



UNIVERSITY OF
BIRMINGHAM

HPC SIG Site Update

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IT Services



BEAR

BIRMINGHAM ENVIRONMENT
FOR ACADEMIC RESEARCH

- BlueBEAR (Linux HPC compute)
- BEAR Cloud (Private OpenStack deployment)
- Research Data Storage & Archive
- Research Data Network (high throughput)
- BEAR View (Data visualisation)

- And supporting services, e.g. gitlab



MRC

Cloud Infrastructure
for Microbial
Bioinformatics

- OpenStack cloud
- Support the Birmingham “node”
- Awards for
 - Best collaboration
 - Best use of HPC in life sciences



Standard allocations

- Free at point of use
- Up to 200 cores per project concurrent
- 3TB per project
- Researchers can invest themselves
 - Sold as units of resource (equivalent to a compute node)
 - ~40% of “old” cluster
 - ~25% of “new” cluster



Service details

- ~2300 cores Broadwell/Haswell HPC
- ~1800 cores Broadwell Cloud
- ~5PB Spectrum Scale storage
- Adding 1200 cores (Broadwell HPC)
- Running Mellanox EDR IB + 10GbE
- Testing with SHaRP
- Planning phased end-of-life for Sandy Bridge (2012 generation) hardware



Adding AFM caching

- Feature of Spectrum Scale allowing local caching of files and write coalescing
- HPC nodes now access RDS via AFM cache
- Buffers small writes & mitigates IO impact to service



Ageing BlueBEAR2

- Hardware over 5 years old
- Plan to retire from service soon
- Storage migration is ongoing
 - Home directory moves at maintenance window



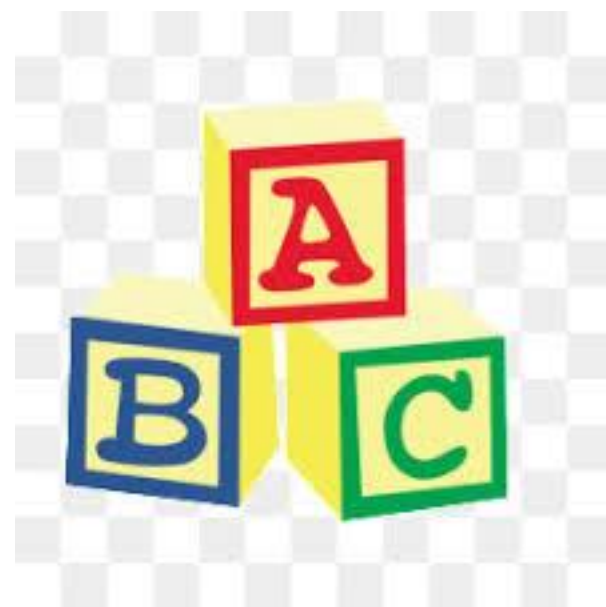
Team changes

- Added more staff 😊
- Architecture Infrastructure & Systems
 - 6 people + 1 student
- Research Engagement
 - 4 people
- Research Software
 - 3 people +(1.5 appointed, 1 vacancy)
 - + 1 student
- Planning student intern 18/19



Research Software Group

- A – Advice
- B – BEAR
- C – Coding/coaching



New data centre

- Water cooling for all systems
 - (WCT/RDHX)
 - No air handling ...
- Dense compute
 - 1MW electrical capacity
 - 36 racks
 - Floor to support dense storage

