

Pantheon Report

Generated at 2019-01-21 20:29:23 (UTC).

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

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:

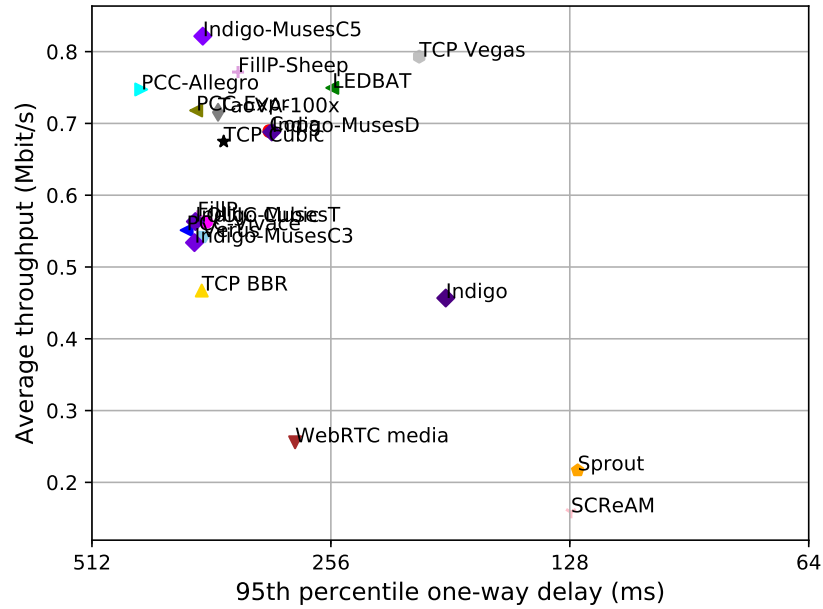
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

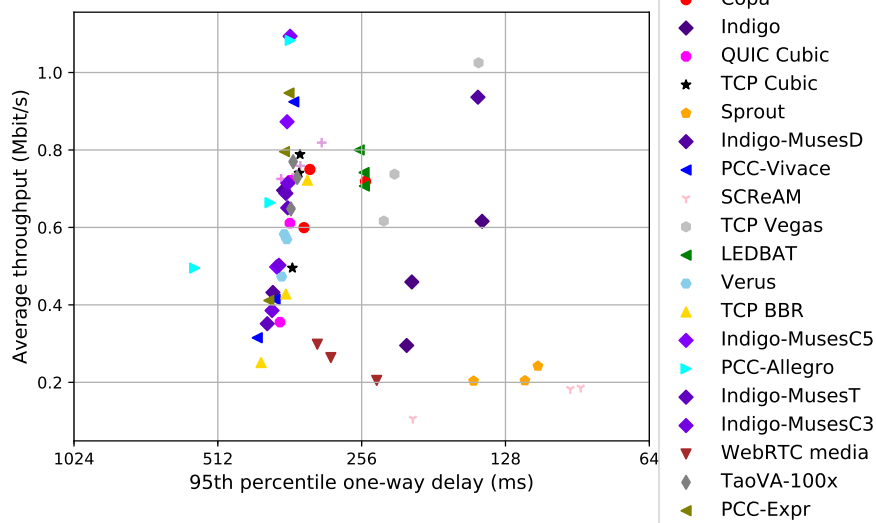
```
branch: muses @ 89d24e57783e7fbfec537a619071de937b639e38
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 1ddcff131048c6962f123bcd22b4d166a422adde
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 India cellular to AWS India 1, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from India cellular to AWS India 1, 3 runs of 30s each per scheme



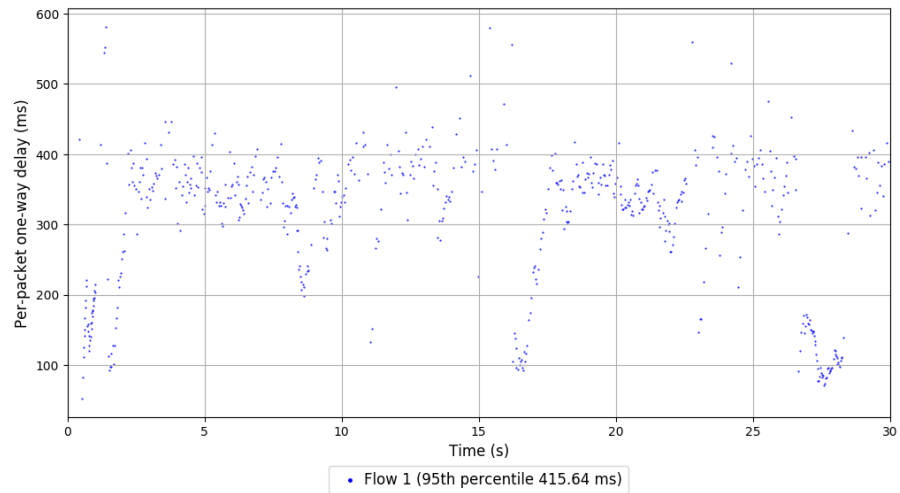
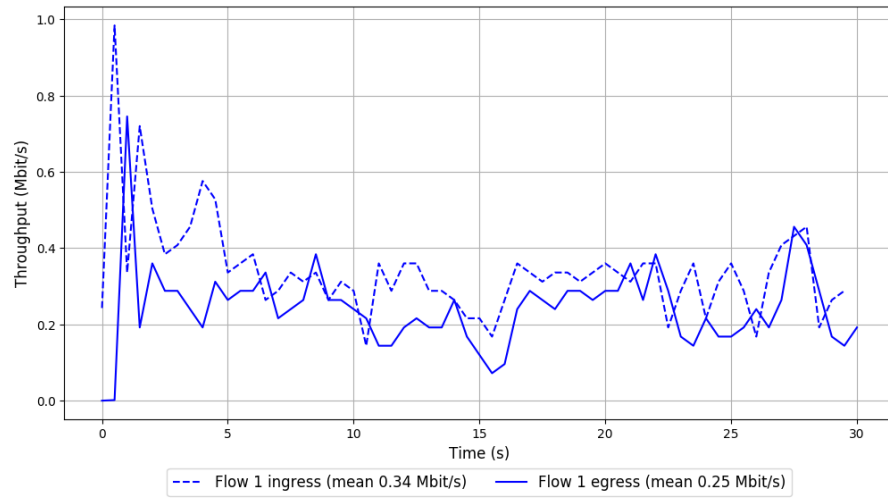
| scheme | # runs | mean avg tput (Mbit/s) flow 1 | mean 95th-%ile delay (ms) flow 1 | mean loss rate (%) flow 1 |
|----------------|--------|----------------------------------|-------------------------------------|------------------------------|
| TCP BBR | 3 | 0.47 | 372.31 | 13.09 |
| Copa | 3 | 0.69 | 305.91 | 1.30 |
| TCP Cubic | 3 | 0.68 | 349.37 | 4.60 |
| FillP | 3 | 0.57 | 376.97 | 36.81 |
| FillP-Sheep | 3 | 0.77 | 335.12 | 5.40 |
| Indigo | 3 | 0.46 | 183.45 | 2.52 |
| Indigo-MusesC3 | 3 | 0.53 | 380.29 | 45.64 |
| Indigo-MusesC5 | 3 | 0.82 | 371.22 | 60.38 |
| Indigo-MusesD | 3 | 0.69 | 303.89 | 35.49 |
| Indigo-MusesT | 3 | 0.56 | 379.31 | 36.41 |
| LEDBAT | 3 | 0.75 | 254.96 | 0.64 |
| PCC-Allegro | 3 | 0.75 | 443.81 | 83.36 |
| PCC-Expr | 3 | 0.72 | 378.40 | 90.14 |
| QUIC Cubic | 3 | 0.56 | 367.44 | 15.18 |
| SCReAM | 3 | 0.16 | 127.57 | 0.48 |
| Sprout | 3 | 0.21 | 125.12 | 0.26 |
| TaoVA-100x | 3 | 0.72 | 355.12 | 30.52 |
| TCP Vegas | 3 | 0.80 | 198.13 | 1.12 |
| Verus | 3 | 0.54 | 371.77 | 31.98 |
| PCC-Vivace | 3 | 0.55 | 389.05 | 55.64 |
| WebRTC media | 3 | 0.26 | 284.00 | 5.71 |

Run 1: Statistics of TCP BBR

Start at: 2019-01-21 19:18:49
End at: 2019-01-21 19:19:19
Local clock offset: -0.277 ms
Remote clock offset: -5.018 ms

Below is generated by plot.py at 2019-01-21 20:28:44
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 415.639 ms
Loss rate: 27.46%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 415.639 ms
Loss rate: 27.46%

Run 1: Report of TCP BBR — Data Link

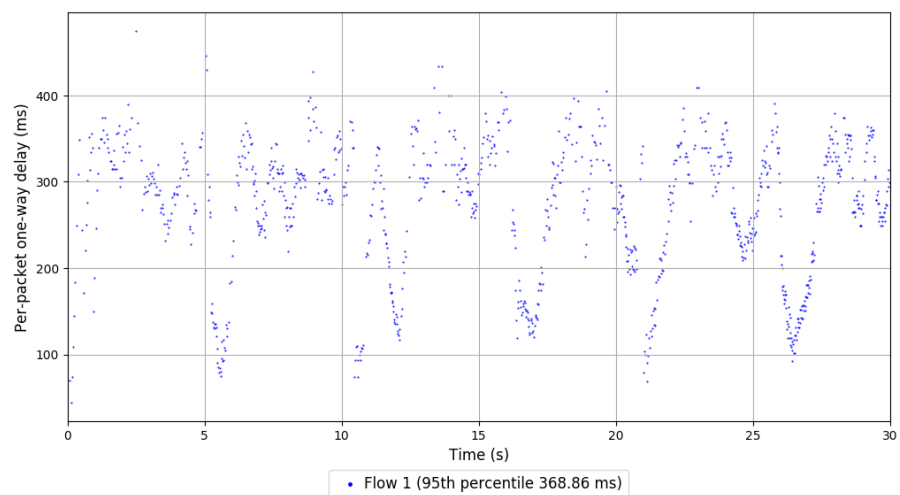
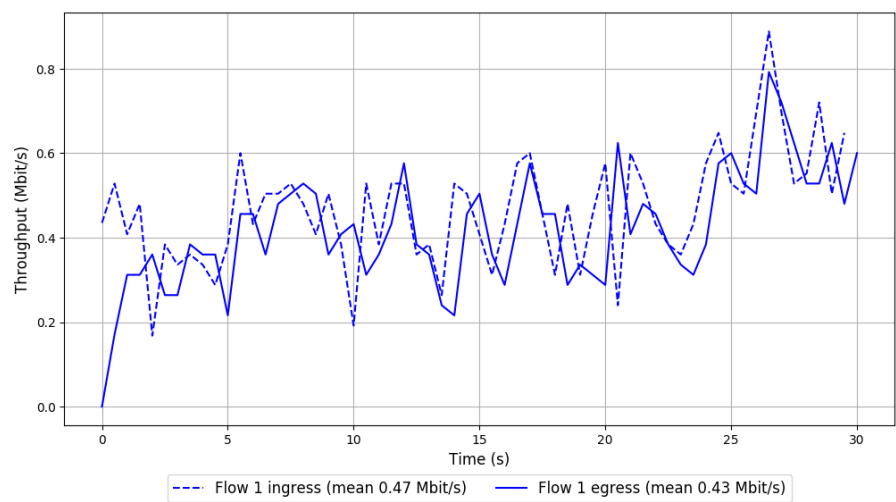


Run 2: Statistics of TCP BBR

Start at: 2019-01-21 19:42:16
End at: 2019-01-21 19:42:46
Local clock offset: -0.302 ms
Remote clock offset: -6.117 ms

Below is generated by plot.py at 2019-01-21 20:28:45
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 368.859 ms
Loss rate: 8.65%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 368.859 ms
Loss rate: 8.65%

Run 2: Report of TCP BBR — Data Link

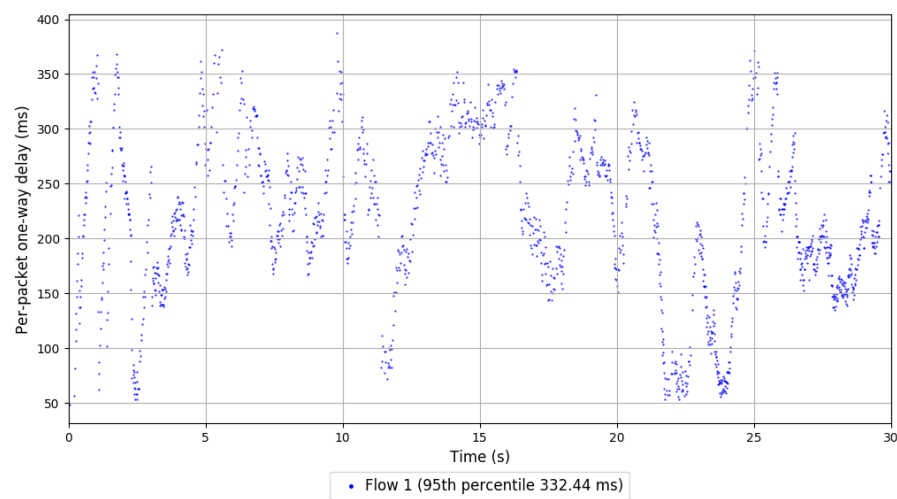
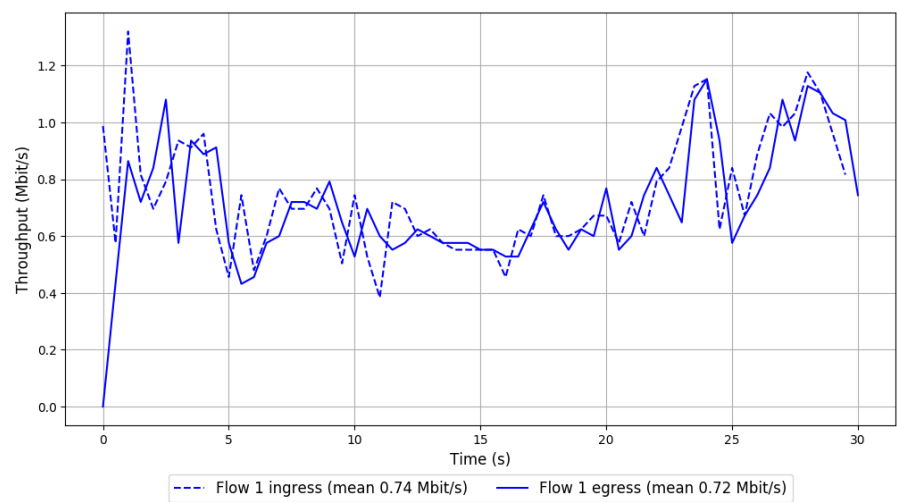


Run 3: Statistics of TCP BBR

Start at: 2019-01-21 20:05:46
End at: 2019-01-21 20:06:16
Local clock offset: -0.267 ms
Remote clock offset: -5.118 ms

Below is generated by plot.py at 2019-01-21 20:28:47
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 332.445 ms
Loss rate: 3.17%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 332.445 ms
Loss rate: 3.17%

Run 3: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2019-01-21 19:34:31

End at: 2019-01-21 19:35:01

Local clock offset: 1.896 ms

Remote clock offset: -4.18 ms

Below is generated by plot.py at 2019-01-21 20:28:47

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 337.966 ms

Loss rate: 1.99%

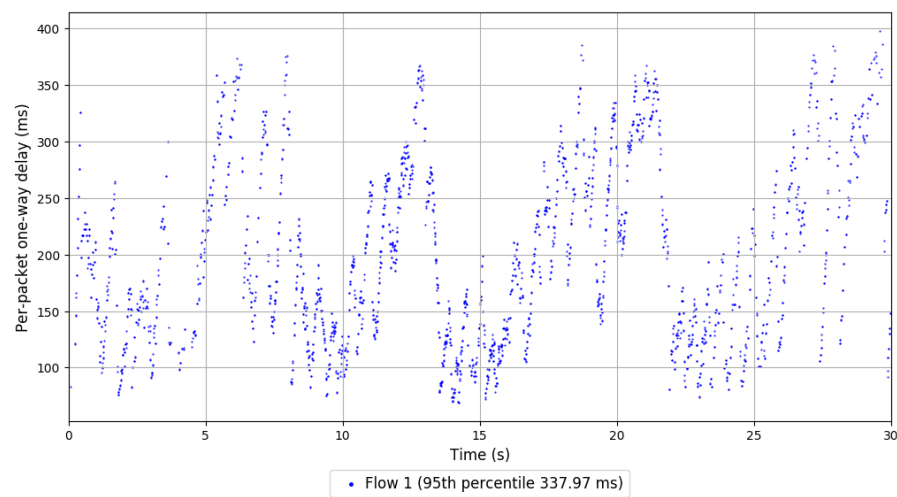
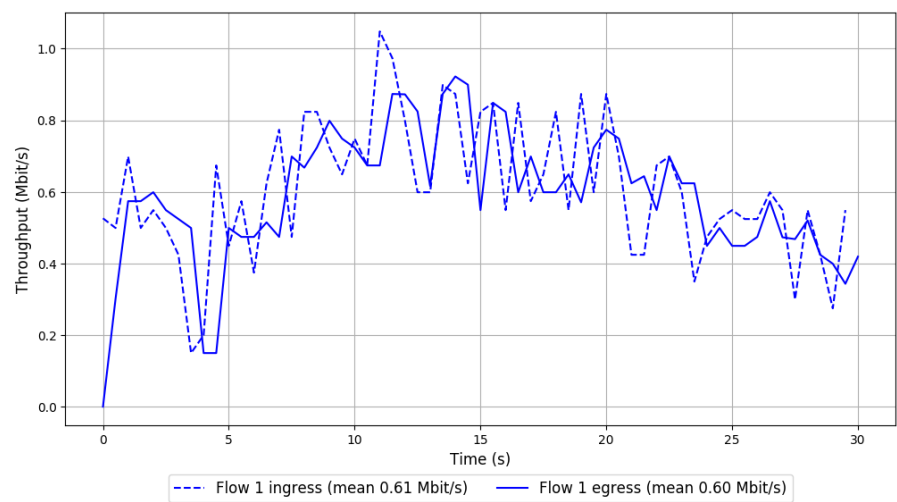
-- Flow 1:

Average throughput: 0.60 Mbit/s

95th percentile per-packet one-way delay: 337.966 ms

Loss rate: 1.99%

Run 1: Report of Copa — Data Link

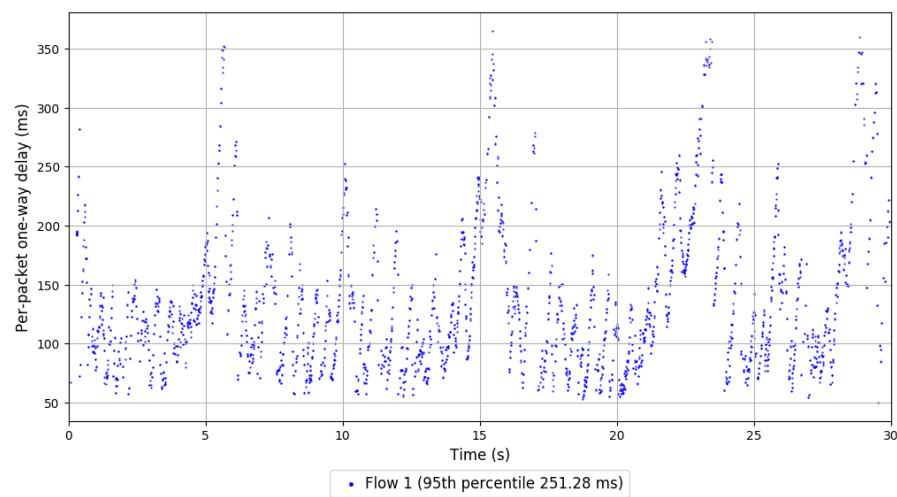
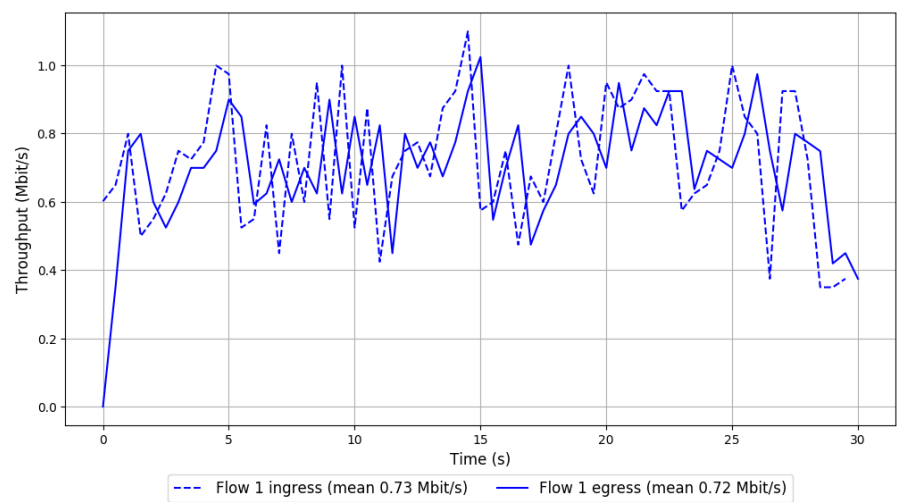


Run 2: Statistics of Copa

Start at: 2019-01-21 19:57:59
End at: 2019-01-21 19:58:29
Local clock offset: -2.352 ms
Remote clock offset: -3.794 ms

