



# University of HUDDERSFIELD

## University of Huddersfield Repository

James, Yvonne, Holmes, Violeta, Kureshi, Ibad, Gubb, D. and Liang, Shuo

Design of a new network infrastructure using RPC for the University of Huddersfield campus grid

### Original Citation

James, Yvonne, Holmes, Violeta, Kureshi, Ibad, Gubb, D. and Liang, Shuo (2012) Design of a new network infrastructure using RPC for the University of Huddersfield campus grid. In: Proceedings of The Queen's Diamond Jubilee Computing and Engineering Annual Researchers' Conference 2012: CEARC'12. University of Huddersfield, Huddersfield, p. 149. ISBN 978-1-86218-106-9

This version is available at <http://eprints.hud.ac.uk/id/eprint/13485/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: [E.mailbox@hud.ac.uk](mailto:E.mailbox@hud.ac.uk).

<http://eprints.hud.ac.uk/>

# DESIGN OF A NEW NETWORK INFRASTRUCTURE USING RPC FOR THE UNIVERSITY OF HUDDERSFIELD CAMPUS GRID

Y. James, Dr V Holmes, I. Kureshi, D. Gubb, S. Liang

University of Huddersfield, Queensgate, Huddersfield HD1 3DH, UK

## ABSTRACT

The University of Huddersfield campus grid QGG and its computer clusters provide key services for resolution of complex calculations and research purposes. These clusters are distributed across the campus and linked via a network. The addition of new equipment has meant that further clusters will be installed to provide additional processing power which will further support a growing research community at the University of Huddersfield.

This poster presents a new network design and implementation, using Routing Control Platform (RPC) which will enable more efficient load balancing and faster data transfer particularly between the head node and the network area storage (NAS).

Current routing protocols place overheads on the network and often require repeated advertising to ensure that network connectivity is maintained. Network engineers rely on protocols to build an accurate network topology containing connection information – neighbors, routes and networks. Routing Control Platform (RCP) offers the potential to improve this aspect by decreasing the time taken to undertake the discovery process and update the topology information.

In addition, the speed of data transmission through a switched network will be considered. Switched networks offer opportunities to review the effects of bufferless and buffered switches in relation to various protocol stacks and interaction with other internal and external networks.

The mechanisms to increase the speed of data transfer will be examined through the setup of the clusters, including the network backbone and interconnections.

New network infrastructure for the University of Huddersfield campus grid QGG will be proposed, to aid load balancing and data throughput allowing for a more effective and efficient use of the campus grid infrastructure.

**Keywords** computer networks, routing, data transmission, device discovery, data plane, topology, packets, planes, protocols, switching