

VLAN

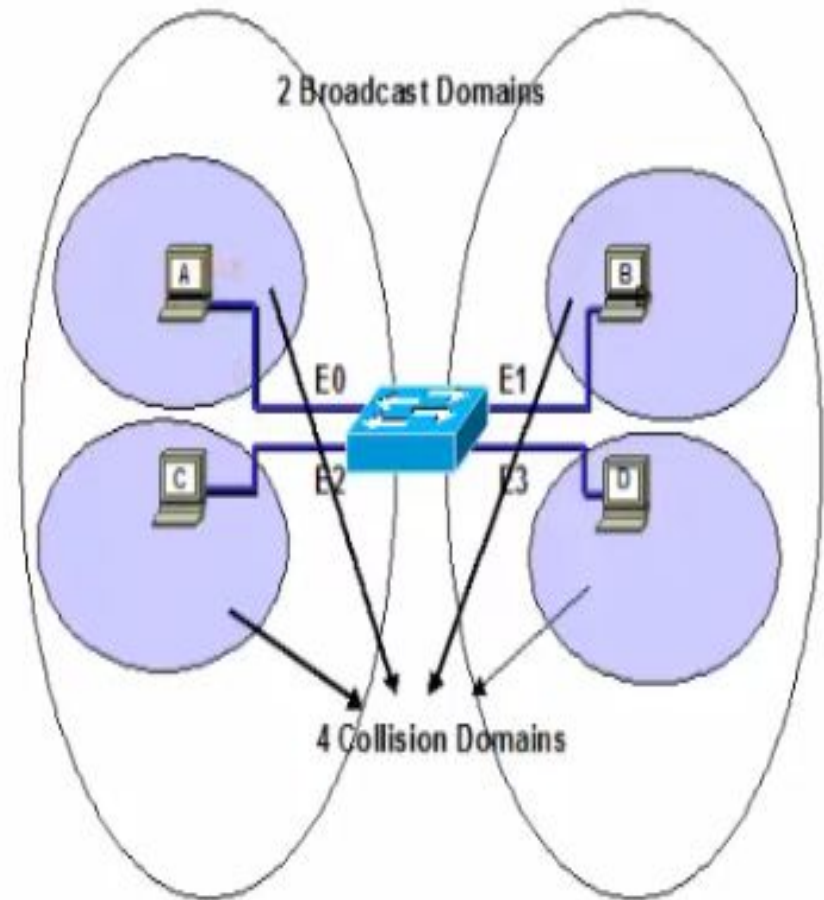
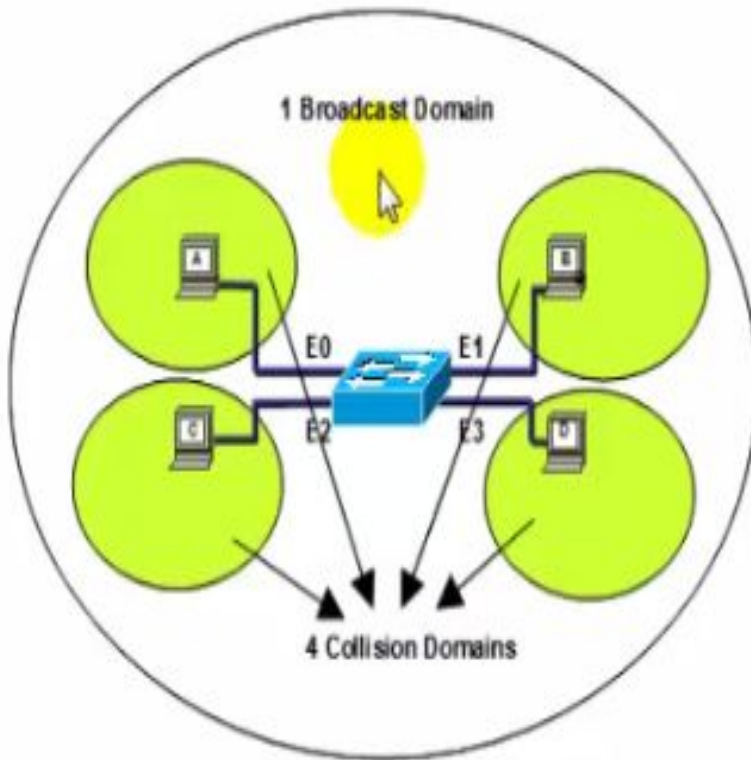
Outline

- VLAN
- Benefits.
- Types.
- Types of Port.
- Frame Tagging.

