Zenith - a National Compute Resource in the East of England

RSEEE & WHPC Meeting Norwich

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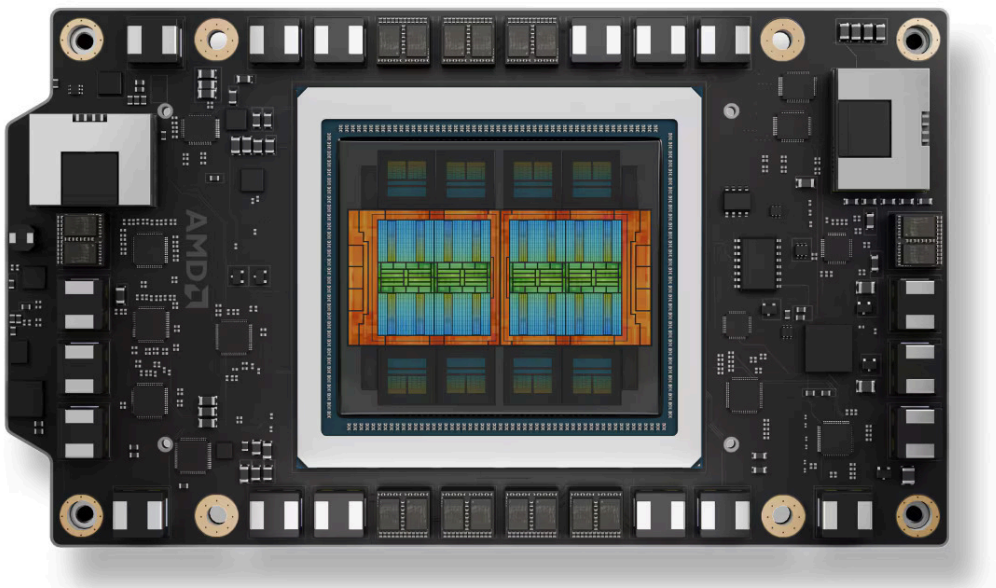
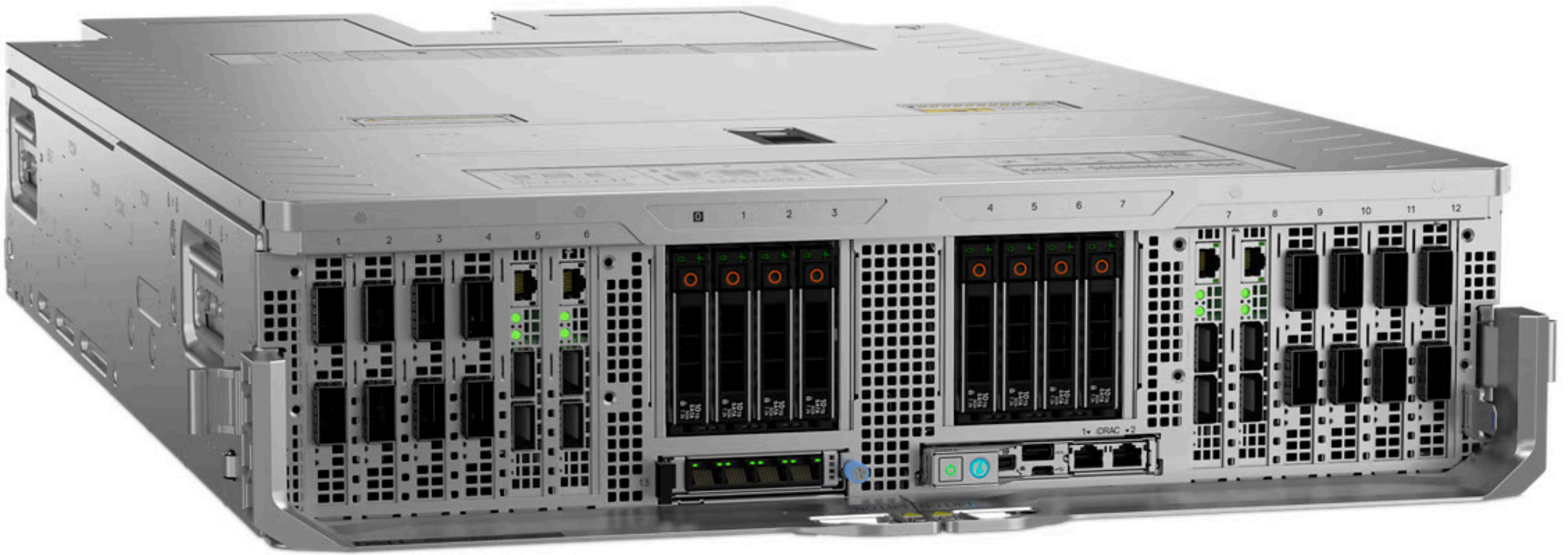
Kit

Introducing...

