

SDN/NFV
포럼

NETWORK SLICING FOR 5G NETWORK BY SDN



AGENDA



- › 5G Introduction
- › 5G Use cases
- › Network Slice
- › Transport Network Slice – SDN
- › 5G Core and SDN

5G – BEYOND MOBILE BROADBAND



5G USE CASES



BROADBAND EXPERIENCE
EVERYWHERE, ANYTIME



MEDIA
EVERYWHERE



SMART VEHICLES,
TRANSPORT & INFRASTRUCTURE



CRITICAL CONTROL
OF REMOTE DEVICES



INTERACTION
HUMAN-IOT

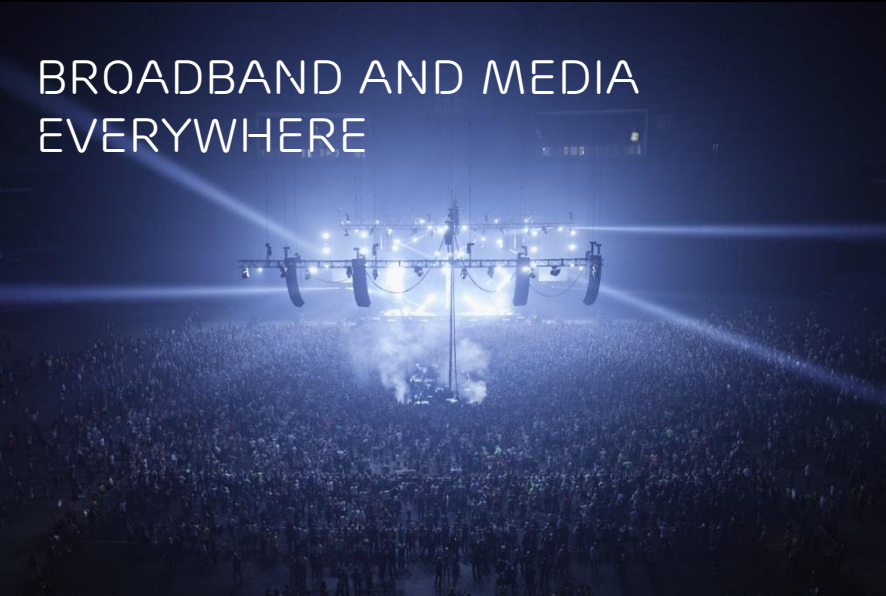


Wide range of new opportunities and use cases

5G USE CASES



BROADBAND AND MEDIA
EVERYWHERE



SMART VEHICLES AND
TRANSPORT



HUMAN MACHINE
INTERACTION



SENSOR NETWORKS



CRITICAL CONTROL
OF REMOTE
DEVICES



CRITICAL SERVICES AND
INFRASTRUCTURE CONTROL

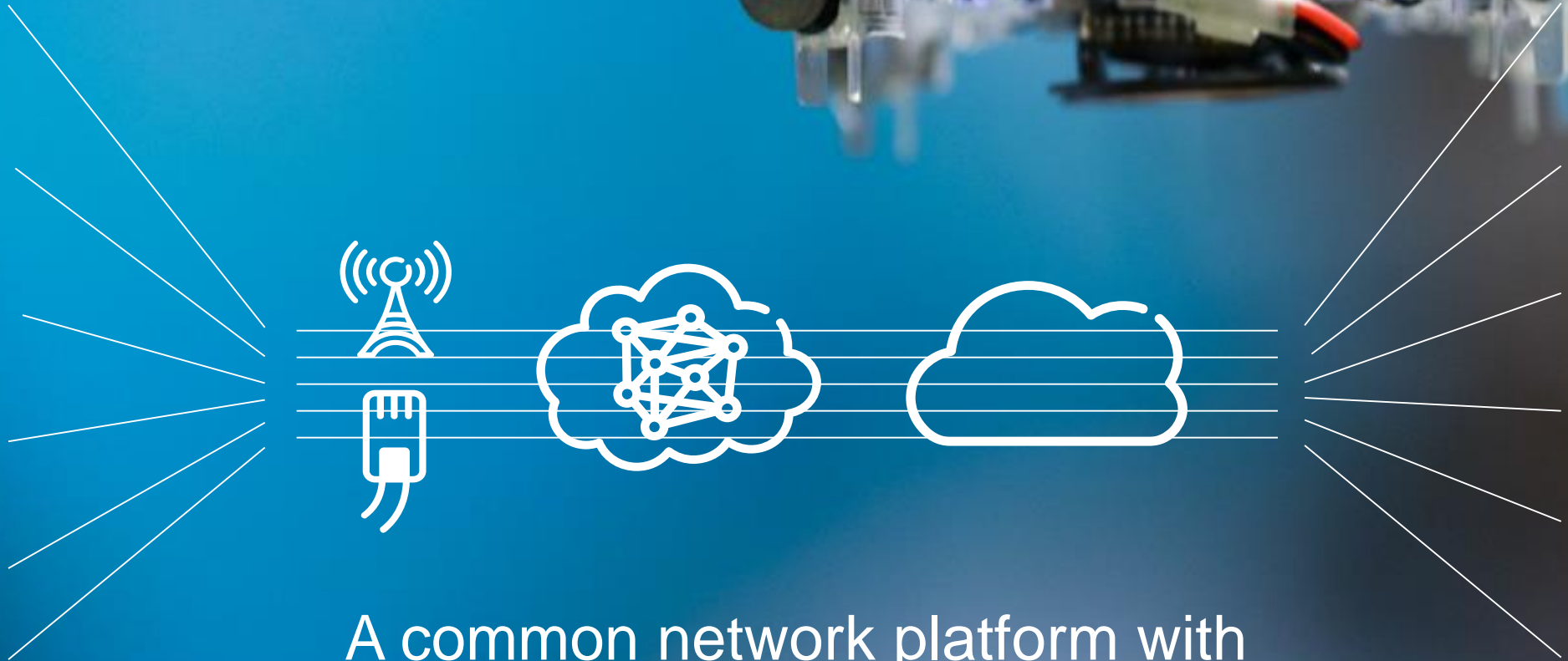


REQUIRED RANGE (E2E)

