Eurasian Research Bulletin

Computer Networks Use of Vlan (Virtual Local Area Network) Technology in Modelling and Grouping

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ABSTRACT

This In the article, computer networks using the Cisco Packet Tracer program use of VLAN technology in design and switch device through computers grouping illuminated.

Keywords: Cisco Packet Tracer, VLAN (Virtual Local Area Network), switch, computers grouping.

The last at times local of the network different with development category to its resources for users access differentiate problem appear be started as well as this such as specific problems different to solve departments employees separately to groups combine current from issues to one became. Already built and running network new connection to computers and to organize the points too problematic be, electricity and electronics engineers institute by work developed virtual local network (Virtual Local Area Network - VLAN) technology use efficient to the results take came.

This about VLAN (Virtual Local Area Network) technology introduction to the effective distribution of traffic, from the ability to transmit It is better to use different manufacturers network equipment successful cooperation guarantee and high level to ensure security possibility no. In this case, packages local network inside ports in the middle placement ib , technology done in raising of the network cable structure and to the client access devices without changing the traffic that changes active equipment of replacement himself enough is considered

Computer networks in creating VLAN technology switch inside switches in connection is used. This of connection advantages as follows:

1. VLAN technology network structuring (into segments help to separate). gives.This is one different connected using a switch profession (accountants , cashiers , administrators , ordinary users) owners not to monitor the interaction of computers provides .
2. VLAN technology in a computer network security in providing is used . Simple user network manager mutual (interactive) communication with administrators cannot do it of the network to the length depending on the same occupation owners contact extra for them to do router device Demand will be done.
3. VLAN technology on the network It is used to efficiently connect computers. Also, the building based on the structure, 2 and from more than interactive communication of switches provides.

4. VLAN technology is extensive comprehensive requests the number reduces. In this network of individual 1-segmented computers queries on 2-segmented computers is not visible.

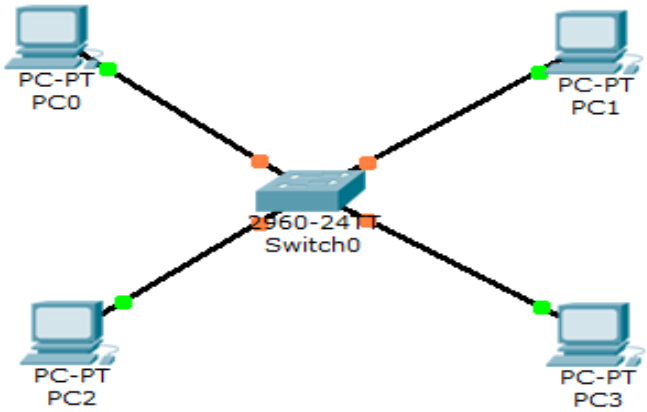
2 types of switches in appearance ports there is will be

1. Access (fastEthernet) port is to the switch using ports computers, IP telephony, laptops in binding is used.
2. A trunk (gigabitEthernet) port is from the switch switch in binding is used.

We are from VLAN technology below used Let 's take a look at 2 schemes and use the Cisco Packet Tracer software to trace them we design .

Scheme 1 - one creating a computer network using a switch . For this we:

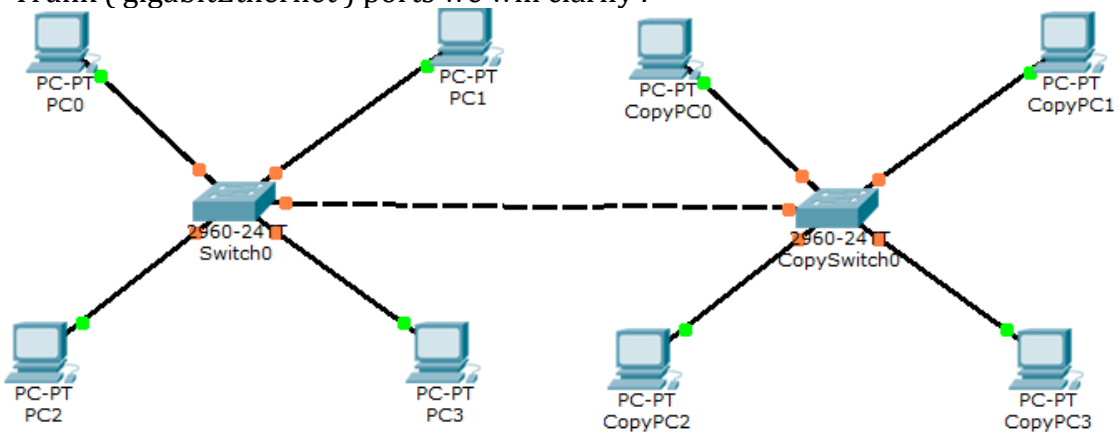
- VLAN network we create ;
- Access (fastEthernet) ports we will clarify .



