

CineGrid

Global Experimental Facility for very high
quality digital Cinema

CineGrid R&D in Holland

Cees de Laat

CineGrid.org founding member

University of Amsterdam



CineGrid Mission

To build an interdisciplinary **community** that is focused on the **research, development,** and **demonstration** of networked collaborative tools to enable the production, **use** and **exchange** of very-high-quality digital media over photonic networks.

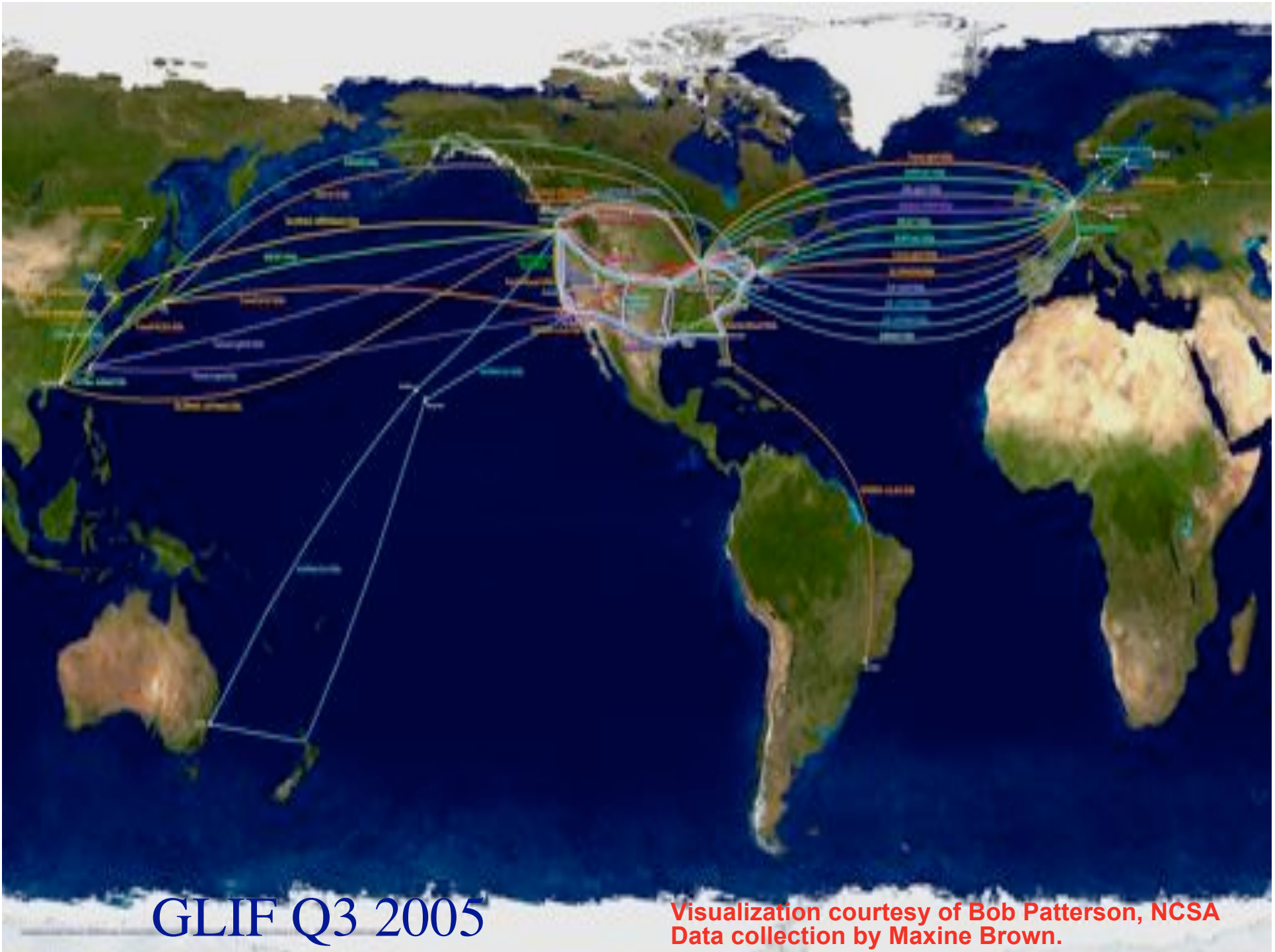
<http://www.cinegrid.org/>



What is it about

- CineGrid is about forming a community
- The CineGrid vision is about a worldwide collaboration
- It evolves around content
- It stretched current technology
 - [storage, networking, vizualisation, grid computing]





GLIF Q3 2005

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



In The Netherlands SURFnet connects between 180:

- universities;
- academic hospitals;
- most polytechnics;
- research centers.

with an indirect ~750K user base

~ 6000 km
scale
comparable
to railway
system



New: [Overview](#) [Throughput](#) Refresh: [Load](#) [Ping](#) [UDP](#) [Plot](#)

Scroll line: Last 7 days:

12:30:01 30 min:

Ping All [ms] from / to node125.das3.liaacs.nl (LIACS-125)

