

SINGLE CABLE  
SOLUTION PROVIDES  
5PLAY CONVERGENCE  
FOR COMMERCIAL  
INSTALLATIONS



White Paper  
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## Introduction

Gone are the days when commercial installers depended on home-centric technologies and cables to cater to the corporate market. The professional AV market presents different connectivity requirements than those of the consumer market, and as such demands a level of resolution, reach, features, flexibility, reliability, and standardization that are above those of the residential sector.

Commercial installations include – but are not limited to – video walls at an airport or corporate setting, projectors in classrooms (both K-12 and above) and meeting rooms, digital signage at any commercial or public venue, and more. These AV installations bring several challenges to integrators, the biggest of them is probably cable length, as often sources and displays are more than a few feet or meters away from each other, and as such cannot rely on traditional connectivity technologies and maintain the quality and/or resolution expected.

Enter HDBaseT.

HDBaseT was introduced in 2010, and since then has become the de-facto connectivity standard for the pro-AV market, as an increasing number of installers and integrators recognized the technology's benefits in commercial settings.

The HDBaseT standard for ultra-high-definition connectivity is promoted by the HDBaseT Alliance, a cross-industry organization founded by LG Electronics, Samsung Electronics, Sony Pictures Entertainment and Valens. HDBaseT addresses many of the challenges AV installers face in commercial projects, as it is the first technology to enable the 5Play™ feature set, sending audio & video, USB, Internet, controls and power over a single LAN cable for up to 100 m/328ft.

## HDBaseT: The All-in-one, Commercial Connectivity Solution

LAN cables are everywhere, and most important, are relatively inexpensive and easy to work with, as they can be field terminated and rely on lockable standard RJ-45 connectors. HDBaseT can deliver the 5Play feature set over a single Cat5e/6 cable.

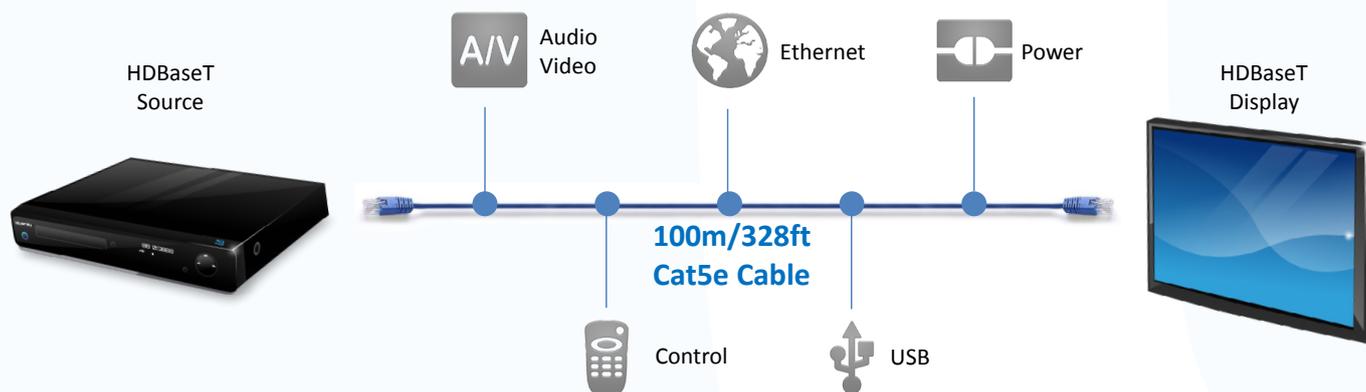


Fig. 1 The 5Play feature set

- **Audio & Video**

HDBaseT delivers up to ultra-high-definition (4K) uncompressed video, and support all HDMI 1.4 features, including EPG, CEC, EDID and HDCP. The unique video coding scheme of HDBaseT ensures the highest video quality at almost zero latency. HDBaseT audio supports all standard formats, including Dolby Digital, DTS, Dolby TrueHD and DTS-HD-Master Audio.

- **100BaseT Ethernet**

HDBaseT supports 100Mb Ethernet capabilities, enabling televisions, hi-fi equipment, computers and other consumer electronics devices to communicate with each other and access stored multimedia content, including video, pictures and music.

