

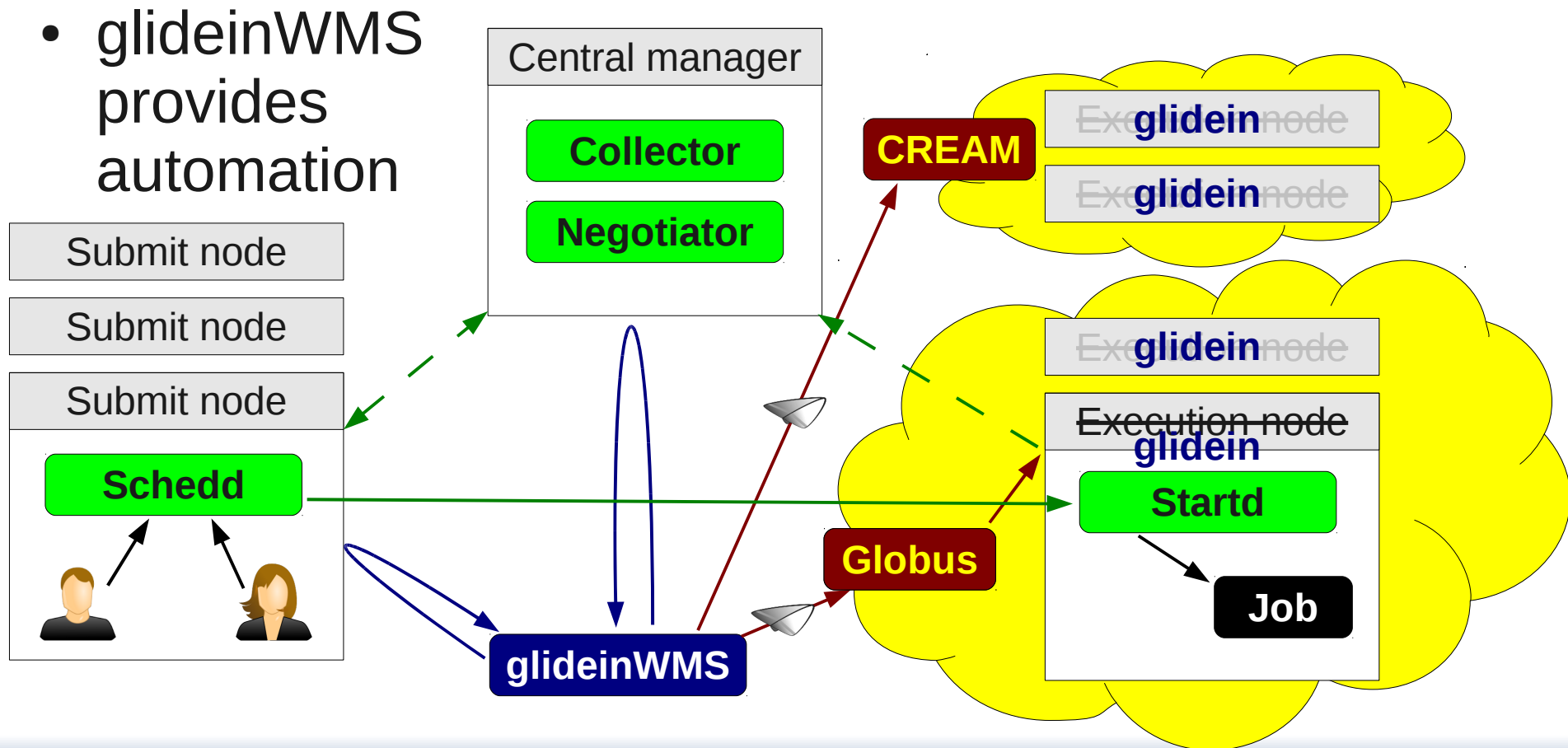
glideinWMS Training @ UCSD

# **glideinWMS frontend Monitoring**

by Igor Sfiligoi (UCSD)

