Three Competence Centres for IT Security

Information and communication systems have been permeating all areas of our lives for a long time now – our private environment, the economy, culture and politics. The Internet, particularly, has become a shopping centre, a social network and an indispensable basis for key sectors of the economy. The Internet is one of the most important drivers of innovation in almost all fields that are highly relevant to society such as health, mobility, climate/energy, security and communication.

As the prevalence and importance of information and communication systems grow, the number of attacks on these systems by hackers and their level of proficiency are also increasing. To ensure comprehensive protection, it is no longer sufficient to identify and eliminate current vulnerabilities in hardware and software products. In the future, the objective will be to identify possible problems at an early stage and to develop suitable solutions for tomorrow to ensure that Germany can face the major issues related to cyber security in the long term.

Since 2011, the Federal Ministry of Education and Research (BMBF) has been supporting three competence centres for IT security research with funds totalling €17.2 million. The competence centres provide outstanding facilities for Germany's IT security research. They are set up as regional centres which work on an interdisciplinary basis to pool local expertise in IT security research. All three centres cover a large spectrum of IT security research and distinguish themselves through their respective focuses on design, integration and analysis.

Research for Secure IT

The Federal Ministry of Education and Research is providing targeted funding to support and expand research into IT security in Germany. There is an urgent need for new, innovative ideas since more and more Internet users are being targeted by malware attacks. Furthermore, the number of attacks on businesses is growing. Increasing mobile Internet use is also constantly creating new IT security challenges. The BMBF's IT security research has specified the following objectives:

· identify new problems early
· develop solutions for future challenges
· bring science and industry together
· support interdisciplinary approaches
· strengthen Germany's competitiveness in IT security

Federal Ministry of Education and Research

Competence Centres for IT Security Research

RESEARCH

Design

European Center for Security and Privacy by Design (EC SPRIDE), Darmstadt | www.ec-spride.de

Today, security requirements are often not considered until after the IT system has been designed. The retroactive inclusion of security measures leads to unnecessary costs for manufacturers and users due to inconsistent concepts and the huge programming effort required.

The competence centre EC SPRIDE considers security and data protection to be pre-requisites which have to be taken into account in the design of IT-based systems and must be considered throughout the entire lifecycle of such systems. However, there are currently no consistent standards, processes and methods that enable IT developers to take the security requirements of their software into account at an early stage.

One focus of EC SPRIDE is the development of new tools for software systems development to take security and data protection into account early in the design stage. EC SPRIDE is therefore studying the practical and economical realization of these aspects in the context of specific technological and societal demands.

BMBF Funding: €7.6 million

Contact:
Technische Universität Darmstadt,
EC SPRIDE
Dr. Michael Kreutzer
Mornewegstraße 32, 64293 Darmstadt
Germany
phone: +49 6151 16-6165
michael.kreutzer@ec-spride.de

Integration

Kompetenzzentrum für Angewandte Sicherheits-technologie (KASTEL), Karlsruhe | www.kastel.kit.edu

Intelligent infrastructures, increased interconnectedness and ever more complex IT in all areas of life are placing completely new demands on IT security. It is no longer sufficient to merely protect the periphery with firewalls and encrypted connections.

The competence centre KASTEL (Kompetenzzentrum für Angewandte Sicherheitstechnologie) combines various skills in order to cope with these challenges of the future. The objective is to move away from isolated partial solutions and to develop a holistic approach, which looks at the security of applications in its entirety.

The research is motivated by three fields of application where the most important challenges are being addressed in the areas of "intelligent power supply", "cloud computing" and "surveillance in public spaces whilst observing data protection requirements".

BMBF Funding: €4 million

Contact:
Institut für Theoretische Informatik
AG Kryptographie und Sicherheit
Carmen Manietta
Am Fasanengarten 5, 76131 Karlsruhe,
Germany
phone: + 49 721 608-44213
crypto-info@iti.kit.edu

Analysis

Center for IT Security, Privacy and Accountability (CISPA), Saarbrücken | www.cispa-security.de

The digital society is being confronted with new threats: Faulty computer systems are spied upon, consumers divulge vast quantities of personal data and illegal commerce is conducted in the relative anonymity of the Internet.

The task of the Center for IT-Security, Privacy and Accountability (CISPA) is to develop solutions for these core problems. The focus is on three areas: "reliable, secure computer systems", "free, responsible interaction whilst observing privacy" and "protection of personal data in the digital world (privacy)".

CISPA combines broad fundamental research with applied research and system development. The objective of this work is to prepare an efficient and comprehensive security analysis of existing as well as new technologies and systems. The Centre is using this as a basis for developing solutions and new kinds of tools which can guarantee the necessary security attributes for IT systems.

BMBF Funding: €5.6 million

Contact:
CISPA - Center for IT-Security,
Privacy and Accountability
Universität des Saarlandes
Sebastian Gerling
66123 Saarbrücken, Germany
phone: +49 681 302-57373
sgerling@cs.uni-saarland.de