- **USB Support**

HDBaseT's USB 2.0 support enables keyboard, video & mouse (KVM), touch screen functionality, mass storage device, smartcard, and bidirectional video/image over USB.

- **Various control signals**

HDBaseT delivers different types of control signals for different purposes, from Consumer Electronic Controls (CEC) to Recommended Standard (RS)-232, USB and infrared (IR), which operate remote equipment allowing a system to be easily controlled and monitored, while maintaining the flexibility demanded in commercial installations.

- **Power over cable**

Sending power over the same CAT5e/6 cable gives installers the option to forego plugging devices into the wall outlet for power, allowing greater mobility and flexibility of installation. Power over HDBaseT (PoH) is an enhancement of Power over Ethernet (PoE) technology, and can power remote displays and other devices up to 100 watts.

## HDBaseT: A Look into Real-Life Applications

HDBaseT can be used in several scenarios, whether a greenfield installation, or in an expansion of an existing set-up, as HDBaseT is compatible with legacy technology, maximizing any sunk investments.

### The Corporate World

**Scenario:** Need to install projectors and screens in a meeting room and/or boardroom.

**Solution:** Using HDBaseT, installers can connect a wall-mounted projector to a distribution matrix with a single Cat5e/6 cable for a length of up to 100m/328ft. Any type of projector can be used – from legacy to the most advanced 3D projectors, whether HDBaseT-enabled or not, by employing a low-cost adaptor. This type of architecture is particularly useful for applications such as video conferencing.

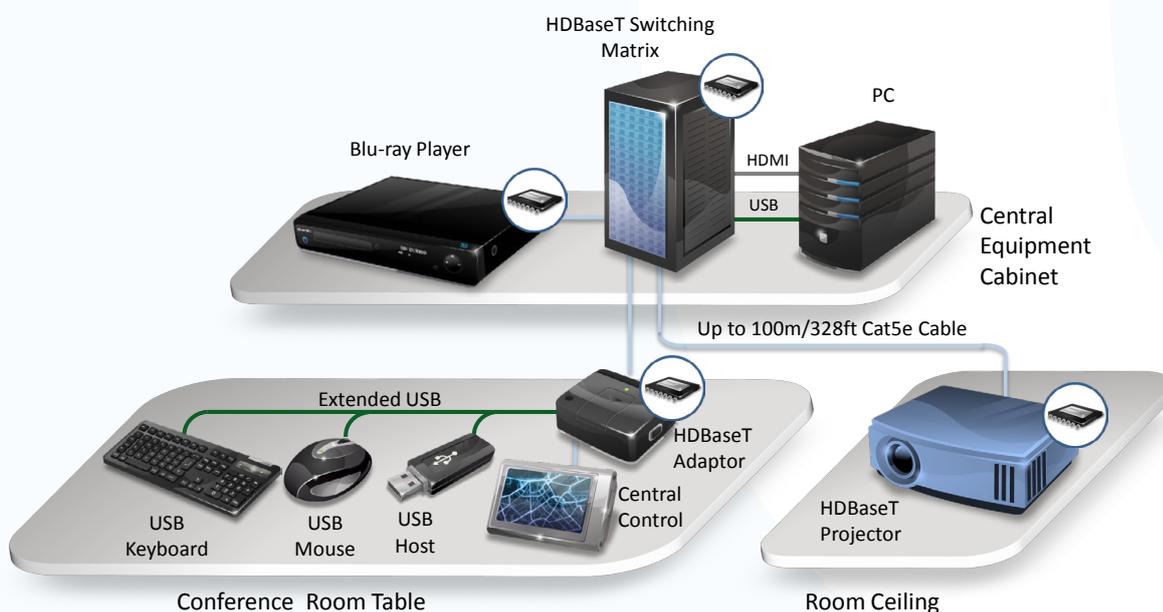


Fig. 2 HDBaseT in the corporate world

HDBaseT transfers data in an uncompressed format providing unmatched video quality with minimum latency. No video decoders/encoders are required and all formats are supported. Moreover, HDBaseT's ability to drive power over the LAN cable translates into increased flexibility on where to install devices, as installers are not limited to the locations of wall power outlets. HDBaseT allows for a single cable solution in this setup. In more complex scenarios, a centralized video hub can be connected to several displays and cameras with no intermediate convertors.

