



# Global Grid Forum

## An Update on Progress Made and Lessons Learned in Y2002

**Grid Consortium Japan Meeting**

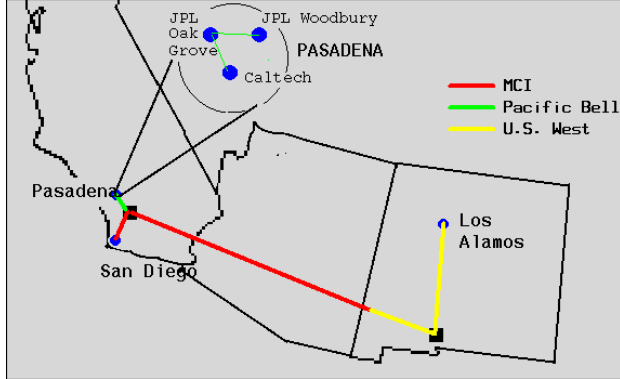
*Tokyo*

**August 7, 2002**



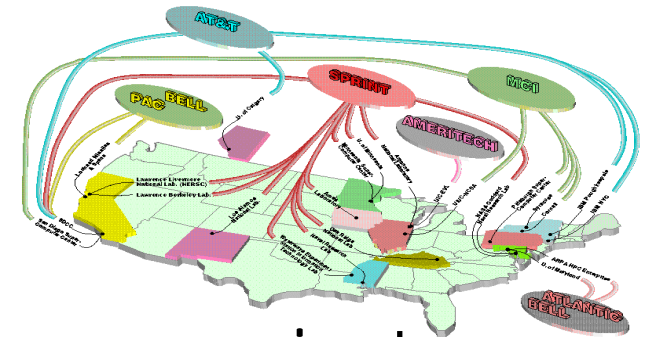
# Update Areas

- GGF Foundation
- GGF Structure
- Activities
- Plans for Y2003



# A Little History

- Early 90s
  - Gigabit testbeds, metacomputing
- Mid to late 90s
  - Early experiments (e.g., I-WAY), software projects (e.g., Globus), application experiments
- 2001
  - Major application communities emerging
  - Major infrastructure deployments are underway
  - Rich technology base has been constructed
  - Global Grid Forum: >1000 people on mailing lists, 192 orgs at last meeting, 28 countries



Adapted from Ian Foster, ANL/UC



# GGF Mission

1. To facilitate and support the creation and development of regional and global computational grids that will provide to the scientific community, industry, government and the public at large dependable, consistent, pervasive and inexpensive access to high-end computational capabilities;
2. To address architecture, infrastructure, standards and other technical requirements for computational grids and to facilitate and find solutions to obstacles inhibiting the creation of these grids;
3. To educate the scientific community, industry, government and the public regarding the technologies involved in, and potential uses and benefits of, computational grids;



## GGF Mission cont'd

4. To facilitate the application of grid technologies within educational, research, governmental, and other industries;
5. To provide a forum for exploration of computational grid technologies, applications and opportunities, and to stimulate collaboration among the scientific community, industry, government and the public regarding the creation, development and use of computational grids; and,
6. To exercise all powers conferred upon corporations formed under the Illinois General Not-For-Profit Corporation Act in order to accomplish its charitable, scientific and educational purposes and to take other actions necessary, advisable or convenient to carry out any or all of these purposes.



# GGF Constituency

- GGF participants come from over 350 organizations
  - Commercial vendors
  - Fortune 500 companies
  - Government agencies
  - Research labs
  - Academic institutions
- 40+ countries are represented in the GGF community



# GGF Structure

- Secretariat (Business Organization)
- Advisory Committee (GFAC)
- Steering Group (GFSG)
- Area Directors
- Working Groups and Research Groups



# GGF Structure

## GGF Secretariat

- Creates, implements and facilitates the business activities of GGF (legal, financial, operational, administrative)
- Fully incorporated
- US IRS 501c3 status APPROVED - not-for-profit and tax-exempt
- **Board of Directors**
  - Charlie Catlett, Chair, [catlett@gridforum.org](mailto:catlett@gridforum.org)
  - Paul Messina, GFAC Chair, [messina@gridforum.org](mailto:messina@gridforum.org)
  - Mary Spada, Executive Director(acting), [spada@gridforum.org](mailto:spada@gridforum.org)
- **Secretariat Staff**
  - Clare Spartz, Director of Marketing, [spartz@gridforum.org](mailto:spartz@gridforum.org)
  - Julie Wulf, Manager, Events & Conferences, [wulf@gridforum.org](mailto:wulf@gridforum.org)
  - Thomas Brown, Manager, Information Systems and Services, [tbrown@gridforum.org](mailto:tbrown@gridforum.org)





