

In the following, the terms "goal", "task" and "job" are used. These are defined as follows:

A "goal" : a logical description of a resource (fact) which it is intended an agent should produce;

5       A "task": a logical description of a process which uses zero or more resources and produces one or more resources; and

A "job": refers to a goal or task depending on the context. (For instance, in the context of the visualiser 140 discussed below under the heading "5.

**DEBUGGING AND VISUALISATION"**, it refers to goals.)

10       Referring to Figure 1, an agent-based system 100, built using the CABS platform, comprises a set of communicating agents 105, 110, 115, 120 for controlling/representing entities in an external system, together with a set of infrastructure agents 135, 140, 145.

The agents of the system 100 communicate with each using a network  
15   such as a Local Area Network 150. They might alternatively communicate using capacity in the external system itself.

External to the agent system 100, there is a communications system 125 with various components. There is within the external system 125, for instance, a terminal 155, a software application providing authentication 160 and several  
20   network links 165, 170, 175. One of the network links 175 is provided with an external agent 180 which is separate from the agent-based system 100 built using the CABS platform.

The CABS agents 105, 110, 115, 120 have various tasks to carry out and resources to control. The agents will need both to collaborate together and to  
25   carry out tasks. The tasks will include those directly involved in providing services to a user but may also include auxiliary tasks.

In an example, in the system shown, if the user wants data downloaded to the terminal 155, the user agent 110 will have the task of providing an authentication resource 160, the terminal agent 105 will have the task of providing  
30   sufficient storage for the data at the terminal 155 and the network agents 115, 120 will have the task of providing network bandwidth to carry the data to the terminal 155. The network agents 115, 120 will also need to collaborate with each other, for instance by bidding against one another in terms of cost, time and quality of service to provide the network bandwidth.