

Pantheon Report

Generated at 2018-02-13 13:27:38 (UTC).

Data path: AWS California 1 Ethernet (*local*) →Stanford ppp0 (*remote*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

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

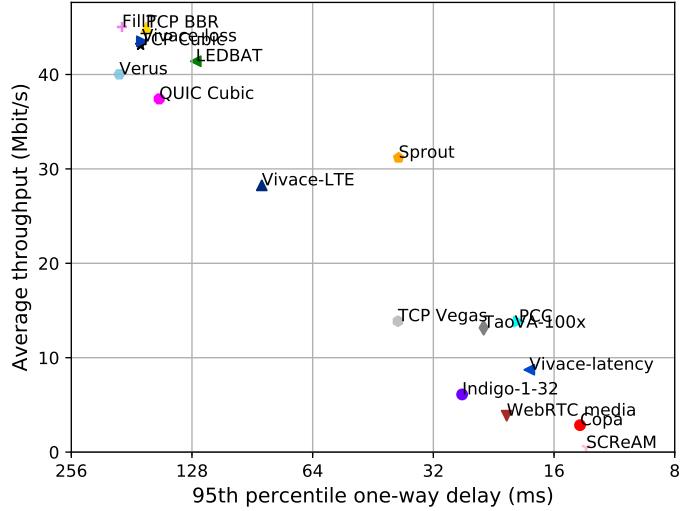
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

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

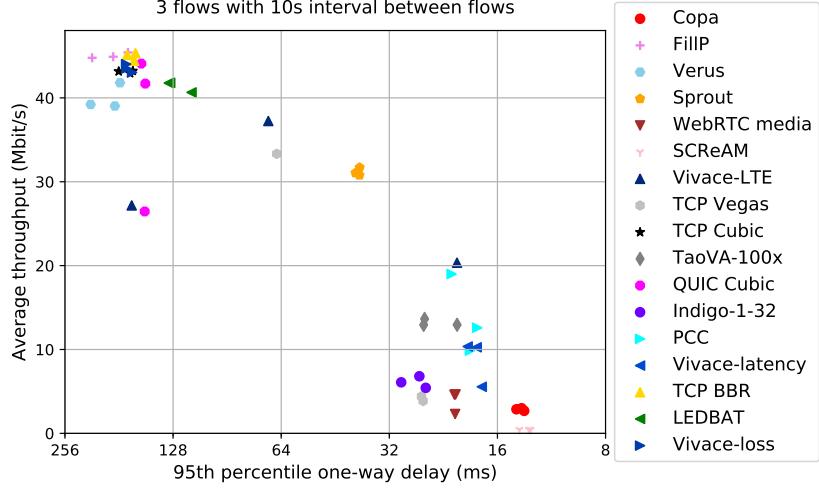
Git summary:

```
branch: master @ 2efdadc57c2c56a9458b0d01ff33345e11732665
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ 828bbf95fd4941149b5cec90f281d1c69ae1a5c6
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179aab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
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/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  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 @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from AWS California 1 Ethernet to Stanford ppp0, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS California 1 Ethernet to Stanford ppp0, 3 runs of 30s each per scheme
 3 flows with 10s interval between flows



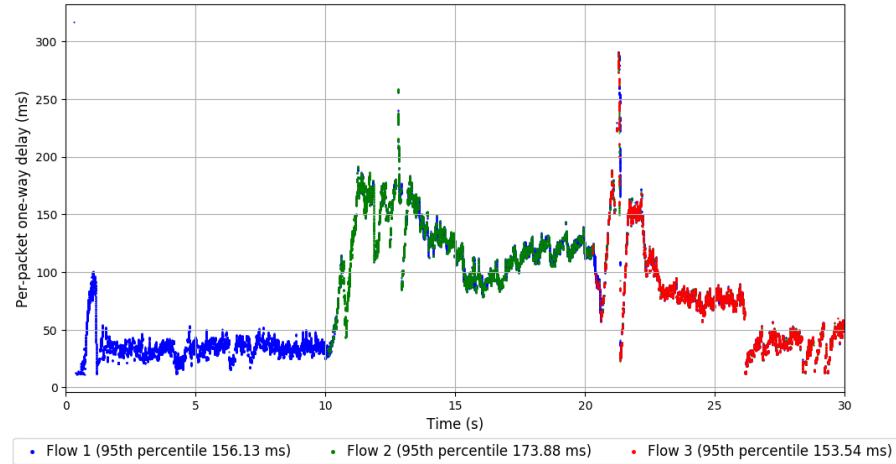
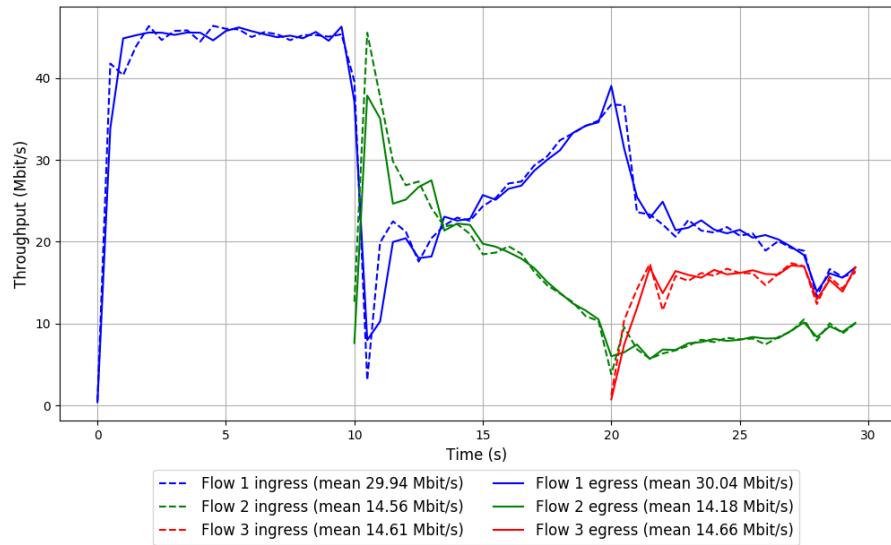
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	31.73	10.80	18.10	159.96	169.79	169.07	1.54	2.66	7.24
TCP Cubic	3	33.22	11.10	7.59	171.64	177.40	167.77	0.34	0.90	1.81
LEDBAT	3	32.34	11.22	4.84	123.82	127.24	131.65	0.30	0.58	1.50
PCC	3	8.66	4.51	6.45	18.91	19.08	20.37	0.00	0.00	0.00
QUIC Cubic	3	20.25	19.00	14.08	106.17	155.04	159.53	0.25	0.63	1.70
SCReAM	3	0.22	0.22	0.22	13.38	13.17	12.99	0.00	0.00	0.00
WebRTC media	3	1.59	1.55	0.71	24.70	20.94	21.01	0.00	0.00	0.00
Sprout	3	15.97	15.50	14.54	37.74	38.81	41.89	0.05	0.02	0.09
TaoVA-100x	3	5.58	6.10	10.61	20.69	23.03	29.01	0.00	0.00	0.00
TCP Vegas	3	6.12	10.39	2.47	37.66	38.31	26.90	0.06	0.16	0.53
Verus	3	28.98	9.16	15.73	188.71	205.92	206.23	15.40	25.90	25.81
Copa	3	1.44	1.39	1.44	13.53	13.91	16.02	0.00	0.00	0.00
FillP	3	27.45	15.88	21.40	171.61	239.16	248.38	41.69	58.01	66.89
Indigo-1-32	3	2.54	2.87	5.11	25.36	26.32	29.37	0.00	0.00	0.00
Vivace-latency	3	4.20	4.86	3.84	18.06	18.21	18.43	0.00	0.00	0.00
Vivace-loss	3	35.24	8.05	9.01	170.00	170.52	171.73	13.04	12.41	16.62
Vivace-LTE	3	18.79	11.71	4.89	86.74	86.41	46.24	0.84	0.55	0.01

Run 1: Statistics of TCP BBR

```
Start at: 2018-02-13 12:25:57
End at: 2018-02-13 12:26:27
Local clock offset: -0.251 ms
Remote clock offset: -5.265 ms

# Below is generated by plot.py at 2018-02-13 13:25:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.44 Mbit/s
95th percentile per-packet one-way delay: 164.276 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 30.04 Mbit/s
95th percentile per-packet one-way delay: 156.132 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 14.18 Mbit/s
95th percentile per-packet one-way delay: 173.881 ms
Loss rate: 2.69%
-- Flow 3:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 153.540 ms
Loss rate: 0.62%
```

Run 1: Report of TCP BBR — Data Link

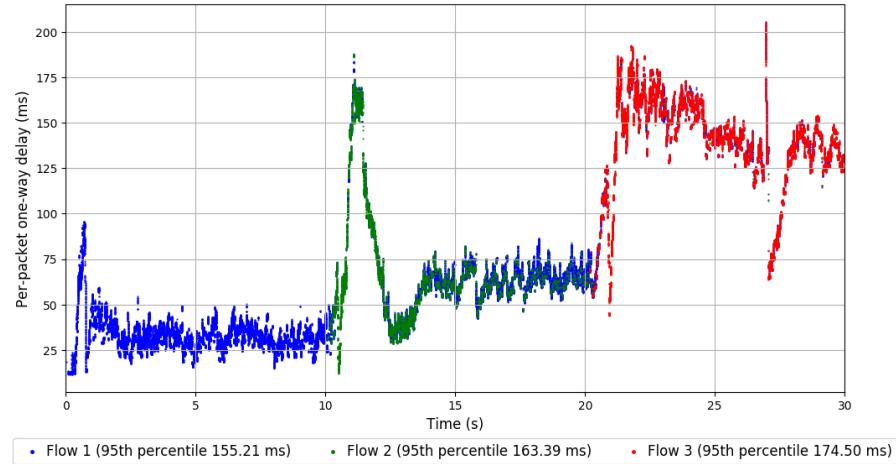
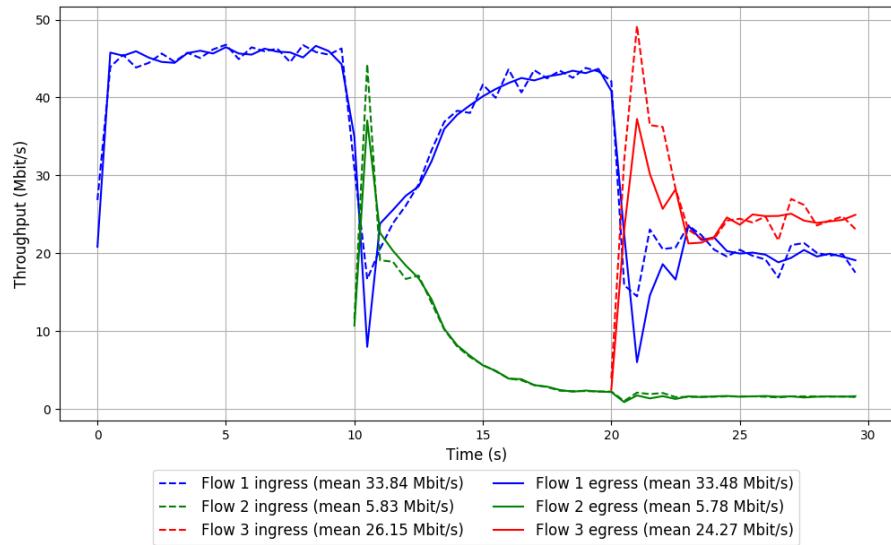


Run 2: Statistics of TCP BBR

```
Start at: 2018-02-13 12:49:57
End at: 2018-02-13 12:50:27
Local clock offset: -0.091 ms
Remote clock offset: -6.361 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.34 Mbit/s
95th percentile per-packet one-way delay: 162.905 ms
Loss rate: 2.26%
-- Flow 1:
Average throughput: 33.48 Mbit/s
95th percentile per-packet one-way delay: 155.205 ms
Loss rate: 1.03%
-- Flow 2:
Average throughput: 5.78 Mbit/s
95th percentile per-packet one-way delay: 163.389 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 24.27 Mbit/s
95th percentile per-packet one-way delay: 174.495 ms
Loss rate: 7.61%
```

Run 2: Report of TCP BBR — Data Link

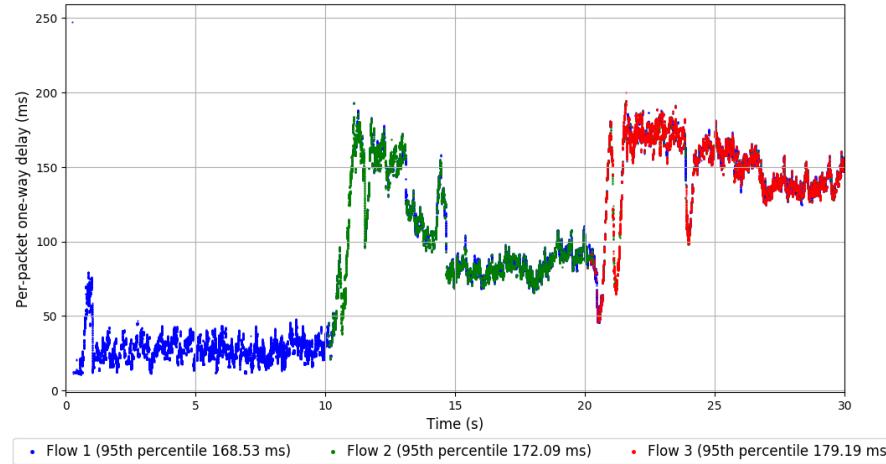
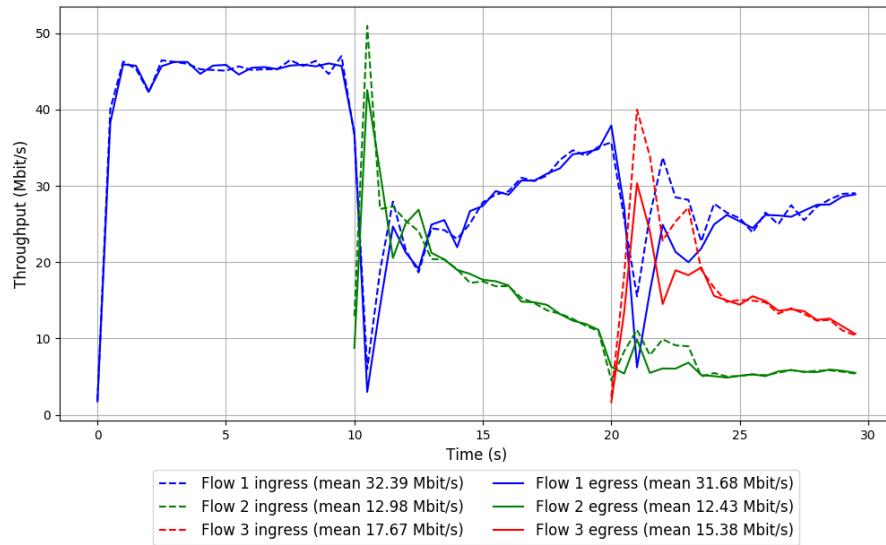


Run 3: Statistics of TCP BBR

```
Start at: 2018-02-13 13:13:56
End at: 2018-02-13 13:14:26
Local clock offset: -0.021 ms
Remote clock offset: -6.704 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.12 Mbit/s
95th percentile per-packet one-way delay: 171.785 ms
Loss rate: 4.51%
-- Flow 1:
Average throughput: 31.68 Mbit/s
95th percentile per-packet one-way delay: 168.535 ms
Loss rate: 2.93%
-- Flow 2:
Average throughput: 12.43 Mbit/s
95th percentile per-packet one-way delay: 172.090 ms
Loss rate: 4.34%
-- Flow 3:
Average throughput: 15.38 Mbit/s
95th percentile per-packet one-way delay: 179.190 ms
Loss rate: 13.49%
```

Run 3: Report of TCP BBR — Data Link

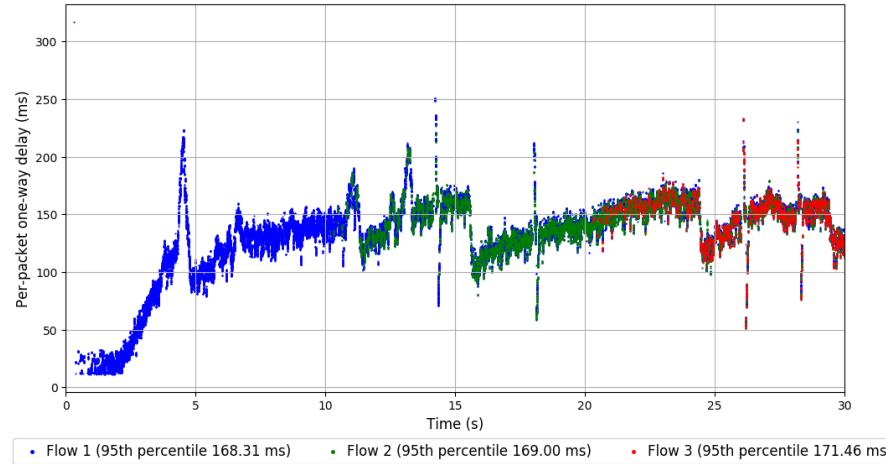
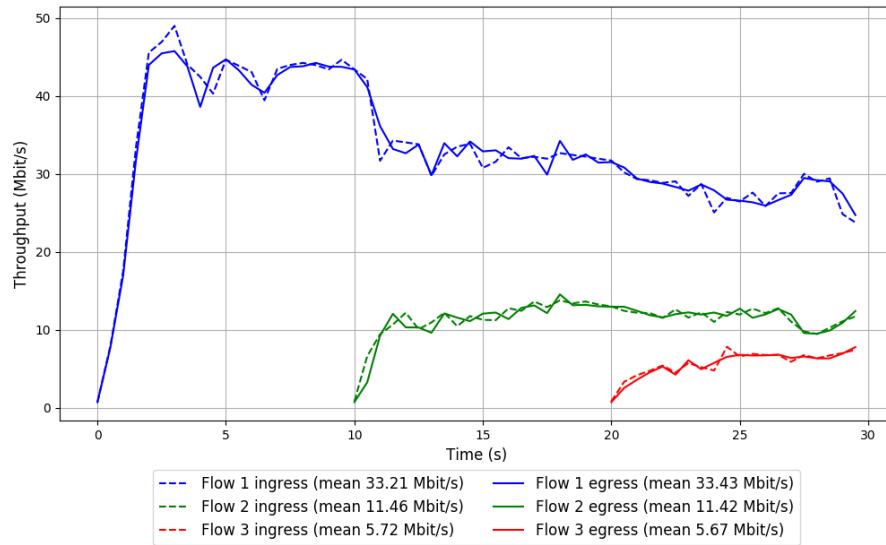


Run 1: Statistics of TCP Cubic

```
Start at: 2018-02-13 12:29:58
End at: 2018-02-13 12:30:28
Local clock offset: -0.241 ms
Remote clock offset: -5.319 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.95 Mbit/s
95th percentile per-packet one-way delay: 168.614 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 33.43 Mbit/s
95th percentile per-packet one-way delay: 168.306 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 11.42 Mbit/s
95th percentile per-packet one-way delay: 168.999 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 5.67 Mbit/s
95th percentile per-packet one-way delay: 171.455 ms
Loss rate: 1.84%
```

Run 1: Report of TCP Cubic — Data Link

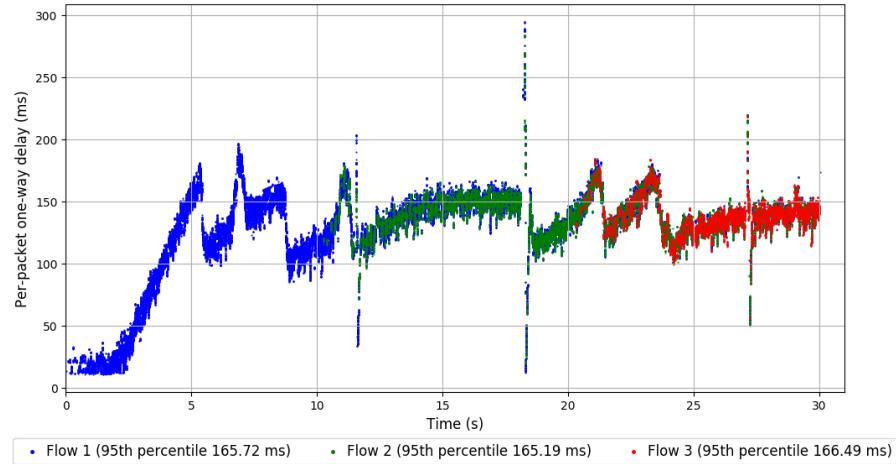
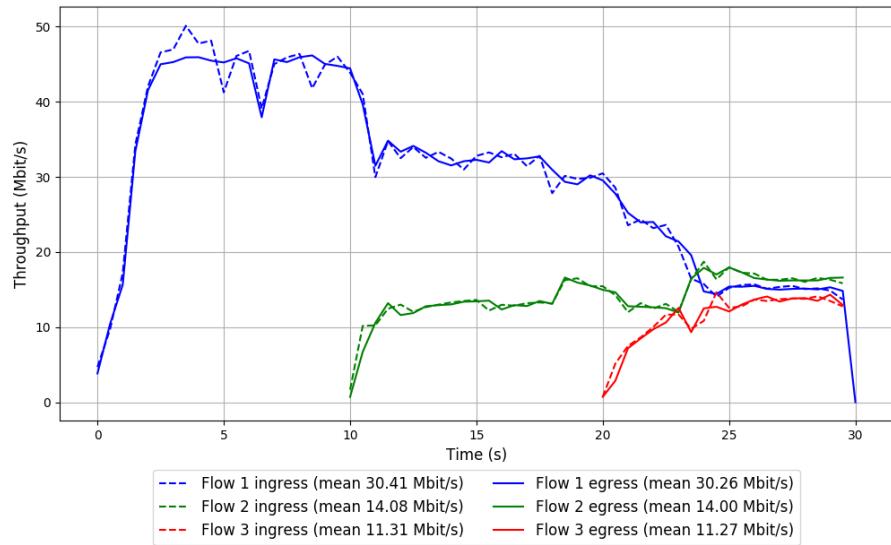


Run 2: Statistics of TCP Cubic

