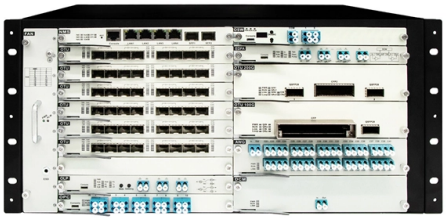
Optical Stick Switch Routing Configuration Method



Overview

A router on a stick (as illustrated below) adds a router to the switched environment to provide routing capability.

Key Takeaways

Router-on-a-Stick allows a single router interface to route traffic between multiple VLANs using subinterfaces and trunking on the switch. OverviewRouter-on-a-Stick (ROAS) is a method to enable inter-VLAN routing using a single physical router interface connected to a switch trunk port.

Each VLA

N is assigned a subinterface on the router, and the switch port connected to the router is configured as a trunk to carry all VLAN traffic. This approach is scalable and avoids dedicating multiple physical interfaces for each VLAN.

Step-by-

Step Configuration1.

Configure VLA

Ns on the SwitchCreate VLANs and assign names: BashCopySwitch(config)# vlan 10Switch(config-vlan)# name SalesSwitch(config)# vlan 20Switch(config-vlan)# name Marketing Repeat for all required VLANs (e.g., VLAN 30, VLAN 99 for management),. 2.

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Configure Access Ports

Assign switch ports to VLANs for end devices: BashCopySwitch(config)# interface fa0/2Switch(config-if)# switchport mode accessSwitch(config-if)# switchport access vlan 10Switch(config)# interface fa0/3Switch(config-if)# switchport mode accessSwitch(config-if)# switchport access vlan 20 Ensure PCs in each VLAN have IP addresses in the corresponding subnet. 3.

Configure Trunk Ports

Set the switch port connecting to the router as a trunk: BashCopySwitch(config)# interface fa0/1Switch(config-if)# switchport mode trunkSwitch(config-if)# switchport trunk allowed vlan 10,20,30,99 If connecting multiple switches, configure trunk ports between switches similarly. 4.

Configure Router Subinterfaces

On the router, create a subinterface for each VLAN and assign IP addresses: BashCopyRouter(config)# interface g0/0. 10Router(config-subif)# encapsulation dot1Q 10Router(config-subif)# ip address 192. 168.

10. 1 255. 255.

255. 0Router(config)# interface g0/0. 20Router(config-subif)# encapsulation dot1Q 20Router(config-subif)# ip address 192.

168. 20. 1 255.

255. 255. 0 Repeat for all VLANs.

Each subinterface acts as the default gateway for its VLAN. 5.

Verify Connectivity

Check VLA

N and trunk status on the switch: BashCopySwitch# show vlan briefSwitch# show interfaces trunk Verify router subinterfaces and routing table: BashCopyRouter# show ip interface briefRouter# show ip route Test inter-VLAN connectivity by pinging devices across VLANs.

Best Practices

Use a management VLAN (e.g., VLAN 99) for switch administration. Ensure trunk encapsulation matches on both switch and router (usually 802. 1Q).

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Document VLAN I

Ds, subinterface IPs, and port assignments for troubleshooting. For multiple switches, consider EtherChannel for trunk links to increase bandwidth. By following these steps, a single router interface can efficiently route traffic between multiple VLANs, providing a scalable and manageable inter-VLAN routing solution.

Article Content

Design and implementation of optical switching network OSN

The aim of this paper is to build a fiber-optic network that includes the optical switch, which is the most crucial component due to its critical role in fulfilling the demands of the fiber-optic

Router on a Stick Configuration | CCNA 200-301

In this lab, you will configure Inter-VLAN Routing using the Router-on-a-Stick method. A single physical link between the switch and the router will carry

Implement a Router on a Stick

A router on a stick (as illustrated below) adds a router to the switched environment to provide routing capability. This deployment model uses a single trunk link configured on the switch side and a

Router on a stick approach – Cisco configuration

A router on a stick is one of the ways to allow routing between VLANs. That kind of a setup consists of a router and a switch connected through one Ethernet link configured as an 802.1q

Router-on-a-Stick – Inter-VLAN Routing with Subinterfaces

Correct answer is B. Router-on-a-Stick is an inter-VLAN routing technique that uses a single physical router interface — the "stick" — connected to a switch trunk port.

Optical Switching Data Center Networks: Understanding Techniques

In this paper, we present a review of optical switching techniques capable of meeting the requirements of the next generation of large-scale data center networks.

Router on a Stick (ROAS) Configuration | Inter-VLan Connectivity

To implement Router on a Stick, you need a router with at least one trunk link to a switch, configured subinterfaces for each VLAN, and proper VLAN setup on the switch for inter-VLAN

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Router On A Stick Method for Layer 2 switches (ROAS Inter-vlan

In this lab, we will inspect how intervlan communication handled on Layer-3 Router with Router On a Stick model. If you have layer 2 switches for end devices, then you will need a layer 3

Configure-Router-on-a-Stick-Inter-VLAN-Routing

Setting up inter-VLAN routing allows controlled communication between VLANs while keeping network segmentation intact for security and efficiency. This improves traffic management, reduces

Router on a Stick CCNA Tutorial

In our example we will have two vlans: VLAN 10 192.168.1.0/24 VLAN 20 192.168.2.0/24 in its respective vlan). We will have two PC''s connected to the switch (one in each vl ed, this particular module. You

Router-on-Stick Inter-VLAN Routing – Exclusive

In a previous lesson, legacy inter-VLAN routing requires multiple physical interfaces on the router and the switch. However, in the ''Router-on-stick''

Router on a stick approach

Router on a stick is one of the ways to allow routing between VLANs. Such a configuration is common in networks where no layer-3 switch exists.

Ultimate Guide to Router on a Stick Configuration

Router-on-a-Stick is a setup where one physical router interface handles multiple VLANs using sub-interfaces, enabling inter-VLAN routing.

Router on a Stick (ROAS): A Practical Guide to Inter-VLAN Routing

Router on a Stick is a network configuration that enables inter-VLAN routing using a single physical interface on a router. It allows multiple VLANs on a switch to communicate through one

6.1.1.3 Router-on-a-Stick Inter-VLAN Routing

Switch S2 removes the VLAN tag of the unicast frame and forwards the frame out to PC3 on port F0/23. Note: The router-on-a-stick method of inter-VLAN routing does not scale beyond 50 VLANs.

Configuration of Router on a stick

Configuration : Here is a topology in which there is a router and a switch and some end hosts. 2 different VLANs have been created on the switch. The router''s interface is divided into 2 sub

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Inter-VLAN Routing Configuration

Unlike the traditional inter-VLAN routing method, router-on-stick does not require multiple physical interfaces on both the router and the switch. Instead, the router''s operating system makes it

Router on Stick Configuration Explained

This tutorial explains router-on-stick and how it works on routers. Learn how to configure a router as router-on-stick.

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

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