

IT at the IIHE

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Support Activities

Laptops

Lots of needs during confinement

Distributed System to maintain & update fleet of laptop



Central software & hardware inventory system



Purchase new laptops:



A history of IIHE through pictures

New photoview website

Link on intranet home my.iihe.ac.be

Photos are Private
Can make sharing links for albums

- Please send us your pictures from conferences/workshops that have a 'documentary value'.



1960ies



1970ies



1972



1975



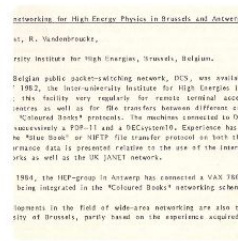
1980



1981



1983



1985



1987



1988



1989



1990



1991



1994



1995



1997

European 2

Symposium on High Energy Physics Research in Europe



2011



2014



2015



2016



2017



2018



2019



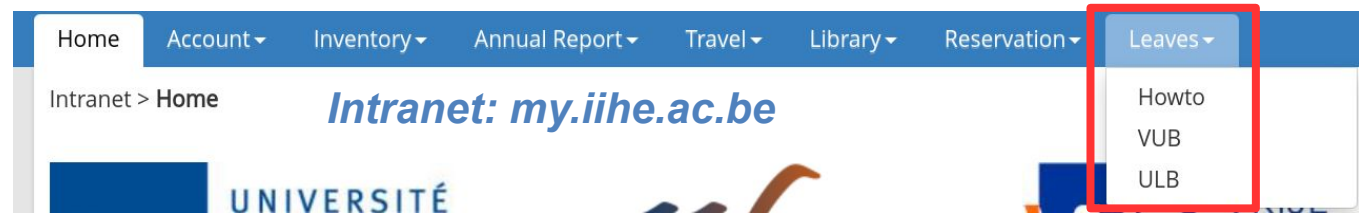
2022

Other News

Decommissioned old cable network in the offices

New cable network managed by VUB Network team

Leave Sheet



Please record your leaves (holidays, homeworking, sick days, etc)

New chat system implemented chat.iihe.ac.be

Facilitate homeworking collaboration



Replaced due to licensing changes by [**matrix**]

What you don't see ...

... under the hood

Many web services need to have *Major updates*

- Lot of software becoming out-of-date
 - > (no security updates, extremely important for web services)
- Requires to adapt our installation & code
- *Examples: iihe website, intranet*

Some have new update procedures

- Makes it easier to update regularly to latest release
- *Examples: indico, wikis, wordpress servers*

Bunch of optimizations and automatizations

- php-fpm, DB backups, fail-over

What you don't see under the hood

mailing lists have changed system for ULB & VUB

we've automatised (some)

cms-iihe@, all-users@, fr-users@, nl-users@

- it uses you email address in intranet *my.iihe.ac.be*
- if you want to add another of your email addresses, you need to ask us

A window in the future ...

Rally system in Sacton room (soon)

Same as in z-room & neutrino-room in G0



New printer (in January)

Lease rather than purchase

Still Ricoh machine, but much newer model



T2B Activities

Back to the future ...

... an epic story

A little history ...

- **2004:** cluster starts with 8 standard desktop computers
- **2008:** migration to SISC, agreement for VUB/ULB space sharing, 5 racks
- **2010:** we needed 2 more racks, for a total of 7
- **2018:** we needed 2 more racks, for a total of 9
- **2024:** T2B will have to move

Why move ?

- current building is not built as a reliable datacenter
glass windows (sic), very old cooling units, floor can support max 500kg/m²

Back to the future ...

... an epic story

Where to move ?

