IT & TV CONVERGE ON CAT 6 AT NEW ALL-DIGITAL HOSPITAL

Dwight Erdmann calls it "patch and add," because all he has to do is connect a TV to the Cat 6 network and it's ready to go. "It's really convenient to have everything running on a single network," he said. Delivering television on Category 6 cable is one of many leading edge technologies used by patients, visitors and staff at the new St. Clare's Hospital in Weston, WI, where Erdmann is the Communications Planning Analyst.

The 107-bed facility is one of the first hospitals in the nation to go all digital, including a chartless patient information system, campus wide wireless telecommunications and data systems. Patients can easily turn on the 23-in. flat screen monitor near their bed to learn about their conditions and the medications they are taking.

Patients can also order movies on demand, view 20 entertainment and news channels, send and receive emails, and watch instructions for post-hospitalization care. The hospital opened in October 2005 and is part of Ministry Health Care in Wisconsin and Minnesota.

A major goal in designing the hospital was to operate all TV programming, information technologies and telecommunications systems over a single, converged network, according to Jeff Lee, Senior Telecommunications Designer at the nationally recognized, Minneapolis architectural and engineering firm of Hammel, Green and Abrahamson, Inc. (HGA).

"One of the new capabilities that St. Clare's wanted was a state-of-the-art television distribution system, either an RF signal over unshielded twisted pair (UTP) cable, or possibly Internet Protocol TV," Lee said.

HGA specified Cat 6 cable to carry television signals from the IDF closets to patient rooms.

HGA also recommended a Lynx Video Network from Lynx® Broadband, as the centerpiece of St. Clare's television distribution system. "We recommended Lynx because you can run it over traditional cabling that's used for data," Lee said.


Dwight Erdmann with Lynx Hub

Erdmann was even more enthusiastic, saying, "The flexibility with Cat 6 is just phenomenal. Any place we have a data jack, we can have a TV set there, too."

The main source of programming is a satellite service provided by Aufderworld Corporation in Bloomington, MN. The high frequency satellite signals travel over coax cable from the dish on the roof to the headend on the top floor, where Blonder Tongue equipment remodulates it to lower frequency RF channels. These channels travel over RG-11 cable to 20 IDF closets where Lynx equipment is located.

St. Clare's Hospital
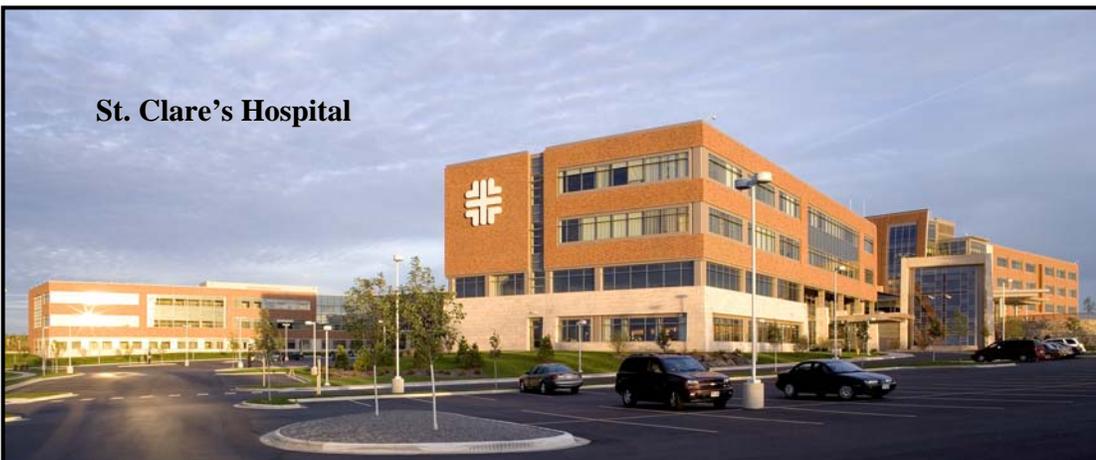
St. Clare's has 15 eight-port and 9 sixteen-port Lynx hubs, which have the capacity to deliver television signals to 264 monitors. One port on each hub delivers a signal to one TV via one Cat 6 cable.

At the point of use, a small Lynx converter changes the television signals back to coaxial form for delivery to the TV set. St. Clare's has 184 single port converters and the capacity to add 80 more when needed.

Jeff Lee

Lynx equipment incorporates broadband baluns and several common mode chokes. The baluns convert unbalanced coaxial signals into balanced signals that travel on pair four of the UTP cables.

"We get good, sharp pictures on the 23-in. flat screen TVs in all the patient rooms and on 27-in. TVs in patient waiting rooms," said Erdmann, who worked 23 years for an A/V company before joining St. Clare's last year. "The signal is as good or better than we could get with coax. We also have TVs in the ER Department, Birth Center, Diagnostic and Treatment Center and lobbies.

"Anywhere there is a data jack, we can plug in a TV set and have a picture on the screen in minutes," he continued. "Besides the convenience and time savings, there is no extra cost for wiring another jack or installing another type of cable network in the building."
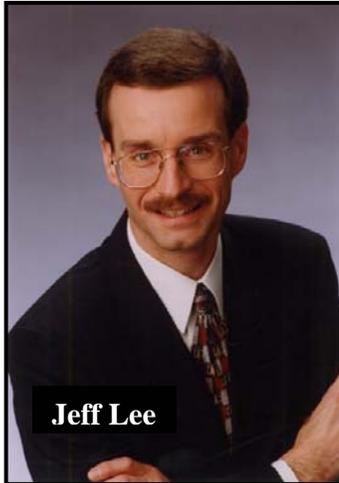
After additional research Lee and others at HGA presented Lynx to St. Clare's, Ministry Health Care, and Get Well Network (GWN), a leading provider of interactive patient care services.