# GGF Structure

## GGF Advisory Committee (GFAC)

- GFAC provides long-term strategic input to the GGF chair and GFSG
  - Kyriakos Baxevanidis, CEC,
  - Frederica Darema, US National Science Foundation
  - Bill Feiereisen, NASA NAS
  - Fabrizio Gagliardi, CERN
  - Tony Hey, EPSRC
  - John Hurley, Clark Atlanta University
  - **Sangsan Lee, KISTI**
  - Paul Messina, US Department of Energy, GFAC Chair
  - **Yoichi Muraoka, Waseda University**
  - Alexander Reinefeld, ZIB Berlin
  - Mary Anne Scott, US Department of Energy
  - Rick Stevens, Argonne National Laboratory
  - Irving Wladawsky-Berger, IBM



# GGF Structure

## GGF Steering Group (GFSG)

- GGF is managed by the Steering Group (GFSG), chaired by the GGF Chair
  - Ian Baird, Platform Computing
  - Charlie Catlett, Argonne National Laboratory, GGF Chair
  - Andrew Chien, Entropia
  - Peter Clarke, UCL
  - Cees DeLaat (Neth) as liaison with IRTF,
  - Ian Foster, Argonne National Laboratory and the University of Chicago
  - Andrew Grimshaw, Avaki and University of Virginia
  - Marty Humphrey, University of Virginia
  - William Johnston, Lawrence Berkeley Laboratory and NASA Ames
  - Ken Klingenstein (US); as liaison with Internet2
  - Domenico Laforenza, CNUCE
  - **Satoshi Matsuoka, TITECH**
  - Jarek Nabrzyski, Poznan Supercomputing and Networking Center
  - Jeff Nick, IBM
  - Bill Nitzberg, Veridian
  - Jenny Schopf, Northwestern University and Argonne
  - Steve Tuecke, Argonne National Laboratory
  - **Satoshi Sekiguchi, AIST**



# GGF Structure

- GGF Elections
  - First effort
  - To be held in September for GFSG positions
  - WG/RG Chairs each given a vote
  - Nominations are open to entire GGF community



# GGF Structure

AREA	• Working Groups	• Research Groups
Grid Information Services/Performance GIS-PERF	<ul style="list-style-type: none"> <li>• Grid Object Specification (GOS)</li> <li>• Grid Notification Framework (GNF)</li> <li>• Metacomputing Directory Services (MDS)</li> <li>• Grid Monitoring Architecture (GMA)</li> <li>• Network Measurements (NM)</li> <li>• Discovery and Monitoring Event Description (DAMED)</li> <li>• Grid Information Systems (GIS)</li> </ul>	<ul style="list-style-type: none"> <li>• Relational Database Information Services (RDIS)</li> <li>• Grid Benchmarking</li> </ul>
Scheduling and Resource Management SCHED	<ul style="list-style-type: none"> <li>• Distributed Resource Management Application API (DRMAA)</li> <li>• Scheduling Dictionary (DICT)</li> <li>• Scheduler Attributes (SA)</li> <li>• Grid Resource Management Protocol WG</li> </ul>	
Security SEC	<ul style="list-style-type: none"> <li>• Grid Security Infrastructure (GSI)</li> <li>• Grid Certificate Policy(GCP)</li> </ul>	
Architecture ARCH	<ul style="list-style-type: none"> <li>• JINI</li> <li>• NPI Architecture</li> <li>• Open Grid Services Infrastructure (OGSI)</li> <li>• Open Source Software Licensing Models (OSS)</li> </ul>	<ul style="list-style-type: none"> <li>• Grid Protocol Architecture (GPA)</li> <li>• Accounting Models (ACCT)</li> </ul>