```
Start at: 2018-02-13 12:53:58
End at: 2018-02-13 12:54:28
Local clock offset: -0.042 ms
Remote clock offset: -6.49 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.22 Mbit/s
95th percentile per-packet one-way delay: 165.717 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 30.26 Mbit/s
95th percentile per-packet one-way delay: 165.724 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 14.00 Mbit/s
95th percentile per-packet one-way delay: 165.190 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 11.27 Mbit/s
95th percentile per-packet one-way delay: 166.485 ms
Loss rate: 1.48%
```

Run 2: Report of TCP Cubic — Data Link

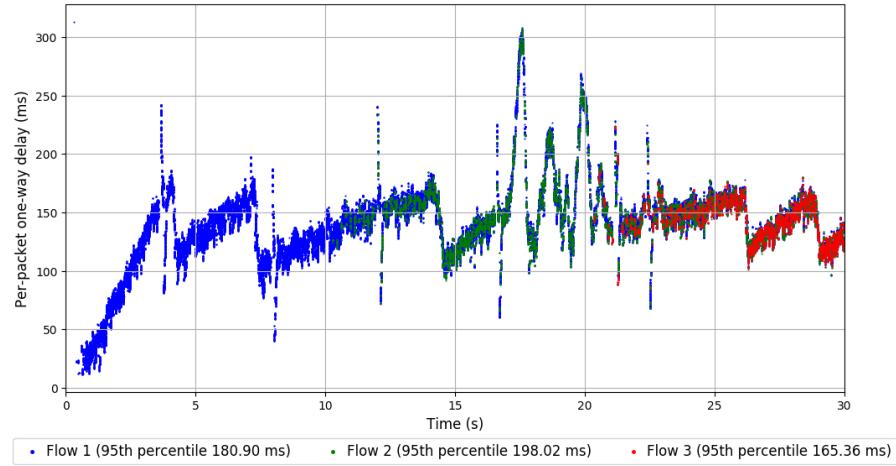
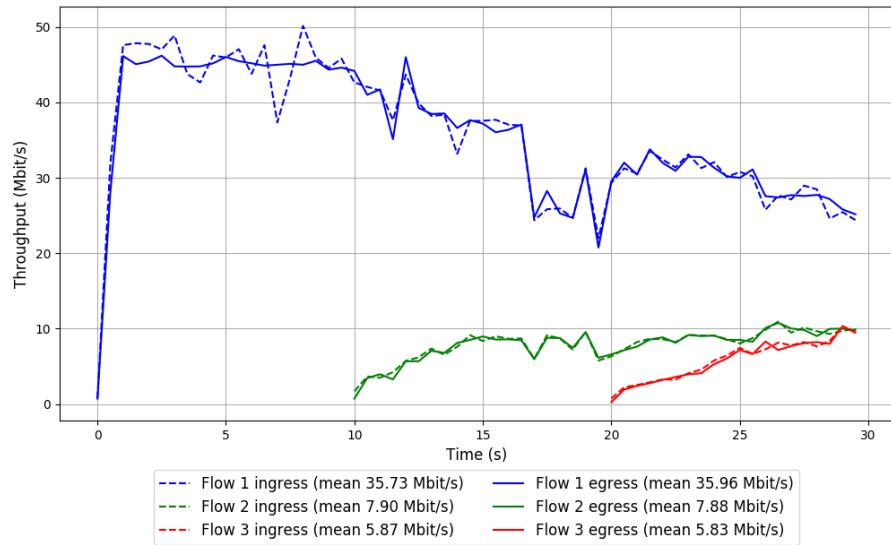


Run 3: Statistics of TCP Cubic

```
Start at: 2018-02-13 13:17:57
End at: 2018-02-13 13:18:27
Local clock offset: -0.002 ms
Remote clock offset: -6.769 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.16 Mbit/s
95th percentile per-packet one-way delay: 181.428 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 35.96 Mbit/s
95th percentile per-packet one-way delay: 180.895 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 7.88 Mbit/s
95th percentile per-packet one-way delay: 198.017 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 5.83 Mbit/s
95th percentile per-packet one-way delay: 165.359 ms
Loss rate: 2.12%
```

Run 3: Report of TCP Cubic — Data Link

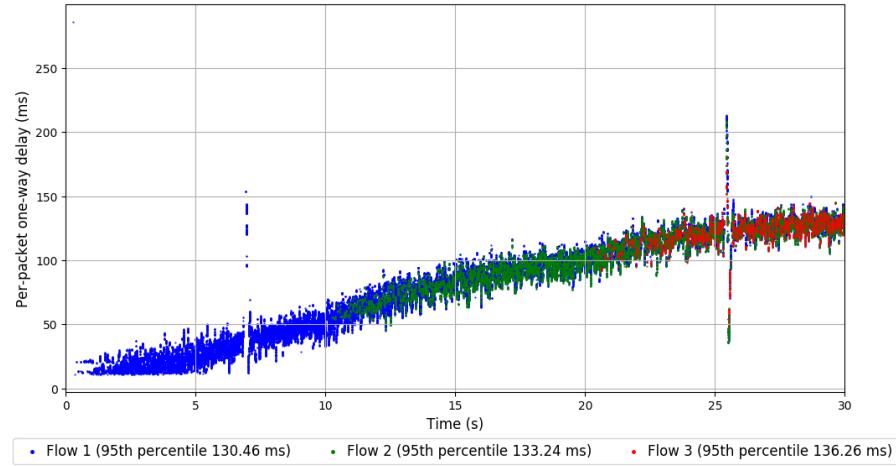
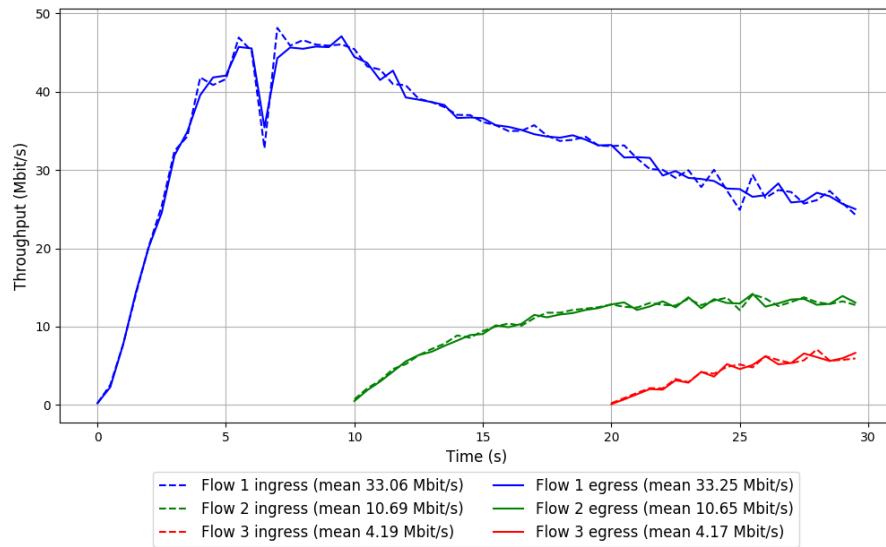


Run 1: Statistics of LEDBAT

```
Start at: 2018-02-13 12:33:57
End at: 2018-02-13 12:34:27
Local clock offset: -0.125 ms
Remote clock offset: -5.314 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.76 Mbit/s
95th percentile per-packet one-way delay: 131.604 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 33.25 Mbit/s
95th percentile per-packet one-way delay: 130.460 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 10.65 Mbit/s
95th percentile per-packet one-way delay: 133.243 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 4.17 Mbit/s
95th percentile per-packet one-way delay: 136.265 ms
Loss rate: 1.18%
```

Run 1: Report of LEDBAT — Data Link

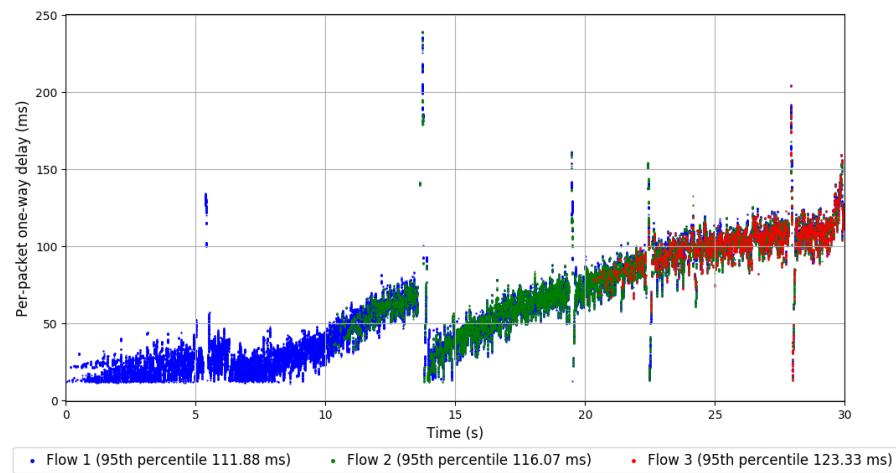
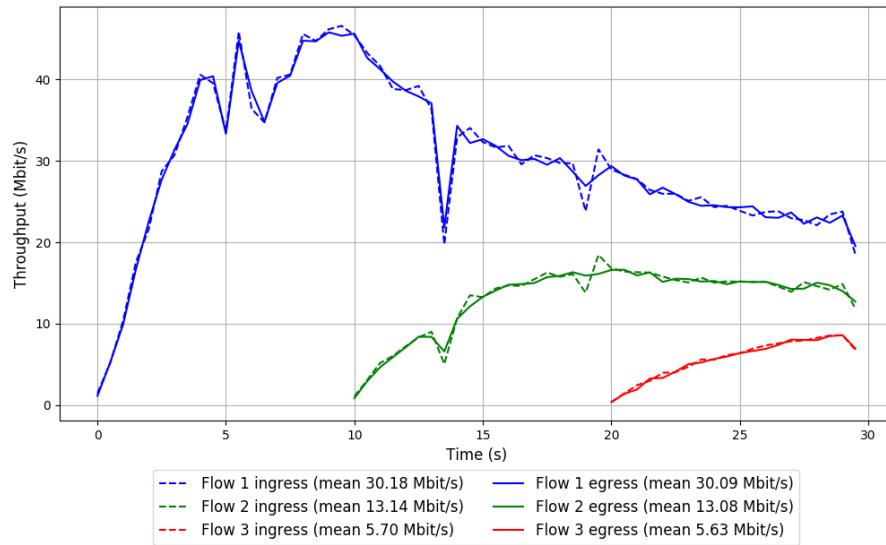


Run 2: Statistics of LEDBAT

```
Start at: 2018-02-13 12:57:57
End at: 2018-02-13 12:58:27
Local clock offset: -0.073 ms
Remote clock offset: -6.583 ms

# Below is generated by plot.py at 2018-02-13 13:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 113.738 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 30.09 Mbit/s
95th percentile per-packet one-way delay: 111.883 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 13.08 Mbit/s
95th percentile per-packet one-way delay: 116.074 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 5.63 Mbit/s
95th percentile per-packet one-way delay: 123.334 ms
Loss rate: 1.55%
```

Run 2: Report of LEDBAT — Data Link

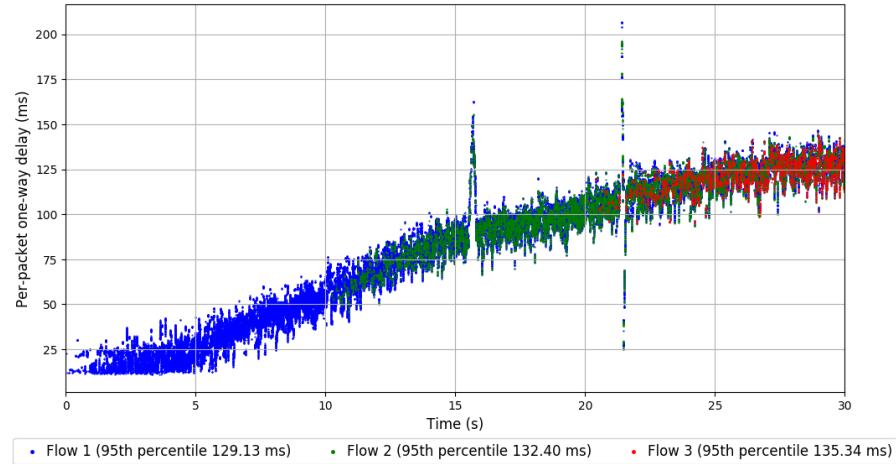
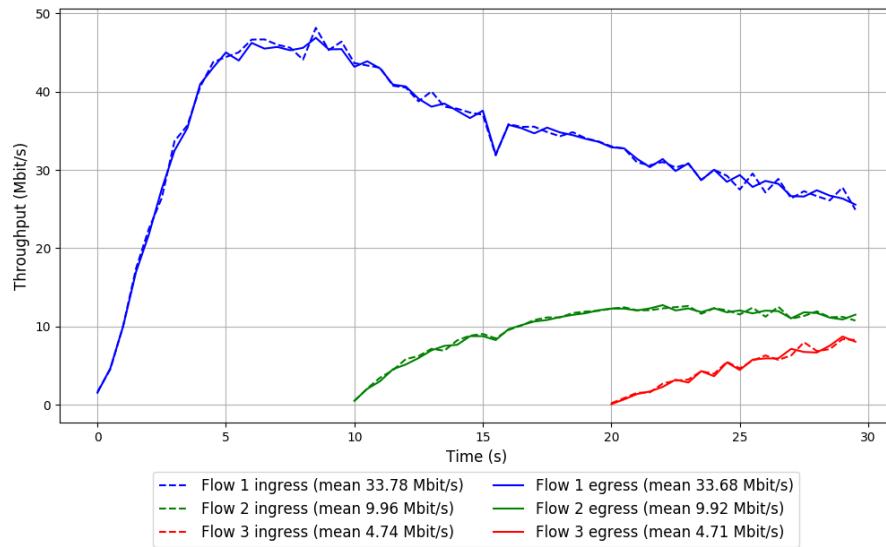


Run 3: Statistics of LEDBAT

```
Start at: 2018-02-13 13:21:56
End at: 2018-02-13 13:22:26
Local clock offset: -0.008 ms
Remote clock offset: -6.722 ms

# Below is generated by plot.py at 2018-02-13 13:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.80 Mbit/s
95th percentile per-packet one-way delay: 130.399 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 33.68 Mbit/s
95th percentile per-packet one-way delay: 129.126 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 9.92 Mbit/s
95th percentile per-packet one-way delay: 132.395 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 4.71 Mbit/s
95th percentile per-packet one-way delay: 135.343 ms
Loss rate: 1.76%
```

Run 3: Report of LEDBAT — Data Link

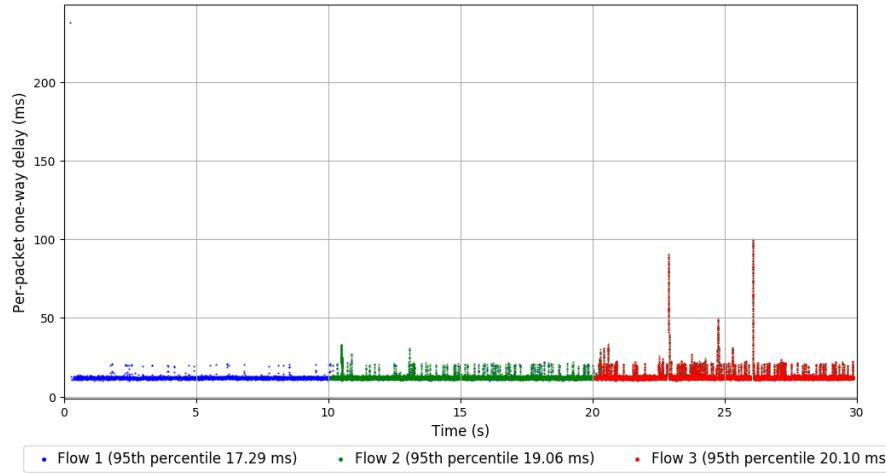
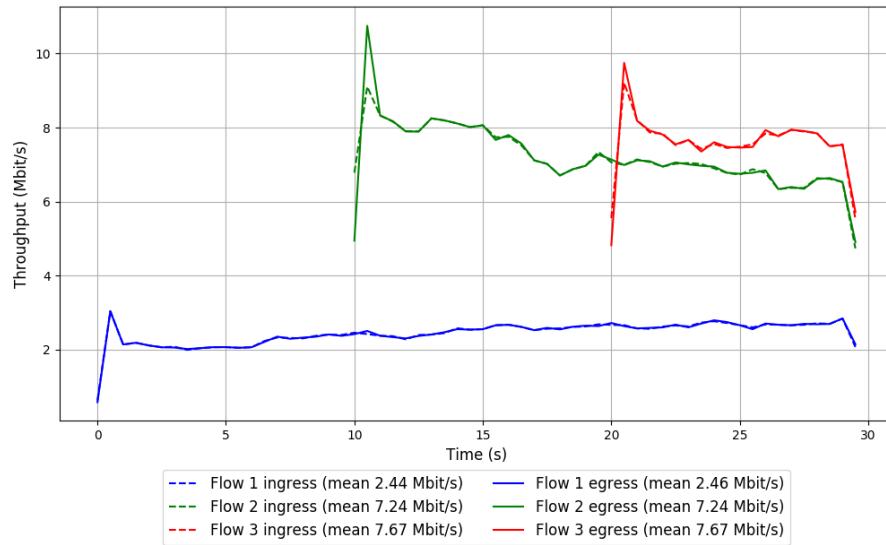


Run 1: Statistics of PCC

```
Start at: 2018-02-13 12:12:40
End at: 2018-02-13 12:13:10
Local clock offset: -0.21 ms
Remote clock offset: -5.292 ms

# Below is generated by plot.py at 2018-02-13 13:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.86 Mbit/s
95th percentile per-packet one-way delay: 19.083 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 17.288 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.24 Mbit/s
95th percentile per-packet one-way delay: 19.062 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 20.104 ms
Loss rate: 0.00%
```

Run 1: Report of PCC — Data Link

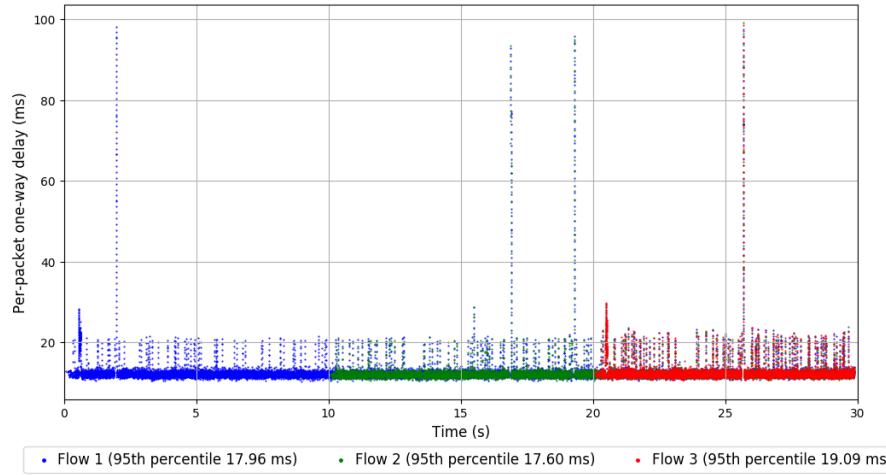
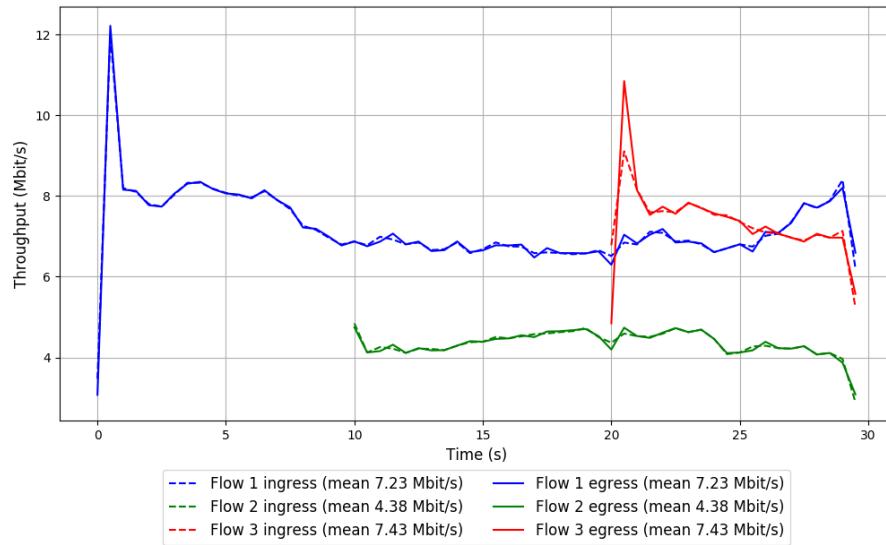


Run 2: Statistics of PCC

```
Start at: 2018-02-13 12:36:39
End at: 2018-02-13 12:37:09
Local clock offset: -0.226 ms
Remote clock offset: -5.475 ms

# Below is generated by plot.py at 2018-02-13 13:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.60 Mbit/s
95th percentile per-packet one-way delay: 18.208 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.23 Mbit/s
95th percentile per-packet one-way delay: 17.956 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 17.600 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.43 Mbit/s
95th percentile per-packet one-way delay: 19.092 ms
Loss rate: 0.00%
```

Run 2: Report of PCC — Data Link

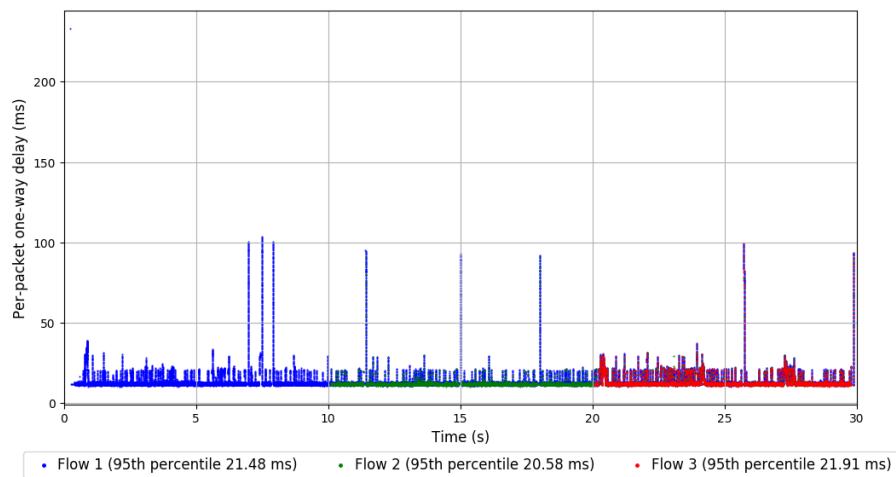
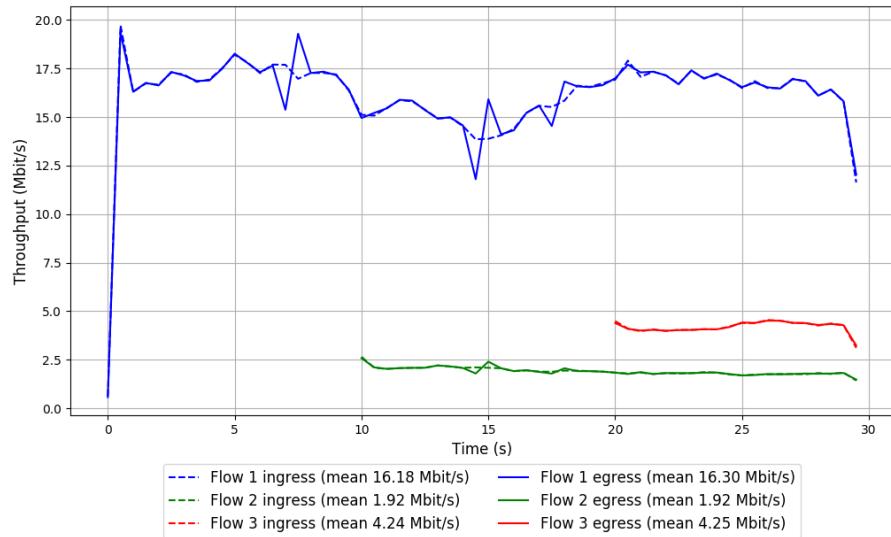


Run 3: Statistics of PCC

