IN-ROOM GUEST SYSTEMS –

The Hotel Room of the Future

by Jeremy Rock

Photo courtesy of Mandarin Oriental New York

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Lately a tremendous focus has been on the so-called guestroom of the future. This has been largely due to the convergence of digital voice, data and video technologies in an area that was for many years dominated by individual analog devices. While much of this technology has been available for a number of years, it was either cost prohibitive or unable to perform in large hospitality environments. These factors have since been addressed and a recent visit to the Mandarin Oriental Hotel in New York highlighted the fact that these systems have evolved.

What's New with Televisions

The big buzz word now is high-definition television (HDTV) – which runs on a digital TV (DTV) platform. HDTV content is now available on a limited number of channels and PPV content has recently been installed at a number of hotels across the United States. HDTV has many benefits, but the main one is the overall picture quality. While standard definition television (SDTV) provides 480 interlaced lines of vertical resolution, HDTV provides for 720 lines in a progressive scan or 1080 interlaced lines of vertical resolution. The result is that the picture quality is sharply increased and very noticeable. In order to reap the benefits of digital HDTV, most hotels are installing costly plasma and LCD flat-screen televisions into their guestrooms. While many of the existing hotels and resorts are only installing these expensive devices in their high-end suites, design firms are reporting that 50 percent of their hotel redesign projects now involve flat-panel technology.

The primary drawbacks of HDTV are cost and limited availability. As with most new technology, there is a certain experience curve that must be overcome for the price breakpoints to come into effect. While there are quite a few of the main TV channels that are now available in HDTV format, the majority of stations are still available in the standard format. In addition, there is the equipment factor. Either the existing televisions and infrastructure needs to be modified in order to accept the new format, or they need to be replaced with HDTV-capable televisions. Consequently, there are deployment issues that need to be addressed.

Along with HDTV, a number of new digital interactive in-room entertainment systems providers have emerged on the market over the last few years with digital technology that connects to a broadband network via either CAT5/6 Ethernet wiring, CAT3 VDSL/Ether-loop/ADSL+ over copper wiring, or Internet protocol (IP) over coaxial cable. While these systems offer guests the ability to view movies, games and Web content, they also have the ability to connect to the hotel's voice and data communications network to enhance the overall guest experience.

Digital entertainment systems promise:
· Greater amounts of movies and content
· Ease of use to connect to other online systems through a walled garden
· Ability to view Internet browser in the standard Windows® format
· Negotiated group pricing services
· Interactive free-to-guest (FTG) TV channel guides
· IP telephony capabilities
· Minibar management
· Network printing
· Ability to toggle between different languages

One of the nice features is the menus are provided in different languages. The guest simply selects the language option from the menu and can change the language to one of approximately five languages being offered by the hotel.

After experiencing the new digital technology first hand, there were a few minor quirks that were noticed that were not associated with the VOD provider. The first quirk is an echo between channels. There is a current trend of placing a smaller NTSC signal-based, flat-screen LCD television in the bathroom where there is the risk of having an echo between the systems, should the same channel be played in the guestroom on the digital ATSC broadcast. Although both channels are producing the same supposed content, they are coming from two different sources. As such, one channel's timing may be slightly off from the other one. This results in a bounced signal and there is really no way to overcome this. The second quirk is the clarity of the bathroom TV image. A noticeable difference pertains to the actual quality of the image that is being displayed on the televisions. There was a noticeable difference between the analog smaller television in the bathroom vs. the HDTV digital image that was been displayed in the guestroom. As such, the guest may be left with the impression that the television is either not working properly or that it is of a poor quality. Lastly, many of the third-party applications accessed through the VOD system utilize different programming languages and methods for displaying their information. It is therefore difficult for the VOD providers to match the various user screens without having these providers customize their applications and screen to accommodate the same look and feel.

VoIP Has Made Its Way to the Guestroom

The initial VoIP communication systems that were introduced into the hospitality industry had a number of issues to be overcome. First, they were extremely cost prohibitive with relatively few advantages over the traditional time division multiplexer (TDM) PBX systems. Additionally, the technology was limited when addressing large complex hospitality environments and could only be deployed in smaller hotels.

Areas to Focus on When Deploying the Latest Guestroom Technology

There are always lessons to be learned when deploying new technology, especially when it comes to the integration of new technology for hotel guestrooms. David Heckaman, director of IT for the Mandarin Oriental New York, said the potential issues that should be focused on when implementing converged in-room guest systems are as follows:

Configure and test VLAN's in advance of go live date — Since all the in-room technology is connected to the same networking backbone, there is a tremendous amount of VLAN configuration that needs to take place. If you envisage that for each guestroom, you are creating four VLANs (VOD, VoIP communications, wired HSIA and wireless HSIA) which should be planned and implemented well in advance so that each of these network connections can be thoroughly tested.

Check environmental requirements for all new equipment — As with most new technology, it is difficult to predict the longevity of some of the equipment and hardware that is placed into the tough environmental conditions of a hotel guestroom. For example, the HDTV cards can be subjected to excessive heat resulting from the set top box being placed in the close confinements of the armoire. The problem can be corrected by providing for additional airflow within the armoire and changing HDTV card specifications.

Ensure that the television is integrated and tested with new technology — If the television is not integrated with the technology, there can be some control-related issues with regards to the use of the remote. As such, when possible the television should be integrated with the VOD system either through an RS232 positive control connection (having all of the controls on the same motherboard contributes to the reliability) or a DVI cable.

