

Pantheon Report

Generated at 2018-07-18 08:31:21 (UTC).

Data path: India ppp0 ppp0 (*remote*) → AWS India 1 Ethernet (*local*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

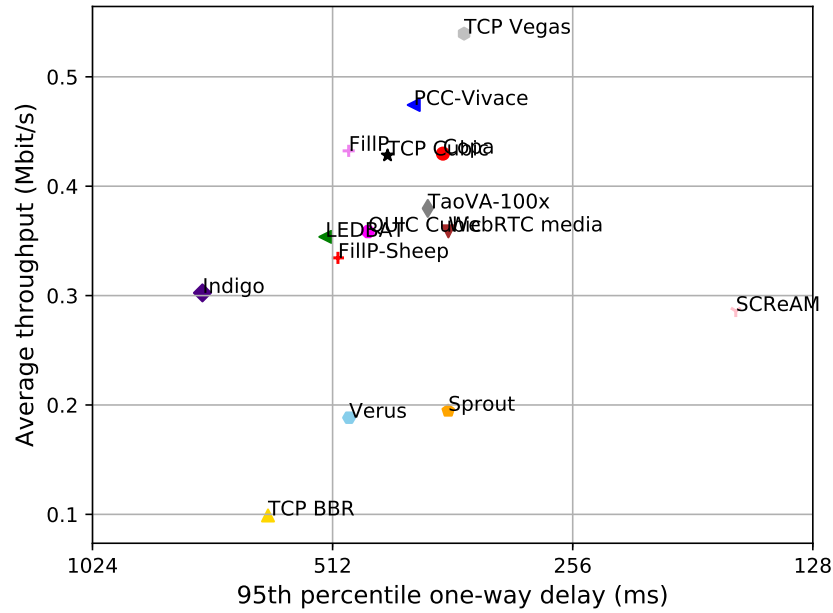
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

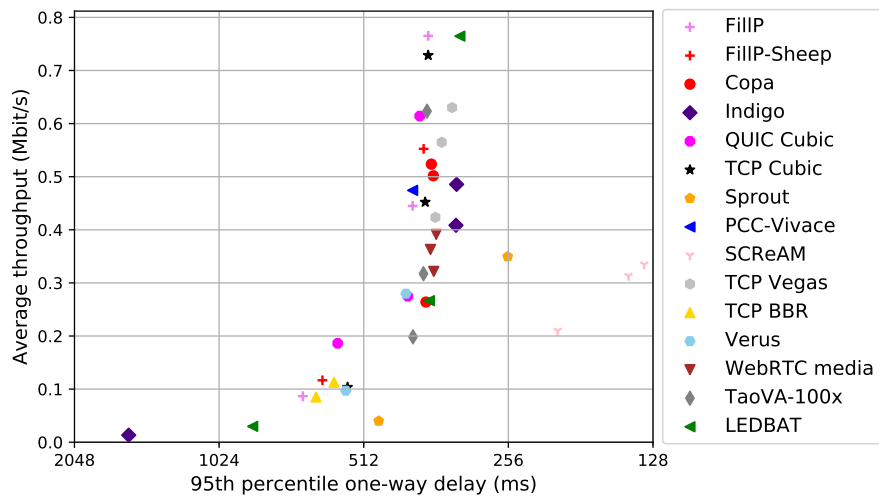
Git summary:

```
branch: master @ f7befc2d8410f41949e0ad8143a9aab40bab7edb
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quirk @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from India ppp0 to AWS India 1, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from India ppp0 to AWS India 1, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows



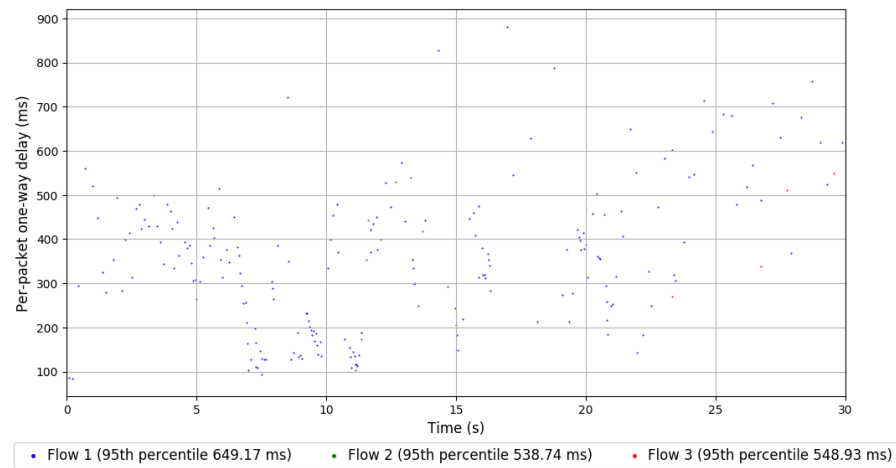
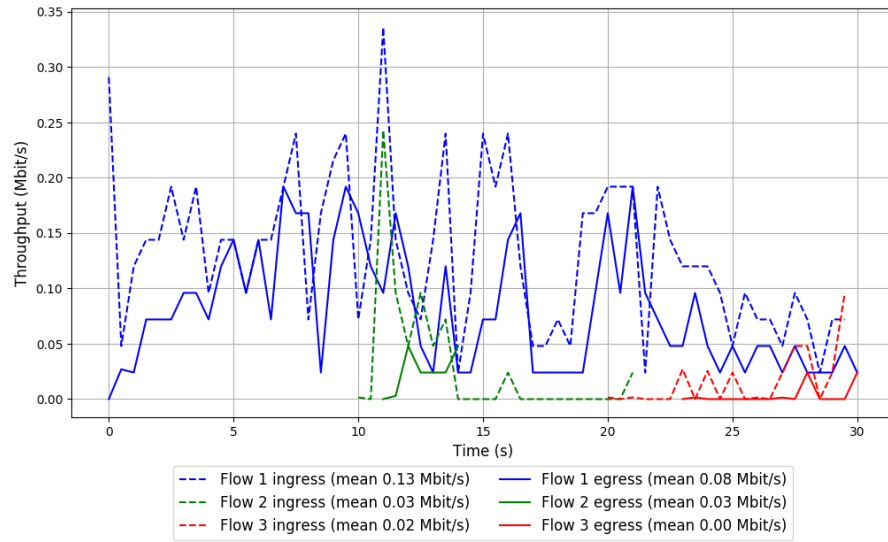
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	2	0.08	0.04	0.05	629.17	534.97	529.61	38.28	60.50	67.55
Copa	3	0.28	0.18	0.12	362.83	384.30	390.30	12.03	17.82	35.91
TCP Cubic	3	0.30	0.15	0.13	448.88	437.01	422.11	15.02	18.09	22.50
FillP	3	0.29	0.16	0.15	489.75	371.27	375.69	72.96	73.05	73.92
FillP-Sheep	2	0.24	0.09	0.13	555.73	467.90	403.54	74.88	87.20	84.86
Indigo	3	0.13	0.17	0.18	671.18	688.37	753.90	36.13	37.51	43.50
LEDBAT	3	0.16	0.21	0.19	526.63	448.60	453.92	15.34	10.00	25.34
PCC-Allegro	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCC-Expr	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
QUIC Cubic	3	0.20	0.10	0.31	576.73	567.92	386.33	41.70	66.90	39.82
SCReAM	3	0.13	0.16	0.13	154.75	158.42	171.37	0.21	0.41	1.28
Sprout	2	0.10	0.09	0.10	378.37	341.11	377.93	34.44	41.88	41.27
TaoVA-100x	3	0.23	0.18	0.13	388.37	394.97	390.20	63.21	68.82	79.91
TCP Vegas	3	0.31	0.24	0.23	338.37	350.52	363.65	2.87	6.21	7.88
Verus	2	0.12	0.07	0.08	501.37	485.93	459.66	77.95	52.95	47.26
PCC-Vivace	1	0.34	0.18	0.08	400.00	410.68	453.77	74.08	86.40	92.33
WebRTC media	3	0.16	0.14	0.07	363.24	364.40	366.59	14.90	14.85	19.90

Run 1: Statistics of TCP BBR

Start at: 2018-07-18 07:35:10
End at: 2018-07-18 07:35:40
Local clock offset: -1.263 ms
Remote clock offset: -7.505 ms

Below is generated by plot.py at 2018-07-18 08:30:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 643.461 ms
Loss rate: 43.13%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 649.171 ms
Loss rate: 38.96%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 538.741 ms
Loss rate: 73.80%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 548.935 ms
Loss rate: 84.12%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

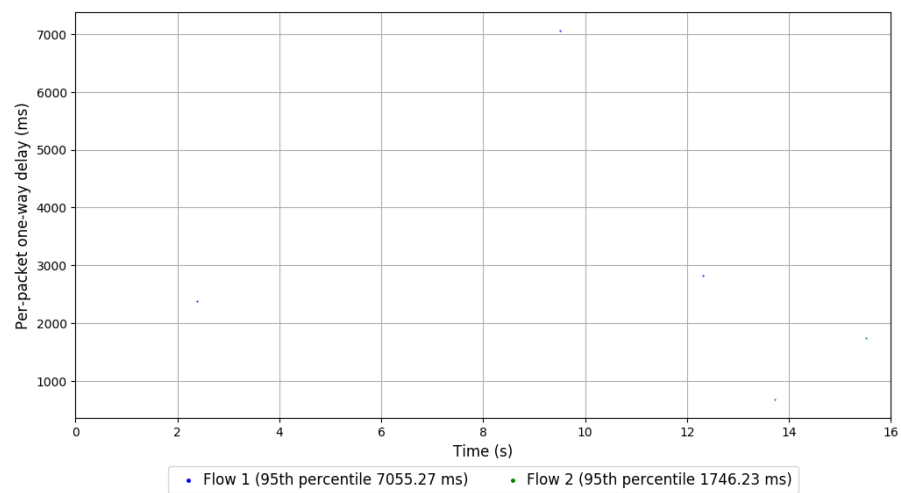
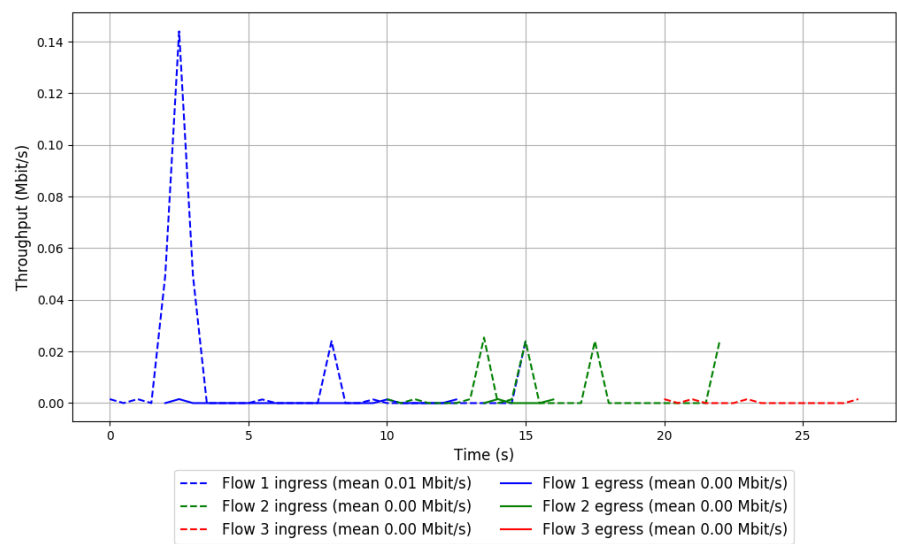
Start at: 2018-07-18 07:53:52

End at: 2018-07-18 07:54:22

Local clock offset: 2.643 ms

Remote clock offset: -8.171 ms

Run 2: Report of TCP BBR — Data Link

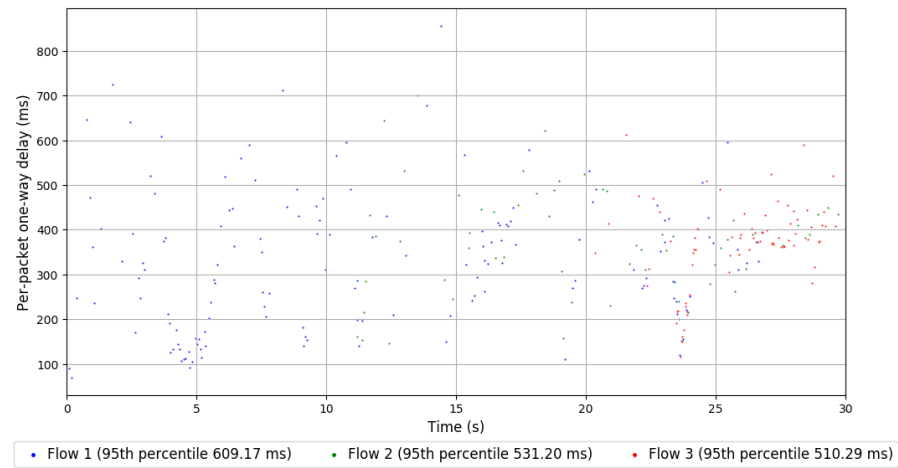
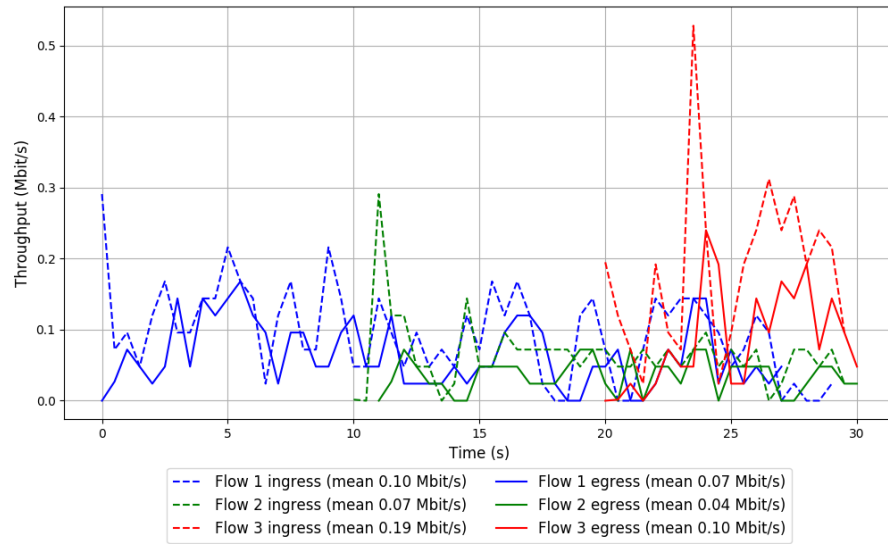


Run 3: Statistics of TCP BBR

Start at: 2018-07-18 08:12:42
End at: 2018-07-18 08:13:12
Local clock offset: 2.256 ms
Remote clock offset: -10.377 ms

Below is generated by plot.py at 2018-07-18 08:30:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 590.423 ms
Loss rate: 43.82%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 609.175 ms
Loss rate: 37.59%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 531.198 ms
Loss rate: 47.20%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 510.291 ms
Loss rate: 50.98%

Run 3: Report of TCP BBR — Data Link

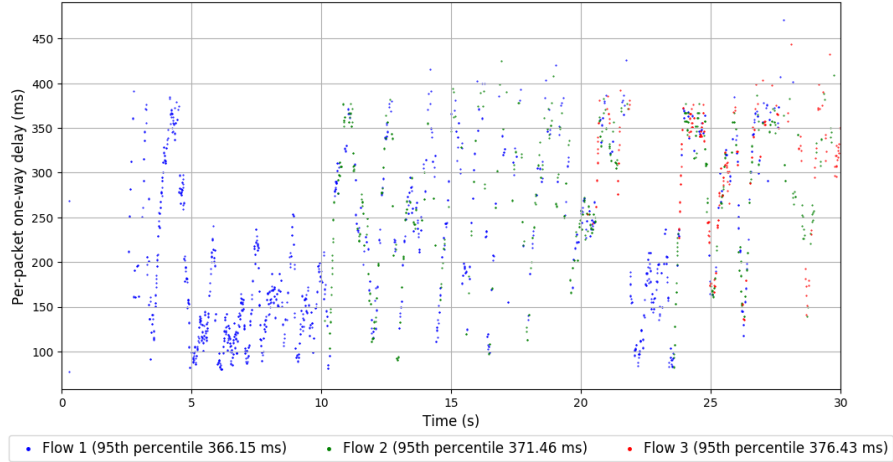
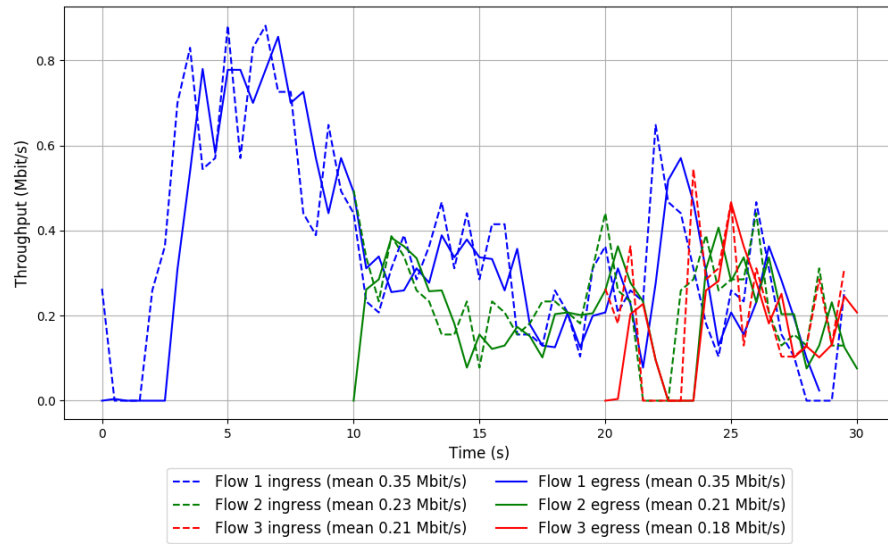


Run 1: Statistics of Copa

Start at: 2018-07-18 07:39:34
End at: 2018-07-18 07:40:04
Local clock offset: 4.396 ms
Remote clock offset: -6.675 ms

Below is generated by plot.py at 2018-07-18 08:30:51
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 370.298 ms
