Advanced Program On Technology Enhanced Learning

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Conducting session Eng.samera nizam

Networking instructor

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VLAN

Virtual local Area Network

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VLAN

- What is VLAN
- Why VLAN
- Benefits of VLANs
- VTP
- Type of VLANs
- switch port
- Native VLAN
- Q&A

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What is VLAN ?

- VLANs are logical subgroups within lan.
- VLAN subdivide network into segments in order to reduce network traffic and congestion, apply different security policies

  port-based VLANs:simple and standalone solution

  802.1Q VLANs :can span across multiple switches

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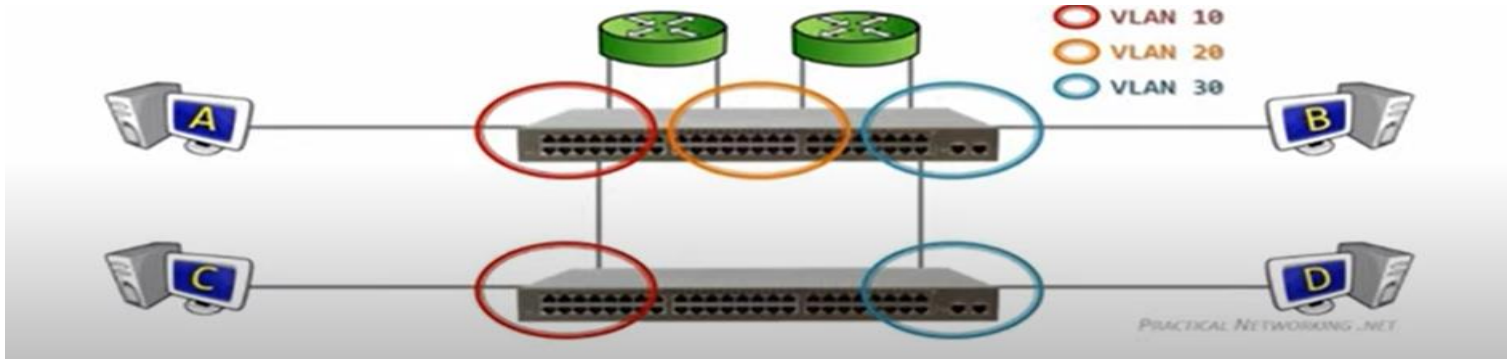
VLANs

- VLANs allow you to break up one **physical switch** into **multiple virtual switches**
- VLAN allow you to extend those **virtual switches** to other **physical switches**



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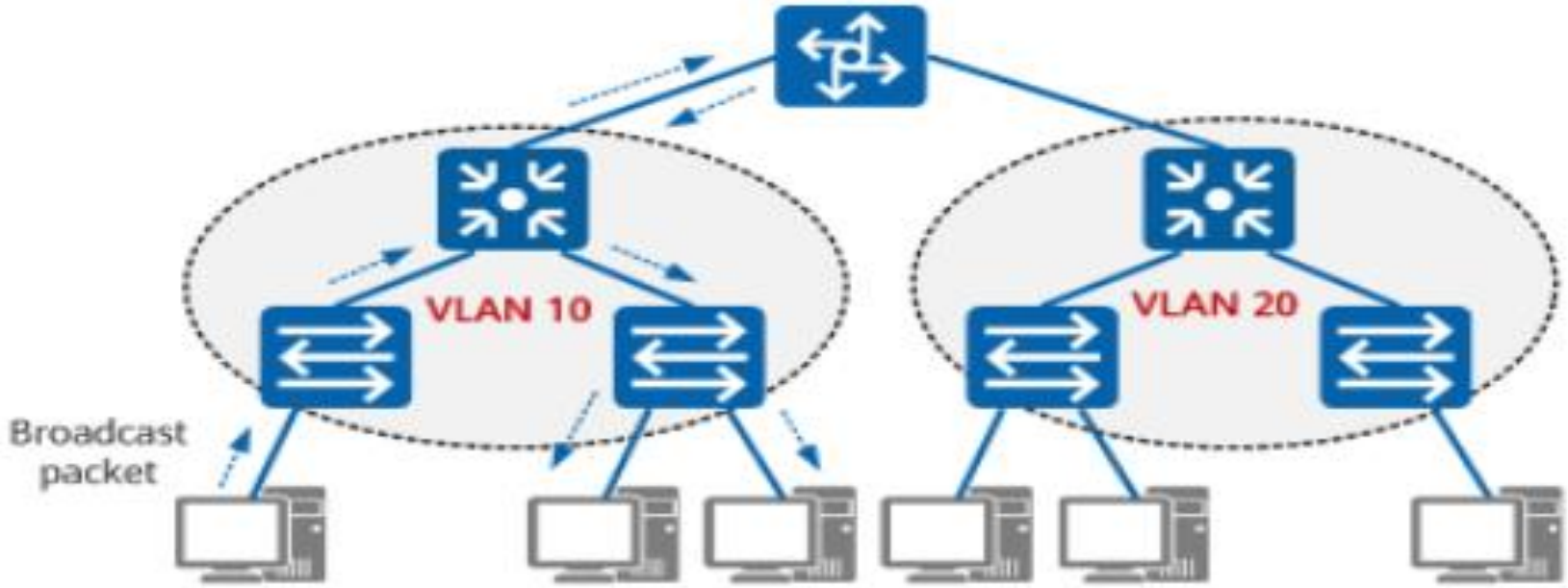
Why VLAN



