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Networks and Protocols Project: ABC Distributions

Stage 3: Network security design and implementation

To secure our network, we must implement VLAN. We need a first VLAN for sales department, and another one for finance department. Then we create a third “native’ VLAN (number 100), to connect the three switches (sales, finance, and the one in the middle) in the same VLAN, by attributing the VLAN to the ports that connect them. This VLAN will be defined as trunk. All ports from every switch that are not part of these VLANs will be implemented in a fourth VLAN called “BLACKHOLE”, registered as number 99. This fourth VLAN allows to make sure these ports are not lost, and no foreign system can access it. Finally, in the router, we’ll determine a way through each of the two VLANs we’re interested in.

Using tutorials 15 and 16, we can find all the instructions to type in the different consoles, to create the 4 VLANs, to trunk Sales and Finance VLANs with the middle switch, and to determine ways to Sales and Finance VLANs in the router. In the end, we can see that our system works, since every computer in the topology can be pinged from another computer in the topology. Plus, every unused port is “safe” since it’s registered in the “BLACKHOLE” VLAN.

Sales department switch, VLANs:

Une image contenant table

Description générée automatiquement

Sales department switch trunk:

Une image contenant texte

Description générée automatiquement

Finance department switch VLANs:

Une image contenant table

Description générée automatiquement

Finance department switch trunk:

Une image contenant texte

Description générée automatiquement

Middle switch VLANs:

Une image contenant table

Description générée automatiquement

Middle switch trunk:

Une image contenant table

Description générée automatiquement

Management switch VLAN:

Une image contenant table

Description générée automatiquement