

WiscNet Achieves High Performance and Supports Concurrent Services

EXECUTIVE SUMMARY

CUSTOMER NAME

WISNET

EDUCATION

Madison, Wisconsin, United States

BUSINESS CHALLENGE

- Increase routing capacity at each member's location
- Achieve low total cost of ownership
- Permit maximum flexibility to add new services in the future

NETWORK SOLUTION

Cisco 3825 Integrated Services Router

BUSINESS RESULTS

- Reduced support and installation resources required for deployment
- Increased routing performance at member sites, supporting link capacity increases from T1 to Gigabit Ethernet
- Deployed systems configured to provide high performance today and support security, voice, video, and wireless deployments in the future

The Cisco 3825 Integrated Services Router enables WiscNet's member institutions to gain high performance and future flexibility as they serve over 1 million users.



BUSINESS CHALLENGE

WiscNet is Wisconsin's statewide education and research network. It is a nonprofit association that provides access to computing resources and worldwide information for 475 Wisconsin member organizations, including almost all Wisconsin colleges and universities, more than 75 percent of the state's K-12 school districts, most library systems, the State of Wisconsin, many local and municipal governments, and several nonprofit affiliated organizations. Through its member organizations, WiscNet serves approximately 1 million students and 60,000 education faculty, teachers, scientists, public servants, and administrators.

WiscNet is challenged to provide high-performance Internet access in an environment where network traffic patterns differ significantly from typical enterprise traffic patterns, in which service subscriber traffic is statistically multiplexed to help ensure acceptable performance. Schools rely on computer labs and computer-based coursework, which means that classrooms of students work on an online assignment simultaneously. The full amount of dedicated network bandwidth must be available for the duration of the class for optimal application performance.

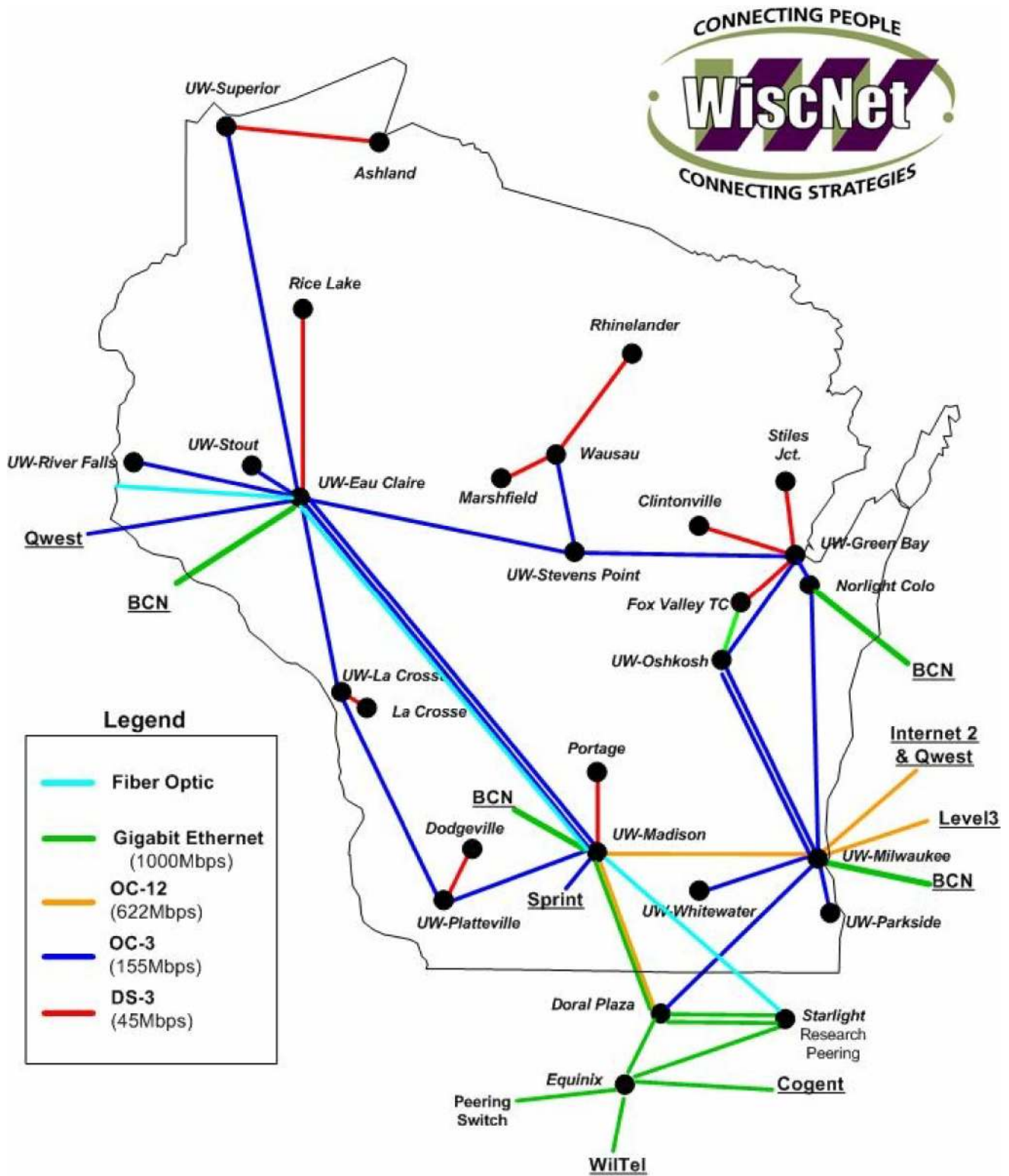
To help ensure continued high performance and anticipate future needs of its members, WiscNet undertook a statewide effort to upgrade the network connections for its members. In addition to increasing link capacity, part of the upgrade required replacing existing routers at members' locations across the state to increase throughput capacity and processing power. Cost of ownership was also a concern because WiscNet must operate as cost-effectively as possible and provide services to all of its members with a small staff.

