



# 5G Technologies and Cybersecurity in EU H2020 Funded Projects

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# About eBOS

**eBOS** is an **innovative** and **client-focused** *RegTech & FinTech* company, providing **technologically-advanced** **e-business software solutions** to enterprise customers on a **worldwide basis**.

**eBOS** participates through its **Research and Development** department in EU funded projects engaging in collaborative technological innovation and driving industry future-oriented developments

# Agenda

## SUMMARY

The presentation takes a close look at work done in **5G technologies and Cybersecurity** in EU funded projects under Horizon 2020 programme and discusses the objectives and scope of the research endeavours, the adopted methodology towards the vision of the projects as well as the discovered benefits and lessons learned. It concludes with an insight to the research findings

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**Projects involved and Objectives**

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**Project results & Lessons Learned**

# Projects Involved



These projects have received funding from the European Union's Horizon 2020 research and innovation programme

# 5G Technologies – Projects' Objectives

To conduct advanced 5G related UCs and field-trials, covering multiple domains and industries, showcasing the magnitude of improvement of 5G over 4G and ensure that 5G provides a continuous access to required services

To optimize and implement technological enablers, concepts, tools and mechanisms for the deployment, analysis and confirmation of findings by demonstrating the potential and the added value of advanced 5G solutions and features

To provide a trusted, secured integrated environment for innovative SMEs and service providers to test and validate network applications, digitised services or immersive technologies such as AR and VR

To provide significant contribution to relevant 5G standardisation bodies, open source communities, industry standardisation entities and user/technology communities

# Methodology

PoC in prototyping the ICT components evaluation, implementation and testing aiming at demonstrating benefits

Engage technological enablers (ML, AI network slicing/ spectrum usage, Satellite 5g connectivity ..) in field trials. Through components development and integration, visualize the automated analysis of results in multiple test cases through intuitive user friendly interfaces

Adopting the Living Lab test concepts as a realistic testbed to prove the 5G technological benefits ensuring industry acceptance

Providing scalable, open source solutions /experimental platforms/ architectures enabling interested parties to exploit even beyond projects' end

# Use Cases

**Factories of the Future**  
(remote controlling,  
communication, process  
optimization, deployment/  
configuration of robots)

**Smart energy**  
(Industrial Demand side  
management, Electrical  
Vehicle smart charging,  
Network frequency  
stability)

**Smart Cities and Ports**  
(smart parking, smart  
buildings, autonomous  
assets & Logistics, port  
safety)

**Media & Entertainment**  
(Live event experience,  
user/ Machine generated  
content, Immersive/  
integrated media and  
gaming)

**Connected and Automated  
Mobility (CAM) applications  
across 5G cross-border  
corridors**  
(autonomous driving, AI  
solutions for visibility,  
safety assist, road  
awareness)

# Added Value

1. Faster and wider real-time data connection
2. Wider capacity to connect everything, better management and flexibility
3. Better Resource, Quality management and overall operational planning in processes
4. Energy demand optimization, economic and environmental sustainability and growth
5. Improved security (detecting events for better monitoring)
6. Improved user experience and real-time interaction with quality content
7. Improved concurrent usage of networks' resources in multi-domain environments
8. Optimised enabling technologies using AI for the reliable, seamless and uninterrupted delivery of 5G services



# Cybersecurity - Objectives

To identify and classify the technical requirements and the EU SELP policy aspects

To design and implement methods of automated firmware security validation (FiV) and testing

To design and develop new method of automated code integrity verification (CiV)

To design and develop new method of automated network security validation and verification (SiD)

To design and develop new network attack configuration and emulation tool (AcE)

To propose revolutionary MiU modelling of the IoT

To design game implicit optimisation (GiO) approach

To design and establish operational cloud-native network testbed prototype platform

