Deployment Map of Four Core Switches

Article Overview

A four-core switch deployment typically uses two to four FortiGate devices paired with two high-speed FortiSwitch units in a redundant, high-availability mesh to connect aggregation and access layers.

Core Layer Architecture

In a large campus deployment, the core layer consists of two to four FortiGate devices and two FortiSwitch units. These switches provide high-speed connectivity (100-GbE or 40-GbE) to the aggregation layer and maintain links to the FortiGate firewalls, which also serve as the Security Fabric controller and WAN gateway . This setup ensures maximum redundancy and resiliency, allowing nonstop forwarding even during switch or link failures.

Redundancy and Link Aggregation

The core switches are typically configured in MCLAG (Multi-Chassis Link Aggregation) pairs, which allows aggregation switches to connect with fewer links while maintaining full redundancy. For example, without a core layer, each aggregation switch would require [n x (n-1)]/2 links to fully mesh with other aggregation switches. With a core layer, only (n x 2) + 2 links are needed, significantly reducing cabling complexity . This design also simplifies failover, as the core layer can absorb link or switch failures without impacting the access layer.

Connectivity to Distribution and Access Layers

o Distribution Layer: Multiple pairs of FortiSwitch units form MCLAG peer groups in building communications rooms. These switches aggregate access-level switches and connect upstream to the core layer using high-speed links (typically 100G), .
o Access Layer: Access switches connect endpoints, WiFi APs, servers, and IoT devices. They are dual-homed to distribution switches for redundancy and may use 1G, 2.5G, 5G, or 10G ports depending on device requirements .

Example Deployment Map

o Core Layer: 4 FortiGate devices + 2 FortiSwitch units in HA and MCLAG configuration.
o Aggregation Layer: 6-10 pairs of FortiSwitch units forming MCLAG peer groups, each connecting to the core switches with 2x100G links.
o Access Layer: Floor-level switches dual-homed to aggregation switches, providing connectivity to endpoints, servers, and WiFi APs.
o Redundant Links: Core-to-aggregation links use 100G ports; aggregation-to-access links vary (25G-100G) depending on floor requirements.

o Failover Mechanisms: Session pickup in HA settings preserves TCP sessions; MCLAG reduces spanning tree reconvergence and downtime . This deployment map ensures high availability, scalability, and simplified cabling, making it suitable for large campuses or data centers with multiple buildings and floors. It also allows for future expansion by adding aggregation or access switches without redesigning the core layer.

2 domain from the core network into the closet. That means your closet switch is participating in the global spanning tree domain and

This lab simulates a real-world enterprise network upgrade involving the replacement and configuration of core switches, port

The topology of our network will be one of the main deciding factors of how efficient your traffic flows. For example: Let"s say that we

Solution 1, but put 1 link from each Access switch to the each core switch (Unstacked) Make Core switch (Stack

What basic switch configuration includes Basic switch configuration can be thought of as the minimum network, port,

This guide provides a comprehensive comparison of Access, Distribution, and Core switches, detailing their functions,

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Different types of Ethernet switches perform different roles in the layers of high-capacity networks. Core switches, distribution

To implement FortiSwitch stacking, up to four switches are arranged in a static ring topology with each switch as an interface in a

Technology Overview ampus networks using the Cisco® Catalyst switch line. The Catalyst 6500 series switch has a long history as

If you want more than four redundant access switches, you need to deploy new sets of 10-GbE uplinks to the aggregation layer to

Two-tier and three-tier switch architectures When structuring the logical architecture of an enterprise network, decisive factors

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Floors 1, 2, and 3 each contain four switches in a ring topology, which provides the switch infrastructure for the wireless network. The

Deployment overview This section gives an overview of the three-tier topology used for this deployment, how to select the FortiGate

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

The FortiSwitchOS 7.2.0 Large Campus Switching Deployment Guide provides detailed instructions for deploying a resilient

Web: https://www.kremgroup.co.za