



ZHONE®

Historic Hotel Delivers 21st Century Networking

Profile In Brief

Customer

Nassau Inn, Princeton, N.J.

Problem

Provide broadband guest Internet access throughout historic building without disruption and unsightly cabling

Solution

DSL solution from Zhone Technologies, installed and supported by integrator ITG, that leveraged very old un-twisted copper phone wiring as cabling solution and paved a way for wireless LAN access

Payback

Less than one year

Nassau Inn leverages ancient phone wiring to provide broadband Internet services and preserve historic integrity.

Older, quaint establishments in the hospitality industry often face the delicate challenge of delivering 21st century services while retaining their unique charm. When guests of the 250-year-old Nassau Inn in Princeton, NJ, for example, began requesting Internet access services, the hotelier knew it needed a solution that wouldn't mar the building's impeccable colonial design and atmosphere in order to maintain its historic integrity, architecture, and ambiance. As such, there were some restrictions on the types of remodeling and cabling changes that could be made to the Princeton property.

A "rip and replace" strategy for updating the inn's communications infrastructure, then, didn't suit the establishment, which boasts cozy wooden fireplaces and original Norman Rockwell paintings in its Yankee Doodle Tap Room dining area. Among the inn's top goals were to preserve the property's aesthetics and to minimize any impact that installing a new system would have on guests and the availability of guest rooms, says Lori Rabon, Nassau Inn's general manager. And, of course, a cost-effective solution was in order.

A non-invasive approach that made use of standard Digital Subscriber Line (DSL) technology and the inn's existing phone wiring—much of which constituted very old, cloth-wrapped non-twisted copper—turned out to be the answer.



Exploring the Alternatives

The Nassau Inn called in specialists from ITG Networks, a Wexford, PA-based integrator focused largely on designing, installing, and supporting visitor-based networks. The integrator examined pulling new Category 5 cabling to deliver Ethernet services to each guest room.

“But some of the conduits would have been visible, and that wasn’t acceptable,” says Rabon.

Initially, using all wireless equipment also seemed to be a good option. However, to serve the guest rooms, individual 802.11 access points mounted on ceilings in the hotel corridors would have had to be cabled with Category 5 wiring to the hotel’s Ethernet switch in the basement. This situation would cause similar conduit concerns and potential disruptions to guests.

An all-wireless solution also presumes all corporate guests had laptops configured for wireless Internet access, which was not as common at the time - mid 2004 - as it is today. Plus power for the access points would entail still more cabling, or the additional cost of power-over-Ethernet equipment to deliver electricity over the same Category 5 wire as network traffic.

In addition, government agencies and employees at the time were hesitant to jump on wireless networks that, in the months that followed the 9/11 terrorist attacks, they weren’t yet convinced were secure, says Rabon. And government personnel represented a significant percentage of Nassau Inn’s clientele.

Some 802.11-based Wi-Fi wireless access points were installed in common areas such as the business center and meeting rooms. For in-room access, however, ITG came up with a strategy to provide DSL-based broadband access by piggybacking on existing phone lines. The alternative avoided having to install Category 5 cabling throughout the hotel, allayed the wireless security fears of in-room guests, saved the inn about 50% on installation costs, and provided a simple migration path to wireless networking for those guests who now prefer it.



Historic Nassau Inn

“We were relieved that the installation process was quick and barely noticeable to our guests, with no construction noise or debris. And the guest rooms had no days when they were out of commission not generating revenue.”

Lori Rabon
General Manager
Nassau Inn.

Choosing a DSL Solution

ITG had to test a variety of vendors' DSL equipment over the inn's fragile phone wiring to see if it was possible to reliably deploy broadband services using the existing copper infrastructure. Zhone Technologies' DSL modems and DSL access multiplexers (DSLAMs) were able to perform consistently at multimegabit speeds over the untwisted, cloth-wrapped phone line without interfering with voice signals, says Mike Tibbens, ITG vice president of engineering, who conducted the tests.

“Other systems wouldn't push data over those wires,” he says.

Leveraging the existing infrastructure meant that the project cost about half of what it would have to post-wire the property and shaved about two-thirds off of the installation time, says John Spirnak, ITG vice president of sales. “The total install took us just five business days. Post-wiring would have taken us three weeks,” he says.

Notes Rabon: “We were relieved that the installation process was quick and barely noticeable to our guests, with no construction noise or debris. And the guest rooms had no days when they were out of commission not generating revenue.”

Joe Hesske, ITG vice president of operations, explains that ITG technicians spent just 10 to 15 minutes in each guest room installing and testing the Zhone 6211 Asymmetric DSL (ADSL) modems once Zhone BS4800 DSLAMs had been installed in the property's main distribution frame (MDF) in the property's basement. In guest rooms, the modems were strapped out of sight for both aesthetics and device protection, and a small Ethernet desk hub provides a simple and unassuming interface to the guest.

DSLAMs, Modems, and Associated Equipment

The job of the DSLAM in the basement is to terminate the in-room DSL modem connections and to aggregate traffic from the various guest rooms. From there, the DSLAM passes the aggregated guest traffic to the Nassau Inn's wide-area router, which directs the traffic across a dedicated T1 access connection to the Internet.

It has been about 2.5 years since the installation occurred, and the DSLAMs are intact and have required no maintenance, incurring no maintenance charges, says Spirnak.

Zhone Technologies Hospitality Solution Kits At-A-Glance

DSLAMs

Terminate and aggregate data traffic from guest rooms for forwarding over the Internet. Support T1/E1 or 10/100/1000 Ethernet uplinks to the Internet.



Wired Modems

Single port and multi-port options



Wi-Fi Modems

Multi-port devices that blend the option to plug in Ethernet cable or for user to access the modem through an 802.11b/g wireless network interface card in a laptop or other mobile device. Strong option for building wireless overlay to wired DSL in-building network.



