

## Pantheon Report

Generated at 2018-10-26 11:32:38 (UTC).

Data path: Brazil on **p4p1** (*remote*) → AWS Brazil 1 on **ens5** (*local*).

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against **gps.ntp.br** and have been applied to correct the timestamps in logs.

### System info:

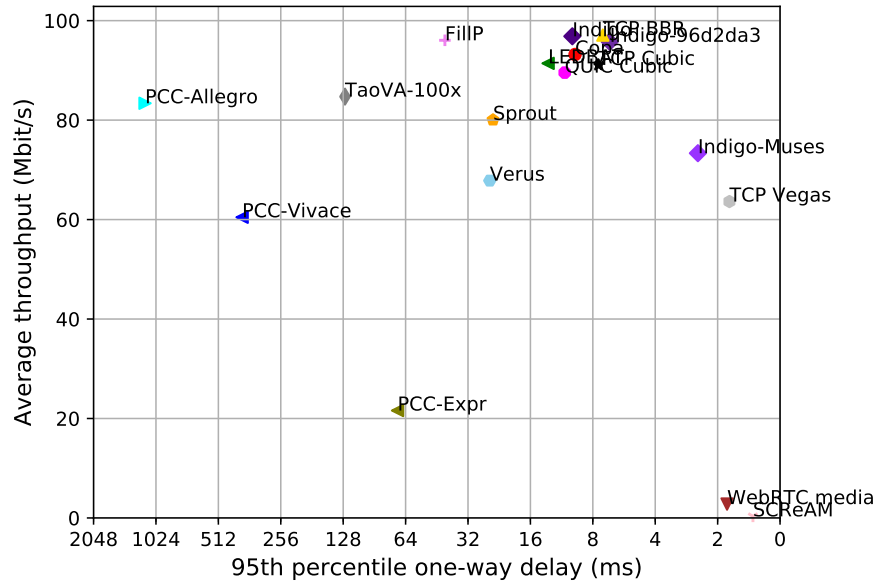
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

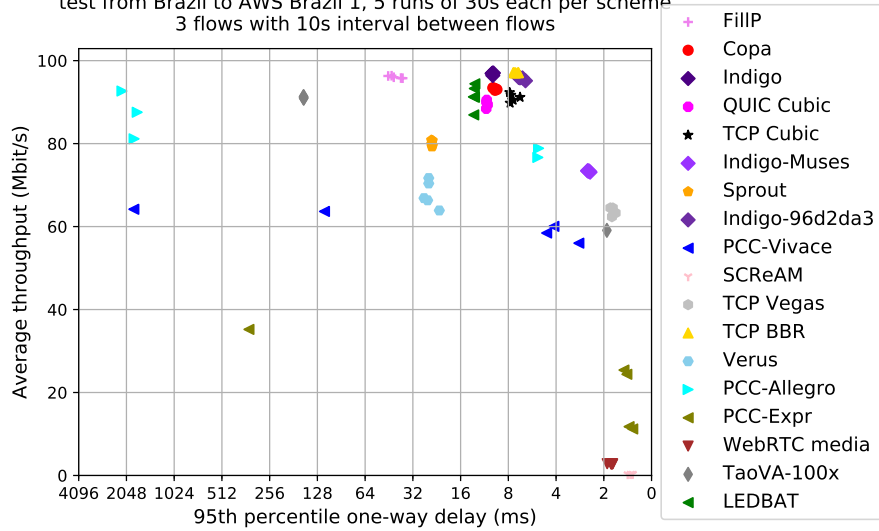
```
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third\_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4  
third\_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from Brazil to AWS Brazil 1, 5 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from Brazil to AWS Brazil 1, 5 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	5	59.10	40.70	32.76	6.70	7.16	7.69	0.42	0.47	0.54
Copa	5	56.27	40.16	30.62	8.97	10.21	11.09	0.44	0.45	0.55
TCP Cubic	5	53.52	40.23	32.45	6.98	7.60	8.49	0.43	0.46	0.50
FillP	5	58.89	40.00	31.81	34.61	44.98	78.15	1.86	1.88	1.32
Indigo	5	59.35	40.45	32.21	10.01	10.11	8.41	1.01	2.10	0.56
Indigo-96d2da3	5	56.51	43.00	32.05	5.71	7.16	6.57	0.43	0.44	0.44
LEDBAT	5	55.87	37.60	32.10	12.72	13.28	13.50	0.51	0.63	0.73
Indigo-Muses	5	39.34	35.51	31.34	2.36	2.50	2.76	0.41	0.42	0.40
PCC-Allegro	5	57.14	30.29	18.57	1197.96	239.16	26.06	7.38	3.05	0.53
PCC-Expr	5	15.52	6.45	5.44	70.55	0.92	0.93	0.57	0.43	0.36
QUIC Cubic	5	52.73	39.94	31.02	10.30	11.07	11.86	0.48	0.59	0.76
SCReAM	5	0.14	0.16	0.21	0.86	0.86	0.88	0.44	0.34	0.44
Sprout	5	43.09	39.65	32.04	22.71	24.16	25.85	0.95	1.44	2.44
TaoVA-100x	5	45.36	42.47	33.31	124.89	125.66	125.65	0.82	1.29	2.51
TCP Vegas	5	32.94	31.57	29.08	1.57	1.61	1.73	0.42	0.42	0.45
Verus	5	36.57	31.92	30.32	21.86	24.12	75.95	0.45	0.52	0.77
PCC-Vivace	5	30.38	32.79	25.06	12.12	46.51	432.78	0.44	0.53	4.76
WebRTC media	5	1.56	0.83	0.41	1.63	1.75	1.84	0.39	0.26	0.52



Run 1: Statistics of TCP BBR

Start at: 2018-10-26 09:54:00

End at: 2018-10-26 09:54:30

Local clock offset: -5.941 ms

Remote clock offset: -0.33 ms

# Below is generated by plot.py at 2018-10-26 11:22:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 97.08 Mbit/s

95th percentile per-packet one-way delay: 7.295 ms

Loss rate: 0.47%

-- Flow 1:

Average throughput: 59.06 Mbit/s

95th percentile per-packet one-way delay: 6.532 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 40.71 Mbit/s

95th percentile per-packet one-way delay: 7.570 ms

Loss rate: 0.53%

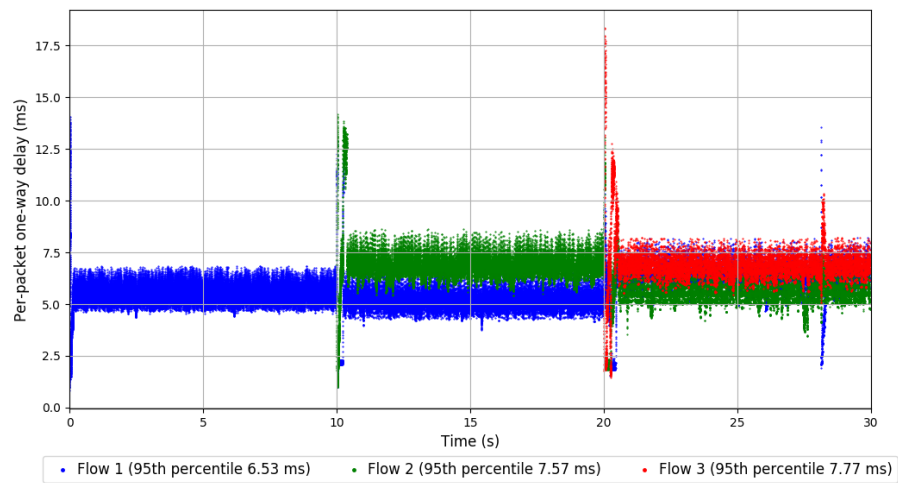
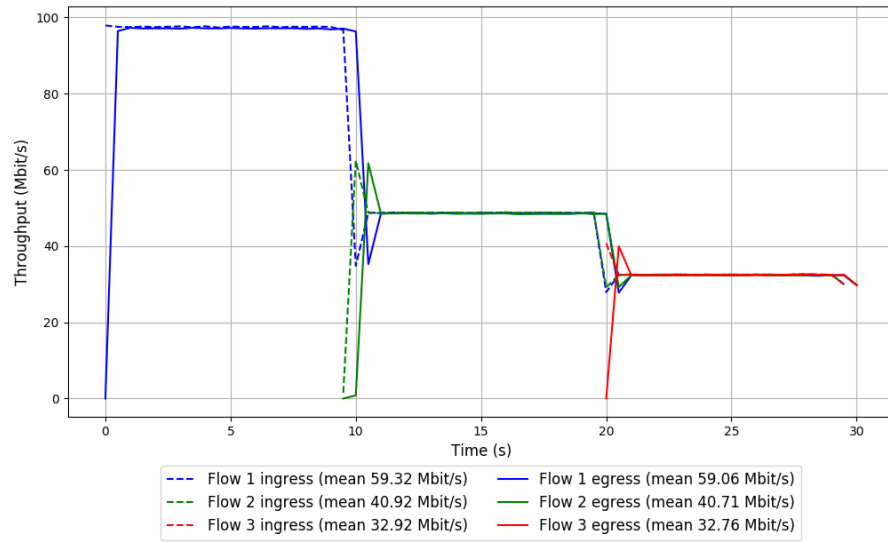
-- Flow 3:

Average throughput: 32.76 Mbit/s

95th percentile per-packet one-way delay: 7.769 ms

Loss rate: 0.49%

## Run 1: Report of TCP BBR — Data Link

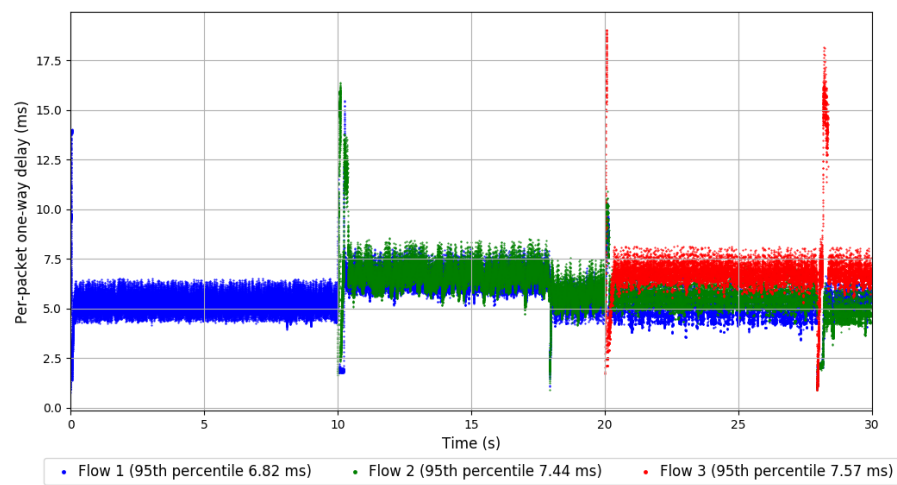
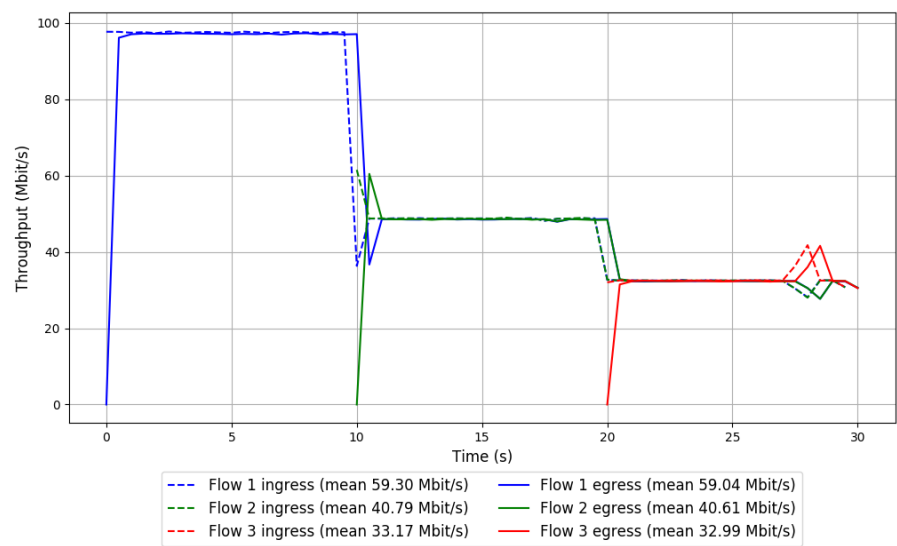


Run 2: Statistics of TCP BBR

Start at: 2018-10-26 10:14:45  
End at: 2018-10-26 10:15:15  
Local clock offset: -6.036 ms  
Remote clock offset: -0.013 ms

# Below is generated by plot.py at 2018-10-26 11:22:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 97.06 Mbit/s  
95th percentile per-packet one-way delay: 7.198 ms  
Loss rate: 0.47%  
-- Flow 1:  
Average throughput: 59.04 Mbit/s  
95th percentile per-packet one-way delay: 6.815 ms  
Loss rate: 0.45%  
-- Flow 2:  
Average throughput: 40.61 Mbit/s  
95th percentile per-packet one-way delay: 7.442 ms  
Loss rate: 0.47%  
-- Flow 3:  
Average throughput: 32.99 Mbit/s  
95th percentile per-packet one-way delay: 7.566 ms  
Loss rate: 0.57%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-10-26 10:35:24

End at: 2018-10-26 10:35:54

Local clock offset: -6.015 ms

Remote clock offset: 0.133 ms

# Below is generated by plot.py at 2018-10-26 11:22:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 97.13 Mbit/s

95th percentile per-packet one-way delay: 7.439 ms

Loss rate: 0.44%

-- Flow 1:

Average throughput: 59.15 Mbit/s

95th percentile per-packet one-way delay: 7.261 ms

Loss rate: 0.38%

-- Flow 2:

Average throughput: 40.70 Mbit/s

95th percentile per-packet one-way delay: 7.676 ms

Loss rate: 0.52%

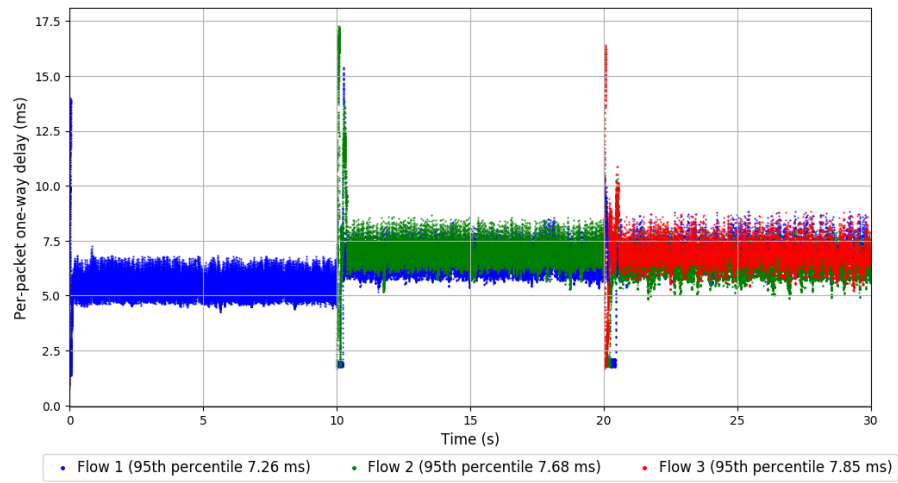
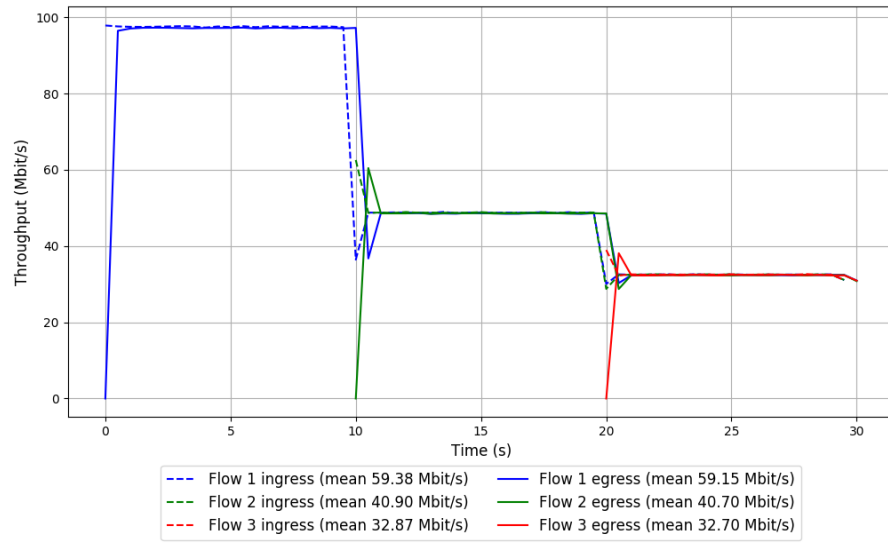
-- Flow 3:

Average throughput: 32.70 Mbit/s

95th percentile per-packet one-way delay: 7.853 ms

Loss rate: 0.54%

### Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-10-26 10:56:02

End at: 2018-10-26 10:56:32

Local clock offset: -5.869 ms

Remote clock offset: 0.317 ms

# Below is generated by plot.py at 2018-10-26 11:22:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 97.10 Mbit/s

95th percentile per-packet one-way delay: 6.908 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 59.11 Mbit/s

95th percentile per-packet one-way delay: 6.466 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 40.72 Mbit/s

95th percentile per-packet one-way delay: 6.108 ms

Loss rate: 0.43%

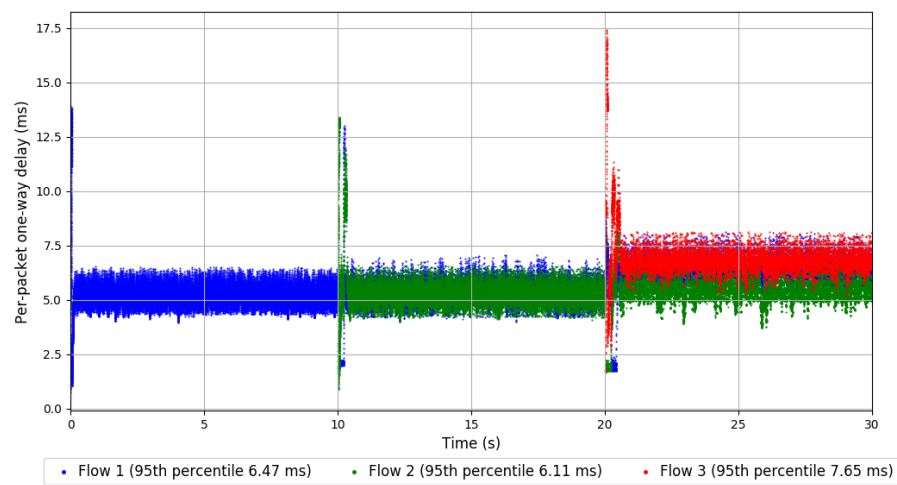
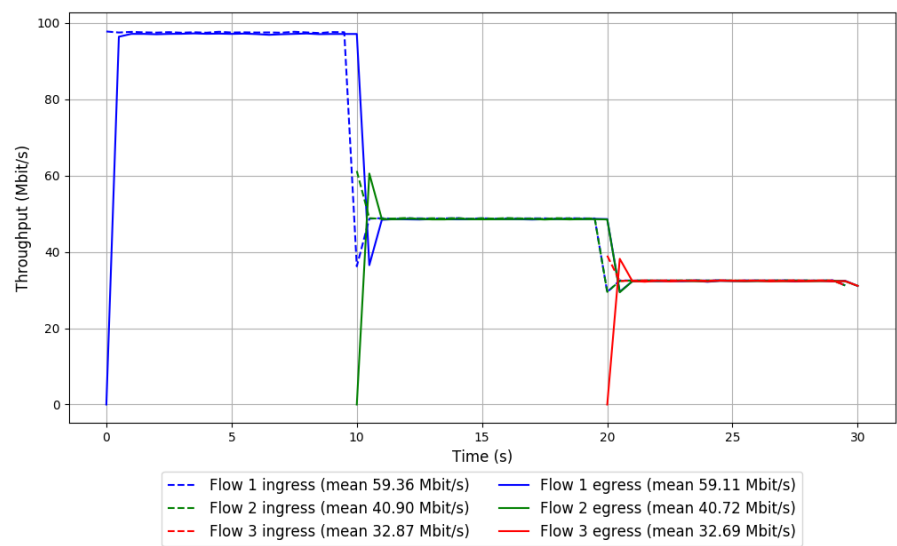
-- Flow 3:

Average throughput: 32.69 Mbit/s

95th percentile per-packet one-way delay: 7.648 ms

Loss rate: 0.56%

Run 4: Report of TCP BBR — Data Link





Run 5: Statistics of TCP BBR

Start at: 2018-10-26 11:16:39

End at: 2018-10-26 11:17:09

Local clock offset: -5.744 ms

Remote clock offset: 0.359 ms

# Below is generated by plot.py at 2018-10-26 11:22:20

# Datalink statistics

-- Total of 3 flows:

Average throughput: 97.13 Mbit/s

95th percentile per-packet one-way delay: 6.948 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 59.14 Mbit/s

95th percentile per-packet one-way delay: 6.424 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 40.75 Mbit/s

95th percentile per-packet one-way delay: 7.027 ms

Loss rate: 0.42%

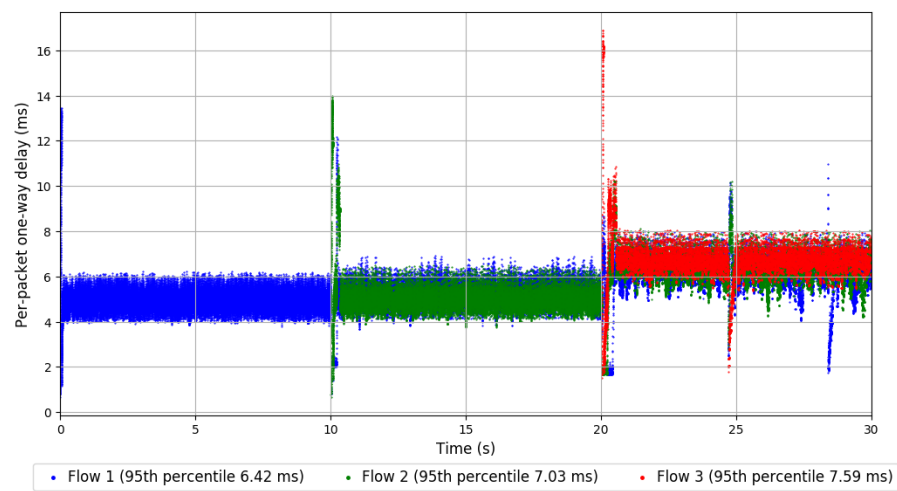
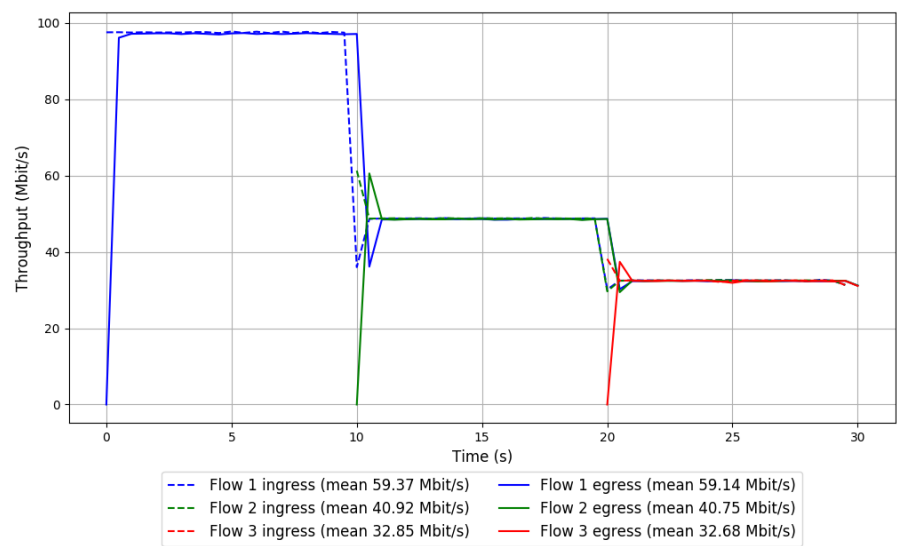
-- Flow 3:

Average throughput: 32.68 Mbit/s

95th percentile per-packet one-way delay: 7.591 ms

Loss rate: 0.52%

Run 5: Report of TCP BBR — Data Link

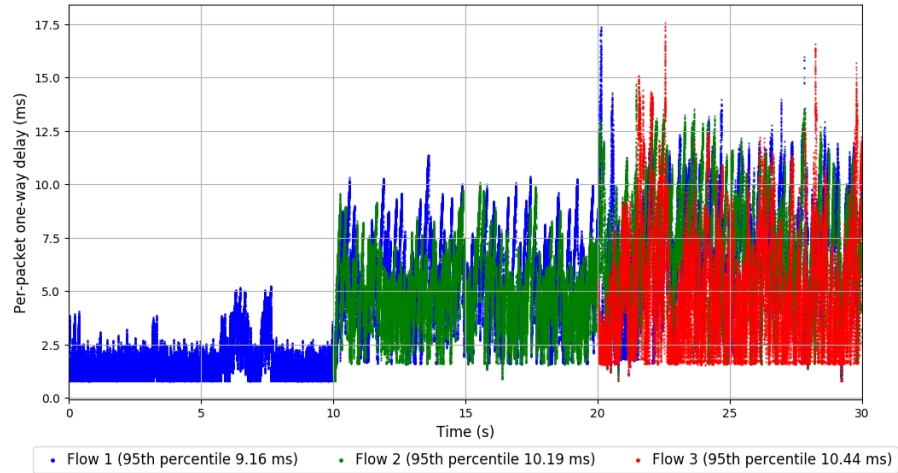
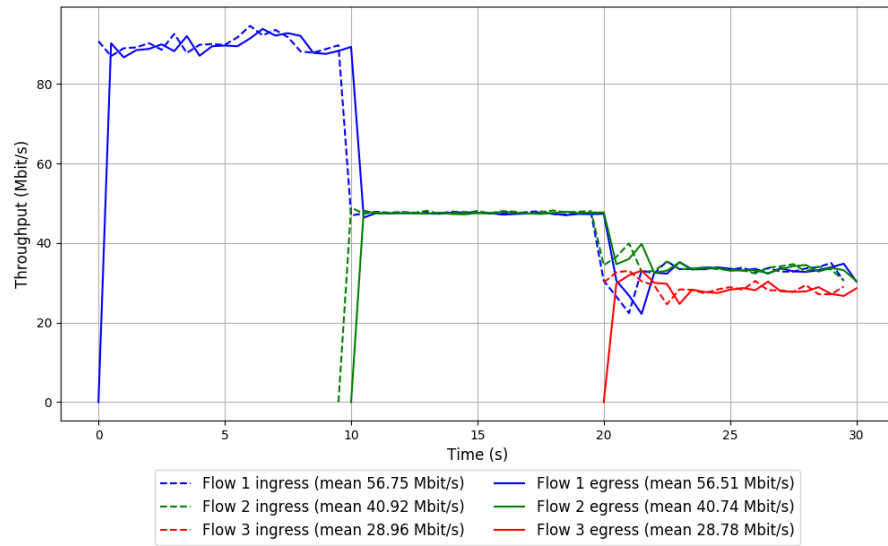


Run 1: Statistics of Copa

Start at: 2018-10-26 09:44:52  
End at: 2018-10-26 09:45:22  
Local clock offset: -6.07 ms  
Remote clock offset: -0.419 ms

# Below is generated by plot.py at 2018-10-26 11:23:17  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 93.21 Mbit/s  
95th percentile per-packet one-way delay: 9.615 ms  
Loss rate: 0.46%  
-- Flow 1:  
Average throughput: 56.51 Mbit/s  
95th percentile per-packet one-way delay: 9.163 ms  
Loss rate: 0.43%  
-- Flow 2:  
Average throughput: 40.74 Mbit/s  
95th percentile per-packet one-way delay: 10.188 ms  
Loss rate: 0.45%  
-- Flow 3:  
Average throughput: 28.78 Mbit/s  
95th percentile per-packet one-way delay: 10.444 ms  
Loss rate: 0.65%

## Run 1: Report of Copa — Data Link

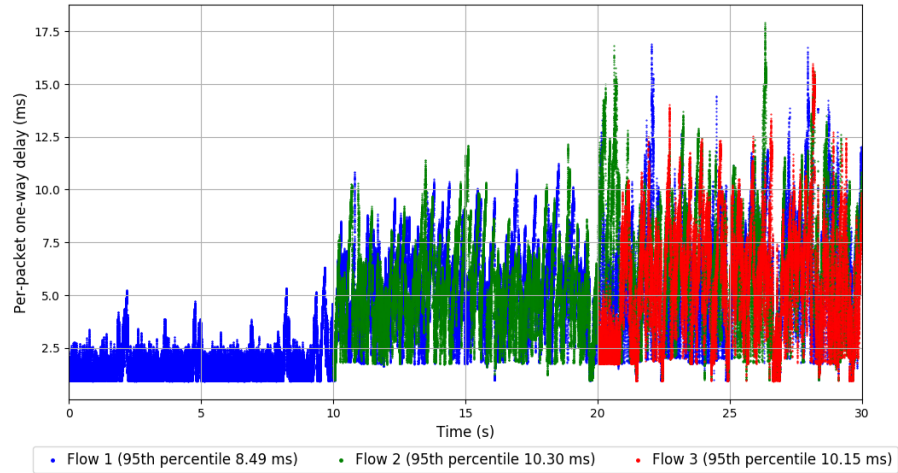
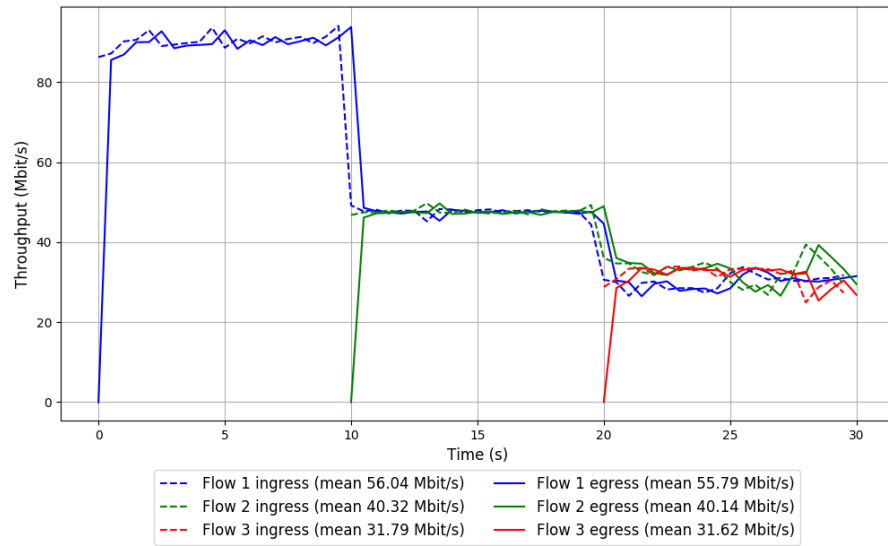


Run 2: Statistics of Copa

Start at: 2018-10-26 10:05:36  
End at: 2018-10-26 10:06:06  
Local clock offset: -6.031 ms  
Remote clock offset: -0.261 ms

# Below is generated by plot.py at 2018-10-26 11:23:19  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 93.04 Mbit/s  
95th percentile per-packet one-way delay: 9.438 ms  
Loss rate: 0.46%  
-- Flow 1:  
Average throughput: 55.79 Mbit/s  
95th percentile per-packet one-way delay: 8.491 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 40.14 Mbit/s  
95th percentile per-packet one-way delay: 10.301 ms  
Loss rate: 0.46%  
-- Flow 3:  
Average throughput: 31.62 Mbit/s  
95th percentile per-packet one-way delay: 10.149 ms  
Loss rate: 0.55%

## Run 2: Report of Copa — Data Link

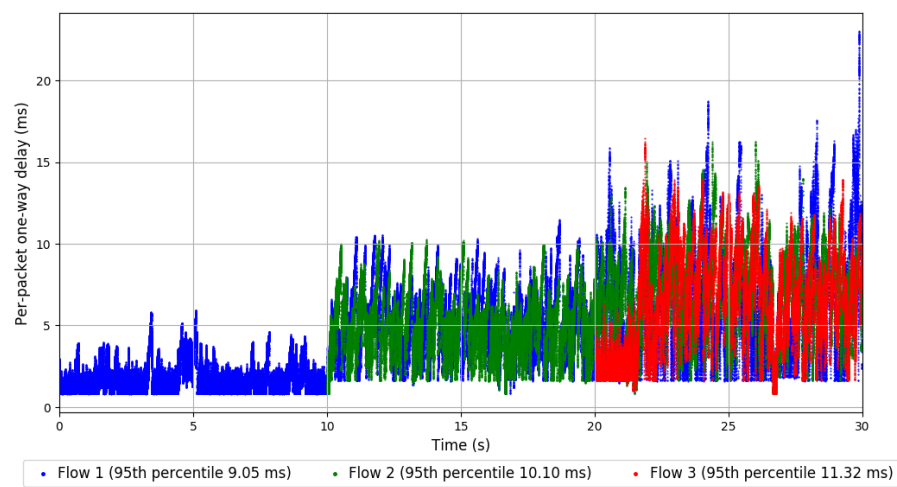
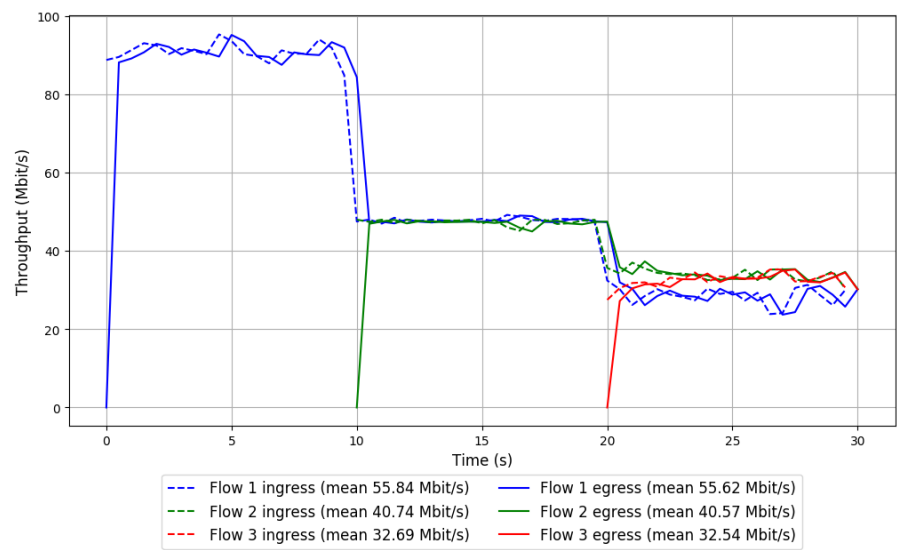


Run 3: Statistics of Copa

Start at: 2018-10-26 10:26:14  
End at: 2018-10-26 10:26:44  
Local clock offset: -6.199 ms  
Remote clock offset: 0.049 ms

# Below is generated by plot.py at 2018-10-26 11:23:19  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 93.45 Mbit/s  
95th percentile per-packet one-way delay: 10.024 ms  
Loss rate: 0.42%  
-- Flow 1:  
Average throughput: 55.62 Mbit/s  
95th percentile per-packet one-way delay: 9.049 ms  
Loss rate: 0.40%  
-- Flow 2:  
Average throughput: 40.57 Mbit/s  
95th percentile per-packet one-way delay: 10.104 ms  
Loss rate: 0.43%  
-- Flow 3:  
Average throughput: 32.54 Mbit/s  
95th percentile per-packet one-way delay: 11.318 ms  
Loss rate: 0.49%

Run 3: Report of Copa — Data Link



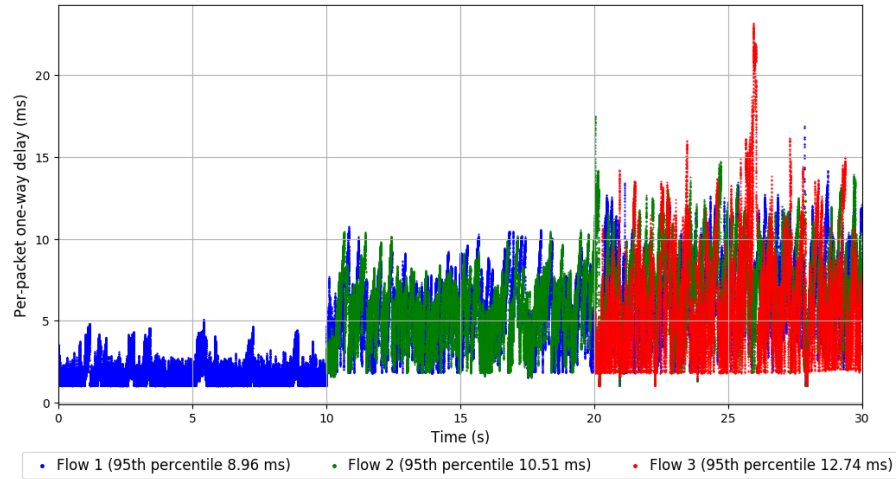
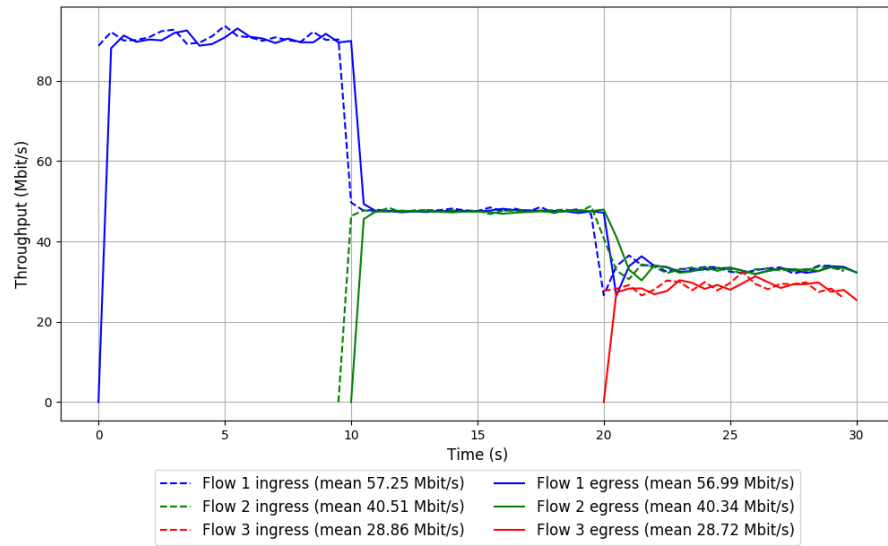


Run 4: Statistics of Copa

Start at: 2018-10-26 10:46:54  
End at: 2018-10-26 10:47:24  
Local clock offset: -5.803 ms  
Remote clock offset: 0.182 ms