Option 1: G0 (Etterbeek Campus)

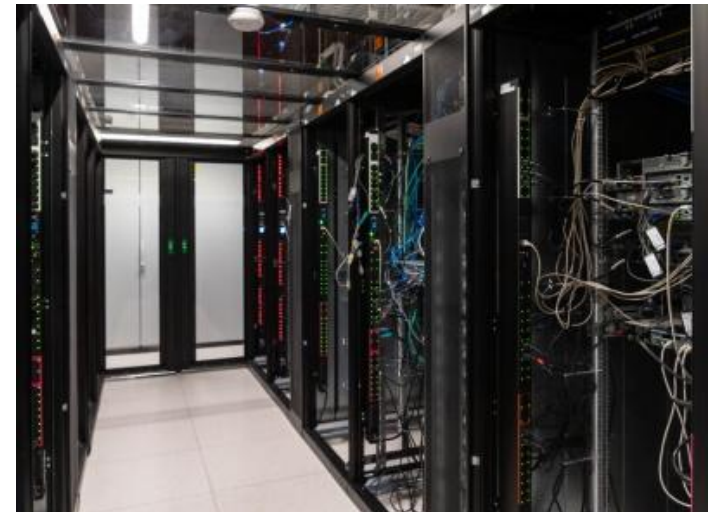
- Datacenter room in G0 has been refurbished
- 2 new hot-cold rack enclosures 12/14 racks + a lot of network racks
- Hydra (the VUB HPC cluster) has already migrated here

Has some advantages ...

- near our offices
- really well built room

... and some disadvantages

- not a lot of space
*what do we do in 10-20 years with
HL-LHC, FCC, Einstein Telescope, ...*



Back to the future ...

... an epic story

Where to move ?

Option 2: Green Energy Parc (Zellik)

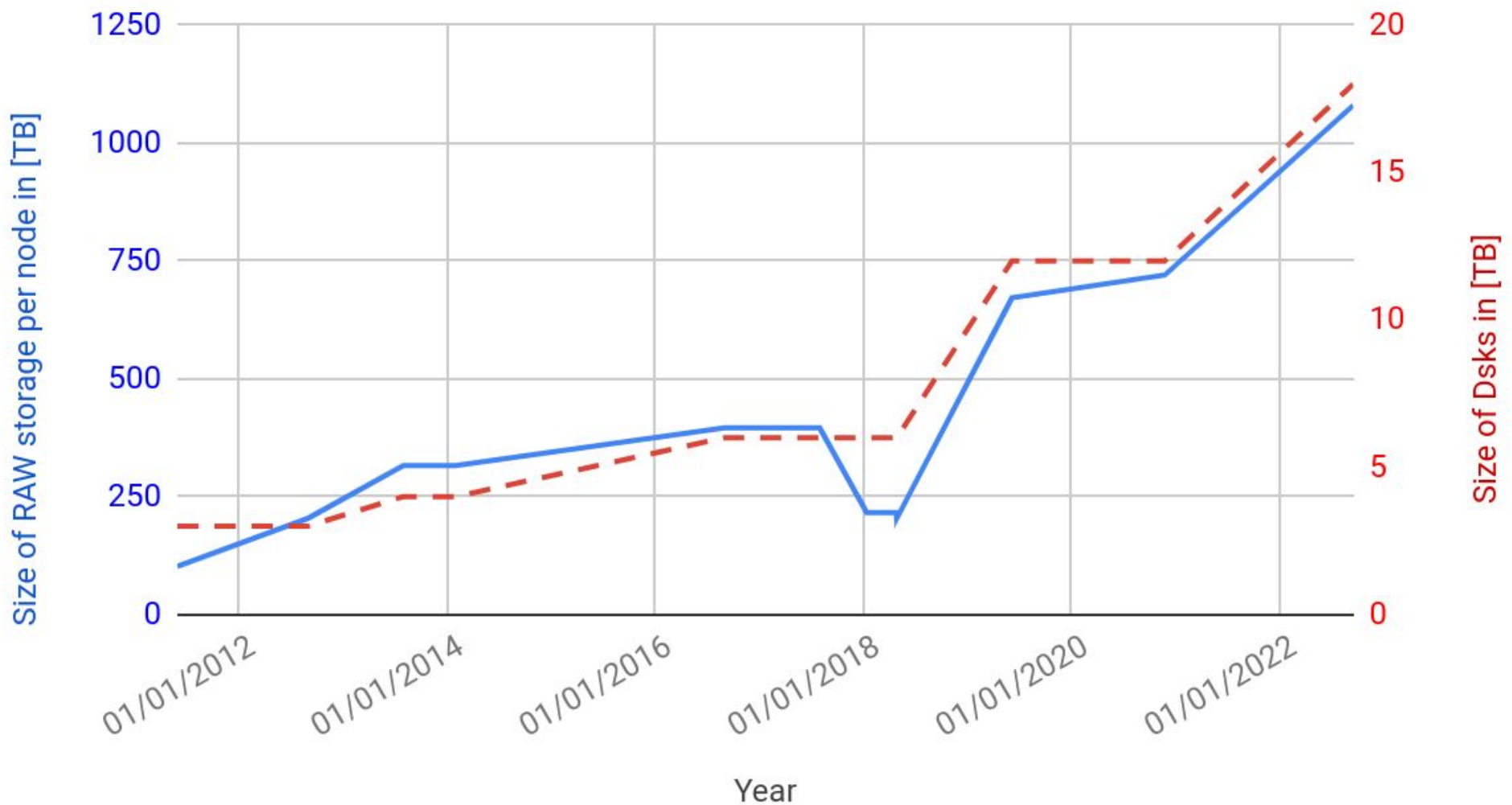
- New eco-friendly datacenter being built near the Jette VUB Hospital
- More ecological, with solar panels, wind turbine, heat exchange ...
- Built with future expansions in mind, for instance with new VSC T1 cluster next year

