Жураев Абурайхон Холикулович

старший преподаватель

Каршинский инженерно-экономический институт

г. Карши, Республика Узбекистан

SELECTING THE STRUCTURE AND FORMATS OF DATA IN THE VIDEOCONFERENCING SYSTEM

Аннотация: *данная статья содержит схему использования проколов, аналогичную модель для построения нескольких уровней протоколов. Интерфейс физических сред (каналов), обеспечивающий надежный транзит данных через физический канал.*

Ключевые слова: *синхронизация, подключения, протокол, сбор информации.*

Abstract: *this article contains a puncturing scheme, a similar model for building several levels of protocols. The interface of physical media (channels) providing reliable data transit through a physical channel.*

Keywords: *synchronization, connections, protocol, information gathering.*

The idea of creating the Internet was a proposal in connection with the need to build a communication fault-tolerant network that could continue operations, even if most of it became not available for work. The solution was to create a network where information packets could be transferred from one node to another without any centralized control. If the main part of the network does not work, the packages would move independently on accessible nodes until they reach their destination. In addition, the network must be resistant to possible errors in the transmission of packets.

Part of the TCP / IP protocol family provides the implementation of «low-level» network functions for a variety of applications, such as working with hardware protocols, supporting the delivery mechanism of the packet to the address, destination through multiple networks and hosts, ensuring reliability and reliability of the connection, etc. The other part of the protocols is intended for performing application tasks,

such as transferring files between computers, sending e-mail or reading a hypertext page of a WWW server.

The goal of TCP is to deliver all information to the recipient's computer, control the sequence of transmitted information, and re-send the packets that were not delivered in the event of a network failure. In addition, if the message is large enough to send it in this package, TCP divides it and sends it in several blocks. TCP also monitors the compilation of the initial message from these blocks on the recipient's computer. Just as the mail protocol uses TCP, TCP itself uses the IP protocol, which ensures that the packet is delivered to the address, i.e. Addressing and routing. Functions that are represented by TCP are necessary for the operation of many applications, but there are applications that do not require these functions. These applications use their own protocol instead of TCP, which provides interoperability of applications, for example UDP, which also needs a mechanism to work that would deliver the packet to the address (i.e., the IP layer).

The scheme of using punctures is easiest to imagine in the form of a tree. On this tree, the leaves are user applications that work with the highest-level protocols (for example, the mail protocol). In turn, the protocols of the upper level are branches of the crown. The level of TCP can be imagined as thick boughs that grow from the trunk and hold the crown. And the trunk itself is the level of IP. A similar model for building several levels of protocols is called «multilevel transmission of network protocols." By this we mean that the protocol at a higher level in its work uses services transmitted by protocols of a lower level.

The TCP / IP protocol family has 4 distinct levels:

1. Application layer (application layer).

2. Level that implements transport functions (transport layer).

3. The level that ensures the delivery and routing of the packet (network layer).

4. Level of interface with the physical environment (link layer).

Let's describe the composition and main functions of the protocols of each level of the TCP / IP family:

The interface with the physical environment (channel) provides a reliable transit of data through a physical channel. This level solves the tasks of physical addressing, notification of faults, orderly delivery of data blocks and control of the flow of information. Below this level, only the hardware level is located, which determines the electrical, mechanical, procedural and functional characteristics of activating, maintaining and deactivating the physical channel between the end systems (voltage levels, synchronization of voltage changes, physical information transfer rate, maximum data transmission distances, physical connections, etc.)

The network layer is a complex level. It provides the ability to connect and select a route between two end systems connected to different «subnets» that can be located at different geographical locations. This layer in TCP / IP includes the IP internetworking protocol, which is basic in the TCP / IP structure and provides delivery to the packet at destination-routing, fragmentation and assembling of incoming packets on the recipient's host. This level belongs to the ICMP protocol, whose functions include, mainly, error messages and collection of information about the operation of the network.

The transport layer represents data transport services. These services eliminate the application-level data transfer mechanisms from the need to delve into the details of data transport. In particular, transport level concern is the solution of such issues as reliable and reliable transportation of data through the network. The transport layer implements mechanisms for installing, maintaining and orderly closing channels of the connection, and the mechanisms of systems for detecting and eliminating transport failures, and managing information flow.

The transport layer of the TCP / IP family is represented by the TCP and UDP protocols. TCP provides data transport with connection establishment, while UDP works without connection establishment. Both of these protocols deal with specific processes (applications) on the computer and can ensure the connection of processes on various computers on the network, although it is not their responsibility to manage the session. If TCP provides a complete transport layer service – reliability, reliability

and connection control, then UDP can send packets from one process to another without any additional service, except, perhaps, checksums of the transmitted data.

The application layer identifies and establishes the availability of prospective partners for communication, synchronizes cooperating application programs, establishes agreements on procedures for eliminating errors and managing information integrity. In addition, application-level protocols determine whether sufficient resources are available for the intended connection. The application layer is also responsible for ensuring that information sent from the application layer of one system is readable at the application level of another system.

If necessary, it will translate between the many formats of views by using a common format and data structures, and also will coordinate the data transfer syntax for the application layer. The application layer establishes and terminates communication sessions between applied tasks, manages these sessions, synchronizes the dialog between objects and manages the exchange of information between them. In addition, the application layer provides the means for sending information and notifying you about exceptional data transfer situations.

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