JB&B CELEBRATES

NATIONAL HEALTH CARE FACILITIES AND ENGINEERING WEEK

WHERE DID THE POWER GO?

Healthcare has become one of the largest adopters of technology—technology that helps forge the way for innovation, efficiency, and improved patient care. To support that technology, valuable space and increased electrical support is required. More technology doesn't necessarily mean more complexity and energy use. But why? Where's the power going?

Power over Ethernet (PoE) first emerged in 1997. PoE transmits DC power over copper wires inside an Ethernet cable. Because Ethernet uses differential signaling, the power and data transmissions may travel within a single cable without interfering with each other. PoE networks consist of powered devices, or any device that receives both power and data from the network, along with power sourcing equipment, which delivers electrical power to the network from an external power source. This technology is routinely utilized with devices like security cameras, wireless access points, and building technologies such as BLE, RFID and RTLS.

The use of this technology is expanding. Today, Power over Ethernet (Type 4, High-Power PoE) can deliver as much as 100 watts over an Ethernet cable to a PoE device. These high-power capabilities open up new opportunities for systems such as lighting or signal-emitting devices used to track people or equipment. It can also mean a single connection point for devices such as monitors and computers. That power is sourced from the PoE networks and power sourcing equipment that resides in the local technology rooms (IDF, TDR). The need to support new wireless technologies has substantially increased both the power supply sizes within the PoE network switches along with the uninterrupted power supply (UPS) and/or power source requirements brought to the technology rooms.

A substantial amount of power must mean a substantial amount of cooling—but it doesn't!

Because PoE network switches are drawing the power from the power supplies and pushing it from the network ports to the end devices, much of the power (and BTUs) are no longer remaining in the local technology rooms. The power—and heat—is pushed to your wireless or end devices. Cooling loads are no longer determined by a straightforward watts/rack calculation. To right-size your technology room cooling, you must understand the amount of cooling required for the processing occurring within the room, but not the load being passed through.

A similar concept applies to the electric power within the overall building. As more and more end use devices are powered by PoE systems, the need for electrical source power provided directly to the occupied spaces decreases. The additional load within the IT closets is "shifted" power, not additional.

Planning for and increasing the use of PoE can support a more flexible use of technology by decreasing the infrastructure required for upgrades (no electrical outlet needed!). It can also provide additional control of energy management by making more devices smart and the power use controllable. Be sure to have a conversation with your Technology and MEP engineers so that you can be sure your new or existing facility is infrastructure-ready for what's to come.

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