WP2 Fortnightly Meeting - Datalake Status
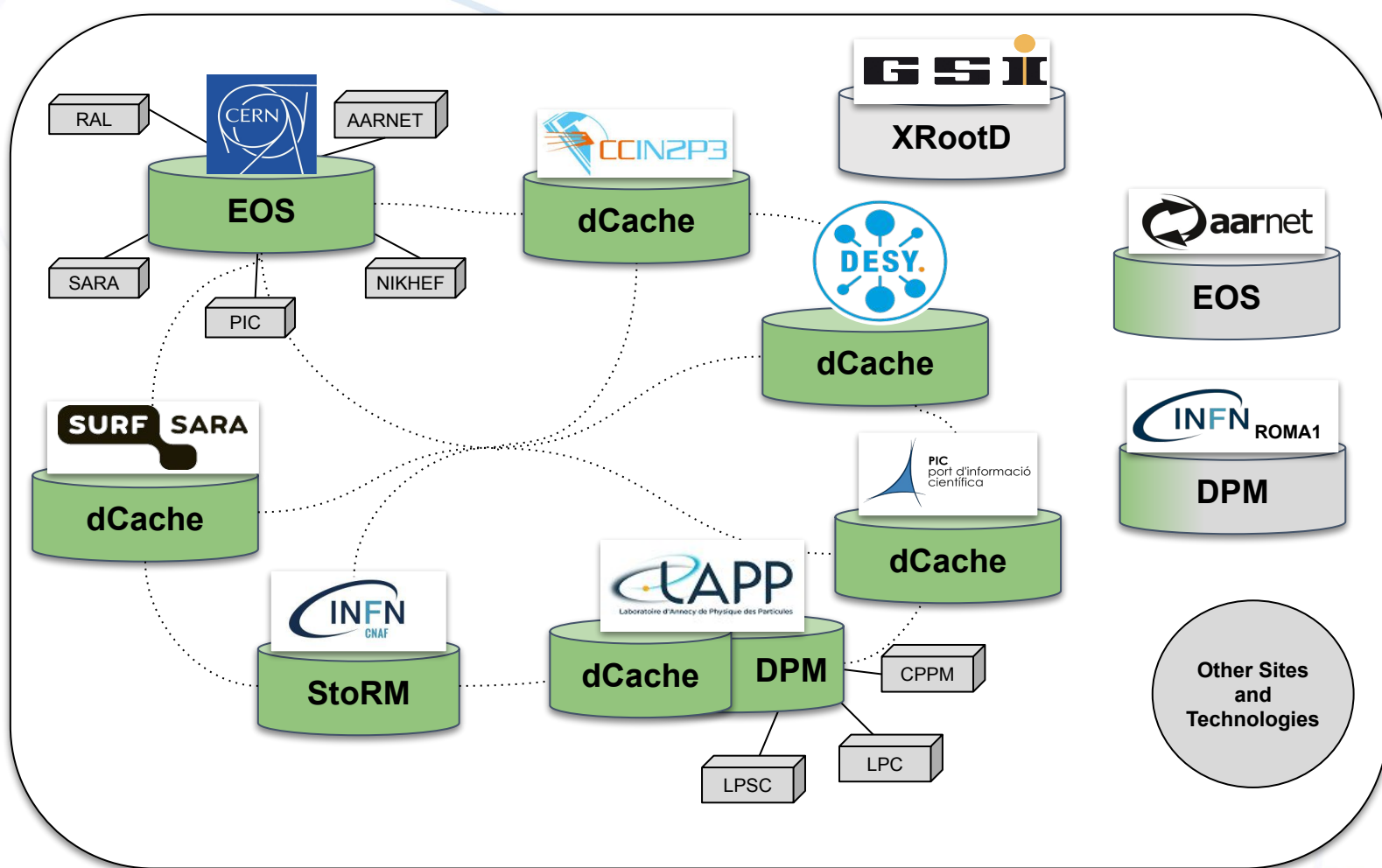
Aris Fkiaras

