

Pantheon Report

Generated at 2018-12-20 02:48:54 (UTC).
Data path: GCE Sydney on `ens4 (local)` → GCE Iowa on `ens4 (remote)`.
Repeated the test of 19 congestion control schemes 5 times.
Each test lasted for 30 seconds running 1 flow.
NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

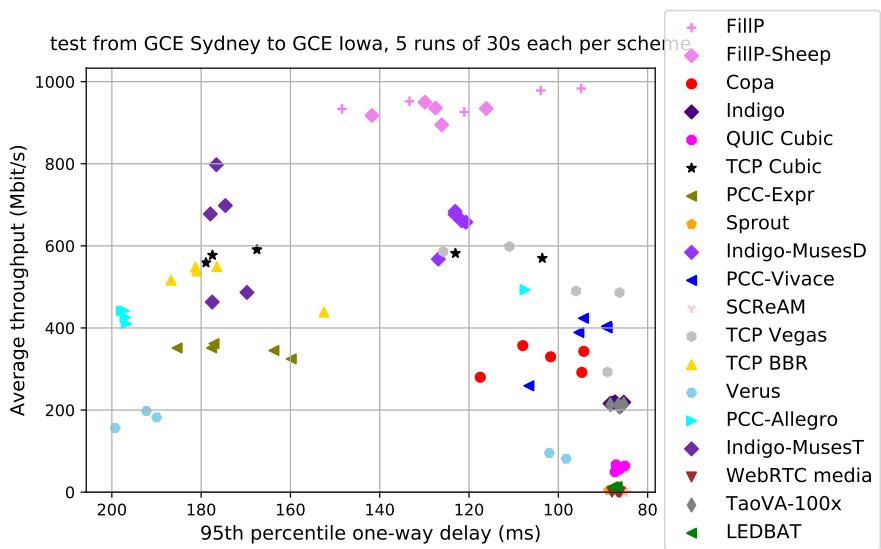
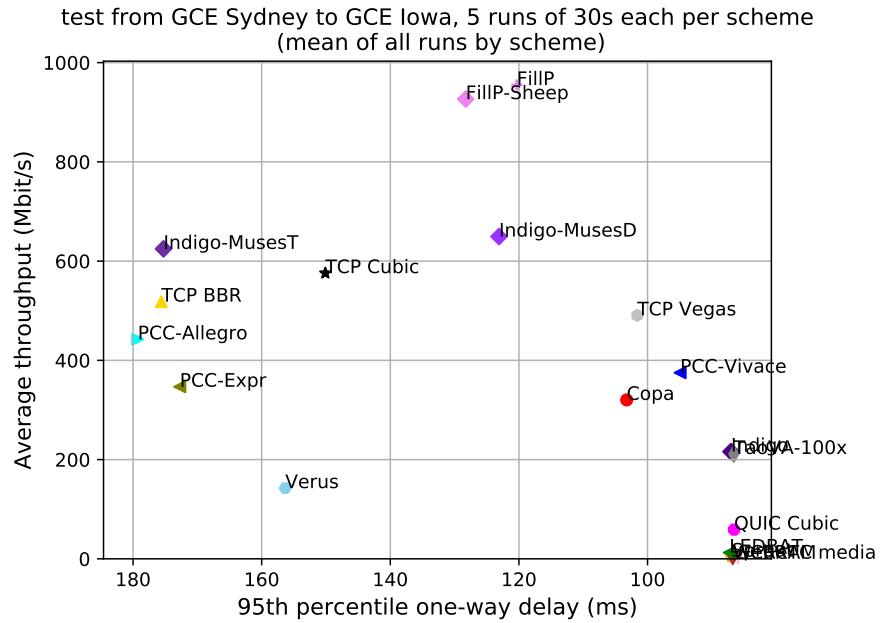
System info:

```
Linux 4.15.0-1025-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

```
branch: muses @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fc45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbfed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
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-quic @ 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



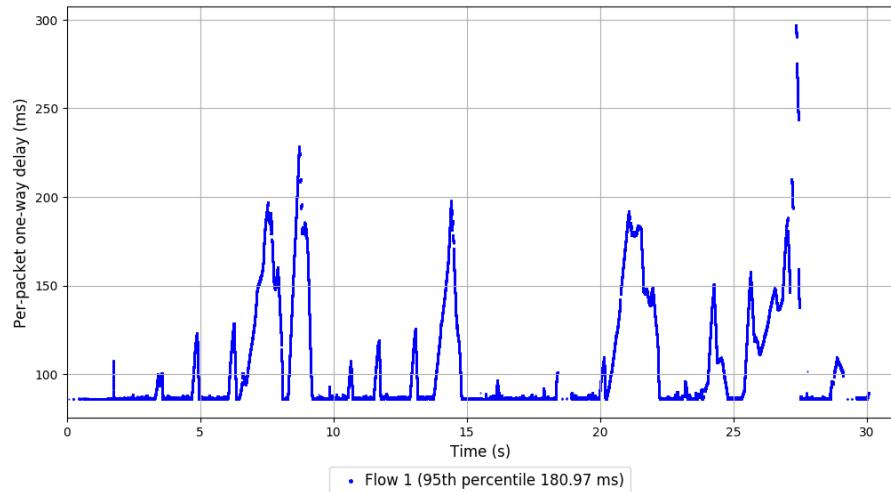
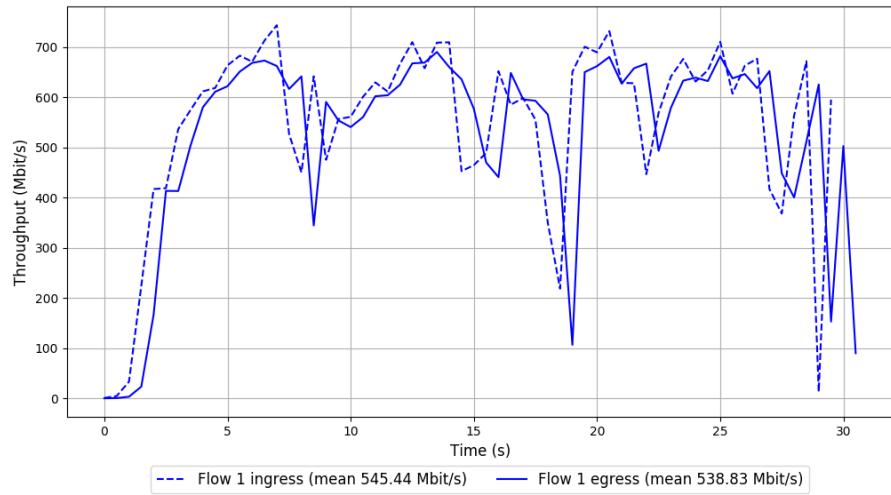
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	518.30	175.60	0.94
Copa	5	320.25	103.24	0.01
TCP Cubic	5	575.77	150.10	0.10
FillP	5	954.79	120.33	0.82
FillP-Sheep	5	926.49	128.27	0.58
Indigo	5	216.06	87.02	0.00
Indigo-MusesD	5	649.43	123.10	0.25
Indigo-MusesT	5	624.65	175.27	2.99
LEDBAT	5	12.55	87.29	0.00
PCC-Allegro	5	442.36	179.27	1.98
PCC-Expr	5	346.79	172.74	1.52
QUIC Cubic	5	58.84	86.55	0.00
SCReAM	5	0.22	85.92	0.00
Sprout	5	4.33	86.97	0.00
TaoVA-100x	5	211.24	86.59	0.00
TCP Vegas	5	490.59	101.61	0.07
Verus	5	142.53	156.34	0.58
PCC-Vivace	5	375.09	94.94	0.03
WebRTC media	5	0.29	86.75	0.00

Run 1: Statistics of TCP BBR

```
Start at: 2018-12-19 22:55:37
End at: 2018-12-19 22:56:07
Local clock offset: 13.621 ms
Remote clock offset: 15.627 ms

# Below is generated by plot.py at 2018-12-20 01:19:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 538.83 Mbit/s
95th percentile per-packet one-way delay: 180.972 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 538.83 Mbit/s
95th percentile per-packet one-way delay: 180.972 ms
Loss rate: 1.21%
```

Run 1: Report of TCP BBR — Data Link

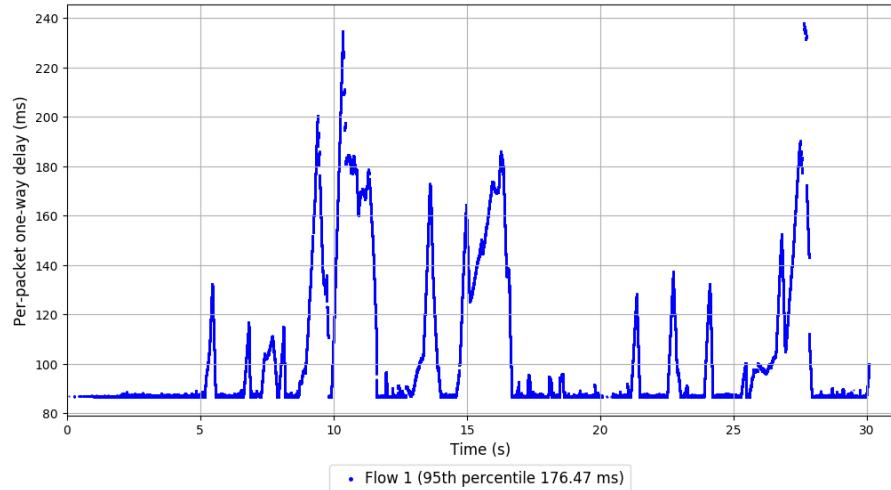
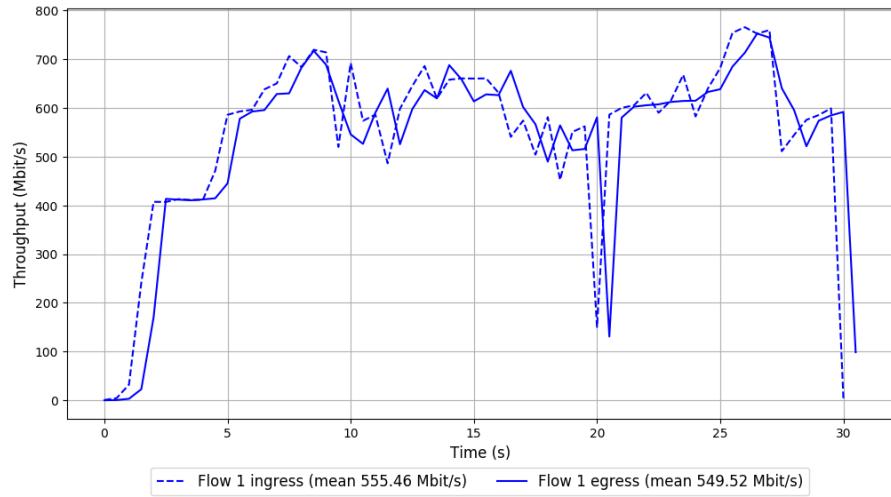


Run 2: Statistics of TCP BBR

```
Start at: 2018-12-19 23:24:28
End at: 2018-12-19 23:24:58
Local clock offset: 22.952 ms
Remote clock offset: 26.347 ms

# Below is generated by plot.py at 2018-12-20 01:20:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 549.52 Mbit/s
95th percentile per-packet one-way delay: 176.474 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 549.52 Mbit/s
95th percentile per-packet one-way delay: 176.474 ms
Loss rate: 1.07%
```

Run 2: Report of TCP BBR — Data Link

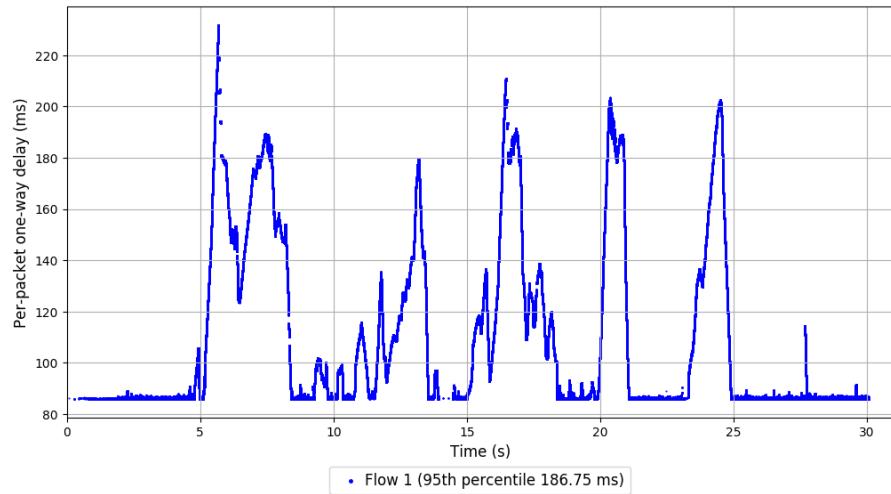
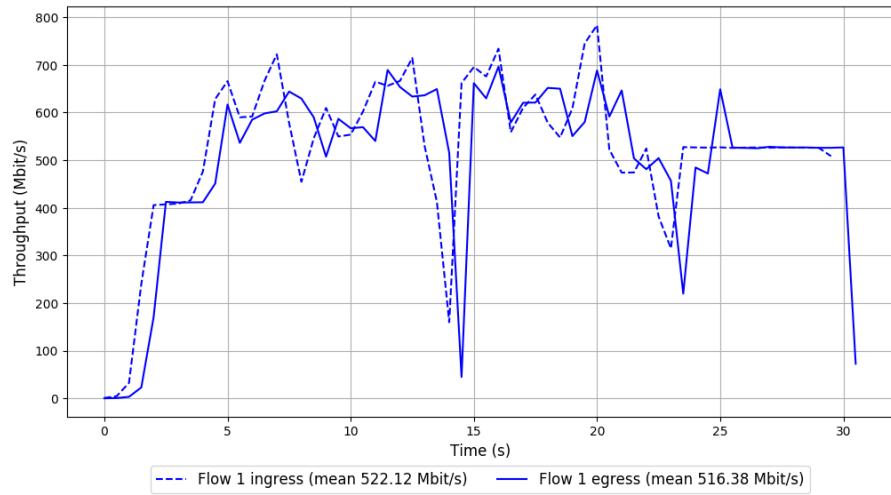


Run 3: Statistics of TCP BBR

```
Start at: 2018-12-19 23:53:06
End at: 2018-12-19 23:53:36
Local clock offset: 19.033 ms
Remote clock offset: 21.339 ms

# Below is generated by plot.py at 2018-12-20 01:20:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 516.38 Mbit/s
95th percentile per-packet one-way delay: 186.755 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 516.38 Mbit/s
95th percentile per-packet one-way delay: 186.755 ms
Loss rate: 1.10%
```

Run 3: Report of TCP BBR — Data Link

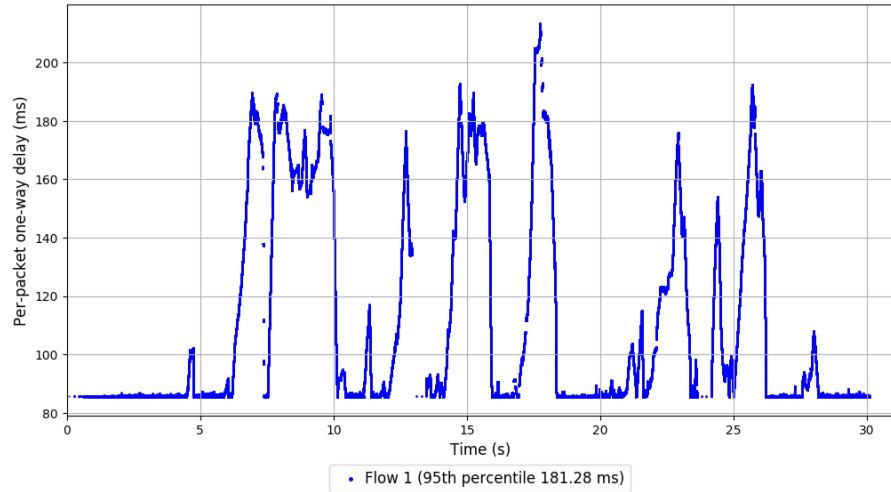
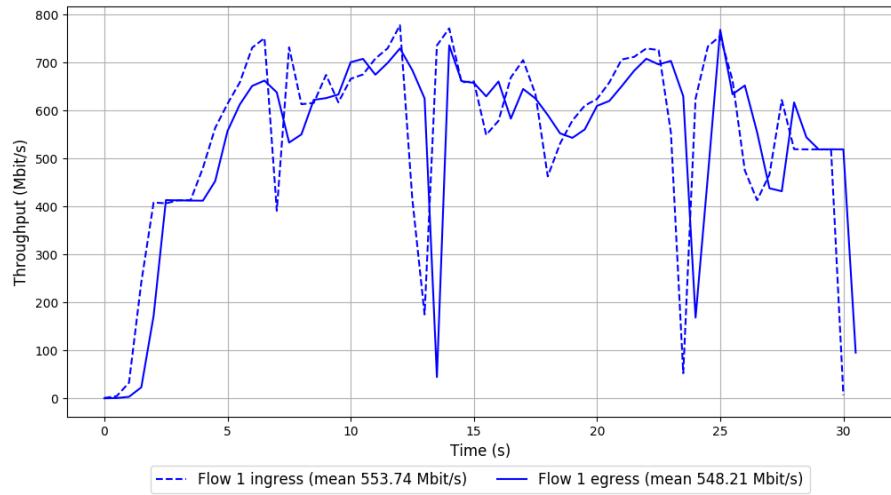


Run 4: Statistics of TCP BBR

```
Start at: 2018-12-20 00:21:51
End at: 2018-12-20 00:22:21
Local clock offset: 13.296 ms
Remote clock offset: 15.463 ms

# Below is generated by plot.py at 2018-12-20 01:20:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 548.21 Mbit/s
95th percentile per-packet one-way delay: 181.282 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 548.21 Mbit/s
95th percentile per-packet one-way delay: 181.282 ms
Loss rate: 1.00%
```

Run 4: Report of TCP BBR — Data Link

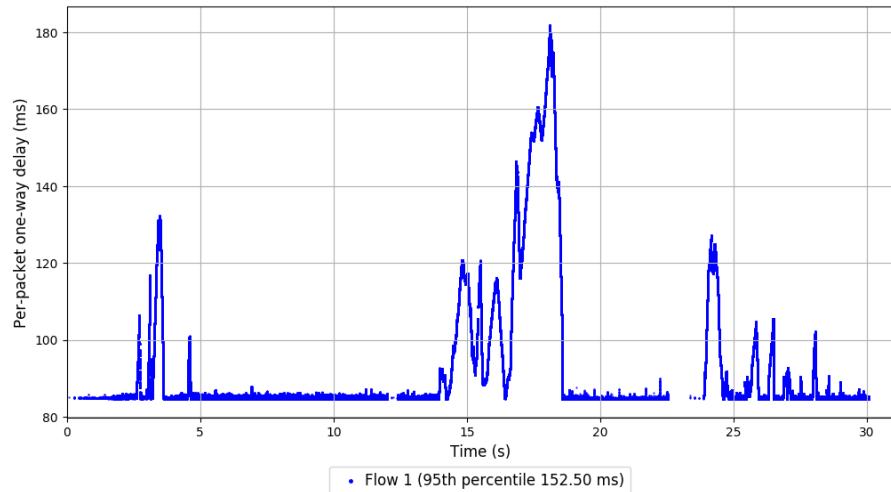
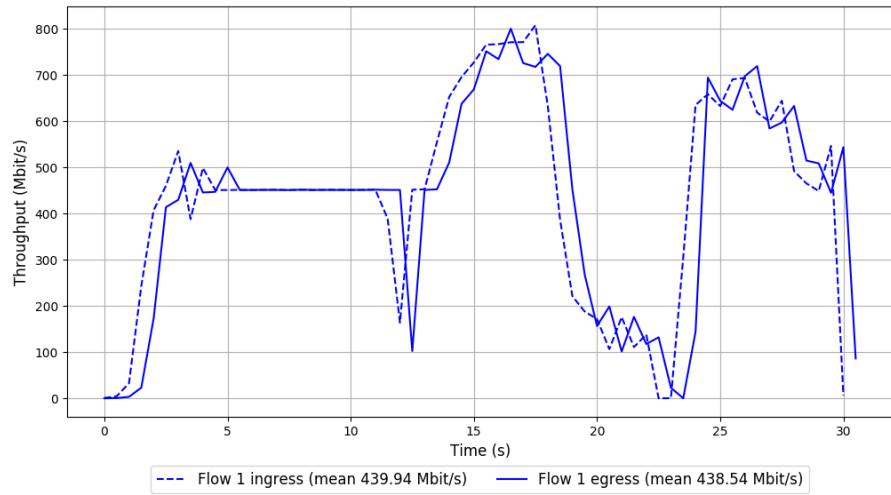


Run 5: Statistics of TCP BBR

```
Start at: 2018-12-20 00:50:36
End at: 2018-12-20 00:51:06
Local clock offset: 6.297 ms
Remote clock offset: 11.144 ms

# Below is generated by plot.py at 2018-12-20 01:20:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 438.54 Mbit/s
95th percentile per-packet one-way delay: 152.502 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 438.54 Mbit/s
95th percentile per-packet one-way delay: 152.502 ms
Loss rate: 0.32%
```

Run 5: Report of TCP BBR — Data Link

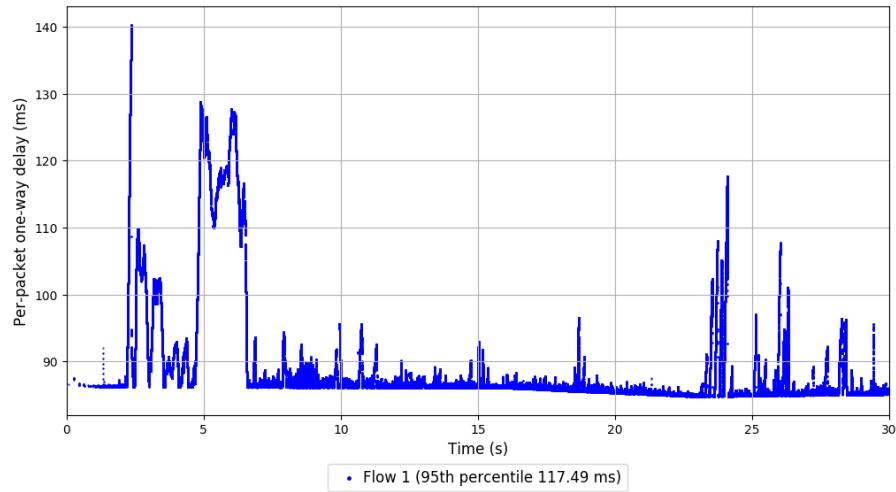
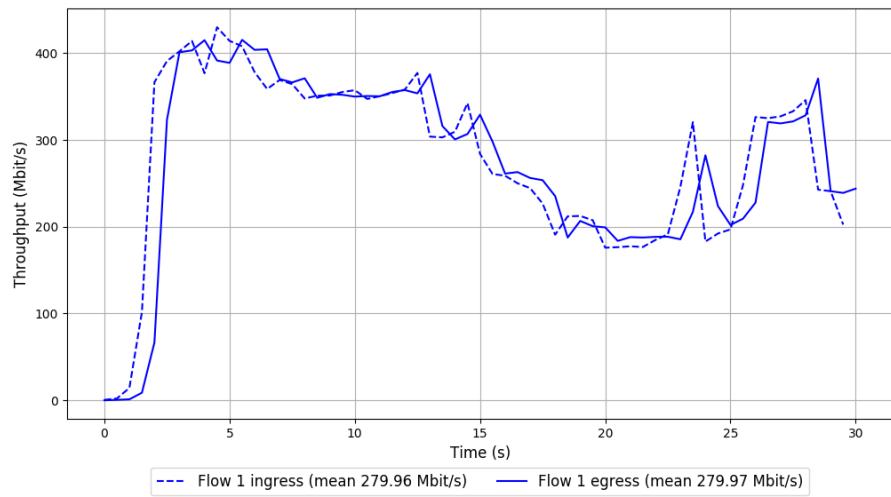


Run 1: Statistics of Copa

```
Start at: 2018-12-19 22:36:28
End at: 2018-12-19 22:36:58
Local clock offset: 3.455 ms
Remote clock offset: 4.105 ms

# Below is generated by plot.py at 2018-12-20 01:20:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 279.97 Mbit/s
95th percentile per-packet one-way delay: 117.493 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 279.97 Mbit/s
95th percentile per-packet one-way delay: 117.493 ms
Loss rate: 0.00%
```

Run 1: Report of Copa — Data Link

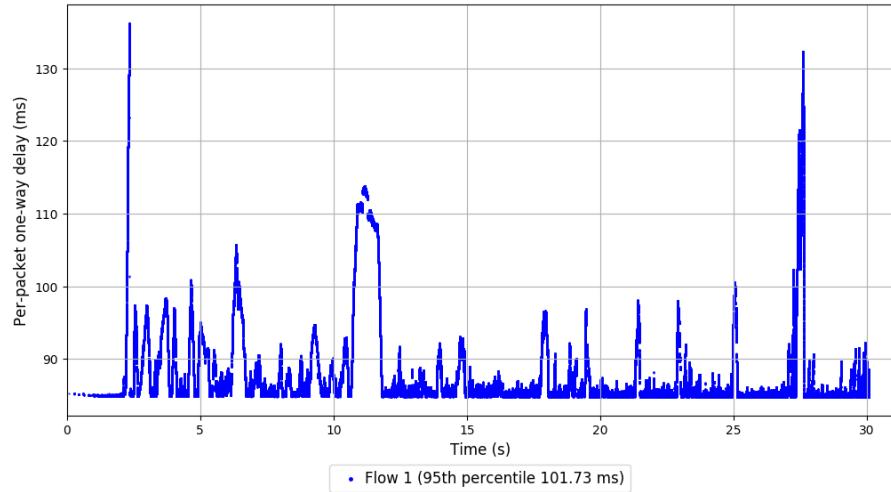
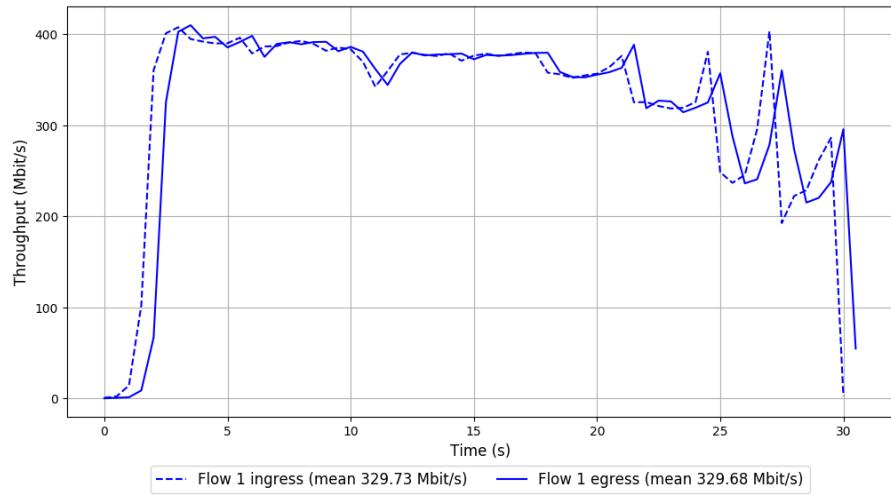


Run 2: Statistics of Copa

```
Start at: 2018-12-19 23:04:49
End at: 2018-12-19 23:05:19
Local clock offset: 22.862 ms
Remote clock offset: 24.728 ms

# Below is generated by plot.py at 2018-12-20 01:20:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 329.68 Mbit/s
95th percentile per-packet one-way delay: 101.729 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 329.68 Mbit/s
95th percentile per-packet one-way delay: 101.729 ms
Loss rate: 0.01%
```

Run 2: Report of Copa — Data Link

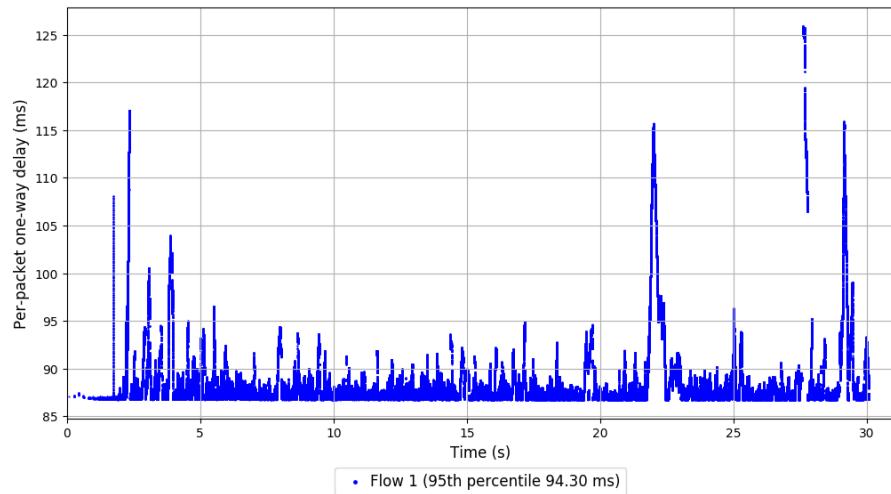
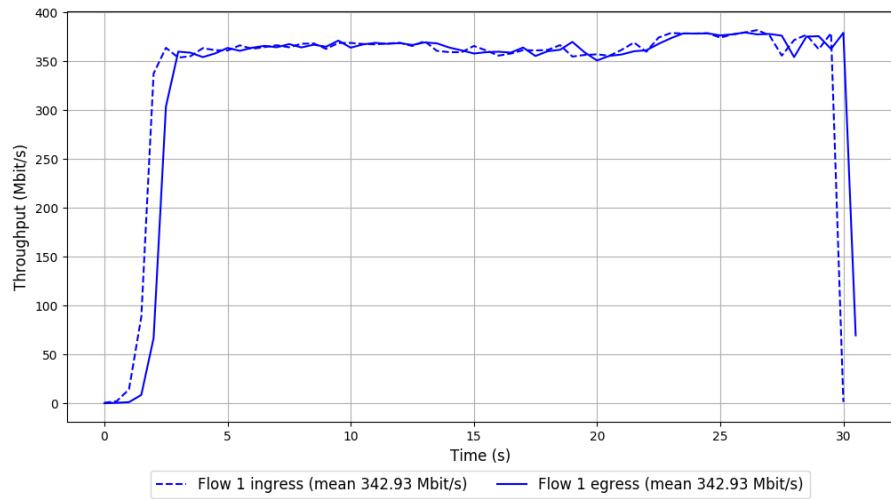


Run 3: Statistics of Copa

```
Start at: 2018-12-19 23:33:24
End at: 2018-12-19 23:33:54
Local clock offset: 30.722 ms
Remote clock offset: 35.274 ms

# Below is generated by plot.py at 2018-12-20 01:21:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 342.93 Mbit/s
95th percentile per-packet one-way delay: 94.296 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 342.93 Mbit/s
95th percentile per-packet one-way delay: 94.296 ms
Loss rate: 0.00%
```

Run 3: Report of Copa — Data Link

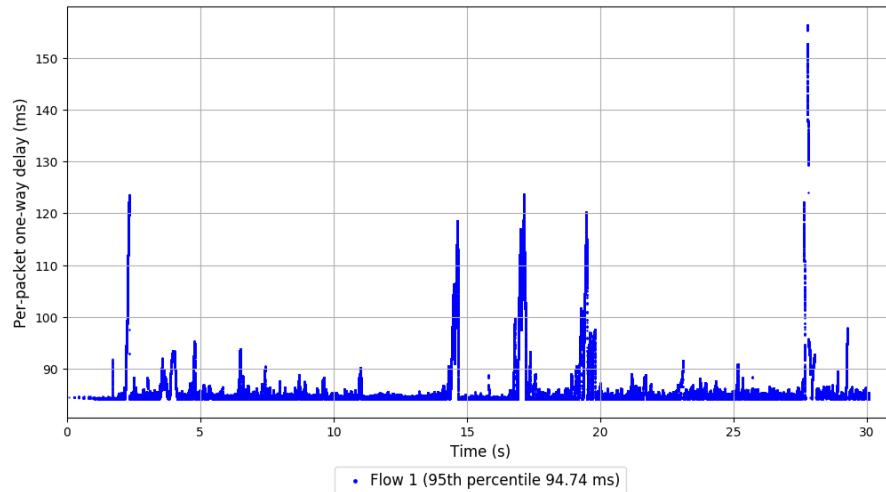
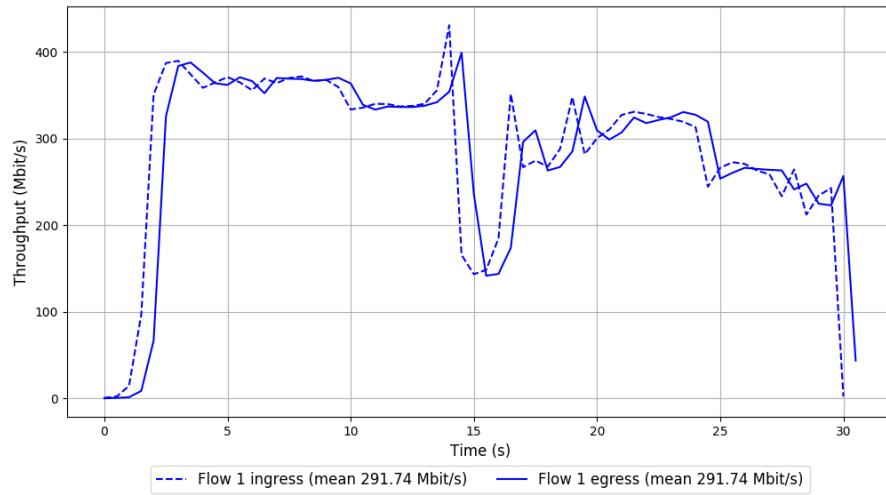


Run 4: Statistics of Copa

```
Start at: 2018-12-20 00:02:20
End at: 2018-12-20 00:02:50
Local clock offset: 17.458 ms
Remote clock offset: 17.922 ms

# Below is generated by plot.py at 2018-12-20 01:27:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 291.74 Mbit/s
95th percentile per-packet one-way delay: 94.741 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 291.74 Mbit/s
95th percentile per-packet one-way delay: 94.741 ms
Loss rate: 0.00%
```

Run 4: Report of Copa — Data Link

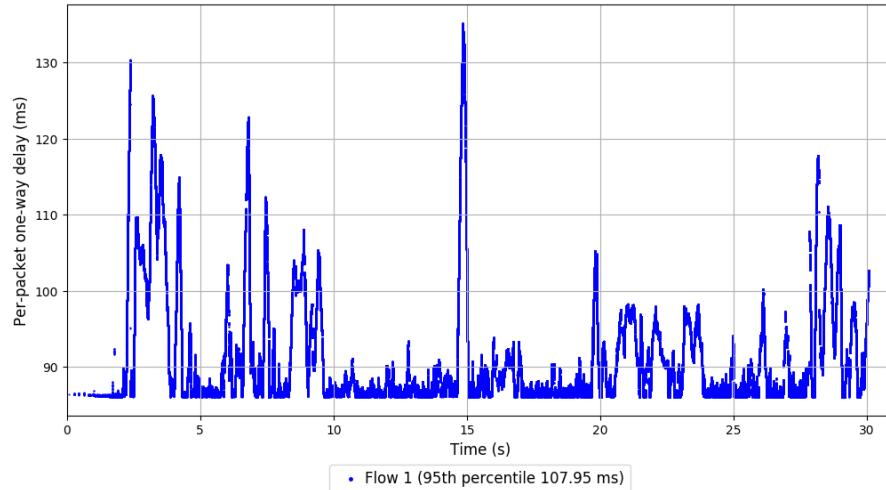
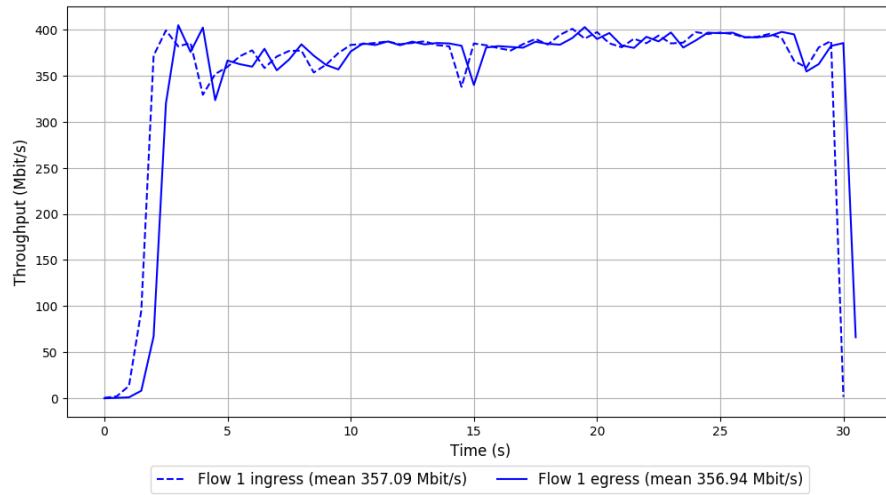


Run 5: Statistics of Copa

```
Start at: 2018-12-20 00:31:00
End at: 2018-12-20 00:31:30
Local clock offset: 6.458 ms
Remote clock offset: 9.174 ms

# Below is generated by plot.py at 2018-12-20 01:30:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 356.94 Mbit/s
95th percentile per-packet one-way delay: 107.953 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 356.94 Mbit/s
95th percentile per-packet one-way delay: 107.953 ms
Loss rate: 0.04%
```

