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GlideinWMS

Marco Mambelli

Stakeholders Meeting

March 11, 2020

Agenda

- Status update

- Communications

- Important changes

- GlideinMonitor

- Roadmap

- (Reference slides)

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Project status updates

- v3.6.1 is current OSG production (OSG 3.4 and 3.5)

- Two new releases in OSG development
  - v3.6.2 RC2, final release later this week
  - v3.7 RC1, final release next week

- Project effort unchanged
  - 2.50 FTE
  - Management and 4 developers
  - Everyone involved also in other projects: Factory Ops, HEPCloud, Jobsub, FIFE support, Landscape

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Communication

- Communication
  - Please review periodically your tickets/priorities
     https://cdcvs.fnal.gov/redmine/projects/glideinwms/wiki/RoadmapSummary
  - How can we further improve communication
    - Should we participate in any other meetings?
    - Communicating priorities?

- Support
  - Glideins do not renew x509 proxy (v3.4.x v3.5.x v3.6, v3.6.1) - hotfix available
  - Broken GCE and AWS submission in v3.5.x, 3.6, 3.6.1 (fixed in 3.6.2) – hotfix available

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Important changes

- All factories should have migrated to single user factories (>=3.6)

- In 3.6.2
  - Add requirement for HTCondor Python binding

- Scheduled for 3.6.3
  - TAR files distribution

- Scheduled/Planned for 3.7.1
  - Drop GIExec support
  - Default to shared port in User Collector

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GlideinMonitor

- Web application to view Glidein log files
  - user interface
  - tools for quick searches and to decode log content
  - efficient managed archive of log files
  - framework to add log processing

- Two components
  - Indexer (glideinmonitor-indexer)
  - Web server (glideinmonitor-webserver)

- Available via RPM (osg-development)

- Code on Github
  - https://github.com/glideinWMS/glideinmonitor

https://docs.google.com/document/d/1PqmQ_-_JtqK472DT-Y0D08yU1m-lPeFvrp8n4x9f5QE/edit?usp=sharing

Completed new features and fixes

- 3.6.2
  - OS independent file transfer via "pychirp" (OSG/CMS)
  - Automatic Factory configuration via CRIC (CMS)
  - Reduced the Frontend queries to the collector (CMS)
  - HTCondor GPU monitor enabled (OSG)
  - Fixed x509 proxy renewal
  - Fixed submission to AWS and GCE
- 3.7
  - More robust Glideins using token-auth (OSG)
  - New logging channel
    - Standard API
    - Thread-safe
    - Allows reporting while the Glidein is running
    - Custom endpoint

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Marco Mascheroni – query optimization

- CMS [study](#) on collector queries
  - GWMS frontend is doing 100 queries per minute
- Two types of queries
  - Frequent fast queries to get the information about the schedds
  - Less frequent heavier query to get the status of the pool
- The frequent queries are a good candidate for caching
  - Schedd information rarely change

