

An aerial photograph of a large group of skydivers in various poses, falling over a curved horizon under a bright, hazy sky. The image serves as the background for the slide.

5G Network Capabilities Network Slicing Business Models

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Heterogeneous Use Cases: Extremely diverse requirements



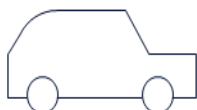
Devices
1.5 GB/day



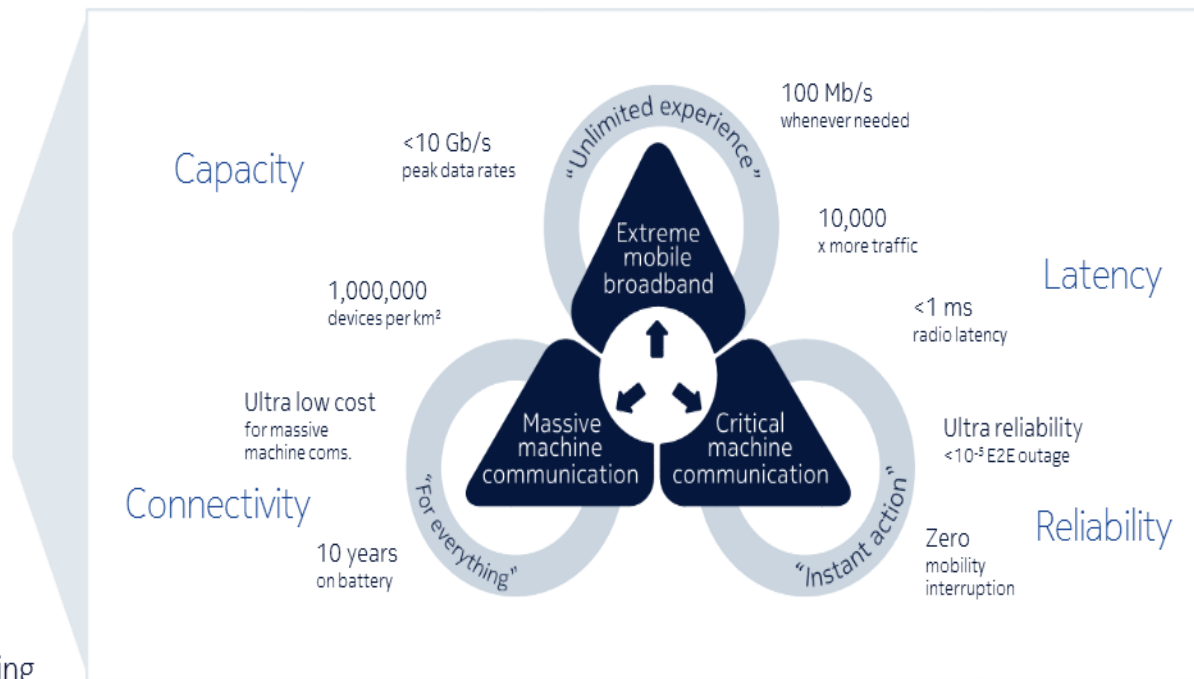
Smart factories
1 PB/day



Billions of sensors
connected

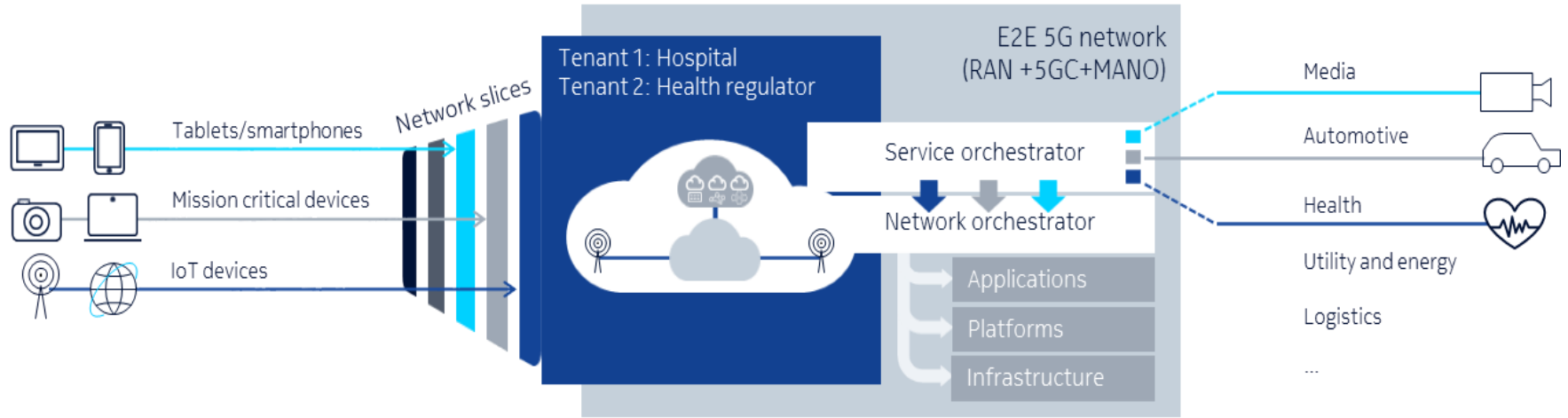


Autonomous driving
1ms latency



Design and architecture principles:
flexible | scalable | automated | cloud native
software centric | dynamic network slicing

5G system capabilities goes far beyond EPS



EPS

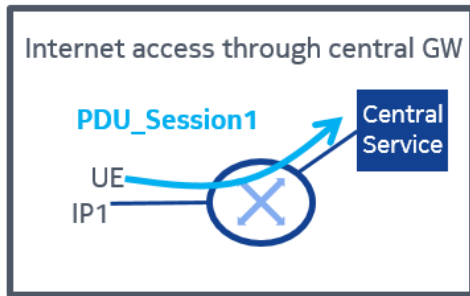
5GS

- | | | |
|---|---|--|
