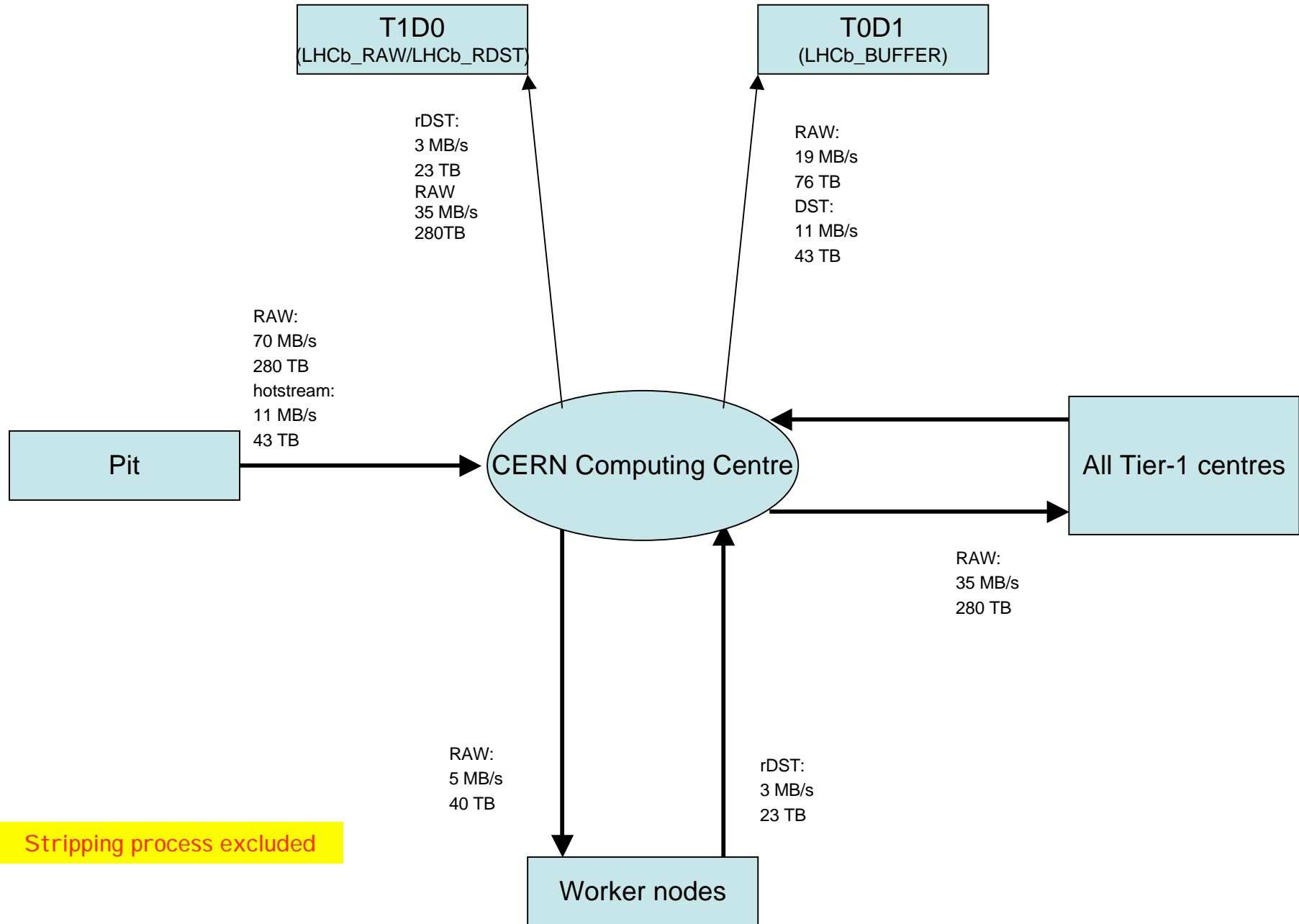


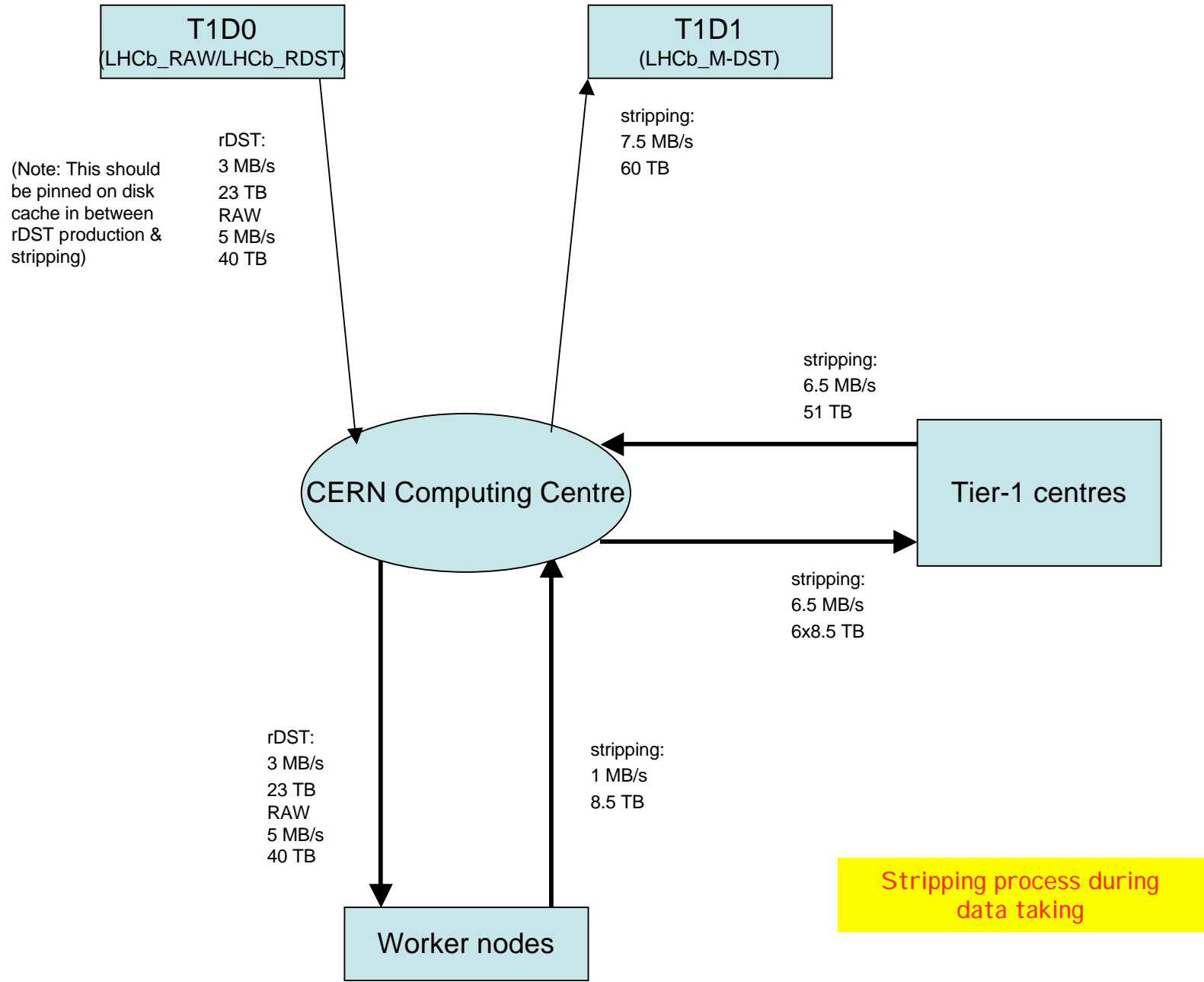
LHCb Computing Model - A Pictorial Guide 2008