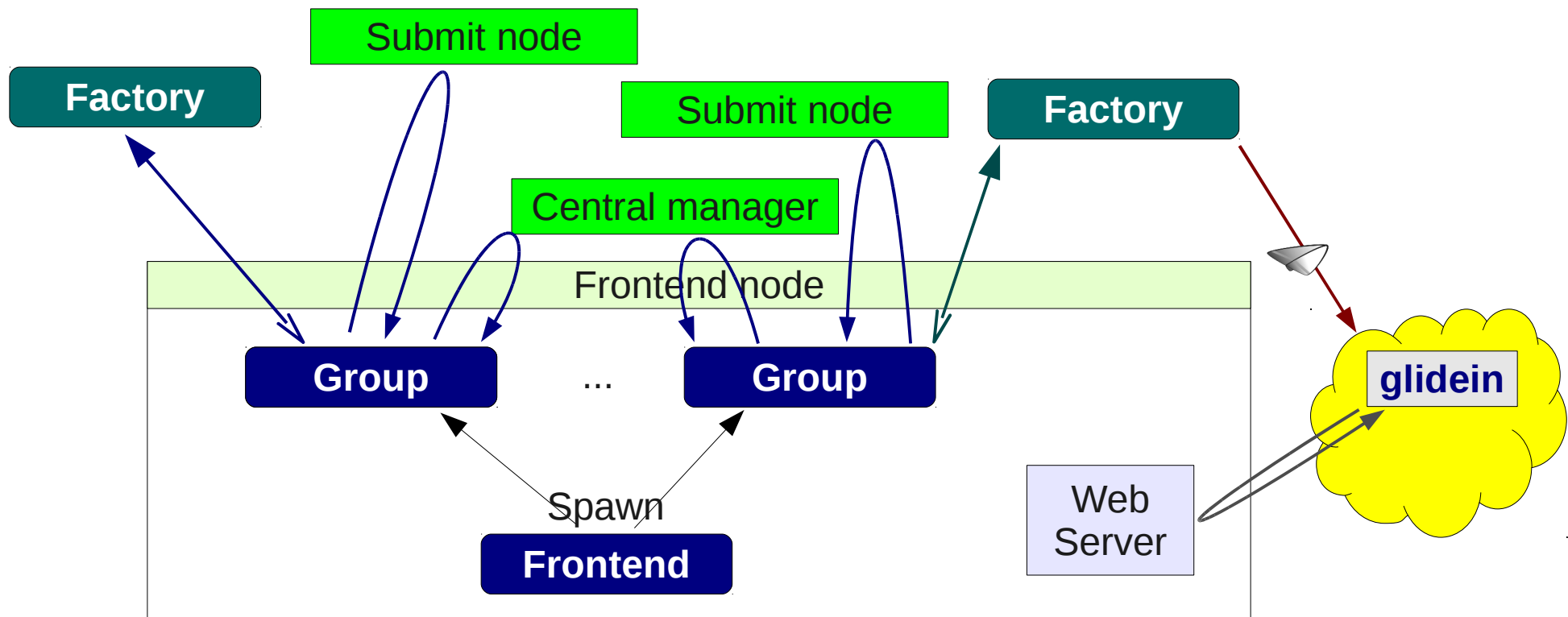
# Refresher - Glideins

- A glidein is just a properly configured Condor execution node submitted as a Grid job



# Refresher - Frontend arch

- Many Groups, plus a “master” process



# Monitoring

- Monitoring available in several locations
  - Condor monitoring
  - glideinWMS monitoring
- glideinWMS monitoring provides just high level information
  - Turn to Condor when you want details