```
Start at: 2018-02-13 13:00:39
End at: 2018-02-13 13:01:09
Local clock offset: -0.053 ms
Remote clock offset: -6.708 ms

# Below is generated by plot.py at 2018-02-13 13:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.00 Mbit/s
95th percentile per-packet one-way delay: 21.461 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 16.30 Mbit/s
95th percentile per-packet one-way delay: 21.475 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 20.582 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.25 Mbit/s
95th percentile per-packet one-way delay: 21.913 ms
Loss rate: 0.00%
```

Run 3: Report of PCC — Data Link

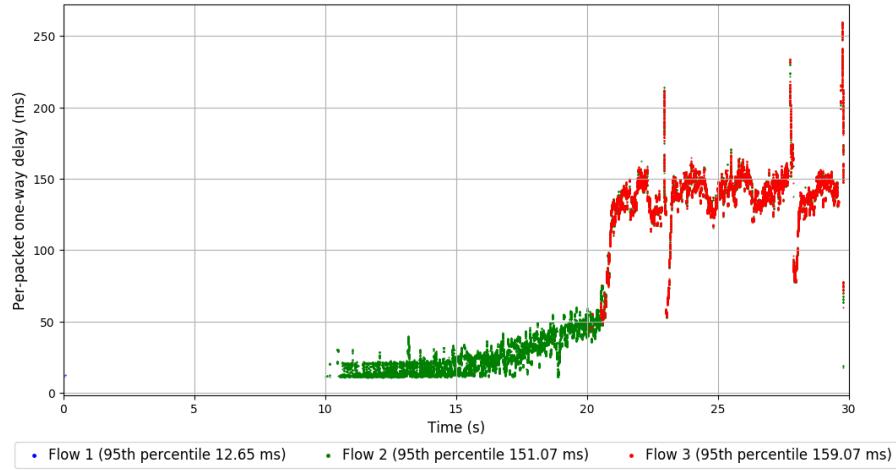
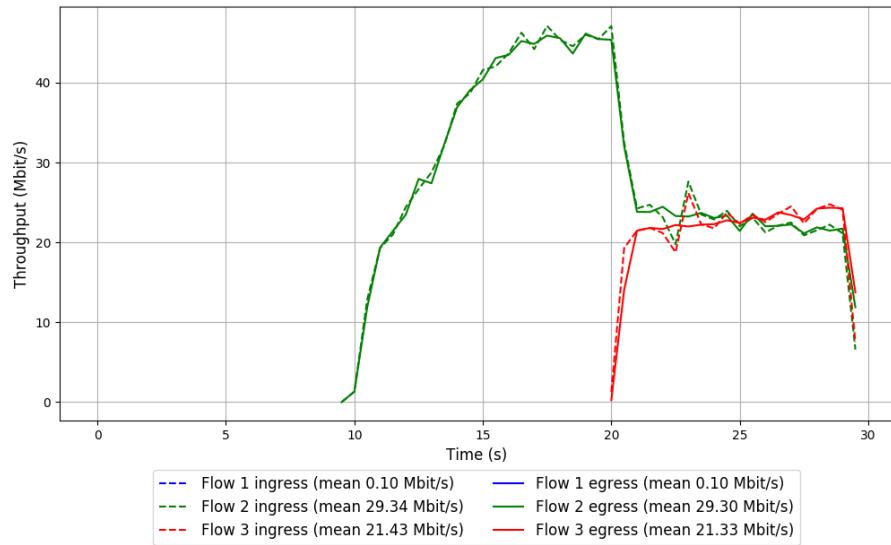


```
Run 1: Statistics of QUIC Cubic

Start at: 2018-02-13 12:24:37
End at: 2018-02-13 12:25:07
Local clock offset: -0.158 ms
Remote clock offset: -5.282 ms

# Below is generated by plot.py at 2018-02-13 13:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 26.46 Mbit/s
95th percentile per-packet one-way delay: 153.542 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 12.646 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 29.30 Mbit/s
95th percentile per-packet one-way delay: 151.074 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 21.33 Mbit/s
95th percentile per-packet one-way delay: 159.071 ms
Loss rate: 0.31%
```

Run 1: Report of QUIC Cubic — Data Link

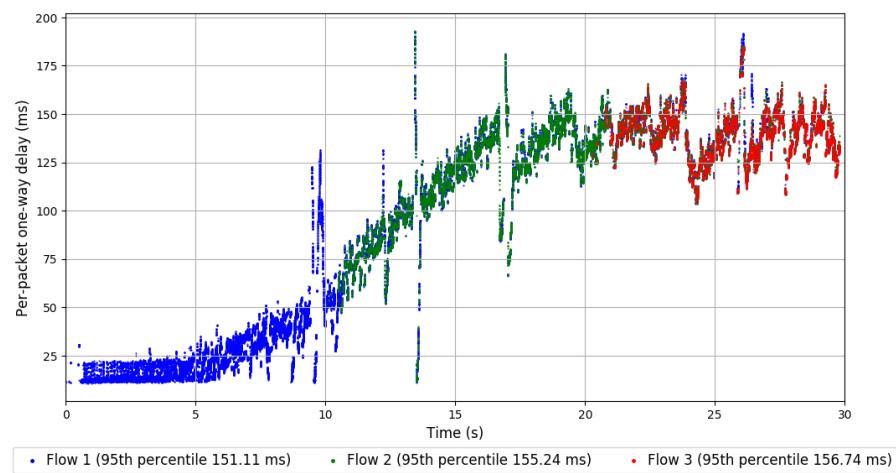
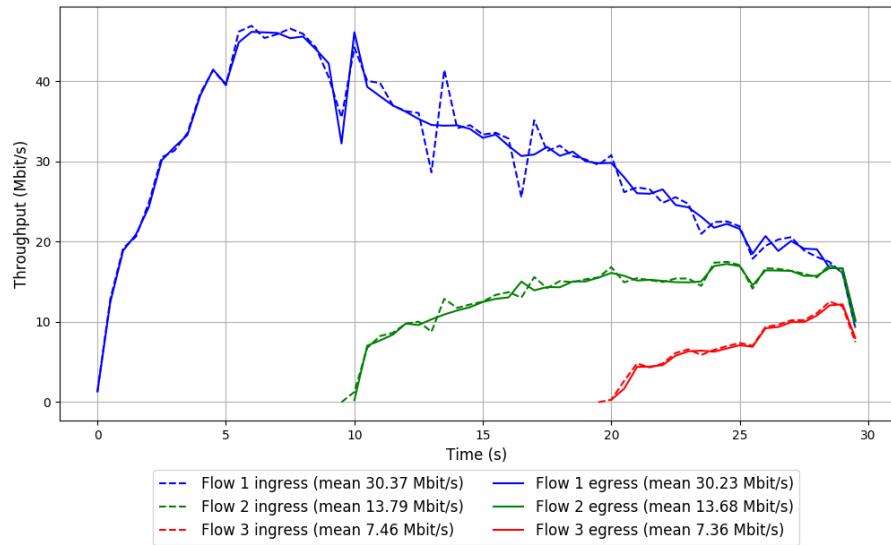


Run 2: Statistics of QUIC Cubic

```
Start at: 2018-02-13 12:48:36
End at: 2018-02-13 12:49:06
Local clock offset: -0.077 ms
Remote clock offset: -6.338 ms

# Below is generated by plot.py at 2018-02-13 13:26:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.70 Mbit/s
95th percentile per-packet one-way delay: 152.954 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 30.23 Mbit/s
95th percentile per-packet one-way delay: 151.110 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 13.68 Mbit/s
95th percentile per-packet one-way delay: 155.238 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 7.36 Mbit/s
95th percentile per-packet one-way delay: 156.735 ms
Loss rate: 2.33%
```

Run 2: Report of QUIC Cubic — Data Link

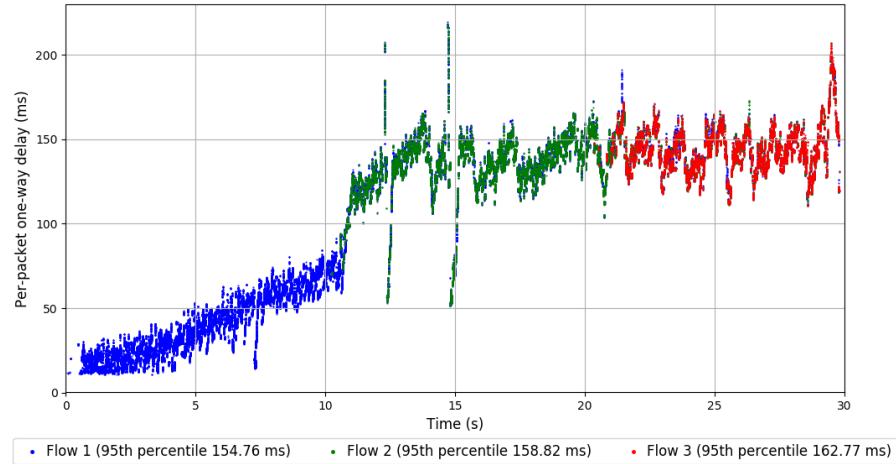
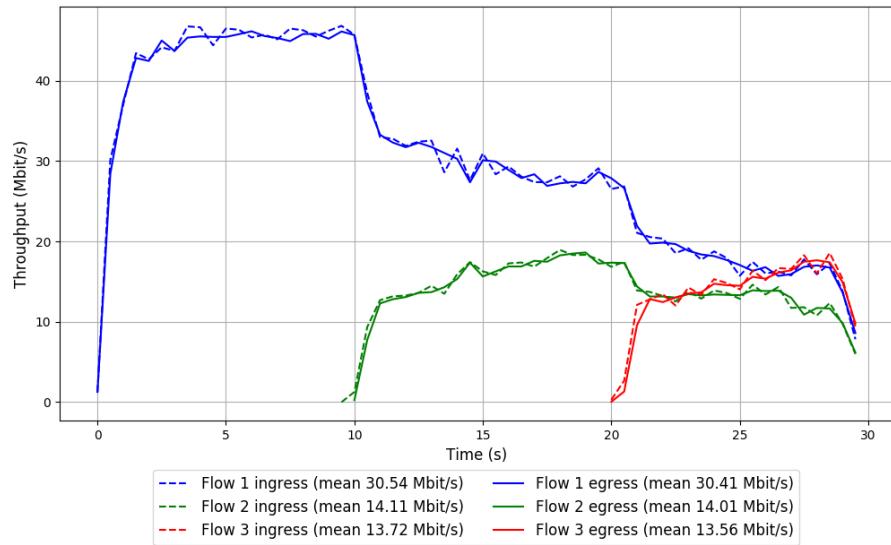


Run 3: Statistics of QUIC Cubic

```
Start at: 2018-02-13 13:12:35
End at: 2018-02-13 13:13:05
Local clock offset: -0.035 ms
Remote clock offset: -6.839 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.09 Mbit/s
95th percentile per-packet one-way delay: 156.927 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 30.41 Mbit/s
95th percentile per-packet one-way delay: 154.761 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 14.01 Mbit/s
95th percentile per-packet one-way delay: 158.819 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 13.56 Mbit/s
95th percentile per-packet one-way delay: 162.772 ms
Loss rate: 2.45%
```

Run 3: Report of QUIC Cubic — Data Link

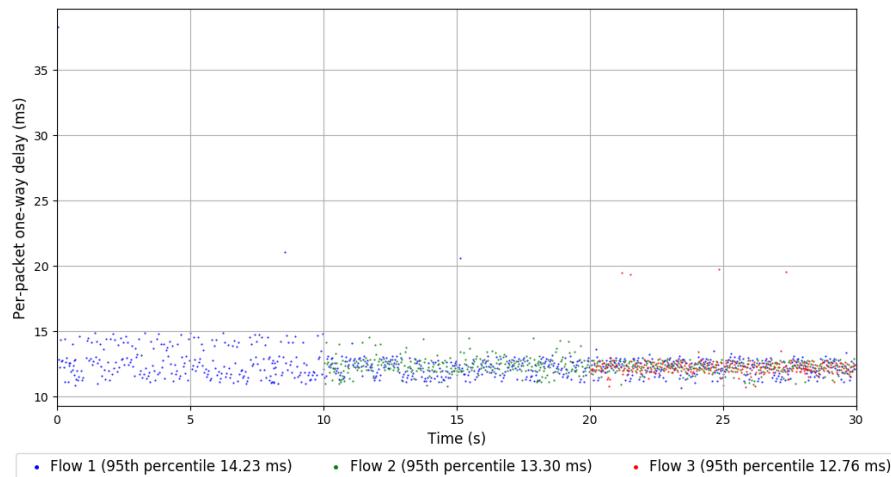
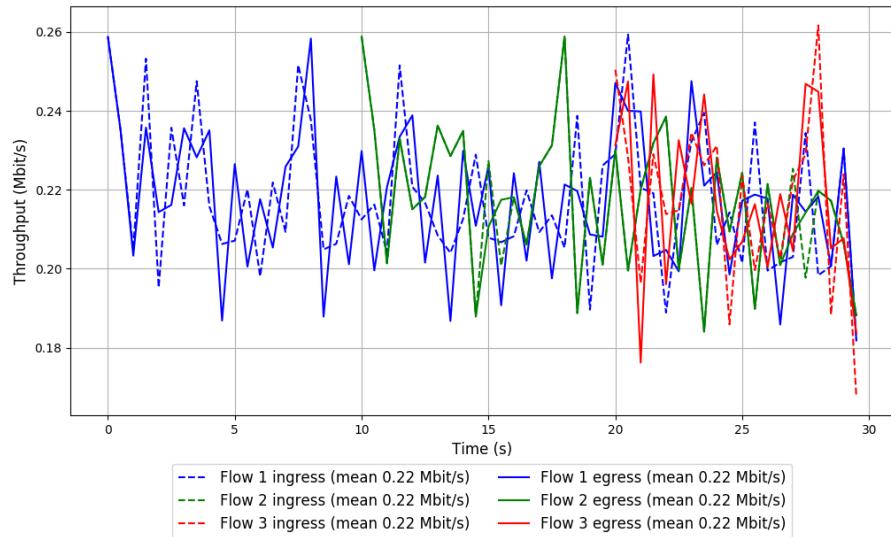


```
Run 1: Statistics of SCReAM
```

```
Start at: 2018-02-13 12:31:19
End at: 2018-02-13 12:31:49
Local clock offset: -0.15 ms
Remote clock offset: -5.254 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 13.900 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 14.227 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.297 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 12.757 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

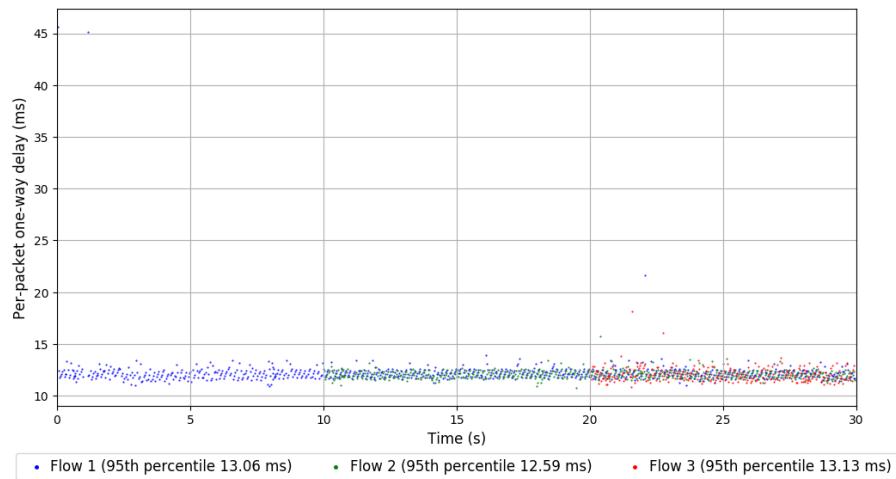
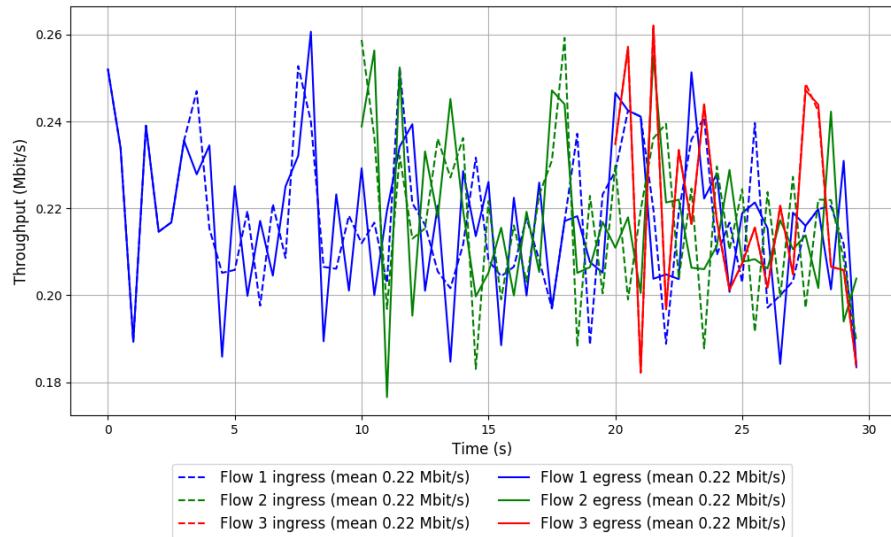


Run 2: Statistics of SCReAM

```
Start at: 2018-02-13 12:55:18
End at: 2018-02-13 12:55:48
Local clock offset: -0.04 ms
Remote clock offset: -6.468 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 12.944 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.057 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 12.594 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.128 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

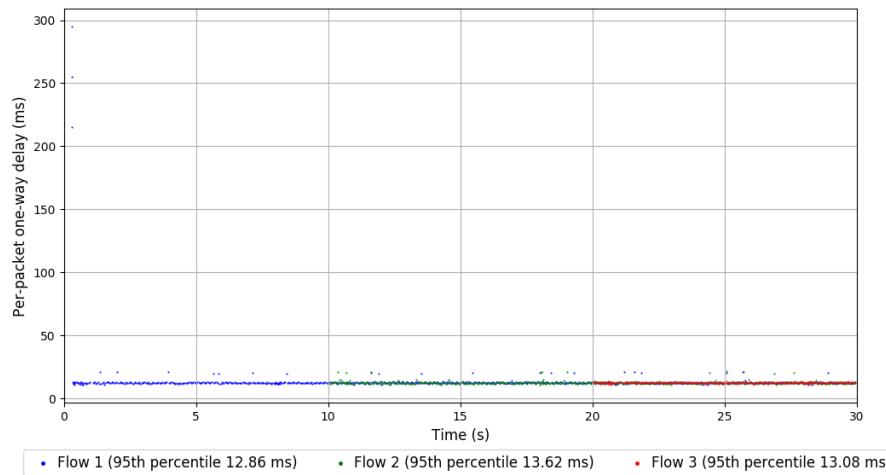
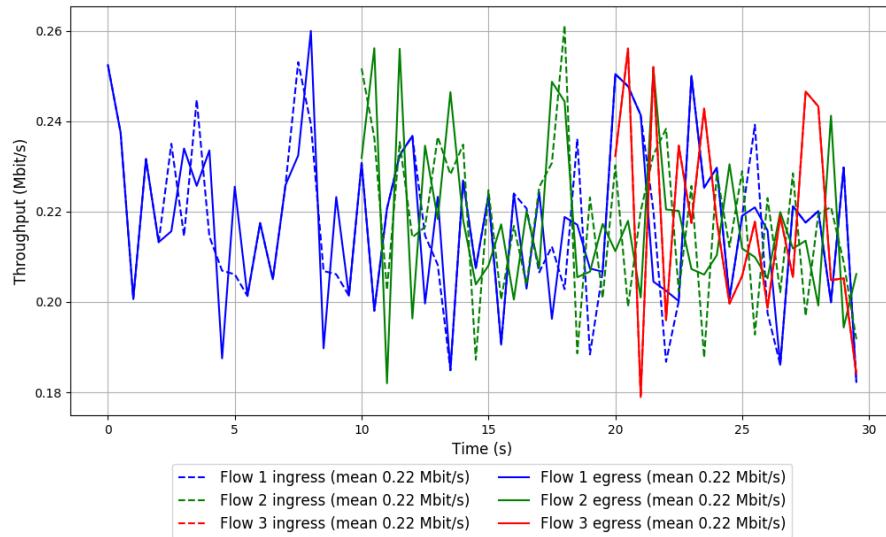


Run 3: Statistics of SCReAM

```
Start at: 2018-02-13 13:19:18
End at: 2018-02-13 13:19:48
Local clock offset: -0.0 ms
Remote clock offset: -6.685 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 13.084 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 12.857 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.617 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.080 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