Scheme 1. One in Cisco Packet Tracer a computer network configured using a switch

Scheme 2 - two creating a computer network using a switch . To do this, in Cisco Packet Tracer we:

- VLAN network we create ;
- Access (fastEthernet) ports let's clarify ;
- Trunk (gigabitEthernet) ports we will clarify .



Scheme 2. Two in Cisco Packet Tracer a computer network configured using a switch

1.1. First Schematic project in Cisco Packet Tracer program from what we have done after them segments (PC0 and PC1-accountants, PC2 and PC3-ordinary users) separate we go out

Next in place on the switch (switch0). Press CLI-(IOS Command Line Interface) and run the following commands don't go that he's gone we write :

- Switch>en
- Switch# conf t
- Switch(config)# vlan 2
- Switch(config-vlan)# name bux
- Switch(config-vlan)# exit

- Switch(config)# interface fastEthernet 0/1
- Switch(config -if)# switchport mode access
- Switch(config -if)# switchport access vlan 2
- Switch(config -if)# exit
- Switch(config)# interface fastEthernet 0/2
- Switch(config -if)# switchport mode access
- Switch(config -if)# switchport access vlan 2
- Switch(config -if)# exit
- Switch(config)# end

On the network that the work of the created segment 1 is completed to see

- Switch# show vlan or
- Switch# show vlan brief commands by entering let's see can _