Loss rate: 9.31%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 366.151 ms
Loss rate: 7.83%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 371.465 ms
Loss rate: 10.34%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 376.426 ms
Loss rate: 14.54%

Run 1: Report of Copa — Data Link

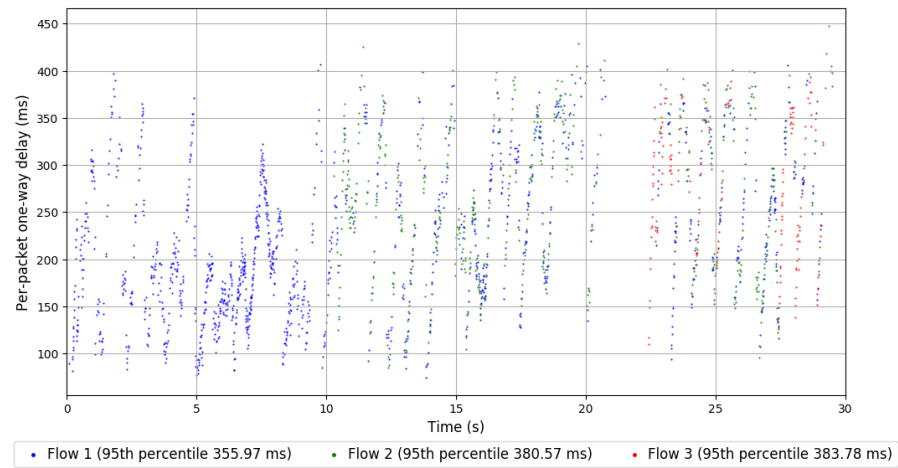
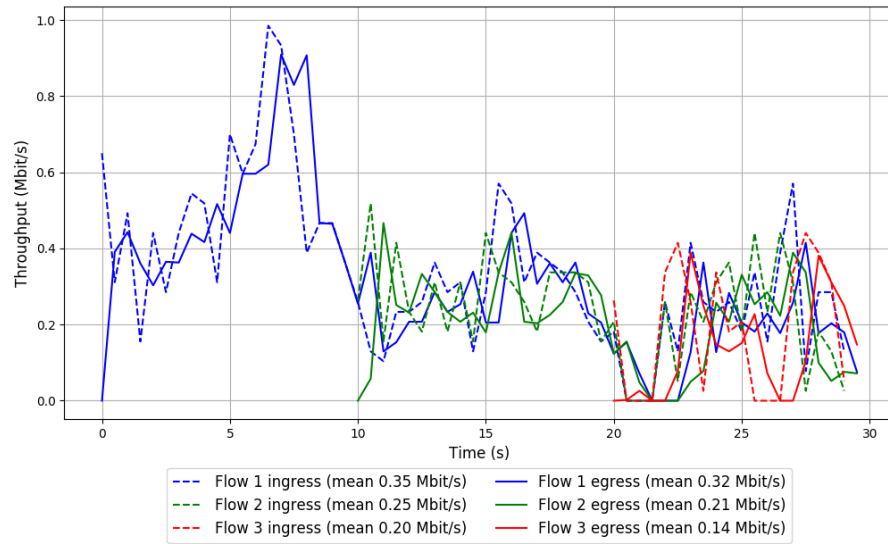


Run 2: Statistics of Copa

Start at: 2018-07-18 07:58:25
End at: 2018-07-18 07:58:55
Local clock offset: 4.37 ms
Remote clock offset: -7.248 ms

Below is generated by plot.py at 2018-07-18 08:30:51
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 366.790 ms
Loss rate: 11.23%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 355.969 ms
Loss rate: 7.80%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 380.573 ms
Loss rate: 13.42%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 383.778 ms
Loss rate: 25.06%

Run 2: Report of Copa — Data Link

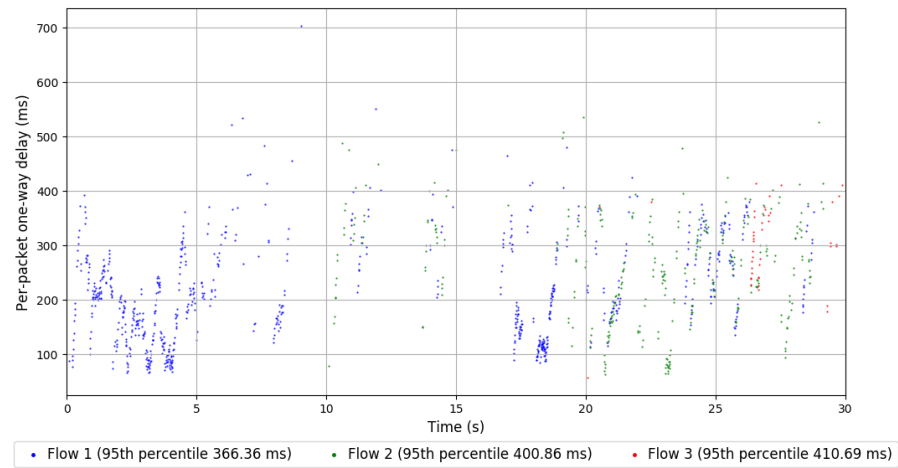
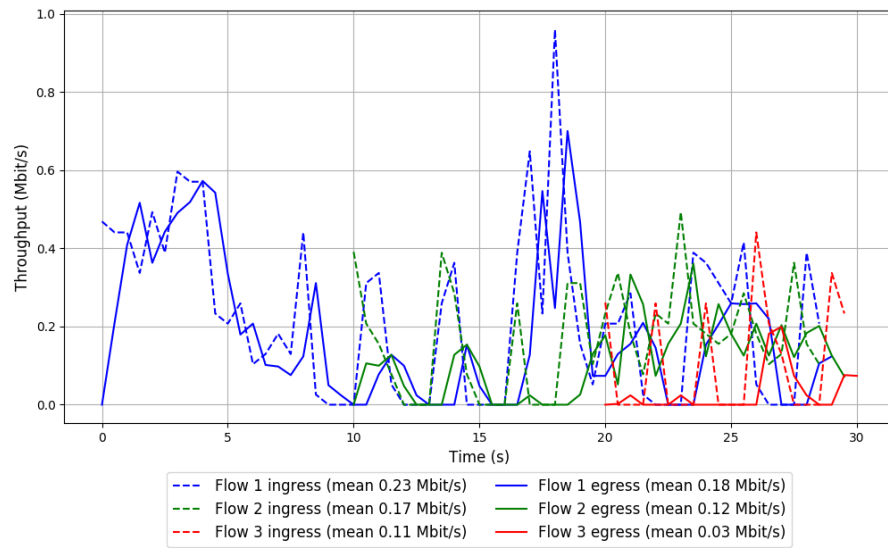


Run 3: Statistics of Copa

Start at: 2018-07-18 08:17:06
End at: 2018-07-18 08:17:36
Local clock offset: 0.386 ms
Remote clock offset: -9.286 ms

Below is generated by plot.py at 2018-07-18 08:30:51
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 379.967 ms
Loss rate: 27.82%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 366.364 ms
Loss rate: 20.46%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 400.860 ms
Loss rate: 29.69%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 410.689 ms
Loss rate: 68.13%

Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-07-18 07:50:32

End at: 2018-07-18 07:51:02

Local clock offset: 2.07 ms

Remote clock offset: -7.15 ms

Below is generated by plot.py at 2018-07-18 08:30:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.73 Mbit/s

95th percentile per-packet one-way delay: 375.941 ms

Loss rate: 6.97%

-- Flow 1:

Average throughput: 0.52 Mbit/s

95th percentile per-packet one-way delay: 375.676 ms

Loss rate: 5.75%

-- Flow 2:

Average throughput: 0.25 Mbit/s

95th percentile per-packet one-way delay: 380.710 ms

Loss rate: 7.53%

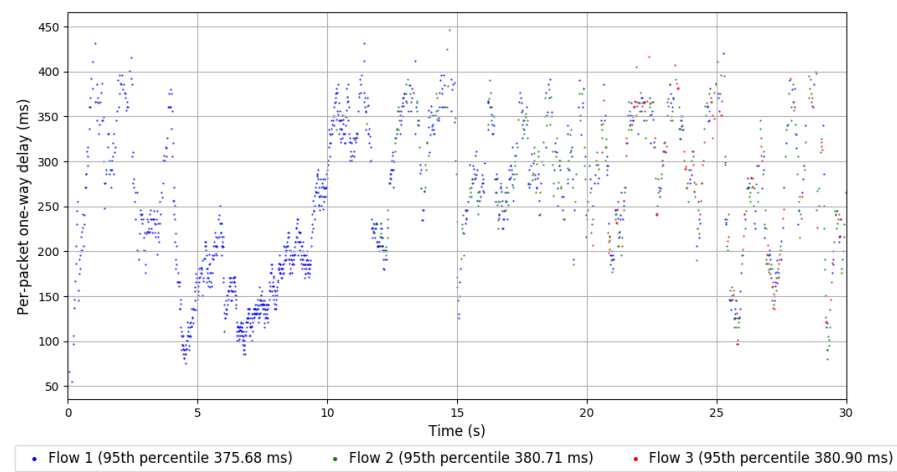
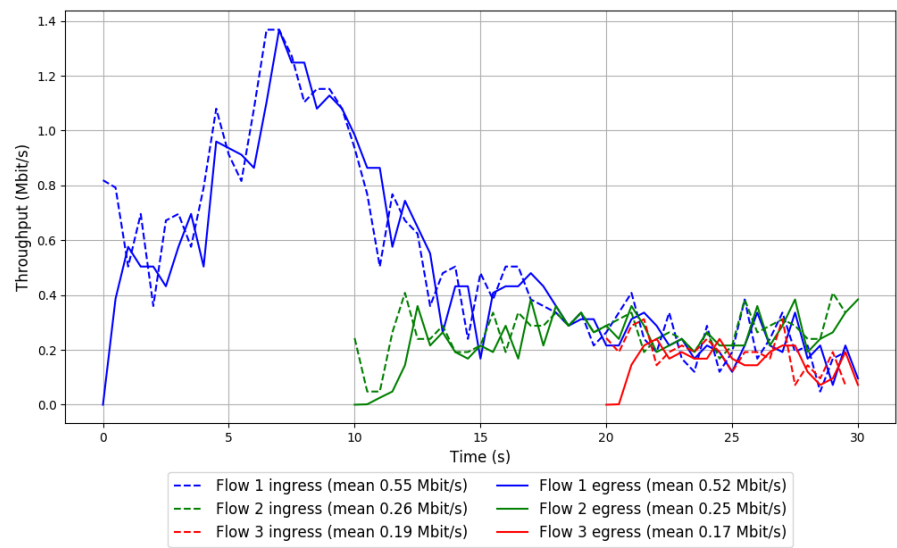
-- Flow 3:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 380.905 ms

Loss rate: 15.91%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-07-18 08:09:26

End at: 2018-07-18 08:09:56

Local clock offset: -0.263 ms

Remote clock offset: -9.91 ms

Below is generated by plot.py at 2018-07-18 08:30:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.10 Mbit/s

95th percentile per-packet one-way delay: 553.324 ms

Loss rate: 31.62%

-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 598.075 ms

Loss rate: 30.10%

-- Flow 2:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 538.784 ms

Loss rate: 32.42%

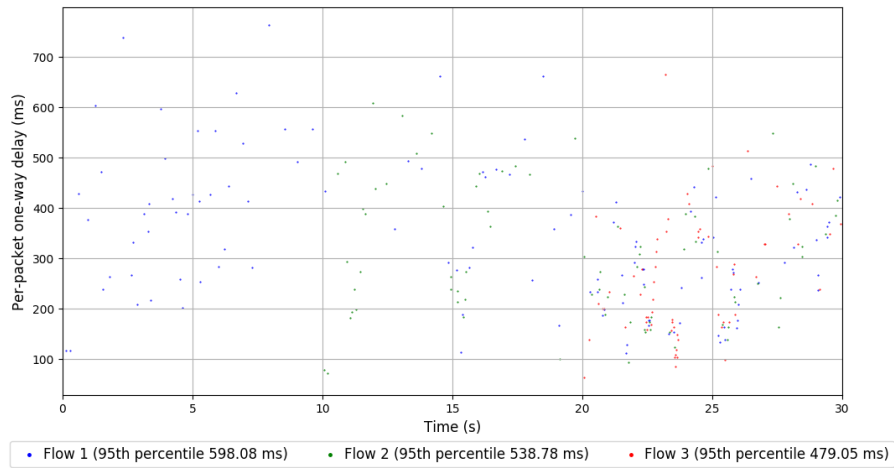
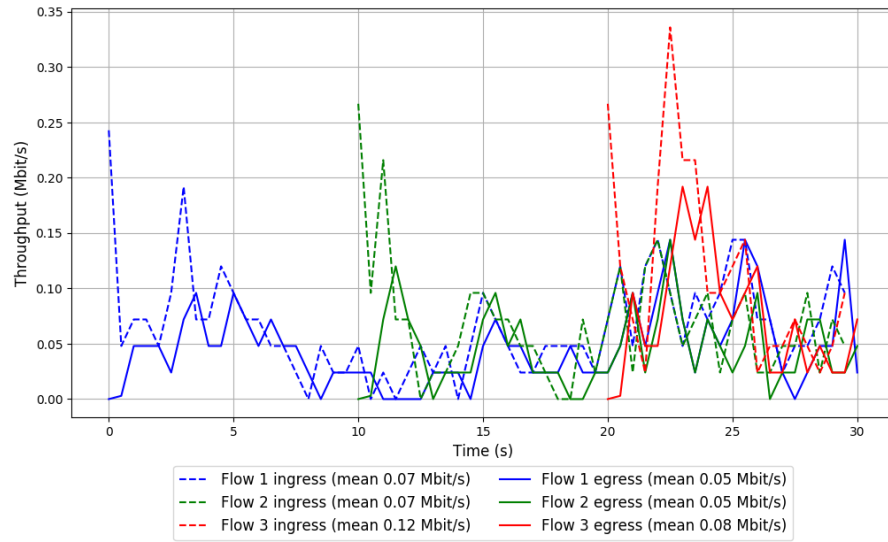
-- Flow 3:

Average throughput: 0.08 Mbit/s

95th percentile per-packet one-way delay: 479.053 ms

Loss rate: 33.29%

Run 2: Report of TCP Cubic — Data Link

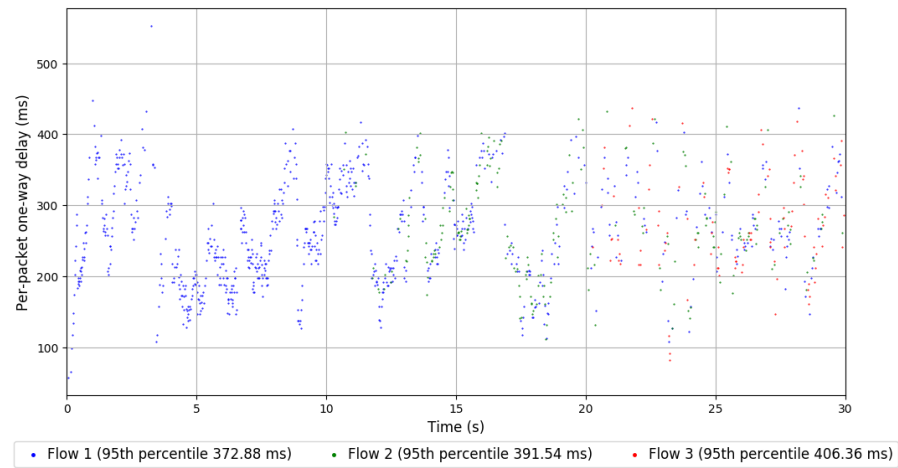
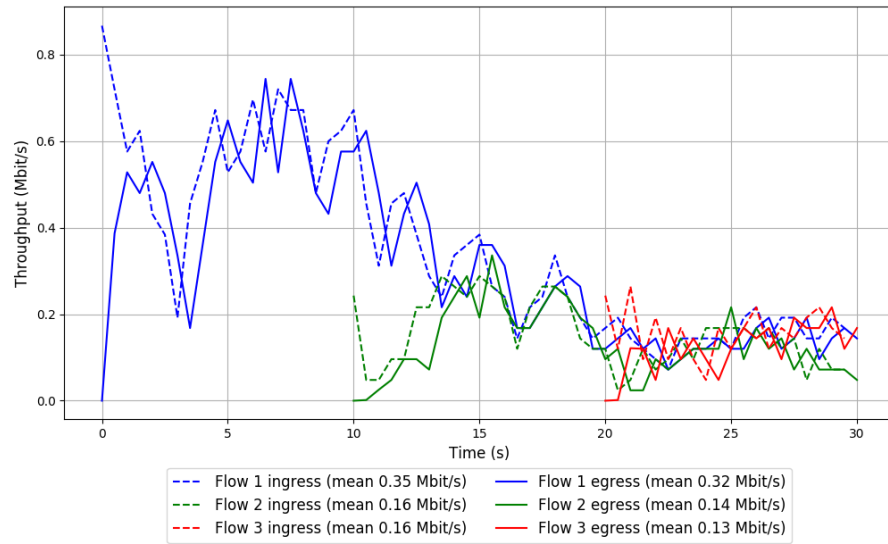


Run 3: Statistics of TCP Cubic

Start at: 2018-07-18 08:27:59
End at: 2018-07-18 08:28:29
Local clock offset: -0.64 ms
Remote clock offset: -11.07 ms

Below is generated by plot.py at 2018-07-18 08:30:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 381.364 ms
Loss rate: 11.20%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 372.884 ms
Loss rate: 9.22%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 391.542 ms
Loss rate: 14.33%
-- Flow 3:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 406.361 ms
Loss rate: 18.30%

Run 3: Report of TCP Cubic — Data Link

