Great Western 4 (GW4) Tier 2 HPC service

Evaluating production-quality ARMv8 supercomputers for national HPC service readiness

Simon McIntosh-Smith

University of Bristol and ARM in HPC

- Began work with ARM on HPC in 2009

- Joined the MONT-BLANC project in 2013

- Became convinced that ARM's business model could bring major benefits to the HPC community in general, and national HPC services in particular

Archer: The UK's national HPC service

Top 10 codes by core hours used:
VASP, CP2K, UM, Oasis, GROMACS, CASTEP, HiPSTAR, NEMO, LAMMPS, CASINO

2 research councils:

Hardware:
- Cray XC30
- 118,080 cores
- 4,920 nodes
- Aries interconnect

Science:
- ~1,500 users
- Materials science
- CFD
- Climate/ocean modelling

EPSRC

NERC SCIENCE OF THE ENVIRONMENT

Announcing the **GW4 Tier 2 HPC service, 'Isambard'**: named after Isambard Kingdom Brunel

University of BRISTOL

UNIVERSITY OF BATH

UNIVERSITY OF EXETER

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYⓇD

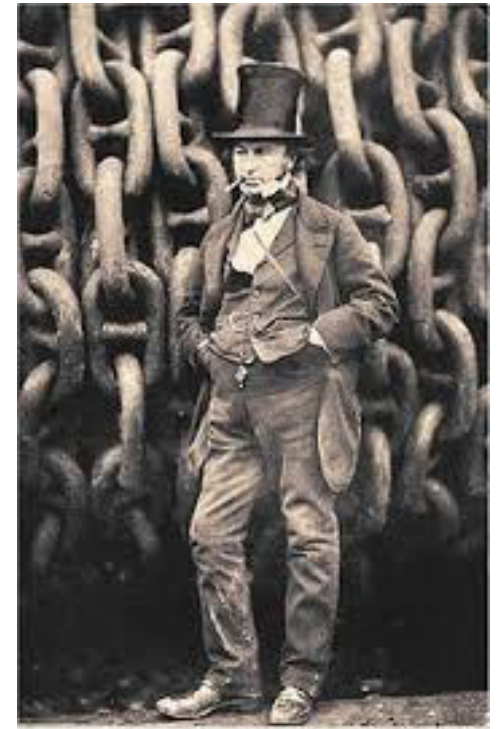Met Office

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CRAY
THE SUPERCOMPUTER COMPANY

ARM

I.K.Brunel 1804-1859

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System specs:

- Cray CS-400 system
- **10,000+** ARMv8 cores
- HPC optimised software stack
- Technology comparison:
  - x86, KNL, Pascal
- To be installed March-Dec 2017
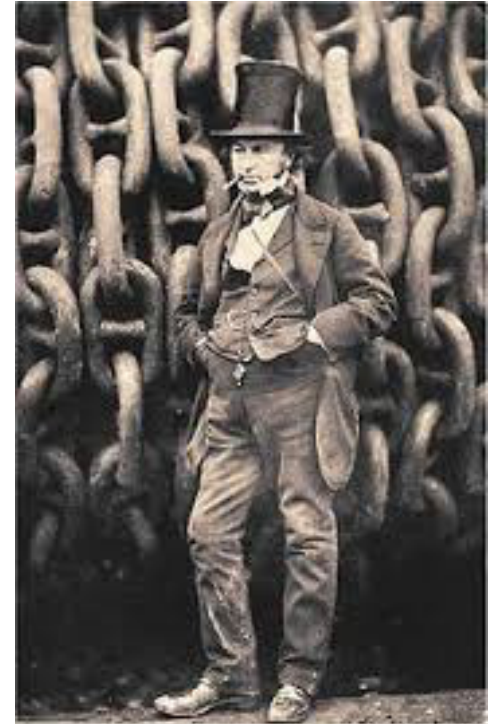- £4.7m total project cost over 3 years

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Isambard's mission:

To provide an open service for UK* science and industry to evaluate ARMv8 in a production HPC environment.

$*$ and beyond!

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