



CASE STUDY

Collier County Clerk of the Circuit Court Provides Crucial Links to Government Network Using Highly Reliable LightPointe Optical Wireless

Florida Agency Withstands Hurricane Charley with No Service Disruption to County

Collier County, located on the “Paradise Coast” of Southwest Florida, is among tourists’ top beach destinations in the nation. The county, which includes Marco Island, the Everglades and the city of Naples, is also home to the Clerk of the Circuit Court, a government agency that oversees the county’s court proceedings and provides access to public records and vital taxpayer information. To the Clerk’s Management Information Systems (MIS) department, maintaining network and computer system uptime is of paramount importance.

According to Jeffrey C. Handshaw, network administrator for the Collier County Clerk of the Circuit Court, information availability and accessibility are top priorities. “Network downtime is not tolerated as we must ensure that residents of the county, members of the court and other government officials can always obtain all the crucial data they need, whenever they need it,” he says. To that end, the MIS team has built a robust network and computer systems infrastructure to support the county’s evolving information processing demands.

When increased headcount forced the finance department to move to a remote building approximately 1,000 feet from the main facility, the MIS team was faced with finding a reliable yet affordable way to extend the corporate Local Area Network (LAN) to link the two buildings. At first, a T1 line provided connectivity at 1.54 Mbps but slow network performance due to insufficient bandwidth, along with recurring monthly fees and reliability problems caused by the switch box’s location on an accident-prone street corner prompted the team to seek other connectivity methods. “Whenever someone took the corner too fast, they would wipe out the local service provider’s box and we would lose the T1 link for a week or more,” says Handshaw. “Unfortunately, this occurred several times a year, which became completely unacceptable to us.”

“Optical wireless is a true Ethernet solution, unlike a WiFi bridge which adds another network segment and an additional layer of complexity,” says Handshaw. “With FSO, it’s straight Ethernet with less if no overhead at all.”

Jeffrey C. Handshaw | Network Administrator
Management Information Systems Division
Collier County Clerk of the Circuit Court



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THE CHALLENGE:

In exploring networking alternatives, the Clerk's MIS team ruled out fiber-optic cable as cost prohibitive because a fiber link was priced at around \$50,000. They next looked at different wireless solutions before choosing a WiFi bridge (802.11b) that was designed to deliver up to 11 Mbps of bandwidth to the remote building, which housed approximately 60 employees. While the price point of the WiFi bridge was more affordable than the T1, the Clerk's Court was disappointed with its overall performance.

With the WiFi bridge, the team was unable to obtain more than 3-to-4 Mbps of true bandwidth, and initially there also were reliability problems as the WiFi bridge failed on occasion. In the long run, however, the biggest concerns became performance and security. "The WiFi bridge was just too slow to meet the data-intensive needs of the finance department," explains Handshaw. "We also became increasingly worried about security issues since we couldn't afford to have anyone intercept our highly sensitive information."

Before giving up on RF altogether, the Clerk's Court evaluated a 54-Mbps Aeronet wireless radio (802.11g) from Cisco Systems. Again, the concern for performance arose, since the half-duplex solution would most likely deliver only between 20-30 Mbps at best. In addition, the MIS team wanted to avoid installing proprietary systems on its network and they couldn't wait for a standard to be established for an end-to-end solution with 54-Mbps RF products.

"We never experienced any network downtime during the worst winds and rain we could remember," notes Handshaw. "When everyone returned, it was business as usual without any service disruption to the County."

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At this point, Handshaw pulled out some research he had compiled several years earlier on optical wireless products based on free space optics (FSO) technology. On the performance side, FSO-based products were far superior to the WiFi bridge, considering that the Clerk's Court could purchase a 100 Mbps Fast Ethernet FSO solution for about the same price as the 11 Mbps WiFi bridge. He also found very appealing the fact that optical wireless products are a physical transport device. "Optical wireless is

a true Ethernet solution, unlike a WiFi bridge which adds another network segment and an additional layer of complexity," says Handshaw. "With FSO, it's straight Ethernet with less if no overhead at all."

