Online Event

5G Vertical User Workshop

European 6G Vision:
towards a new understanding of verticals

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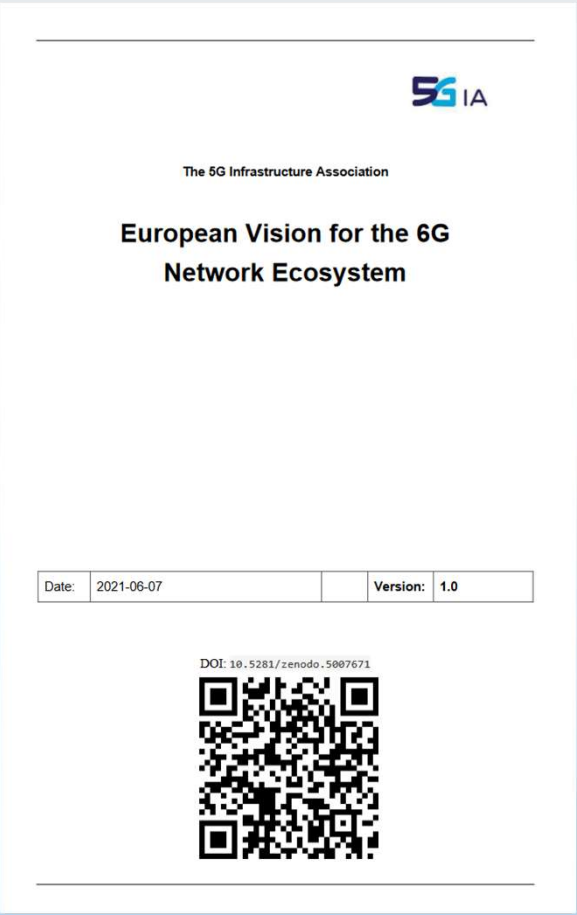
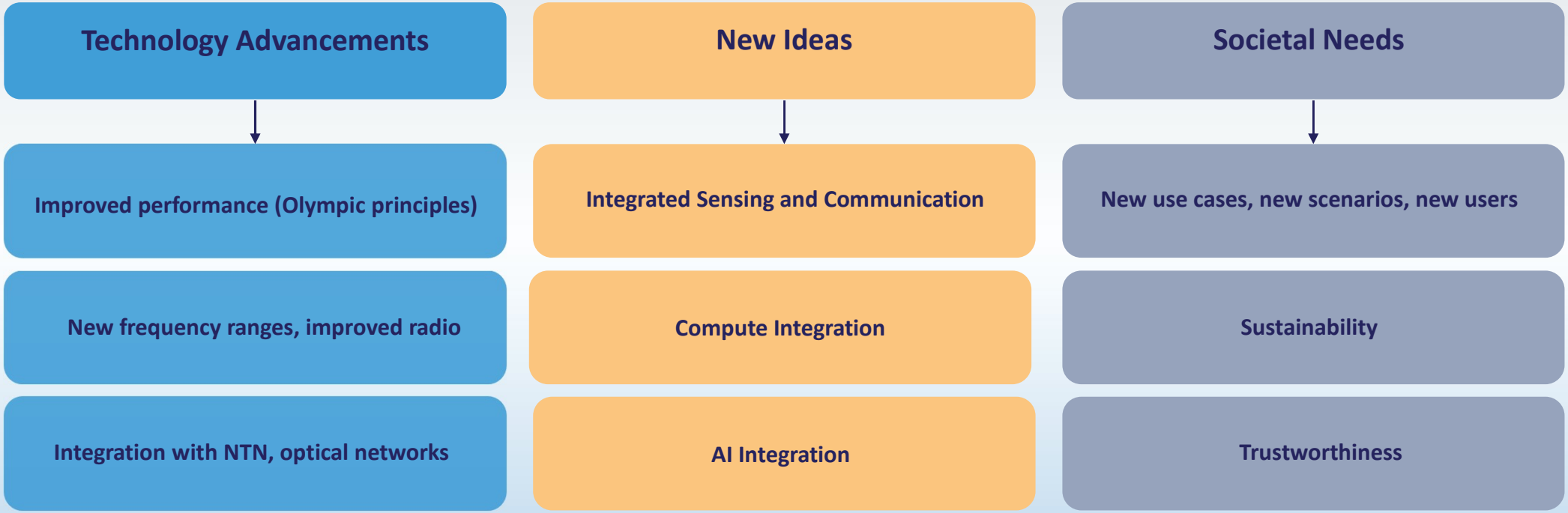
About the European Vision for 6G

