

Pantheon Report

Generated at 2018-11-15 05:42:12 (UTC).

Data path: GCE Iowa on `ens4` (*remote*) → GCE Sydney on `ens4` (*local*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

System info:

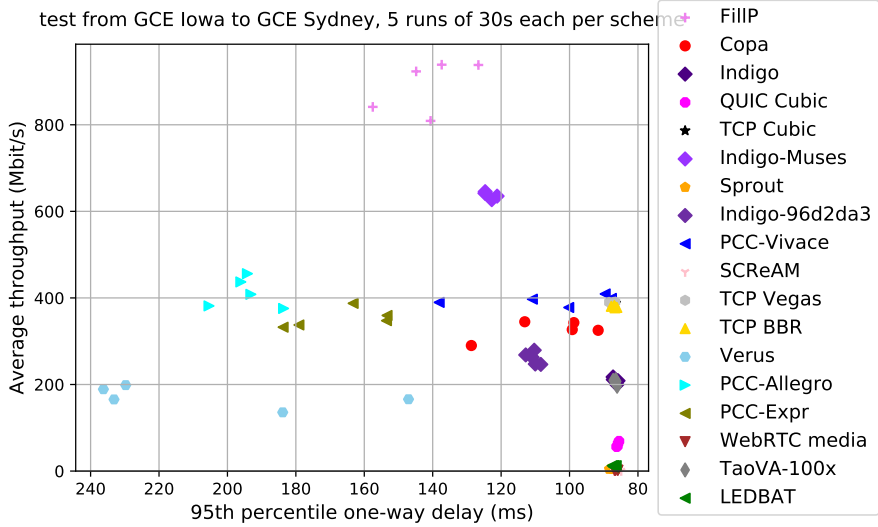
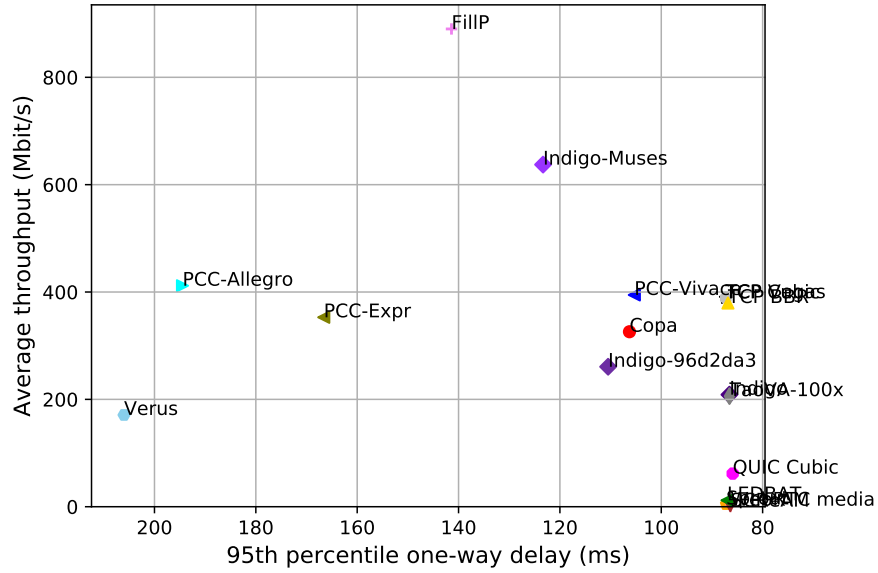
```
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
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-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
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 GCE Iowa to GCE Sydney, 5 runs of 30s each per scheme
(mean of all runs by scheme)



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	379.52	86.84	0.63
Copa	5	326.00	106.27	0.60
TCP Cubic	5	388.14	87.40	0.61
FillP	5	890.10	141.39	2.09
Indigo	5	208.78	86.55	0.66
Indigo-96d2da3	5	260.78	110.49	0.80
LEDBAT	5	11.94	87.02	1.14
Indigo-Muses	4	637.38	123.32	0.81
PCC-Allegro	5	411.71	194.47	3.06
PCC-Expr	5	352.86	166.60	1.74
QUIC Cubic	4	61.68	85.91	0.89
SCReAM	5	0.22	86.34	0.56
Sprout	5	4.33	87.19	0.66
TaoVA-100x	5	206.04	86.54	0.60
TCP Vegas	5	388.67	87.26	0.61
Verus	5	170.96	206.01	8.05
PCC-Vivace	5	394.55	105.32	0.77
WebRTC media	5	1.93	86.38	0.69

Run 1: Statistics of TCP BBR

Start at: 2018-11-15 01:58:02

End at: 2018-11-15 01:58:32

Local clock offset: 2.573 ms

Remote clock offset: 2.385 ms

Below is generated by plot.py at 2018-11-15 04:26:25

Datalink statistics

-- Total of 1 flow:

Average throughput: 380.66 Mbit/s

95th percentile per-packet one-way delay: 87.781 ms

Loss rate: 0.63%

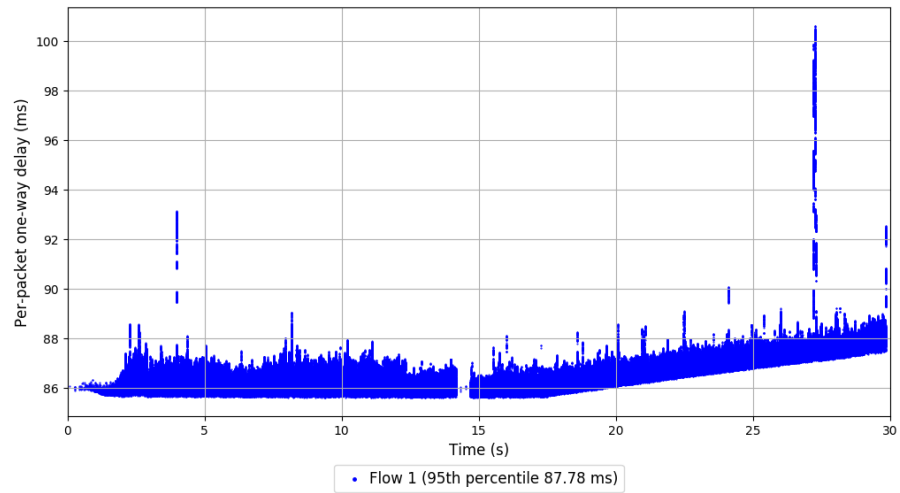
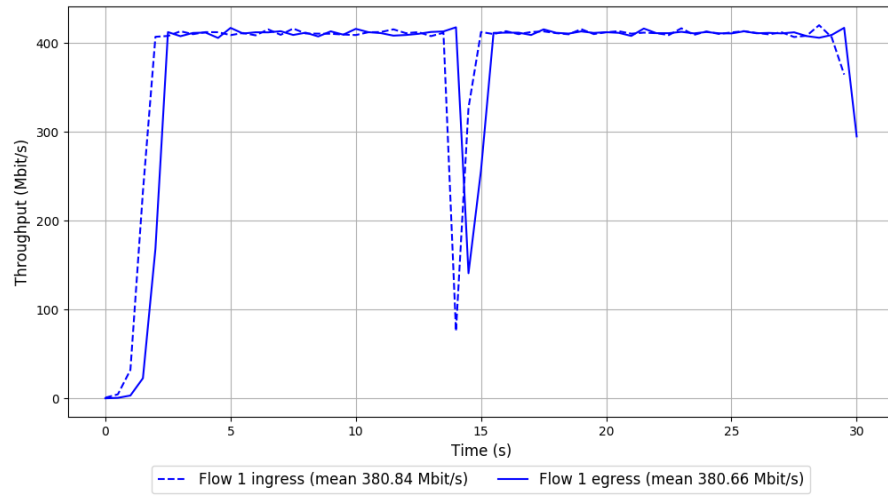
-- Flow 1:

Average throughput: 380.66 Mbit/s

95th percentile per-packet one-way delay: 87.781 ms

Loss rate: 0.63%

Run 1: Report of TCP BBR — Data Link

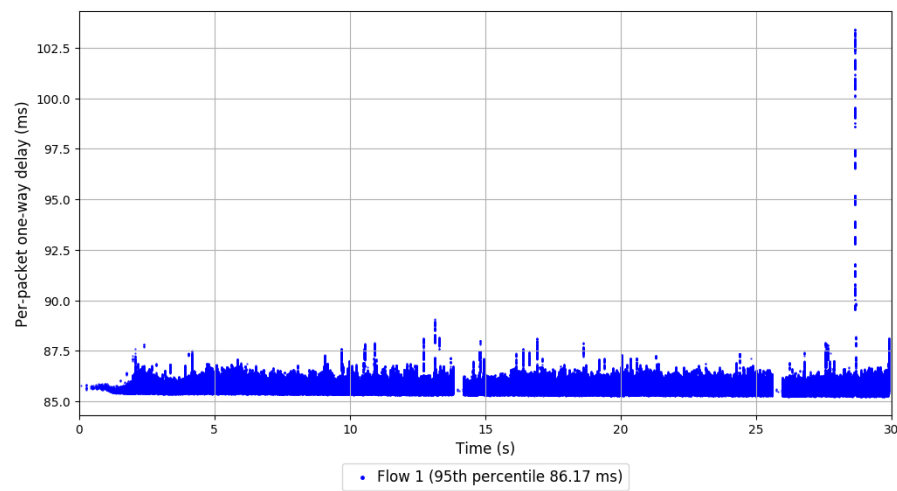
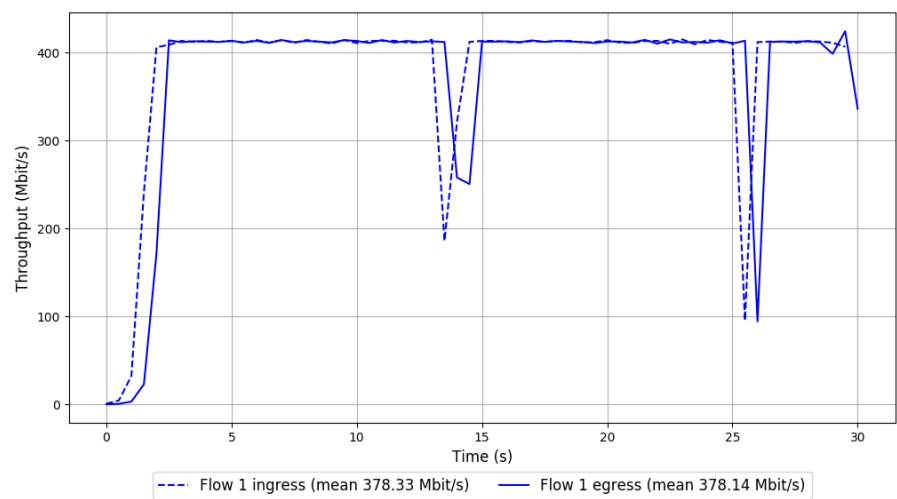


Run 2: Statistics of TCP BBR

Start at: 2018-11-15 02:24:05
End at: 2018-11-15 02:24:35
Local clock offset: 24.402 ms
Remote clock offset: 13.521 ms

Below is generated by plot.py at 2018-11-15 04:26:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 378.14 Mbit/s
95th percentile per-packet one-way delay: 86.167 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 378.14 Mbit/s
95th percentile per-packet one-way delay: 86.167 ms
Loss rate: 0.62%

Run 2: Report of TCP BBR — Data Link

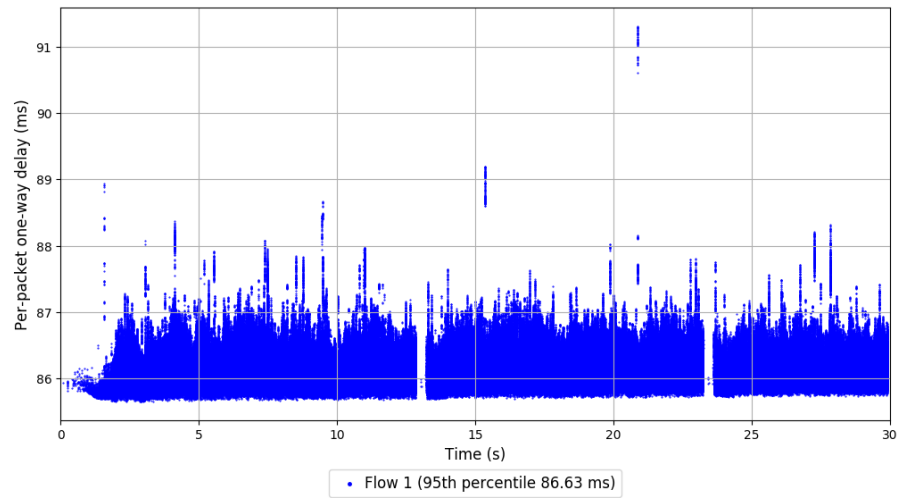
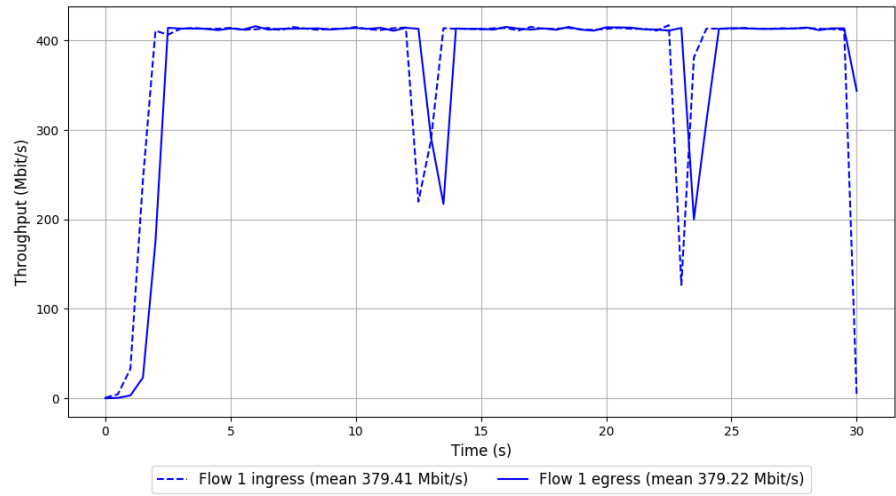


Run 3: Statistics of TCP BBR

Start at: 2018-11-15 02:51:57
End at: 2018-11-15 02:52:28
Local clock offset: 19.799 ms
Remote clock offset: 20.604 ms

Below is generated by plot.py at 2018-11-15 04:26:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 379.22 Mbit/s
95th percentile per-packet one-way delay: 86.634 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 379.22 Mbit/s
95th percentile per-packet one-way delay: 86.634 ms
Loss rate: 0.63%

Run 3: Report of TCP BBR — Data Link

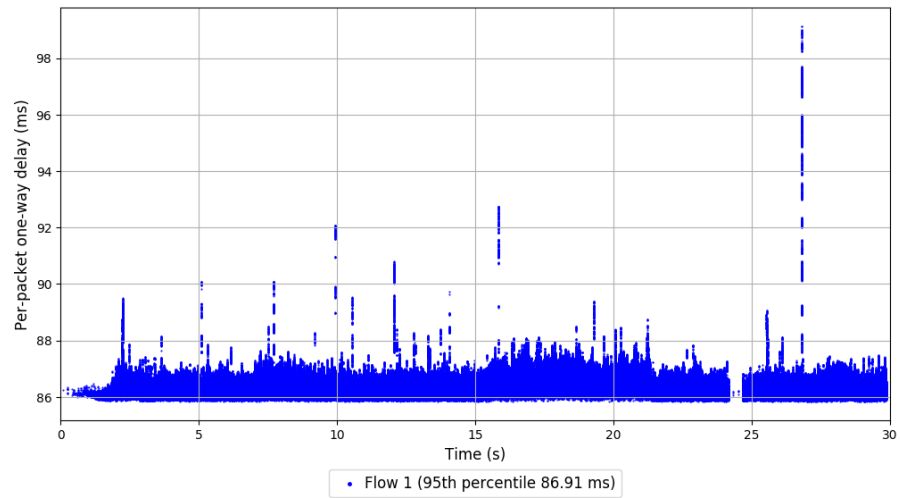
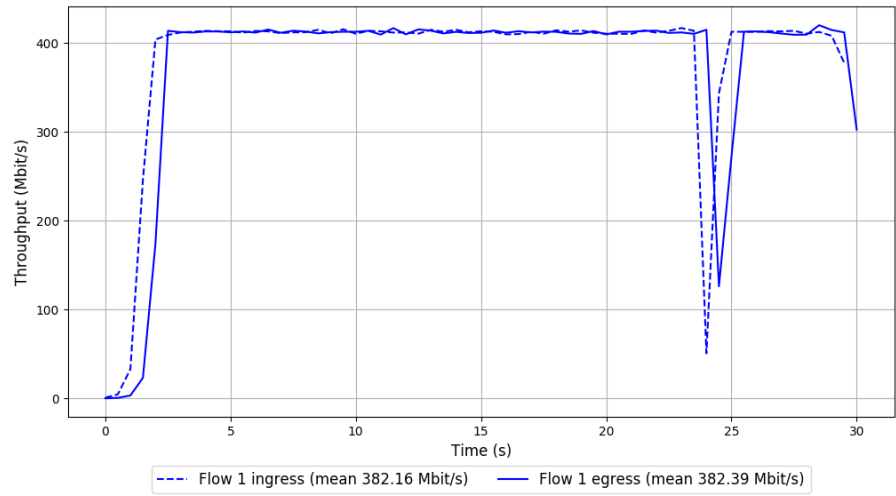


Run 4: Statistics of TCP BBR

Start at: 2018-11-15 03:19:20
End at: 2018-11-15 03:19:50
Local clock offset: 10.807 ms
Remote clock offset: 11.998 ms

Below is generated by plot.py at 2018-11-15 04:26:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 382.39 Mbit/s
95th percentile per-packet one-way delay: 86.908 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 382.39 Mbit/s
95th percentile per-packet one-way delay: 86.908 ms
Loss rate: 0.62%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-15 03:45:39

End at: 2018-11-15 03:46:09

Local clock offset: 7.589 ms

Remote clock offset: 7.832 ms

Below is generated by plot.py at 2018-11-15 04:26:27

Datalink statistics

-- Total of 1 flow:

Average throughput: 377.19 Mbit/s

95th percentile per-packet one-way delay: 86.703 ms

Loss rate: 0.63%

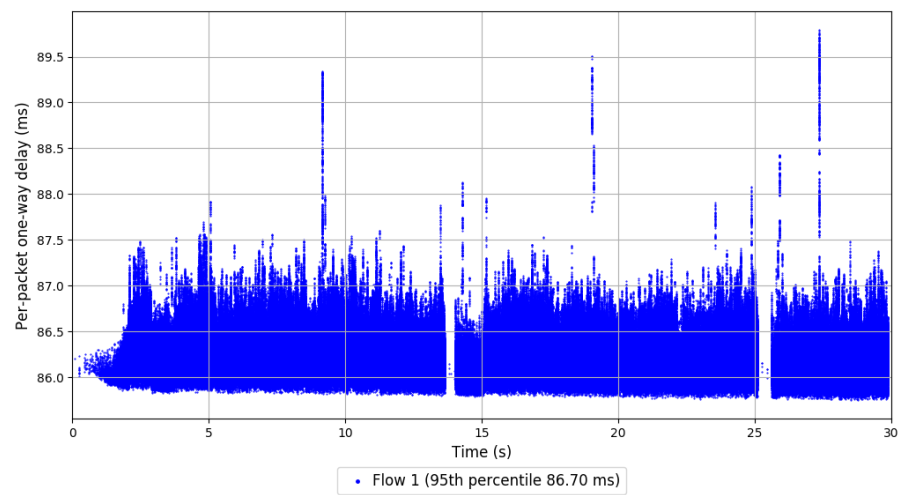
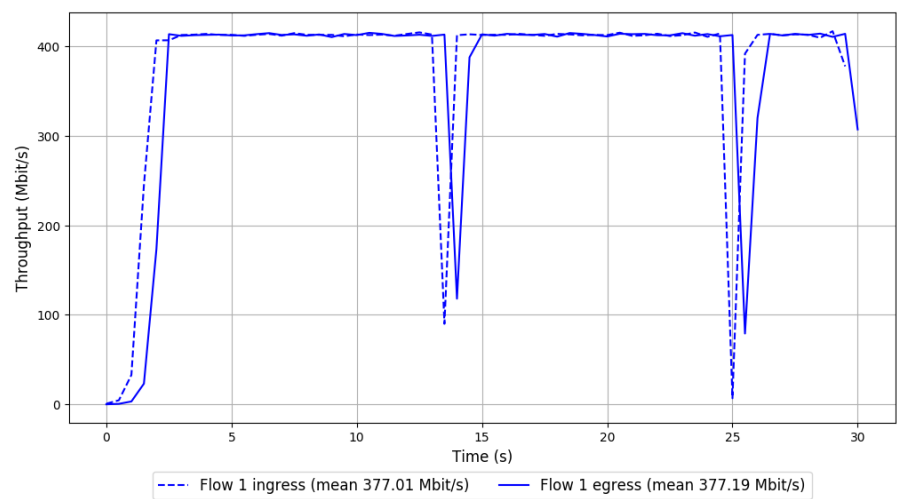
-- Flow 1:

Average throughput: 377.19 Mbit/s

95th percentile per-packet one-way delay: 86.703 ms

Loss rate: 0.63%

Run 5: Report of TCP BBR — Data Link

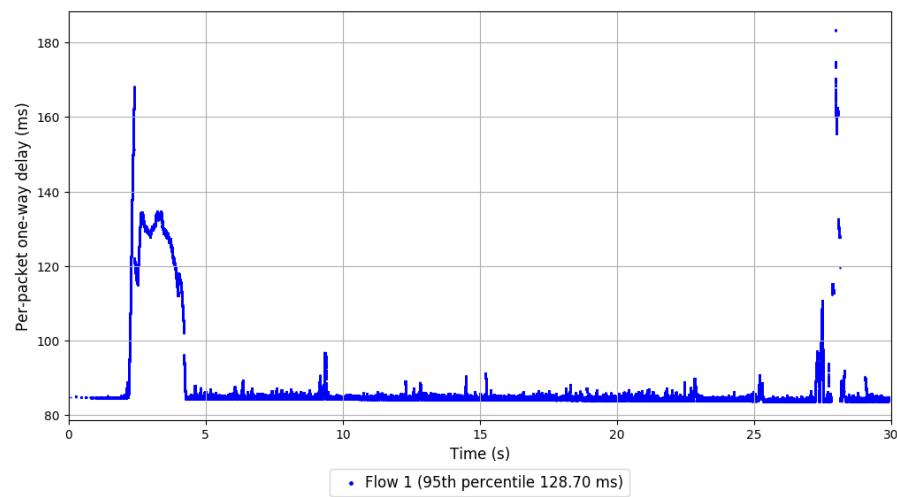
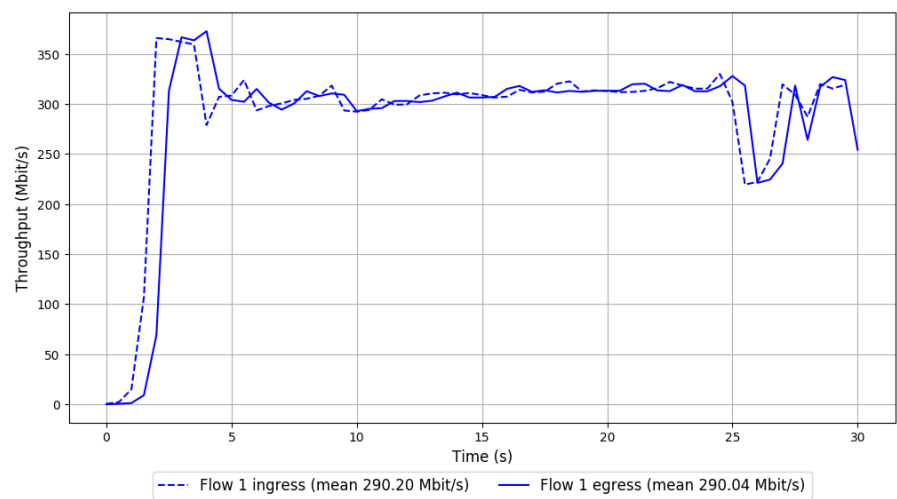


Run 1: Statistics of Copa

Start at: 2018-11-15 02:15:30
End at: 2018-11-15 02:16:00
Local clock offset: 12.958 ms
Remote clock offset: 11.149 ms

Below is generated by plot.py at 2018-11-15 04:30:05
Datalink statistics
-- Total of 1 flow:
Average throughput: 290.04 Mbit/s
95th percentile per-packet one-way delay: 128.701 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 290.04 Mbit/s
95th percentile per-packet one-way delay: 128.701 ms
Loss rate: 0.63%

Run 1: Report of Copa — Data Link

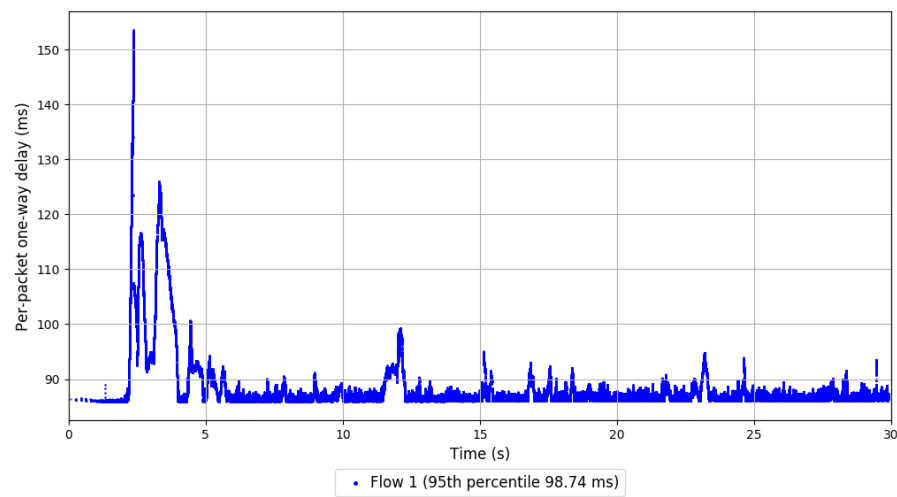
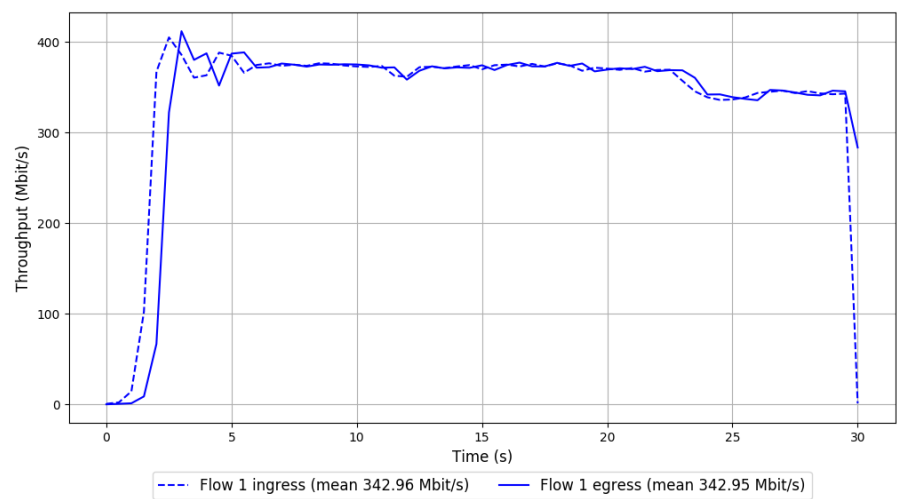


Run 2: Statistics of Copa

Start at: 2018-11-15 02:42:44
End at: 2018-11-15 02:43:14
Local clock offset: 17.739 ms
Remote clock offset: 15.726 ms

Below is generated by plot.py at 2018-11-15 04:31:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 342.95 Mbit/s
95th percentile per-packet one-way delay: 98.738 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 342.95 Mbit/s
95th percentile per-packet one-way delay: 98.738 ms
Loss rate: 0.58%

Run 2: Report of Copa — Data Link

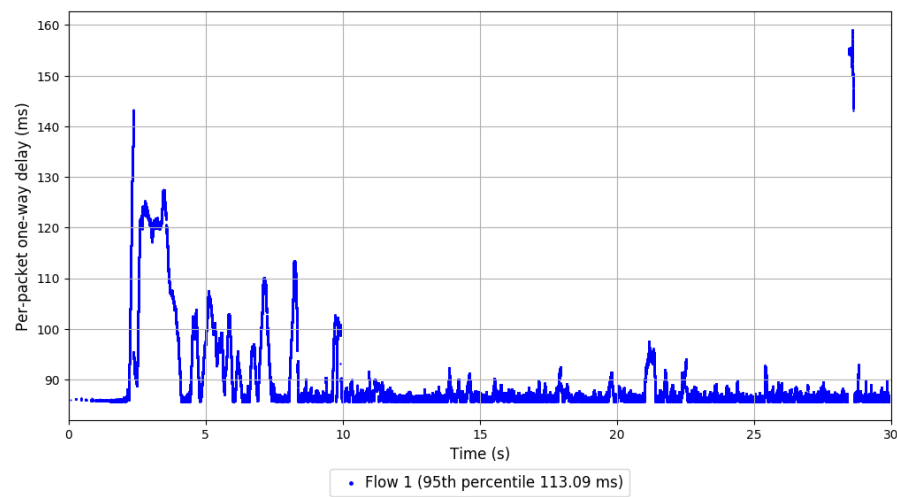
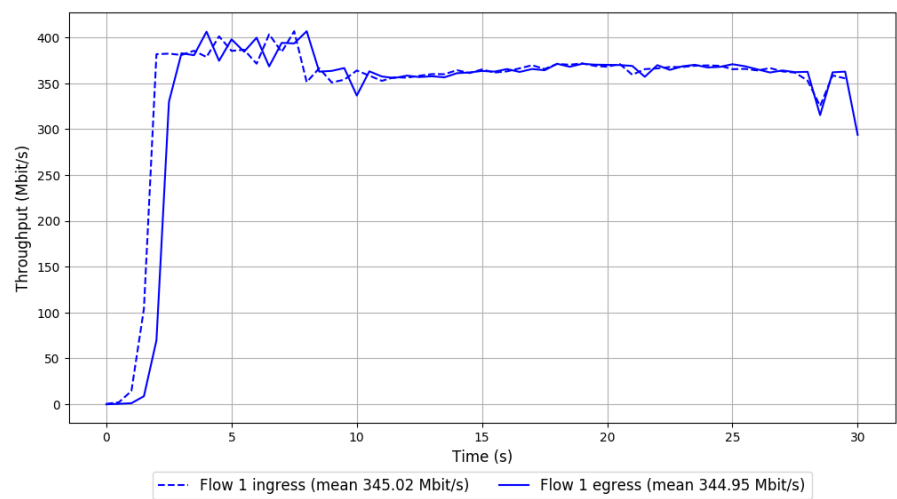


Run 3: Statistics of Copa

Start at: 2018-11-15 03:10:37
End at: 2018-11-15 03:11:07
Local clock offset: 15.982 ms
Remote clock offset: 18.075 ms

Below is generated by plot.py at 2018-11-15 04:31:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 344.95 Mbit/s
95th percentile per-packet one-way delay: 113.088 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 344.95 Mbit/s
95th percentile per-packet one-way delay: 113.088 ms
Loss rate: 0.60%

Run 3: Report of Copa — Data Link

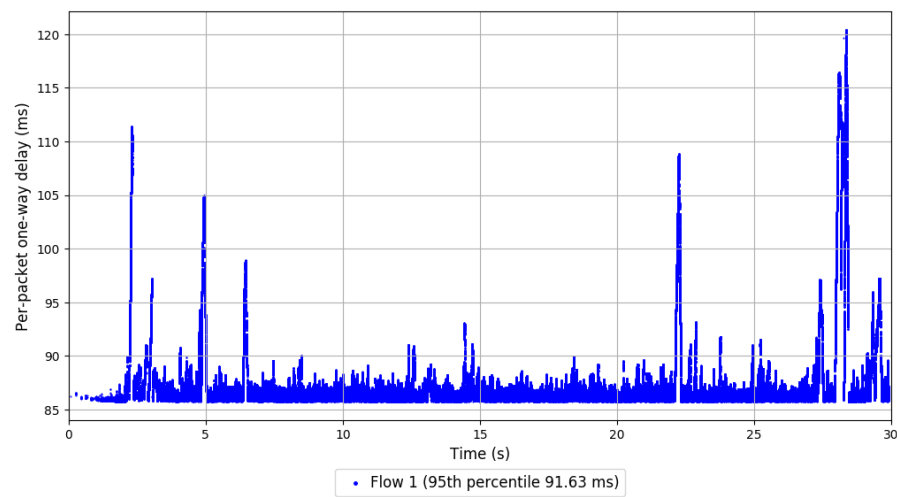
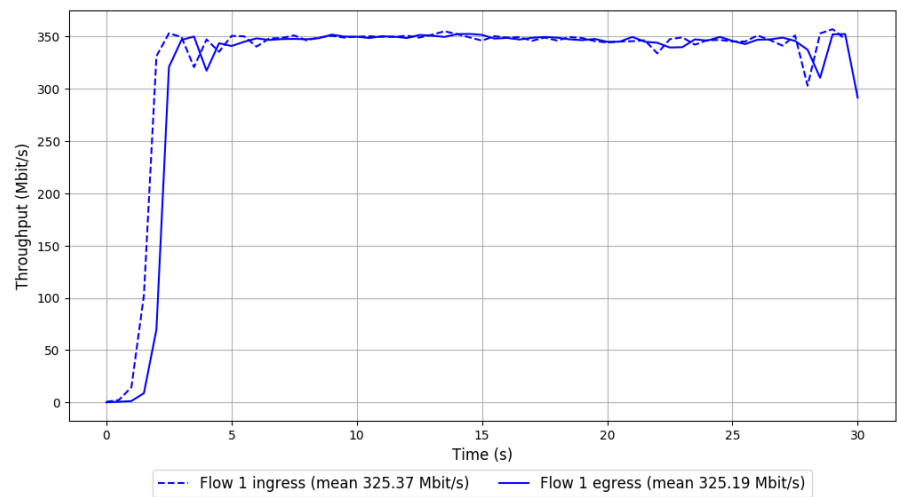


Run 4: Statistics of Copa

Start at: 2018-11-15 03:37:00
End at: 2018-11-15 03:37:30
Local clock offset: 13.184 ms
Remote clock offset: 14.819 ms

Below is generated by plot.py at 2018-11-15 04:38:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 325.19 Mbit/s
95th percentile per-packet one-way delay: 91.634 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 325.19 Mbit/s
