

## **UKLIGHT Town Meeting**

**On 9<sup>th</sup> September 2004-07-21**

**At the National e-Science centre, Edinburgh**

<http://www.nesc.ac.uk/esi/events/457/>

**Last revision: 19-August-2004**

### **Draft Programme:**

#### **10.00 Coffee for 10.30 start**

- 10.30: Introduction & Motivation for UKLight  
[Peter Clarke, UCL & NeSC]
- 10.50: The UKLight and the UK R&D network facility  
[John Graham, Janet Operations Centre & Jeremy Sharp, UKERNA]
- 11.40: Existing UKLIGHT application areas I (20 mins each including questions)
  - o Computational Science in Reality Grid [t.b.a]
  - o e-Diamond remote medical imaging [Andrew Simpson, Comlab, U. of Oxford]
  - o Particle Physics & Radio Astronomy [Frank Saka, UCL]
- 12.45: Short general Q&A session (to prime lunch time discussions)

#### **Lunch 13.00-14.00**

- 14.00: The Optiputer & other Translight projects  
[Maxine Browne, EVL, University of Illinois at Chicago]
- 14.30: Existing UKLight application areas (II)
  - o 46Pak [Saleem Bhatti, UCL]
  - o MASTS (Measurement at all Scales in Time and Space) [t.b.a]
  - o Technology for using High Performance networks [ Robin Tasker, CCLRC ]

#### **Tea 15.30-15.50**

- 15.50: The plans of a UK Dark Fibre Infrastructure  
[Dimitra Simeonidou, Essex University]
- 16.15: Wrap up Q&A session & how to get involved  
[Chair t.b.a.]

**Finish: 17.00 at latest**

### **Purpose of the meeting**

The purpose of this town meeting is to promote the use of the new advanced network facility known as UKLight to as broad a range of application areas as possible.

UKLight is an advanced global network facility which provides the ability to interconnect collaborating sites around the world, and within the UK, with high capacity switched network circuits.

The facility is provided to enable and advance any application areas which can potentially develop “new ways of working” through the use of such connections. Further information is provided below which outlines what UKLight is and the types of project already using it.

It is emphasised that the facility is not just aimed at network research. It is intended that applications communities should be as broad as possible, ranging from any data or compute intensive science to art projects requiring high bandwidth remote visualisation.

In this town meeting we will:

- Describe what UKLight is and the capabilities it provides.
- Describe the broad aims of the facility.
- Describe some of the projects and sites which have already requested connections to the facility.
- Encourage attendees to consider if there is potential benefit to their community.
- Provide time for potential new users to discuss possible projects with current users.
- Indicate the routes users may use to establish projects and request connections.

All potential user communities are encouraged to attend.

## **Demos:**

## **Introductory Information to UKLight:**

Many research fields increasingly require data communications between remote sites in the multi-Gigabit/second range. Examples include Scientific data transport, Computational Science, Visualisation, Environmental Modelling and Medical applications requiring high volume remote imaging. Often these applications require connections between a well-defined and stable set of end-points, which must be sustained for hours or days, and/or have stringent constraints on the levels of service required from the network. Such characteristics are both difficult and costly to meet with traditional IP-based (packet-switched) networking, and these needs may be best addressed through the use of switched optical networks.

In recognition of this, several leading National Network organizations have created an international experimental testbed to pilot this new paradigm of networking. These

include as founding partners StarLight (<http://www.startap.net/starlight/>) in the USA, NetherLight in the Netherlands (<http://www.science.uva.nl/~delaat/optical>) and the Canadian academic network CANARIE (<http://www.canarie.ca/>).

