

Pantheon Report

Generated at 2018-05-30 08:20:50 (UTC).

Data path: AWS Korea Ethernet (*local*) → China ppp0 ppp0 (*remote*).

Repeated the test of 16 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

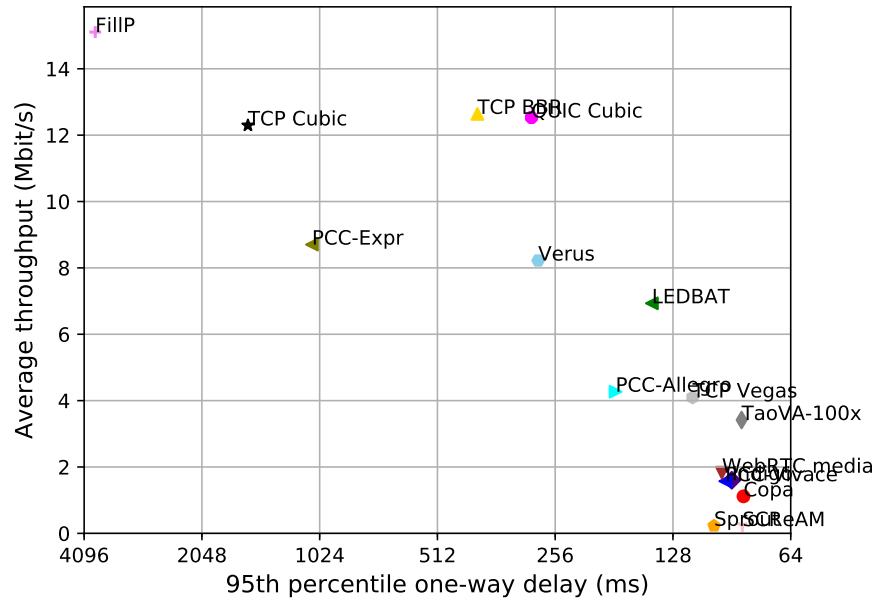
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `ntp.nict.jp` and have been applied to correct the timestamps in logs.

