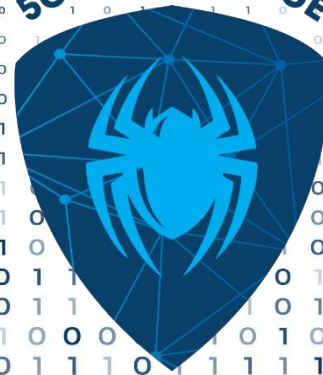# SPIDER Project

a cyberSecurity Platform for vIrtualiseD 5G cybEr Range services

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At a glance

SPIDER: a cyberSecurity Platform for vIrtualiseD 5G cybEr Range services

SPIDER provides a cybersecurity platform for virtualised 5G cyber-range services, offering an innovative and holistic training experience that incorporates the specificities of 5G environments.

H2020 Project - Work Programme 2018-2020
- **Secure societies - Protecting freedom and security of Europe and its citizens**
- **Call**: H2020-SU-DS-2018 | **Topic**: SU-DS01-2018 | **GA number**: 833685

Duration: 1 July 2019 - 30 June 2022

Funding Scheme: Innovation Action | **Budget**: €7.476.908,75 | **EU contribution**: €5.746.595

SPIDER Consortium

19 partners from **9 European countries**

5 x Large Industries | 6 x Research Institutes and Universities | 8 x SMEs

SPIDER Cyber Range

- The vision of SPIDER is to deliver a next-generation, extensive, and replicable cyber range platform tailored for the telecommunications domain, **offering multi-modal training**

- SPIDER's **cyber-arena** provides the users the with the ability of playing either the part of the attacker, or of the defender (red team vs blue team)

- The main features of the SPIDER solution include advanced **simulation** and **emulation** tools and novel training methods towards active learning
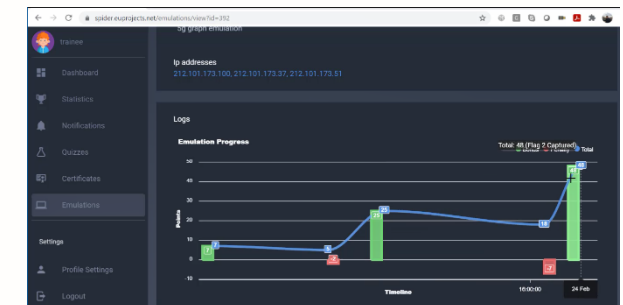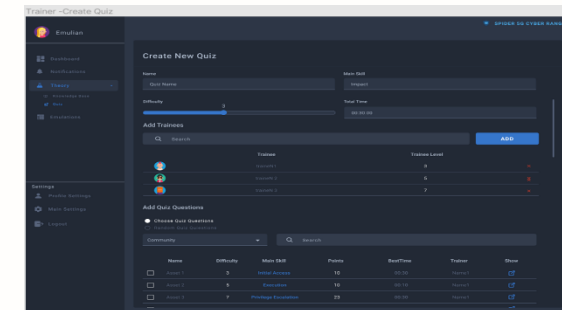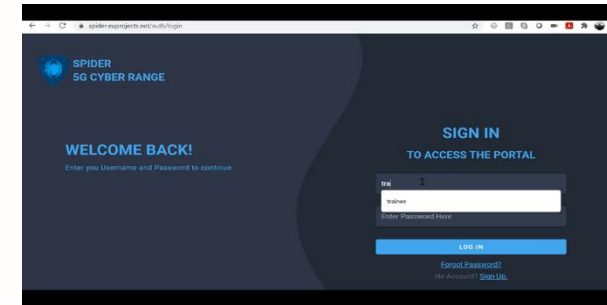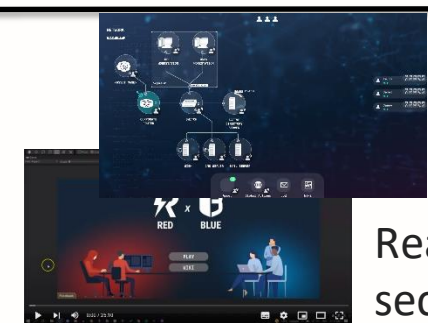
5G Specific cybersecurity training

