

# Dual-core switch deployment mode



## Overview

In the following scenarios, FortiGate is connected to two switches without LACP and with LACP (802.3ad) design.

## Key Takeaways

Dual-core switch deployment mode uses two core switches in a redundant configuration to ensure high availability, load balancing, and network resiliency.

In a dual-core deployment, two core switches are deployed to act as a single logical entity or as redundant nodes. This setup ensures that if one core switch fails, the other continues to handle traffic without service interruption. Dual-core deployment is commonly used in campus networks, data centers, and large enterprise environments to provide high availability and fast convergence .

**Key Deployment Approaches**1. Fortinet MLAG (Multi-Chassis Link Aggregation Group)

- Two FortiSwitch units are paired to form an MLAG peer group, appearing as a single switch to upstream devices like FortiGate firewalls .
- Redundant links are used between access, aggregation, and core layers to prevent single points of failure.
- FortiLink split interfaces allow a FortiGate unit to connect to two FortiSwitch units, with one link active at a time, ensuring continuous management and traffic flow .

- STP (Spanning Tree Protocol) and IGMP snooping must be enabled on all inter-switch links to maintain loop-free and efficient traffic forwarding .

## 2. Cisco StackWise Virtual

- Two Cisco switches are directly connected and operate as a single logical switch using StackWise Virtual .
- Requirements include identical switch models, supervisor modules, software versions, licenses, and SDM templates.
- StackWise Virtual links (SVL) aggregate multiple physical ports, providing distributed forwarding and control planes for resiliency.
- This approach is suitable for aggregation or collapsed core layers, allowing high-speed interconnects (e.g., 40G, 100G, or 400G depending on the supervisor module) to scale bandwidth and maintain redundancy .

## 3. Huawei Dual-Node Mode

- Core switches are deployed in a two-node mode, with access switches dual-homed to aggregation switches for reliability .
- VLAN-based Spanning Tree (VBST) is enabled, and priorities are configured for core and aggregation switches.
- Management VLANs for wired and wireless devices are associated with VBST to ensure proper traffic segregation and loop prevention .

## Best Practices

- Redundant Links: Always use multiple uplinks between access, aggregation, and core layers to avoid single points of failure .
- Consistent Configuration: Ensure both core switches have identical configurations, firmware, and hardware capabilities to prevent inconsistencies in failover scenarios .
- High Availability: Configure HA clusters or virtual switch pairs to maintain service continuity during maintenance or failures .
- Traffic Load Balancing: Use link aggregation (MCLAG or SVL) to distribute traffic evenly across both core switches.
- Monitoring and Management: Use LLDP, dynamic port policies, and centralized controllers to monitor device health and automate configuration changes .

## Summary

Dual-core switch deployment mode enhances network resiliency, scalability, and operational efficiency. By pairing two core switches using technologies like Fortinet MCLAG, Cisco StackWise Virtual, or Huawei dual-node mode, networks can maintain uninterrupted service, optimize traffic distribution, and simplify management while minimizing downtime during failures or maintenance events .

## Article Content

### Ease of Deployment

This document focuses on configuring a switch network and is organized in a workflow pattern, beginning with the initial configuration

### Configuring NE Management (Dual Border Nodes, Access Switches

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

### Configuring NE Management (Dual Border Nodes, Access Switches

In this example, VLAN-based Spanning Tree (VBST) needs to be enabled on all devices on the network, VBST priorities must be

### Cisco MDS 9000 Family Switch-to-Switch Interoperability

This chapter describes how to set up a basic dual-core topology with an MDS 9000 switch configured for interop mode 1 and a

### Deploying MCLAG topologies | FortiSwitch 7.6.5

Use the following procedure to deploy tier-2 and tier-3 MCLAG peer groups from the FortiGate switch controller without the need for

### Deployment overview | FortiSwitch 7.6.0 | Fortinet Document Library

The switches are dual-homed for redundancy and to increase the bandwidth. There are additional 10G ports for servers or more

### FortiSwitch Data Center Series Data Sheet

Whether in standalone or FortiLink mode, automation and orchestration offer intuitive workflows and unified views for provisioning,

### Technical Tip: High Availability basic deployment design

In the following scenarios, FortiGate is connected to two switches without LACP and with LACP (802.3ad) design. Any

### FortiSwitchOS Large Campus Switching Deployment Guide

The deployment guide provides the design and deployment steps involved in deploying a specific architecture. Readers should first

Recommendations: Dual Core Switch for redundancy.

Make sure you designate the primary root bridge and the secondary on your core switches and configure the

Cisco MDS 9000 Series I/O Accelerator Configuration Guide, Release

Figure 3. Collapsed Core Topology Extended Core-Edge Topology Extended Core-Edge Topology illustrates the

FortiSwitch Data Center Series Data Sheet

FortiSwitch switching architecture enables secure deployment and management within minutes through zero-touch deployment.

