Gigabit fiber optic cables and 100Mbps routers

Overview

Cisco SFP Modules for Gigabit Ethernet Applications This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modu.

Key Takeaways

A 100Mbps router can connect to a gigabit fiber optic line, but your internet speed will be limited to 100Mbps, far below the fiber's potential.

Compatibility and Performance

You can physically connect a gigabit fiber optic connection to a 100Mbps router using standard Ethernet cables (Cat5, Cat5e, or Cat6) and an Optical Network Terminal (ONT) if required by your ISP. The router will function normally, but the maximum throughput will be capped at 100Mbps, meaning you won't experience the full gigabit speeds offered by fiber. This is because a 100Mbps router only uses two twisted pairs of the Ethernet cable for data transmission, whereas gigabit Ethernet requires all four pairs for full 1Gbps performance.

Cable ConsiderationsCat5E cables can support gigabit speeds but may be less reliable over longer distances or with interference. Cat6 cables are recommended for gigabit connections, providing better crosstalk performance and higher bandwidth, ensuring stable speeds if you upgrade your router in the future. Using a 100Mbps router with Cat6 cables will not increase speed; it only future-proofs your wiring.

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Practical Implications

Speed Limitation: Your download and upload speeds will max out at 100Mbps, even if your fiber plan offers 1Gbps or higher. Device Bottleneck: Multiple devices connected to a 100Mbps router may experience congestion, especially with streaming, gaming, or large file transfers. Future Upgrades: To fully utilize gigabit fiber, a router with Gigabit Ethernet ports and Wi-Fi 5/6/7 support is recommended.

Popular options include the ASUS RT-AC86U, Netgear Nighthawk RS90, or TP-Link AX1800, which can handle multi-gigabit speeds and provide better wireless coverage.

Recommendations

Keep the 100Mbps router temporarily if your current usage is light and you don't need full gigabit speeds. Upgrade to a gigabit-capable router to unlock the full potential of your fiber connection. Look for routers with at least 1Gbps LAN ports, Wi-Fi 6 or 7, and support for multiple devices.

Use Cat6 cables for future-proofing and stable gigabit performance.

Check IS

P requirements, as some fiber providers require a compatible ONT or fiber-ready router to connect properly. In summary, while a 100Mbps router will work with a gigabit fiber optic connection, it will severely limit your speeds. Upgrading to a gigabit router is the only way to fully leverage the high-speed fiber service.

Article Content

Cisco SFP Modules for Gigabit Ethernet Applications

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit Ethernet Applications.

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