ATLAS DQ2 Deletion Service

While deletion might seem a typical operation on the first sight, for a complex distributed system like ATLAS DDM, it is far from trivial. ATLAS DQ2 deletion service has been built as a part of ATLAS DDM system, for serving deletion requests across more than 100 ATLAS sites. It is a distributed service which interacts with GRID middleware and the DDM catalogs.

### Features

**Productivity:** To achieve performance, Deletion Agent is designed as multithread application. Each site served own copy of resolver, catalog and storage cleaner. For improving interaction with components, a bulk operation is implemented, and size of chunks configurable for sites and endpoints.

**Load throttling:** Since Deletion service is highly aggressive for all the affected services, (LFC servers, storage systems, DB backend) the configurable delays are implemented as well. It give possibility to determine different deletion strategy for different sites.

‘Grace period’: For safety reasons and to have some insurance in case of the human mistake, a grace period has been implemented in such a way that deletion requests in grace period can be easy canceled.

### Deletion Monitoring

Deletion monitoring is a web application based on the Django framework, which provides live graphical and statistical reports about deletion process at ATLAS sites. The information is available at the cloud/site/endpoint levels. It allows to select statistics at different periods. In addition to graphical reports, monitoring generates table with info about waiting/resolved/queued/deleted datasets, amount of files deleted, GBs deleted and amount of errors. Table is expandable. There are dataset and error browsers. The information is generated via jQuery AJAX calls and uses BBQ plug-in to maintain history and bookmarks.

### Statistics

Deletion Service serves more than 100 of sites with more than 700 endpoints. In usual operation it deletes 2-3.5M of files per day which correspond to 250 - 300 Tb. per day. During deletion campaigns, when deletion was carried out on most sites, deletion rate achieved more than 6M of files per day, reaching up to 300k files per hour.

http://bourricot.cern.ch/dq2/deletion/

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