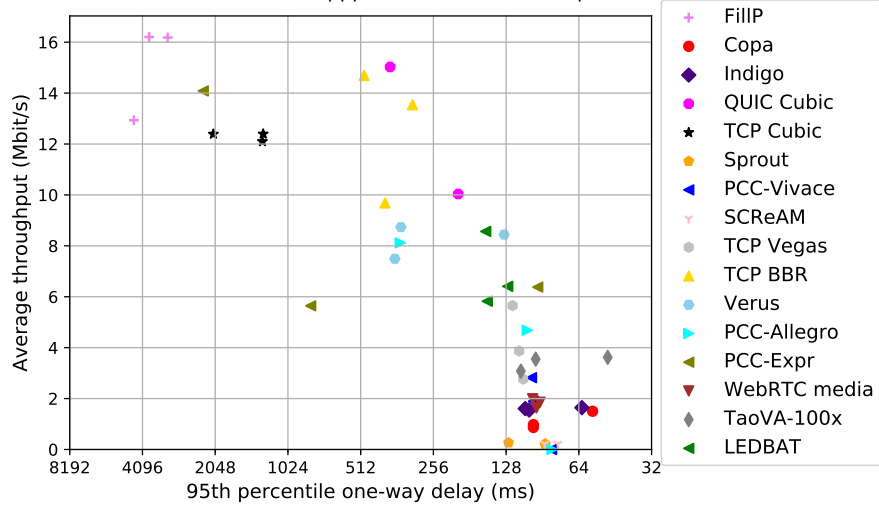
Git summary:

```
branch: master @ 227fdf9a3757f17b88537cceed5743a33037a3d2
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/genericCC @ c7966e494a929986eaa5a9c169a7f381fe1bbbe5
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 @ c838669682f0c19f6baf92afc9a596a406d48c1f
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS Korea to China ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS Korea to China ppp0, 3 runs of 30s each per scheme



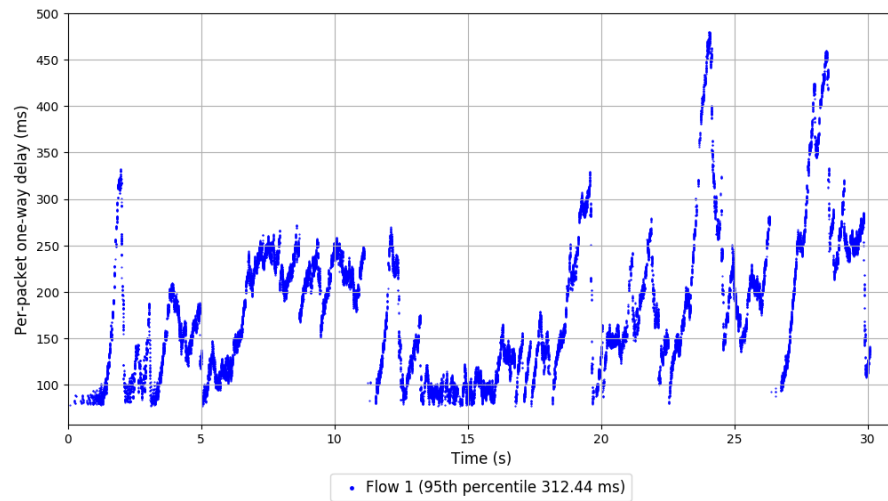
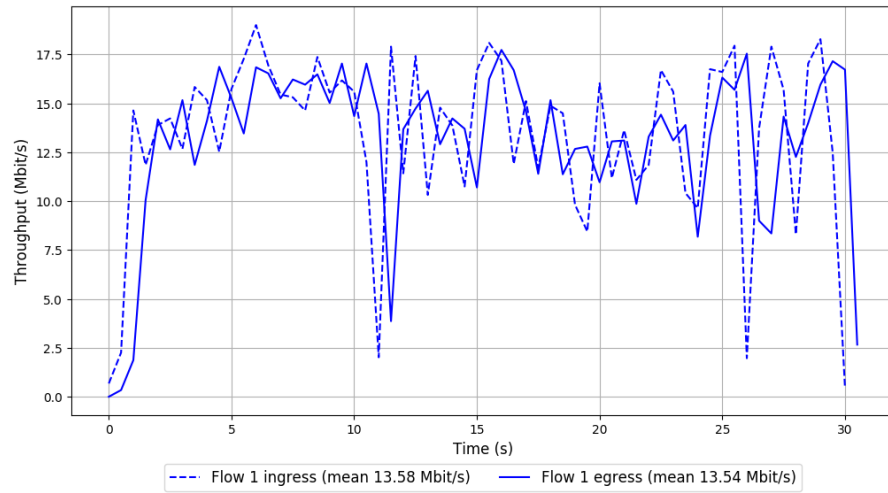
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	12.64	404.59	0.38
Copa	3	1.12	84.51	0.02
TCP Cubic	3	12.29	1562.19	2.61
FillP	3	15.10	3836.64	35.26
Indigo	3	1.60	90.55	0.00
LEDBAT	3	6.93	144.94	0.34
PCC-Allegro	3	4.27	179.44	0.04
PCC-Expr	3	8.70	1071.62	3.48
QUIC Cubic	2	12.53	294.35	0.70
SCReAM	3	0.22	85.09	0.04
Sprout	3	0.23	100.52	0.06
TaoVA-100x	3	3.42	85.45	0.08
TCP Vegas	3	4.09	114.07	0.09
Verus	3	8.22	283.06	0.27
PCC-Vivace	3	1.57	94.08	0.05
WebRTC media	3	1.83	95.97	0.07

Run 1: Statistics of TCP BBR

Start at: 2018-05-30 07:31:59
End at: 2018-05-30 07:32:29
Local clock offset: -4.461 ms
Remote clock offset: 36.464 ms

Below is generated by plot.py at 2018-05-30 08:20:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.54 Mbit/s
95th percentile per-packet one-way delay: 312.439 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 13.54 Mbit/s
95th percentile per-packet one-way delay: 312.439 ms
Loss rate: 0.32%

Run 1: Report of TCP BBR — Data Link

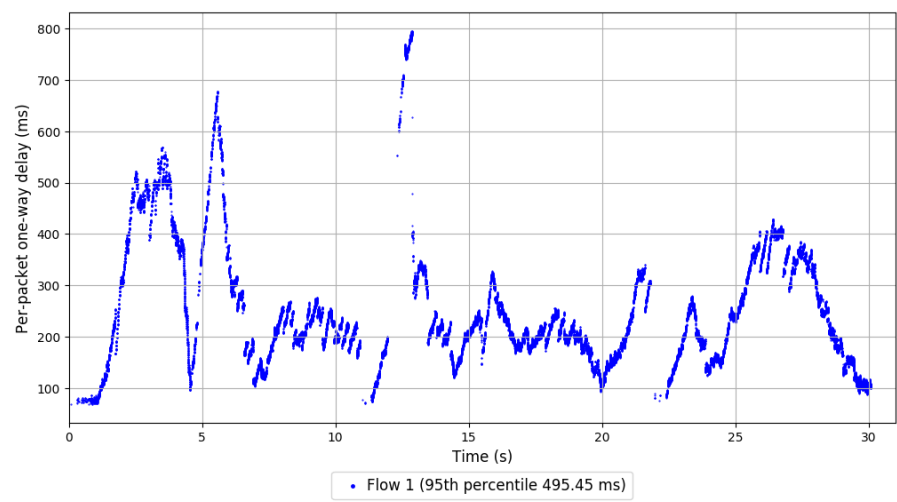
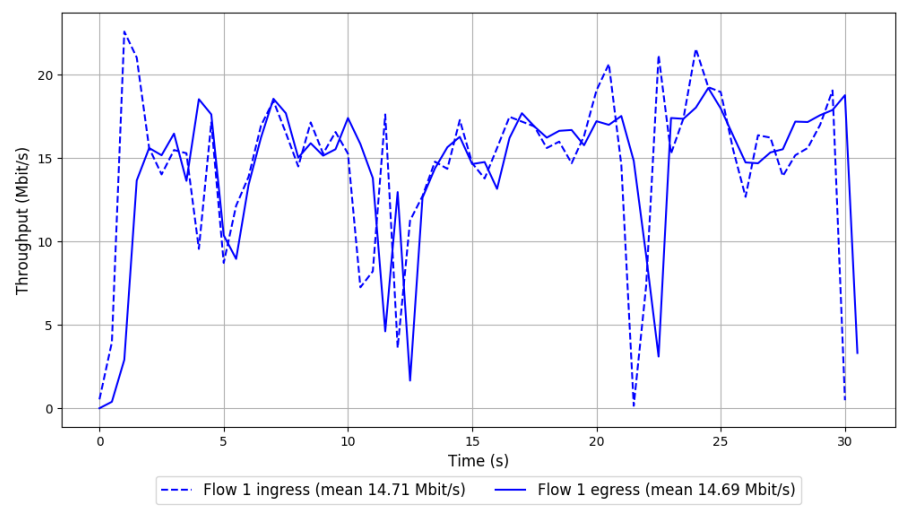


Run 2: Statistics of TCP BBR

Start at: 2018-05-30 07:52:12
End at: 2018-05-30 07:52:42
Local clock offset: 1.796 ms
Remote clock offset: 39.481 ms

Below is generated by plot.py at 2018-05-30 08:20:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 14.69 Mbit/s
95th percentile per-packet one-way delay: 495.454 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 14.69 Mbit/s
95th percentile per-packet one-way delay: 495.454 ms
Loss rate: 0.15%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-05-30 08:12:24

End at: 2018-05-30 08:12:54

Local clock offset: 3.592 ms

Remote clock offset: 39.791 ms

Below is generated by plot.py at 2018-05-30 08:20:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.68 Mbit/s

95th percentile per-packet one-way delay: 405.870 ms

Loss rate: 0.68%

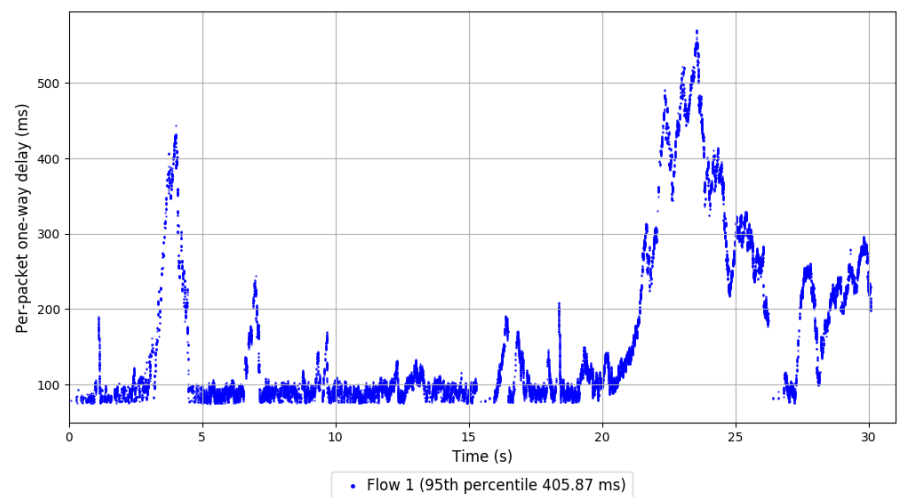
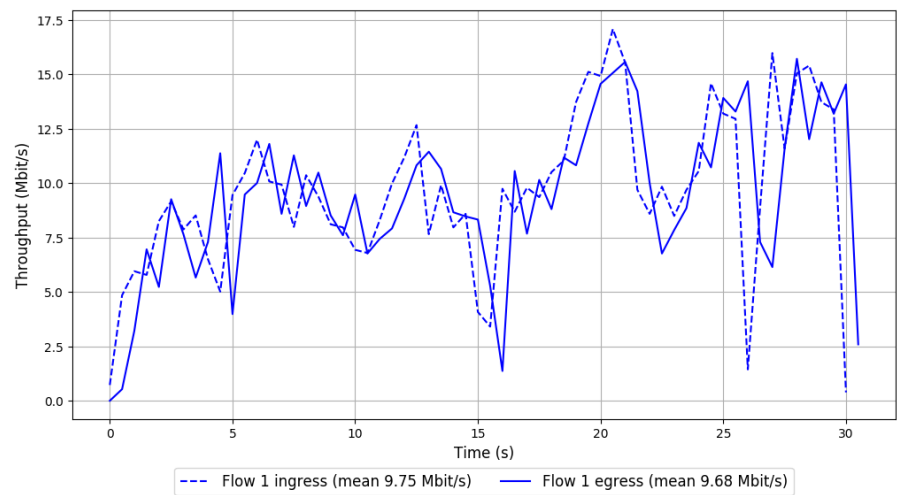
-- Flow 1:

Average throughput: 9.68 Mbit/s

95th percentile per-packet one-way delay: 405.870 ms

Loss rate: 0.68%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-05-30 07:24:19

End at: 2018-05-30 07:24:49

Local clock offset: -4.375 ms

Remote clock offset: 6.658 ms

Below is generated by plot.py at 2018-05-30 08:20:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 56.148 ms

Loss rate: 0.00%

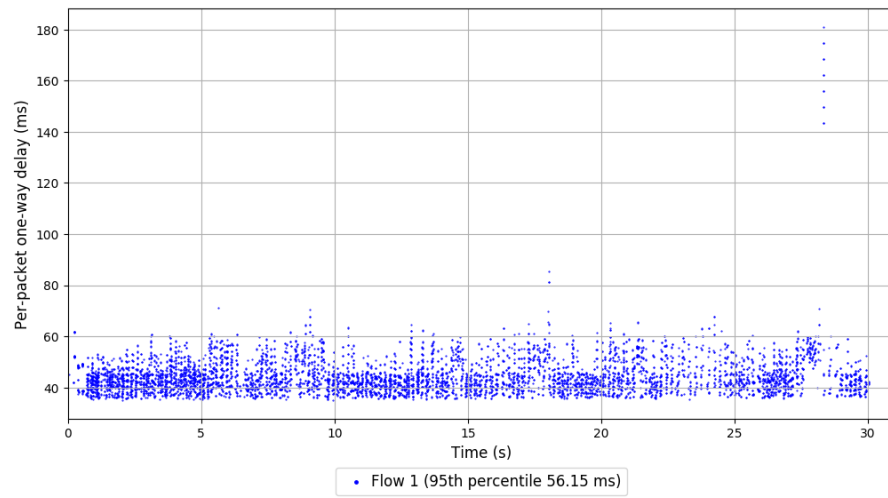
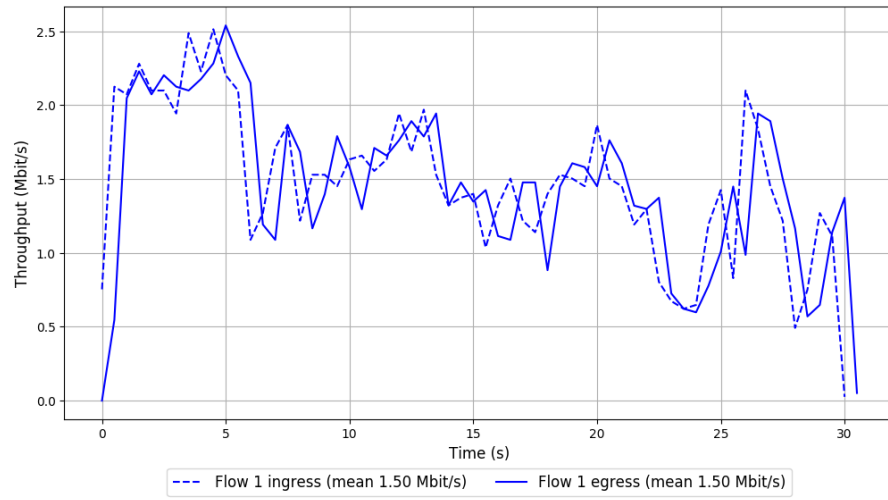
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 56.148 ms

Loss rate: 0.00%

Run 1: Report of Copa — Data Link

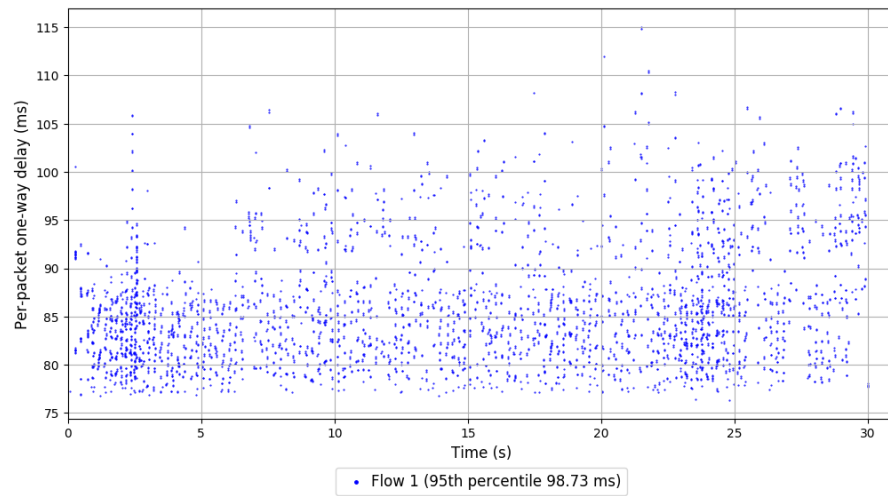
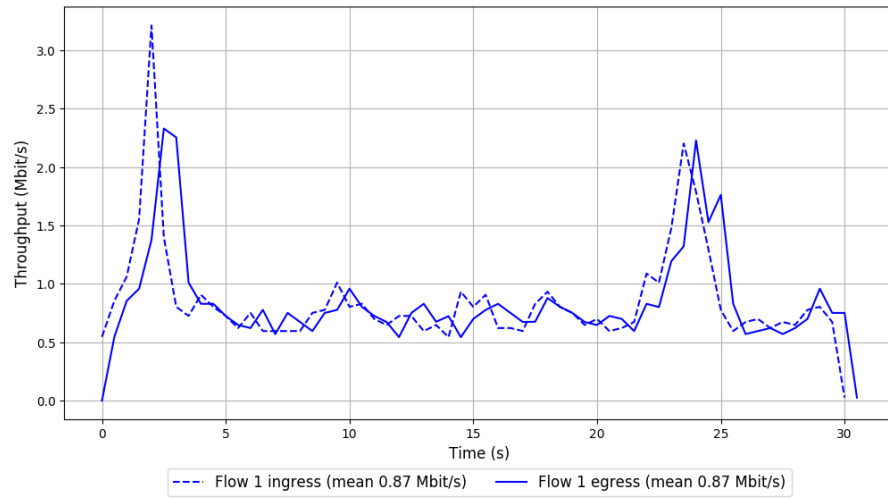


Run 2: Statistics of Copa

Start at: 2018-05-30 07:44:39
End at: 2018-05-30 07:45:09
Local clock offset: -3.849 ms
Remote clock offset: 37.359 ms

Below is generated by plot.py at 2018-05-30 08:20:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 98.726 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 98.726 ms
Loss rate: 0.05%

Run 2: Report of Copa — Data Link

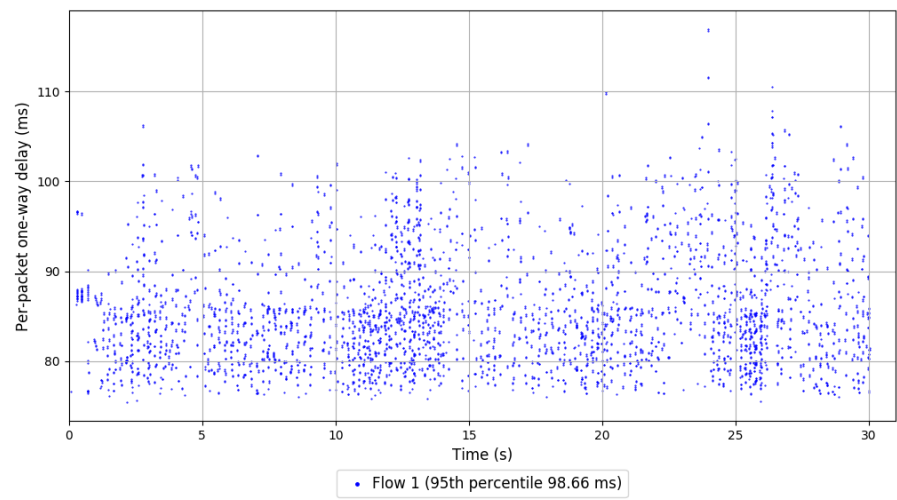
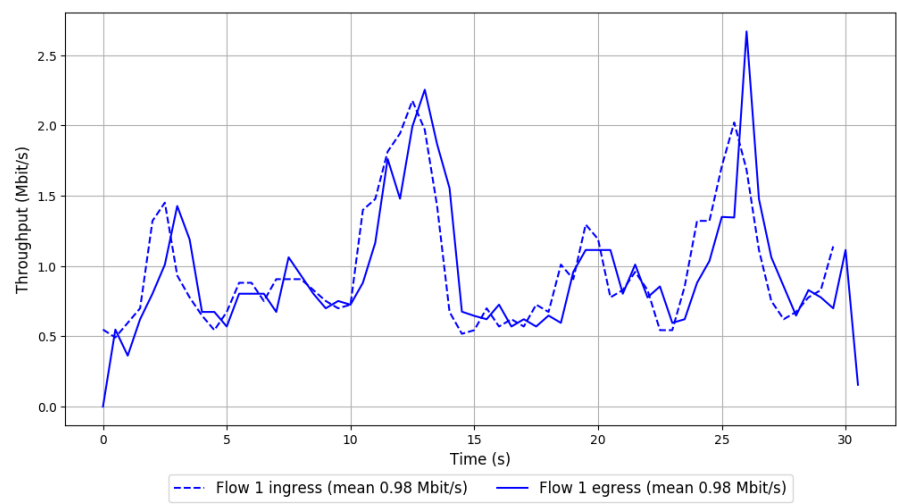


Run 3: Statistics of Copa

Start at: 2018-05-30 08:04:52
End at: 2018-05-30 08:05:22
Local clock offset: 3.781 ms
Remote clock offset: 40.026 ms

Below is generated by plot.py at 2018-05-30 08:20:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 98.655 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 98.655 ms
Loss rate: 0.00%

Run 3: Report of Copa — Data Link

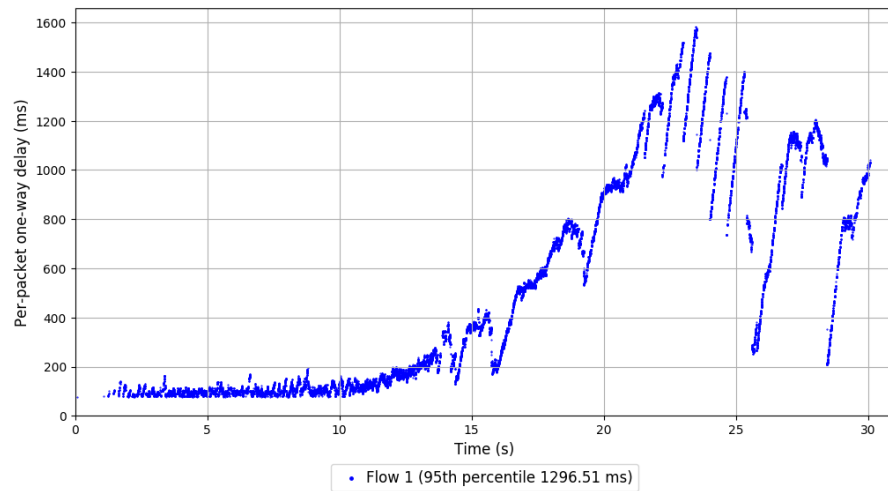
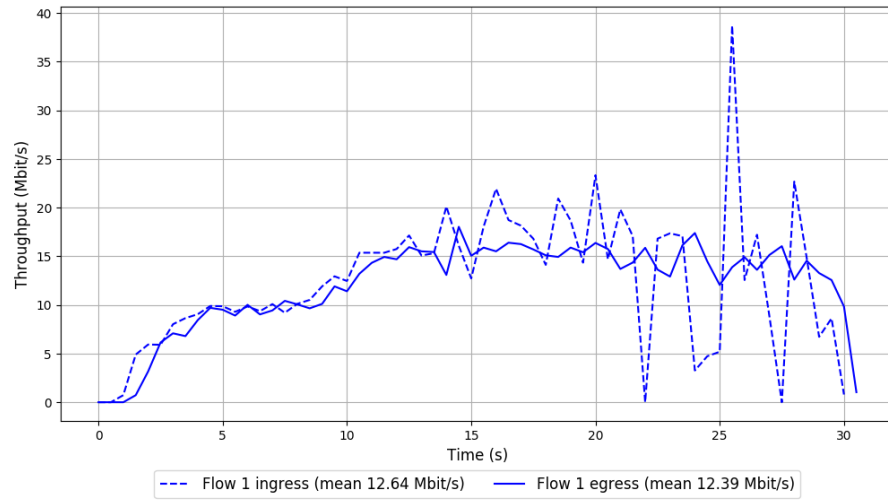


Run 1: Statistics of TCP Cubic

Start at: 2018-05-30 07:29:24
End at: 2018-05-30 07:29:54
Local clock offset: -4.164 ms
Remote clock offset: 37.079 ms

Below is generated by plot.py at 2018-05-30 08:20:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 1296.513 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 1296.513 ms
Loss rate: 1.99%

Run 1: Report of TCP Cubic — Data Link

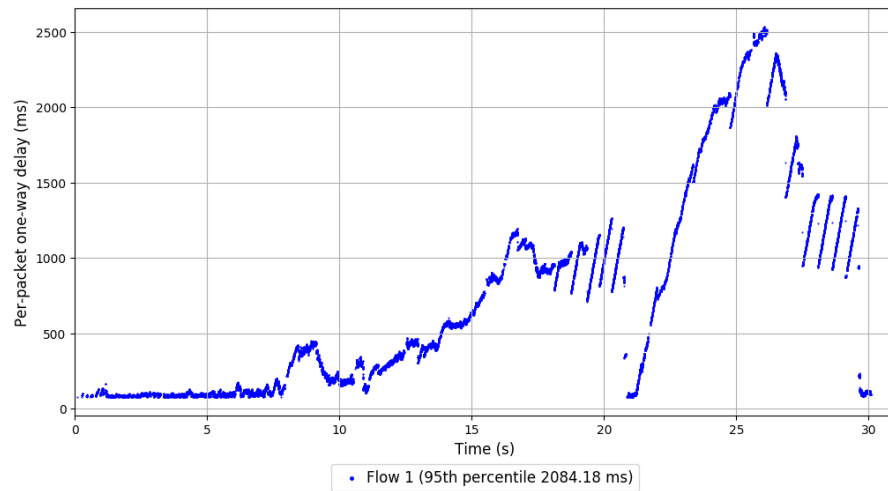
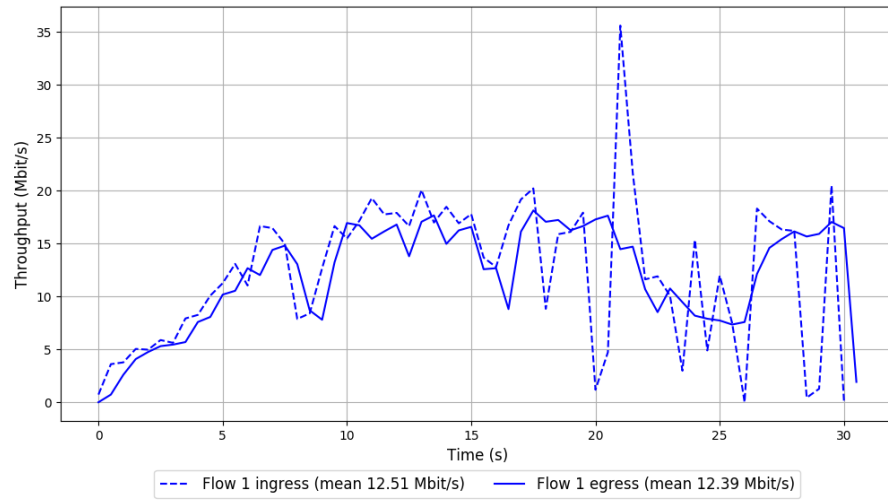


Run 2: Statistics of TCP Cubic

Start at: 2018-05-30 07:49:41
End at: 2018-05-30 07:50:11
Local clock offset: 0.563 ms
Remote clock offset: 39.002 ms

Below is generated by plot.py at 2018-05-30 08:20:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 2084.184 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 12.39 Mbit/s
95th percentile per-packet one-way delay: 2084.184 ms
Loss rate: 0.98%

Run 2: Report of TCP Cubic — Data Link

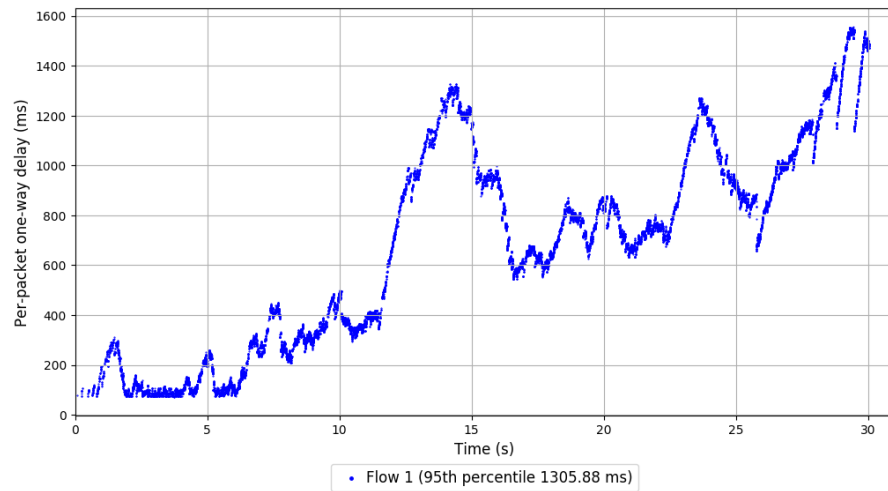
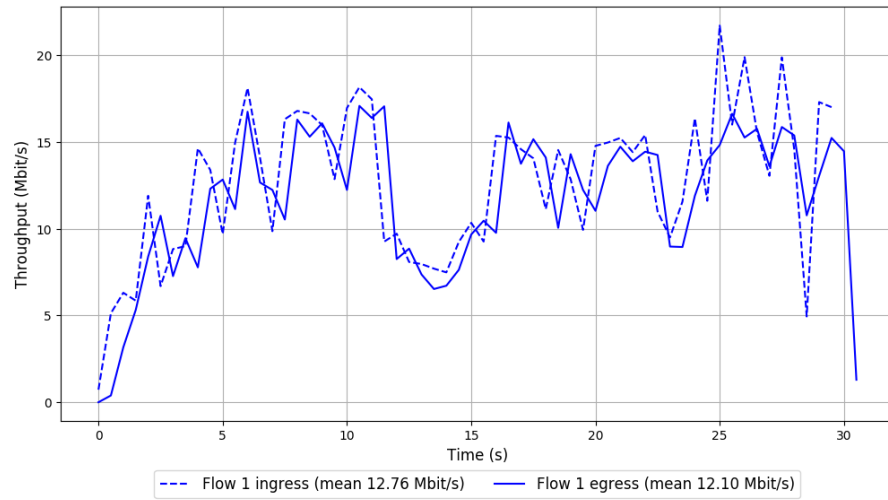


Run 3: Statistics of TCP Cubic

Start at: 2018-05-30 08:09:53
End at: 2018-05-30 08:10:23
Local clock offset: 3.591 ms
Remote clock offset: 39.937 ms

Below is generated by plot.py at 2018-05-30 08:20:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.10 Mbit/s
95th percentile per-packet one-way delay: 1305.876 ms
Loss rate: 4.86%
-- Flow 1:
Average throughput: 12.10 Mbit/s
95th percentile per-packet one-way delay: 1305.876 ms
Loss rate: 4.86%

Run 3: Report of TCP Cubic — Data Link

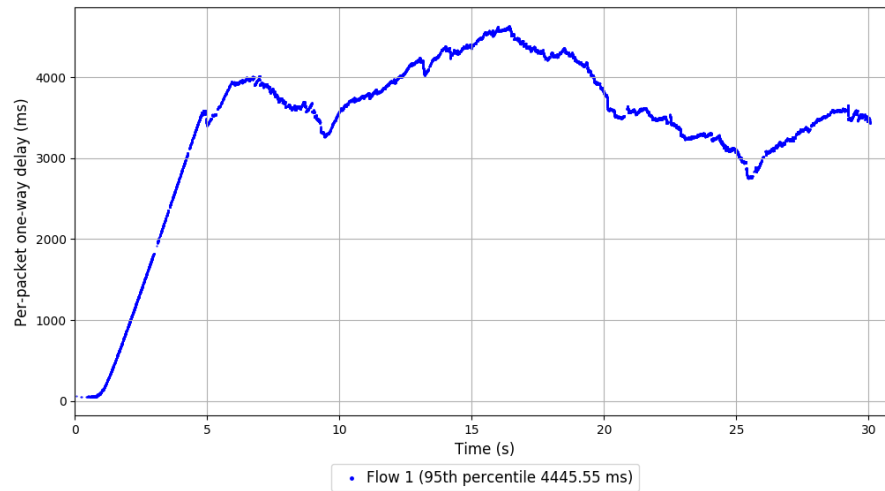
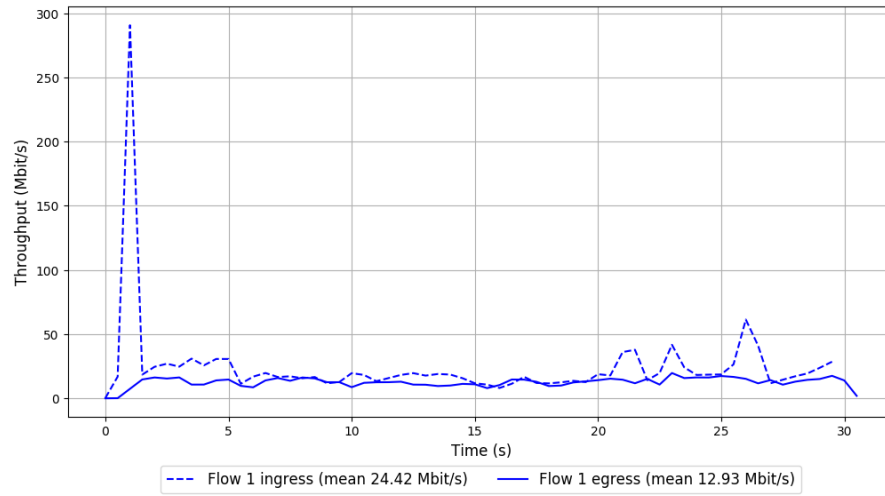


Run 1: Statistics of FillP

Start at: 2018-05-30 07:22:58
End at: 2018-05-30 07:23:28
Local clock offset: -4.794 ms
Remote clock offset: 11.519 ms

Below is generated by plot.py at 2018-05-30 08:20:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.93 Mbit/s
95th percentile per-packet one-way delay: 4445.553 ms
Loss rate: 46.96%
-- Flow 1:
Average throughput: 12.93 Mbit/s
95th percentile per-packet one-way delay: 4445.553 ms
Loss rate: 46.96%

Run 1: Report of FillP — Data Link

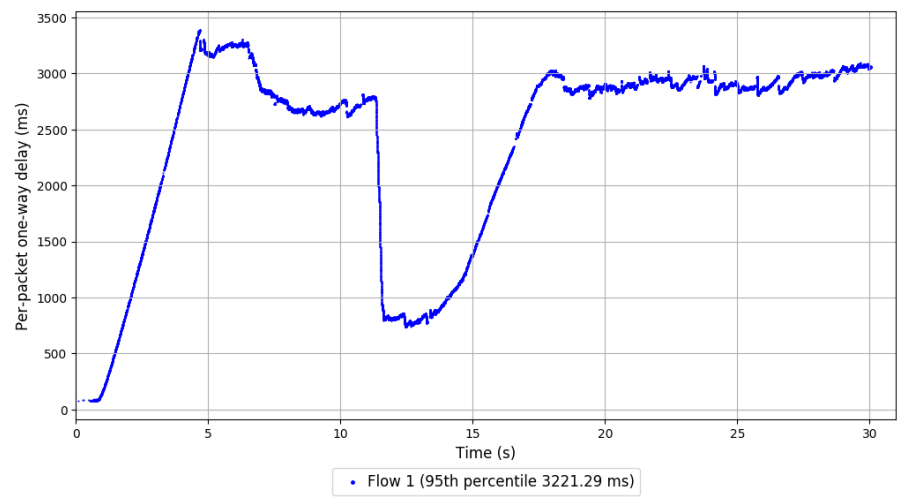
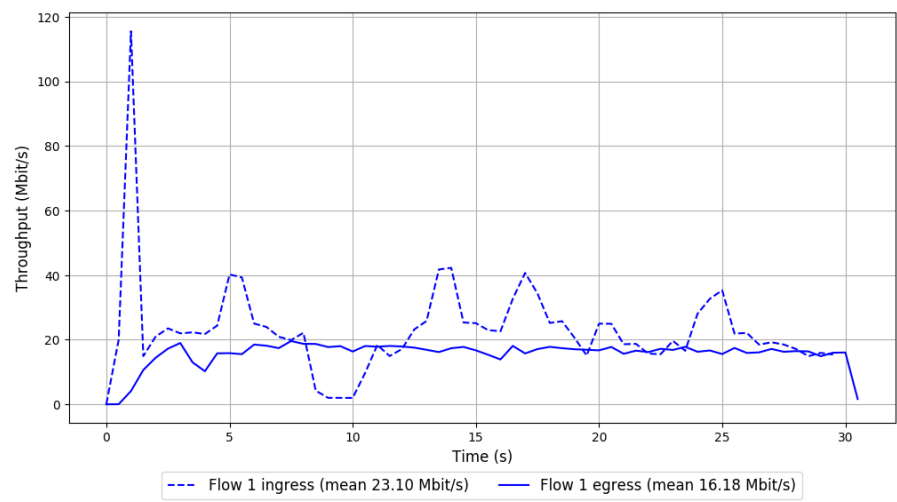


Run 2: Statistics of FillP

Start at: 2018-05-30 07:43:23
End at: 2018-05-30 07:43:53
Local clock offset: -5.044 ms
Remote clock offset: 36.826 ms

Below is generated by plot.py at 2018-05-30 08:20:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 16.18 Mbit/s
95th percentile per-packet one-way delay: 3221.287 ms
Loss rate: 29.96%
-- Flow 1:
Average throughput: 16.18 Mbit/s
95th percentile per-packet one-way delay: 3221.287 ms
Loss rate: 29.96%

Run 2: Report of FillP — Data Link

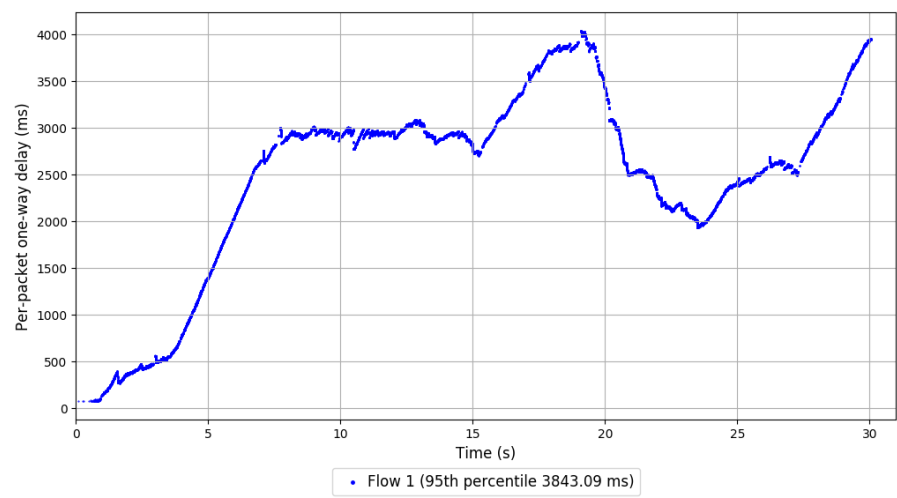
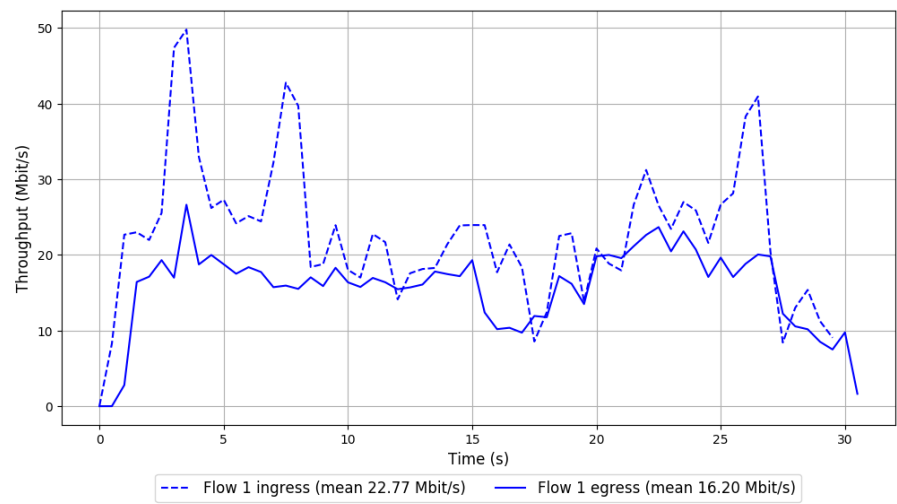


Run 3: Statistics of FillP

Start at: 2018-05-30 08:03:35
End at: 2018-05-30 08:04:05
Local clock offset: 3.871 ms
Remote clock offset: 40.036 ms

Below is generated by plot.py at 2018-05-30 08:20:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 16.20 Mbit/s
95th percentile per-packet one-way delay: 3843.094 ms
Loss rate: 28.87%
-- Flow 1:
Average throughput: 16.20 Mbit/s
95th percentile per-packet one-way delay: 3843.094 ms
Loss rate: 28.87%

Run 3: Report of FillP — Data Link

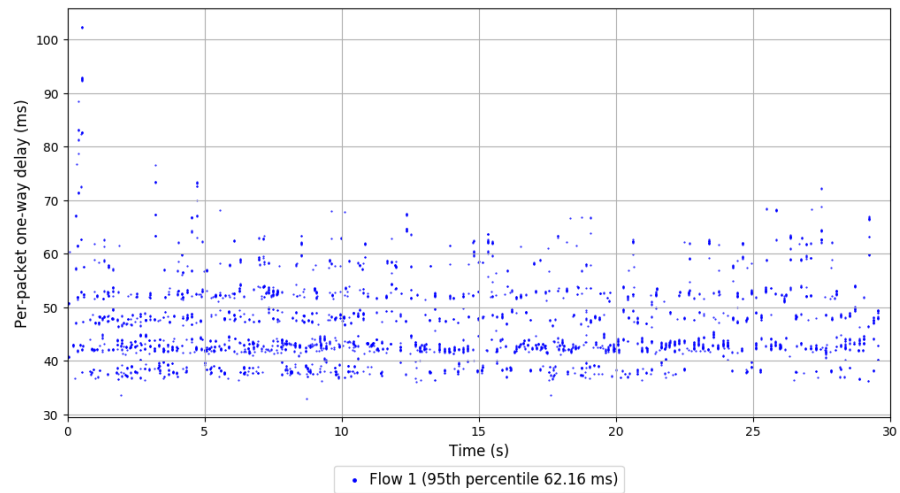
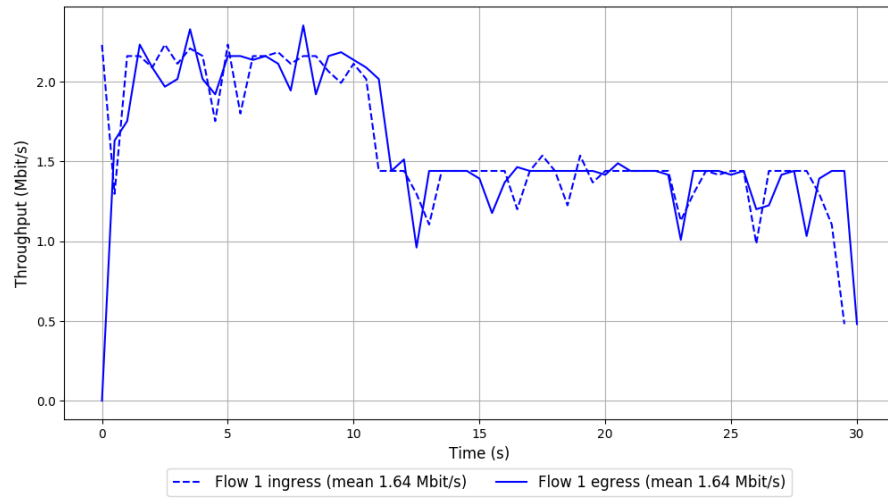


