## VLAN

VLANs allow you to create multiple separated networks with only a single switch.

There are 2 ways of doing vlans in networks :

802.1q and ISL.

802.1q: -

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Packet type** | **Preamble** | **Start frame delimiter** | **Destination**  **MAC address** | **Source**  **MAC address** | **dot1q identifier** | **tag type (4 bits)** | **vlan ID (12 bits)** | **packet type field** | **data** | **padding** | **FCS** |
| Normal ethernet tcp packet | 10101010 (56 alternating bits) | 10101011 | DST MAC | SRC MAC | not present | not present | not present | 0x800 | <insert ip packet here> | <insert padding if packet too small> | <checksum> |
| VLAN packet | 10101010 (56 alternating bits) | 10101011 | DST MAC | SRC MAC | 0x8100 | QOS bits | VLAN ID | 0x800 | <insert ip packet here> | <insert padding if packet too small> | <checksum> |

A VLAN, aka virtual LAN, separates broadcast domains by adding tags to network packets. VLANs allow network administrators to group hosts under the same switch or between different switches.

The VLAN header looks like:

A diagram of a computer network

Description automatically generated