

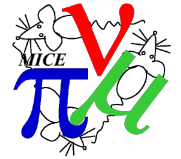
Computing & Software

Durga Rajaram

MICE CM 42

RAL

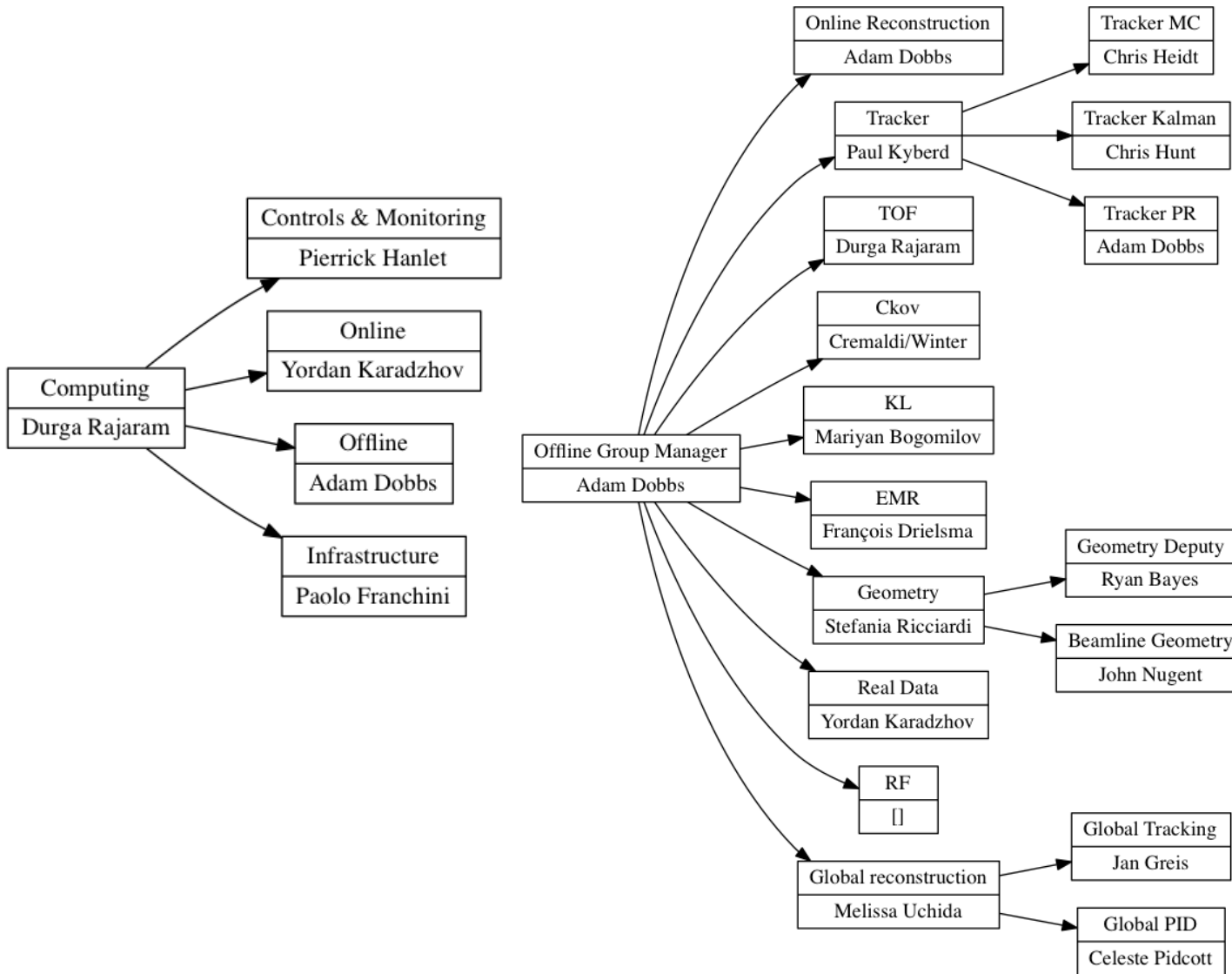
June 23, 2015



OVERVIEW

- Software & Computing Project
 - Organizational changes
- Progress, Status, Issues
- Schedule
- Summary

ORGANIZATIONAL CHANGES



Personnel changes:

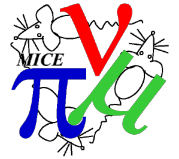
- Paul Kyberd head of offline tracker s/w

PROGRESS SINCE CM41



- C&M, Online, Offline, Infrastructure will report in more detail
- C&M
 - Beamline & detectors Run Control integration
 - Identified long-standing RC instability
- Online
 - FPGA trigger implemented & validated
 - Tracker DAQ integration, tracker ~timed in
 - Unpacking improved to trap data corruption
- Offline
 - EMR reconstruction
 - Geometry speedup implementation
 - Kalman filter rewritten & improved
 - MAUS refactoring for speedup
- Infrastructure
 - Automated raw data file compaction & data movement
 - Replaced C&M server and additional spares

STATUS & ISSUES



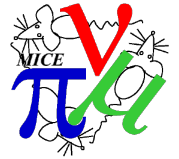
- Data-taking during this month's tracker commissioning revealed some issues & weaknesses
 - Unpacker error handling when encountering corrupt readout – **solved**
 - Need feedback from Online Monitoring to RC to alert shifters about data corruption
 - Bug in tracker data structure affecting track-finding – **solved**
 - Feedback from online reconstruction
 - Improvements are in progress
 - Lots of hard work and rapid fixes and improvements to code in MLCR meant volatile code did not propagate to official MAUS
 - The automated reconstruction was running but with an old release without fixes, which meant physics analyzers were blind to the data
 - At this CM, decided on procedure to propagate fixes to a release

STATUS & ISSUES (CONTD.)



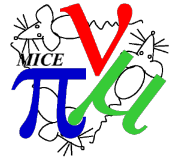
- Data-taking during this month's tracker commissioning revealed some issues & weaknesses
 - Calibrations & channel mapping changes need to go into the CDB
 - Calibrations not final and things are changing rapidly, but the CDB infrastructure should be used for book-keeping
 - Need to adopt official CDB geometry
 - Has been validated. Needs to be tested in the online environment to make sure, before legacy is retired
 - File compaction failed one night & was not caught
 - Monitoring now in place, need additional monitoring of data-movement & reconstruction

UPCOMING



- Offline:
 - June 28:
 - MAUS with fixes & improvements to Online Reco & improved Kalman
 - This will allow the MLCR & offline reconstruction to use the same working version
 - July 6:
 - speedup improvements, adoption of official CDB geometry, tracker calibration to CDB
 - July 17
 - First iteration of Global reconstruction & PID
- Online:
 - July 10: Improved OnMon with reference overlays & RC feedback

CONCLUSIONS



- Lots of effort has gone in to integrating the DAQ, fixing bugs, improving the code & infrastructure
- Have a working readout & reconstruction for tracker & PID detectors
- Several details to address in order to support smooth data taking, feedback & physics analysis

Fun times