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.

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
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 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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**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