

# How a network switch works

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<b>Related product (if any):</b>	N/A
<b>Description:</b>	Explains the fundamentals of network switches, what they are used for, and how they work.
<b>Symptoms:</b>	N/A
<b>Cause:</b>	N/A
<b>Files Needed:</b>	N/A

## Steps to Correct:

### What is a network switch?

A network switch is a device which connects network devices and allows users to perform intra-network data exchange data packets via frames. Switches can be both hardware and software, and operate at Layer 2, the data link layer, in the OSI Model.

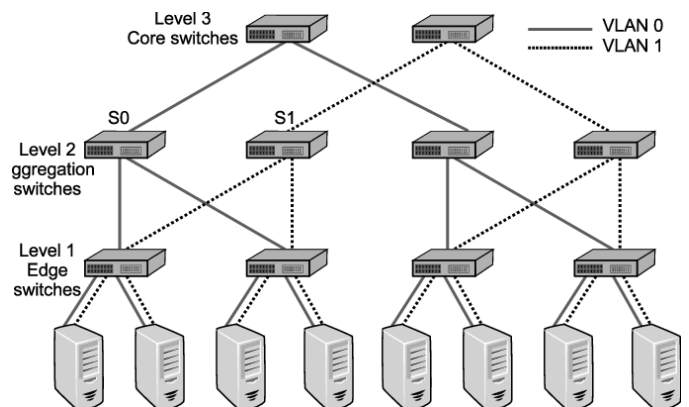
The way a switch operates is that it distributes information to the one device a frame is destined for, including some other switch, a router, or a user's computer, rather than several other devices in the network at once.

The majority of switches use Ethernet as its main Layer 1 medium of choice, but some also use fiber optics, InfiniBand, and more.

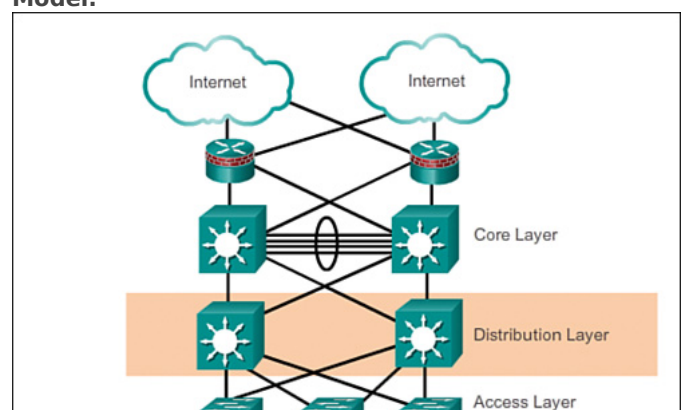
### How does a network switch work?

Network switches can work in one of three ways in a network:

1. **Edge (or access) switches** handle traffic entering and departing the network. Edge switches link various devices like PCs and access points.
2. **Aggregation (or distribution) switches** are located within an optional intermediary layer in a network architecture. These connect to edge switches, which may transmit traffic from one switch to another or up to the core switches.
3. **Core switches** are the backbone of a network. Core switches link edge or aggregation switches, device or consumer edge networks to networks at data centers, and routers to organizational LANs.



This diagram provides an overview of what these three types of network switches will look like in a network architecture. This follows a design philosophy in network engineering calling the **3 Layer Hierarchical Network Model**.



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