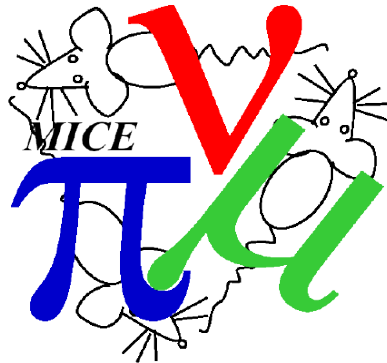




# MICE Computing and Software

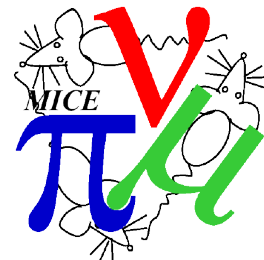
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Rutherford Appleton Laboratory

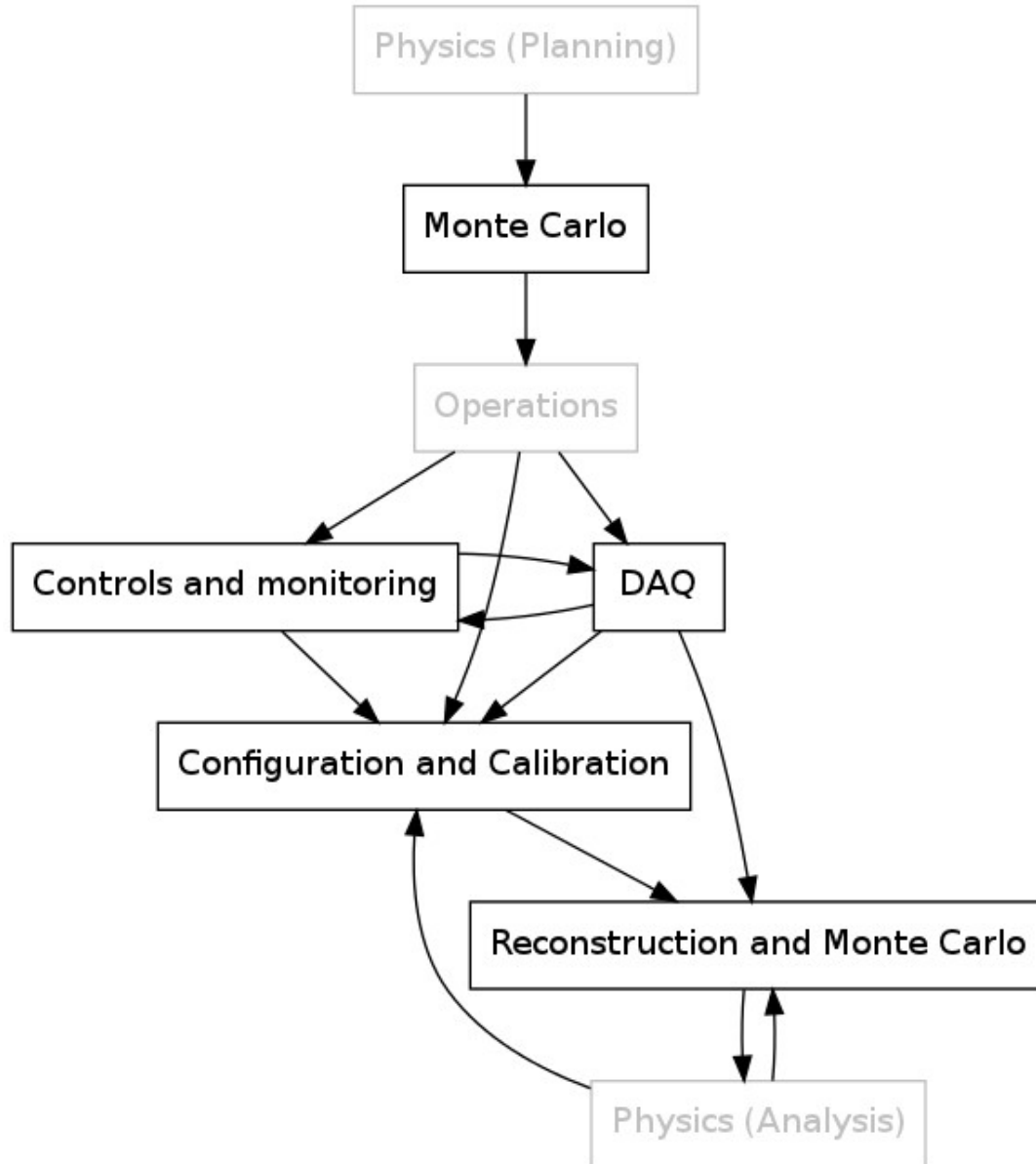
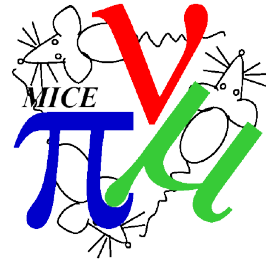


