



Belfast region city deal background and timescales



Current status of HPC at QUB

- Linux cluster called "Kelvin"
- Installed Nov 2015
- Vendor HPE with Alces (use a managed service)

- 60 x compute nodes (128GB/256GB)
- 2 x high-memory nodes (1TB)
- 1 x visualisation node (nvidia k4200)

Current status of HPC at QUB

- Infiniband QDR interconnect
- Lustre filesystem (500TB scratch space)
- *just added*
- 9 x compute nodes (384GB/192GB)
- 2 x high-memory nodes (1.5 TB)
- 1 x high-memory nodes (768GB)
- 4 x Nvidia V100 32GB GPUs

- ~1200 cores
- planning expansion ~£400K in next 3-6 months

Current status of HPC at QUB

windows compute cluster

- installed 2013
- vendor: Dell
- 16 nodes (256 cores)
- 64GB RAM
- 10GB ethernet

Current status of HPC at QUB

No current HPC collaborations with other institutions.

(Early 1990s Parallel Computer Centre with Trinity (IBM SP2))

Over 500 users

Clusters also used by undergrad courses.

Supported by 2 FTE

City Deal background

The Belfast Region City Deal is a bespoke £1BN funding package negotiated between six city councils in Northern Ireland and the UK government => includes a QUB/UU partnership.

£350M is earmarked to fund major projects for accelerating innovation in the region.

QUB (ECIT) leads a £56M capital funding project for the establishment of a Global Innovation Institute (GII)

One area of the GII includes £10-15 million for a "AI Supercomputer" which can do "realtime AI".

City Deal goals

Create 20,000 new jobs

Create sustainable economic growth over 10 years

The “AI Supercomputer” project has a number of target domains:

- Health and Biomedicine
- Agri-Food
- Financial Services
- Advanced Manufacturing
- Cyber Security
- Screen and Media

Size of system

With the level of investment this suggests a Tier 2 size / petascale machine!

This is a 10x increase in HPC provision at QUB

This could be the successor system for Kelvin.

Progress to-date

March 2019 Heads of Terms were signed.

At QUB:

- pre-procurement engagement with vendors
- finding use cases within University
- identifying SMEs
- day visits to Edinburgh (Mark Parsons) and Cambridge (Paul C)
- Team attended SC18 and ISC19

The University has appointed a City Deal team to liaise with the other strands and pillars and government.

Timescales

end of 2019 - developing business cases

2020 – running PoCs followed by procurement

2021 - installation

Considerations

- Actually not so concerned on the hardware or software!!!
- People resource needed to take on City Deal work
- Location of data centre
- Power requirements for new data centre
- Determining the professional services that vendors can offer
- On-boarding - training ourselves and then users, especially in enabling AI related technologies