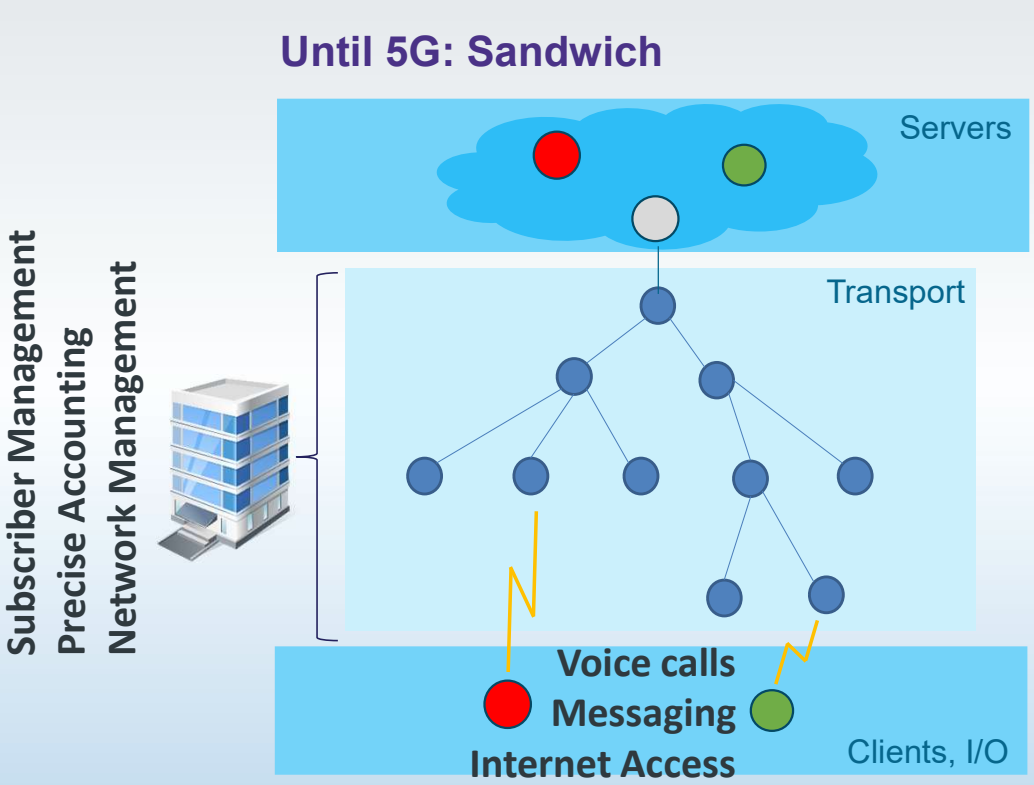
- Content of this talk is based on:
  - 5G-IA Vision and Societal Challenges Working Group's Whitepaper
    - Under broad participation of big telco, vendors, universities, etc.
    - Work carried out Dec 2020 - May 2021
    - Whitepaper published June 7, 2021
  - 5GPPP NPN Whitepaper
    - Work carried out in 2021 and 2022
    - Whitepaper published Nov 17, 2022



