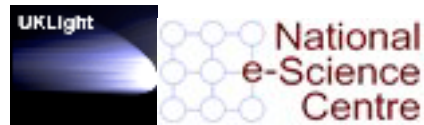




# The ESLEA Control Plane Software

A.C. Davenhall, P. Clarke and N. Pezzi



UKLight mini-workshop, All Hands Meeting  
19 September 2005

# The ESLEA Project

- ESLEA:
  - demonstrate use of circuit-switched networks in high-performance applications,
  - real applications using the network to do new science,
- Sub-projects in:
  - High-energy physics,
  - Radio astronomy,
  - RealityGrid; interactive simulation and modelling,
  - e-Health; medical applications.

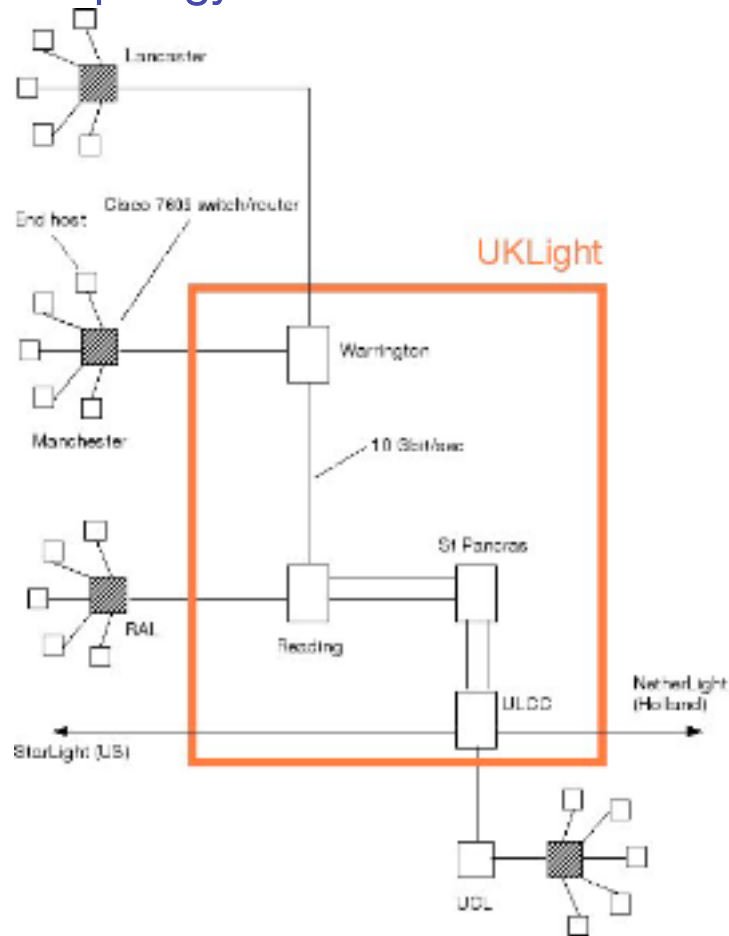
# Participating Groups

- CCLRC
  - Daresbury Lab; Rutherford Appleton Lab.
- National e-Science Centre
- University College London
  - Department of Chemistry; Department of Computer Science and Department of Physics and Astronomy.
- University of Lancaster
  - Department of Computing; Department of Physics.
- University of Manchester
  - Manchester Computing; School of Physics and Astronomy.
- University of Oxford
  - Computing Laboratory.