CERN

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Overview

- Datalake Status

- Where to find latest information

- Ways to access the datalake

- Monitoring solutions in place and feature plans

aristeidis.fkiaras@cern.ch

"Realtime" detailed Status
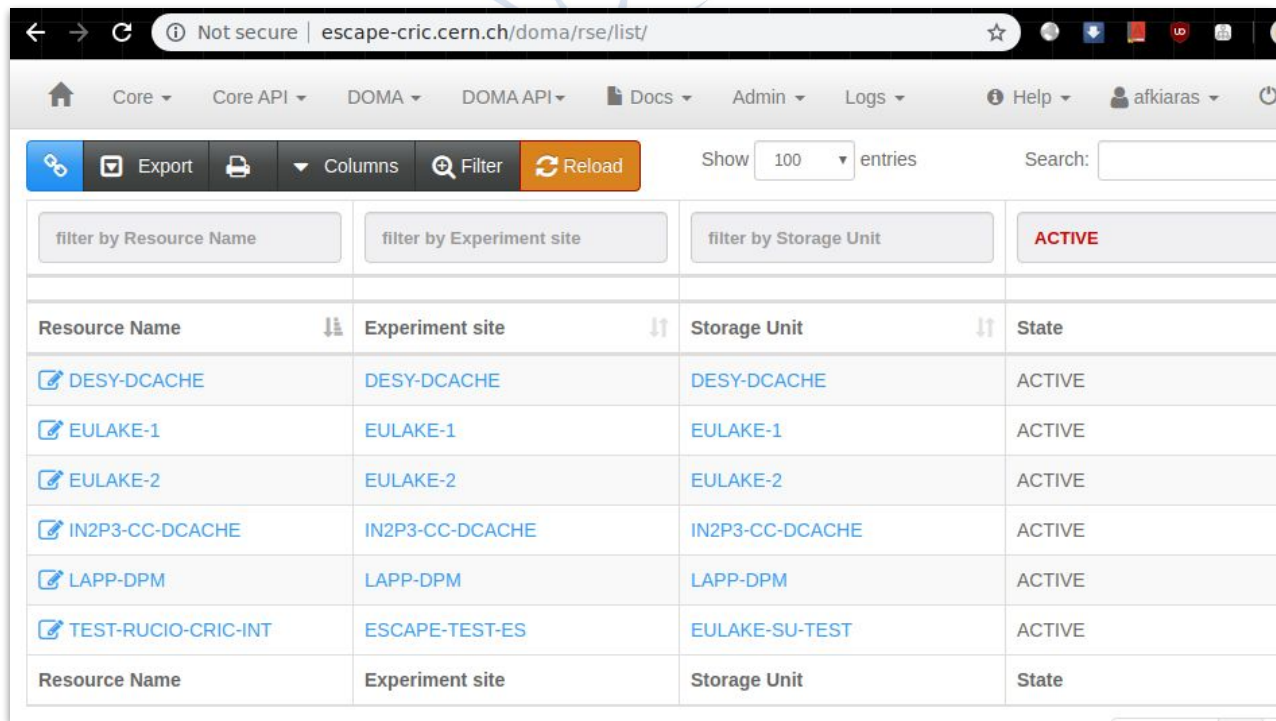
- Available on the official ESCAPE wiki
  https://wiki.escape2020.de/index.php/WP2_-_DIOS_-_Datalake_Status
- Please update missing or invalid information

Institute	Technology	Version	Quota	XROOT	HTTPS	GSIFTP	ESCAPE VO enabled (X509)	Token based auth/z
CERN	EOS	?	?	YES	YES	YES	WiP	NO
LAPP	DPM	?	?	YES	YES	YES	WiP	?
SURFsara	dCache	?	?	YES	YES	YES	YES	?
LAPP	dCache	?	?	NO	YES (http)	NO	YES	?
GSI	xRootD	?	?	?	?	?	?	?
INFN-CNAF	StoRM	?	?	NO	YES	NO	YES	?
INFN-ROMA1	DPM	?	?	WiP	WiP	WiP	WiP	?
DESY	dCache	?	?	YES	YES	YES	YES	?
CC-IN2P3	dCache	?	60 TB	YES	YES	YES	YES	?