Run 5: Report of Copa — Data Link

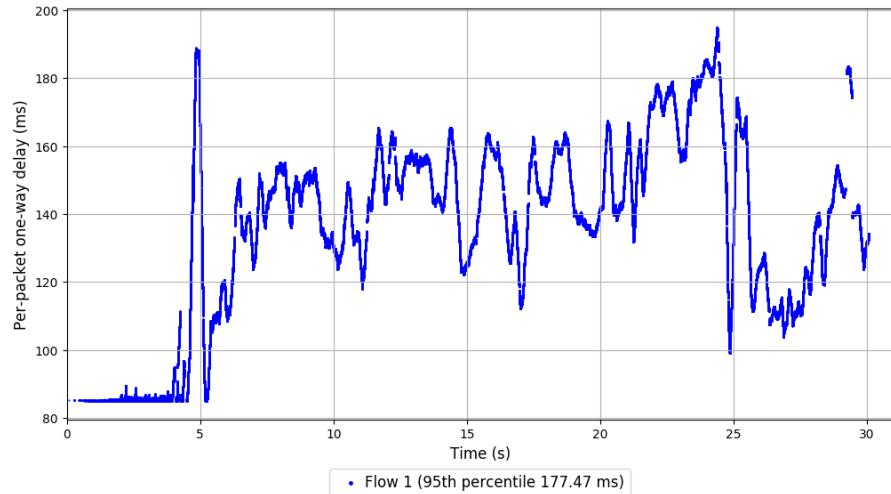
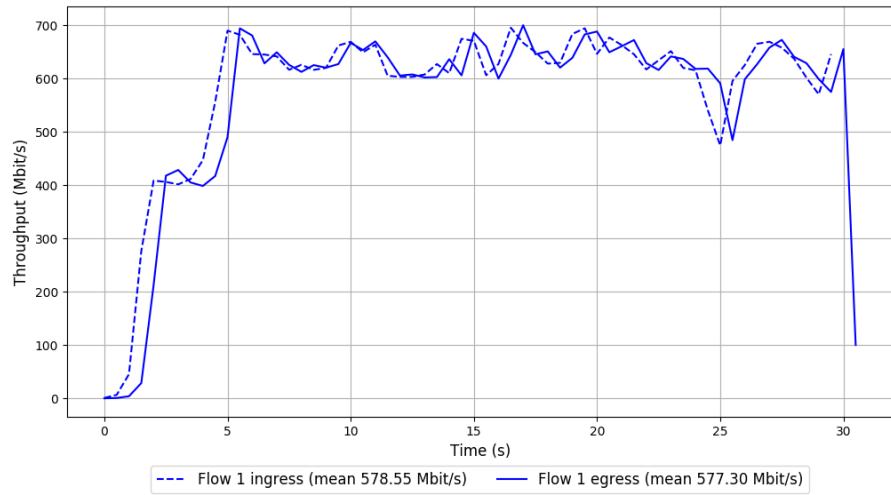


Run 1: Statistics of TCP Cubic

```
Start at: 2018-12-19 22:39:45
End at: 2018-12-19 22:40:15
Local clock offset: 7.819 ms
Remote clock offset: 7.275 ms

# Below is generated by plot.py at 2018-12-20 01:30:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 577.30 Mbit/s
95th percentile per-packet one-way delay: 177.465 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 577.30 Mbit/s
95th percentile per-packet one-way delay: 177.465 ms
Loss rate: 0.21%
```

Run 1: Report of TCP Cubic — Data Link

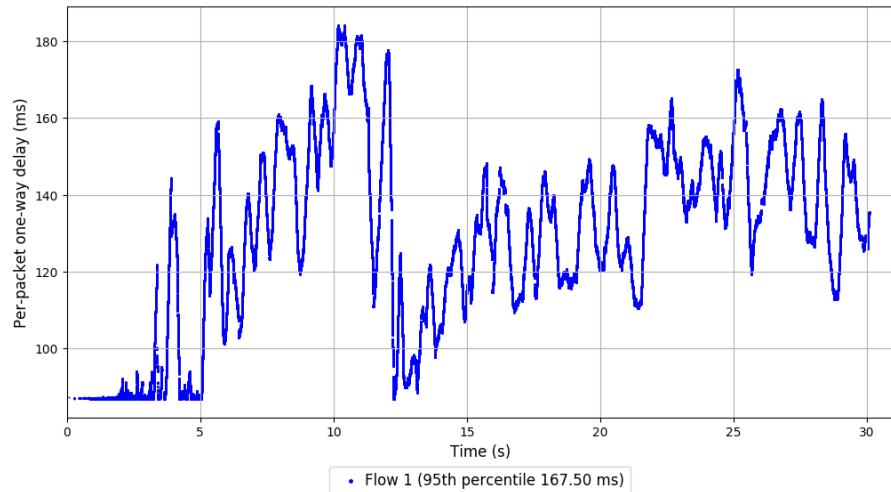
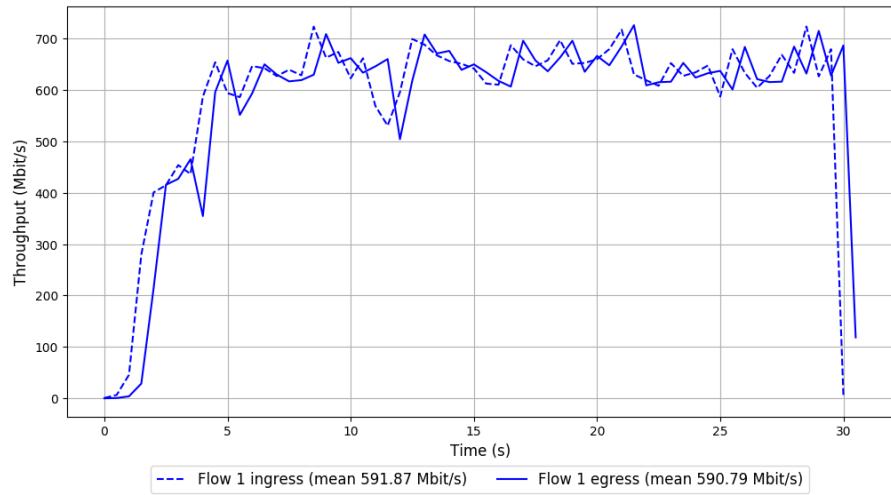


Run 2: Statistics of TCP Cubic

```
Start at: 2018-12-19 23:08:12
End at: 2018-12-19 23:08:42
Local clock offset: 26.236 ms
Remote clock offset: 30.234 ms

# Below is generated by plot.py at 2018-12-20 01:30:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 590.79 Mbit/s
95th percentile per-packet one-way delay: 167.498 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 590.79 Mbit/s
95th percentile per-packet one-way delay: 167.498 ms
Loss rate: 0.18%
```

Run 2: Report of TCP Cubic — Data Link

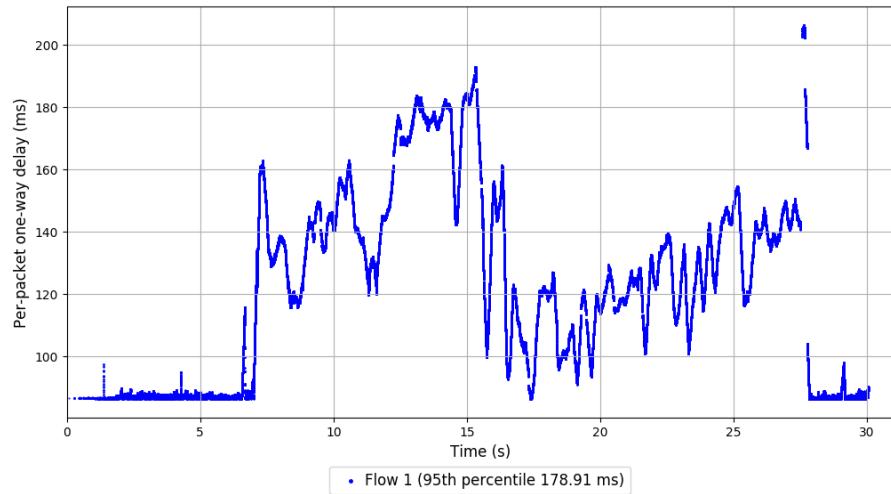
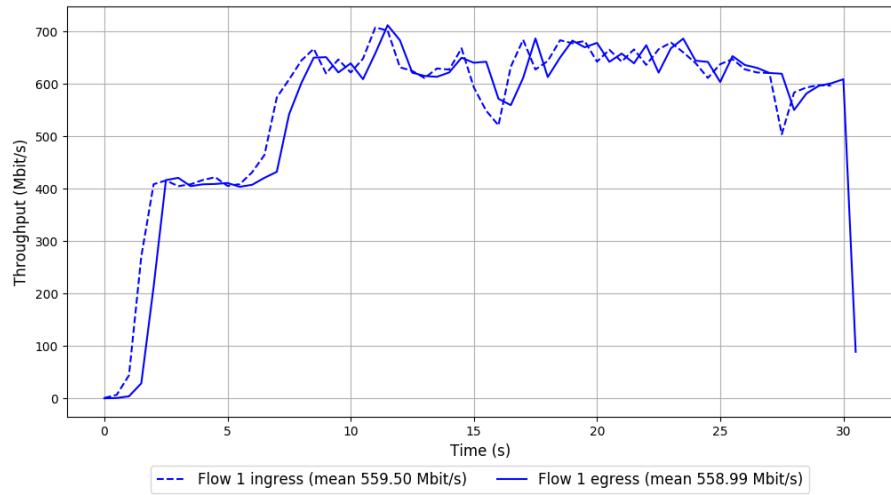


Run 3: Statistics of TCP Cubic

```
Start at: 2018-12-19 23:36:49
End at: 2018-12-19 23:37:19
Local clock offset: 34.712 ms
Remote clock offset: 39.242 ms

# Below is generated by plot.py at 2018-12-20 01:30:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 558.99 Mbit/s
95th percentile per-packet one-way delay: 178.914 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 558.99 Mbit/s
95th percentile per-packet one-way delay: 178.914 ms
Loss rate: 0.09%
```

Run 3: Report of TCP Cubic — Data Link

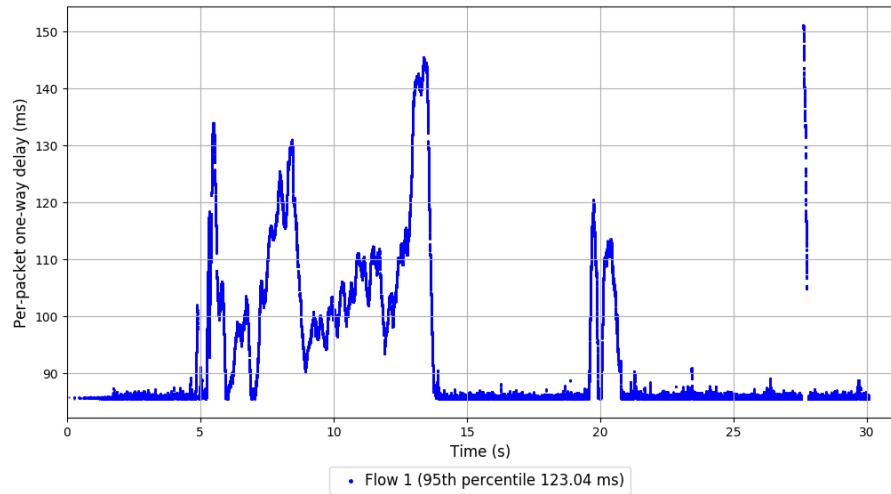
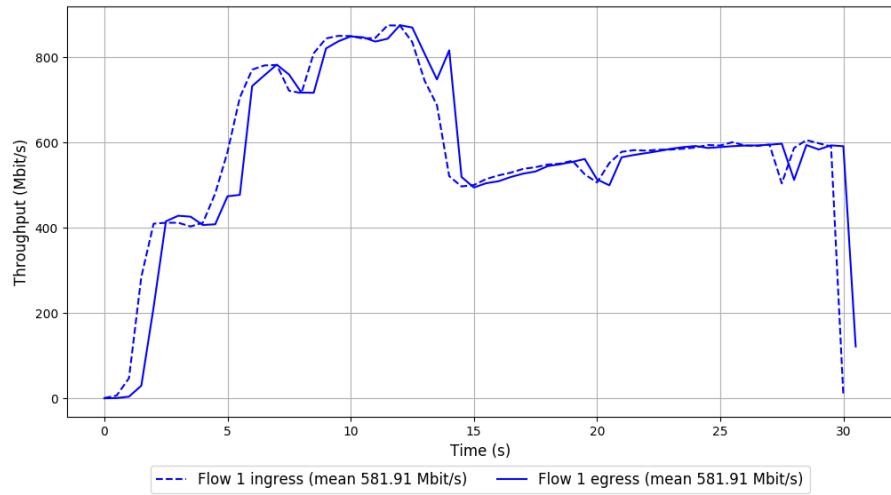


Run 4: Statistics of TCP Cubic

```
Start at: 2018-12-20 00:05:40
End at: 2018-12-20 00:06:10
Local clock offset: 16.706 ms
Remote clock offset: 18.577 ms

# Below is generated by plot.py at 2018-12-20 01:30:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 581.91 Mbit/s
95th percentile per-packet one-way delay: 123.039 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 581.91 Mbit/s
95th percentile per-packet one-way delay: 123.039 ms
Loss rate: 0.00%
```

Run 4: Report of TCP Cubic — Data Link

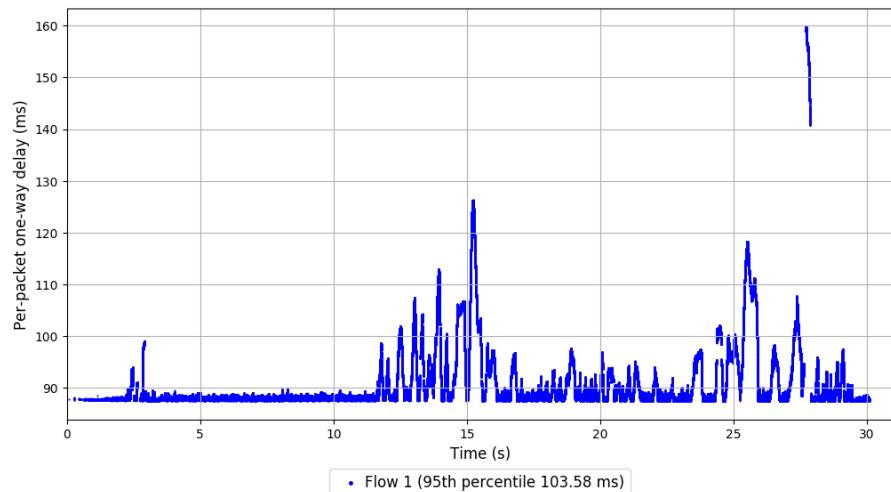
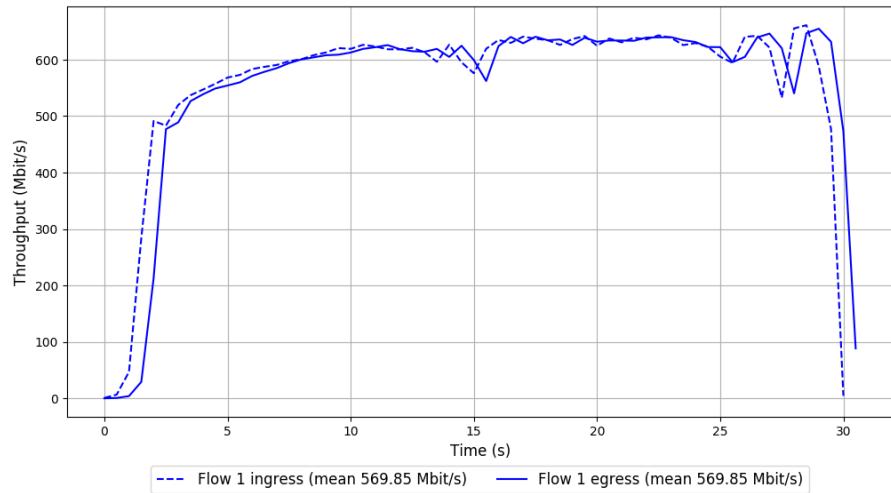


Run 5: Statistics of TCP Cubic

```
Start at: 2018-12-20 00:34:26
End at: 2018-12-20 00:34:56
Local clock offset: 3.758 ms
Remote clock offset: 8.703 ms

# Below is generated by plot.py at 2018-12-20 01:30:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 569.85 Mbit/s
95th percentile per-packet one-way delay: 103.584 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 569.85 Mbit/s
95th percentile per-packet one-way delay: 103.584 ms
Loss rate: 0.00%
```

Run 5: Report of TCP Cubic — Data Link

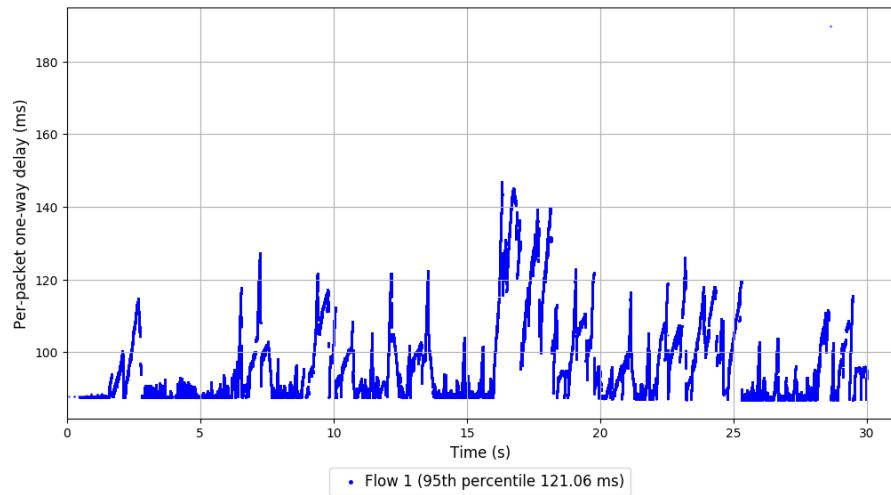
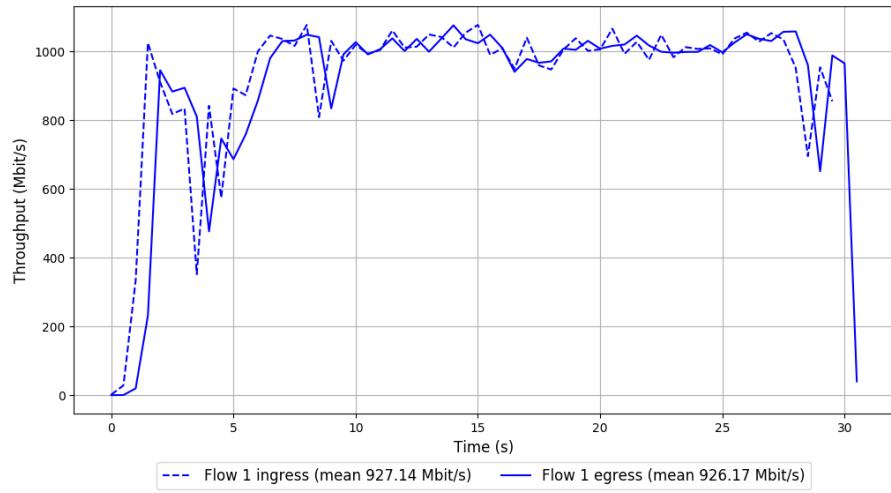


```
Run 1: Statistics of FillP

Start at: 2018-12-19 22:42:52
End at: 2018-12-19 22:43:22
Local clock offset: 9.407 ms
Remote clock offset: 12.519 ms

# Below is generated by plot.py at 2018-12-20 01:38:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 926.17 Mbit/s
95th percentile per-packet one-way delay: 121.065 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 926.17 Mbit/s
95th percentile per-packet one-way delay: 121.065 ms
Loss rate: 0.10%
```

Run 1: Report of FillP — Data Link

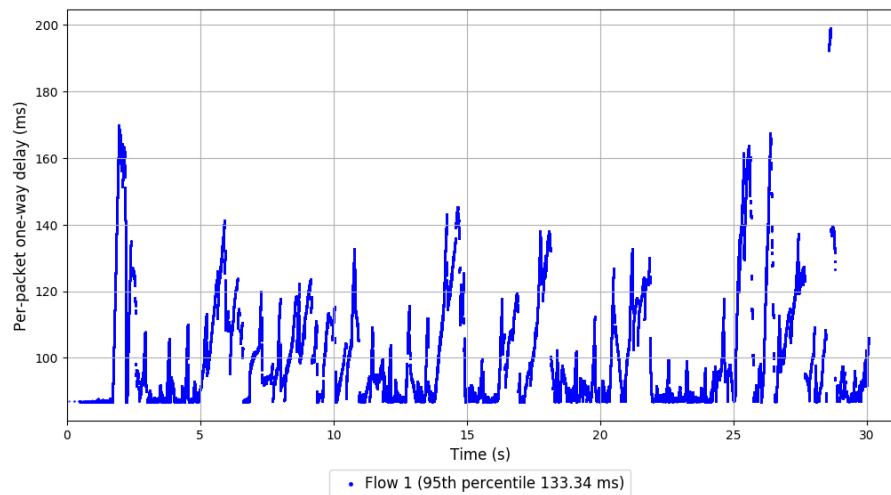
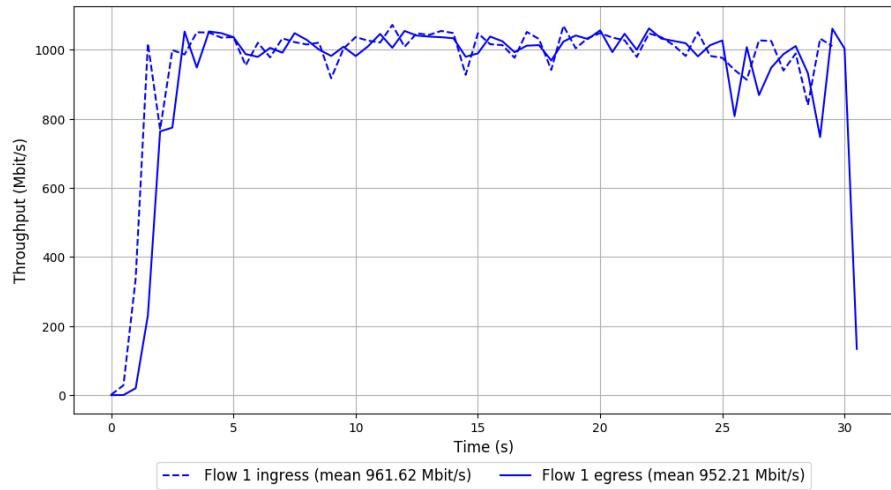


Run 2: Statistics of FillP

```
Start at: 2018-12-19 23:11:29
End at: 2018-12-19 23:11:59
Local clock offset: 22.809 ms
Remote clock offset: 27.076 ms

# Below is generated by plot.py at 2018-12-20 01:48:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 952.21 Mbit/s
95th percentile per-packet one-way delay: 133.335 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 952.21 Mbit/s
95th percentile per-packet one-way delay: 133.335 ms
Loss rate: 0.97%
```

Run 2: Report of FillP — Data Link

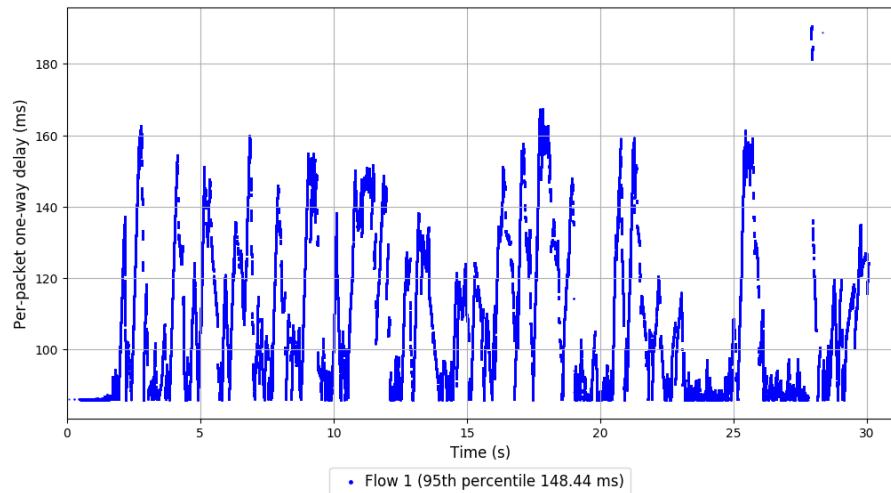
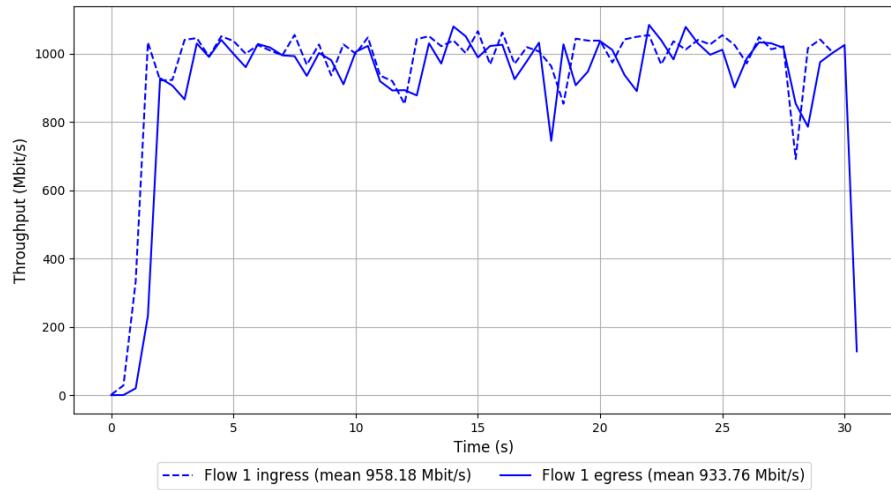


Run 3: Statistics of FillP

```
Start at: 2018-12-19 23:40:06
End at: 2018-12-19 23:40:36
Local clock offset: 38.419 ms
Remote clock offset: 43.474 ms

# Below is generated by plot.py at 2018-12-20 01:50:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 933.76 Mbit/s
95th percentile per-packet one-way delay: 148.441 ms
Loss rate: 2.55%
-- Flow 1:
Average throughput: 933.76 Mbit/s
95th percentile per-packet one-way delay: 148.441 ms
Loss rate: 2.55%
```

Run 3: Report of FillP — Data Link

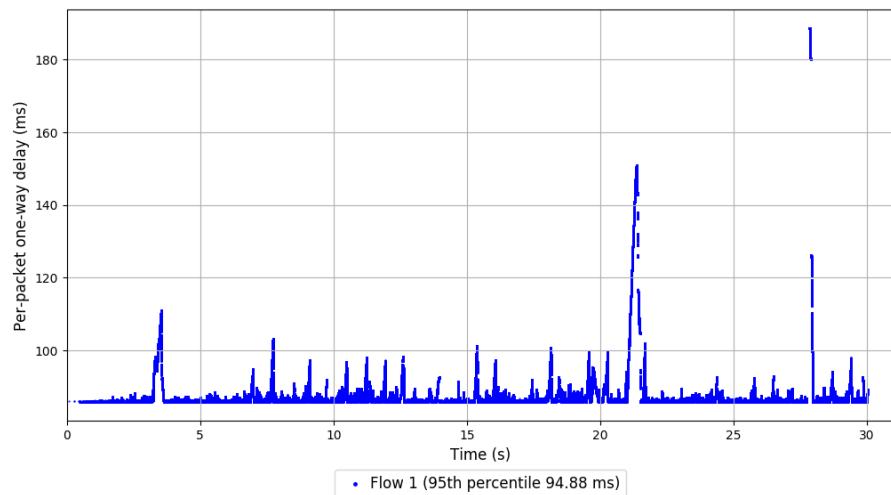
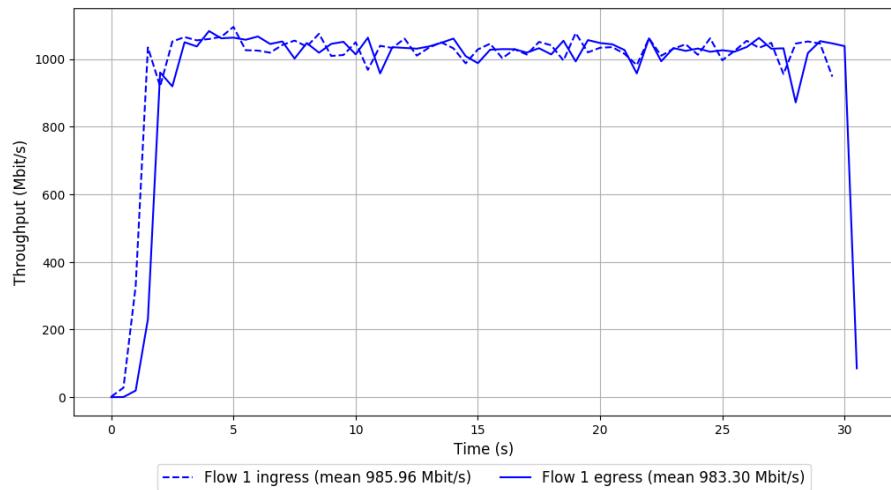


Run 4: Statistics of FillP

```
Start at: 2018-12-20 00:08:55
End at: 2018-12-20 00:09:25
Local clock offset: 17.32 ms
Remote clock offset: 19.666 ms

# Below is generated by plot.py at 2018-12-20 01:50:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 983.30 Mbit/s
95th percentile per-packet one-way delay: 94.876 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 983.30 Mbit/s
95th percentile per-packet one-way delay: 94.876 ms
Loss rate: 0.27%
```

Run 4: Report of FillP — Data Link

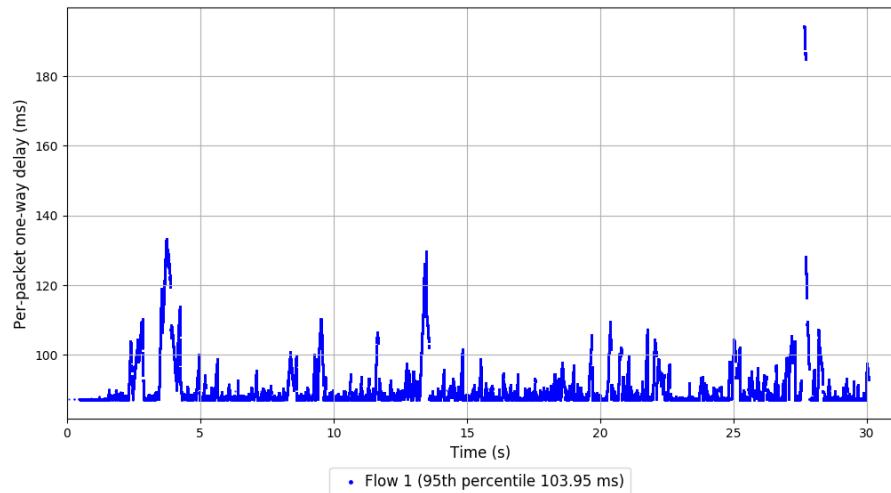
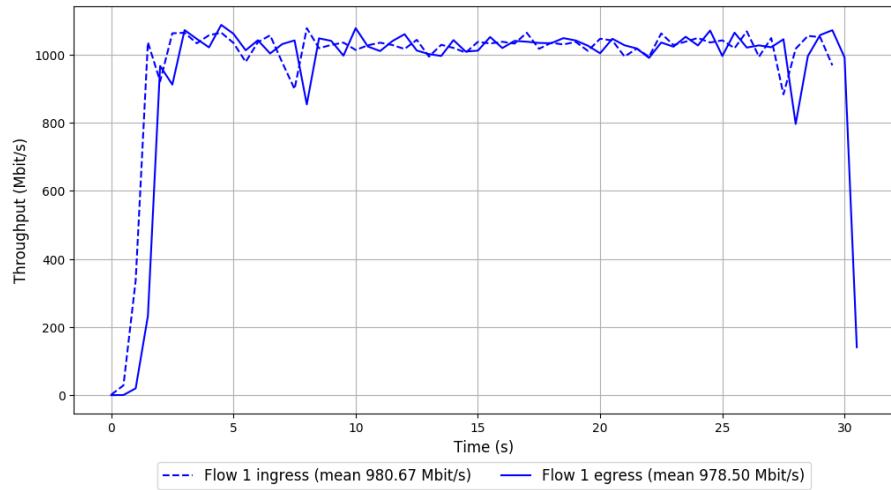


Run 5: Statistics of FillP

```
Start at: 2018-12-20 00:37:43
End at: 2018-12-20 00:38:13
Local clock offset: 3.252 ms
Remote clock offset: 8.693 ms

# Below is generated by plot.py at 2018-12-20 01:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 978.50 Mbit/s
95th percentile per-packet one-way delay: 103.953 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 978.50 Mbit/s
95th percentile per-packet one-way delay: 103.953 ms
Loss rate: 0.20%
```

Run 5: Report of FillP — Data Link

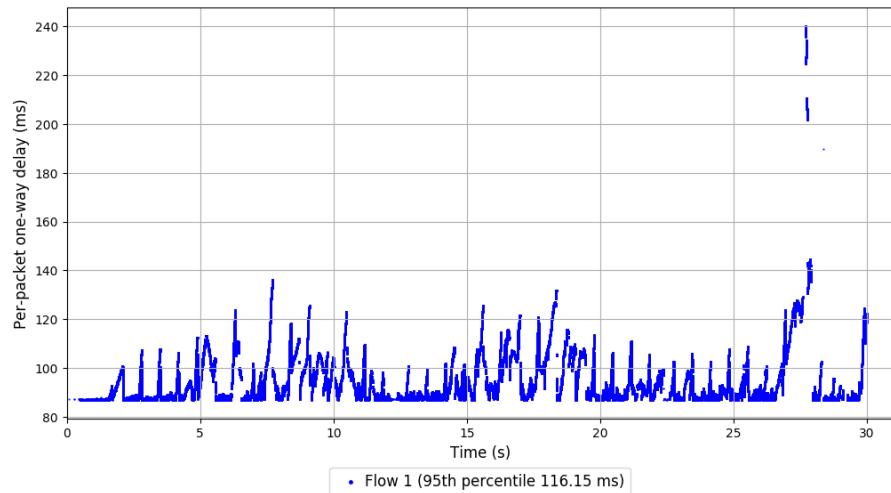
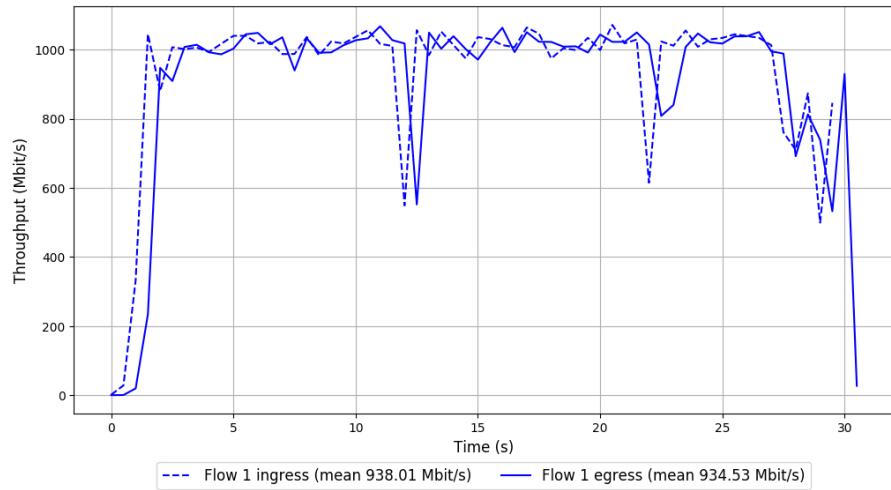


```
Run 1: Statistics of FillP-Sheep
```

```
Start at: 2018-12-19 23:01:33
End at: 2018-12-19 23:02:03
Local clock offset: 17.207 ms
Remote clock offset: 19.824 ms

# Below is generated by plot.py at 2018-12-20 01:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 934.53 Mbit/s
95th percentile per-packet one-way delay: 116.154 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 934.53 Mbit/s
95th percentile per-packet one-way delay: 116.154 ms
Loss rate: 0.37%
```

Run 1: Report of FillP-Sheep — Data Link

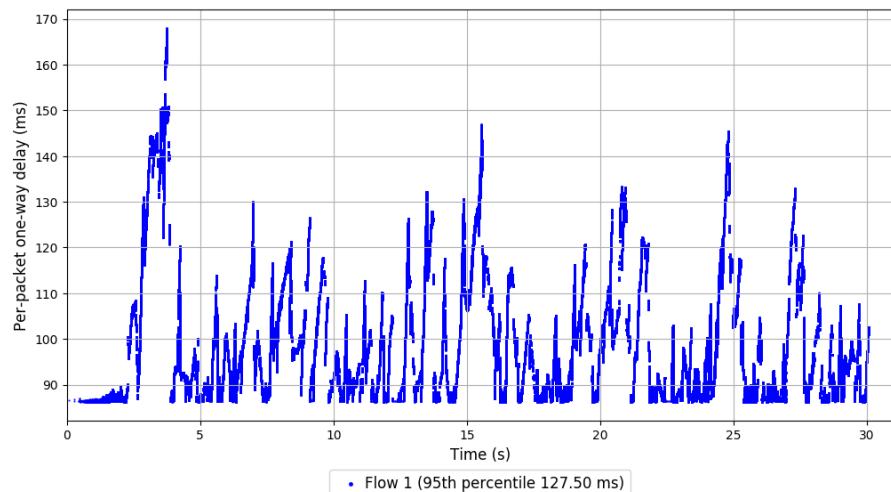
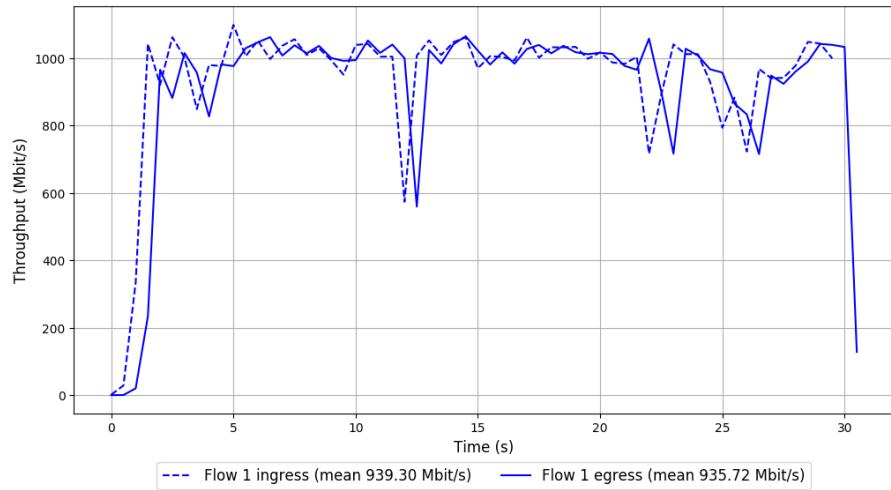


Run 2: Statistics of FillP-Sheep

```
Start at: 2018-12-19 23:30:06
End at: 2018-12-19 23:30:36
Local clock offset: 27.695 ms
Remote clock offset: 31.586 ms

# Below is generated by plot.py at 2018-12-20 01:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 935.72 Mbit/s
95th percentile per-packet one-way delay: 127.495 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 935.72 Mbit/s
95th percentile per-packet one-way delay: 127.495 ms
Loss rate: 0.38%
```