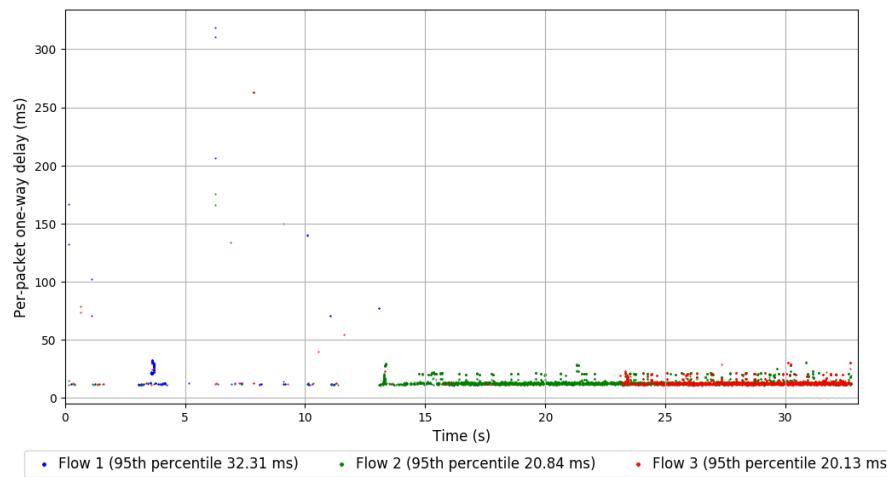
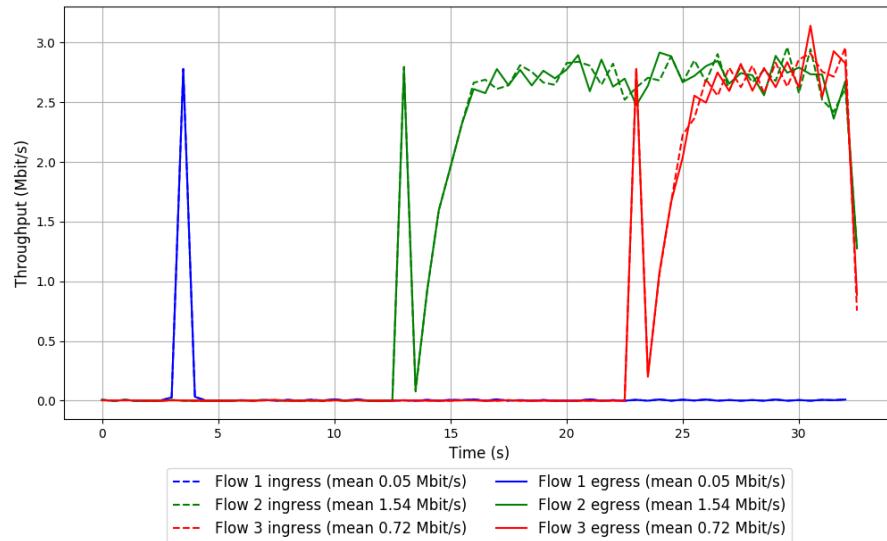


```
Run 1: Statistics of WebRTC media
```

```
Start at: 2018-02-13 12:23:18
End at: 2018-02-13 12:23:48
Local clock offset: -0.26 ms
Remote clock offset: -5.292 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.31 Mbit/s
95th percentile per-packet one-way delay: 20.987 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 32.311 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.54 Mbit/s
95th percentile per-packet one-way delay: 20.840 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 20.131 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

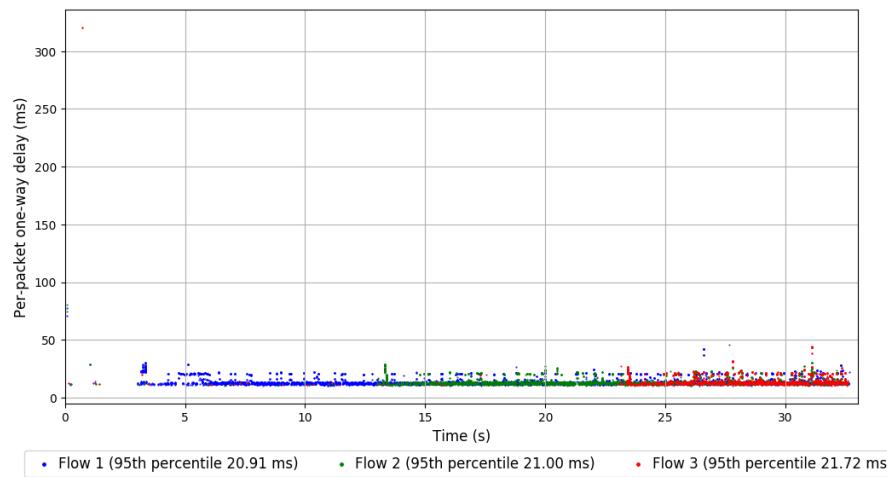
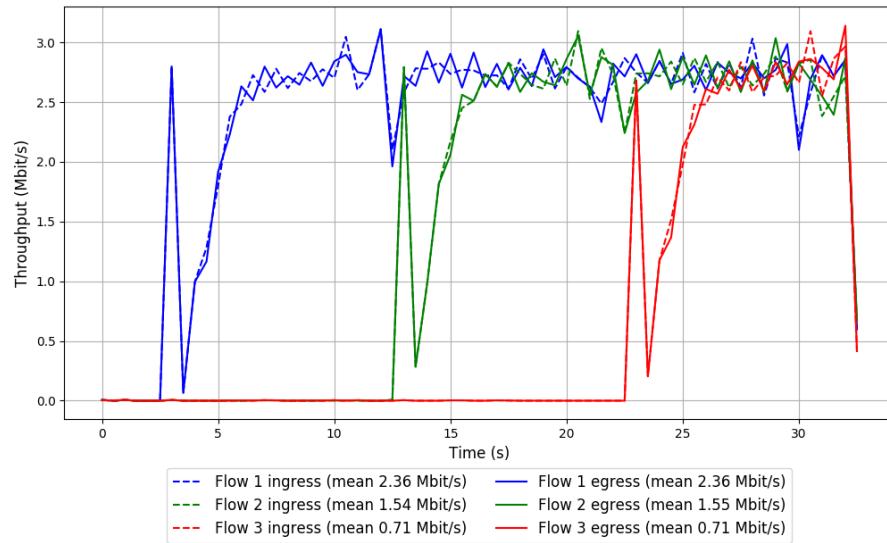


Run 2: Statistics of WebRTC media

```
Start at: 2018-02-13 12:47:17
End at: 2018-02-13 12:47:47
Local clock offset: -0.095 ms
Remote clock offset: -6.268 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 21.081 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 20.913 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 21.001 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 21.722 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link

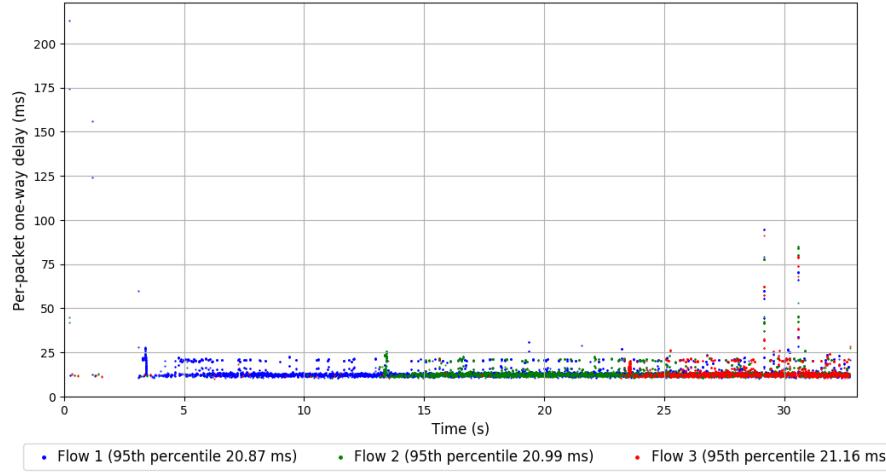
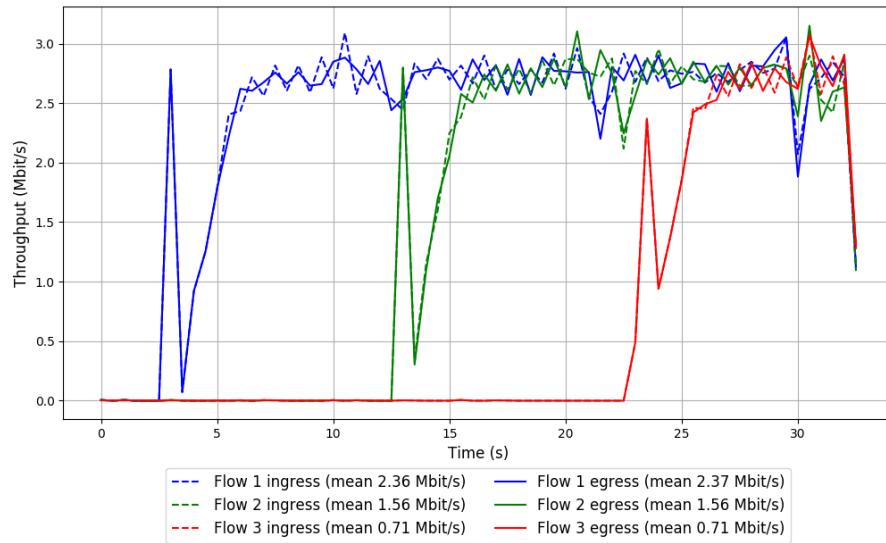


```
Run 3: Statistics of WebRTC media

Start at: 2018-02-13 13:11:17
End at: 2018-02-13 13:11:47
Local clock offset: -0.039 ms
Remote clock offset: -6.804 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.64 Mbit/s
95th percentile per-packet one-way delay: 20.931 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 20.872 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 20.991 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 21.164 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

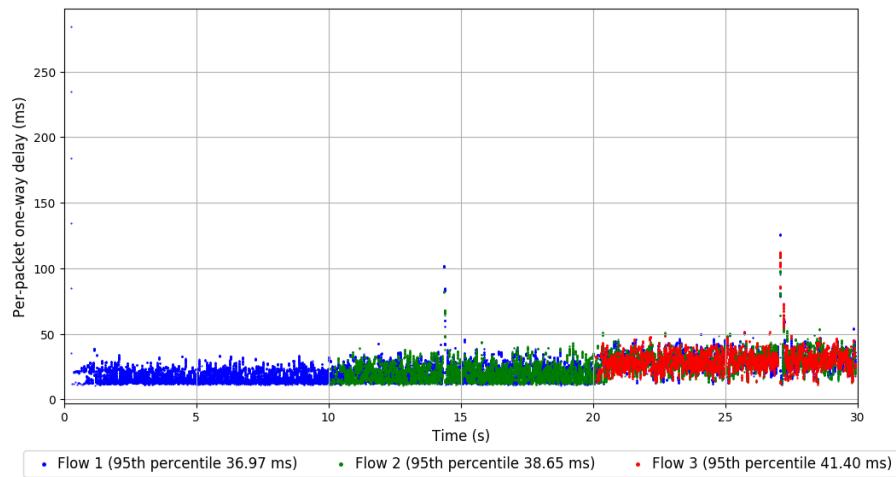
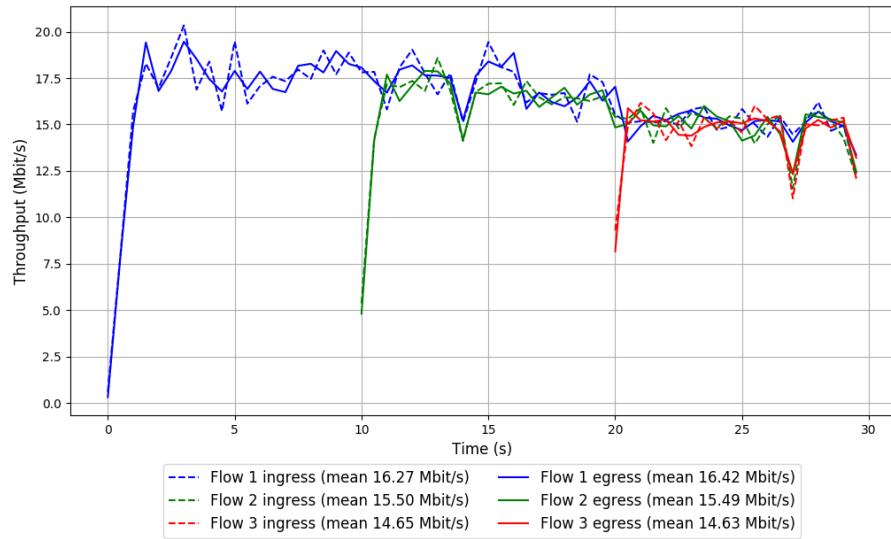


Run 1: Statistics of Sprout

```
Start at: 2018-02-13 12:32:37
End at: 2018-02-13 12:33:07
Local clock offset: -0.126 ms
Remote clock offset: -5.321 ms

# Below is generated by plot.py at 2018-02-13 13:26:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.70 Mbit/s
95th percentile per-packet one-way delay: 38.706 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 16.42 Mbit/s
95th percentile per-packet one-way delay: 36.972 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.49 Mbit/s
95th percentile per-packet one-way delay: 38.645 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.63 Mbit/s
95th percentile per-packet one-way delay: 41.402 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

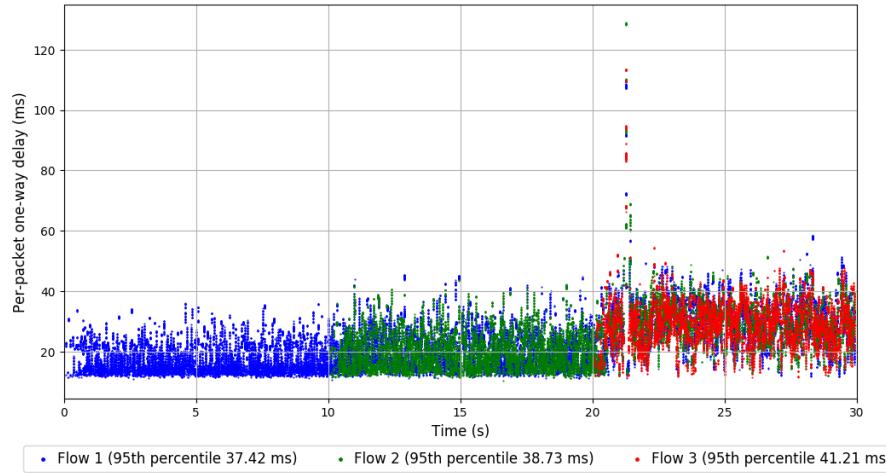
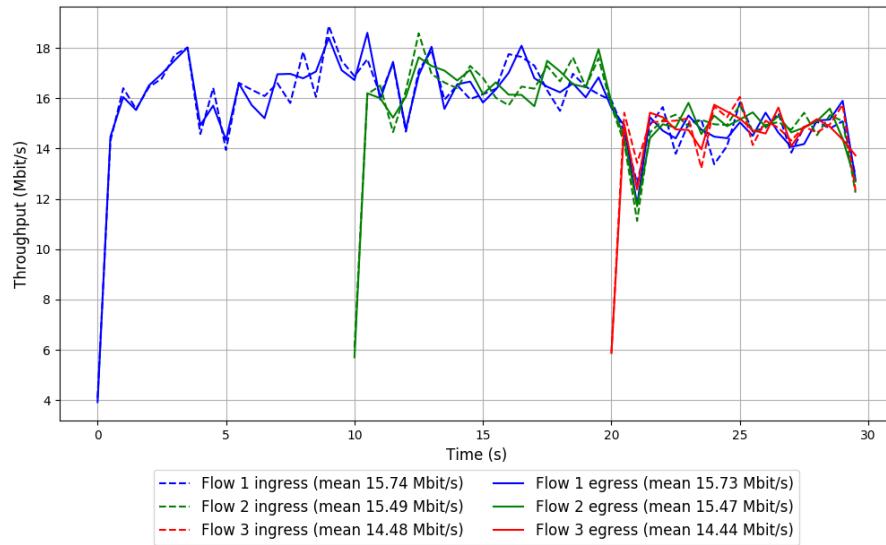


Run 2: Statistics of Sprout

```
Start at: 2018-02-13 12:56:37
End at: 2018-02-13 12:57:07
Local clock offset: -0.048 ms
Remote clock offset: -6.613 ms

# Below is generated by plot.py at 2018-02-13 13:26:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 30.79 Mbit/s
95th percentile per-packet one-way delay: 38.755 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 15.73 Mbit/s
95th percentile per-packet one-way delay: 37.416 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 15.47 Mbit/s
95th percentile per-packet one-way delay: 38.733 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 14.44 Mbit/s
95th percentile per-packet one-way delay: 41.209 ms
Loss rate: 0.19%
```

Run 2: Report of Sprout — Data Link

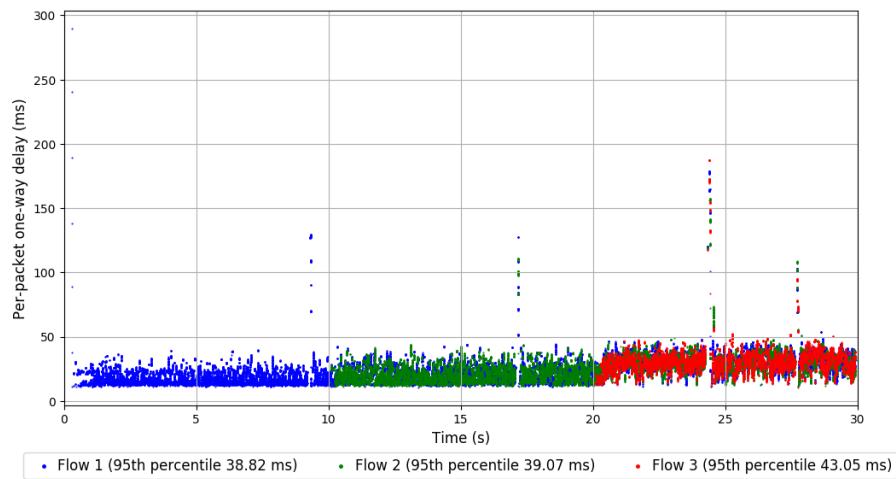
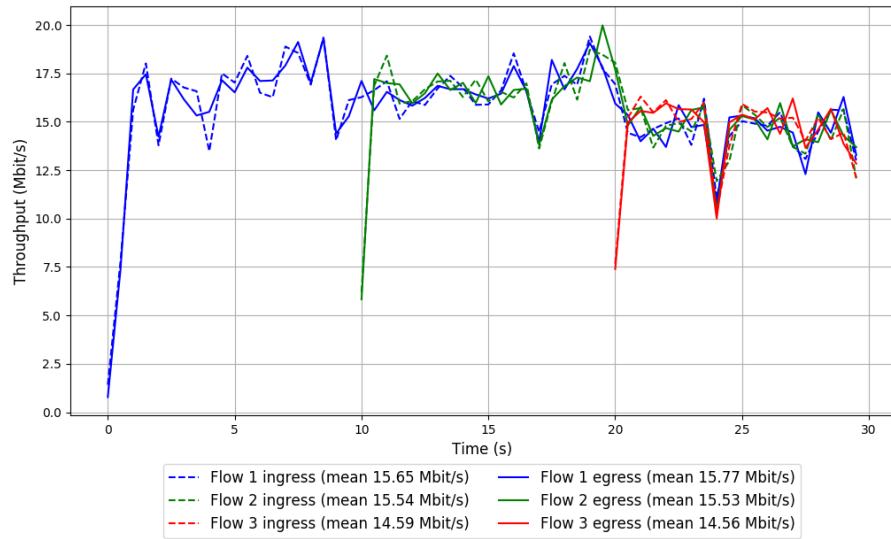


Run 3: Statistics of Sprout

```
Start at: 2018-02-13 13:20:37
End at: 2018-02-13 13:21:07
Local clock offset: -0.095 ms
Remote clock offset: -6.663 ms

# Below is generated by plot.py at 2018-02-13 13:26:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.05 Mbit/s
95th percentile per-packet one-way delay: 39.754 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 15.77 Mbit/s
95th percentile per-packet one-way delay: 38.822 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 15.53 Mbit/s
95th percentile per-packet one-way delay: 39.066 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.56 Mbit/s
95th percentile per-packet one-way delay: 43.045 ms
Loss rate: 0.09%
```

Run 3: Report of Sprout — Data Link

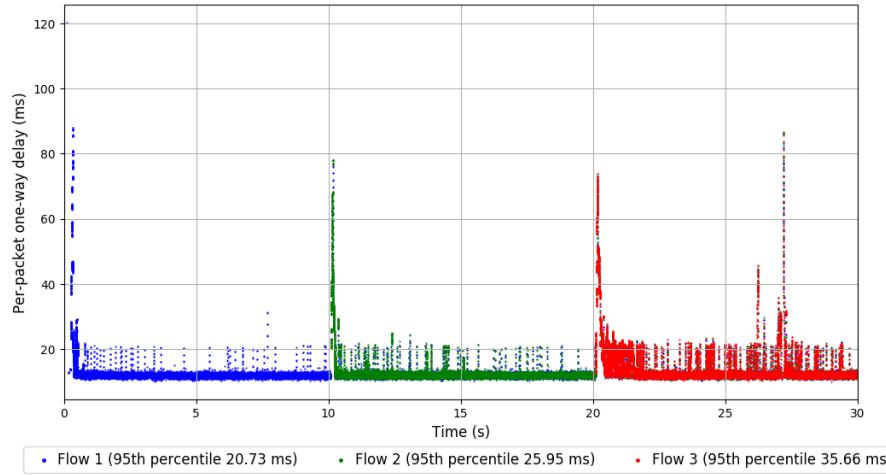
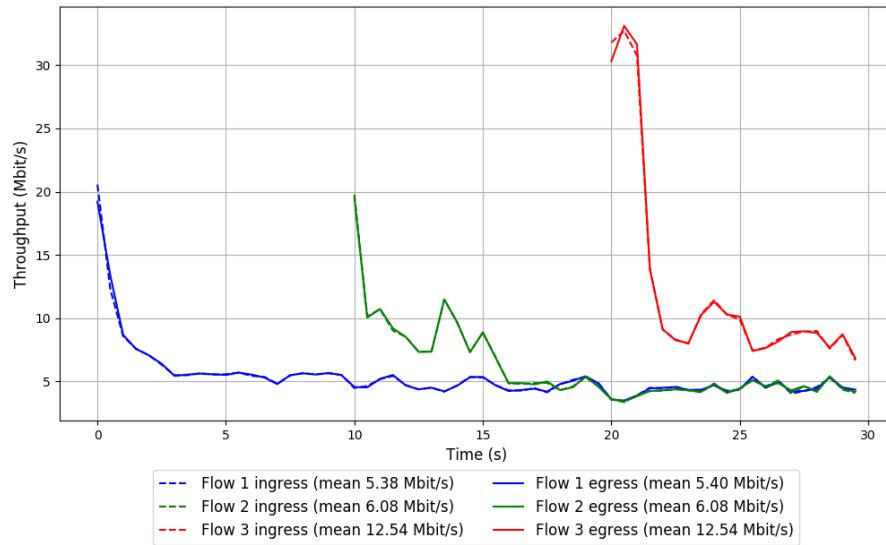