```
Run 1: Statistics of Indigo

Start at: 2018-05-30 07:25:37
End at: 2018-05-30 07:26:07
Local clock offset: -4.405 ms
Remote clock offset: 0.382 ms

# Below is generated by plot.py at 2018-05-30 08:20:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 62.161 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 62.161 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

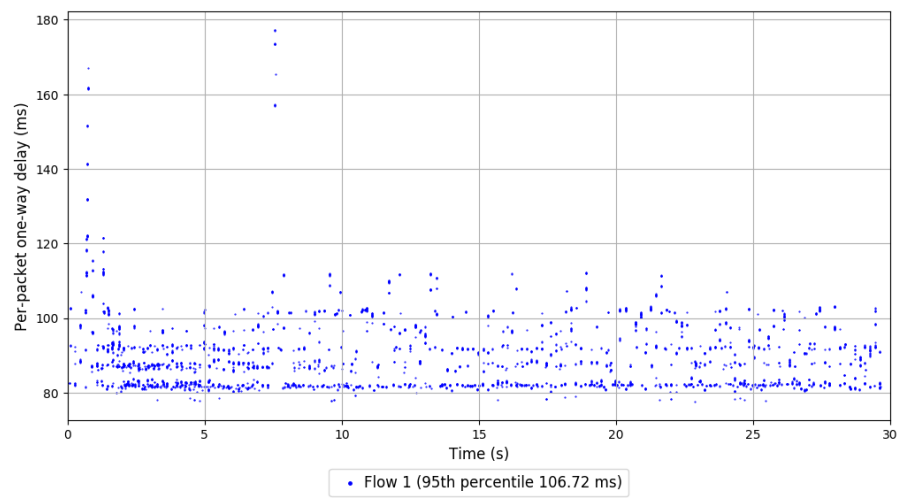
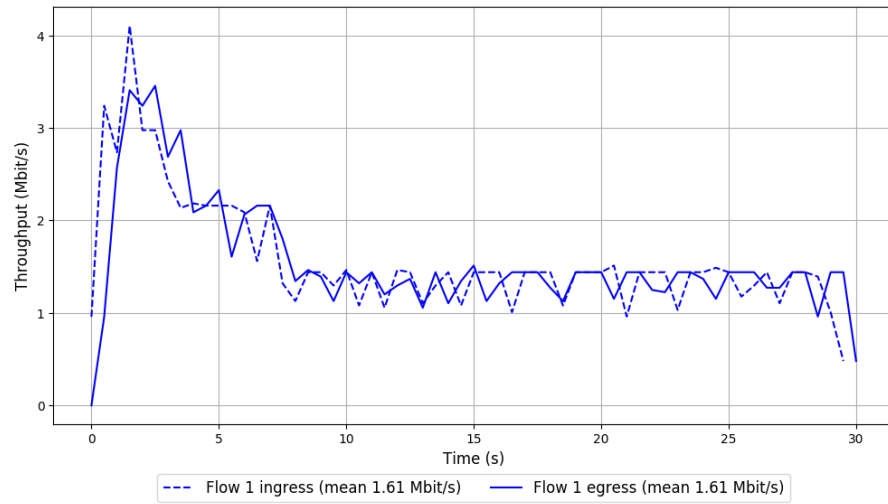


Run 2: Statistics of Indigo

Start at: 2018-05-30 07:45:54
End at: 2018-05-30 07:46:24
Local clock offset: -2.452 ms
Remote clock offset: 37.949 ms

Below is generated by plot.py at 2018-05-30 08:20:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 106.716 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 106.716 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link

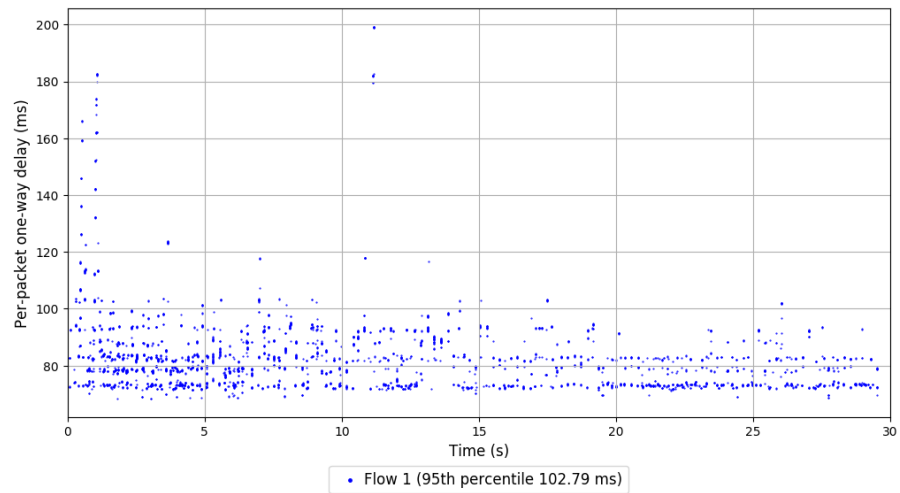
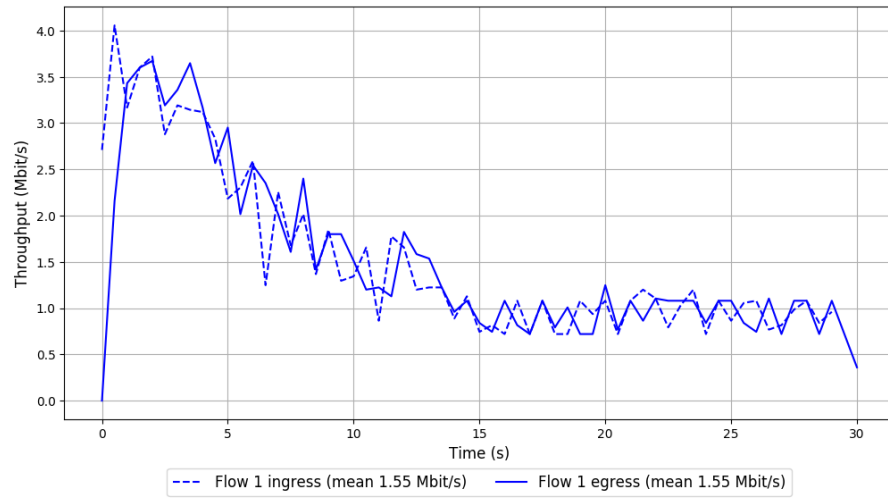


Run 3: Statistics of Indigo

Start at: 2018-05-30 08:06:07
End at: 2018-05-30 08:06:37
Local clock offset: 3.863 ms
Remote clock offset: 40.139 ms

Below is generated by plot.py at 2018-05-30 08:20:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 102.787 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 102.787 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

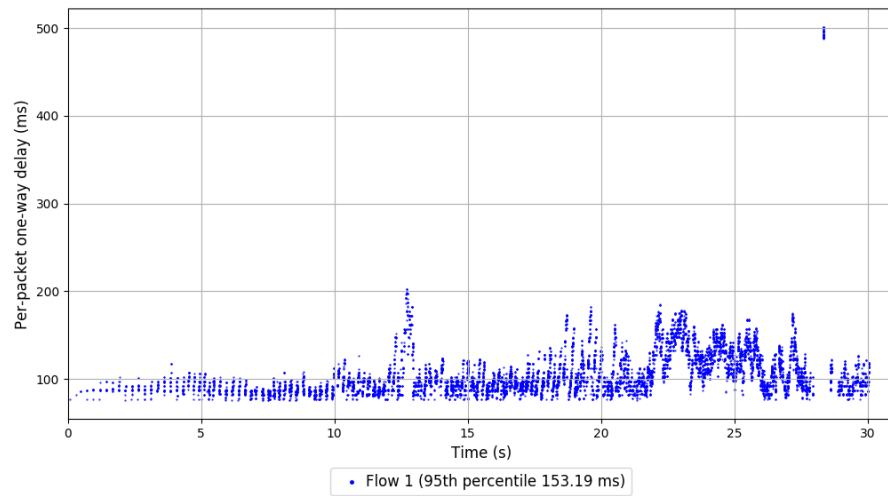
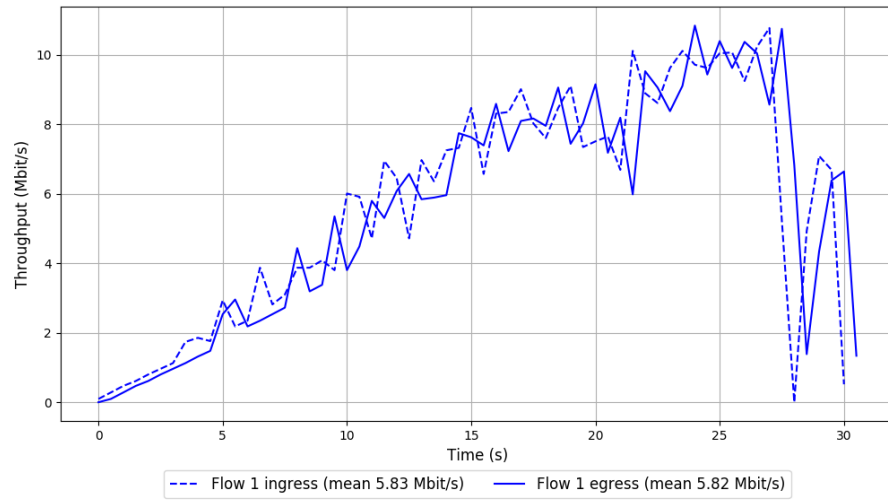


```
Run 1: Statistics of LEDBAT

Start at: 2018-05-30 07:35:49
End at: 2018-05-30 07:36:19
Local clock offset: -4.901 ms
Remote clock offset: 35.61 ms

# Below is generated by plot.py at 2018-05-30 08:20:31
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 153.187 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 153.187 ms
Loss rate: 0.15%
```

Run 1: Report of LEDBAT — Data Link

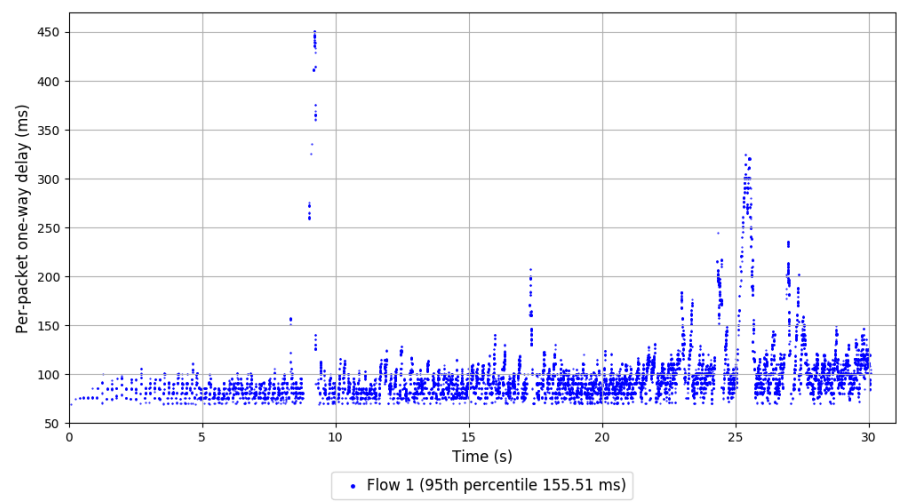
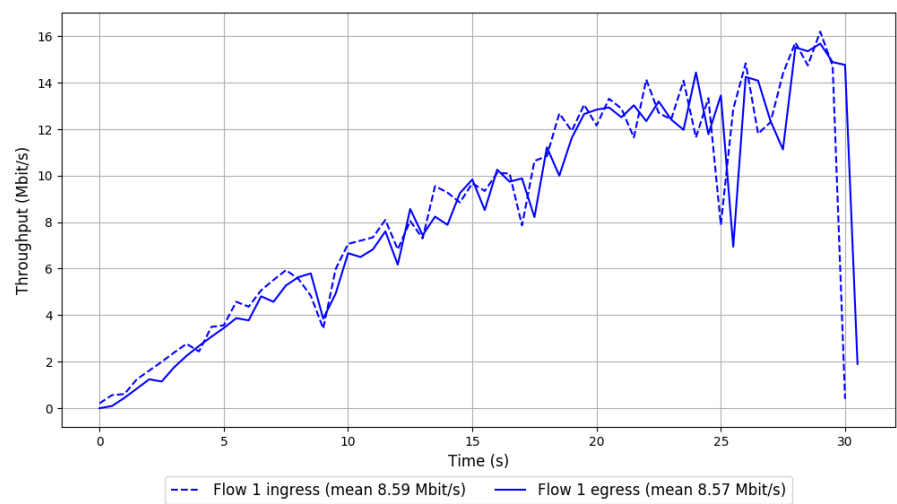