ITB Recent Queries forked (Tool, Negotiator,Collector) ▼
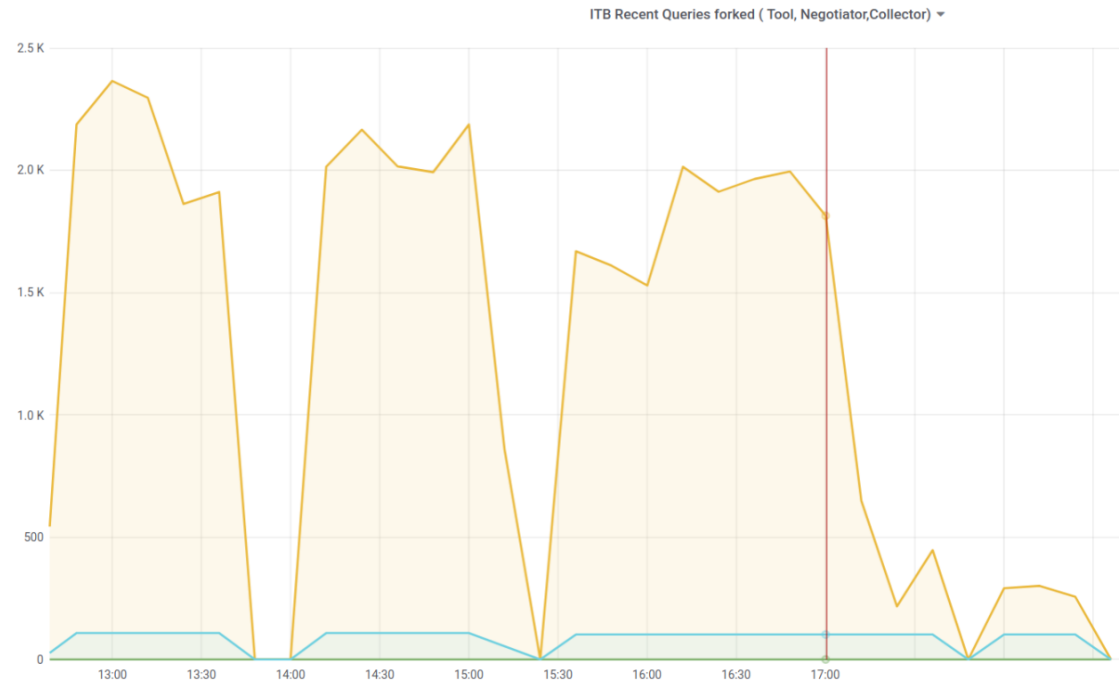
- Worked on a **patch** that significantly **reduces** the number of small **queries**
- **Tested** in the CMS ITB frontend
  - Number of queries dropped from 2.2k to 250
- Already **applied in production** as a hotpatch.
  - Will be included in 3.6.2

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Marco Mascheroni

Autoconf project

- Finalized and included the work on the automatic generation of factory entries
  - Included new *OSG_autoconf* tool that generated entry configuration from the OSG collector
- Includes new gfdiff tool that does a smart diff between entries
- Will keep iterating once the tools are used in production by operations
- More details in the CHEP2019 proceeding

Bugfixes

- Fixed an issue with pilot proxies expiring prematurely
  - Could be confused with a pilot regularly reaching the draining time because of the particular landscape of the resources
  - Caltech noticed because their pilots are one week long and ran on 160 cores machine
- Adjusted condor_q custom format after 3.6 single user migration

- Fixed a bug in the factory monitoring that broke client reports (all zeroes)

Entry Name		Running	Idle	Waiting	Pending	Staging in	Staging out	Unknown	Held	Running cores	Max glideins	Idle	Claimed cores	User run here	User running	Unmatched cores	User idle	Registered cores	Info age
		Status:									**Requested:**		**Client Monitor:**						
Glow_US_Syracuse_condor-ce2	↑	1191	1061	1002	53	0	0	6	4123	1191	41007	75	1080	0	0	0	0	0	0
Glow_US_Syracuse_condor-ce3	↑	919	77	21	54	0	0	2	860	919	2581	69	751	0	0	0	0	0	0
OSG_US_IIT_iitce1	↑	823	75	0	75	0	0	0	112	823	1902	92	825	0	0	0	0	0	0
OSG_US_UConn_gluskap_op	↑	796	91	0	91	0	0	0	102	796	3202	100	791	0	0	0	0	0	0

???

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Bruno Coimbra - Introduction

- Python drop-in replacement for condor_chirp (PyChirp)

    – It's now called simply condor_chirp and ships with glideins
    – The script itself wraps a python client extended from htchirp

    – Also implemented the gwms_python wrapper
        • Finds the most recent version of Python
        • Adds GlideinWMS python scripts to PYTHONPATH

- Started working on SciTokens for GlideinWMS
- Started working on dropping tarball installation support from GlideinWMS

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Dennis Box – in v3.7

- HTCondor Token authentication available in 3.7 (development) release

- Requirements

  - Condor version 8.9.1+ on Frontened and Glidein tarball

  - Factory and Frontend both 3.7+

- Behavior

  - Frontend detects condor version of Factory entry point tarball

  - If OK, generates and encrypts condor token, advertises to Factory

  - Factory decrypts and stores Frontend generated token, re-encrypts and passes to glidein