CRIC: Information System

- Started populating with ESCAPE storage details

- At the moment stores only static information (protocols, endpoints, ports)

- Will work on the synchronization with Rucio during the Rucio Coding Camp (15-17 Oct)

aristeidis.fkiaras@cern.ch

Rucio client

- Accessing the datalake using the Rucio client

```
(rucio) [afkiaras@lxplus761 postgres]$ rucio upload hello_wp2_meeting --rse PIC-DCACHE --scope testing
2019-10-09 08:59:44,125 INFO     Preparing upload for file hello_wp2_meeting
2019-10-09 08:59:44,145 INFO     File DID already exists
2019-10-09 08:59:44,330 INFO     Successfully added replica in Rucio catalogue at PIC-DCACHE
2019-10-09 08:59:44,596 INFO     Trying upload with davs to PIC-DCACHE
2019-10-09 08:59:45,593 INFO     Successfully uploaded file hello_wp2_meeting
```

- Instructions on how to set up the Rucio client
  https://rucio.readthedocs.io/en/latest/installing_clients.html

- Features:
  - Upload/Download files
  - Add Rucio Rules (Then Rucio triggers FTS transfers to satisfy those rules)
  - Configure the datalake (rucio-admin client)
  - ….

aristeidis.fkiaras@cern.ch

Rucio WEB-UI

- Enabled features:
  - Monitor transfer status
  - Add new Rules
  - Download files
  - Monitor user quota per RSE

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Functional tests of the Datalake

- Cron job running every half hour

- Uses the Rucio Client

- For each SITE in the datalake:

  - Creates a unique file (10MB atm)
  - Uploads the file using the Rucio Client
    - File is uploaded to the site
    - File is registered on Rucio catalogue
  - Adds Rucio rules requesting that file to exist on all other sites as well
  - Rucio daemons notice the Rules and send requests to FTS
  - FTS executes transfers using Third Party Copy
  - Rucio periodically checks FTS and updates catalogue accordingly

aristeidis.fkiaras@cern.ch

FTS Dashboard

- Realtime monitoring

- Maximum 6 hours of transfers

- Can get detailed transfer logs

https://fts3-pilot.cern.ch:8449/fts3/ftsmon/#/?vo=escape&source_se=&dest_se=&time_window=6

## Overview

Showing 1 to 44 out of 44 from the last 6 hours

First | Previous | 1 | Next | Last

Source	Destination	VO	Submitte	Activ	Staging	S.Acti	Finishe	Faile	Cance	Rate (last 1h)	Thr.
+ root://ccdcalitest10.in2p3.fr	root://lobster10.grid.surfsara.nl	escap	-	2	-	-	-	-	-	-	-
+ root://eulake.cern.ch	root://lobster10.grid.surfsara.nl	escap	-	1	-	-	-	-	-	-	-
+ davs://door05.pic.es	davs://xfer.cr.cnaf.infn.it	escap	-	1	-	-	3	15	-	16.67 %	-
+ davs://dcache-door-doma01.desy.de	davs://door05.pic.es	escap	-	1	-	-	5	43	-	10.42 %	NaN MB/s
+ davs://door05.pic.es	davs://dcache-door-doma01.desy.de	escap	-	1	-	-	5	14	-	26.32 %	-
+ root://xrootd.pic.es	root://lobster10.grid.surfsara.nl	escap	-	1	-	-	-	-	-	-	-
+ davs://eoseulakehttp.cern.ch	davs://xfer.cr.cnaf.infn.it	escap	-	1	-	-	28	1	-	96.55 %	0.03 MB/s
+ root://eulake.cern.ch	root://ccdcalitest10.in2p3.fr	escap	-	-	-	-	-	2	-	0.00 %	NaN MB/s
+ davs://dcache-door-doma01.desy.de	davs://eoseulakehttp.cern.ch	escap	-	-	-	-	2	-	-	100.00 %	NaN MB/s
+ davs://dcache-door-doma01.desy.de	davs://webdav.grid.sara.nl	escap	-	-	-	-	7	-	-	0.00 %	NaN MB/s
+ davs://eoseulakehttp.cern.ch	davs://webdav.grid.sara.nl	escap	-	-	-	-	-	8	-	0.00 %	NaN MB/s
+ root://xrootd.pic.es	root://ccdcalitest10.in2p3.fr	escap	-	-	-	-	-	1	-	0.00 %	NaN MB/s
+ davs://dcache-door-doma01.desy.de	davs://ccdcalitest10.in2p3.fr	escap	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ gsiftp://dcache-door-doma01.desy.de	gsiftp://ccdcalitest10.in2p3.fr	escap	-	-	-	-	15	-	-	100.00 %	NaN MB/s
+ root://eulake.cern.ch	root://eulake.cern.ch	escap	-	-	-	-	2	-	-	100.00 %	NaN MB/s
+ davs://eoseulakehttp.cern.ch	davs://door05.pic.es	escap	-	-	-	-	18	77	-	18.95 %	0.01 MB/s
+ gsiftp://eulakeftp.cern.ch	gsiftp://ccdcalitest10.in2p3.fr	escap	-	-	-	-	26	-	-	100.00 %	0.07 MB/s
+ davs://eoseulakehttp.cern.ch	davs://dcache-door-doma01.desy.de	escap	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ davs://eoseulakehttp.cern.ch	davs://ccdcalitest10.in2p3.fr	escap	-	-	-	-	2	-	-	100.00 %	NaN MB/s