Headquartered in Washington, D.C., GWN streamlines and automates a hospital's day-to-day patient care processes, which enables patients to learn about their medical conditions and treatments, collaborate with caregivers, and access the Internet – all from the comfort of their hospital beds.

Channel capacity was especially important to GWN, since their service would add 10 channels, including six movie channels, to the 20 channels coming in from the satellite.

Patient watching TV.

Lynx can deliver a quality signal up to 300 ft. on a Cat 6 cable. Since the IDF closets are an average of 150 feet from patient rooms, distances for TV signals to travel were well within limits.

"Lynx certainly met all of my expectations," Lee said. "However, you've got to think a little differently when designing a Lynx network, because it requires a stronger signal than a traditional trunk-and-tap coax system."

"There is a little more initial cost to buying and installing a Lynx system, but it isn't significant," Lee said. The Lynx Video Network at St. Clare's cost about $45,000, compared to $40,000 for a conventional coax system.

"However, when compared to the overall telecom cabling infrastructure for the entire hospital, which was around a half million dollars, the additional $5,000 is quite small," he explained. The total cost included the satellite dish and equipment, all Cat 6 cable and jacks, equipment racks in each of the 20 IDF closets, racks and cable trays in the data center, Lynx equipment, installation and testing.

"It never really came down to cost on this project," Lee continued. "Rather, it came down to performance and functionality. There is a little more cost with Lynx, but most building owners will recoup those extra costs in a hurry by avoiding the installation of any coax in the future."

For more information visit www.lynxbroadband.com or e-mail info@lynxbroadband.com
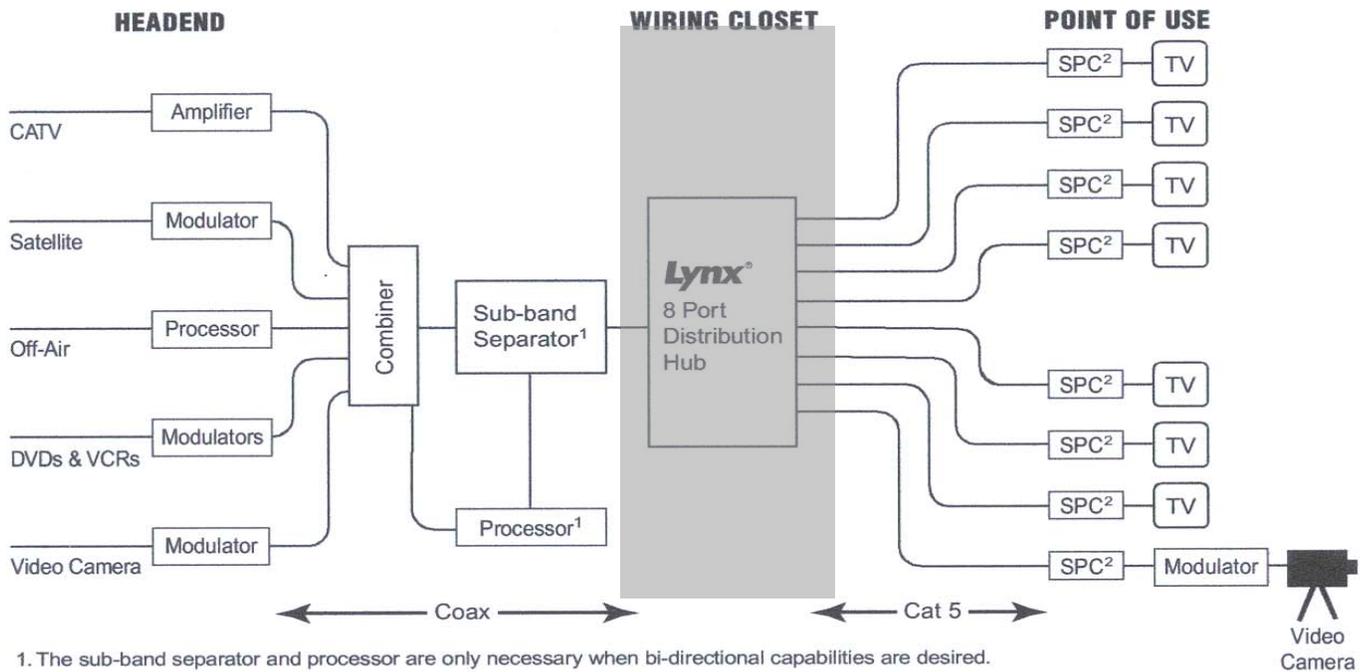
Product Photos

Lynx 8-port distribution hub converts a coaxial input signal to eight Cat 5 or Cat 6 output signals.

A single-port converter or wallplate F changes the Cat 5 or Cat 6 signal back to a coaxial signal.

System Design

1. The sub-band separator and processor are only necessary when bi-directional capabilities are desired.
2. SPC is an abbreviation for a Lynx Single Port Converter.

R&D 100 Awards

The Lynx Video Network received the 1996 R&D 100 Award for its ability to deliver television signals on a dedicated twisted pair cable. The Lynx Video and Data Network received the 2003 R&D 100 Award for its ability to simultaneously deliver television and data (Ethernet) on a single twisted pair cable. The R&D 100 Award is presented by *R&D Magazine* to recognize the 100 most technologically significant new products introduced each year.