Communication Distance vs. Latency for some use cases

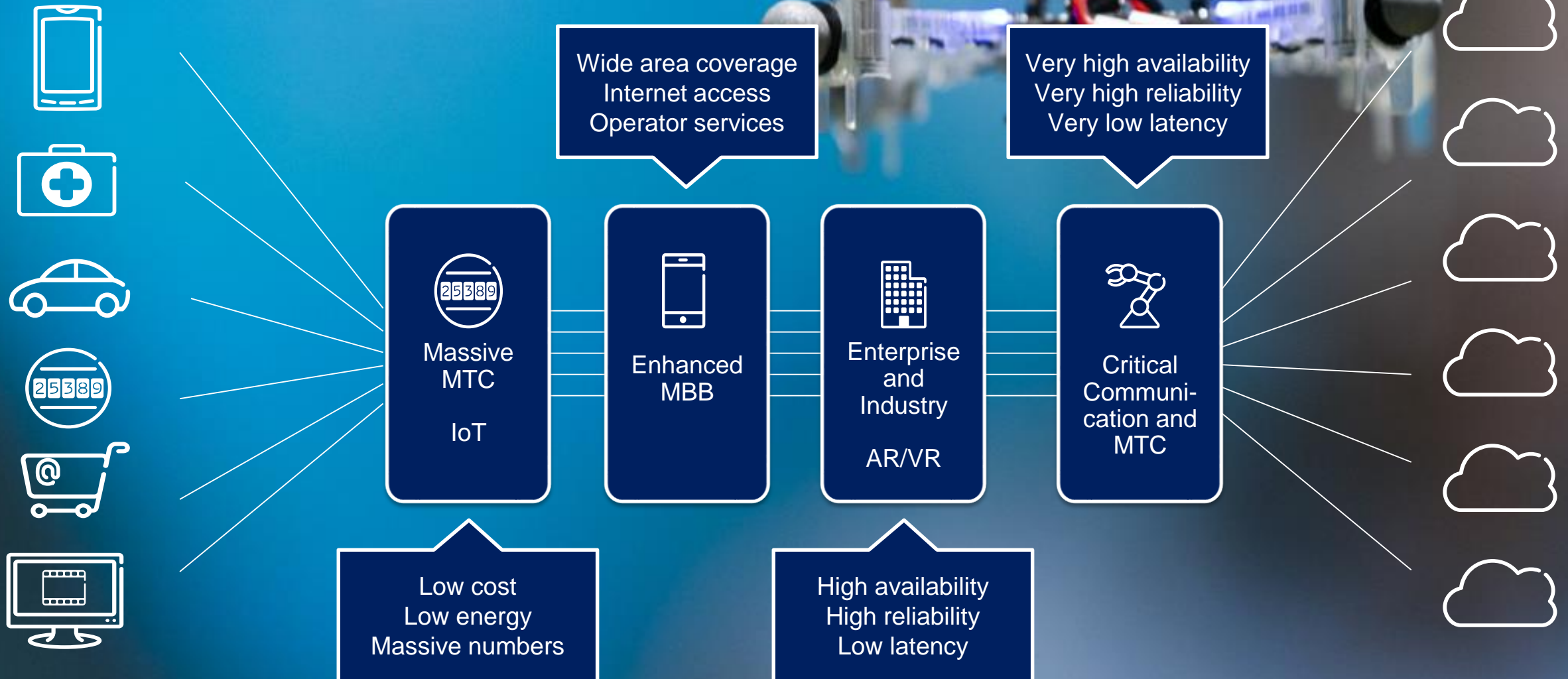


ONE NETWORK – MULTIPLE INDUSTRIES



A common network platform with
dynamic and secure Network Slices

INITIAL NETWORK SLICES



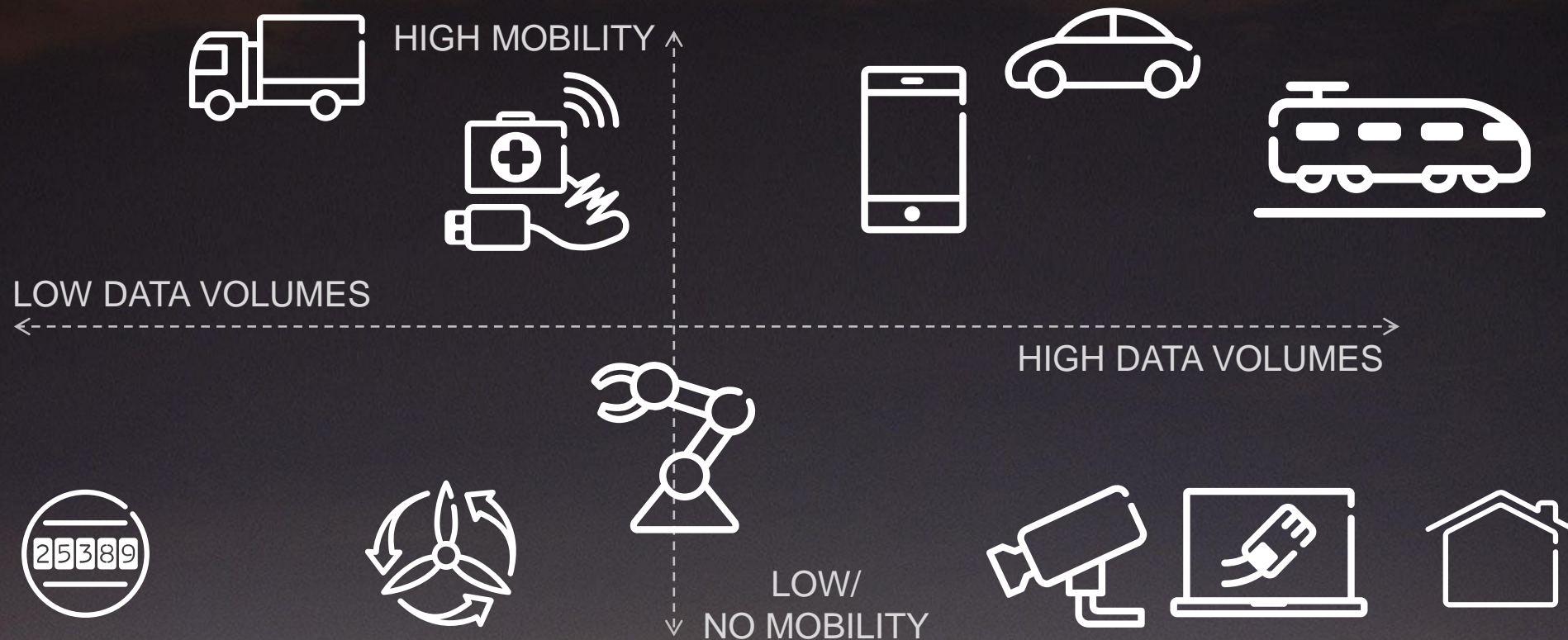
NETWORK SLICING THE BASIS

Large span of requirements and customer segments



Drivers:

- › Improved TTM/TTC
- › Reduced risk
- › Flexibility/Agility
- › Separation of concerns
- › Per service/customer optimization



10-100X

Connected Devices

10X

Battery Life

5X

Lower Latency

10-100X

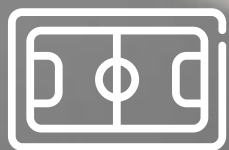
End-user Data Rates

