5GO.pt

5G Products and Services for the Network Core

Service Plane: the hidden face of Telecom Services

An Ecosystem to Secure 5G Services

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Security challenges in 5G

- New business models
  - Multitude of devices: phones, tablets, unattended machines, sensors, cars..
  - Different industries: manufacturing, transport, smart-grid, e-health…
  - Higher bitrate, lower latency, higher density of devices

- New service delivery models:
  - Service virtualization
  - Telecom network APIs
  - Mix of provider with third-party applications
  - Mix of shared and dedicated hardware platforms

- Evolved threat landscape
  - 5G network will carry critical data, vital for decision-making processes
  - Services must be designed with attack resistance in mind

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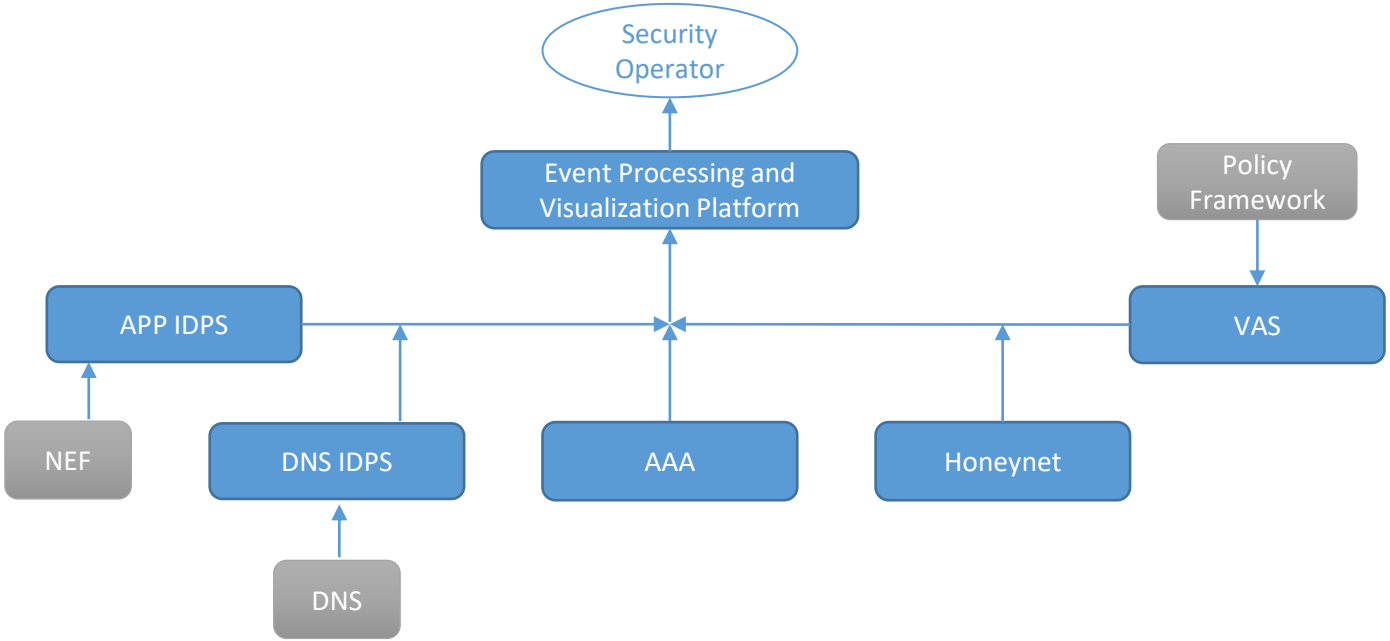
Project security framework



