

# Australian University Powers Innovative Teaching and Research



## Executive Summary

- **Customer Name:** Swinburne University of Technology
- **Industry:** Higher Education
- **Location:** Hawthorn, Victoria, Australia
- **Number of Students:** 32,000+

## Challenge

- Supporting learning with rich collaboration and high-performance applications
- Improving on-campus access to digital resources and enhancing student experiences
- Rapidly scaling data center resources to meet IT demands

## Solution

- Leverage integrated FlexPod solution, including Cisco UCS servers, Nexus switches, and NetApp storage, with Microsoft Hyper-V virtualization solutions

## Results

- Rapidly expanded data center environment without service interruption
- Supported innovative research and learning with rich collaboration environment
- Increased access to high-performance digital resources

## Next-generation environment at Swinburne University leverages integrated, high-performance FlexPod solution.

### Challenge

Success in education requires that teachers can continually communicate and clarify complex ideas to their students. Fortunately, as more students turn to distance learning as their preferred way to access higher education, the tools for students and teachers to work together have become more advanced. However, increased demands for collaboration solutions and expanded use of high-performance applications have also placed added strain on higher education's IT departments.

Throughout its more than 100-year history, Swinburne University of Technology has been strongly committed to delivering innovative education using the best technology. The university's 2020 Plan has a focus on high-quality, personalized education. As a result, the university wanted to upgrade its infrastructure to enhance on-campus services to students and at the same time engage a growing population of online learners with collaboration software.

The university also wanted to support collaboration between campuses, creating always-on portals between classrooms with high-definition experiences. Equally important was the ability to adopt integrated solutions that could quickly scale with the university's rapid growth and reliably support learning, as well as improve performance for its enterprise applications, including Oracle.

"Technology trends at Swinburne have included greatly increased adoption of mobile and tablet devices by students and staff. These require significant bandwidth, increased



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– **Derek Whitehead**  
CIO  
Swinburne University of  
Technology

video chat between students and teachers, and greater demand for high-performance applications,” says Derek Whitehead, CIO at Swinburne University. “Additionally, the vast majority of our growing student population is participating in hybrid programs, with both campus-based and online components, adding to demands on the network and data center.”

To support its 2020 Plan and meet technology requirements for both campus and distance-learning environments, Swinburne University of Technology examined several data center and campus network solutions through total cost of ownership analyses and proof of concepts. After weighing its options, the university chose to replace its HP data center technology with a FlexPod platform, which integrates best-available server and networking solutions from Cisco and storage solutions from NetApp.

“Equally as important as the solution itself was how it was supported,” says Whitehead. “By adopting a pre-certified, integrated FlexPod solution backed by industry-leading support from Cisco and NetApp, we were able to move to a situation where we could bring together a number of best-available technologies including Microsoft’s Hyper-V virtualization to maximize our investment.”

## Solution

As part of Swinburne University’s upgrade to its new FlexPod environment, it implemented Cisco Unified Computing System™ (UCS®) B200 and B230 Blade Servers within Cisco UCS 5100 Series Chassis. NetApp FAS6210 and FAS3250 storage, as well as Cisco UCS Manager for simplified management and accelerated provisioning, are also included in the university’s data center. Microsoft Hyper-V virtualization solutions are integrated with the FlexPod environment to extend the technology benefits of the implementation.

In the past, Swinburne University used its Cisco Nexus® 2000, 5000, and 7000 Series Switches to get the most from its legacy hardware. However, with the new data center investment, the university transformed its switching environment from simply aiding its data center to a true business enabler. “By implementing the pre-certified FlexPod solution, we can focus on the business and not worry about if the technology works together,” says Daniel Buttigieg, associate director of infrastructure at Swinburne University.

At the same time, making small investments in Cisco MDS 9000 Series Multilayer Switches and Cisco UCS 2204XP Fabric Extenders also helps to boost performance. Swinburne implemented Cisco Unified Access Network Architecture for its next-generation campus network, delivering a single platform for wired and wireless policy and management, driving operational simplicity and efficiency. Swinburne leveraged Cisco SMARTnet™ Service to further reduce downtime with fast, expert technical support, flexible hardware coverage, and smart, proactive device diagnostics.

To improve access to network resources, the university adopted Cisco Wireless Access Points, helping students, faculty, and staff connect more securely and reliably via Wi-Fi using various devices, such as laptops, smartphones, and tablets. Helping to connect students, faculty, and staff, Swinburne University uses Cisco collaboration solutions, including Cisco IP Phones, Cisco WebEx®, and Cisco TelePresence® solutions.

“Using Cisco collaboration solutions, we are connecting campuses across Southeast Asia with innovations that include always-on TelePresence portals to extend in-classroom experiences, better enable research, and make distance learning more meaningful,” says Whitehead. For example, Researchers based at Swinburne’s Hawthorn campus have been able to work collaboratively over many hours with colleagues located 700 km away at the

CSIRO Parkes Radio Telescope to fine tune their observations on the fly.

