LCG-France report for Alice T1T2 workshop 2022

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on behalf of LCG-France [*]

[*] LCG-France : http://lcg.in2p3.fr/
Thanks to all FR sites managers who provided information for this report

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Introduction : LCG-France

- A project that involves IN2P3 (CNRS) and IRFU (CEA)

- MoU between LCG-France and sites. Goal is to deliver 8 to 10 % of the global WLCG resources, priority is on the Tier1 : CCIN2P3.

- Budget : 2M€ / year

- Executive board, Steering board, Technical coordination

- Meetings and events : twice a month (the 2 boards alternatively)+ 2 LCGFR f2f meetings per year

- Links with the FR NGI, all sites part of the FR NGI

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LCG-France : sites
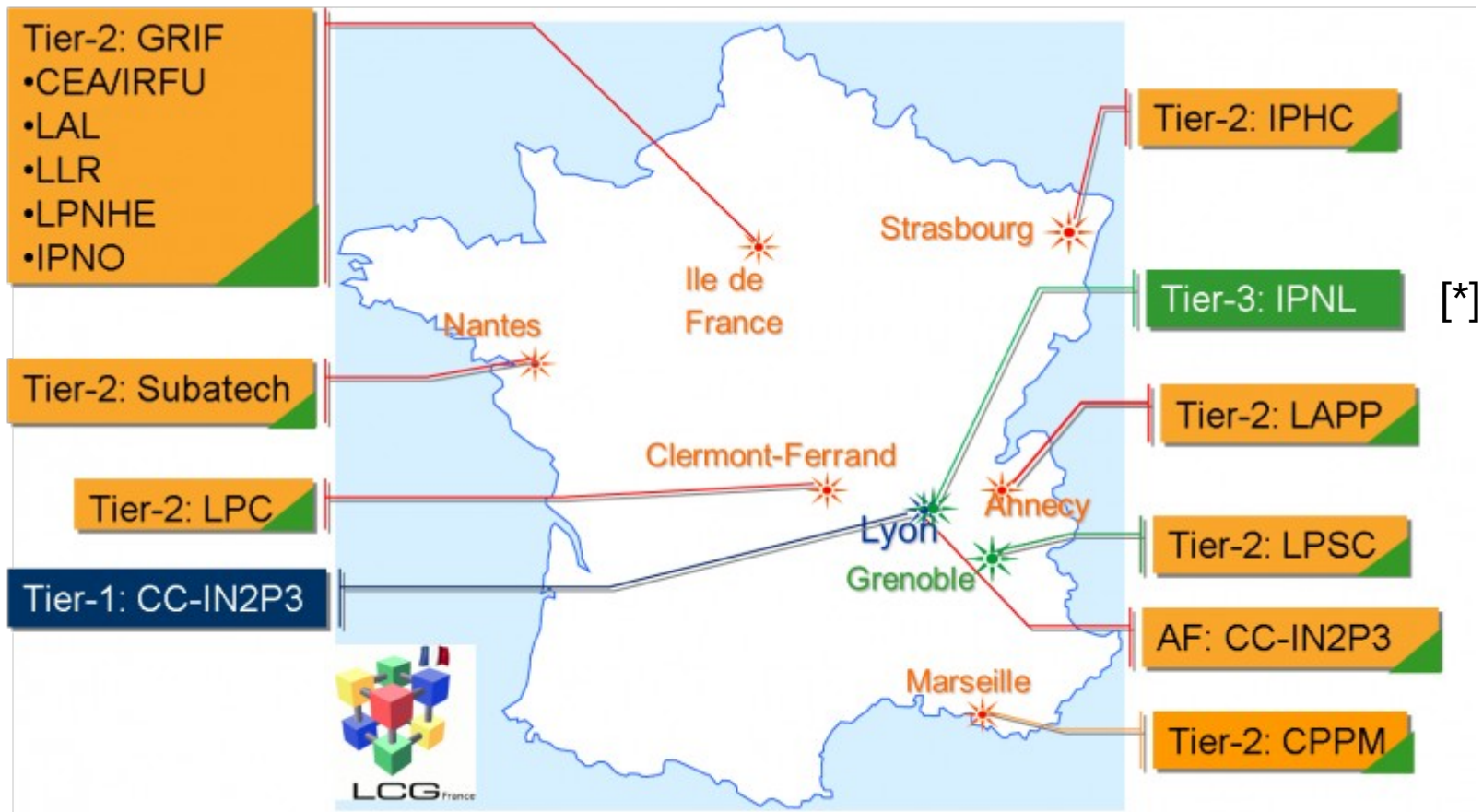
[*] Since end of 2021, the Tier3 IPNL has withdrawn from the grid.

