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GlideinWMS

Marco Mambelli, Dennis Box, Bruno Coimbra, Marco Mascheroni

Stakeholders Meeting

September 8, 2021

Agenda

- Status update
- Important changes
- Project Progress and Roadmap
- Developers' spotlight
- Stakeholders Reports or Presentations
- Roundtable
- Open discussion

Project status updates

- v3.6.5 is in OSG production (OSG 3.4 and 3.5)
- New v3.7.5 in OSG upcoming (OSG 3.5) – soon production
- v3.9.2 (Python 3) in OSG contrib, 3.9.3 coming soon
- Work on updating the testing infrastructure and big files support

- Project effort unchanged
  - 2.15 FTE
  - Management and 4 developers
  - Everyone involved also in other projects: Factory Ops, HEPCloud, Jobsub, FIFE support, Landscape
  - Namratha Urs and Maia Boyd joined the team for the Summer

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?

- Redmine/GitHub
  - For the next meeting we'll have periodic builds in GitHub
  - Redmine still under restricted access
    - Will move to GitHub by November if no announced changes
      - Will require effort (move, ongoing more ticket maintenance)

Communication – Customizing Glideins

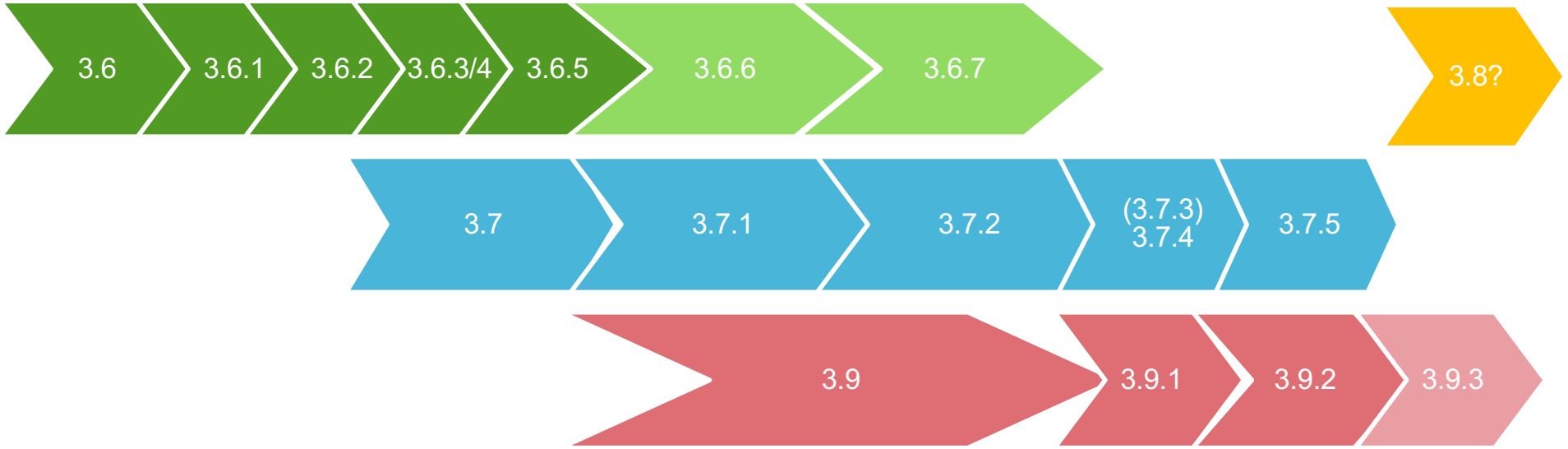
- Glideins have some knobs that can be customized to affect Glidein or HTCondor behavior and job environment
  - https://glideinwms.fnal.gov/doc.prd/factory/configuration.html#attrs
  - https://glideinwms.fnal.gov/doc.prd/factory/configuration.html#files
  - https://glideinwms.fnal.gov/doc.prd/factory/custom_scripts.html
  - https://glideinwms.fnal.gov/doc.prd/factory/custom_variables.html
- We aim to consistent defaults for all users and resources
- These can be changed
  - Using attributes in the configuration [1], this can be done:
    - al the Factory level (global), affecting all the sites served by that Factory
    - at the Factory Entry level, for a specific site
    - at the Frontend level (global) for all the jobs provisioned by that Frontend
    - at the Frontend group level for a subset of of jobs or the Glideins sent only by thet Frontend on some sites
  - Via a test/setup script specified in the file section (again the 4 subgroups above apply).
    - These scripts can modify the Glidein configuration by using "add_config_line" and "add_condor_vars_line"
  - Use scripts if you need dynamic info, otherwise attributes
- Factory/Frontend operators can help
- Working on simplifying: framework + customization