Check the physical cabling backbone and installation to ensure that it is done to code — The quality of the cable signal can affect the HD signal. The HD cards are sensitive to the quality of the overall HD signal that is received from the cable TV or satellite provider. As such, the cabling infrastructure needs to be installed according to code with all taps and connectors secured correctly.

Define and settle on system interface specifications early in the process — Should the system be interfaced to other systems, the earlier you define and settle on the interface specifications, the better chance you have of having work at the time that the systems goes live. Due to the complexity of interfacing the various systems, it makes sense that the longer the decision is delayed, the less time there is to effectively test the system and work out any potential kinks that may exist.

Determine and test support procedures prior to going live — Since in-room systems are integrated, the correct procedures for addressing voice, data and video-related support problems need to be identified so that the issues are addressed as expeditiously as possible.

Staff support adequately in the early stages — Most system-related problems are experienced near the beginning of an installation. Whether there are hardware failures or minor configuration problems, they will tend to surface once the system is live. Couple this with the other systems that have been recently installed at a hotel opening and you will experience a heavy demand on IT support staff. Have adequate support in the beginning to ensure that service is not compromised. This applies to both onsite hotel staff as well as that of the various vendors.

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Lastly, most of the third-party applications that are designed to interact with VoIP systems were not developed. As such, the main benefits of these systems were limited to the administrative departments of hotels.

All of this has now started to change. The reduced cost of these systems and the newer technology now enables them to cater to large hospitality infrastructures. In addition, lower deployment costs and interactive third-party applications continue to enhance the overall capabilities of these systems.

These developments have enhanced these systems to the point where VoIP is now emerging as standard guestroom technology in many of the newly developed luxury hotels and resorts. Due to cost factors and the limited amount of applications available on the system, the current trend has been to place an IP-based telephone at the work desk and a traditional analog phone at the bedside and bathroom.

While there are many administrative advantages to the new IP-based phone systems, some of the key guestroom features include:

Visual caller ID—Guests can visually see who is calling even when they are on a phone call. (This requires caller ID for outside calls.)

Multiple extensions to a room—Due to the IP nature of the system, multiple extensions can be added to a particular room if required with no additional wiring needed.

Internet content over the phone
Interaction with third-party applications—For example, guests can order room service via the touchscreen

Speech-enabled dialing—Provide guests with easy and fast access to services

Extension portability—With plug and play functionality each phone is assigned an IP address, thereby eliminating physical line transfers.

Streamlined support—Online support techniques can troubleshoot problems without even entering the guest's room.

Guest name display and message alert—The interfacing to the PMS allows for a welcome message and the guest's name to be displayed on the phone upon his arrival into the guestroom. It also allows for the potential for text messaging or notification alerts to be to be displayed.

Most of the key hospitality communications systems providers now offer VoIP solutions as part of their product offering. These include but are not limited to **Alcatel**, **Avaya**, **Cisco**, **Mitel**, **NEC**, **Nortel** and **Siemens** (Hipath).

Data Connectivity

The last aspect of convergence in the guestroom is that of data connectivity, which is currently focused on providing high-speed Internet access (HSIA) for guests. While the marketplace is still serviced by many third-party providers or by the hotels themselves, the in-room entertainment systems providers are now starting to focus on providing this service. In effect, many of the VOD providers are attempting to become single source providers for hotel in-room technology requirements.

There are **some key benefits** of having a single source in-room technology provider:

1 Centralized billing—The ability to combine the guest billing for Internet access whether it was accessed via the television or laptop so that guests are not double charged

2 Network and user support—There are some economies of scale with regards to user support that are realized.

3 Manage bandwidth—In some cases, the VOD providers are able to manage the network and therefore the bandwidth requirements that are required by the hotel on an as needed basis.

Should hotels prefer to provide onsite

Avaya 4630 Internet protocol phone

guest support and management of the service by their own IT staff, there are alternative billing applications that can assist them. An example of this is **SDD**'s Jazz application which can provide an integrated billing and access control mechanism for handling all data, voice and video charges to the guest folio. Their software acts as middleware between all of the systems and can provide advanced billing methods whereby bundling and other creative billing formats can be utilized.

What Does the Future Hold?

David Simpson, senior vice president and chief technology officer for **OnCommand**, said that the in-room systems will evolve to better address the personal devices that the guest will bring into the room. In this regard, one should think of how these devices, such as cell phones, notebooks, PDAs and DVD/CD players, that form part of their personal digital domain will interact with the other devices in the room. Eventually they will interact to provide personal preferences and potentially control other in-room devices such as the air conditioning, lighting, communications and other peripheral devices.

Guestroom technology is evolving at a rapid rate and the challenge will be for the in-room technology companies to keep up with the changes in order to provide the hotel and their guests with the best in-room experience possible.

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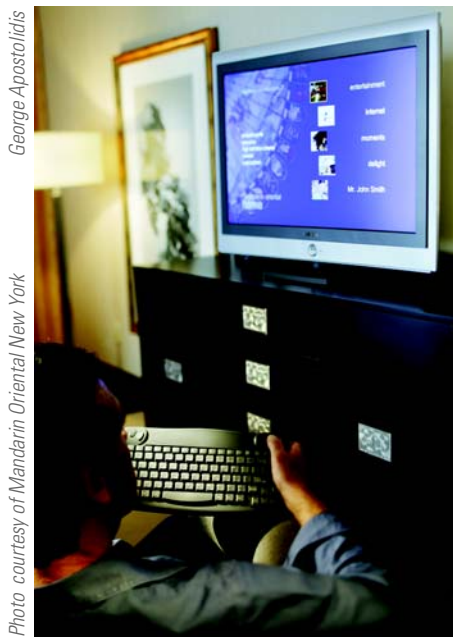
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