```
# Below is generated by plot.py at 2018-10-26 11:24:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.41 Mbit/s
95th percentile per-packet one-way delay: 9.946 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 56.99 Mbit/s
95th percentile per-packet one-way delay: 8.964 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 40.34 Mbit/s
95th percentile per-packet one-way delay: 10.510 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 28.72 Mbit/s
95th percentile per-packet one-way delay: 12.742 ms
Loss rate: 0.50%
```

#### Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-10-26 11:07:32

End at: 2018-10-26 11:08:02

Local clock offset: -5.689 ms

Remote clock offset: 0.488 ms

# Below is generated by plot.py at 2018-10-26 11:24:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 92.85 Mbit/s

95th percentile per-packet one-way delay: 9.700 ms

Loss rate: 0.47%

-- Flow 1:

Average throughput: 56.43 Mbit/s

95th percentile per-packet one-way delay: 9.162 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 38.99 Mbit/s

95th percentile per-packet one-way delay: 9.934 ms

Loss rate: 0.47%

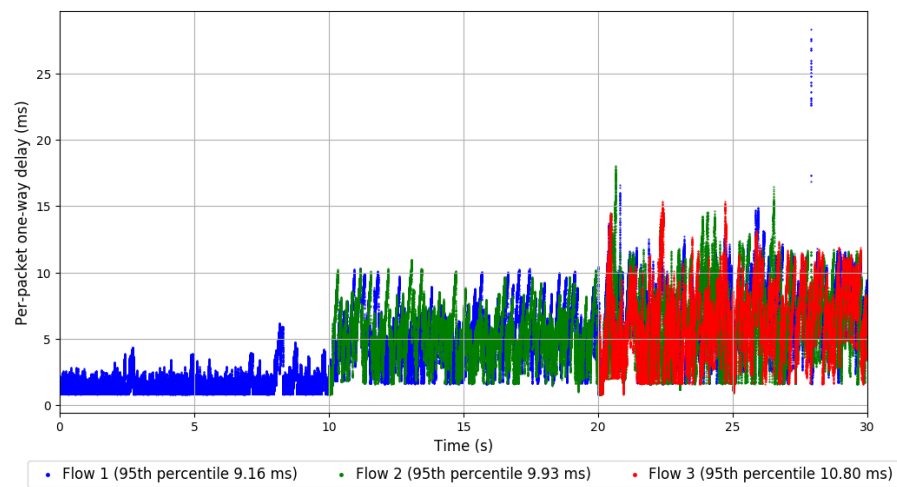
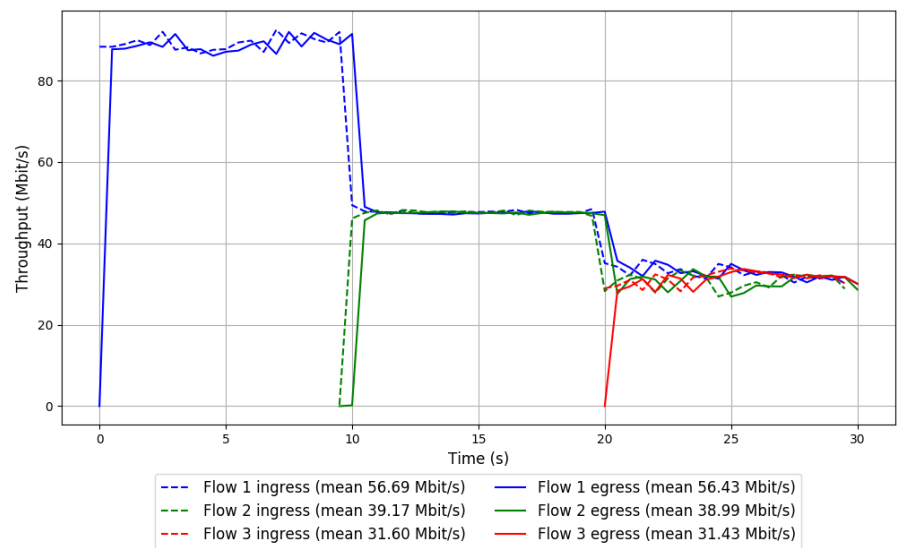
-- Flow 3:

Average throughput: 31.43 Mbit/s

95th percentile per-packet one-way delay: 10.805 ms

Loss rate: 0.55%

Run 5: Report of Copa — Data Link

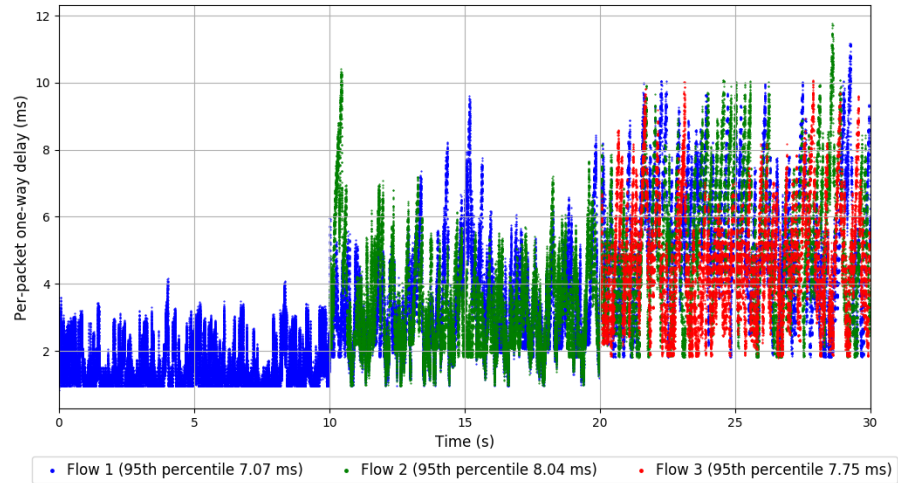
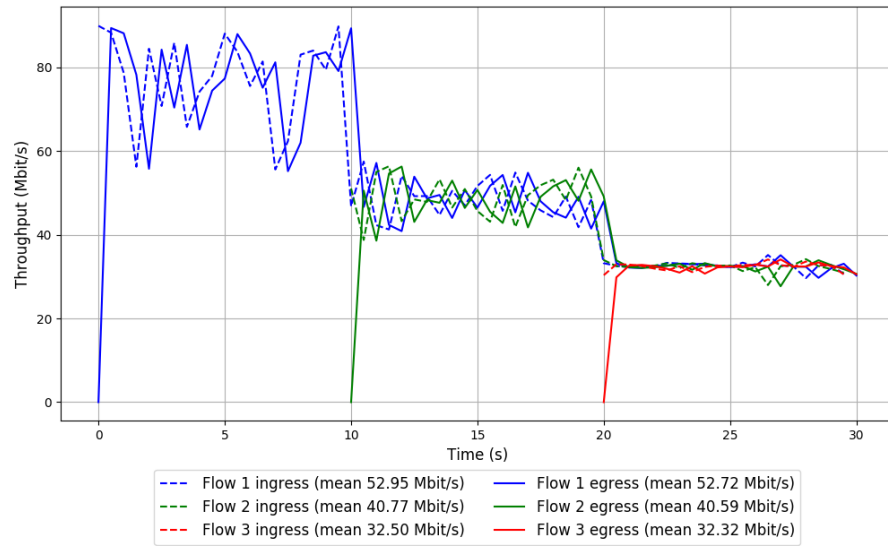


Run 1: Statistics of TCP Cubic

Start at: 2018-10-26 09:52:51  
End at: 2018-10-26 09:53:21  
Local clock offset: -5.945 ms  
Remote clock offset: -0.366 ms

# Below is generated by plot.py at 2018-10-26 11:24:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 90.50 Mbit/s  
95th percentile per-packet one-way delay: 7.466 ms  
Loss rate: 0.46%  
-- Flow 1:  
Average throughput: 52.72 Mbit/s  
95th percentile per-packet one-way delay: 7.073 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 40.59 Mbit/s  
95th percentile per-packet one-way delay: 8.044 ms  
Loss rate: 0.45%  
-- Flow 3:  
Average throughput: 32.32 Mbit/s  
95th percentile per-packet one-way delay: 7.746 ms  
Loss rate: 0.57%

## Run 1: Report of TCP Cubic — Data Link

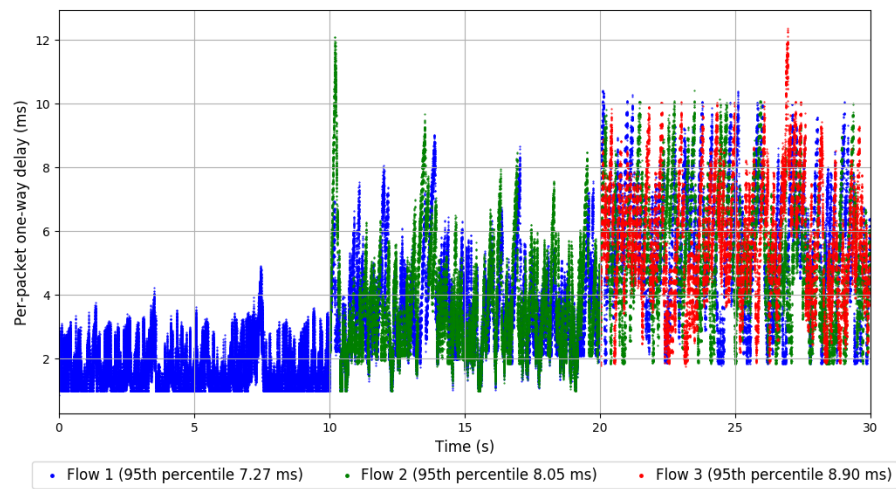
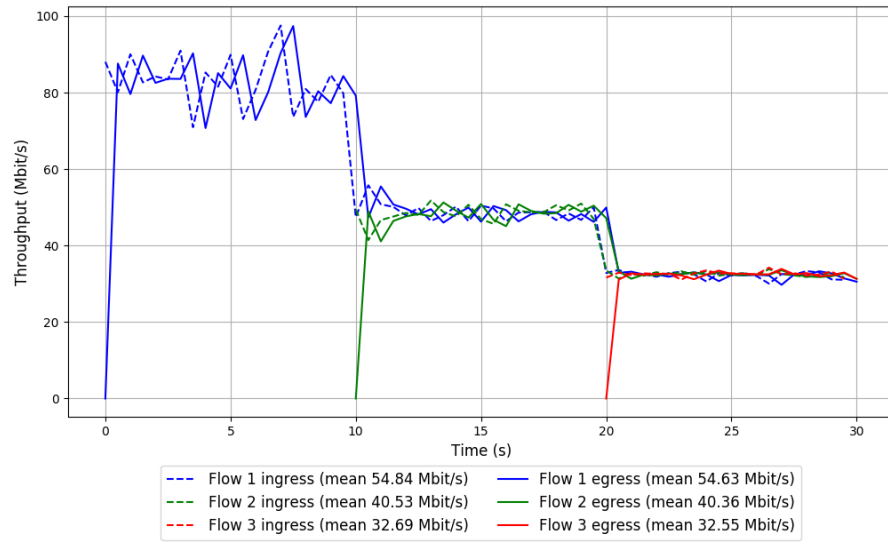


Run 2: Statistics of TCP Cubic

Start at: 2018-10-26 10:13:36  
End at: 2018-10-26 10:14:06  
Local clock offset: -6.016 ms  
Remote clock offset: -0.113 ms

# Below is generated by plot.py at 2018-10-26 11:24:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 92.32 Mbit/s  
95th percentile per-packet one-way delay: 7.852 ms  
Loss rate: 0.41%  
-- Flow 1:  
Average throughput: 54.63 Mbit/s  
95th percentile per-packet one-way delay: 7.268 ms  
Loss rate: 0.40%  
-- Flow 2:  
Average throughput: 40.36 Mbit/s  
95th percentile per-packet one-way delay: 8.051 ms  
Loss rate: 0.42%  
-- Flow 3:  
Average throughput: 32.55 Mbit/s  
95th percentile per-packet one-way delay: 8.898 ms  
Loss rate: 0.45%

## Run 2: Report of TCP Cubic — Data Link





Run 3: Statistics of TCP Cubic

Start at: 2018-10-26 10:34:15

End at: 2018-10-26 10:34:45

Local clock offset: -5.981 ms

Remote clock offset: 0.167 ms

# Below is generated by plot.py at 2018-10-26 11:24:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 89.79 Mbit/s

95th percentile per-packet one-way delay: 7.799 ms

Loss rate: 0.47%

-- Flow 1:

Average throughput: 52.10 Mbit/s

95th percentile per-packet one-way delay: 7.194 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 40.45 Mbit/s

95th percentile per-packet one-way delay: 7.828 ms

Loss rate: 0.45%

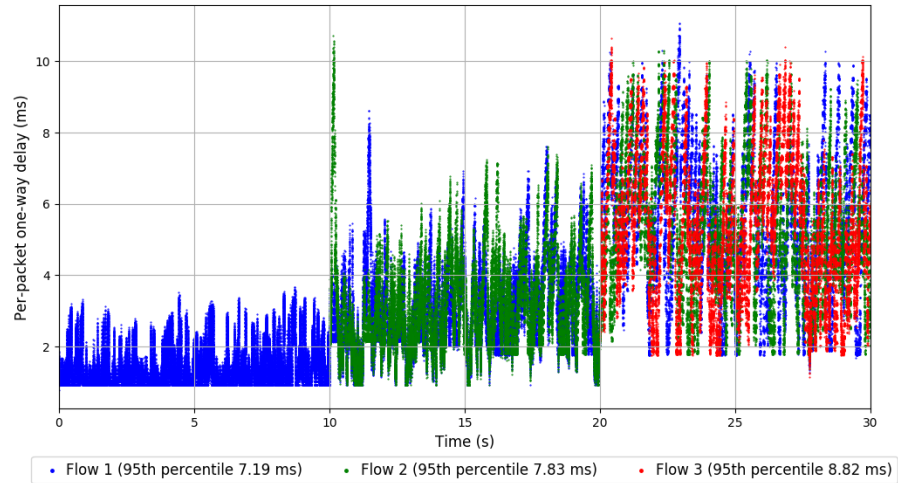
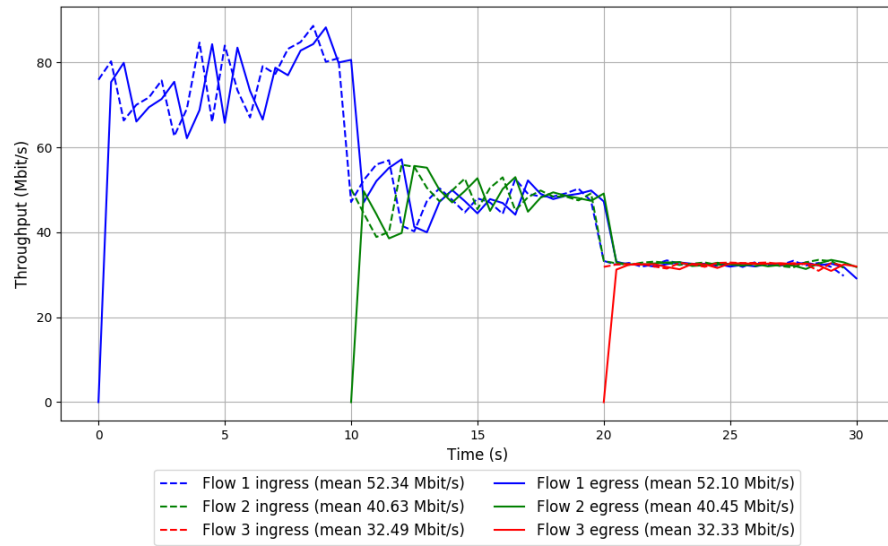
-- Flow 3:

Average throughput: 32.33 Mbit/s

95th percentile per-packet one-way delay: 8.819 ms

Loss rate: 0.50%

### Run 3: Report of TCP Cubic — Data Link

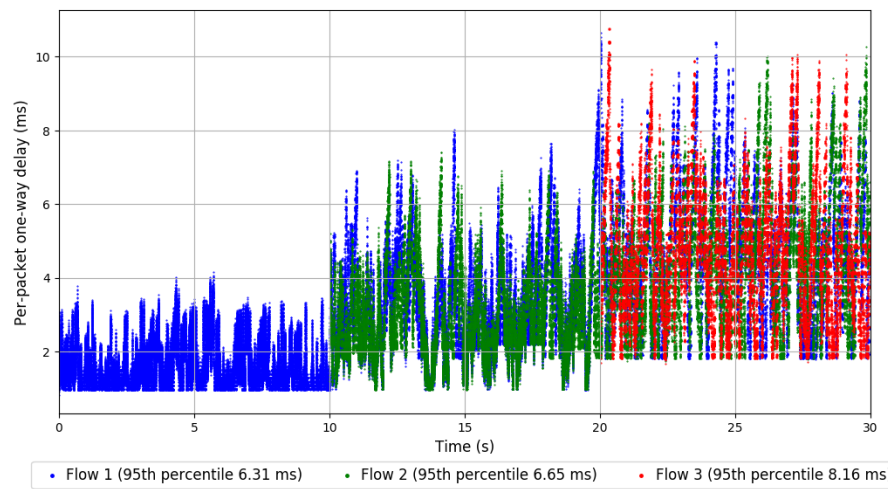
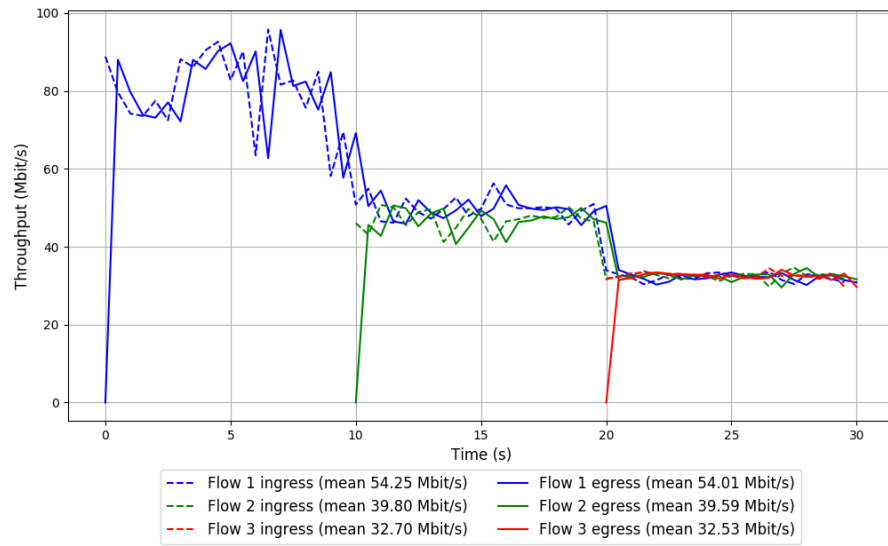


Run 4: Statistics of TCP Cubic

Start at: 2018-10-26 10:54:53  
End at: 2018-10-26 10:55:23  
Local clock offset: -5.761 ms  
Remote clock offset: 0.342 ms

# Below is generated by plot.py at 2018-10-26 11:24:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 91.18 Mbit/s  
95th percentile per-packet one-way delay: 6.749 ms  
Loss rate: 0.48%  
-- Flow 1:  
Average throughput: 54.01 Mbit/s  
95th percentile per-packet one-way delay: 6.311 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 39.59 Mbit/s  
95th percentile per-packet one-way delay: 6.650 ms  
Loss rate: 0.53%  
-- Flow 3:  
Average throughput: 32.53 Mbit/s  
95th percentile per-packet one-way delay: 8.158 ms  
Loss rate: 0.54%

# Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-10-26 11:15:30

End at: 2018-10-26 11:16:00

Local clock offset: -5.633 ms

Remote clock offset: 0.323 ms

# Below is generated by plot.py at 2018-10-26 11:24:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.70 Mbit/s

95th percentile per-packet one-way delay: 7.709 ms

Loss rate: 0.42%

-- Flow 1:

Average throughput: 54.15 Mbit/s

95th percentile per-packet one-way delay: 7.056 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 40.17 Mbit/s

95th percentile per-packet one-way delay: 7.424 ms

Loss rate: 0.43%

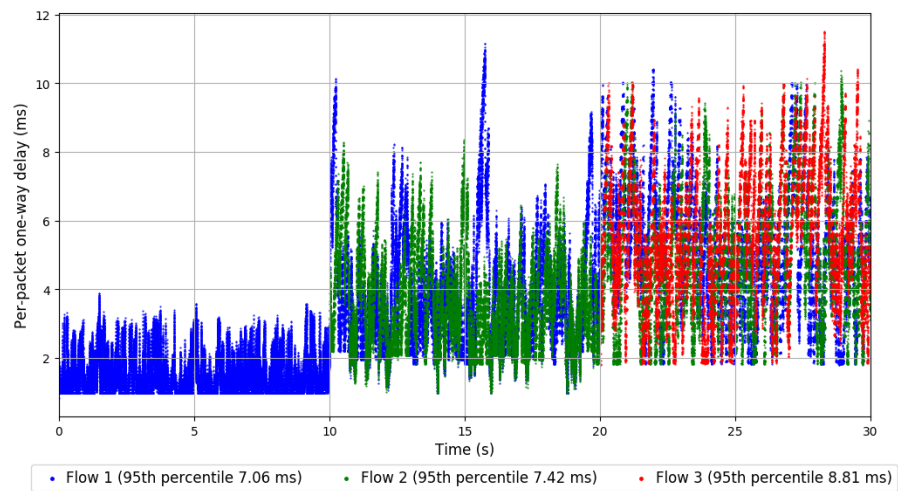
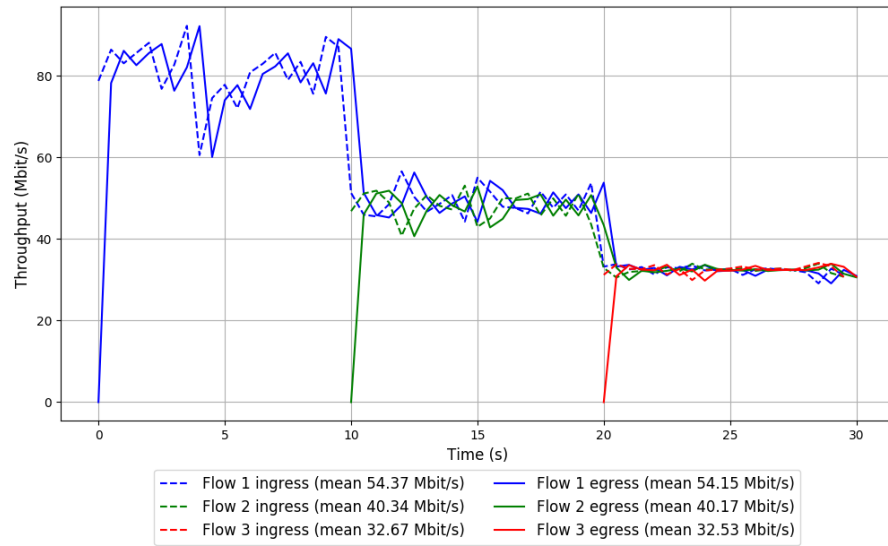
-- Flow 3:

Average throughput: 32.53 Mbit/s

95th percentile per-packet one-way delay: 8.808 ms

Loss rate: 0.45%

## Run 5: Report of TCP Cubic — Data Link

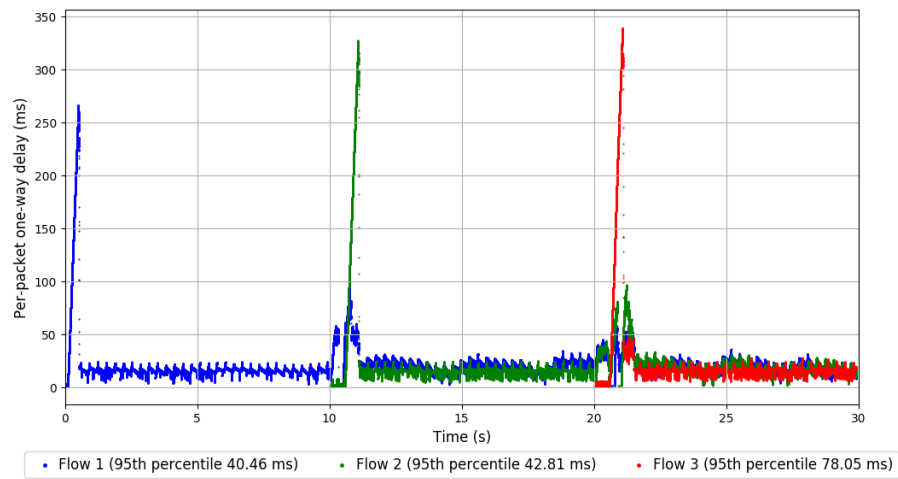
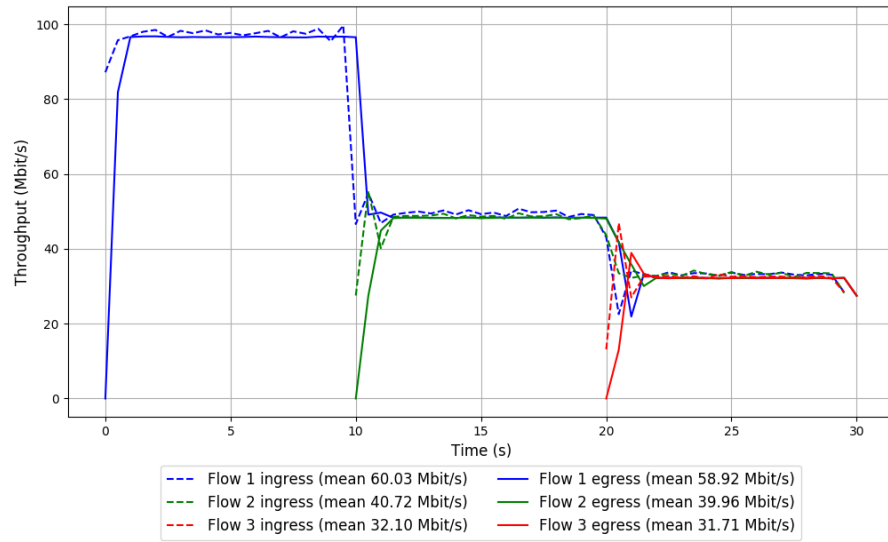


Run 1: Statistics of FillP

Start at: 2018-10-26 09:41:25  
End at: 2018-10-26 09:41:55  
Local clock offset: -5.918 ms  
Remote clock offset: -0.485 ms

# Below is generated by plot.py at 2018-10-26 11:24:43  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.99 Mbit/s  
95th percentile per-packet one-way delay: 42.231 ms  
Loss rate: 1.78%  
-- Flow 1:  
Average throughput: 58.92 Mbit/s  
95th percentile per-packet one-way delay: 40.464 ms  
Loss rate: 1.85%  
-- Flow 2:  
Average throughput: 39.96 Mbit/s  
95th percentile per-packet one-way delay: 42.812 ms  
Loss rate: 1.85%  
-- Flow 3:  
Average throughput: 31.71 Mbit/s  
95th percentile per-packet one-way delay: 78.048 ms  
Loss rate: 1.25%

# Run 1: Report of FillP — Data Link



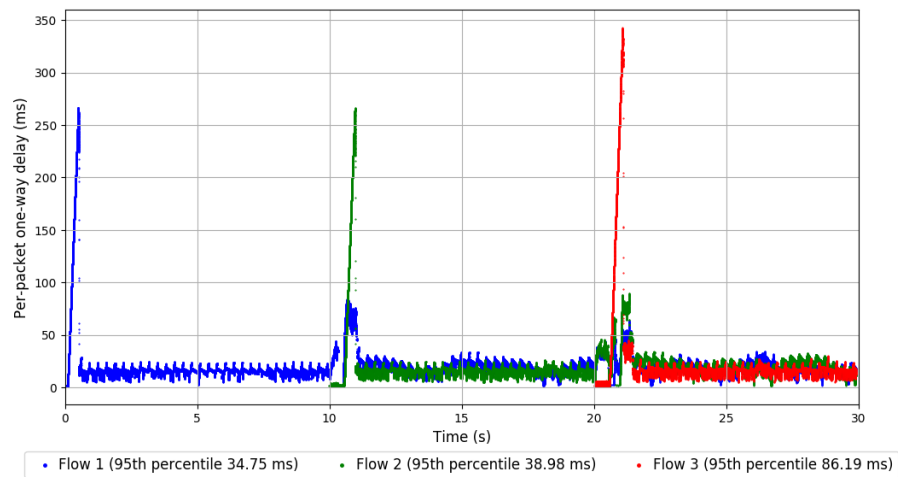
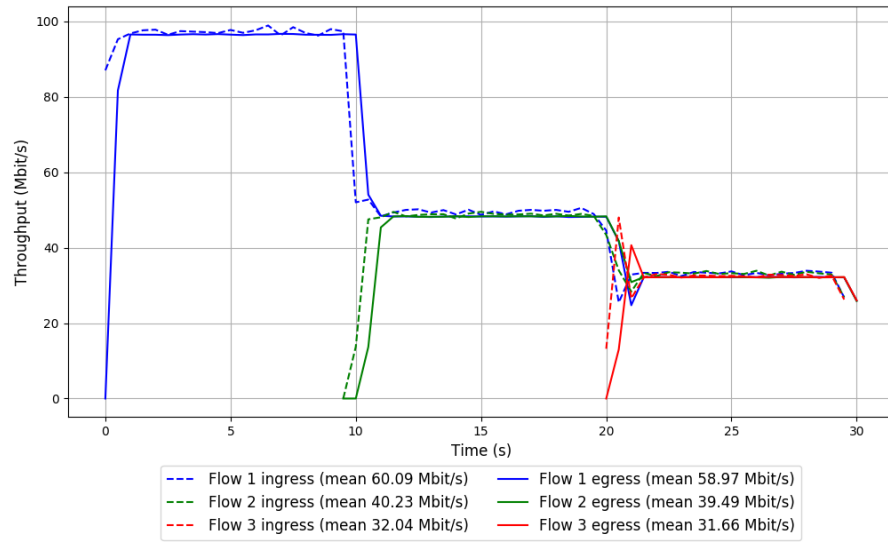


Run 2: Statistics of FillP

Start at: 2018-10-26 10:02:09  
End at: 2018-10-26 10:02:39  
Local clock offset: -6.001 ms  
Remote clock offset: -0.298 ms

# Below is generated by plot.py at 2018-10-26 11:24:46  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.77 Mbit/s  
95th percentile per-packet one-way delay: 37.139 ms  
Loss rate: 1.78%  
-- Flow 1:  
Average throughput: 58.97 Mbit/s  
95th percentile per-packet one-way delay: 34.747 ms  
Loss rate: 1.86%  
-- Flow 2:  
Average throughput: 39.49 Mbit/s  
95th percentile per-packet one-way delay: 38.977 ms  
Loss rate: 1.83%  
-- Flow 3:  
Average throughput: 31.66 Mbit/s  
95th percentile per-packet one-way delay: 86.189 ms  
Loss rate: 1.20%

## Run 2: Report of FillP — Data Link

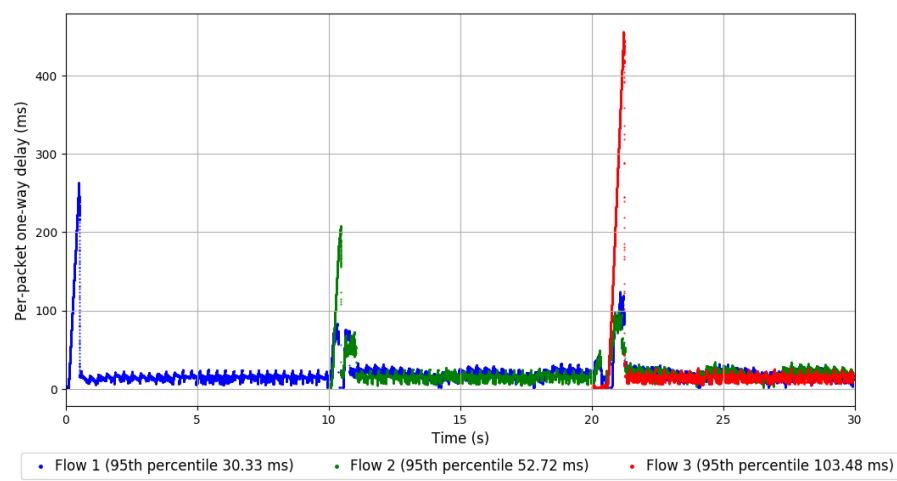
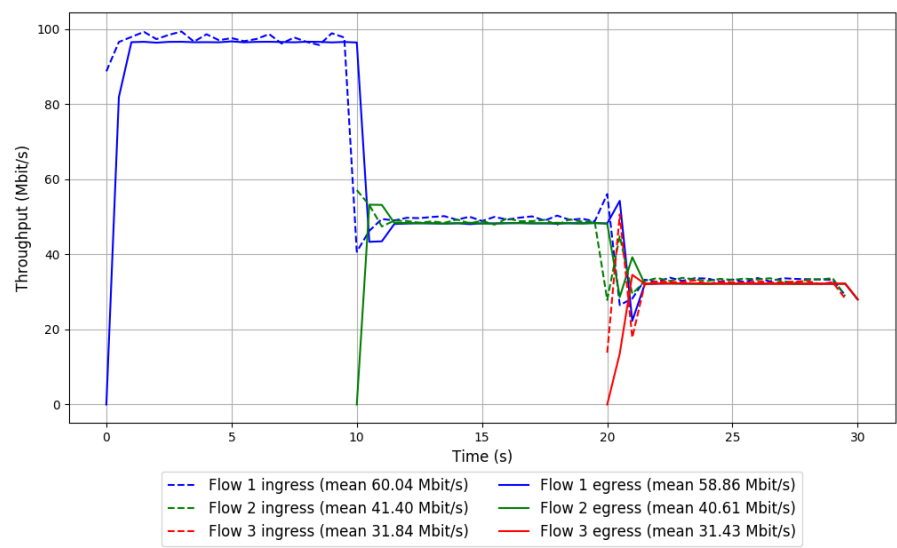


Run 3: Statistics of FillP

Start at: 2018-10-26 10:22:47  
End at: 2018-10-26 10:23:17  
Local clock offset: -6.177 ms  
Remote clock offset: -0.055 ms

# Below is generated by plot.py at 2018-10-26 11:24:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 96.31 Mbit/s  
95th percentile per-packet one-way delay: 45.808 ms  
Loss rate: 1.88%  
-- Flow 1:  
Average throughput: 58.86 Mbit/s  
95th percentile per-packet one-way delay: 30.327 ms  
Loss rate: 1.98%  
-- Flow 2:  
Average throughput: 40.61 Mbit/s  
95th percentile per-packet one-way delay: 52.715 ms  
Loss rate: 1.91%  
-- Flow 3:  
Average throughput: 31.43 Mbit/s  
95th percentile per-packet one-way delay: 103.484 ms  
Loss rate: 1.27%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-10-26 10:43:27

End at: 2018-10-26 10:43:57

Local clock offset: -5.94 ms

Remote clock offset: 0.213 ms

# Below is generated by plot.py at 2018-10-26 11:24:50

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.37 Mbit/s

95th percentile per-packet one-way delay: 43.579 ms

Loss rate: 1.84%

-- Flow 1:

Average throughput: 58.66 Mbit/s

95th percentile per-packet one-way delay: 31.154 ms

Loss rate: 1.89%

-- Flow 2:

Average throughput: 40.41 Mbit/s

95th percentile per-packet one-way delay: 50.202 ms

Loss rate: 1.93%

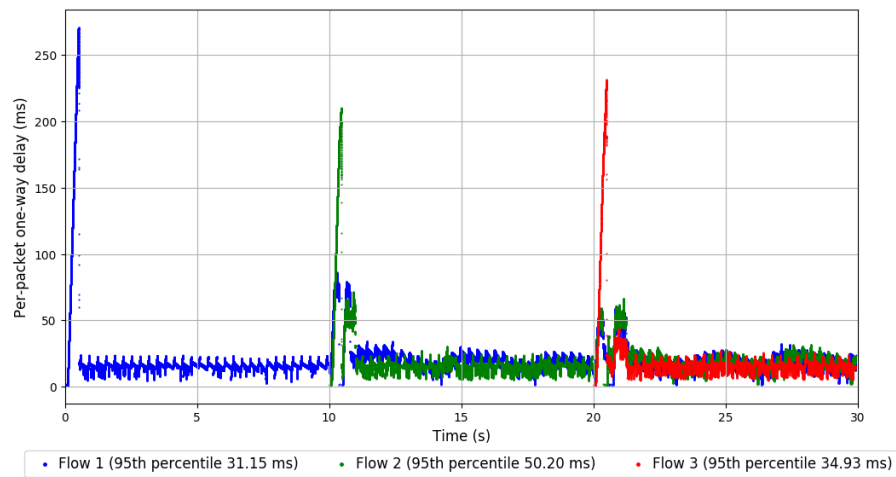
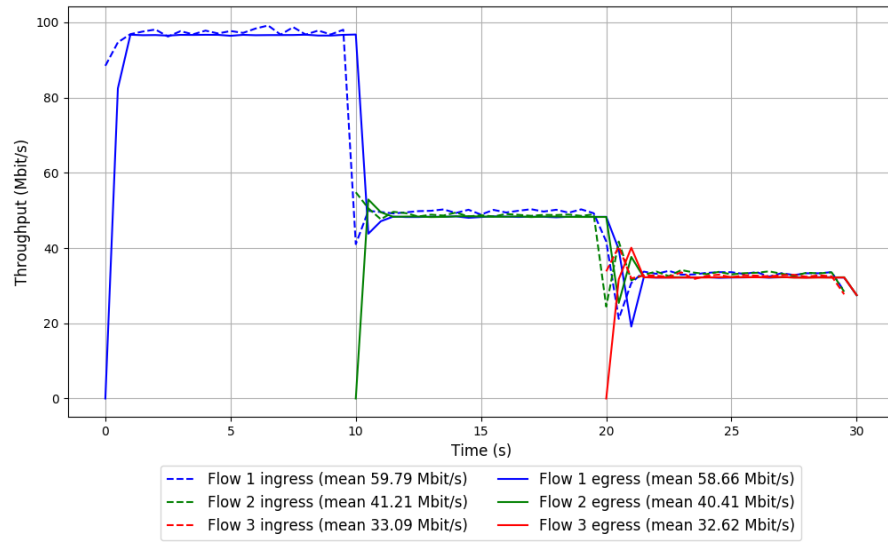
-- Flow 3:

Average throughput: 32.62 Mbit/s

95th percentile per-packet one-way delay: 34.933 ms

Loss rate: 1.39%

#### Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-10-26 11:04:05

End at: 2018-10-26 11:04:35

Local clock offset: -5.699 ms

Remote clock offset: 0.262 ms

# Below is generated by plot.py at 2018-10-26 11:25:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.80 Mbit/s

95th percentile per-packet one-way delay: 38.046 ms

Loss rate: 1.75%

-- Flow 1:

Average throughput: 59.03 Mbit/s

95th percentile per-packet one-way delay: 36.379 ms

Loss rate: 1.73%

-- Flow 2:

Average throughput: 39.51 Mbit/s

95th percentile per-packet one-way delay: 40.173 ms

Loss rate: 1.89%

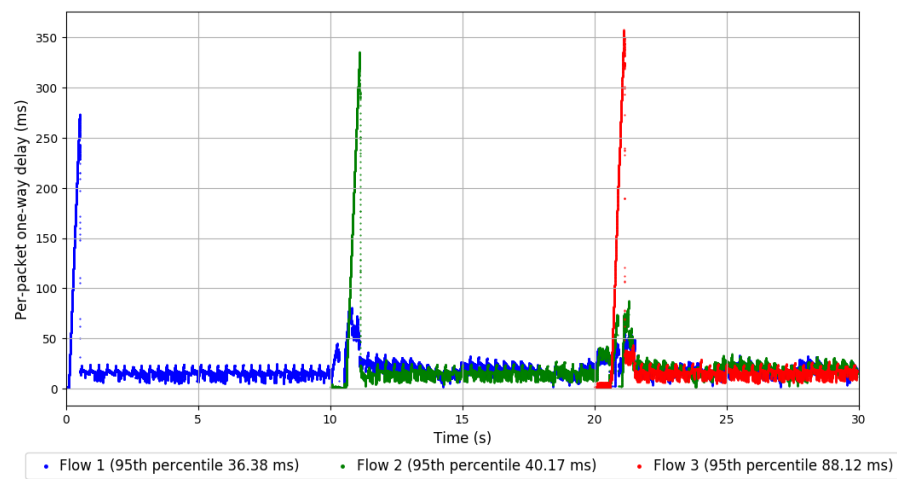
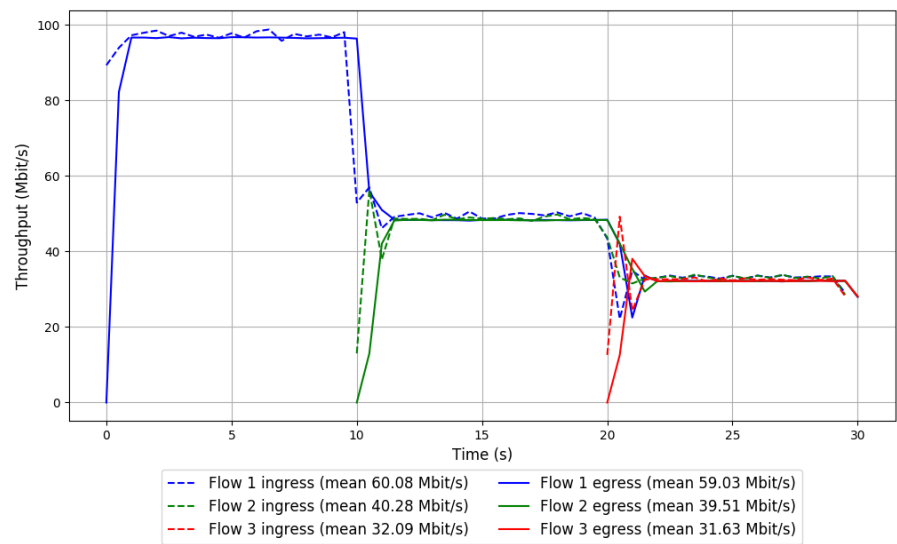
-- Flow 3:

Average throughput: 31.63 Mbit/s

95th percentile per-packet one-way delay: 88.116 ms

Loss rate: 1.47%

Run 5: Report of FillP — Data Link



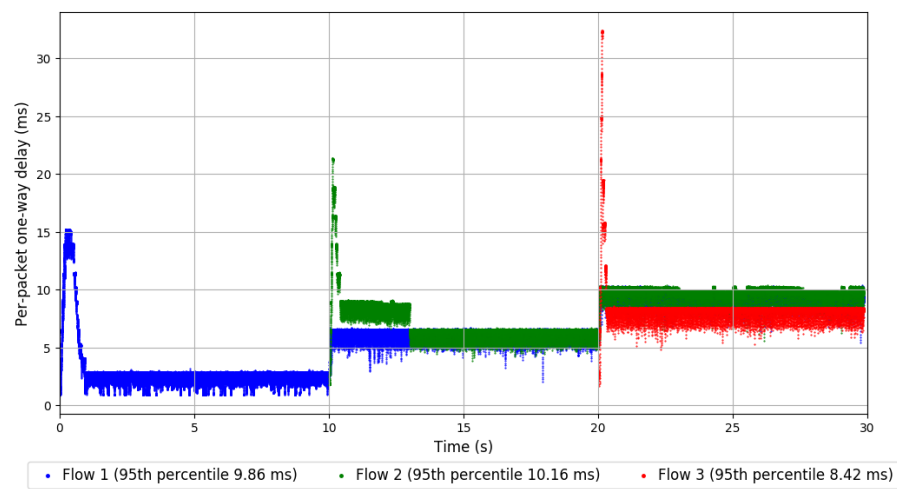
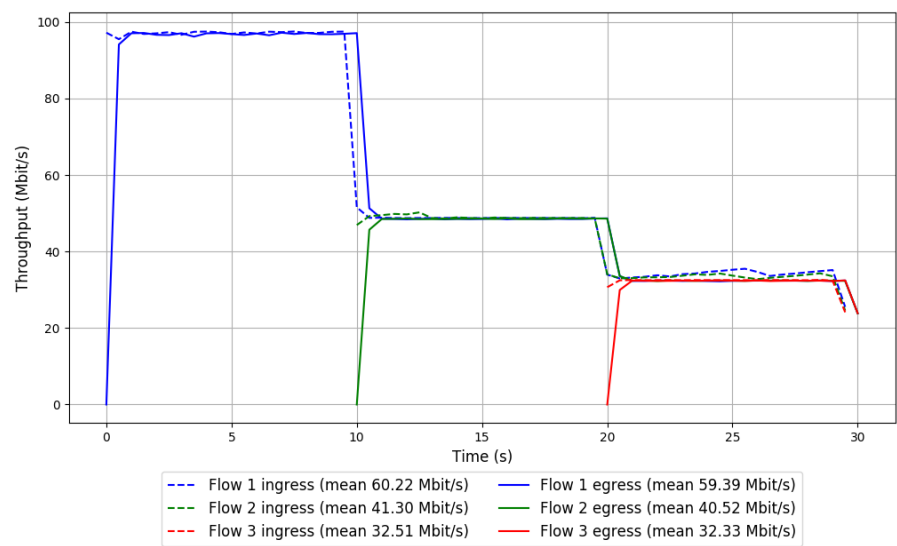


Run 1: Statistics of Indigo

Start at: 2018-10-26 09:43:41  
End at: 2018-10-26 09:44:11  
Local clock offset: -5.935 ms  
Remote clock offset: -0.406 ms

# Below is generated by plot.py at 2018-10-26 11:25:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 96.97 Mbit/s  
95th percentile per-packet one-way delay: 10.050 ms  