Run 1: Statistics of TaoVA-100x

```
Start at: 2018-02-13 12:19:20
End at: 2018-02-13 12:19:50
Local clock offset: -0.204 ms
Remote clock offset: -5.325 ms

# Below is generated by plot.py at 2018-02-13 13:26:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.65 Mbit/s
95th percentile per-packet one-way delay: 25.522 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.40 Mbit/s
95th percentile per-packet one-way delay: 20.725 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.08 Mbit/s
95th percentile per-packet one-way delay: 25.949 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.54 Mbit/s
95th percentile per-packet one-way delay: 35.657 ms
Loss rate: 0.00%
```

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

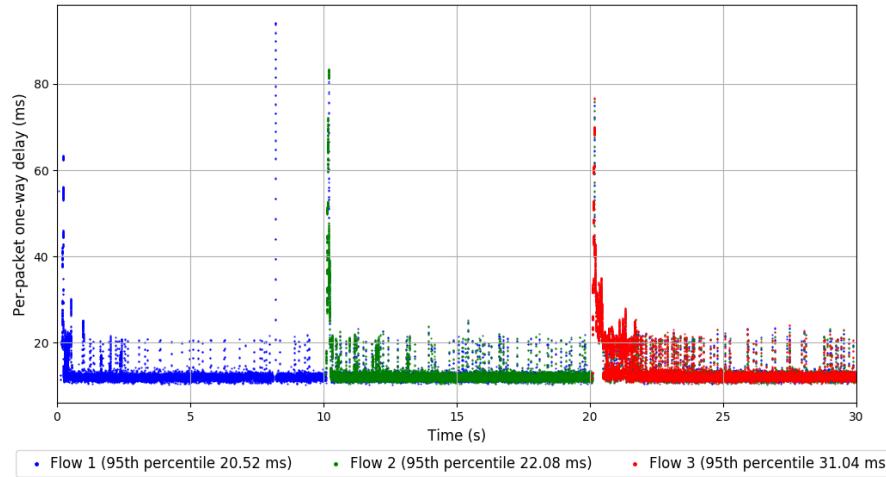
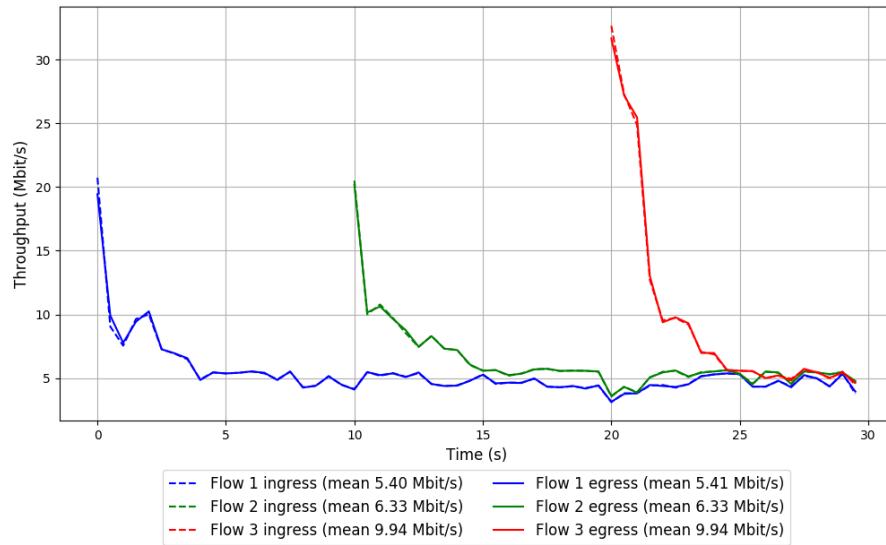


Run 2: Statistics of TaoVA-100x

```
Start at: 2018-02-13 12:43:18
End at: 2018-02-13 12:43:48
Local clock offset: -0.118 ms
Remote clock offset: -6.112 ms

# Below is generated by plot.py at 2018-02-13 13:26:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.94 Mbit/s
95th percentile per-packet one-way delay: 25.677 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.41 Mbit/s
95th percentile per-packet one-way delay: 20.515 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.33 Mbit/s
95th percentile per-packet one-way delay: 22.079 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.94 Mbit/s
95th percentile per-packet one-way delay: 31.044 ms
Loss rate: 0.00%
```

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

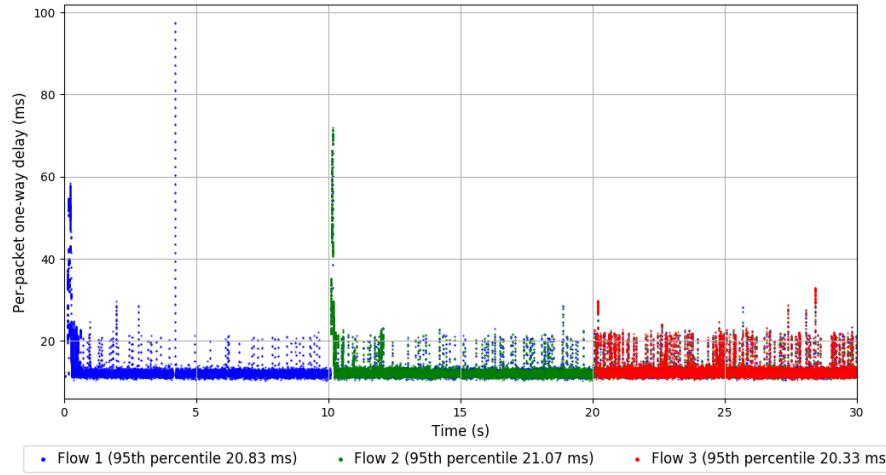
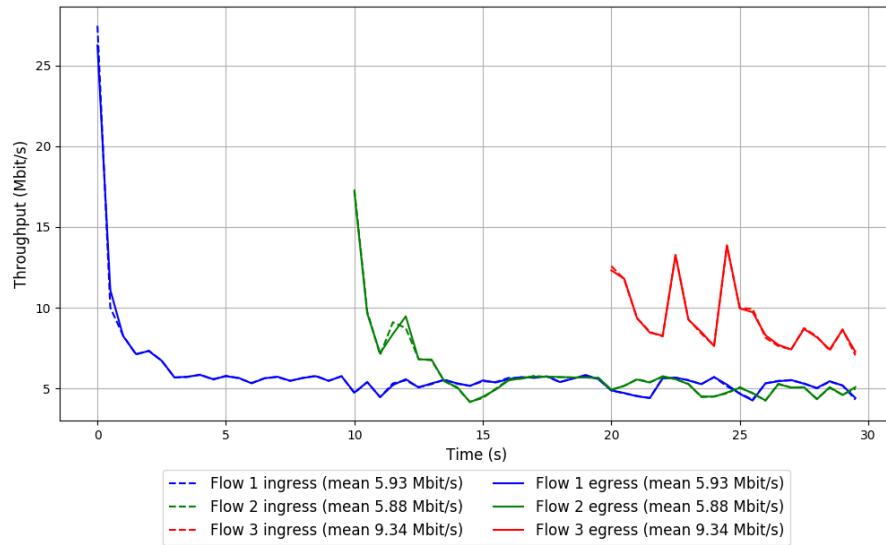


Run 3: Statistics of TaoVA-100x

```
Start at: 2018-02-13 13:07:18
End at: 2018-02-13 13:07:48
Local clock offset: -0.041 ms
Remote clock offset: -6.79 ms

# Below is generated by plot.py at 2018-02-13 13:26:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.94 Mbit/s
95th percentile per-packet one-way delay: 20.723 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.93 Mbit/s
95th percentile per-packet one-way delay: 20.834 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 21.065 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.34 Mbit/s
95th percentile per-packet one-way delay: 20.330 ms
Loss rate: 0.00%
```

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

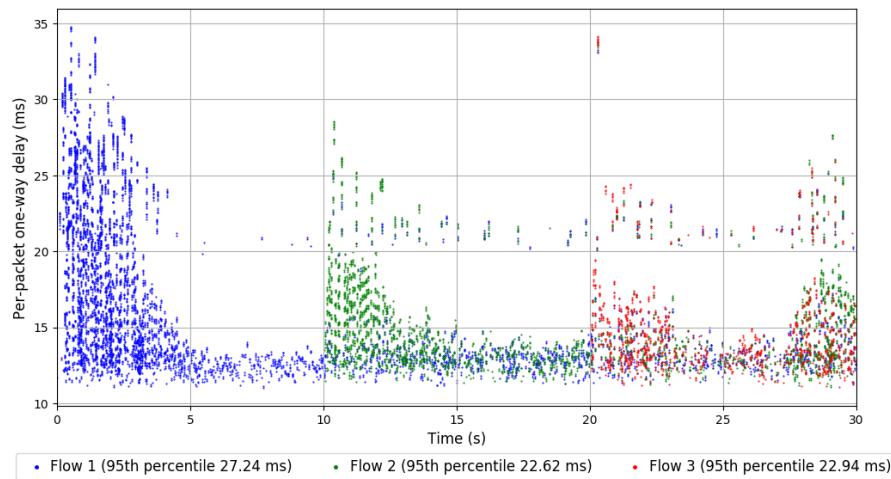
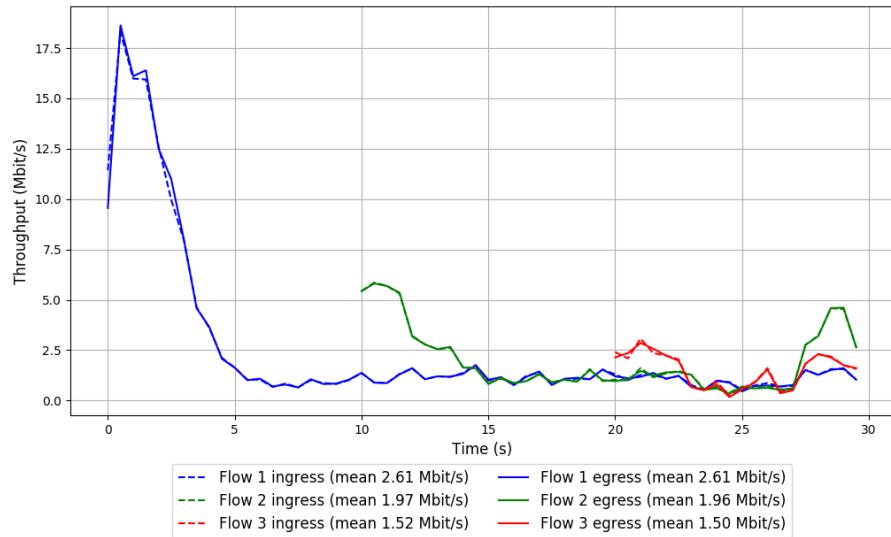


Run 1: Statistics of TCP Vegas

```
Start at: 2018-02-13 12:13:59
End at: 2018-02-13 12:14:29
Local clock offset: -0.222 ms
Remote clock offset: -5.235 ms

# Below is generated by plot.py at 2018-02-13 13:26:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 26.039 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 27.241 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 22.622 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 22.939 ms
Loss rate: 1.59%
```

Run 1: Report of TCP Vegas — Data Link

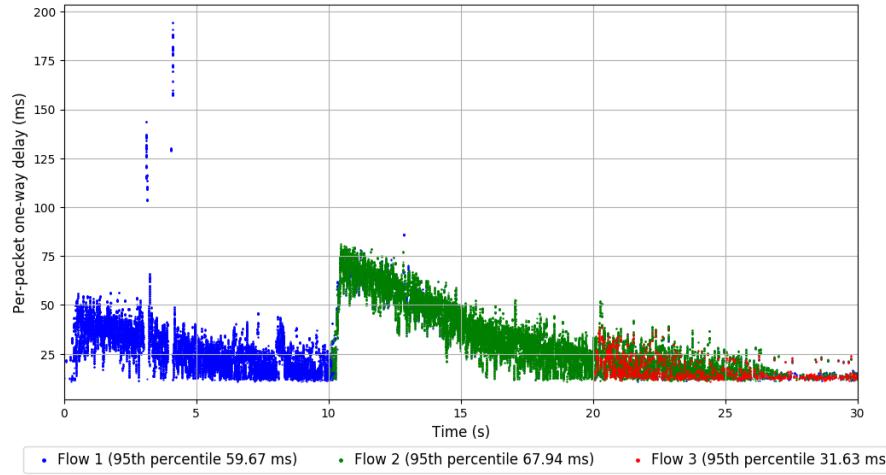
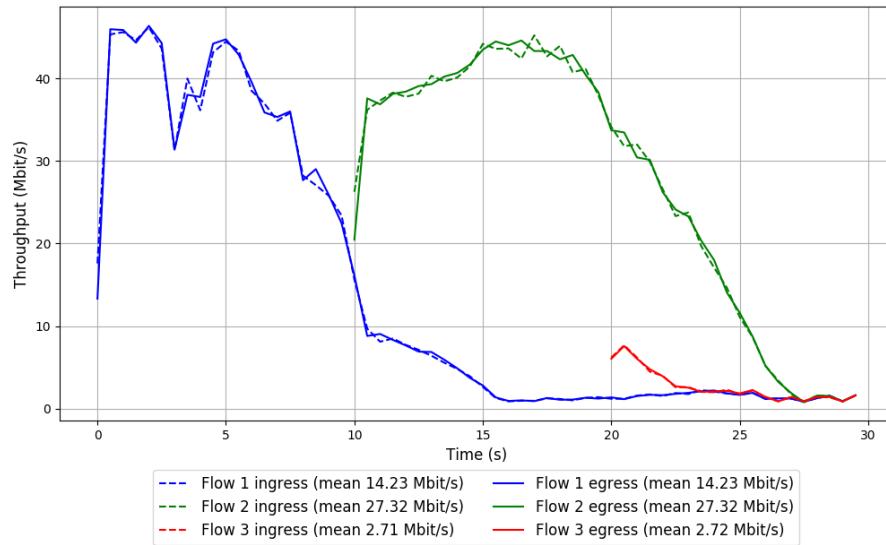


Run 2: Statistics of TCP Vegas

```
Start at: 2018-02-13 12:37:58
End at: 2018-02-13 12:38:28
Local clock offset: -0.127 ms
Remote clock offset: -5.651 ms

# Below is generated by plot.py at 2018-02-13 13:26:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 33.33 Mbit/s
95th percentile per-packet one-way delay: 65.854 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 14.23 Mbit/s
95th percentile per-packet one-way delay: 59.670 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 27.32 Mbit/s
95th percentile per-packet one-way delay: 67.943 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.72 Mbit/s
95th percentile per-packet one-way delay: 31.631 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

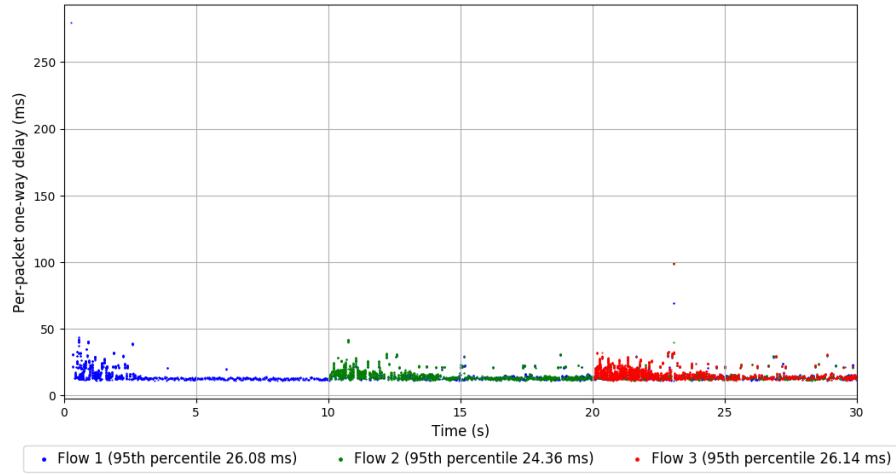
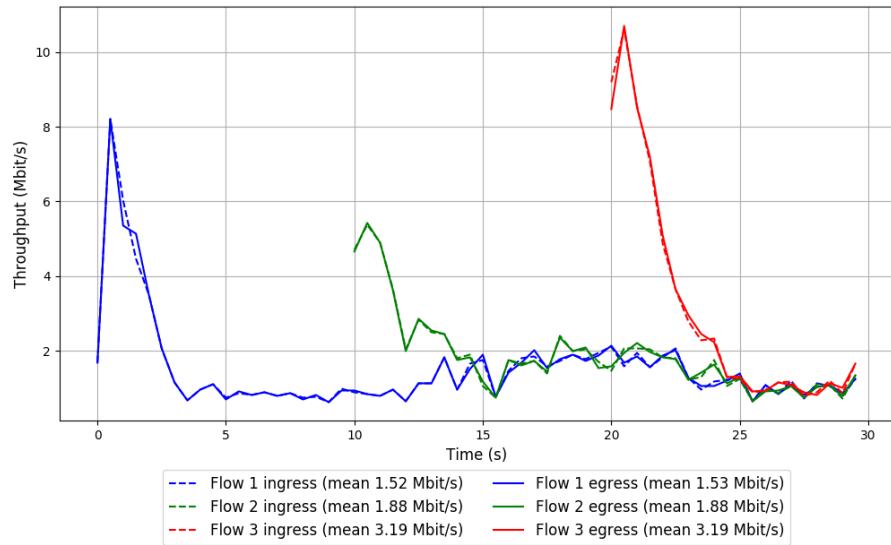


Run 3: Statistics of TCP Vegas

```
Start at: 2018-02-13 13:01:58
End at: 2018-02-13 13:02:28
Local clock offset: -0.09 ms
Remote clock offset: -6.739 ms

# Below is generated by plot.py at 2018-02-13 13:26:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 25.770 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.53 Mbit/s
95th percentile per-packet one-way delay: 26.079 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.88 Mbit/s
95th percentile per-packet one-way delay: 24.362 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.19 Mbit/s
95th percentile per-packet one-way delay: 26.144 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

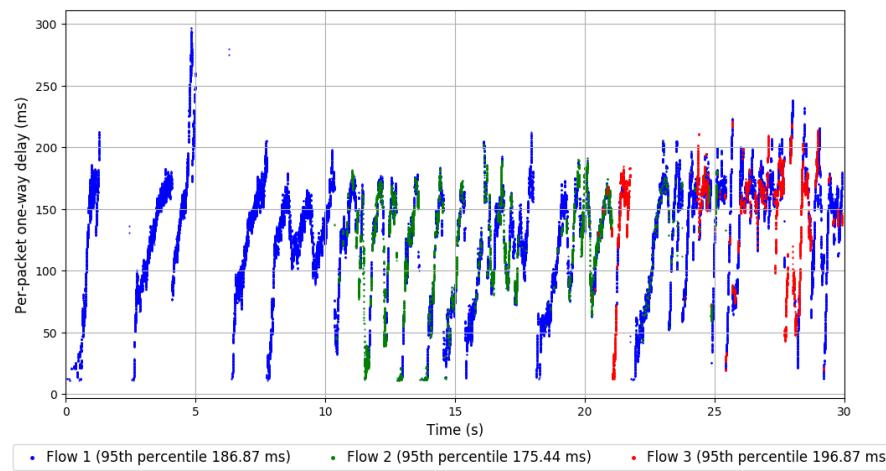
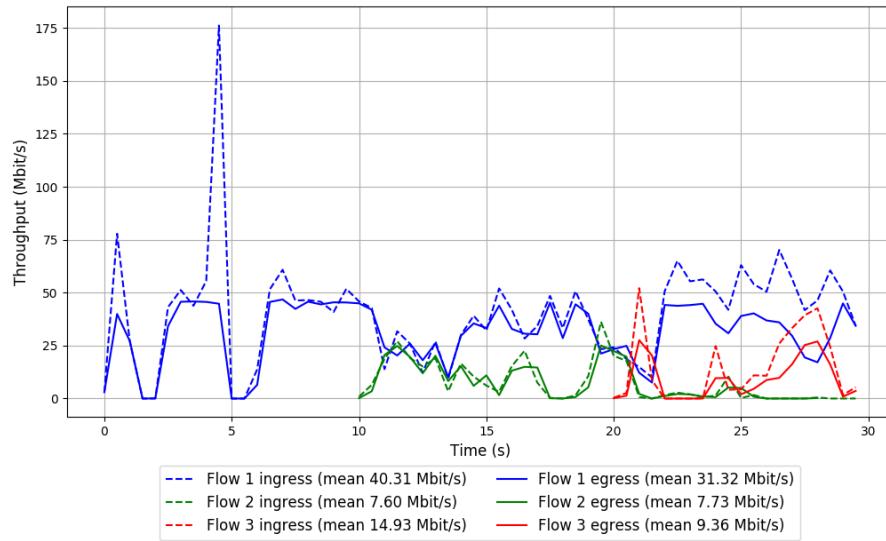


Run 1: Statistics of Verus

```
Start at: 2018-02-13 12:15:18
End at: 2018-02-13 12:15:48
Local clock offset: -0.288 ms
Remote clock offset: -5.203 ms

# Below is generated by plot.py at 2018-02-13 13:26:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 39.03 Mbit/s
95th percentile per-packet one-way delay: 185.907 ms
Loss rate: 22.21%
-- Flow 1:
Average throughput: 31.32 Mbit/s
95th percentile per-packet one-way delay: 186.872 ms
Loss rate: 22.29%
-- Flow 2:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 175.436 ms
Loss rate: 6.95%
-- Flow 3:
Average throughput: 9.36 Mbit/s
95th percentile per-packet one-way delay: 196.865 ms
Loss rate: 37.29%
```

