1. A socket is a combination of the source IP address and source port or the destination IP address and the destination port number.

2. Multiplexing is useful for interleaving multiple communication streams. Window size is used to slow down the rate of data communication. Port numbers are used to pass data streams to their proper applications. Acknowledgments are used to notify a sending device that a stream of data packets has or has not been received.

3. Destination port numbers are used to pass data streams to their proper applications, while source port numbers are randomly generated and kept track of by the source device. Sequence numbers indicate how to reassemble and reorder received segments. Acknowledgments are used to notify a sending device that a stream of data packets has or has not been received.

4. Because UDP header is much smaller than the TCP header, the UDP protocol provides fewer transmission delays.

5. The source and destination port numbers are used to identify the correct application and window within that application.

6. There are three ranges of TCP and UDP ports. The well-know range of port numbers is from 0 - 1023.

7. The client randomly selects an available source port in the range of the registered ports.

8. All of the extra control tasks that TCP performs, such as ordering segments, keeping track of sequence numbers, asking for retransmissions, and many other tasks, cause the communications to experience delays and overhead.

9. TCP uses the 3-way handshake. UDP does not use this feature. The 3-way handshake ensures there is connectivity between the source and destination devices before transmission occurs.

10. TCP uses the SYN and ACK flags in order to establish connectivity between two network devices.

11. Window is the number of bytes that the sender will send prior to expecting an acknowledgement from the destination device. The initial window is agreed upon during the session startup via the three-way handshake between source and destination. It is determined by how much data the destination device of a TCP session is able to accept and process at one time.

Dimitris Mavrovouniotis

12. With a window of 10 bytes, the destination host accepts segments until all 10 bytes of data have been received. Then the destination host sends an acknowledgment.

13. Together the TCP sequence number and acknowledgment number fields are used by the receiver to inform the sender of the bytes of data that the receiver has accepted.

14. The TFTP protocol uses UDP for queries, so the TFTP application must implement the reliability, if needed.

15. UDP does not reorder the data. If necessary, UDP relies on the upper-layer protocols for reordering of the data.

16. The three steps during a TCP three-way handshake are SYN, SYN-ACK, and ACK.During a TCP session, the SYN flag is used by the client to request communication with the server.

17. To terminate a TCP session, a client sends a segment with the FIN flag set on. The server replies with an ACK flag. Then the server sends a FIN flag to the client. The client finally sends a segment with the ACK flag back to the server. A total of four messages are needed.

18. TCP uses 3-way handshaking as part of being able to provide reliable communication and window size to provide data flow control. UDP is a connectionless protocol that is great for video conferencing. Both TCP and UDP have port numbers to distinguish between applications and application windows and a checksum field for error detection.