



Contribution ID: 350

Type: **Parallel**

dCache: implementing a high-end NFSv4.1 service using a Java NIO framework

Tuesday 22 May 2012 16:35 (25 minutes)

dCache is a high performance scalable storage system widely used by HEP community. In addition to set of home grown protocols we also provide industry standard access mechanisms like WebDAV and NFSv4.1. This support places dCache as a direct competitor to commercial solutions. Nevertheless conforming to a protocol is not enough; our implementations must perform comparably or even better than commercial systems. To achieve this, dCache uses two high-end IO frameworks from well know application servers: GlassFish and JBoss.

This presentation describes how we implemented an rfc1831 and rfc2203 compliant ONC RPC (Sun RPC) service based on the Grizzly NIO framework, part of the GlassFish application server. This ONC RPC service is the key component of dCache's NFSv4.1 implementation, but is independent of dCache and available for other projects. We will also show some details of dCache NFS v4.1 implementations, describe some of the Java NIO techniques used and, finally, present details of our performance evaluation.

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Session Classification: Software Engineering, Data Stores and Databases

Track Classification: Software Engineering, Data Stores and Databases (track 5)