**深 圳 大 学 实 验 报 告**

**课程名称：­ 计算机网络（Computer Networks）**

**实验名称： Transport Layer Assignment**

**学院： 电子与信息工程学院**

**专业： 电子与信息工程**

**指导教师： 毕宿志**

**报告人：陈应权 班级： 06 学号： 2022280297**

**实验时间： 2023年11月2日—2023年11月20日**

**实验报告提交时间： 2023年11月20日**

**教务部制**

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| 1. **Purpose of experiment**   **① Assessing Protocol Reliability: Verifying the protocol's reliability during data transmission by simulating scenarios of packet loss and timeouts**  **② Measuring Communication Latency: Measuring the round-trip time (RTT) of data packet transmission to understand the delay between sending and receiving data.**  **③ Deepen the understanding of the retransmission mechanism and deepen the impression of it.**  **2.Experimental principle**  **① This experiment is based on the "Stop-and-wait" protocol, a straightforward data transmission protocol.**  **② Send and Wait Mechanism: The sender transmits a data packet to the receiver and waits for an acknowledgment (ACK) from the receiver. Once the sender sends a packet, it waits for acknowledgment before proceeding with further transmission.**  **③ Timeout and Retransmission: If the sender doesn't receive an ACK within a specified time, it times out and decides to resend the same packet to the receiver. This mechanism addresses potential packet loss or delays in the network.**  **④ Single Packet Transmission: The "Stop-and-wait" protocol sends only one packet at a time and waits for acknowledgment. It waits for confirmation before sending the next packet.**  **⑤ Data Reliability: This protocol ensures reliable data transmission by waiting for acknowledgment after sending. If the receiver doesn't receive the data correctly, it requests the sender to retransmit until the data is successfully received.**  **3.Content**   1. **communication in “localhost”** 2. **Sending 10 packets, packet loss rate is set to 0.5**      1. **Sending 100 packets, packet loss rate is set to 0.2**      1. **Sending 100 packets, packet loss rate is set to 0.5**      1. **Communication with partner**   **In this module, I will act as the client, Xu Lei will act as the server, I access and get data packets.**   * 1. **Sending 10 packets, packet loss rate is set to 0.5**      * 1. **Sending 100 packets, packet loss rate is set to 0.2**      * 1. **Sending 100 packets, packet loss rate is set to 0.5** |
| **4.Conclusion and discussion**  **Through this experiment, further deepen the understanding of the "stop and wait" protocol, through the cooperation with friends, the completion of cross-machine local transmission, and deepen the understanding of retransmission and packet loss mechanism.** |
| 指导教师批阅意见：  成绩评定：  指导教师签字：  年 月 日  备注： |

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2、教师批改学生实验报告时间应在学生提交实验报告时间后10日内。