Do I need an Ethernet Extender or a Media Converter?

What is the difference?

IT Administrators and Network Engineers are in a constant battle to transmit data at faster speeds, over longer distances. As they push to go beyond the Copper-based Ethernet data transmission limit of only 100 meters [328 feet], they face the additional challenge of interconnecting different cable types (CAT5/6/7, **Coax**, multimode fiber, single mode fiber, etc.). Both **Media Converters** and **Ethernet Extenders** are viable solutions as they support a wide variety of protocols, data rates and media types to integrate seamlessly into various network infrastructures. Choosing which solution is right for your environment can sometimes be confusing. Hopefully this article will provide some clarity on when and where to use each type of product.

What is the difference?
Ethernet Extenders – Break the 100 meter [328 feet] Ethernet limit

Ethernet Extenders transparently extend 10/100/1000 Ethernet connections across single twisted pair (CAT5/6/7), **coax**, or any existing copper wiring previously used in alarm circuits, E1/T1 circuits, RS-232, RS-422, RS-485, CCTV and CATV applications. This ability to tap into unused wiring that was abandoned as systems were upgraded over the years is efficient and a huge budget saver. They allow **10/100Base-TX** networks to ultize **the power of SHDSL** to transmit Ethernet data **up to 20km [12.5 mi]**. Or, VDSL technology can be used to extend **10/100/1000Base-T Ethernet up to 3km [2 mi]**. Perle has a wide range of **Ethernet Extenders** that provide transparent operation for all Ethernet protocols, including 802.1Q VLAN packets and IP video compression schemes, and **rate conversion** between 10/100/1000 Mbps network links.

Copper to Fiber Media Converter - Taking Copper beyond 3km [2 mi] with Fiber

If you require any network data transmission beyond 3km [2 mi], or your environment is subject to high levels of electromagnetic interference (EMI), you will need a copper to fiber Media Converter. These devices convert electrical signals used in copper UTP cabling into light waves used in Multimode or Single Mode fiber optic cabling. This enables network devices with copper ports to transmit data up to 160km [99 mi].

Perle offers over 760 models of **Copper to Fiber Media Converters** that support 10/100/1000Base-T, 2.5GBase-T and 10GBase-T and rate conversion.

Fiber to Fiber Media Converter – Beyond Copper

Media Converters are also able to convert Multimode to Single Mode or **dual fiber to single fiber** using bi-directional (Bi-Di) data flow in WDM (Wavelength Division Multiplexing) applications.

In fiber network environments, **protocol-independent media converters** can be used to incorporate multiple fiber types and wavelengths in, or between, networks. Numerous fiber to fiber mode conversion applications are possible and all result in significant cost saving when compared to replacing an optical blade on network equipment.

Perle has over 180 full-featured **Fiber to Fiber Media Converters**, to reliably convert multimode to multimode or multimode to single mode.

Why Perle?

Perle has been providing reliable device connectivity hardware since 1976. That's more than 40 years of experience delivering superior connectivity technology. If network uptime and seamless data transmission is important, you need to install dependable hardware. Perle ensures reliability by making Fiber Converters and Ethernet Extenders with high quality components from leading chip manufacturers. They all have an on-board microcontroller to handle error detection and recovery by continuously monitoring link status, even in extreme temperatures. Our products are compatible with Cisco switches and routers, come with high MTBF rates, and are incredibly easy to install. In fact, Perle is so confident in the quality of our product, we offer a Lifetime Warranty.