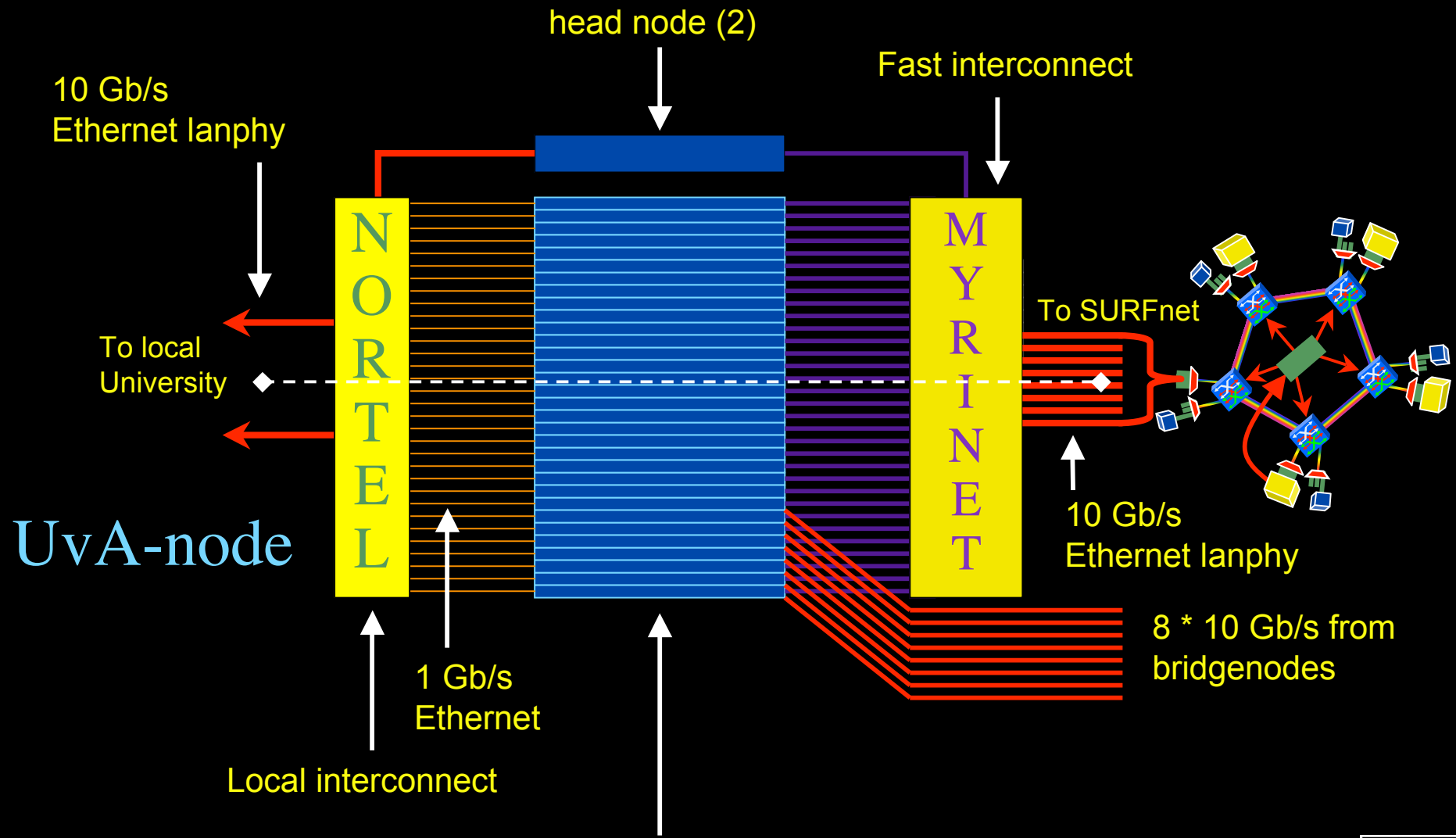
Skipped tests: UvA-236-M, UvA-239-M

Date	Time	>> YU-083	<< YU-083	>> YU-085	<< YU-085	>> LIACS-127	<< LIACS-127	>> UvA-236	<< UvA-236	>> UvA-239	<< UvA-239
31/05/2007	12:30:01			1.380 / 1.382 / 1.410	1.380 / 1.383 / 1.420						
31/05/2007	12:00:01			1.380 / 1.383 / 1.410	1.380 / 1.384 / 1.450						
31/05/2007	11:30:01			1.380 / 1.383 / 1.410	1.380 / 1.382 / 1.390						
31/05/2007	11:00:02			1.380 / 1.382 / 1.410	1.380 / 1.382 / 1.400						
31/05/2007	10:30:01			1.380 / 1.383 / 1.390	1.380 / 1.382 / 1.390						
31/05/2007	10:00:01			1.380 / 1.382 / 1.410	1.380 / 1.383 / 1.410						
31/05/2007	09:30:01			1.380 / 1.384 / 1.410	1.380 / 1.382 / 1.400						
31/05/2007	09:00:01			1.380 / 1.382 / 1.410	1.380 / 1.383 / 1.400						
31/05/2007	08:30:02			1.380 / 1.383 / 1.410	1.380 / 1.382 / 1.400						
31/05/2007	08:00:01			1.380 / 1.383 / 1.410	1.380 / 1.383 / 1.410						
31/05/2007	07:30:02			1.380 / 1.382 / 1.390	1.380 / 1.381 / 1.390						