Below is generated by plot.py at 2019-01-21 20:28:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 251.281 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 251.281 ms
Loss rate: 0.98%

Run 2: Report of Copa — Data Link

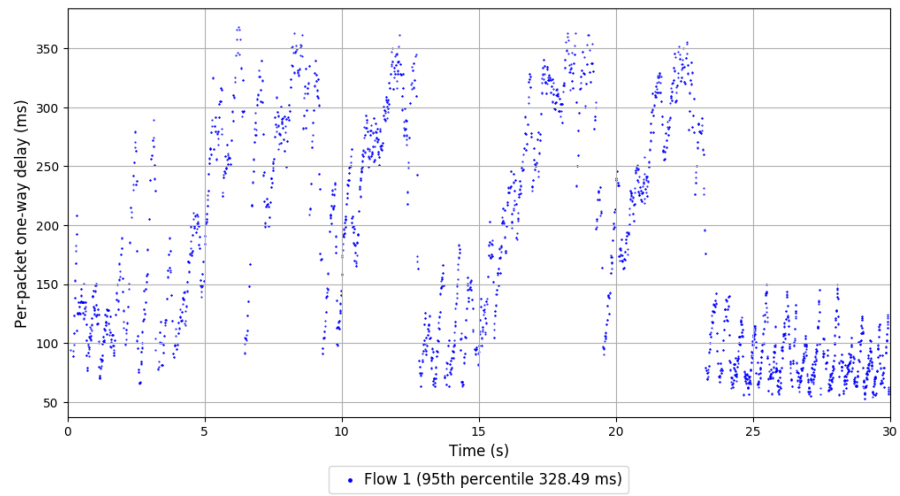
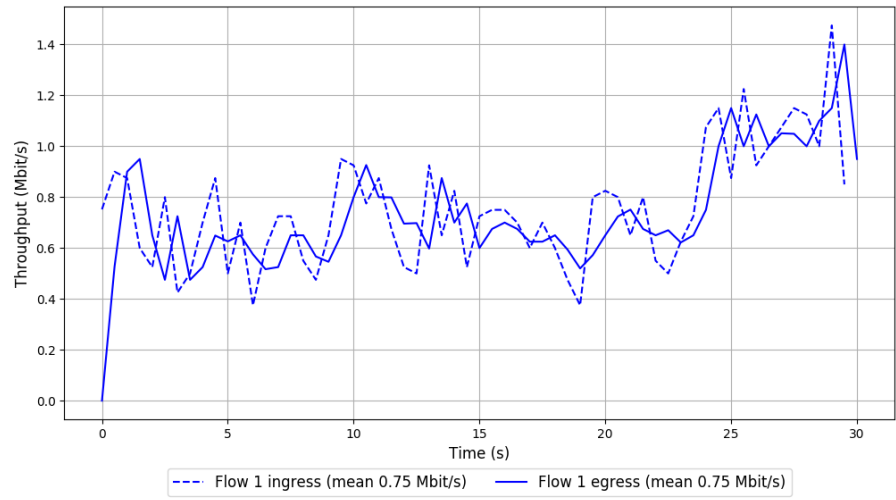


Run 3: Statistics of Copa

Start at: 2019-01-21 20:21:29
End at: 2019-01-21 20:21:59
Local clock offset: -4.977 ms
Remote clock offset: -11.426 ms

Below is generated by plot.py at 2019-01-21 20:28:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 328.491 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 328.491 ms
Loss rate: 0.94%

Run 3: Report of Copa — Data Link

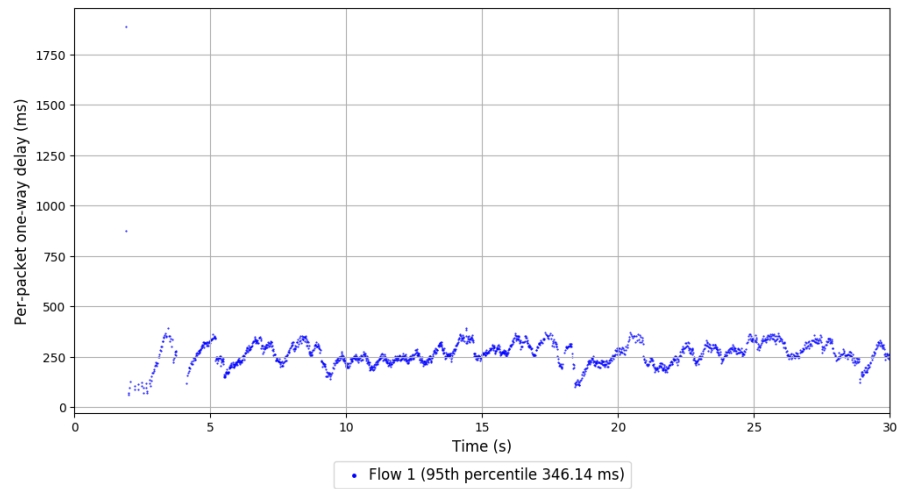
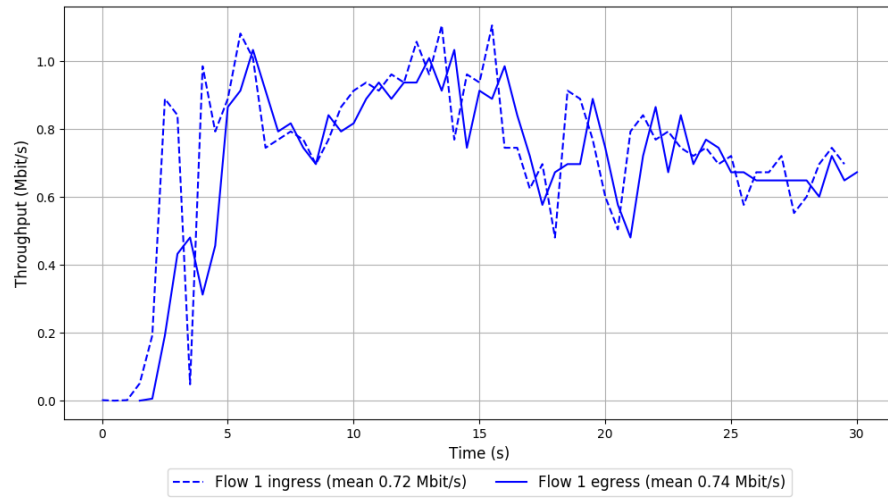


Run 1: Statistics of TCP Cubic

Start at: 2019-01-21 19:38:57
End at: 2019-01-21 19:39:27
Local clock offset: 0.921 ms
Remote clock offset: -5.919 ms

Below is generated by plot.py at 2019-01-21 20:28:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 346.145 ms
Loss rate: 4.26%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 346.145 ms
Loss rate: 4.26%

Run 1: Report of TCP Cubic — Data Link

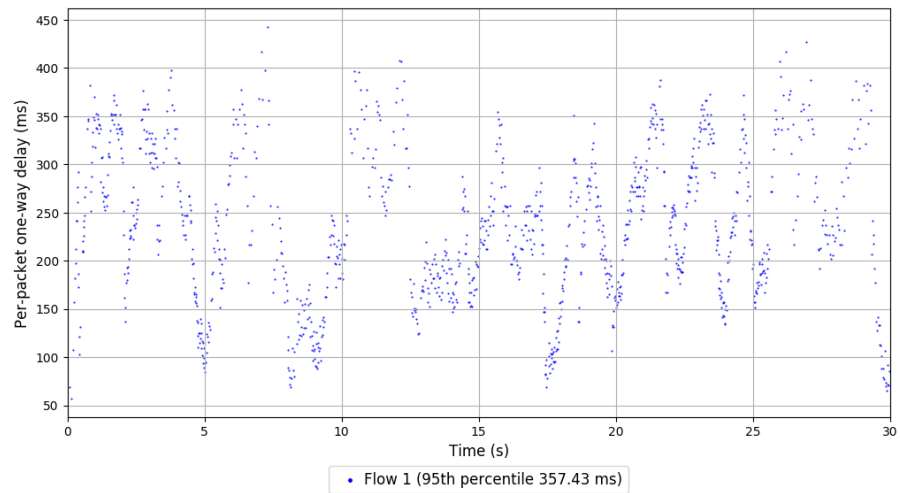
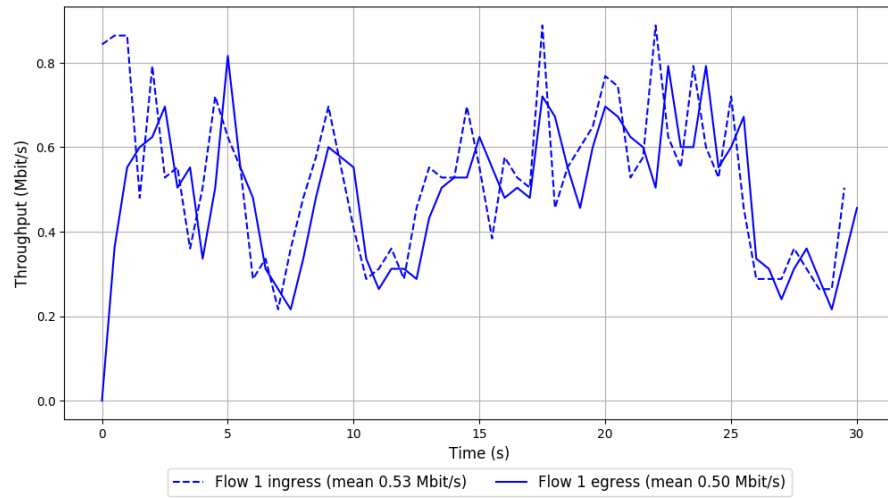


Run 2: Statistics of TCP Cubic

Start at: 2019-01-21 20:02:25
End at: 2019-01-21 20:02:55
Local clock offset: -0.487 ms
Remote clock offset: -5.308 ms

Below is generated by plot.py at 2019-01-21 20:28:48
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 357.431 ms
Loss rate: 6.37%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 357.431 ms
Loss rate: 6.37%

Run 2: Report of TCP Cubic — Data Link

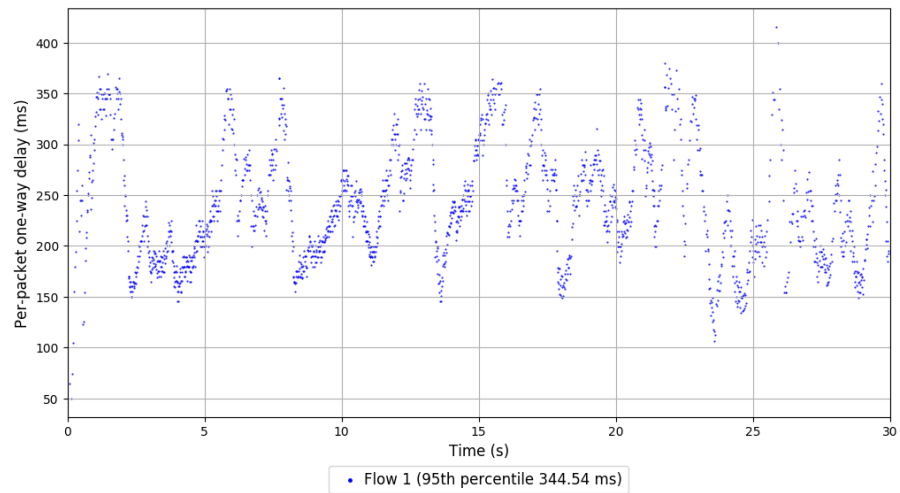
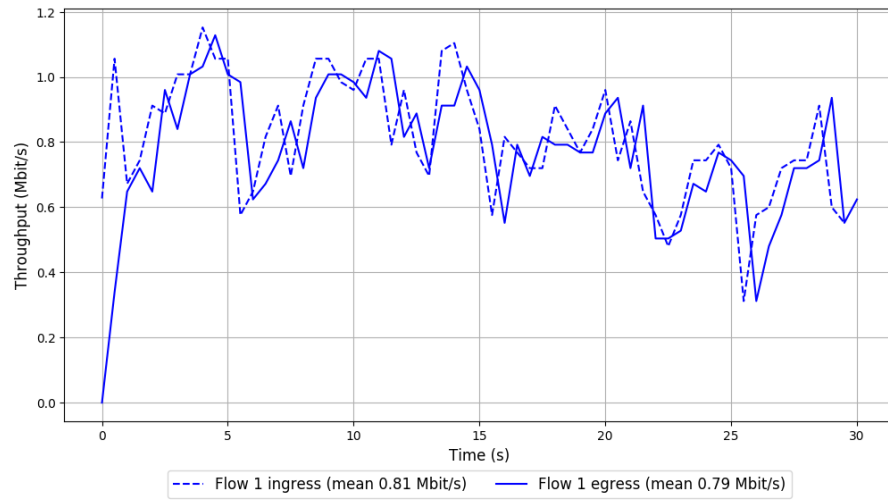


Run 3: Statistics of TCP Cubic

Start at: 2019-01-21 20:25:55
End at: 2019-01-21 20:26:25
Local clock offset: -3.796 ms
Remote clock offset: -5.799 ms

Below is generated by plot.py at 2019-01-21 20:28:49
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 344.540 ms
Loss rate: 3.16%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 344.540 ms
Loss rate: 3.16%

Run 3: Report of TCP Cubic — Data Link

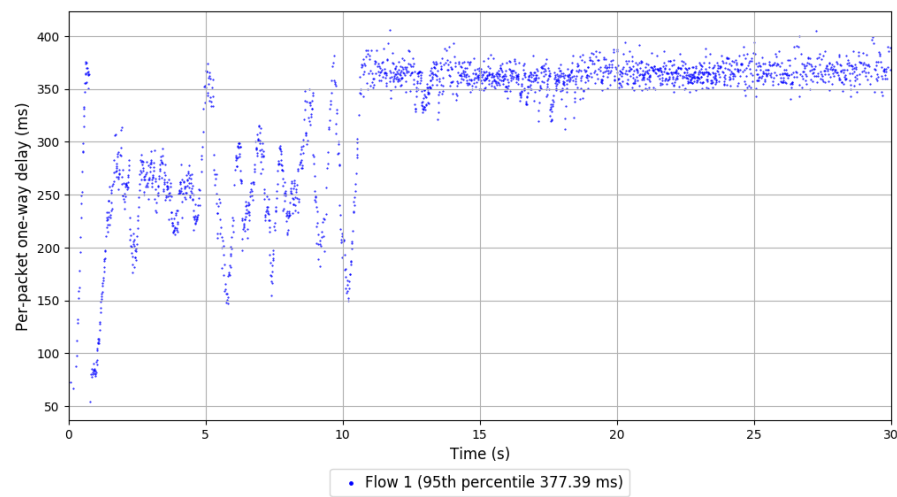
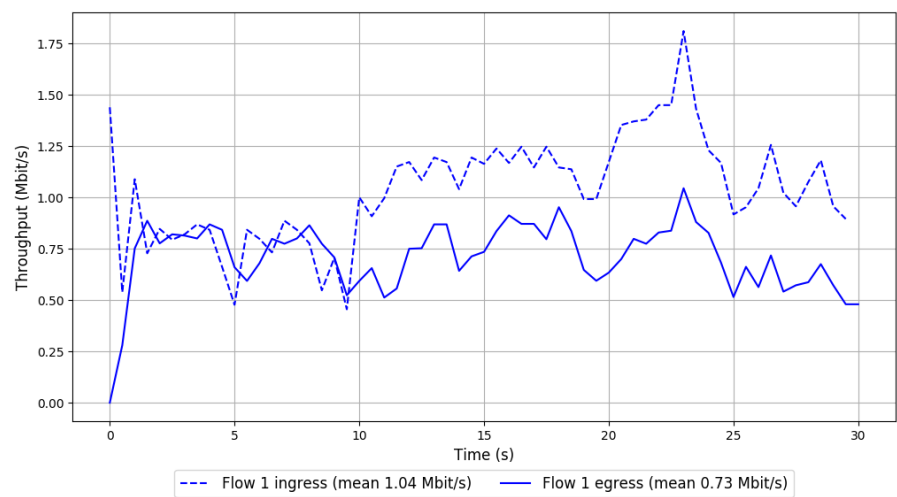


Run 1: Statistics of FillP

Start at: 2019-01-21 19:22:10
End at: 2019-01-21 19:22:40
Local clock offset: -0.37 ms
Remote clock offset: -6.478 ms

Below is generated by plot.py at 2019-01-21 20:28:50
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 377.392 ms
Loss rate: 30.25%
-- Flow 1:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 377.392 ms
Loss rate: 30.25%

Run 1: Report of FillP — Data Link

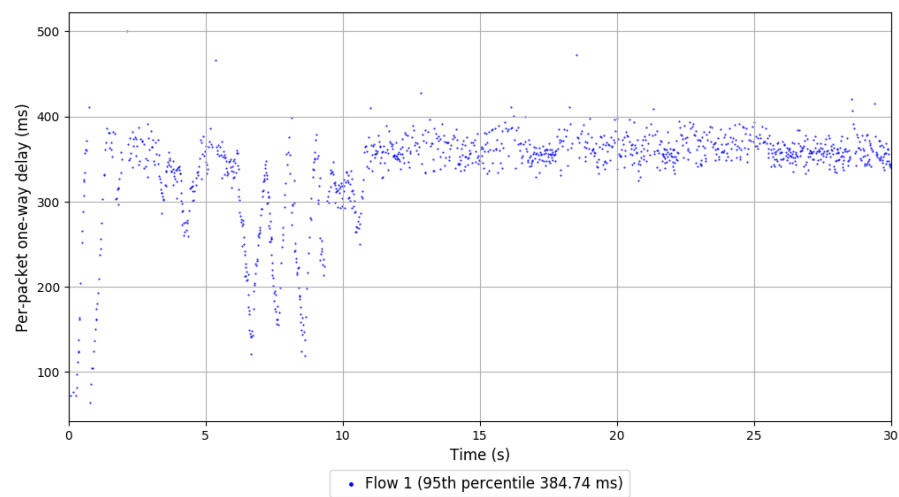
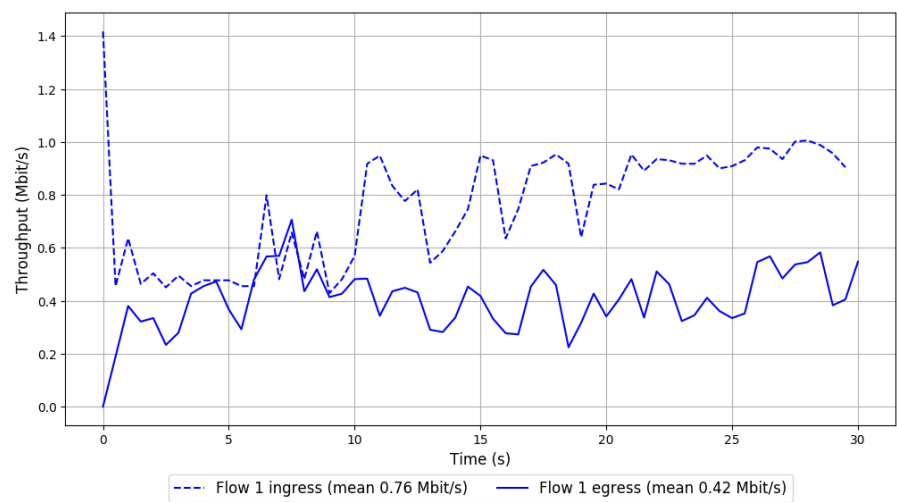


Run 2: Statistics of FillP

Start at: 2019-01-21 19:45:37
End at: 2019-01-21 19:46:07
Local clock offset: 0.938 ms
Remote clock offset: -4.854 ms

Below is generated by plot.py at 2019-01-21 20:28:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 384.736 ms
Loss rate: 45.69%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 384.736 ms
Loss rate: 45.69%

Run 2: Report of FillP — Data Link

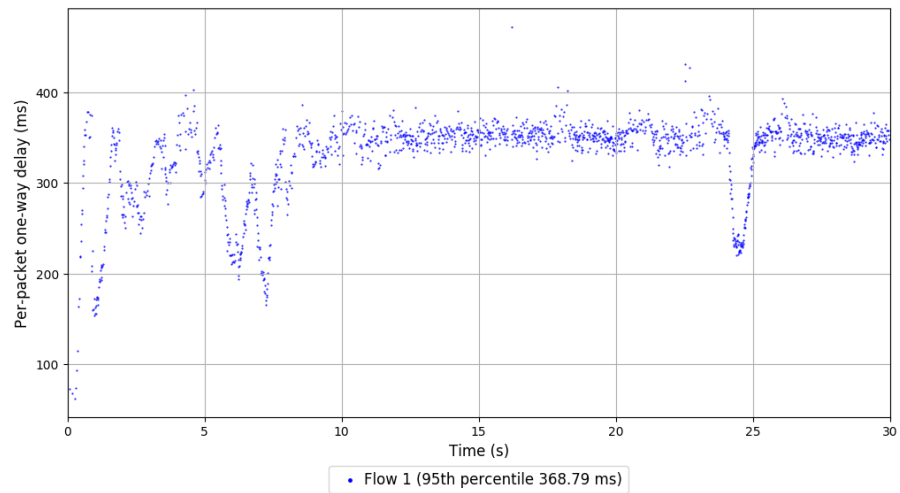
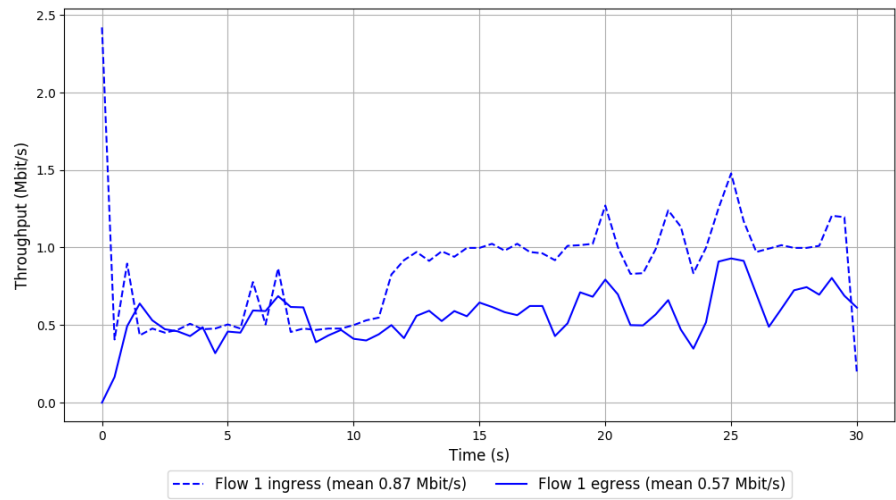


Run 3: Statistics of FillP

Start at: 2019-01-21 20:09:08
End at: 2019-01-21 20:09:38
Local clock offset: -0.101 ms
Remote clock offset: -7.161 ms

Below is generated by plot.py at 2019-01-21 20:28:51
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 368.794 ms
Loss rate: 34.50%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 368.794 ms
Loss rate: 34.50%

Run 3: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2019-01-21 19:36:44

End at: 2019-01-21 19:37:14

Local clock offset: 0.372 ms

Remote clock offset: -4.312 ms

Below is generated by plot.py at 2019-01-21 20:28:52

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.76 Mbit/s

95th percentile per-packet one-way delay: 344.019 ms

Loss rate: 5.07%

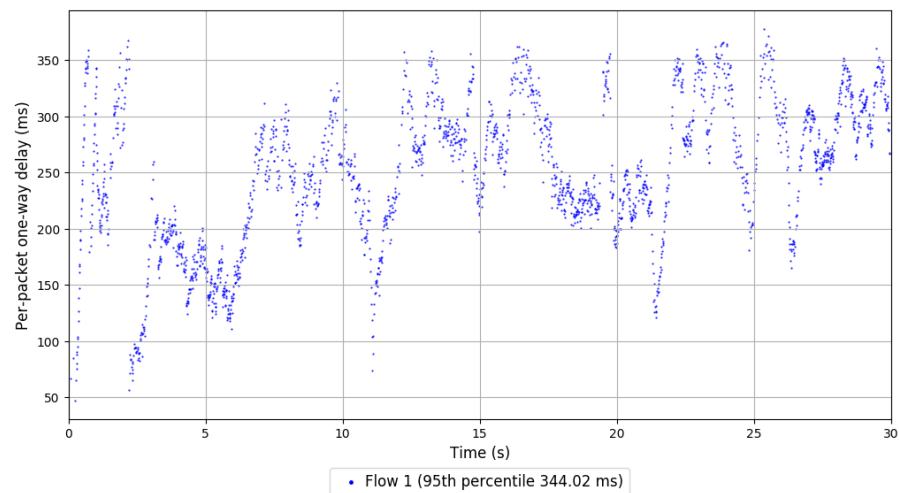
