5G ExPerimentation Infrastructure hosting Cloud-nativE Netapps for public proTection and disaster RELief

5G-EPICENTRE Project

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IAFA EVENT SERIES #4-2: Second event on pre-Standardisation – Steps: 6G Standardisation Requirements
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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Grant Agreement No 101016521
5G-EPICENTRE objectives

• To build an **end-to-end 5G experimentation platform** specifically tailored to the needs of the **public safety and emergency response** market players.

• To pilot 5G systems in **PPDR-based trials**, successfully demonstrating 5G-EPICENTRE onboarded apps as a crucial accompaniment to public safety MC communications technologies.

• To cultivate a ‘**5G Experiments as a Service**’ model, enabling developers and SMEs to experiment with PPDR applications in **parameterized, easily repeatable, and shareable environments**.

• To facilitate automation, continuous deployment and MEC supported by **containerized network functions**, so as to **reduce service creation time and time-to-market** for 5G solutions.
5G-EPICENTRE objectives

• To leverage AI for achieving **cognitive experiment coordination and lifecycle management**, including **dynamic 5G slicing, application awareness and insightful ML-driven analytics**.

• To implement **impact-driven dissemination, standardisation and exploitation**.

• Enable a stakeholders’ community, who are expected to become early adopters and facilitate introduction of the solutions in the relevant markets.
Over the course of three years, the 5G-EPICENTRE consortium partners will achieve key objectives towards the provision of an open, federated, end-to-end experimentation facility.

**Federation**
Federating multiple constituent 5G platforms evolved under previous 5G PPP Phase 2 and 3 projects into an advanced, user-friendly, zero-touch orchestration single point of control.

**Openness**
Implementing a repository of network functions (V/CNFs) and applications (NetApps) to address requirements pertaining to the most common PPDR experimentation environments.

**Cloudification**
Working towards the cloud-native transformation of both facilities and network functions in support of the transformational technologies, such as Multi-access Edge Computing (MEC).

*5G-EPICENTRE: open and federated 5G end-to-end experimentation platform specifically tailored to the needs of PPDR software solutions*
Federated infrastructure

5G-EPICENTRE brings together 4 geographically dispersed, end-to-end private 5G platforms, which support key 5G KPIs and allow cross-site orchestration and experimentation for PPDR solution vendors to validate NetApps reliant upon those KPIs.

**5GENESIS**
Málaga
Funded under the 5GENESIS project for indoor and outdoor 5G scenarios, hosted by UMA.

**5G-VINNI**
Aveiro
Funded under 5G-VINNI, based on ALB computational & networking infrastructure.

**5G-CTTC Barcelona**
Barcelona
Operated by CTTC, based on C-RAN architecture, with fully virtualized 5G RAN.

**5G BERLIN**
Berlin
Experimental platform consisting of the latest RAN technologies, operated by HHI.
## 5G-EPICENTRE Use Cases

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Supplier</th>
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<tr>
<td>Multimedia Mission Critical (MC) Communication and Collaboration Platform</td>
<td>Airbus DS SLC</td>
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<tr>
<td>Multi-agency, multi-deployment MC communications &amp; dynamic service scaling</td>
<td>Nemergent Solutions</td>
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<td>Ultra-reliable drone navigation and remote control</td>
<td>Fraunhofer HHI</td>
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<td>IoT for improving first responders’ situational awareness and safety</td>
<td>OneSource</td>
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<tr>
<td>Wearable, mobile, point-of-view, wireless video service delivery</td>
<td>RedZinc</td>
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<td>Fast situational awareness and near real-time disaster mapping</td>
<td>OPTO Precision</td>
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<tr>
<td>Augmented Reality and AI wearable electronics for PPDR</td>
<td>Youbiquo</td>
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<td>AR-assisted emergency surgical care</td>
<td>ORamaVR</td>
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Standardisation Roadmap

• Consider and imply the definitions and requirements of the standards
• MCPTT requirements to adjust the autoscaling capability for critical applications.
• support MANO of both container based and VM-based VNFs through K8splug-ins, providing heterogeneity.
  • Related standards: ETSI VNF reference architecture ETSI GR NFV-IFA 029 V3.3.1, “NFV Release 4 FEAT 17, “ETSI GS NFV-SWA 001 V1.1.1

• Partners are active in WGs for standards with several targeted contributions
  • Pre-Standardisation & Security
  • 5G-PPP/6G-IA TVM and Vision and Societal Challenges
  • SMEs
Standardisation Roadmap

• 5G-EPICENTRE Consortium is active in the ETSI Plugtests
  • Bring and validate some of the 5G components utilized within the project, particularly:
    • the 5G Core Network and
    • MCS/MCX solutions.

• Disseminate & Communicate results and lessons learned on standards from the deployments and the Network Applications deployment.
Major Challenges for Standardisation

• Achieving global standardization and interoperability and network operators is essential for the widespread adoption of B5G/6G.
  ▪ Research and new technologies are involved fast

• Compatibility with existing G networks: There is a need for smooth transition.

• B5G projects can contribute to policy and regulatory challenges [spectrum management, security and privacy, IPR, socioeconomic impact] & compliance.

• Network Slicing between hybrid public-private 5G networks and heterogenous networks
Major Challenges for Standardisation

• Cloudified 5G testbed platform for PPDR microservices needs to consider MCPTT requirements to adjust the autoscaling capability for critical applications.

• Federation across infrastructures with heterogeneous resources
  • NFV and MANO technologies need to utilize the common framework is defined by the ETSI [ETSI GR NFV-IFA 029].

• 5G-EPICENTRE Portal provides the optionality for the specification of the microservices used, protected by the HSPF components.
  • Consideration of ETSI ZSM (Zero-touch network and Service Management)
Thank you for listening

Q&A

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