Tutorial worksheet 09
Work Load Generation and Monitoring.

• You have so far configured
  – Routing protocols with in the backbone network.
  – PPPoE at access network.
  – Firewall policies on linux.

• To test network we need to generate traffic with similar characteristics that we see in the real internet. This is called representative web workload.
But how does Web traffic look like
Web traffic generation-Tools

- Iperf
- SURGE
- Harpoon: A Flow-level Traffic Generator
Harpoon Traffic Generator

• The design objectives of Harpoon are
  – to scalably generate application-independent network traffic at the IP flow level
  – to be easily parameterized to create traffic that is statistically identical to traffic measured at a given vantage point in the Internet.
Harpoon usage
Parameters

- File size distributions at server side
- Inter-connection time distributions at client side.
- Other factors (see worksheet 09)
NETFLOW

• A Tool to get aggregated information from routers regarding volume of traffic.
• Cisco uses five tuple flow
  – Source ip
  – Source port
  – Destination ip
  – Destination port
  – Protocol
NETFLOW

• TCP Flows
  – Unidirectional.
  – One TCP connection has two flows.
  – They are exported on every FIN or RST

• UDP flows
  – Exported after some time.
Basic Setup

Traffic Measured at Cisco Router has same characteristics as in real internet
Analysis of Netflow data

• Use linux utility *flow-tools*
• Flow-tools utilities
  • flow-capture
  • flow-report
NetFlow v5 Packet Example

IP/UDP packet

NetFlow v5 header

v5 record

...
flow-print

- Formatted output of flow files.

```
eng1:% flow-print < ft-v05.2002-01-21.093345-0500 | head -15

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