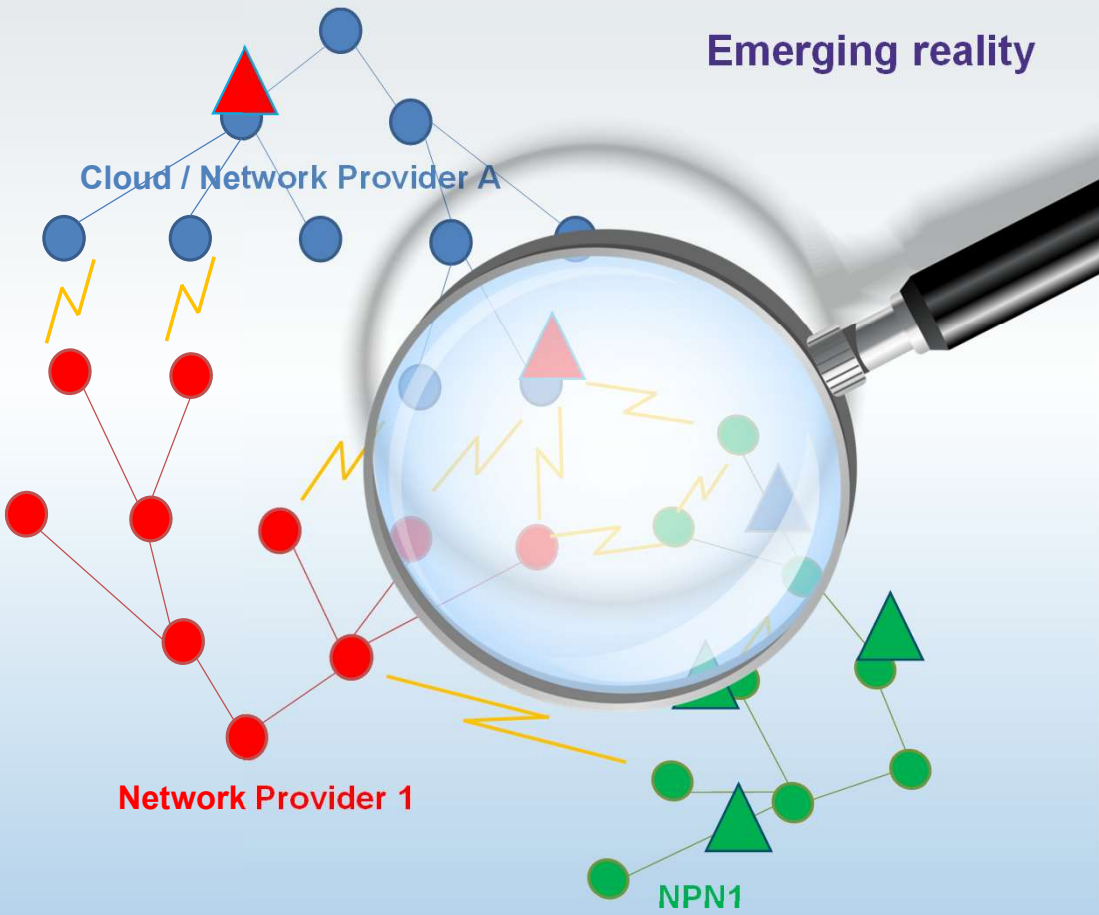
Drivers for 6G



Mental picture of a mobile system vs. node reality



