Monday, June 26, 2000

**8:30 AM - 10:00 AM**
**SESSION 1: PLENARY**

*Opening Remarks*

*Presentation of the W.C. Carter Award*

*Keynote Address:*
The Challenges for Dependability in e-Business
Dr. Timothy Chou, President and CEO of Oracle Business Online

**10:30 AM – 12:00 noon**
**SESSION 2A:**

*Embedded Systems*

Transparent Redundancy in the Time-Triggered Architecture
H. Kopetz and G. Bauer (Vienna University of Technology)

Resource Scheduling in Dependable Integrated Modular Avionics
Y.-H. Lee and D. Kim (University of Florida); M. Younis, J. Zhou, and J. McElroy (Allied Signal Inc.)

Error Detection Using Executable Assertions
M. Hiller (Chalmers University)

**SESSION 2B:**

*Practical Experience Reports I - Networks*

Experiences with Group Communication Middleware
S. Johnson and F. Jahanian (University of Michigan); S. Ghosh, B. VanVoorst, and N. Weininger (Honeywell Technology Center)

Towards Dependable Home Networking: An Experience Report

Y. Wang and W. Russell (Microsoft); A. Arora (Ohio State University); J. Xu (University of Illinois at Urbana-Champaign)

*Design, Implementation, and Performance of Checkpointing in NetSolve*
A. Agbaria and J. S. Plank (University of Tennessee)

** SESSION 2C:**

*Student Forum*

Brief presentations by students

**12:00 noon – 1:30 PM**
**SESSION 3:**

*Information Panel:*

EU-USA Program of Research Collaboration on Dependability
Panel Chair: Brian Randell (University of Newcastle)
Panelists: Frank Anger (NSF), Helen Gill (DARPA), Andrea Servida (European Commission), Mark LeBlanc (Department of State).

**1:30 PM – 2:30 PM**
**SESSION 4A:**

*Language Support*

Efficient Incremental Checkpointing of Java Programs
J. L. Lawall and G. Muller (IRISA/INRIA)

A C/C++ Source-to-Source Compiler for Dependable Applications
A. Benso, S. Chiusano, P. Prinetto, and L. Tagliaferri (Politecnico di Torino)
SESSION 4B:
*Practical Experience Reports II -COTS Evaluation*
Assessment of the Applicability of COTS Microprocessors in High-Confidence Computing Systems: A Case Study
Y. He (SoHaR Inc.); A. Avizienis (A. Avizienis and Associates, Inc.)

Evaluation of COTS Standards for Dependable System Design
C.J. Walter (WW Technology Group); N. Suri and T. Monaghan (Chalmers University)

SESSION 4C:
*Student Forum*
Brief presentations by students

2:30 PM – 3:30 PM
SESSION 5A:
*Measurement & Assessment*
Whither Automatic Software Recovery? A Fault Study using Open-Source Software
S. Chandra and P.M. Chen (University of Michigan)

Software Fault Tolerance for High-Performance Space Applications
M. Turmon, R. Granat, and D.S. Katz (Jet Propulsion Laboratory)

SESSION 5B:
*Practical Experience Reports III -Validation and Evaluation*
A Formal Specification and Verification of a Safety Critical Railway Control System
S. Gnesi (Consiglio Nazionale delle Ricerche); D. Latella (CNUCE – CNR); G. Lenzini (Istituto di Elaborazione dell’Informazione); C. Abbaneo, A. Amendola, and P. Marmo (Ansaldo Breda Segnalamento Ferroviario)

Sensitivity Analyses on Dependencies in Hierarchical Decomposition Models
M. Yin and C. Hyde (Raytheon Systems)

SESSION 5C:
*Student Forum*
Brief presentations by students

4:00 PM – 5:30 PM
SESSION 6A:
*Mobile Agents*
Fault-Tolerant Execution of Mobile Agents
L.M. Silva, V. Batista, and J.G. Silva (Universidade de Coimbra)