# GGF Structure

AREA	• Working Groups	• Research Groups
Data	<ul style="list-style-type: none"> <li>• GridFTP</li> <li>• Data Access and Integration Services</li> </ul>	<ul style="list-style-type: none"> <li>• Data Replication (REPL)</li> <li>• Persistent Archives (PA)</li> <li>• Grid High Performance Networking</li> </ul>
Applications, Programming Models, and User Environments		<ul style="list-style-type: none"> <li>• Applications and Testbeds (APPS)</li> <li>• Grid User Services (GUS)</li> <li>• Grid Computing Environments (GCE)</li> <li>• Adv Programming Models (APM)</li> <li>• Adv Collaboration Environments (ACE)</li> </ul>
Peer-to-Peer*	<ul style="list-style-type: none"> <li>• NAT/Firewall</li> <li>• Taxonomy</li> <li>• Peer-to-Peer Security</li> <li>• File Services</li> <li>• Trusted Library</li> </ul>	

\*The Peer to Peer area was created in May 2002 and is in the process of being merged into GGF. All extant P2PWG working committees are working with the GFSG to transition from the now closed P2PWG into GGF.



# GGF Structure

## GGF Working Groups and Research Groups

- Working Groups
  - Tightly focused on development of a specification or set of related specifications
    - Protocol, API, etc.
  - Finite set of objectives and schedule of milestones
- Research Groups
  - More exploratory than Working Groups
  - Focused on understanding requirements, taxonomies, models, methods for solving a particular set of related problems
  - May be open-ended but with a definite set of objectives and milestones to drive progress



# GGF Structure

- Key Documentation
  - GGF structure is documented in [Structure: Areas, Working Groups, Research Groups](#)
  - GGF Governance is documented in [Management and Governance](#).



# Key Learnings-Structure

- Importance of an Open Process for development of standards
  - Grid “Recommendations” process modeled after Internet Standards Process (IETF) - built on a time-tested model
  - Persistent, highly structured Document Series (similar to RFC series) initiated October 2001
  - Requires sophisticated understanding of IPR (Intellectual Property Rights)- note IETF IPR WG debate currently
- Importance of maintaining an Open Forum for information exchange
  - Requires clearly defined participation model - underscores need for highly evolved Intellectual Property policies
- Challenge to maintain “openness” and yet manage to move forward