# Frontend monitoring

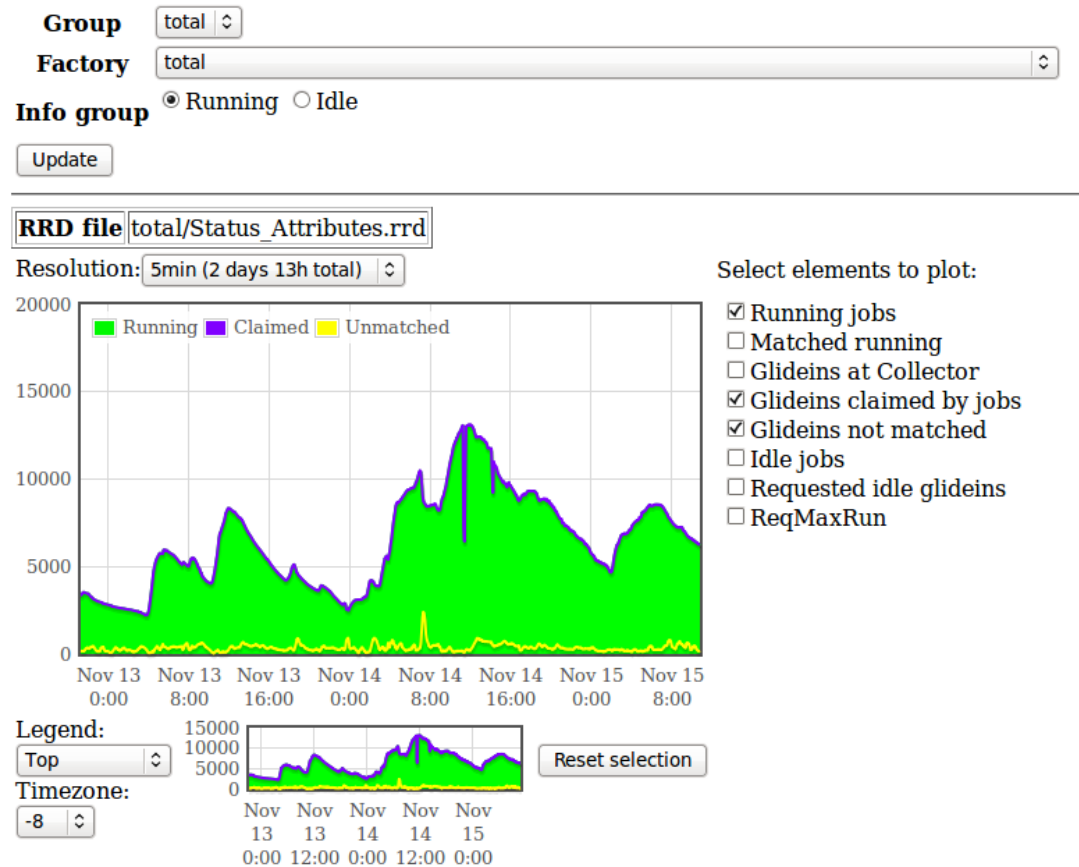
- Each Group:
  - Activity log
  - RRD files with statistics (running, held, etc.)
  - XML files with current snapshot
- Master frontend aggregates RRD and XML files, and writes the in its own area
  - Human readable/viewable Web pages available