Loss rate: 1.44%  
-- Flow 1:  
Average throughput: 59.39 Mbit/s  
95th percentile per-packet one-way delay: 9.858 ms  
Loss rate: 1.38%  
-- Flow 2:  
Average throughput: 40.52 Mbit/s  
95th percentile per-packet one-way delay: 10.162 ms  
Loss rate: 1.92%  
-- Flow 3:  
Average throughput: 32.33 Mbit/s  
95th percentile per-packet one-way delay: 8.421 ms  
Loss rate: 0.56%

Run 1: Report of Indigo — Data Link

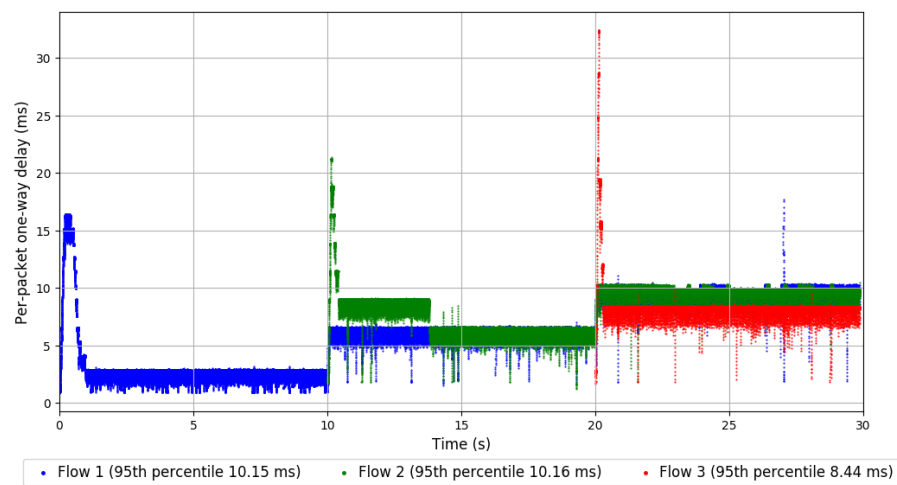
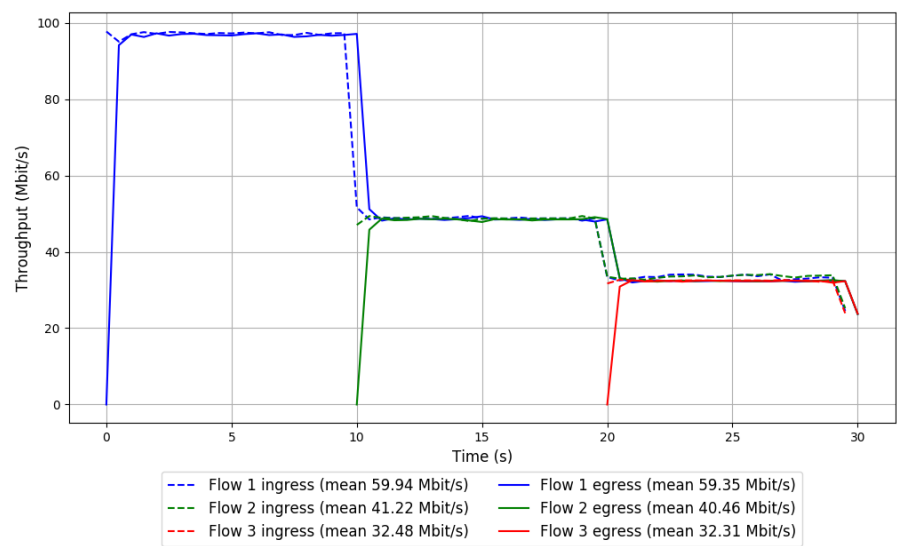


Run 2: Statistics of Indigo

Start at: 2018-10-26 10:04:25  
End at: 2018-10-26 10:04:55  
Local clock offset: -5.963 ms  
Remote clock offset: -0.203 ms

# Below is generated by plot.py at 2018-10-26 11:25:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 96.91 Mbit/s  
95th percentile per-packet one-way delay: 10.136 ms  
Loss rate: 1.18%  
-- Flow 1:  
Average throughput: 59.35 Mbit/s  
95th percentile per-packet one-way delay: 10.146 ms  
Loss rate: 0.98%  
-- Flow 2:  
Average throughput: 40.46 Mbit/s  
95th percentile per-packet one-way delay: 10.163 ms  
Loss rate: 1.86%  
-- Flow 3:  
Average throughput: 32.31 Mbit/s  
95th percentile per-packet one-way delay: 8.437 ms  
Loss rate: 0.54%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-10-26 10:25:04

End at: 2018-10-26 10:25:34

Local clock offset: -6.06 ms

Remote clock offset: 0.052 ms

# Below is generated by plot.py at 2018-10-26 11:25:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.97 Mbit/s

95th percentile per-packet one-way delay: 10.082 ms

Loss rate: 1.24%

-- Flow 1:

Average throughput: 59.41 Mbit/s

95th percentile per-packet one-way delay: 10.065 ms

Loss rate: 1.00%

-- Flow 2:

Average throughput: 40.52 Mbit/s

95th percentile per-packet one-way delay: 10.148 ms

Loss rate: 2.01%

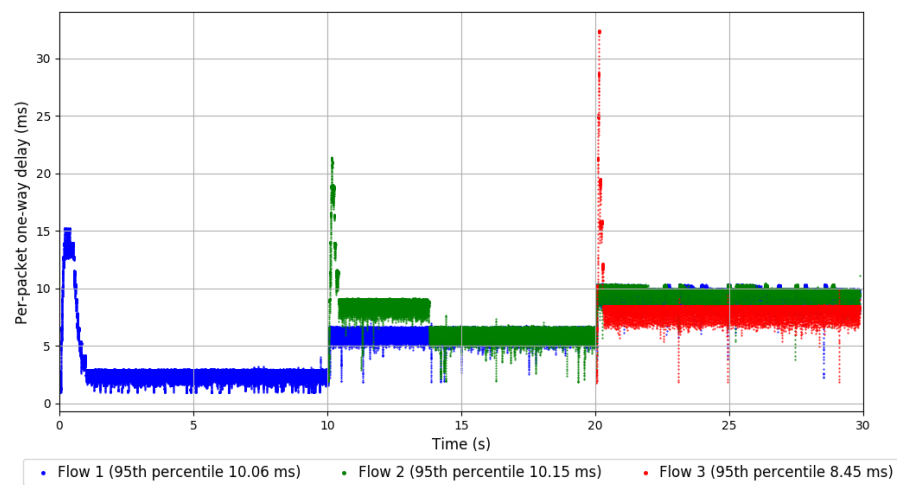
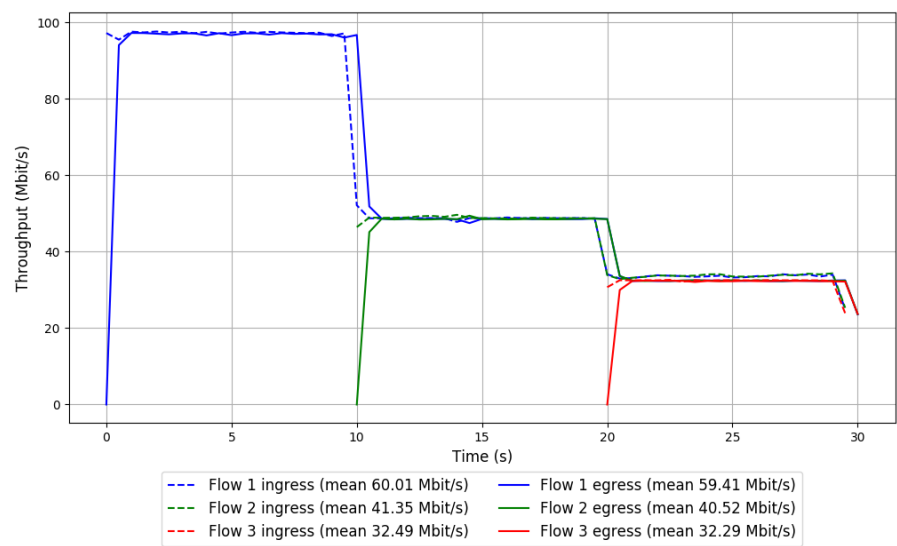
-- Flow 3:

Average throughput: 32.29 Mbit/s

95th percentile per-packet one-way delay: 8.451 ms

Loss rate: 0.64%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-10-26 10:45:43

End at: 2018-10-26 10:46:13

Local clock offset: -5.857 ms

Remote clock offset: 0.29 ms

# Below is generated by plot.py at 2018-10-26 11:25:52

# Datalink statistics

-- Total of 3 flows:

Average throughput: 97.02 Mbit/s

95th percentile per-packet one-way delay: 9.933 ms

Loss rate: 1.56%

-- Flow 1:

Average throughput: 59.44 Mbit/s

95th percentile per-packet one-way delay: 9.966 ms

Loss rate: 1.16%

-- Flow 2:

Average throughput: 40.50 Mbit/s

95th percentile per-packet one-way delay: 9.987 ms

Loss rate: 2.84%

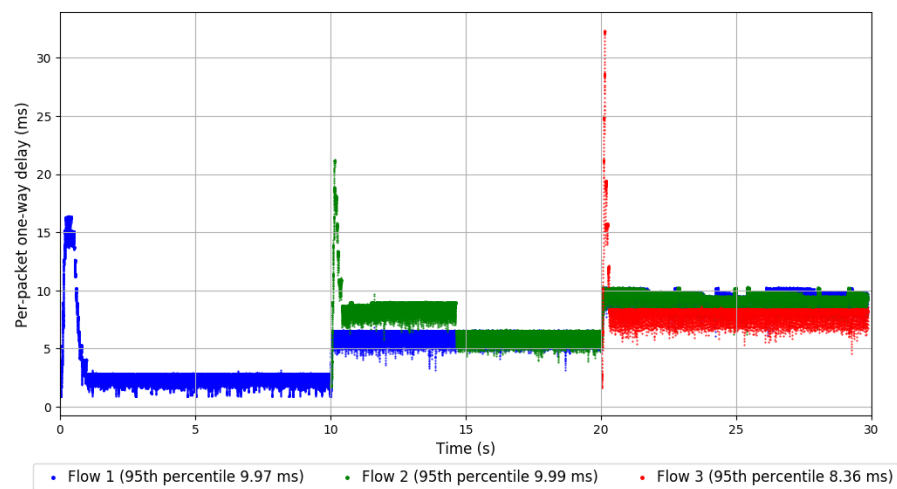
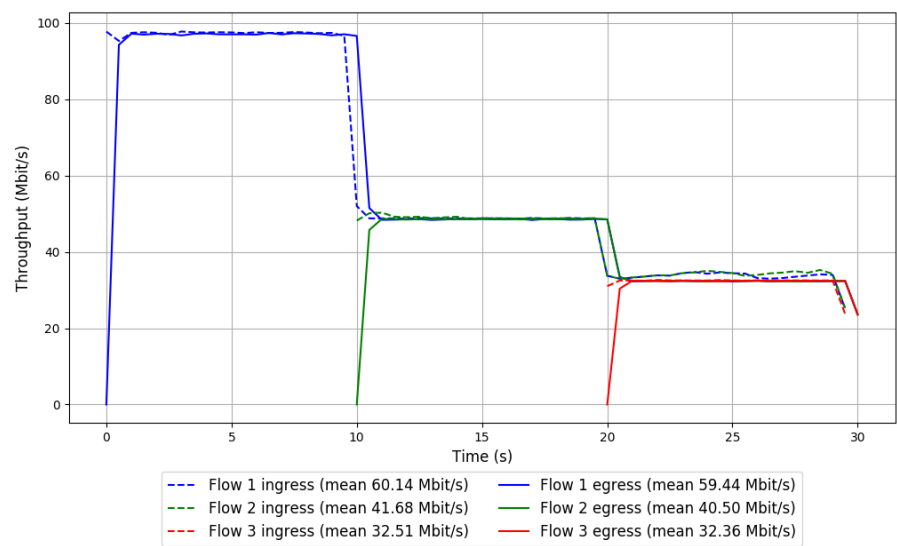
-- Flow 3:

Average throughput: 32.36 Mbit/s

95th percentile per-packet one-way delay: 8.362 ms

Loss rate: 0.50%

Run 4: Report of Indigo — Data Link





Run 5: Statistics of Indigo

Start at: 2018-10-26 11:06:22

End at: 2018-10-26 11:06:52

Local clock offset: -5.735 ms

Remote clock offset: 0.383 ms

# Below is generated by plot.py at 2018-10-26 11:25:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.41 Mbit/s

95th percentile per-packet one-way delay: 10.024 ms

Loss rate: 0.92%

-- Flow 1:

Average throughput: 59.18 Mbit/s

95th percentile per-packet one-way delay: 10.020 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 40.26 Mbit/s

95th percentile per-packet one-way delay: 10.072 ms

Loss rate: 1.88%

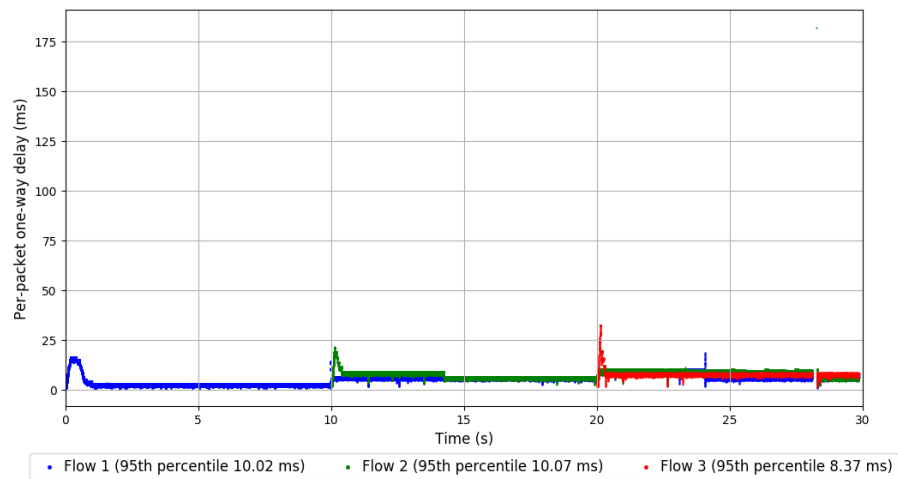
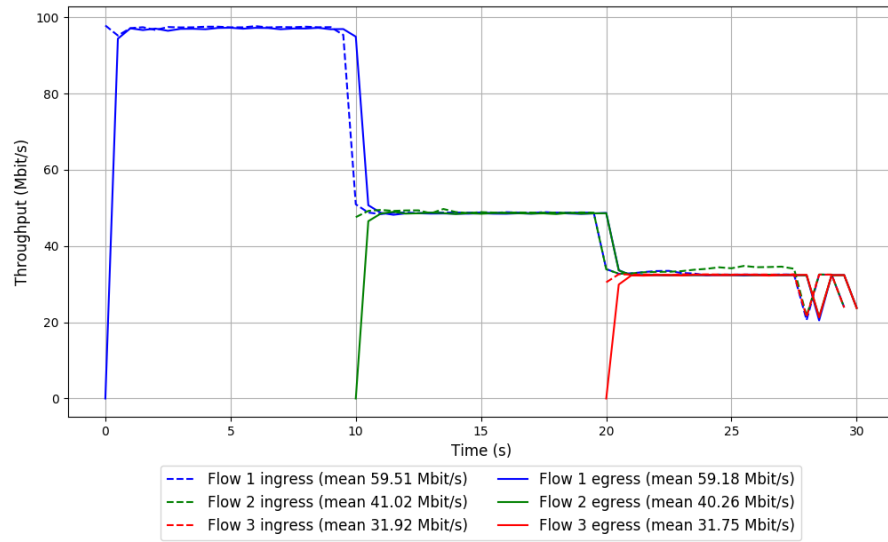
-- Flow 3:

Average throughput: 31.75 Mbit/s

95th percentile per-packet one-way delay: 8.369 ms

Loss rate: 0.54%

## Run 5: Report of Indigo — Data Link

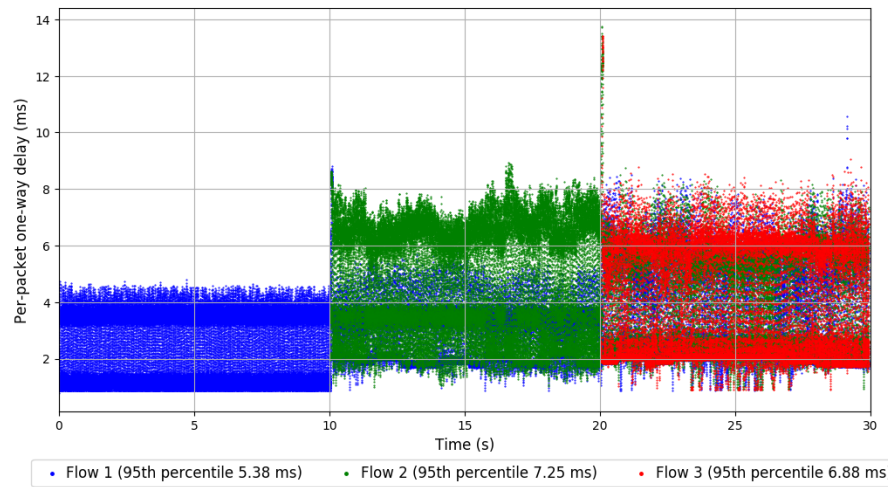
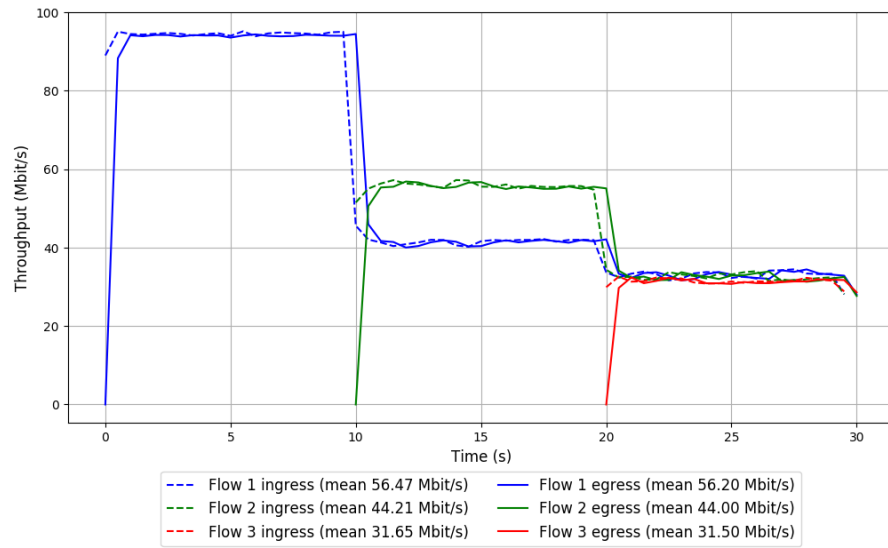


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-26 09:48:21  
End at: 2018-10-26 09:48:51  
Local clock offset: -6.015 ms  
Remote clock offset: -0.387 ms

# Below is generated by plot.py at 2018-10-26 11:25:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.91 Mbit/s  
95th percentile per-packet one-way delay: 6.751 ms  
Loss rate: 0.49%  
-- Flow 1:  
Average throughput: 56.20 Mbit/s  
95th percentile per-packet one-way delay: 5.378 ms  
Loss rate: 0.49%  
-- Flow 2:  
Average throughput: 44.00 Mbit/s  
95th percentile per-packet one-way delay: 7.247 ms  
Loss rate: 0.49%  
-- Flow 3:  
Average throughput: 31.50 Mbit/s  
95th percentile per-packet one-way delay: 6.876 ms  
Loss rate: 0.49%

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

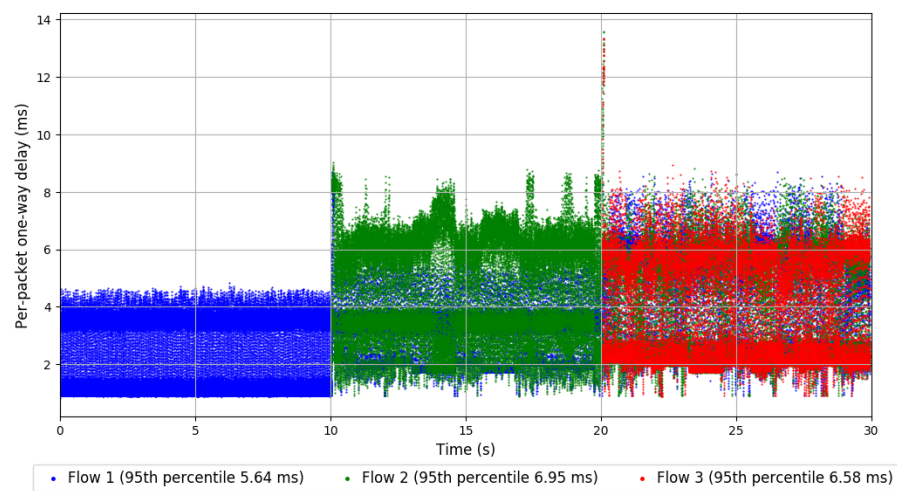
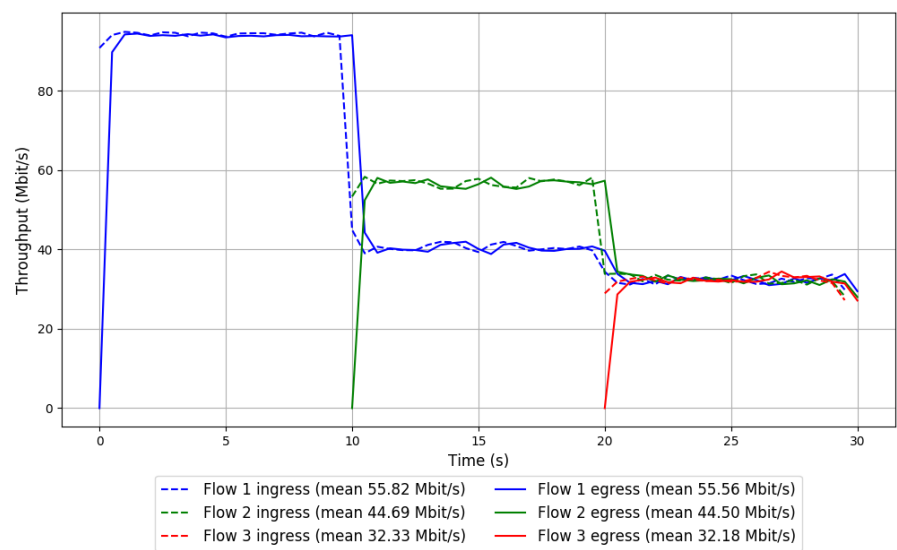


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-26 10:09:05  
End at: 2018-10-26 10:09:35  
Local clock offset: -6.005 ms  
Remote clock offset: -0.083 ms

# Below is generated by plot.py at 2018-10-26 11:26:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.84 Mbit/s  
95th percentile per-packet one-way delay: 6.517 ms  
Loss rate: 0.45%  
-- Flow 1:  
Average throughput: 55.56 Mbit/s  
95th percentile per-packet one-way delay: 5.639 ms  
Loss rate: 0.46%  
-- Flow 2:  
Average throughput: 44.50 Mbit/s  
95th percentile per-packet one-way delay: 6.954 ms  
Loss rate: 0.42%  
-- Flow 3:  
Average throughput: 32.18 Mbit/s  
95th percentile per-packet one-way delay: 6.584 ms  
Loss rate: 0.49%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-26 10:29:43

End at: 2018-10-26 10:30:13

Local clock offset: -6.117 ms

Remote clock offset: 0.128 ms

# Below is generated by plot.py at 2018-10-26 11:26:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.94 Mbit/s

95th percentile per-packet one-way delay: 6.882 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 56.53 Mbit/s

95th percentile per-packet one-way delay: 5.663 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 43.24 Mbit/s

95th percentile per-packet one-way delay: 7.862 ms

Loss rate: 0.45%

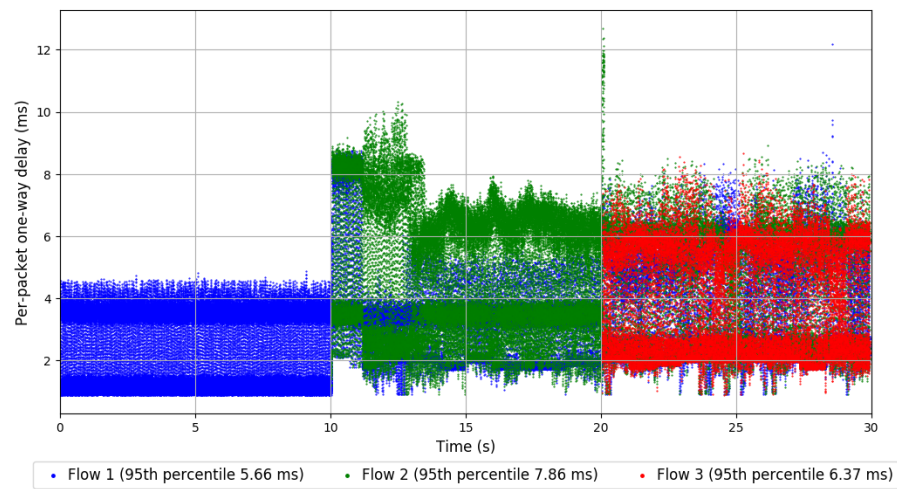
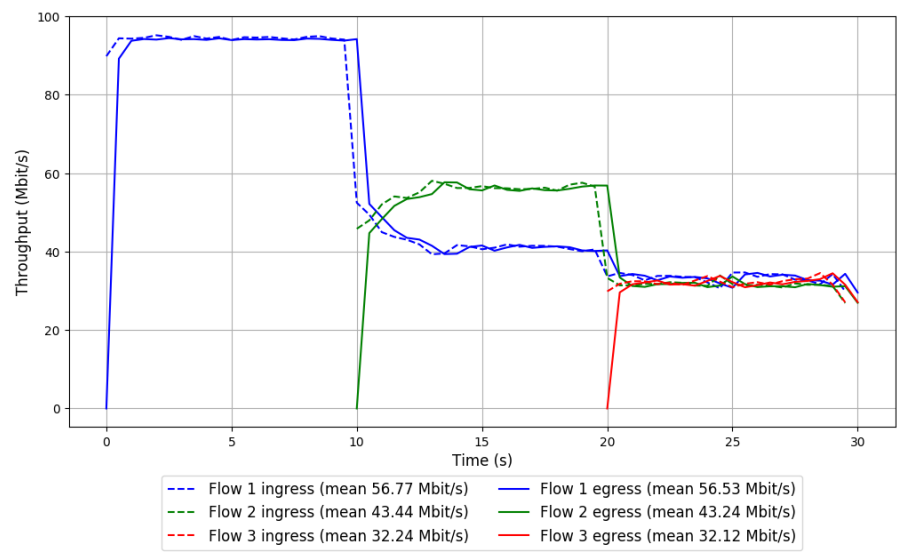
-- Flow 3:

Average throughput: 32.12 Mbit/s

95th percentile per-packet one-way delay: 6.369 ms

Loss rate: 0.39%

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





Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-26 10:50:22

End at: 2018-10-26 10:50:52

Local clock offset: -5.792 ms

Remote clock offset: 0.294 ms

# Below is generated by plot.py at 2018-10-26 11:26:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.85 Mbit/s

95th percentile per-packet one-way delay: 6.765 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 55.74 Mbit/s

95th percentile per-packet one-way delay: 5.660 ms

Loss rate: 0.41%

-- Flow 2:

Average throughput: 44.16 Mbit/s

95th percentile per-packet one-way delay: 7.669 ms

Loss rate: 0.41%

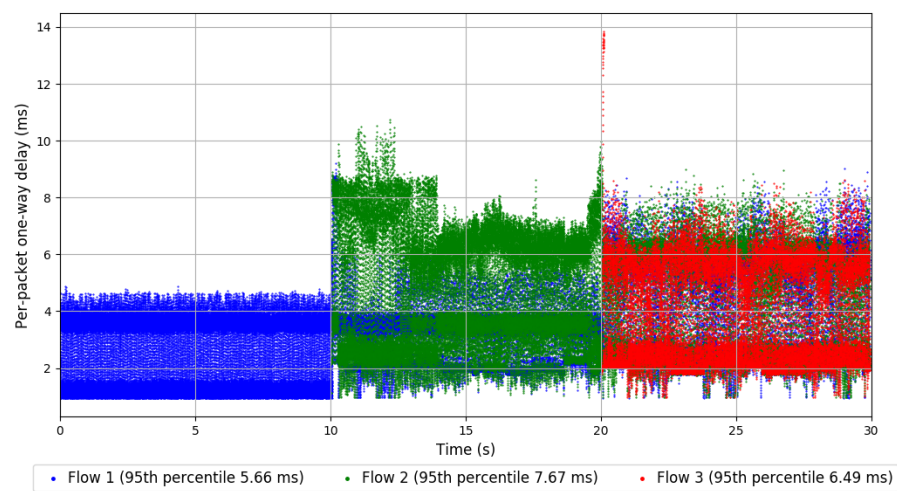
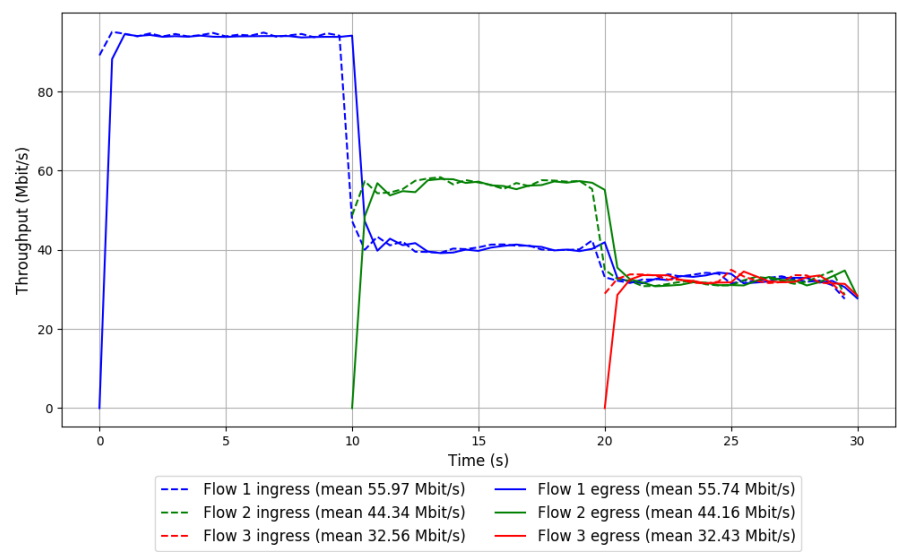
-- Flow 3:

Average throughput: 32.43 Mbit/s

95th percentile per-packet one-way delay: 6.490 ms

Loss rate: 0.41%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-26 11:11:01

End at: 2018-10-26 11:11:31

Local clock offset: -5.714 ms

Remote clock offset: 0.31 ms

# Below is generated by plot.py at 2018-10-26 11:26:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.14 Mbit/s

95th percentile per-packet one-way delay: 6.237 ms

Loss rate: 0.40%

-- Flow 1:

Average throughput: 58.52 Mbit/s

95th percentile per-packet one-way delay: 6.230 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 39.10 Mbit/s

95th percentile per-packet one-way delay: 6.048 ms

Loss rate: 0.42%

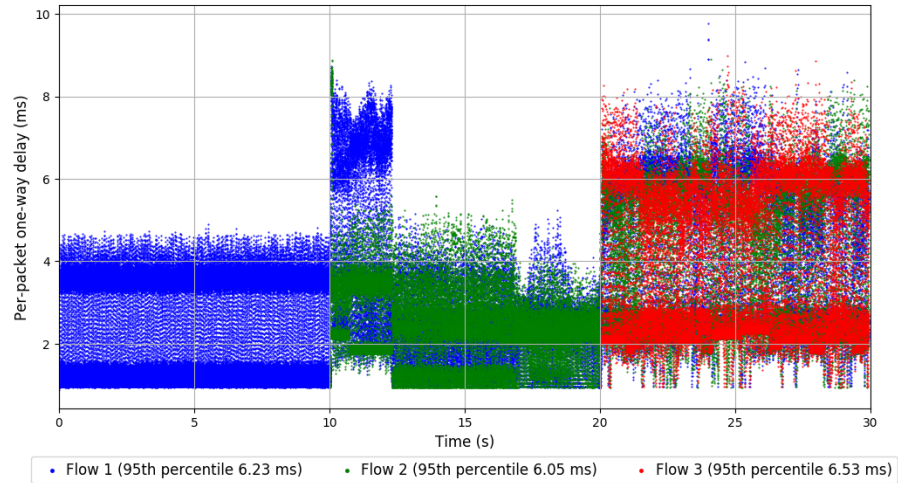
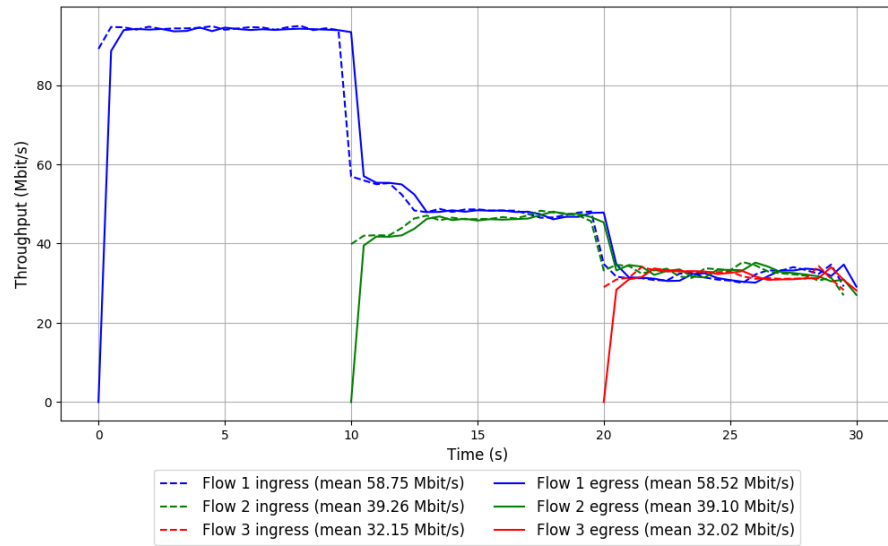
-- Flow 3:

Average throughput: 32.02 Mbit/s

95th percentile per-packet one-way delay: 6.529 ms

Loss rate: 0.41%

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

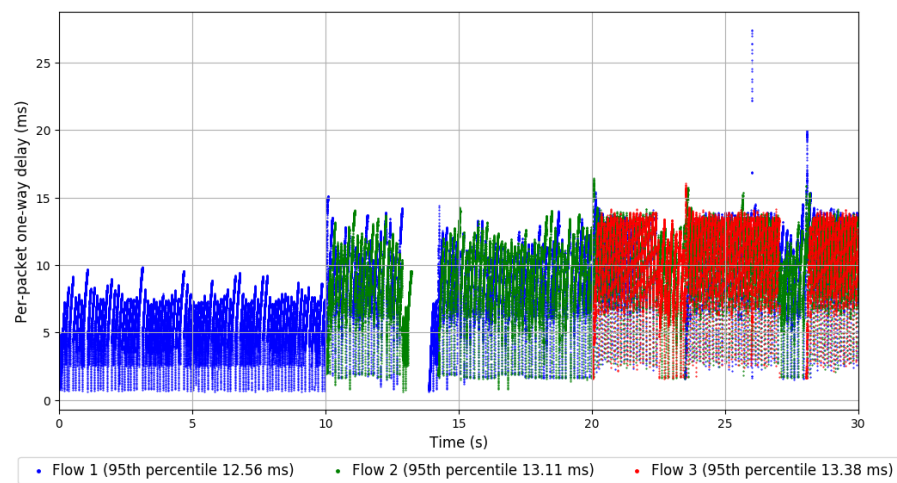
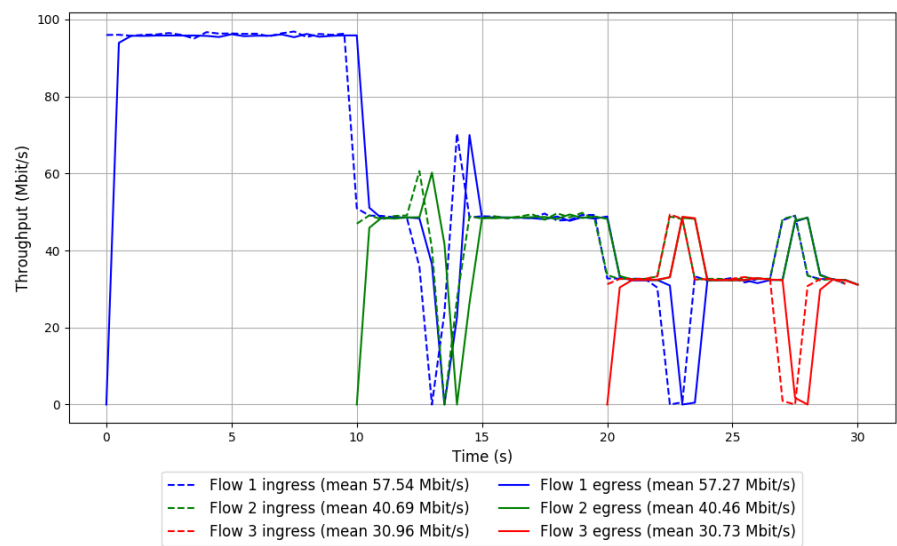


Run 1: Statistics of LEDBAT

Start at: 2018-10-26 09:37:59  
End at: 2018-10-26 09:38:29  
Local clock offset: -6.013 ms  
Remote clock offset: -0.402 ms

# Below is generated by plot.py at 2018-10-26 11:26:54  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 94.42 Mbit/s  
95th percentile per-packet one-way delay: 13.013 ms  
Loss rate: 0.53%  
-- Flow 1:  
Average throughput: 57.27 Mbit/s  
95th percentile per-packet one-way delay: 12.564 ms  
Loss rate: 0.48%  
-- Flow 2:  
Average throughput: 40.46 Mbit/s  
95th percentile per-packet one-way delay: 13.112 ms  
Loss rate: 0.57%  
-- Flow 3:  
Average throughput: 30.73 Mbit/s  
95th percentile per-packet one-way delay: 13.382 ms  
Loss rate: 0.76%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-10-26 09:58:36

End at: 2018-10-26 09:59:06

Local clock offset: -5.932 ms

Remote clock offset: -0.34 ms

# Below is generated by plot.py at 2018-10-26 11:26:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.26 Mbit/s

95th percentile per-packet one-way delay: 13.290 ms

Loss rate: 0.60%

-- Flow 1:

Average throughput: 57.77 Mbit/s

95th percentile per-packet one-way delay: 12.869 ms

Loss rate: 0.54%

-- Flow 2:

Average throughput: 35.27 Mbit/s

95th percentile per-packet one-way delay: 13.432 ms

Loss rate: 0.68%

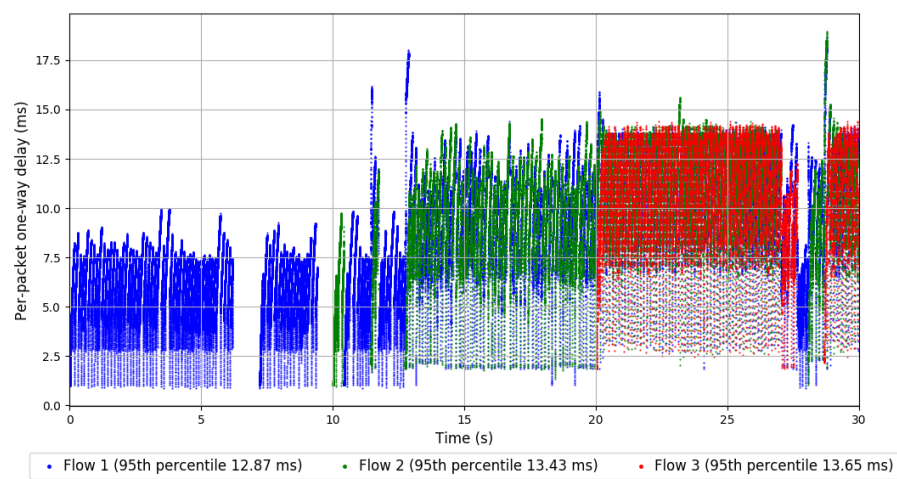
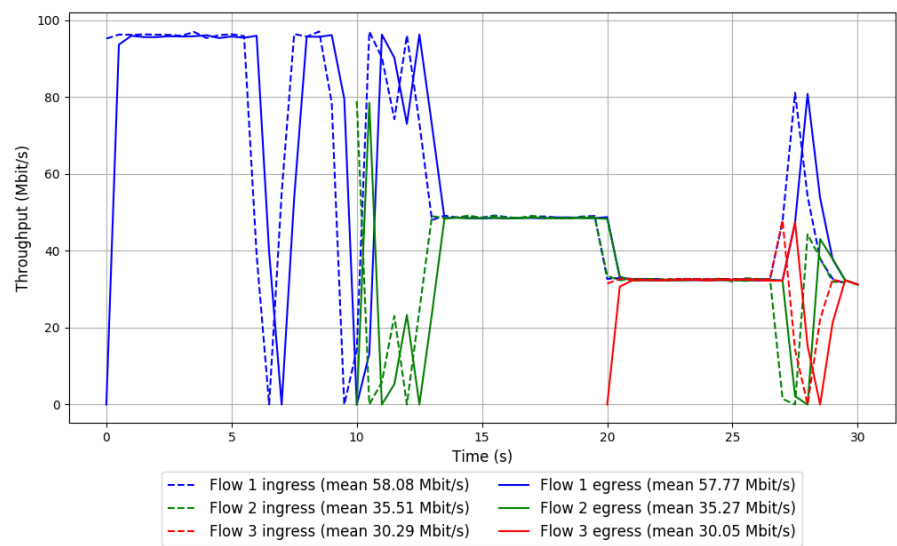
-- Flow 3:

Average throughput: 30.05 Mbit/s

95th percentile per-packet one-way delay: 13.646 ms

Loss rate: 0.81%

Run 2: Report of LEDBAT — Data Link



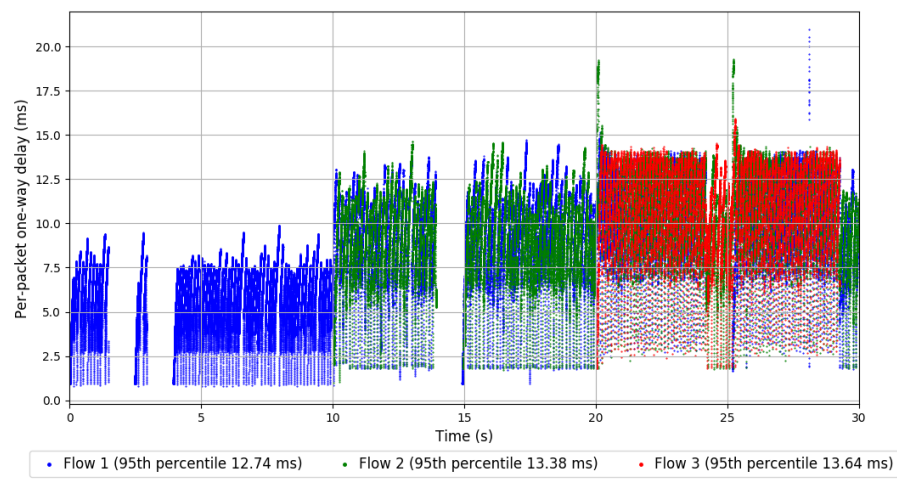
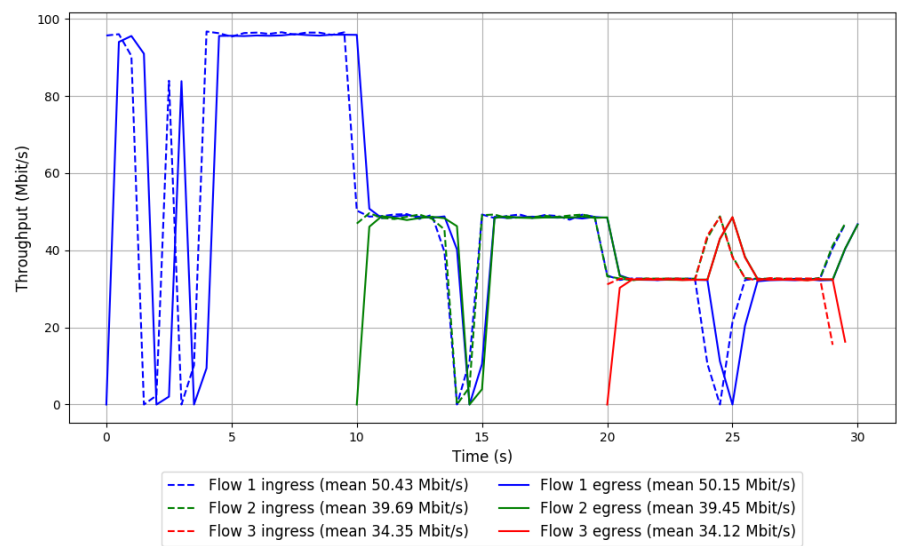


Run 3: Statistics of LEDBAT

Start at: 2018-10-26 10:19:19  
End at: 2018-10-26 10:19:49  
Local clock offset: -6.045 ms  
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2018-10-26 11:27:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 86.92 Mbit/s  
95th percentile per-packet one-way delay: 13.224 ms  
Loss rate: 0.58%  
-- Flow 1:  
Average throughput: 50.15 Mbit/s  
95th percentile per-packet one-way delay: 12.738 ms  
Loss rate: 0.54%  
-- Flow 2:  
Average throughput: 39.45 Mbit/s  
95th percentile per-packet one-way delay: 13.376 ms  