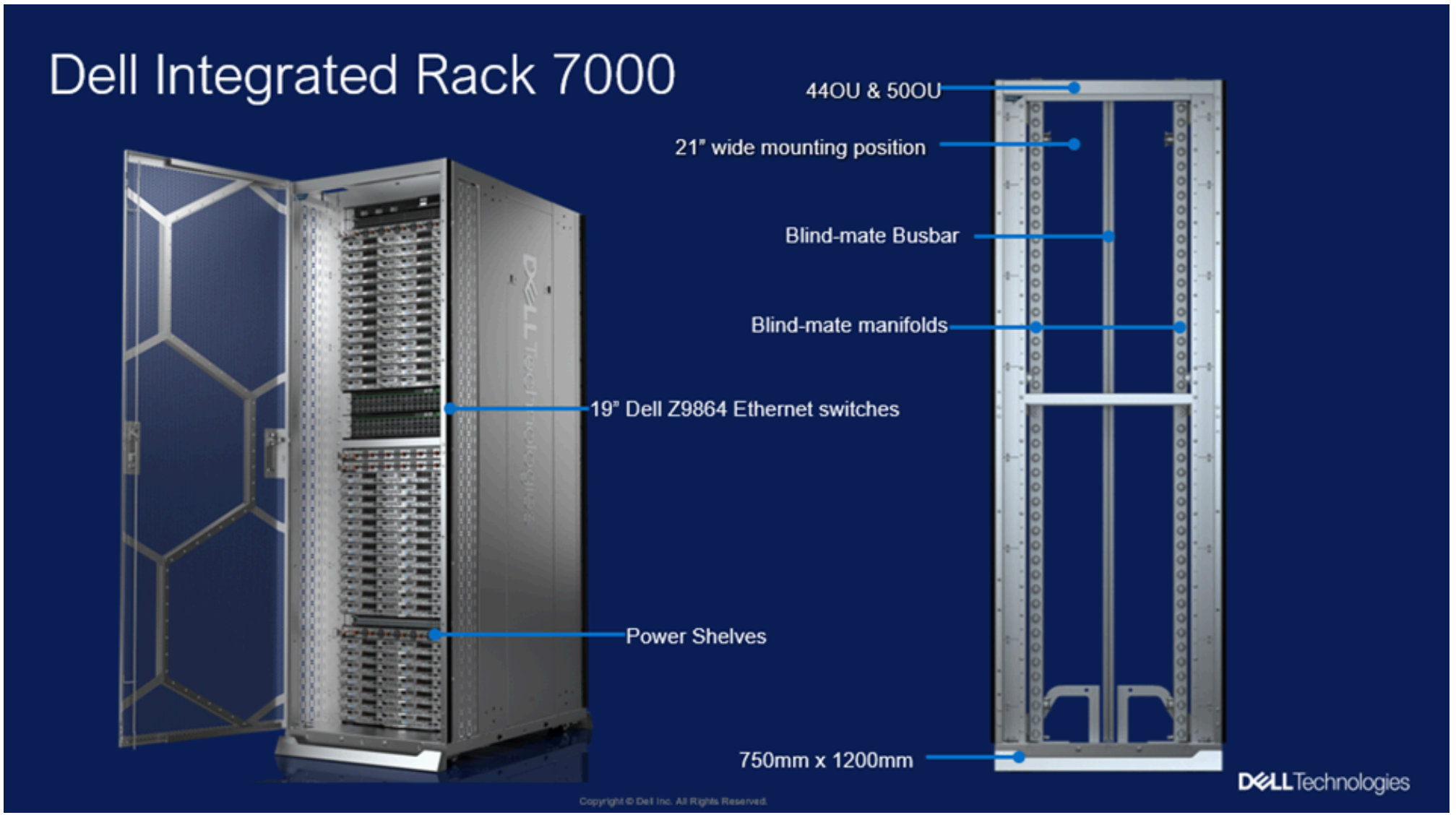
GPUs - AMD MI355x



Nodes - Dell PowerEdge XE9785L



Racks - Dell IR7000



Design


Rack 1 DAWN2
Rack 2 DAWN2
Rack 3 DAWN2
Rack 4 DAWN2
Rack 5 DAWN2
Rack 6 NCR
Rack 7 NCR
Rack 8 NCR
Rack 9 NCR
Existing WCDC Rack
Existing WCDC Rack

Zenith Installation Underway

Timeline

- 2025
  - Q4 Award and procurement
- 2026
  - Q1 Manufacturing and delivery
  - Q2 Installation and testing
  - Q3 Early access users
  - Q4 Prouction

