3rd Project: Evidences of Internal AS Configurations

Stefano Vissicchio

LINGI 2142

Internet2 Visible Network

- Internet2, an academic network, provides public visibility of their network
  - statistics
  - router configs
- See http://noc.net.internet2.edu/i2network/live-network-status/visible-network.html

Junos

- Internet2 has Juniper devices
  - running an OS called Junos
- Documentation on Junos is on the Web
  - e.g., for release R12.3R4
    - http://www.juniper.net/techpubs/en_US/junos12.3/information-products/pathway-pages/product/12.3/index.html
    - http://www.juniper.net/techpubs/en_US/junos12.3/information-products/topic-collections/release-notes/12.3/junos-release-notes-12.3r4.pdf

3rd Project LINGI 2142

- Check the impact of the given router configurations
  - take an external viewpoint
  - assess what can be seen/measured

Public BGP Data

- There exist BGP collection infrastructures
  - publicly-available dumps of BGP data
  - periodically collected
  - by geographically-distributed vantage points (VPs)
- Consider the RIPE RIS project
  - VPs: www.ripe.net/data-tools/stats/ris/ris-raw-data
  - BGP RIBs and updates for each VP
    - e.g., http://data.ris.ripe.net/rrc00/2014.04
  - bgpdump (to read data) bitbucket.org/ripencc/bgpdump/wiki/Home

3rd Project LINGI 2142 – Part I

- Check the impact of the given router configurations
  - take an external viewpoint
  - assess what can be seen/measured
- Reveal eBGP peerings involving Internet2
  - using public BGP data
  - double-check the results with the BGP configuration of the routers
    - how many eBGP peerings are invisible from RIS data?

Latest traceroute tools show MPLS

bash | mtr | bash | bash | bash

My traceroute [v0.85]