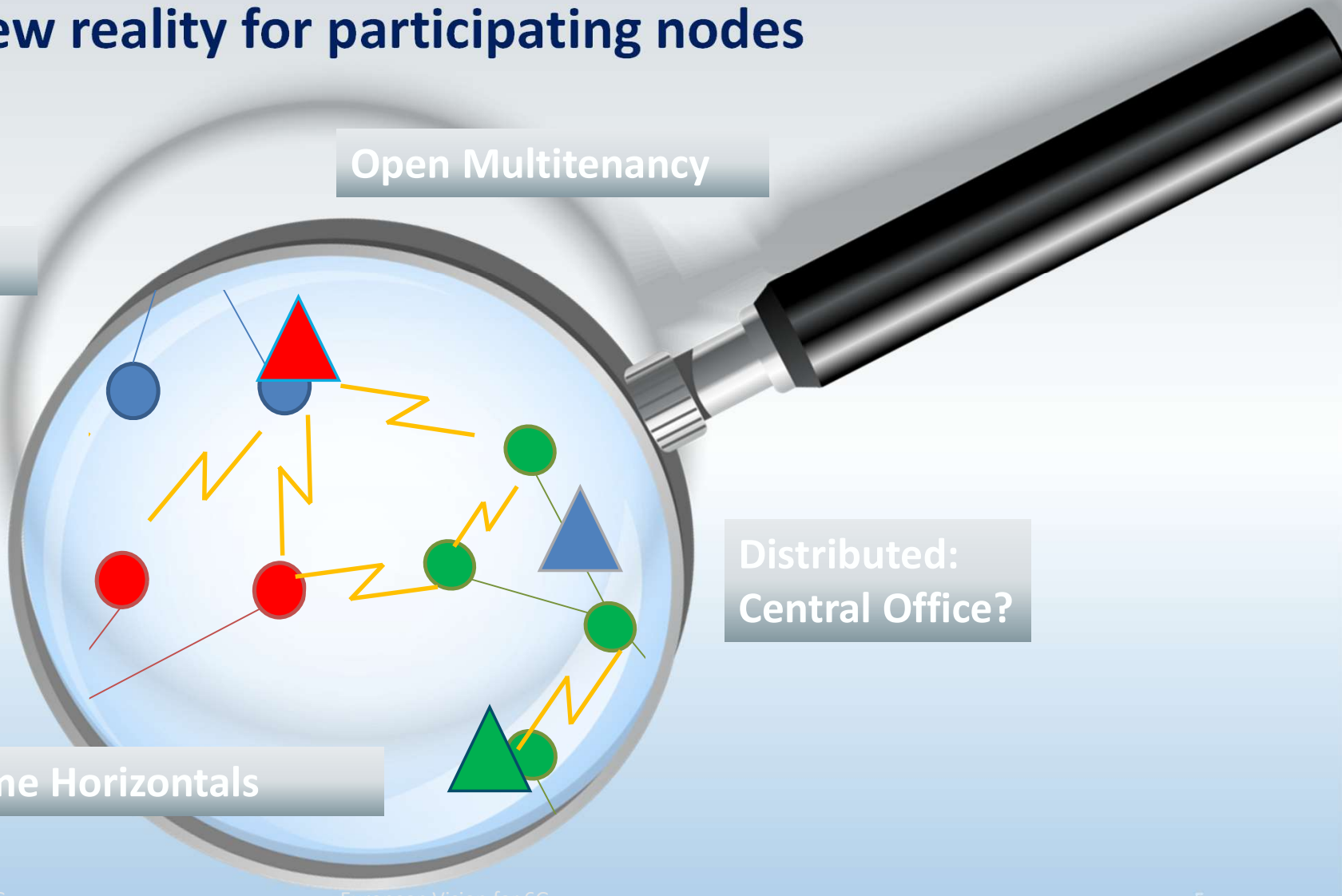
Strict separation of compute/connectivity
In principle, solved and obsolete