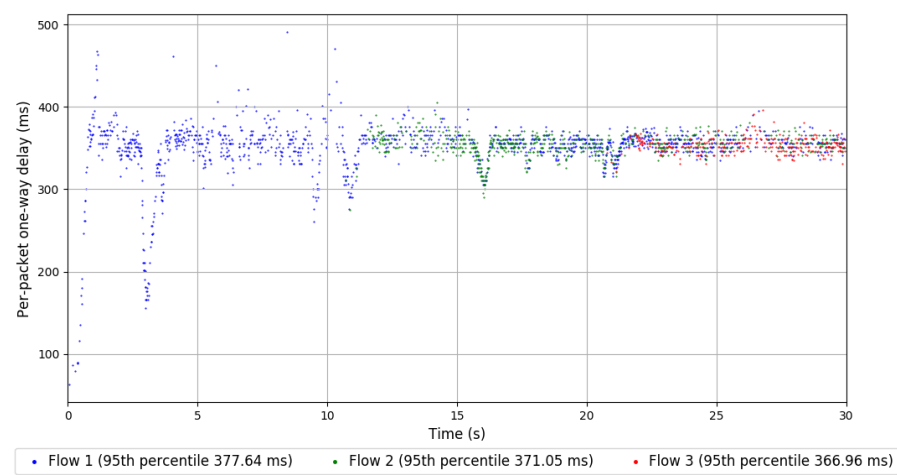
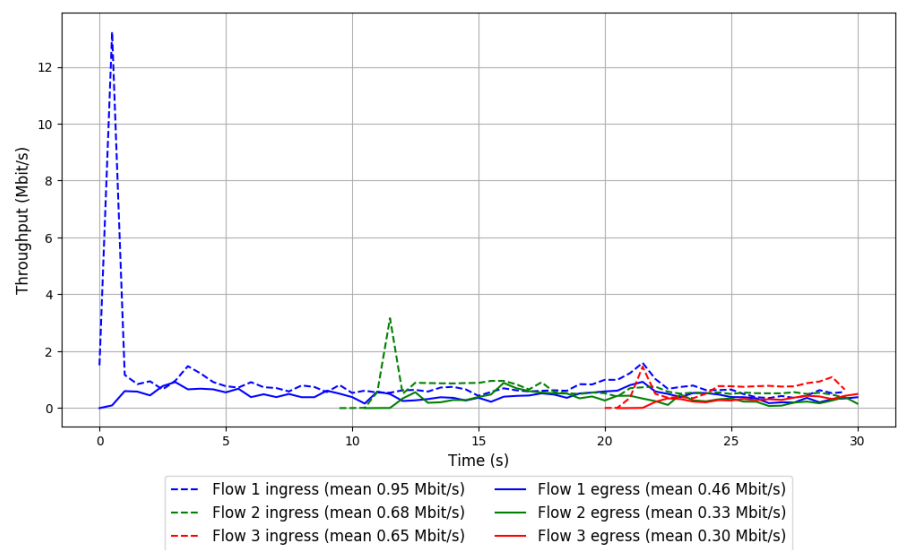


Run 1: Statistics of FillP

Start at: 2018-07-18 07:48:20
End at: 2018-07-18 07:48:50
Local clock offset: 4.339 ms
Remote clock offset: -6.166 ms

Below is generated by plot.py at 2018-07-18 08:30:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 375.839 ms
Loss rate: 52.83%
-- Flow 1:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 377.644 ms
Loss rate: 52.09%
-- Flow 2:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 371.054 ms
Loss rate: 52.42%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 366.960 ms
Loss rate: 56.91%

Run 1: Report of FillP — Data Link

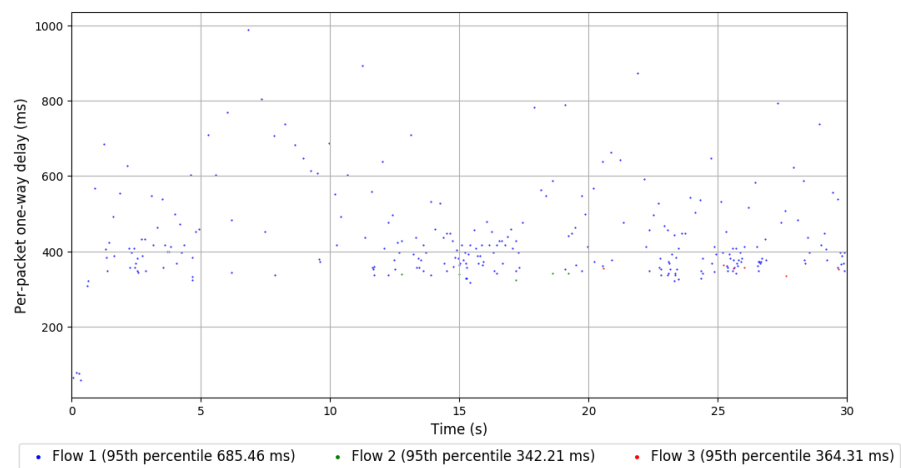
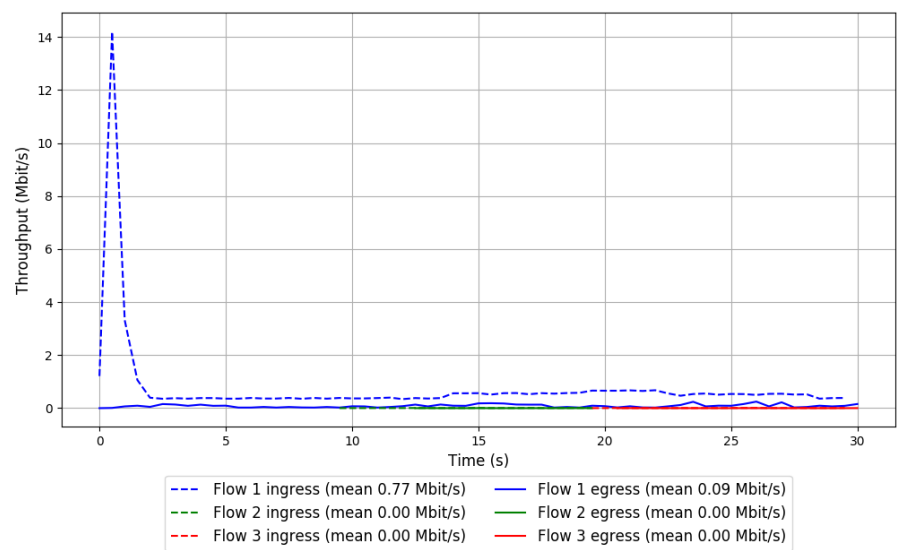


Run 2: Statistics of FillP

Start at: 2018-07-18 08:07:15
End at: 2018-07-18 08:07:45
Local clock offset: 0.818 ms
Remote clock offset: -9.015 ms

Below is generated by plot.py at 2018-07-18 08:30:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 685.455 ms
Loss rate: 88.86%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 685.455 ms
Loss rate: 88.85%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 342.213 ms
Loss rate: 91.91%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 364.312 ms
Loss rate: 90.64%

Run 2: Report of FillP — Data Link

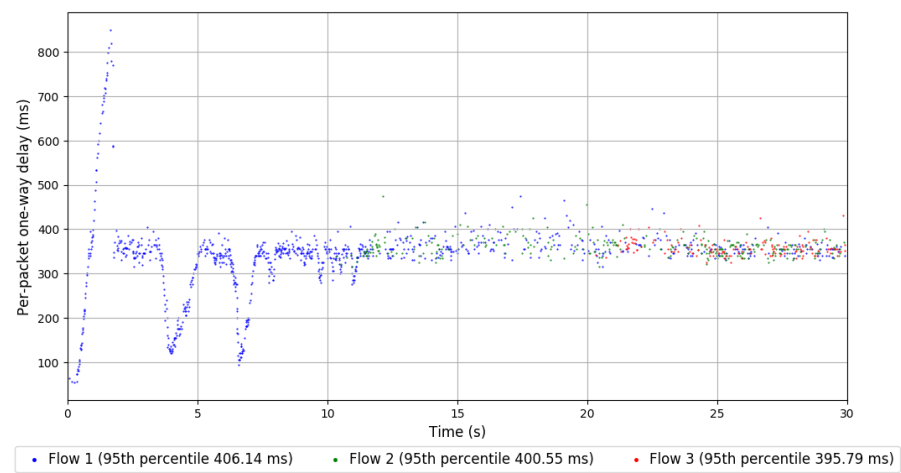
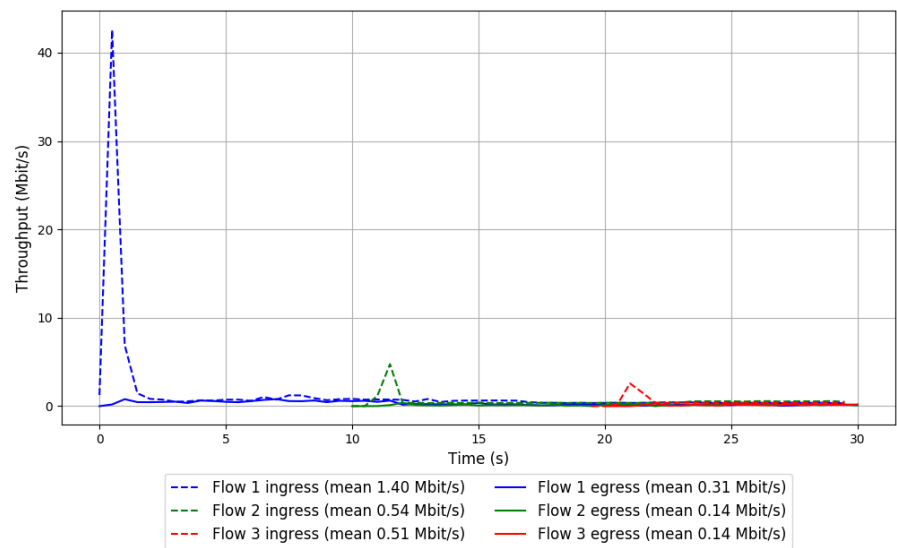


Run 3: Statistics of FillP

Start at: 2018-07-18 08:25:49
End at: 2018-07-18 08:26:19
Local clock offset: -0.75 ms
Remote clock offset: -10.068 ms

Below is generated by plot.py at 2018-07-18 08:30:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 405.001 ms
Loss rate: 77.04%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 406.136 ms
Loss rate: 77.95%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 400.550 ms
Loss rate: 74.82%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 395.791 ms
Loss rate: 74.20%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

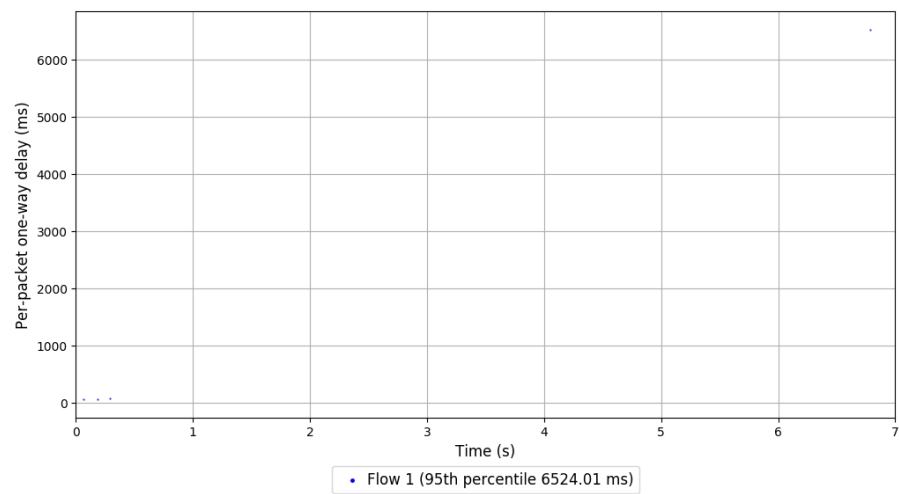
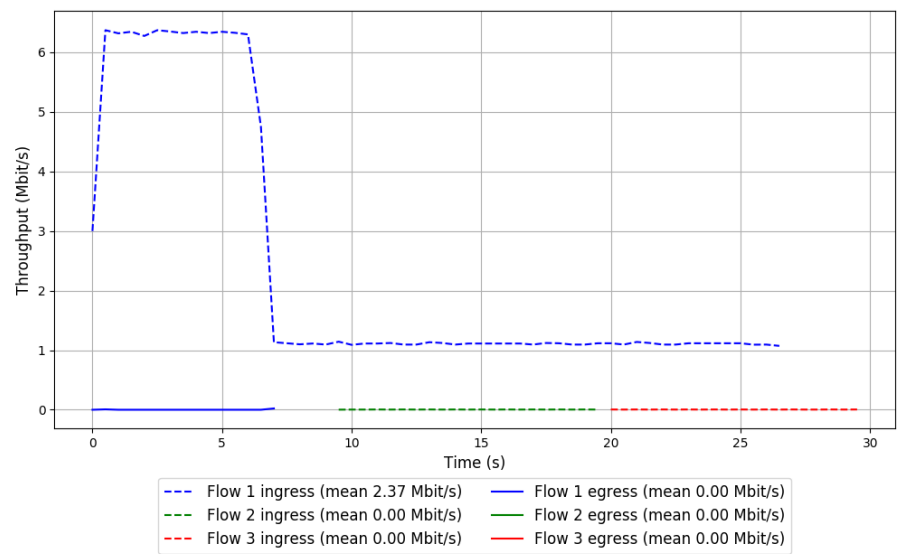
Start at: 2018-07-18 07:46:07

End at: 2018-07-18 07:46:37

Local clock offset: 4.62 ms

Remote clock offset: -6.971 ms

Run 1: Report of FillP-Sheep — Data Link

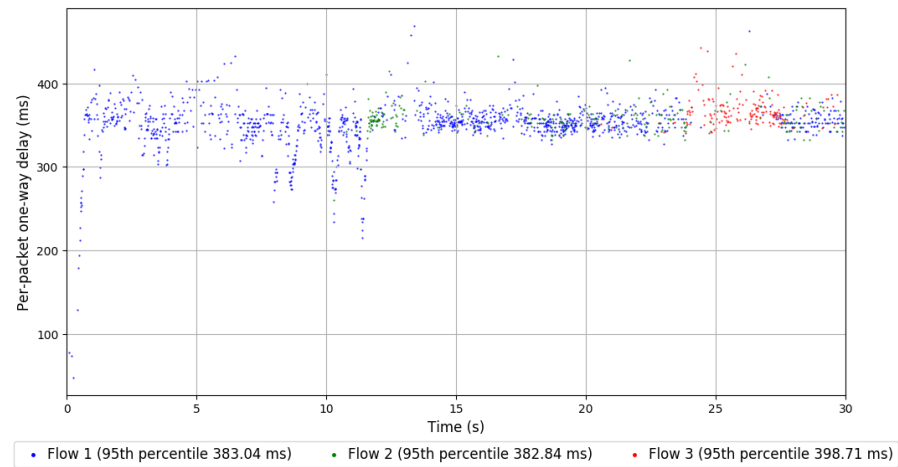
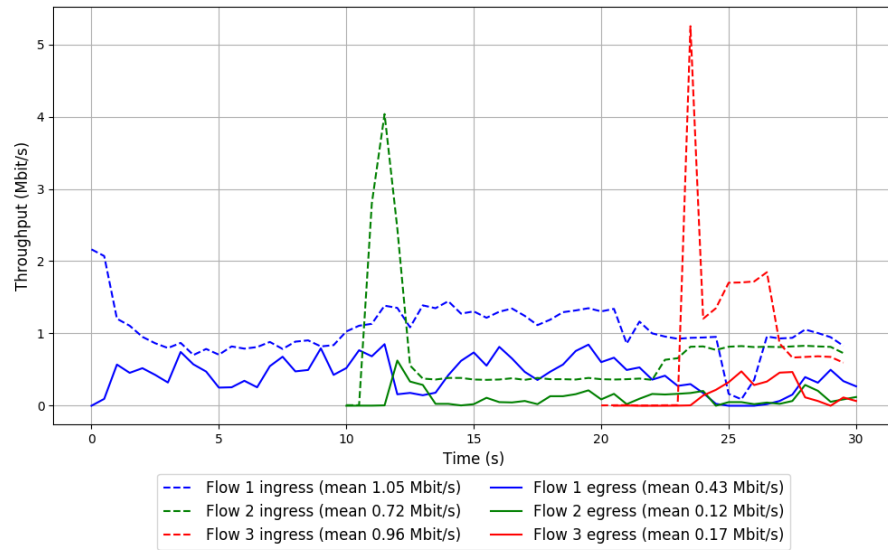


Run 2: Statistics of FillP-Sheep

Start at: 2018-07-18 08:05:03
End at: 2018-07-18 08:05:33
Local clock offset: 0.173 ms
Remote clock offset: -8.672 ms

Below is generated by plot.py at 2018-07-18 08:30:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 384.243 ms
Loss rate: 70.11%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 383.044 ms
Loss rate: 59.51%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 382.840 ms
Loss rate: 84.25%
-- Flow 3:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 398.708 ms
Loss rate: 83.76%

Run 2: Report of FillP-Sheep — Data Link

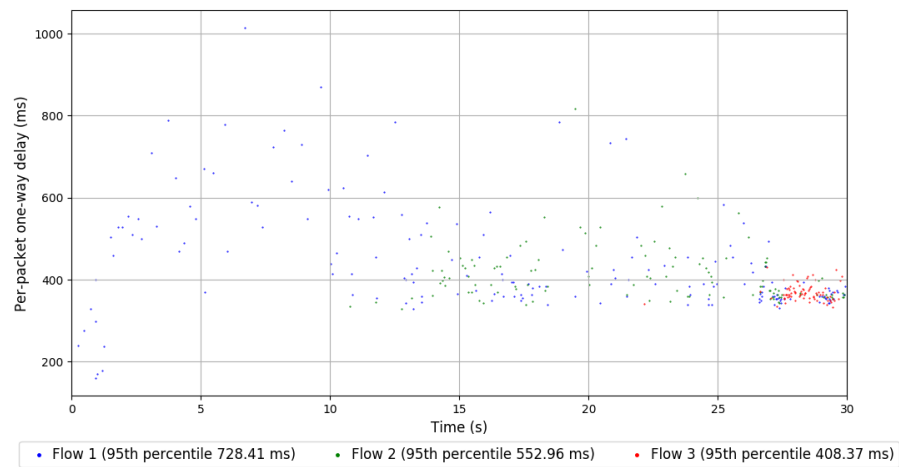
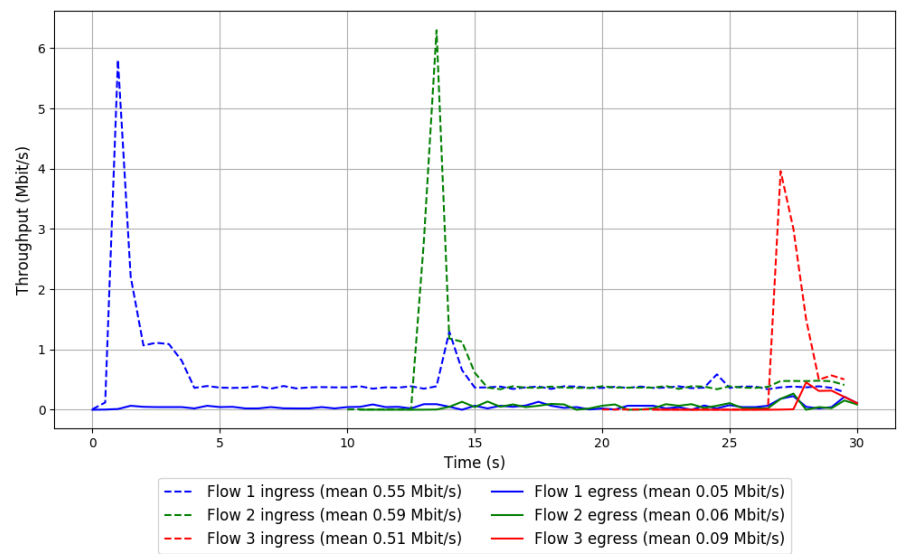


Run 3: Statistics of FillP-Sheep

Start at: 2018-07-18 08:23:38
End at: 2018-07-18 08:24:08
Local clock offset: 1.762 ms
Remote clock offset: -9.756 ms

Below is generated by plot.py at 2018-07-18 08:30:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 624.077 ms
Loss rate: 89.56%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 728.415 ms
Loss rate: 90.25%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 552.957 ms
Loss rate: 90.16%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 408.365 ms
Loss rate: 85.96%

Run 3: Report of FillP-Sheep — Data Link

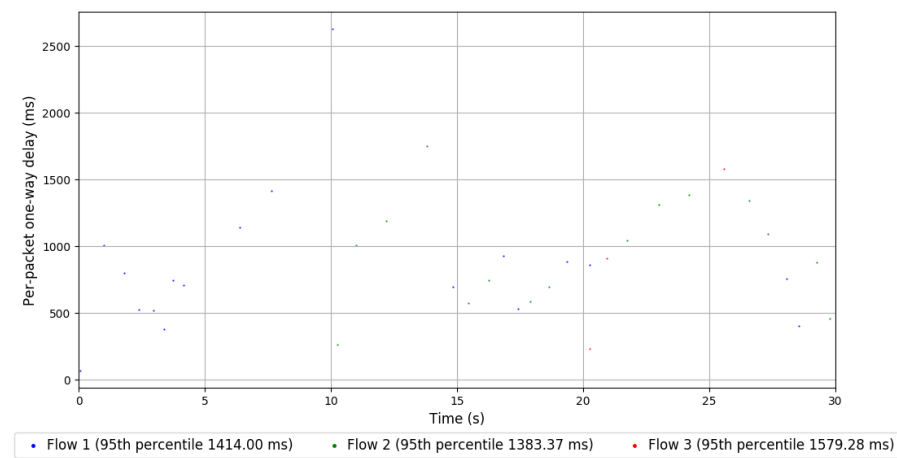
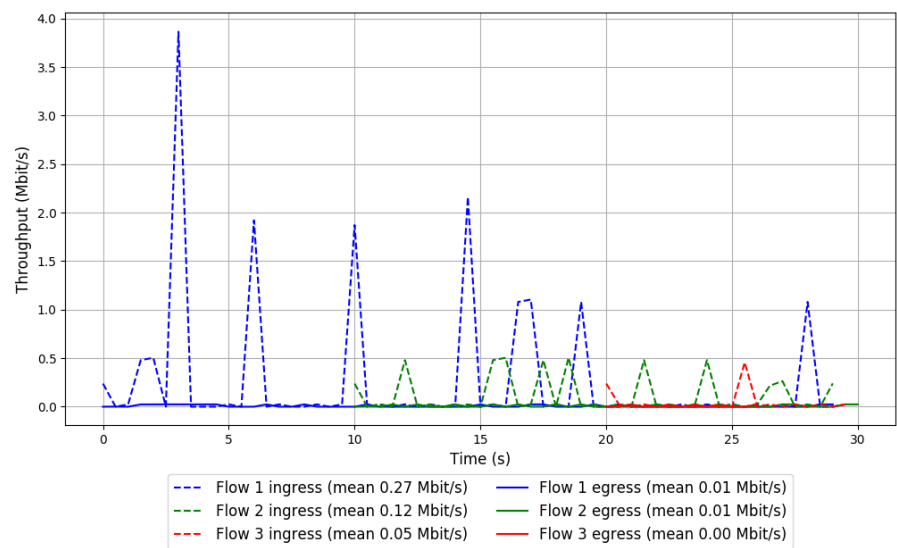


Run 1: Statistics of Indigo

Start at: 2018-07-18 07:43:56
End at: 2018-07-18 07:44:26