95th percentile per-packet one-way delay: 91.634 ms
Loss rate: 0.63%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-15 04:03:33

End at: 2018-11-15 04:04:03

Local clock offset: 5.068 ms

Remote clock offset: 3.295 ms

Below is generated by plot.py at 2018-11-15 04:38:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 326.85 Mbit/s

95th percentile per-packet one-way delay: 99.207 ms

Loss rate: 0.54%

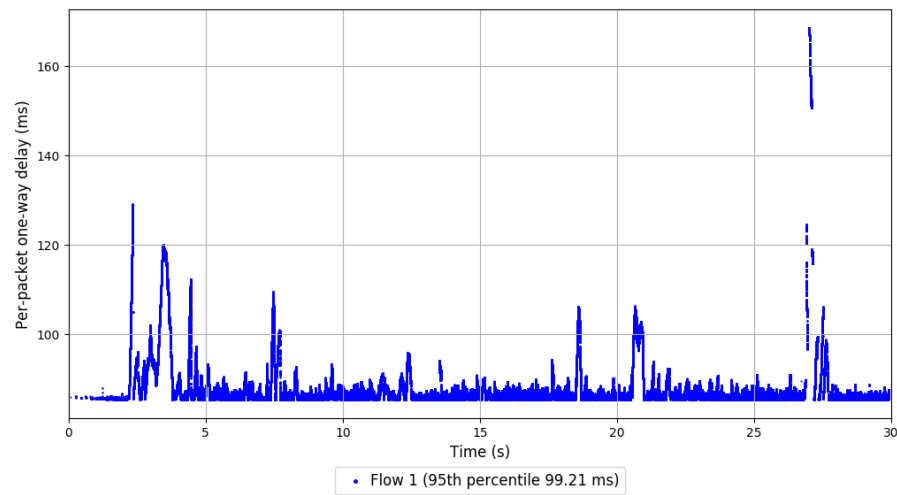
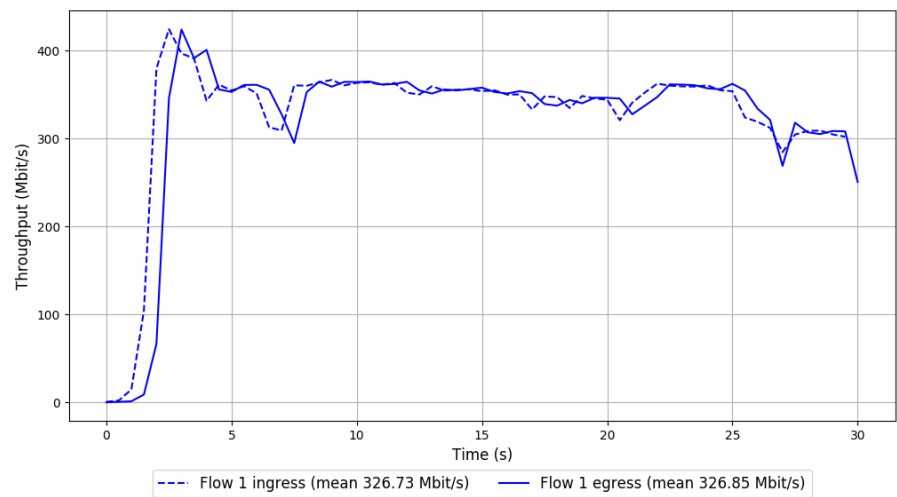
-- Flow 1:

Average throughput: 326.85 Mbit/s

95th percentile per-packet one-way delay: 99.207 ms

Loss rate: 0.54%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 02:19:55

End at: 2018-11-15 02:20:25

Local clock offset: 18.811 ms

Remote clock offset: 10.6 ms

Below is generated by plot.py at 2018-11-15 04:38:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 387.99 Mbit/s

95th percentile per-packet one-way delay: 86.515 ms

Loss rate: 0.61%

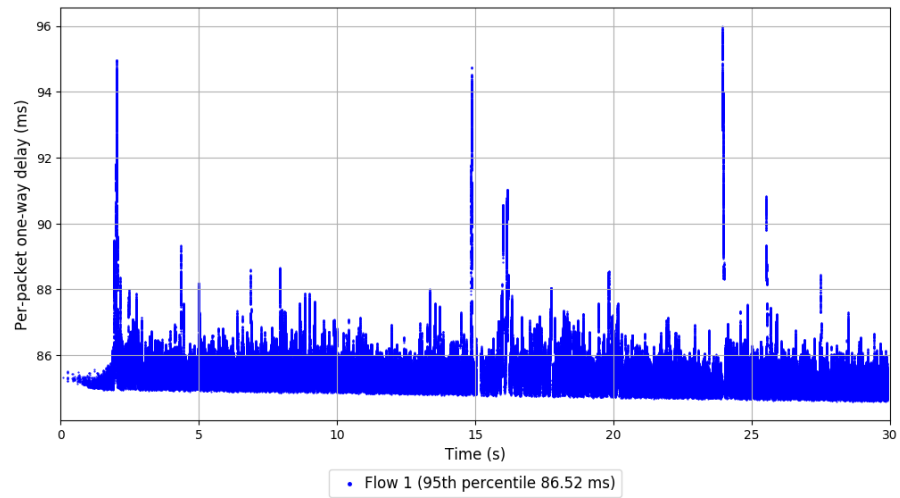
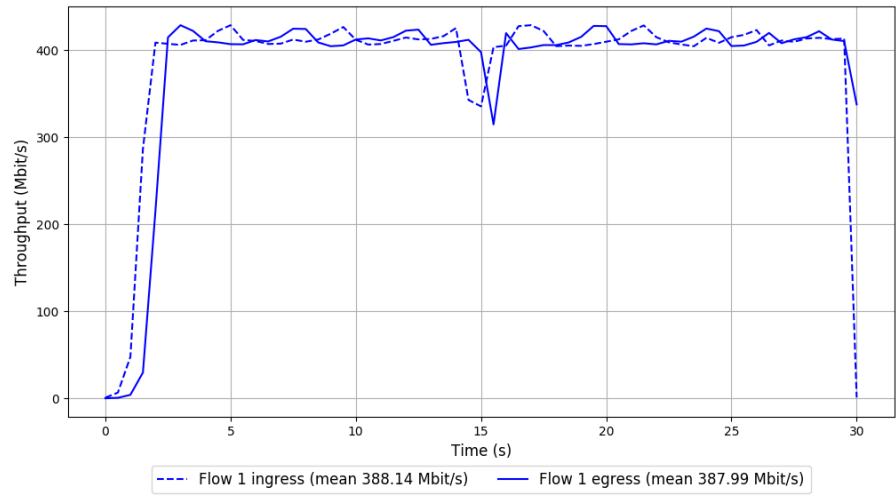
-- Flow 1:

Average throughput: 387.99 Mbit/s

95th percentile per-packet one-way delay: 86.515 ms

Loss rate: 0.61%

Run 1: Report of TCP Cubic — Data Link

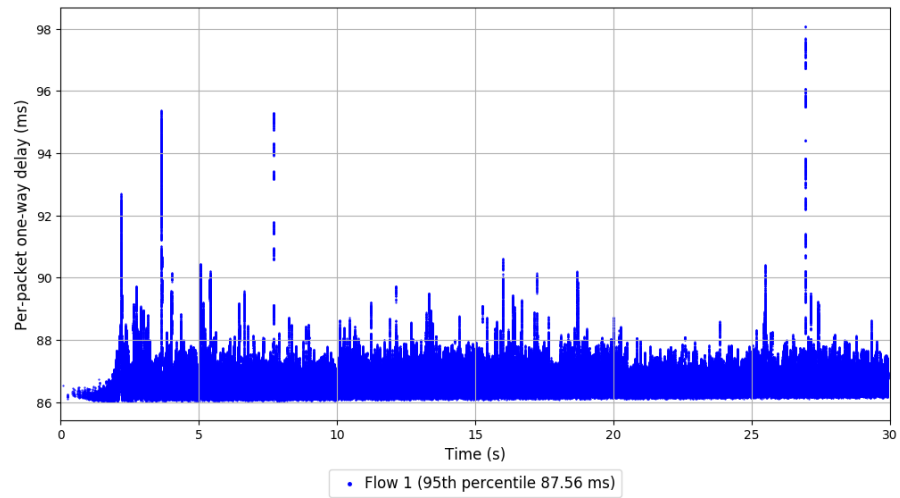
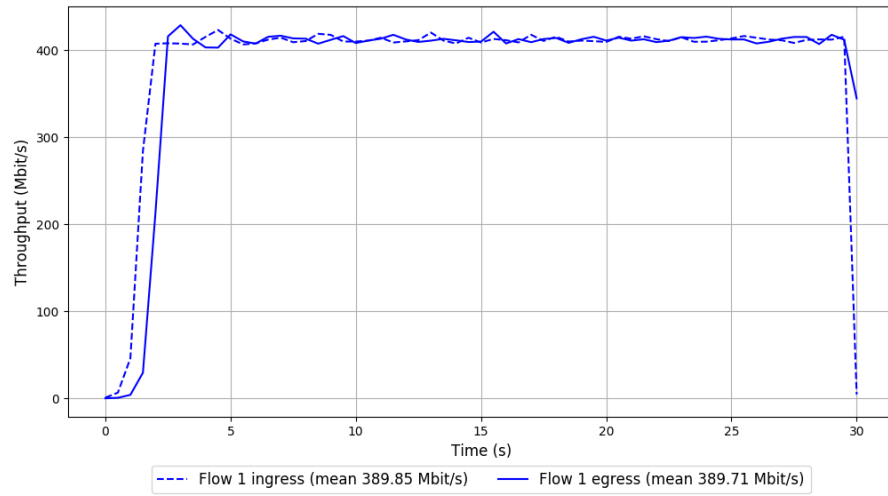


Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 02:47:39
End at: 2018-11-15 02:48:09
Local clock offset: 18.385 ms
Remote clock offset: 17.863 ms

Below is generated by plot.py at 2018-11-15 04:38:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 389.71 Mbit/s
95th percentile per-packet one-way delay: 87.561 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 389.71 Mbit/s
95th percentile per-packet one-way delay: 87.561 ms
Loss rate: 0.61%

Run 2: Report of TCP Cubic — Data Link

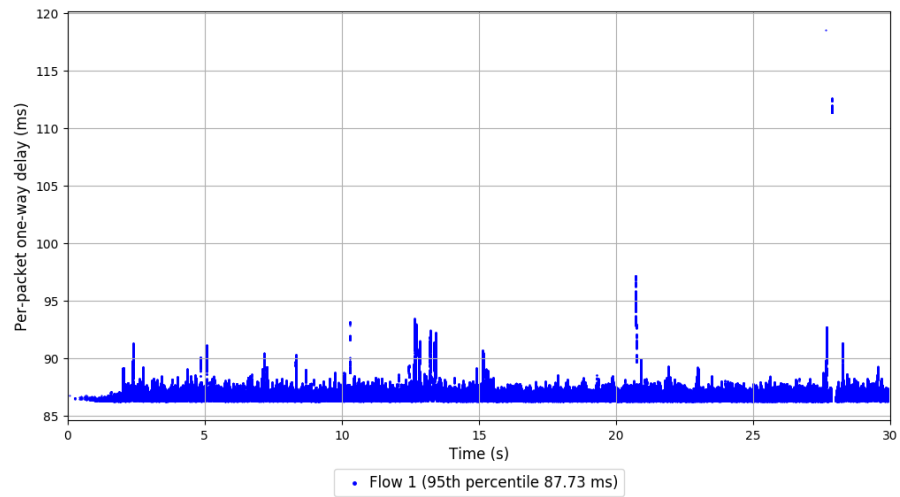
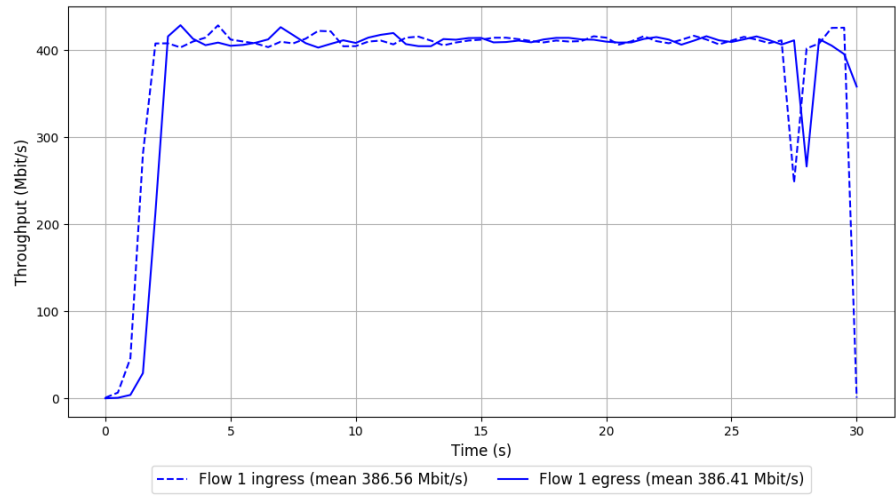


Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 03:15:12
End at: 2018-11-15 03:15:42
Local clock offset: 12.319 ms
Remote clock offset: 13.641 ms

Below is generated by plot.py at 2018-11-15 04:38:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 386.41 Mbit/s
95th percentile per-packet one-way delay: 87.732 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 386.41 Mbit/s
95th percentile per-packet one-way delay: 87.732 ms
Loss rate: 0.62%

Run 3: Report of TCP Cubic — Data Link

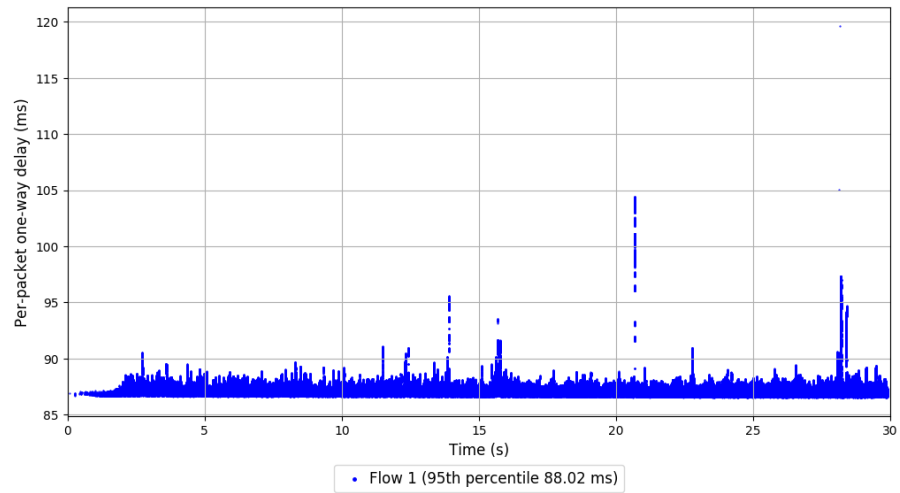
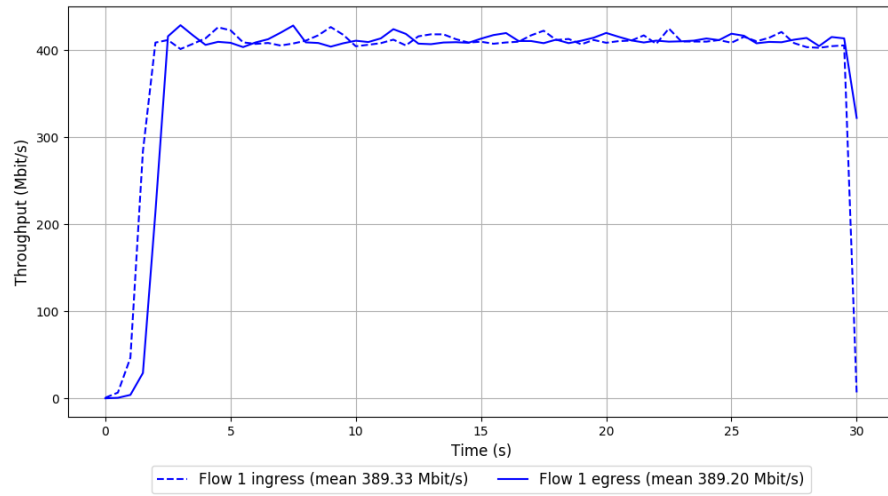


Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 03:41:31
End at: 2018-11-15 03:42:01
Local clock offset: 11.045 ms
Remote clock offset: 11.794 ms

Below is generated by plot.py at 2018-11-15 04:38:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 389.20 Mbit/s
95th percentile per-packet one-way delay: 88.018 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 389.20 Mbit/s
95th percentile per-packet one-way delay: 88.018 ms
Loss rate: 0.61%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 04:08:04

End at: 2018-11-15 04:08:34

Local clock offset: 5.875 ms

Remote clock offset: 3.408 ms

Below is generated by plot.py at 2018-11-15 04:39:15

Datalink statistics

-- Total of 1 flow:

Average throughput: 387.41 Mbit/s

95th percentile per-packet one-way delay: 87.166 ms

Loss rate: 0.61%

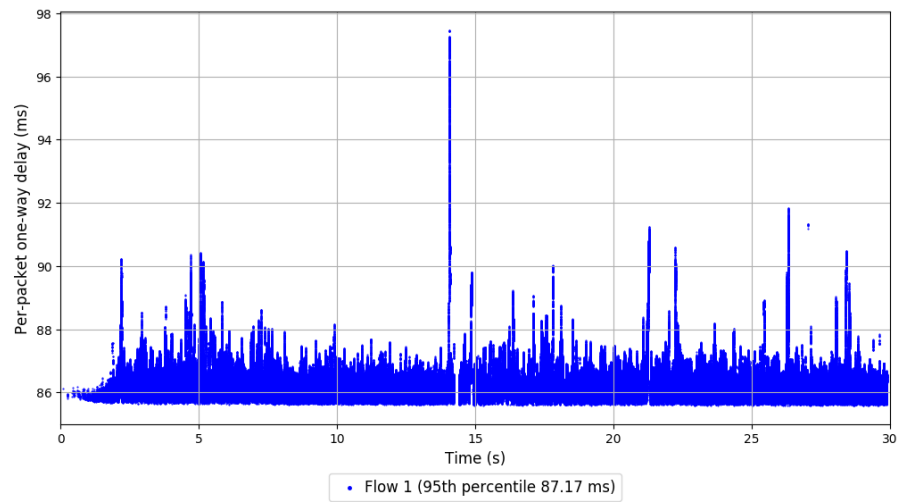
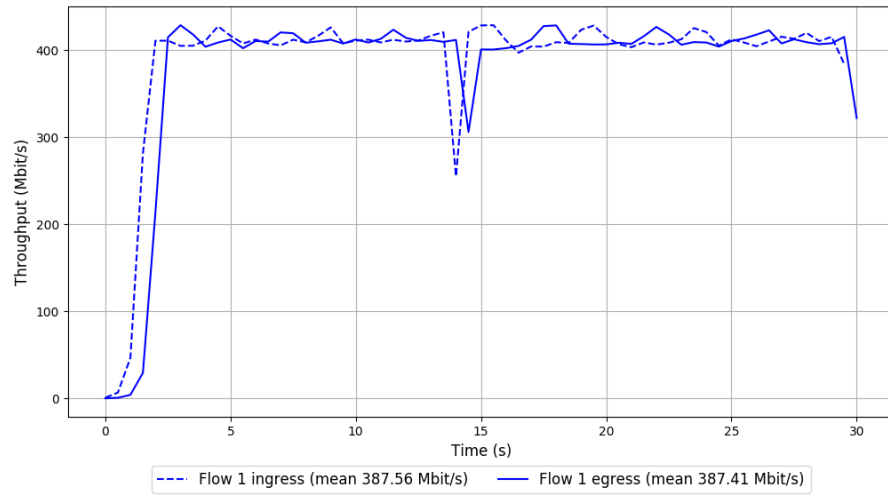
-- Flow 1:

Average throughput: 387.41 Mbit/s

95th percentile per-packet one-way delay: 87.166 ms

Loss rate: 0.61%

Run 5: Report of TCP Cubic — Data Link

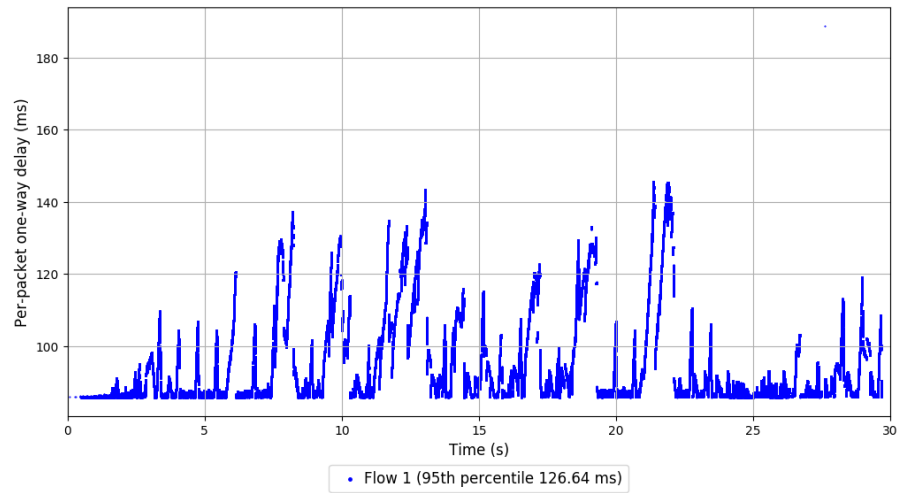
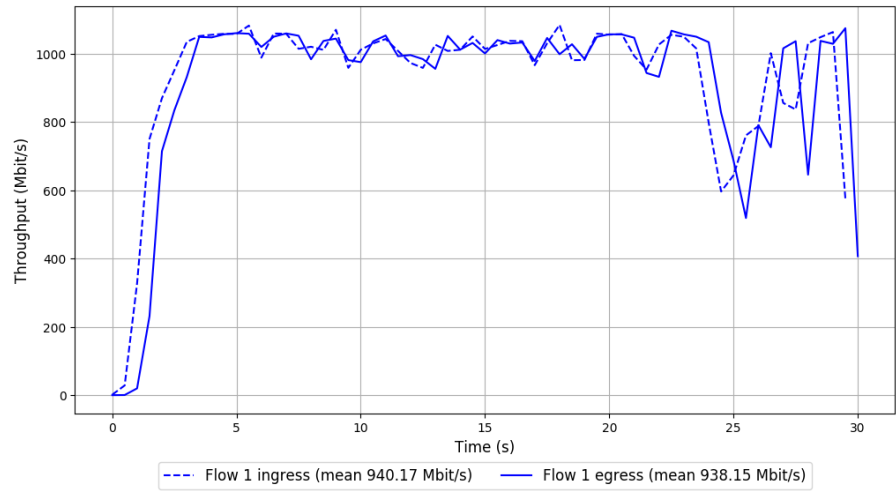


Run 1: Statistics of FillP

Start at: 2018-11-15 02:12:33
End at: 2018-11-15 02:13:03
Local clock offset: 9.931 ms
Remote clock offset: 11.936 ms

Below is generated by plot.py at 2018-11-15 04:55:07
Datalink statistics
-- Total of 1 flow:
Average throughput: 938.15 Mbit/s
95th percentile per-packet one-way delay: 126.637 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 938.15 Mbit/s
95th percentile per-packet one-way delay: 126.637 ms
Loss rate: 0.79%

Run 1: Report of FillP — Data Link

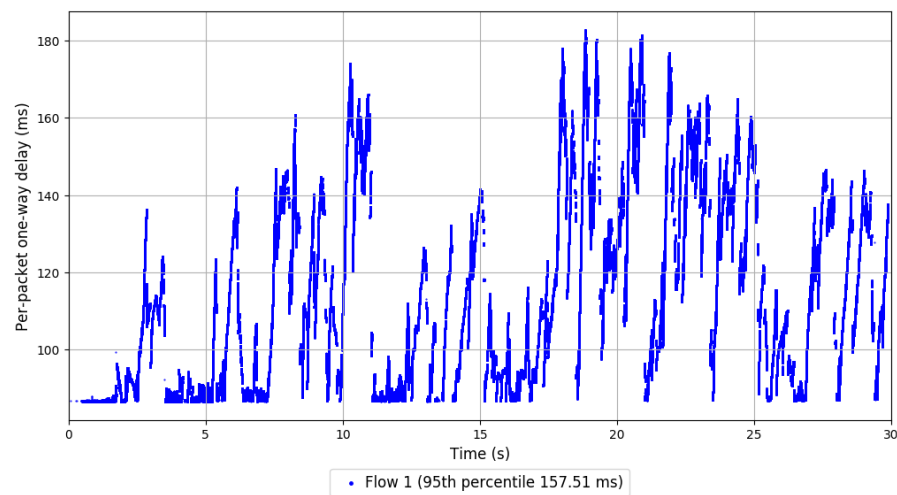
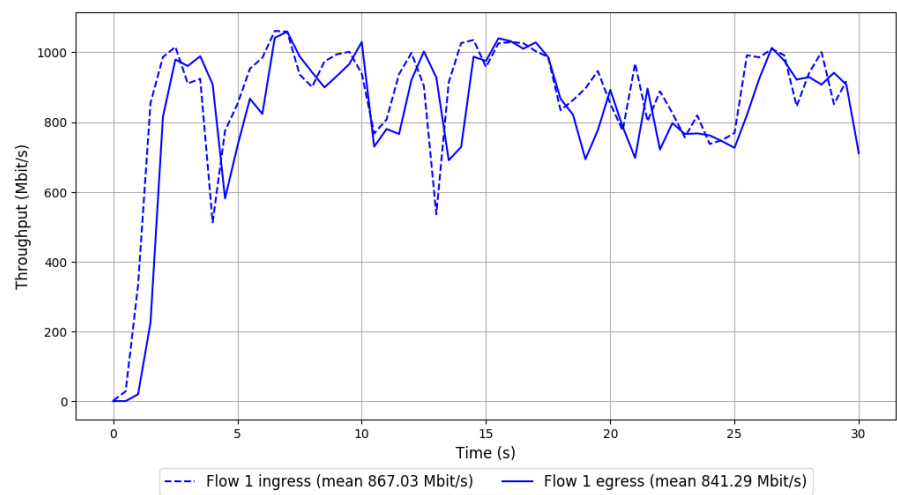


Run 2: Statistics of FillP

Start at: 2018-11-15 02:39:38
End at: 2018-11-15 02:40:08
Local clock offset: 19.293 ms
Remote clock offset: 15.159 ms

Below is generated by plot.py at 2018-11-15 04:55:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 841.29 Mbit/s
95th percentile per-packet one-way delay: 157.513 ms
Loss rate: 3.53%
-- Flow 1:
Average throughput: 841.29 Mbit/s
95th percentile per-packet one-way delay: 157.513 ms
Loss rate: 3.53%

Run 2: Report of FillP — Data Link

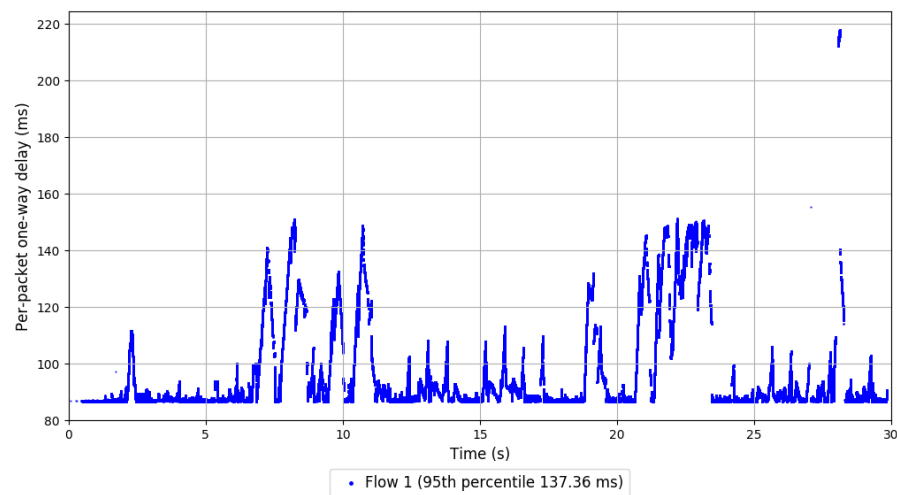
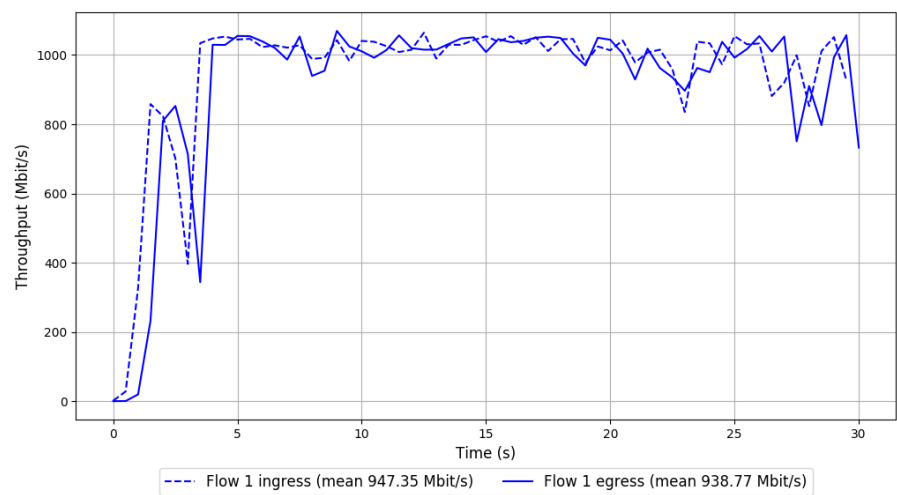


Run 3: Statistics of FillP

Start at: 2018-11-15 03:07:20
End at: 2018-11-15 03:07:50
Local clock offset: 22.214 ms
Remote clock offset: 24.367 ms

Below is generated by plot.py at 2018-11-15 04:57:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 938.77 Mbit/s
95th percentile per-packet one-way delay: 137.364 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 938.77 Mbit/s
95th percentile per-packet one-way delay: 137.364 ms
Loss rate: 1.48%

Run 3: Report of FillP — Data Link

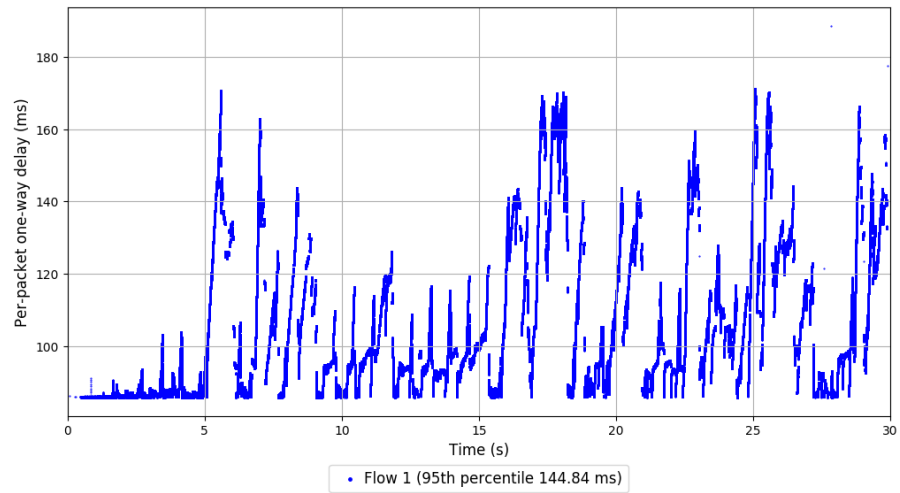
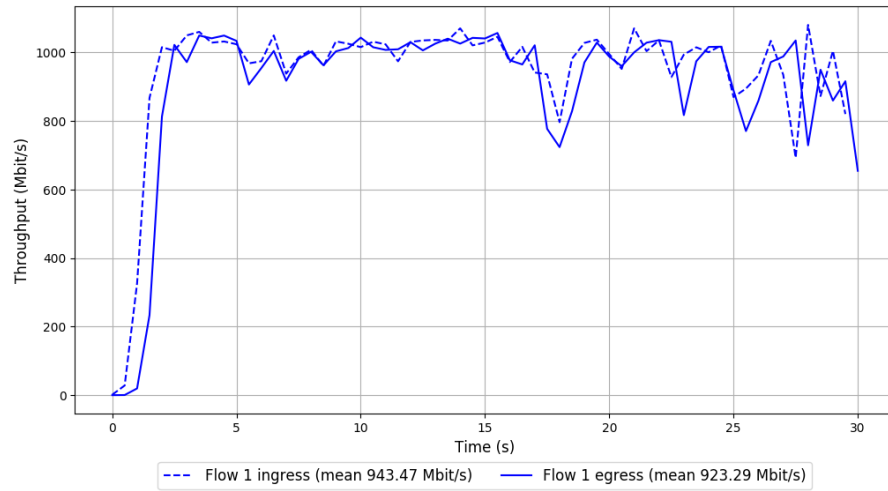


Run 4: Statistics of FillP

Start at: 2018-11-15 03:34:01
End at: 2018-11-15 03:34:31
Local clock offset: 12.265 ms
Remote clock offset: 13.794 ms

Below is generated by plot.py at 2018-11-15 04:57:27
Datalink statistics
-- Total of 1 flow:
Average throughput: 923.29 Mbit/s
95th percentile per-packet one-way delay: 144.836 ms
Loss rate: 2.62%
-- Flow 1:
Average throughput: 923.29 Mbit/s
95th percentile per-packet one-way delay: 144.836 ms
Loss rate: 2.62%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-15 04:00:38

End at: 2018-11-15 04:01:08

Local clock offset: 4.701 ms

Remote clock offset: 3.381 ms

Below is generated by plot.py at 2018-11-15 04:57:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 808.98 Mbit/s

95th percentile per-packet one-way delay: 140.623 ms

Loss rate: 2.04%

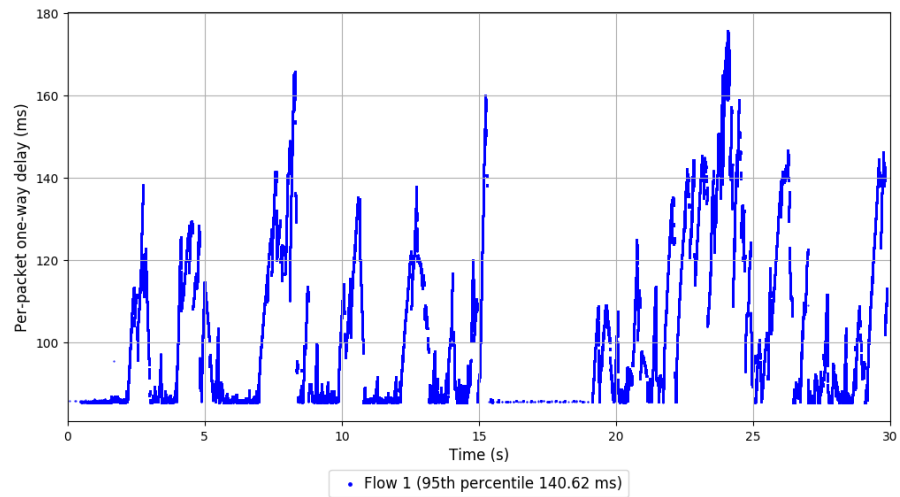