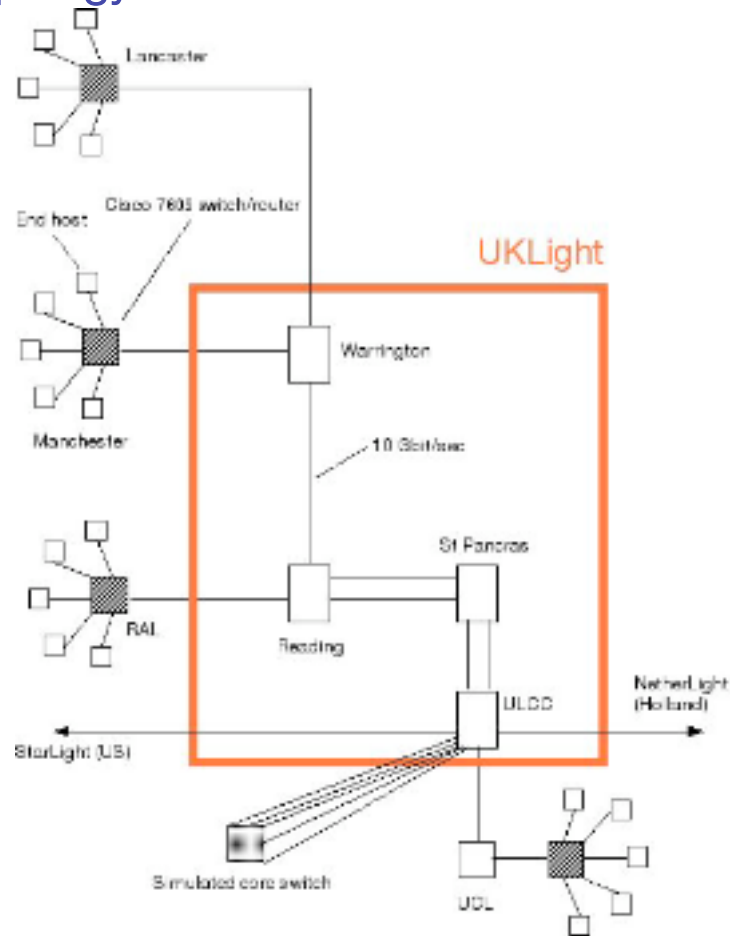
# The ESLEA Network

- uses the UKLight network,
- provides connections between the partner institutions
  - and to collaborators overseas,
- partly using quasi-permanent static circuits,
  - but will not be able to provide enough connections,
  - no switching within UKLight,
- so must provide the switching ourselves,
  - outside the core network,
  - this is the purpose of the Control Plane Software (CPS).

# Topology of the ESLEA Network



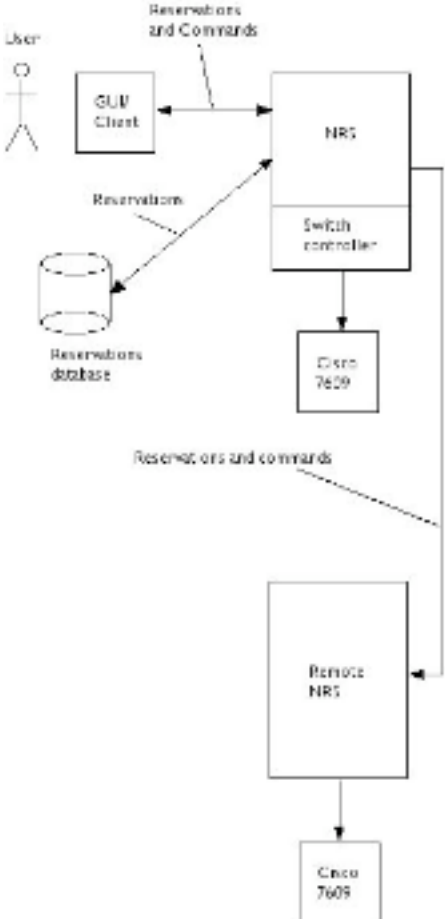
# Topology of the extended ESLEA Network



