

Pantheon Report

Generated at 2019-02-05 01:59:04 (UTC).

Data path: AWS India 1 on `ens5` (*local*) → India cellular on `ppp0` (*remote*).

Repeated the test of 21 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

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

System info:

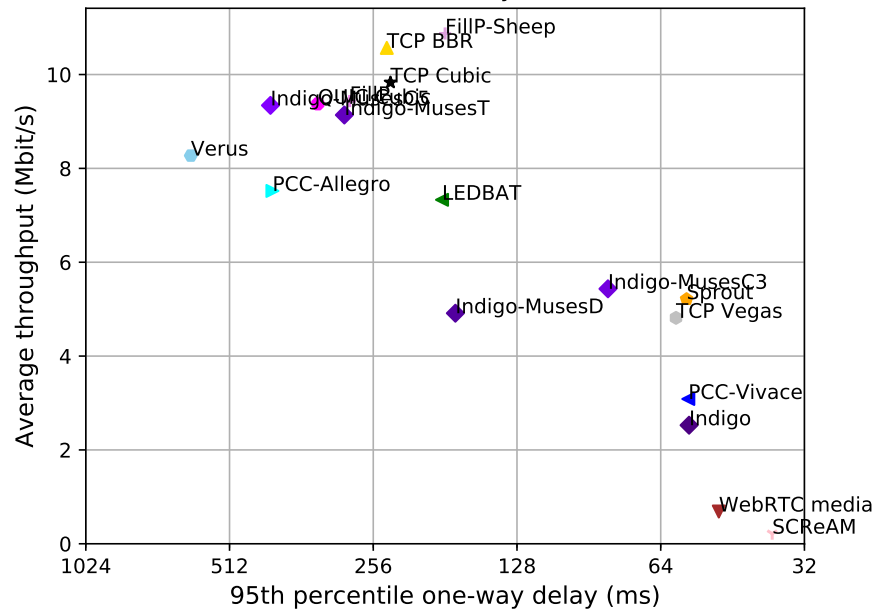
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
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 AWS India 1 to India cellular, 3 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	3	10.57	239.81	0.65
Copa	0	N/A	N/A	N/A
TCP Cubic	3	9.83	235.63	0.53
FillP	3	9.44	286.87	0.89
FillP-Sheep	3	10.88	181.04	2.46
Indigo	3	2.52	55.82	0.11
Indigo-MusesC3	3	5.43	82.55	0.69
Indigo-MusesC5	2	9.34	420.31	1.27
Indigo-MusesD	3	4.91	172.29	0.19
Indigo-MusesT	3	9.14	294.29	0.57
LEDBAT	3	7.33	183.77	0.51
PCC-Allegro	3	7.52	416.30	0.69
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	3	9.38	334.43	0.68
SCReAM	3	0.22	37.38	0.13
Sprout	3	5.21	56.50	0.05
TaoVA-100x	0	N/A	N/A	N/A
TCP Vegas	3	4.82	59.45	0.11
Verus	3	8.27	617.10	2.93
PCC-Vivace	3	3.09	56.03	0.52
WebRTC media	3	0.69	48.36	0.04

Run 1: Statistics of TCP BBR

Start at: 2019-02-05 00:54:54

End at: 2019-02-05 00:55:24

Local clock offset: -4.34 ms

Remote clock offset: -6.473 ms

Below is generated by plot.py at 2019-02-05 01:58:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 10.67 Mbit/s

95th percentile per-packet one-way delay: 296.370 ms

Loss rate: 0.63%

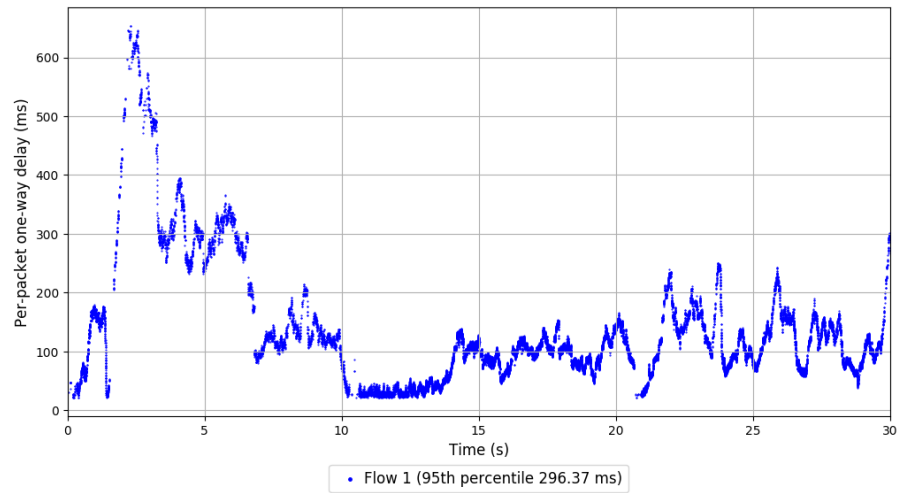
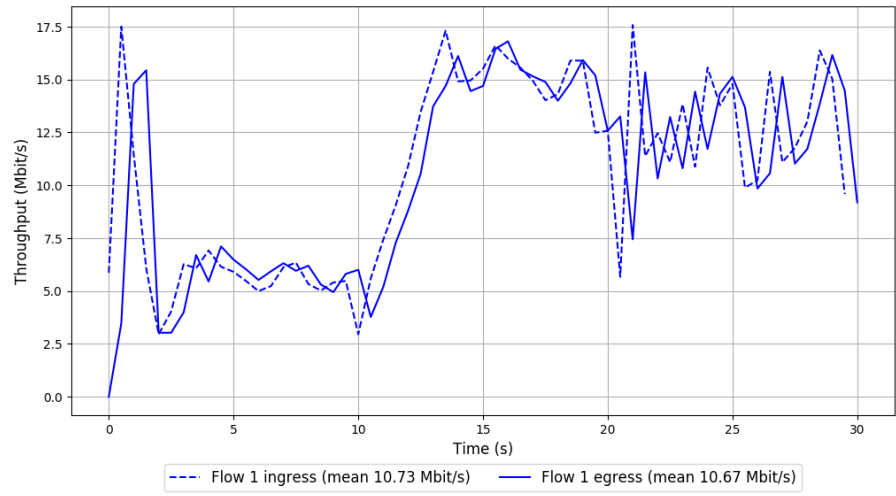
-- Flow 1:

Average throughput: 10.67 Mbit/s

95th percentile per-packet one-way delay: 296.370 ms

Loss rate: 0.63%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2019-02-05 01:18:32

End at: 2019-02-05 01:19:02

Local clock offset: -5.512 ms

Remote clock offset: -4.673 ms

Below is generated by plot.py at 2019-02-05 01:58:08

Datalink statistics

-- Total of 1 flow:

Average throughput: 10.07 Mbit/s

95th percentile per-packet one-way delay: 209.342 ms

Loss rate: 0.38%

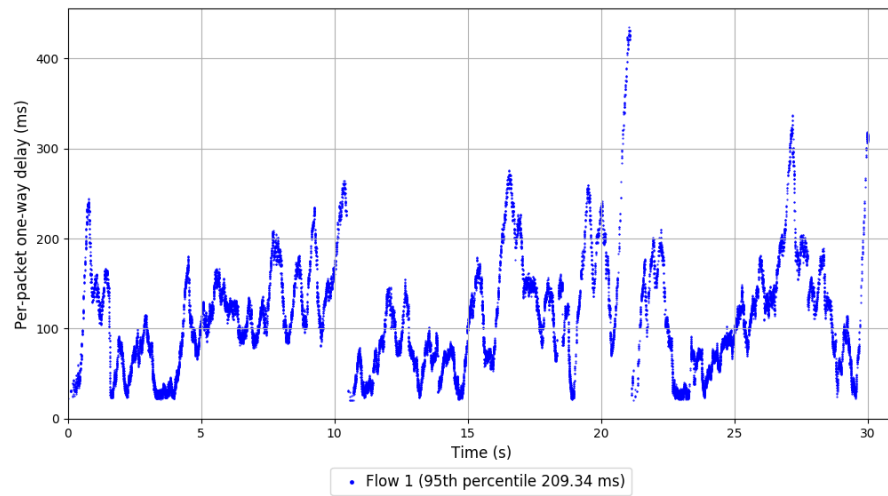
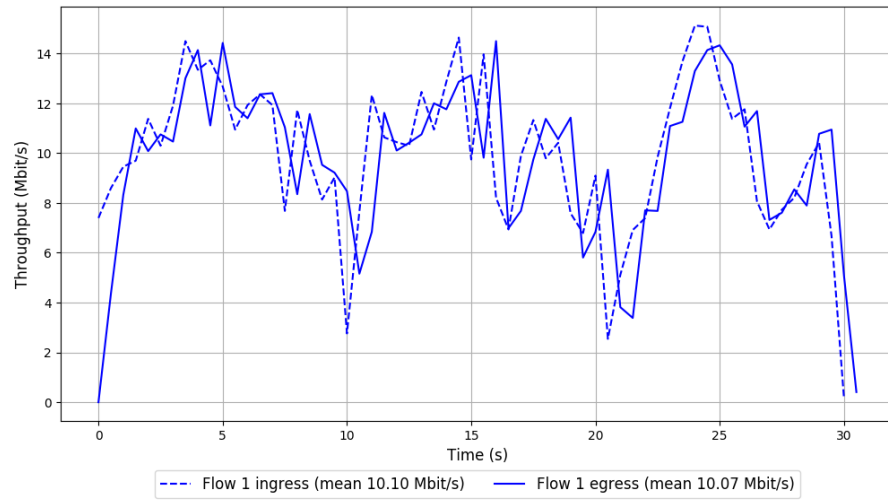
-- Flow 1:

Average throughput: 10.07 Mbit/s

95th percentile per-packet one-way delay: 209.342 ms

Loss rate: 0.38%

Run 2: Report of TCP BBR — Data Link

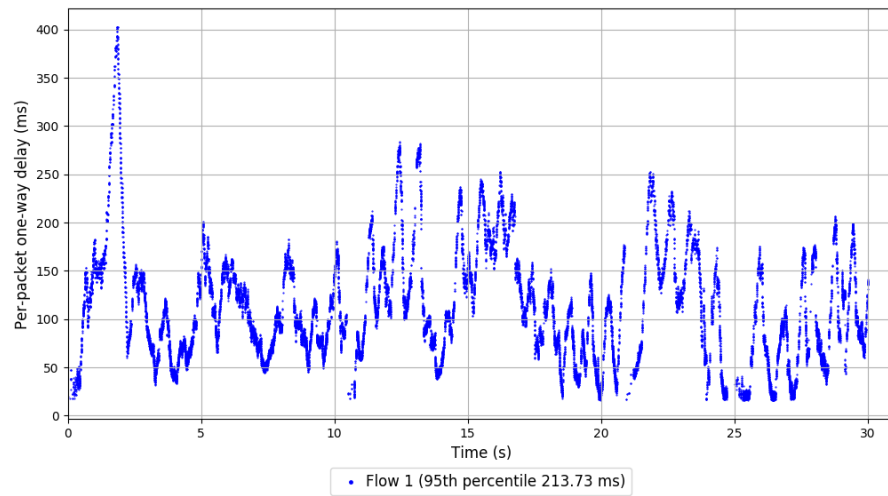
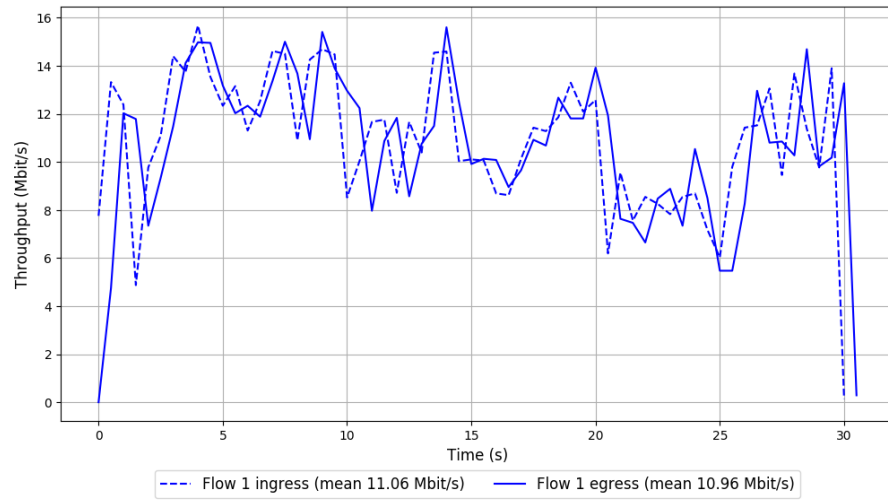


Run 3: Statistics of TCP BBR

Start at: 2019-02-05 01:42:01
End at: 2019-02-05 01:42:31
Local clock offset: -7.212 ms
Remote clock offset: -5.098 ms

Below is generated by plot.py at 2019-02-05 01:58:08
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.96 Mbit/s
95th percentile per-packet one-way delay: 213.733 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 10.96 Mbit/s
95th percentile per-packet one-way delay: 213.733 ms
Loss rate: 0.95%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

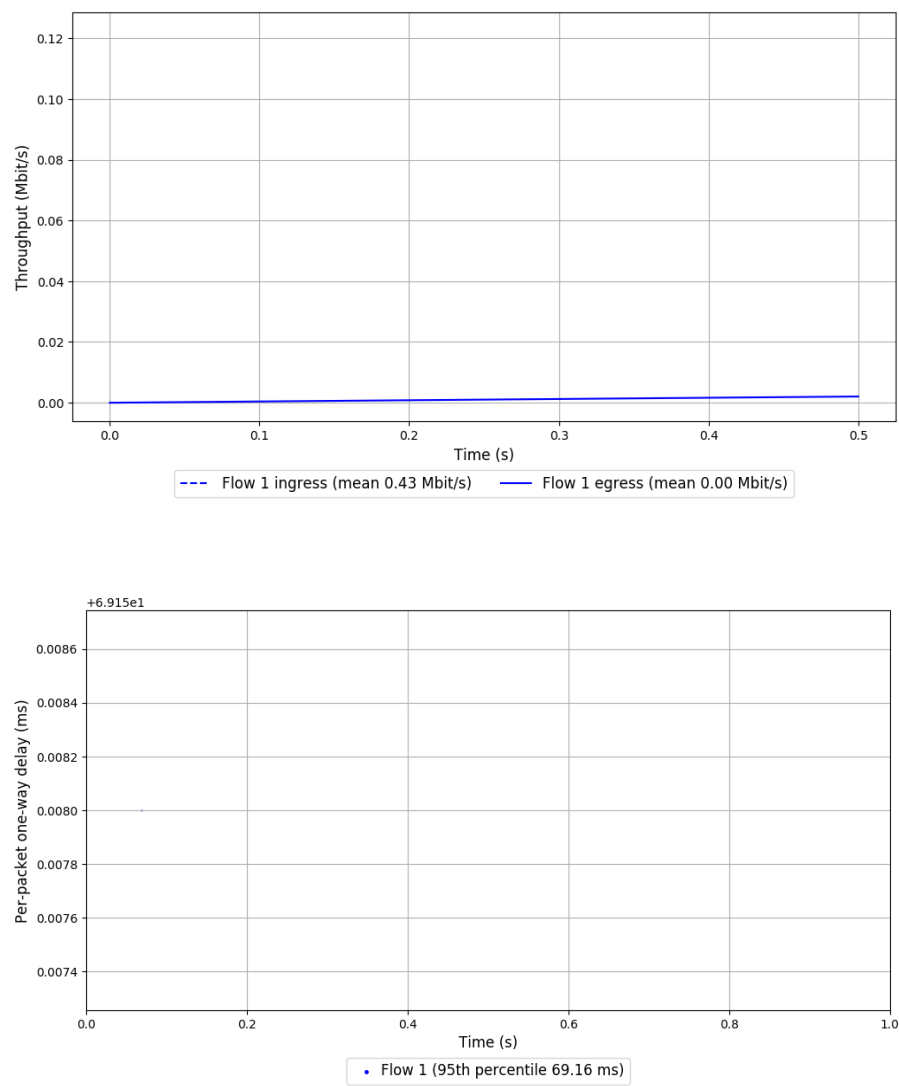
Start at: 2019-02-05 01:03:59

End at: 2019-02-05 01:04:29

Local clock offset: -3.804 ms

Remote clock offset: -4.412 ms

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

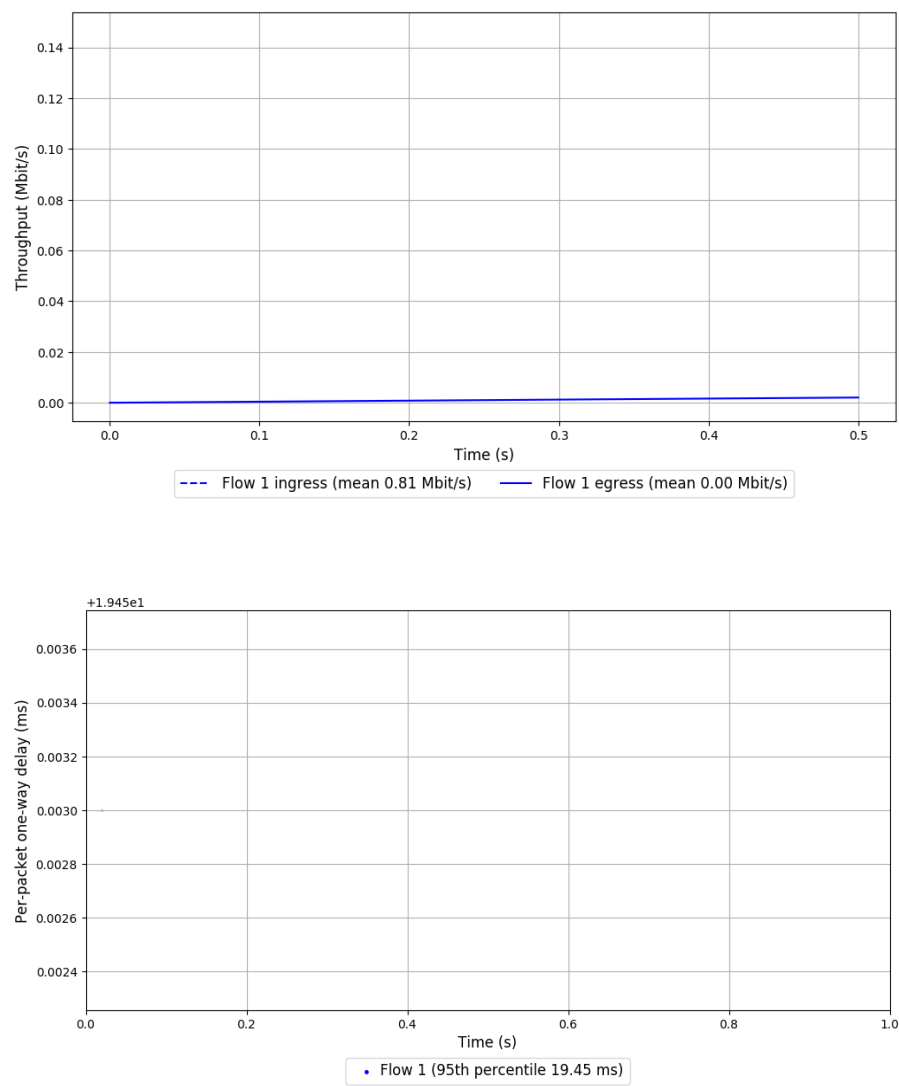
Start at: 2019-02-05 01:27:30

End at: 2019-02-05 01:28:00

Local clock offset: -5.199 ms

Remote clock offset: -4.861 ms

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

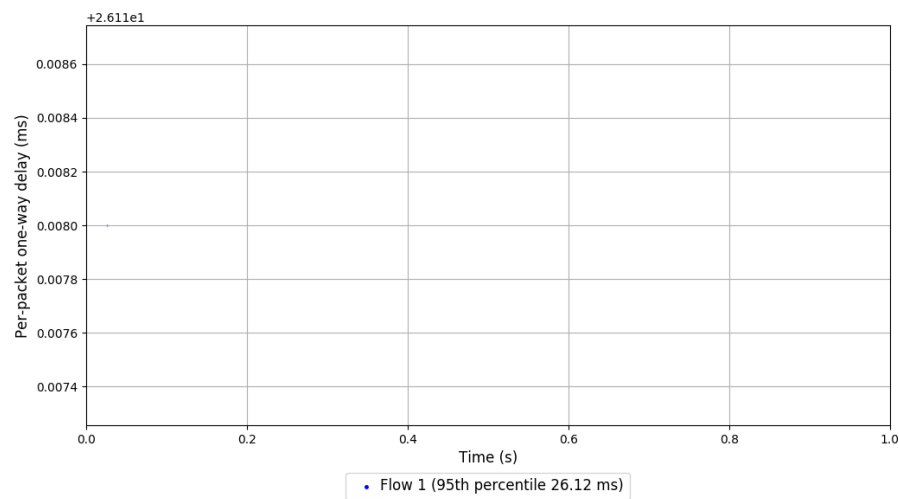
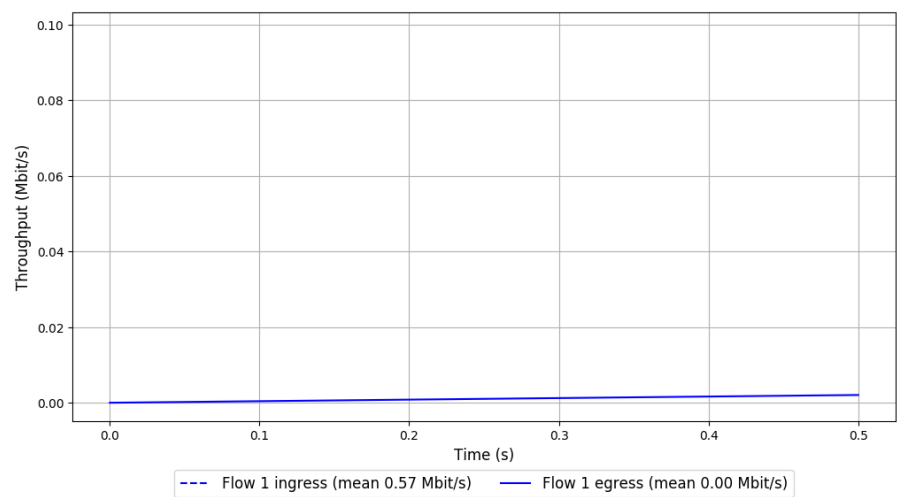
Start at: 2019-02-05 01:51:41

End at: 2019-02-05 01:52:11

Local clock offset: -5.764 ms

Remote clock offset: -6.343 ms

Run 3: Report of Copa — Data Link

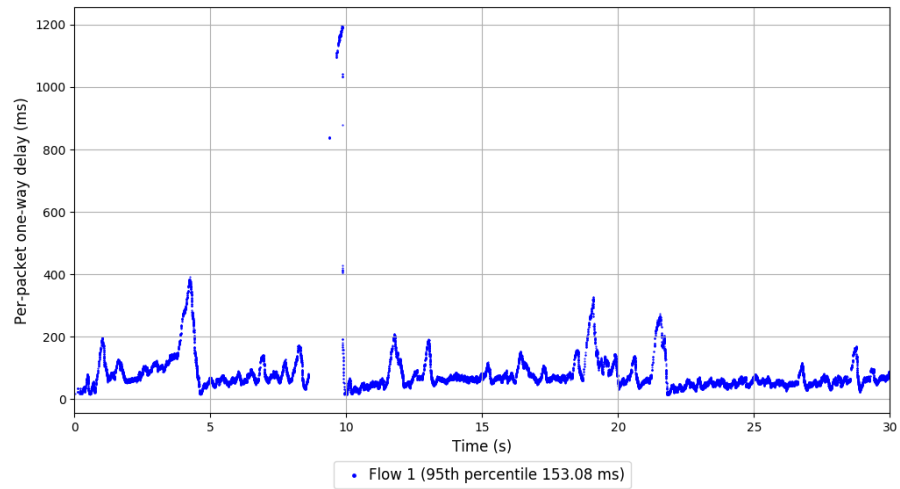
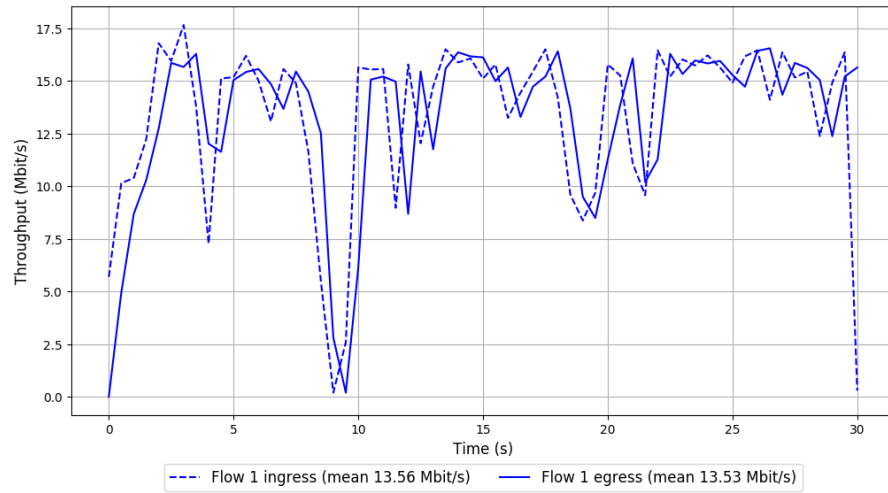


Run 1: Statistics of TCP Cubic

Start at: 2019-02-05 01:01:39
End at: 2019-02-05 01:02:09
Local clock offset: -3.016 ms
Remote clock offset: -6.086 ms