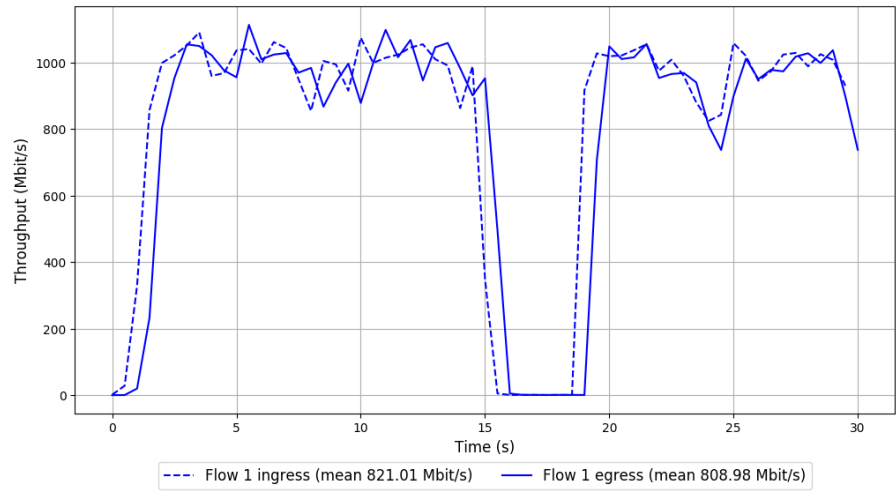
-- Flow 1:

Average throughput: 808.98 Mbit/s

95th percentile per-packet one-way delay: 140.623 ms

Loss rate: 2.04%

Run 5: Report of FillP — Data Link

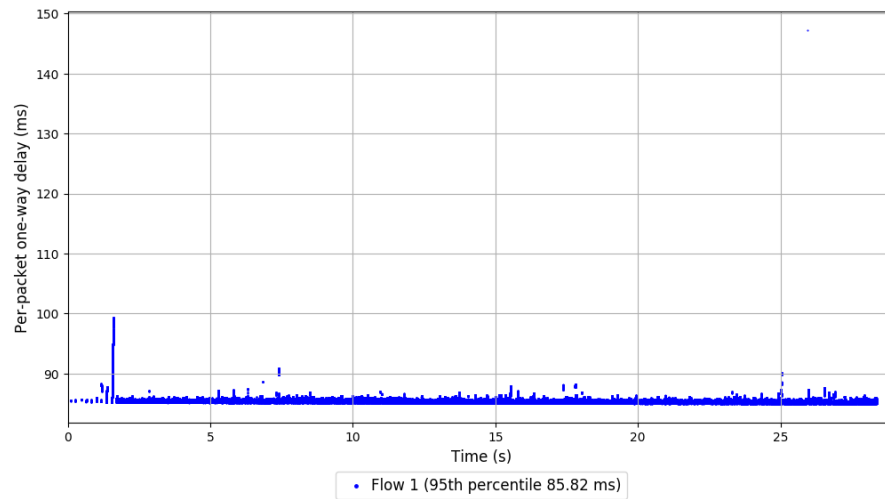
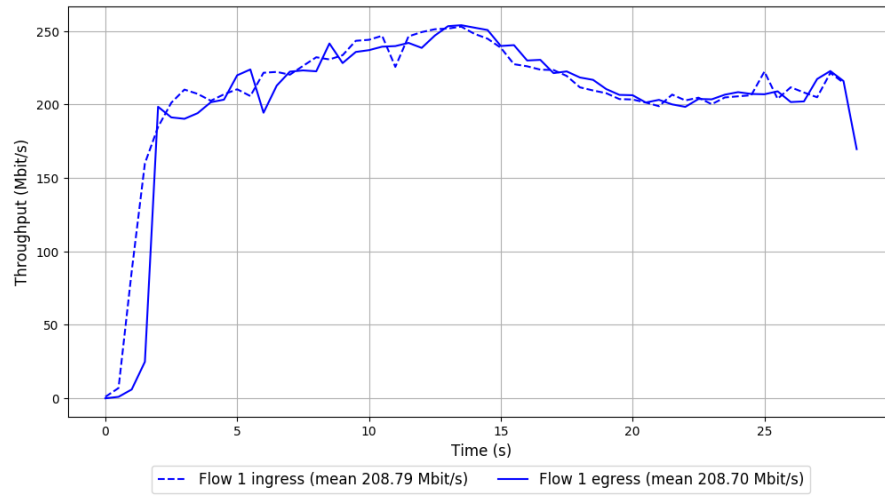


```
Run 1: Statistics of Indigo

Start at: 2018-11-15 02:21:24
End at: 2018-11-15 02:21:54
Local clock offset: 20.647 ms
Remote clock offset: 11.47 ms

# Below is generated by plot.py at 2018-11-15 04:57:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 208.70 Mbit/s
95th percentile per-packet one-way delay: 85.821 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 208.70 Mbit/s
95th percentile per-packet one-way delay: 85.821 ms
Loss rate: 0.65%
```

Run 1: Report of Indigo — Data Link

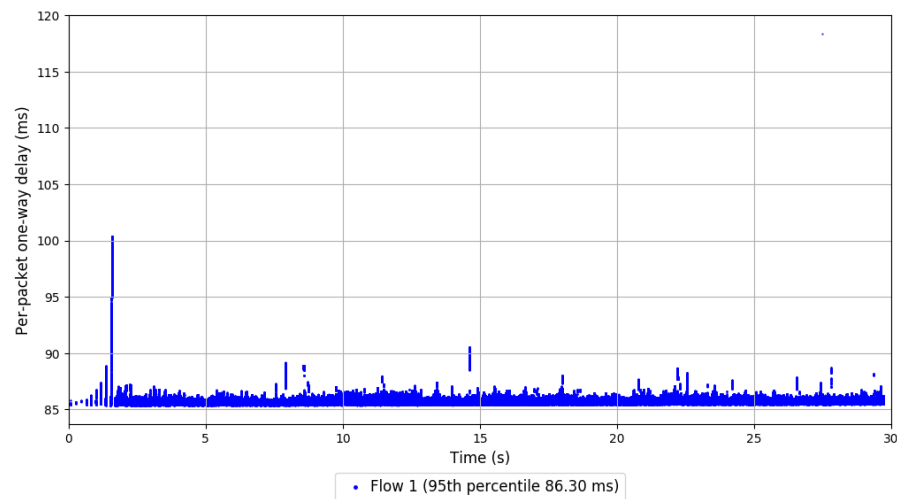
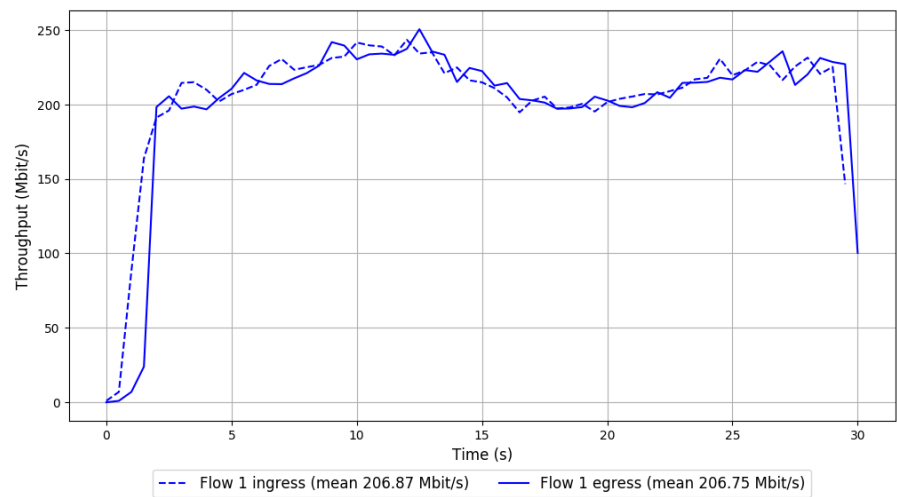


Run 2: Statistics of Indigo

Start at: 2018-11-15 02:49:14
End at: 2018-11-15 02:49:44
Local clock offset: 18.291 ms
Remote clock offset: 18.853 ms

Below is generated by plot.py at 2018-11-15 04:57:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 206.75 Mbit/s
95th percentile per-packet one-way delay: 86.299 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 206.75 Mbit/s
95th percentile per-packet one-way delay: 86.299 ms
Loss rate: 0.64%

Run 2: Report of Indigo — Data Link

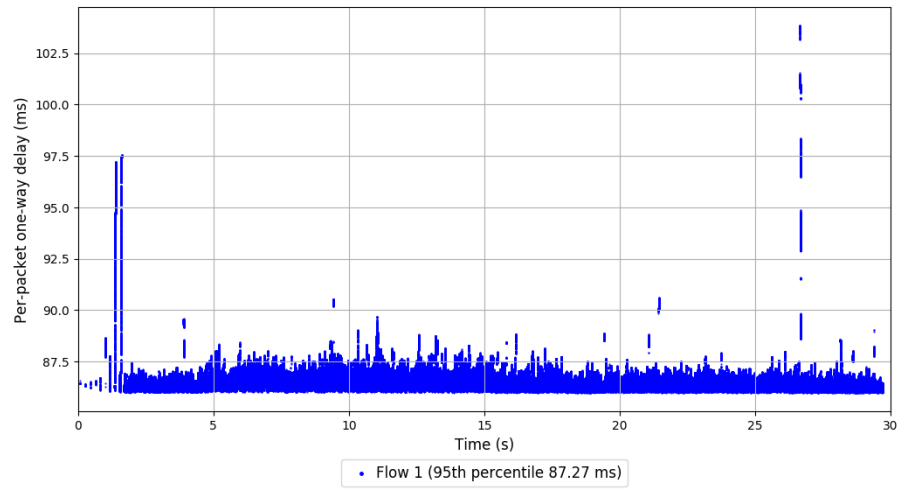
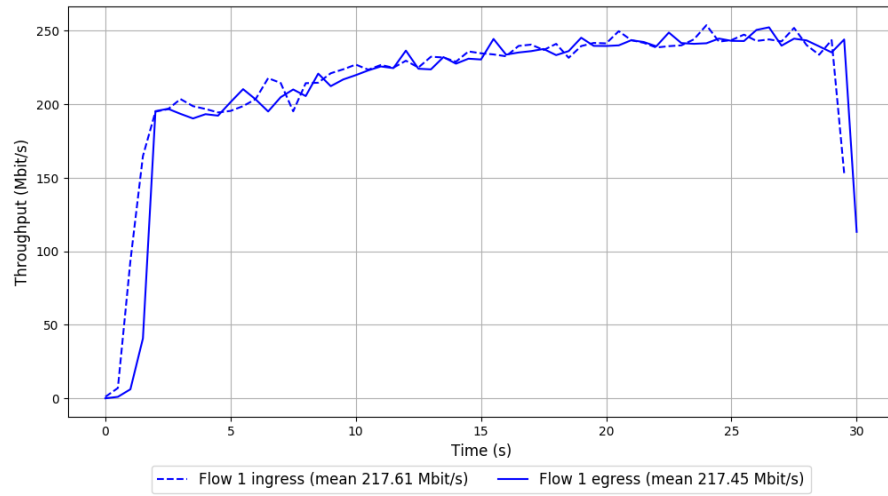


Run 3: Statistics of Indigo

Start at: 2018-11-15 03:16:40
End at: 2018-11-15 03:17:11
Local clock offset: 11.815 ms
Remote clock offset: 12.942 ms

Below is generated by plot.py at 2018-11-15 04:57:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 217.45 Mbit/s
95th percentile per-packet one-way delay: 87.269 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 217.45 Mbit/s
95th percentile per-packet one-way delay: 87.269 ms
Loss rate: 0.65%

Run 3: Report of Indigo — Data Link

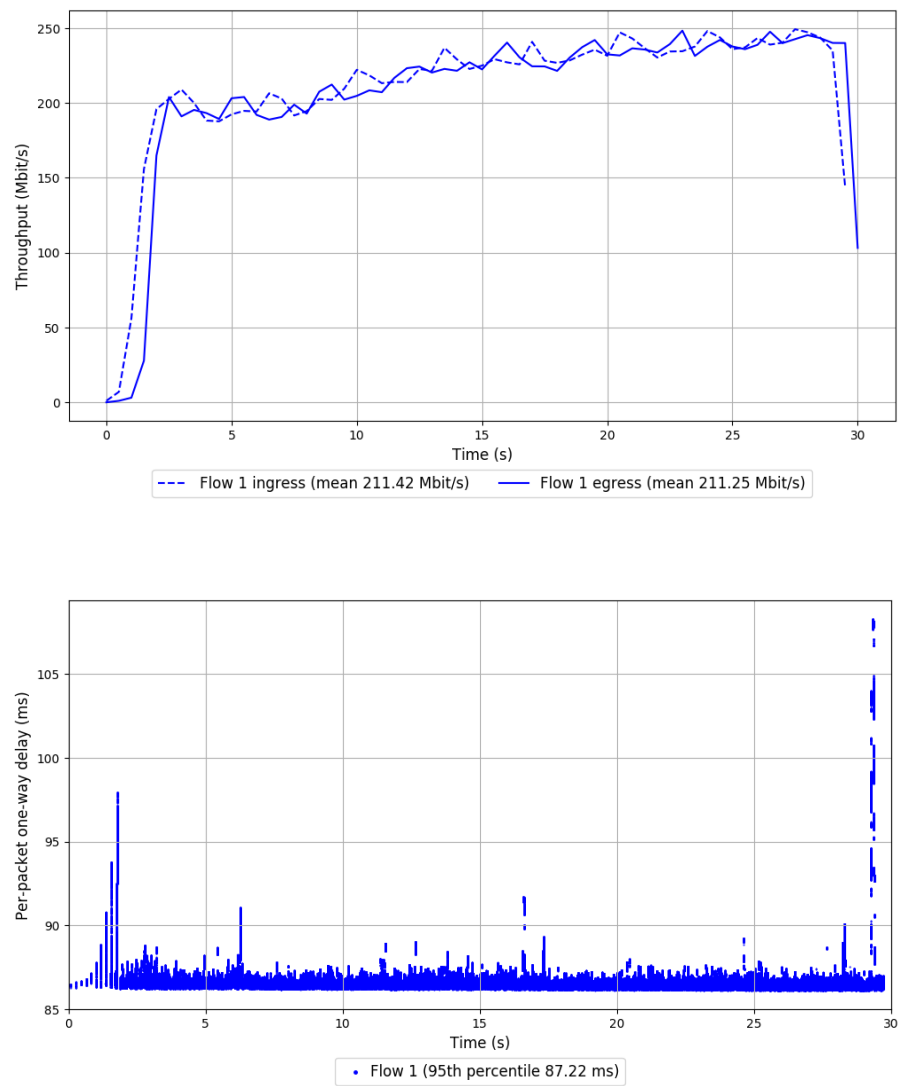


Run 4: Statistics of Indigo

Start at: 2018-11-15 03:43:00
End at: 2018-11-15 03:43:30
Local clock offset: 9.806 ms
Remote clock offset: 10.251 ms

Below is generated by plot.py at 2018-11-15 04:57:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 211.25 Mbit/s
95th percentile per-packet one-way delay: 87.218 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 211.25 Mbit/s
95th percentile per-packet one-way delay: 87.218 ms
Loss rate: 0.66%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-11-15 04:09:51

End at: 2018-11-15 04:10:21

Local clock offset: 5.742 ms

Remote clock offset: 3.462 ms

Below is generated by plot.py at 2018-11-15 04:57:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 199.76 Mbit/s

95th percentile per-packet one-way delay: 86.157 ms

Loss rate: 0.71%

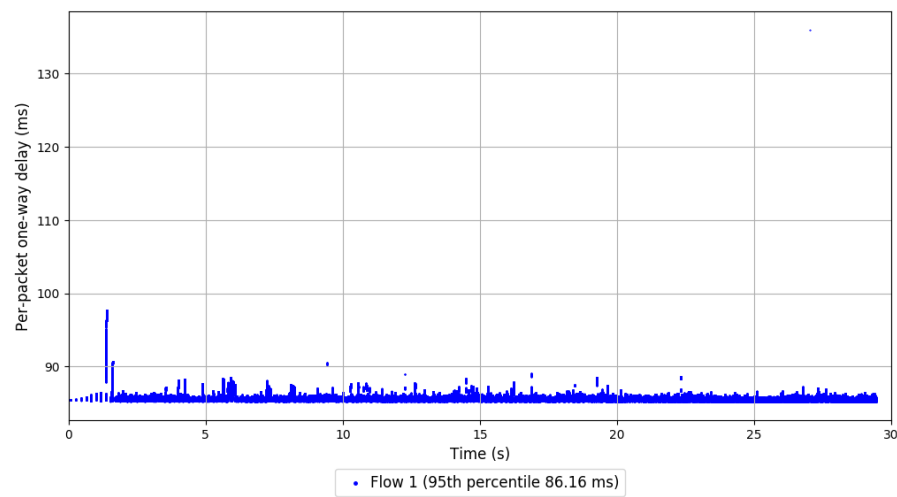
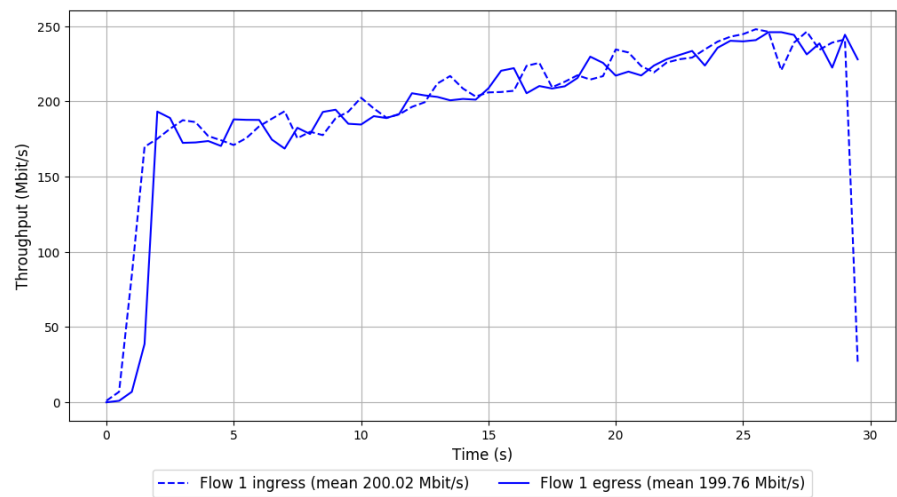
-- Flow 1:

Average throughput: 199.76 Mbit/s

95th percentile per-packet one-way delay: 86.157 ms

Loss rate: 0.71%

Run 5: Report of Indigo — Data Link

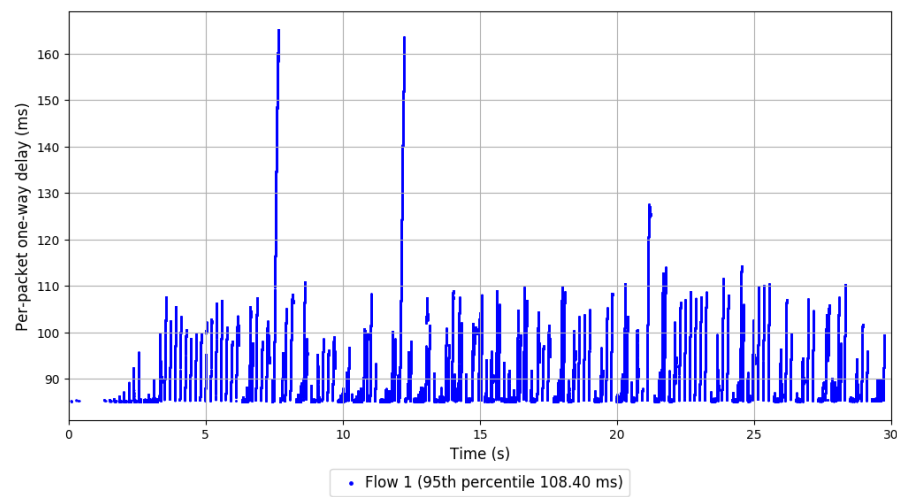
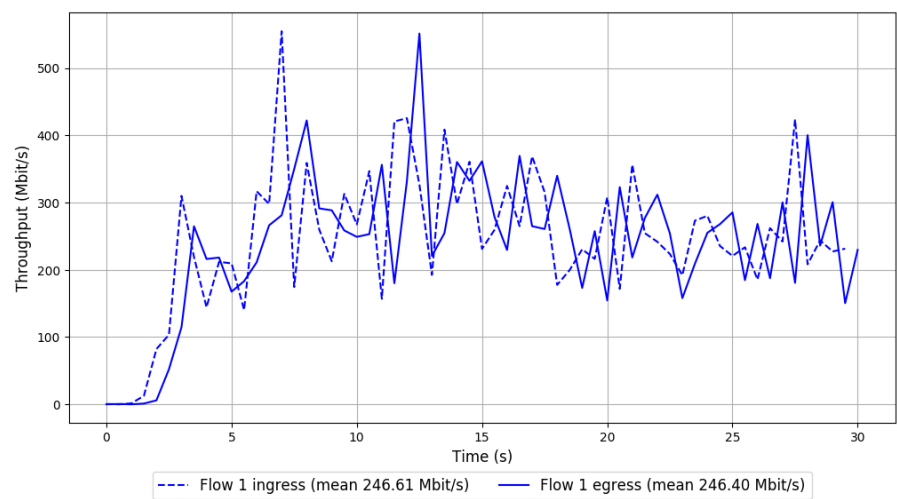


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-15 02:11:11
End at: 2018-11-15 02:11:41
Local clock offset: 7.836 ms
Remote clock offset: 10.151 ms

Below is generated by plot.py at 2018-11-15 04:57:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 246.40 Mbit/s
95th percentile per-packet one-way delay: 108.396 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 246.40 Mbit/s
95th percentile per-packet one-way delay: 108.396 ms
Loss rate: 0.68%

Run 1: Report of Indigo-96d2da3 — Data Link



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 02:38:12

End at: 2018-11-15 02:38:42

Local clock offset: 19.695 ms

Remote clock offset: 15.2 ms

Below is generated by plot.py at 2018-11-15 04:58:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 268.35 Mbit/s

95th percentile per-packet one-way delay: 112.815 ms

Loss rate: 1.33%

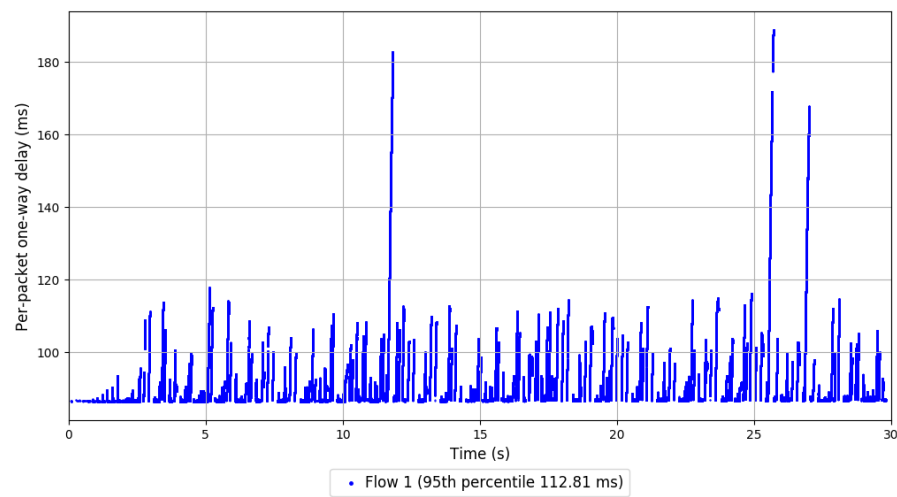
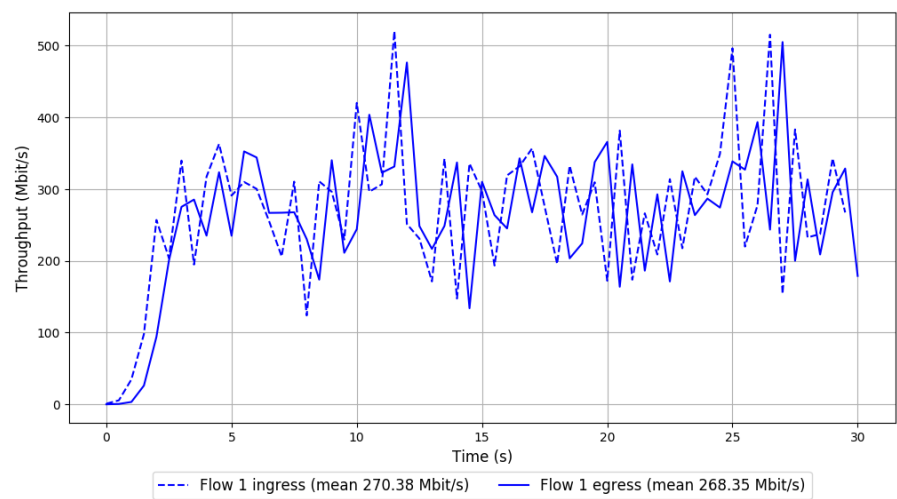
-- Flow 1:

Average throughput: 268.35 Mbit/s

95th percentile per-packet one-way delay: 112.815 ms

Loss rate: 1.33%

Run 2: Report of Indigo-96d2da3 — Data Link

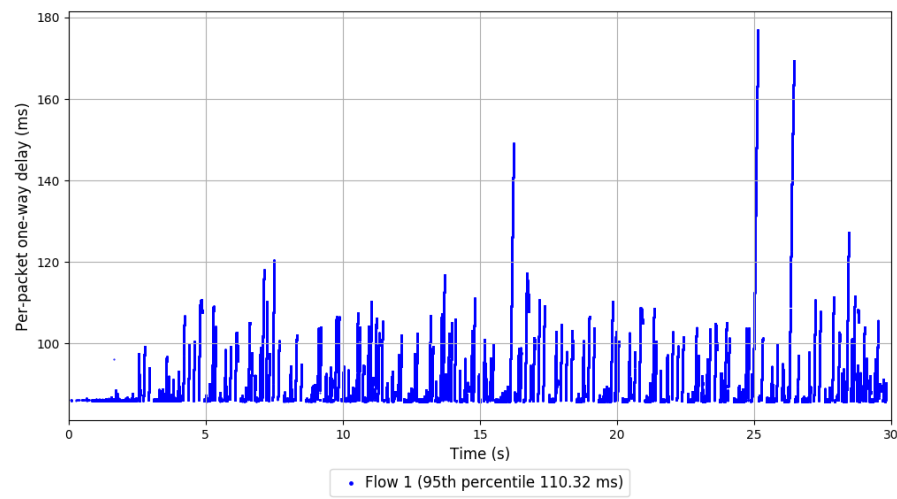
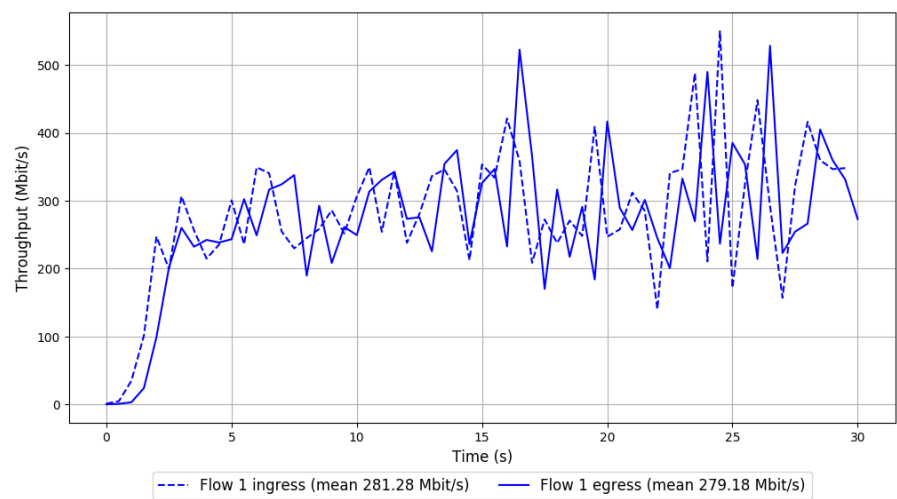


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-15 03:05:51
End at: 2018-11-15 03:06:21
Local clock offset: 25.233 ms
Remote clock offset: 28.153 ms

Below is generated by plot.py at 2018-11-15 04:59:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 279.18 Mbit/s
95th percentile per-packet one-way delay: 110.316 ms
Loss rate: 1.22%
-- Flow 1:
Average throughput: 279.18 Mbit/s
95th percentile per-packet one-way delay: 110.316 ms
Loss rate: 1.22%

Run 3: Report of Indigo-96d2da3 — Data Link

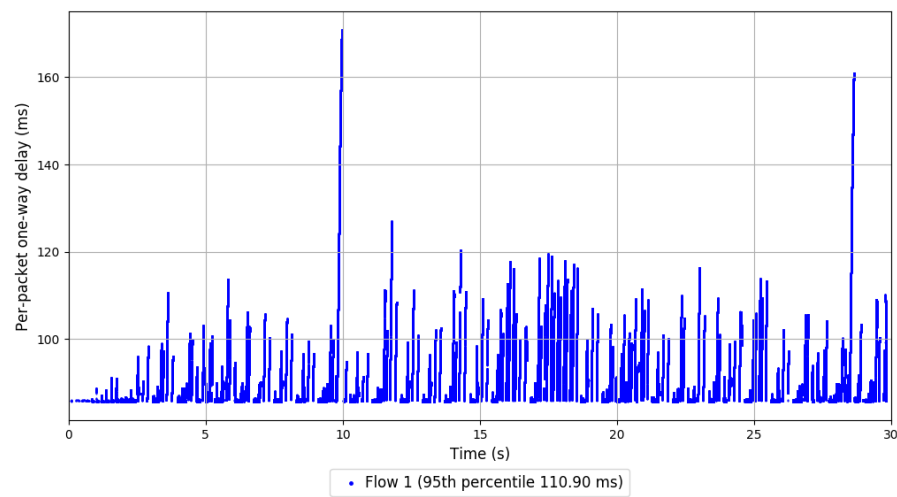
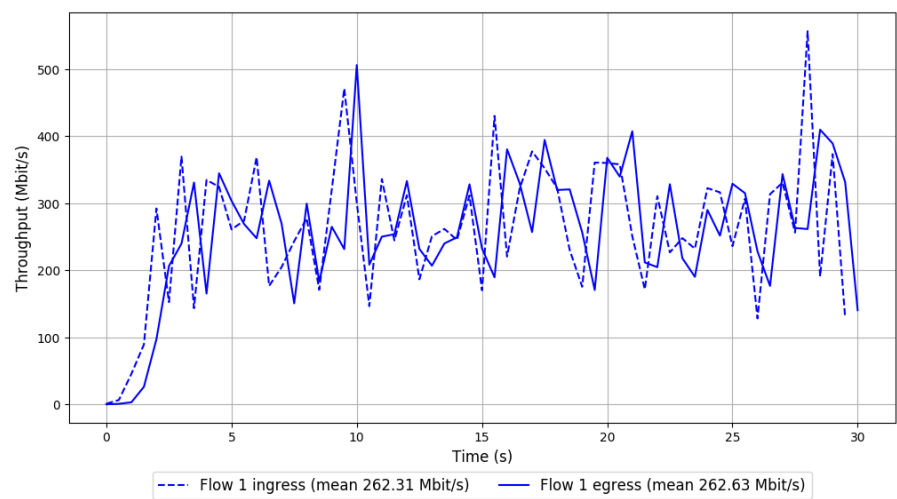


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-15 03:32:38
End at: 2018-11-15 03:33:09
Local clock offset: 11.915 ms
Remote clock offset: 13.394 ms

Below is generated by plot.py at 2018-11-15 04:59:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 262.63 Mbit/s
95th percentile per-packet one-way delay: 110.901 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 262.63 Mbit/s
95th percentile per-packet one-way delay: 110.901 ms
Loss rate: 0.49%

Run 4: Report of Indigo-96d2da3 — Data Link



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 03:59:15

End at: 2018-11-15 03:59:45

Local clock offset: 5.439 ms

Remote clock offset: 3.466 ms

Below is generated by plot.py at 2018-11-15 04:59:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 247.33 Mbit/s

95th percentile per-packet one-way delay: 110.018 ms

Loss rate: 0.29%

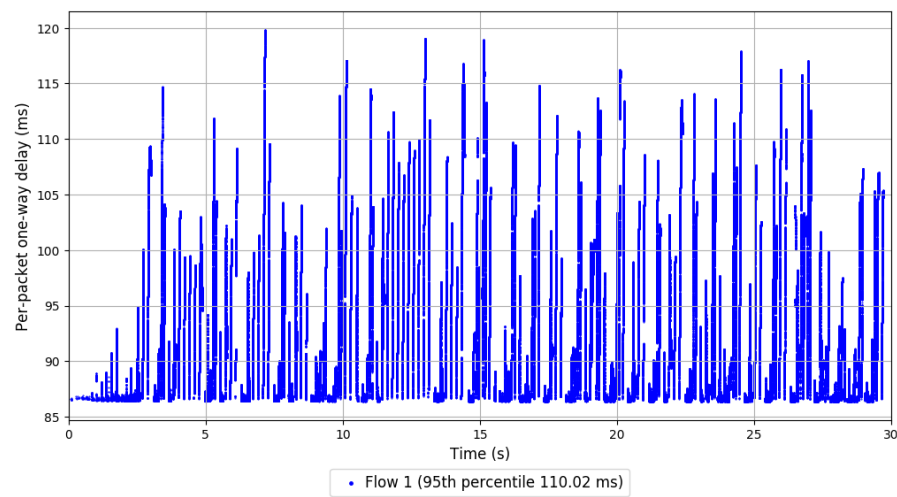
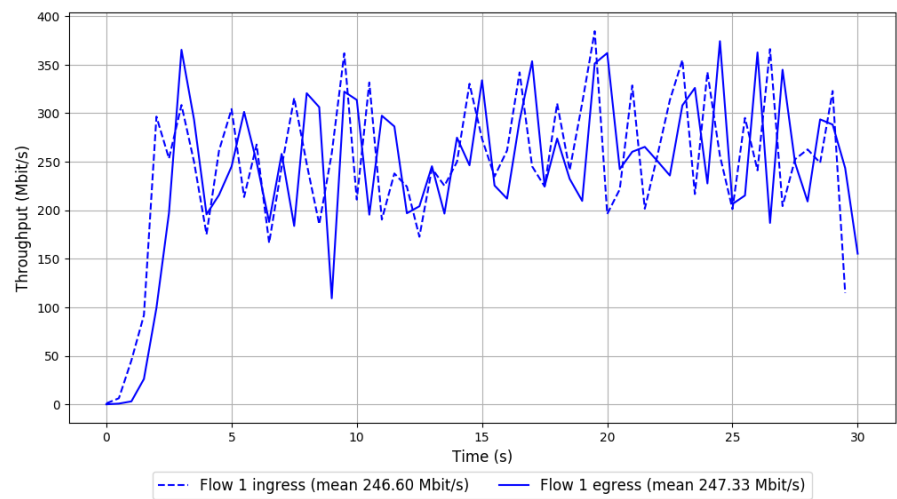
-- Flow 1:

Average throughput: 247.33 Mbit/s

95th percentile per-packet one-way delay: 110.018 ms

Loss rate: 0.29%

Run 5: Report of Indigo-96d2da3 — Data Link

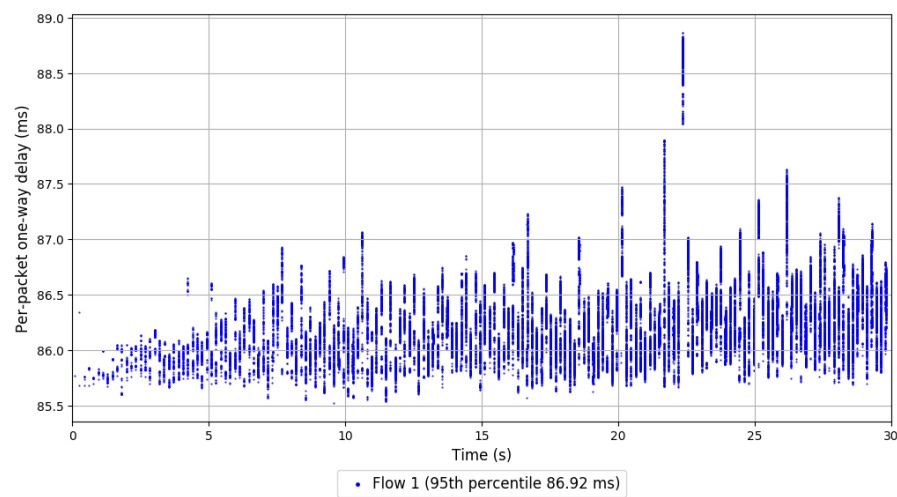
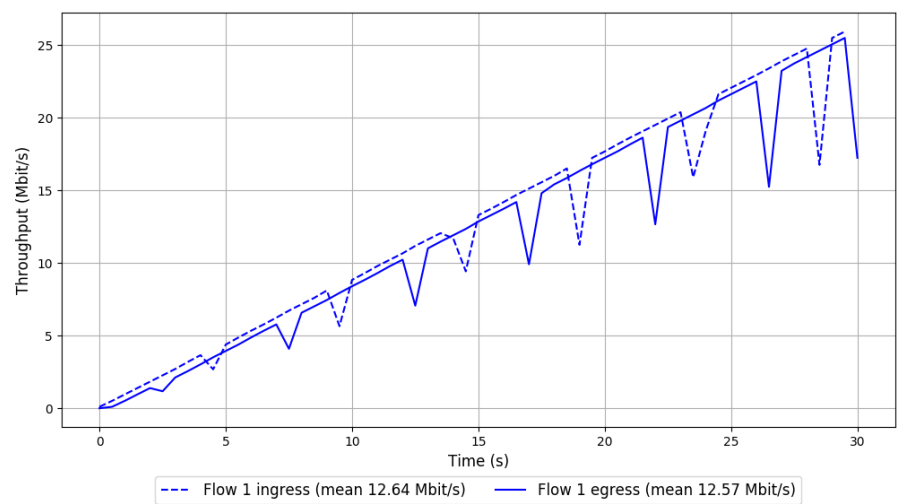



```
Run 1: Statistics of LEDBAT

Start at: 2018-11-15 01:59:33
End at: 2018-11-15 02:00:03
Local clock offset: 1.556 ms
Remote clock offset: 3.293 ms

