University Improves Data Center Services Delivery

University of North Carolina at Charlotte transitioned their outdated campus computing facility into an agile services-oriented data center.

EXECUTIVE SUMMARY

UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

- Higher Education
- Charlotte, North Carolina
- 22,300 students; 900 faculty

BUSINESS CHALLENGE

- Prepare for more students, faculty, and data
- Accelerate introduction of new business services
- Help ensure business continuity

NETWORK SOLUTION

- Built a scalable, resilient data center that facilitates new service introduction

BUSINESS RESULTS

- Increased data center scalability and availability
- Strengthened business continuity
- Reduced total cost of ownership

Business Challenge

Part of the University of North Carolina (UNC) system, UNC Charlotte (UNCC) enrolls more than 22,300 students and 900 full-time faculty. The university expects to increase enrollment by 10,000 students and add 150 faculty members by 2015.

To prepare for growth, the UNCC IT group needed a more scalable, resilient data center. “We had outgrown the previous data center’s electrical, cooling, floor space, and data storage capacity,” says Tom Lamb, chief technology officer for the university. “To support more user services and more data, we need a service-oriented data center design that provides network, power, and storage to applications as needed.”

Solution

UNCC currently operates a data center in Atkins Library, which has not increased in size in 25 years. The data center has gone through significant upgrades over the past several years, but given the projected growth of the university over the next five to ten years, the data center physical plant will not be sufficient to sustain the requirements of campus computing. To meet the computing needs of the university, a second data center has been created at the MCNC data center in Raleigh, NC. Once this facility is operational, the production applications managed by the central IT organization will be migrated from the old data center in Atkins Library to the Microelectronics Center of North Carolina campus. The facility in Adkins Library will be retained as a disaster recovery site and for asynchronous replication of data storage frames, high-availability elements of the Exchange and Banner application clusters, and development and testing servers and storage.

Cisco and UNCC have tested the design in Cisco’s Proof of Concept Lab in Research Triangle Park, North Carolina. “We will thoroughly test the data center solution before we deploy it,” says Lamb. “The Cisco Proof of Concept lab is invaluable, because the university does not have the physical space for such extensive testing.”

“Cisco provides outstanding excellent data center design and deployment services,” says Lamb. “Our Cisco data center consultant has become part of the team, conducting a couple of half-day sessions monthly. We regard him as a trusted advisor for all aspects of data center design, not just the Cisco solutions.”

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Results

Migration of the production applications to the new facility will take advantage of the service-oriented design of the new data center. Service orientation allows the network and the applications that it supports to work together. The primary goals of this design are to increase the performance, availability, scalability, and manageability of enterprise applications in the data center, while simultaneously providing a secure environment. In addition, these designs reduce the complexity and implementation time of enterprise applications in the data center, using virtualization technologies and network design best practices.

The solution is targeted to provide the advantages of high availability, combined with an enhanced level of recoverability within the campus in a sustainable and cost-effective manner.

Technical Implementation

When the transition is complete, the original data center will be used for asynchronous replication of data storage frames, high-availability elements of the Microsoft Exchange and the enterprise resource planning (ERP) application cluster, and services development and testing.

PRODUCT LIST

Data Center

- Cisco® MDS 9513 Series Multilayer Director Switches
- Cisco ACE Application Control Engine modules
- Cisco ASA 5580 Series Adaptive Security Appliance
- Cisco Catalyst® 6500
- Cisco Catalyst 4948
- Cisco Bladeswitch 3120X
- Cisco GSS Global Site Selector

Figure 1. UNCC Service-Oriented Data