dcache direct access vs stage-in to local disk, quick HC study

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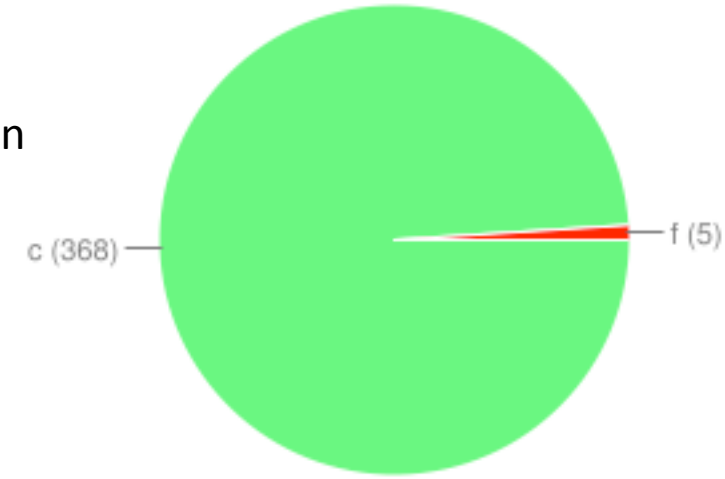
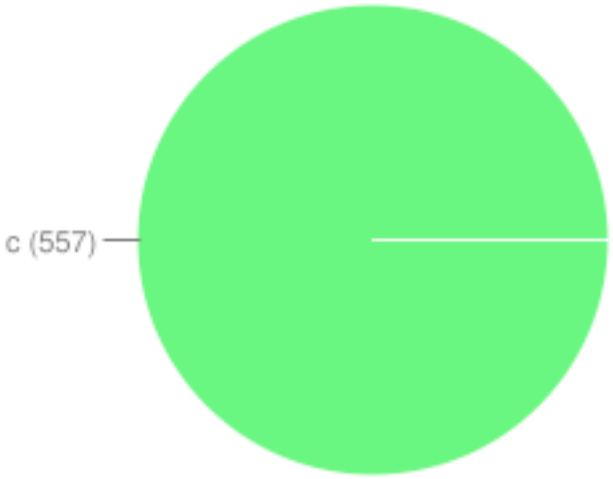
8/4/10

HC tests

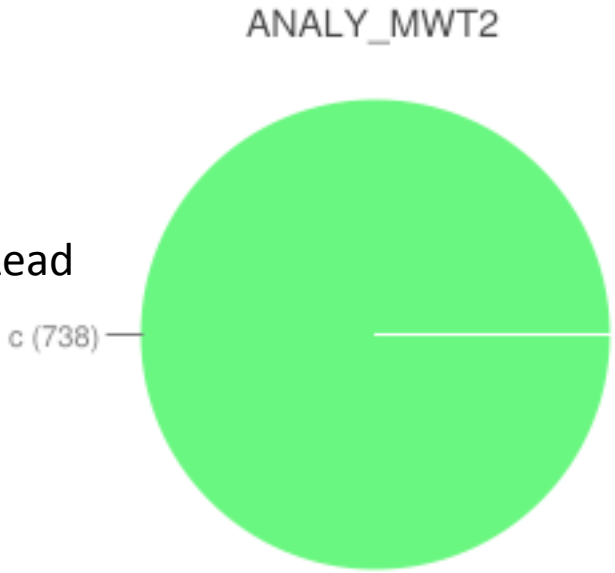
- Muon trigger analysis with release 15.6.6
- Tests are not exactly precise in terms of input datasets, # events, but close enough to be informative
- http://hammercloud.cern.ch/atlas/10000241/test/
- http://hammercloud.cern.ch/atlas/10000572/test/

