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Access layer switches use Layer 3



Overview

Switches in this layer are called access switches. End devices connect to the LAN through the access switches.

Key Takeaways

Yes, a Layer 3 switch can be used at the access layer, providing both switching for end devices and routing between VLANs or subnets.Overview

A Layer 3 switch combines the functionality of a traditional Layer 2 switch with routing capabilities, allowing it to forward traffic based on both MAC addresses and IP addresses . At the access layer, it can connect end devices such as computers, printers, IP phones, and wireless access points while also performing inter-VLAN routing without relying solely on aggregation-layer routers .

Advantages of L3 Switches at the Access Layer
• Inter-VLAN Routing: L3 switches can route traffic between different VLANs directly at the access layer, reducing the load on aggregation switches and improving network efficiency .

• High Performance: Hardware-accelerated forwarding ensures low latency and high throughput, making L3 switches suitable for high-density environments .

• Policy Control: Access Control Lists (ACLs) and QoS policies can be applied closer to end users, enhancing security and traffic management .

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• Scalability: L3 access switches are ideal for networks with multiple VLANs, large user populations, or frequent inter-VLAN traffic, supporting growth without major redesigns .
Considerations
• Cost and Complexity: L3 switches are more expensive and require more configuration than L2 switches, so they are typically deployed in medium to large enterprise networks where inter-VLAN routing and policy enforcement are needed .

• Network Size: For smaller networks with fewer VLANs and users, an L2 or L2+ switch may be sufficient, providing cost-effective access layer connectivity .

• Deployment Strategy: L3 switches at the access layer are most beneficial when the network has more than 10 VLANs, frequent inter-VLAN traffic, or when aggregation switches are becoming a bottleneck .
Conclusion

A Layer 3 switch can effectively serve at the access layer, combining traditional switching for end devices with routing capabilities for inter-VLAN communication. It is particularly advantageous in large, high-density, or policy-driven networks, offering improved performance, scalability, and traffic management compared to L2-only switches .

Article Content

L2 vs L3 Switch: How to Choose for Your Access Layer

This article breaks down the differences between L2 and L3 switches in the access layer, analyzes key decision

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Layer 2 vs Layer 3 in Access Networks: When It''s Time to ...

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A two-tier network combines hardware that supports the distribution and core layers.

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Is it wrong to configure access layer switches as layer 3 instead of layer2 as all the latest 9200 9309 series essential

Build Your Skills: The three-layer hierarchical model

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Distribution Layer Switches: Positioned between the access and core layers, distribution switches aggregate traffic from multiple

Data Center Access Layer Design

In a Layer 2 looped access topology, a pair of access layer switches are connected to the aggregation layer using 802.1Q trunks.

Cisco Three Layer / Three-tier Hierarchical Network Model

Access layer switches ensures that packets are delivered to the end devices. Benefits of Cisco Three-Layer hierarchical model The

Layer 2 vs. Layer 3 Switching — A Comprehensive Comparative ...

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Comparing Layer 3 and Layer 2 Switches

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This article discusses the difference between layer 2 and layer 3 switches and the appropriate use cases for each.

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What is Layer 3 Switch and How Does it Works?

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

Core Switch vs. Distribution Switch vs. Access Switch

The access layer consists of layer 3 switches, which take routed and switched data packets from the distribution switches and then

Layer 2, Layer 3, and Layer 4 Switches

Layer 2, Layer 3, and Layer 4 Switches What Is a Layer? A network switch connects devices and switches data between ports.

Cisco Switch Layer2 Layer3 Design and Configuration

For the proposed scenario the distribution and aggregation layer will be combined on the same layer 3 switch to keep the design

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What Is a Layer 3 Switch? Definition, How It Works,

A Layer 3 switch (multilayer switch) combines Layer 2 Ethernet switching with Layer 3 IP

What does a layer 3 access design look like? : r/networking

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I often hear it''s advantageous to utilize layer 3 at the access layer devices to avoid having broadcasts spanning the network and not

Layer 2 vs. Layer 3 Switch: A Complete Guide for 2026 | Domotz

Unsure whether to choose a Layer 2 or Layer 3 switch? This guide breaks down the key differences, pros, cons, and use cases to

Difference between layer-2 and layer-3 switches

Layer 2 switches operate at the data link layer, forwarding data based on MAC addresses, while layer 3 switches route

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