Important changes

- 3.7.5
  - Make sure that the condor configuration changes are applied (look for possible .rpmnew files and merge them)
  - Check also the web server configuration
- 3.9.2
  - Drop of BDII support
  - The Python code in the configuration must be valid Python 3
    - The match expression is validated
    - We are unable to control the type of the variables, check the type of factory/job match attributes!

- And please review periodically your tickets/priorities
  https://cdcvs.fnal.gov/redmine/projects/glideinwms/wiki/RoadmapSummary

GlideinWMS Releases



- 2 active release series in OSG 3.5
  - (Production, also in OSG 3.4, closed)
  - Development – more disruptive changes (tokens, logging) [OSG]
  - Python 3, soon also in OSG 3.6 [HEPCloud]
- Fixes in the lowest possible series
- Features propagated only to greater series

Release series

- 3.7/3.8 main release in OSG 3.5
  - OSG 3.5 upcoming repo
  - Python 2
  - Support GSI and JWT (with proper HTCondor)

- 3.9 main release in OSG 3.6
  - OSG 3.5 contrib repo and OSG 3.6 (production)
  - Python 3
  - No GSI in OSG 3.6
  - Updates on Python 3 adoption?

3.7 Series Status - Dennis Box

- GlideinWMS 3.7.5 recently released
  - Improved tokens support
    - Better support for SciToken auth
    - SciTokens are explicit in the configuration now
    - Minor token related annoyances fixed
      - Github pull requests helpful in this regard
    - Hackathons very helpful in exposing unknown requirements
  - cvmfsexec support
    - u/mountrepo used to install CVMFS on sites not providing it
  - Add conditional download mechanism for files (test/setup scripts)
  - Other bug fixes
    - Removed confusing WARNING messages in jobs stderr
    - Fixed wrong condor LD_LIBRARY_PATH (Thanks G.Thain)

3.7 Series Plans - Dennis Box

- GlideinWMS 3.7.6 - 'Full Token Support'
  - Deprecate fallback to GSI from Token Auth
    - If this behavior is wanted it should be explicit in configuration
  - SciToken Generation/Renewal
    - We have operator patches and pull requests for drop in generation scripts
    - We hear about/are asked about supporting Vault and/or Credmon
    - Undocumented assumptions/requirements alert!
  - Reduce complexity of per-site IDToken revocation

3.9 Series (Python 3) Status and plans – Bruno C

- GlideinWMS 3.9.3
  - Includes all fixes and features from 3.7.5
  - Fixes some encoding issues that were affecting cloud submission
  - The first release candidate should be available by the end of this week

