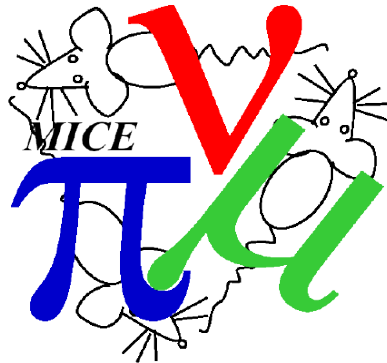# MICE Computing and Software
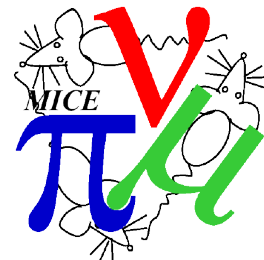


Chris Rogers,
ASTeC,
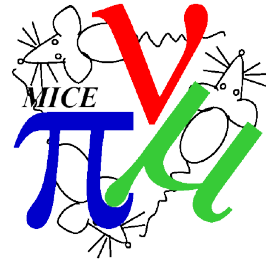Rutherford Appleton Laboratory

# 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
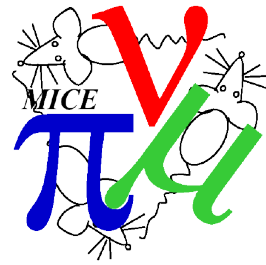
Process Diagram
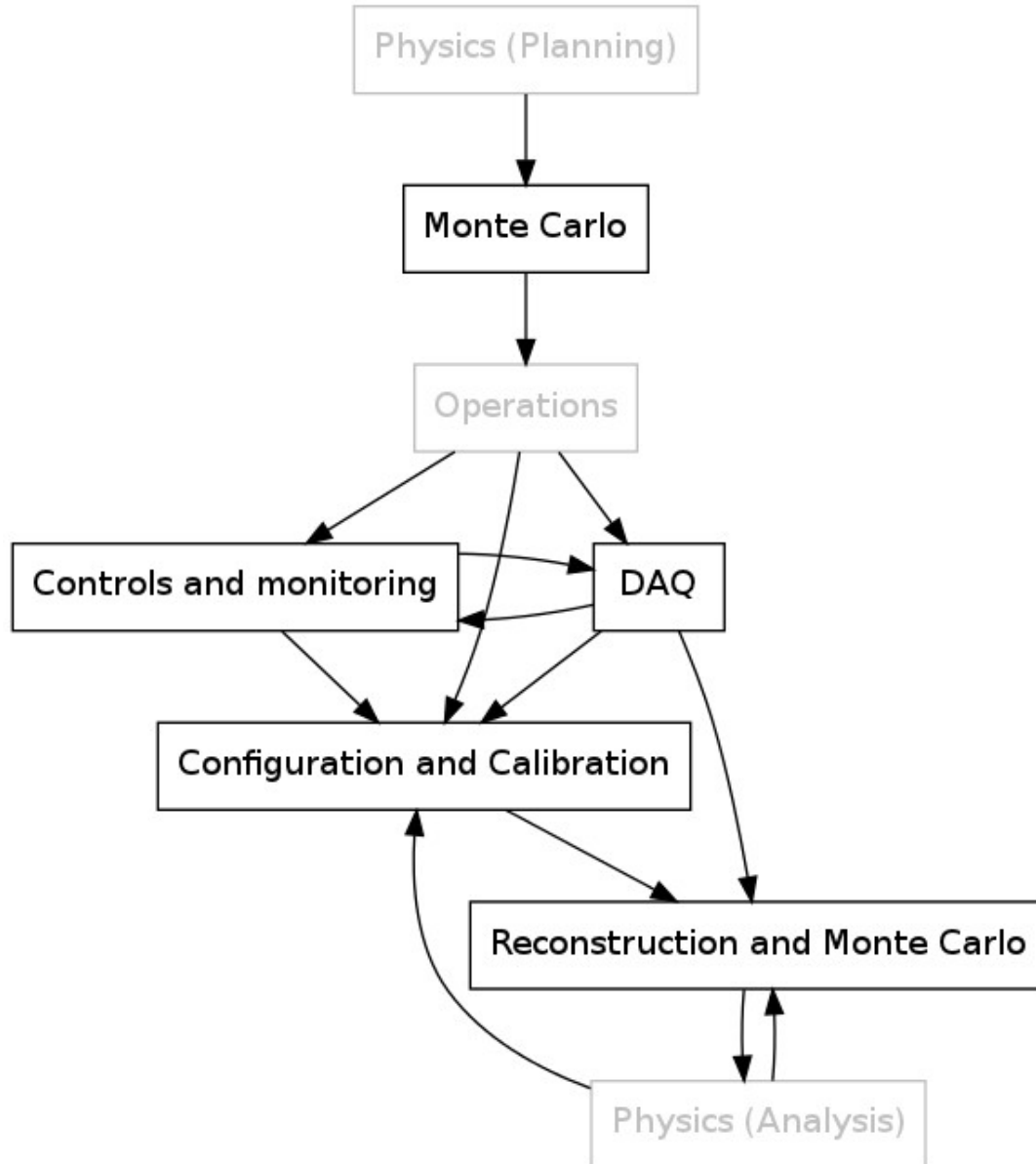
S/w & Computing Organisation
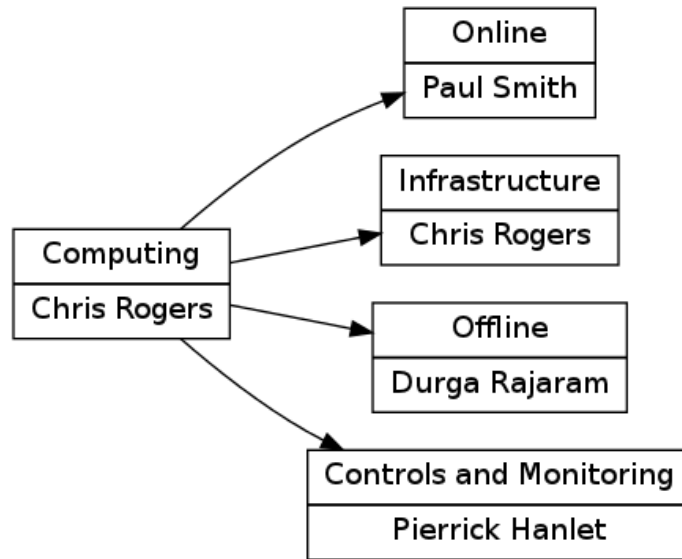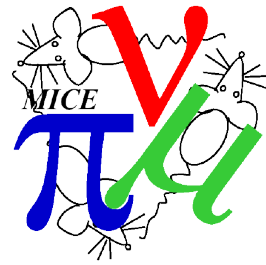
- Online responsible for MICE local control room (MLCR) systems
  - Includes DAQ
- Infrastructure responsible for computing "glue"
- Offline responsible for developing physics tools
- Controls and monitoring responsible for slow control of hardware

