



ACSI



ACSI will serve to significantly reduce the effort and lead-time of designing, deploying, maintaining, and joining environments that support service collaborations. This will be achieved by developing a rich framework around the novel notions of dynamic artifacts and interoperation hubs, enabling a substantial simplification in the establishment and maintenance of service collaborations.

At a glance

Project title:

Artifact-Centric Service Interoperation (STREP)

Project coordinator:

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Partners:

Università degli Studi di Roma La Sapienza (IT),
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Indra Software Labs SLU (ES),
Collibra NV (BE)

Duration:

June 2010 – May 2013

Total cost:

€ 4.7 M

Website:

<http://www.acsi-project.eu>

Motivation

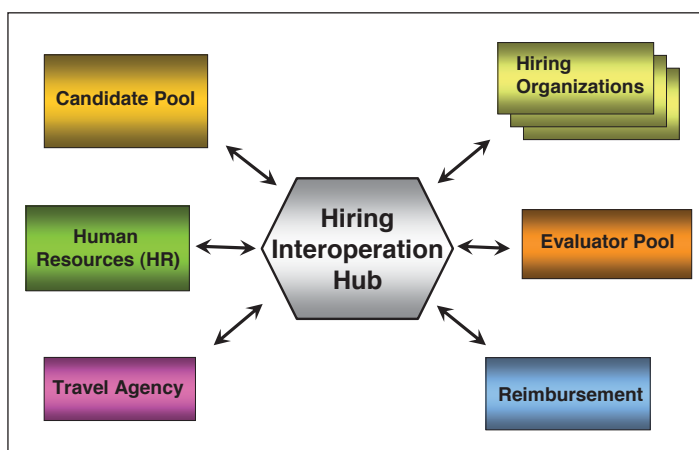
Interoperation between electronic services and more generally the business processes embodied by these services is one of the most challenging and pressing issues in today's increasingly globalized and de-centralized economy. Outsourcing, globalization, and the automation of business processes continue to increase. However, today, there is no effective, flexible, scalable, and principled approach to enable the interoperation of services across enterprise boundaries in support of shared (business) goals. This is a major roadblock to preventing the automation of these kinds of collaboration, and more broadly, the design, deployment, and operation of innovative value nets. The ACSI project is aimed directly at filling this vacuum.

Based on an innovative foundation, the ACSI research will develop scientific advances, techniques, and tools to simplify the design and deployment of infrastructure to support service collaborations, the ability of services to join such collaborations, and the evolution of such collaborations as the marketplace and competitive landscape change.

A Brand New Approach

Artifact-Centric Service Interoperation (ACSI) is based on two fundamental constructs: the interoperation hub and dynamic artifacts.

An interoperation hub serves as a virtual rendezvous for multiple services that work together towards a common goal. Our research will develop a principled, easy-to-use framework for creating, deploying, maintaining, and joining ACSI interoperation hubs in essentially any application domain. Similar to EasyChair or SalesForce.com, an ACSI interoperation hub will serve as the anchor for a collaborative IT environment that supports large numbers of service collaborations that operate independently, but focus on essentially common goals. These hubs are primarily reactive, serving as a kind of structured whiteboard to which participating services can refer. The hubs can be updated with information relevant to the group, assist the services by carrying out selected tasks, or notify services of key events.



Example of interoperation hub that supports collaboration around hiring

The interoperation hubs used in ACSI will be structured around dynamic artifacts, also known as “business artifacts” or “business entities”. These provide an holistic marriage of data and processes, serving as the basic building block for modelling, specifying, and implementing services and business processes. In the context of single enterprises, it has been shown that the use of artifacts can lead to substantial cost savings in the design and deployment of business operations and processes, and can significantly improve communication between stakeholders. Artifacts can give an end-to-end view of how key conceptual business entities evolve as they move through the business operations, in many cases across two or more silos. As a result, artifacts can substantially simplify the management of data and processing between services and organizations.

A key pillar of the ACSI research is to generalize the advantages of dynamic artifacts to the broader context of interoperation hubs and service collaborations. While the interoperation hubs themselves will take advantage of the artifact paradigm, the services participating in such hubs are not required to be artifact-centric; they can be conventional SOA services, including legacy applications with SOA adapters.

Impact

ACSI provides an approach to populating the web with semantically rich building blocks, around which services can cluster to create a broad variety of service collaborations and value networks.

The ACSI interoperation hub framework, in conjunction with the underlying ACSI artifact paradigm, provides a structure around which many subsequent scientific and technology advances can be made. The ACSI research will substantially extend current verification and synthesis techniques to incorporate data along with process, and will develop the next generation of process mining research by generalizing it to handle data along with process.

The project aims to achieve significant savings over conventional approaches to service interoperation across several areas: design and deployment, on-boarding, day-to-day operation, maintenance, data transformation automation, and evolvability. This will be accomplished while enabling rich flexibility for the different service collaborations using a given interoperation hub.

The technology can be applicable in key areas of societal importance, including government, energy, healthcare, supply chain logistics (especially in industries with deep upstream supply chains), and heavy manufacture (e.g., airline industries). The mechanisms incorporated into the ACSI framework to support rich variation within a single hub can be especially advantageous in domains such as human resources, where there are significant differences from country to country.

The ACSI interoperation hub framework will provide a paradigm shift in the way that services, and more generally enterprises, can work together.