



How to get the best return on your cabling infrastructure investment

Introduction

Deciding on the right cable for your installation is an important choice because it is often for the lifetime of a building. This decision is often based on deciding if it is worth investing more money in a Category 6A infrastructure, or if you should stay with a lower cost Category 6 infrastructure.

Panduit now recommends Category 6A cabling for new permanent installations. Category 6A is unique because it is designed to suppress alien crosstalk. Alien crosstalk refers to coupling or noise from adjacent cables or connectors. Category 5e and Category 6 cables were not designed to be immune to Alien Crosstalk. Alien crosstalk is the most critical parameter to meet as the equipment cannot compensate for it. The cabling must meet it by design. While the initial investment is slightly higher, a Category 6A infrastructure ensures the building will be able to handle the new and upcoming technologies that require it without needing to perform any future costly cable replacements.

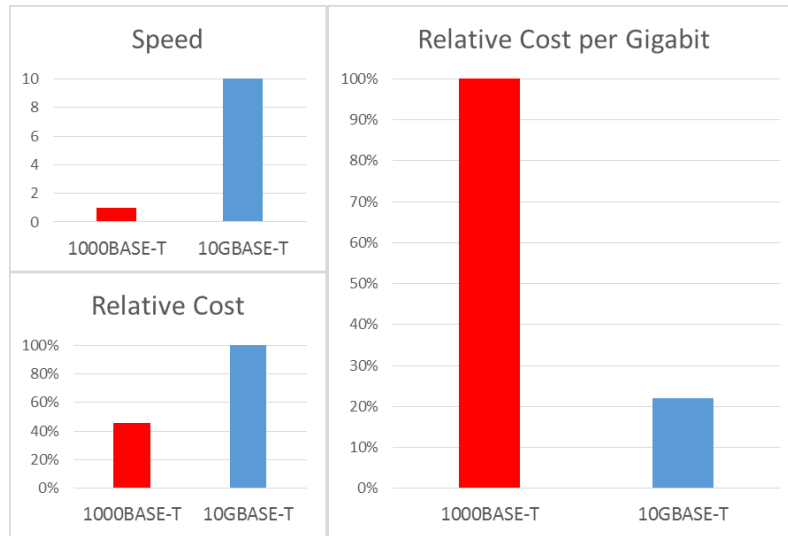


Figure 1: While more expensive, Category 6A (10GBASE-T) handles a much higher speed and is more cost effective per gigabit



Reasons for Installing Category 6A

1. Category 6A supports all data rates up to and including 10GBASE-T.

Category 6A ensures that your installation will be future proofed to run all data rates up to and including 10 gigabits per second. With the explosion of video, wireless access points, virtualization, and many other factors, having a cabling system that is future proofed for all foreseeable future applications is critical.

2. Speeds like 10GBASE-T will soon become common.

Forecasts show that 10GBASE-T will be the dominant BASE-T on switches by 2016. Hence, the common low cost, mass-market switches will require Category 6A cable in order to run at their maximum data rates.

3. Wireless access point speeds are accelerating much faster than traditional networking.

Wireless standards are rapidly evolving to serve the growing demands of mobile devices and are quickly consuming all the bandwidth in traditional networks. While most existing high end wireless access points (AP) can operate around 1.2 to 2.6 Gbps today, 7 Gbps APs are expected by 2017. A device requiring 7 Gbps of data is going to require 10GBASE-T running to it, which in turn requires a Category 6A infrastructure.

4. New applications like HDBaseT or higher Power over Ethernet (PoE++) supplying close to 100W have no bundling limitations with Category 6A cable.

While HDBaseT places bundle limitations on Category 5e and 6 due to alien crosstalk, there are no limitations on bundling with Category 6A. Additionally, due to the fact Category 6A cables are held to the highest standards, they have the added benefit of naturally dissipating heat better. This means they can handle the upcoming 802.3bt PoE++ standards which will deliver both 49W and 96W of power to end devices. Due to the higher 96W power running on multiple cables in a bundle, Category 5e and 6 bundle sizes will be limited. Category 6A cables will have no such restrictions.

5. 10GBASE-T is the low cost 10 Gigabit option.

With both increasing switch volumes driving down prices, and the introduction of more LAN on Motherboard (LOM) servers with “free” RJ45 connectivity, 10GBASE-T is now the lowest cost option for 10 Gigabit Ethernet. When comparing prices per gigabit, 10GBASE-T is also much less expensive than today’s 1000BASE-T Ethernet. Now is the right time to invest in a Category 6A infrastructure to run 10GBASE-T.



Summary

This Technology Brief explores the reasons why you should consider installing a Category 6A solution today to get the best return on your cabling infrastructure investment. Panduit recommends Category 6A because it removes the need to do costly replacement of your cables as new applications demand higher performing cabling. It will ensure you get the following benefits:

- Category 6A is future proofed for the new higher speed data rates
- Category 6A can handle the higher power levels for PoE++ and HDBaseT
- Category 6A can support all applications requiring this higher speed and power

About Panduit

Panduit is a world-class developer and provider of leading-edge solutions that help customers optimize the physical infrastructure through simplification, increased agility and operational efficiency. Panduit's Unified Physical Infrastructure (UPI) based solutions give Enterprises the capabilities to connect, manage and automate communications, computing, power, control and security systems for a smarter, unified business foundation. Panduit provides flexible, end-to-end solutions tailored by application and industry to drive performance, operational and financial advantages. Panduit's global manufacturing, logistics, and e-commerce capabilities along with a global network of distribution partners help customers reduce supply chain risk. Strong technology relationships with industry leading systems vendors and an engaged partner ecosystem of consultants, integrators and contractors together with its global staff and unmatched service and support make Panduit a valuable and trusted partner.

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