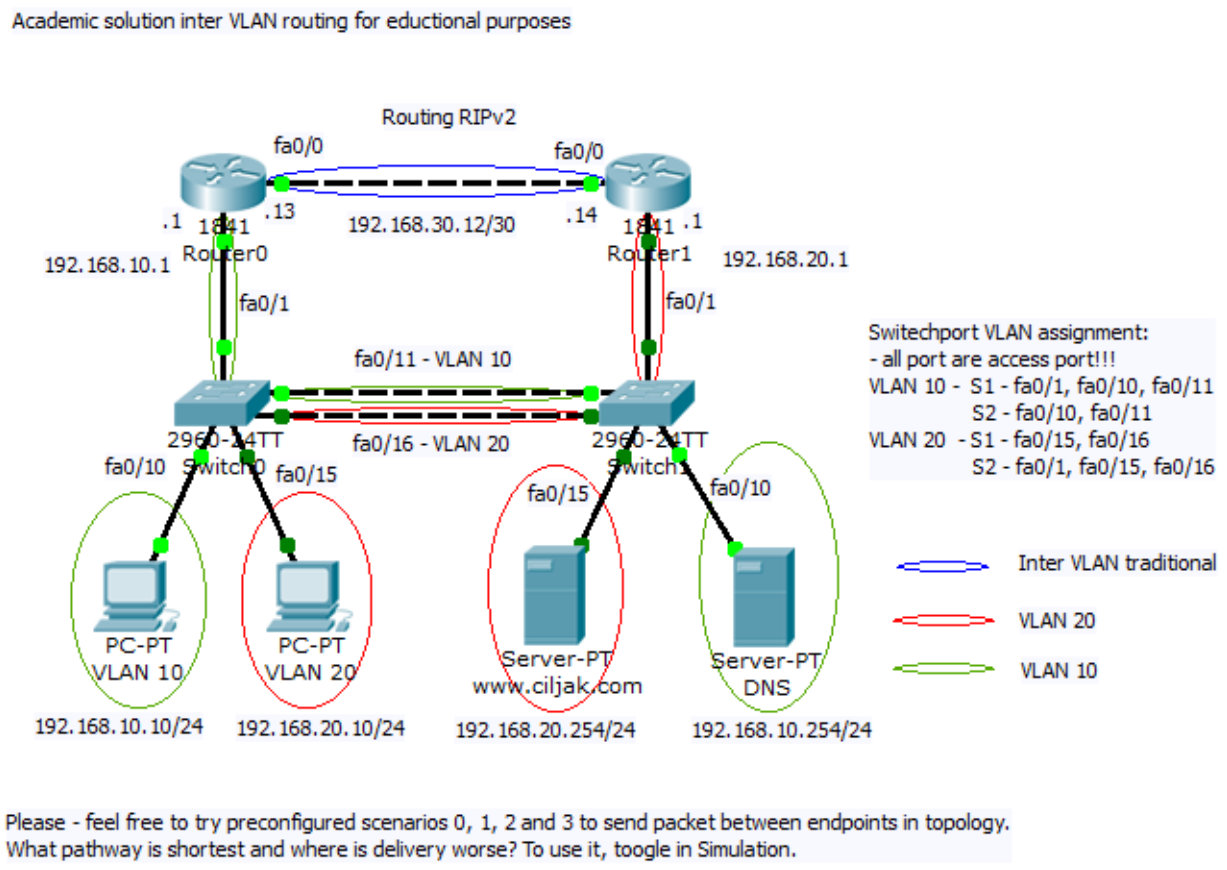
11. Examination of traditonal inter VLAN routing with dedicated routers