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Benefits of VLAN

- Improved security
- Cost reduction
- Better performance
- Smaller broadcast domains
- IT efficiency

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IEEE 802.1Q VLANs term

- **VID and PVID**

  vlan identification number and port vlan identification

- **VLAN tag and Taged frame**

  additional information in packet which contain VID

  A frame which has VID information is Tagged frame

- **Switching rules for In(Ingress)and Out (Egress)data**

  rules which are set on the switch ports to allow to recive or send packets with certain VID

- **Egress port**

  port is set to allow packets to a specific VLAN

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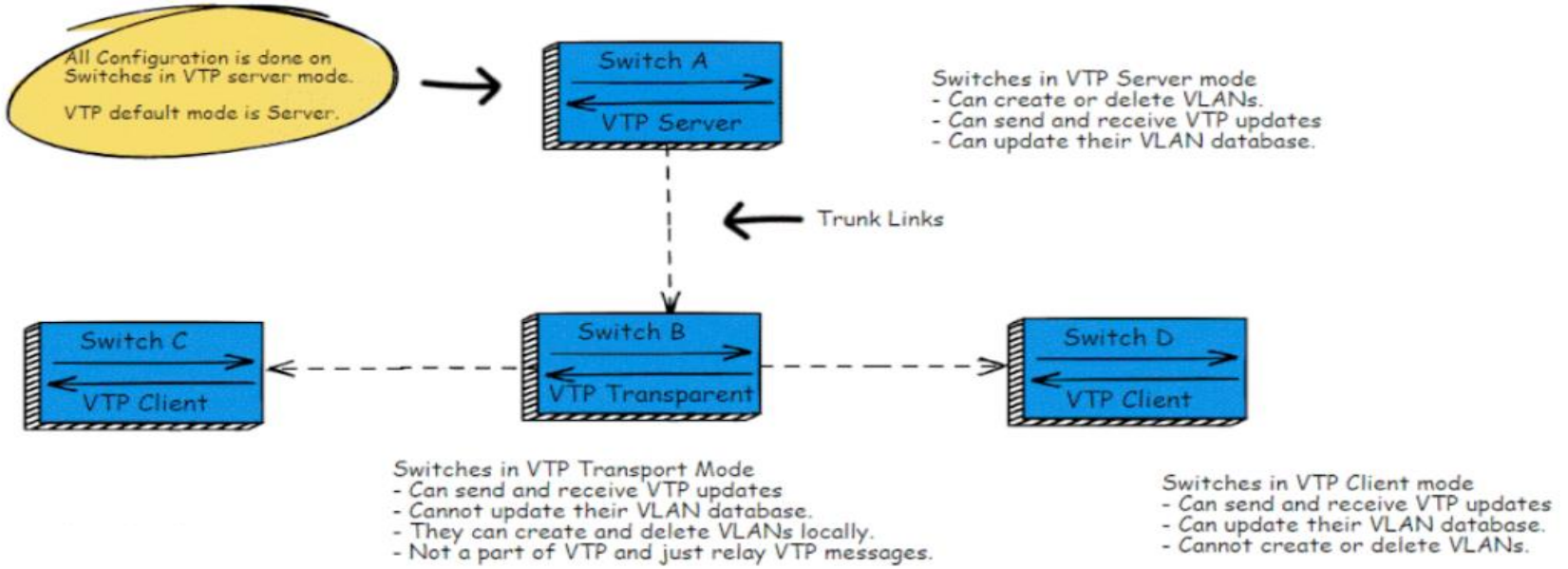
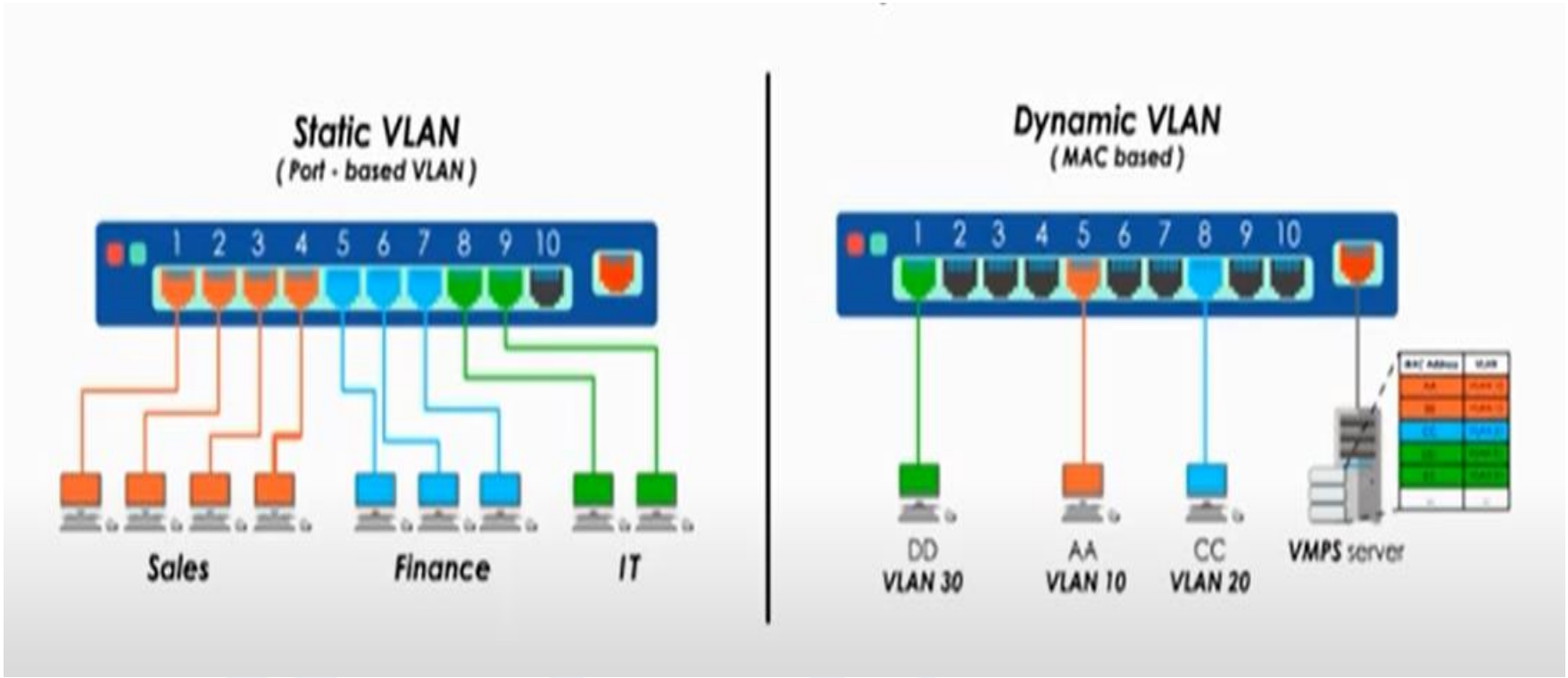
VTP(Virtual Lan Truncking Protocol)