Run 2: Report of FillP-Sheep — Data Link

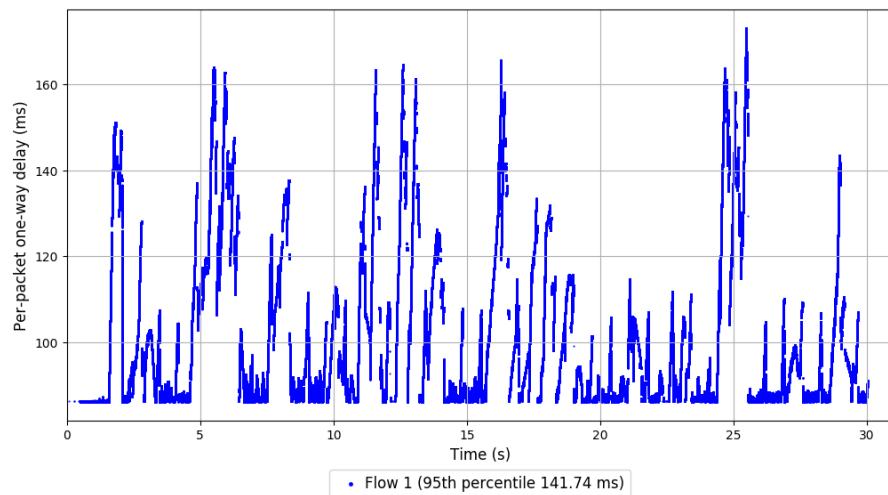
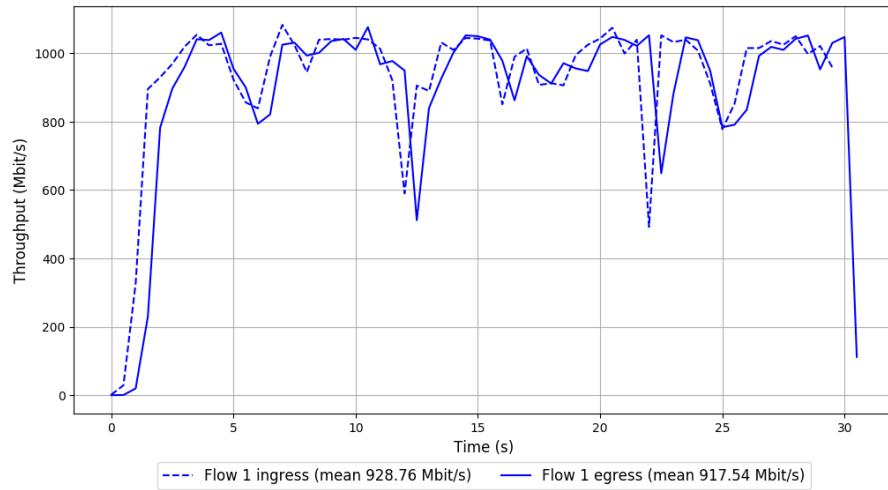


Run 3: Statistics of FillP-Sheep

```
Start at: 2018-12-19 23:59:05
End at: 2018-12-19 23:59:35
Local clock offset: 16.15 ms
Remote clock offset: 18.113 ms

# Below is generated by plot.py at 2018-12-20 01:51:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 917.54 Mbit/s
95th percentile per-packet one-way delay: 141.743 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 917.54 Mbit/s
95th percentile per-packet one-way delay: 141.743 ms
Loss rate: 1.20%
```

Run 3: Report of FillP-Sheep — Data Link

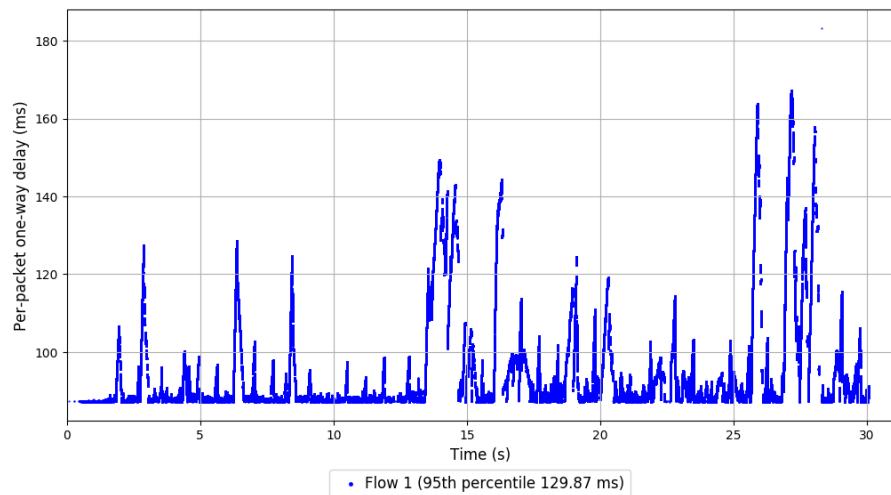
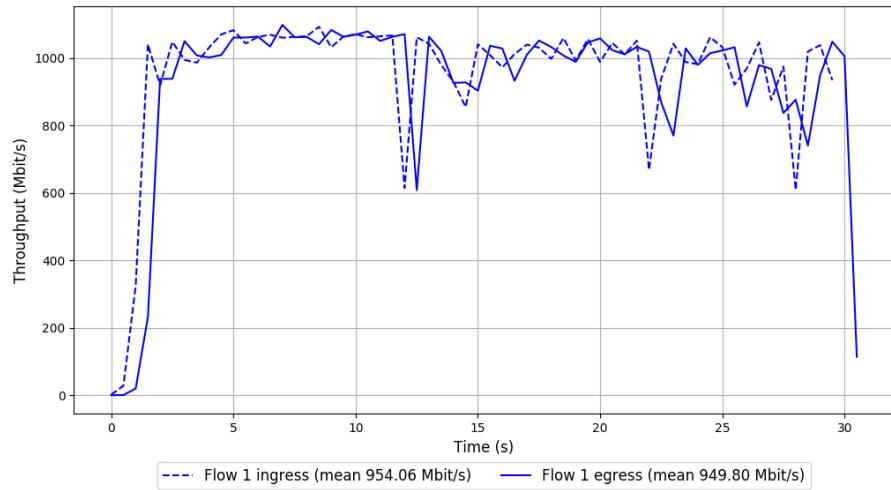


Run 4: Statistics of FillP-Sheep

```
Start at: 2018-12-20 00:27:41
End at: 2018-12-20 00:28:11
Local clock offset: 6.247 ms
Remote clock offset: 10.39 ms

# Below is generated by plot.py at 2018-12-20 02:00:49
# Datalink statistics
-- Total of 1 flow:
Average throughput: 949.80 Mbit/s
95th percentile per-packet one-way delay: 129.868 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 949.80 Mbit/s
95th percentile per-packet one-way delay: 129.868 ms
Loss rate: 0.44%
```

Run 4: Report of FillP-Sheep — Data Link

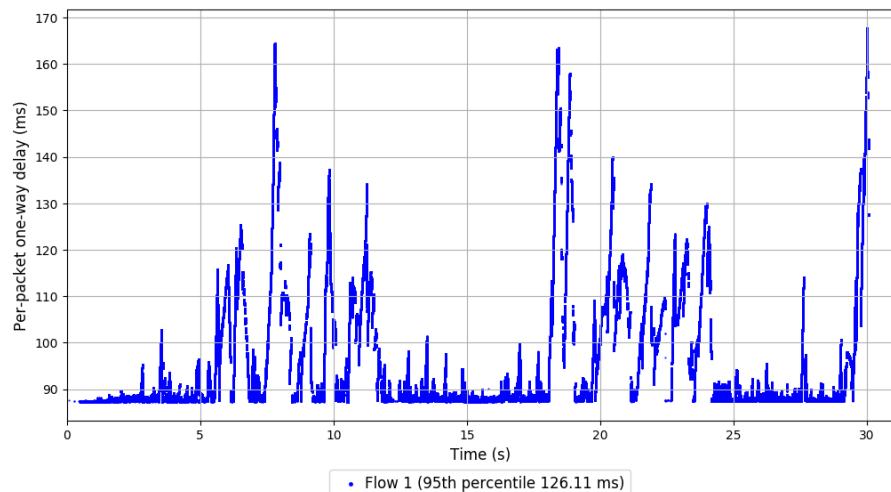
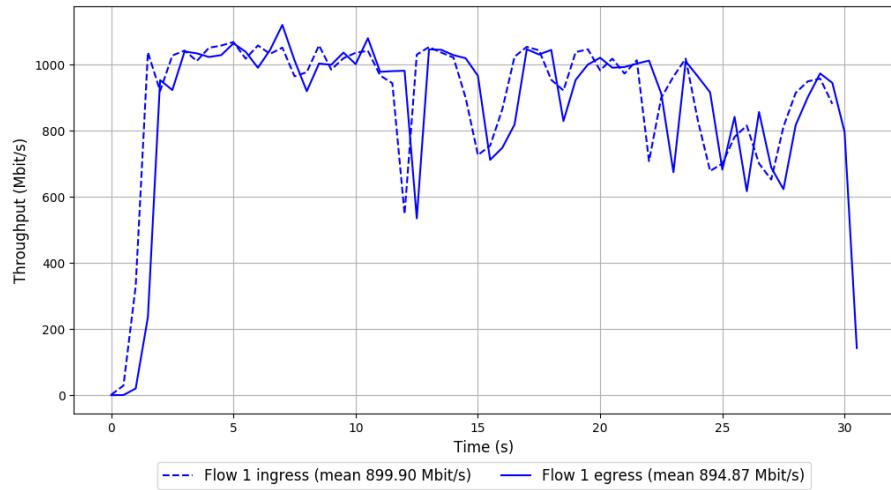


Run 5: Statistics of FillP-Sheep

```
Start at: 2018-12-20 00:56:28
End at: 2018-12-20 00:56:58
Local clock offset: 1.673 ms
Remote clock offset: 7.105 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 894.87 Mbit/s
95th percentile per-packet one-way delay: 126.113 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 894.87 Mbit/s
95th percentile per-packet one-way delay: 126.113 ms
Loss rate: 0.52%
```

Run 5: Report of FillP-Sheep — Data Link

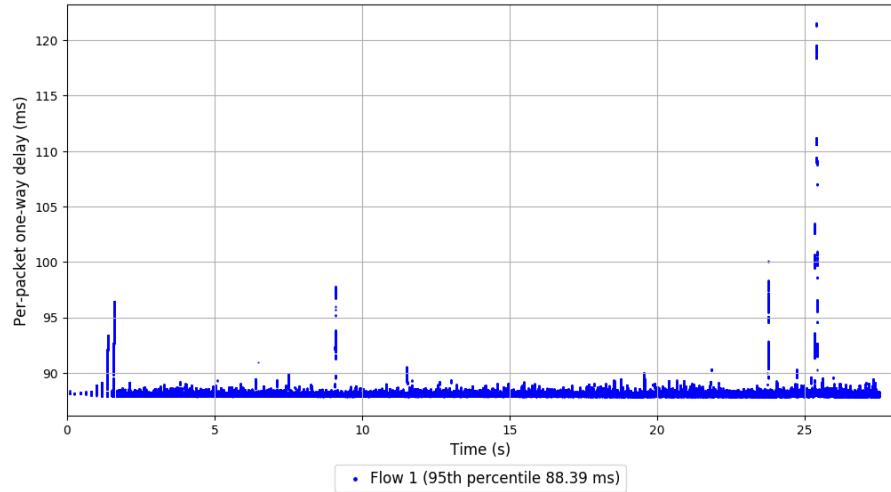
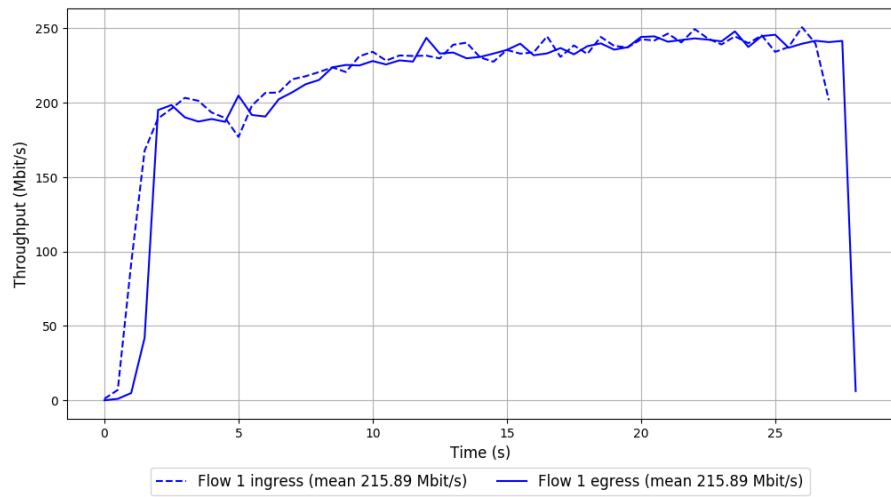


Run 1: Statistics of Indigo

```
Start at: 2018-12-19 23:03:21
End at: 2018-12-19 23:03:51
Local clock offset: 18.086 ms
Remote clock offset: 22.22 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 215.89 Mbit/s
95th percentile per-packet one-way delay: 88.394 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 215.89 Mbit/s
95th percentile per-packet one-way delay: 88.394 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

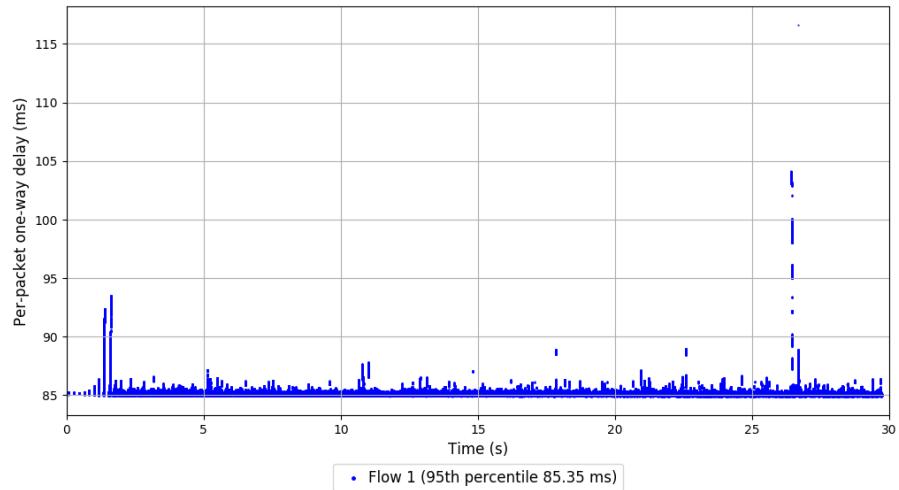
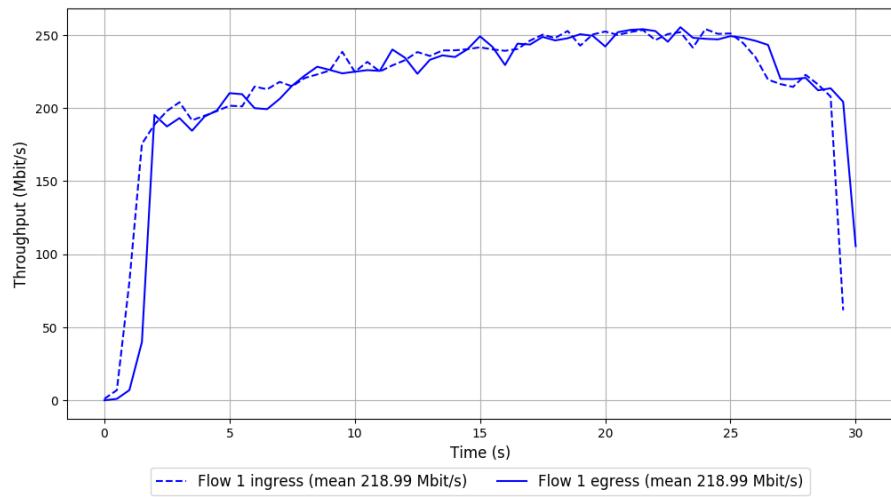


Run 2: Statistics of Indigo

```
Start at: 2018-12-19 23:31:54
End at: 2018-12-19 23:32:24
Local clock offset: 31.071 ms
Remote clock offset: 33.543 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.99 Mbit/s
95th percentile per-packet one-way delay: 85.354 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 218.99 Mbit/s
95th percentile per-packet one-way delay: 85.354 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link

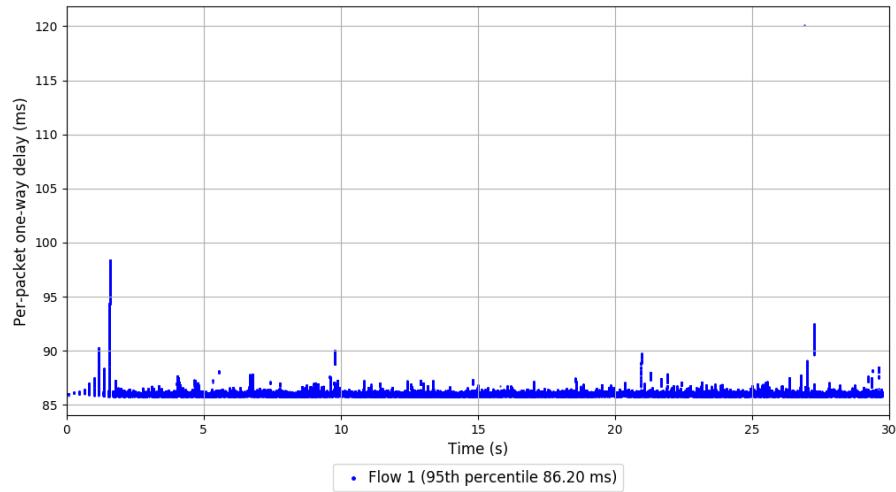
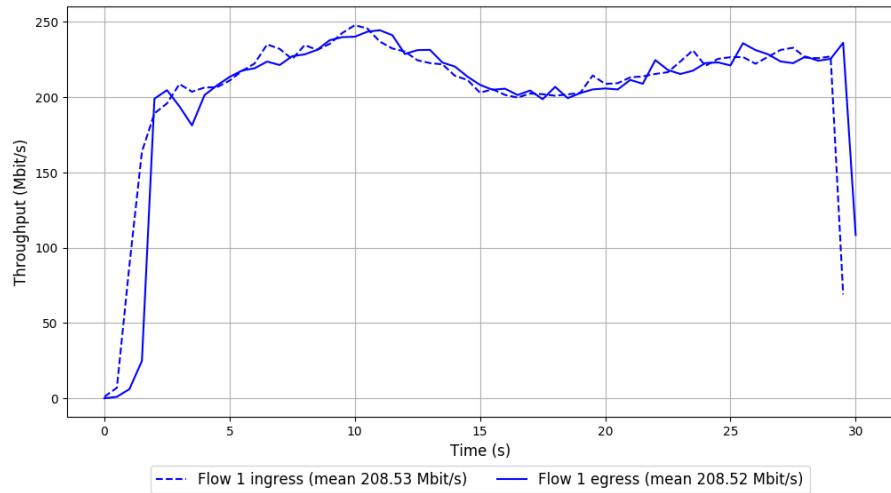


Run 3: Statistics of Indigo

```
Start at: 2018-12-20 00:00:51
End at: 2018-12-20 00:01:21
Local clock offset: 15.894 ms
Remote clock offset: 17.896 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 208.52 Mbit/s
95th percentile per-packet one-way delay: 86.205 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 208.52 Mbit/s
95th percentile per-packet one-way delay: 86.205 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo — Data Link

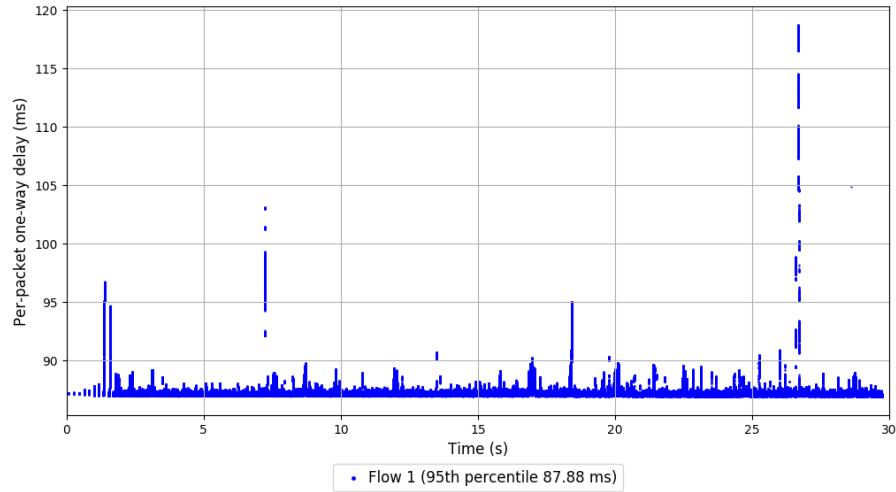
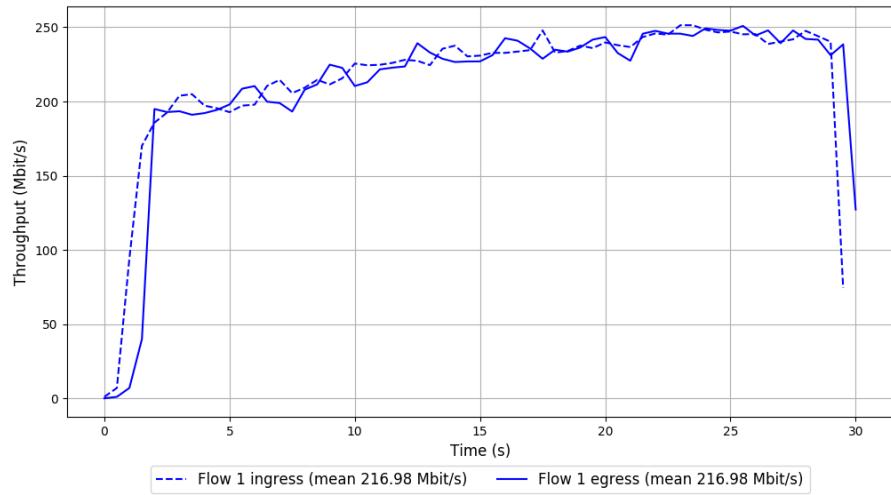


Run 4: Statistics of Indigo

```
Start at: 2018-12-20 00:29:30
End at: 2018-12-20 00:30:00
Local clock offset: 5.452 ms
Remote clock offset: 9.626 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 216.98 Mbit/s
95th percentile per-packet one-way delay: 87.879 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 216.98 Mbit/s
95th percentile per-packet one-way delay: 87.879 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo — Data Link

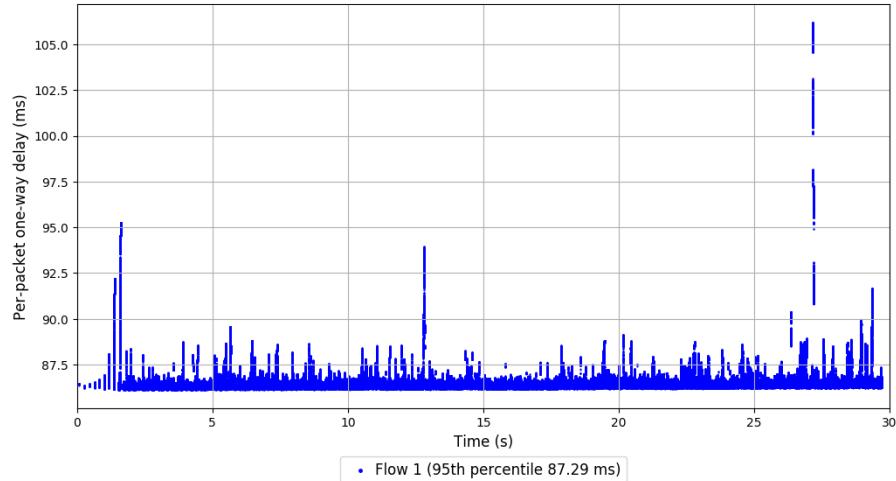
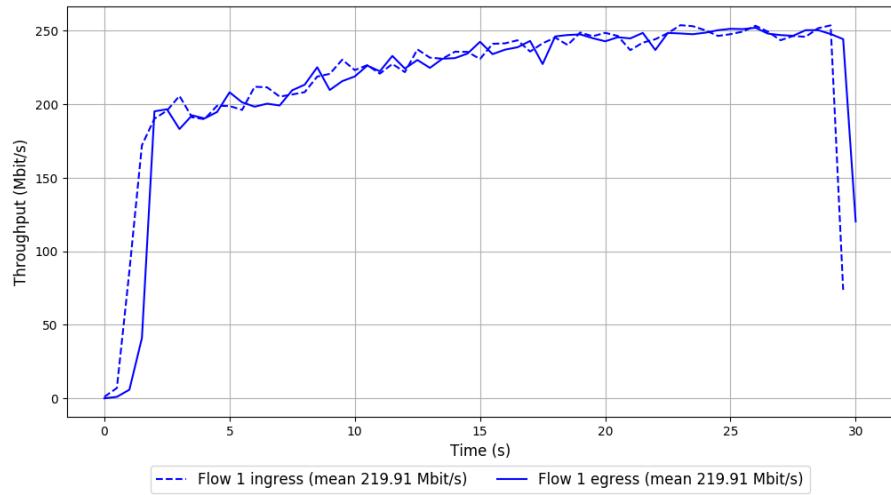


Run 5: Statistics of Indigo

```
Start at: 2018-12-20 00:58:15
End at: 2018-12-20 00:58:45
Local clock offset: 2.703 ms
Remote clock offset: 6.153 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 219.91 Mbit/s
95th percentile per-packet one-way delay: 87.287 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 219.91 Mbit/s
95th percentile per-packet one-way delay: 87.287 ms
Loss rate: 0.00%
```

Run 5: Report of Indigo — Data Link

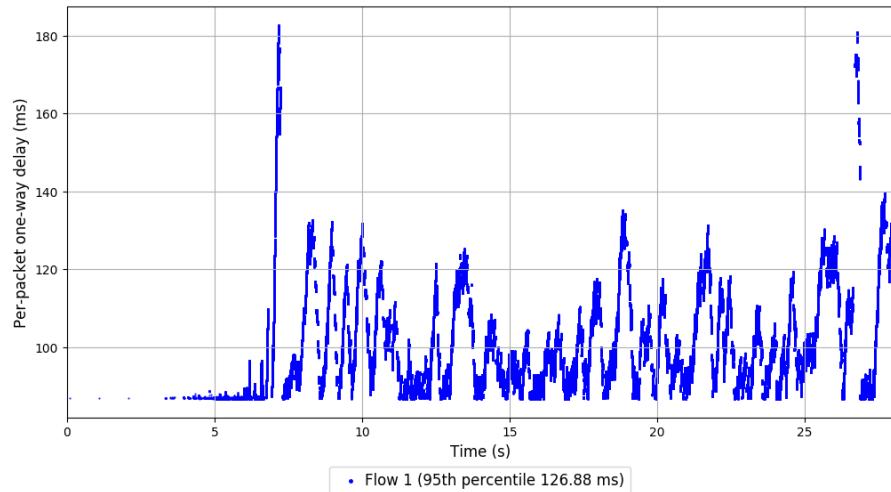
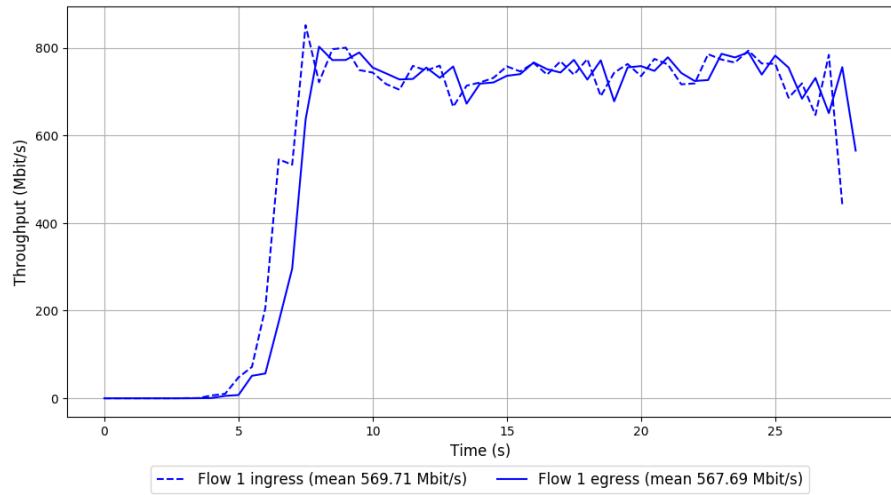


Run 1: Statistics of Indigo-MusesD

```
Start at: 2018-12-19 22:38:07
End at: 2018-12-19 22:38:37
Local clock offset: 4.534 ms
Remote clock offset: 5.77 ms

# Below is generated by plot.py at 2018-12-20 02:07:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 567.69 Mbit/s
95th percentile per-packet one-way delay: 126.879 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 567.69 Mbit/s
95th percentile per-packet one-way delay: 126.879 ms
Loss rate: 0.35%
```

Run 1: Report of Indigo-MusesD — Data Link

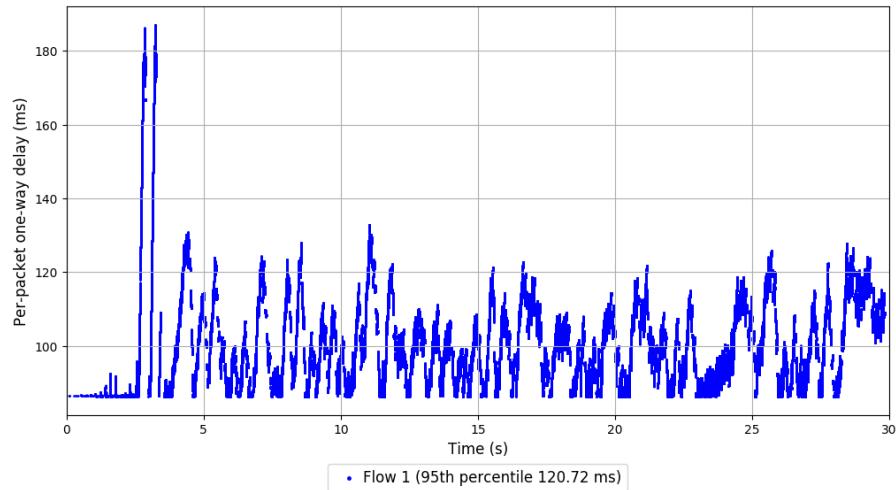
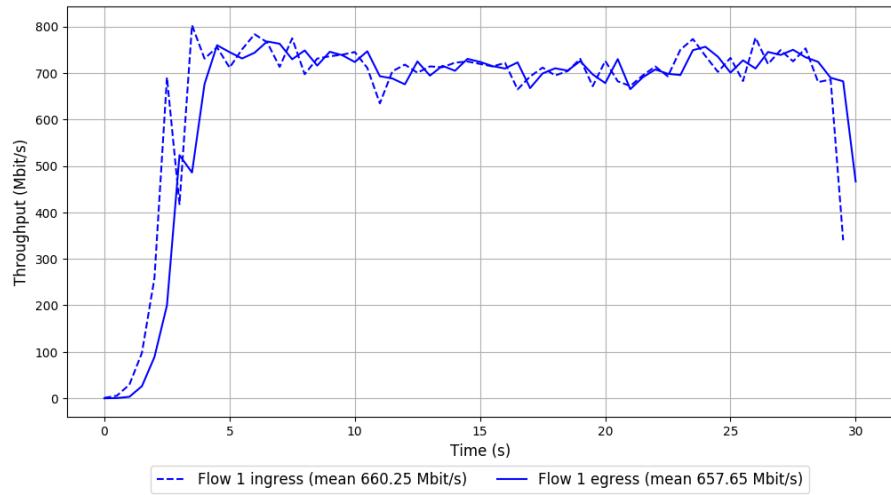


Run 2: Statistics of Indigo-MusesD

```
Start at: 2018-12-19 23:06:29
End at: 2018-12-19 23:06:59
Local clock offset: 23.974 ms
Remote clock offset: 27.201 ms

# Below is generated by plot.py at 2018-12-20 02:09:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 657.65 Mbit/s
95th percentile per-packet one-way delay: 120.716 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 657.65 Mbit/s
95th percentile per-packet one-way delay: 120.716 ms
Loss rate: 0.39%
```

Run 2: Report of Indigo-MusesD — Data Link

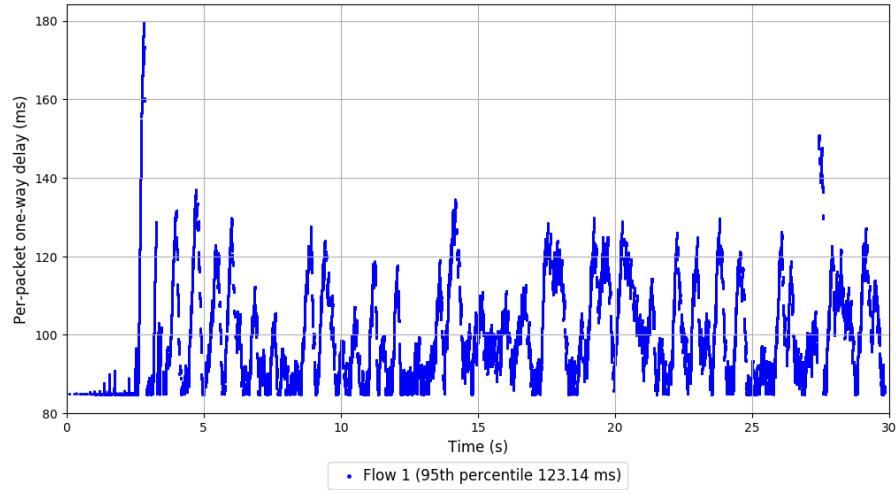
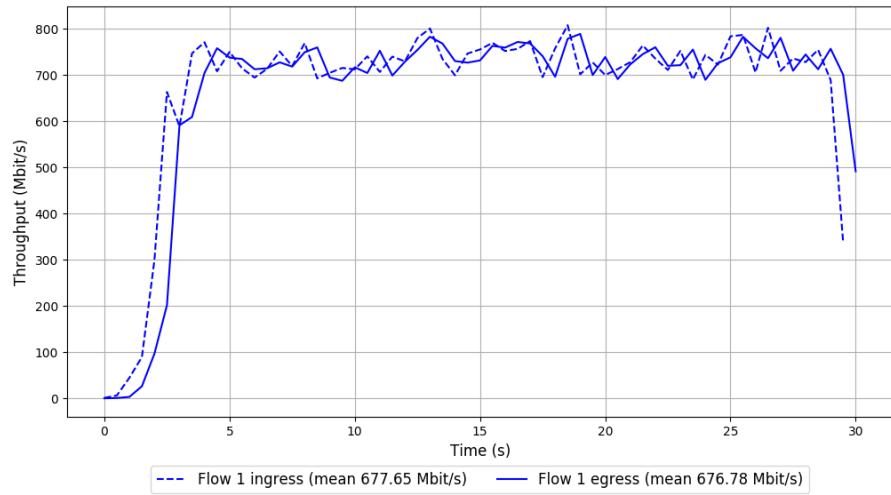


Run 3: Statistics of Indigo-MusesD

```
Start at: 2018-12-19 23:35:06
End at: 2018-12-19 23:35:36
Local clock offset: 34.201 ms
Remote clock offset: 37.08 ms

# Below is generated by plot.py at 2018-12-20 02:09:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 676.78 Mbit/s
95th percentile per-packet one-way delay: 123.138 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 676.78 Mbit/s
95th percentile per-packet one-way delay: 123.138 ms
Loss rate: 0.13%
```

Run 3: Report of Indigo-MusesD — Data Link

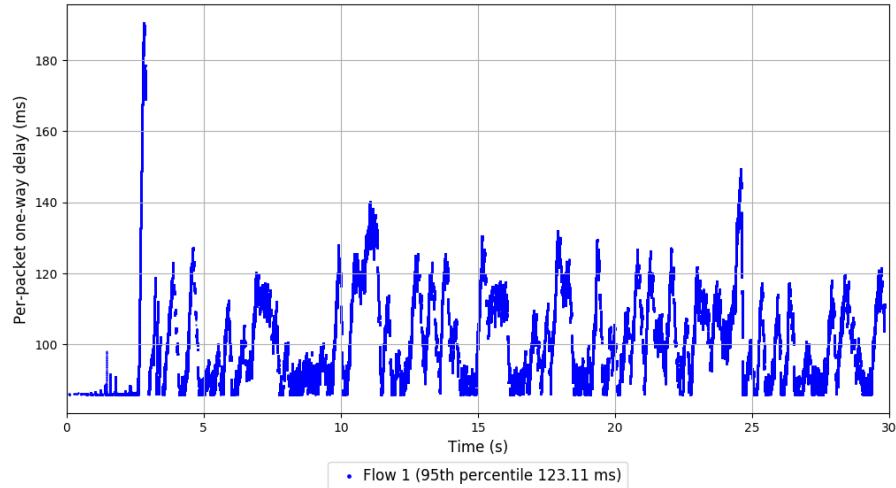
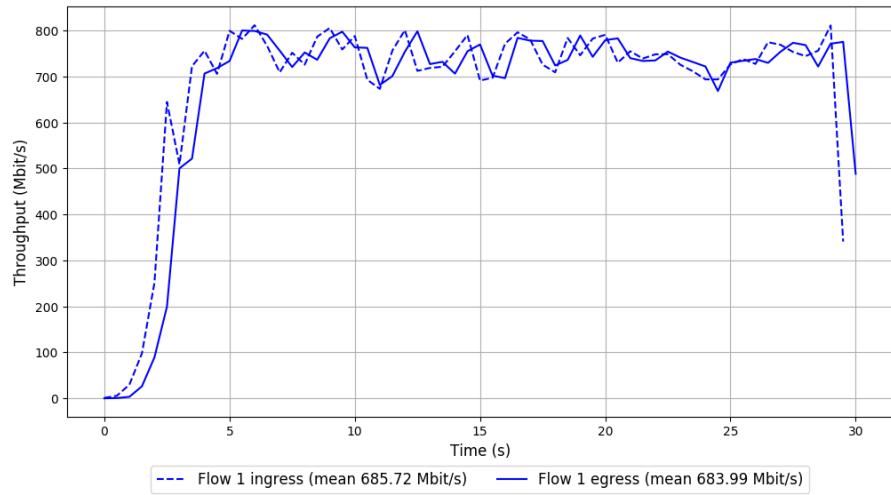


Run 4: Statistics of Indigo-MusesD

```
Start at: 2018-12-20 00:03:57
End at: 2018-12-20 00:04:27
Local clock offset: 16.016 ms
Remote clock offset: 18.166 ms

# Below is generated by plot.py at 2018-12-20 02:10:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 683.99 Mbit/s
95th percentile per-packet one-way delay: 123.110 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 683.99 Mbit/s
95th percentile per-packet one-way delay: 123.110 ms
Loss rate: 0.25%
```