31/05/2007	07:00:01			1.380 / 1.382 / 1.410	1.380 / 1.383 / 1.400						
31/05/2007	06:30:01			1.380 / 1.383 / 1.410	1.380 / 1.382 / 1.390						
31/05/2007	06:00:01			1.380 / 1.382 / 1.410	1.380 / 1.382 / 1.420						
31/05/2007	05:30:01			1.380 / 1.382 / 1.400	1.380 / 1.382 / 1.410						
31/05/2007	05:00:01			1.380 / 1.382 / 1.410	1.380 / 1.382 / 1.390						
31/05/2007	04:30:01			1.380 / 1.381 / 1.390	1.380 / 1.380 / 1.390						
31/05/2007	04:00:01			1.380 / 1.382 / 1.410	1.380 / 1.384 / 1.410						
31/05/2007	03:30:02			1.380 / 1.384 / 1.410	1.380 / 1.382 / 1.400						
31/05/2007	03:00:02			1.380 / 1.382 / 1.410	1.380 / 1.382 / 1.400						
31/05/2007	02:30:01			1.380 / 1.382 / 1.400	1.380 / 1.382 / 1.400						
31/05/2007	02:00:01			1.380 / 1.383 / 1.410	1.380 / 1.384 / 1.410						
31/05/2007	01:30:01			1.380 / 1.382 / 1.410	1.380 / 1.382 / 1.390						
31/05/2007	01:00:01			1.380 / 1.382 / 1.410	1.380 / 1.383 / 1.400						

