Simulation Factory: Simplified Simulation Management
Dr Allen: pure awesomeness.

My Project: Simulation Factory.

Work previously done by Dr Erik Schnetter.
Simulation Factory: Purpose

- Providing access to Cactus across many different resources, including LONI and the TeraGrid
- Sync an authoritative source tree to remote machines.
- Providing a consistent facility to deploy simulations and collect their output
Simulation Factory: Motivations

Computer Science!
- Design abstract interfaces to model each stage of a simulation lifecycle.
- Create well-defined data structures to model a machine, an application, and most importantly, a simulation.
- Creating an architecture that is easily maintained, and also easy to modify and extend.
- Separate user interface code from application logic.
Simulation Factory: Goals

- Port existing Simulation Factory from Perl to Python
- Future plans to make a GUI interface, iPhone app, implement extended coolness.
- Separate Simulation Factory from Cactus, allowing it to work with any number of existing and future simulation toolkits.
One of the biggest problems in using the TeraGrid and LONI is the uniqueness of each machine. The Machine Database, conceived by Dr Erik Schnetter and others, solves this problem.
Simulation Factory: MDB Example

3619 [queenbee]
3620
3621 # Machine description
3622 nickname = queenbee
3623 name = Queen Bee
3624 location = LONI, LSU
3625 description = The large LONI Linux cluster
3626 webpage = http://www.loni.org/systems/system.php?system=QueenBee
3627 status = production
3628
3629 # Access to this machine
3630 user = mwt
3631 email = mthomas@cct.lsu.edu
3632 hostname = qb4.loni.org
3633 # iomachine
3634 # trampoline
3635 rsynccmd = /home/eschnett/rsync-3.0.6/bin/rsync
3636 rsyncopts =
3637 sshcmd = ssh
3638 sshopts =
3639 localsshsetup = :
3640 sshsetup = :
3641 aliaspattern = ^qb[0-9]\(\\.loni\..org\)?$
Simulation Factory: Progress

- **Original Simfactory**
  - 5,730 L.O.C.
  - Composed of one monolithic file.

- **New Simfactory**
  - ~45% Complete. 3,600 L.O.C.
  - 15 Classes, 6 executables, 18 separate files.