



Enabling Grids for E-scienceE

FTS and L&B

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JRA1 All Hands Meeting

Brno, Czech Republic

June 20-22, 2005

www.eu-egee.org



Information Society



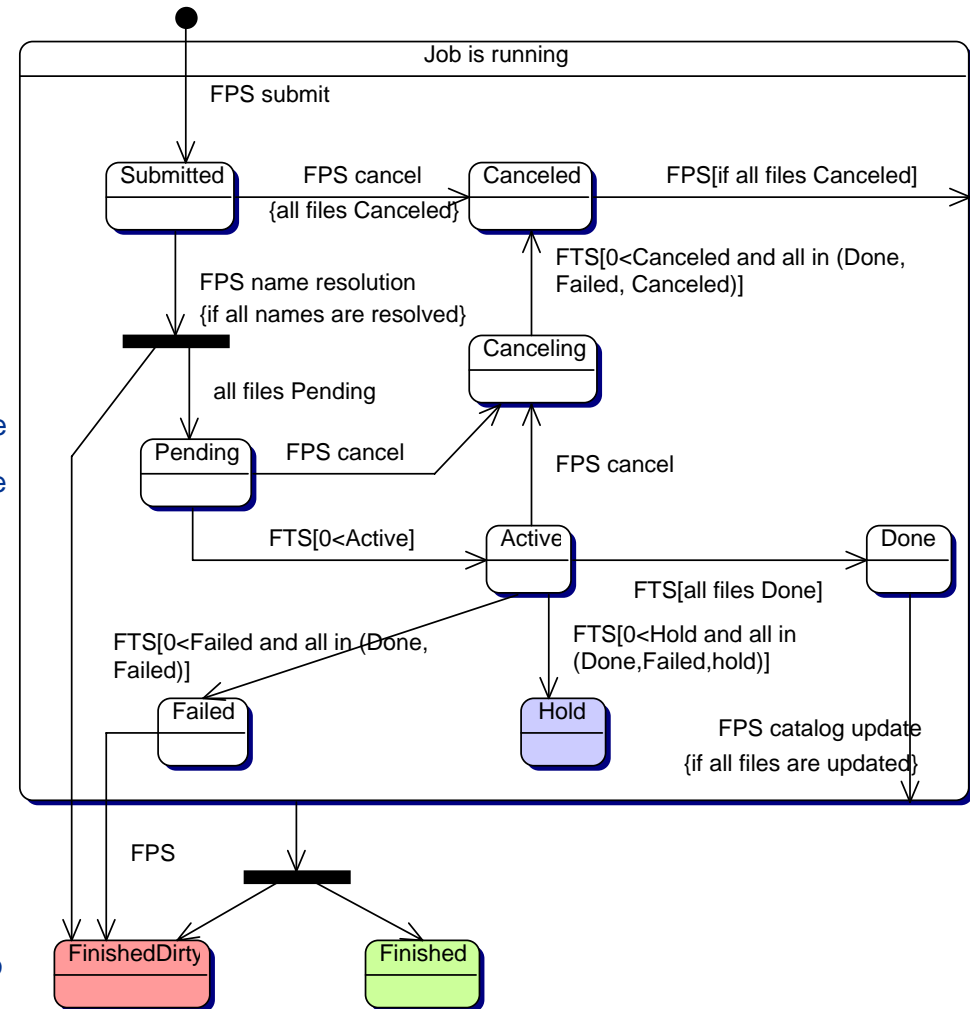
- **File States**

- The file states are not relevant to the L&B, since it is too much information and less than the job control granularity.

- **Job Transfer States**

- Submitted
- Pending
- Active
- Done
- Hold
- Failed
- Canceling
- Canceled

- **Submitted**
 - job is submitted but not yet assigned anywhere
- **Pending**
 - Immediate after submitted, meaning assigned to a channel and awaiting transfer.
- **Active**
 - Once there is space on the network, and any files in the job start to be transferred.
- ✓ **Done**
 - Once all files are successfully finished. This is a terminal state.
- **Hold**
 - While there are any files still to transfer, the Job state remains in Active – unless all the remaining files are in the Hold state. For a file to be in Hold, it must have failed a number of times, i.e. the retry agent must have given up on it.
- ✓ **Failed**
 - If the Job is on Hold, a manual intervention can set it to Failed, Canceling or Pending.
 - If it goes the Pending, the process continues as above
- **Canceling**
 - A job can be set Canceling at any time, in which case, any Active files will complete, Done files will stay as they are (i.e. replicated), and all other files will be set to Canceled.
- ✓ **Canceled**
 - The job will remain in Canceling until no more files are Active on the network, whereupon it will be set to Canceled(*).



- For catalog interaction we need a few extra states – since the FPS will attempt to register the replicated files in the catalog:
 - ✓ **Finished**
 - If all files were successfully transferred and successfully registered, it goes to Finished.
 - ✓ **FinishedDirty**
 - If anything went wrong (some of the files didn't transfer, and/or some files didn't register) it goes to FinishedDirty.
- **FTS**
 - If the job is Done, you don't need to check, since you know it was OK.
 - If it's in Failed, you need to check and see what went wrong.
- **FPS**
 - If the job is in Finished, you don't need to check.
 - If it is in FinishedDirty you need to check and see what went wrong.

We'll need to introduce another file state,

Staged

in between Pending and Active

- **Provide an explicit staging step.**
- **This is something Atlas are just about to ask for.**

- **Good news: states will not change much anymore**
 - We would like to keep the names of these states
 - New states will only be added due to a good (production) reason.
- **From our point of view L&B would be notified of new State or Event leading to State change**
 - State machine is not externalized
 - May think of a pluggable callback mechanism for State change notification in the future
- **Workload management interaction options:**
 - Submission: Data Scheduler and FTS/FPS directly
 - Status: L&B, DS or FTS/FPS
 - Cancellation: DS or FTS/FPS