

Session 2 Summary: Practice & Experiments

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Customer Interest, Expectation, and Requirement for Grid in Dependability Context

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Japanese Business Grid Project Objectives & Key Technical Issues

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Thanks to all the teams in the **BUSINESS GRID COMPUTING PROJECT**

Summary – 1

- Definition: Dynamic resource sharing across an enterprise
- Motivation: Grid computing must be equal to or better than current systems
- Requirements
 - Complexity of grid computing must be transparent to user
 - High availability (0.92 to 0.96) and disaster recovery
- Roadblocks to Grid Implementation
 - Application-specific system management with respect to
 - system monitoring/operation, high availability and disaster recovery
 - No incentive to share (organizational)
- Grid with Reasonable Dependability: restoration of the mainframe idea but virtual

Summary – 2

- Definition: Multiple data-centers linked together
- Motivation: Reduce cost and support business continuity
- Java e-Business Ticket Purchase Demonstration
 - Four data-centers linked together with currently available data synchronization algorithms (local/global two-layered grid)
 - 20–30 servers per site
- Dependability Requirements
 - 5 second response time (Service Level Agreement)
 - 0.99999 availability
- Project focus on developing middleware with proprietary interfaces to application software and to resources
 - Lack of standards for these interfaces

Conclusions

- Motivation: Grid computing has the potential to lower costs and / or improve performance and dependability compared to existing systems
- Practice of grid computing is at a very early stage
 - Scale: ~hundreds of nodes, not thousands
 - Dependability: Primary emphasis on availability but desired levels easily achievable with existing distributed systems
 - No specific requirements for data integrity and security
- Applications
 - Principally e-commerce
- Lack of standards not yet a hindrance
 - Develop proprietary interfaces in-house as a work-around

Challenge

- Not sure how all this is different from distributed computing and justifies a new name
- If Grid Computing is truly something new and unique, the community needs to define crisply
 - What is it
 - What benefits it might offer
 - What are the unique problems posed by grid computing, especially from the dependability viewpoint