

## Pantheon Report

Generated at 2018-11-15 13:57:14 (UTC).

Data path: China on `eno1` (*remote*) → AWS Korea 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 `ntp.nict.jp` and have been applied to correct the timestamps in logs.

### System info:

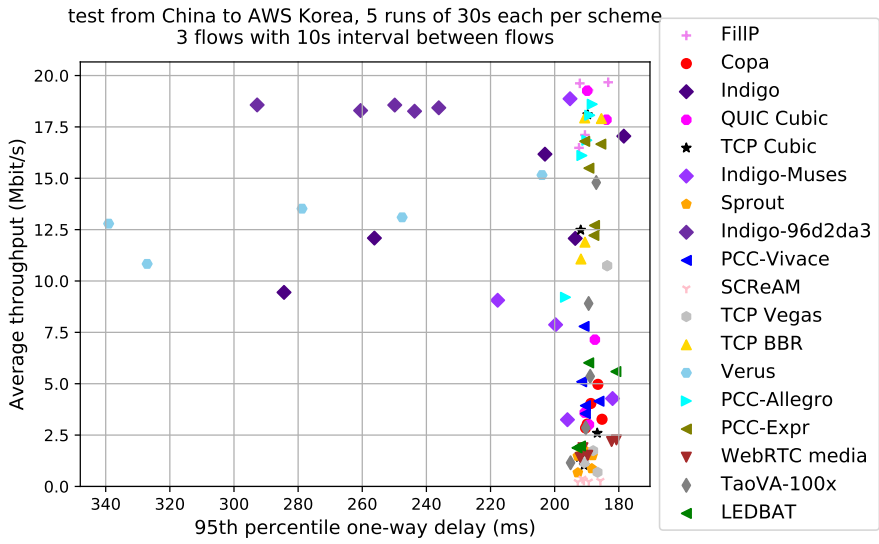
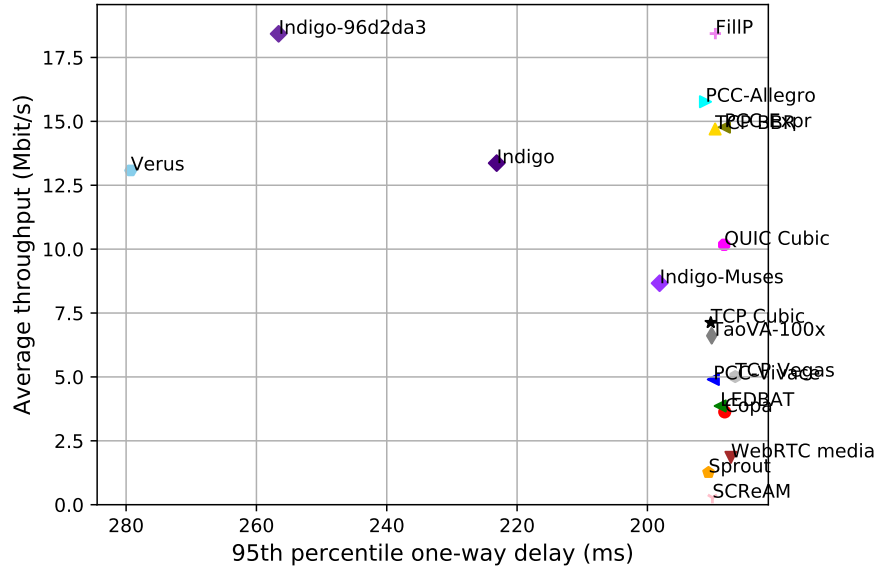
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
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 China to AWS Korea, 5 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



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	4	6.54	9.59	5.54	187.09	189.80	184.16	60.43	29.32	32.98
Copa	5	1.50	1.72	3.04	188.15	187.94	188.51	2.12	2.39	2.88
TCP Cubic	5	2.52	4.40	5.18	187.63	190.77	190.13	41.83	7.91	3.35
FillP	5	12.85	5.88	5.26	189.67	189.33	189.44	25.82	25.34	22.04
Indigo	5	54.69	12.28	3.48	193.56	219.69	221.98	33.32	48.74	49.54
Indigo-96d2da3	5	11.31	8.00	5.70	259.32	253.65	232.84	60.81	62.03	63.51
LEDBAT	4	2.67	1.07	1.42	188.62	184.55	188.14	1.64	1.58	4.91
Indigo-Muses	5	4.55	4.36	4.41	195.01	195.77	199.80	13.99	18.67	25.36
PCC-Allegro	5	12.78	2.23	4.67	190.67	190.17	190.75	25.63	34.84	32.02
PCC-Expr	5	7.53	8.00	5.97	186.60	188.11	188.45	29.39	18.94	31.58
QUIC Cubic	5	6.67	2.57	5.54	188.13	188.37	187.06	4.50	3.83	5.06
SCReAM	5	0.13	0.13	0.18	189.96	190.02	189.88	1.24	1.84	2.48
Sprout	5	0.63	0.70	0.53	190.54	190.72	190.55	1.14	2.31	2.86
TaoVA-100x	5	3.01	2.74	5.47	189.04	189.77	190.07	54.94	11.28	18.61
TCP Vegas	5	0.62	4.50	4.55	182.59	186.43	186.42	21.75	1.95	4.70
Verus	5	10.20	7.85	2.78	289.95	231.29	224.02	49.53	36.09	32.44
PCC-Vivace	5	2.19	2.21	3.93	189.78	190.03	189.65	1.63	2.03	3.62
WebRTC media	5	0.81	0.80	0.26	187.76	186.68	186.61	19.43	2.81	7.40

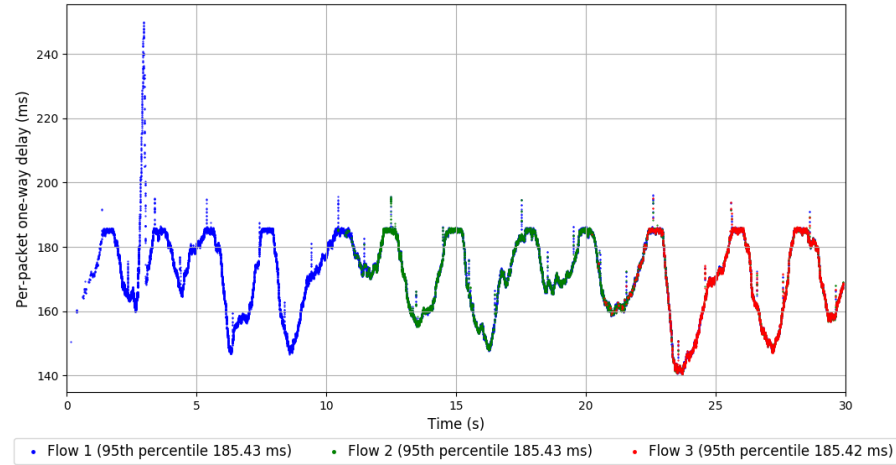
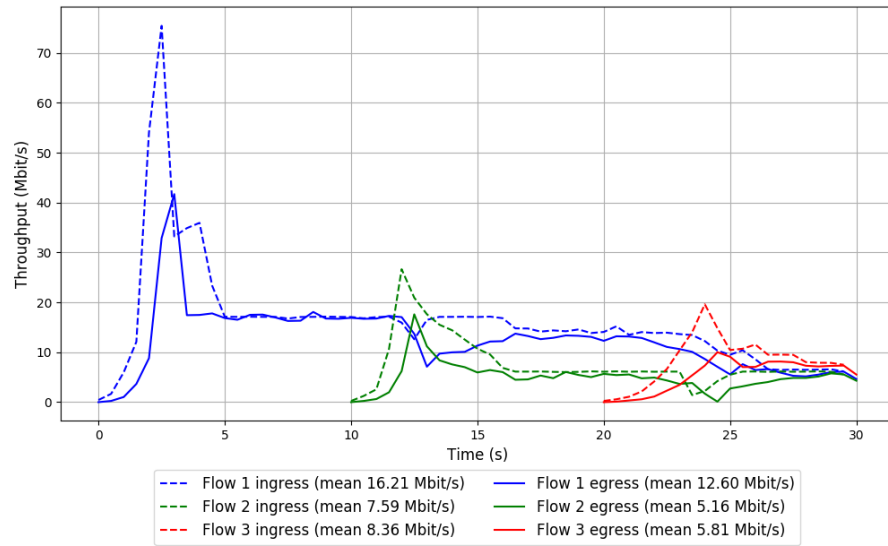


Run 1: Statistics of TCP BBR

Start at: 2018-11-15 11:20:21  
End at: 2018-11-15 11:20:51  
Local clock offset: -3.685 ms  
Remote clock offset: 24.211 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 17.91 Mbit/s  
95th percentile per-packet one-way delay: 185.427 ms  
Loss rate: 26.04%  
-- Flow 1:  
Average throughput: 12.60 Mbit/s  
95th percentile per-packet one-way delay: 185.427 ms  
Loss rate: 22.87%  
-- Flow 2:  
Average throughput: 5.16 Mbit/s  
95th percentile per-packet one-way delay: 185.428 ms  
Loss rate: 32.82%  
-- Flow 3:  
Average throughput: 5.81 Mbit/s  
95th percentile per-packet one-way delay: 185.424 ms  
Loss rate: 32.22%

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

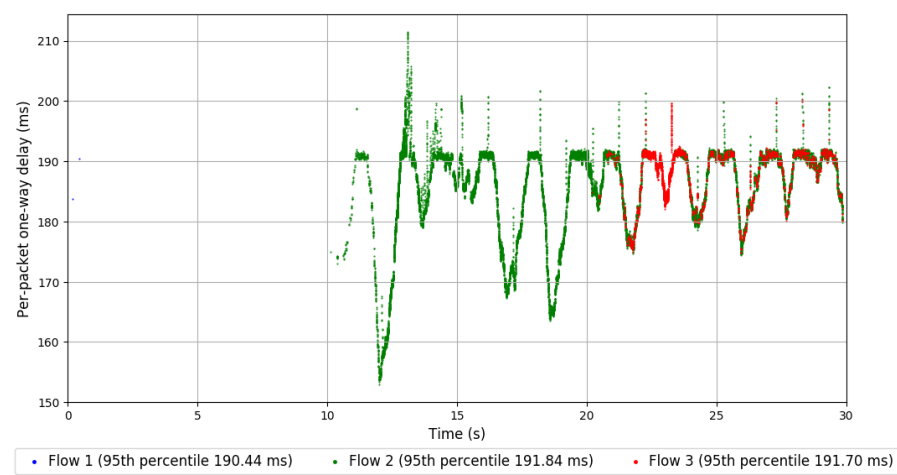
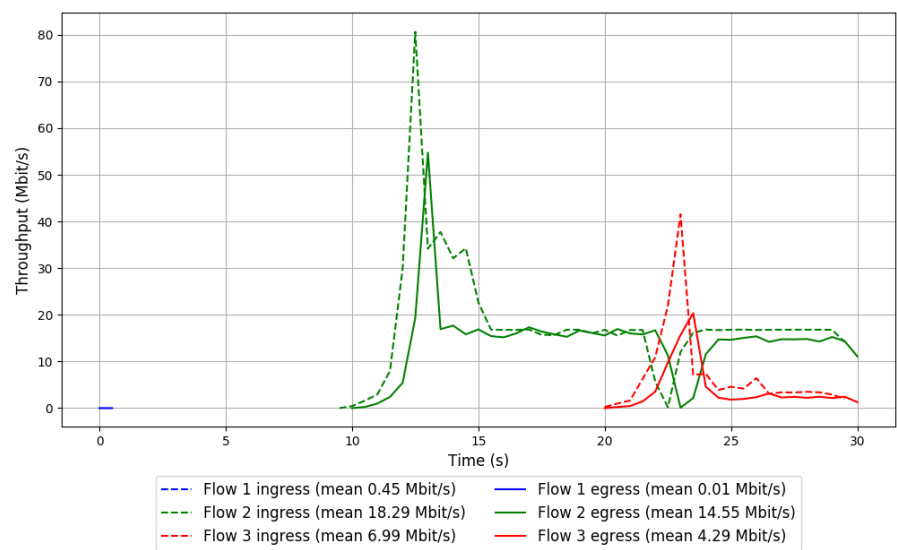


Run 2: Statistics of TCP BBR

Start at: 2018-11-15 11:51:21  
End at: 2018-11-15 11:51:51  
Local clock offset: -1.958 ms  
Remote clock offset: 45.247 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.07 Mbit/s  
95th percentile per-packet one-way delay: 191.814 ms  
Loss rate: 24.53%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 190.442 ms  
Loss rate: 98.79%  
-- Flow 2:  
Average throughput: 14.55 Mbit/s  
95th percentile per-packet one-way delay: 191.843 ms  
Loss rate: 21.52%  
-- Flow 3:  
Average throughput: 4.29 Mbit/s  
95th percentile per-packet one-way delay: 191.703 ms  
Loss rate: 40.29%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