Access

Allocations

UK Research and Innovation

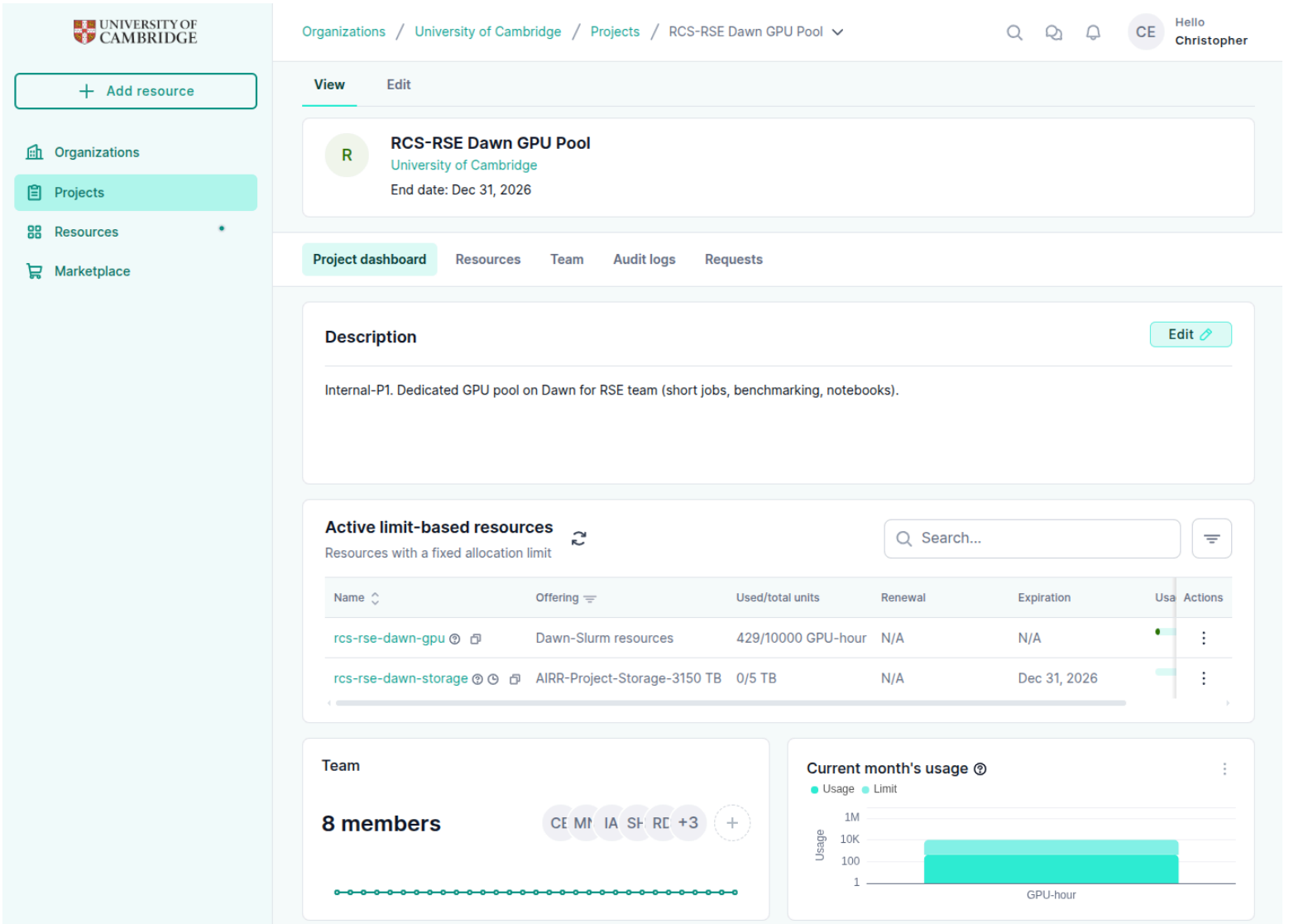
Department for Science, Innovation & Technology