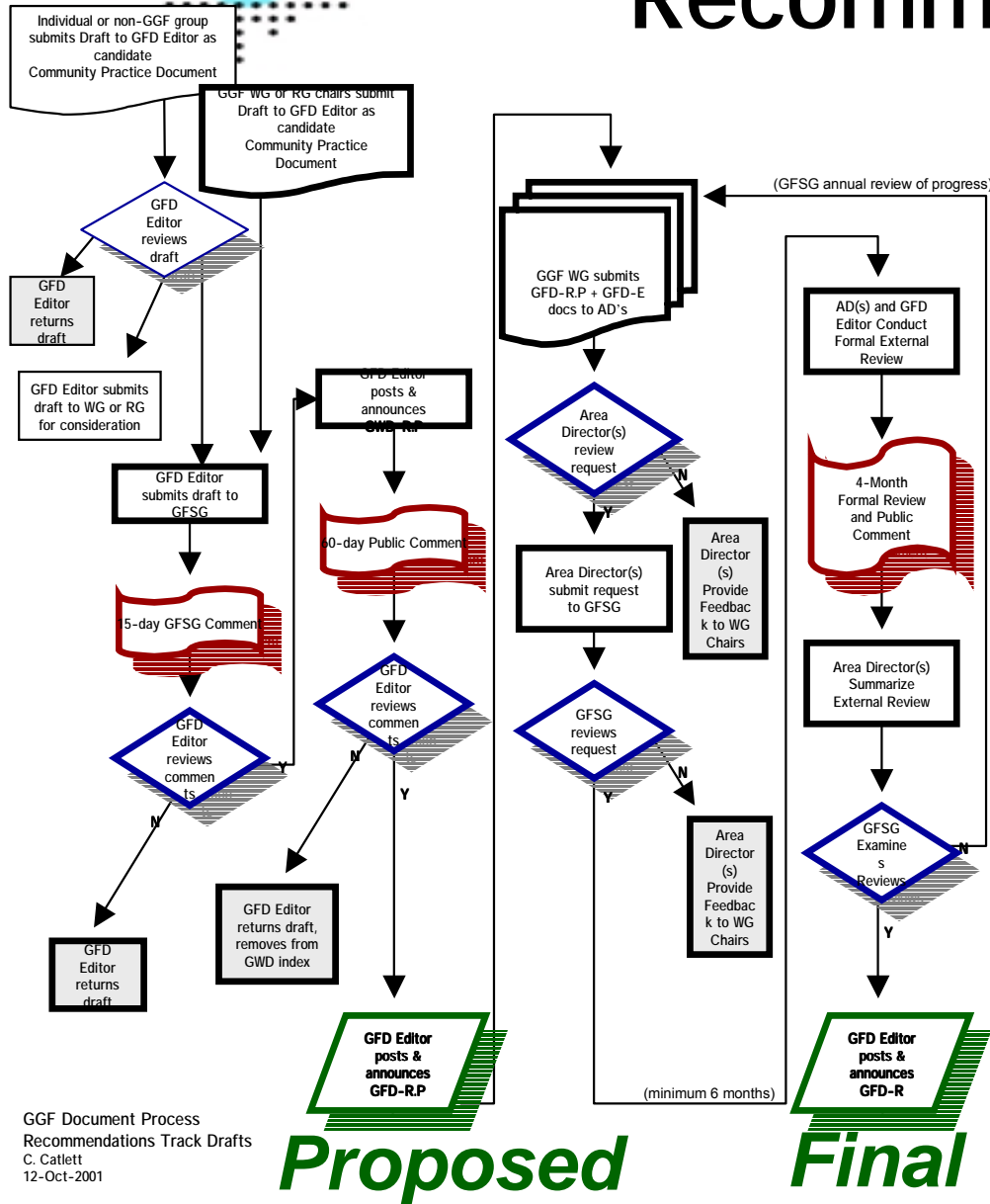
# Activities

## GGF Document Series (modeled after RFC Series)

1. Informational or Experimental
  - Objective: To inform of relevant/interesting work
  - Example: "Survey of Directory Services security models"
2. Community Practice
  - Objective: To document commonly agreed-upon approaches, methods, etc. (often non-technical)
  - Example: "GGF Document Process"
3. Recommendations Track
  - Objective: To document a technical standard
  - Example: "Grid Object Specification"
    - Technical specification, allows for building interoperable systems
    - Does not declare an "exclusive" solution- may be multiple standards, just as FTP (an Internet standard) is not the exclusive data transfer protocol for the Internet.



# Document Series Recommendations Track



## Objectives

- To document a particular technical specification or a particular set of guidelines for the application of a technical specification.
- To guide interoperability and promote standard approaches.
- Does not necessarily imply exclusivity

## Process

- 15d GFSG Review
- 60d Public Comment
- ≥6 month experience in field
- ≥2 interoperable implementations
- 4 month formal external review

## Review

- Relevance, intellectual and technical quality
- Evidence of wide applicability and practice



# Activities

## GGF Meetings - tracks

1. Update Track
  - Plenary style - keynotes, panels, invited talks
  - Excellent opportunity to learn about current Grid initiatives, research accomplishments, and global players
2. Working/Research Group sessions
  - Heart of GGF
  - Intensive working sessions on pending/planned documents for Recommendations Track
3. BOFs (Birds of a Feather)
  - New topics suggested for Working/Research Groups



# Activities - GGF Meetings

- **Global Grid Forum 5 (GGF5) - July 21-24, 2002**
  - Held in Edinburgh, Scotland - ~950 participants
  - Held in conjunction with HPDC-11 (<http://www.hpdc.org>)
- **Global Grid Forum 6 (GGF6) - October 15-19 2002**
  - Will be held in Chicago, Illinois, USA
- **Global Grid Forum 7 (GGF7) - March 4-7 2003**
  - Will be held in Tokyo, Japan
- **Global Grid Forum 8 (GGF8) - June 22-27 2003**
  - Will be held in Seattle, WA, USA
  - Will be held in conjunction with HPDC-12
- **Global Grid Forum 9 (GGF9) - early October 2003**
  - Will be held in Amsterdam or Frankfurt



# How Individuals Participate

1. Participate in a GGF Meeting
2. Participate in GGF Working Groups or Research Groups
3. Propose a \*NEW\* GGF Working Group or Research
4. Become a GGF Member - Individual or Sponsor

The foregoing are NOT mutually-exclusive -  
just different ways to get involved.



