Infrastructure Area

AD's: Richard Hughes Jones
                Franco Travostino
                Cees de Laat (term ending)

GGF20, Manchester, May 2007

New / Existing groups

- **Grid High-Performance Networking RG (ghpn-rg)**
  - Dimitra Simeonidou, (+ new co-chair)

- **Grid and Virtualization Working Group (gridvirt-wg)**
  - Erol Bozak, Wolfgang Reichert

- **Network Measurements Working Group (nm-wg)**
  - Eric Boyd, Mark Leese, Richard Hughes-Jones

- **Network Mark-up Language Working Group (nml-wg)**
  - Paola Grosso, Martin Swany

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

New / Existing groups

◆ **Grid High-Performance Networking RG (ghpn-rg)**

- Dimitra Simeonidou

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

Grid High Performance Networking RG

◆ It produced a set of use cases capturing the interaction between applications and grid network middleware (GFD-I in early 2007)

◆ Constituency is highly specialized in the type of networks used in R&E testbeds

◆ Now actively engaging GLIF and EU-funded Phosphorus participants --- they will jointly produce GFDs (OGF is the only group in this bunch with a document process)

◆ OBS draft, needs public comments...

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

Dimitra Simeonidou(GHPN-RG)

Group Discussion GHPN

SessionAgenda:

◆ 1. Agenda bashing and administration (Dimitra Simeonidou) [5']

◆ 2. Update on GUNI (Georgios Zervas) [20]

◆ 3. Enlightened Computing Update: An HD-class example (Jon MacLaren)[15]

◆ 4. SIP protocol for Grid Networks (Aldo Campi) [15]

◆ 5. Research Challenges for Optical Grid Networks (Marc De Leenheer) [15]

◆ 6. Introducing EC-GIN: Europe-China Grid InterNetworking (Sven Hessler) [20]

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

© 2006 Open Grid Forum

www.ogf.org

New / Existing groups

- ◆ **Grid High-Performance Networking RG (ghpn-rg)**
  - ■ Dimitra Simeonidou

- ◆ **Grid and Virtualization Working Group (gridvirt-wg)**
  - ■ Erol Bozak, Wolfgang Reichert

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

Grid and Virtualization Working Group

Chairs

n **Erol Bozak (SAP)**
– **Development Architect**
– **NetWeaver Solution and Platform Management**

n **Wolfgang Reichert (IBM)**
– **Senior Technical Staff Member (STSM)**
– **IBM On-demand Operating Environments**

Goals

n **Verification that within existing Grid standards the specifications are neutral to "virtualized systems / resources"**
– **The request for resources may be satisfied either by / with "virtualized systems" or "physical systems"**
– **"Virtualization is transparent to the Grid" (e.g. resource provisioning)**

n **Define use cases wherein the grid infrastructure is seen participating in an virtualized system infrastructure**

n **Explore how virtualization technologies can be leveraged to better support grid use cases**

n **Define one or more profiles that allows the Gird infrastructure to :**
– **Monitor**
– **Manipulate,**
– **Migrate Virtual Systems etc.**

THE BEST-RUN BUSINESSES RUN SAP™

Grid and Virtualization Working Group

Timeline

1. **OGF 19: Introduction of the Workgroup**
2. **OGF 20: Collection of Use Cases**
3. **OGF 21: First Version of the profile**
4. **OGF 22: tbd**

Meetings

Charter-Discussion: Grids and System Virtualization

– **Thursday, February 1, 2:00 pm - 3:30 pm
Franco Travostino, Erol Bozak, Wolfgang Reichert**

THE BEST-RUN BUSINESSES RUN SAP™

SAP

New / Existing groups

- ◆ **Grid High-Performance Networking RG (ghpn-rg)**
  - ■ Dimitra Simeonidou

- ◆ **Grid and Virtualization Working Group (gridvirt-wg)**
  - ■ Erol Bozak, Wolfgang Reichert

- ◆ **Network Measurements Working Group (nm-wg)**
  - ■ Eric Boyd, Mark Leese, Richard Hughes-Jones