Below is generated by plot.py at 2019-02-05 01:58:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 13.53 Mbit/s
95th percentile per-packet one-way delay: 153.081 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 13.53 Mbit/s
95th percentile per-packet one-way delay: 153.081 ms
Loss rate: 0.34%

Run 1: Report of TCP Cubic — Data Link

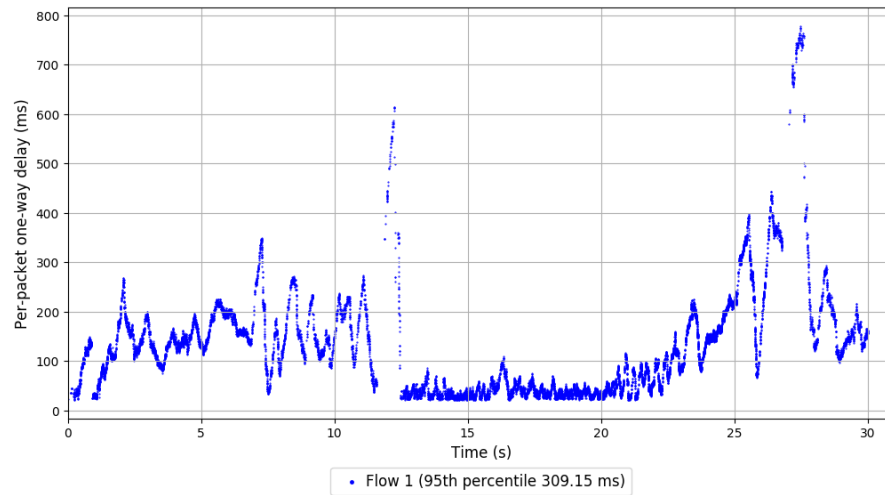
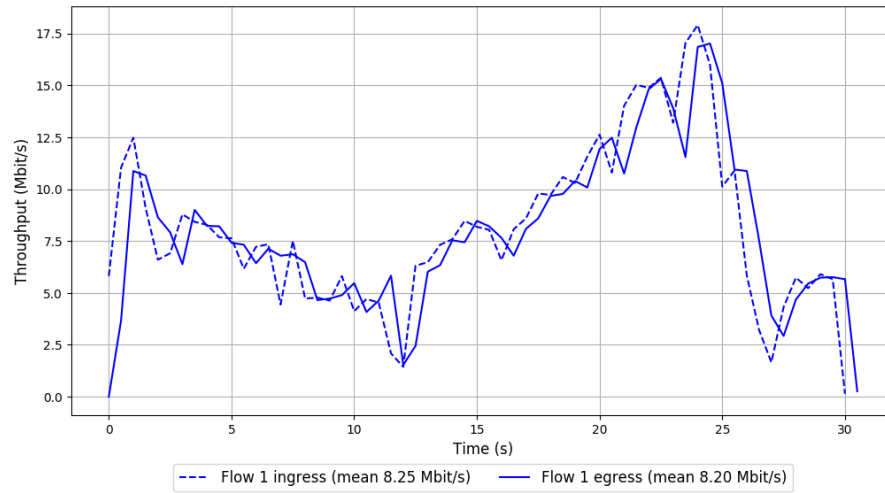


Run 2: Statistics of TCP Cubic

Start at: 2019-02-05 01:25:17
End at: 2019-02-05 01:25:47
Local clock offset: -6.469 ms
Remote clock offset: -5.441 ms

Below is generated by plot.py at 2019-02-05 01:58:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 309.152 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 309.152 ms
Loss rate: 0.74%

Run 2: Report of TCP Cubic — Data Link

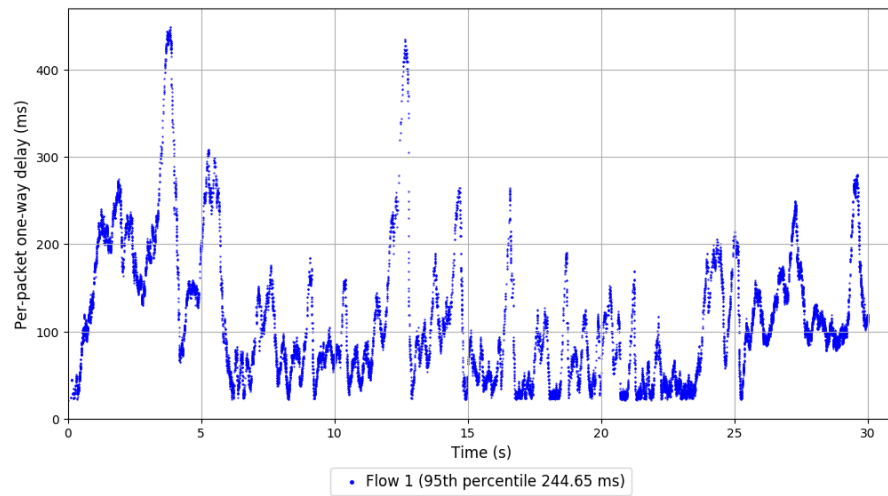
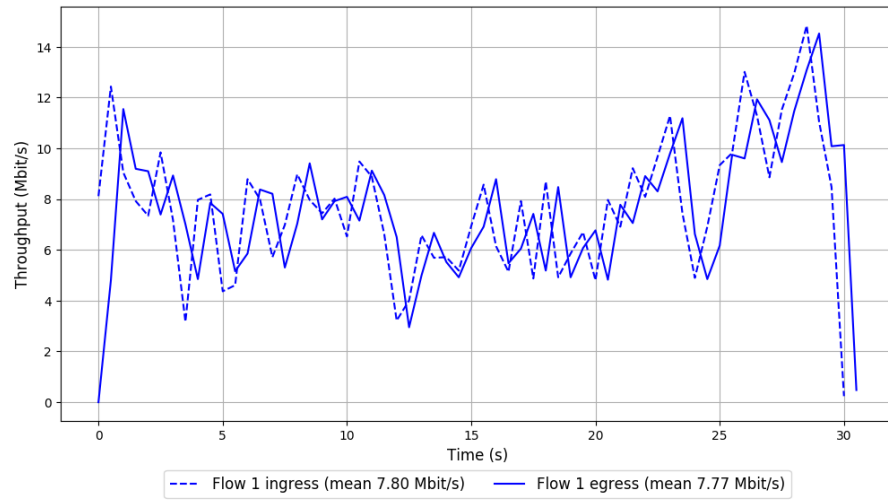


Run 3: Statistics of TCP Cubic

Start at: 2019-02-05 01:49:26
End at: 2019-02-05 01:49:56
Local clock offset: -7.686 ms
Remote clock offset: -5.944 ms

Below is generated by plot.py at 2019-02-05 01:58:11
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 244.652 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 244.652 ms
Loss rate: 0.51%

Run 3: Report of TCP Cubic — Data Link

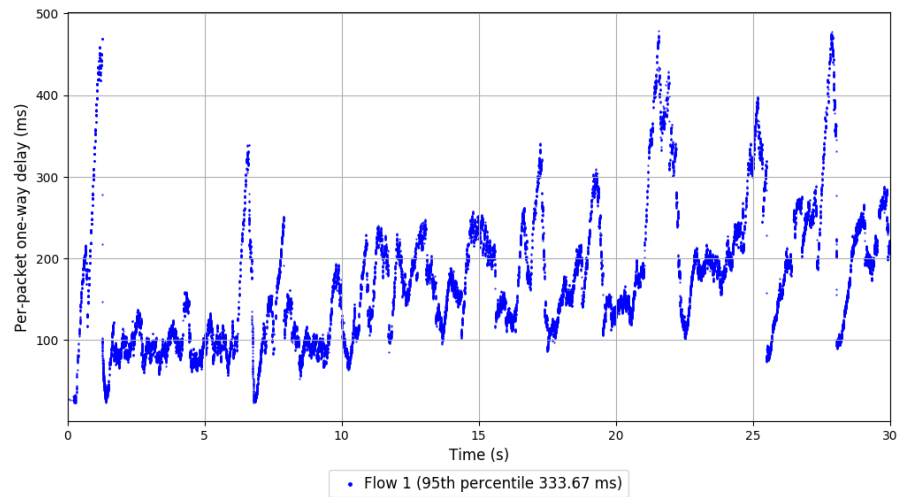
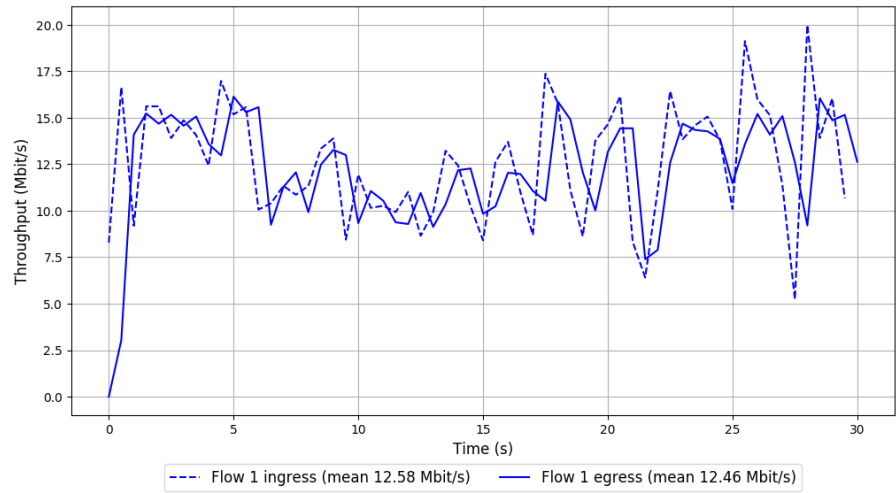


Run 1: Statistics of FillP

Start at: 2019-02-05 01:00:32
End at: 2019-02-05 01:01:02
Local clock offset: -4.713 ms
Remote clock offset: -4.571 ms

Below is generated by plot.py at 2019-02-05 01:58:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.46 Mbit/s
95th percentile per-packet one-way delay: 333.672 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 12.46 Mbit/s
95th percentile per-packet one-way delay: 333.672 ms
Loss rate: 1.07%

Run 1: Report of FillP — Data Link

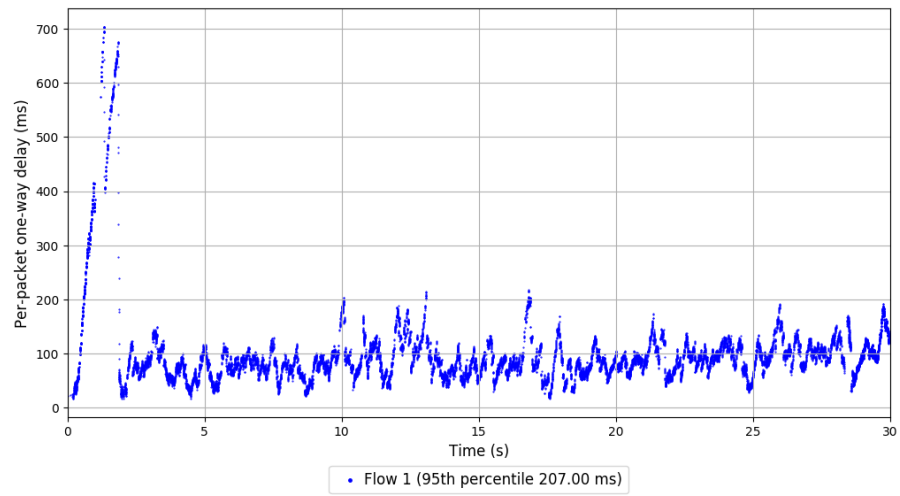
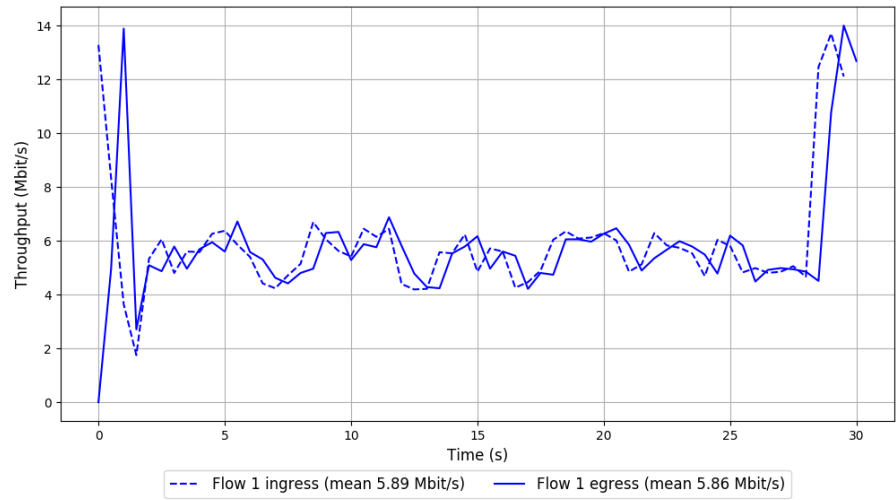


Run 2: Statistics of FillP

Start at: 2019-02-05 01:24:11
End at: 2019-02-05 01:24:41
Local clock offset: -5.354 ms
Remote clock offset: -4.761 ms

Below is generated by plot.py at 2019-02-05 01:58:14
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.86 Mbit/s
95th percentile per-packet one-way delay: 207.004 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 5.86 Mbit/s
95th percentile per-packet one-way delay: 207.004 ms
Loss rate: 0.66%

Run 2: Report of FillP — Data Link

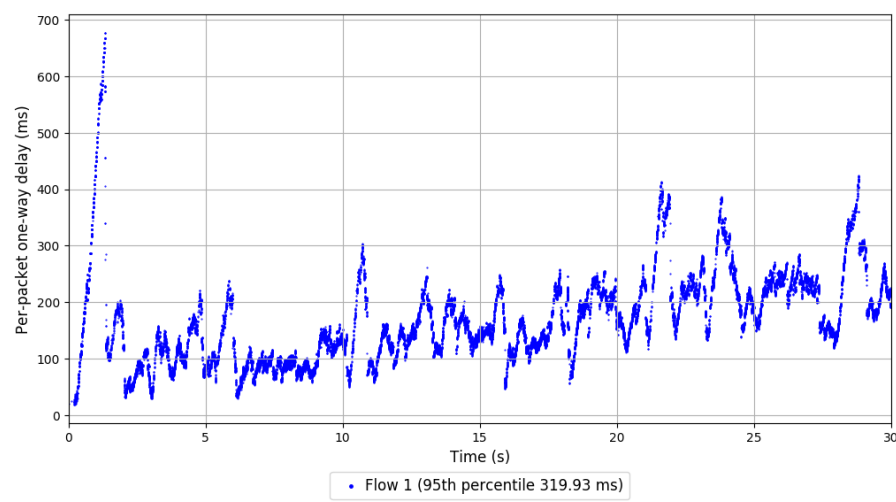
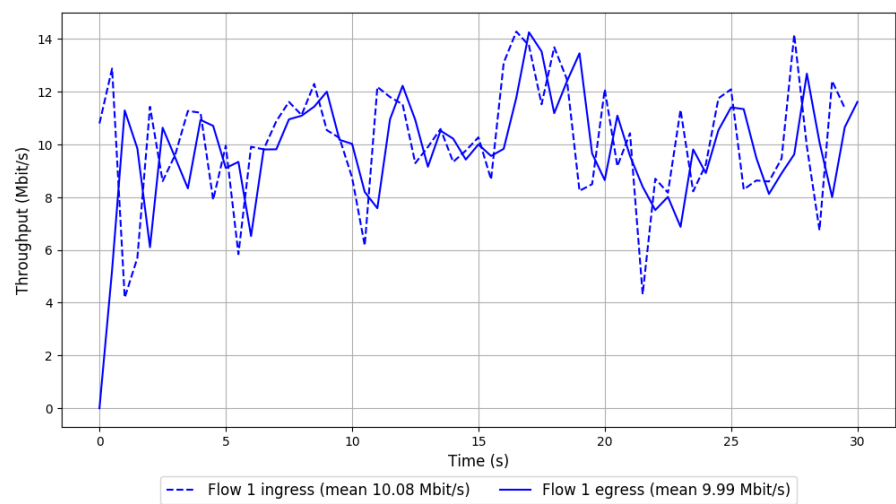


Run 3: Statistics of FillP

Start at: 2019-02-05 01:48:19
End at: 2019-02-05 01:48:49
Local clock offset: -5.195 ms
Remote clock offset: -5.872 ms

Below is generated by plot.py at 2019-02-05 01:58:20
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.99 Mbit/s
95th percentile per-packet one-way delay: 319.929 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 9.99 Mbit/s
95th percentile per-packet one-way delay: 319.929 ms
Loss rate: 0.94%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2019-02-05 00:51:34

End at: 2019-02-05 00:52:04

Local clock offset: 0.295 ms

Remote clock offset: -4.214 ms

Below is generated by plot.py at 2019-02-05 01:58:22

Datalink statistics

-- Total of 1 flow:

Average throughput: 11.31 Mbit/s

95th percentile per-packet one-way delay: 200.841 ms

Loss rate: 0.44%

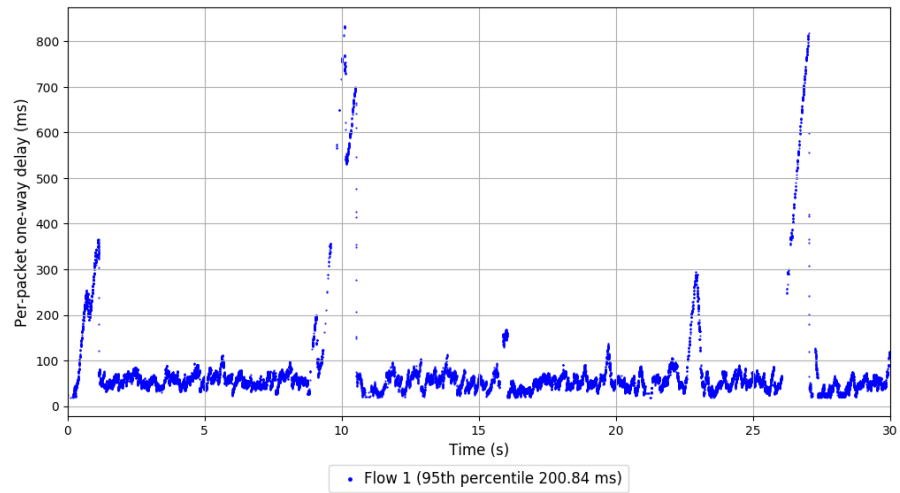
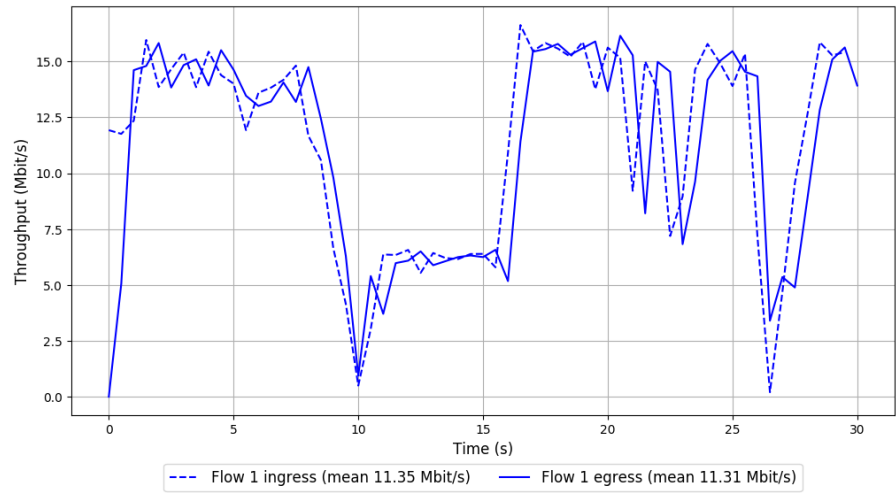
-- Flow 1:

Average throughput: 11.31 Mbit/s

95th percentile per-packet one-way delay: 200.841 ms

Loss rate: 0.44%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2019-02-05 01:15:06

End at: 2019-02-05 01:15:37

Local clock offset: -2.801 ms

Remote clock offset: -6.07 ms

Below is generated by plot.py at 2019-02-05 01:58:23

Datalink statistics

-- Total of 1 flow:

Average throughput: 11.62 Mbit/s

95th percentile per-packet one-way delay: 158.555 ms

Loss rate: 0.61%

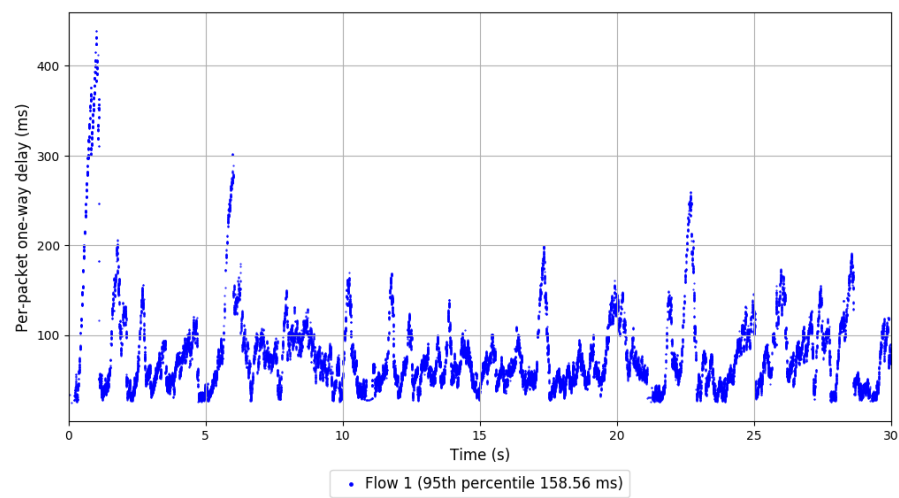
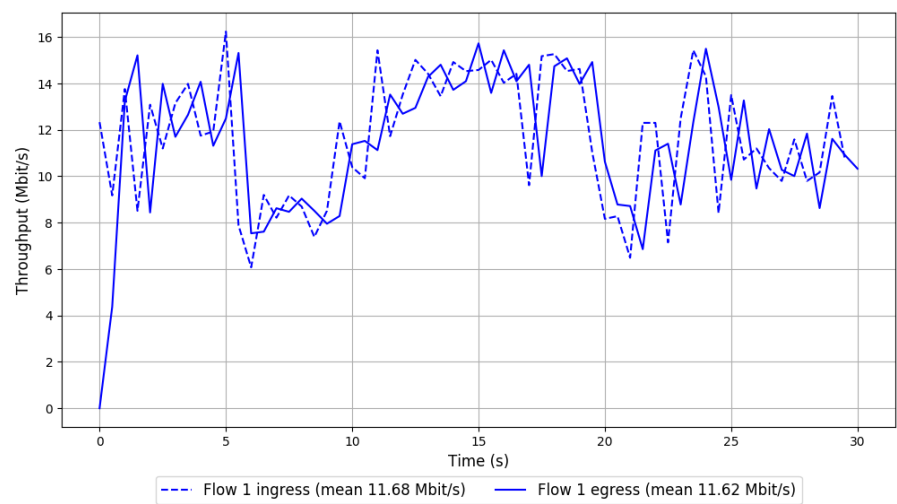
-- Flow 1:

Average throughput: 11.62 Mbit/s

95th percentile per-packet one-way delay: 158.555 ms

Loss rate: 0.61%

Run 2: Report of FillP-Sheep — Data Link

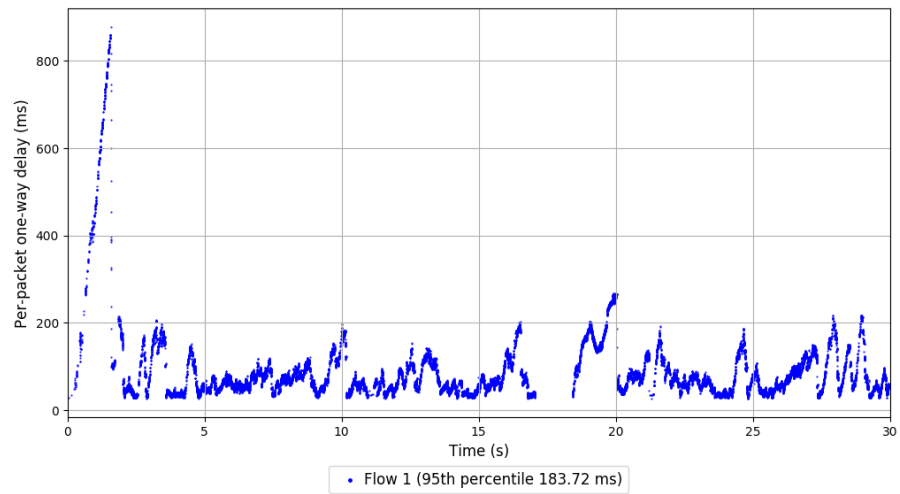
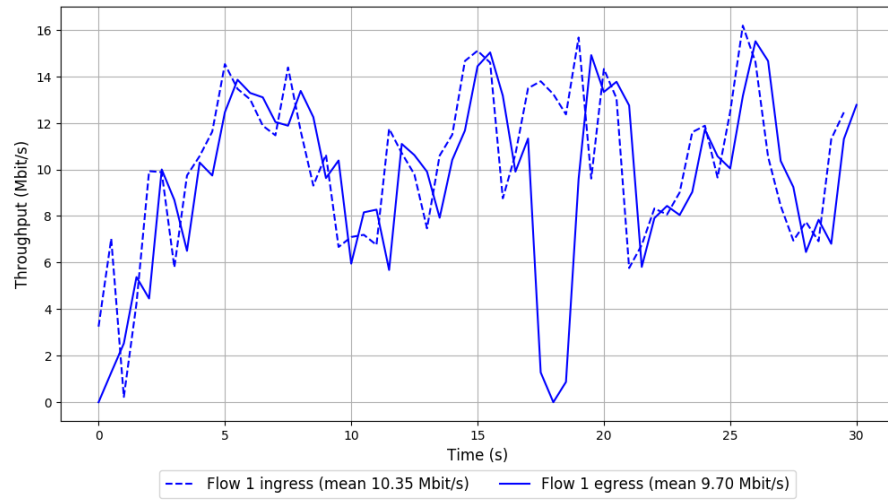


