Technical Article

May the Forced UPOE Be with You

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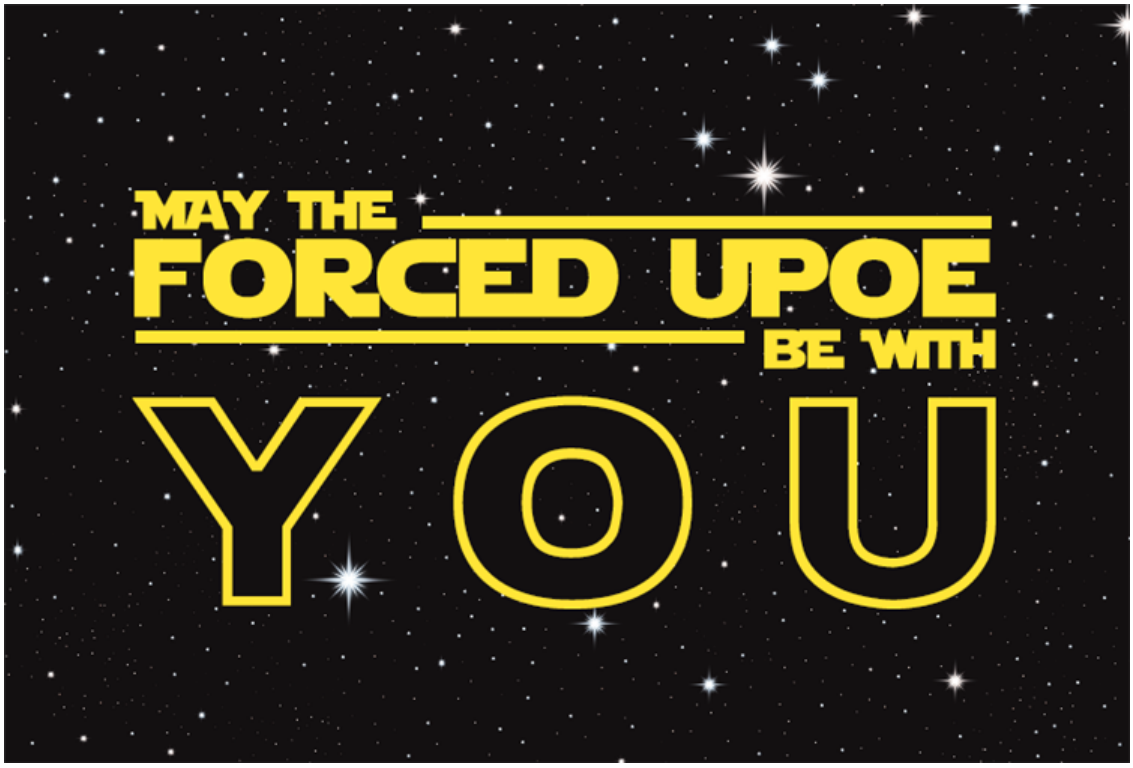

Contrary to what you might be thinking, this blog is not a review or in-depth analysis about a technology from a long time ago in a galaxy far, far away. It's about a technology that already exists and is gaining more presence in your everyday life: in your home, at the office and everywhere in between.

Power over Ethernet (PoE) is a technology that allows powered devices (PDs), such as IP phones, security cameras and wireless local area network (LAN) access points to receive power from power sourcing equipment (PSE) in parallel with data over standard CAT-5 Ethernet infrastructures.

Not too interesting, right? Actually, you'll find that by integrating power and data, PoE has many benefits. It is cost effective because it only requires a single installation of data and power without needing an electrical technician. It is a flexible technology that gives you the mobility to install devices regardless of proximity to AC mains. It is a safe technology because the devices are isolated from the AC mains voltage. Plus, PoE is reliable because the PSE provides and monitors only the power that the PD requests. Because of this flexibility, PoE is being implemented in emerging markets, such as set-top box, point-of-sale, industrial control, home automation and thin/zero client applications.

With PoE technology evolving in 2017 due to the upcoming release of the IEEE 802.3.bt standard, which is capable of 90W, PoE will give rise to newer applications that use higher performance systems such as lighting and automotive. I know, 2017 seems far, far away, but you need high power today for your watt-hungry systems.

TI's current solution to high-power PoE, in advance of the ratification of the IEEE802.3.bt standard, is Universal Power Over Ethernet (UPOE). UPOE is capable of powering up to 51W to the PD!

TI has released the TPS2378EVM-602, which enables full evaluation of a forced four-pair UPOE-compliant application.

Need a PSE solution to put power on the cable? Use TPS23861EVM-612's two high power ports, which don't require configuration. Simply connect one of the high-power ports in the TPS23861EVM-612 to the TPS2378EVM-602 power+data input, and you will have an end-to-end forced UPOE solution for your next project.

Additional Resources:

- Learn more about IEEE802.3btwith these blogs by TI's David Abramson:
  - What's next for PoE? IEEE802.3bt: November Plenary Session Recap
  - Mutual ID and its effect on backwards compatibility
  - 4PPoE task force discusses next-gen Power over Ethernet
- Read the TPS2378EVM-602 evaluation module user's guide.
- Check out a TI Designs reference design for a fully autonomous quad-port solution (TIDA-00290).

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