Test plan for the time the UK light link is up again

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Abstract

We are presenting our plans for testing the UK light link after it is up again after Thanksgiving. This is a discussion paper, please send comments to bartsch@fnal.gov. The paper is structured in such a way that it begins with fundamental tests and then goes to more complex tests. So it starts with Iperf tests going to gridftp tests and finally tests involving DCache.

1 IPERF tests

- monitor transfer rates. Use the webpage: http://msfccmrtg.fnal.gov/ netadmin/mrtg/mrtgrrd.cgi/rsstarlight-fnal/r-sstarlightfnal_gi1_11.html . Webpage is already setup, therefore no action on this item required.
- run tcp-dumps and see if the window shrinks, use web100 as monitoring tool. Two machines at UCL have kernel 2.6.14 and web100 modules installed. Details of these machines in terms of kernel config and system parameters can be communicated. It would be very useful if the FNAL group could send an explicit list of what files/parameters they need.
- Next week UCL (Nicola and Mark) will start doing round robin tests using iperf/web100 between cdf00-uklight and cdf01-uklight via a Starlight router so that we can see a rate before the FNAL network.

- Nicola's comment on the window size: not a problem, it is 24Mbyte. With 90ms RTT it can be calculated to be: 90 ms * 1000Mbit/sec = 11.25Mbyte

- if transfer rates smaller than 900 Mbit/sec change frame size, change kernel setting, try again until transfer rates bigger than 900 Mbit/sec

- do both tcp and udp transfers: UDP is good because it gives you an idea of what the network can do without much tuning, it does not depend much on the end systems (unless they are very very slow machines). TCP needs a good network and very well tuned end hosts to get decent results. It's always good to start with UDP to get an idea but then we need to switch to TCP because that is what 99% of user applications use.

- could think about JUMBO frames, however they have to be utilized the whole way down to the DCache doors and they need to be installed in a coherent manner.

If IPERF tests were successful go to gridftp tests.

2 GRIDFTP tests

- setup tests between cdf00-uklight and charly.

- what does Nicola need to do to get an account on this machine to do the proposed tests? Vyto and Maxim need to change the subnet of the machine.

- get at least 500 Mbit/sec, if not then start simultaneous transfers to cdf00-uklight and the cdfstore and change the gridftp settings.

- what do we do if the tests show that the transfer rate is low?

- we need to get a second and probably third machine installed directly after the UK light link. Mark and Nicola need to look into this.

3 DCache tests

- put CDF software on cdf01-uklight and update software on cdf01-uklight (Valeria)
- do the SRM tests
- start testing with two computers at UCL requesting data
- if not successful (transfer rate higher than 500 Mbit/sec) ask Krzysztof and Doug for root access to DCache, at least the communication should be easy for this, because I am meeting them every day
- Within UK CDF and with FNAL we are trying to negotiate the purchase of 50Tb of disk so that we can connect a serious batch farm at UCL with large disk volume at UCL to FNAL for CDF analysis i.e. remote CAF on high speed network.

4 Action items

Please comment. Nicola et al. will be at the WAWG meeting at the 11.th of November. So we can boil down to a testing plan and let us know what else we need to do. Action items so far:

- Nicola: setup monitoring on congestion window, so that we have plots from these tests.
- Nicola, Vyto, Maxim: Nicola needs account on charly.
- Vyto, Maxim: charly has to be assigned to correct subnet.
- Nicola, Mark: be able to setup several machines directly at the UK end of the UK light link.
- Valeria: install new CDF products, install on all machines
- Doug, Krzysztof: get access to DCache
- performance testing between systems locally (i.e. between two local CDF systems here, or between dmzmon0 and a local CDF system, and/or between local UCL systems)

The timelines are the following: all the monitoring should be prepared before the link is back again. Shortly after the link is back: configure Charly and run tests with it. Depending on the tests utilize more than machine and run on this one.

5 current network structure at UCL

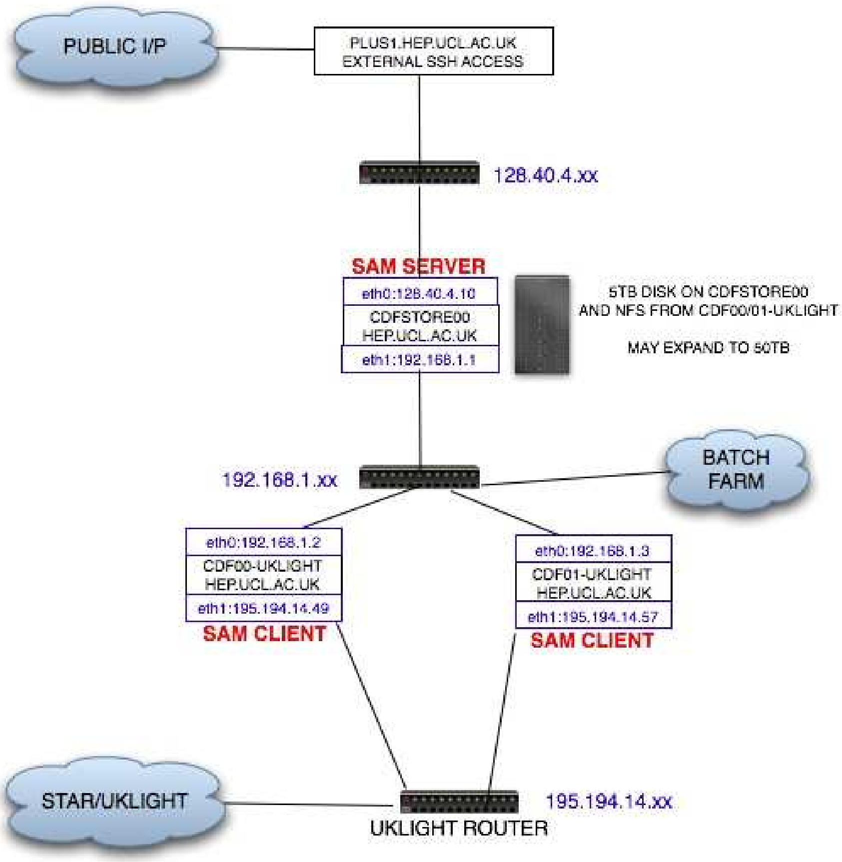

Figure 1: Current network structure at the UCL cluster concerning the SAM software.