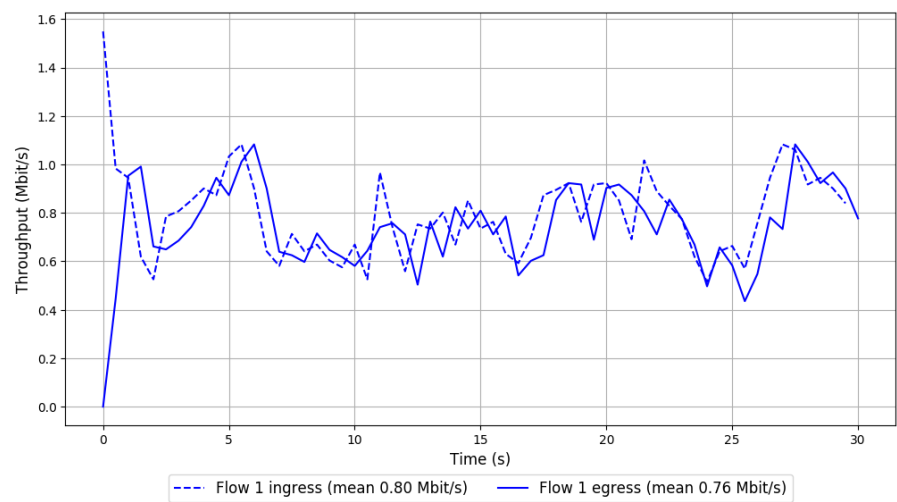
-- Flow 1:

Average throughput: 0.76 Mbit/s

95th percentile per-packet one-way delay: 344.019 ms

Loss rate: 5.07%

Run 1: Report of FillP-Sheep — Data Link

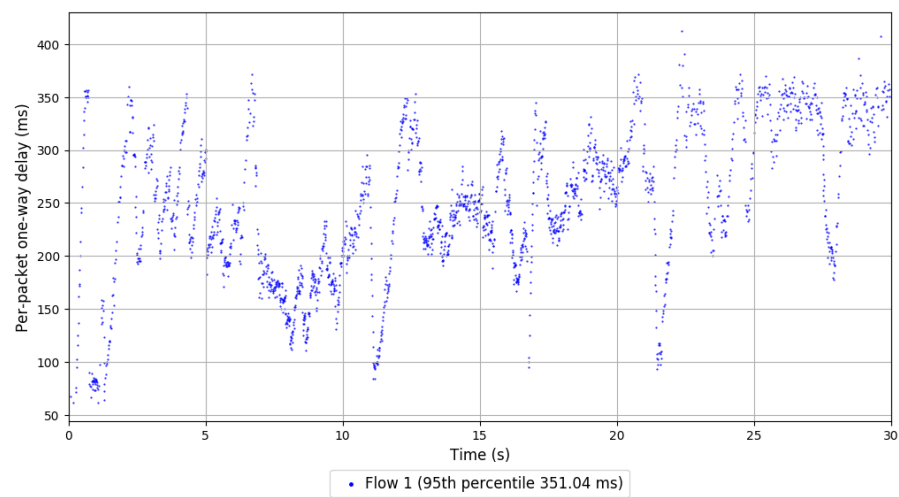
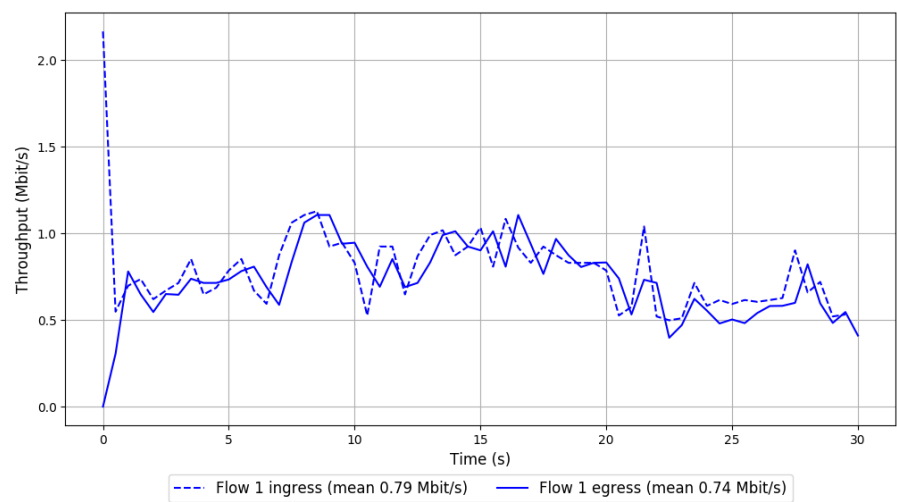


Run 2: Statistics of FillP-Sheep

Start at: 2019-01-21 20:00:11
End at: 2019-01-21 20:00:41
Local clock offset: -0.033 ms
Remote clock offset: -6.966 ms

Below is generated by plot.py at 2019-01-21 20:28:52
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 351.039 ms
Loss rate: 7.24%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 351.039 ms
Loss rate: 7.24%

Run 2: Report of FillP-Sheep — Data Link

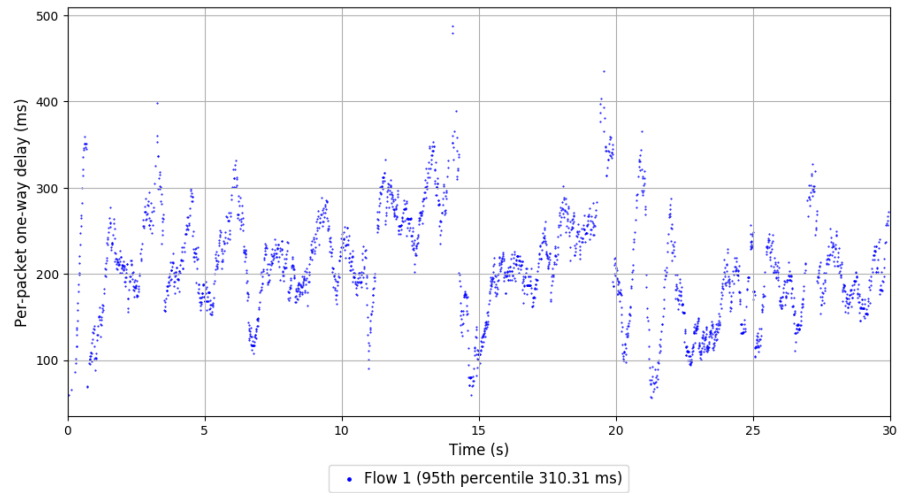
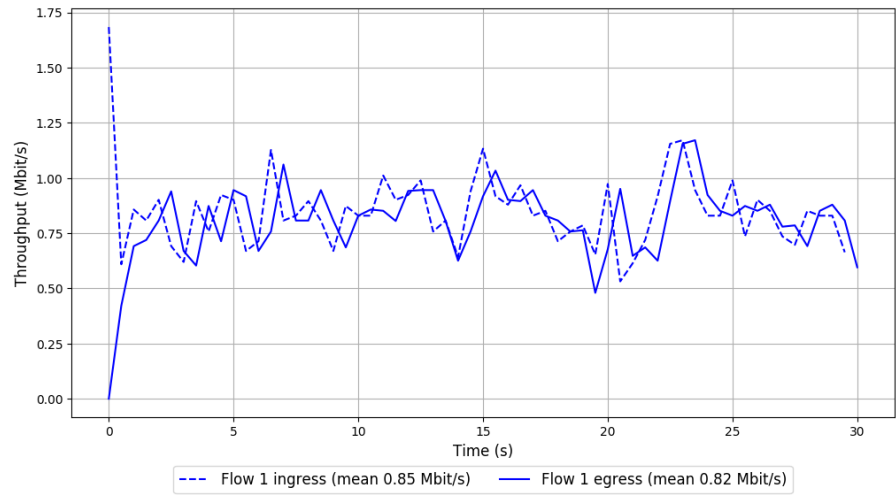


Run 3: Statistics of FillP-Sheep

Start at: 2019-01-21 20:23:41
End at: 2019-01-21 20:24:11
Local clock offset: -2.52 ms
Remote clock offset: -5.432 ms

Below is generated by plot.py at 2019-01-21 20:28:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 310.308 ms
Loss rate: 3.90%
-- Flow 1:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 310.308 ms
Loss rate: 3.90%

Run 3: Report of FillP-Sheep — Data Link

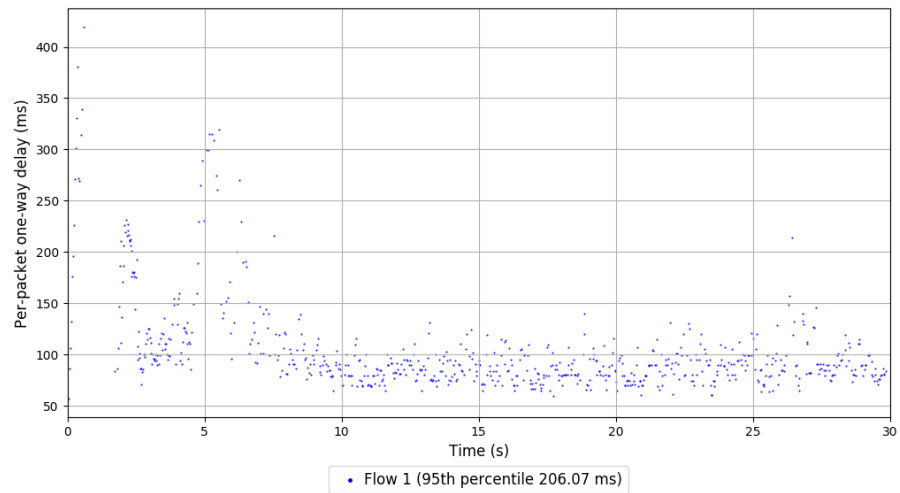
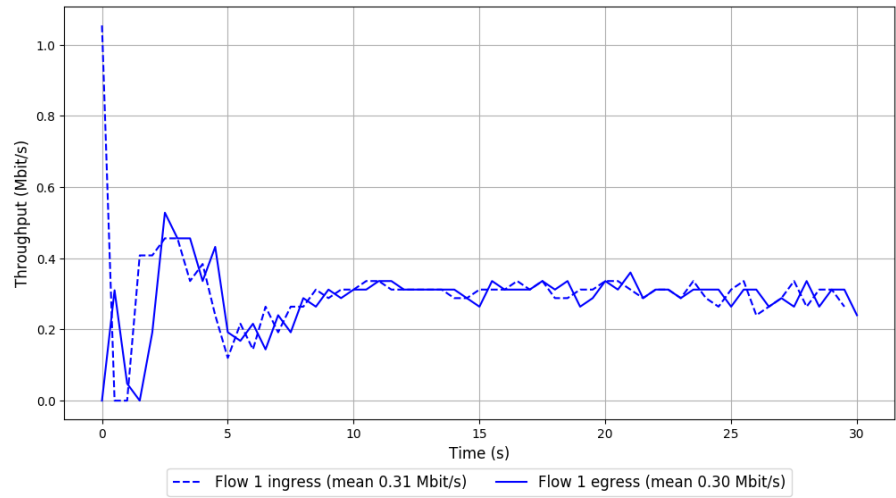


Run 1: Statistics of Indigo

Start at: 2019-01-21 19:31:12
End at: 2019-01-21 19:31:42
Local clock offset: -1.952 ms
Remote clock offset: -6.349 ms

Below is generated by plot.py at 2019-01-21 20:28:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 206.069 ms
Loss rate: 4.18%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 206.069 ms
Loss rate: 4.18%

Run 1: Report of Indigo — Data Link

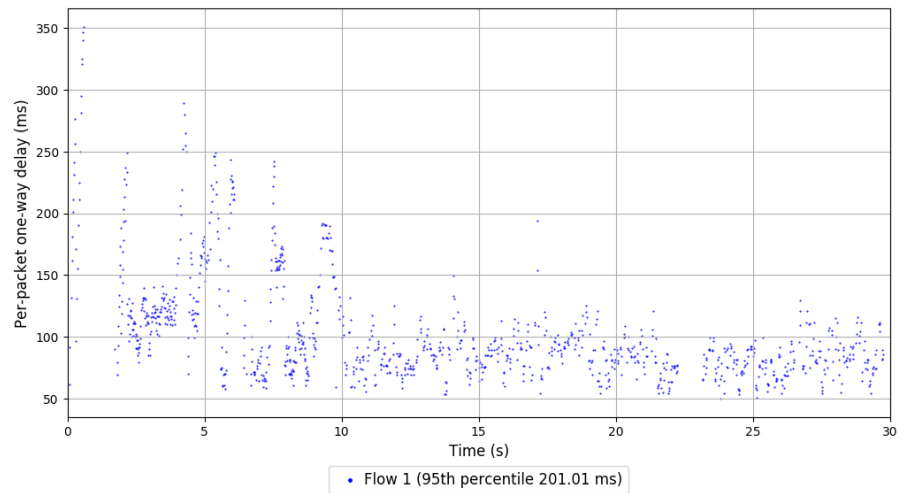
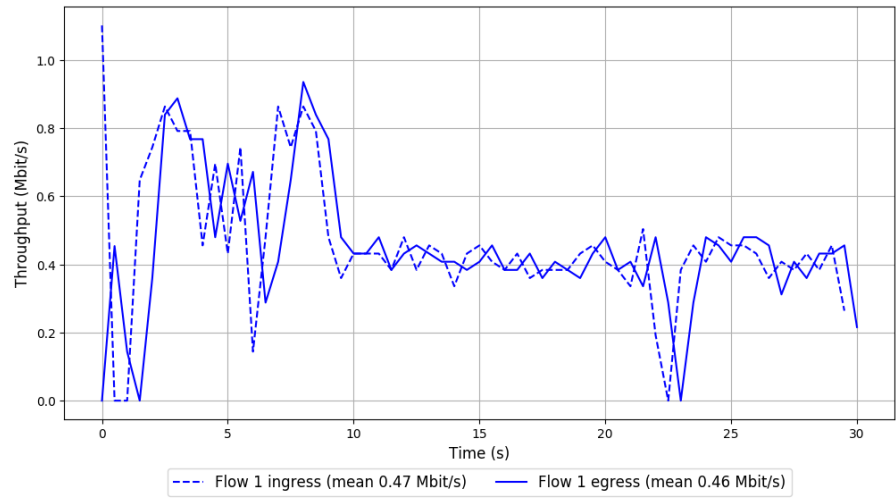


Run 2: Statistics of Indigo

Start at: 2019-01-21 19:54:37
End at: 2019-01-21 19:55:07
Local clock offset: -2.642 ms
Remote clock offset: -3.762 ms

Below is generated by plot.py at 2019-01-21 20:28:53
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 201.010 ms
Loss rate: 2.15%
-- Flow 1:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 201.010 ms
Loss rate: 2.15%

Run 2: Report of Indigo — Data Link

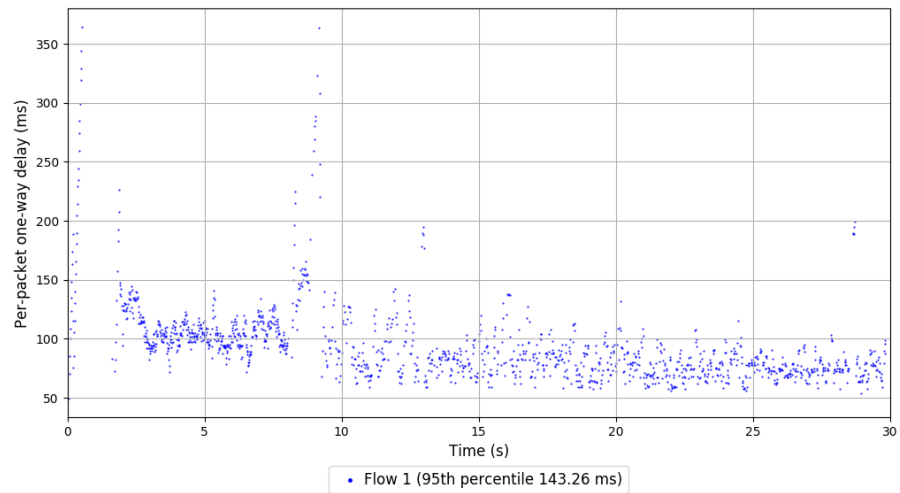
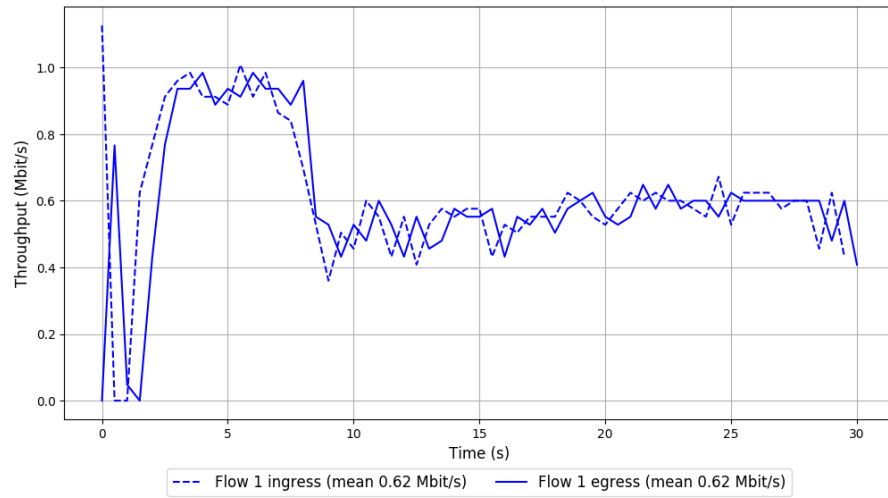


Run 3: Statistics of Indigo

Start at: 2019-01-21 20:18:07
End at: 2019-01-21 20:18:37
Local clock offset: -0.313 ms
Remote clock offset: -4.829 ms

Below is generated by plot.py at 2019-01-21 20:28:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 143.263 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 143.263 ms
Loss rate: 1.23%

Run 3: Report of Indigo — Data Link

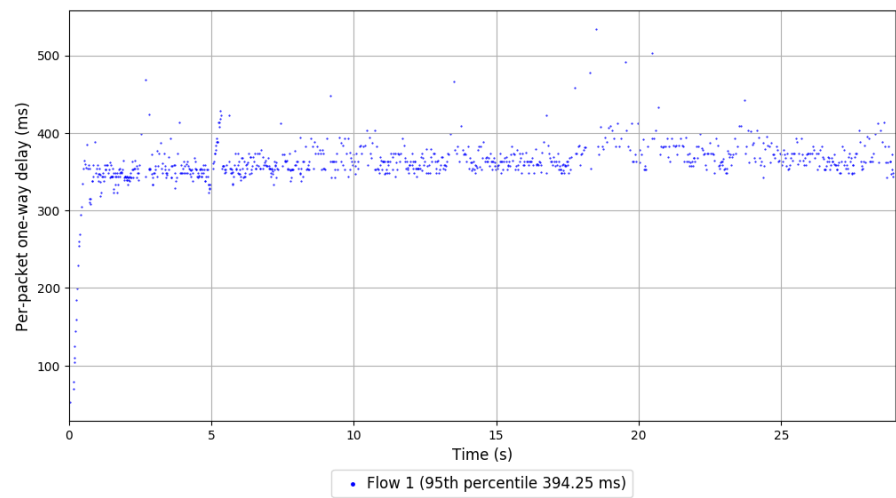
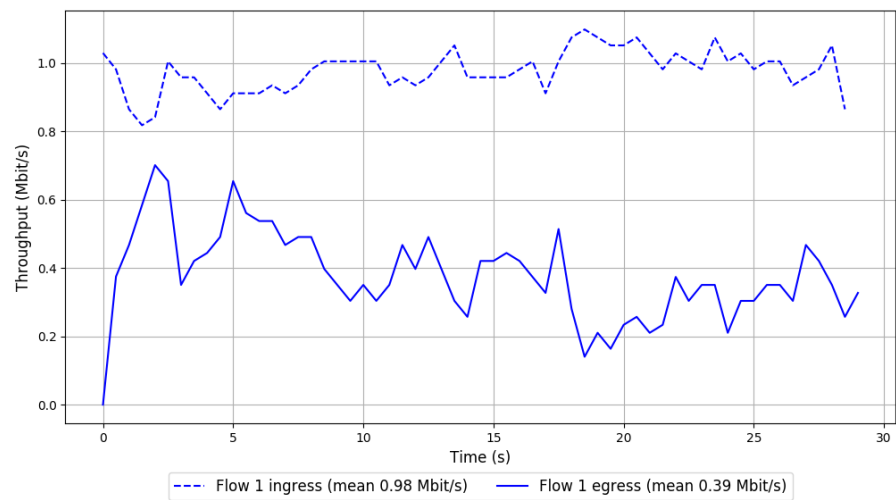


Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-21 19:19:55
End at: 2019-01-21 19:20:25
Local clock offset: -2.603 ms
Remote clock offset: -5.037 ms

Below is generated by plot.py at 2019-01-21 20:28:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 394.251 ms
Loss rate: 60.70%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 394.251 ms
Loss rate: 60.70%

Run 1: Report of Indigo-MusesC3 — Data Link

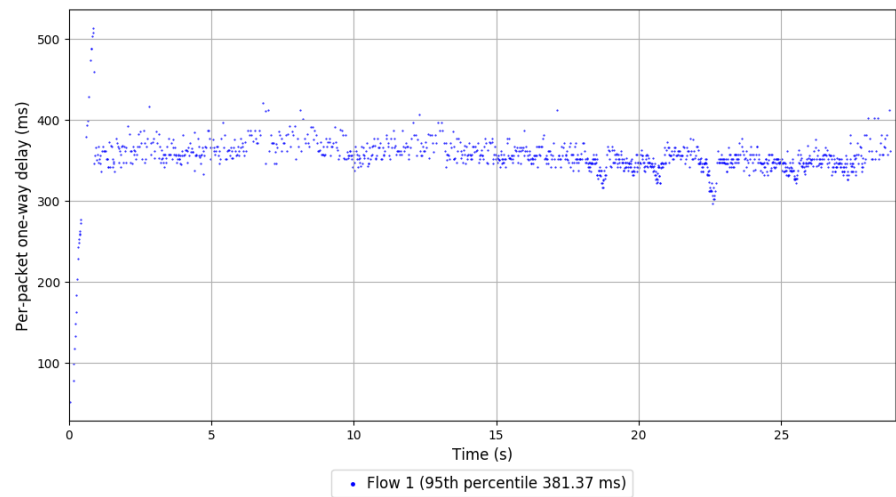
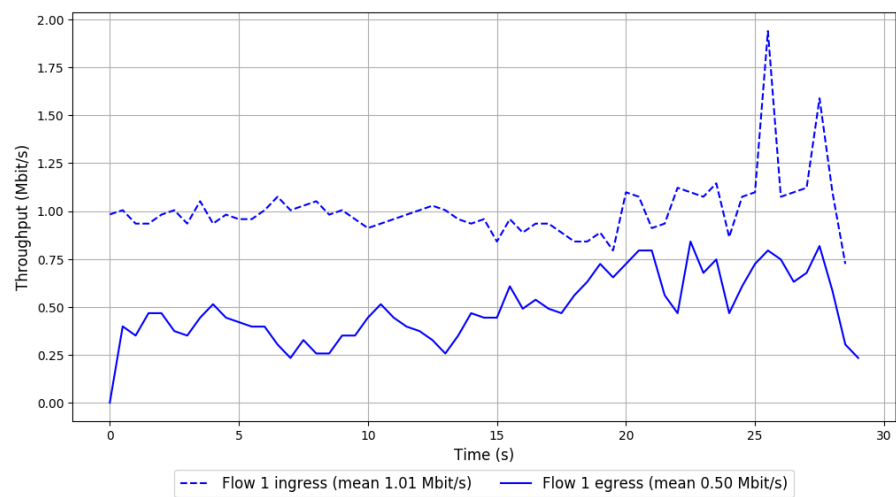


Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-21 19:43:24
End at: 2019-01-21 19:43:54
Local clock offset: 0.437 ms
Remote clock offset: -4.294 ms

Below is generated by plot.py at 2019-01-21 20:28:55
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 381.371 ms
Loss rate: 50.46%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 381.371 ms
Loss rate: 50.46%

Run 2: Report of Indigo-MusesC3 — Data Link

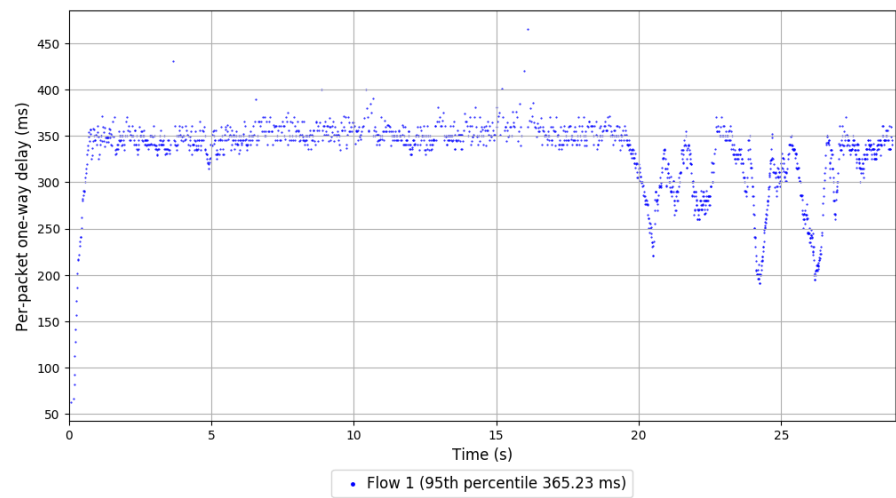
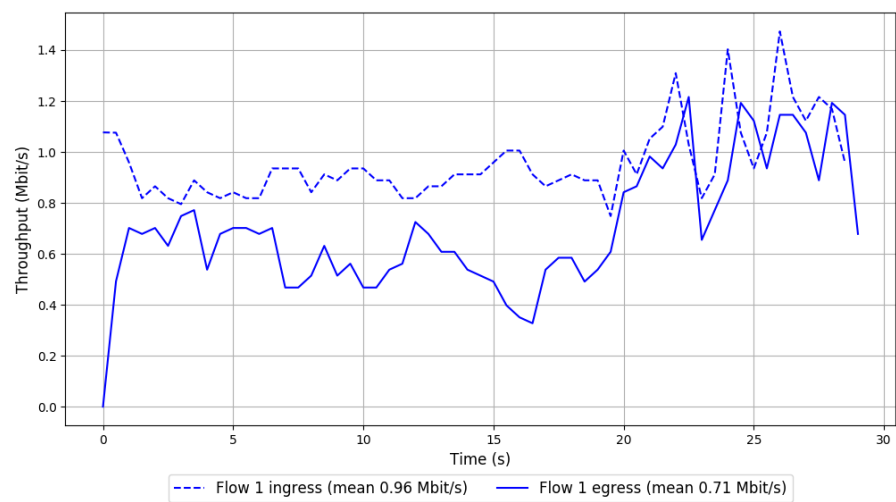


Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-21 20:06:53
End at: 2019-01-21 20:07:23
Local clock offset: 0.182 ms
Remote clock offset: -4.837 ms

Below is generated by plot.py at 2019-01-21 20:28:56
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 365.233 ms
