

Debugging FTS transfers and potential improvements

Steven Murray on behalf of the CERN FTS team Pre-GDB on operations efforts Thursday 24th February 2022

What The File Transfer Service (FTS) does

- Queues client requests to copy files from one storage end point to another.
- Schedules and executes file transfers in order to maximise the throughput between different source and destination end points.
- Hides the complexity of transfers involving various storage implementations and multiple protocols across the Grid.
- Provides a "web monitoring" interface to allow end users to see the status of their transfers and drill down to the transfer logs.
- Sends monitoring messages to ActiveMQ and ultimately to the CERN monitoring infrastructure.



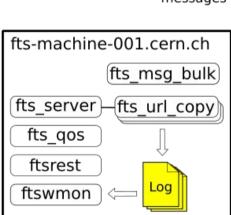
The architecture of an FTS instance

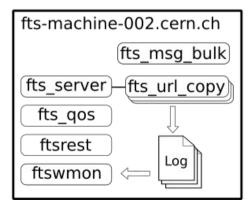
The fts_server process schedules and spawns fts_url_copy processes which execute disk file transfers.

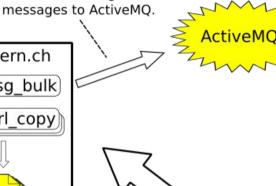
The fts_qos process controls tape operations.

The ftsrest process _____receives and queues transfer requests.

The ftswmon process displays the FTS web monitoring pages which allows access to the logs.

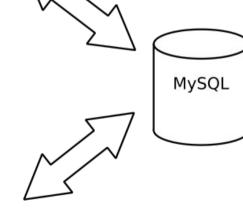






The fts msg bulk process

sends monitoring



The Operational Intelligence system could subscribe to ActiveMQ.



How FTS could benefit from operation intelligence

- Anomalies could be automatically and continuously detected within the noise of the day to day running of file transfers.
- End users and FTS operators would ideally be able to visit a web service that would indicate the current anomalies detected for a given Virtual Organisation (VO), storage end point or transfer link.
- Possible processing and error classification into Source SE / Destination SE or middleware (FTS).



Example output

Conference: CHEP 2021

Title: Preparing distributed computing operations for the HLLHC era with Operational Intelligence

Author: Panos Paparrigopoulos

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Anomaly detection on FTS transfers

