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Developing new GridPP user communities: a case study with CERN@school

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We present an account of the GridPP Collaboration's efforts to engage with and build up a new community of grid users for the CERN@school project. CERN@school is a research programme initiated at the Simon Langton Grammar School for Boys in Canterbury, UK, that brings detector technology developed by the Medipix Collaboration into schools. The fundamental premise of CERN@school is that students should drive their own research programmes and pursue their own lines of scientific enquiry. However, without access to computing resources capable of storing, processing and sharing the data collected with the CERN@school equipment, this goal becomes difficult to realise. As part of its commitment to engaging new communities with grid technologies, members of GridPP have worked with members of the Langton Star Centre to capture the data storage, processing and access requirements of the CERN@school scientific programme. The fruits of this collaboration, as well as the lessons learned and plans for the future, are reported in this session for wider dissemination and discussion.

Wider impact and conclusions

School students - and, indeed, the schools themselves - present a unique set of challenges in terms of the requirements of the users and the environments in which they operate. However, many of the techniques and lessons learned from the process will undoubtedly apply to engaging other non-High Energy Physics (HEP) specialists with grid resources, such as Small to Medium Enterprises (SMEs). It is hoped that by sharing these with the community, common tools and methodologies could be developed to enable many more users to engage with and harness grid technologies for a wider societal benefit.

URL(s) for further info

http://cernatschool.web.cern.ch
http://www.gridpp.ac.uk
http://www.thelangton.org.uk
http://medipix.web.cern.ch

Description of work

The primary sources of data for the CERN@school scientific programme are the Timepix hybrid silicon pixel detectors based in schools around the UK and the student-designed, satellite-based Langton Ultimate Cosmic ray Intensity Detector (LUCID) experiment. The schools-based detectors are operated by students to make background radiation measurements for the Radiation Around You (RAY) project. LUCID will make measurements of the space radiation environment in Low Earth Orbit (LEO) when it launches aboard Surrey Satellite Technology Limited's (SSTL's) TechDemoSat-1 in Q2 2014. Both datasets require that the data are uploaded, processed, stored and shared by members of the CERN@school Collaboration, while simulations of individual Timepix detectors and LUCID with GEANT4 are also needed. The grid infrastructure developed by GridPP for handling data from the Large Hadron Collider (LHC) and other particle physics projects was identified as being more than capable of meeting these demands; the challenge lay in making the technologies accessible to students based in schools. This session will provide an account of how the cernatschool.org Virtual Organisation was established, how the data and metadata requirements were captured and met, how the collaboration's software was managed using the CernVM File System (CVMFS), and how, ultimately, a new, fully-functioning community of grid users was born.

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