

Lanka Education and Research Network

Virtual Local Area Network (VLAN)

25-28th April 2022

Tuning up Campus Network

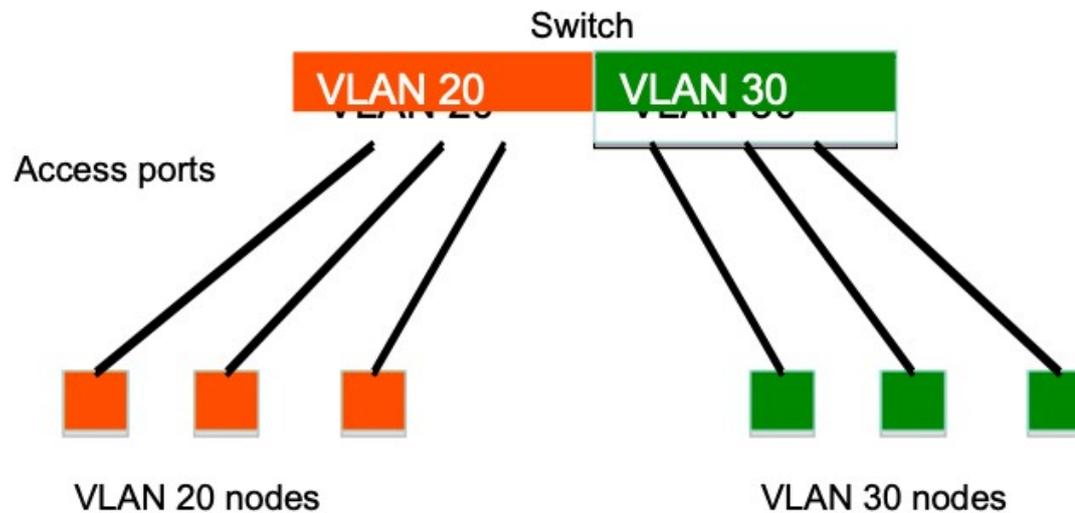
Dhammika Lalantha / LEARN

VLANs

- What is a VLAN?
 - Any broadcast domain in a computer network partitioned/created at the data link layer (OSI layer 2)
 - It has same attributes as a physical LAN.
 - Allow to split switches into separate virtual switches
 - Inter-VLAN communication should happen through a layer 3 device
 - On a campus LAN we use L3 switch