Run 1: Report of Verus — Data Link

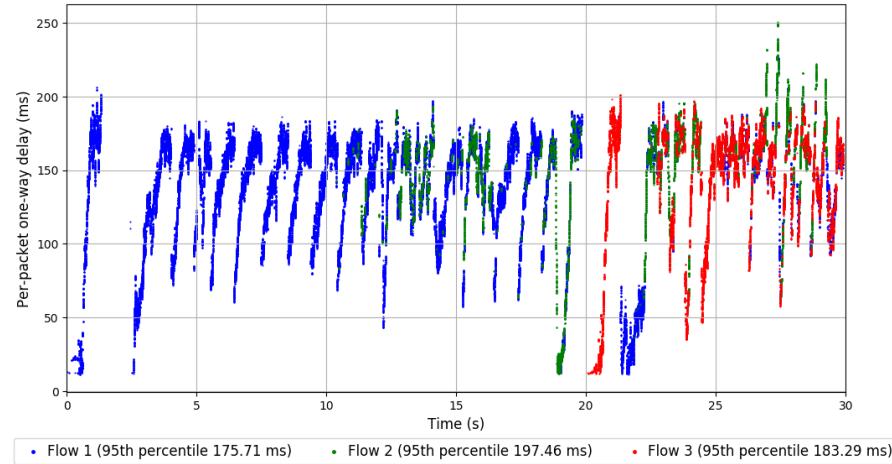
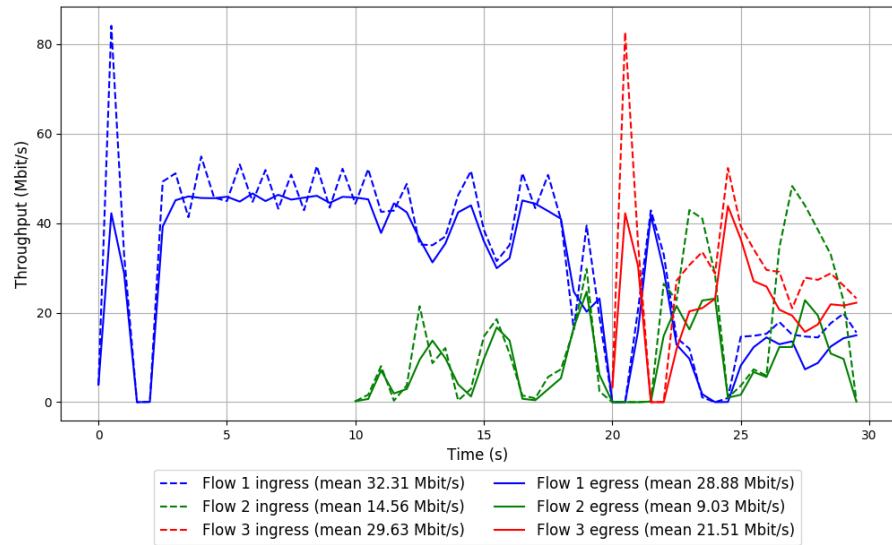


Run 2: Statistics of Verus

```
Start at: 2018-02-13 12:39:19
End at: 2018-02-13 12:39:49
Local clock offset: -0.12 ms
Remote clock offset: -5.734 ms

# Below is generated by plot.py at 2018-02-13 13:26:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.80 Mbit/s
95th percentile per-packet one-way delay: 179.877 ms
Loss rate: 18.76%
-- Flow 1:
Average throughput: 28.88 Mbit/s
95th percentile per-packet one-way delay: 175.705 ms
Loss rate: 10.47%
-- Flow 2:
Average throughput: 9.03 Mbit/s
95th percentile per-packet one-way delay: 197.463 ms
Loss rate: 38.57%
-- Flow 3:
Average throughput: 21.51 Mbit/s
95th percentile per-packet one-way delay: 183.286 ms
Loss rate: 26.92%
```

Run 2: Report of Verus — Data Link

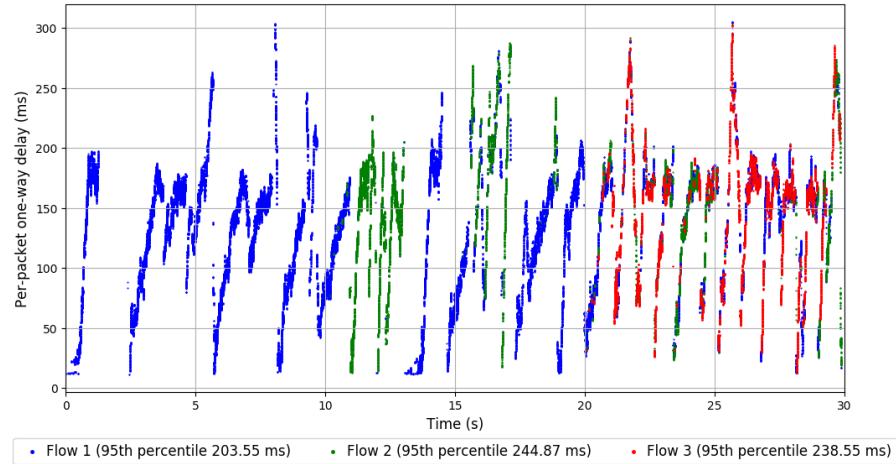
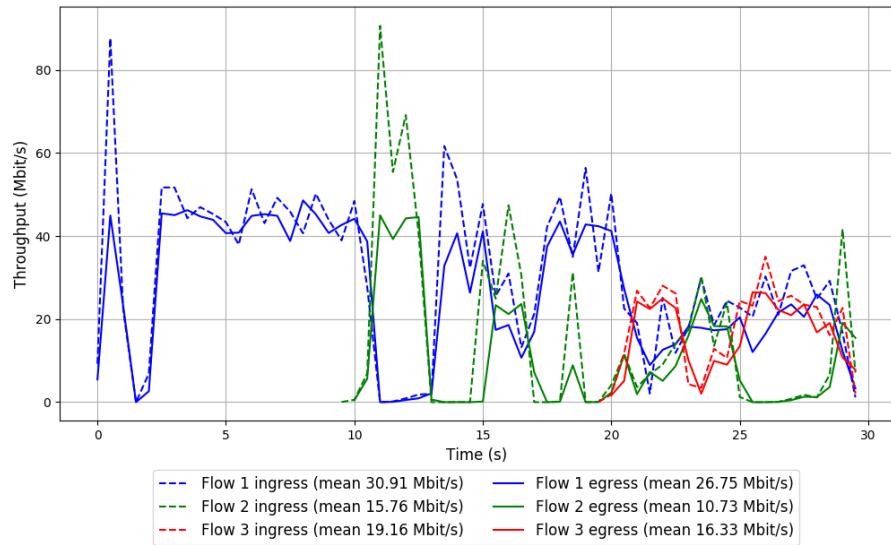


Run 3: Statistics of Verus

```
Start at: 2018-02-13 13:03:17
End at: 2018-02-13 13:03:47
Local clock offset: -0.153 ms
Remote clock offset: -6.682 ms

# Below is generated by plot.py at 2018-02-13 13:26:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 39.22 Mbit/s
95th percentile per-packet one-way delay: 217.153 ms
Loss rate: 17.55%
-- Flow 1:
Average throughput: 26.75 Mbit/s
95th percentile per-packet one-way delay: 203.551 ms
Loss rate: 13.45%
-- Flow 2:
Average throughput: 10.73 Mbit/s
95th percentile per-packet one-way delay: 244.872 ms
Loss rate: 32.18%
-- Flow 3:
Average throughput: 16.33 Mbit/s
95th percentile per-packet one-way delay: 238.549 ms
Loss rate: 13.22%
```

Run 3: Report of Verus — Data Link

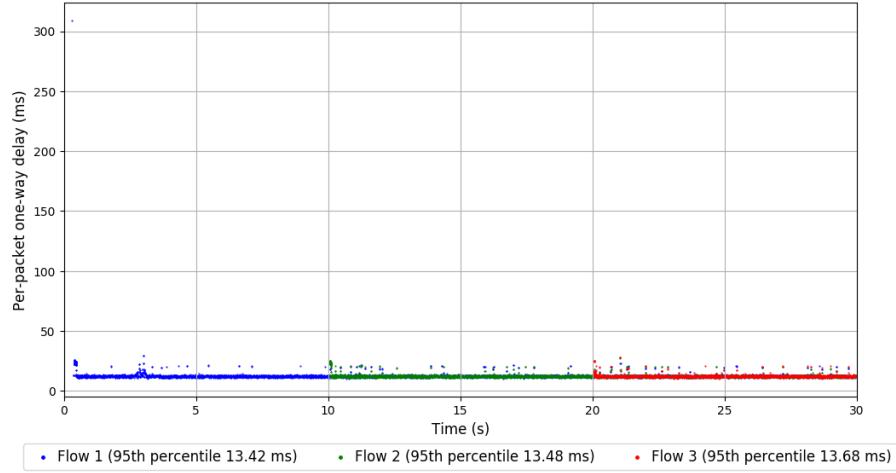
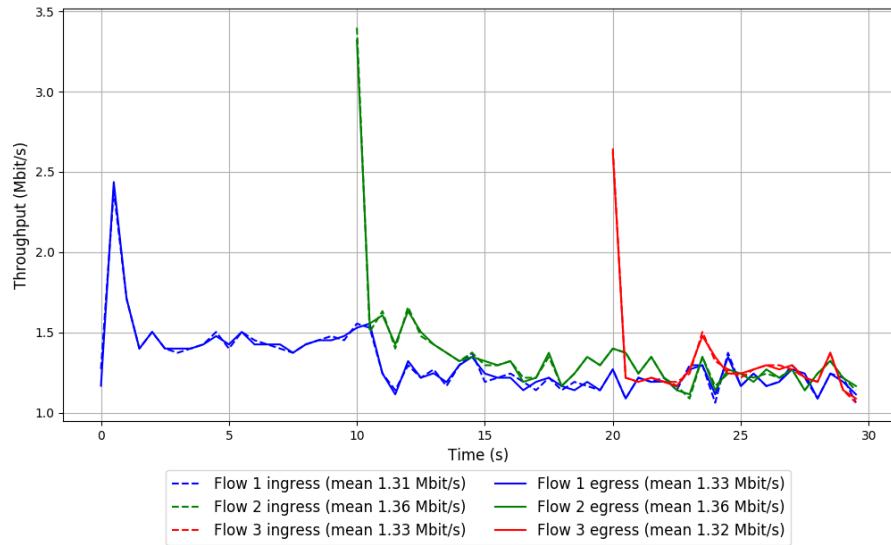


Run 1: Statistics of Copa

```
Start at: 2018-02-13 12:21:59
End at: 2018-02-13 12:22:29
Local clock offset: -0.191 ms
Remote clock offset: -5.279 ms

# Below is generated by plot.py at 2018-02-13 13:26:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.68 Mbit/s
95th percentile per-packet one-way delay: 13.479 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 13.423 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 13.482 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 13.680 ms
Loss rate: 0.00%
```

Run 1: Report of Copa — Data Link

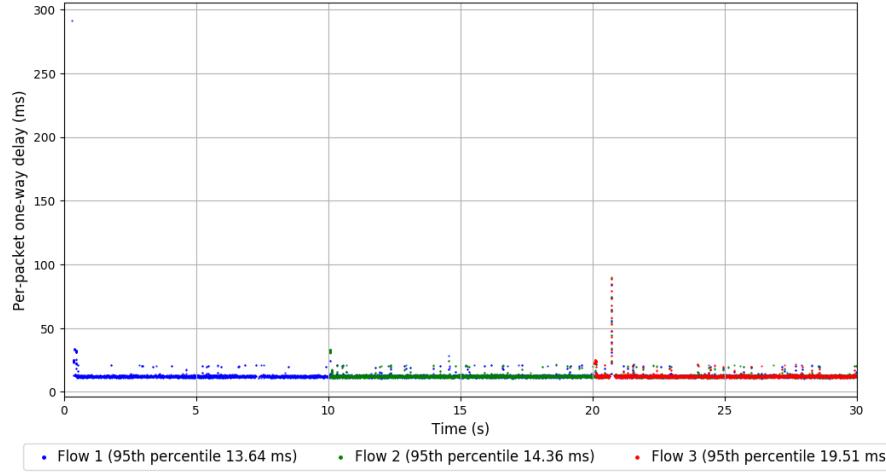
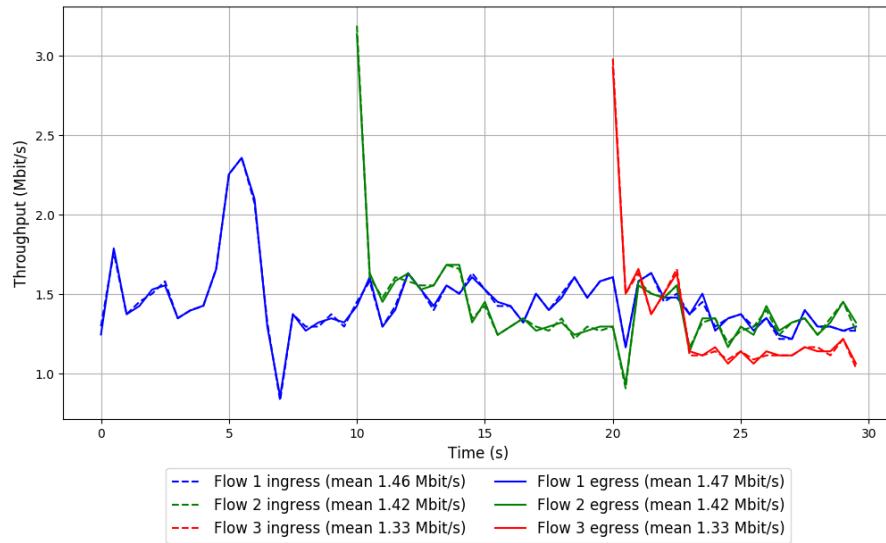


Run 2: Statistics of Copa

```
Start at: 2018-02-13 12:45:58
End at: 2018-02-13 12:46:28
Local clock offset: -0.083 ms
Remote clock offset: -6.162 ms

# Below is generated by plot.py at 2018-02-13 13:26:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.87 Mbit/s
95th percentile per-packet one-way delay: 14.166 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 13.643 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 14.359 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 19.509 ms
Loss rate: 0.00%
```

Run 2: Report of Copa — Data Link

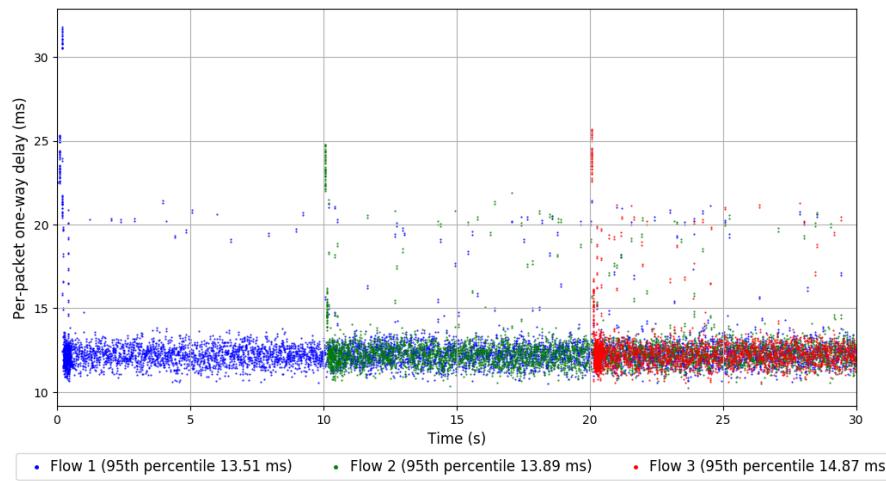
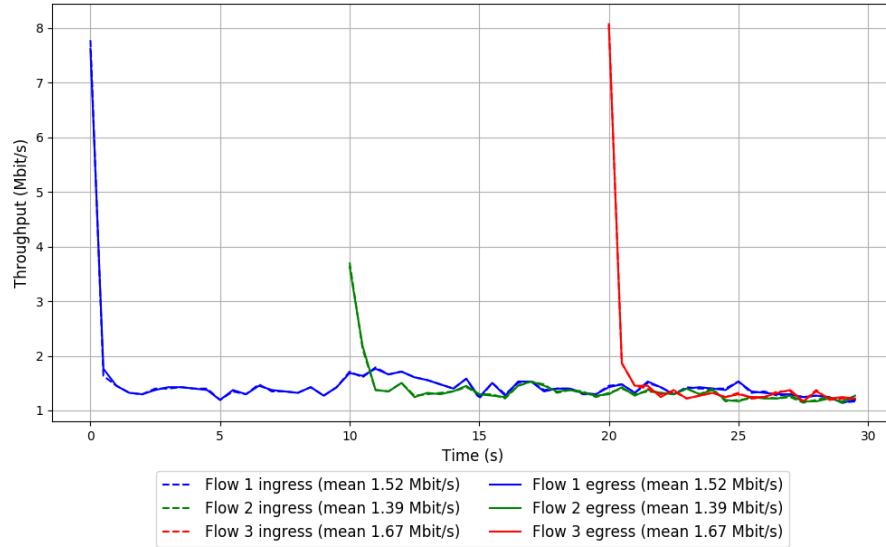


Run 3: Statistics of Copa

```
Start at: 2018-02-13 13:09:58
End at: 2018-02-13 13:10:28
Local clock offset: -0.116 ms
Remote clock offset: -6.795 ms

# Below is generated by plot.py at 2018-02-13 13:26:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.00 Mbit/s
95th percentile per-packet one-way delay: 13.704 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 13.509 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 13.895 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 14.872 ms
Loss rate: 0.00%
```

Run 3: Report of Copa — Data Link

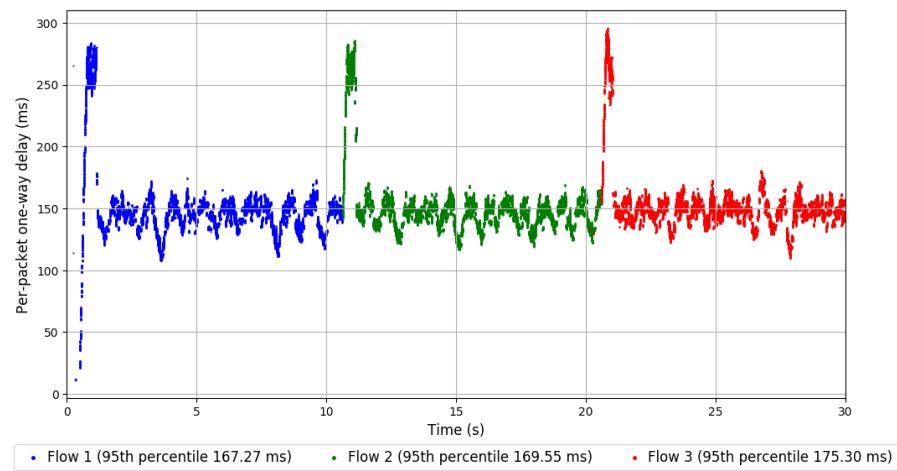
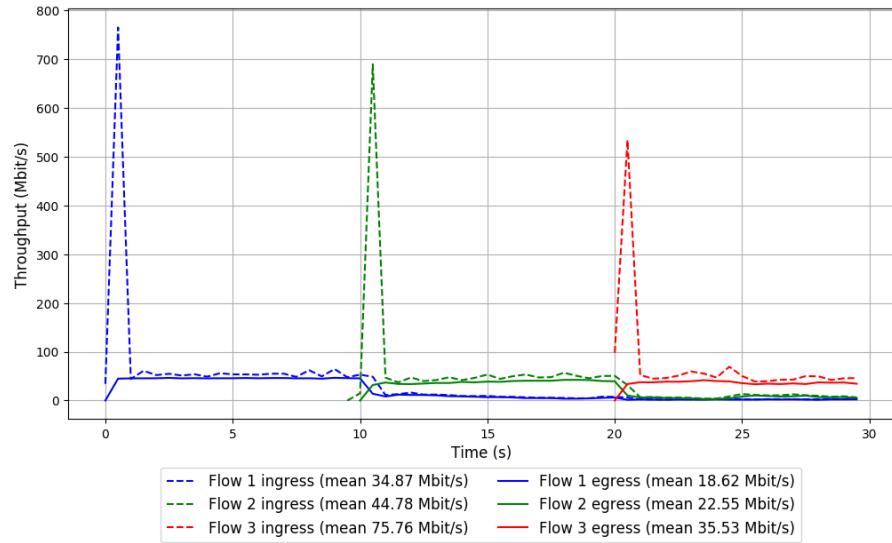


```
Run 1: Statistics of FillP

Start at: 2018-02-13 12:11:19
End at: 2018-02-13 12:11:49
Local clock offset: -0.321 ms
Remote clock offset: -5.287 ms

# Below is generated by plot.py at 2018-02-13 13:27:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.42 Mbit/s
95th percentile per-packet one-way delay: 170.921 ms
Loss rate: 49.85%
-- Flow 1:
Average throughput: 18.62 Mbit/s
95th percentile per-packet one-way delay: 167.270 ms
Loss rate: 47.03%
-- Flow 2:
Average throughput: 22.55 Mbit/s
95th percentile per-packet one-way delay: 169.551 ms
Loss rate: 49.97%
-- Flow 3:
Average throughput: 35.53 Mbit/s
95th percentile per-packet one-way delay: 175.300 ms
Loss rate: 53.61%
```

Run 1: Report of FillP — Data Link

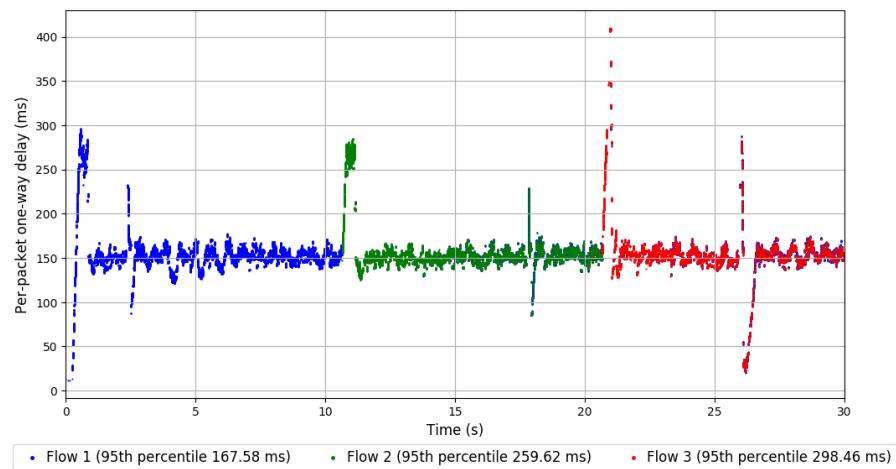
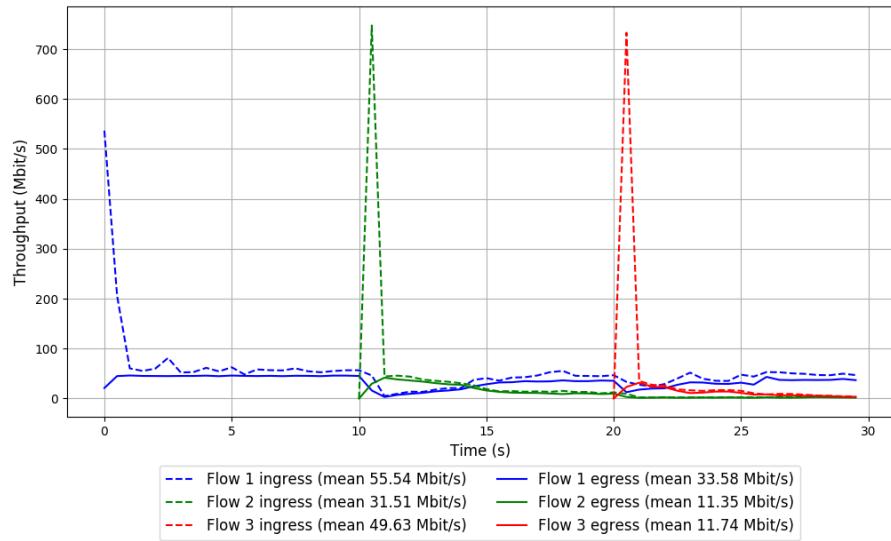