Stage-in



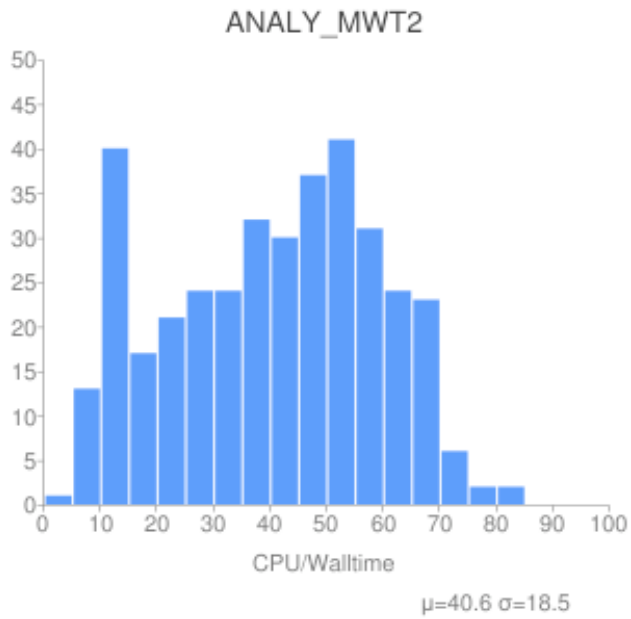


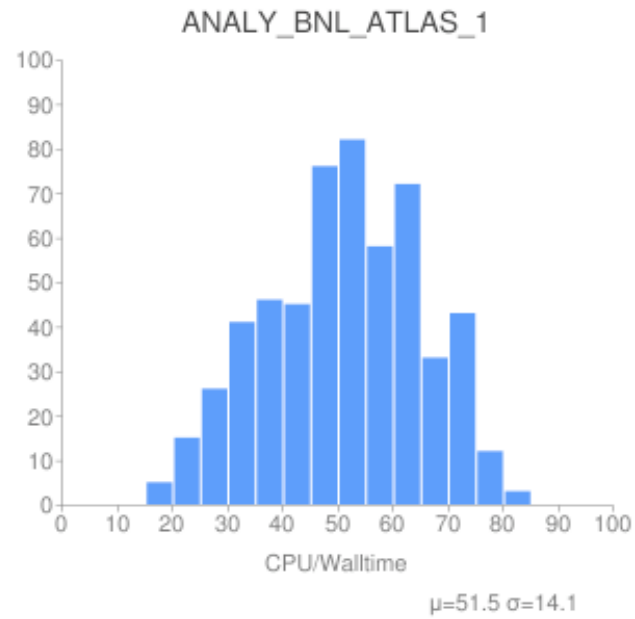
Direct Read



- Good efficiency and decent statistics for these tests
- ANALY_MWT2: data and worker nodes at UC; 10% workers at IU (10G WAN)
- MWT2 configured for dcap access 7/28/10

