WGNAME Working Group

[Note: This is for WORKING groups only]

Global Grid Forum, [AREA NAME] Area

Administrative Information

Name and Acronym:

Reliability and Robustness in Grid Computing Systems (GridRel-RG)

Chairs:

Chris Dabrowski, cdabrowski@nist.gov
(NOTE: I would like to find others willing to assume chair duties)

Secretary(s)/Webmaster(s):

TBD

Email list:

GridRel-rg@ggf.org

Web page:

http://forge.ggf.org/projects/GridRel-rg
[upon formation the group website will be at http://forge.ggf.org however an interim web page is often useful. ADs may also elect to request that a project area at http://forge.ggf.org be provided to assist in group formation prior to approval.]

Charter

Focus/Purpose

This BOF will assemble a community of standards developers and researchers to address issues related to how future grid computing systems designed in conformance to emerging Web Services and Grid standards can achieve levels of robustness and performance required for critical enterprise applications. The scale of grid computing systems is expected to grow dramatically as grid technology transitions to industrial use. Increasingly grid systems are likely to be subjected to volatile and uncertain conditions that potentially endanger or severely degrade their effectiveness in everyday use. How can we determine that the web-service and grid standards currently being developed will enable large-scale grids to detect and overcome failures to provide a level of robustness needed for industrial and scientific purposes? The continued adoption of Web Services and Grid Standards may depend, in large part, on the answers to this question. This BOF will consider these questions and develop a program by which the GGF can address issues of grid system reliability and robustness, possibly leading to the formation of a research group to support development of recommendations.

Scope

The BOF sessions should more concretely determine the scope of a new RG. I anticipate the scope of a future RG will be to identify reliability concerns in industrial and scientific grid systems, constrained to grid systems developed on the basis of Web Services and Grid Standard Specifications. The scope may be expanded to explore methods for improving system reliability and robustness. Of particular interest would be reliability issues that can be directly (or indirectly) related to behaviors required or implied by Web Services and Grid Standard specifications. To investigate reliability issues, I expect that the RG might focus on

research for developing test methods and metrics for evaluating grid systems reliability, including the ability of grid systems to be configured to detect, and respond to various kinds of failures, such as failures of individual components, links, as well as entire subnetworks. The impact of scalability on reliability is of particular interest. For instance, it will be important to understand if an increase in the size of grid system (both in terms of numbers of nodes and work load) might lead to unexpected behaviors that are undesirable, and possibly chaotic.

{Scope should be laid out in 1-2 short paragraphs, briefly stating the scope of the problem to be addressed. References to relevant papers or publications that help to provide background can be useful are not necessary.}

Goals

Goals and products will be concretely determined during BOF sessions leading up to formation of an RG. I would anticipate the following goals:

1. To organize forums that allow researchers, application developers, and others to present results of their reliability-related work and exchange information. The RG may provide information, through web-pages, mailing lists, white papers, best practices documents, and other publications, on critical reliability issues as they relate to:

- standard specifications of the GGF and those of other bodies focusing on web-services
- *Grid services and software*
- *real-world Grid usage*

2. Promote and facilitate:

- *collaborations between researchers in grid systems reliability*
- *access to testbeds and simulation models that investigate reliability issues*

3. Represent the general experiences and findings on grid systems reliability of application developers using Grid technologies to other GGF working groups:

The product of a working group is primarily captured in the form of GGF documents. A strong working group charter will have identified what documents will be produced in what timeframe. The milestones in the charter are used to gauge the progress of the group and to set expectations not only regarding the timing of deliverables but of the nature of the work output. It is often useful in the formative stages of a working group to think very carefully about the documents to be produced, even to the extent that rough outlines are completed. It is also often useful if a group of collaborators has made substantial progress in a draft document.

