

## SEDINTA 2

### Configurare VTP – propagarea VLANurilor in cadrul retelei interne

VTP = VLAN Trunking Protocol

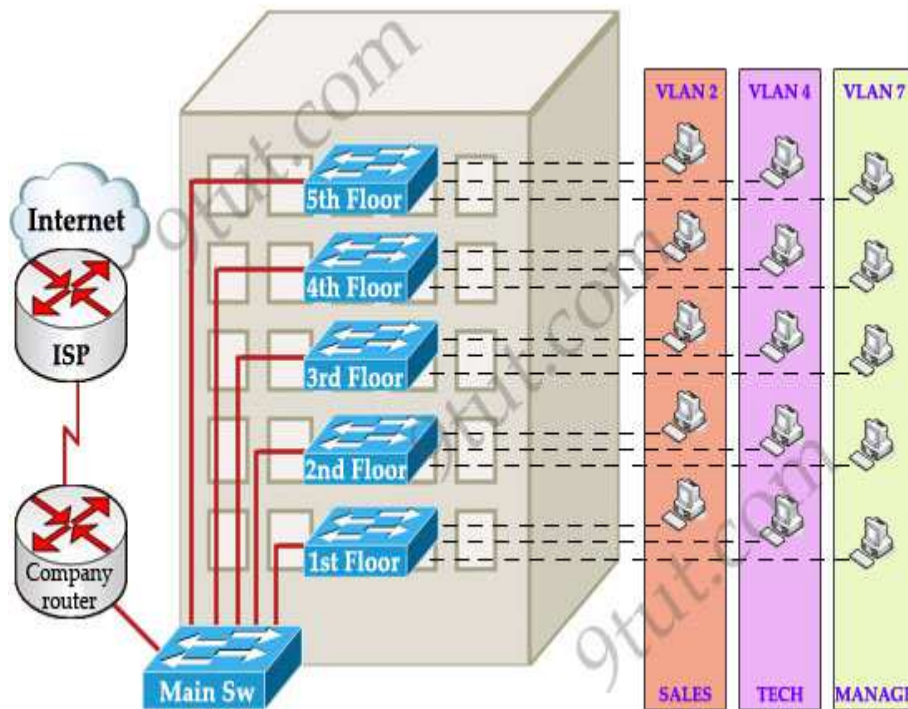
- allows for the propagation of VLAN's from a single switch to multiple switches (Server-Client architecture) in the same **VTP Domain** (domain = share the same VLANs)

**VTP Server switch** - centralized point of management in the network for VLAN definition and propagation. *Define all VLANs on the server.*

**VTP Client switch** - learns its VLAN information from the VTP Server in its specified VTP Domain.

**VTP Transparent switch** - does not participate in VTP. A VTP transparent switch does not advertise its VLAN configuration and does not synchronize its VLAN configuration based on received advertisements, but transparent switches do forward VTP advertisements that they receive out their trunk ports in VTP Version 2.

- On the Server switch define the VLANs to be propagated using VTP.
- Set the other switches in Client mode, to synchronize with the Server.
- Check VTP status on all switches.



<p><b>Creare VLANs doar</b> pe switch-ul principal: <b>VTP server</b></p> <p>Main Sw(config)#<i>vlan 10</i> Main Sw(config)#<i>vlan 20</i></p> <p>Configurare VTP pe switch-ul principal: <b>VTP server</b></p> <p>Main Sw(config)#<i>vtp version 2</i> Main Sw(config)#<i>vtp domain 9tut</i> Main Sw(config)#<i>vtp mode server</i> Main Sw(config)#<i>vtp password keepitsecret</i></p> <p>Verificate VTP Sw#<i>show vtp status</i></p>	<p>Configurare VTP pe switch-urile client: <b>VTP client</b></p> <p>Client(config)#<i>vtp version 2</i> Client(config)#<i>vtp domain 9tut</i> Client(config)#<i>vtp password keepitsecret</i> Client(config)#<i>vtp mode client</i></p>
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### **Legaturile** dintre switch-urile de layer 2: **linii de trunk**

```
Client(config)#interface fa0/1
Client(config-if)#switchport mode trunk
```