- but quite expensive
- quite far away from our offices



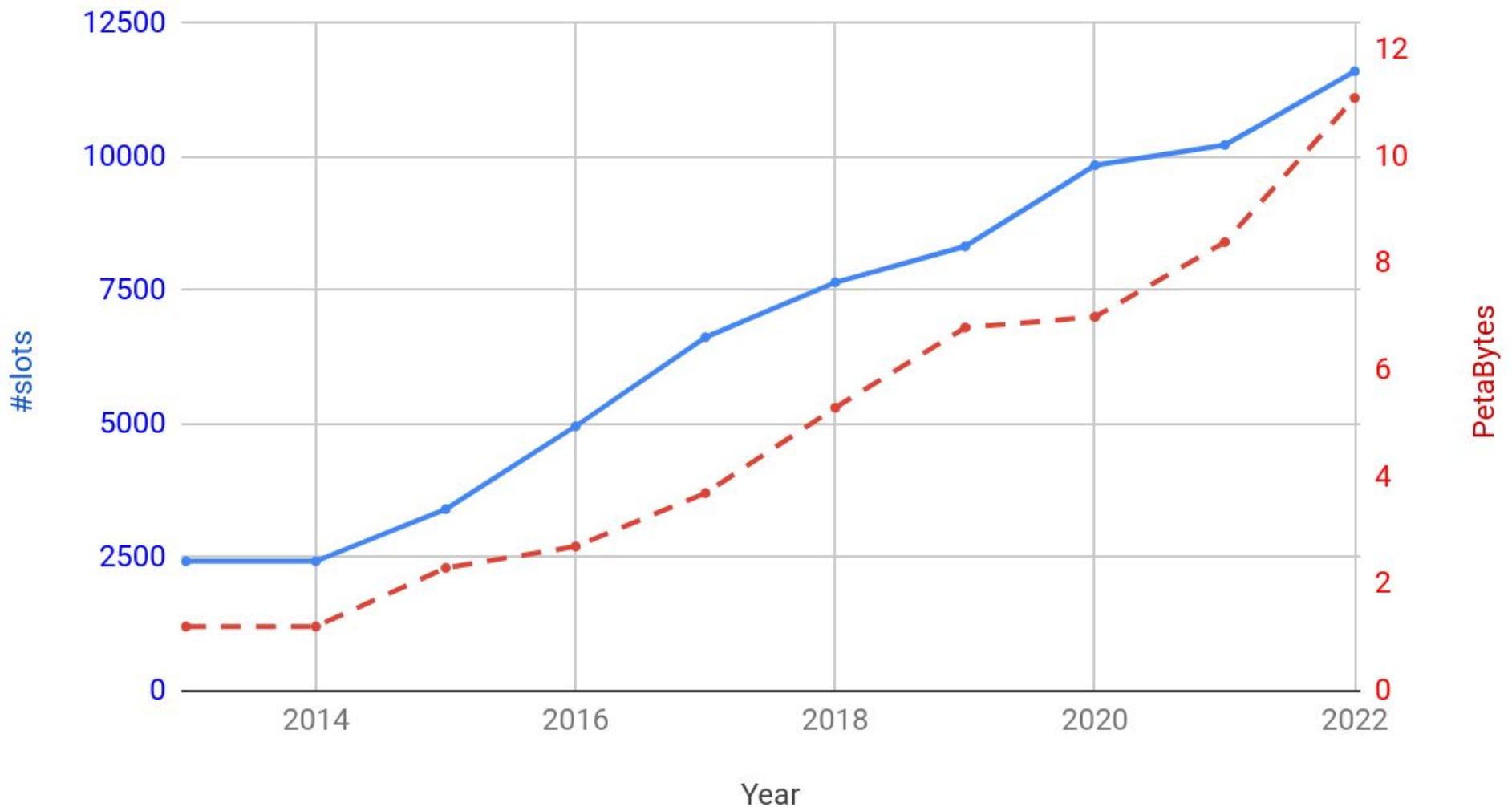
Evolution of hardware purchases

Storage: evolution of TB per Disk and Raw TB per node



Evolution of hardware purchases