Virtual Lan

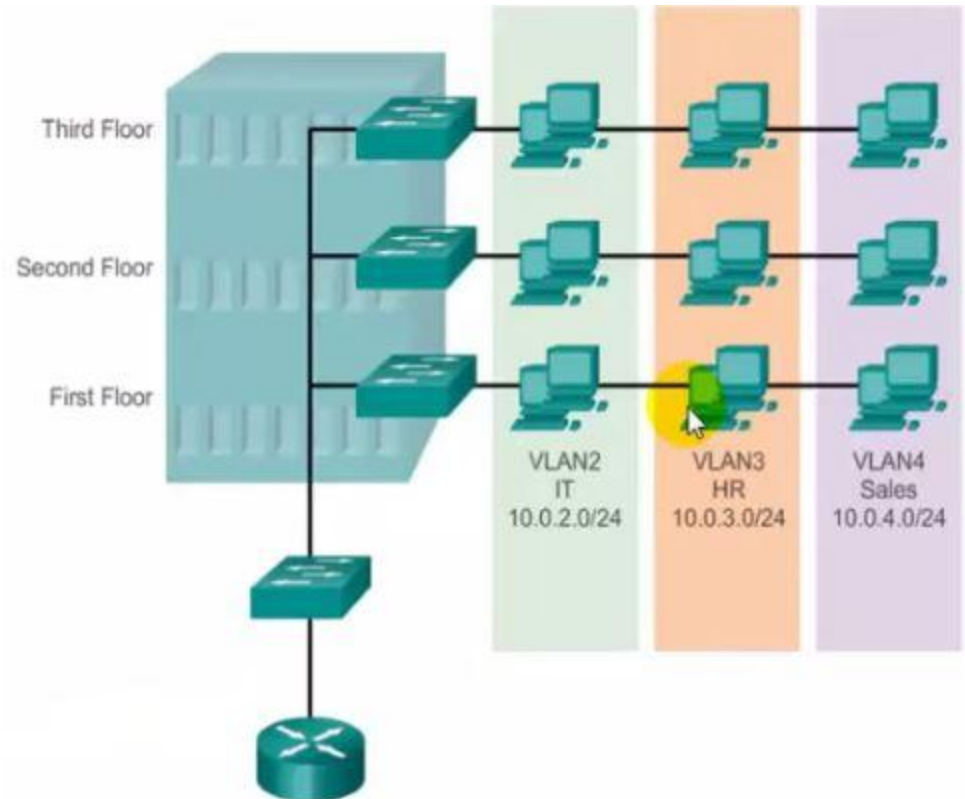
- Divides single broadcast domain into multiple broadcast domain.
- A layer-2 security.
- Vlan- 1 is default vlan.
- Can create vlan 2 – 1001.
- Can be configured on a manageable switches only.

Virtual Lan



Benefits of Vlan

- Limit the number of broadcast.
- Better performance.
- Security.



Types of Vlan

- Static Vlan.
- Dynamic Vlan.

Static Vlan

- Based on port number.
- Manually assign a port on a switch to a vlan.
- One port can be member of only one vlan.
- Also called port based vlan.

