

SELFNET - Framework for Self-Organized Network Management in Virtualised and Software Defined Networks

SELFNET Project

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SELFNET Consortium members:

- Industrial Partners
 - Eurescom - Germany (Project Coordinator)
 - Portugal Telecom Research & Inovacao – Portugal
 - Proef – Portugal
 - Alvarion - Israel
- University Partners
 - University of the West of Scotland - UK (Technical Coordinator)
 - Universidad de Murcia – Spain
 - Universidad Complutense de Madrid - Spain
- Research Institutes
 - DFKI – Germany
- SMEs
 - Nextworks - Italy
 - InnoRoute - Germany
 - Ubiwhere - Portugal
 - Creative Systems Engineering - Greece

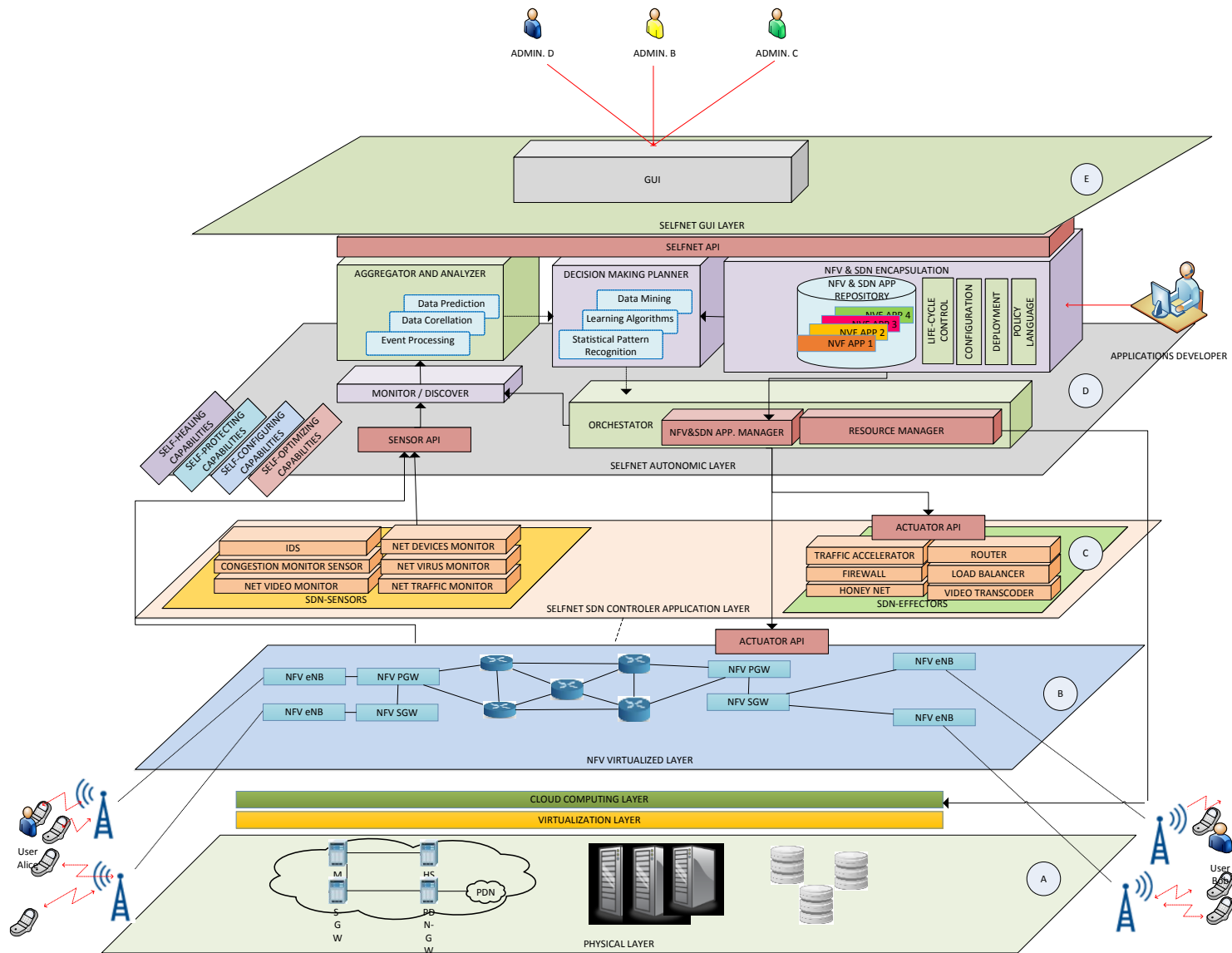
Main Objectives

- To deliver an innovative framework for the automated management and rapid deployment of self-organized next-generation networks and services
- For automated network monitoring and maintenance management tasks
- Extending the state-of-the-art network management within the Software-Defined Networking and Network Function Virtualization (SDN/NFV) arena
- Removing the reliance on costly, vendor-specific hardware with an advanced software-based approach
- Automatically detecting and mitigating a range of common network problems that are currently still being manually addressed by network operators (use case driven)
- Reducing operational costs and improving user experience

Main Technical Goals

- **1. Automated network monitoring**
 - Automatic deployment of NFV apps. → Distributed monitoring of network infrastructure.
 - High-level Health of Network (HoN) metrics → Multidimensional view of potential network failures, bottlenecks, security threats, intrusions, etc.
- **2. Autonomic network maintenance**
 - High-level tactical corrective and preventive measures to enable autonomic reactive and proactive network maintenance.
- **3. Automated deployment of network management tools:**
 - Automatic reactive and proactive actions → Against existing/potential network problems
 - Automatic deployment of distributed services in the network
 - Intrusion protection tools,
 - Load-balancing tools,
 - High-availability routing tools,
 - Transparent cache tools
 - Other network management tools
- **4. Automated network service provisioning**
 - Manage and optimize the usage and deployment of NFV and SDN applications

SELFNET Architecture Overview



Areas to be addressed

- **Automated Network Management**
- 5G-PPP Topic completely applicable:
 - P11: Cognitive Network Management
- 5G-PPP topics partially addressing the topic
 - P12: SLM & metrics for QoS
 - P13: Network Security and integrity
 - P14: Virtual Network Platforms
 - P15: Service Programming and Orchestration

Main impact

- At the macro level:

- Enlarged market share for European network operators: providing network infrastructures with new intelligence to automatically perform self-configuring, self-healing, self-protecting and self-optimizing functionalities
- Enlarged market share for European equipment vendors: Including in future network equipment capabilities for self-organization and self-improvement of the network
- Strengthen the competitiveness of European service providers: with optimized service and application performances to increase the QoE of users, thus attracting more subscribers

- At the societal level:

- Enhanced QoE of the end users, bandwidth usage and support for video applications
- More secured and resilient network and services
- Reduced energy consumption, by reducing the amount of physical devices and increasing the utilization of existing ones

- At the operational level:

- Improved scalability from the distributed intelligence, hierarchical network function/element deployment, scalable service creation, and cloud computing
- Improved extensibility through a combination of layering, modular design and open APIs
- Reduced OPEX by automation and CAPEX by utilizing cloud resources
- Reduced service creation and deployment time

Questions

