White Paper:

Making the Hotel Room Better than Home

10 Essential TV Technologies for the Hospitality Industry
INTRODUCTION

Given that the average television screen size shipping in 2014 was nearly 40”, it isn’t surprising that consumers accustomed to large, high-resolution displays are demanding more from their entertainment experiences when they are traveling.

The average traveler also brings extensive media, entertainment and work hardware right into the hotel. Smartphones, tablets and laptops are commonplace, creating real competition for paid and promotional content usually carried over hotel in-room entertainment systems. This eats into potential revenue streams and lowers overall customer satisfaction when hotel entertainment experiences can’t compete with what is in their bags, much less what they have at home.

Fortunately, there is a growing range smart hospitality TV solutions at price points to suit every class of hotel and motel that can meet guests’ expectations and provide a competitive advantage for hospitality businesses ready to make the right investments. The following is an introduction to the most important aspects of TV technology for the hospitality industry.

Trends in Television:

- 54 percent American households have three or more TVs
- 84 percent are using another device — a smartphone or tablet — when they watch TV
- Adults watched an average of nearly five hours of TV
- Two in five households subscribe to a video streaming service

Source: Nielsen
For consumers, TV screen size is as much a status symbol as a classy car in the driveway. Great SuperBowl parties and 32” televisions don’t mix and the gradual march towards larger, thinner, higher resolution flat screens has universally raised the bar for what a television should be. This same sentiment translates directly into a guest’s perception of the facilities and amenities provided by their hotelier. In-room televisions, like ice-cold air conditioning, are critical to guests’ first impressions.

**Screen Size**

TV screen sizes are measured on the diagonal from one corner of the display panel to the other. Overall, screens shipping to consumers have been increasing in size and decreasing in cost. According to IHS, median TV screen sizes jumped from 33.2 inches in 2010 to a projected 39.2 inches in 2015. Meanwhile, the average unit price of consumer TVs purchased fell from $650 to $450, as manufacturing costs declined.

It is also worth noting that the number of large TV screens (i.e., those over 65 inches) shipping to consumers is increasing rapidly, up 69 percent in 2014 while overall TV sales fell, according to NPD. Where even a few years ago, 60-inch televisions were nearly unattainable, they are now becoming relatively common, reinforcing the idea of a real disconnect between consumer expectations and their in-room entertainment experiences.

**Display Resolution**

Increasing screen sizes demand higher resolution video, both in terms of display capabilities and content. Display resolution refers to the number of pixels used to create images on a screen and are measured in the number of columns of pixels by the number of rows. Most manufacturers simply report the number of vertical pixels (the “rows”) for their display resolutions. Today, while some TV models in smaller sizes are still available in 720p (720 vertical pixels), the de facto standard for consumers is now considered 1080p. Referred to a full HD, 1080p resolution displays perform very well without noticeable pixilation on screens up to 60 inches.

However, ultra high definition (UHD) or 4K TVs, with resolutions up to 3840 × 2160, are beginning to take a significant share of the consumer market. Sales of UHD TVs were expected to grow more than 50 percent in 2015 to more than 13 percent of the market, according to IHS. Even higher resolution 8K UHD sets will also become available outside of specialty applications in the coming years. Price points are such that these resolutions have not been broadly adopted for hospitality applications, aside from the most luxurious presidential suites. However, this is set to change as prices come down over the next several years.
Room Size and Arrangement

Bigger-is-better arguments aside, savvy hotel room designers and hospitality IT staff can leverage room size to ensure that optimum guest experiences are balanced with appropriate investments in equipment. Many organizations take a one size fits all approach and can easily over-invest in screens that are too large for their economy rooms and too small for their premium suites at the same time.

In general, opting for the largest affordable screen sizes will prevent guests from viewing in-room television as a downgrade from their own home entertainment setup.

Arrangement of the room and placement of the television also have a significant impact on viewing experience. THX recommends the following configurations, which are especially important in space-constrained environments or if hotels must choose smaller televisions to meet budgetary requirements.