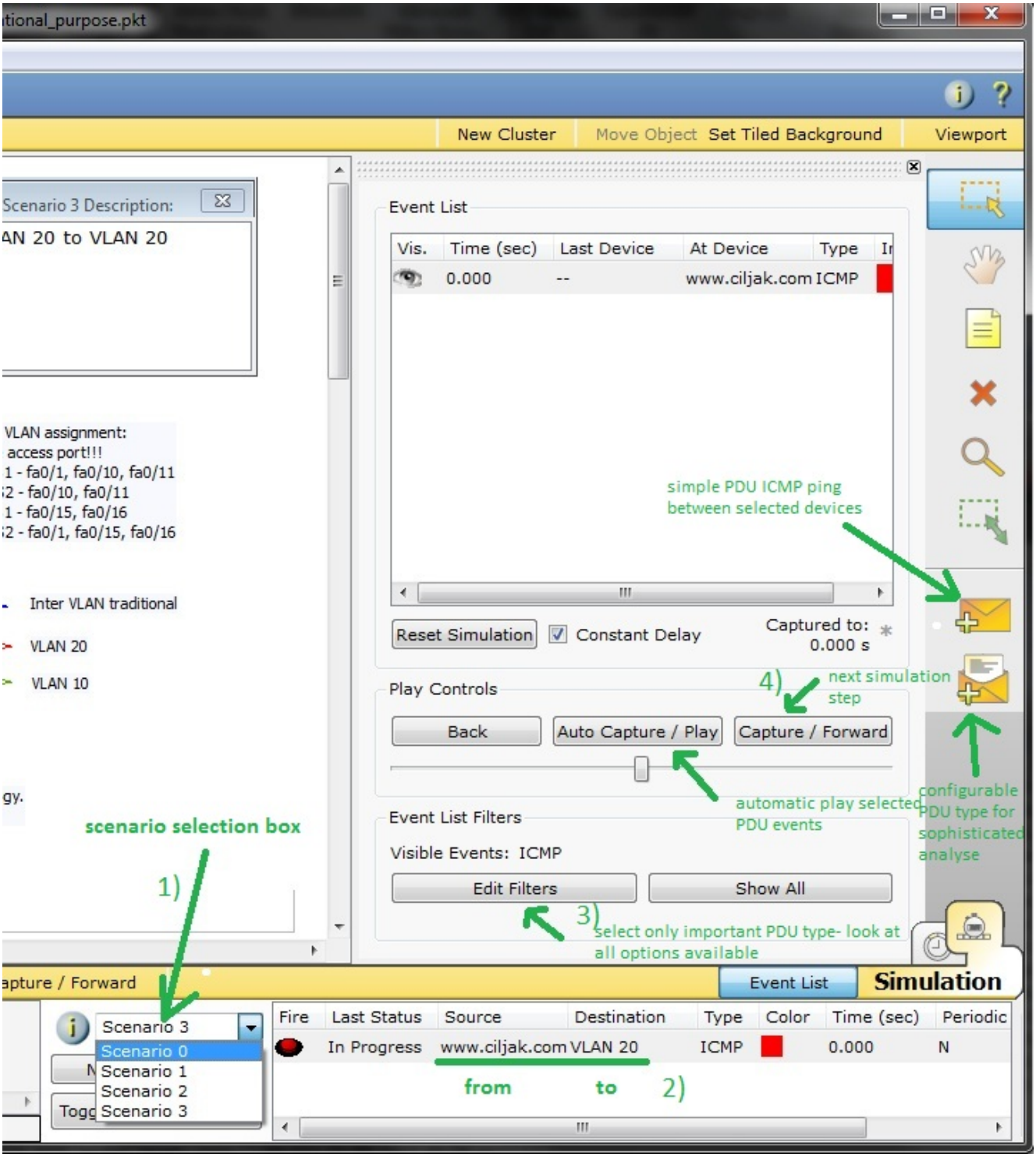
Our training lab will focus on „academic“ traditional inter VLAN communication. This routed connection uses two separate dedicated routers that are connected through two point fast ethernet speed connection (link). Our goal will be to understand how will data packet travel from one VLAN (red) to second VLAN (Green) using blue routed segment.

Network topology looks like this



Preconfigured scenario can be obtained from here (PKT 5.2 or above).

This scenario is bundled with 4 Scenarios that can be selected from scenario drop box in bottom part of Cisco Packet tracer (picture). For best PDU tracking go to simulation mode where you can look for events created during PDU traversing from source to its destination.

