# JEWELBLU OPTICAL SYSTEMS

# Dual-core switches and routers

## Overview

Dual Core Design You can have two core routers with redundant connection to the core switches. One router can host a connection to the primary ISP, Recomme.

## Key Takeaways

Dual-core switches and routers provide redundancy, high availability, and improved performance in enterprise and data center networks.Overview of Dual-Core Architecture

A dual-core network setup typically involves two core switches or routers operating in parallel to form a resilient backbone. This design ensures that if one core device fails, the other can continue handling traffic, minimizing downtime and maintaining network stability . Dual-core configurations are commonly deployed in hierarchical networks with core, distribution, and access layers, where the core layer handles high-volume routing and switching .

Benefits
• Redundancy and High Availability: Dual-core devices prevent single points of failure. Features like VRRP, HSRP, or VSX allow seamless failover between cores .

• Load Balancing: Traffic can be distributed across both cores using link aggregation (LAG/MC-LAG) or routing protocols like OSPF, optimizing bandwidth usage .

• Simplified Management: Some dual-core switches support Virtual Switching System (VSS) or VSX, allowing two physical switches to operate as a single logical unit, reducing complexity in configuration and spanning tree management .

• Scalability: Dual-core setups can handle large volumes of data and support high-speed uplinks to distribution and access layers, making them suitable for data centers and enterprise networks .

Deployment Considerations

• Inter-Core Connectivity: Establish high-speed links between the two core switches using LAG or VSX inter-switch links (ISL) to synchronize routing and forwarding tables .

• Routing Protocols: Implement dynamic routing (e.g., OSPF or BGP) between cores and upstream routers/firewalls to control preferred paths and ensure redundancy .

• Access Layer Integration: Connect distribution or access switches to both cores, using multi-chassis link aggregation or redundant paths to prevent bottlenecks .

• Failover and Redundancy Features: Enable VRRP, HSRP, or Flex Links to maintain continuous network availability in case of device or link failure .

• Performance Monitoring: Regularly monitor forwarding rates, CPU load, and memory usage to ensure the dual-core setup can handle peak traffic without degradation .

Example Use Cases

• Enterprise Networks: Dual-core switches provide a resilient backbone for office LANs, connecting multiple distribution and access switches while supporting VLANs and inter-VLAN routing .

• Data Centers: High-performance dual-core switches with dual CPUs, hot-swappable power supplies, and 10/40/100G uplinks support AI clusters, storage fabrics, and high-speed aggregation .

• Campus Networks: Two core routers can manage traffic between buildings, with dynamic routing and redundant links ensuring uninterrupted connectivity .

Summary

Dual-core switches and routers are essential for high-availability, scalable, and resilient networks. By combining redundancy, load balancing, and advanced features like VSX or VSS, they ensure continuous operation and efficient traffic management across enterprise and data center environments . Proper planning of inter-core links, routing protocols, and access layer integration is critical to maximize the benefits of a dual-core architecture.

## Article Content

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Recommendations: Dual Core Switch for redundancy.

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Connecting routers to dual "core" switches

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To determine which UniFi Switch is right for you, consider the size and complexity of your network, the number and types of PoE

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Unlike traditional firewall clusters, it leverages two L3 routers, each terminating ISP links and incorporating SD-WAN

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Core switch to dual ISP routers

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Dual WAN Routers Dual WAN Routers offer multi-connection linking for failover or to act as a load balancing solution. A Dual WAN

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Dual WAN failover is a mode where your router will automatically switch to your secondary internet connection if the primary source

Edge switch redundancy to two core switches

I want to provide best redundancy for an access switch (Cisco 3650) when connecting to two core switches (Cisco

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