pre-GDB 04 Dec 2007 CCRC08 Planning (1/5)

Prepared second draft of 'extra' resources required for February run of CCRC'08 not including storage for 2nd pass reconstruction at Tier-1 except for LHCb who have given full breakdown. Assuming 14 days running. Raised many assumptions for decision, some global, some per experiment

ALL:

• what LHC machine efficiency to build in. I have this time taken 55% in table in slides 3 (Feb) and 4 (May). What efficiency was built into the TDRs (seconds of beam in 08?)

•What are the storage resource requirements at Tier1for 2nd pass reconstruction and copies to other Tier1 (I have it for ATLAS) . I have assumed full 2008 cpu is required due to lumpy arrival of data but now question this if challenge is to simulate 55% LHC efficiency.

•What ramp-up profile over the two weeks ?

ALICE:

•Predicting 60MB/sec out of CERN Raw+Aod while nominal is 1 MB events + 0.1 MB ESD at 100 Hz. Machine efficiency factor or what assumptions ?answer is 55% assumed

•Will be mixture of detector (to be kept) and MC (to be deleted) – how much of each ? answer during December – current guess is one third

•Complete copy of Raw to tape at Tier1 while ESD to disk only at Tier1. ALICE model implies all Tier1 disk is T1D1 where the disk residency is managed by ALICE ? Answer raw should be treated as T1D0

pre-GDB 04 Dec 2007 CCRC08 Planning (2/5)

ATLAS:

•I have assumed full nominal rates so Tier0 raw export at 320 MB/s, ESD export at 508 MB/s (2 complete copies exported plus a complete copy to BNL) and AOD export at 200 MB/s (complete AOD to all 10 sites). Raw to tape, ESD and AOD to disk.

•Any data to be kept ? Probably not.

CMS:

•Have assumed 600 MB/s for FEVT data Tier0 to Tier1, all to go to T1D0. What should be the T1D1 component.

•Also a mixture of cosmics (to be kept) and MC (to be deleted). Which fractions ?

LHCb:

•Gave full storage matrix for Raw, rDST and M-DST+DST. For the last says 8+6x8 TB (8 TB T1D1+40TB T0D1) . Why 40TB with 6 external Tier1 ? +8 TB T1D1 at T1 sites. LHCb have corrected my per site distribution.

pre-GDB 04 Dec 2007 CCRC08 Planning (2.5/5)

- Site Planning changes since last pre-GDB
  - IN2P3 2008 pledges slightly changed downwards. Should know Feb resources by mid-December.
  - NL-T1 clarify their tape capacity is quickly obtained when needed. Ordering extra cpu and disk capacity early March.
  - FZK clarify CMS requirement for 380 TB of tape is only for October 2008 not April so will delay acquisition
  - FNAL report (large) increases in currently installed capacity and should reach 2008 pledges in May (assumed yes in spreadsheet).
  - RAL report (large) increases in currently installed capacity. They also buy tape quickly as and when needed.
  - NDGF should meet 2007 pledge by January 2008. No date yet for 2008 pledge.
- These changes were put in the following spreadsheets together with 55% beam efficiency for ATLAS and CMS (was already in for ALICE and LHCb). Sites which have not confirmed acquisition dates for 2008 pledges are assumed to stay with current resources in May (RAL, NDGF, US-ALICE).

pre-GDB 04 Dec 2007 CCRC08 Planning (3/5)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Period	**Version 3.12.2007:** 1Q2008 WLCG Service Coordination Planning for LCG Tier 1 Capacity: Planned pledges, Available and Required by Experiments for Feb CCRC'08																								
2	1Q2008	Tier 1 Capacity: Available vs. Required (Scheduled)									CRC08 Feb 55%Capacity Required by LHC Experiments and *Site Sep. Disk Allocation*															
3	VLCG	CPU KSi2K			Disk TB			Tape TB			ALICE				ATLAS				CMS				LHCb			
4	Site	2007/8 pledg	Installed	Require	2007/8 pledg	Installed	Require	2007/8 pledg	Installed	Require	CPU	Disk	*Alloc.*	Tape	CPU	Disk	*Alloc.*	Tape	CPU	Disk	*Alloc.*	Tape	CPU	Disk	*Alloc.*	Tape
5	ASGC	1770	1770	2467	900	1350	30	800	800	69					1123	30	*67*	13	1344	0	*218*	56				
6	CC-IN2P3	1286	2568	5074	729	1394	57	745	1469	90	1414	1	*275*	9	2356	48	*601*	28	1056	0	*346*	44	248	8	*173*	9
7	FZK/GridKa	1860	1864	7045	880	878	51	1010	1007	101	3939	3	*280*	26	1812	40	*280*	21	1152	0	*330*	48	142	8	*68*	6
8	INFN/CNAI	1300	1300	3994	500	500	49	650	650	72	1111	1	*22*	7	1812	40	*74*	21	912	0	*110*	38	159	8	*51*	6
9	NDGF	688	688	2633	385	385	26	273	273	22	1818	1		12	815	25		10								
10	PIC	501	1000	1432	218	560	33	243	600	35					815	25	*78*	10	528	0	*102*	22	89	8	*36*	3
11	RAL	1300	1283	3714	640	659	53	1080	390	82	152	0	*21*	1	2174	45	*114*	26	768	0	*120*	32	620	8	*64*	23
12	SARA-NIKH	1677	774	3334	1059	253	56	719	52	50	556	1	*3*	4	2265	47	*41*	27					513	8	*39*	19
13	TRIUMF	160	905	779	110	500	25	80	385	9					779	25	*27*	9								
14	US-ATLAS BNL	2560	4900	4167	1100	2000	146	603	1000	49					4167	146	*520*	49								
15	US-CMS FNAL	1792	4500	3840	700	1360	0	300	1000	160									3840	0	*700*	160				
16	US-ALICE		180	1111		45	1		35	7	1111	1		7												
17																										
18	TOTALS	14894	21732	39590	7221	9884	527	6503	7661	746	10101	8	*521*	66	18118	471	*1738*	214	9600	0	*1956*	400	1771	48	*431*	66
19	CERN Tier-	4480			330			1620			1800	7		73	3705	146		359	5300	0		399	360	8		53
20	CERN CAF	3090			960			790			500	100		0	800	200		60	1900	400		400	0	30		0
21	CERN Tier-1										0	0		0												
22	CERN Tota	7570	11000	14365	1290	2500	891	2410	5000	1344	2300	107	*286*	73	4505	346	*380*	419	7200	400	*331*	799	360	38	*179*	53

