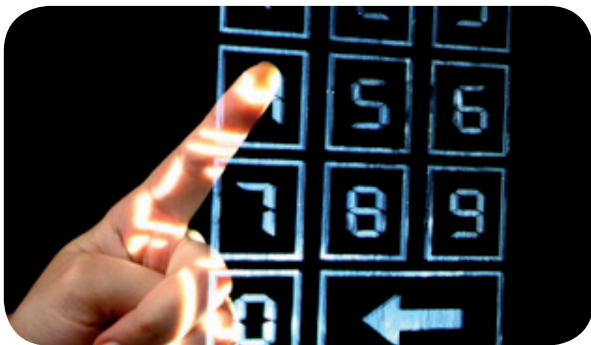


Project Results

Securing access across multiple domains

Extending authorisation processes beyond company and organisational boundaries



Flexible yet robust identification and authorisation is essential for commercial and research organisations working increasingly with external groups and consortia. The ITEA 2 MULTIPOL project has developed an innovative modular and consistent security suite enabling fully automated runtime access between independently-administered domains with the implementation of strong security features. Coherent authorisation mechanisms take into account the different security policies enforced in the individual domains.

There is an ever-growing need to extend business and other processes outside normal boundaries to enable electronic exchanges with partners and suppliers. Even within an enterprise, different business units often manage distinct sets of users and resources. The deployment of service-oriented architectures or the composition of Web Services pose similar problems: various services can relate to different companies or organisations, with different policies for enforcing the security of each service.

Authentication and authorisation are key to system security. While authentication has been well developed, little has been achieved in the area of authorisation in multi-domain environments, where each domain is administered independently and enforces its own specific security policy.

CO-OPERATION ESSENTIAL ACROSS DOMAINS

No one company can handle all the external inter-domain processes end to end. Co-operation is essential for inter-domain access control. MULTIPOL has developed such an approach, making it possible to specify and implement a complete authorisation chain across multi-domain environments. In addition to runtime mechanisms, such as converting profiles roles and attributes, or negotiating and reacting to a contextual security level, MULTIPOL has implemented out-of-band mechanisms, aiming at comparing security policies for compatibility, intelligent composition, etc.

MULTIPOL brought together French and Spanish researchers working on access management and control, and systems integrators building such systems. European-level co-operation was essential to provide all the skills necessary.

The project focused on three problems:

1. Securing business process expansion beyond the usual organisation boundaries;
2. Providing the essential security policy mechanisms to enforce access control; and
3. Controlling the access to applications and information across security domains.

Key elements included:

- **A multi-purpose authorisation chain** involving development of a chain of technical modules to ensure authorisation for access control;
- **Security policy composition** – to be a member of a consortium, secured by MULTIPOL, a company's domain has to be compatible with the set of consortium security rules. The company can continue to use its own rules internally but now has additional rules selected pragmatically to enable work with the consortium; and

MULTIPOL (ITEA 2 ~ 07001)

Partners

Answare
 ATOS Origin
 Cassidian
 CityPassenger
 European Software Institute
 Evidian
 Innovalia Association
 Nextel
 Thales Communications
 University Paris XII, LISSI lab

Countries involved

France
 Spain

Project start

July 2008

Project end

October 2010

Contact

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Project Results

- **A suite of tools and software components** addressing the design, implementation, deployment and management of a comprehensive security infrastructure ensuring a consistent security policy in multi-domain environments.

RECONCILING SEMANTIC DIFFERENCES

Instead of integrating the access control policies of the collaborating domains, MULTIPOL took a more realistic approach by composing each local existing policy with a set of rules, global to the consortium of domains. The resulting composed policy is then enforced by each domain at runtime, when users or services access to resources.

MULTIPOL had to overcome previous critical limitations in semantic expressiveness, interoperability and reasoning capabilities. It achieved this by superimposing a new abstract ontology on top of standard policy languages: XACML and extended RBAC.

Important advantages include: maintaining the local security policy while enforcing extra policy rules for multi-domain co-operation; abstracting the security implementation using a semantic approach;

and helping map to real-life deployments with a modular suite of components.

The MULTIPOL approach was demonstrated in two areas:

1. **The healthcare sector** – simplifying secure inter-hospital access to patient records; and
2. **Interbuilding access** – sharing of information between highly secure buildings such as embassies.

RESULTS ALREADY EXPLOITED

The success of the ITEA 2 project has enabled quick exploitation of results. Project leader Evidian has already included some modules developed in MULTIPOL in its standard product offer – such as in its latest identity and access-management software suite launched in September 2010. Other partners plan to integrate results during 2011.

MULTIPOL has also increased the visibility of the European software industry in this area of security, previously dominated by the USA. It enabled consortium member to communicate their success to the key industry analysts that influence their customers by demonstrating that European companies are spending money on multi-domain security.

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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.



MULTIPOL
(ITEA 2 - 07001)

October 2011

Major project outcomes

DISSEMINATION

- 6 publications
- 17 presentations at conferences/fairs (Europe, USA, Middle East)
- 5 analyst briefings (European, American)
- 9 press releases

EXPLOITATION

- 2 new products
- 3 new services

STANDARDISATION

- 2 contributions to the OASIS standardisation body

PATENTS

- 1 patent application filed