6th assignment

Wrc078BEI048

Q1.What is the size of UDP header?What are the different fields? Describe its fields.

->The size of header is 8bytes(64bits).It consists of 4main fields:

· **Source Port**:

* · **Size**: 2 bytes (16 bits).
* **Description**: This is the port number of the sending device. It's used to identify the application or process that sent the data. If the source port is not required, it can be set to zero.

· **Destination Port**:

* · **Size**: 2 bytes (16 bits).
* **Description**: This is the port number of the receiving device. It tells the network where to deliver the data on the receiving end.

· **Length**:

* · **Size**: 2 bytes (16 bits).
* **Description**: This field specifies the length of the entire UDP packet, including both the header and the data. The minimum value is 8 bytes, which is the size of the header itself.

· **Checksum**:

* · **Size**: 2 bytes (16 bits).
* **Description**: The checksum is used for error-checking of the header and data. If the checksum is not used, this field is set to zero.

Q2.What is the size of TCP header, What are the different fields?Describe its fields?

->The size of header is 20bytes(160bits).It consists of more complex fields than the UDP header.and they are:

· **Source Port**:

* · **Size**: 2 bytes (16 bits).
* **Description**: This is the port number of the sender's application.

· **Destination Port**:

* · **Size**: 2 bytes (16 bits).
* **Description**: This is the port number of the receiver's application.

· **Sequence Number**:

* · **Size**: 4 bytes (32 bits).
* **Description**: This number helps keep track of the data segments. It indicates the position of the first byte of the data in the overall stream.

· **Acknowledgment Number**:

* · **Size**: 4 bytes (32 bits).
* **Description**: This field is used by the receiver to acknowledge the receipt of data. It contains the sequence number of the next byte that the receiver expects to receive.

· **Data Offset** (Header Length):

* · **Size**: 4 bits.
* **Description**: Indicates the size of the TCP header. It tells where the data begins. Since this field is in 4-bit units, the minimum size is 5 (which corresponds to 20 bytes).

· **Reserved**:

* · **Size**: 3 bits.
* **Description**: These are reserved for future use and are always set to zero.

· **Flags** (Control Bits):

* · **Size**: 9 bits.
* **Description**: These bits control the state of the connection. The most commonly used flags are:
  + **URG**: Urgent pointer field is significant.
  + **ACK**: Acknowledgment field is significant.
  + **PSH**: Push function.
  + **RST**: Reset the connection.
  + **SYN**: Synchronize sequence numbers to initiate a connection.
  + **FIN**: No more data from sender (finish).

· **Window Size**:

* · **Size**: 2 bytes (16 bits).
* **Description**: This field specifies the size of the sender’s receive window, which is the buffer space available to hold incoming data.

· **Checksum**:

* · **Size**: 2 bytes (16 bits).
* **Description**: The checksum is used for error-checking of the header and data.

· **Urgent Pointer**:

* · **Size**: 2 bytes (16 bits).
* **Description**: If the URG flag is set, this field indicates the end of the urgent data.

· **Options** (if any):

* · **Size**: Variable (up to 40 bytes).
* **Description**: This field is optional and can be used for various purposes, such as specifying maximum segment size or timestamps.

· **Padding**:

* · **Size**: Variable.
* **Description**: Used to ensure the header is a multiple of 32 bits. It consists of zeros.