Stage-in





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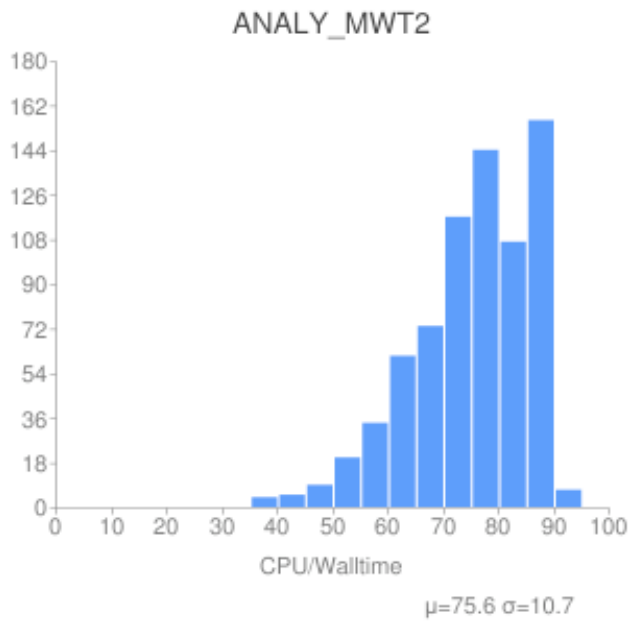
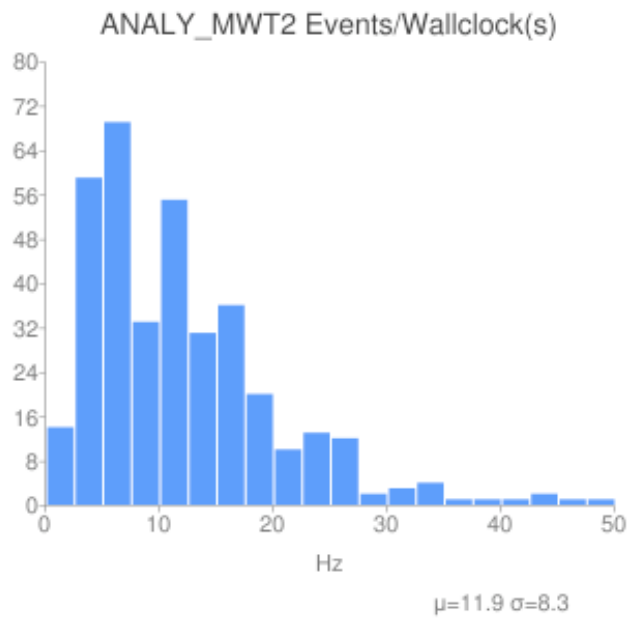
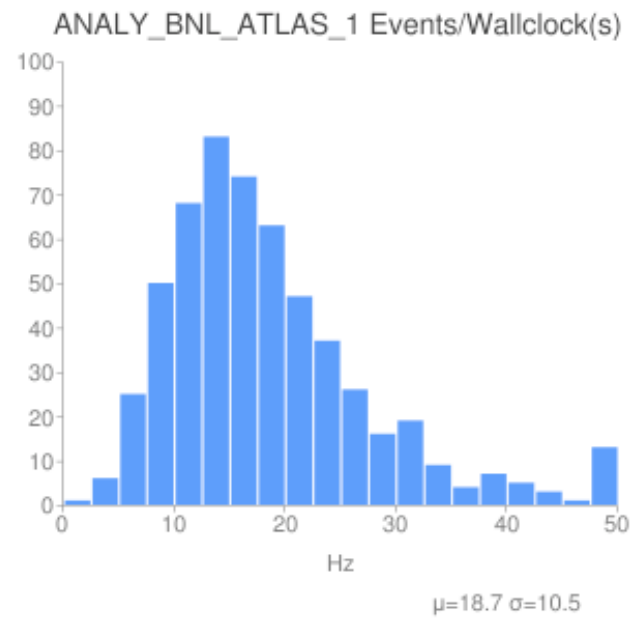


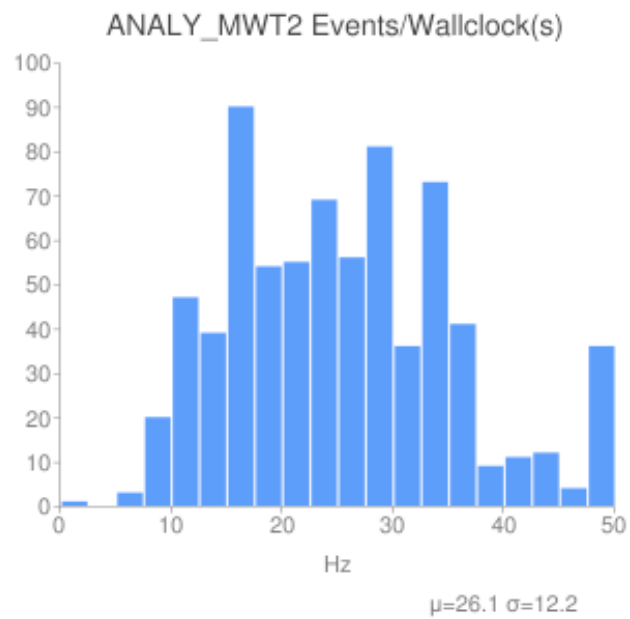
- MWT2 less eff than BNL in stage-in mode
- direct access resulted in 40%→75% wall time eff, or 88% improvement