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

"Hierarchy / Characteristics" doc GFD.23

◆ Status: document is an OGF Draft Recommendation
◆ Document is dated May 2004
◆ Ideas used in the NMWG Schemata
◆ Schemata implemented and in use by:
   ■ Dante
   ■ EGEE
   ■ Internet2
   ■ CLARA
   ■ MonAlisa
◆ Discussions on Schemata in progress with the IETF IPPM

◆ Action from NMWG to move GFD.23 to an OGF Recommendation

◆ Create an Experimental doc on GFD.23 usage
   ■ Document use of "Hierarchy / Characteristics" doc
   ■ Section on use/experience from:
      ● Dante
      ● EGEE
      ● Internet2

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org
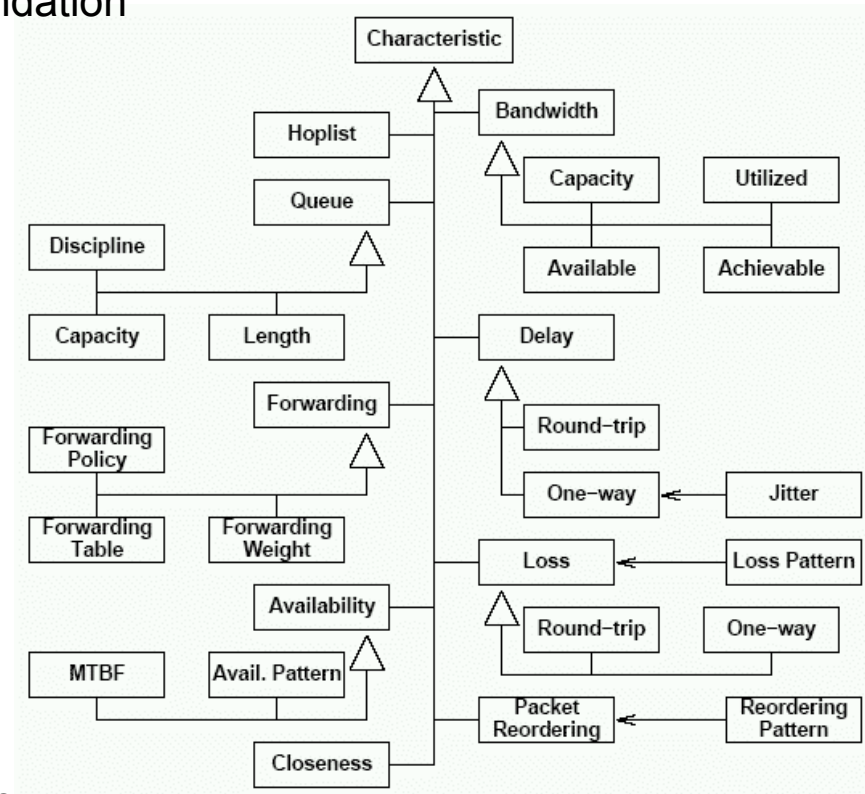
Document "Schemata for Network Performance Characteristics"

Work In Progress. Document Layout:

3. Base Schema

   Explain that definitive schemata is in RELAX-NG, with XML appendix from specific tool

3.1 Description

3.2 RELAX-NG Code

4. Extension Schema

   Explain that These Schemata MUST be used in conjunction with the NMWG Base Schema

   Example (as in how to doc) using characteristic/tool "foo"