Run 2: Statistics of LEDBAT

Start at: 2018-05-30 07:56:01
End at: 2018-05-30 07:56:31
Local clock offset: 3.091 ms
Remote clock offset: 39.885 ms

Below is generated by plot.py at 2018-05-30 08:20:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 155.508 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 155.508 ms
Loss rate: 0.34%

Run 2: Report of LEDBAT — Data Link

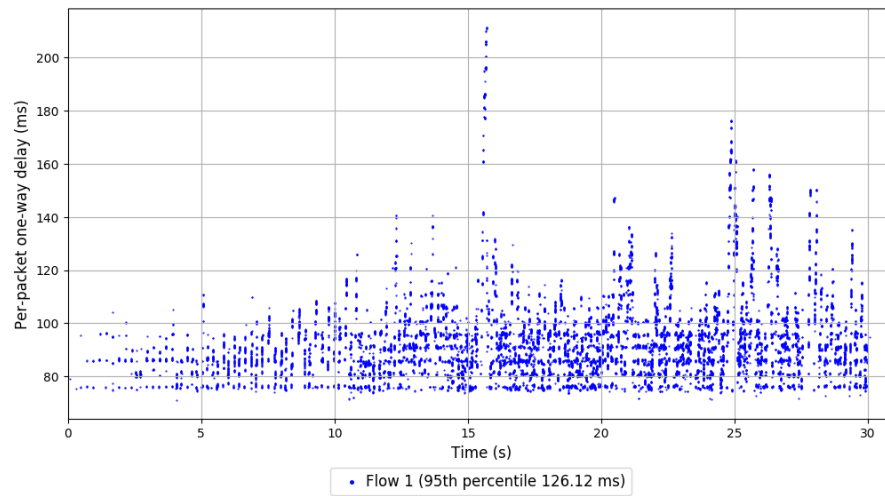
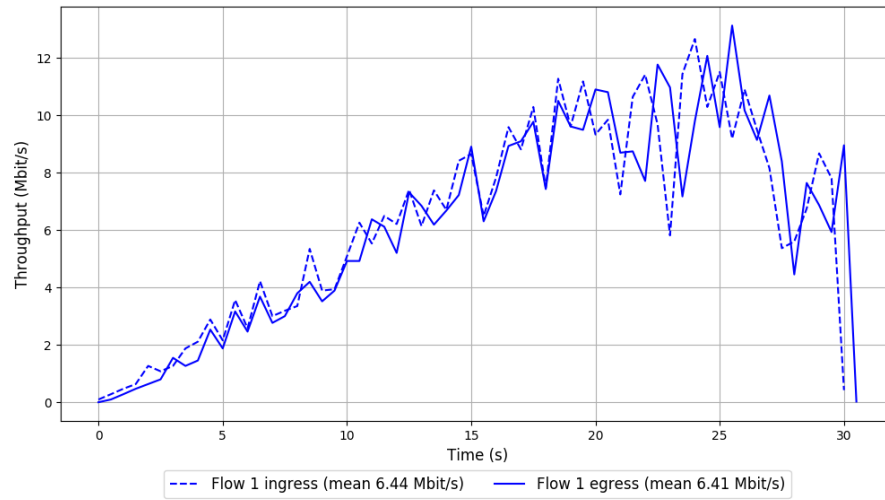


Run 3: Statistics of LEDBAT

Start at: 2018-05-30 08:16:34
End at: 2018-05-30 08:17:04
Local clock offset: 3.096 ms
Remote clock offset: 38.767 ms

Below is generated by plot.py at 2018-05-30 08:20:31
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.41 Mbit/s
95th percentile per-packet one-way delay: 126.122 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 6.41 Mbit/s
95th percentile per-packet one-way delay: 126.122 ms
Loss rate: 0.52%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-05-30 07:37:05

End at: 2018-05-30 07:37:35

Local clock offset: -5.3 ms

Remote clock offset: 35.372 ms

Below is generated by plot.py at 2018-05-30 08:20:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 82.606 ms

Loss rate: 0.00%

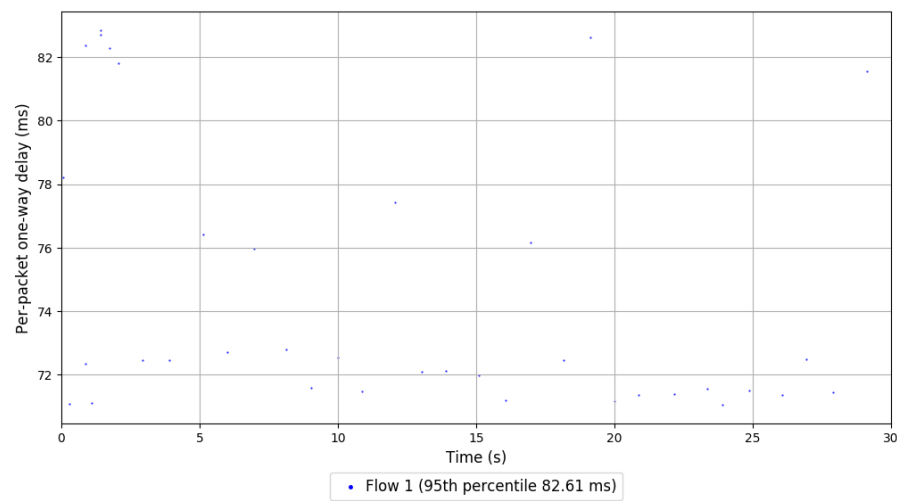
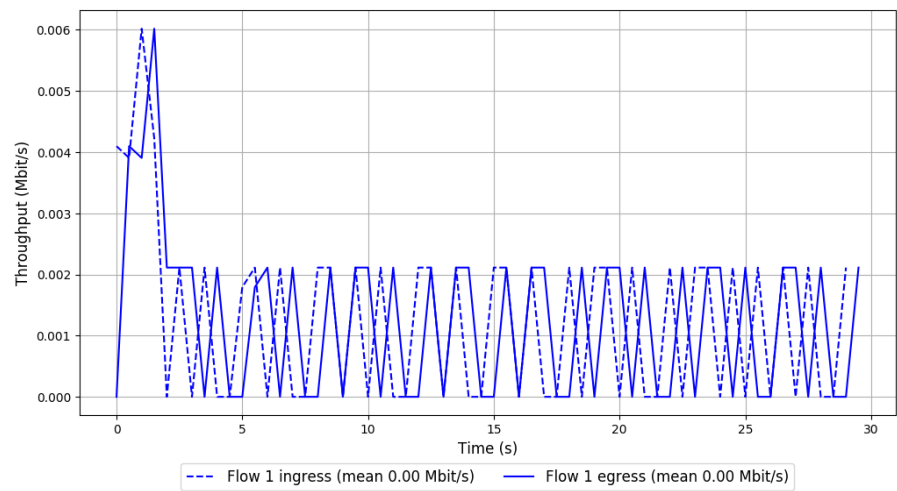
-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 82.606 ms

Loss rate: 0.00%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-05-30 07:57:17

End at: 2018-05-30 07:57:47

Local clock offset: 3.202 ms

Remote clock offset: 39.795 ms

Below is generated by plot.py at 2018-05-30 08:20:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.12 Mbit/s

95th percentile per-packet one-way delay: 351.125 ms

Loss rate: 0.05%

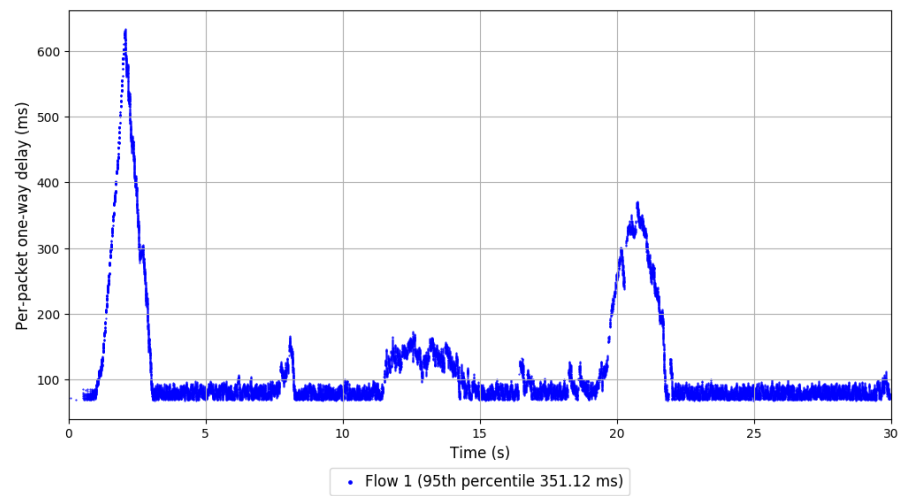
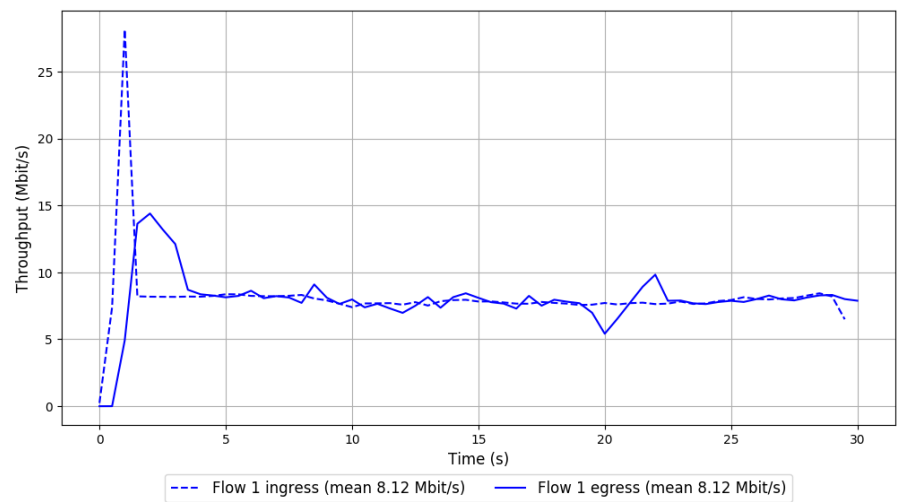
-- Flow 1:

Average throughput: 8.12 Mbit/s

95th percentile per-packet one-way delay: 351.125 ms

Loss rate: 0.05%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-05-30 08:17:50

End at: 2018-05-30 08:18:20

Local clock offset: 2.799 ms

Remote clock offset: 38.392 ms

Below is generated by plot.py at 2018-05-30 08:20:31

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.68 Mbit/s

95th percentile per-packet one-way delay: 104.591 ms

Loss rate: 0.07%

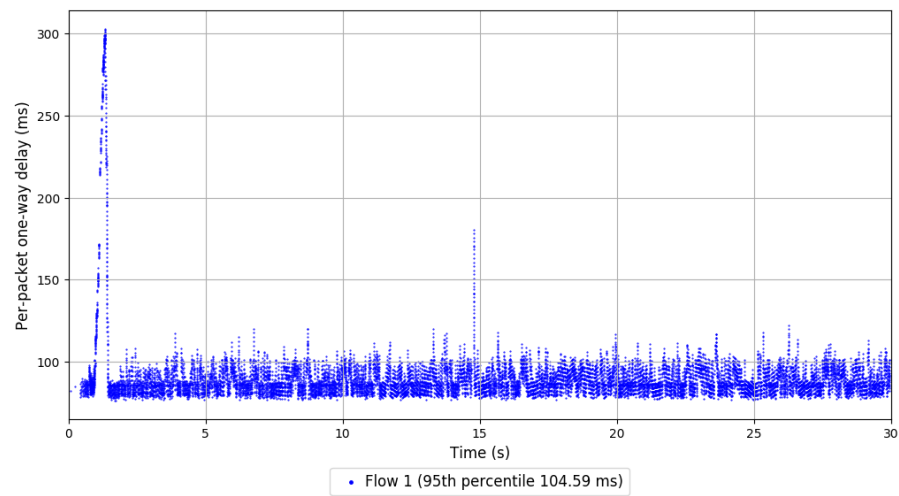
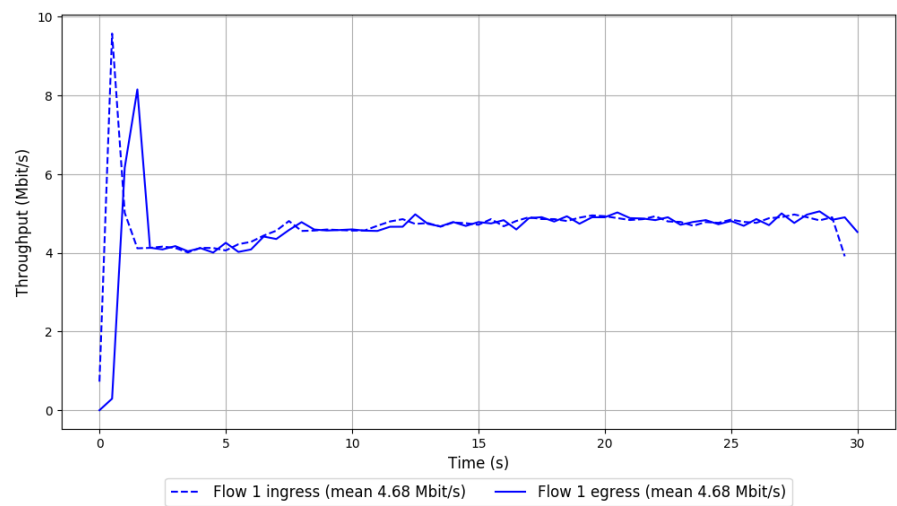
-- Flow 1:

Average throughput: 4.68 Mbit/s

95th percentile per-packet one-way delay: 104.591 ms

Loss rate: 0.07%

Run 3: Report of PCC-Allegro — Data Link

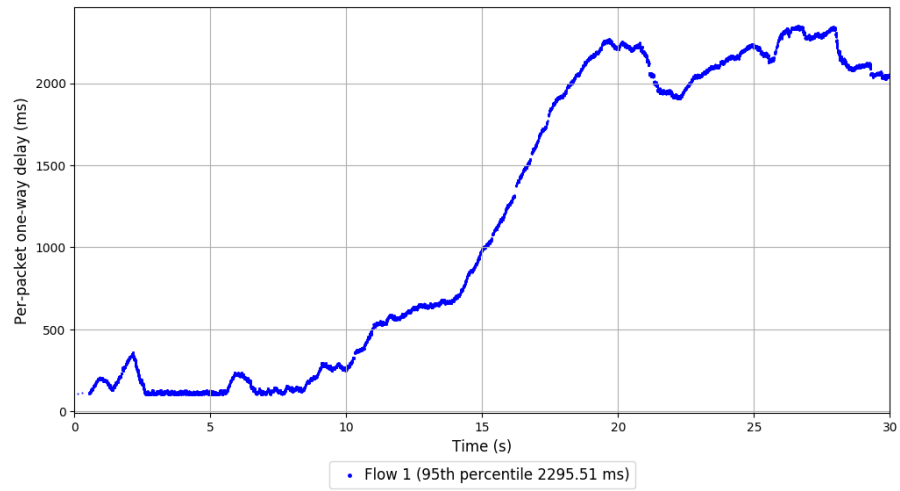
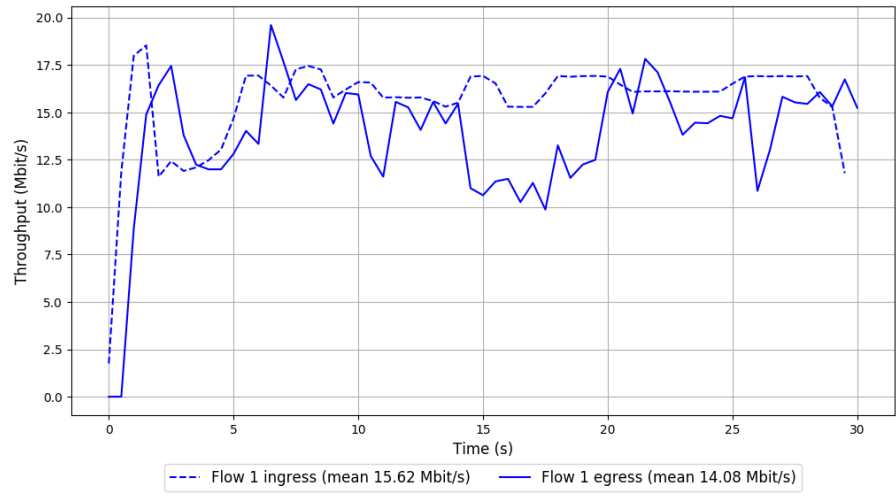


```
Run 1: Statistics of PCC-Expr

Start at: 2018-05-30 07:34:32
End at: 2018-05-30 07:35:02
Local clock offset: -4.81 ms
Remote clock offset: 64.154 ms

# Below is generated by plot.py at 2018-05-30 08:20:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.08 Mbit/s
95th percentile per-packet one-way delay: 2295.506 ms
Loss rate: 9.86%
-- Flow 1:
Average throughput: 14.08 Mbit/s
95th percentile per-packet one-way delay: 2295.506 ms
Loss rate: 9.86%
```

Run 1: Report of PCC-Expr — Data Link

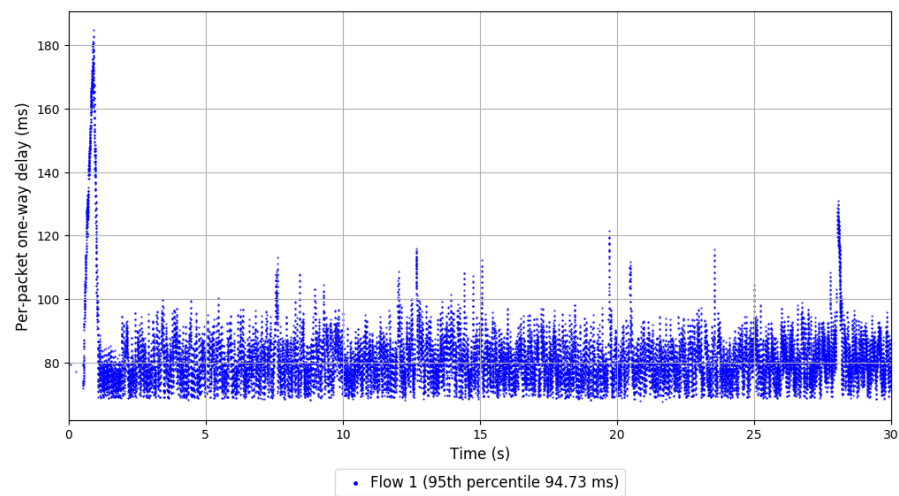
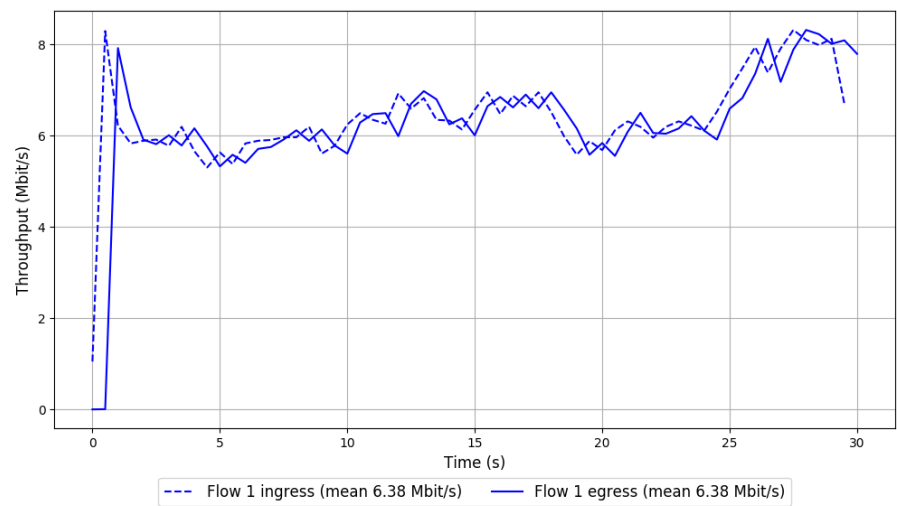