Loss rate: 25.75%
-- Flow 1:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 365.233 ms
Loss rate: 25.75%

Run 3: Report of Indigo-MusesC3 — Data Link



Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-21 19:30:06

End at: 2019-01-21 19:30:36

Local clock offset: 2.541 ms

Remote clock offset: -5.096 ms

Below is generated by plot.py at 2019-01-21 20:28:56

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 385.585 ms

Loss rate: 55.50%

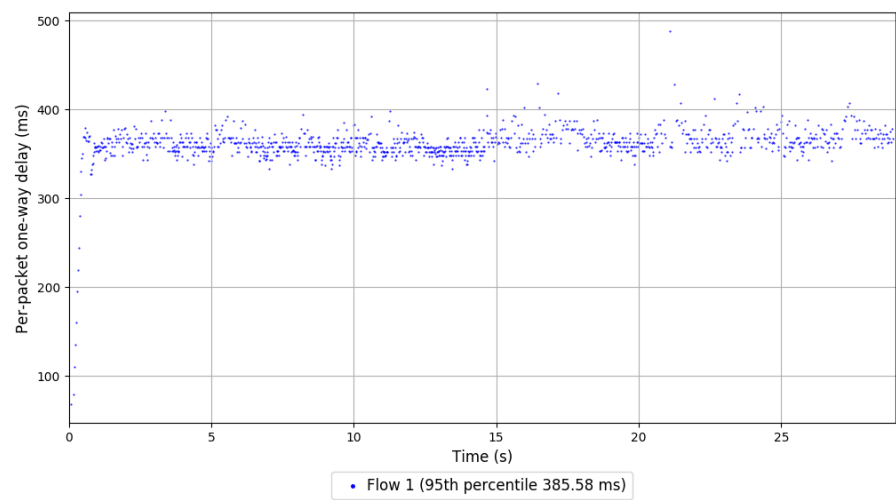
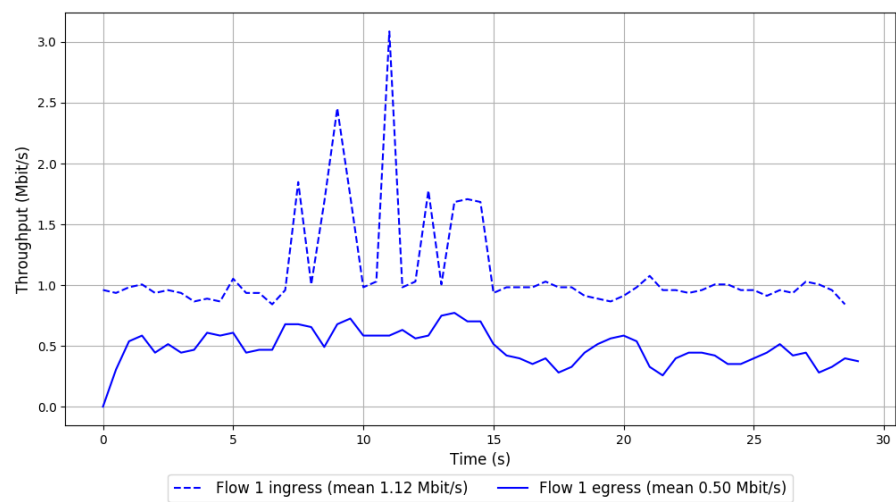
-- Flow 1:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 385.585 ms

Loss rate: 55.50%

Run 1: Report of Indigo-MusesC5 — Data Link

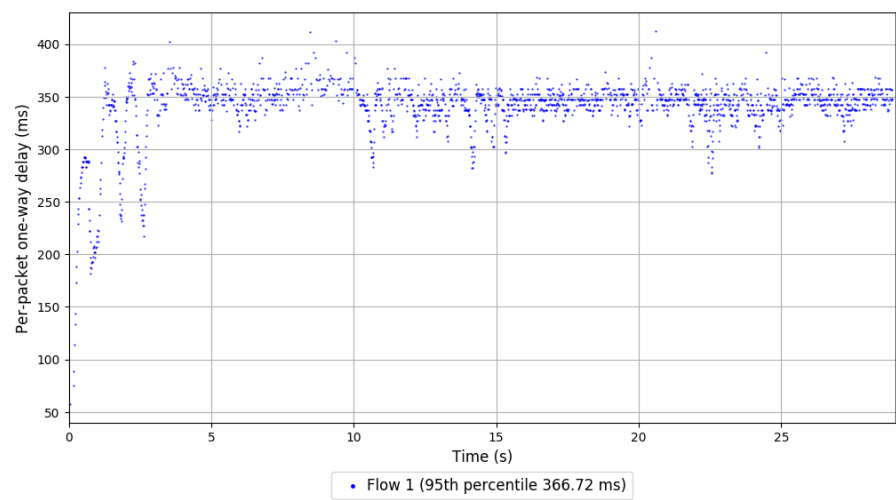
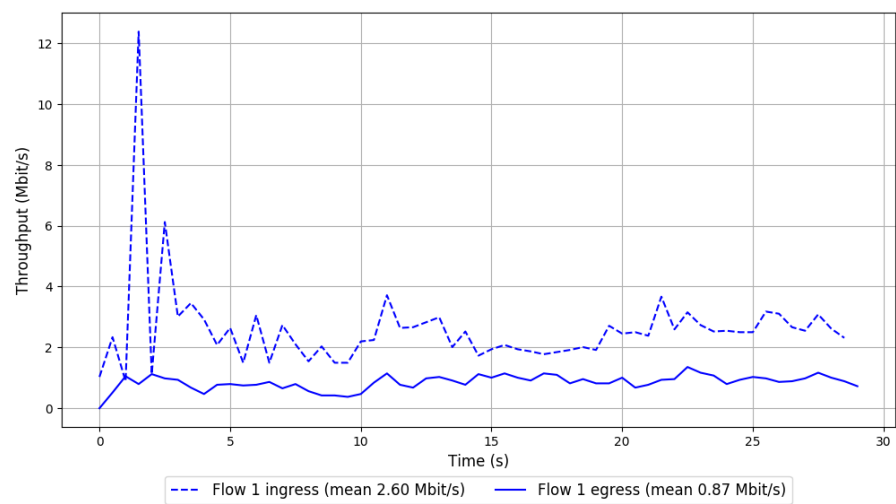


Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-21 19:53:30
End at: 2019-01-21 19:54:00
Local clock offset: -0.423 ms
Remote clock offset: -4.598 ms

Below is generated by plot.py at 2019-01-21 20:28:58
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 366.719 ms
Loss rate: 66.44%
-- Flow 1:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 366.719 ms
Loss rate: 66.44%

Run 2: Report of Indigo-MusesC5 — Data Link

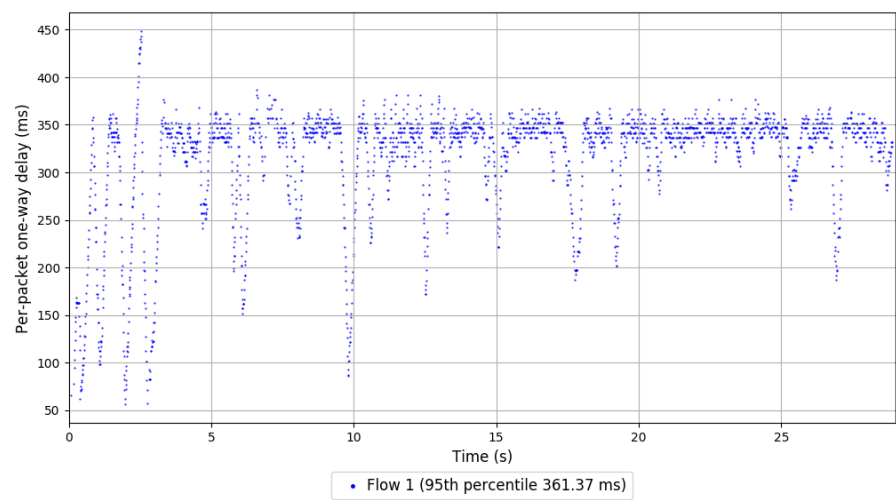
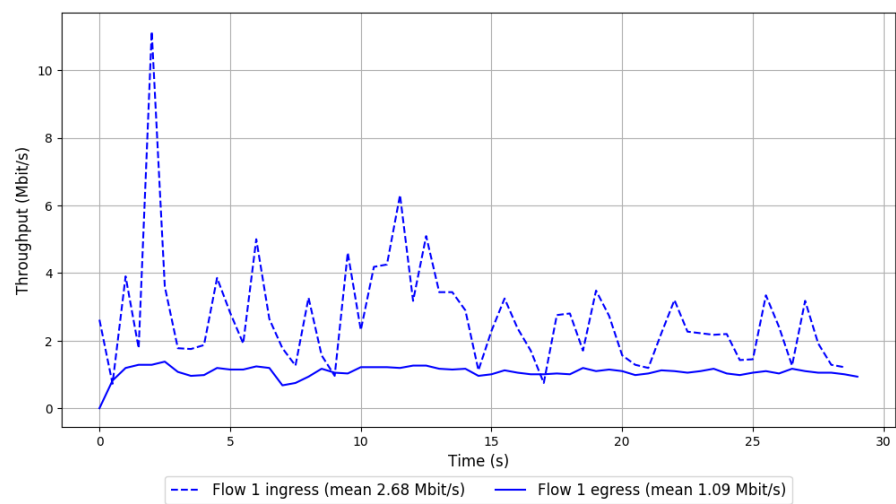


Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-21 20:17:01
End at: 2019-01-21 20:17:31
Local clock offset: -0.63 ms
Remote clock offset: -6.588 ms

Below is generated by plot.py at 2019-01-21 20:29:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 361.370 ms
Loss rate: 59.21%
-- Flow 1:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 361.370 ms
Loss rate: 59.21%

Run 3: Report of Indigo-MusesC5 — Data Link



Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-21 19:41:09

End at: 2019-01-21 19:41:39

Local clock offset: 2.079 ms

Remote clock offset: -5.537 ms

Below is generated by plot.py at 2019-01-21 20:29:00

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 392.612 ms

Loss rate: 55.30%

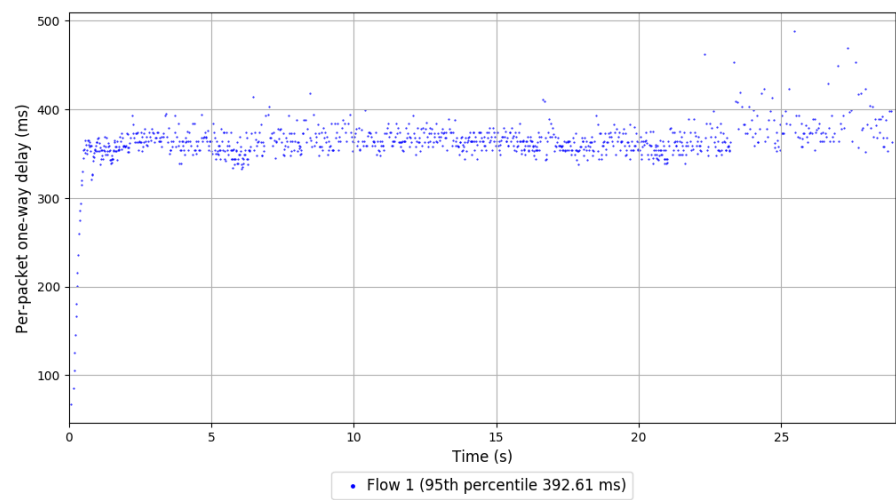
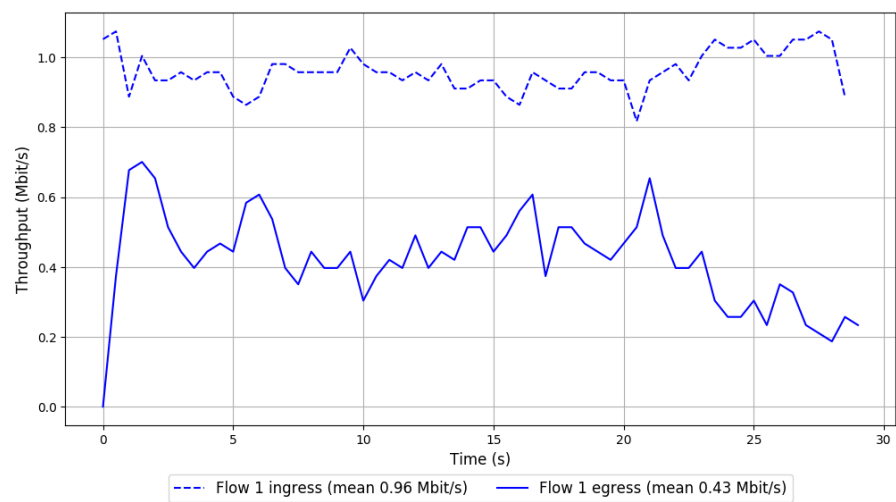
-- Flow 1:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 392.612 ms

Loss rate: 55.30%

Run 1: Report of Indigo-MusesD — Data Link

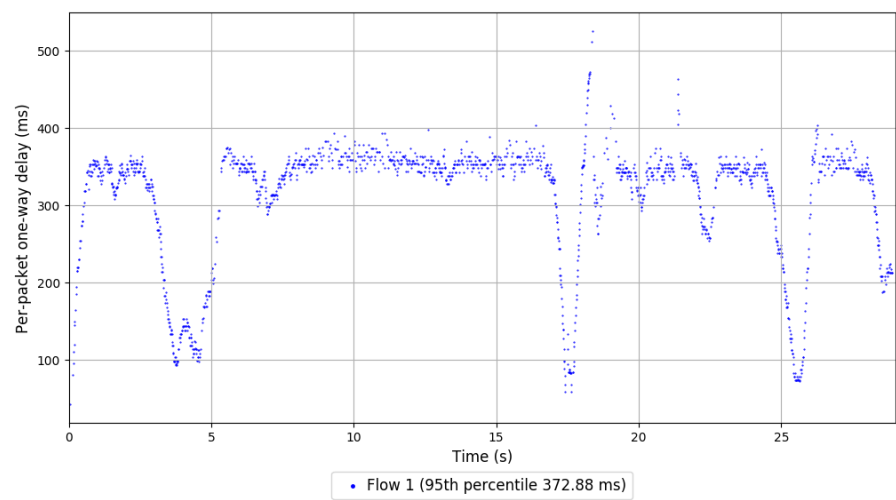
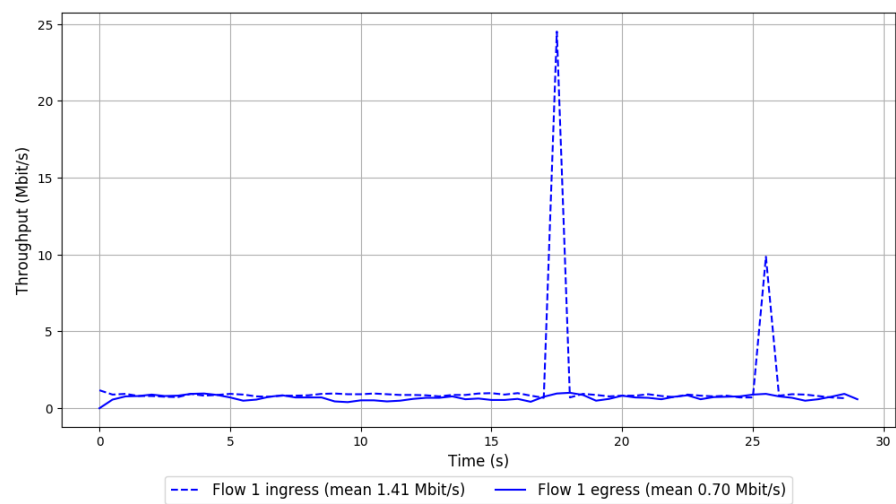


Run 2: Statistics of Indigo-MusesD

Start at: 2019-01-21 20:04:39
End at: 2019-01-21 20:05:09
Local clock offset: 0.718 ms
Remote clock offset: -6.132 ms

Below is generated by plot.py at 2019-01-21 20:29:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 372.880 ms
Loss rate: 50.79%
-- Flow 1:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 372.880 ms
Loss rate: 50.79%

Run 2: Report of Indigo-MusesD — Data Link

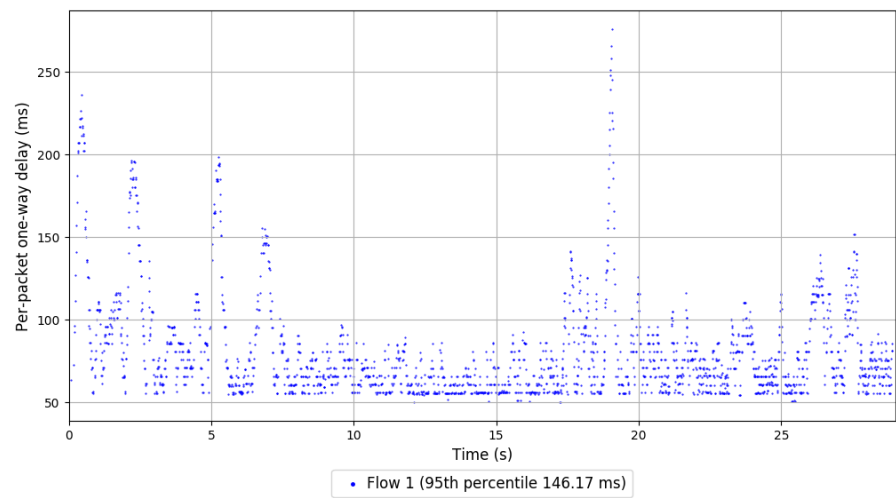
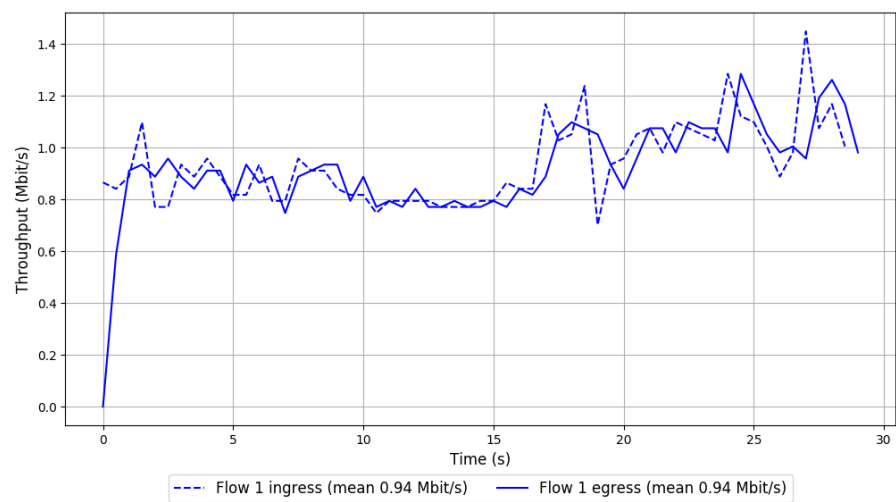


Run 3: Statistics of Indigo-MusesD

Start at: 2019-01-21 20:28:07
End at: 2019-01-21 20:28:37
Local clock offset: -3.092 ms
Remote clock offset: -6.619 ms

Below is generated by plot.py at 2019-01-21 20:29:00
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 146.167 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 146.167 ms
Loss rate: 0.39%

Run 3: Report of Indigo-MusesD — Data Link



Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-21 19:21:04

End at: 2019-01-21 19:21:34

Local clock offset: -1.362 ms

Remote clock offset: -4.501 ms

Below is generated by plot.py at 2019-01-21 20:29:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.65 Mbit/s

95th percentile per-packet one-way delay: 365.620 ms

Loss rate: 24.53%

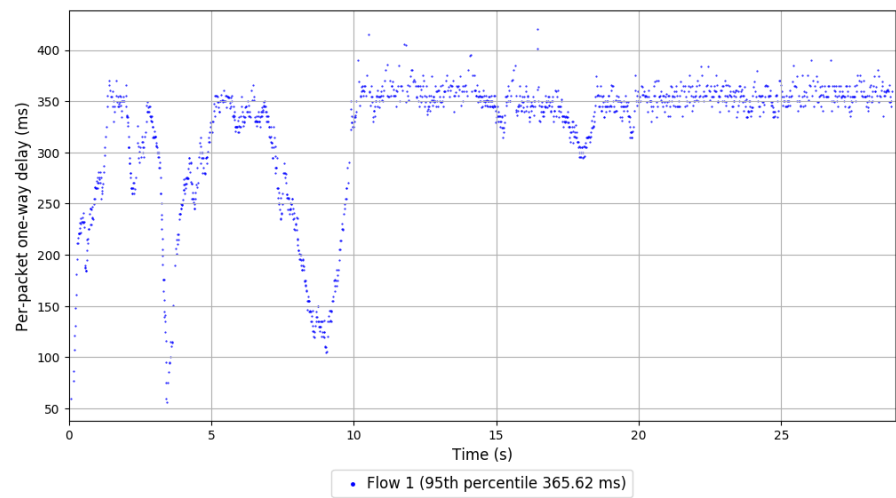
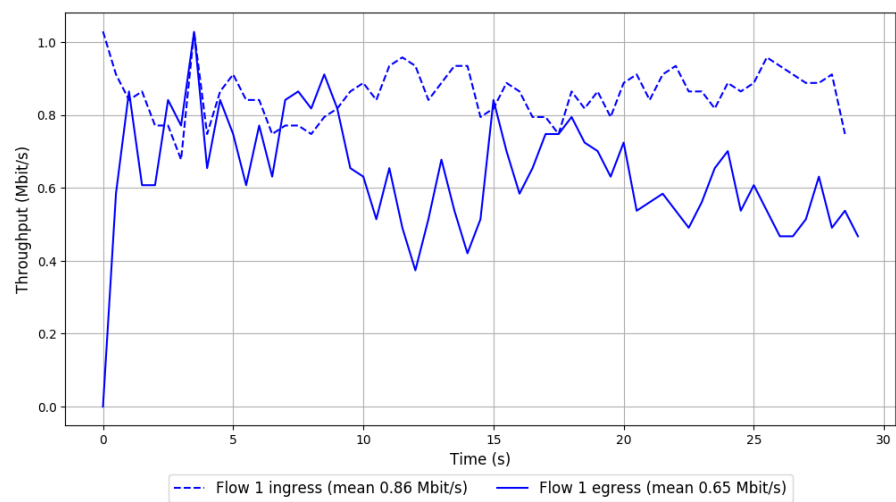
-- Flow 1:

Average throughput: 0.65 Mbit/s

95th percentile per-packet one-way delay: 365.620 ms

Loss rate: 24.53%

Run 1: Report of Indigo-MusesT — Data Link

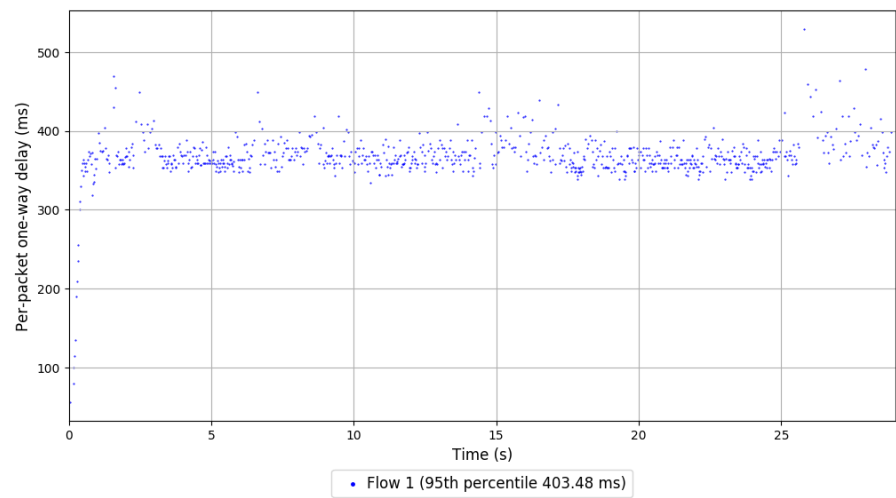
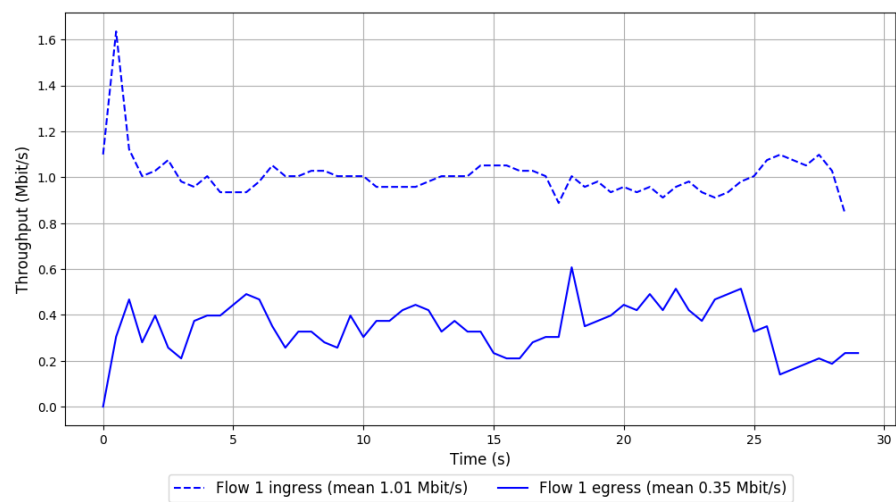


Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-21 19:44:30
End at: 2019-01-21 19:45:00
