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Technology: In-Room Solutions

The Case for Enhancing Wireless Networks in Hotels: Wi-Fi and Cellular Needed to Meet Demand

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Ms. Kully

Whether on the road for business or pleasure, today's travelers rely on a multitude of mobile devices—from smartphones and tablets to netbooks and laptops—that are both Wi-Fi and cellular enabled. Guests arrive at their hotels expecting all of their wireless devices to work, hassle-free, increasing the pressure on hotel owners and managers to provide enhanced wireless connectivity in guest rooms, conference facilities and public spaces throughout the hotel.

Improved wireless connectivity is particularly important to business travelers, as ready Internet access and reliable cellular reception allow them to work on the road. In many cases, they use multiple devices for downloading and uploading large files, participating in virtual meetings via video chat and accessing their business desktop remotely.

But the business travelers are not alone. Today's leisure guests are increasingly tech savvy, bringing their own digital devices and content on vacation rather than relying on hotel-provided media for entertainment. Instead of purchasing movies from the hotel or watching HBO or Showtime, these visitors spend their downtime streaming movies and TV shows from Netflix, playing interactive games and chatting with friends through various social channels. According to USA Today, in a recent travel poll, 81 percent of visitors reported that they are not using pay-per-view—opting to bring their own content instead. Like the business traveler, the modern leisure guest needs more than just Wi-Fi or cellular coverage; they need an effective mix of both for the optimum experience.

Beyond guest satisfaction, comprehensive wireless voice and data services are invaluable to hotel operations. Management needs to ensure that staff can effectively communicate internally and externally no matter where they are on property, as well as leverage Wi-Fi and cellular connectivity to streamline operations behind the scenes.

A Growing Challenge

While all of the above sounds wonderful on paper, actually meeting those lofty goals is difficult. As the number of users on hotel wireless networks grows, the quality of service degrades. Today's usage numbers are growing exponentially, and experts predict that it will only get worse. Cisco's 2011 Visual Networking Index suggests that by 2015, networks worldwide will be dealing with 15 billion Internet-connected devices, while the average American will employ at least seven connected devices.

The dense construction of hotel facilities, particularly in green buildings with energy-efficient windows, also complicates things by severely degrading outdoor cellular signals. Pair this with the large square footage of most hotel footprints, and you've got cellular signals that are unable to penetrate the core of most hotels, leaving signal coverage weak or non-existent.

Yet another challenge lies in the fact that most cellular technologies were designed for outside use. This is an unfortunate carryover from decades past when cell phones were not a primary indoor communication method. According to a 2011 J.D. Powers study, 56 percent of all cellular usage is initiated indoors, up from 40 percent in 2003, but the technology still hasn't caught up.

With demand for wireless continuing to grow, hotels are pressed more and more to provide adequate wireless coverage and the capacity to accommodate additional bandwidth requests from guests and staff. Failing to meet demand not only disappoints guests but can also give competitors a leg up. So what can hotels implement to fix this complex wireless problem?

The Hunt for Affordable Solutions

The problem is easy enough to understand—too many users, buildings that degrade signals and outdated cellular infrastructure—but finding a solution that is both cost-effective and non-disruptive to guests and hotel operations is not as simple.

Cellular coverage poses a dilemma for hotel management who do not see direct revenue from improving cellular coverage inside their properties. They find costs associated with improving services challenging to justify. Wi-Fi upgrades, on the other hand, have more tangible benefits, with some guests finding a per-room fee acceptable for connectivity or guaranteed bandwidth levels. Industry trends, however, are moving towards free in-room Wi-Fi (albeit, with limited bandwidth) as a way to attract and retain guests.

Historically, distributed antenna systems (DAS), essentially wired systems that dramatically enhance cellular coverage within a structure, were deployed by hotels to improve cellular services. However, traditional DAS may not be the most cost-effective solution for all hotel properties. They require extensive infrastructure additions and usually bypass any infrastructure (CAT-5e/6, Ethernet and so on) already deployed in a hotel.

Hotels must also plan for the future. Any investments that they make today must be "tomorrow ready" and easy to integrate with emerging wireless services, like 4G, and future technological innovations.

Wi-Fi + Cellular = Peanut Butter + Jelly

Doing more with less is the watchword for every business, and hotels are no exception. Almost every hotel facility is wired for a local area network (LAN). Newly available technology that's been heavily tested and approved by industry leaders, allows hotels to use this existing cabling to improve cellular signals without interfering with Ethernet and wireless LAN capabilities. These new infrastructure solutions sit

“in-line” and leverage the LAN structure cable. They provide cellular coverage by plugging into the wireless operator’s signal source, enhancing cellular with Access Point (AP)-like antennas. Because these solutions are completely transparent to WLAN equipment, the new cellular signal coexists alongside Ethernet signals passed through to WLAN APs.

Using this new technology, hotels improve indoor wireless connectivity through a single infrastructure. Wireless signals from the outdoors are groomed for indoor usage, maintaining signal strength and quality, even in large-scale environments. These new solutions also remain highly scalable—giving hotels the opportunity to enable a range of wireless services, from CELL/PCS to AWS and emerging services like 4G LTE.

This easily installed and cost-effective technology helps eliminate dead spots and dropped calls, providing consistent wireless communications wherever it is deployed in the hotel. Guests and hotel staff will benefit from pervasive cellular coverage even during high-traffic meetings and events.

Further, integration with existing LAN cabling infrastructure significantly reduces the need to open up walls and ceilings during deployment, keeping rooms in service and limiting construction costs. This means installation usually doesn’t disrupt guests’ stay at the hotel. All the components associated with these infrastructure solutions, including antennas, can be managed remotely. Finally, if hotel ownership changes hands, solution hardware can be removed without causing damage and redeployed elsewhere.

Conclusion

Connectivity is becoming a decision point for guests. They arrive at hotels armed with several devices—tablets and smartphones, to name a few—that are each enabled with Cellular and Wi-Fi capabilities. They expect to use these devices easily, inexpensively and securely. Most importantly, they want to use them without interruption from degraded service.

If service is deficient (or not available at all), guests are less likely to return. Some patrons may even inquire about wireless coverage and capacity capabilities before they book. This trend is only expected to intensify. Similar to event planners and conference hosts, who leverage hotel and convention center properties for their business, guests are increasingly concerned with wireless service availability.

An infrastructure supporting both Wi-Fi and cellular can lead to significant cost savings for hotels, repeat revenue from loyal customers and an overall positive guest experience. It’s no longer a nice to have; it’s a must.

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