Celtic-Plus
Smart Connected World

Project Achievements

SENDATE PLANETS

SENDATE-PLANETS

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Partners:

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Airbus Group Innovations, Germany
BISDN, Germany
Comiq Oy, Finland
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Infosim GmbH & Co. KG, Germany
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Project Websites

www.celticnext.eu/project-sendate-planets
www.sendate.eu

SEcure Networking for a DATa center cloud in Europe

SENDATE-PLANETS addressed the challenges of a secure distributed cloud architecture, which is able to handle new application scenarios of our digital society, e.g., Industrial Internet and mobile connected objects. Innovative approaches such as Network Functions Virtualization (NFV) in combination with Software Defined Networking (SDN) were the basis for a secure, flexible, low latency, and locality-aware distributed data center approach.

Main focus

The main focus of SENDATE-PLANETS was a secure and reliable distributed data center environment. Therefore, the project was split into three parts, security, IT+Networking and an architecture covering these two topics.

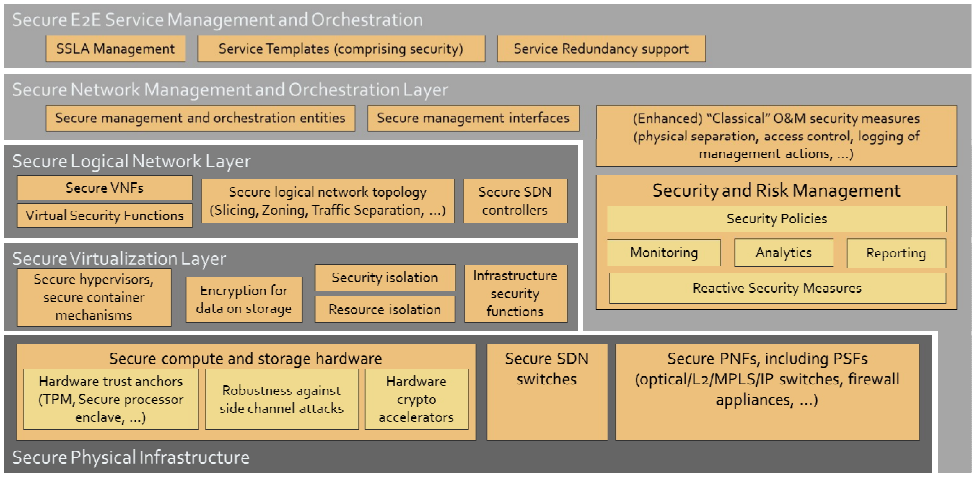
Security: Security has to be ensured on all layers, ranging from trust anchors on the physical infrastructure over a secure virtualized environment to a framework for security- and SLA management in distributed cloud environments.

IT+Networking: The softwarization of network elements as virtual network functions require placement algorithms for distributed network functions, orchestration and network management, a network monitoring framework, and mechanisms for resilient, performant, scalable and cost-effective operation, network virtualization and platform design.

Architecture: The SENDATE-PLANETS architecture covers security aspects on all layers and includes the novel edge computing-based approach to support virtual network functions in every parts of the distributed data center environment.

Approach

The main objective of SENDATE-PLANETS was to research and develop mechanisms to approach the increased security vulnerability in a softwarized distributed data center environment. The main outcome is a security architecture, which covers security aspects on all layers, from the physical infrastructure over the virtualization layer to the secure end-to-end service management and orchestration. The research on all parts of the architecture, not only from a security perspective but also from a networking and IT perspective helps to securely connect and operate distributed data centers to support a huge variety of current and upcoming services.



Achieved results

Within the project, 127 international conference papers and journal were published at high ranked conferences and in well-known journals such as IEEE Infocom, ACM SIGCOMM, IEEE Transactions on Networking and IEEE Transactions on Network and Service Management.

Furthermore, several demonstrators and proof of concepts were set-up and shown during worldwide events like Mobile World Congress, 5GWorld or CES. These PoCs enable a fast transfer of results into new and existing products.

Compared to related projects a lot of open source contributions, especially from SMEs, were submitted in addition to the submissions to standardization bodies such as TM Forum, ETSI and TSG. The research also resulted in seven successfully filed patents.

Impact

Based on the excellent mix between academia, SMEs and large enterprises, already 12 new products have been developed based on the project results and 17 have been improved. Within this very good project consortium, also cross-domain cooperation was set-up as e.g. Airbus was part of the project. This helped the telecom partners to not only get insights into aeronautic challenges but also to combine security and networking approaches to meet the high demands of the airline industry.

About Celtic-Plus

Celtic-Plus is an industry-driven European research initiative to define, perform and finance through public and private funding common research projects in the area of telecommunications, new media, future Internet, and applications & services focusing on a new „Smart Connected World“ paradigm. Celtic-Plus is a EUREKA ICT cluster and belongs to the intergovernmental EUREKA network. Celtic-Plus is open to any type of company covering the Celtic-Plus research areas, large industry as well as small companies or universities and research organisations. Even companies outside the EUREKA countries may get some possibilities to join a Celtic-Plus project under certain conditions.

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