Brussels, 21 September 2004

GGF12, Telecom Panel

Grid Computing @ Telecom Italia Lab

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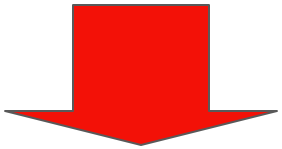
TELECOM ITALIA

Telecom Italia Lab (TILAB): The Mission

Increase the rate of innovation for Telecom Italia Group, maximizing the value of the know-how created in the labs, in tune with the needs of the Group's Business Units



- Focus on areas with most development potential for the group
- Cooperation with the business units

Relevant Figures

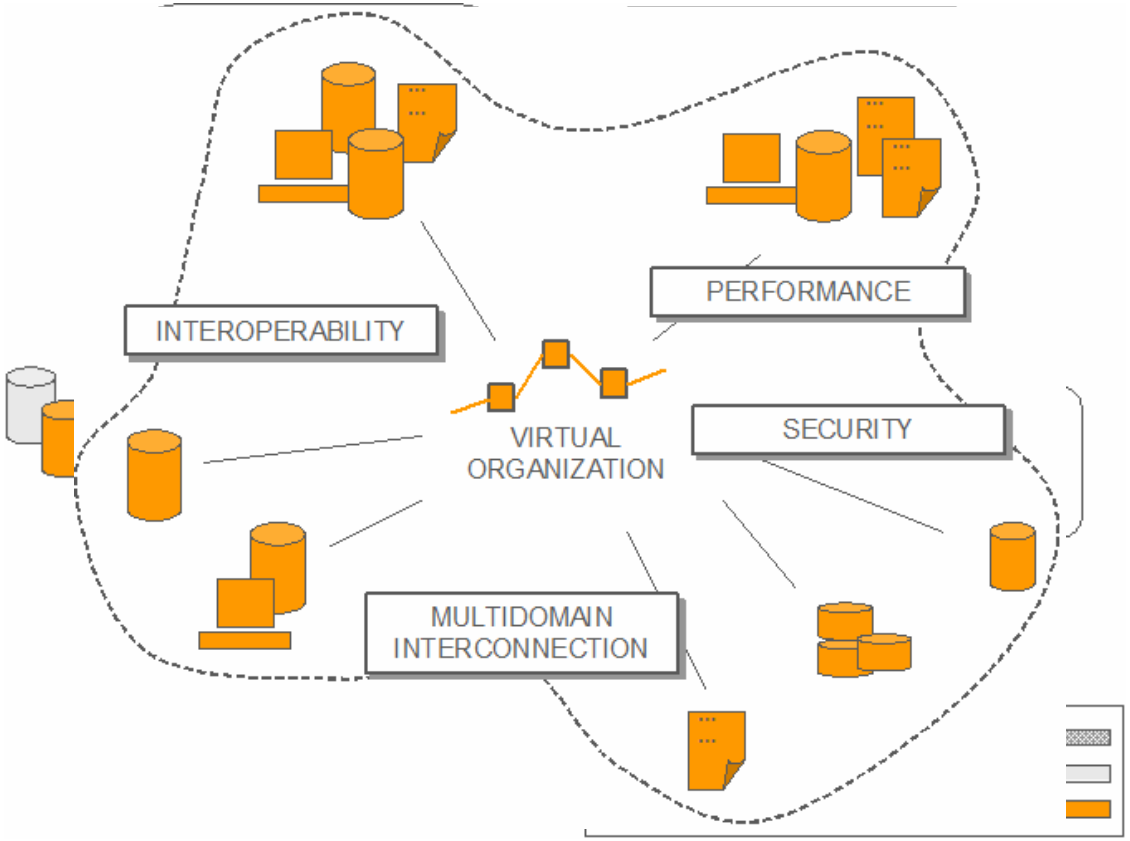
- **1000 Researchers**
- **10.000 m² of laboratories**

Grid Opportunities for a Telco

- Grid Computing it's not just about coupling cpu power for high-throughput or low-cost purposes for internal process improvement (Not the core activity of a Telco !!!)
- It is a technology for new value-added services especially for external customers
  - **To be adopted**: OGSA has strong potentials in terms of resource access and service creation
  - **To be supported**: optimizing transfer of (huge) data on a geographical basis strongly involves the network
- From a Telco Point of view these new opportunities raise major issues on:
  - **Grid Networking Research**: If Telcos get involved in the Grid stuff so let's understand well the implications on networks
  - **Business Models and Economics**: Should we consider new players as Grid Providers ? If yes, who are they?

