

LHCb NCB MEMORANDUM

TITLE: 2013 T1 disk pledge/allocation shortfall.
DATE: 2013-April-25
TO: NCB, Computing Management
FROM: NCB Chair (P.Clarke)
STATUS: DRAFT Version 1.0 (130425)
Sent to NCB members to check/verify/modify the individual National statements. Should not be circulated further until this has been done.

Introduction

This document summarises the evolving situation in respect of LHCb disk pledges and available disk. It follows the NCB meeting of 28-Feb-2013 and requests subsequently made to T1 sites.

The relevant minute of the NCB meeting is included as an appendix. A summary at that time was:

- The total pledged disk for LHCb is much less than request
- This is due in some large part to the fact that many sites pledge disk effectively based upon the national fraction of the whole collaboration.
- It is worse than this because due to the pledge timing coming before the final request (which increased), some pledges have even fallen below this.
- Since only 66% of LHCb is in countries with T1 sites this leads to the “under-pledge problem” i.e. that no matter what we ask for we can never get 100% of it. In practice some sites pledge much more and the actual under-pledge is ~ 20%
- Subsequently to the NCB, the chair issued a request to T1 sites which is repeated here:

LHCb evidently has a clear and present problem in the next years. As minimal interim measure LHCb will make the following request to T1s: On a voluntary basis, is it possible for T1s to agree to make disk available for 2013 according to at least the
*9900 TB request * your fraction of the whole experiment (excluding CERN)*

We emphasise that we are not proposing this as good metric or as long term solution for the reasons explained above – but only as the minimal stopgap measure which we hope T1s can try to provide in the short term.

This yields the following (rounded up to nearest 100)
Italy: >=1700 TB (currently 1500 installed)
France: >=1300 (currently 1200 pledged)
UK: >=2200 (currently 1800 installed)
Spain: >=500 (currently 440 pledged)

There is no request to DE, NL because they already provide well over their share by this metric. If we achieved this, then our total would be ~8200 TB (compared to

the request of 9900). Obviously if any T1 can provide more than this it would be much appreciated.

[We may also later ask that if you are able to, then you provide disk at the higher rate of the <>9900 TB request * your fraction of the T1 authors<>, but at present we are holding on this until we receive more guidance from the C-RSG.]

This document provides an update based upon responses and discussions which have taken place since.

The following quantities are presented in the tables presented below and defined here:

- **Current pledge:** means numbers in REBUS
- **Available disk:** means an amount, which is (or will be) deployed, and which will not be reduced in 2013. To be included the NCB national rep must have sent the NCB Chair an email indicating intent to deploy in 2013. [Note that additional disk which may be installed now, but which may then be removed later (e.g. due to retirements, or reducing pledge) is not counted in this figure. This is because LHCB cannot effectively use this.]
- **Collabn-frac:** means the target disk provision using national fraction of the whole collaboration (excluding CERN which does not have a T1).
- **T1-frac:** means the target disk provision using national fraction of the T1 countries only.

Summary of updated situation

This is a summary table of the current pledges/available disk for 2013. See below for statements on individual T1s which have led to this update.

T1 Country	2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
GridKa	1450	1450	550	825
SARA/NIKHEF	1010	1010	520	780
IN2P3	1200	1300	1270	1910
PIC	440	630	460	700
CNAF	1300	1700	1670	2520
RAL	1600	2100	2100	3200
Total	7000	8190		
Request		9900		
Shortfall		1710		

Summary of T1 disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target

Germany (GridKa)

Germany are already providing well above their target share by any measure.

2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
1450	1450	550	825

GridKa Disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target

Netherlands (Sara/Nikhef)

NL are already providing well above their target share by any measure.

2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
1010	1010	520	780

Sara/Nikhef Disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target

France (IN2P3)

IN2P3 currently provide slightly above the Collabn-frac.

- Statement T.B.C

2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
1200	1300	1270	1910

IN2P3 Disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target

Spain (PIC)

PIC currently provide more than their Collabn-frac, and closer to their T1-Frac.

Currently PIC national policy is such that it can only pledge ~ the Collabn-Frac. At present it is not known if this can be changed to a higher proportion, but any such discussions would benefit from guidance from the RRB. Therefore the additional storage up to 630 TB cannot be pledged, but PIC have indicated that this will not be taken back in 2013.