# Computing and Software aims

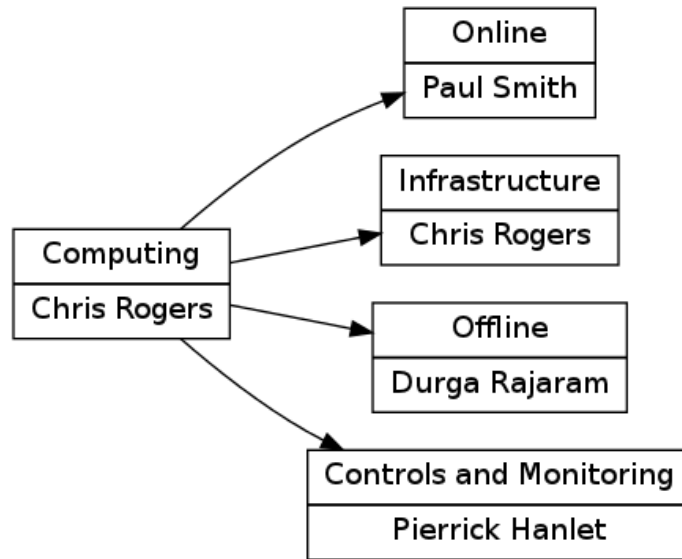
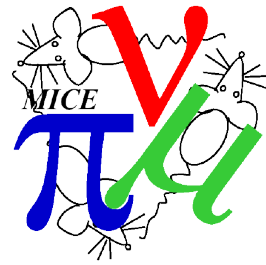


- MICE software and computing project aims to
  - Readout the detectors
  - Convert electronics signals to physics parameters
  - Provide monte carlo model
  - Provide online physics outputs
    - Online monitoring
    - Online reconstruction
    - Online event display
  - Provide controls interfaces to, and monitoring of, hardware
  - Provide some support services e.g. web services, data curation
- Provide online feedback with physics data
  - e.g. phase space distributions at each detector in real time
- Provide reconstructed data for analysis within 24 hours of data taking

# Process Diagram

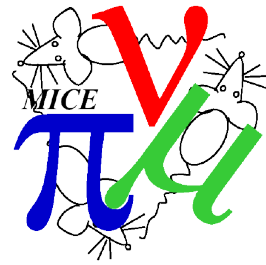


# S/w & Computing Organisation



- Online responsible for MICE local control room (MLCR) systems
  - Includes DAQ
- Infrastructure responsible for computing “glue”
- Offline responsible for developing physics tools
- Controls and monitoring responsible for slow control of hardware

# Staffing

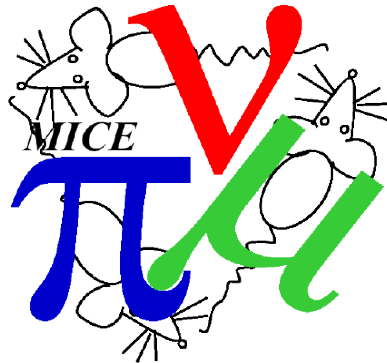


- Paul Smith has now taken over from Ian Taylor in online role
  - Making great progress at getting to grips with the MLCR systems
  - A lot to learn, a lot is hearsay and folklore
- We are lacking in sysadmin staff
  - Missing someone local to RAL to look after PPD web services
  - Missing someone local to RAL to look after the control room
  - Seek to fill the hole - estimate 50% task
- We now have a project plan in place for all but online group
  - Online is in pretty good shape for development tasks
  - Need to make a second pass, check prioritisations are appropriate
  - Will make an informal external review in coming months



