

State of the Art in Workflow Management Research and Products

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1 Abstract

In the last few years, workflow management has become a hot topic in the research community and, especially, in the commercial arena. Workflow management is multidisciplinary in nature encompassing many aspects of computing: database management, distributed client-server systems, transaction management, mobile computing, business process reengineering, integration of legacy and new applications, and heterogeneity of hardware and software. Many academic and industrial research projects are underway. Numerous successful products have been released. Standardization efforts are in progress under the auspices of the Workflow Management Coalition. As has happened in the RDBMS area with respect to some topics, in the workflow area also, some of the important real-life problems faced by customers and product developers are not being tackled by researchers. This tutorial will survey the state of the art in workflow management research and products.

2 Outline

- Dimensions of Workflow: Process, Organization, Infrastructure
- Types of Workflow Systems: Production, Ad hoc, Administrative, Collaborative
- Process Modeling and Execution: Buildtime, Runtime, Worklist, Administration, Staff and Resource Assignment and Resolution, Process Repositories
- Analysis Methods: Animation, Simulation, Auditing
- Emerging Standards from Workflow Management Coalition
- Products: FlowMark (IBM), FloWare (Recognition), Action Workflow (Action), Staffware (Staffware),

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OPEN/workflow (Wang), InConcert (XSoft), Visual Workflo (FileNet), Notes (Lotus)

- Academic and Industrial Research Projects
- Advanced Features: Dynamic Process Modification, Support for Backward Recovery (Advanced Transaction Models and Compensation), Scalability and Availability, Events and Rules, Mobile Users

3 Target Audience

Students and researchers, DBMS and workflow system designers, implementors, users and administrators

4 Instructor

Dr. C. Mohan has been a Research Staff Member at IBM's Almaden Research Center since 1981 and a member of the IBM Academy of Technology since 1992. He is currently leading the Exotica project on workflow management which involves FlowMark, MQSeries and Lotus Notes. He is a designer and an implementor of R*, Starburst and DB2. He is the primary inventor of the ARIES family of locking and recovery algorithms, and the industry-standard Presumed Abort commit protocol. His research ideas are incorporated in numerous products (e.g., DB2/MVS, DB2 Common Server, S/390 Parallel Sysplex Coupling Facility, Encina, MQSeries, ADSM). Mohan has received 7 IBM Outstanding Innovation Awards, 2 Research Division Awards and the 8th Plateau Invention Achievement Award for his patent activities (22 issued and 6 pending). He was the Program Chair of the 1987 International Workshop on High Performance Transaction Systems and a Program Vice-Chair of the 1994 International Conference on Data Engineering. He is the Americas Program Chair for the 1996 International Conference on Very Large Data Bases. He is an editor of VLDB Journal and Distributed and Parallel Databases - An International Journal. Mohan received a PhD in computer science from the University of Texas at Austin in 1981 and a B'Tech in chemical engineering from the Indian Institute of Technology at Madras in 1977.