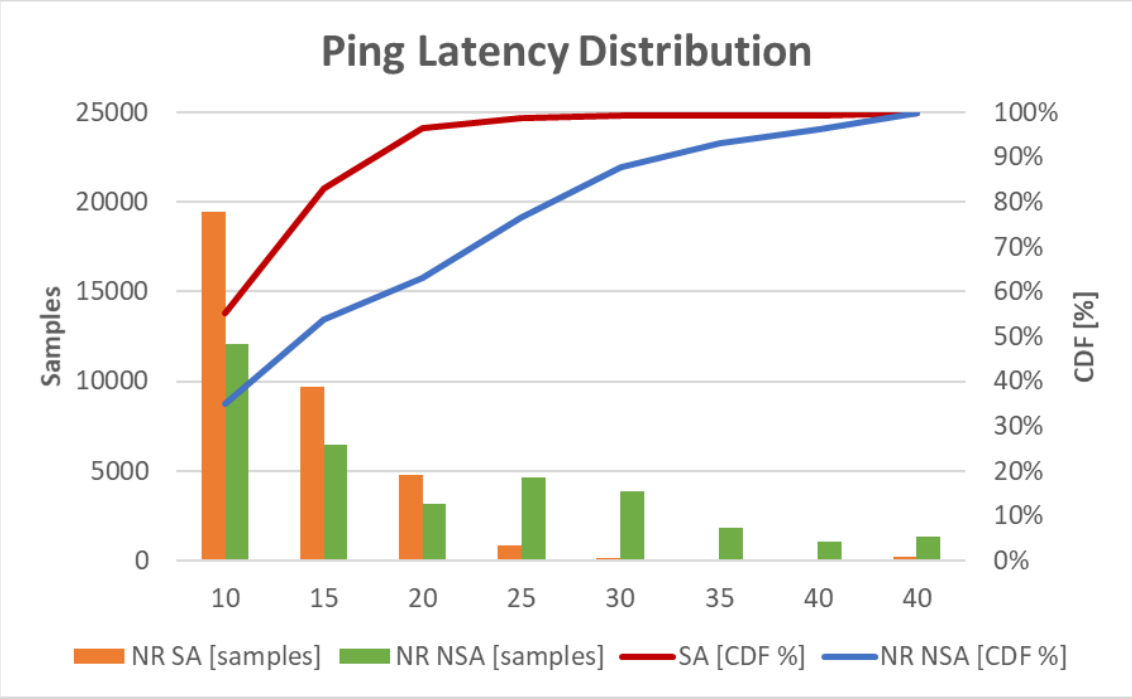
Instant access to large bandwidth

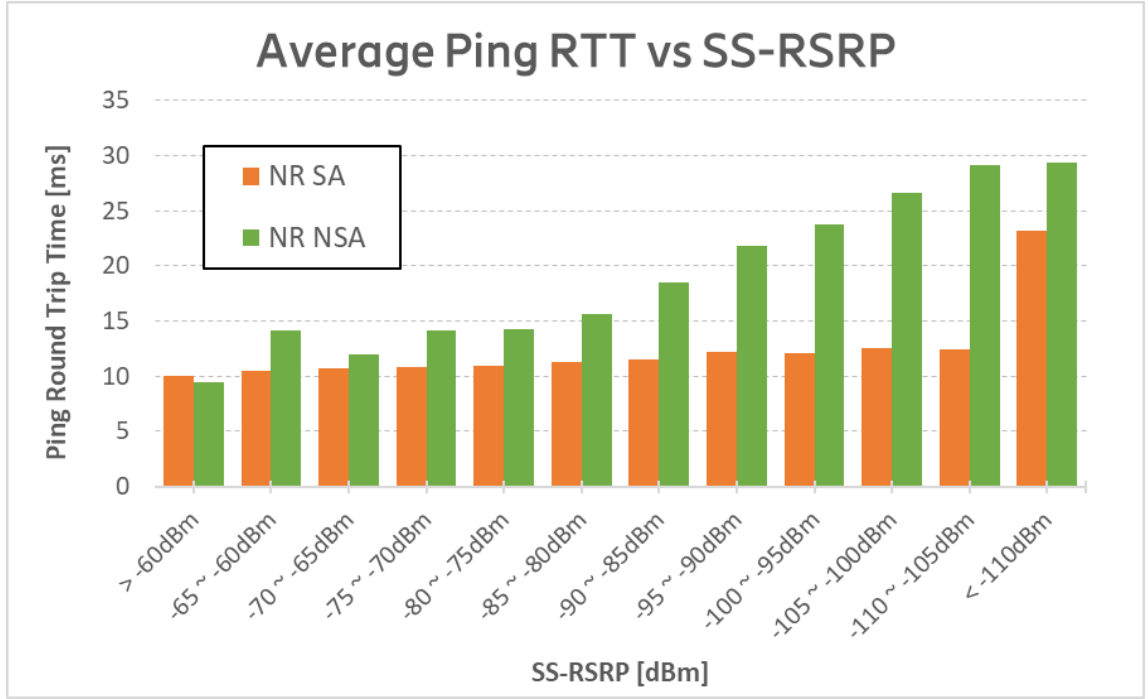
- Up from 20MHz to 100 MHz
- Augmented with Carrier Aggregation and Dual Connectivity

