Architecture Task Force
Use Case Walkthroughs

Lee Momtahan

Purpose

- At the Retreat we realised the nobody could assure us that the design of the components, when integrated, would meet the end-to-end requirements
- Based on the Class-Responsibility-Collaboration approach we have been trying to gain this assurance in the ATF
- We are walking through the HEPCAL requirements to see which are met in currently planned TB2.0 design.
  - And fixing this plan when problems are found!

Scenario Covered

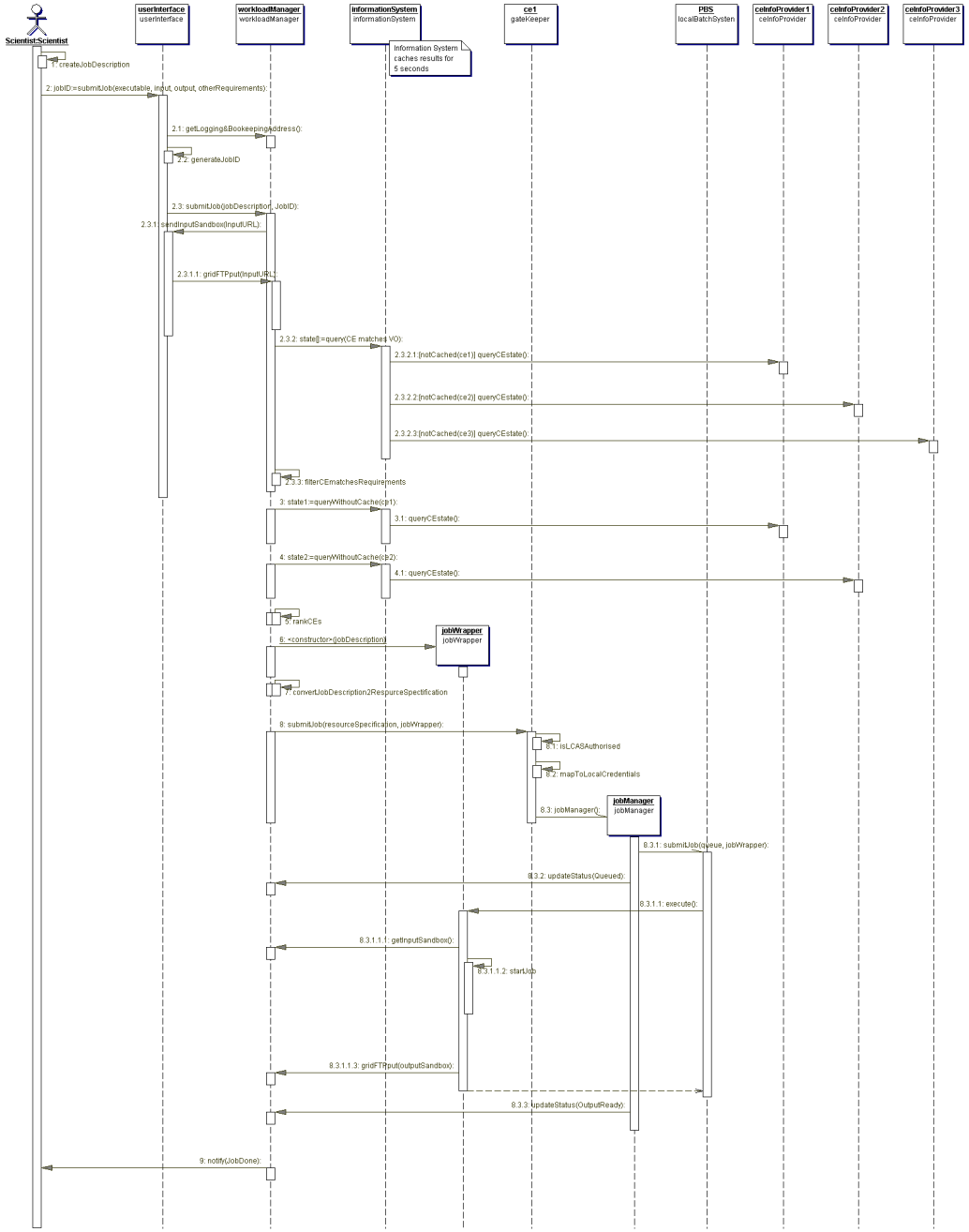
- We have walked through the following scenarios
  - Obtain Grid Certificate
  - Obtain Grid Authorisation
  - Submit simple Job
  - Fetch Output
  - Submit job with logical input files
    - This one is still in progress

Results

- We have found many problems
  - It is much less efficient to wait until integration test to pick up these problems.
- Everybody in the meeting is starting to see the bigger picture of how the system works
  - This should help reduce problems in future

Results

- We are also trying to capture the agreed interaction in sequence diagrams.



Resource Broker - Replica Manager Interface

- Currently the getAccessCost call is parameterised by 1 Computing Element and 1 logical file.
- Resource Broker has a list of Computing Elements and its trying to find the best one for a list of logical files.
- Resource Broker has to call Replica Manager for every logical file and Computing Element. For each logical file the mapping logical->physical file will be re-evaluated per Computing Element.
- Many redundant calls to getNetworkCost(WP7) and getSEcost

Resource Broker – Replica Manager Optimisation

- Considers perhaps too many possibilities.
- Gets worse with remote file access
- Analysis of Jeff showed 20k possibilities
  - If 5 logical files, 5 physical files per logical file, 20 candidate storage elements and 40 candidate computing elements

Dataset Access Use Case

- Is not in Testbed 2.0

Sandboxes can fill file store on Resource Broker

- We have already experience this problem in TB1
- We think this will recur in TB2.0
- Sometime after TB2.0 this will be fixed by staging the sandboxes on the Storage Element

We found other problems

- Some we already fixed
- Others are low severity
  - So no time to mention them now

Conclusions

- This CRC approach has been very fruitful
- We still have much more to go through
- We need to keep up the DIALOGUE between all the middleware and application work packages
- We should come out having a better understanding of what to expect in test bed 2