Local clock offset: 1.792 ms
Remote clock offset: -6.935 ms

Below is generated by plot.py at 2018-07-18 08:30:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1579.283 ms
Loss rate: 96.28%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1413.998 ms
Loss rate: 97.42%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1383.365 ms
Loss rate: 92.69%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1579.283 ms
Loss rate: 94.64%

Run 1: Report of Indigo — Data Link

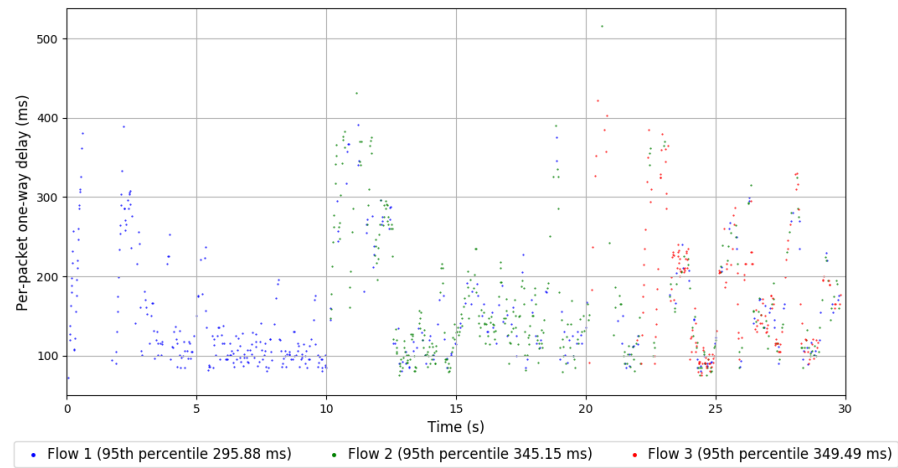
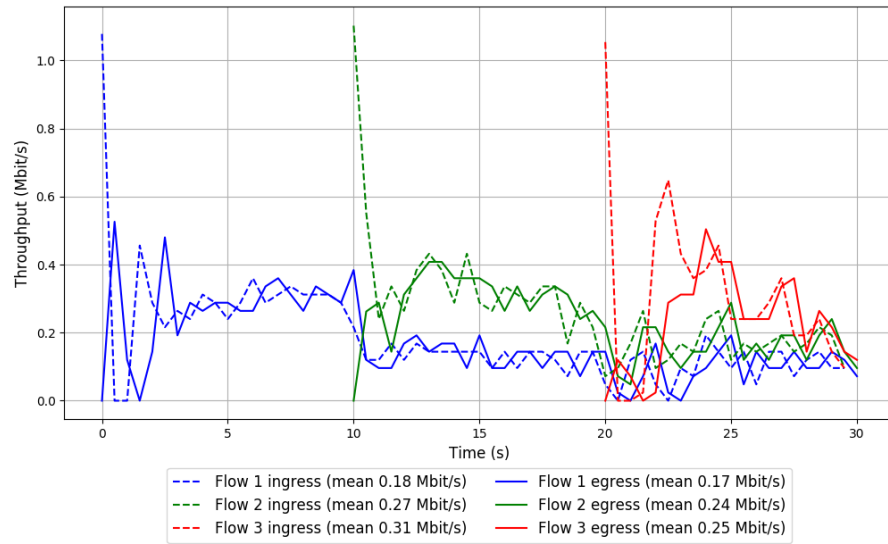


Run 2: Statistics of Indigo

Start at: 2018-07-18 08:02:52
End at: 2018-07-18 08:03:22
Local clock offset: 1.66 ms
Remote clock offset: -8.874 ms

```
# Below is generated by plot.py at 2018-07-18 08:30:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 329.065 ms
Loss rate: 11.69%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 295.879 ms
Loss rate: 6.17%
-- Flow 2:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 345.147 ms
Loss rate: 11.21%
-- Flow 3:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 349.492 ms
Loss rate: 22.34%
```

Run 2: Report of Indigo — Data Link

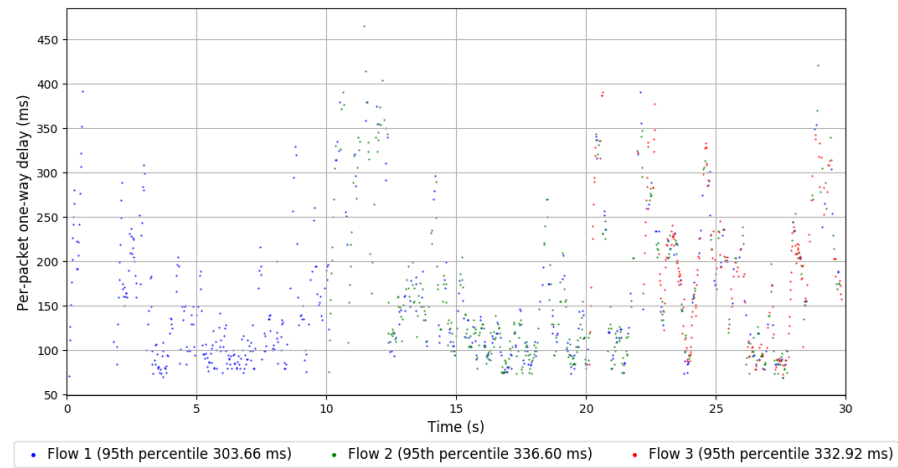
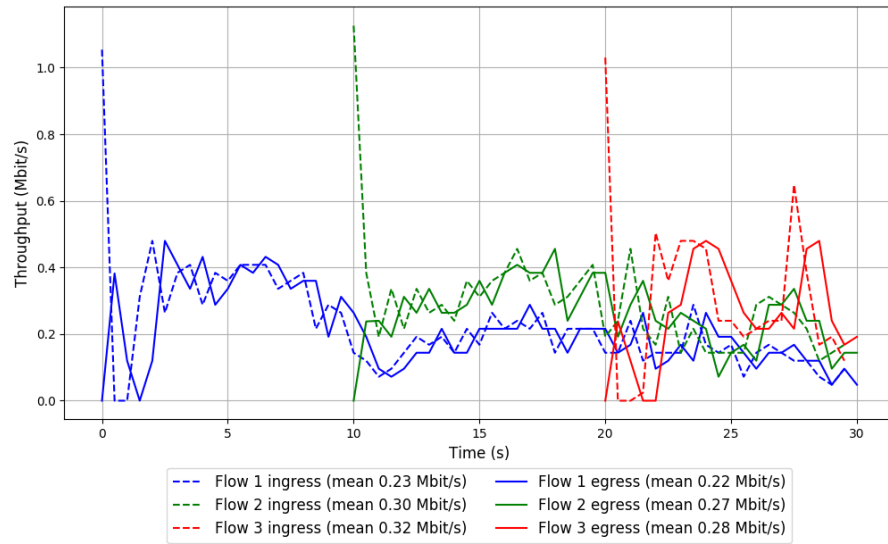


Run 3: Statistics of Indigo

Start at: 2018-07-18 08:21:28
End at: 2018-07-18 08:21:58
Local clock offset: -3.084 ms
Remote clock offset: -10.049 ms

Below is generated by plot.py at 2018-07-18 08:30:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 328.086 ms
Loss rate: 7.95%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 303.659 ms
Loss rate: 4.80%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 336.598 ms
Loss rate: 8.63%
-- Flow 3:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 332.924 ms
Loss rate: 13.52%

Run 3: Report of Indigo — Data Link

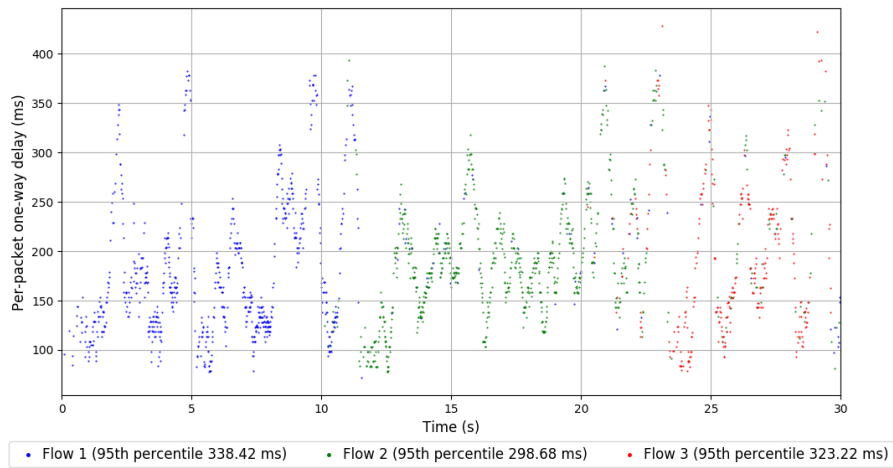
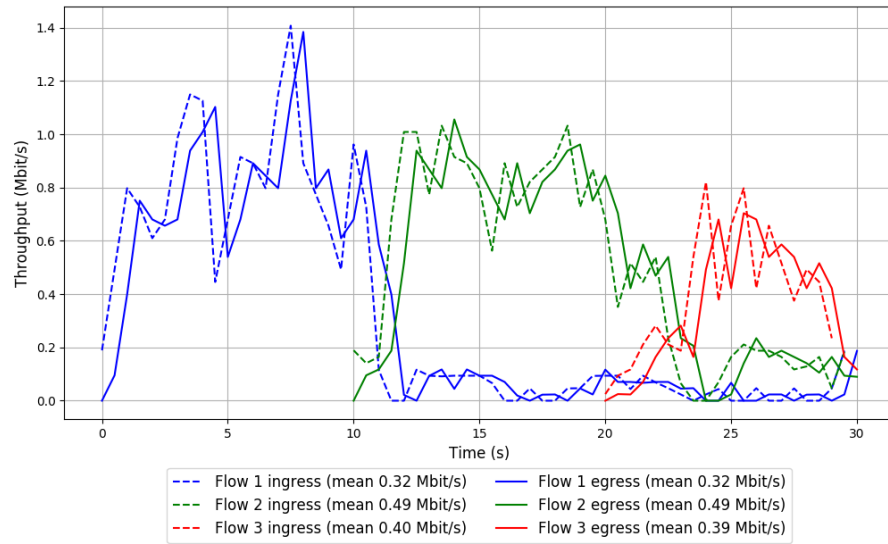


Run 1: Statistics of LEDBAT

Start at: 2018-07-18 07:49:26
End at: 2018-07-18 07:49:56
Local clock offset: 3.844 ms
Remote clock offset: -6.756 ms

Below is generated by plot.py at 2018-07-18 08:30:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 323.014 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 338.416 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 298.684 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 323.221 ms
Loss rate: 2.83%

Run 1: Report of LEDBAT — Data Link

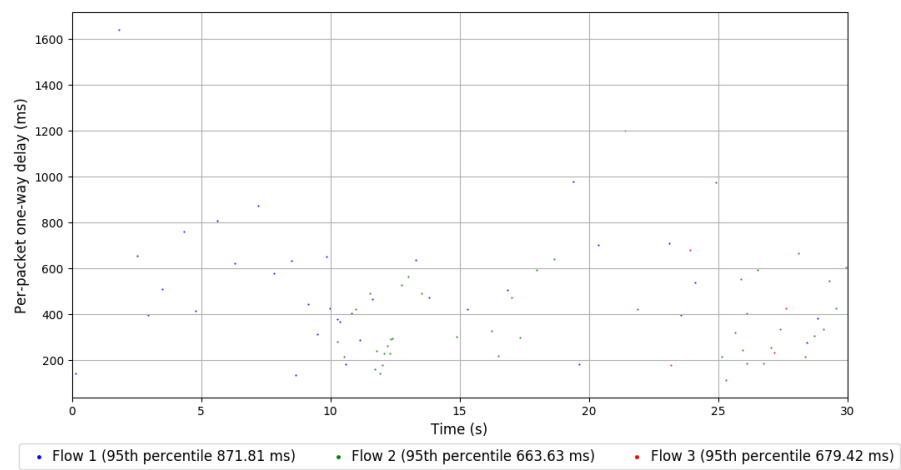
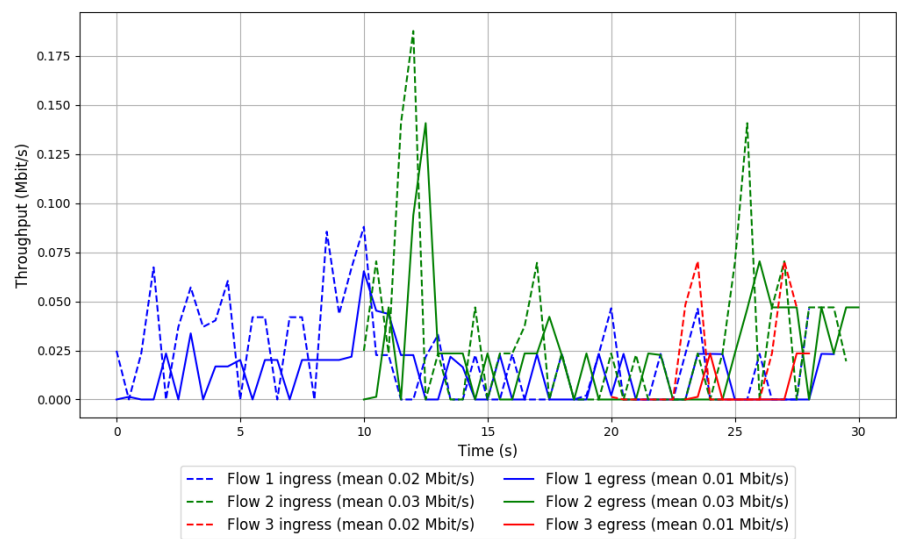


Run 2: Statistics of LEDBAT

Start at: 2018-07-18 08:08:20
End at: 2018-07-18 08:08:50
Local clock offset: 3.491 ms
Remote clock offset: -10.244 ms

Below is generated by plot.py at 2018-07-18 08:30:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 871.806 ms
Loss rate: 35.10%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 871.806 ms
Loss rate: 41.54%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 663.633 ms
Loss rate: 21.38%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 679.424 ms
Loss rate: 72.49%

Run 2: Report of LEDBAT — Data Link

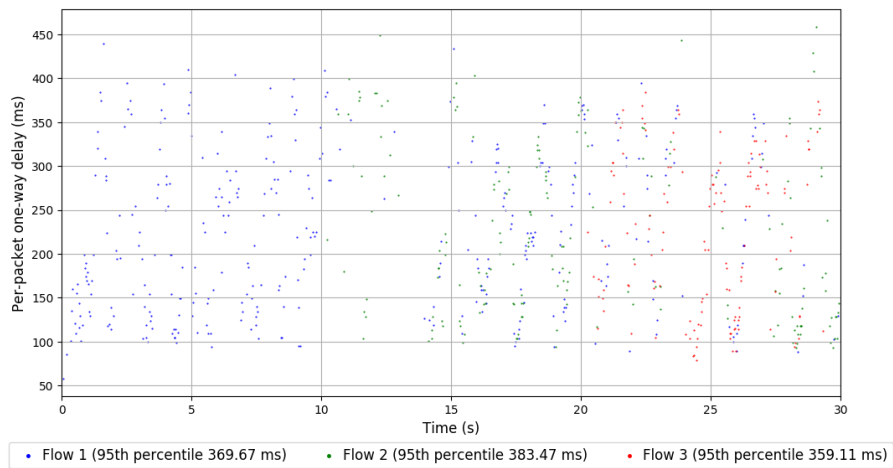
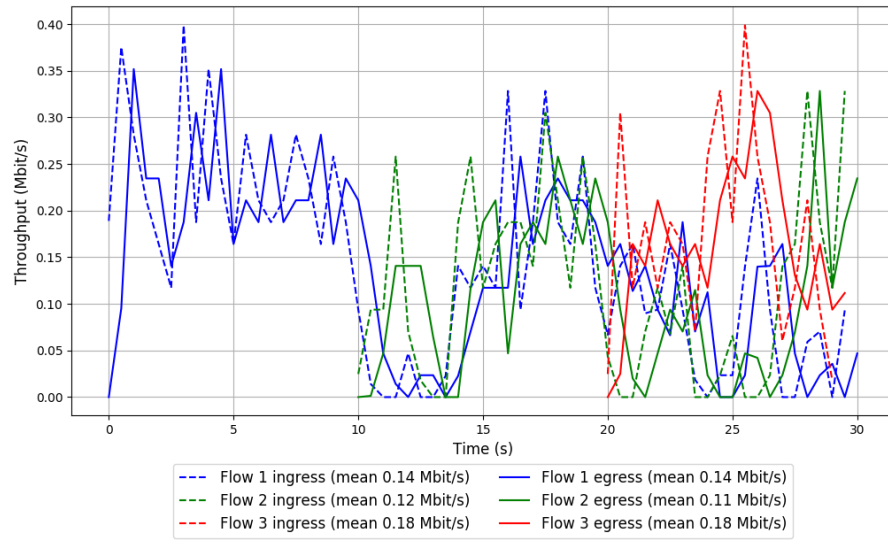


Run 3: Statistics of LEDBAT

Start at: 2018-07-18 08:26:54
End at: 2018-07-18 08:27:24
Local clock offset: 2.019 ms
Remote clock offset: -9.902 ms

Below is generated by plot.py at 2018-07-18 08:30:59
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 373.761 ms
Loss rate: 3.95%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 369.671 ms
Loss rate: 3.26%
-- Flow 2:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 383.473 ms
Loss rate: 7.53%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 359.107 ms
Loss rate: 0.71%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