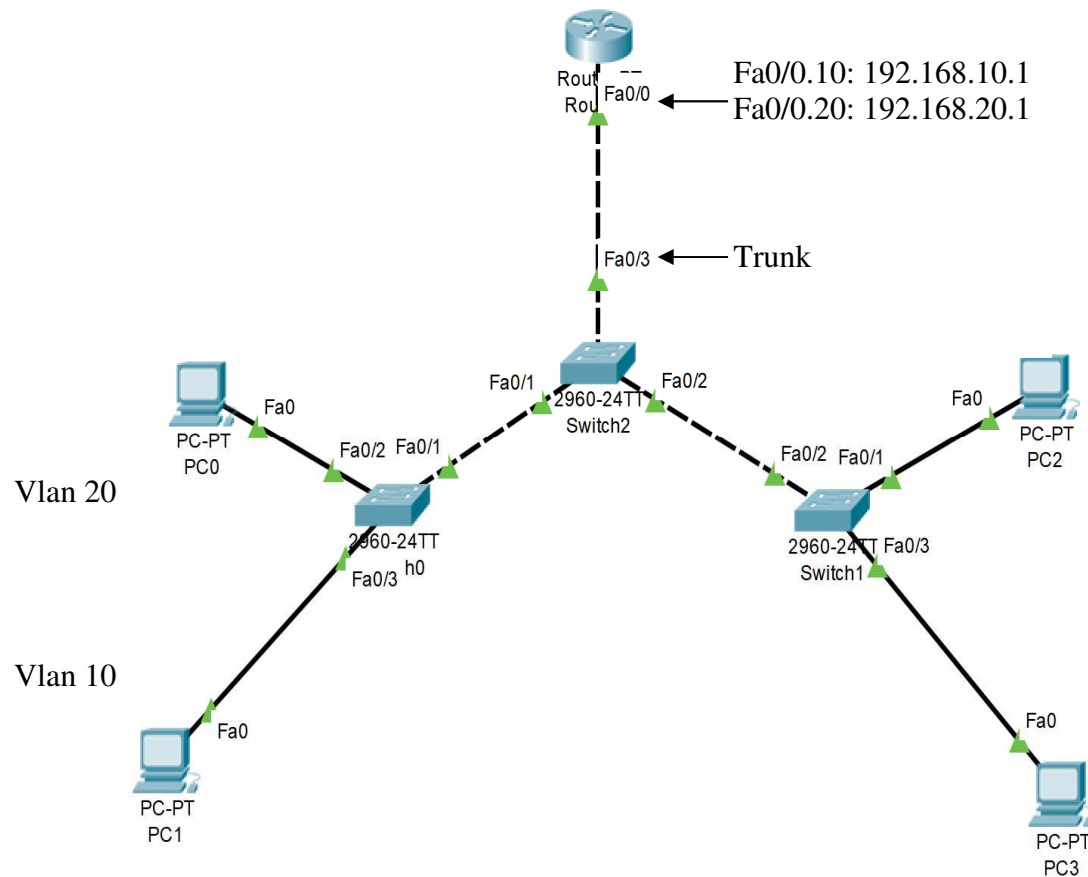
Dupa configurarea VTP si a liniilor de trunk, se vor seta interfetele catre end-devices in VLANul corespunzator.

Exemplu: Setarea unei interfete pentru a apartine VLANului 10:

```
Client(config)#interface fa0/1
Client(config-if)#switchport mode access
Client(config-if)#switchport access VLAN 10
```

## Inter-Vlan routing using Routers and IP addresses on the virtual interfaces (subinterfaces):

### Laboratory test configuration:



### Commands Used: (se vor utiliza adresele IP din tema asignata)

*Switch2(config)#***interface fa0/3**

*Switch2(config-if)#***switchport mode trunk**

Description: Configure a trunk line

*Router(config)#***interface Fa0/0.10**

*Router(config-if)#***encapsulation dot1q 10**

*Router(config-if)#***ip address 192.168.10.1 255.255.255.0**

*Router(config-if)#***no shutdown**

Description: Configure the fa0/0.10 subinterfaces with the IP addresses and assign it to handle traffic from VLAN 10

