Fermilab U.S. DEPARTMENT OF ENERGY | Office of Science

Archival, anonymization and presentation of HTCondor logs with GlideinMonitor

Marco Mambelli, Fermilab
Thomas Hein, University of Illinois at Chicago
Mirica Yancey, Valparaiso University

May 20, 2021

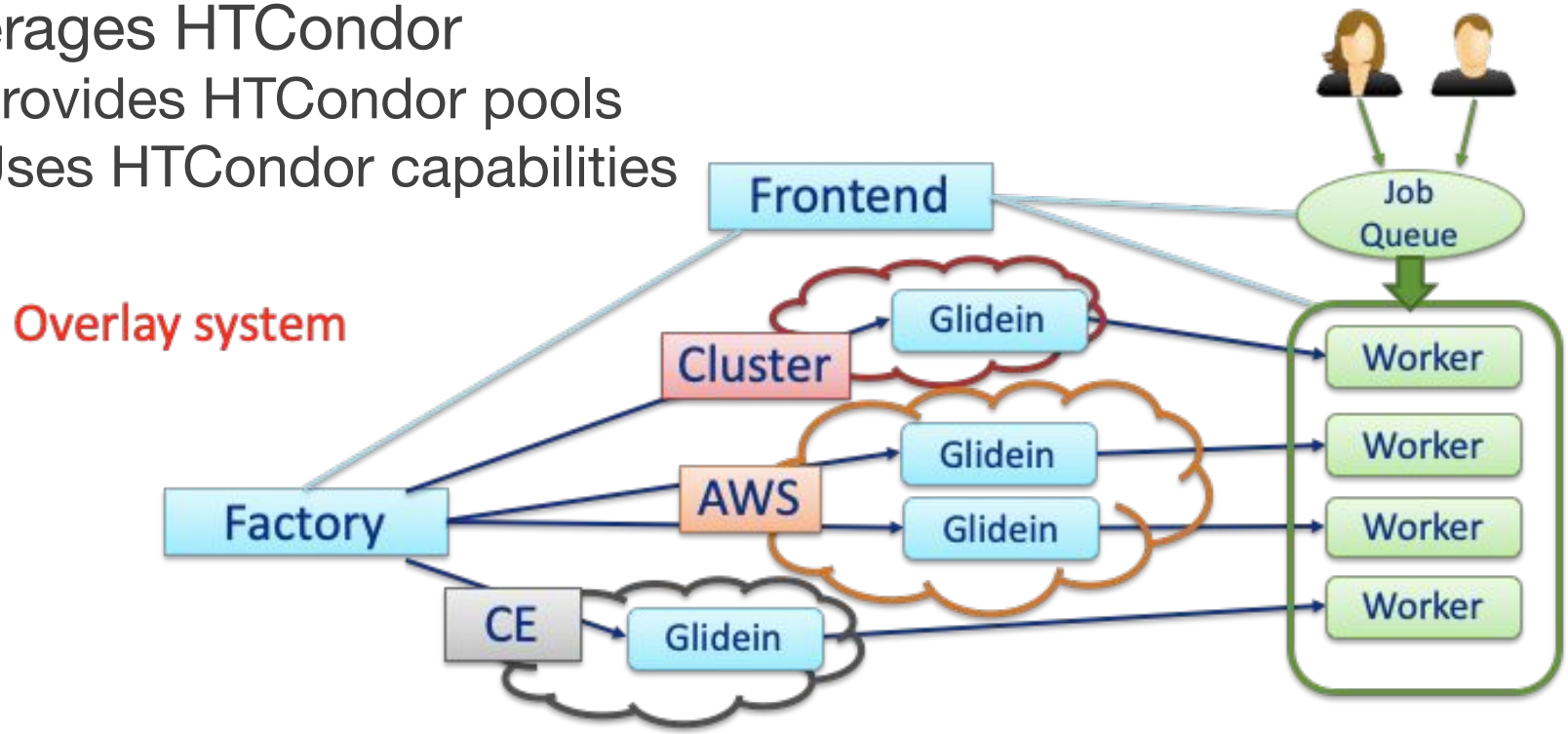
vCHEP 2021

UIC

VALPO

GlideinWMS

- GlideinWMS is a pilot based resource provisioning tool for distributed High Throughput Computing
- Provides reliable and uniform virtual clusters
- Submits Glideins to heterogeneous resources
- Leverages HTCondor
  - Provides HTCondor pools
  - Uses HTCondor capabilities

