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## **XRootd, disk-based, caching-proxy for optimization of data-access, data-placement and data-replication**

*Monday, October 14, 2013 3:00 PM (45 minutes)*

Following the smashing success of XRootd-based USCMS data-federation, AAA project investigated extensions of the federation architecture by developing two sample implementations of an XRootd, disk-based, caching-proxy. The first one simply starts fetching a whole file as soon as a file-open request is received and is suitable when completely random file access is expected or it is already known that a whole file be read. The second implementation supports on-demand downloading of partial files. Extensions to the Hadoop file-system have been developed to allow for an immediate fallback to network access when local HDFS storage fails to provide the requested block. Tools needed to analyze and to tweak block replication factors and to inject downloaded blocks into a running HDFS installation have also been developed. Both cache implementations are in operation at UCSD and several tests were also performed at UNL and UW-M. Operational experience and applications to automatic storage healing and opportunistic computing, especially on T3 sites and campus resources, will be discussed.

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