Local clock offset: -0.044 ms
Remote clock offset: -6.479 ms

Below is generated by plot.py at 2019-01-21 20:29:01
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 403.481 ms
Loss rate: 65.33%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 403.481 ms
Loss rate: 65.33%

Run 2: Report of Indigo-MusesT — Data Link



Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-21 20:08:00

End at: 2019-01-21 20:08:30

Local clock offset: 0.657 ms

Remote clock offset: -6.122 ms

Below is generated by plot.py at 2019-01-21 20:29:01

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.69 Mbit/s

95th percentile per-packet one-way delay: 368.814 ms

Loss rate: 19.37%

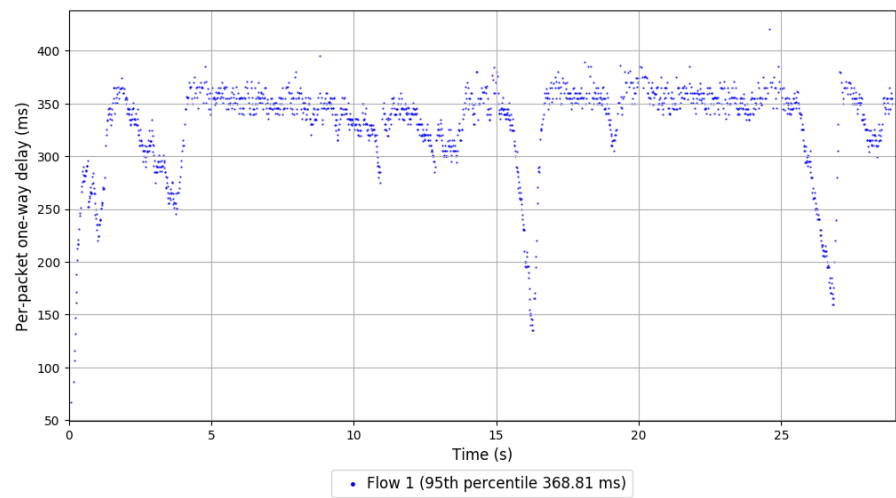
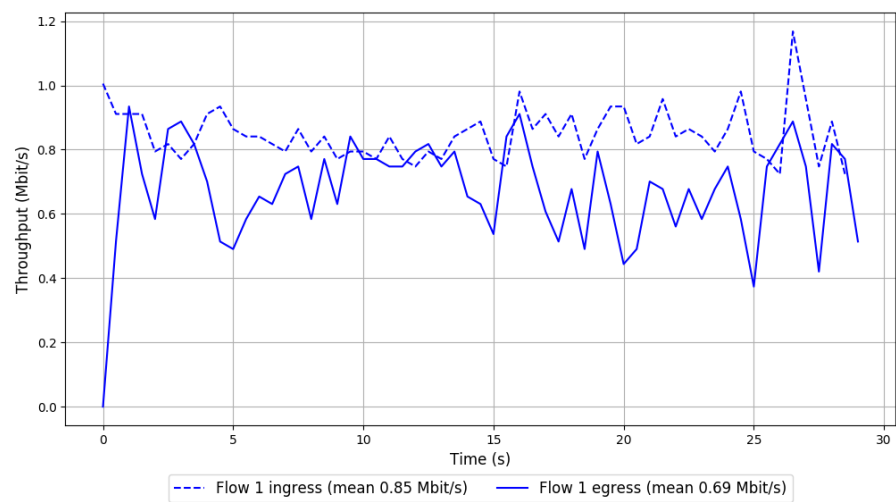
-- Flow 1:

Average throughput: 0.69 Mbit/s

95th percentile per-packet one-way delay: 368.814 ms

Loss rate: 19.37%

Run 3: Report of Indigo-MusesT — Data Link

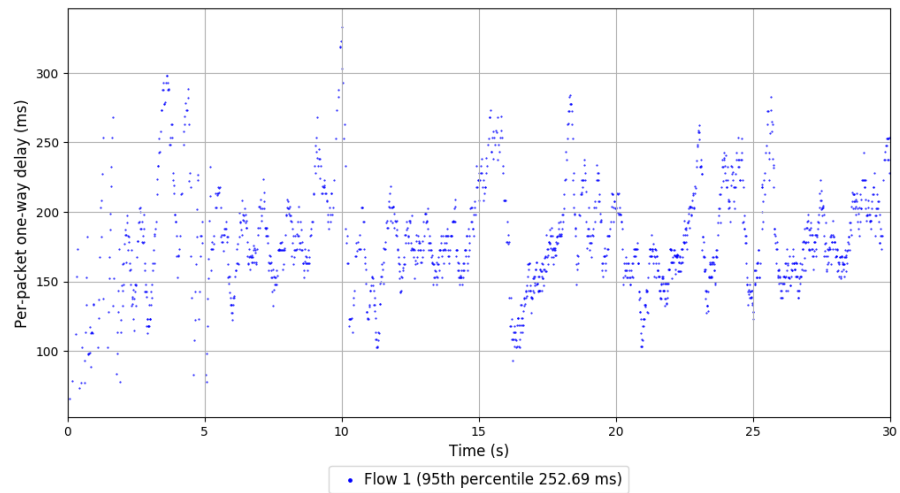
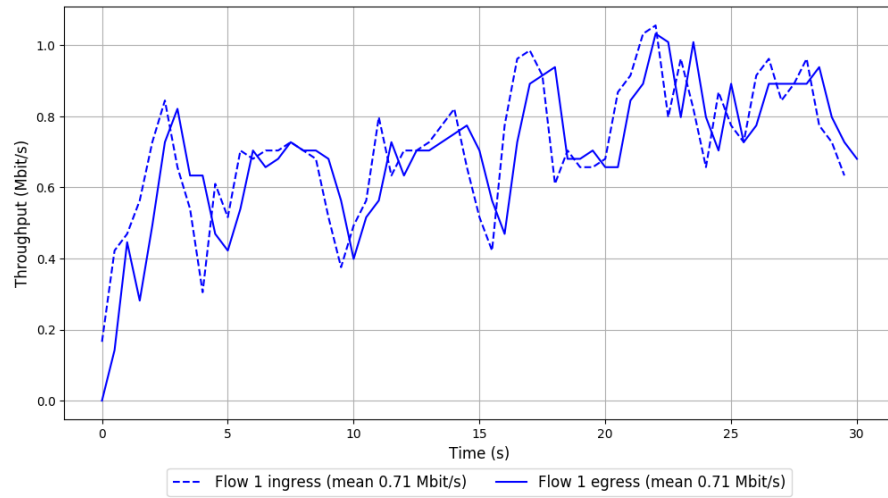



```
Run 1: Statistics of LEDBAT

Start at: 2019-01-21 19:35:38
End at: 2019-01-21 19:36:08
Local clock offset: 0.152 ms
Remote clock offset: -6.235 ms

# Below is generated by plot.py at 2019-01-21 20:29:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 252.689 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 252.689 ms
Loss rate: 0.61%
```

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2019-01-21 19:59:05

End at: 2019-01-21 19:59:35

Local clock offset: -0.517 ms

Remote clock offset: -5.63 ms

Below is generated by plot.py at 2019-01-21 20:29:02

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 253.068 ms

Loss rate: 0.68%

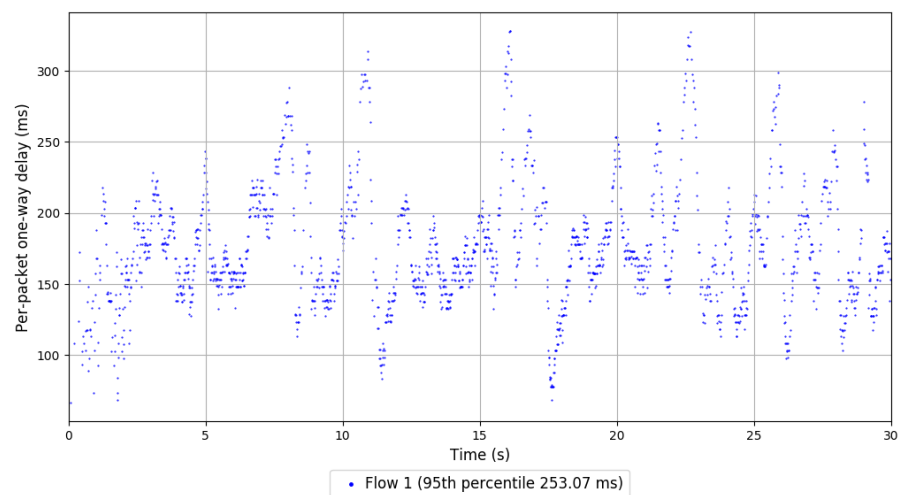
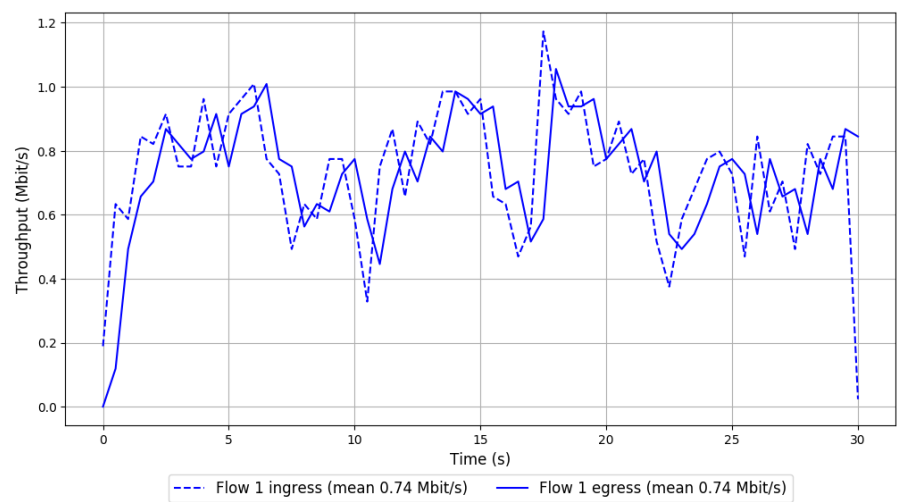
-- Flow 1:

Average throughput: 0.74 Mbit/s

95th percentile per-packet one-way delay: 253.068 ms

Loss rate: 0.68%

Run 2: Report of LEDBAT — Data Link

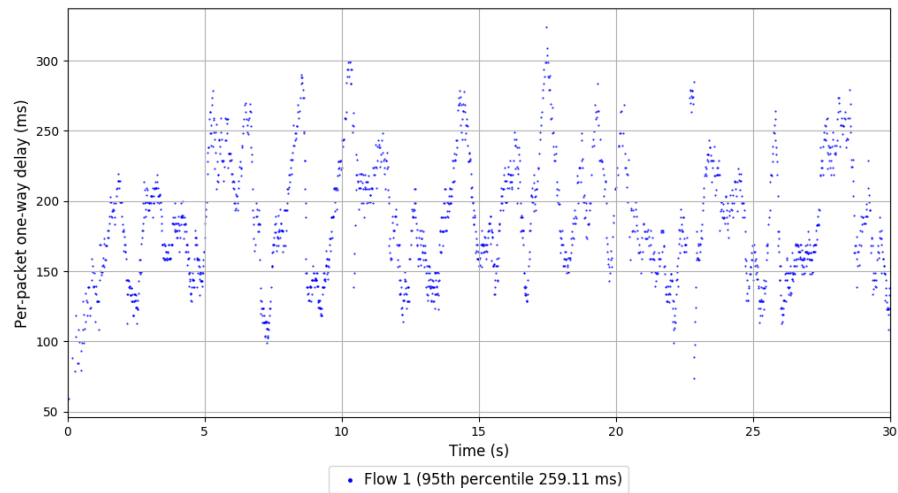
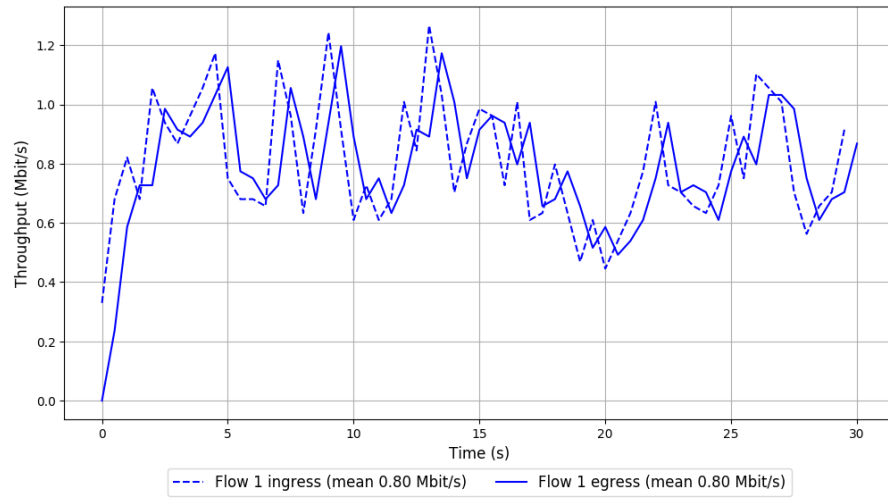


Run 3: Statistics of LEDBAT

Start at: 2019-01-21 20:22:35
End at: 2019-01-21 20:23:05
Local clock offset: -1.373 ms
Remote clock offset: -6.874 ms

Below is generated by plot.py at 2019-01-21 20:29:02
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 259.112 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 259.112 ms
Loss rate: 0.63%

Run 3: Report of LEDBAT — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2019-01-21 19:28:57

End at: 2019-01-21 19:29:27

Local clock offset: 0.994 ms

Remote clock offset: -4.452 ms

Below is generated by plot.py at 2019-01-21 20:29:06

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.66 Mbit/s

95th percentile per-packet one-way delay: 398.115 ms

Loss rate: 88.81%

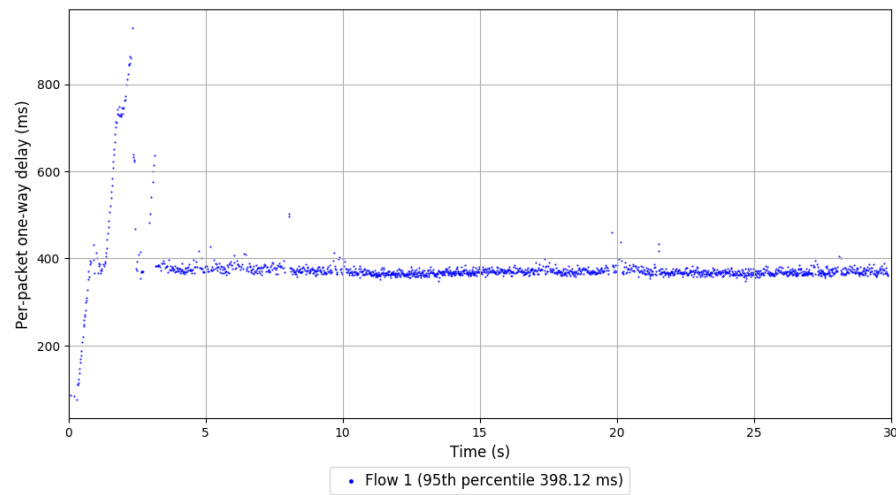
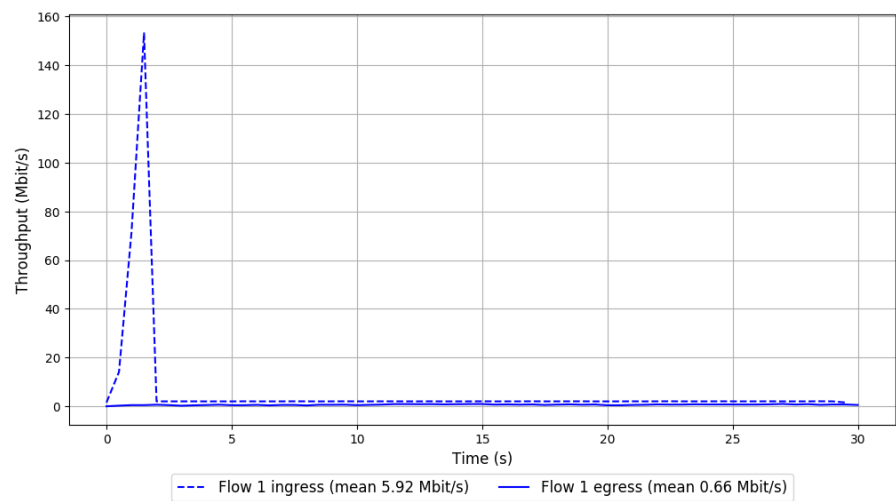
-- Flow 1:

Average throughput: 0.66 Mbit/s

95th percentile per-packet one-way delay: 398.115 ms

Loss rate: 88.81%

Run 1: Report of PCC-Allegro — Data Link

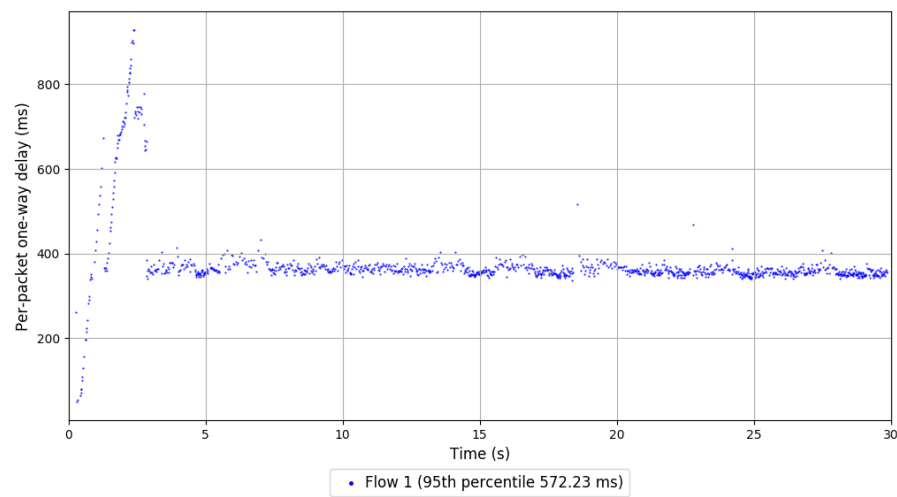
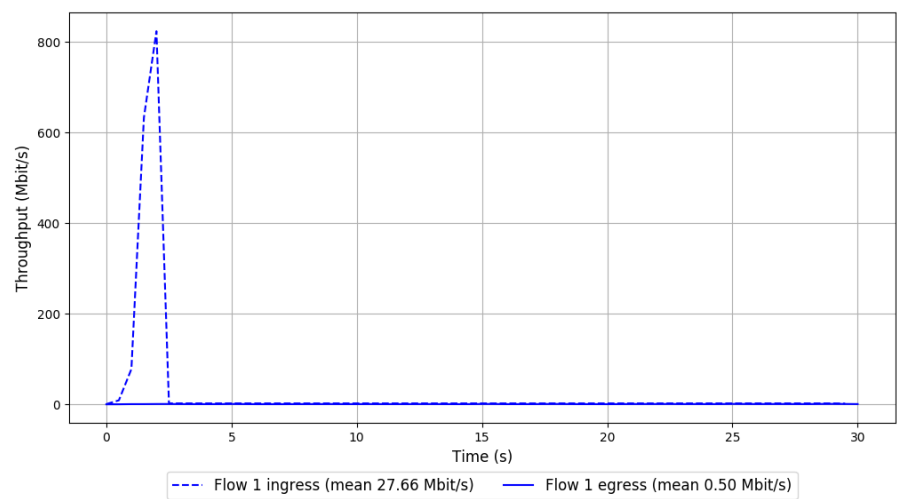


Run 2: Statistics of PCC-Allegro

Start at: 2019-01-21 19:52:20
End at: 2019-01-21 19:52:50
Local clock offset: -2.311 ms
Remote clock offset: -6.033 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 572.227 ms
Loss rate: 98.23%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 572.227 ms
Loss rate: 98.23%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2019-01-21 20:15:54

End at: 2019-01-21 20:16:24

Local clock offset: -2.715 ms

Remote clock offset: -6.559 ms

Below is generated by plot.py at 2019-01-21 20:29:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 361.091 ms

Loss rate: 63.04%

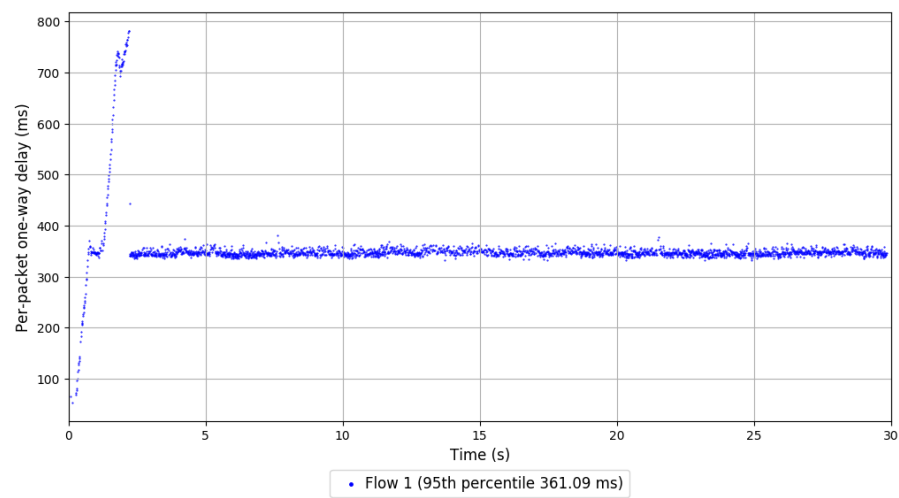
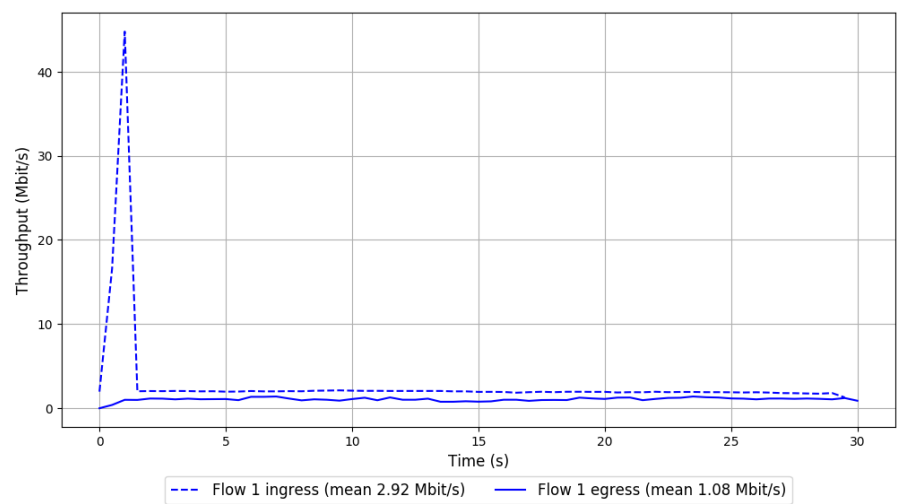
-- Flow 1:

Average throughput: 1.08 Mbit/s

95th percentile per-packet one-way delay: 361.091 ms

Loss rate: 63.04%

Run 3: Report of PCC-Allegro — Data Link

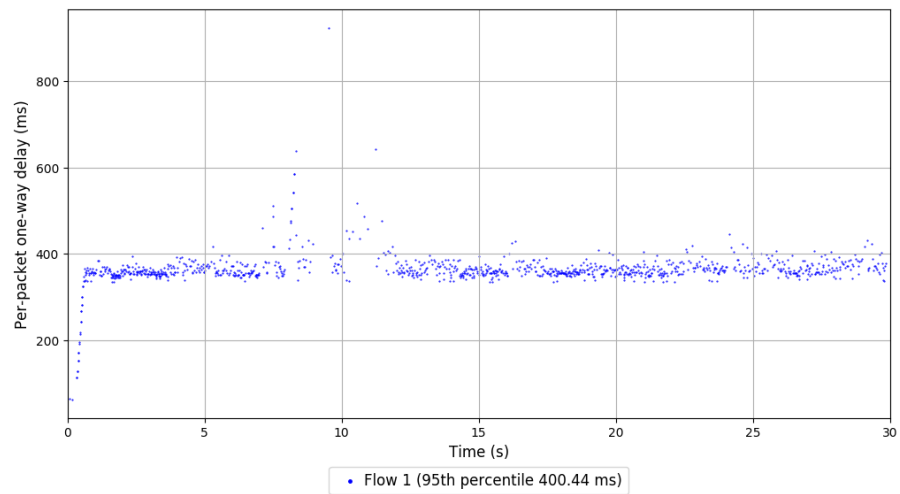
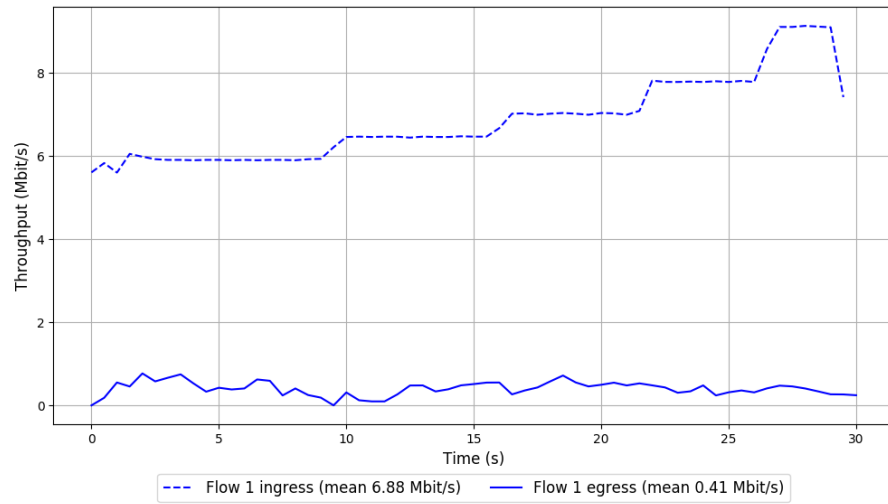


Run 1: Statistics of PCC-Expr

