TaskWare™

TaskWare™ is an evolving tool set for software system analysis, optimization and design. Application of task modeling makes TaskWare particularly well suited for the analysis of large-scale distributed software systems, resulting in faster, more reliable design. While CASE and other existing tools operate well at particular stages in the computing system development cycle, such as at the target-system code-generation phase, TaskWare provides early- and late-stage tools for the development process. By providing analytical assessment of various design implementation choices prior to any code implementation, TaskWare provides the feedback necessary to make and guide critical, high cost impact, early-stage implementation choices. Later in the development cycle, TaskWare addresses the problem of system deployment by optimally allocating processing tasks to processing elements.

TaskWare uses a tiered, Web-based architecture (see figure right). At the database level, TaskWare uses nine primary data tables to describe the software and hardware elements that make up the system under design, including the system’s overall hardware and software environment, and the interactions between the elements as deployed. To enable ready expansion and future utility, each of the primary tables permit the attachment of arbitrary attributes within an object-oriented class-based system. By delivering TaskWare as a Web-based tool, users can access it from anywhere facilitating team-based design sharing and concurrent system development (see figure left).

TaskWare will bring powerful new co-design technologies to the commercial arena, enabling the simultaneous optimization of hardware and software at the system level-addressing the difficult problems of distributed software system optimization, assessment and verification. While task-scheduling and allocation have been the subject of many research projects, little of this technology has transitioned to commercial, easy to use tools until now. Although task-level analysis is able to scale to large projects, this does not preclude the ability to include low level, realistic effects such as process activation and communication overheads as well as failure analysis, all within an object-oriented design paradigm. TaskWare will also incorporate network routing algorithms to provide realistic communication modeling and effects.

TaskWare will become part of the software programmer’s and systems analyst’s core toolkit and inter-operate with other vendor’s design tools via meta-data, scripting, XML and other information exchanges. TaskWare is currently in development at OpCoast.

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