# How Individuals Participate

## Current status

- 600+ Y2002 Individual Members
  - ~80 Student Members from around the globe
- 7000+ subscribers to GGF's Grid e-Announce
- GGF-x involvement illustrates exponential growth
  - GGF2 (July 2001)- ~300 participants
  - GGF3 (October 2001)- N/A
  - GGF4 (February 2002) - ~450 participants
  - GGF5 (July 2002) - ~950 participants



# How Organizations Participate

## Sponsor Membership -

- **40+** Y2002 Sponsor Members

## Categories-

- **Charter Sponsor**  
(contribution of US\$50,000 or more)
- **Platinum Sponsor**  
(contribution of US\$25,000-\$49,999)
- **Gold Sponsor** (contribution of US\$10,000-\$24,999)
- **Silver Sponsor** (contribution of US\$5,000-\$9,999)



# Y2002 Sponsor Member Organizations

## Y2002 CHARTER SPONSORS

- Argonne National Laboratory
- NASA
- UK e-Science Programme - NEW Y2002





# Y2002 Sponsor Member Organizations

## Y2002 Platinum Sponsors

- Compaq
- **Hewlett-Packard - NEW Y2002**
- IBM
- Microsoft Research
- Platform Computing
- Qwest Communications International
- **Silicon Graphics International - NEW Y2002**
- Sun Microsystems
- US DOE, Office of Scientific Computing Research
- US NSF, Division for Advanced Computational Infrastructure and Research (ACIR)



# Y2002 Sponsor Member Organizations

## Y2002 - GOLD SPONSORS

- **AIST - NEW Y2002**
- **Grid Consortium Japan - NEW Y2002**
- **Intel**
- **Level (3) Communications**
- **NCSA**
- **SDSC**

## Y2002 - SILVER SPONSORS

- **Avaki - NEW Y2002**
- **Entropia - NEW Y2002**
- **Fujitsu**
- **Hitachi Software - NEW Y2002**
- **inSORS**
- **Johnson & Johnson - NEW Y2002**
- **United Devices - NEW Y2002**
- **University of Virginia**



# Key Learnings-Activities

- Challenge to effectively integrate Industry
  - Vendors have a specific agenda
  - Managing competitive interests
  - Industrial users are usually “shy”
  - Increasingly a critical success criteria
- Enormous resource investment
  - From outside (participant) perspective and from within
  - Building infrastructure and managing is ALWAYS underestimated
    - Legal and other strategic business issues in particular
  - Better to unify and consolidate synergistic efforts
    - e.g. P2P WG, NPI



# Plans for Y2003

- Key Strategic Objectives
  - Managing Growth
    - Of GGF Community overall
    - Of GGF activities
  - Delivering GGF documents to the community
  - Integrating interested factions and efforts
    - Geographic
    - Topical - see Selected Grid Efforts list
    - Users
  - Maintaining integrity of GGF mission



# Selected Key Grid Efforts

- **Access Grid** (<http://www.accessgrid.org>) - Rick Stevens, Argonne National Laboratory
- **AP Grid** (<http://www.apgrid.org/>) - Yoshio Tanaka, AIST
- **The Globus Project** (<http://www.grids-center.org>) - Ian Foster, Argonne National Laboratory
- **GRIDSTART** (<http://www.gridstart.org>) - Mark Parsons, NESC UK
- **GriPhyN** (<http://www.griphyn.org>) - Paul Avery, University of Florida
- **JPGGrid** (<http://www.jpgrid.org/>) - Satoshi Sekiguchi, AIST
- **EU Datagrid /Datagrid Japan** (<http://eu-datagrid.web.cern.ch/eu-datagrid/>) - Fabrizio Gagliardi, CERN
- **NSF Middleware Initiative** (<http://www.nsf-middleware.org>) - Alan Blatecky, NSF
- **PRAGMA** (<http://www.accessgrid.org>) - Sangsan Lee, KISTI



# Plans for Y2003

- **Issues for GGF and GGF Leadership**
  - **Intellectual Property Rights**
    - Truly “unchartered territory” ...and the maps that exist are regional at best
  - **Geographical equanimity in global consortia**
    - Can this exist?
  - **Standards or “standards”?**
    - Is it possible to avoid entanglements with official standards?
  - **Managing Pace**
    - Of research, of technology, of information, of growth,...
  - **Approaches to Open Source**
    - Proving the business case...will the government support it?
  - **Wealth of Nations**
    - Does every researcher have right to funding? Or is the excitement and the attention only for the wealthy nations? Who referees?



# Thank You

Without continued support, interest and cooperation from the Grid Consortium Japan, and each of the key Grid initiatives and players it represents, GGF cannot be successful. Your involvement is appreciated.