At this stage the group should also indicate the type of document planned, per categories in GFD-C.3 (informational, experimental, community practice, recommendation)

Deliverable/Milestone 1: (e.g., Document title, state (outline, draft, final, etc.), date)
Deliverable/Milestone 2: (e.g., Document title, state (outline, draft, final, etc.), date)
Deliverable/Milestone 3: (e.g., Document title, state (outline, draft, final, etc.), date)
…

Management Issues

Evidence of commitments to carry out WG tasks

Co-chairs will be identified during BOFs

A working group chair role is fundamentally a management role, requiring excellent communication and organizational skills as well as in depth understanding of the topic area. It is often a good strategy to have co-chairs including a topic expert and a strong manager. Chairing a working group also requires a significant time investment and it is useful to see a track record of diligent effort on the part of the chairs as well as an indication that the chairs' management is supportive of the time commitment. Part of this necessary commitment is also to ensure that the group makes progress between and during GGF meetings, and thus involves travel.

Pre-existing Document(s) (if any)

A list of relevant documents will be identified during BOFs. A starter list is available in the appendix to short PowerPoint presentation prepared for BOF.

If there are useful background documents these are often useful. In some cases the organizers may have already made progress on a draft document and wish to form a working group to involve the community in the work.

Exit Strategy

Termination strategy will be identified during BOFs.

A WG should normally have a lifetime of between 6 – 24 months. You should make some attempt to note here how you will know when you are finished if this is not simply defined by the last milestone date.

Any other relevant information

Evaluation Criteria (from GFD-C.3)

When considering the formation of this group, the Steering Group will wish to ensure that every WG has clear and focused objectives, and has demonstrated support from the community. The Steering Group will consider the following seven issues (taken from GGF document GFD-C.3).

Is the scope of the proposed group sufficiently focused?

Is the group attempting to produce everything from beginning to end (a survey of the state-of-the-art, plus use cases, plus a requirements analysis, plus recommendations documents) or is it focused on only one or two of these areas? Is there more than one type of standard being proposed (Architecture/framework vs. information model (schema) vs. API vs. Protocol)? Is the topic area too specific or too broad (for example, overlap with other GGF WGs may indicate "too broad")? Are the milestones reasonably achievable in the proposed timeframe (1-2 years for a WG)?

Are the topics that the group plans to address clear and relevant for the Grid research, development, industrial, implementation, and/or application user community?

Diligence in answering this question often requires discussions with relevant leaders of other GGF working groups.

Will the formation of the group foster (consensus–based) work that would not be done otherwise?

Does the group foster standards or practices that are greater than the work done by any single group (taking advantage of GGF to come together on neutral ground)? How many distinct groups, institutions, and regions of the world are participating in this effort? (GGF activities typically have membership drawn from more than a single research group, institution or project).

Do the group's activities overlap inappropriately with those of another GGF group or to a group active in another organization such as IETF or W3C?

What is the nature and extent of any overlap? The proposed group may still be formed, or the GFSG may recommend that the work be done within the existing GGF (or external) group.

Are there sufficient interest and expertise in the group's topic, with at least several people willing to expend the effort that is likely to produce significant results over time?

How much experience do the participants collectively have in the proposed area of work? How committed are the participating individuals? An attendance list or an email subscriber list is a very weak indication of commitment; a list of people who have attended multiple teleconferences is somewhat better; a list of individuals who have committed to specific tasks, or who have made non-trivial time commitments, is much better. Additional evidence could include statements from organizations stating that they will dedicate resources (people) to participate in the group, and statements from participants expressing their personal, compelling need for the output of the group.

Does a base of interested consumers (e.g., application developers, Grid system implementers, industry partners, end-users) appear to exist for the planned work?

How broadly applicable will the output of the WG output be? Does the WG have true clients of its work? Such interest can be measured by the interest of industry partners, grid deployment projects, and other groups committed to implement the recommendations or adopt the results.
The success of a working group requires "buy-in" from a broad set of constituents who will use the output of the group. It is useful to indicate what is the target set of consumers in the community. While not necessarily a requirement for approval, it is essential that the organizers comment on the relationship of the work, and the level of interest, from large segments of the Grid community such as major software projects, architecture activities, etc.

Does the GGF have a reasonable role to play in the determination of the technology?

What other organizations are working in similar areas? Is the GGF the right place for this work? Is it clear how the proposed WG will coordinate with related efforts?