Loss rate: 0.63%  
-- Flow 3:  
Average throughput: 34.12 Mbit/s  
95th percentile per-packet one-way delay: 13.642 ms  
Loss rate: 0.63%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-10-26 10:39:58

End at: 2018-10-26 10:40:28

Local clock offset: -5.933 ms

Remote clock offset: 0.215 ms

# Below is generated by plot.py at 2018-10-26 11:27:06

# Datalink statistics

-- Total of 3 flows:

Average throughput: 93.28 Mbit/s

95th percentile per-packet one-way delay: 13.121 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 56.86 Mbit/s

95th percentile per-packet one-way delay: 12.811 ms

Loss rate: 0.53%

-- Flow 2:

Average throughput: 37.29 Mbit/s

95th percentile per-packet one-way delay: 13.279 ms

Loss rate: 0.64%

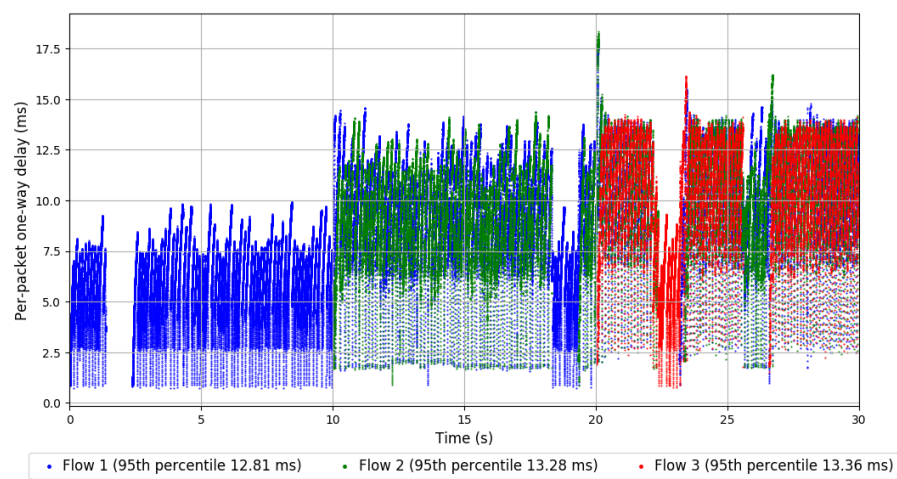
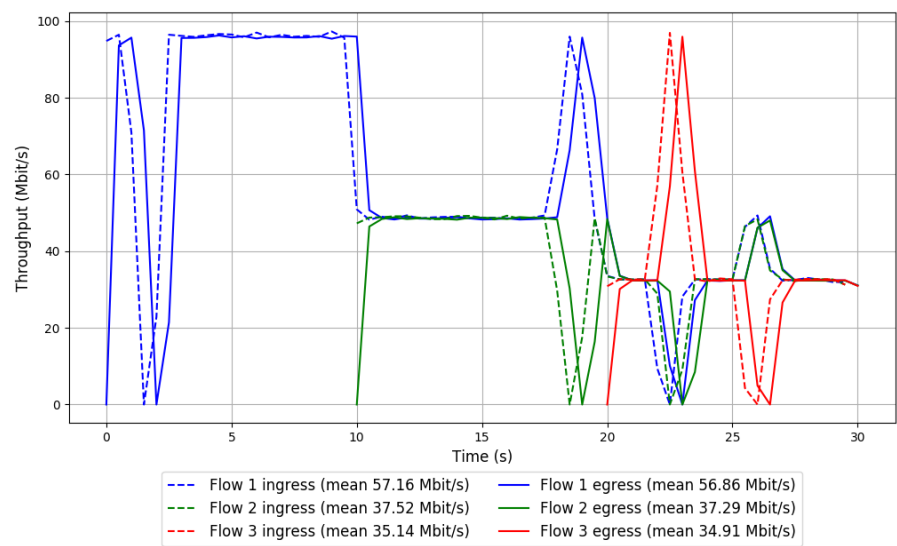
-- Flow 3:

Average throughput: 34.91 Mbit/s

95th percentile per-packet one-way delay: 13.364 ms

Loss rate: 0.69%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-10-26 11:00:37

End at: 2018-10-26 11:01:07

Local clock offset: -5.804 ms

Remote clock offset: 0.402 ms

# Below is generated by plot.py at 2018-10-26 11:27:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.17 Mbit/s

95th percentile per-packet one-way delay: 13.086 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 57.31 Mbit/s

95th percentile per-packet one-way delay: 12.603 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 35.55 Mbit/s

95th percentile per-packet one-way delay: 13.211 ms

Loss rate: 0.61%

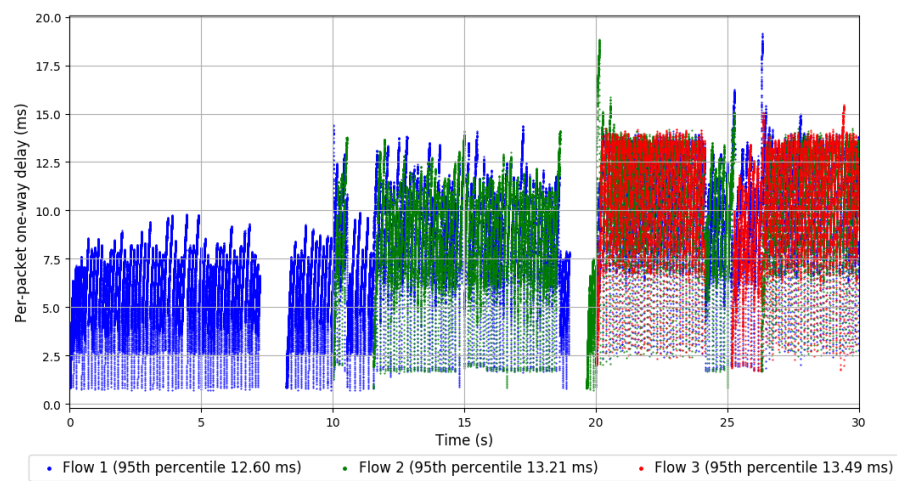
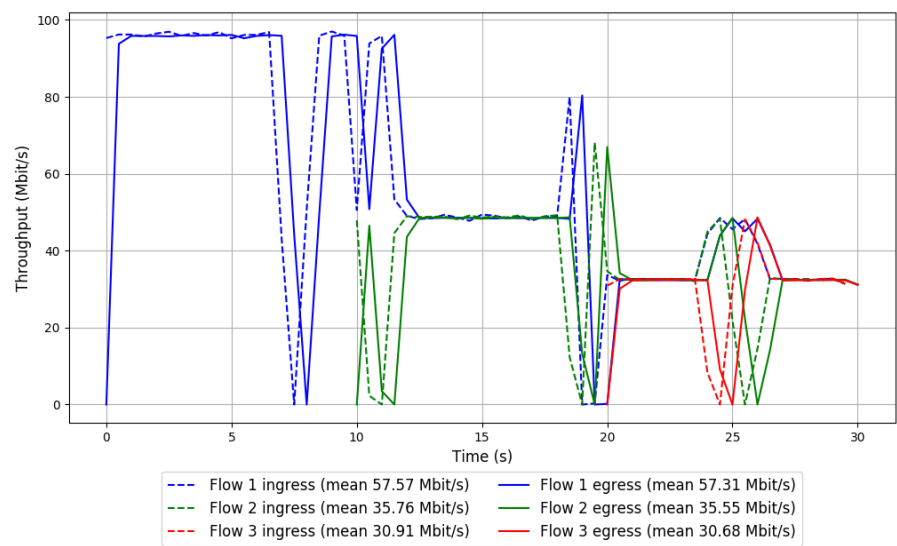
-- Flow 3:

Average throughput: 30.68 Mbit/s

95th percentile per-packet one-way delay: 13.490 ms

Loss rate: 0.77%

Run 5: Report of LEDBAT — Data Link

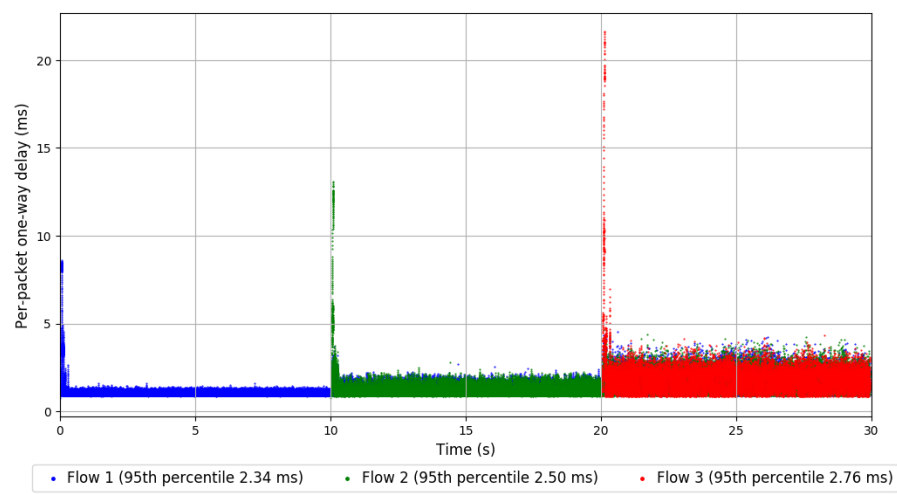
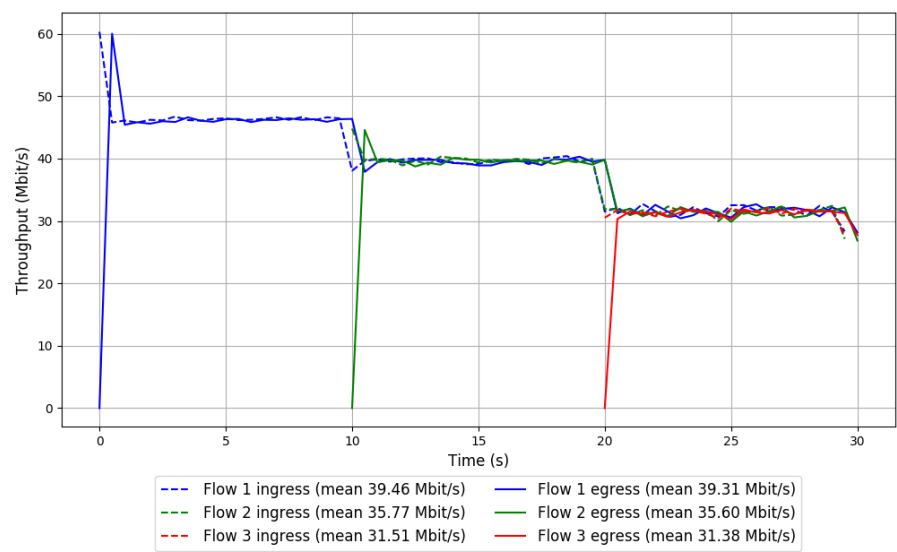


Run 1: Statistics of Indigo-Muses

Start at: 2018-10-26 09:55:09  
End at: 2018-10-26 09:55:39  
Local clock offset: -5.953 ms  
Remote clock offset: -0.241 ms

# Below is generated by plot.py at 2018-10-26 11:27:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 73.38 Mbit/s  
95th percentile per-packet one-way delay: 2.479 ms  
Loss rate: 0.44%  
-- Flow 1:  
Average throughput: 39.31 Mbit/s  
95th percentile per-packet one-way delay: 2.336 ms  
Loss rate: 0.41%  
-- Flow 2:  
Average throughput: 35.60 Mbit/s  
95th percentile per-packet one-way delay: 2.501 ms  
Loss rate: 0.50%  
-- Flow 3:  
Average throughput: 31.38 Mbit/s  
95th percentile per-packet one-way delay: 2.756 ms  
Loss rate: 0.44%

Run 1: Report of Indigo-Muses — Data Link





Run 2: Statistics of Indigo-Muses

Start at: 2018-10-26 10:15:54

End at: 2018-10-26 10:16:24

Local clock offset: -6.108 ms

Remote clock offset: -0.1 ms

# Below is generated by plot.py at 2018-10-26 11:27:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 73.41 Mbit/s

95th percentile per-packet one-way delay: 2.523 ms

Loss rate: 0.39%

-- Flow 1:

Average throughput: 39.43 Mbit/s

95th percentile per-packet one-way delay: 2.382 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 35.47 Mbit/s

95th percentile per-packet one-way delay: 2.539 ms

Loss rate: 0.39%

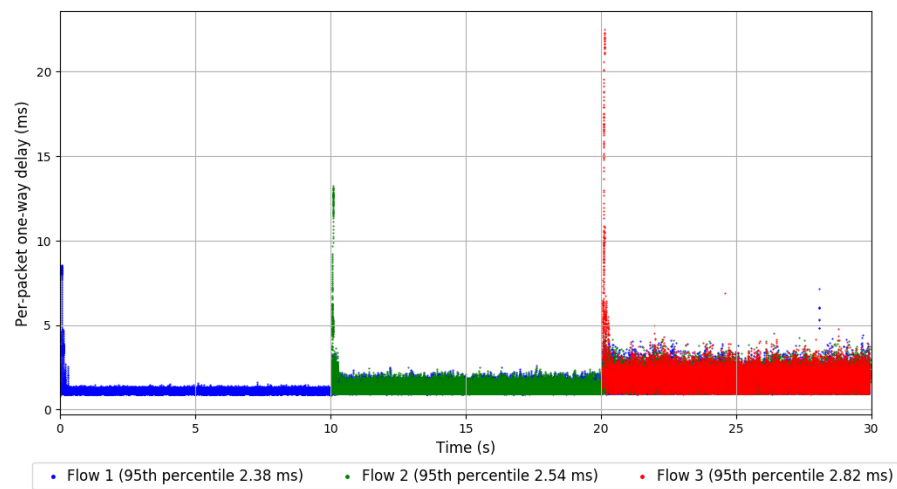
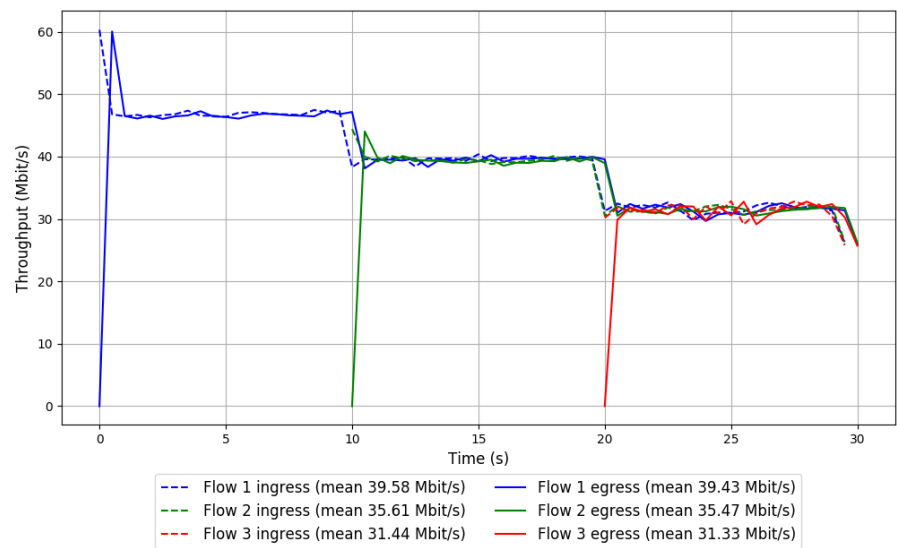
-- Flow 3:

Average throughput: 31.33 Mbit/s

95th percentile per-packet one-way delay: 2.819 ms

Loss rate: 0.35%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-10-26 10:36:34

End at: 2018-10-26 10:37:04

Local clock offset: -5.921 ms

Remote clock offset: 0.185 ms

# Below is generated by plot.py at 2018-10-26 11:27:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 73.47 Mbit/s

95th percentile per-packet one-way delay: 2.530 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 39.20 Mbit/s

95th percentile per-packet one-way delay: 2.395 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 35.71 Mbit/s

95th percentile per-packet one-way delay: 2.559 ms

Loss rate: 0.35%

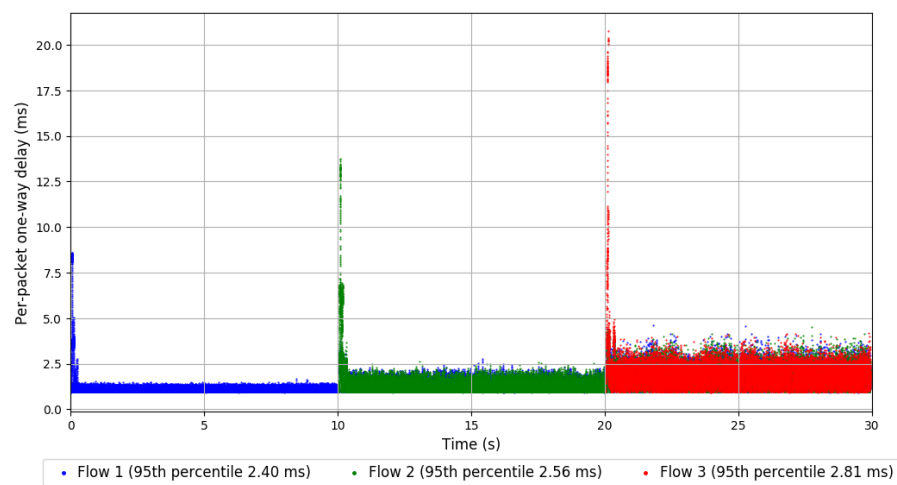
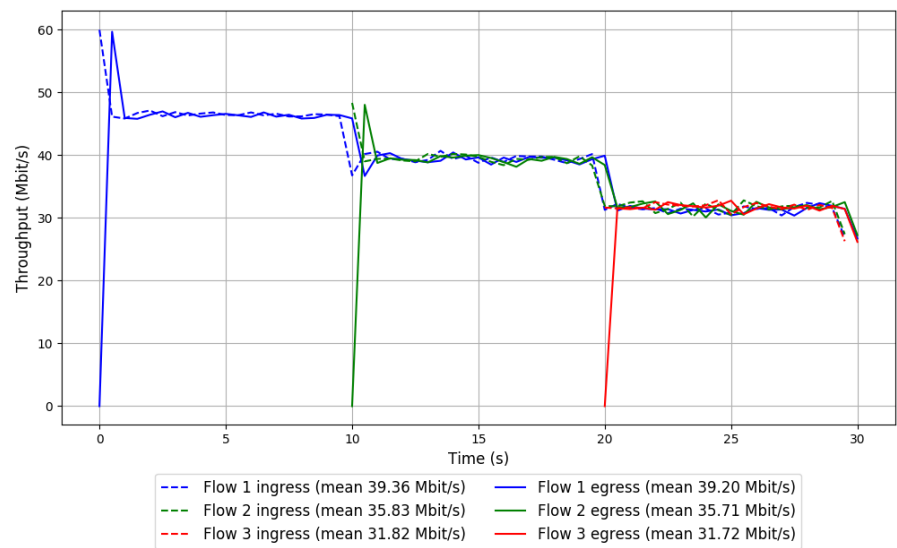
-- Flow 3:

Average throughput: 31.72 Mbit/s

95th percentile per-packet one-way delay: 2.807 ms

Loss rate: 0.34%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-10-26 10:57:12

End at: 2018-10-26 10:57:42

Local clock offset: -5.814 ms

Remote clock offset: 0.395 ms

# Below is generated by plot.py at 2018-10-26 11:27:43

# Datalink statistics

-- Total of 3 flows:

Average throughput: 73.11 Mbit/s

95th percentile per-packet one-way delay: 2.441 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 39.31 Mbit/s

95th percentile per-packet one-way delay: 2.338 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 35.37 Mbit/s

95th percentile per-packet one-way delay: 2.439 ms

Loss rate: 0.48%

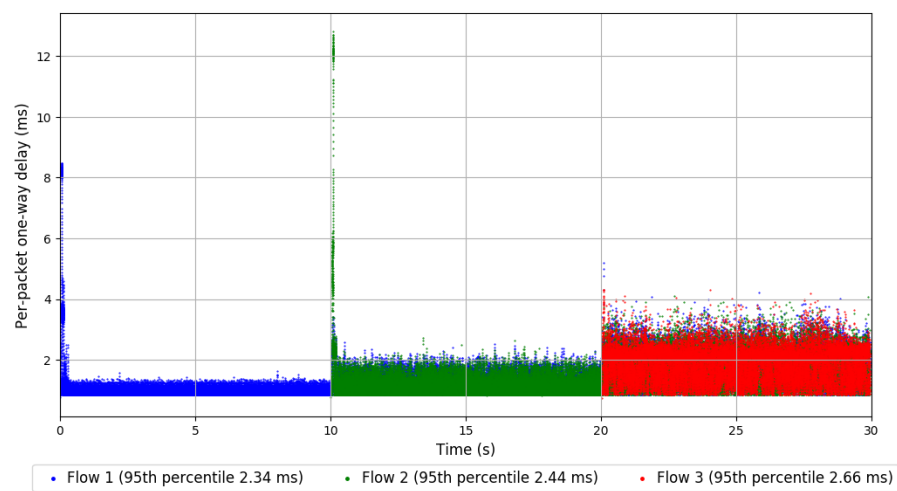
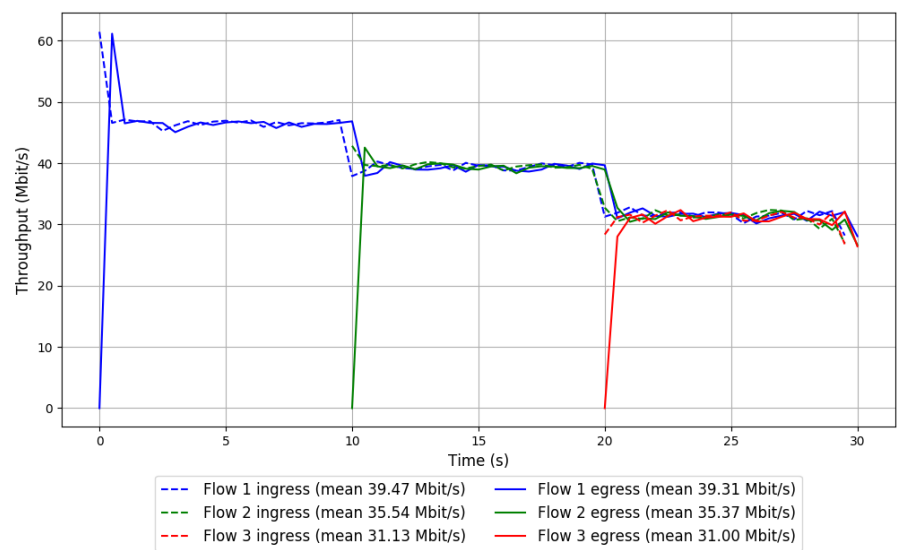
-- Flow 3:

Average throughput: 31.00 Mbit/s

95th percentile per-packet one-way delay: 2.660 ms

Loss rate: 0.44%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-10-26 11:17:49

End at: 2018-10-26 11:18:19

Local clock offset: -5.676 ms

Remote clock offset: 0.331 ms

# Below is generated by plot.py at 2018-10-26 11:27:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 73.35 Mbit/s

95th percentile per-packet one-way delay: 2.481 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 39.44 Mbit/s

95th percentile per-packet one-way delay: 2.365 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 35.39 Mbit/s

95th percentile per-packet one-way delay: 2.458 ms

Loss rate: 0.38%

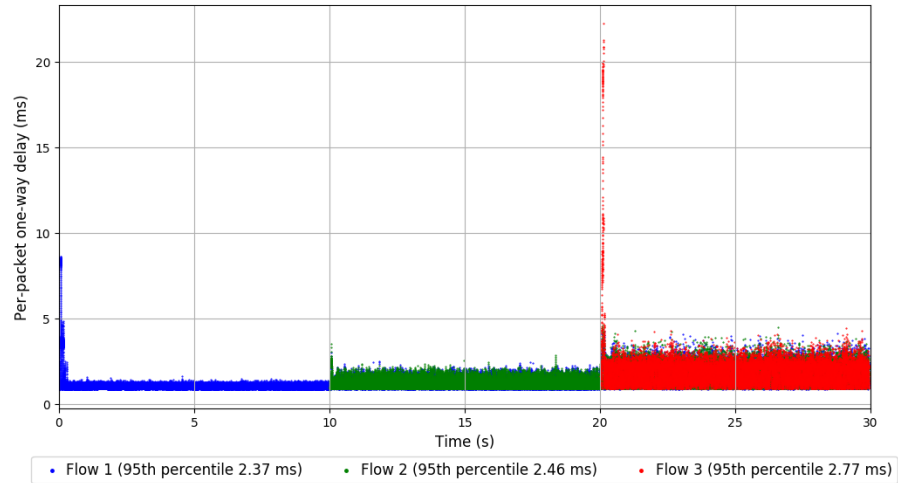
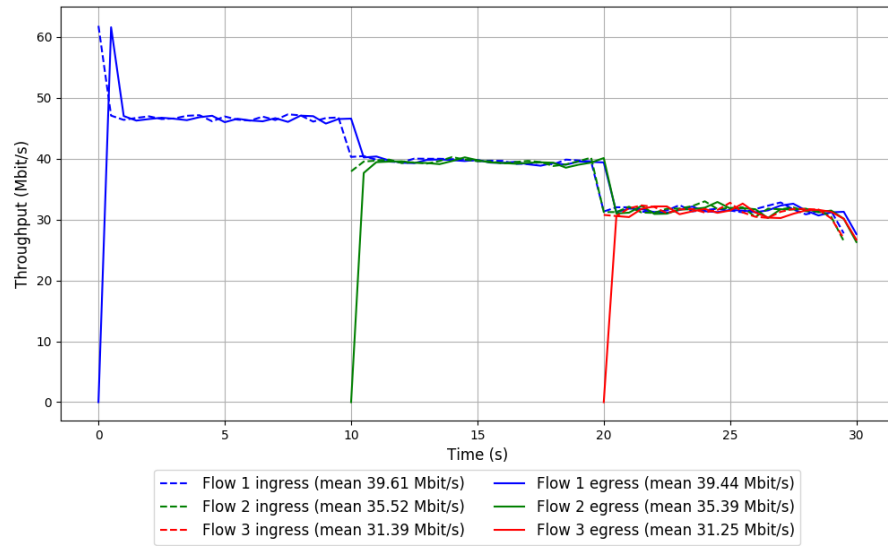
-- Flow 3:

Average throughput: 31.25 Mbit/s

95th percentile per-packet one-way delay: 2.774 ms

Loss rate: 0.45%

# Run 5: Report of Indigo-Muses — Data Link





Run 1: Statistics of PCC-Allegro

Start at: 2018-10-26 09:56:18

End at: 2018-10-26 09:56:48

Local clock offset: -5.943 ms

Remote clock offset: -0.33 ms

# Below is generated by plot.py at 2018-10-26 11:28:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 92.68 Mbit/s

95th percentile per-packet one-way delay: 2185.469 ms

Loss rate: 7.03%

-- Flow 1:

Average throughput: 65.19 Mbit/s

95th percentile per-packet one-way delay: 2253.745 ms

Loss rate: 7.21%

-- Flow 2:

Average throughput: 27.04 Mbit/s

95th percentile per-packet one-way delay: 687.520 ms

Loss rate: 9.48%

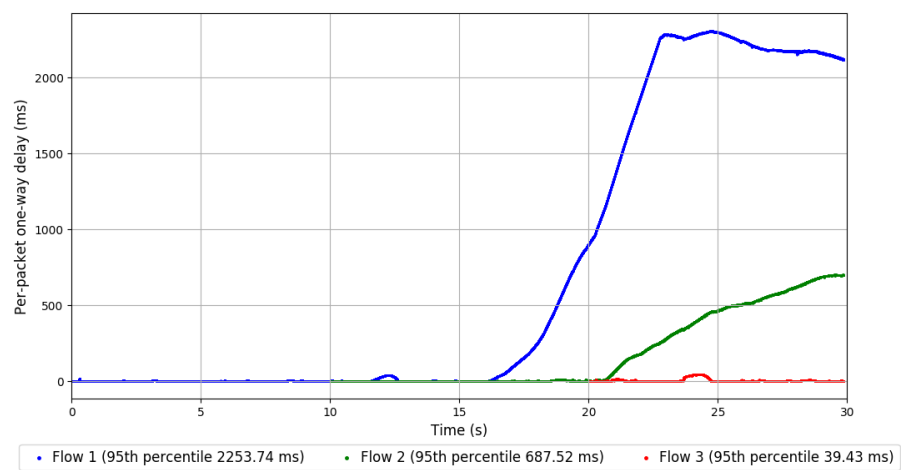
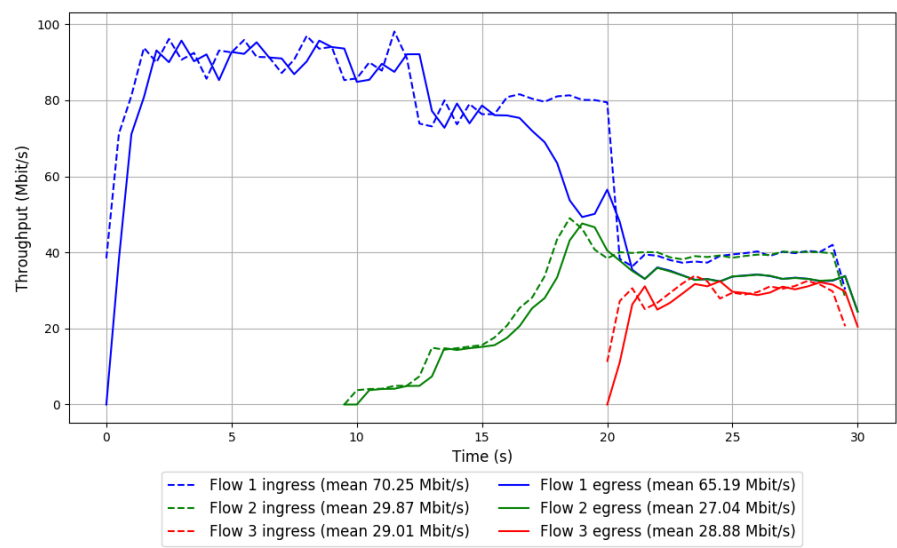
-- Flow 3:

Average throughput: 28.88 Mbit/s

95th percentile per-packet one-way delay: 39.427 ms

Loss rate: 0.55%

Run 1: Report of PCC-Allegro — Data Link

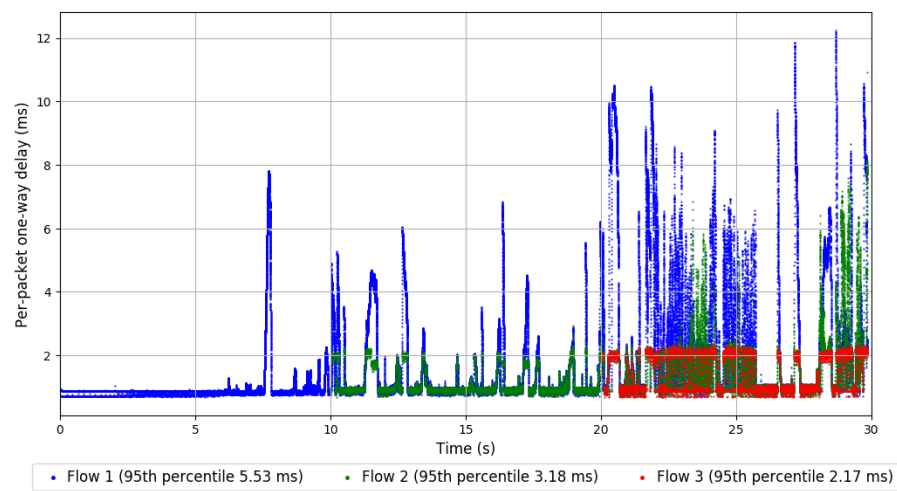
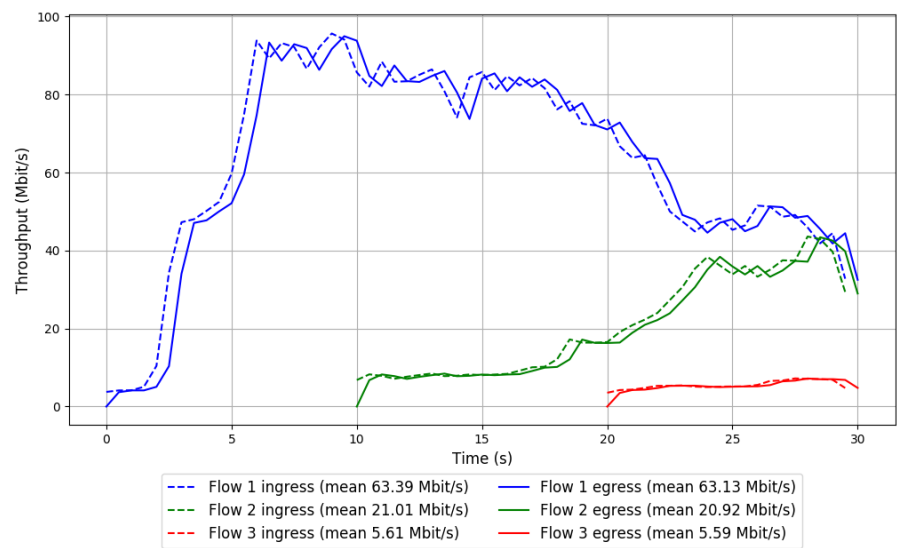


Run 2: Statistics of PCC-Allegro

Start at: 2018-10-26 10:17:02  
End at: 2018-10-26 10:17:32  
Local clock offset: -6.158 ms  
Remote clock offset: -0.059 ms

# Below is generated by plot.py at 2018-10-26 11:28:10  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 78.87 Mbit/s  
95th percentile per-packet one-way delay: 5.155 ms  
Loss rate: 0.43%  
-- Flow 1:  
Average throughput: 63.13 Mbit/s  
95th percentile per-packet one-way delay: 5.530 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 20.92 Mbit/s  
95th percentile per-packet one-way delay: 3.182 ms  
Loss rate: 0.40%  
-- Flow 3:  
Average throughput: 5.59 Mbit/s  
95th percentile per-packet one-way delay: 2.174 ms  
Loss rate: 0.41%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-10-26 10:37:42

End at: 2018-10-26 10:38:12

Local clock offset: -5.898 ms

Remote clock offset: 0.211 ms

# Below is generated by plot.py at 2018-10-26 11:28:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 76.67 Mbit/s

95th percentile per-packet one-way delay: 5.212 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 54.72 Mbit/s

95th percentile per-packet one-way delay: 5.889 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 29.81 Mbit/s

95th percentile per-packet one-way delay: 2.214 ms

Loss rate: 0.47%

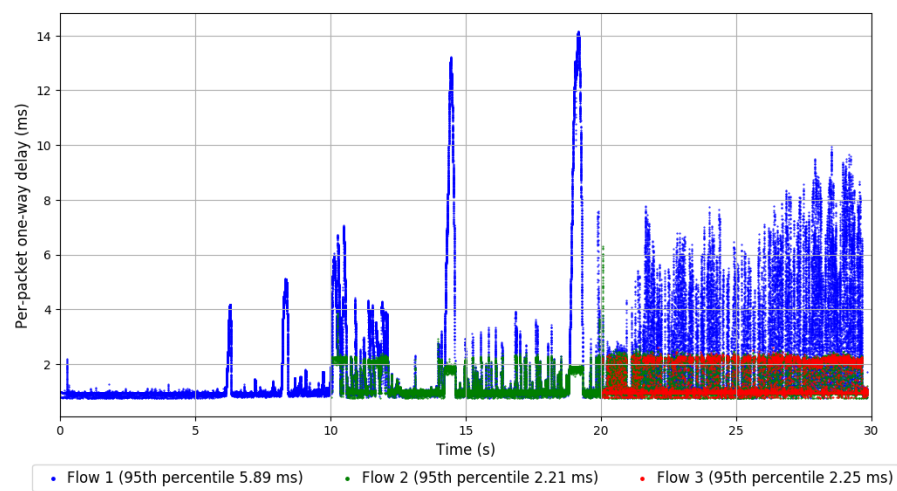
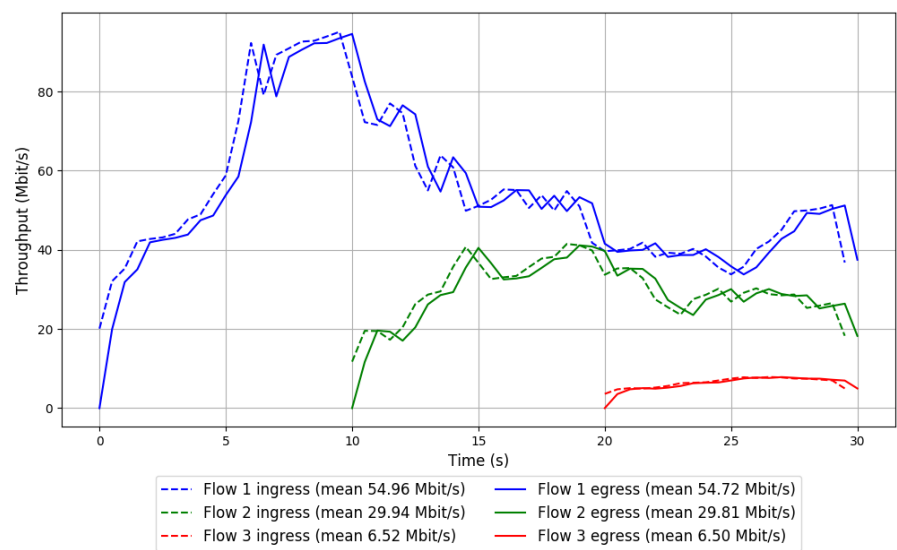
-- Flow 3:

Average throughput: 6.50 Mbit/s

95th percentile per-packet one-way delay: 2.250 ms

Loss rate: 0.36%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-10-26 10:58:20

End at: 2018-10-26 10:58:50

Local clock offset: -5.806 ms

Remote clock offset: 0.383 ms

# Below is generated by plot.py at 2018-10-26 11:28:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 81.16 Mbit/s

95th percentile per-packet one-way delay: 1832.338 ms

Loss rate: 8.13%

-- Flow 1:

Average throughput: 47.69 Mbit/s

95th percentile per-packet one-way delay: 1928.069 ms

Loss rate: 12.79%

-- Flow 2:

Average throughput: 37.24 Mbit/s

95th percentile per-packet one-way delay: 21.407 ms

Loss rate: 0.60%

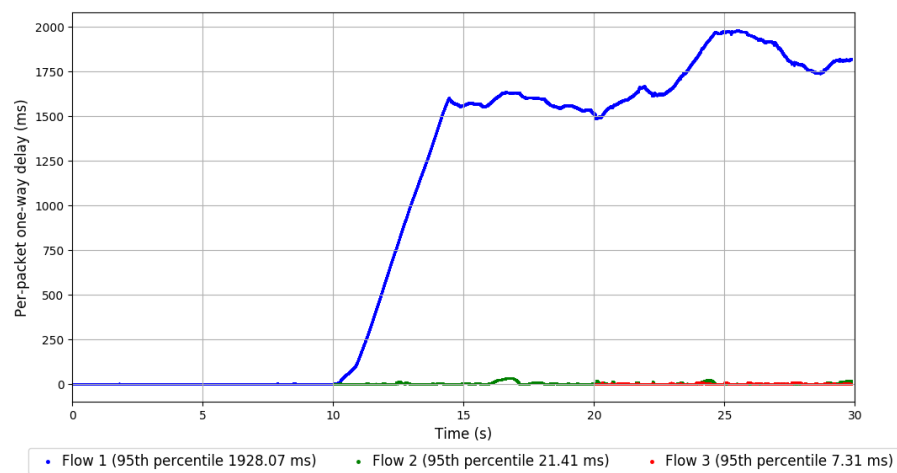
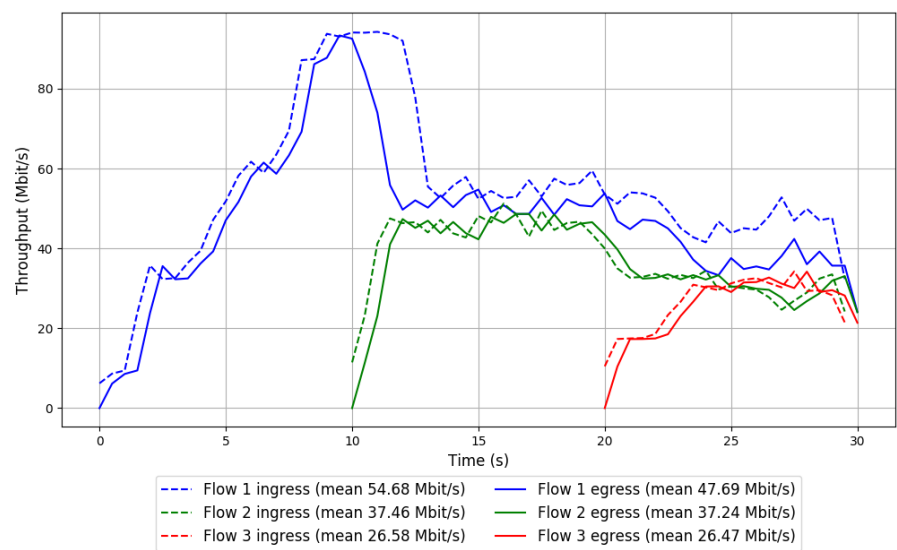
-- Flow 3:

Average throughput: 26.47 Mbit/s

95th percentile per-packet one-way delay: 7.312 ms

Loss rate: 0.43%

Run 4: Report of PCC-Allegro — Data Link





Run 5: Statistics of PCC-Allegro

Start at: 2018-10-26 11:18:57

End at: 2018-10-26 11:19:27

Local clock offset: -5.609 ms

Remote clock offset: 0.426 ms

# Below is generated by plot.py at 2018-10-26 11:28:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 87.56 Mbit/s

95th percentile per-packet one-way delay: 1751.327 ms

Loss rate: 11.73%

-- Flow 1:

Average throughput: 54.96 Mbit/s

95th percentile per-packet one-way delay: 1796.583 ms

Loss rate: 16.01%

-- Flow 2:

Average throughput: 36.46 Mbit/s

95th percentile per-packet one-way delay: 481.495 ms

Loss rate: 4.28%

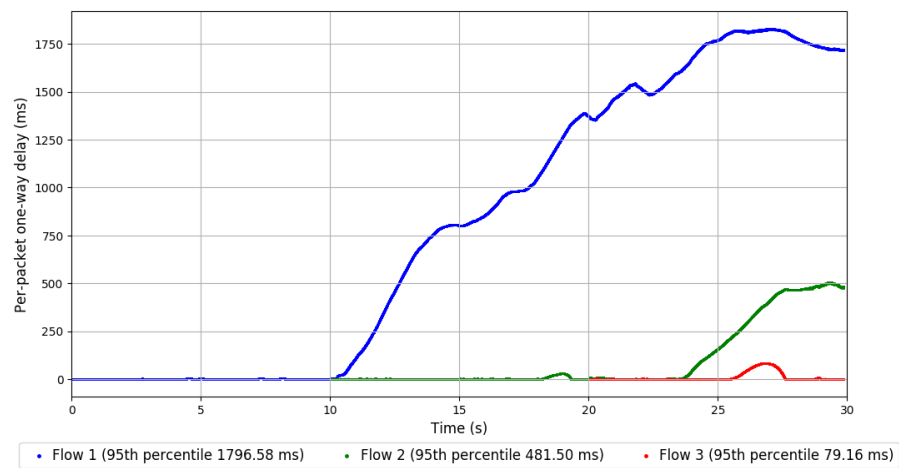
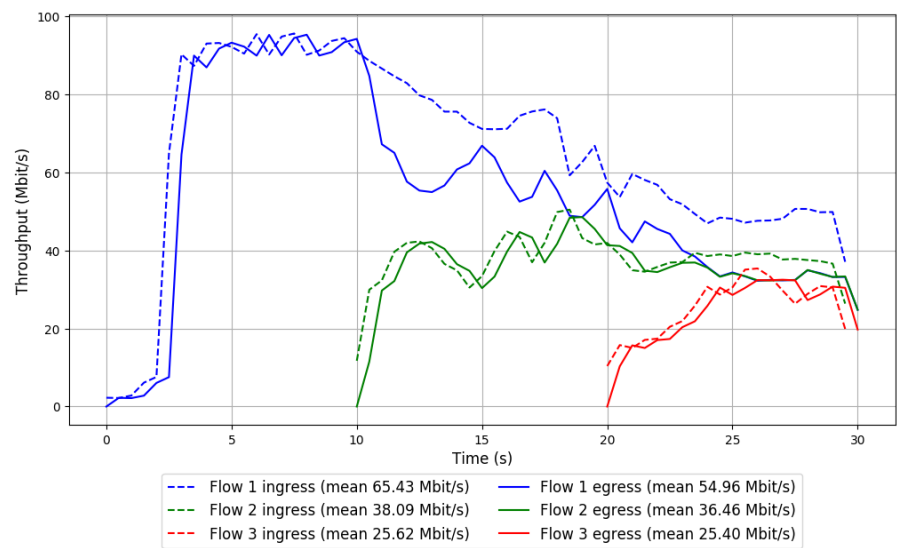
-- Flow 3:

Average throughput: 25.40 Mbit/s

95th percentile per-packet one-way delay: 79.157 ms

Loss rate: 0.89%

Run 5: Report of PCC-Allegro — Data Link

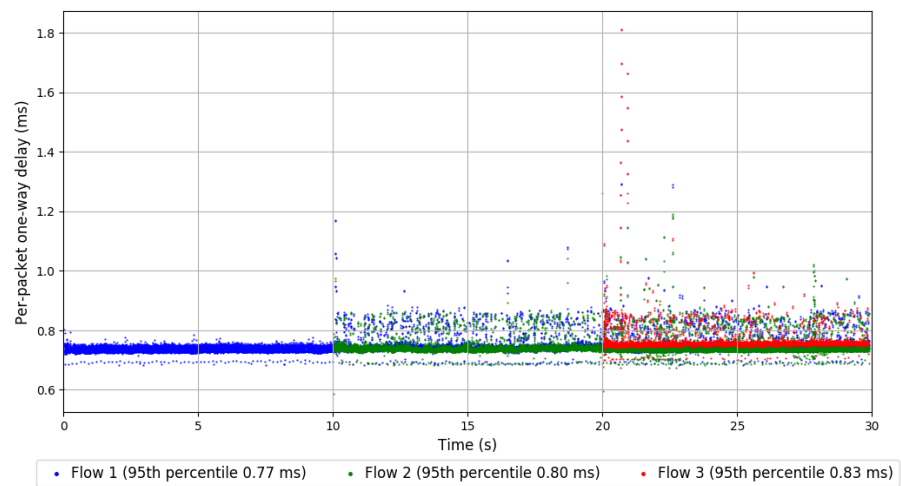
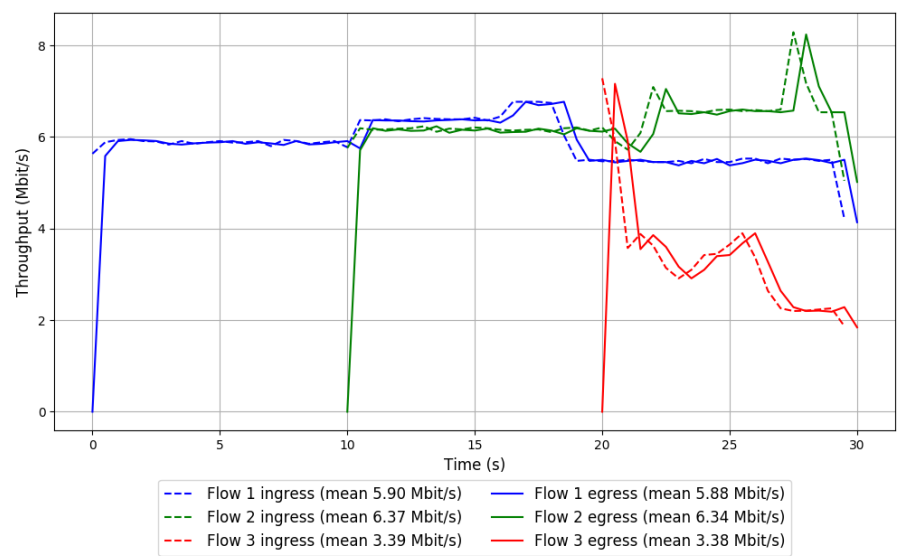