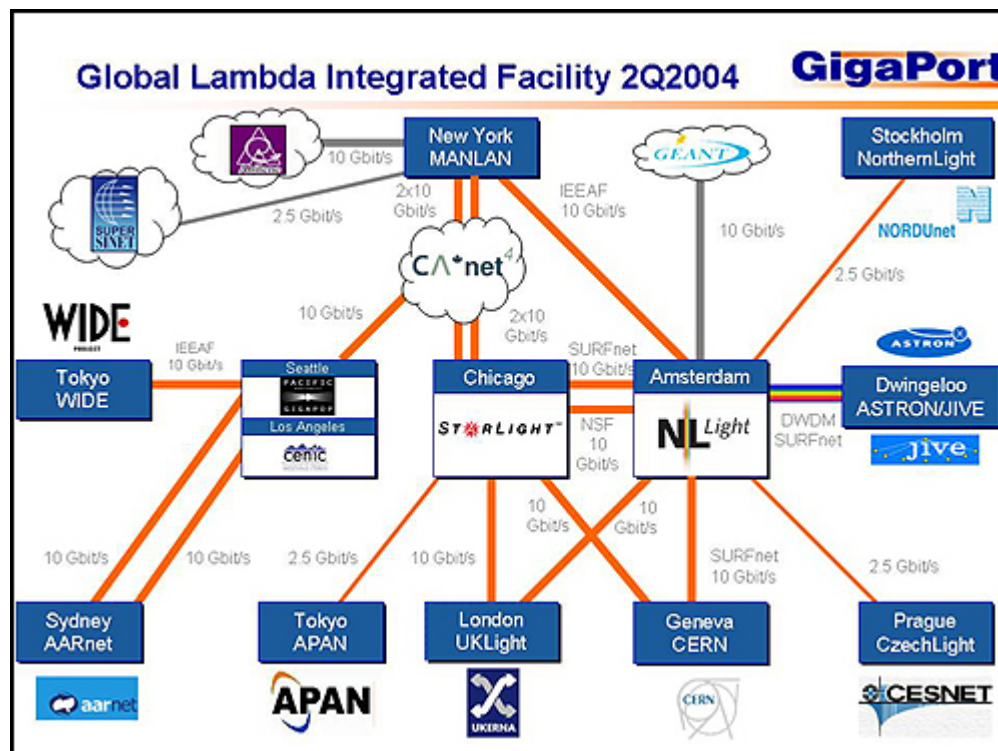
UKLight is the new facility which allows the UK to join this global initiative. The initiative was backed by the Joint Information Systems Committee (JISC) and funded via HEFCE.

### What is UKLight

UKLight comprises a hub in London, located at the University of London Computing Centre, with 10 Gbit/s connections to StarLight in Chicago and NetherLight in Amsterdam. These links can multiplexed to provide access to low-level switched circuits (e.g. Gigabit-Ethernet circuits) to collaborators in the rest of the world (provided they are themselves able to access the global testbed). Access to UKLight from institutions within the UK will be provided by an extended national development network alongside the SuperJANET production network. In the future there may also be a dark fibre testbed within the UK connecting institutes participating in optical component demonstrations.

UKLight (<http://www.ja.net/development/UKLight/index.html>) is managed by UKERNA (<http://www.ukerna.ac.uk/>) on behalf of the UK research and education community.

With the construction of UKLight, the UK joins the “Global Lambda Infrastructure Facility” (GLIF) [www.glif.is](http://www.glif.is). The picture below shows existing infrastructure, from which readers can get some idea of the connection capability to remote collaborators.



## **Who is UKLight for**

UKLight, including the national R&D network extension, is a facility which is provided to enable and advance all areas of research, development and other collaborative applications in all fields. The principal criterion for use is that the work to be undertaken should genuinely need dedicated or very high bandwidth switched connections, and that it would not be simply provided for by the existing IP based production network.

Data intensive applications projects can develop new ways of working based upon the ability to transport and manage data sets using scheduled “bandwidth on demand” services. Applications requiring dependable quality of service across long distances can be developed, including bandwidth-intensive remote visualisation uses. Network researchers will be able to develop both the control models and protocols needed to build scalable switched optical networks.

Some concrete examples of projects already starting are:

- (i) The Particle Physics Community has established 1 Gbit/s Ethernet circuits between the UK and the Fermilab Computer Centre in Chicago. These will be used to give physicists direct access to raw data sets, and to allow Simulated event production in the UK to be transported to Fermilab.
- (ii) The Radio Astronomy Community will be using circuits to the Netherlands to extend the capability of their very long baseline interferometry radio telescope programme.
- (iii) The Reality Grid project will establish persistent connections to the Teragrid in the USA for visualisation experiments.
- (iv) The e-Diamond project will pilot the use of Gigabit circuits to enable remote radiography stations to transport and view large mammography images.

In summary, any area of research and development which can develop new ways of working based upon an advanced global R&D network should consider the use of UKLight.

## **Further details**

Further details, including ways of requesting the use of UKLight can be found at the website run by UKERNA

<http://www.uklight.ac.uk/>

For further information please contact:

David Salmon, UKERNA, [d.salmon@ukerna.ac.uk](mailto:d.salmon@ukerna.ac.uk) (for connectivity and infrastructure questions)  
Peter Clarke, UCL & The National e-Science Centre, [clarke@hep.ucl.ac.uk](mailto:clarke@hep.ucl.ac.uk) (for general project applicability questions)