5G IA
INFRASTRUCTURE ASSOCIATION

5G PPP
PUBLIC-PRIVATE PARTNERSHIP

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5G PPP Projects

Demos Abstracts for
5GCAR, 5GMoNarch, 5GXHaul, ONE5G

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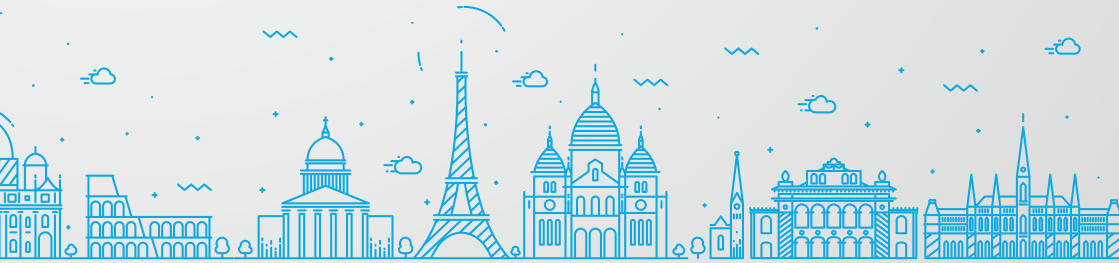
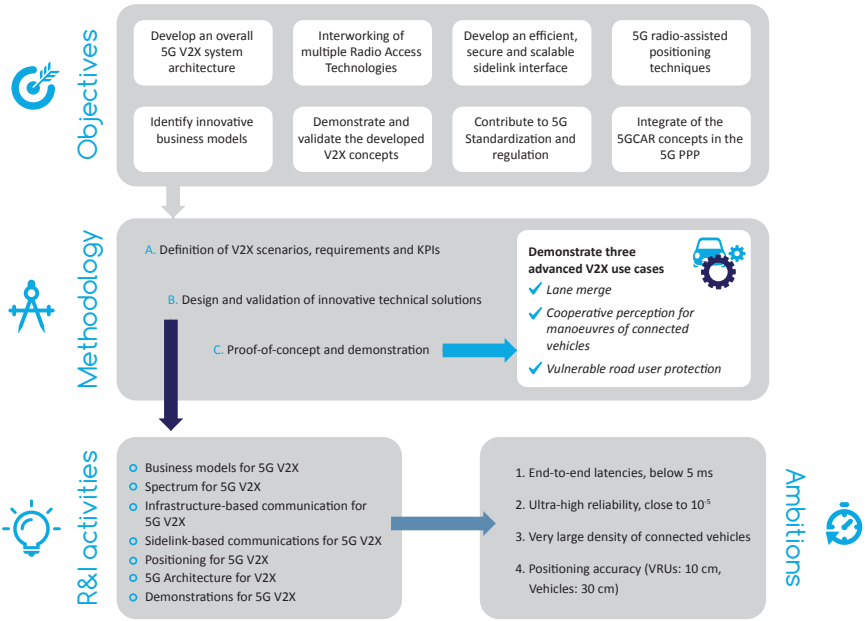


SCOPE & APPROACH

5GCAR brings together automotive and mobile communications industry to develop innovations at the intersection of those industrial sectors in order to support a fast and successful path towards safer and more efficient future driving.



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VISIT US
Mobile World Capital STAND CS40

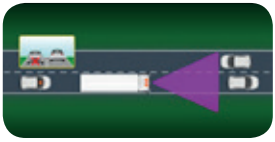
5GCAR DEMO IN MOBILE WORLD CONGRESS 2018 (CS40)

