



Globus retirement considerations

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Maarten Litmaath
CERN

v1.0

Introduction

- A Globus retirement timeline discussion was prompted by OSG plans
 - Final OSG release dependent on Globus to be retired by Jan 2022
- The remaining relevant parts of Globus and a few related products are currently being maintained by the Grid Community Forum, with contributions from several partners
 - EGI, particularly NIKHEF
 - OSG, particularly U Wisconsin-Madison for builds and releases
 - NorduGrid, particularly Uppsala
 - HPC Center Stuttgart
 - ...
- The Grid CF will be strongly affected when OSG efforts are no longer available as of 2022
- Technical details on Globus usage are being collected here

Currently supported components

- GSI
 - To deal with X509 in many products (see next pages)
 - A critical dependency of the other components
- GridFTP
 - Work ongoing in DOMA TPC WG to phase out the GridFTP *protocol* in favor of Xrootd and WebDAV in the course of 2021
 - Also used for job submissions to ARC and CREAM
- MyProxy
 - Critical for most if not all experiments
 - And for the new AAI while X509/VOMS legacy services still need to be supported!
- GSI-OpenSSH
 - Critical for WLCG VOBOXes, particularly for ALICE
- UberFTP
 - In WLCG only used via CREAM, as far as we know

Development aspects

- Currently the code is mostly stable
- Some fixes may be needed for bugs e.g. encountered on CentOS 8
- The biggest concern probably is the missing support for TLS v1.3 in GSI
 - SSL/TLS transitions have typically been dictated by external circumstances not easily planned for
 - Significant development and debugging efforts might be required not only from experts in GSI code, but also from products it interacts with

Affected external MW (1)

- ARC
 - The GridFTP interface already has HTTPS alternatives (EMI Execution Service, REST)
- CREAM
 - Being phased out by Dec this year
- DPM
 - No problem expected to eject Globus dependencies eventually
- FTS
 - Globus dependencies mainly through GFAL2
- GFAL2
 - Only SRM and GridFTP plugins depend on Globus
- HTCondor
 - Job submission to ARC (and CREAM) depends on GridFTP and GSI

Affected external MW (2)

- LCMAPS (AuthZ plugin framework)
 - A (potential) dependency of various products
 - ARC (and CREAM)
 - Globus GridFTP server, GSI-OpenSSH
 - For VOMS mappings
 - XRootD
 - OSG, (US)ATLAS, (US)CMS and GridPP appear to depend on it
 - Others?
- StoRM
 - SRM frontend (needed for tape at CNAF) currently depends on CGSI-gSOAP and Globus
- New AAI
 - Mind: initially it is “only” for the 99% of ordinary users and mostly geared toward data access and transfers – for other use cases certificates may be needed (behind the scenes) quite a bit longer
 - RCauth online CA depends on MyProxy
 - CILogon ditto

Experiment dependencies

- ALICE
 - MyProxy and GSI-OpenSSH are needed for (WLCG) VOBOX operations at most sites
- ATLAS
 - PanDA depends on MyProxy
 - Harvester: Condor-G job submission to ARC
 - Rucio:
 - No direct dependencies
 - GlobusOnline: optional transfer tool
 - dCache tape access via SRM → GFAL

Experiment dependencies

- CMS
 - X509 handling in various places may currently rely on GSI (to be further looked into)
 - CRAB depends on MyProxy
 - Several production services inside CMSWEB also depend on MyProxy
 - Rucio: see ATLAS details
- LHCb
 - DIRAC has no direct dependency
 - MyProxy?

Other communities

- WLCG sites need to support other communities that may not all be able to move to tokens on the same timescale as WLCG
- Sites may thus need to run GSI-based services for a while longer anyway
 - GridFTP (and SRM) could already be replaced with Xrootd and/or WebDAV
 - Both are supported by GFAL2 (and FTS)
- Such services then would still need to be supported
 - Possibly coordinated through EGI / EOSC
- For example, NIKHEF can keep investing some effort while Globus / GSI remains important to *its* communities
 - Funded partly e.g. through EOSC for RCauth
 - But the end of OSG contributions will be a big loss!

Conclusions

- It looks possible for WLCG dependencies on GridFTP and SRM to have been removed by the end of 2021
 - But they may well be needed by other communities still
- For GSI the situation looks a lot less rosy
 - Many direct and indirect critical dependencies
 - Particularly through MyProxy
- It probably would be very expensive to try and remove such dependencies everywhere, while we have not fully moved to tokens
- It would seem best to accept we need to maintain GSI, MyProxy and GSI-OpenSSH while we still need to use X509 in some areas
- The situation should be reassessed next year