Run 3: Statistics of FillP-Sheep

Start at: 2019-02-05 01:38:42
End at: 2019-02-05 01:39:12
Local clock offset: -6.333 ms
Remote clock offset: -4.863 ms

Below is generated by plot.py at 2019-02-05 01:58:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.70 Mbit/s
95th percentile per-packet one-way delay: 183.724 ms
Loss rate: 6.33%
-- Flow 1:
Average throughput: 9.70 Mbit/s
95th percentile per-packet one-way delay: 183.724 ms
Loss rate: 6.33%

Run 3: Report of FillP-Sheep — Data Link

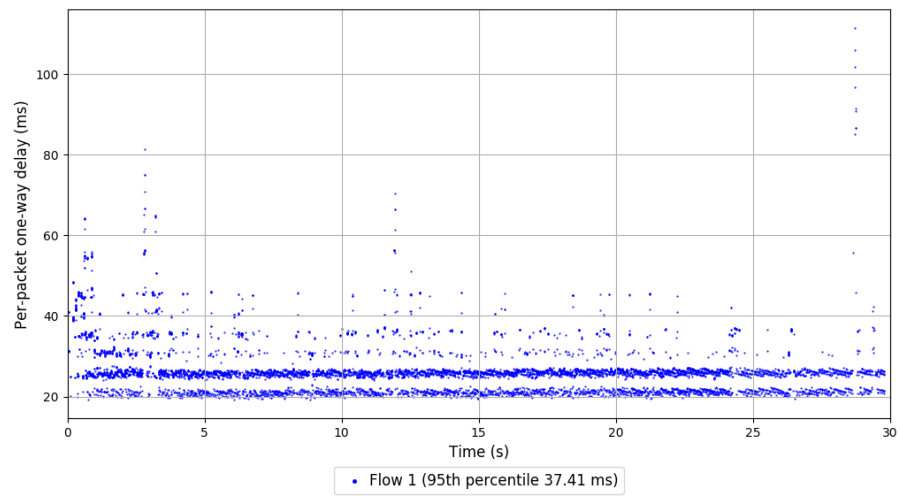
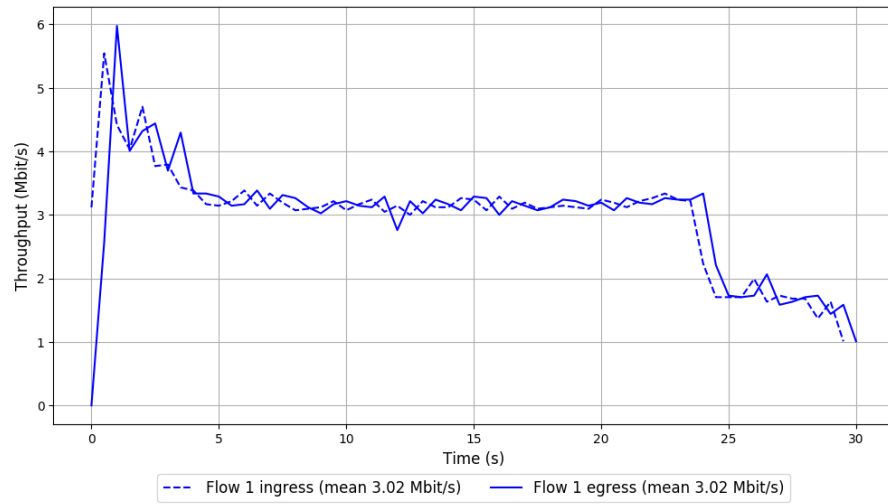


Run 1: Statistics of Indigo

Start at: 2019-02-05 00:50:28
End at: 2019-02-05 00:50:58
Local clock offset: -2.646 ms
Remote clock offset: -5.213 ms

Below is generated by plot.py at 2019-02-05 01:58:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 37.412 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 37.412 ms
Loss rate: 0.03%

Run 1: Report of Indigo — Data Link

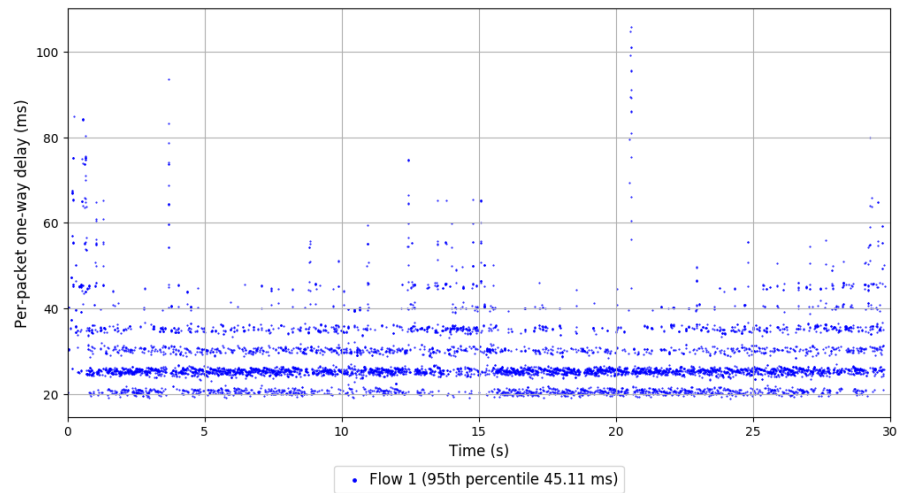
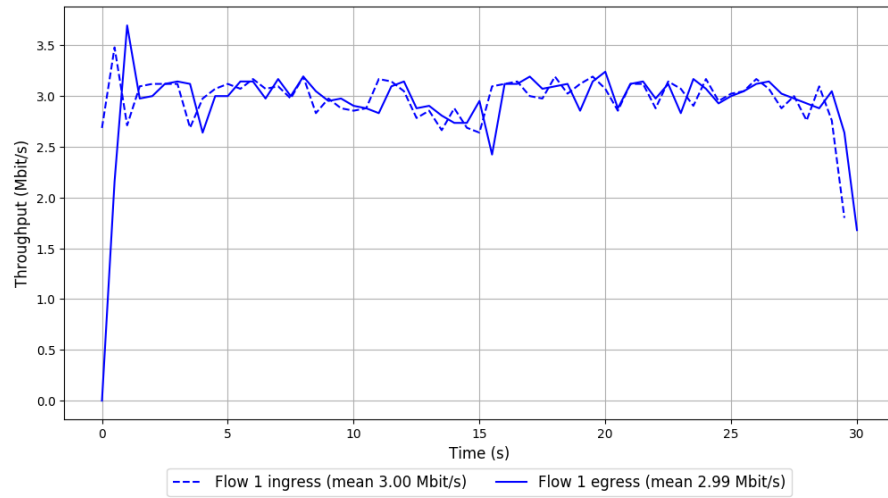


Run 2: Statistics of Indigo

Start at: 2019-02-05 01:14:00
End at: 2019-02-05 01:14:30
Local clock offset: -3.173 ms
Remote clock offset: -5.662 ms

Below is generated by plot.py at 2019-02-05 01:58:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 45.107 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 45.107 ms
Loss rate: 0.21%

Run 2: Report of Indigo — Data Link

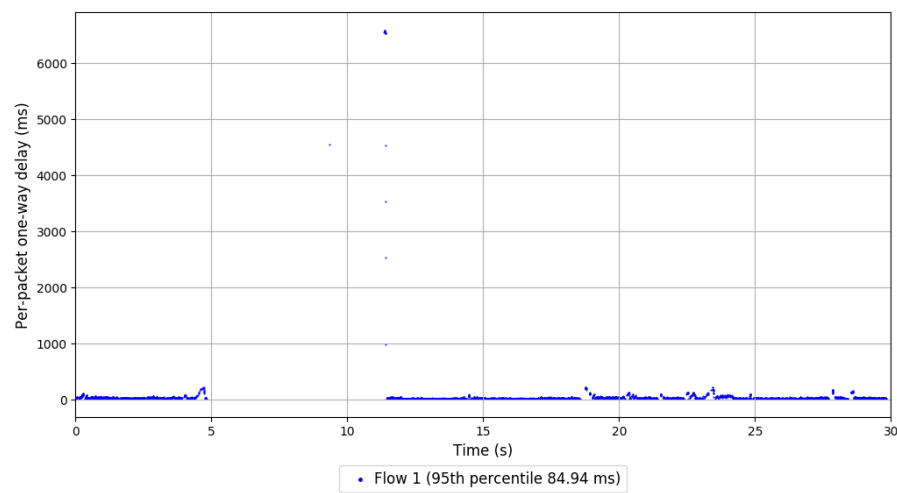
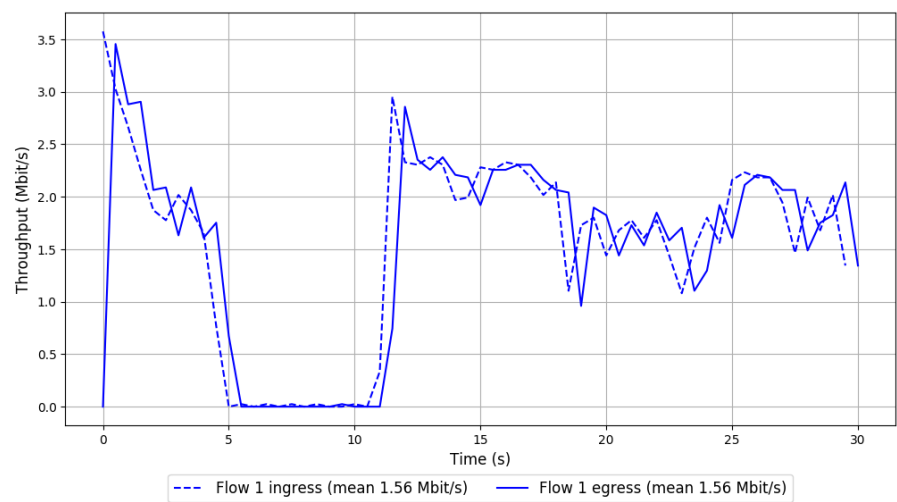


Run 3: Statistics of Indigo

Start at: 2019-02-05 01:37:35
End at: 2019-02-05 01:38:05
Local clock offset: -8.403 ms
Remote clock offset: -3.768 ms

Below is generated by plot.py at 2019-02-05 01:58:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 84.936 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 84.936 ms
Loss rate: 0.10%

Run 3: Report of Indigo — Data Link

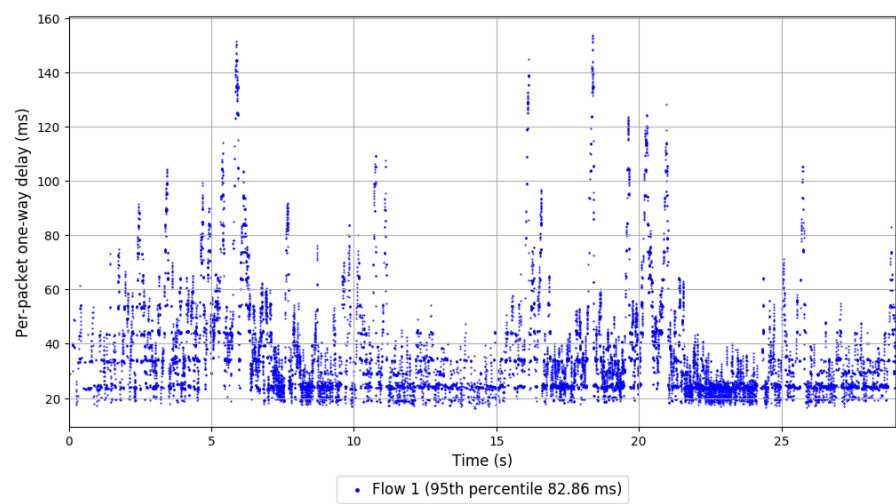
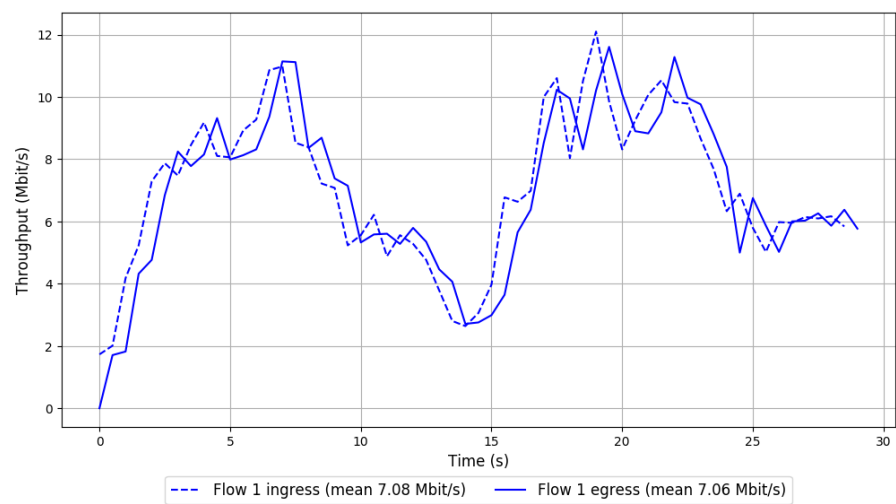


```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-02-05 01:09:32
End at: 2019-02-05 01:10:02
Local clock offset: -2.133 ms
Remote clock offset: -5.024 ms

# Below is generated by plot.py at 2019-02-05 01:58:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 82.864 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 82.864 ms
Loss rate: 0.38%
```

Run 1: Report of Indigo-MusesC3 — Data Link

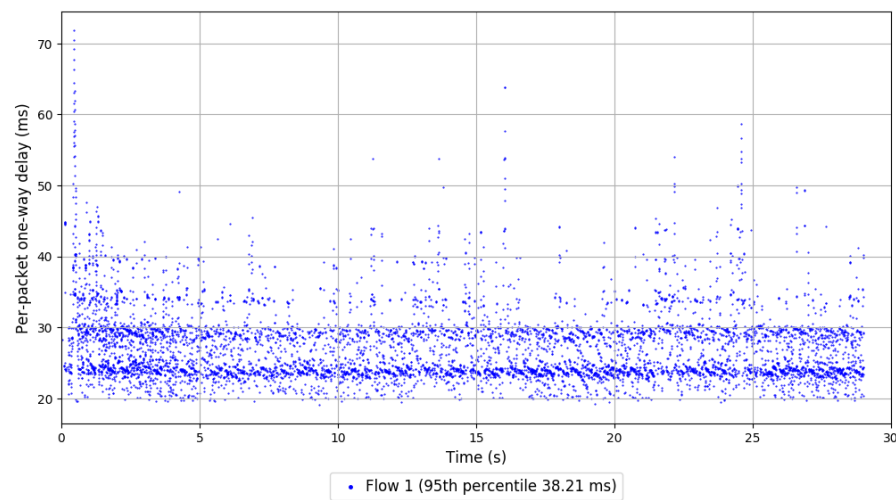
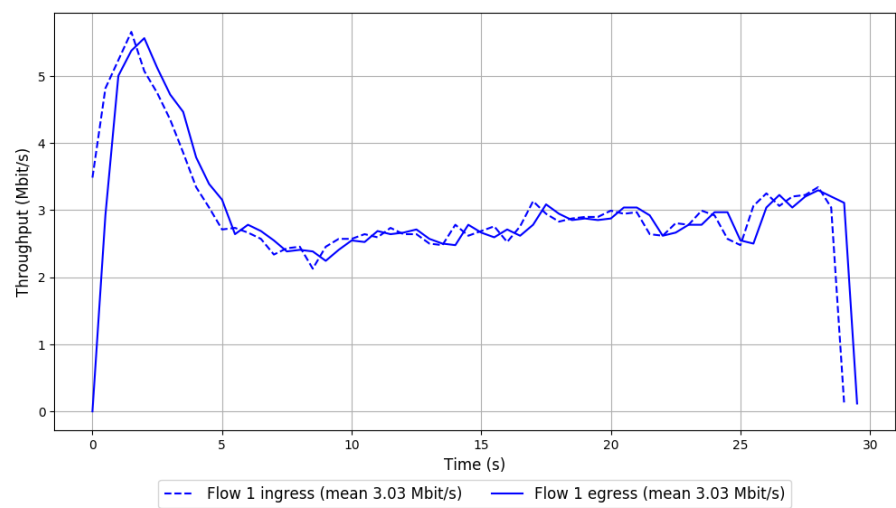


Run 2: Statistics of Indigo-MusesC3

Start at: 2019-02-05 01:33:06
End at: 2019-02-05 01:33:36
Local clock offset: -4.636 ms
Remote clock offset: -4.703 ms

Below is generated by plot.py at 2019-02-05 01:58:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 38.208 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 38.208 ms
Loss rate: 0.09%

Run 2: Report of Indigo-MusesC3 — Data Link

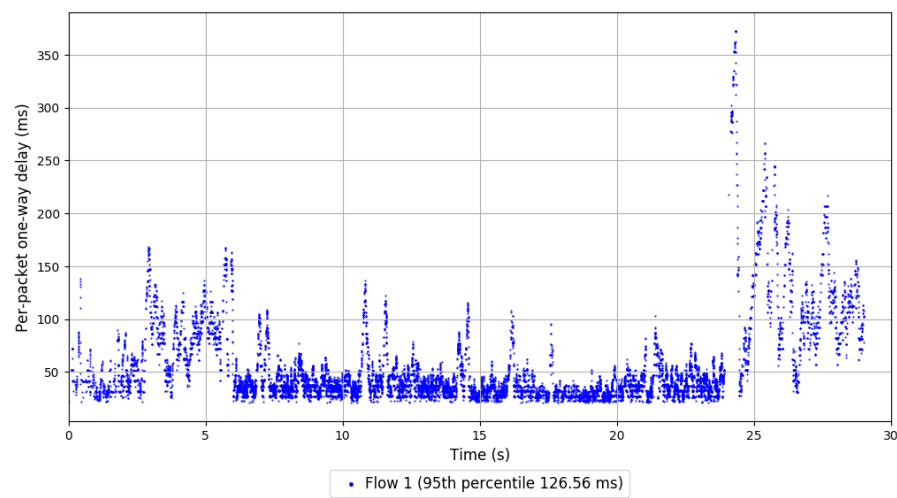
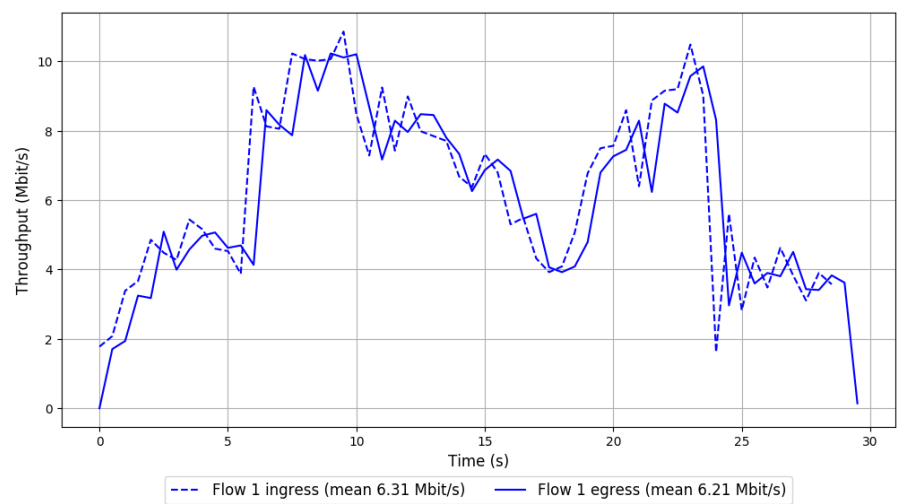


Run 3: Statistics of Indigo-MusesC3

Start at: 2019-02-05 01:57:16
End at: 2019-02-05 01:57:46
Local clock offset: -6.433 ms
Remote clock offset: -6.294 ms

Below is generated by plot.py at 2019-02-05 01:58:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.21 Mbit/s
95th percentile per-packet one-way delay: 126.563 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 6.21 Mbit/s
95th percentile per-packet one-way delay: 126.563 ms
Loss rate: 1.60%

Run 3: Report of Indigo-MusesC3 — Data Link



Run 1: Statistics of Indigo-MusesC5

Start at: 2019-02-05 00:57:12

End at: 2019-02-05 00:57:42

Local clock offset: -4.021 ms

Remote clock offset: -5.615 ms

Run 1: Report of Indigo-MusesC5 — Data Link

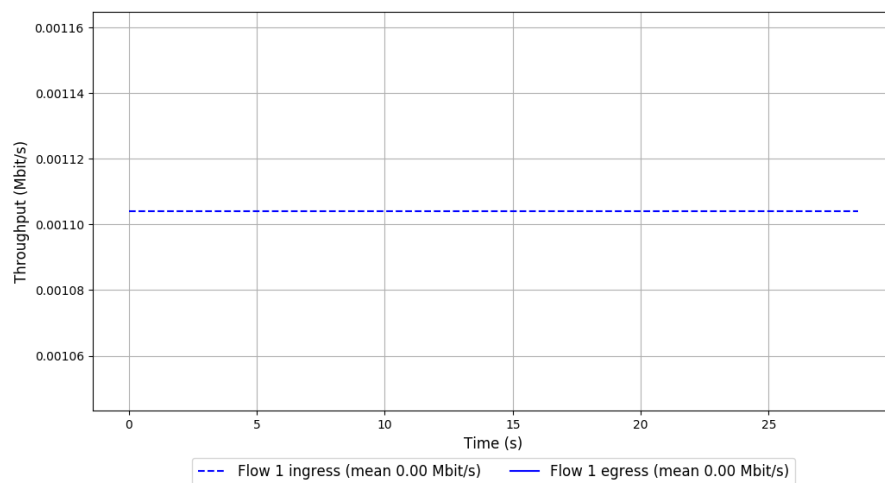


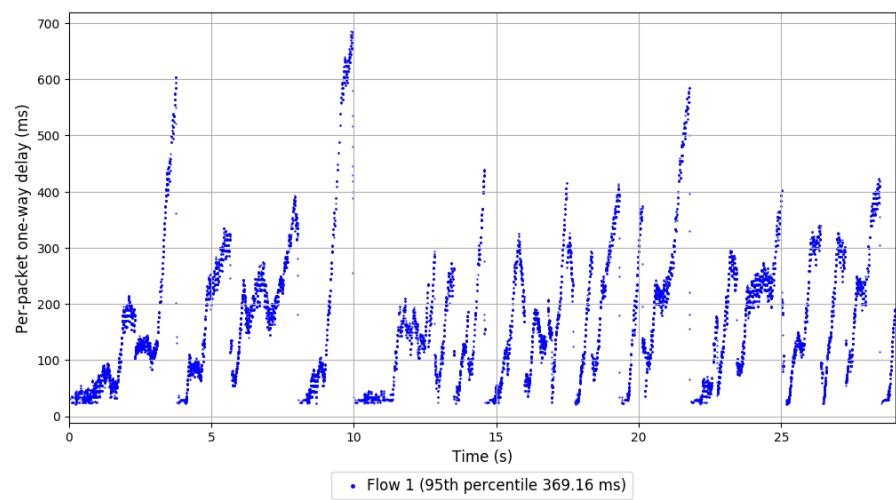
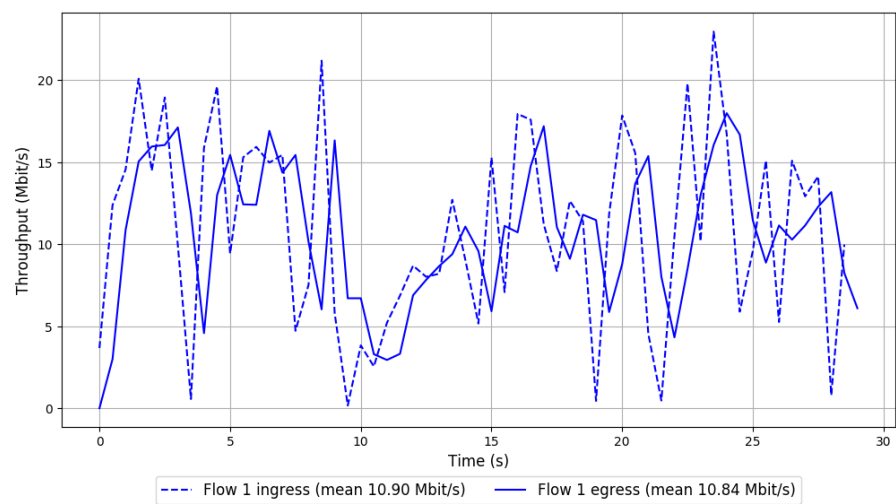
Figure is missing

Run 2: Statistics of Indigo-MusesC5

Start at: 2019-02-05 01:20:52
End at: 2019-02-05 01:21:22
Local clock offset: -5.865 ms
Remote clock offset: -5.919 ms

Below is generated by plot.py at 2019-02-05 01:58:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.84 Mbit/s
95th percentile per-packet one-way delay: 369.162 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 10.84 Mbit/s
95th percentile per-packet one-way delay: 369.162 ms
Loss rate: 0.71%

