



On Campus, Colocation or in the Cloud? How Universities can determine the IT Strategy for Today and Tomorrow

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Biography

David Watkins heads up the Solutions Team at VIRTUS Data Centres, working with customers to provide customized solutions. He has been at VIRTUS since 2009, where he was previously head of operations. Before VIRTUS, David was head of UKMEA data centres at Unisys.

Part of ST Telemedia Global Data Centres Group, VIRTUS Data Centres is London's leading data centre company and owns, designs, builds and operates the country's most efficient and flexible data centres. Located in and around London's metro, VIRTUS Data Centres leads the industry with award winning innovation in hyper efficient, ultra-high density and highly interconnected facilities which are designed specifically to offer the flexibility modern users need.

David blogs at <https://virtusdatacentres.com/blog>

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Abstract

Higher education and research organizations faced with challenges for urgent digitization of their applications and data platforms, are now moving their IT infrastructure off-campus and into a purpose build data centre to ensure that their IT works harder for less. The demand from universities for increased efficiency, lower costs and lower environmental impact has led to High Performance Computing (HPC) forming a crucial element of IT operations, explains the author of this article.

Introduction

Data centres quietly reside at the heart of the modern university. Effective IT planning and wise investment in infrastructure means that institutions can deliver better services to students and staff – from remote learning and Big Data powered progress analysis, to High Performance Computing (HPC) and supercomputing required for research.

The explosion in data is putting increasing demands on IT infrastructure that is already over-stretched in many institutions forcing them to face the challenge of determining how to upgrade, replace and / or renew. In parallel, university leaders face physical limitations such as space constraints and energy efficiency



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commitments – and, of course, the ever-present issue of needing to manage their defined, immediate costs, and future IT infrastructure financial expenditure.



Choosing a strategy

How can universities ensure they choose the best IT strategy to make sure they can meet their needs of today, are able to scale for tomorrow and are ready for any unforeseen circumstances that the future may bring?

The fundamental starting point is to decide whether to stick with centralized, on campus IT infrastructure for data and compute functions, or to engage with an outsourced data centre provider or even a cloud solution

It's likely that the status quo is on campus, and serious investment has already been made into building and managing these facilities. But there are some serious upsides to taking the plunge and outsourcing the IT infrastructure.

Moving IT infrastructure off-campus and into a purpose-built data centre allows you to maximize efficiencies and cut costs. What's more, by moving your IT infrastructure off-campus, you can free up valuable space for other activities such as more teaching or research facilities. It also eradicates the challenge of supporting data centre electrical and cooling infrastructure, while also freeing up IT dedicated staff resources.



Many specialist data centres are purpose built to support High Performance Computing, crucial for today's requirements to manage and process vast data sets. Premium providers like VIRTUS dedicate huge amounts of resource to developing the perfect environment for super computers and have experience of excelling in this field; institutions including Kings College London, Imperial College and the University of Bristol are already harnessing HPC deployments within VIRTUS data centres, to support their complex data processing requirements within a shared environment.

VIRTUS also brings a competitive advantage to research institutions. It offers the opportunity to be part of a wider education ecosystem where all organizations have a common interest – to benefit from shared facilities in which researchers can collaborate, increase energy efficiency and reduce costs. In partnership with Jisc, VIRTUS provides the infrastructure for this ecosystem: a communal data centre environment provided in a framework where members can share data sets under one roof, collaborate and ensure that the UK is at the forefront of academic and global medical research.

The framework ensures that the procurement process is simple and straight forward, and that the quality of the data centre facility meets the key requirements of resilience, scalability and cost efficiencies. This is made possible as the combined infrastructure allows quicker localized connectivity, transforming how universities look at their data centre facilities.



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Outsourcing also ensures that these institutions can support their environmental and sustainability goals. At VIRTUS we run on 100% renewable carbon-zero energy across our sites, so our customers can be confident they're choosing the greenest option possible.

