

# Central services report

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NDGF All Hands  
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# Overview

- Staff changes
- Networking
- Challenges
- Future outlook



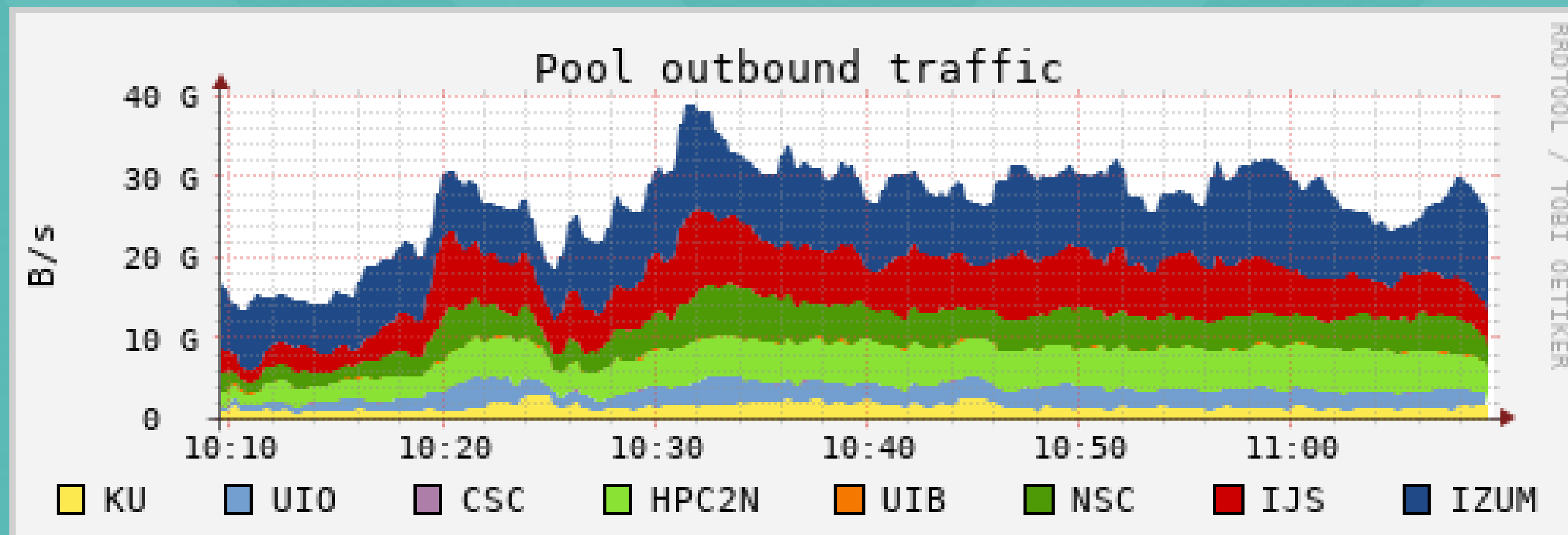
# Staff changes

- Vincent got an offer he couldn't refuse
  - Now based at CERN
- Mattias is back as manager
  - Starting date 2021-12-01
  - Full-time, covering both Activity Manager and Technical Development Lead



# Networking

- We ran out of bandwidth this fall
  - Data heavy set of jobs at Vega primarily
  - Some limits for LHCONE traffic etc got lifted
- We now peak at 20 GByte/s regularly
  - Have even touched 40 GByte/s (10 GB/s was Vega-internal though)





# Network and Tape challenges

- WLCG Network and Tape challenges 2021
  - NDGF did well, surpassing the targets set
  - Long-term outlook is still growing storage transfer rates (including network) by a factor of 12 before HL-LHC
- Tape we passed by temporarily disabling UiO
  - Otherwise read speed would have been too slow
  - Eagerly anticipating the new tape setup
- More on tape in the tape session



# Network challenge

T1	Minimal Scenario 2027	Flexible scenario 2027	Minimal scenario ingress/egress targets 2021	Ingress (hourly avg/max)	Egress (hourly avg/max)	comments
CA-TRIUMF	200	400	10/10	17/49	25/70	ok
DE-KIT	600	1200	30/30	33/77	52/143	ok
ES-PIC	200	400	10/10	11/18	11/17	ok
FR-CCIN2P3	570	1140	30/30	35/70	41/80	ok
IT-INFN-CNAF	690	1380	30/30	25/57	43/87	sum ok
KR-KISTI-GSDC	50	100	0	0	0	Alice T1
NDGF	140	280	10/10	26/49	27/82	ok
NL-T1 (NIKHEF)	-	-	10/10	10/37	12/53	ok
NL-T1 (SARA)	180	360	10/10	13/51	16/79	ok
RU-JINR-T1	200	400	10/10	11/26	12/31	ok
RU-NRC-KI-T1	120	240	10/10	9/18	12/34	sum ok
TW-ASGC	-	-	10/10	8/16	10/13	explain
UK-T1-RAL	610	1220	30/30	16/41	25/43	explain
US-FNAL-CMS	800	1600	40/40	16/49	19/49	explain
US-T1-BNL	450	900	20/20	29/75	38/117	ok
Atlantic link	1250	2500	60/60			
Sum	4810	9620	240/240	259 avg	343 avg	ok





# Future outlook

- Network upgrades during next year
  - CERN connection and LHCONE connectivity first in line
  - Detailed discussions for how and when will take place
  - Each site capable of 40-60Gbit/s (mostly the case already)
- Then next set of upgrades before HL-LHC
  - Before 2027 (current forecasts)
  - Getting our sites onto (at least) 100Gbit/s each
  - CERN connection to 400Gbit/s (current forecasts)







# Questions?