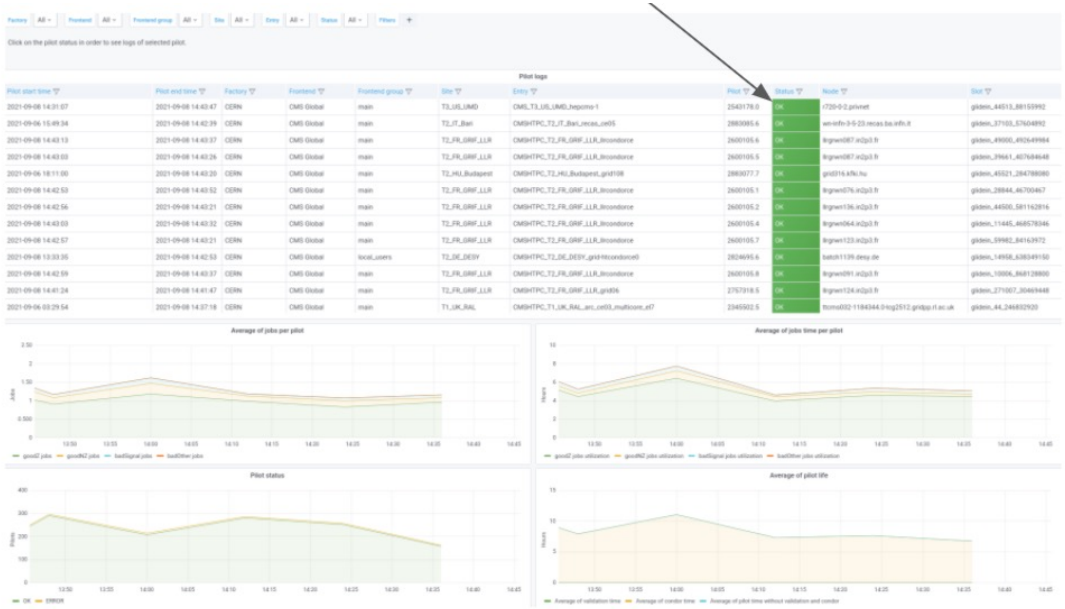
Bruno Coimbra - status

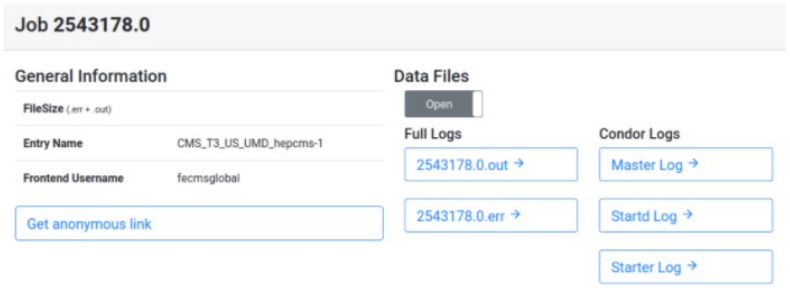
- Custom execution points for VO scripts
  - I made good progress on this task. As this is a lower priority feature, it'll still now make its way in the next release

- Direct Submission Application
  - Maia finished her internship at the end of last month. She made improvements to the Direct Submission Application, making it portable to any machine running a GWMS Factory
  - She also studied ways in which we could rewrite the glidein_startup.sh script in Python, identifying key aspects of the Factory functionalities that would require adaptations.
- Current Focus
  - Releasing GlideiWMS 3.9.3
  - Testing and validating the new release
  - Improvements to the glidein_startup script.