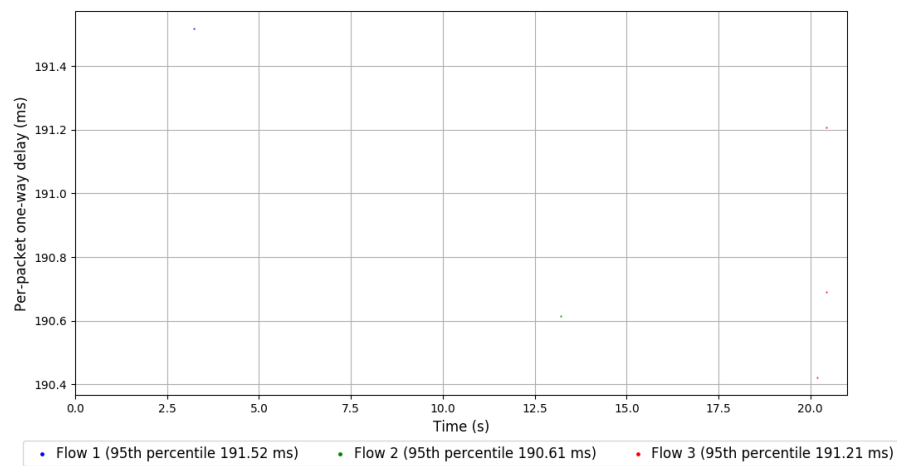
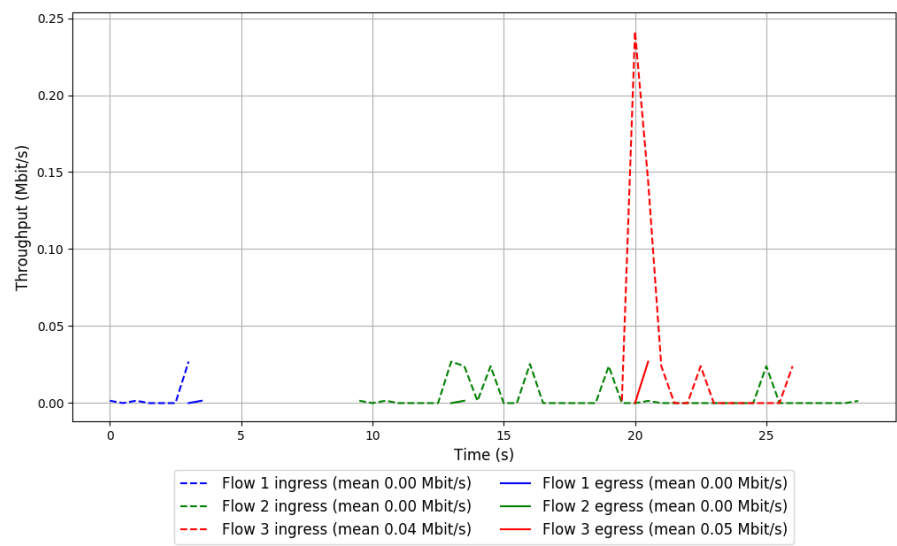
Start at: 2018-11-15 12:27:08

End at: 2018-11-15 12:27:38

Local clock offset: -1.486 ms

Remote clock offset: 49.878 ms

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-11-15 13:14:07

End at: 2018-11-15 13:14:37

Local clock offset: 17.714 ms

Remote clock offset: 4.17 ms

# Below is generated by plot.py at 2018-11-15 13:55:07

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.94 Mbit/s

95th percentile per-packet one-way delay: 190.640 ms

Loss rate: 23.93%

-- Flow 1:

Average throughput: 13.52 Mbit/s

95th percentile per-packet one-way delay: 190.679 ms

Loss rate: 21.25%

-- Flow 2:

Average throughput: 5.41 Mbit/s

95th percentile per-packet one-way delay: 190.561 ms

Loss rate: 33.02%

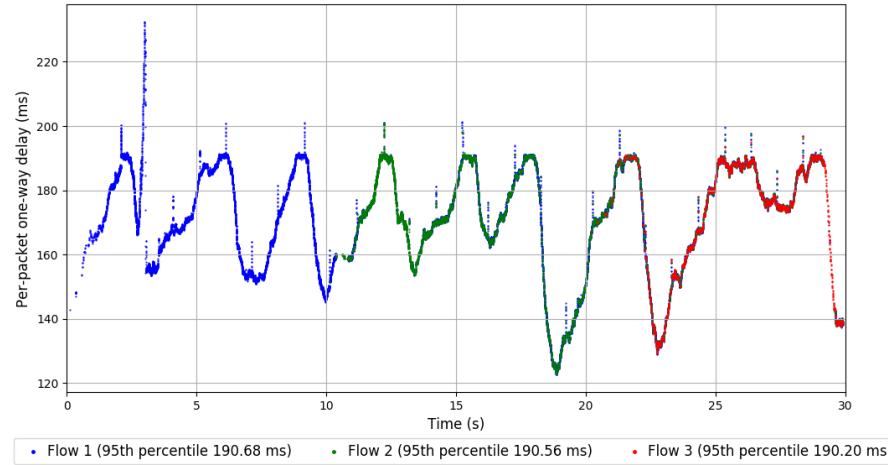
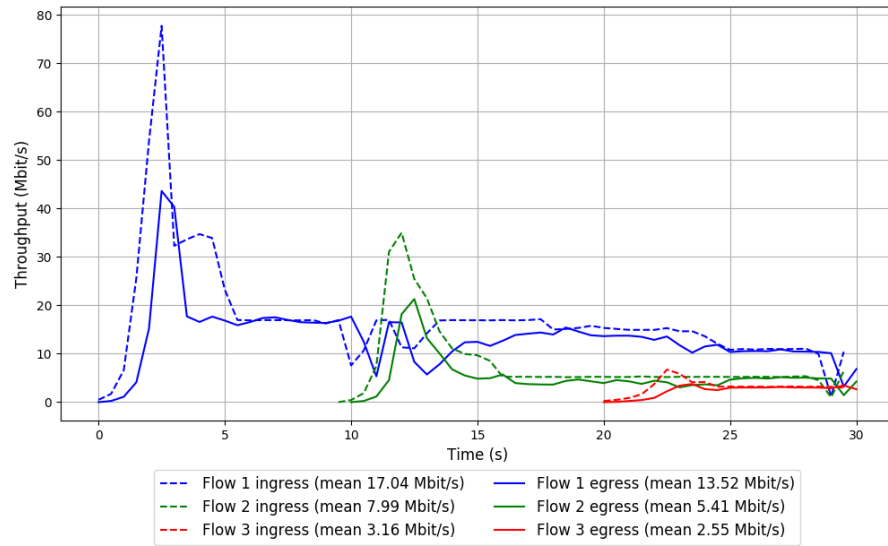
-- Flow 3:

Average throughput: 2.55 Mbit/s

95th percentile per-packet one-way delay: 190.201 ms

Loss rate: 21.26%

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



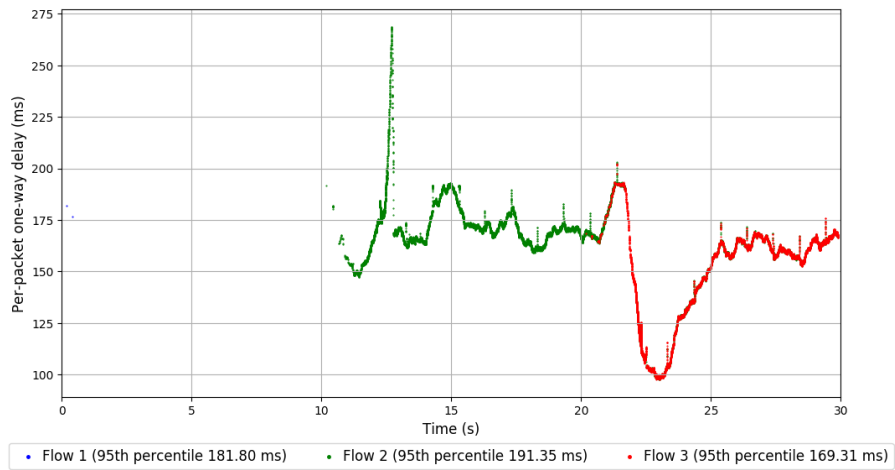
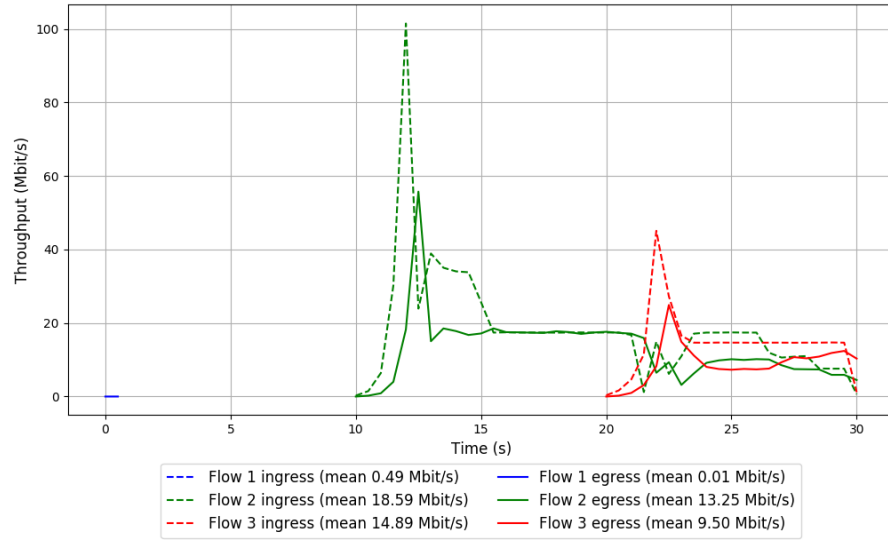


Run 5: Statistics of TCP BBR

Start at: 2018-11-15 13:44:56  
End at: 2018-11-15 13:45:26  
Local clock offset: -1.668 ms  
Remote clock offset: 66.909 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.89 Mbit/s  
95th percentile per-packet one-way delay: 190.550 ms  
Loss rate: 32.29%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 181.799 ms  
Loss rate: 98.79%  
-- Flow 2:  
Average throughput: 13.25 Mbit/s  
95th percentile per-packet one-way delay: 191.351 ms  
Loss rate: 29.91%  
-- Flow 3:  
Average throughput: 9.50 Mbit/s  
95th percentile per-packet one-way delay: 169.312 ms  
Loss rate: 38.16%

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

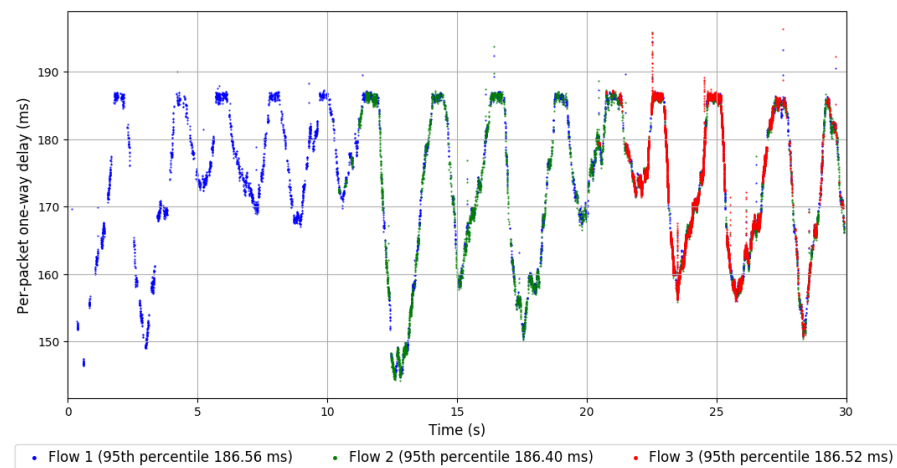
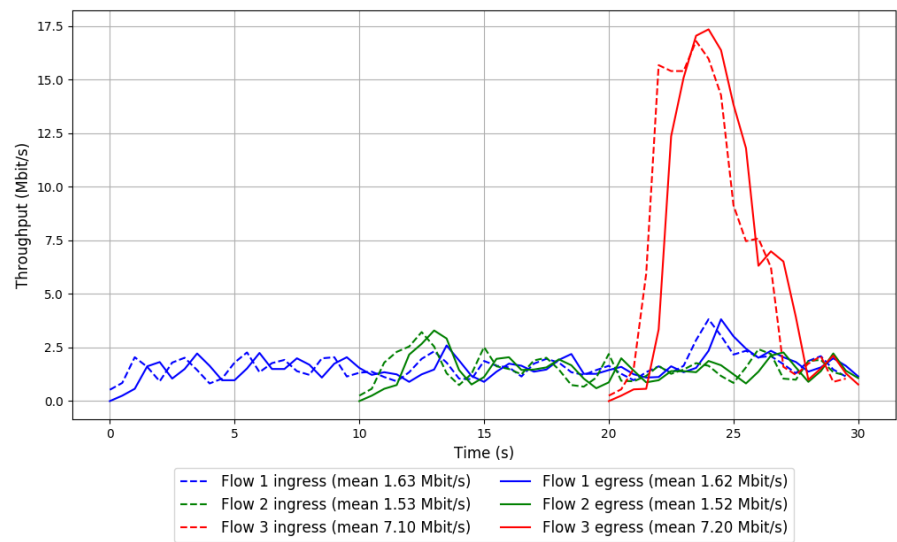


