Figure 5 shows a flow chart of steps involved in designing an agent using the platform of Figure 3;

Figure 6 shows possible organisational relationships between software agents built using CABS;

Figure 7 shows data obtained using a debugging tool for debugging an agent-based control system built using CABS;

Figure 8 shows a scenario for debugging using the debugging tool for debugging a CABS agent system;

Figure 9 shows a commitment table for an agent according to Figure 2;

Figure 10 shows a debugging and visualisation system for use with the agent-based control system of Figure 1;

Figure 11 shows a flow chart of a co-ordination process for use between agents in a system according to Figure 1;

Figure 12 shows schematically an example of the screen-based output of a "society tool" of the visualisation system in use;

Figure 13 shows schematically a GANTT chart as an example of the screen-based output of a "reports tool" of the visualisation system in use;

Figure 14 shows schematically an example of the screen-based output of a "micro tool" of the visualisation system in use; and

Figure 15 shows schematically an example of the screen-based output of a "statistics tool" of the visualisation system in use.

In the following description, an agent-based system is described, together with an environment for building it. The planning and scheduling aspects, which are the particular subject matter of the present application, are described for instance at section 2.5 below, "Planner and Scheduler 220".

1.   AN AGENT-BASED SYSTEM BUILT USING THE CABS TOOL-KIT

The system shown in Figure 1 is an example of an agent-based system for use in communications. A CABS platform could however be used for building almost any agent-based system where software agents need both to collaborate with other agents and to perform tasks which result in some output. The output in the example of Figure 1 is control of service provision by means of components of a communications system. The output could alternatively be data generation or