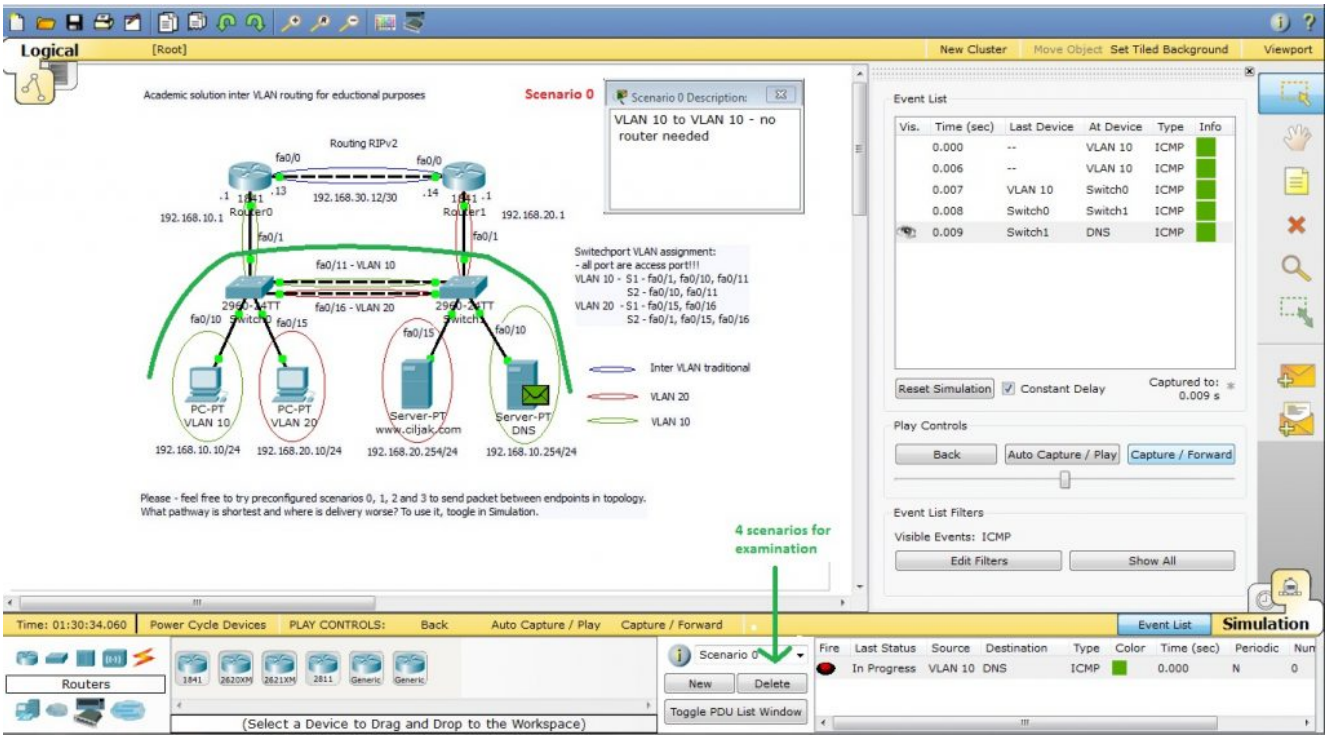


Scenario selection box is marked as nr. 1. Right pane consist of fire button that can optionally start PDU delivery from source to destination. Type mean PDU protocol and selectable

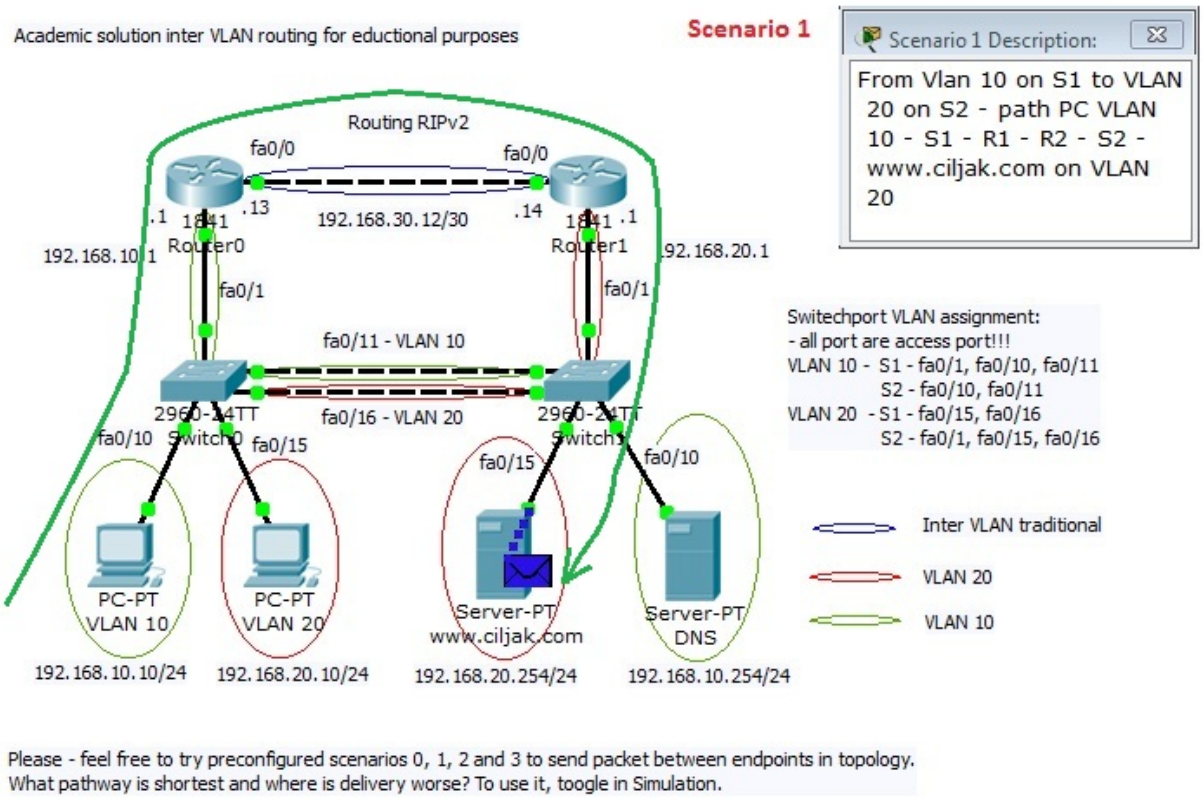
color is color of PDU. Optionally can be altered PDU filter (default in this scenario will intercept only ICMP – ping PDU – ARP, RIP, STP, CDP … PDUs are hidden).

