H2020-funded INSPIRE-5Gplus project contributes in IEEE International Conference on Network Softwarization 2022

INSPIRE-5Gplus continues to address key security challenges through vertical applications ranging from autonomous and connected cars to Critical Industry 4.0.

On 1st July the 4th International Workshop on Cyber-Security in Software-defined and Virtualized Infrastructures (SecSoft), was organized in conjunction with the IEEE International Conference on Network Softwarization (NetSoft) 2022, in Milano, as a joint initiative by the Horizon 2020 EU projects INSPIRE-5GPlus, GUARD, RAINBOW, SIMARGL, PALANTIR, and SIFIS-HOME to foster the emergence of cyber-security paradigms for virtualized environments and critical infrastructures. This workshop aimed to gather novel approaches for providing situational awareness in relation to cyber security threats allowing them to quickly detect and effectively respond to sophisticated cyber-attacks.

Growing complexity of cyber-attacks are urgently demanding more attention. To address some of the challenges in cyber-security INSPIRE-5Gplus has developed a method to detect and counter Denial-of-Service Attacks in Internet-of-Vehicles. This is a critical application area with large growth expected for the future, where attacks could have severe impact not only on material but also on lives. This work was presented as a paper entitled “Multi-domain Denial-of-Service Attacks in Internet-of-Vehicles: Vulnerability Insights and Detection Performance”.

Another INSPIRE-5Gplus’ relevant development was presented in the same session with the paper entitled “Model-Driven Network Monitoring Using NetFlow Applied to Threat Detection”. The work proposes a specific YANG data model for NetFlow protocol, a widely used protocol in current network operation for attack detections. Moreover, the solution shows an application for aggregation and transformation of the data into a suitable format to be used by analytics engines, such AI detectors. This could find wide application in next generation cellular infrastructures, from both network management and security perspectives.

Finally, INSPIRE-5Gplus advances made on its state-of-the-art automatic software security systemic solution were also presented with the paper entitled “Always-Sustainable Software Security”. The proposed solution paves the way to future fully dynamic security adaption to the real and measured threat level with the highest protection level. The solution dovetails greener software security as it assures the best use of the security-related instructions to reach the highest global security at a given CPU cost. Moreover, the solution’s automatic setup will be instrumental in the telecom industry looking at on-demand security, applied by any stakeholders of the value chain.

The aim of these presentations was to widen the awareness of the activities conducted in the project among the scientific and industrial communities in order to create new synergies and strengthen the existing ones. Typically, specific vertical scenarios such as Smart Cities or the Internet of Things are discussed as key application environments where cybersecurity is of prominent importance to protect users, devices, and the network architecture.
About the INSPIRE-5Gplus project

The Horizon 2020 project INSPIRE-5Gplus will advance security of 5G and Beyond networks. Grounded in an integrated network management system and relevant frameworks, INSPIRE-5Gplus is entirely devoted to improve security at various dimensions, i.e., overall vision, use cases, architecture, integration to network management, assets, and models. INSPIRE-5Gplus will address key security challenges through vertical applications ranging from autonomous and connected cars to Critical Industry 4.0. The project started on 1st November 2020 and will end on 31st October 2022. It is performed by a consortium of 14 European partners from industry and academia.

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