# Control Plane Software (CPS)

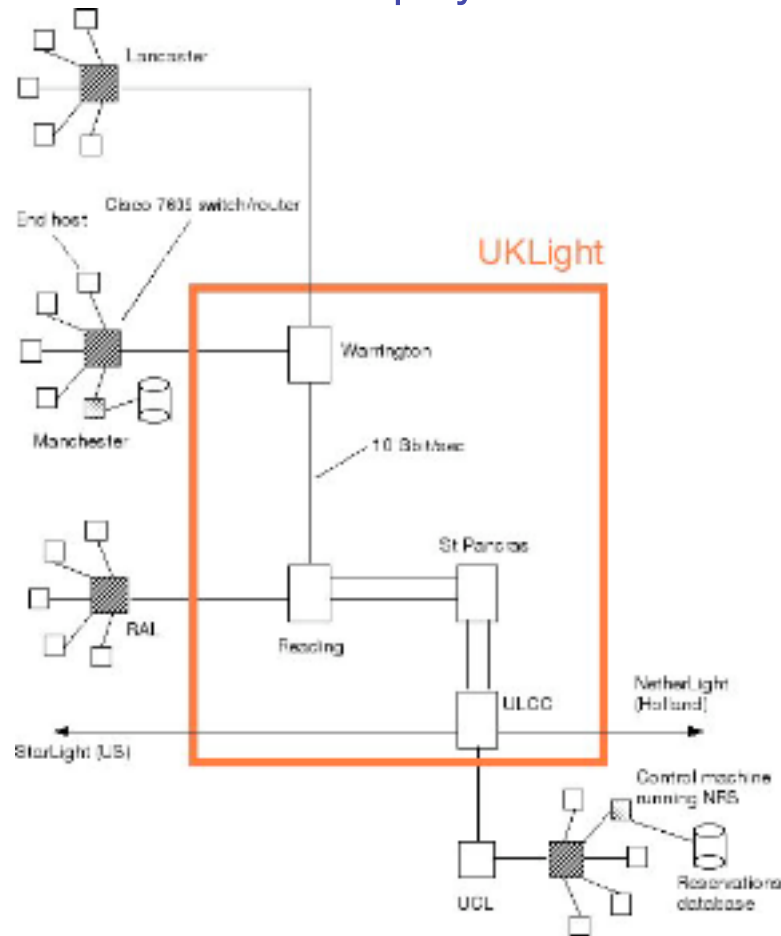
- initially just for configuring the Cisco 7609s,
- later add control of the simulated core switch,
- simple program to configure a 7609 in real-time,
- the main component is a reservation-based system,
  - user specifies the circuit in advance,
- not written from scratch,
  - modification of the NRS system developed by Saleem Bhatti *et al.* of UCL,
- written in Java.

# NRS Architecture

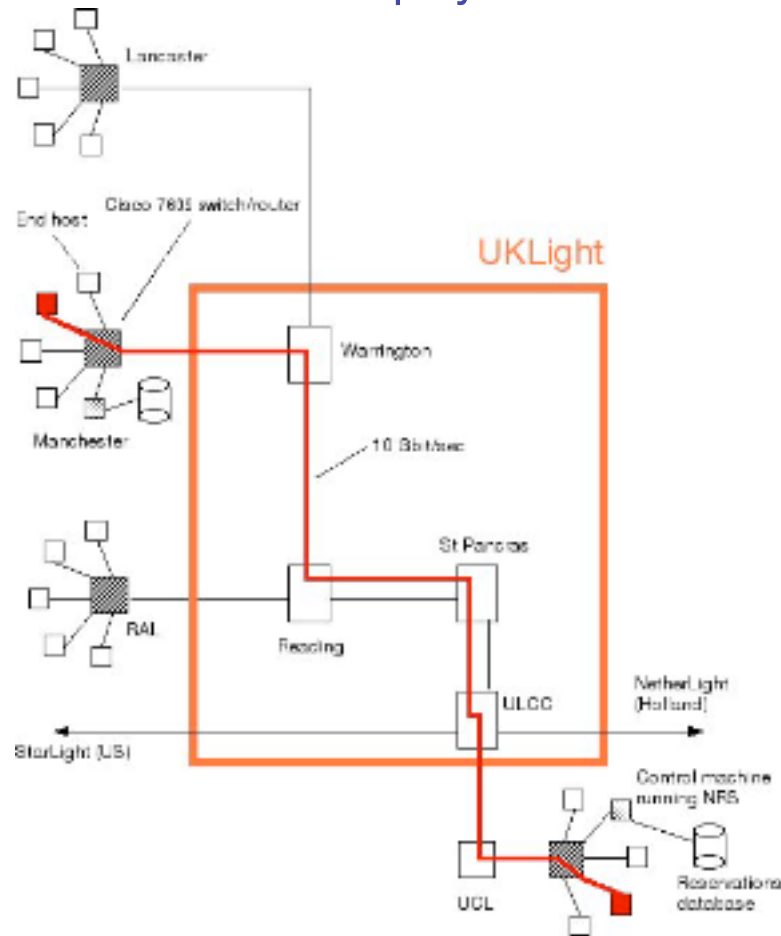




# NRS Deployment



# NRS Deployment



## Current Status

- a basic circuit-switching version of NRS is available now,
- some features are not yet available,
- this software will be demonstrated later in the conference.

## Future Plans

- anticipate deployment to ESLEA sites within the next six months
  - as dynamic switching becomes necessary due to increasing usage,
- add facilities to:
  - control the simulated core switch,
  - interface to peer networks overseas.



## Contact Information



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