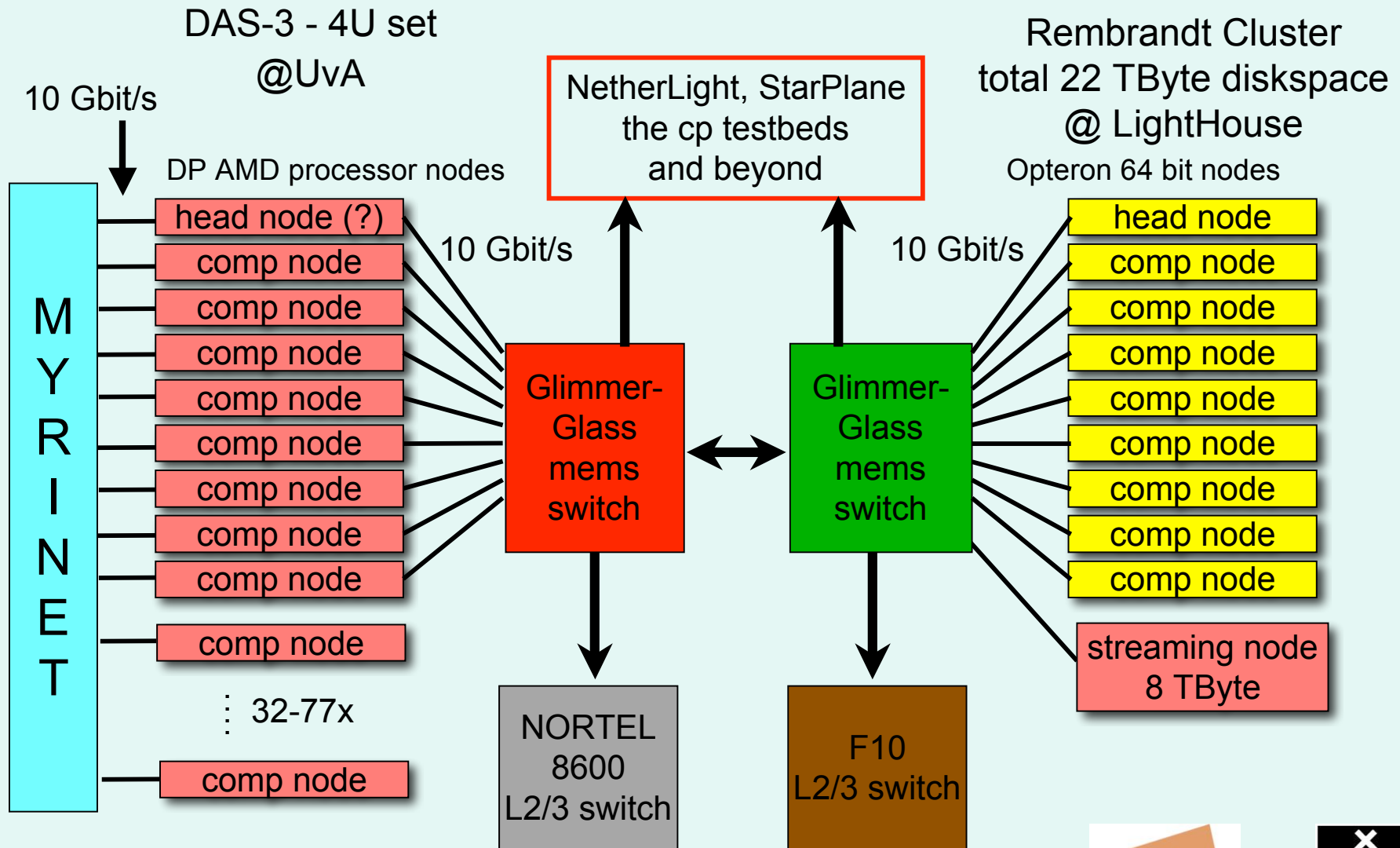
Very constant and predictable!