Use to manage all configured VLANs consistency across a switched network



Dynamic VLAN vs Static VLAN



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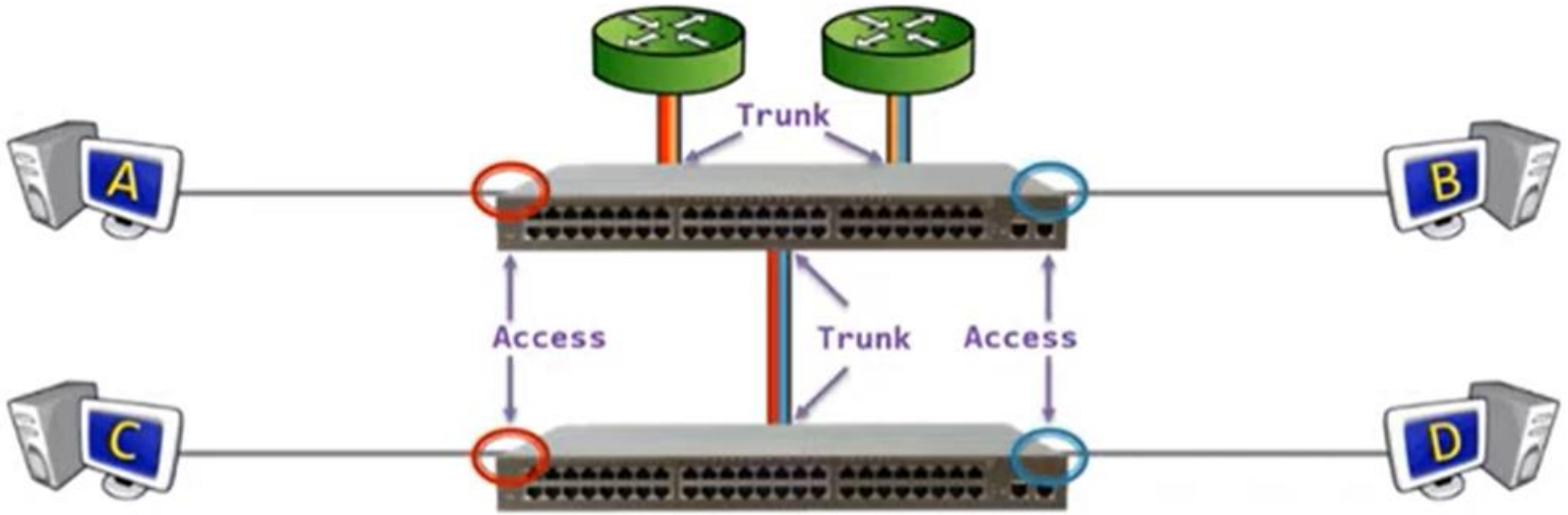
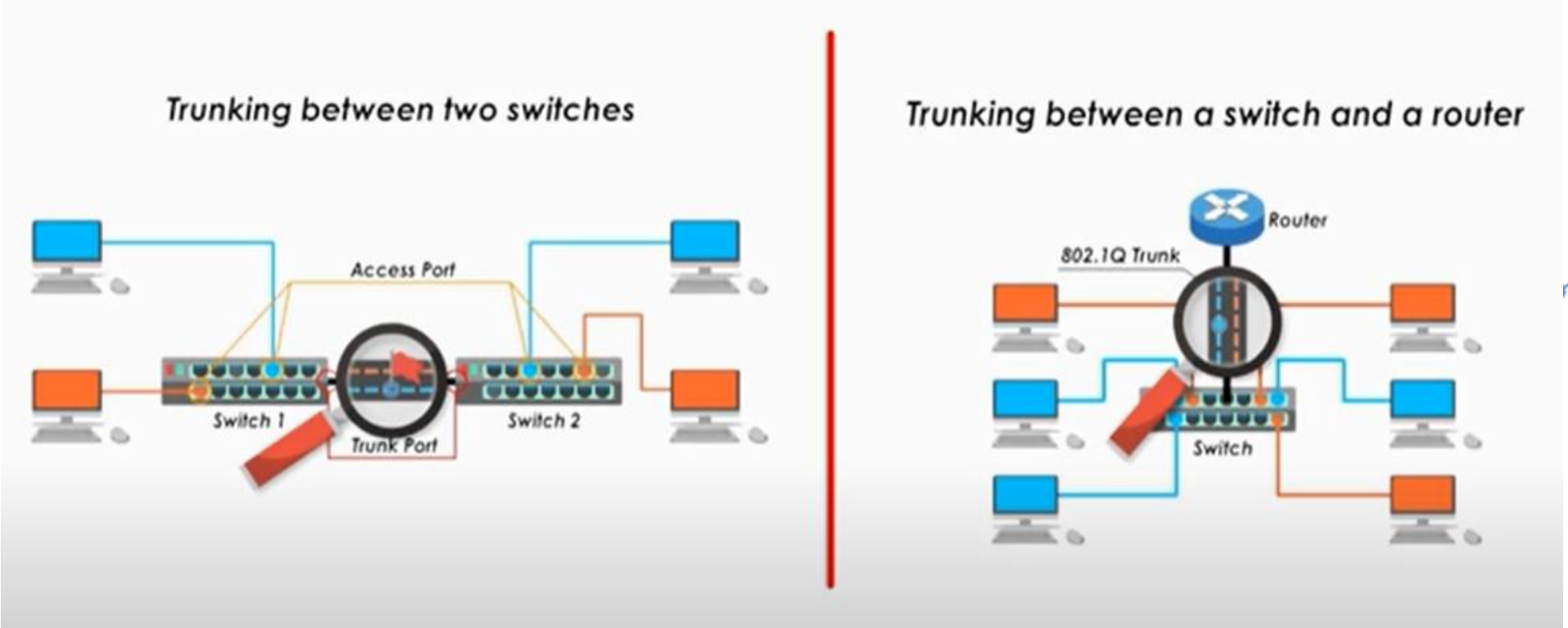
switch port