Virtual Organizations: New Services and Technical challenges

- Virtual Organizations require to move from **Local** to **Global** Grids
- Critical challenges on the network layer for:
  - Interoperability
  - Performance
  - Multi-Domain Interconnection
  - Security



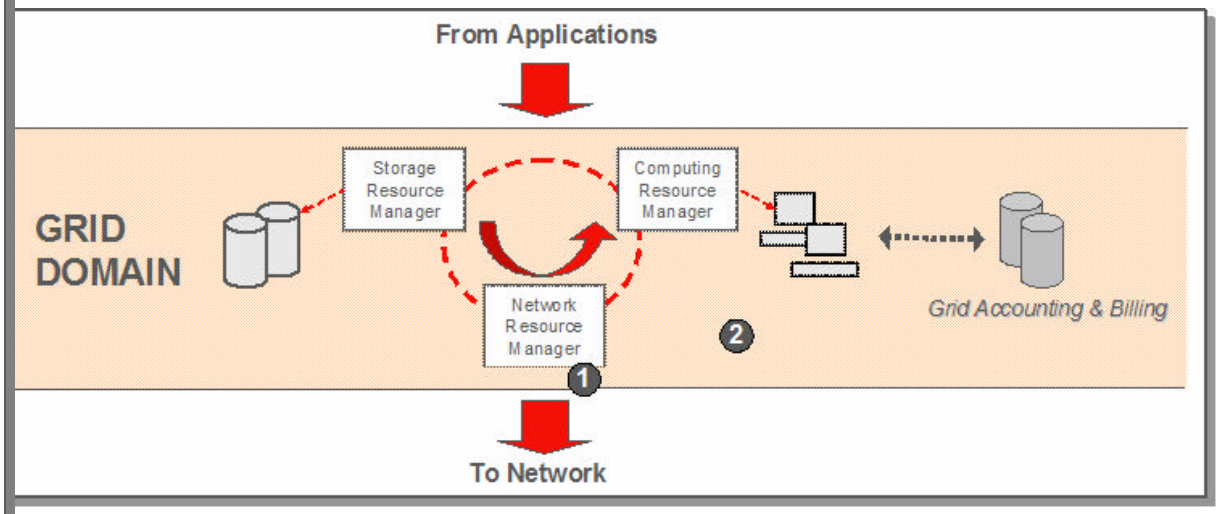
From a TELCO point of view *Virtual Organizations can represent a* ***new kind of rich VPN services****, moving from simple connectivity services to VAS with on-demand setup of both network and computing resources*

* Virtual Private Groups

What could it mean "Grid Networking" ?

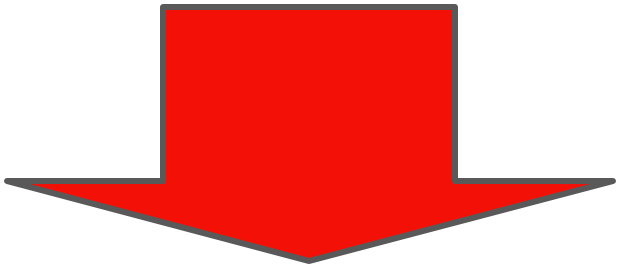
- The network is another active resource Grids should interact with (together with storage and computing resources)
- Over-provisioning only helps with performance issues but we should also consider:
  - QoS (Bandwidth Brokers, DiffServ and latest developments of IETF)
  - Optical Bandwidth Dynamic Management (inter-working with ASON/GMPLS)
- Other issues, such as network security, addressing, etc. have to be addressed with alternative kinds of interactions with networks (e.g. through dynamic VPN support systems)

Some Examples:
- Documents
  - GGF with GHPN WG (Net Issues, Optical Networking, Grid Network Services drafts, …)
- Demonstrators
  - Canet (Grid application control of optical light-paths)
  - Data Movers (No real interaction with networks, just overlay optimizations)
  - DataGrid



