

Abstract: SASER Safe and Secure Routing

The Internet has become an indispensable part of the infrastructure for most of the aspects of daily life and has developed to a fundamental infrastructure for Europe. The uninterrupted, reliable and secure access to the Internet is seen as a basic right for all citizens and a significant economical factor. The current infrastructure lacks many of those features which are obviously associated with a trusted, safe and secure communication medium. The number of attacks on Internet-connected systems are growing and the attacks have become more serious and more technically complex than in the past. With the increasing number of sensitive applications, e.g. e-government or e-commerce, in particular the following critical issues and obstacles gain importance:

- Security and privacy: Methods and protocols to ensure security and privacy by means of intrusion detection systems, encryption, authentication, authorisation, etc. today are mainly performed on higher layers (layer 3-7) ignoring that security strongly depend on a reliable and secure transport infrastructure based on layer 1-3.
- Service quality and reliability: Services considered as being critical for health, economy, industry, privacy, public supply of energy, etc. are today not treated on the public Internet, but separately e.g. on dedicated network resources.
- Instantaneous and protected access: The availability of communication resources, services and content via public Internet often suffers from cyber attacks, hardware failures, protocol deficiencies, etc. resulting in unsustainable latencies or even complete blackouts.
- Scalability: The increase of the number of Internet users and the anticipated dramatic growth in traffic volume over the next decade are posing huge challenges on the transport networks with the need to provide the above mentioned features at sustainable costs and energy. An obvious approach is currently not available.

The goal of the SASER research programme is to provide the scientific, technical, and technological concepts and solutions for secure transport networks in the 2020 time frame.

A European solution envisaged by SASER is based on the strengths and expertise in security and high-speed optical transport networks to overcome the bottlenecks and vulnerabilities of today's electronic all-IP based infrastructure. The envisaged European consortium combines leading equipment providers, network operators, universities and research institutions and offers the prerequisites for a successful development, implementation and standardisation of the proposed solutions.

The project structure is based on three sub-projects. These sub-projects are formed by the system manufacturers (ALU, NSN, ADVA) together with selected partners. The system manufacturers take over the technical management of these sub-projects and the responsibility for defining the content.

Besides the 3 sub-project partners there are 3 further cross sectional partners u2t Potonics AG, Fujitsu Semiconductor Europe GmbH, and Deutsche Telekom AG. In total the European Cluster Project SASER will consist of 64 partners coming from 6 countries. The funding volume is about 80 Mio. € and 500 PY.