

Project Results

PREDYKOT

Intelligent security and smart access control for online networks

PREDYKOT set out to radically rethink approaches to security to enable organisations to develop security strategies and software to respond dynamically to organisational changes and reconfigure themselves to adapt to new conditions, thereby introducing intelligence into security governance and closing the security policy loop.

SOFTWARE SUITE FOR SMART REASONING

The intelligent mechanisms developed in this ITEA 2 project ensure that security policy not only becomes and stays efficient but also incorporates contextual information to enable the policy to be dynamically refined on a continuous basis. The new policy and reasoning languages developed by PREDYKOT enable the specification and interpretation of security policy to be simplified while the software suite of models created within the project dynamically improve security policy and keep it on track, using:

- reasoning engines on user activities, policy changes and contextual information;
- smart nodes as actuators or sensors for the information system;
- interfaces with security-information and event-management systems;
- fusion of distributed data and data management;
- workflow and security portal for feedback on the policy; and
- steering dashboard.

This highly innovative complete and coherent ecosystem of security-policy modules along with an application methodology can be considered a brand new product for the security intelligence market: a unique eco-system of interoperable, exchangeable modules that will continuously adapt security policies to changes in the risks inherent in administration, user activities or context, and react to reports to modify the policy in real-time. In addition, the methodology guidelines will enable the PREDYKOT ecosystem to be realistically and pragmatically deployed.

REAL PROGRESS AND IMPACTFUL RESULTS

The project partners used case studies to evaluate existing security management standards, or propose extensions to those standards, in the domains of semantic representation of a policy, security metrics, policy deployment methodology such as ISO 27001 or EBIOS, and reasoning languages. PREDYKOT also worked in close cooperation with the ITEA EASI-CLOUDS project, which is developing a new cloud-computing infrastructure based on European and open standards, using the EASI-CLOUDS environment to test a number of key security policy capabilities, and thus prove the effectiveness of its approach. Indeed, other newer ITEA projects are already using some of the results of the PREDYKOT project: ADAX (contextual reasoning), Web of Objects (reasoning engine).



PREDYKOT application areas

PREDYKOT (ITEA 2 ~ 10035)

Partners

C2Tech
Cassidian Cybersecurity
Evidian SA
Gemalto SA
Innovaia
Institut de Recherche en Informatique de Toulouse (IRIT)
Institut Mines-Télécom
Intelligence Power
LISSI
Netman Oy
Nextel
Nixu
Pohto
Thales
University of Jyväskylä
ZIV GRID AUTOMATION, S.L.

Countries involved

Finland
France
Spain
Turkey

Project start

October 2011

Project end

March 2014

Contact

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Project Results

Progress was achieved in the area of standardisation with collaboration taking place with several ISO/IEC standardisation bodies. For example, the Finnish consortium partners worked with ISO/IEC 27000 series and IEC standards through FISMA and SESKO, and contributed to the revision of the ISO 27000 series standards while Thales presented the PREDYKOT principles to the French Standardisation Office for the standardisation of aeronautics and space along with proposed improvements to OASIS for the XACML 3 standard.

There were three demonstrations: Professional Mobile Radio (PMR), Smart Grid, Identity and Access Management (IAM). The PMR demonstrator concerned malware through the USB key and was illustrated via virtual machines. The Smart Grid demonstrator focused on video and access rights policy including single sign-in on multiple devices and the IAM demonstrator explored three banking use cases in a running demo.

Real-life deployment of PREDYKOT results was made possible thanks to standards and abstraction layers, e.g. common representation of policies (XACML v3) and scalability was provided by the data fusion engine while adaptable workflow allowed a mix of automatic and manual reasoning. The reasoning rules have now been fully implemented and can handle policy, event conflicts and the like.

DEMAND-DRIVEN EXPLOITATION

In early 2015, Evidian plans to release a new option or Access Intelligence in the next version of its Identity and Access Management product. This same year, Cassidian expects to provide a full decision-support solution in the Security Management area with a call for tenders in the Middle East and requests in Sweden, France and the Netherlands. Gemalto also anticipates the completion of technologies for Trusted Service Manager products in 2015. Thales is convinced that the results of the PREDYKOT project will be beneficial to crisis management solutions, cloud IAM solutions and XACML developments (optimisation, cloud) while a commercial alliance between ZIV and Nextel will focus on making smart grid operation cheaper, targeting international markets (Mexico, US). SMEs have also benefited from the developments and results of the project as they look to enhance their product portfolios.

PREDYKOT has responded to the real industrial and societal need of growing dependence on online access and all the concurrent dangers this poses. By creating a unique eco-system of interoperable, exchangeable modules, organisations are able to develop security strategies and software that can respond intelligently and dynamically, adapting to new conditions, and so benefit from intelligent security and smart access control for online networks.

Major project outcomes

DISSEMINATION

- 20 publications in international top-ranked journals
- 5 briefings to US and European analyst companies 2011 - 2014
- 30 presentations at conferences and fairs, among which :
 - Panel discussions and presentations at the European Identity & Cloud conferences 2013 & 2014
 - Panel discussion at the 6th International Forum on Cybersecurity FIC 2014
 - Presentation and demo at the French Standardization Office 2014

EXPLOITATION (SO FAR)

- New products:
 - Policy-driven portal for end-users to request access to applications and managers to approve them (Evidian I&AM version 9 new offer)
 - Business Intelligence platform for governing security policy and managing risks (Intelligence Power ODBIS new offer)
- New services:
 - Security-as-a-Service components for SMEs to assess, evaluate and improve overall security of ICT environments (Net Man)
 - New services to enforce compliance management (Nixu)
- New systems:
 - Commercial alliance for Smart Grid smart devices operation and maintenance (Nextel – ZIV)
 - Security management solution with intelligent decision-support (Cassidian Cybersecurity)

STANDARDISATION

- Active participation to 7 standardisation bodies, with 3 major contributions:
 - YVL A.12 Information Security Management of a Nuclear Facility
 - Revision of the ISO 27000 series standards
 - Guides related to cyber-security of industrial systems at ANSSI

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■ ITEA 2 – Information Technology for European Advancement – is Europe's premier co-operative R&D programme driving pre-competitive research on embedded and distributed software-intensive systems and services. As a EUREKA strategic Cluster, we support co-ordinated national funding submissions and provide the link between those who provide finance, technology and software engineering. Our aim is to mobilise a total of 20,000 person-years over the full eight-year period of our programme from 2006 to 2013.

■ ITEA 2-labelled projects are industry-driven initiatives building vital middleware and preparing standards to lay the foundations for the next generation of products, systems, appliances and services. Our programme results in real product innovation that boosts European competitiveness in a wide range of industries. Specifically, we play a key role in crucial application domains where software dominates, such as aerospace, automotive, consumer electronics, healthcare/medical systems and telecommunications.

■ ITEA 2 projects involve complementary R&D from at least two companies in two countries. We issue annual Calls for Projects, evaluate projects and help bring research partners together. Our projects are open to partners from large industrial companies and small and medium-sized enterprises (SMEs) as well as public research institutes and universities.



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