Signals of Convergence

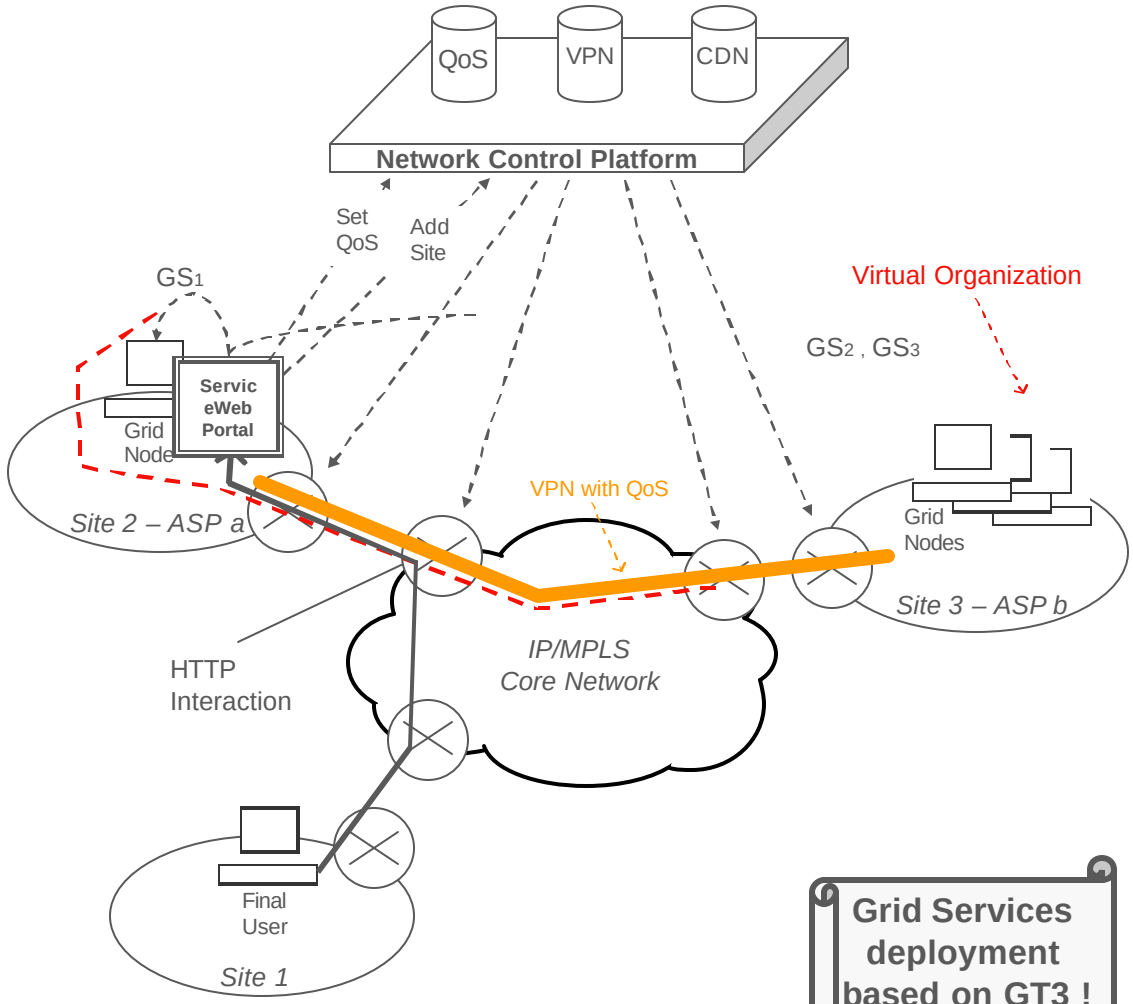
- **FROM THE GRID WORLD**
  - **GGF is defining appropriate mechanisms for data movements (? Grid FTP, RFT) and is going to specify protocols, interfaces and APIs for inter-working with network level**
- **FROM THE TELCO WORLD**
  - **Lots of activities are targeting the "*All IP Network*" and the "*NGN*" models, in order to have many applications (e.g. Triple Play) on top of a unique IP-based infrastructure with the ability of a dynamic support for applications**



GRID APPLICATIONS ARE ANOTHER KIND OF SERVICES TO CONSIDER AND TO INCLUDE IN THE PORTFOLIO

Experimental Stuff on Grid Networking @ TILAB labs

- Scenario is based on dynamic service aggregation among ASP Data Centers.
- The service portal is able to communicate at the same time with Grid nodes and Network Control Servers (QoS, VPN) through SOAP/XML approaches (WS & GS)
- The Virtual Organization is activated (with network and computing resource usage) only during service run-time
- Data Transfers are managed by RFT services



Grid Services deployment based on GT3 !

What about Production Environments ?

So far we talked about research. What's happening on the "Production Side" ? : the GRIDFON project (in partnership with IT Telecom)

- **The goal of the Gridfon Project is to use the homogeneous platform of the Win XP Desktop PC in the Intranet TILab to realize a Grid Infrastructure.**
- **After a scouting activity, two commercial Grid products were selected to deploy two Grid Environment:**
  - ***LSF & ActiveCluster of Platform* – were selected to deploy the R&D TILab Grid, where R&D Department can launch Simulation Tools developed in TILab that require a great amount of calculation resources.**
  - ***InnerGrid of GridSystems* – was selected to analyze and launch IT Applications used in TELCO processes, as Billing Platform, Management Systems etc…**

Thank You for your attention !

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