



Contribution ID: 62

Type: oral presentation

CASTOR2: design and development of a scalable architecture for a hierarchical storage system at CERN

Monday, September 3, 2007 4:50 PM (20 minutes)

In this paper we present the architecture design of the CERN Advanced Storage system (CASTOR) and its new disk cache management layer (CASTOR2).

Mass storage systems at CERN have evolved over time to meet growing requirements, both in terms of scalability and fault resiliency. CASTOR2 has been designed as a Grid-capable storage resource sharing facility, with a database-centric architecture, to keep the whole status of the system, and stateless daemons. We present an overview of the software architecture upon which CASTOR2 daemons are built, and the UML based software process that is in place to speed up and automate code development. We also demonstrate how external policies may be plugged into the framework to ease the operation of a CASTOR2 system, which is now being used in production at CERN as well as at a number of Tier1 sites since more than one year.

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Session Classification: Computer facilities, production grids and networking

Track Classification: Computer facilities, production grids and networking