Жураев Абурайхон Холикулович
старший преподаватель
Каршинский инженерно-экономический институт
г. Карши, Республика Узбекистан

SWITCHING HUBS IN LOCAL AREA NETWORKS

Аннотация*: данная статья посвящена сетевым подключения в информационно коммуникационных отраслях.*

Ключевые слова*: сети, подключения, передача данных.*

Abstract*: this article is devoted to network connections in the information and communication industries.*

Keywords*: networks, connections, data transmission.*

Network switch – a device for connecting multiple network nodes within one or more network segments. The switch operates at the data link (the second) layer of the OSI model. Switches have been designed using the bridge technology and are often seen as multi-port bridges. To connect to multiple networks at the network layer are **routers.**

In contrast to the hub, which distributes traffic from a device connected to everyone else, the switch sends data only directly to the recipient (with the exception of broadcast traffic to all nodes on the network and traffic for devices that are not known to the outgoing switch port). This improves network performance and security, eliminating the remaining network segments of the need (and opportunity) to process the data that they were not intended.

The principle of operation is that the switch stores the switching table (stored in the associative memory), which indicates compliance with the MAC-address of node port on the switch. When you turn on the switch, this table is empty, and it works in a learning mode. In this mode, the input at any port data is transmitted to all other ports on the switch. The switch analyzes the frames (frames) and by determining the MAC-address of the sending host, puts it in the table for a while. Subsequently, if one of the ports on the switch will go frame designed to host, MAC-address that is already in the

table, the frame is transmitted only through the port specified in the table. If the MAC-address of the destination host is not associated with any switch port, the frame is sent to all ports except the port from which it was derived. Over time, the switch builds a table for all active MAC-addresses, as a result of localized traffic. It is worth noting a small latency (delay) and a high transfer rate on each interface port.

There are three ways of switching. Each of them – it is a combination of parameters such as transmission latency and reliability.

1. With an intermediate storage (Store and Forward). Switch reads all information in the frame; it checks for errors, selects the switching port and then sends it to the frame.

2. Through (cut-through). The switch reads the frame only after the destination address and performs switching. This mode reduces the transmission delay, but there is no method of detecting errors.

3. Fragment (fragment-free) or a hybrid. This mode is a modification of the through mode. The transfer is carried out after filtration collision fragments (64-byte frames are processed by the technology store-and-forward, the rest – for cut-through technology).

The delay associated with the «adoption of a switch solution," added to the time it takes a frame to access the switch and exit the port with him, and together they determine the overall delay of the switch.

The emergences of networking much easier, speeds up the work of personnel, allows the use of common databases, as well as regular and prompt them to fill and process, all this is very important and essential to the work of the police, which contain vast amounts of information database.

Ideally, the structure of the network must match the structure of the building or complex of buildings of the enterprise. Jobs group staff involved in a task (eg, accounting, sales, engineering group), should be placed in the same room or adjacent rooms. Then we can all computers of the staff combined into one segment, in the same workgroup and establish rooms near their server that they will not worked, as well as a hub or switch, which connects their computers. Similarly, the jobs of employee’s unit

involved complex family problems the best placed on the same floor of the building, which will significantly simplify their unification into a single segment, and further administration of this segment.

On the same floor is convenient to place the switches, routers and servers, it works with this unit.

Choosing the type of network, the method to connect computers to the network depend on both the technical and that is not unimportant, the financial capacity of those who «build» the network.

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