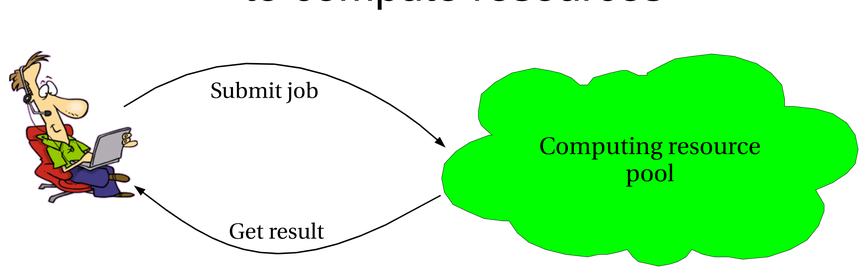
glideinWMS

A pilot-based Grid Workload Management System

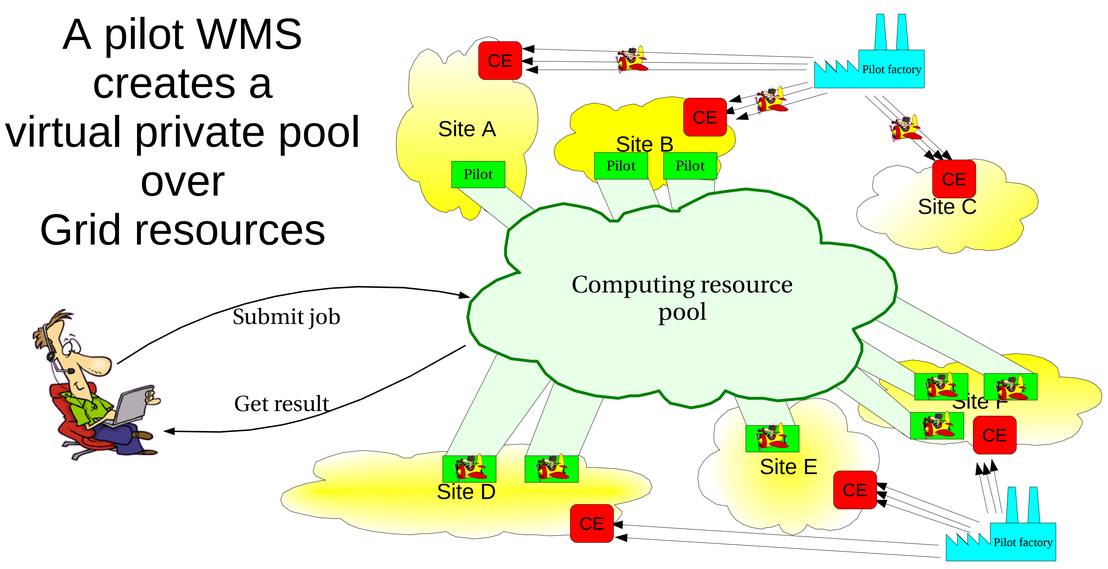
presented by Igor Sfiligoi, Fermilab, Batavia, IL

Why use a pilot-based WMS?