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
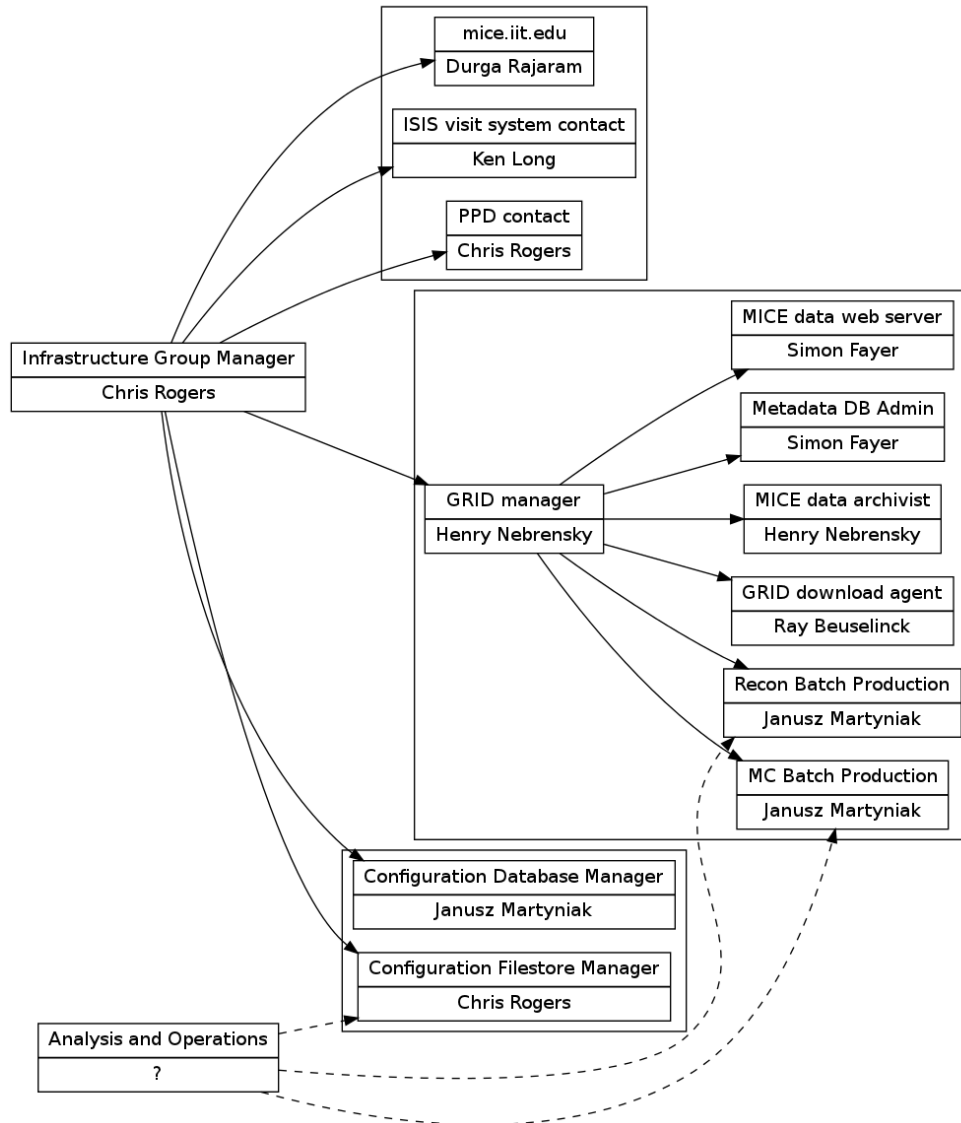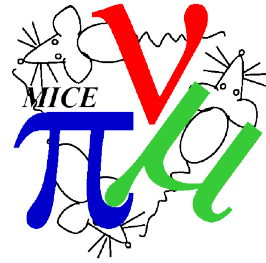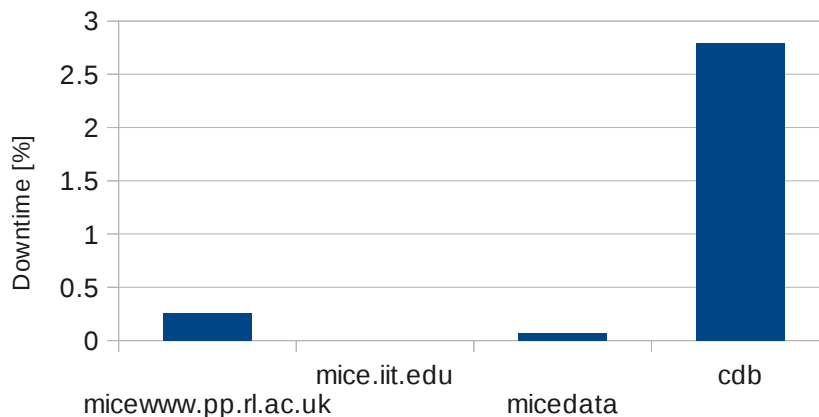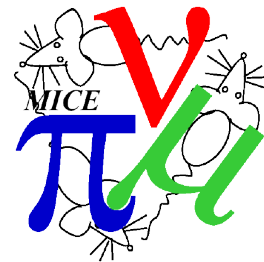 - Will make an informal external review in coming months