Run 2: Report of Indigo-MusesC5 — Data Link

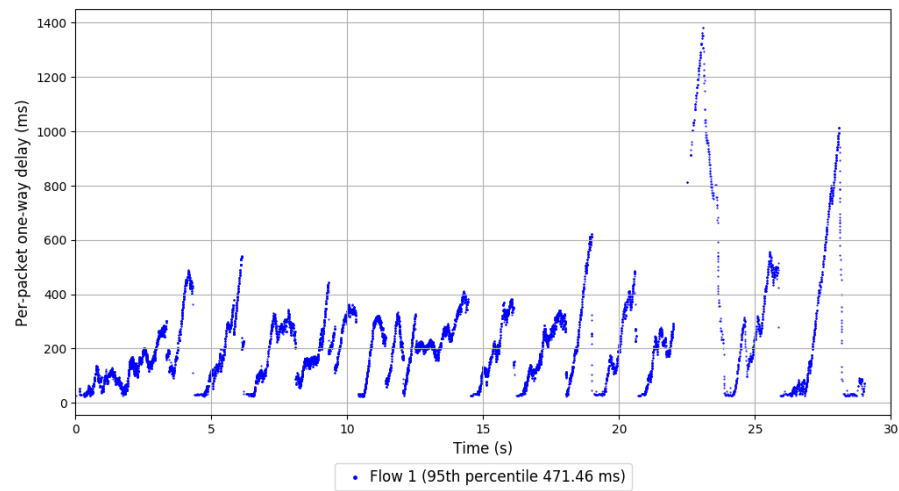
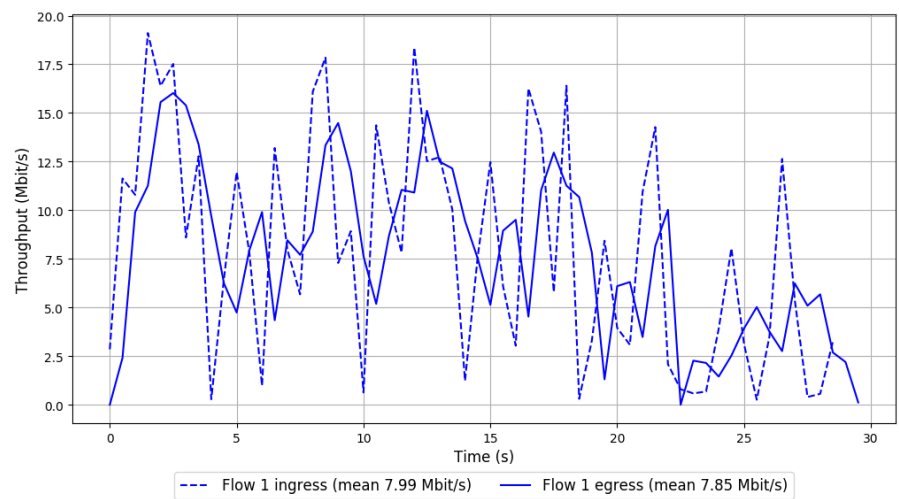


Run 3: Statistics of Indigo-MusesC5

Start at: 2019-02-05 01:44:18
End at: 2019-02-05 01:44:49
Local clock offset: -10.511 ms
Remote clock offset: -6.187 ms

Below is generated by plot.py at 2019-02-05 01:58:29
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 471.465 ms
Loss rate: 1.82%
-- Flow 1:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 471.465 ms
Loss rate: 1.82%

Run 3: Report of Indigo-MusesC5 — Data Link

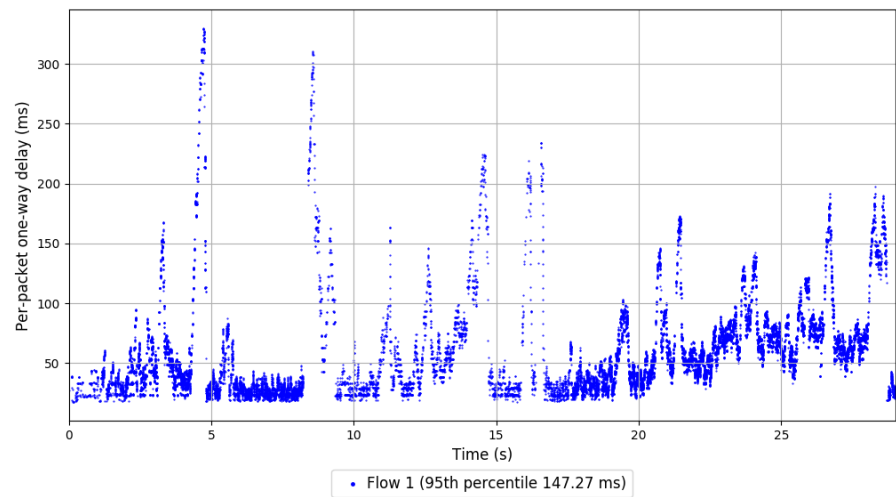
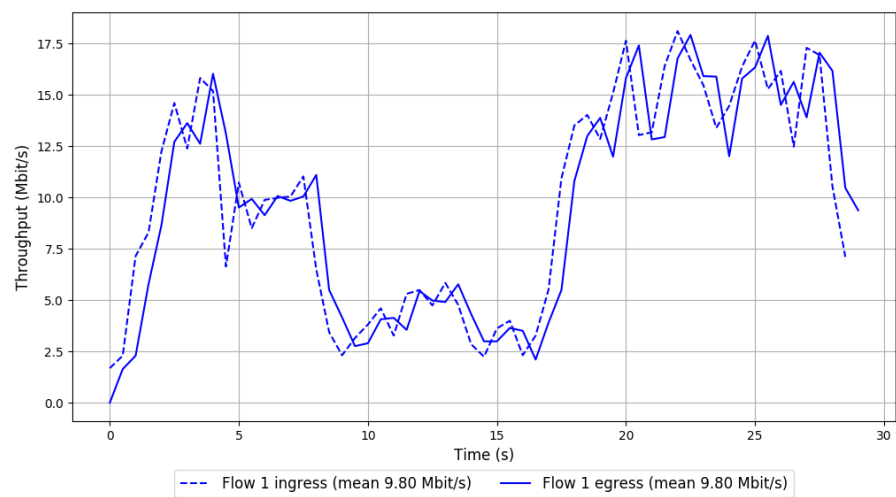


Run 1: Statistics of Indigo-MusesD

Start at: 2019-02-05 01:08:25
End at: 2019-02-05 01:08:55
Local clock offset: -2.384 ms
Remote clock offset: -6.232 ms

Below is generated by plot.py at 2019-02-05 01:58:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.80 Mbit/s
95th percentile per-packet one-way delay: 147.268 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 9.80 Mbit/s
95th percentile per-packet one-way delay: 147.268 ms
Loss rate: 0.12%

Run 1: Report of Indigo-MusesD — Data Link

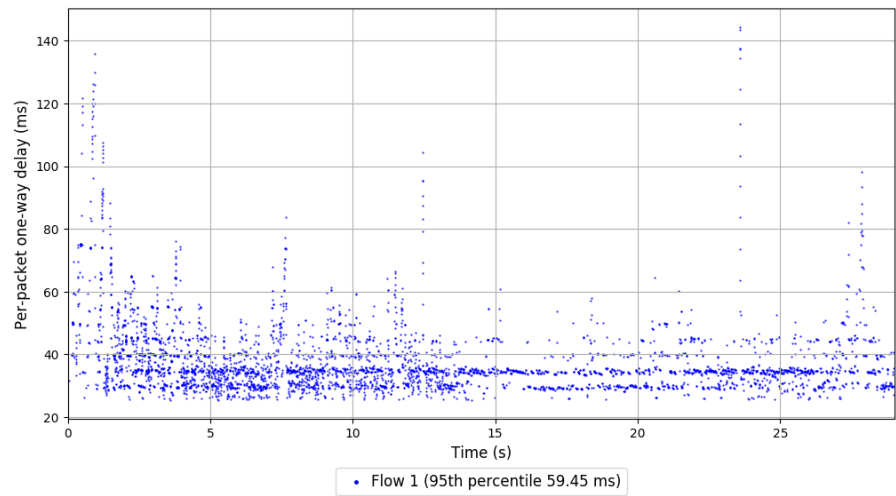
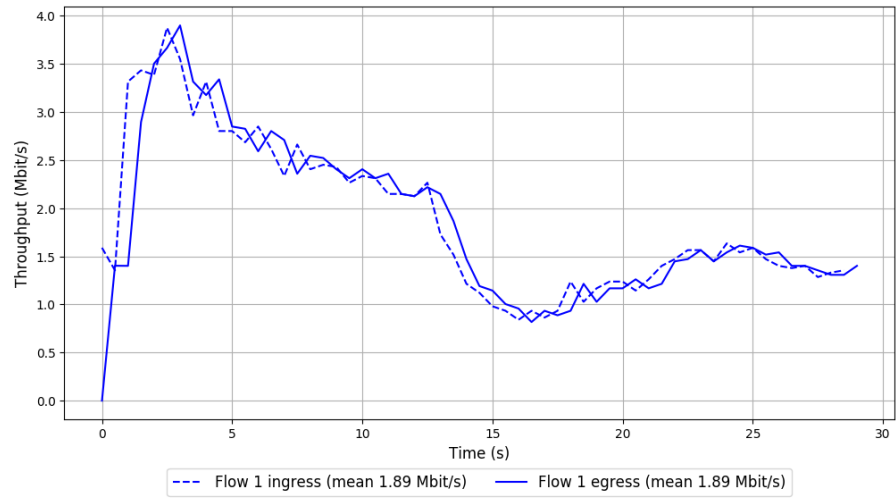


Run 2: Statistics of Indigo-MusesD

Start at: 2019-02-05 01:31:59
End at: 2019-02-05 01:32:29
Local clock offset: -7.085 ms
Remote clock offset: -6.077 ms

Below is generated by plot.py at 2019-02-05 01:58:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 59.455 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 59.455 ms
Loss rate: 0.06%

Run 2: Report of Indigo-MusesD — Data Link

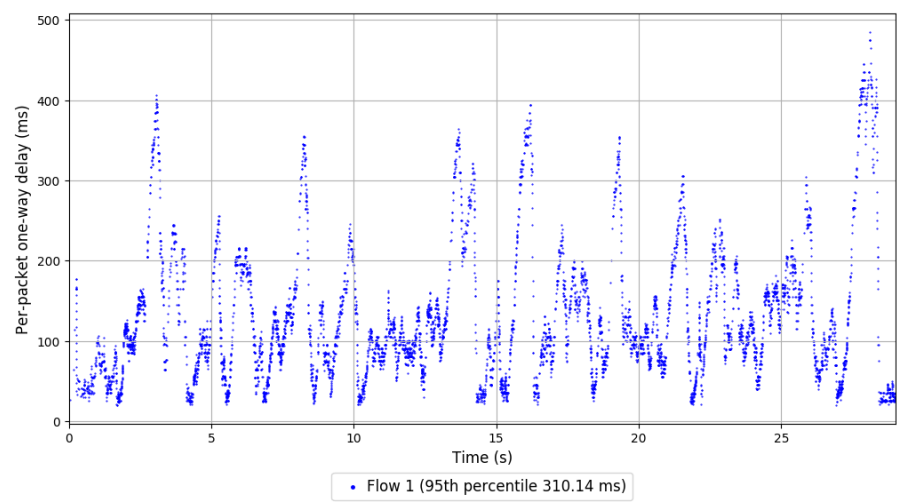
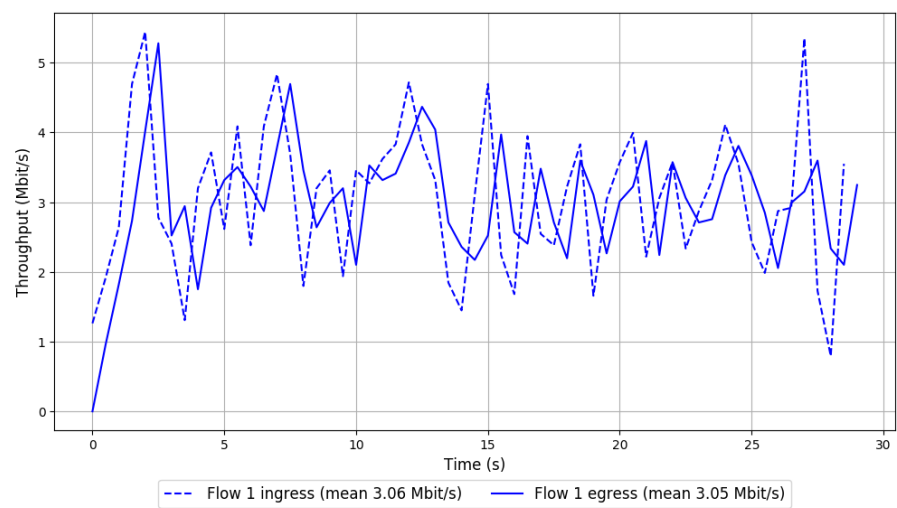


Run 3: Statistics of Indigo-MusesD

Start at: 2019-02-05 01:56:09
End at: 2019-02-05 01:56:39
Local clock offset: -3.513 ms
Remote clock offset: -4.555 ms

Below is generated by plot.py at 2019-02-05 01:58:33
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 310.140 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 310.140 ms
Loss rate: 0.40%

Run 3: Report of Indigo-MusesD — Data Link



Run 1: Statistics of Indigo-MusesT

Start at: 2019-02-05 01:05:05

End at: 2019-02-05 01:05:35

Local clock offset: -5.443 ms

Remote clock offset: -5.329 ms

Below is generated by plot.py at 2019-02-05 01:58:33

Datalink statistics

-- Total of 1 flow:

Average throughput: 4.46 Mbit/s

95th percentile per-packet one-way delay: 333.063 ms

Loss rate: 0.48%

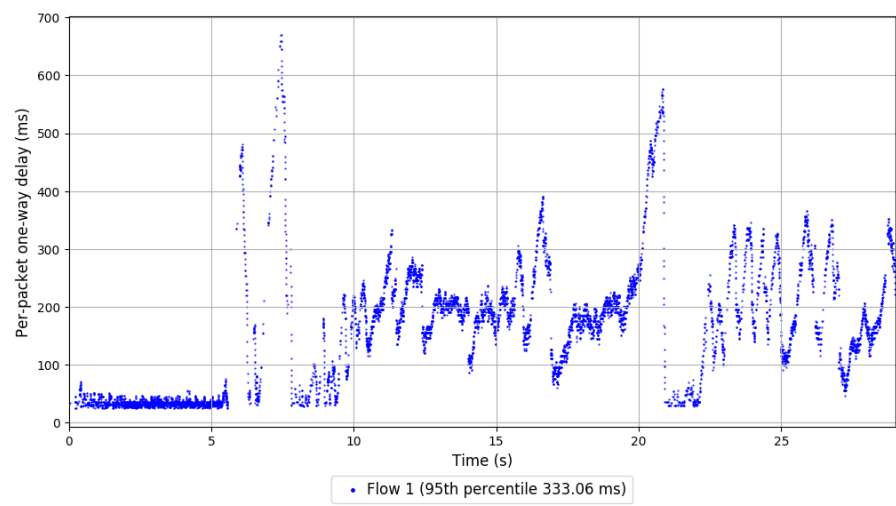
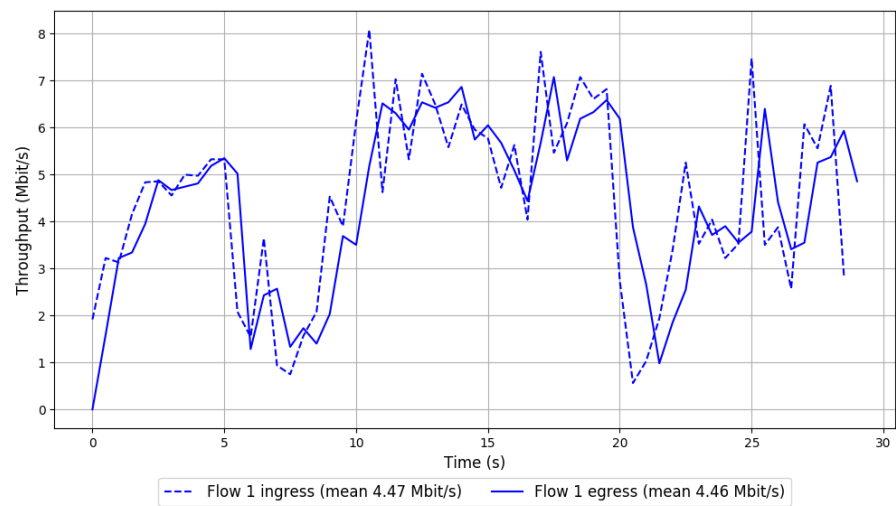
-- Flow 1:

Average throughput: 4.46 Mbit/s

95th percentile per-packet one-way delay: 333.063 ms

Loss rate: 0.48%

Run 1: Report of Indigo-MusesT — Data Link



Run 2: Statistics of Indigo-MusesT

Start at: 2019-02-05 01:28:36

End at: 2019-02-05 01:29:06

Local clock offset: -4.036 ms

Remote clock offset: -5.158 ms

Below is generated by plot.py at 2019-02-05 01:58:39

Datalink statistics

-- Total of 1 flow:

Average throughput: 12.42 Mbit/s

95th percentile per-packet one-way delay: 308.561 ms

Loss rate: 0.38%

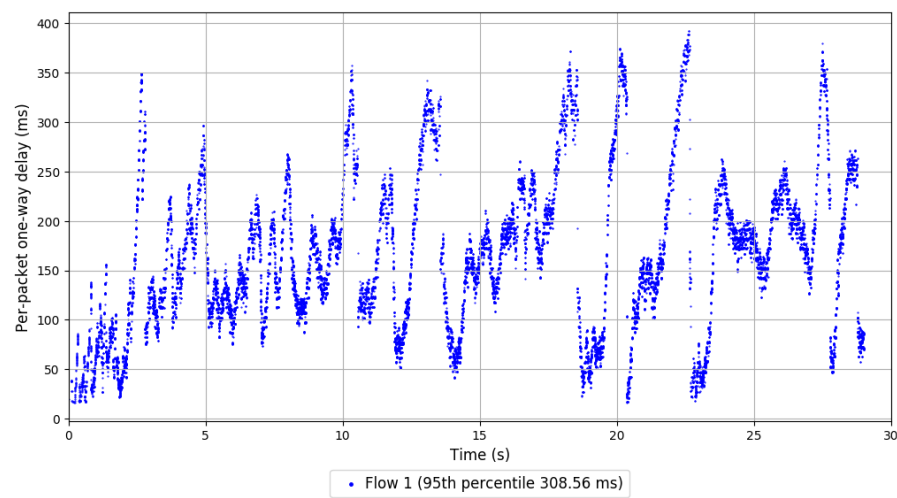
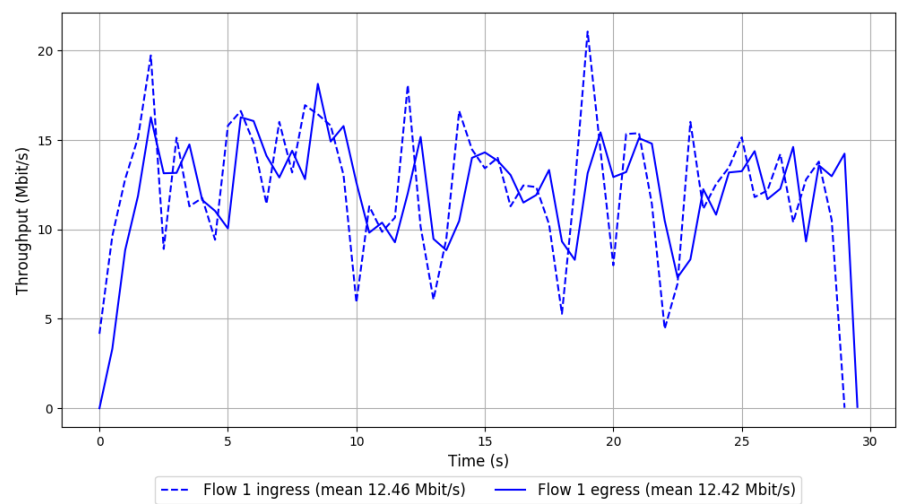
-- Flow 1:

Average throughput: 12.42 Mbit/s

95th percentile per-packet one-way delay: 308.561 ms

Loss rate: 0.38%

Run 2: Report of Indigo-MusesT — Data Link

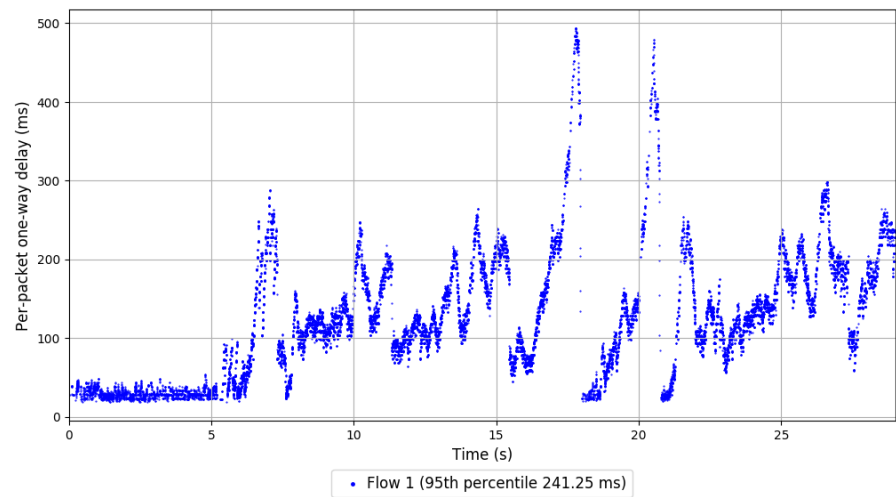
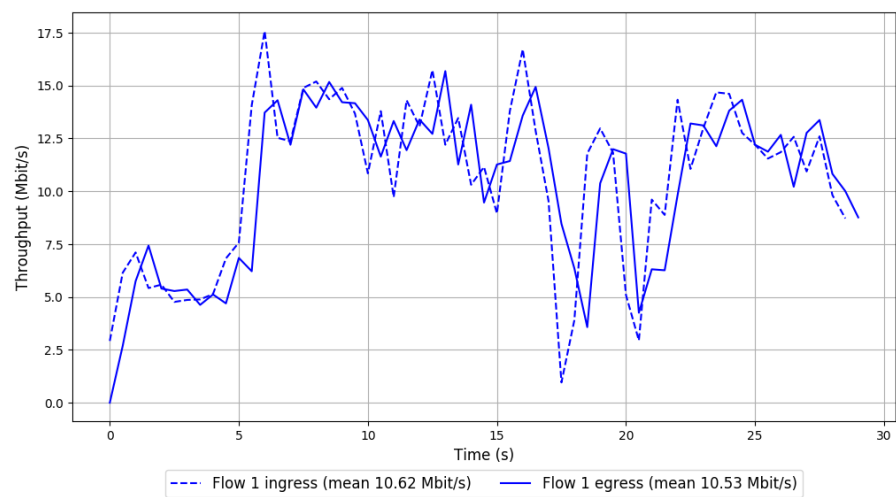


Run 3: Statistics of Indigo-MusesT

Start at: 2019-02-05 01:52:48
End at: 2019-02-05 01:53:18
Local clock offset: -5.811 ms
Remote clock offset: -10.746 ms

Below is generated by plot.py at 2019-02-05 01:58:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.53 Mbit/s
95th percentile per-packet one-way delay: 241.248 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 10.53 Mbit/s
95th percentile per-packet one-way delay: 241.248 ms
Loss rate: 0.86%

Run 3: Report of Indigo-MusesT — Data Link

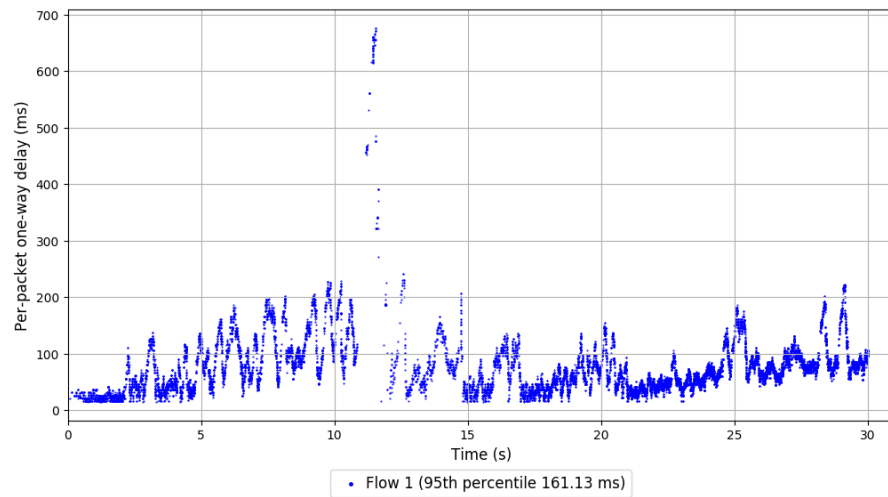
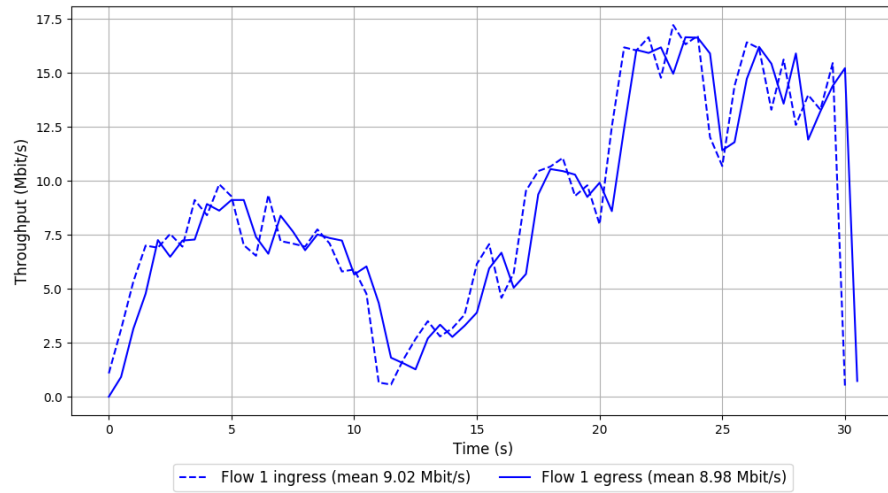