There are many reasons why a university might decide to outsource its IT operations: to quickly add new capacity to keep up with the demand for services; substitute an ageing data centre; free up real-estate space for other purposes such as teaching; join an ecosystem to share facilities and data; or simply to cut costs.

There is lots to consider, but you're unlikely to stick with a single data centre strategy. 'Hybrid IT', a combination of in-house facilities, cloud and colocation, is already the dominant model of infrastructure deployment, and will likely remain so for years to come. The most important thing to remember is that you don't have to be tied into one solution – but can mix and match to serve your current, and changing, needs.

Reference

VIRTUS Data Centres is a crucial part Jisc's Janet network, a high capacity network for education and research, which allows Universities to access the shared data centre, both nationally and globally. For more information see <https://virtusdatacentres.com/industries/healthcare-education-research>

Imperial College
London

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Imperial College London



IMPERIAL COLLEGE LONDON

Imperial College London delivers world class education and research in the areas of science, engineering, medicine and business. Inter-disciplinary working and external collaboration is a key part of the College's success, helping it to understand, inform and advance industry, commerce and healthcare sectors with the UK, and beyond.

Business Challenge:

In 2014, Imperial College decided to review their Data Centre provision due to a number of technology considerations, as well as the rising real estate costs and a lack of opportunity for growth in line with the College's aspirations. Its site at South Kensington was home to the College's two Data Centres which form the backbone of its technology infrastructure, supporting 8,000 staff and 15,000 + students. Having both Data Centres in one location did not afford them the resilience they needed to safeguard their assets and give staff and students a reliable platform from which to carry out their studies and research.

With the College reliant on technology to help its employees and students function on a daily basis, ensuring the current provision is future proofed to enable them to continue their valuable work and research is vital.

The College also needed to overcome the challenge of unpicking through the intricacies and interdependencies that currently exist within the two on-site Data Centres.

The VIRTUS Solution:

In partnership with Jisc, VIRTUS provides a shared Data Centre under a framework agreement that simplifies the procurement process. Jisc's vision is to create a shared environment, where members can share data sets under one roof, collaborate and ensure the UK is at the forefront of academic and global medical research.

To make the transition as smooth as possible, Imperial College took a phased approach and designed a dual-zone network so applications and information can be moved across safely and securely with minimal disruption, the theme of the project being "keeping it safe". It is also important for the College to leverage its existing investment and maximise the efficiency of the project.

After an initial 'Phase I' deployment of 16 racks, in a 160kW enclosure at Cat C level for Core ICT services, Imperial College have since grown their partnership with VIRTUS, with 'Phase II' delivering two enclosures for Research Computing at 919kW in total, quickly migrating their High Performance Compute deployment.

'Phase III' of the deployment is now ongoing, with the caged area ready to receive Hosted Research Services, and a 'Phase IV' deployment is in planning, looking at which services that are left on-premise are cloud candidates and which are suitable for co-located services.

Benefits

Moving to the VIRTUS LONDON4 has given the College an increased level of resilience and protection longer term, through improved availability and disaster recovery capabilities, should one of the Data Centres suffer an outage. Interdependencies that once existed within the on-site Data Centres can be separated, which will eliminate single points of failure, making the new solution more robust and scalable in line with future growth and dependencies placed on the network.

Being part of the Jisc framework benefits the College from not only a financial point of view but will provide a commercial advantage. The College's core team of ICT staff have been fully involved in the project from day one and despite a change in working practices, they have been committed to the transformation and excited about the benefits it will bring for the future.

As part of the transformational project, Imperial College are looking to continue to leverage existing investment in tools and technologies, review the options for cloud services and continue to migrate to a co-lo Data Centre model.

"Students and staff were consuming information in a very different way than even a few years ago. The 'always on' environment meant applications and devices connected to the network needed to be available and working at all times, in order to facilitate this digital transformation. Our current environment was simply not robust enough to cope with this change in working patterns and expectations. The ability to be part of the Jisc framework through the Data Centre and to take advantage of the collaborative environment was a key consideration and would give us a solid platform for future growth."

Paul Jennings, Head of ICT Service Operations at Imperial College London