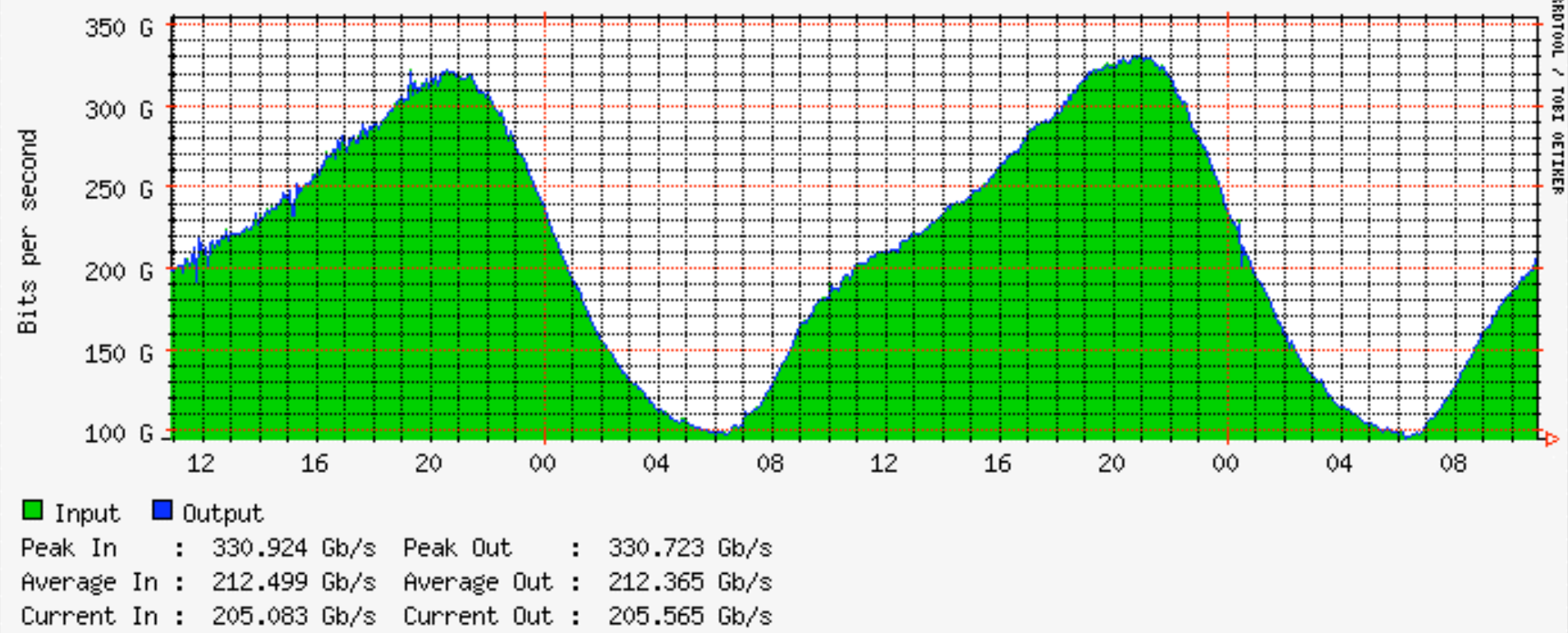
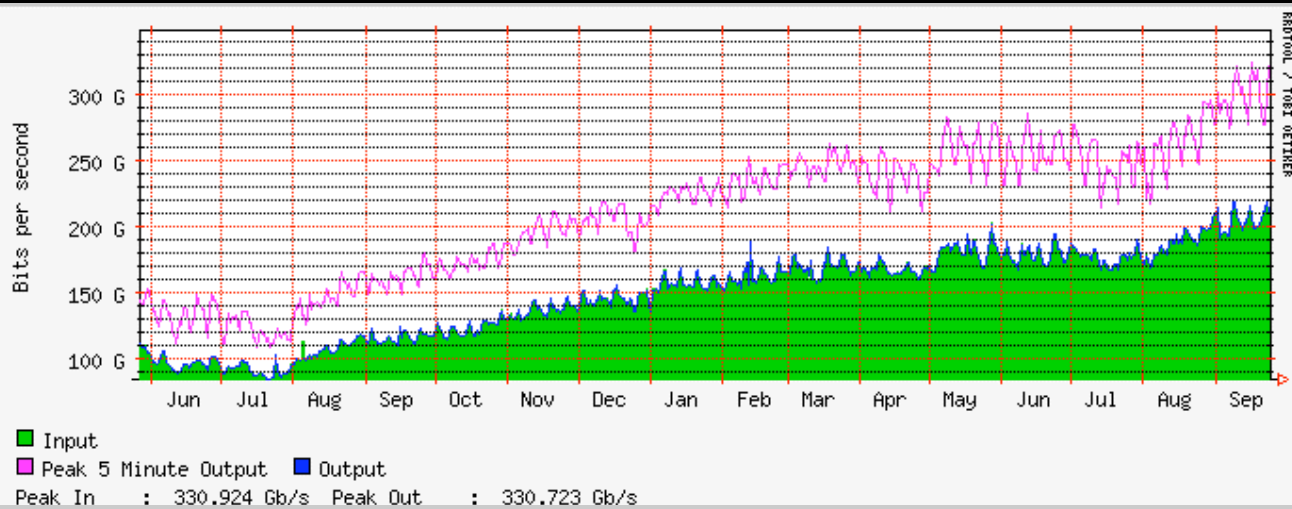
DAS-3 Cluster Architecture