5x
higher throughput

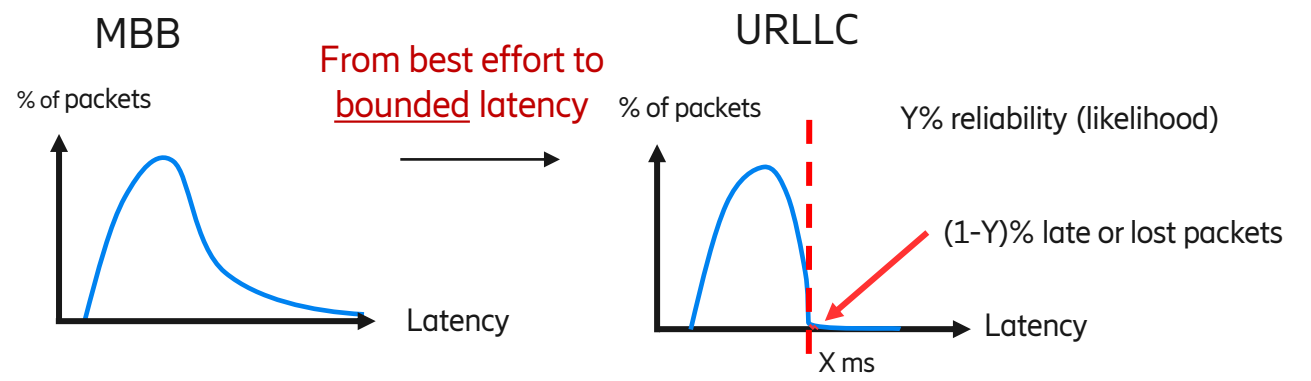


Latency





SA enables Time-Critical Communication

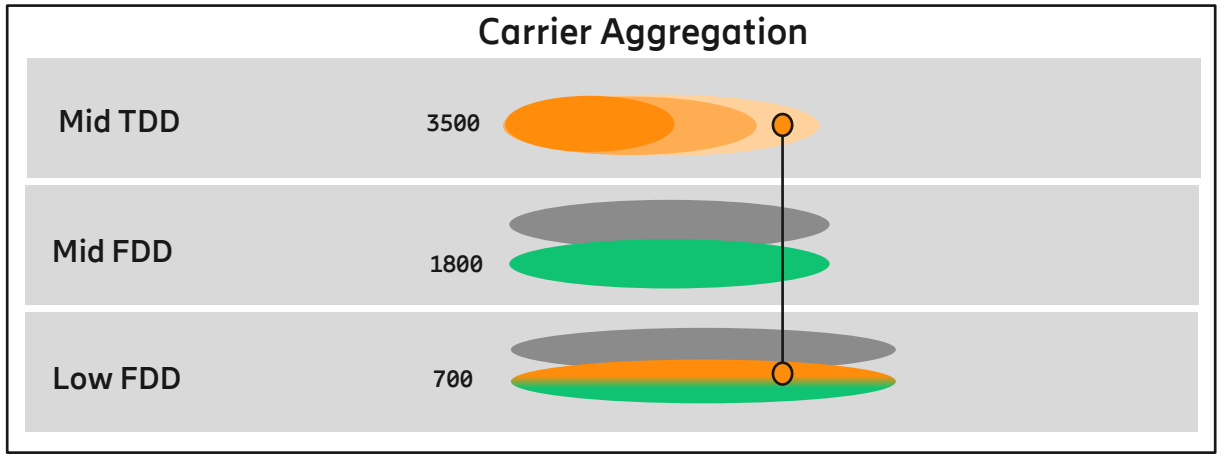


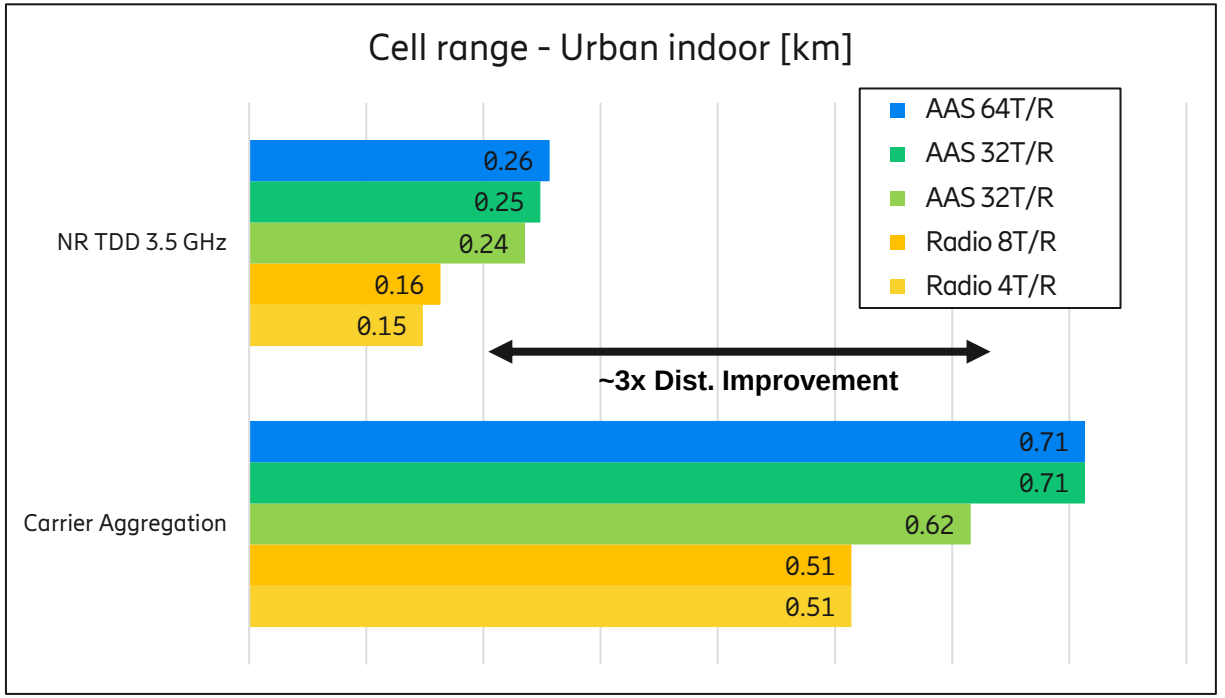
X ranges from tens of ms to 1ms latency

Y ranges from 99% to 99,999% reliability

Coverage

- In SA mode there is naturally no dependence on any anchor carrier
- With Carrier Aggregation 700-3500, the 3500 DL performance becomes completely independent of the uplink on TDD-Midband

