

# GLIF, the Global Lambda Integrated Facility

## GLIF 10 year Overview

Kees Neggers

10th Annual Global LambdaGrid Workshop  
CERN, Geneva 13-14 October 2010

## GLIF History

---

- At the Beginning of this century there was a growing awareness that Next Generation Research Networks would not be a simple extrapolation of the current Internet evolution
- On September 11-12, 2001 a first meeting and LambdaGrid Workshop was hosted in Amsterdam by the Trans-European Research and Education Networking Association (TERENA, Europe)
- The Hybrid Networking concept has evolved since then in a global context in GLIF Working groups and yearly LambdaGrid Workshops combining the strengths of advanced users and research infrastructure providers



# GLIF vision

---

## Linking the World with Light

- The GLIF community shares a common vision of building a new grid-computing paradigm, in which the central architectural element is optical networks, not computers, to support this decade's most demanding e-science applications.



## Global Lambda Integrated Facility

- **GLIF is an international virtual organization managed as a cooperative activity with ‘participants’ rather than ‘members’ with a lightweight governance structure.**
- **Open to anybody sharing the vision of optical interconnection of different facilities, who voluntarily contributes network resources (e.g. equipment, lambdas) or actively participates in relevant activities.**
- **Secretariat functions provided by TERENA with voluntary contributions from participants.**
- **3 Working Groups**



## GLIF 2002

was again in Amsterdam, hosted by the Amsterdam Science and Technology Centre in conjunction with iGrid 2002



SURF

NET



# GLIF 2003 in Reykjavik, Iceland, hosted by NORDUnet

Renamed GLIF, a *virtual facility* in support of persistent data intensive scientific research and middleware development on LambdaGrids



