**SDN Vulnerabilities**

SDN is an excellent cost-effective method to develop the easily manageable complex networks. But it has some probable vulnerabilities.

Possible Vulnerabilities:

* Easy availability, access and openness could lead to hacking attacks.
* SDN is less secure in case if users have programmatic access.
* In Control Plane:
  + IP Address Spoofing: Hackers can forge fake IP through network monitoring to gain the trust of switch or router. After that they can diverge the traffic.
  + Network Manipulation: Hackers can access the network from the controllers cut in point from the network and subsequently modify the control signal.
  + Virus and Trojan Attacks
  + Application manipulation
  + Side Channel Attacks
  + API Exploitation
  + Password Guessing
  + Brute Force

Possible Solution to Vulnerabilities:

* + Improved Authentication
  + Limit rate in control plane.
  + Use of strong encryption algorithms to protect the communication channels and access.
  + Reduce packet dropping in control plane.
  + Updating the servers timely.
  + Using strong passwords and changing those periodically.

Project Scope:

The focus of this project is to find the shortest route or path by the application of Dijkstra’s or Bellman Ford’s Algorithm since the OpenFlow switches are vulnerable to attackers.