1. **Distance x Inches**
   
   ![Optimum TV Size Calculator](image)

   1. **10 feet**
   
   2. **10 x 12” = 120 Inches**
   
   3. Divide by 3 for minimum size
   
   120/3 = **40”**
   
   Or
   
   4. Divide by 2 for maximum size
   
   120/2 = **60”**

   Source: CEA

2. **Style And Design**

   The TV in a suite tends to attract the eye, can make a strong first impression, and is often the centerpiece anchoring other features of the room. Strong industrial elements paired with premium materials and quality workmanship can be just as important as the TV viewing experience in shaping guests’ initial impressions of the entertainment amenities offered by a hospitality organization.

   **Aesthetics**

   In an age of razor-thin tablets and smartphones with expansive glass touchscreens, customers closely identify thin screens and minimal bezels (the frame that surrounds a TV screen) with high technology and luxury appointments. Thinner bezels also have added benefits for hotels with pre-existing fixtures, as they can provide substantial upgrades to TV screen sizes over the older televisions they are replacing without increasing the overall dimensions of the device. The combination of an extremely thin bezel, paired with a thin TV profile creates the appearance of a “floating image.” Paired with optimal screen placement and sizing, guests will experience near theater quality media right in their rooms.

   **Wall Mounts**

   Wall mounts and well-designed stands are another area that can aid the aesthetic perception of a device. Wall mounted TVs can save space and help with the overall design choices in a room, while unobtrusive stands showcase thin, sleek televisions. The combination of these factors can convert the TV from an amenity into an object of beauty. One caveat, however, is that hospitality IT must choose hardware and accessories that minimize cable clutter and distractions from both the television and the media experience.
3. SCREEN TECHNOLOGY

Although LCD (both with standard backlighting and newer LED backlights) and plasma screens are available to hospitality buyers, this is a particularly straightforward aspect of the purchasing decision.

LED is the Only Way to Go

Plasma and LCD technologies battled for years for dominance in both the consumer and enterprise spaces. However, once LCD manufacturers began rolling out LED backlights to replace CCFL (cold-cathode fluorescent light) backlighting, neither plasma nor traditional LCDs were justifiable for large-scale deployments. LED-backlit LCD displays have significant advantages in terms of picture quality, profile depth, weight, energy consumption and lifespan.

LED-backlit televisions have now also reached price parity with fluorescent backlit LCD TVs, erasing the final advantage they held for the hospitality industry. There is really no compelling reason to not choose LED-backlit TVs for your guests, or for your bottom line.

Breaking this out further for an average hotel deployment, the real-world savings from LED televisions are even more striking. Assuming 300 55” televisions are each running 5 hours a day, with electricity costs of $0.12/kWh, switching from plasma to LED-backlit models could save the hotelier up to $4500 per year, or more than $30,000 over the typical seven year lifecycle of the TVs.

As hospitality buyers are considering the TCO of various TV models, they should also consider that LED backlights tend to last longer than traditional CCFL backlights.

4. QUALITY/RELIABILITY

As with any enterprise hardware, the overall reliability and quality of televisions are critical to hospitality deployments. Failure rates, warranties and service are paramount in this type of implementation where a large number of TVs will see heavy usage.

Failure Rates

As the average lifespan of TVs increases and their energy consumption decreases, failure rates become an important differentiator when hospitality buyers are considering total cost of ownership. Respected brands earn their reputation through high-quality components and solid reliability, which trump “gee-whiz” features and rock-bottom initial costs in hospitality settings.

The top brands invest heavily in their quality assurance (QA) measures, leading to fewer out-of-box issues and fewer hardware failures in general. Hospitality buyers should expect years of trouble-free service from the systems they deploy. A broken TV isn’t just inconvenient; it’s a room that can’t be booked.

Warranty and Service

When failures do happen, however, the warranty and service networks that prospective vendors have at their disposal are critical to quickly returning rooms to service. Look online at available warranty service providers that are endorsed by the manufacturer and see how many are within your local markets. Although modern televisions overall have fewer parts subject to failure than their CRT predecessors, hotel buyers evaluating warranties and service contracts should specifically look at language relating to core components such as the power supply, main board and LCD panel (which cannot be replaced or repaired cost-effectively).
No matter how visually appealing, energy efficient, reliable, or stylish the TV in a hotel, content ultimately determines the value of these devices for guests. Particularly when guests so frequently bring their own entertainment devices with them, the content available on hotel televisions needs to be compelling, entertaining and useful. Content-related capabilities and features are where consumer devices and televisions specifically designed for the hospitality industry start to diverge. Access to the latest advances in content delivery, however, will not just be limited by device but by current and planned infrastructure.

