Group 4 – Asynchronous Message Delivery (AMD) (2 people)

Scenario: consider an SDN-based network where the network controller exposes a RESTful API used by servers to notify changes in their status. At any given time, the status of a server can either be ONLINE or OFFLINE. When a server is ONLINE, all client requests are delivered synchronously. On the other hand, while the server is OFFLINE, the system stores all requests destined to that server until it comes back ONLINE.

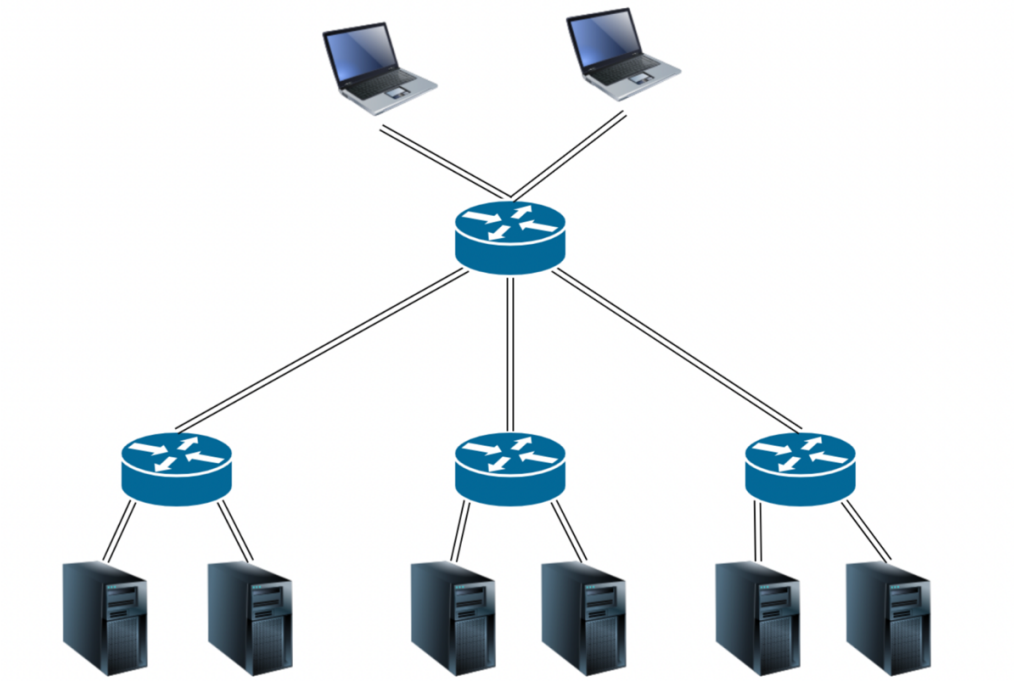

Figure 1

Detailed objectives:

1. Implement a Floodlight module that exposes a RESTful API allowing: 1) Servers to subscribe/unsubscribe to the AMD system. 2) Servers to notify a change in their status (either ONLINE or OFFLINE). 3) Clients to get a list of all servers and the services they offer.
2. Implement a Floodlight module that installs flow rules on the network switches so that packets destined to an OFFLINE server are instead sent to the controller and stored. Packets stored inside the controller are immediately sent out to the server when it comes back ONLINE.
3. Test and demonstrate the overall system using mininet and Floodlight. The scenario of Figure 1 can be used as an example.