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Alice in LCG-France

FR Alice Resources 2018-2023

	2019 (1)	2020	2021	2022	2023	% of global Alice request in 2023 [2]
T1 CPU	41000	42000	54780	57270	65780	11.5%
T1 Disk	5100	5800	6396	6875	7938	12.5%
T1 Tapes	6200	6200	8550	9765	12710	15.5%
T2s CPU	44773	50610	51422	52742	36964	6.2%
T2s Disk	4159	4133	5191	5422	3125	5.4%

Pledged resources per year, CPU in KHS06 ; Disk and Tapes in TBytes

[1] Pledges for year Y start on April 1st of the year
    source : https://wlcg-cric.cern.ch/core/pledge/list/
[2] Alice's requests for 2023
    source : https://wlcg-cric.cern.ch/core/vopledgereq/list/

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Alice CPU Pledged/Provided, Ex:2021

	Pledged 2021[1]	Expected [2]	Provided [3]	Ratio
CCIN2P3	54780	479872800	643603390	134 %
GRIF	21496	188304960	498807846	264 %
Strasbourg	6000	52560000	36817853	70 %
LPC Clermont	6000	52560000	85425168	162 %
LPSC Grenoble	4426	38771760	50771937	130 %
SUBATECH [4]	13500	118260000	134400785	113 %
Total	106202	930329520	1449826980	155 %