Stage-in



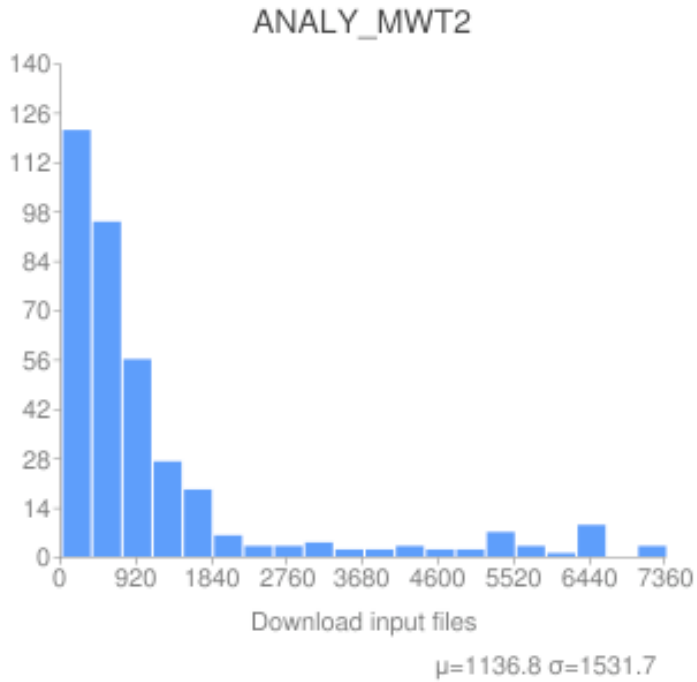


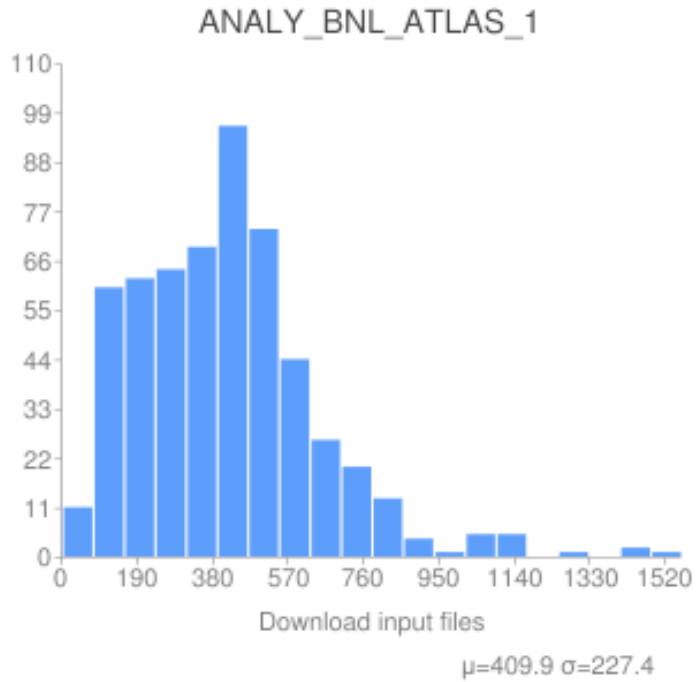
Direct Read



- this includes stage-in
- direct access results in 12 Hz→26 Hz
- 100% improvement