Exploiting Non-determinism for Reliability of Mobile Agent Systems
A. Mohindra and A. Purakayastha (IBM), P. Thati (University of Illinois)

SESSION 6B:
*Practical Experience Reports IV - System Architecture*
New Rolling Stock Architecture using Safety Computers and Networks
J. Boullie and M. Brun (Technicatome Aix-en-Provence)

Reliability-Availability-Serviceability Characteristics of a Compressed-Memory System
A Fault Tolerant Signal Processing Computer
K. Prager, M. Vahey, J. Whitney, J. Lieb, and W. Farwell (Raytheon Systems)

SESSION 6C:
Student Forum
Brief presentations by students

Tuesday, June 27, 2000

8:30 AM - 9:30 AM
SESSION 7: PLENARY

Keynote Address:
Internet Performance/Availability from an End User Perspective
Eric Siegel, Keynote Systems

10:00 AM - 11:00 AM
SESSION 8A:
Analysis & Evaluation
Performability of CAC Algorithms
J. Meyer (University of Michigan)

On the Quality of Service of Failure Detectors
W. Chen (Oracle Corporation); S. Toueg (Ecole Polytechnique); K. Aguilera (Cornell University)

SESSION 8B:
Theory
Fault-Secure Scheduling of Arbitrary Task Graphs to Multiprocessor Systems
K. Hashimoto, T. Tsuchiya, and T. Kikuno (Osaka University)

Diagnosis of Regular Structures
A. Caruso (University of Pisa); S. Chessa, P. Maestrini, and P. Santi (IEI-CNR, Pisa)

SESSION 8C:
Software Demonstrations
OFTT: A Fault Tolerant Middleware Toolkit for Process Monitoring and Control Windows NT Applications
M. Hecht, Y. He, X. An, and B. Zhang (SoHaR Inc.)

DEEM: a Tool for the Dependability Modeling and Evaluation of Multiple Phased Systems
A. Bondavalli, I. Mura, and F. Sandrini (CNUCE – CNR)

Loki: A State-Driven Fault Injector for Distributed Systems
R. Chandra, R. Lefever, M. Cukier, and W. Sanders (University of Illinois at Urbana-Champaign)

Sensitivity Analysis for System Design Improvement
S. Contini and S. Scheer (Joint Research Centre)

11:00 AM - 12:00 noon
SESSION 9A:
Testing of COTS Systems
Joint Evaluation of Performance and Robustness of a COTS DBMS Through Fault-Injection
D.G. Costa, T. Rilho, and H. Madeira (University of Coimbra)
Exception Handling Tests of the Microsoft Windows Operating System
C. Shelton and P. Koopman (Carnegie Mellon University)

SESSION 9B:
Byzantine Faults
From Crash Fault-Tolerance to Byzantine Fault-Tolerance: Towards a Modular Approach.
R. Baldoni, J. Helary, and M. Raynal (IRISA)

Dynamic Byzantine Quorum Systems
E. Pierce and L. Alvisi (University of Texas at Austin); D. Malki (The Hebrew University of Jerusalem); R. Wright (AT&T); M.K. Reiter (Bell Labs, Lucent)

SESSION 10A:
Analysis and Verification
χSUDS-SDL: A Tool For Understanding and Diagnosis of Software Architectural Specifications
J.J. Li and R.J. Horgan (Telcordia Technologies)

Enabling Automated Analysis through the Formalization of Object-Oriented Modeling Diagrams

Deadlock Detection of EFSMs Using Simultaneous Reachability Analysis
B. Karacali, K-C. Tai, and M.A. Vouk (North Carolina State University)

SESSION 10B:
Group Communication
A Low Latency, Loss Tolerant Architecture and Protocol for Wide Area Group Communication
Y. Amir, C. Danilov, and J. Stanton (Johns Hopkins University)

A Reliable Many-to-Many Multicast Protocol for Group Communication over ATM Networks
R. Koch, L.E. Moser, and P.M. Melliar-Smith (University of California, Santa Barbara)