| <p>1) Convergence</p> <p>2) Cloud native</p> <p>3) Session</p> <p>4) QoS</p> <p>5) Network slicing</p> | <ul style="list-style-type: none"> • Access dependent protocols/procedures. • Possible but node based (box driven). Service impacting restoration procedure • Supports full IP address preservation for central GW or break before make solution for local GW • QCI based bearers • No E2E slicing mechanism, only Core slicing (APN, MOCN, DECOR) | <ul style="list-style-type: none"> • Unified protocols and procedures for 3GPP, non-3GPP access • Native support for cloud, compute-storage separation, elegant solution for NF resiliency to allow frequent upgrades/failure • Allows concurrent central and local services with “make before break” • QoS flow based framework, including reflective QoS support • E2E (RAN + Core) slicing concept: selection, routing, resource differentiation |
|---|---|--|

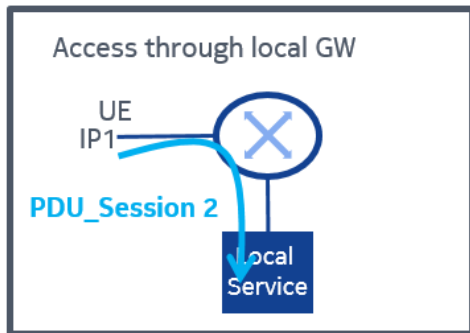
Flexible routing to facilitate needs of diverse applications