Run 1: Statistics of LEDBAT

Start at: 2019-02-05 01:06:12
End at: 2019-02-05 01:06:42
Local clock offset: -4.3 ms
Remote clock offset: -5.213 ms

Below is generated by plot.py at 2019-02-05 01:58:39
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.98 Mbit/s
95th percentile per-packet one-way delay: 161.128 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 8.98 Mbit/s
95th percentile per-packet one-way delay: 161.128 ms
Loss rate: 0.47%

Run 1: Report of LEDBAT — Data Link

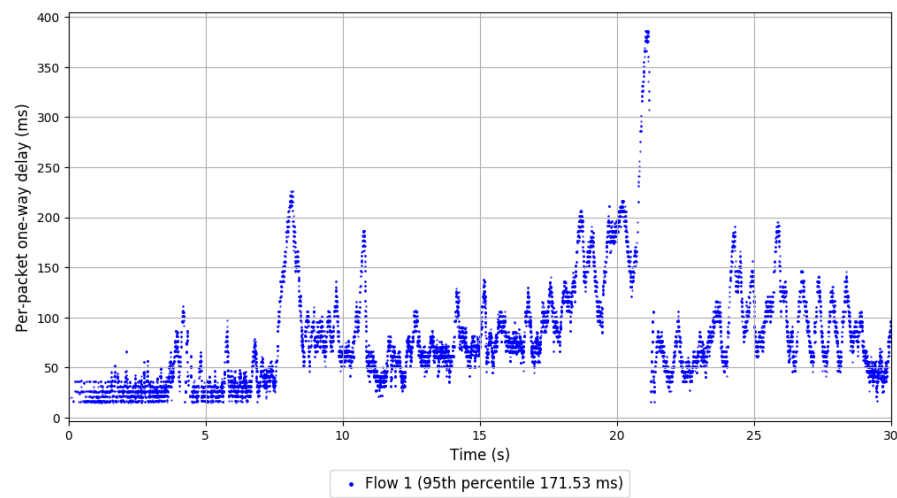
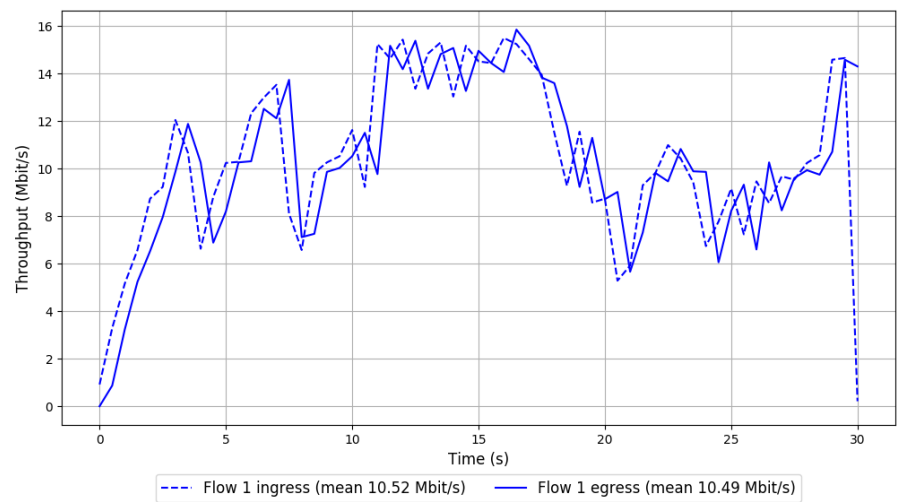


Run 2: Statistics of LEDBAT

Start at: 2019-02-05 01:29:43
End at: 2019-02-05 01:30:13
Local clock offset: -4.146 ms
Remote clock offset: -4.294 ms

Below is generated by plot.py at 2019-02-05 01:58:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.49 Mbit/s
95th percentile per-packet one-way delay: 171.533 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 10.49 Mbit/s
95th percentile per-packet one-way delay: 171.533 ms
Loss rate: 0.39%

Run 2: Report of LEDBAT — Data Link

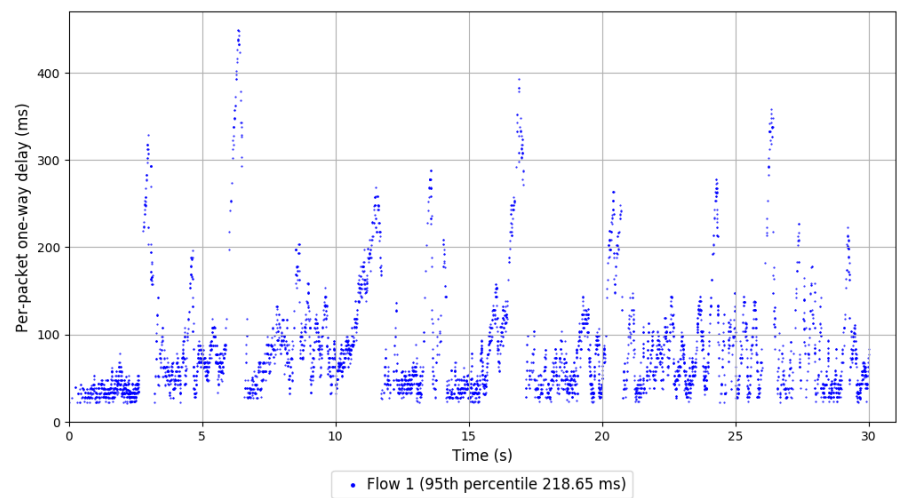
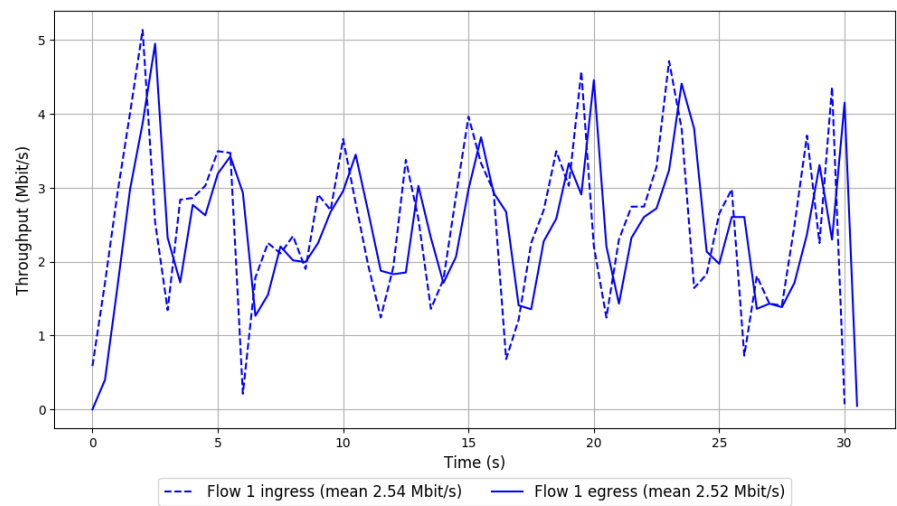


Run 3: Statistics of LEDBAT

Start at: 2019-02-05 01:53:57
End at: 2019-02-05 01:54:27
Local clock offset: -7.34 ms
Remote clock offset: -5.553 ms

Below is generated by plot.py at 2019-02-05 01:58:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 218.649 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 218.649 ms
Loss rate: 0.66%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2019-02-05 00:58:18

End at: 2019-02-05 00:58:48

Local clock offset: -4.404 ms

Remote clock offset: -4.466 ms

Below is generated by plot.py at 2019-02-05 01:58:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 9.92 Mbit/s

95th percentile per-packet one-way delay: 175.240 ms

Loss rate: 0.08%

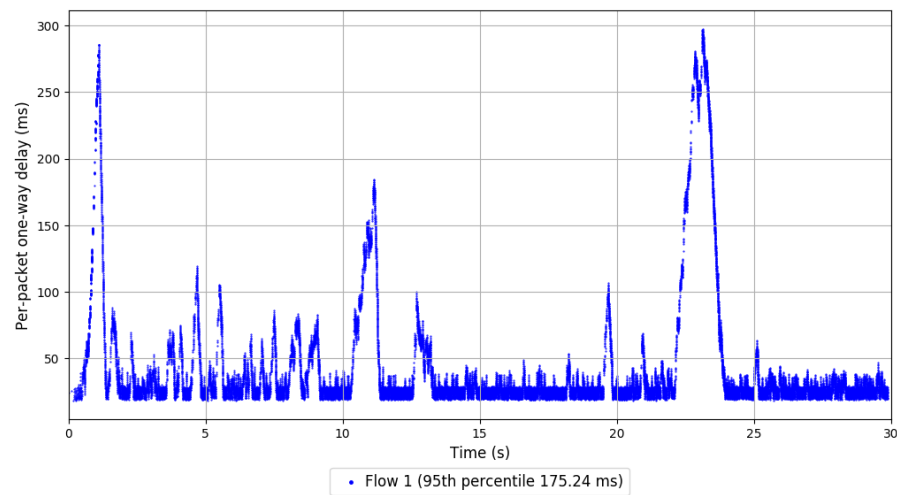
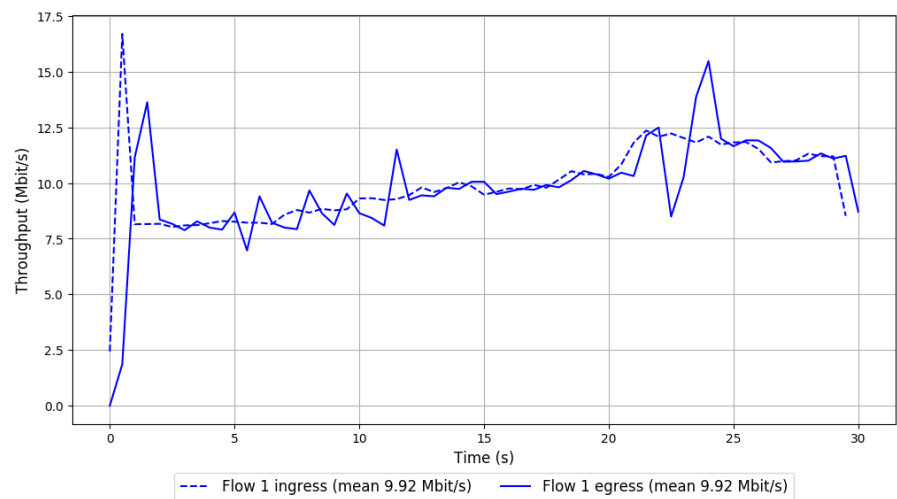
-- Flow 1:

Average throughput: 9.92 Mbit/s

95th percentile per-packet one-way delay: 175.240 ms

Loss rate: 0.08%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2019-02-05 01:21:59

End at: 2019-02-05 01:22:29

Local clock offset: -6.132 ms

Remote clock offset: -4.546 ms

Below is generated by plot.py at 2019-02-05 01:58:45

Datalink statistics

-- Total of 1 flow:

Average throughput: 8.23 Mbit/s

95th percentile per-packet one-way delay: 1033.242 ms

Loss rate: 1.87%

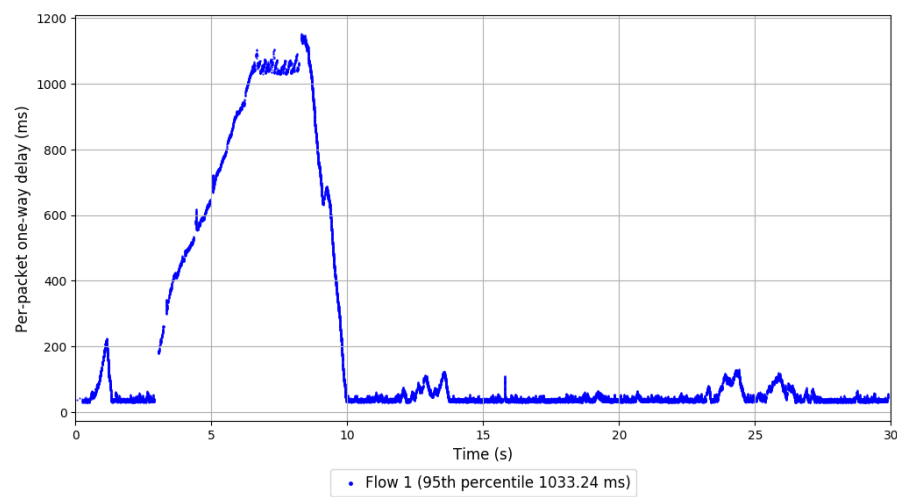
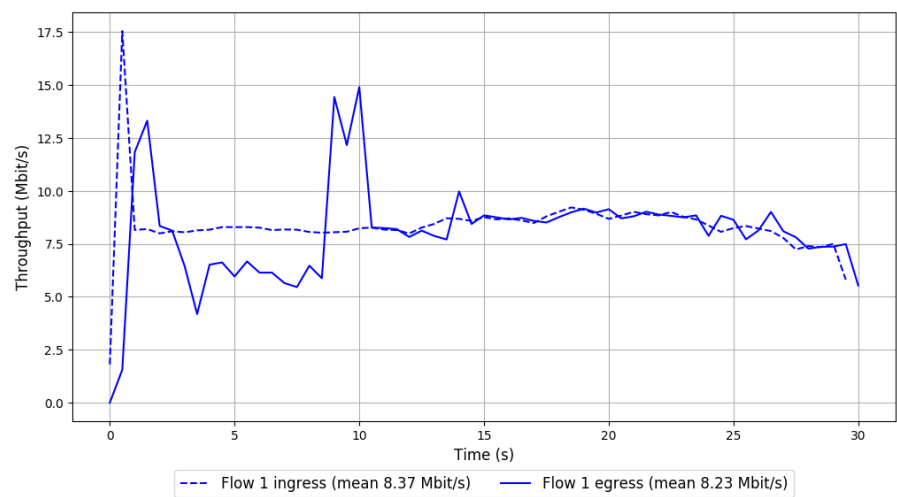
-- Flow 1:

Average throughput: 8.23 Mbit/s

95th percentile per-packet one-way delay: 1033.242 ms

Loss rate: 1.87%

Run 2: Report of PCC-Allegro — Data Link

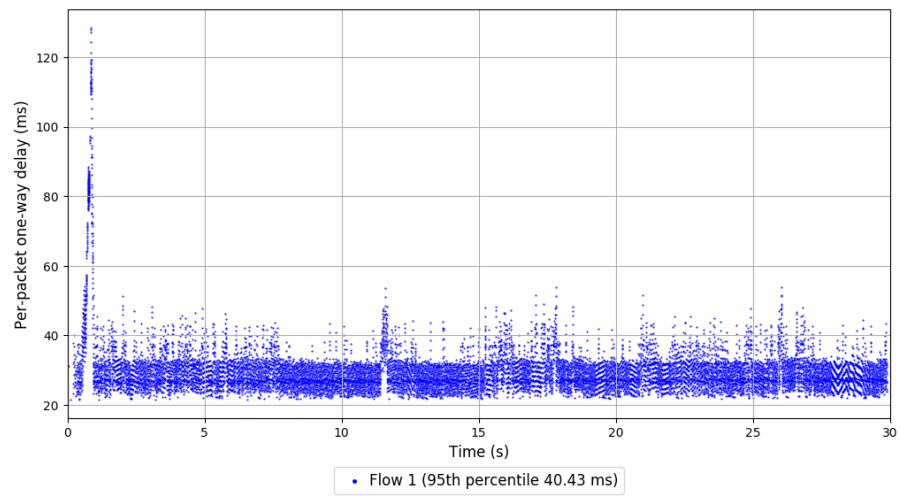
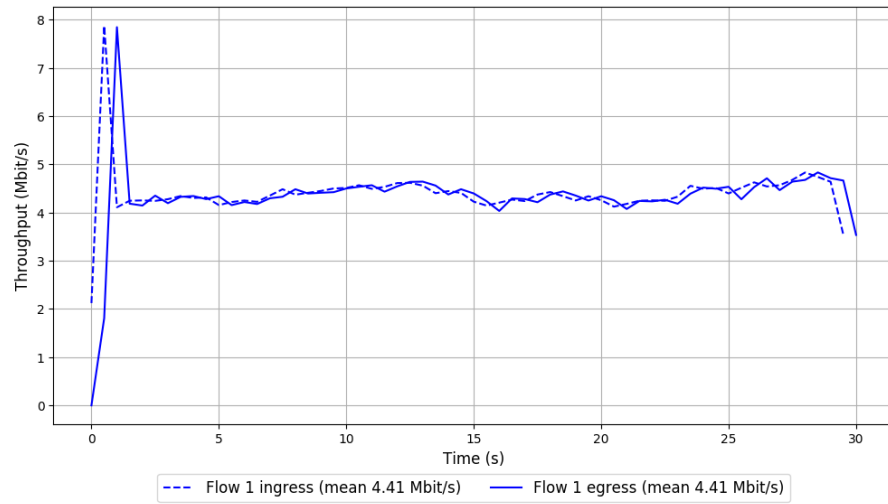


Run 3: Statistics of PCC-Allegro

Start at: 2019-02-05 01:46:06
End at: 2019-02-05 01:46:36
Local clock offset: -8.629 ms
Remote clock offset: -6.461 ms

Below is generated by plot.py at 2019-02-05 01:58:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 40.429 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 40.429 ms
Loss rate: 0.11%

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

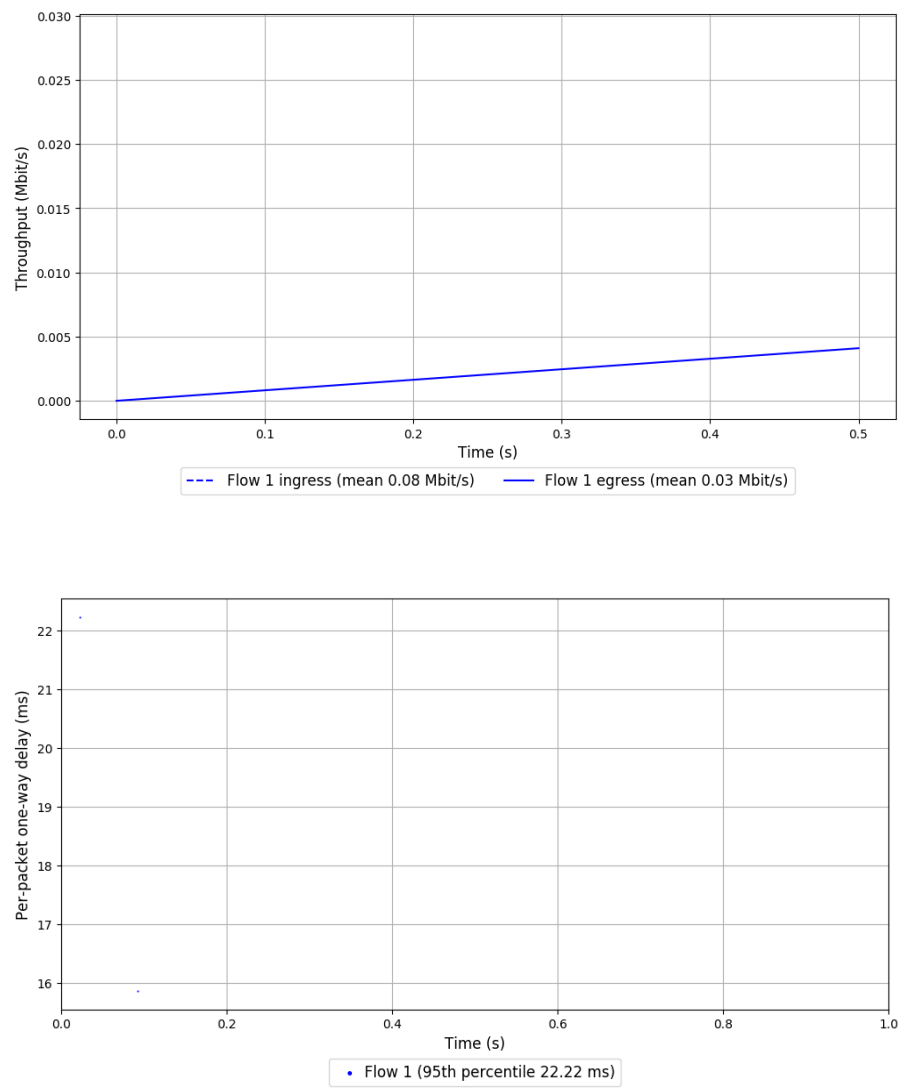
Start at: 2019-02-05 00:48:15

End at: 2019-02-05 00:48:45

Local clock offset: -2.162 ms

Remote clock offset: -6.157 ms

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

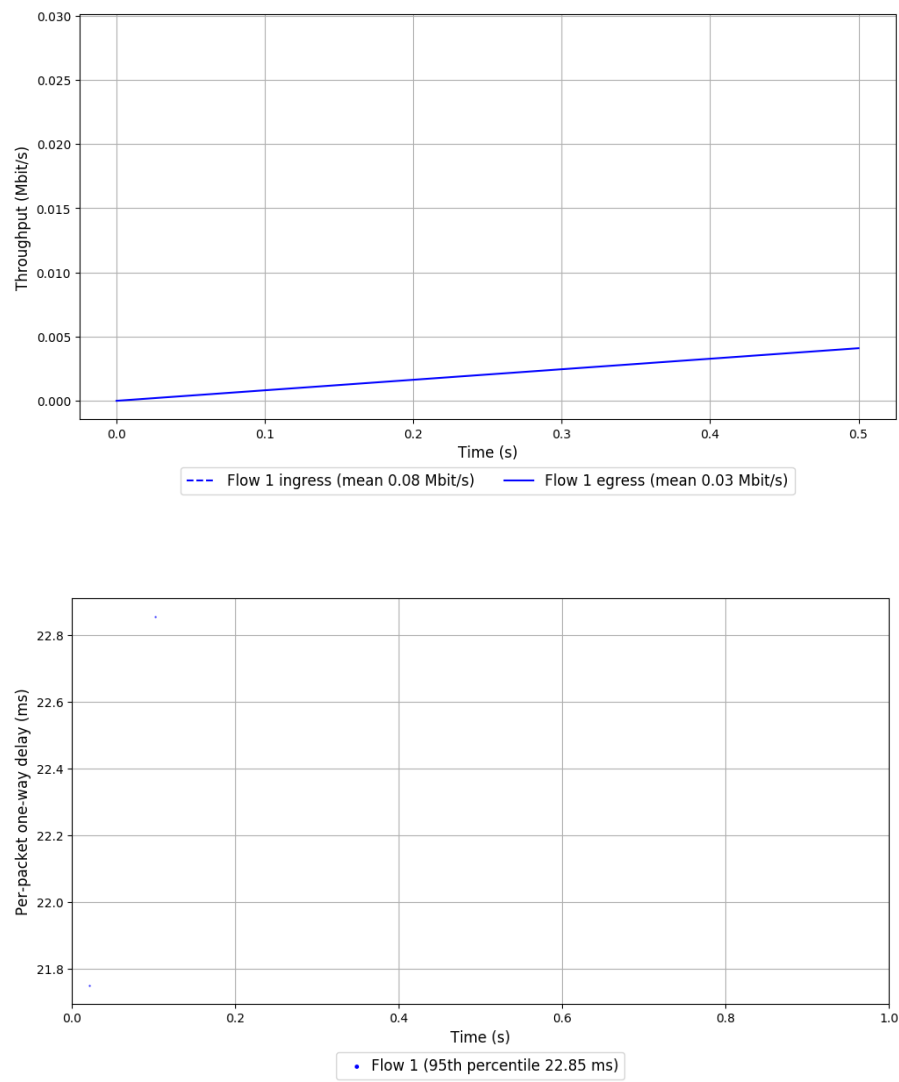
Start at: 2019-02-05 01:11:46

End at: 2019-02-05 01:12:16

Local clock offset: -5.799 ms

Remote clock offset: -5.525 ms

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

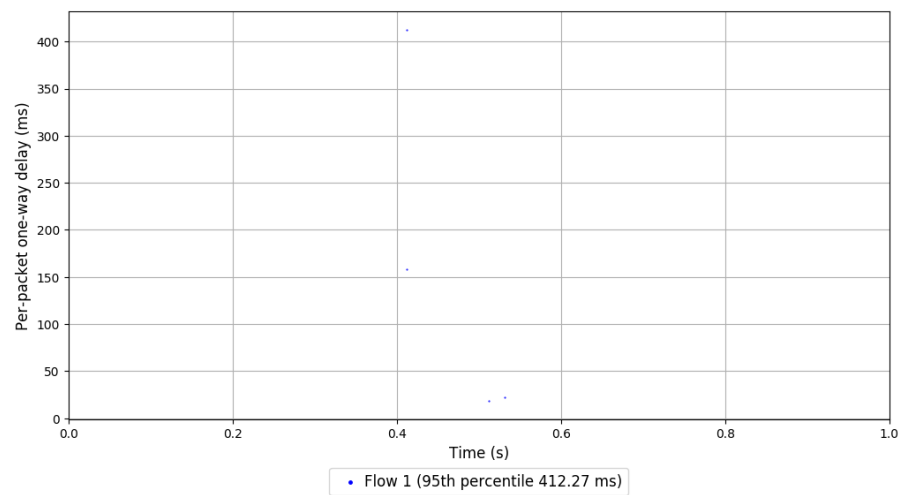
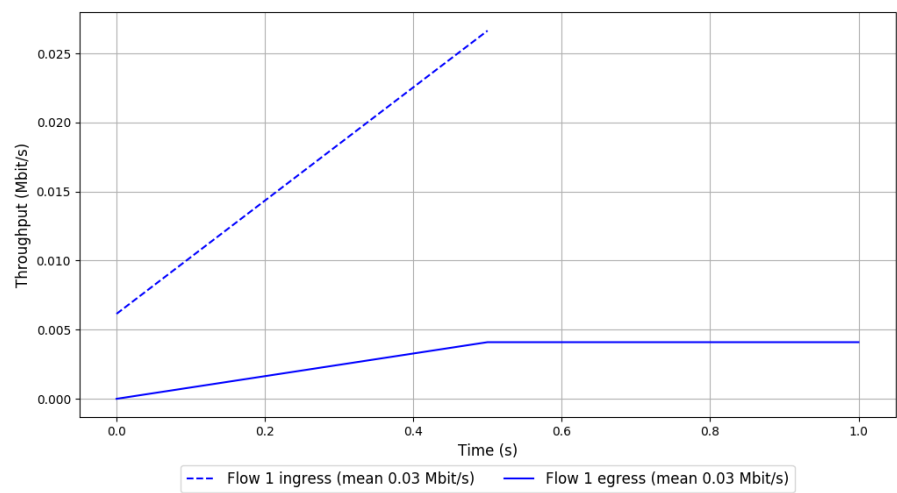
Start at: 2019-02-05 01:35:22