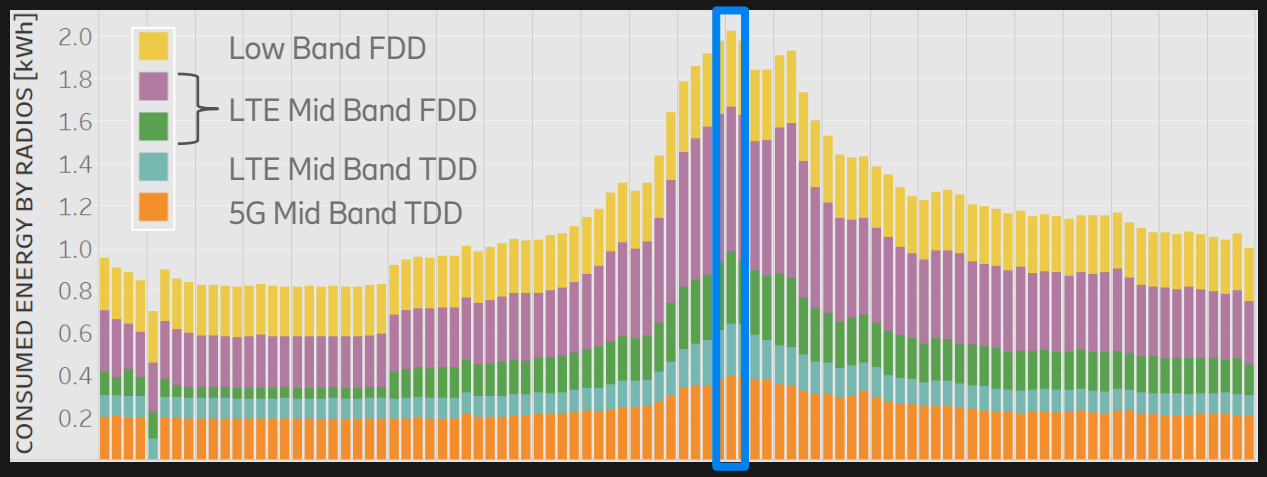




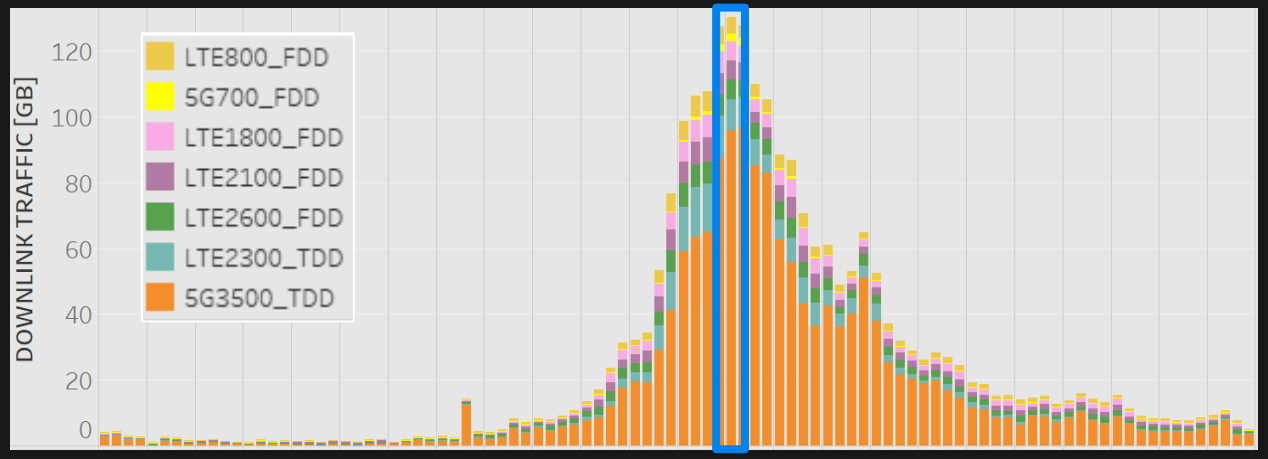
Energy Efficiency with Massive MIMO

Massive live event in European capital city July 2022 – High Load

Consumed Energy per Band



Downlink Traffic per Band



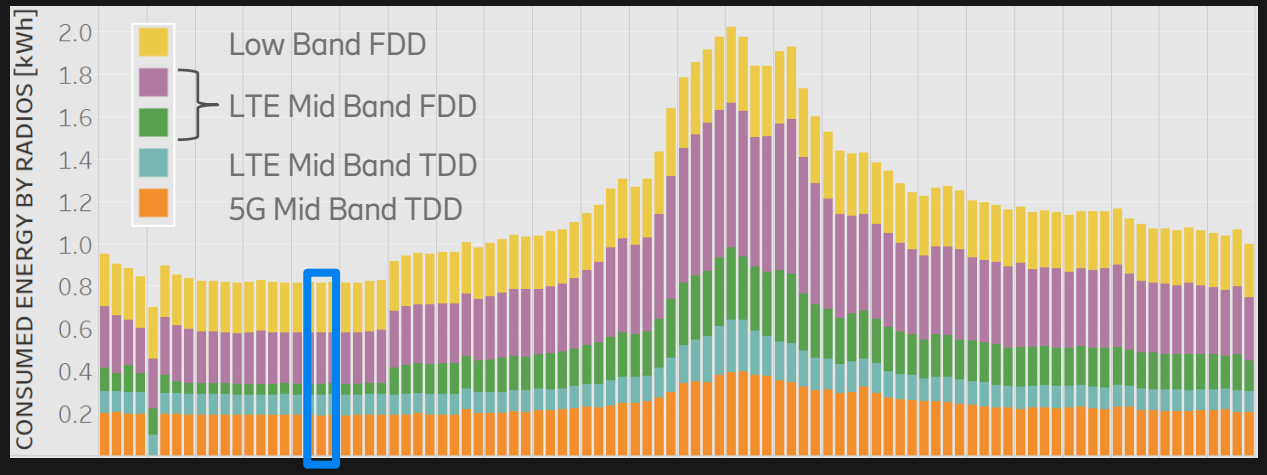
Measured Energy Efficiency in Live Network

In a high load situation, 5G TDD + MMIMO has proven to be more energy efficient:
- 13x better than LTE FDD

Energy Efficiency with Massive MIMO

Massive live event in European capital city July 2022 – Lowest Load

Consumed Energy per Band



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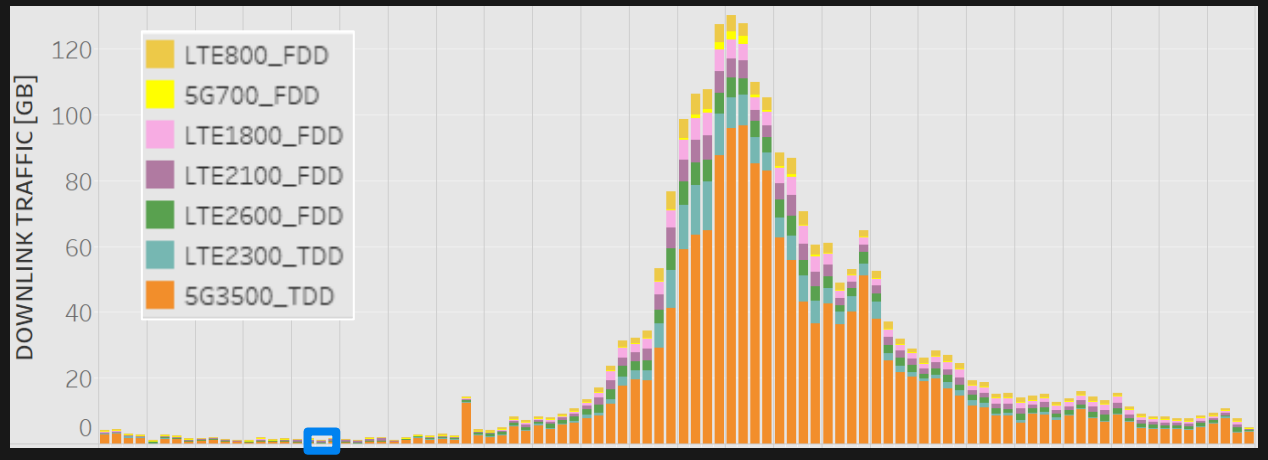
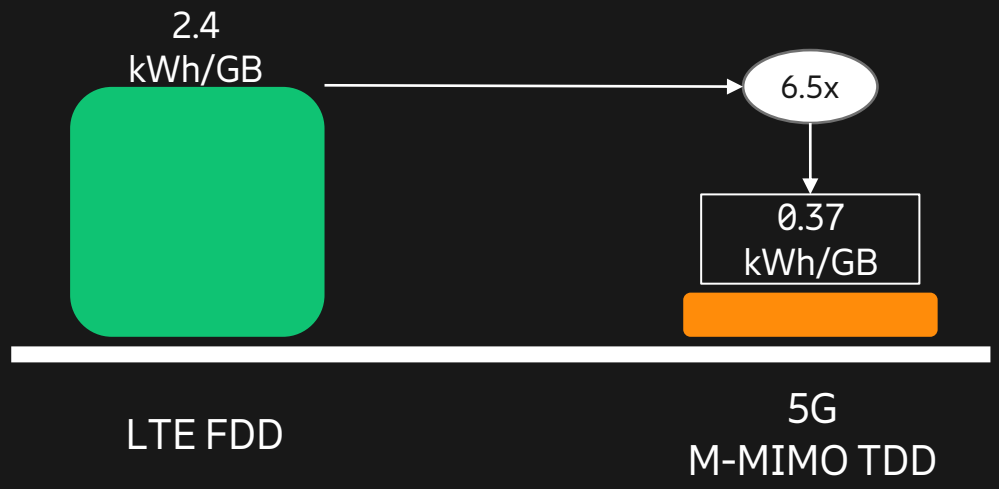
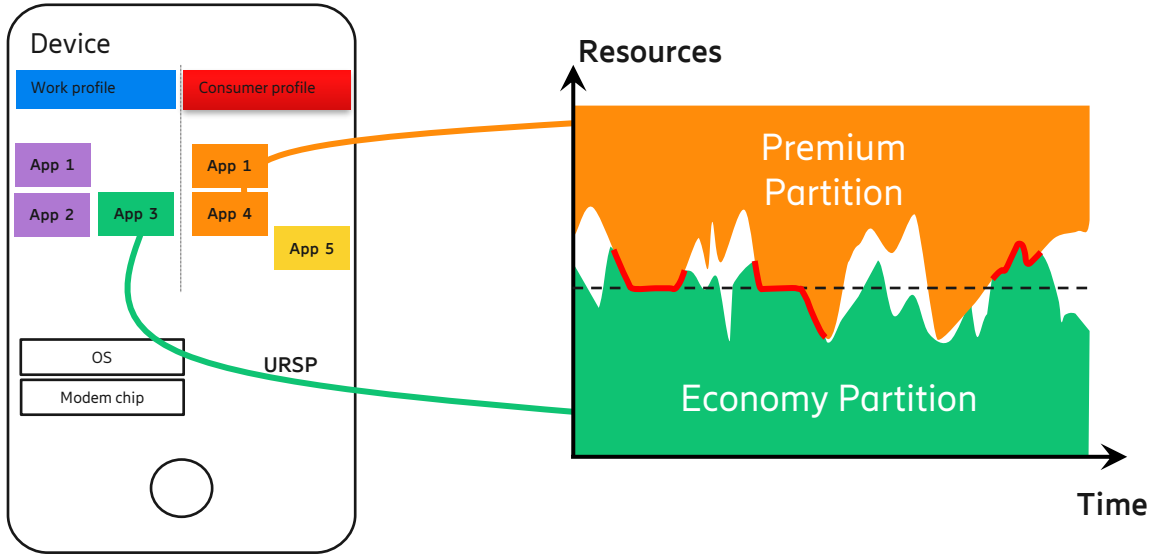