```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-26 09:49:30
End at: 2018-10-26 09:50:00
Local clock offset: -6.066 ms
Remote clock offset: -0.273 ms

# Below is generated by plot.py at 2018-10-26 11:28:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.21 Mbit/s
95th percentile per-packet one-way delay: 0.789 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 0.767 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 6.34 Mbit/s
95th percentile per-packet one-way delay: 0.796 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 3.38 Mbit/s
95th percentile per-packet one-way delay: 0.835 ms
Loss rate: 0.47%
```

Run 1: Report of PCC-Expr — Data Link

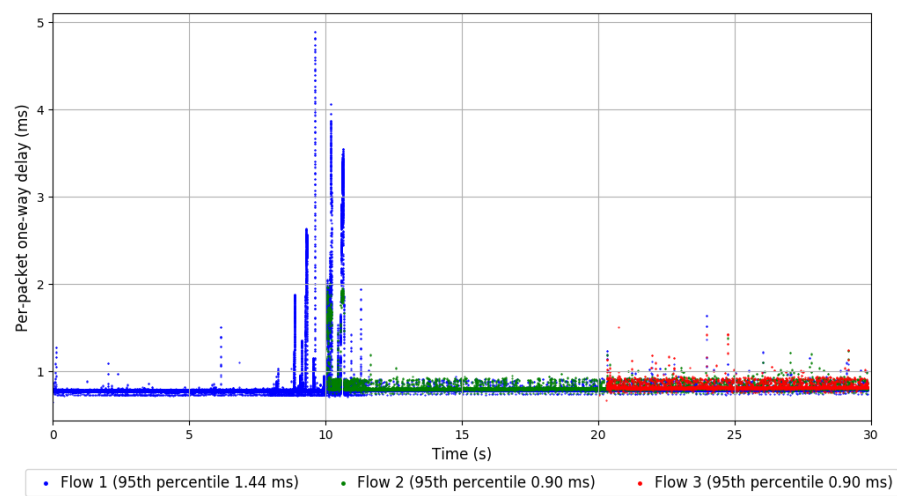
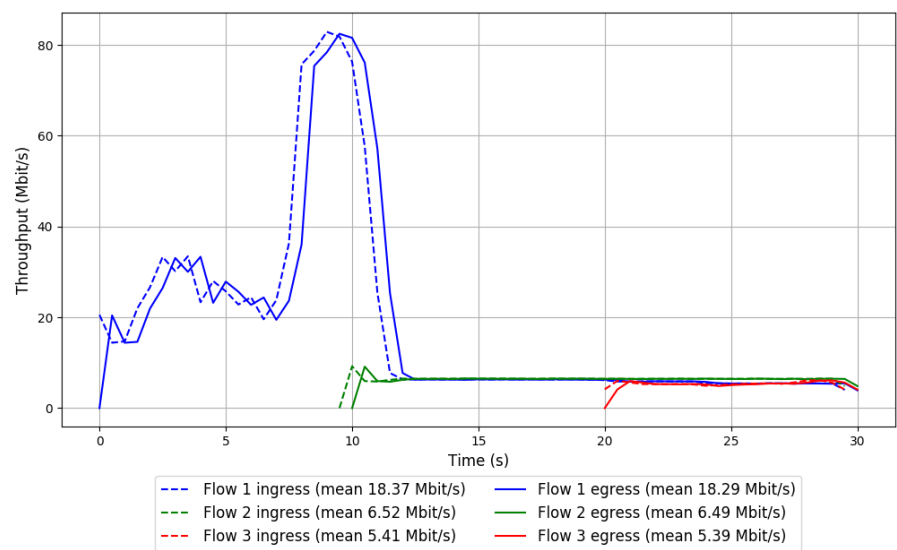


Run 2: Statistics of PCC-Expr

Start at: 2018-10-26 10:10:15  
End at: 2018-10-26 10:10:45  
Local clock offset: -6.15 ms  
Remote clock offset: -0.108 ms

# Below is generated by plot.py at 2018-10-26 11:28:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 24.39 Mbit/s  
95th percentile per-packet one-way delay: 1.036 ms  
Loss rate: 0.43%  
-- Flow 1:  
Average throughput: 18.29 Mbit/s  
95th percentile per-packet one-way delay: 1.436 ms  
Loss rate: 0.46%  
-- Flow 2:  
Average throughput: 6.49 Mbit/s  
95th percentile per-packet one-way delay: 0.902 ms  
Loss rate: 0.36%  
-- Flow 3:  
Average throughput: 5.39 Mbit/s  
95th percentile per-packet one-way delay: 0.903 ms  
Loss rate: 0.34%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-10-26 10:30:53

End at: 2018-10-26 10:31:23

Local clock offset: -6.135 ms

Remote clock offset: 0.184 ms

# Below is generated by plot.py at 2018-10-26 11:28:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 35.21 Mbit/s

95th percentile per-packet one-way delay: 345.971 ms

Loss rate: 1.05%

-- Flow 1:

Average throughput: 28.99 Mbit/s

95th percentile per-packet one-way delay: 348.205 ms

Loss rate: 1.18%

-- Flow 2:

Average throughput: 6.86 Mbit/s

95th percentile per-packet one-way delay: 0.906 ms

Loss rate: 0.45%

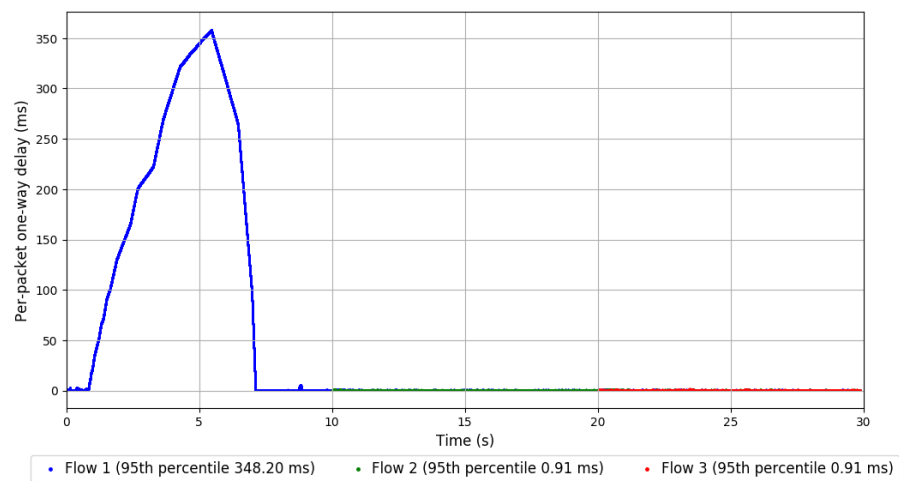
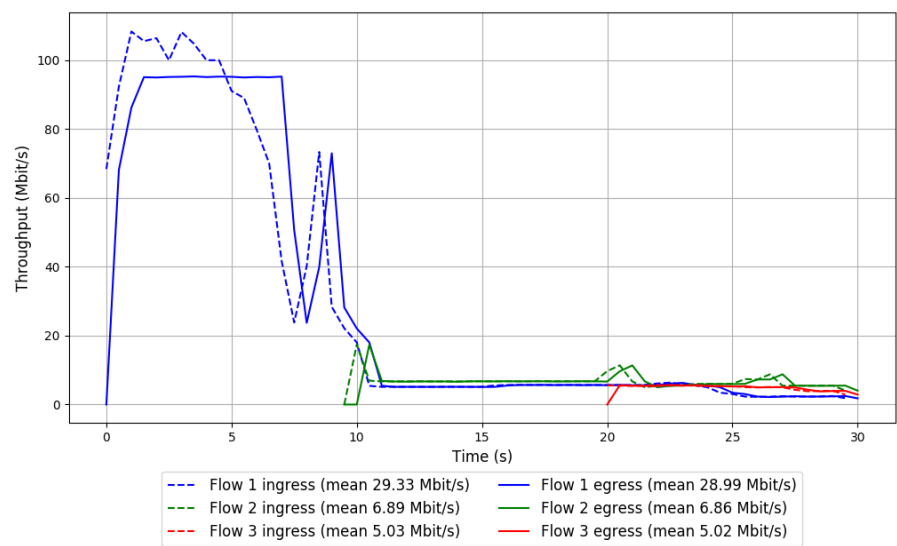
-- Flow 3:

Average throughput: 5.02 Mbit/s

95th percentile per-packet one-way delay: 0.914 ms

Loss rate: 0.25%

Run 3: Report of PCC-Expr — Data Link





Run 4: Statistics of PCC-Expr

Start at: 2018-10-26 10:51:32

End at: 2018-10-26 10:52:02

Local clock offset: -5.83 ms

Remote clock offset: 0.284 ms

# Below is generated by plot.py at 2018-10-26 11:28:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 25.41 Mbit/s

95th percentile per-packet one-way delay: 1.158 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 18.59 Mbit/s

95th percentile per-packet one-way delay: 1.427 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 6.52 Mbit/s

95th percentile per-packet one-way delay: 1.037 ms

Loss rate: 0.44%

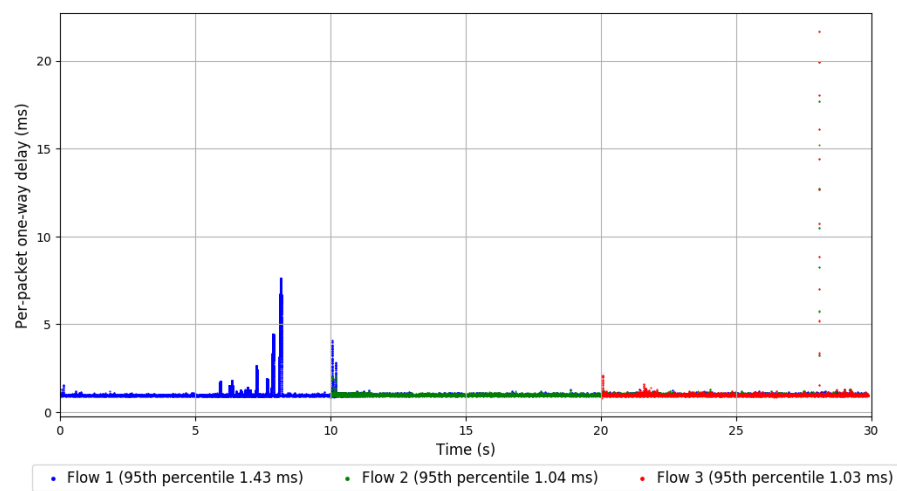
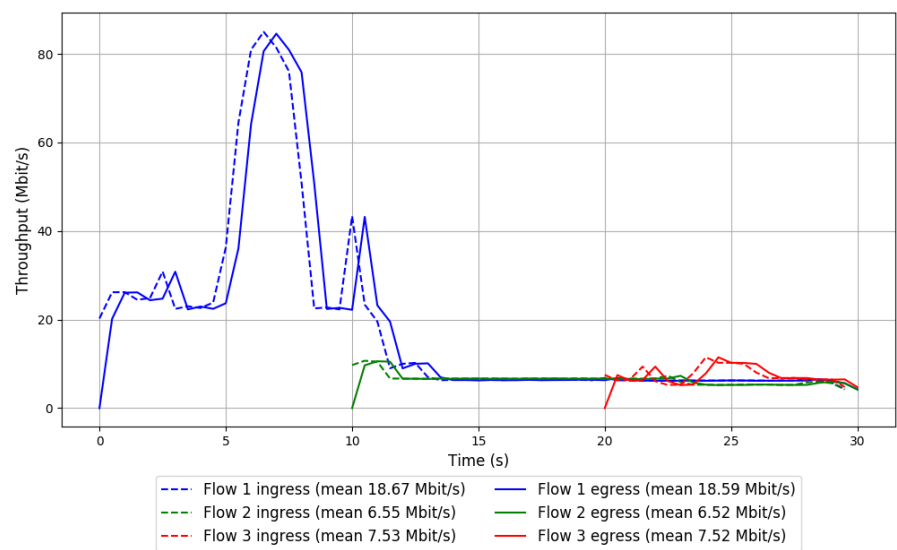
-- Flow 3:

Average throughput: 7.52 Mbit/s

95th percentile per-packet one-way delay: 1.031 ms

Loss rate: 0.28%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-10-26 11:12:10

End at: 2018-10-26 11:12:40

Local clock offset: -5.649 ms

Remote clock offset: 0.428 ms

# Below is generated by plot.py at 2018-10-26 11:28:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.77 Mbit/s

95th percentile per-packet one-way delay: 0.943 ms

Loss rate: 0.46%

-- Flow 1:

Average throughput: 5.83 Mbit/s

95th percentile per-packet one-way delay: 0.935 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 6.02 Mbit/s

95th percentile per-packet one-way delay: 0.943 ms

Loss rate: 0.45%

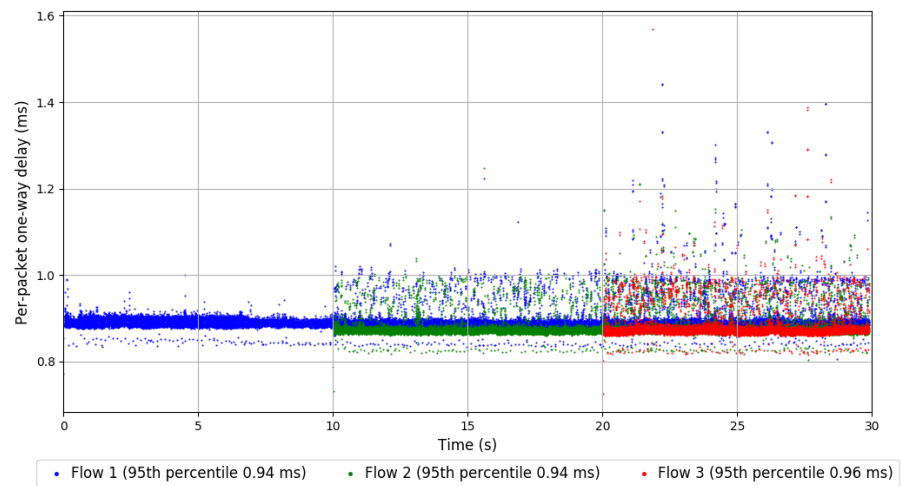
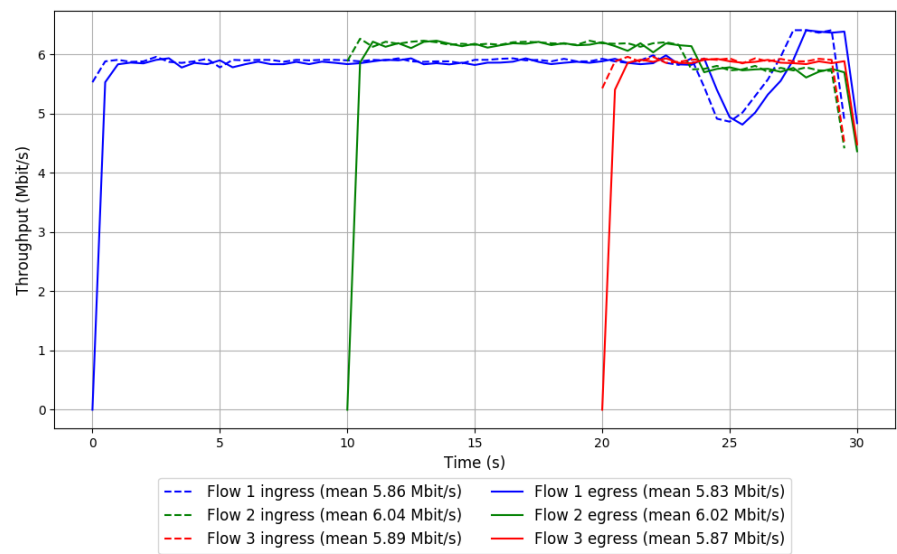
-- Flow 3:

Average throughput: 5.87 Mbit/s

95th percentile per-packet one-way delay: 0.958 ms

Loss rate: 0.44%

Run 5: Report of PCC-Expr — Data Link

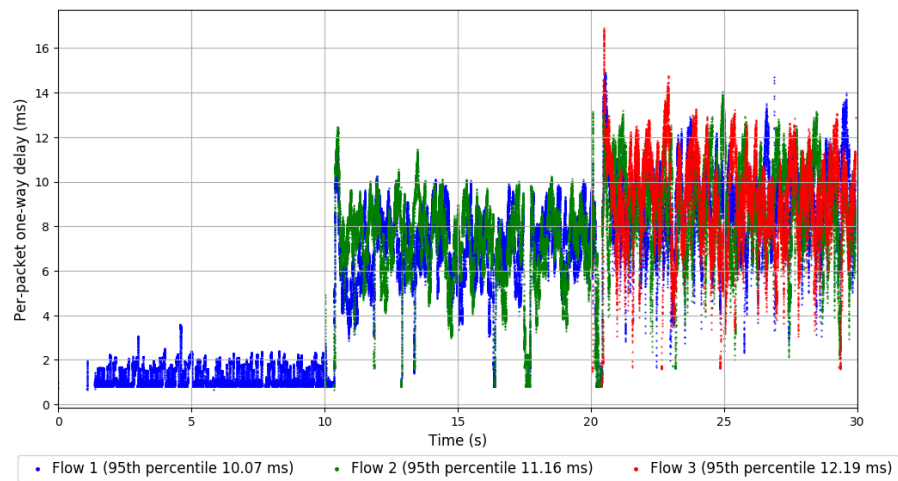
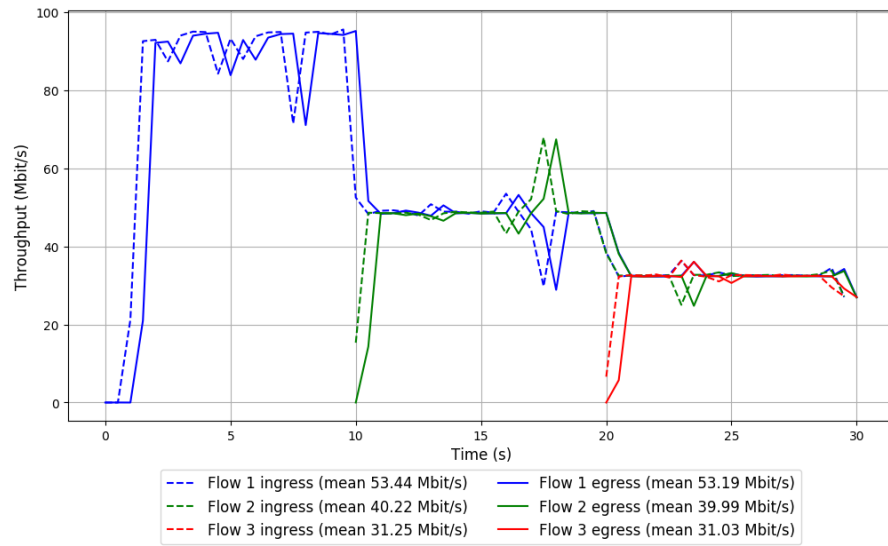


Run 1: Statistics of QUIC Cubic

Start at: 2018-10-26 09:50:36  
End at: 2018-10-26 09:51:06  
Local clock offset: -6.071 ms  
Remote clock offset: -0.343 ms

# Below is generated by plot.py at 2018-10-26 11:29:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 90.05 Mbit/s  
95th percentile per-packet one-way delay: 11.008 ms  
Loss rate: 0.53%  
-- Flow 1:  
Average throughput: 53.19 Mbit/s  
95th percentile per-packet one-way delay: 10.073 ms  
Loss rate: 0.48%  
-- Flow 2:  
Average throughput: 39.99 Mbit/s  
95th percentile per-packet one-way delay: 11.159 ms  
Loss rate: 0.57%  
-- Flow 3:  
Average throughput: 31.03 Mbit/s  
95th percentile per-packet one-way delay: 12.194 ms  
Loss rate: 0.70%

## Run 1: Report of QUIC Cubic — Data Link

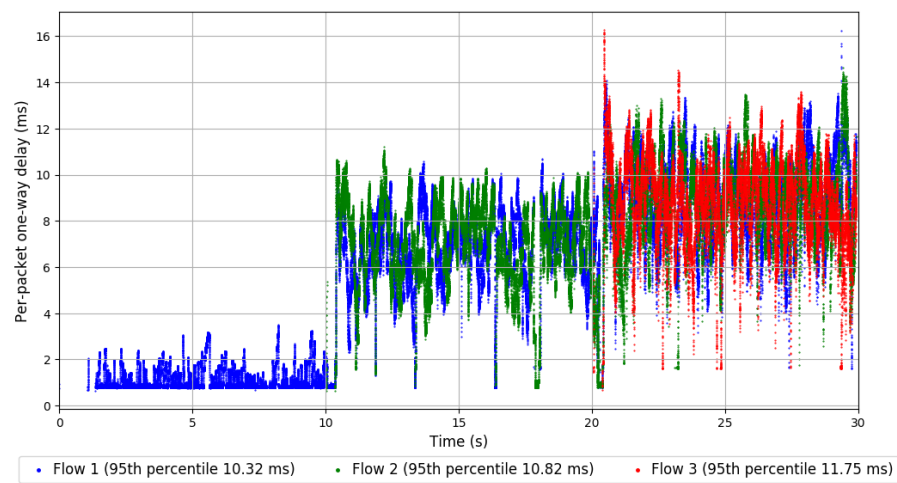
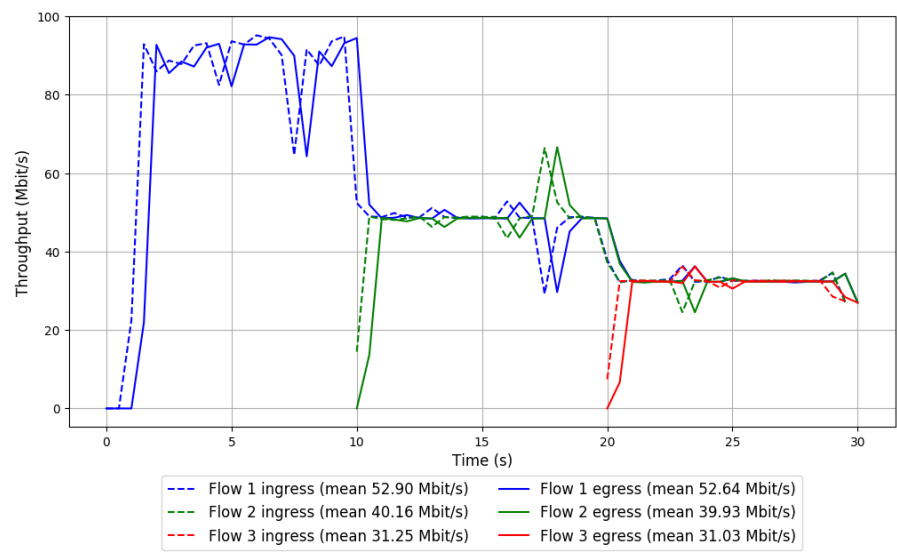


Run 2: Statistics of QUIC Cubic

Start at: 2018-10-26 10:11:22  
End at: 2018-10-26 10:11:52  
Local clock offset: -6.139 ms  
Remote clock offset: -0.078 ms

# Below is generated by plot.py at 2018-10-26 11:29:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 89.47 Mbit/s  
95th percentile per-packet one-way delay: 10.827 ms  
Loss rate: 0.55%  
-- Flow 1:  
Average throughput: 52.64 Mbit/s  
95th percentile per-packet one-way delay: 10.324 ms  
Loss rate: 0.50%  
-- Flow 2:  
Average throughput: 39.93 Mbit/s  
95th percentile per-packet one-way delay: 10.816 ms  
Loss rate: 0.58%  
-- Flow 3:  
Average throughput: 31.03 Mbit/s  
95th percentile per-packet one-way delay: 11.747 ms  
Loss rate: 0.71%

Run 2: Report of QUIC Cubic — Data Link





Run 3: Statistics of QUIC Cubic

Start at: 2018-10-26 10:32:01

End at: 2018-10-26 10:32:31

Local clock offset: -6.08 ms

Remote clock offset: 0.17 ms

# Below is generated by plot.py at 2018-10-26 11:29:28

# Datalink statistics

-- Total of 3 flows:

Average throughput: 88.41 Mbit/s

95th percentile per-packet one-way delay: 11.027 ms

Loss rate: 0.57%

-- Flow 1:

Average throughput: 51.58 Mbit/s

95th percentile per-packet one-way delay: 10.487 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 39.97 Mbit/s

95th percentile per-packet one-way delay: 11.253 ms

Loss rate: 0.60%

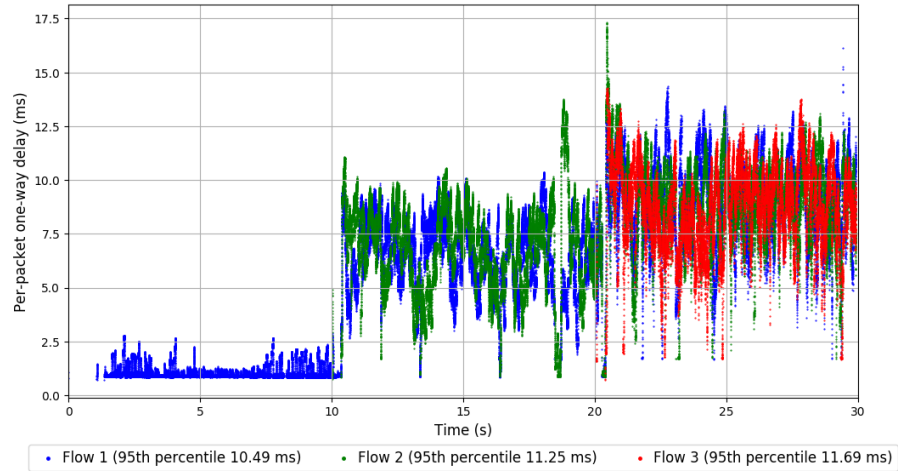
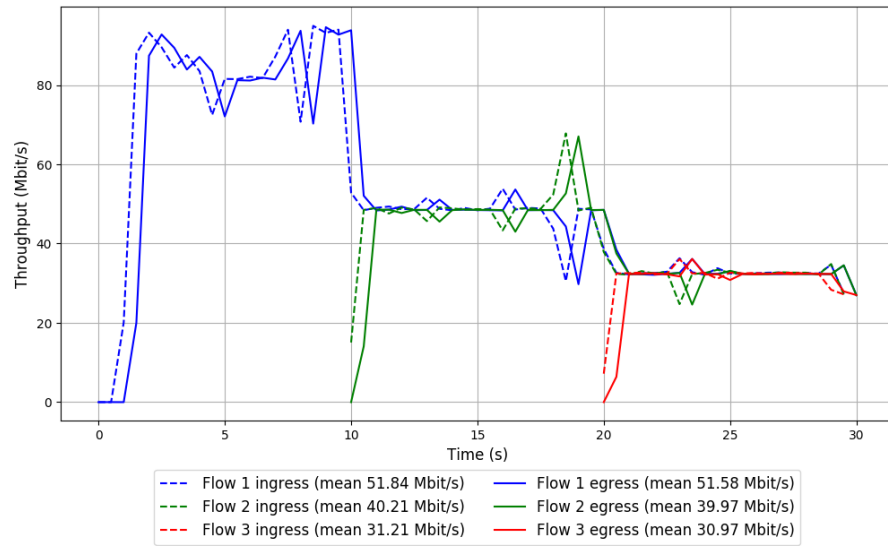
-- Flow 3:

Average throughput: 30.97 Mbit/s

95th percentile per-packet one-way delay: 11.691 ms

Loss rate: 0.78%

### Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-10-26 10:52:39

End at: 2018-10-26 10:53:09

Local clock offset: -5.763 ms

Remote clock offset: 0.395 ms

# Below is generated by plot.py at 2018-10-26 11:29:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 90.53 Mbit/s

95th percentile per-packet one-way delay: 10.944 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 53.69 Mbit/s

95th percentile per-packet one-way delay: 10.385 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 39.95 Mbit/s

95th percentile per-packet one-way delay: 10.986 ms

Loss rate: 0.60%

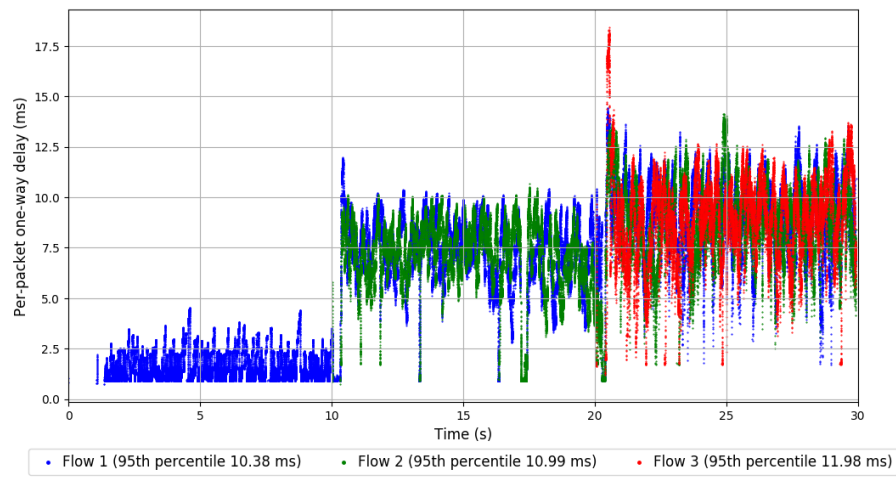
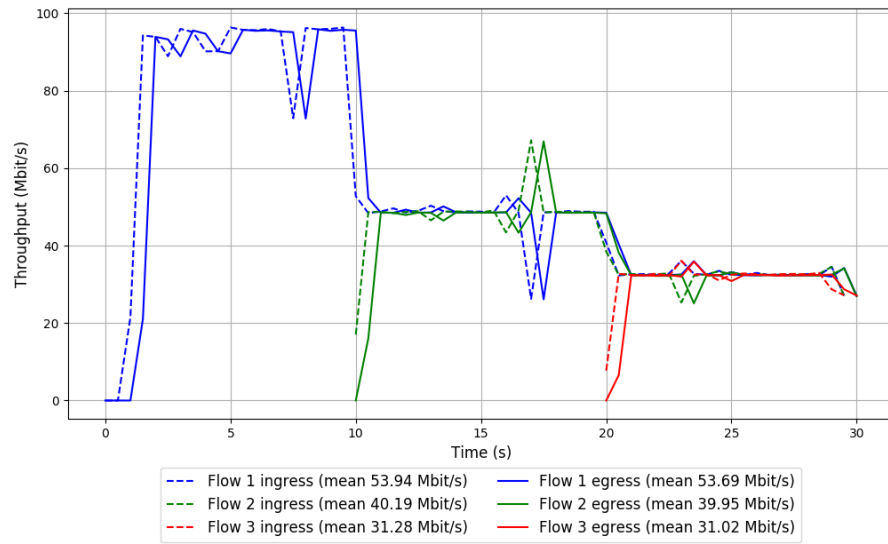
-- Flow 3:

Average throughput: 31.02 Mbit/s

95th percentile per-packet one-way delay: 11.983 ms

Loss rate: 0.83%

#### Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-10-26 11:13:16

End at: 2018-10-26 11:13:46

Local clock offset: -5.703 ms

Remote clock offset: 0.432 ms

# Below is generated by plot.py at 2018-10-26 11:29:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 89.30 Mbit/s

95th percentile per-packet one-way delay: 10.845 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 52.53 Mbit/s

95th percentile per-packet one-way delay: 10.210 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 39.84 Mbit/s

95th percentile per-packet one-way delay: 11.140 ms

Loss rate: 0.62%

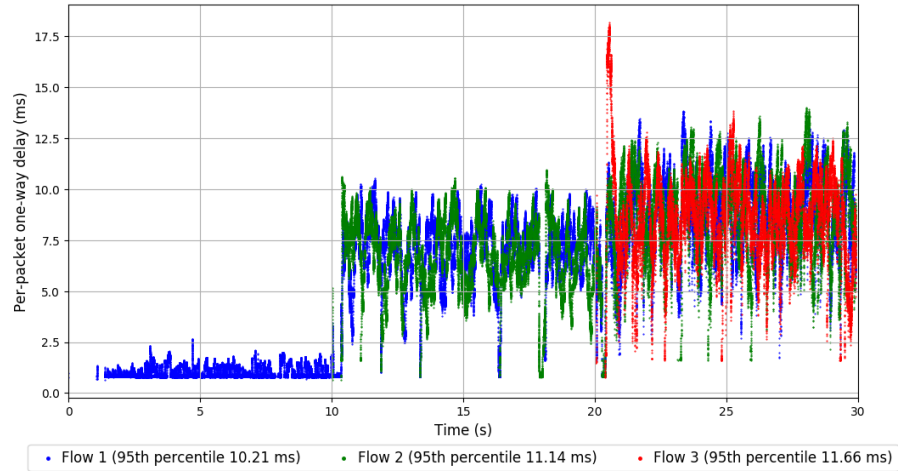
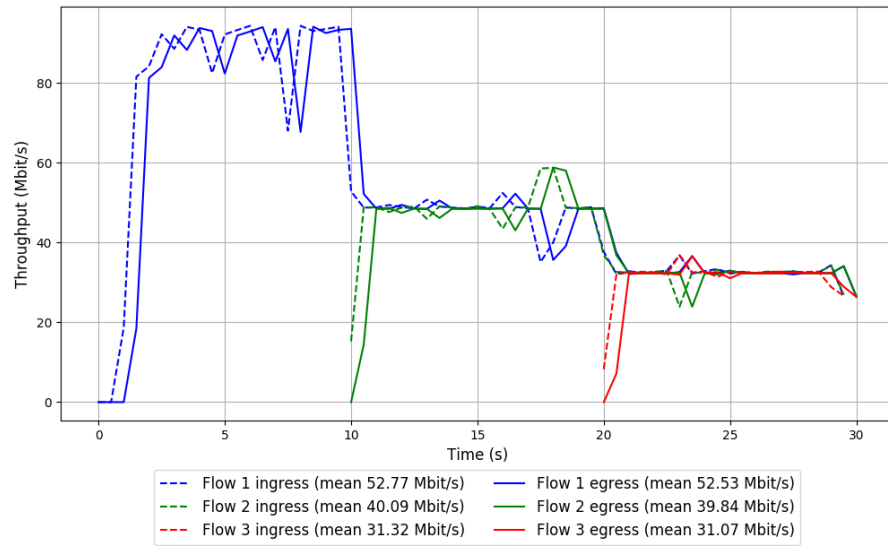
-- Flow 3:

Average throughput: 31.07 Mbit/s

95th percentile per-packet one-way delay: 11.664 ms

Loss rate: 0.76%

## Run 5: Report of QUIC Cubic — Data Link

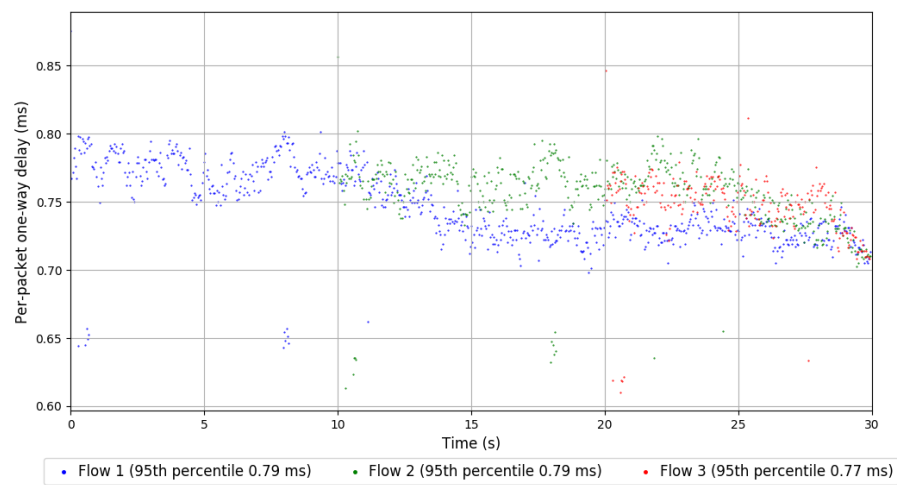
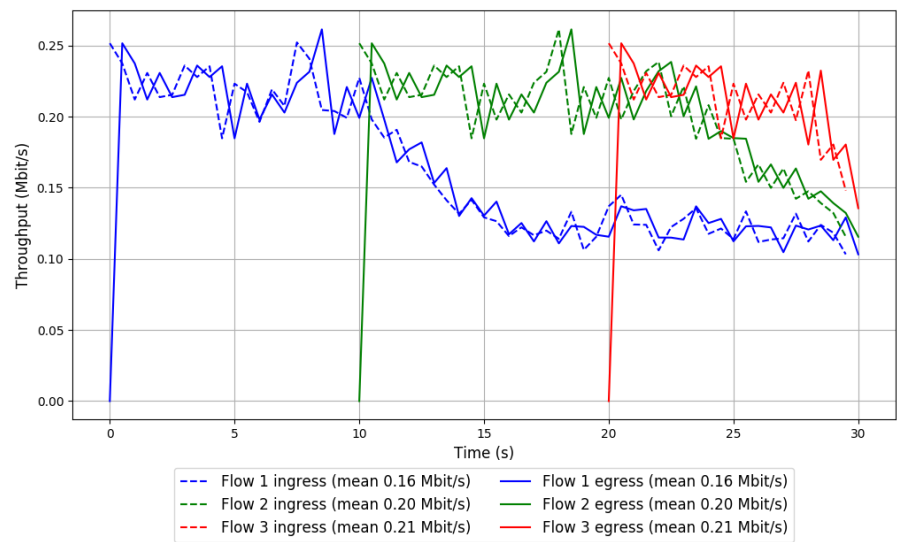