# Example activity log

```
01-07:00 15037] Iteration at Tue Nov 15 10:44:01 2011
01-07:00 15037] Query condor
01-07:00 15037] Child processes created
05-07:00 31633] WARNING: Failed to talk to schedd submit-1.t2.ucsd.edu. See debug log for more details.
05-07:00 15037] All children terminated
05-07:00 15037] Jobs found total 4836 idle 1732 (old 1732, voms 1703) running 3104
05-07:00 15037] Glideins found total 639 idle 8 running 630 limit 800 curb 600
05-07:00 15037] Using 1 proxies
05-07:00 15037] Match
05-07:00 15037] Counting
05-07:00 15037] Child processes created
06-07:00 15037] All children terminated
06-07:00 15037] Total matching idle 1732 (old 1703) running 3104
06-07:00 15037]
06-07:00 15037]           Jobs in schedd queues           |           Glideins           |           Request
06-07:00 15037] Idle (match  eff  old  uniq )  Run ( here  max ) | Total Idle  Run | Idle MaxRun Down Factory
06-07:00 15037] 171( 1705  170  169    0) 3104( 102  250) | 105  1  103 | 10 3276 Up CMS_T2_US_Nebraska_Red@Prod
06-07:00 15037] 171( 1705  167  169    0) 3104( 187  250) | 197  4  193 | 10 3276 Up CMS_T2_US_Nebraska_Red_gw1@
06-07:00 15037] 171( 1705  171  169    0) 3104(  0  250) |  0  0  0 | 10 3276 Down CMS_T2_US_Nebraska_Red_gw2@
06-07:00 15037] 171( 1705  171  169    0) 3104(  62  250) | 62  0  62 | 10 3276 Up CMS_T2_US_Wisconsin_cms01@P
06-07:00 15037] 171( 1705  171  169    0) 3104(  71  250) | 71  0  71 | 10 3276 Up CMS_T2_US_Wisconsin_cms02@P
06-07:00 15037] 171( 1705  169  169    0) 3104(  88  250) | 96  2  94 | 10 3276 Up CMS_T2_US_Nebraska_Red@v1_0
06-07:00 15037] 171( 1705  171  169    0) 3104(  1  250) |  1  0  1 | 10 3276 Up CMS_T2_US_Nebraska_Red_gw1@
06-07:00 15037] 171( 1705  171  169    0) 3104(  0  250) |  0  0  0 | 10 3276 Down CMS_T2_US_Nebraska_Red_gw2@
06-07:00 15037] 171( 1705  171  169    0) 3104(  45  250) | 45  0  45 | 10 3276 Up CMS_T2_US_Wisconsin_cms01@v
06-07:00 15037] 171( 1705  170  169    0) 3104(  60  250) | 62  1  61 | 10 3276 Up CMS_T2_US_Wisconsin_cms02@v
06-07:00 15037]
06-07:00 15037]           Jobs in schedd queues           |           Glideins           |           Request
06-07:00 15037] Idle (match  eff  old  uniq )  Run ( here  max ) | Total Idle  Run | Idle MaxRun Down Factory
06-07:00 15037] 1368(13640 1360 1352  0) 24832( 616 2000) | 639  8  630 | 80 26208 Up Sum of useful factories
06-07:00 15037] 342( 3410  342  338  0) 6208(  0  500) |  0  0  0 | 20 6552 Down Sum of down factories
06-07:00 15037] 27(  27  27  14  27)  0(  0  0) |  0  0  0 |  0  0 Down Unmatched
06-07:00 15037] Advertizing 10 requests
07-07:00 15037] Done advertizing
07-07:00 15037] Advertising 10 glideresource classads to the user pool
07-07:00 15037] Done advertising glideresource classads
07-07:00 15037] Writing stats
07-07:00 15037] Sleep
```

# Example Web page

## VO frontend status



# Example Web page

## Current GlideinWMS Frontend Status

[ [Browse](#) | [Group Matrix](#) | [Status](#) ]