Run 4: Report of Indigo-MusesD — Data Link

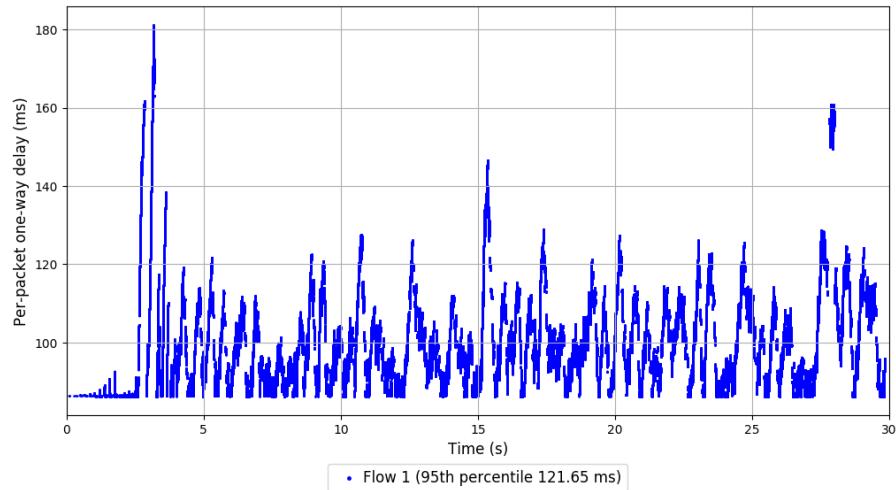
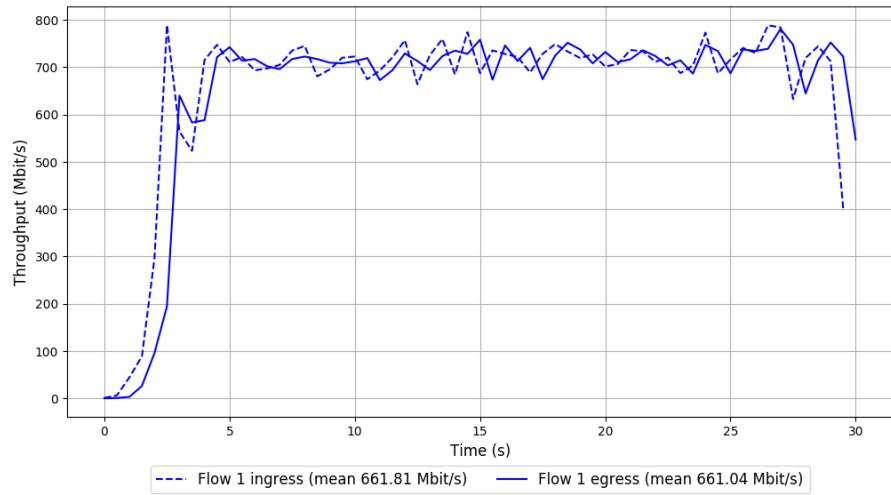


Run 5: Statistics of Indigo-MusesD

```
Start at: 2018-12-20 00:32:44
End at: 2018-12-20 00:33:14
Local clock offset: 5.031 ms
Remote clock offset: 8.831 ms

# Below is generated by plot.py at 2018-12-20 02:10:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 661.04 Mbit/s
95th percentile per-packet one-way delay: 121.650 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 661.04 Mbit/s
95th percentile per-packet one-way delay: 121.650 ms
Loss rate: 0.11%
```

Run 5: Report of Indigo-MusesD — Data Link

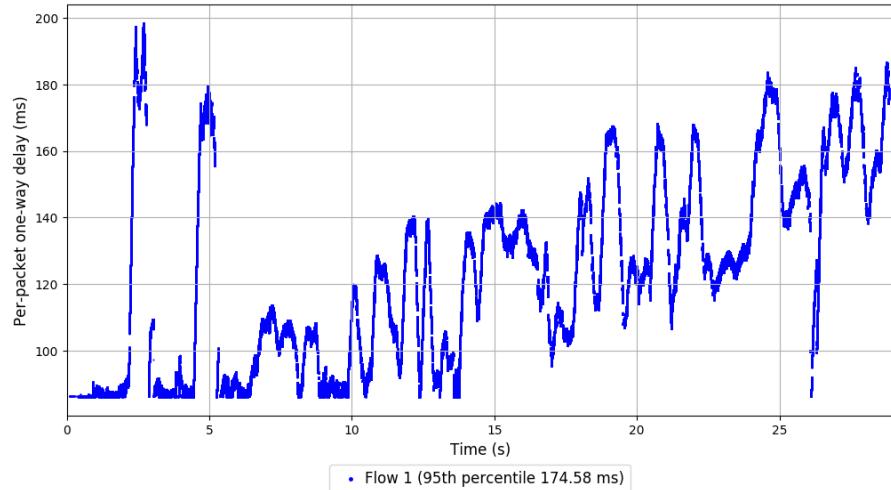
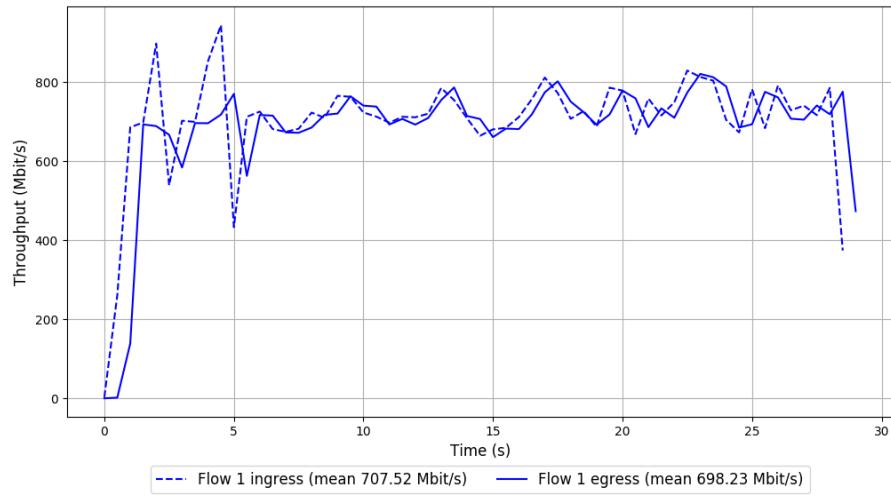


Run 1: Statistics of Indigo-MusesT

```
Start at: 2018-12-19 22:59:50
End at: 2018-12-19 23:00:20
Local clock offset: 15.34 ms
Remote clock offset: 17.666 ms

# Below is generated by plot.py at 2018-12-20 02:11:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 698.23 Mbit/s
95th percentile per-packet one-way delay: 174.577 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 698.23 Mbit/s
95th percentile per-packet one-way delay: 174.577 ms
Loss rate: 1.31%
```

Run 1: Report of Indigo-MusesT — Data Link

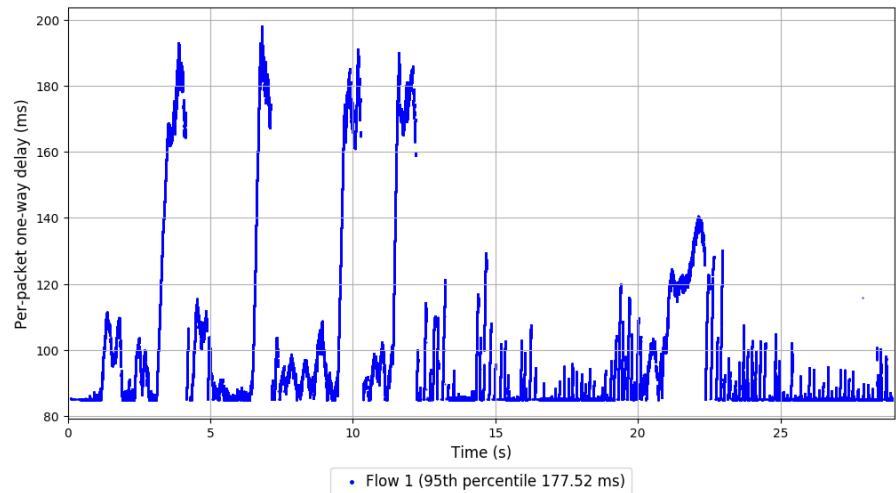
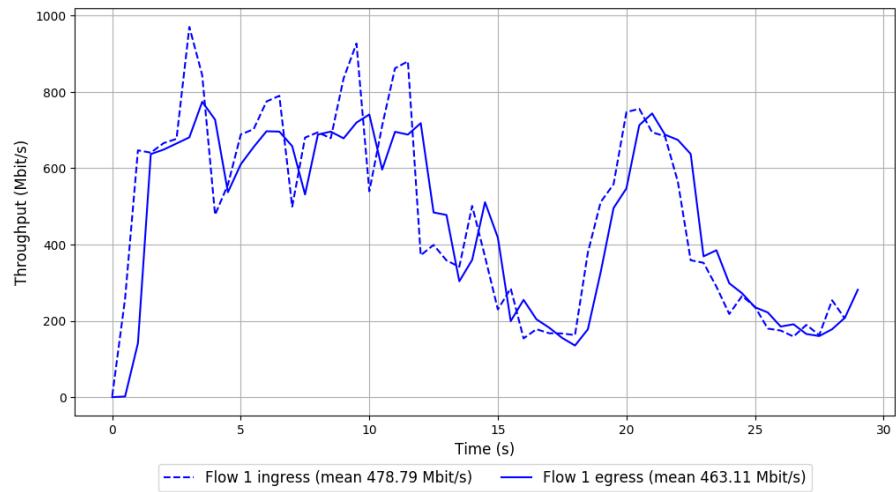


Run 2: Statistics of Indigo-MusesT

```
Start at: 2018-12-19 23:28:34
End at: 2018-12-19 23:29:04
Local clock offset: 27.823 ms
Remote clock offset: 29.998 ms

# Below is generated by plot.py at 2018-12-20 02:11:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 463.11 Mbit/s
95th percentile per-packet one-way delay: 177.520 ms
Loss rate: 3.28%
-- Flow 1:
Average throughput: 463.11 Mbit/s
95th percentile per-packet one-way delay: 177.520 ms
Loss rate: 3.28%
```

Run 2: Report of Indigo-MusesT — Data Link

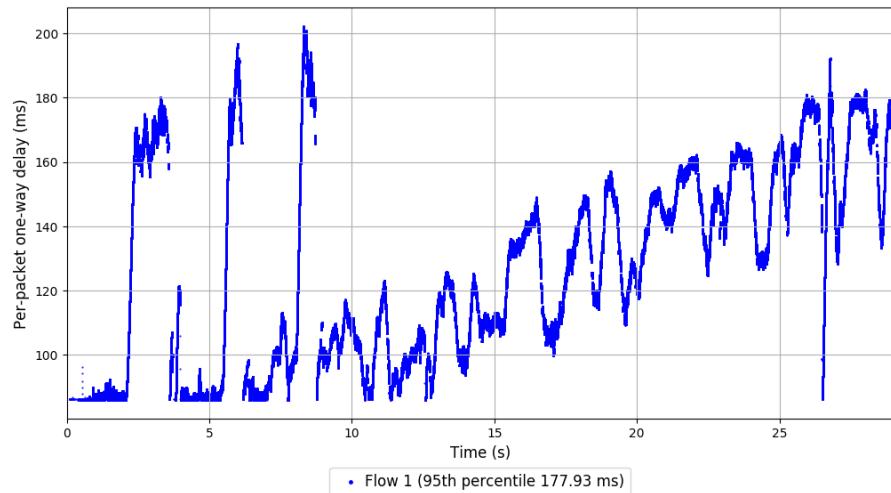
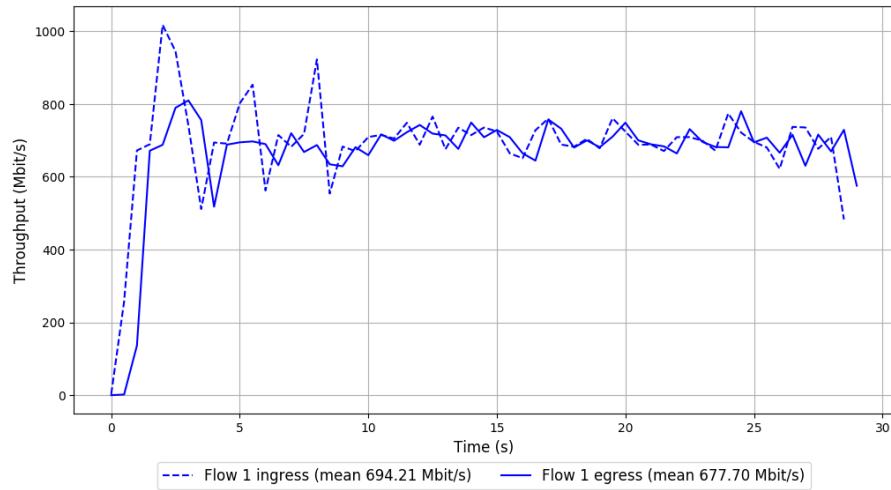


Run 3: Statistics of Indigo-MusesT

```
Start at: 2018-12-19 23:57:22
End at: 2018-12-19 23:57:52
Local clock offset: 16.584 ms
Remote clock offset: 18.575 ms

# Below is generated by plot.py at 2018-12-20 02:13:04
# Datalink statistics
-- Total of 1 flow:
Average throughput: 677.70 Mbit/s
95th percentile per-packet one-way delay: 177.933 ms
Loss rate: 2.38%
-- Flow 1:
Average throughput: 677.70 Mbit/s
95th percentile per-packet one-way delay: 177.933 ms
Loss rate: 2.38%
```

Run 3: Report of Indigo-MusesT — Data Link

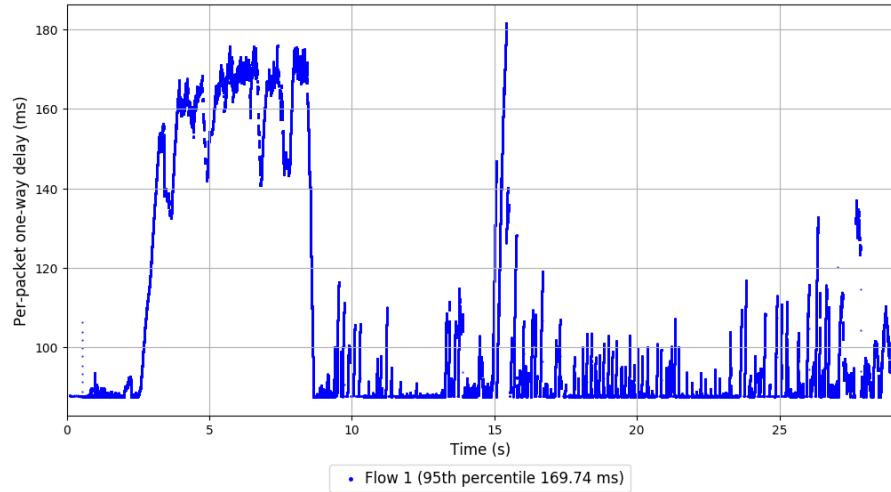
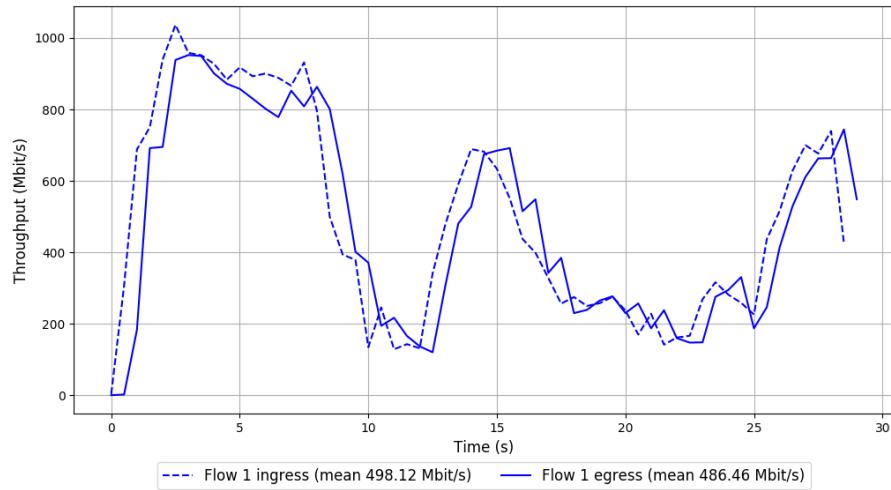


Run 4: Statistics of Indigo-MusesT

```
Start at: 2018-12-20 00:26:07
End at: 2018-12-20 00:26:37
Local clock offset: 6.833 ms
Remote clock offset: 11.279 ms

# Below is generated by plot.py at 2018-12-20 02:15:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 486.46 Mbit/s
95th percentile per-packet one-way delay: 169.738 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 486.46 Mbit/s
95th percentile per-packet one-way delay: 169.738 ms
Loss rate: 2.34%
```

Run 4: Report of Indigo-MusesT — Data Link

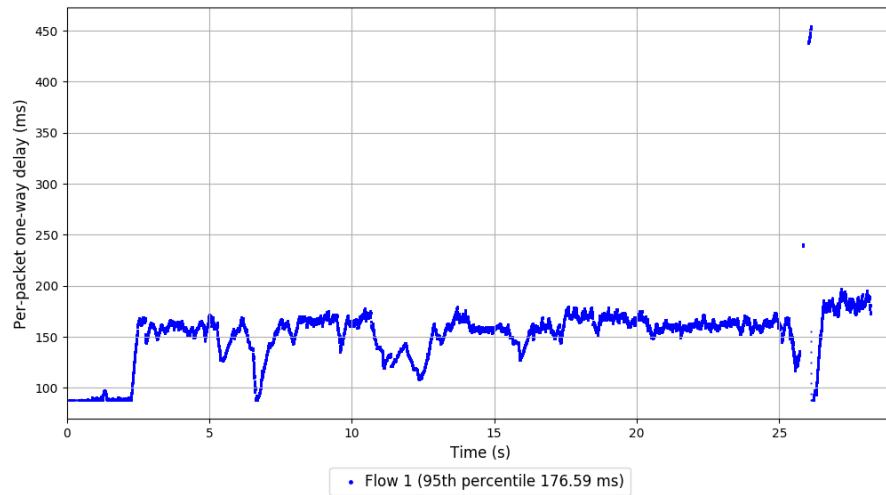
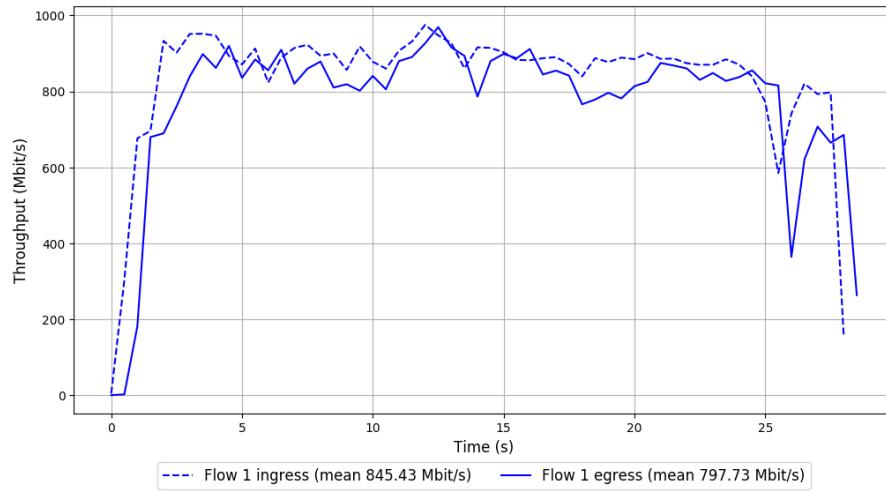


Run 5: Statistics of Indigo-MusesT

```
Start at: 2018-12-20 00:54:38
End at: 2018-12-20 00:55:08
Local clock offset: 1.615 ms
Remote clock offset: 8.326 ms

# Below is generated by plot.py at 2018-12-20 02:22:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 797.73 Mbit/s
95th percentile per-packet one-way delay: 176.585 ms
Loss rate: 5.64%
-- Flow 1:
Average throughput: 797.73 Mbit/s
95th percentile per-packet one-way delay: 176.585 ms
Loss rate: 5.64%
```

Run 5: Report of Indigo-MusesT — Data Link

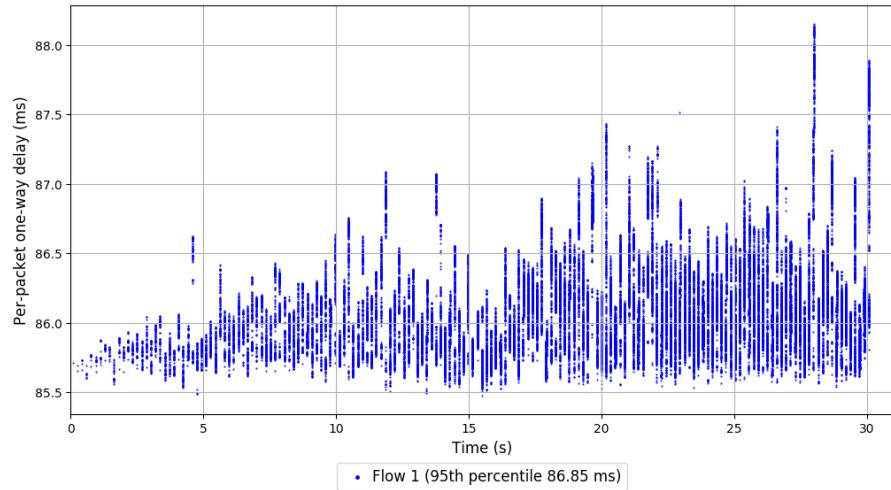
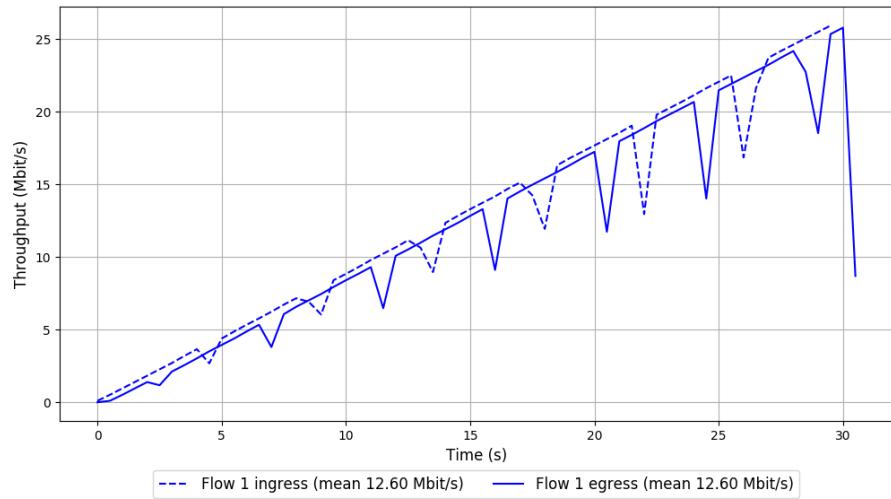


```
Run 1: Statistics of LEDBAT
```

```
Start at: 2018-12-19 22:53:02
End at: 2018-12-19 22:53:32
Local clock offset: 16.616 ms
Remote clock offset: 18.459 ms

# Below is generated by plot.py at 2018-12-20 02:22:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 86.848 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 86.848 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

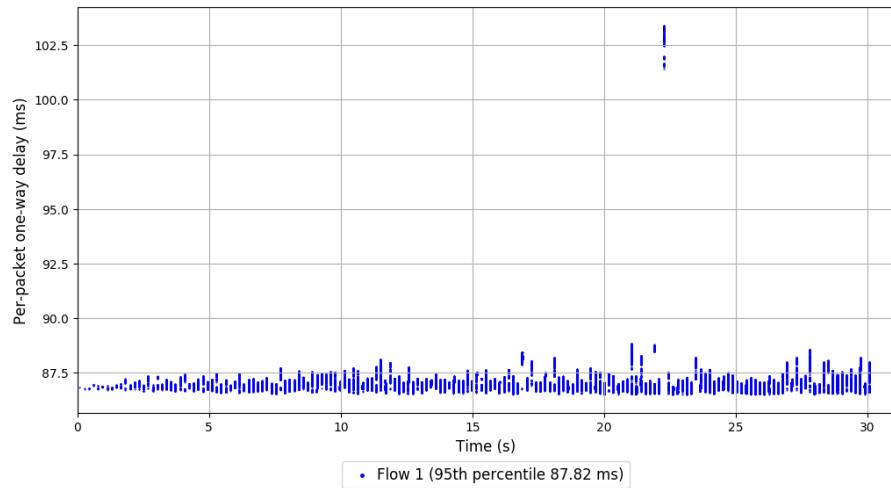
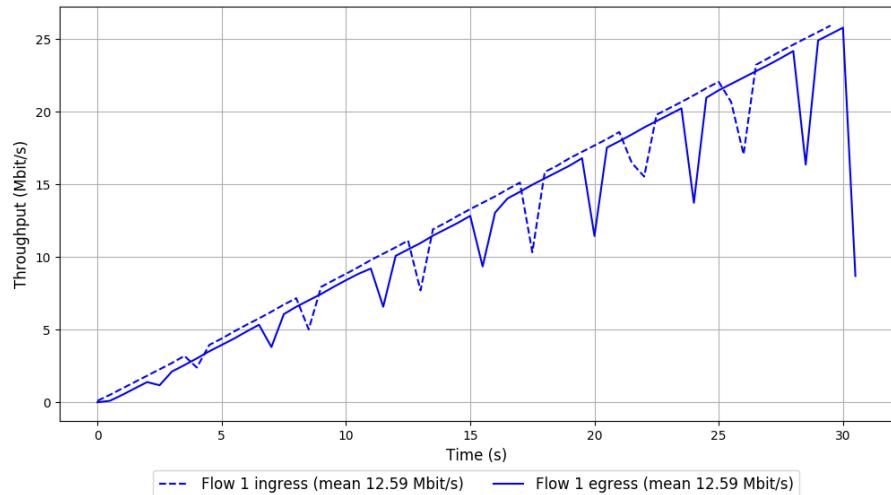


Run 2: Statistics of LEDBAT

```
Start at: 2018-12-19 23:21:38
End at: 2018-12-19 23:22:08
Local clock offset: 21.462 ms
Remote clock offset: 24.448 ms

# Below is generated by plot.py at 2018-12-20 02:22:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 87.818 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 87.818 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

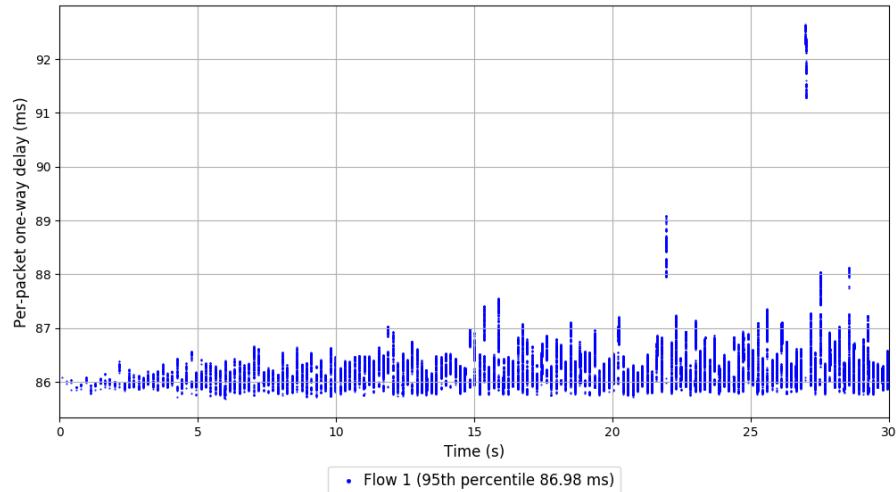
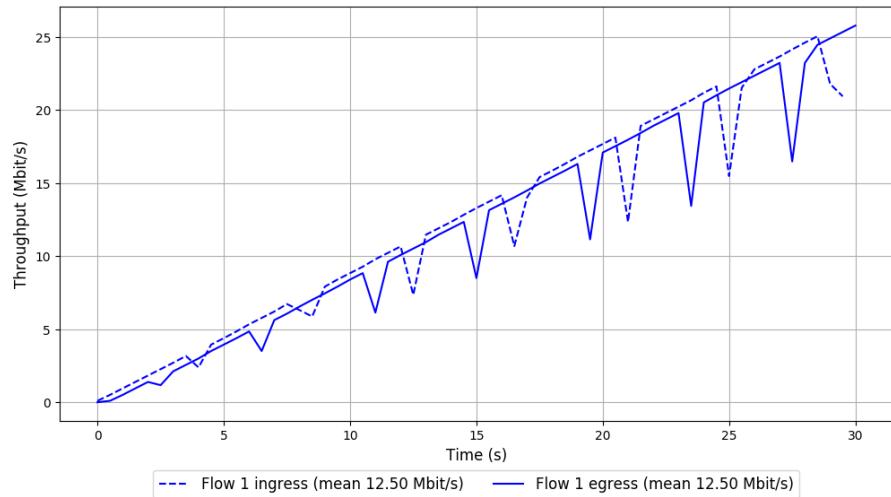


Run 3: Statistics of LEDBAT

```
Start at: 2018-12-19 23:50:17
End at: 2018-12-19 23:50:47
Local clock offset: 22.579 ms
Remote clock offset: 25.187 ms

# Below is generated by plot.py at 2018-12-20 02:22:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 86.981 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 86.981 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

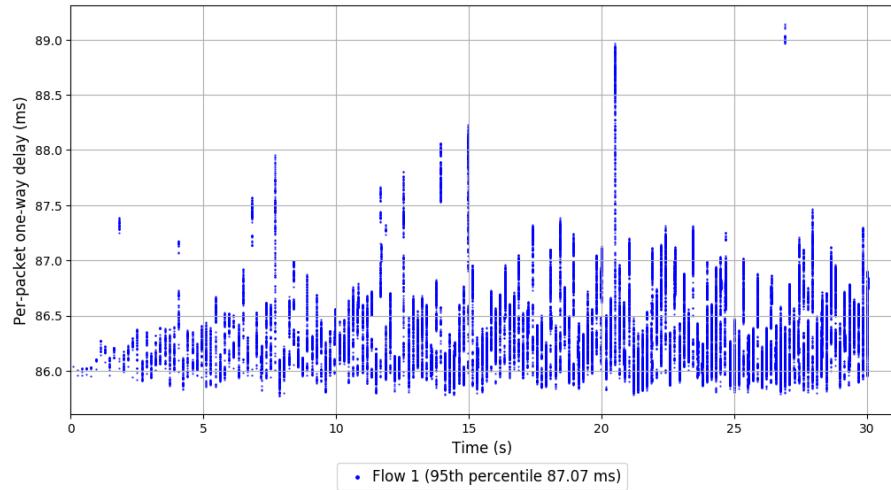
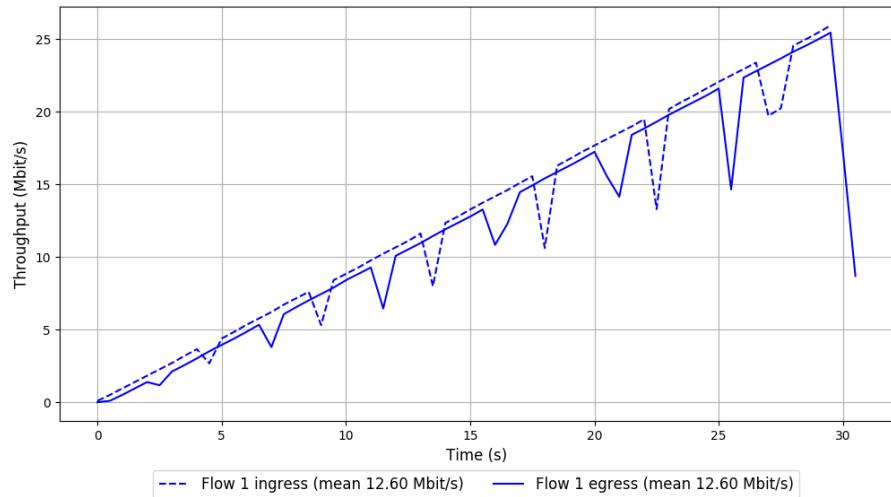


Run 4: Statistics of LEDBAT

```
Start at: 2018-12-20 00:19:06
End at: 2018-12-20 00:19:36
Local clock offset: 17.05 ms
Remote clock offset: 19.775 ms

# Below is generated by plot.py at 2018-12-20 02:22:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 87.071 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 87.071 ms
Loss rate: 0.00%
```

Run 4: Report of LEDBAT — Data Link

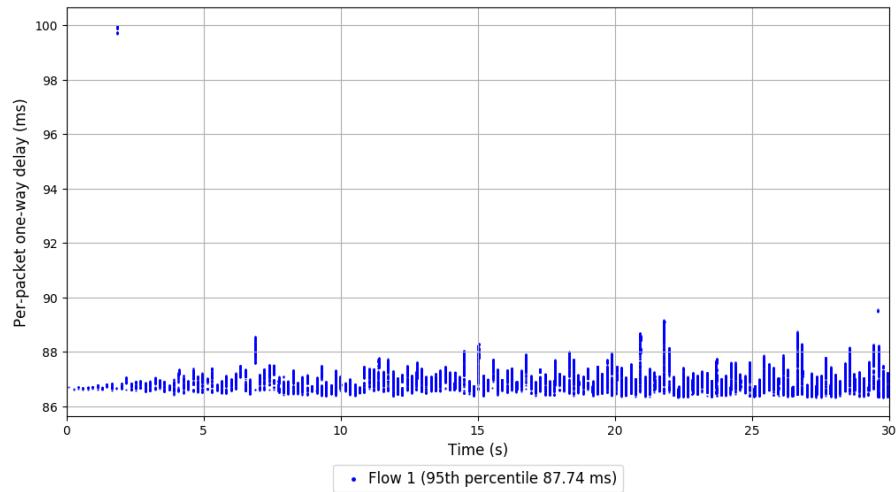
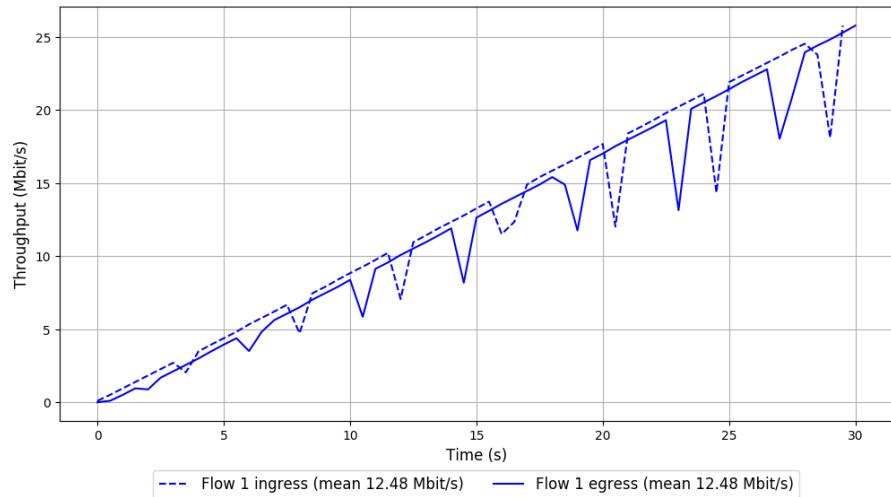


Run 5: Statistics of LEDBAT

```
Start at: 2018-12-20 00:47:53
End at: 2018-12-20 00:48:23
Local clock offset: 4.53 ms
Remote clock offset: 10.52 ms

# Below is generated by plot.py at 2018-12-20 02:22:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 12.48 Mbit/s
95th percentile per-packet one-way delay: 87.740 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.48 Mbit/s
95th percentile per-packet one-way delay: 87.740 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link

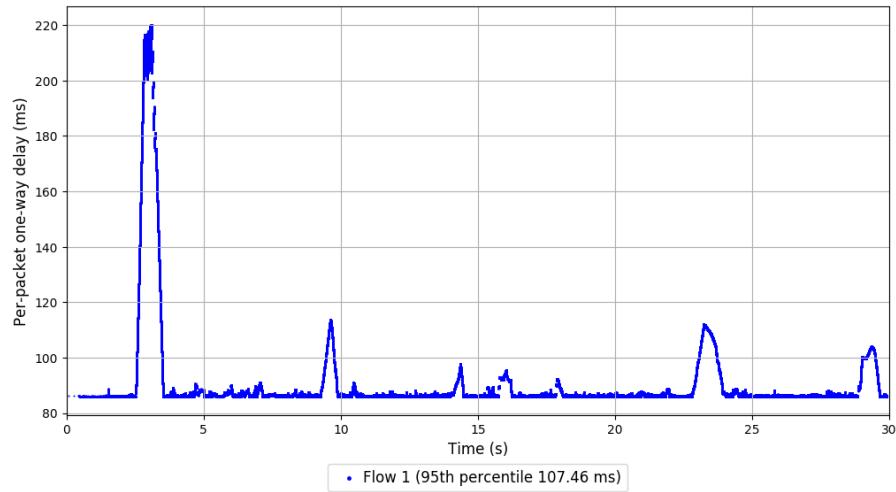
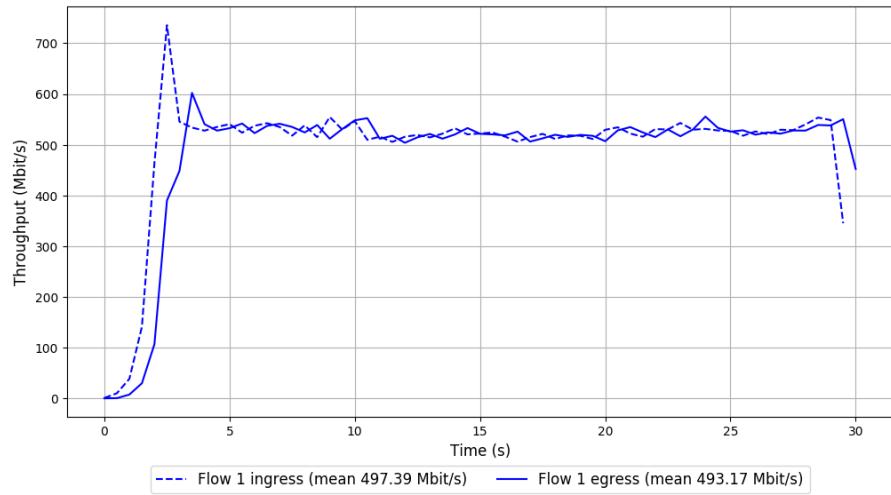


```
Run 1: Statistics of PCC-Allegro
```

```
Start at: 2018-12-19 22:45:51
End at: 2018-12-19 22:46:21
Local clock offset: 9.12 ms
Remote clock offset: 10.405 ms

# Below is generated by plot.py at 2018-12-20 02:27:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 493.17 Mbit/s
95th percentile per-packet one-way delay: 107.458 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 493.17 Mbit/s
95th percentile per-packet one-way delay: 107.458 ms
Loss rate: 0.85%
```