```
Run 1: Statistics of SCReAM

Start at: 2018-10-26 09:51:45
End at: 2018-10-26 09:52:15
Local clock offset: -6.068 ms
Remote clock offset: -0.282 ms

# Below is generated by plot.py at 2018-10-26 11:29:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 0.786 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 0.789 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 0.785 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 0.771 ms
Loss rate: 0.70%
```

Run 1: Report of SReAM — Data Link



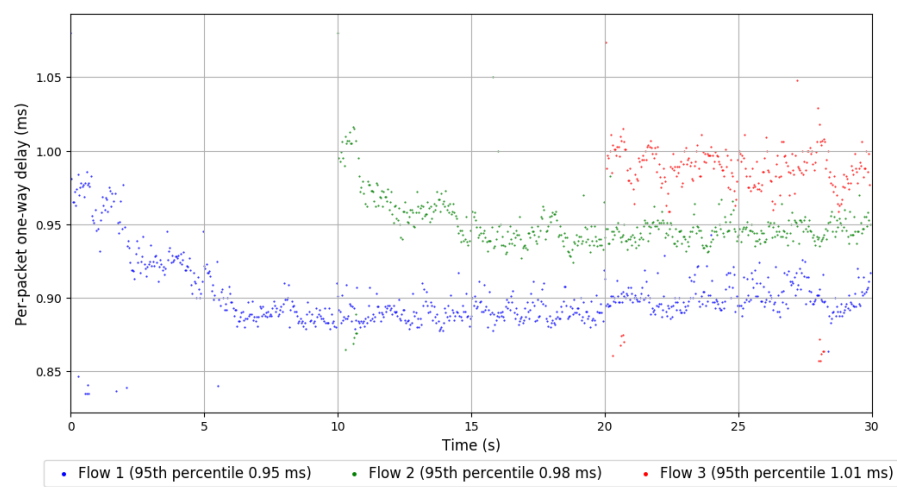
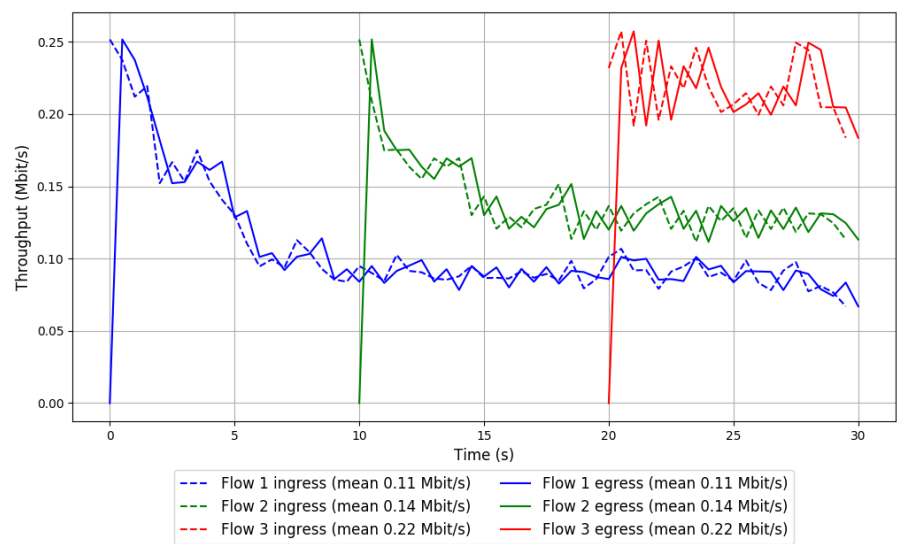


Run 2: Statistics of SReAM

Start at: 2018-10-26 10:12:31  
End at: 2018-10-26 10:13:01  
Local clock offset: -6.037 ms  
Remote clock offset: -0.144 ms

# Below is generated by plot.py at 2018-10-26 11:29:39  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.27 Mbit/s  
95th percentile per-packet one-way delay: 0.998 ms  
Loss rate: 0.45%  
-- Flow 1:  
Average throughput: 0.11 Mbit/s  
95th percentile per-packet one-way delay: 0.953 ms  
Loss rate: 0.84%  
-- Flow 2:  
Average throughput: 0.14 Mbit/s  
95th percentile per-packet one-way delay: 0.977 ms  
Loss rate: 0.37%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.007 ms  
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

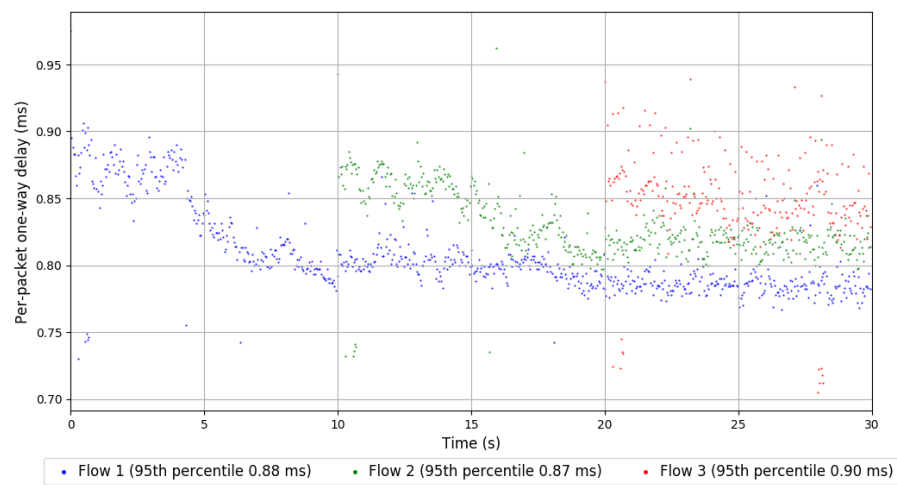
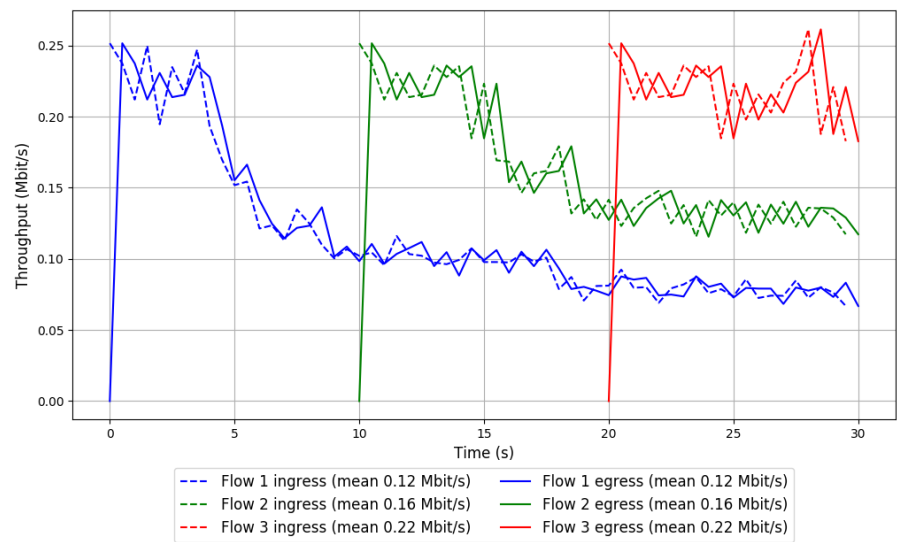


Run 3: Statistics of SCReAM

Start at: 2018-10-26 10:33:10  
End at: 2018-10-26 10:33:40  
Local clock offset: -6.026 ms  
Remote clock offset: 0.222 ms

# Below is generated by plot.py at 2018-10-26 11:29:39  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.30 Mbit/s  
95th percentile per-packet one-way delay: 0.881 ms  
Loss rate: 0.29%  
-- Flow 1:  
Average throughput: 0.12 Mbit/s  
95th percentile per-packet one-way delay: 0.880 ms  
Loss rate: 0.52%  
-- Flow 2:  
Average throughput: 0.16 Mbit/s  
95th percentile per-packet one-way delay: 0.873 ms  
Loss rate: 0.24%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 0.900 ms  
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

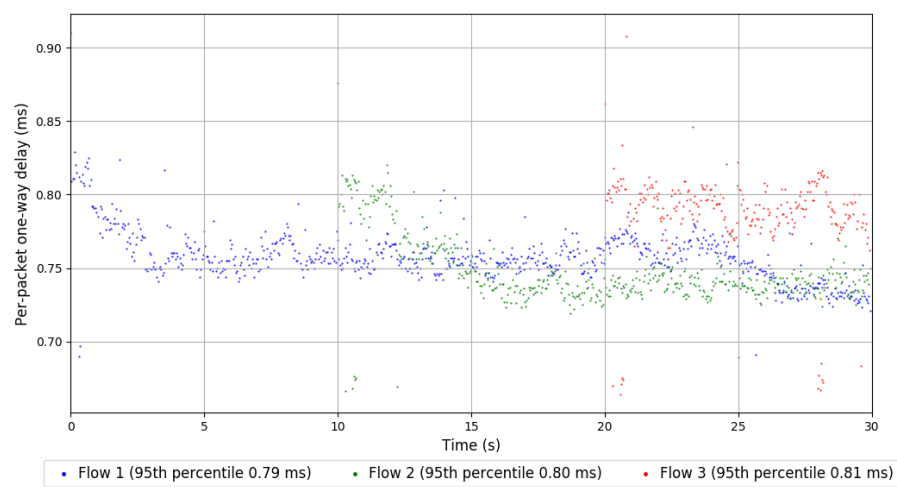
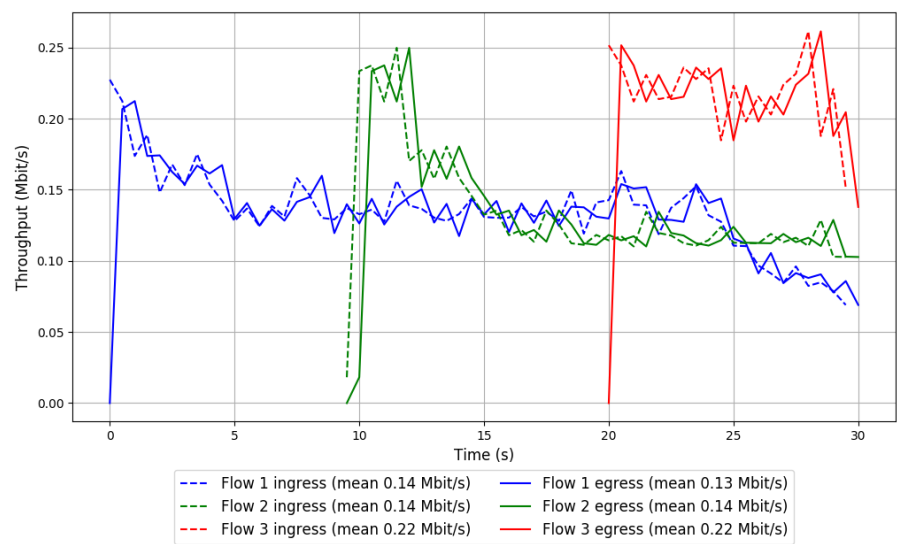


Run 4: Statistics of SCReAM

Start at: 2018-10-26 10:53:48  
End at: 2018-10-26 10:54:18  
Local clock offset: -5.896 ms  
Remote clock offset: 0.361 ms

# Below is generated by plot.py at 2018-10-26 11:29:39  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.30 Mbit/s  
95th percentile per-packet one-way delay: 0.805 ms  
Loss rate: 0.50%  
-- Flow 1:  
Average throughput: 0.13 Mbit/s  
95th percentile per-packet one-way delay: 0.785 ms  
Loss rate: 0.51%  
-- Flow 2:  
Average throughput: 0.14 Mbit/s  
95th percentile per-packet one-way delay: 0.802 ms  
Loss rate: 0.33%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 0.811 ms  
Loss rate: 0.68%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-10-26 11:14:25

End at: 2018-10-26 11:14:55

Local clock offset: -5.754 ms

Remote clock offset: 0.325 ms

# Below is generated by plot.py at 2018-10-26 11:29:39

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 0.873 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 0.20 Mbit/s

95th percentile per-packet one-way delay: 0.871 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 0.17 Mbit/s

95th percentile per-packet one-way delay: 0.863 ms

Loss rate: 0.54%

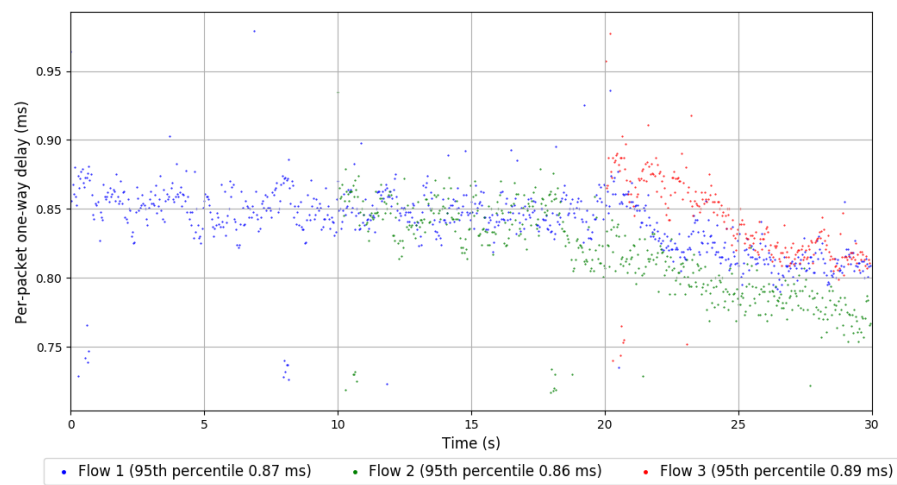
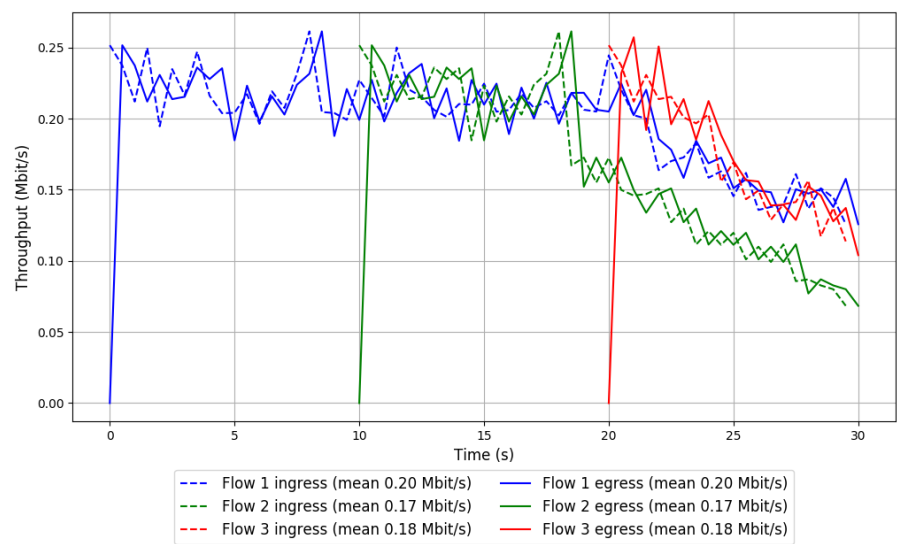
-- Flow 3:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 0.887 ms

Loss rate: 0.82%

Run 5: Report of SReAM — Data Link



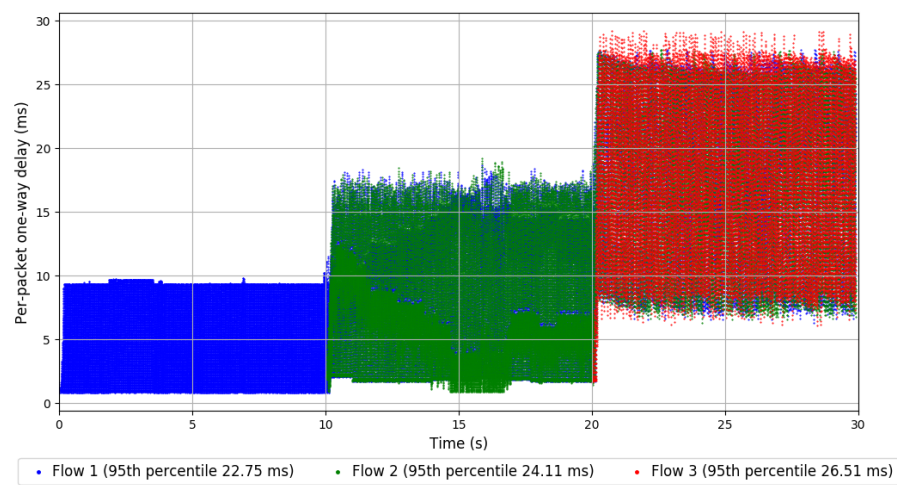
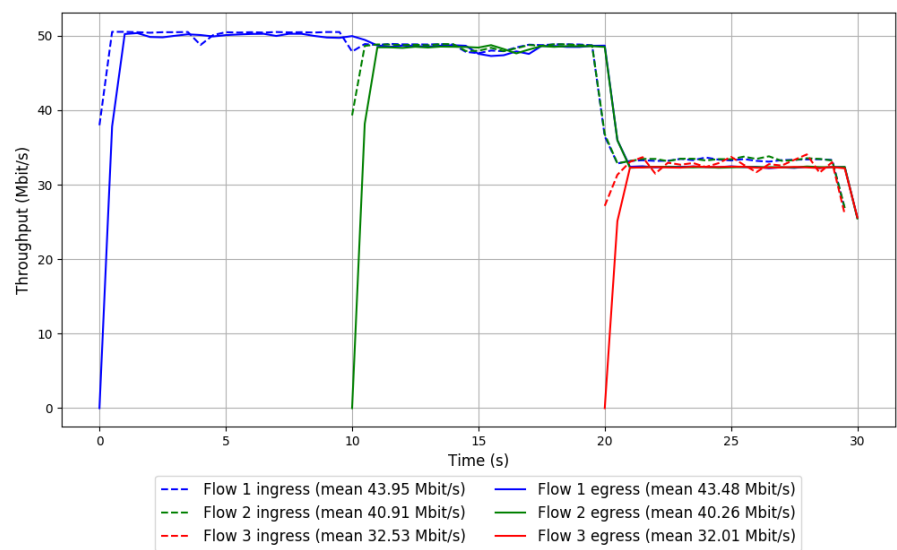


Run 1: Statistics of Sprout

Start at: 2018-10-26 09:47:13  
End at: 2018-10-26 09:47:43  
Local clock offset: -6.068 ms  
Remote clock offset: -0.386 ms

# Below is generated by plot.py at 2018-10-26 11:29:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 80.85 Mbit/s  
95th percentile per-packet one-way delay: 24.442 ms  
Loss rate: 1.27%  
-- Flow 1:  
Average throughput: 43.48 Mbit/s  
95th percentile per-packet one-way delay: 22.746 ms  
Loss rate: 1.06%  
-- Flow 2:  
Average throughput: 40.26 Mbit/s  
95th percentile per-packet one-way delay: 24.108 ms  
Loss rate: 1.54%  
-- Flow 3:  
Average throughput: 32.01 Mbit/s  
95th percentile per-packet one-way delay: 26.507 ms  
Loss rate: 1.45%

Run 1: Report of Sprout — Data Link

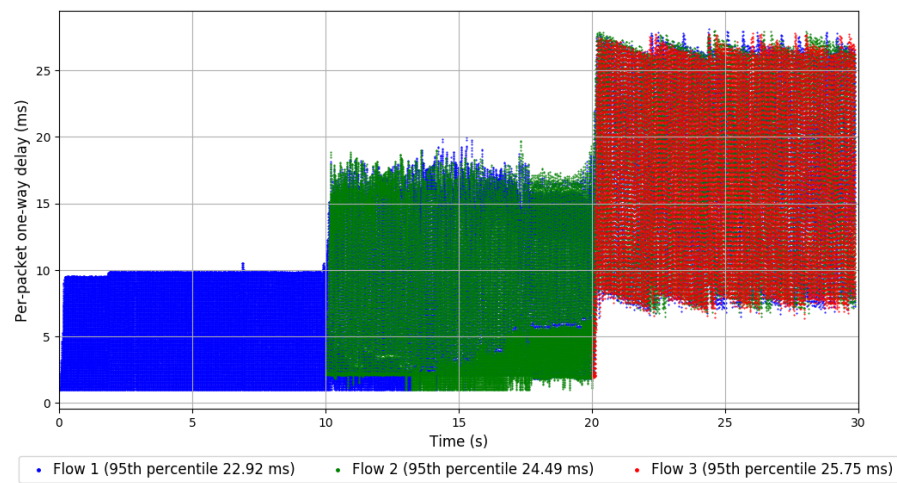
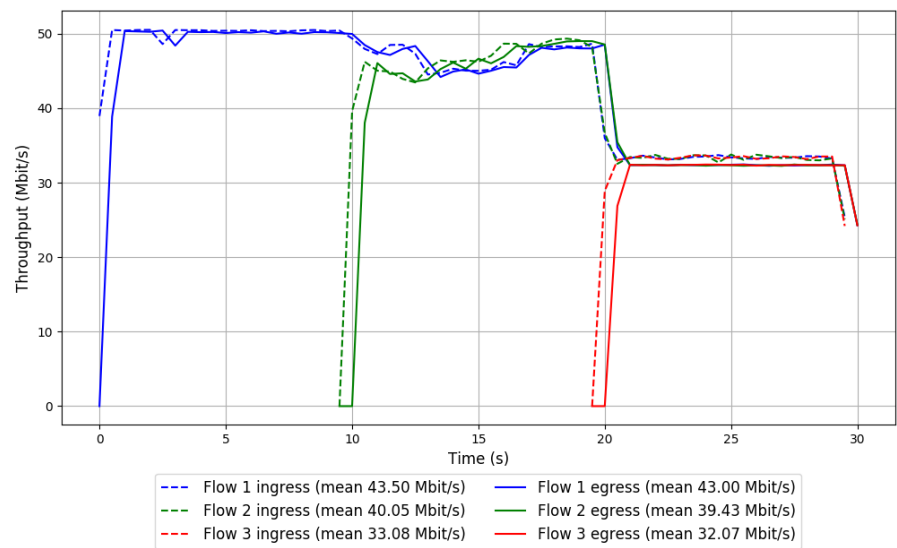


Run 2: Statistics of Sprout

Start at: 2018-10-26 10:07:58  
End at: 2018-10-26 10:08:28  
Local clock offset: -6.007 ms  
Remote clock offset: -0.184 ms

# Below is generated by plot.py at 2018-10-26 11:29:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 79.85 Mbit/s  
95th percentile per-packet one-way delay: 24.401 ms  
Loss rate: 1.51%  
-- Flow 1:  
Average throughput: 43.00 Mbit/s  
95th percentile per-packet one-way delay: 22.923 ms  
Loss rate: 1.13%  
-- Flow 2:  
Average throughput: 39.43 Mbit/s  
95th percentile per-packet one-way delay: 24.494 ms  
Loss rate: 1.48%  
-- Flow 3:  
Average throughput: 32.07 Mbit/s  
95th percentile per-packet one-way delay: 25.755 ms  
Loss rate: 3.06%

Run 2: Report of Sprout — Data Link

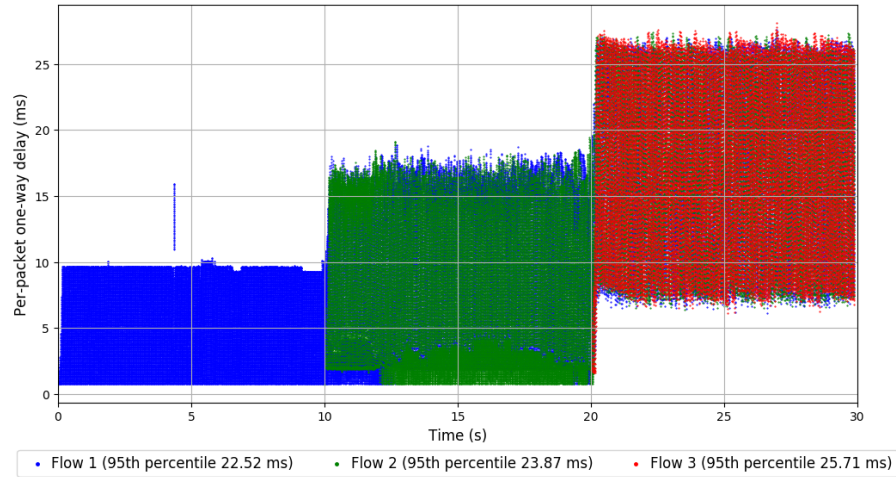
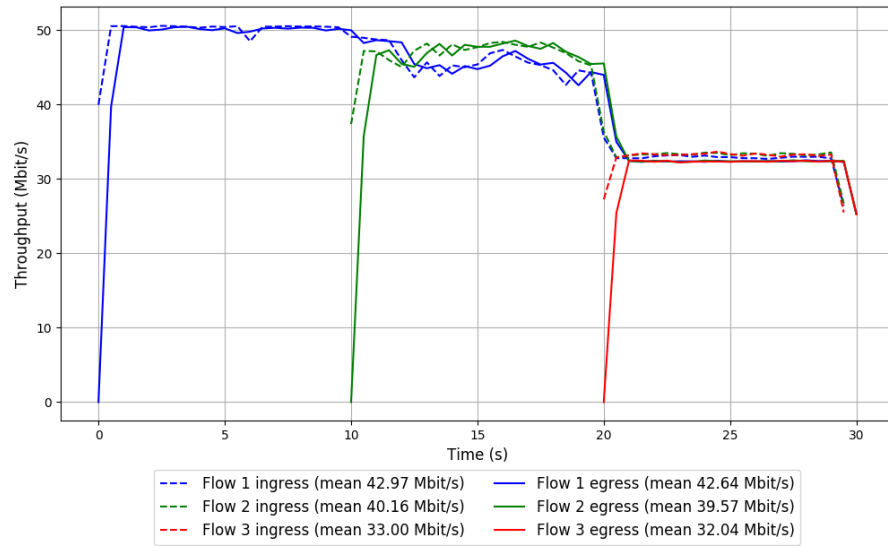


### Run 3: Statistics of Sprout

Start at: 2018-10-26 10:28:36  
End at: 2018-10-26 10:29:06  
Local clock offset: -6.201 ms  
Remote clock offset: 0.154 ms

```
# Below is generated by plot.py at 2018-10-26 11:29:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.55 Mbit/s
95th percentile per-packet one-way delay: 24.032 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 42.64 Mbit/s
95th percentile per-packet one-way delay: 22.515 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 39.57 Mbit/s
95th percentile per-packet one-way delay: 23.874 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 32.04 Mbit/s
95th percentile per-packet one-way delay: 25.706 ms
Loss rate: 2.79%
```

### Run 3: Report of Sprout — Data Link

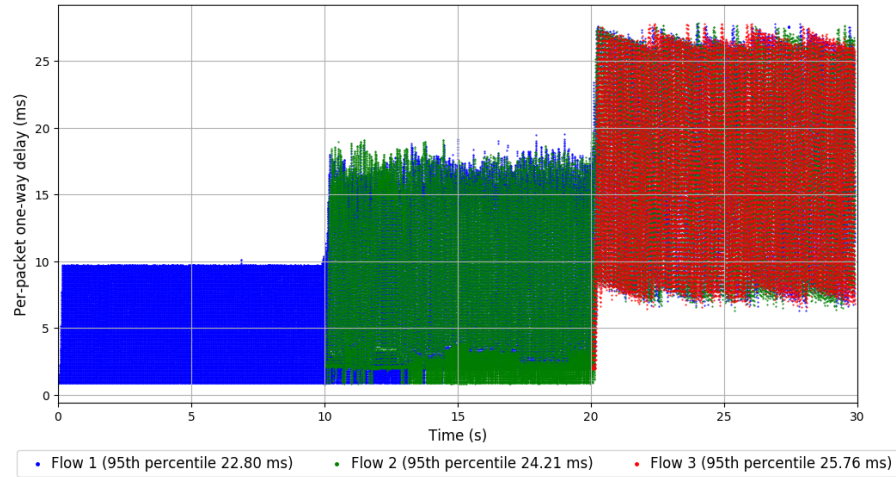
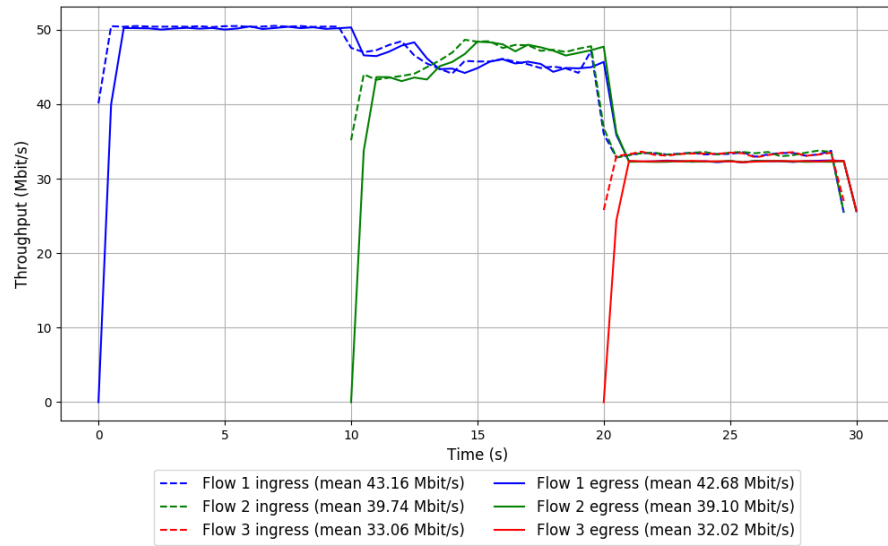


#### Run 4: Statistics of Sprout

Start at: 2018-10-26 10:49:15  
End at: 2018-10-26 10:49:45  
Local clock offset: -5.85 ms  
Remote clock offset: 0.356 ms

```
# Below is generated by plot.py at 2018-10-26 11:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.26 Mbit/s
95th percentile per-packet one-way delay: 24.258 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 42.68 Mbit/s
95th percentile per-packet one-way delay: 22.795 ms
Loss rate: 1.07%
-- Flow 2:
Average throughput: 39.10 Mbit/s
95th percentile per-packet one-way delay: 24.209 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 32.02 Mbit/s
95th percentile per-packet one-way delay: 25.758 ms
Loss rate: 3.06%
```

#### Run 4: Report of Sprout — Data Link



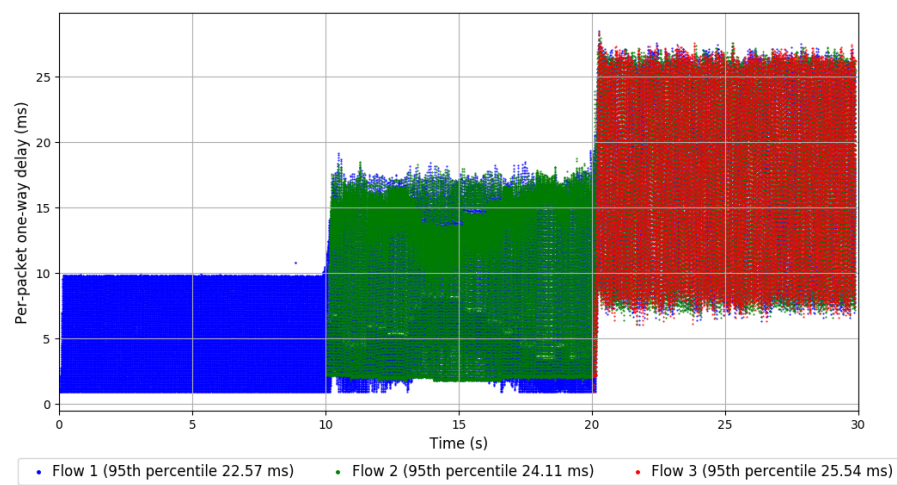
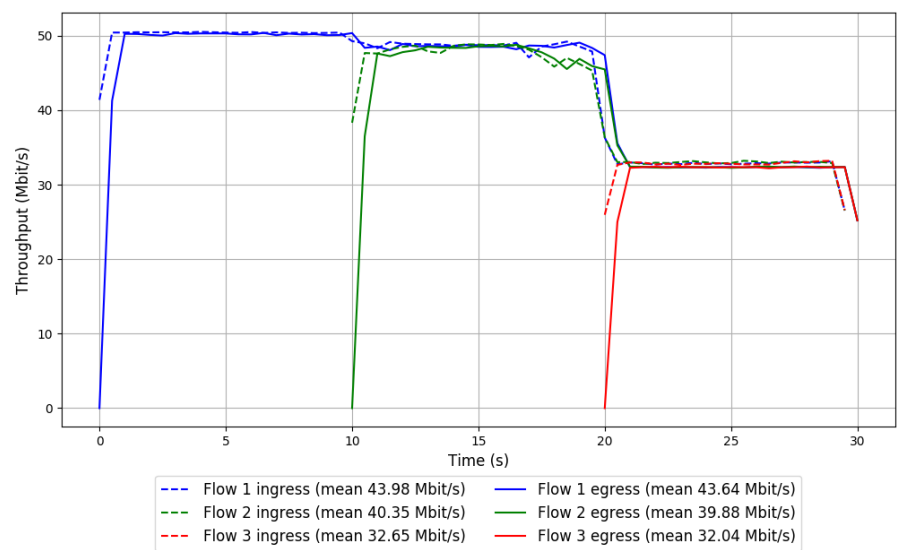


Run 5: Statistics of Sprout

Start at: 2018-10-26 11:09:53  
End at: 2018-10-26 11:10:23  
Local clock offset: -5.725 ms  
Remote clock offset: 0.333 ms

```
# Below is generated by plot.py at 2018-10-26 11:30:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.74 Mbit/s
95th percentile per-packet one-way delay: 24.080 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 43.64 Mbit/s
95th percentile per-packet one-way delay: 22.569 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 39.88 Mbit/s
95th percentile per-packet one-way delay: 24.107 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 32.04 Mbit/s
95th percentile per-packet one-way delay: 25.538 ms
Loss rate: 1.85%
```

Run 5: Report of Sprout — Data Link

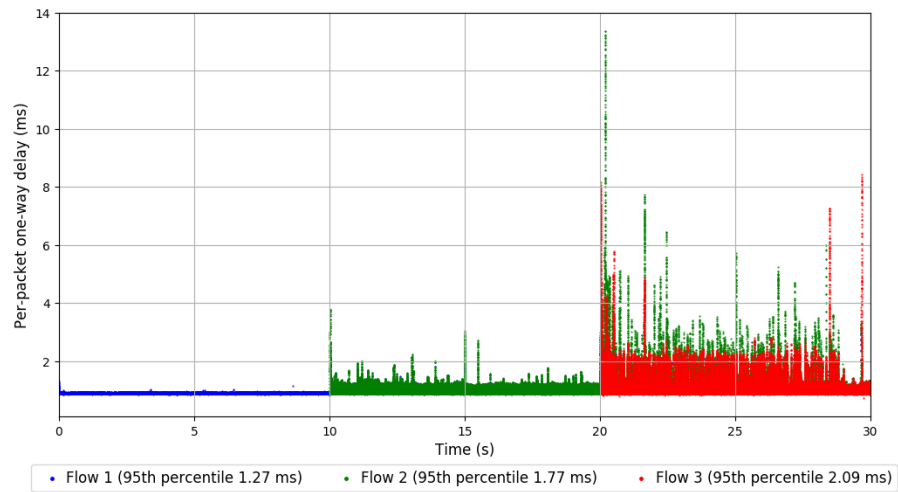
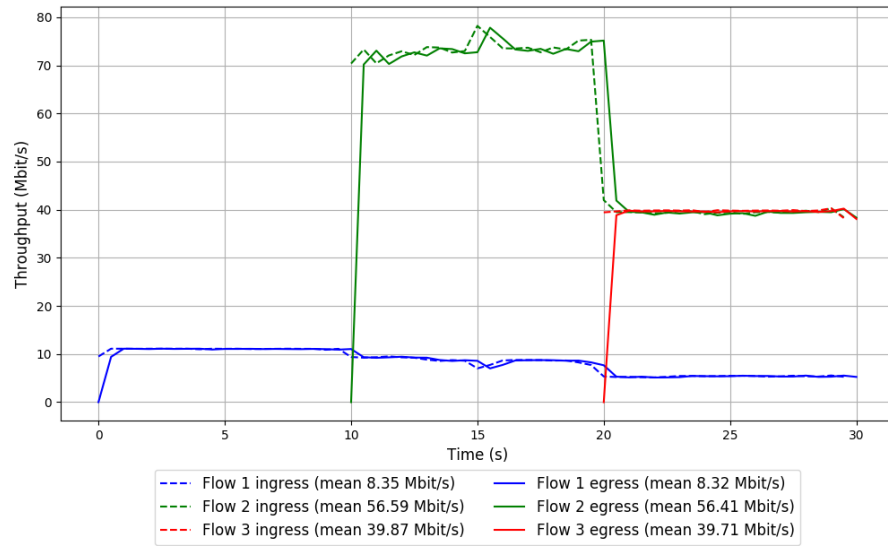


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-26 09:40:15
End at: 2018-10-26 09:40:45
Local clock offset: -5.91 ms
Remote clock offset: -0.389 ms

# Below is generated by plot.py at 2018-10-26 11:30:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.09 Mbit/s
95th percentile per-packet one-way delay: 1.871 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 8.32 Mbit/s
95th percentile per-packet one-way delay: 1.269 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 56.41 Mbit/s
95th percentile per-packet one-way delay: 1.768 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 39.71 Mbit/s
95th percentile per-packet one-way delay: 2.087 ms
Loss rate: 0.43%
```

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

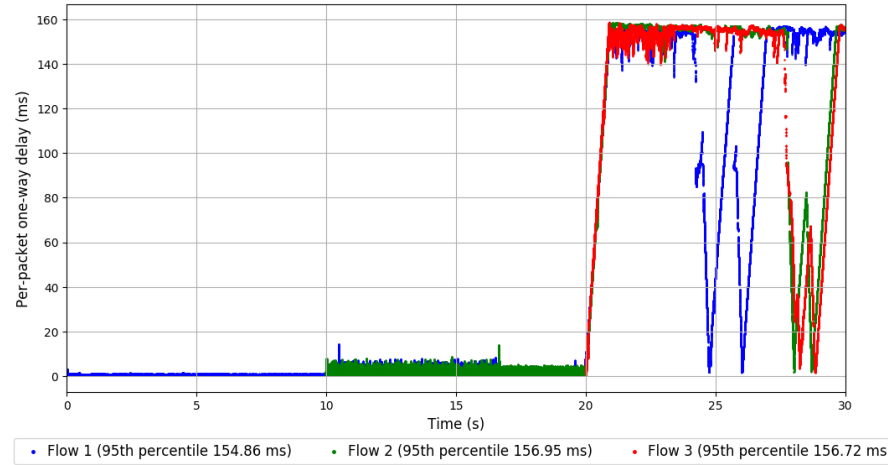
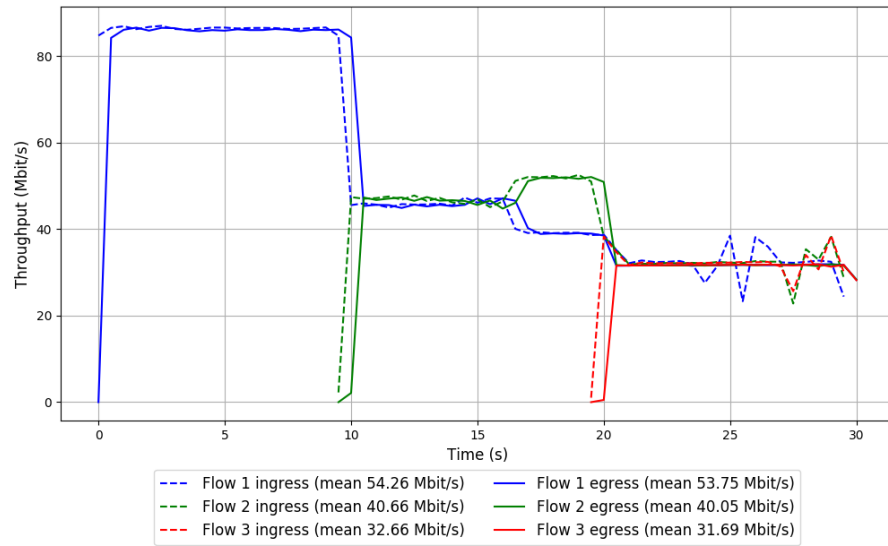


