Benefits of using PoE in Fire Alarm Systems

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Power over Ethernet is a technology that allows DC power to go through an Ethernet cable along with data. This is widely used in IP phones, security cameras, wireless access point and small cells since the Ethernet cable is already in the system. PoE has a lot of benefits:

1. Lower cost on BOM and installation: wall adapter or local power supply is not needed. No need for certified AC electrician for installation.
2. Safety: PoE has multiple levels of protection for overload, short circuit and over temperature. PoE device performs handshaking before delivering power. This prevents damage from incorrect installation or unknown devices.
3. Flexibility: with PoE pass through, PoE power can be delivered to anywhere in the network with star connection or mesh connection.
4. Intelligence: central controller has access to every PoE port to get status and diagnosis system fault.

With the benefits and big adoptions of PoE in the traditional end equipment, there's a trend that more and more emerging end equipment starts considering PoE, such as LED lighting, Audio, medical equipment and home entertainment. Fire alarm system should also consider using PoE not only for the benefits mentioned above, there are some extra advantages:

1. Each fire alarm or smoke detector can have unique IP address which helps people to locate the room in a big building. With everything on network, fire station can get real-time report/alarm and take actions quickly.
2. There are different ways to do PoE redundancy to ensure the power presence to the fire alarm and smoke detector. Battery should be a backup when the building loses power.

Overall, IoT is a trend for tomorrow. New buildings will have PoE installed for LED lighting, security cameras, wireless access point. It is a good opportunity for fire alarm system to leverage the infrastructure and be part of a smart building with IoT.

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Penny Xu is an application engineer from Texas Instruments with 4 years of experience on PoE technology and products. Penny is responsible for developing hardware and software for new products and help customers to solve system problems. Before joining TI, Penny worked for Trane as a software engineer after receiving Master's degree from The Ohio State University in Electrical and Computer Engineering. Penny enjoys snowboarding and travelling outside of work.