# GLIF 2004 in Nottingham, UK, hosted by UKERNA



Photo courtesy of Steve Wallace



# GLIF 2005 in San Diego, CA, US, hosted by Calit2

in the brand new Calit2 building in conjunction  
with iGrid 2005



# GLIF 2006 in Tokyo, Japan, hosted by NICT and WIDE



# GLIF 2007 in Prague, CZ hosted by CESNET



SURF

NET



# GLIF 2008 in Seattle hosted by PNWGP and UW



**SURF**

**NET**



# GLIF 2009 in Daejeon, Korea, hosted by Kisti



SURF

NET



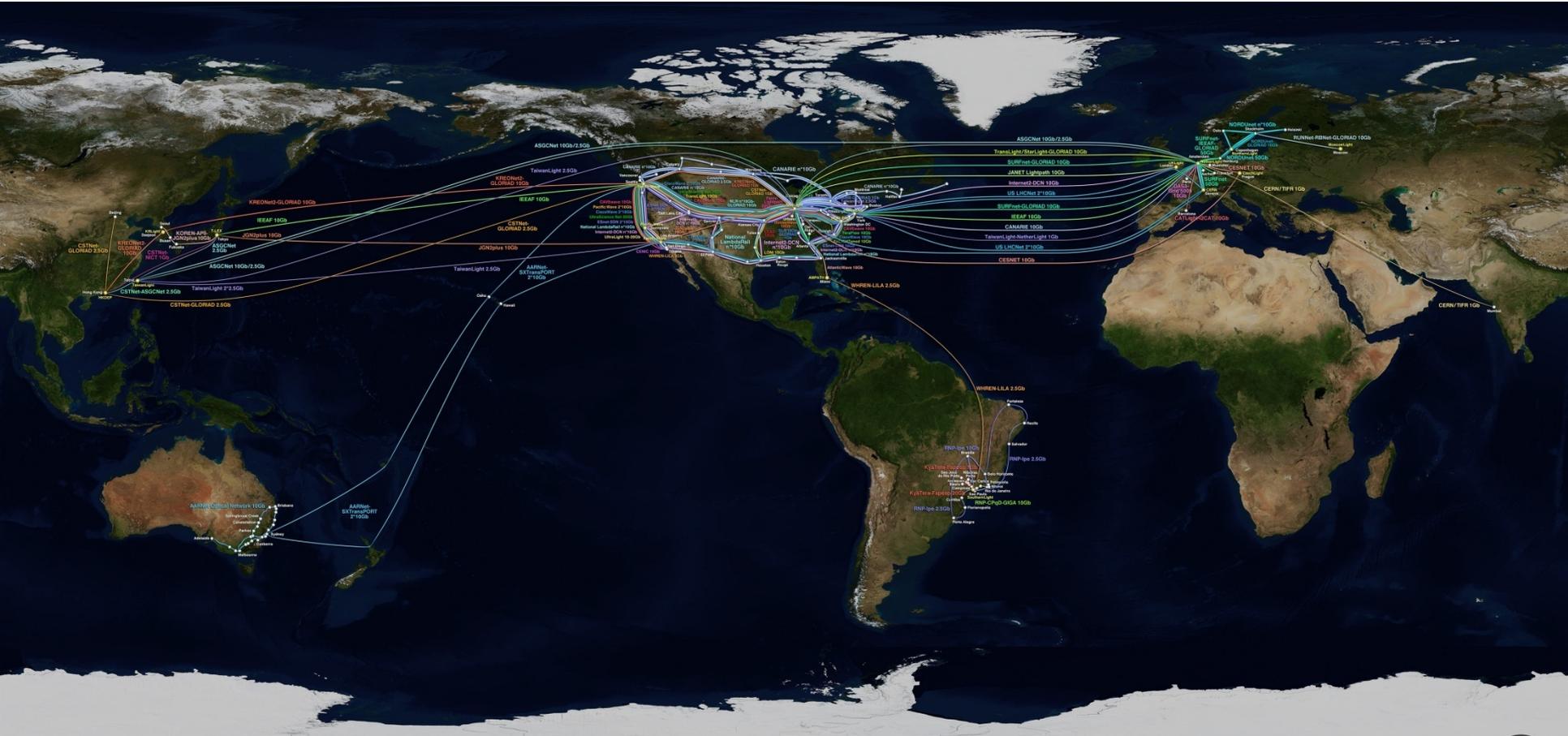
## GLIF resources: GOLEs

---

- **GLIF lambdas are interconnected through established lightpath exchange points known as GOLEs: GLIF Open Lightpath Exchanges**
- **GOLEs are comprised of equipment capable of terminating lambdas and performing lightpath switching, allowing end-to-end connections**
- **GOLEs have an open connection policy**



# GLIF resources: lambdas



GLIF Map 2008: Global Lambda Integrated Facility Visualization by Robert Patterson, NCSA, University of Illinois at Urbana-Champaign Data Compilation by Maxine D. Brown, University of Illinois at Chicago Earth Texture, visibleeearth.nasa.gov



## What's next

---

- 40 G applications
- Dynamic GOLEs
- **Providing users with seamless access to a global e-Infrastructure Ecosystem**



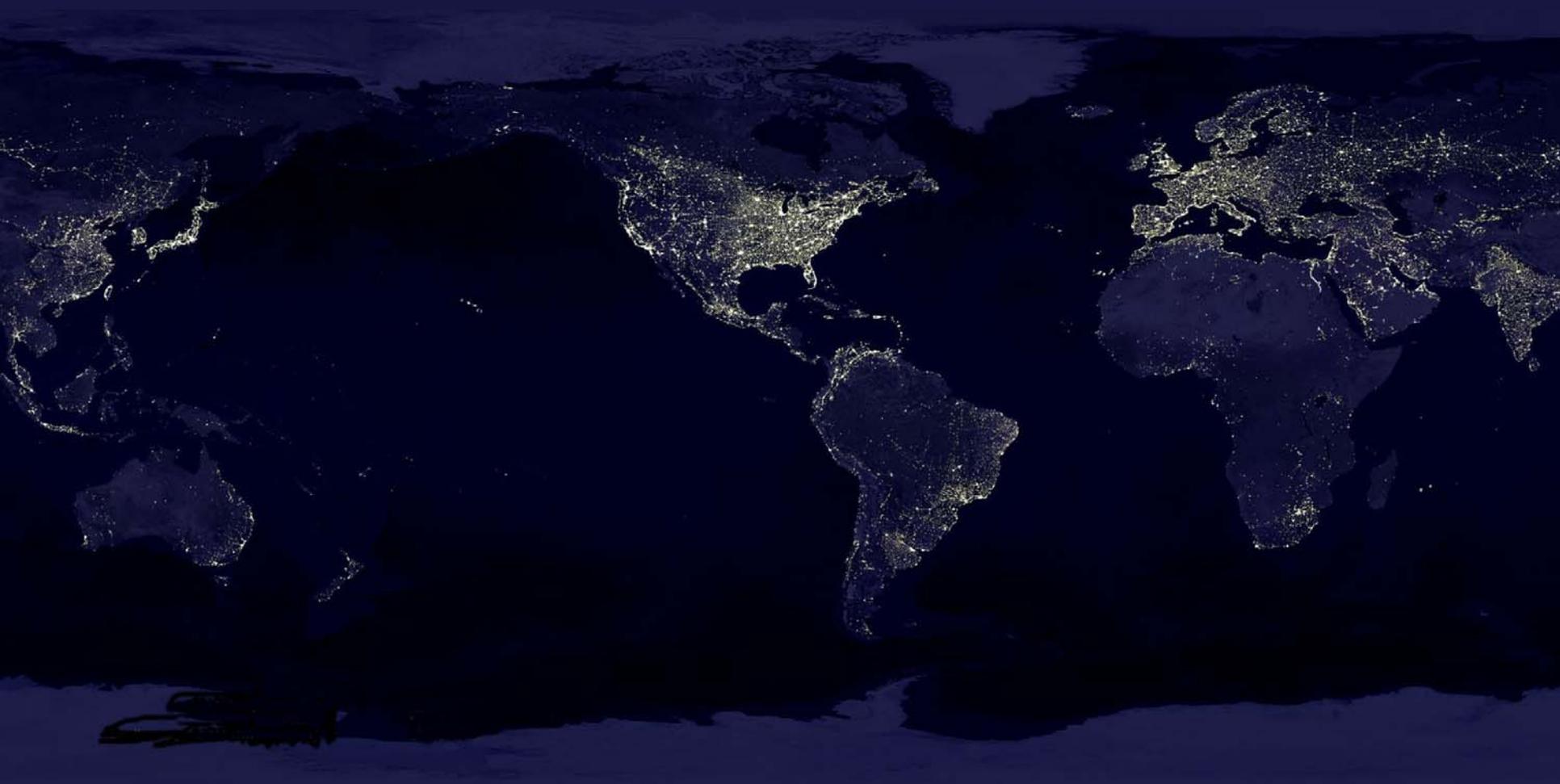
# E-Infrastructure Ecosystem



**Maintainability, sustainability, and extensibility**

(Source: Alan Blatecky, 2010)

# Thank You



<http://www.glif.is/>