

Article Overview

Dual-mode or dual-homing configurations enhance core switch redundancy, reliability, and network performance by connecting switches to multiple upstream devices and enabling high-availability protocols.

Overview of Dual-Mode/Dual-Homing

Dual-mode settings, often referred to as dual-homing, involve connecting a core switch to two upstream devices or controllers to ensure network redundancy and load balancing. This setup allows traffic to reroute automatically if one link or device fails, minimizing downtime and maintaining service continuity . Dual-mode configurations are commonly deployed in enterprise networks, data centers, and campus environments.

Key Configuration Considerations

1. Hardware Requirements

- o Switches must support dual-rate or high-speed links (e.g., 40G, 100G, or 400G for Cisco Catalyst 9600 Series) to form StackWise Virtual or similar high-availability links .
- o Core switches should have sufficient 100-GbE or 40-GbE ports to connect to aggregation layers and other core devices .

- o For dual-homing, devices should support redundancy protocols like VRRP, HSRP, or FGCP for failover protection .

2. VLAN and Spanning Tree Configuration

- o Enable VLAN-based Spanning Tree (VBST) or standard STP to prevent loops in dual-homed topologies .
- o Configure STP priorities for core and aggregation switches to control root bridge election and optimize traffic paths .

- o Ensure management VLANs (wired and wireless) are associated with STP and have static IP addresses for consistent network management .

3. Redundancy Protocols

- o VRRP/HSRP: Virtualizes the IP gateway, allowing seamless failover between dual-homed switches .
- o First Hop Redundancy Protocol (FHRP): Fine-tune timers for rapid detection and recovery in case of link or device failure .

- o Multichassis Link Aggregation (MCLAG): Used in Fortinet and other solutions to aggregate links across dual core switches, simplifying topology and reducing spanning tree complexity .

4. Link Configuration

- o All ports used for high-availability links (e.g., StackWise Virtual Link or inter-chassis links) must share the same speed and be compatible with dual-rate optics .

- o Point-to-point links between core and aggregation layers are recommended, with dual interconnect links (ICLs) for redundancy .

- o For Cisco StackWise Virtual, ensure both switches have the same model, supervisor module, software

Core Switch Dual-Mode Configuration Method

version, license level, and SDM template . 5. Routing and Traffic Management

- o Configure BGP or other routing protocols to manage traffic paths efficiently and enable dynamic rerouting in case of link failure .
- o Fine-tune multicast and PIM timers to optimize forwarding topology and reduce convergence time .

Best Practices

- o Deploy dual-core switches in pairs to reduce the number of required links between aggregation switches, simplifying cabling and port usage .
- o Use high-speed links for inter-switch connections to support large-scale traffic and future growth .
- o Regularly test failover scenarios to ensure VRRP/HSRP and STP configurations operate as expected.
- o Maintain consistent software versions, licenses, and SDM templates across dual-homed switches to prevent configuration mismatches . By following these guidelines, dual-mode core switch configurations provide high availability, improved load balancing, and simplified network management, ensuring robust performance for enterprise and campus networks.

Core switches are defined as high-capacity switches located at the top of a cloud data center network, connecting aggregation

I have looked at 2 x WS-C3850-24XS-E 1/10Gbps switches with 640Gbps switching capacity. My question is if i stack

Mode requests are distributed on the way from the mode requester (Mode Arbitration SWC or a generic SWC) to the mode manager.

Zoning All zone members will be pWWNs in the core-edge topology using standard interop mode because the Brocade domain/port

Comprehensive guide to Core, Distribution, and Access Switches. Roles in the network and important parameters explained.

Currently, there is no provision for user to configure dual core mode through sbl manually or in the .cfg file. The SBL

Dual-mode solution enables CSPs to manage one network instead of two and add programmability to their network.

What is a core switch and how it works? This article builds the basics of this kind of switch for the ones who

don't

Explore the core switch's role as the backbone of your network. Discover key differences,

Your switch stack is essentially a collapsed core, in this particular configuration, and there isn't anything wrong with that.

Dear All, Hi Friends, i have two 3750 switches. I configured intervlan routing between three vlans which are

A switch that functions as part of a router and operates at the third layer of the OSI network standard model, the network layer. The

In this work, we present an all-fiber architecture for a high-speed core-selective switch, crucial for efficient signal

A Wideband Dual-Mode LC-VCO With a Switchable Gate-Biased Active Core Abstract: A wideband inductance

This chapter describes how to set up a basic dual-core topology with an MDS 9000 switch configured for

After an access switch goes online in plug-and-play (PnP) mode, configure the wireless PnP VLAN on it and configure its uplink

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