

# Lab 1: Set Up Environment and Test Basic Software

## Questions

1. What protocol does "ping" and "traceroute" use? (10 points)

**Requirements:**

- a) Ping and traceroute a website or a certain IP address and then use Wireshark to figure out the protocol they use.
- b) Apart from the answers, please provide screenshots of the interface of Wireshark in your report.

2. What is the IP address of [www.baidu.com](http://www.baidu.com)? (10 points)

**Requirements:**

- a) You are required to use the ping command in this question.
- b) Apart from the answers, please provide screenshots of the Ubuntu terminal in your report.

3. What is the average round trip time (RTT) from your VM to [www.baidu.com](http://www.baidu.com) and [mit.edu](http://mit.edu). Analyze the reason for the difference of their RTTs. (25 points)

**Requirements:**

- a) You are required to use the command ping to send 5 packets and get the average RTT.
- b) Apart from the answers, please provide screenshots of the Ubuntu terminal in your report.

4. What is the TCP bandwidth between your two VMs? (25 points)

**Requirements:**

- a) Open another VM and use iperf3 to test the TCP bandwidth between the two VMs.
- b) Apart from the answers, please provide screenshots of the Ubuntu terminal in your report.

5. Select a VM as your host machine, and another VM as your server machine, then use ssh on your host to connect to the server. (15 points)

**Requirements:**

- a) Please provide screenshots of the Ubuntu terminal in your report.

6. Use scp to copy a file from your host to the server. (15 points)

**Requirements:**

- a) Create a file named as "lab1.txt" in your host machine, and copy it to the "/home/test" directory of the server machine.
- b) Please provide screenshots of the Ubuntu terminal in your report.