

Article Overview

Layer 3 management on a fiber optic switch involves enabling routing, assigning IP addresses to VLAN interfaces, and configuring default routes to allow network management and inter-VLAN communication.

Enable Layer 3 Functionality

Most switches operate as Layer 2 devices by default. To configure Layer 3 management, you must first enable routing on the switch. On Cisco devices, this can be done using the `ip routing` command in global configuration mode, which allows the switch to forward packets between VLANs and other network segments. For other vendors like Meraki or UniFi, Layer 3 routing is enabled through the switch's management interface or by setting the router option on a virtual network.

Configure VLAN Interfaces

Create VLAN interfaces (also called SVI - Switch Virtual Interfaces) for each subnet that requires Layer 3 management or inter-VLAN routing. Assign a unique IP address to each VLAN interface, ensuring it does not conflict with other subnets. For example, on a Cisco switch:

```
CodeCopyinterface vlan 10 ip address 192.168.10.1 255.255.255.0 no shutdown
```

Repeat for each VLAN that needs Layer 3 connectivity. On some switches, you can also create subinterfaces on a physical port to handle multiple VLANs with unique IP addresses.

Configure Default Routes

Set a default route pointing to the upstream router or gateway to allow the switch to reach external networks. For example:

```
CodeCopyip route 0.0.0.0 0.0.0.0 192.168.1.1
```

This ensures that management traffic can reach the Internet or other network segments.

Configure Trunk Ports

If the switch connects to other switches or routers, configure trunk ports to carry multiple VLANs. This allows inter-VLAN routing to function properly across the network:

```
CodeCopyinterface gigabitEthernet 1/1 switchport mode trunk switchport trunk allowed vlan 10,20,30
```

Ensure that connected devices, such as access switches or firewalls, are configured with matching VLANs to

prevent mismatches .

Optional: DHCP and DNS

For management convenience, you can configure the switch as a DHCP server for client VLANs or relay DHCP requests to an upstream server. Assign DNS servers to the switch to resolve hostnames for management purposes .

Verification

After configuration, verify connectivity and routing:

- o show ip interface brief - confirms VLAN interfaces are up and have correct IP addresses.
- o show ip route - displays the routing table and confirms default and static routes.
- o Ping between VLANs or to the gateway to ensure inter-VLAN routing works . By following these steps, your fiber optic switch will be fully configured for Layer 3 management, allowing both administrative access and inter-VLAN routing across your network.

The series provides enterprise-class Layer 2 and 3 switching, is designed for DNA Center and SD-Access management and

Layer 3 switches combine the functionality of traditional Layer 2 switches operating at the data link layer (Ethernet switching) with the

Fiber optic networks have become indispensable to many different companies since controlled switches offer

Hardened, fiber fed switches, with Layer 3 capabilities, able to support four 10GE SFP ports and 24 RJ45 gigabit interfaces each

The GL5080 features Layer 3 switching capabilities and offers wire-speed switching across 16 ports.

RG-UNC, a unified visual management platform, supports real-time monitoring of key devices and links, fine-grained alarms,

An introduction to Layer 3 switch and how it works within the network to further understand its benefits and capabilities.

With high switching capacity, the L3-10XGF12 support wire-speed L2/L3 forwarding and high routing

Layer 3 Management of Fiber Optic Switches

performance for IPv4 and IPv6

Product description The IXR-G4804X-AD is a very powerful Industrial Layer 3 routing switch from CTCUnion. Product has been

IEEE 802.1Qau (Congestion Notification) provides congestion management for data flows within network domains to avoid

Internet service providers (ISPs) use Layer 3 fiber switches to manage large-scale networks, optimize traffic routing, and deliver high

Learn how to choose the right network switches for your enterprise. Explore Layer 2 and

FortiLink mode over a layer-3 network This feature allows FortiSwitch islands to operate in FortiLink mode over a layer-3 network,

Network switches are often described as Layer 2 or Layer 3. But what exactly does that mean and what are the

Therefore, Layer 2 switches are used to provide cheap and easy workgroup connectivity, and Layer 3 switches are used to segment

Layer 2 vs Layer 3 switch explained. Learn MAC vs IP forwarding, inter-VLAN routing,

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