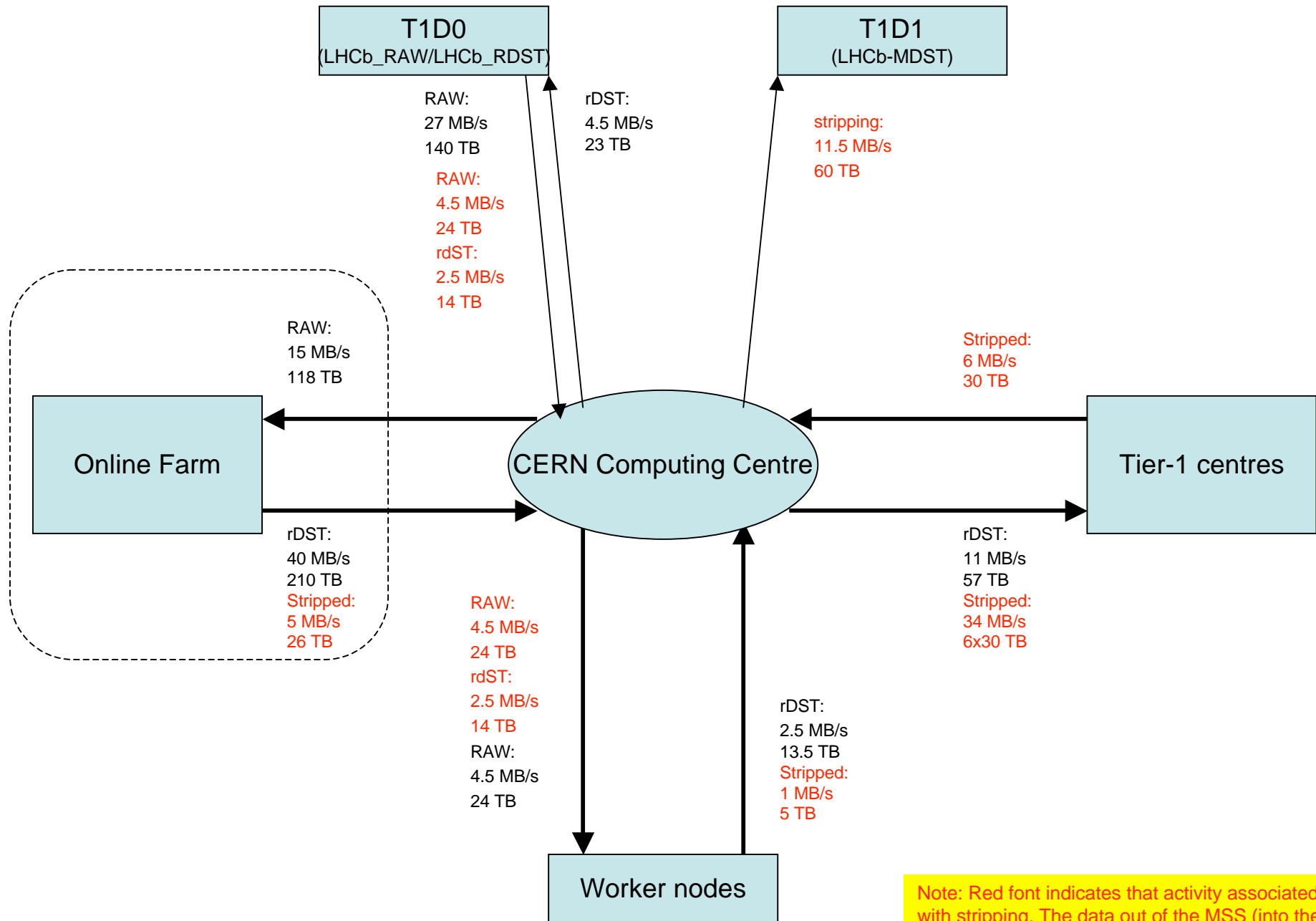
CERN Data taking



Stripping process excluded



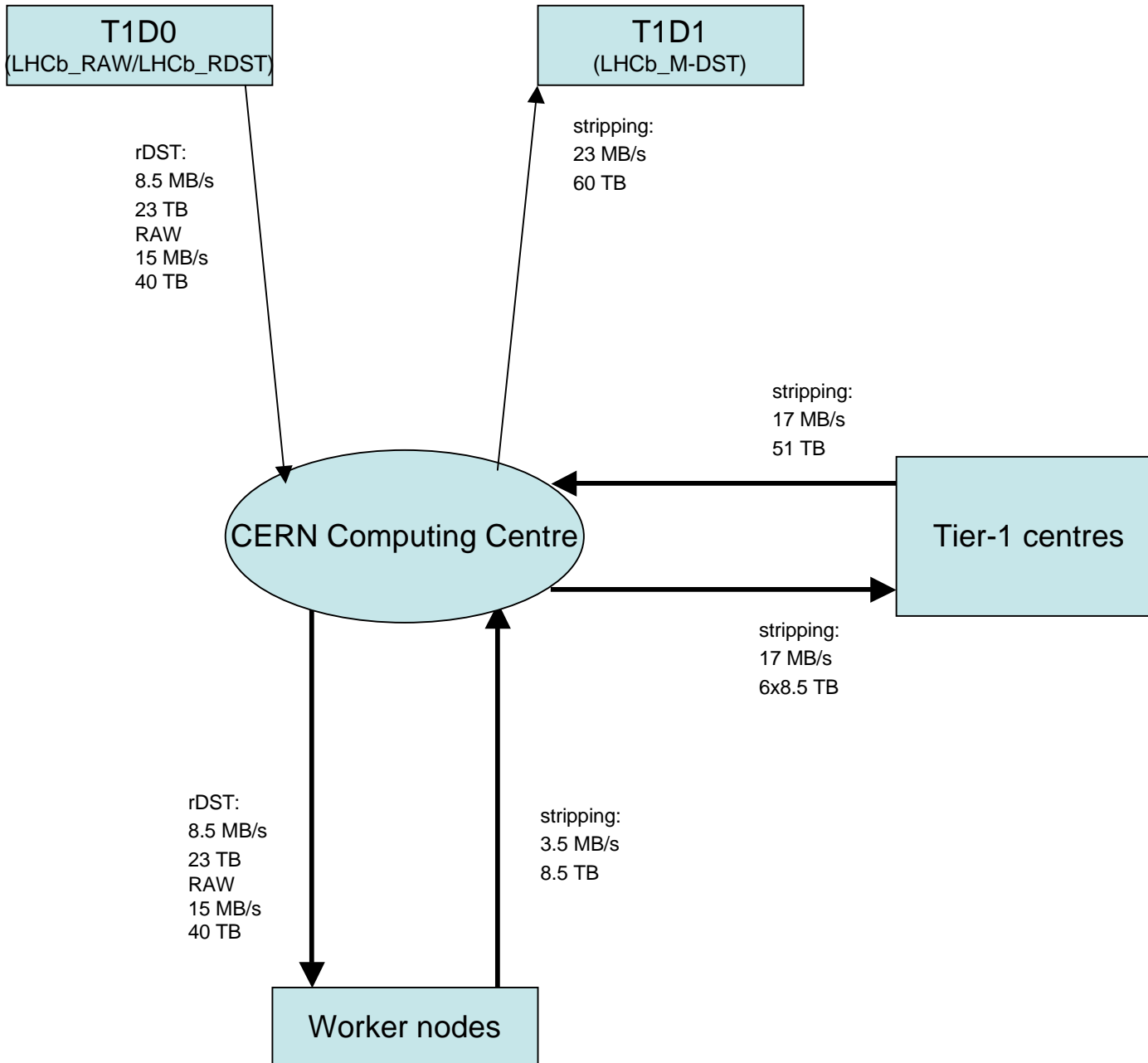
CERN Reprocessing (2 months)



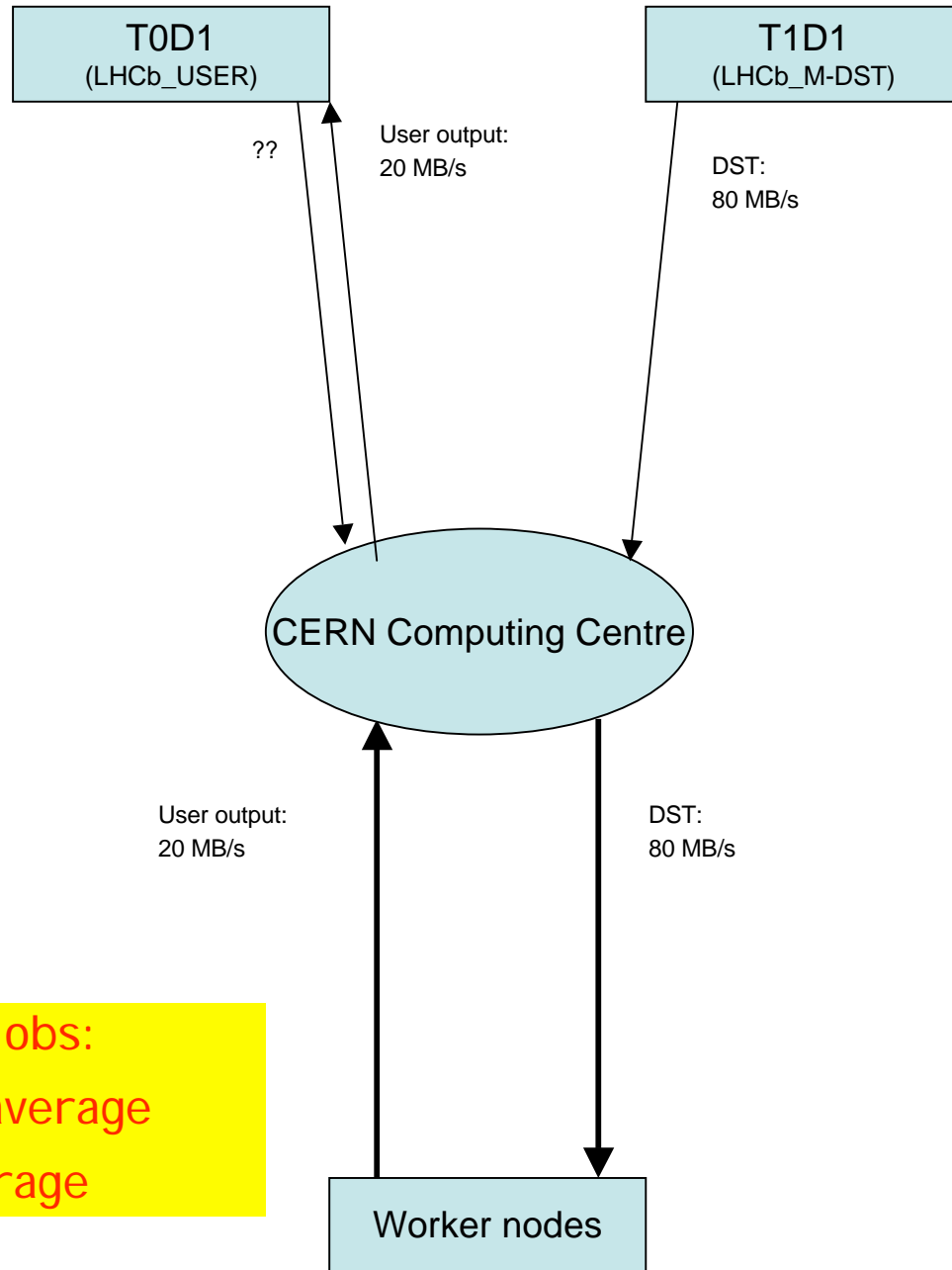
Note: Red font indicates that activity associated with stripping. The data out of the MSS (into the worker nodes) is assumed to be pinned on the disk cache from the reconstruction until stripped