*Router#***show ip route**

Description: Visualize the routing table

## Dynamic Routing (RIPv2 / OSPF)

**Step0:** Enable routing

*SL3(config)#ip routing*

**Step1:** Assign static IPv4 addresses to router interfaces and computers

### Steps for configuring RIP:

*Router3(config)#router rip*

Description: Enabling RIP routing protocol on the router

*Router3(config-router)#version 2*

Description: Specifying the RIP version to run

*Router3(config-router)#network 172.30.0.0*

*Router3(config-router)#network 172.31.0.0*

*Router3(config-router)#network 172.33.0.0*

Description: Configuring the network addresses to be included in routing updates

*Router3(config-router)#no auto-summary*

Description: Configuring the network addresses to be included in routing updates

**Optional:** Set static routes

*Router3(config)#router rip*

*Router3(config-router)#passive-interface Fa0/1*

Description: stop RIP messages from being broadcasted out a specific interface

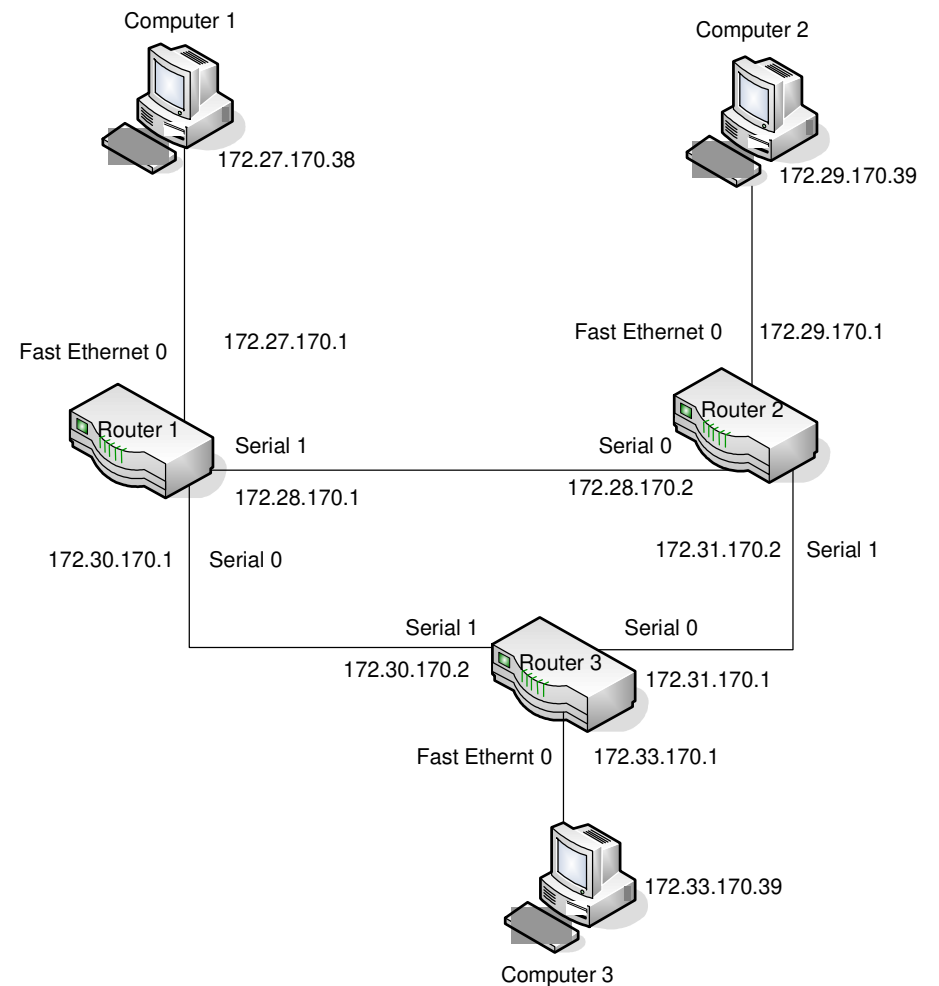
### Steps for verifying RIP:

*Router3 #show ip route*

Description: Visualize the routing table

*Router3 #show ip protocols*

Description: routing status



**Step0:** Enable routing

*SL3(config)#ip routing*

**Step1:** Assign static IPv4 addresses to router interfaces and computers

### Steps for configuring OSPF:

*Router3(config)#router ospf 1*

Description: Enabling OSPF routing protocol on the router

*Router3(config-router)#network 172.30.0.0 0.0.255.255 area 0*

*Router3(config-router)#network 172.31.0.0 0.0.255.255 area 0*

*Router3(config-router)#network 172.33.0.0 0.0.255.255 area 0*

Description: Configuring the network addresses to be included in routing updates (using **wildcard** – reverse of the netmask). Always use **area 0** for the project

