

GridPP5: UK plans for LHC computing

Roger Jones

The Setting

- ❖ In will focus on the financial plans and the forces that shaped our planning
- ❖ Alastair has already presented the intended direction of travel and technical plans
- ❖ The motivation is largely financial, but also tracks technologies and the wider needs in physical sciences
- ❖ But it all comes back to money
- ❖ From a UK ATLAS point of view, the way worked over the last 8-9 years was very good!

Where does money come from?

- ❖ The computing funding in the UK is complicated, coming from
 - Our research council, STFC
 - The money from STFC comes two ways
 - To GridPP for all experiments (hardware, site support, middleware)
 - Directly to Atlas (experiment software, experiment operations)
 - They are funded by different processes until recently
 - Universities -
 - Their own money, usually capital (buildings, hardware)
 - Has to buy 'things not services', will not be handed over to others

★ All have been important for Atlas

Where does money come from?

- ❖ The Tier 1 is all funded via STFC through GridPP
- ❖ The Tier 2s are also managed through GridPP, but roughly 2/3 University 1/3 STFC funding for hardware
 - The sites pay the power and cooling, machine rooms etc
- ❖ Networking is different again
 - Paid by Universities to JaNet, the academic ISP, so not charged to science **unless you ask for special provision**
 - We have not found a problem with the general purpose academic network, which comes at no direct cost

The Crunch

- ❖ Like most countries, science funding since 2010 has been tough
- ❖ UK overall 'flat cash', so decreasing with inflation and increasing salaries
- ❖ This funding round, experiments and GridPP funding linked, all from one pot
- ❖ Review also said UK needs a broader programme
 - Also comes from the same pot
- ❖ As a result, GridPP knew it would have a reduced funding
- ❖ Also pressure to support other science
- ❖ This was built into the proposed solution (moving towards a UK Tier 0)

The proposed solution

- ❖ The largest elements of the GridPP costs are people
 - This needed to reduce
 - There is a long tail of sites (all useful, but the effort is dispersed)
 - Consolidation required
- ❖ Data and effort concentrated at big sites (4 for Atlas)
 - Important to retain other sites (wins university hardware, supports the local physicists)
 - Some local support at other sites - small group that are still big but should move to CPU+cache in time
 - Another group would essentially only get hardware money
- ❖ Overall profile of funded effort dropping over 4 years
 - Beyond...?
 - Attempt to support expertise if it did not coincide with big sites, but limited scope for this
 - Requested some effort to support other science (astronomy etc)

The funded situation

- ❖ After an initial suggestion that only 70% of this plan be funded, ~90% was recommended after international review
- ❖ The main cut was the effort to support other science and the up-front hardware
 - other science will be supported on a best effort basis and other funding sought
- ❖ This result compares well to the Atlas specific funding (computing about 25% down)

How will this affect Atlas?

- ❖ Some people working for Atlas directly move to other projects or to GridPP
 - Some people lost funding
 - M&O effort will reduce in computing (but author number should also go down)
- ❖ Fewer data end points, light weight support model for smaller sites
 - Increased use of federation, large caches
- ❖ Hardware money used to be known over 5 years
 - Now more use of 'opportunities'
 - Capital funding often appears, but with little warning
 - Planning lines will have far greater uncertainties
- ❖ Site are often multi-experiment; this will become multi-science, so some reduction in flexibility?