



Consequence overview

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Problem Statement



On the market today there are many sophisticated solutions for policy based data sharing control. However there is a gap between business requirements and today's technology offerings:

- There is a need for quick, dynamic and secure information sharing
- Current low-level policy systems reconfiguration is too complicated, which makes difficult their application to dynamic set-ups like virtual organizations, temporary project teams and so on



Especially true when organizations collaborate and information flows cross organizational boundaries.



- To deliver a *Data-centric information protection framework* based on data-sharing agreements:
 - Define a generic, scalable, context-aware, secure and resilient architecture
 - Engineer an interoperable software implementation of the architecture
 - Evaluate the technical and business benefits of the implementation and framework via two test beds
 - Widen the use of agreements and policy enforcement, and improve best practices in secure data and information sharing through a significant impact on the community

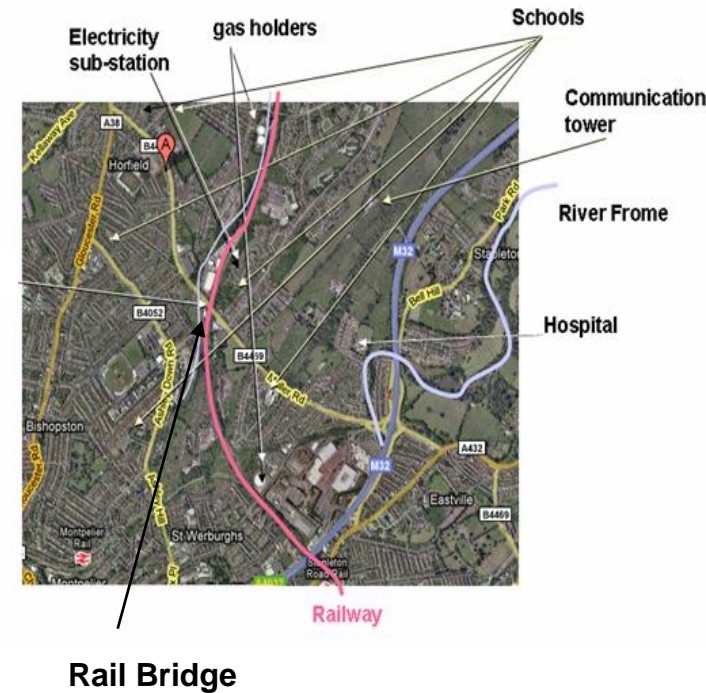
- Tomorrow's enterprises will require data-sharing and data dissemination in ways that are not supported by current technology:
 - Consequence will make research advances over the state of the art
 - In addition - Consequence integrates a lot of technologies that were available before the project's start and unlocks the potential of these technologies by:
 - extending them with the research innovations,
 - Integrates them in new combinations,
 - to address new business scenarios.

- Data Sharing Agreements
 - Definition of DSA for both managers and technologists
 - Analysis of policies beyond the state of the art:
 - New formal languages for DSA
 - Formal analysis of DSA
 - Check for inconsistencies between policies and verify that the execution is consistent with the set of policies
 - Usage policies - not just access control
 - Mapping from data sharing agreements to enforceable policies
 - Translation of DSA to enforceable policies
 - Compliance of detailed policies with general ones

- Policy Enforcement – progress towards -
 - Enforceable policy language that includes context, changing context & post-access obligations.
 - Beyond standard PKI – document originator can define the authorities who are trusted to evaluate policies, not just the domain management
 - Enforcement of policies on structured & derived data not just a single immutable, data entity
 - Design of a policy enforcement architecture combining the advantages of rights management and distributed authorisation

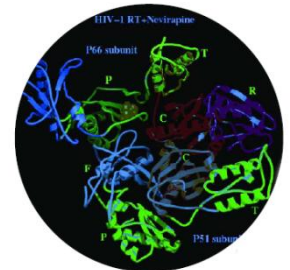
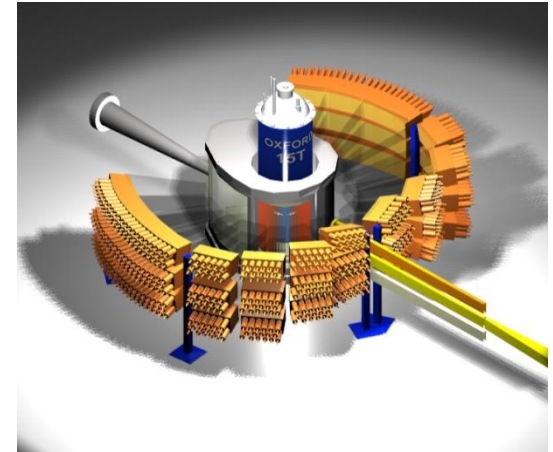
Testbed 1: Crisis Management testbed

- A multiple vehicle crash occurs in a busy urban area :
 - cars & tanker
 - Possible chemical spill
 - Possible rail fire
 - Possible evacuation
 - Possible casualties
- Policies govern access to information:
 - Current situation data or potential actions
 - Which emergency services - where
 - Protecting personal data of casualties
 - Avoid public panic but keep services ready



Testbed 2: Sensitive scientific data

- Data collected from scientific facilities
- DSAs between facility and many actors
 - public sector open access policy
 - commercial confidentiality
 - researcher self interest
- Conflicts between policies
- Policies on raw data and derived data
- Facility stores data and enforces data policies
- Users around the world access and use data



Drug
Discovery

- The two scenarios have been selected because they complement each other, between them provide a wide range of requirements for enterprise rights management:
- STFC scenario:
 - Large data files (megabytes to terabytes),
 - many accesses, many users,
 - Stable context, global access,
 - Derived data,
 - Wide range of usage applications.
- BAE Systems scenario:
 - Small messages,
 - Quickly changing context,
 - Ad-hoc communication between mobile devices in the operations theatre.

The Consortium



Science & Technology
Facilities Council

*High demand
testbeds*

*Industrial
innovators*

Microsoft | Innovation Center
Europe



Researchers

Imperial College
London



- Created the Consequence Framework
 - Designed the Architecture
 - Made an implementation of the Framework as a set of services and Application Programming Interfaces (API)
- Created two test-bed prototypes and evaluated them
- Made Research innovations within the Frameworks and beyond
 - Published in multiple media and presented in different conferences
 - <http://www.consequence-project.eu/publications.html>

- Share your thoughts and ideas with us
- Discuss possible way of moving forward
 - During this workshop
 - Direct to consortium members
 - Project Distribution List
 - consequence-info@doc.ic.ac.uk

