On January 27, 2006, Western Union discontinued its telegram services. It should come as no surprise that e-mail and cellular phones have replaced the telegram as a method of delivering information. VoIP (voice over Internet protocol) is going to have the same impact on the current worldwide telephone system (known as the PSTN or public switched telephone network). Although it will not happen overnight, making the migration strategically will be essential for hoteliers.

VoIP is a much misused buzzword these days and it seems to have many different meanings depending upon whom you are speaking with. It actually has a very simple and narrow definition: the packetization and transmission of voice over a data network. VoIP is most commonly applied to systems that enable voice traffic to be routed over the Internet rather than the PSTN. There is a further distinction for in-building telephone systems where an IPT (IP telephony) solution replaces a traditional PBX (private branch eXchange) for internal calls. These two solutions can be mutually independent, combined or integrated to varying degrees with the PSTN and traditional PBX systems.

In order to view VoIP from a hospitality perspective, we first need to look in the context of the broader consumer and business sectors and then consider how those issues apply. After all, consumers and business travellers are our intended guests.

Infrastructure

The infrastructure required for VoIP is, as the definition suggests, a data network. Currently virtually all homes in the U.S. have been cabled with analog cabling while data requires a better quality of cable. Additionally, data requires a “home run” to each end-use device or switch and cannot be “daisy chained” as is typically done with analog cabling. Most new home construction is continuing this legacy installation practice except in high-end developments where some data cabling is installed as well. DSL and cable modem technologies have solved the problem of delivering broadband to the home, but the internal distribution is largely dependent on retrofitted wired or wireless solutions.

Businesses have virtually all been retrofitted with data cabling to all work station locations and now have parallel cable infrastructures for voice and data. New construction is continuing this parallel installation, but VoIP now makes it possible to eliminate this dual cabling requirement. Most IP phones are effectively mini switches that permit the connection of a PC (or other data device) and therefore a single data cable can provide a workspace with both voice and data available.

Hotels are truly a blend of both scenarios. Hotel rooms have been traditionally cabled in a similar fashion to homes and the administrative locations are installed as in any other business. New construction is, or should be, following the same approach as other businesses are realizing the cost savings of avoiding parallel cable infrastructures. Additional construction savings can be made due to the recent advent of IPTV, or television signal over a data network, which will also eliminate coax cabling, the traditional method of delivering TV signals.

New construction has always had the benefit of incorporating current technology requirements into the product. Renovations also offer the opportunity, when taken, to replace legacy infrastructure with one that will support future growth and applications. Reducing the wired infrastructures from three to one will not only reduce construction costs, but also ongoing maintenance. The ability to connect any required device to the same cable network will enormously enhance flexibility as well.

Consumers, businesses and hotels that cannot retrofit the cable infrastructure in the near or mid-term can still consider VoIP solu-
tions through the use of wireless deployment, but it must be noted that wireless VoIP has higher requirements than just data. Unlike wireless HSIA, VoIP requires a more robust network to avoid quality of service (QoS) issues and dropped calls. If the wireless coverage is less than perfect in the home environment, the consumer can make the choice of correcting it or living with it. The same issues will not be tolerated in the guestroom or business so the deployment must be carefully planned.

Cost Savings
Cost savings are always front of mind to consumers, businesses and, of course hotels. VoIP is not, however, the panacea to long distance costs that some have promised, and the savings to be gained are highly dependent on the individual case. Domestic long distance costs have become so low that there is little cost saving to be gained in migrating from the PSTN to VoIP. International rates to many locations, however, remain significantly higher so reported savings of 40 percent may be realized. A significant factor in these reduced costs is that VoIP calls are not currently subject to the tariffs and fees applied to the PSTN.

Home consumers are able to purchase shrink-wrapped VoIP solutions and can usually save money depending upon their calling patterns. The bulk of their savings, though, typically comes from doing away with their PSTN phone service as long as they have a broadband connection. The VoIP equipment connects within the home to the traditional Cat 3 infrastructure or a wireless system. Another option is to implement VoIP by installing one of several services on a laptop or home PC and using a headset instead of a traditional telephone.

Hotels are able to reduce costs with products that route traffic, both guest and administrative, over VoIP or the PSTN, depending on the destination. This reduces and/or eliminates the number of long distance circuits required although the data bandwidth requirements need to be carefully planned. This does not, however, eliminate the need for local service or the requirement to be tied to the 911 emergency response network.

Scalability
Scalability is the primary area where VoIP can bring significant benefits and cost savings to business enterprises, including hotels. When VoIP calls need to eventually connect to the PSTN, costs are accrued, but when VoIP calls remain within the data network from end-to-end, they are free. Businesses with multiple locations can eliminate all internal administrative long distance charges which, while low domestically, can still be significant. These savings are considerably greater when the business enterprise is distributed globally.