CERN Stripping

(1 month - twice a year)

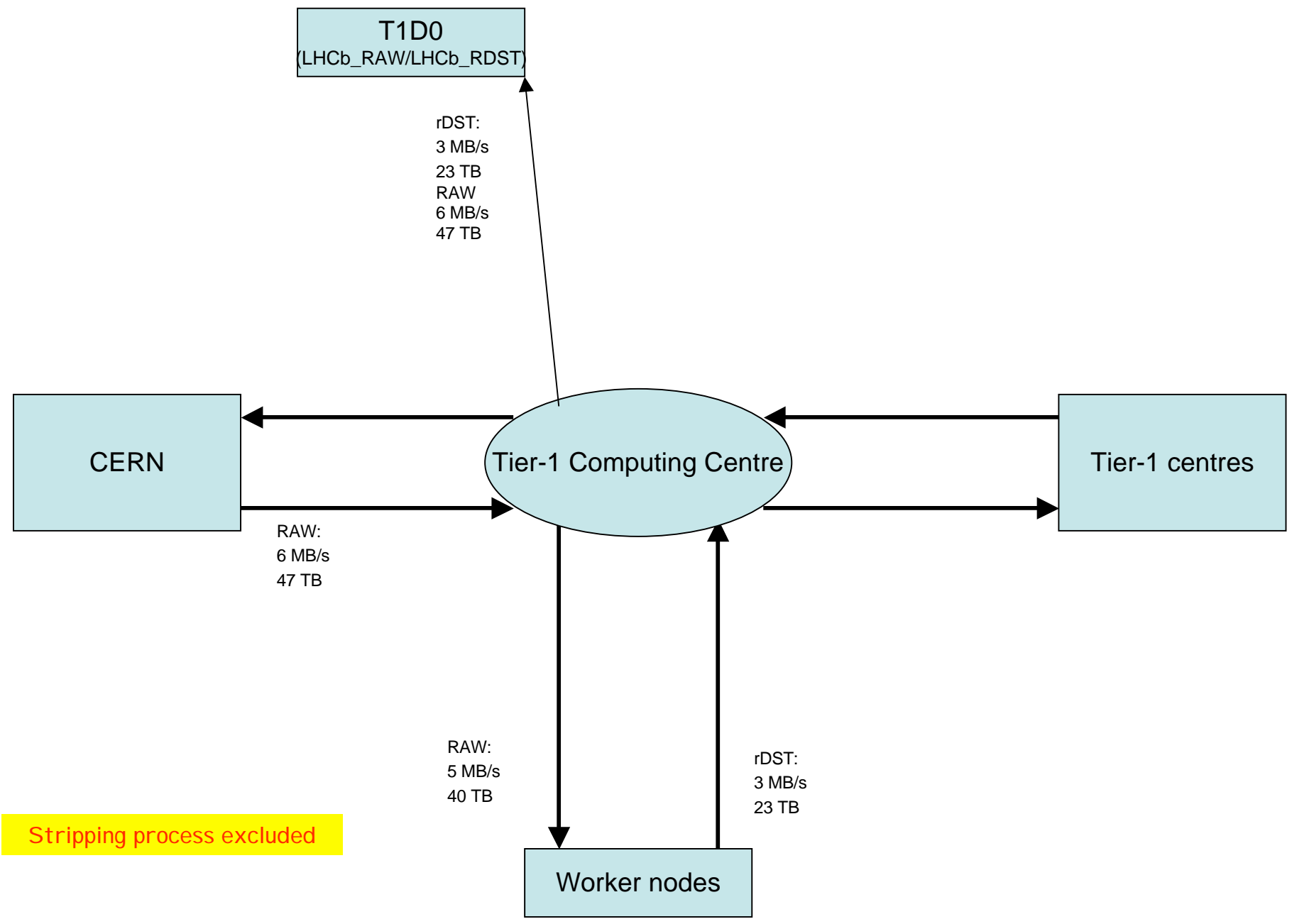


CERN Analysis

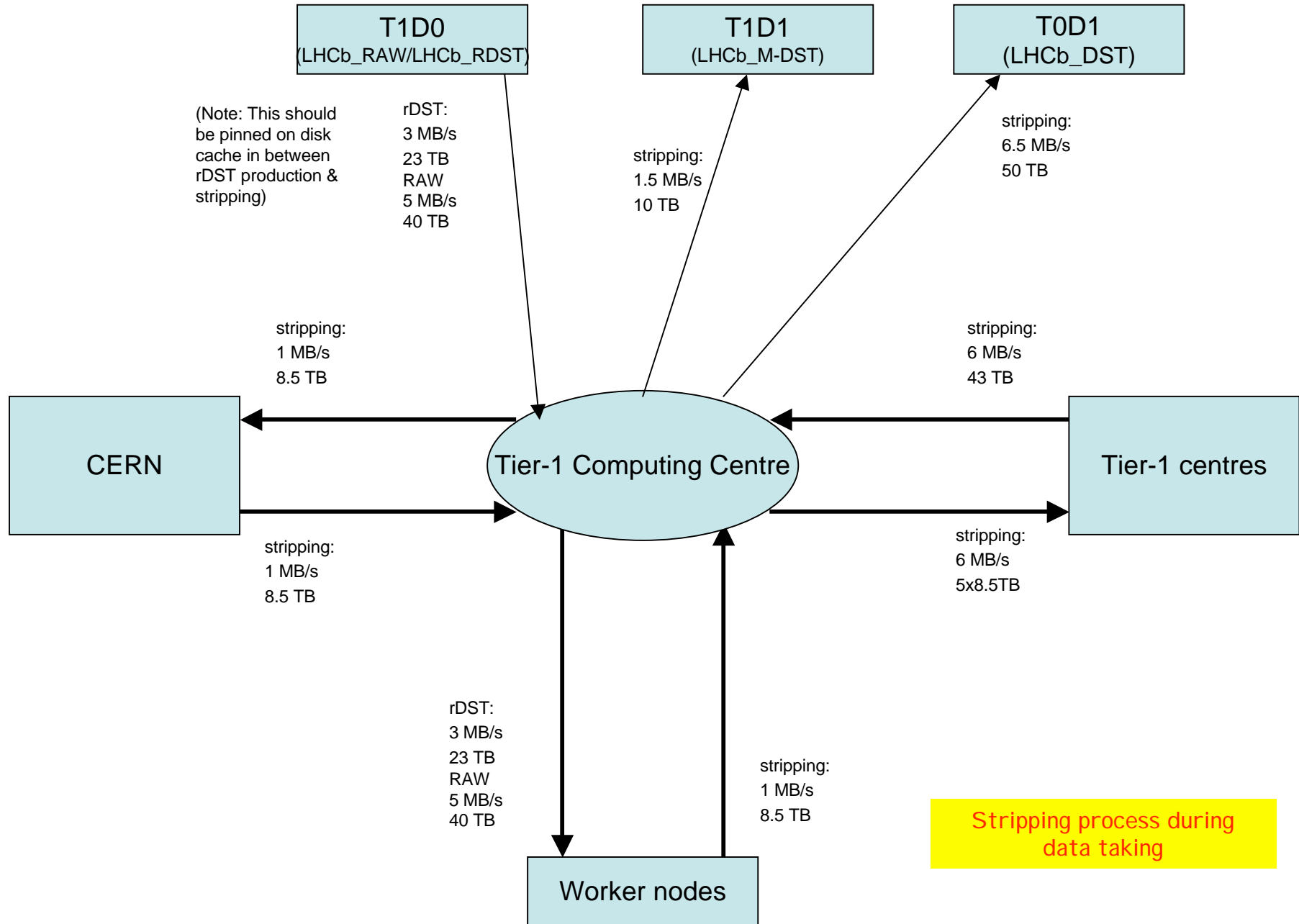


