Intelligent SDN based Traffic (de) Aggregation and Measurement Paradigm (iSTAMP)

Implementation on GENI platform

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iSTAMP Overview

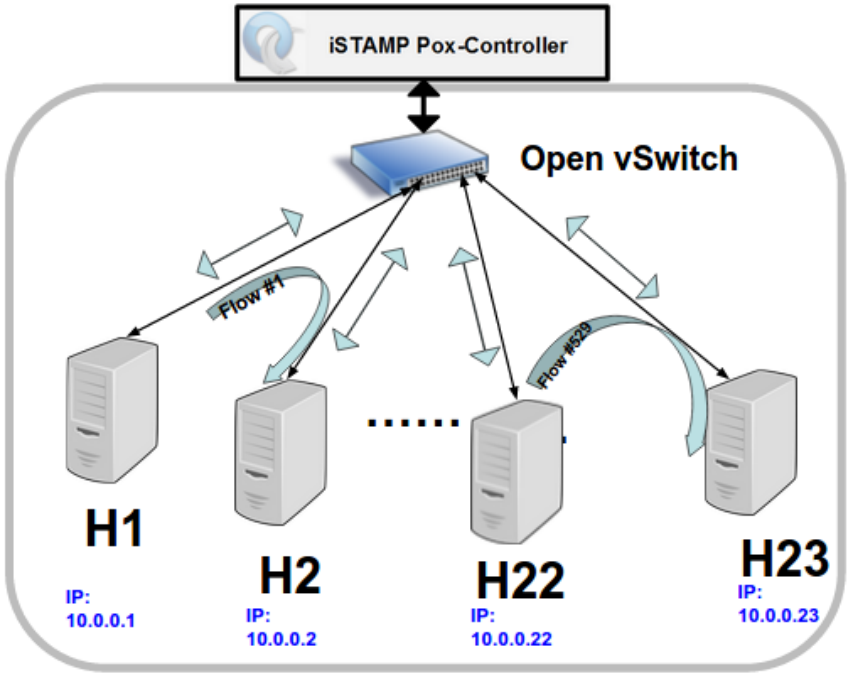
1. iSTAMP is a network measurement framework for fine-grained traffic flow measurements.

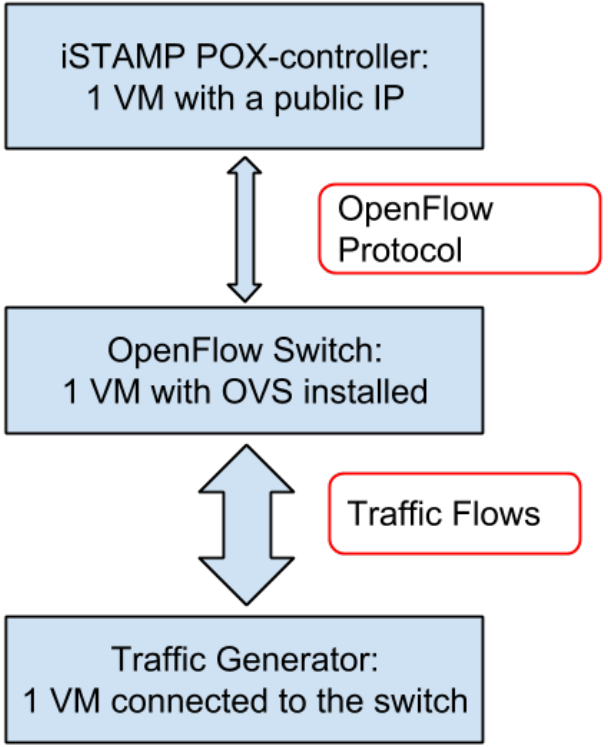
2. iSTAMP is based on Software Defined Networking (SDN). It optimally use the available TCAM entries at switch/router side to get better estimation accuracy of all traffic flows under the hard constraints of measurement resources (e.x. TCAM entries).

