The Case For Ethernet Over Anything

By Guy Apple, Network Video Technologies

Sometimes it seems that all we hear these days is that the entire video surveillance industry is rapidly migrating from analog to IP. Systems integrators and end-users alike need IP video surveillance migration and installation options. They need greater choice of how to accomplish the migration while maintaining a realistic budget.

Complete Cable Replacement

For decades, millions of analog-based CCTV cameras have been connected to recording and control equipment via coaxial cable. In fact, about 80% of analog cameras were installed with coax and many of those cable runs are greater than 328 feet.

There are a lot of installers and end-users in the market being told the only way to lay out a IP video surveillance network is to jettison the coax cable and start over with Cat 5/6 structured cabling and expensive IDF closets or mid-span Ethernet extenders at 328 foot intervals. Further, per fire code, all the old cable has to be removed.

Viable Alternative

An alternative to that time consuming and costly scenario is to utilize the existing cable, whether it's coax, UTP, or some other copper wire. The TBus® transmission system from NVT allows installers to take advantage of the extended PoE power and data distance benefits using that legacy wire. The TBus (short for Transmission Bus) technology allows installers to approach IP migration while minimizing the time and labor associated with cabling and installation of IDF closet infrastructure.

TBus Ethernet Advantages

Here is a summary of the most important points:

1. Supports most any kind of cable, allowing re-deployment of legacy wire

2. Supports any wiring topology (Star, daisy-chaining, splices from one kind of wire to another)

3. Extended distance up to, five times that of Ethernet. This eliminates the need for IDF closets and/or PoE extenders, and local AC power.

4. Ability to connect multiple IP cameras to one coax cable; saves cable, time and resources

5. IP migration can be done at your pace, incrementally

6. Simple, quick installation

7. Environmentally responsible re-use of existing cable

8. Facility disruption is dramatically reduced

**Leveraging Existing Investment**
The flexibility of the TBus solution provides cost-effective, simple and seamless migration avoiding wholesale 'forklift upgrades'.

If one were to install an entirely new Ethernet infrastructure, the project would be done in one pass, forcing a large expensive retrofit. Using legacy coax and/or UTP allows the luxury of migrating from analog cameras to IP cameras, in the timeframe chosen by the end-user. Because TBus technology takes advantage of the reuse of legacy cable and reduced labor, it can cost as little as half of an IP upgrade.

Multiple IP Cameras over One Cable
The typical coax-based IP product on the market today is either point-to-point, meaning there is one locally powered transceiver at the camera and one locally powered transceiver at the control room, or it is powered from a PoE port on a costly PoE switch. This is not efficient for multi-camera systems.

With a TBus Hub at the control room, the system's potential is maximized by supporting multiple remote transceivers and their cameras. The technology leverages one wire run that splits out to supply transmission links to multiple cameras (*see diagram*). This results in easy and cost-effective IP camera upgrades with minimal installation labor.

Typical TBus®, 1800 Series Application

TBus Distances up to 5 x Standard Ethernet
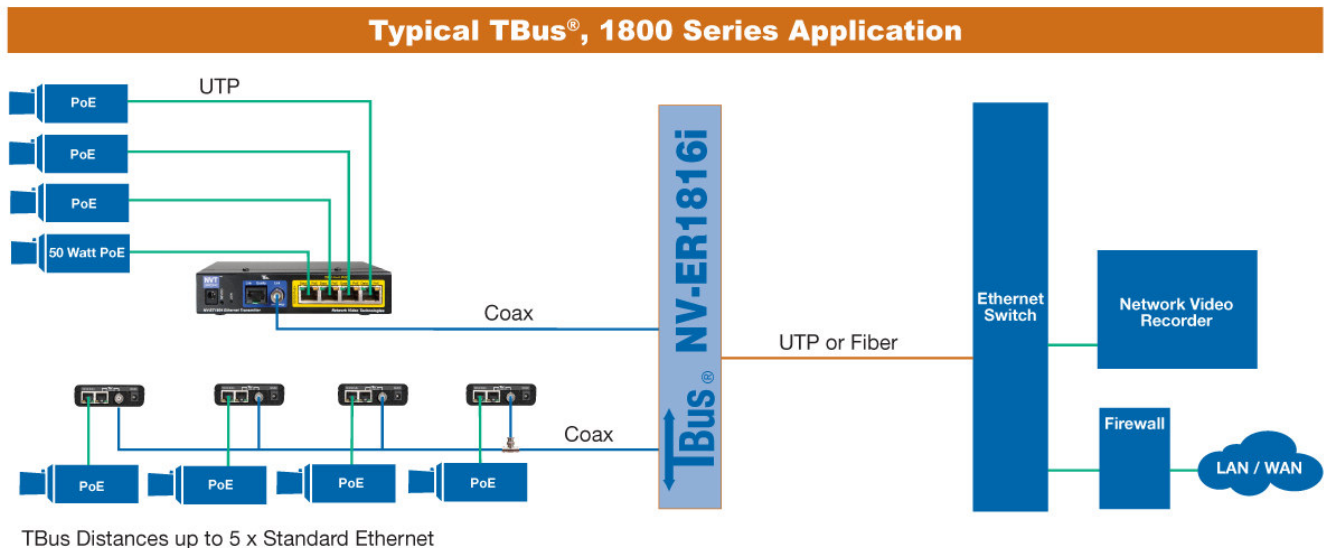
Ethernet Distance Issue
Conventional Ethernet repeaters must be installed every 328 feet. For the installer, that typically means IDF closets in odd locations throughout the facility in order to create a proper

un-interruptible AC power installed. A camera at 750 feet requires two repeaters. These repeaters, and their associated connections all add up to being a potential remote point-of-failure headache.

With the TBus based PoE, 56VDC power is provided at the control room, with up to 50 watts distributed to the TBus transceivers and their PoE cameras. No repeaters are needed and the distance and power supply problem is solved without impacting the budget. Cameras can operate from the same UPS as the control room equipment.

Simple Installation
TBus provides an easy-to-connect, transparent network that is very simple to use, reliable, and affords seamless integration between existing cable and the Ethernet backbone.

To provide utmost signal integrity and security, the TBus network provides 128-bit AES encryption through a single-button process called Joining.

No Facility Disruption
Extended distance using any wire and any topology allows incremental migration. This allows the end-user's operations to control the impact on its work schedule. In the case of hospitals for example, this minimizes the disruption of service to patients. Or in a gaming application, it allows gaming tables and machines to operate within the gaming authority's surveillance guidelines.

One More Thing
The TBus solution is not limited to the support of IP cameras. It can easily be used to provide Ethernet throughout the facility for access control, wireless access point support, IP phones, door stations, guard shacks, or any other Ethernet transmission application.

Conclusion
The elegance of a TBus solution is its simplicity of design and application. Installation is easy, data is robust and reliable, and everyone saves money. TBus technology enables more installers to approach an IP migration project with a new set of financial and installation deployment options.

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