- SPIDER platform covers the specificities of the 5G training environment
  - **Conduct of exercises in a realistic environment that emulates real 5G deployments** where **all 5G-integral components are present**, parameterized and spawned on-demand by materializing a specific slice configuration
  - **Automatically inferring performance tracking of trainees and the extraction of their learning gaps**
  - **Providing self-paced learning regarding theoretical aspects of security through a serious game**

- Educational value proposition through **4 distinct learning modalities:**
  - Modality 1: Theoretical Training
  - Modality 2: Emulation-based Training
  - Modality 3: Simulation-based Training through a Serious Game
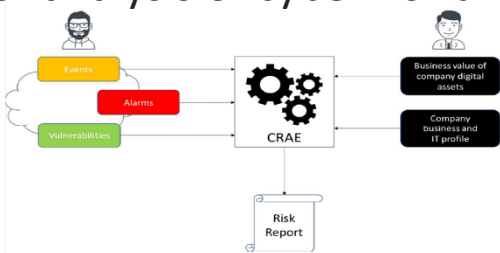 - Modality 4: Security Awareness Training through Gamification

Key technology aspects

Customization of an OSM-compliant orchestrator, for the instantiation of the modality-2 exercises
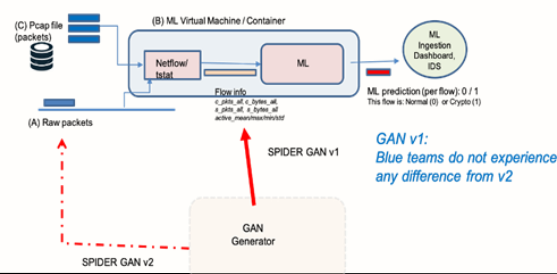
Realization of the serious game (modality-3) and security awareness mini-games (modality-4)

Economic and optimization modelling as a basis for analysis of cyber risk and investment
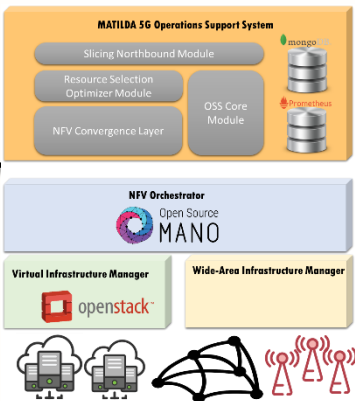
Pilot methodology and demonstrator use cases for validation exercises
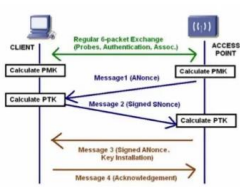
Security Assurance Platform to ensure the security and privacy of the SPIDER platform and its data

