

**Computing**  
**Particle Physics Annual Meeting**  
**May 2023**

Carlos Chavez, Rob Fay, David Hutchcroft

# Who We Are

- David Hutchcroft (liaising with School and University)
- Rob Fay
- Carlos Chavez (0.5)
- No more John Bland
  - Truly irreplaceable, i.e. we haven't fully replaced him

# John Bland (Farewell)

- He left on 24<sup>th</sup> of August 2022
- Had been with HEP Computing since 2006 !
- Thanks for all his work over the years
  - He is very much missed

# What We Do

- **HEP and Grid Computing, in no particular order:**

**Helpdesk:** Online, Drop-in.

**Accounts/Authentication:** Account creation/deletion, LDAP, IPA, 2FA.

**Storage:** RAID, ZFS, Gluster, Backups.

**Batch and Interactive:** SLURM cluster, interactive nodes, GPGPUs: CUDA, Tensorflow.

**Networking:** Hardware, Management, Monitoring, Firewalls, IPv6.

**Web Services:** TWiki, Indico, Certs.

**Collaboration Services:** Gitlab, Mattermost, WISP, Vision.

**Email:** Webmail, Mailing Lists.

**System Monitoring:** Zabbix, Cacti, Ganglia, Security.

**OS Support:** Linux (CentOS, AlmaLinux), Windows, Mac.

**Hardware:** Procurement, Installs, Repairs, Machine Hosting, Data Centre Management, Stores.

**Software:** Installs, Licensing, Debugging, Virtual Machine Hosting, Containers, Puppet.

**Grid Computing:** CPU (140 nodes, >3000 cores) , Storage (~1PB), Clouds, Documentation.

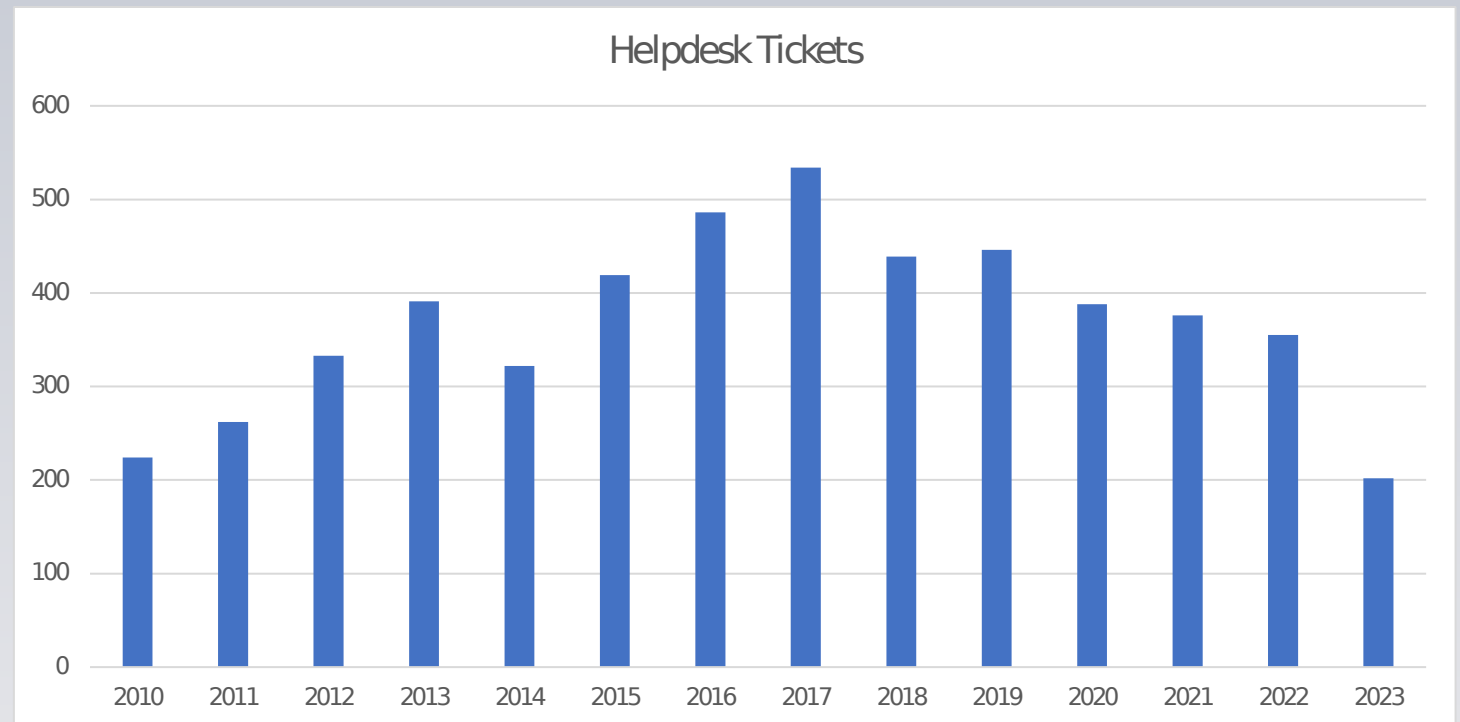
**And more!**

# How It's Going

- The usual:
  - An ever-increasing number of complex systems and services
  - Still doing the same work with less, please bear with us
  - **Julie Clark** helping with purchase and store of spare consumables
- Overall we have been able to keep things going well

# How It's Going

- ~436 helpdesk tickets since last year's annual meeting
- About the usual
- Average 3.5 emails per ticket
- Please bear with us if your ticket is not answered immediately



# How It's Going – Network

- IT services building network upgrade
  - Migration happened at the end of March, went OK (?)
  - New network switches in most of the building
  - Bandwidth to other GRID sites was capped to 3Gbps, now lifted
  - Clean room ports still currently go through our cluster network via old switches, being moved over to IT services network and new switches, planned migration for 6th July
  - IPv6 enabled on cluster network, including some interactive nodes, but not on general building network at this point

# How It's Going – Data Storage

- Bundle (/bundle/data & /bundle/scratch)
  - Scaled, clustered, expandable file system
  - Good for large experiment data files , not so good for storing lots of small files
