Next NeSI high performance computing platforms: what it means for QuakeCore

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HPC1 = capacity, HPC2 = capability

- HPC1 will replace Pan
  - High throughput
  - Broadwell processors
  - Ideal for lots of moderately parallel jobs
  - pre- and post-processing
  - K100 GPUs
- HPC2 will replace Fitzroy
  - Latest generation Skylake processors
  - Aries interconnect
  - Good for massively parallel jobs

More cores, much faster disk throughput

Supercomputer	FitzRoy	HPC2	DR System Auckland
Installation	2010	2017	2017
Type	IBM PowerPC	Cray XC50	Cray XC50
Cores	3456	19,940	4160
Speed-up	x1	x14	x4
Interconnect	Infiniband DDR	Aries	Aries
Storage	1.5PB	9.8PB	4.2PB
Disk GB/s Throughput	8GB/s	135GB/s	30GB/s
Archive Tapes space	7PB	30PB	30PB

Many differences between capacity and capability computing will be erased

- Same set of compilers, including CRAY compilers
- Modules in common (when in makes sense)
- Same endianness
- Your life will become easier!

Get ready!

- Make sure your code compiles on Linux today
  - Start building code with GNU, PGI and Intel
- Make sure your code runs on Linux today
  - Beware of byte ordering assumptions
    - Use HDF5, NetCDF or other portable IO libraries
- Abstract path and module dependencies in workflows
  - Module names will likely change
  - Directory structure will likely change