Start at: 2019-01-21 19:27:44
End at: 2019-01-21 19:28:14
Local clock offset: -1.278 ms
Remote clock offset: -5.208 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 400.438 ms
Loss rate: 94.04%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 400.438 ms
Loss rate: 94.04%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2019-01-21 19:51:11

End at: 2019-01-21 19:51:41

Local clock offset: 0.464 ms

Remote clock offset: -6.61 ms

Below is generated by plot.py at 2019-01-21 20:29:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.80 Mbit/s

95th percentile per-packet one-way delay: 371.392 ms

Loss rate: 89.27%

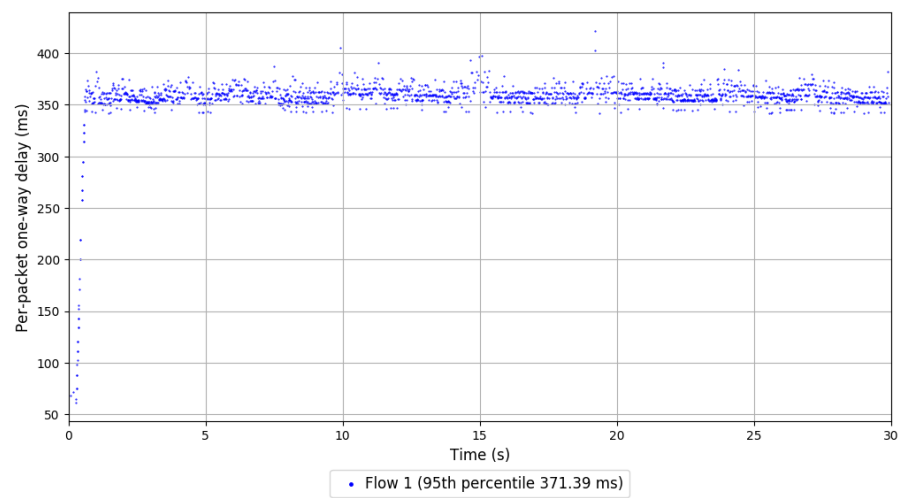
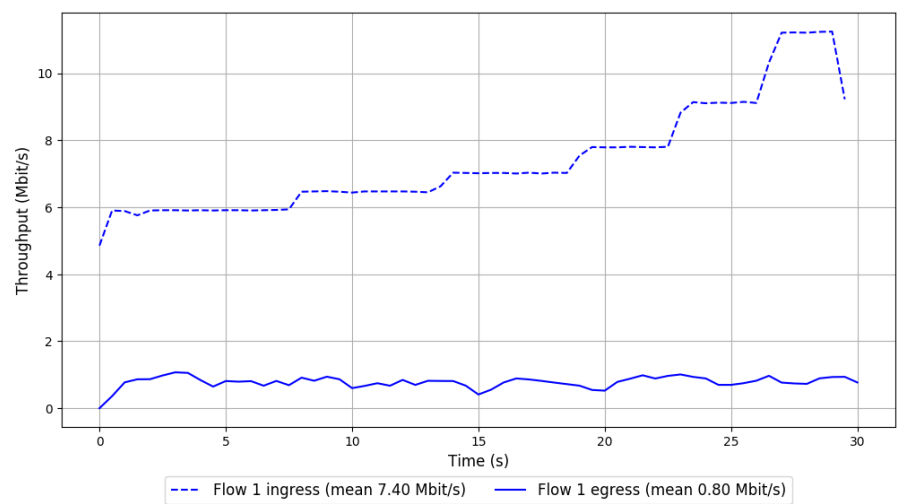
-- Flow 1:

Average throughput: 0.80 Mbit/s

95th percentile per-packet one-way delay: 371.392 ms

Loss rate: 89.27%

Run 2: Report of PCC-Expr — Data Link

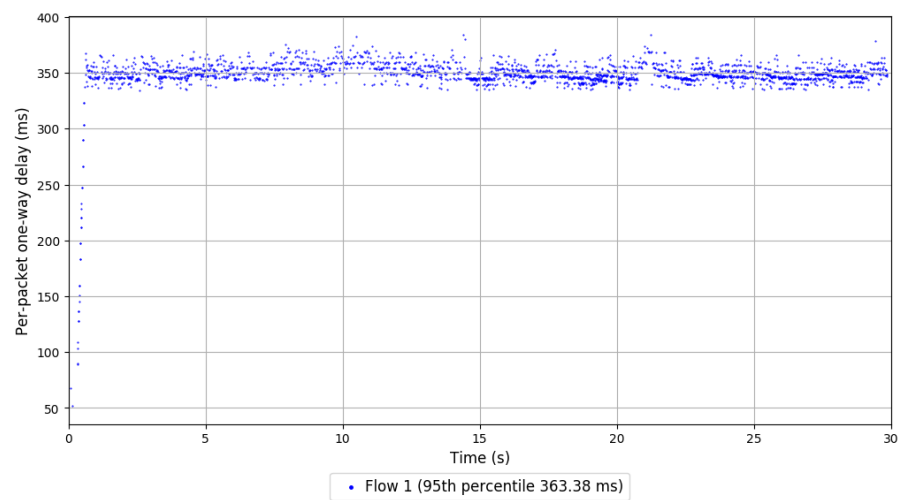
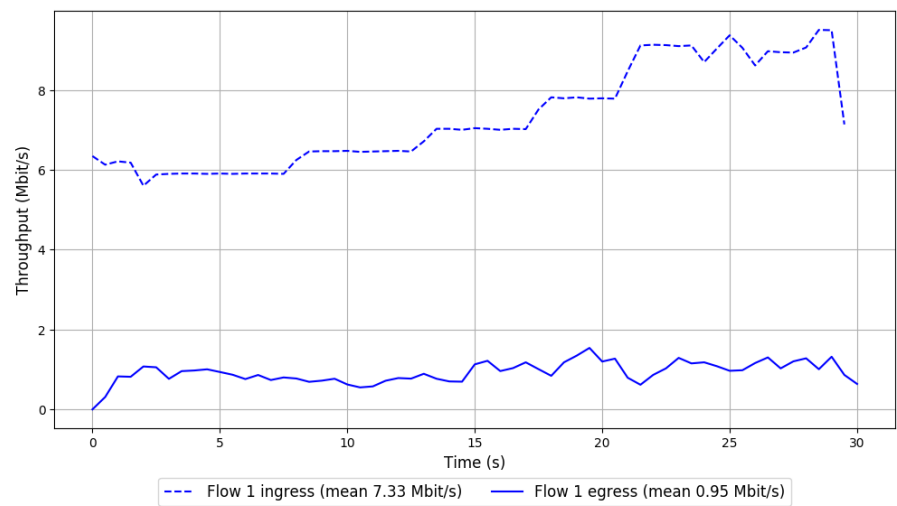


Run 3: Statistics of PCC-Expr

Start at: 2019-01-21 20:14:46
End at: 2019-01-21 20:15:16
Local clock offset: -2.889 ms
Remote clock offset: -4.452 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 363.384 ms
Loss rate: 87.12%
-- Flow 1:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 363.384 ms
Loss rate: 87.12%

Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2019-01-21 19:24:23

End at: 2019-01-21 19:24:53

Local clock offset: -1.244 ms

Remote clock offset: -4.785 ms

Below is generated by plot.py at 2019-01-21 20:29:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 361.759 ms

Loss rate: 12.77%

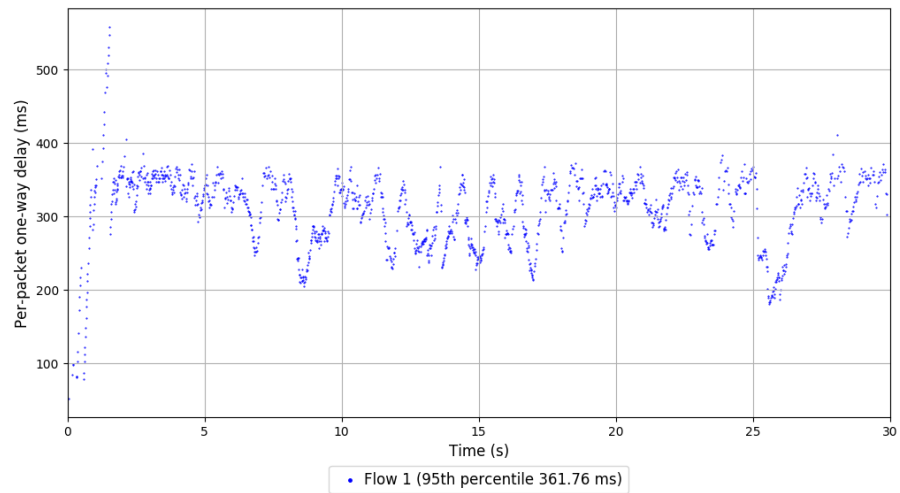
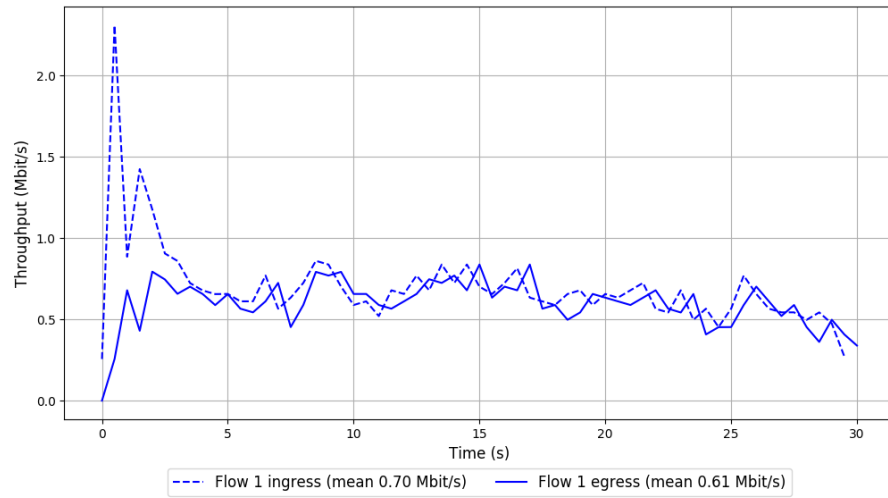
-- Flow 1:

Average throughput: 0.61 Mbit/s

95th percentile per-packet one-way delay: 361.759 ms

Loss rate: 12.77%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2019-01-21 19:47:51

End at: 2019-01-21 19:48:21

Local clock offset: 2.075 ms

Remote clock offset: -5.415 ms

Below is generated by plot.py at 2019-01-21 20:29:21

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.36 Mbit/s

95th percentile per-packet one-way delay: 379.370 ms

Loss rate: 21.29%

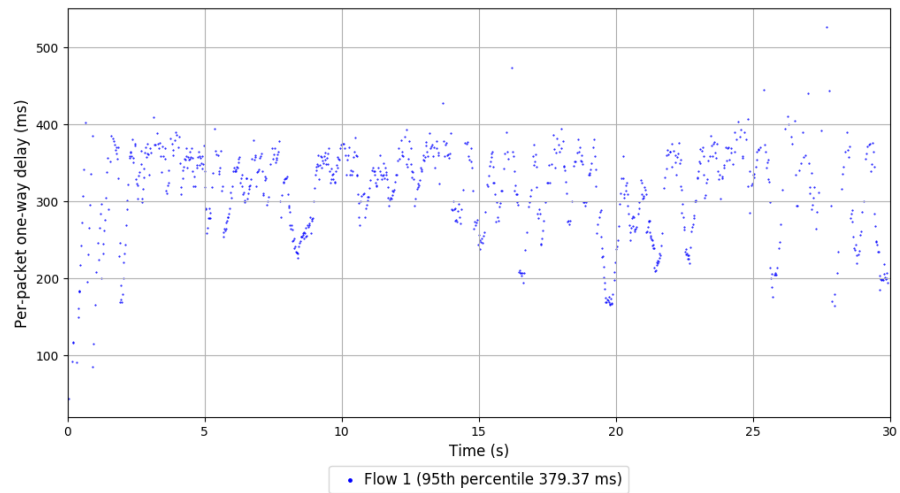
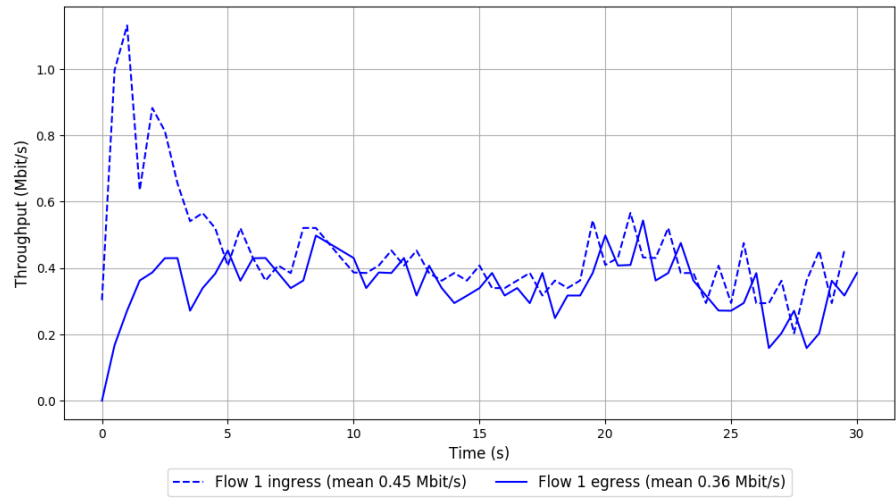
-- Flow 1:

Average throughput: 0.36 Mbit/s

95th percentile per-packet one-way delay: 379.370 ms

Loss rate: 21.29%

Run 2: Report of QUIC Cubic — Data Link

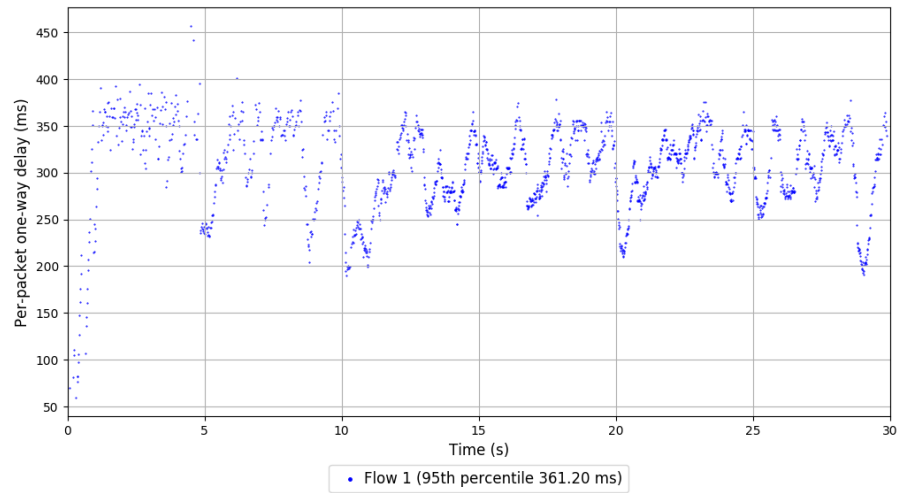
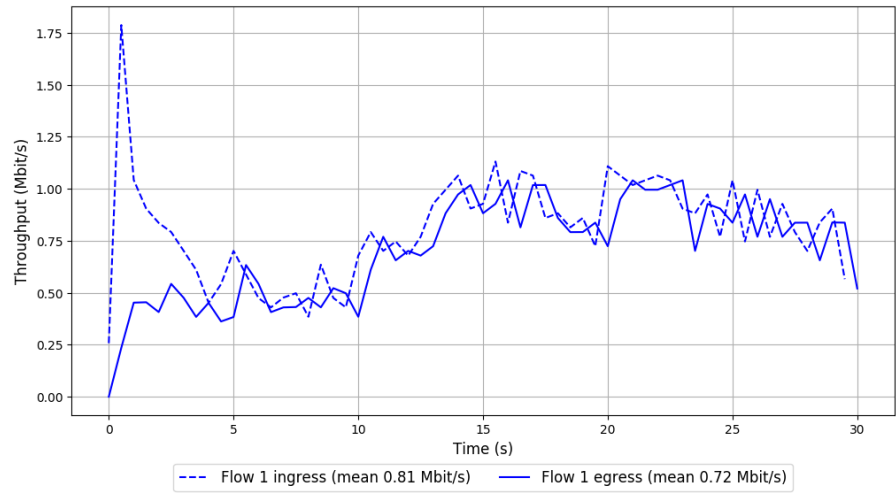


Run 3: Statistics of QUIC Cubic

Start at: 2019-01-21 20:11:27
End at: 2019-01-21 20:11:57
Local clock offset: 0.931 ms
Remote clock offset: -5.297 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 361.201 ms
Loss rate: 11.49%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 361.201 ms
Loss rate: 11.49%

Run 3: Report of QUIC Cubic — Data Link

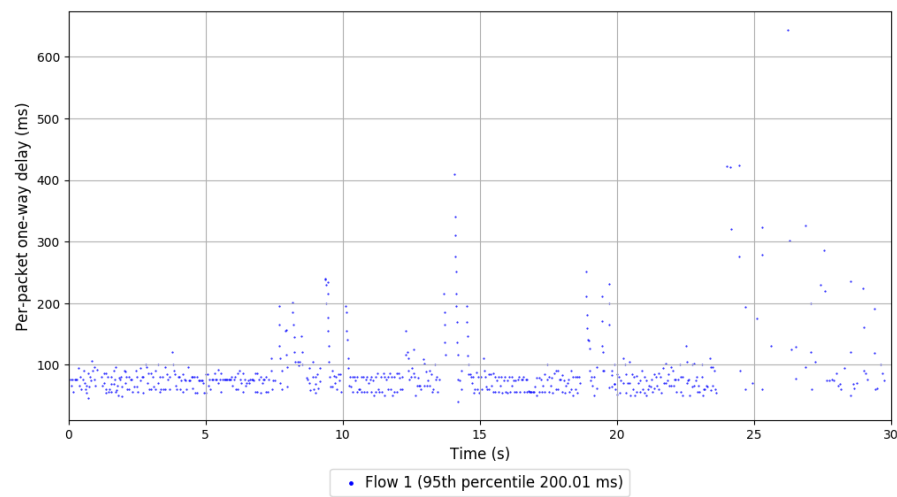
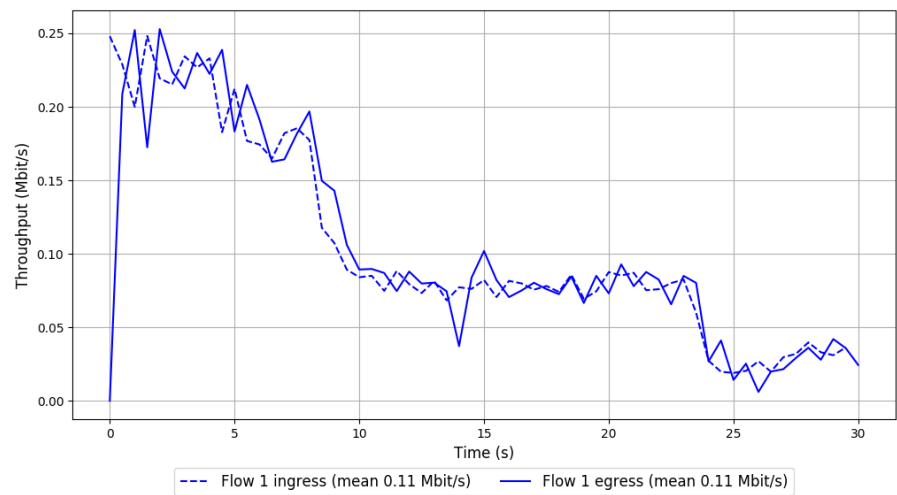


Run 1: Statistics of SCReAM

Start at: 2019-01-21 19:26:37
End at: 2019-01-21 19:27:07
Local clock offset: -0.621 ms
Remote clock offset: -5.152 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 200.008 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 200.008 ms
Loss rate: 1.01%

Run 1: Report of SReAM — Data Link

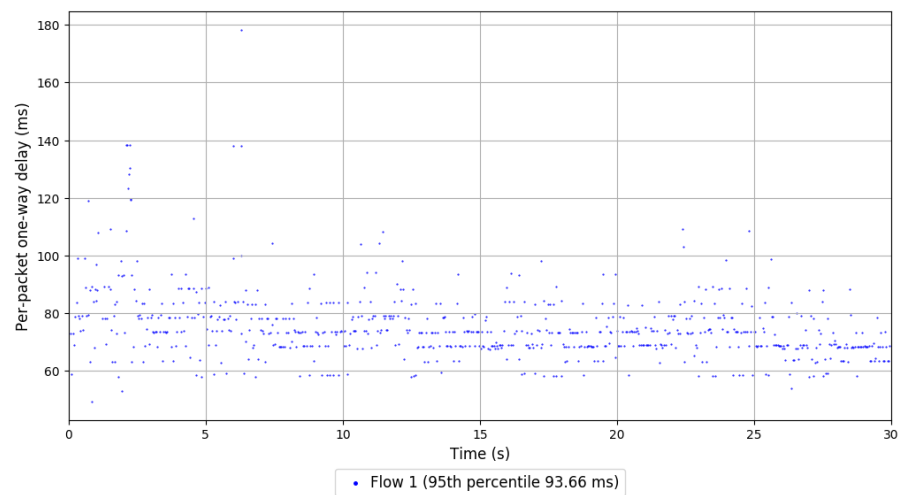
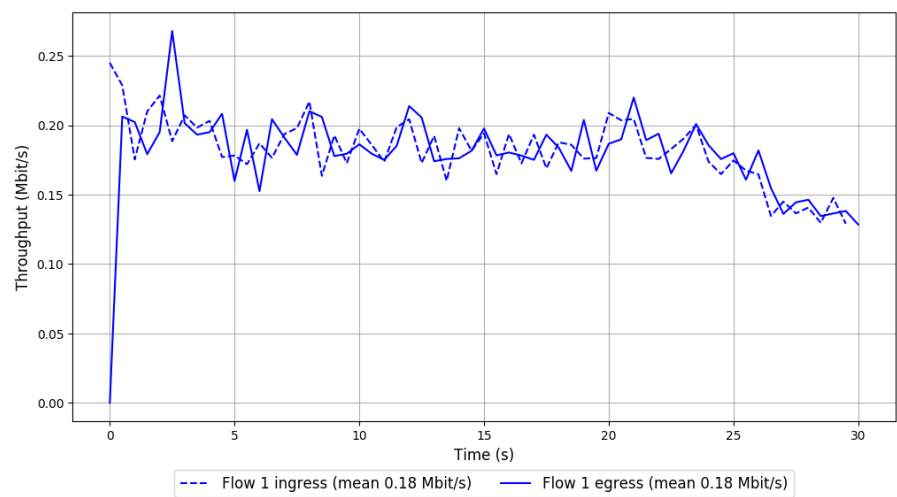


Run 2: Statistics of SCReAM

Start at: 2019-01-21 19:50:04
End at: 2019-01-21 19:50:34
Local clock offset: -0.501 ms
Remote clock offset: -6.505 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 93.659 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 93.659 ms
Loss rate: 0.20%

Run 2: Report of SReAM — Data Link

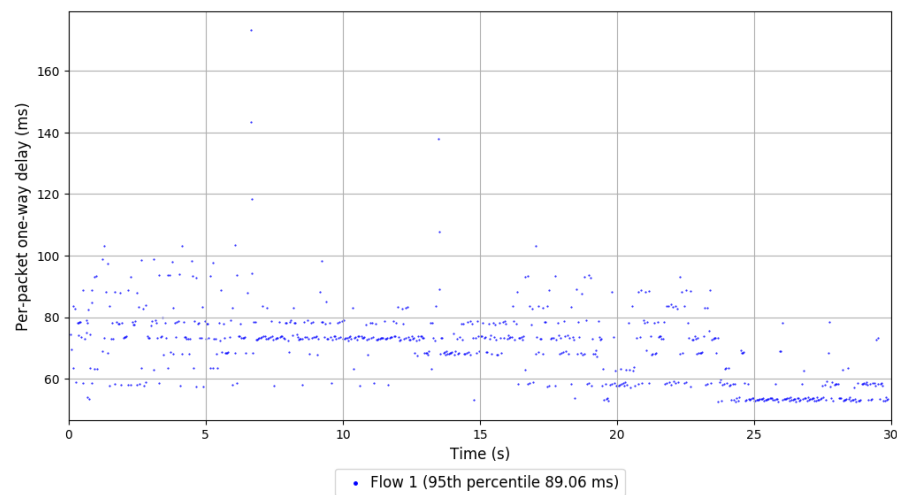
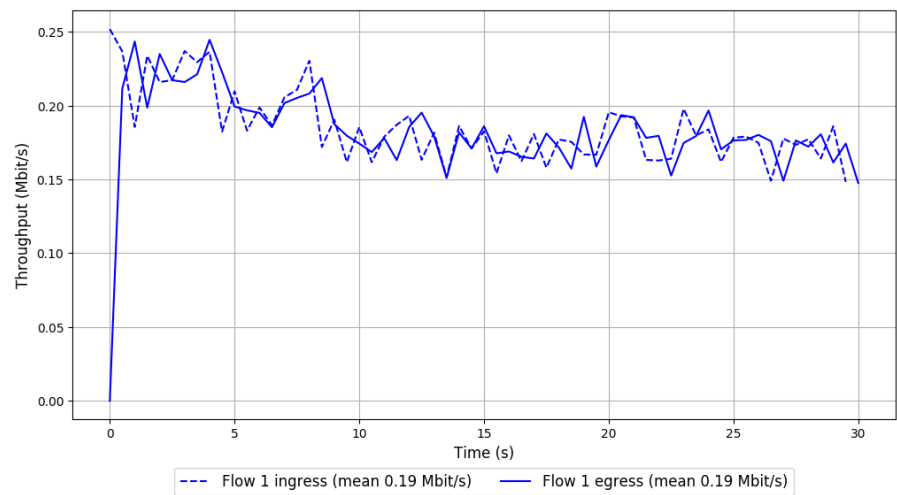


Run 3: Statistics of SCReAM

Start at: 2019-01-21 20:13:40
End at: 2019-01-21 20:14:10
Local clock offset: 0.984 ms
Remote clock offset: -4.833 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 89.056 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 89.056 ms
Loss rate: 0.24%