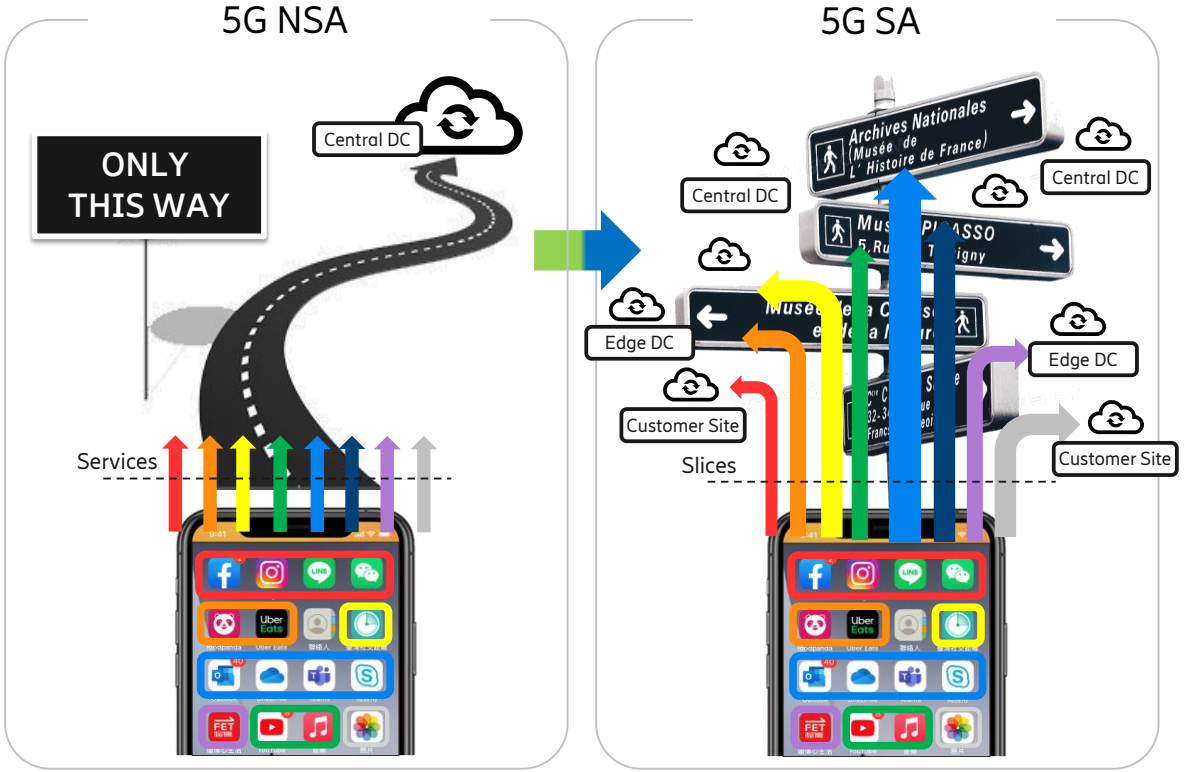
Measured Energy Efficiency in Live Network

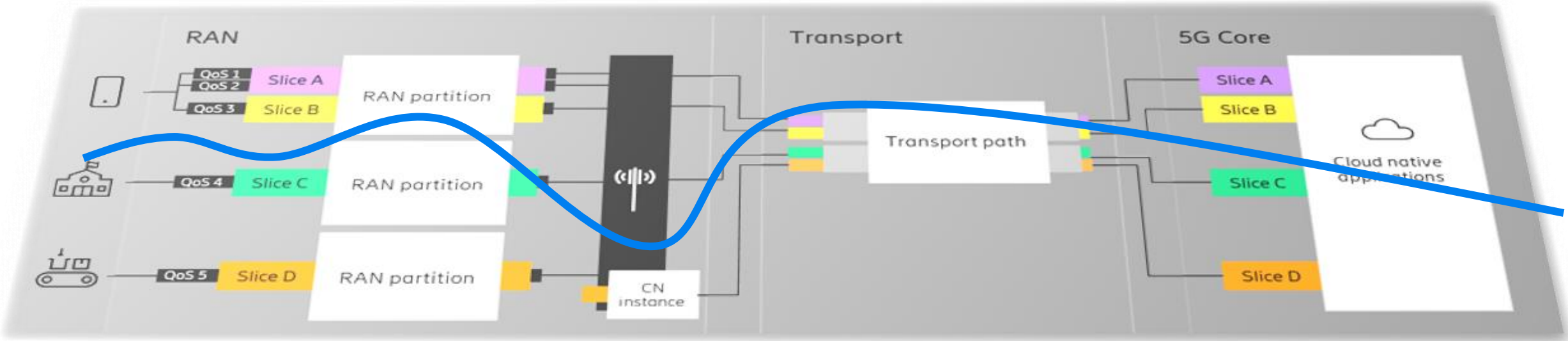


In a low load situation, 5G TDD + MMIMO has proven to be more energy efficient:
- 6.5x better than LTE FDD