Run 2: Statistics of PCC-Expr

Start at: 2018-05-30 07:54:45
End at: 2018-05-30 07:55:15
Local clock offset: 2.646 ms
Remote clock offset: 39.676 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.38 Mbit/s
95th percentile per-packet one-way delay: 94.727 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 6.38 Mbit/s
95th percentile per-packet one-way delay: 94.727 ms
Loss rate: 0.07%

Run 2: Report of PCC-Expr — Data Link

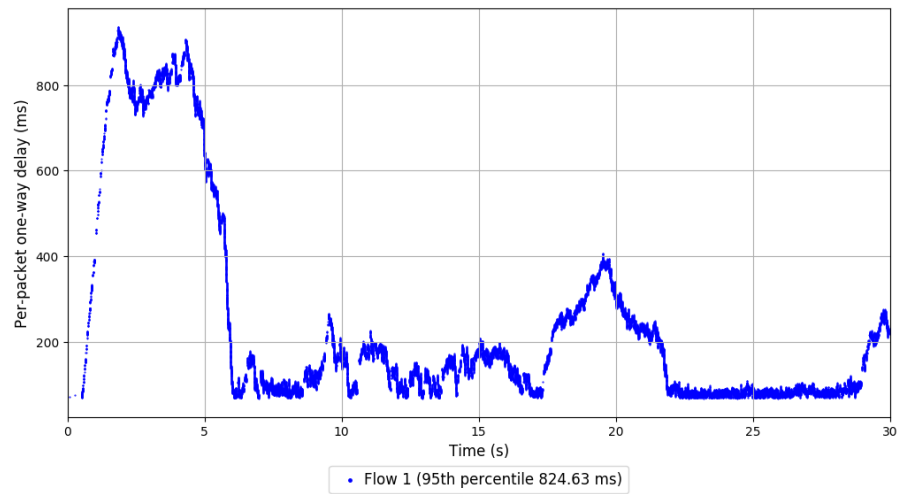
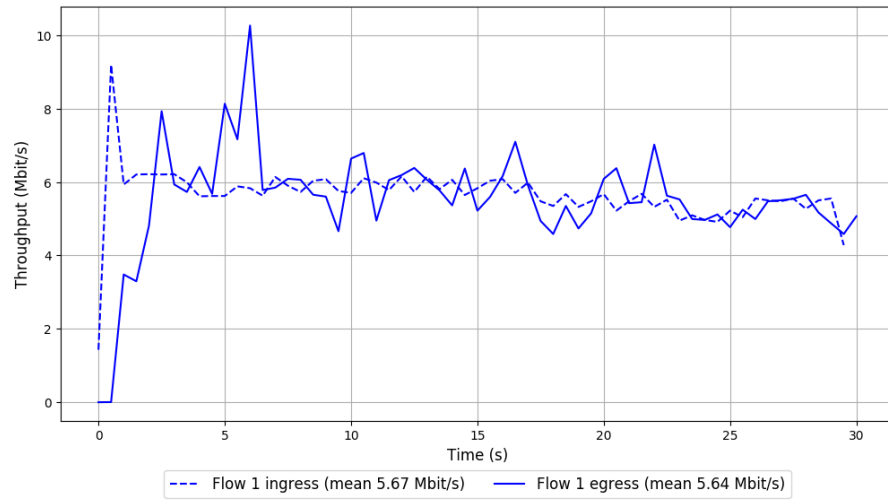


Run 3: Statistics of PCC-Expr

Start at: 2018-05-30 08:15:18
End at: 2018-05-30 08:15:48
Local clock offset: 3.181 ms
Remote clock offset: 39.214 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.64 Mbit/s
95th percentile per-packet one-way delay: 824.634 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 5.64 Mbit/s
95th percentile per-packet one-way delay: 824.634 ms
Loss rate: 0.51%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

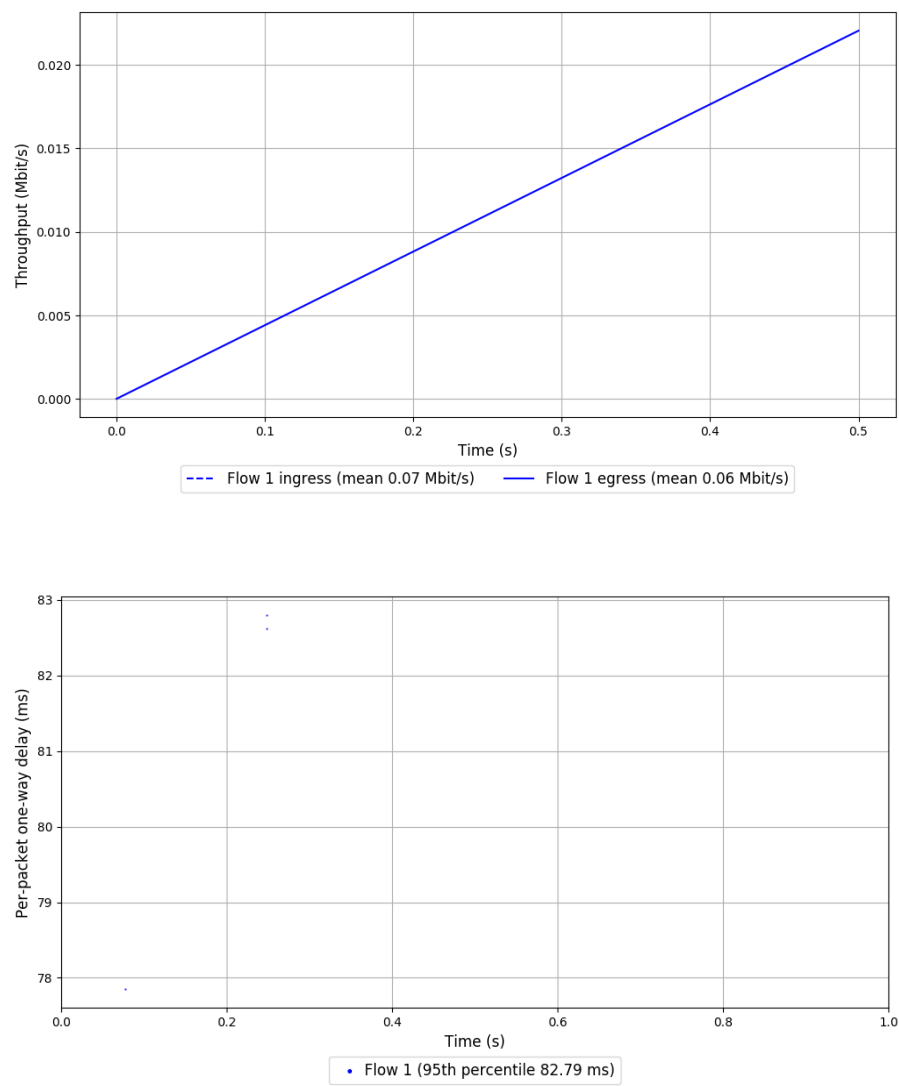
Start at: 2018-05-30 07:21:42

End at: 2018-05-30 07:22:12

Local clock offset: -5.125 ms

Remote clock offset: 39.249 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-05-30 07:42:06

End at: 2018-05-30 07:42:36

Local clock offset: -6.534 ms

Remote clock offset: 35.66 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 10.03 Mbit/s

95th percentile per-packet one-way delay: 202.068 ms

Loss rate: 0.27%

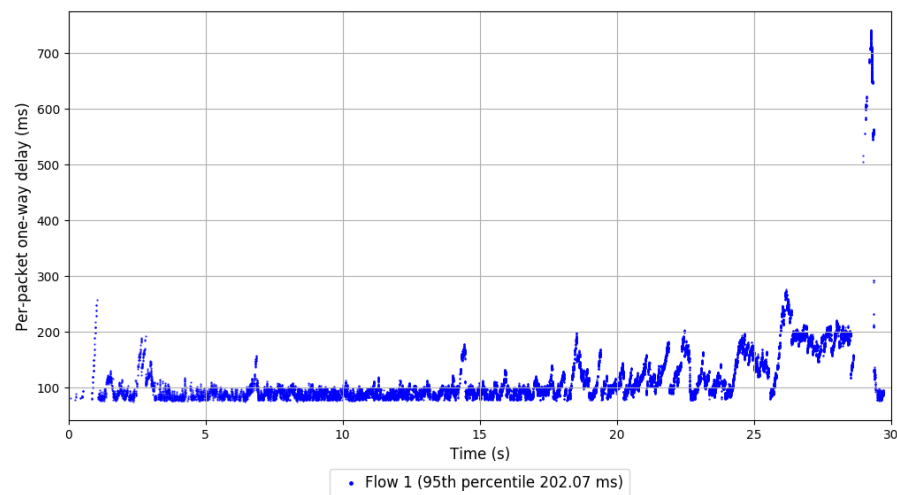
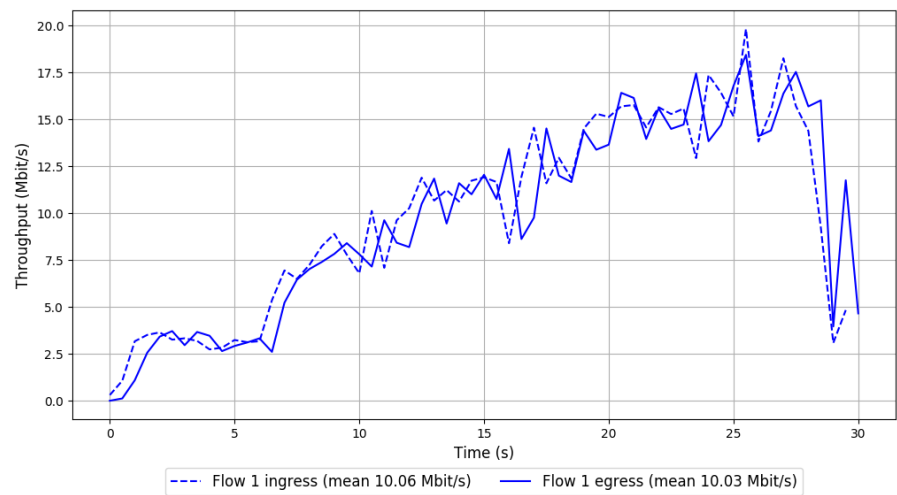
-- Flow 1:

Average throughput: 10.03 Mbit/s

95th percentile per-packet one-way delay: 202.068 ms

Loss rate: 0.27%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-05-30 08:02:19

End at: 2018-05-30 08:02:49

Local clock offset: 3.781 ms

Remote clock offset: 39.942 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 15.03 Mbit/s

95th percentile per-packet one-way delay: 386.638 ms

Loss rate: 1.12%

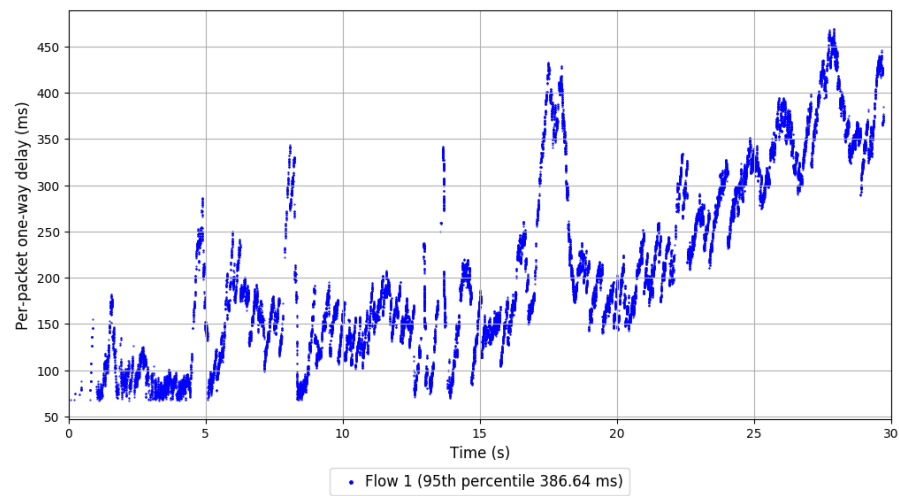
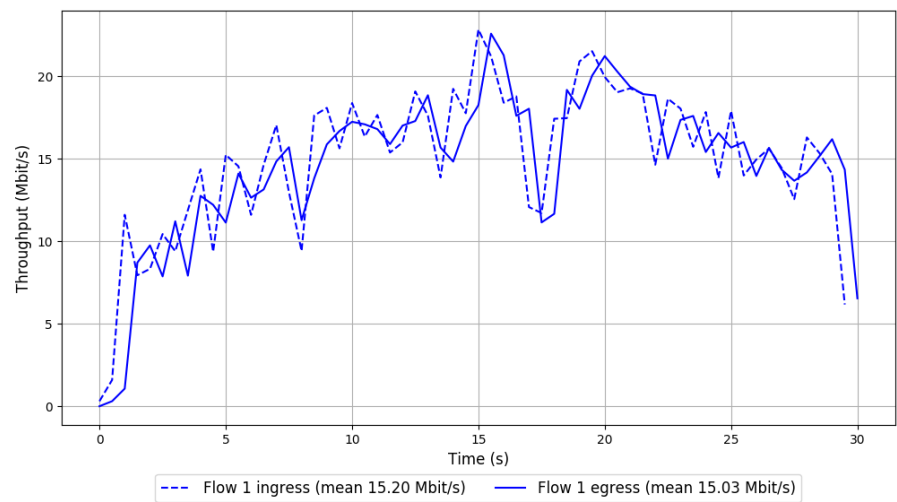
-- Flow 1:

Average throughput: 15.03 Mbit/s

95th percentile per-packet one-way delay: 386.638 ms

Loss rate: 1.12%

Run 3: Report of QUIC Cubic — Data Link

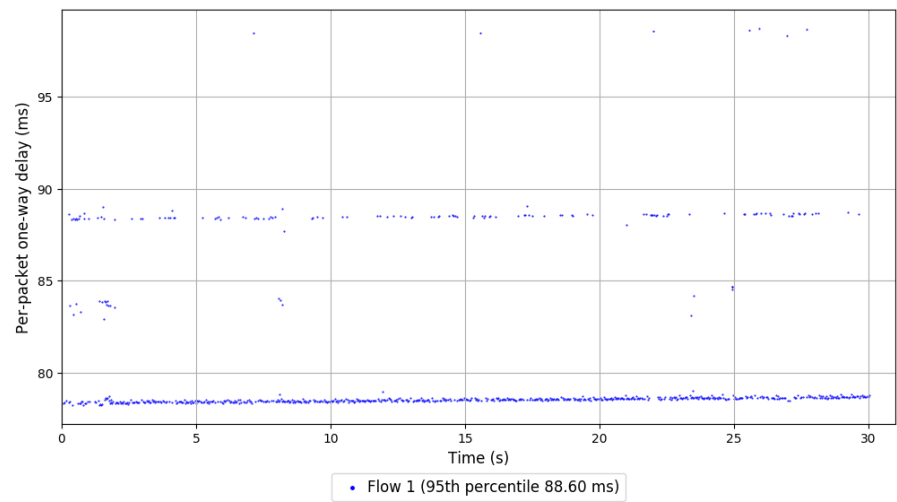
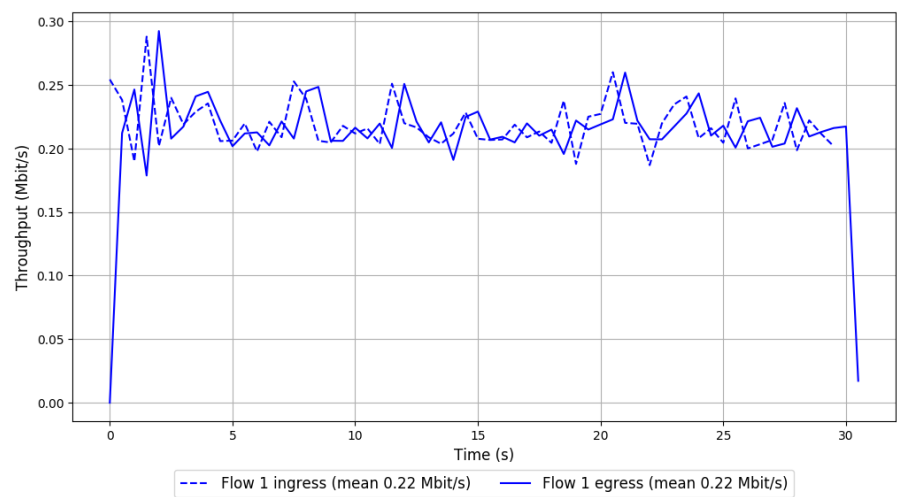


Run 1: Statistics of SCReAM

Start at: 2018-05-30 07:19:09
End at: 2018-05-30 07:19:39
Local clock offset: -6.243 ms
Remote clock offset: 40.104 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 88.604 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 88.604 ms
Loss rate: 0.00%

Run 1: Report of SReAM — Data Link

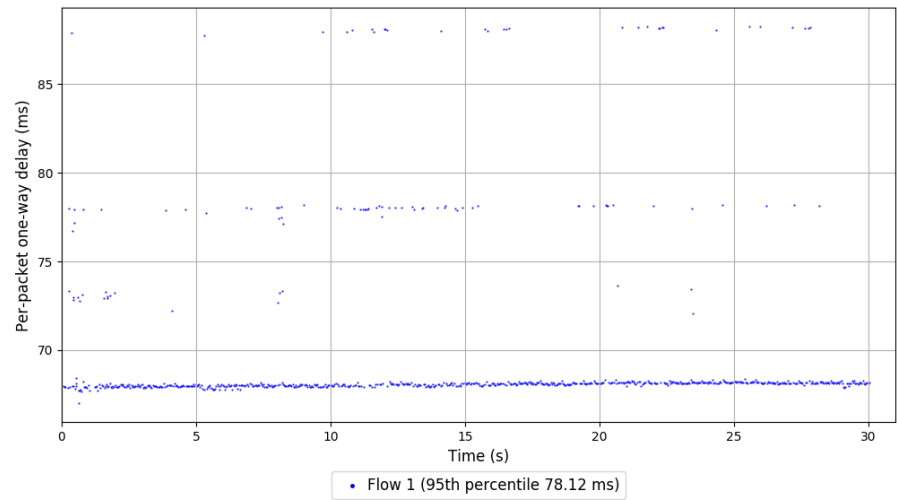
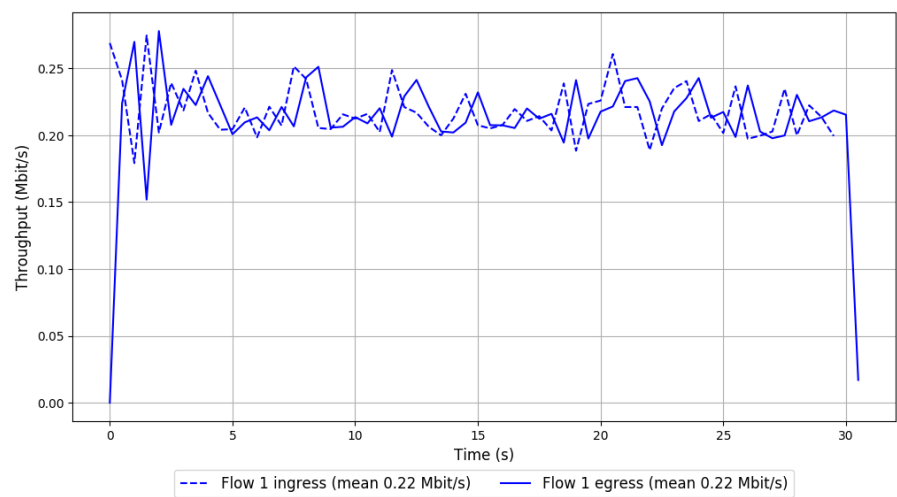