- Access port
- Trunk port



Trunk/access



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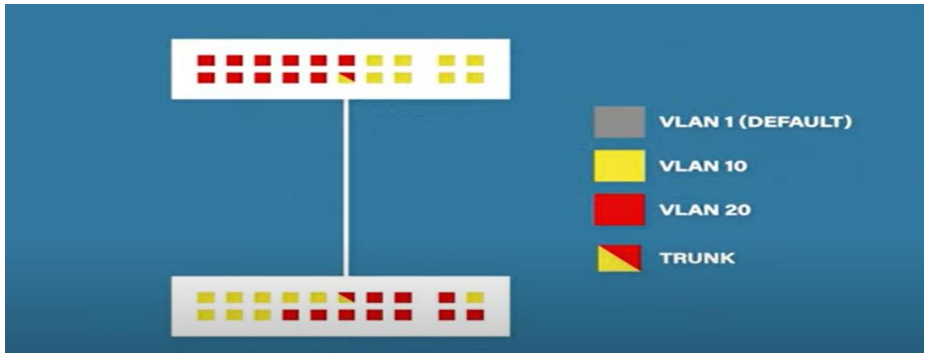
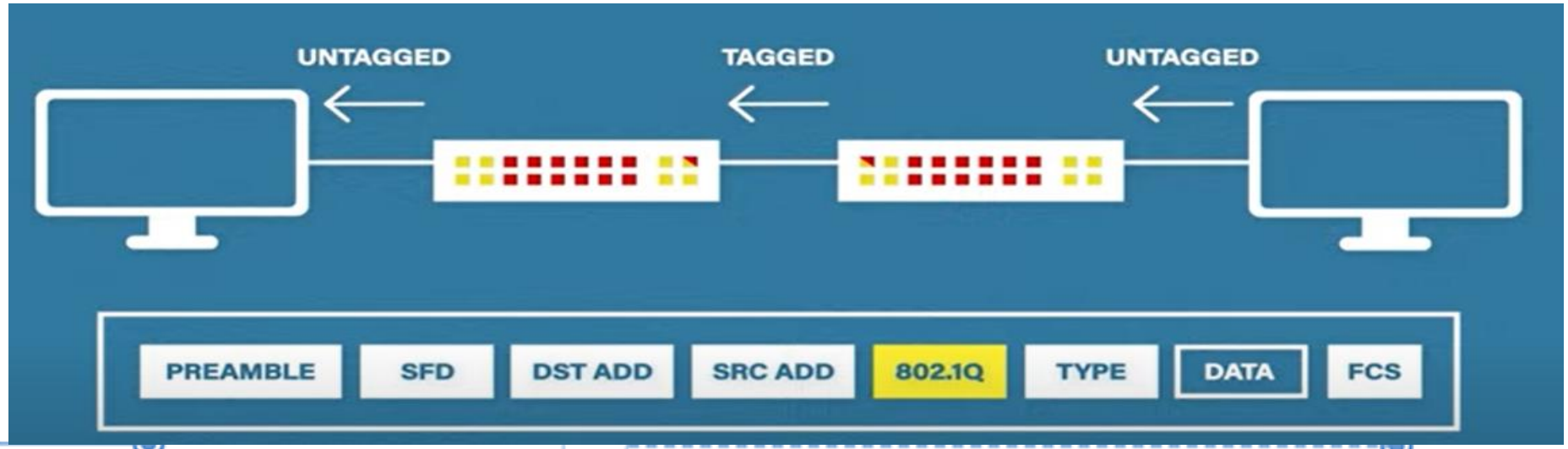
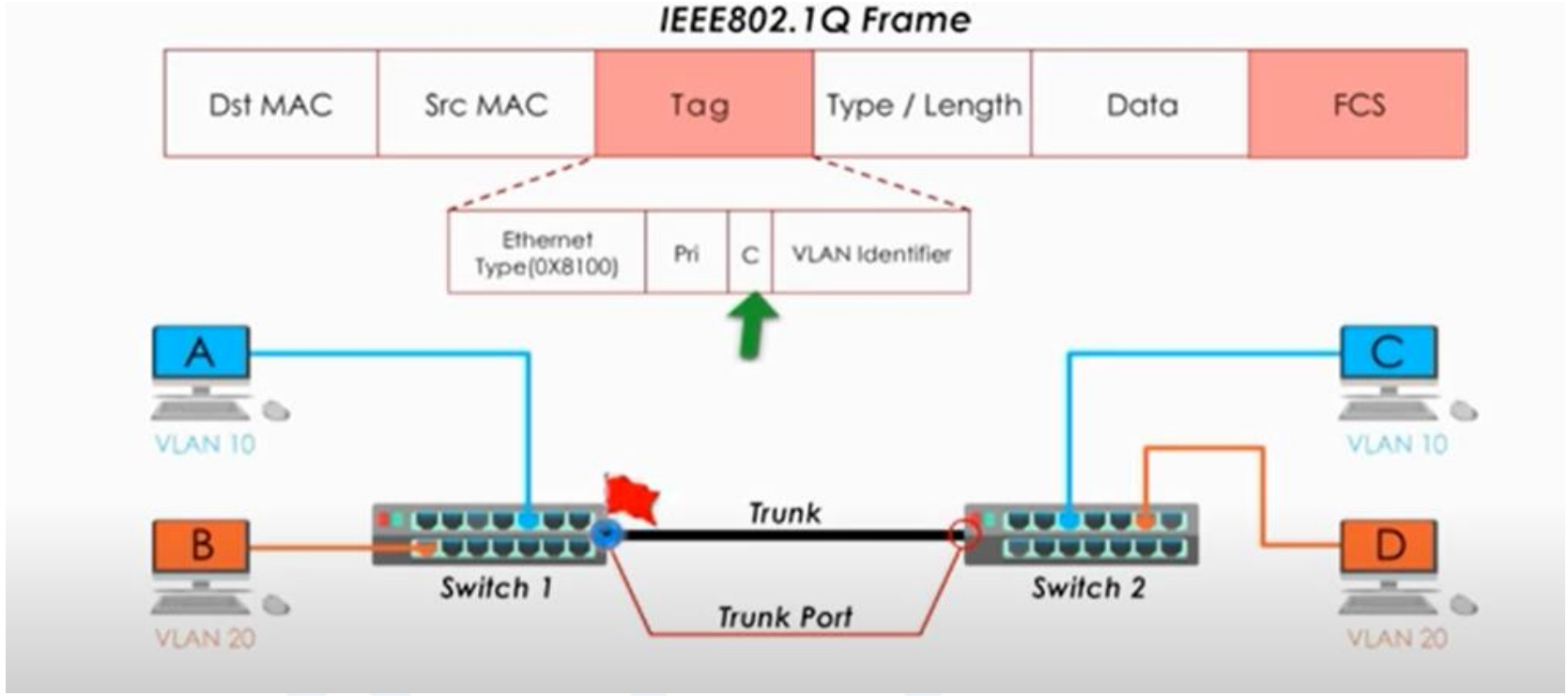
IEEE 802.1Q tag