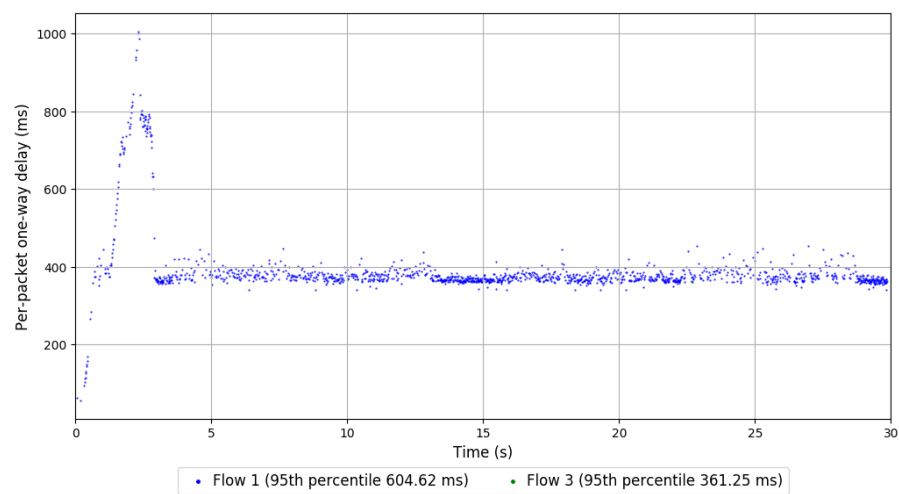
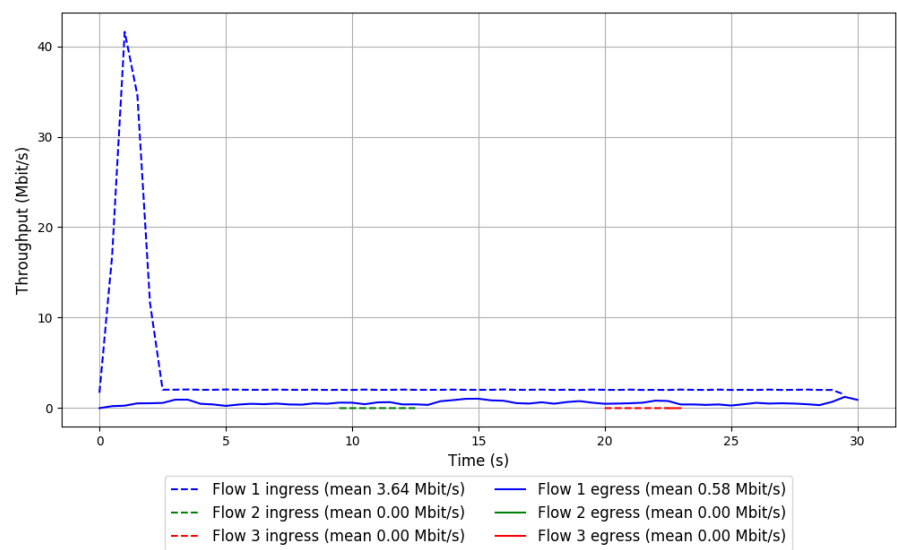
Start at: 2018-07-18 07:51:37

End at: 2018-07-18 07:52:07

Local clock offset: -1.357 ms

Remote clock offset: -6.658 ms

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

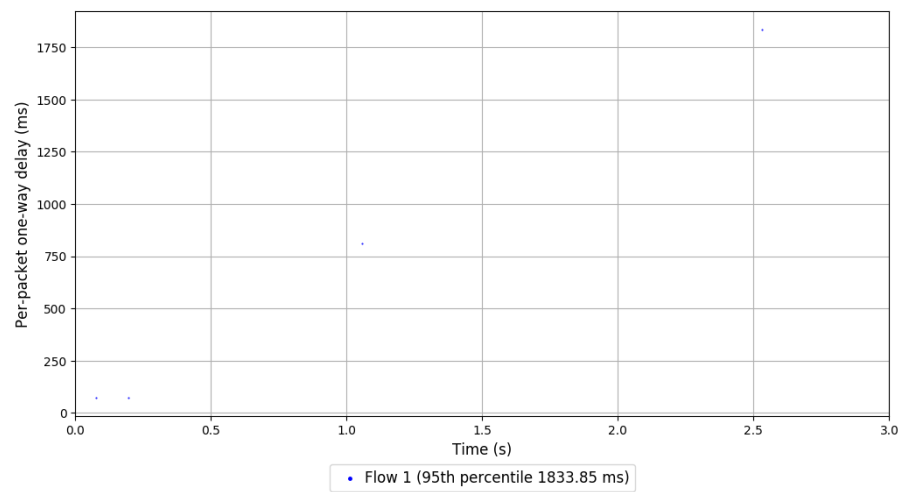
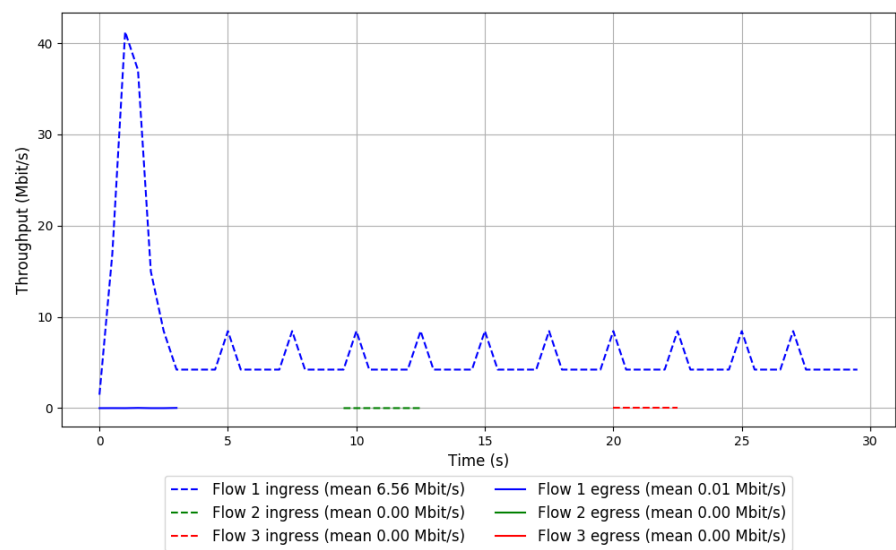
Start at: 2018-07-18 08:10:31

End at: 2018-07-18 08:11:01

Local clock offset: 0.43 ms

Remote clock offset: -9.346 ms

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

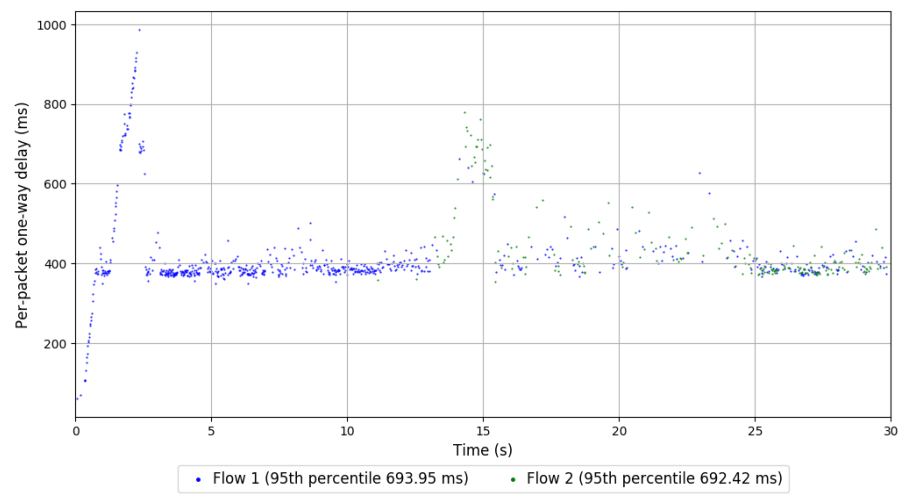
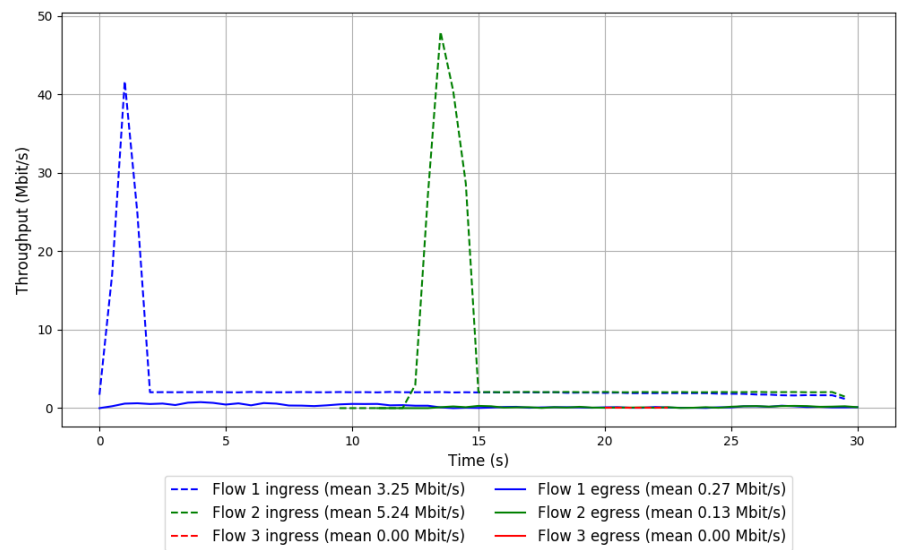
Start at: 2018-07-18 08:29:05

End at: 2018-07-18 08:29:35

Local clock offset: 0.105 ms

Remote clock offset: -10.702 ms

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

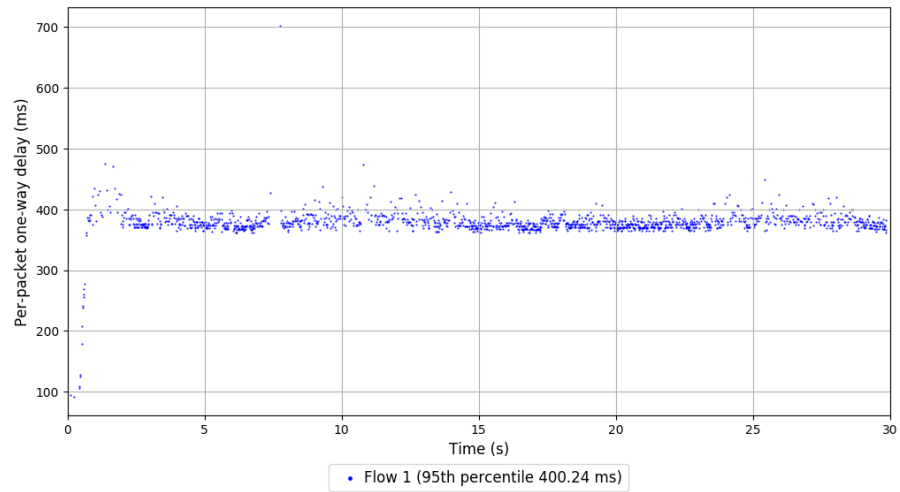
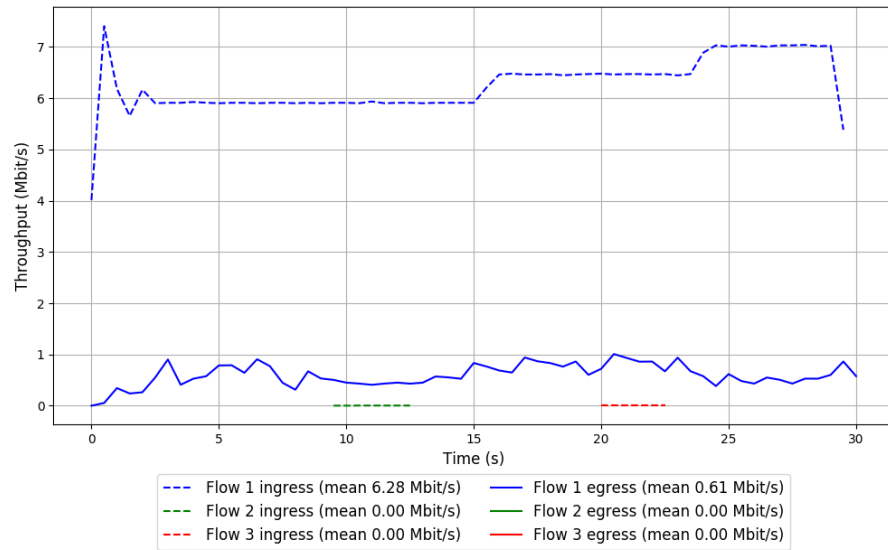
Start at: 2018-07-18 07:37:22

End at: 2018-07-18 07:37:52

Local clock offset: 3.67 ms

Remote clock offset: -6.583 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

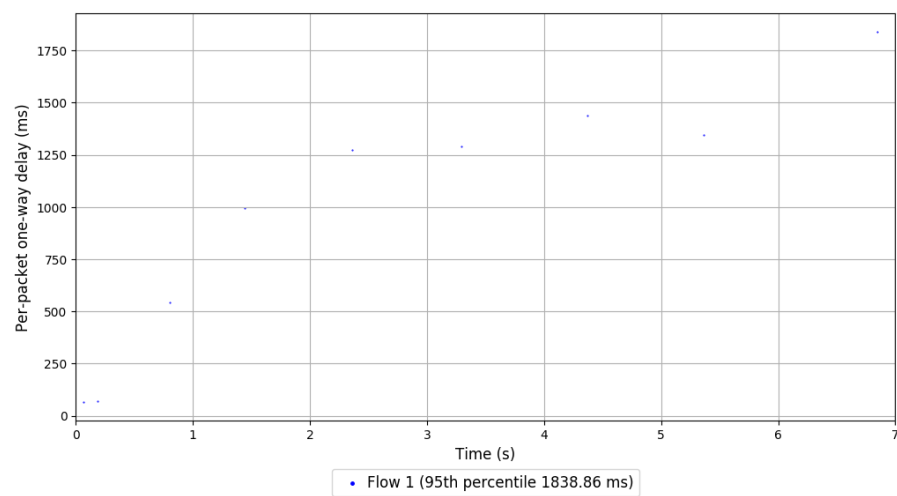
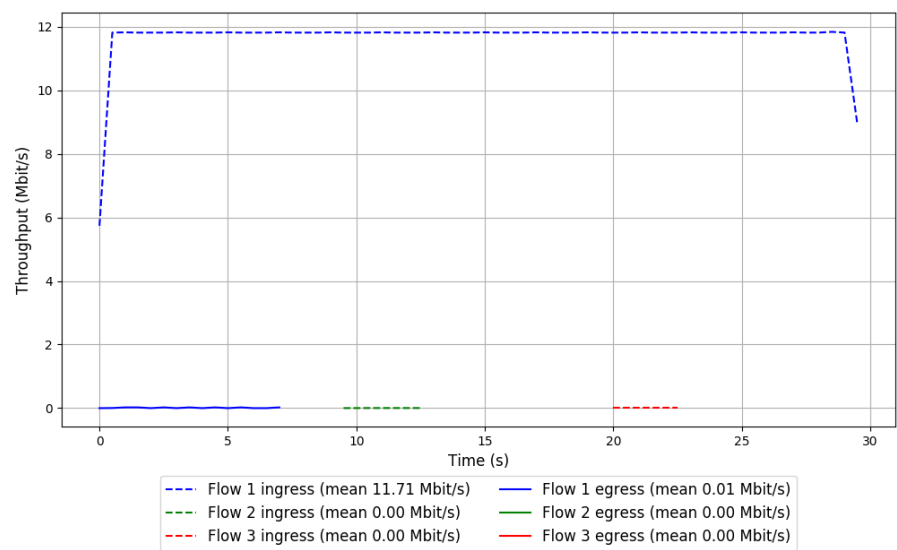
Start at: 2018-07-18 07:56:13

End at: 2018-07-18 07:56:43

Local clock offset: -0.718 ms

Remote clock offset: -6.666 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

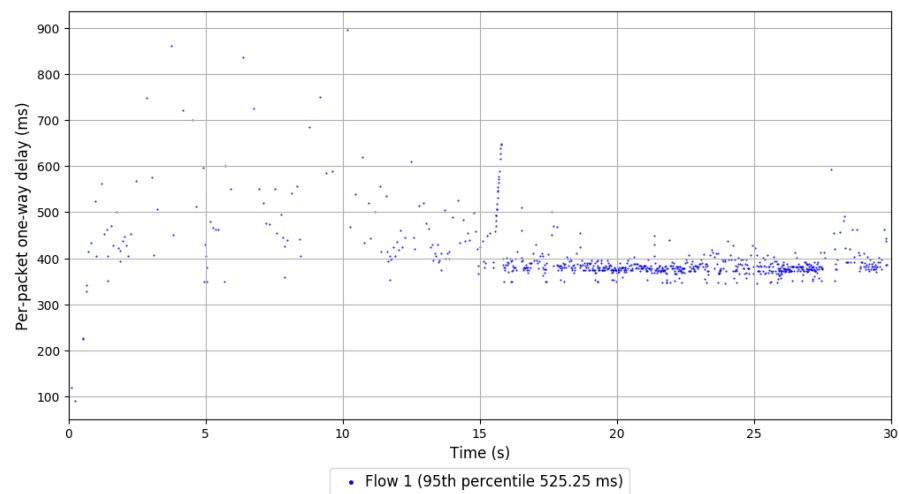
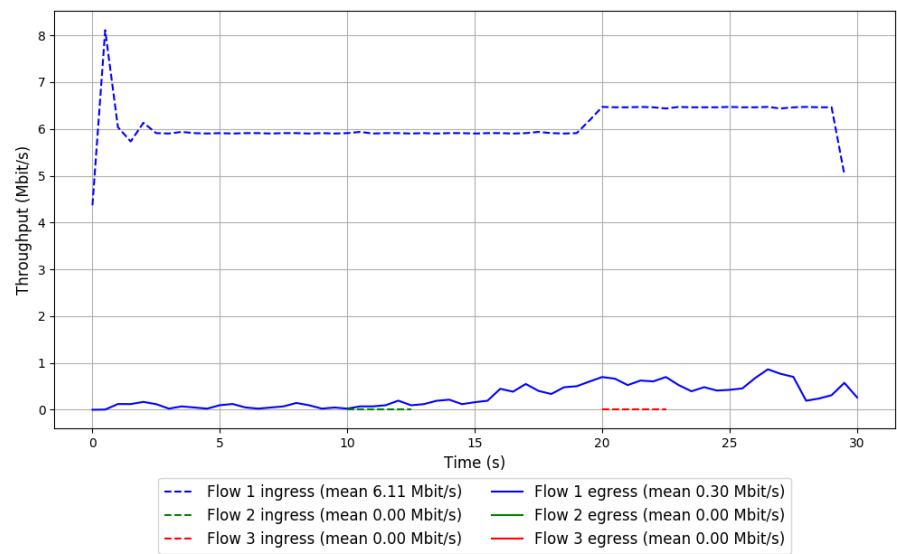
Start at: 2018-07-18 08:14:53

End at: 2018-07-18 08:15:23

Local clock offset: 2.55 ms

Remote clock offset: -10.675 ms

Run 3: Report of PCC-Expr — Data Link

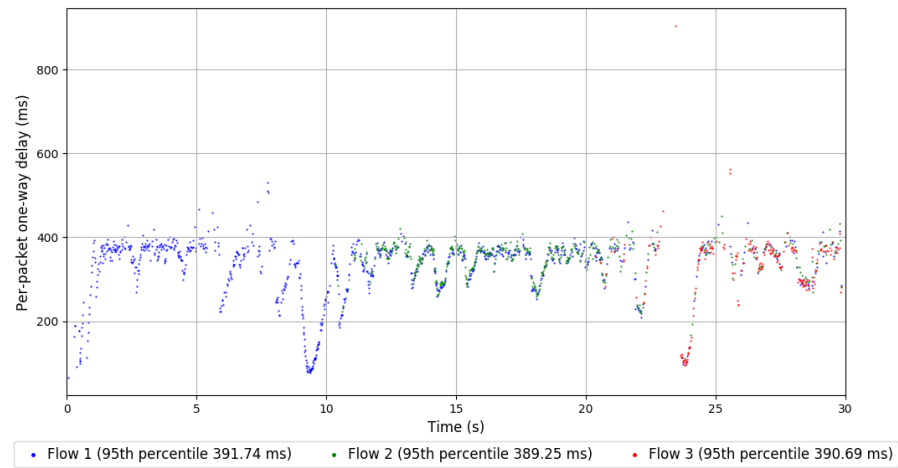
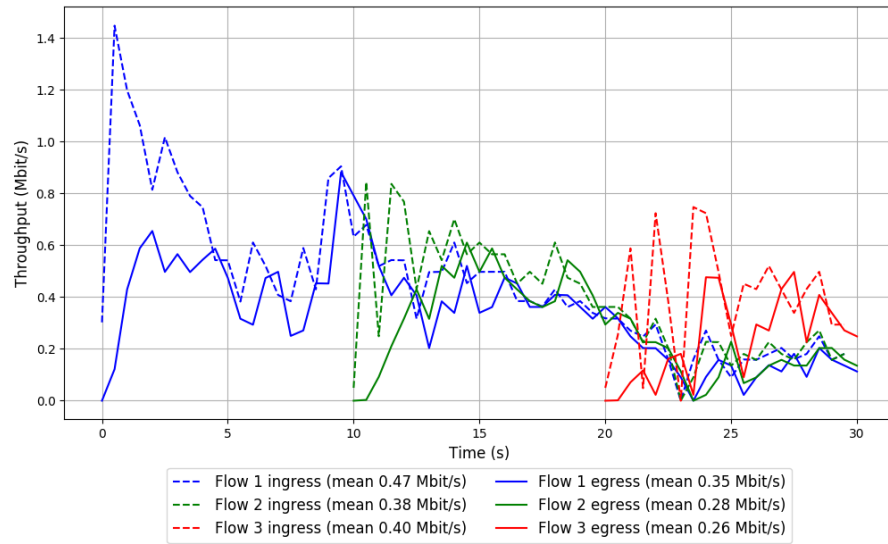


Run 1: Statistics of QUIC Cubic

Start at: 2018-07-18 07:38:28
End at: 2018-07-18 07:38:58
Local clock offset: 2.959 ms
Remote clock offset: -7.064 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 391.566 ms
Loss rate: 27.75%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 391.741 ms
Loss rate: 25.65%
-- Flow 2:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 389.249 ms
Loss rate: 25.97%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 390.690 ms
Loss rate: 38.41%

Run 1: Report of QUIC Cubic — Data Link

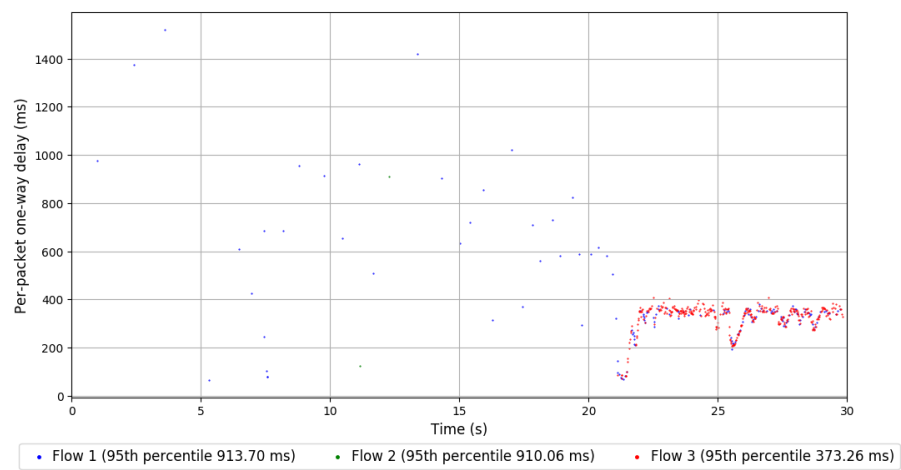
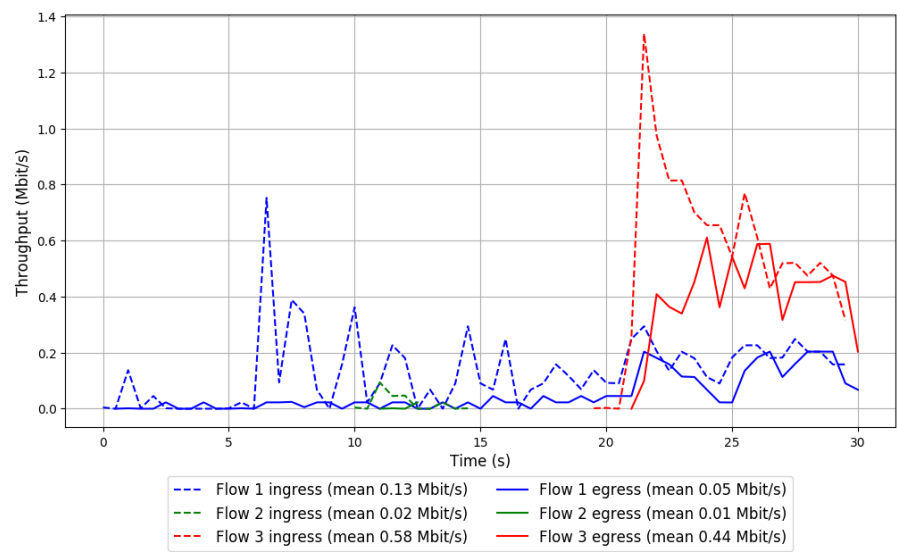


Run 2: Statistics of QUIC Cubic

Start at: 2018-07-18 07:57:20
End at: 2018-07-18 07:57:50
Local clock offset: -0.599 ms
Remote clock offset: -6.824 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 580.149 ms
Loss rate: 45.25%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 913.701 ms
Loss rate: 60.91%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 910.061 ms
Loss rate: 88.75%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 373.263 ms
Loss rate: 33.41%

Run 2: Report of QUIC Cubic — Data Link

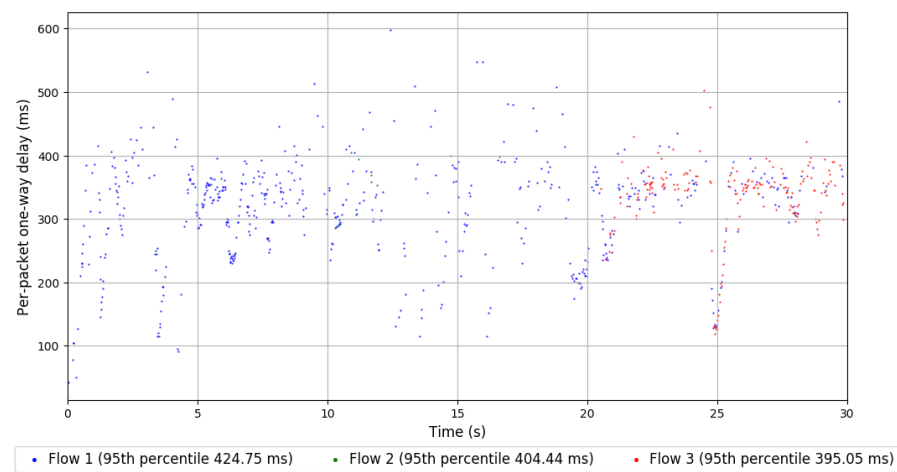
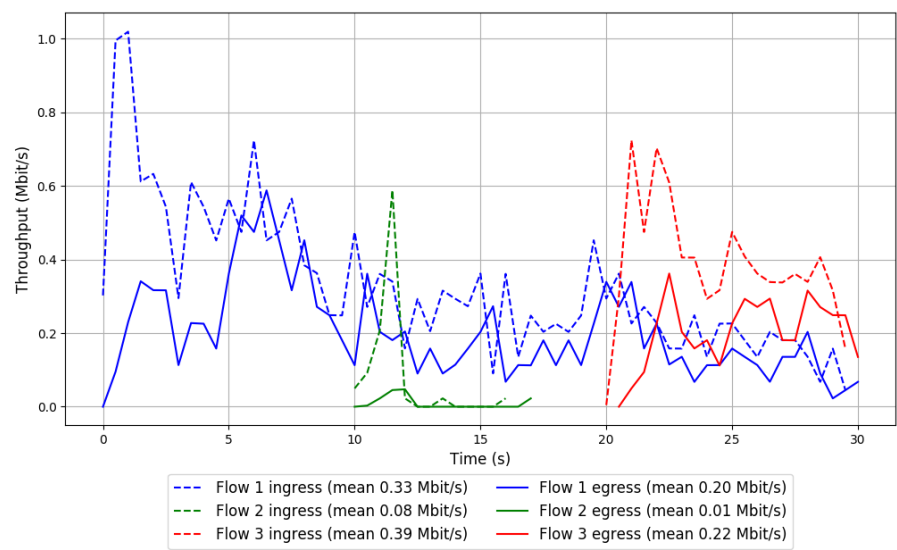


Run 3: Statistics of QUIC Cubic

Start at: 2018-07-18 08:16:00
End at: 2018-07-18 08:16:30
Local clock offset: -0.568 ms
Remote clock offset: -6.781 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 414.576 ms
Loss rate: 42.67%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 424.746 ms
Loss rate: 38.53%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 404.437 ms
Loss rate: 85.99%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 395.047 ms
Loss rate: 47.64%

Run 3: Report of QUIC Cubic — Data Link

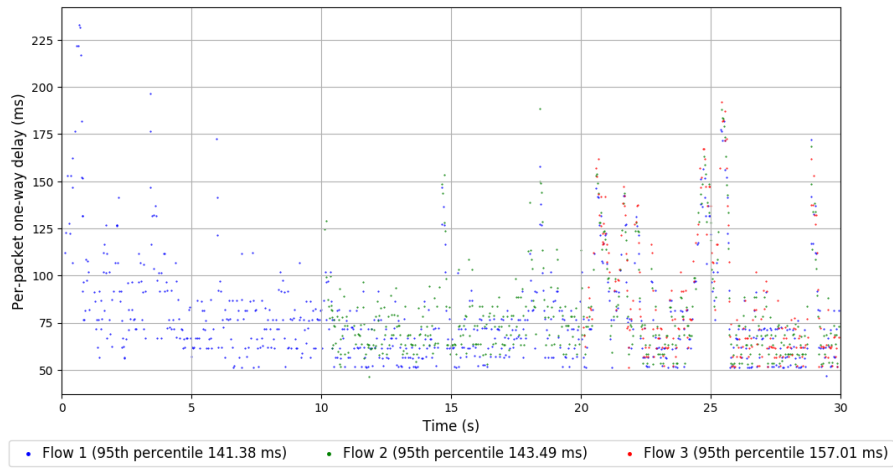
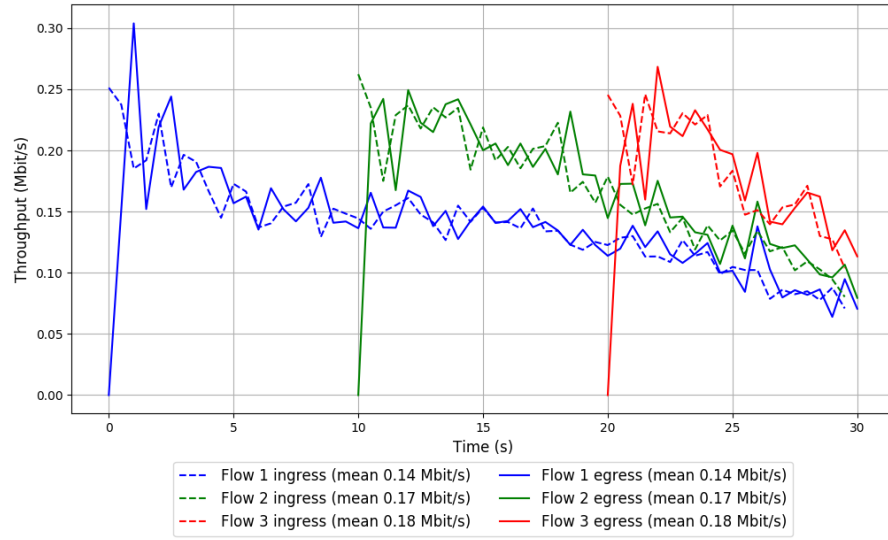


Run 1: Statistics of SCReAM

Start at: 2018-07-18 07:47:14
End at: 2018-07-18 07:47:44
Local clock offset: -0.922 ms
Remote clock offset: -6.368 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 143.972 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 141.381 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 143.488 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 157.010 ms