Allocates via NCR

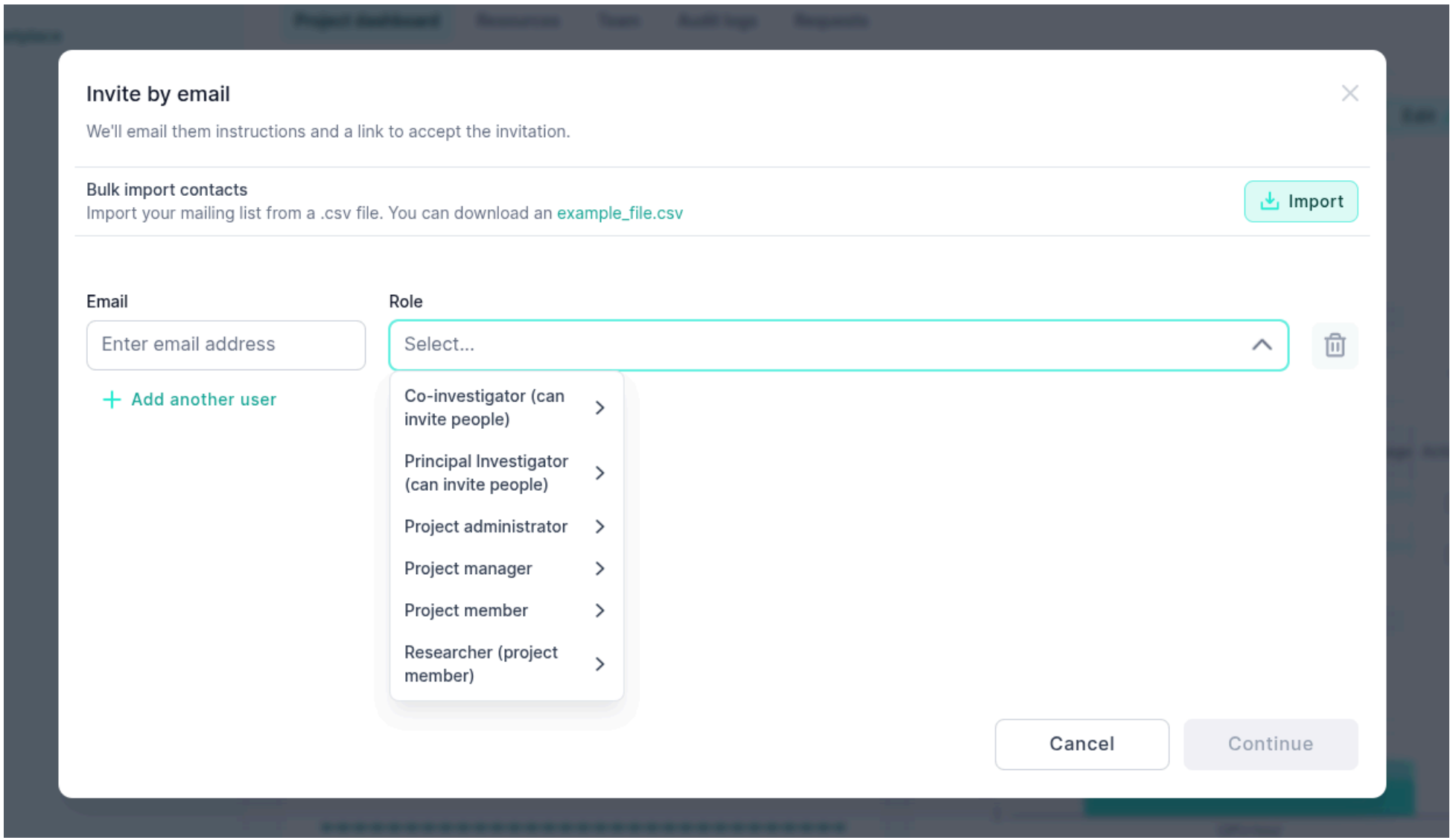
Allocates via AIRR

Zenith

Access portal



Invitations



NCR - National Compute Resource

Site	System	Main Compute
Cambridge	Zenith	AMD MI355x
Brimingham	Baskerville NCR	Nvida B200
UCL	Charger	Intel Xeon 6980P
EPCC	Cirrus	AMD EPYC 9825
STFC	Mary Coombs	Nvidia H100
Bristol	Isambard-3	Nvidia Grace-Grace

Programming Models

ROCm HPC Programming Models

- HIP
- OpenCL
- OpenMP Offload

ROCm Supported AI Frameworks

- PyTorch
- TensorFlow
- JAX

Unofficial Programming Models

- SYCL
  - AdaptiveCPP
- Kokkos
- Raja

Questions?

- cje57@cam.ac.uk
- https://hpc.cam.ac.uk/

Backup Slides

MI355x GPU Specs

Arch	CDNA4
CUs	256
Stream Procs	16,384
Matrix Cores	1024
FP64 (peak)	78.6 TFLOPs
Data types	FP64, FP32, FP16, bf16, OCP-FP8, INT8, MXFP8, MXFP6, MXFP4

Zenith Software

- Stack managed with spack
- Licenced software
  - Linaro Forge, DDT
  - X-Scale MVAPICH-GPU

Sunrise

- Sister system to Zenith
- For the fusion energy community
- 84 nodes, 672 GPUs