Campus LAN Core and Distribution Switches

Cisco Catalyst and Meraki Campus LAN core and distribution switches are scalable, secure network switches with exceptional

Cisco Application Centric Infrastructure (ACI) Design Guide

Cisco Application Centric Infrastructure (Cisco ACI™) technology enables you to integrate virtual and physical

Hybrid Campus LAN Design Guide (CVD)

This document provides a pre-validated design & deployment guide for "a" Hybrid Campus LAN comprising both Cisco and Meraki

FortiGate Internet Redundancy Designs — Andrew Travis

A hardware switch is a virtual switch interface that groups different ports together so that the FortiGate can use the

Recommendations: Dual Core Switch for redundancy.

Hi Experts, May I ask for your recommendations for this kind of setup. Best practices and other routing and switching

Configuring NE Management (Dual Border Nodes, Access Switches Dual ...

Context The network has dual border nodes deployed, uses the distributed gateway solution with VXLAN deployed across core and

FortiSwitchOS Switching Reference Architecture Guide

Without FortiGate NAC (such as in competitors' switch deployment recommendations), the on-site access and device layer remains

Dual Core Design

Need clarification on dual core switch design. Should be a pretty easy question, but the dual core design is just 2 core routers

FortiSwitchOS Switching Reference Architecture Guide

Without FortiGate NAC (such as in competitors' switch deployment recommendations), the on-site access and device layer remains

Meraki Campus LAN; Planning, Design Guidelines and Best Practices

This document provides best practices and guidelines when deploying a Campus LAN with Meraki which covers both Wireless and

Core layer | FortiSwitch 7.4.0 | Fortinet Document Library

In a large campus deployment, it is not practical to run that many optical fibers between buildings. The core layer is critical, yet very

Dual Core Design

Need clarification on dual core switch design. Should be a pretty easy question, but the dual core design is just 2 core routers

FortiSwitchOS Switching Reference Architecture Guide

Without FortiGate NAC (such as in competitors' switch deployment recommendations), the on-site access and device layer remains

Meraki Campus LAN; Planning, Design Guidelines and Best Practices

This document provides best practices and guidelines when deploying a Campus LAN with Meraki which covers both Wireless and

Core layer | FortiSwitch 7.4.0 | Fortinet Document Library

In a large campus deployment, it is not practical to run that many optical fibers between buildings. The core layer is critical, yet very

Leaf-Spine Deployment and Best Practices Guide

The connections between leaf and spine switches can be layer 2 (switched) or layer 3 (routed). This deployment guide provides step

Cisco Catalyst 9400 Series Switches

Cisco Catalyst 9400 Series Switches - Some links below may open a new browser window to display the document you selected.

Reference Architecture | Validated Solution Guide

When using the CX 9300-32D in both core and access roles, it supports up to 28 computing racks in a single ToR

### Virtual Switching Systems (VSS)

For example, a VSS in the distribution layer of the network interacts with the access and core networks as if it were a single switch.

### Best Practices for Switch Stacking Configuration

Learn what is switch stacking and how to best leverage it to maximize your network's performance. Find out the complete

BRKEWN-2339

What Deployment Mode to Choose? ... For your reference ... 1 Embedded Wireless Controller in switch with SD-Access only.

### SteelHead Deployment Guide

Dual NAT Deployment Using Enhanced Autodiscovery and Full Transparency Failed  
Dual NAT Deployment Using Enhanced

### What Is a Core Switch?

Conclusion: Is It Time for a Core Switch? If your organization requires high-speed, always-on network connectivity, a core switch is

### Understand and Configure Nexus 9000 vPC with Best Practices

This document describes the best practices to use for virtual Port Channels (vPC) on Cisco Nexus 9000 (9k) Series

### Cisco MDS 9000 Family Switch-to-Switch Interoperability

This chapter describes how to set up a basic dual-core topology with an MDS 9000 switch configured for interop mode 1 and a

### Cisco MDS 9000 Series I/O Accelerator Configuration Guide, Release

Figure 3. Collapsed Core Topology Extended Core-Edge Topology Extended Core-Edge Topology illustrates the

### FortiSwitch Data Center Series Data Sheet

FortiSwitch switching architecture enables secure deployment and management within minutes through zero-touch deployment.