1000X

Mobile Data Volumes

NETWORK SLICING

Cross Domain Optimization



eMBB

Slice 1

Slice 2

IoT

SLA violation

Thresholds
BW
Latency

SLA

Thresholds
BW
Latency

SLA

TRANSPORT



Event: Sudden surge in Traffic
on a Transport path



CORE

Action: Distribute Subscribers
to another DC



TRANSPORT

Result: Congestion Avoidance
Optimum Transport resource
usage



Optimum End User Experience



TRANSPORT SUPPORT FOR NETWORK SLICING

Critical IoT

Low Latency,
HA, BW assurance

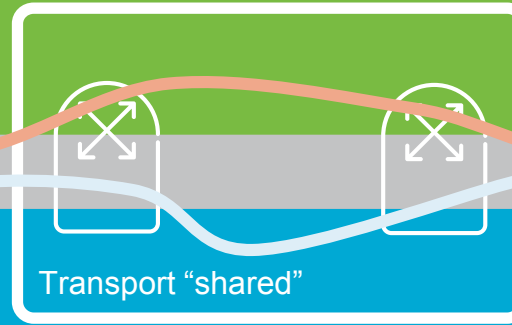
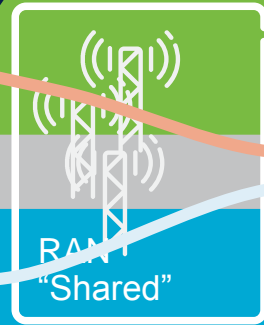
Slice Awareness
Cross slice impact
isolation