This same projector connection is useful for other markets including education, arena and houses of worship installations. Beyond video conferencing, HDBaseT can support all applications requiring an enhanced A/V connection.

### The Hospitality Market

HDBaseT allows installers to network displays throughout hotel suites, lobbies and conference rooms to create a unified viewing experience for guests. Whether connecting devices within a large suite or accommodating a large conference within the hotel, the existing Ethernet infrastructure allows an HDBaseT network to be easily implemented. For example, consumer electronics devices can be located in separate areas at distances of up to 100 meters away (and up to 800m, with eight hops of 100m each). This networking system allows flat screen displays to be elegantly mounted on any wall, while still connected to remote devices, eliminating cable clutter while providing better services to guests.

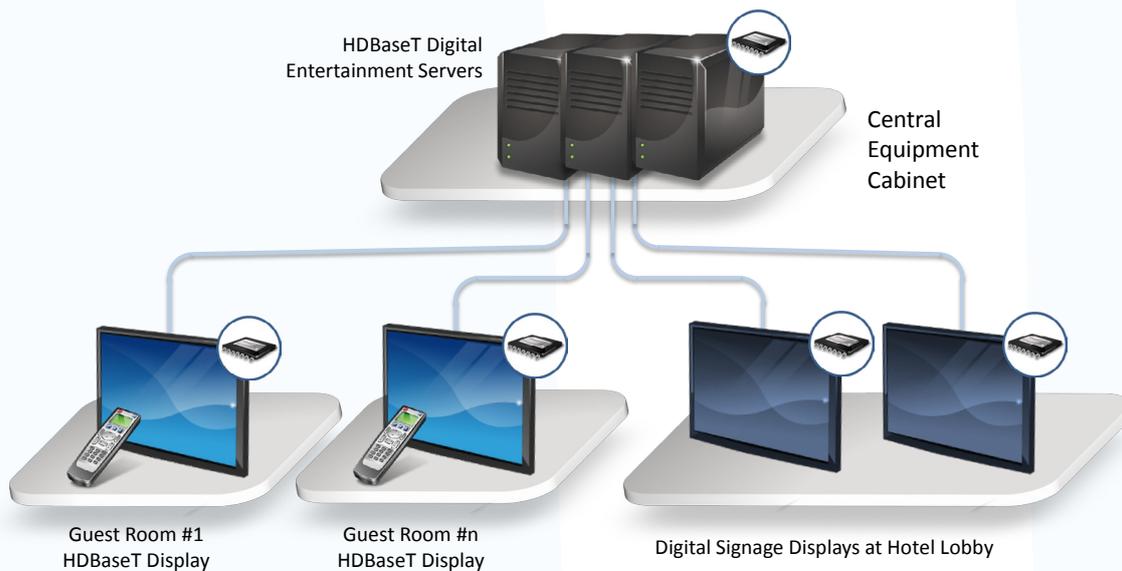


Fig. 3 HDBaseT in a hotel setting

### Airports, Train Stations, Shopping Malls and Other Public Venues

Digital signage is a growing market for commercial installers but can also pose many challenges particularly regarding distance, power proximity and controls. HDBaseT allows screens to be networked easily through daisy-chaining or star topologies, or through multistreaming. Up to eight, 100m LAN cables can be chained together to create a long reach network, an unparalleled offering in the market today. The same 5Play features can be delivered, overcoming distance, power and control barriers.