Run 2: Statistics of SCReAM

Start at: 2018-05-30 07:39:36
End at: 2018-05-30 07:40:06
Local clock offset: -5.928 ms
Remote clock offset: 34.733 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.117 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.117 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

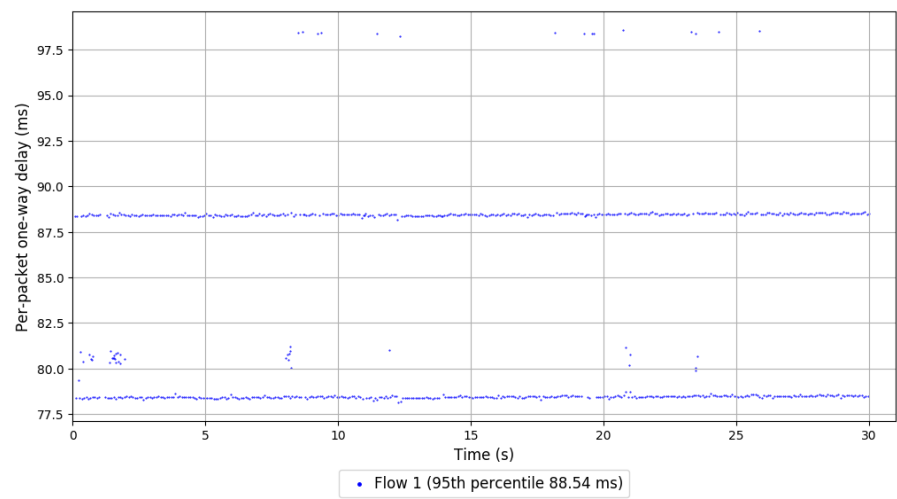
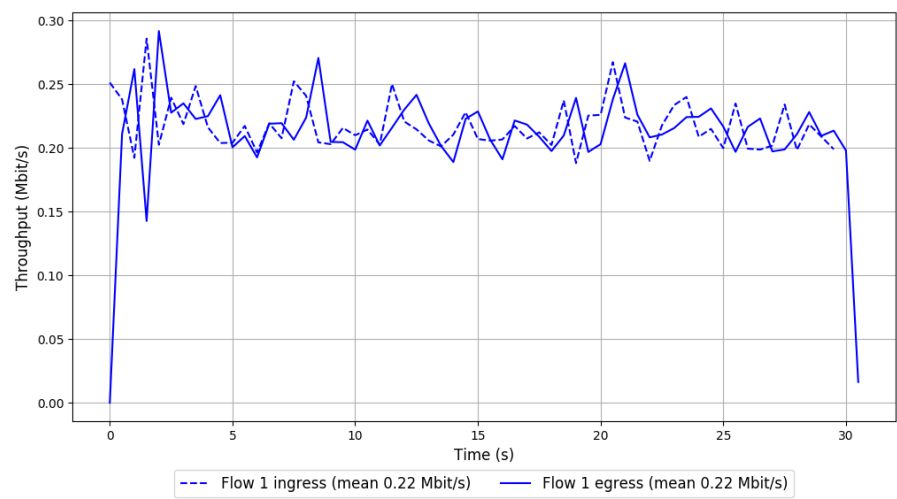


Run 3: Statistics of SCReAM

Start at: 2018-05-30 07:59:48
End at: 2018-05-30 08:00:18
Local clock offset: 3.515 ms
Remote clock offset: 39.867 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 88.538 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 88.538 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

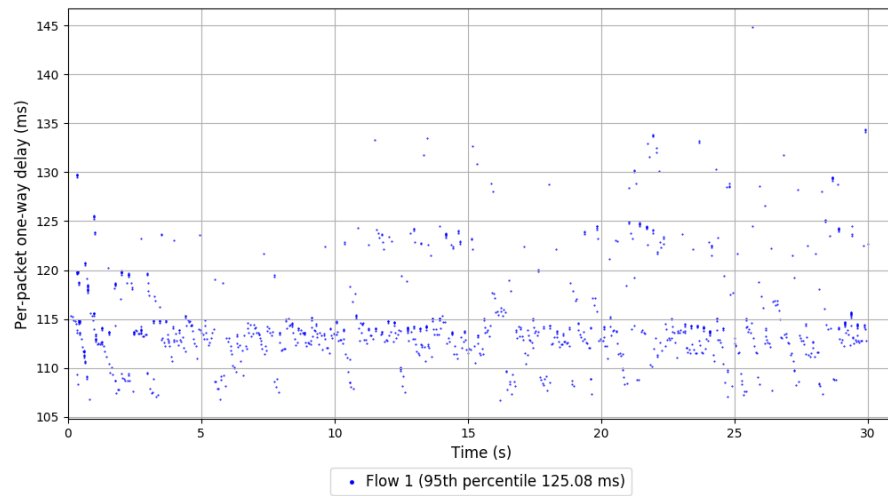
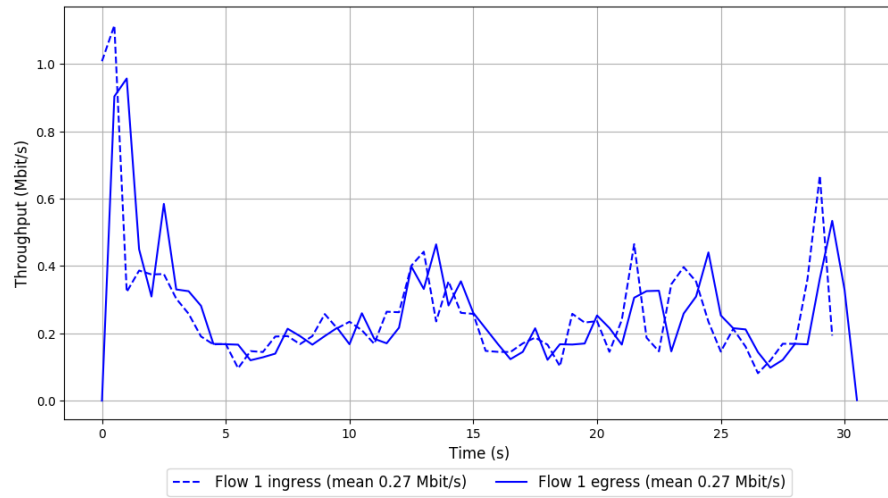


Run 1: Statistics of Sprout

Start at: 2018-05-30 07:30:43
End at: 2018-05-30 07:31:13
Local clock offset: -4.464 ms
Remote clock offset: 74.254 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 125.078 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 125.078 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

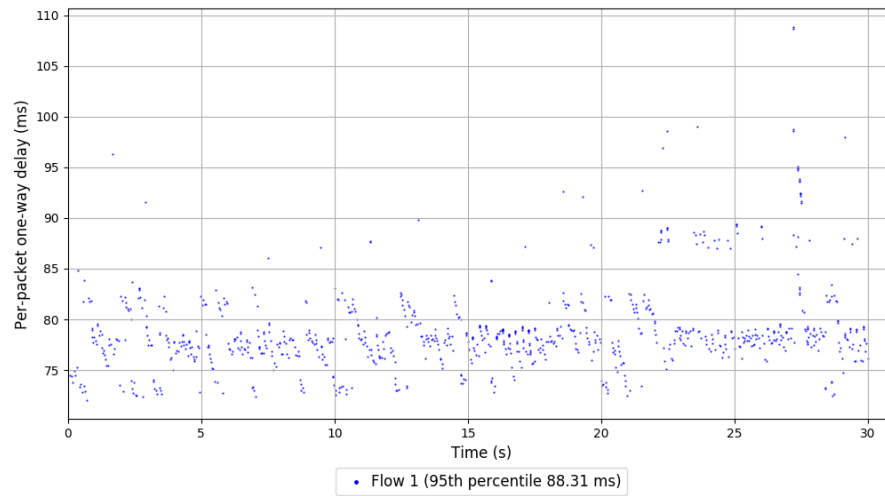
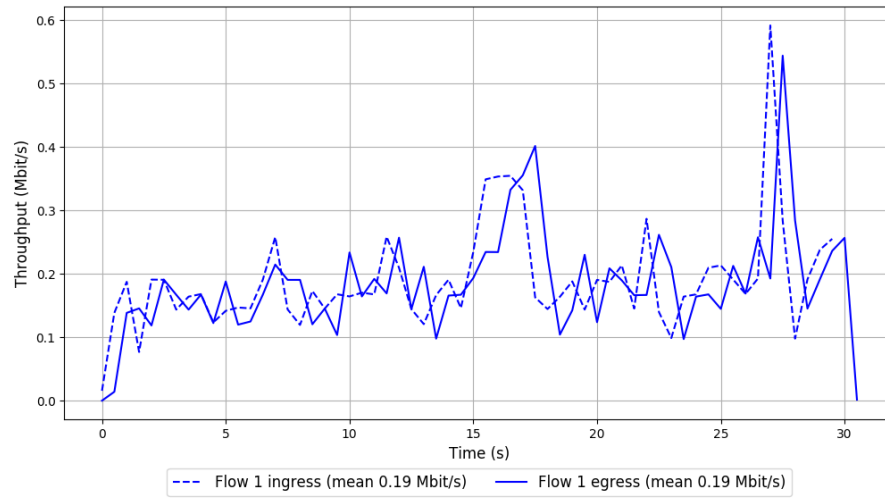


Run 2: Statistics of Sprout

Start at: 2018-05-30 07:50:57
End at: 2018-05-30 07:51:27
Local clock offset: 1.23 ms
Remote clock offset: 39.332 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 88.305 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 88.305 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

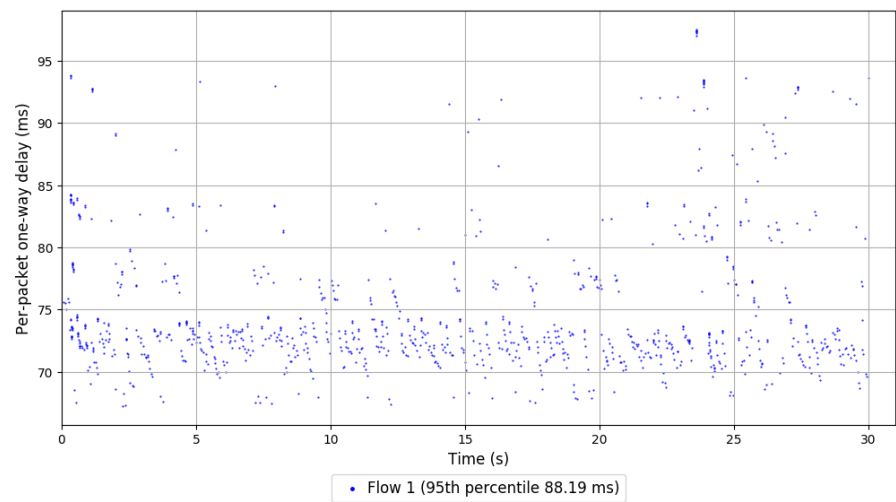
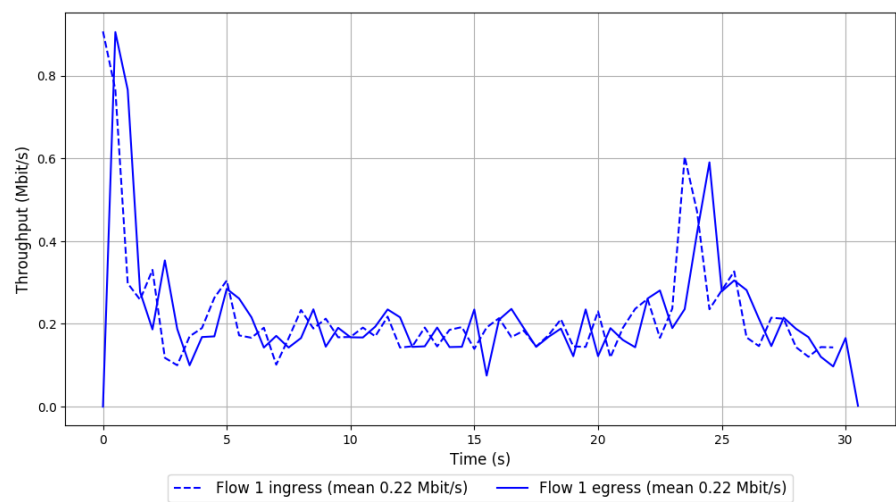


Run 3: Statistics of Sprout

Start at: 2018-05-30 08:11:09
End at: 2018-05-30 08:11:39
Local clock offset: 3.517 ms
Remote clock offset: 40.001 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 88.188 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 88.188 ms
Loss rate: 0.18%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-05-30 07:20:25

End at: 2018-05-30 07:20:55

Local clock offset: -5.536 ms

Remote clock offset: -4.401 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.62 Mbit/s

95th percentile per-packet one-way delay: 48.609 ms

Loss rate: 0.02%

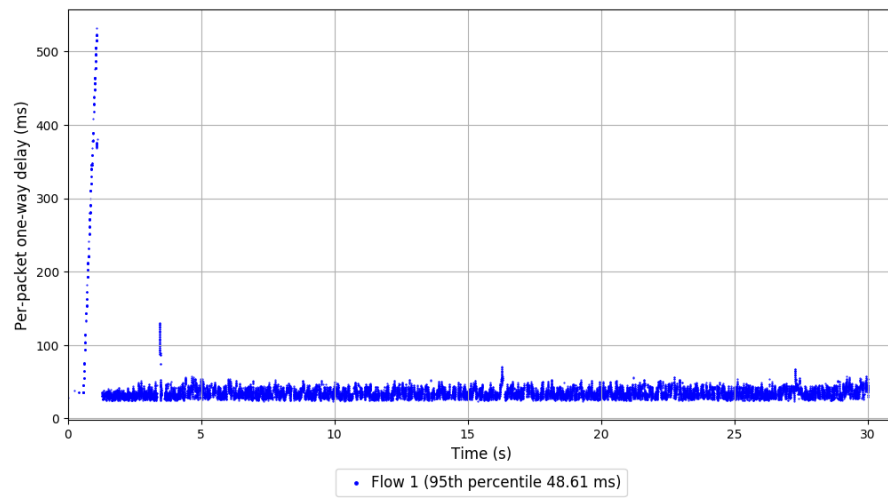
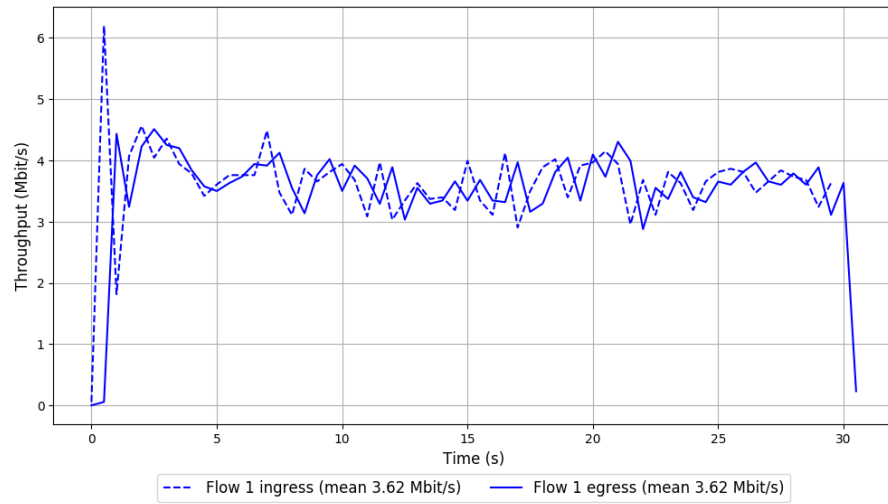
-- Flow 1:

Average throughput: 3.62 Mbit/s

95th percentile per-packet one-way delay: 48.609 ms

Loss rate: 0.02%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-05-30 07:40:51

End at: 2018-05-30 07:41:21

Local clock offset: -6.21 ms

Remote clock offset: 35.164 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.08 Mbit/s

95th percentile per-packet one-way delay: 111.209 ms

Loss rate: 0.17%

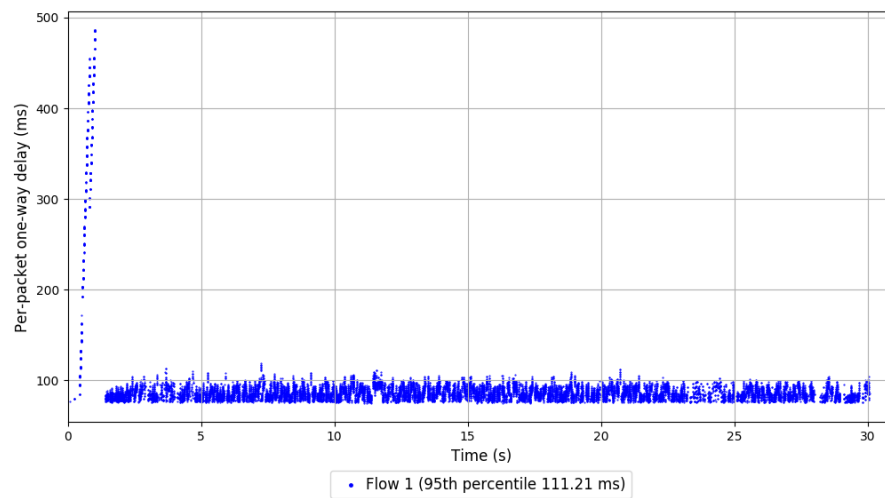
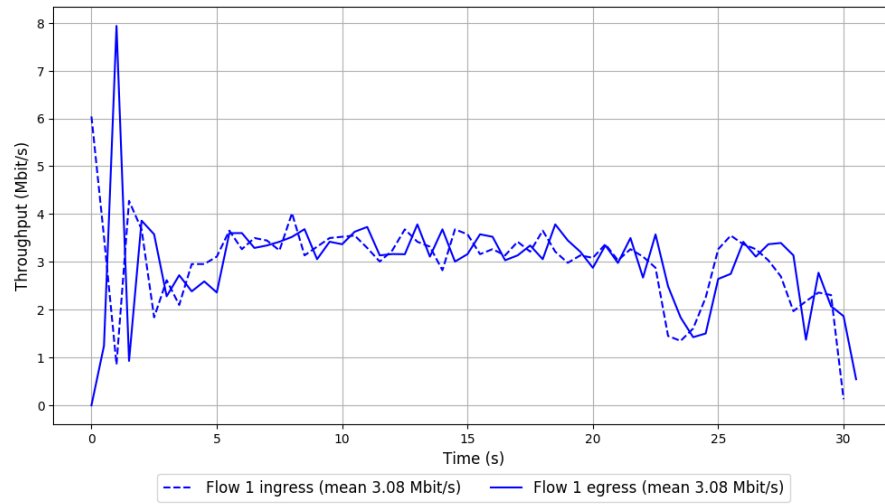
-- Flow 1:

Average throughput: 3.08 Mbit/s

95th percentile per-packet one-way delay: 111.209 ms

Loss rate: 0.17%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-05-30 08:01:03

End at: 2018-05-30 08:01:33

Local clock offset: 3.747 ms

Remote clock offset: 40.05 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 3.55 Mbit/s

95th percentile per-packet one-way delay: 96.538 ms

Loss rate: 0.06%

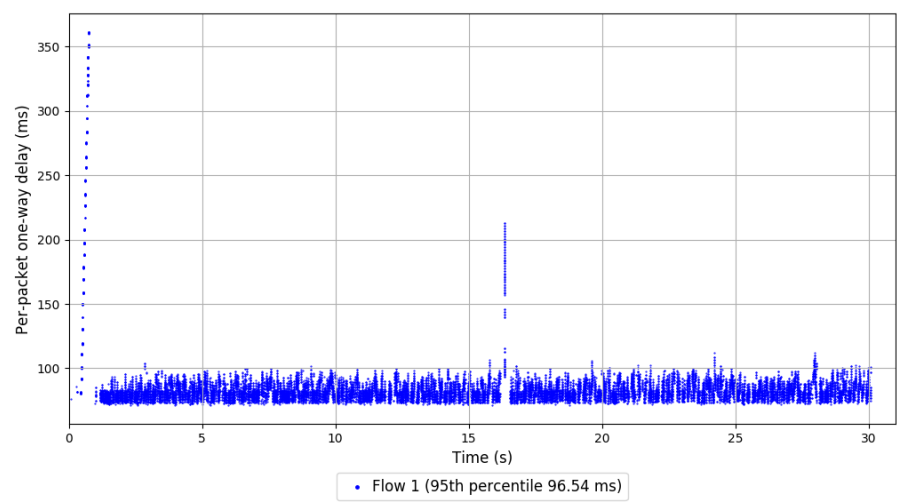
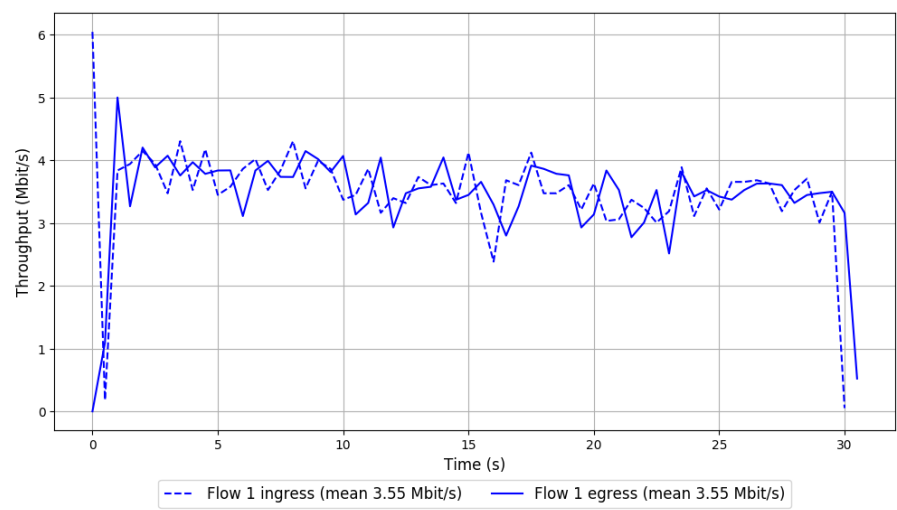
-- Flow 1:

Average throughput: 3.55 Mbit/s

95th percentile per-packet one-way delay: 96.538 ms

Loss rate: 0.06%

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

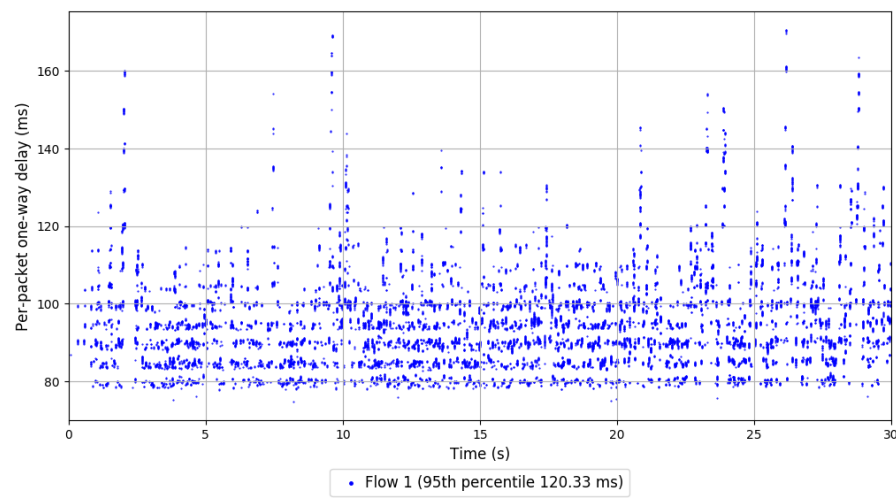
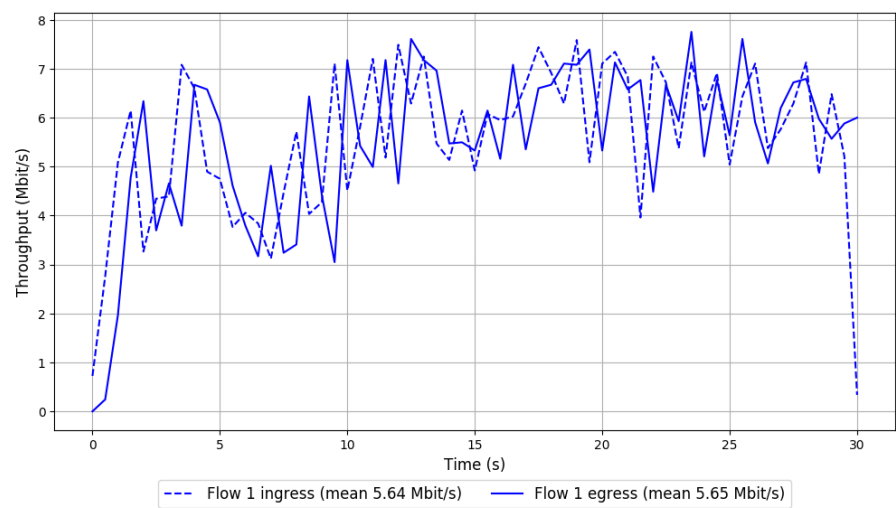


Run 1: Statistics of TCP Vegas

Start at: 2018-05-30 07:26:53
End at: 2018-05-30 07:27:23
Local clock offset: -4.257 ms
Remote clock offset: 37.699 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.65 Mbit/s
95th percentile per-packet one-way delay: 120.330 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 5.65 Mbit/s
95th percentile per-packet one-way delay: 120.330 ms
Loss rate: 0.26%

Run 1: Report of TCP Vegas — Data Link

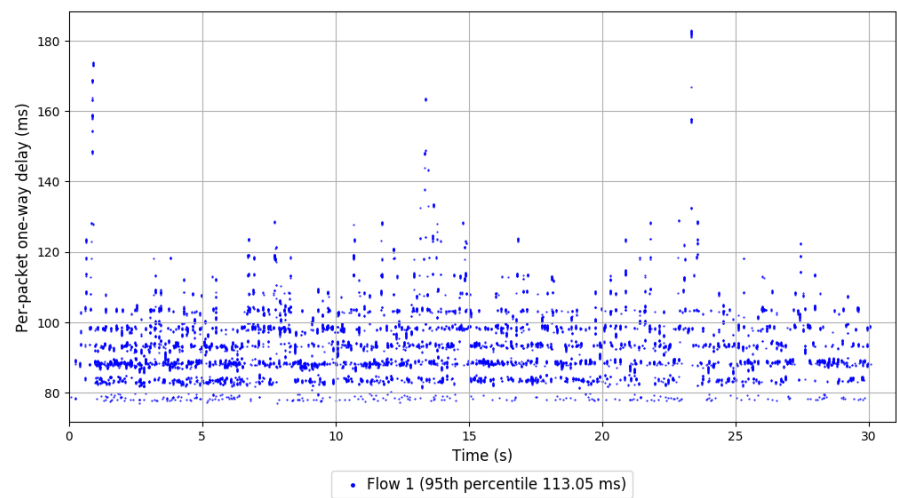
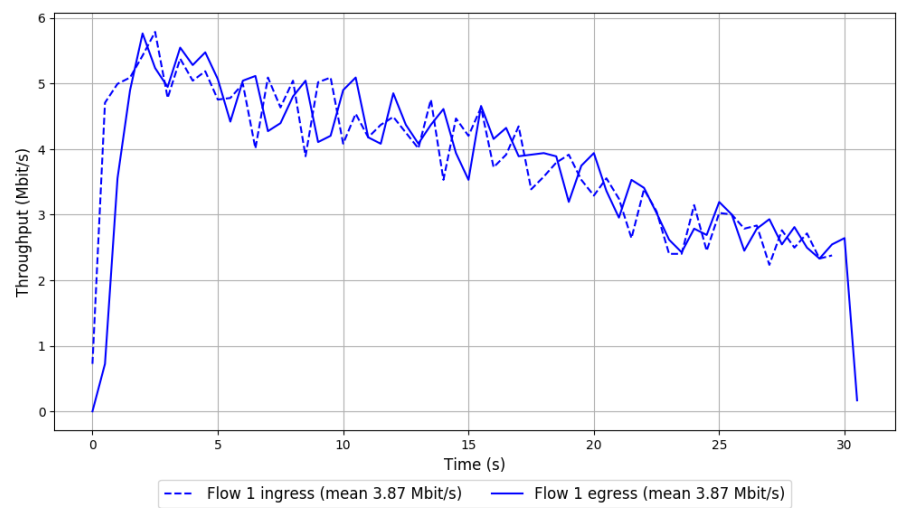


Run 2: Statistics of TCP Vegas

Start at: 2018-05-30 07:47:10
End at: 2018-05-30 07:47:40
Local clock offset: -1.204 ms
Remote clock offset: 38.22 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 113.052 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 113.052 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-05-30 08:07:22

End at: 2018-05-30 08:07:52

Local clock offset: 3.771 ms

Remote clock offset: 39.967 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 2.76 Mbit/s

95th percentile per-packet one-way delay: 108.817 ms

Loss rate: 0.01%

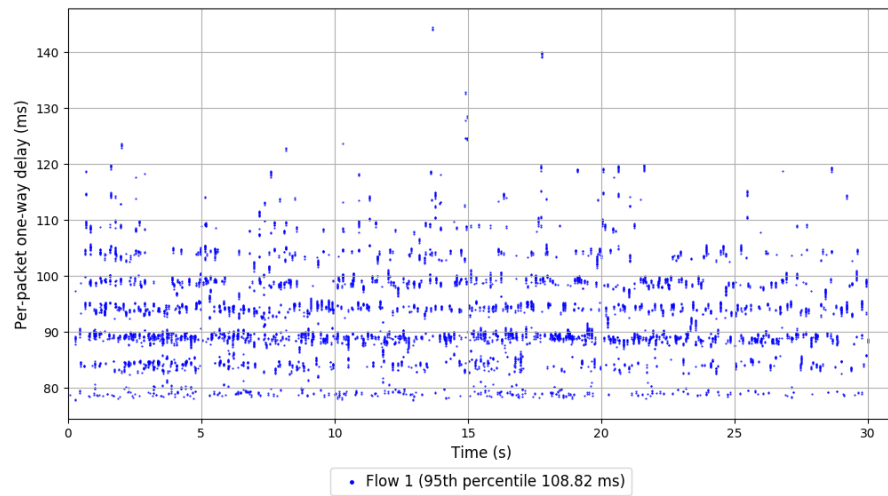
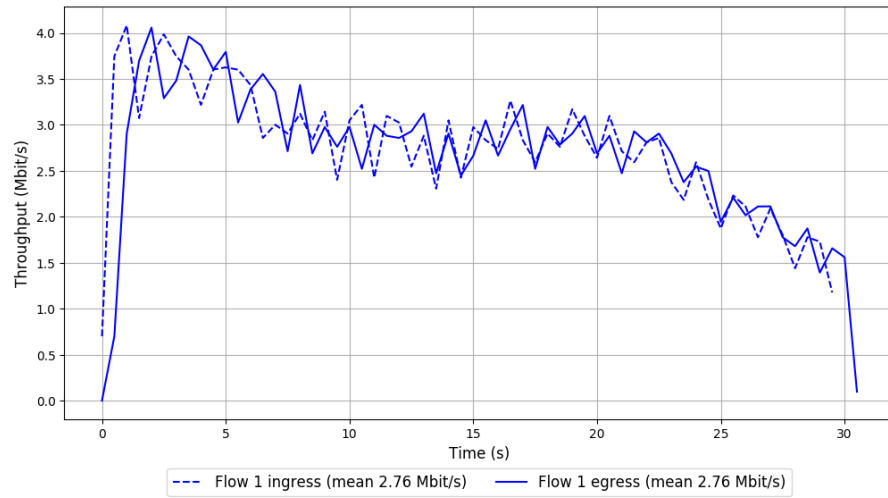
-- Flow 1:

Average throughput: 2.76 Mbit/s

95th percentile per-packet one-way delay: 108.817 ms

Loss rate: 0.01%

Run 3: Report of TCP Vegas — Data Link

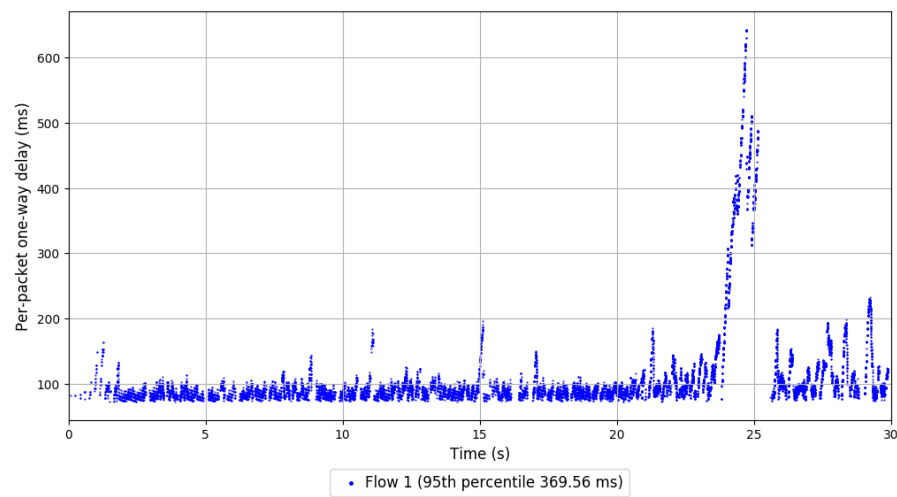
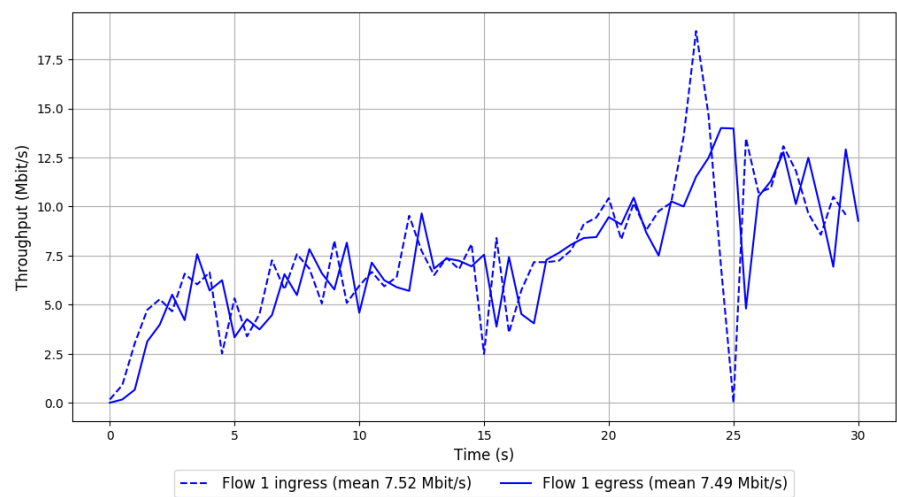


Run 1: Statistics of Verus

Start at: 2018-05-30 07:33:16
End at: 2018-05-30 07:33:46
Local clock offset: -4.631 ms
Remote clock offset: 36.267 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.49 Mbit/s
95th percentile per-packet one-way delay: 369.561 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 7.49 Mbit/s
95th percentile per-packet one-way delay: 369.561 ms
Loss rate: 0.50%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-05-30 07:53:29

End at: 2018-05-30 07:53:59

Local clock offset: 2.236 ms

Remote clock offset: 39.6 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.73 Mbit/s

95th percentile per-packet one-way delay: 349.142 ms

Loss rate: 0.22%

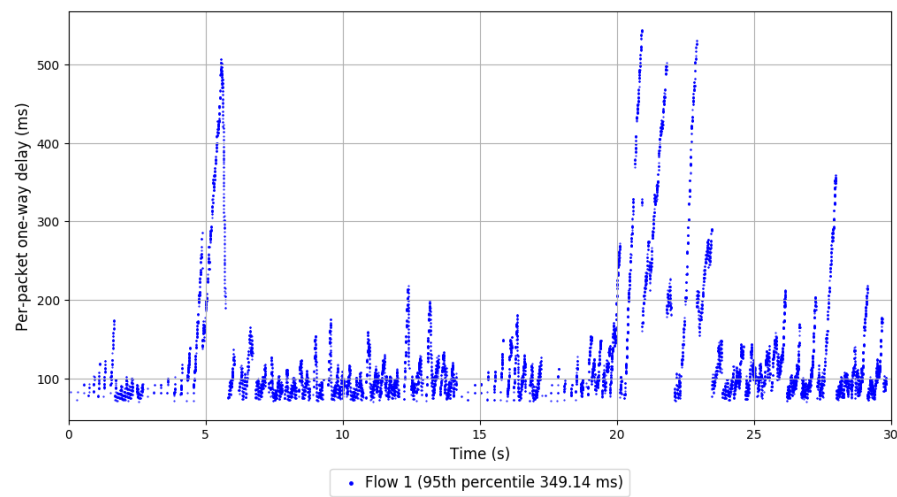
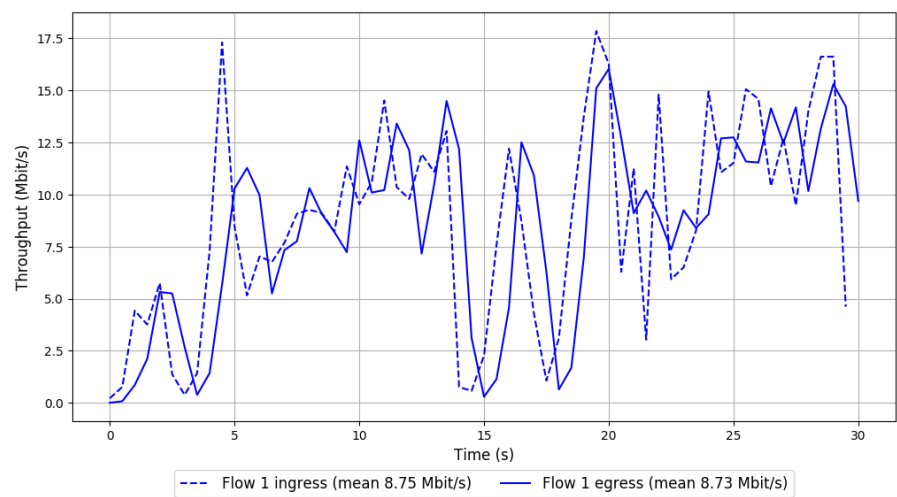
-- Flow 1:

Average throughput: 8.73 Mbit/s

95th percentile per-packet one-way delay: 349.142 ms

Loss rate: 0.22%

Run 2: Report of Verus — Data Link

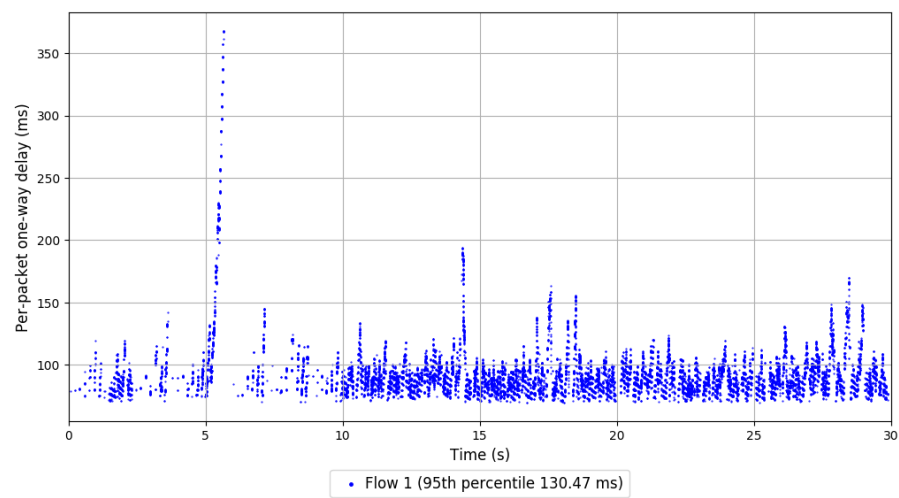
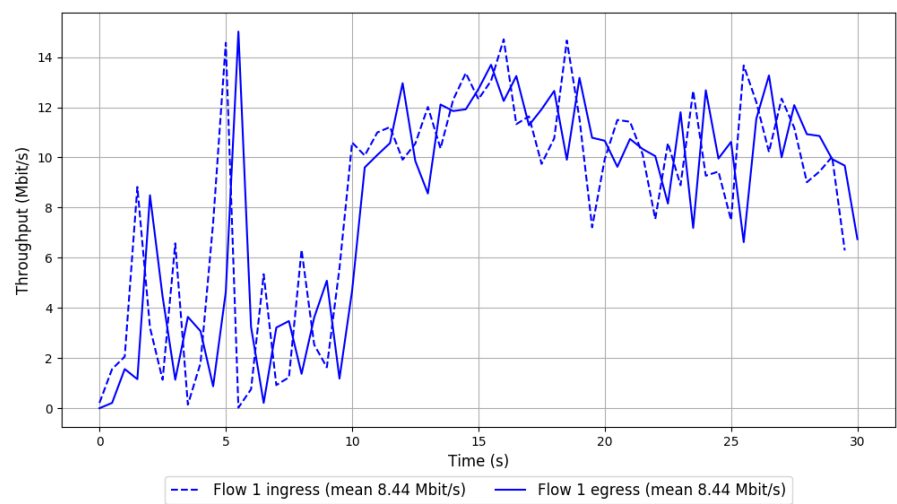


Run 3: Statistics of Verus

Start at: 2018-05-30 08:13:40
End at: 2018-05-30 08:14:10
Local clock offset: 3.384 ms
Remote clock offset: 39.722 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.44 Mbit/s
95th percentile per-packet one-way delay: 130.468 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 8.44 Mbit/s
95th percentile per-packet one-way delay: 130.468 ms
Loss rate: 0.08%

Run 3: Report of Verus — Data Link

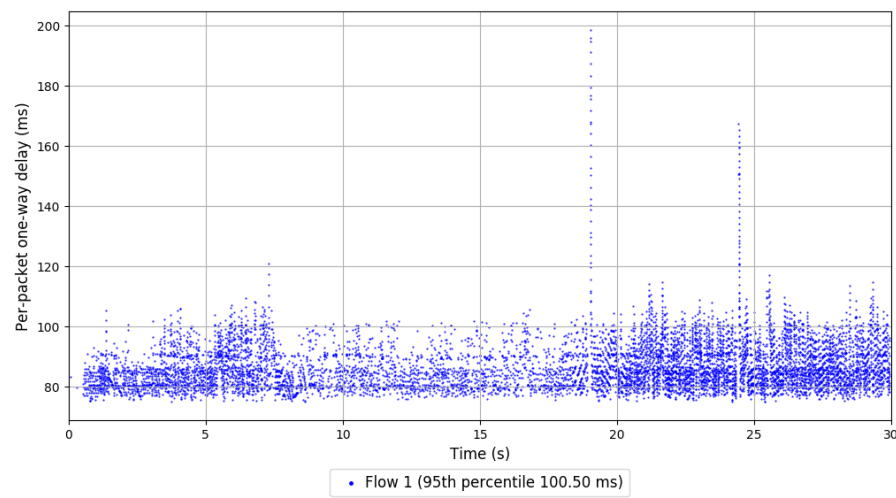
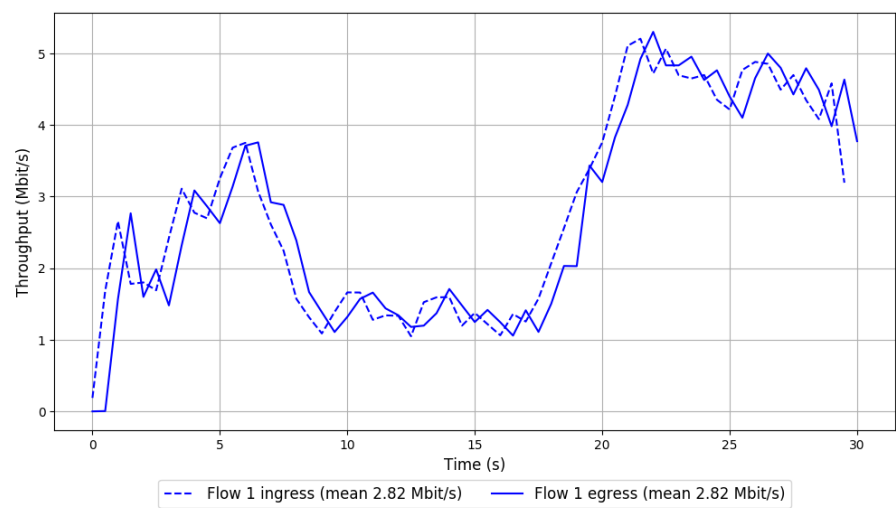


Run 1: Statistics of PCC-Vivace

Start at: 2018-05-30 07:28:09
End at: 2018-05-30 07:28:39
Local clock offset: -4.254 ms
Remote clock offset: 37.276 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.82 Mbit/s
95th percentile per-packet one-way delay: 100.496 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 2.82 Mbit/s
95th percentile per-packet one-way delay: 100.496 ms
Loss rate: 0.07%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-05-30 07:48:25

End at: 2018-05-30 07:48:55

Local clock offset: -0.42 ms

Remote clock offset: 38.716 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 98.727 ms

Loss rate: 0.08%

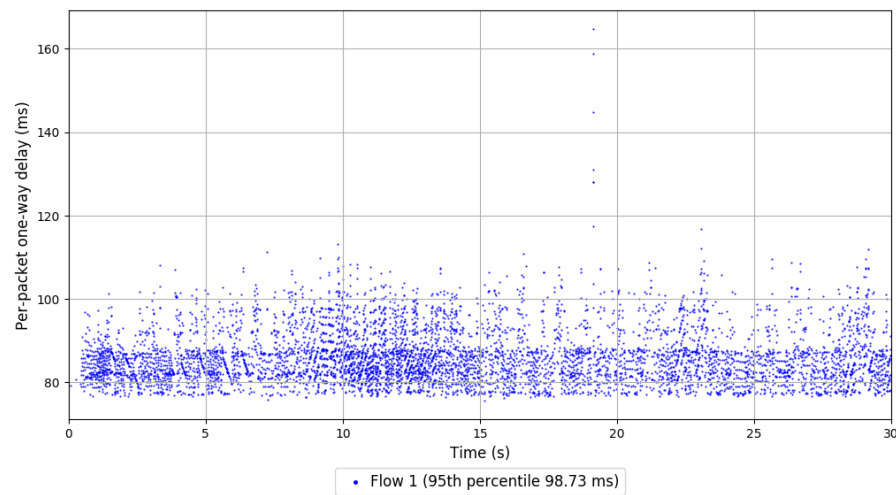
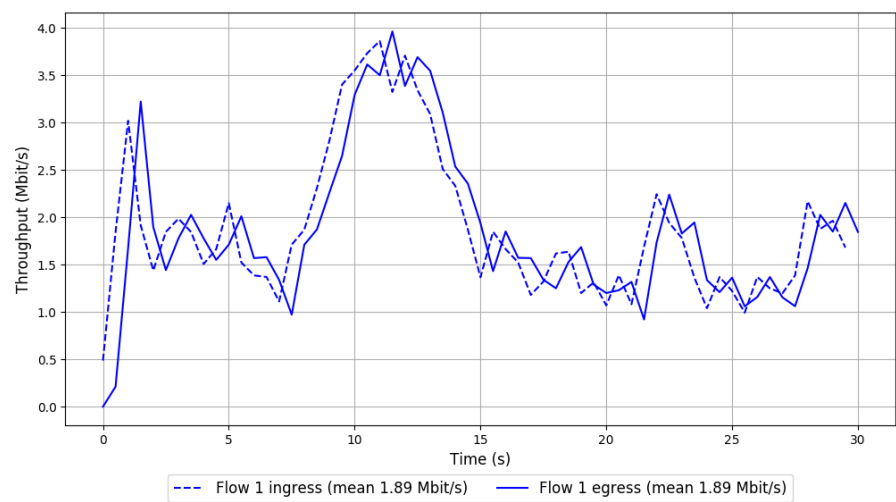
-- Flow 1:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 98.727 ms

Loss rate: 0.08%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-05-30 08:08:38

End at: 2018-05-30 08:09:08

Local clock offset: 3.744 ms

Remote clock offset: 39.926 ms

Below is generated by plot.py at 2018-05-30 08:20:48

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 83.019 ms

Loss rate: 0.00%

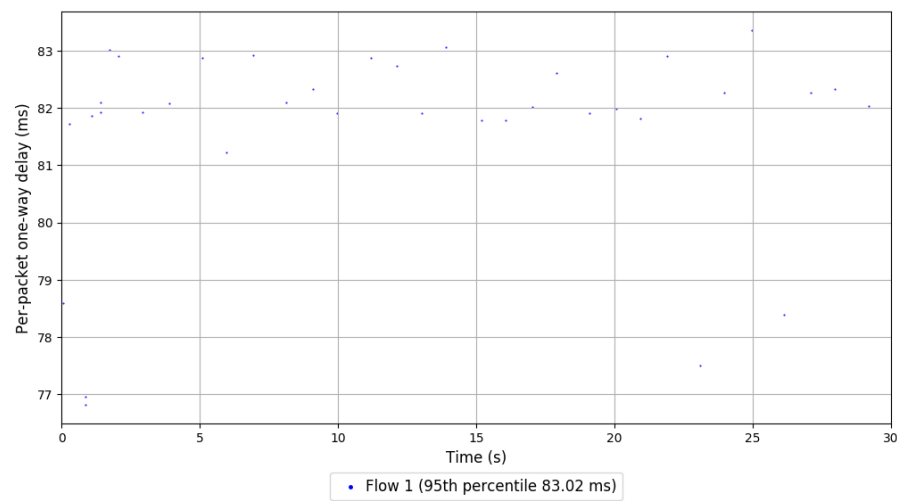
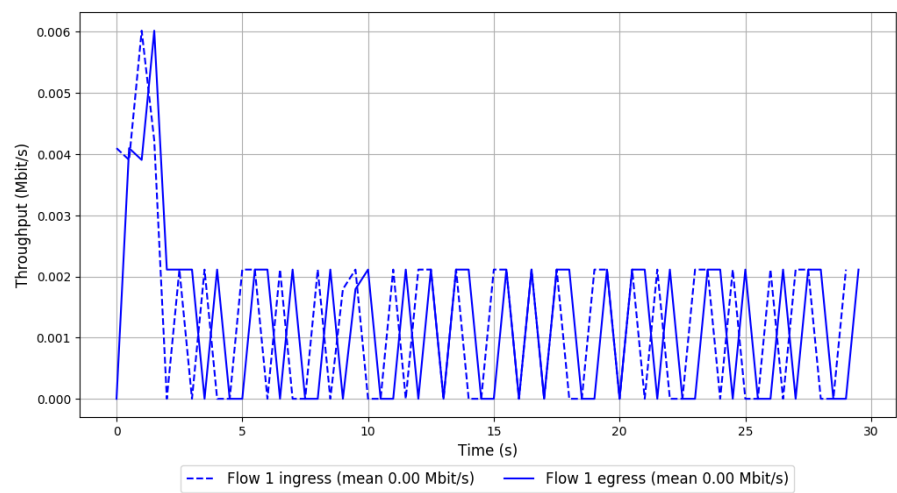
-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 83.019 ms

Loss rate: 0.00%

Run 3: Report of PCC-Vivace — Data Link

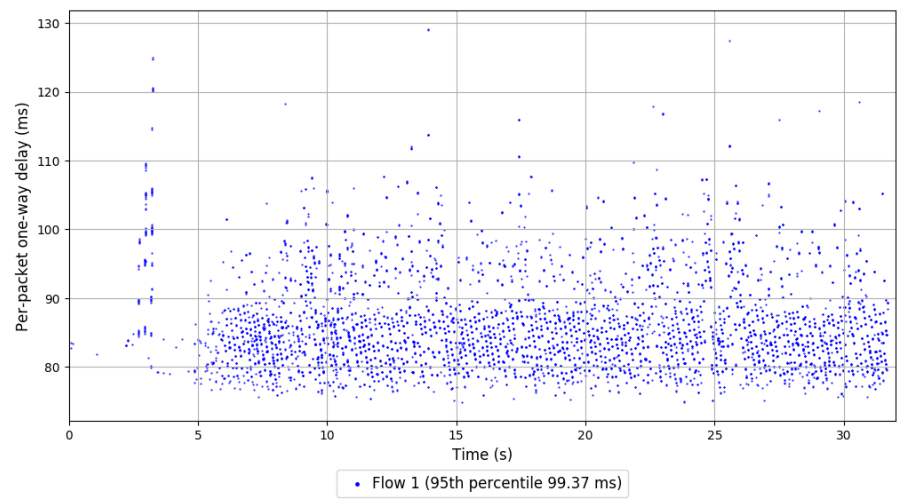
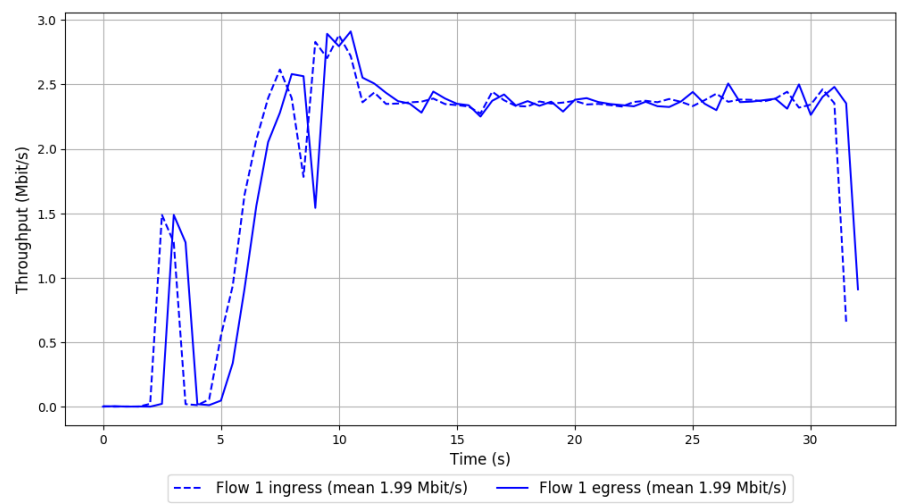


```
Run 1: Statistics of WebRTC media

Start at: 2018-05-30 07:38:20
End at: 2018-05-30 07:38:50
Local clock offset: -5.523 ms
Remote clock offset: 35.098 ms

# Below is generated by plot.py at 2018-05-30 08:20:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 99.370 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 99.370 ms
Loss rate: 0.11%
```

Run 1: Report of WebRTC media — Data Link

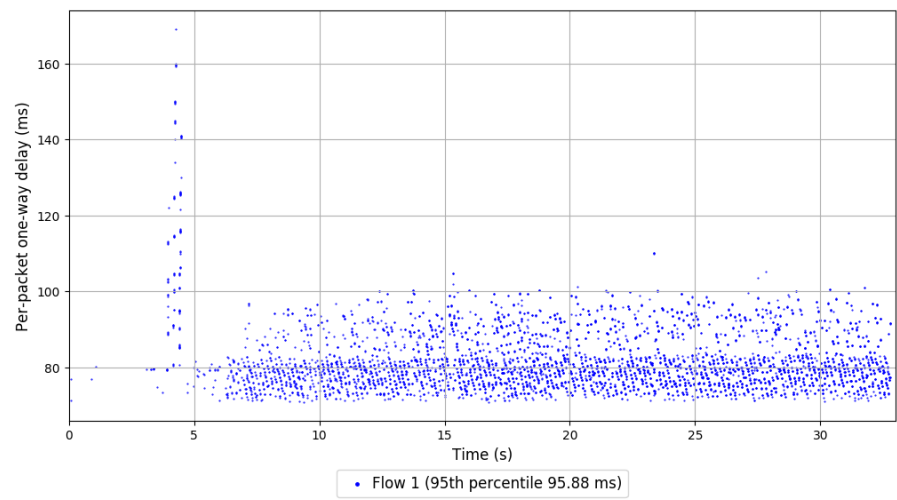
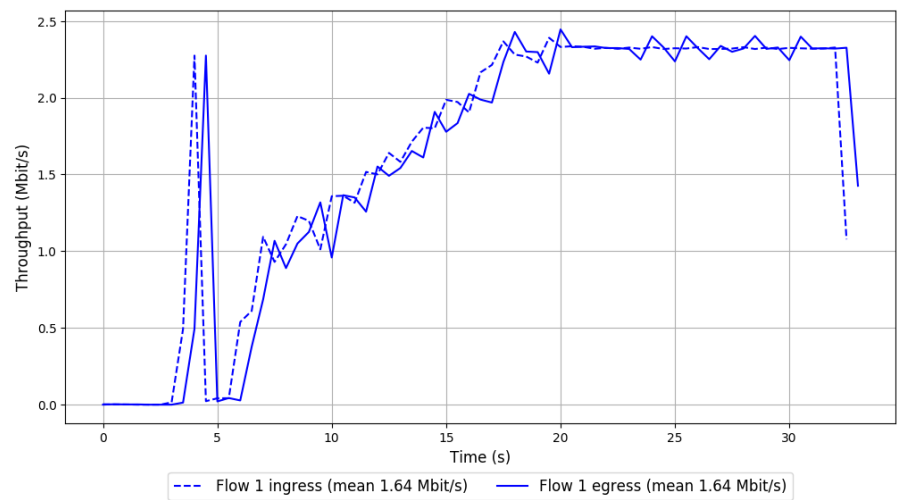


Run 2: Statistics of WebRTC media

Start at: 2018-05-30 07:58:33
End at: 2018-05-30 07:59:03
Local clock offset: 3.319 ms
Remote clock offset: 39.944 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 95.881 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 95.881 ms
Loss rate: 0.04%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-05-30 08:19:06
End at: 2018-05-30 08:19:36
Local clock offset: 2.789 ms
Remote clock offset: 38.172 ms

Below is generated by plot.py at 2018-05-30 08:20:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 92.645 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 92.645 ms
Loss rate: 0.06%

Run 3: Report of WebRTC media — Data Link

