

Re: Hub versus switch

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- *From:* "Ace Fekay [MVP]" <PleaseSubstituteMyActualFirstName&LastNameHere@xxxxxxxxxxxx>
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In news:44fqb7F218a5U1@xxxxxxxxxxxxxx,
Spin <Spin@xxxxxxxx> stated, which I commented on below:

Experts,

Given a hub with five computers connected to it. One computer broadcasts and all others hear it. Now, given a switch with five computers connected to it. One computer broadcasts. Do all others hear it? Why or why not?

A switch is an OSI Layer 2 device (based on the MAC address). The higher you go up the OSI model, the more intelligent the device is that works on that layer. For example, a router is a Layer 3 device (the Network Layer where IP lives).

Therefore, being intelligent enough to be aware of the MAC addresses, a switch builds a "routing" table based on MAC addresses it is aware of when a device is plugged into a port, but not IPs, since it's on the wrong layer. However at times, I don't usually like to use the word 'routing' in this definition because it can be confused with a router, so we should look at it as a 'destination lookup table' that keeps track of each port and the MAC sitting on it. Some switches, like the Ciscos, can build a table with about 40,000 entries, if I remember correctly, and has a proprietary shared memory pool that is able to transfer data independently between ports more efficiently than other brands. Others don't do as well. Yes, you do get what you pay for. Anyway, a switch will look at the source MAC and the destination MAC in the packet. If the destination is a broadcast, make it so. If it's directed transmission, say from a machine with a MAC address of MAC1 on port 32 to a machine with a MAC address of MAC5 on port 15, then the traffic directed from only port 32 to port 15 and no others will 'hear' or 'see' that traffic.

Hubs are just repeaters that repeats traffic on all ports and have no intelligence... cheapos now days.

btw- There are Layer 3 switches too. They are switches that you can define each port to be 'switched' or routed, such as an IP router. They are of

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course more expensive. I believe the Catalyst 2850 are Layer 3 switches, where we can create IP subnet VLANs.

The higher you go up the OSI, the more intelligent, and the more expensive the device is.

Hope that helps.

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Ace

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How to Configure OEx for Internet News
<http://support.microsoft.com/?id=171164>

Ace Fekay, MCSE 2003 & 2000, MCSA 2003 & 2000, MCSE+I, MCT, MVP
Microsoft MVP – Windows Server Directory Services
Microsoft Certified Trainer
Assimilation Imminent. Resistance is Futile.
Infinite Diversities in Infinite Combinations.

The only thing in life is change. Anything less is a blackhole consuming unnecessary energy.

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