Site Storage
“Middleterm Evolution”

A discussion.

Context

- WLCG Workshop session on “Medium Term Storage Evolution”
- 3 positions:
  - Experiment
  - **Site**
  - Developers

Domain

- Timeframe: now through HL-LHC (~2025)
- Any and all site positions on:
  - How much storage they expect to buy.
  - non-WLCG stakeholders or interested parties that you'd be interacting with.
  - How you'd want to provide storage (interfaces, technologies, etc).

UK/ National levels

- Obviously, there's also a national funding input into this kind of thing.
- So, national strategy implications also feed into this
  - GridPP5 restricted funding.
  - (Post GridPP5: ?? wider collaborative req?)
  - (Also looks true for other regions)

Trends

- RAL -> Ceph
- Everyone talking about S3 (CDMI?)
- Need to be compatible with non-WLCG people
  - standard protocols, standard AA(A)I etc
- (Hosted) Cloud storage?
- Moving to meshy caches.

Technology Trends

- Hard disk *density* scaling still exponential
- Performance scaling much slower (negative for SMR)!
- RAID6 turn over point is in next 4 years (time when it takes long enough to rebuild a disk that you're likely to lose two more in before you're done)
- (And funding is not growing at present!)
- Distributed storage arrays?
    - Seagate Kinetic etc ?

Technology trends

- Solid State / NVRAM trend: will probably not catch HDDs in next 5 years.

- Flash will probably die in next 5-10 years. (Successors finally lining up.)

- Predicting the point where this will be useful for T2s is hard.

Political Trends

- Emphasis on collaboration + consolidation
  - not just serving WLCG
- Most funders are “zeitgeist aware”
  - pressure to use Cloud services
  - “caching services”
  - “efficient manpower”

Audience Participation!