End at: 2019-02-05 01:35:52

Local clock offset: -6.01 ms

Remote clock offset: -4.439 ms

Run 3: Report of PCC-Expr — Data Link

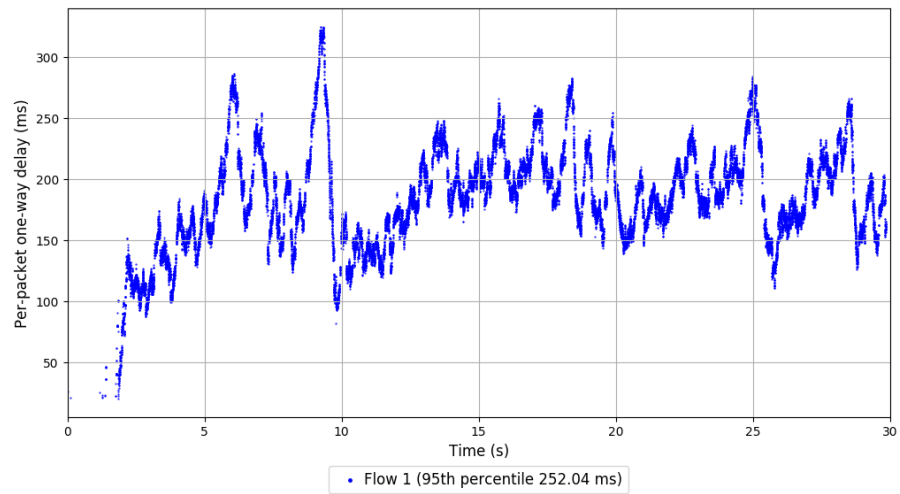
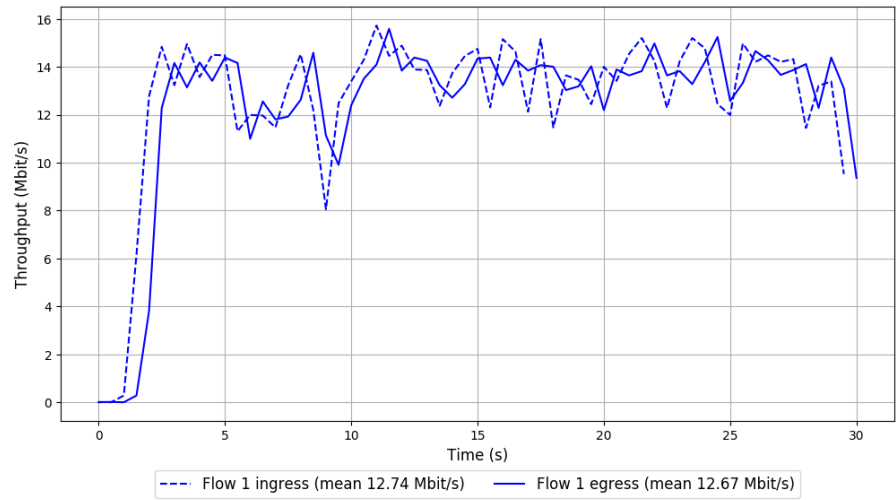


Run 1: Statistics of QUIC Cubic

Start at: 2019-02-05 00:47:08
End at: 2019-02-05 00:47:38
Local clock offset: -3.821 ms
Remote clock offset: -6.212 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 12.67 Mbit/s
95th percentile per-packet one-way delay: 252.041 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 12.67 Mbit/s
95th percentile per-packet one-way delay: 252.041 ms
Loss rate: 0.64%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2019-02-05 01:10:39

End at: 2019-02-05 01:11:09

Local clock offset: -3.623 ms

Remote clock offset: -4.42 ms

Below is generated by plot.py at 2019-02-05 01:58:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.57 Mbit/s

95th percentile per-packet one-way delay: 344.850 ms

Loss rate: 0.67%

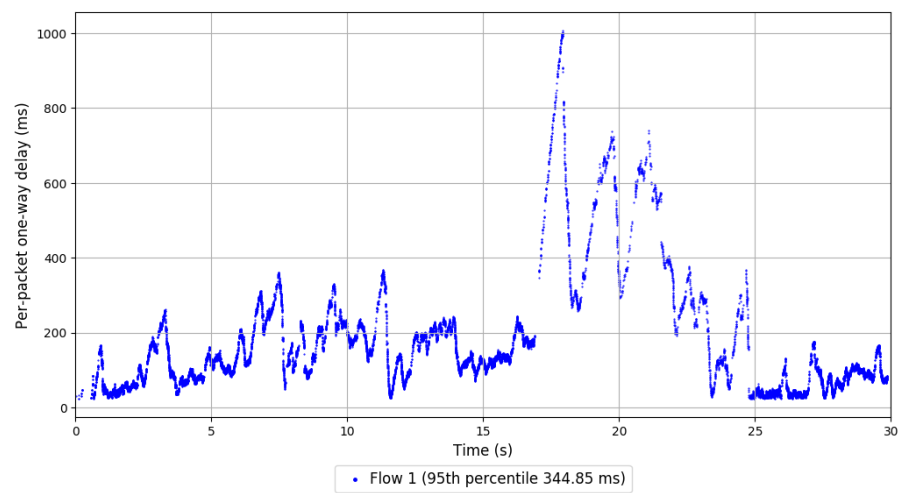
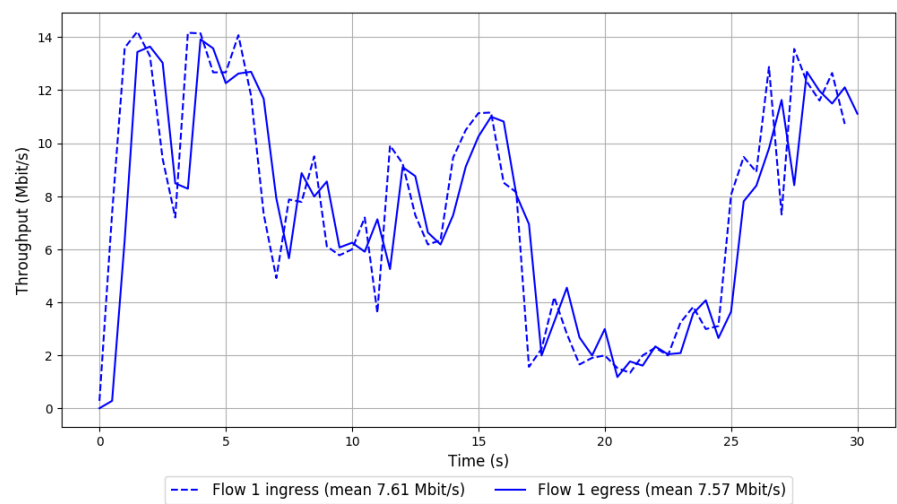
-- Flow 1:

Average throughput: 7.57 Mbit/s

95th percentile per-packet one-way delay: 344.850 ms

Loss rate: 0.67%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2019-02-05 01:34:12

End at: 2019-02-05 01:34:42

Local clock offset: -6.246 ms

Remote clock offset: -5.682 ms

Below is generated by plot.py at 2019-02-05 01:58:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 7.89 Mbit/s

95th percentile per-packet one-way delay: 406.403 ms

Loss rate: 0.73%

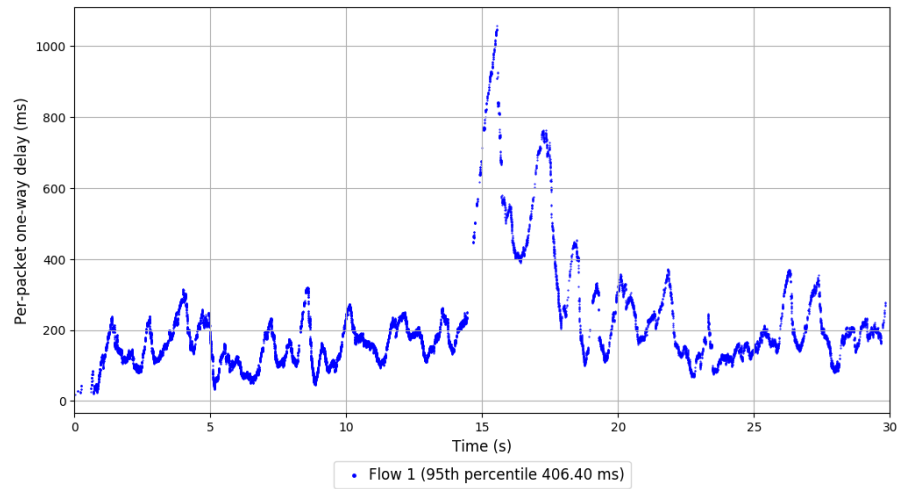
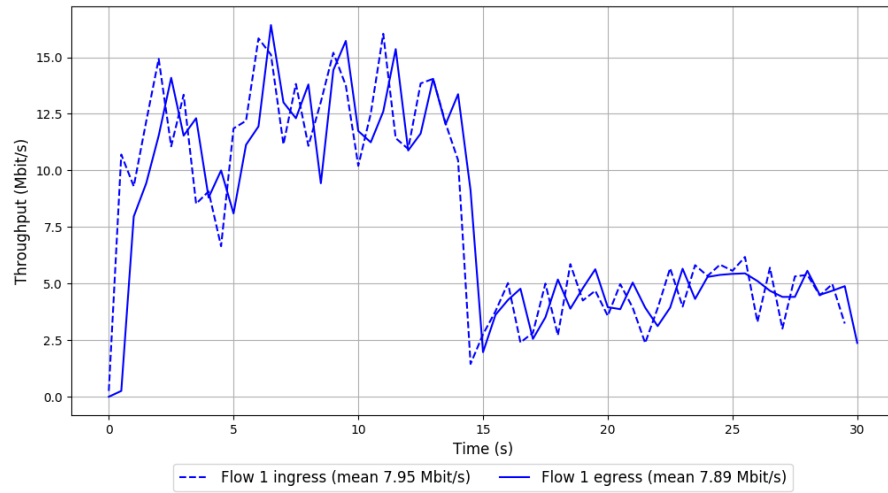
-- Flow 1:

Average throughput: 7.89 Mbit/s

95th percentile per-packet one-way delay: 406.403 ms

Loss rate: 0.73%

Run 3: Report of QUIC Cubic — Data Link

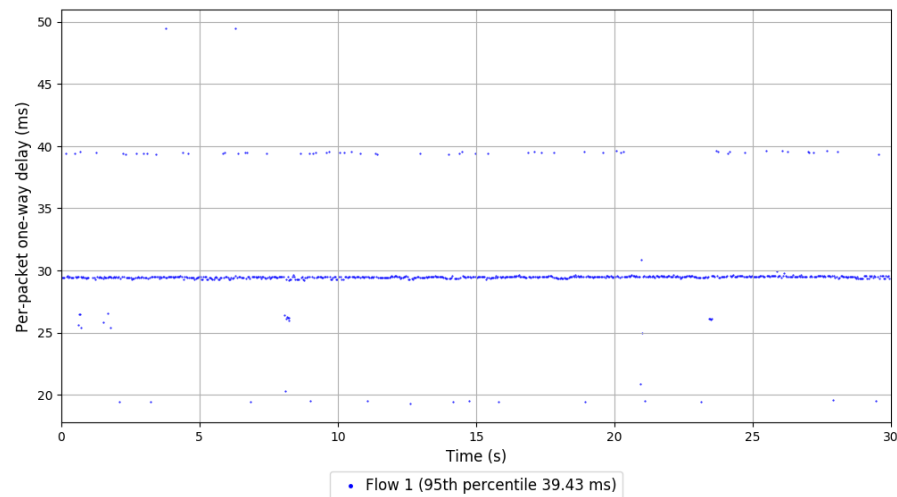
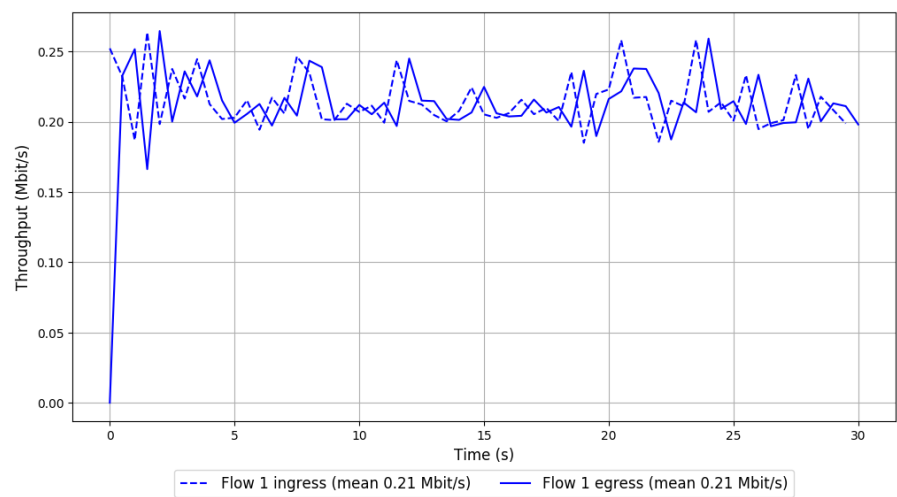


Run 1: Statistics of SCReAM

Start at: 2019-02-05 01:07:19
End at: 2019-02-05 01:07:49
Local clock offset: -4.634 ms
Remote clock offset: -5.986 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 39.431 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 39.431 ms
Loss rate: 0.13%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2019-02-05 01:30:50

End at: 2019-02-05 01:31:20

Local clock offset: -6.301 ms

Remote clock offset: -4.18 ms

Below is generated by plot.py at 2019-02-05 01:58:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 32.661 ms

Loss rate: 0.13%

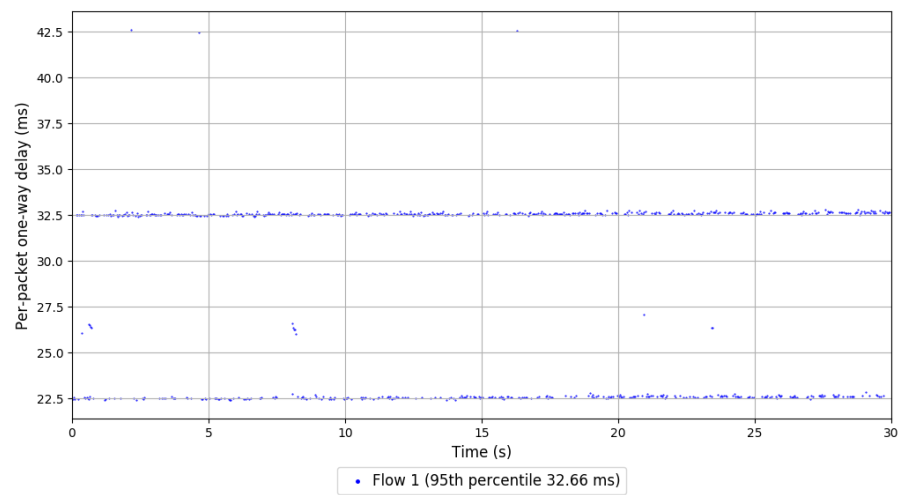
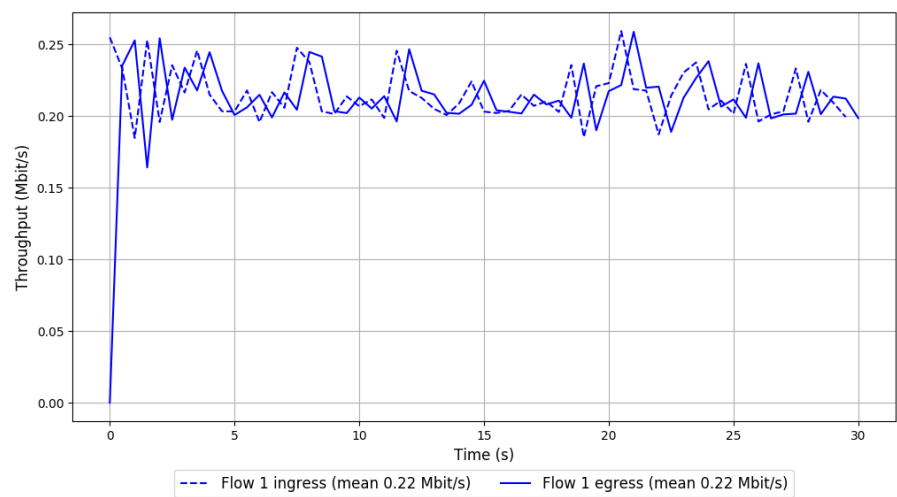
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 32.661 ms

Loss rate: 0.13%

Run 2: Report of SReAM — Data Link

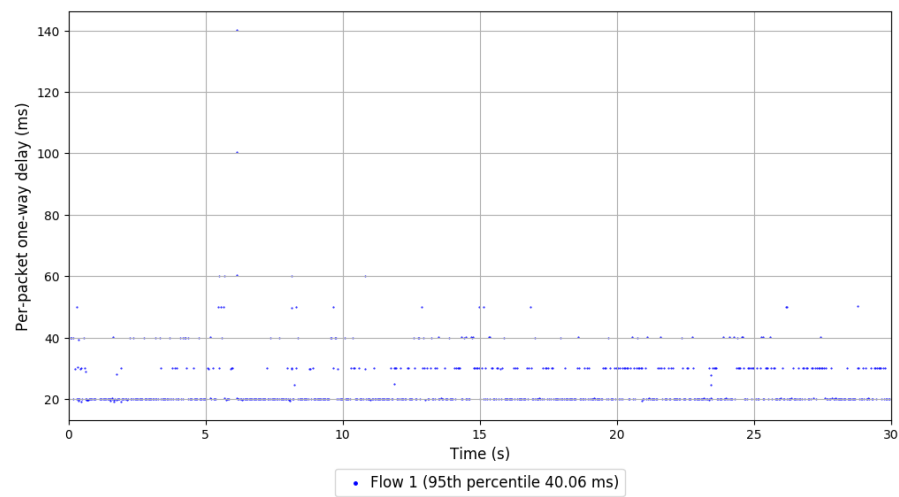
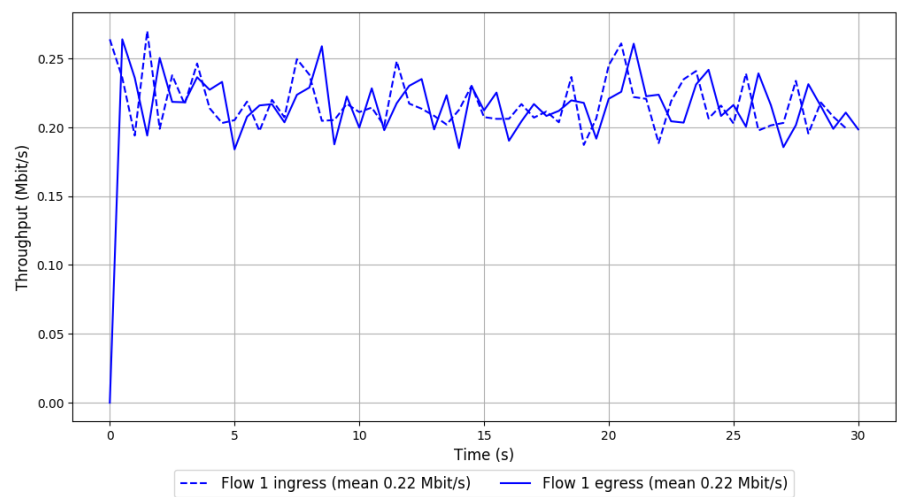


Run 3: Statistics of SCReAM

Start at: 2019-02-05 01:55:03
End at: 2019-02-05 01:55:33
Local clock offset: -4.822 ms
Remote clock offset: -6.133 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.062 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 40.062 ms
Loss rate: 0.13%

Run 3: Report of SReAM — Data Link

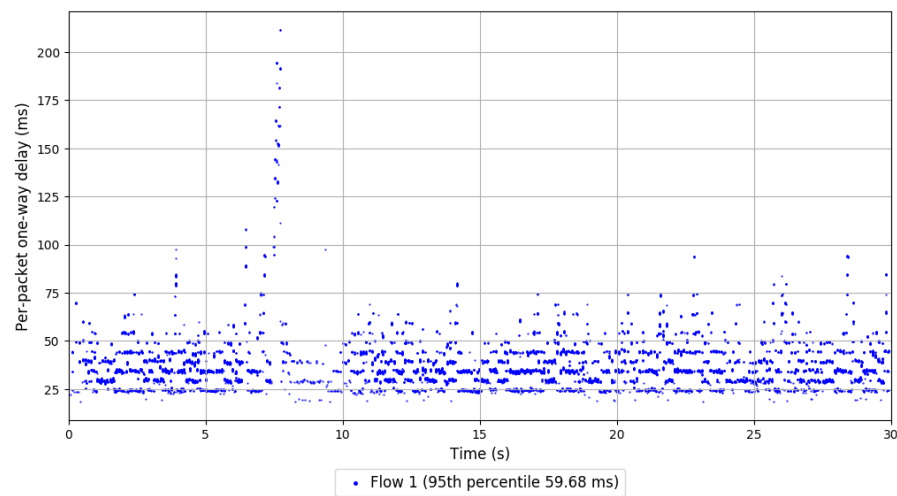
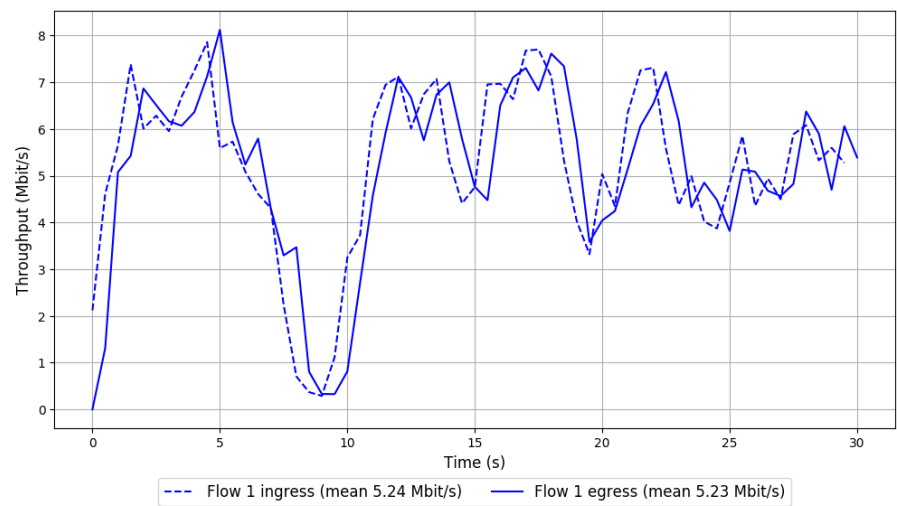


Run 1: Statistics of Sprout

Start at: 2019-02-05 00:52:41
End at: 2019-02-05 00:53:11
Local clock offset: -1.03 ms
Remote clock offset: -4.777 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 59.684 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 59.684 ms
Loss rate: 0.07%

