GRIFIN

Cognitive and Programmable Security for Resilient Next-Generation Networks

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  - **SDN** is expected to provide reactiveness and adaptation

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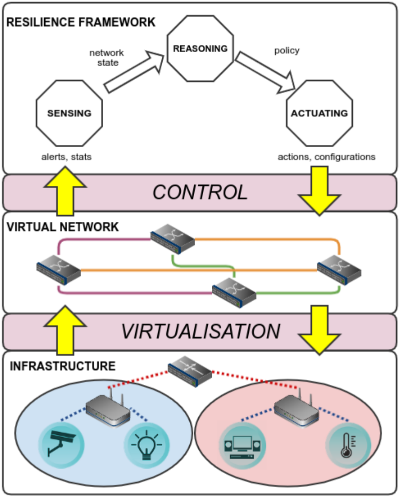
  - Programmable orchestration are heavy and lack granularity

Objectives


RESILIENCE FRAMEWORK
REASONING
network state
policy
SENSING
ACTUATING
alerts, stats
actions, configurations
CONTROL
VIRTUAL NETWORK
VIRTUALISATION
INFRASTRUCTURE

Deep Learning Inside™

Research locks

GRIFIN attempts to tackle some scientific and technological locks

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   - Reduce training time by avoiding feature engineering
   - Reduce training data by leveraging transfer learning

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    - Improve resilience by selecting least damageable countermeasures

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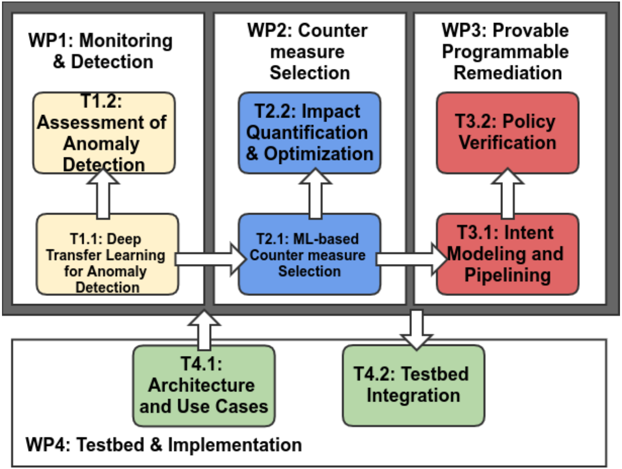
    - Enable formal verification of the effective enforcement of the policy

Approach


WP1: Monitoring & Detection
T1.2: Assessment of Anomaly Detection
T1.1: Deep Transfer Learning for Anomaly Detection
WP2: Counter measure Selection
T2.2: Impact Quantification & Optimization
T2.1: ML-based Counter measure Selection
WP3: Provable Programmable Remediation
T3.2: Policy Verification
T3.1: Intent Modeling and Pipelining
T4.1: Architecture and Use Cases
T4.2: Testbed Integration
WP4: Testbed & Implementation

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  - survey of policy verification methods
  - implementation of an IoT testbed including probes

Ph.D Offer

- Ph.D position in Télécom SudParis, Palaiseau : Cognitive and Programmable Security (starting **Oct. 2022**):
  - AI-based countermeasure selection
  - intent-based countermeasure refinement
  - countermeasure enforcement verification

Applications are open until June 30th, 2022.

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