While middleware technologies, such as CORBA, EJB and DCOM, are gaining adoption in most application domains, there is still some reluctance in deploying middleware in mission-critical systems with high dependability requirements. Recognizing the need for dependable middleware, several research, industrial and standardization efforts have focussed independently on specific pieces of this dependability puzzle, but have not collectively attempted to solve the entire puzzle. One specific objective of this one-day Workshop is to bring together the leading researchers and practitioners (and therefore, the pieces of the puzzle) in this area, to discuss their insights on dependable middleware, along with the open issues and the challenges that they still face. To this end, some of the presentations at WDMS 2002 will cover practical experiences with, and lessons learned in using and testing, dependable middleware in the field; yet other presentations will uncover novel research ideas that are on the cutting edge in the design and implementation of dependable middleware.

Because there is an equally increasing need for middleware-based systems to exhibit, in addition to dependability, many other “-ilities” (such as survivability, adaptability, scalability, availability, mobility, security, real-time, etc.), another objective of this Workshop is to look at the composition of various other interesting “-ilities” with dependability.

Our exciting technical program covers a range of issues in dependable middleware, and consists of 16 high-quality papers (selected from a collection of 26 submissions, after review by the WDMS 2002 Program Committee) organized into four sessions. Some of the presentations are aimed specifically at discussing the marriage of real-time with dependability, live upgrades with dependability, etc. We expect that future research on reliable middleware will be founded on some of the ideas that will be presented at this Workshop, and those that will inevitably arise from the discussions that follow.

In keeping with the true open spirit of a Workshop, WDMS 2002 is intended to serve as a forum for fostering free-spirited technical exchanges and healthy debate. Practitioners from industry and researchers from academia will present their latest practices, ideas, technologies, standards and systems for building dependable middleware-based applications. These presentations will set the stage for the Workshop participants to explore, collectively, ways of making today’s middleware technologies more robust, and to investigate the enhancement of existing dependable middleware with other “-ilities”.

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Fault-Tolerant CORBA

Adding Real-Time Support To Fault-Tolerant CORBA
B. Natarajan, N. Wang, C. Gill, Washington University, St. Louis,
A. Gokhale, Vanderbilt University,
D. C. Schmidt, University of California, Irvine,

Characterization Approaches for CORBA Systems by Fault Injection
E. Marsden, J.-C. Fabre and J. Arlat, LAAS, France

A Configurable CORBA Gateway for Providing Adaptable System Properties
M. Seri, T. Courtney, M. Cukier, V. Gupta, S. Krishnamurthy, J. Lyons, H. Ramasamy, J. Ren, and W. H. Sanders, University of Illinois at Urbana-Champaign

Building and Evaluating an FT-CORBA Infrastructure
D. Szentivanyi and S. Nadjm-Tehrani, Linkoping University, Sweden

Online Upgrades for CORBA and J2EE/EJB

Dependability and Other "-ilities"

A Two-Tier Approach To Building Dependable Middleware Services
P. D. Ezhilchelvan and N. A. Spiers, University of Newcastle, England

Middleware Support for Pervasive Dependability
C. Fetzer and K. Hogstedt, AT & T Labs

Reachability Snapshots in the Presence of Failures: An Exercise in Protocol-Service Composition
S. Gutierrez-Nolasco and N. Venkatasubramanian, University of California, Irvine

A Middleware Service for Dynamic System Reconfiguration in Real-Time Fault-Tolerant Distributed Object Computing Systems
J. Liu and K. H. Kim, University of California, Irvine

Middleware Policies for Intrusion Tolerance
F. Webber, P. Pal, C. Jones, M. Atighetchi and P. Rubel, BBN Technologies

Transactions

Deterministic Scheduling and Online Recovery for Replicated Multithreaded Transactional Servers
R. Jimenez-Peris and M. Patino-Martinez, Technical University of Madrid, Spain

Strong Replication in the GLOBADATA Middleware
L. Rodrigues, H. Mitanda, R. Almeida, J. Martins and P. Vicente, University of Lisbon, Portugal

Transactional Attitudes: Reliable Enterprise Application Integration Using Web Services
T. Mikalsen, S. Tai and I. Rouvellou, IBM Research, New York

Practical Experiences

Lessons Learned From Using Adaptive DOC Middleware in Real Application Contexts
C. Gill, Washington University, St. Louis,
J. Loyall, R. Schantz, BBN Technologies, and
D. C. Schmidt, University of California, Irvine & DARPA, USA

Realizing Software Fault Tolerance in Radar Systems Through Fault Tolerant Middleware and Fault Injection
D. M. Blough, Georgia Tech,
T. D. Bracelwell, J. Cooper and R. Oravits, Raytheon Army SMDC

Testability of Complex Middleware-Based Systems
D. M. Wells, R. E. Bernstein and A. Vadlamudi, Open Group