End-to-End Slicing



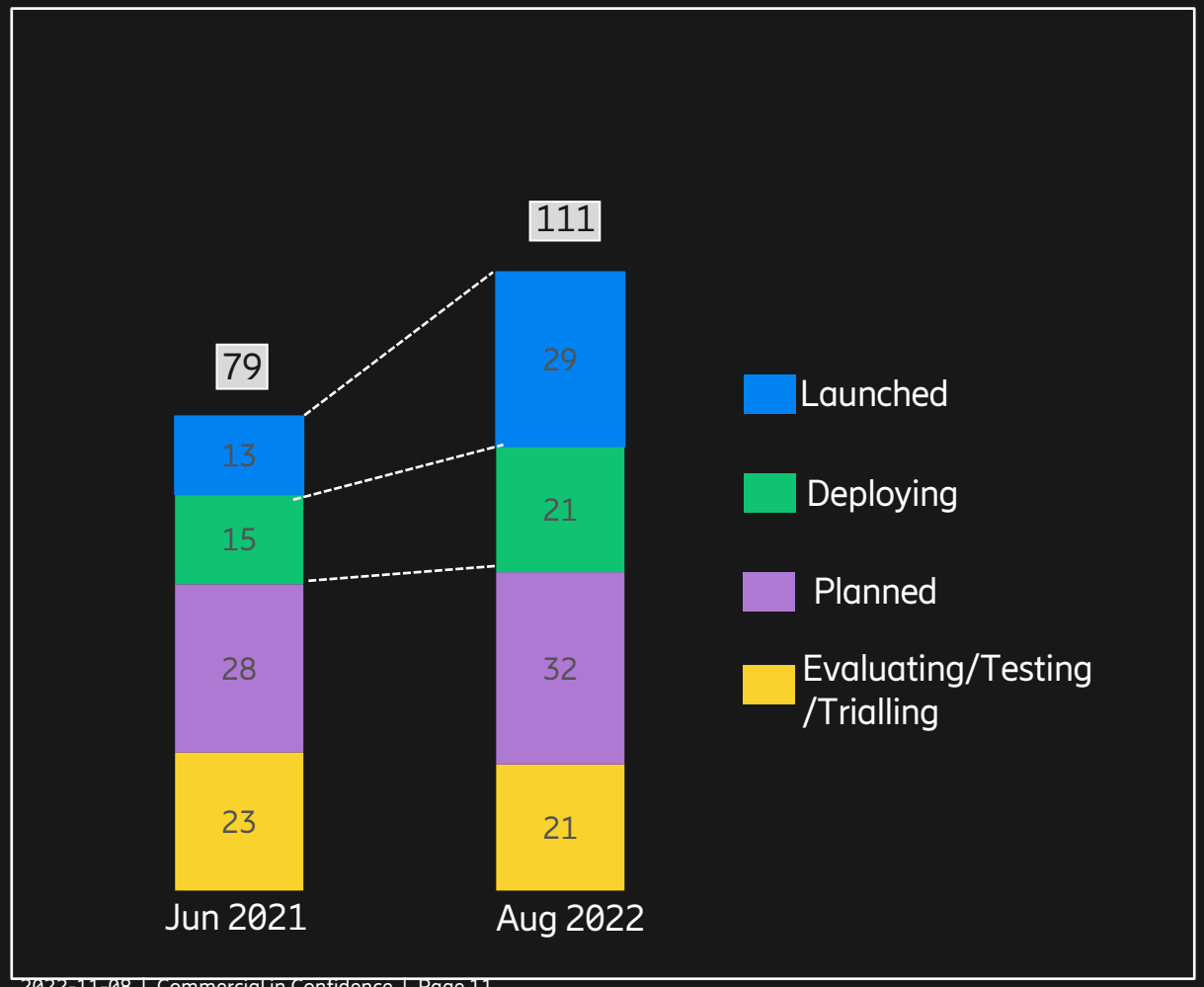




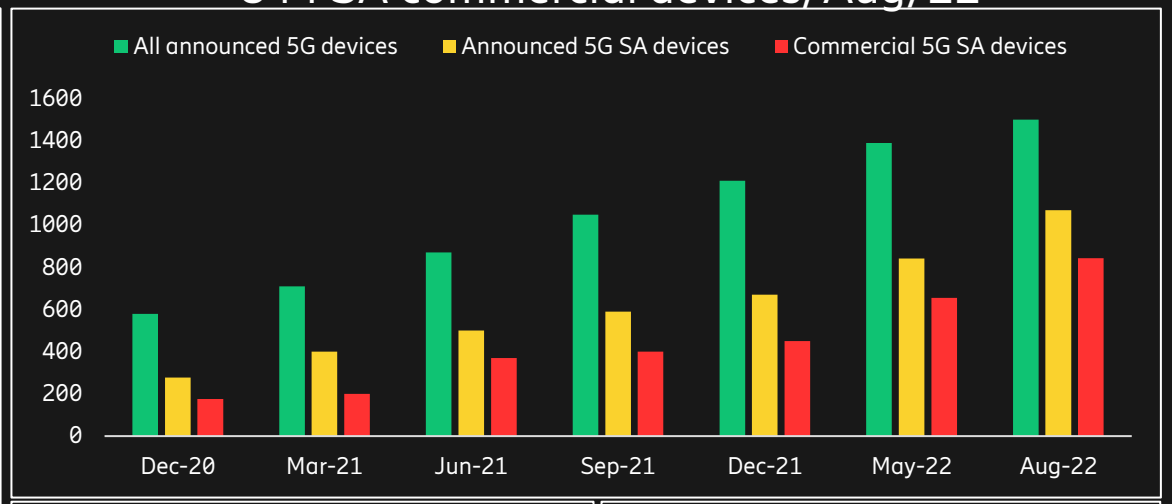
5G Standalone Monetization

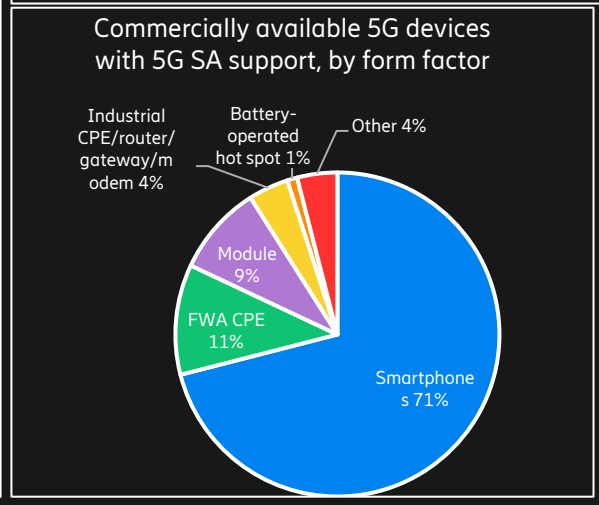
Network and Device ecosystem readiness

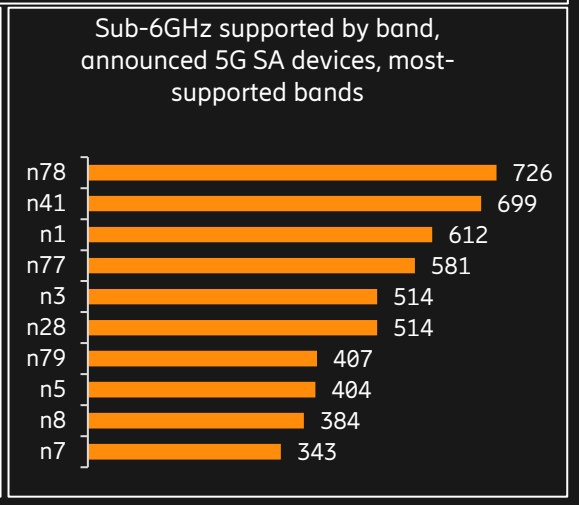
111 Operators investing in public 5G Standalone