~35 concurrent jobs:
2.3 MB/s input on average
0.6 MB/s on average

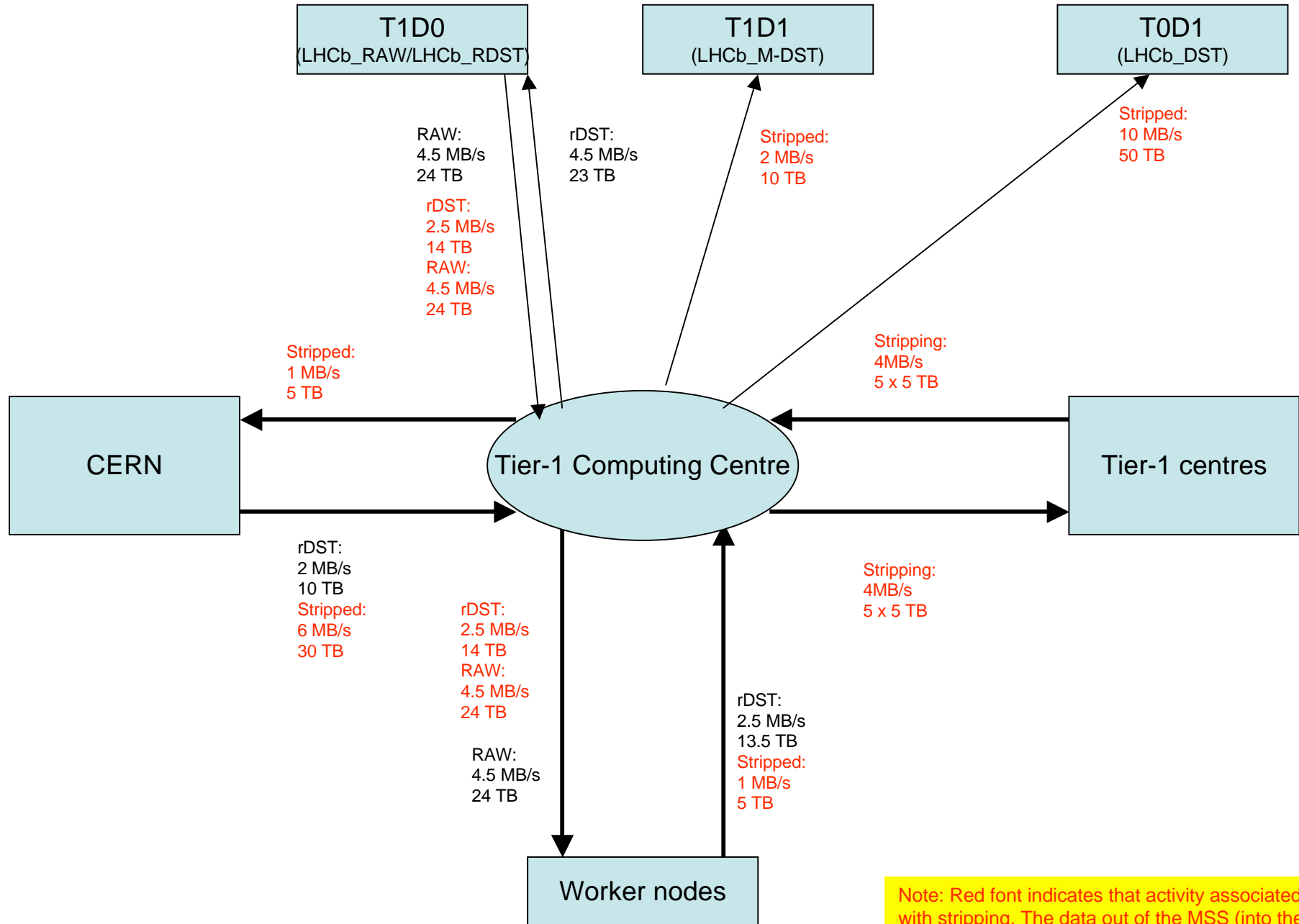