Encapsulation



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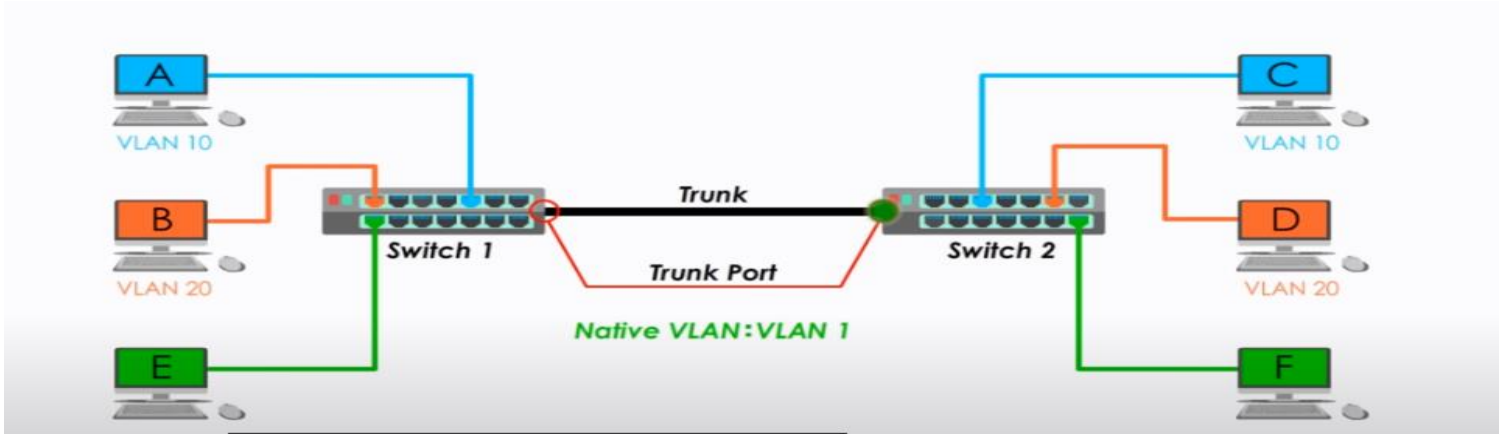
Native VLAN

A Native VLAN is a special VLAN whose taffic traverses on the 802.1q trunck without a VLAN tag



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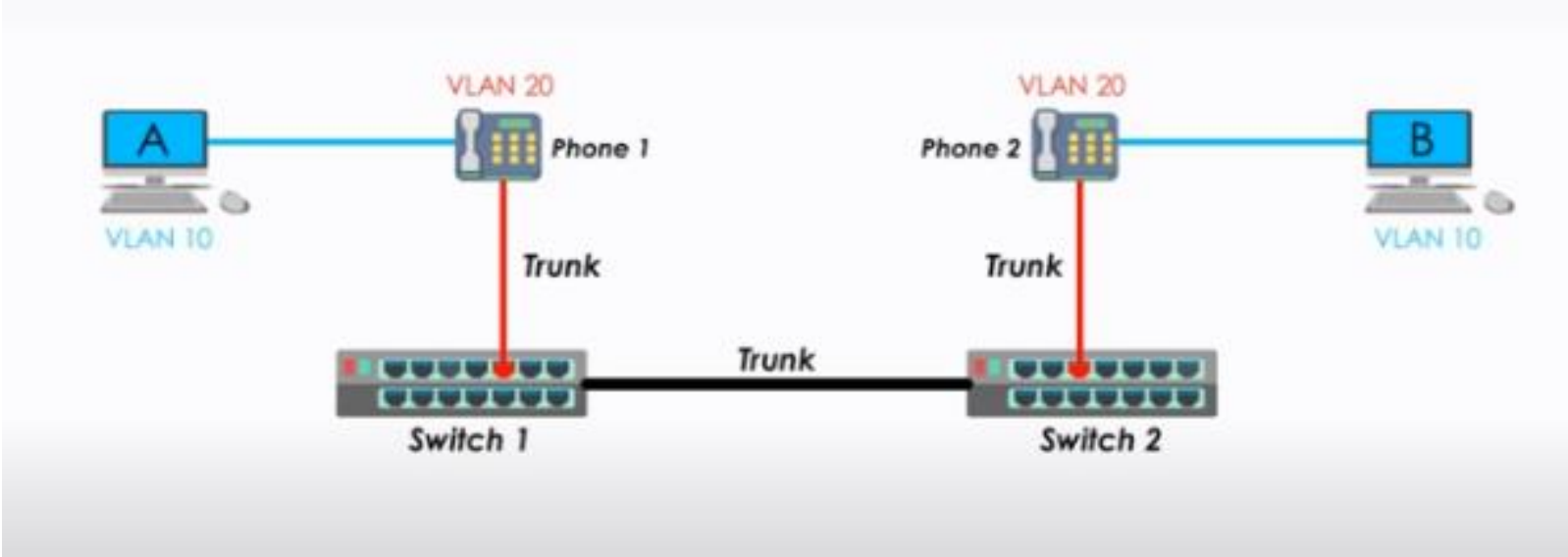
Example of native VLAN



