PROJECT SUMMARY

Name of the student: Aditya Prakash

Course & Year of Study: BTech 2nd Year, Computer Engineering

Name of your Institution: International Institute of Information Technology, Bhubaneswar

Name of the Project: Security in Software-Defined Networks

Name of the guide: Dr. V. Radha

Project Description:

Like traditional networks, Software-Defined Networks too are prone to security issues. SDN faces similar kind of challenges to emerge as the networking revolution of the future. Apart from being agile, flexible and to having software-based traffic-analysis, SDN needs to be more secure. DDoS attacks are a major part of the security issues a network can face. Hence, statistical method based on packet count is deployed along with the controller to detect any kind of anomalies in the network traffic. For the statistics, Pearson's Chi-Square goodness-of-fit test is used to determine how the observed network traffic is significantly different from the expected network traffic. The model is used to detect and prevent DoS/DDoS.

Objective: The objective is to propose a method or model to detect DDoS attacks in SDN and prevent it from affecting the network architecture.

Deliverable: POX being a python-coded controller, a detection and prevention model was written in python and incorporated with the POX controller. A chi-square based DDoS detection system is implemented and tested against a traffic generated by Scapy tool on a network made up of OpenV Switches on mininet emulator. This method can further be developed to deploy in a real world application and to mitigate real-time DDoS attack in Software-Defined Networks.