Dynamic Vlan

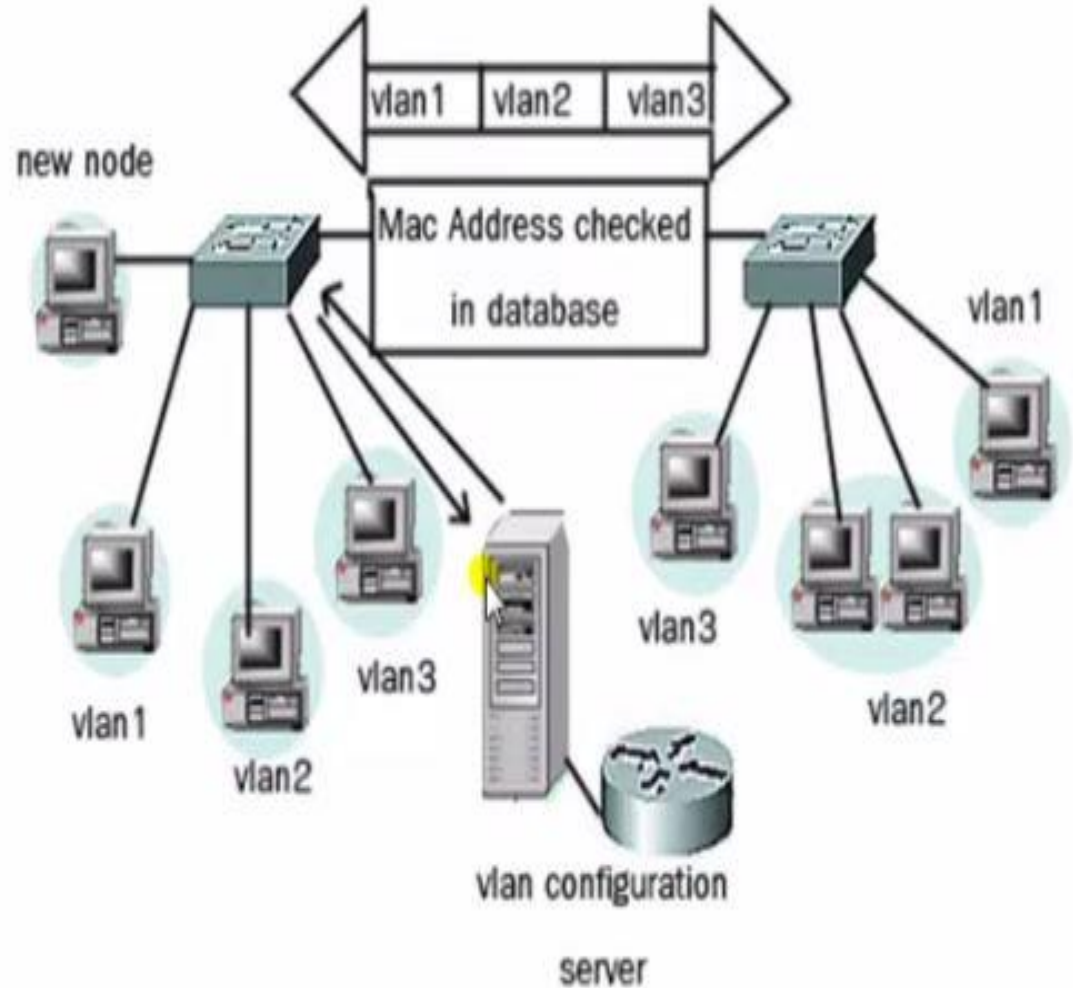
- Based on the MAC address of the PC.
- Switch automatically assign a port to a vlan.
- Each port can be member of multiple vlans.
- A software called VMPS(Vlan Membership Policy Server) is needed.

Dynamic Vlan

A VMPS Server Essentially Maps VLANS to MAC's

Entry	VLAN Membership	MAC Address
1	2	5D:FF:68:DE:22:0A
2	4	5A:09:DF:FF:41:12
3	4	1A:B4:4F:CC:35:32
4	12	8E:E3:FA:C8:B2:63
5	4	F2:3D:A9:00:37:42
6	4	C4:72:36:FF:A2:61
7	12	5B:90:03:88:8C:25
8	12	B9:42:27:A3:7F:1F
9	2	DD:0D:26:52:78:35
10	2	C4:42:25:1F:DA:94

