



Material Resources in Regional Centres

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Where to Find Detailed Data

- **LCG Home Page**
 - LCG Project Planning
 - Phase 2 Resources
 - Top 3 entries
- **I will show here just a few selected tables:**
 - CERN Tier0 and CAF
 - Summary of external Tier1s
 - Summary of external Tier2s





Tier0 and CERN Analysis Facility

CERN Tier0	2004	2005	2006	2007	2008	2009	2010
CPU (kSI2K)			2400	4800	12500	15900	26200
Disk (Tbytes)			230	450	1260	1330	1770
Tape (Tbytes)			1500	3400	13600	23600	33900
Nominal WAN (Mbits/sec)	30000	60000	80000	100000	120000	140000	160000

CERN Analysis Facility	2004	2005	2006	2007	2008	2009	2010
CPU (kSI2K)			2600	5100	10000	14600	15000
Disk (Tbytes)			850	1700	4200	5200	5300
Tape (Tbytes)				1500	3400	5700	5900





TO + CAF Requirements

Split 2008	ALICE	ATLAS	CMS	LHCb	SUM 2008
Required	3300	4060	4600	570	12530
Offered	3300	4030	4600	570	12500
% of Req.	100%	99%	100%	100%	100%
Required	240	350	400	270	1260
Offered	240	350	400	270	1260
% of Req.	100%	100%	100%	100%	100%
Required	2480	5680	4900	500	13560
Offered	2500	5700	4900	500	13600
% of Req.	101%	100%	100%	100%	100%

Split 2008	ALICE	ATLAS	CMS	LHCb	SUM 2008
Required	5000	2650	4800	330	12780
Offered					10000
% of Req.					78%
Required	1450	1850	1500	450	5250
Offered					4200
% of Req.					80%
Required	1160	520	1900	860	4440
Offered					3400
% of Req.					77%





Comments to T0 + CAF

- The CERN presentation makes the following assumptions:
 - Tier-0 is presented as fully funded.
 - CAF capacities have a yellow background from 2007 onwards.
 - Shown capacities would be possible with the original planning budget.
 - Not enough to fulfil the TDR requests!
 - And the original budget is not funded
 - We are missing ~ 14 MCHF.
 - The Alice CAF capacity will be required in full during 4 months for the Tier-0, implying "borrowing" from the CAF capacity of other experiments.





Current T1 Summary

Split 2008	ALICE	ATLAS	CMS	LHCb	SUM 2008
Offered	6393	22900	11950	5056	46299
Required	12300	24000	15200	4400	55900
Balance	-48%	-5%	-21%	15%	-17%
Offered	2008	11770	5789	2264	21831
Required	7400	14400	7000	2400	31200
Balance	-73%	-18%	-17%	-6%	-30%
Offered	2297	10862	9294	2639	25092
Required	6900	9000	16700	2100	34700
Balance	-67%	21%	-44%	26%	-28%





Comments to the T1 Summary

- I have already shown better numbers for the overall offer.
 - Requirements (up) and pledges (down) have changed.
 - But the overall picture is not disastrous.
- Looking at details for each experiment it is fairly obvious:
 - That not all T1s have adapted their figures to the changing requirements.
 - That shifting resources, e.g. from tape to disk, will help.
 - Except if the solution is just to find an additional T1.



Comments to the T2 Tables

- 24 centres or federations are now included, producing >50% of the required capacity.
 - 14 known centres could not yet announce their numbers.
 - These include probably important resources:
 - USA CMS, Canada East+West, MPI Munich etc.
 - But most of these will be for ATLAS and CMS.
- Translating the surplus disk of LHCb into CPU capacity will roughly halve their CPU deficit.
- It will now be necessary to get the remaining centres to announce their planning numbers.
 - And most centres will have to give networking speeds.
- We will need to know, who will be ready to sign the MoU this autumn, and what to do with centres with really minimal capacities.





Current T2 Summary

Split 2008	ALICE	ATLAS	CMS	LHCb	SUM 2008
Offered	4736	17250	8459	4436	35041
Required	14400	19940	19300	7650	61290
Balance	-67%	-13%	-56%	-42%	-43%
Offered	1271	4976	2418	840	9512
Required	5106	8748	4900	23	18777
Balance	-75%	-43%	-51%	3552%	-49%
Offered	0	453	0	0	453

Requirements 2008	ALICE	ATLAS	CMS	LHCb	SUM
CPU (kSI2K)	14400	19940	19300	7650	61290
Disk (Tbytes)	5106	8748	4900	23	18777
Number of T2s²	13 (13)	18 (29)	14 (19)	11 (12)	n/a