Run 3: Report of SReAM — Data Link

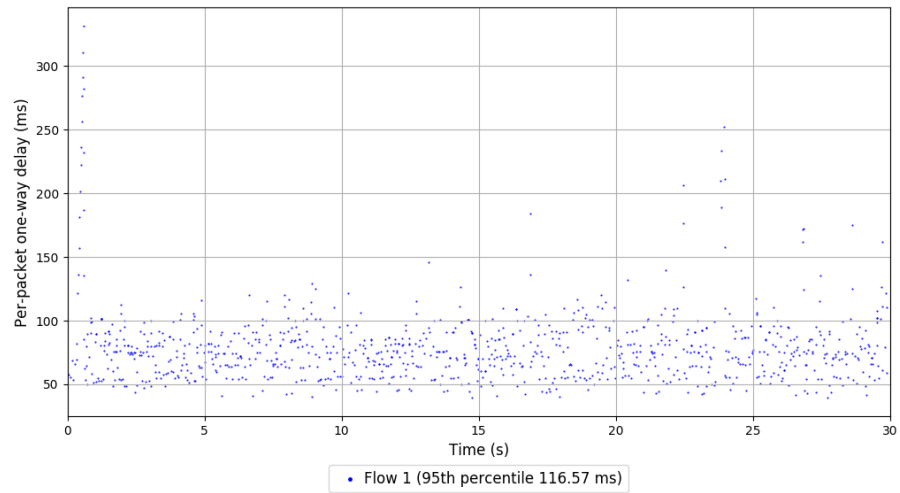
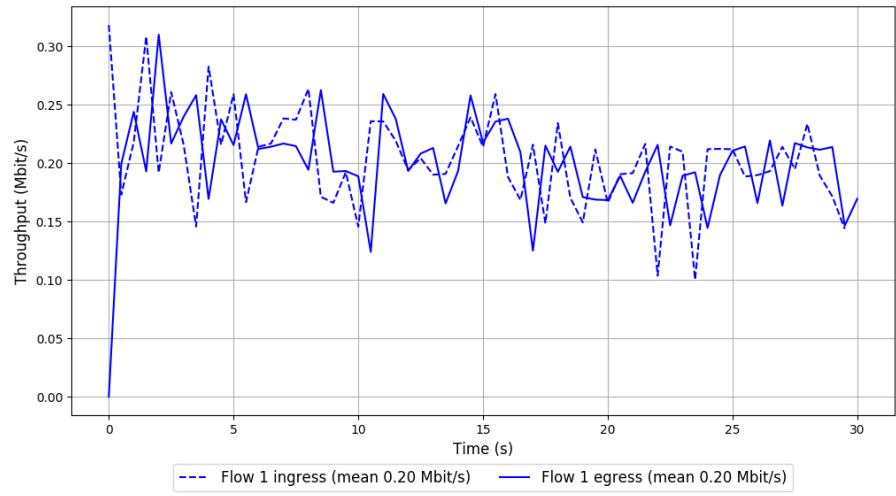


Run 1: Statistics of Sprout

Start at: 2019-01-21 19:40:03
End at: 2019-01-21 19:40:33
Local clock offset: 1.625 ms
Remote clock offset: -4.277 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 116.572 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 116.572 ms
Loss rate: 0.17%

Run 1: Report of Sprout — Data Link

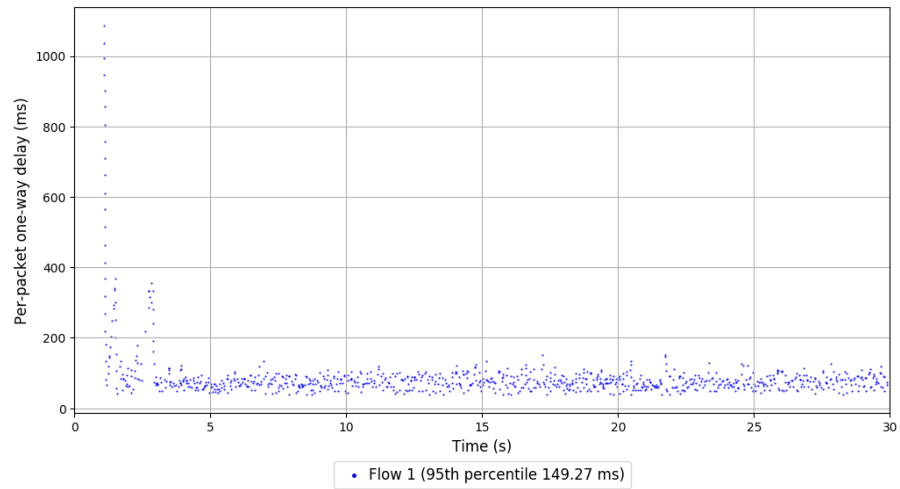
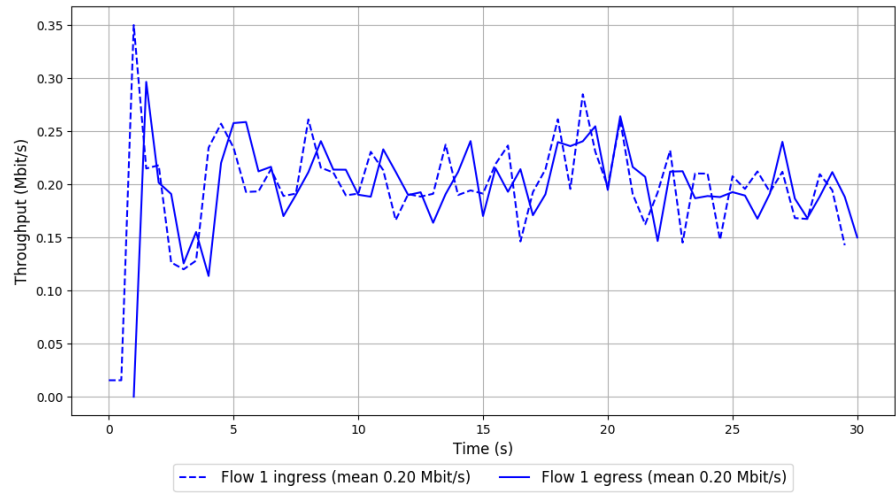


Run 2: Statistics of Sprout

Start at: 2019-01-21 20:03:31
End at: 2019-01-21 20:04:01
Local clock offset: -2.185 ms
Remote clock offset: -5.599 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 149.274 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 149.274 ms
Loss rate: 0.61%

Run 2: Report of Sprout — Data Link

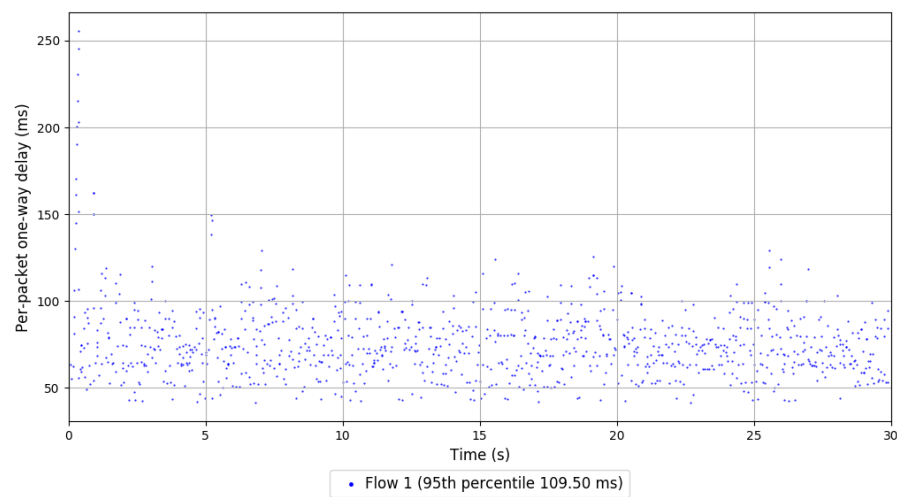
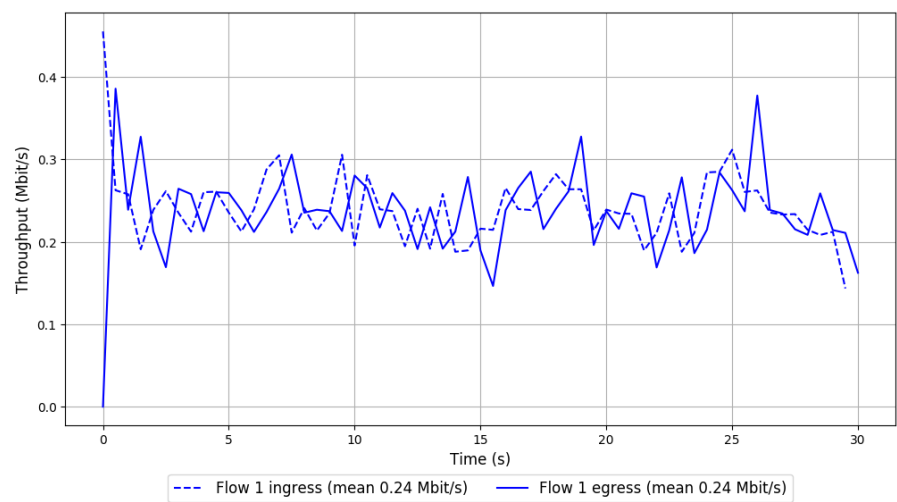


Run 3: Statistics of Sprout

Start at: 2019-01-21 20:27:01
End at: 2019-01-21 20:27:31
Local clock offset: -1.901 ms
Remote clock offset: -6.695 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 109.505 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 109.505 ms
Loss rate: 0.01%

Run 3: Report of Sprout — Data Link

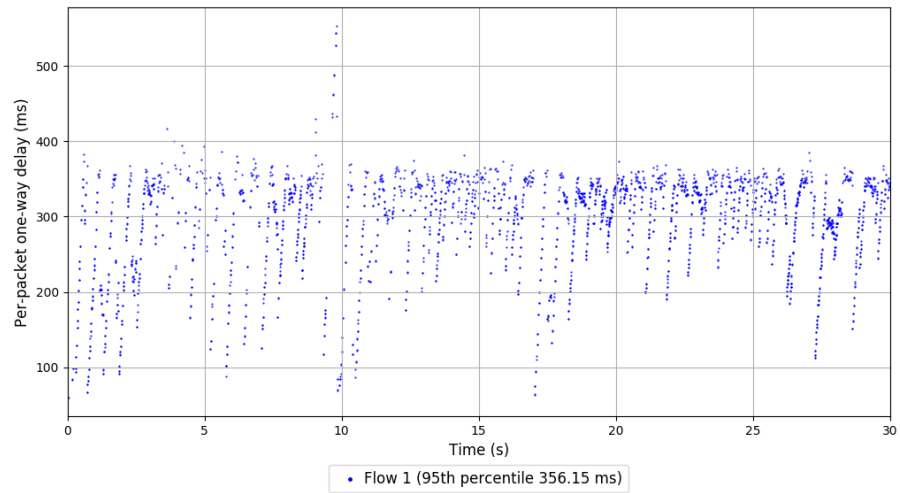
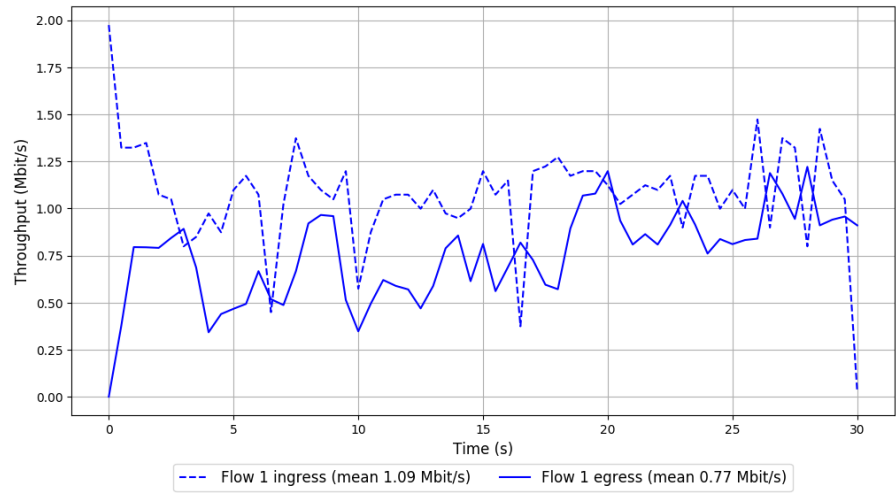


Run 1: Statistics of TaoVA-100x

Start at: 2019-01-21 19:32:18
End at: 2019-01-21 19:32:48
Local clock offset: -0.345 ms
Remote clock offset: -3.941 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 356.154 ms
Loss rate: 29.63%
-- Flow 1:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 356.154 ms
Loss rate: 29.63%

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

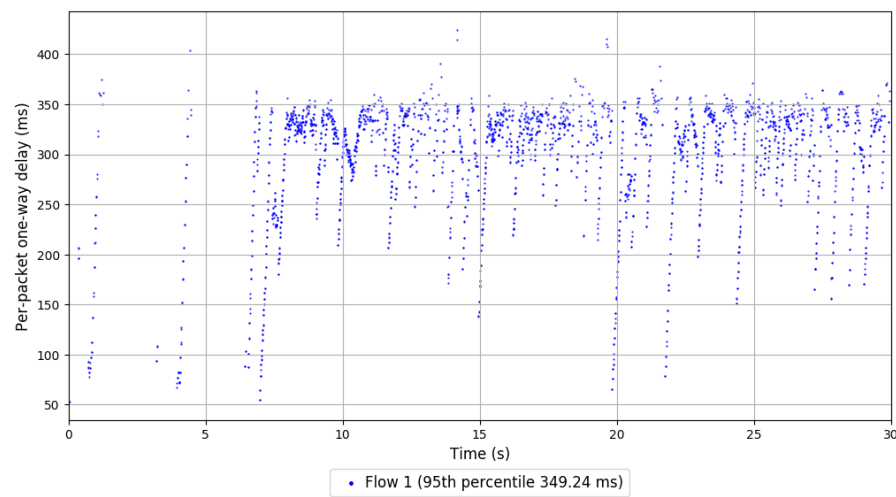
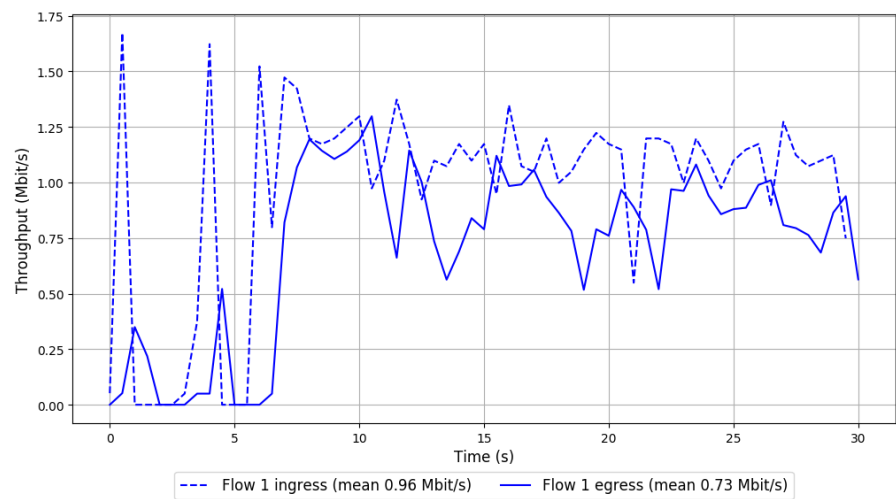


Run 2: Statistics of TaoVA-100x

Start at: 2019-01-21 19:55:42
End at: 2019-01-21 19:56:12
Local clock offset: -1.948 ms
Remote clock offset: -3.931 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 349.242 ms
Loss rate: 24.53%
-- Flow 1:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 349.242 ms
Loss rate: 24.53%

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

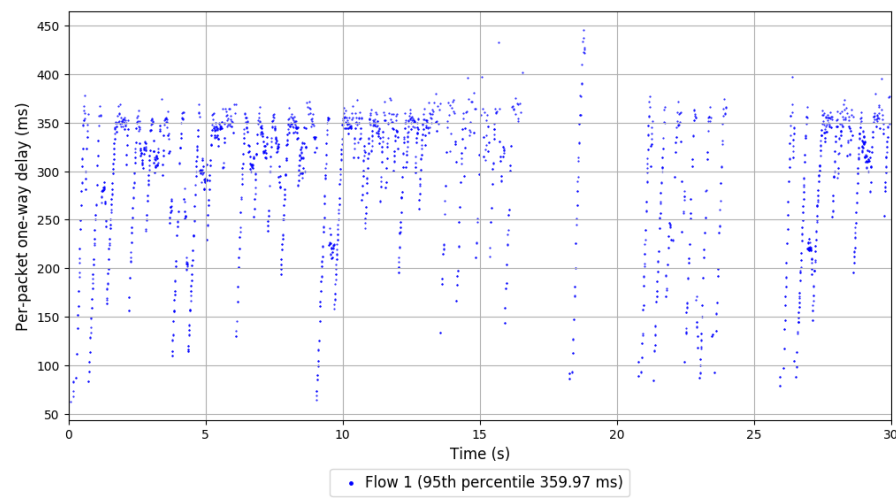
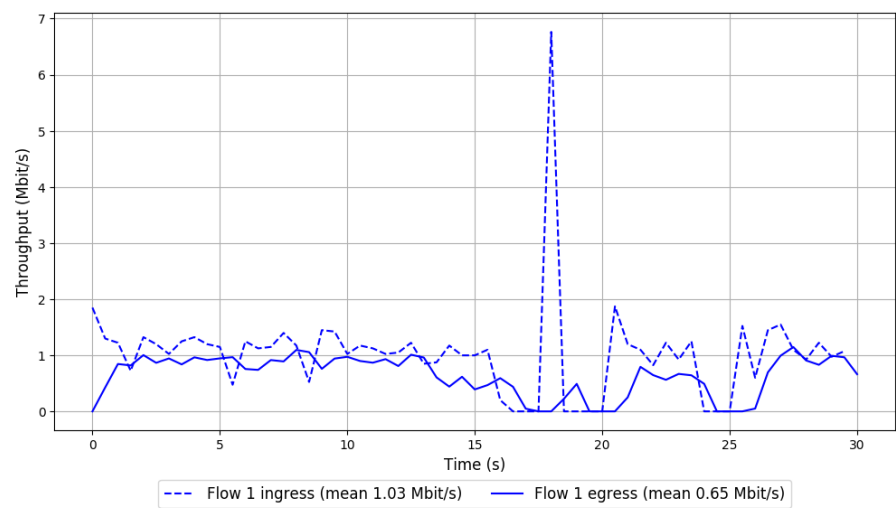


Run 3: Statistics of TaoVA-100x

Start at: 2019-01-21 20:19:15
End at: 2019-01-21 20:19:45
Local clock offset: 0.668 ms
Remote clock offset: -4.806 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 359.970 ms
Loss rate: 37.40%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 359.970 ms
Loss rate: 37.40%

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

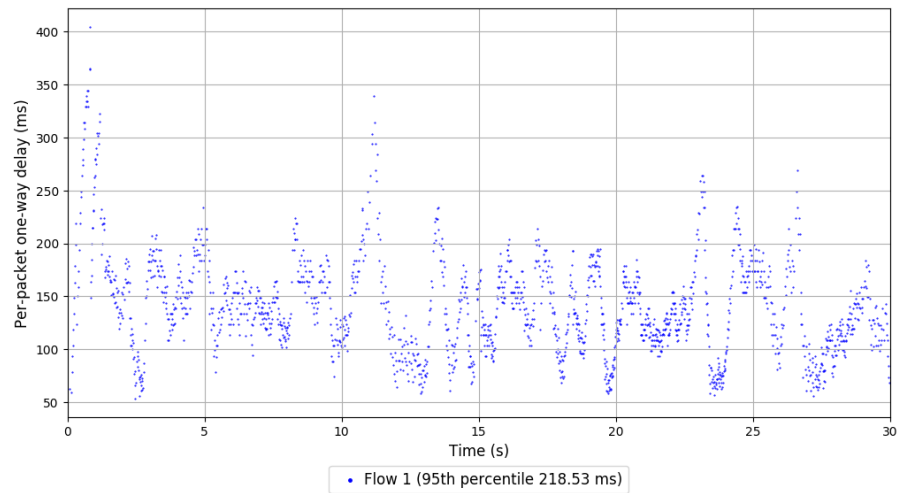
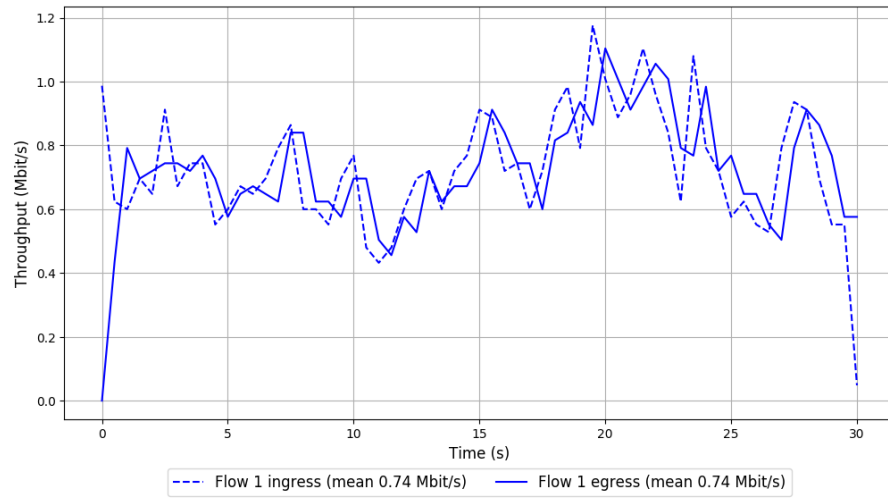


Run 1: Statistics of TCP Vegas

Start at: 2019-01-21 19:33:25
End at: 2019-01-21 19:33:55
Local clock offset: -2.218 ms
Remote clock offset: -5.708 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 218.530 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 218.530 ms
Loss rate: 0.54%

Run 1: Report of TCP Vegas — Data Link

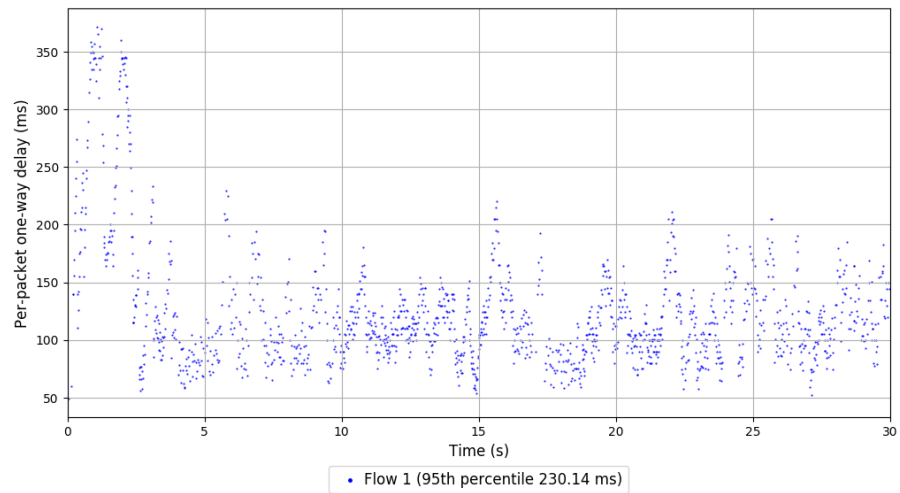
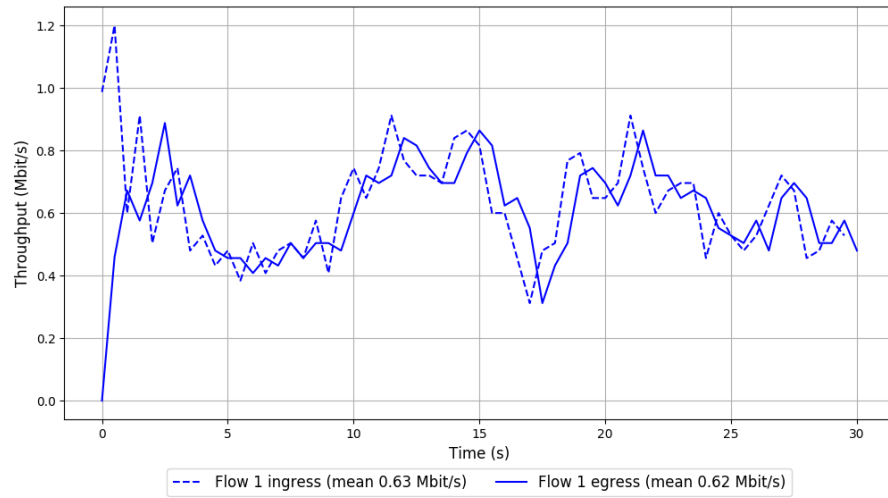


Run 2: Statistics of TCP Vegas

Start at: 2019-01-21 19:56:51
End at: 2019-01-21 19:57:21
Local clock offset: 0.458 ms
Remote clock offset: -4.435 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 230.138 ms
Loss rate: 2.54%
-- Flow 1:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 230.138 ms
Loss rate: 2.54%

Run 2: Report of TCP Vegas — Data Link

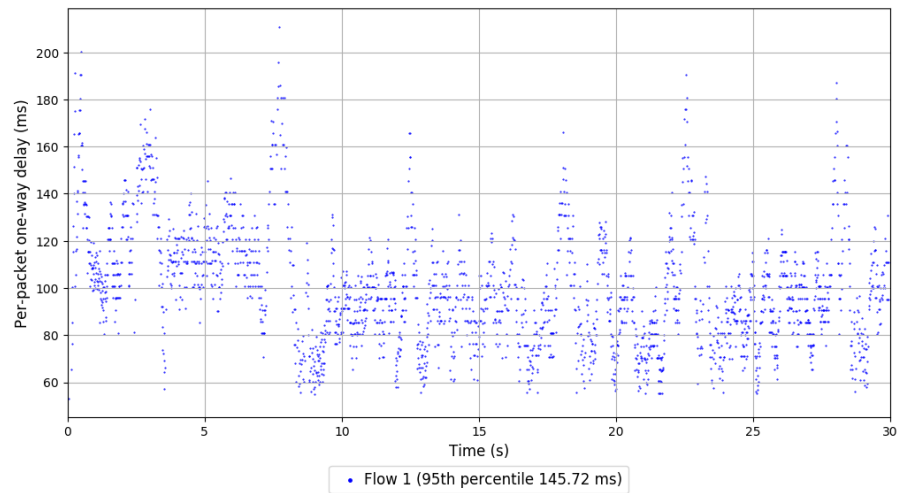
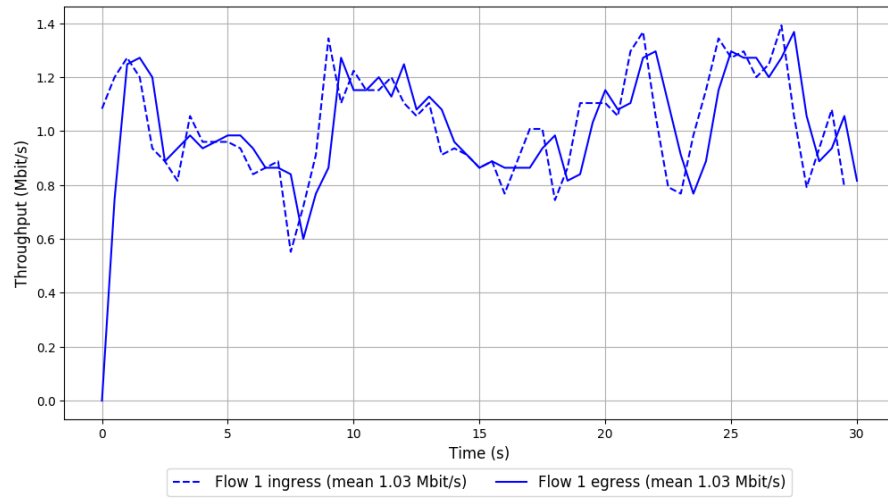


Run 3: Statistics of TCP Vegas

Start at: 2019-01-21 20:20:22
End at: 2019-01-21 20:20:52
Local clock offset: 0.992 ms
Remote clock offset: -6.379 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 145.717 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 145.717 ms
Loss rate: 0.27%

Run 3: Report of TCP Vegas — Data Link

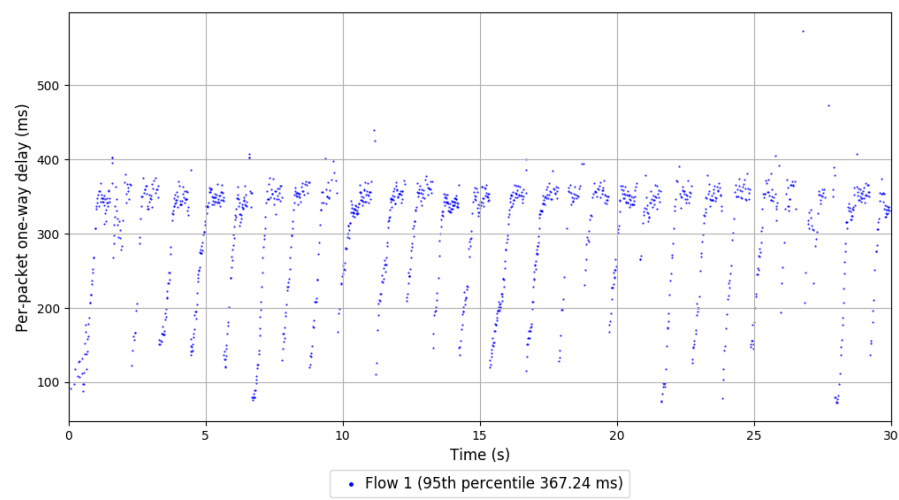
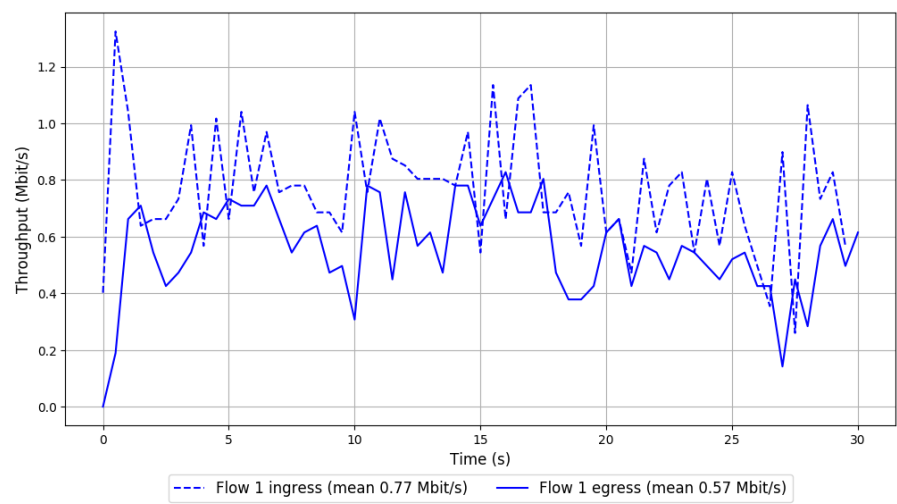