  - Glidein uses token to communicate with Frontend Daemons
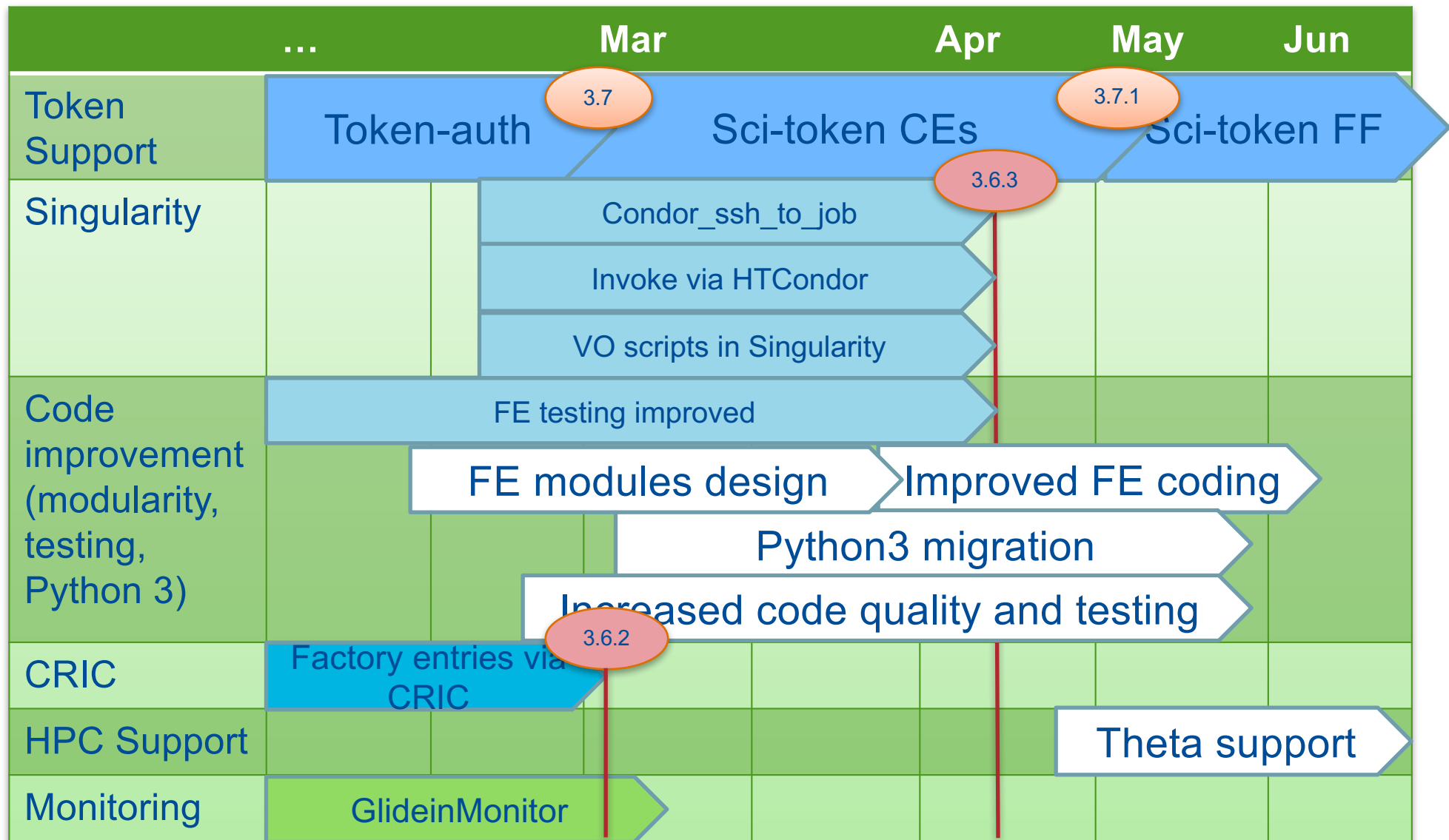
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Dennis Box – coming next

- Currently working on SciToken integration

- Parts that work so far:

  Self signed + generated SciTokens authenticate with local installation of HTCondor-CE-4.0+

  condor_ping authenticates self-signed tokens against daemons in more complicated (frontend, factory) installations

  CredMon, WLCGTokens can be made to authenticate with minimal 'personal condor'

- Remaining: everything else.