5GC+ EPC

Case a

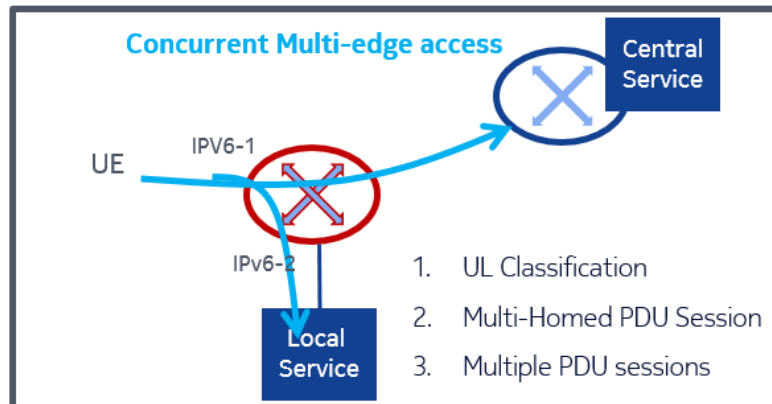


Case b



5GC only

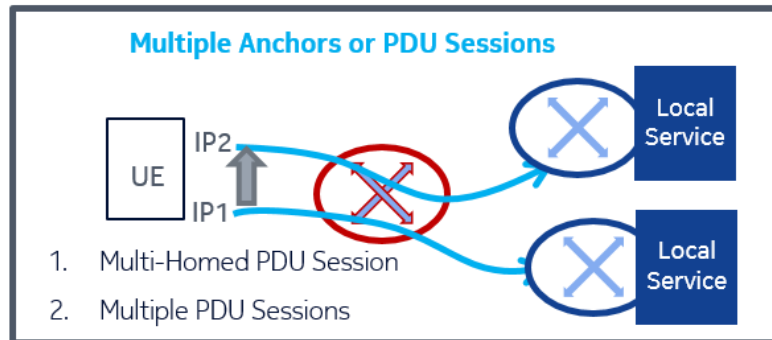
Case d



e.g. for
use case
CDN

Multi-Homing / PDU sessions are permanent to facilitate multi-edge access

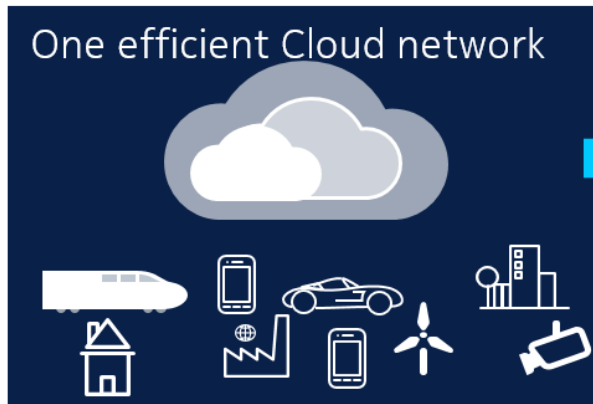
Case c



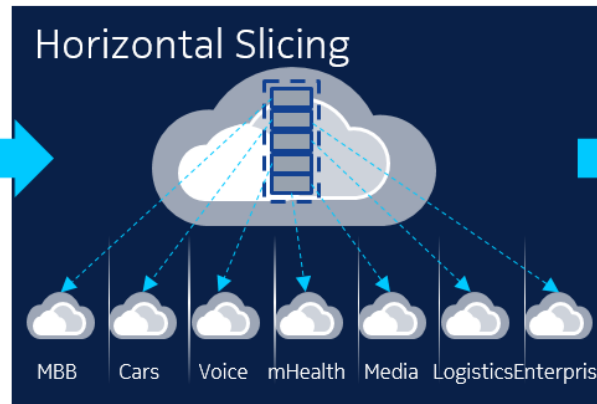
e.g. for
session
continuity

Multi-Homing / PDU sessions are temporary to facilitate mobility

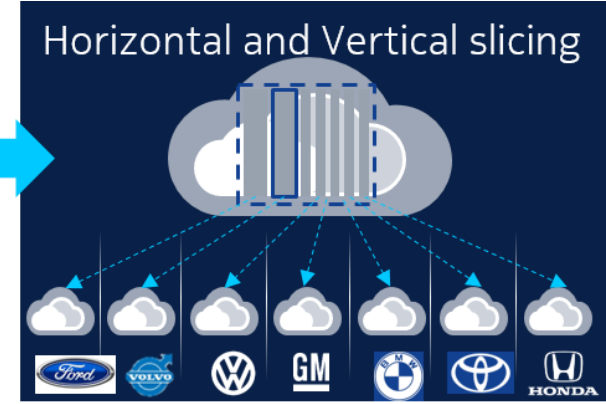
Basic Business models: Network Slicing as a Service



Today's network serving all services and devices



Horizontal slicing for Services, device segment and customer segments



Vertical Slicing for Service and Consumer specific customization

Vertical and horizontal slicing offers new business opportunities for network operators due to high degree of operational flexibility, different levels of control.