[1] : April 2021 to March 2022
[2] : Expected (HS06*hours)= Power (HS06) pledged * (365*24)
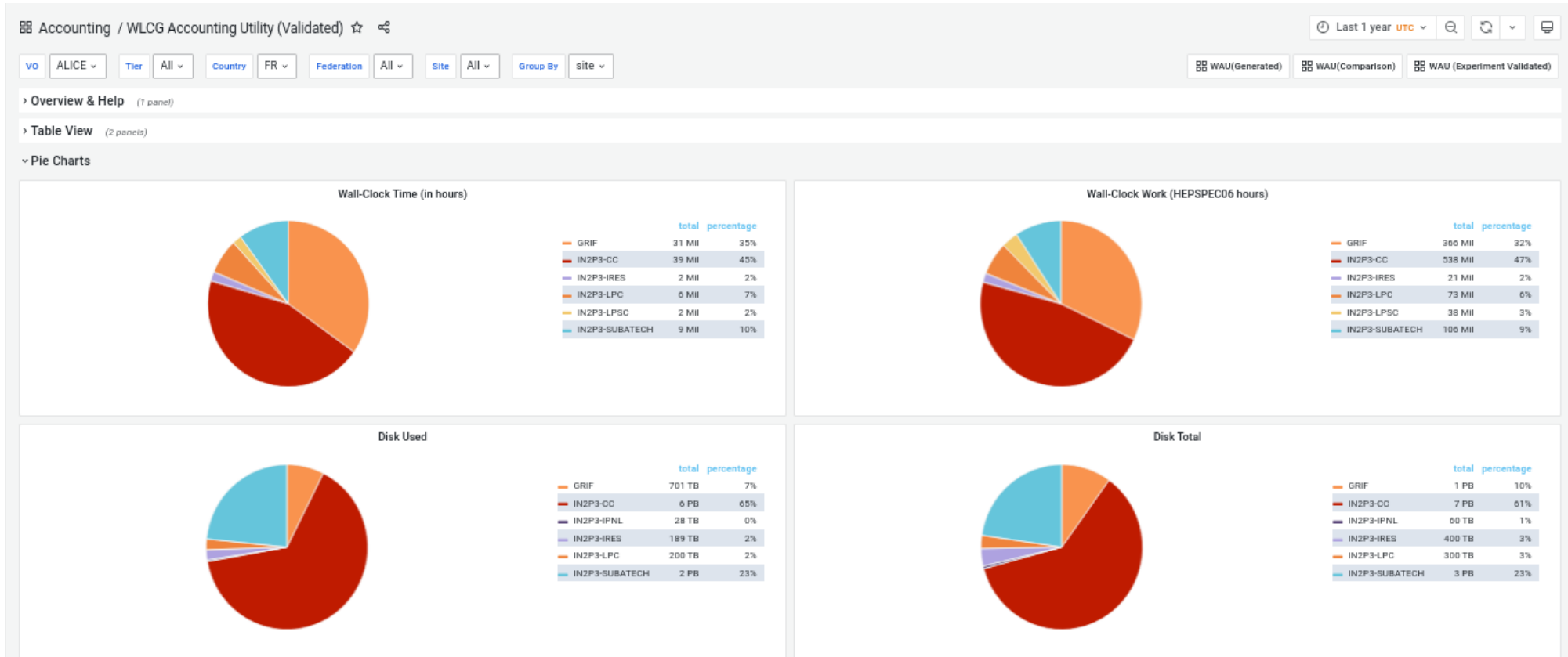   source : https://wlcg-cric.cern.ch/core/pledge/list/
[3] : Provided (HS06*hours)
    source : https://accounting.egi.eu/wlcg/country/France/
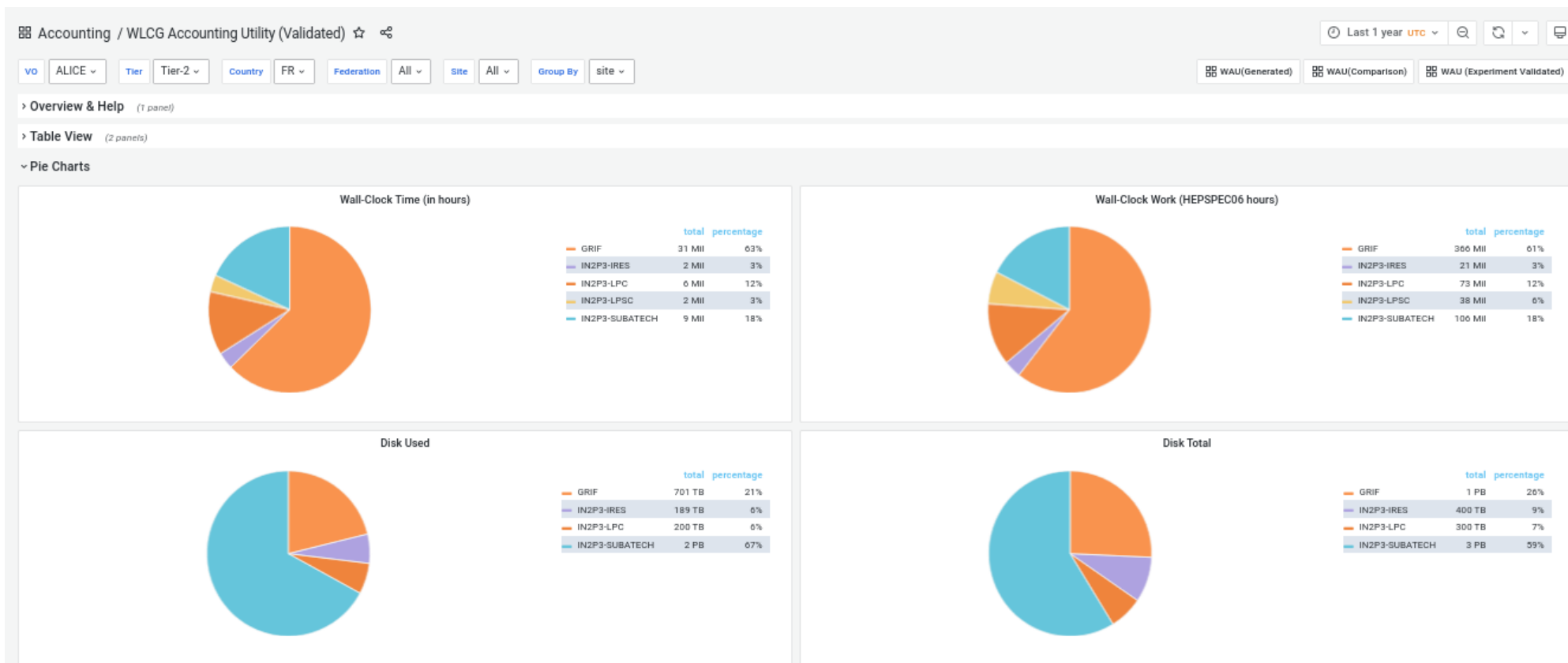   source : https://monit-grafana.cern.ch/
[4] : Including CCIPL HPC Center

Resources FR last year

Resources in FR Tier2s last year

Operations at T1 CCIN2P3

- See Aresh's presentation following ...