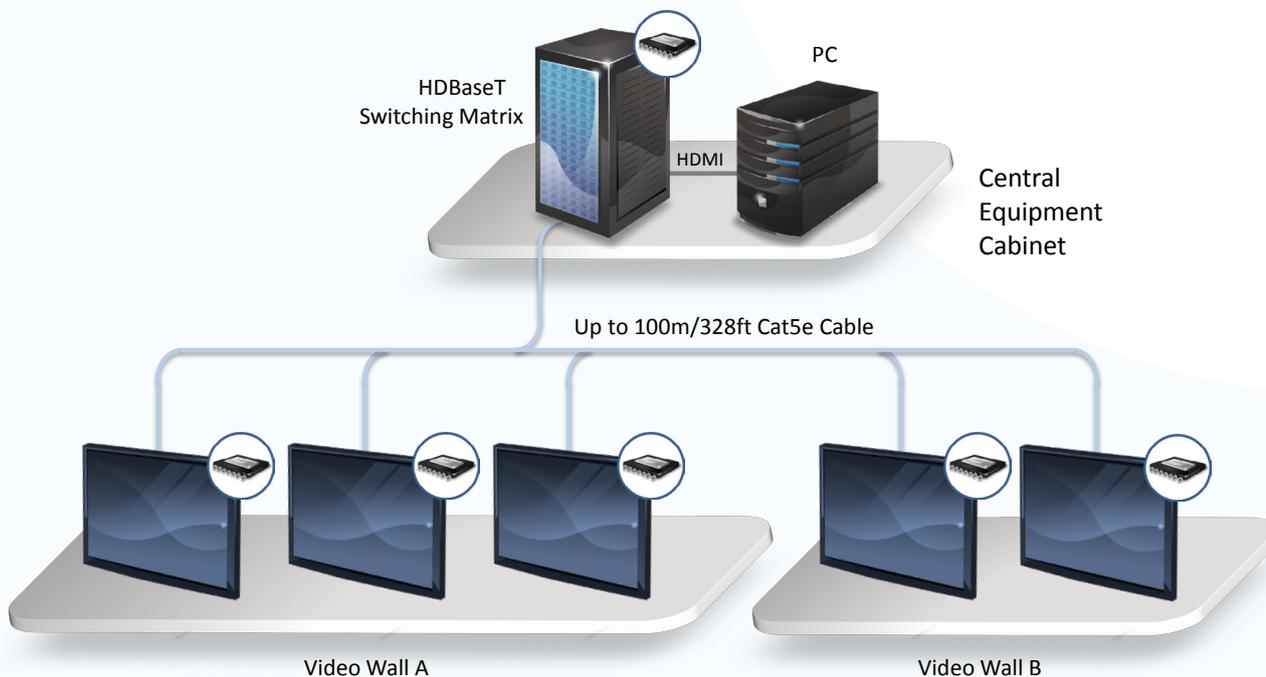


Fig. 4 HDBaseT in an airport

Beyond these examples, broadcasting, healthcare and any other commercial integrator market segment can benefit from the versatility and simplicity offered by HDBaseT technology.

Regardless of the scenario, HDBaseT brings some clear benefits both to installers and end-users, as it simplifies projects, bringing time-to-market and costs down. HDBaseT is a future-proof solution, while supporting legacy equipment for cost-effectiveness and increased flexibility.

## HDBaseT and Common Installation Challenges

When choosing to work with equipment based on HDBaseT technology, installers will find that many of the hurdles that were part of their daily working experience no longer exist. HDBaseT increases the reach of data transfer, expands distribution, simplifies installation and lowers overall system cost.

With HDBaseT, distance – or reach – is not a factor. Installers no longer need to count meters or worry about the cost of a repeater or extender when the distance is several meters long. In addition, a standard LAN cable can be field terminated after the cable is run, further simplifying installations and reducing costs.

Other common installation pitfalls addressed by HDBaseT include:

- **Support for ultra-HD and 3D**  
HDBaseT provides the highest video quality with zero latency, while supporting HDMI.
- **Quality controls**  
HDBaseT supports numerous control protocols while ensuring reliability and low latency.
- **USB support**  
HDBaseT's USB 2.0 support enables keyboard, video & mouse (KVM), touch screen functionality, mass storage device, smartcard, and bidirectional video/image over USB.
- **Power outlet proximity**  
HDBaseT sends 100W of power through the same LAN cable, eliminating the need for a power outlet to be installed near the display.
- **Cable clutter**  
HDBaseT eliminates the need for multiple cables – fewer cables means less mess and a more elegant solution.

## Conclusion

HDBaseT was created to guarantee the best user experience when delivering high-throughput video over low-cost and ubiquitous cabling infrastructure. In the process, HDBaseT enhanced and simplified the installation process, both in residential and commercial installations. The unmatched 5Play feature set enables the industry to deploy ultra-HD systems that are cheaper, increasingly flexible, highly reliable and capable of dealing with future demands and requirements.