Loss rate: 0.49%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-07-18 08:06:09

End at: 2018-07-18 08:06:39

Local clock offset: 1.38 ms

Remote clock offset: -9.93 ms

Below is generated by plot.py at 2018-07-18 08:31:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.33 Mbit/s

95th percentile per-packet one-way delay: 133.507 ms

Loss rate: 0.23%

-- Flow 1:

Average throughput: 0.16 Mbit/s

95th percentile per-packet one-way delay: 120.729 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 0.19 Mbit/s

95th percentile per-packet one-way delay: 136.077 ms

Loss rate: 0.22%

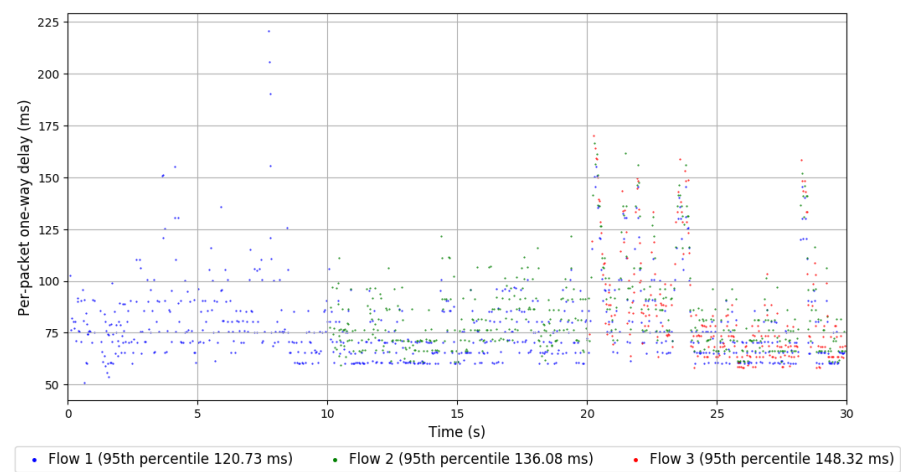
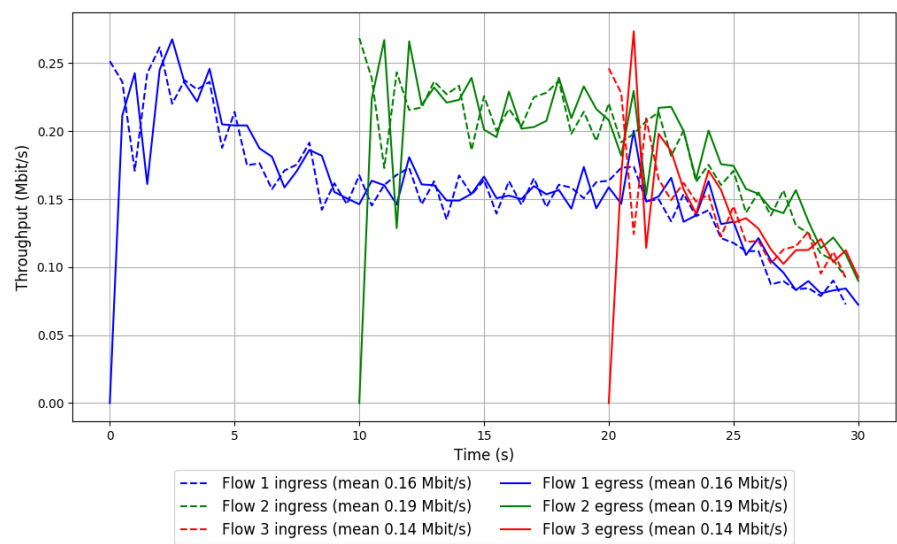
-- Flow 3:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 148.323 ms

Loss rate: 0.55%

Run 2: Report of SReAM — Data Link

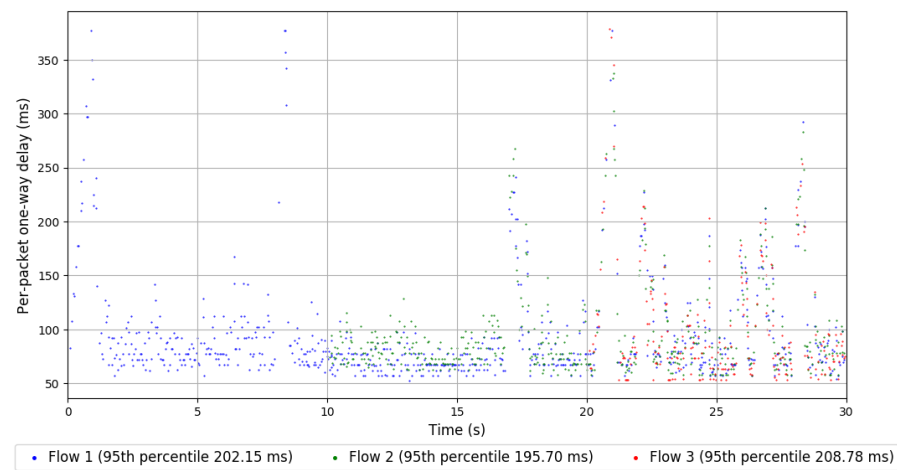
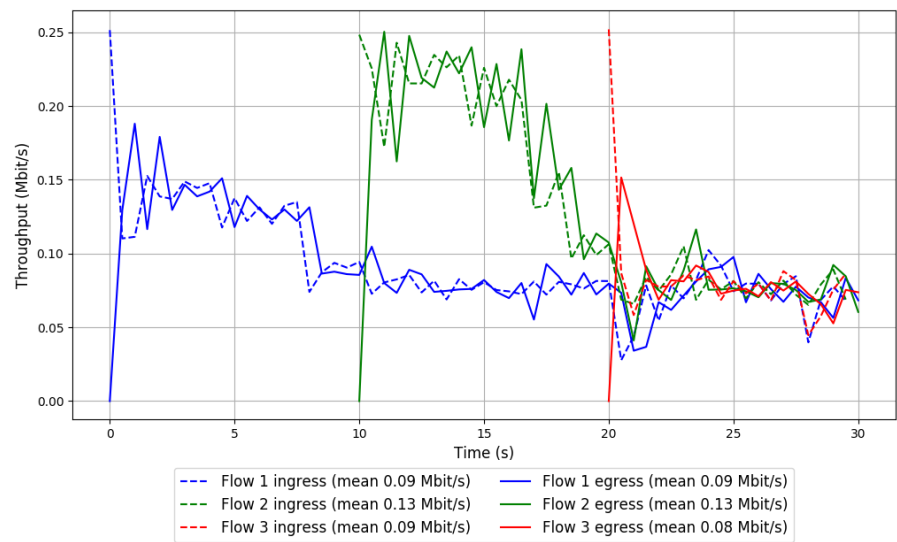


Run 3: Statistics of SCReAM

Start at: 2018-07-18 08:24:43
End at: 2018-07-18 08:25:13
Local clock offset: -0.382 ms
Remote clock offset: -9.736 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 202.172 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 202.153 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 195.702 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 208.785 ms
Loss rate: 2.80%

Run 3: Report of SReAM — Data Link



Run 1: Statistics of Sprout

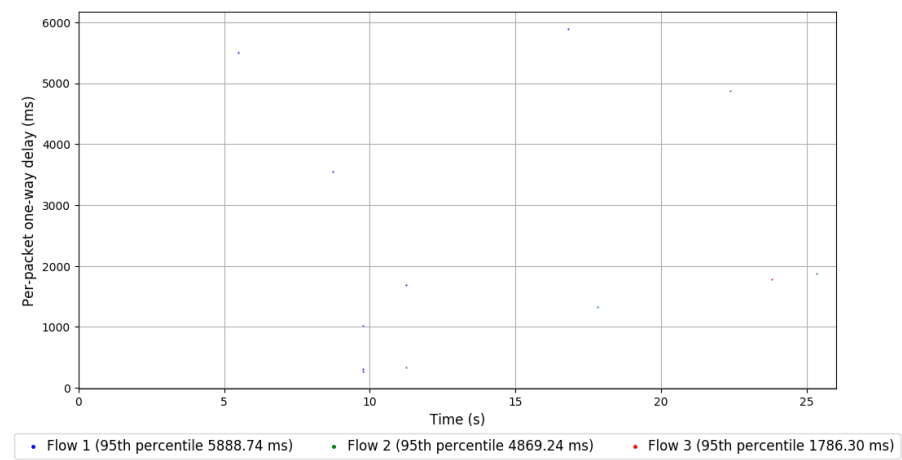
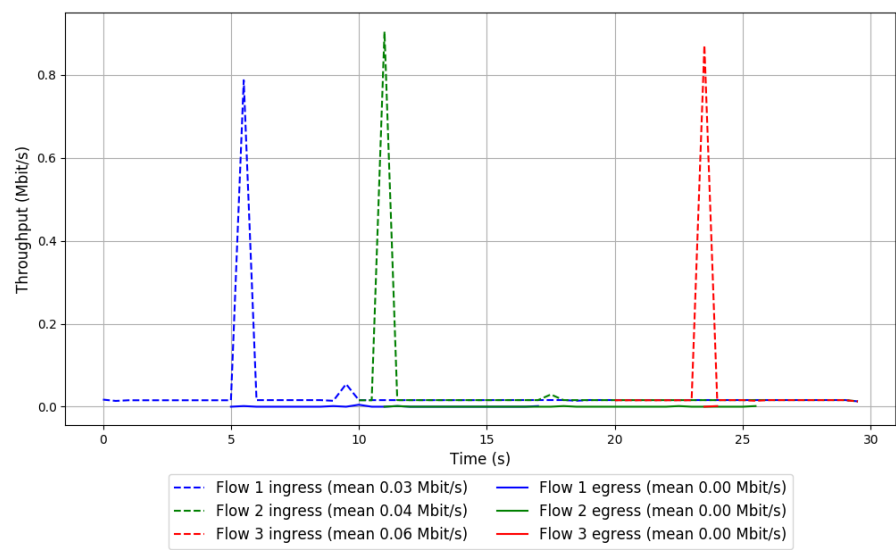
Start at: 2018-07-18 07:52:44

End at: 2018-07-18 07:53:14

Local clock offset: 3.576 ms

Remote clock offset: -6.002 ms

Run 1: Report of Sprout — Data Link

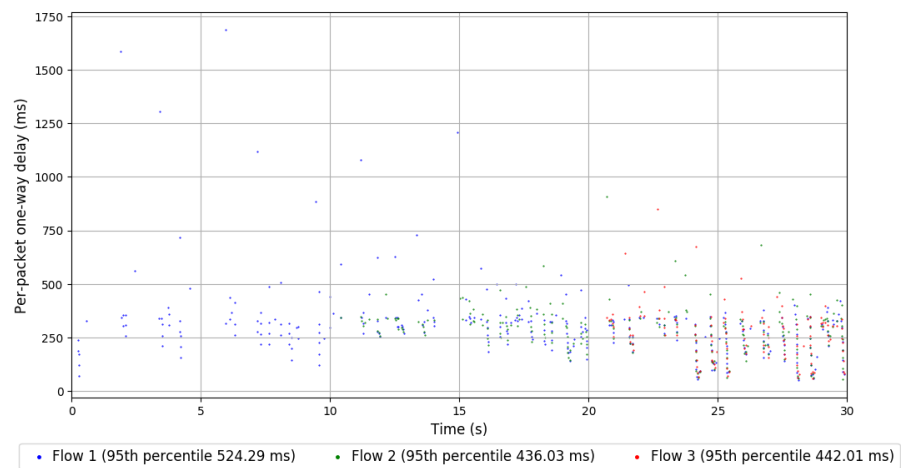
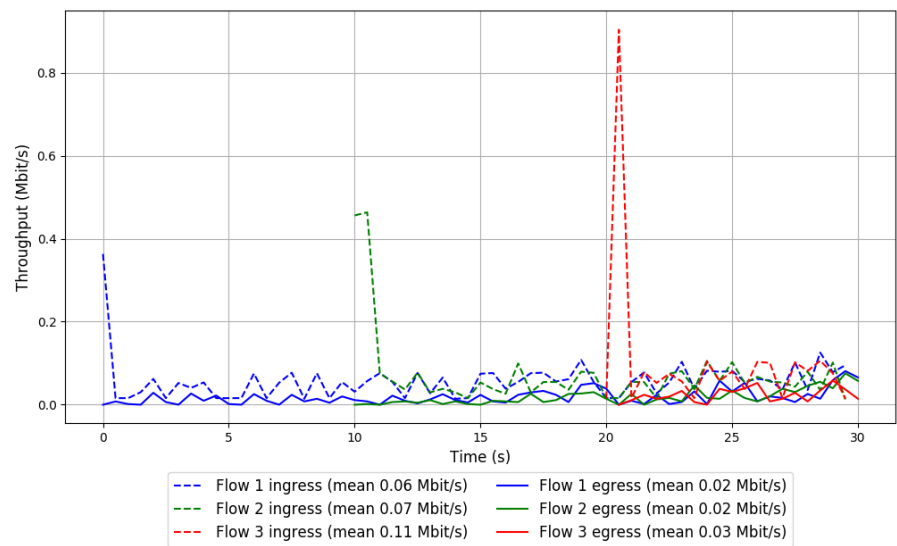


Run 2: Statistics of Sprout

Start at: 2018-07-18 08:11:37
End at: 2018-07-18 08:12:07
Local clock offset: -0.42 ms
Remote clock offset: -11.142 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 476.599 ms
Loss rate: 72.18%
-- Flow 1:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 524.286 ms
Loss rate: 67.56%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 436.028 ms
Loss rate: 73.89%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 442.009 ms
Loss rate: 77.46%

Run 2: Report of Sprout — Data Link

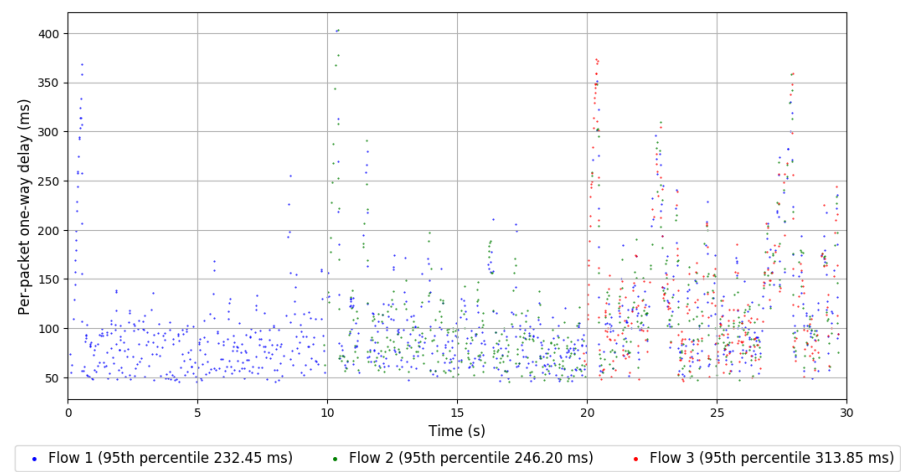
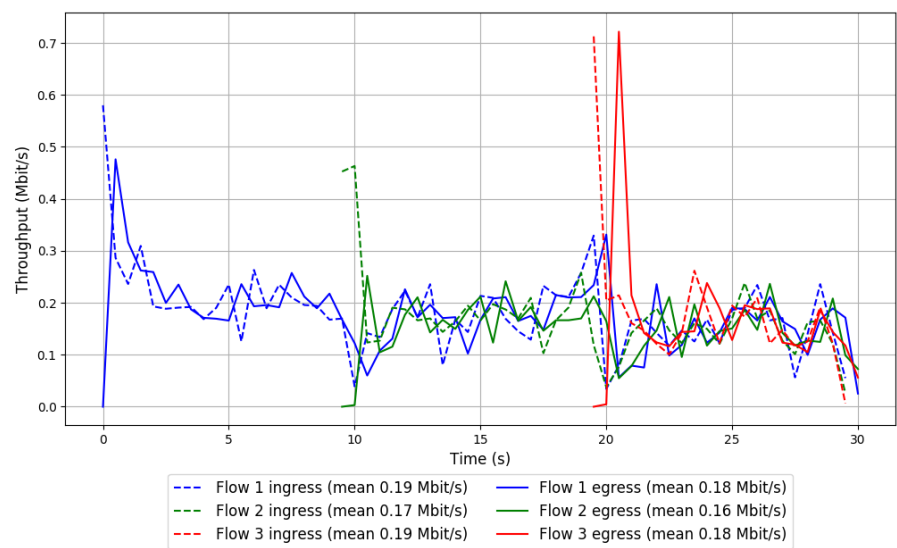


Run 3: Statistics of Sprout

Start at: 2018-07-18 08:30:11
End at: 2018-07-18 08:30:41
Local clock offset: 2.556 ms
Remote clock offset: -10.771 ms

```
# Below is generated by plot.py at 2018-07-18 08:31:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 256.823 ms
Loss rate: 4.70%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 232.446 ms
Loss rate: 1.32%
-- Flow 2:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 246.201 ms
Loss rate: 9.88%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 313.848 ms
Loss rate: 5.09%
```

Run 3: Report of Sprout — Data Link

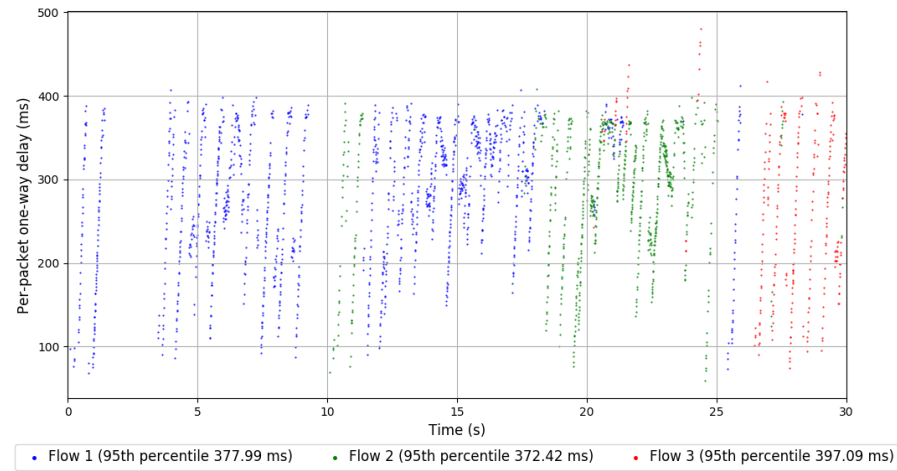
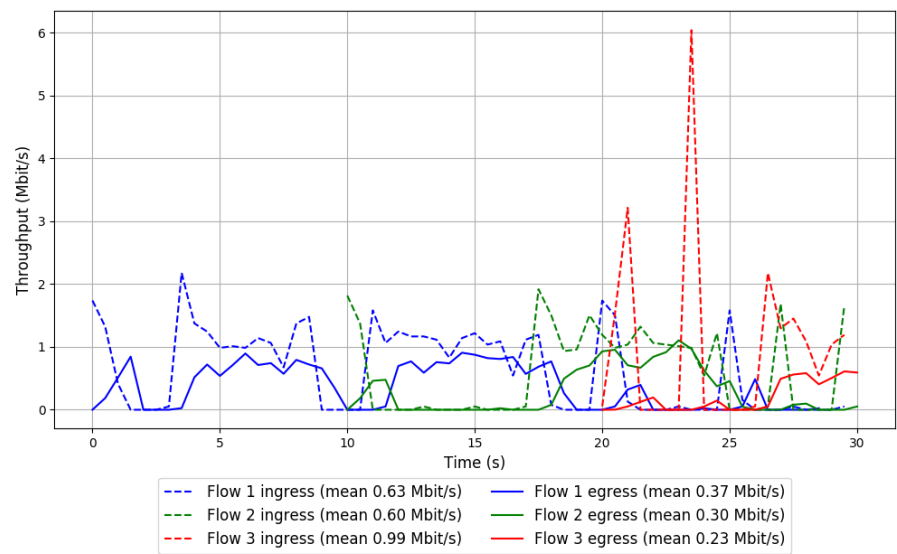


Run 1: Statistics of TaoVA-100x

Start at: 2018-07-18 07:41:45
End at: 2018-07-18 07:42:15
Local clock offset: 0.928 ms
Remote clock offset: -6.604 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 378.045 ms
Loss rate: 54.31%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 377.991 ms
Loss rate: 44.58%
-- Flow 2:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 372.421 ms
Loss rate: 50.40%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 397.093 ms
Loss rate: 77.79%

Run 1: Report of TaoVA-100x — Data Link

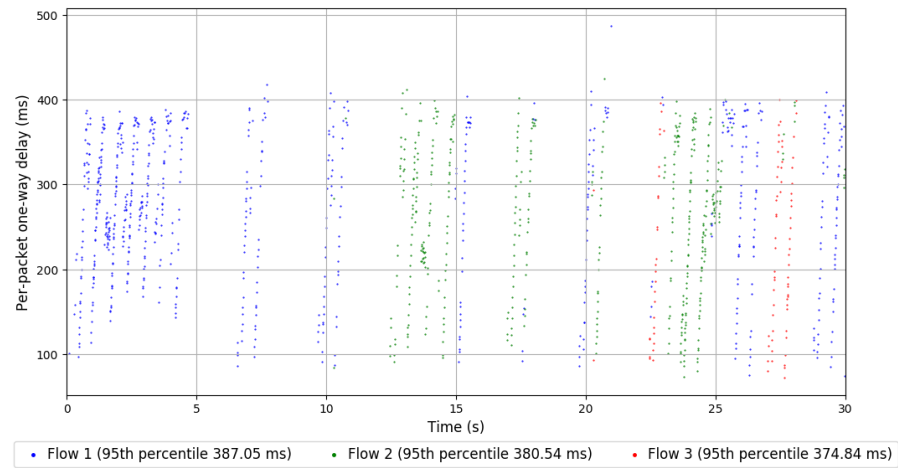
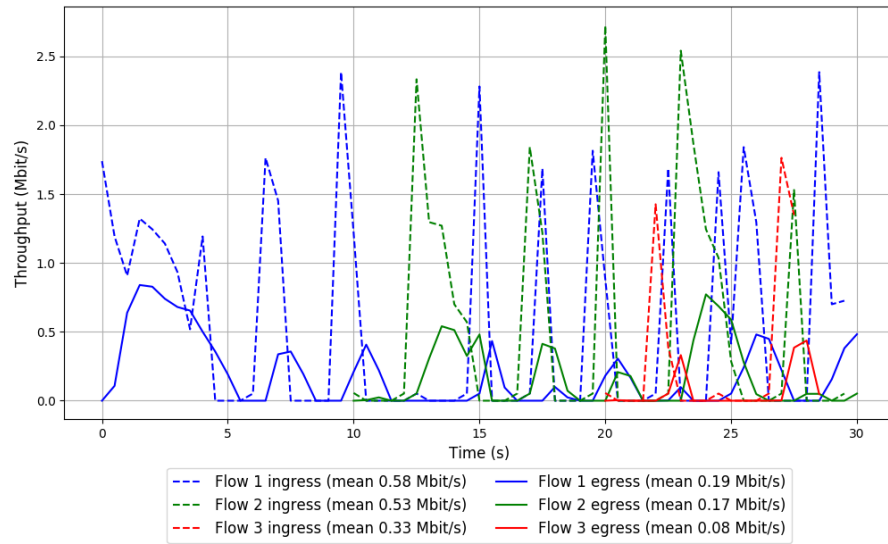


Run 2: Statistics of TaoVA-100x

Start at: 2018-07-18 08:00:35