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Coming next

- Use of token authentication (OSG) – Dennis and Bruno
  - Support sites with sci-token
  - Use of tokens to authenticate Factories w/ Frontends
- Singularity support (CMS/OSG/Fermilab) – Marco Mambelli
  - Simplified code by Singularity invocation via HTCondor
  - Simplified troubleshooting by allowing ssh to job in Singularity
  - Allow VO test/setup scripts inside Singularity
- Improve modularity and code quality (HEPCloud)
  - Improve modularity of Frontend to include in DE Framework
  - Broaden and streamline testing
  - Migration to Python3
  - Expand, simplify and automate testing
- Leadership Computing Facilities support (HEPCloud/CMS)

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Roadmap overview

	...	Mar	Apr	May	Jun
Token Support	Token-auth	3.7 Sci-token CEs	3.7.1 Sci-token FF		
Singularity		Condor_ssh_to_job	3.6.3		
		Invoke via HTCondor			
		VO scripts in Singularity			
Code improvement (modularity, testing, Python 3)	FE testing improved				
		FE modules design	Improved FE coding		
		Python3 migration			
		Increased code quality and testing			
CRIC	Factory entries via CRIC	3.6.2			
HPC Support				Theta support	
Monitoring	GlideinMonitor				

Dennis Box | Bruno Coimbra | Marco Mambelli | Marco Mascheroni | Interns | Not assigned

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Summary

- Project mostly on track
- Development effort is limited and frequently pulled away
- Update to 3.6.2 (end of March)
  - Cloud submission and Pilot x509 fixes
  - pychirp and Automatic configuration via CRIC
  - Less collector queries from the Frontend
- Development version 3.7
  - Improved logging
  - Token-auth for Glideins
- Top priorities
  - token support
  - VO tests in Singularity
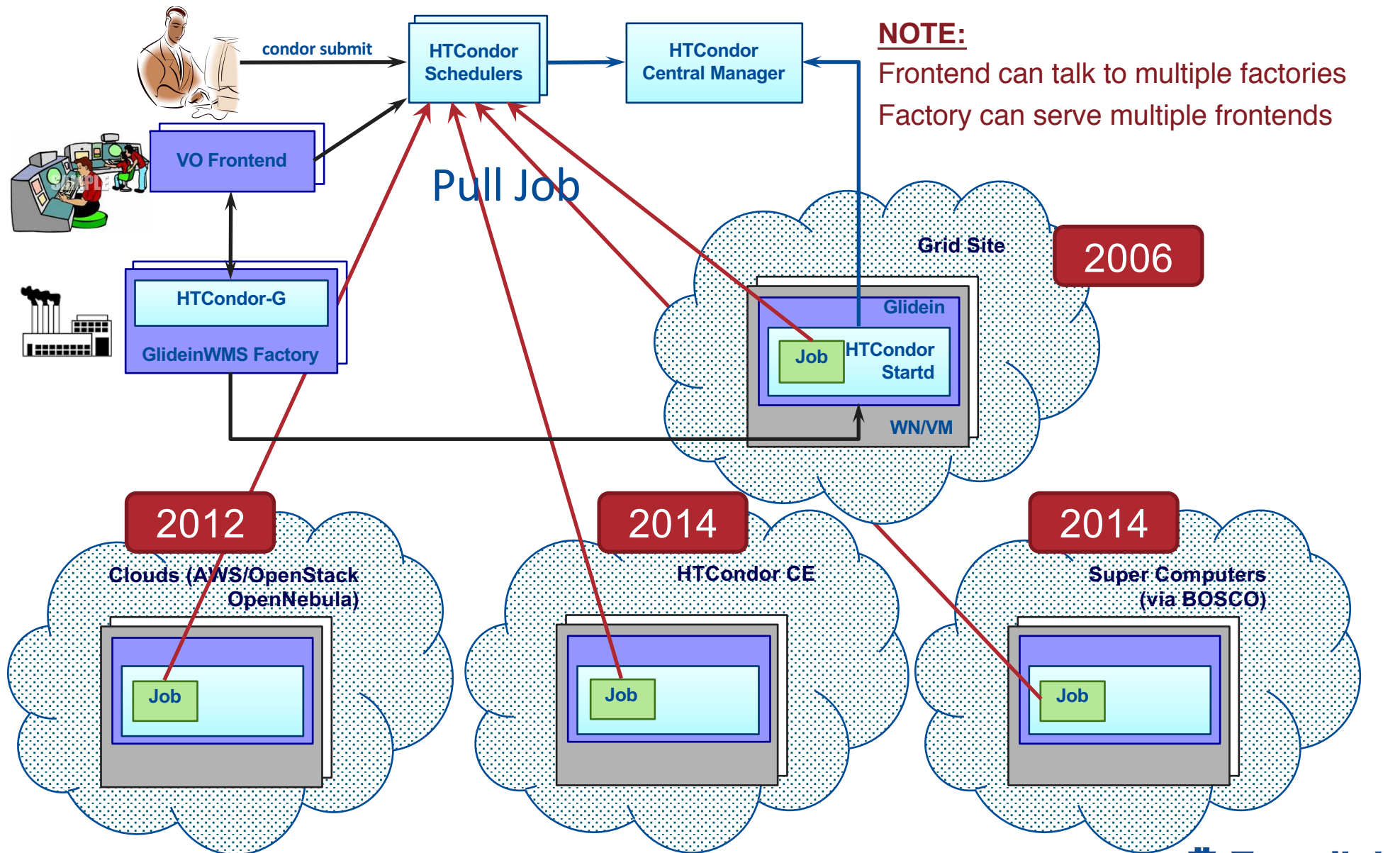 - Frontend restructuring
  - Use of LCF computers