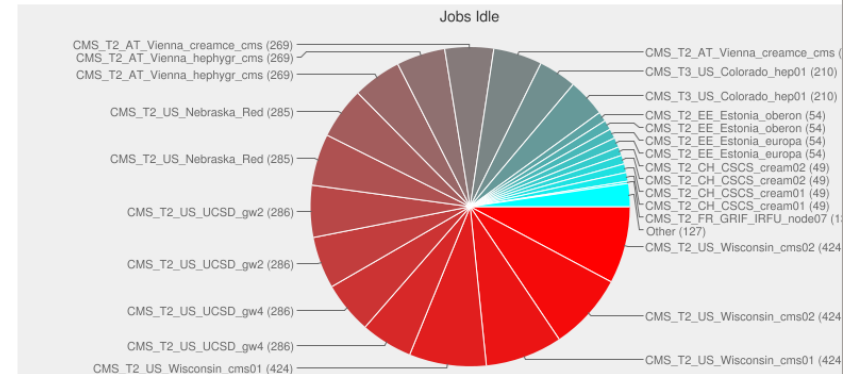
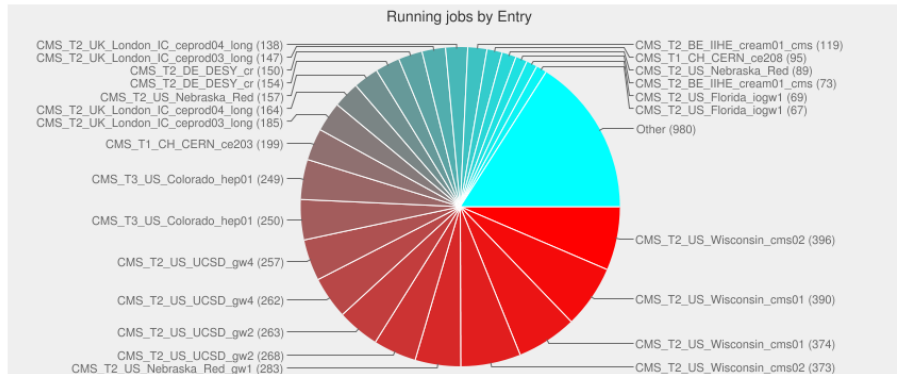
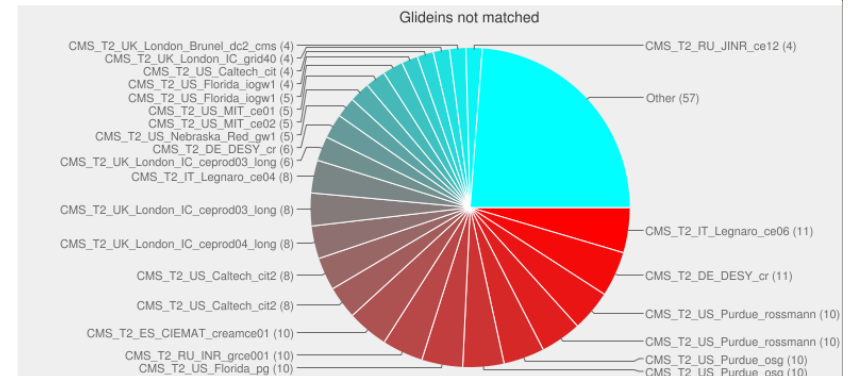
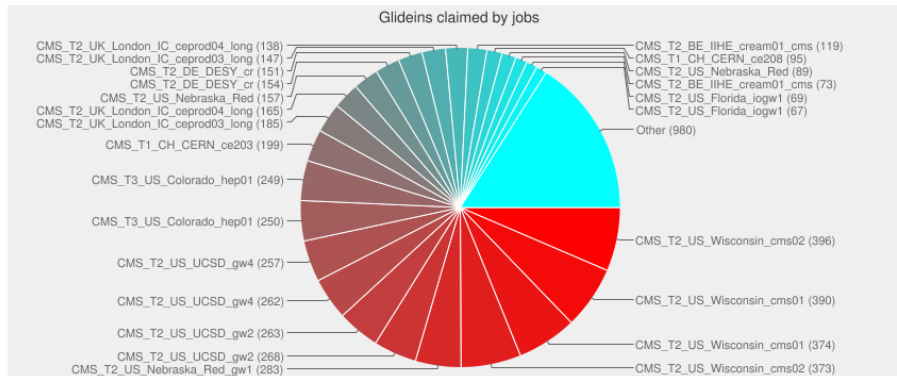
Refresh Data

Snapshot last updated: Tue Nov 15 10:52:22 2011

Groups:

main

Reduce Graphs





# Condor monitoring

- Standard command line tools
  - `condor_q` and `condor_status`
  - Possibly with `-l` or/and `-format` options
  - Consider also `condor_history`
- Glidein provided helper
  - `glideinWMS/tools/glidein_status.py`
- Web/GUI tools:
  - CondorView
  - CycleServer

# Example commands

- **Simple status**

```
# condor_status -total
```

	Total	Owner	Claimed	Unclaimed	Matched	Preempting	Backfill
X86_64/LINUX	6933	0	6685	247	0	1	0
Total	6933	0	6685	247	0	1	0

- **Simple job overview**

```
# condor_status -schedd
```

Name	Machine	TotalRunningJobs	TotalIdleJobs	TotalHeldJobs
cmsfnal01.fnal.gov	cmsfnal01.	0	0	0
glidein-2.t2.ucsd.edu	glidein-2.	6682	4528	204
submit-2.t2.ucsd.edu	submit-2.t	0	0	0