Users want simple access to compute resources

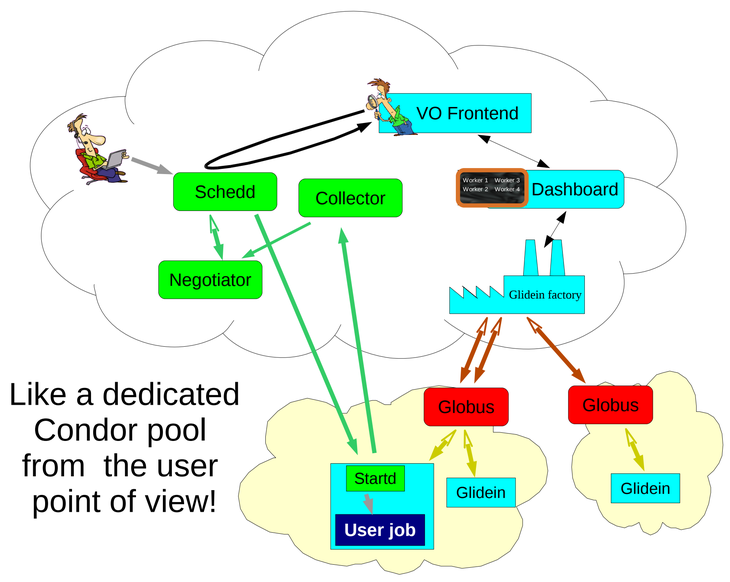


A pilot WMS creates a virtual private pool over Grid resources



glideinWMS architecture

Schematic view



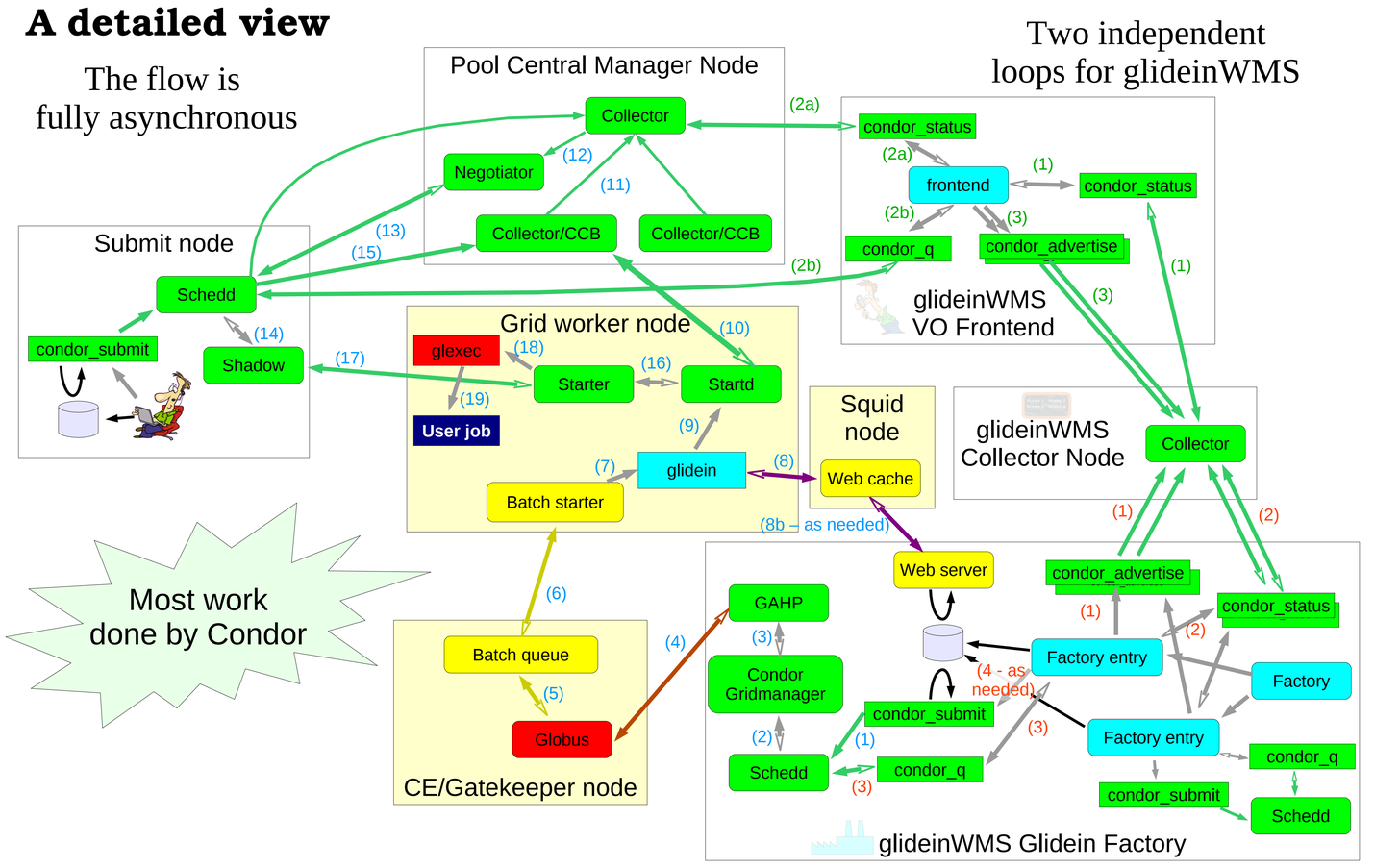
Like a dedicated Condor pool from the user point of view!

