*High Performance Computing – inspiring bigger questions*

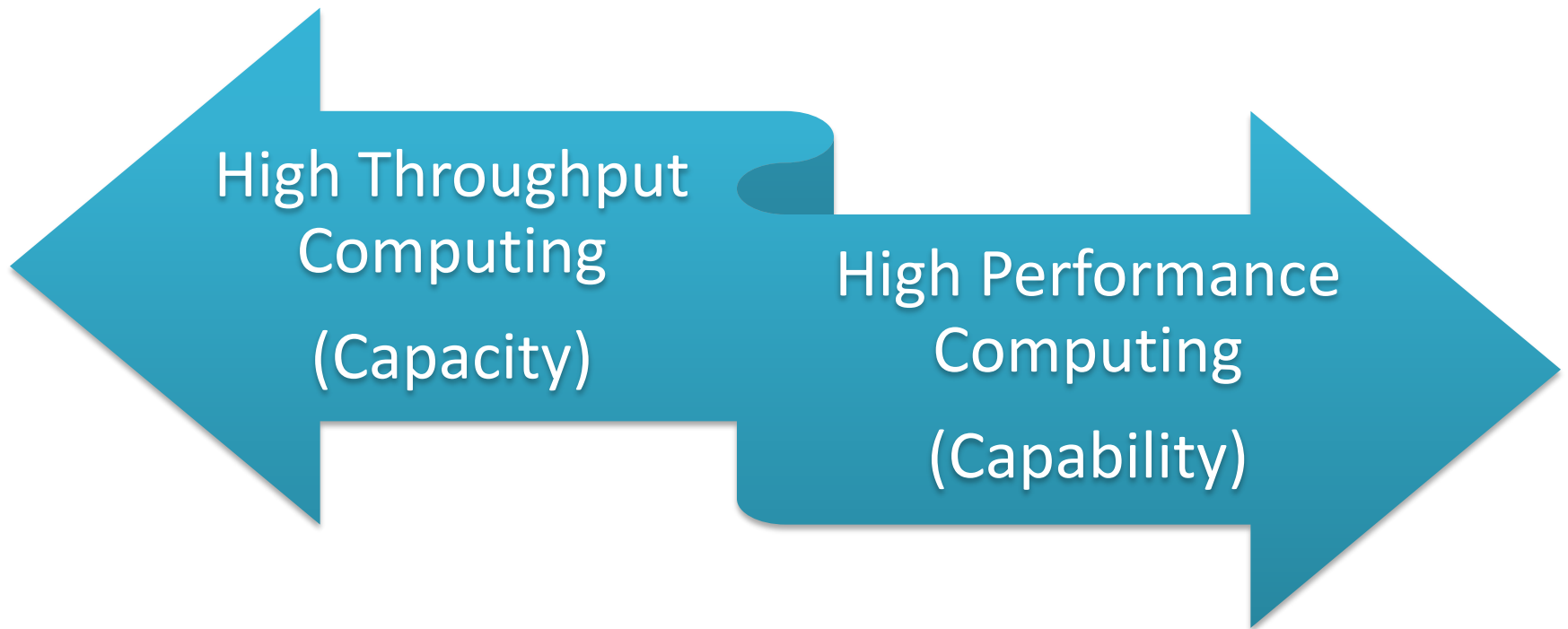# HPC-SIG Update for ICTF 2016

Dr Andrew Richards

theteam@arc.ox.ac.uk

HPC-SIG-Oxford

- Special interest group for those delivering and interested in aspects of 'HPC'

- Meets once per term

- Mailing list for members:

  hpc-sig-oxford@maillist.ox.ac.uk

HPC Terminology?

