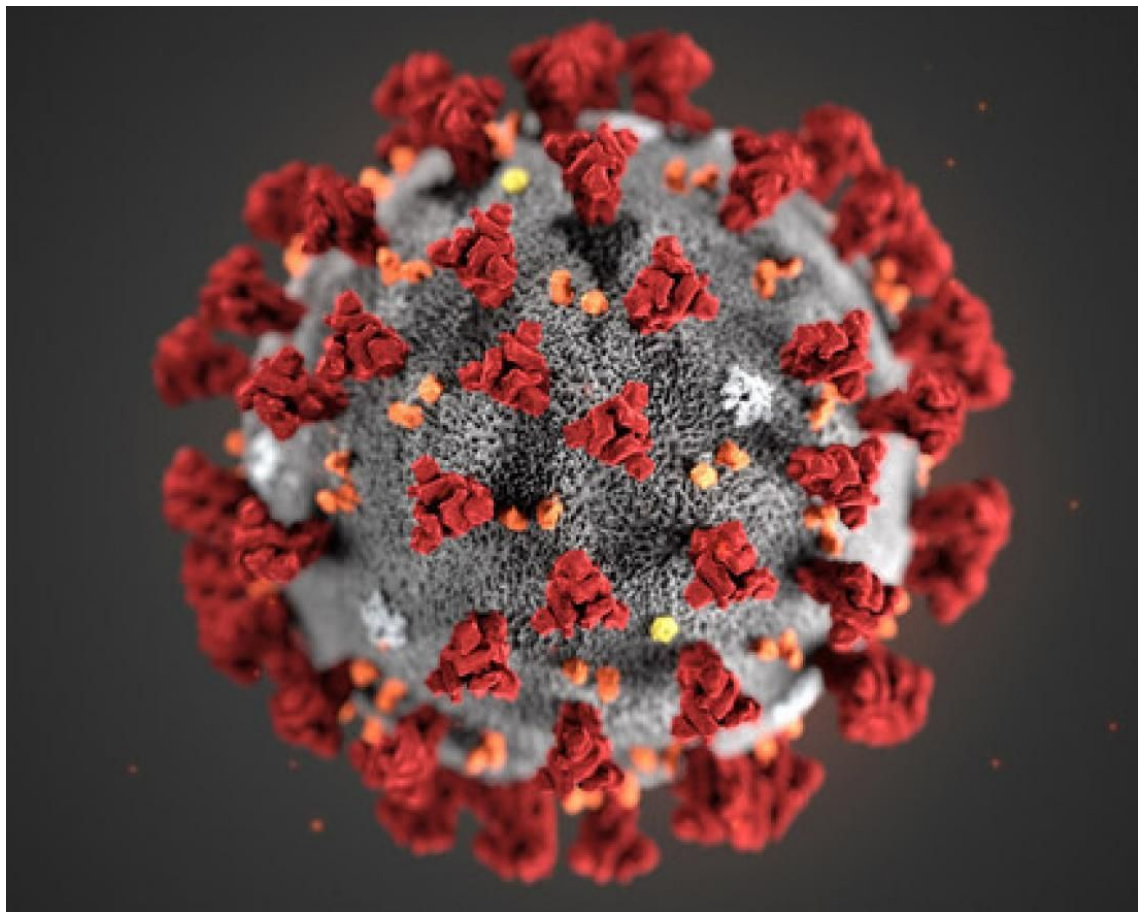# NDGF All Hands 2021-1

HPC2N Site Report

New WLCG/NDGF-T1 dCache disk pools

- Dell R740xd2
  - 8 servers each with:
  - 25 GigE networking
  - 26 of 16TB SAS 7kRPM HDDs
  - PERC H730P RAID-controller
  - BOSS controller for OS storage (ie mirrored M.2 sticks)
  - 2 of Intel Xeon Silver 4210R 2.4G, 10core
    - Needed to populate 2 sockets due to PCIe slot layout (motherboard is based on R540)
  - 96G RAM
- Delivered on time
- One machine was stuck on low cpu clock, fixed with motherboard replacement
- One HDD replaced (pre-fail, lots of media errors)

New WLCG/NDGF-T1 dCache disk pools (2)

- Dell S5248F-ON switch (25G/100G)
    - Connects stuff to LHCOPN
    - 25G-capable disk pools, tape pools and LHCOPN interface of TSM server
    - Currently 4x10G to LHCOPN switchrouter
        - More on LHCOPN uplink later