# Infrastructure

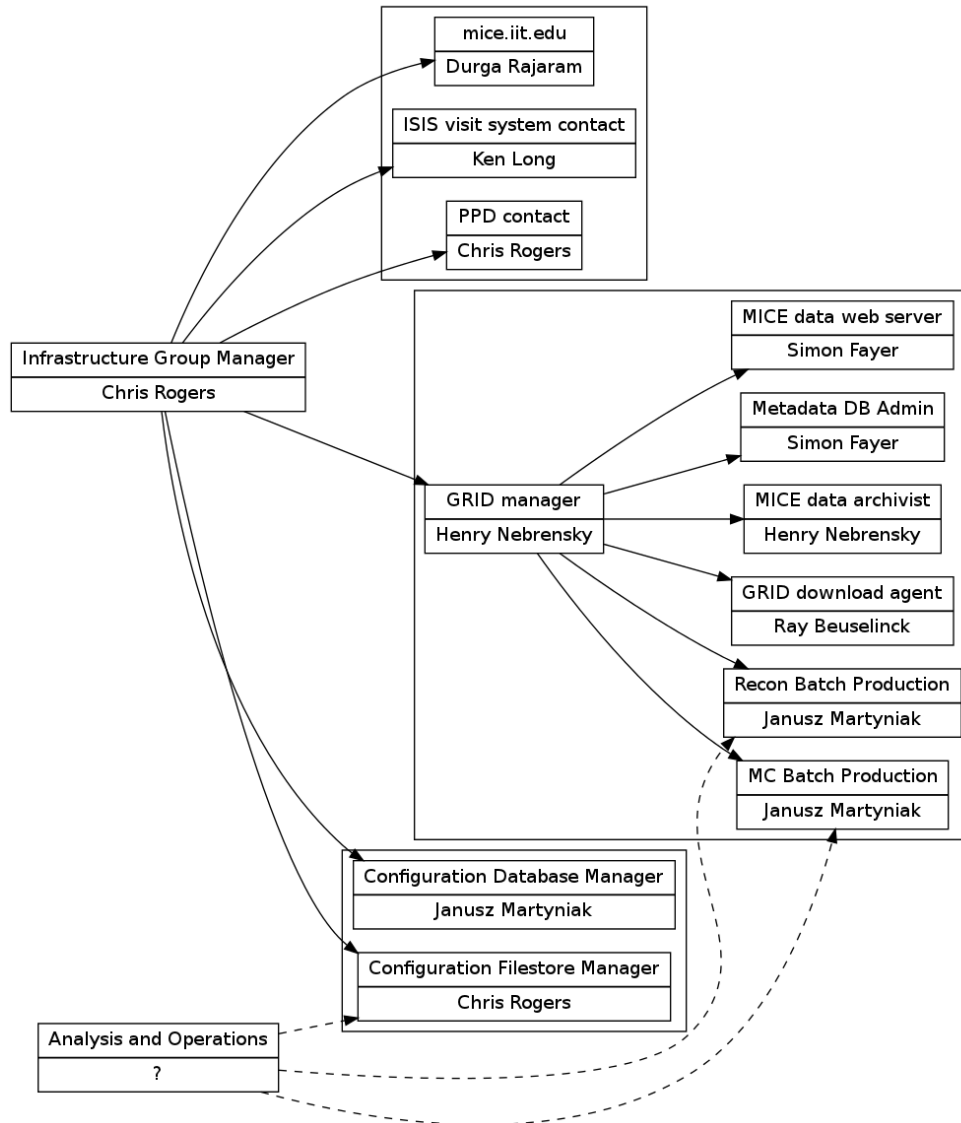
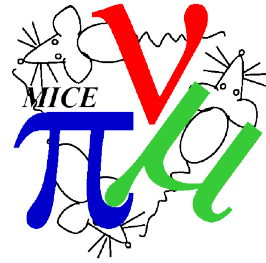
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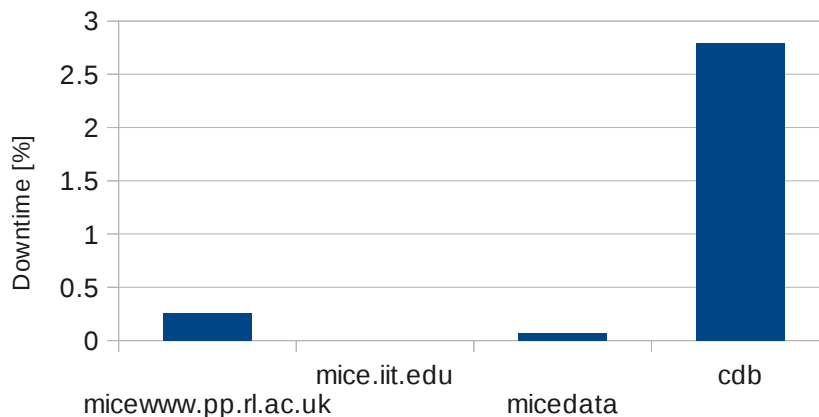
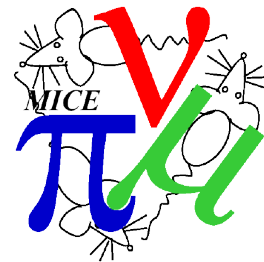
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# Infrastructure WBS