Run 2: Statistics of FillP

```
Start at: 2018-02-13 12:35:18
End at: 2018-02-13 12:35:48
Local clock offset: -0.136 ms
Remote clock offset: -5.287 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.91 Mbit/s
95th percentile per-packet one-way delay: 187.884 ms
Loss rate: 51.67%
-- Flow 1:
Average throughput: 33.58 Mbit/s
95th percentile per-packet one-way delay: 167.578 ms
Loss rate: 39.53%
-- Flow 2:
Average throughput: 11.35 Mbit/s
95th percentile per-packet one-way delay: 259.622 ms
Loss rate: 64.24%
-- Flow 3:
Average throughput: 11.74 Mbit/s
95th percentile per-packet one-way delay: 298.461 ms
Loss rate: 76.60%
```

Run 2: Report of FillP — Data Link

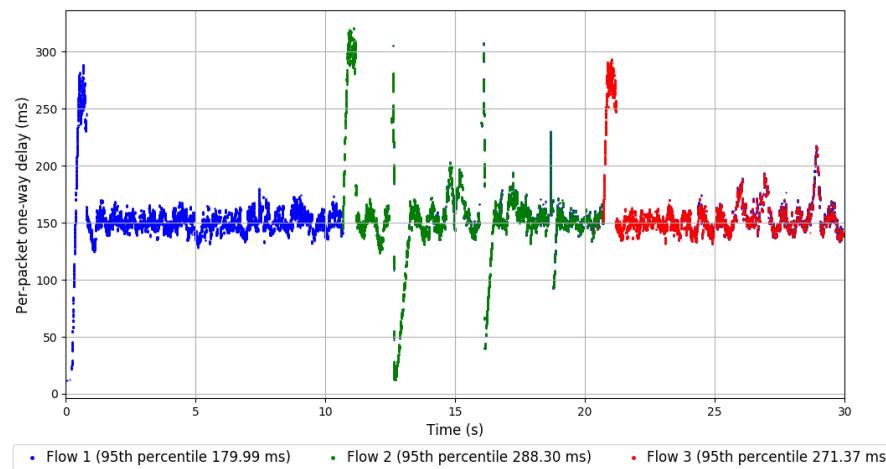
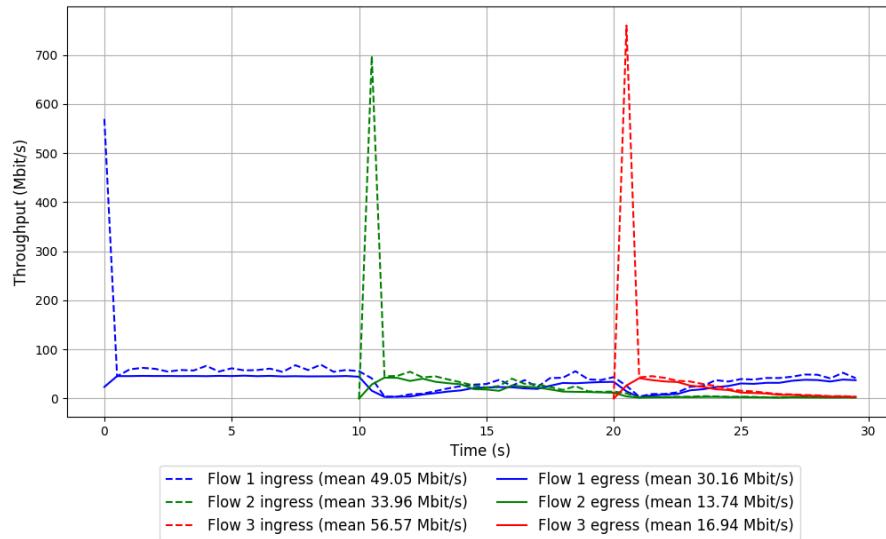


Run 3: Statistics of FillP

```
Start at: 2018-02-13 12:59:18
End at: 2018-02-13 12:59:48
Local clock offset: -0.143 ms
Remote clock offset: -6.654 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.78 Mbit/s
95th percentile per-packet one-way delay: 215.062 ms
Loss rate: 50.46%
-- Flow 1:
Average throughput: 30.16 Mbit/s
95th percentile per-packet one-way delay: 179.986 ms
Loss rate: 38.51%
-- Flow 2:
Average throughput: 13.74 Mbit/s
95th percentile per-packet one-way delay: 288.295 ms
Loss rate: 59.81%
-- Flow 3:
Average throughput: 16.94 Mbit/s
95th percentile per-packet one-way delay: 271.366 ms
Loss rate: 70.45%
```

Run 3: Report of FillP — Data Link

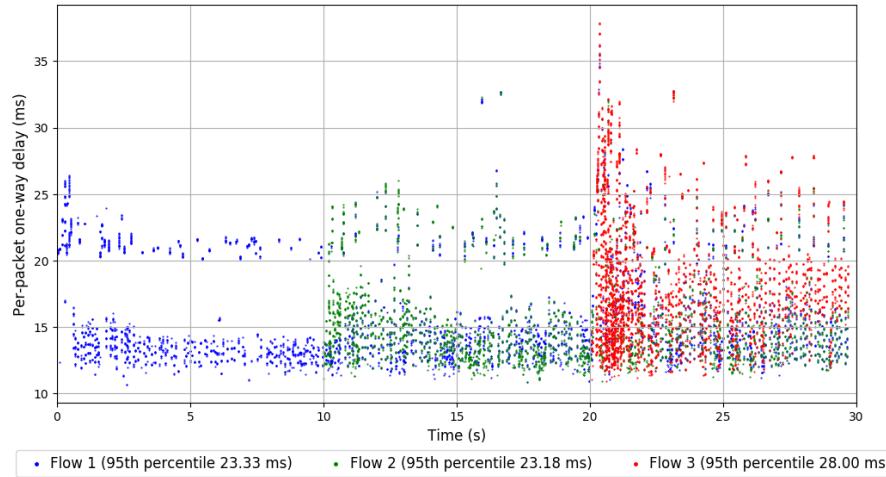
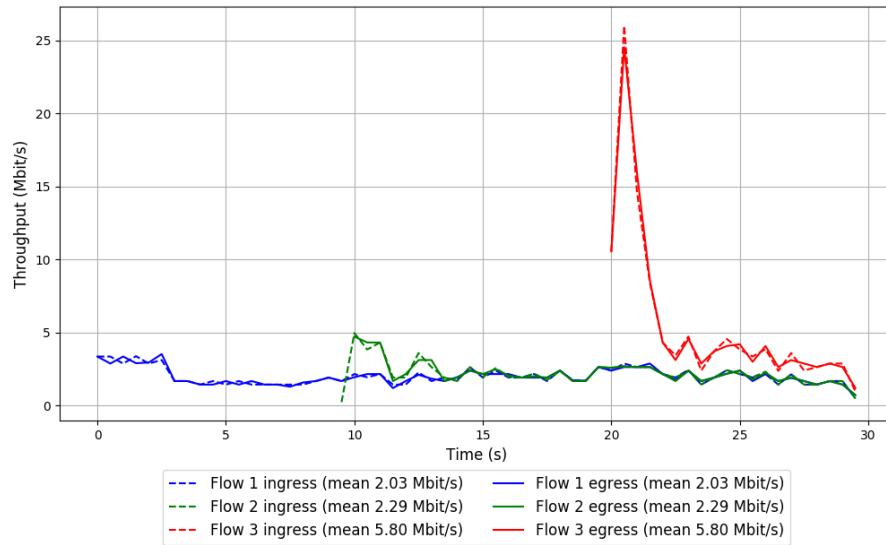


Run 1: Statistics of Indigo-1-32

```
Start at: 2018-02-13 12:16:39
End at: 2018-02-13 12:17:10
Local clock offset: -0.211 ms
Remote clock offset: -5.309 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.43 Mbit/s
95th percentile per-packet one-way delay: 25.336 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 23.328 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 23.176 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.80 Mbit/s
95th percentile per-packet one-way delay: 27.995 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-1-32 — Data Link

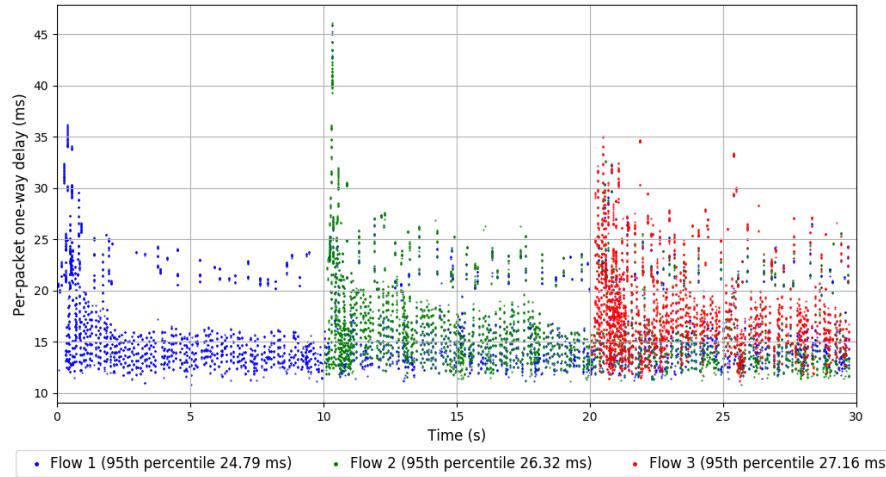
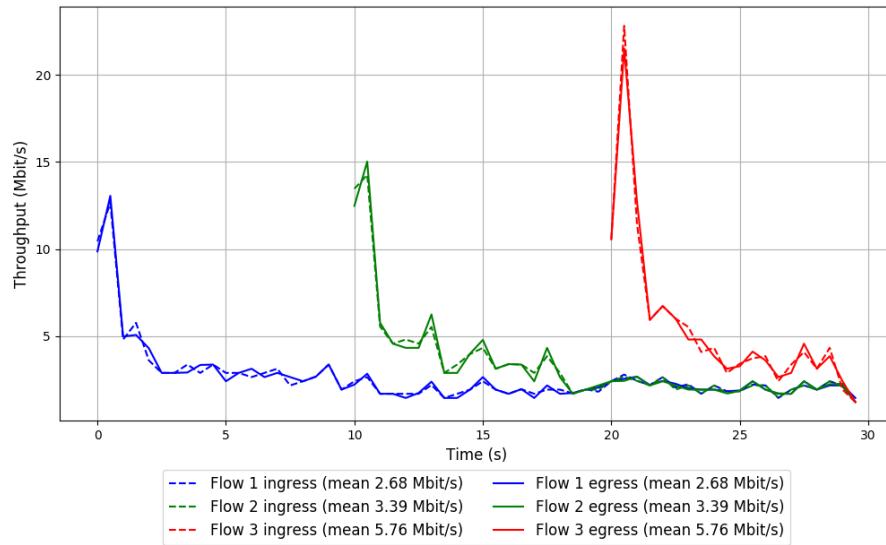


Run 2: Statistics of Indigo-1-32

```
Start at: 2018-02-13 12:40:39
End at: 2018-02-13 12:41:09
Local clock offset: -0.126 ms
Remote clock offset: -5.91 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.81 Mbit/s
95th percentile per-packet one-way delay: 26.392 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.68 Mbit/s
95th percentile per-packet one-way delay: 24.787 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.39 Mbit/s
95th percentile per-packet one-way delay: 26.315 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.76 Mbit/s
95th percentile per-packet one-way delay: 27.163 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo-1-32 — Data Link

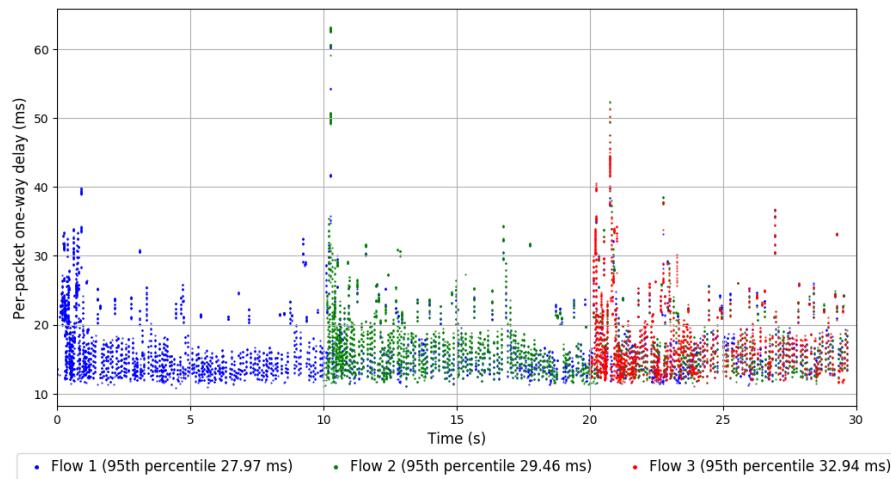
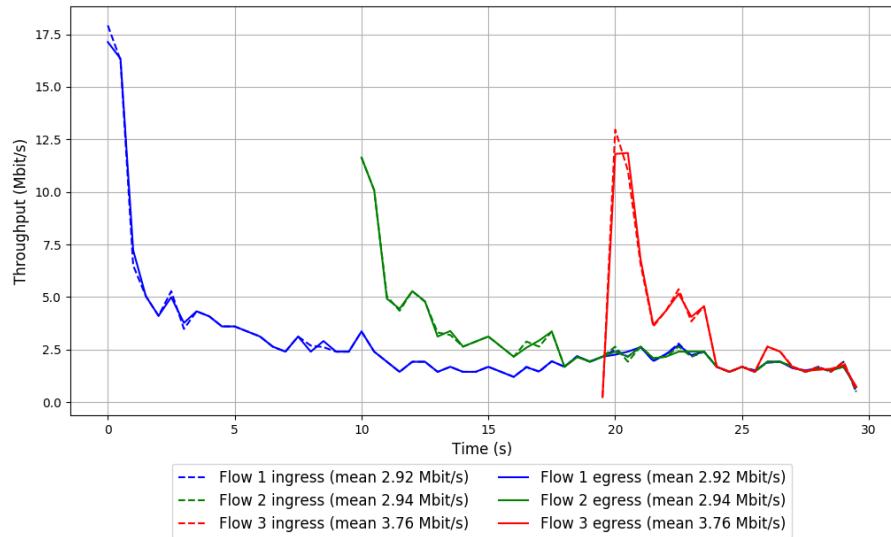


Run 3: Statistics of Indigo-1-32

```
Start at: 2018-02-13 13:04:39
End at: 2018-02-13 13:05:09
Local clock offset: -0.142 ms
Remote clock offset: -6.803 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.09 Mbit/s
95th percentile per-packet one-way delay: 29.655 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.92 Mbit/s
95th percentile per-packet one-way delay: 27.969 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 29.461 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 32.941 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-1-32 — Data Link

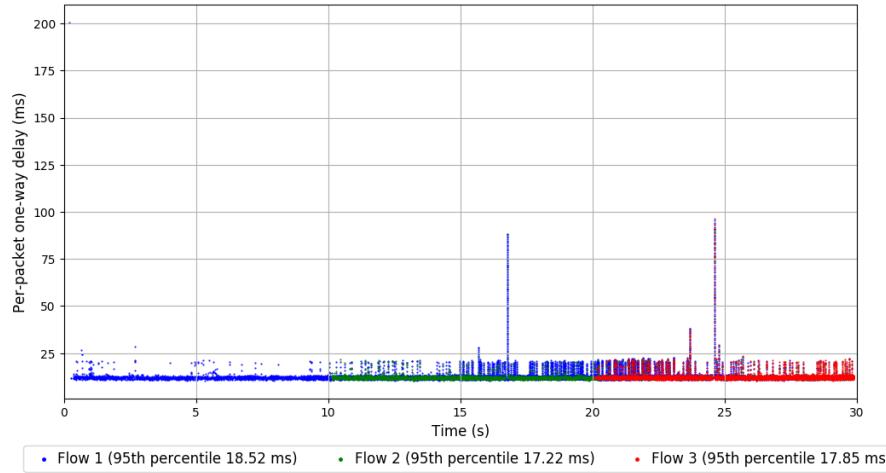
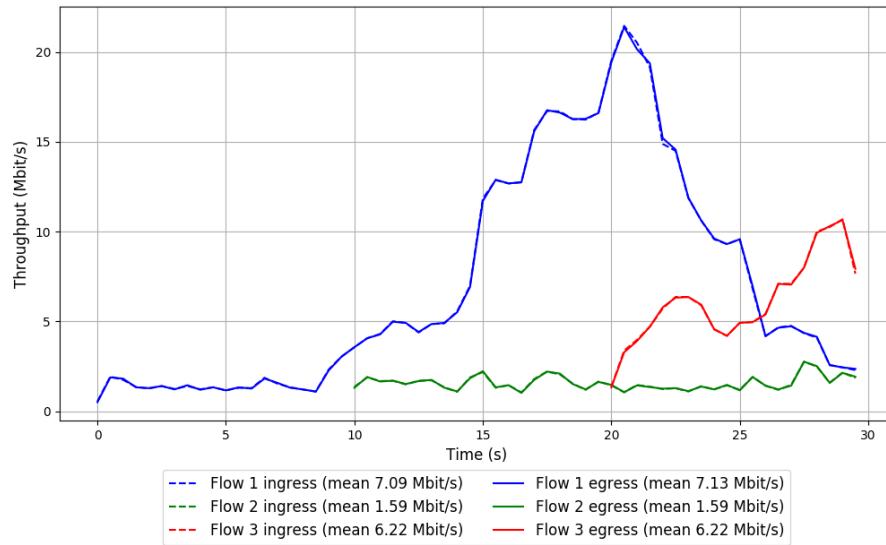


Run 1: Statistics of Vivace-latency

```
Start at: 2018-02-13 12:20:39
End at: 2018-02-13 12:21:09
Local clock offset: -0.174 ms
Remote clock offset: -5.3 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.26 Mbit/s
95th percentile per-packet one-way delay: 18.275 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.13 Mbit/s
95th percentile per-packet one-way delay: 18.523 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 17.222 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.22 Mbit/s
95th percentile per-packet one-way delay: 17.848 ms
Loss rate: 0.00%
```

Run 1: Report of Vivace-latency — Data Link

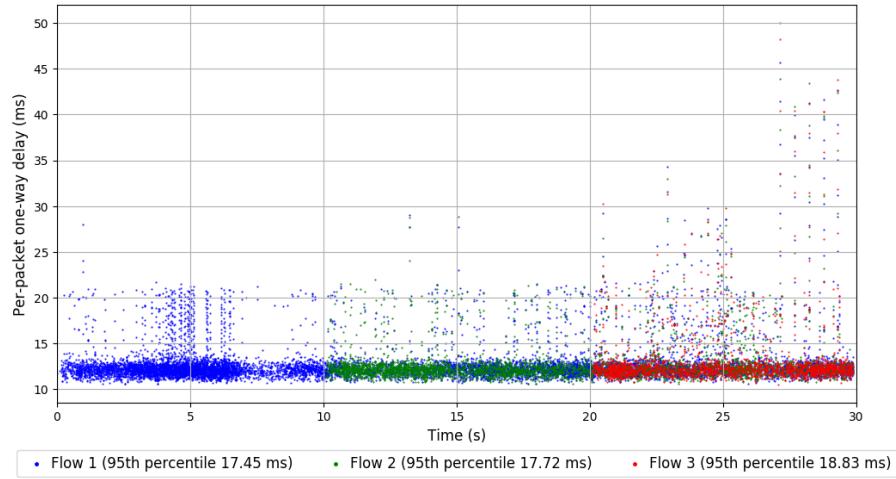
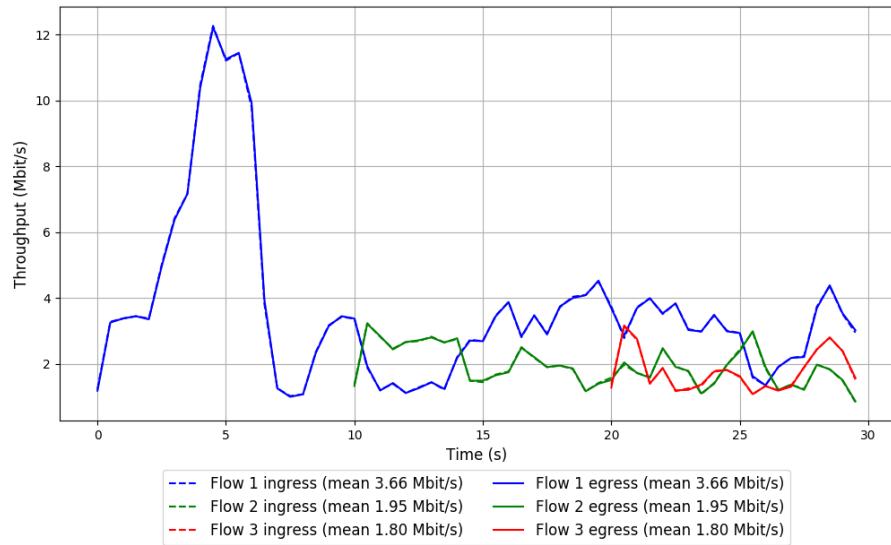


Run 2: Statistics of Vivace-latency