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FTS Monitoring

- Official FTS Monitoring dashboards on CERN-Monit

- Stores information long term

- Managed by FTS team thus can not customize it a lot for ESCAPE needs

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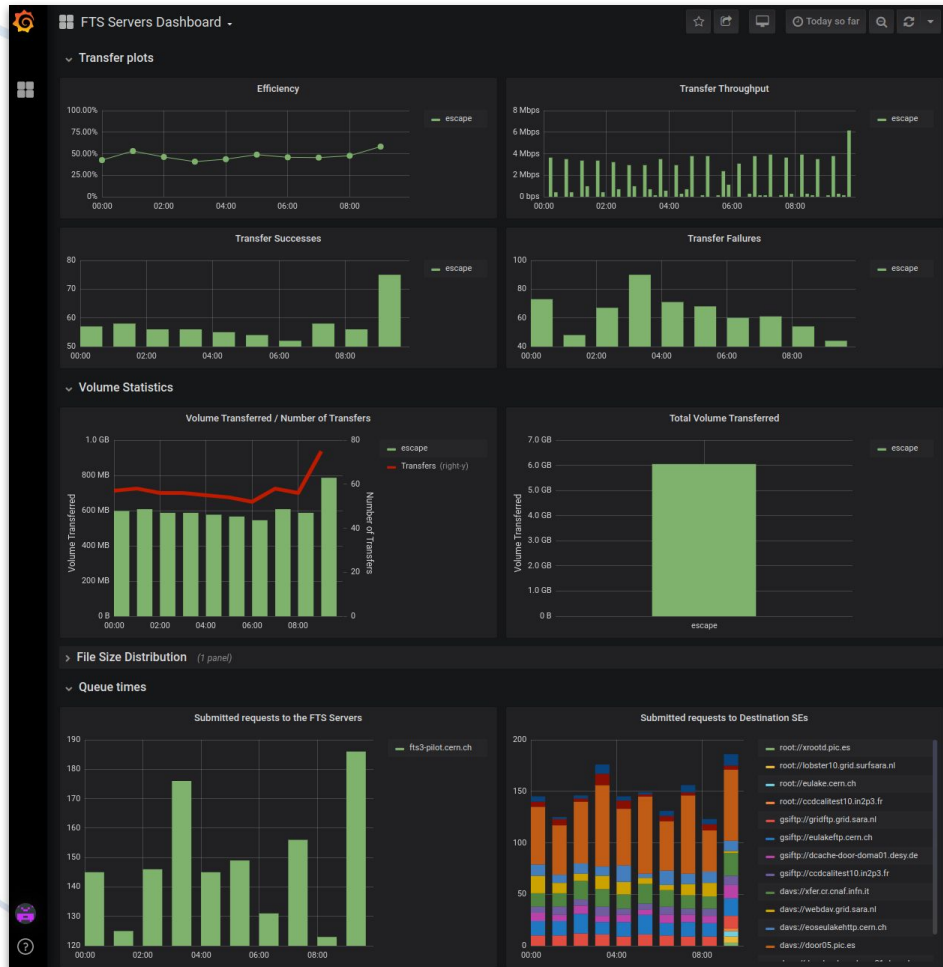
Custom solution on Elastic Stack

- Collects information coming from Rucio
  - FTS transfer status events
  - Requests by users like dataset deletion
  - Server logs
- Customizable since it is managed by us
- Not that stable or performant

Monitoring plans

- Implement a matrix showing the results of the functional tests
  - Involving all partner sites
    - All storage flavours represented (dCache, DPM, STORM, EOS and xrootd)
    - Mixed protocol scenario (xrootd, http and gsiftp) but http enabled everywhere
- Collect information of other datalake components
  - Xcache, rucio client traces, rucio events
- Visualise everything in a common Monitoring Dashboard
  - Grafana on CERN-Monit?

aristeidis.fkiaras@cern.ch

Thank you!

Comments?

Questions?

aristeidis.fkiaras@cern.ch

Backup slides

FTS zoom