A Gossip-Based Reliable Multicast for Large-scale High-throughput Applications
Q. Sun and D. Sturman (IBM)

SESSION 10C:
System Demonstrations
Fault-Tolerant Ethernet for IP-Based Process Control: A Demonstration
S. Song, J. Huang, P. Kappler, R. Freimark, J. Gustin, and T. Kozlik (Honeywell)

Demonstration of the Remote Exploration and Experimentation (REE) Fault Tolerant Parallel Processing Supercomputer for Spacecraft Onboard Scientific Data Processing

SESSION 11A:
Testing and Applications of Coding
Test-Point Insertion to Enhance Test Compaction for Scan Designs
I. Pomeranz and S.M. Reddy (University of Iowa)

Method to Recover Internet Packet Losses Using (n, n - 1, m) Convolutional Codes
M. Arai, A. Yamaguchi, and K. Iwasaki (Tokyo Metropolitan University)
SESSION 11B:

Panel:

Statistical or Probabilistic Decision Models: How Dependable Are They?
Panel Chair: P. Bose (IBM)

SESSION 12: PLENARY

Panel:

Running the Bytes Without Getting Bitten: Strategies for Dealing with Malicious Code
Panel Chair: Carl Landwehr (Mitretak Systems)
Panelists: Crispin Cowan (Oregon Graduate Institute), Gary McGraw (Reliable Software Technologies), and Jeannette Wing (Carnegie Mellon University).

SESSION 13A:

Software Fault Injection

Software Fault Injection Using Reflective Programming
E. Martins and A. Rosa (State University Campinas)

SESSION 13B:

Replication

Implementing Flexible Object Group Invocation in Networked Systems
G. Morgan and S.K. Shrivastava (Newcastle University)

Implementing e-Transactions with Asynchronous Replication
S. Frolund (HP Labs); R. Guerraoui (Swiss Federal Institute of Technology)

Data Replication Strategies for Fault Tolerance and Availability on Commodity Clusters
C. Amza, A. Cox, and W. Zwaenepoel (Rice University)
SESSION 13C:  
**Fast Abstracts I**  
Presentation of work in progress and late-breaking research results.

1:30 AM - 3:30 PM  
SESSION 14A:  
**High Performance Architecture**  
*Designing High-Performance & Reliable Superscalar Architectures: The Out of Order Reliable Superscalar (O3RS) Approach*  
A. Mendelson (Intel); N. Suri (Chalmers University)

*Fault Tolerance Through Re-execution in Multiscalar Architecture*  
K.K. Saluja, F. Rashid, and P. Ramanathan (University of Wisconsin, Madison)

*A Fault Tolerance Infrastructure for Dependable Computing with High-Performance COTS Components*  
A. Avizienis (A. Avizienis and Associates, Inc.)

*Synthesis of Interconnection Networks: A Novel Approach*  
V. Lakamraju, I. Koren, and C.M. Krishna (University of Massachusetts, Amherst)

SESSION 14B:  
**Distributed System Models**  
*The Best of Both Worlds: a Hybrid Approach to Solve Consensus*  
A. Mostefaoui, M. Raynal, and F. Tronel (IRISA)

*Synchronous Systems and Perfect Failure Detectors: Solvability and Efficiency Issues*  
B. Charron-Bost (Ecole Polytechnique Paris); R. Guerraoui (Swiss Federal Institute of Technology); A. Schiper (Ecole Polytechnique Federale de Lausanne)

*The Timely Computing Base: Timely Actions in the Presence of Uncertain Timeliness*  
P. Veríssimo and A. Casimiro (University of Lisboa); C. Fetzer (AT&T)

*Reconfiguration Based Failure Restoration in Wavelength-routed WDM Networks*  
G. Sai Kiran Reddy (Indian Institute of Technology); G. Manimaran (Iowa State University); C. Siva Ram Murthy (Indian Institute of Technology)

SESSION 14C:  
**Fast Abstracts II**  
Presentation of work in progress and late-breaking research results.