Air (0.0.0.0) Tue Apr 22 16:37:13 2014

Keys: Help Display mode Restart statistics Order of fields quit

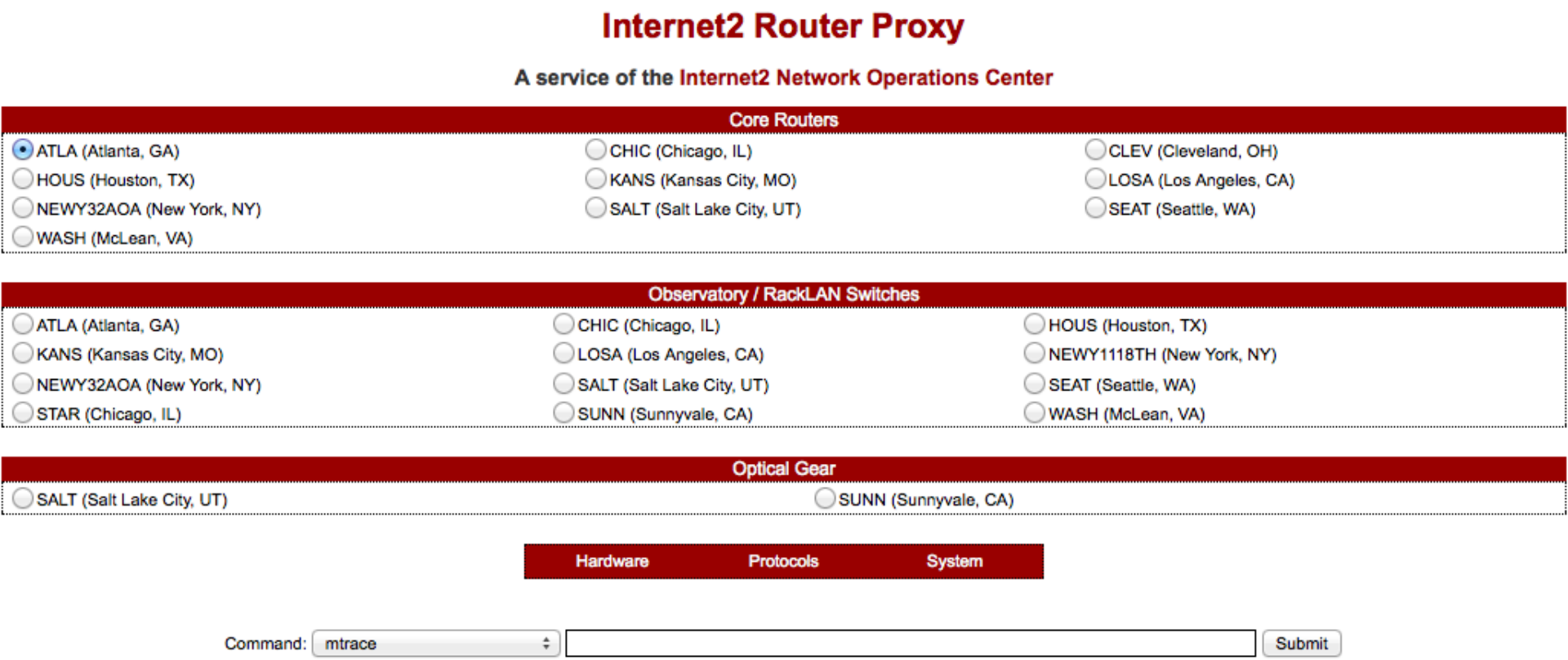
	Host	Packets Loss%	Snt	Pings Last	Avg	Best	Wrst	StDev
1.	130.104.228.126	0.0%	108	0.5	1.2	0.5	51.4	4.8
2.	ctpythagore.sri.ucl.ac.be	0.0%	108	0.8	0.9	0.6	6.7	0.7
3.	ge.cr2.brueve.belnet.net	0.0%	108	3.5	7.4	3.3	114.5	17.0
4.	belnet.mx2.bru.be.geant.net	0.0%	108	6.0	4.1	3.4	25.6	2.8
5.	xe-4-1-1.rt1.ams.nl.geant.net	0.0%	108	6.6	7.3	6.5	24.7	2.9
6.	xe-0-3-0.102.rtr.newy32aoa.net.i	0.0%	108	81.1	81.4	81.0	91.2	1.1
7.	nox300gw1-vl-110-nox-i2.nox.org	0.0%	108	86.5	86.6	86.2	86.9	0.0
8.	192.5.89.22	0.0%	108	99.2	99.0	98.7	99.4	0.0
9.	nox1sumgw1-peer-nox-mit-207-210-	0.0%	108	164.5	94.2	86.0	286.6	32.2
10.	???							
11.	backbone-rtr-1-dmz-rtr-1.mit.edu	0.0%	108	86.5	86.8	86.3	95.6	1.0
	[MPLS: Lbl 1717 Exp 0 S 1 TTL 1]							
12.	???							
13.	mitnet.trantor.csail.mit.edu	0.0%	108	86.5	86.8	86.3	99.0	1.1
14.	trantor.helicon.csail.mit.edu	0.0%	108	102.1	101.1	99.9	106.0	1.0
15.	zermatt.csail.mit.edu	0.0%	107	98.8	98.9	98.5	99.8	0.0

3rd Project LINGI 2142 – Part II

- Check the impact of the given router configurations
  - take an external viewpoint
  - assess what can be seen/measured
- Infer the usage of MPLS labels on data packets
  - using the mrt tool: http://www.bitwizard.nl/mtr/
  - on packets traversing Internet2 or directed to destinations in Internet2

Internet2 Router Proxy

- Internet2 provides a debugging toolset service
  - see routerproxy.grnoc.iu.edu/internet2/



3rd Project LINGI 2142 – Part III

- Check the impact of the given router configurations
  - take an external viewpoint
  - assess what can be seen/measured
- Infer paths and performance provided by Internet2 routers
  - how routing configuration is reflected on data packets?
  - which paths are used for the same and for different destinations?
  - is delay homogeneous for all packets of each source-destination pair?