

Global Grid Forum (GGF)

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A GGF primer for people who already groc grids...



Context

- **“Grid Computing” has much in common with major industrial thrusts**
 - Business-to-business, Peer-to-peer, Application Service Providers, Internet Computing...
- **Distinguished primarily by more sophisticated sharing modalities**
 - E.g., “run program X at site Y subject to community policy P, providing access to data at Z according to policy Q”
 - Secondarily by unique demands of advanced & high-performance systems



GGF Objectives

- **An Open Process for Development of Standards**
 - Grid “Recommendations” process modeled after Internet Standards Process (IETF)
 - Persistent, Reviewed Document Series (similar to RFC series) initiated October 2001
- **A Forum for Information Exchange**
 - Experiences, patterns, structures
 - Useful even if every application & Grid were completely separate and not interoperable...but ideally will result in interoperability!
- **A Regular Gathering to Encourage Shared Effort**
 - In code development: libraries, tools...
 - Via resource sharing: shared Grids
 - In infrastructure: consensus standards



GGF 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

Groups are approved and evaluated by a GGF Steering Group (GFSG) based on *written charters*. Among the criteria for group formation:

- Is this work better done (or already being done) elsewhere, e.g. IETF, W3C?
- Are the leaders involved and/or in touch with relevant efforts elsewhere?

• 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



Current GGF Groups

AREA	Working Groups	Research Groups
Grid Information Services	<ul style="list-style-type: none"> • Grid Object Specification • Grid Notification Framework • Metacomputing Directory Services 	<ul style="list-style-type: none"> • Relational Database Information Services
Scheduling and Resource Management	<ul style="list-style-type: none"> • Advanced Reservation • Scheduling Dictionary • Scheduler Attributes 	
Security	<ul style="list-style-type: none"> • Grid Security Infrastructure • Grid Certificate Policy 	
Performance	<ul style="list-style-type: none"> • Grid Performance Monitoring Architecture 	
Architectures	<ul style="list-style-type: none"> • JINI • NPI Architecture 	<ul style="list-style-type: none"> • Grid Protocol Architecture • Accounting Models
Data	<ul style="list-style-type: none"> • GridFTP 	<ul style="list-style-type: none"> • Data Replication
Applications, Programming Models, and User Environments		<ul style="list-style-type: none"> • Applications • Grid User Services • Grid Computing Env. • Adv Programming Models • Adv Collaboration Env



Proposed GGF Groups

AREA	Working Groups	Research Groups
Scheduling and Resource Management	<ul style="list-style-type: none"> • Scheduling Command Line API • Distributed Resource Mgmt Applic API • Grid Resource Management Protocol 	<ul style="list-style-type: none"> • Scheduling Optimization
Performance	<ul style="list-style-type: none"> • Network Monitoring/Measurement • Sensor Management • Grid Event Service 	
Architectures	<ul style="list-style-type: none"> • Open Grid Services Architecture 	<ul style="list-style-type: none"> • Grid Economies
Data	<ul style="list-style-type: none"> • Archiving Command Line API • Persistent Archives 	<ul style="list-style-type: none"> • DataGrid Schema • Application Metadata • Network Storage
Area TBD...	<ul style="list-style-type: none"> • Open Source Software Licensing • Cluster Standardization 	<ul style="list-style-type: none"> • High-Performance Networks for Grids

Group Formation process is 3-steps:

- Develop a Charter,
- Hold a BOF at a GGF meeting for community input
- Steering Group approval (review of proposed charter, BOF results)



Examples of Work in Progress

- **Grid Information Systems**

- **Grid Information Services for Distributed Resource Sharing: Specification of Metacomputing Directory Service (MDS)**
 - An LDAP-based resource directory service with specific protocols for query (Grid Resource Information Protocol) and update (Grid Resource Registration Protocol)
- **Grid Object Specification (GOS): A Data Definition Language for Grid Information Services**
 - Data Definition Language for use in MDS. Generic, can be translated into e.g. LDAP RFC2256 or SQL syntax

- **Scheduling and Resource Management**

- **Ten Actions when Superscheduling**
 - Base set of steps required to implement “scheduler of schedulers”
- **Scheduler Attributes**
 - Minimum set of (commonly defined) attributes necessary for a local resource scheduler to communicate with and interoperate with other local schedulers and superschedulers
- **Advanced Reservation API**
 - Difficult with single resource, very difficult within superscheduling context