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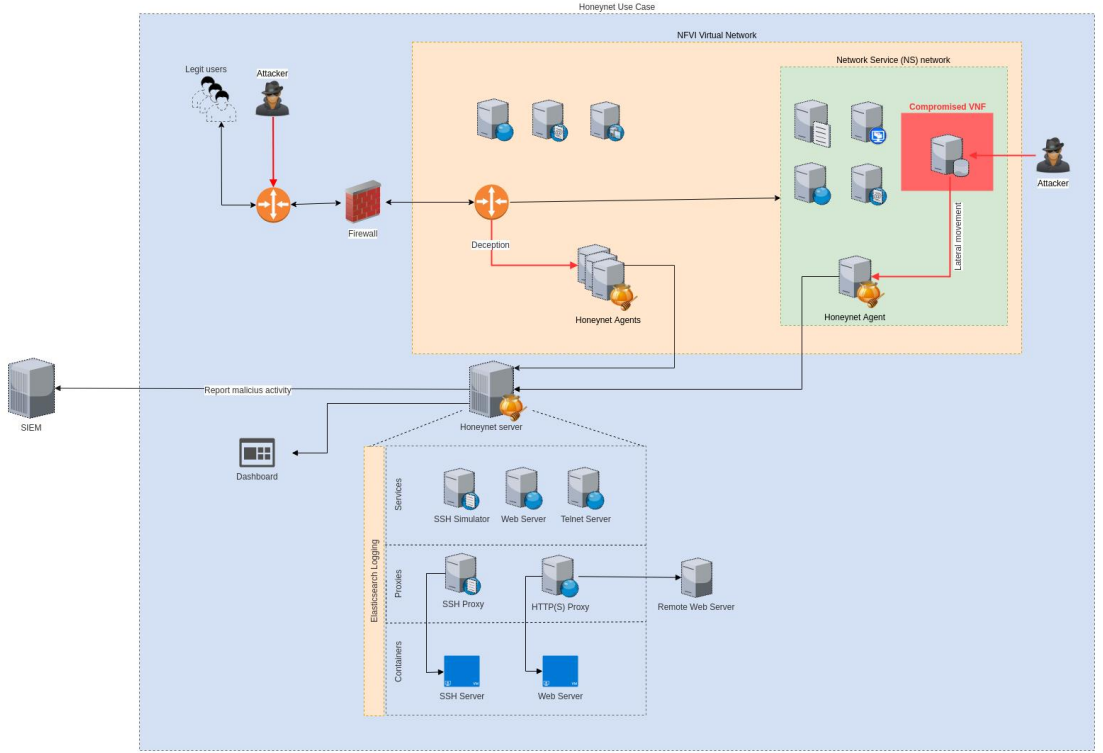
Project security framework – Honeynet

- The Honeynet prevents illicit activity inside provisioned network service or even inside the 5G core network, by deploying diversion and detection mechanisms in order to prevent unauthorized penetration by external entities.



Project security framework – Honeynet

Main features:

- Prevent attacks by detecting abnormal activity around network entry points;
- Mitigate impact after 5G core services have been compromised;
- Monitor and record intrusion/attack processes to improve future protection;
- Aggregate and report threats to the EPVP.