# Below is generated by plot.py at 2018-11-15 04:59:46
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.57 Mbit/s
95th percentile per-packet one-way delay: 86.924 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 12.57 Mbit/s
95th percentile per-packet one-way delay: 86.924 ms
Loss rate: 1.15%
```

Run 1: Report of LEDBAT — Data Link

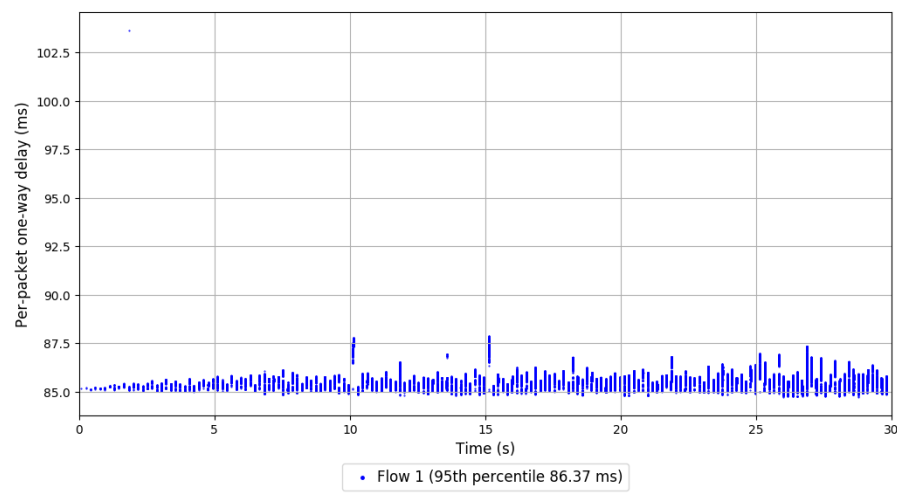
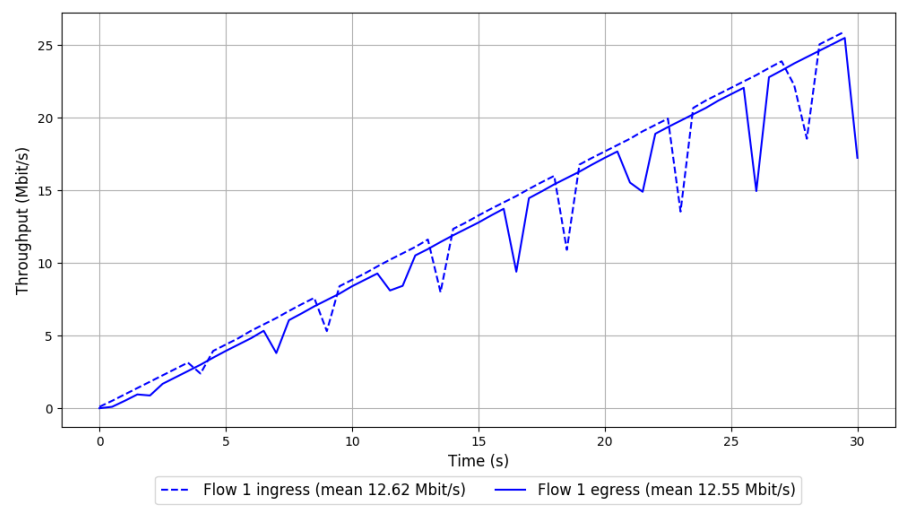


Run 2: Statistics of LEDBAT

Start at: 2018-11-15 02:25:38
End at: 2018-11-15 02:26:08
Local clock offset: 25.971 ms
Remote clock offset: 15.009 ms

Below is generated by plot.py at 2018-11-15 04:59:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.55 Mbit/s
95th percentile per-packet one-way delay: 86.370 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 12.55 Mbit/s
95th percentile per-packet one-way delay: 86.370 ms
Loss rate: 1.15%

Run 2: Report of LEDBAT — Data Link

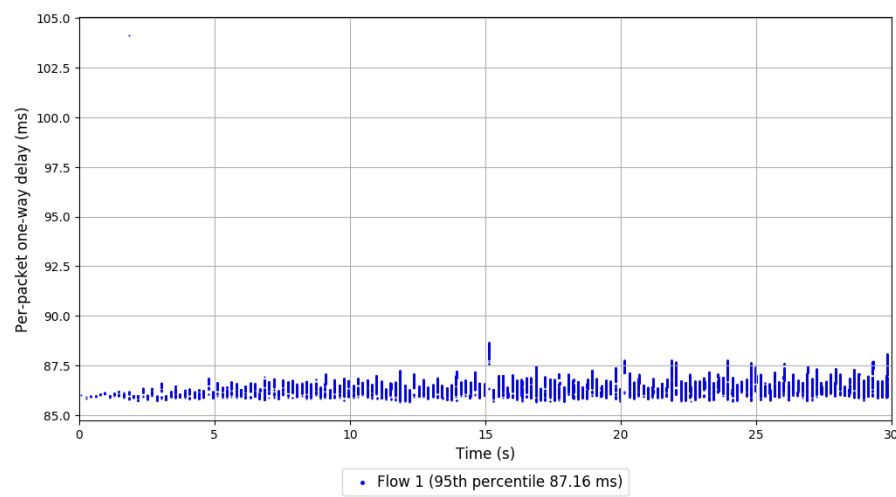
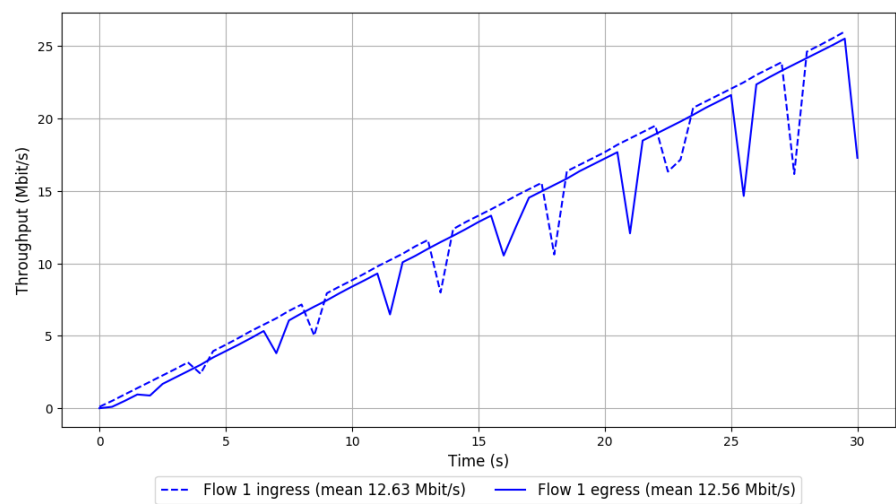


Run 3: Statistics of LEDBAT

Start at: 2018-11-15 02:53:31
End at: 2018-11-15 02:54:01
Local clock offset: 20.52 ms
Remote clock offset: 21.667 ms

Below is generated by plot.py at 2018-11-15 04:59:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.56 Mbit/s
95th percentile per-packet one-way delay: 87.164 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 12.56 Mbit/s
95th percentile per-packet one-way delay: 87.164 ms
Loss rate: 1.15%

Run 3: Report of LEDBAT — Data Link

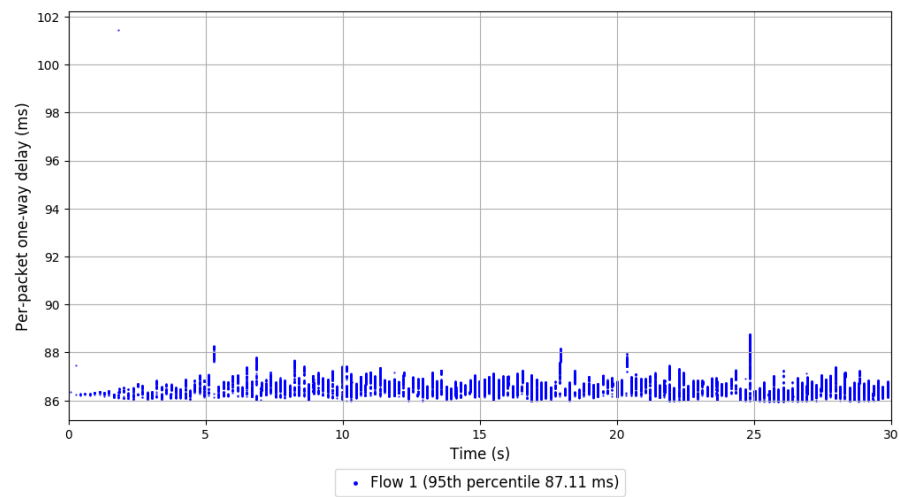
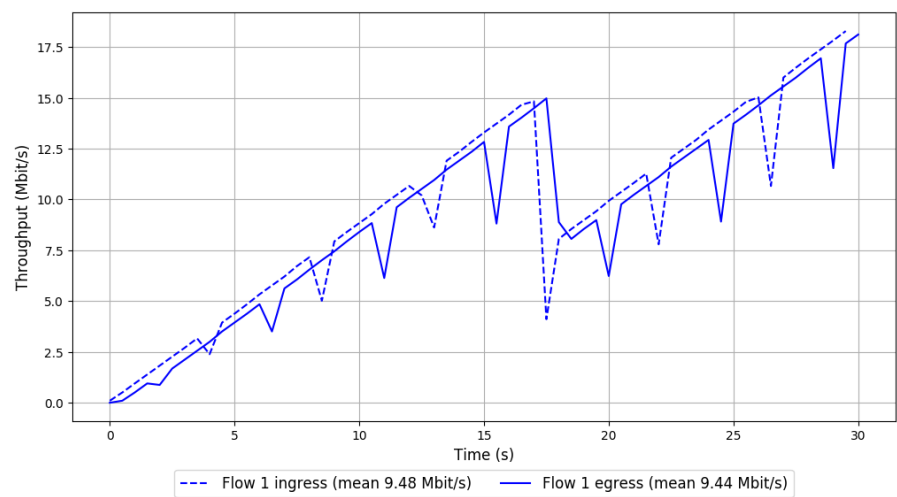


Run 4: Statistics of LEDBAT

Start at: 2018-11-15 03:20:49
End at: 2018-11-15 03:21:19
Local clock offset: 10.271 ms
Remote clock offset: 11.677 ms

Below is generated by plot.py at 2018-11-15 04:59:46
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.44 Mbit/s
95th percentile per-packet one-way delay: 87.113 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 9.44 Mbit/s
95th percentile per-packet one-way delay: 87.113 ms
Loss rate: 1.09%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-15 03:47:08

End at: 2018-11-15 03:47:38

Local clock offset: 6.912 ms

Remote clock offset: 6.77 ms

Below is generated by plot.py at 2018-11-15 04:59:46

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.56 Mbit/s

95th percentile per-packet one-way delay: 87.540 ms

Loss rate: 1.15%

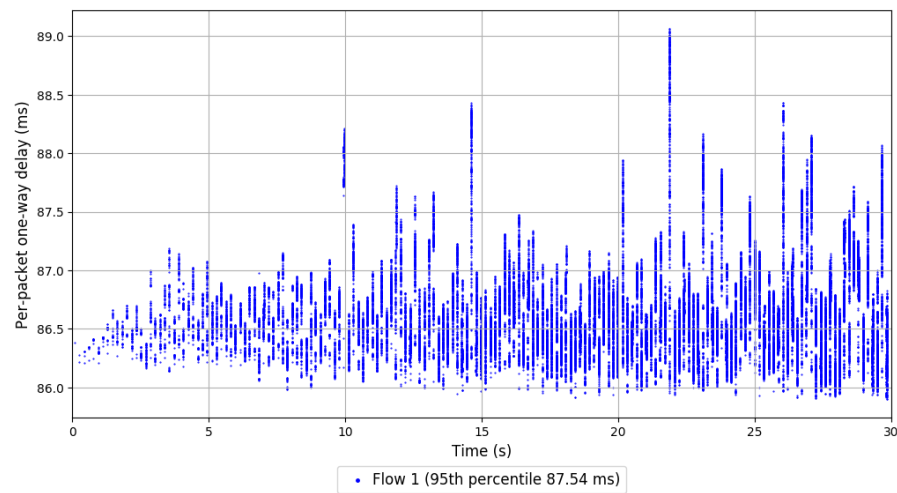
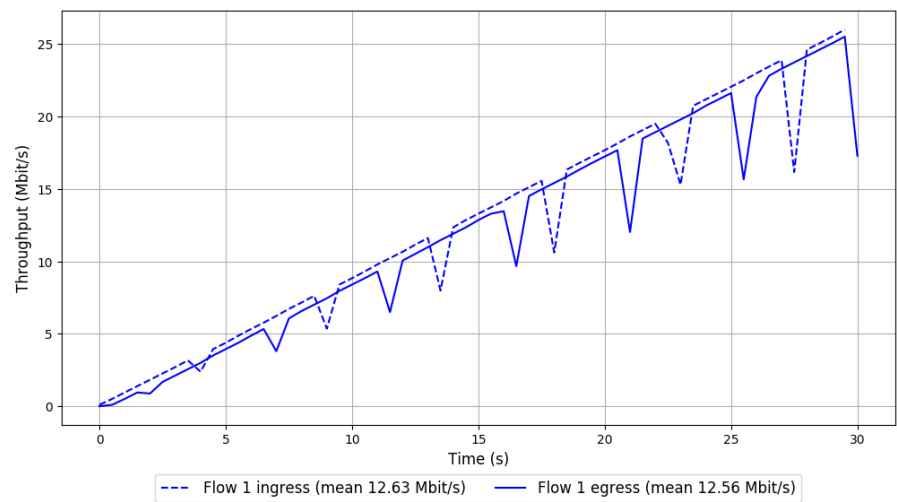
-- Flow 1:

Average throughput: 12.56 Mbit/s

95th percentile per-packet one-way delay: 87.540 ms

Loss rate: 1.15%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

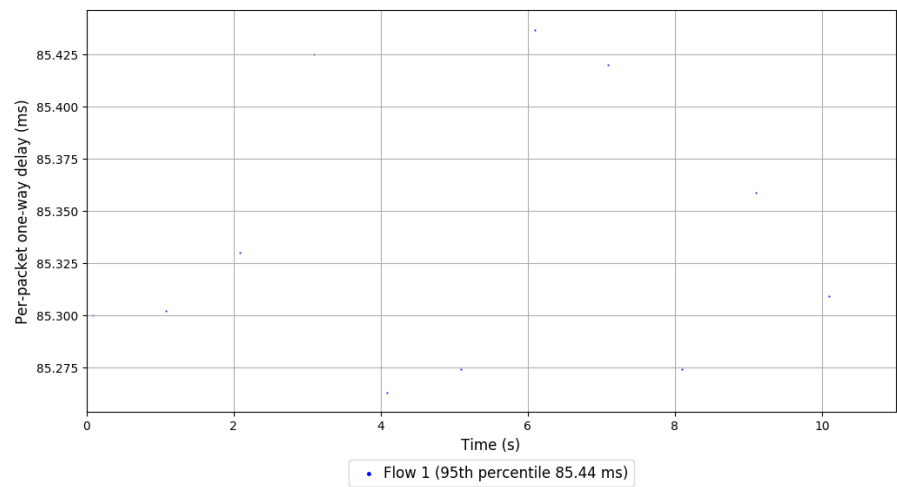
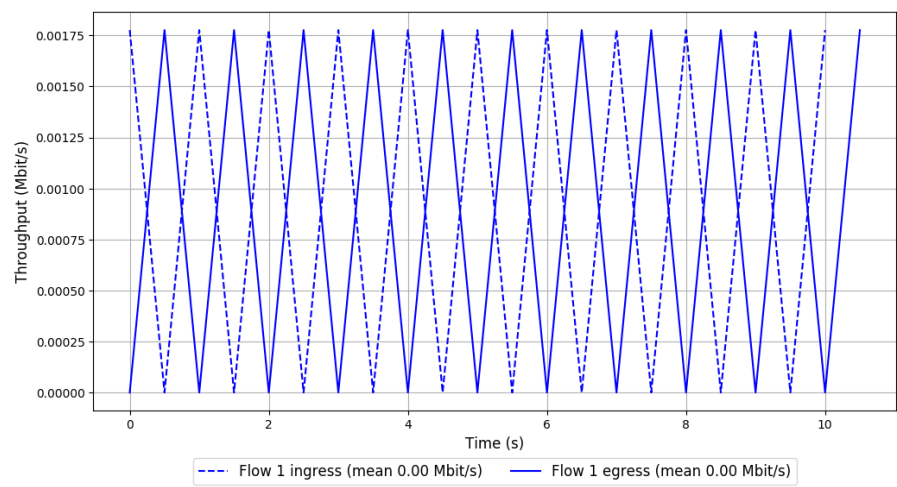
Start at: 2018-11-15 02:02:28

End at: 2018-11-15 02:02:58

Local clock offset: 3.015 ms

Remote clock offset: 4.64 ms

Run 1: Report of Indigo-Muses — Data Link

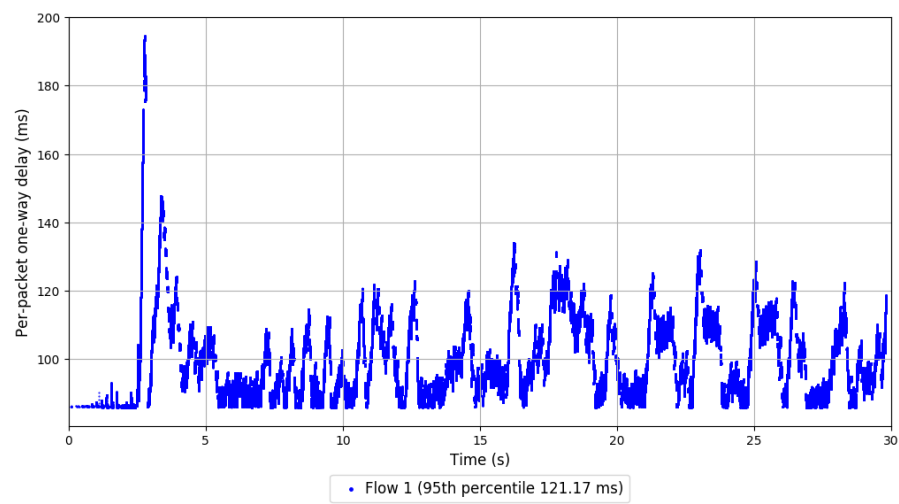
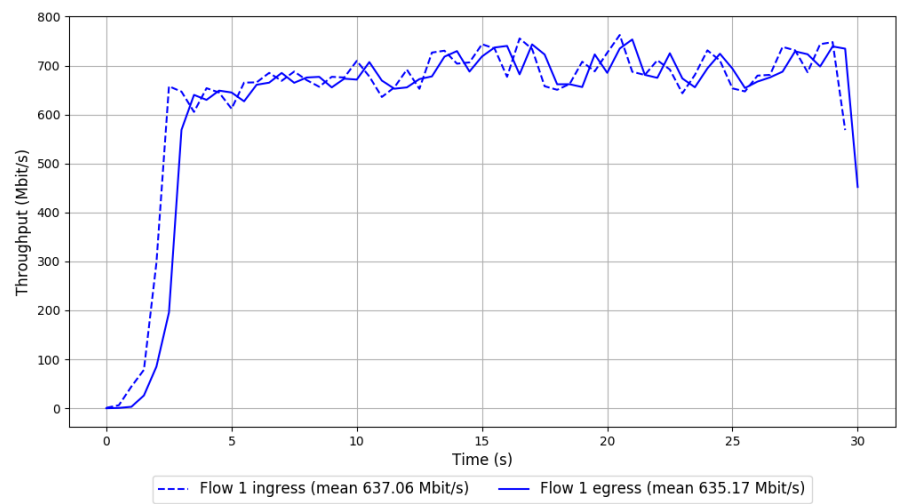


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 02:28:32
End at: 2018-11-15 02:29:02
Local clock offset: 30.771 ms
Remote clock offset: 18.088 ms

Below is generated by plot.py at 2018-11-15 05:09:04
Datalink statistics
-- Total of 1 flow:
Average throughput: 635.17 Mbit/s
95th percentile per-packet one-way delay: 121.165 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 635.17 Mbit/s
95th percentile per-packet one-way delay: 121.165 ms
Loss rate: 0.87%

Run 2: Report of Indigo-Muses — Data Link

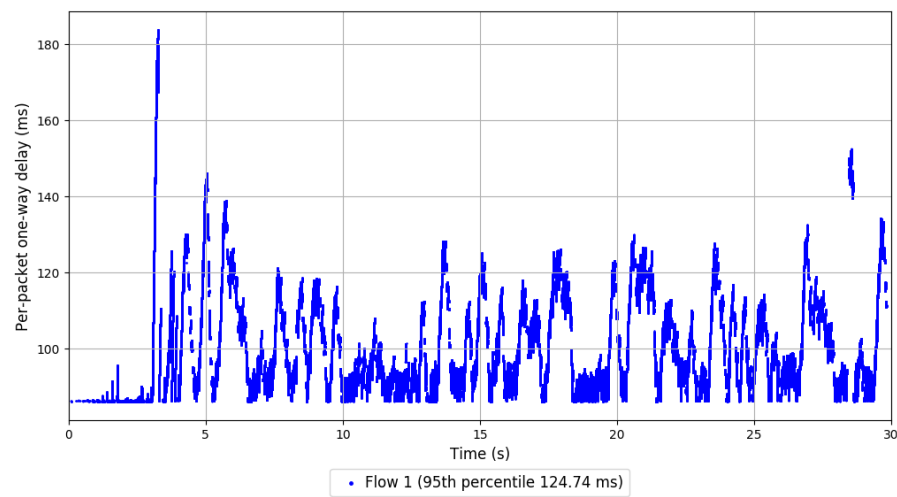
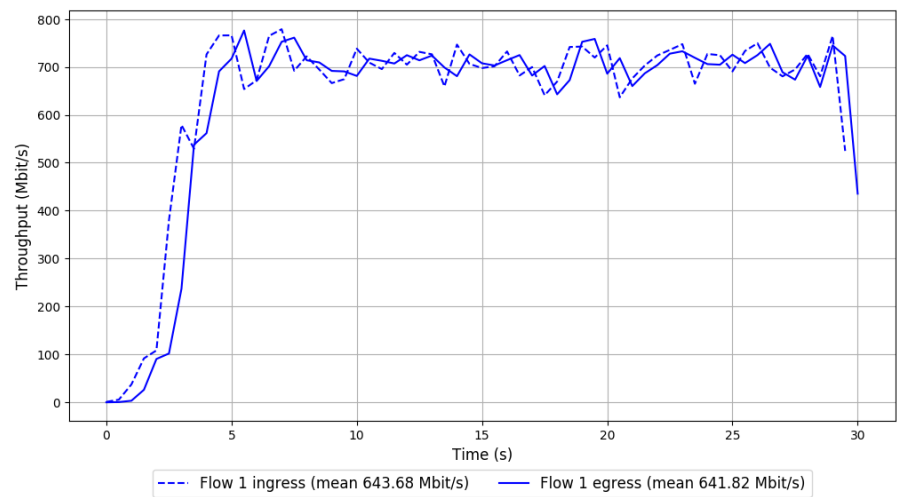


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 02:56:23
End at: 2018-11-15 02:56:53
Local clock offset: 22.605 ms
Remote clock offset: 23.842 ms

Below is generated by plot.py at 2018-11-15 05:09:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 641.82 Mbit/s
95th percentile per-packet one-way delay: 124.739 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 641.82 Mbit/s
95th percentile per-packet one-way delay: 124.739 ms
Loss rate: 0.86%

Run 3: Report of Indigo-Muses — Data Link

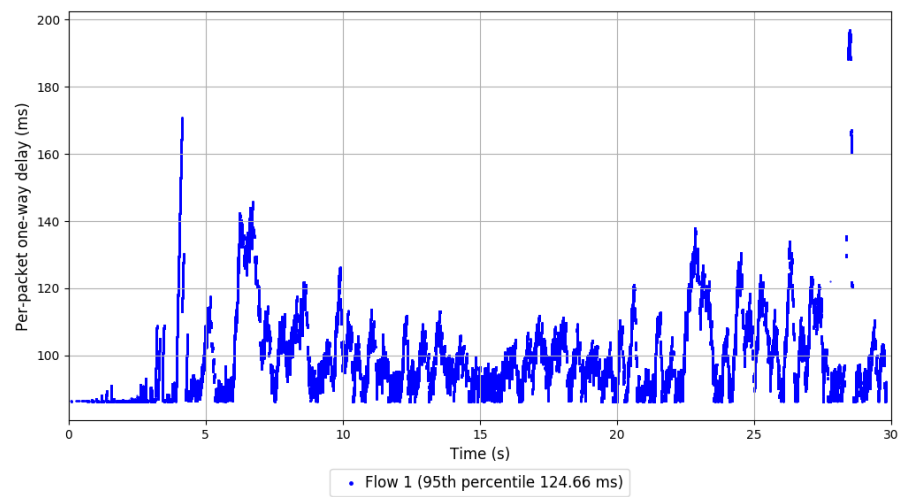
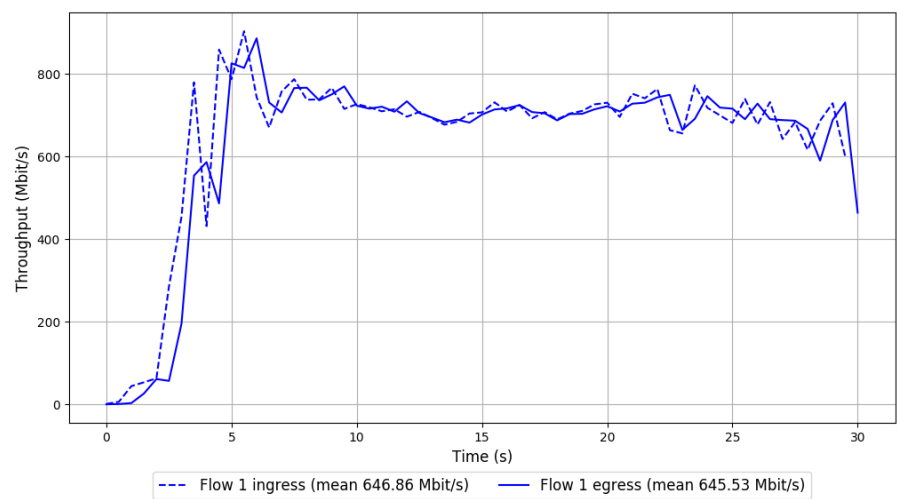


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 03:23:36
End at: 2018-11-15 03:24:06
Local clock offset: 10.805 ms
Remote clock offset: 11.685 ms

Below is generated by plot.py at 2018-11-15 05:09:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 645.53 Mbit/s
95th percentile per-packet one-way delay: 124.659 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 645.53 Mbit/s
95th percentile per-packet one-way delay: 124.659 ms
Loss rate: 0.78%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 03:49:56

End at: 2018-11-15 03:50:26

Local clock offset: 5.794 ms

Remote clock offset: 5.404 ms

Below is generated by plot.py at 2018-11-15 05:09:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 626.98 Mbit/s

95th percentile per-packet one-way delay: 122.735 ms

Loss rate: 0.72%

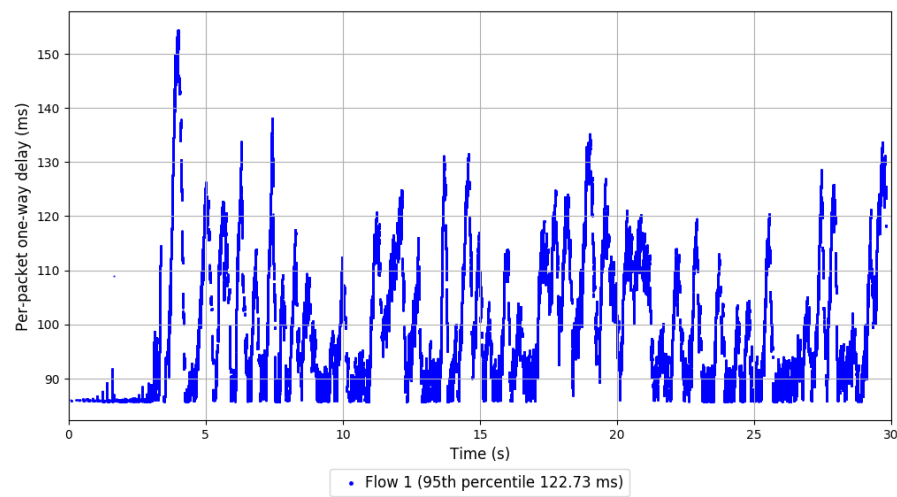
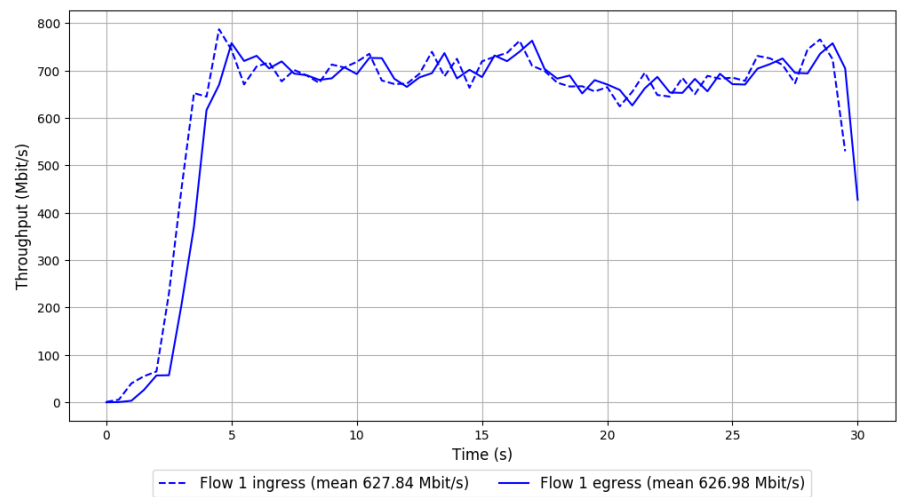
-- Flow 1:

Average throughput: 626.98 Mbit/s

95th percentile per-packet one-way delay: 122.735 ms

Loss rate: 0.72%

Run 5: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 02:17:07

End at: 2018-11-15 02:17:37

Local clock offset: 15.613 ms

Remote clock offset: 10.289 ms

Below is generated by plot.py at 2018-11-15 05:14:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 456.04 Mbit/s

95th percentile per-packet one-way delay: 194.152 ms

Loss rate: 3.84%

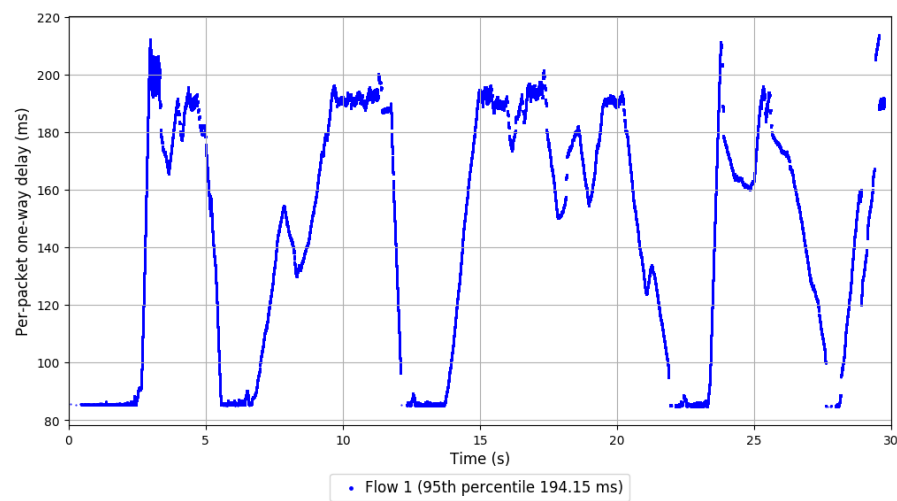
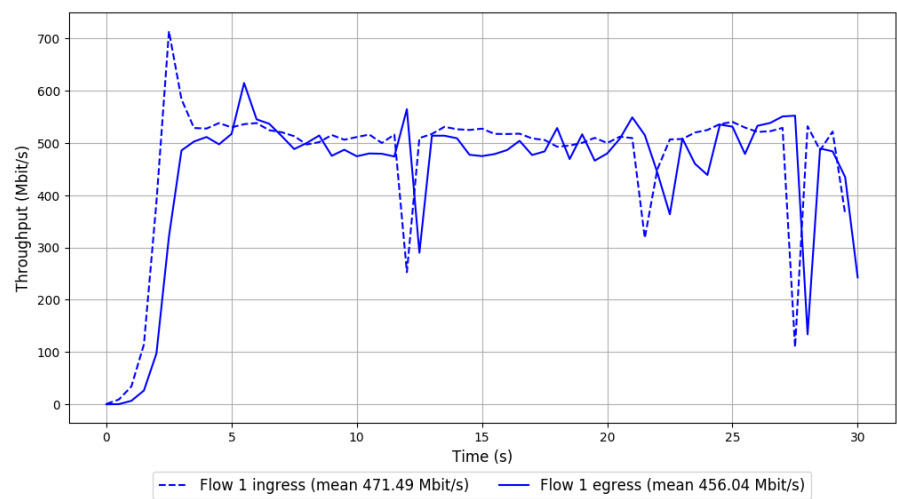
-- Flow 1:

Average throughput: 456.04 Mbit/s

95th percentile per-packet one-way delay: 194.152 ms

Loss rate: 3.84%

Run 1: Report of PCC-Allegro — Data Link

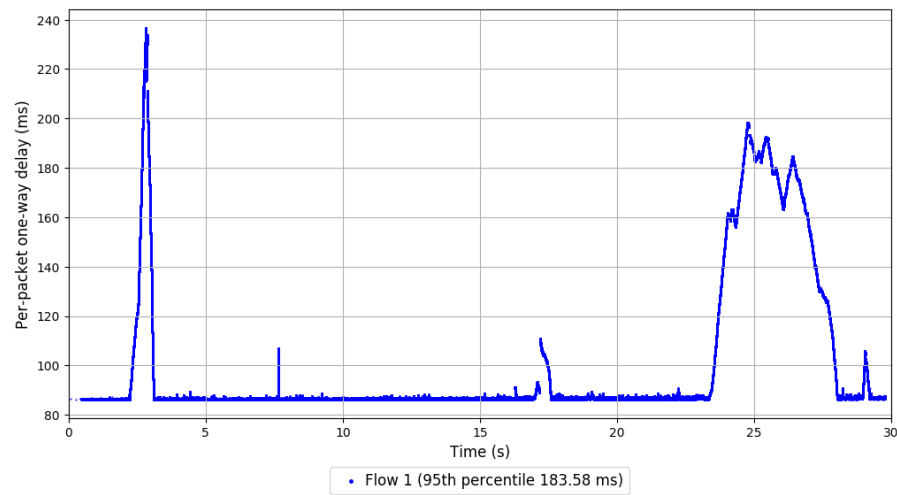
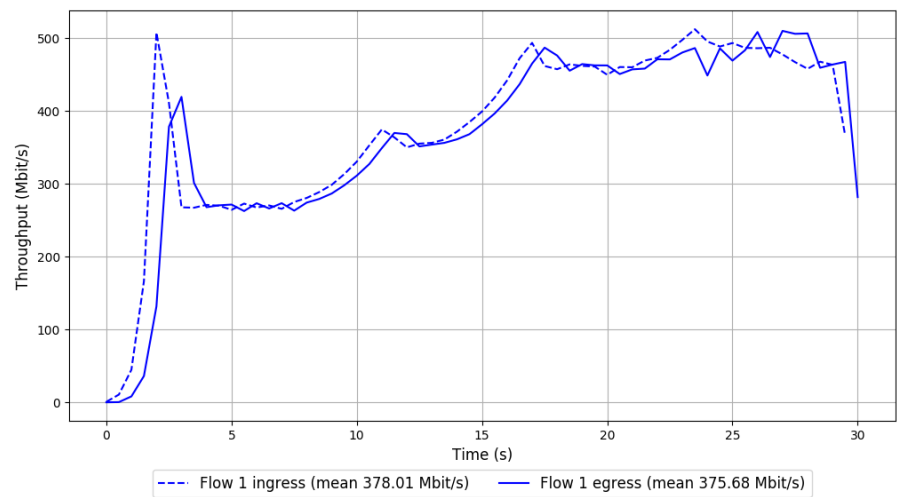


Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 02:44:41
End at: 2018-11-15 02:45:11
Local clock offset: 18.015 ms
Remote clock offset: 16.457 ms

Below is generated by plot.py at 2018-11-15 05:14:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 375.68 Mbit/s
95th percentile per-packet one-way delay: 183.581 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 375.68 Mbit/s