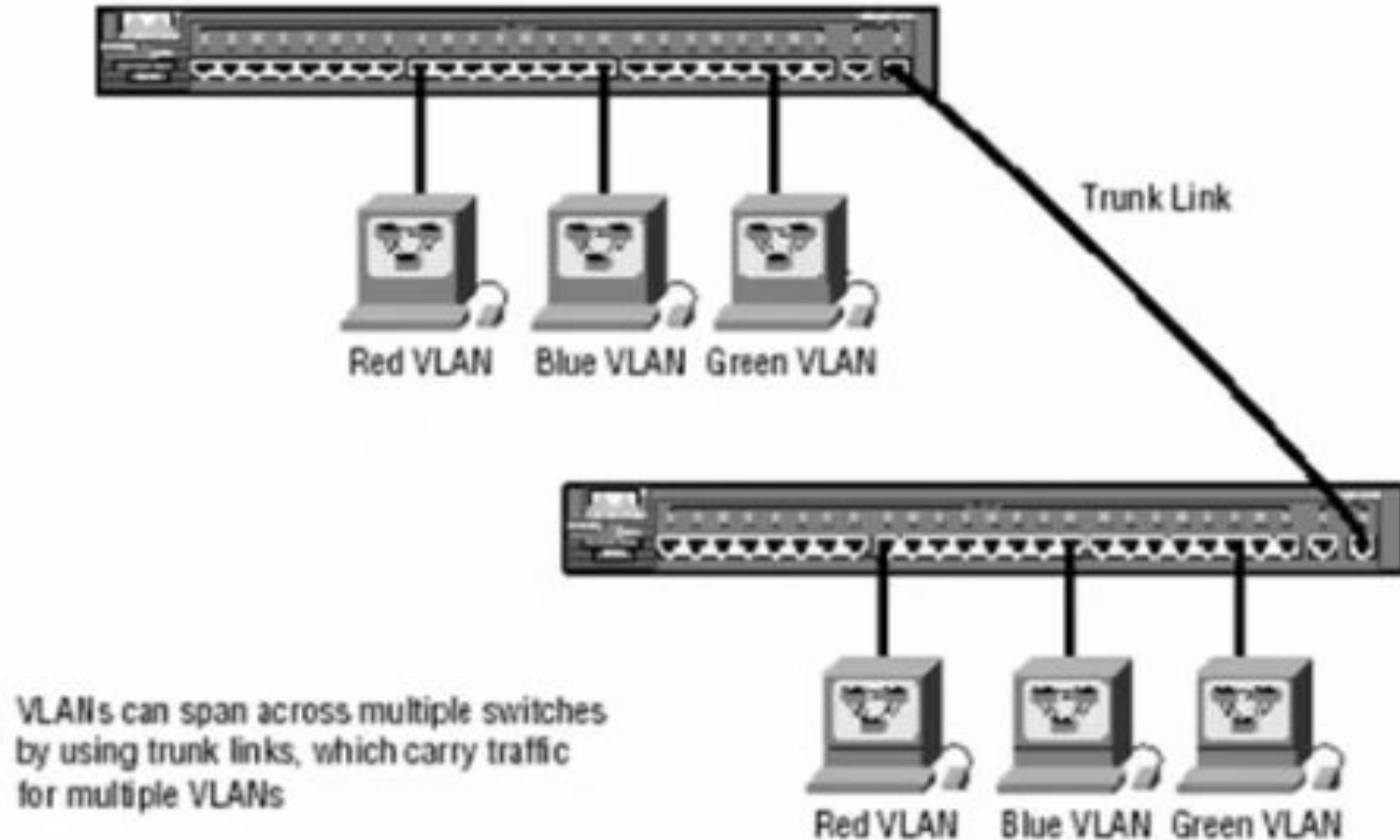
The VMPS server contains a database with all VLAN to MAC address mapping, allowing the "dynamic" VLAN configuration of these hosts, no matter where they are located within the network.



