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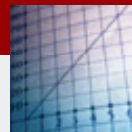
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CASE STUDIES

ARTICLE POSTED January 3rd, 2005

**UN Federal Credit Union implements multi-faceted infrastructure**

Increasing concern about security has many large institutions re-thinking the way they transport and store critical information. This mindset led the United Nations Federal Credit Union (UNFCU) to upgrade its SANs and MANs.

With over 68,000 members and \$2 billion in assets under management, UNFCU is the 26th largest credit union in the U.S. The award-winning cooperative financial institution provides a broad array of products and consultative services to meet the unique needs of the UN, its affiliated agency staff members, their families and retirees located in 210 countries and territories.

With 13% growth in membership over last year, the UNFCU knew it needed to implement a secure, fast, reliable communications infrastructure that provided enhanced voice, video and data applications while supporting the storage and retrieval of over 12 terabytes of data shared among its four New York offices. A private dark fiber network with Wavelength Division Multiplexing (WDM) technology provided the solution.

Pick a partner

The organization chose to work with TGC Global, a New York City-based communications and technology consulting firm, and ADVA Optical Networking, a provider of metro optical networking solutions headquartered in Mahwah, N.J. The two companies proposed a WDM-based MAN solution that would give the institution the speed, security and bandwidth required to meet its goals. In March 2004, UNFCU met with the companies and selected the TGC Global dark fiber network solution to go with ADVA's CWDM technology.

"This network provides ultimate flexibility in terms of protocols and applications, along with almost unlimited bandwidth potential," says Mayande Gowon, president and CEO of TGC Global.

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The primary benefit of the WDM-based network was its ability to act as a ring-based MAN. UNFCU now has the end-to-end ability to own and manage its own private fiber network with scalable quantities of up to eight Coarse WDM (CWDM) and 64 Dense WDM (DWDM) wavelengths for multiple applications.

"We secured a commitment to be up and running by the end of 2004," says Robert Fallon, vice president of IT at UNFCU. He added that the organization had acquired a new swing space in Manhattan and wanted to have its new office online with its headquarters and nearby branch offices. "Our goal was to enhance the speed and reliability of the network, and dark fiber proved a ready solution," notes Fallon.

Deploying the solution

The network deployment connects four UNFCU offices with a dark fiber MAN ring, using ADVA's Fiber Service Platform (FSP) 2000 optical networking systems. TGC Global next created a new ring to link UNFCU's locations to its primary storage facility in Edison, N.J., approximately 35 miles away.

The Edison facility provides a SAN disaster recovery site that employs synchronous data replication, so if one facility becomes inoperable for any reason, all data is instantaneously available through another.

"We also opened the ring and are extending it from Long Island City to Edison," says Gowon. "This will allow for the graceful turn-up of UNFCU's new headquarters and provide a physically diverse fiber route to their disaster recovery site." ADVA will also provide the optical networking systems for that expansion, which is expected to be completed by September 2006.

Currently, the network provides 2G bit/sec. channels (in both directions) throughout the ring, which facilitates primary and backup Gigabit Ethernet transport between all four of UNFCU's locations. Additionally, the network transports voice applications over a dedicated time-division multiplexing (TDM) line between the swing space and UNFCU's current headquarters.

Leveraging the functionality of the ADVA FSP 2000 systems eliminated the need to provide additional Telco-based communication lines. Using dark fiber is the first step toward reducing costs and enhancing voice communication among UNFCU's private branch exchanges.

ADVA's FSP 2000 system was used to create a new optical channel specifically dedicated to Fibre Channel applications. The original SAN was located at UNFCU's operations center and supported approximately four terabytes of data. The new MAN and SAN link all four New York sites, as well as the disaster recovery site in Edison.

Flexibility for the future

The network supports all major applications, including Fibre Channel, Enterprise System Connection (ESCON), Fiber

Connection (FICON) Coupling Link, Sysplex Timer and Infiniband. This allows UNFCU to future-proof its network and select any application technology it requires.

UNFCU now has the flexibility to provide dedicated bandwidth to specific applications or processes. Individual applications are assigned wavelengths, multiplexed at one end of an optical link, transported across the link and de-multiplexed at the other end. With the dark fiber network and CWDM technology, a large-to-mid-sized institution such as UNFCU can expect to back up or restore a 60-terabyte data center in about 90 minutes. The same process would take more than a month and a half across a TDM-based OC-3 (155M bit/sec) connection.

"The value proposition of WDM and optical networking technology is extremely compelling," says Brian P. McCann, chief marketing and strategy officer at ADVA. "Oftentimes, enterprises approach us strictly for a SAN solution and then are amazed to realize that they can additionally transport voice, video and other applications between multiple sites in a metropolitan area over the same connection for minimal incremental cost."

Additionally, he says, "the flexibility of ADVA's CWDM and DWDM solutions cater to the budgets and network requirements of enterprises of all sizes, making previously unfeasible high-speed, high-bandwidth connectivity a reality."

Optical SANs and MANs

One of the more exciting aspects of the UNFCU MAN-SAN solution is running native Fibre Channel between multiple locations via dark fiber and optical networking systems. Unlike some solutions, wherein Fibre Channel is converted to IP, the UNFCU solution can now use Fibre Channel across large geographical distances, thanks to dark fiber. There is no need for any conversion in order to transport at speeds up to 10G bit/sec. Currently, 2G bit/sec. speeds are being used. The optical architecture ensures that the integrity of the Fibre Channel protocol is maintained.

Since devices are able to communicate with one another through their native protocol, additional latency issues are eliminated. But the main goal for UNFCU was achieving synchronous data replication. This infrastructure enables the organization to have multiple sites that are each capable of handling the load of the other four sites in the event of a disaster scenario.

According to Fallon, when the September 11 terrorist attack occurred, UNFCU experienced down time on some of its external transport capability. This experience weighed heavily on the organization's decision to take ownership of its own dark fiber network and optical networking systems.

"We're extremely pleased with the new architecture and its capabilities," says Fallon. "The network's speed, reliability and

security not only met but also exceeded our expectations." The only slight hitch was obtaining permits from the city to enter manholes, Fallon adds.

"Implementing a dark fiber solution has been a very positive experience for UNFCU," Fallon says. "It enables us to do an even better job fulfilling our mission, 'Serving the People Who Serve the World.'"

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