95th percentile per-packet one-way delay: 183.581 ms
Loss rate: 1.19%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 03:12:20

End at: 2018-11-15 03:12:50

Local clock offset: 14.811 ms

Remote clock offset: 16.202 ms

Below is generated by plot.py at 2018-11-15 05:15:26

Datalink statistics

-- Total of 1 flow:

Average throughput: 436.97 Mbit/s

95th percentile per-packet one-way delay: 196.077 ms

Loss rate: 4.38%

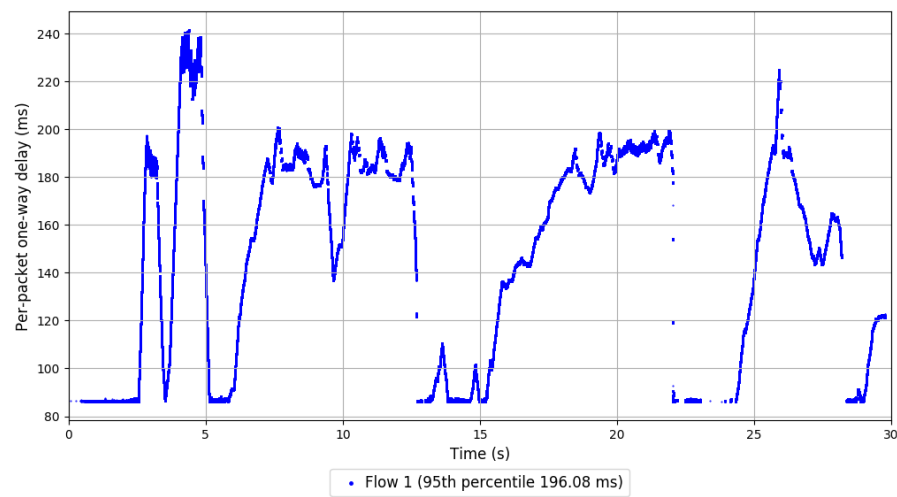
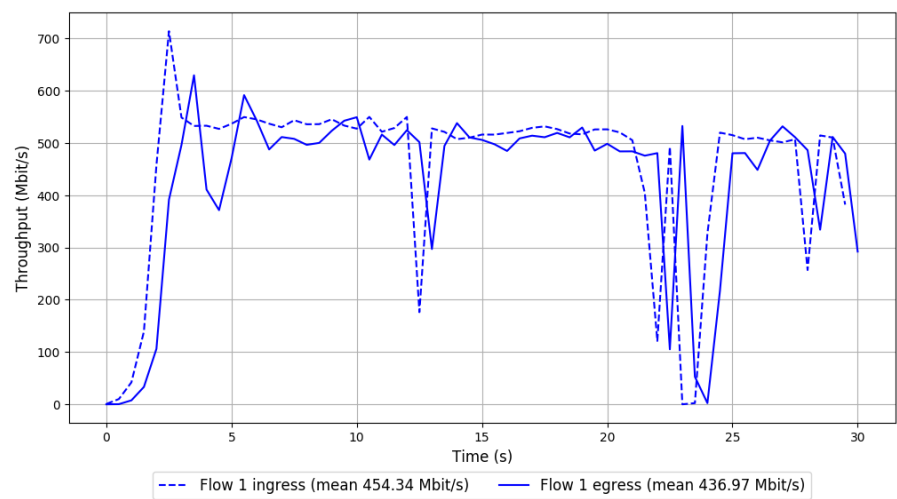
-- Flow 1:

Average throughput: 436.97 Mbit/s

95th percentile per-packet one-way delay: 196.077 ms

Loss rate: 4.38%

Run 3: Report of PCC-Allegro — Data Link

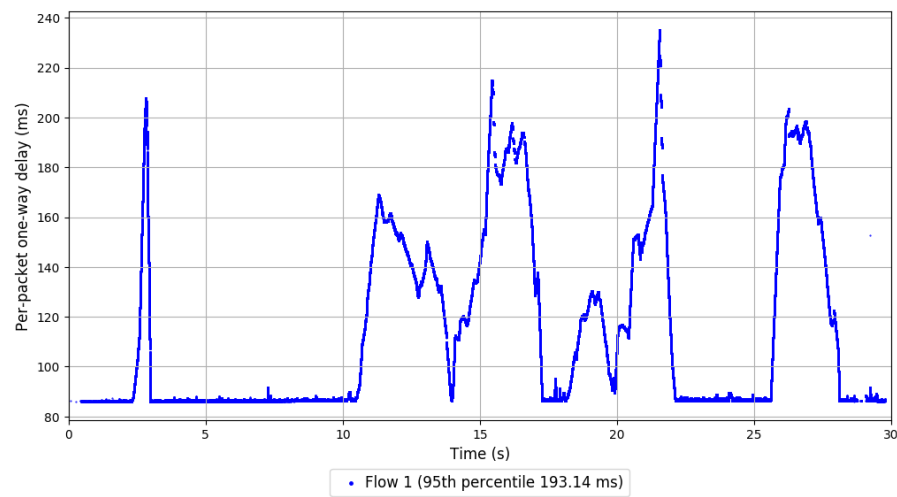
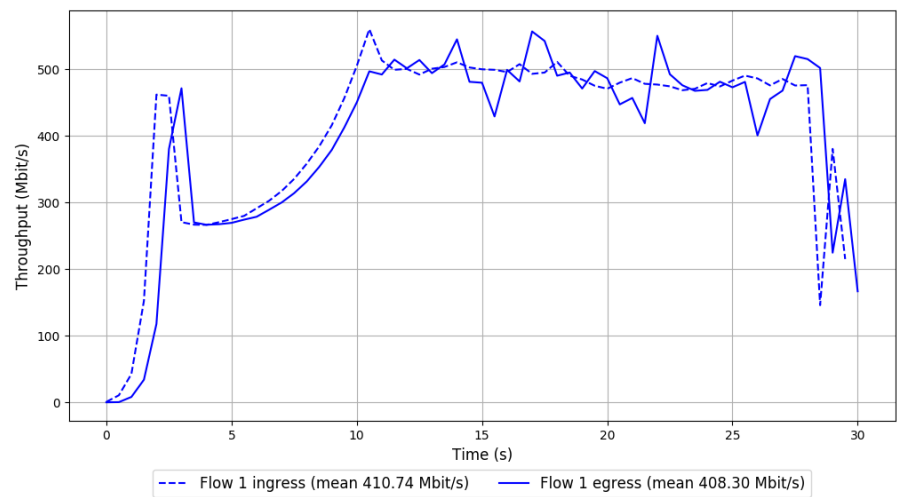


Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 03:38:41
End at: 2018-11-15 03:39:11
Local clock offset: 13.517 ms
Remote clock offset: 15.483 ms

Below is generated by plot.py at 2018-11-15 05:15:26
Datalink statistics
-- Total of 1 flow:
Average throughput: 408.30 Mbit/s
95th percentile per-packet one-way delay: 193.144 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 408.30 Mbit/s
95th percentile per-packet one-way delay: 193.144 ms
Loss rate: 1.17%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 04:05:15

End at: 2018-11-15 04:05:45

Local clock offset: 5.524 ms

Remote clock offset: 3.306 ms

Below is generated by plot.py at 2018-11-15 05:23:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 381.58 Mbit/s

95th percentile per-packet one-way delay: 205.382 ms

Loss rate: 4.72%

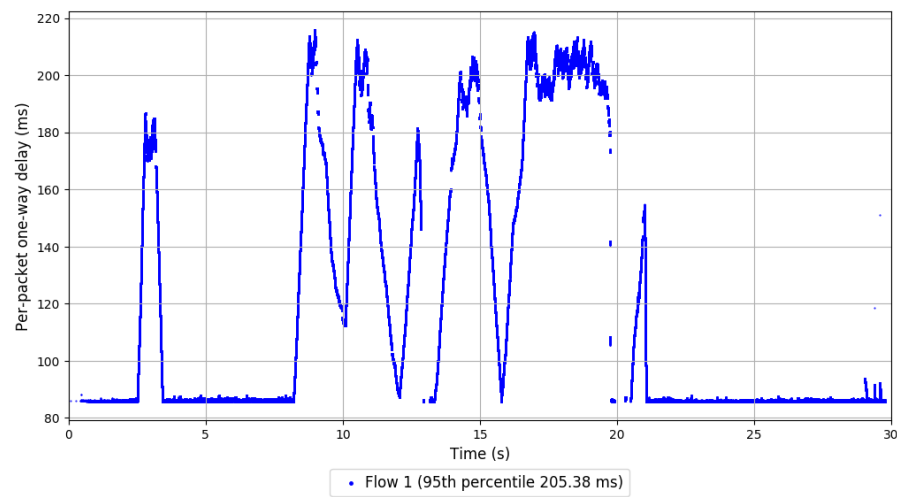
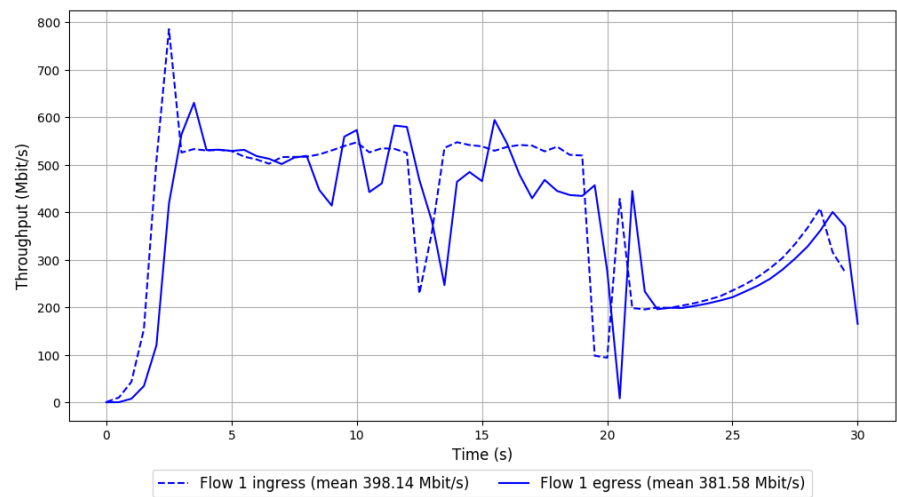
-- Flow 1:

Average throughput: 381.58 Mbit/s

95th percentile per-packet one-way delay: 205.382 ms

Loss rate: 4.72%

Run 5: Report of PCC-Allegro — Data Link

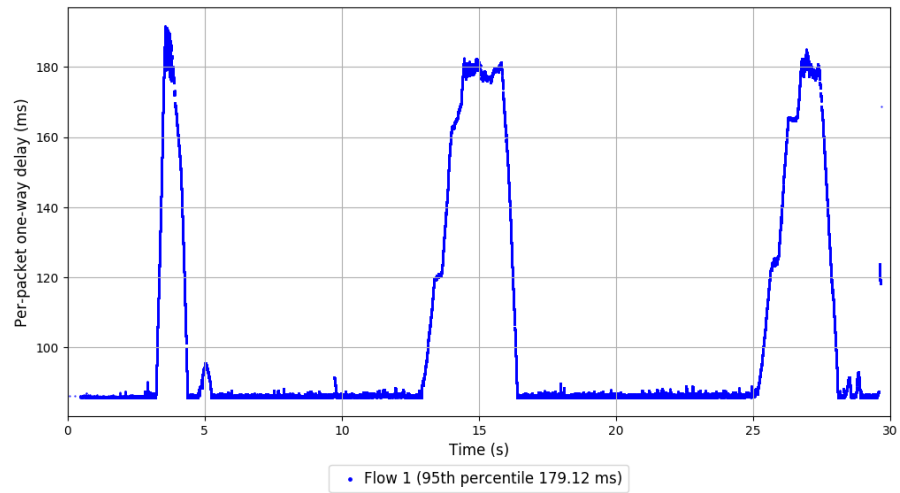
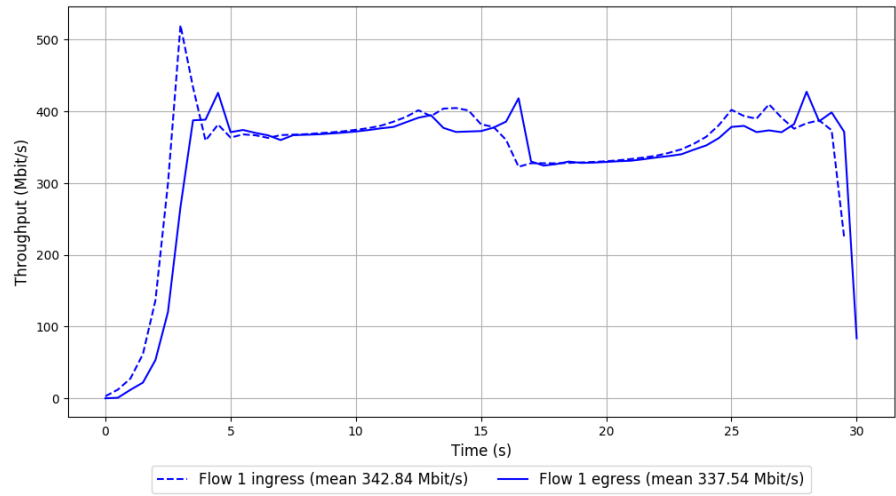


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 02:09:30
End at: 2018-11-15 02:10:00
Local clock offset: 6.566 ms
Remote clock offset: 7.993 ms

# Below is generated by plot.py at 2018-11-15 05:23:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 337.54 Mbit/s
95th percentile per-packet one-way delay: 179.117 ms
Loss rate: 2.11%
-- Flow 1:
Average throughput: 337.54 Mbit/s
95th percentile per-packet one-way delay: 179.117 ms
Loss rate: 2.11%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 02:36:16

End at: 2018-11-15 02:36:46

Local clock offset: 21.945 ms

Remote clock offset: 15.72 ms

Below is generated by plot.py at 2018-11-15 05:23:58

Datalink statistics

-- Total of 1 flow:

Average throughput: 332.32 Mbit/s

95th percentile per-packet one-way delay: 183.737 ms

Loss rate: 2.77%

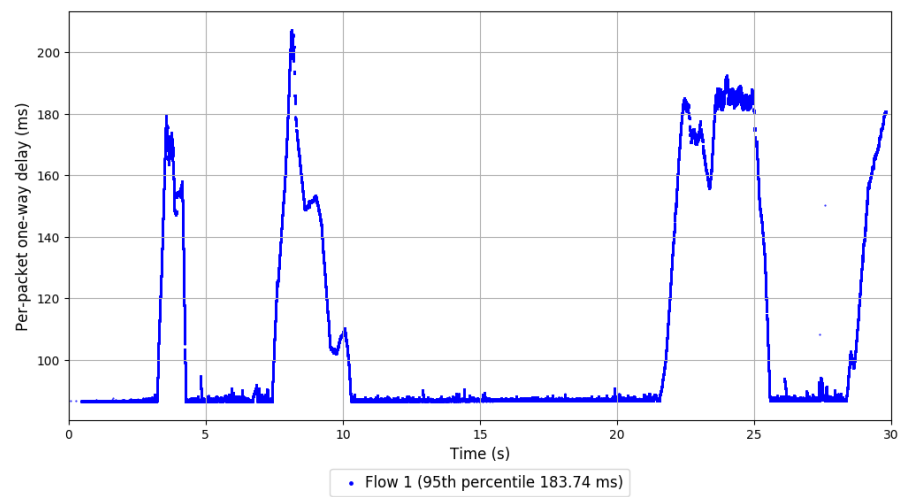
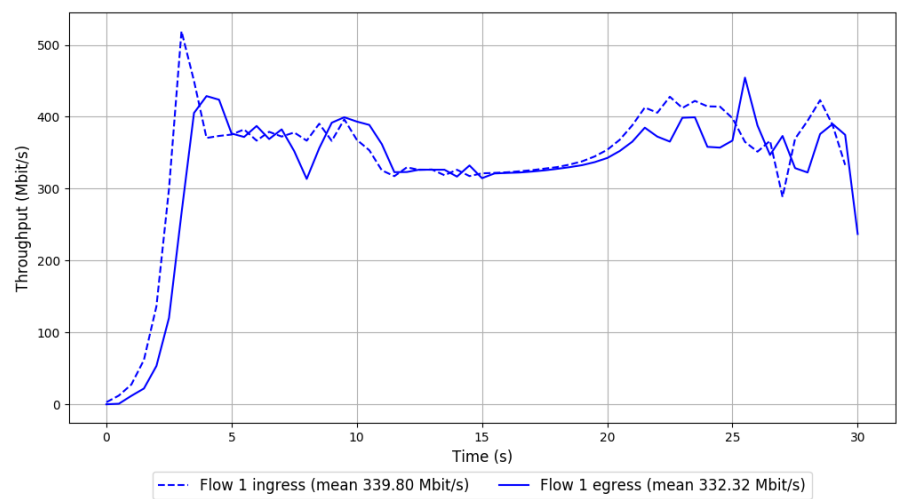
-- Flow 1:

Average throughput: 332.32 Mbit/s

95th percentile per-packet one-way delay: 183.737 ms

Loss rate: 2.77%

Run 2: Report of PCC-Expr — Data Link

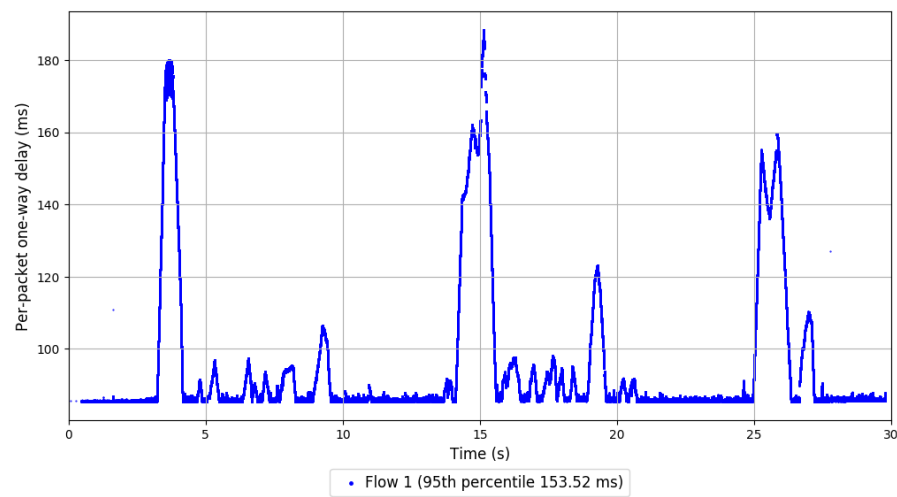
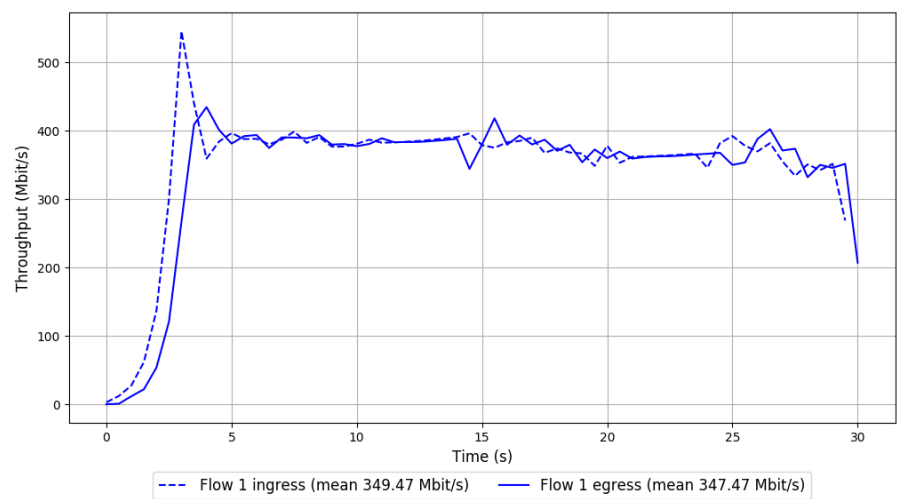


Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 03:04:01
End at: 2018-11-15 03:04:31
Local clock offset: 27.004 ms
Remote clock offset: 29.975 ms

Below is generated by plot.py at 2018-11-15 05:23:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 347.47 Mbit/s
95th percentile per-packet one-way delay: 153.517 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 347.47 Mbit/s
95th percentile per-packet one-way delay: 153.517 ms
Loss rate: 1.15%

Run 3: Report of PCC-Expr — Data Link

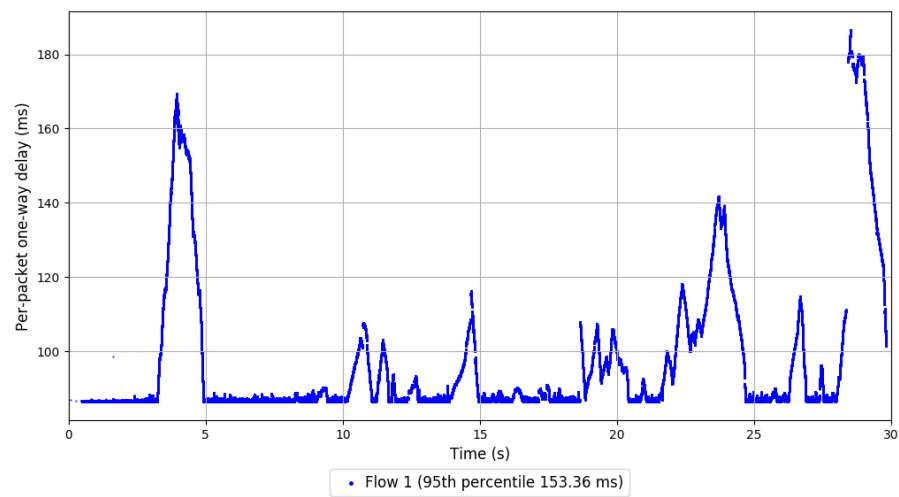
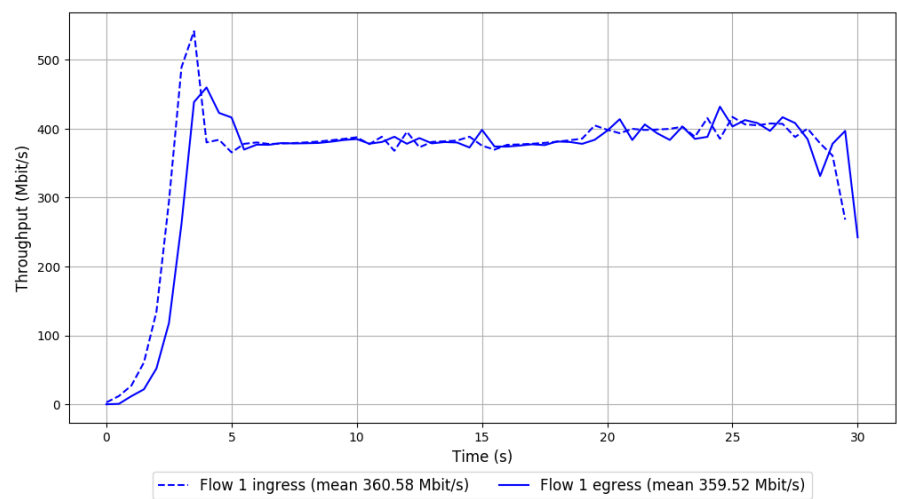


Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 03:30:56
End at: 2018-11-15 03:31:26
Local clock offset: 11.774 ms
Remote clock offset: 12.911 ms

Below is generated by plot.py at 2018-11-15 05:26:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 359.52 Mbit/s
95th percentile per-packet one-way delay: 153.356 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 359.52 Mbit/s
95th percentile per-packet one-way delay: 153.356 ms
Loss rate: 0.87%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 03:57:23

End at: 2018-11-15 03:57:53

Local clock offset: 4.977 ms

Remote clock offset: 3.59 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 387.45 Mbit/s

95th percentile per-packet one-way delay: 163.270 ms

Loss rate: 1.82%

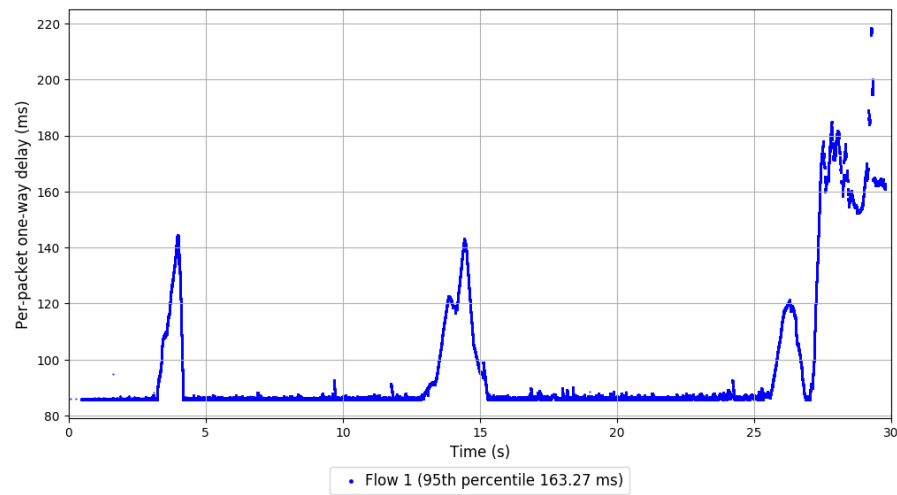
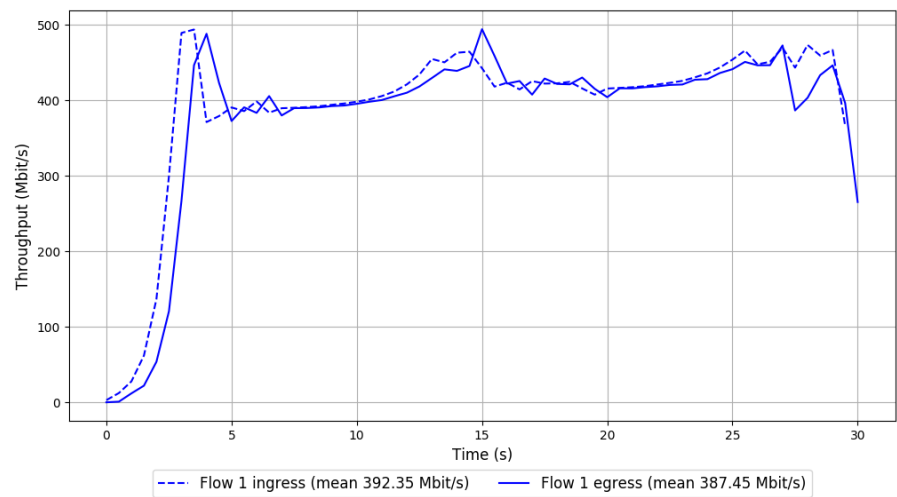
-- Flow 1:

Average throughput: 387.45 Mbit/s

95th percentile per-packet one-way delay: 163.270 ms

Loss rate: 1.82%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

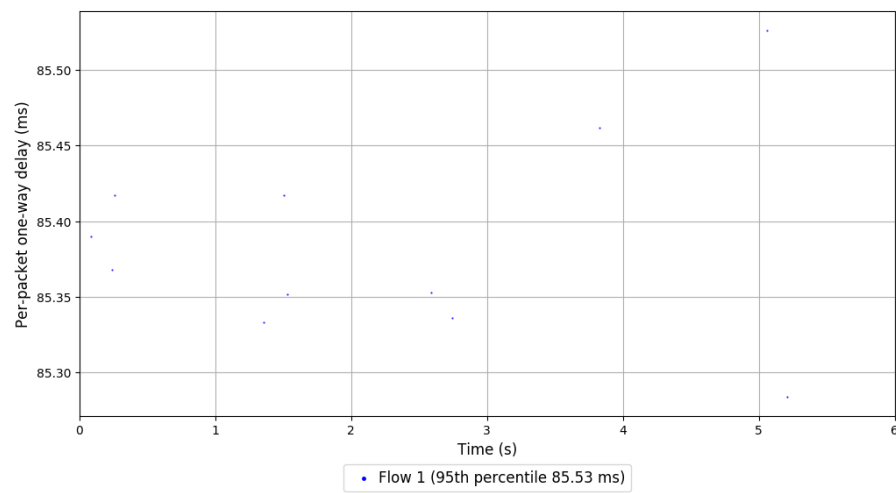
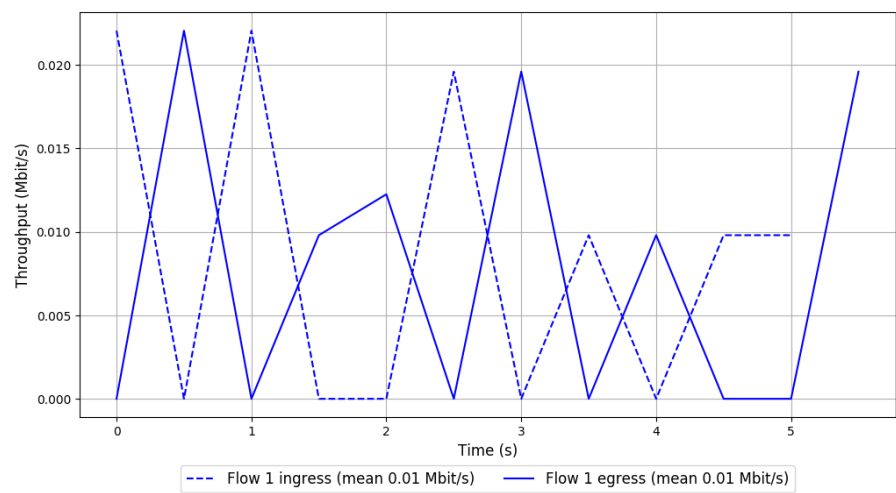
Start at: 2018-11-15 02:18:46

End at: 2018-11-15 02:19:16

Local clock offset: 17.304 ms

Remote clock offset: 10.248 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 02:46:25

End at: 2018-11-15 02:46:55

Local clock offset: 17.821 ms

Remote clock offset: 17.283 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 57.54 Mbit/s

95th percentile per-packet one-way delay: 86.005 ms

Loss rate: 0.95%

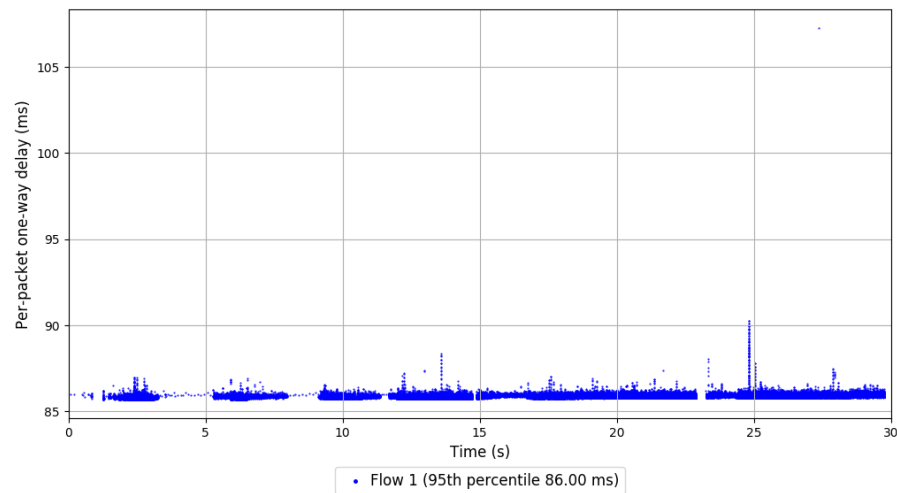
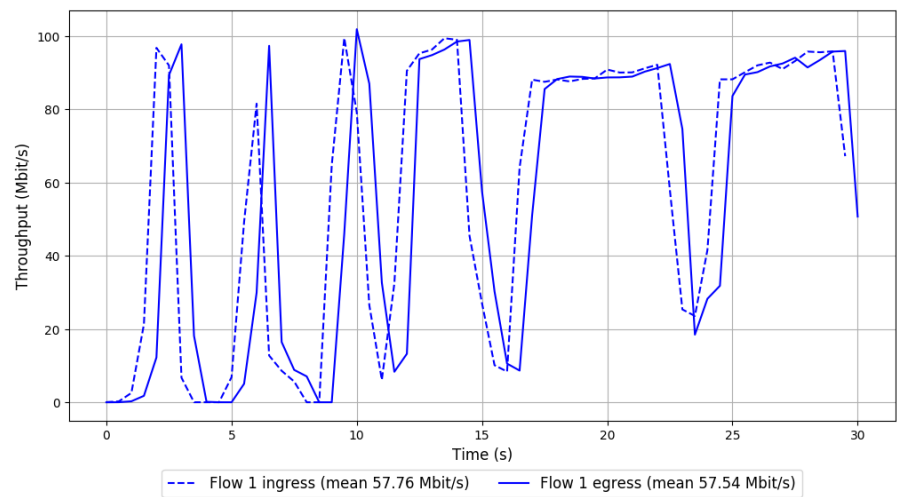
-- Flow 1:

Average throughput: 57.54 Mbit/s

95th percentile per-packet one-way delay: 86.005 ms

Loss rate: 0.95%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 03:13:59

End at: 2018-11-15 03:14:29

Local clock offset: 13.19 ms

Remote clock offset: 14.54 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 56.24 Mbit/s

95th percentile per-packet one-way delay: 86.254 ms

Loss rate: 0.86%

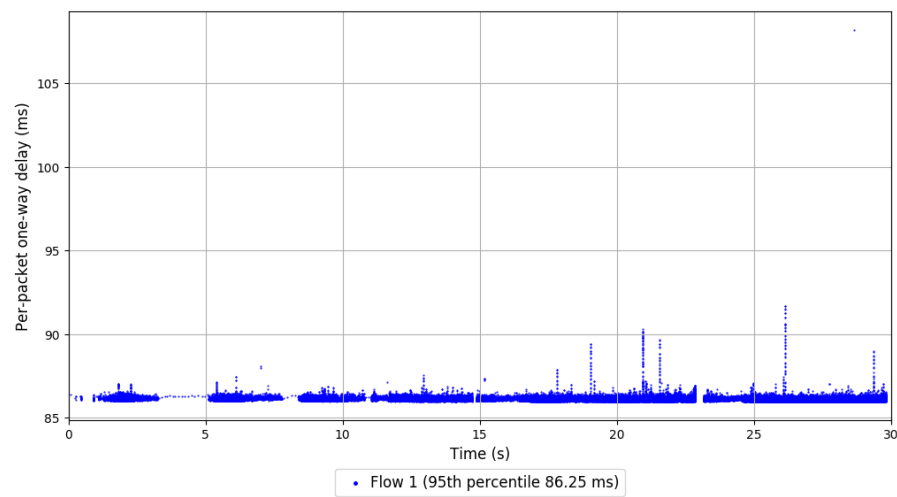
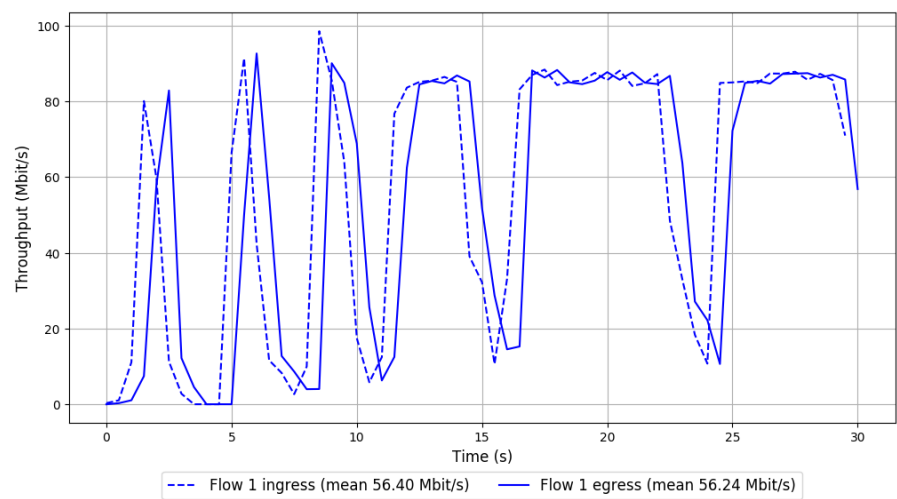
-- Flow 1:

Average throughput: 56.24 Mbit/s

95th percentile per-packet one-way delay: 86.254 ms

Loss rate: 0.86%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 03:40:18

End at: 2018-11-15 03:40:48

Local clock offset: 11.967 ms

Remote clock offset: 13.725 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 63.81 Mbit/s

95th percentile per-packet one-way delay: 85.826 ms

Loss rate: 0.91%

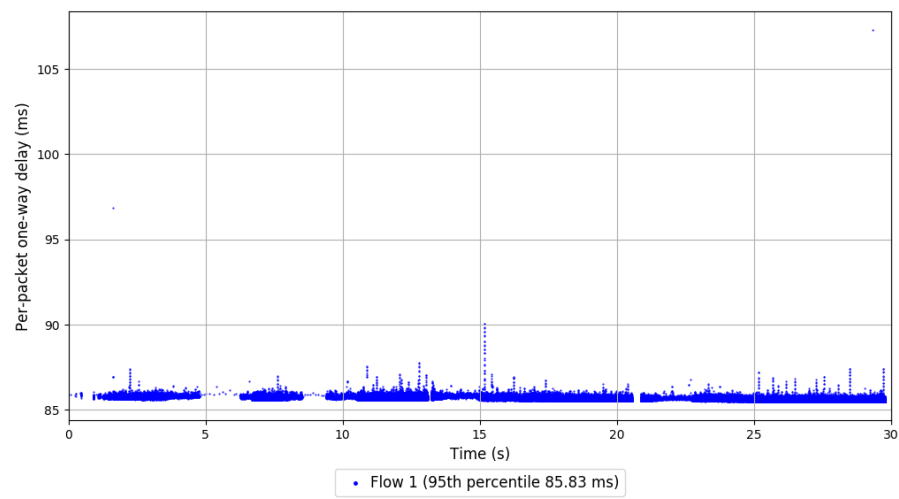
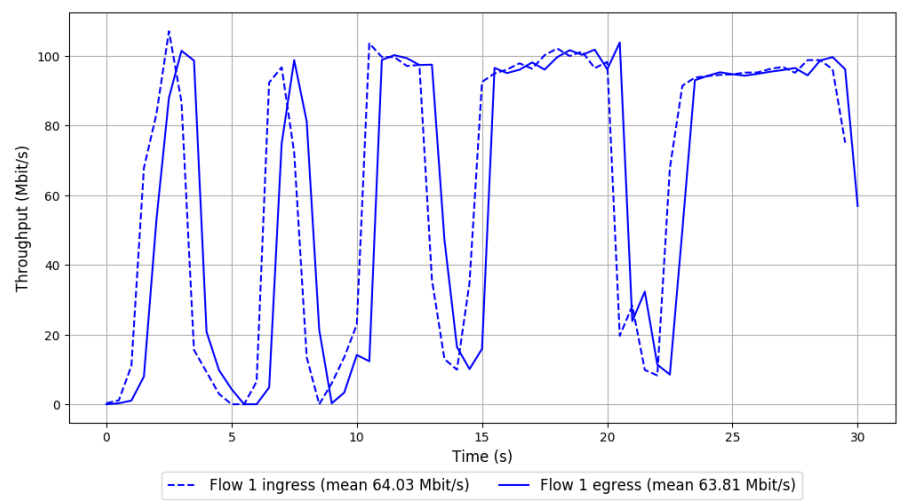
-- Flow 1:

Average throughput: 63.81 Mbit/s