The new reality for participating nodes

Open Multitenancy

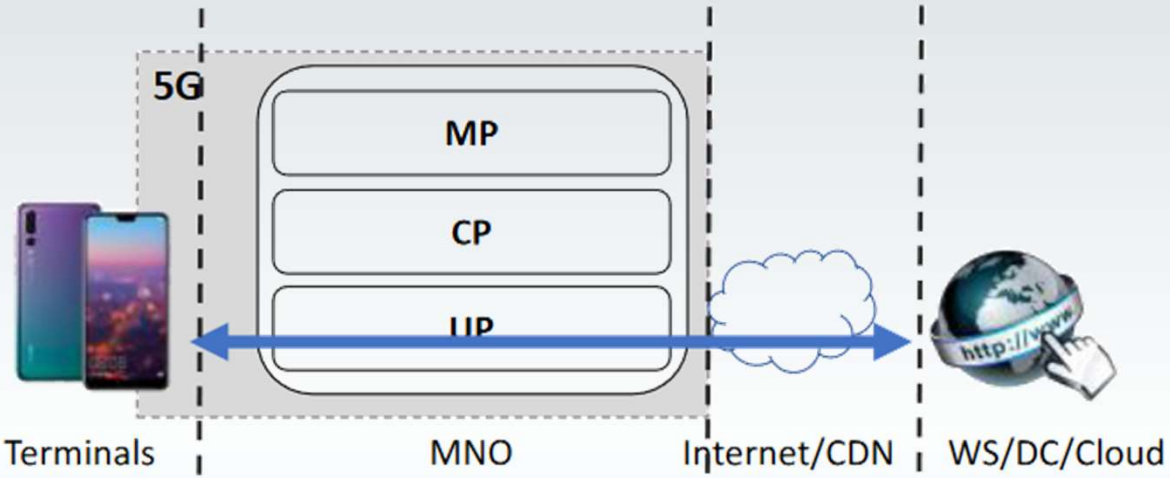
Full Local Service



Distributed:
Central Office?

NPN: Verticals become Horizontals

Example: disruptive potential of NPN

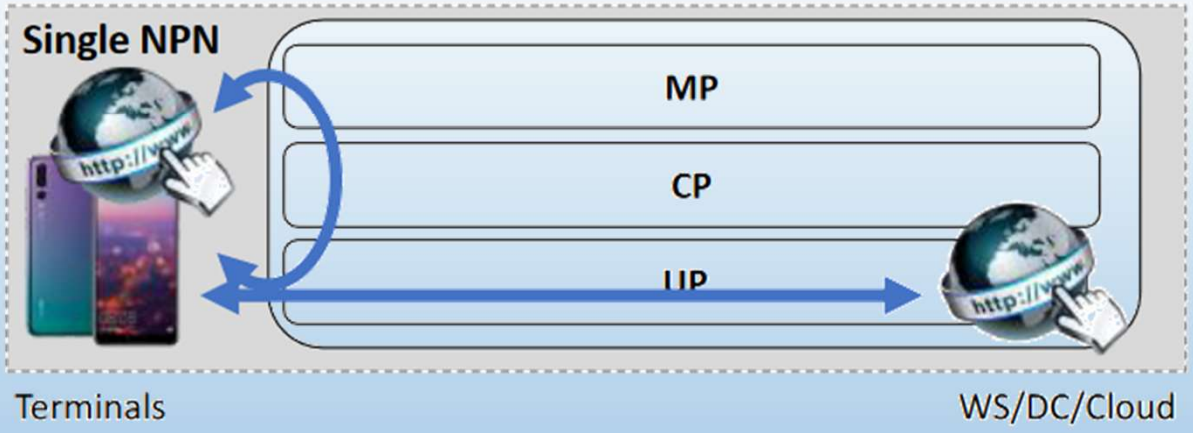


Where is core network support for enterprise application integration?