Legend:

- Condor process
- glideinWMS process
- Grid software
- System software
- glideinWMS domain
- Grid domain (OSG, EGEE and NorduGrid tested)

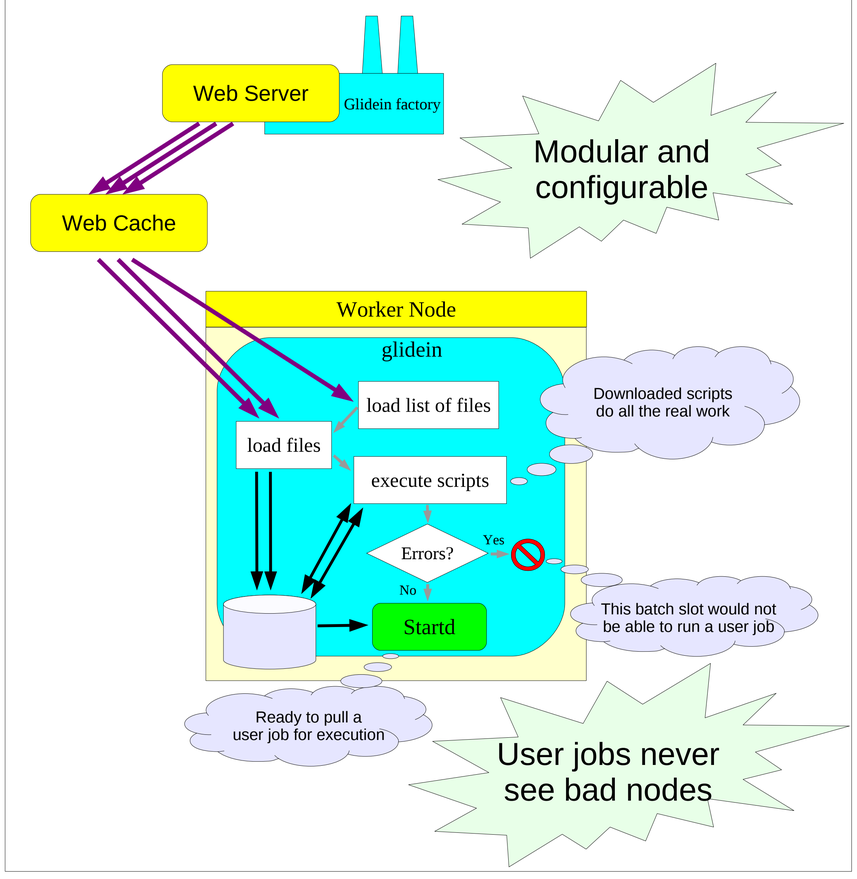
A detailed view

The flow is fully asynchronous



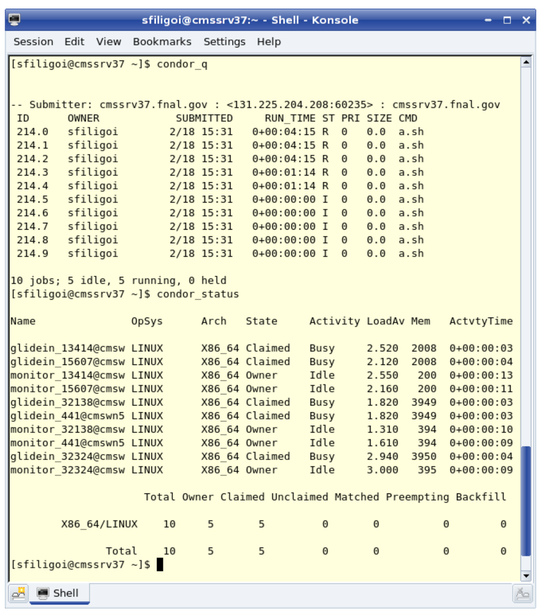
For more details see http://www.uscms.org/SoftwareComputing/Grid/WMS/glideinWMS/doc.html

Glidein startup logic



Monitoring

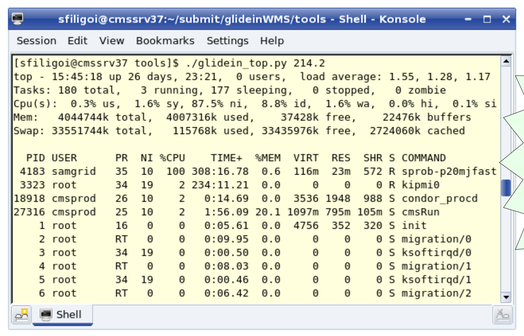
Standard Condor tools



Both for the users and glideinWMS administrators

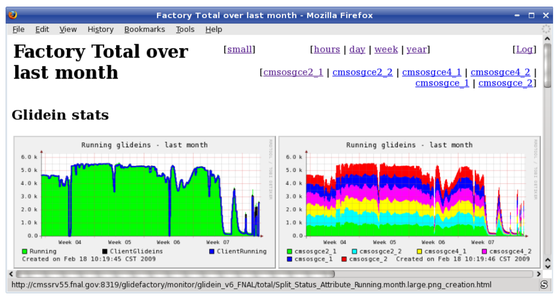
Pseudo-interactive monitoring

(to peek at Grid jobs in real time)