Run 1: Report of Sprout — Data Link

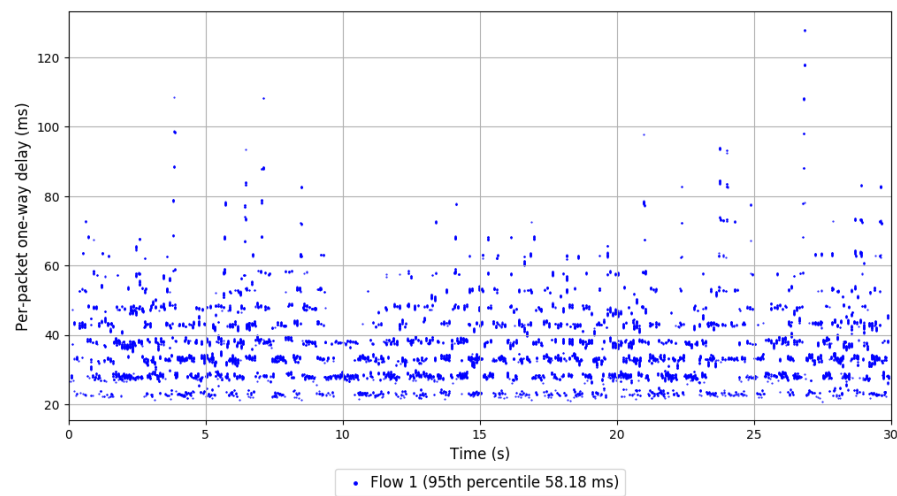
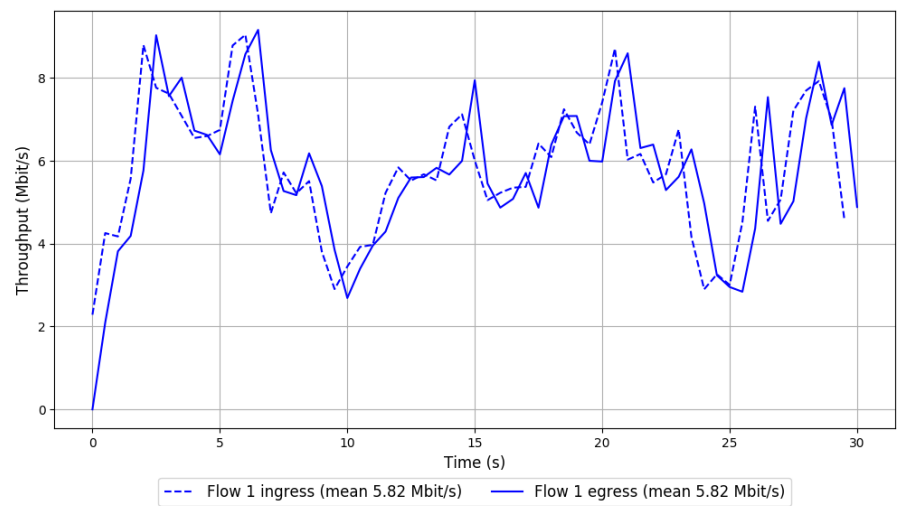


Run 2: Statistics of Sprout

Start at: 2019-02-05 01:16:14
End at: 2019-02-05 01:16:44
Local clock offset: -4.304 ms
Remote clock offset: -4.296 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 58.181 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 58.181 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

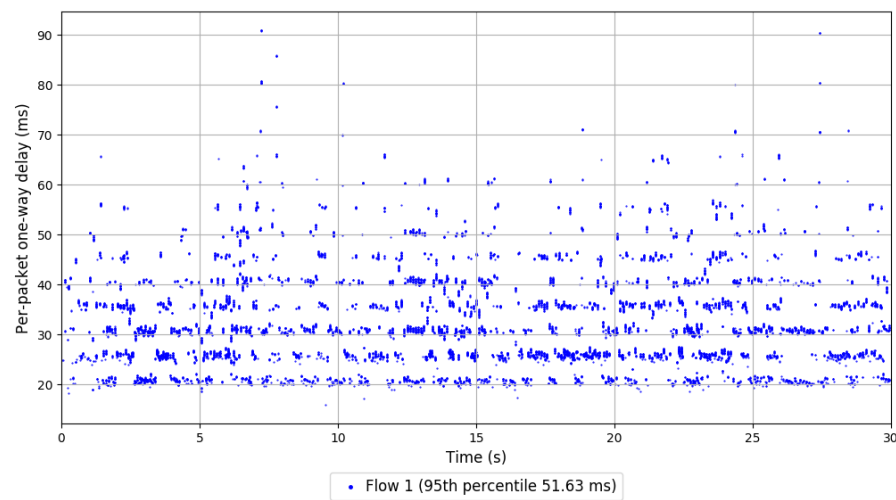
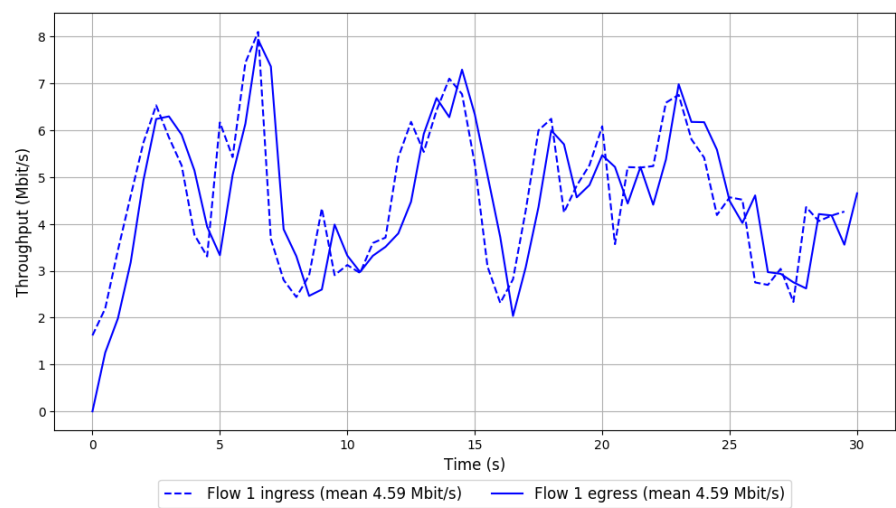


Run 3: Statistics of Sprout

Start at: 2019-02-05 01:39:49
End at: 2019-02-05 01:40:19
Local clock offset: -6.717 ms
Remote clock offset: -6.059 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 51.628 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 51.628 ms
Loss rate: 0.09%

Run 3: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

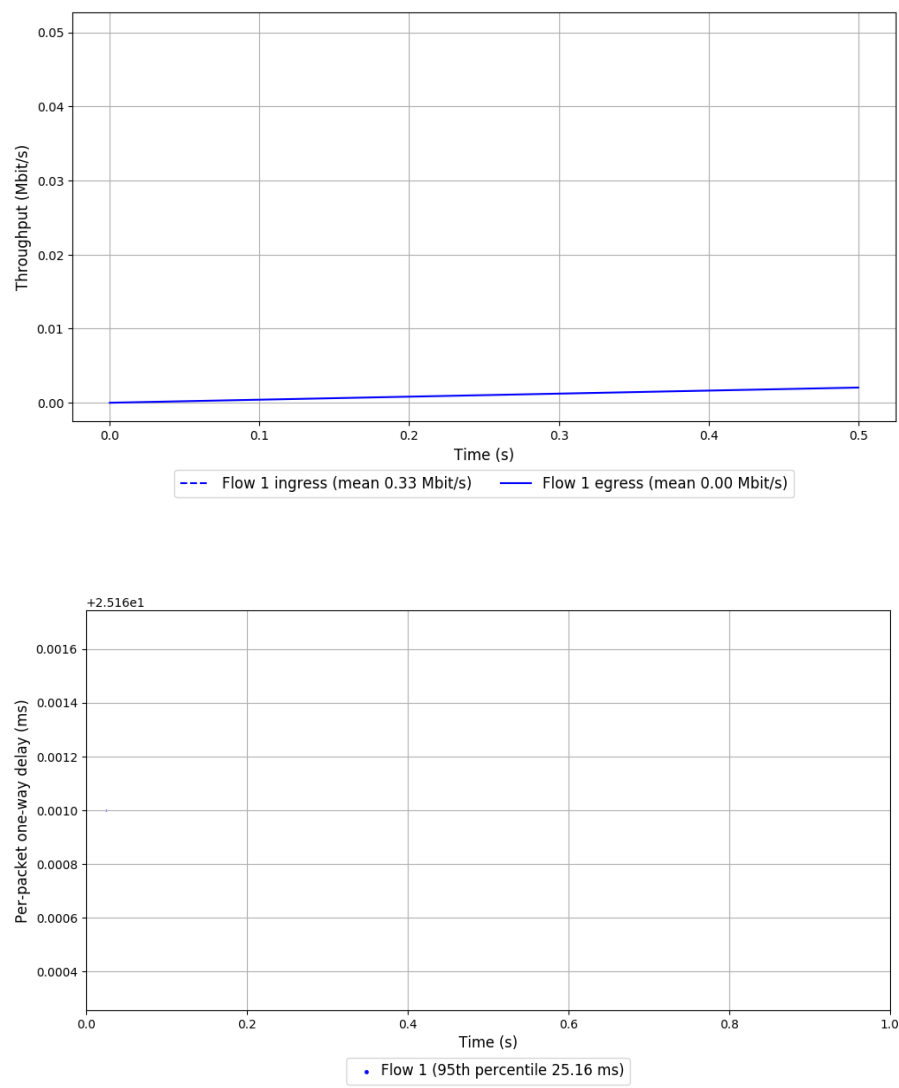
Start at: 2019-02-05 00:53:48

End at: 2019-02-05 00:54:18

Local clock offset: -2.765 ms

Remote clock offset: -5.51 ms

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



Run 2: Statistics of TaoVA-100x

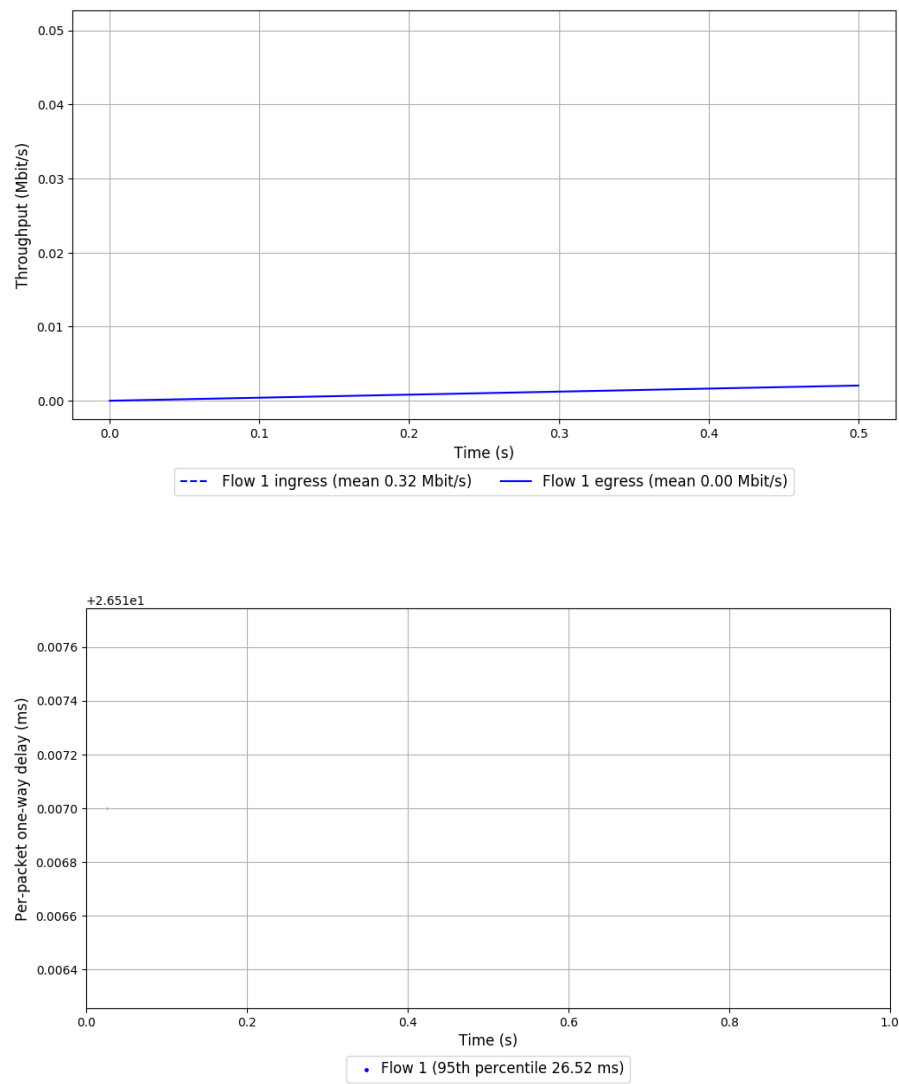
Start at: 2019-02-05 01:17:21

End at: 2019-02-05 01:17:51

Local clock offset: -4.509 ms

Remote clock offset: -4.994 ms

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



Run 3: Statistics of TaoVA-100x

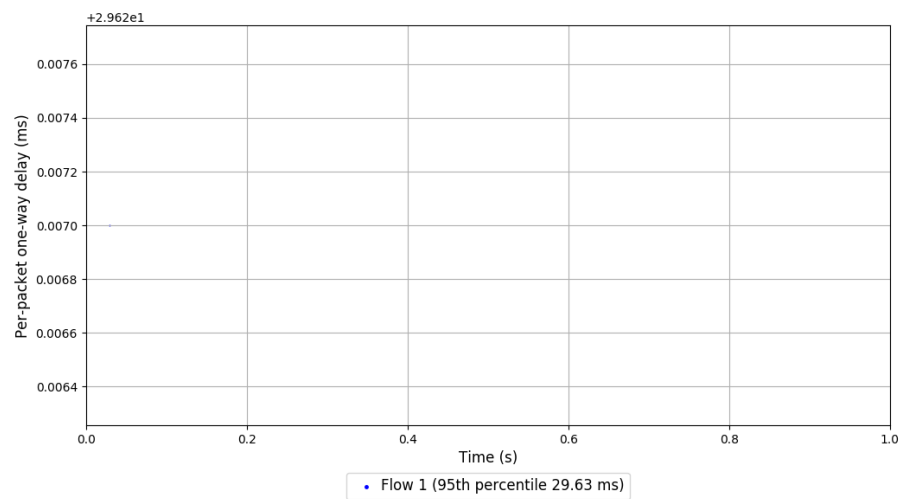
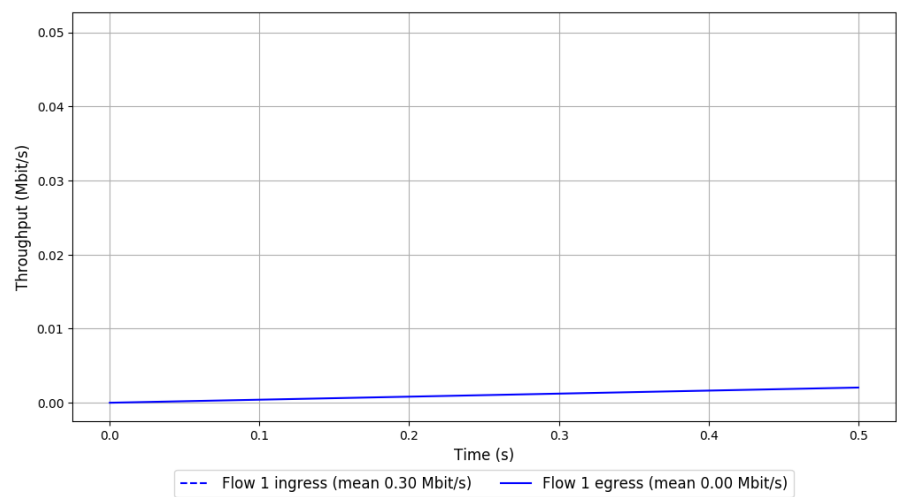
Start at: 2019-02-05 01:40:55

End at: 2019-02-05 01:41:25

Local clock offset: -9.856 ms

Remote clock offset: -5.728 ms

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

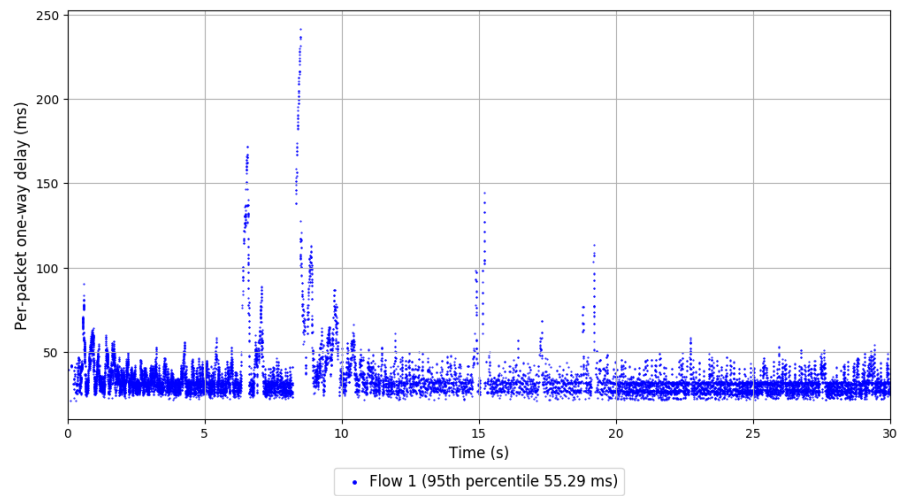
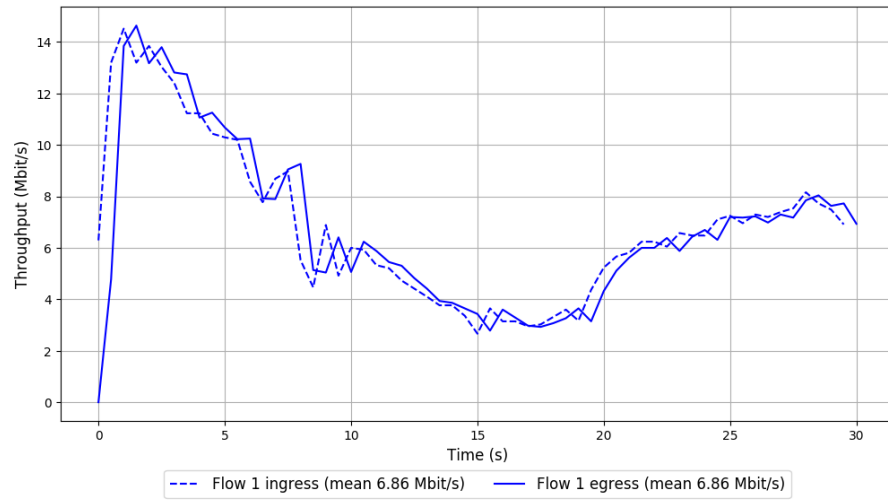


Run 1: Statistics of TCP Vegas

Start at: 2019-02-05 01:02:52
End at: 2019-02-05 01:03:22
Local clock offset: -4.637 ms
Remote clock offset: -6.359 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 6.86 Mbit/s
95th percentile per-packet one-way delay: 55.293 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 6.86 Mbit/s
95th percentile per-packet one-way delay: 55.293 ms
Loss rate: 0.09%

Run 1: Report of TCP Vegas — Data Link

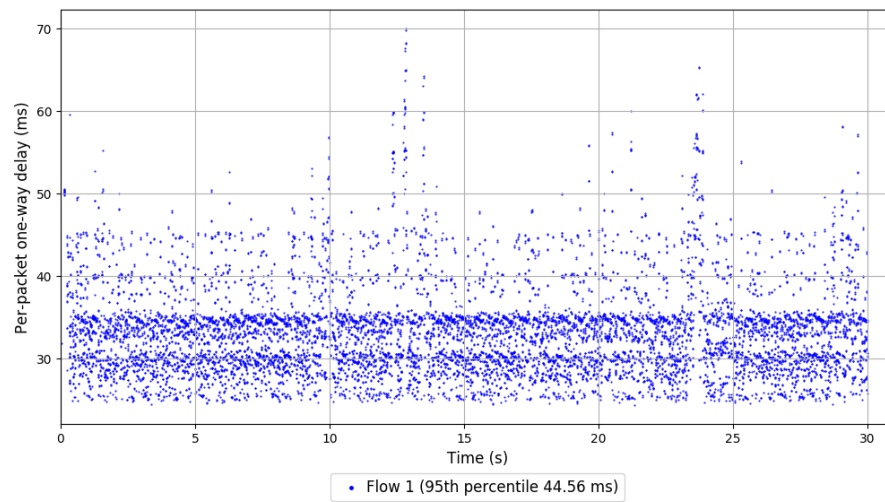
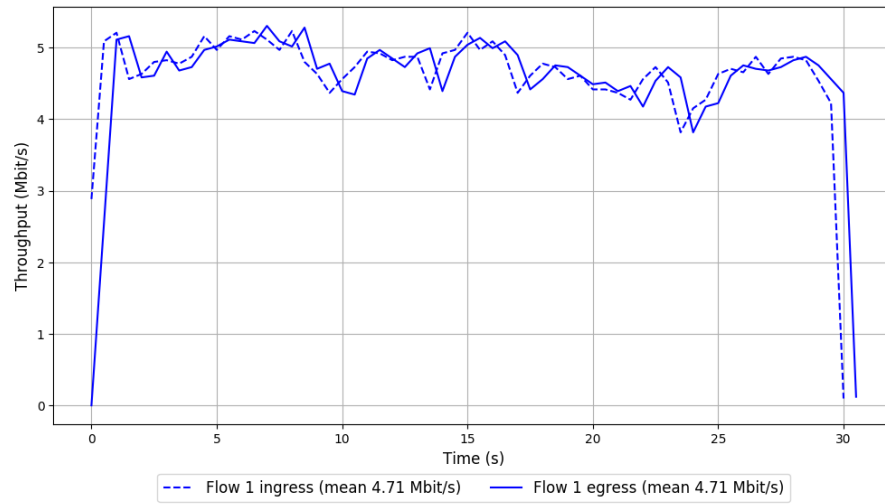


Run 2: Statistics of TCP Vegas

Start at: 2019-02-05 01:26:24
End at: 2019-02-05 01:26:54
Local clock offset: -6.879 ms
Remote clock offset: -5.949 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.71 Mbit/s
95th percentile per-packet one-way delay: 44.558 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 4.71 Mbit/s
95th percentile per-packet one-way delay: 44.558 ms
Loss rate: 0.09%

Run 2: Report of TCP Vegas — Data Link

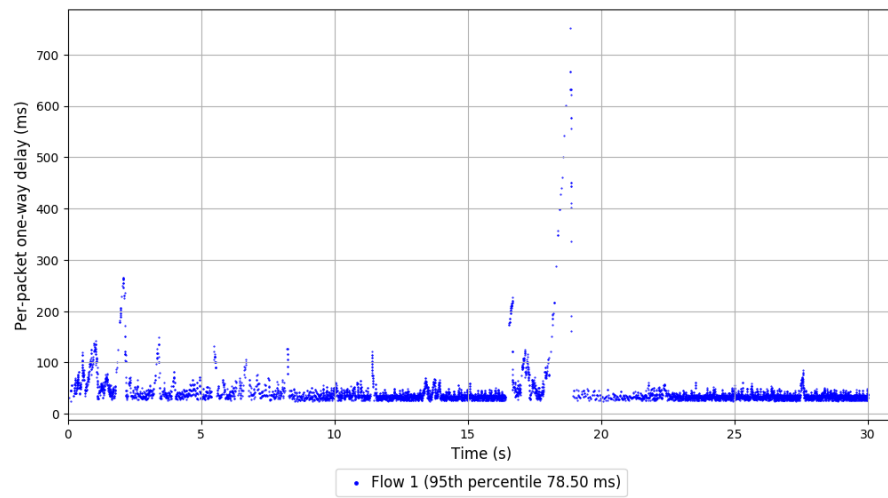
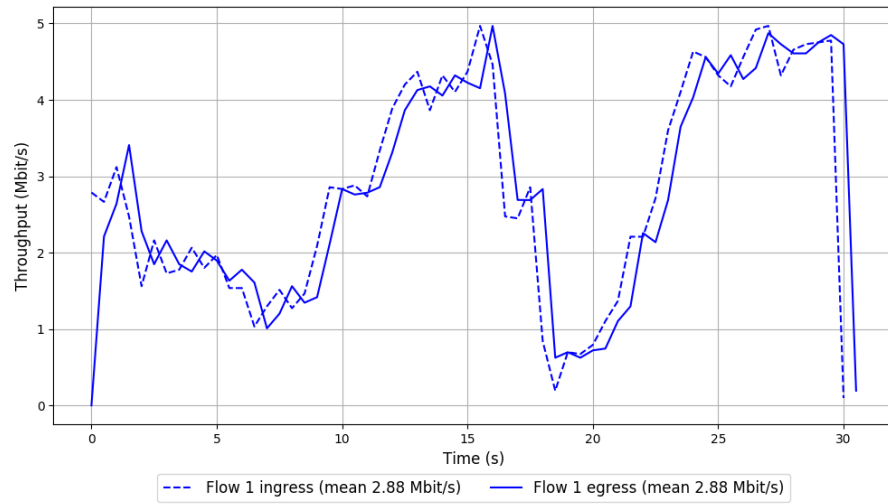


Run 3: Statistics of TCP Vegas

Start at: 2019-02-05 01:50:35
End at: 2019-02-05 01:51:05
Local clock offset: -7.393 ms
Remote clock offset: -5.133 ms

Below is generated by plot.py at 2019-02-05 01:58:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.88 Mbit/s
95th percentile per-packet one-way delay: 78.504 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 2.88 Mbit/s
95th percentile per-packet one-way delay: 78.504 ms
Loss rate: 0.14%