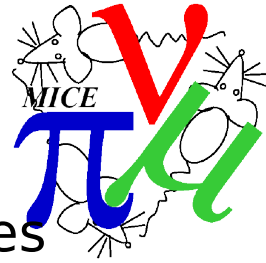


# Webservice Downtimes

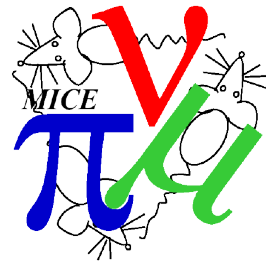


- Micewww downtime due to a failed upgrade of a cluster
  - ~ 6 hours, during UK office hours
- CDB downtimes due to a memory leak in the webservice software
  - Need to find and kill the leak
  - Until then, we will have to implement an automated restarting of the software every night (not a big deal, needs to be done)
  - ~ 120 hours, unacceptably high



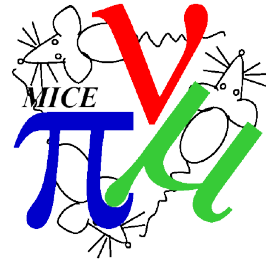


- Resolved issues with MAUS failing to install on GRID nodes
  - Caused by some problems with the distributed file system
- Now have tried twice to run MAUS reconstruction reprocessing jobs
  - Both times have failed
  - Memory leaks!
  - Up to MAUS devs to fix this - it is becoming a “thing”
- Data archiving
  - Missing second lot of Spectrometer solenoid mapping data
- Data movement
  - Slowly progressing to automation
  - Slowly progressing to SL6.4
- MC
  - Need a physics group representative to provide support for this role
  - Priority lowered until we can find this person
- Overall, concerned by slow progress in GRID work
  - Needs prioritisation over generic control room work



- Working towards a C API for cooling channel parameters
  - Stores e.g. magnet currents
  - Provides a more convenient interface for controls software
  - Work around a multithreading issue in python API
- Providing a table for defining reconstruction job parameters
  - e.g. random seed
  - e.g. Monte Carlo data set definitions
- Would be great to see either of these in deployment
- Plans
  - Next big job is to define a table that stores metadata information
    - Is data analyzable?
    - A list of boolean flags
      - Was ISIS okay?
      - Did the data move to the GRID
  - Also seek further feedback on the CDB search tools
    - <http://cdb.mice.rl.ac.uk/cdbviewer/>
- Need Controls software to work and be used correctly to fill CDB!