Marco Mascheroni

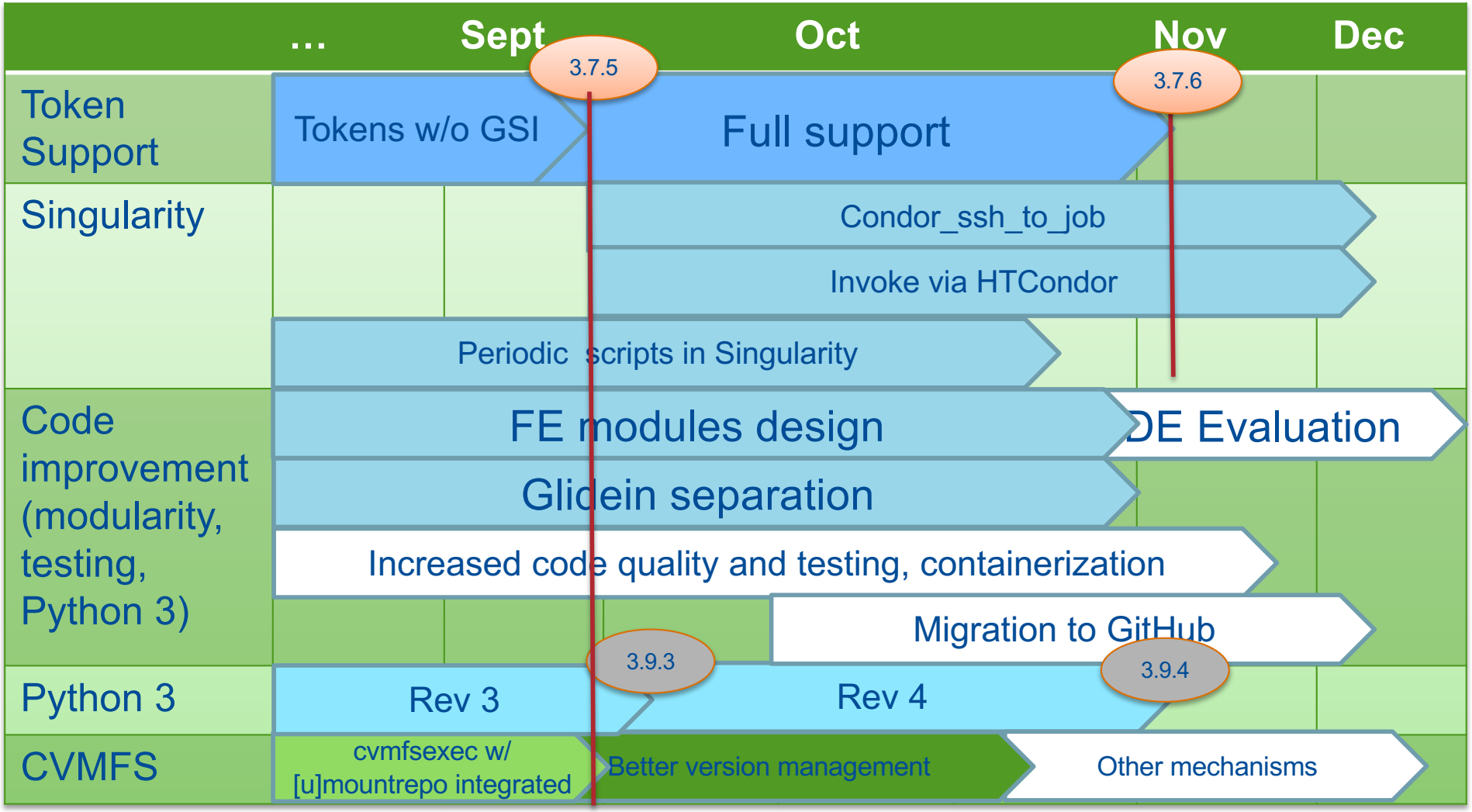
- Main work on making the pilot log monitoring production ready
  - Tool now accessible through CERN Single Sign On in place of custom Flask authentication
  - Changed engine used to serve the pages to mod_wsgi (faster and more secure)
- Useful links
  - CMS grafana dashboard for the pilot monitoring: https://monit-grafana.cern.ch/d/MajRVJ8Mk/pilots-logs?orgId=11
  - Click on the status to access logs





- Waiting on request to open ports on CERN firewall

Development Roadmap overview



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

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Roadmap in detail – Plans for 3.8 / 3.7.6 (mid Nov)

https://cdcvs.fnal.gov/redmine/projects/glideinwms/roadmap

- Close 3.6 series (attribute expansion in configuration)
- Complete token authentication (OSG) – Dennis
  - Fully working token implementation
  - No errors if no GSI
- Singularity support (CMS/OSG/Fermilab) – Marco Mambelli
  - Simplified code by Singularity invocation via HTCondor
  - Simplified troubleshooting by allowing ssh to job in Singularity
  - Ongoing collaboration w/ OSG – Mats
- Ease operations
- Containerization (OSG/Fermilab/FactoryOps)
  - Factory and Frontend in containers
  - Ongoing collaboration w/ Fermilab/OSG/FactoryOps – Shreyas, Diego

Roadmap: modularity and code quality (HEPCloud/OSG)

- Improvements of Python 3 version - Bruno
  - Better code structure and packaging
  - Remove additional obsolete code
- Glidein as 3rd component (DE, containerization) – Marco Mmb
  - Separate packaging
  - Easier and more robust support for custom scripts - Bruno
- Improve modularity of Frontend (DE) - Marco Mambelli
  - Configuration
  - Business logic https://drive.google.com/file/d/1KTThCsx4ZGjxwqe-gfZtonT3eGJamPed/view?usp=sharing
  - Communication w/ Factory
- Integration with HEPCloud/DecisionEngine (HEPCloud/CMS)
- Expand, simplify and automate testing

