GridPP(UK) position statement update in respect of LHCONE

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Tier2 connectivity to LHCONE

The original GridPP(UK) position statement on T2 connectivity to LHCONE from 2013 is included in the Appendix. This still stands. In summary it states that whilst the UK does not foresee the need for T2 LHCONE connection for any internal reason, it would, as always, address any legitimate request from the experiments and/or WLCG, which was justified as necessary for LHC operations (although it should be noted that we think it is unlikely that all of our T2 sites would be able to implement LHCONE in any case).

Tier1 connectivity to LHCONE

Suggestions have been made in the LHCOPN/LHCONE meeting in LBNL in June 2015 that T1-T1 traffic might be moved onto LHCONE. This has led to the recent email to the list for further input from all T1 sites. Therefore we present this clarification the GridPP(UK) position.

1. In the first instance the UK has no plans to use LHCONE for T1-T1 traffic, and will assume to continue to use the LHCOPN for both T1-T0 and T1-T1 traffic for as long as it is feaslible**.

2. If the plan to move T1-T1 traffic to LHCONE were to be pursued then this would have to be agreed by the Experiment and WLCG managements as it could have implications for reachability of key sites and/or other financial implications. For the rest of this statement we assume that such a change would have been agreed as a legitimate WLCG requirement.

3. The initial UK position would then be to assume to use the pubic internet to reach other T1 sites. However, we have not yet assessed any capacity limitations that would be encountered.

4. If use of the public internet were not feasible, then we would investigate the implications of connecting the RAL T1 to LHCONE as it would in effect be an official WLCG operational requirement. To this end we are conducting technical tests at present. Naturally all of the above will be done in close liaison with JANET.

5. Any solution would require continued accessibility of the UK Tier1 site via the normal internet, in order to continue to accommodate other non-LHC VOs for which we have responsibility.

6. Finally, it should be noted that any additional costs incurred (e.g. for equipment or dedicated links over JANET) would have to be found from existing GridPP funds, which

would reduce the funds available for capacity CPU and storage. It is for this reason that we would require explicit agreement of the experimental managements to proceed further.

*** We understood that CERN has no plans to remove T1-T1 transit capability on LHCOPN at this time. It is unclear whether this route would be banned in the new proposal, but for the purposes of this position statement we assume the intention is to remove T1-T1 transit traffic from the LHCOPN.*

APPENDIX: GridPP position statement in respect o f Tier-2 networking and LHCONE prepared in 2013.

This is the current position statement of GridPP in respect of Tier-2 networking and LHCONE

1. GridPP is primarily driven by the needs of the experiments. Therefore at the highest level GridPP endeavours to meet the legitimate needs of the experiments as presented to it by them through their GridPP PMB members.

2. GridPP keeps the Tier-2 network connection situation under observation, and remains sensitive to indications from sites that they may be approaching some capacity limit. From time to time some sites have approached their connection limit either because they were poorly connected as a campus (e.g. a shared 1 Gbit/s links) or because they were a large T2 sites. In all these cases the solution has been for the campus authorities to request increased Janet connectivity.

3. GridPP also carries out a "forward look" on an approximately annual basis, which summarises the network provisioning and experience across Tier1 and Tier2 sites and makes a forward projection.

4. At this point there are no Tier2 sites reporting a critical network capacity problem. Should we project a such a capacity problem in the future then the mitigation process would again be for the particle physics group in the campus concerned works with its campus network authority to decide whether to make an institutional request to Janet for increased capacity. Only if it were determined and agreed by both the Institute and Janet that a normal production connection would not solve the problem, would some other non-standard solution be investigated (e.g. dedicated connections).

5. Therefore, at present, all known LHC bandwidth requirements are satisfied by the LHCOPN and the Janet production network. The UK has no internal need for a dedicated or private Tier-2 network such as LHCONE from bandwidth considerations.

6. We are aware that some countries are not as well provisioned as the UK in respect of their production network. This has led to the construction of a private network known as LHCONE. This provides the ability to segregate LHC traffic and route it via higher capacity links both within, and between such countries.

7. It follows that in order for a (source) Tier-2 site to transfer data to a (target) Tier-2 site on LHCONE, and benefit from the enhanced bandwidth which is only available to the target site via LHCONE, then the source must inject its traffic onto LHCONE as soon as possible. This leads to the only current motivation for the UK to consider developing the capability to direct some traffic into LHCONE.

8. Should the experiments (ATLAS and/or CMS) demonstrate that their legitimate business is hindered by the lack of UK connection into LHCONE, then GridPP would naturally look into the situation. At present no such request has been made.

9. Should such a request be made there are several factors to be considered:

a. An LHCONE “connection” may be possible purely at the logical level using a virtual layer-3 connection. All indications are that this leads to significant work and difficulty at the sites (this was reported at the last LHCONE meeting). Thus it would only be possible at sites whose network administration was willing to engage in solving such problems. It would also require Janet capability and assent, which we are currently investigating.
b. It may in addition be warranted to run LHCONE access over a dedicated connection – in which case we would envisage installation and recurrent costs. GridPP’s initial position is that this would have to be found from within that experiment’s GridPP resource share at zero net sum.