Stage-in





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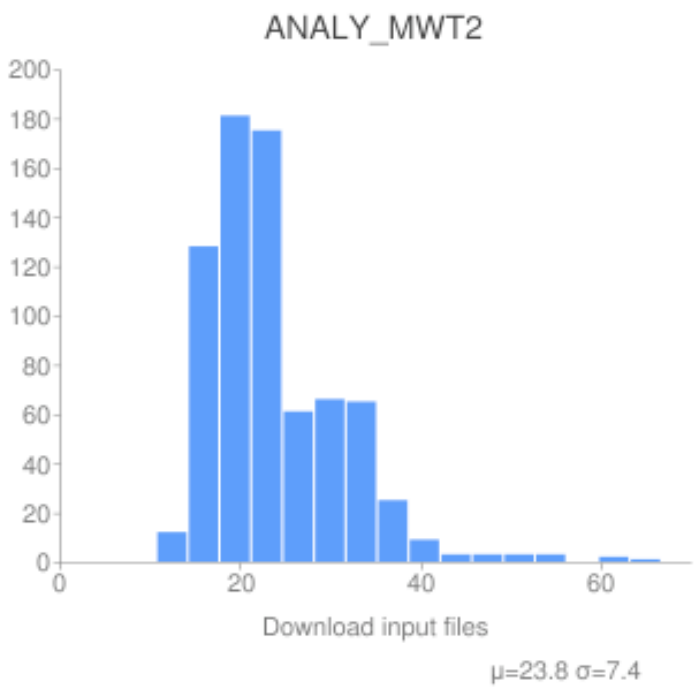
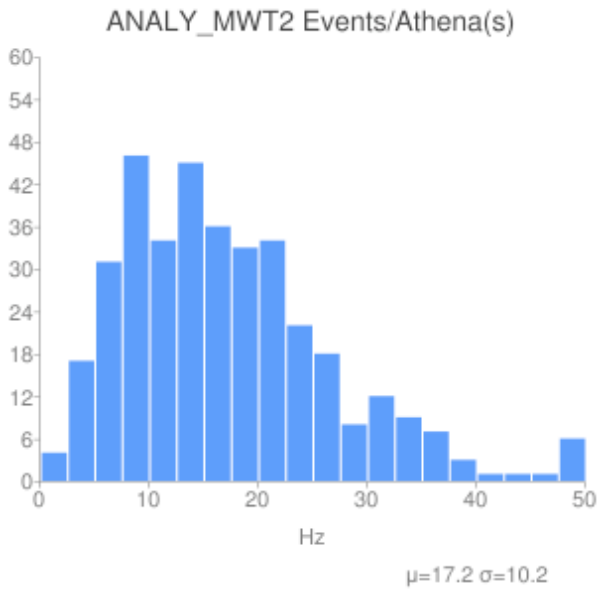
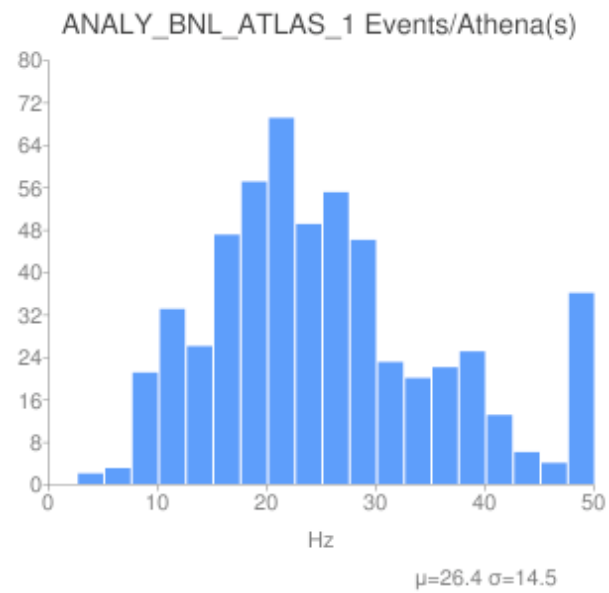


- effect of stage-in..
- eliminating these long times, tails
- and reducing idle core time (jobs start sooner)

