

Cisco vLANs

Layer 2 - Hardware based (MAC, Media Access Control), Addressing. (**Access Layer**).

(Limitations of a bridge - breaks up a collision domain, not broadcast domains)

Layer 3 - Similar to a router - but uses hardware based packet switching. (**Distribution Layer**).

Layer 4 - Considers applications in switching and prioritizes data traffic.

MLS (Multi-Layer Switching) - Combines layers 2, 3, and 4 switching. Uses huge filter tables.

vLAN (Virtual Local Area Network) - A *logical grouping* of network users and resources connected to administratively defined ports on a layer 2 switch.

Switch-fabric - Multiple connected switches.

Access Link - Part of only one vLAN and referred to as the native vLAN of the port.

Trunk Link - Can carry multiple vLANs. Used to connect switches to other switches, to routers, or even servers. Supported on FastEthernet or Gigabit Ethernet only.

(Cisco switches support ISL and 802.1q vLAN indentifications).

DTP - Dynamic Trunking Protocol, a point-to-point protocol, is used to manage trunk negation in the Cisco Catalyst switch engine software using ISL or 802.1q. DISL was used to support trunk negation on ISL only trunks before DTP.

VTP - **vLAN Trunk Protocol (VTP)** - Cisco created protocol to manage all configured vLANs across a switched internetwork. Allows an administrator to add, delete and rename vLANs and their propagation. Must share the same VTP domain name. VTP data is shared via a trunk port between switches.

Switches defined as part of VTP domains can be configured to operate in any of three VTP modes:

Server - Advertise VLAN configuration to other switches in the same VTP domain and to other switches in the domain. Can create, modify, and delete VLANs as well as modify configuration parameters such as VTP version and VTP pruning for the entire domain in server mode for a switch.

Client - Advertise VLAN configuration to other switches in the same VTP domain. VLAN configuration with other switches based on advertisements received. Clients are unable to create, change, or delete VLAN configurations.

Transparent - Does not advertise its VLAN configuration and does not receive configuration with other switches. In VTP version 2, transparent switches can create, delete, and modify VLANs.

Command-Line Interface

Cat1900/2820 and 2900XL series access switches - Command-line interface

Cat5000/6000/6500 series of switches use a style of configuration that is different from the other Cisco switches. This is commonly called the **Set-based CLI**, since the configuration is done using the **set** command.

Set - Implements configuration changes

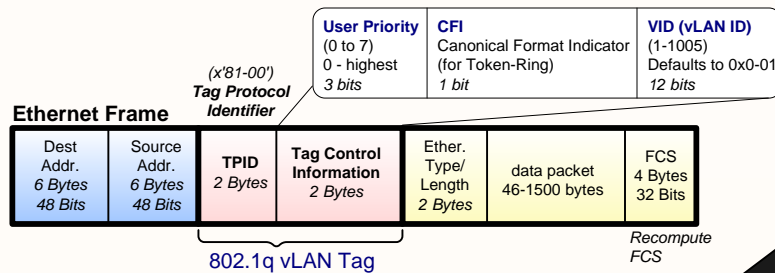
Show - Verifies and provides information

Clear - Removes configuration entries

```
>set vlan vlan-id
```

```
>show vlan
```

```
>show port
```



vLAN Frame Identification Methods

Inter-Switch Link (ISL) - Proprietary to Cisco switches, it is used for frame tagging. It consists of a 2-byte ISL header and a second frame check sequence (FCS) field. The total frame size is up to 1,522 bytes long.

IEEE 802.1q - IEEE standard method of frame tagging. It consists of a 4-byte field inserted after the source and destination addresses. IEEE 802.3ac and 802.3ad have a 4-byte field inserted after the source and destination addresses.

LAN Emulation (LANE) - Used to communicate with other vLANs.

802.10 (FDDI) - Used to send vLAN information over FDDI. It is a proprietary to Cisco devices.

VTP advertisements are used to send vLAN configuration information to other switches in the same VTP domain. The advertisements are sent out every 5 minutes on vLAN 1.

VTP advertisements are used to send vLAN configuration information to other switches in the same VTP domain.

Because the advertisements are sent out every 5 minutes, they contain a higher priority than other advertisements.

Make sure to configure the VTP domain name on all switches in the same VTP domain.

As a data source, the advertisements are sent out every 5 minutes.

data source.

data source.

data source.