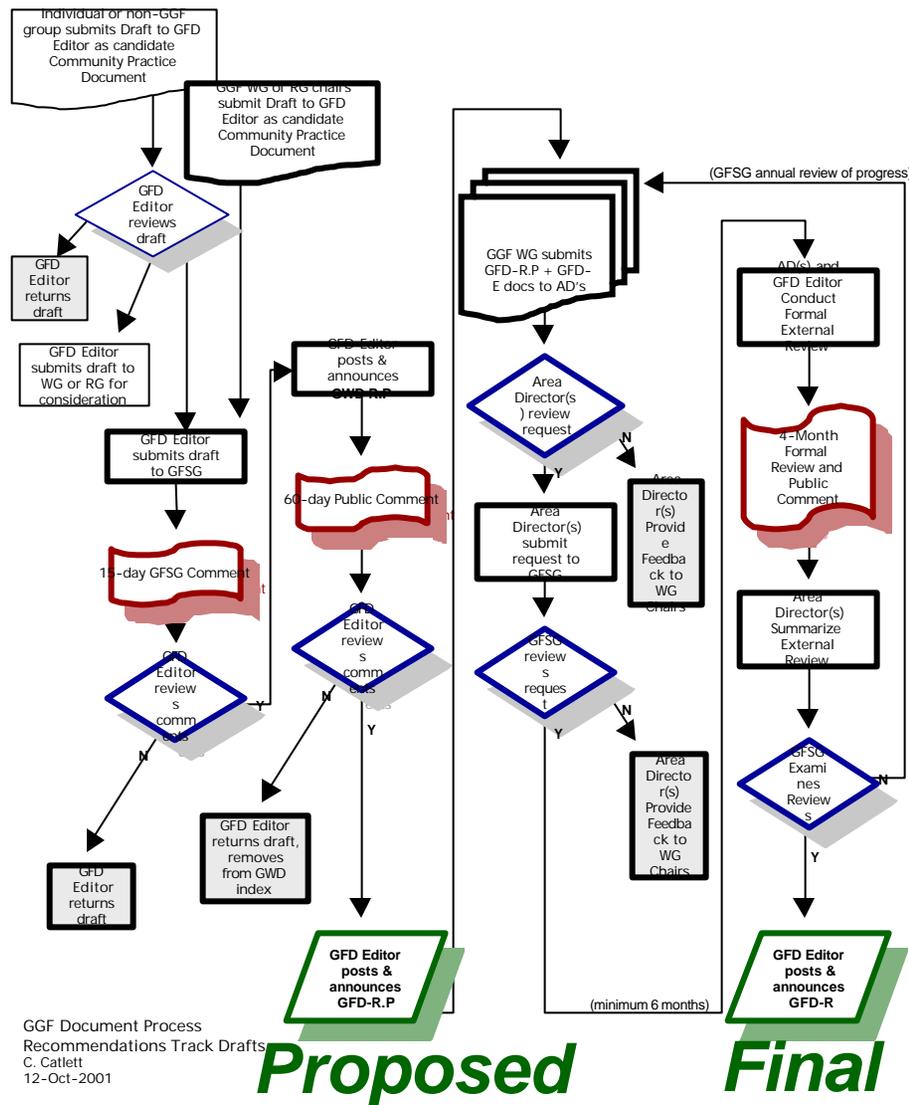


Grid Standards

- **GGF Document Series Modeled after RFC Series**
 - **Informational or Experimental**
 - Objective: To inform of relevant/interesting work
 - Example: “Survey of Directory Services security models”
 - **Community Practice**
 - Objective: To document commonly agreed-upon approaches, methods, etc. (often non-technical)
 - Example: “GGF Document Process”
 - **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.



Recommendations Track Documents



GGF Document Process
Recommendations Track Drafts
C. Catlett
12-Oct-2001

Proposed

Final

• 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



Getting Involved

- **Participate in a GGF Meeting**

- 3x/year, typically 300-400 people

- February 17-20, 2002 in Toronto
 - July 21-24, 2002 in Edinburgh (with HPDC)
 - October 15-17, 2002 in Chicago

- **Join a working group or research group**

- Electronic participation via mailing lists (see www.gridforum.org)

- **Contact a Steering Group member**

- Charlie Catlett, Ruth Aydt, Andrew Chien, Ian Foster, Andrew Grimshaw, Marty Humphrey, Bill Johnston, Domenico LaForenza, Satoshi Matsuoka, Jarek Nabrzyski, Jenny Schopf, Steve Tuecke, Satoshi Sekiguchi