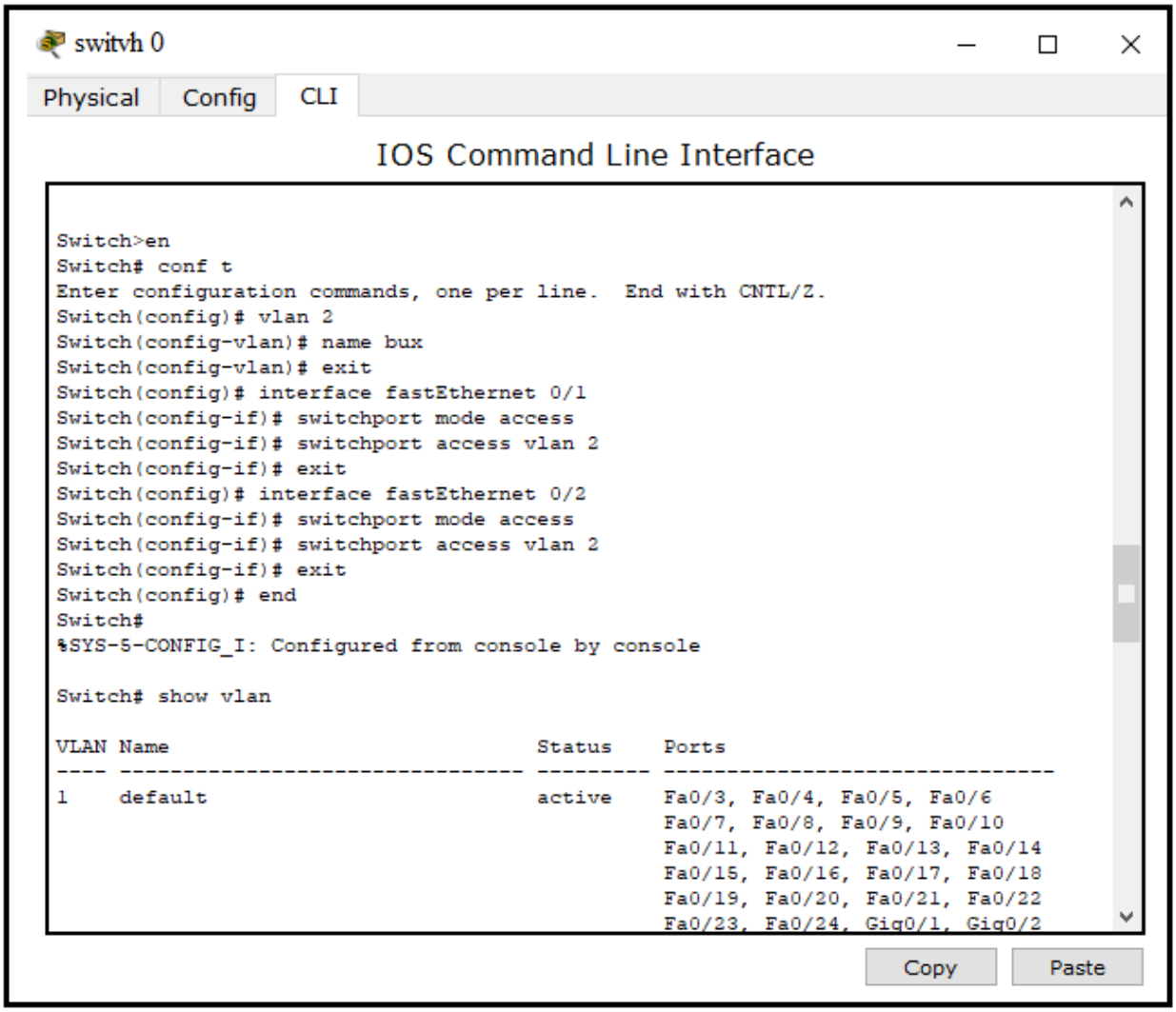


Figure 1. Commands entered in the CLI -(IOS Command Line Interface) window appearance

We are next in place Let's consider the creation of the 2nd segment in the network.

- Switch# conf t
- Switch(config)# vlan 3
- Switch(config-vlan)# name users
- Switch(config-vlan)# exit
- Switch(config)# interface fastEthernet 0/3
- Switch(config -if)# switchport mode access
- Switch(config -if)# switchport access vlan 3
- Switch(config -if)# exit
- Switch(config)# interface fastEthernet 0/4
- Switch(config -if)# switchport mode access

- Switch(config -if)# switchport access vlan 3
- Switch(config -if)# exit
- Switch(config)# end

Next In place we give computers IP addresses by entering we go out

As a result by pinging > the segmented computers checking we will see .

IP to computers addresses entering and giving ping> from the desired window checking to see previous in our topics complete illuminated .

to each other using VLAN technology connected MAK addresses of computers to find out the switch# show mac address command we use.

Then we are based on scheme 2 and from VLAN technology used and complex computer network _ we create.

Switches to each other _ from Copper Cross-over cable in connection we use and this cable from switch0 (GigabitEthernet 1/1) port to switch1 (GigabitEthernet 1/1) port is connected.

A copy IP- addresses to computers of scheme 1 obtained we install and separately to segments separate we go out

of switch 2 (switch1). Click to enter CLI (IOS Command Line Interface) .

- Switch>en
- Switch# all from before is configured let's see can _

Next Trunk ports in place our setup need will be These are 2 switch devices between data exchange in providing need will be

SWITCH 1

- Switch>en
- Switch# conf t
- Switch(config)# interface gigabitEthernet 1/1
- Switch(config -if)# switchport mode trunk
- Switch(config -if)# switchport trunk allowed vlan 2,3
- Switch(config -if)# end
- Switch(config)#exit

SWITCH 2

- Switch>en
- Switch# conf t
- Switch(config)# interface gigabitEthernet 1/1
- Switch(config -if)# switchport mode trunk
- Switch(config -if)# switchport trunk allowed vlan 2,3
- Switch(config -if)# end
- Switch(config)#exit

each other connected of the network by ping> ing their computers checking we go out and set a goal as a result that it has been achieved we will see .

Summary by doing in other words, creating computer network projects grouped by VLAN technology in the Cisco Packet Tracer program and using them into segments separate effective results through modeling gives

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