

United States Cold Storage: Juniper Networks Provides the Bandwidth Needed to Support Rapid Growth in WAN Traffic from Centralized Applications, Replication Data, and Business Expansion

Business Profile:

United States Cold Storage, Inc. (USCS) is a leading national public refrigerated warehouse operator with facilities across the United States.

Industry:

Refrigeration storage services and distribution

Business Challenges:

New and existing applications overloaded USCS's new WAN, dropping application performance to unacceptable levels and impacting productivity. High bandwidth costs and long lead times for WAN upgrades led USCS to seek WAN optimization solutions.

Solution:

Juniper Networks enabled USCS to reduce WAN traffic an average of 53 percent overall. Juniper Networks WX™ application acceleration platforms improved application performance dramatically, enabling USCS to meet key objectives while providing sufficient WAN capacity to accommodate future growth. The WX Central Management System™ (CMS™) software streamlined WAN management, resulting in considerable labor savings.

Business Benefits of the Juniper Networks Solution

- Enabled USCS to meet WAN objectives without requiring major upgrades.
- Accelerated application performance for key applications.
- Increased IT productivity and reduced WAN management overhead.

"(Juniper Networks) has given us the bandwidth we needed. It's more than enough."

Timothy Brennan
Director of Information Technology
United States Cold Storage

When Timothy Brennan, Director of Information Technology, joined United States Cold Storage, Inc. in 1998, the company had no wide area network (WAN). Brennan and his team set out to upgrade the company's computer systems and build a network infrastructure that would allow them to deploy a web site and implement a business continuity/disaster recovery plan. The company quickly went from no WAN to an overloaded WAN.

USCS and its predecessor companies have been providing refrigerated storage services to the food industry since 1889. Today, with the help of its standardized computer and network infrastructure, the company offers a range of food handling services, including tracking, freezing, or tempering products, product transportation, and import/export logistics. The company's customers include more than 350 major food suppliers.

Brennan and his team set out to centralize customer data and key applications such as e-mail, warehouse management, finance, and accounting, all of which had previously run on standalone servers at numerous company sites.

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Centralizing data was critical to launching their customer-facing web site, E-USCOLD, which allows customers to access information about inventories, order status, schedules, and a host of other data and reports. In addition, Brennan wanted to consolidate applications onto fewer servers to reduce maintenance and support overhead, as well as to simplify business continuity and disaster recovery operations.

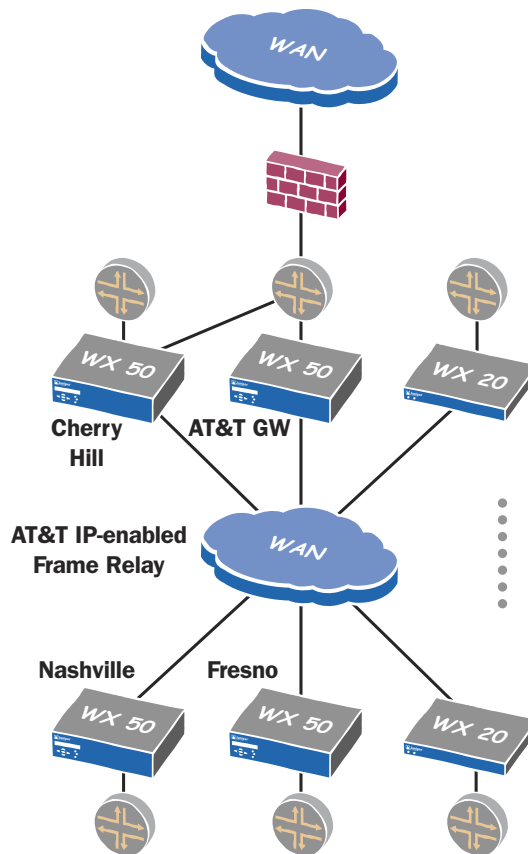
Today, USCS has a hierarchical WAN with 32 drops across nine states with link speeds ranging from 56 Kbits/sec to 2 Mbits/sec. The WAN, which is based on AT&T's IP-Enabled Frame Relay Service, connects the company's 31 sites and links corporate headquarters to AT&T's Secaucus, N.J. network operations center (NOC), which hosts USCS's web site. Smaller USCS sites connect to one of five regional sites which host IBM iSeries (AS 400) servers.

Growing Pains

"The WAN has enabled us to act as one big company instead of numerous small ones," notes Brennan. However, in classic "if you build it, they will come" fashion, the WAN was quickly overwhelmed with traffic. "Once we got the WAN, everybody in the company wanted more and more applications," Brennan says. Whereas the WAN was initially targeted to support the web site and disaster recovery traffic, it has become a major underpinning of USCS's entire business.

The WAN now supports a wide range of applications such as the Lawson Financial software, Lotus Notes-based e-mail, and the company's web-based Transportation Management System, all of which are centralized. In addition, USCS uses Electronic Document Interchange (EDI) for many of its customer interchanges, such as transmitting orders and confirming shipments. Likewise, all customer data is funneled from remote warehouses and other locations to a database in USCS's Cherry Hill, N.J. headquarters, which then interfaces with the AT&T-hosted web site on which E-USCOLD and other applications run.

And, as part of its business continuity and disaster recovery plan, USCS backs up all company data to its headquarters as well as to its Nashville, Tenn. site. Data is replicated continuously using Mimix software from Lakeview Technology, Inc. running on the IBM servers, adding to the mix of WAN traffic. "We had modest bandwidth to begin with and started getting a lot of complaints about the centralized e-mail response," Brennan says.



WX 50 platforms are installed at high-traffic sites; WX 20 platforms are deployed at 21 other locations throughout the U.S.