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Reference Slides

Marco Mambelli | GlideinWMS - Stakeholders Meeting

3/11/2020

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Move to single user Factory

- Will be in the next release, v3.5
- All Glideins will run using the factory user, no more separate users per-VO
  - Currently different VOs (Frontend groups) can use different users to improve isolation
- It is safe
  - The HTCondor team assured us that once we remove Globus GRAM support, the other Gridmanager clients cannot decide which file to retrieve from the Factory (it is HTCondor on the Factory deciding what to send), so will be safe to run as a single user
- The directory structure will remain the same
  - Only the ownership will change
  - Your log files will be in the same place
- Migration:
  - GWMS will provide instructions and tools to ease it: change the files ownership, …
  - if you use HTCondor < 8.7.2 you can upgrade GWMS when convenient for you
  - if you need HTCondor >= 8.7.2 (including 8.8) we recommend to upgrade
    - but if you want to delay the change to 3.5 you can still do that if you are comfortable in using the glideinwms-root-switchboard RPM that we built and tested, but is not supported by OSG.

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GlideinWMS

condor submit

HTCondor Schedulers → HTCondor Central Manager

NOTE:
Frontend can talk to multiple factories
Factory can serve multiple frontends

VO Frontend

HTCondor-G

GlideinWMS Factory

Pull Job

2006

Grid Site

Glidein

Job | HTCondor Startd

WN/VM

2012

Clouds (AWS/OpenStack OpenNebula)

Job

2014

HTCondor CE

Job

2014

Super Computers (via BOSCO)

Job

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Quick Facts: Releases & Support Structure

- Releases
  - Issues tracked in redmine issue tracker
    - https://cdcvs.fnal.gov/redmine/projects/glideinwms/issues
    - Categorized and prioritized based on impact, urgency and requester
      - Issues are now associated with respective stakeholders
    - Issues are assigned based on developer's expertise and other workload
    - Roadmap for upcoming releases available in redmine (See reference slides)
  - SCM
    - All releases are version controlled and tagged
    - http://glideinwms.fnal.gov/doc.prd/download.html
  - Release notes & history
    - http://glideinwms.fnal.gov/doc.prd/history.html
- Support
  - Entire development team is responsible for support

Quick Facts: Project Status & Communication Channels

- Project meeting: Wednesdays 10 – 11 am
  - Technical discussions & status updates
  - Regular stakeholder participation
  - Contact Parag Mhashilkar if you need invite for this meeting
- Stakeholders Meeting every two months
- Project Management
  - Project Status reported monthly at CS Project status meetings

Area of Interest	Mailing Lists
Support	glideinwms-support@fnal.gov
Stakeholders	glideinwms-stakeholders@fnal.gov
Release Announcements	glideinwms-support@fnal.gov cms-dct-wms@fnal.gov glideinwms-stakeholders@fnal.gov
Future Release plans	See next slide
Discussions	glideinwms-discuss@fnal.gov
Code commits	glideinwms-commit@fnal.gov Twitter Tag: @glideinwms

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Tracking Releases in Redmine

1. Visit the redmine issues tab for GlideinWMS or the URL

2. Click custom query for stakeholder or version roadmap

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