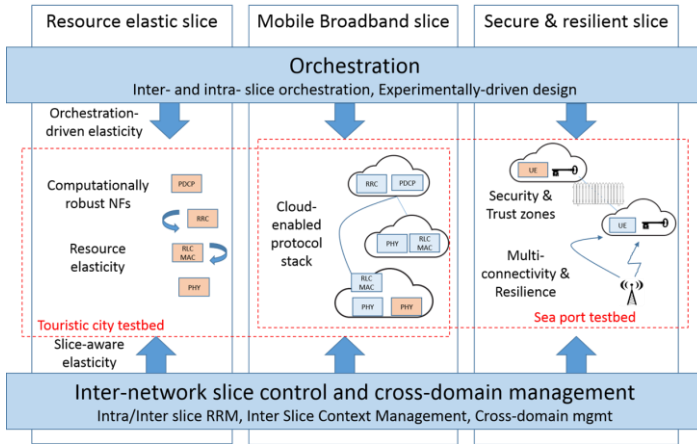


5G-MoNArch Scope and Approach

Turning 5G mobile network architecture concepts into practice



- ❑ Enhance and complete *5G network architecture concepts*, making network slicing usable in practice
- ❑ Develop and implement *dedicated vertical use cases* with specific functionality requirements
- ❑ *Proof-of-concept and validation through real-world testbeds* – sea port and touristic city

Solution Concepts and Testbeds

Industrial Sea Port Environment

- Transportation traffic steering within harbor area through traffic light control
- Environmental measurements
- Video surveillance



Touristic City Environment

- Augmented / Virtual Reality for live event experience
- Cooperative media production: user interaction with virtual environment

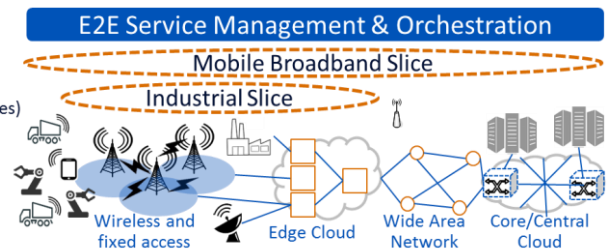


- **Network slicing:** multiple independent logical network instances or slices sharing the infrastructure, using SDN, virtualization, orchestration and analytics
- New methods for orchestration and optimization across slices, and among virtualized functions
- New cloud-enabled protocol stack to decouple virtualized functions from infrastructure

Level 3:
Services

Level 2:
Network
(logical instances)

Level 1:
Network
Resources
and Functions



Reliability, Resilience & Security

- RAN reliability: multi-connectivity and network coding
- Resilience in telco clouds: fault isolation & prioritization and scaling of NFs & semi-autonomous 5G islands
- Security: security trust zones & fault isolation

Elasticity of Resources

- Efficient resource scaling through network functions
- Computational resources – graceful downscaling
- Orchestration: re-allocate network functions within and across the edge cloud
- Slice-aware network size and resource optimization

Benefits and Impact

Commercial Impact

- Enhanced products such as orchestrators, edge-cloud RAN, management solutions
- Enabling novel services through network slicing
- Opportunities for new market players – mobile service providers, tenants, and infrastructure providers

Technical Benefits

- Filling conceptual gaps in network slicing and architecture concepts
- Improve and proof usability of network slicing
- Development, evaluation, validation and implementation of real-life 5G use cases