“Typical” Tier-1 Data taking



Stripping process excluded

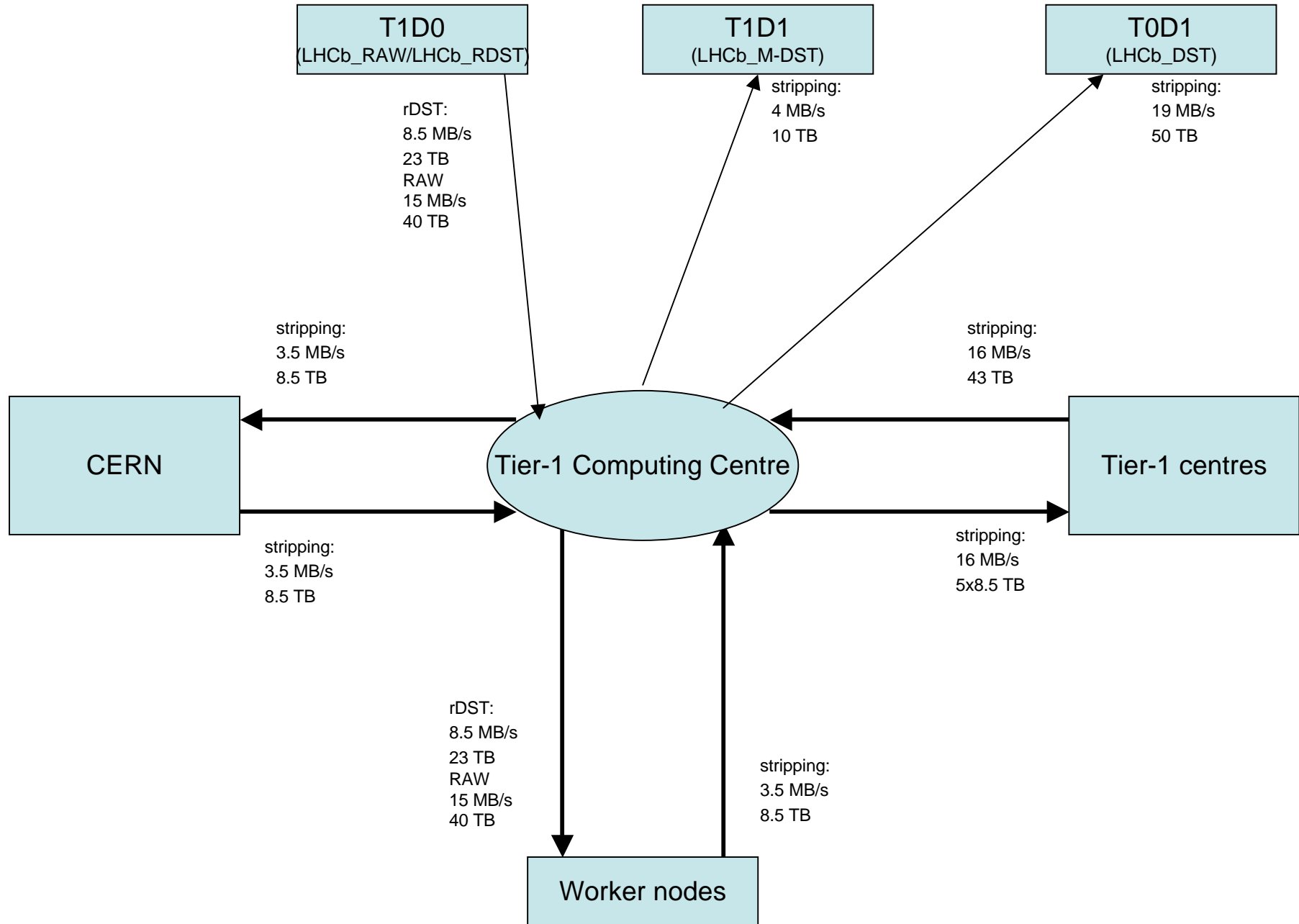


“Typical” Tier-1 Reprocessing (2-months)

