

University of Detroit Mercy Connects Campuses, Increases Internet Bandwidth and Eliminates Leased Circuit Costs with Wide Area Wireless Network

EXECUTIVE SUMMARY

University of Detroit Mercy

The University of Detroit Mercy, Michigan's largest Catholic University offers nearly 100 academic degrees and programs of study through seven schools and colleges located on three campuses. The University has an enrollment of 6,000 students and 300 full-time faculty members.

Challenge

When the University of Detroit Mercy evaluated increasing access between its campuses and its Internet bandwidth access through education and research network provider Merit Network, it realized that its last-mile circuit costs using traditional leased circuits would increase substantially and sought alternatives for reduced operating costs, improving reliability and providing capacity for future growth.

Solution

The University implemented a wireless wide area network interconnecting its three campuses and providing last mile connectivity to Merit Network's point of presence at Wayne State University.

- Four point-to-point wireless links
- Full duplex 45 Mbps, DS3 capacity between locations
- Engineered to provide 99.999% reliability
- 24x7 support services including advanced next business day replacement

Value

- Increase Internet access to meet growing demand from students and faculty
- Improve network reliability and capacity between three campus locations
- One year Return on Investment
- Eliminate leased circuit costs for last mile access to Internet resources, saving nearly \$100,000 per year in leased circuit costs
- Provide capacity for Internet and intranet growth

Interconnecting three campuses and network service provider with wireless increases broadband access and improves reliability while reducing annual operating expenses by nearly \$100,000



CHALLENGE

While recognizing the need to increase capacity for inter-campus network communications and access to Internet bandwidth, the University of Detroit Mercy (UDM) was concerned with the additional recurring monthly leased circuit costs that would be required to accomplish the service upgrade.

UDM obtains its Internet bandwidth access through education and research network provider Merit Network, a non-profit corporation governed by Michigan's public universities that provides access to leading-edge research, state and national collaborative initiatives and international peering.

While Merit has an extensive broadband network, UDM found that the cost of increasing "last mile" connectivity to Merit's local point of presence at Wayne State University, located approximately 6 miles from UDM's main McNichols Road campus, would be \$2,700 per month using traditional leased circuits. Similar costs were also forecast for increasing capacity to the University's Outer Drive and Riverfront campuses, home to UDM's Schools of Dentistry and Law, respectively.

UDM was concerned about the costs of the service upgrade and began exploring the concept of using wireless as an alternative to leased circuits with its wireless local area network solutions provider, Azure Solutions of Rochester Hills, Michigan. UDM was skeptical of using the technology in the dense urban environment of downtown Detroit and Merit Networks, not having previously used wireless as a means of spanning the "last mile" for its network, was concerned with the impact of a wireless link on its reputation for reliability.

"The university is pulling twice as much network traffic into their campus on a daily basis while reducing their access costs. The wireless technology is working well, as promised. We could not have accomplished this service upgrade without the diligence and wireless integration expertise of Azure Wireless."

Michael J. Mosher
Program Manager
MichNet Engineering and Technical Support
Merit Network, Inc.

SOLUTION

Initial efforts focused on providing a broadband wireless link between the University's main McNichols Road campus and Merit's point of presence at Wayne State University. Azure performed a detailed engineering analysis, including path studies, loss studies, terrain profiles, spectrum analysis and antenna mounting structural design for each of the buildings.

The engineering study found that a reliable wireless link could be achieved with existing structural assets. After obtaining the approval of Merit Network, the University contracted Azure to provide a full duplex 45 Mbps/DS3 wireless point-to-point connection from the University of Detroit Mercy campus to Merit Network's backbone site at Wayne State University.

In less than fifteen days, the wireless link was operational and the University was capable of pulling three times as much traffic into its campus, satisfying its increased faculty, staff and student demand for Internet bandwidth.

To ensure network uptime, the university also contracted with Azure to provide support with guaranteed response times and next business day advanced replacement for wireless network electronics.

"Working with Azure, we determined that fixed wireless solutions could address all of our requirements. The broadband wireless network makes excellent business sense for us and provides the University with a learning resource that is often a priority for students," explained Edward G. Tracy II, Director of Information Technology Services for UDM.



"Through site surveys and network engineering, we demonstrated how a broadband wireless solution could provide the speed, bandwidth and reliability the students and faculty at UDM needed, while greatly lowering their network costs. This is a great example of how a traditional service provider embraced wireless to address the needs of its customers. Once we demonstrated that wireless could deliver all the necessary carrier-class features, reliability and manageability along with improved price/performance over comparable leased line solutions, UDM and Merit were convinced that a wireless network was the ideal solution," said John Anderson, Azure's director of sales.

Following the success of its first broadband wireless connection, another 45 Mbps link, replacing an older, low speed wireless link, was installed between the University's McNichols Road and Outer Drive campuses. This link provided a more robust and more reliable link between the campuses and extended the increased Merit Network bandwidth to the Outer Drive Campus.

UDM's final WWAN connection utilizes two additional wireless links to achieve connectivity from the Riverfront Campus' Law School to Merit Network's point of presence at Wayne State. Due to the location of the Law School and tall urban buildings located between it and Wayne State, achieving a direct link was impractical, and Azure developed an innovative design using the rooftop of a downtown building as a location for an intermediate point in the wireless link.

Results

Since their installation, the wireless links provided by Azure Solutions have performed with uninterrupted reliability since their installation.

The university realized a one year return on investment from the savings resulting from elimination of leased circuits and eliminated more than \$30,000 in annual leased circuit costs from its operating budget with its first link. Similar returns on investment and savings will be realized with the second and third links, resulting in a reduction of nearly \$100,000 per year in operating expenses.

The capacity of the link also provides the university with the ability to increase its Internet access by 350% with no additional last-mile access investment.

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