

Them: How long have you been programming?
Me: Since high school
Them: So you're a good programmer?



Group A(mazing) Prezzie

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U.S. DEPARTMENT OF
ENERGY

Priority calculation algorithm

Remote user priority (RUP) of user u at any time t is given by

$$\pi_r(u, t) = \beta \times \pi_r(u, t - \delta t) + (1 - \beta) \times \rho(u, t)$$

Where $\rho(u, t)$ is the uses of user u at time t , and

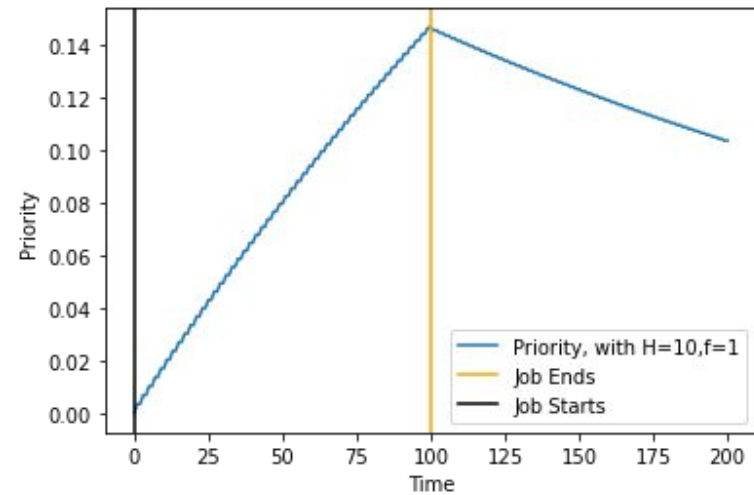
$$\beta = 0.5^{\delta t/h}$$

And h is a half life, set in the central manager's config file, under `PRIORITY_HALFLIFE` configure variable.

EUP, or effective user priority, is what's used by the negotiator to assign jobs.

$$\pi_e(u, t) = \pi_r(u, t) \times f(u, t)$$

Defined as the product of RUP and the 'priority boost factor'.



Simulation of a user's priority. They use half of our cluster's resources for 100 seconds, then their job stops. The half-life of the system is set at $H=10$

How the negotiator matches jobs with resources

Central manager side - condor_negotiator

- Create a list of all resources in the pool, along with all job submitters
- Sort submitters by EUP, with best priority at the top
- Iterate through the priority list until all submitters have resources

Job matching

- If the job requests too many resources or if a machine is already claimed, a job isn't matched.
- Reason for claim
 - No preemption, Rank, and Priority
- The central manager then assigns the job to the top machine on the match list based on job rank and reason for claim.

Job Priority List For Cluster


- Three Groups
 - Mathematics
 - 5% of the queue
 - Physics
 - 90% of the queue
 - Chemistry
 - 5% of the queue
- We also have some added criteria for who can submit jobs on our cluster
 - Ex:
 - If you're named "Andrew", no jobs for you

```
DAEMON_LIST = COLLECTOR, NEGOTIATOR
ALLOW_DAEMON = *
ALLOW_READ = *
ALLOW_WRITE = *
COLLECTOR_HOST = elisec
GROUP_NAMES = group_physics, group_math, group_physics.andrew, group_chemistry
GROUP_QUOTA_group_physics = 0.9
GROUP_QUOTA_group_math = 0.05
GROUP_QUOTA_group_physics.andrew = 0.0
GROUP_QUOTA_group_chemistry = 0.05
GROUP_ACCEPT_SURPLUS = false
GROUP_ACCEPT_SURPLUS_group_physics = true
GROUP_ACCEPT_SURPLUS_group_math = false
GROUP_ACCEPT_SURPLUS_group_chemistry = false
GROUP_ACCEPT_SURPLUS_group_physics.andrew = false
```

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BY Team A



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The image shows a screenshot of a LinkedIn profile and a post. The profile is for Charles Hultquist, a physicist at UC Berkeley. The post is from FermiLab, featuring a photo of scientists working at a computer workstation.

Profile:

- Name:** Charles Hultquist
- Current Position:** Physics @ UC Berkeley, Berkeley, California
- Education:** University of California, Berkeley
- Stats:** 20 Profile viewers, 249 Connections
- Options:** Saved items, Groups, Events

Post:

- Author:** FermiLab (4 days ago)
- Text:** Our scientists hard at work!
- Image:** A group of four scientists (three women and one man) are sitting around a table, looking at laptops and discussing work.