

# Online Update

On behalf of the Online group

# Introduction

The main categories for the online schedule are based around the following items, so I will give a quick run through of how we are progressing:

**MLCR Upgrade**

**Nagios and System Health**

**Backups and Spares**

**Documentation**

**DAQ**

**Online commissioning run**

**Network Switches**

**On-call Rotas**

**Online Monitoring**

I'm not going to include lots of schedule detail – that was included in the parallel talk on Monday, which is available if you want to take a look.

Apart from dropping the schedule items, this presentation is similar to the one given on Monday. My apologies to those in the online parallel!

# MLCR Upgrade

This is about 75% complete. The MLCR is now functional.

- More Space in the MLCR – the new desks are slightly narrower, overflow space outside of MLCR.
- Moved over to small local Intel NUC machines. These machines are not function specific so any machine can be used to run MICE operations from a menu.
- As the machines are local we have been able to utilise full HD displays so there is more display space – 2 monitors per NUC.

What is left to do is a combination of a few things that are necessary and a few things that will be nice to have.

- Add the 4:3 monitors for the CCTV system and the Decay Solenoid status (brackets need raising).
- Install the larger wall monitors. (Alarm handler, electronic whiteboard)
- Finish installing KVM system.
- Touching up of overflow area.
- New(er) chairs.

# MLCR Upgrade



- 4:3 Monitor brackets to be raised.
- Additional monitors still to be added.
- NUC's to be tidied away behind monitors and wiring tidied up.
- KVM system to be completed (KVM interface will be where Pierrick is seated!)

# Nagios and System Health

A PC has been installed that performs a simple up/down check on all the other machines on MICENet. The functionality of this system can (and will) extend well beyond these simple checks.

If individual have important processes running on machines or requirements such as processor utilisation/hdd space that needs to be monitored then please contact Paul. We will see if this can be incorporated into the Nagios system.

Nagios needs to be integrated with EPICS alarm handler system – As I understand at the moment a good/not good signal will be sufficient.

There is a longer term aim to add Cacti (Network monitoring) and Ganglia (Machine load monitoring) but I consider these less critical. (Nice to have)

# Backups and Spares

More detail on this was presented in the parallel session.

The main message that requires presenting to the collaboration is:

There is a mirrored raid (1TB) NAS in the MLCR where we can store backups as long as they are not too big. Currently 2/3 of this space is free. Note that there is no off-site storage for this kind of backup at present!

Mathew Robinson has added instructions on how to back your critical data up to this drive on MICEmine. Note that the online group **does not** back up all of the machines/data/software but if you need help utilising this facility for critical data/files then please contact us.

If you want to take advantage of backup facilities offered by the online group it is the system owner's responsibility to let us know and to ensure that what we are offering is suitable. There may be other options.

**We (the online group) also need to take a closer look at the issue with backups to ensure our own critical files are suitably backed up. If MICE wants a full backup of every machine (probably not ideal) then significant additional infrastructure would be required.**

# Backups and Spares

I have toured the MLCR with Craig and Henry and I have a list of what spare machines we are likely to need.

I don't think we are in too bad a position – The main conclusion is that we may need to buy a few additional servers, depending on whether we feel we can tolerate the risk (or not) of the current ones failing. A more comprehensive list detailing the additional machines that need to be purchased will be available soon.

Spares on DAQ – Yordan has specified that we need one spare TDC and one spare digitiser. I understand that the funds for these items have been found.

There are three additional DAQ boards that have issues, the impact of this has yet to be determined.

# Documentation

The documentation needs improving, I see several areas:

- 1) Details of Hardware**
- 2) Details of Processes and Checks**
- 3) Nagios**
  
- 4) Online On-call**

An additional large portion of documentation will be required for the online on-call (4) but this will rely upon the technical documentation (1-3) being improved.

The timing for the completion of the documentation is when we require online on-call experts to be trained.

It will require some effort to sort the documentation out – but from a scheduling perspective this is not seen as a problem.



# DAQ & DAQ/MICE Commissioning Run

7 new DAQ machines installed in the MLCR – OS and software installed.  
5 are for active use, 2 are spares. 1 of the spares is earmarked as a tracker DAQ spare (it is in the tracker rack) and 1 is for general DAQ spare.

There will be a period in November (16<sup>th</sup> -26<sup>th</sup>) where the trackers will be tested.  
Most of the tracker DAQ group will be around at this time.

“We will want to connect waveguides to the solenoid... As for detectors, the most invasive thing I'd like to do is inject light into TOF1 (to trigger) at the same time as firing the tracker LEDs to get a sense for the triggering delays. It's not clear to me whether direct light injection into the TOFs has ever been done, or whether it is permitted.” – David Adey

So we may need to power up some of the PID. I (Paul) will try and use this time to become a bit more familiar with the DAQ.

There is a final commissioning date of 21<sup>st</sup> Jan where the online group needs to have all the machines ready.

