Ring network with 2 optical and 4 electrical PoE switches



Overview

a ring topology is possible for data using PoE switches but not for power if you connect two PoE switch ports together, they will not supply power to each other!

Key Takeaways

A ring network combining optical and PoE switches can provide high redundancy and uninterrupted power/data delivery, using ERPS or similar ring protection protocols to ensure failover under 50ms.

Network Topology Overview

In a ring topology, each switch is connected to two other switches, forming a closed loop. This allows data to travel in both directions, so if one link fails, traffic is rerouted the opposite way, maintaining network uptime. For your setup: 2 Optical Switches: Serve as the backbone for high-speed data transfer, typically connected via fiber optic cables.

4 Electrical PoE Switches: Provide both data and power to devices like IP cameras, access points, or Ring PoE devices. A typical layout would alternate optical and PoE switches or place optical switches at strategic points to aggregate traffic from multiple PoE switches.

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Redundancy and Failover

To prevent downtime and broadcast storms: Implement ERPS (Ethernet Ring Protection Switching) or similar protocols to manage loops and ensure failover times under 50ms. Traffic can be distributed evenly across multiple paths, reducing congestion during peak usage.

Po

E switches should be capable of pass-through or auxiliary power if powering other PoE devices in the ring.

Cabling and Connectivity

Fiber Optic Links: Connect the optical switches and optionally link PoE switches to the optical backbone for long-distance, high-speed connections. Ethernet (Cat5e or Cat6): Connect PoE switches to end devices and to each other if forming a local segment of the ring.

Ensure Po

E switches have sufficient power budget to supply all connected devices, especially in a ring where multiple devices may draw power simultaneously.

Scalability and Maintenance

The ring topology allows easy addition of new PoE devices or switches without disrupting the network. For outdoor or remote installations, consider solar-powered PoE switches or UPS-backed switches to maintain power during outages. Regularly monitor switch load and link status to prevent bottlenecks and ensure the ring operates efficiently.

Practical Considerations

Avoid connecting PoE ports directly to each other for power, as PoE is designed to supply power to end devices, not other switches. Use managed switches that support ring protocols to handle failover automatically. Test the network by simulating link failures to ensure traffic reroutes correctly and PoE devices remain powered.

By combining optical backbone switches with PoE-enabled electrical switches in a ring topology, you achieve a robust, scalable, and high-availability network suitable for surveillance, smart building, or industrial applications.

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Article Content

POE ring topology

a ring topology is possible for data using PoE switches but not for power if you connect two PoE switch ports together, they will not supply power to each other!

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No. PoE can be used with any Ring devices that are PoE-enabled such as Stick Up Cam Elite. All current and future Ring products with PoE capability are engineered to IEEE 802.3af and 802.3at

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Understanding Power over Ethernet (PoE) and Power over Ethernet Plus (PoE+)

All current and future Ring products with PoE capability are engineered to IEEE 802.3af and 802.3at standards. If you can connect your network cables, you should have no difficulty connecting your

Understanding Power over Ethernet (PoE) and Power over Ethernet Plus (PoE+)

Power over Ethernet (PoE) is a way to wire power and internet together to select Ring devices like Stick Up Cam Elite and Video Doorbell Elite. Power over Ethernet (PoE) PoE allows you to supply power

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Why Do Ring PoE Cameras Need a PoE Switch? Ring PoE cameras need switches —specifically, PoE-enabled switches —because they require both power and data to operate over a

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Power and Data Transmission: The primary function of a PoE switch is to deliver both electrical power and network connectivity through an Ethernet/Fiber Optic cable, reducing installation costs and

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