DOMA News

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DC24 Preparations

Two presentations today

    SKA

    JUNO

Further discussions during LHCOPN-LHCONE meeting #50 (Agenda)

    Need a forum for planning discussions between network providers and experiments

    - Frequency?

    - Audience?

    - Timeslot?

    - Organizer(s)?

HL-LHC Network Capacity Table

Complete redesign of the table likey necessary

Include feedback from the experiments and the network community

Mixing of ingress/egress values was very confusing

Clearly separate the three main flows

Tier-0 / Tier-1	Unidirectional	RAW export, prompt reconstruction/derivation export …
Tier-1 / Tier-1	Bi-directional	Data consolidation, recovery operations, …
Tier-2 / anywhere	Bi-directional	Reconstruction, Reprocessing, Simulation, Derivations, …

Estimate required capacity/deployments over time, e.g., from pledges, compute needs, …

Assume the following steps: **2021** → 10%,   **2024** → 25%,   **2026** → 50%,   **2028** → 100%

Next step

Will approach each experiment individually for estimates / numbers

Example table

Tier-1	Tier-0 to Tier-1 Percentage				Connectivity Target (Gbps)				Data Challenge Target (Gbps)			
	ALICE	ATLAS	CMS	LHCb	ALICE	ATLAS	CMS	LHCb	2021 (10%)	2024 (25%)	2026 (50%)	2028 (100%)
CA - TRIUMF	0	10	0	0	0	200	0	0	20	50	100	200
CN - IHEP	0	0	0	1	0	0	0	1	0	0	1	1
DE - KIT	21	12	10	17	210	120	100	170	60	150	300	600
ES - PIC	0	5	5	4	0	71	71	57	20	50	100	200
FR - CCIN2P3	14	13	10	15	153	143	110	164	57	143	285	570
IT - INFN-CNAF	26	9	15	24	242	84	140	224	69	173	345	690
KR - KISTI-GSDC	12	0	0	0	50	0			5	13	25	50
ND - NDGF	8	6	0	0	80			0	14	35	70	140
NL - NIKHEF	3	7	0	8			0	80	18	45	90	180
PL - NCBJ	0	0	0	1		0	0	1	0	0	1	1
RU - JINR*	0	0	10	0	0	0	200	0	20	50	100	200
RU - NRC-KI*	13	0	0	5	87	0	0	33	12	30	60	120
UK - RAL	3	15	10	27	33	166	111	299	61	153	305	610
US - BNL	0	23	0	0	0	450	0	0	45	113	225	450
US - FNAL	0	0	40	0	0	0	800	0	80	200	400	800
Total	**100**	**100**	**100**	**102**	**885**	**1364**	**1532**	**1029**	**481**	**1205**	**2407**	**4812**

DO NOT USE

Summary ▾   Tier-0 :: Tier-1 ▾   Tier-1 :: Tier-1 ▾   Tier-1 :: Tier-2 ▾   Tier-2 Ingress ▾

Straightforward application of the original "minimal model" for the Tier-0 :: Tier-1 case

> Already includes the two new Tier-1s (CN - IHEP, PL - NCBJ) with fake numbers
> Still includes the Russian Tier-1s (RU - JINR, RU - NRC-KI) with the 2020 numbers

Recap: 2021 Data Rates Table

ATLAS & CMS T0 to T1 per experiment
> **350PB RAW**, taken and distributed during typical LHC uptime of 7M seconds
> - 50GB/s or 400Gbps
>
> Another 100Gb/s estimated for prompt reconstruction data tiers (AOD, other derived output)
> 1Tbps for CMS and ATLAS

ALICE & LHCb
> 100 Gbps per experiment estimated from Run-3 rates

Minimal Model
> Sum (ATLAS,ALICE,CMS,LHCb)*2(for bursts)*2(overprovisioning) = **4.8Tbps**

Flexible Model
> Assumes reading of data from above for reprocessing/reconstruction in 3 month (about 7M seconds)
> Means doubling the Minimal Model: **9.6Tbps**
> However data flows from the T1s to T2s and T1s!

No MC production flows in the 2021 modeling!