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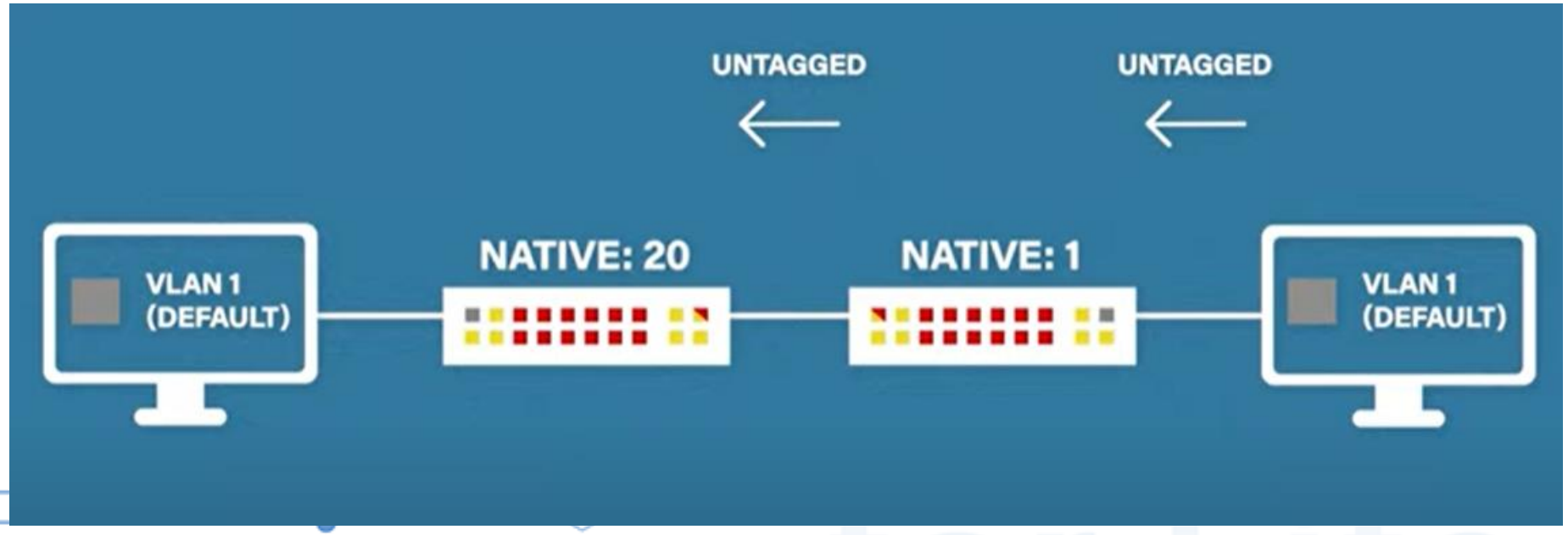
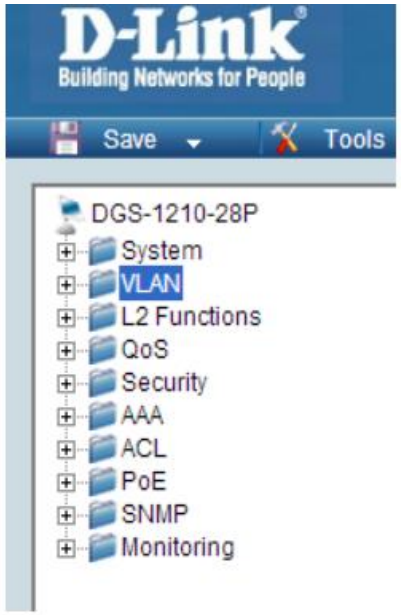
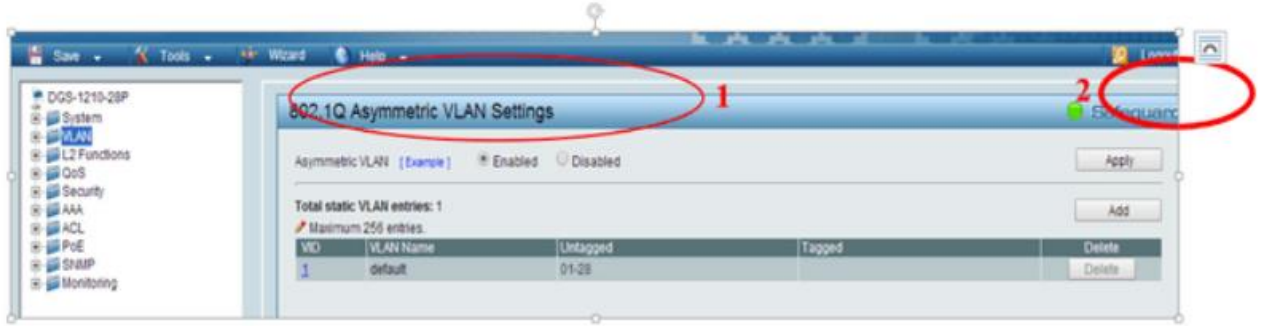
NATIVE-VLAN –MISMATCH

