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What is the difference between Hub, Switch, and Router?

In our daily lives, we might find the terms a hub, a switch, and a router are being used interchangeably. The functions of the three are all quite different from one another, because of that, many people get confused about the differences between a hub, a switch, and a router.

First, a hub is commonly used to connect segments of a Local Area Network. The hub sends out a message from one port to other ports. The hub simply passes along the traffic it receives to the computers connected to it. Any traffic that goes into one port comes out of the other ports. As a result, all the computers receive the traffic, even if it is not for them, and need to decide whether to accept the message or not.

Second, a switch can handle the data and knows the specific addresses to send the message. When traffic comes through, the switch reads the destination address and sends that traffic to the appropriate computer rather than sending it to all the connected computers. The efficiency of switch has been greatly improved, thus providing a faster network speed.

Third, a router is a small computer that can be programmed to handle and route the network traffic. It is typically a small computing device designed specifically to understand, manipulate, and direct traffic. The router can calculate the best route for sending data and communicate with each other by protocols. Besides, the router uses protocols such as Internet Control Message Protocol to communicate with each other and configures the best route between any two hosts. Moreover, the router forwards data packets along with networks.

In the final analysis, the differences between a hub, a switch, and a router are confusing terms for us. Understanding the differences among them can be helpful for us to find the most appropriate device for our network.