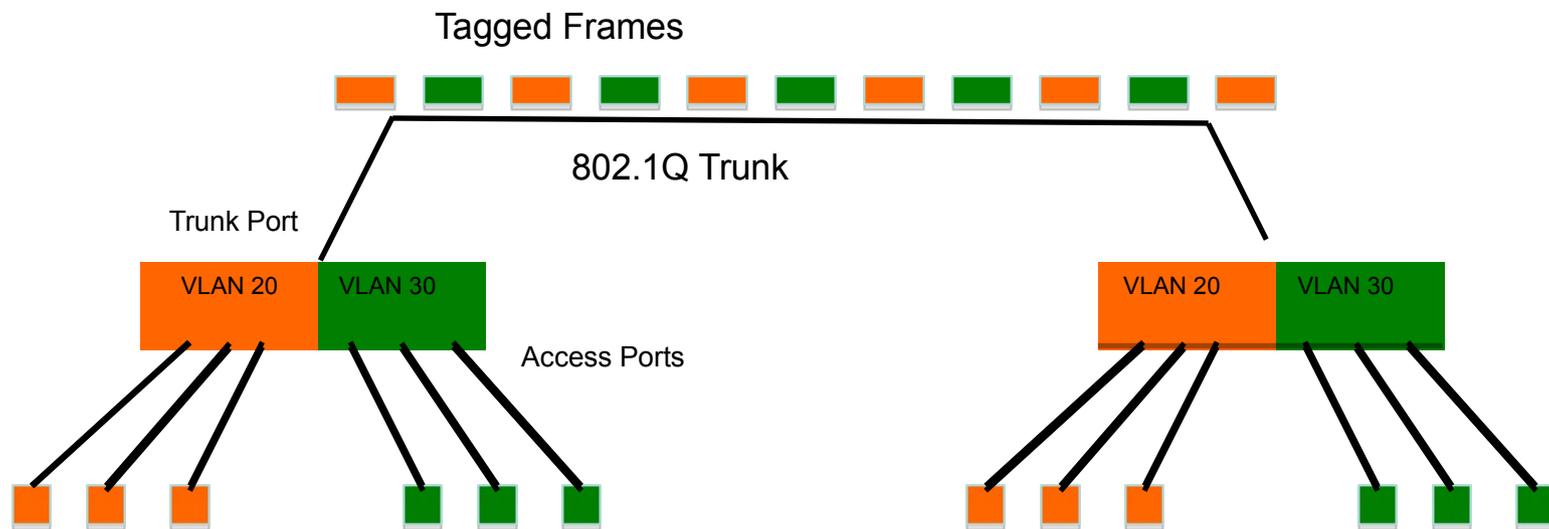
Local VLANs

- Two or more VLANs within a single switch



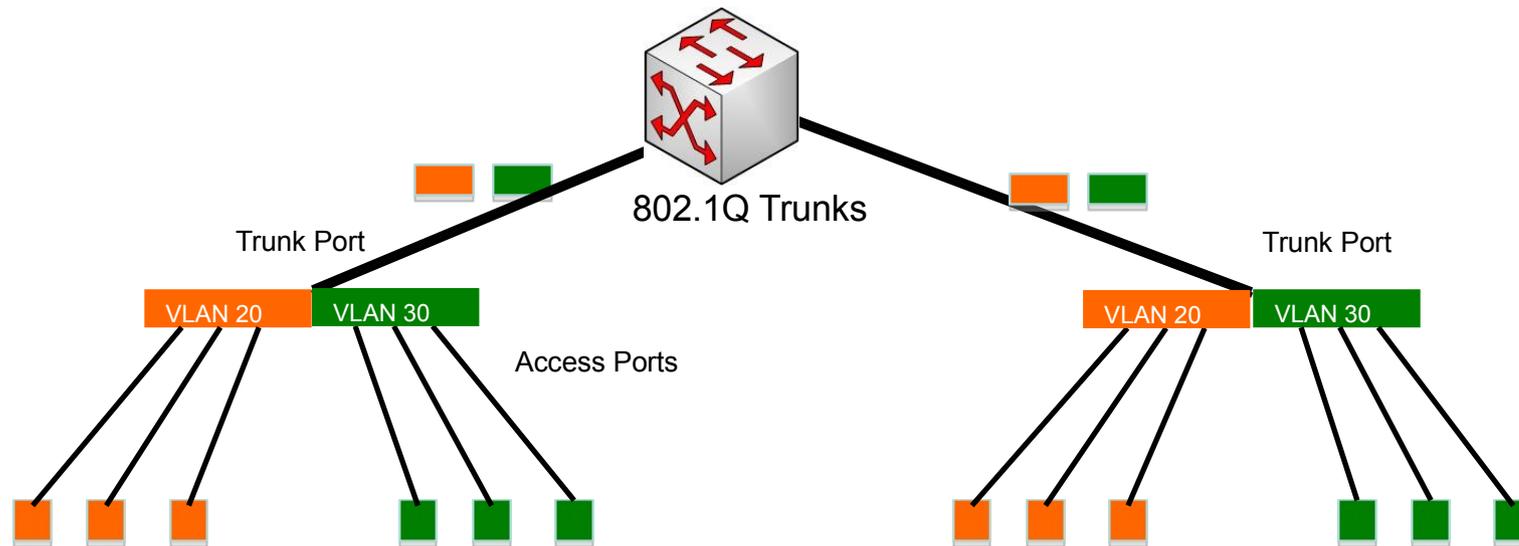
VLAN across switches

- VLAN Trunking



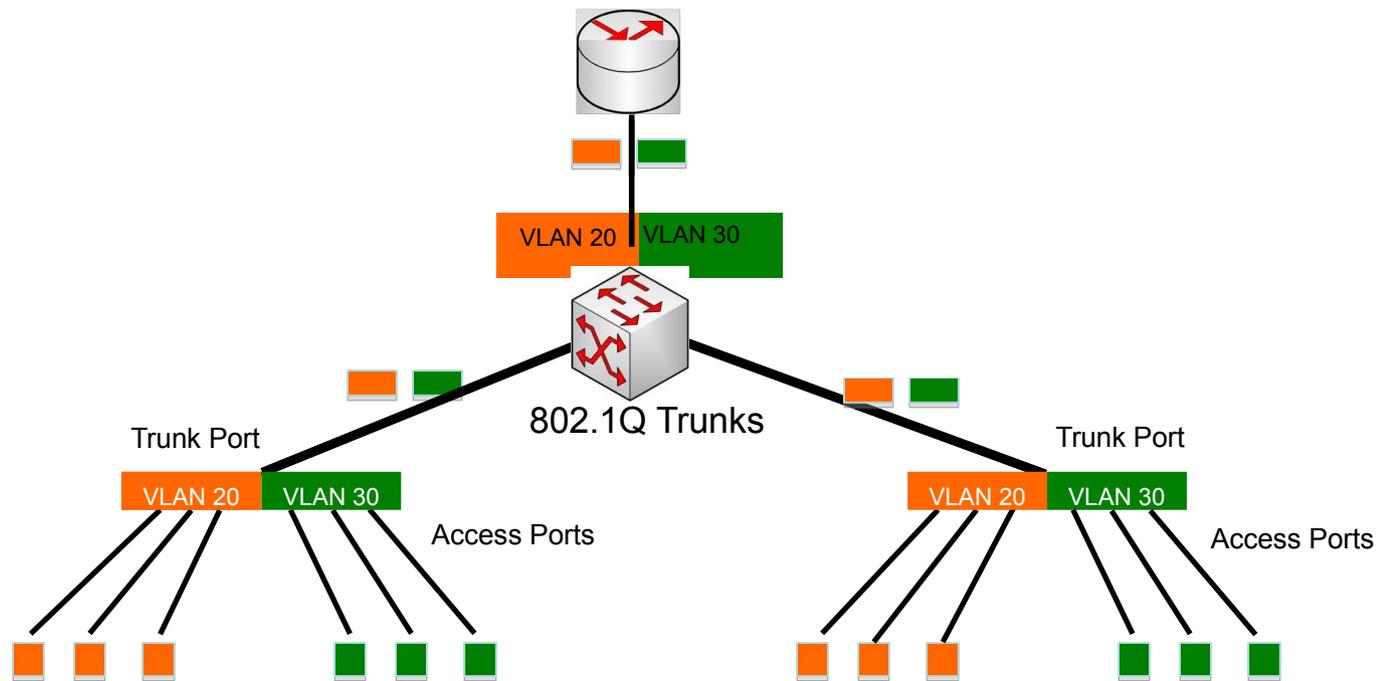
Routing Inter-VLAN traffic

- We use a 802.1Q compliant Layer-3 switch to do switching as well as inter-VLAN routing



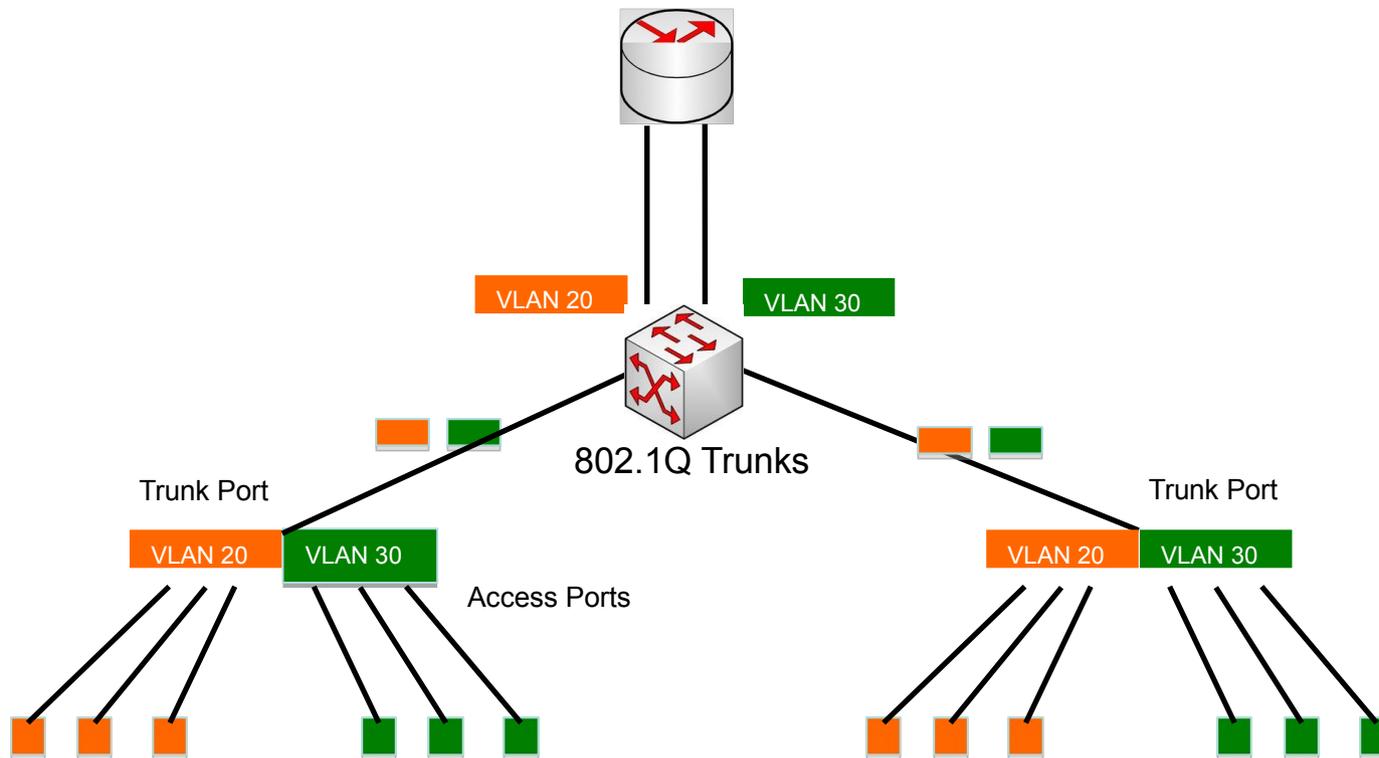
Routing Inter-VLAN traffic

- Single interface on the router used as a Trunk



Routing Inter-VLAN traffic

- Separate interfaces for each VLAN



Benefits of Segmentation with VLANs

- Why use VLANs over Subnetting for network segmentation
 - Logical grouping of hosts that are physically dispersed on network
 - Reduce the need to have routers deployed on network
 - Cost effective since Routers are costlier than switches
 - Flexibility of expanding a network

Lanka Education and Research Network

Thank You

Dhammika Lalantha/LEARN

Email: lalantha@learn.ac.lk