

Follow Up from GGF14: Telco CG Meeting and Comments on Other GGF Activities

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1. Telco CG Meeting

The GGF Telecommunications Community Group (**telco-cg**) held their inaugural meeting June 29th at GGF14 in Chicago. This is the first chartered GGF “**Community Group.**” It differs from a Working Group or Research Group in that a CG is an industry community of interest, which develops informational documents, rather than specifications or profiles. Those informational documents may then be used to guide specifications that will be developed by other GGF WGs or RGs. The telco-cg plans to generate **Customer Surveys, Use Cases, and a Roadmap document.** The latter will address the technical evolution and standards requirements that will enable telcos (=telecommunications companies- AKA network providers) to effectively use grids, or offer one or more types of grid network services.

The **telco-cg** intends to focus on how network providers and the Grid community can seek to create common approaches in dealing with significant challenges in the offering of high bandwidth services and grid applications, as well as using infrastructure that will support grids and their evolution. The Community Group will seek advice and opinions from customers, network providers, network equipment vendors, Grid middleware and applications vendors and technologists.

Franco Travostino of Nortel welcomed the attendees and introduced the co-chairs of the telco-cg. He then handed over the chair’s role to Pramila Mullan of France Telecom Research USA (South San Francisco, CA) who presided over the rest of the session. Frank Falcon of BT, also co-chairs the telco-CG, but he was not present at this meeting.

Ms Mullan reviewed the agenda, which covered the following subject areas:

- Results of informal telco-grid interest meeting at Supercom June 6. 2005 which established purpose, objectives and scope of the GGF telco-cg.
- Potential ITU-T and GGF co-sponsored workshop (led by Bob Cohen)

- Potential EU proposal on network infrastructure capturing customer requirements and use cases

A] At the Supercom Grid- interest meeting, a draft charter for the telco-CG was discussed and later developed. The Purpose of the telco-CG is to investigate how telcos (AKA network providers) and the Grid community can create common approaches in dealing with the significant challenges presented by grids, while at the same time providing the necessary network resources, which will serve as an enabler to grid providers.

As noted above, a key objective of the telco-cg is to develop a roadmap for technical evolution and standards requirements in the following three areas:

1. How network providers/telcos will need to evolve their networks and services in order to support large-scale grid traffic and other novel requirements posed by Grids? Some participants felt that point- to- point connections were initially required (rather than LAN multipoint to multipoint) to facilitate the deployment of large-scale, reliable and available Grids.

2. How network providers/telcos might use Grid technologies to improve their own internal operations (e.g., billing, event analysis, network planning, and modeling)? In particular, how telcos might virtualize their data centers/ operations support centers? This could provide huge improvements in total cost of ownership/opex and return on investment (ROI).

This author believes that the internal use of grids - for operations support center consolidation and improved cost effectiveness - has the most near term impact on telcos. The potential and power of grids for more efficient telco operations (OSS and NMS consolidation) is worthy of a comprehensive article in its own right.

3. How can network providers/telcos become suppliers of Grid managed services, while adopting profitable new business models? This could be a managed network service (connectivity only), or combined with some type of IT resources, e.g. storage, server hosting, application specific computing.

The Roadmap will explore the inter-relationship between these three areas above, cognizant that the telco may operate in one, some or all of them.

Pramila then provided further goals and objectives for the telco-CG, which were not articulated in the draft Charter for the CG:

- Assess both technical and business enablers that enhance telco use of grids and their offering as a managed network service.
 - Generate a survey of customer (grid user) requirements.
 - Capture distinguishing use cases that show how grids affect business areas being considered.
 - Document, publish, and socialize its findings by way of informational documents
 - Formulate recommendations to GGF WG/RGs and external standards organizations.
- It was noted that the telco-cg will serve as the focal point for outreach and liaison activities between the GGF and external networking communities (inclusive of standard bodies).*

To frame the discussion which followed, Ms Mullan showed a chart depicting three types of network operators by the network resources they own: IP, circuit switched, mobile + fixed. She suggested we try to align these with the three telco-grid objectives listed above: **network evolution to large volumes of data traffic, internal grid use, and a managed grid network service.**

B] Discussion on work plan (comments and quotes from audience participants):

-Today most grids rely on IP networks, which only provide “best effort” data delivery. Will this be adequate for a managed grid service?