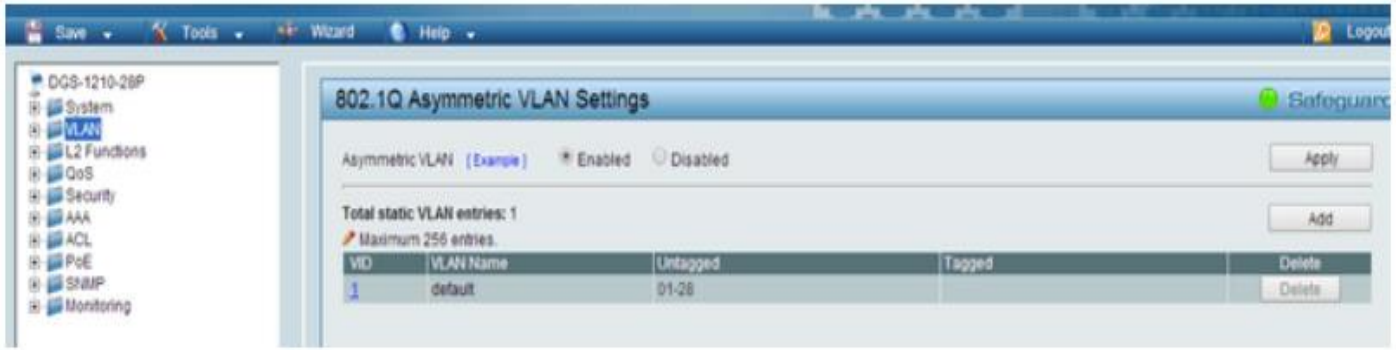
```
%CDP-4-NATIVE_VLAN_MISMATCH: NATIVE VLAN MISMATCH
DISCOVERED ON FASTETHERNET0/2 (20), WITH SWITCH
FASTETHERNET0/2 (1).
```

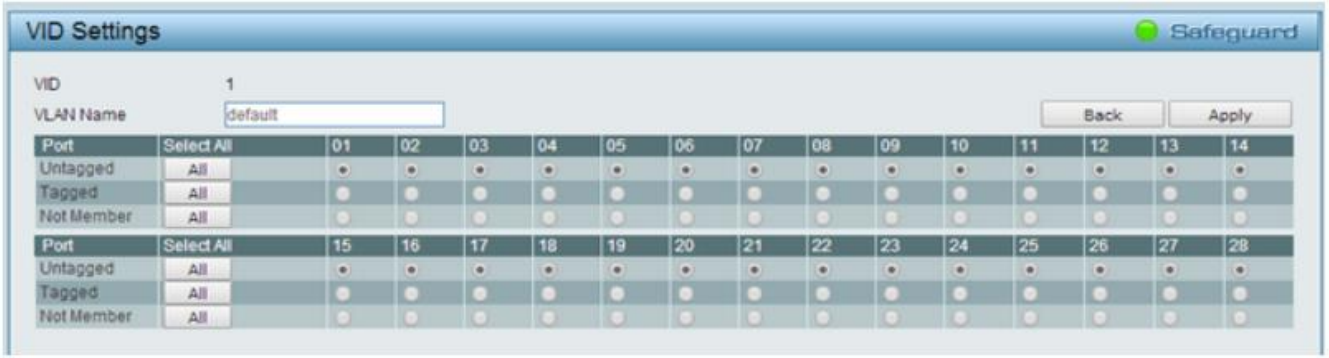




4. Inside VLAN you must activate asymmetric VLAN and then apply.




Save
Tools
Wizard
Help
Logout
DGS-1210-28P
System
VLAN
L2 Functions
QoS
Security
AAA
ACL
PoE
SNMP
Monitoring
802.1Q Asymmetric VLAN Settings
Safeguard
Asymmetric VLAN [Example]
Enabled
Disabled
Apply
Total static VLAN entries: 1
Maximum 256 entries.
Add
VID
VLAN Name
Untagged
Tagged
Delete
1
default
01-28
Delete


VID Settings
Safeguard
VID
1
VLAN Name
default
Back
Apply
Port
Select All
01
02
03
04
05
06
07
08
09
10
11
12
13
14
Untagged
Tagged
Not Member
All
Port
Select All
15
16
17
18
19
20
21
22
23
24
25
26
27
28
Untagged
Tagged
Not Member
All

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Q&A

Thank you

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