What is a VLAN?

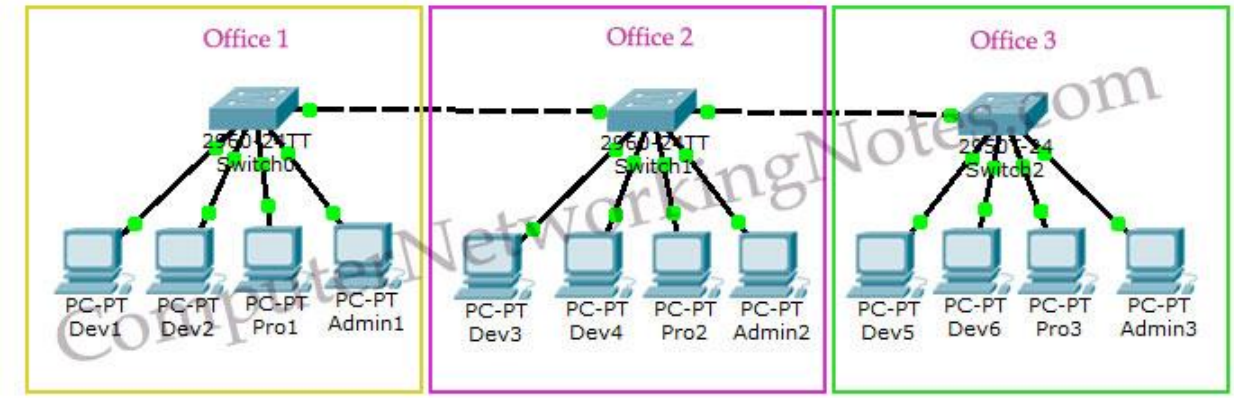
VLAN is a custom network which is created from one or more local area networks. It enables a group of devices available in multiple networks to be combined into one logical network.

LAN can be defined as a group of computer and peripheral devices which are connected in a limited area where as a VLAN can be defined as a custom network which is created from one or more local area networks.

In LAN, the network packet is advertised to each and every device and in VLAN, the network packet is sent to only a specific broadcast domain.

To understand VLAN more clearly let's take an example.

VLAN Example



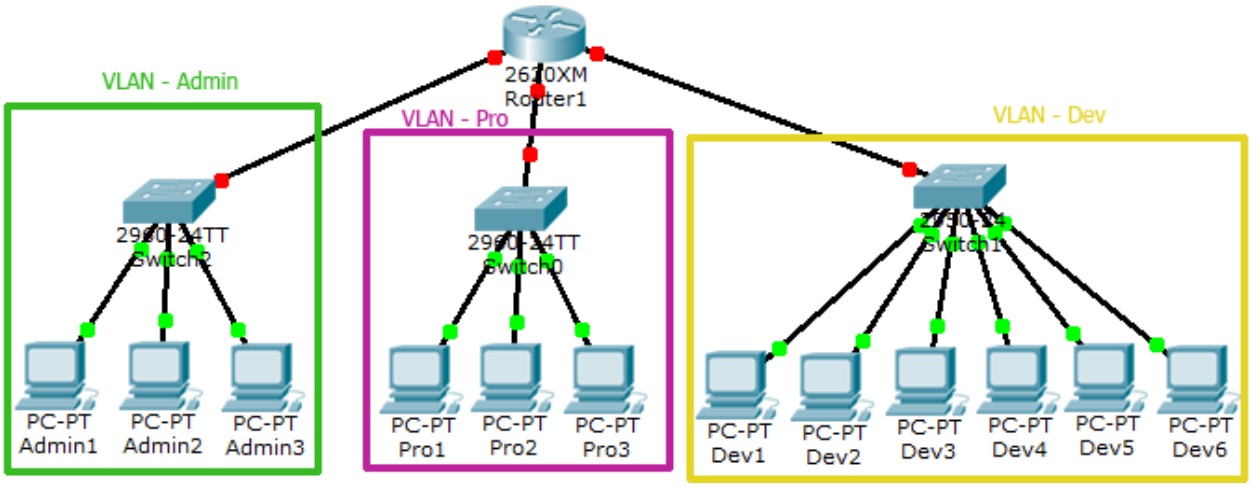
- Our company has three offices.
- All offices are connected with backlinks.
- The company has three departments Development, Production, and Administration.
- The development department has six computers.
- The production department has three computers.
- The administration department also has three computers.
- Each office has two PCs from the development department and one from both the production and administration department.
- Administration and production department have sensitive information and need to be separate from development department.
- With default configuration, all computers share same broadcast domain. Development department can access the administration or production department resources.

With VLAN we could create logical boundaries over the physical network. Assume that we created three VLANs for our network and assigned them to the related computers.

- VLAN Admin for Administration department

- VLAN Dev for Development department
- VLAN Pro for Production department

Physically we changed nothing but logically we grouped devices according to their function. These groups [VLANs] need router to communicate with each other. Logically our network look likes following diagram.



With the help of VLAN, we have separated our single network in three small networks. These networks do not share broadcast with each other improving network performance. VLAN also enhances the security. Now Development department cannot access the Administration and Production department directly. Different VLAN can communicate only via Router where we can configure wild range of security options.

VTY lines (Virtual Teletype lines)

The virtual terminal or “VTY” lines are virtual lines that allow connecting to the device using telnet or Secure Shell (SSH).

VTY is solely used for inbound connections to the device. These connections are all virtual with no hardware associated with them. The abstract “0 – 4” means that the device can allow 5 simultaneous virtual connections which may be Telnet or SSH.

NVRAM

NVRAM (non-volatile random-access memory) refers to computer memory that can hold data even when power to the memory chips has been turned off.

Privilege levels in Cisco

Cisco Internetwork Operating System (IOS) currently has 16 privilege levels that range from 0 through 15. Users have access to limited commands at lower privilege levels compared to higher privilege levels.

Using the command "show privilege" allows the user to determine what privilege level a user is currently assigned.

Typing "?" under each privilege level provides a list of available commands.

Management VLAN

For managing a switch from the remote location by using protocols such as TELNET and SSH.

The management VLAN, which is VLAN 1 by default, should be changed to a separate, distinct VLAN.

To communicate remotely with a Cisco switch for management purposes, the switch must have an IP address configured on the management VLAN.

A default gateway makes it possible for devices in one network to communicate with devices in another network.