  - Due to (lack of) performance with small files, will be reviewing options
  - Aiming to have a meeting with interested people later in the year about this
- New Hepstore is coming soon
  - Old hepstore: is an old single server, full, slow, and not long for this world
  - With lead times and testing, months until it's in production rather than weeks
  - Will provide bulk, individually quota'd, resilient but not backed up storage



# How It's Going – Security

- Several other universities hacked
  - Typically 'ransomware' attacks; files are encrypted and held to ransom
  - Beware of fishing emails
- HEP Liverpool was security audited this year
  - PWC IT security consultants
- Duo two-factor authentication (2FA) running on HEP SSH
  - If Duo isn't working, tell University IT services
  - If anything else is causing you problems, tell us
  - Remember your **HEP account** is independent from your University IT account

# How It's Going – Operating Systems

- CentOS 7 reaches end-of-life at the end of June next year
  - Red Hat discontinued CentOS Linux for 'CentOS Stream'
  - CentOS 8 already end-of-life, no CentOS 9
- AlmaLinux!
  - An alternative RHEL-based OS.
  - We've been using it for servers for over a year
  - CERN and Fermilab also choosing AlmaLinux
  - We're working on desktop and interactive node builds
  - Updating partly driven by demand; let us know what you need

# Key Reminders

- Passwords
  - Still need to be sufficiently strong
  - That means not just common words
  - And not common words with numbers and/or an exclamation mark at the end
- Pooling resources
  - Julie Clark is taking care of purchasing consumables
  - We can try to help procure systems with limited funds and short notice
  - But the more notice the better
  - And where those limited funds can be combined, we can get better systems!

# Key Reminders

- HEP accounts, systems, IT procurement, IT advice for HEP work :
- Helpdesk – [helpdesk@hep.ph.liv.ac.uk](mailto:helpdesk@hep.ph.liv.ac.uk)
  - Talk to us!
  - The earlier projects and problems are raised, the better
  - If you are not sure -> ask us and we'll advise
- Twiki - <https://hep.ph.liv.ac.uk/twiki>
  - Most computing things are documented here
- Building network, eduroam and DUO problems
  - IT Services [servicedesk@liverpool.ac.uk](mailto:servicedesk@liverpool.ac.uk)

# Thank you!

- We used to say 'Merry Christmas' here when this was in December
- But it's the 19<sup>th</sup> of May
- However tomorrow is 20<sup>th</sup> of May and is :
  - Happy World Whisky Day , Cheers !
- Questions?