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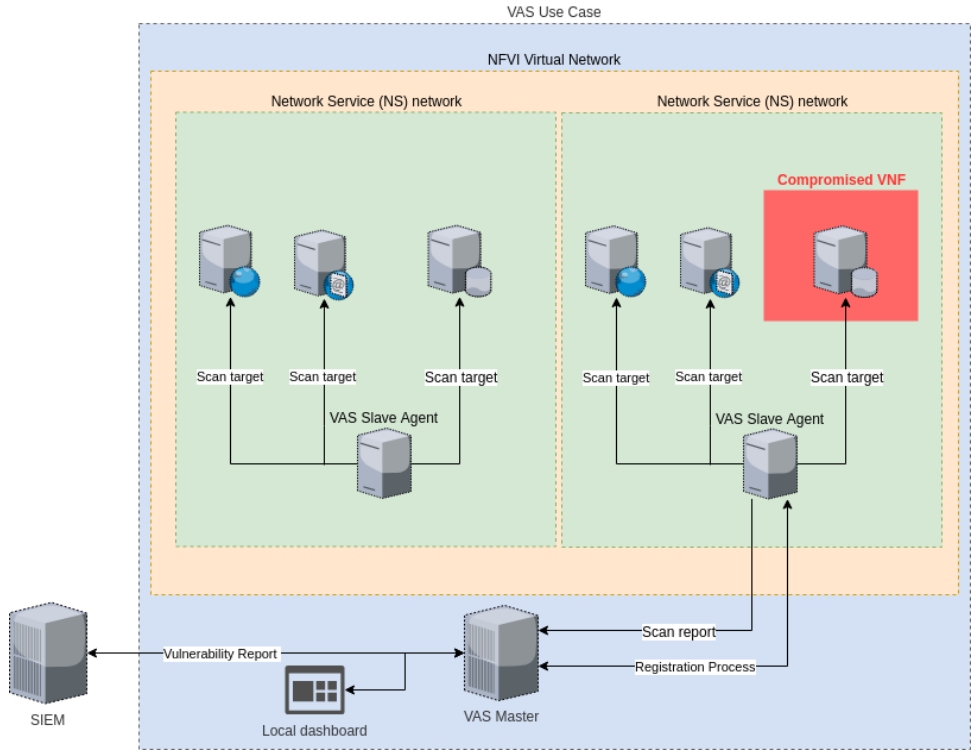
Project security framework – VAS

- The **Vulnerability Assessment System (VAS)** scans a set of network functions for multiple vulnerabilities by means of Network Vulnerability Tests regularly updated by an open source community.



Project security framework – VAS

Main features:

- Check vulnerability 5G core services by performing periodic scans to its functions;
- Automatic updates of vulnerability database based on known NVT feeds;
- Reports detected anomalies and vulnerabilities to the EPVP.

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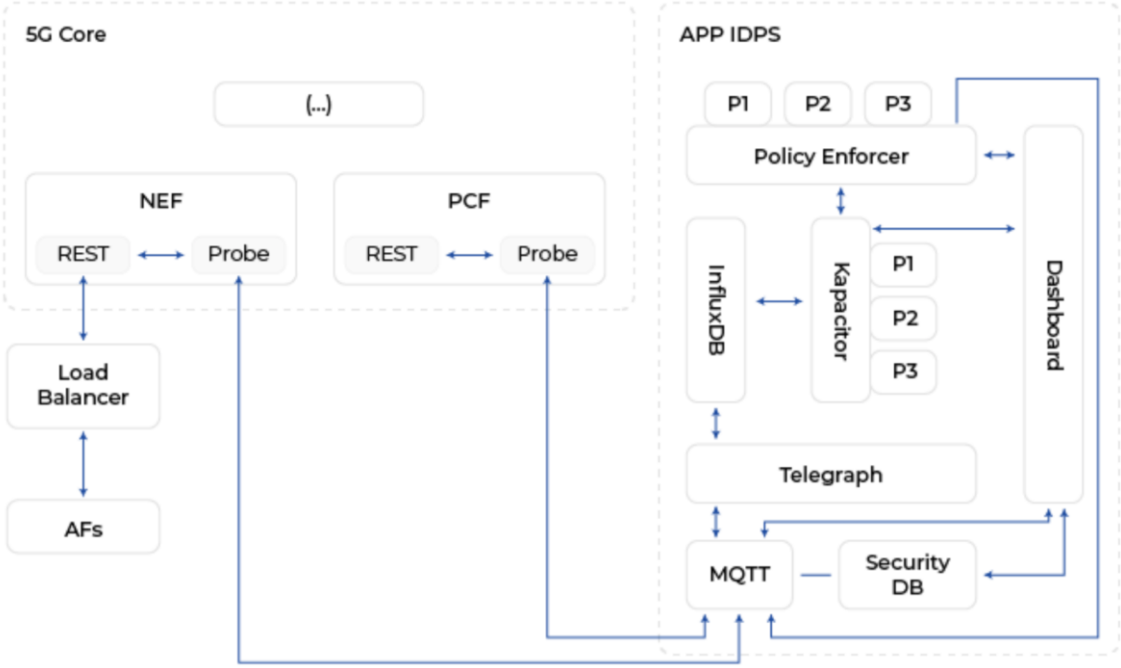
Project security framework – AppIDPS

