



T0/1/2 to T0/1/2 relationship

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June 7, 2006
GDB

ALICE computing model

- For pp similar to the other experiments
 - Quasi-online data distribution and first reconstruction at T0
 - Further reconstructions at T1's
- For AA different model
 - Calibration, alignment, pilot reconstructions and partial data export during data taking
 - Data distribution and first reconstruction at T0 in the four months after AA run (shutdown)
 - Further reconstructions at T1's
- T0: First pass reconstruction, storage of RAW, calibration data and first-pass ESD's
- T1: Subsequent reconstructions and scheduled analysis, storage of a collective copy of RAW and one copy of data to be safely kept, disk replicas of ESD's and AOD's
- T2: Simulation and end-user analysis, disk replicas of ESD's and AOD's

		Pledged by external sites versus required MoU							
		2007		2008		2009		2010	
		T1	T2	T1	T2	T1	T2	T1	T2
CPU	TDR requirement (MSI2K)	4.9	5.8	12.3	14.4	16.0	18.7	20.9	24.3
	Missing %	-44%	-40%	-43%	-56%	-29%	-41%	-24%	-53%
Disk	TDR requirement (PB)	3.1	1.5	7.9	3.7	10.2	4.8	13.3	6.2
	Missing %	-61%	-35%	-61%	-48%	-51%	-28%	-46%	-32%
MS	TDR requirement (TB)	2779	-	6947	-	9031	-	11740	-
	Missing %	-45%	-	-45%	-	-15%	-	-9%	-



Relations T0 – T1

- Our computing model does not foresee any special role for different T1's
- The amount of RAW data that will be shipped to T1's will be proportional to the resources provided by the T1 in question
- A critical requirement, worth to be noted, is the 300MB/s out of CERN during the four months of shutdown to export RAW data
- CERN T1 has no special role with respect to other T1's
 - Apart that it will not have a share of RAW because all RAW are at CERN



Relations T1 – T2

- In the ALICE Computing TDR there are no privileged relations among Tier1 and Tier2 sites
- All sites of each category share their tasks
 - Reconstruction, scheduled analysis, and unscheduled analysis and Monte-Carlo production
- Relations T2 and T1 are in terms of data storage
 - MC data and AOD from unscheduled analysis produced at T2 are shipped to the “closest” T1 for custodial storage
- In countries with a T1, T2’s in the country refer to it
 - This is the case in France, Germany and Italy
- In other countries, the T1 should ideally be the one with the best bandwidth



Relations T1 – T2

- The main question is the impact in terms of storage @ T1's and network resources
- We have estimated it using only MC data, which provide the bulk of data at Tier2
- Available resources, pledged so far to ALICE, only allow producing about 50% of the MC data required by our Computing Model
- Storage and bandwidth, assuming that all T2's absorb proportionally the 50% deficit



Disclaimer

- During the Rome GDB it was asked to experiments to provide the T2-T1 relationships
- ALICE said that it would have preferred LCG to handle the first version of the table
 - But this task was pushed back on experiments
- We have now a tentative table, however
 - It does not follow from our computing model
 - We welcome comments and changes to it
 - Up to now, the relations are validated only by few computing centres



Tier 1	Tier2	Storage resources (GB/year)	Bandwidth (Gb/s)
CCIN2P3	French Tier2	2.9×10^5	7×10^{-2}
	Sejong (Korea)	3.1×10^5	4×10^{-2}
	Lyon Tier2	1.4×10^5	8×10^{-2}
	Madrid (Spain)	6.9×10^4	2×10^{-2}
	Total	8.1×10^5	2×10^{-1}
CERN		140.00%	2.00%
	Cape Town (South Africa)	1.1×10^4	3×10^{-3}
	Kolkata (India)	2.4×10^5	6×10^{-2}
	Tier2 Federation (Romania)	3.1×10^5	8×10^{-2}
	RMKI (Hungary) ²	-	-
	Athens (Greece) ²	-	-
	Slovakia	4.2×10^4	1×10^{-2}
	Tier2 Federation (Poland)	1.3×10^5	3×10^{-2}
	Wuhan (china)	5.0×10^4	1×10^{-2}
	Total	8×10^5	2×10^{-1}
		91.00%	0.18%

[1] No data available for 2008

[2] Final configuration depending on financial approval



Tier 1	Tier2	Storage resources (GB/year)	Bandwidth (Gb/s)
FZK	FZU (Czech Republic)	2.0×10^5	5×10^{-2}
	RDIG (Russia)	6.9×10^5	2×10^{-1}
	GSI (Germany)	3.5×10^5	9×10^{-2}
	Muenster (Germany)	6.9×10^4	2×10^{-2}
	Total	1.3×10^6	3×10^{-1}
CNAF		87.00%	1.70%
	Tier2 Federation (Italy)	5.8×10^5	1×10^{-1}
	Total	5.8×10^5	1×10^{-1}
RAL		125.00%	0.70%
	Tier2 Federation (UK)	8.1×10^4	2×10^{-2}
	Birmingham ²	-	-
	Total	8.1×10^4	2×10^{-2}
		310.00%	0.15%

[1] No data available for 2008

[2] Final configuration depending on financial approval

Tier 1	Tier2	Storage resources (GB/year)	Bandwidth (Gb/s)
NIKHEF	SARA ²	-	-
	Total	-	-
PDSF ^{[1][2]}	LLNL (USA)	?	?
	OSC (USA)	?	?
	Houston	?	?
	Total	8.9×10^5	2×10^{-1}
		?	?

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[2] Final configuration depending on financial approval

"That's
all
folks!"



7/6/2006

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