Stage-in





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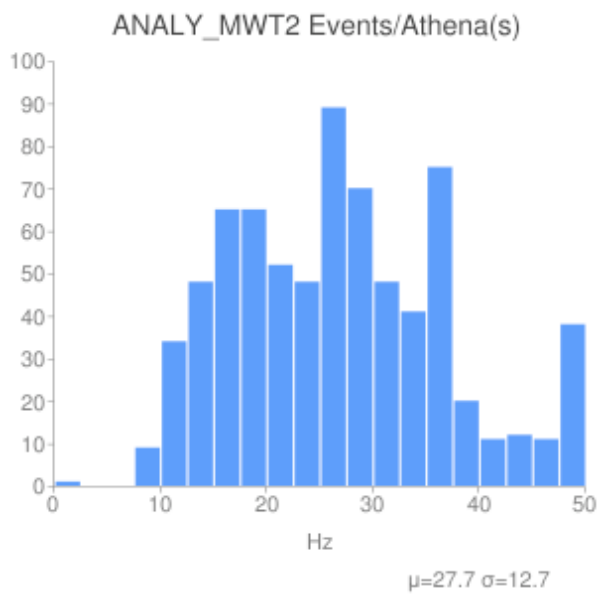
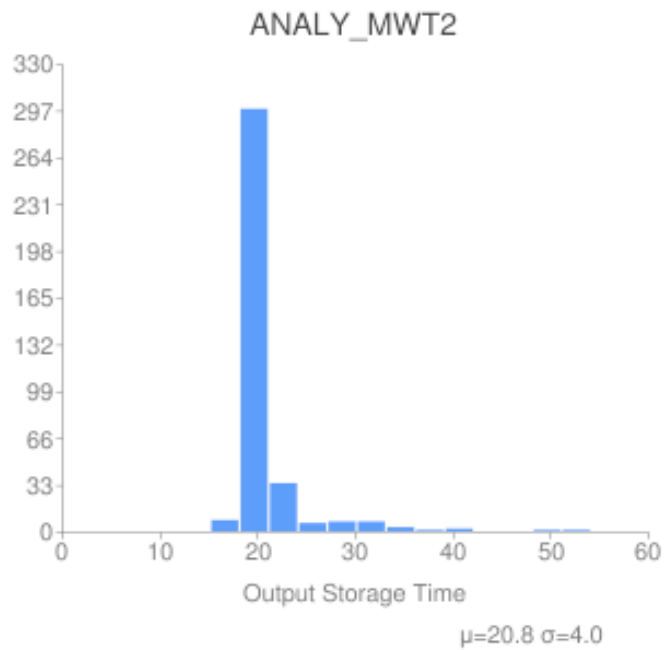
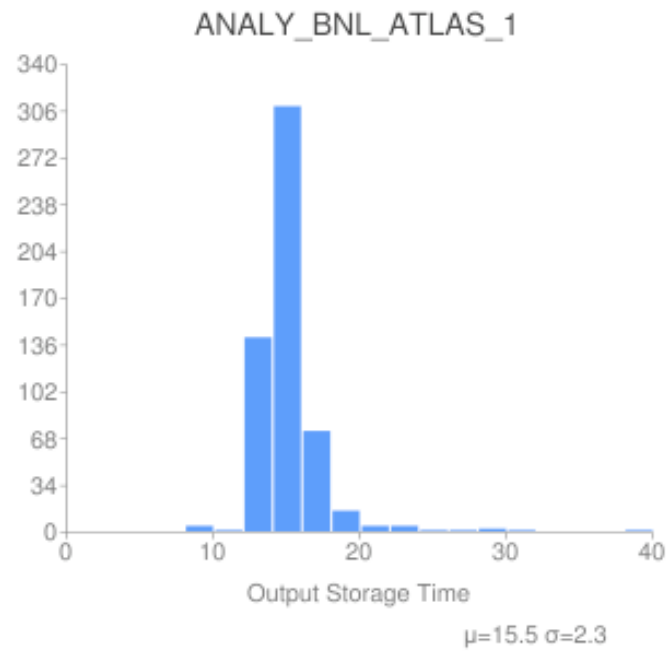


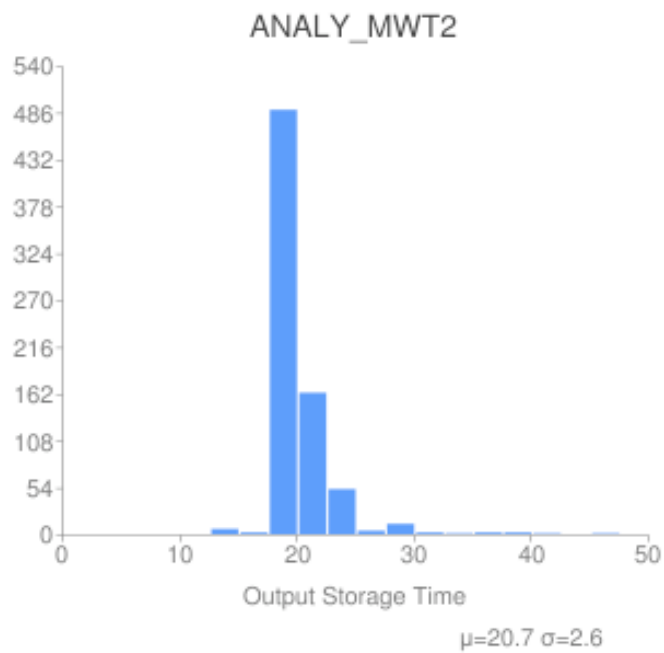
- this doesn't include stage-in
- analysis from local disk not as efficient at MWT2 (better disks at BNL? Fewer jobs/node?)
- similar performance in DR

Stage-in config





Direct Read config



- Unchanged in these tests (no change in stage-out obviously)
- Note BNL SE performing somewhat better than MWT2, consistent

Summary

- So far direct access looks promising
- No evidence of pool or door instability (services all seem to be responding well)
- Large numbers of stuck jobs – but these seem related to prun jobs with pyROOT + dcap bug
- Charles looking into dcap++ (G. Duckeck) to implement read ahead features
- More tests to come (dcap++, WAN DR access)