CineGrid



AMS-IX

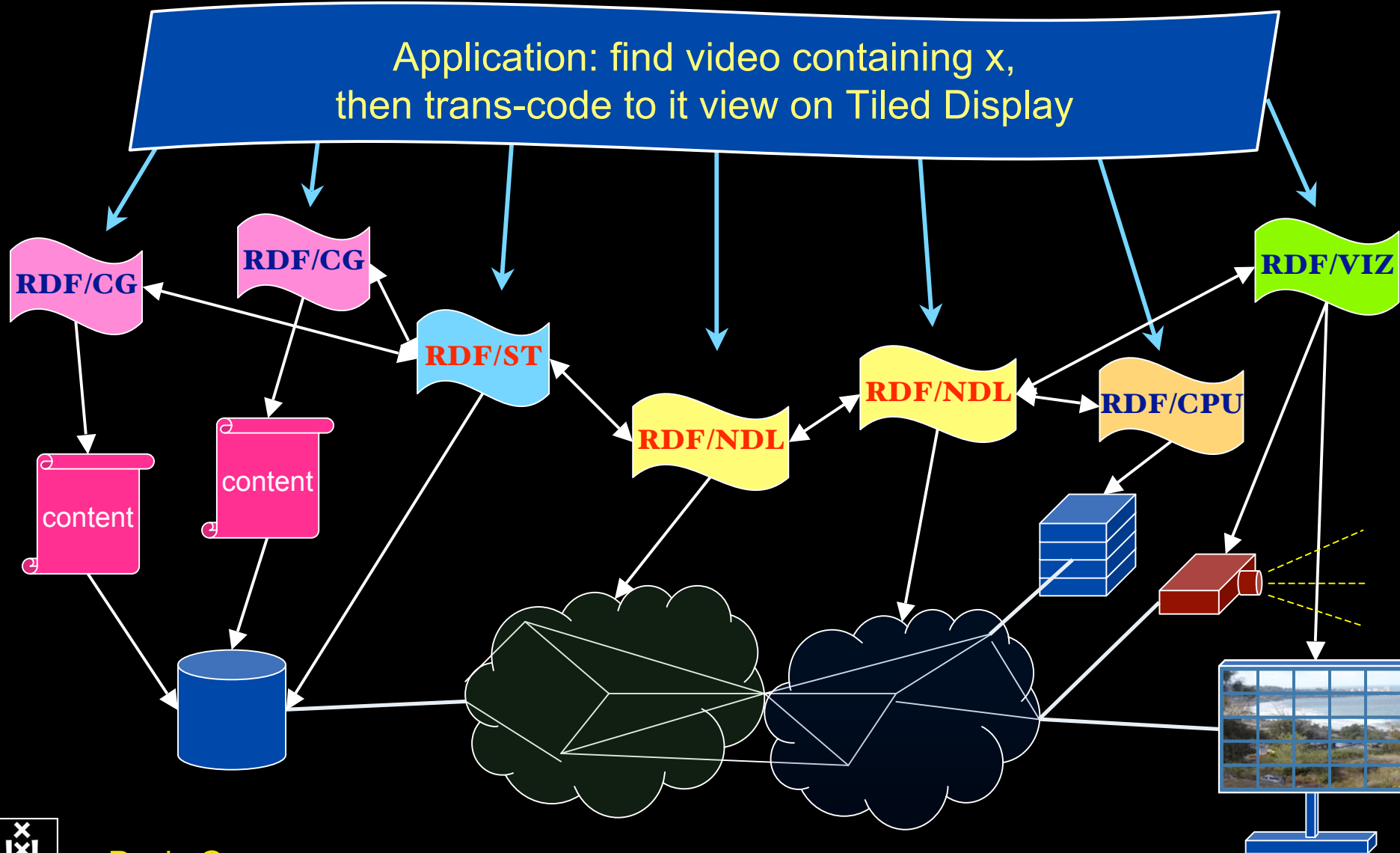


CineGrid@SARA



Semantic Web RDF describing Infrastructure and Content

Application: find video containing x,
then trans-code to it view on Tiled Display



Current research & Engineering

- Formats:

- uncompressed unreadable (UMF) 3/4 GByte/sec
- compressed unreadable (jpeg2000) 300 - 700 Mbit/s
- uncompressed readable (eg TIFF) 1.2 GB/s, 4.3 TB/h
- compressed readable (eg DXT) 300 - 800 Mbit/s

- Do not compress away the science!

- Storage

- one disk about 40-80 MByte/s ~ 300-600 Mbit
- raid 200-350 MByte in raid5
- parallel file systems
- getting it from disk on the network, 10^2 - 10^6 !
- Holland festival taking uncompressed about 12 TByte

- Rights, access and DRM !



Role of UvA

- Linking communities (CALIT(2), EVL, NTT, Keio) to local organizations (SURFnet, SARA, de Waag, you!)
- System and Network Engineering
 - optical photonic networks
 - store & forward (terabyte email)
 - drm & AAA & security
 - grid for processing
- Metadata and make it searchable (MM)



The “Dead Cat” demo

SC2004 & iGrid2005

SC2004,
Pittsburgh,
Nov. 6 to 12, 2004
iGrid2005,
San Diego,
sept. 2005

Produced by:
Michael Scarpa
Robert Belleman
Peter Slood

Many thanks to:
AMC
SARA
GigaPort
UvA/AIR
Silicon Graphics,
Inc.
Zoölogisch Museum



Major Problems

- This is very specialized stuff!
- At every site there is about one engineer or phd that knows to operate the networks, storage, camera's, projectors!
- Do not underestimate complexity of sound!
 - twice as much racks for sound @ Cal(IT)2
- So we need to educate!
- Do not forget **GAMING!** (I have kids too!)
- Sequel: “The return of the Titanic”





Questions ?

www.cinegrid.org

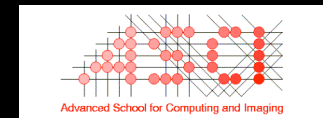
www.cinegrid.nl

www.science.uva.nl/~delaat

 **Waag Society**

StarPlane

DAS-3



SURF
NET

sara