Total: 66 SA mobile platform chipsets and 844 SA commercial devices, Aug/22







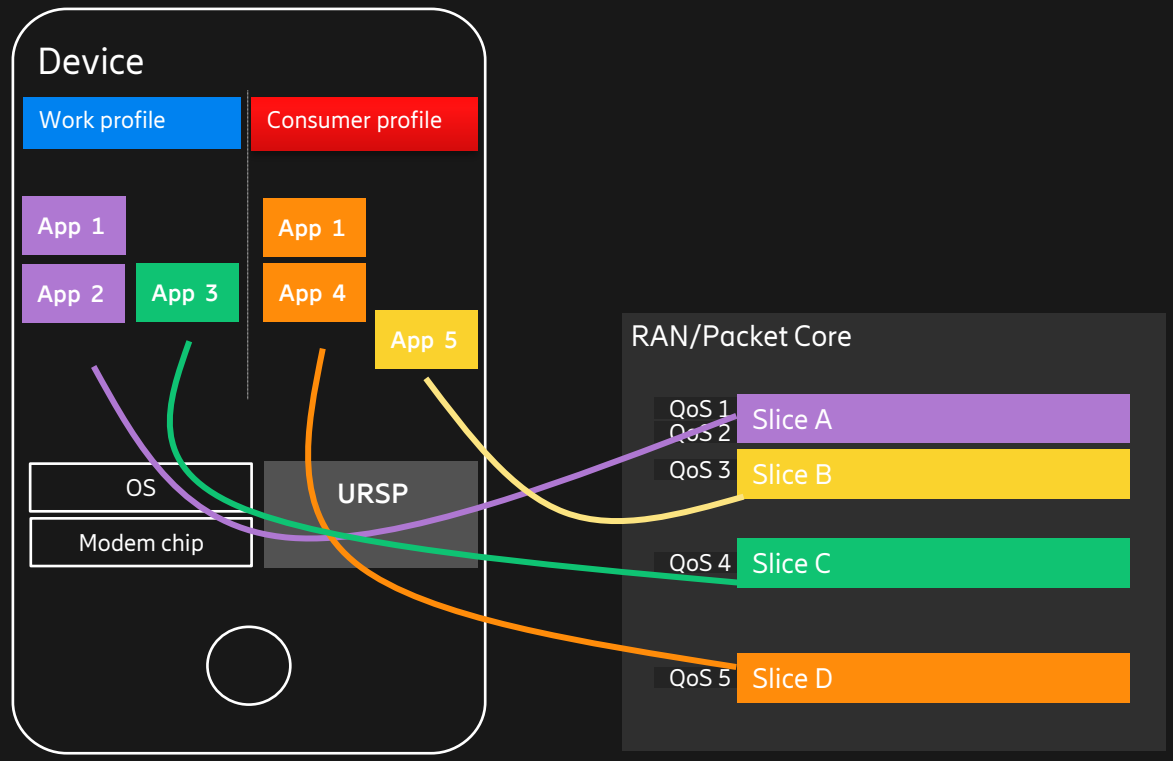
Source: GSA 5G SA report August 2022

Device ecosystem: URSP 2.0 support

(User equipment route selection policies)

Work profile | Consumer profile

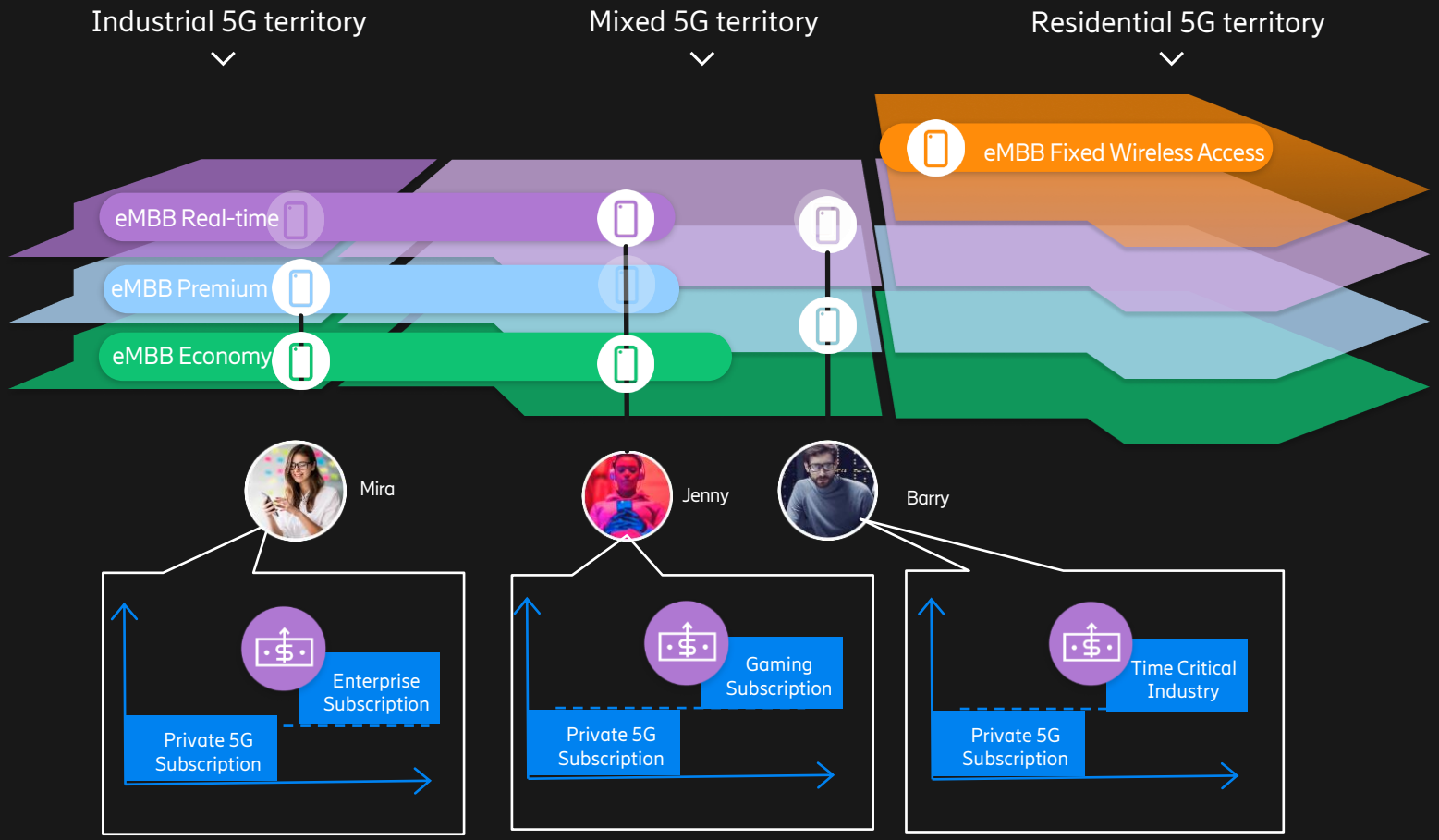
Up to Max 8 Slices/PDUs for a User Equipment



Android 13 available for Pixel smartphones users since August 15th

Coming for other flagship devices, such as Samsung, Oppo, Motorola, Xiaomi

CSPs are preparing for differentiated offerings



- Multiple subscription and Multi-Pay based on Service differentiation enabled by:
  - Network Slicing
    - Multiple slices for same UE
  - Standalone
  - Mid Band TDD

Monetize 5G for smartphones

5G Narrative in a nutshell

From monthly subscription

To Multi-subscriptions, Multi-pay & "5G as a platform"

MBB logic

20€/month for 30GB/month
With optional bundled services and content

Data Volume Tiering

Beyond MBB logic

Premium subscription

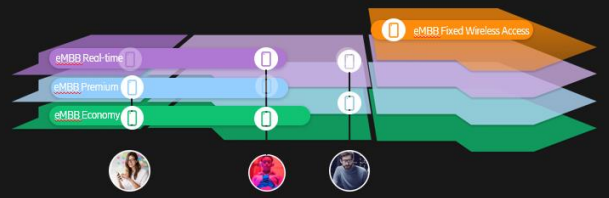
- ✓ Working from Home
- ✓ Schools
- ✓ On field workers
- ✓ ASL remote health check

Economy subscription

- ✓ Most of today MBB subscriptions

5G slicing is one of the key areas of innovations that will let CSPs earn a return on their investments in 5G, by offering a secure and dynamic network platform to enterprises.