```
Start at: 2018-02-13 12:44:38
End at: 2018-02-13 12:45:08
Local clock offset: -0.094 ms
Remote clock offset: -6.12 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.55 Mbit/s
95th percentile per-packet one-way delay: 17.692 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 17.445 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 17.718 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 18.831 ms
Loss rate: 0.00%
```

Run 2: Report of Vivace-latency — Data Link

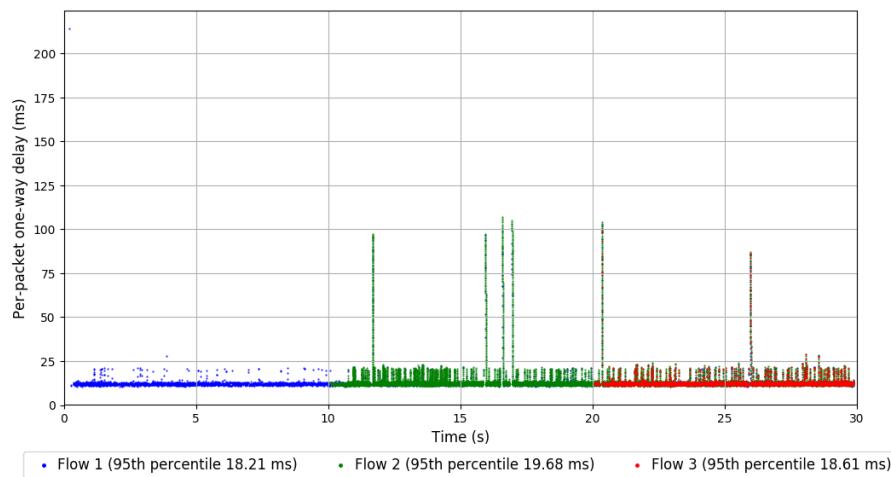
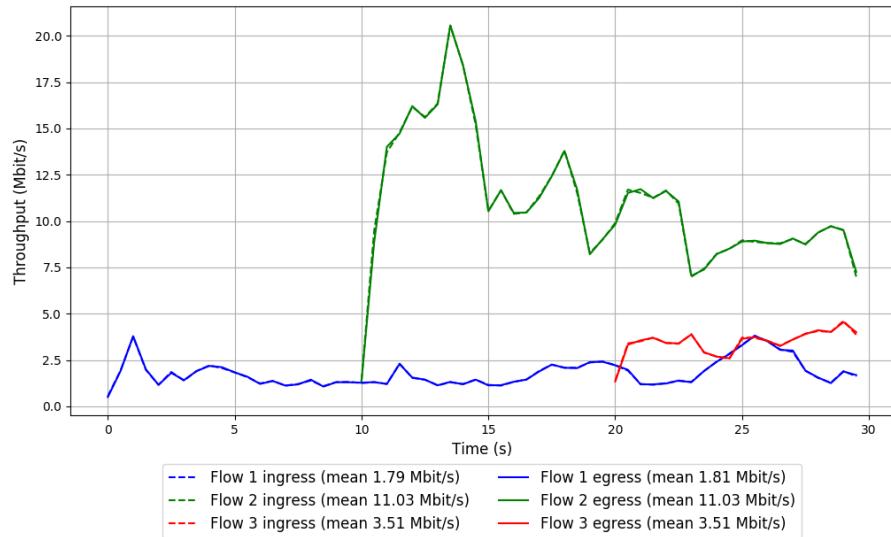


Run 3: Statistics of Vivace-latency

```
Start at: 2018-02-13 13:08:38
End at: 2018-02-13 13:09:08
Local clock offset: -0.127 ms
Remote clock offset: -6.879 ms

# Below is generated by plot.py at 2018-02-13 13:27:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.36 Mbit/s
95th percentile per-packet one-way delay: 19.362 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 18.212 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.03 Mbit/s
95th percentile per-packet one-way delay: 19.676 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 18.613 ms
Loss rate: 0.00%
```

Run 3: Report of Vivace-latency — Data Link

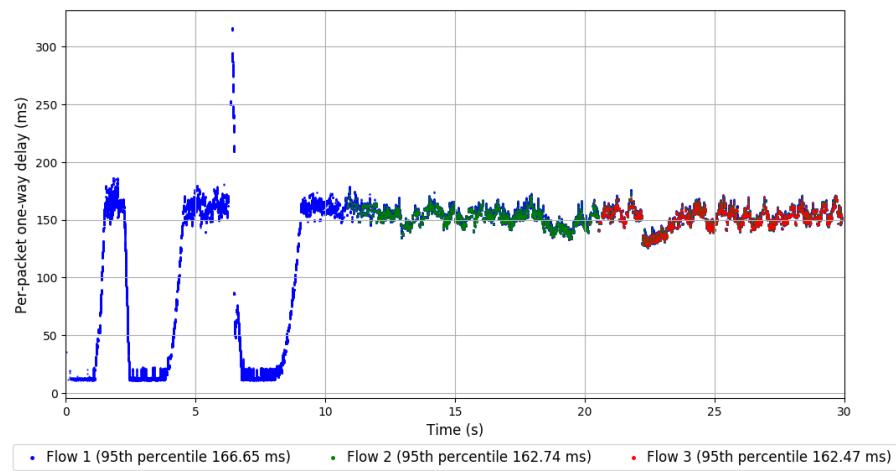
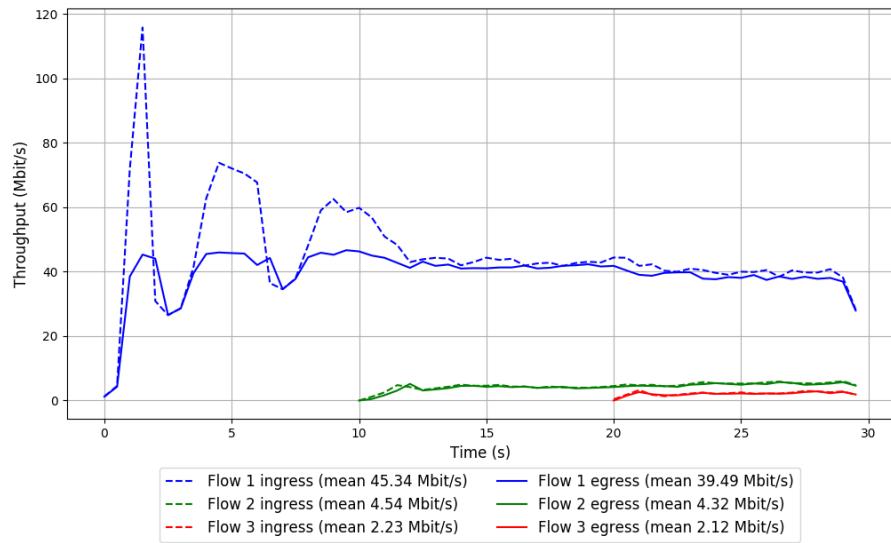


```
Run 1: Statistics of Vivace-loss
```

```
Start at: 2018-02-13 12:28:37
End at: 2018-02-13 12:29:07
Local clock offset: -0.231 ms
Remote clock offset: -5.213 ms

# Below is generated by plot.py at 2018-02-13 13:27:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.04 Mbit/s
95th percentile per-packet one-way delay: 166.417 ms
Loss rate: 12.39%
-- Flow 1:
Average throughput: 39.49 Mbit/s
95th percentile per-packet one-way delay: 166.654 ms
Loss rate: 12.94%
-- Flow 2:
Average throughput: 4.32 Mbit/s
95th percentile per-packet one-way delay: 162.744 ms
Loss rate: 5.63%
-- Flow 3:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 162.469 ms
Loss rate: 6.22%
```

Run 1: Report of Vivace-loss — Data Link

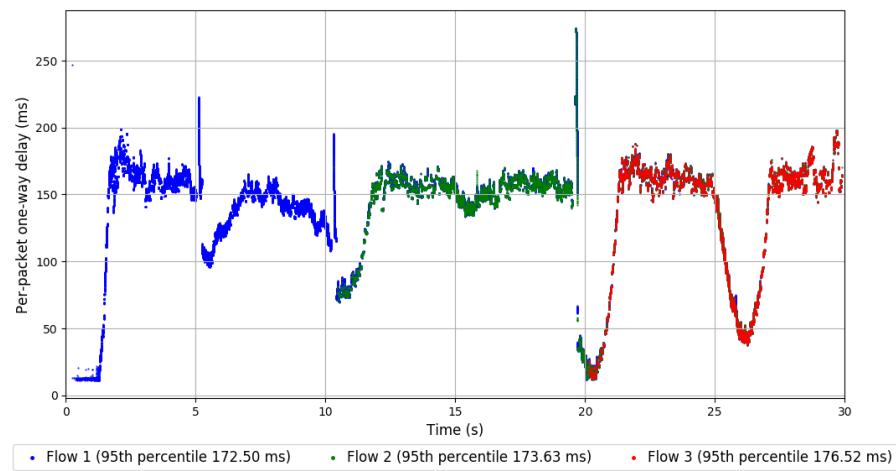
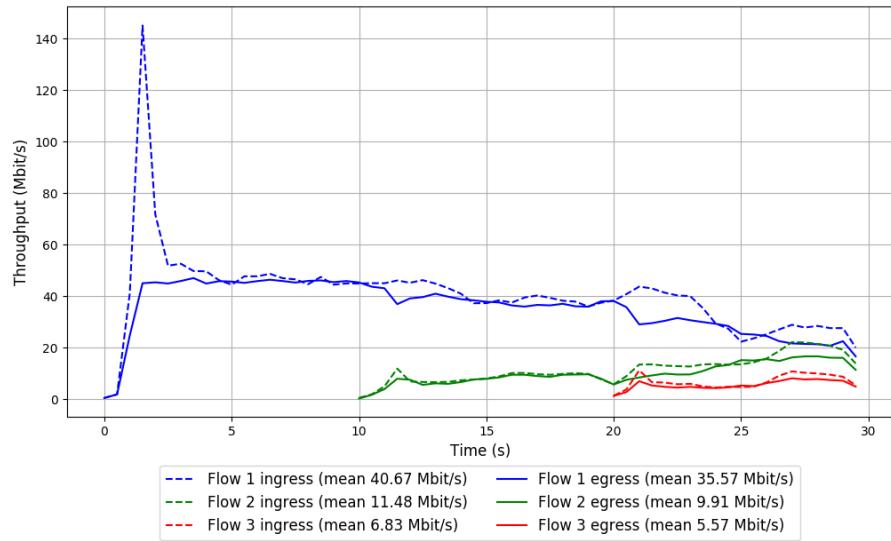


Run 2: Statistics of Vivace-loss

```
Start at: 2018-02-13 12:52:36
End at: 2018-02-13 12:53:06
Local clock offset: -0.146 ms
Remote clock offset: -6.399 ms

# Below is generated by plot.py at 2018-02-13 13:27:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.02 Mbit/s
95th percentile per-packet one-way delay: 172.984 ms
Loss rate: 13.58%
-- Flow 1:
Average throughput: 35.57 Mbit/s
95th percentile per-packet one-way delay: 172.502 ms
Loss rate: 13.22%
-- Flow 2:
Average throughput: 9.91 Mbit/s
95th percentile per-packet one-way delay: 173.634 ms
Loss rate: 14.05%
-- Flow 3:
Average throughput: 5.57 Mbit/s
95th percentile per-packet one-way delay: 176.519 ms
Loss rate: 18.50%
```

Run 2: Report of Vivace-loss — Data Link

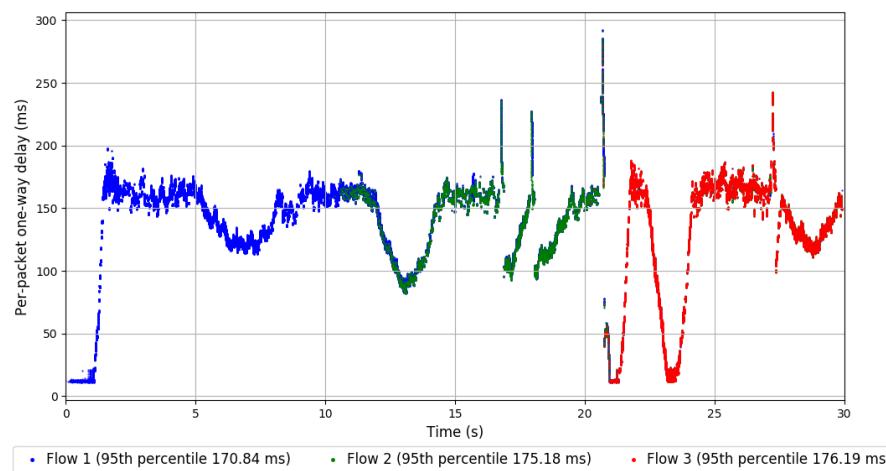
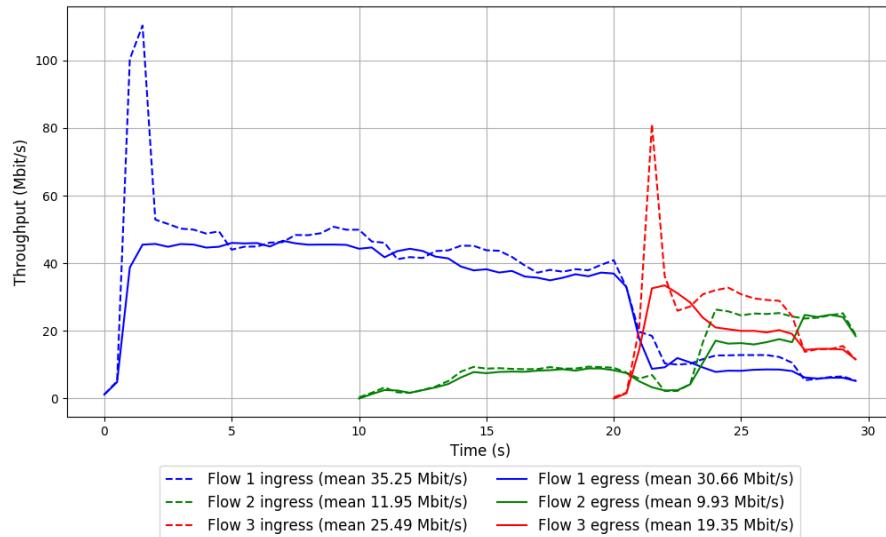


Run 3: Statistics of Vivace-loss

```
Start at: 2018-02-13 13:16:36
End at: 2018-02-13 13:17:06
Local clock offset: -0.031 ms
Remote clock offset: -6.707 ms

# Below is generated by plot.py at 2018-02-13 13:27:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.50 Mbit/s
95th percentile per-packet one-way delay: 172.677 ms
Loss rate: 15.64%
-- Flow 1:
Average throughput: 30.66 Mbit/s
95th percentile per-packet one-way delay: 170.840 ms
Loss rate: 12.95%
-- Flow 2:
Average throughput: 9.93 Mbit/s
95th percentile per-packet one-way delay: 175.180 ms
Loss rate: 17.56%
-- Flow 3:
Average throughput: 19.35 Mbit/s
95th percentile per-packet one-way delay: 176.193 ms
Loss rate: 25.15%
```

Run 3: Report of Vivace-loss — Data Link

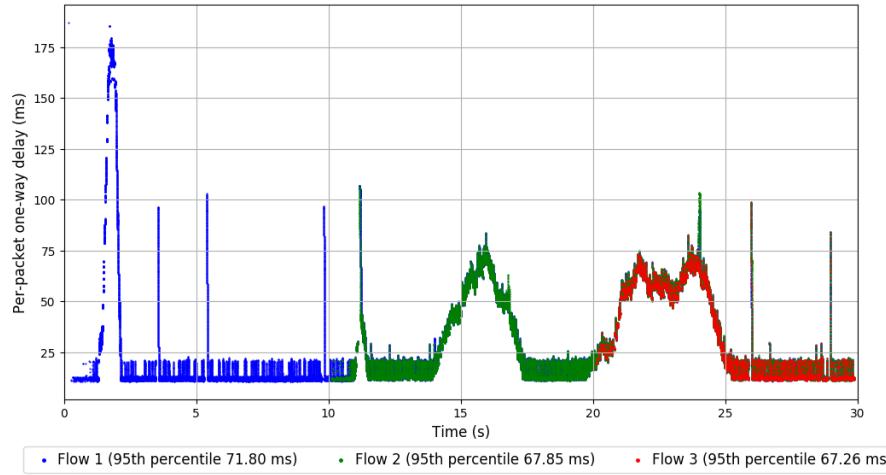
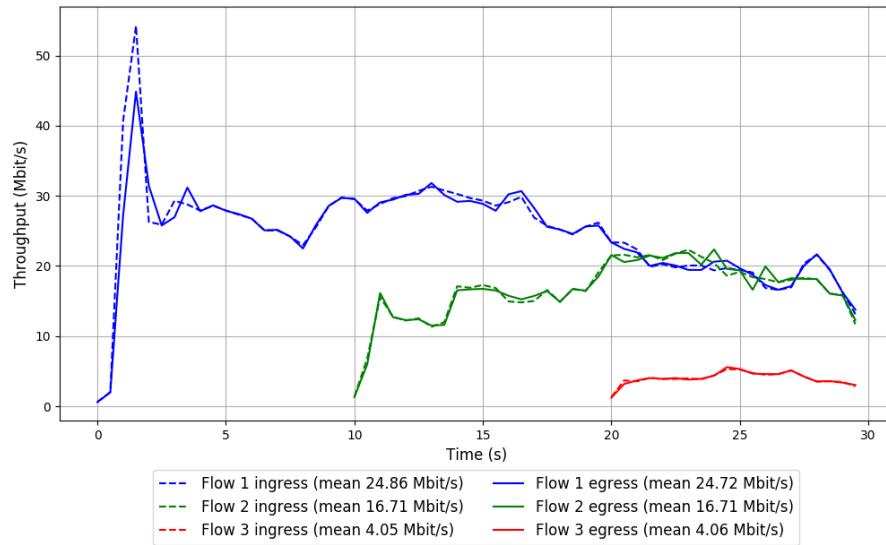


Run 1: Statistics of Vivace-LTE

```
Start at: 2018-02-13 12:17:59
End at: 2018-02-13 12:18:29
Local clock offset: -0.202 ms
Remote clock offset: -5.306 ms

# Below is generated by plot.py at 2018-02-13 13:27:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 37.24 Mbit/s
95th percentile per-packet one-way delay: 69.507 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 24.72 Mbit/s
95th percentile per-packet one-way delay: 71.804 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 16.71 Mbit/s
95th percentile per-packet one-way delay: 67.850 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 67.264 ms
Loss rate: 0.00%
```

Run 1: Report of Vivace-LTE — Data Link

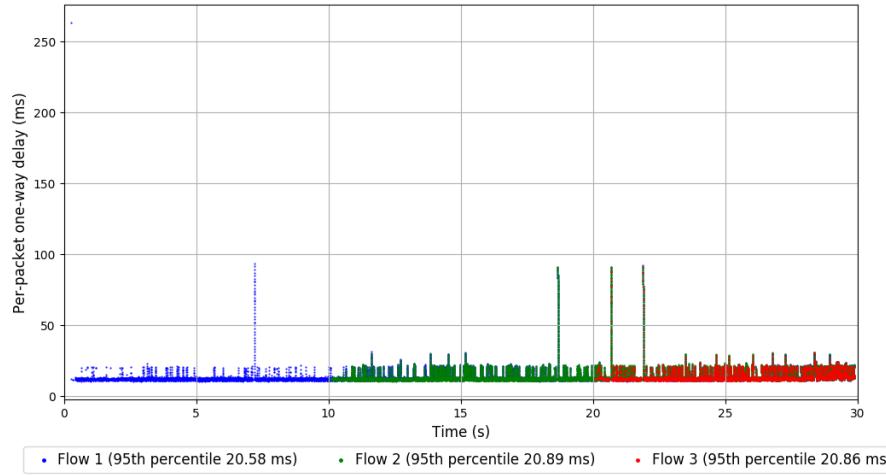
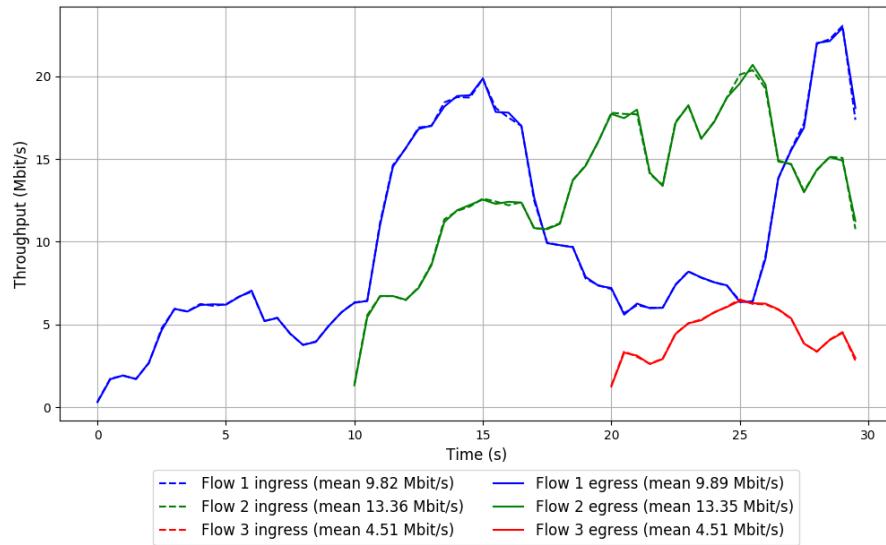


Run 2: Statistics of Vivace-LTE

```
Start at: 2018-02-13 12:41:59
End at: 2018-02-13 12:42:29
Local clock offset: -0.115 ms
Remote clock offset: -5.937 ms

# Below is generated by plot.py at 2018-02-13 13:27:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.35 Mbit/s
95th percentile per-packet one-way delay: 20.735 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 9.89 Mbit/s
95th percentile per-packet one-way delay: 20.580 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 13.35 Mbit/s
95th percentile per-packet one-way delay: 20.890 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 4.51 Mbit/s
95th percentile per-packet one-way delay: 20.864 ms
Loss rate: 0.00%
```

Run 2: Report of Vivace-LTE — Data Link



Run 3: Statistics of Vivace-LTE

```
Start at: 2018-02-13 13:05:58
End at: 2018-02-13 13:06:28
Local clock offset: -0.143 ms
Remote clock offset: -6.806 ms

# Below is generated by plot.py at 2018-02-13 13:27:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 27.18 Mbit/s
95th percentile per-packet one-way delay: 166.899 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 21.76 Mbit/s
95th percentile per-packet one-way delay: 167.824 ms
Loss rate: 1.34%
-- Flow 2:
Average throughput: 5.06 Mbit/s
95th percentile per-packet one-way delay: 170.494 ms
Loss rate: 1.63%
-- Flow 3:
Average throughput: 6.11 Mbit/s
95th percentile per-packet one-way delay: 50.604 ms
Loss rate: 0.02%
```

Run 3: Report of Vivace-LTE — Data Link