Run 2: Statistics of TaoVA-100x

Start at: 2018-10-26 10:00:56  
End at: 2018-10-26 10:01:26  
Local clock offset: -5.942 ms  
Remote clock offset: -0.253 ms

# Below is generated by plot.py at 2018-10-26 11:31:33  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 90.99 Mbit/s  
95th percentile per-packet one-way delay: 156.304 ms  
Loss rate: 1.36%  
-- Flow 1:  
Average throughput: 53.75 Mbit/s  
95th percentile per-packet one-way delay: 154.859 ms  
Loss rate: 0.95%  
-- Flow 2:  
Average throughput: 40.05 Mbit/s  
95th percentile per-packet one-way delay: 156.950 ms  
Loss rate: 1.51%  
-- Flow 3:  
Average throughput: 31.69 Mbit/s  
95th percentile per-packet one-way delay: 156.720 ms  
Loss rate: 3.06%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-10-26 10:21:35

End at: 2018-10-26 10:22:05

Local clock offset: -6.151 ms

Remote clock offset: 0.09 ms

# Below is generated by plot.py at 2018-10-26 11:31:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 90.97 Mbit/s

95th percentile per-packet one-way delay: 156.173 ms

Loss rate: 1.45%

-- Flow 1:

Average throughput: 55.47 Mbit/s

95th percentile per-packet one-way delay: 156.029 ms

Loss rate: 0.97%

-- Flow 2:

Average throughput: 37.51 Mbit/s

95th percentile per-packet one-way delay: 155.809 ms

Loss rate: 1.80%

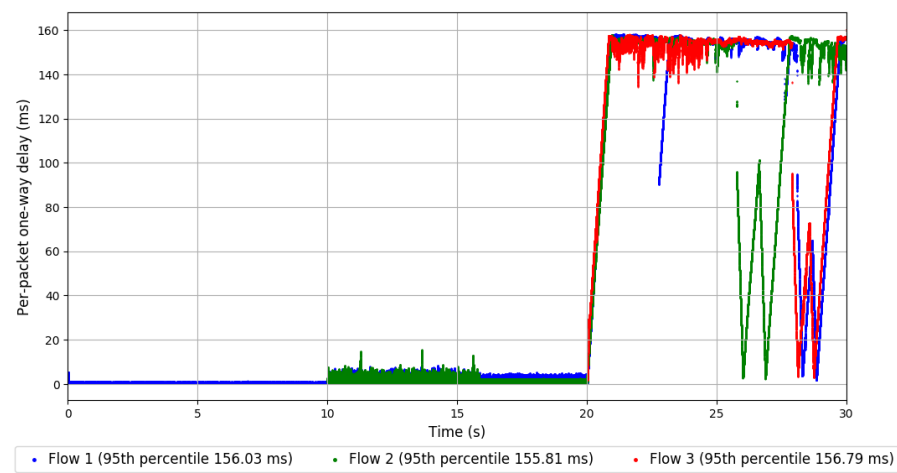
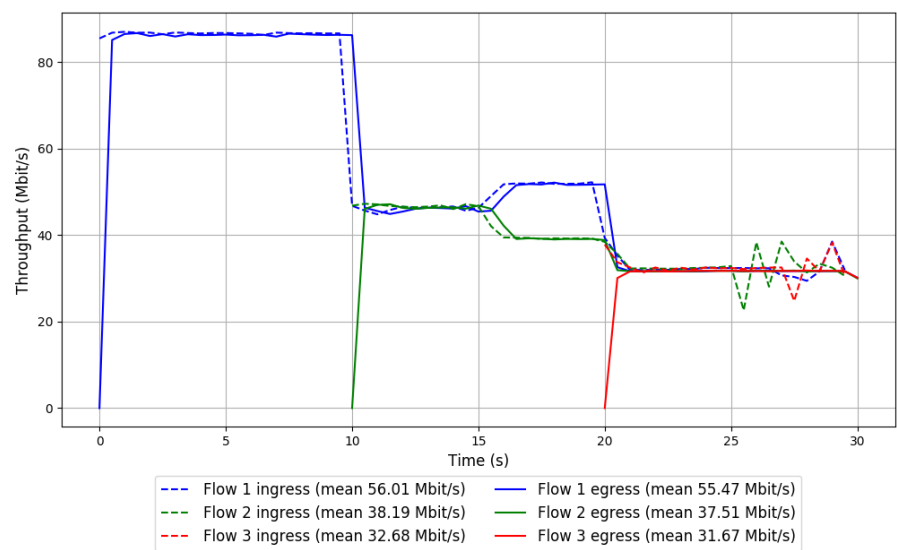
-- Flow 3:

Average throughput: 31.67 Mbit/s

95th percentile per-packet one-way delay: 156.794 ms

Loss rate: 3.07%

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





Run 4: Statistics of TaoVA-100x

Start at: 2018-10-26 10:42:14

End at: 2018-10-26 10:42:44

Local clock offset: -5.962 ms

Remote clock offset: 0.243 ms

# Below is generated by plot.py at 2018-10-26 11:31:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.33 Mbit/s

95th percentile per-packet one-way delay: 156.363 ms

Loss rate: 1.32%

-- Flow 1:

Average throughput: 54.71 Mbit/s

95th percentile per-packet one-way delay: 155.986 ms

Loss rate: 0.93%

-- Flow 2:

Average throughput: 39.15 Mbit/s

95th percentile per-packet one-way delay: 156.913 ms

Loss rate: 1.42%

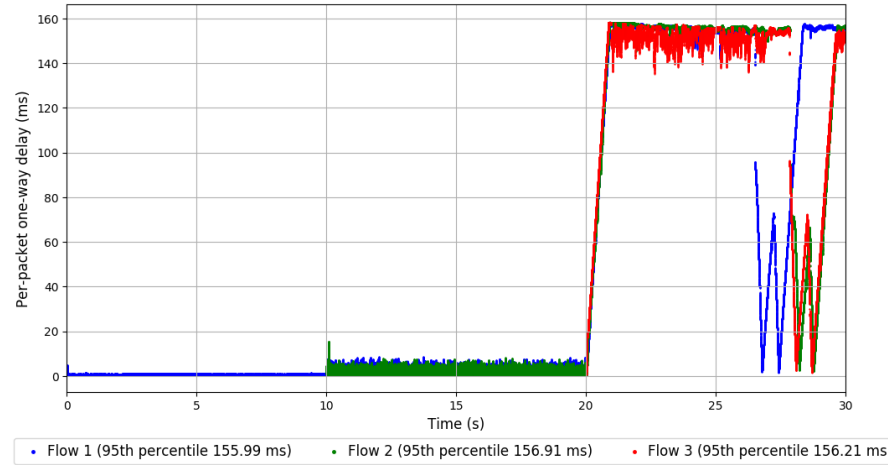
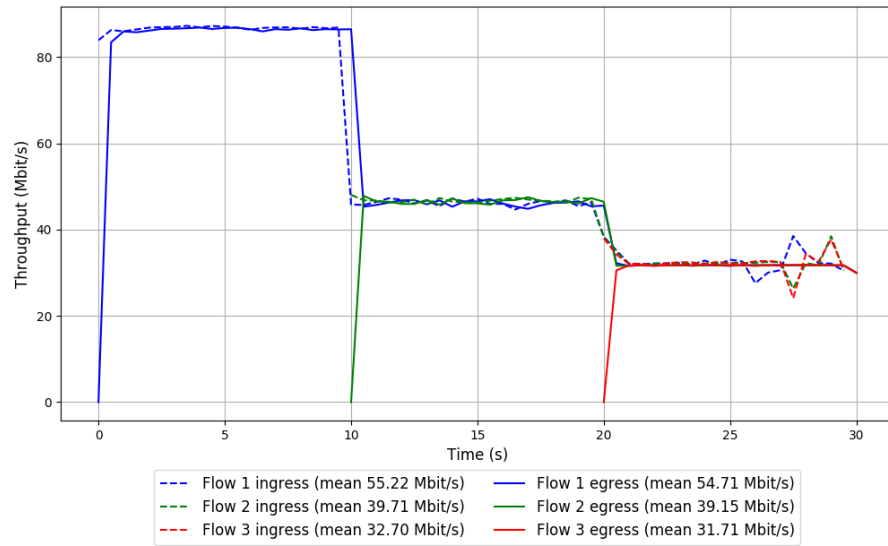
-- Flow 3:

Average throughput: 31.71 Mbit/s

95th percentile per-packet one-way delay: 156.205 ms

Loss rate: 3.05%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-10-26 11:02:53

End at: 2018-10-26 11:03:23

Local clock offset: -5.735 ms

Remote clock offset: 0.437 ms

# Below is generated by plot.py at 2018-10-26 11:31:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.24 Mbit/s

95th percentile per-packet one-way delay: 156.575 ms

Loss rate: 1.29%

-- Flow 1:

Average throughput: 54.55 Mbit/s

95th percentile per-packet one-way delay: 156.295 ms

Loss rate: 0.93%

-- Flow 2:

Average throughput: 39.24 Mbit/s

95th percentile per-packet one-way delay: 156.852 ms

Loss rate: 1.37%

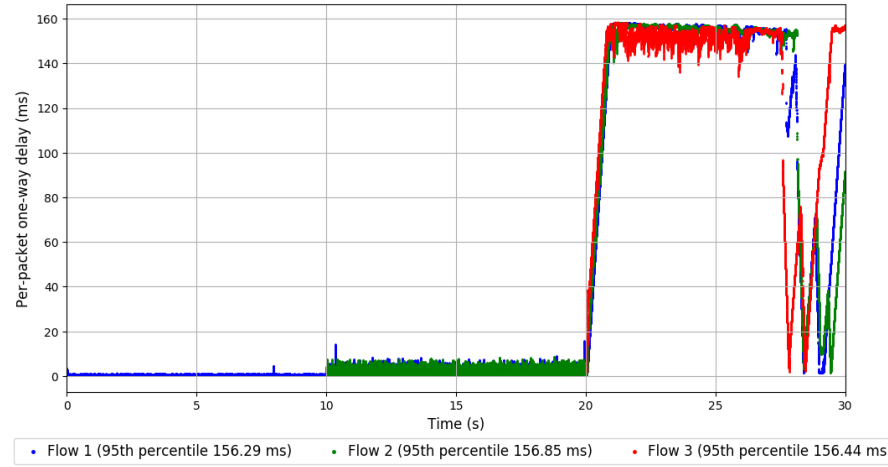
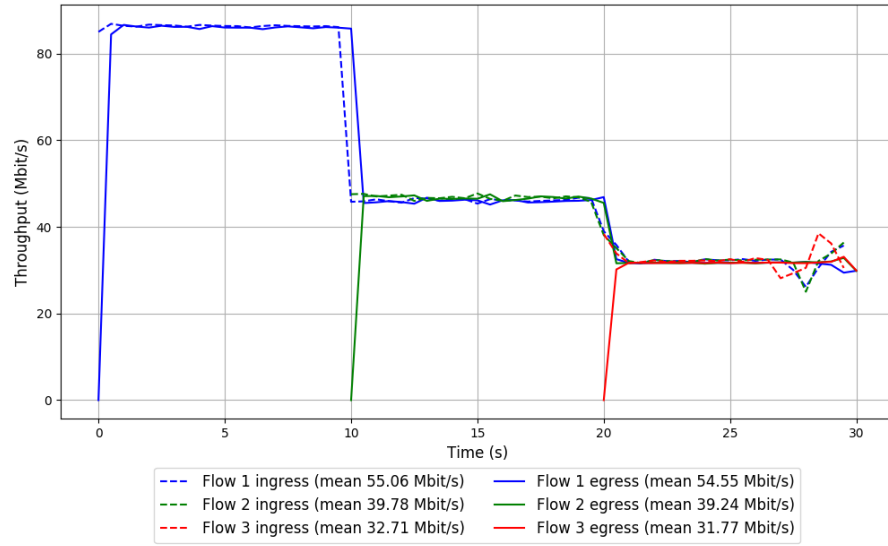
-- Flow 3:

Average throughput: 31.77 Mbit/s

95th percentile per-packet one-way delay: 156.444 ms

Loss rate: 2.94%

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

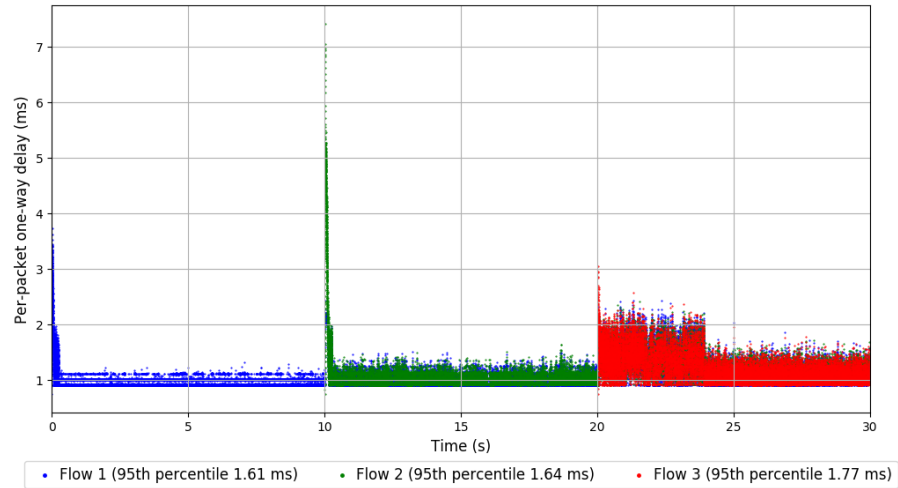
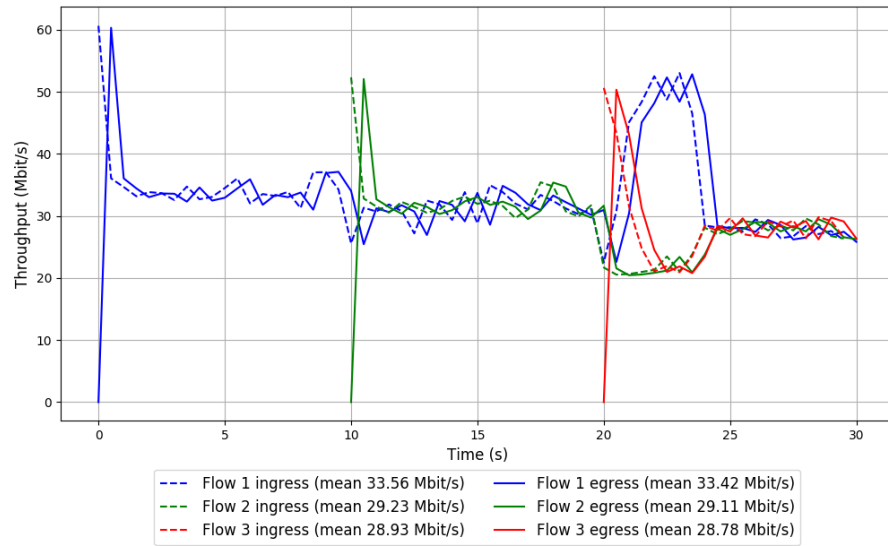


Run 1: Statistics of TCP Vegas

Start at: 2018-10-26 09:42:33  
End at: 2018-10-26 09:43:03  
Local clock offset: -5.931 ms  
Remote clock offset: -0.385 ms

# Below is generated by plot.py at 2018-10-26 11:31:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 62.36 Mbit/s  
95th percentile per-packet one-way delay: 1.660 ms  
Loss rate: 0.44%  
-- Flow 1:  
Average throughput: 33.42 Mbit/s  
95th percentile per-packet one-way delay: 1.614 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 29.11 Mbit/s  
95th percentile per-packet one-way delay: 1.636 ms  
Loss rate: 0.40%  
-- Flow 3:  
Average throughput: 28.78 Mbit/s  
95th percentile per-packet one-way delay: 1.771 ms  
Loss rate: 0.51%

## Run 1: Report of TCP Vegas — Data Link

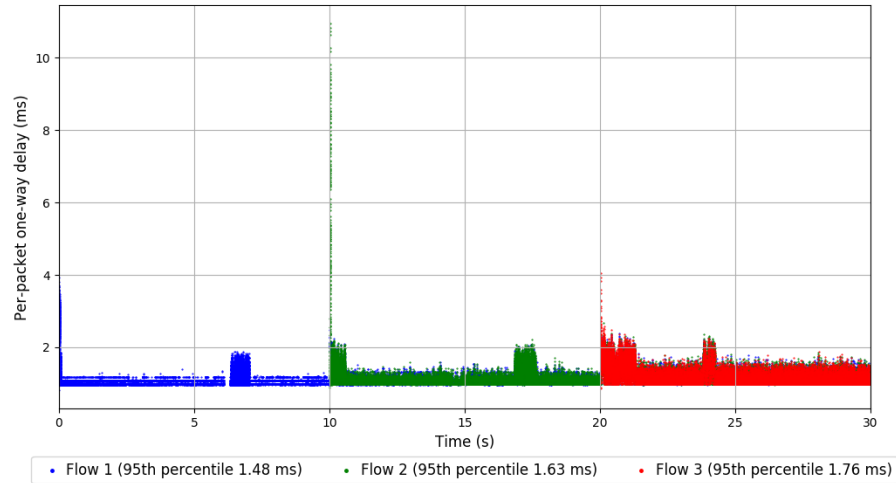
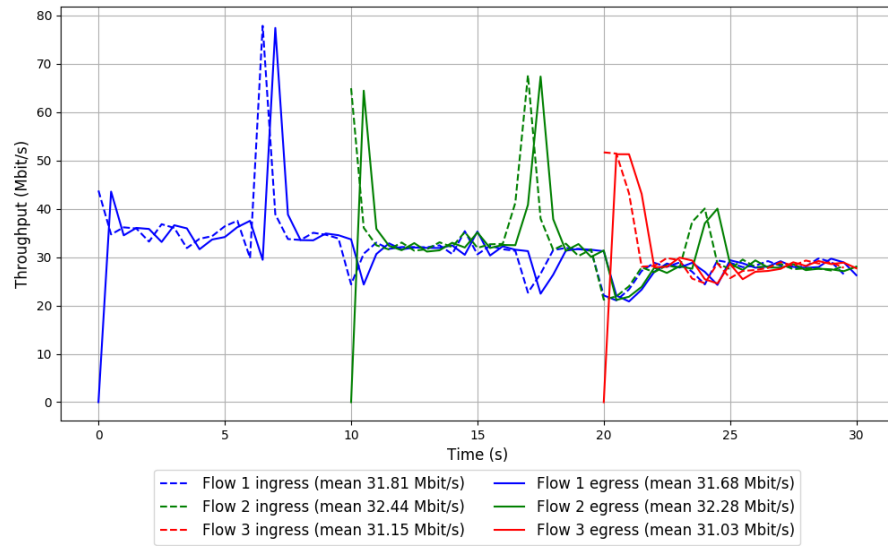


Run 2: Statistics of TCP Vegas

Start at: 2018-10-26 10:03:17  
End at: 2018-10-26 10:03:47  
Local clock offset: -5.957 ms  
Remote clock offset: -0.237 ms

# Below is generated by plot.py at 2018-10-26 11:31:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 63.49 Mbit/s  
95th percentile per-packet one-way delay: 1.600 ms  
Loss rate: 0.44%  
-- Flow 1:  
Average throughput: 31.68 Mbit/s  
95th percentile per-packet one-way delay: 1.477 ms  
Loss rate: 0.42%  
-- Flow 2:  
Average throughput: 32.28 Mbit/s  
95th percentile per-packet one-way delay: 1.634 ms  
Loss rate: 0.49%  
-- Flow 3:  
Average throughput: 31.03 Mbit/s  
95th percentile per-packet one-way delay: 1.759 ms  
Loss rate: 0.39%

## Run 2: Report of TCP Vegas — Data Link





Run 3: Statistics of TCP Vegas

Start at: 2018-10-26 10:23:56

End at: 2018-10-26 10:24:26

Local clock offset: -6.172 ms

Remote clock offset: 0.061 ms

# Below is generated by plot.py at 2018-10-26 11:31:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 63.27 Mbit/s

95th percentile per-packet one-way delay: 1.504 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 34.08 Mbit/s

95th percentile per-packet one-way delay: 1.503 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 29.30 Mbit/s

95th percentile per-packet one-way delay: 1.408 ms

Loss rate: 0.42%

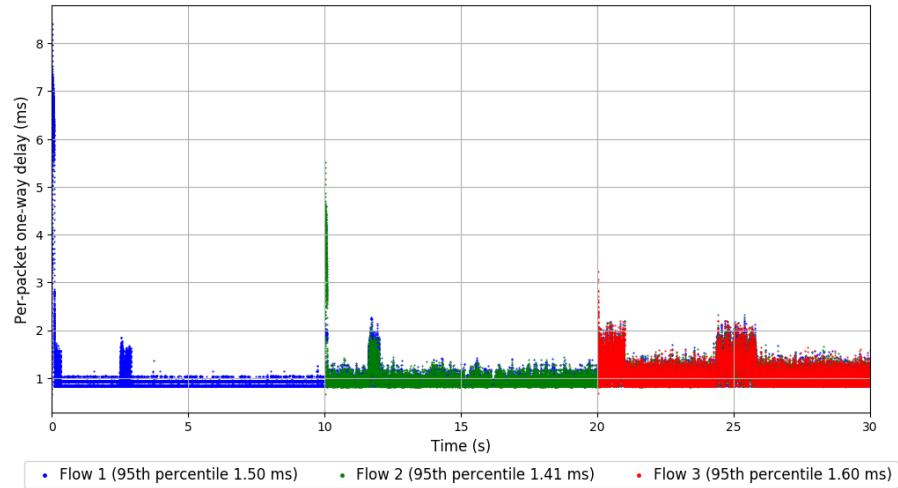
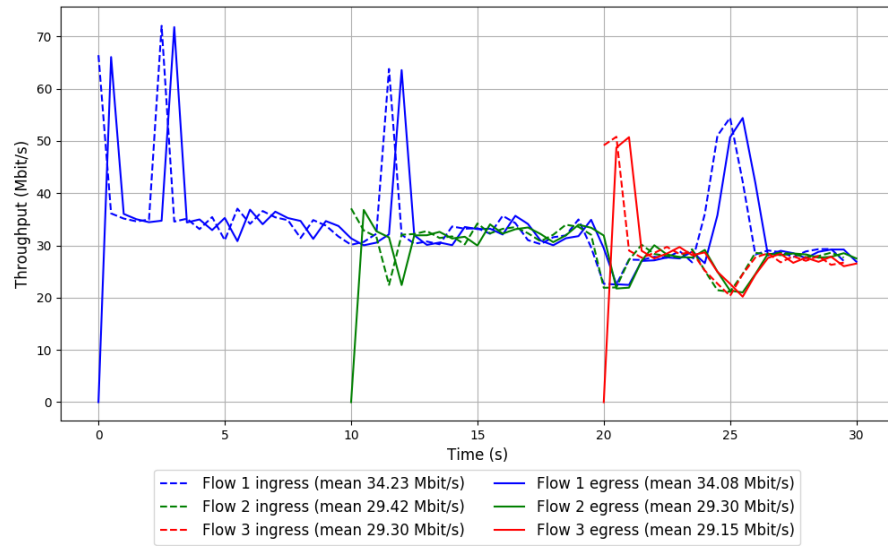
-- Flow 3:

Average throughput: 29.15 Mbit/s

95th percentile per-packet one-way delay: 1.602 ms

Loss rate: 0.51%

### Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-10-26 10:44:35

End at: 2018-10-26 10:45:05

Local clock offset: -5.815 ms

Remote clock offset: 0.313 ms

# Below is generated by plot.py at 2018-10-26 11:31:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 64.50 Mbit/s

95th percentile per-packet one-way delay: 1.726 ms

Loss rate: 0.36%

-- Flow 1:

Average throughput: 30.18 Mbit/s

95th percentile per-packet one-way delay: 1.635 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 39.24 Mbit/s

95th percentile per-packet one-way delay: 1.747 ms

Loss rate: 0.33%

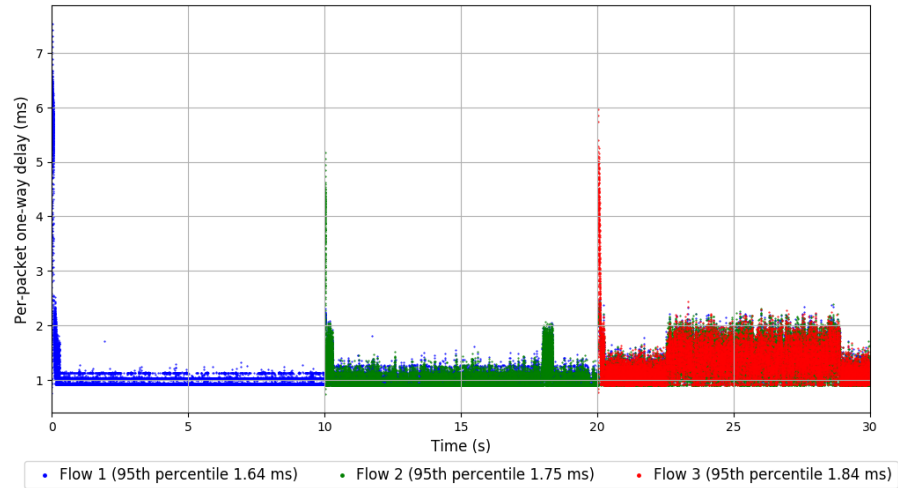
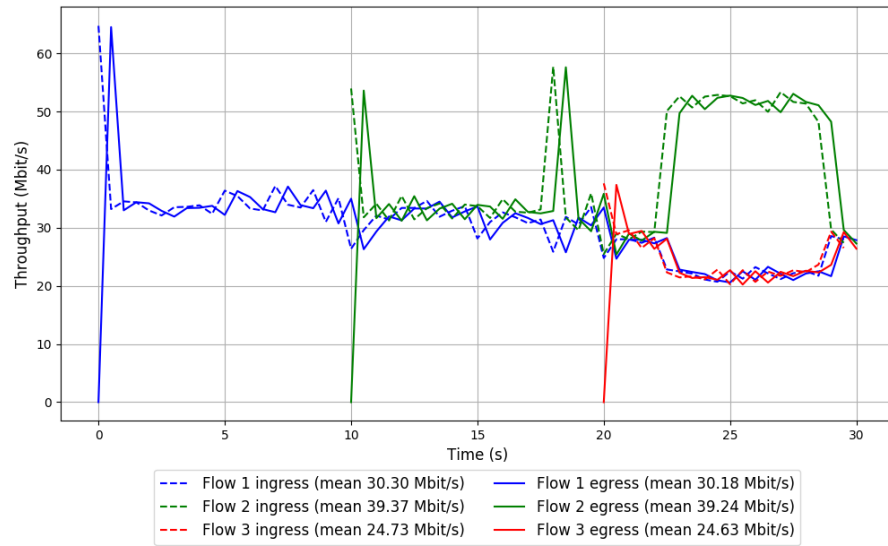
-- Flow 3:

Average throughput: 24.63 Mbit/s

95th percentile per-packet one-way delay: 1.845 ms

Loss rate: 0.39%

#### Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-10-26 11:05:14

End at: 2018-10-26 11:05:44

Local clock offset: -5.766 ms

Remote clock offset: 0.36 ms

# Below is generated by plot.py at 2018-10-26 11:31:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 64.48 Mbit/s

95th percentile per-packet one-way delay: 1.622 ms

Loss rate: 0.41%

-- Flow 1:

Average throughput: 35.32 Mbit/s

95th percentile per-packet one-way delay: 1.603 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 27.92 Mbit/s

95th percentile per-packet one-way delay: 1.618 ms

Loss rate: 0.44%

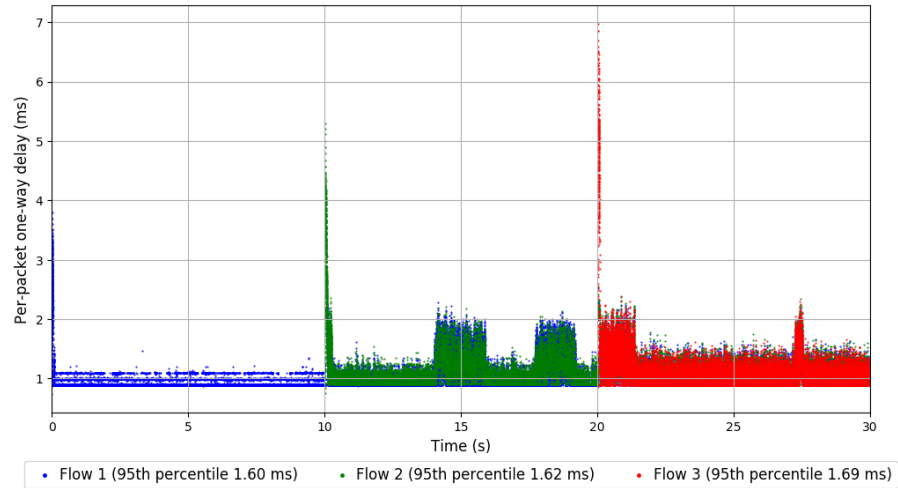
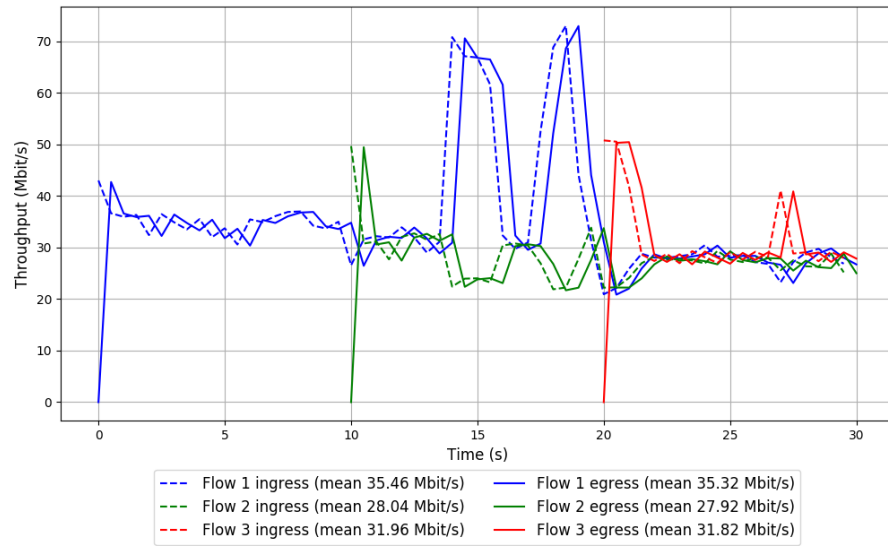
-- Flow 3:

Average throughput: 31.82 Mbit/s

95th percentile per-packet one-way delay: 1.685 ms

Loss rate: 0.44%

## Run 5: Report of TCP Vegas — Data Link

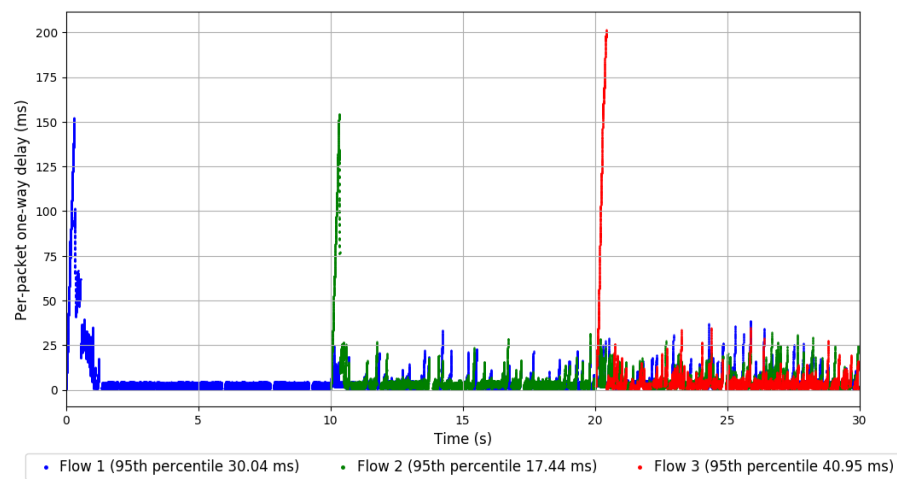
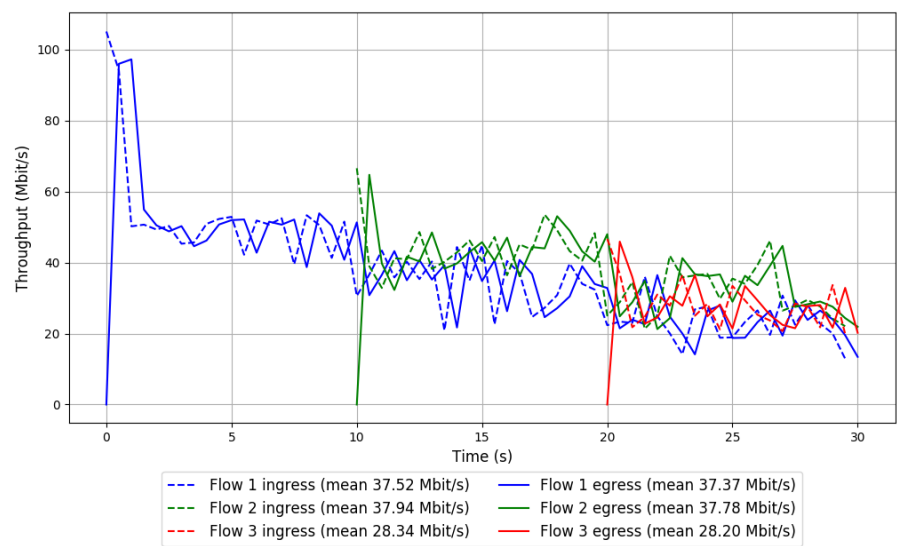


Run 1: Statistics of Verus

Start at: 2018-10-26 09:36:50  
End at: 2018-10-26 09:37:20  
Local clock offset: -6.003 ms  
Remote clock offset: -0.445 ms

# Below is generated by plot.py at 2018-10-26 11:31:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 71.69 Mbit/s  
95th percentile per-packet one-way delay: 25.416 ms  
Loss rate: 0.42%  
-- Flow 1:  
Average throughput: 37.37 Mbit/s  
95th percentile per-packet one-way delay: 30.041 ms  
Loss rate: 0.39%  
-- Flow 2:  
Average throughput: 37.78 Mbit/s  
95th percentile per-packet one-way delay: 17.443 ms  
Loss rate: 0.43%  
-- Flow 3:  
Average throughput: 28.20 Mbit/s  
95th percentile per-packet one-way delay: 40.949 ms  
Loss rate: 0.50%

Run 1: Report of Verus — Data Link



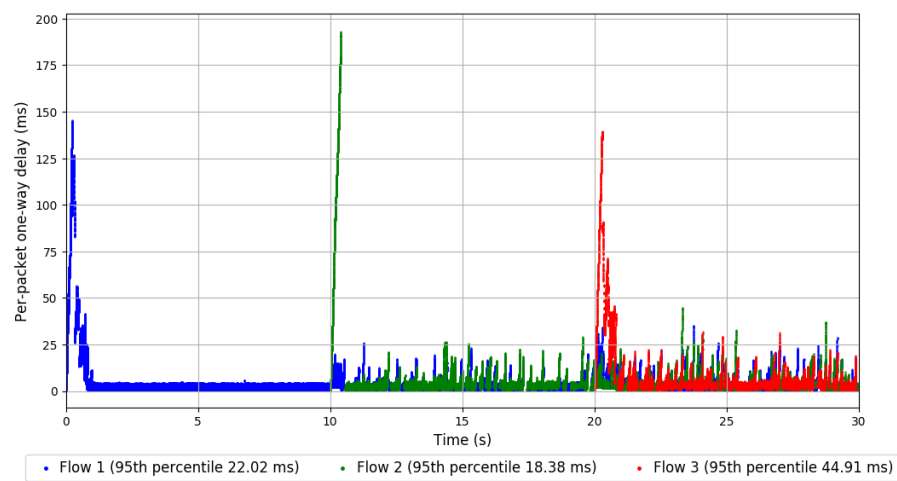
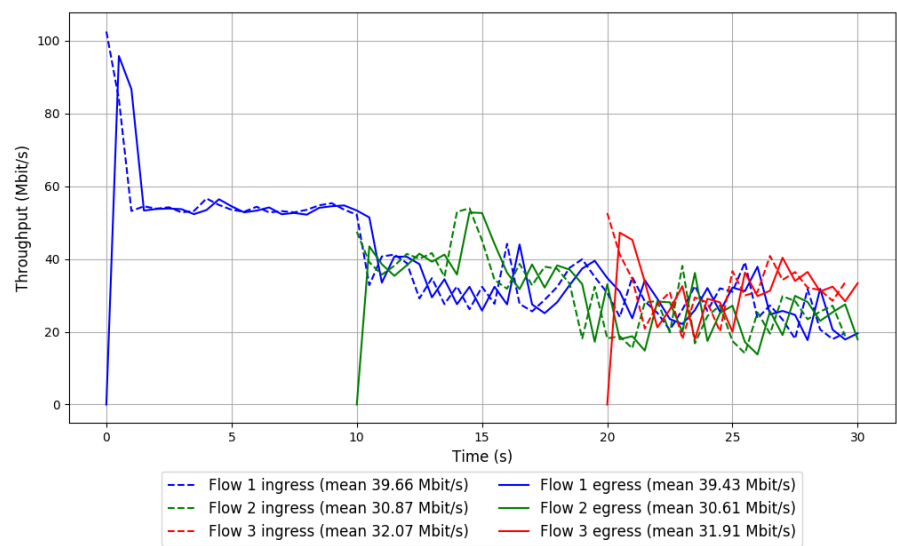


Run 2: Statistics of Verus

Start at: 2018-10-26 09:57:26  
End at: 2018-10-26 09:57:56  
Local clock offset: -6.071 ms  
Remote clock offset: -0.279 ms

# Below is generated by plot.py at 2018-10-26 11:31:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 70.40 Mbit/s  
95th percentile per-packet one-way delay: 25.419 ms  
Loss rate: 0.65%  
-- Flow 1:  
Average throughput: 39.43 Mbit/s  
95th percentile per-packet one-way delay: 22.016 ms  
Loss rate: 0.59%  
-- Flow 2:  
Average throughput: 30.61 Mbit/s  
95th percentile per-packet one-way delay: 18.378 ms  
Loss rate: 0.83%  
-- Flow 3:  
Average throughput: 31.91 Mbit/s  
95th percentile per-packet one-way delay: 44.911 ms  
Loss rate: 0.55%

Run 2: Report of Verus — Data Link

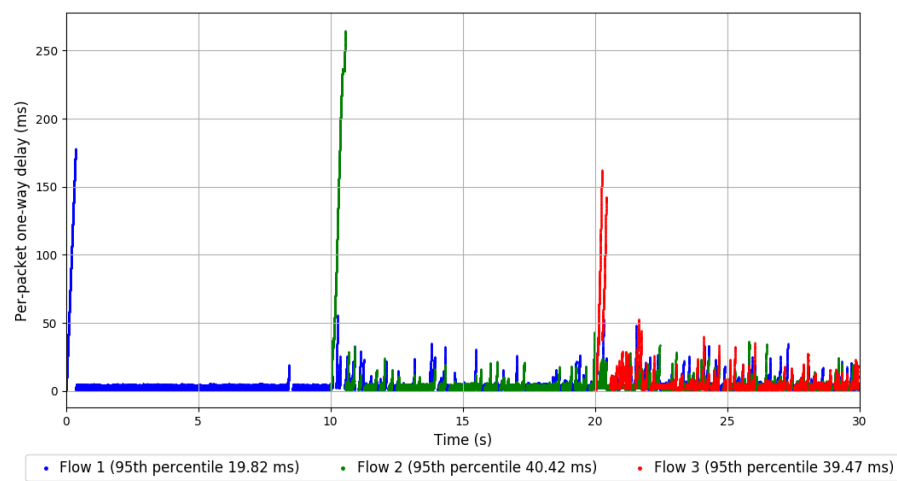
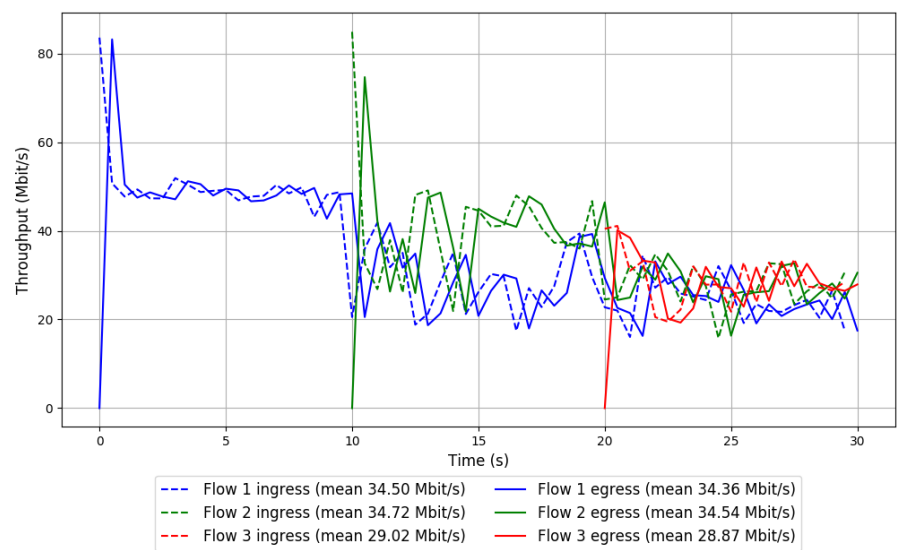


Run 3: Statistics of Verus

Start at: 2018-10-26 10:18:10  
End at: 2018-10-26 10:18:40  
Local clock offset: -6.045 ms  
Remote clock offset: -0.131 ms