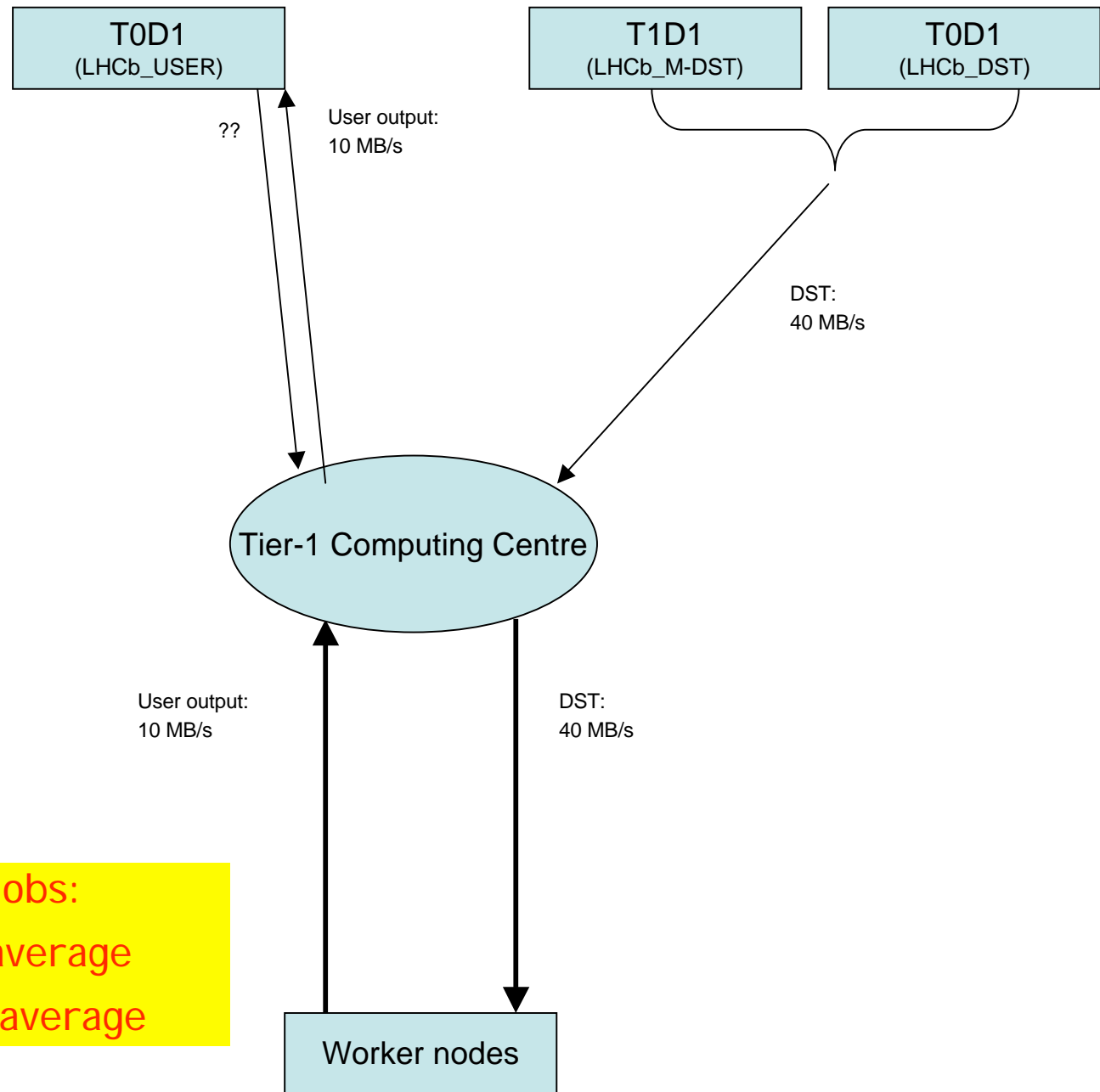


Note: Red font indicates that activity associated with stripping. The data out of the MSS (into the worker nodes) is assumed to be pinned on the disk cache from the reconstruction until stripped

**“Typical” Tier-1 Stripping
(1 month - twice a year)**



“Typical” Tier-1 Analysis



**~18 concurrent jobs:
2.3 MB/s input on average
0.6 MB/s output on average**

	Typical	GridKa	IN2P3	CNAF	SaRA	RAL	PIC	
Percentage based on pledges	0.17	0.15	0.27	0.14	0.23	0.15	0.07	
Data Taking								
Total RAW into Tier-1's (TB)	46.7	42.0	75.6	39.2	64.4	42.0	19.6	
rate (MB/s)	5.8	5.3	9.5	4.9	8.1	5.3	2.5	
Raw to WN	40.0	36.0	64.8	33.6	55.2	36.0	16.8	
rate	5.0	4.5	8.1	4.2	6.9	4.5	2.1	
rDST to T1D0 from WN	22.8	20.6	37.0	19.2	31.5	20.6	9.6	
rate	2.9	2.6	4.6	2.4	3.9	2.6	1.2	
Total RAW into Tier-1's	46.7	42.0	75.6	39.2	64.4	42.0	19.6	
rate	5.8	5.3	9.5	4.9	8.1	5.3	2.5	
Strip: DST from CERN	8.5	8.5	8.5	8.5	8.5	8.5	8.5	
rate	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
Strip: RAW to WN (out of T1D0)	40.0	36.0	64.8	33.6	55.2	36.0	16.8	
rate	5.0	4.5	8.1	4.2	6.9	4.5	2.1	
Strip: rDST to WN (out of T1D0)	22.8	20.6	37.0	19.2	31.5	20.6	9.6	
rate	2.9	2.6	4.6	2.4	3.9	2.6	1.2	
Strip: DST out of WN	8.5	7.7	13.8	7.1	11.7	7.7	3.6	
rate	1.1	1.0	1.7	0.9	1.5	1.0	0.4	
Strip: DST to other T1	42.5	38.3	68.9	35.7	58.7	38.3	17.9	
rate	5.3	4.8	8.6	4.5	7.3	4.8	2.2	
Strip: DST to CERN	8.5	7.7	13.8	7.1	11.7	7.7	3.6	
rate	1.1	1.0	1.7	0.9	1.5	1.0	0.4	
Strip: DST in from T1	43.0	43.9	37.7	44.4	39.7	43.9	48.0	
rate	5.4	5.5	4.7	5.5	5.0	5.5	6.0	
Strip: DST to T1D1	10.0	9.0	16.2	8.4	13.8	9.0	4.2	
rate	1.3	1.1	2.0	1.1	1.7	1.1	0.5	
Strip: DST to T0D1	50.0	51.0	43.8	51.6	46.2	51.0	55.8	
rate	6.3	6.4	5.5	6.5	5.8	6.4	7.0	