Run 1: Report of PCC-Allegro — Data Link

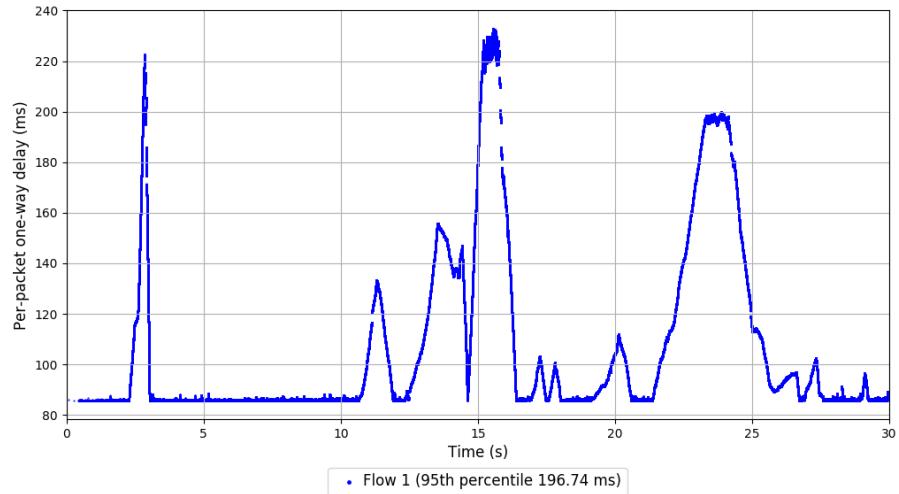
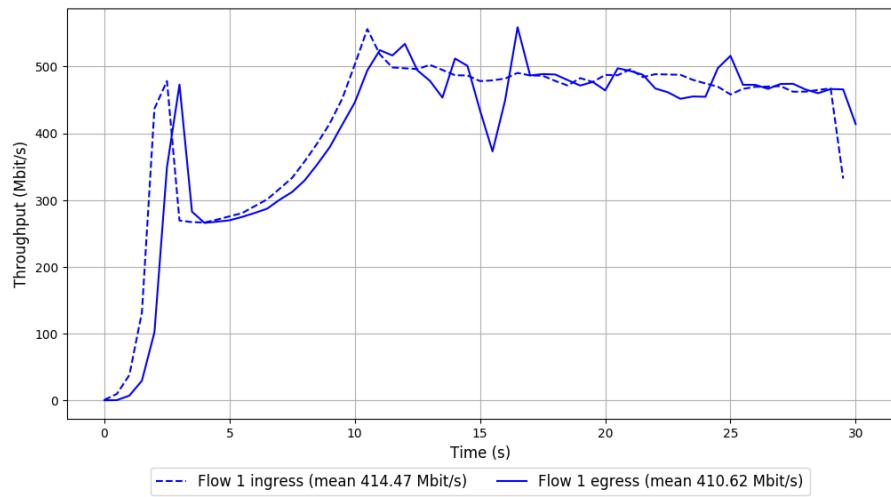


Run 2: Statistics of PCC-Allegro

```
Start at: 2018-12-19 23:14:32
End at: 2018-12-19 23:15:02
Local clock offset: 21.355 ms
Remote clock offset: 24.136 ms

# Below is generated by plot.py at 2018-12-20 02:27:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 410.62 Mbit/s
95th percentile per-packet one-way delay: 196.737 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 410.62 Mbit/s
95th percentile per-packet one-way delay: 196.737 ms
Loss rate: 1.13%
```

Run 2: Report of PCC-Allegro — Data Link

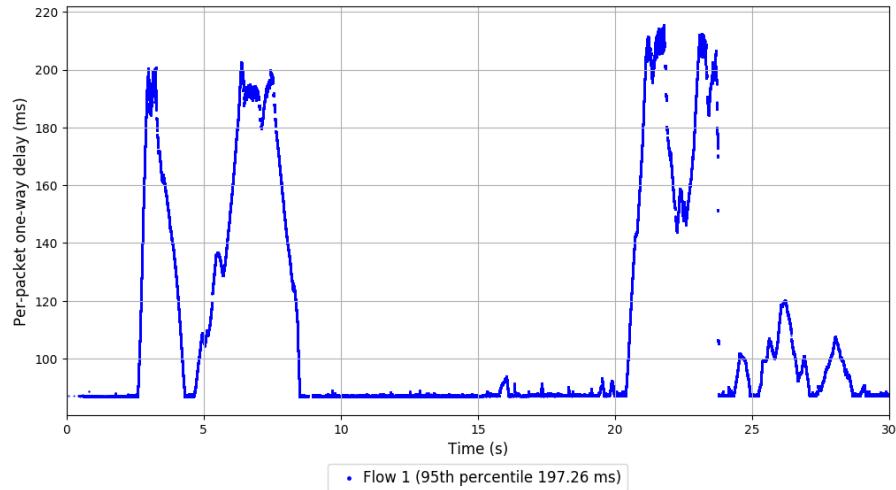
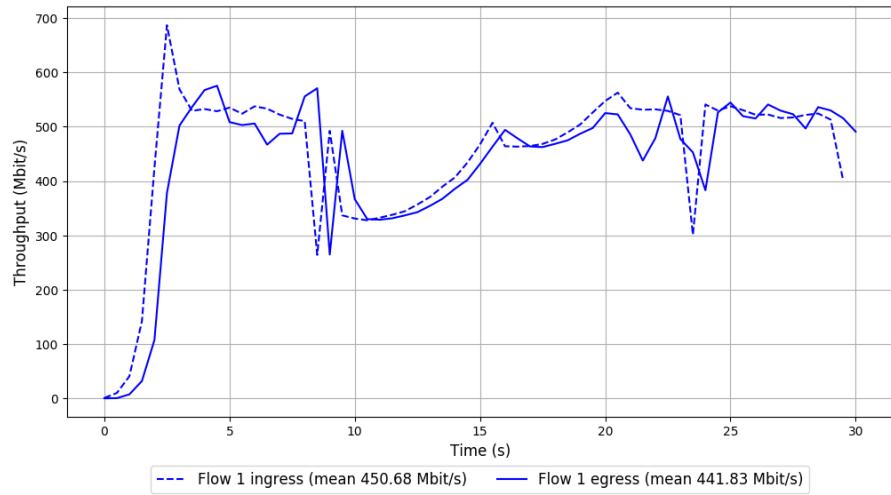


Run 3: Statistics of PCC-Allegro

```
Start at: 2018-12-19 23:43:07
End at: 2018-12-19 23:43:37
Local clock offset: 41.054 ms
Remote clock offset: 47.261 ms

# Below is generated by plot.py at 2018-12-20 02:27:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 441.83 Mbit/s
95th percentile per-packet one-way delay: 197.258 ms
Loss rate: 1.96%
-- Flow 1:
Average throughput: 441.83 Mbit/s
95th percentile per-packet one-way delay: 197.258 ms
Loss rate: 1.96%
```

Run 3: Report of PCC-Allegro — Data Link

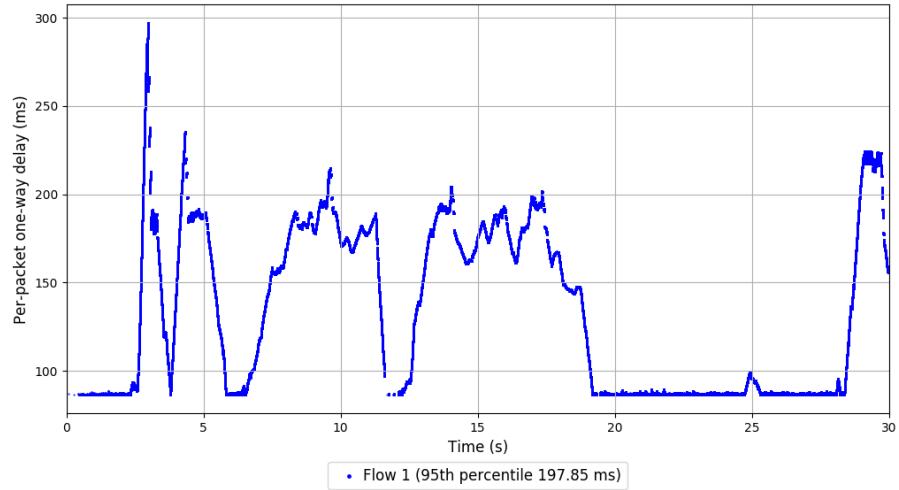
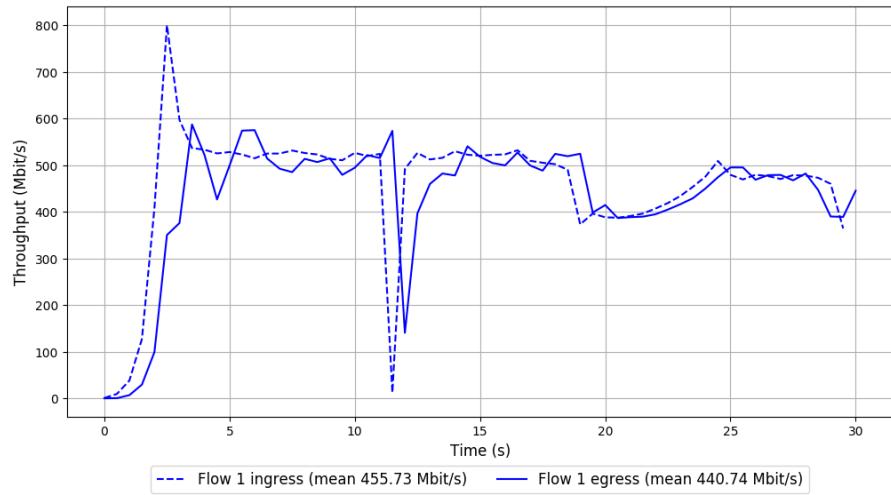


Run 4: Statistics of PCC-Allegro

```
Start at: 2018-12-20 00:11:59
End at: 2018-12-20 00:12:29
Local clock offset: 18.496 ms
Remote clock offset: 21.138 ms

# Below is generated by plot.py at 2018-12-20 02:27:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 440.74 Mbit/s
95th percentile per-packet one-way delay: 197.846 ms
Loss rate: 3.29%
-- Flow 1:
Average throughput: 440.74 Mbit/s
95th percentile per-packet one-way delay: 197.846 ms
Loss rate: 3.29%
```

Run 4: Report of PCC-Allegro — Data Link

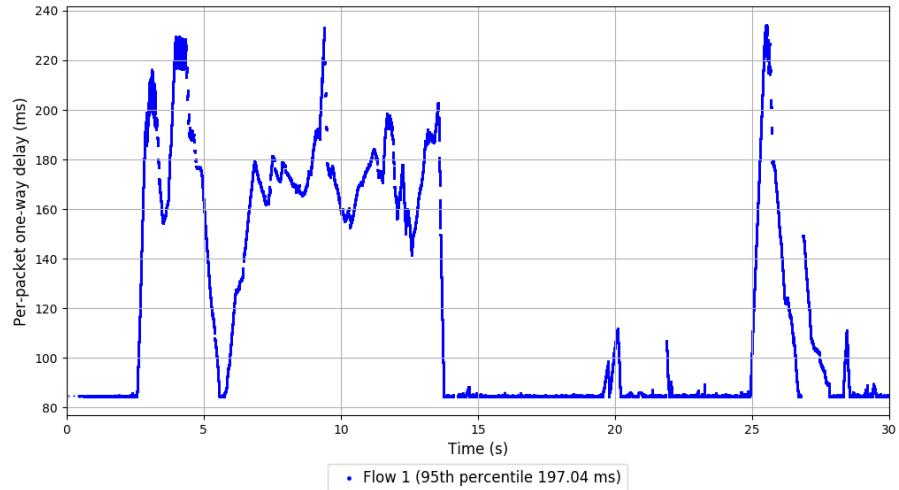
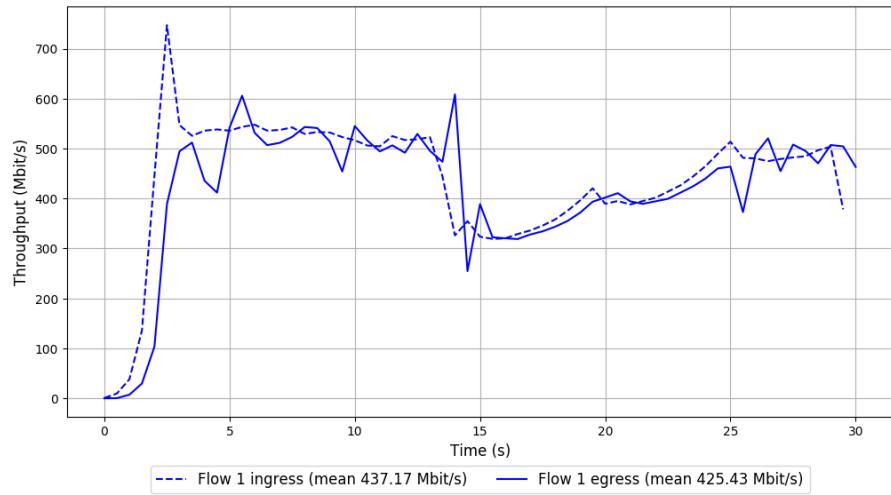


Run 5: Statistics of PCC-Allegro

```
Start at: 2018-12-20 00:40:45
End at: 2018-12-20 00:41:15
Local clock offset: 5.778 ms
Remote clock offset: 8.999 ms

# Below is generated by plot.py at 2018-12-20 02:27:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 425.43 Mbit/s
95th percentile per-packet one-way delay: 197.039 ms
Loss rate: 2.69%
-- Flow 1:
Average throughput: 425.43 Mbit/s
95th percentile per-packet one-way delay: 197.039 ms
Loss rate: 2.69%
```

Run 5: Report of PCC-Allegro — Data Link

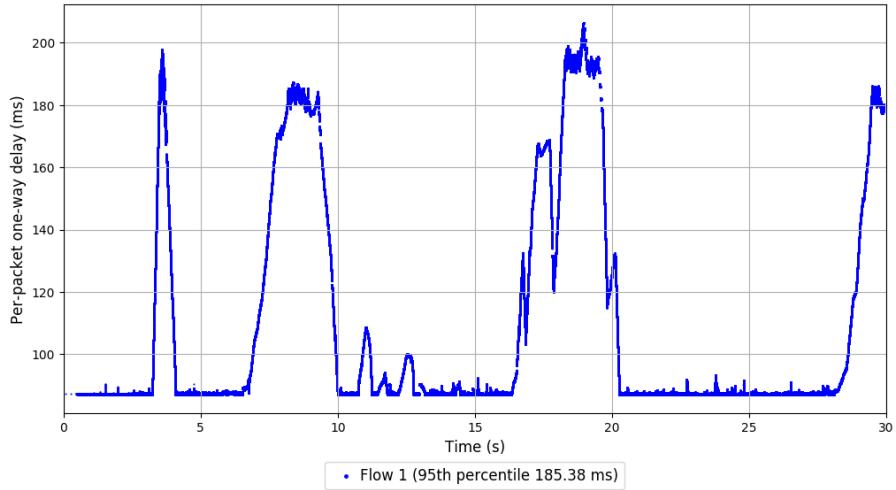
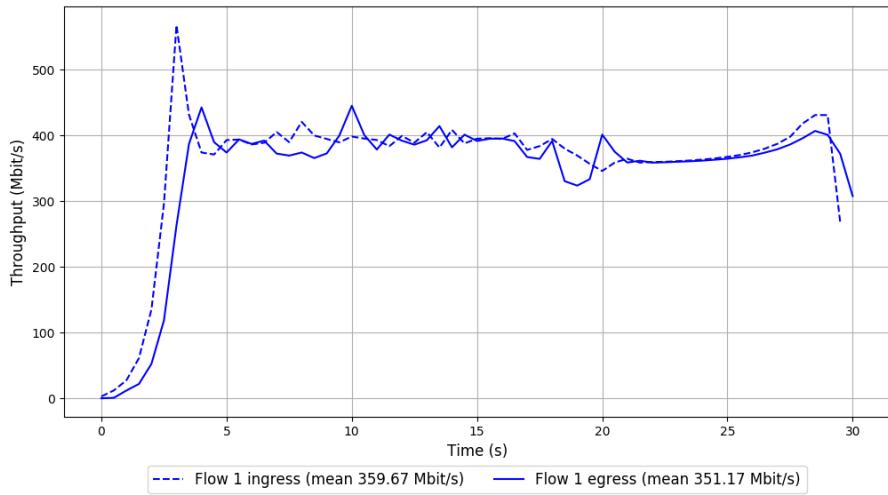


```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-19 22:48:42
End at: 2018-12-19 22:49:12
Local clock offset: 11.952 ms
Remote clock offset: 14.036 ms

# Below is generated by plot.py at 2018-12-20 02:27:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 351.17 Mbit/s
95th percentile per-packet one-way delay: 185.384 ms
Loss rate: 2.36%
-- Flow 1:
Average throughput: 351.17 Mbit/s
95th percentile per-packet one-way delay: 185.384 ms
Loss rate: 2.36%
```

Run 1: Report of PCC-Expr — Data Link

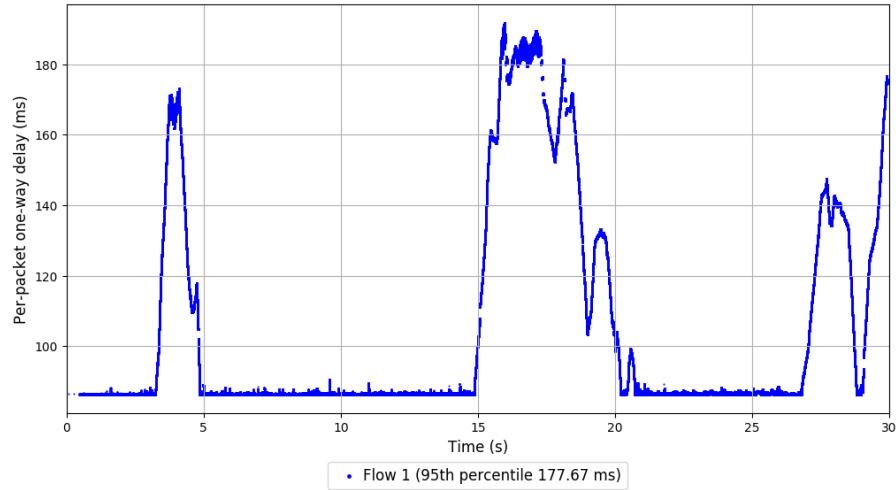
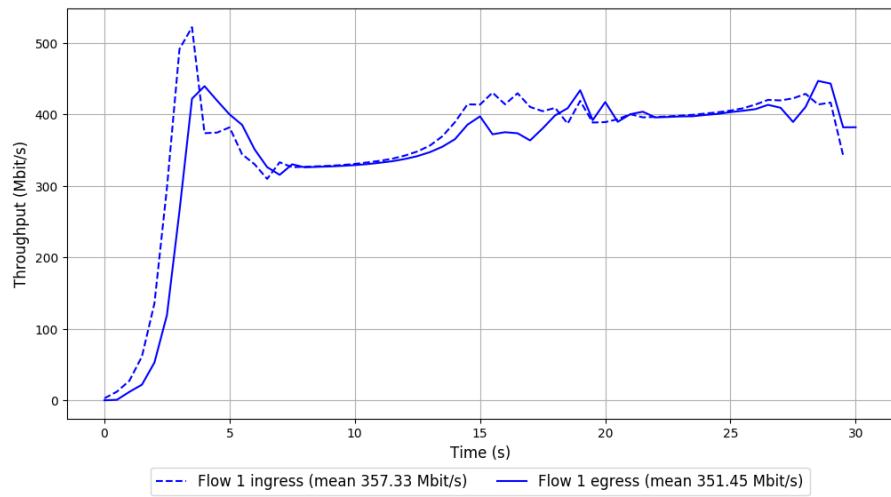


Run 2: Statistics of PCC-Expr

```
Start at: 2018-12-19 23:17:18
End at: 2018-12-19 23:17:48
Local clock offset: 20.536 ms
Remote clock offset: 23.335 ms

# Below is generated by plot.py at 2018-12-20 02:28:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 351.45 Mbit/s
95th percentile per-packet one-way delay: 177.666 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 351.45 Mbit/s
95th percentile per-packet one-way delay: 177.666 ms
Loss rate: 1.65%
```

Run 2: Report of PCC-Expr — Data Link

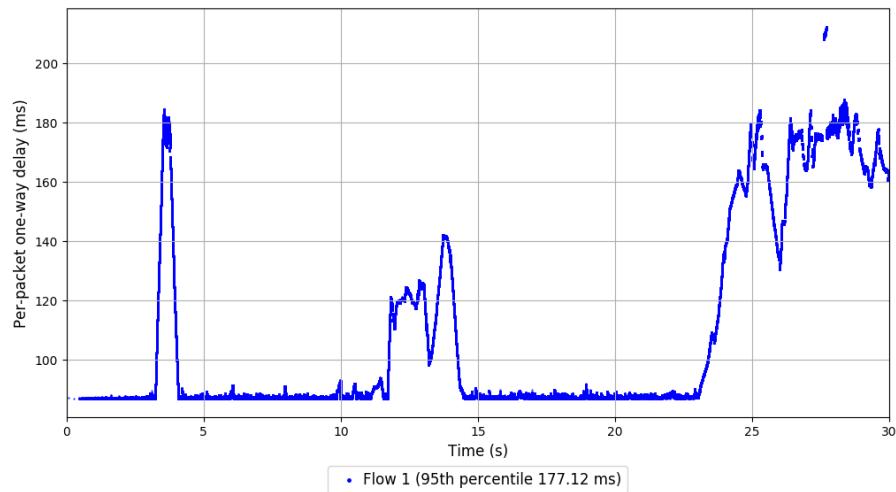
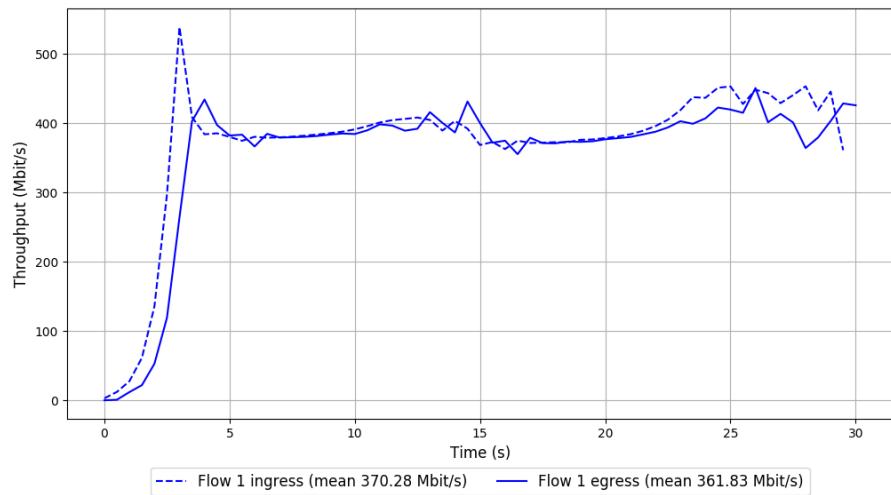


Run 3: Statistics of PCC-Expr

```
Start at: 2018-12-19 23:45:55
End at: 2018-12-19 23:46:25
Local clock offset: 30.731 ms
Remote clock offset: 35.848 ms

# Below is generated by plot.py at 2018-12-20 02:35:38
# Datalink statistics
-- Total of 1 flow:
Average throughput: 361.83 Mbit/s
95th percentile per-packet one-way delay: 177.122 ms
Loss rate: 2.28%
-- Flow 1:
Average throughput: 361.83 Mbit/s
95th percentile per-packet one-way delay: 177.122 ms
Loss rate: 2.28%
```

Run 3: Report of PCC-Expr — Data Link

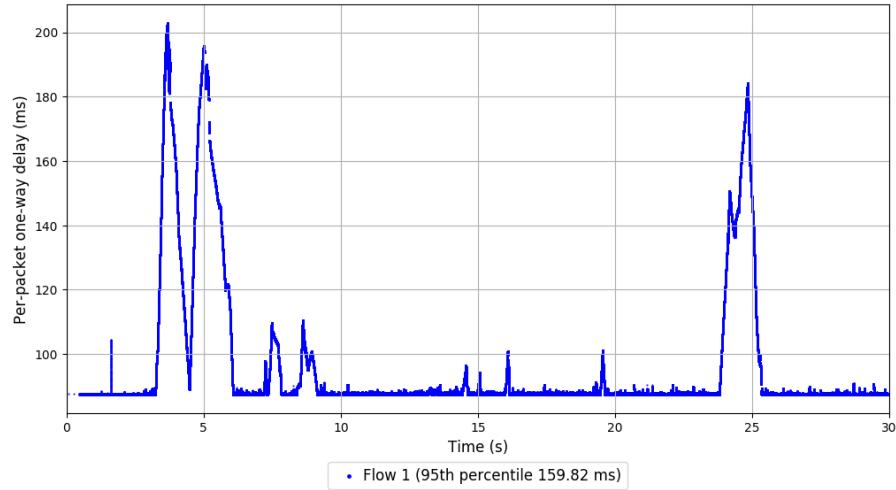
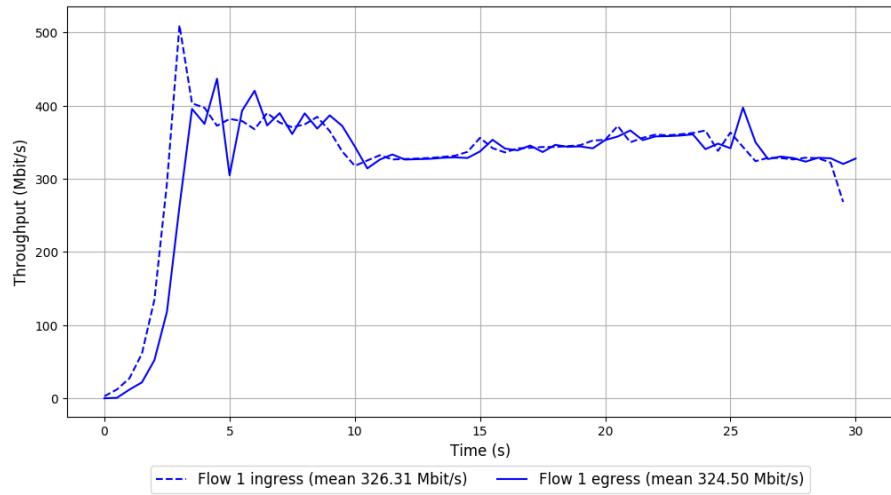


Run 4: Statistics of PCC-Expr

```
Start at: 2018-12-20 00:14:47
End at: 2018-12-20 00:15:17
Local clock offset: 18.64 ms
Remote clock offset: 22.457 ms

# Below is generated by plot.py at 2018-12-20 02:36:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.50 Mbit/s
95th percentile per-packet one-way delay: 159.817 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 324.50 Mbit/s
95th percentile per-packet one-way delay: 159.817 ms
Loss rate: 0.55%
```

Run 4: Report of PCC-Expr — Data Link

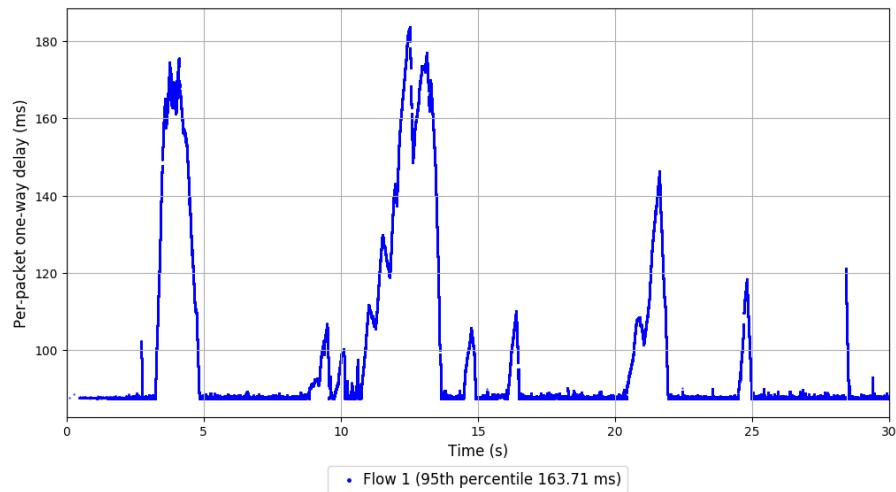
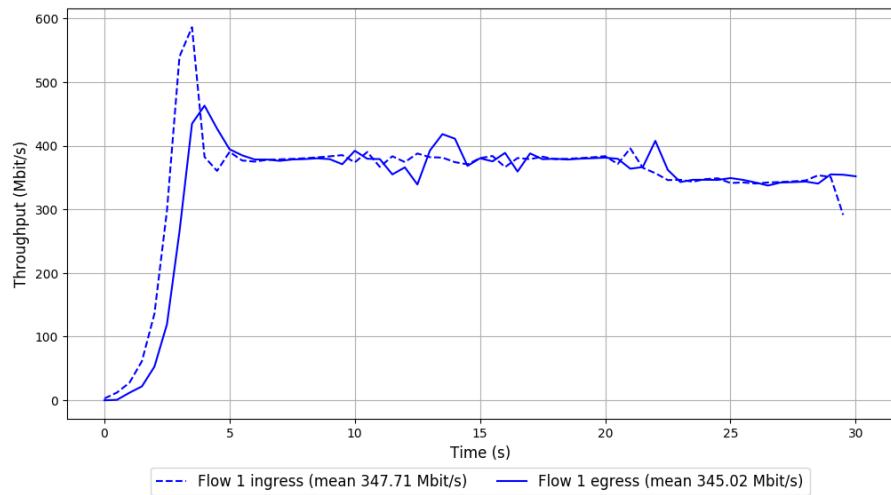


Run 5: Statistics of PCC-Expr

```
Start at: 2018-12-20 00:43:33
End at: 2018-12-20 00:44:03
Local clock offset: 2.668 ms
Remote clock offset: 9.504 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 345.02 Mbit/s
95th percentile per-packet one-way delay: 163.707 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 345.02 Mbit/s
95th percentile per-packet one-way delay: 163.707 ms
Loss rate: 0.77%
```

Run 5: Report of PCC-Expr — Data Link

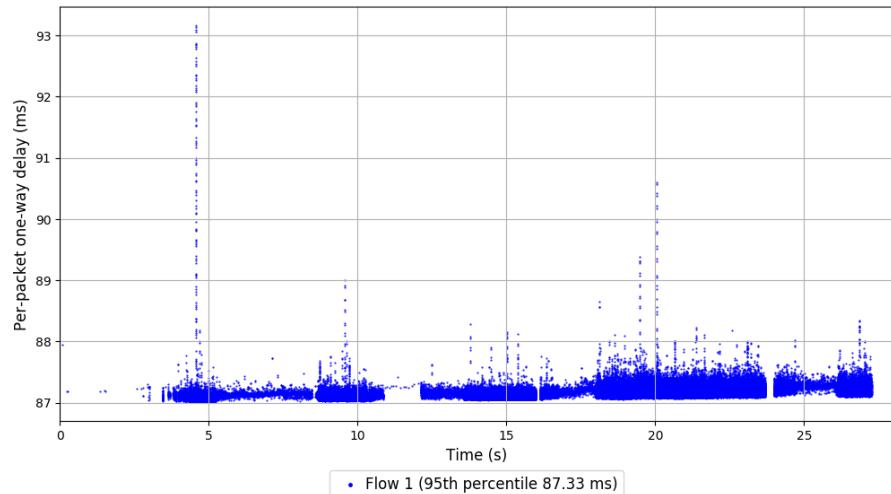
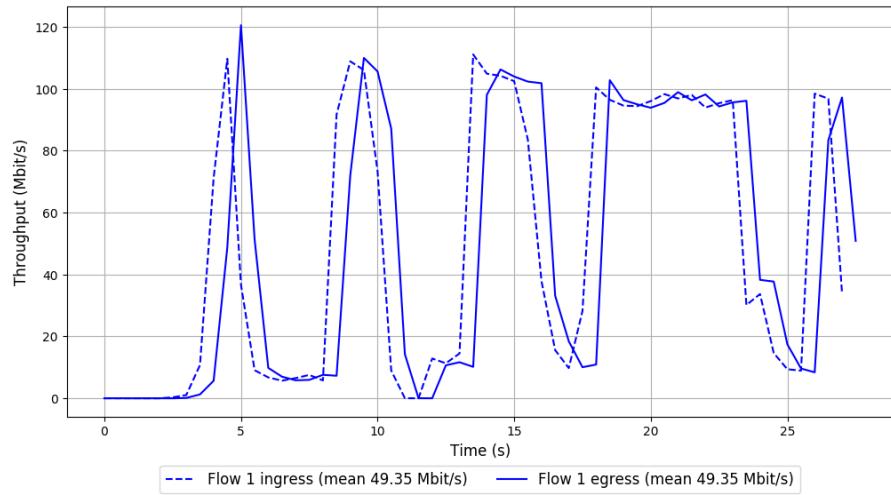


Run 1: Statistics of QUIC Cubic

```
Start at: 2018-12-19 22:44:39
End at: 2018-12-19 22:45:09
Local clock offset: 8.528 ms
Remote clock offset: 11.047 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 49.35 Mbit/s
95th percentile per-packet one-way delay: 87.334 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.35 Mbit/s
95th percentile per-packet one-way delay: 87.334 ms
Loss rate: 0.00%
```

Run 1: Report of QUIC Cubic — Data Link

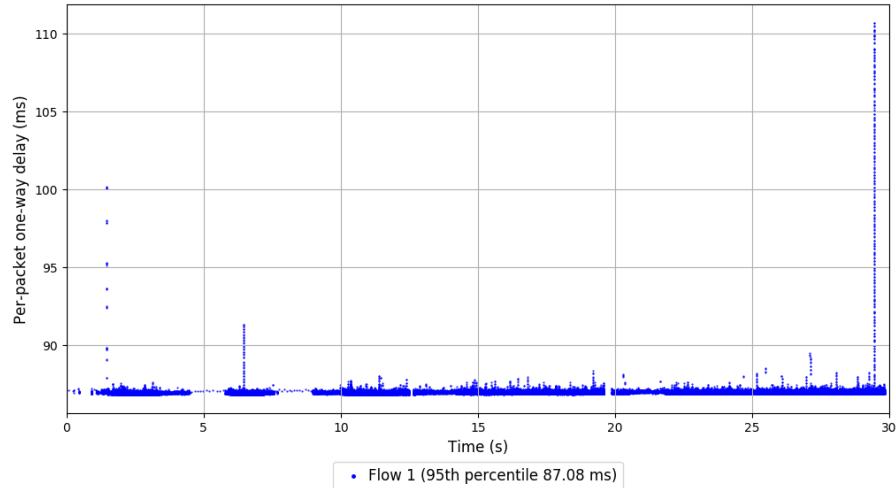
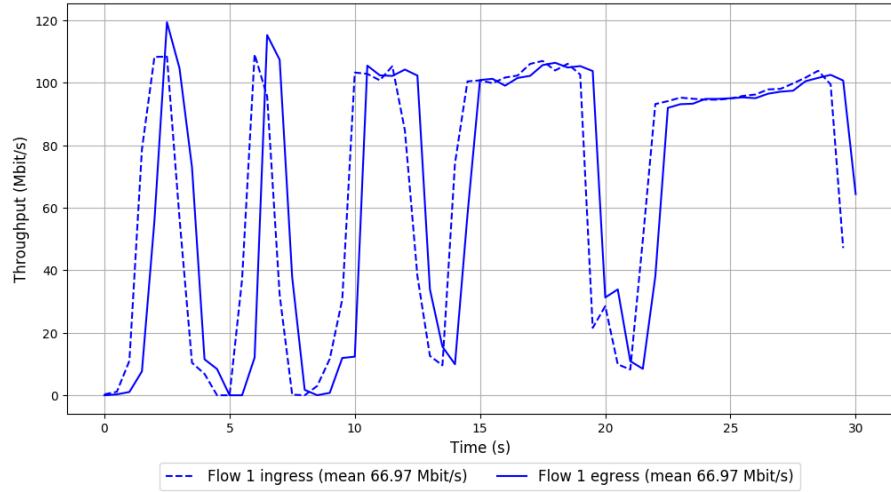


Run 2: Statistics of QUIC Cubic

```
Start at: 2018-12-19 23:13:18
End at: 2018-12-19 23:13:48
Local clock offset: 21.074 ms
Remote clock offset: 25.134 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 66.97 Mbit/s
95th percentile per-packet one-way delay: 87.079 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.97 Mbit/s
95th percentile per-packet one-way delay: 87.079 ms
Loss rate: 0.00%
```

Run 2: Report of QUIC Cubic — Data Link

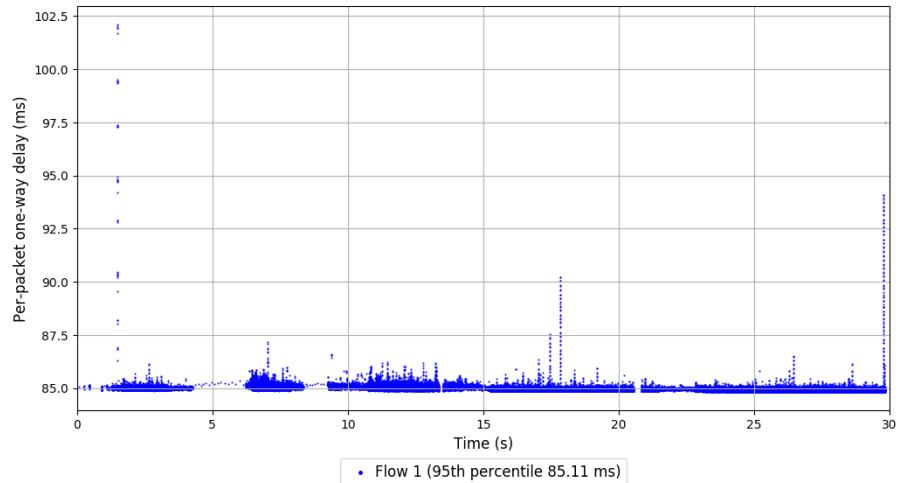
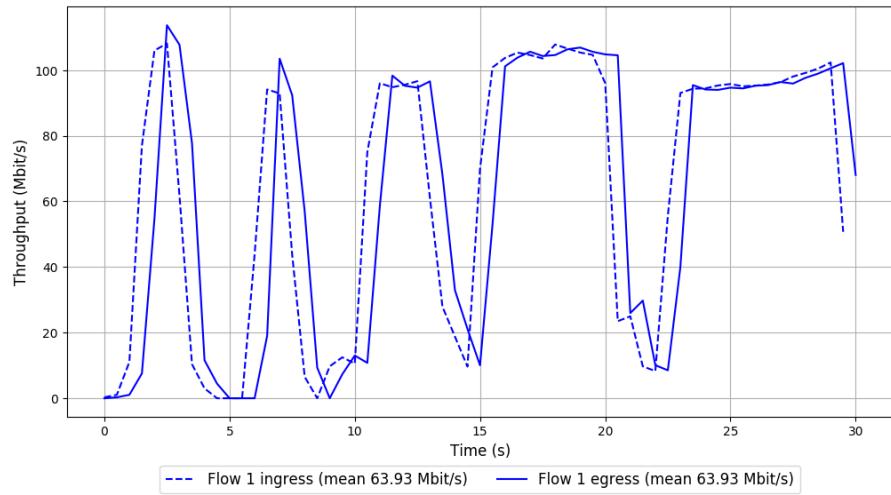


