# jobsub_lite

Shreyas Bhat
FIFE Group Meeting
April 14, 2022

Jobsub the Old

- FIFE batch job submission software for HTCondor batch system (https://research.cs.wisc.edu/htcondor)
- Two components
  - jobsub_client
  - jobsub_server
- jobsub_client generally installed on experiment interactive nodes
- jobsub_server, alongside HTCondor schedd run on separate machines (3 in production cluster)

Fermilab

Jobsub the Old (2)
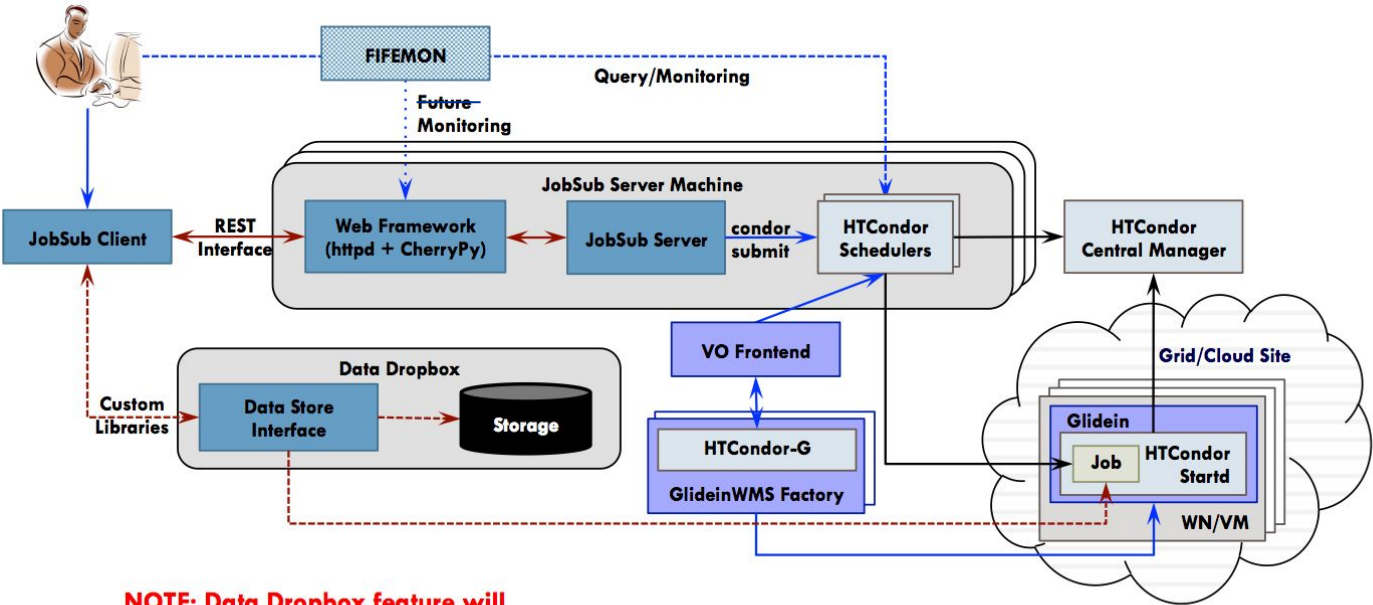
NOTE: Data Dropbox feature will be implemented in future releases.

Original Image Source: https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Introduction_to_FIFE_and_Component_Services#Jobsub

🟦 Fermilab

Problems with Current Jobsub

- Interface too broad: Too many ways to do the same set of operations (e.g. tarball upload)
- Too much code customization:
  - "Nova" settings, "Minerva" settings, etc., in codebase
- >21k lines of code (not including packaging scripts, tests, etc.)
- i.e. Supporting current feature set too difficult for available effort
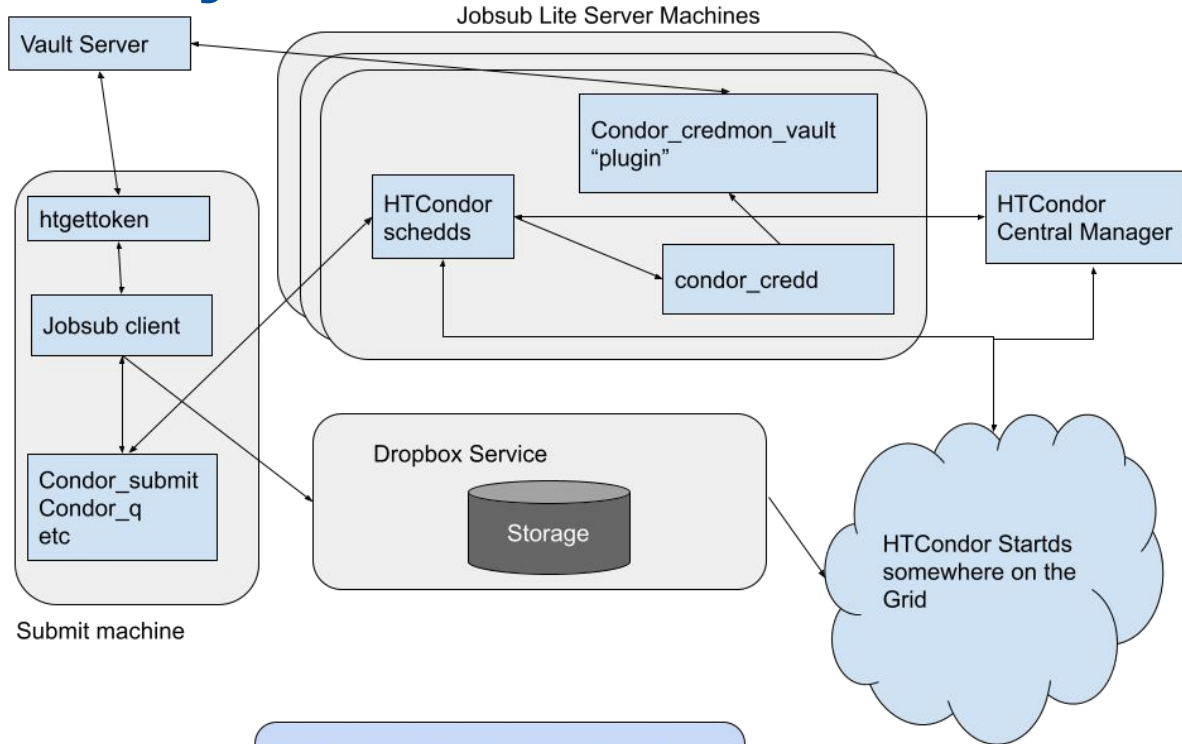
  → Also complicates building new features