ARC 6

- Upgrade to ARC6 relatively easy
- Local admin not understanding
  - how mapping and authentication works
    - authgroup, userlist, voms, lsc — how, when, why
    - sometimes explicit DNs needed in config
  - what services should actually be running
    - acix - must be great we had it before
- Most difficult thing was not ARC but puppet!
  - For instance: Problems getting the cache/session structure to interested parties
- Seems a lot more stable than ARC5
  - Still missing the auto restart script for a-rex we had

Abisko vs Kebnekaise

- Abisko is no more, hello Kebnekaise
- Kebnekaise cores are a lot faster than Abisko cores 😄
  - 2.6GHz Skylake (vs 2.6GHz Interlagos bulldozer)
  - 24.15 HepSpec (vs 9.89)
- Less cores available on Kebnekaise 😞
  - 31 nodes with 28 cores (vs 50+ nodes with 48 cores)
  - Hard limit of 868 vs more than 2500 cores
- Local SSD, fewer cores/node ⇒ use for local scratch.
  - Worked fine until it jobs seemed to get bigger
  - Now back to using NFS sessionsdirs during job runs 😢
- The grid-nodes about to be upgraded to Ubuntu focal
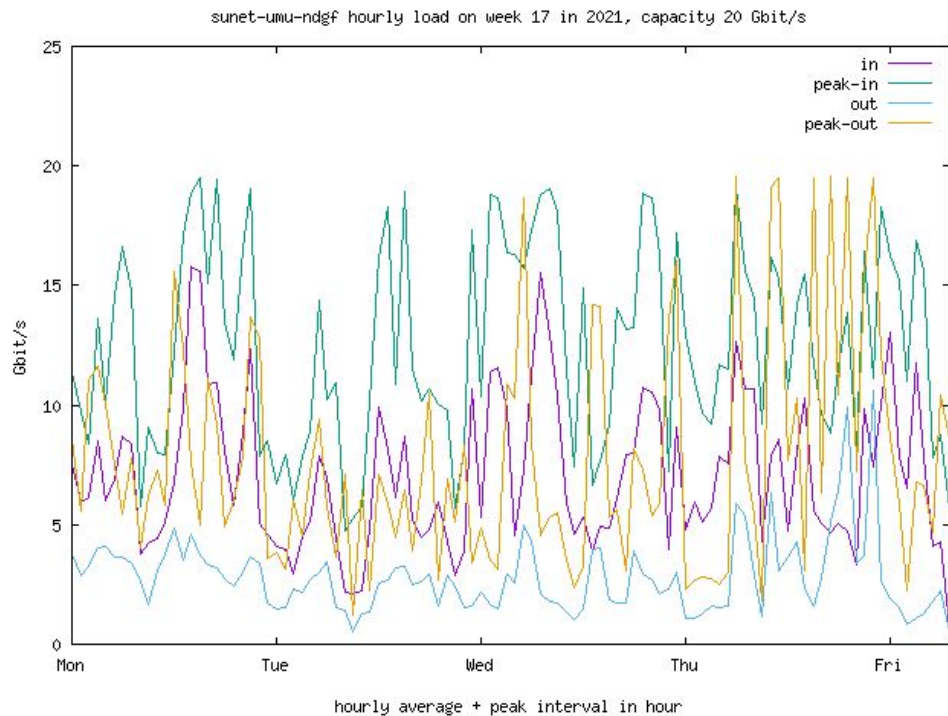 - The rest of the cluster is already upgraded

Future plans

- New ARC-cache
- 100G LHCOPN on HPC2N segment

New ARC-cache

- We have a separate session on requirements
  - Hint: Lowering size means endurance comes into play when using SSDs!
- Kebnekaise has four free 40G ports in the switch for the grid nodes
  - So 4 ARC cache hosts each with 40G connectivity to grid compute
- Tentatively 8×1.92T NVME SSD:s in each
- 25G connection for each server to the LHCOPN switch
- Guesstimating that a 16-core CPU with 128G RAM will be enough
- Quirk: We use these servers for the session directory storage as well

100G LHCOPN

- Yup, we're sometimes maxing out our 20G (2x10G) uplink.
- Current hardware has 10G ports
- 100G timeline is "during next year".
- More 10G links meanwhile.
  - Aiming for 4x10G.
  - Campus network people discovered shortage of free SM fiber pairs on campus, working on solving that.
    - Lots of FDDI grade MM though...

sunet-umu-ndgf hourly load on week 17 in 2021, capacity 20 Gbit/s

hourly average + peak interval in hour

The End