### Campus LAN Core and Distribution Switches

Cisco Catalyst and Meraki Campus LAN core and distribution switches are scalable, secure network switches with exceptional

Cisco Application Centric Infrastructure (ACI) Design Guide

Cisco Application Centric Infrastructure (Cisco ACI™) technology enables you to integrate virtual and physical

Hybrid Campus LAN Design Guide (CVD)

This document provides a pre-validated design & deployment guide for "a" Hybrid Campus LAN comprising both Cisco and Meraki

FortiGate Internet Redundancy Designs — Andrew Travis

A hardware switch is a virtual switch interface that groups different ports together so that the FortiGate can use the

Recommendations: Dual Core Switch for redundancy.

Hi Experts, May I ask for your recommendations for this kind of setup. Best practices and other routing and switching

Configuring NE Management (Dual Border Nodes, Access Switches Dual ...

Context The network has dual border nodes deployed, uses the distributed gateway solution with VXLAN deployed across core and

FortiSwitchOS Switching Reference Architecture Guide

Without FortiGate NAC (such as in competitors' switch deployment recommendations), the on-site access and device layer remains

Dual Core Design

Need clarification on dual core switch design. Should be a pretty easy question, but the dual core design is just 2 core routers

FortiSwitchOS Switching Reference Architecture Guide

Without FortiGate NAC (such as in competitors' switch deployment recommendations), the on-site access and device layer remains

Meraki Campus LAN; Planning, Design Guidelines and Best Practices

This document provides best practices and guidelines when deploying a Campus LAN with Meraki which covers both Wireless and

Core layer | FortiSwitch 7.4.0 | Fortinet Document Library

In a large campus deployment, it is not practical to run that many optical fibers between buildings. The core layer is critical, yet very

### Ease of Deployment

This document focuses on configuring a switch network and is organized in a workflow pattern, beginning with the initial configuration

### Configuring NE Management (Dual Border Nodes, Access Switches

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

### Configuring NE Management (Dual Border Nodes, Access Switches

In this example, VLAN-based Spanning Tree (VBST) needs to be enabled on all devices on the network, VBST priorities must be

### Cisco MDS 9000 Family Switch-to-Switch Interoperability

This chapter describes how to set up a basic dual-core topology with an MDS 9000 switch configured for interop mode 1 and a

### Deploying MCLAG topologies | FortiSwitch 7.6.5

Use the following procedure to deploy tier-2 and tier-3 MCLAG peer groups from the FortiGate switch controller without the need for

### Deployment overview | FortiSwitch 7.6.0 | Fortinet Document Library

The switches are dual-homed for redundancy and to increase the bandwidth. There are additional 10G ports for servers or more

### FortiSwitch Data Center Series Data Sheet

Whether in standalone or FortiLink mode, automation and orchestration offer intuitive workflows and unified views for provisioning,

### Technical Tip: High Availability basic deployment design

In the following scenarios, FortiGate is connected to two switches without LACP and with LACP (802.3ad) design. Any

### FortiSwitchOS Large Campus Switching Deployment Guide

The deployment guide provides the design and deployment steps involved in deploying a specific architecture. Readers should first

Recommendations: Dual Core Switch for redundancy.

Make sure you designate the primary root bridge and the secondary on your core switches and configure the

### Ease of Deployment

This document focuses on configuring a switch network and is organized in a workflow pattern, beginning with the initial configuration

### Configuring NE Management (Dual Border Nodes, Access Switches

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

### Configuring NE Management (Dual Border Nodes, Access Switches

In this example, VLAN-based Spanning Tree (VBST) needs to be enabled on all devices on the network, VBST priorities must be

### Cisco MDS 9000 Family Switch-to-Switch Interoperability

This chapter describes how to set up a basic dual-core topology with an MDS 9000 switch configured for interop mode 1 and a

### Deploying MCLAG topologies | FortiSwitch 7.6.5

Use the following procedure to deploy tier-2 and tier-3 MCLAG peer groups from the FortiGate switch controller without the need for

### Deployment overview | FortiSwitch 7.6.0 | Fortinet Document Library

The switches are dual-homed for redundancy and to increase the bandwidth. There are additional 10G ports for servers or more

### FortiSwitch Data Center Series Data Sheet

Whether in standalone or FortiLink mode, automation and orchestration offer intuitive workflows and unified views for provisioning,

### Technical Tip: High Availability basic deployment design

In the following scenarios, FortiGate is connected to two switches without LACP and with LACP (802.3ad) design. Any

### FortiSwitchOS Large Campus Switching Deployment Guide

The deployment guide provides the design and deployment steps involved in deploying a specific architecture. Readers should first

Recommendations: Dual Core Switch for redundancy.

Make sure you designate the primary root bridge and the secondary on your core switches and configure the

#### Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

## Contact Us

Continue your research online:

Website: <https://alfa-pro.co.za>

Technical inquiry: <https://alfa-pro.co.za/contact.html>

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