# CDB Viewer



|      |                            |                            |
|------|----------------------------|----------------------------|
| 2191 | 0002-11-30 00:00:00.0      | 0002-11-30 00:00:00.0      |
| 2275 | 2010-07-07 13:51:16.010016 | 2010-07-07 14:13:39.343037 |
| 2276 | 2010-07-07 14:18:11.055616 | 2010-07-07 14:37:51.13961  |
| 2277 | 2010-07-07 14:50:56.629347 | 2010-07-07 14:56:10.403155 |
| 2278 | 2010-07-07 15:04:28.457738 | 2010-07-07 15:47:25.214777 |
| 2279 | 2010-07-07 15:48:28.610987 | 2010-07-07 16:31:31.909737 |
| 2280 | 2010-07-07 16:44:09.359255 | 2010-07-07 17:27:23.585655 |
| 2281 | 2010-07-07 17:28:28.009655 | 2010-07-07 17:43:56.718255 |
| 2282 | 2010-07-07 17:49:49.555924 | 2010-07-07 18:17:41.382443 |
| 2283 | 2010-07-07 18:25:55.430579 | 2010-07-07 18:43:57.369536 |
| 2294 | 2010-07-08 12:49:01.252294 | 2010-07-08 12:49:06.567585 |
| 2295 | 2010-07-08 12:50:48.024257 | 2010-07-08 12:51:21.379876 |
| 2296 | 2010-07-08 12:58:00.325936 | 2010-07-08 13:10:39.80019  |

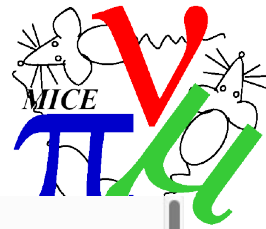
### Run Number: 2279

[Download Run Summary](#) [Download Geometry](#)

**Beamline Details** [Geometry Details](#)

|                       |                            |
|-----------------------|----------------------------|
| Run Number:           | 2279                       |
| Run Type:             | null                       |
| Start Date:           | 2010-07-07 15:48:28.610987 |
| End Date:             | 2010-07-07 16:31:31.909737 |
| Start Pulse:          | 351325                     |
| End Pulse:            | 352325                     |
| Target Depth (mm):    | 29.6                       |
| Target Delay:         | 1.0000111E7                |
| Total Beam Loss (mV): |                            |
| Daq Version:          | 6.5                        |
| Daq Trigger:          | TOF1                       |
| Daq Gate Width (ms):  | 3.23                       |

# Web Services (IIT)



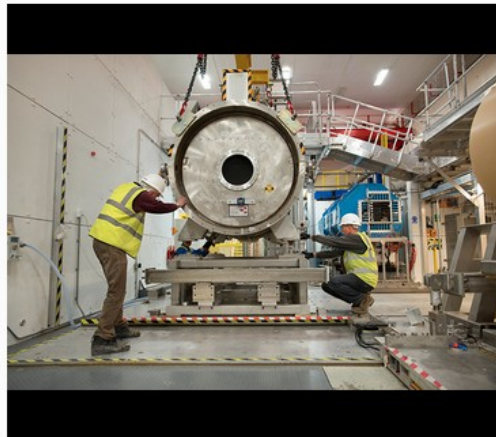
## MICE



### INTERNATIONAL MUON IONIZATION COOLING EXPERIMENT

[Home](#)[Collaboration](#)[Working Groups](#)[Meetings](#)[Documents](#)[Resources](#)

The Muon Ionization Cooling Experiment at [RAL](#) will measure the ionization cooling of a muon beam. Ionization cooling is the only practical solution for cooling a muon beam and is essential for future Neutrino Factory and Muon Collider facilities. Muon beams will pass through an absorber situated within a superconducting magnet and lose energy through ionization energy loss. The longitudinal momentum lost will then be restored by reaccelerating the beam through RF cavities. The beamline has been built and characterized, particle identification detectors commissioned, and installation of the solenoidal trackers and absorber module is underway.