-Most participants felt that a Grid service will only be valid in the commercial market if guarantees (e.g. SLA/SLOs) are offered by the telco. But what guarantees are needed, e.g. sustained throughput, residual error rate, packet loss, availability, etc?

-Enterprises and scientific institutions that own or can obtain dark fiber have already set up their own grid network, which they are managing themselves. ***The telcos seem to be oblivious to this opportunity. They actually own a lot of dark fiber!***

-Network research/ academic grid users require large amounts of bandwidth. For example, high-energy physics grids need G bits/sec of bandwidth. We are using lamdas (wavelengths) over dark fiber. [Provisioning of wavelengths is via GMPLS control plane or its equivalent OIF UNI 1.0]

-We are starting to see the need for large pipes with shorter connection times (implying some type of fast circuit switching of lambdas (which has not been standardized yet and no known standard project has been initiated).

-High quality and robustness required by grid applications might only be met by point-to-point connections (vs multipoint to multipoint as in a LAN-like connection).

-It has been difficult to collect use cases in the Enterprise RG. What approach will this CG take to encourage users to provide them?

-Driving factor for (a grid network) service offering will be to effectively use the assets the telco already owns and to make business easier for the customer.

C] Planning for an ITU- GGF Workshop: Where are the US telcos?

Bob Cohen- a consultant who does market surveys of Grid technologies- led this portion of the session. He stated that there are several ITU-T NGN (Next Generation Network) participants in FG-NGN/SG 13 and GGF leaders that are interested in producing on a “Telco-Grid” workshop, which might be held in Brussels or Geneva. Volunteers were solicited to approach the European Commission for sponsorship for such a workshop.

Why Europe? It appears that there are more academic and commercial investigations of grid networking there than elsewhere. For example, FT, BT, Deutsche Telecom, and Telecom Italia have previously presented or participated in Telco sessions at GGF and/or Supercom. In sharp contrast, there was only one North American based telco – Fibernet Telecon- present at this telco-CG session.

At least two Japanese telcos- NTT Research (Japan) and KDDI attended this session.

- Mr Nagatsu, the NTT representative (a colleague from ITU SG13 and SG15), opined that dynamic wavelength path provisioning seemed to offer the most potential. He also stated that we need to investigate and determine the benefits of other service types, e.g. IP, mobile, etc.
- The KDDI delegate stated that they were using grids internally and were also interested in providing mobile access. GMPLS control plane was seen as providing more flexible bandwidth allocation than other approaches for grid users dealing in large transactions/ file transfers.

D] Potential EU proposal on Future Network Infrastructure

This proposed project involves interviewing European grid researchers to determine what network improvements are needed in 5 to 7 years to support more widespread use of grids in scientific experimentations and explorations. The identified network enhancements could be synthesized into a network requirements roadmap or planning document.

There was little discussion on this proposed initiative. As time ran out, session participants were encouraged to join the telco-CG email reflector and work via email in preparation for draft information documents to be submitted at GGF15.

D] Author's opinion on **telco-cg**: none of the initiatives discussed will likely come to fruition unless more telcos actively participate in this CG. It was quite disappointing to not see any mainstream North American telcos at this meeting. The European telcos were also absent (with the exception of FT Research in South San Francisco). If the CG is controlled by architects of research/academic/scientific grids (and grid networks), then the resulting requirements generated would not likely be practicable to implement commercially (unless the telco is subsidized by the national government). The telco needs to see a reasonable ROI, if it is to dedicate resources and capital to provide a grid network service.