Run 3: Statistics of QUIC Cubic

```
Start at: 2018-12-19 23:41:54
End at: 2018-12-19 23:42:24
Local clock offset: 41.643 ms
Remote clock offset: 45.67 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 63.93 Mbit/s
95th percentile per-packet one-way delay: 85.111 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.93 Mbit/s
95th percentile per-packet one-way delay: 85.111 ms
Loss rate: 0.00%
```

Run 3: Report of QUIC Cubic — Data Link

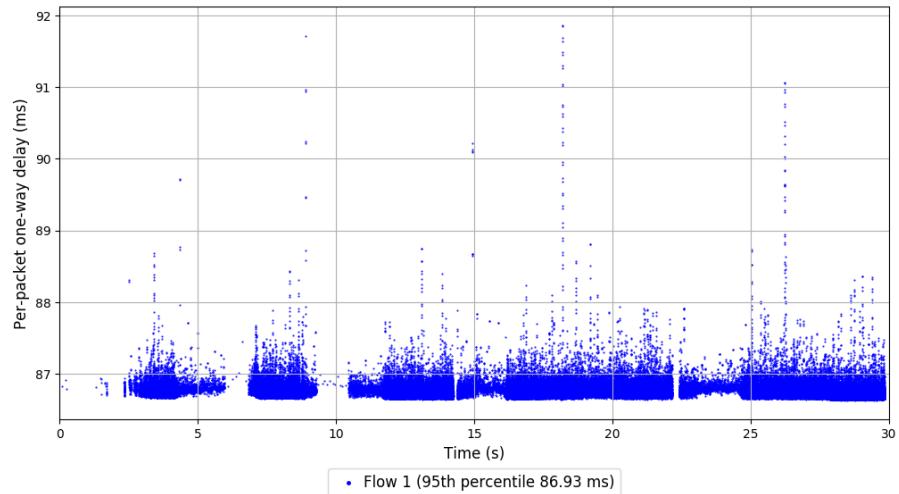
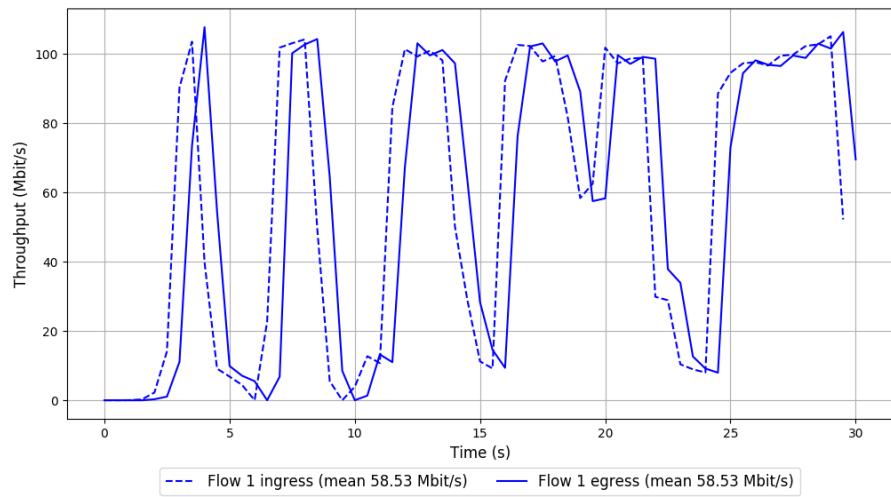


Run 4: Statistics of QUIC Cubic

```
Start at: 2018-12-20 00:10:46
End at: 2018-12-20 00:11:16
Local clock offset: 17.991 ms
Remote clock offset: 20.542 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 58.53 Mbit/s
95th percentile per-packet one-way delay: 86.933 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.53 Mbit/s
95th percentile per-packet one-way delay: 86.933 ms
Loss rate: 0.00%
```

Run 4: Report of QUIC Cubic — Data Link

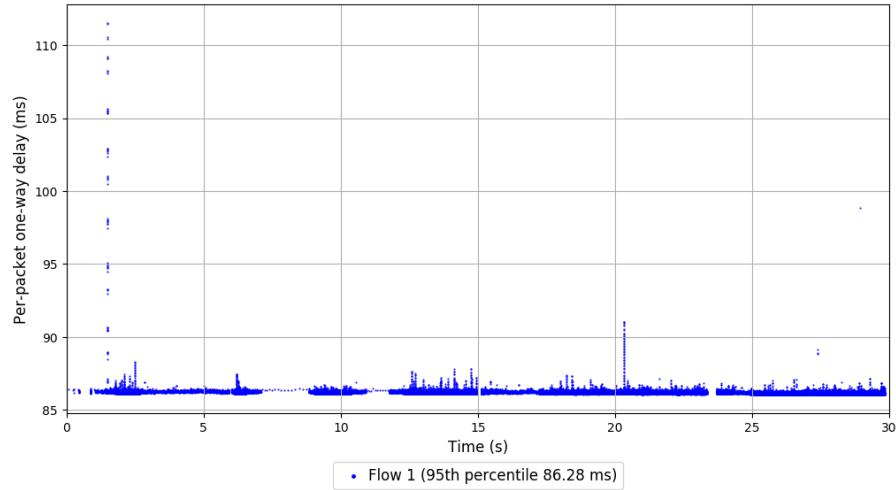
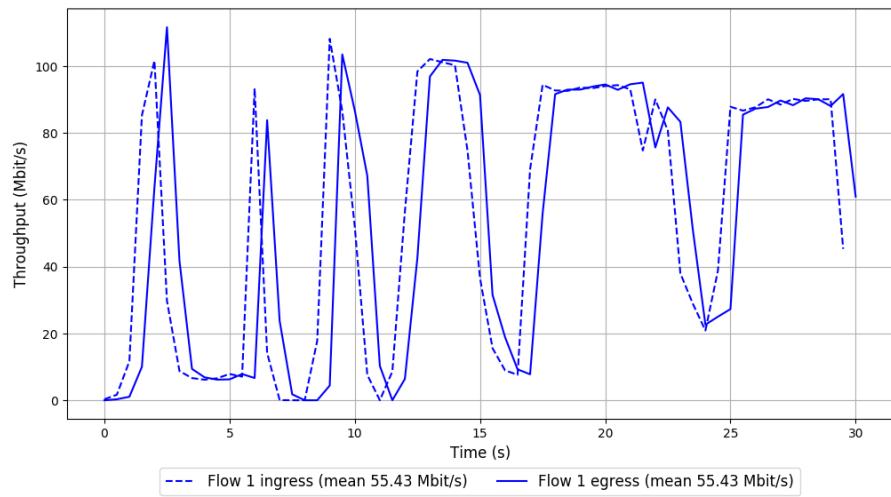


Run 5: Statistics of QUIC Cubic

```
Start at: 2018-12-20 00:39:33
End at: 2018-12-20 00:40:03
Local clock offset: 4.47 ms
Remote clock offset: 8.857 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 55.43 Mbit/s
95th percentile per-packet one-way delay: 86.280 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 55.43 Mbit/s
95th percentile per-packet one-way delay: 86.280 ms
Loss rate: 0.00%
```

Run 5: Report of QUIC Cubic — Data Link

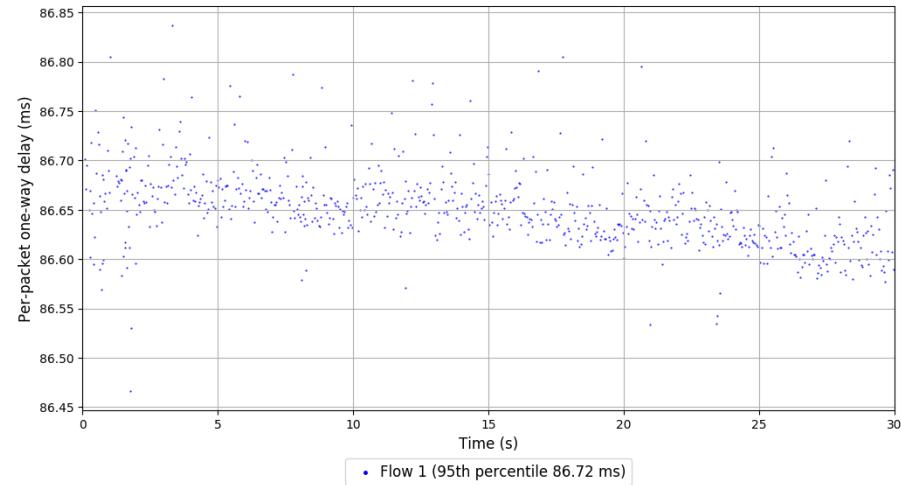
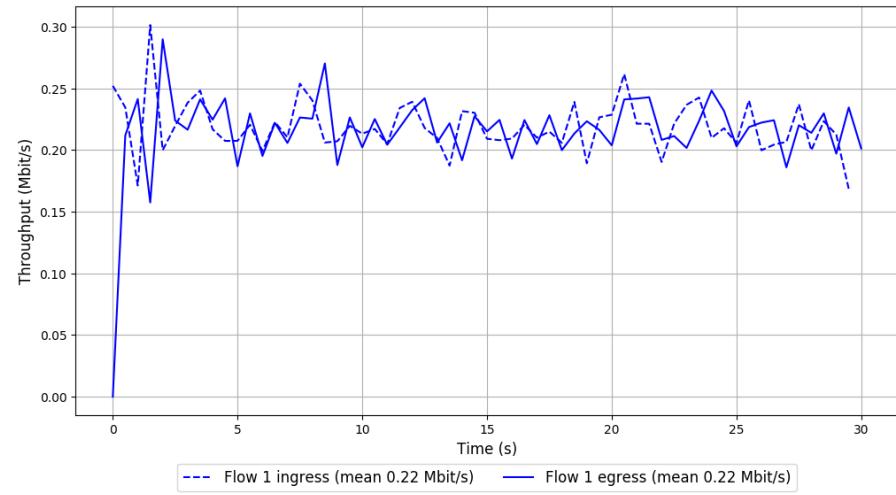


Run 1: Statistics of SCReAM

```
Start at: 2018-12-19 22:47:33
End at: 2018-12-19 22:48:03
Local clock offset: 10.534 ms
Remote clock offset: 11.957 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.717 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.717 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

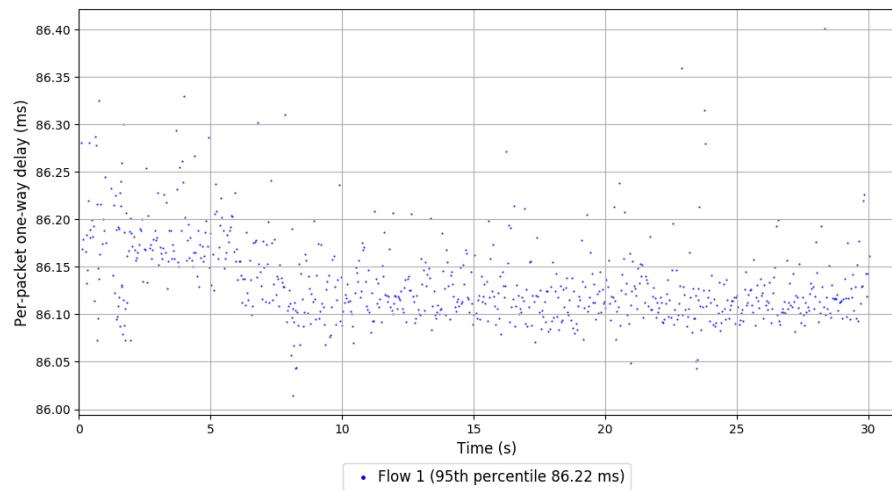
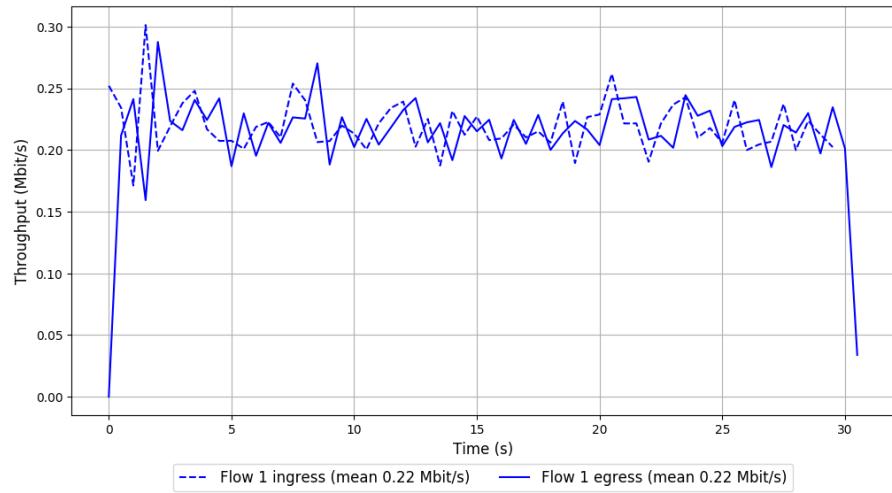


Run 2: Statistics of SCReAM

```
Start at: 2018-12-19 23:16:09
End at: 2018-12-19 23:16:39
Local clock offset: 20.677 ms
Remote clock offset: 23.523 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.218 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.218 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

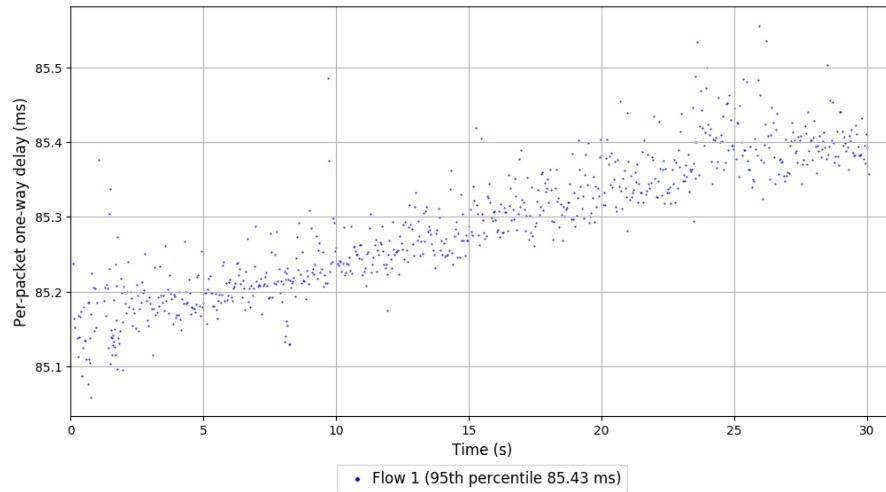
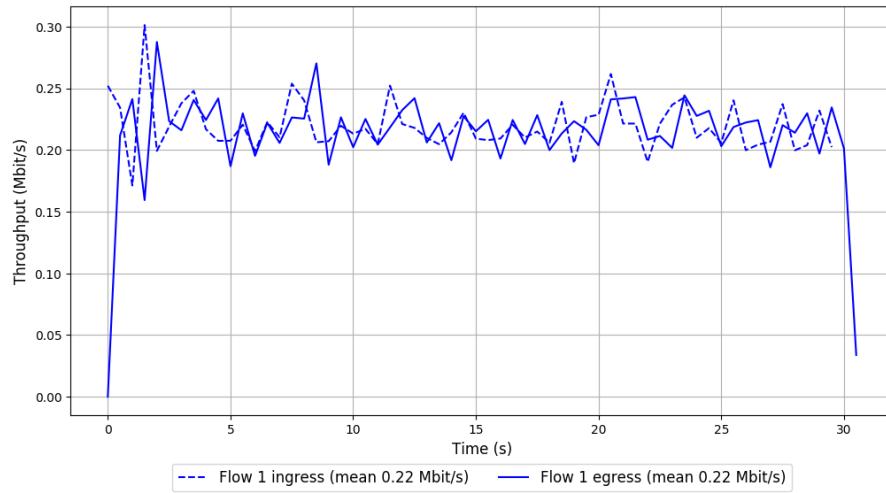


Run 3: Statistics of SCReAM

```
Start at: 2018-12-19 23:44:46
End at: 2018-12-19 23:45:16
Local clock offset: 36.25 ms
Remote clock offset: 39.965 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.426 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.426 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

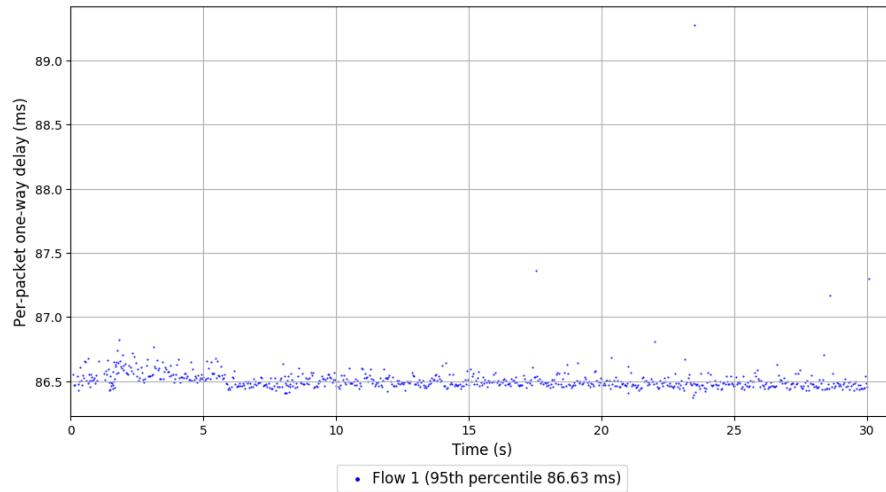
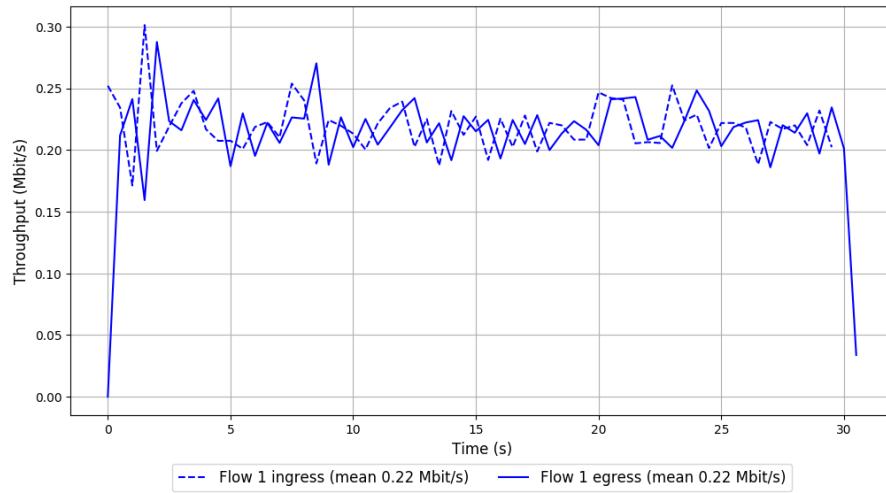


Run 4: Statistics of SCReAM

```
Start at: 2018-12-20 00:13:38
End at: 2018-12-20 00:14:08
Local clock offset: 19.296 ms
Remote clock offset: 21.885 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.630 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.630 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link

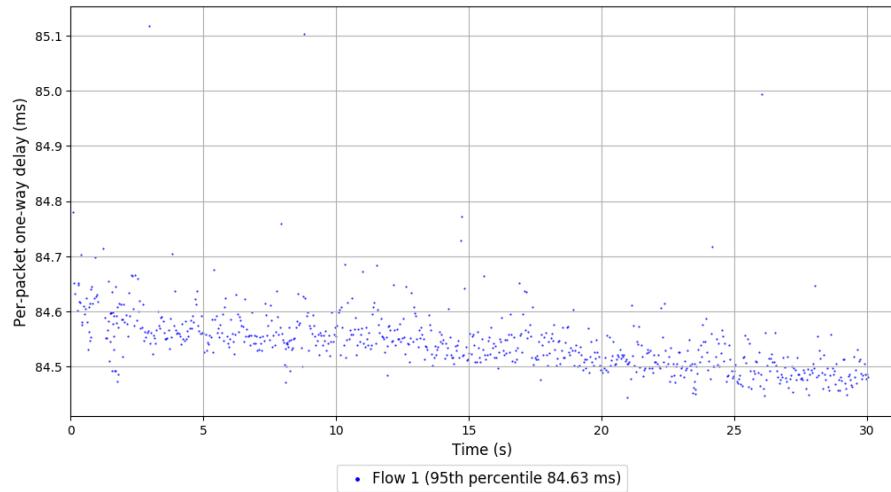
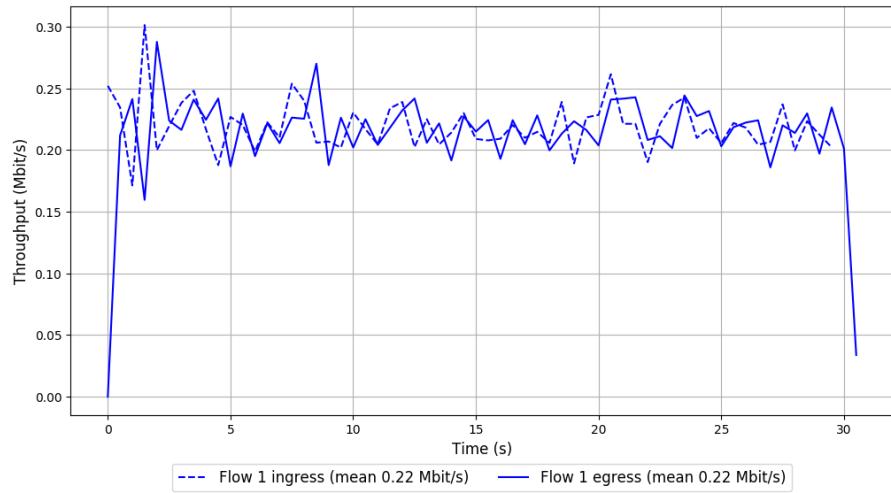


Run 5: Statistics of SCReAM

```
Start at: 2018-12-20 00:42:24
End at: 2018-12-20 00:42:54
Local clock offset: 6.221 ms
Remote clock offset: 9.31 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.634 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.634 ms
Loss rate: 0.00%
```

Run 5: Report of SCReAM — Data Link

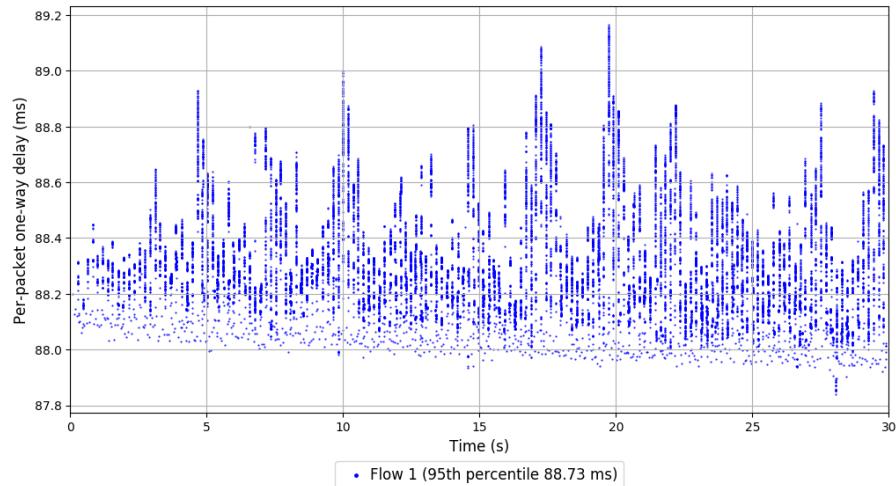
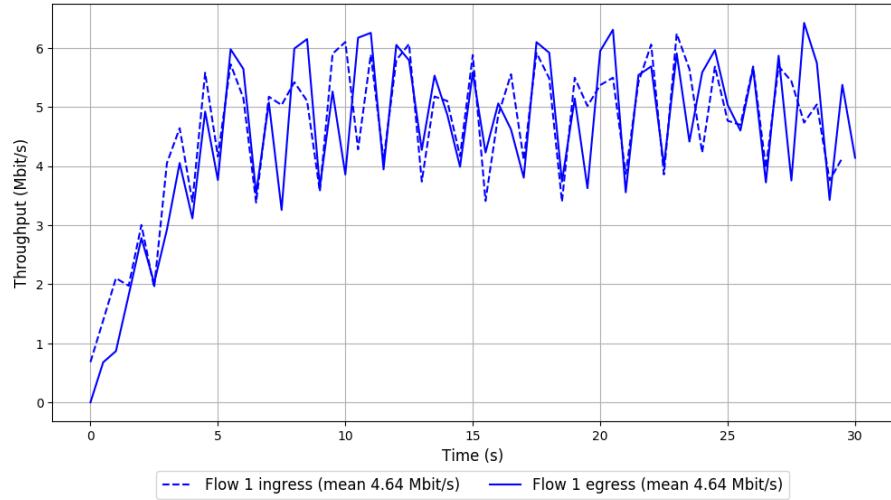


Run 1: Statistics of Sprout

```
Start at: 2018-12-19 22:50:23
End at: 2018-12-19 22:50:53
Local clock offset: 13.759 ms
Remote clock offset: 17.345 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 88.731 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 88.731 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

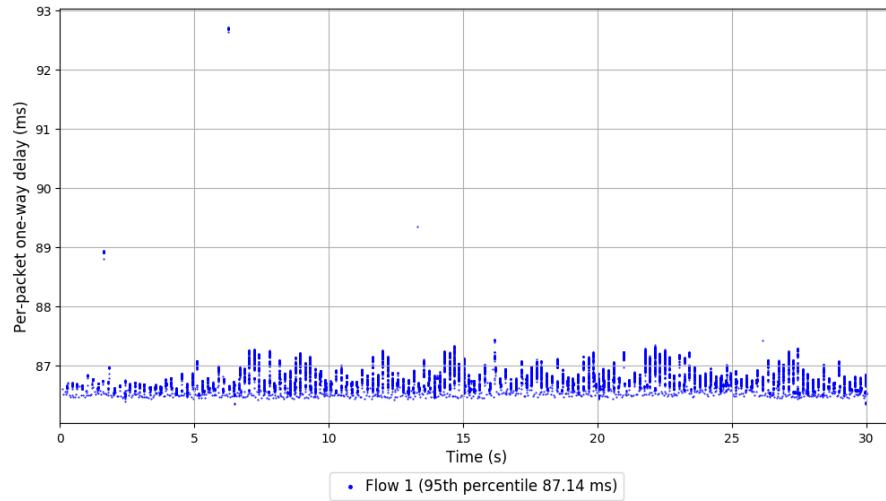
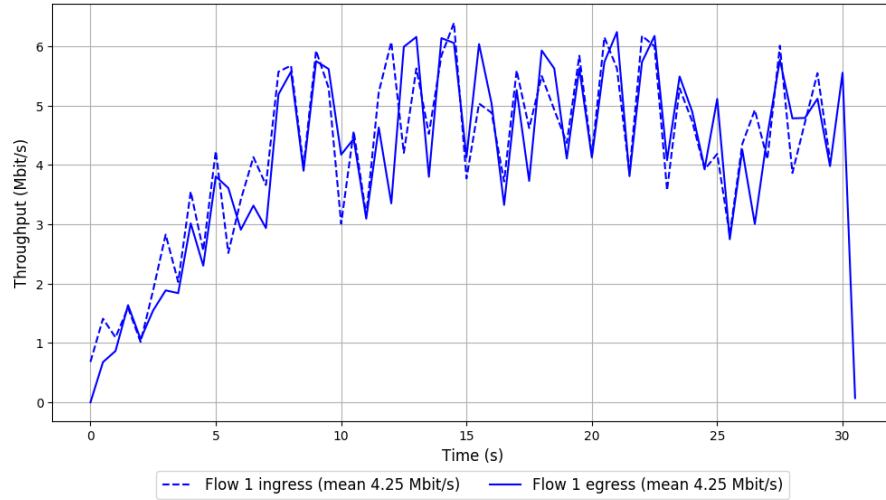


Run 2: Statistics of Sprout

```
Start at: 2018-12-19 23:18:59
End at: 2018-12-19 23:19:29
Local clock offset: 20.688 ms
Remote clock offset: 23.511 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.25 Mbit/s
95th percentile per-packet one-way delay: 87.144 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 4.25 Mbit/s
95th percentile per-packet one-way delay: 87.144 ms
Loss rate: 0.01%
```

Run 2: Report of Sprout — Data Link

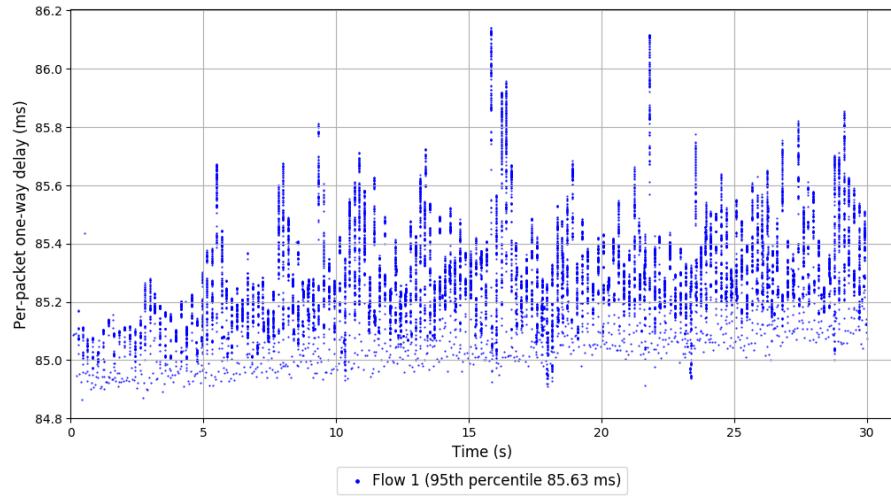
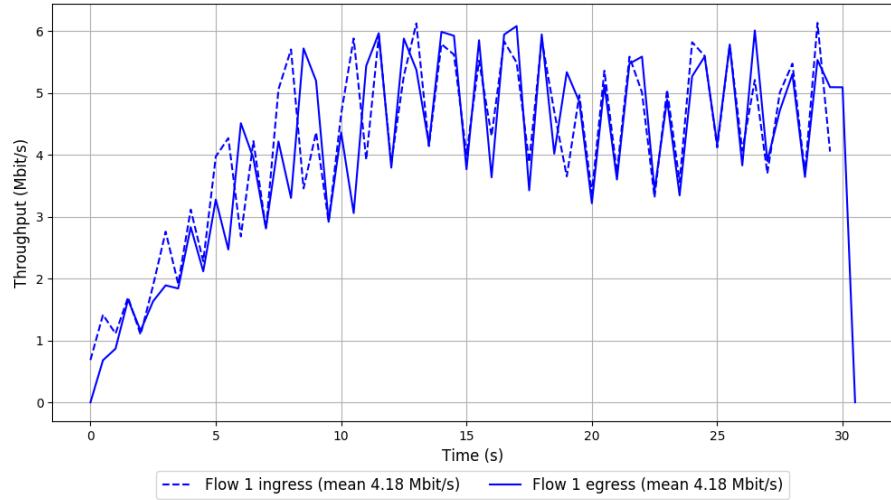


Run 3: Statistics of Sprout

```
Start at: 2018-12-19 23:47:37
End at: 2018-12-19 23:48:07
Local clock offset: 29.203 ms
Remote clock offset: 31.248 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 85.631 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 85.631 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

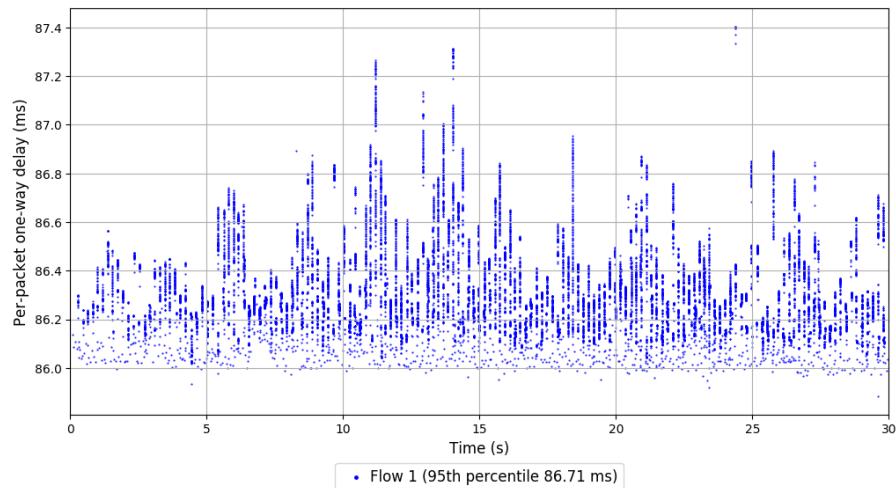
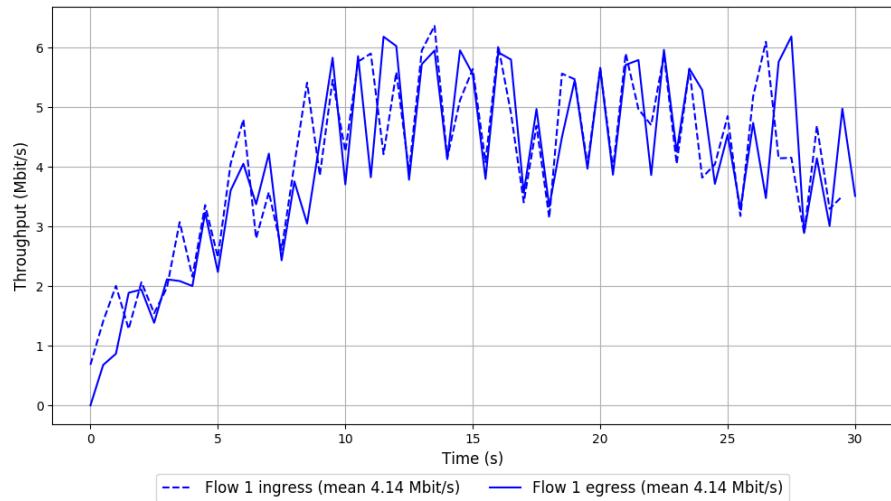


Run 4: Statistics of Sprout

```
Start at: 2018-12-20 00:16:26
End at: 2018-12-20 00:16:56
Local clock offset: 20.719 ms
Remote clock offset: 23.455 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 86.706 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 86.706 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

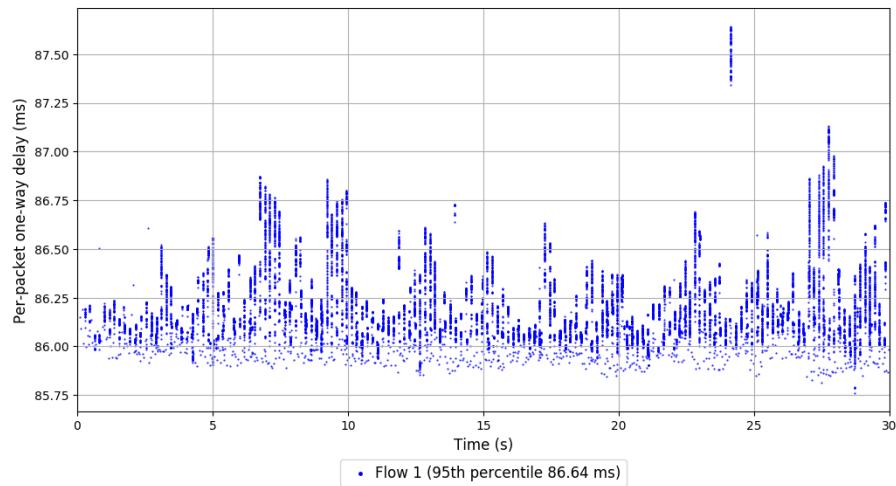
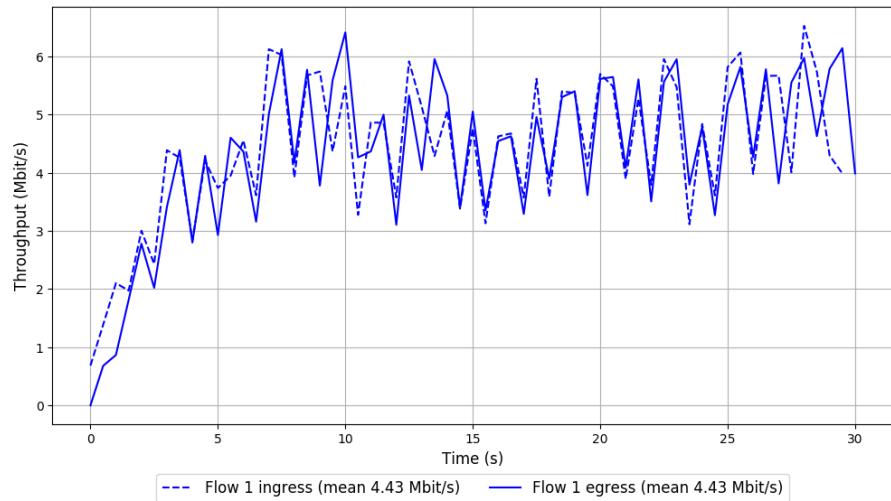


Run 5: Statistics of Sprout

```
Start at: 2018-12-20 00:45:14
End at: 2018-12-20 00:45:44
Local clock offset: 4.467 ms
Remote clock offset: 9.86 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 86.636 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 86.636 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link

