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# 10GBASE-T SUBCOMITTEE FAQ

**Q: Will 10GBASE-T support lower speeds, like gigabit 1000BASE-T?**

A: The 10GBASE-T standard includes the provision to auto negotiate to the highest speed available on both ends. This gives users the flexibility to upgrade on an incremental basis; a computer or switch with multi-rate support will support both legacy equipment as well as newer higher speed devices. Most 10GBASE-T equipment will auto negotiate to one or more of the lower speeds, 1000BASE-T, 100BASE-TX or 10BASE-T.

**Q: The Data Center sees many connections shorter than 100m. How does 10GBASE-T accommodate these shorter links?**

A: IEEE802.3an is specified for 100m with 4 connectors. Recognizing that many applications won't require the power inherent in a full-reach link, the standard included a test mode for 30m of Cat6a with two connectors. End-of-row modular switches designed for the data center can leverage the lower power typically offered by PHY vendors for this short-reach channel. Top-of-rack switches being designed for the data center move further away from that 100m enterprise-driven requirement, to a 10m or less link with no in-line connectors. These links can see even greater reductions in power for 10GBASE-T.

**Q: Does 10GBASE-T require new cabling?**

A: Each new speed of Ethernet over twisted pair has been accompanied by higher performance cabling as well as practices allowing support on installed legacy cabling. In the previous generation, 1000BASE-T required additional far-end-crosstalk specifications that 100BASE-TX did not require, and Cat5e resulted. Similarly, 10GBASE-T requires more bandwidth and additional alien crosstalk specifications. This has resulted in a new Cat6a cabling specification, as well as TIA TSB-155, which provides specifications for qualifying existing cabling for 10GBASE-T operation and mitigating the most common issues. New Cat6a cabling is not only rated at a higher bandwidth than Cat6 or Cat5e, it employs specific mitigation techniques to minimize the effect of alien crosstalk.

**Q: Does 10GBASE-T support Wake-on-LAN?**

A: Wake-on-LAN is a technique which permits a client to enter a sleep state, but be "woken up" remotely via the network. While the "magic packet" associated with WOL is not rate dependent, the system will benefit if the link is downshifted to the lowest speed available thru auto negotiation.