**Service Providers**

Channel selection is primarily dependent upon the actual service provider. Where hardware selection comes into play is in the ability to interface with particular features from the content provider like video on-demand (VOD). The latest hospitality-centric devices will come with smart connectivity capabilities that can access and display content without adding additional hardware like a set-top box from your service provider. This can reduce costs and give the hotelier more control over the offerings and user experience.

**Coaxial and IP Infrastructure**

Traditionally, television content has been delivered over coaxial cable and many hotels have extensive legacy infrastructure. Coax functions as essentially a dumb pipe, delivering one-way radio frequency (RF) broadcast and very little capability for user interaction and IT management. More modern IP-based systems treat televisions as standard network nodes, delivering content via Ethernet and, more importantly, allowing active remote management by hotel IT staff. This allows for robust management features, full two-way interaction support, remote access and control, bandwidth shaping, and many other tools that enhance the guest experience, ensure maximum uptime, and support rapid deployment and scalability. Coaxial connections are time-tested technology and hospitality institutions will find many options that leverage this existing infrastructure. However, the time is right to begin migrating to more modern, manageable systems based on common computer networking standards.

**Mapping Your IP Infrastructure**

Hospitality IT staff need to ensure that hotel networks can handle not just internal transmission of HD TV content, but also guest WiFi, VoIP, staff networking needs, point of sale and more. Upgrades to IP-based entertainment must necessarily include a full evaluation of network infrastructure. Each point in this simplified schematic is critical to meeting the entertainment and business needs of guests while also supporting hotel operations.
6. DIGITAL RIGHTS MANAGEMENT

Any conversation about content options wouldn’t be complete without mentioning digital right management (DRM). DRM is used to control and protect against the unintended use of intellectual property. Hollywood movies, cable television programming, and streaming content all employ DRM to prevent copying and redistribution of protected content. Content providers have not settled on a single DRM standard, though, and hoteliers must evaluate their choice of televisions in the context of specific DRM standard for all of their content sources.

Hardware or Software Based

DRM is most often accomplished by encrypting the content just before transmission with the receiving device decrypting the transmission just before it is displayed. Some TV manufacturers will build specific hardware or software systems into the devices themselves to negate the need for standalone decryption hardware like set-top boxes. One of the most compelling abilities of software-based DRM is that issues can be identified and remediated remotely and transparently to the guest. Hardware DRM implementations tend to be more costly and complex and can also require additional licensing. Technical issues with hardware implementations of DRM are normally only identified when a guest files a complaint and remediation requires manual resets and sometimes repair or replacement of hardware. Software DRM strategies offer lower costs and more flexibility as they can scale and be upgraded independent of the hardware.

7. INTERACTIVE PROGRAM GUIDE

Customizable interactive program guides (IPG) offer an opportunity to tailor the experience for guests and provide greater options for entertainment and services. Providing a “living room experience” can be one of the biggest challenges in the hospitality sector and implementing IPGs are one of the best ways to close the gap. Most customers will already be familiar with the IPG integrated in the set-top boxes from their TV providers at home and this makes it an intuitive addition for content discovery within their suite. As with software-based DRM, customizable IPGs allow institutions to update interfaces easily as content evolves.

In many smart hospitality TVs, these menus can be customized with an organization’s logo and branding, while also supporting advanced customization features such as:

- Highlighting marketing messages
- Providing services
- Displaying pertinent and useful information
- Encouraging content discovery, especially for pay-per-view and other premium content

In this way, IPGs can actually help bolster in-room upsells while providing real value to guests. Centralized administration can also provide features that allow a hotel staff to push out updates and content without having to clone or copy software and preferences and physically install them on individual units. While probably not necessary for smaller locations with a handful of TVs, this capability is invaluable in larger establishments. The man-hours saved in setup for individual TVs can offset a significant portion of the capital expense associated with purchasing the units, particularly over the life of the TVs.
8. SMART APPS & WIDGETS

Purpose-built apps and widgets have redefined the capabilities of nearly every device in consumer electronics. This trend has also been applied to consumer televisions and has some interesting implications as it emerges in the hospitality industry.

