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

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## 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