- Google



B2B2X

Offer Premium Subscription to App developers, OTTs who, in turn, offer it to their customers through Apps (premium App)

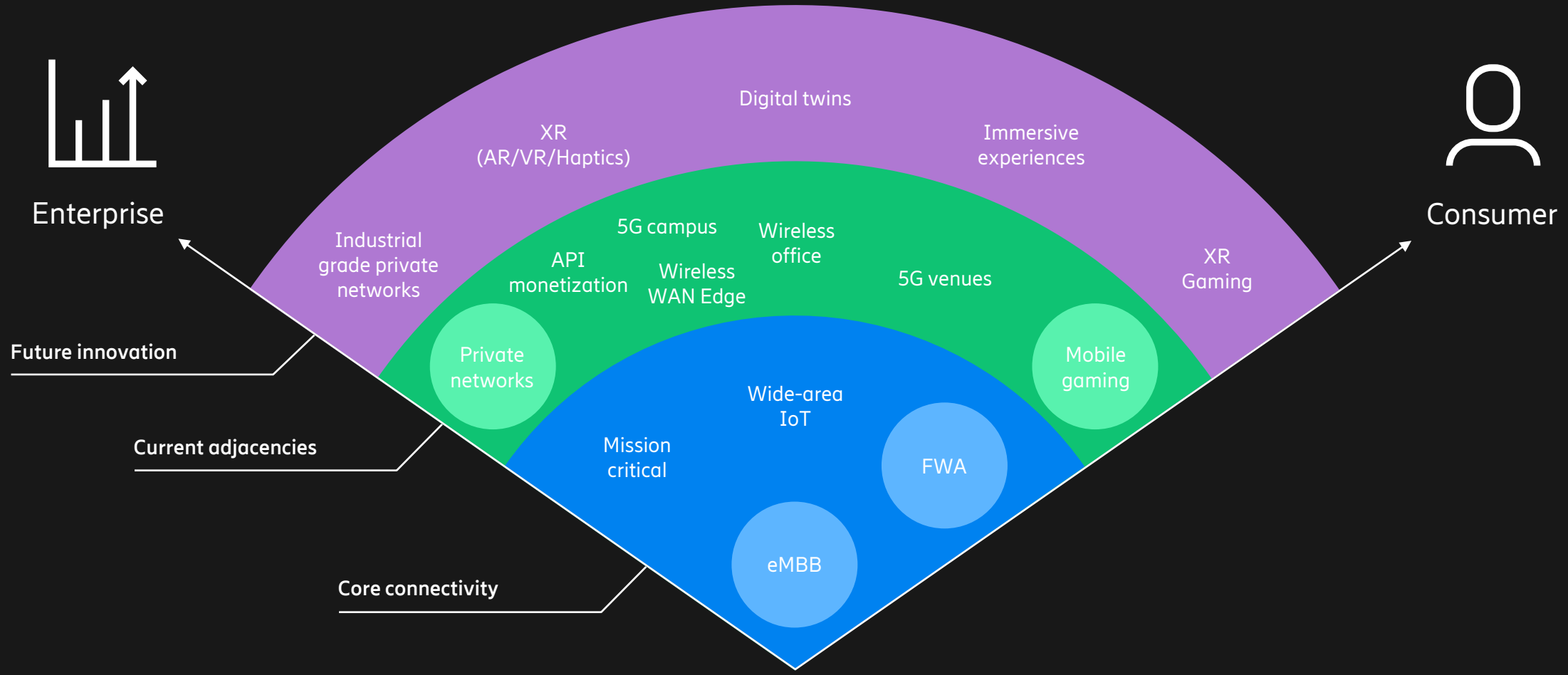
B2B2B

Offer Premium Subscriptions to App developers, HCPs for their customers (es 5G Private Network services based on edge computing)

All connections are equally treated

Different types of connections
Subscriber, Service and Performance differentiation

Current & future opportunities for 5G value creation

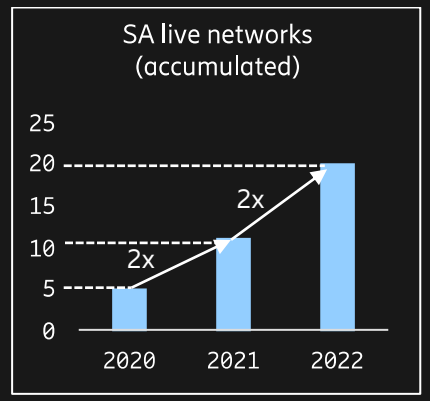


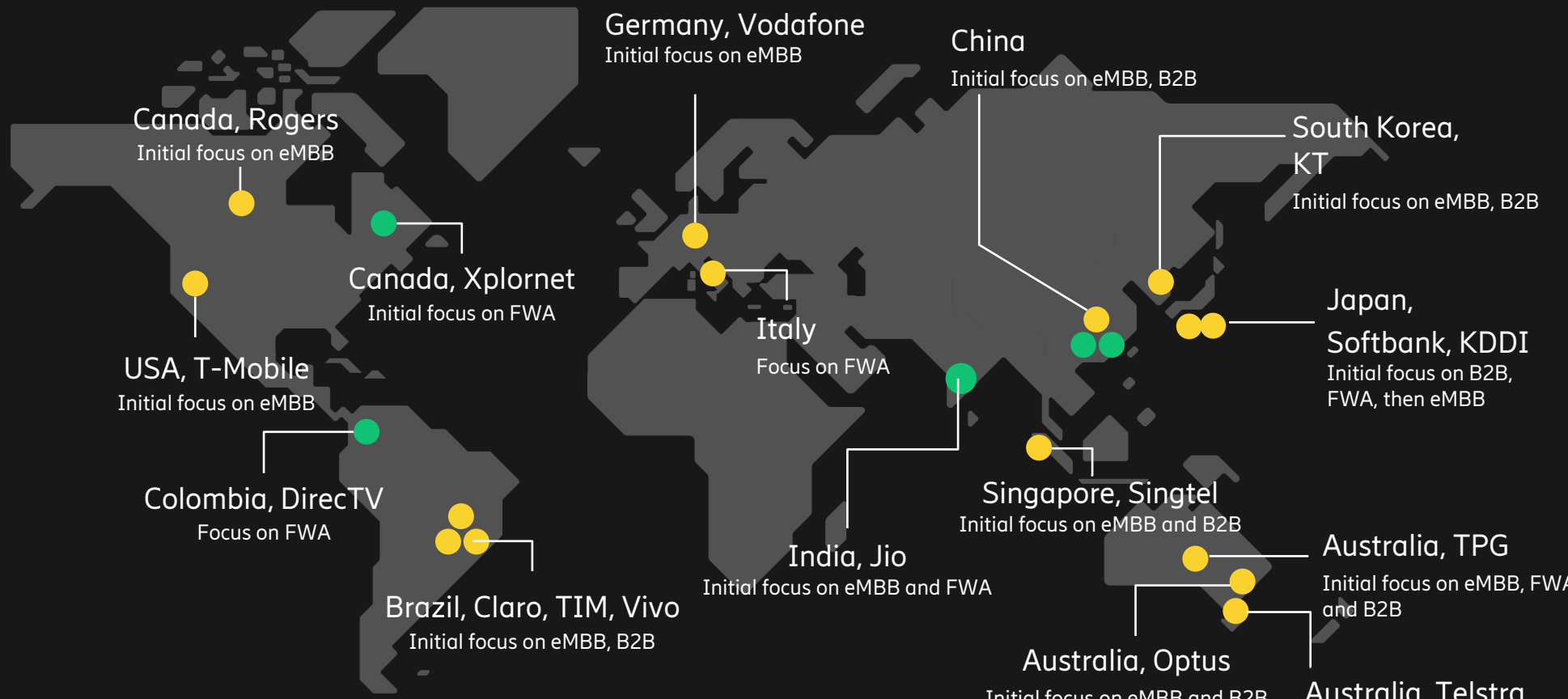
Source: 5G value creation executive deck sprint deliverable March 2022

