

# **GLIF Secretariat Report 2005**

## 1. Introduction

This report provides a short overview of the tasks performed and the costs incurred by the GLIF secretariat in the year 2005. The report is aimed at the Sponsors, i.e. those GLIF participants that provide funding to cover the costs of the GLIF Secretariat.

The following organisations have been GLIF Sponsors in the year 2005 (in alphabetical order):

- AARNet (Australia)
- CANARIE (Canada)
- CERN (Switzerland)
- CESNET (Czech Republic)
- Indiana University (United States)
- Internet2 and NLR (United States)
- JISC / UKERNA (United Kingdom)
- NORDUnet (Denmark, Finland, Iceland, Norway and Sweden)
- Northwestern University (United States)
- SURFnet (Netherlands)
- University of California, San Diego (United States)
- University of Amsterdam (Netherlands)
- University of Illinois at Chicago (United States).

The GLIF Secretariat functions are provided by staff members of the TERENA Secretariat in Amsterdam. TERENA itself covers the indirect/overhead costs associated with this work, and can therefore also be considered a Sponsor.

## 2. Activities

GLIF, the Global Lambda Integrated Facility, is an international virtual organisation that promotes the paradigm of lambda networking. The GLIF participants are national research and education network organisations, consortia and institutions working with lambdas. Participation in GLIF is open to any organisation that subscribes to the GLIF vision and that can contribute to the GLIF activities.

The activities of GLIF are two-fold:

- The GLIF participants jointly make lambdas available as an integrated global facility for use by scientists and projects involved in data-intensive scientific research.
- GLIF brings together leading networking engineers worldwide, who exchange information to learn from each other's experiences, seek to establish best practice, work together to develop, test and implement new lambda networking technologies, middleware and applications, and generally collaborate to bring the technology forward.

GLIF organises one large workshop every year, also known as the Annual Global LambdaGrid Workshop. Much of the GLIF work is undertaken in the GLIF working groups. Most active are the Working Group on Technical Issues and the Control Plane and Grid Integration Middleware Working Group. Increased activity is planned for the Research and Applications Working Group, while the Governance Working Group looks after the overall management of GLIF.

At the annual GLIF workshop in Nottingham, England in September 2004, TERENA was invited to provide the secretariat support functions for GLIF, starting on 1 January 2005. The direct costs are covered by a number of GLIF participants, while TERENA itself contributes by covering the indirect cost. Initially, five (combinations of) organisations together committed 50,000 euro as their contribution to the funding of the GLIF Secretariat: CESNET, Internet2 and NLR, JISC / UKERNA, NORDUnet and SURFnet. In the second half of 2005, a number of other sponsors followed their example: AARNet, CANARIE, CERN, Indiana University, Northwestern University, University of California at San Diego, University of Amsterdam, and University of Illinois at Chicago.

As part of the Secretariat work, TERENA staff have created a new GLIF website, which is hosted on a server in the TERENA Secretariat office. Information has been moved from the previous website, the structure of the new website has been expanded with new sections, and more information has been added. The website is regularly updated. The staff have also created closed mailing lists for GLIF participants and for specific GLIF (working) groups. They have contributed to the organisation of the annual GLIF workshop in September, and, most importantly, they provide the secretariat functions for the GLIF working groups.

The fifth annual GLIF workshop was held on 29-30 September 2005 on the campus of the University of California San Diego in La Jolla, in conjunction with the iGrid2005 event. The first day was a joint symposium with iGrid2005. The symposium had been arranged by the iGrid2005 organisers. It included updates on GLIF in general and on the Technical Issues and Control Plane Working Groups. The four working groups had meetings on the second day in parallel sessions. At the end of that day, participants convened in a plenary session to hear reports about the progress made during the day.

The GLIF Working Group on Technical Issues aims to identify the resources that can be used by GLIF (for example, lambdas and optical exchanges) and to develop a database to facilitate connections and schedule usage. It also aims to define standard terms for usage within GLIF and to facilitate seamless connectivity through the harmonisation of contracting and fault management processes. The group is chaired by René Hatem (CANARIE) and Erik-Jan Bos (SURFnet), and its secretary is TERENA's Kevin Meynell. The Working Group met twice in 2005: on 13 February in Salt Lake City and on 30 September at the annual GLIF meeting.

The main activity has been to identify GLIF network resources and to document these on the GLIF website along with up-to-date contact information. It was realised that as existing networks grow and others appear, it will be increasingly difficult to co-ordinate all lambdas, interfaces, exchange points, policies and

administrative information in the existing ad-hoc fashion. A repository would therefore consolidate resource information in one place and facilitate better co-ordination between the GLIF participants.