Infrastructure
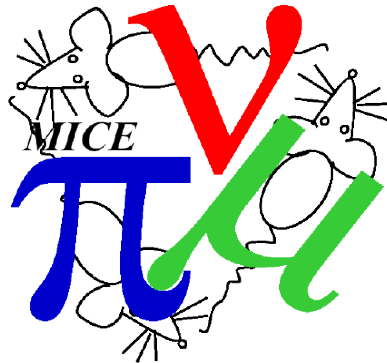
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Infrastructure WBS

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)
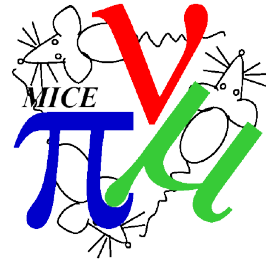 - ~ 120 hours, unacceptably high
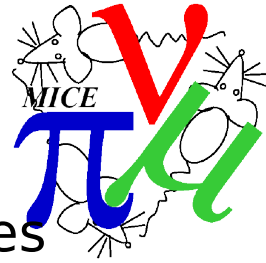
GRID

- 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

CDB
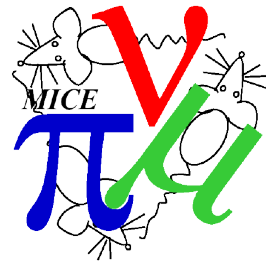
- Working towards a C API for cooling channel parameters
  - Stores e.g. magnet currents
  - Provides a more convenient interface for controls software
  - Work around a multithreading issue in python API
- Providing a table for defining reconstruction job parameters
  - e.g. random seed
  - e.g. Monte 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

Web Services (IIT)

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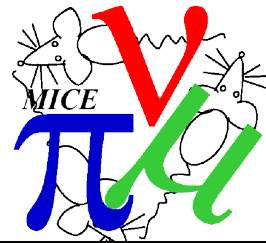
| Machine	Service	Responsible Person(s)	Expected Response Time	Link to Additional Data	Restart Priority
heplnm069	configDB slave database	Janusz, Chris R	2 weeks	link	medium
heplnm069	configDB slave web service	Janusz, Chris R	2 weeks	link	low
heplnm069	heplnv156 backup	Chris R	2 weeks	link	low
heplnm069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

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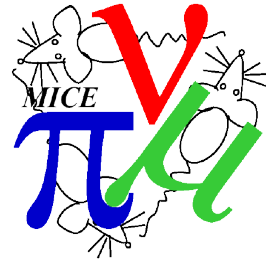
- At the moment, we are holding schedule
  - Expect all currently planned work will be finished by February
  - As forecast at CM38
  - Don't have detailed breakdown here