



# 5G security and IoT



**"Controlling the beast!"**

BEREC/ENISA Workshop

"Exploring the cybersecurity landscape of 5G and IoT"

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# Key 5G "novelties" raising new security challenges

Softwarisation  
(NFV/SDN)

Infrastructure Sharing  
(MVNOs/multi-tenant/  
E2E applications)

Edge/fog Computing  
(distributed cloud)

Heterogenous  
Access Nodes  
+ UE-UE Communication

# Relevant scope: Wider than IoT ?...

## *Massive and critical MTC* (Machine Type Communication)

**Massive**

Device heterogeneity  
Group management  
Cost compatibility  
Energy efficiency

Highly reliable  
Secure access to actuators  
Safety issue

**Critical**

# Most relevant 5G Security Challenge Areas for IoT support

- **5G Security Architecture:** *Building upon 4G*
- **5G Access Control:** *Volume/signalling, cost, energy, heterogeneity, management*
- **Privacy:** *e.g. LI in a virtualised network context*
- **Security management:** *e.g. increased security of control plane to protect resources in a multi-slice/multi-tenancy environment, increased use of situational/behavioural context information (AI), coexistence PNF and VNF, etc*

→ degree of **standardisation** required?

# Key Influencers in EU 5G/IoT landscape



The screenshot shows the 'Working Groups' section of the 5G Infrastructure PPP website. It lists various working groups under two categories: Policy oriented Working Group under responsibility of Association and Technology oriented Working Group under responsibility of 5G PPP projects. The groups include Pre-standards, Spectrum, Vision and Societal Challenges, Architecture, Use cases and performance evaluation models, Software Networks (SDN and NFV), Activity 5G PPP Contractual Arrangement, KPIs, Activity 5G International cooperation, Network Management, QoS, Activity Community building and Public Relations, SME support, and Security. A legend at the bottom explains the color coding for the groups.

## Working Groups

WG 01	IoT Research																		
WG 02	Innovation Ecosystems																		
WG 03	IoT Standardisation																		
WG 04	IoT Policy																		
	SME Interests	WG 05	Smart Living Environment for Ageing Well	WG 06	Smart Farming and Food Security	WG 07	Wearables	WG 08	Smart Cities	WG 09	Smart Mobility	WG 10	Smart Water Management	WG 11	Smart Manufacturing	WG 12	Smart Energy	WG 13	Smart Buildings and Architecture

# A few questions from EC perspective

... but don't trust my response ...

*Can we share a common security architecture for 5G ?  
Or should approaches be more specific to vertical use cases? Who has ultimate control ? Impact on standardisation?*

*Should we make use of the EU Cybersecurity Certification Framework in this 5G IoT security context?  
Possible approaches?*

*What/How can a closer collaboration between Public-Private Partnerships on 5G and Cybersecurity (and AIOTI) achieve in advancing faster on research?  
Priorities? Key topics?*

# A wealth of technical expertise available

<https://5g-ppp.eu/white-papers/>

**5G PPP Security Landscape - (White Paper) June 2017**

This paper provide insights into how 5G security should be addressed in terms of “what” and “why”.

<https://aioti.eu/aioti-wg03-reports-on-iot-standards/>

AIOTI WG03 Reports on IoT Standards

[Download Identifiers in Internet of Things \(IoT\) Release 1.0 February 2018](#)

[Download High Level Architecture \(HLA\) Release 3.0 June 2017](#)

[Download IoT LSP Standard Framework Concepts Release 2.8 2017](#)

[Download Report on Workshop on Security & Privacy in IoT, 13 January 2017](#)

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