High Throughput Computing

(Capacity)

High Performance Computing
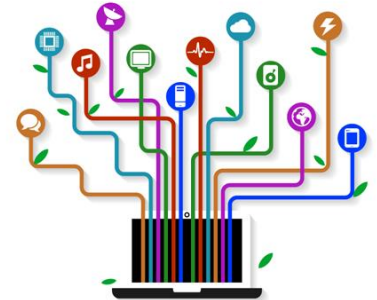
(Capability)

Capacity vs Capability Computing

Capacity	Capability
Using computing power to process many problems simultaneously.	Using maximum computing power to solve a large problem that no other computer can
Individual tasks, no communication between processes	One single individual task comprised of many child processes all communicating with each other
No specialist hardware interconnects needed between nodes in a cluster	Specialist, high performance, low latency, hardware interconnects needed between nodes in a cluster

Accelerating Research
Engaging Researchers

A - Anthropology

to

Z - Zoology

Hardware   **Software**   **User Support**

ARC Service Update

- Now part of Academic IT group in IT Services

- SRF Rate
  - 1p per core hour
  - Encourage departments to use SRF figures in grant applications

- HPC co-investment

- Charges
  - MPLS/HUM/SOC: Underwritten costs
  - MSD: direct charges

- ARC Associates Program

ARCUS (B)

OCF & Lenovo – 94Tflops

- NeXtScale System M5
  - Nextscale N1200 6U chassis

- 353 Compute Nodes
  - 2 x Intel E5-2640v3 CPU
  - Intel TruScale, QDR Infiniband
  - 248 64GB Nodes
  - 88 x 128GB Nodes
  - 4 x 256GB Nodes
  - *Coming soon 2 x 1.5TB nodes*
  - *And 1 x 6TB node*

- *Of which* 20 *dual purpose* GPU Nodes
  - 5 nodes each with 2 x Nvidia K40 (NQIT)
  - 5 nodes each with 2 x Nvidia K80

- Storage (Panasas)
  - 6 Panasas AS14s shelves for common HPC Storage service
  - Total ~ 400TB usable
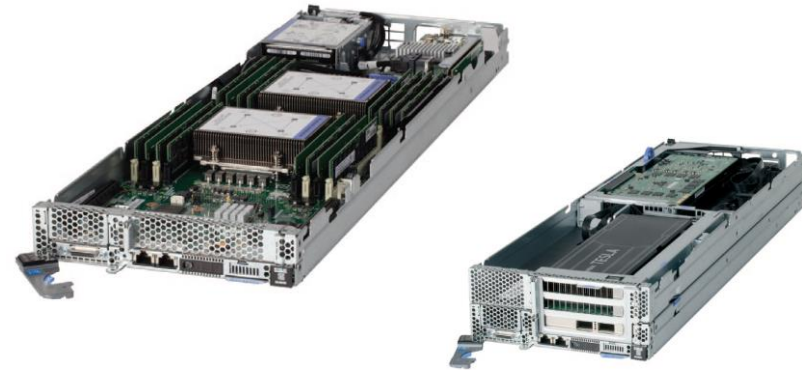
PART OF UK E-INFRASTRUCTURE