# Below is generated by plot.py at 2018-10-26 11:32:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 66.86 Mbit/s  
95th percentile per-packet one-way delay: 27.214 ms  
Loss rate: 0.45%  
-- Flow 1:  
Average throughput: 34.36 Mbit/s  
95th percentile per-packet one-way delay: 19.817 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 34.54 Mbit/s  
95th percentile per-packet one-way delay: 40.422 ms  
Loss rate: 0.43%  
-- Flow 3:  
Average throughput: 28.87 Mbit/s  
95th percentile per-packet one-way delay: 39.472 ms  
Loss rate: 0.56%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-10-26 10:38:50

End at: 2018-10-26 10:39:20

Local clock offset: -5.889 ms

Remote clock offset: 0.163 ms

# Below is generated by plot.py at 2018-10-26 11:32:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 63.88 Mbit/s

95th percentile per-packet one-way delay: 21.795 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 37.73 Mbit/s

95th percentile per-packet one-way delay: 17.537 ms

Loss rate: 0.43%

-- Flow 2:

Average throughput: 26.12 Mbit/s

95th percentile per-packet one-way delay: 23.657 ms

Loss rate: 0.47%

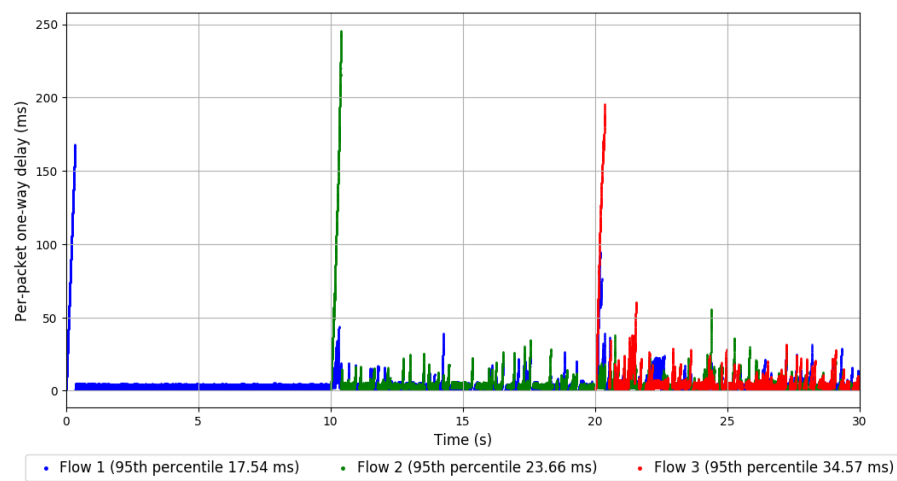
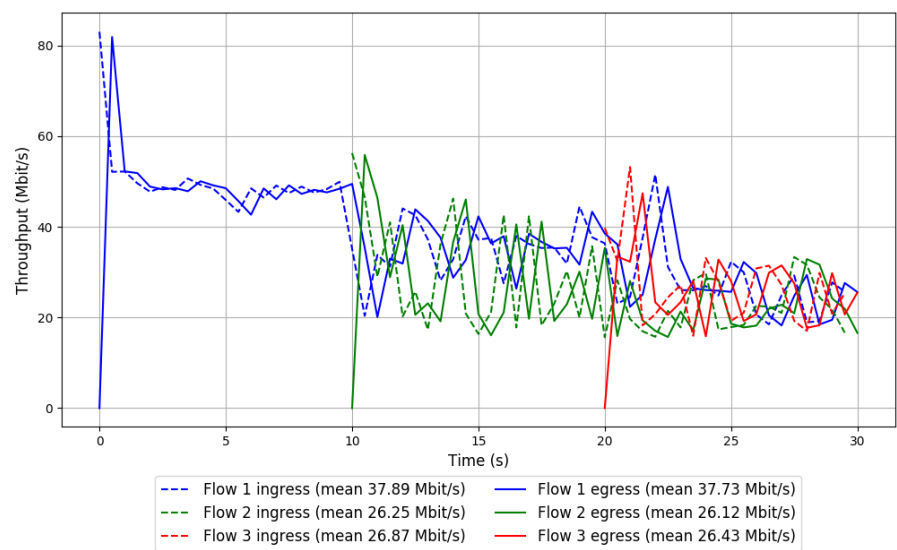
-- Flow 3:

Average throughput: 26.43 Mbit/s

95th percentile per-packet one-way delay: 34.570 ms

Loss rate: 1.70%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-10-26 10:59:28

End at: 2018-10-26 10:59:58

Local clock offset: -5.733 ms

Remote clock offset: 0.407 ms

# Below is generated by plot.py at 2018-10-26 11:32:25

# Datalink statistics

-- Total of 3 flows:

Average throughput: 66.33 Mbit/s

95th percentile per-packet one-way delay: 25.821 ms

Loss rate: 0.43%

-- Flow 1:

Average throughput: 33.97 Mbit/s

95th percentile per-packet one-way delay: 19.883 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 30.56 Mbit/s

95th percentile per-packet one-way delay: 20.686 ms

Loss rate: 0.43%

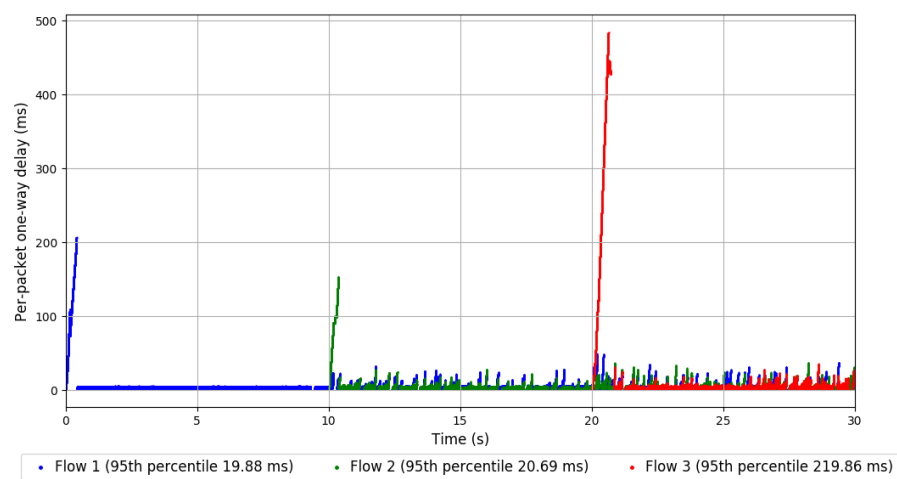
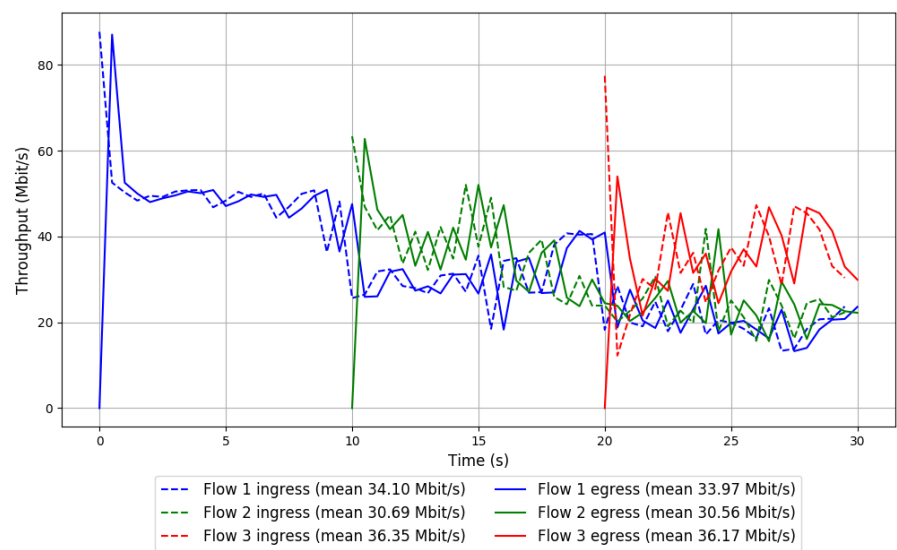
-- Flow 3:

Average throughput: 36.17 Mbit/s

95th percentile per-packet one-way delay: 219.860 ms

Loss rate: 0.55%

Run 5: Report of Verus — Data Link



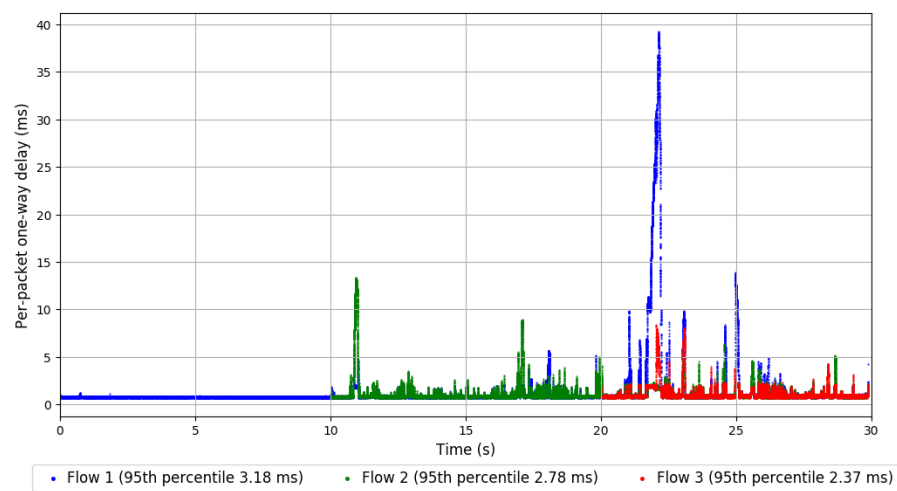
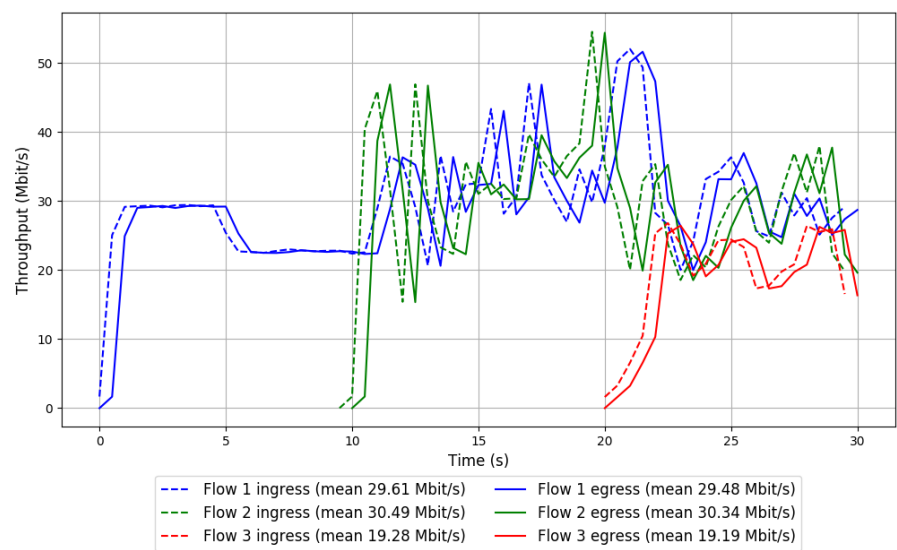


Run 1: Statistics of PCC-Vivace

Start at: 2018-10-26 09:46:05  
End at: 2018-10-26 09:46:35  
Local clock offset: -6.059 ms  
Remote clock offset: -0.421 ms

# Below is generated by plot.py at 2018-10-26 11:32:25  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 56.00 Mbit/s  
95th percentile per-packet one-way delay: 2.875 ms  
Loss rate: 0.47%  
-- Flow 1:  
Average throughput: 29.48 Mbit/s  
95th percentile per-packet one-way delay: 3.183 ms  
Loss rate: 0.44%  
-- Flow 2:  
Average throughput: 30.34 Mbit/s  
95th percentile per-packet one-way delay: 2.776 ms  
Loss rate: 0.51%  
-- Flow 3:  
Average throughput: 19.19 Mbit/s  
95th percentile per-packet one-way delay: 2.369 ms  
Loss rate: 0.49%

Run 1: Report of PCC-Vivace — Data Link

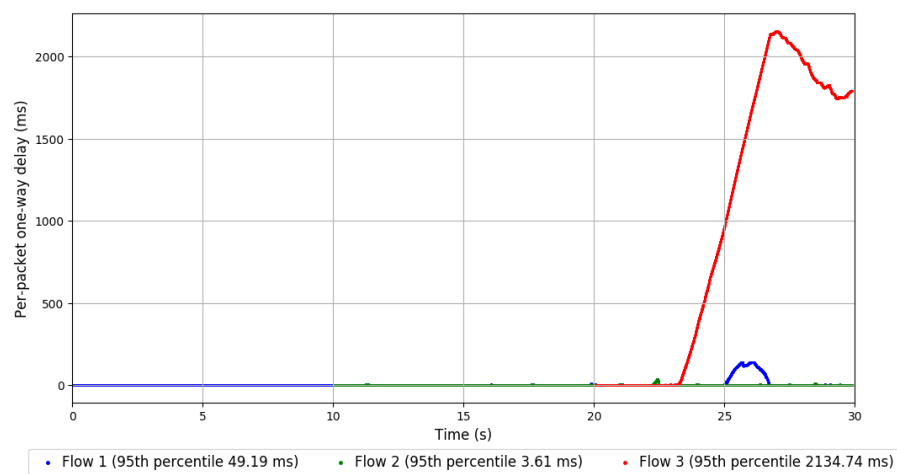
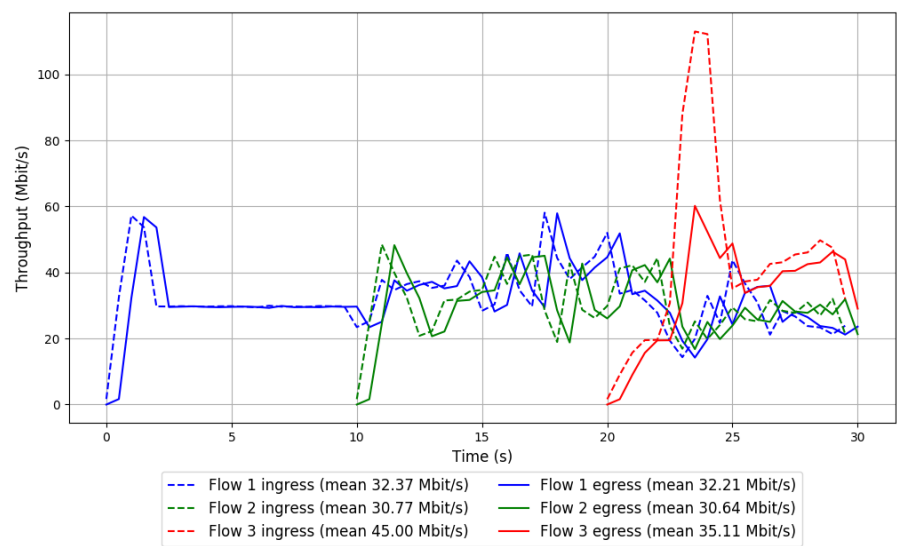


Run 2: Statistics of PCC-Vivace

Start at: 2018-10-26 10:06:48  
End at: 2018-10-26 10:07:18  
Local clock offset: -6.003 ms  
Remote clock offset: -0.116 ms

# Below is generated by plot.py at 2018-10-26 11:32:33  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 64.17 Mbit/s  
95th percentile per-packet one-way delay: 1839.988 ms  
Loss rate: 5.23%  
-- Flow 1:  
Average throughput: 32.21 Mbit/s  
95th percentile per-packet one-way delay: 49.190 ms  
Loss rate: 0.55%  
-- Flow 2:  
Average throughput: 30.64 Mbit/s  
95th percentile per-packet one-way delay: 3.611 ms  
Loss rate: 0.46%  
-- Flow 3:  
Average throughput: 35.11 Mbit/s  
95th percentile per-packet one-way delay: 2134.740 ms  
Loss rate: 22.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-10-26 10:27:27

End at: 2018-10-26 10:27:57

Local clock offset: -6.066 ms

Remote clock offset: 0.144 ms

# Below is generated by plot.py at 2018-10-26 11:32:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 60.05 Mbit/s

95th percentile per-packet one-way delay: 4.130 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 31.41 Mbit/s

95th percentile per-packet one-way delay: 2.040 ms

Loss rate: 0.44%

-- Flow 2:

Average throughput: 30.78 Mbit/s

95th percentile per-packet one-way delay: 17.482 ms

Loss rate: 0.48%

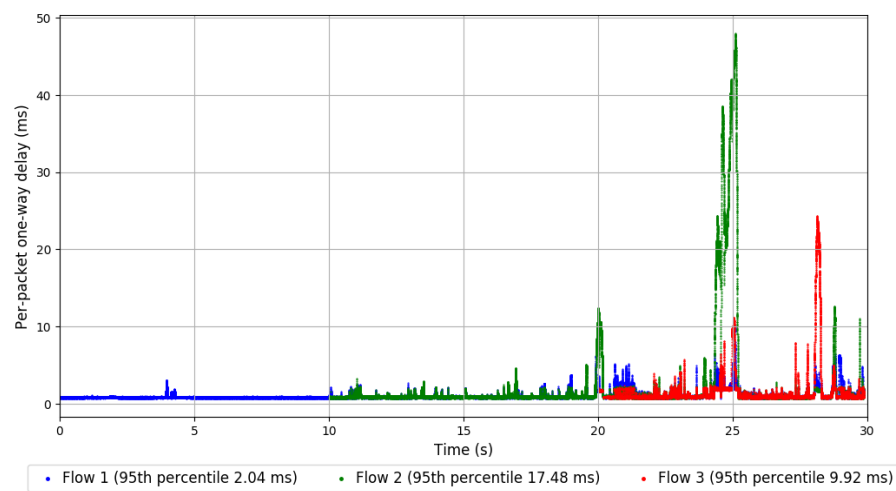
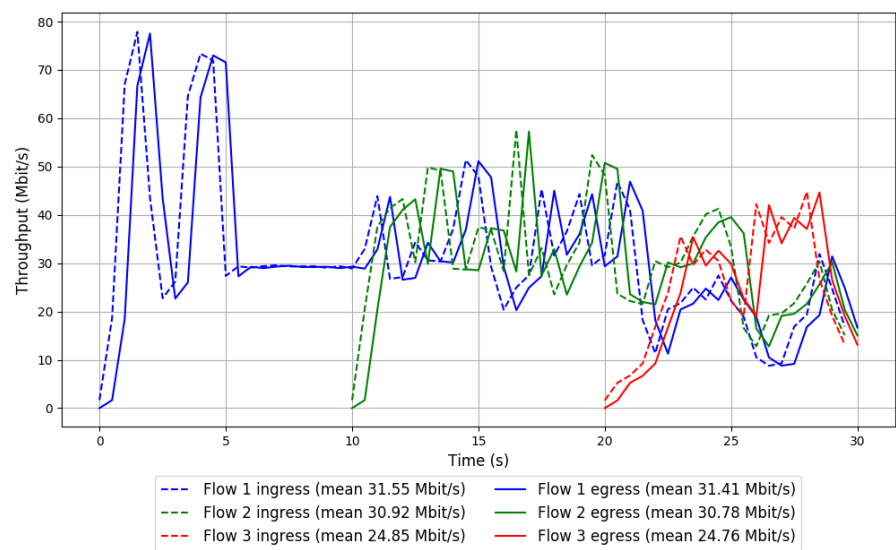
-- Flow 3:

Average throughput: 24.76 Mbit/s

95th percentile per-packet one-way delay: 9.923 ms

Loss rate: 0.40%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-10-26 10:48:06

End at: 2018-10-26 10:48:36

Local clock offset: -5.897 ms

Remote clock offset: 0.305 ms

# Below is generated by plot.py at 2018-10-26 11:32:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 63.65 Mbit/s

95th percentile per-packet one-way delay: 115.511 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 30.13 Mbit/s

95th percentile per-packet one-way delay: 4.140 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 38.30 Mbit/s

95th percentile per-packet one-way delay: 195.787 ms

Loss rate: 0.88%

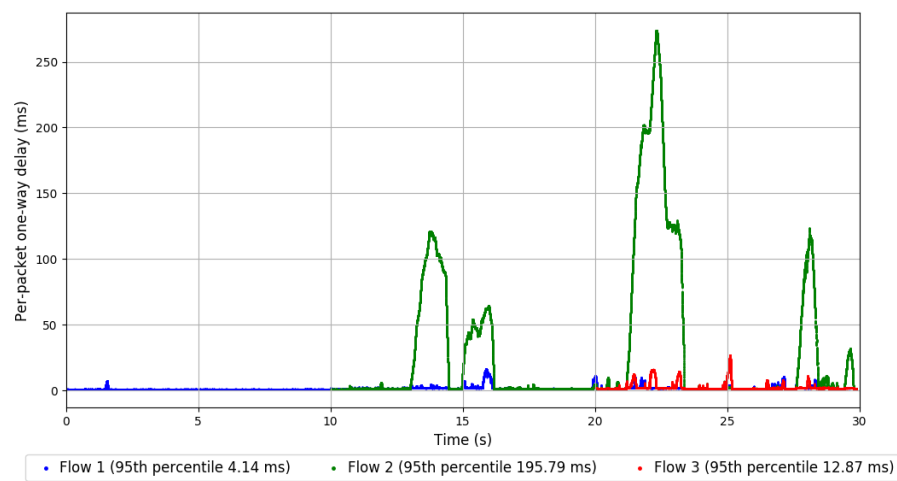
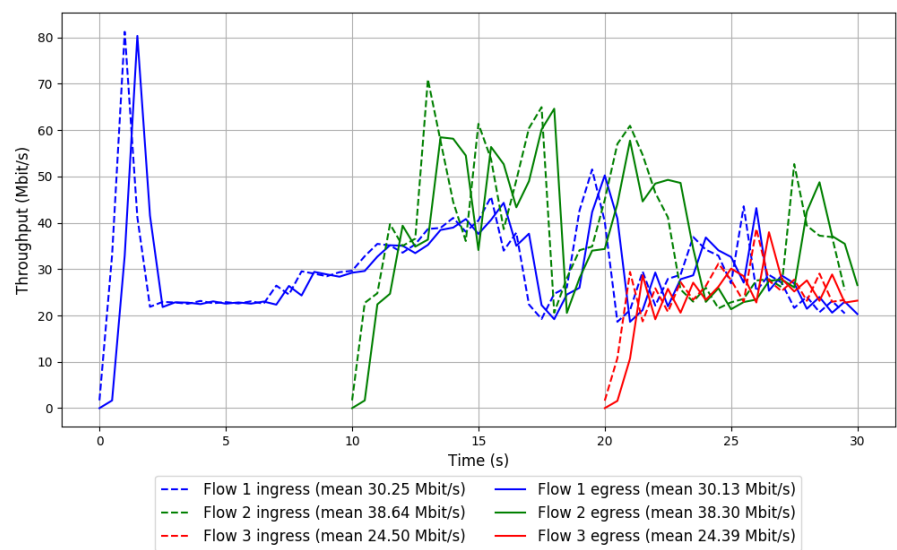
-- Flow 3:

Average throughput: 24.39 Mbit/s

95th percentile per-packet one-way delay: 12.874 ms

Loss rate: 0.52%

Run 4: Report of PCC-Vivace — Data Link





Run 5: Statistics of PCC-Vivace

Start at: 2018-10-26 11:08:45

End at: 2018-10-26 11:09:15

Local clock offset: -5.734 ms

Remote clock offset: 0.35 ms

# Below is generated by plot.py at 2018-10-26 11:32:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 58.44 Mbit/s

95th percentile per-packet one-way delay: 4.589 ms

Loss rate: 0.36%

-- Flow 1:

Average throughput: 28.69 Mbit/s

95th percentile per-packet one-way delay: 2.044 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 33.87 Mbit/s

95th percentile per-packet one-way delay: 12.877 ms

Loss rate: 0.33%

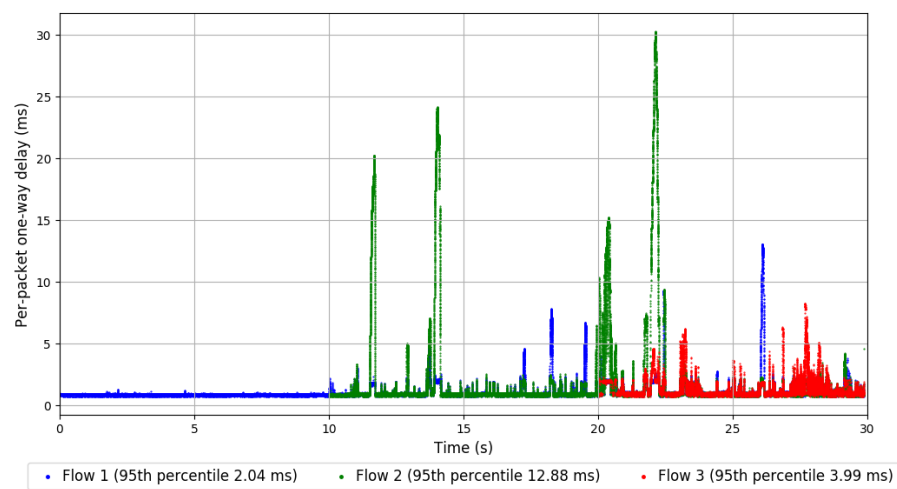
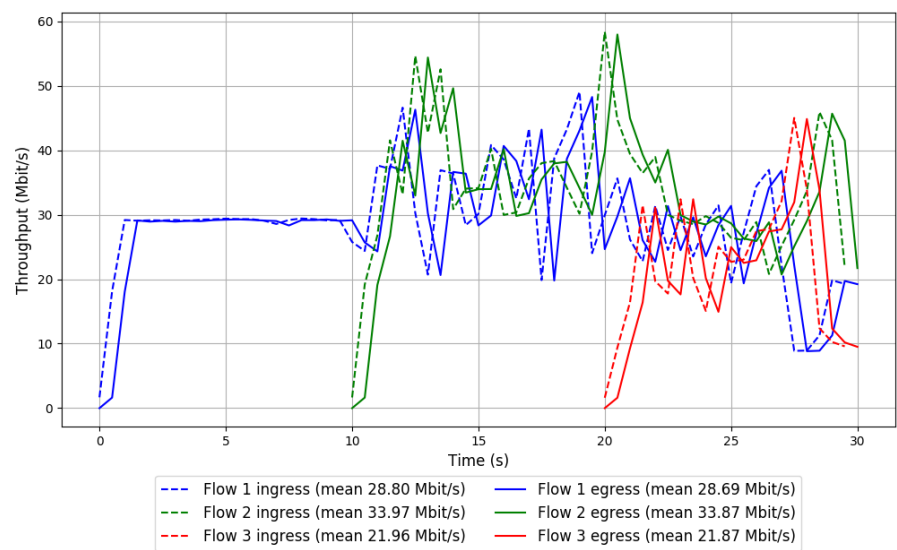
-- Flow 3:

Average throughput: 21.87 Mbit/s

95th percentile per-packet one-way delay: 3.987 ms

Loss rate: 0.40%

Run 5: Report of PCC-Vivace — Data Link

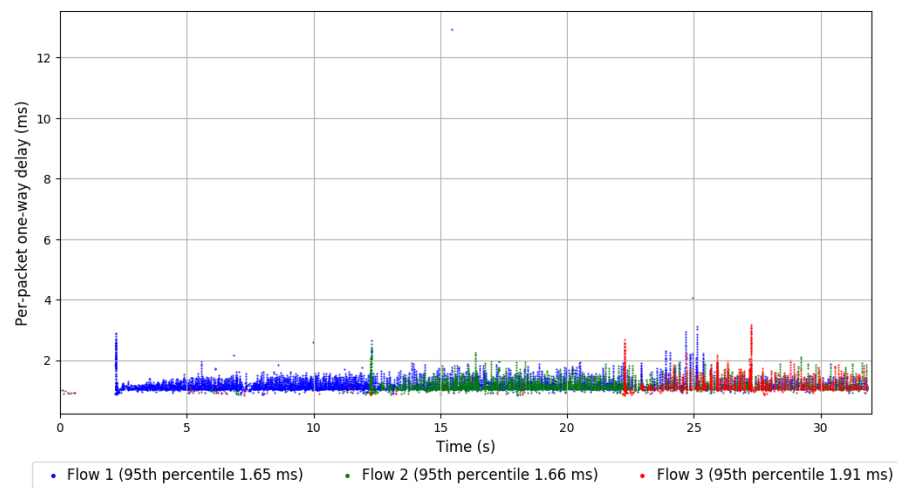
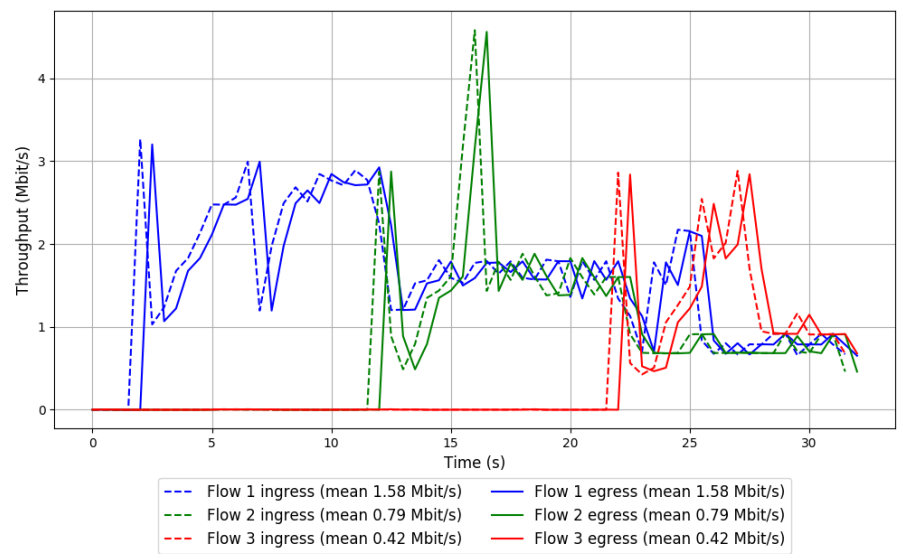


Run 1: Statistics of WebRTC media

Start at: 2018-10-26 09:39:09  
End at: 2018-10-26 09:39:39  
Local clock offset: -5.899 ms  
Remote clock offset: -0.508 ms

# Below is generated by plot.py at 2018-10-26 11:32:36  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.78 Mbit/s  
95th percentile per-packet one-way delay: 1.699 ms  
Loss rate: 0.42%  
-- Flow 1:  
Average throughput: 1.58 Mbit/s  
95th percentile per-packet one-way delay: 1.653 ms  
Loss rate: 0.40%  
-- Flow 2:  
Average throughput: 0.79 Mbit/s  
95th percentile per-packet one-way delay: 1.661 ms  
Loss rate: 0.27%  
-- Flow 3:  
Average throughput: 0.42 Mbit/s  
95th percentile per-packet one-way delay: 1.910 ms  
Loss rate: 0.83%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-10-26 09:59:46

End at: 2018-10-26 10:00:16

Local clock offset: -5.939 ms

Remote clock offset: -0.3 ms

# Below is generated by plot.py at 2018-10-26 11:32:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.70 Mbit/s

95th percentile per-packet one-way delay: 1.669 ms

Loss rate: 0.36%

-- Flow 1:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 1.600 ms

Loss rate: 0.31%

-- Flow 2:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 1.865 ms

Loss rate: 0.36%

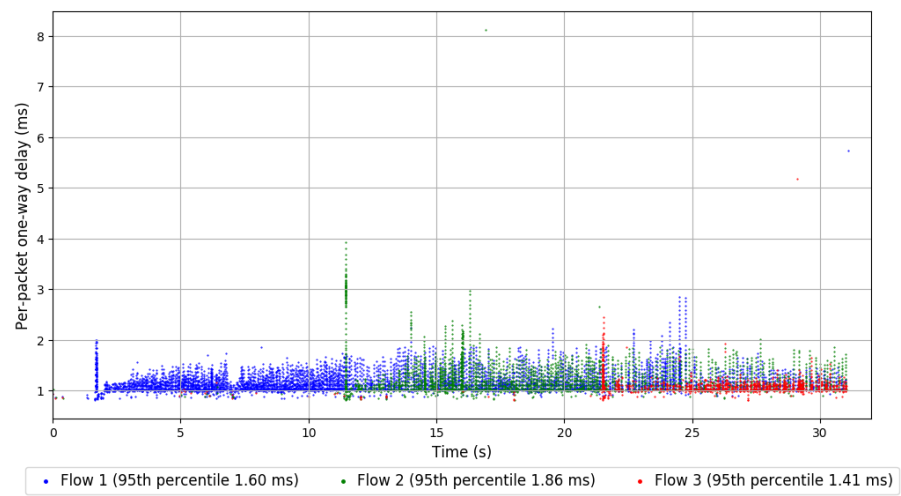
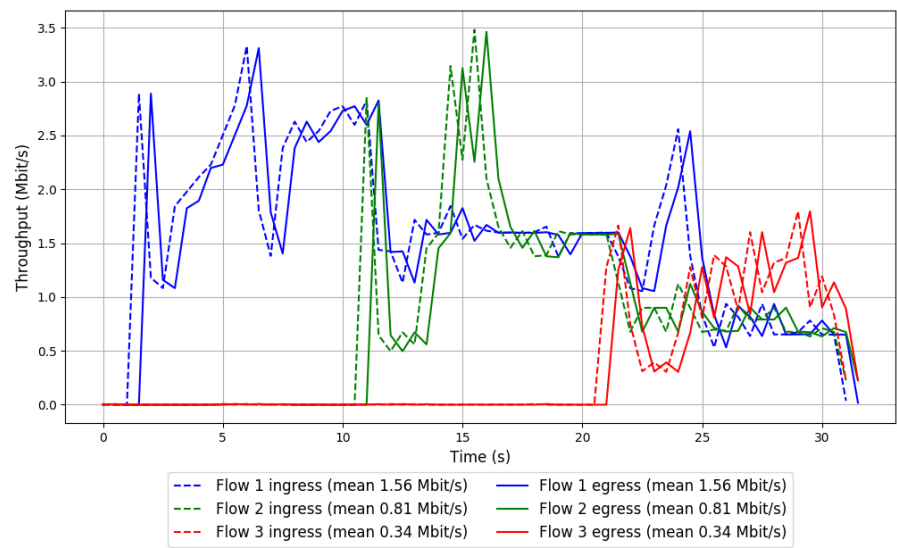
-- Flow 3:

Average throughput: 0.34 Mbit/s

95th percentile per-packet one-way delay: 1.410 ms

Loss rate: 0.59%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-10-26 10:20:29

End at: 2018-10-26 10:20:59

Local clock offset: -6.098 ms

Remote clock offset: 0.042 ms

# Below is generated by plot.py at 2018-10-26 11:32:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.83 Mbit/s

95th percentile per-packet one-way delay: 1.632 ms

Loss rate: 0.35%

-- Flow 1:

Average throughput: 1.60 Mbit/s

95th percentile per-packet one-way delay: 1.557 ms

Loss rate: 0.49%

-- Flow 2:

Average throughput: 0.81 Mbit/s

95th percentile per-packet one-way delay: 1.564 ms

Loss rate: 0.14%

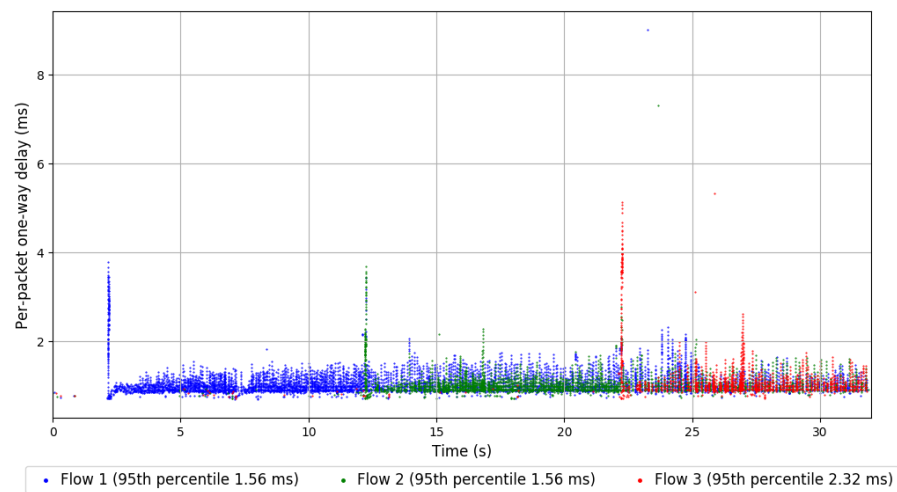
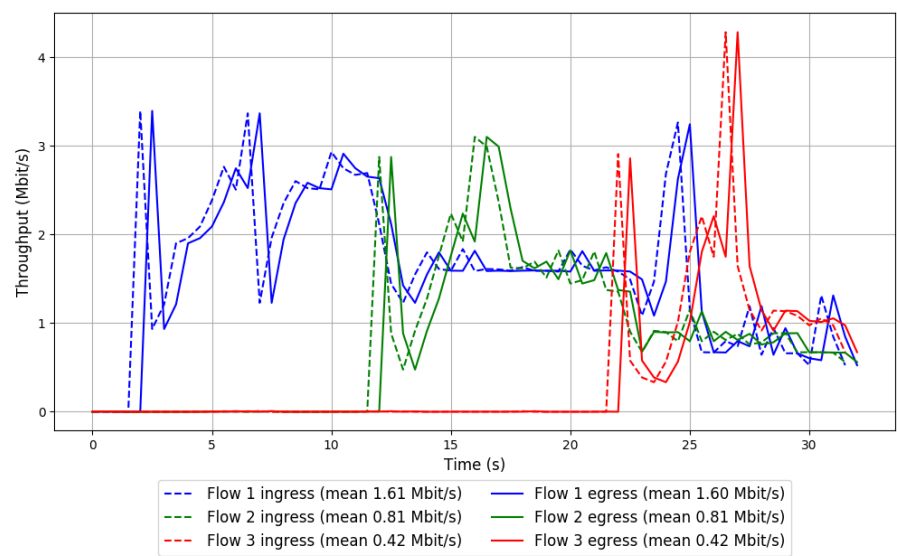
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 2.324 ms

Loss rate: 0.25%

Run 3: Report of WebRTC media — Data Link





Run 4: Statistics of WebRTC media

Start at: 2018-10-26 10:41:09

End at: 2018-10-26 10:41:39

Local clock offset: -5.875 ms

Remote clock offset: 0.179 ms

# Below is generated by plot.py at 2018-10-26 11:32:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.84 Mbit/s

95th percentile per-packet one-way delay: 1.858 ms

Loss rate: 0.36%

-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 1.716 ms

Loss rate: 0.36%

-- Flow 2:

Average throughput: 0.91 Mbit/s

95th percentile per-packet one-way delay: 2.138 ms

Loss rate: 0.33%

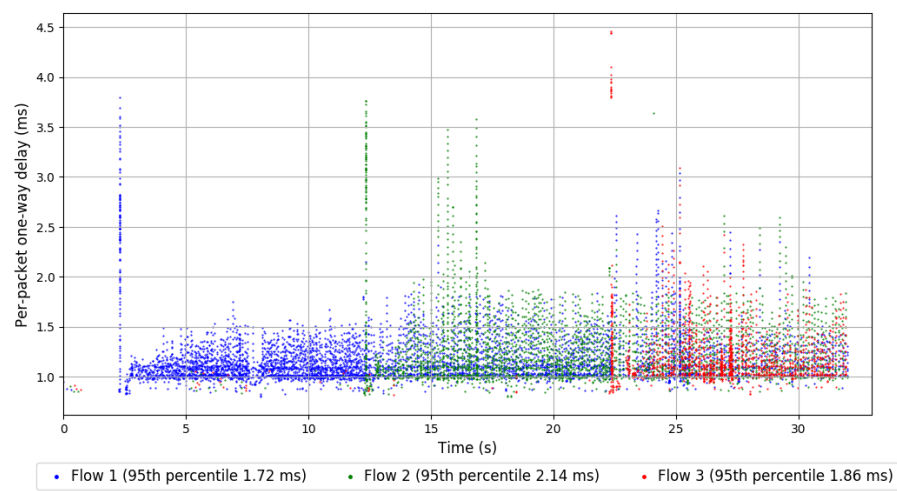
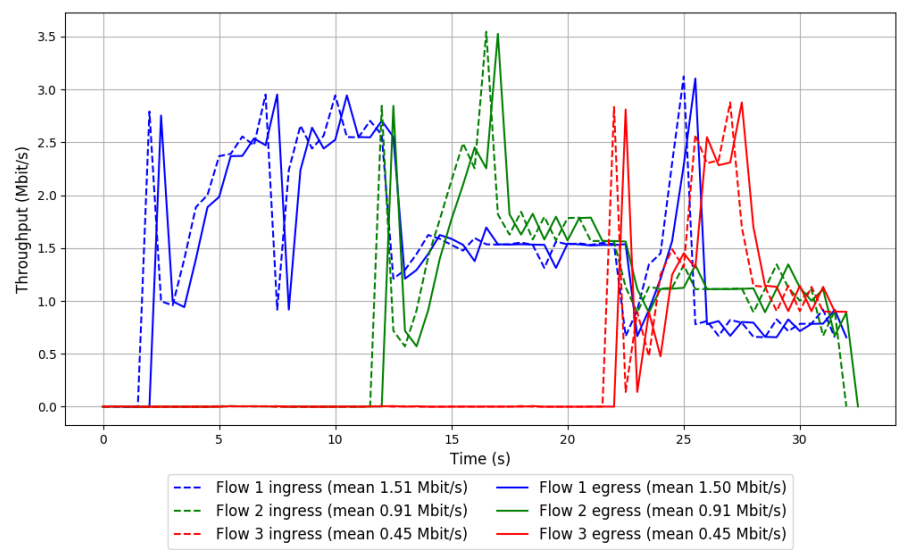
-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 1.858 ms

Loss rate: 0.43%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-10-26 11:01:47

End at: 2018-10-26 11:02:17

Local clock offset: -5.738 ms

Remote clock offset: 0.431 ms

# Below is generated by plot.py at 2018-10-26 11:32:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.79 Mbit/s

95th percentile per-packet one-way delay: 1.633 ms

Loss rate: 0.36%

-- Flow 1:

Average throughput: 1.54 Mbit/s

95th percentile per-packet one-way delay: 1.641 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 0.84 Mbit/s

95th percentile per-packet one-way delay: 1.507 ms

Loss rate: 0.21%

-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 1.696 ms

Loss rate: 0.52%

Run 5: Report of WebRTC media — Data Link