2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
440	630	460	700

PIC Disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target

Italy (CNAF)

CNAF currently provide below the Collabn-frac. but have agreed to raise this to the Collabn-frac.

The Italian Tier1 at CNAF is provided by INFN. INFN was providing resources under their Collabn-frac. (historically 15%, though it has been growing recently). A request for an expansion of 200 TB with respect to the presently installed 1500 TB has been agreed (i.e. to reach 1700 TB). Further additions in the near future are unlikely, unless a proper discussion with new recommendations to the countries takes place in the C-RSG/RRB, leading to a new round of discussions with INFN referees.

2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
1300	1700	1670	2520

CNAF Disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target

UK (RAL)

The UK Tier1 at RAL is provided by GridPP. GridPP would have expected to provide disk according to the T1-frac, in common with the way it treats other experiments. The current pledge, however, only reflects the Collabn-frac. GridPP made its 2013 planning based upon the numbers made available to it by LHCb UK, and through some oversight, these numbers provided by LHCb UK were unfortunately wrongly based upon the Collabn-frac. In fact the current pledge reflects the old request and is therefore slightly under the Collabn-frac. but GridPP has agreed to increase its available disk to the new Collabn-frac of 2100 TB. immediately.

Unfortunately, due to the funding and purchase cycle, GridPP cannot now at this late stage find an extra 1 PB in 2013 or 2014 in order to reach the T1-frac. The increased fraction will be requested in the next GridPP funding round (GridPP-5) to be submitted in 2014. In the meantime (during the rest of GridPP4) best efforts will apply.

2013 Pledge	2013 Available	Target if Collabn-frac.	Target if T1-frac.
1600	2100	2100	3200

RAL Disk provision. The targets figures are coloured according to whether the available disk is above (green) or below (red) the target.

APPENDIX: Extract of minutes of NCB meeting 28-Feb-2103.

3. Disk pledge issues

3.1. PC presented analysis of the disk request/pledge situation. See the slides for full details. In summary it becomes clear that we are significantly under-pledge for disk (request 9.9 PB/pledge 7.0 PB) because of disparate algorithms used to calculate pledges. At one extreme some countries provide well over their share according to authors, whereas in some countries the share is set by something akin to the fractions of the country as a fraction of the whole collaboration. As was reported at the last meeting this latter guarantees to lead to an under-pledge since LHCb has 33% of authors who come from non-T1 countries. Since the meeting the slides were slightly updated to add:

- A table showing the evolution of the disk request and pledges during the last year
- An explicit reminder that the pledges were made against the earlier request of 8.6 PB.

It is important to bear this in mind when comparing to the present 9.9 PB request (there is no mechanism to change pledges in response to updated numbers).

3.2. It was stated clearly that there is no implication that any country has done something wrong. Up to this point everyone has thought they were pledging what they should have. It is only now that we have a clear analysis of the situation, which has brought inconsistencies to light at the NCB. This is therefore the first time that National reps and T1s will have been made aware of this.

3.3. LHCb is effectively stuck in an inconsistent situation:

-It was agreed that basing T1 provision upon fraction of the collaboration as a whole is inconsistent and leads to the under-pledge problem (we do not want to promote this as being a good metric !!!)

-But at the same time, basing it upon fraction of T1 countries leads to obvious problems of justification to T1 funders of what happens for the non-T1 country share.

4. We have contacted the C-RSG before the meeting, and again since the meeting to ask for guidance on the expectation of T1s. We will naturally continue to liaise with them to see if any general words of guidance can be provided.

5. LHCb evidently has a clear and present problem in the next years. As minimal interim measure LHCb will make the following request to T1s: On a voluntary basis, is it possible for T1s to agree to make disk available for 2013 according to at least the 9900 TB request * your fraction of the whole experiment (excluding CERN)

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[We may also later ask that if you are able to, then you provide disk at the higher rate of the <>9900 TB request * your fraction of the T1 authors<>, but at present we are holding on this until we receive more guidance from the C-RSG.]

6. In parallel we will investigate whether there are a small set of T2-Ds (Super Tier2s with disk) which could provide substantive disk to LHCb. It would be particularly helpful if these were available in the larger non-T1 countries. I will liaise with national contacts and the operations team on this.

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