3. iSTAMP leverages OpenFlow-enabled switches to dynamically partition the TCAM entries of a switch/router into two parts:
   a. optimal aggregation measurements
   b. per-flow measurement of the most *rewarding* flows

iSTAMP Implementation on GENI

- Centralized iSTAMP controller with single switch
  - traffic traces from GEANT network



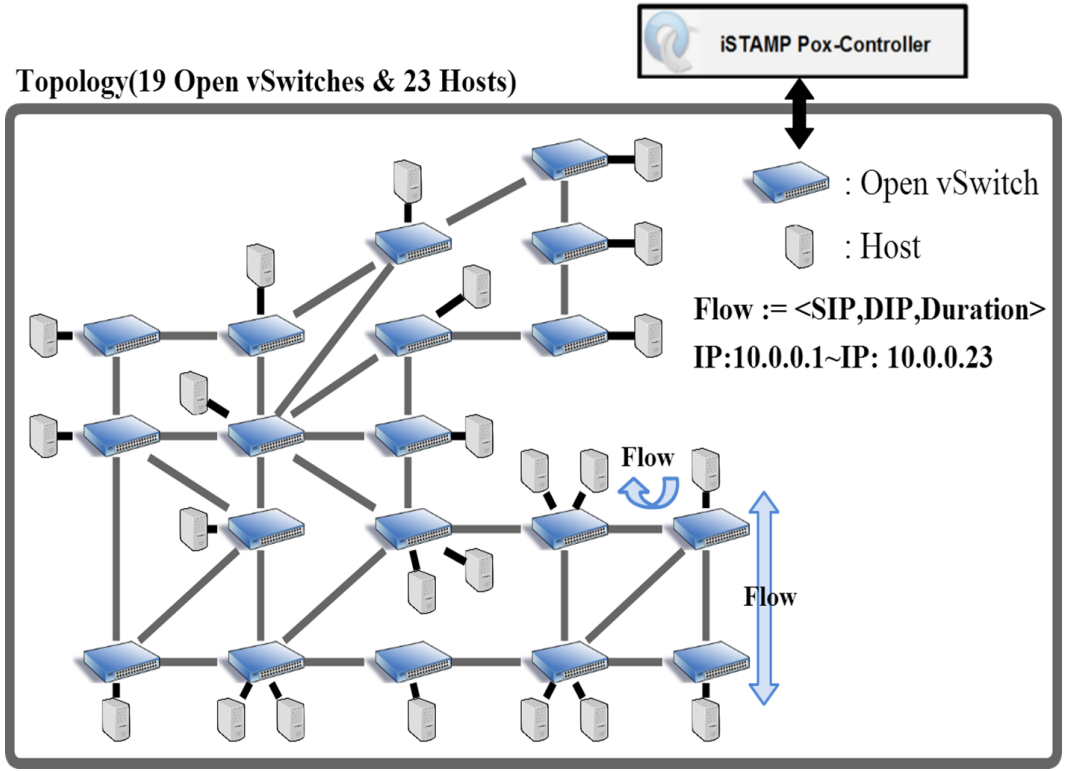


Current Status

- My experiences:
  - Slices reserved from InstaGENI rack
  - Slices reserved using Jacks tool
- Good things:
  - Can have root access
    - default Ubuntu version is out-dated, but you can upgrade
  - Can easily tunnel in from user laptop
  - Have detailed tutorial on OpenFlow using OVS
  - OpenFlow experiments using OVS works well
- Frustration:
  - Slice tools keep changing
  - Reserving slices can be very slow

Future Work

- centralized iSTAMP controller with multiple switches



What we hope:

- ❏ detailed tutorial on RSpec
- ❏ stable stiching
- ❏ Setting up large experiments loaded with iSTAMP configs and software could be time consuming - automatic script enabled?

End

- Contact:
  - cchliu@ucdavis.edu
- Poster will be presented tonight.
- Thanks to the GPO and the GENI community