Operations at T2s

- Report on the status,projects and remarks from individual tier2s in France

- Sites [*] :

  - GRIF-IRFU
  - GRIF-IPNO-IJCLAB (was : GRIF-IPNO)
  - Strasbourg-IRES
  - Clermont
  - Grenoble
  - Subatech + Subatech_CCIPL (HPC center)

[*] IPNL (Tier3 in Lyon) has stopped end of 2021
   Grenoble has stopped providing storage to Alice in 2020

Tier2 Availability/Reliability
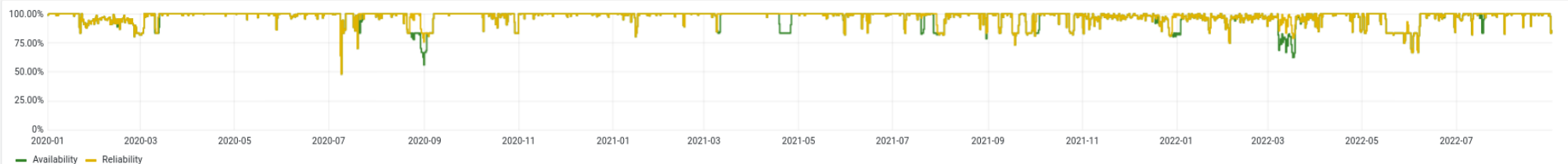
Tier2 SE Availability

AliEn SEs availability for writing
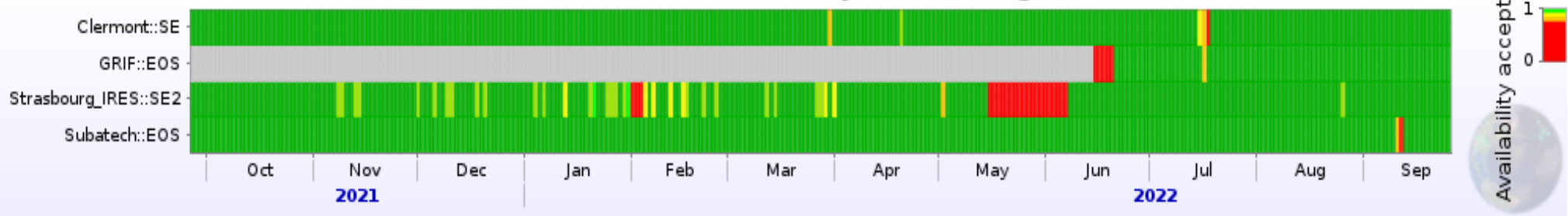
	Data		Individual results of writing tests			Overall
Link name	**Starts**	**Ends**	**Successful**	**Failed**	**Success ratio**	**Availability**
Clermont::SE	26 Sep 2021 07:45	26 Sep 2022 07:53	8766	33	99.62%	99.63%
GRIF::EOS	15 Jun 2022 16:57	26 Sep 2022 07:54	2349	124	94.99%	95.01%
Strasbourg_IRES::SE2	26 Sep 2021 07:59	26 Sep 2022 08:05	8156	614	93%	92.99%
Subatech::EOS	26 Sep 2021 07:54	26 Sep 2022 08:01	8765	20	99.77%	99.77%

Issue : Cannot see SE that have been decommisonned
(IPNL, Grenoble, GRIF-IRFU, GRIF-IPNO)

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Technologies in Tier2s

	GRIF-IRFU	GRIF-IJCLAB	Strasbourg	Clermont	Grenoble	Subatech
HT-Condor-CE		X				
ARC-CE	X		X	X	X	X
Torque			X		X	
SLURM						X [2]
HT-Condor	X	X		X		X
Xrootd only			X [1]	X		
Dcache						
EOS	X[3]	X[3]				X

[1] : Strasbourg is considering EOS but would like to share the instance with CMS
[2] : SLURM is used in the CCIPL HPC center
[3] : A single EOS instance is replacing previous GRIF-IRFU's DPM and GRIF-IPNO's xrootd