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

🔷 **Fermilab**

Goals for New jobsub

- Shrink and solidify interface to what's most commonly used/needed
- Provide "power users" with direct access to HTCondor commands
- Build in such a way as to ease transition
- Modernize code base and employ current best practices to speed up development
- Ease support load

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

🎔 Fermilab

Enter jobsub_lite

- New software for job submission and monitoring
- Client-only, installed on experiment interactive nodes
- jobsub_lite takes user command, converts it to HTCondor submission file (Job Definition File), and uses HTCondor python bindings to submit the job to a remote schedd
- Current plan is to have one schedd/global pool per large experiment, shared schedd for smaller experiments
- So far, only ~3k lines of code, *including* templates and config files

🟦 **Fermilab**

jobsub_lite Layout with Tokens

Original Image Credit: J. Boyd

🔷 Fermilab

jobsub_lite and HTCondor

- Idea is to keep jobsub_lite….light
- We will provide lightly-wrapped HTCondor executables (condor_submit, condor_q, etc.) on interactive nodes
- Most users: jobsub commands
- Advanced use-cases: condor commands
- To facilitate, jobsub_submit will have option to just create condor Job Definition File (no submission) to use with condor_submit

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

🎗 **Fermilab**

Benefit for Experiment Users

- Users will have full access to condor commands
  - No more passing through constraints through jobsub
  - Users will have access to condor JDFs
  - Don't have to wrap condor DAG commands
- With more focused interface, it should be easier to get new users started using jobsub_lite
- Horizontal scaling (adding more schedds) much easier

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

Fermilab

What will jobsub_lite support?

- Passing environment variables into the job
- Specifying resource requests
- Options to email job reports to users
- Debug and verbose options
- ***One*** method for uploading tarballs and one method for uploading files
- Option to specify which dropbox method (dCache or RCDS) to use for these uploads
- The ability to direct submissions to a schedd or a pool
- Role/group specifications

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

🔷 Fermilab

Tokens/x509 Proxies

- Currently, jobsub_lite supports both x509 proxies (via cigetcert) and SciTokens (via htgettoken), BUT…
- …there is some work left to be done to ensure that proxies are renewed in jobs
- A Managed Tokens service is in the works currently to replace Managed Proxies

‡ Fermilab

Current Status

- Testing:
  - DUNE Global pool (model for experiment-specific schedds) and GPGrid (model for shared schedds)
  - Submission, file transfer, and RCDS upload using x509 proxies work

    → RCDS supports tokens, so jobsub_lite will switch

- Development:
  - Standard feature development and bug fixes

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

🟦 Fermilab

Future/Timeline

- Test/add SAM, POMS support
- Code cleanup and unit tests
- Currently, DUNE is testing (Ken H.) – Want to open that up to other experiments in the next month or two
  - But we need to figure out what that looks like in terms of infrastructure
- Summer 2022: Transition/testing period
- Fall 2022: Switch over to jobsub_lite

S. Bhat, jobsub_lite, FIFE Group Meeting, April 14 2022

Fermilab

Resources

- Github repo: https://github.com/marcmengel/jobsub_lite
- Roadmap: https://cdcvs.fnal.gov/redmine/projects/jobsub/wiki/Jobsub_lite_Tasks

‡ Fermilab

Thank you!

The jobsub project team:

Shreyas Bhat, Dennis Box, Joe Boyd, Lisa Goodenough, Marc Mengel, Nick Peregonow, Kevin Retzke

🔶 Fermilab