Handshaw's only hesitation with optical wireless was reliability. He had heard that FSO could be susceptible to weather conditions like rain and fog or even flying birds. He recalls, "Since we're in a region that experiences heavy rains throughout the year, we were somewhat dubious that the optical wireless solution would hold up and provide the level of network uptime we demanded." However, the significant gains in bandwidth led them to put optical wireless to the test and see how well it performed, after receiving the assurance from LightPointe that there would be no such problems.



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In searching for viable optical wireless products, the Clerk's Court spoke to several references for LightPointe during the first half of 2004 before deciding that the company's field-proven solutions had a strong track record in different climates and regions around the world. After careful consideration, they selected LightPointe's FlightLite 155E, a 100 Mbps system, to meet the Clerk's Court building-to-building connectivity requirements.

THE SOLUTION:

According to Handshaw, system installation of the FlightLite 155E was straightforward and trouble-free. He personally installed the window-mounted devices in both buildings easily in less than an hour (not including travel time between the two sites). Almost immediately, the performance gains were noticeable. During a comparative test, Handshaw transferred a 1GB file between the two buildings using both the WiFi and FSO links. The WiFi link took nearly an hour to transmit the file, compared to the laser link, which transferred the file in less than three minutes. The LightPointe system also was much faster than the WiFi bridge, delivering 100Mbps in comparison to the paltry 3-to-4 Mbps the Clerk's Court achieved most of the time with its RF device.

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With the system up and running, the Clerk's Court has experienced no performance or reliability problems. Still, Handshaw had a lingering doubt about how well the FlightLite would fare during heavy rains, which typically accompany hurricane season in early fall. In August 2004, the FlightLite faced its ultimate

test when Hurricane Charley, a Category 4 hurricane, bore down on Florida's Gulf Coast, cutting a swath of destruction through the Southwest region of the state and causing billions of dollars in damage.

As Hurricane Charley approached Naples, the southernmost city on Florida's West Coast, the MIS team prepared for the worst. They conducted backups and prepared to evacuate. Handshaw checked operation on the FlightLite, which remained stable despite gusting winds and the start of heavy rains. Over the weekend with the storm surging outside, Handshaw monitored FlightLite's performance from home. Despite 145-mph winds and torrential downpours, he only saw minor fluctuations in signal strength—but no downtime.



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THE BENEFITS:

When the storm passed, Handshaw realized that LightPointe's FlightLite had passed the ultimate test with flying colors. Upon returning to work on Monday, he saw a lot of debris littering the area and was impressed that the link had stayed live despite the wind, rain and flying debris. "We never experienced any network downtime during the worst winds and rain we could remember," notes Handshaw. "When everyone returned, it was business as usual without any service disruption to the County."

The resiliency of the FlightLite system in the face of a hurricane removed any concerns about overall system reliability. In addition, FlightLite delivers 65 times the bandwidth of the previous T1 link and approximately 30 times the bandwidth of its WiFi predecessor. Concludes Handshaw, "FlightLite gives us all the bandwidth we need at the best price-per-port on the market, backed by extremely reliable and secure performance. We're confident this system will keep our network up and running."

CUSTOMER:

Collier County Clerk of the Circuit Court, a government agency based in Naples, Fla. that oversees circuit court proceedings and ensures access to public records and vital county information. (www.clerk.collier.fl.us)

INDUSTRY:

Government Agency

CHALLENGES:

- Continual growth required connecting remote building to main facility;
- Fiber was cost prohibitive;
- Existing T1 was slow and unreliable; and
- Existing WiFi bridge delivered unsatisfactory throughput and reliability.

SOLUTION:

- The light-weight LightPointe FlightLite 155E

BENEFITS:

- Withstood Category 4 Hurricane without any network downtime or service disruption to taxpayers.
- Browser-based FlightManager eased remote monitoring.
- 65 times greater throughput than T1; 30 times greater throughput than WiFi bridge.
- Immune from radio interference, which was an important consideration, especially since the proliferation of WiFi in the surrounding area made it increasingly difficult to find an open WiFi channel.
- Simple installation.