Nominee: Infinity SDC

Nomination title: Jisc Shared Data Centre

Project Overview:

Infinity has created the UK's first shared data centre for research and education – connected directly through Jisc's network Janet. This project is a shared data centre of 8MWs capacity developed for Jisc. It brings together world class academia and medical research institutions, enabling the UK to become a global medical research leader. The innovative and flexible design incorporates multiple resilience and power density platforms at rack level, cooled via an innovative indirect evaporative cooling system. It supports a diversity of applications from enterprise to High Performance Computing (HPC) and is the UK's first large scale outsourced HPC centre.

About Jisc:

Jisc offers digital services and solutions for UK education and research. Janet, is the UK's national research and education network, provided by Jisc. It has the primary aim of providing and developing a network infrastructure and related services that meet the needs of the UK research and education communities.

Jisc needed to find an economical solution to provide resilience and power diversity platforms (including HPC) within a 'shared' colocation facility. In addition, no one had ever developed a colocation HPC facility on this scale before. Further, the need to do this in a cost efficient way was paramount due to the nature of public funding for the facility. From a commercial viewpoint the challenge was to develop a framework that facilitates the consolidation of the academia and research organisations, combining their requirements and ensuring the best value for them and removing as many road blocks to outsourcing their data centre services as possible.

Our Solution – The Jisc Shared Data Centre

The design for this data centre was inspired by the need for flexibility and scalability and draws on our experience of providing bespoke, wholesale data centres. The key attributes of our solution are:

• Commercial innovation- The data centre is based upon our Infinite Data Centre proposition, providing 12 product offerings across 3 resilience levels and 4 power density configurations.

Flexibility between the platforms ensures that the publicly funded research grant money managed by Jisc is focused on delivering scientific results, rather than providing unnecessary support infrastructure.

• Technical innovation- The data centre is specifically designed to support the needs of academia and research and deploys the following flexible M&E configurations at rack level:

- Tier III resilience and availability for enterprise platforms

- Tailored Tier I & II configuration for research computing

- Density configurations supporting enterprise applications (4kW) through to HPC research (up to 30kW)

• Efficiency - The data centre operates at an average PUE of 1.1 across all platforms and product variations. This is achieved through the use of high efficiency cooling plant in the form of an innovative 'Indirect Evaporative Cooling' system. The system deploys cross-flow accumulators delivering cold air to the data hall via a Laminar flow wall, maximising the free cooling available. The data centre uses the latest building and power management technology to help minimise our carbon footprint, this significantly reduces the Total Cost of Ownership (TCO) of the data centre.

• High Performance Computing - The shared data centre will be the first large scale colocation facility to offer outsourced HPC. The HPC platform is offered as a rack option throughout the shared data centre.

• Resilience – Rather than the standard practice of deploying Tier III as a default, the range of resilience levels is matched to the IT that it supports. This data centre is 'workload focused' and 'value driven'. For the Category C Jisc product, a full Tier III configuration is deployed with 2N electrical, N+1 cooling and with concurrently maintainable infrastructure.

The initial anchor tenants are University College London (UCL), Kings College London, The Sanger Institute, The Francis Crick Institute, The London School of Economics & Political

Science (LSE) and Queen Mary University of London (QMUL). The shared data centre enables the sharing of large data sets in an unprecedented manner and addresses fundamental questions by searching across collections of data that are currently split across distributed locations. The Shared Datacentre is open to all Research and Academic organisations with Imperial College London now taking services along with entities such who are in the process of signing up to the terms.

Watch this video to hear our anchor tenants discuss the benefits of collaboration in a shared data centre:

https://www.youtube.com/watch?v=XT8ZUZDSYI0

Why nominee should win

• Creation of the UK's first shared data centre for education and research

• The largest outsourced high performance computing facility in the UK

• Commercial innovation providing 12 product offerings across 3 resilience levels and 4 power density configurations.

• Customers benefit from lower costs as the volume of use across all organisations using the data centre framework grows.

• Highly efficient 'Indirect Evaporative Cooling' system providing a PUE of 1.1