- The **App IDPS** aims to secure services/products in a service perspective.
- Each service that requires protection (e.g. DNS, NEF) sends information to the AppIDPS for analysis.



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Project security framework – AppIDPS

Main features:

- Detects threats in 5G core services (REST APIs) by closely monitoring services with remote probes;
- Analyzes patterns to learn how to detect new threats;
- Prevent attacks by taking actions against threat events, effectively isolating target services from malicious entities;
- Report threat events to the EPVP.

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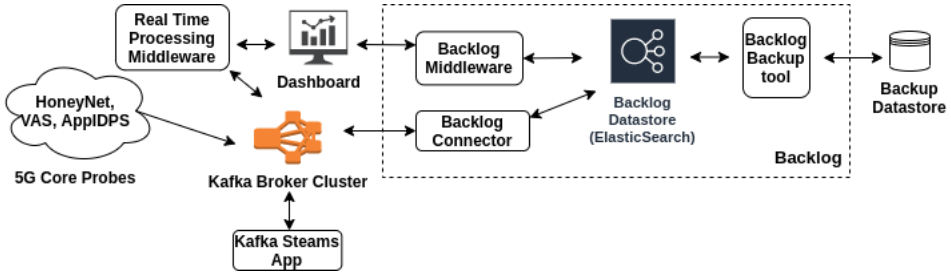
Project security framework – EPVP

- The Event Processing and Visualization Platform (EPVP) combines a security dashboard and an event collector;
- A middleware layer collects, validates and processes security events received from all the components of the security framework.
- The EPVP integrates inline stream processing mechanisms within the information flow paths, for optimized performance.



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Project security framework – EPVP

Main features:

- Monitors the security of services supporting the 5G core in real-time
- Prioritizes and processes events, providing scalability and performance characteristics that are geared towards the 5G core environment.
- Calculates specific metrics for different services;
- Displays information in a simple and intuitive way.

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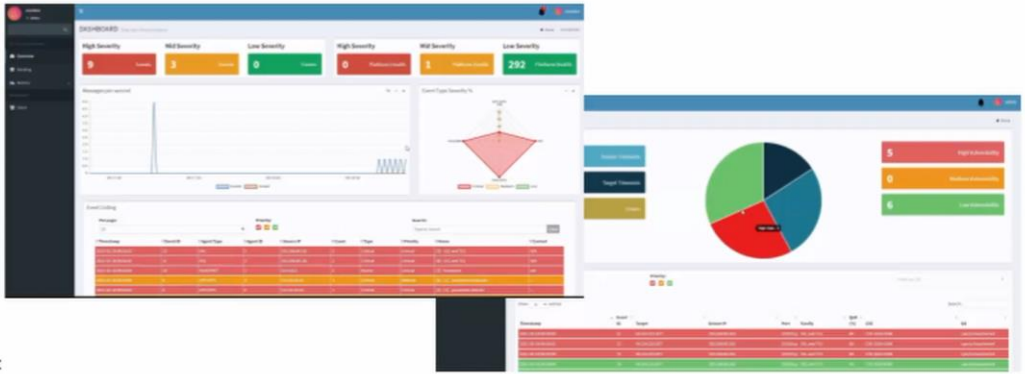
Demo of EPVP receiving events from multiple sources

Event Processing and Visualization Platform (EPVP)



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Lisb@20 20 COMPETE 2020 PORTUGAL 2020 UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional

Thank you

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