

PANEL

Interoperability In Multidatabases: Semantic and Systems Issues

Panel Chair:

Yuri Breitbart, University of Kentucky, USA

Panelists:

Hector Garcia-Molina, Princeton University, USA

Witold Litwin, University of Paris - Dauphine, France

Nick Roussopolous, University of Maryland, College Park, USA

Hans Schek, Swiss Federal Institute of Technology (ETH), Switzerland

Gio Wiederhold, Stanford University, USA

Multidatabases and semantic data interoperability is a critical area of research and engineering. Fundamental questions of syntax and semantics must be addressed as well as questions such as how users locate and evaluate the quality of potentially relevant data, how they collaborate and share resources, and how users can be made aware of and be assisted in the use of the new resources at their disposal.

Research on multidatabases and semantic interoperability has generated a significant interest in a database scientific community, which is evidenced by three recent Workshops: one on Heterogeneous Database Systems (held at Northwestern University in December, 1989), and another one on Multidatabases and Semantic Interoperability (held in Tulsa, OK in November 1990) and the third one International Workshop on Interoperability in Multidatabase Systems (held in Kyoto, Japan in April 1991) and increased number of papers appeared in the Proceedings of the SIGMOD and VLDB Conferences in recent 2-3 years.

The main purpose of the panel is to discuss basic research problems encountered by applications in the heterogeneous database environment and identify basic research problems in such environment that are not being addressed. The topics which will be discussed by panelists are: *Semantic integration of information from diverse sources; Query optimizations techniques in multidatabase systems; Transaction management in multidatabase systems;*

and Descriptive modeling of asynchronous data processing.

The semantic data integration requires solving such issues as semantic interpretation of ambiguous scientific data, methods to describe a semantic equivalence and semantic differences of various data items located at different local sites. The query optimization requires solving such issues as reducing large data quantities collected at local sites using either known data semantics to obtain summary data or reducing inter-site communication by increasing local data processing costs. The transaction management in multidatabase systems requires a new approach that uses an application semantics in defining a global database consistency. Descriptive modeling of asynchronous data processing would require a solution of such issues as devising simulation models for a heterogeneous distributed database environment. These models are to be used to conduct simulation studies for various transaction processing algorithms in an application dependent multidatabase environment

The panel will discuss results of the Workshop on Multidatabases and Semantic Interoperability conducted in Tulsa, OK in November 1990 concentrating mainly on the issues of the current state of the art and directions that multidatabase research should be taken in the view of panelists.