## Results

The move to the proven FlexPod environment is already enabling Swinburne University of Technology to overcome a range of business challenges. Immediately, the university saw significant improvements in technical support, helping to boost its responsiveness to issues and ability to manage possible future challenges.

“With other vendors, once the equipment was installed, we were on our own,” says Whitehead. “Cisco and NetApp not only walked us through the initial implementation, but continue to back all of the products and help to implement additional features. That continues to make our lives easier, and provide insight for future plans. Plus, with combined support for FlexPod, there is greater accountability across our vendors.”

Ease of management has also been a significant gain for Swinburne University of Technology. The converged FlexPod working in tandem with Cisco UCS Manager provides greater visibility into the data center and network, as well as offers fewer points of management, helping engineers respond to changing business needs. Service profiles and automation built into Cisco solutions also reduce management and accelerate provisioning for new services. Additionally, the modular nature of the FlexPod environment provides an easily scalable solution to support the university’s growing technology requirements.

Swinburne has also experienced a reduction in its data center footprint by implementing a FlexPod environment, as well as reducing power and cabling requirements by utilizing this technology.

Recent investigations have shown that the initial investment in the FlexPod technology has provided Swinburne with a solid base infrastructure that can be expanded rapidly and cost effectively to support future needs with minimal impact on headcount or workloads.

For end-users, experiences have significantly improved through increased application performance, as well as with enhanced services now available using Cisco collaboration solutions. For example, the university has seen a significant improvement in performance for the applications that are underpinned by Oracle databases on RedHat Enterprise Linux running on its new Cisco UCS and NetApp storage. Additionally, more quality learning experiences can be delivered to students and faculty without service interruptions, such as Cisco WebEx collaboration sessions.

Staff, faculty, and students taking courses on campus have greater access to digital resources no matter where they are, supporting Swinburne’s learn-everywhere culture. Due to a rapid adoption of mobile devices, Swinburne’s wireless network had become overloaded before the upgrade in early 2013. Since the upgrade, Swinburne has substantially increased the number of wireless clients that it can accommodate to handle this continued growth. In addition, a noticeable improvement in wireless coverage and performance has occurred in key areas of the university, such as lecture theatres, classrooms, and open work spaces in the Library. Having better access to up-to-date technology, including a fast and reliable wireless network also makes the university more competitive with recruiting.

## Innovation in Education

Cisco is also a long-time supporter of advanced research opportunities at Swinburne University of Technology’s Centre for Advanced Internet Architectures. “The future of the



## Product List

### FlexPod Environment

- Cisco UCS B200 M3 Blade Servers
- Cisco UCS B230 M2 Blade Servers
- Cisco UCS 5100 Series Chassis
- Cisco UCS Manager
- NetApp FAS3250 and FAS6210

### Routing and Switching

- Cisco Nexus 7000, 5000, and 2000 Series Switches
- Cisco MDS 9000 Series Multilayer Switches

### Fabric Interconnects

- Cisco UCS 6148UP Fabric Interconnects
- Cisco 2204XP Fabric Extenders

### Collaboration Endpoints

- Cisco TelePresence System 1300-65 and 3210
- Cisco 8945 IP Phones

### Conferencing

- Cisco WebEx

### Wireless

- Cisco 3600 Series Wireless Access Points

### Applications

- Microsoft Hyper-V
- Oracle
- Red Hat Enterprise Linux
- Oracle RDBMS
- Microsoft Exchange 2010
- Windows Server 2008R2

### Services

- Cisco SMARTnet

industry revolves around converged architectures, large-scale virtualization and high-performance data network infrastructure,” says Professor Grenville Armitage, director of the Centre for Advanced Internet Architectures. “The Cisco Innovation Program will support new research around the ‘Internet of Everything,’ addressing the emerging engineering and social challenges of a densely interconnected society.”

Professor Armitage further notes, “Our applied research projects benefit from the stability and performance of Cisco infrastructure deployed by Swinburne University of Technology, and our undergraduate teaching programs use Cisco-based laboratories to provide students with up-to-date hands-on experiences that better prepare them for life after graduation.”

## Next Steps

In the future, Swinburne University is examining additional ways to leverage Cisco solutions. Within IT, the university is looking to solutions, such as Cisco UCS Director to further streamline management, and Cisco Identity Services Engine (ISE) and Cisco TrustSec®, to increase security, while supporting additional devices on campus. Swinburne University is also considering use of Cisco Jabber® to increase collaboration on campus and beyond. Also, Swinburne will focus on optimizing the features and services made available through the unified access network to drive sustained innovation and operational simplicity.

## For More Information

To find out more about the Cisco Unified Data Center, please visit:

[www.cisco.com/go/unifieddatacenter](http://www.cisco.com/go/unifieddatacenter).

To find out more about the Cisco UCS, please visit: [www.cisco.com/go/ucs](http://www.cisco.com/go/ucs).



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