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Choosing a WLAN Standard: 802.11a vs. 802.11b

By Drew Robb

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The most common types of wireless LANs today support the 802.11b standard. Although faster 802.11a equipment has been available for some time, vendors of enterprise-class WLAN equipment -- with more sophisticated security and management options -- have only recently entered the market. With 802.11a maturing, choosing the right technology now depends on understanding the technology differences and matching them to your needs.

Also called Wi-Fi, 802.11b operates at 2.4 GHz with a maximum transmission rate of 11M bit/sec. at the access point (AP). Meanwhile, 802.11a operates on the less-crowded 5-GHz band and runs at up to 54M bit/sec. Although the 802.11a and 802.11b specs are incompatible, vendors offer so-called dual-mode APs that support both. A future standard, 802.11g, may offer 802.11a speeds and backward compatibility to 802.11b.

The 802.11a standard offers more nonoverlapping channels per AP that clients can use: eight, vs. three for 802.11b. Since it operates at a higher frequency, though, 802.11a has a shorter range and requires more APs for a given coverage area. That makes 802.11a more expensive for applications such as warehouse data entry that don't need the extra bandwidth. And while 802.11b is available in Europe, 802.11a is not. For higher bandwidth, network designers will need to investigate the European HiperLAN2 standard.

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Even if 802.11b is adequate, the network design should support a future move to 802.11a using dual-mode APs. Some organizations are even running 802.11a for voice-over-IP applications and 802.11b for data using this configuration. But that gives designers yet another standard to worry about: To ensure good sound quality and performance, APs should support the 802.11e quality-of-service specification.

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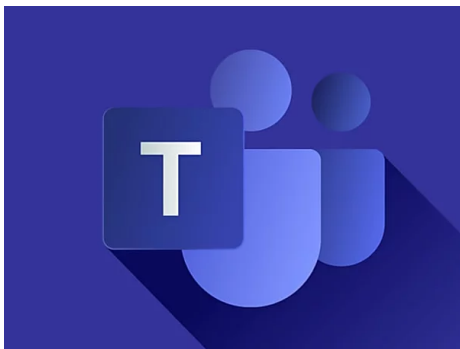


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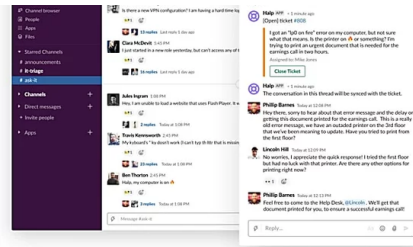


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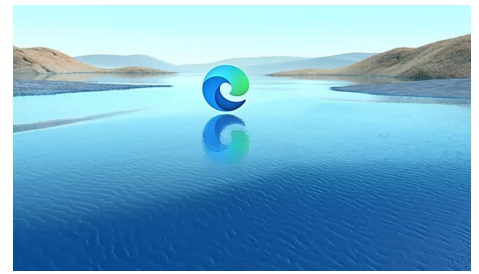
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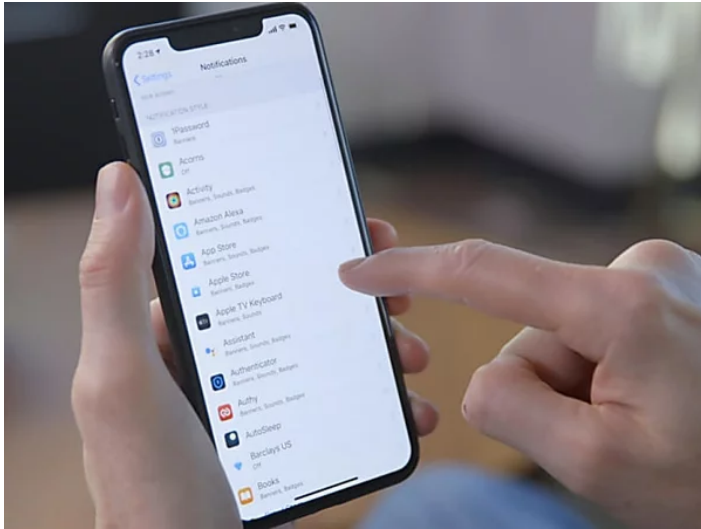
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