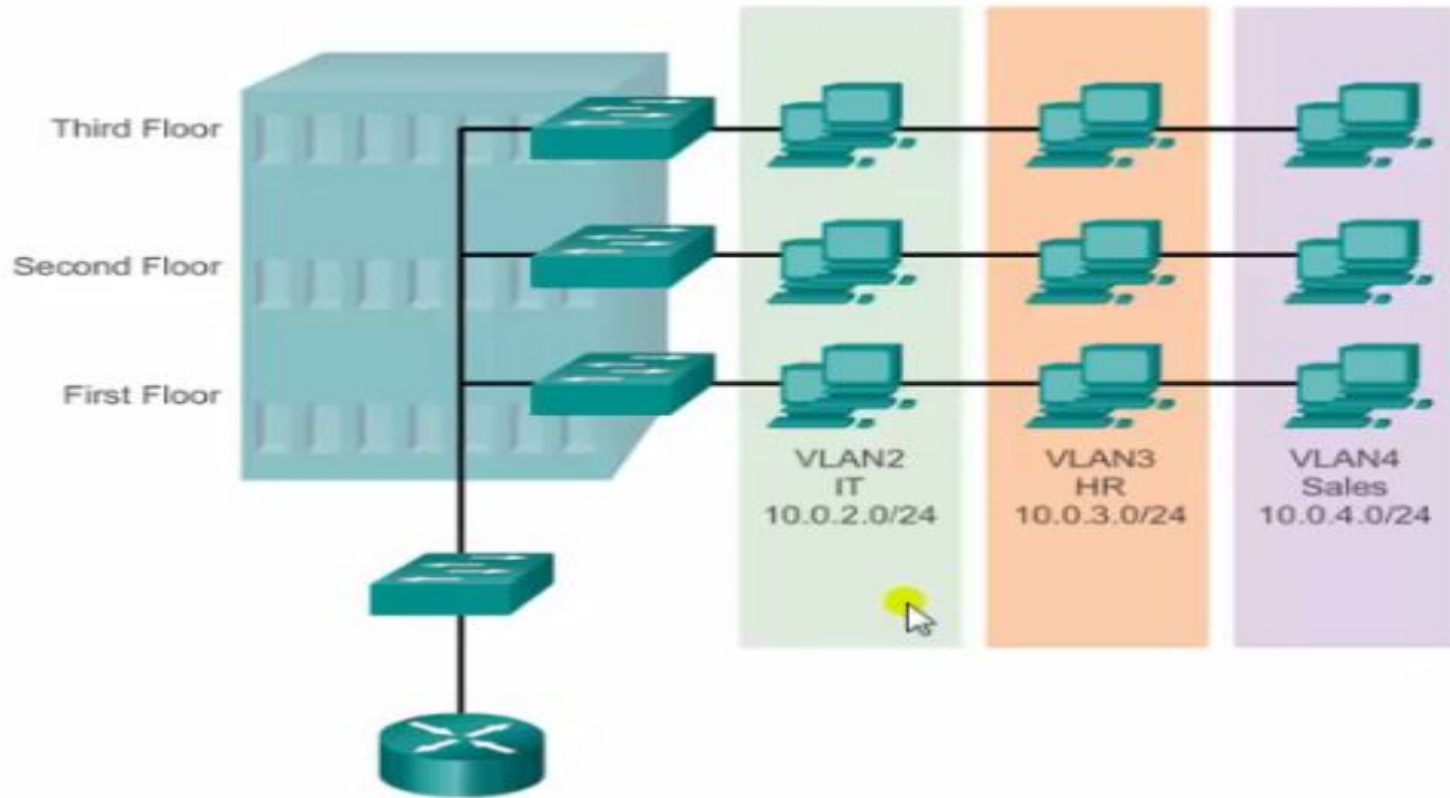
Types of Ports in Vlan

- Access links:
 1. Connecting to end devices.
 2. Part of one vlan only.
- Trunk links:
 1. Do not belong to any vlan.
 2. Carry multiple vlan traffic.
 3. Link between two switches.

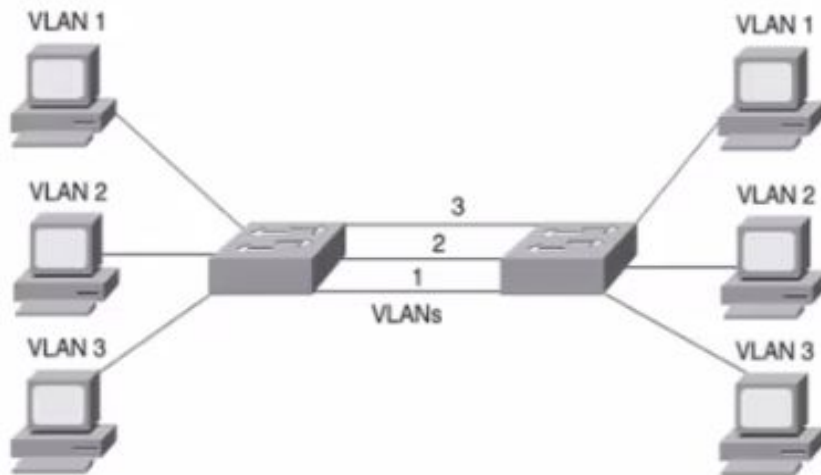
Types of Ports in Vlan



Trunking

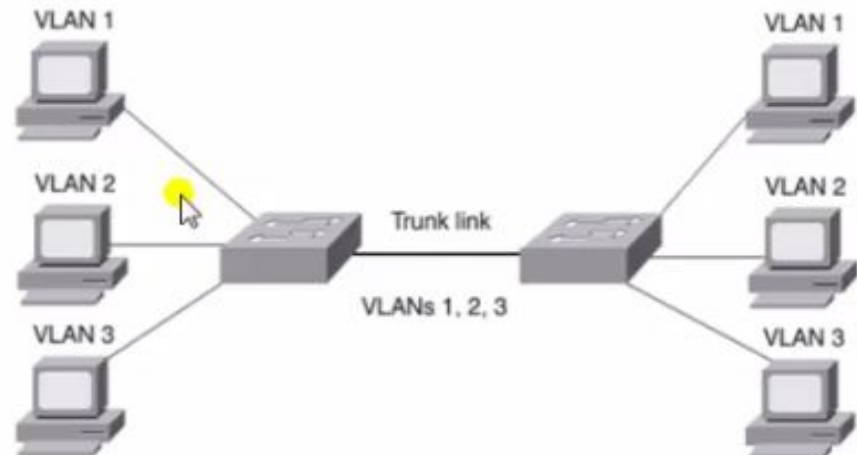


Trunking



Passing VLAN Traffic Using Separate Links for each VLAN

Passing VLAN Traffic Using Single Links



Frame Tagging

- In order to make sure that same vlan users on different switches communicate with each other using frame tagging.
- Tag is added before a frame is send on the trunk link and removed on the other end of trunk link.
- Frame tagging happens only on trunk links.

Frame Tagging