*Transport Service
Differentiation*
Low Latency, HA
BW assured path

Proactive Optimization
SLA assurance per slice

eMBB

Med Latency,
no HA, BE



Critical IoT

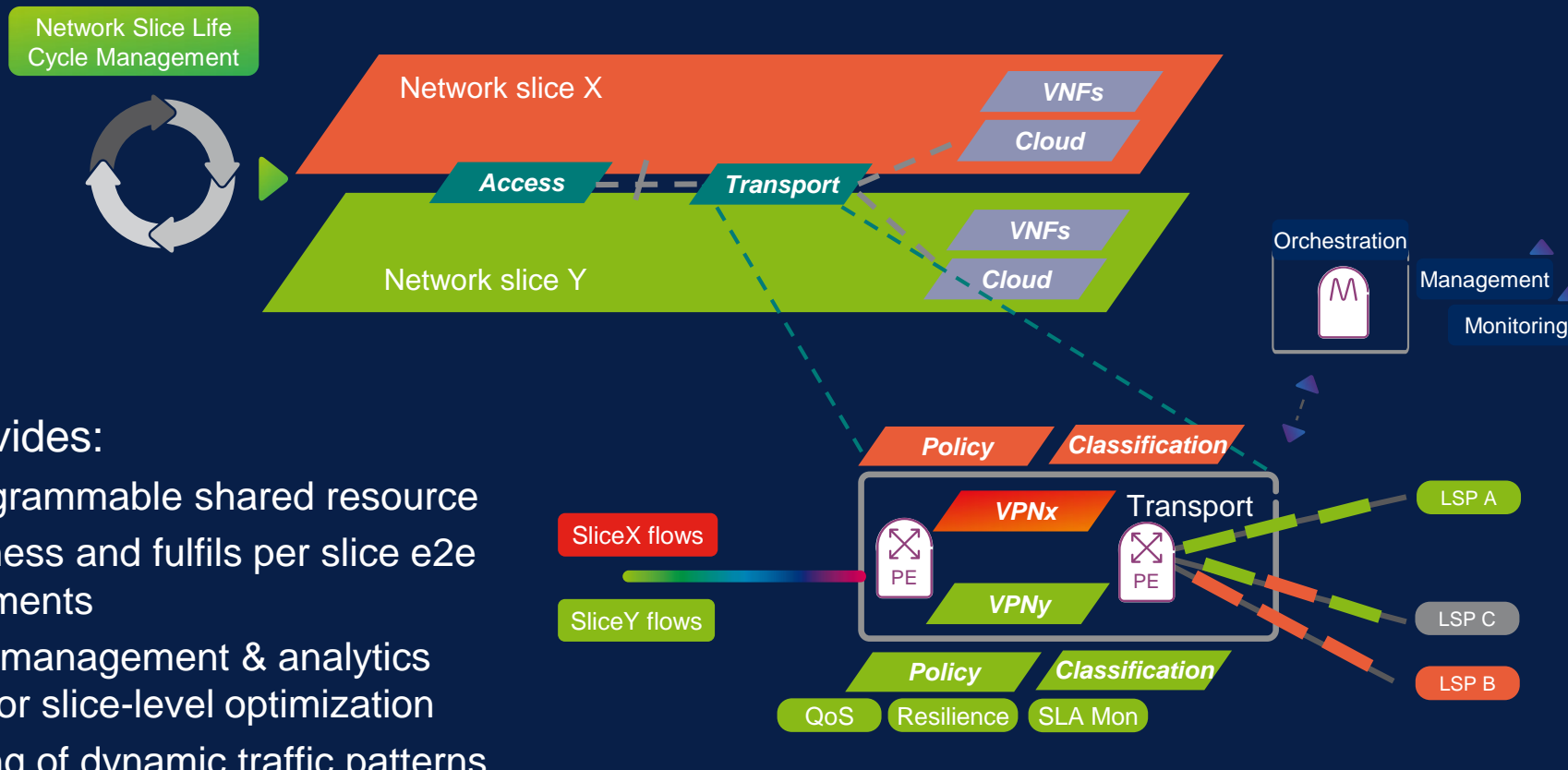
eMBB

Cross Domain Optimization
Feedback to RAN, PC for e2e
Service assurance

*Transport Service
Differentiation*
Nominal Path
no constraints

Enhanced Visualization
Transport Service KPI's,
correlation at Slice level

NETWORK SLICING – TRANSPORT



Transport provides:

- A highly programmable shared resource
- Slice awareness and fulfils per slice e2e SLA requirements
- Exposure of management & analytics capabilities for slice-level optimization
- Agile handling of dynamic traffic patterns