Lane merge of connected cars using SDN/NFV and edge computing technologies

USE CASES

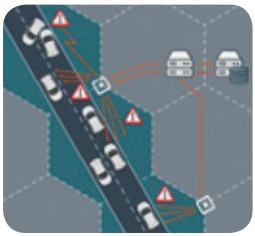
Lane merge

Network assisted
Vulnerable Road User



See-through

Remote driving
for automated parking



High definition local map
acquisition

More information at
www.5gcar.eu

@H2020_5GCAR

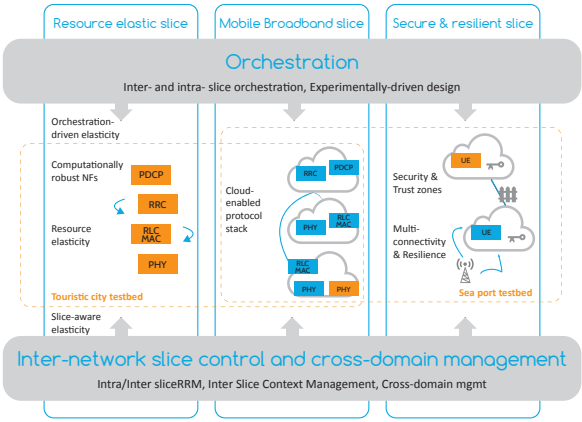
5G-MoNArch

5G Mobile Network Architecture for diverse services, use cases, and applications in 5G and beyond

SCOPE & 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



BENEFITS & 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

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SOLUTION CONCEPTS & TESTBEDS

INDUSTRIAL SEA PORT ENVIRONMENT

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

TOURISTIC CITY ENVIROMENT

- 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

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

More information at
www.5g-monarch.eu

@5g_monarch

5G-XHaul

Dynamically Reconfigurable Optical-Wireless Backhaul/Fronthaul with Cognitive Control Plane for Small Cells and Cloud-RANs

SCOPE & APPROACH

PROBLEMS TO SOLVE

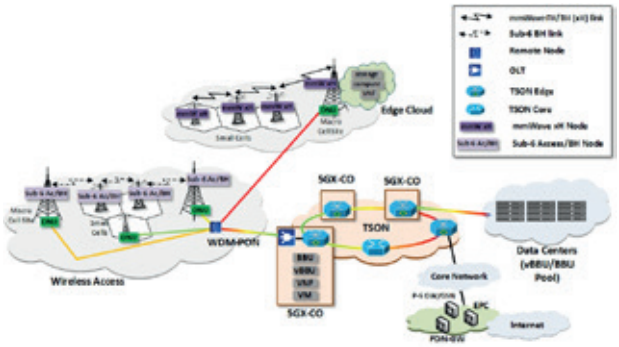
- Demand for mobile connectivity in hyper-populated cities will lead to network densification in 5G, where antennas will be deployed at street level (lamp post) in addition to roof-top (macro-cell)
- The required CAPEX/OPEX to deploy and manage such networks are unmanageable by Mobile operators

5G-XHAUL VALUE PROPOSITION

A novel transport network architecture to reduce OPEX/CAPEX in future 5G networks

ARCHITECTURE

WE ENABLE CAPEX/OPEX SAVINGS IN FUTURE 5G MOBILE NETWORKS:



Wireless segment: High throughput and low-cost wireless technology based on combination of 60 GHz and Sub-6 bands.

Scalable C-RAN architecture for macro-cells based massive MIMO array that provides high area capacity.

Optical Network: using WDM-PON for the access and TSON for the metro, to enable transport of BH and FH services over a single network

Software defined control plane to enable a unified and automated control and management of the end-to-end transport network

- Automatic redirection of traffic when a link breaks, or is taken down for maintenance
- Automatically provision a path end-to-end (wireless and optical), when a new base station is deployed

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5G-XHaul

VISIT US
5G-IA stand – Hall 7 STAND 7K17
5G-XHaul Video @ Mobile World Capital Barcelona – CONGRESS SQUARE STAND CS40

TESTBEDS

BRISTOL 5G CITY TESTBED WITH 5G-XHAUL EXTENSIONS

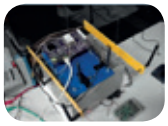
FEATURES DEMONSTRATED INCLUDE:

- Converged infrastructure for FH and BH services
- Transport slicing to isolate different mobile networks
- SDN control to automatically recover from failures

WIRELESS

Massive MIMO array

mmWave wireless SDN node



Sub-6 wireless SDN node

BFIC micrograph

OPTICAL

WDM-PON OLT located at active node

WDM-PON ONU

TSON Node

5G-XHaul architecture and technologies will be integrated in a real network in the city of Bristol in June 2018

Bristol is Open kindly offers housing and connectivity to 5G-XHaul for experimentation
www.bristolisopen.com

More information at
www.5g-xhaul-project.eu

@5G_XHaul

SCOPE & APPROACH

APPROACH (WORK AREAS)

- System Requirements, Integration, and Evaluation
- E2E multi-service performance optimization
- Multi-antenna access and link enhancement
- Proof of Concept and Trials (lead: WINGS)
- Dissemination, Exploitation and Standardization

MAIN BENEFITS

TECHNICAL BENEFITS

- Efficiency of 5G technologies in supporting the requirements in rural and suburban areas (underserved areas) and in the management of critical infrastructures
- Technologies for serving traffic mMTC, eMBB (when needed), URLLC (under conditions)
- Low cost (CAPEX/OPEX) through flexible creation and management of slices

BUSINESS-SOCIETAL BENEFITS

- How 5G can be used for narrowing the digital divide between megacities and underserved areas
- Retaining a low cost 5G network in rural and suburban areas
- Win-win situations for various businesses

ONE5G

VISIT US
MWC 2018 "IoT & 5G Use Cases" conference
session on Thursday, March 1st, 12:00 - 13:00 **Auditorium 4**

ARCHITECTURE

Vertical - IoT applications

1.

Physical domain and sensors/IoT

Temperature, humidity, sensors

Video cameras

Low cost 5G network

2.

5G connectivity and cloud platform

Reconfigurable architecture (USRPs, OAI)

Slicing, resource allocation

Analytics

3.

Big data platform (analysis and predictions)

Data Management and Analysis

Request/Analysis for/ of extra data (e.g., video feeds)

Dynamic Dashboard

4.

Visualization of predictions, real-time and historical data

Visualization of events and actions-impact based on stakeholder requirements

Event identification (e.g. agricultural incident)

Network slice monitoring

More information at
www.one5g.eu

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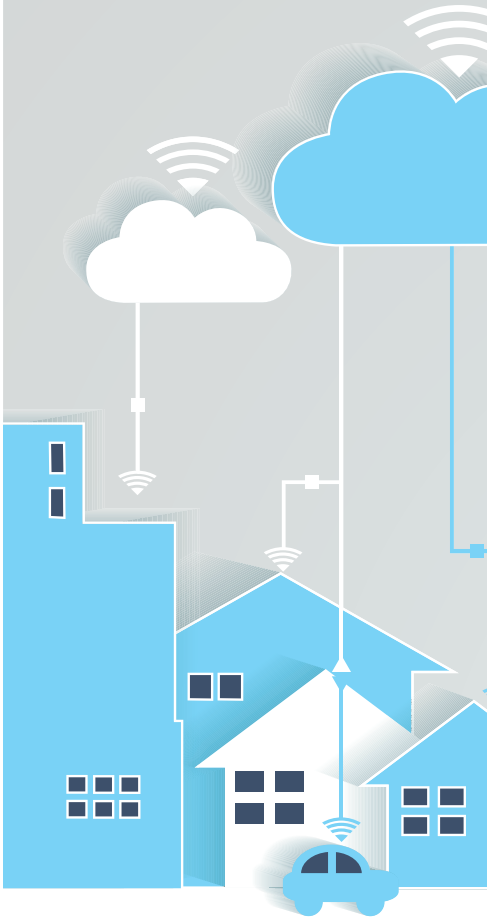

More information at www.5g-ppp.eu

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