Run 3: Report of TCP Vegas — Data Link

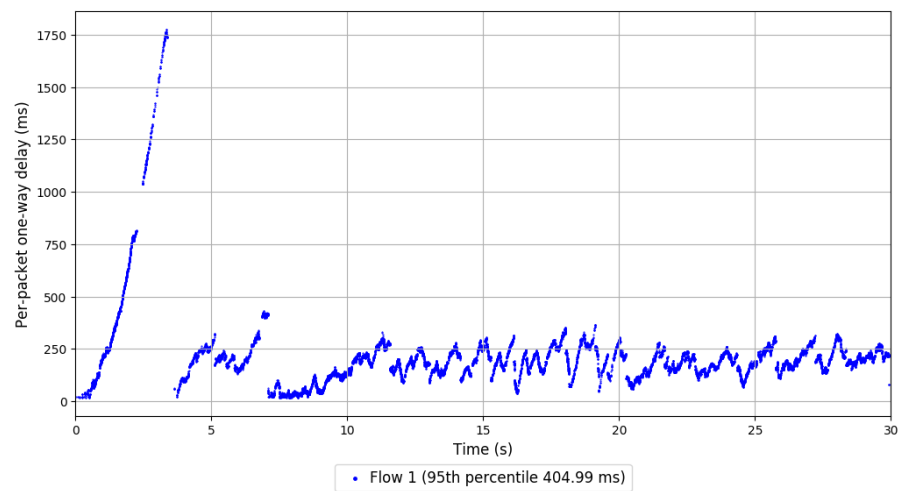
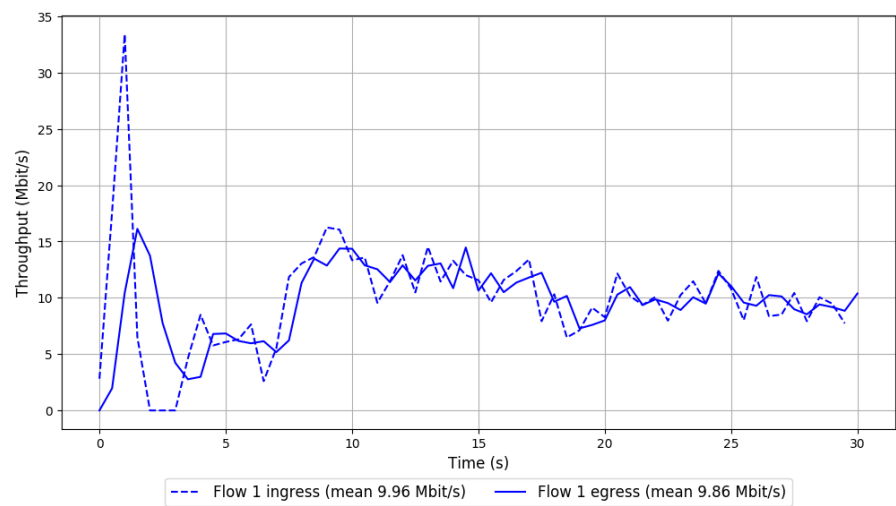


Run 1: Statistics of Verus

Start at: 2019-02-05 00:56:02
End at: 2019-02-05 00:56:32
Local clock offset: -1.208 ms
Remote clock offset: -6.203 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 9.86 Mbit/s
95th percentile per-packet one-way delay: 404.993 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 9.86 Mbit/s
95th percentile per-packet one-way delay: 404.993 ms
Loss rate: 1.03%

Run 1: Report of Verus — Data Link

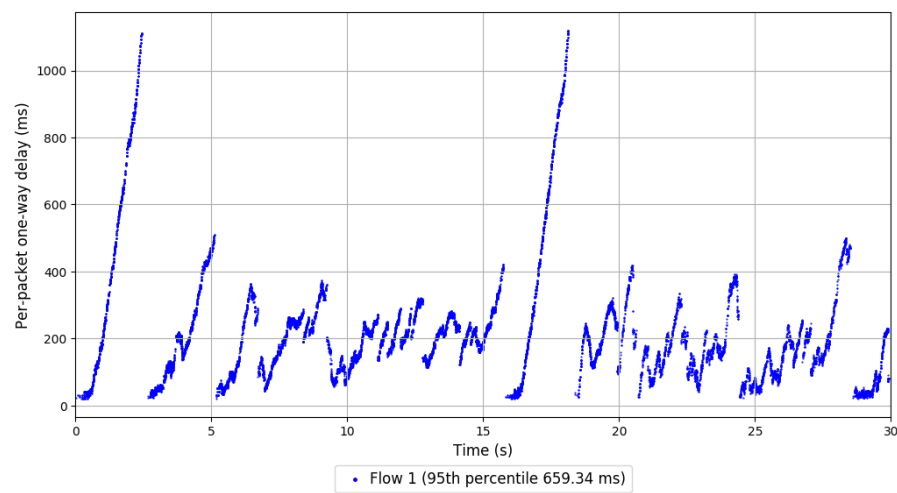
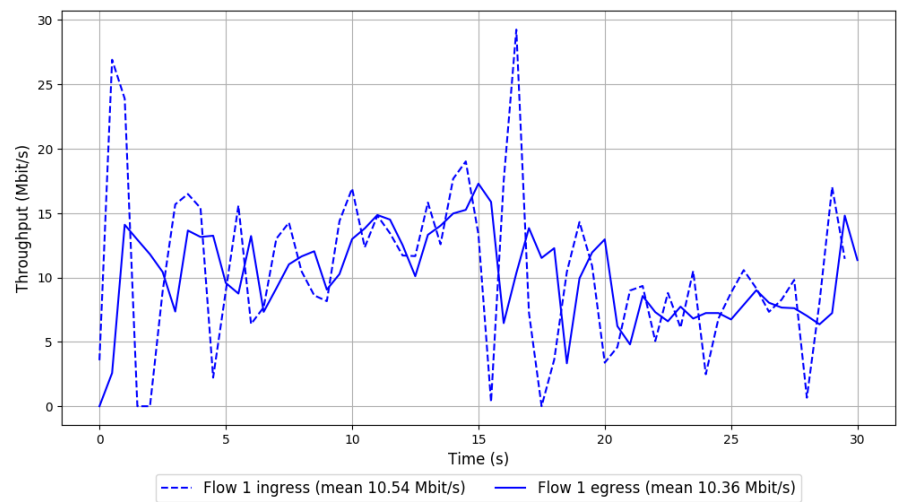


Run 2: Statistics of Verus

Start at: 2019-02-05 01:19:44
End at: 2019-02-05 01:20:14
Local clock offset: -3.985 ms
Remote clock offset: -3.929 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 10.36 Mbit/s
95th percentile per-packet one-way delay: 659.342 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 10.36 Mbit/s
95th percentile per-packet one-way delay: 659.342 ms
Loss rate: 1.76%

Run 2: Report of Verus — Data Link

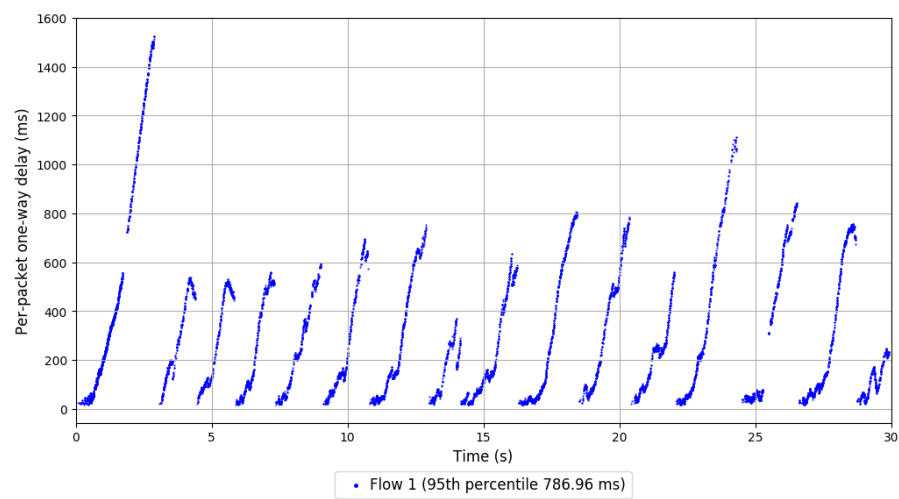
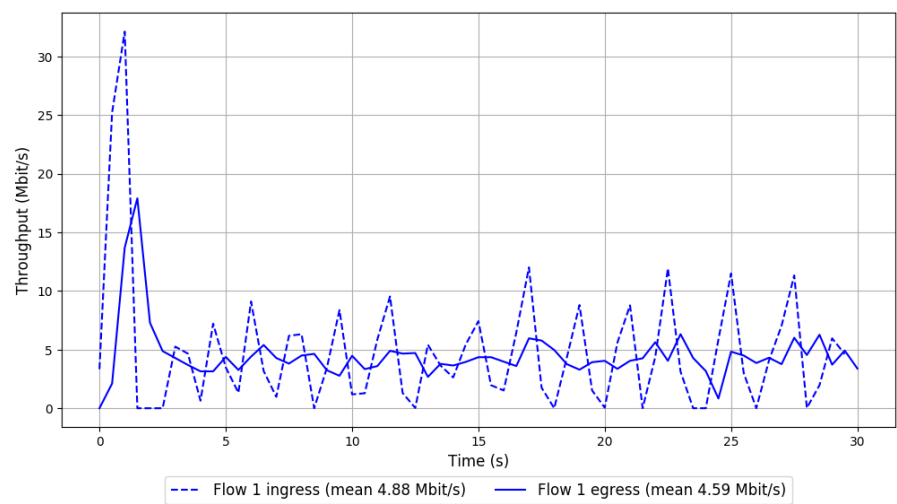


Run 3: Statistics of Verus

Start at: 2019-02-05 01:43:09
End at: 2019-02-05 01:43:39
Local clock offset: -7.761 ms
Remote clock offset: -6.204 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 786.959 ms
Loss rate: 6.01%
-- Flow 1:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 786.959 ms
Loss rate: 6.01%

Run 3: Report of Verus — Data Link

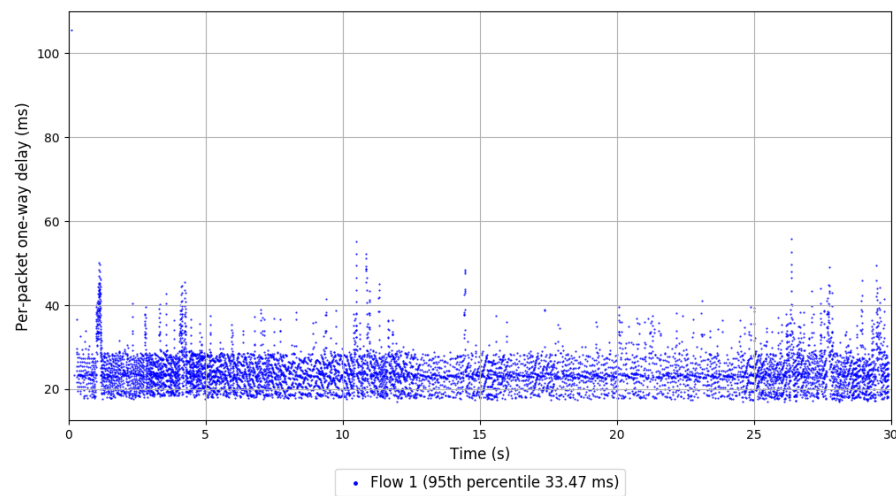
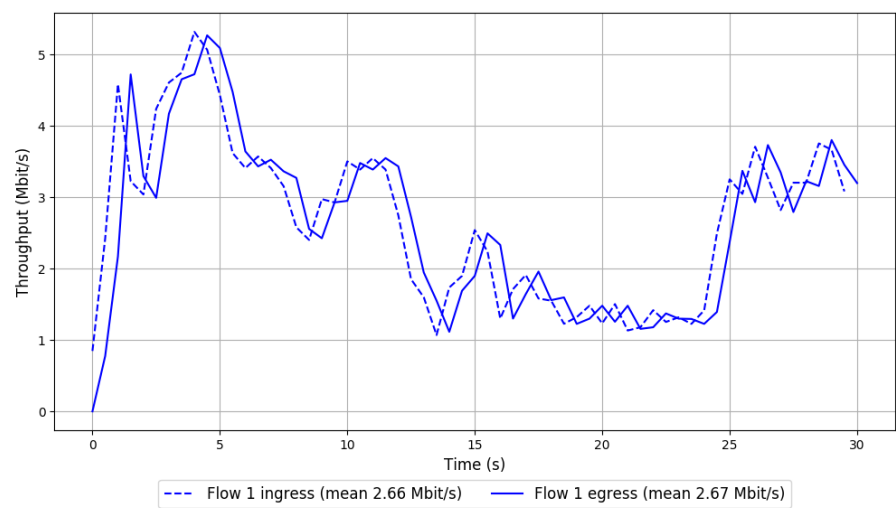


Run 1: Statistics of PCC-Vivace

Start at: 2019-02-05 00:49:21
End at: 2019-02-05 00:49:51
Local clock offset: -0.907 ms
Remote clock offset: -5.704 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.67 Mbit/s
95th percentile per-packet one-way delay: 33.472 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 2.67 Mbit/s
95th percentile per-packet one-way delay: 33.472 ms
Loss rate: 0.13%

Run 1: Report of PCC-Vivace — Data Link

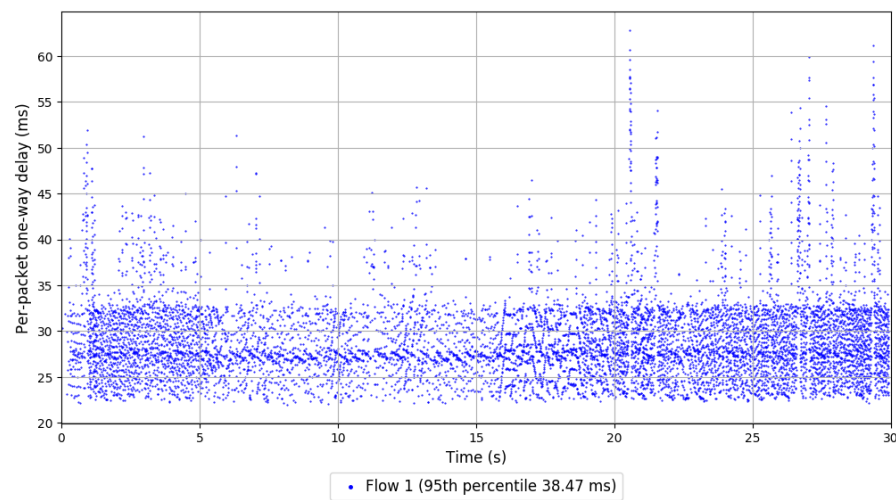
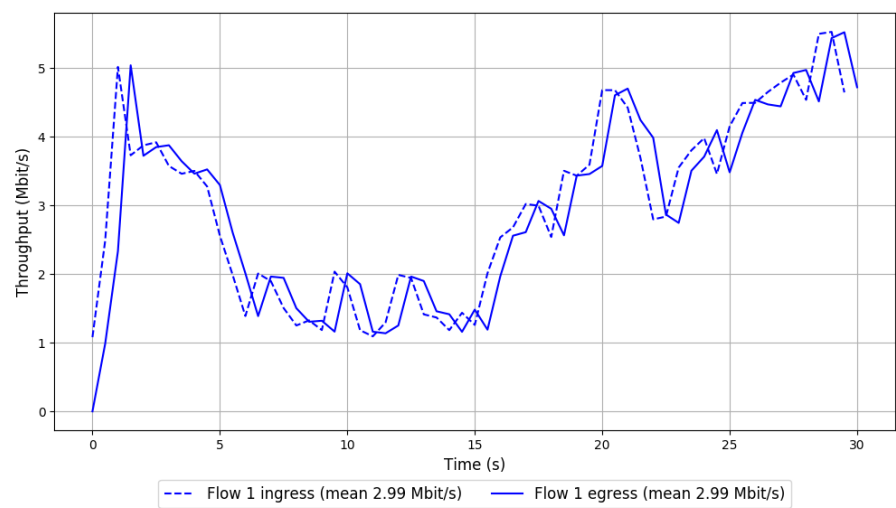


Run 2: Statistics of PCC-Vivace

Start at: 2019-02-05 01:12:52
End at: 2019-02-05 01:13:22
Local clock offset: -4.155 ms
Remote clock offset: -5.581 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 38.472 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 38.472 ms
Loss rate: 0.16%

Run 2: Report of PCC-Vivace — Data Link

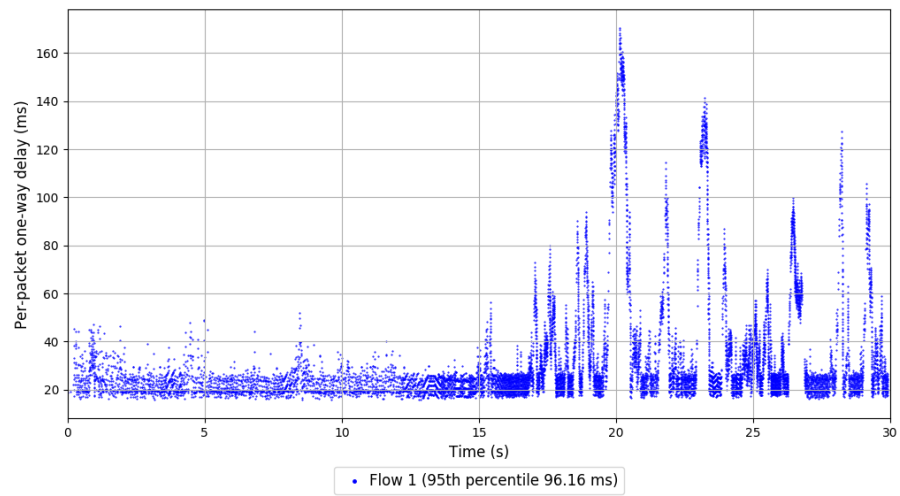
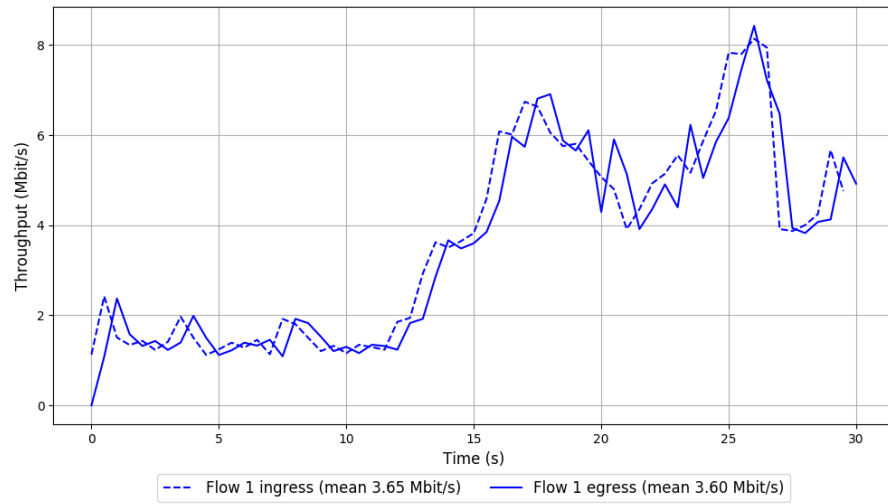


Run 3: Statistics of PCC-Vivace

Start at: 2019-02-05 01:36:29
End at: 2019-02-05 01:36:59
Local clock offset: -5.242 ms
Remote clock offset: -5.871 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 96.155 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 96.155 ms
Loss rate: 1.27%

Run 3: Report of PCC-Vivace — Data Link

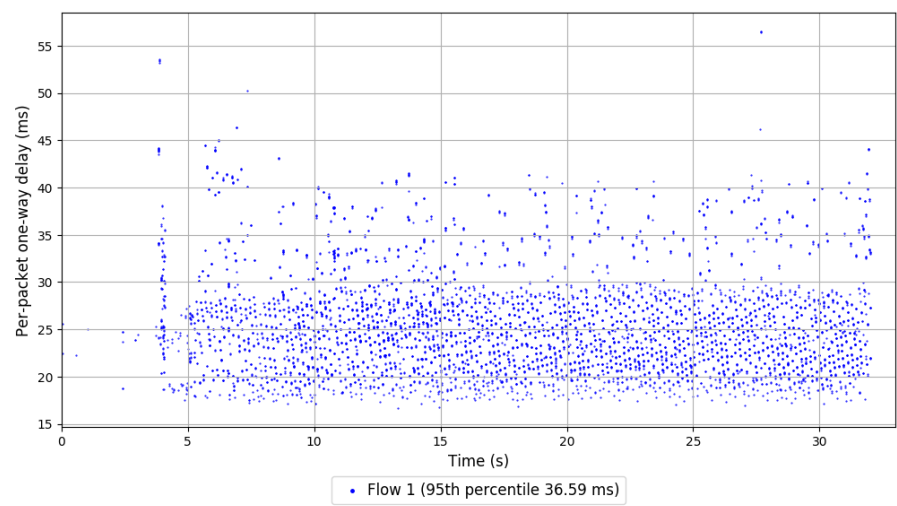
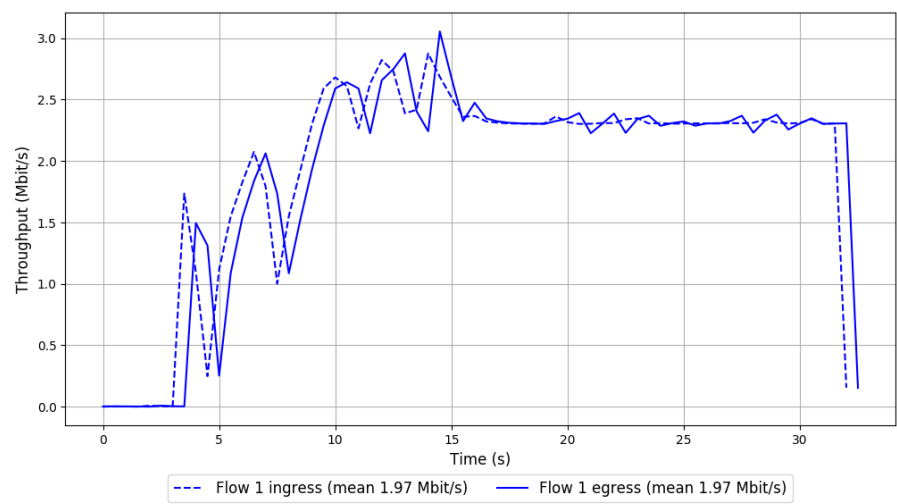


Run 1: Statistics of WebRTC media

Start at: 2019-02-05 00:59:25
End at: 2019-02-05 00:59:56
Local clock offset: -4.679 ms
Remote clock offset: -5.495 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 36.593 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 36.593 ms
Loss rate: 0.12%

Run 1: Report of WebRTC media — Data Link

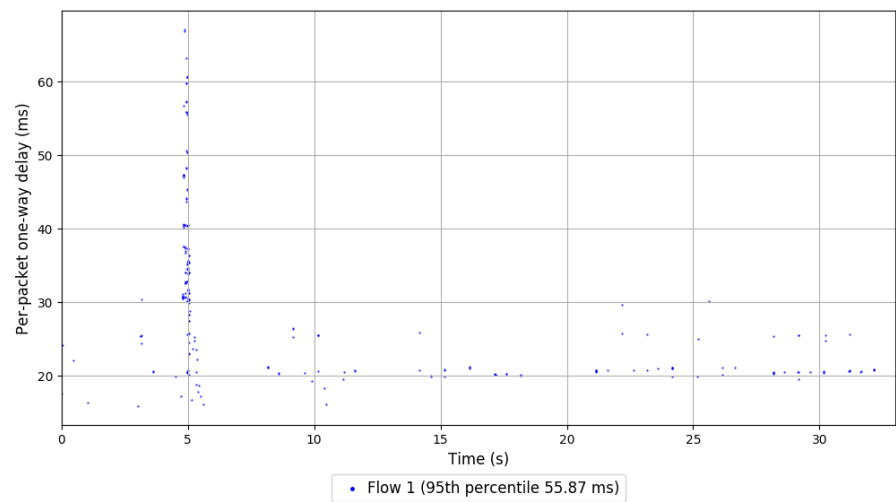
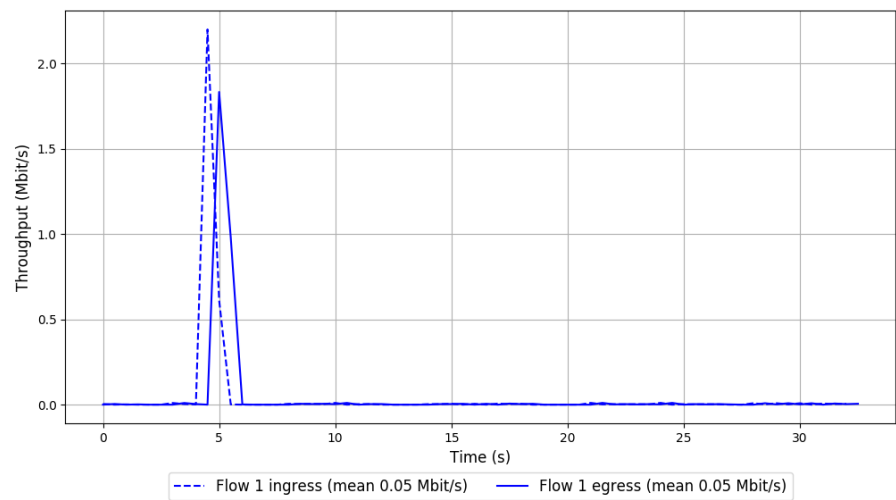


Run 2: Statistics of WebRTC media

Start at: 2019-02-05 01:23:05
End at: 2019-02-05 01:23:35
Local clock offset: -4.499 ms
Remote clock offset: -6.821 ms

Below is generated by plot.py at 2019-02-05 01:59:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 55.868 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 55.868 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2019-02-05 01:47:13

End at: 2019-02-05 01:47:43

Local clock offset: -7.36 ms

Remote clock offset: -6.42 ms

Below is generated by plot.py at 2019-02-05 01:59:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 52.626 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 52.626 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