VoIP offers features to small enterprises that are typically only found in much larger and expensive PABXs. Many individual hotel properties have historically had to install PABXs that were oversized, and therefore overpriced, but essential to deliver the services required. VoIP systems can offer better priced solutions tailored to individual enterprises, while still offering the required, and often richer, feature sets. When scalable applications are coupled with the elimination of redundant cabling infrastructure, expansion becomes simpler, both small and large businesses can operate more efficiently at a lower cost.

Investment and Cost of Ownership
Traditional PABXs are proprietary in design and, apart from guestroom analog phones, so is virtually all of the hardware. Although there is price competition for the initial installation, the buyer is locked in to single source pricing for ongoing maintenance, parts and upgrades. Additionally, although they traditionally have been perceived to have the benefit of longevity, you still have the same basic system 10 years later and it is not reflective of the current and foreseeable rate of technological change.

IPT systems are essentially network servers and switches, and the software is being written primarily for open platforms. This makes them far more flexible and easily upgraded as the individual components can be modified or replaced with relative ease. Since the components are not proprietary, maintenance, parts and upgrades can be competitively sourced. Over time, this will not only reduce the ongoing cost of ownership, but also ensure that the system can be regularly refreshed and that after 10 years it is still a current solution.

Also important from a labor standpoint, the skill set needed to manage the system is largely the same as that required to manage the network overall. This reduces the diversity of skills and personnel required to support and maintain the system whether they are internally or externally sourced.

Challenges
VoIP is not without potential challenges and these need to be understood. The first is quality of service (QoS), or the quality of the call connection itself. While this was initially a problem, the technology has improved, and continues to do so. It is not considered a major issue generally, but is still relevant to wireless implementations.
One of the inherent advantages of the PSTN has been that it is self-powered over its own analog cabling. Digital telephone sets used primarily for administration have typically been line powered as well. Traditional PABXs have always had robust power backup capacity to ensure that in the event of a local power failure, telephones still operate. IPT implementations do not yet have the same level of redundancy that is an assumed requirement of a telephone system. The system must be supported by UPS units not only at the core, but also at any point where a network device is connected to a power source. This is absolutely key as a fire/life/safety issue in hospitality and should be as important in the consumer and business verticals as well.

The requirement to be able to connect calls to 911 response centers continues to be an issue for many VoIP vendors, but the necessary changes in the technology architectures are being resolved. Any system should be thoroughly tested and certified in advance so it meets current and predicted emergency response requirements.

As with any data service, security is essential to prevent eavesdropping and unauthorized access to the network and, in particular, wireless deployments. An advantage, however, that has been previously referenced is that the same personnel responsible for network security in general will manage the security concerns. Voice security then becomes a recognized element of an enterprise’s overall security strategy.

Services

A much hyped aspect of VoIP/IPT has been the ability to deliver enhanced services to the guest and to the operation in general. To a large extent these benefits have not yet been realized and the killer apps have not been identified, but that does not mean they will not. VoIP/IPT simply introduces the potential for an IP device to replace the traditional analog device in the guestroom for voice communications. What the device looks like and what else it can deliver beyond voice is, and should be, largely outside the realm of IT and in the hands of those who can understand, develop and deploy targeted, guest centric product solutions. As IPT implementations continue to grow, the opportunities will be identified for enhanced service solution development.

VoIP and IPT have converged with data services and how we communicate is changing. It is now possible, and becoming increasingly functional, to simultaneously utilize text, voice and video messaging with application sharing and conferencing. Consumers and business travellers are increasingly becoming more savvy in the use of these tools and expect to be able to shape their own communications environment. Hoteliers need to enable their guests’ ability to do so and find ways to provide enhanced services and find potential revenue streams in the process. The fundamental hospitality requirement to satisfy guest needs will drive the services and solutions to be developed.

Moving Forward

The rapid penetration and adoption of VoIP/IPT worldwide represents a turning point in global communications. Virtually all telephony industry prognosticators are predicting the rapid adoption of VoIP over the legacy PSTN. The sheer scale of the installed global infrastructure means that this will not occur overnight, but while the pace of penetration may be contested, the eventual replacement of the PSTN is not in doubt.

Fortunately for consumers, businesses and hospitality alike, this interval provides an opportunity to take a strategic approach to the assimilation of the changes that are occurring. No two enterprises are identical, so the specific approaches will be varied. The key is to proactively consider how best to move the individual enterprise along a path that most efficiently utilizes the benefits of the new technologies.

The speed of change will be fast enough, though, that no company should take a wait and see attitude toward VoIP adoption. From a technology viewpoint at least, no one wants to be known as the last customer to send a telegram.

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