#### Information

[Weekly News](#)[Project Dashboard](#)[MICEmine](#) [MICE Indico](#)[Photo Album](#)[Mailing Lists](#)

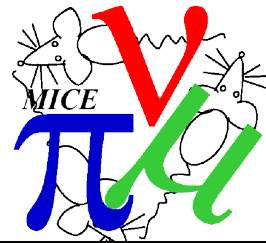
#### Recent Publications

Characterisation of the muon beams for the Muon Ionisation Cooling Experiment  
[DOI](#), [e-print](#)

The MICE Muon Beam on ISIS and the beam-line instrumentation of the Muon Ionization Cooling Experiment  
[DOI](#), [e-print](#)

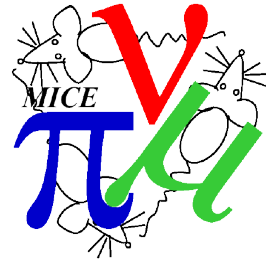
June 26, 2014

- Plan a new web page “look and feel”
- Tabs for working groups etc across the top
- Limited number of direct links on the front page
- Nice, rotating image



| Machine   | Service                                  | Responsible Person(s) | Expected Response Time | Link to Additional Data | Restart Priority |
|-----------|--|-----------------------|------------------------|-------------------------|------------------|
| heplnm069 | configDB slave database                  | Janusz, Chris R       | 2 weeks                | <a href="#">link</a>    | medium           |
| heplnm069 | configDB slave web service               | Janusz, Chris R       | 2 weeks                | <a href="#">link</a>    | low              |
| heplnm069 | heplnv156 backup                         | Chris R               | 2 weeks                | <a href="#">link</a>    | low              |
| heplnm069 | Configuration Filestore                  | Chris R               | 2 weeks                | <a href="#">link</a>    | low              |
| heplnm070 | Jenkins                                  | Chris R               | 2 weeks                | <a href="#">link</a>    | low              |
| heplnm071 | Centos build machine                     | Chris R               | 2 weeks                | <a href="#">link</a>    | low              |
| heplnv150 | mice bastion                             | PPD Sys Admin         | N.B.D.                 | <a href="#">link</a>    | high             |
| heplnv151 | epics archiver                           | Pierrick              | 2 weeks                | <a href="#">link</a>    | low              |
| heplnv151 | epics gateway                            | Pierrick, Chris R     | 2 weeks                | <a href="#">link</a>    | high             |
| heplnv153 | preprod cdb                              | Janusz                | 2 weeks                |                         | low              |
| heplnv154 | epics archiver - in prep                 | Pierrick              | 2 weeks                |                         | low              |
| heplnv154 | epics gateway - in prep                  | Pierrick              | 2 weeks                |                         | high             |
| heplnv155 | mice bastion - in prep                   | PPD Sys Admin         | N.B.D.                 | <a href="#">link</a>    | high             |
| heplnv156 | Apache                                   | Matt R                | 2 weeks                | <a href="#">link</a>    | medium           |
| heplnv156 | configDB read only web service interface | Janusz                | 2 weeks                | <a href="#">link</a>    | medium           |
| heplnv156 | redmine database                         | Chris R.              | 2 weeks                | <a href="#">link</a>    | medium           |
| heplnv156 | redmine software                         | Chris R               | 2 weeks                | <a href="#">link</a>    | medium           |
| heplnv156 | redmine web GUI                          | Chris R. Victoria     | A.S.A.P.               | <a href="#">link</a>    | medium           |
| heplnv156 | elog                                     | P Smith               | 2 weeks                | <a href="#">link</a>    | high             |
| heplnv156 | micehall web cams                        | Chris R               | 2 weeks                | <a href="#">link</a>    | low              |
| heplnv157 | MAUS SL6 test box                        | Chris R               | 2 weeks                | <a href="#">link</a>    | low              |

# Schedule



- At the moment, we are holding schedule
  - Expect all currently planned work will be finished by February
  - As forecast at CM38
  - Don't have detailed breakdown here