pre-GDB 04 Dec 2007 CCRC08 Planning (4/5)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Period	**Version 04.12.2007.** 2Q2008 WLCG Service Coordination Planning for LCG Tier 1 Capacity: Planned pledges, Available and Required by Experiments for May 55%CCRC'08																								
2	**2Q2008**	**Tier 1 Capacity: Available vs. Required (Scheduled)**									**Scheduled Capacity Required by LHC Experiments and *Site Sep. Disk Allocations***															
3	**WLCG**	**CPU KSi2K**			**Disk TB**			**Tape TB**			**ALICE**				**ATLAS**				**CMS**				**LHCb**			
4	**Site**	**2008/9 pledge**	**Installed**	**Required**	**2008/9 pledge**	**Installed**	**Required**	**2008/9 pledge**	**Installed**	**Required**	**CPU**	**Disk**	***Alloc.***	**Tape**	**CPU**	**Disk**	***Alloc.***	**Tape**	**CPU**	**Disk**	***Alloc.***	**Tape**	**CPU**	**Disk**	***Alloc***	**Tape**
5	**ASGC**	3400	1770	2467	1500	1350	60	1300	800	138					1123	60	*67*	26	1344	0	*218*	112				
6	**CC-IN2P3**	4240	2568	5074	2375	1394	114	2470	1469	180	1414	2	*275*	18	2356	96	*601*	56	1056	0	*346*	88	248	16	*173*	18
7	**FZK/GridKa**	5672	4522	7045	2933	2293	102	3629	2449	204	3939	6	*200*	52	1812	80	*280*	42	1152	0	*330*	98	142	16	*68*	12
8	**INFN/CNAF**	3000	1300	3994	1300	500	98	1500	650	144	1111	2	*22*	14	1812	80	*74*	42	912	0	*110*	76	159	16	*51*	12
9	**NDGF**	2172	688	2633	1079	385	52	930	273	44	1818	2		24	815	50		20								
10	**PIC**	1509	1509	1432	967	560	66	953	600	70					815	50	*78*	20	528	0	*132*	44	89	16	*36*	6
11	**RAL**	5220	1283	3714	2790	659	107	2070	390	165	152	1	*21*	2	2174	90	*114*	52	768	0	*120*	64	620	16	*64*	47
12	**SARA-NIKH**	4382	774	3334	2510	253	110	1813	52	100	556	2	3	8	2265	92	*41*	54					513	16	*39*	38
13	**TRIUMF**	905	905	779	500	500	50	385	385	18					779	50	*23*	18								
14	**US-ATLAS BNL**	4844	4900	4167	3136	2000	292	1715	1800	98					4167	292	*520*	98								
15	**US-CMS FNAL**	4300	4500	3840	2000	2000	0	4700	4700	320									3840	0	*700*	320				
16	**US-ALICE**		180	1111		45	2		35	14	1111	2		14												
17																										
18	TOTALS	39644	24899	39590	21090	11939	1053	21465	13603	1495	10101	17	*521*	132	18118	940	*1798*	428	9600	0	*1956*	802	1771	96	*431*	133
19	**CERN Tier-0**	11170		11165	2423		722	10780		1768	1800	14		146	3705	292		718	5300	400		798	360	16		106
20	**CERN CAF**	4680			3126			1270			500				2081				2100							
21																										
22	**CERN Total**	15850	15850	15846	5549	5549	722	12050	12050	1768	2300	14	*286*	146	5786	292	*390*	718	7400	400	*331*	798	360	16	*179*	106

pre-GDB 04 Dec 2007 CCRC08 Planning (5/5)

Including Tier 0 and Tier1 ESD production cpu but not storage (usually T1D1 at the production site and T0D1 at the copied Tier1 sites) requirements from 2 weeks full nominal 2008 p-p running at 55% LHC efficiency in February require:

- About 1.3 times the planned installed cpu at Tier0 and 2-3 times that at most Tier 1 (BNL and FNAL OK). Should this be scaled down by 0.55 ? ALICE is 25% of total.
- From 3 to 8% of the currently planned to be installed disk capacity but higher at NL-T1 (reported as 253 TB disk installed ? Being checked), and at CERN if the full CAF requirements are needed.
- From 5 to 10% of the currently planned to be installed tape capacity but 100% at NL-T1 (reported as 52 TB tape installed ? They and RAL buy at short notice when needed).
- Should be possible to seriously exercise Tier1 ESD production and storage

Including Tier 0 and Tier1 ESD production cpu but not storage (usually T1D1 at the production site and T0D1 at the copied Tier1 sites) extra requirements from 4 weeks full nominal 2008 p-p running at 55% LHC efficiency in May require:

- Full 2Q2008 cpu capacity to be installed – current hard planning is for 63% to be available.
- Will take 5% of pledged disk capacity – current hard planning is for 57% to be installed.
- Will take 7% of pledged tape capacity – current hard planning is for 63% to be installed.
- To be checked how this 30 days matches full 2008 requirements (eg ESD storage)