End at: 2018-07-18 08:01:05
Local clock offset: -2.264 ms
Remote clock offset: -7.817 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 384.527 ms
Loss rate: 68.70%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 387.048 ms
Loss rate: 67.71%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 380.535 ms
Loss rate: 68.74%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 374.843 ms
Loss rate: 75.25%

Run 2: Report of TaoVA-100x — Data Link

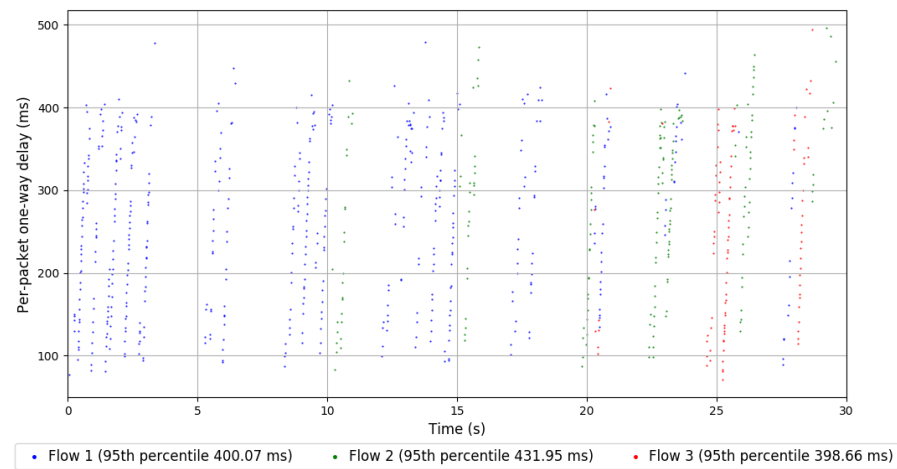
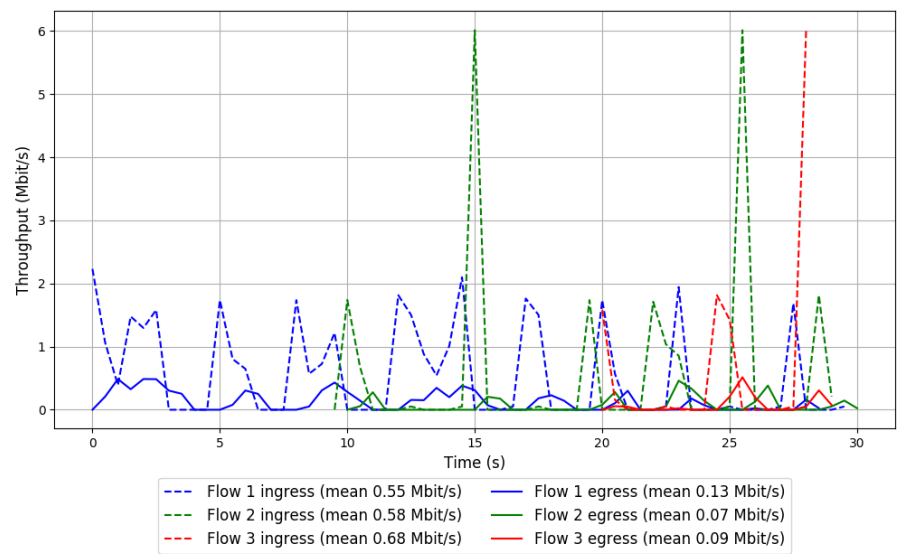


Run 3: Statistics of TaoVA-100x

Start at: 2018-07-18 08:19:17
End at: 2018-07-18 08:19:47
Local clock offset: 2.471 ms
Remote clock offset: -8.712 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 404.350 ms
Loss rate: 82.25%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 400.075 ms
Loss rate: 77.33%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 431.946 ms
Loss rate: 87.33%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 398.662 ms
Loss rate: 86.68%

Run 3: Report of TaoVA-100x — Data Link

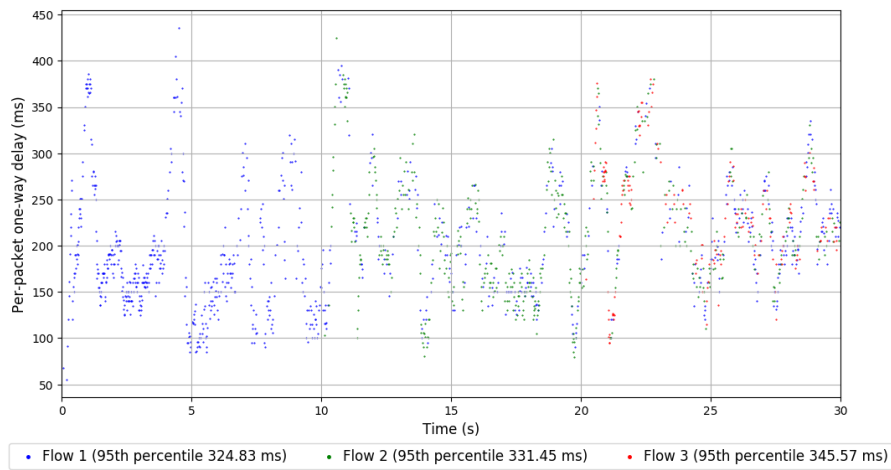
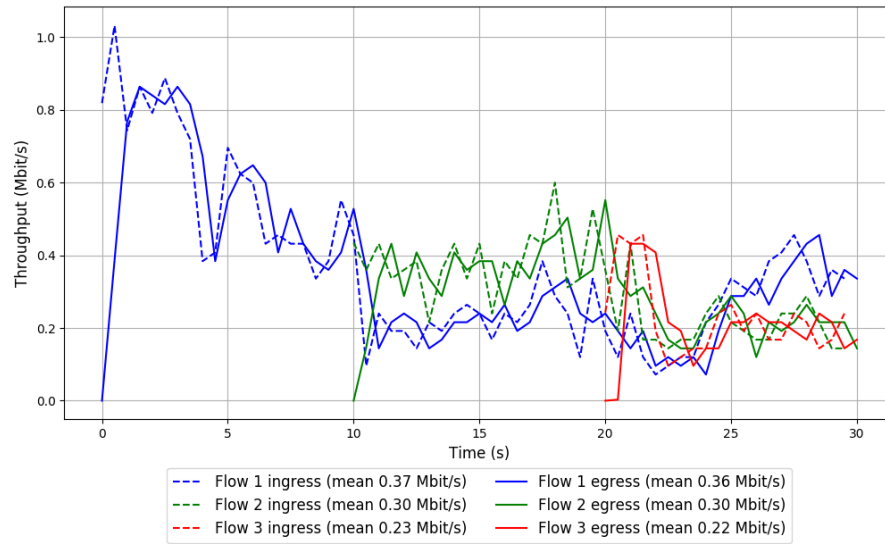


Run 1: Statistics of TCP Vegas

Start at: 2018-07-18 07:40:39
End at: 2018-07-18 07:41:09
Local clock offset: 3.967 ms
Remote clock offset: -6.884 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 335.242 ms
Loss rate: 3.03%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 324.832 ms
Loss rate: 3.02%
-- Flow 2:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 331.450 ms
Loss rate: 1.99%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 345.570 ms
Loss rate: 5.79%

Run 1: Report of TCP Vegas — Data Link

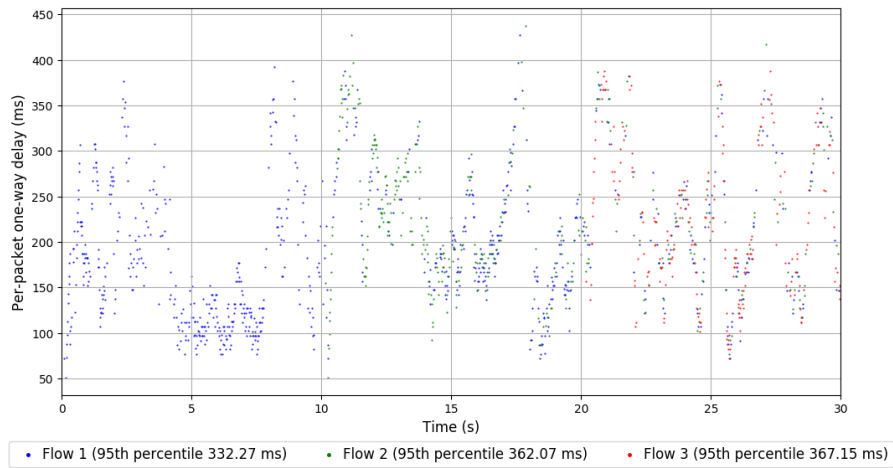
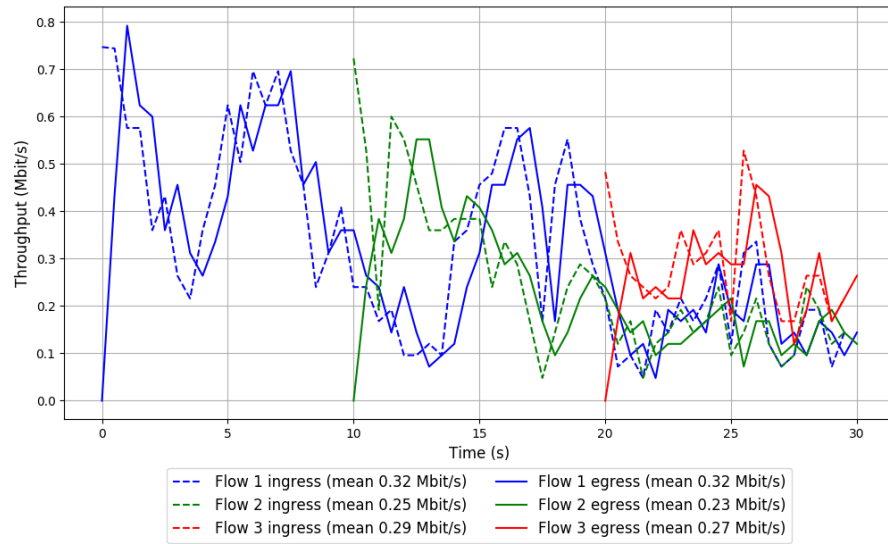


Run 2: Statistics of TCP Vegas

Start at: 2018-07-18 07:59:30
End at: 2018-07-18 08:00:00
Local clock offset: 0.655 ms
Remote clock offset: -8.043 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 352.400 ms
Loss rate: 3.83%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 332.266 ms
Loss rate: 1.60%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 362.071 ms
Loss rate: 6.76%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 367.146 ms
Loss rate: 6.27%

Run 2: Report of TCP Vegas — Data Link

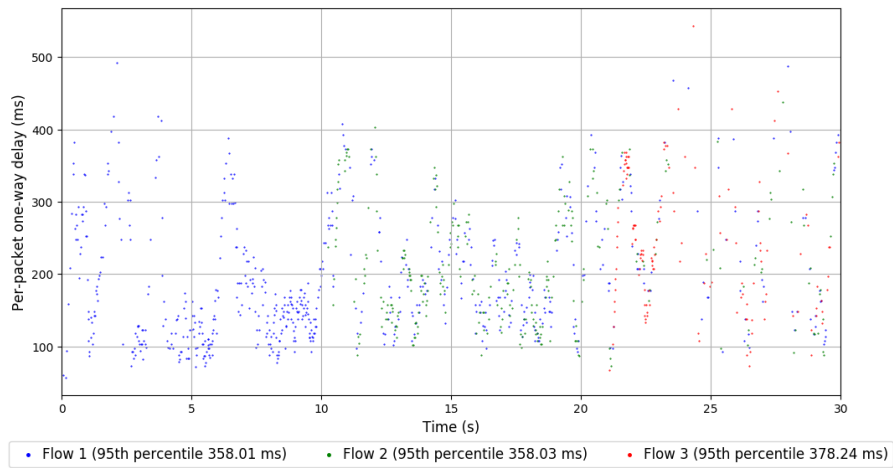
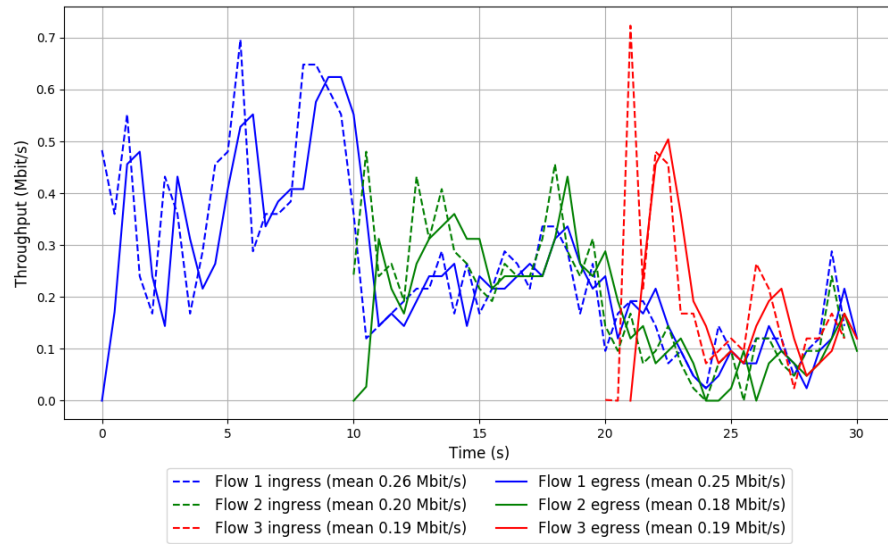


Run 3: Statistics of TCP Vegas

Start at: 2018-07-18 08:18:11
End at: 2018-07-18 08:18:41
Local clock offset: -2.742 ms
Remote clock offset: -10.087 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 363.228 ms
Loss rate: 6.73%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 358.007 ms
Loss rate: 4.00%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 358.032 ms
Loss rate: 9.87%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 378.237 ms
Loss rate: 11.57%

Run 3: Report of TCP Vegas — Data Link

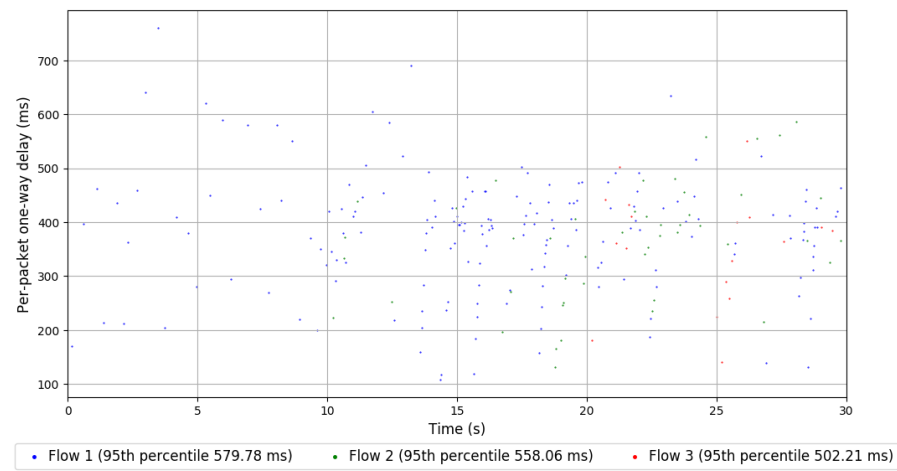
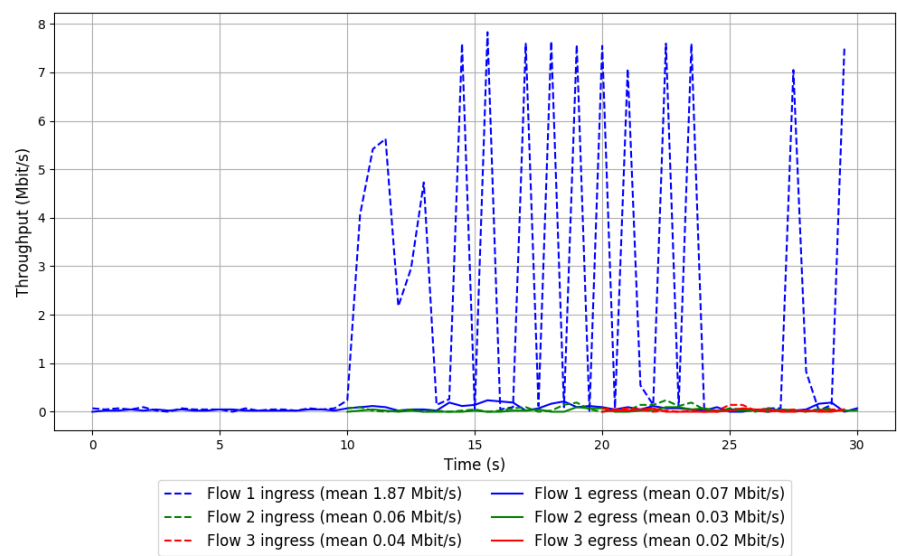


Run 1: Statistics of Verus

Start at: 2018-07-18 07:36:15
End at: 2018-07-18 07:36:45
Local clock offset: 0.272 ms
Remote clock offset: -8.172 ms

Below is generated by plot.py at 2018-07-18 08:31:16
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 558.063 ms
Loss rate: 94.99%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 579.781 ms
Loss rate: 96.23%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 558.063 ms
Loss rate: 50.53%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 502.211 ms
Loss rate: 47.06%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

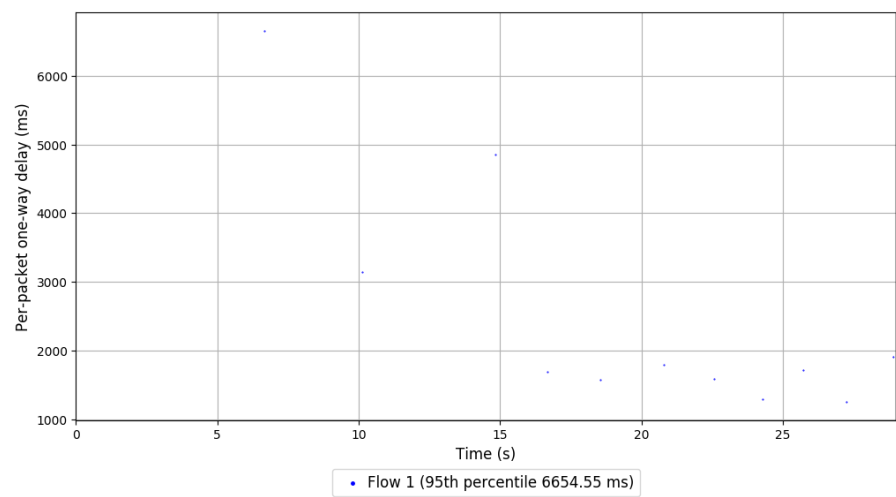
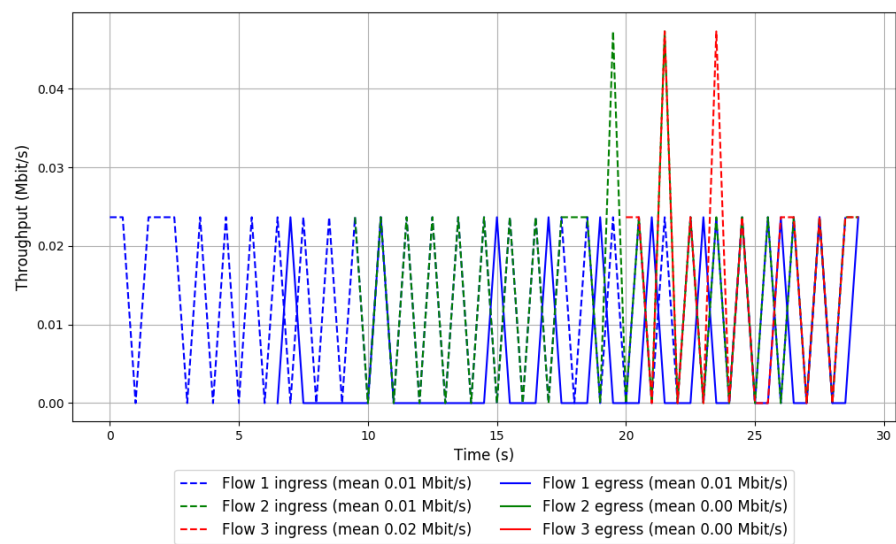
Start at: 2018-07-18 07:55:07

End at: 2018-07-18 07:55:37

Local clock offset: -4.429 ms

Remote clock offset: -6.941 ms