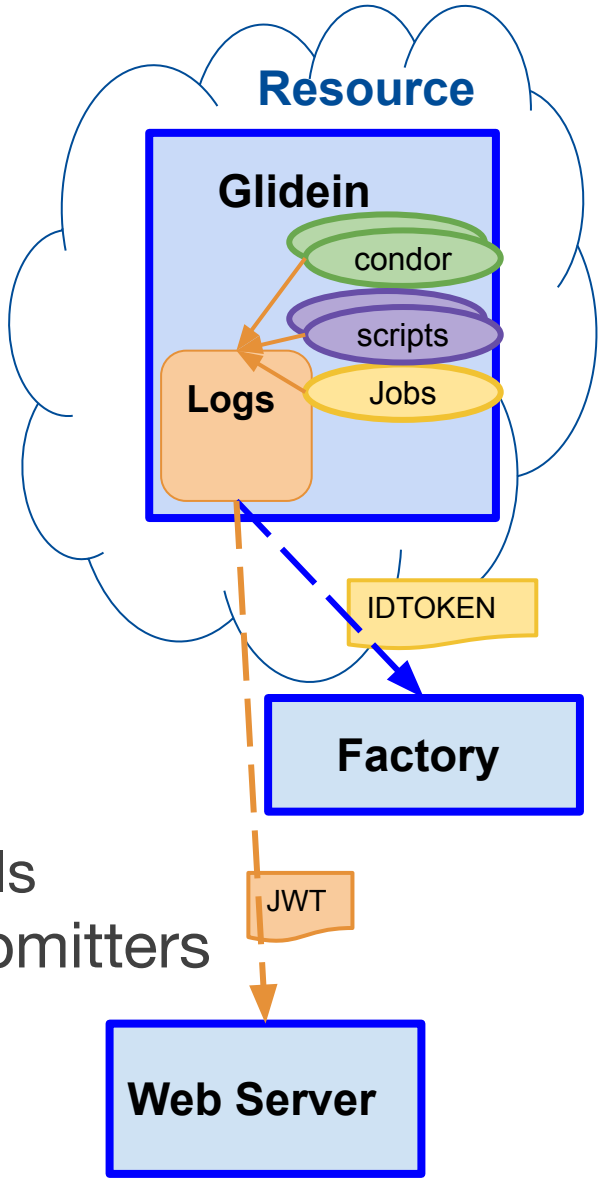


Glidein: node testing and customization

- Scouts for resources and validates the Worker node
  - Cores, memory, disk, GPU, …
  - OS, software installed
  - CVMFS
  - VO specific tests
- Customizes the Worker node
  - Environment, GPU libraries, …
  - Starting containers (Singularity, …)
  - VO specific setup
- Provides a reliable and customized execute node to HTCondor
- Reports back to the Factory

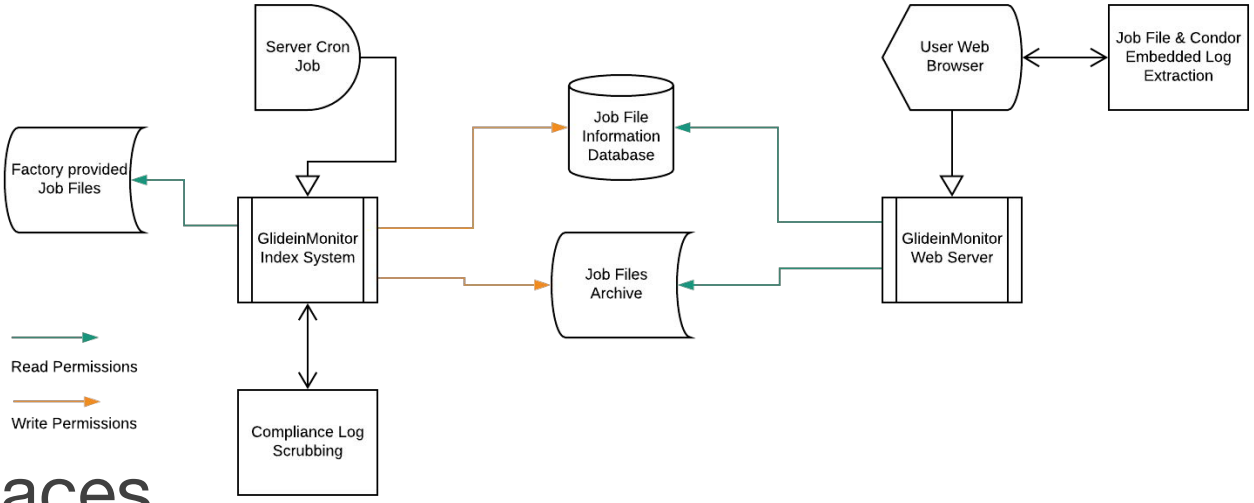
Glidein Logging

- Very useful to troubleshoot
  - Resource
  - Jobs
  - GlideinWMS
- Authenticated channels
  - HTCondor stdout/err, WebDAV
- Factory and Monitoring servers
  - Available only to operators
  - Limited metadata
- Custom format
  - Semi-manual extraction with GWMS tools
- Sensitive information about jobs and submitters
  - User IDs
  - Email addresses
  - IP addresses



GlideinMonitor

- Web application to examine, filter, archive and serve Glidein Logs
- Independent components
  - Indexer
  - Web server
  - Database



- File system spaces
  - Log ingestion
  - Archives (multiple log versions)