Three main approaches to implementing network resource repositories were considered: a monolithic database, adapting the DNS to store network information or using semantic Web technology to create a distributed database maintainable by individual organisations. It was therefore necessary to examine the merits of each of these approaches in order to determine whether a common system could be agreed and whether such a system could be used at the control-plane level as well.

Another ongoing activity was the documentation of best practices among the GLIF operators. This included agreeing a standard nomenclature for network resources, since a variety of terms was in use, creating much confusion. It was particularly important to define optical exchanges in the GLIF context, as these are central to the creation of a worldwide integrated optical facility. From this, the concept of GLIF Open Lambda Exchange (GOLE) was adopted. Starting in October 2005, monthly teleconferences were held to improve communication between the GOLE operators.

The requirement for an end-to-end fault management system was also investigated during the year. While the majority of the GLIF constituent networks are not production-oriented, it was recognised that there needs to be a centralised mechanism to report and track faults. A standard way of reporting faults needs to be agreed and a ticketing system implemented.

The Control Plane Working Group focuses on the implementation of interfaces and protocols to allow automatic delivery and on-demand provisioning over optimised network paths (belonging to the contributed lambda resources), using optical control-plane technologies. The group is chaired by Gigi Karmous-Edwards (MCNC) and TERENA's Licia Florio is the group's secretary. The Control Plane Working Group works very closely with the Working Group on Technical Issues, automating the procedures agreed by that group.

Although some control-plane workshops took place in 2004, the Control Plane Working Group was officially established in the beginning of 2005, and it had its first meeting on 30 September 2005 at the LambdaGrid Workshop. The meeting discussed possible work items, and agreed on three main issues to be addressed:

- common service definitions, i.e., the characterisation of a service in order to understand if a network is able to support the service;
- how users verify services, i.e., the way that users report about the service received;
- how to start automating today's manual and very labour-intensive processes for establishing end-to-end connections.

Larry Smarr (Calit2) and Maxine Brown (University of Illinois at Chicago) took over the chairmanship of the Research and Applications Working Group at its meeting on 30 September 2005 from Peter Clarke (NeSC). The Working Group will focus on three areas: user applications, infrastructure and research. The goal to be achieved in the first work area is to generate more users and applications using the GLIF infrastructure. As part of the infrastructure activity it is proposed to interconnect GLIF sites with high-definition videoconferencing and tiled displays. In the third area, roadmaps on various topics will be produced, such as devices, architectures and integration.

The Governance Working Group is chaired by Kees Neggers (SURFnet) and its secretary is TERENA's Karel Vietsch. The group had a short meeting at the LambdaGrid Workshop in September, in which Karel Vietsch presented a report on the secretariat work in the first half of the year, and the secretariat budget for 2006 was approved.

### 3. Finances 2005

The costs incurred by the GLIF secretariat in the year 2005 are shown in the following table:

	Budget 2005		Actual 2005	
	man-months	euro	man-months	euro
Website and mailing lists				
manpower	2.00	8,531	1.45	9,016
Secretariat GLIF working groups				
manpower	3.00	24,821	2.65	18,578
travel and subsistence		5,000		9,533
phone meeting costs		0		126
Organisation annual GLIF workshop				
manpower	1.00	8,315	0.33	3,636
Public Relations and outreach				
manpower	0.50	2,395	0.00	0
printing costs		1,000		0
Overheads / indirect costs		35,250		24,337
<b>TOTAL COSTS</b>	<b>6.50</b>	<b>85,312</b>	<b>4.44</b>	<b>65,226</b>

Income was as follows:

	Actual 2005 (euro)
AARNet	2,000
CANARIE	5,000
CERN	3,000
CESNET	10,000
Indiana University	2,000
Internet2 and NLR	10,000
JISC / UKERNA	10,000
NORDUnet	10,000
Northwestern University	1,226
SURFnet	10,000
University of California, San Diego	1,226
University of Amsterdam	2,500
University of Illinois at Chicago	1,226
TERENA (coverage of overhead costs)	24,337
<b>TOTAL INCOME</b>	<b>92,515</b>

The surplus of income over expenditure was therefore 27,289 euro. This amount has been used to cover the initial costs of the GLIF secretariat in 2006.

The creation of a new GLIF website and the expansion of that website has taken a bit less man-hours than expected. However, it turned out to be more effective to use higher qualified, and therefore more expensive, staff for part of this work, and consequently personnel costs were even slightly higher than budgeted. Effort to provide the secretariat functions of the working groups has been marginally smaller than budgeted, partly because the activity level (especially of the Control Plane Working Group) started to grow only in the second half of the year. By contrast, travel costs have been much higher than budgeted. This was caused by the additional working group meeting in Salt Lake City, and a meeting of key participants in the Working Group on Technical Issues that was held in Vancouver. Public Relations and outreach activities did not start yet during the year; a clearer view from the GLIF participants will need to be developed first on the messages that GLIF wants to bring and the target audiences.