**No control = monitor KPI; Limited control = engineer resource for special services,
Extended control = own part of the network, able to orchestrate slice instances;**

E2E capabilities for slicing

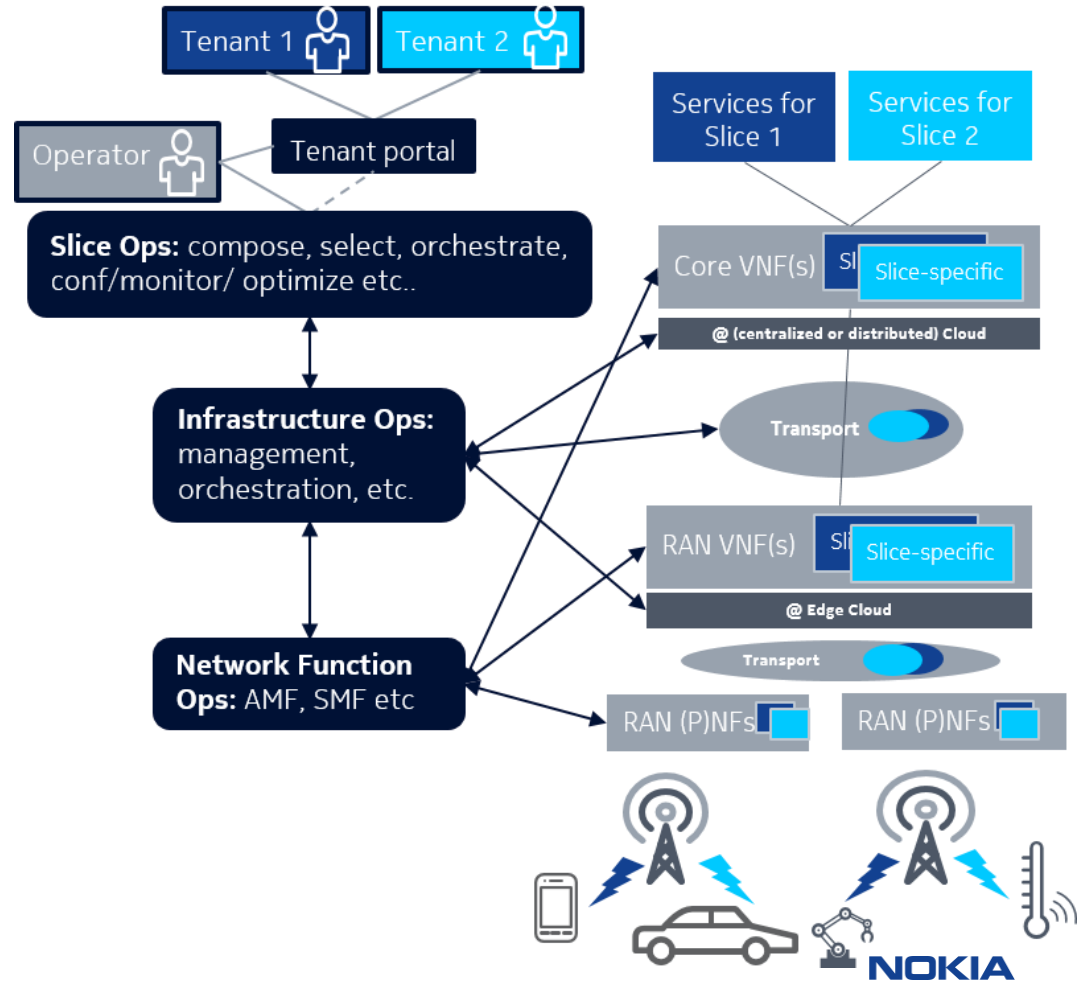
- Business logic (Operator + Tenant-facing)
 - **SLA** negotiation – attributes/KPIs selection, pricing, VAS, etc.



- Operations logic (Operator-facing, perhaps tenant-facing)
 - Slice **design, embedding, monitoring**
 - Slice **orchestration**, life-cycle management



- Functional logic (Functionality in RAN, Core, transport, cloud infra)
 - **Mapping** UEs/Flows/Functions to slices
 - **Functional behaviors** for each slice
 - **Resource** management



5G in a nutshell