GlideinMonitor Indexer

- Extracts metadata for processing and DB
- Has a Global IDs for each Glidein logs set
  - Can collect logs of Glideins from multiple Factories
  - Allows logs updates
  - Allows logs from via multiple channels
- Generates archives of compressed log bundles
  - Less space on disk
  - Faster to serve
- Supports log-filtering plugins
  - on raw logs
  - on expanded components
  - parallel processing
- Applies filters and saves logs to multiple archives
- Manages Logs lifetime

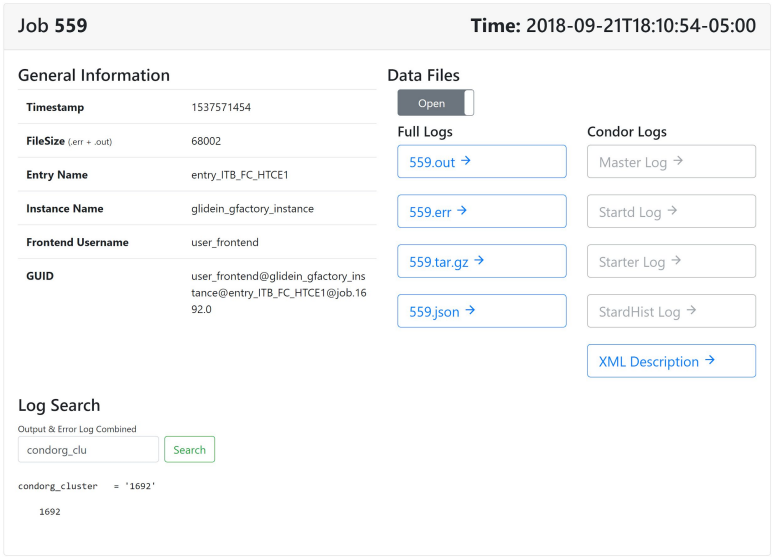
Anonymization Plug-In

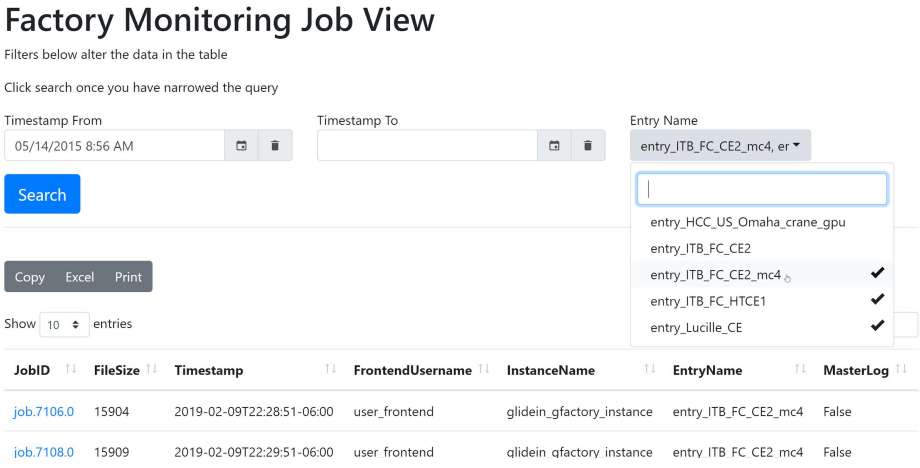
- GlideinMonitor filtering plug-in (python script)
- Acts on expanded Glidein logs
- Non-reversible (vs reversible) anonymization
  - Troubleshooting information is kept
  - Original log can be preserved
- Uses regular expressions (vs Named Entity Recognition)
  - Easier and quicker to implement
  - No need to categorize data
- In-memory stream processing

```
CRAB_SubmitterIpAddr = "XXXX:XXXX:XXXX:XXXX::127"
CRAB_TaskEndTime = 1593944968
CRAB_TaskLifetimeDays = 30
CRAB_TaskWorker = "crab-prod-tw02"
CRAB_TFileOutputFiles = {  }
CRAB_TransferOutputs = 1
CRAB_UserDN = "/DC=ch/DC=cern/OU=Organic Units/OU=Users/CN=USER/CN=USER/CN=USER USER"
CRAB_UserGroup = undefined
CRAB_UserHN = "USER"
```

GlideinMonitor Webserver

- GUI
  - search or browsing of Glideins
  - inspection of Glidein logs
- Configurable multi-user authorization for log archives access
  - Based on archive, Factory, VO
- Client-side scripts in Job View pages
  - log bundle download
  - logs expansion
  - lighter on the server





Summary

- GlideinMonitor, modular Web application to manage glidein logs
  - Indexer, Web server, Database
- Organizes the logs in an efficient compressed archive
- Allows to search, unpack, and inspect them
- Convenient and secure Web UI
- Custom filters via plug-ins
- The anonymization plug-in is an automated filter that locates and suppresses personal information
  - Makes the Log files easier to share

Acknowledgements

This work was done under the GlideinWMS project and the TARGET and SIST internship programs at Fermilab

This manuscript has been authored by Fermi Research Alliance, LLC under Contract No. DE-AC02-07CH11359 with the U.S. Department of Energy, Office of Science, Office of High Energy Physics.

References

https://github.com/glideinWMS/glideinmonitor