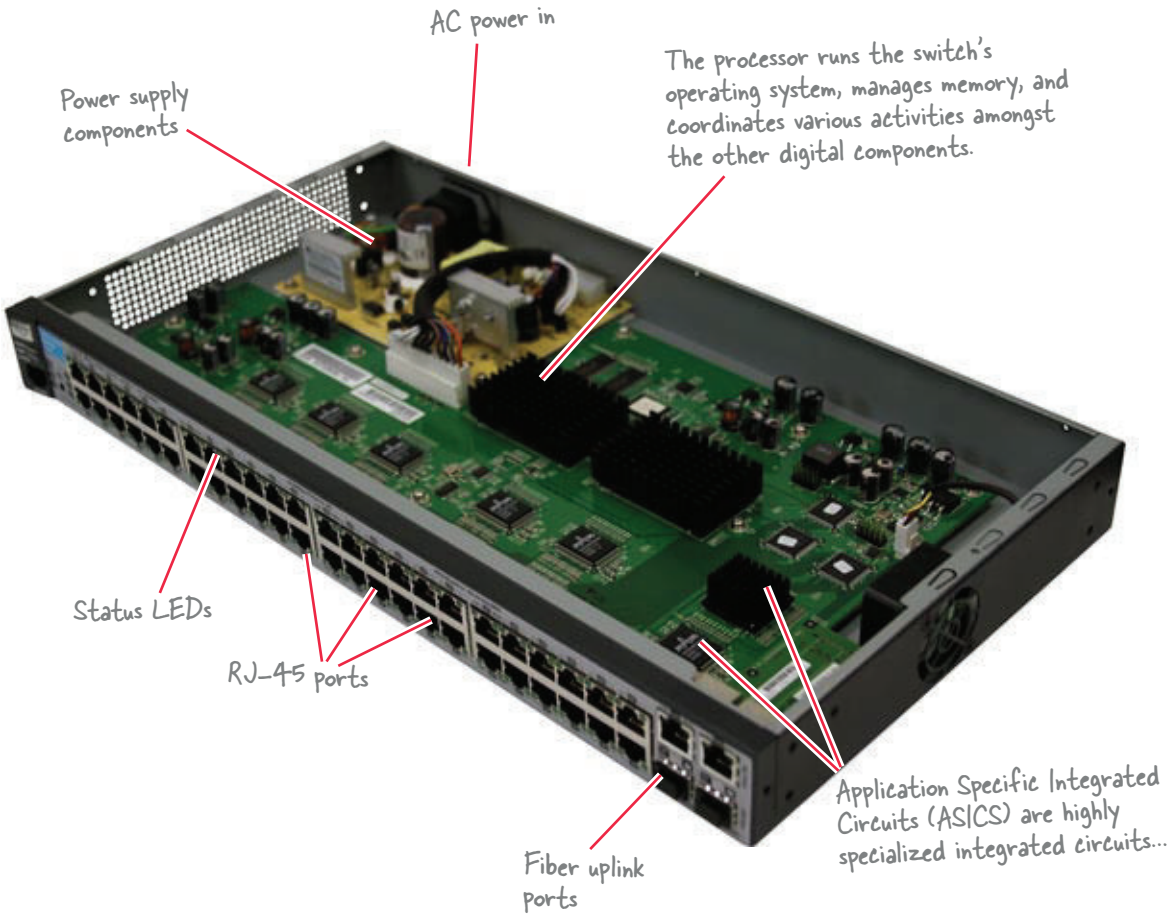
Switches Up Close

Just like a hub, a switch allows us to connect the different machines we want on our network, like computers and printers, for example.

Here's a look inside a switch:



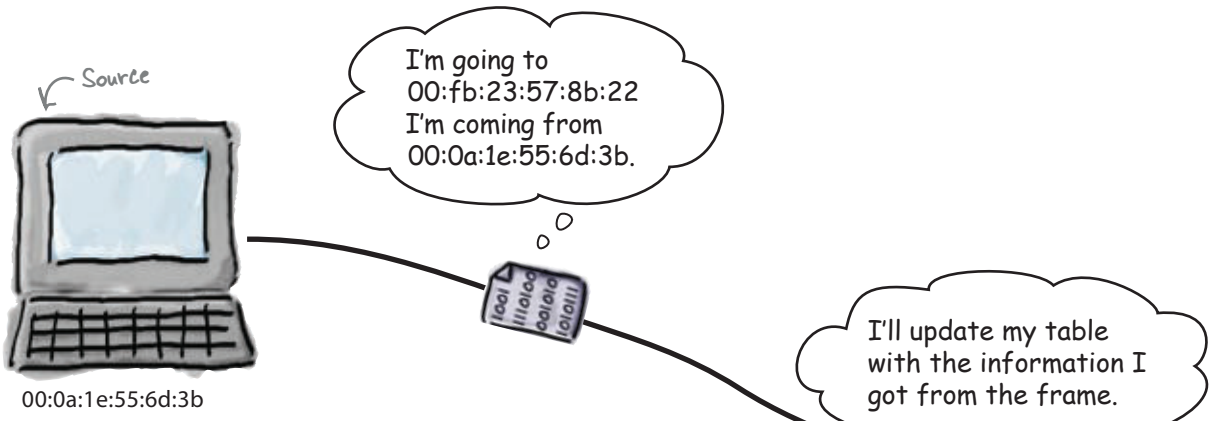
Switches are smart

There's a big difference in how hubs and switches deal with signals. A switch can process signals as frames, and also understands MAC addresses. Instead of repeating incoming signals on all ports, a switch can store packets and forward them to their destinations.

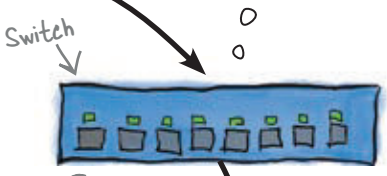
Let's take a closer look at this.

Switches store MAC addresses in a lookup table to keep the frames flowing smoothly

1 **The source workstation sends a frame.**
A frame carries the payload of data and keeps track of the time sent, as well as the MAC address of the source and the MAC address of the target.



2 **The switch updates its MAC address table with the MAC address and the port it's on.**
Switches maintain MAC address tables. As frames come in, the switch's knowledge of the traffic gets more descript. The switch matches ports with MAC addresses.



MAC address for Target	Port
00:0a:1e:55:6d:3b	49

A port is where a network node connects to a switch.

The switch uses a table to keep track of frame information.

3 **The switch forwards the frame to its target MAC address using information from its table.**
It does this by sending the frame out the port where that MAC address is located as the MAC address table indicates.