Now is all prepared for PDU delivery examination – open our scenario in PKT 5.2 or above and select scenario:

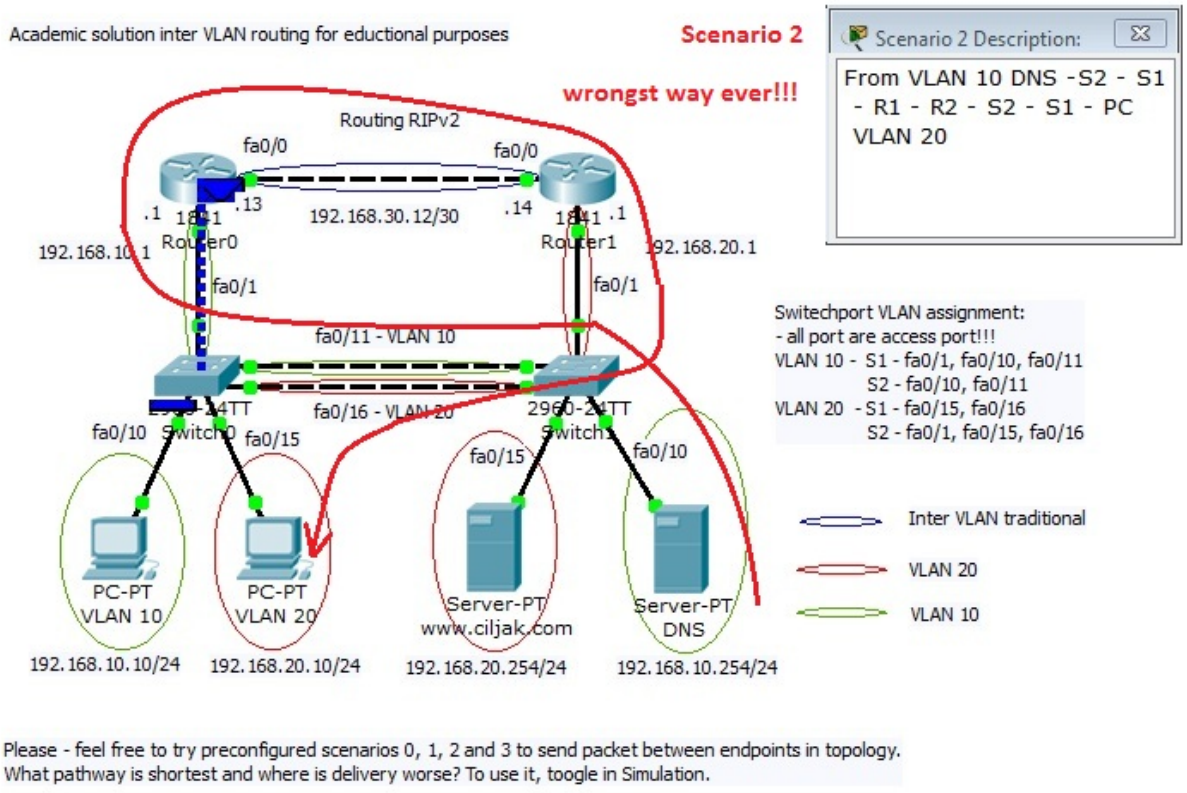
1) Scenario 0 – intra VLAN – from host 192.168.10.10 to DNS server 192.168.10.254 on same VLAN