Network
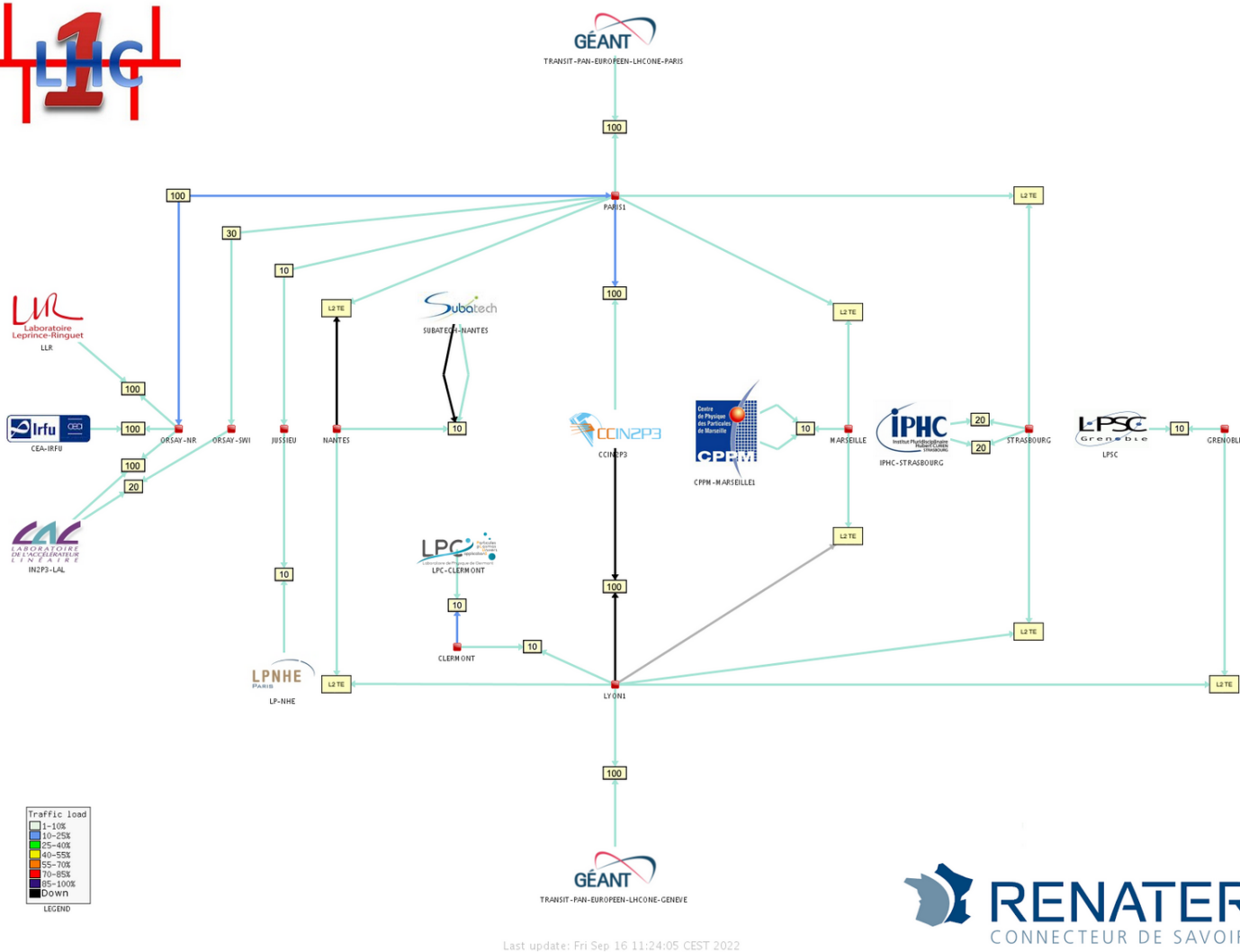
CCIN2P3 :
100Gbits/s on LHC-ONE
100Gbits/s on LHC-OPN
(200 Gbits/s planned)

GRIF :
100Gbits/s

Strasbourg :
20Gbits/s
(40Gbits/s 2023 planned)

Clermont :
10Gbits/s
(40Gbits/s 2023 planned)

Grenoble :
10Gbits/s

Subatech :
10Gbits/s
(capped to 8Gbits/s)

Sites report on operations

- Storage provided by sites to Alice is not 100 % used

    - Stated by Strasbourg: storage underused (150TB on the 400TB provided)

- Difficulties to understand, setup and maintain storage monitoring (usage, traffic)

    - Clermont: Would a diskless site make sense since the storage provided is already small ?

- Will xrootd only (not EOS) be supported in the future ?

Summary of changes in FR Tier2s

- IPNL has stopped …

- Grenoble has already stopped providing storage for Alice end of 2020 and will stop the site in 2023

- Subatech (and Subatech-CCIPL) will stop in 2023, schedule to be defined, but 2023 pledges are 0 already

- DPM is gone (at least from Alice point of view), replaced by EOS at GRIF (Alice data from IRFU and IPNO migrated from xrootd and DPM into the new EOS)

Summary

- COVID-19 crisis have not had a big impact on the delivery of services and resources, thanks to the site managers dedication

- It has, however, limited face-to-face meetings and maybe impacted the « group momentum » (my feeling)

- Changes (containers, multicore computing) have been relatively smooth (except in Subatech-CCIPL, maybe)

- Funding and human resources in Tier2 are an issue in the years to come

- Uncertainties lie ahead on the availability of some hardware and delivery delays (which makes pledging a difficult exercise)

- Not forgetting the energy issue that may hit Tier1 as well as Tier2s

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