# New trigger system for MICE based on CAEN V1495

Previous known puzzle with new trigger system – discussed at previous CM:

- The new system generates  $\sim 10\%$  extra triggers, which are not register by the old system.

## DAQ test 2 - June 29th

Results of the test:

- The integration of the new board with the rest of the DAQ has been tested.
- The new TOF calibration has been made and the reconstructed data looks reasonable. However the obtained time resolution is a bit worst of the expected one.
- The wrong setting of the fADC acquisition windows was incriminated for the change in the time resolution. This looks like a very good explanation for the problem, but we need a new data taking test.

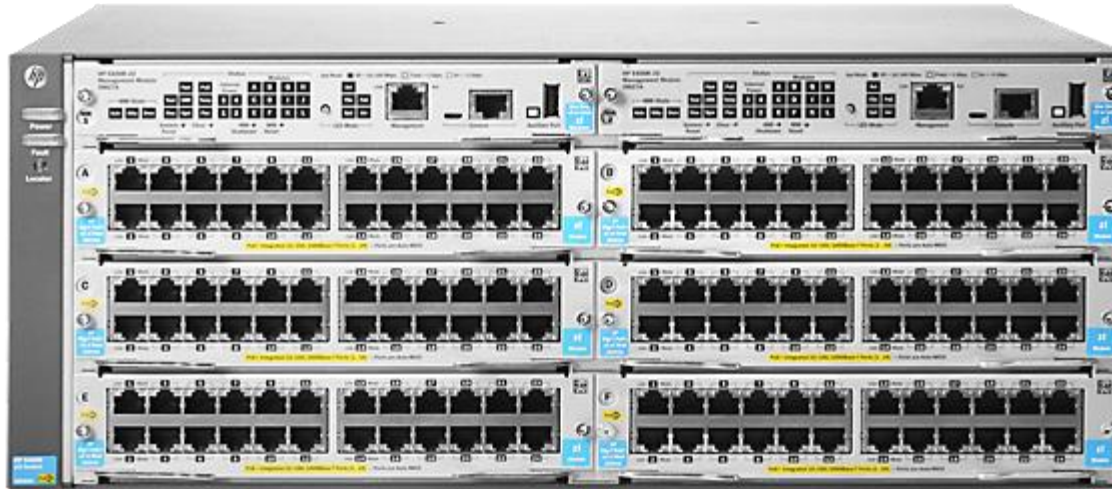
## MLCR Hardware

Replacement of the readout computers (miceacqXX).



- 7 new computers have been installed in MLCR.
- SL6.4, CAEN software and DATE 7.60 installed on all new computers + miceraid4 and miceraid5.
- The existing (Date v7.34) Configuration Data Base has been transferred and upgraded.

# Network Switches



The old network stack is proving unreliable and there is limited support for the HW. An order for the new network stack has gone in. We are purchasing a HP 5406R z12 stack from Hewlett Packard.

The stack should arrive by the end of October – we will then schedule an installation date and plan the cabling details.

“The warranty is free next business day replacement for the lifetime of the product. We tend to buy a spare and have it on the shelf for a quick replacement whilst raising a ticket for the free replacement of the spare.” – Quote from RAL Networks

# On-Call Rota

A draft document has been produced, but not yet published. this includes:

- 1) Introduction – definition of what the On-Call responsibilities are in general terms.
- 2) A list of responsibilities of the on-call team (this currently is a spreadsheet)
- 3) Staffing – How do we staff? – Share responsibility with other groups. Need for clear documentation and training.
- 4) Recruitment – Number of individuals required is not yet ascertained – requirement for some technical expertise.
- 5) Training - Defines the need to give enough time to write the documentation and train suitable and willing individuals.

Chris Rogers has kindly offered to edit this document – required for the next MPB.

# Online Monitoring

The Online Monitoring is working but there was a comment that users weren't getting anything useful out of it.

The system will be changed to compare live plots with a set reference histograms

Rhys Gardener is in the process of finding out exactly what needs monitoring and how it can be turned into something that gives timely and useful information to the individuals who are on shift.

Rhys has commented that he can do some testing of the SW with empty plots i.e. the proposed January run - but ideally he requires beam to fully test the software.

So the target activation run in Feb will be an ideal time to test this.

# Conclusions

- Servers – There have been some additions to the server list with the MLCR upgrade, some changes with the DAQ machine upgrade, the Nagios (Test) Server and with the proposed changes to the way that the IOC's are handled by Pierrick.
- Urgently I believe that we need to address: Backups – What is being backed up, is there enough backups, can we recover?
- Contact the online group if you have critical files that need backing up!
- The schedule is coming together. It's kind of evolved over the last couple of months into something that is representative of what needs to be accomplished for the Step IV run.
- The documentation requires some attention. However there is always something more urgent to do! But it is scheduled as it is important
- Are there any unknown unknowns? The upcoming testing should help to answer this.
- I don't believe that the schedule is resource limited – but there are a lot of things to do!