

Broadband directly connected to a Layer 3 switch

Article Overview

A Layer 3 switch can connect directly to broadband by configuring a routed port or SVI with an IP address and a default route pointing to the ISP gateway.

Key Considerations

- o Enable Layer 3 Routing Before connecting broadband, the switch must have Layer 3 functionality enabled using the command `ip routing` on Cisco devices . This allows the switch to perform routing between VLANs and external networks.

- o Routed Port vs SVI

- o Routed Port: Convert a physical interface into a Layer 3 interface using `no switchport` and assign it an IP address. This is ideal when only one physical connection exists to the broadband modem .

- o Switch Virtual Interface (SVI): Used when multiple ports belong to a VLAN. The SVI acts as the default gateway for that VLAN, but traffic still passes through Layer 2 logic before routing .

- o IP Addressing Assign a public IP address to the routed port or SVI if connecting directly to an ISP. Private IP addresses cannot be used unless NAT is handled by another device, as Layer 3 switches typically do not support NAT .

- o Default Route Configuration Set a default route pointing to the ISP gateway using the command:

```
CodeCopyip route 0.0.0.0 0.0.0.0
```

 This ensures that all traffic destined for external networks is forwarded correctly .

- o VLAN and Inter-VLAN Routing If internal VLANs exist, the Layer 3 switch can route traffic between VLANs and to the broadband connection. Each VLAN should have an SVI configured with its own IP address, and the default route should point to the ISP gateway .

- o Limitations

- o Layer 3 switches do not provide NAT, so direct broadband connections require public IPs.

- o Advanced features like traffic identification or deep packet inspection may require a dedicated gateway device .

Example Configuration (Cisco)

```
CodeCopyinterface gigabitethernet0/1 no switchport ip address 203.0.113.2 255.255.255.252 ip route 0.0.0.0 0.0.0.0 203.0.113.1
```

This configures a routed port with a public IP and sets the default route to the ISP gateway. Internal VLANs can still be routed via SVIs.

Summary

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Connecting broadband directly to a Layer 3 switch is feasible by enabling Layer 3 routing, configuring a routed port or SVI with a public IP, and setting a default route to the ISP gateway. Careful planning of VLANs, IP addressing, and routing ensures proper internet access while maintaining internal network segmentation.

I have an HP ProCurve 8212zl Switch which I am currently configuring from scratch. This switch is a Layer 3 switch,

My boss plugged the server straight into the provider's layer 2 switch (the installer described it as a layer 2 switch without any routing

A Layer 3 switch can perform IP routing tasks as well as Layer 2 tasks such as VLANs. Moreover, a Layer 3 switch can typically

Layer 3 Routing is enabled by setting the Router option on a new or existing Virtual Network to the UniFi Switch. Afterwards, an

I have previously been using a router on a stick network and decided to switch over to intervlan routing instead since I was using

Thank you very much all your help, So I will need to buy a router and configure a port to the internet and connect the

Good morning. I have a Cisco C3650 (layer3 switch) that I want to connect with fiber to a Cisco 2951. I have the same

A Layer 3 switch combines the high-speed forwarding capability of a Layer 2 switch with the routing intelligence of a

What Is a Layer 3 Switch? A Layer 3 switch is a specialized hardware device used in

Hi there! I'm a sysadmin that's being forced a bit into network administration. I'm considering a move to layer 3

Now they are available for direct connectivity to the "internal router" of the L3 Switch. And they work and act as directly connected

Layer 3 switch doesn't support NAT. So you cannot use private IP addresses. If you will use public

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addresses then

In this article I describe the role and function of Layer 2 and Layer 3 switch in networking. Switch forwards the data packets within the

Network switches are integral components in modern networking, responsible for directing traffic between

However, a Layer 3 switch has the ability to reprogram the hardware dynamically with the current Layer 3 routing information. This is

Learn how routers and Layer 3 switches connect networks, route IP packets, and enable fast inter-VLAN communication in modern

Web: <https://bssoda.pl>

