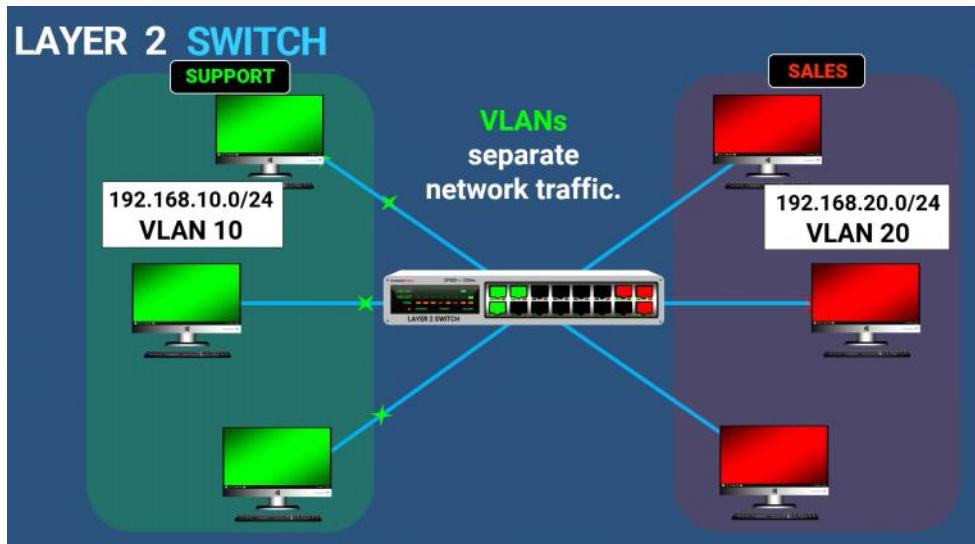


L2 vs L3 Switches

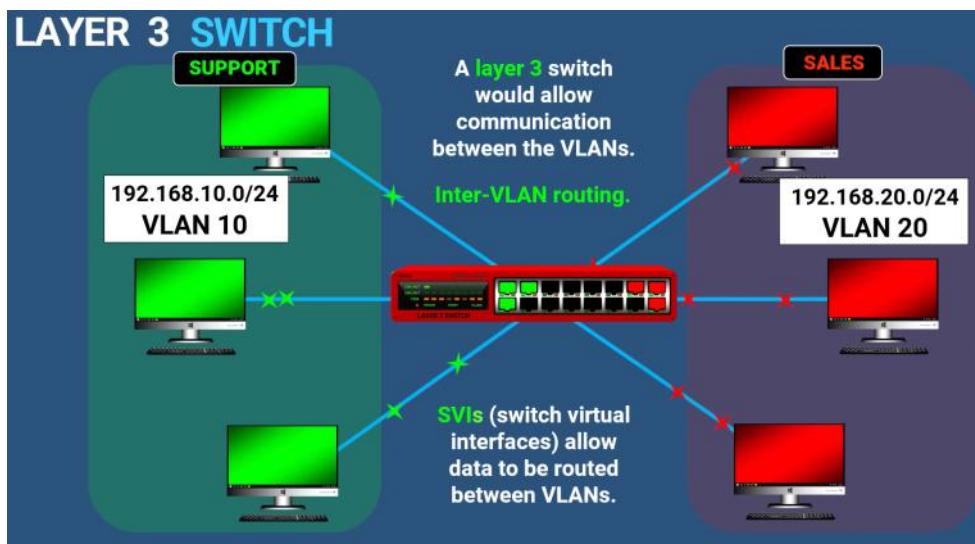
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A network switch connects devices and lets them communicate. The "layer" refers to where they operate in the OSI model, which describes how data moves across a network.

Layer 2 switches (Data Link Layer) primarily use MAC addresses to send data within the same local network. They are fast, simple, and common for connecting devices in homes and small businesses. However, they cannot send data between different subnets or VLANs.



Layer 3 switches (Network Layer) are more advanced. They can do everything a Layer 2 switch does, plus route data using IP addresses, similar to a router. This means they can send data between different subnets or VLANs, making them useful for larger, more complex networks.



Here's a table summarizing the key differences:

Feature	Layer 2 Switch	Layer 3 Switch
Primary Function	Forwards data (within same network)	Routes data (between networks/VLANs) & Forwards data

OSI Layer	Layer 2 (Data Link Layer)	Layer 3 (Network Layer) & Layer 2
Addressing	Uses MAC addresses	Uses IP addresses (for routing) & MAC addresses (for forwarding)
Inter-VLAN Routing	No	Yes (inter-VLAN routing)
Complexity	Simple; little configuration	More complex; more configuration
Cost	Less expensive	More expensive
Speed	Very fast (for local traffic)	Slower (due to routing overhead)
Typical Use	Homes, small businesses, local network connections	Larger networks, enterprise environments, data centers