Supports:
- ls
- cat/tail
- ps
- top
- ...

Web monitoring



Glidein factory only (being improved)

Initially sponsored by USCMS and developed at Fermilab.
Work sponsored by U.S. DoE under contract No. DE-AC02-07CH11359

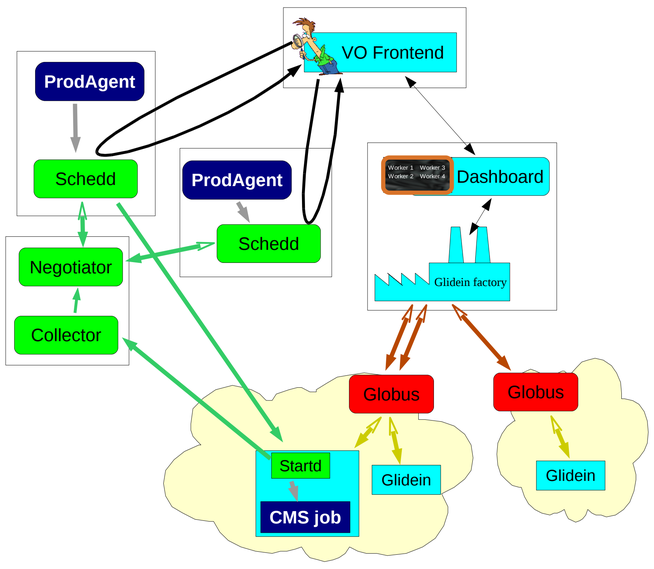
Download it from http://www.uscms.org/SoftwareComputing/Grid/WMS/glideinWMS/