Summary

- Development focus
  - Tokens

- Expect more development also for
  - Glideins
  - Singularity
  - Frontend modularity

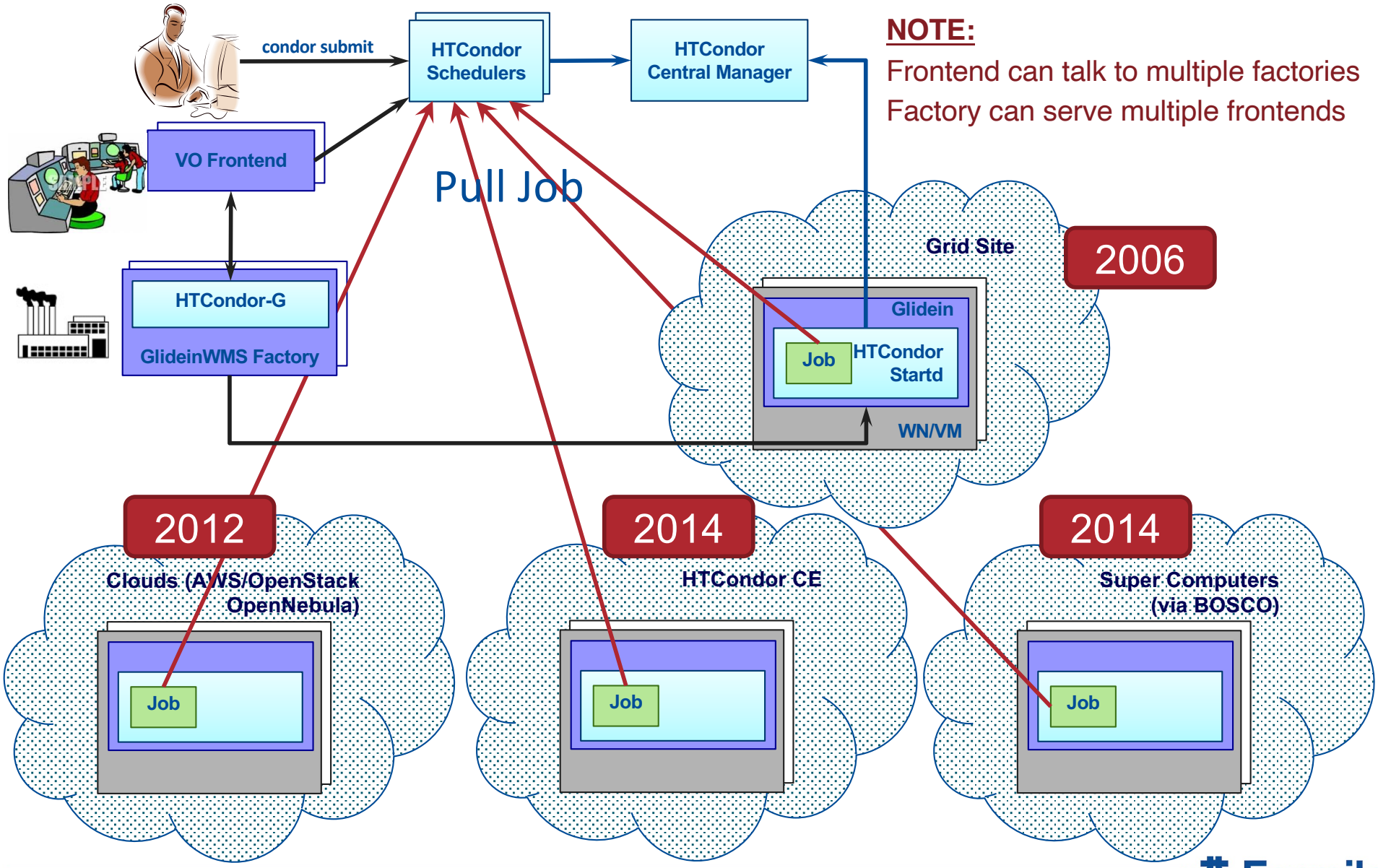
Extra Slides

Reference Slides

Move to single user Factory

- Starting from 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.