Run 2: Report of Verus — Data Link

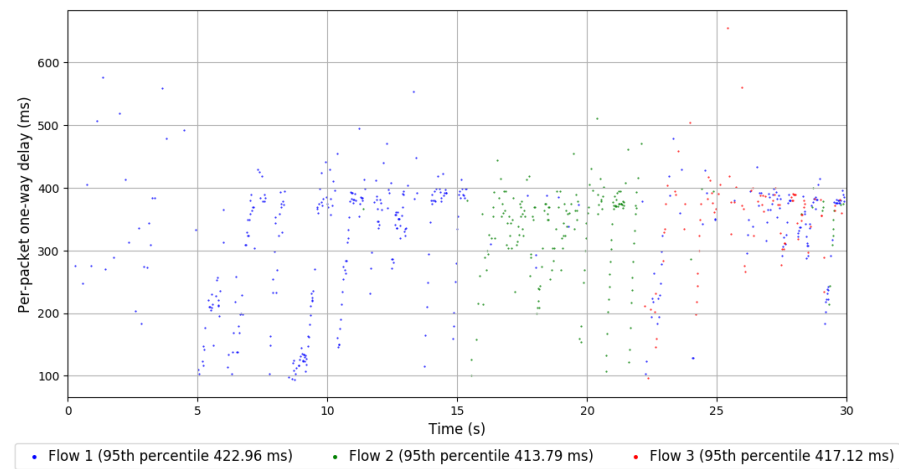
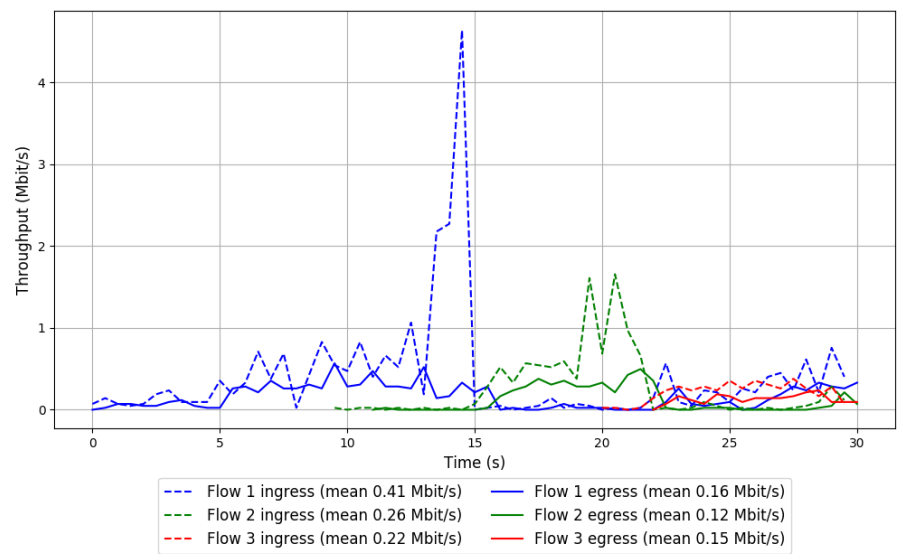


Run 3: Statistics of Verus

Start at: 2018-07-18 08:13:47
End at: 2018-07-18 08:14:17
Local clock offset: 0.285 ms
Remote clock offset: -11.338 ms

Below is generated by plot.py at 2018-07-18 08:31:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 418.326 ms
Loss rate: 57.20%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 422.957 ms
Loss rate: 59.67%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 413.793 ms
Loss rate: 55.38%
-- Flow 3:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 417.115 ms
Loss rate: 47.46%

Run 3: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

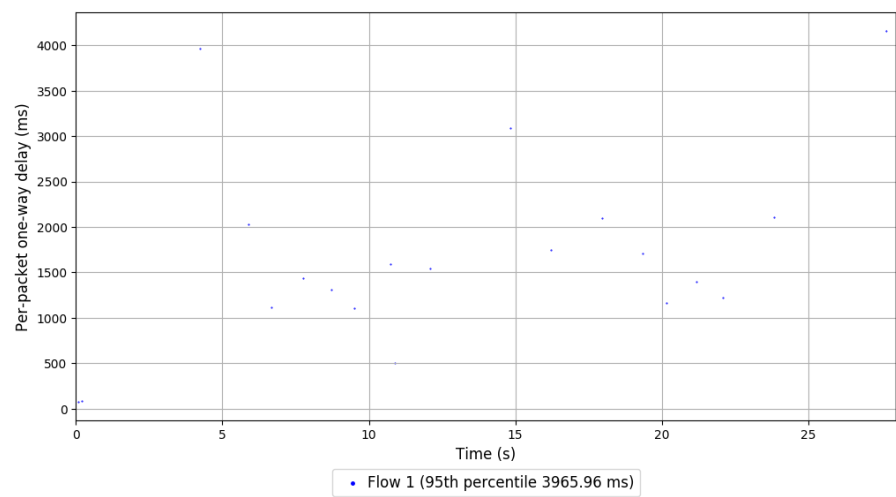
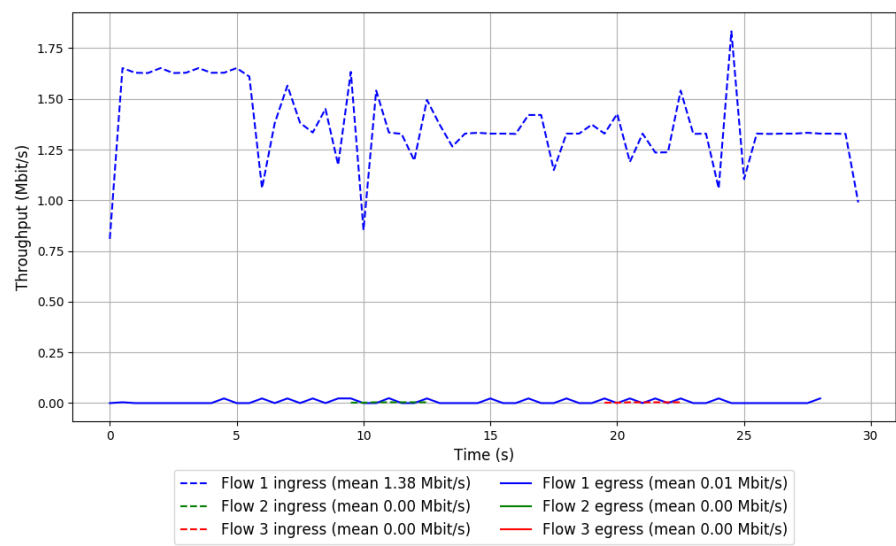
Start at: 2018-07-18 07:45:01

End at: 2018-07-18 07:45:31

Local clock offset: 2.533 ms

Remote clock offset: -8.413 ms

Run 1: Report of PCC-Vivace — Data Link

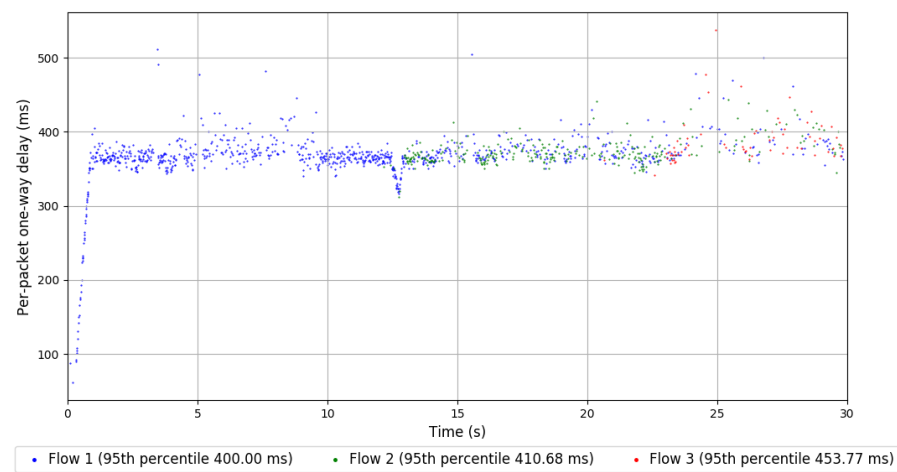
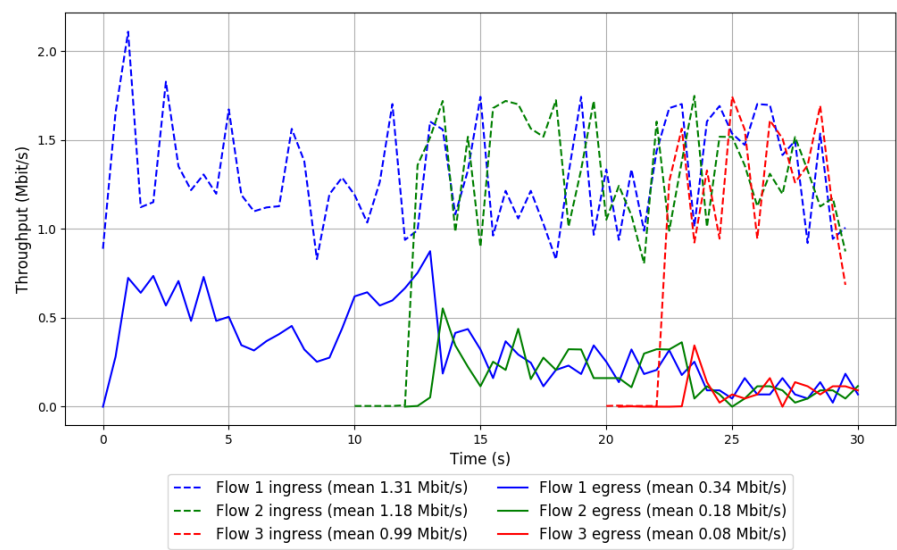


Run 2: Statistics of PCC-Vivace

Start at: 2018-07-18 08:03:57
End at: 2018-07-18 08:04:27
Local clock offset: 2.994 ms
Remote clock offset: -8.143 ms

Below is generated by plot.py at 2018-07-18 08:31:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 405.105 ms
Loss rate: 80.53%
-- Flow 1:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 400.005 ms
Loss rate: 74.08%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 410.683 ms
Loss rate: 86.40%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 453.767 ms
Loss rate: 92.33%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

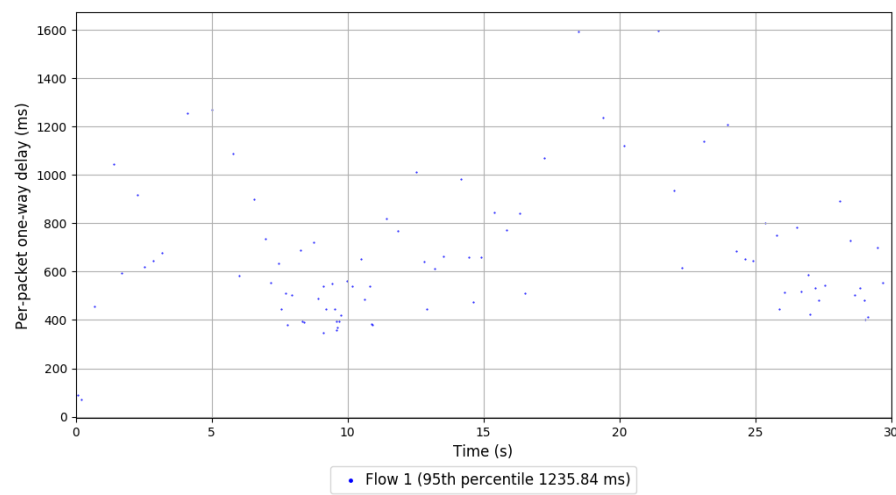
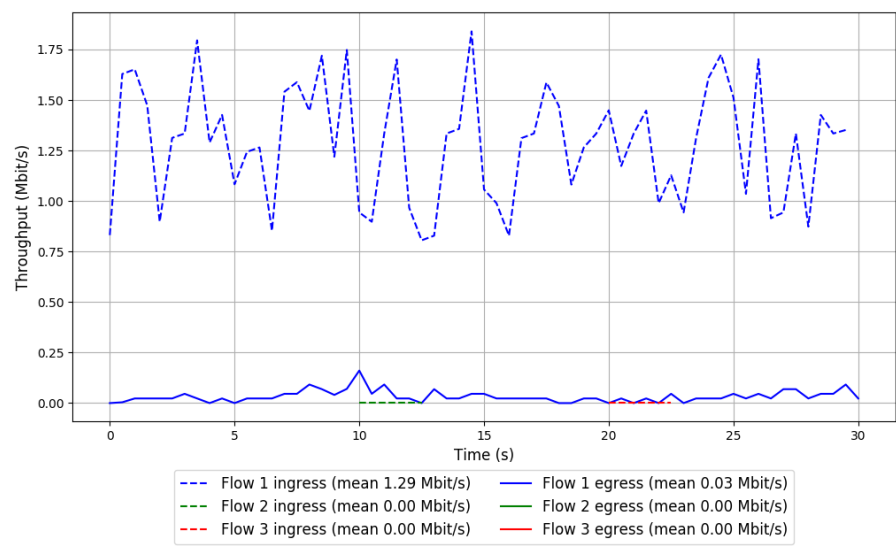
Start at: 2018-07-18 08:22:33

End at: 2018-07-18 08:23:03

Local clock offset: 1.818 ms

Remote clock offset: -10.852 ms

Run 3: Report of PCC-Vivace — Data Link

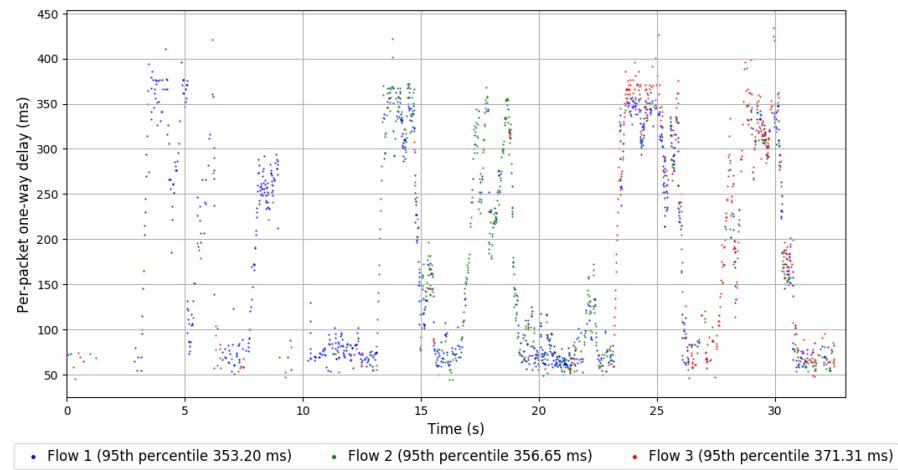
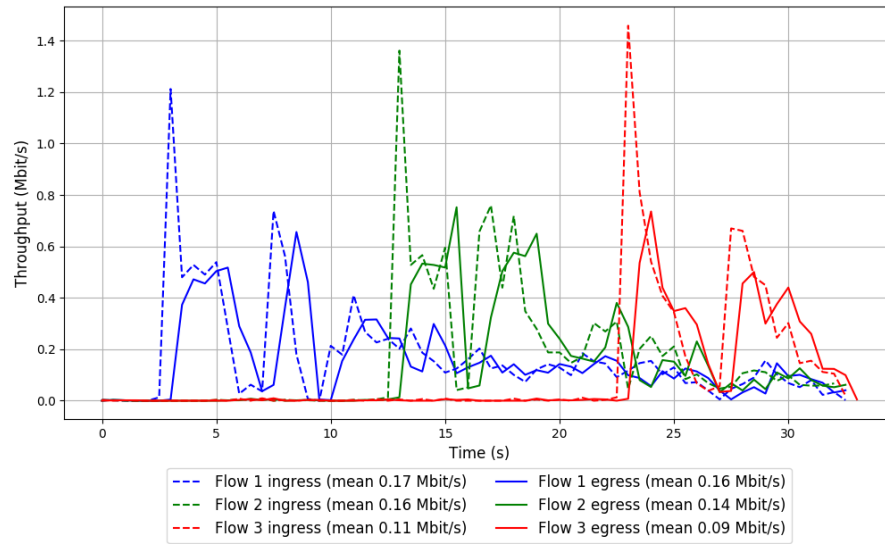


Run 1: Statistics of WebRTC media

Start at: 2018-07-18 07:42:50
End at: 2018-07-18 07:43:20
Local clock offset: 1.187 ms
Remote clock offset: -6.162 ms

Below is generated by plot.py at 2018-07-18 08:31:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 361.795 ms
Loss rate: 12.27%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 353.201 ms
Loss rate: 9.19%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 356.651 ms
Loss rate: 11.44%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 371.313 ms
Loss rate: 18.14%

Run 1: Report of WebRTC media — Data Link

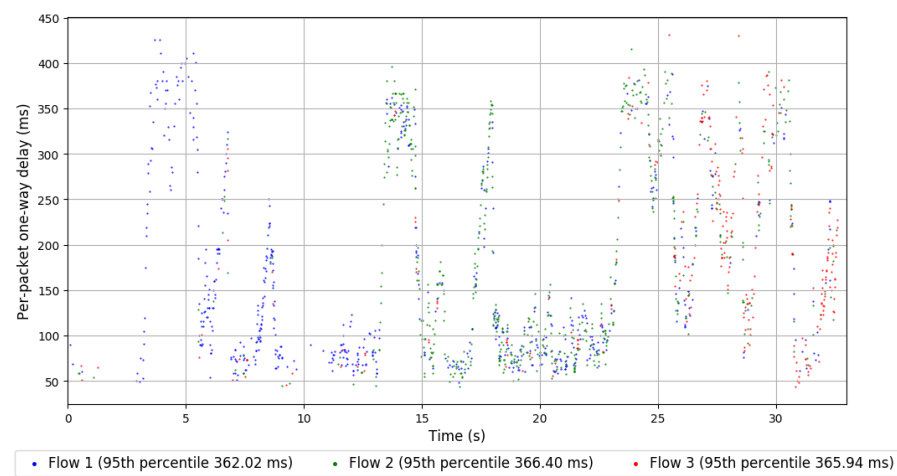
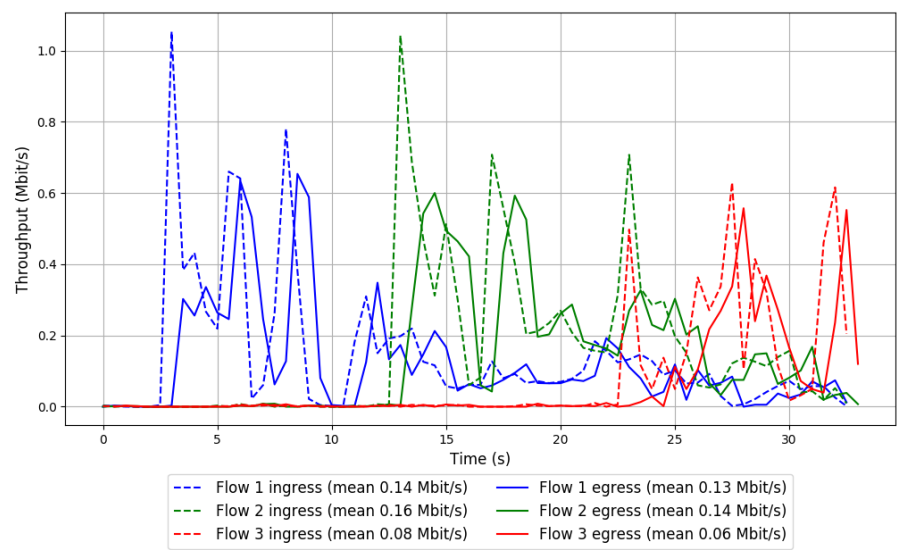


Run 2: Statistics of WebRTC media

Start at: 2018-07-18 08:01:41
End at: 2018-07-18 08:02:11
Local clock offset: 1.166 ms
Remote clock offset: -7.563 ms

Below is generated by plot.py at 2018-07-18 08:31:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 366.037 ms
Loss rate: 15.12%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 362.024 ms
Loss rate: 14.07%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 366.399 ms
Loss rate: 12.40%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 365.938 ms
Loss rate: 22.60%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-07-18 08:20:22
End at: 2018-07-18 08:20:52
Local clock offset: -2.287 ms
Remote clock offset: -9.964 ms

Below is generated by plot.py at 2018-07-18 08:31:20
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 371.819 ms
Loss rate: 20.87%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 374.490 ms
Loss rate: 21.45%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 370.154 ms
Loss rate: 20.71%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 362.504 ms
Loss rate: 18.97%

Run 3: Report of WebRTC media — Data Link

