

Grids for Telcos- A Huge Opportunity being Missed?

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I. The critical issue: Telco internal use of Grids can greatly improve operations, lower OPEX, while a grid network service could be a profitable new market!

Having participated in numerous grid computing events and the GGF for almost three years now, this author is convinced that grids offer huge opportunities for telcos- first as a grid user and later as a grid networking provider. However, the telcos – especially those in the US- seem to be out to lunch with respect to this huge opportunity. This is especially puzzling, since the grid technology continues to mature, while grid standards evolve and product offerings stabilize.

One interesting data point on the lack of attention given to telco use of grids or networking grid sites was that there was no discussion of these important subjects at the July 2005 Grid VIP Summit (see report in webtorials.com). Another revealing fact was the lack of North American telco participation at the GGF 14 Telco Grid CG meeting (see webtorials article).

We maintain there are three areas where grid technology could be advantageously exploited by telcos:

1. **Internal use of grids to interconnect OSS/NMS operations support centers** and (to a lesser extent) for network simulations, network planning, traffic engineering, and modeling. Telco use of Grids –specifically to connects Operations Support Centers- have numerous advantages: cost reduction, better use of computing resources, more structured interfaces between OSS modules and NMS.
2. **Planning for managed grid interconnect services** – both as a managed network service and as a grid provider for business process outsourcing (the BT model)
3. **Use of grid technology and web services for service level management** (independent of the underlying network technology) in Next Generation Networks (NGNs)

II. Primary Market Research on Telco Grid Issues

From several interviews and interactive telco sessions we can share the following observations:

-WS's and grids are now known by telco's, but they have not made a huge commitment to implement these technologies yet. IBM and other grid vendors want to make this happen in 2005.

-Moving from proprietary software systems (e.g. provisioning and NMS/OSS) is like the computer industry evolving from batch processing on a single mainframe to real time processing on a server cluster. The benefits of much faster operation are well known, but there is a high up front cost.

-Telcos want to take "baby steps" in transitioning to Web Services and internal use of Grids.

-The mergers of telcos, e.g. SPRINT-NEXTEL, ATT-SBC, Verizon-MCI, etc will drive the merged companies to consider new technologies for OSS Integration. Web Services and Grids should be better accepted as a result. This may take some time, however.

-Telcos desire incremental benefits. They don't like to be rushed to committing to a huge investment, but instead like to proceed in stages.

-While some telcos are very aware of grid network services (e.g. Telecom Italia, France Telecom), no telco other than BT has announced plans for a managed grid service.

-Web Services are starting to play a role in this transformation to a Service Oriented Architecture (SOA), but some grids do not use WS's at all.

An excellent grid tutorial from IBM can be retrieved from:

<http://www.research.ibm.com/journal/sj43-4.html>

III. The Grid site interconnect conundrum: who will take the lead?

While the US government funded TeraGrid project provides 10-30 G bit/sec point to point interconnections between grid sites, nothing close to that is feasible in the commercial or enterprise grid world. Not only would such high-speed connections be prohibitively expensive for the enterprise customer, but also not even a fraction of that bandwidth is generally available for nationwide connections - at any price!

The enterprise grid user must try to match the 1/10 G bit/sec Ethernet connections in his data center and campus network with what is available in the metro and wide area networks. Today, most commercial users interconnect grid sites using private lines- often by leasing DS3/E3 or dark fiber- at much lower rates than their campus LAN backbones. But there are limits to connectivity and scalability with this approach and the burden of managing the network is on the enterprise.

What role will the telcos play in grid networking? **The driving factor for a telco grid network service offering will be to effectively use the assets it already owns and to realize a reasonable return on investment.**

-What type of network service (point to point, IP-MPLS, optical channels with long or short connect times, Ethernet Virtual Private Line service Ethernet Virtual Private LAN Service ((EPVLS), etc)?

-At what speeds, and with what QoS/ SLAs would generate the highest take rate, revenue and ROI for the telco?

-What price should be charged for such a service?

-Is there an elasticity of demand in such an offering?

Many other questions arise. We wonder that when grids move from regional to national to global, how they will be interconnected? When a single organization grid is opened up to collaborators, partner companies, and customers (as John Hurley of Boeing suggested) how will network access be achieved? Where will the enterprise grid networking specifications and best practices recommendations be developed? What type of network topology and connectivity arrangement works best for the majority of industry grids? Will that network technology adequately scale to accommodate more sites, more users, or more servers at any one site? What about disaster recovery? Finally, who will be the primary grid network provider - the user (or community of users), the grid hardware vendor (IBM, HP, SUN), or the network facility vendor (BT)?

Unless some answers emerge soon, grids are likely to be confined to a single campus network with 1/10Gig Ethernet links used for interconnection. This limits the size of the grid market, because it excludes interconnection of multiple, geographically dispersed grid sites.

*We are astonished that the telcos (with the exception of BT) are not more inquisitive and proactive in the emerging grid networking market and we wonder **if they are not missing out on a significant new source of revenue.***