Run 1: Statistics of Copa

Start at: 2018-11-15 11:23:28  
End at: 2018-11-15 11:23:58  
Local clock offset: -4.429 ms  
Remote clock offset: 23.362 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.97 Mbit/s  
95th percentile per-packet one-way delay: 186.516 ms  
Loss rate: 1.39%  
-- Flow 1:  
Average throughput: 1.62 Mbit/s  
95th percentile per-packet one-way delay: 186.555 ms  
Loss rate: 1.41%  
-- Flow 2:  
Average throughput: 1.52 Mbit/s  
95th percentile per-packet one-way delay: 186.397 ms  
Loss rate: 1.63%  
-- Flow 3:  
Average throughput: 7.20 Mbit/s  
95th percentile per-packet one-way delay: 186.518 ms  
Loss rate: 1.27%

Run 1: Report of Copa — Data Link

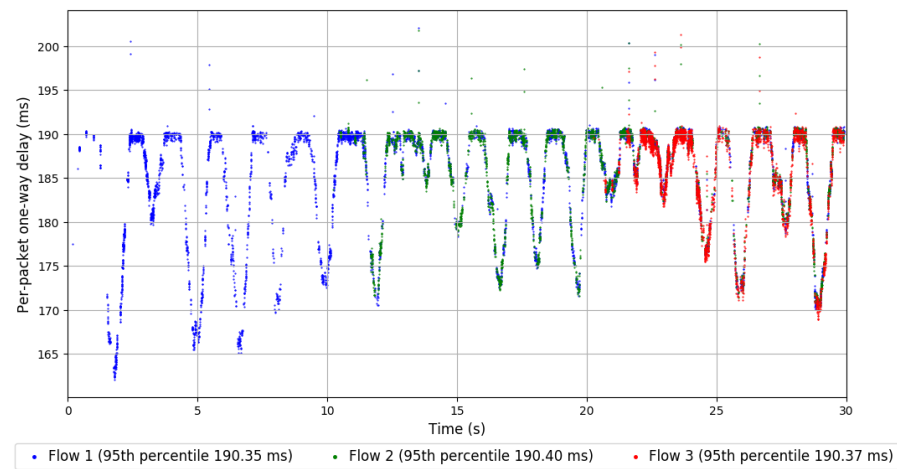
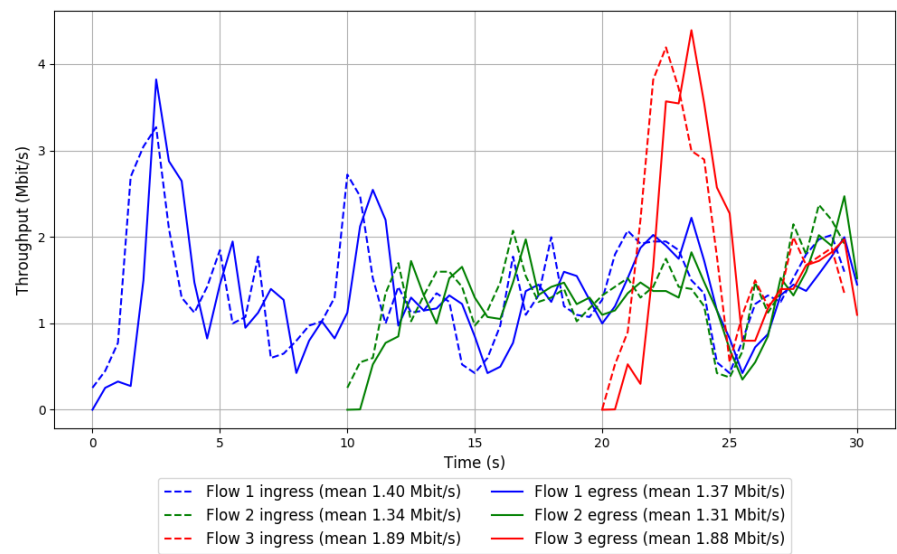


Run 2: Statistics of Copa

Start at: 2018-11-15 11:54:45  
End at: 2018-11-15 11:55:15  
Local clock offset: -2.076 ms  
Remote clock offset: 50.964 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.84 Mbit/s  
95th percentile per-packet one-way delay: 190.372 ms  
Loss rate: 3.07%  
-- Flow 1:  
Average throughput: 1.37 Mbit/s  
95th percentile per-packet one-way delay: 190.352 ms  
Loss rate: 2.60%  
-- Flow 2:  
Average throughput: 1.31 Mbit/s  
95th percentile per-packet one-way delay: 190.404 ms  
Loss rate: 3.81%  
-- Flow 3:  
Average throughput: 1.88 Mbit/s  
95th percentile per-packet one-way delay: 190.371 ms  
Loss rate: 3.08%

Run 2: Report of Copa — Data Link

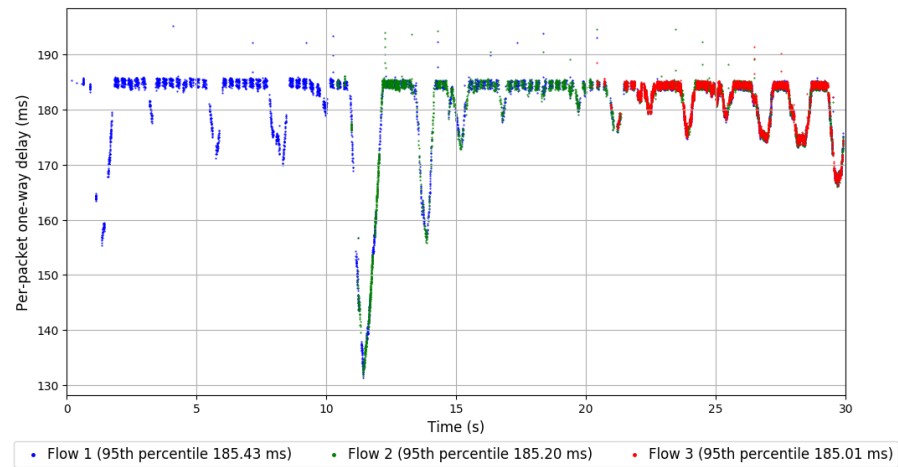
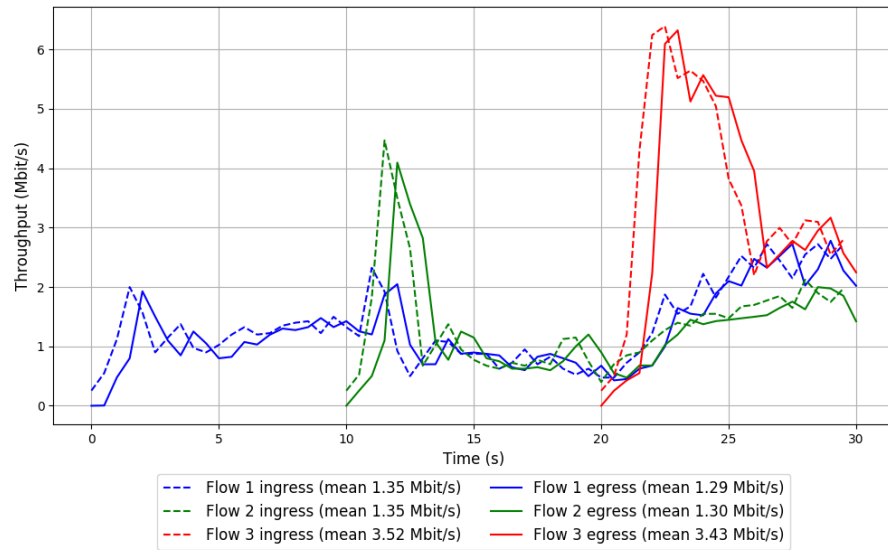


Run 3: Statistics of Copa

Start at: 2018-11-15 12:34:26  
End at: 2018-11-15 12:34:56  
Local clock offset: 10.646 ms  
Remote clock offset: 50.123 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.27 Mbit/s  
95th percentile per-packet one-way delay: 185.228 ms  
Loss rate: 5.10%  
-- Flow 1:  
Average throughput: 1.29 Mbit/s  
95th percentile per-packet one-way delay: 185.426 ms  
Loss rate: 5.35%  
-- Flow 2:  
Average throughput: 1.30 Mbit/s  
95th percentile per-packet one-way delay: 185.202 ms  
Loss rate: 5.07%  
-- Flow 3:  
Average throughput: 3.43 Mbit/s  
95th percentile per-packet one-way delay: 185.009 ms  
Loss rate: 4.84%

### Run 3: Report of Copa — Data Link





Run 4: Statistics of Copa

Start at: 2018-11-15 13:16:56

End at: 2018-11-15 13:17:26

Local clock offset: 17.829 ms

Remote clock offset: 2.077 ms

# Below is generated by plot.py at 2018-11-15 13:55:07

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.03 Mbit/s

95th percentile per-packet one-way delay: 189.846 ms

Loss rate: 1.13%

-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 189.862 ms

Loss rate: 0.83%

-- Flow 2:

Average throughput: 1.48 Mbit/s

95th percentile per-packet one-way delay: 189.724 ms

Loss rate: 1.14%

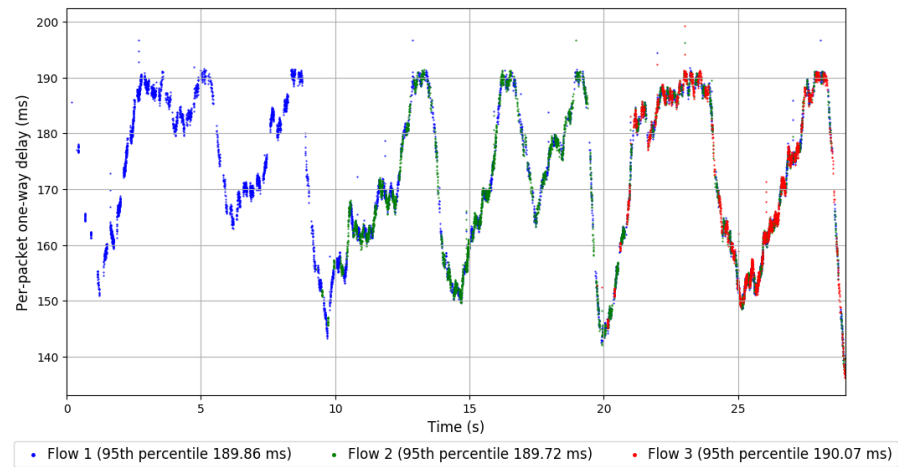
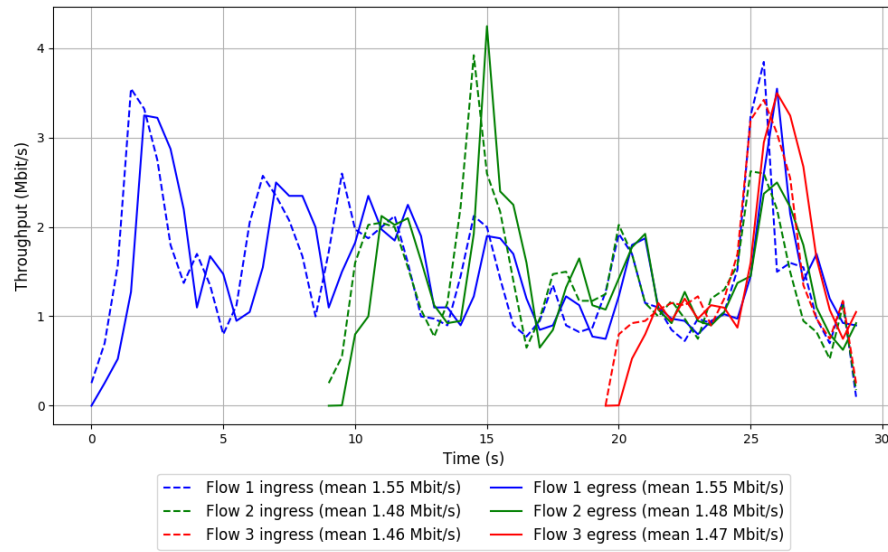
-- Flow 3:

Average throughput: 1.47 Mbit/s

95th percentile per-packet one-way delay: 190.066 ms

Loss rate: 2.08%

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

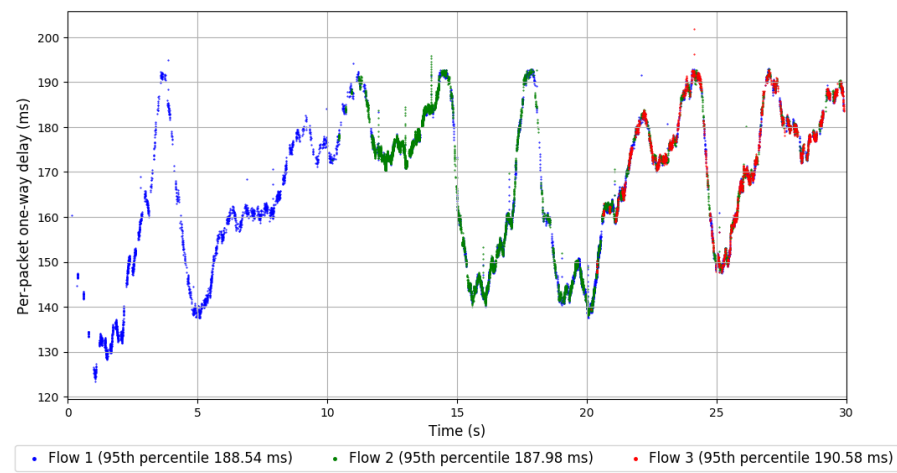
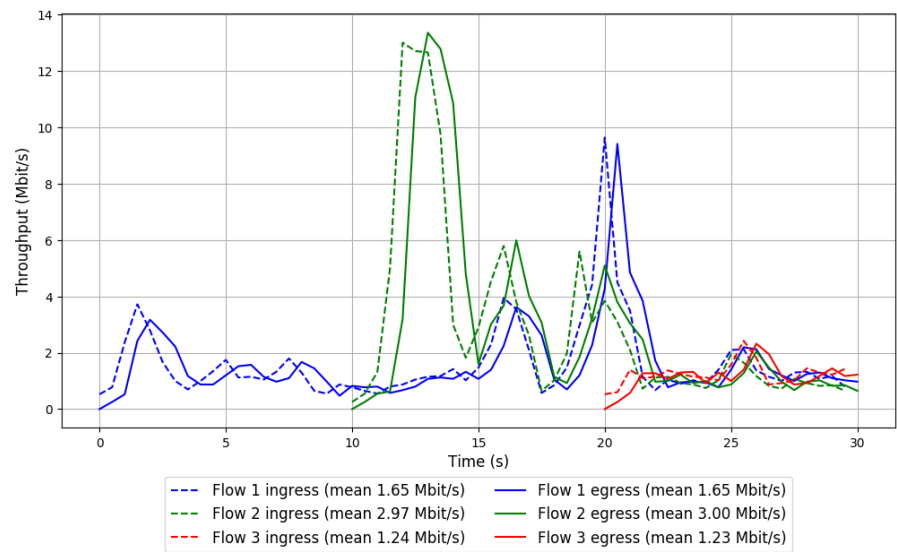


Run 5: Statistics of Copa

Start at: 2018-11-15 13:47:49  
End at: 2018-11-15 13:48:19  
Local clock offset: -2.983 ms  
Remote clock offset: 70.903 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.04 Mbit/s  
95th percentile per-packet one-way delay: 188.714 ms  
Loss rate: 0.63%  
-- Flow 1:  
Average throughput: 1.65 Mbit/s  
95th percentile per-packet one-way delay: 188.545 ms  
Loss rate: 0.40%  
-- Flow 2:  
Average throughput: 3.00 Mbit/s  
95th percentile per-packet one-way delay: 187.977 ms  
Loss rate: 0.29%  
-- Flow 3:  
Average throughput: 1.23 Mbit/s  
95th percentile per-packet one-way delay: 190.579 ms  
Loss rate: 3.13%

Run 5: Report of Copa — Data Link

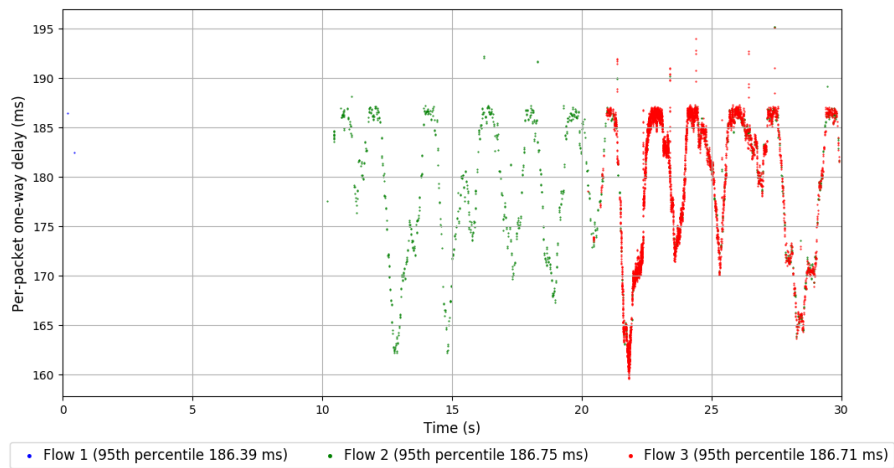
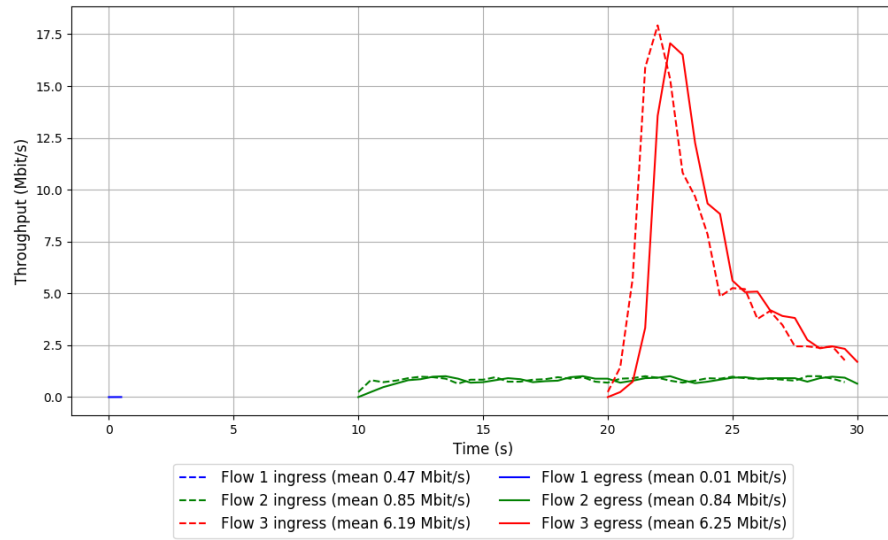


Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 11:26:49  
End at: 2018-11-15 11:27:19  
Local clock offset: -4.962 ms  
Remote clock offset: 22.138 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.60 Mbit/s  
95th percentile per-packet one-way delay: 186.717 ms  
Loss rate: 1.80%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 186.392 ms  
Loss rate: 98.79%  
-- Flow 2:  
Average throughput: 0.84 Mbit/s  
95th percentile per-packet one-way delay: 186.751 ms  
Loss rate: 1.92%  
-- Flow 3:  
Average throughput: 6.25 Mbit/s  
95th percentile per-packet one-way delay: 186.705 ms  
Loss rate: 1.58%

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



Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 11:58:50

End at: 2018-11-15 11:59:20

Local clock offset: -1.839 ms

Remote clock offset: 54.08 ms

# Below is generated by plot.py at 2018-11-15 13:55:07

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1.42 Mbit/s

95th percentile per-packet one-way delay: 192.259 ms

Loss rate: 2.65%

-- Flow 1:

Average throughput: 0.62 Mbit/s

95th percentile per-packet one-way delay: 192.212 ms

Loss rate: 2.37%

-- Flow 2:

Average throughput: 0.62 Mbit/s

95th percentile per-packet one-way delay: 192.252 ms

Loss rate: 2.50%

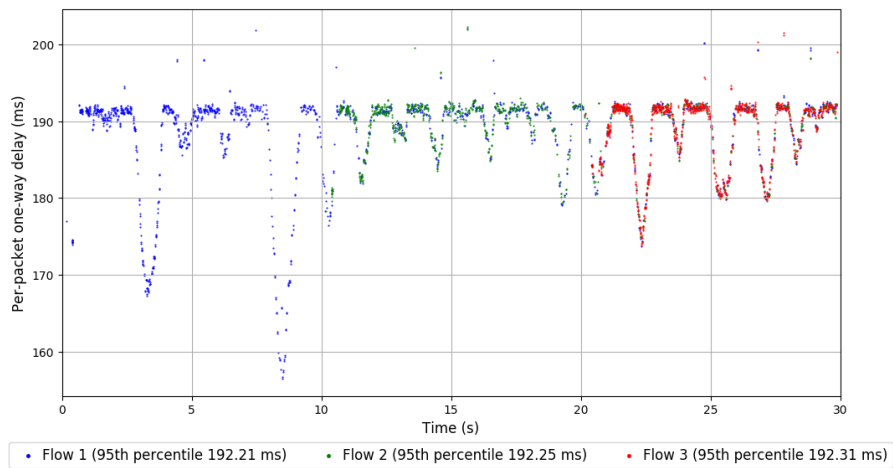
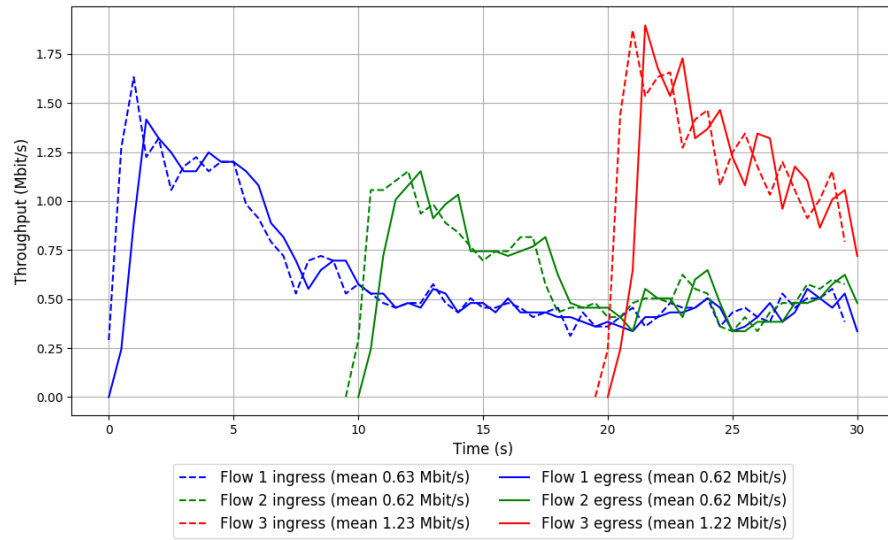
-- Flow 3:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 192.305 ms