2) Scenario 1 – inter VLAN – from host 192.168.10.10 to www.ciljak.com server with 192.168.20.254 on different VLAN

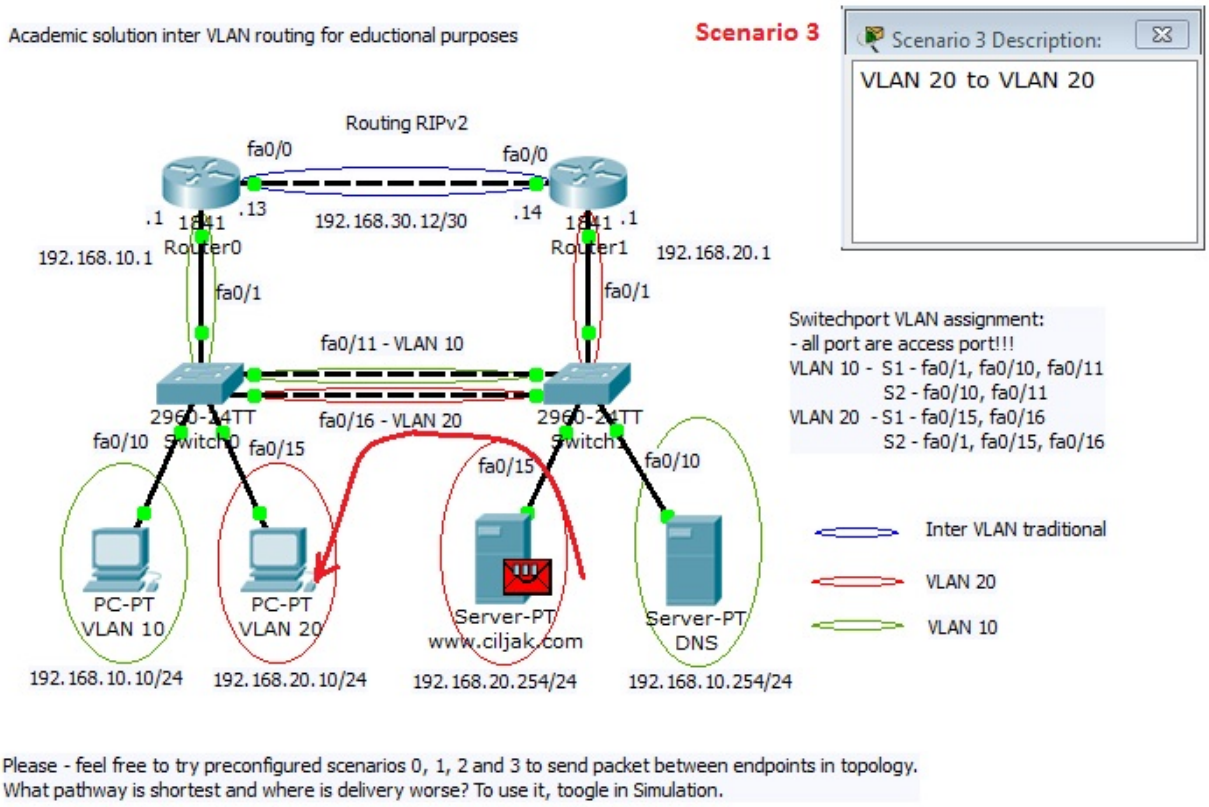


3) Scenario 2 – inter VLAN – from DNS server 192.168.10.254 to host 192.168.20.10 on different VLAN



4) Scenario 3 – intra VLAN – from

server www.ciljak.com 192.168.20.254 to host 192.168.20.10 on same VLAN



Conclusion: Different path for inter VLAN routed PDU is one of many great weakness. Price of dedicated server and time for cabling that can lead to network failures is another great weakness. Better solution is introduction of L3 capable switch or cheaper but not so strong (sharing trunk that mean potentially bottleneck in network) is well know router on a stick solution.

You are strongly encouraged exchange access link between two switches with one trunk link with ether channel.