Veroxity VPLS-Based Network Delivers High Availability

EXECUTIVE SUMMARY

VEROXITY TECHNOLOGY PARTNERS

- Industry: Data Communications Service Provider
- Location: Bedford, MA
- Number of Employees: 50

CHALLENGE

- Expand L2VPN service footprint while minimizing operational costs
- Continue to deliver high availability while evolving to new network
- Increase service velocity to maintain competitive advantage

SOLUTION

- Updated core and edge Multiprotocol Label Switching (MPLS) network to support new Virtual Private LAN Services (VPLS) using Cisco 7600 and ME 3400.
- Leverage Resilient Ethernet Protocol (REP) to maintain sub-50 ms failover times
- Ethernet-over-time-division multiplexing (TDM) appliances to reach off-net buildings

RESULTS

- Reduction in cost associated with delivering Ethernet-based services
- Easily scaled services from 10M to 1G (or more)
- Minimal training for network operations staff making

Challenge

Veroxity delivers simplified data and Internet connectivity solutions through a streamlined process: one point of contact for all diverse, scalable data networking services. The company owns and operates a fiber-optic backbone to serve major metropolitan markets across the United States and internationally. Veroxity's services include: Ethernet Private Line, Flexible Any-to-Any Ethernet, Dedicated Private Line, Wavelength, Managed SONET Ring, and Internet Connectivity.

Veroxity's clients include many financial, healthcare, and technology companies. The company differentiates itself with its customized approach to developing and delivering data connectivity solutions, its rapid response to customer requests with direct access to the engineers who develop and install service, its unique fiber footprint, dynamic bandwidth reprovisioning, and a willingness to build that is unique to the telecommunications industry.

Recently the company has witnessed a demand for higher bandwidth services due to wider deployments of collaboration, video conferencing, and cloud-based applications. There are also more requests for Ethernet handoffs to eliminate the complexity of WAN interfaces, freeing up IT resources and bringing increased productivity to the enterprise.

Historically there has been a large demand for traditional time-division multiplexing (TDM)-based services, in part because of the ease of obtaining building access. Although Veroxity's existing network was well suited for service delivery of TDM circuits, TDM-based interfaces have historically been more expensive. With a greater emphasis on simplicity, service transparency, and network control customers are turning towards Ethernet connections. For this reason, Veroxity required a solution that could increase customer bandwidth rates, connect geographically dispersed customer sites quickly, and all without increasing operational expenses. The result is a new Carrier Ethernet-based service offering called "Flexible Any-to-Any Ethernet."

Network Solution

Veroxity has built a reputation for extremely high levels of reliability; in each metro market, Veroxity deploys network equipment in two separate "MegaPOP" facilities with redundant hardware components and dual points of building entry. Metro markets are connected via multiple wavelengths and dark fiber utilizing geo-diverse routes. Different conduits are used (telecom and power) along with dual points-of-entry into customer buildings. This arrangement helps ensure the highest level of service availability. Any single failure, whether an equipment problem, power loss to a building, or a fiber cut, does not affect customer traffic.

Connections to off-net buildings had previously been delivered using SONET-based solutions, even for Ethernet services, because that technology had not matured to the same level of resilience. However, with the development of Resilient Ethernet Protocol it is now possible to have a Layer 2 service with SONET-like diversity and protection. That

an all-Ethernet network could emulate a SONET network in terms of service delivery yet with lower cost and complexity makes it a powerful solution.

After careful analysis, Veroxity has upgraded three areas of its network in order to deploy its new “Flexible Any-to-Any Ethernet” offering:

- **Core:** The existing carrier-class Multiprotocol Label Switching (MPLS) core was upgraded to support Virtual Private LAN Services (VPLS) using Cisco 7600 Series Routers in primary network locations.
- **Metro Aggregation:** ME3400E Carrier Ethernet switches were deployed for metro aggregation in smaller points of presence (POPs). This deployment facilitates the transition from Ethernet over SONET to a pure Ethernet network.
- **Customer Premise / Last Mile:** Ethernet-over-TDM multiplexers are used to connect customers to Veroxity’s Points-of-Presence. For the customer premise, the company no longer uses an expensive SONET multiplexer. A low-cost single rack-unit, wall-mounted, AC-powered Ethernet-over-TDM system provides the Ethernet hand-off. If the building is off-net, DS3 modules are used to connect to a second Ethernet-over-TDM mux that connects to the Metro Aggregation network.

> “The converged network gives our customers the simplified, agile solution they demand: Ethernet for flexibility and lower cost, off-net connectivity for reach, and Resilient Ethernet Protocol for uptime.”
> **—Chris Williams, Director of Technology, Veroxity Technology Partners**

Results

Veroxity has deployed its “Flexible Any-to-Any” Metro Ethernet solution in several cities in the Northeast, with deployments on the West Coast to begin soon. Veroxity easily accomplished the installation, with some technical assistance from Cisco Advanced Services.

The deployment has been a major success. The first new connections were turned up on the first try, under budget, and ahead of schedule. The low-latency, low-jitter L2VPN connections have proven to be a hit with customers using video conferencing and other delay-sensitive applications.

As an added bonus, Veroxity is also using less power and reducing its carbon footprint.

As a result of the upgraded network, Veroxity can now offer the high-bandwidth Ethernet connections that its customers have requested. Chris Williams, director of technology, says, “The return on our investment has been immediate; our customers are very pleased with our ability to easily add new locations.” Like most service providers, Veroxity maintained a list of building locations that were connected via its own network and therefore the most accessible. With the new network, Williams is proud to say that they can now “shred the building list” and smoothly connect almost any location. “The Cisco solution has given us a platform for our network that gives our customers the services that they want, where they want them, and all while keeping our operating costs very competitive.“

For More Information

To find out more about the Cisco 7600 Series Routers, go to: http://www.cisco.com/en/US/products/hw/routers/ps368/index.html.

To find out more about the Cisco ME 3400E Series Ethernet Access Switches, go to: http://www.cisco.com/en/US/products/ps9637/index.html.

PRODUCT LIST

Routing and Switching

- Cisco 7600 Series Routers
- Cisco ME 3400E Carrier Ethernet Switches

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Printed in USA C36-571402-00 12/09