GlideinWMS



NOTE:

Frontend can talk to multiple factories

Factory can serve multiple frontends

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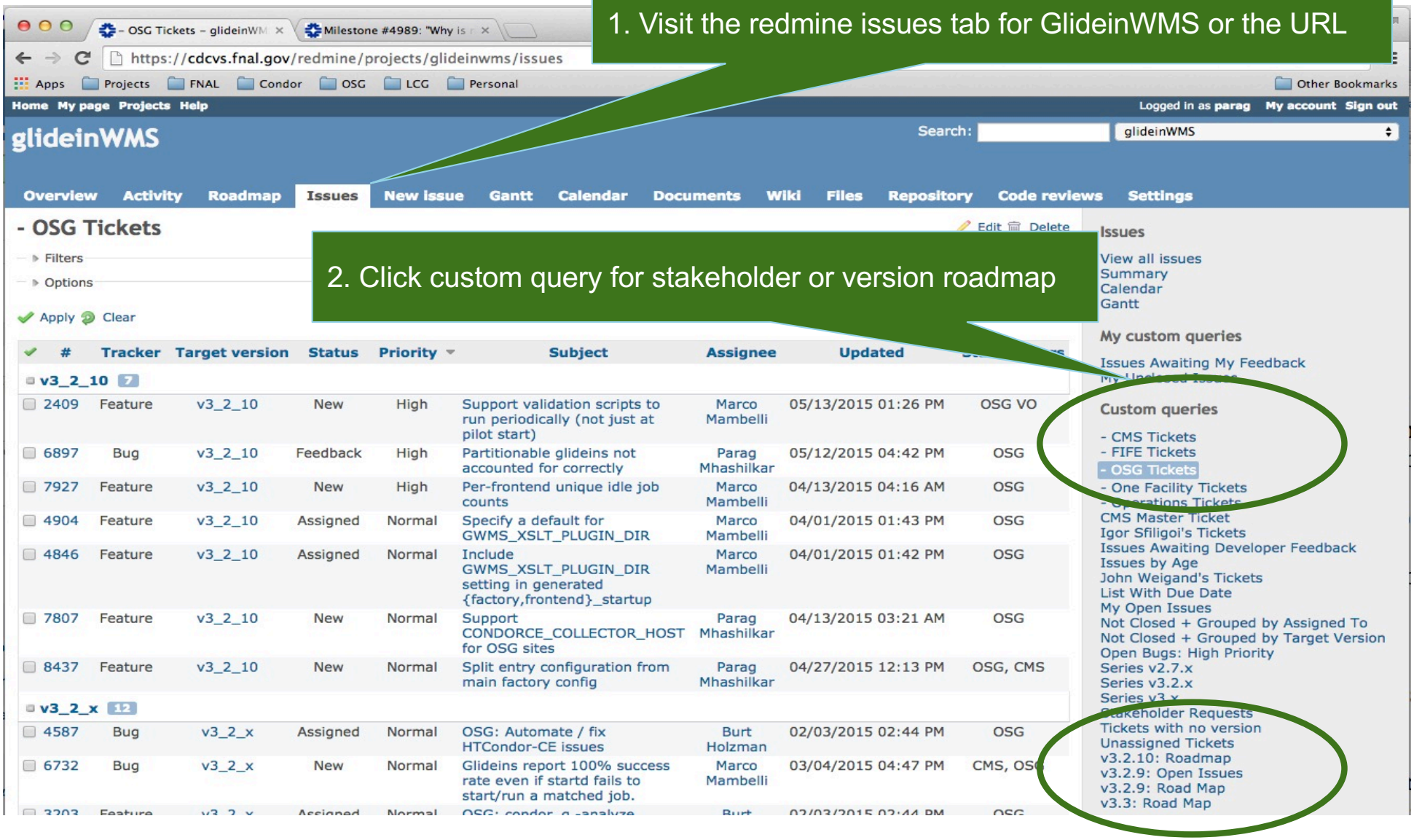
Quick Facts: Releases & Support Structure

- 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

Tracking Releases in Redmine