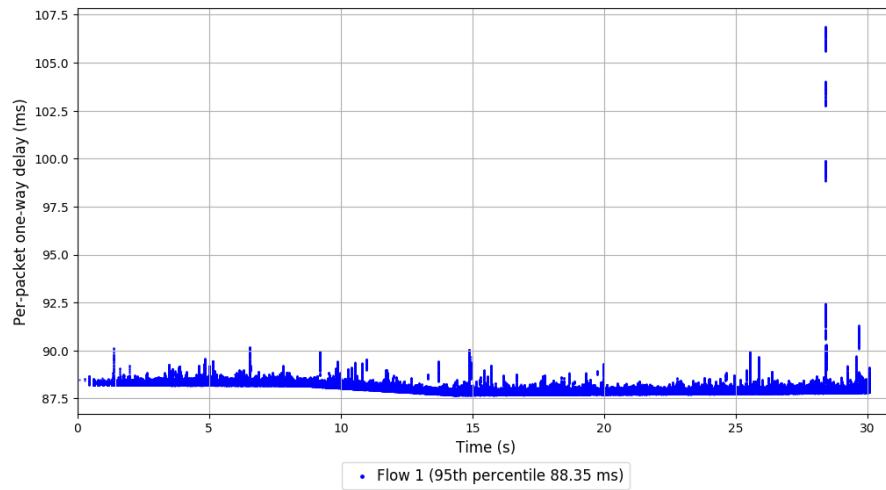
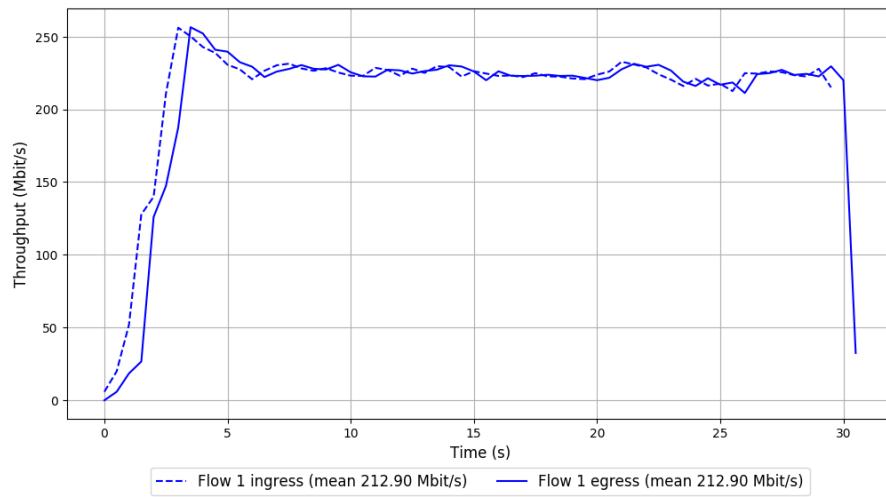


Run 1: Statistics of TaoVA-100x

```
Start at: 2018-12-19 22:51:33
End at: 2018-12-19 22:52:03
Local clock offset: 16.108 ms
Remote clock offset: 19.958 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 212.90 Mbit/s
95th percentile per-packet one-way delay: 88.350 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 212.90 Mbit/s
95th percentile per-packet one-way delay: 88.350 ms
Loss rate: 0.00%
```

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

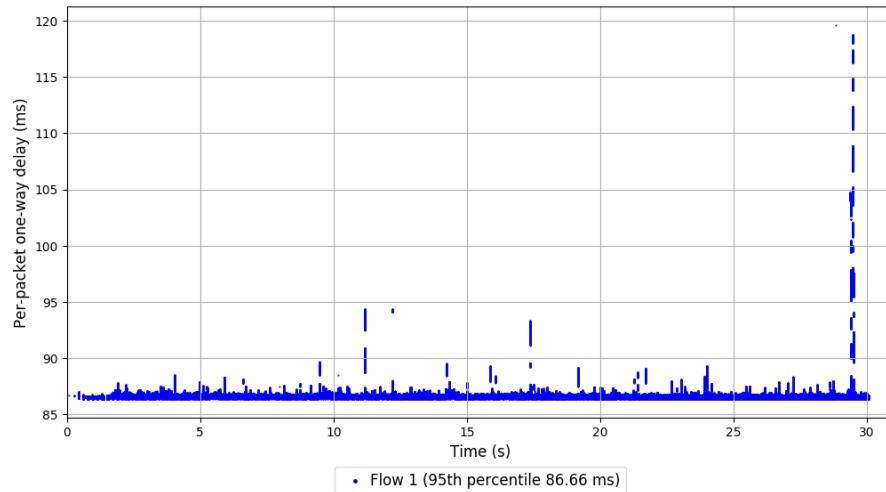
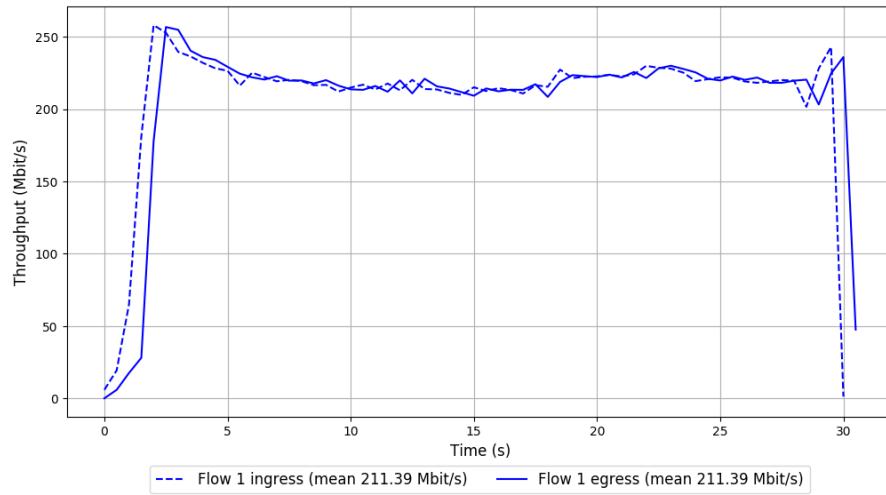


Run 2: Statistics of TaoVA-100x

```
Start at: 2018-12-19 23:20:09
End at: 2018-12-19 23:20:39
Local clock offset: 20.891 ms
Remote clock offset: 23.761 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 211.39 Mbit/s
95th percentile per-packet one-way delay: 86.658 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 211.39 Mbit/s
95th percentile per-packet one-way delay: 86.658 ms
Loss rate: 0.00%
```

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

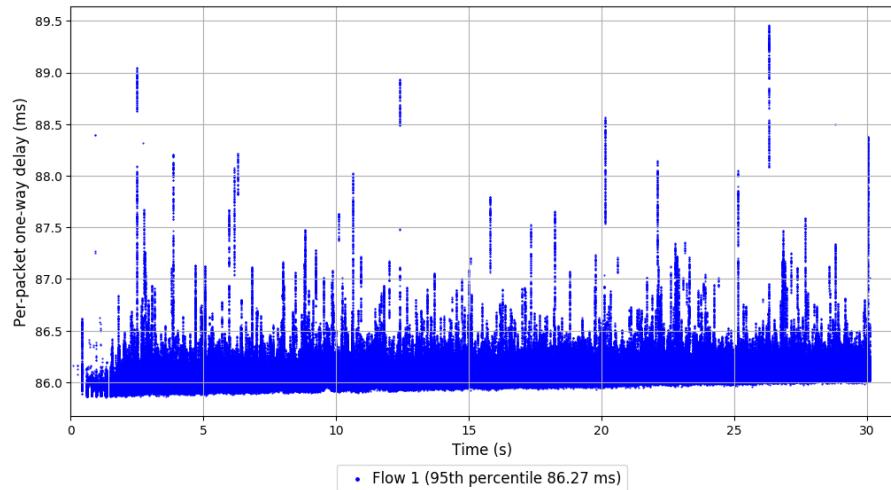
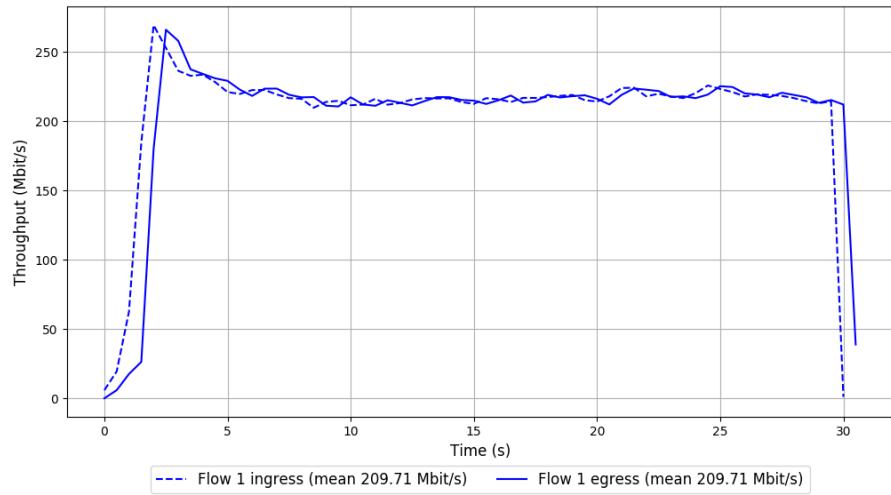


Run 3: Statistics of TaoVA-100x

```
Start at: 2018-12-19 23:48:47
End at: 2018-12-19 23:49:17
Local clock offset: 25.316 ms
Remote clock offset: 28.436 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 209.71 Mbit/s
95th percentile per-packet one-way delay: 86.273 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 209.71 Mbit/s
95th percentile per-packet one-way delay: 86.273 ms
Loss rate: 0.00%
```

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

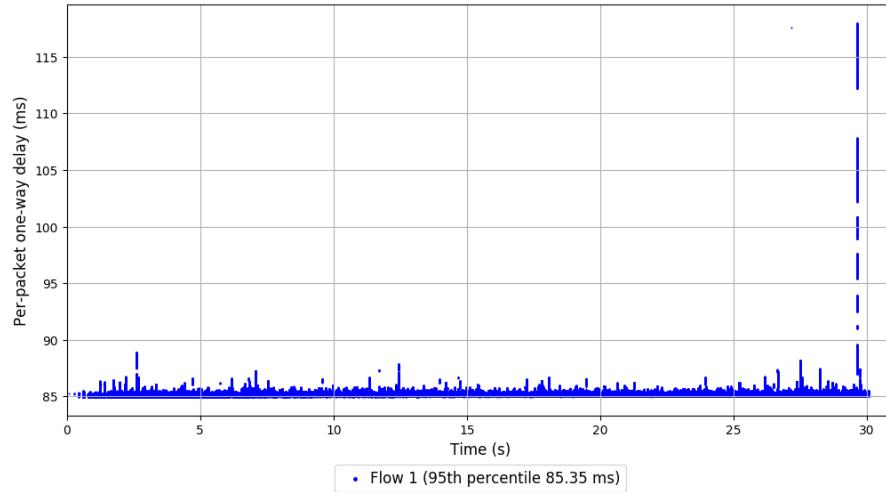
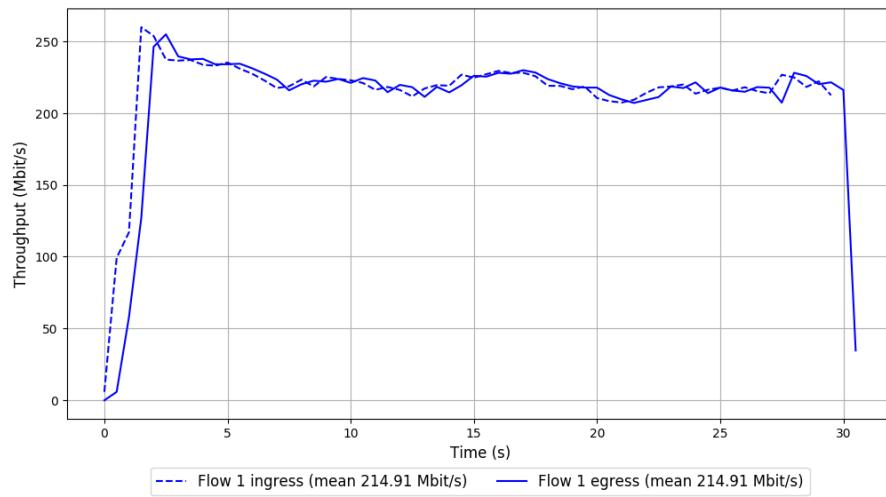


Run 4: Statistics of TaoVA-100x

```
Start at: 2018-12-20 00:17:36
End at: 2018-12-20 00:18:06
Local clock offset: 20.867 ms
Remote clock offset: 23.001 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 214.91 Mbit/s
95th percentile per-packet one-way delay: 85.353 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 214.91 Mbit/s
95th percentile per-packet one-way delay: 85.353 ms
Loss rate: 0.00%
```

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

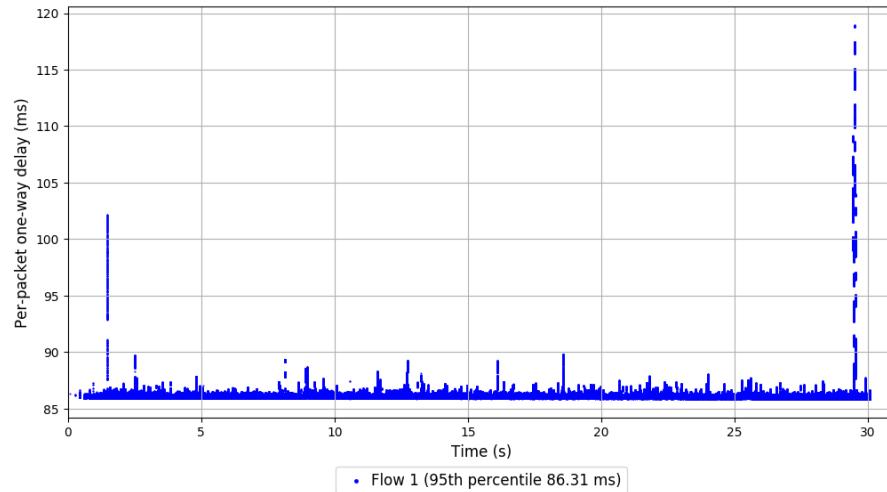
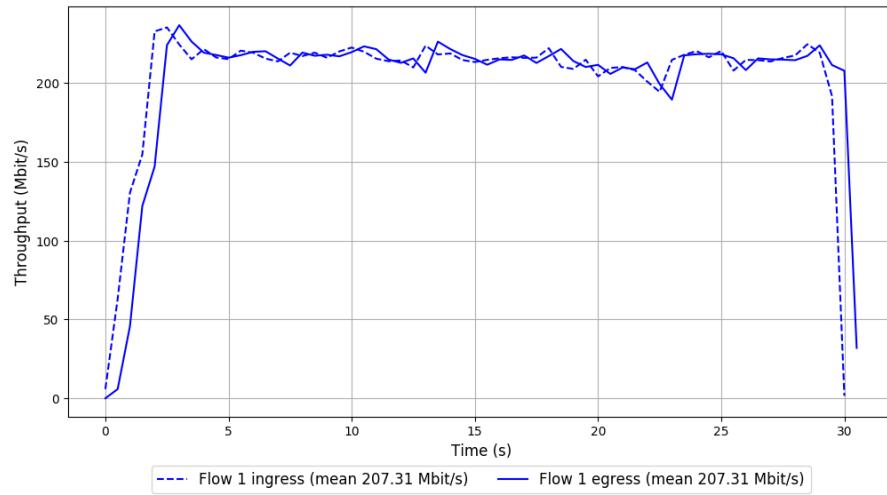


Run 5: Statistics of TaoVA-100x

```
Start at: 2018-12-20 00:46:24
End at: 2018-12-20 00:46:54
Local clock offset: 4.489 ms
Remote clock offset: 10.201 ms

# Below is generated by plot.py at 2018-12-20 02:37:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 207.31 Mbit/s
95th percentile per-packet one-way delay: 86.311 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 207.31 Mbit/s
95th percentile per-packet one-way delay: 86.311 ms
Loss rate: 0.00%
```

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

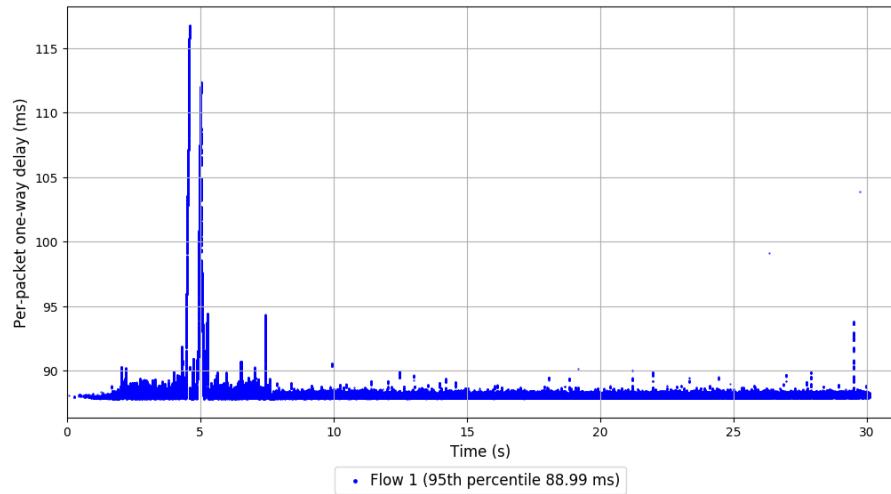
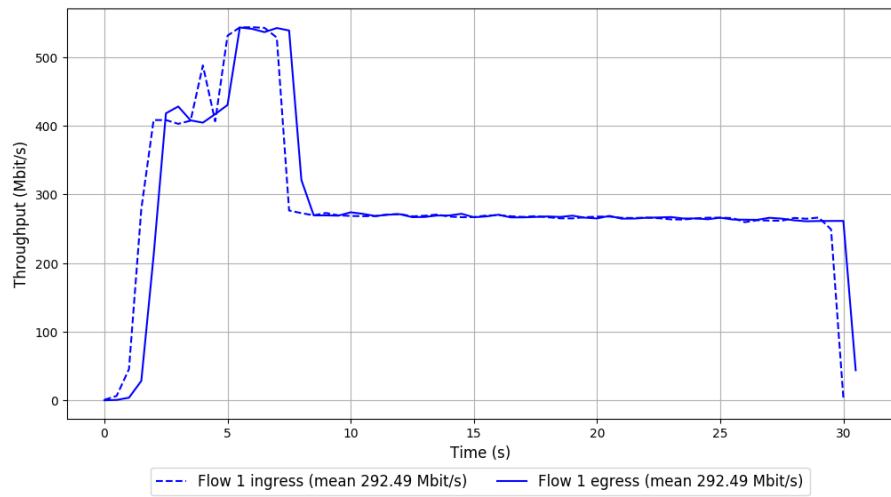


Run 1: Statistics of TCP Vegas

```
Start at: 2018-12-19 22:54:13
End at: 2018-12-19 22:54:43
Local clock offset: 13.127 ms
Remote clock offset: 16.619 ms

# Below is generated by plot.py at 2018-12-20 02:39:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 292.49 Mbit/s
95th percentile per-packet one-way delay: 88.991 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 292.49 Mbit/s
95th percentile per-packet one-way delay: 88.991 ms
Loss rate: 0.00%
```

Run 1: Report of TCP Vegas — Data Link

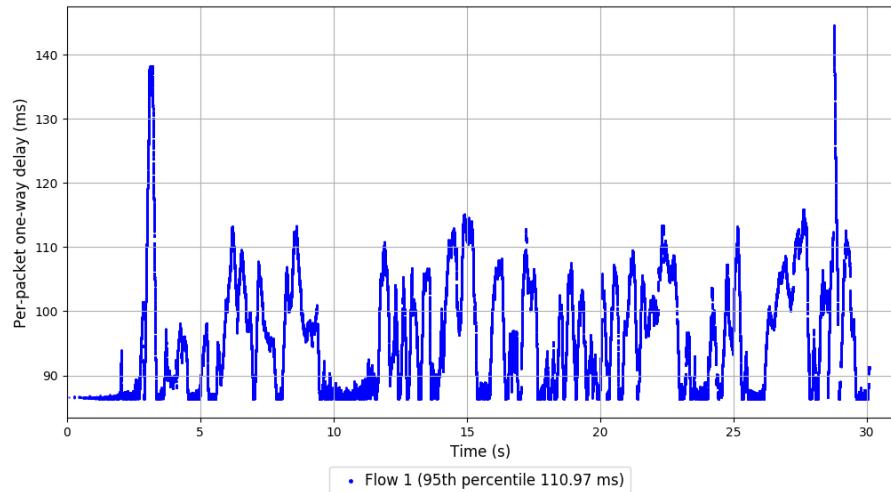
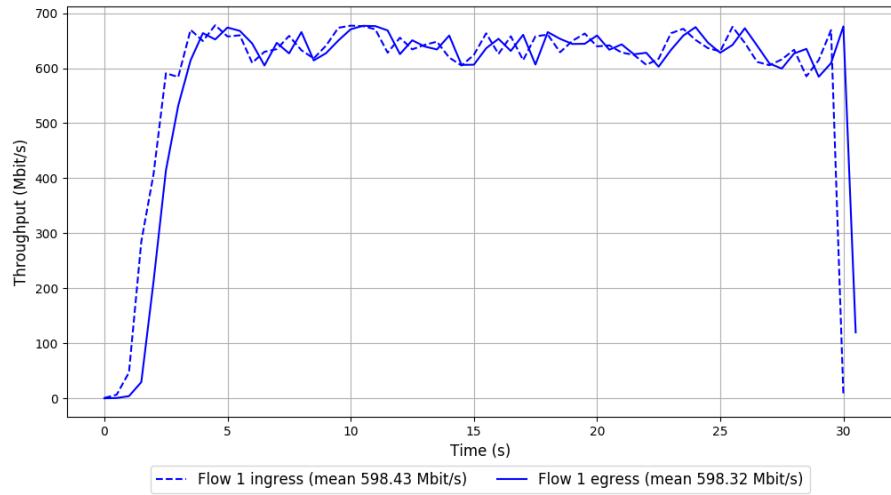


Run 2: Statistics of TCP Vegas

```
Start at: 2018-12-19 23:22:49
End at: 2018-12-19 23:23:19
Local clock offset: 21.987 ms
Remote clock offset: 25.068 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 598.32 Mbit/s
95th percentile per-packet one-way delay: 110.966 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 598.32 Mbit/s
95th percentile per-packet one-way delay: 110.966 ms
Loss rate: 0.02%
```

Run 2: Report of TCP Vegas — Data Link

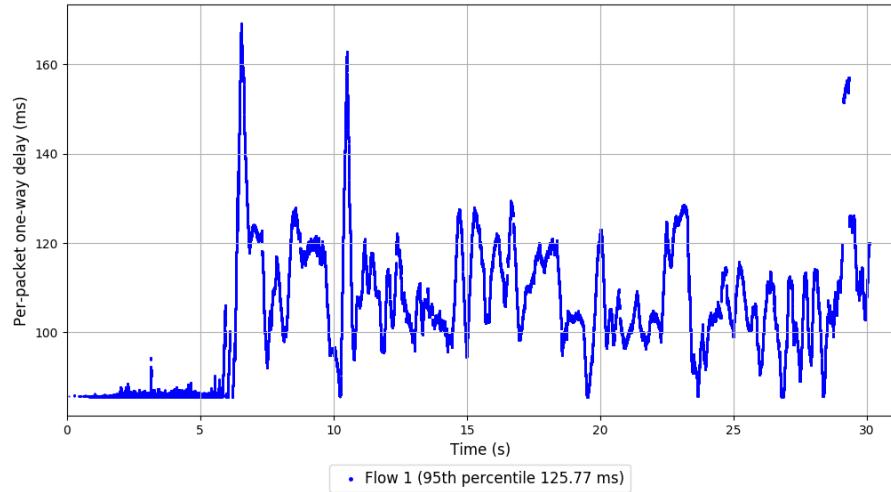
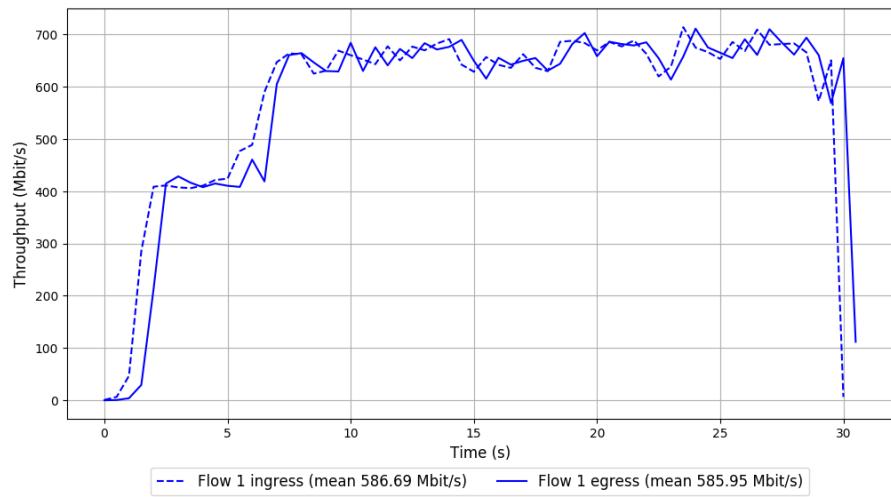


Run 3: Statistics of TCP Vegas

```
Start at: 2018-12-19 23:51:27
End at: 2018-12-19 23:51:57
Local clock offset: 20.904 ms
Remote clock offset: 23.365 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 585.95 Mbit/s
95th percentile per-packet one-way delay: 125.766 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 585.95 Mbit/s
95th percentile per-packet one-way delay: 125.766 ms
Loss rate: 0.12%
```

Run 3: Report of TCP Vegas — Data Link

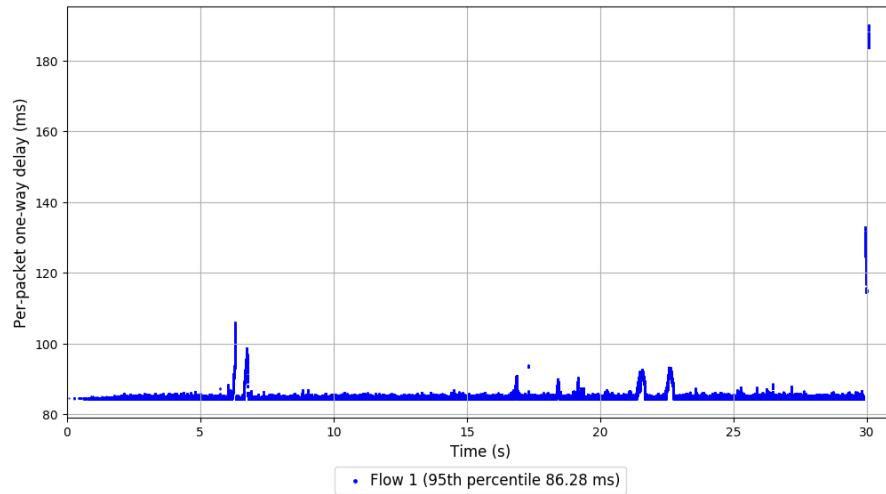
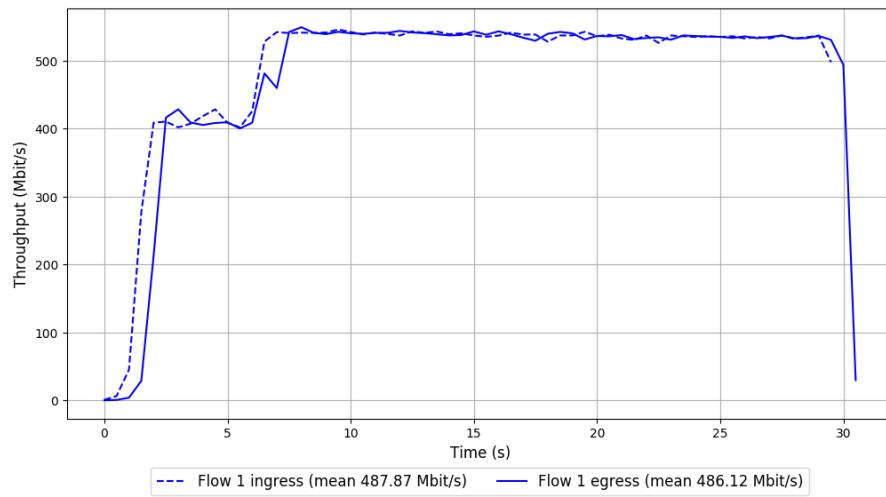


Run 4: Statistics of TCP Vegas

```
Start at: 2018-12-20 00:20:16
End at: 2018-12-20 00:20:47
Local clock offset: 17.402 ms
Remote clock offset: 17.947 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 486.12 Mbit/s
95th percentile per-packet one-way delay: 86.279 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 486.12 Mbit/s
95th percentile per-packet one-way delay: 86.279 ms
Loss rate: 0.23%
```

Run 4: Report of TCP Vegas — Data Link

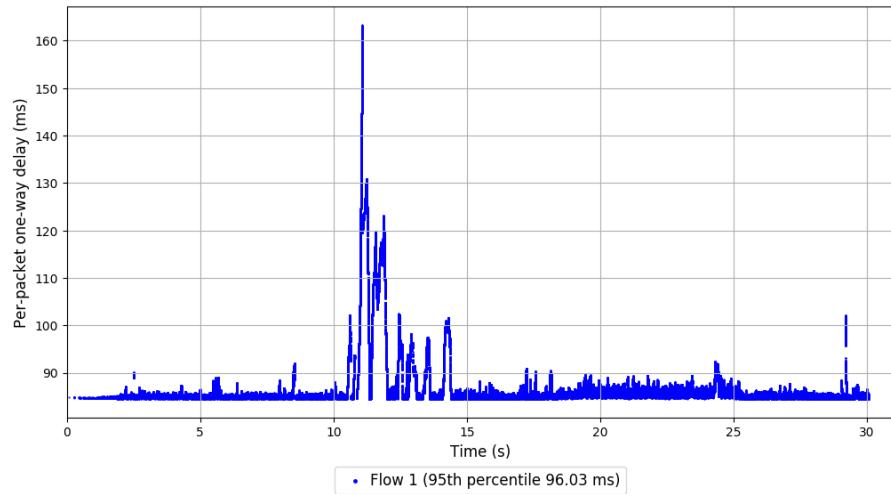
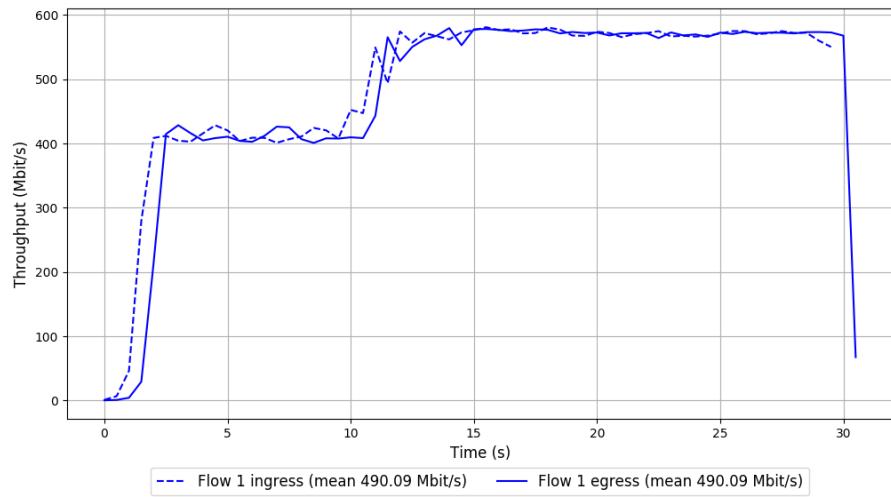


Run 5: Statistics of TCP Vegas

```
Start at: 2018-12-20 00:49:03
End at: 2018-12-20 00:49:33
Local clock offset: 6.325 ms
Remote clock offset: 10.77 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 490.09 Mbit/s
95th percentile per-packet one-way delay: 96.029 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 490.09 Mbit/s
95th percentile per-packet one-way delay: 96.029 ms
Loss rate: 0.00%
```

Run 5: Report of TCP Vegas — Data Link

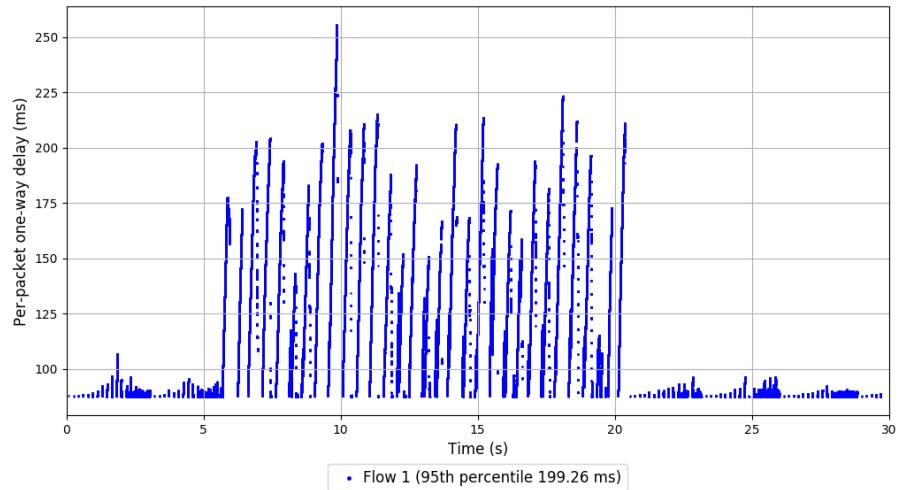
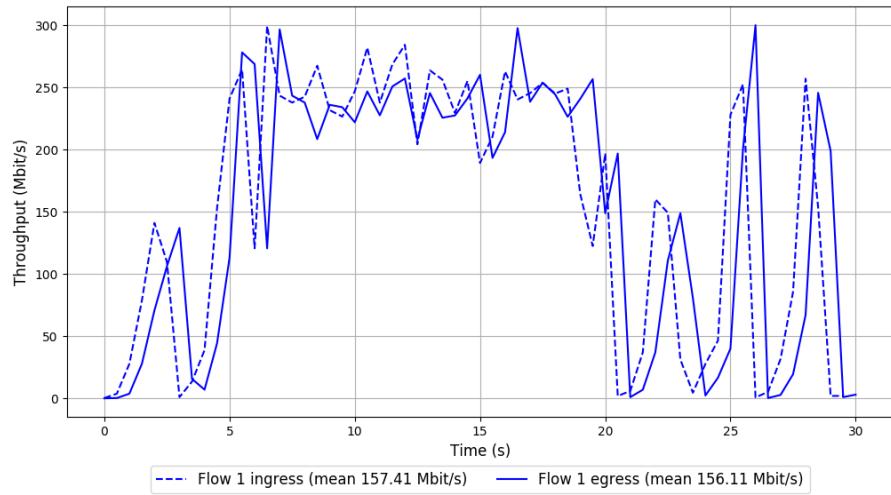


Run 1: Statistics of Verus

```
Start at: 2018-12-19 22:58:26
End at: 2018-12-19 22:58:56
Local clock offset: 13.099 ms
Remote clock offset: 16.511 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 156.11 Mbit/s
95th percentile per-packet one-way delay: 199.257 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 156.11 Mbit/s
95th percentile per-packet one-way delay: 199.257 ms
Loss rate: 0.82%
```

Run 1: Report of Verus — Data Link

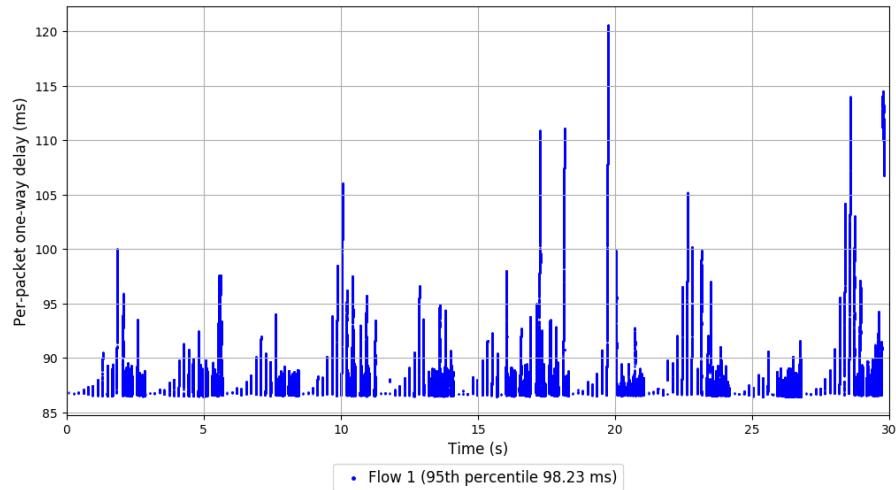
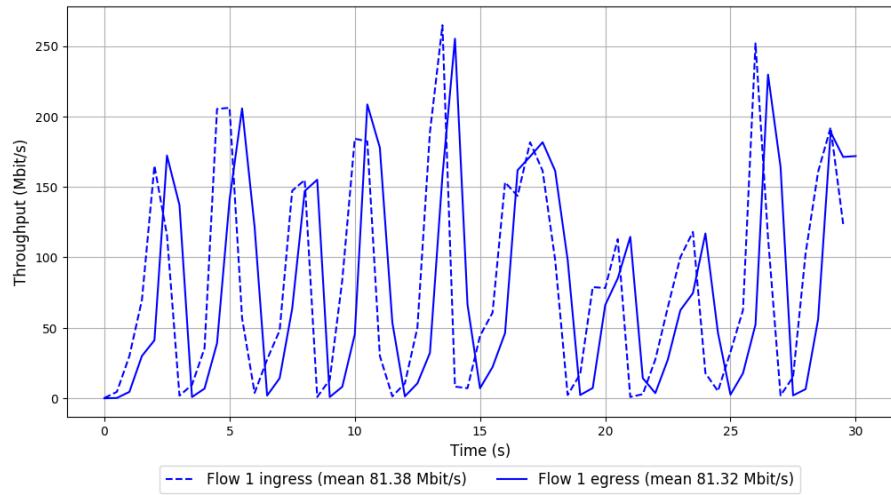


Run 2: Statistics of Verus

```
Start at: 2018-12-19 23:27:17
End at: 2018-12-19 23:27:47
Local clock offset: 25.133 ms
Remote clock offset: 28.634 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 81.32 Mbit/s
95th percentile per-packet one-way delay: 98.230 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 81.32 Mbit/s
95th percentile per-packet one-way delay: 98.230 ms
Loss rate: 0.00%
```