Regional and National Centres for HPC
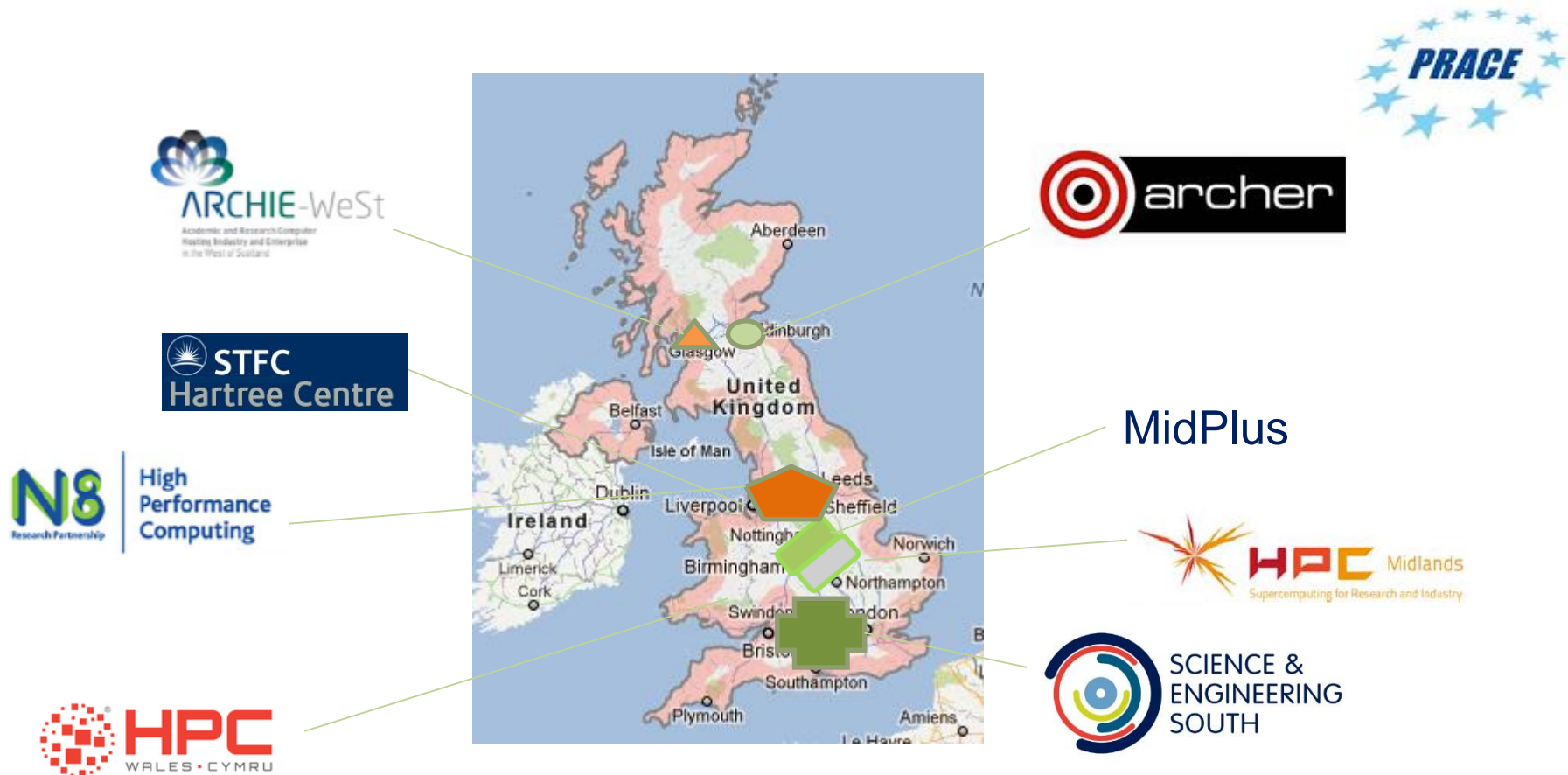
EPSRC Tier 2 Call

- Closing date 14th July for EOI

- Who should be involved ?

- Oxford developing a GPU based EOI focussed on machine learning but not exclusively
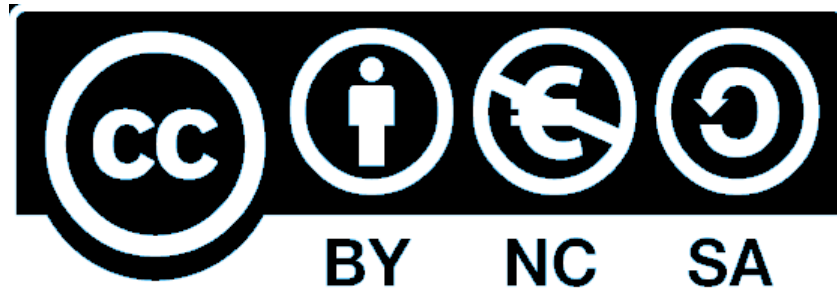
Storage as a Service (StaaS)

- Current status

- Requirements

- Next steps

Contact

- www.arc.ox.ac.uk

- support@arc.ox.ac.uk

- theteam@arc.ox.ac.uk

Reuse of this material