Difference between connection-oriented service and connection-less service

The key differences between connection-oriented and connection-less services in a computer network are:

1.Connection Setup:

Connection-Oriented: Requires a setup phase where a connection is established between the sender and receiver before data transfer (e.g., TCP).

Connection-Less: No connection is required. Data is sent directly without prior setup (e.g., UDP).

2.Reliability:

Connection-Oriented: Provides reliable data transfer. If any packets are lost, they are re transmitted, and the correct order of delivery is ensured.

Connection-Less: Does not guarantee reliable delivery. Packets may be lost, duplicated, or delivered out of order without any correction mechanism.

3.Overhead:

Connection-Oriented: Higher overhead due to the need to establish, maintain, and terminate the connection, and manage error correction.

Connection-Less: Lower overhead since there is no connection setup or maintenance, and minimal error handling is done.

4.Data Flow Control:

Connection-Oriented: Flow control mechanisms ensure that the sender does not overwhelm the receiver.

Connection-Less: There is no built-in flow control, so the sender can send data at any rate.

5.Use Cases:

Connection-Oriented: Suitable for applications where data integrity and order matter, like file transfers, web browsing, or emails.

Connection-Less: Suitable for real-time applications where speed is more critical than reliability, such as video streaming, online gaming, and voice over IP (VoIP).

6.Examples:

Connection-Oriented Protocol: Transmission Control Protocol (TCP).

Connection-Less Protocol: User Datagram Protocol (UDP).