

Online Group Update

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10th April, 2014

- I took over Online group from Linda Coney, Sept 2013, when she left the collaboration for a permanent position at ESS.
- I am also now leaving the collaboration for a permanent position, outside of physics.
- Paul Smith will be accepting the role when I leave.
 - ▶ Worst case scenario, the trend continues and PS receives a permanent job offer in 6 months time...
 - ▶ Best case scenario, Paul does an excellent job of leading the Online group, and everything is ready for Step IV.

- So, the question today, is what state am I leaving the group in?
- In general, a pretty good one.
 - ▶ Networking is good
 - ▶ Most computers are working
 - ▶ DAQ is good
 - ▶ C&M has formed it's own project, but is also in a good state. I'll comment on some improvements there.
 - ▶ Stability - Major improvements have been made here.
 - ▶ User interfaces - I think you're all going to like what we're doing here. It might not be finished before I leave, but we're on the right path.

- Networking at RAL falls into two areas:
 - ▶ That which we can control, and that which we can't.
- Of the bits we can control:
 - ▶ The main MICE network stack (of three switches) in the RR is now stable, after a reflash of the firmware in Jan '14.
 - ▶ The setup in R9 is being hardened against failures.
- There are bits we can't control, but at the worst they should make life annoying and difficult, not impossible.

- Most of the computers in the Rack Room are behaving themselves.
 - ▶ miceonrec03 developed a PSU fault, but this was fixed by Matt Robinson up at Sheffield, and it is now re-installed.
 - ▶ miceecserv suffered a HDD failure during CM38, and was already on a DNR order, so will be allowed to rest in peace.
 - ★ A replacement machine is being investigated by Matt Robinson.
- Replacement DAQ servers have been arranged by Uni of Geneva, and are in preparation. As none of the old servers have failed, they will be held locally as spares / potential replacements.

- The DAQ for the PID is all working fine. The EMR was the most recent addition, and it needs to move to its final location, but that isn't a problem.
- David Adey is making good progress on the Tracker DAQ code. Still some documentation and tests to write, but this should all be ready when the first tracker is ready for commissioning.
- Yordan Karadzhov has almost completed the implementation of a new, FPGA-based, trigger.
 - ▶ Removes the reliance on 'spaghetti junction' in the rack room, much less likely for something to go wrong between runs.
 - ▶ The new system is installed, and was tested during the machine physics run last weekend.
 - ★ It produced all of the triggers that the old system produced, and a few extra ones too. These were all confirmed to be good triggers.
 - ★ It will be tested again during the June activation study, along with a complete test of the DAQ system at 1 Hz target rate, with the DS on, to stress test the system, but then we are ready to go.

- C&M is now its own group, within the Computing and Software group, lead (not surprisingly) by Pierrick Hanlet.
- However, there are a number of open projects under Online, that we're endeavouring to complete before I leave...

- The C&M software is going through an infrastructure update:
 - ▶ All new machines are running SL6.4, which will (hopefully) see us through to the end of the experiment. Necessary changes and fixes to EPICS have been made.
 - ▶ We have produced our first stable EPICS release, and this will be installed on all of the C&M machines over the next week.
 - ★ This required a significant amount of effort, to allow for parallel installs on each machine, and removing hardcoded references to `"/home/epics/epics"`, but done once, it should never need to be fixed again.
 - ★ In future, Pierrick et al will be able to develop in parallel, which means that systems that were working the last time you ran, will be working the next time you run. This has not always been the case...

- Currently, the MLCR relies on 2 different KVM switches and a number of very long VGA / USB cables, to provide a wide range of different monitors.
 - ▶ The C&M also had a single point failure in micecserv, although that will be a little bit better when we have the replacement and software all reinstalled nicely.
- We think that we have devised a solution which will only depend on the network switch running.
 - ▶ Still an important dependency, but one that was always going to exist.
- 8 thin clients, based on the Intel NUC system, will be installed in the MLCR. They will have sufficient computing power to run all of the GUIs for the DAQ or C&M, and the OnRec systems over SSH, but they will not be expected to do anything else.



- The first one, micethin00, has been purchased and assembled (<£200, about 20 minutes of hardware assembly, 1 hour to install OS, software and configurations).
- Testing shows that it is definitely up to the task that has been set.
- Initial setup costs will also include some new monitors, suitable mounting fixtures, and uniform keyboards / mice, but we should be able to arrange 8 + 2 spares for <£5000.
 - ▶ Worth it, for increased flexibility and stability in the MLCR.

- As I said at the beginning, I think I'm leaving the project in a reasonably good state.
 - ▶ I probably owe Paul Smith and Pierrick Hanlet about 20 pages of documentation, before I could walk out of the door,
 - ▶ but I'm not leaving until the 2nd May, so that will be okay.
- As is traditional, I intend to go out for a drink on my last day, Friday 2nd May, probably in Oxford, as it offers better options than Harwell or Didcot.
- I would be very happy if any of you in the area could join me, and I promise to buy the first round.
 - ▶ Details to follow, probably on the MICE mailing list.