	Typical	GridKa	IN2P3	CNAF	SaRA	RAL	PIC	
Reprocessing								
rDST from CERN (TB)	9.5	8.6	15.4	8.0	13.1	8.6	4.0	
rate (MB/s)	1.8	1.6	2.9	1.5	2.5	1.6	0.8	
Stripping from CERN	34.0	34.0	34.0	34.0	34.0	34.0	34.0	
rate	6.5	6.5	6.5	6.5	6.5	6.5	6.5	
RAW to WN	24.0	21.6	38.9	20.2	33.1	21.6	10.1	
rate	4.6	4.1	7.4	3.8	6.3	4.1	1.9	
Strip: RAW to WN	24.0	21.6	38.9	20.2	33.1	21.6	10.1	
rate	4.6	4.1	7.4	3.8	6.3	4.1	1.9	
Strip: rDST to WN	13.5	12.2	21.9	11.3	18.6	12.2	5.7	
rate	2.6	2.3	4.2	2.2	3.5	2.3	1.1	
rDST from WN	13.5	12.2	21.9	11.3	18.6	12.2	5.7	
rate	2.6	2.3	4.2	2.2	3.5	2.3	1.1	
Strip: DST out of WN	5.0	4.5	8.1	4.2	6.9	4.5	2.1	
rate	1.0	0.9	1.5	0.8	1.3	0.9	0.4	
Strip: DST to other T1	25.0	22.5	40.5	21.0	34.5	22.5	10.5	
rate	4.8	4.3	7.7	4.0	6.6	4.3	2.0	
Strip: DST from other T1	25.0	25.5	21.9	25.8	23.1	25.5	27.9	
rate	4.8	4.9	4.2	4.9	4.4	4.9	5.3	
Strip: DST to T0D1	50.0	51.0	43.8	51.6	46.2	51.0	55.8	
rate	9.5	9.7	8.3	9.8	8.8	9.7	10.6	
rDST to T1D0	23.0	20.7	37.3	19.3	31.7	20.7	9.7	
rate	4.4	3.9	7.1	3.7	6.0	3.9	1.8	
Strip: DST to T1D1	10.0	9.0	16.2	8.4	13.8	9.0	4.2	
rate	1.9	1.7	3.1	1.6	2.6	1.7	0.8	
RAW out of T1D0	24.0	21.6	38.9	20.2	33.1	21.6	10.1	
rate	4.6	4.1	7.4	3.8	6.3	4.1	1.9	
Strip: RAW out of T1D0	24.0	21.6	38.9	20.2	33.1	21.6	10.1	
rate	4.6	4.1	7.4	3.8	6.3	4.1	1.9	
Strip: rDST out of T1D0	13.5	12.2	21.9	11.3	18.6	12.2	5.7	
rate	2.6	2.3	4.2	2.2	3.5	2.3	1.1	
Strip: DST to CERN	5.0	4.5	8.1	4.2	6.9	4.5	2.1	
rate	1.0	0.9	1.5	0.8	1.3	0.9	0.4	

	Typical	GridKa	IN2P3	CNAF	SaRA	RAL	PIC	
Stripping								
RAW into WN (out of T1D0) (TB)	40.0	36.0	64.8	33.6	55.2	36.0	16.8	
rate (MB/s)	15.2	13.7	24.7	12.8	21.0	13.7	6.4	
rDST into WN (out of T1D0)	23.0	20.7	37.3	19.3	31.7	20.7	9.7	
rate	8.8	7.9	14.2	7.4	12.1	7.9	3.7	
DST out of WN	8.5	7.7	13.8	7.1	11.7	7.7	3.6	
rate	3.2	2.9	5.2	2.7	4.5	2.9	1.4	
DST out to T1	42.5	38.3	68.9	35.7	58.7	38.3	17.9	
rate	16.2	14.6	26.2	13.6	22.3	14.6	6.8	
DST in from T1	42.5	43.4	37.2	43.9	39.3	43.4	47.4	
rate	16.2	16.5	14.2	16.7	14.9	16.5	18.0	
DST to TOD1	50.0	51.0	43.8	51.6	46.2	51.0	55.8	
rate	19.0	19.4	16.7	19.6	17.6	19.4	21.2	
DST to T1D1	10.0	9.0	16.2	8.4	13.8	9.0	4.2	
rate	3.8	3.4	6.2	3.2	5.3	3.4	1.6	
DST to CERN	8.6	7.7	13.9	7.2	11.8	7.7	3.6	
rate	3.3	2.9	5.3	2.7	4.5	2.9	1.4	
DST in from CERN	8.5	8.5	8.5	8.5	8.5	8.5	8.5	
rate	3.2	3.2	3.2	3.2	3.2	3.2	3.2	
Analysis								
rate: out T1D1/TOD1 (LHCb_M-DST/LHCb_DST)	40.0	36.0	64.8	33.6	55.2	36.0	16.8	
rate: into WN	40.0	36.0	64.8	33.6	55.2	36.0	16.8	
rate: out of WN	10.0	9.0	16.2	8.4	13.8	9.0	4.2	
rate: to TOD1 (LHCb_USER)	10.0	9.0	16.2	8.4	13.8	9.0	4.2	