Best Practices

Ericsson 5G standalone networks

20
Standalone live networks





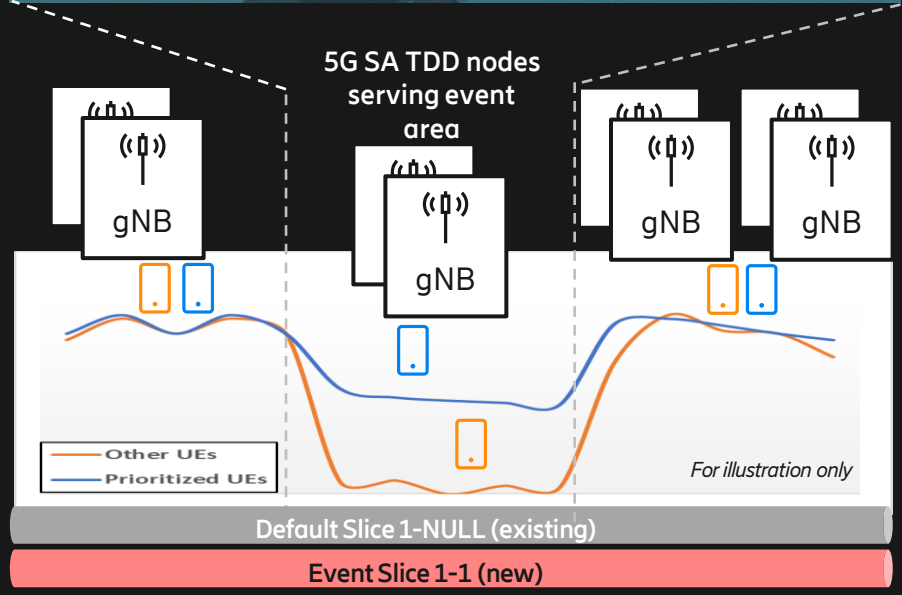
eMBB, FWA and B2B initial drivers for Standalone

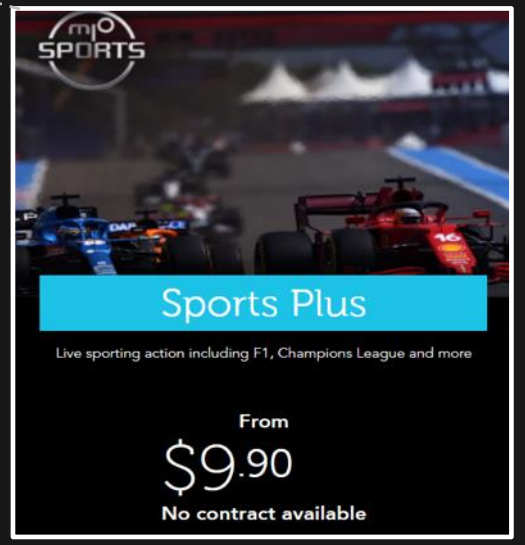
NSA/SA
SA only

First Standalone network using commercial network slice for Formula 1

Singapore Formula 1 Circuit park map

5G SA Users streaming F1 race over the CAST app.

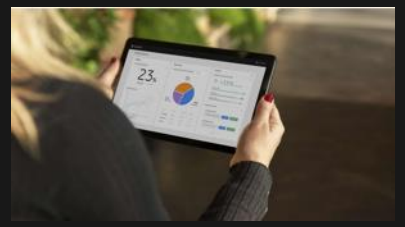




E2E Network Slicing + NR Radio Resource Partitioning

- New network slice defined network-wide (E2E)
- NR RRP configured for sites serving F1 event area
- Subscribers with Singtel CAST Sports plus package provisioned to access new network slice
- NR RRP to ensure protection for prioritized subscribers with Singtel CAST sports plus package

Network Slice use cases



Telstra 5G SA services for enterprises

Fully automated 5G network slicing with orchestration capability in a commercial network

F1 with immersive experiences

Singtel uses Resource Partitioning and slicing in a live 5G SA network, use video app Singtel CAST to enjoy live streams of Singapore Grand Prix race

AR/VR Experience (B2B)

Vodafone UL dedicated slice for Retails/Manufacturing with AR/VR

Slicing for business customers

Vodafone Business customers can reserve such a 'slice' of capacity for their own essential business processes

5G Smart Patrol Vehicle

Taiwan's FarEasTone uses 5G to help Kaohsiung police find stolen cars with network slicing including Radio Resource Partitioning

RTL Deutschland live video production

Journalists broadcast live TV reports via 5G standalone with network slicing solution

AGV with immesive 360 Video B2B

Telefónica and Ericsson network slicing including Radio Resource Partitioning

DNB Malaysia

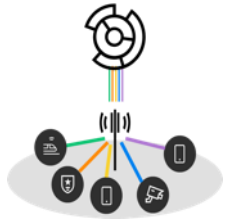
DNB nationwide deployment 5G network with Radio Resource Partitioning for SA and NSA.

Summary – Why 5G Standalone

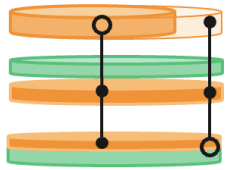
Unique benefits vs NSA

Some unique features supported in SA only

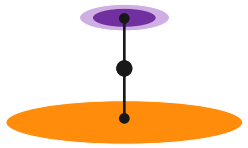
Network Slicing



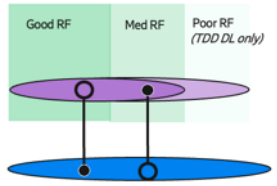
Support > 2 NR carriers



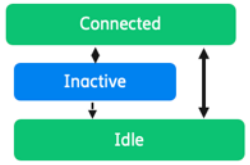
FR1-FR2 NR DC



UL CA* and UL SU MIMO



Inactive state

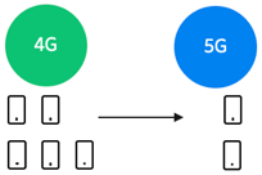


VoNR

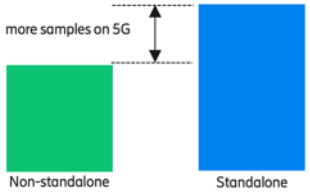
*Supported in 23Q4

Better Network efficiency

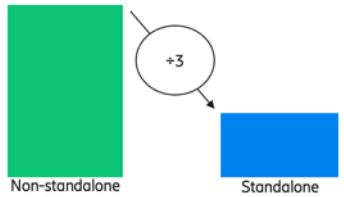
LTE offload



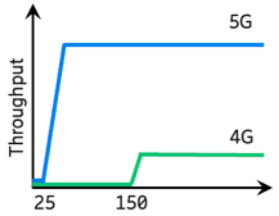
More time on 5G



Less HO interruption time

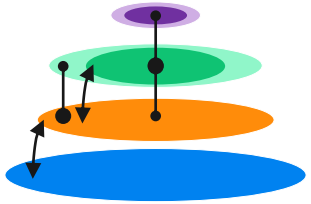


Instant access to NR



Extend the geographical coverage of <1 GHz

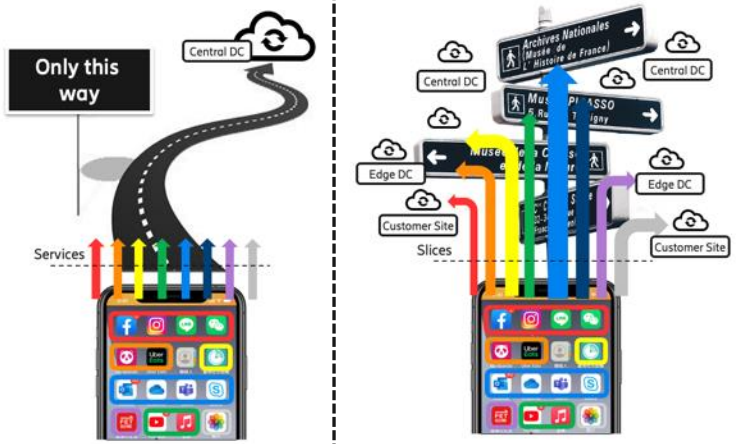
Simpler mobility and traffic



More near term business opportunities

5G NSA

5G SA



Different Service Profiles → 1 Networks

URSP UE Route Selection Policy → Different Service Profiles → Many Different Networks

ericsson.com/network-slicing