Evolution of slots and disk space



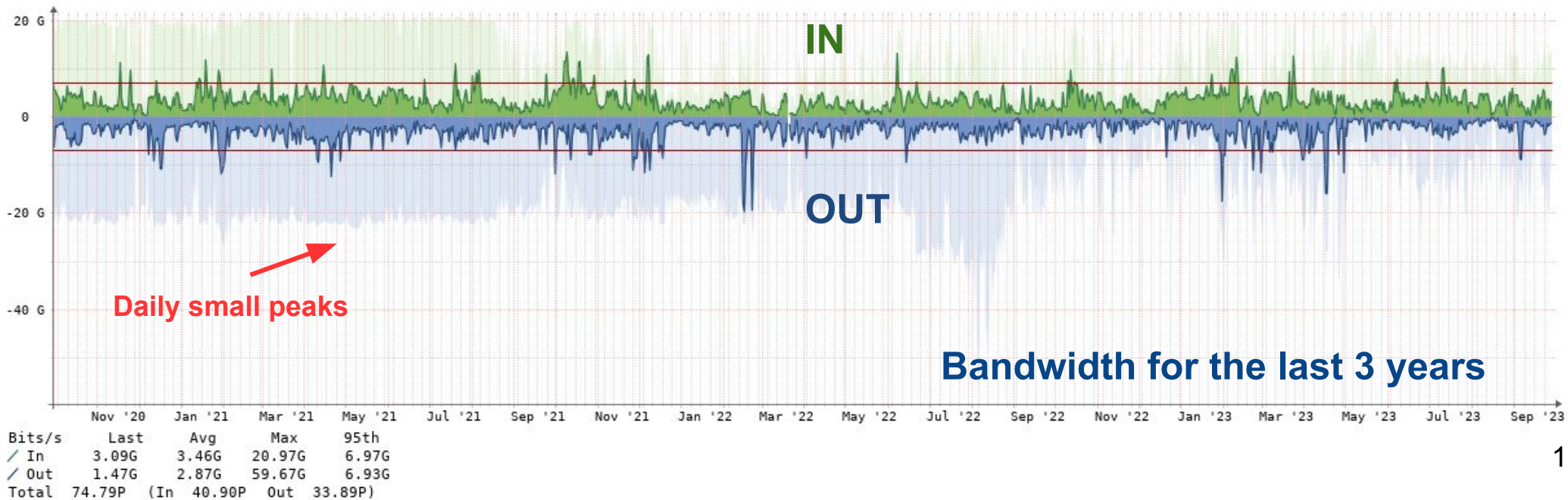
Network

We now use a 20Gbps to GEANT and other WLCG sites

We share a 100Gbps link with VUB

We are happy with it !

