From Scenarios to Requirements

Example: tool development scenario 120

Example – tool development scenario (120)

- Actors:
  - FNAL software developer (Nicole)
  - CERN LHC Operations Expert (Jacques)
  - FNAL LHC Operations Expert (Rob)
  - LHC physicist at CERN (Francoise)

- Nicole is writing a software tool for the LHC for Beam Based Alignment. This tool will allow the user to adjust the calibration constants of the Beam Position Monitor. She will write a display of the BPM readings and a GUI to adjust the calibration constants. The Beam Based Alignment Tool (BBAT) will be used in the LHC control room at CERN, the LHC@FNAL, other control rooms, and in people's offices.

- Nicole familiarizes herself with the LHC control room and the LHC software development environment. Her goal is to understand the look and feel of the existing applications and to design a natural workflow. The application should have a short learning curve, so it will have the same GUI as the existing tools.

Example

- Rather than installing multiple applications on her desktop, Nicole goes to the LHC@FNAL where all software and hardware is current and mirrors the LHC configuration. At this time she wants to browse to understand the look and feel. Being at LHC@FNAL also gives her a chance to see the fixed displays. What other applications are heavily used how much screen real estate should be used, etc.

- LHC@FNAL shall have the same software applications installed as the LHC control room.
- LHC@FNAL shall have the same or equivalent hardware installed as the LHC control room.
- LHC@FNAL shall be administered such that the software and hardware is current and synchronized with the LHC Control room.
- LHC@FNAL console layout shall mirror the LHC control room console layout.

Example cont.

- Nicole schedules time in LHC@FNAL to meet with Jacques, Francoise, and Rob. Jacques and Francoise are connected via video. She asks them to review the existing tools, and how they envision using BBAT. Francoise has already written the specifications for this tool, so now that Nicole is familiar with the control room displays and has the specifications, she implements BBAT.

- LHC@FNAL shall have a spare console available to the occasional user. (?? What is a spare ??) Maybe – the LHC control room shall have one console reserved for LHC@FNAL.

- LHC@FNAL shall have video and audio connections to the LHC control room.

Example ...

- Nicole now has the first implementation ready. This is still during commissioning and there is no beam yet. She schedules time in LHC@FNAL for testing. Jacques and Francoise are present via video.
- The video connections shall not require a specialized administrator.
- LHC@FNAL shall be quiet enough to hold a phone conversation.
- The only person who can make setting changes is Jacques at the LHC control room. He executes all tests that need setting changes, while Nicole monitors the results triggered by the change in real time. At once she notices that the results are not as expected. The error is a show stopper and needs to be fixed before testing can continue.
- LHC@FNAL shall have secure access to selective real time data (??).

Example …

- Nicole goes back to her office and makes the change. Using the CERN software repository and procedures, she makes a new release of BBAT and installs it at the LHC@FNAL. Jacques also installs the new version in the CCC. (if this were a web application it would only be installed at the CERN web server)
- Software developed at the LHC@FNAL for LHC shall conform to rules and coding standards established by the LHC Project, respectively. (already in req. doc)
- Now with a new release in place, Nicole, Jacques, and Francoise continue the testing. Several iterations are made without beam to ensure all setting operate as expected.
- Once there is beam, they repeat the tests and deploy the tool for production. Jacques, the operator at CERN is the only one who adjusts the calibration constants for BBAT. Nicole and Francoise monitor its impact and are there to react in case of an error.