Vlan Guide

Understanding and Configuring VLANs

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Introduction

What is a VLAN

Virtual local Area Networks (VLANs) are logical subnetworks that are used to group devices together on a network. They can be used to separate employees in a business based on department, separate different types of devices, or partition the LAN however those managing the network see best fit.

Benefits of VLANs

VLANs provide several benefits when correctly implemented on a network.

* They enable end devices to be logically grouped even if they are dispersed throughout the network.
* It decreases the size of broadcast domains. Packets that are normally flooded through all ports on a switch only get sent through other ports assigned to that particular VLAN, reducing traffic. This also means routers need to be used less to contain broadcast traffic.
* VLANs also offer increased security. For example, they prevent devices from listening to traffic on any other VLAN.
* With VLANs, the network becomes easier to manage because similar users will share the same VLAN. When new switches are added to the network, the policies that have been configured for the VLAN are implemented when ports are assigned (due to protocols such as VTP, which will be discussed later).

Vlan Tagging

When VLANs span multiple switches, VLAN tagging is required. VLAN tagging is the practice of inserting a VLAN ID into a packet header in order to identify which VLAN the packet belongs to. More specifically, switches use the VLAN ID to determine which port, or interface, to send a broadcast packet to. This uses the 802.1Q protocol to insert the ID.

Tagged Traffic

If there is more than one VLAN configured on a port (this would be a trunk port), there needs to be a way for each end to know where to send the traffic. This is what “tagging” is for. It uses the 802.1Q protocol to add a tag onto the packet that is being sent.

Untagged Traffic

If traffic is untagged that means it does not have an ID added into the packet. Without the ID, the traffic will not be sent across the network, unless the trunk link has a native VLAN configured on it, which will be discussed later in this guide. In short, this allows for untagged traffic to be sent across the trunk link.

\*The rest of the information will be added before/during break.