Lab 3 Demo Questions

DO NOT make any marks on this sheet
Please return this sheet after demo

Part 1. Explain your codes (25%)

Please open your both of codes via any editor

1. What are done in the processor object in Learning Bridge? (5%)
2. What are done in the **activate** and **deactivate** method in Proxy ARP? (5%)
3. How do you maintain the table in Learning Bridge and Proxy ARP
    a. Please explain data structure (5%)
    b. When will an entry be inserted into the table (5%)
    c. Where the entry data come from (5%)

Part 2. Modify your code. (15%)

In the restrictions of this project, you were required to use either FlowObjectiveService (under *org.onosproject.net.flowobjective* package) or FlowRuleService (under org.onosproject.net.flow package) to install flow rules.

<u>Please use the service **other than the one used in your submission** to install flow rules.</u>

If you have used both of them to install flow rules in your submission, you can tell TA and get the point directly.

Part 3. Answer questions (60%)

1. Please explain the difference between FlowObjectiveService and FlowRuleService when using them to install flow rules. (10%)
   Ans: **FlowObjectiveService** 提供 **pipeline independent** 的方式設定 **flow rule**，底下的實作會幫忙轉換成真正的 **FlowRule**。**FlowRuleService** 則需要對 **pipeline** 有所了解才可使用，需在 **FlowRule** 提供 **table ID**。
    a. 註：**DefaultFlowRule** 會將 **table** 預設為 **DEFAULT_TABLE** (如果有同學 **argue** 說使用上不需要特別給 **table id** 時可以向他解釋這點)
    b. 有提到 **table ID** 或 **pipeline** 就給分

2. Suppose that h1 pings h4 in the following topology:
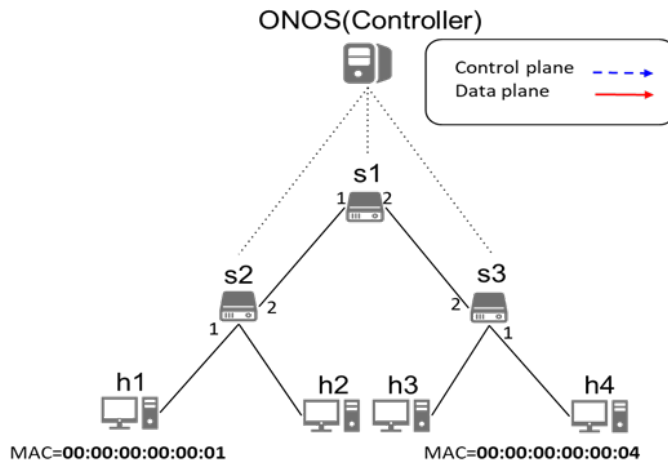
According to Learning Bridge Function we studied in the lab 3 slide, answer the following questions:

  a. How does the function work when switches receive an ARP request packet? (10%)

  Ans: packet-in, store the mapping of received port and sender mac address, flooding.

  b. How does the function work when switches receive an ARP reply packet? (10%)

  Ans: packet-in, install flow rule, packet-out.

  c. How can the function be modified so that switches don't need to packet-in when they receive an ARP reply packet? (10%)

  Ans: Install a return flow rule upon receiving an ARP request packet. (e.g. when s1 receives an ARP request packet from h1, install a flow rule to forward the packet to h1.)

3. According to the Proxy ARP we studied in the Lab 3 slides, answer the following questions:

  a. When h1 pings h2, when does h2 need to send an ARP reply packet? (10%)

  Ans: table miss (or rec first ARP request packet).

  b. When h1 pings h2, when does h2 not need to send an ARP reply packet, and how to send an ARP reply packet to h1? (10%)

  Ans: table hit. Controller (or app) create and packet-out ARP reply pkt to h1.