He had selected Lotus Notes running on an IBM iSeries in order to minimize viruses. But “Lotus Notes is a bandwidth-intensive application,” he acknowledges. “I really got hammered and couldn’t roll out e-mail to all of our users.”

Trying to bring up the Transportation Management System (TMS) also put additional strain on the WAN. TMS was key to expanding into a new line of business, allowing USCS to offer logistics and transportation services. “We wanted TMS to be a state-of-the-art, centrally served web-based application – we knew we had to do something about the WAN response,” Brennan says.

The Search for Solutions

Innovative Information Solutions, a reseller based in Bridgeport, Conn., suggested Brennan look into the application acceleration platform family from Juniper Networks. Upon testing the platforms, Brennan found the solutions had “a demonstrated immediate effect” on application performance. “Even my CEO came down and said ‘I see a big difference,’” Brennan notes.

Brennan and his team have installed 30 WX platforms across USCS’s WAN, using WX 20 devices in smaller sites and WX 50 platforms at high-traffic locations such as corporate headquarters, the Nashville disaster recovery site, and the AT&T NOC. The WX devices have reduced WAN traffic across the entire company by an average of 53 percent. In some locations, because of the traffic mix, Brennan regularly sees 80 to 90 percent load reductions on particular WAN links.

“It’s given us the bandwidth we needed,” Brennan says. “It’s more than enough.”

Benefits of Accelerating Applications

USCS is currently exploiting three key features of the Juniper Networks WX Framework™: Molecular Sequence Reduction™ (MSR™) data compression, Packet Flow Acceleration™ (PFA™) latency reduction, and bandwidth management. Brennan and his team are also using the WX Central Management System™ (CMS™) software, which provides system-wide control and monitoring and enables automated deployment of the WX devices.

The patented MSR next-generation compression technology instantly increases WAN capacity by reducing traffic on WAN links. MSR compression accomplishes this by identifying variable-sized, repeating patterns in the data stream across multiple packets, applications, or sessions, and replacing those patterns with a label. The labels and their associated patterns are stored in memory in the WX devices at both ends of the WAN link; the destination device restores the data and forwards it to the end station.

The PFA technologies improve application performance in various ways. For example, the PFA Flow Pipelining technique allows for larger TCP receiver window sizes, buffering data on the receiver side as needed. USCS has used this feature to increase the default window size on the IBM iSeries servers, allowing data to be sent out in larger blocks. The Flow Pipelining feature has helped accelerate Mimix traffic, in particular.

Juniper Networks’ easy-to-use, template-based bandwidth-management tools – including quality of service (QoS) and bandwidth allocation – allow Brennan’s staff to prioritize applications across WAN links and allocate bandwidth among different applications. USCS is using these tools to ensure that its mission-critical applications, such as the Transportation Management System, get priority handling and have a guaranteed percentage of the WAN bandwidth.

“The snapshot view of the traffic is an immense help. WX CMS is worth the price; I can’t imagine trying to manage the network without it.”

Timothy Brennan

Director of Information Technology
United States Cold Storage

Quick Facts

Company Description

United States Cold Storage is a leading provider of refrigerated storage and distribution services to the food industry.

Headquarters:

Cherry Hill, N.J.; USCS is a privately-held, wholly owned subsidiary of The Swire Group, headquartered in London and Hong Kong.

U.S. Sites:

USCS has 31 U.S. locations

Employees:

USCS has 1,100 employees

Operational Highlights:

USCS provides a range of food handling services, including tracking, freezing or tempering products, managing consolidated transportation of products, and import/export logistics handling, for more than 350 major food suppliers such as Kraft Foods, Swift & Company, and Tyson Foods.

Increased Management Visibility

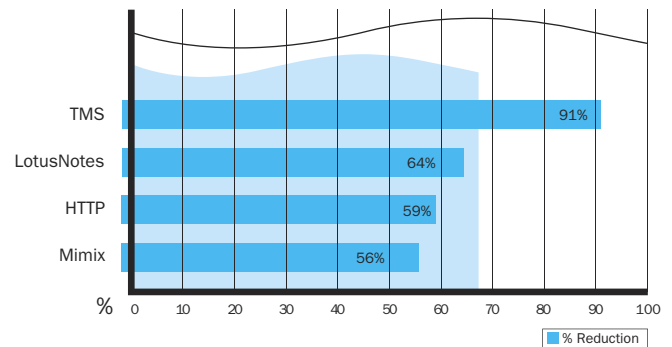
The WX CMS software has improved USCS’s ability to monitor its network by providing a single, unified view into their distributed applications and networks. Utilizing the software, Brennan and his staff can configure and manage multiple WX platforms from one central location and view key metrics, identify top talkers, gather WAN and application statistics, and perform troubleshooting and problem-resolution activities. The intuitive GUI provides instant visibility into WAN performance, including both real-time and historical views. In addition to the money he’s saving, Brennan says labor savings and productivity enhancements are among the key benefits he’s realized from the Juniper Networks devices.

The WX CMS software’s automated deployment feature, for instance, is a real time saver, allowing new WX devices to be installed without requiring any initial setup or configuration. Once the devices are plugged in, auto-deploy automatically searches out the WX CMS server and finds and downloads the appropriate configuration file, enabling the WX platforms to boot up and begin operating without human intervention. As a result, Brennan’s team can focus on more important issues.

Room to Grow

USCS’s business continues to grow, supported by its technology infrastructure. The company is opening new warehouses and plans to roll out several more applications, including document imaging, all of which will increase traffic on the WAN. Brennan is looking to the Juniper Networks WX devices to help manage that growth so that existing applications continue to operate smoothly alongside new ones.

“This is a great product and Juniper Networks has been extremely good to work with,” Brennan says. “A real pleasure.”



USCS has reduced overall WAN traffic an average of 53 percent, and up to 90 percent on some links.



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