Run 1: Statistics of Verus

Start at: 2019-01-21 19:23:17
End at: 2019-01-21 19:23:47
Local clock offset: -1.03 ms
Remote clock offset: -6.328 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 367.244 ms
Loss rate: 26.33%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 367.244 ms
Loss rate: 26.33%

Run 1: Report of Verus — Data Link

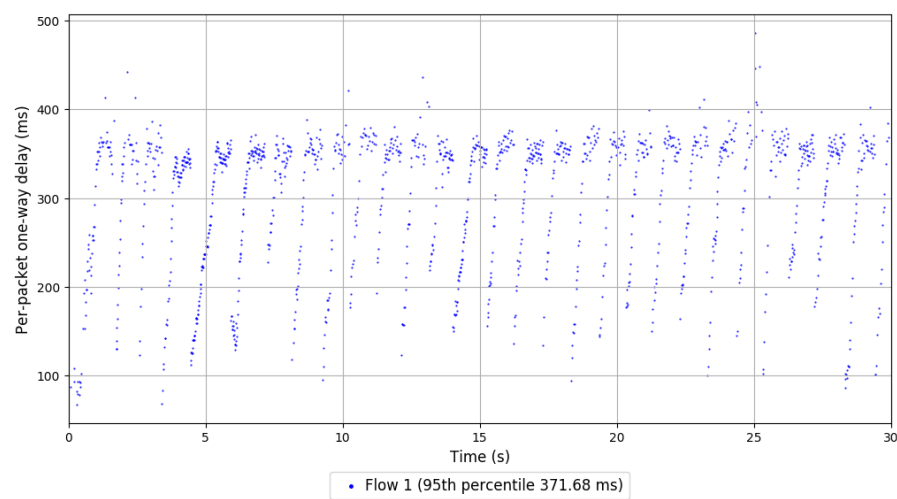
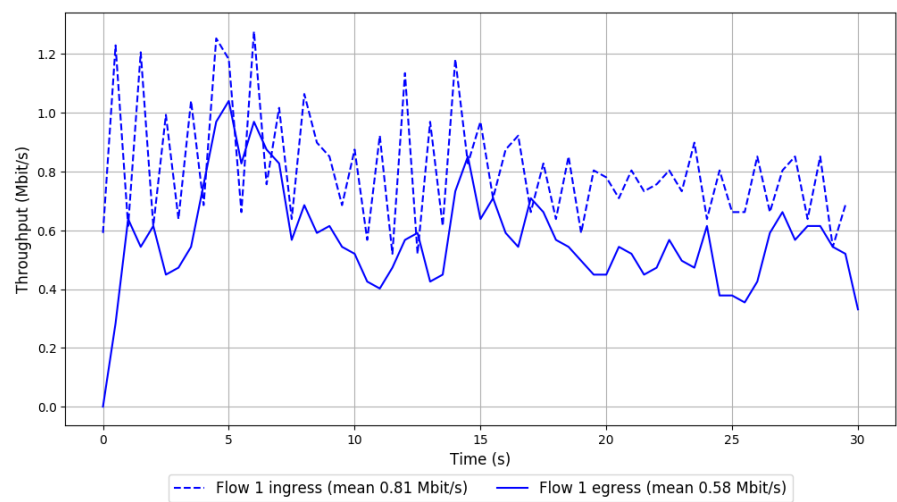


Run 2: Statistics of Verus

Start at: 2019-01-21 19:46:44
End at: 2019-01-21 19:47:14
Local clock offset: 2.088 ms
Remote clock offset: -4.604 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 371.680 ms
Loss rate: 28.76%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 371.680 ms
Loss rate: 28.76%

Run 2: Report of Verus — Data Link

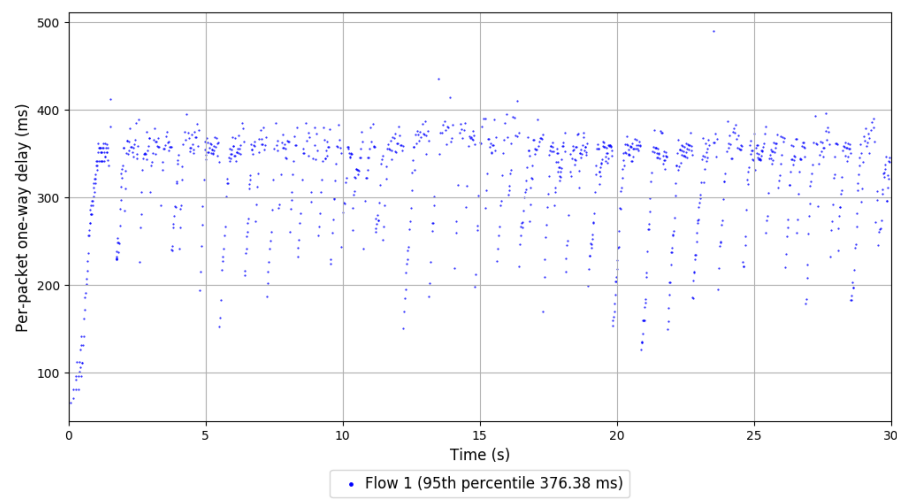
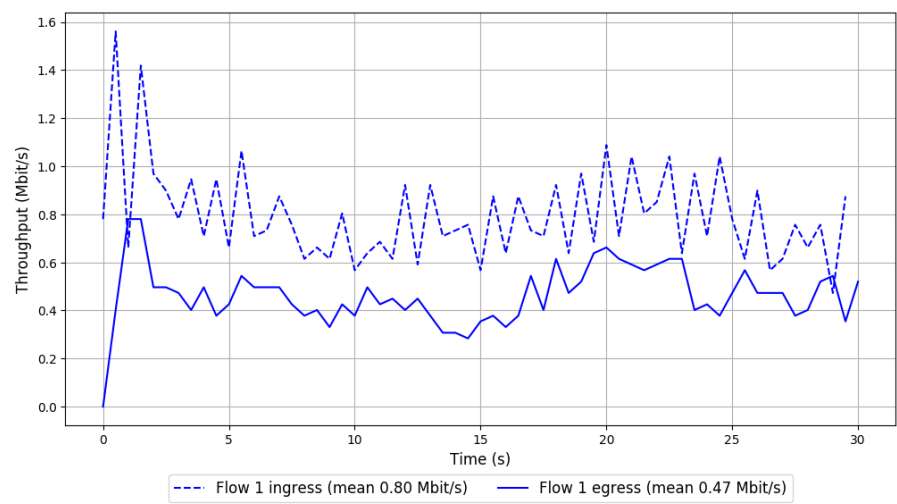


Run 3: Statistics of Verus

Start at: 2019-01-21 20:10:20
End at: 2019-01-21 20:10:50
Local clock offset: -0.093 ms
Remote clock offset: -4.868 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 376.378 ms
Loss rate: 40.85%
-- Flow 1:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 376.378 ms
Loss rate: 40.85%

Run 3: Report of Verus — Data Link

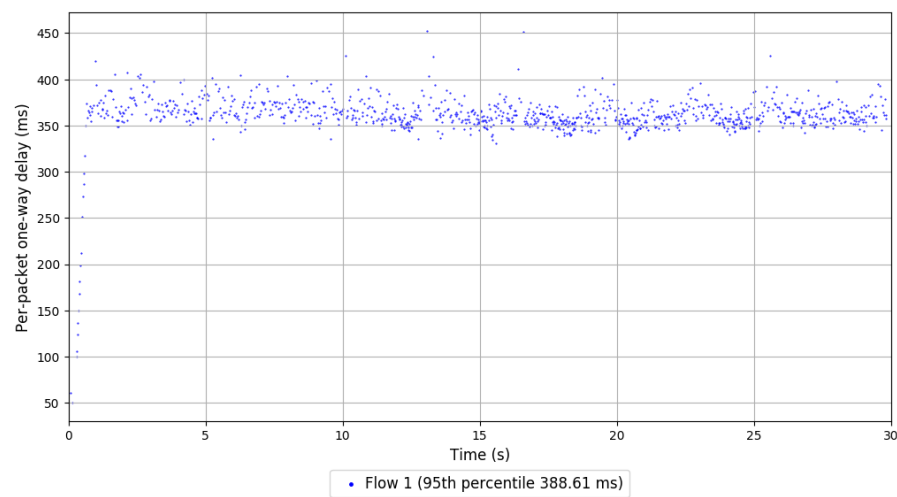
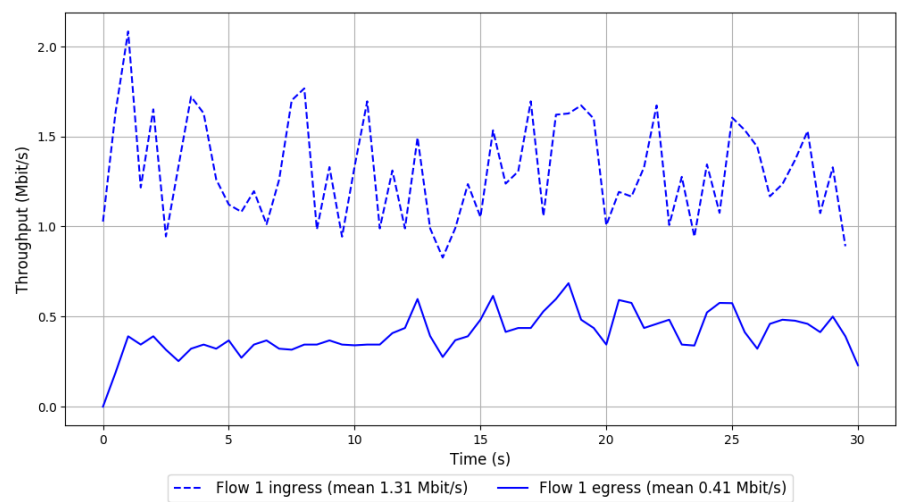


Run 1: Statistics of PCC-Vivace

Start at: 2019-01-21 19:25:30
End at: 2019-01-21 19:26:00
Local clock offset: -0.821 ms
Remote clock offset: -6.027 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 388.613 ms
Loss rate: 68.51%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 388.613 ms
Loss rate: 68.51%

Run 1: Report of PCC-Vivace — Data Link

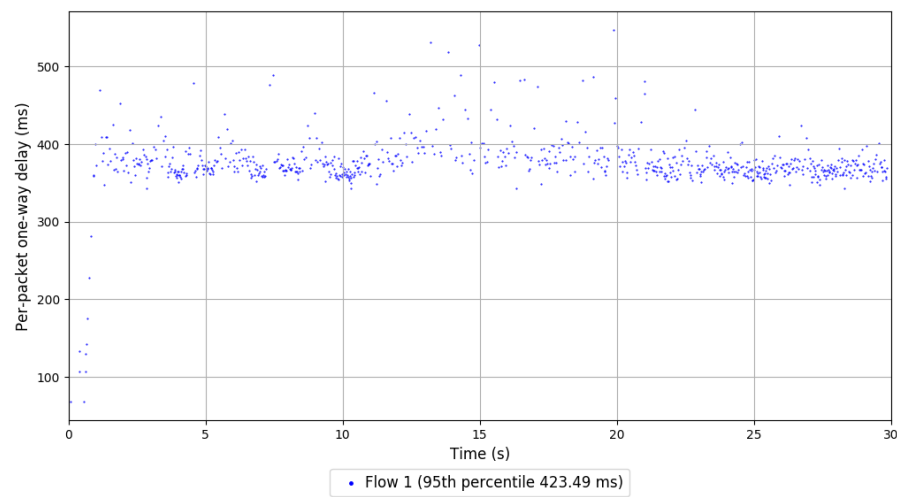
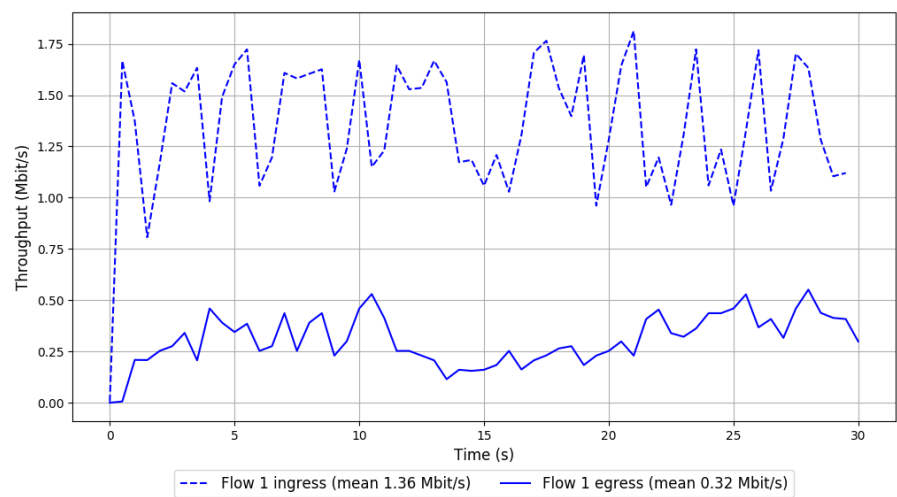


Run 2: Statistics of PCC-Vivace

Start at: 2019-01-21 19:48:57
End at: 2019-01-21 19:49:27
Local clock offset: 0.666 ms
Remote clock offset: -6.422 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 423.485 ms
Loss rate: 76.82%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 423.485 ms
Loss rate: 76.82%

Run 2: Report of PCC-Vivace — Data Link

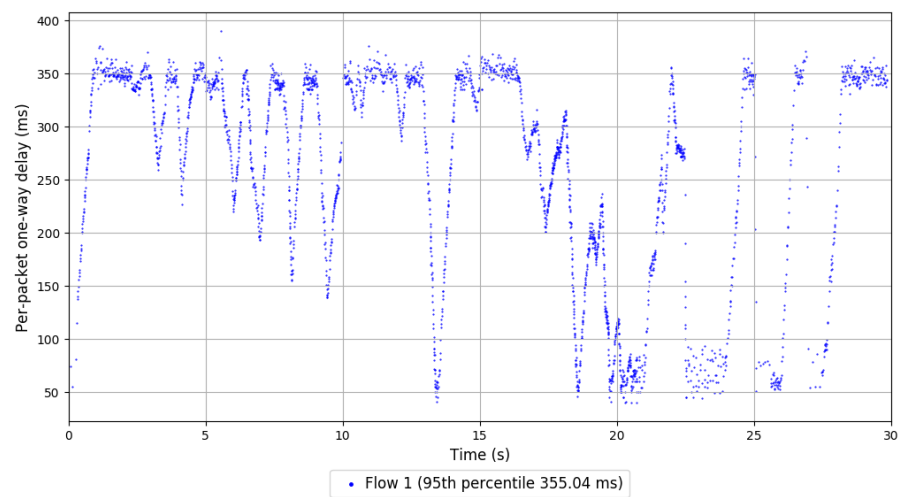
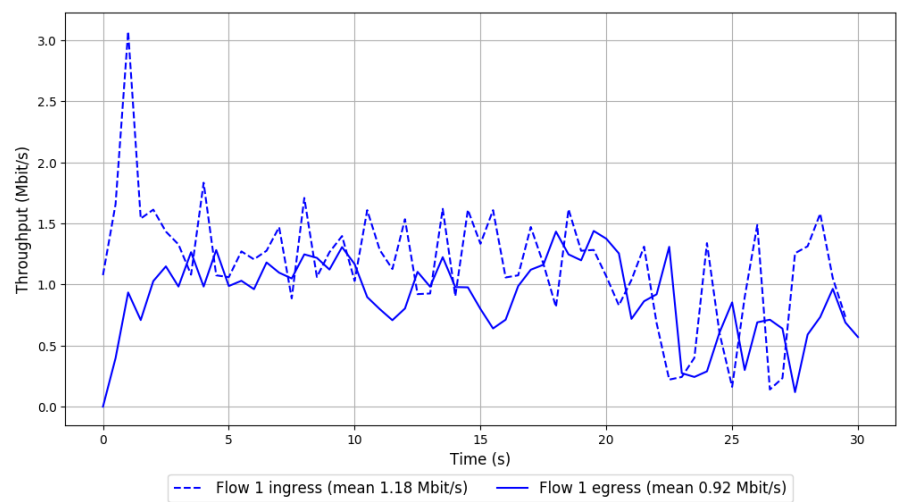


Run 3: Statistics of PCC-Vivace

Start at: 2019-01-21 20:12:34
End at: 2019-01-21 20:13:04
Local clock offset: -1.988 ms
Remote clock offset: -6.747 ms

Below is generated by plot.py at 2019-01-21 20:29:21
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 355.041 ms
Loss rate: 21.59%
-- Flow 1:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 355.041 ms
Loss rate: 21.59%

Run 3: Report of PCC-Vivace — Data Link

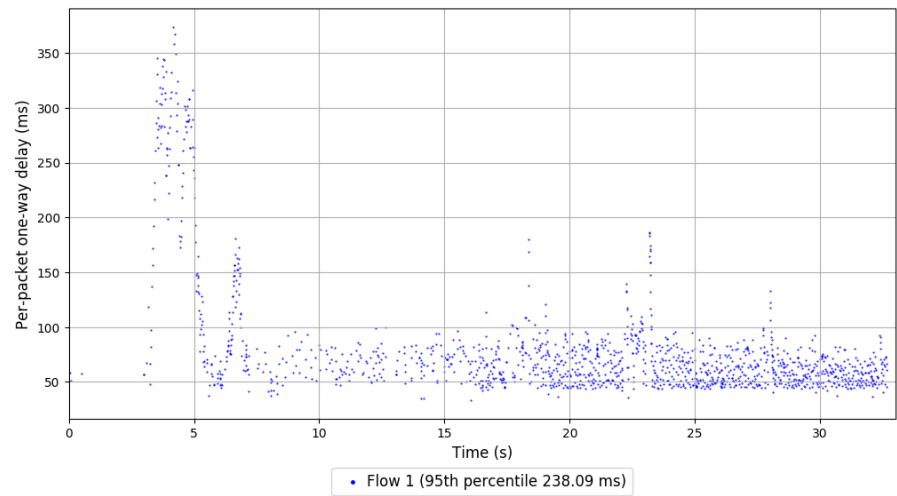
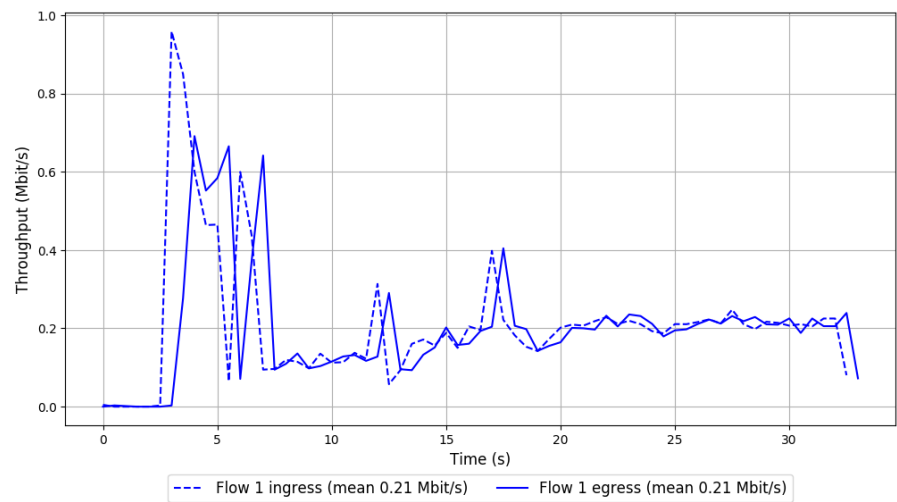


Run 1: Statistics of WebRTC media

Start at: 2019-01-21 19:37:50
End at: 2019-01-21 19:38:21
Local clock offset: -1.739 ms
Remote clock offset: -4.415 ms

Below is generated by plot.py at 2019-01-21 20:29:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 238.091 ms
Loss rate: 4.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 238.091 ms
Loss rate: 4.19%

Run 1: Report of WebRTC media — Data Link

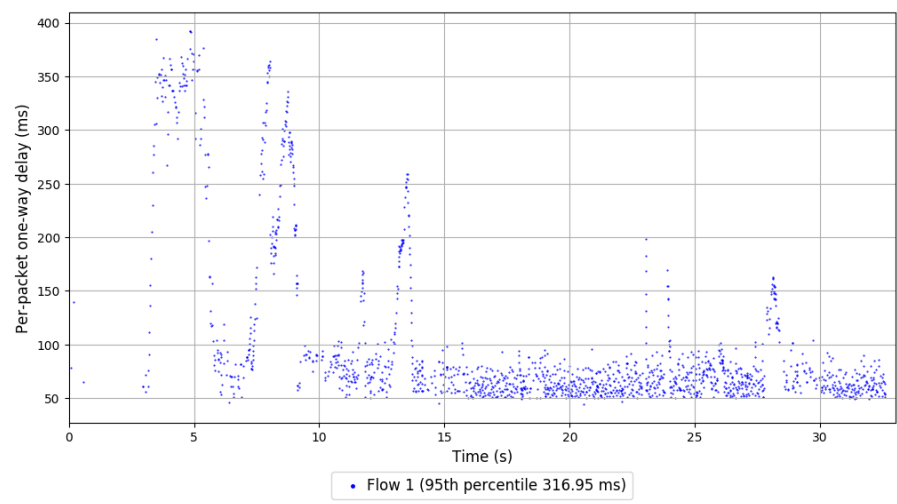
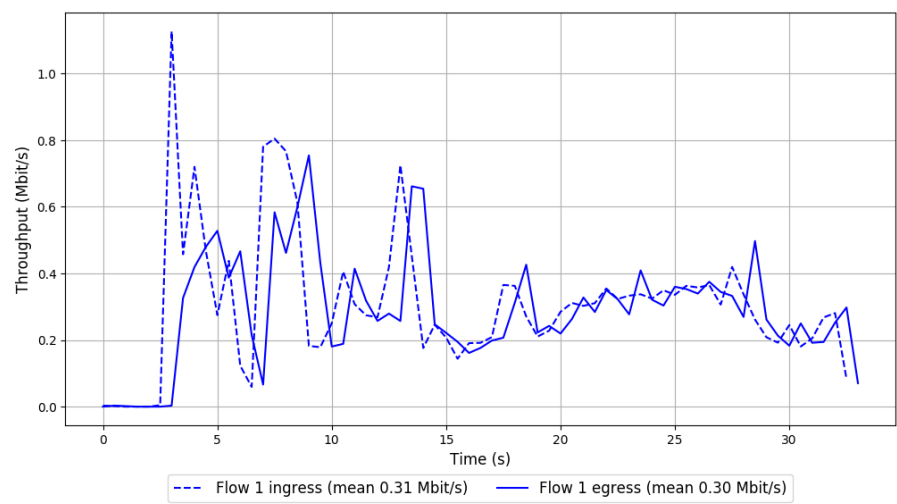


Run 2: Statistics of WebRTC media

Start at: 2019-01-21 20:01:18
End at: 2019-01-21 20:01:48
Local clock offset: -0.094 ms
Remote clock offset: -4.385 ms

Below is generated by plot.py at 2019-01-21 20:29:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 316.955 ms
Loss rate: 5.52%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 316.955 ms
Loss rate: 5.52%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2019-01-21 20:24:48
End at: 2019-01-21 20:25:18
Local clock offset: -2.043 ms
Remote clock offset: -5.162 ms

Below is generated by plot.py at 2019-01-21 20:29:22
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 296.960 ms
Loss rate: 7.43%
-- Flow 1:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 296.960 ms
Loss rate: 7.43%

Run 3: Report of WebRTC media — Data Link