95th percentile per-packet one-way delay: 85.826 ms

Loss rate: 0.91%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 04:06:51

End at: 2018-11-15 04:07:21

Local clock offset: 5.317 ms

Remote clock offset: 3.342 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 69.14 Mbit/s

95th percentile per-packet one-way delay: 85.536 ms

Loss rate: 0.83%

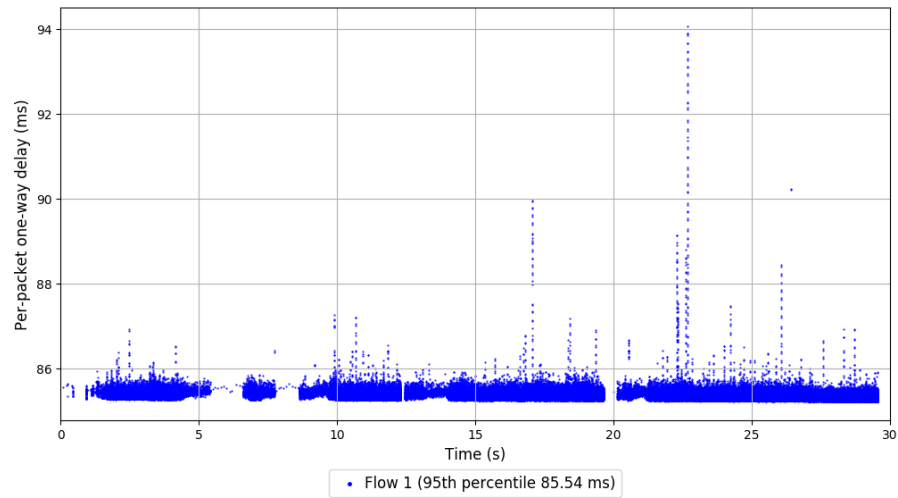
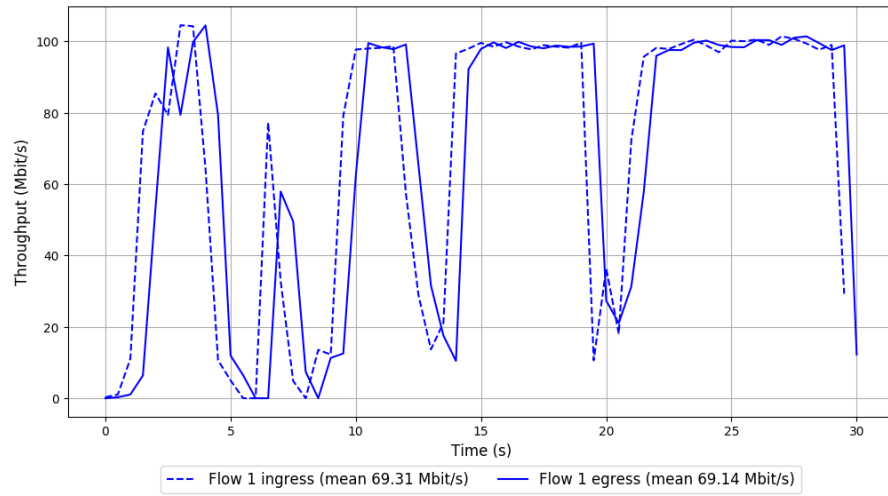
-- Flow 1:

Average throughput: 69.14 Mbit/s

95th percentile per-packet one-way delay: 85.536 ms

Loss rate: 0.83%

Run 5: Report of QUIC Cubic — Data Link

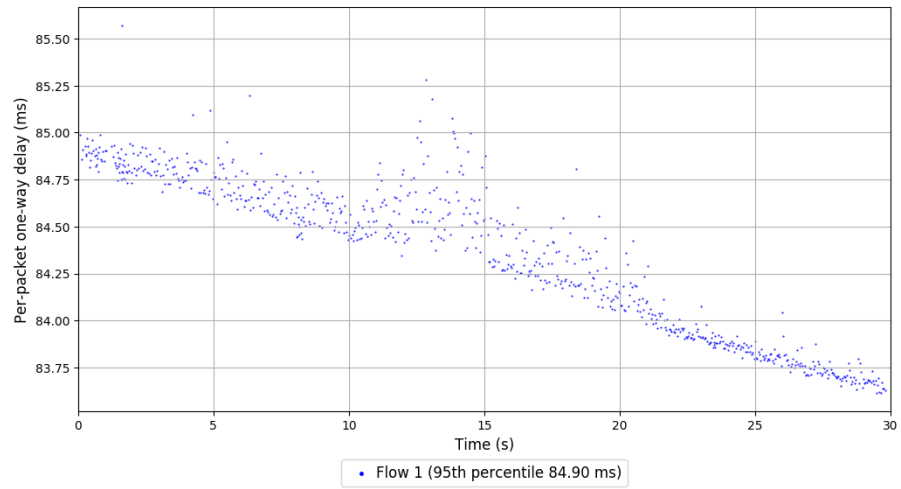
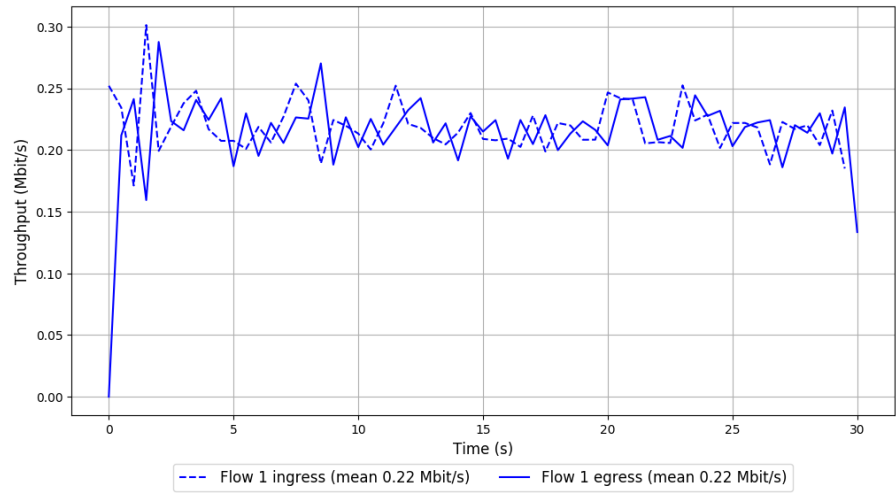


Run 1: Statistics of SCReAM

Start at: 2018-11-15 02:14:21
End at: 2018-11-15 02:14:51
Local clock offset: 11.704 ms
Remote clock offset: 12.526 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.899 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.899 ms
Loss rate: 0.64%

Run 1: Report of SReAM — Data Link

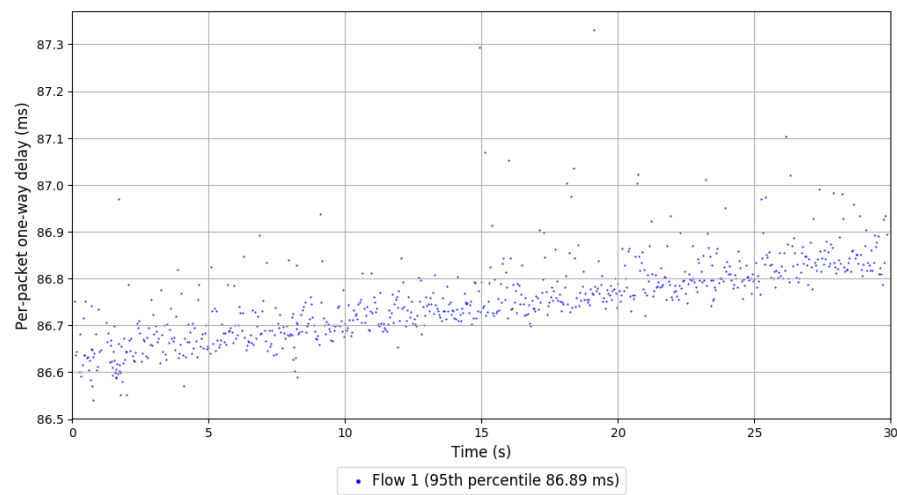
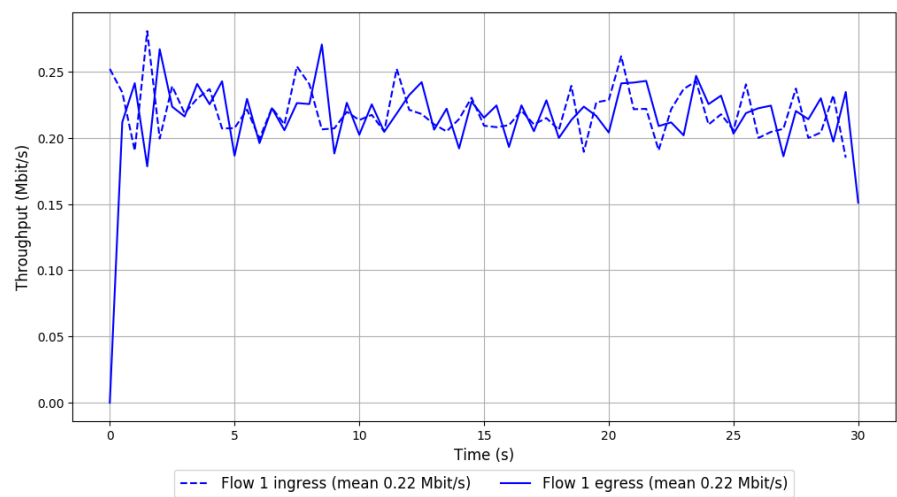


Run 2: Statistics of SCReAM

Start at: 2018-11-15 02:41:35
End at: 2018-11-15 02:42:05
Local clock offset: 18.433 ms
Remote clock offset: 15.429 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.891 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.891 ms
Loss rate: 0.51%

Run 2: Report of SReAM — Data Link

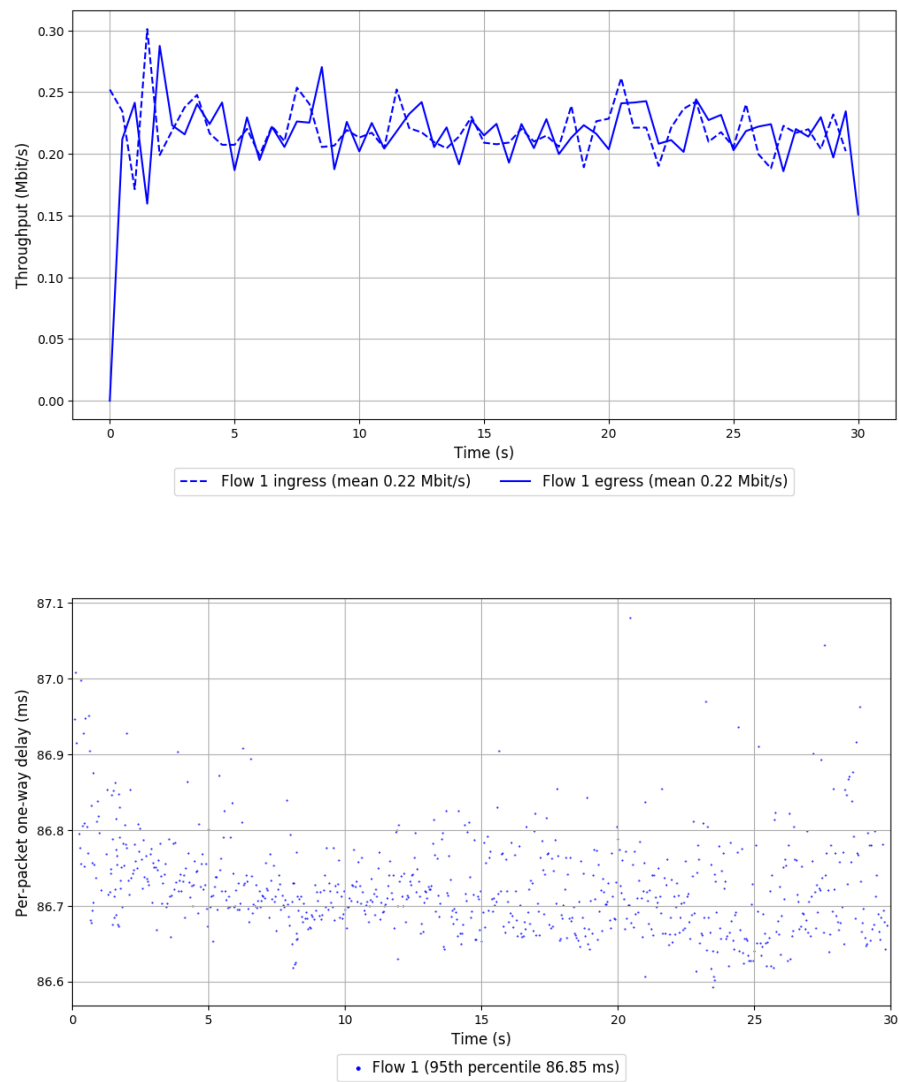


Run 3: Statistics of SCReAM

Start at: 2018-11-15 03:09:28
End at: 2018-11-15 03:09:58
Local clock offset: 18.526 ms
Remote clock offset: 20.013 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.846 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.846 ms
Loss rate: 0.64%

Run 3: Report of SReAM — Data Link

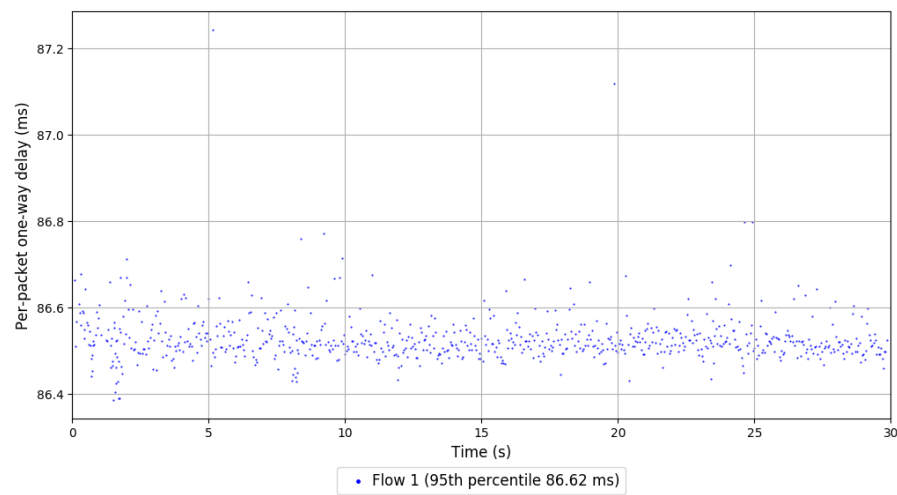
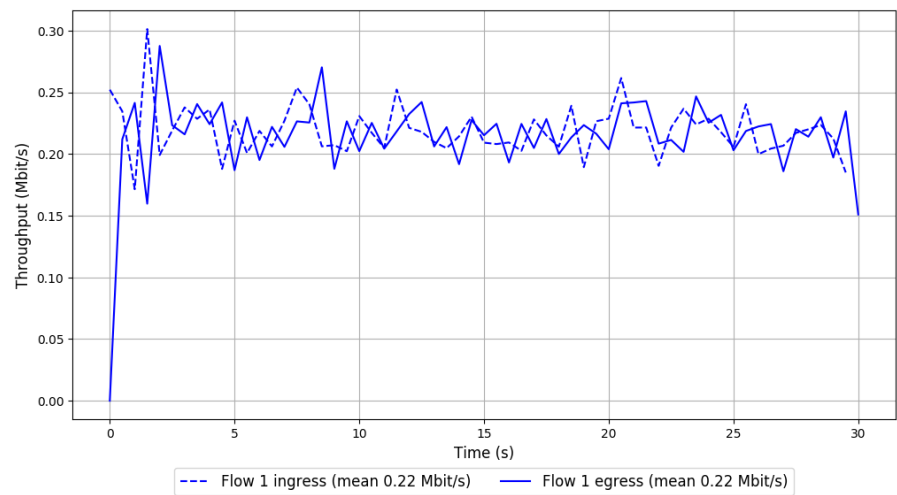


Run 4: Statistics of SCReAM

Start at: 2018-11-15 03:35:51
End at: 2018-11-15 03:36:21
Local clock offset: 12.98 ms
Remote clock offset: 14.381 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.621 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.621 ms
Loss rate: 0.51%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-11-15 04:02:25

End at: 2018-11-15 04:02:55

Local clock offset: 5.661 ms

Remote clock offset: 3.34 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.458 ms

Loss rate: 0.51%

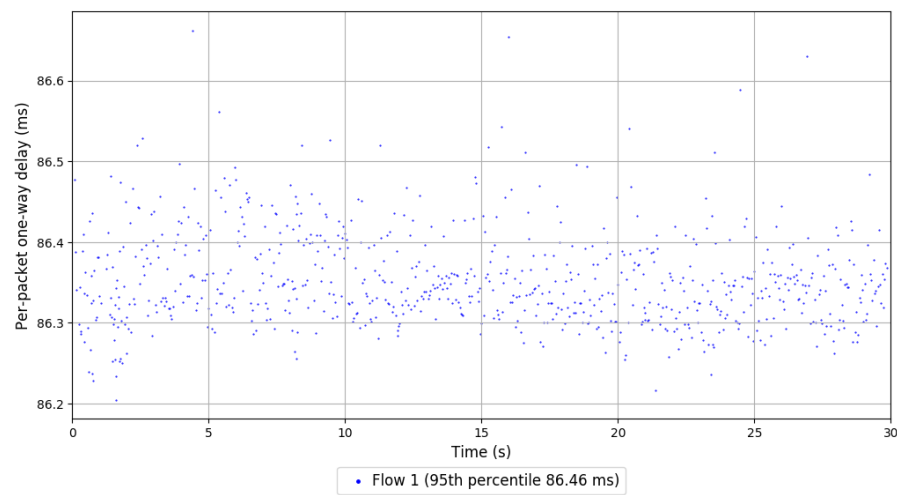
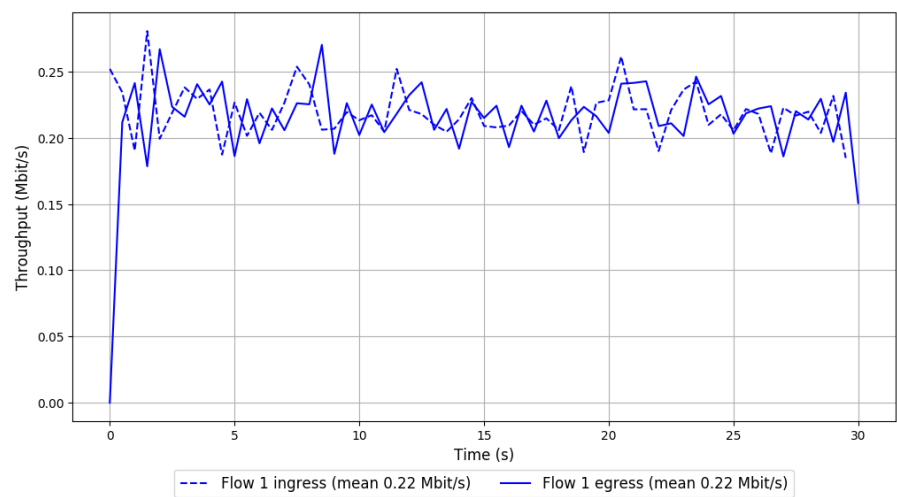
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.458 ms

Loss rate: 0.51%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-11-15 02:05:12

End at: 2018-11-15 02:05:42

Local clock offset: 7.316 ms

Remote clock offset: 9.145 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.16 Mbit/s

95th percentile per-packet one-way delay: 87.347 ms

Loss rate: 0.58%

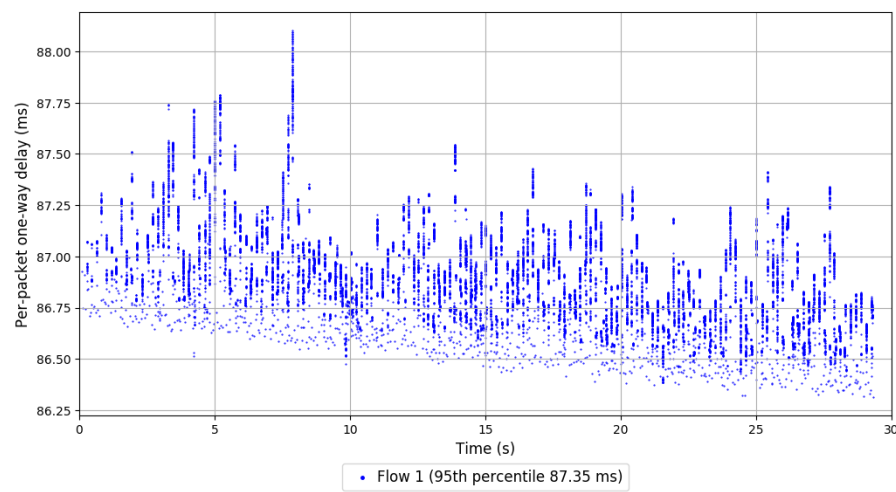
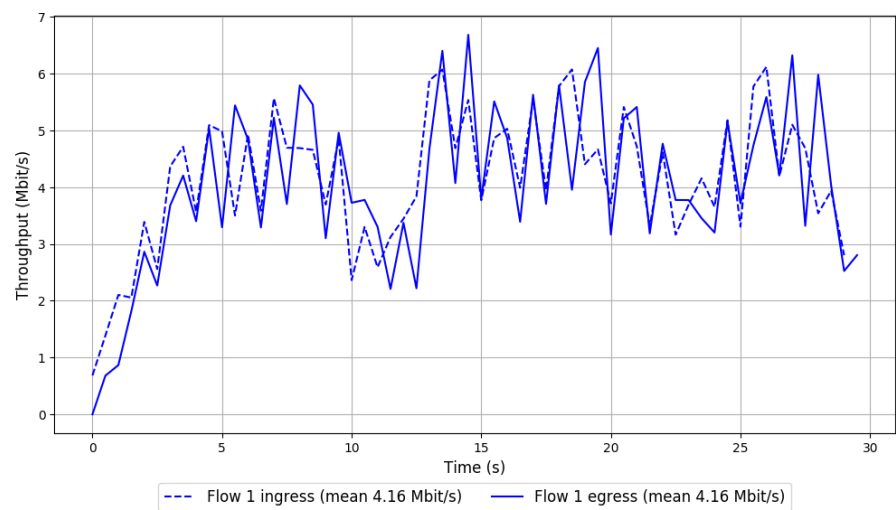
-- Flow 1:

Average throughput: 4.16 Mbit/s

95th percentile per-packet one-way delay: 87.347 ms

Loss rate: 0.58%

Run 1: Report of Sprout — Data Link

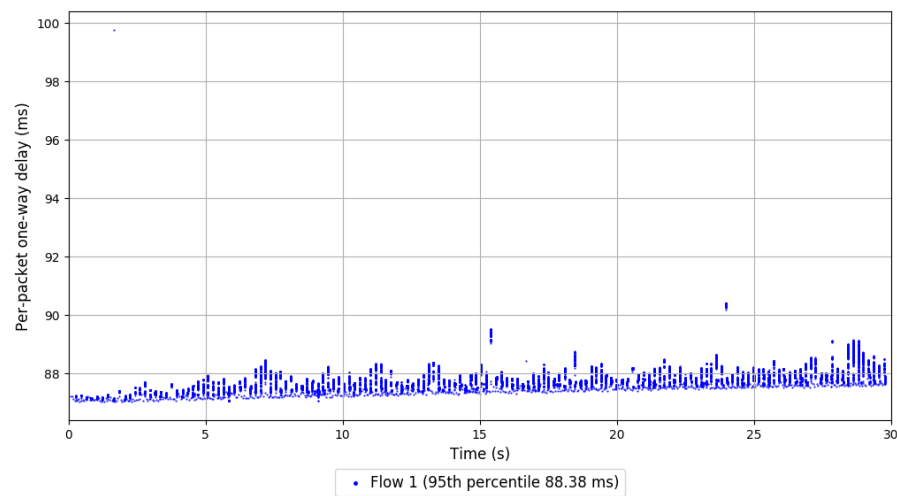
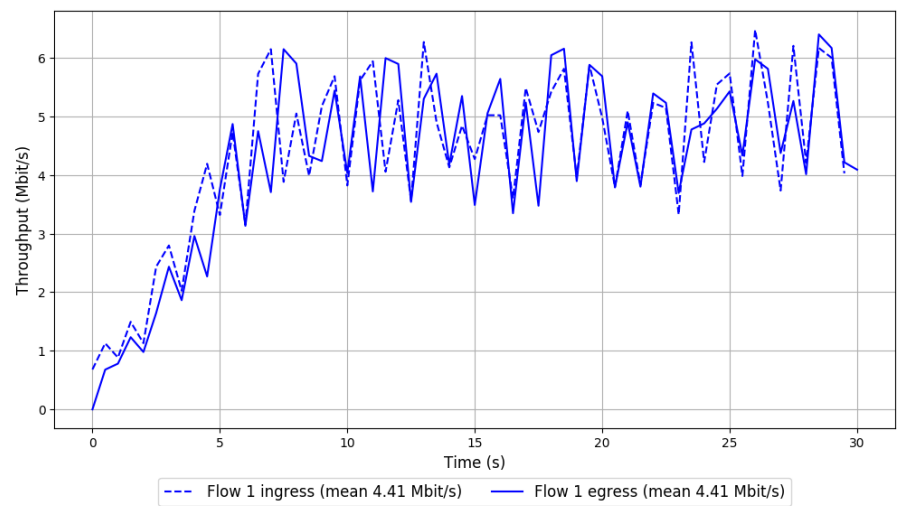


Run 2: Statistics of Sprout

Start at: 2018-11-15 02:31:58
End at: 2018-11-15 02:32:28
Local clock offset: 29.961 ms
Remote clock offset: 19.017 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 88.378 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 88.378 ms
Loss rate: 0.65%

Run 2: Report of Sprout — Data Link

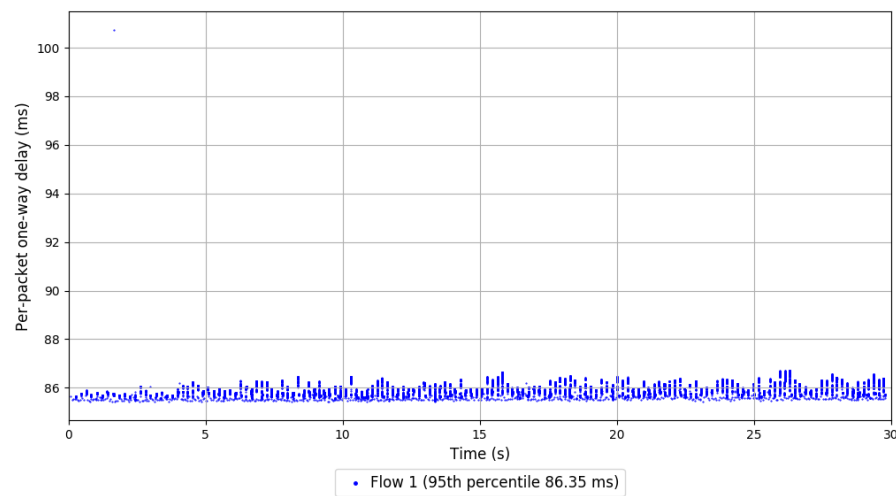
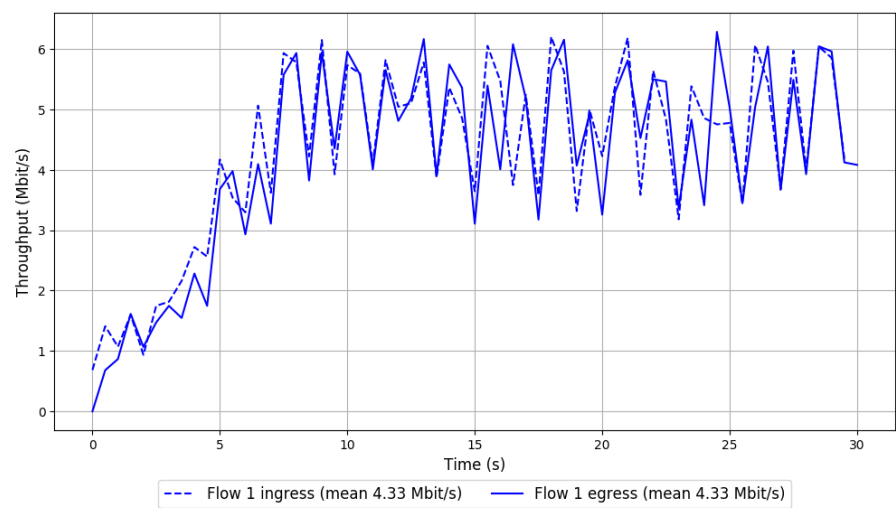


Run 3: Statistics of Sprout

Start at: 2018-11-15 02:59:48
End at: 2018-11-15 03:00:18
Local clock offset: 24.054 ms
Remote clock offset: 26.488 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 86.349 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 86.349 ms
Loss rate: 0.74%

Run 3: Report of Sprout — Data Link

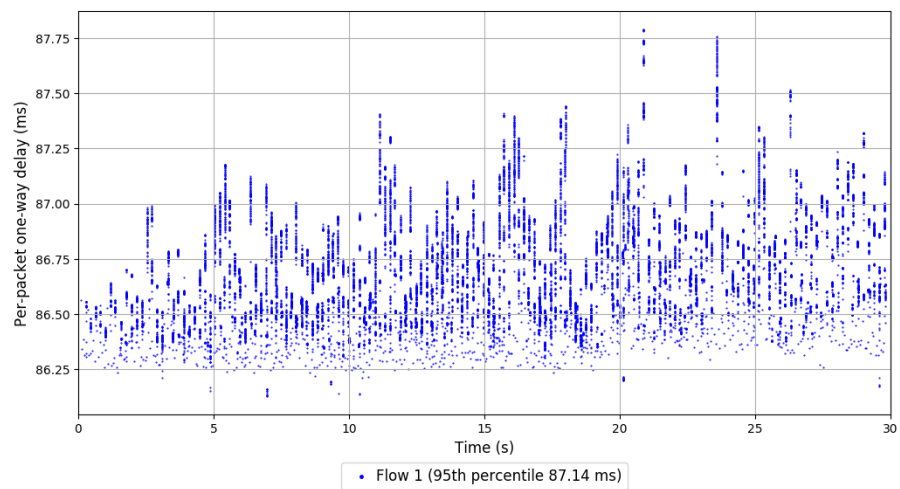
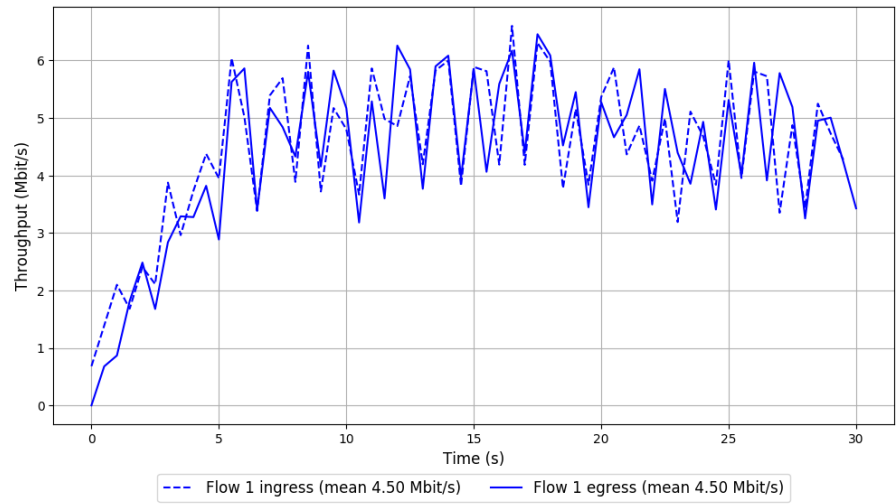


Run 4: Statistics of Sprout

Start at: 2018-11-15 03:26:48
End at: 2018-11-15 03:27:18
Local clock offset: 10.67 ms
Remote clock offset: 11.963 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.50 Mbit/s
95th percentile per-packet one-way delay: 87.145 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 4.50 Mbit/s
95th percentile per-packet one-way delay: 87.145 ms
Loss rate: 0.63%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-11-15 03:53:12

End at: 2018-11-15 03:53:42

Local clock offset: 5.243 ms

Remote clock offset: 4.331 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.26 Mbit/s

95th percentile per-packet one-way delay: 86.732 ms

Loss rate: 0.71%

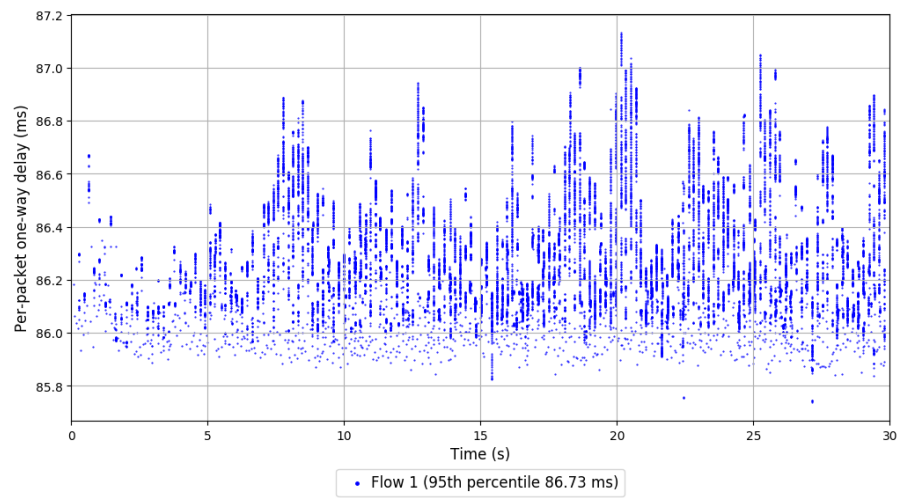
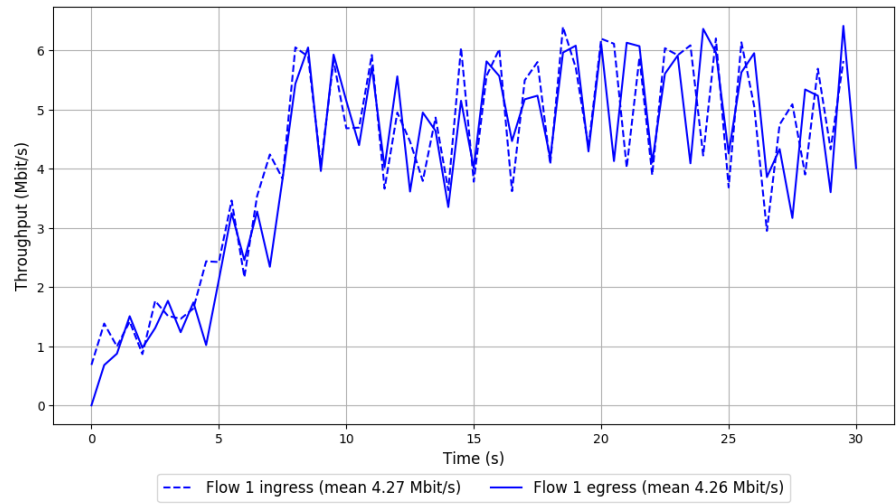
-- Flow 1:

Average throughput: 4.26 Mbit/s

95th percentile per-packet one-way delay: 86.732 ms

Loss rate: 0.71%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 02:06:22

End at: 2018-11-15 02:06:52

Local clock offset: 5.697 ms

Remote clock offset: 7.049 ms

Below is generated by plot.py at 2018-11-15 05:29:34

Datalink statistics

-- Total of 1 flow:

Average throughput: 206.92 Mbit/s

95th percentile per-packet one-way delay: 86.641 ms

Loss rate: 0.58%

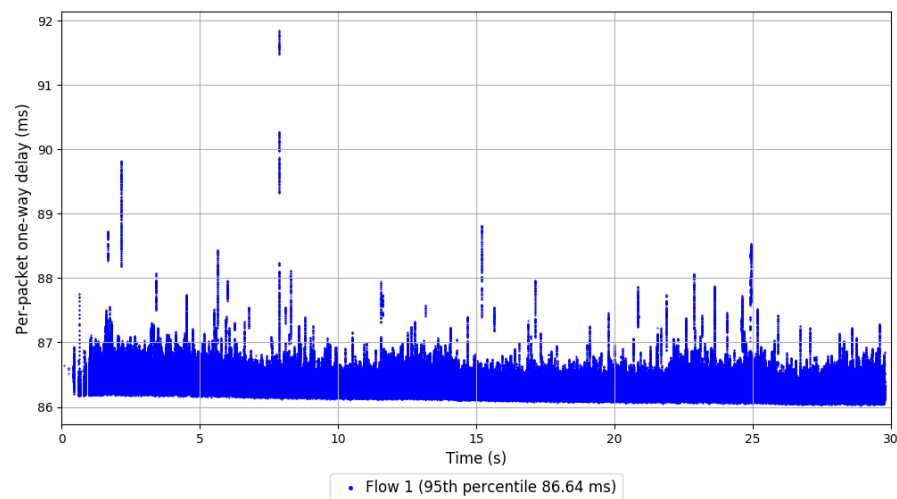
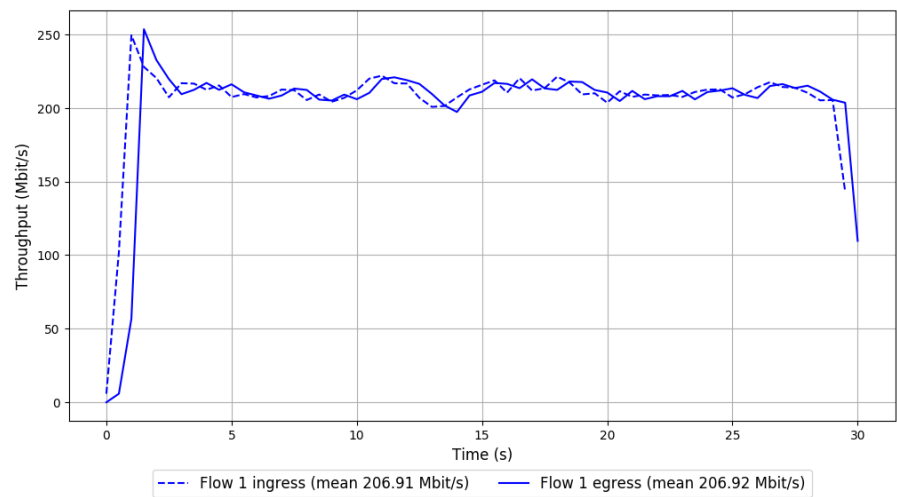
-- Flow 1:

Average throughput: 206.92 Mbit/s

95th percentile per-packet one-way delay: 86.641 ms

Loss rate: 0.58%

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

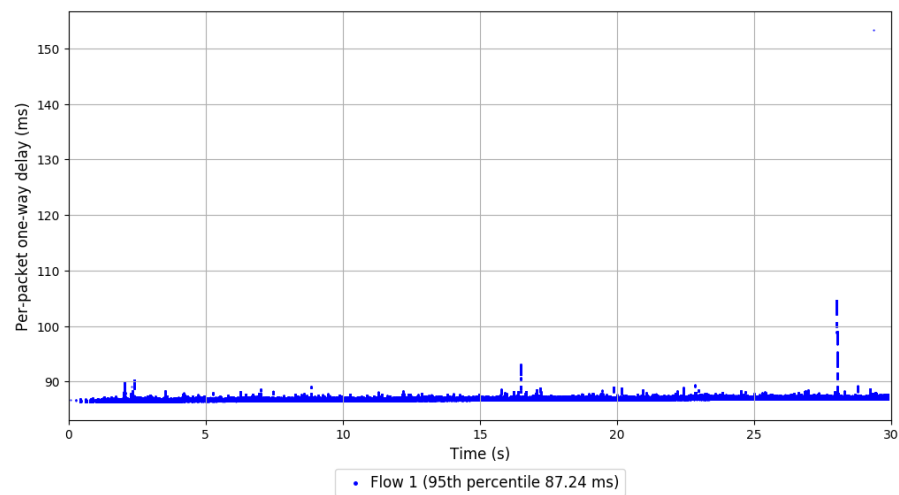
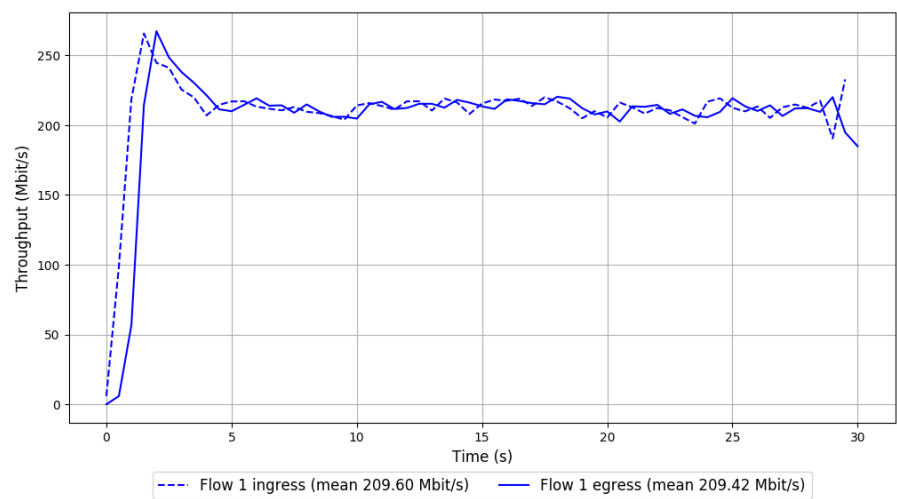


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 02:33:08
End at: 2018-11-15 02:33:38
Local clock offset: 26.834 ms
Remote clock offset: 17.675 ms

Below is generated by plot.py at 2018-11-15 05:29:34
Datalink statistics
-- Total of 1 flow:
Average throughput: 209.42 Mbit/s
95th percentile per-packet one-way delay: 87.237 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 209.42 Mbit/s
95th percentile per-packet one-way delay: 87.237 ms
Loss rate: 0.65%

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

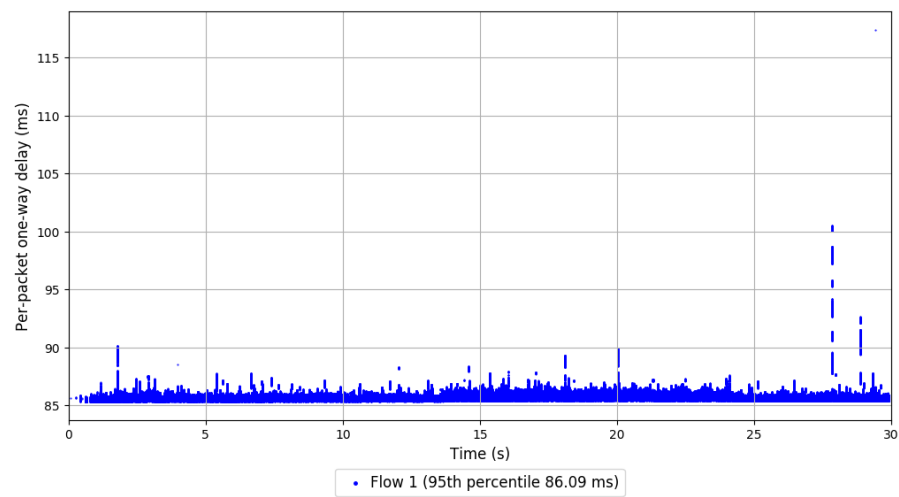
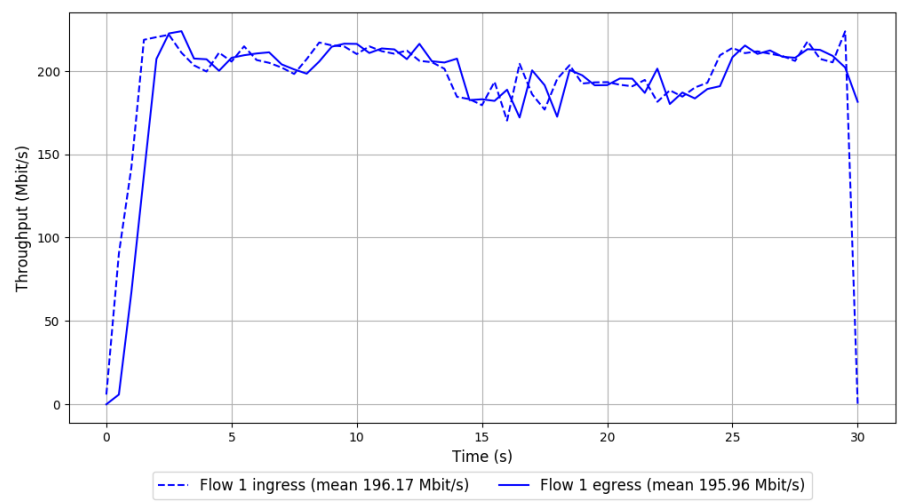


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 03:00:58