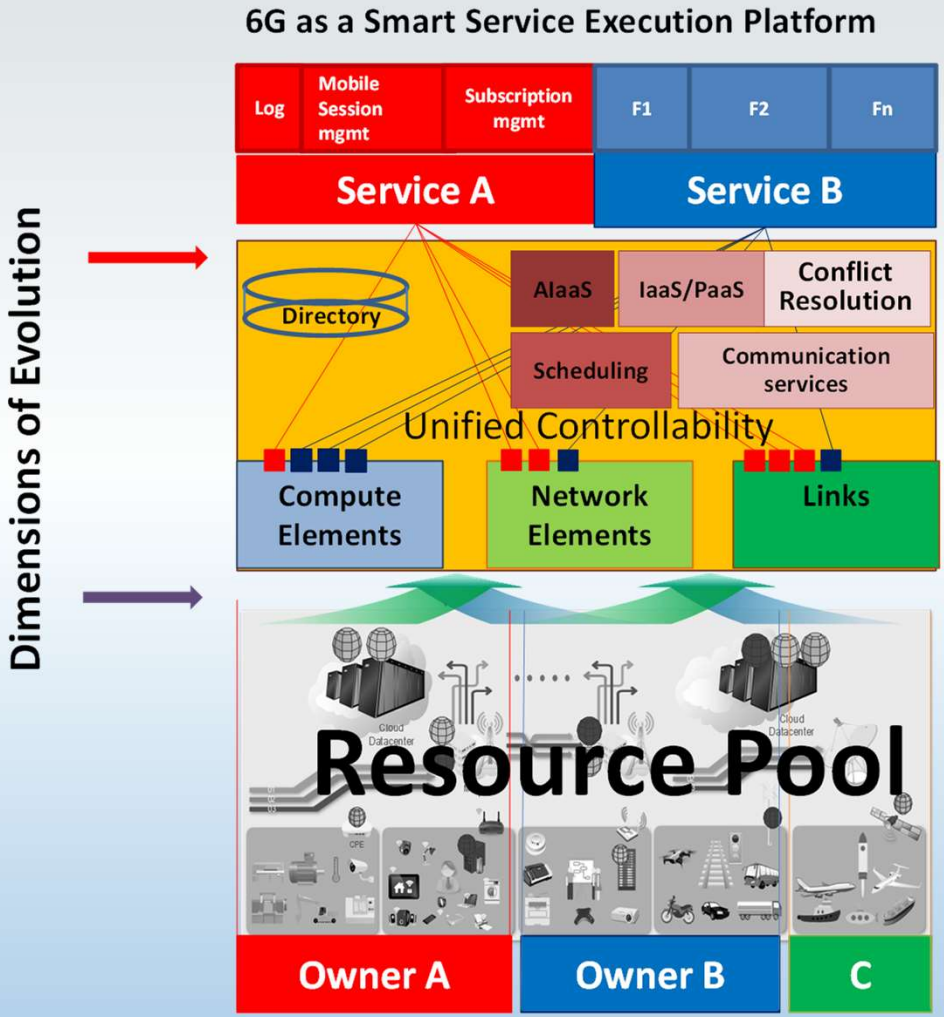
- ***Easy deployment***
- ***Service quality assurance***
- ***Security considerations***

NPN:

- ***Radically different scenarii***
- ***Different sizes, different deployments***
- ***External dependencies (e.g., PNI-NPN)***



Vision for a 6G Architecture



Mobile System Architecture

Novel service requirements, expected novel capabilities and the **push of the programmable elastic system**

- Emergence of new types of functions within the user, control and management planes.
- **Mobile system architecture**, now **allocated as a service chain**, will preserve and uphold flexibility of the modern infrastructures
- **Mobile system** will look like a **computer program executed within the programmable infrastructure**.

Infrastructure

- **flexible on-demand provision.**
- **capable of resource control**
- **full-service platforms**, natively offering capabilities B E2E

Required Developments in :

- novel resource control plane scheme,
- integration of suitable distributed secure computations,
- autonomic and distributed conflict resolution
- distributed resource scheduling
- Distributed AI

Main corner stones of European 6G Vision

	5G	6G
TYPE OF SERVICE	Point to point QoS transport	Point-to-multipoint transport, including configurable logical network overlay topologies with managed quality properties and net-app awareness, with compute services, sync services, AI services
TYPE OF RESOURCES	Communication	Communication + compute + sensing
ARCHITECTURE SCOPE	RAN+CN	Terminal + RAN + CN
CLOUD-NATIVE	Only CP in 5GC	E2E and cross-plane (User plane / Control plane / Management plane)
MICROSERVICES	No	Yes, E2E, all planes
RESOURCE AWARENESS	Only air interface	Yes, all employed resources, including compute, transport, wireless
TRUSTWORTHINESS	Trustworthy nodes	Trustworthy adaptive services/ network of networks
AI/ML INTEGRATION	Over-the-top	Natively integrated
ADMISSION CONTROL	Access control	Execution control
DEVICE/NODE DISAGGREGATION	CU/DU, IAB	Fully flexible

Sustainability