According to a 2015 Hospitality Technology survey, just 16 percent of hotels had smart or Internet-connected TVs in their guest rooms, but another 16 percent planned to acquire them in the next 18 months. Smart hospitality TVs with apps and widgets that are built specifically for the platform can serve to provide at-a-glance information or interactivity for guests. Apps could include hotel facilities and menus, maps with local traffic data, weather conditions and entertainment events in the local area. All of these widgets could be accessed as an overlay on top of the existing content being displayed while watching a movie in the room, for example, or setup for general information for use in common areas like lobbies or conference rooms. Most importantly, customized local content provided via apps and widgets transform in-room TVs from basic entertainment devices that can be ignored in favor of tablets and laptops to genuinely useful information portals for guests.

There are some important security implications and issues that must be addressed when providing access to widgets and apps. Centralized management utilities need to be able to enforce role-based policies for access to apps and data. For example, privacy concerns become paramount when guests are logging into personal social media accounts or email services on the TV; an organization needs to have safeguards to reset or wipe app or widget information after a guest checks out. A hotelier also needs to define how much bandwidth that they are willing to allocate to these extra services and understand the costs associated with increased in-room connectivity.

App integration can also provide the possibility of building applications specific to a hotel or location, like ordering room service through interactive menus, checking out on the TV, setting up wake-up calls, etc. The possibilities for hoteliers are limited only by their imagination and the potential for innovation and differentiation is quite high.

9. MOBILE DEVICE SUPPORT

The average traveler is now armed with a plethora of devices ranging from a smart phone, a tablet, and laptops to wearables and WiFi-connected cameras. Not only do hotels need to provide entertainment options at least as compelling as those found in guests’ bags and pockets, but they must also be able to leverage and co-opt guest devices.

Newer televisions that are built for the hospitality industry now come with the ability to plug into wired networks for content and management. This connectivity, along with the implementation of other media sharing technologies like DLNA and WiDi, mean that modern hospitality televisions can complement guest media devices rather than be marginalized by them. Being able to port small-screen media experiences to large in-room screens is a real value-add for guests, allowing them to:

- View their pictures
- Watch their own movies
- Stream their presentations, and
- Control the content on the TV with their personal devices.

This adds yet another amenity and could also prove useful for hotels that host business meetings and conferences often.
10. TOTAL COST OF OWNERSHIP

While acquisition costs are key considerations for hoteliers, hospitality purchasing must also be driven by the long-term, total costs represented by TVs and their associated content and infrastructure. The following should be key elements of any TCO calculation.

Acquisition Costs
The “if it ain’t broke, don’t fix it” mentality is, quite reasonably, difficult to overcome when functional LCD or plasma TVs already exist in guest rooms. It can be hard to articulate the business-case for acquiring the best-of-breed hospitality TVs but retaining a laser focus on guest experience, as well as reduced TCO should provide the right incentives to invest in modern hospitality TVs.

Energy Consumption
The amount of savings due to energy usage will vary significantly by technology, screen sizes and operational time. As we’ve seen, though, a switch to LED-backlit televisions can have a real impact on the bottom line (and a hotel’s carbon footprint).

DRM and Content
Whether looking to specifically license content for distribution to guests or calculating potential hardware decryption costs, hospitality providers need to include DRM in their TCO calculus.

Hospitality Ready
Purchasing hospitality-centric televisions that incorporate customizable IPGs and digital tuner hardware can reduce ongoing set-top box rentals and licensing costs for IPGs.

Administration and Management
The human resources and time required to set up and manage in-room televisions also represent a significant line in operational budgets. In most cases, centralized administration capabilities will save time and money over the life of the hardware.

CONCLUSION

Clearly, hospitality providers have broad and deep product lines available to meet in-room entertainment needs. TV technology has advanced rapidly and prices on larger, more efficient, highly connected televisions have also dropped, making upgrades (or well-planned, modern implementations in new facilities) a sensible investment. The rollout of new in-room media devices isn’t just a matter of normal replacement or TCO calculations in a spreadsheet, however. Rather, the focus for hospitality buyers and decision-makers needs to be enhancing the guest experience and ensuring that in-room entertainment can continue to be a valued amenity for guests. Failure to match consumer trends (or even exceed them) will mean lost potential revenue streams and lower satisfaction ratings. Conversely, a great in-room entertainment experience can make a lasting impression on guests who will become repeat customers and a hotel’s greatest marketers.