2. Quick Takes on other GGF Sessions:

A] **Enterprise Grid Alliance (EGA) Reference Model (RM)**: This is an attempt to describe data centers in terms of grid components (managed objects in an Enterprise Grid). The EGA RM Grid represents grid services by a graph. A Grid Management Entity (GME) manages a collection of grid components, the relationship between them, and their life cycle. Management functions of the GME include: discovery, control, monitoring, and notifications.

To this author, the EGA RM seemed to be very abstract, especially for an organization that singularly focuses on the building blocks for enterprise grids. More information may be obtained from: www.gridalliance.org

While we now know that OGSA is an architectural process, a set of profiles, and normative specs (in progress), this author has no clear sense of where EGA is

going, if it is based on this RM. It was not readily apparent what the opportunities were for collaboration between the OGSA WG and the EGA Reference Model WG.

B] Workshop on Grid Applications-from Early Adopters to Mainstream Users:

This workshop was jointly organized by the 1] GGF Application Developers and Users Research Group (APPS-RG) and 2] the GGF Production Grid Management Research Group (PGM-RG). While the talks were quite informative, the session was yet another description with lesson learned from the scientific/energy/supercomputing grid community.

The agenda and presentations for this session may be accessed from:

<http://www.cs.vu.nl/ggf/apps-rg/meetings/ggf14.html>

One interesting observation was that these grid users felt that production grids (vs experimental grids) were possible, but they were all waiting to see the benefits of web services as the underlying infrastructure. Phil Wieder of FZJ in Germany observed in his talk, “**Production-Quality Grid Environments with UNICORE,**” that the WS* impact had not been realized. Phil stated that many of his colleagues felt that having HTTP servers throughout the grid would be too expensive and slow system throughput (HTTP servers are needed because “mainstream” Web Services rely on SOAP messages that are bound to HTTP transport, which runs over TCP-IP).

Opinion: This author believes that the WS* impact will be seen when users adopt the GT4 toolkit (discussed in last week’s issue of gridtoday.com), or other open source grid middleware implementations. For more on how web services and related profiles might be used to build grids, please refer to:

<http://www.webtorials.com/main/newsletters/dcti/GGF14.pdf>

Phil also observed that grid users demand a fully-fledged product, which includes not only functions, but also lots of support which includes help desk and “bug reports.” He noted that continuity is crucial and that open source distribution is the right way to proceed when implementing grids.

C] OGSA-MWS-BOF (Birds of a Feather session):

A June 28th BOF was held to discuss the creation of a new GGF WG, which would define an OGSA Basic Profile that builds upon a “minimal set of simple web services.” The motivation for this BOF was that Microsoft was not supporting either the WSRF or WS Notification standards, which are the essence of the OGSA WSRF

Basic Profile. Instead, Microsoft supports proprietary specifications - WS Eventing (similar to WS Base Notification) and WS Transfer (not aligned with any OASIS WS standard). The stated output of the proposed new WG would be a profile document, similar in nature to the OGSA WSRF Basic Profile, that would allow OGSA services to be rendered using an alternative set of WS specifications (TBD).

Opinion: The problem with such a profiling approach is that non- standard specifications can change without notice. Then what happens to the profile if it has already been implemented?

There are also intellectual property issues, which are dependent on the terms and conditions imposed by the spec authors. Hence, profiling of non-standard specifications could result in a time bomb for the GGF. Nonetheless, a GGF mailing list is being set up to discuss this potential activity.

3. Conclusions on GGF14

The GGF has come a long way in the last year with the progression of OGSA as both a valid architectural concept and a set of normative profiles/specs. While most of the grid applications described continue to be scientific and experimental in nature, there is a growing swell of interest from the enterprise grid community. This includes pharmaceutical and drug companies, computer and semiconductor design companies, and financial services companies. Despite having enormous potential for telcos, there does not seem to be a lot of push from them to collectively identify the opportunities and requirements posed by grids. We hope that they will work together in the newly formed telco-CG. We encourage more telcos (especially in the US and Canada) to participate.