Loss rate: 3.23%

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



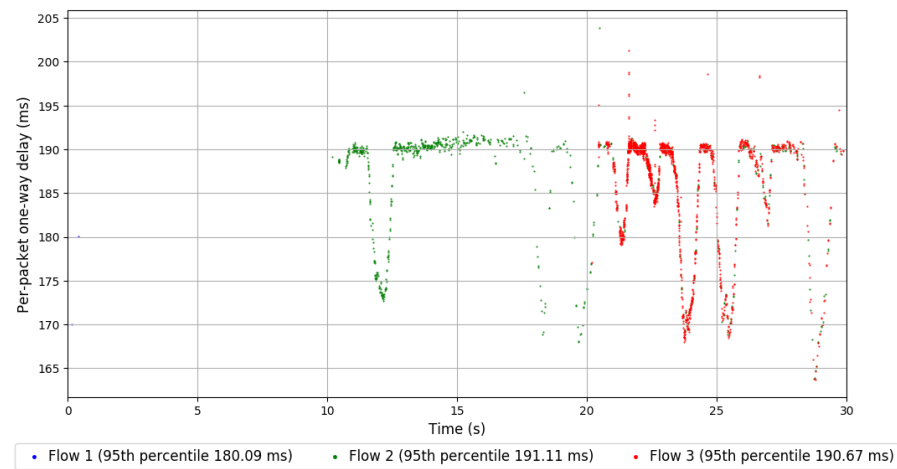
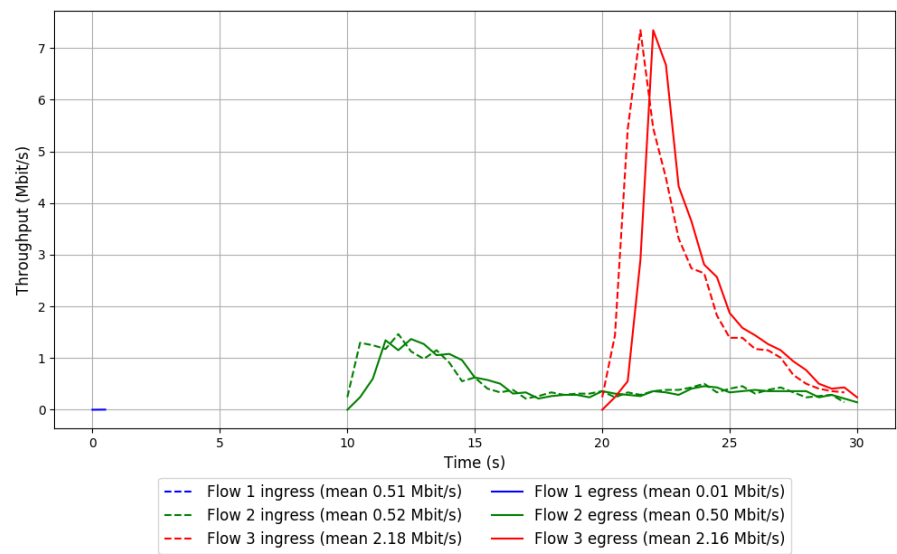


Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 12:38:20  
End at: 2018-11-15 12:38:50  
Local clock offset: 14.727 ms  
Remote clock offset: 46.934 ms

# Below is generated by plot.py at 2018-11-15 13:55:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.03 Mbit/s  
95th percentile per-packet one-way delay: 190.808 ms  
Loss rate: 4.31%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 180.088 ms  
Loss rate: 98.79%  
-- Flow 2:  
Average throughput: 0.50 Mbit/s  
95th percentile per-packet one-way delay: 191.108 ms  
Loss rate: 4.33%  
-- Flow 3:  
Average throughput: 2.16 Mbit/s  
95th percentile per-packet one-way delay: 190.671 ms  
Loss rate: 3.77%

Run 3: Report of TCP Cubic — Data Link

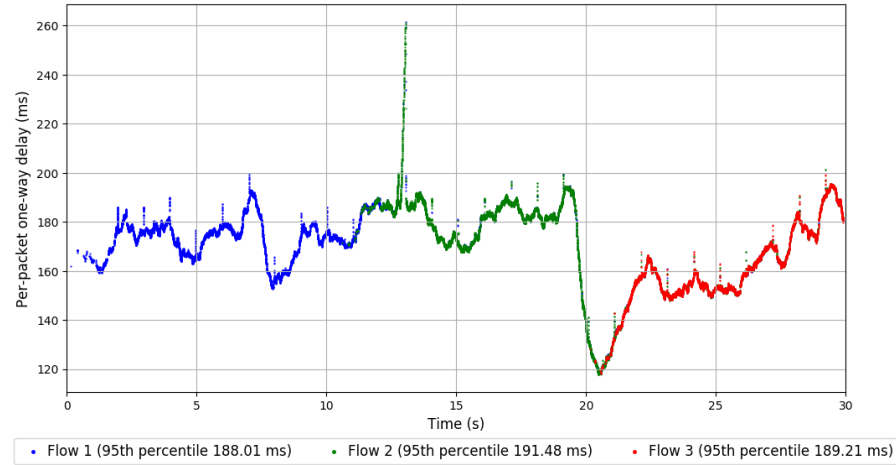
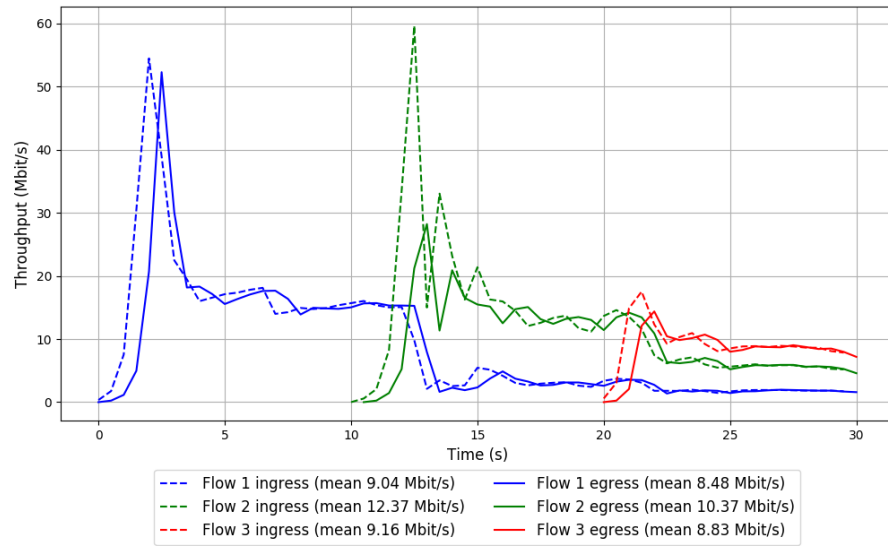


Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 13:24:06  
End at: 2018-11-15 13:24:36  
Local clock offset: 18.268 ms  
Remote clock offset: -1.203 ms

# Below is generated by plot.py at 2018-11-15 13:55:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 18.09 Mbit/s  
95th percentile per-packet one-way delay: 189.727 ms  
Loss rate: 10.82%  
-- Flow 1:  
Average throughput: 8.48 Mbit/s  
95th percentile per-packet one-way delay: 188.011 ms  
Loss rate: 6.95%  
-- Flow 2:  
Average throughput: 10.37 Mbit/s  
95th percentile per-packet one-way delay: 191.480 ms  
Loss rate: 17.18%  
-- Flow 3:  
Average throughput: 8.83 Mbit/s  
95th percentile per-packet one-way delay: 189.213 ms  
Loss rate: 5.47%

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

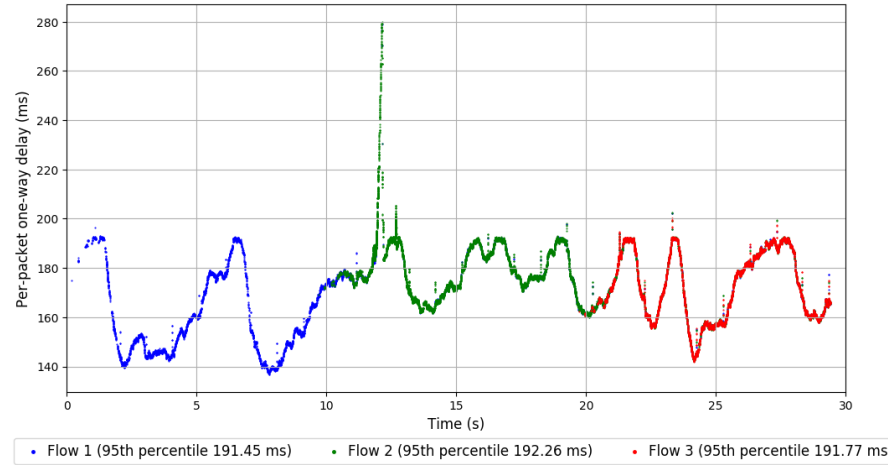
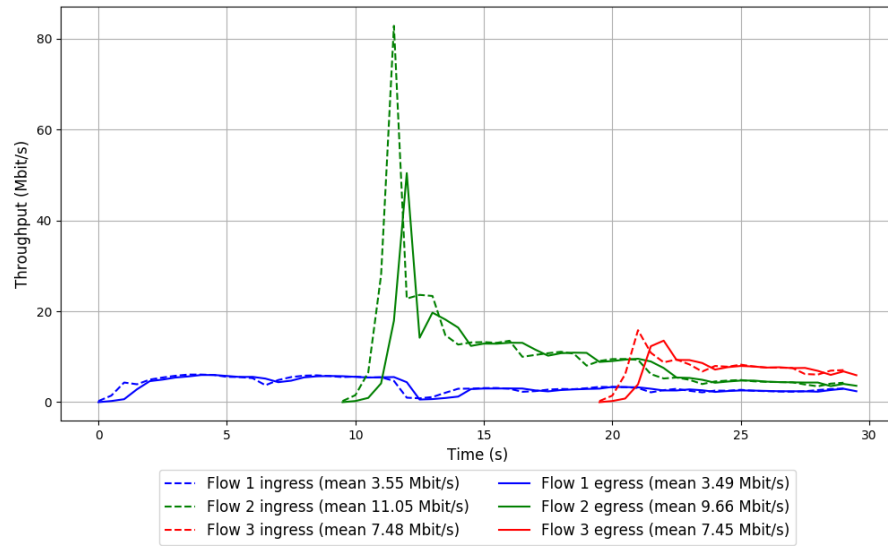


Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 13:50:42  
End at: 2018-11-15 13:51:12  
Local clock offset: -3.95 ms  
Remote clock offset: 73.957 ms

# Below is generated by plot.py at 2018-11-15 13:55:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 12.48 Mbit/s  
95th percentile per-packet one-way delay: 191.887 ms  
Loss rate: 8.61%  
-- Flow 1:  
Average throughput: 3.49 Mbit/s  
95th percentile per-packet one-way delay: 191.448 ms  
Loss rate: 2.27%  
-- Flow 2:  
Average throughput: 9.66 Mbit/s  
95th percentile per-packet one-way delay: 192.259 ms  
Loss rate: 13.60%  
-- Flow 3:  
Average throughput: 7.45 Mbit/s  
95th percentile per-packet one-way delay: 191.773 ms  
Loss rate: 2.70%

# Run 5: Report of TCP Cubic — Data Link

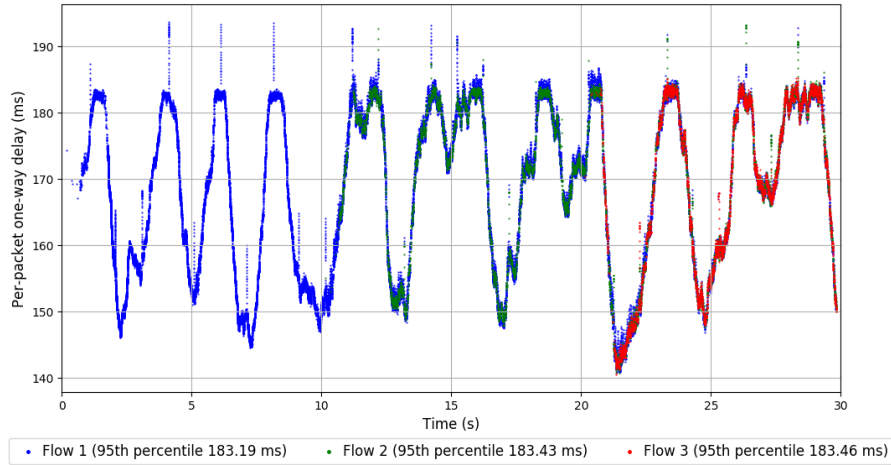
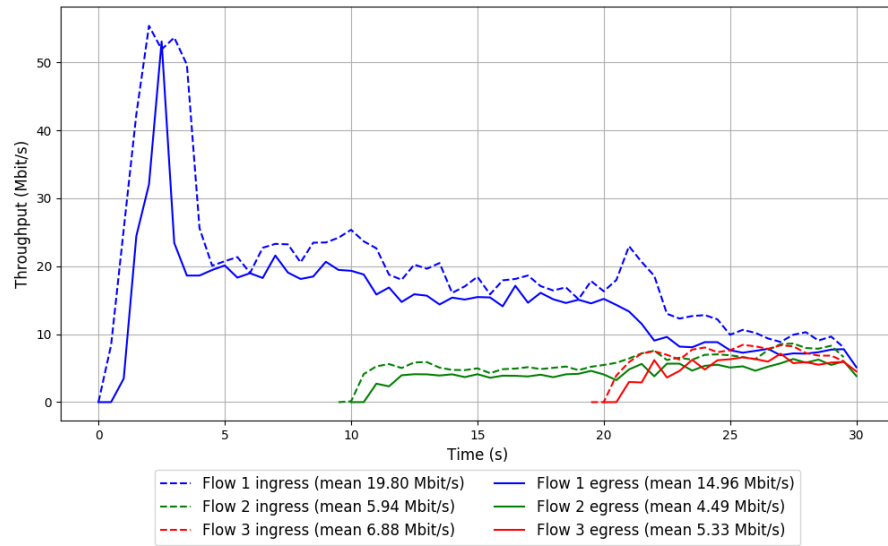