4.1 Description

4.2 RELAX-NG Code

5. Extension Schemata for Current Characteristics and Tools

5.1 Round Trip Delay

5.2 TCP Achievable Bandwidth
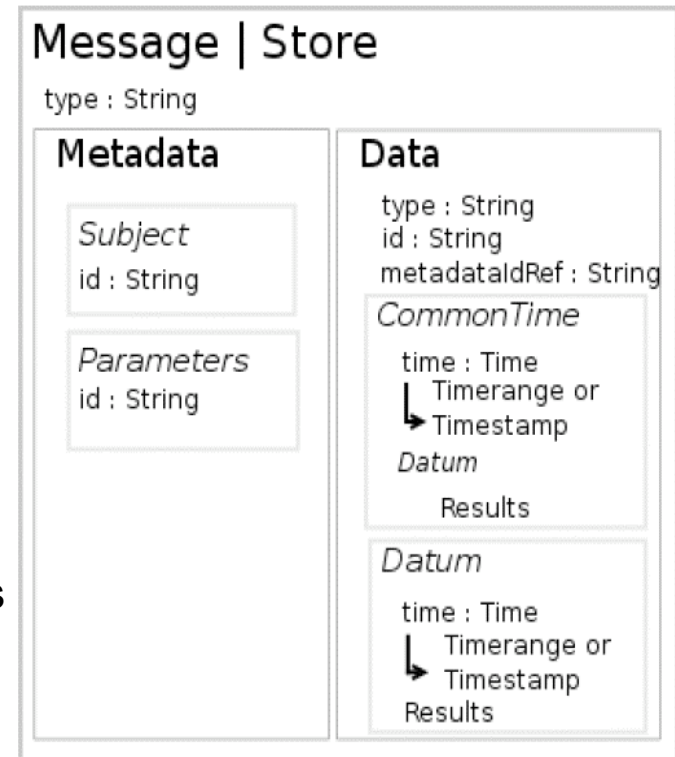
5.3 UDP Achievable Bandwidth

5.4 Frame loss

5.5 Frame re-ordering

5.6 Bandwidth Utilisation

5.7 ping

5.8 iperf (TCP)

5.9 traceroute

Message | Store
type : String

Metadata

Subject
id : String

Parameters
id : String

Data

type : String
id : String
metadataIdRef : String

CommonTime
time : Time
 Timerange or
 Timestamp
Datum
   Results

Datum
time : Time
 Timerange or
 Timestamp
Results

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

perfSONAR Deployments

- **perfSONAR is a joint effort:**
  - ESnet
  - GÉANT2 JRA1
  - Internet2
  - RNP (Brazil)

- **ESnet includes:**
  - ESnet/LBL staff
  - Fermilab

- **Internet2 includes:**
  - University of Delaware
  - Georgia Tech
  - SLAC
  - Internet2 staff

- **GÉANT2 JRA1 includes:**
  - Arnes
  - Belnet
  - Carnet
  - Cesnet
  - CYNet
  - DANTE
  - DFN
  - FCCN
  - GRNet
  - GARR
  - ISTF
  - PSNC
  - Nordunet (Uninett)
  - Renater
  - RedIRIS
  - Surfnet
  - SWITCH
- **Recent additions:**
  - CLARA (Latin American Cooperation of Advanced Networks)
  - LHC Network

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

Contact Details

◆ Chairs:

- ■ Eric Boyd (Internet2), eboyd@internet2.edu
- ■ Richard Hughes-Jones (University of Manchester), R.Hughes-Jones@manchester.ac.uk
- ■ Mark Leese (Daresbury Laboratory), m.j.leese@dl.ac.uk

◆ Website under re-construction: http://nmwg.internet2.edu

◆ Mailing list: nm-wg@ogf.org

- ■ To subscribe, https://forge.gridforum.org/sf/projects/nm-wg then Subscribe and fill in the web form

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

New / Existing groups

- **Grid High-Performance Networking RG (ghpn-rg)**
  - Dimitra Simeonidou

- **Grid and Virtualization Working Group (gridvirt-wg)**
  - Erol Bozak, Wolfgang Reichert

- **Network Measurements Working Group (nm-wg)**
  - Eric Boyd, Mark Leese, Richard Hughes-Jones

- **Network Mark-up Language Working Group (nml-wg)**
  - Paola Grosso, Martin Swany

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

NML-WG:
Network Mark-up Language

Chairs:

Paola Grosso - UvA

Martin Swany - Udel

Purpose: to describe network topologies, so that the outcome is a standardized network description ontology and schema, facilitating interoperability between different projects.

The scope is to define one or more schemas to describe:

- a layer independent network topology
- properties that are common across multiple network technologies,
- a mechanism so that other working groups or other projects may combine technology specific schemas with the schemas created by the NML working group.

Such a schema can be used to create <u>inter-domain network graphs</u> at various abstraction levels, to provide an <u>information model for service discovery</u>, and to <u>facilitate lightpath provisioning</u>.

