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# Distributor Core Switch LPO



## Overview

Revolutionizing Data Centers with a Linear Pluggable Dell has launched support for pure LPO connectivity between the switch and the server, LPO-MSAThe focu.

## Key Takeaways

Distribution switches aggregate traffic from access switches and enforce policies, while core switches form the high-speed backbone; LPO modules enhance optical connectivity for these switches.Distribution Switch Overview

A distribution switch operates at the middle layer of a hierarchical network, bridging the access layer and the core layer . Its primary functions include:

• Traffic Aggregation: Collects data from multiple access switches and routes it toward the core layer.

• Policy Enforcement: Implements VLAN segmentation, Quality of Service (QoS), and Access Control Lists (ACLs) to prioritize and secure traffic.

• Inter-VLAN Routing: Acts as the main router for internal network segments.

• Redundancy and High Availability: Often deployed in pairs to ensure continuous operation if one switch fails.

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• High-Speed Uplinks: Typically requires uplinks of 10GbE, 25GbE, or higher to prevent congestion and maintain performance. Distribution switches are designed to handle high volumes of aggregated traffic and complex policies, making them essential for scalable enterprise networks .

Core Switch Overview

A core switch forms the backbone of the network, connecting distribution switches and providing ultra-fast, low-latency data transfer . Key characteristics include:

• High Throughput: Supports massive data volumes with wire-speed routing.

• Low Latency: Optimized for minimal delay in packet processing.

• Redundancy: Features dual power supplies and hot-swappable components to ensure near-zero downtime.

• Scalability: Can support multiple aggregation modules and high-capacity uplinks (10/40/100GbE).

• Simplified Policy Handling: Offloads policy enforcement to distribution switches to maintain maximum speed. Core switches are critical in large-scale networks, data centers, and campus backbones, providing the final aggregation point before traffic exits to WAN or Internet connections.

LPO (Linear Pluggable Optics) Integration

LPO modules enhance optical interconnects by removing the digital signal processing (DSP) function from pluggable optical modules, reducing power consumption, latency, and cost . Key benefits for distribution and core switches include:

• High-Speed Connectivity: Supports 100 Gb/s per lane and beyond, ideal for high-throughput aggregation and backbone links.

• Interoperability: Ensures multi-source compatibility across different switch vendors and network equipment.

• Optimized Performance: Leverages the capabilities of each network segment to maintain efficient, low-latency connections. Integrating LPO modules with distribution and core switches allows networks to scale efficiently while maintaining high performance and energy efficiency.

Summary

• Distribution switches: Middle layer, aggregate access traffic, enforce policies, route between VLANs, ensure redundancy.

• Core switches: Backbone layer, ultra-fast, low-latency, high-throughput, redundant, scalable.

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• LPO modules: Enhance optical links for both distribution and core switches, reducing power, latency, and cost while ensuring interoperability. This combination ensures a robust, scalable, and high-performance network architecture suitable for enterprise and data center environments.

## Article Content

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