Run 1: Statistics of FillP

Start at: 2018-11-15 11:18:28  
End at: 2018-11-15 11:18:58  
Local clock offset: -3.471 ms  
Remote clock offset: 25.806 ms

# Below is generated by plot.py at 2018-11-15 13:55:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 19.67 Mbit/s  
95th percentile per-packet one-way delay: 183.309 ms  
Loss rate: 25.07%  
-- Flow 1:  
Average throughput: 14.96 Mbit/s  
95th percentile per-packet one-way delay: 183.191 ms  
Loss rate: 25.11%  
-- Flow 2:  
Average throughput: 4.49 Mbit/s  
95th percentile per-packet one-way delay: 183.432 ms  
Loss rate: 25.26%  
-- Flow 3:  
Average throughput: 5.33 Mbit/s  
95th percentile per-packet one-way delay: 183.458 ms  
Loss rate: 24.39%

# Run 1: Report of FillP — Data Link



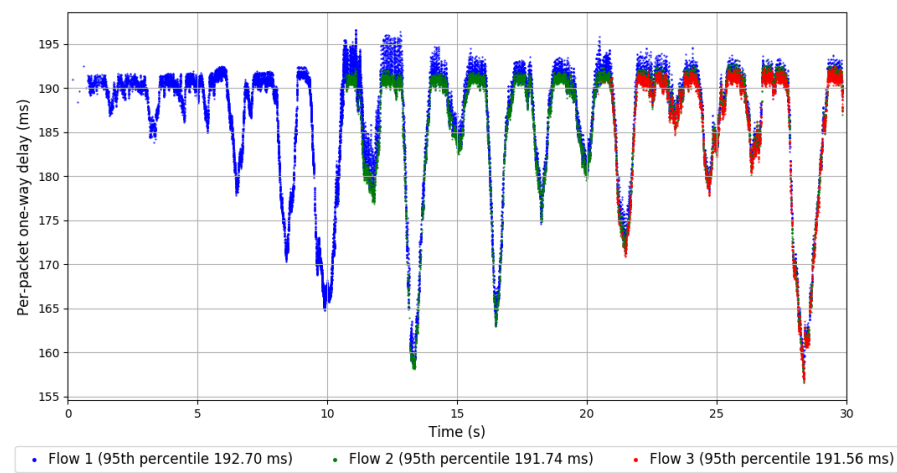
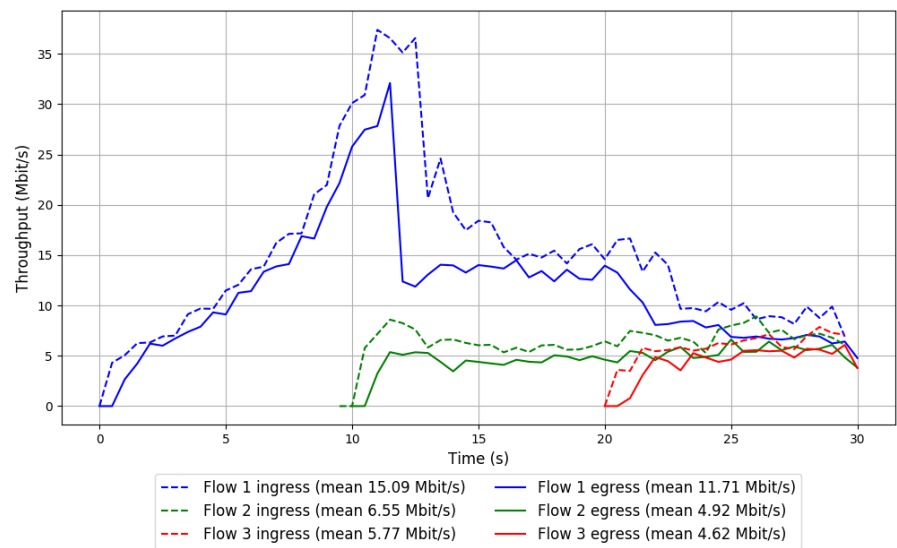


Run 2: Statistics of FillP

Start at: 2018-11-15 11:49:26  
End at: 2018-11-15 11:49:56  
Local clock offset: -1.969 ms  
Remote clock offset: 41.248 ms

# Below is generated by plot.py at 2018-11-15 13:55:20  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 16.48 Mbit/s  
95th percentile per-packet one-way delay: 192.414 ms  
Loss rate: 23.57%  
-- Flow 1:  
Average throughput: 11.71 Mbit/s  
95th percentile per-packet one-way delay: 192.700 ms  
Loss rate: 23.10%  
-- Flow 2:  
Average throughput: 4.92 Mbit/s  
95th percentile per-packet one-way delay: 191.742 ms  
Loss rate: 25.78%  
-- Flow 3:  
Average throughput: 4.62 Mbit/s  
95th percentile per-packet one-way delay: 191.559 ms  
Loss rate: 22.22%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-11-15 12:25:08

End at: 2018-11-15 12:25:38

Local clock offset: -2.149 ms

Remote clock offset: 52.33 ms

# Below is generated by plot.py at 2018-11-15 13:55:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 17.11 Mbit/s

95th percentile per-packet one-way delay: 190.557 ms

Loss rate: 22.26%

-- Flow 1:

Average throughput: 10.95 Mbit/s

95th percentile per-packet one-way delay: 190.979 ms

Loss rate: 21.10%

-- Flow 2:

Average throughput: 7.19 Mbit/s

95th percentile per-packet one-way delay: 190.205 ms

Loss rate: 25.57%

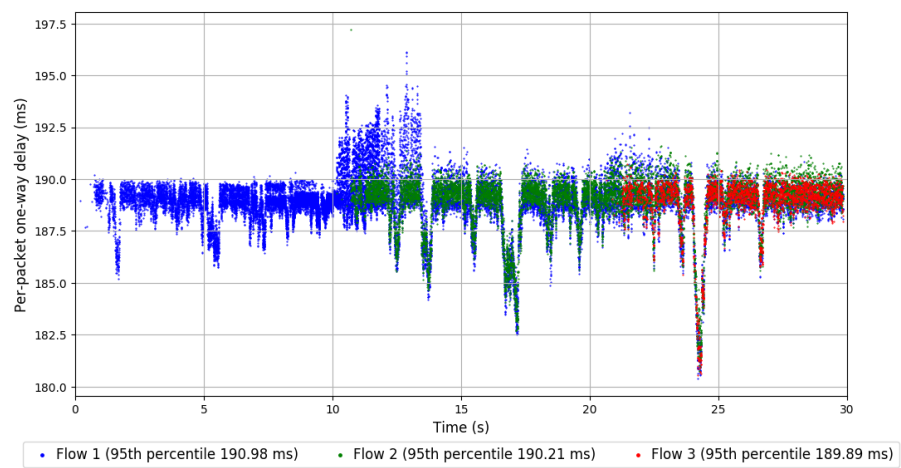
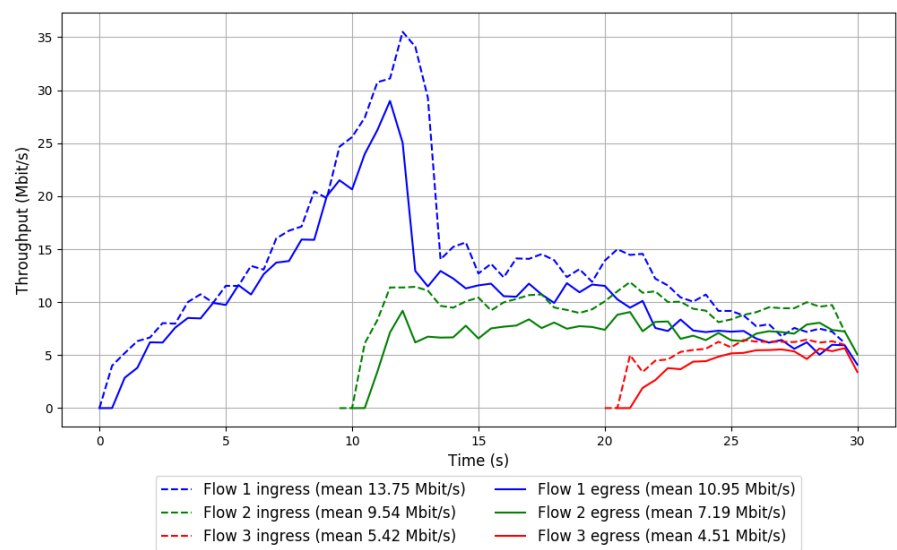
-- Flow 3:

Average throughput: 4.51 Mbit/s

95th percentile per-packet one-way delay: 189.888 ms

Loss rate: 19.24%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-11-15 13:12:38

End at: 2018-11-15 13:13:08

Local clock offset: 17.96 ms

Remote clock offset: 6.207 ms

# Below is generated by plot.py at 2018-11-15 13:55:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 19.28 Mbit/s

95th percentile per-packet one-way delay: 189.434 ms

Loss rate: 22.48%

-- Flow 1:

Average throughput: 14.18 Mbit/s

95th percentile per-packet one-way delay: 189.402 ms

Loss rate: 21.29%

-- Flow 2:

Average throughput: 5.30 Mbit/s

95th percentile per-packet one-way delay: 189.453 ms

Loss rate: 26.36%

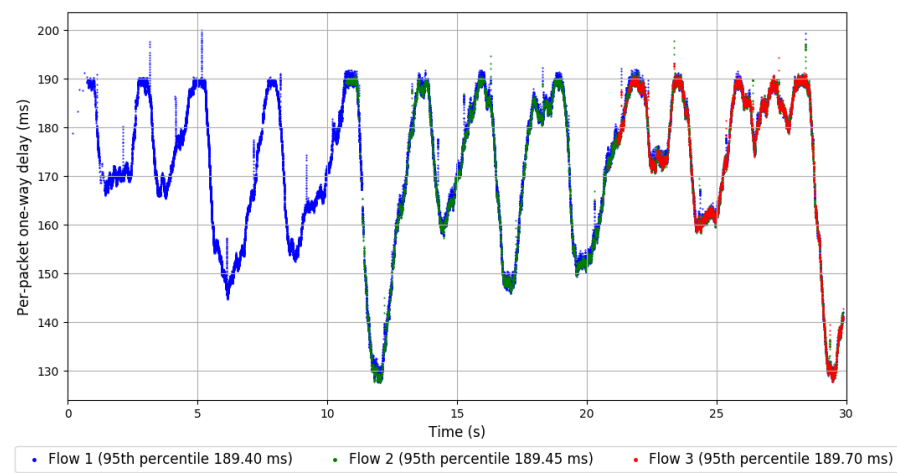
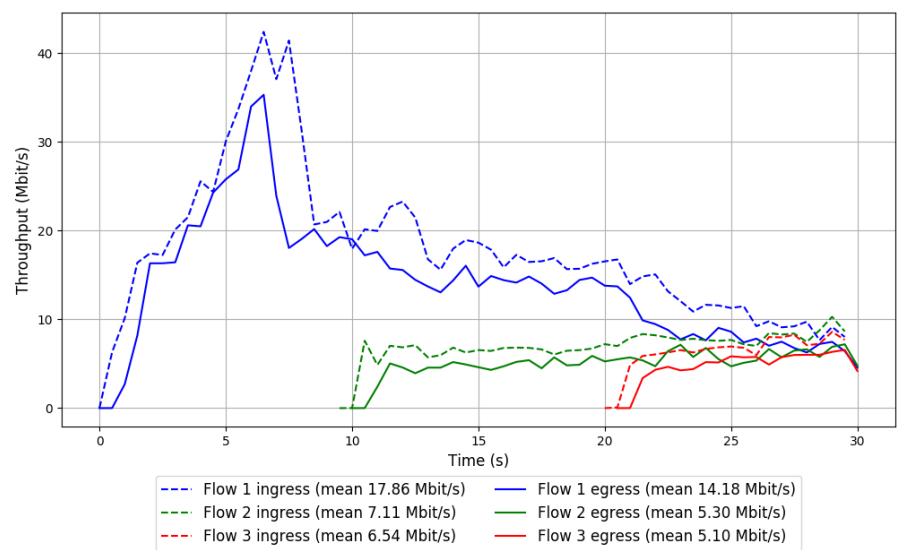
-- Flow 3:

Average throughput: 5.10 Mbit/s

95th percentile per-packet one-way delay: 189.704 ms

Loss rate: 23.88%

Run 4: Report of FillP — Data Link

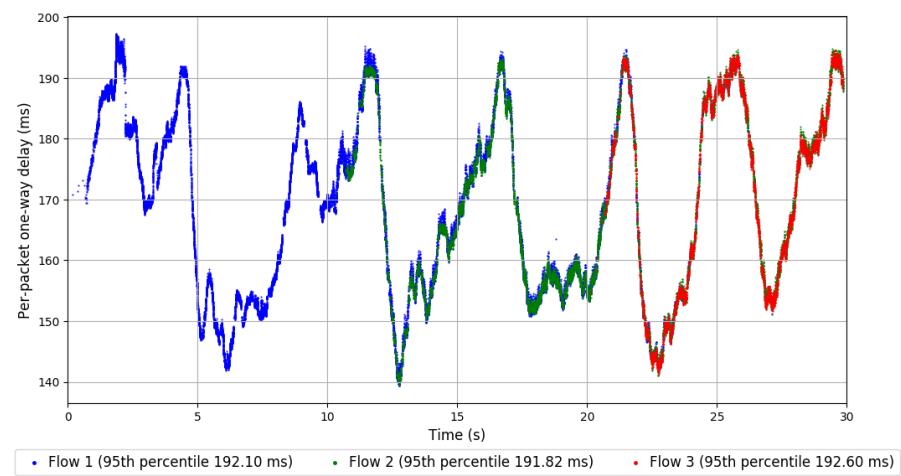
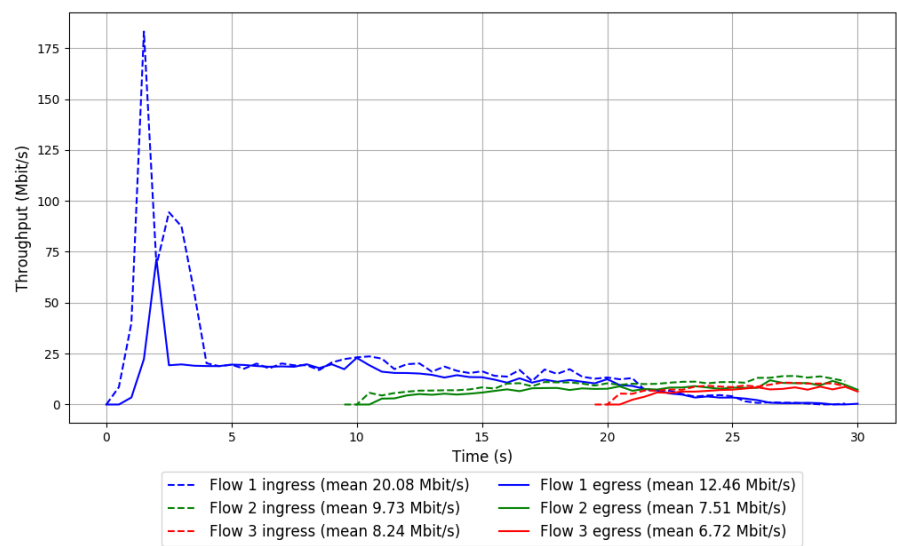


Run 5: Statistics of FillP

Start at: 2018-11-15 13:43:24  
End at: 2018-11-15 13:43:54  
Local clock offset: -0.811 ms  
Remote clock offset: 64.684 ms

# Below is generated by plot.py at 2018-11-15 13:55:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 19.62 Mbit/s  
95th percentile per-packet one-way delay: 192.159 ms  
Loss rate: 33.53%  
-- Flow 1:  
Average throughput: 12.46 Mbit/s  
95th percentile per-packet one-way delay: 192.099 ms  
Loss rate: 38.49%  
-- Flow 2:  
Average throughput: 7.51 Mbit/s  
95th percentile per-packet one-way delay: 191.822 ms  
Loss rate: 23.71%  
-- Flow 3:  
Average throughput: 6.72 Mbit/s  
95th percentile per-packet one-way delay: 192.599 ms  
Loss rate: 20.46%

Run 5: Report of FillP — Data Link



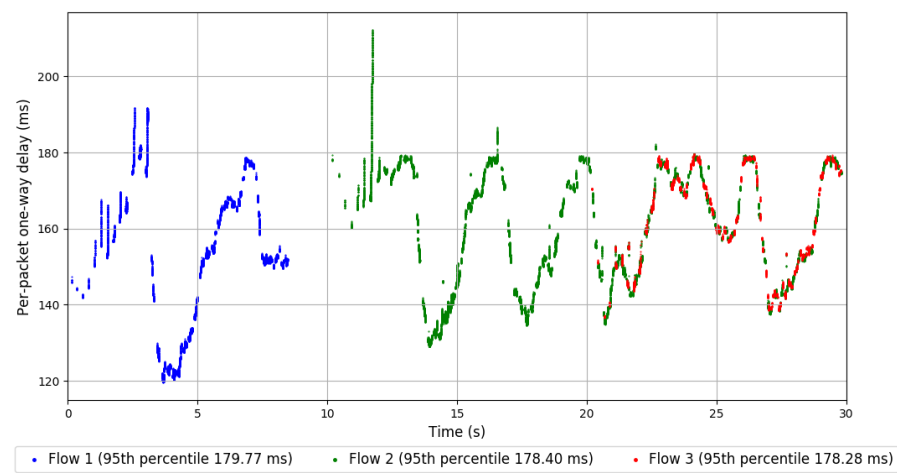
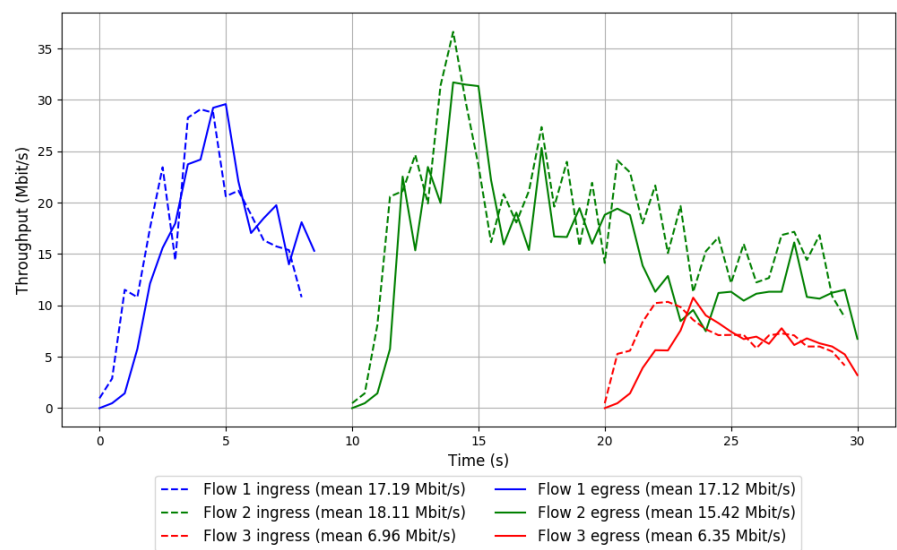


```
Run 1: Statistics of Indigo

Start at: 2018-11-15 11:15:37
End at: 2018-11-15 11:16:07
Local clock offset: -2.476 ms
Remote clock offset: 31.221 ms

# Below is generated by plot.py at 2018-11-15 13:55:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 17.05 Mbit/s
95th percentile per-packet one-way delay: 178.442 ms
Loss rate: 11.51%
-- Flow 1:
Average throughput: 17.12 Mbit/s
95th percentile per-packet one-way delay: 179.774 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 15.42 Mbit/s
95th percentile per-packet one-way delay: 178.403 ms
Loss rate: 15.95%
-- Flow 3:
Average throughput: 6.35 Mbit/s
95th percentile per-packet one-way delay: 178.281 ms
Loss rate: 11.09%
```

Run 1: Report of Indigo — Data Link

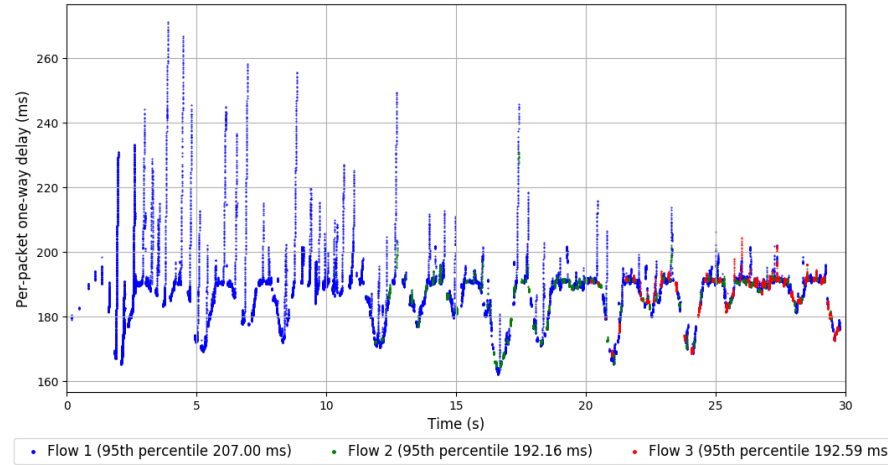
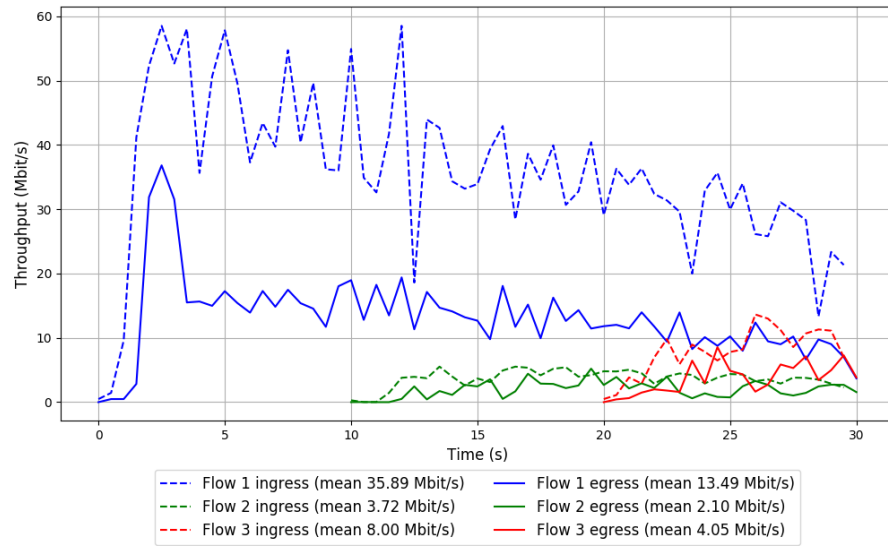


Run 2: Statistics of Indigo

Start at: 2018-11-15 11:45:35  
End at: 2018-11-15 11:46:05  
Local clock offset: -1.721 ms  
Remote clock offset: 32.862 ms

# Below is generated by plot.py at 2018-11-15 13:55:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 16.17 Mbit/s  
95th percentile per-packet one-way delay: 203.028 ms  
Loss rate: 60.87%  
-- Flow 1:  
Average throughput: 13.49 Mbit/s  
95th percentile per-packet one-way delay: 206.997 ms  
Loss rate: 62.75%  
-- Flow 2:  
Average throughput: 2.10 Mbit/s  
95th percentile per-packet one-way delay: 192.163 ms  
Loss rate: 44.30%  
-- Flow 3:  
Average throughput: 4.05 Mbit/s  
95th percentile per-packet one-way delay: 192.595 ms  
Loss rate: 50.71%