- No more lags due to network
- We regularly hit our max bandwidth, but for limited times $O(1h)$



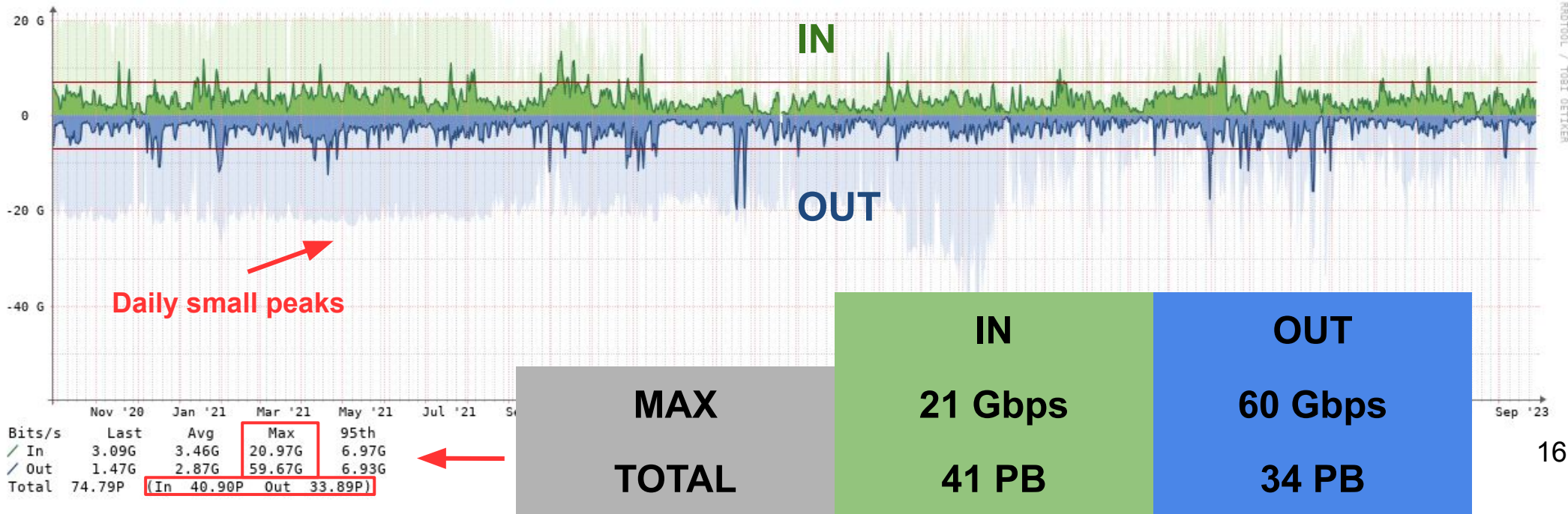
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Two big projects we finally
put into production ...

New Batch System: HTCondor

★ **Developed by Wisconsin people**



★ **Very active collaboration in**

➤ Workshops, EGI integration



★ **Very interesting features**

➤ can manage high number of jobs

➤ most LHC sites use this system (CERN, DESY, Wisconsin, ...)

No more queues, but fairshare

➤ We see quite good sharing of jobs between users

➤ Only issue when cluster is empty and we get long jobs filling the cluster, you have to wait longer in queue ...

New Storage System: CEPH

Replaces our hardware for

- /user (precious data)
- Virtual Machines (websites, all internal services)

Very interesting for data integrity and redundancy:

- you now have 3 copies of each file
- From disk level integrity -> 2 machines can now fail without problem!
we can easily set 1 machine down, without impacting users

We tested it extensively ... however testing and production can never be the same

- Performance tests, installation & operation knowledge
- some issues the first few weeks, limiting access
- BUT, **data integrity has never been in question**

Now very efficient and safe(r) backup system (+ 3 copies) !

What to expect soon ...




Tokens will slowly replace grid certificate in the GRID

- Encrypted json that authenticates & authorizes you
- Not really simpler than certificates
 - Industry standard compared to limited certificate technology
 - Allows more fine-grained access policies
- Experiments are slowly migrating their central toolchains
 - you will get more concrete information soon
- access to storage & batch system with tokens already implemented @ T2B

If you want to test <https://t2bwiki.iihe.ac.be/OpenID>

What to expect soon ...

Preparing OS upgrade to EL9:

-  **CentOS** **7** (batch system, web services, storage) and **8 stream** are End-Of-Life in May 2024
- A little bit of fumbling for choice of next flavor between all EL9 ...
-  **Red Hat** (bought by ) has made it hard for OpenSource
- you will still be able to use other OS versions thanks to containers

The IT team



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Thanks !
Questions ?