Run 2: Report of Verus — Data Link

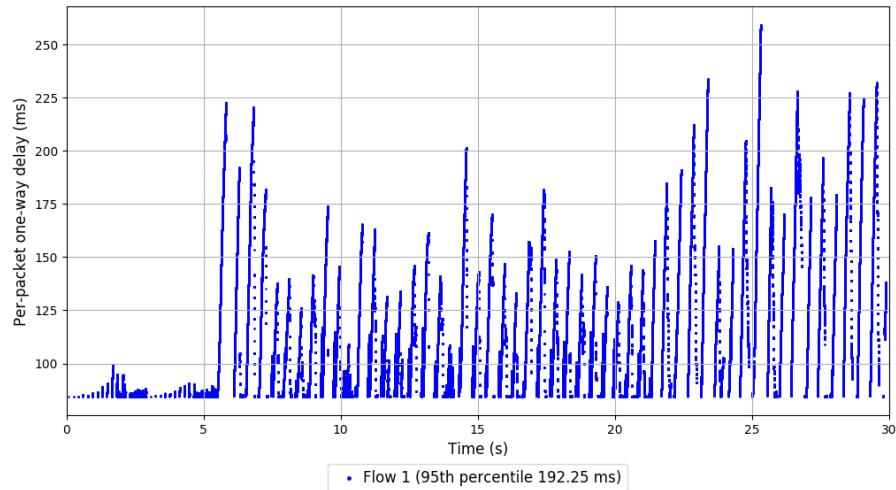
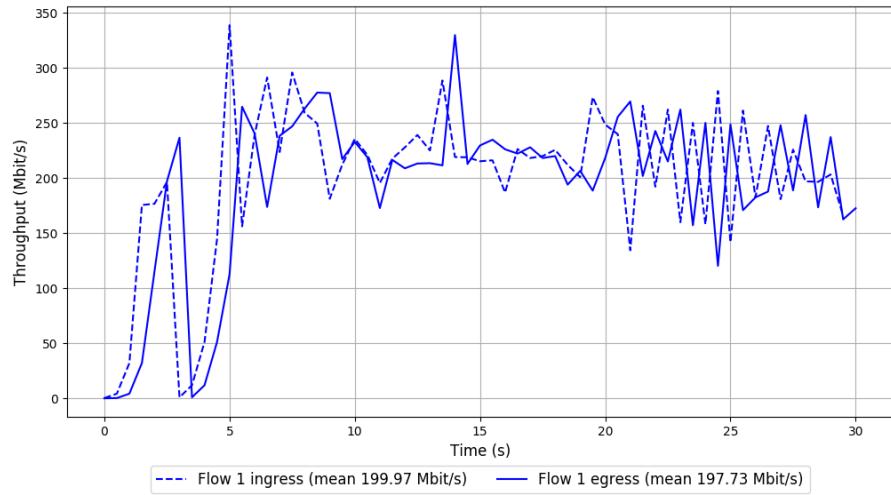


Run 3: Statistics of Verus

```
Start at: 2018-12-19 23:55:53
End at: 2018-12-19 23:56:23
Local clock offset: 18.738 ms
Remote clock offset: 19.25 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 197.73 Mbit/s
95th percentile per-packet one-way delay: 192.248 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 197.73 Mbit/s
95th percentile per-packet one-way delay: 192.248 ms
Loss rate: 1.12%
```

Run 3: Report of Verus — Data Link

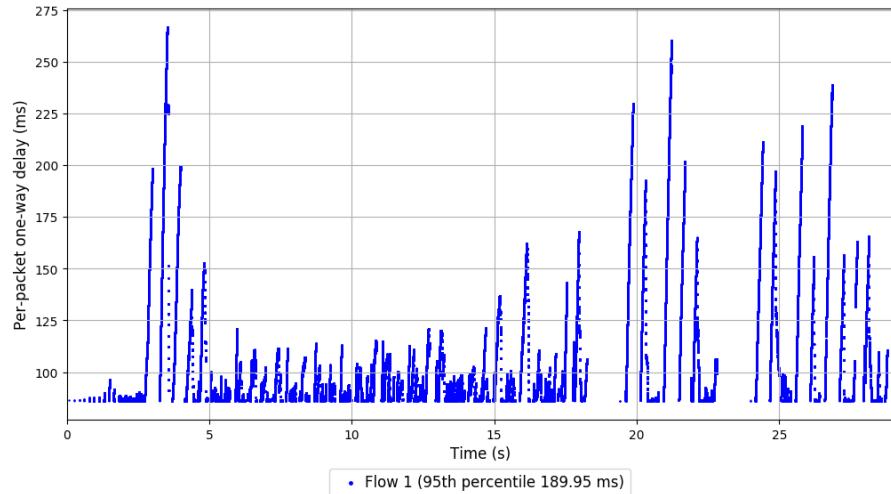
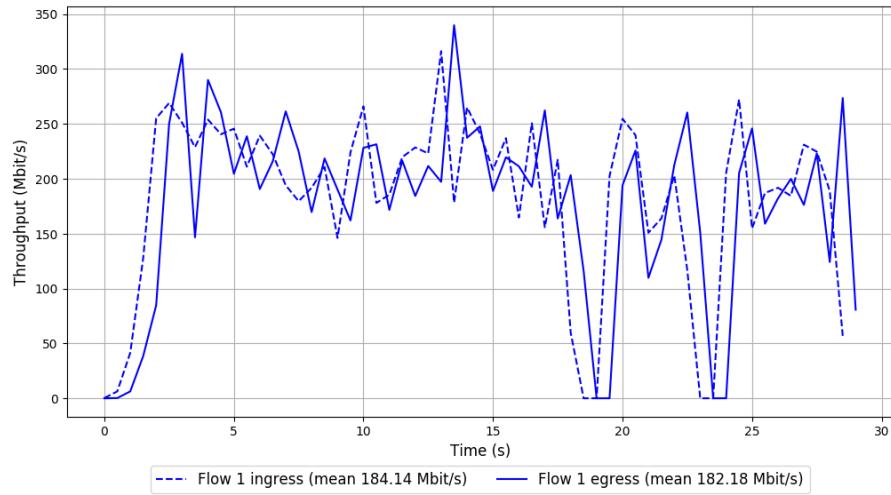


Run 4: Statistics of Verus

```
Start at: 2018-12-20 00:24:41
End at: 2018-12-20 00:25:11
Local clock offset: 9.988 ms
Remote clock offset: 12.486 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 182.18 Mbit/s
95th percentile per-packet one-way delay: 189.950 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 182.18 Mbit/s
95th percentile per-packet one-way delay: 189.950 ms
Loss rate: 0.98%
```

Run 4: Report of Verus — Data Link

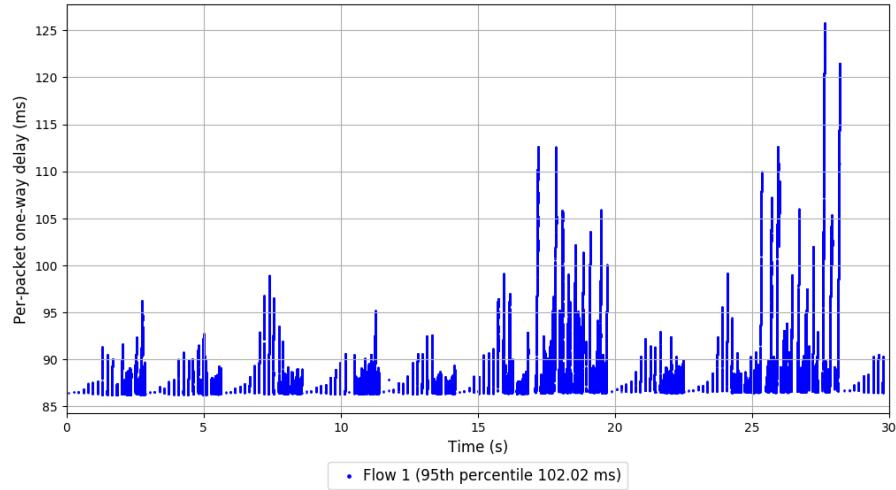
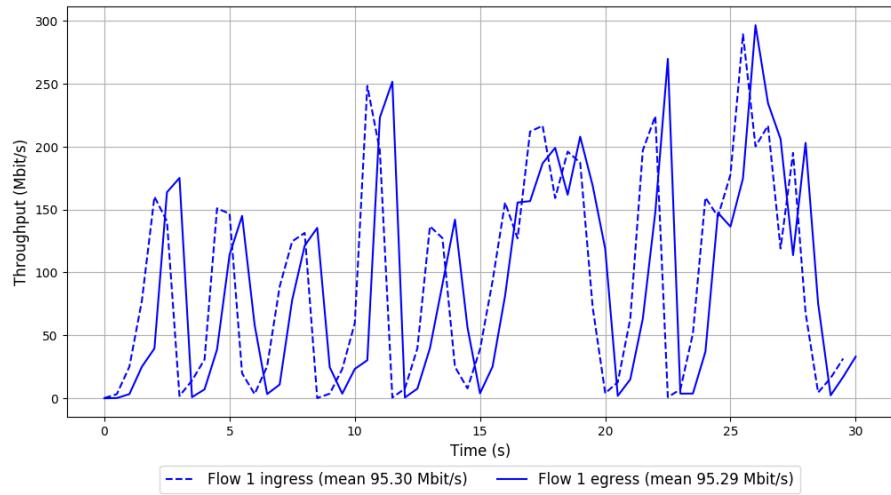


Run 5: Statistics of Verus

```
Start at: 2018-12-20 00:53:20
End at: 2018-12-20 00:53:50
Local clock offset: 4.069 ms
Remote clock offset: 9.331 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 95.29 Mbit/s
95th percentile per-packet one-way delay: 102.021 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.29 Mbit/s
95th percentile per-packet one-way delay: 102.021 ms
Loss rate: 0.00%
```

Run 5: Report of Verus — Data Link

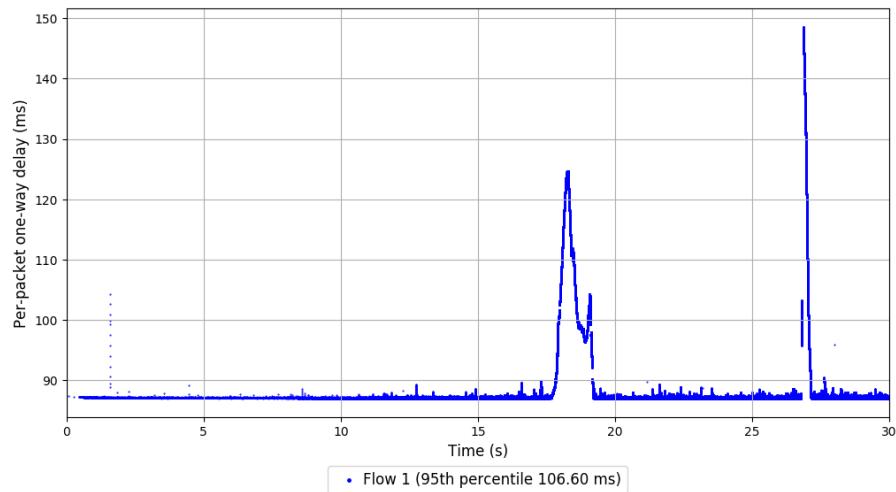
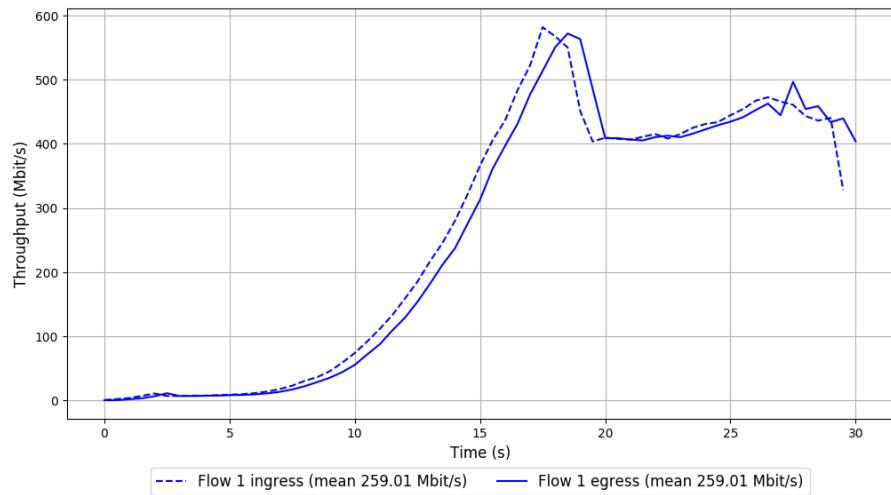


Run 1: Statistics of PCC-Vivace

```
Start at: 2018-12-19 22:41:24
End at: 2018-12-19 22:41:54
Local clock offset: 7.031 ms
Remote clock offset: 8.375 ms

# Below is generated by plot.py at 2018-12-20 02:46:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 259.01 Mbit/s
95th percentile per-packet one-way delay: 106.601 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 259.01 Mbit/s
95th percentile per-packet one-way delay: 106.601 ms
Loss rate: 0.00%
```

Run 1: Report of PCC-Vivace — Data Link

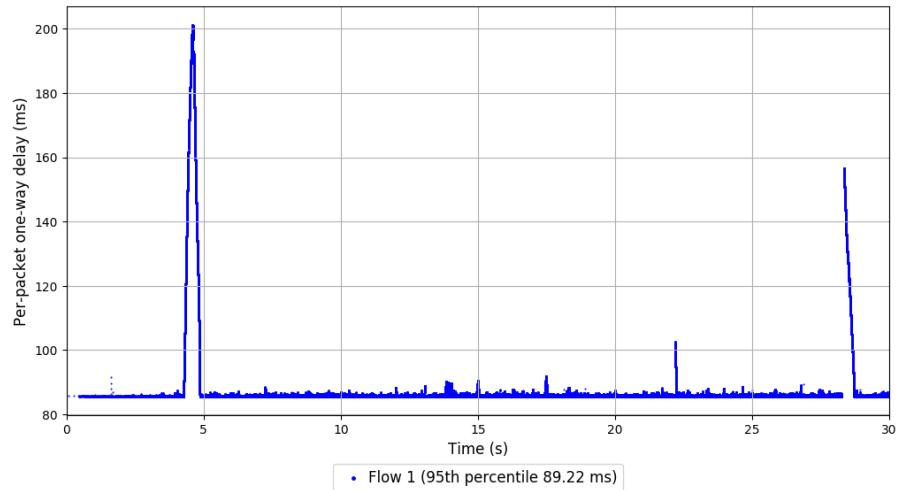
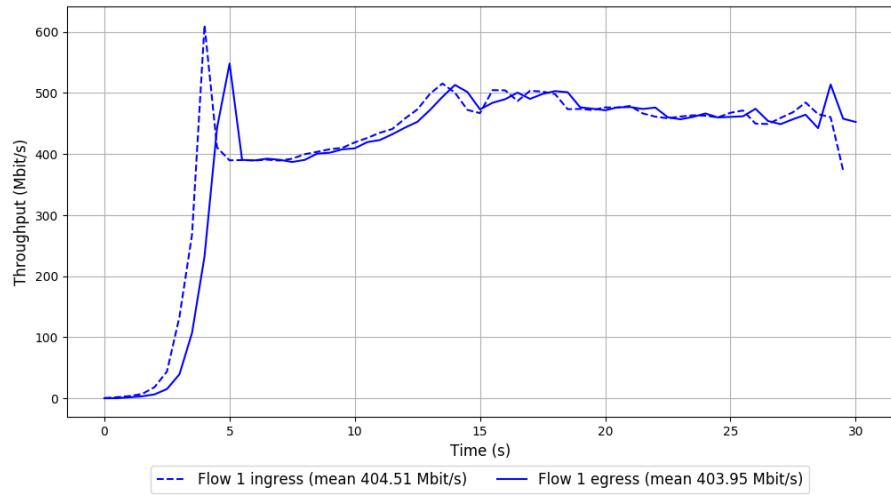


Run 2: Statistics of PCC-Vivace

```
Start at: 2018-12-19 23:09:52
End at: 2018-12-19 23:10:22
Local clock offset: 26.867 ms
Remote clock offset: 29.72 ms

# Below is generated by plot.py at 2018-12-20 02:48:45
# Datalink statistics
-- Total of 1 flow:
Average throughput: 403.95 Mbit/s
95th percentile per-packet one-way delay: 89.224 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 403.95 Mbit/s
95th percentile per-packet one-way delay: 89.224 ms
Loss rate: 0.14%
```

Run 2: Report of PCC-Vivace — Data Link

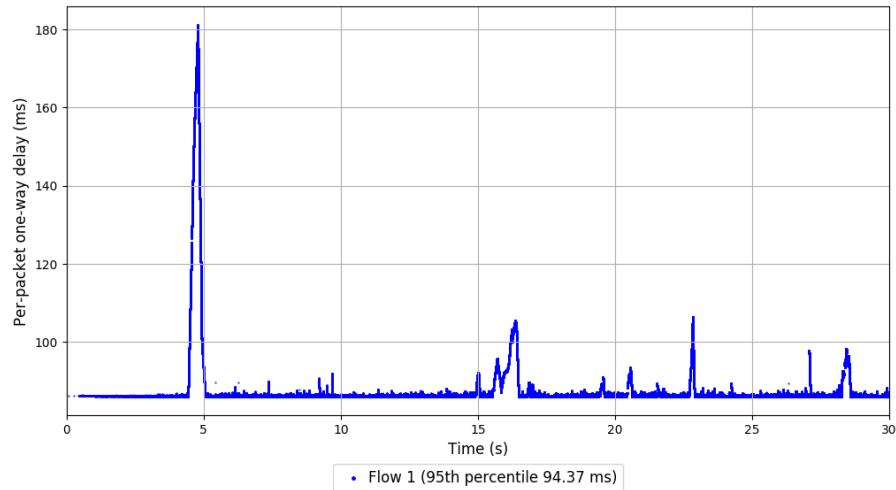
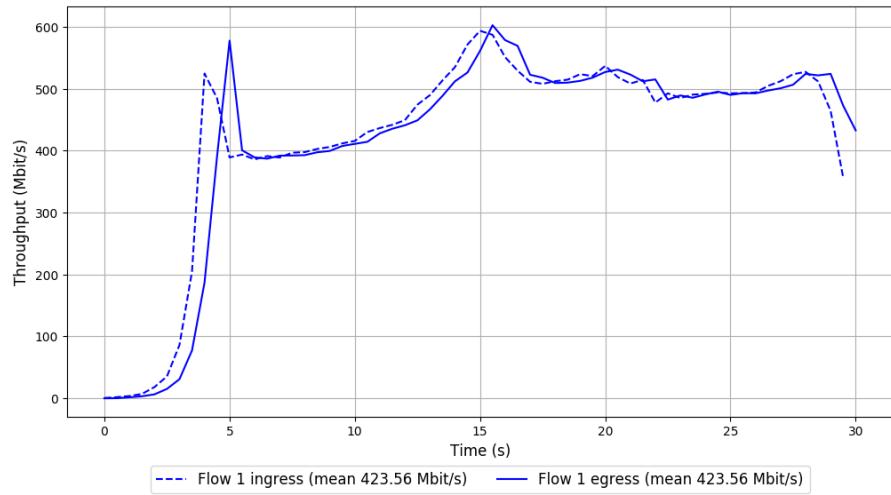


Run 3: Statistics of PCC-Vivace

```
Start at: 2018-12-19 23:38:27
End at: 2018-12-19 23:38:57
Local clock offset: 36.258 ms
Remote clock offset: 41.163 ms

# Below is generated by plot.py at 2018-12-20 02:48:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 423.56 Mbit/s
95th percentile per-packet one-way delay: 94.373 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 423.56 Mbit/s
95th percentile per-packet one-way delay: 94.373 ms
Loss rate: 0.00%
```

Run 3: Report of PCC-Vivace — Data Link

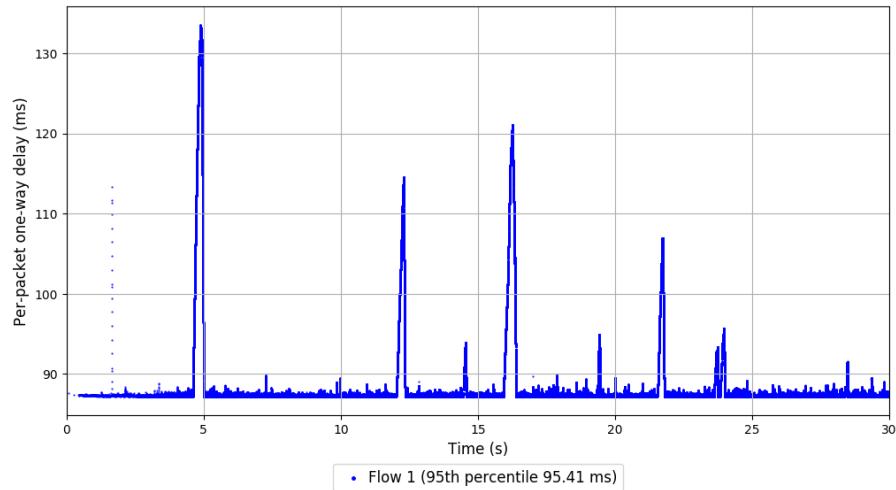
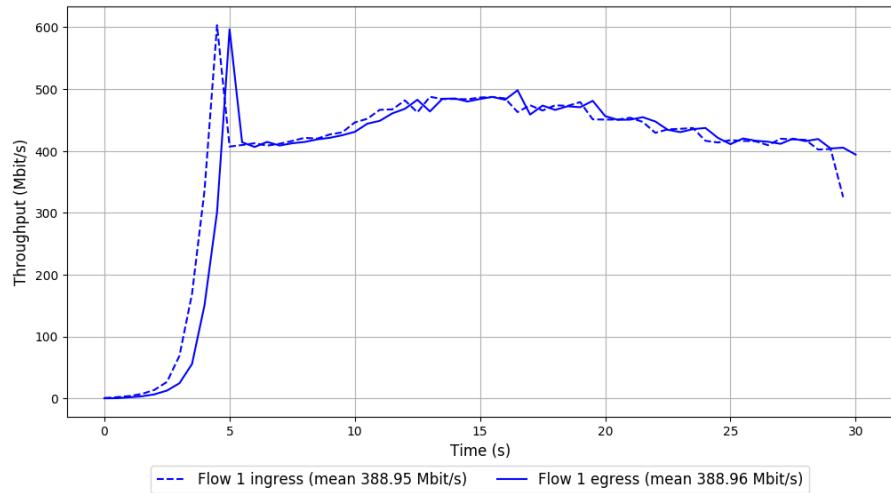


Run 4: Statistics of PCC-Vivace

```
Start at: 2018-12-20 00:07:19
End at: 2018-12-20 00:07:49
Local clock offset: 15.469 ms
Remote clock offset: 19.086 ms

# Below is generated by plot.py at 2018-12-20 02:48:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 388.96 Mbit/s
95th percentile per-packet one-way delay: 95.414 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 388.96 Mbit/s
95th percentile per-packet one-way delay: 95.414 ms
Loss rate: 0.00%
```

Run 4: Report of PCC-Vivace — Data Link

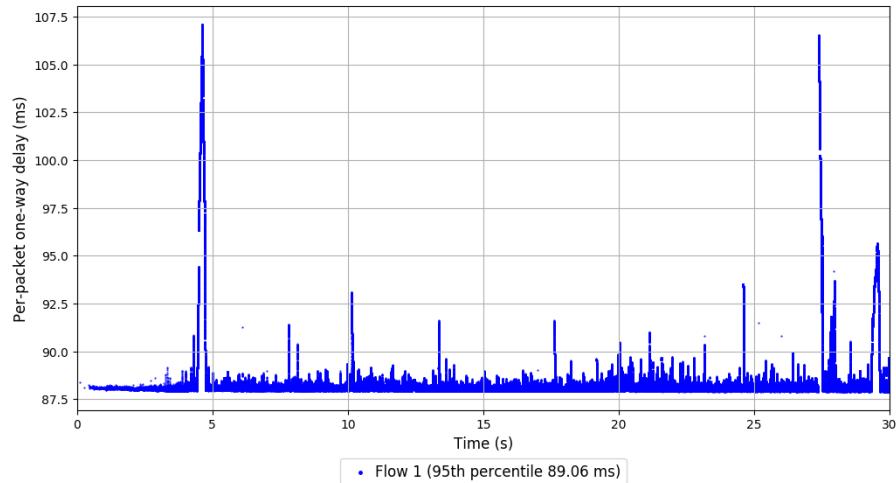
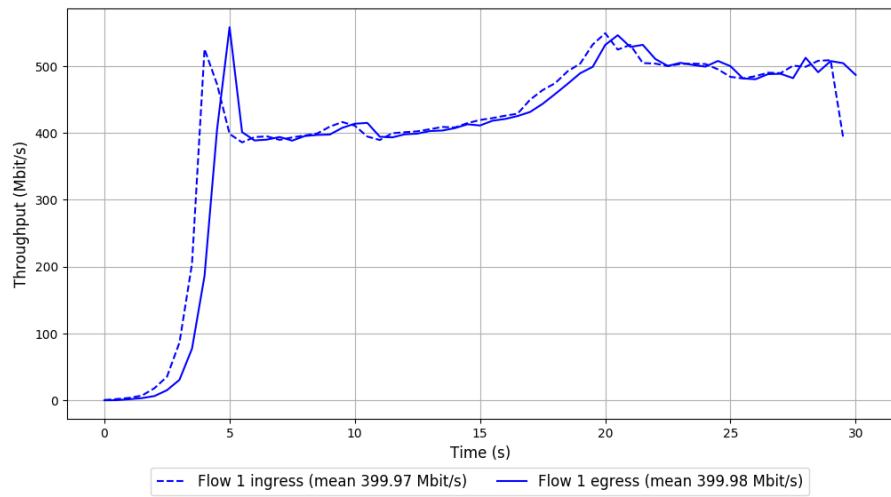


Run 5: Statistics of PCC-Vivace

```
Start at: 2018-12-20 00:36:06
End at: 2018-12-20 00:36:36
Local clock offset: 3.057 ms
Remote clock offset: 8.646 ms

# Below is generated by plot.py at 2018-12-20 02:48:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 399.98 Mbit/s
95th percentile per-packet one-way delay: 89.065 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 399.98 Mbit/s
95th percentile per-packet one-way delay: 89.065 ms
Loss rate: 0.00%
```

Run 5: Report of PCC-Vivace — Data Link

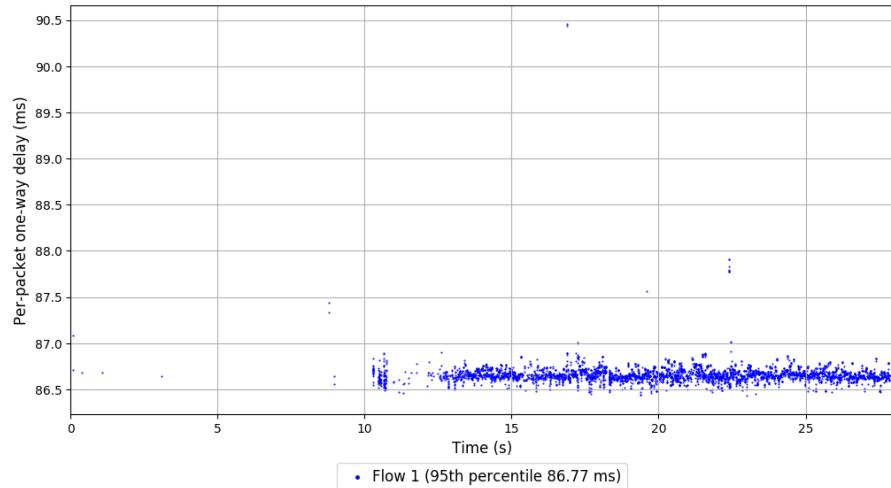
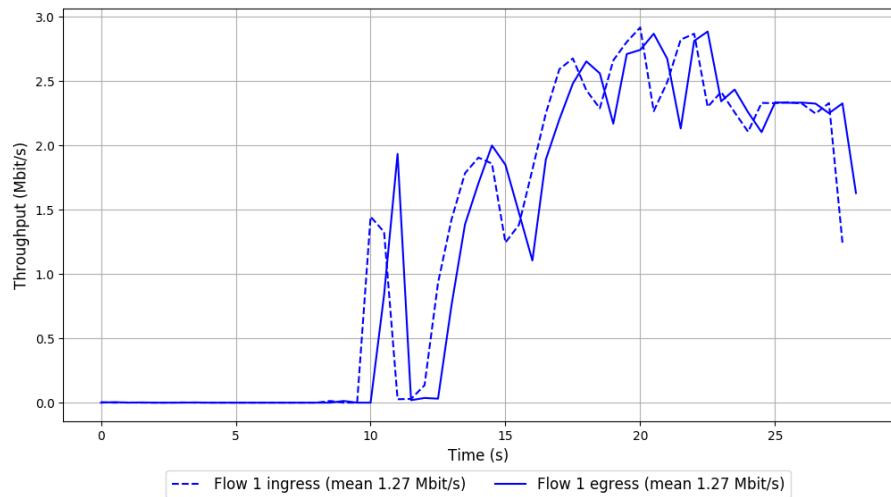


```
Run 1: Statistics of WebRTC media

Start at: 2018-12-19 22:57:17
End at: 2018-12-19 22:57:47
Local clock offset: 13.712 ms
Remote clock offset: 15.751 ms

# Below is generated by plot.py at 2018-12-20 02:48:51
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 86.765 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.27 Mbit/s
95th percentile per-packet one-way delay: 86.765 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

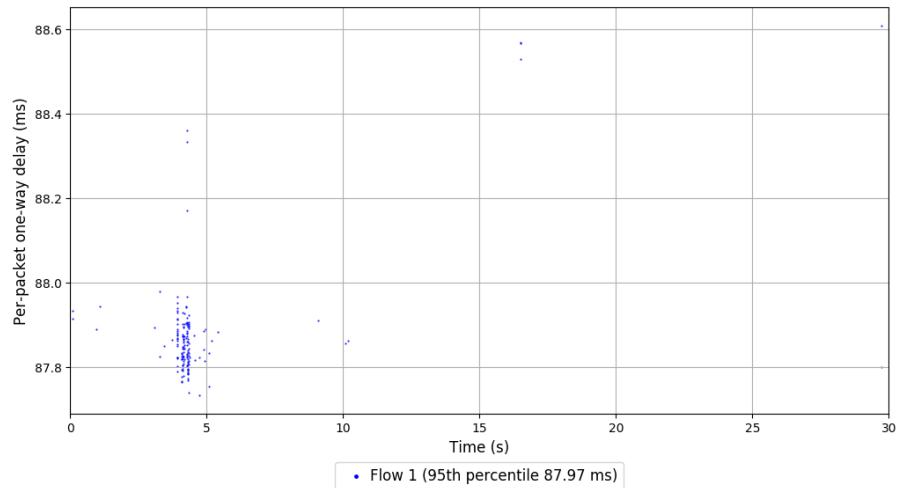
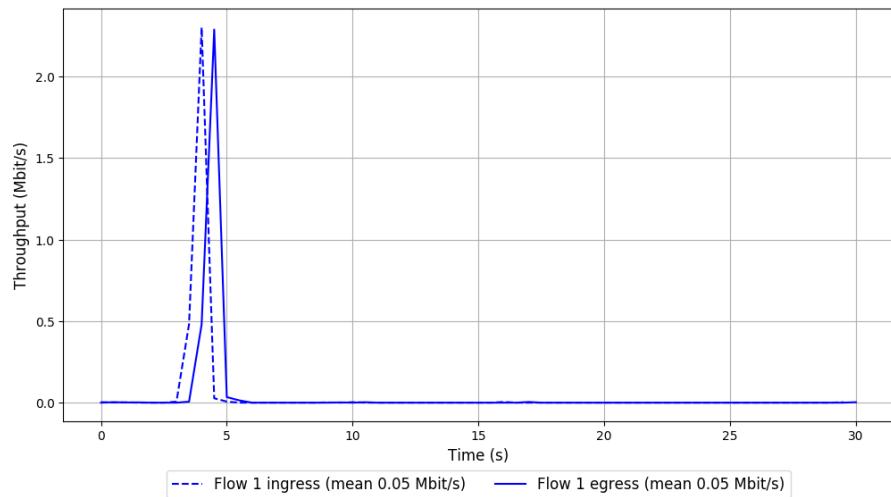


Run 2: Statistics of WebRTC media

```
Start at: 2018-12-19 23:26:08
End at: 2018-12-19 23:26:38
Local clock offset: 22.84 ms
Remote clock offset: 27.595 ms

# Below is generated by plot.py at 2018-12-20 02:48:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 87.967 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 87.967 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link

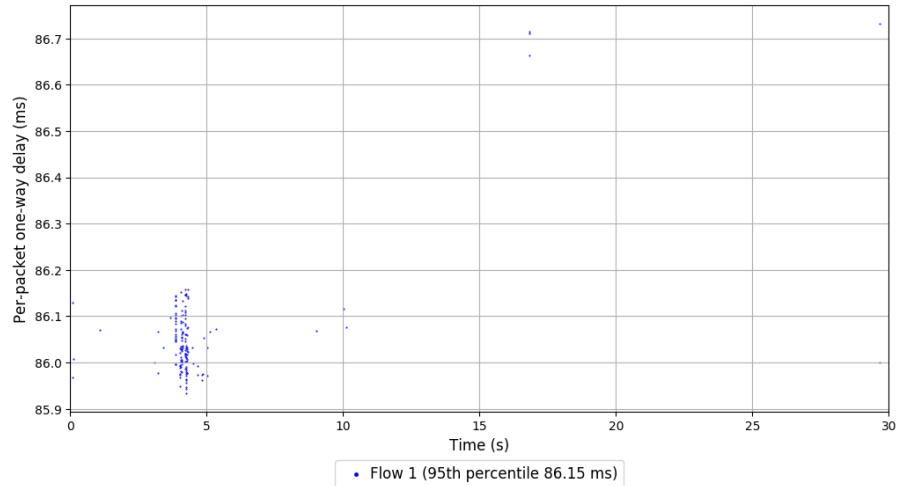
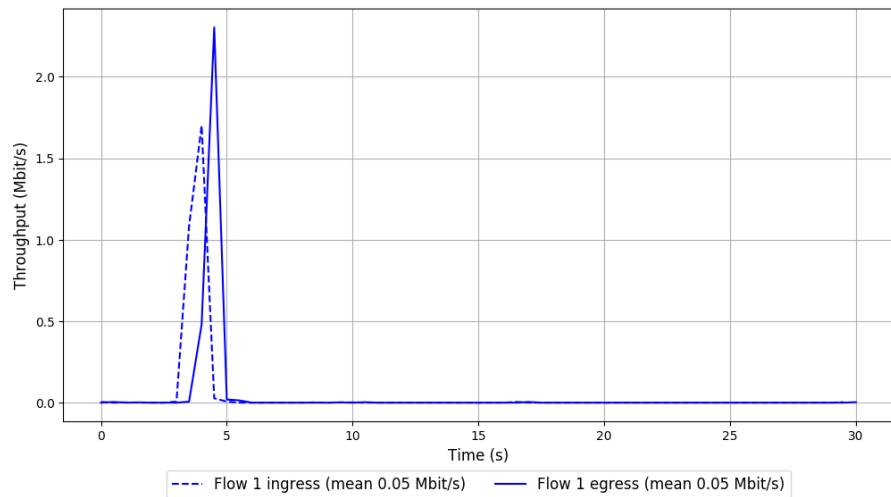


Run 3: Statistics of WebRTC media

```
Start at: 2018-12-19 23:54:45
End at: 2018-12-19 23:55:15
Local clock offset: 17.627 ms
Remote clock offset: 20.06 ms

# Below is generated by plot.py at 2018-12-20 02:48:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.146 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.146 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

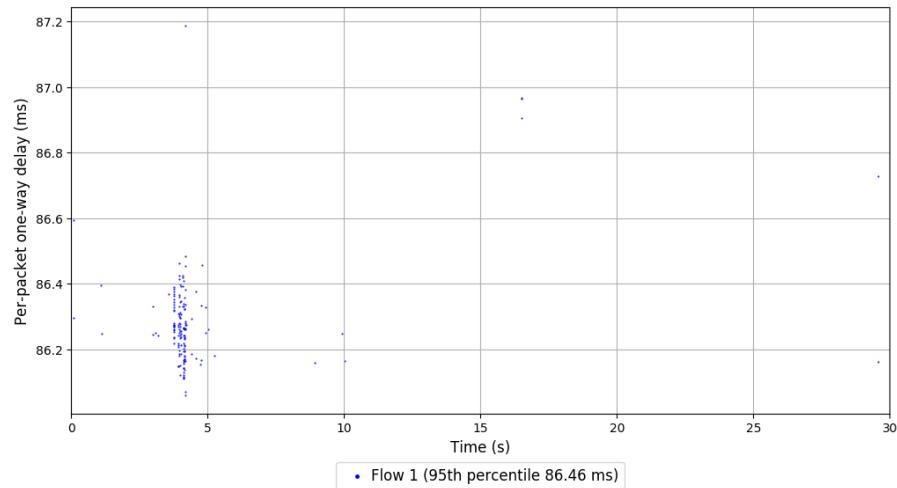
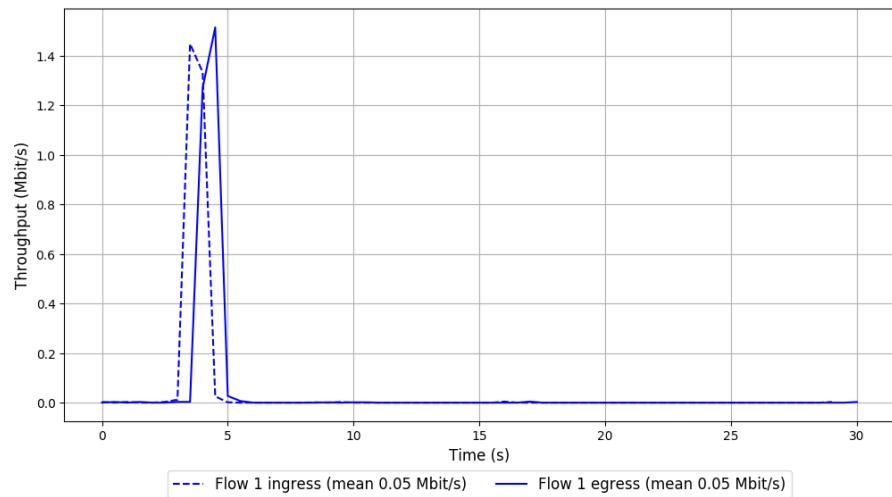


Run 4: Statistics of WebRTC media

```
Start at: 2018-12-20 00:23:32
End at: 2018-12-20 00:24:02
Local clock offset: 11.236 ms
Remote clock offset: 13.503 ms

# Below is generated by plot.py at 2018-12-20 02:48:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.458 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.458 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

```
Start at: 2018-12-20 00:52:11
End at: 2018-12-20 00:52:41
Local clock offset: 4.685 ms
Remote clock offset: 10.528 ms

# Below is generated by plot.py at 2018-12-20 02:48:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.394 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.394 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link

