Standardization of a reference architecture for collaborative work

Introduction

The goal of the European Commission programme for Collaborative Work is to develop next generation collaborative working environments, thereby increasing creativity and boosting innovation and productivity. These environments are intended to provide collaboration services that make possible the development of worker-centric, flexible, scalable and adaptable tools and applications. In doing so this will enable seamless and natural collaboration amongst a diversity of agents (humans, machines, etc) within distributed, knowledge-rich and virtualized working environments. An emphasis has also been placed on supporting professional virtual communities and nomadic personal access to knowledge.

Standardization Challenge

The European Commission identified as a key objective within the Collaborative Working Environment programme the establishment of a common framework or reference architecture on which a new generation of collaborative tools and applications could be developed. A reference architecture would increase interoperability amongst systems, encourage re-use and sharing of common technologies developed within the funded projects, and would provide greater confidence to European organisations considering investing in implementing new systems for collaborative work.
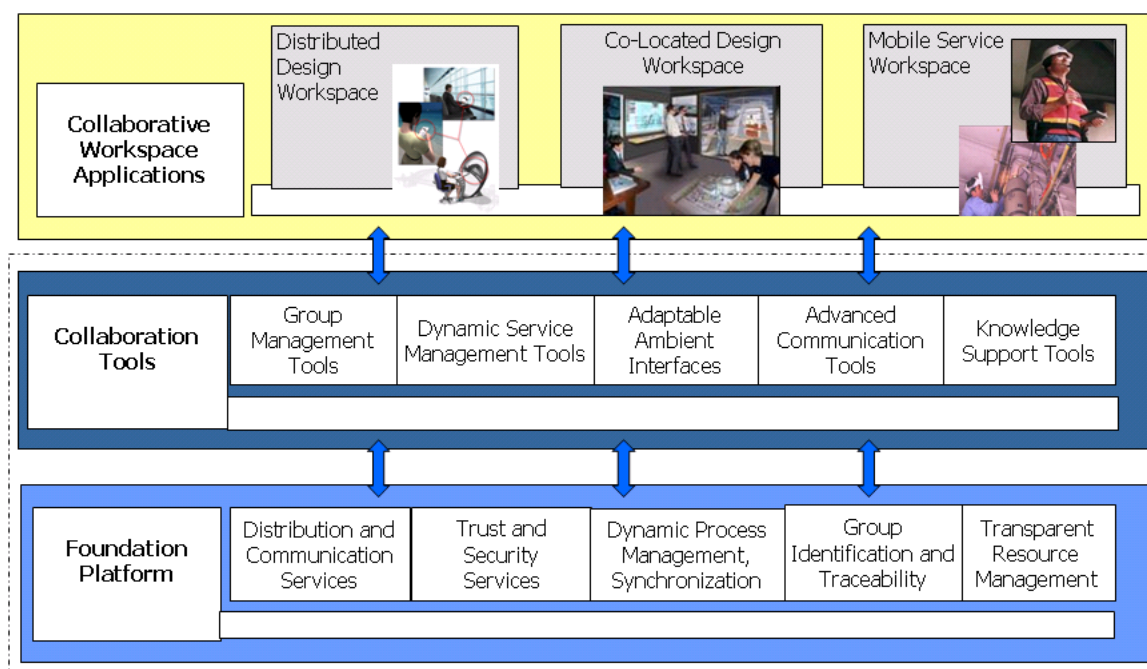
The creation of an industry recognised reference architecture became the joint challenge of four Integrated Projects funded by the European Commission. These four projects each address different aspects of collaborative work and are developing innovative technologies that support a wide range of workers and working environments, with each project addressing a different set of target industries or application domains. Through working together, the vision is to create a standard platform that supports the industries and application domains targeted by each project.

Standardization Path

The initiative for standardization of a reference architecture for collaborative work involves two important elements. As there is no existing platform or framework the first element centres around coordinating the combined technical abilities amongst the partners within the four large Integrated Projects to define and agree the technical content of the reference architecture specifications. This is by no means a

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simple task as there are numerous and sometimes conflicting requirements coming from the various industries and application users that each Integrated Project is targeting.

The second element of the standardization initiative involves establishing industry recognition of the new reference architecture as a *de facto* standard. The first step in this process is to obtain the endorsement of the more than 100 project partners that are participating in the four Integrated Projects, many of which are leading organisations in their industry. This, combined with dissemination actions, newsletter, conferences, workshops, training curricula, and other tasks already within the work programmes of the Integrated Projects should establish the new reference architecture as a recognised industry standard.

The final step will be the establishment of a grouping to move the reference architecture forward in order that it stays current with the needs of users and suppliers, and provides an open environment in which contributions from other projects and further research can be incorporated.

The EC Unit for Collaborative Work has been very innovative in their processes for launching the initiative to establish a reference architecture for collaborative work through implementing the following steps.

Step 1: Establish collaboration amongst projects during negotiations

Meetings have been organised amongst the Integrate Projects at the very start of negotiations in order that the vision of each project and underlying technologies was understood and the challenges faced in harmonising and specifying a common architecture were recognised.

Step 2: Include tasks for standardisation in project work programmes

Each of the four Integrated Projects have within their work programmes specific tasks identified for coordinating with the other projects in developing the common reference architecture. This changes the standardization emphasis from a dissemination activity to one that is integral to the research and development within the projects.

Step 3: Formally track project progress towards standardization

The European Commission has included work towards standardisation of the reference architecture as important topics for the initial six month project reviews of each project. This highlights the importance of the initiative for the project partners and allows issues of coordination that might otherwise slow progress towards standardization to be addressed early.

Step 4: Publish a formal reference specification

The technical work of defining the reference architecture is more substantial than a typical IST project in that the deliverables are intended to be published in a way that enables easy take-up by industry. Additional effort is needed to describe the specifications, along with the technical, user and business requirements behind the design in order to build confidence in organisations outside the projects in using the architecture for their own applications.

Key Learning Points

The four Integrated Projects have only recently started their project contracts, but the experiences gained from the initiative of the European Commission to establish a reference architecture already provides important lessons that others should find useful:

- Encourage technical discussions amongst projects during the contract negotiations stage of a project. The understanding of what others intend to do helps in coordinating standardization actions and also in streamlining potentially overlapping research work.

- Build coordination of standardization actions across projects into the project work programmes as specific tasks. This will ensure resources are available for harmonising technical approaches and resolving conflicts prior to disseminating standards proposals.

- Make achievement of standards a specific objective within projects so as to ensure sufficient priority is placed on standardization as part of the research and development work. Many projects under estimate the technical work in adequately specifying standards.

- Establish common methods for defining specifications across projects. This will facilitate communications and streamline the harmonisation process, especially if the motivations, requirements or rationale are captured along with the technical descriptions.

- Utilise the industry position of project partners to build support for new standards and to encourage other organisations outside the project to take interest and to monitor project progress.