First official meeting at OGF20 in Manchester. See you here!
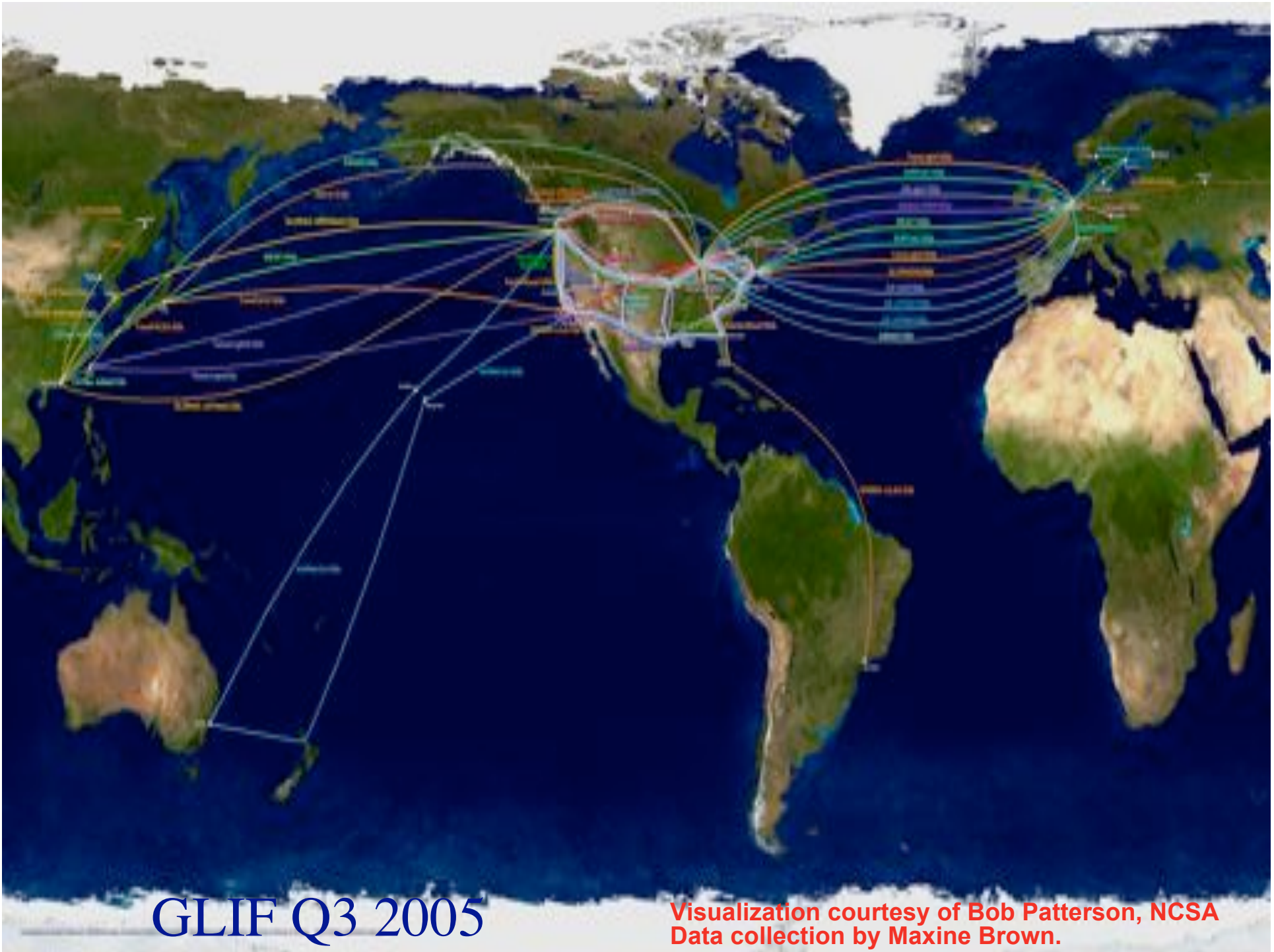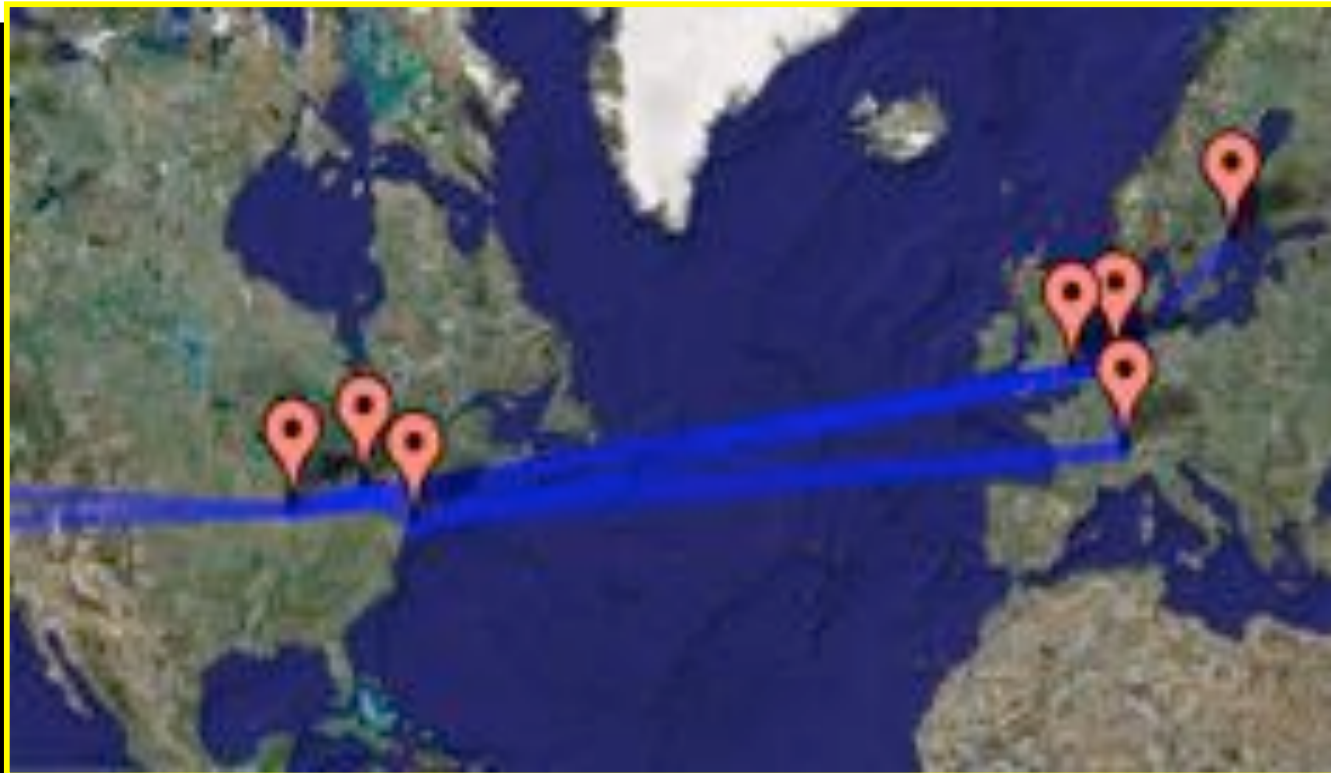
GLIF Q3 2005