Dedicated

Shared

ERICSSON 5G CORE SYSTEM

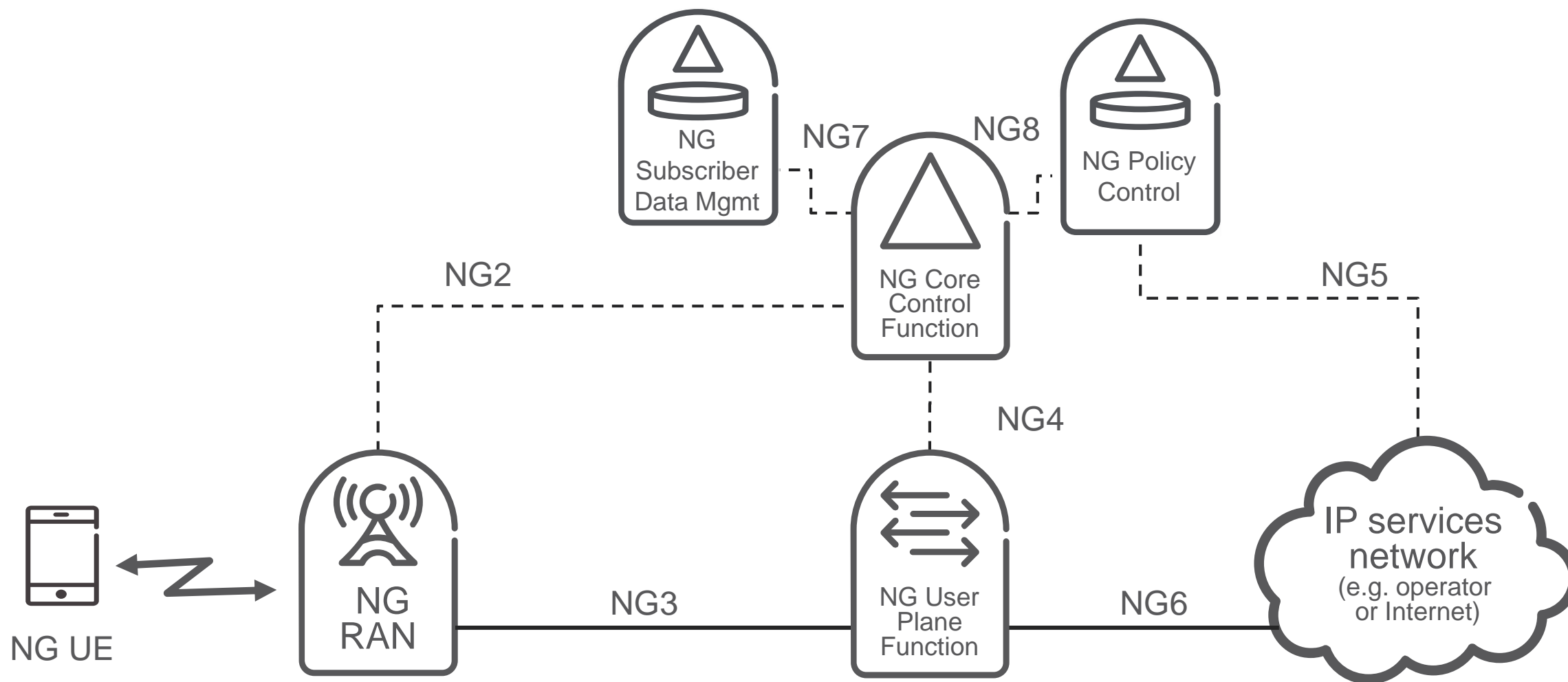
Key Messages



- › We are ready for the first 5G services today in Massive IoT
- › The 5G is complete E2E with NFV – SDN – Orchestration – Services
- › We are working with leading operators with E2E Core and NR radio trials
- › Ericsson is the best option for The first movers to 5G

5G CORE ARCHITECTURE OVERVIEW

Functional view



EPC - CP/UP PLANE OPTIMIZATION



Motivation:

