

TANIA – Task Achieving Network-aware Information Agents

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IN-CONFIDENCE

1 Introduction

In order to harness the rich availability of on-line information resources available via telecommunications networks, the provision of taskable specialised computer agents able to assist a user in specific information and communications management tasks will be important.

These task achieving agents will be designed to operate in today's information networks opportunistically seeking to carry out their task and to assist the users in achieving their information gathering intentions in a flexible and user orientated way. They will adapt to new network capabilities and information repository mechanisms as they become available.

These agents must use whatever they find in the net (even when parts are not available) and must get responses as best as they can within a limited time and budget. This would require task description, task achievement planning, intelligent scheduling and reactive execution capabilities.

The aim of this project is the creation of a software infrastructure for the rapid user-oriented construction of such agents and a demonstration of the use of this infrastructure.

2 Deliverables

The project will deliver the following:

- library code to assist in building task achieving agents
- graphical agent composition editors for user-centred task definition and refinement
- domain models for the Internet and its information resources that can be re-used
- standard models and ontologies to describe personal task-related information and preferences
- demonstration of the use of the infrastructure for information management

These deliverables are intended to have a major impact on the world of communications and information use by the individual for work and recreational purposes. The deliverables are at several levels – from general frameworks and standards to help establish the new market for information, and its productive use through toolkits and models to allow for the rapid building of new communications network provided information services, right through to a ready to run agent within the framework that will be widely distributed.

It is proposed that the project deliver openly available concepts and models. Standards activities would be a primary part of the work on the project. Relationships to existing relevant standardisation and industry standards would be pursued.

Copies of an example simple Task Achieving Co-worker would be provided in binary form on a freely available licenced basis. It is proposed that this is done in several stages to achieve maximum economic impact for the UK. The timetable for all stages would be announced in advance by the consortium.

- Month 0: Release in beta-test form in a limited way internationally to create media, user and industrial interest.
- Month 3: Release of an agent via UK communications and system provider companies with access to specific services.
- Month 6: International release.
- Month 9: provision of agent as a cover disk with relevant magazines world-wide.

The consortium leader would act as licensor of the source code of the task achievement engine on behalf of the consortium members for those companies wanting to provide additional agent capabilities.

Additional revenue would accrue through the building of businesses to provide mediators and wrappers for communications and information services providers. These would be licenced products that could be packaged with their products at low cost to enable the service provider to reach the volume world-wide information agent market that would have been created by the widespread distribution of free or low cost user/agent tools.

3 The Personal Profile

One important feature of the approach to be taken is that the concept of a long lived *Personal Profile* for communications and information use will be established. It will be a guarantee of the approach that the information that an individual builds in their co-worker personal profile will be able to stand alone and be meaningful outside of its specific use in this particular generation of information agent. We will establish the concept of a separate transportable personal profile that can accompany the user for the rest of his or her life and can grow with him or her.

4 Approach and Technology Sources

- user/agent dialogue for task and option management
- task specification aids
- domain modelling capabilities
- task planning technology
- resource management methods

- opportunistic workflow management
- reactive capabilities
- adaptive capabilities
- softbots and knowbots
- WWW infrastructure and libraries

5 TANIA Technical Architecture

Figure 1 shows the main components that are to be integrated during the TANIA work. The systems integration architecture is based upon a general structure that has been adopted on a number of AIAI projects.

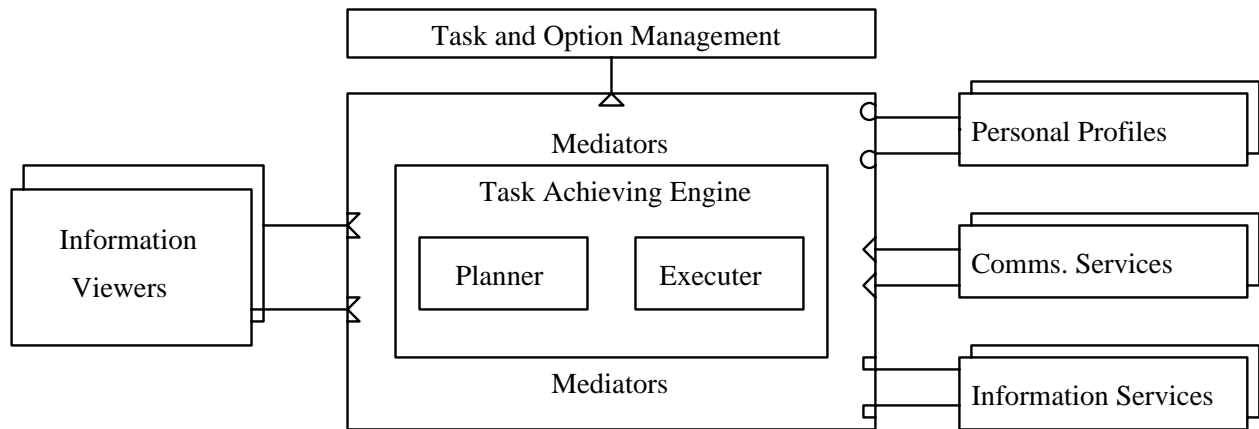


Figure 1: TANIA Components

The various components “plug” into “sockets” within the architectural framework. The sockets are specialised to ease the integration of particular types of “component”.

The components are as follows:

Task and Option Management – The capability to support user tasks by the construction and tasking of agents which use appropriate processing and information assets, to monitor agent activity, and to assist the user in managing options being explored.

Task Achieving Engine – a facility to carry out tasks on behalf of the user using planning and adaptive execution capabilities.

Information Viewers – User interface, visualisation and presentation viewers for the information – sometimes differentiated into *technical* information views (charts, structure diagrams, etc.) and *world* model views (simulations, animations, etc.)

Personal Profile – Personal user models for preferences and task-related knowledge.

Communications Services – Capabilities to reach information services.

Information Services – Information providers.

Mediators – Intermediaries or converters between communication and information services and the model of information provided to the user.