End at: 2018-11-15 03:01:28
Local clock offset: 25.015 ms
Remote clock offset: 27.545 ms

Below is generated by plot.py at 2018-11-15 05:29:38
Datalink statistics
-- Total of 1 flow:
Average throughput: 195.96 Mbit/s
95th percentile per-packet one-way delay: 86.090 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 195.96 Mbit/s
95th percentile per-packet one-way delay: 86.090 ms
Loss rate: 0.68%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-11-15 03:27:58

End at: 2018-11-15 03:28:28

Local clock offset: 10.817 ms

Remote clock offset: 12.186 ms

Below is generated by plot.py at 2018-11-15 05:30:18

Datalink statistics

-- Total of 1 flow:

Average throughput: 207.01 Mbit/s

95th percentile per-packet one-way delay: 86.207 ms

Loss rate: 0.59%

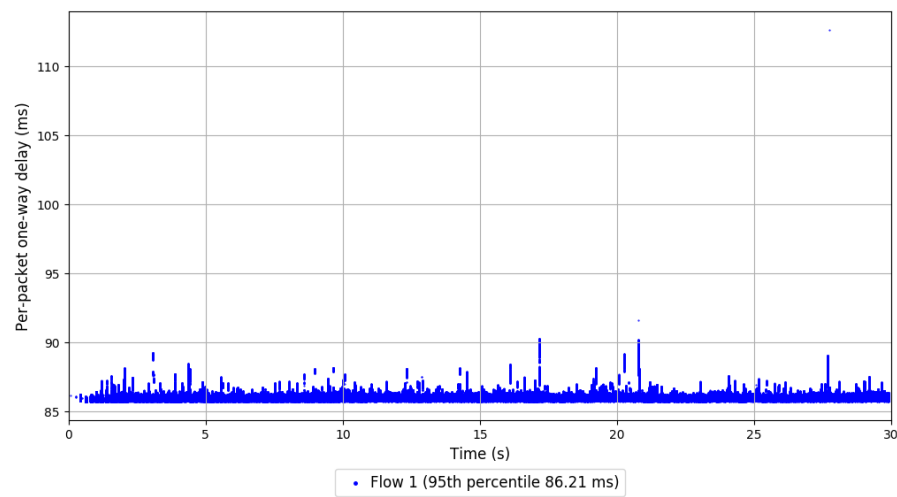
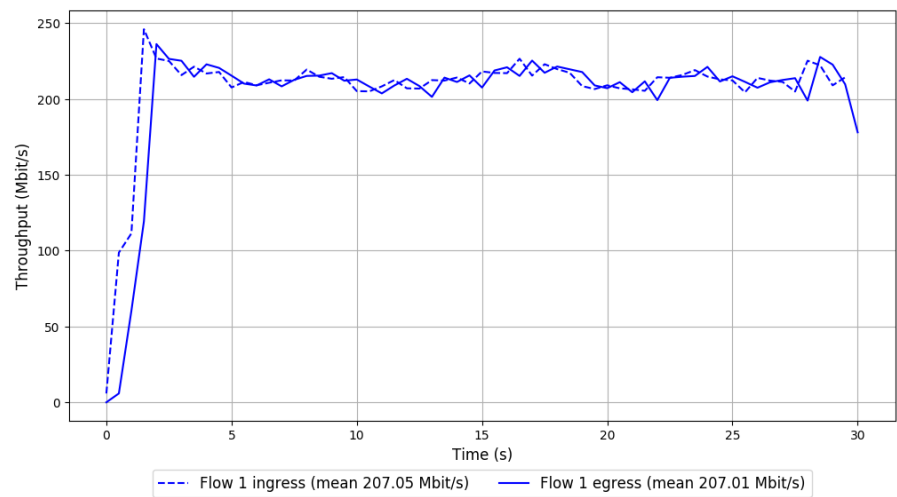
-- Flow 1:

Average throughput: 207.01 Mbit/s

95th percentile per-packet one-way delay: 86.207 ms

Loss rate: 0.59%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 03:54:21

End at: 2018-11-15 03:54:51

Local clock offset: 5.131 ms

Remote clock offset: 4.063 ms

Below is generated by plot.py at 2018-11-15 05:30:51

Datalink statistics

-- Total of 1 flow:

Average throughput: 210.90 Mbit/s

95th percentile per-packet one-way delay: 86.538 ms

Loss rate: 0.52%

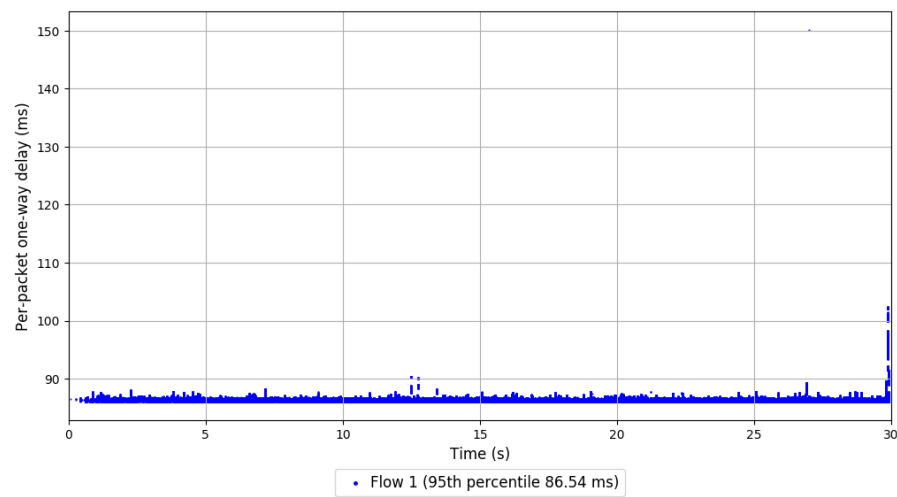
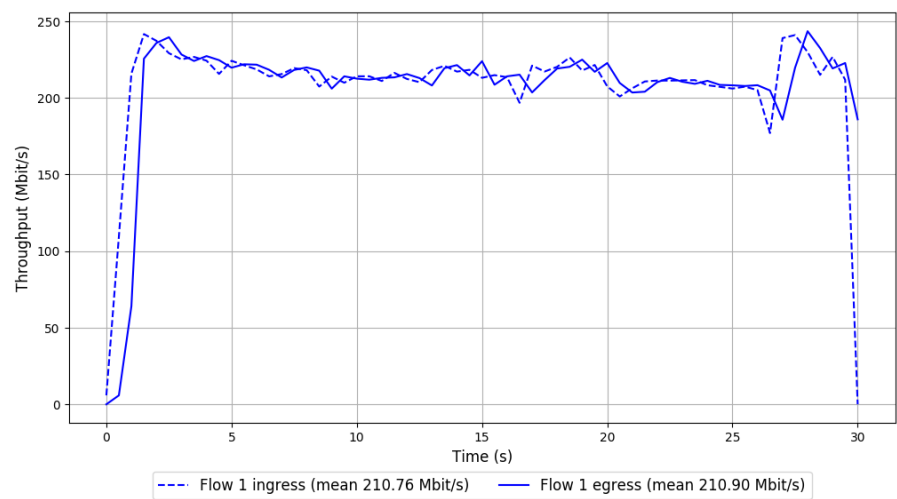
-- Flow 1:

Average throughput: 210.90 Mbit/s

95th percentile per-packet one-way delay: 86.538 ms

Loss rate: 0.52%

Run 5: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 02:03:37

End at: 2018-11-15 02:04:07

Local clock offset: 4.452 ms

Remote clock offset: 6.405 ms

Below is generated by plot.py at 2018-11-15 05:31:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 387.10 Mbit/s

95th percentile per-packet one-way delay: 87.115 ms

Loss rate: 0.61%

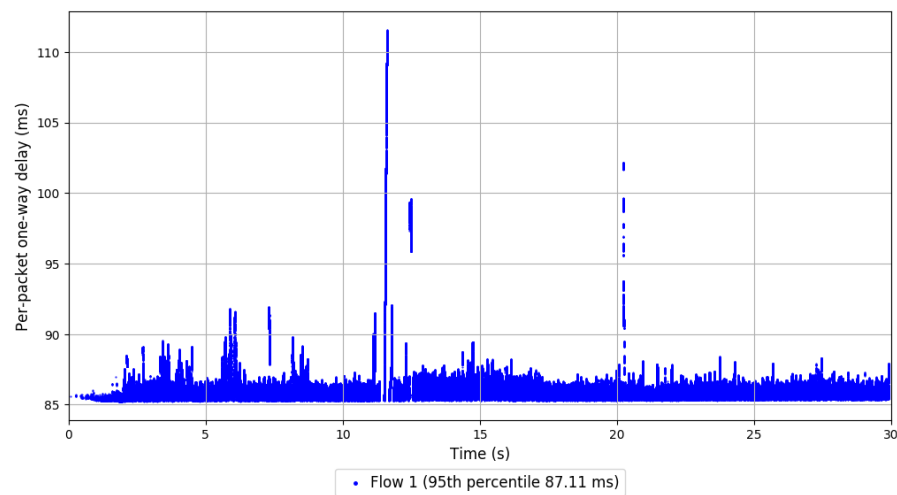
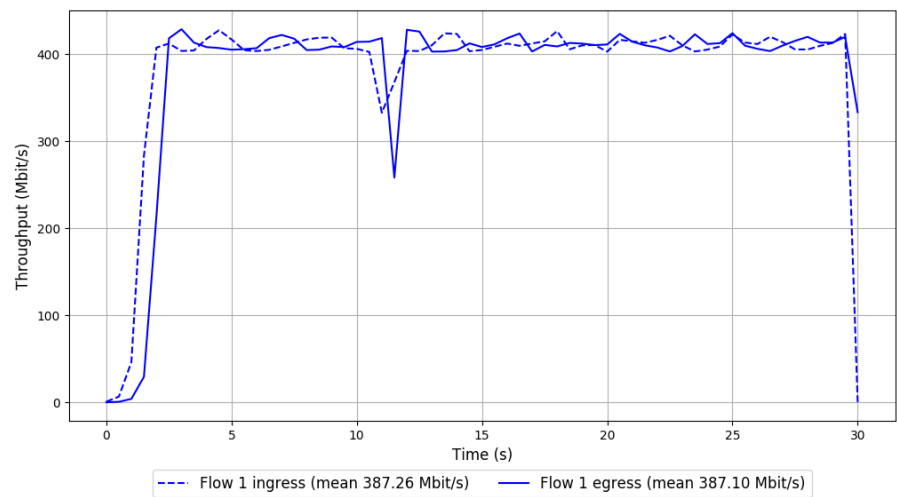
-- Flow 1:

Average throughput: 387.10 Mbit/s

95th percentile per-packet one-way delay: 87.115 ms

Loss rate: 0.61%

Run 1: Report of TCP Vegas — Data Link

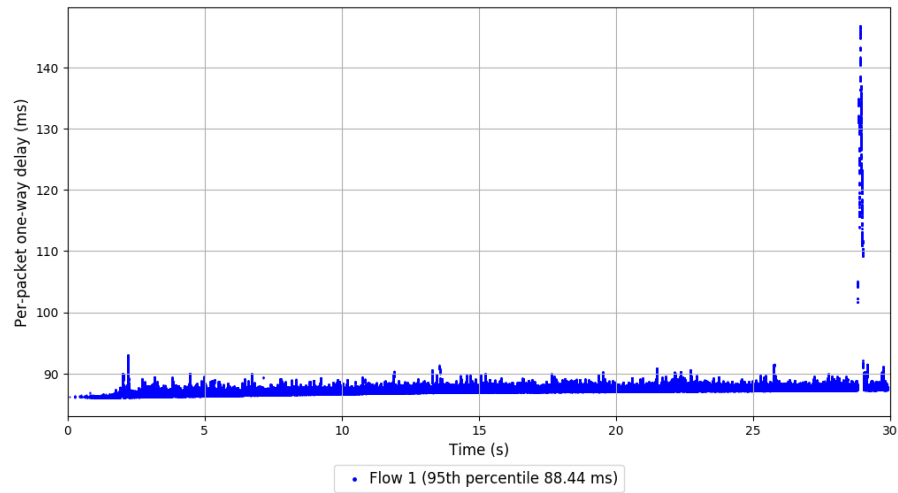
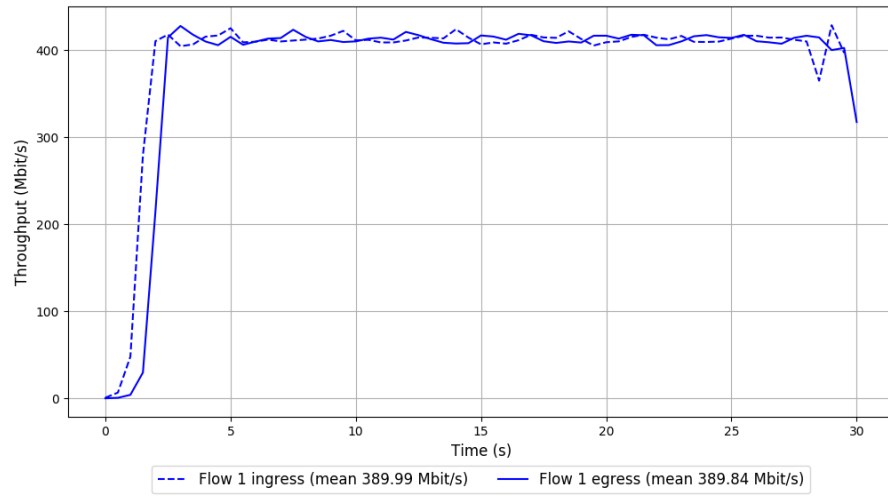


Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 02:30:22
End at: 2018-11-15 02:30:52
Local clock offset: 32.906 ms
Remote clock offset: 20.126 ms

Below is generated by plot.py at 2018-11-15 05:34:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 389.84 Mbit/s
95th percentile per-packet one-way delay: 88.441 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 389.84 Mbit/s
95th percentile per-packet one-way delay: 88.441 ms
Loss rate: 0.61%

Run 2: Report of TCP Vegas — Data Link

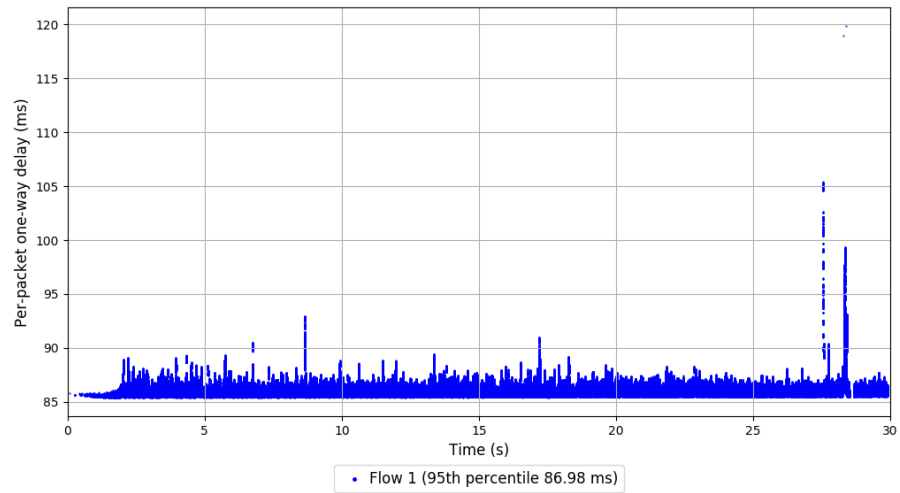
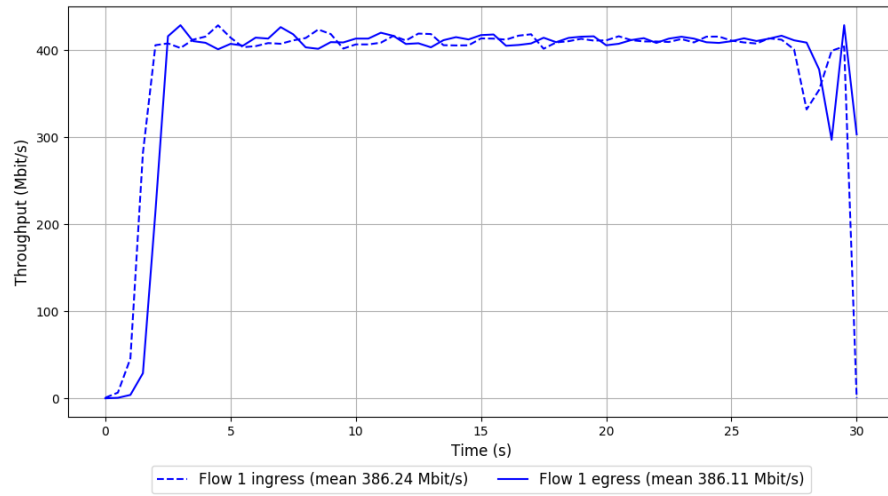


Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 02:58:13
End at: 2018-11-15 02:58:43
Local clock offset: 23.275 ms
Remote clock offset: 25.386 ms

Below is generated by plot.py at 2018-11-15 05:34:32
Datalink statistics
-- Total of 1 flow:
Average throughput: 386.11 Mbit/s
95th percentile per-packet one-way delay: 86.981 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 386.11 Mbit/s
95th percentile per-packet one-way delay: 86.981 ms
Loss rate: 0.61%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 03:25:19

End at: 2018-11-15 03:25:49

Local clock offset: 10.08 ms

Remote clock offset: 11.74 ms

Below is generated by plot.py at 2018-11-15 05:34:35

Datalink statistics

-- Total of 1 flow:

Average throughput: 390.50 Mbit/s

95th percentile per-packet one-way delay: 86.628 ms

Loss rate: 0.61%

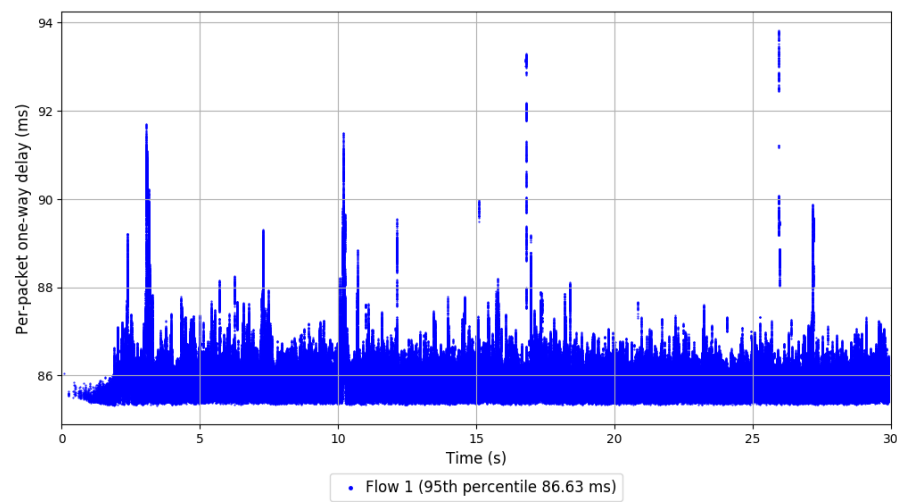
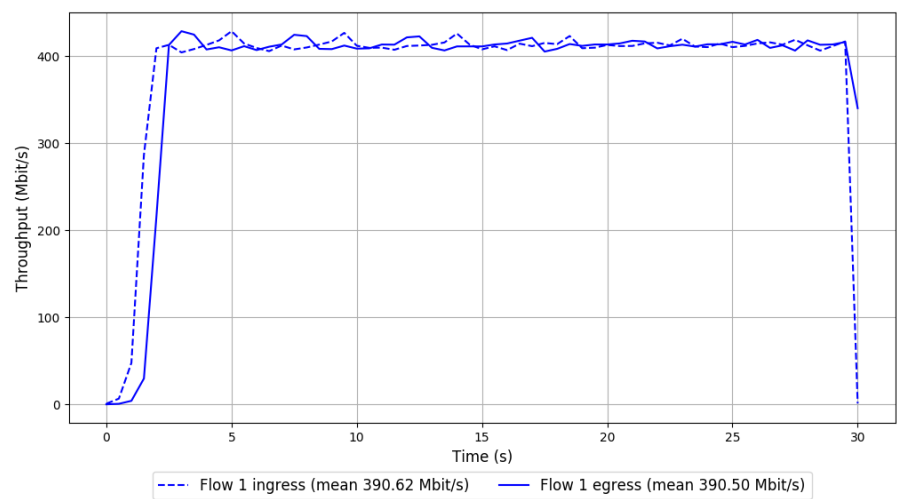
-- Flow 1:

Average throughput: 390.50 Mbit/s

95th percentile per-packet one-way delay: 86.628 ms

Loss rate: 0.61%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 03:51:40

End at: 2018-11-15 03:52:10

Local clock offset: 5.228 ms

Remote clock offset: 4.806 ms

Below is generated by plot.py at 2018-11-15 05:37:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 389.78 Mbit/s

95th percentile per-packet one-way delay: 87.148 ms

Loss rate: 0.61%

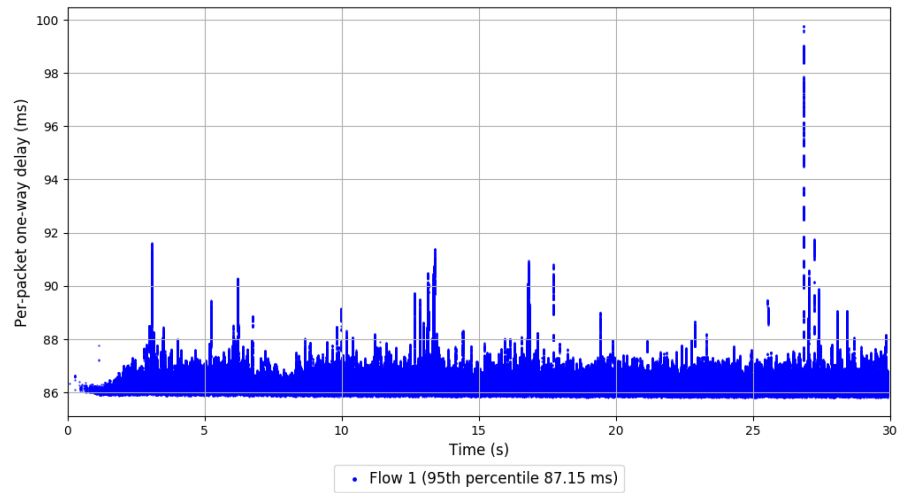
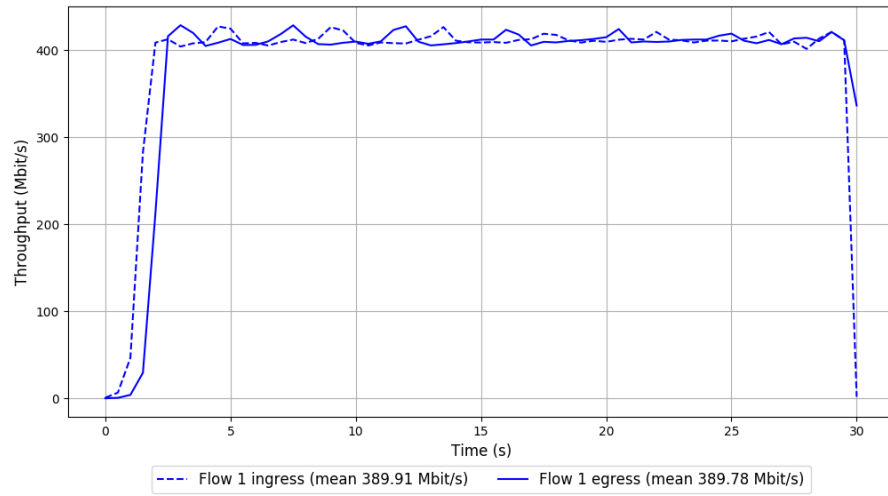
-- Flow 1:

Average throughput: 389.78 Mbit/s

95th percentile per-packet one-way delay: 87.148 ms

Loss rate: 0.61%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-11-15 02:07:59

End at: 2018-11-15 02:08:29

Local clock offset: 5.693 ms

Remote clock offset: 6.889 ms

Below is generated by plot.py at 2018-11-15 05:37:14

Datalink statistics

-- Total of 1 flow:

Average throughput: 189.09 Mbit/s

95th percentile per-packet one-way delay: 236.256 ms

Loss rate: 14.72%

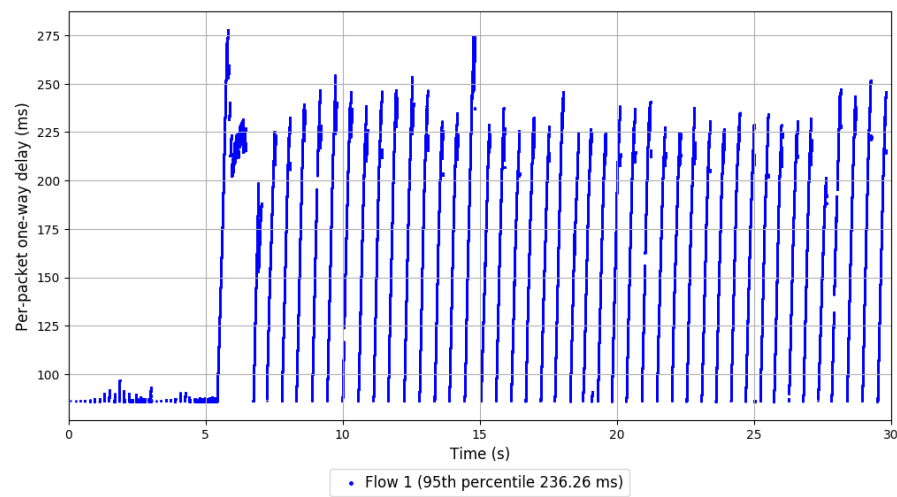
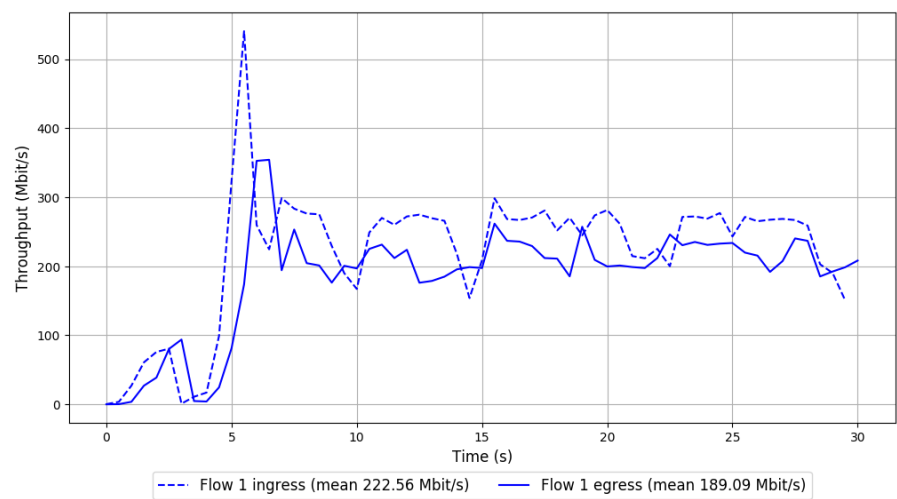
-- Flow 1:

Average throughput: 189.09 Mbit/s

95th percentile per-packet one-way delay: 236.256 ms

Loss rate: 14.72%

Run 1: Report of Verus — Data Link

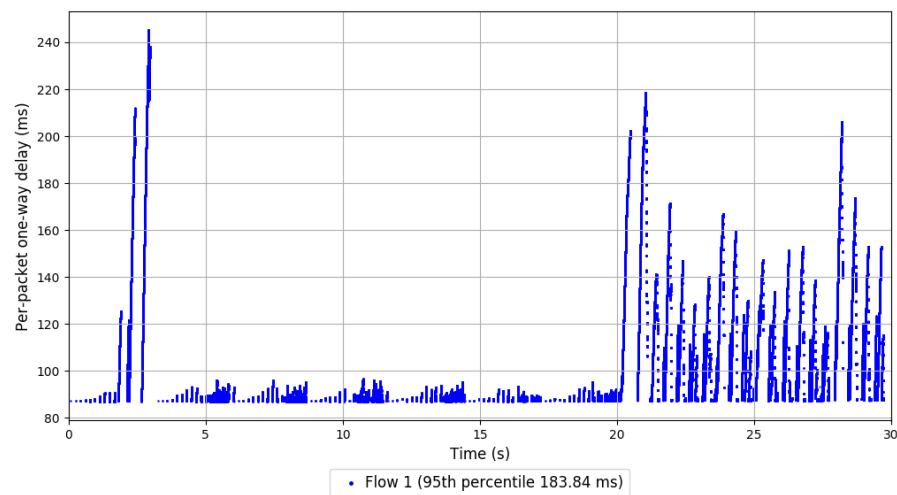
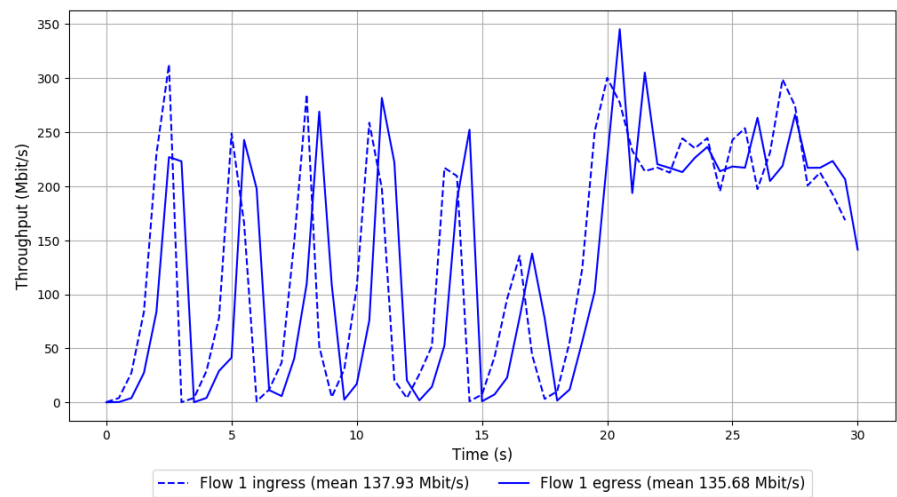


Run 2: Statistics of Verus

Start at: 2018-11-15 02:34:48
End at: 2018-11-15 02:35:18
Local clock offset: 23.998 ms
Remote clock offset: 16.504 ms

Below is generated by plot.py at 2018-11-15 05:37:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 135.68 Mbit/s
95th percentile per-packet one-way delay: 183.840 ms
Loss rate: 2.66%
-- Flow 1:
Average throughput: 135.68 Mbit/s
95th percentile per-packet one-way delay: 183.840 ms
Loss rate: 2.66%

Run 2: Report of Verus — Data Link

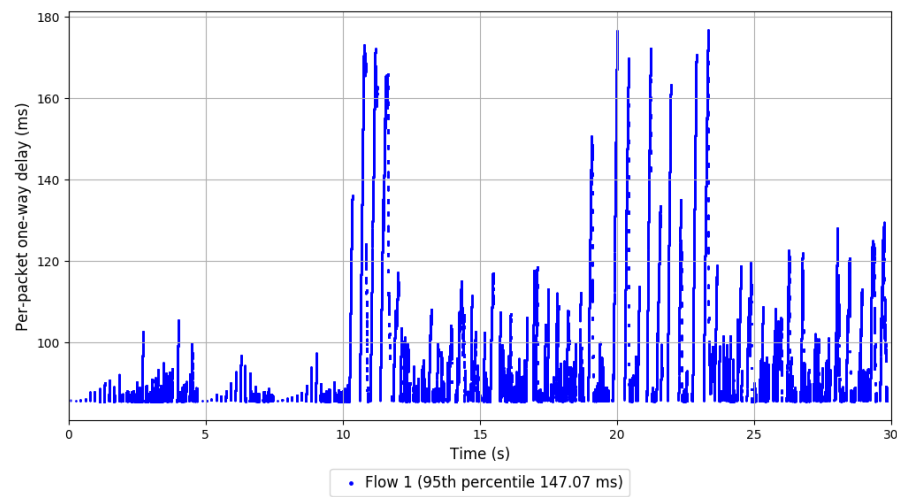
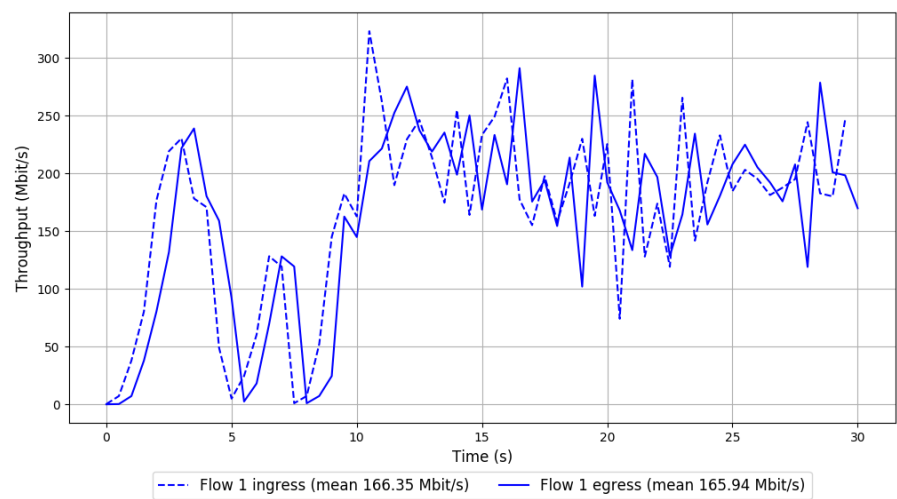


Run 3: Statistics of Verus

Start at: 2018-11-15 03:02:31
End at: 2018-11-15 03:03:01
Local clock offset: 26.25 ms
Remote clock offset: 28.927 ms

Below is generated by plot.py at 2018-11-15 05:37:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 165.94 Mbit/s
95th percentile per-packet one-way delay: 147.068 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 165.94 Mbit/s
95th percentile per-packet one-way delay: 147.068 ms
Loss rate: 0.83%

Run 3: Report of Verus — Data Link

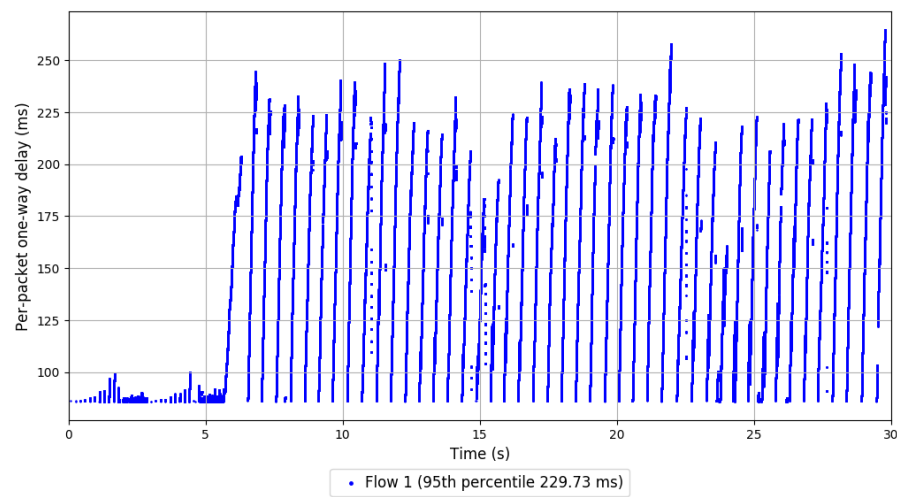
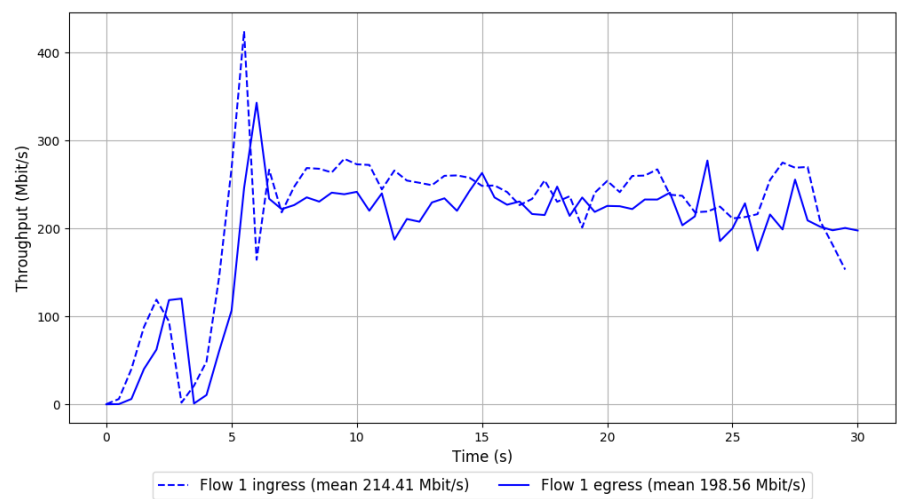


Run 4: Statistics of Verus