Overall cost optimization

Independent scalability of CP and UP

Enabling very low UP latency

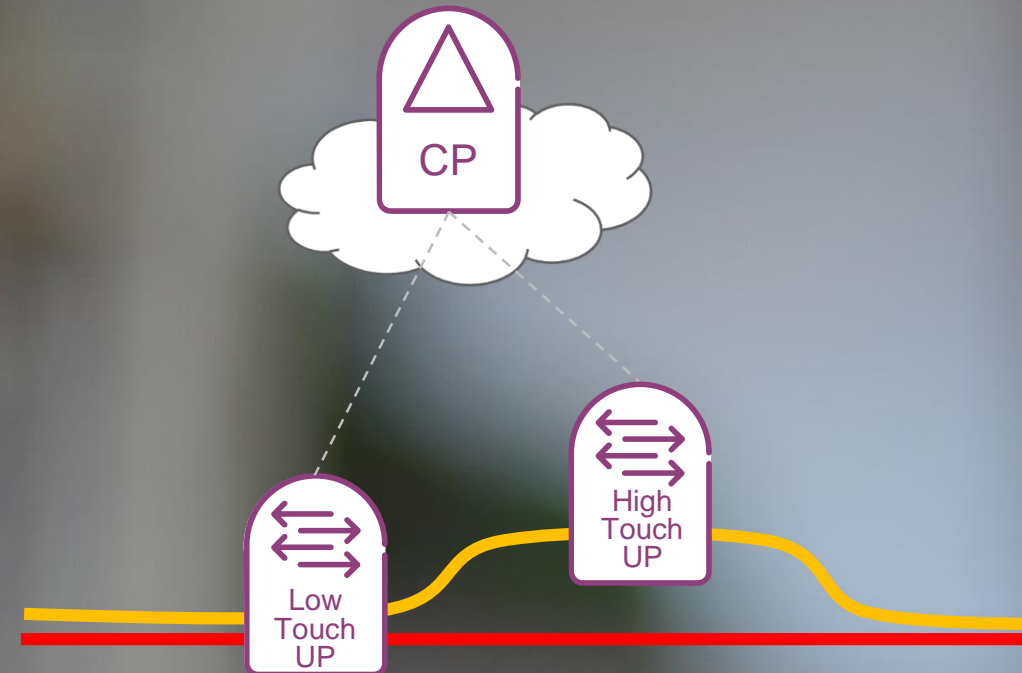
Enabling topological separation

Principles:

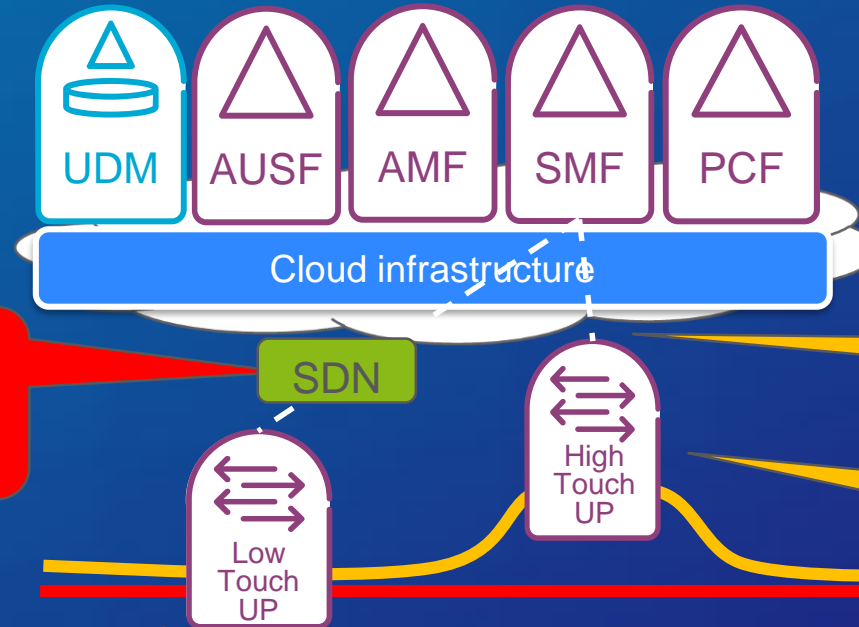
Not all flows get same treatments

CP to control the usage of High Touch and Low Touch resources in UP per flow. UP resilience controlled by CP

Offload flows to simplified (LT) processing when possible



FURTHER DETAILING CP-UP SPLIT



Simpler rules, focusing on packet forwarding and basic charging

Interface to support complex policy and charging rules

Handle complete UP, incl. service based charging and complex (e.g. bundled) policy rules

**Handle simple, long lived flows
Only byte counting-based charging, collected at intervals
Only simple policy rules**

SDN – A CRITICAL ELEMENT OF NFV



SDN – Agile Networking Delivering Service
performance expectation and flexibility



ERICSSON