Filter Block, In-line Filters

Condition the phone lines for supporting data traffic.

Mounting Brackets

Secure modems under a desk, to the wall, or in back of the television cabinet

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A standards-based solution had also been on Nassau Inn's list as a criterion for any solution selected. At the time of the installation, some of the DSL vendors' equipment that ITG tested used proprietary derivatives of DSL that were nonetheless higher performing.

"However, we've always avoided selling anything proprietary, because standards-based (ADSL) equipment is easily supported and provides the options to change out the endpoints (modems)," says Spirnak. "Indeed, some of those companies with proprietary solutions are no longer in business today."

There hasn't been a single hiccup with the Zhone equipment, Spirnak notes, but from an interoperability standpoint, "If they wanted to, Nassau Inn could go to any electronics store tomorrow and buy modems that would work with the Zhone DSLAMs. However, the Zhone modems offer carrier-class features and reliability, and I like the way they package a complete hospitality solutions kit."

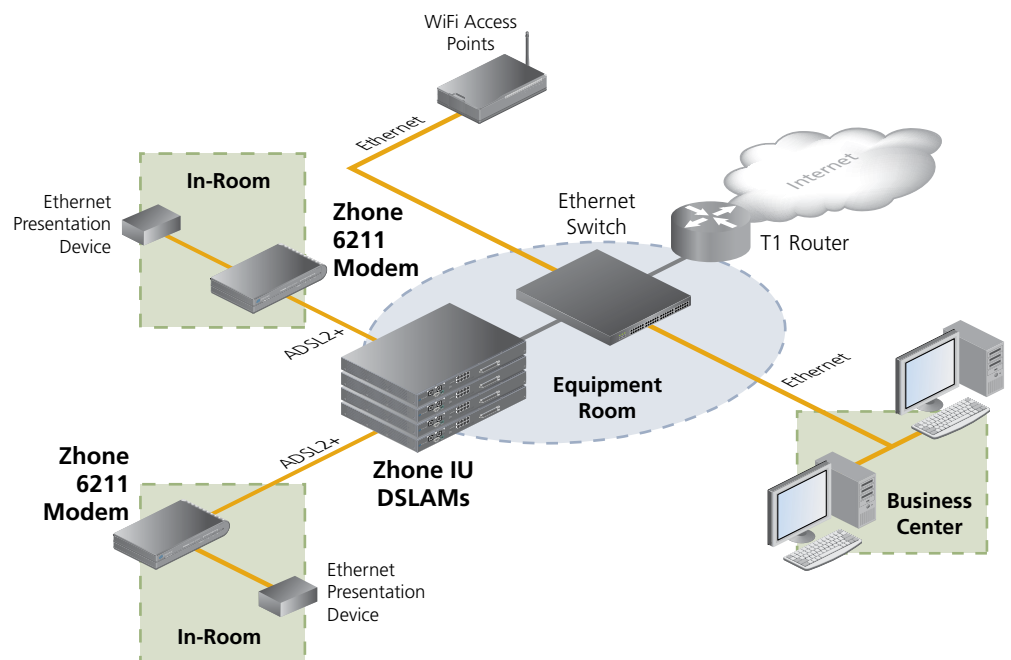


Figure 1: Network topology for high speed internet access

As a result of the success of the system, the guest service fees paid for the system in less than a year.

24-by-7 Service and Support

ITG not only evaluates, recommends, and installs hospitality solutions. The company also provides ongoing help desk and technical support to guests, who can call an ITG toll-free hotline directly from their rooms.

Nassau Inn pays a small monthly fee to ITG to, in effect, function as its technical support staff, rather than having to acquire that expertise in-house. A management gateway that connects to the Zhone DSLAM monitors the DSL links and reports their status to technicians in the ITG network operations center (NOC).

“We can see right away if a certain room is down and troubleshoot and fix it remotely,” says Spirnak.

Payback Less than a Year

Nassau Inn charges a fee of \$10.95 per day for Internet access use. Within the first three months of installation, more than 800 guests signed up for the service, with steady increases in each of the following three quarters. As a result of the success of the system, the guest service fees paid for the system in less than a year.

Foundation for Wireless Overlay

Interestingly, Nassau Inn got the best of both wired and wireless worlds when it installed the Zhone equipment. As Wi-Fi becomes commonplace and guests demand wireless networking, the inn can simply unplug some of the 6211 modems and replace them with Zhone 6218s, which support both Ethernet-over-DSL and Wi-Fi access point connections in a single device. In other words, no special equipment or new cabling must be installed to enable Wi-Fi; the in-room 6218 modem can be used to plug in an Ethernet cable, as is currently done, or to associate with Wi-Fi client cards in guests' laptops or other mobile devices.

For Wi-Fi networking, a wireless modem does not need to be installed in each and every guest room, so not all existing modems would have to be replaced. Rather, the wireless capabilities of a single Zhone 6218 can reach as many as six guest rooms. Nassau Inn currently has a request into ITG to install the 6218 Wi-Fi-capable modems in several of its guest rooms.

Summary

To deliver 21st-century communications capabilities throughout its historic, colonial-style property, Nassau Inn used the phone-wiring infrastructure it already had in place to make the transition to data services and position itself for wireless access options in the future. With the help of integrator ITG, the inn was able to squeeze additional functionality out of ancient, cloth-wrapped phone wiring because Zhone Technologies' DSL equipment was high-performing enough to push data through the old infrastructure. Without the solution, the hotelier would have had to post-wire its property with Category 5 cabling throughout, which would have caused disruptions to guests and, likely, downtime during which guest rooms could not have been occupied and revenue would have been lost.



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