	TotalRunningJobs	TotalIdleJobs	TotalHeldJobs
Total	6682	4528	204

# glidein\_status

- Example run

```
$ ./glidein_status.py -total
```

	Total	Owner	Claimed/Busy	Claimed/Retiring	Claimed/Other	Unclaimed	Matched	Other
CMS_T2_BE_IIHE_cream01_cms@v1_0@OSGGOC	45	0	28	3	0	14	0	0
CMS_T2_BE_UCL_ingrid@v1_0@OSGGOC	3	0	3	0	0	0	0	0
CMS_T2_DE_DESY_cr@v1_0@OSGGOC	89	0	85	0	0	4	0	0
CMS_T2_DE_RWTH@v1_0@OSGGOC	28	0	24	0	0	4	0	0
CMS_T2_DE_RWTH_grid-ce2@v1_0@OSGGOC	33	0	31	0	0	2	0	0
CMS_T2_ES_CIAMAT_creamce01@v1_0@OSGGOC	26	0	21	2	0	3	0	0
CMS_T2_ES_CIAMAT_lcg02@v1_0@OSGGOC	22	0	20	2	0	0	0	0
...								
CMS_T2_US_Purdue_osg@Production_v4_1@UCSD	2	0	2	0	0	0	0	0
CMS_T2_US_Purdue_rossmann@Production_v4_1@UCSD	3	0	3	0	0	0	0	0
CMS_T2_US_UCSD_gw2@Production_v4_1@UCSD	293	0	285	8	0	0	0	0
CMS_T2_US_UCSD_gw4@Production_v4_1@UCSD	283	0	270	12	0	0	0	1
CMS_T2_US_Wisconsin_cms01@Production_v4_1@UCSD	542	0	472	65	0	5	0	0
CMS_T2_US_Wisconsin_cms02@Production_v4_1@UCSD	566	0	491	74	0	1	0	0
CMS_T3_US_Colorado_hep01@Production_v4_1@UCSD	250	0	247	3	0	0	0	0
CMS_T3_US_UCR_top@Production_v4_1@UCSD	1	0	1	0	0	0	0	0
Total	6864	0	6239	384	7	232	0	2

# Example script

- Look for restarts

```
$ condor_q -format '%s ' Owner -format '%i ' JobStatus  
-format '%i\n' NumJobStarts| sort |uniq -c  
1 nschafer 2 16  
1 nschafer 2 17  
1 nschafer 2 18  
1 nschafer 2 22  
9 pocraig 2 0  
51 pocraig 2 1  
8 pocraig 2 2  
6 pocraig 2 3  
3270 rydog 1 0  
17 rydog 2 0  
282 rydog 2 1  
17 rydog 2 2
```

# Example report

- Catalog and extract usage and exit vals

```
condor_history
  -const "(JobStatus=?=4)&&(MATCH_GLIDEIN_SES!=UNDEFINED)&&
    (CompletionDate>`expr \`date +%s\` - $period '*' 3600`)"
  -format "%i "
    "((stringListMember(MATCH_GLIDEIN_SES, DESIRED_SES, "\", \")=?=False)&&
(stringListMember(MATCH_GLIDEIN_Gatekeeper, DESIRED_Gatekeepers, "\", \")=?=False))"
  -format '%s ' 'ifThenElse(ExitCode!=UNDEFINED, string(ExitCode), "NA")'
  -format '%i ' RemoteWallClockTime -format '%i ' RemoteUserCpu
  -format '%i ' RemoteSysCpu -format "%s " Owner
  -format '%s ' MATCH_GLIDEIN_Site -format '%s ' MATCH_GLIDEIN_SES
  -format '%s ' DESIRED_SES -format '\n' ExitCode >$log_name
```

- Then parse it out

```
Overflow: 558 (2.38462% wall 3.24814%) Normal: 23400
Exit 0: 78.853% (vs 88.7479%) wall 93.2442%
Exit 84: 0.179211% (vs 0.564103%) wall 0.0610937%
Efficiency: 86.5018% (vs 91.1175%)
Eff >80%: 72.7599% (vs 78.3291%)
```

# Live demo

# Pointers

- The official project Web page is <http://tinyurl.com/glideinWMS>
- glideinWMS development team is reachable at [glideinwms-support@fnal.gov](mailto:glideinwms-support@fnal.gov)

# Acknowledgments

- The glideinWMS is a CMS-led project developed mostly at FNAL, with contributions from UCSD and ISI
- The glideinWMS factory operations at UCSD is sponsored by OSG
- The funding comes from NSF, DOE and the UC system