Visualization courtesy of Bob Patterson, NCSA
Data collection by Maxine Brown.

Current status: NDL

Network Description Language

Latest developments were presented at the GLIF meeting in Sep. '06.

Google-maps and NDL…

…the GLIF connections described by NDL.

Meetings this week

◆ **Grid High-Performance Networking RG (ghpn-rg)**

  ■ wednesday 18h00 - 19h30, Exchange 6/7

◆ **Grid and Virtualization Working Group (gridvirt-wg)**

  ■ monday 18h00 - 19h30, Exchange 4/5

◆ **Network Measurements Working Group (nm-wg)**

  ■ Tuesday 10h30-10h30 and 14h00-15h30, 16h00-16h45 Exchange 1

◆ **Network Mark-up Language Working Group (nml-wg)**

  ■ Wednesday 10h30 - 12h00, Exchange 6/7

◆ **Infrastructure area meeting**

  ■ Monday 14h00 - 15h30, Charter suite 5

NMWG OGF20 Manchester, May 2007
R. Hughes-Jones

www.ogf.org

Following slides were used in discussion.
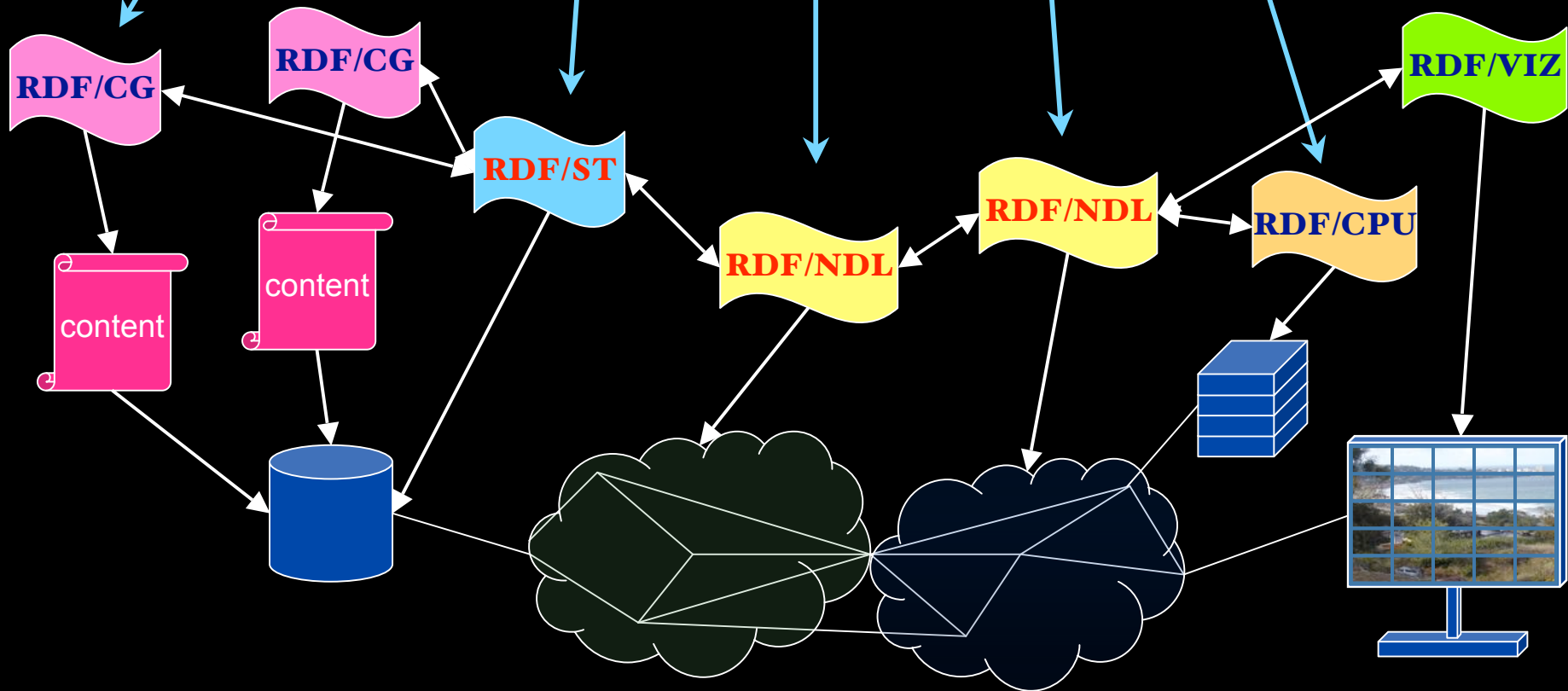
TeraThinking

- What constitutes a Tb/s network?
- CALIT2 has 8000 Gigabit drops ?->? Terabit Lan?
- look at 80 core Intel processor
  - cut it in two, left and right communicate 8 TB/s
- think back to teraflop computing!
  - MPI makes it a teraflop machine
- massive parallel channels in hosts, NIC's
- TeraApps programming model supported by
  - TFlops   ->   MPI / Globus
  - TBytes   ->   OGSA/DAIS
  - TPixels   ->   SAGE
  - TSensors   ->   LOFAR, LHC, LOOKING, CineGrid, ...
  - Tbit/s   ->   ?