IETF Hackathon:
Measurement and Analysis for Protocols (MAP) - Live

IETF 104
23-24 March, 2019
Prague

Hackathon Plan (Project 1)

- Analysis tool development and measurement results for Internet Draft on **Privacy & Security Issues in IPv6 Deployment**
  - Preparing I-D to share anonymized, aggregate results
  - Goal is to inform v6 address assignment in engineering and operations and inform measurement practice
- Compare, and contrast, results of independent (TU-Munich & Akamai), worldwide IPv6 traceroute surveys January 2019 having shared analysis tools: be sure we're comparing *apples to apples*

What got done

- Consider best current practice for privacy & security in “hitlists” and repositories, *e.g.,* Passive DNS databases
- Public measurements: https://ipv6hitlist.github.io/
- Shared analysis tools: http://www.cs.wisc.edu/~plonka/ipv6toolkit/, http://www.cs.wisc.edu/~plonka/mac2vendor/
- We analyzed and compared the largest public and “private” IPv6 traceroute survey results known

What we learned

- **>1 million EUI-64 IPv6 router addresses found** in traceroute surveys and campaigns performed by industry and academia
  - This **discovery was *accidental;*** a side-effect of reachability and topology studies
  - **Public and "private" results are *complementary***, each revealing unique details in different parts of the active IPv6 address space

- Surprisingly, **older "hitlists"** (seed addresses used to synthesize traceroute targets) can ***sometimes*** **yield more results!**

- There is likely some **follow-on BCP** work for 6man and/or v6ops working groups

- Hackathon **results** will be **reported in MAPRG meeting this week** with a new draft to be proposed as work for the research group

IP Network Performance and Capacity Measurement Method Comparisons (Project 2)

What we did & learned:

- Collected Interesting Test Conditions for Evaluation <doc>
- Calibrated Lab Setup (tc shaper) & Performed tests on 3 methods

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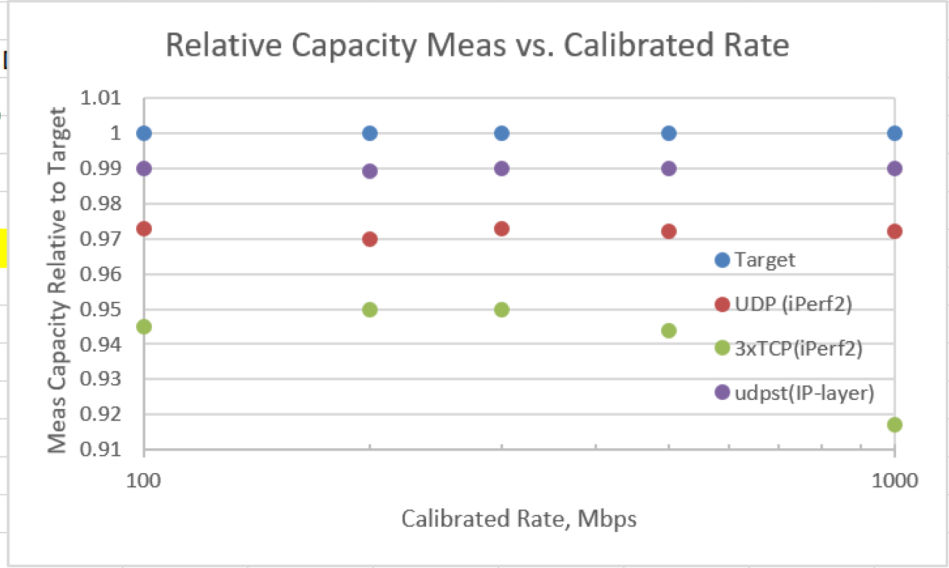
C-Rate, Ml	Target	UDP (iPerf	3xTCP(iPe	udpst(IP-l
100	1	0.973	0.945	0.99
200	1	0.97	0.95	0.9892
300	1	0.973	0.95	0.9899
500	1	0.972	0.944	0.99
1000	1	0.972	0.917	0.99
		2-Jan		



Quick measurement study with PATHspider

- See pathlspider.net
- Measured ECN support of 4294 web servers (IPv6 only)
  - Negotiated successfully: 4007
  - Did not negotiate ECN: 287
  - Seems to work without ECN but not with: 2 (may be transient errors)
  - 0 CE markings observed (but no high load scenario)
  - 1 host used only ECT(1); 2 used both ECT(0) and ECT(1)
- Come help measure the Internet and share some data at MAPRG!

Wrap Up

Team members:

Dave Plonka
Mirja Kühlewind
Oliver Gasser
Al Morton
Ian Learmonth
Alexander Isavnin

First timers @ IETF/Hackathon:
Oliver Gasser
Ian Learmonth

MAPRG meets 10:50 Thursday morning:

https://datatracker.ietf.org/rg/maprg/about/

https://trac.ietf.org/trac/irtf/wiki/map

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