Internet Technology and Applications

Analysis of DDoS attacks in SDN environments

Progress-1

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a. Prerequisites

1. Install Python
2. Install mininet along with pox controller

   I. mininet installation : http://mininet.org/download/

   II. pox controller

   Clone the repository : http://github.com/noxrepo/pox

b. Creating Test Environment

1. Clone the repo : https://github.com/aswanthpp/Analysis-of-DDoS-Attacks-in-SDN-Environments
2. Copy contents from cloned repository to mininet custom folder

   src/traffic.py to mininet/custom/traffic.py

Find the threshold for usual traffic

1. Enter the following command to run the pox controller:

   ```
   $ cd pox

   $ python ./pox.py forwarding.l3_editing
   ```

2. Now create a mininet topology by entering the following command in another terminal:

   ```
   $ sudo mn --switch ovsk --topo
   tree,depth=2,fanout=8
   --controller=remote,ip=127.0.0.1,port=6633
   ```

3. Now open xterm for an host by typing the following command:

   ```
   mininet>xterm h1
   ```

4. In the xterm window of h1, run the following commands:

   ```
   $ cd mininet/custom
   ```

   ```
   $ python launchTraffic.py -s 2 -e 65
   ```

5. Now the pox controller generates a list of values for entropy. The least value obtained is the threshold entropy for normal traffic. To avoid false positives and negatives due to loss of a switch we choose an entropy value as 1.00 instead of 1.14. This implies 10% fault tolerance.