# Methodology

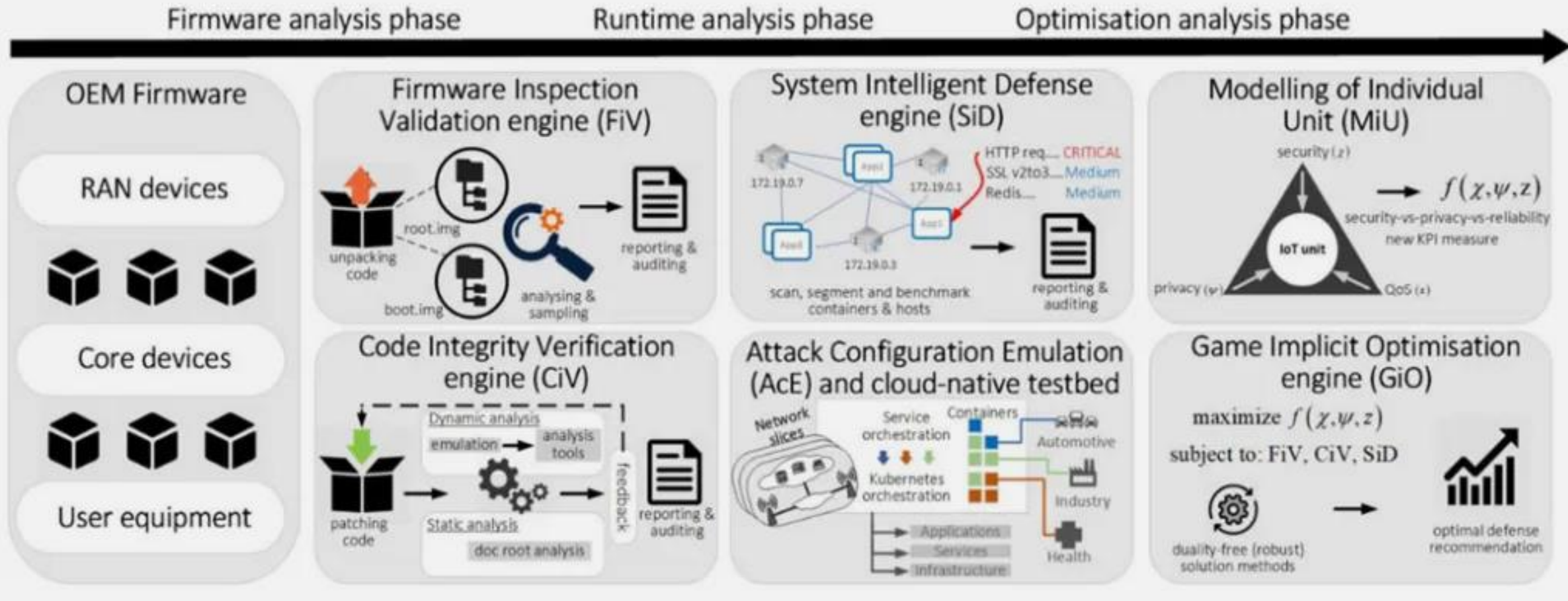
By designing a ground-breaking paradigm of a systematic and all-inclusive solution of true network protection.

The engines are integrated over a unified security orchestration platform and offered as docker-based function extensions in typical 5G MANO architecture.

By introducing six automated firmware and software code-review engines with improved accuracy and searching speed.

Mechanisms and methods will visualise the risk dynamics of individual network unit and recommend the optimal security-vs-privacy-vs-reliability efficiency solution.

# Methodology



# Use Cases

Automated 5G Core  
network, IoT and  
container  
application security

Vertical high-speed, low latency and connectivity requirements  
Support end to end applications and services

Automated  
firmware security  
and code integrity  
validation and  
purification

Security compliance  
Risk assessment on IoT devices

Automated  
cybersecurity  
optimisation in  
distributed  
networks

Configuration of devices to minimise  
risks

# Added Value

1. Integration of contemporary technologies for automated security validation
2. Measuring system performance with regards to cyber security and QoS reliability
3. Enhancing control and trust of the end user devices, applications and digital services
4. Improving audit certification and standardization of cyber security and digital privacy
5. Ensuring the accountability of the cyber security and digital privacy levels in the 5G system supply chain
6. Managing cyber security across massively virtualized and distributed heterogeneous ICT networks

# Projects Findings & Lessons Learned

## 1. Indicative results

	KPI Description	Project Target	Measured Value
a	Latency	< 50ms	37ms
b	Reliability	>99%	100%
c	Downlink throughput	>200 Mbps	Average: 255 Mbps, Peak: 351 Mbps
d	Downlink data rate/ stream	>5 Mbps	Peak: 20 Mbps

## 2. Lessons learned

- a. Infrastructure, hardware and interconnection between components dictate the performance, reliability and achievement of targets
- b. Technology advancements Vs regulatory framework





# THANK YOU!

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