Current users of glideinWMS

presented by Igor Sfiligoi, Fermilab, Batavia, IL

CMS Processing

Fully automated, process driven

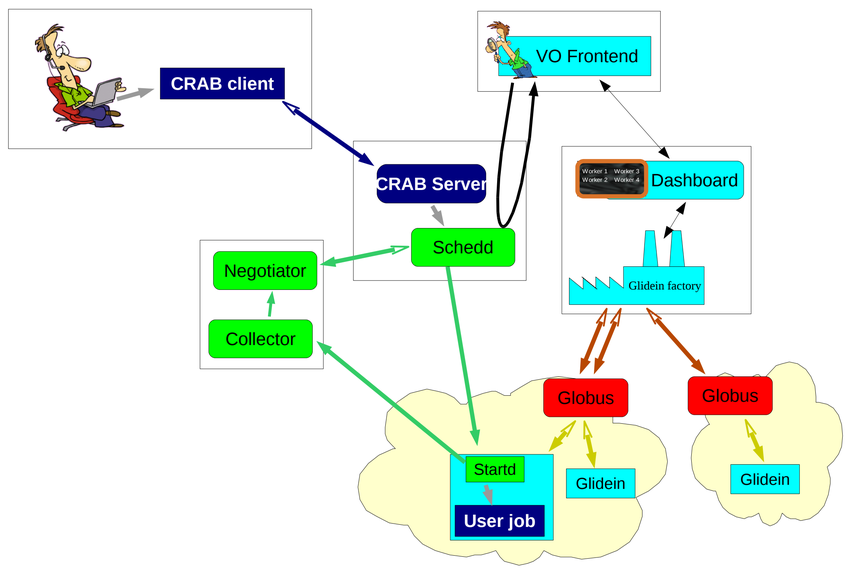


Has been running for over a year now

Using both OSG and EGEE CMS Tier-1's

CMS User Analysis

Portal based
Users don't see the glideinWMS

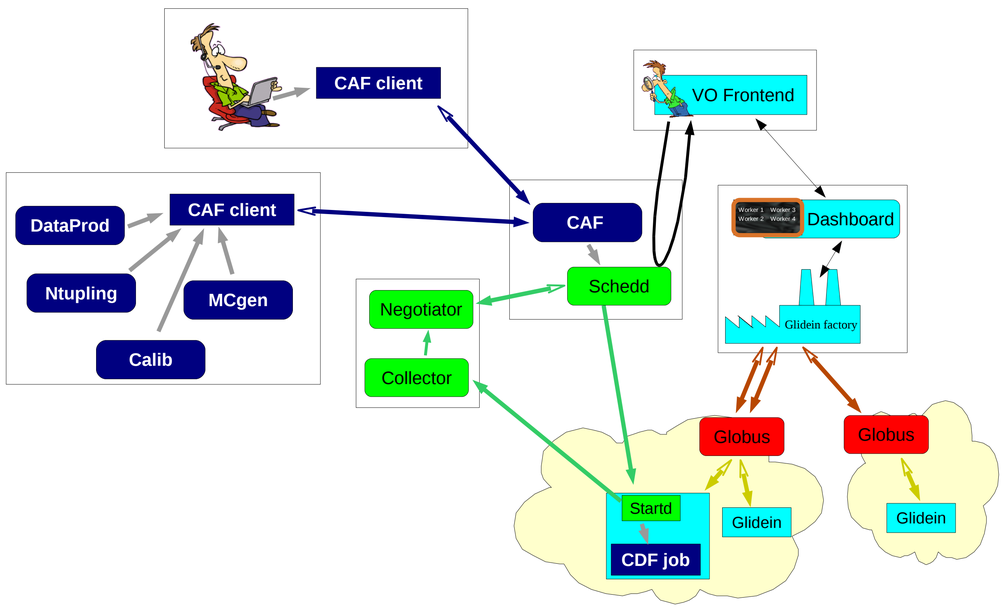


Still a prototype

Using both OSG and EGEE CMS Tier-2's

CDF's Combined User Analysis and Centralized Activities

Portal based
Users and automated tasks don't see the glideinWMS

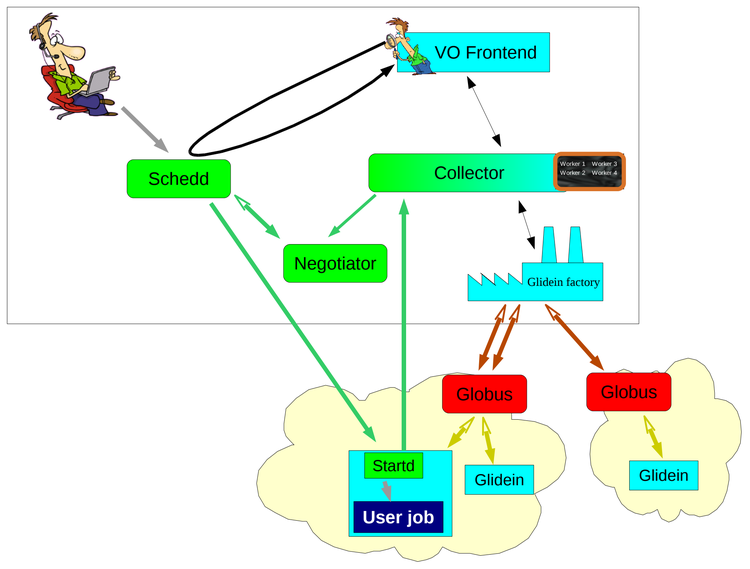


Used glidein-based solution for several years.
Currently moving to glideinWMS.

Using both CDF-owned and opportunistic OSG resources.

MINOS User Analysis

Users submit to a central schedd
All processes share a single machine



Has been running for a year now

Using both MINOS-owned and opportunistic OSG resources at Fermilab.

Scalability tests

Condor scalability tested

Collector scalability
- 11k on a single collector, on LAN
- 22k using a tree of 1+70 collectors over WAN (between Europe and USA)

Schedd scalability
- **Limited to**:
  - ~22k running jobs on a single schedd
- 200k idle jobs on a single schedd

Ran out of ports

glideinWMS scalability tested

VO Frontend scalability
- 200k idle and 22k running user jobs
- 20 schedds

Glidein factory scalability
- **Limited to**:
  - ~50 Grid sites basic installation
    - ~150 Grid sites with fine tuning
- 5 VO frontends
- 22k running glideins

Prototype that scales higher available

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Work sponsored by U.S. DoE under contract No. DE-AC02-07CH11359

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