**Optional:** Set static routes

*Router3(config)#router ospf*

*Router3(config-router)#passive-interface Fa0/1*

Description: stop OSPF messages from being broadcasted out a specific interface

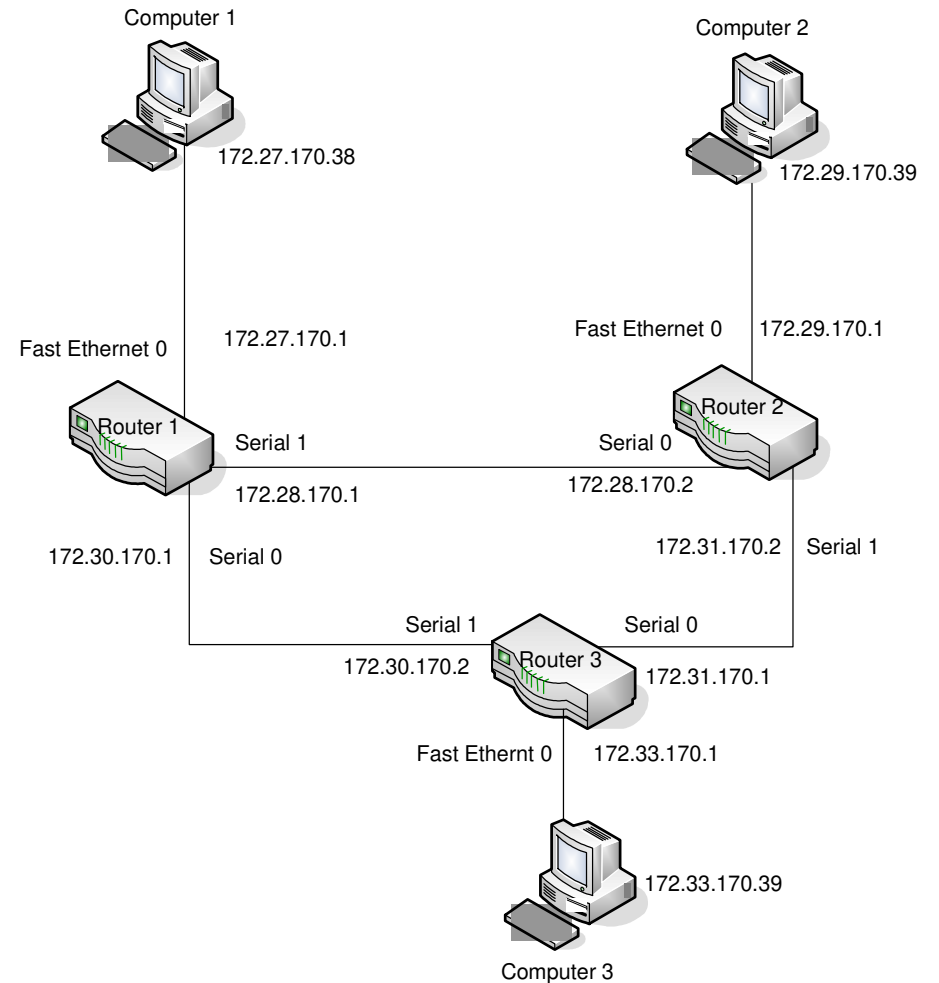
### Steps for verifying RIP:

*Router3 #show ip route*

Description: Visualize the routing table

*Router3 #show ip protocols*

Description: routing status



## Configuring default static routes on the Router connecting the DMZ

Default routes are used to direct packets addressed to networks not explicitly listed in the routing table. The simplest option is to configure a default route to send all traffic to an upstream router, relying on the router to route the traffic for you.

A default route identifies the gateway IP address to which the router sends all IP packets for which it does not have a learned or static route. A default static route is simply a static route with 0.0.0.0/0 as the destination IP address. Routes that identify a specific destination take precedence over the default route.

Add a default static route, also named gateway of last resort:

```
Router2(config)#ip route 0.0.0.0 0.0.0.0 210.1.1.x
```

*!If a dynamic routing protocol is in use, propagate the default static route using the dynamic routing protocol!*

Example on RIP protocol:

```
Router3(config)#router rip
```

```
Router3(config-router)#default-information originate
```