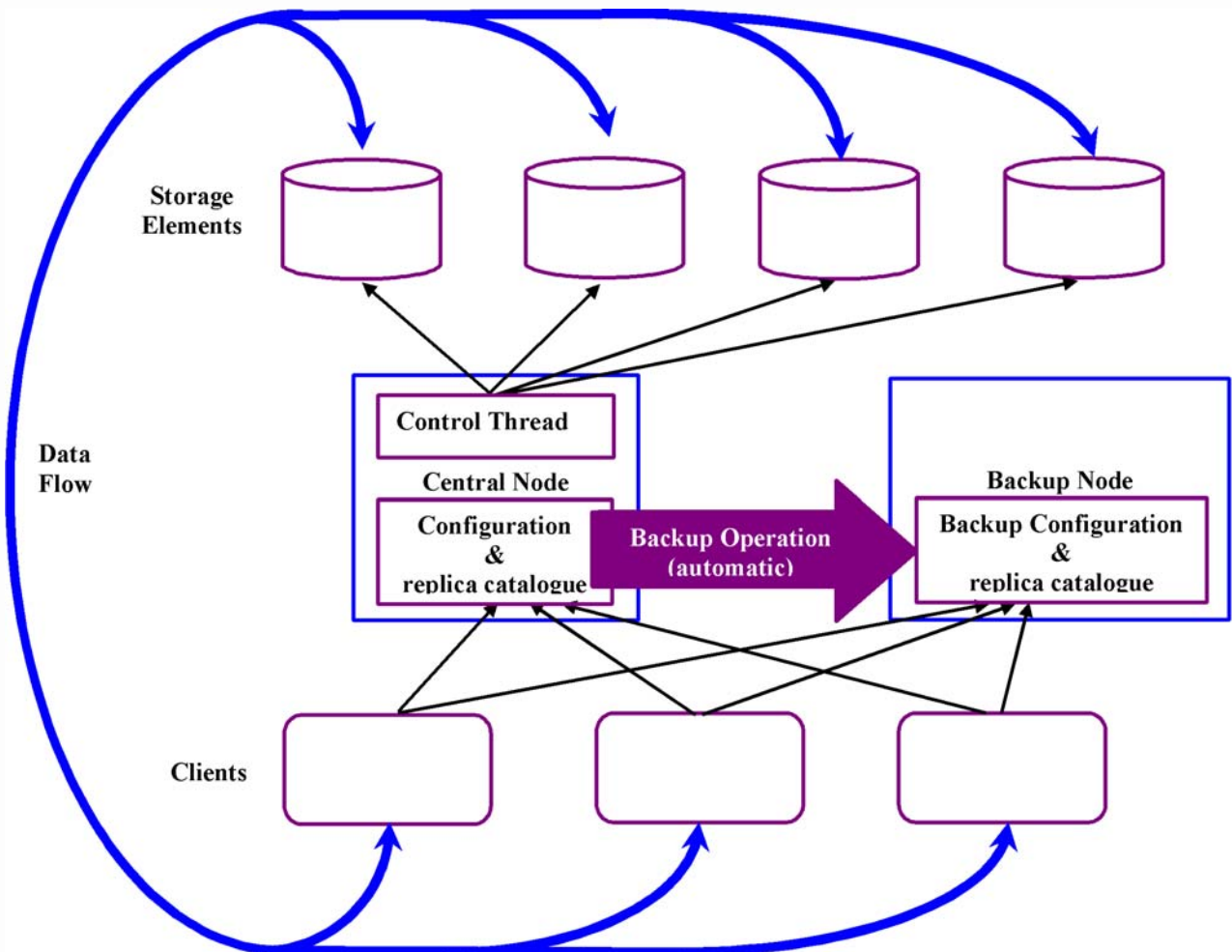


# QCDGrid

## Quantum Chromodynamics

### QCDGrid: A grid resource for Quantum Chromodynamics

Quantum Chromodynamics (QCD) is an application area that requires access to large supercomputing resources and generates huge amounts of raw data.



UKQCD is a group of geographically dispersed theoretical QCD scientists in the UK that currently stores and requires access to around five terabytes of data, a figure that is expected to grow dramatically as the collaborations purpose built HPC system, QCDOC, comes on line in 2004.

This data is stored on QCDGrid, a data grid currently composed of six storage elements at four separate UK sites: Edinburgh, Liverpool, Swansea and RAL.

## Data Management

The QCDGrid software builds on the Globus toolkit to create a robust multi-site data management system.

This system has a central control thread running on one of the storage elements which constantly scans the grid, making sure that all of the storage elements are working and that all the files are stored in at least two suitable locations.

In this way, QCDGrid has the ability to cope with the loss of an entire site without losing any data.

## Metadata

Users can access files on the data grid directly, however to simplify the procedure QCDGrid has an XML metadata catalogue, which stores data that describes the characteristics of the raw data.

This allows users to search and retrieve files on the grid based on certain characteristics, without having to know the file name or its physical location on the grid.

Users can access the data grid through simple command line tools, or through the QCD browser, which is based on the OGSA-DAI browser.

## Project Funding

QCDGrid is part of the GridPP project, a PPARC funded collaboration of Particle Physicists and Computing Scientists from the UK and CERN, who are building a Grid for Particle Physics.

## Project Members

James Perry, Andrew Jackson, Lorna Smith, Stephen Booth

## Further Information

Further information about QCDGrid can be found at:

[http://www.epcc.ed.ac.uk/computing/research\\_activities/grid/qcdgrid/](http://www.epcc.ed.ac.uk/computing/research_activities/grid/qcdgrid/)