Start at: 2018-11-15 03:29:27
End at: 2018-11-15 03:29:57
Local clock offset: 11.124 ms
Remote clock offset: 12.526 ms

Below is generated by plot.py at 2018-11-15 05:39:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 198.56 Mbit/s
95th percentile per-packet one-way delay: 229.734 ms
Loss rate: 8.06%
-- Flow 1:
Average throughput: 198.56 Mbit/s
95th percentile per-packet one-way delay: 229.734 ms
Loss rate: 8.06%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-15 03:55:54

End at: 2018-11-15 03:56:24

Local clock offset: 5.075 ms

Remote clock offset: 3.824 ms

Below is generated by plot.py at 2018-11-15 05:40:50

Datalink statistics

-- Total of 1 flow:

Average throughput: 165.53 Mbit/s

95th percentile per-packet one-way delay: 233.155 ms

Loss rate: 13.99%

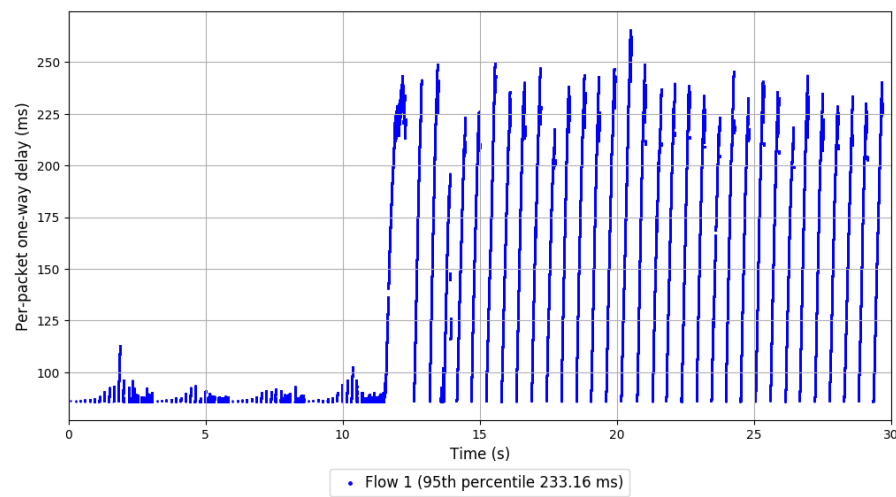
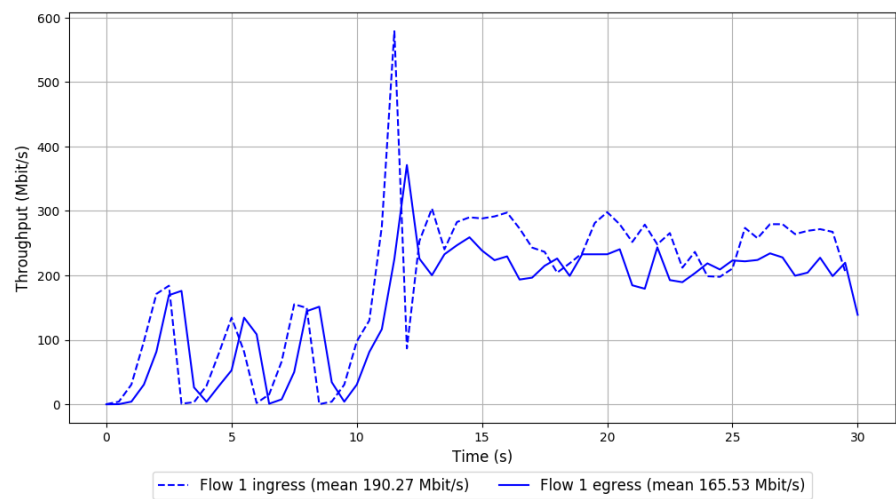
-- Flow 1:

Average throughput: 165.53 Mbit/s

95th percentile per-packet one-way delay: 233.155 ms

Loss rate: 13.99%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 02:00:44

End at: 2018-11-15 02:01:14

Local clock offset: 3.34 ms

Remote clock offset: 5.822 ms

Below is generated by plot.py at 2018-11-15 05:41:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 389.66 Mbit/s

95th percentile per-packet one-way delay: 138.123 ms

Loss rate: 0.84%

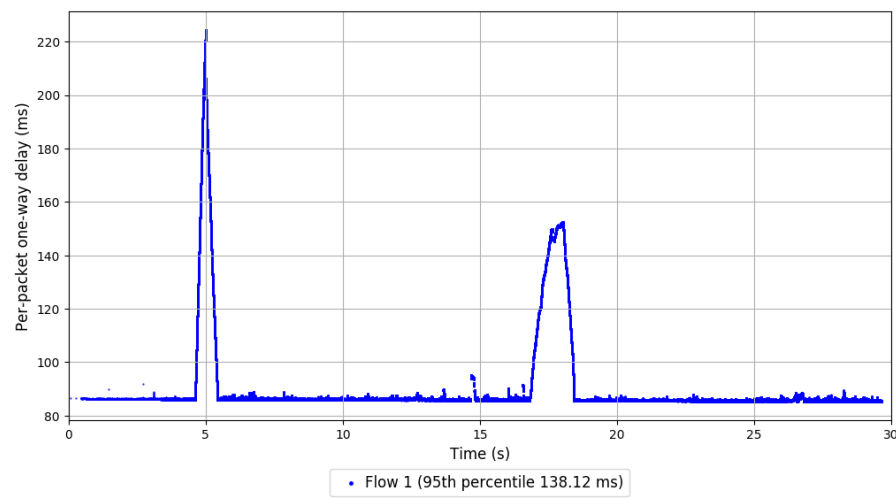
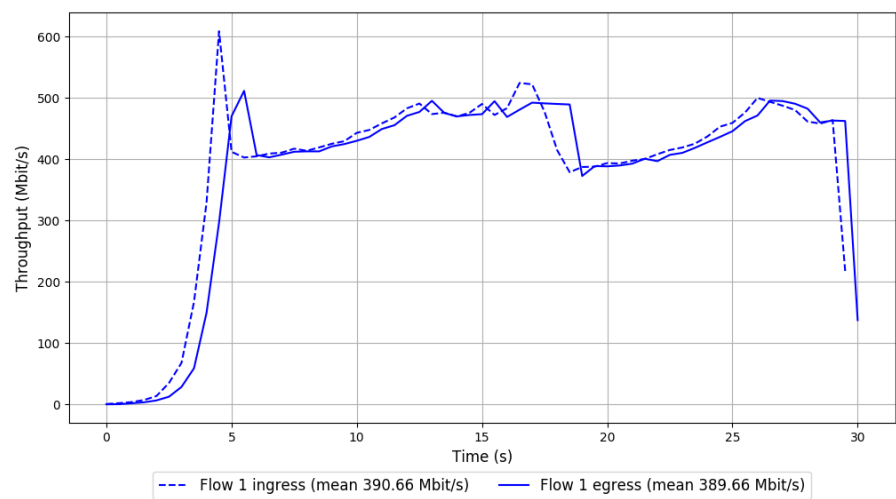
-- Flow 1:

Average throughput: 389.66 Mbit/s

95th percentile per-packet one-way delay: 138.123 ms

Loss rate: 0.84%

Run 1: Report of PCC-Vivace — Data Link

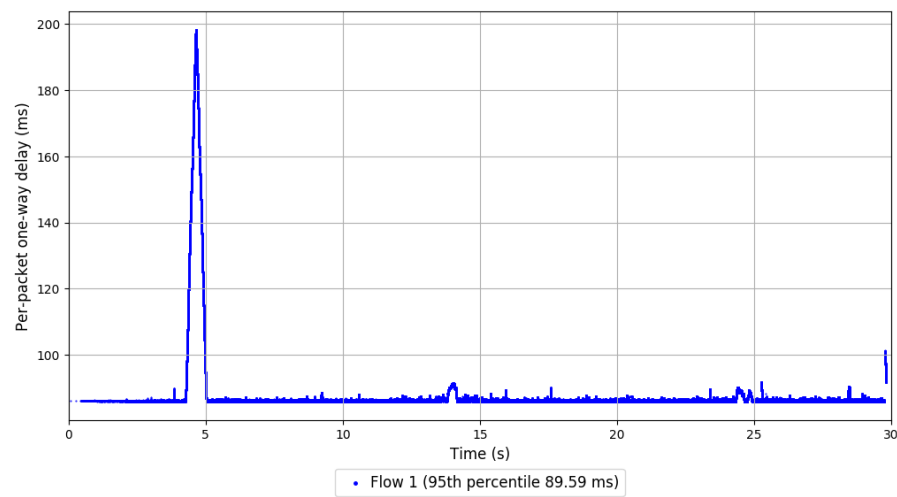
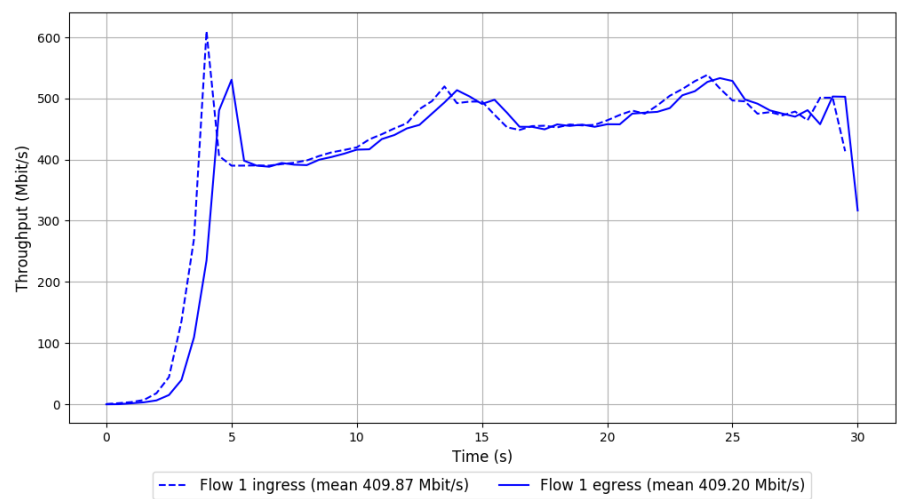


Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 02:26:48
End at: 2018-11-15 02:27:18
Local clock offset: 28.569 ms
Remote clock offset: 16.301 ms

Below is generated by plot.py at 2018-11-15 05:41:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 409.20 Mbit/s
95th percentile per-packet one-way delay: 89.595 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 409.20 Mbit/s
95th percentile per-packet one-way delay: 89.595 ms
Loss rate: 0.74%

Run 2: Report of PCC-Vivace — Data Link

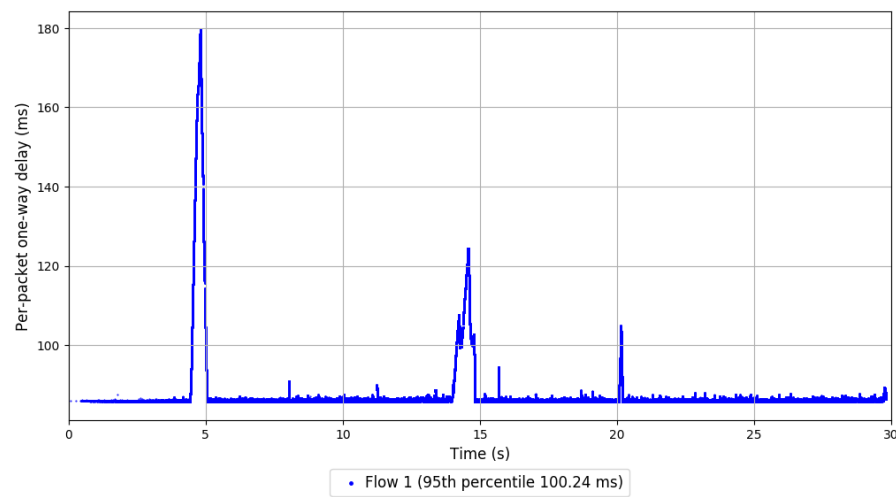
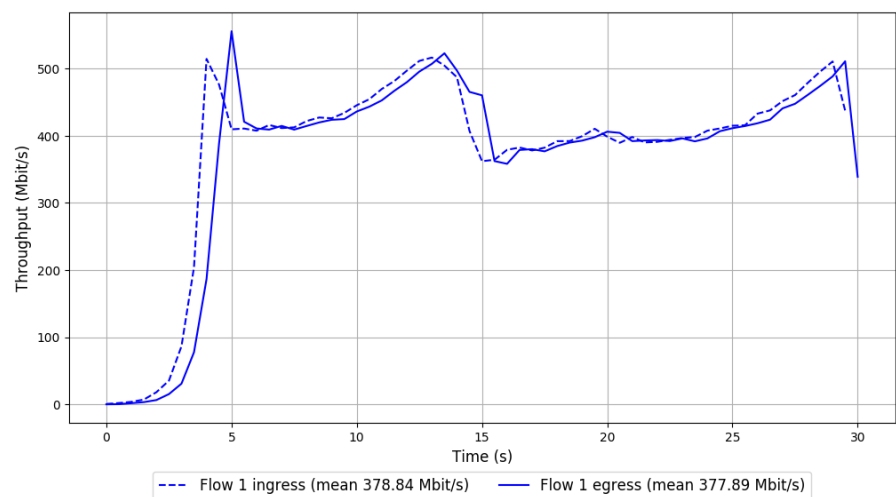


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 02:54:42
End at: 2018-11-15 02:55:12
Local clock offset: 21.021 ms
Remote clock offset: 22.629 ms

Below is generated by plot.py at 2018-11-15 05:41:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 377.89 Mbit/s
95th percentile per-packet one-way delay: 100.243 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 377.89 Mbit/s
95th percentile per-packet one-way delay: 100.243 ms
Loss rate: 0.83%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 03:21:59

End at: 2018-11-15 03:22:29

Local clock offset: 9.944 ms

Remote clock offset: 11.604 ms

Below is generated by plot.py at 2018-11-15 05:42:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 397.12 Mbit/s

95th percentile per-packet one-way delay: 110.882 ms

Loss rate: 0.80%

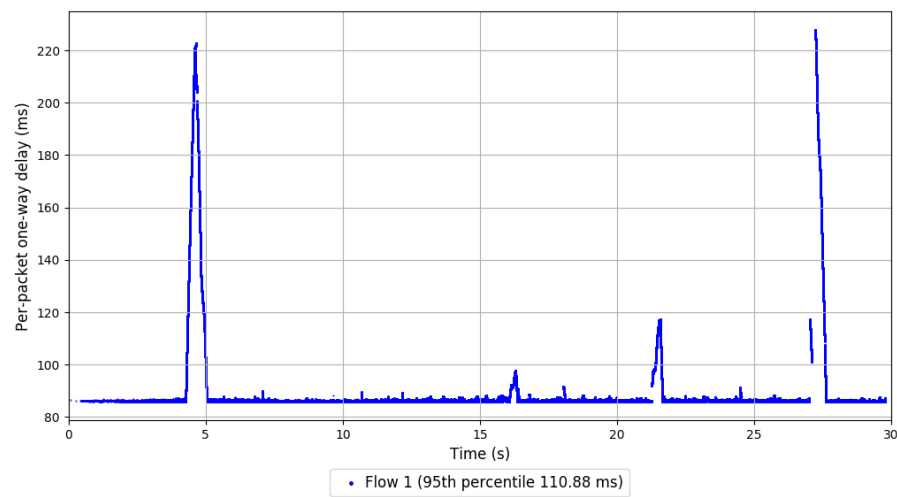
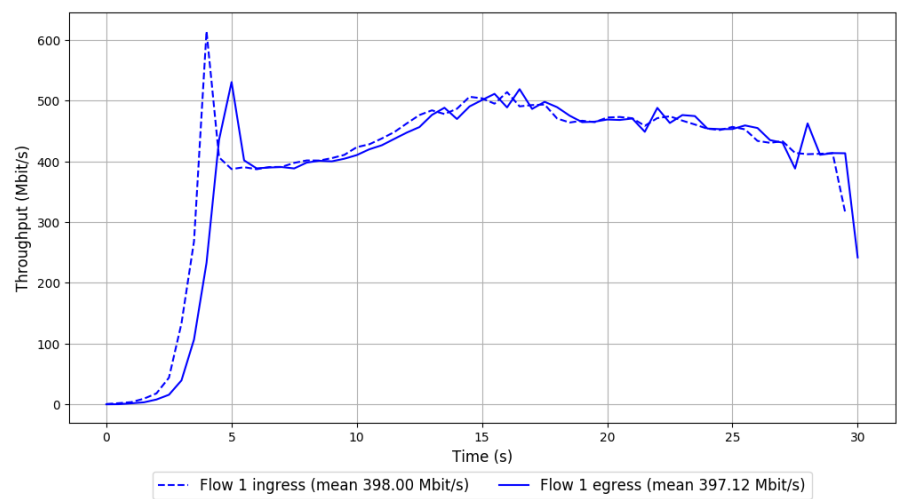
-- Flow 1:

Average throughput: 397.12 Mbit/s

95th percentile per-packet one-way delay: 110.882 ms

Loss rate: 0.80%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 03:48:19

End at: 2018-11-15 03:48:49

Local clock offset: 6.812 ms

Remote clock offset: 6.224 ms

Below is generated by plot.py at 2018-11-15 05:42:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 398.87 Mbit/s

95th percentile per-packet one-way delay: 87.768 ms

Loss rate: 0.63%

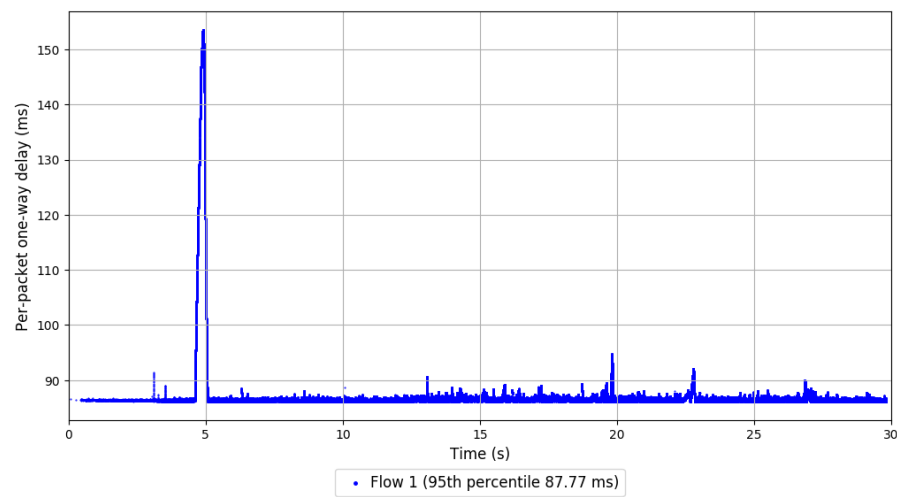
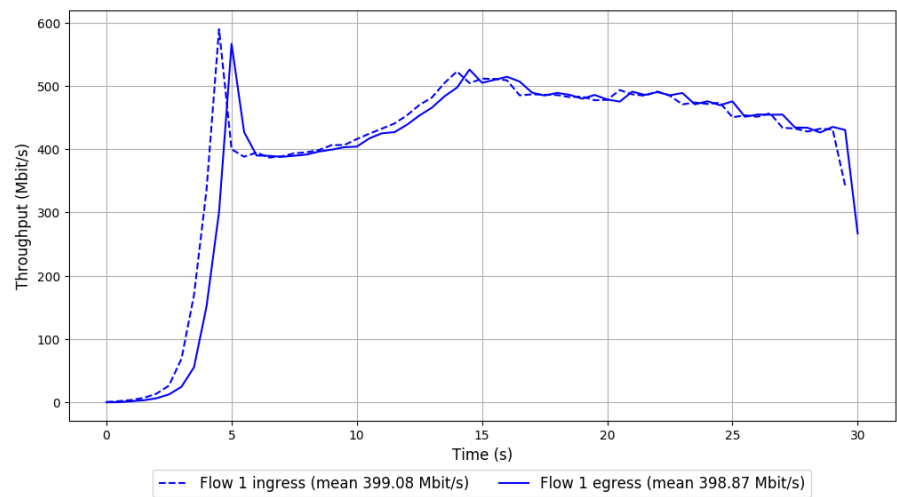
-- Flow 1:

Average throughput: 398.87 Mbit/s

95th percentile per-packet one-way delay: 87.768 ms

Loss rate: 0.63%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-11-15 01:56:50

End at: 2018-11-15 01:57:20

Local clock offset: 2.54 ms

Remote clock offset: 3.369 ms

Below is generated by plot.py at 2018-11-15 05:42:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.99 Mbit/s

95th percentile per-packet one-way delay: 86.634 ms

Loss rate: 0.99%

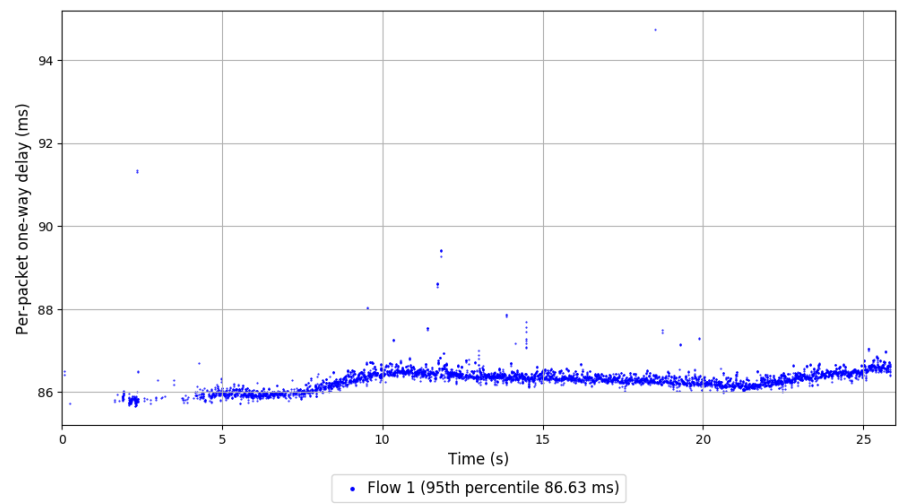
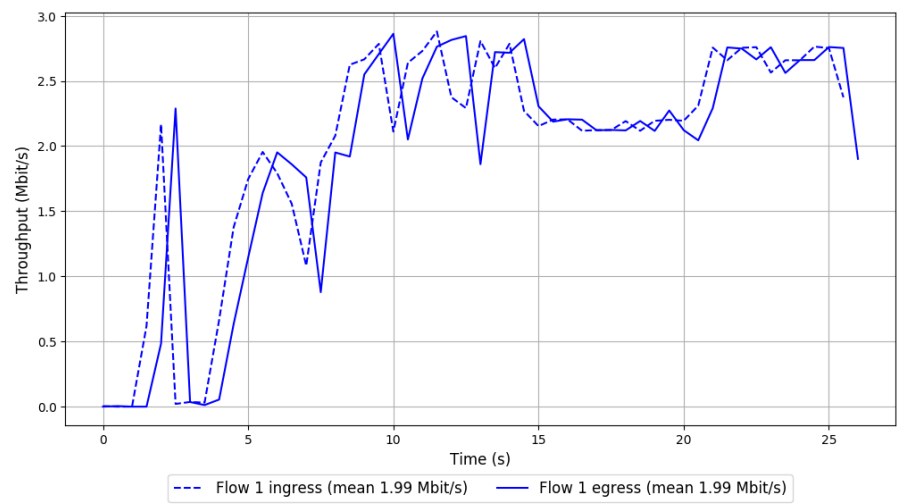
-- Flow 1:

Average throughput: 1.99 Mbit/s

95th percentile per-packet one-way delay: 86.634 ms

Loss rate: 0.99%

Run 1: Report of WebRTC media — Data Link

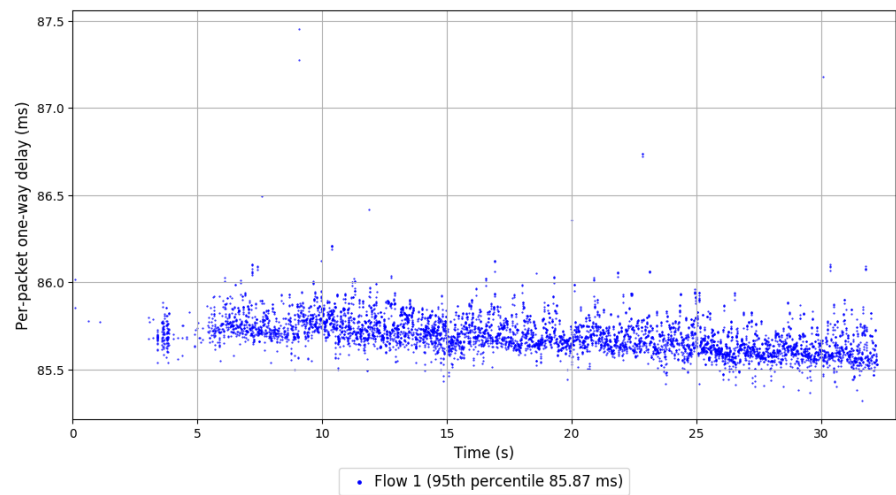
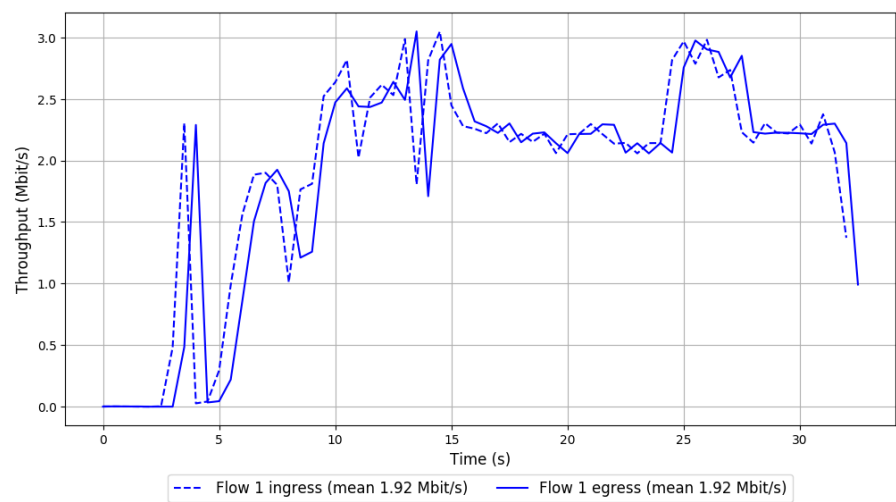


Run 2: Statistics of WebRTC media

Start at: 2018-11-15 02:22:56
End at: 2018-11-15 02:23:26
Local clock offset: 23.233 ms
Remote clock offset: 12.609 ms

Below is generated by plot.py at 2018-11-15 05:42:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 85.871 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 85.871 ms
Loss rate: 0.55%

Run 2: Report of WebRTC media — Data Link

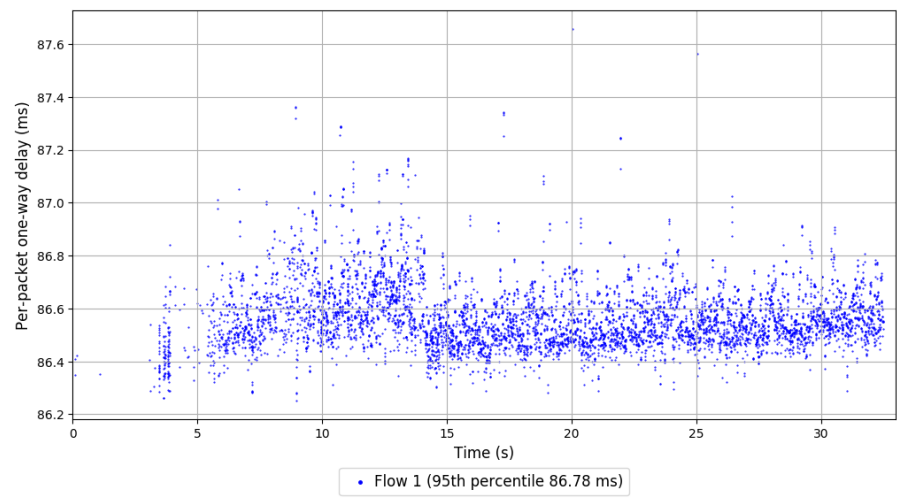
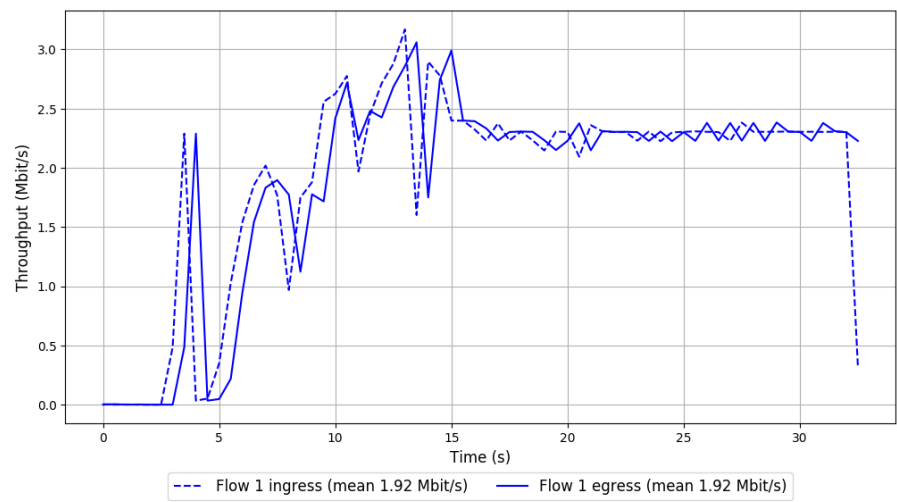


Run 3: Statistics of WebRTC media

Start at: 2018-11-15 02:50:48
End at: 2018-11-15 02:51:18
Local clock offset: 19.66 ms
Remote clock offset: 19.793 ms

Below is generated by plot.py at 2018-11-15 05:42:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 86.778 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 86.778 ms
Loss rate: 0.62%

Run 3: Report of WebRTC media — Data Link

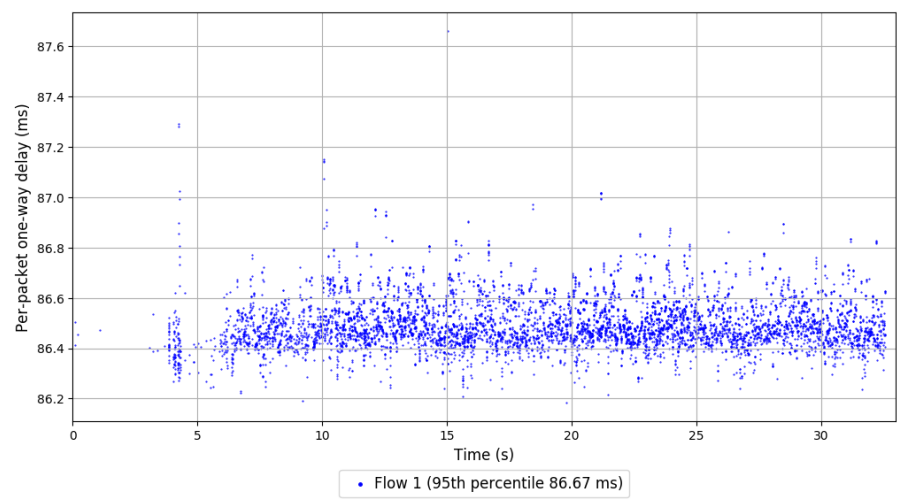
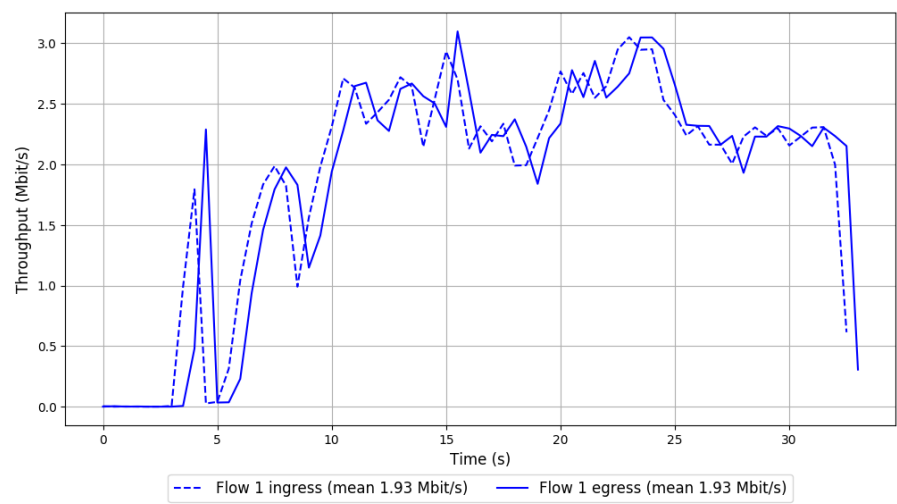


Run 4: Statistics of WebRTC media

Start at: 2018-11-15 03:18:11
End at: 2018-11-15 03:18:41
Local clock offset: 11.04 ms
Remote clock offset: 12.275 ms

Below is generated by plot.py at 2018-11-15 05:42:10
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 86.673 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 86.673 ms
Loss rate: 0.49%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-15 03:44:29

End at: 2018-11-15 03:44:59

Local clock offset: 7.837 ms

Remote clock offset: 8.709 ms

Below is generated by plot.py at 2018-11-15 05:42:10

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 85.927 ms

Loss rate: 0.82%

-- Flow 1:

Average throughput: 1.89 Mbit/s

95th percentile per-packet one-way delay: 85.927 ms

Loss rate: 0.82%

Run 5: Report of WebRTC media — Data Link