“We deploy routers for a longer time than many businesses normally would,” says Dave Lois, executive director of WiscNet. “Because we expect to use them for a long time, we need to ensure 10 MB of throughput performance from them. We chose the Cisco 3825 integrated services routers for high performance and the ability to cost-effectively deliver multiple concurrent services.”

NETWORK SOLUTION

WiscNet services are delivered to approximately 475 sites across Wisconsin—from tiny school districts serving fewer than 200 students to the University of Wisconsin at Madison, which is a major research institution. The majority of the WiscNet backbone consists of OC-3 (155 Mbps) connections, with OC-12 (622 Mbps) links connecting the University of Wisconsin Madison and Milwaukee sites, as well as providing high-speed links to transit providers, Internet, and Internet 2 services. Gigabit Ethernet connects the main campus at Madison with international networks and the StarLight peering point in Chicago, which aggregates traffic from other institutions conducting advanced research and grid-intensive e-Science applications, such as high-energy physics research.

Figure 1. WiscNet Backbone Winter 2005—Last Updated: 12/15/05



Major network nodes, such as those at Madison, Milwaukee, La Crosse, Platteville, Green Bay, and Eau Claire, provide aggregation hubs for traffic at that location as well as a hub for the local member institutions. Here, traffic is aggregated to Cisco 7200 or 7600 series routers, which offer the industry's widest range of connectivity options, high scalability, and support for advanced features such as quality of service (QoS), security, multiple services, and others.

As the network is upgraded from T1 connectivity to Ethernet links, WiscNet needed a high-performance access router. It selected Cisco 3825 integrated services routers for its standard access router.

"We have always used Cisco routers at our sites," says Lois. "As the network grows, our access routers must also scale, so that we can support the applications that our members want to use. The Cisco 3825 integrated services routers deliver the high performance that our members need, with support for concurrent services that they may choose to add, such as security, voice, video, and wireless." WiscNet maintains an application-neutral policy, allowing each member institution to determine the types of advanced network services that it wants to deploy locally. However, the WiscNet network must deliver the high performance and support for capabilities such as QoS and firewall services that voice, wireless, video, and security applications will require.

An initial deployment of 50 Cisco 3825 integrated services routers is under way, with deployment support from Cisco Partner Berbee Information Networks Corporation. Berbee was selected as the Cisco 2004 Global IP Communications Partner of the Year. The firm provides data center solutions, networking infrastructure, and high-value application services to public-sector organizations nationwide. For WiscNet, Berbee provides warehousing and just-in-time delivery of Cisco 3825 integrated services routers to the WiscNet offices. WiscNet then configures and ships the routers to member sites with instructions of how to plug them in, and then downloads specific configuration and administrative parameters over the network to complete the installation.

"The single most important benefit of the Cisco 3825 integrated services routers is that they deliver exactly what we expect them to deliver. Because they work the first time, we have reduced the overall resources required to provision our members. This is extremely important to us."

—Dave Lois, executive director, WiscNet

BUSINESS VALUE

"The single most important benefit of the Cisco 3825 integrated services routers is that they deliver exactly what we expect them to deliver," says Lois. "Because they work the first time, we have reduced the overall resources required to provision our members. This is extremely important to us." According to Lois, the Cisco routers delivered the scalability that WiscNet expects in pre-deployment laboratory testing and in the field, where they have scaled without failure.

He also explains that the integrated services routers have reduced WiscNet's total cost of ownership. In addition to requiring minimal installations resources, the routers have delivered high performance at an economical price.

"Even though we do not purchase routers expecting them to be able to meet our needs for more than five years, surprisingly, they do," says Lois. "With the Cisco 3825 integrated services routers, we achieve high performance at a reasonable price over a long period of time. Having to put staff in the field to swap out routers or components is costly. When we do not have to do that, it is a big savings."

PRODUCT LIST

- Cisco 3825 integrated services routers
- Cisco 7200 Series routers
- Cisco 7600 Series routers

NEXT STEPS

WiscNet is deploying 50 Cisco integrated services routers now, approximately 10 percent of the total number that will be installed over the next several years. Lois expects almost all remote sites to eventually include a Cisco 3825 Integrated Services Router, enabling its members to deploy the advanced services that they need for pursuing their educational and research missions.

FOR MORE INFORMATION

To learn more about Cisco routing solutions, visit: <http://www.cisco.com/go/routing>

To learn more about WiscNet, visit: <http://www.wiscnet.net>

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Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

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