Fully operative CI/CD infrastructure along the development patterns

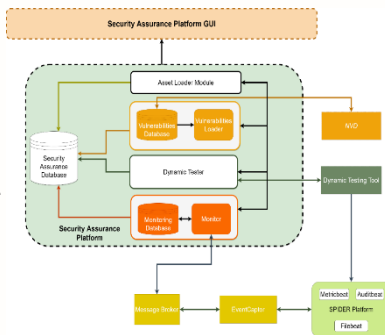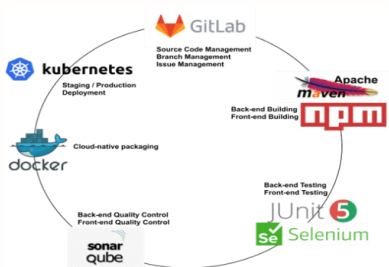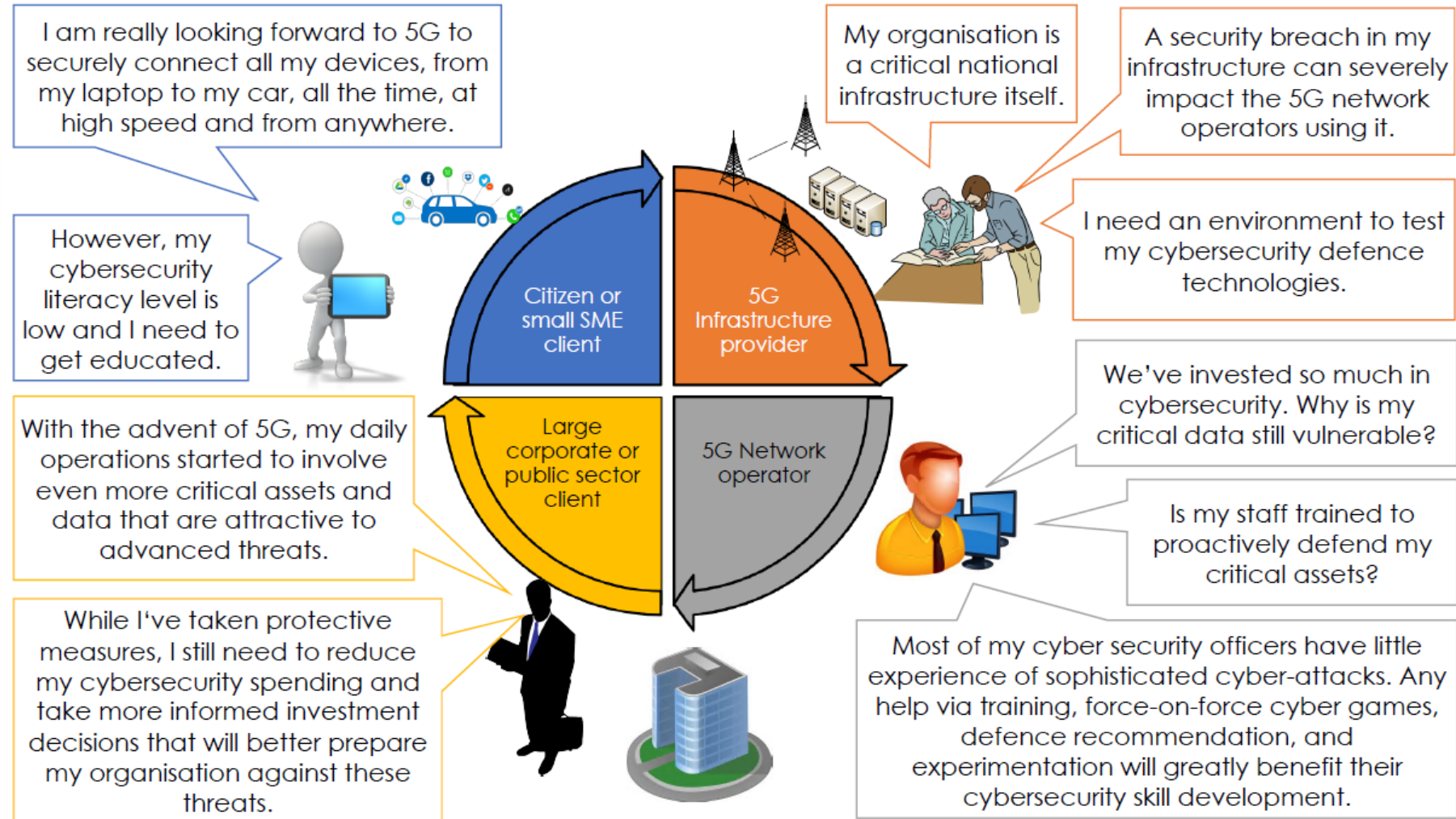ML framework to generate synthetic network traffic for attack detectors and realistic traffic flows

End users needs

Three-fold offer for multi-fold end user benefits

[1] 5G Cyber Range Infrastructure and Supporting Technology (with a main focus on testing and assessment)

[2] 5G cybersecurity training in defending against advanced cyber-attacks both for cybersecurity experts and non-cybersecurity experts

[3] 5G Risk Analysis and Cyber security Investment Decision Support, including econometric models
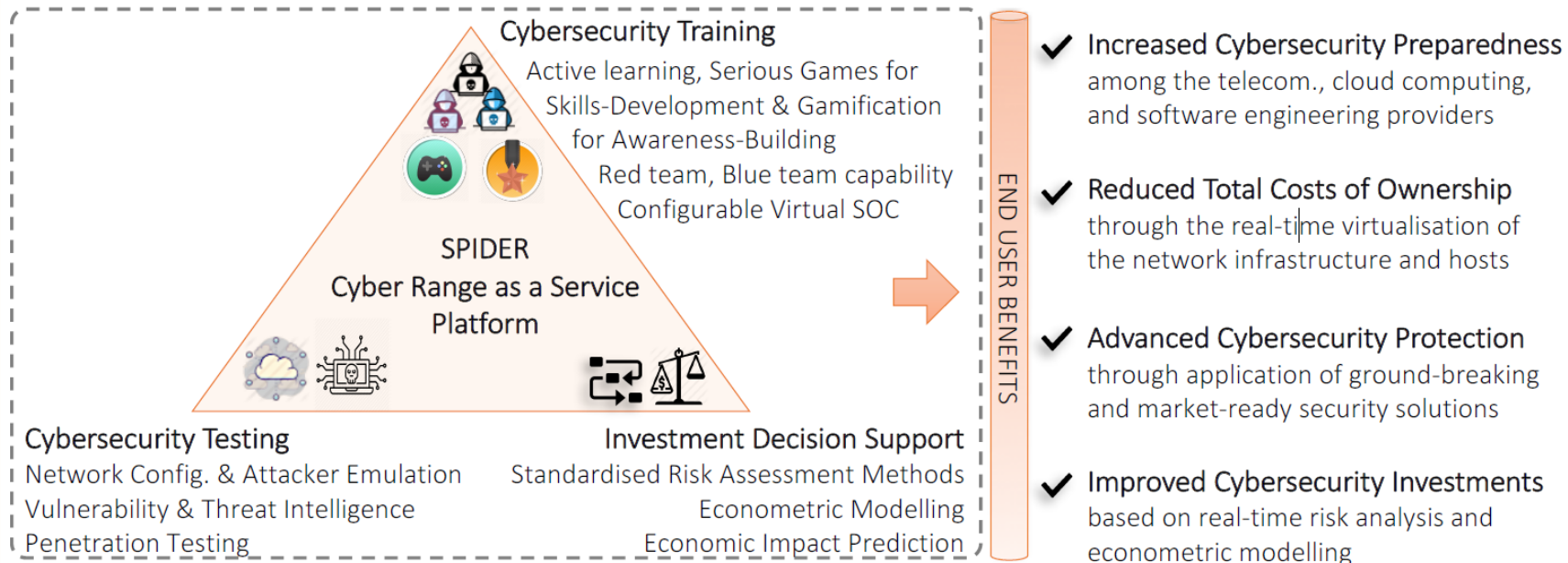
Use cases for validating SPIDER solution

- Cybersecurity Testing of 5G-ready applications and network services [PUC1a]

  Representing the end-to-end network services through their entire lifecycle, and on the orchestration of 5G ready applications and network services, support testing, performance evaluation and security assessments of new security technologies

- Cybersecurity of Next Generation Mobile Core SBA [PUC1b]

  Use of new cybersecurity tools based on machine learning which simulate adversarial techniques and tactics, to address the new risks produced by the pervasive encryption in the 5G networks Control Plane (SBA)

- 5G Security Training [PUC2]

  For Experts (Defending potential threats in realistic scenarios using SPIDER platform both in team or self-paced exercises) & Non-Experts (Get acquainted with cutting edge 5G technologies and its evolving cybersecurity landscape, through gamification solutions)

- Cyber investment decision support [PUC3]

  Decision support process integrated within the cyber range that can assist the relevant stakeholders to not only determining optimal investments to cybersecurity controls, but also in taking the necessary steps to implement them

SPIDER

Thank you!

Connect with us and stay in touch

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