## Run 2: Report of Indigo — Data Link

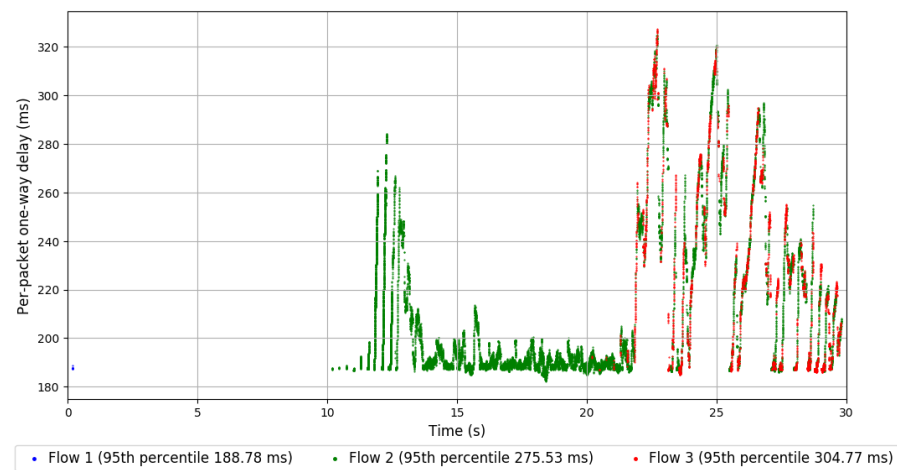
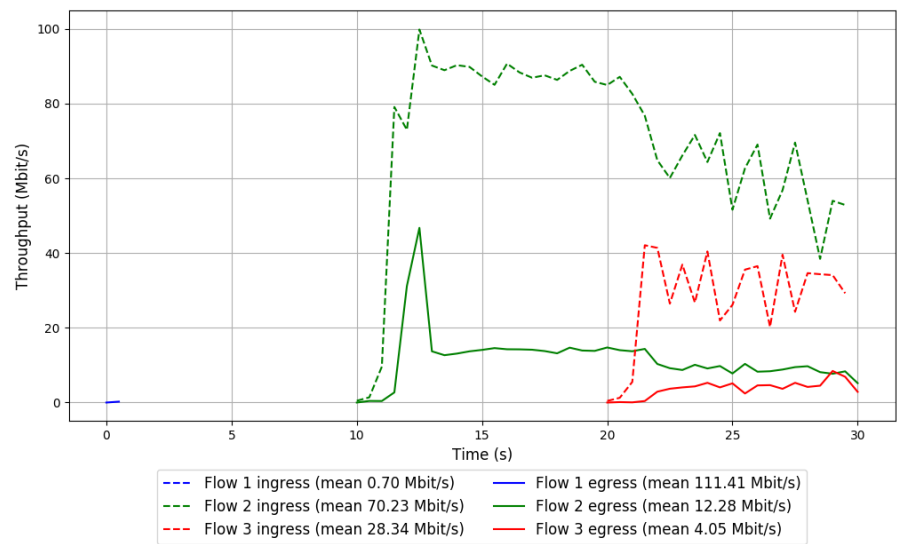


Run 3: Statistics of Indigo

Start at: 2018-11-15 12:19:50  
End at: 2018-11-15 12:20:20  
Local clock offset: -1.969 ms  
Remote clock offset: 60.796 ms

# Below is generated by plot.py at 2018-11-15 13:55:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 9.45 Mbit/s  
95th percentile per-packet one-way delay: 284.397 ms  
Loss rate: 83.29%  
-- Flow 1:  
Average throughput: 111.41 Mbit/s  
95th percentile per-packet one-way delay: 188.782 ms  
Loss rate: 33.50%  
-- Flow 2:  
Average throughput: 12.28 Mbit/s  
95th percentile per-packet one-way delay: 275.530 ms  
Loss rate: 82.73%  
-- Flow 3:  
Average throughput: 4.05 Mbit/s  
95th percentile per-packet one-way delay: 304.770 ms  
Loss rate: 86.11%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-11-15 13:09:28

End at: 2018-11-15 13:09:58

Local clock offset: 18.03 ms

Remote clock offset: 8.109 ms

# Below is generated by plot.py at 2018-11-15 13:55:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 12.07 Mbit/s

95th percentile per-packet one-way delay: 193.586 ms

Loss rate: 17.78%

-- Flow 1:

Average throughput: 128.99 Mbit/s

95th percentile per-packet one-way delay: 194.495 ms

Loss rate: 37.69%

-- Flow 2:

Average throughput: 17.22 Mbit/s

95th percentile per-packet one-way delay: 193.544 ms

Loss rate: 17.39%

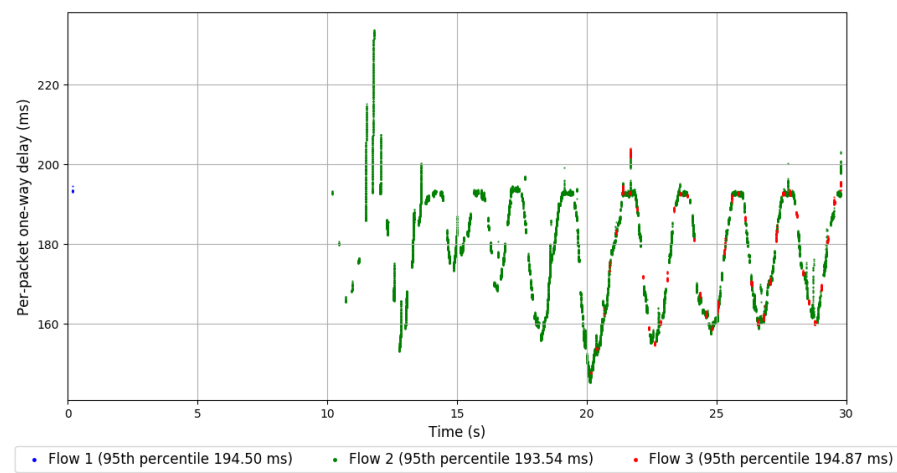
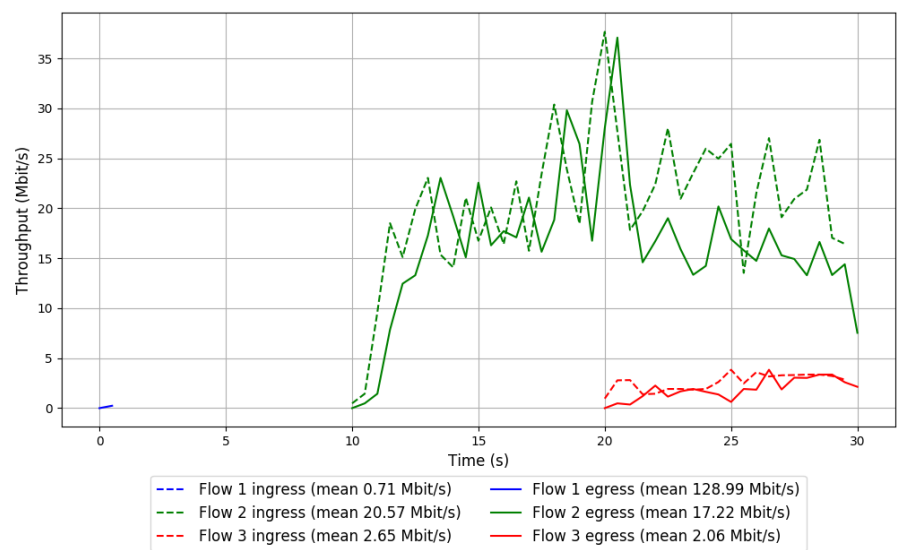
-- Flow 3:

Average throughput: 2.06 Mbit/s

95th percentile per-packet one-way delay: 194.871 ms

Loss rate: 23.83%

Run 4: Report of Indigo — Data Link





Run 5: Statistics of Indigo

Start at: 2018-11-15 13:40:25

End at: 2018-11-15 13:40:55

Local clock offset: 0.743 ms

Remote clock offset: 59.91 ms

# Below is generated by plot.py at 2018-11-15 13:55:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 12.09 Mbit/s

95th percentile per-packet one-way delay: 256.211 ms

Loss rate: 80.40%

-- Flow 1:

Average throughput: 2.42 Mbit/s

95th percentile per-packet one-way delay: 197.758 ms

Loss rate: 32.07%

-- Flow 2:

Average throughput: 14.40 Mbit/s

95th percentile per-packet one-way delay: 258.794 ms

Loss rate: 83.32%

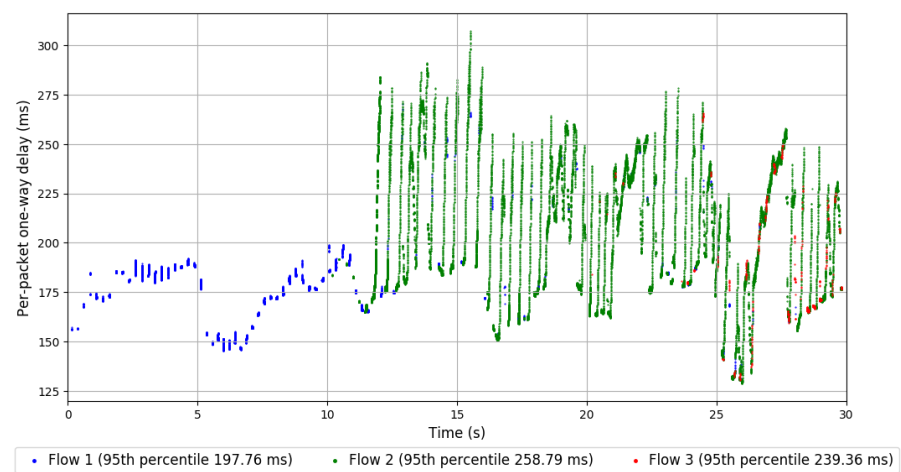
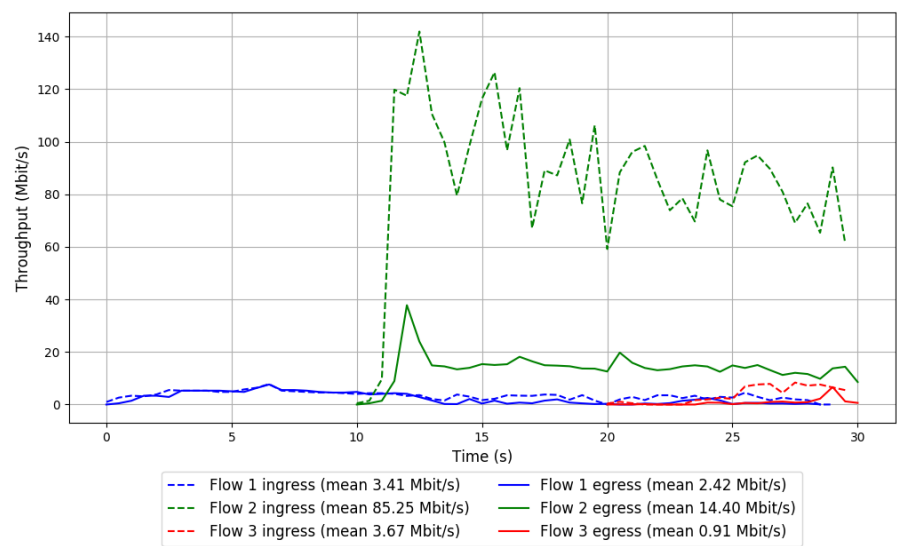
-- Flow 3:

Average throughput: 0.91 Mbit/s

95th percentile per-packet one-way delay: 239.360 ms

Loss rate: 75.97%

Run 5: Report of Indigo — Data Link

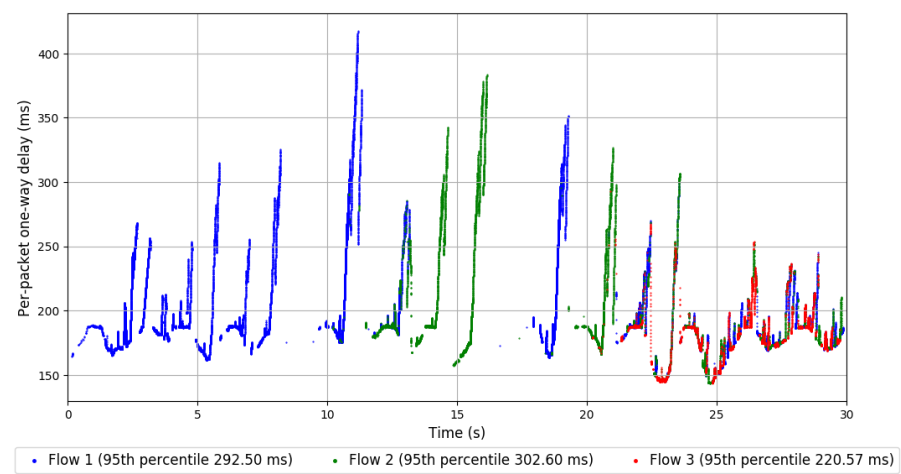
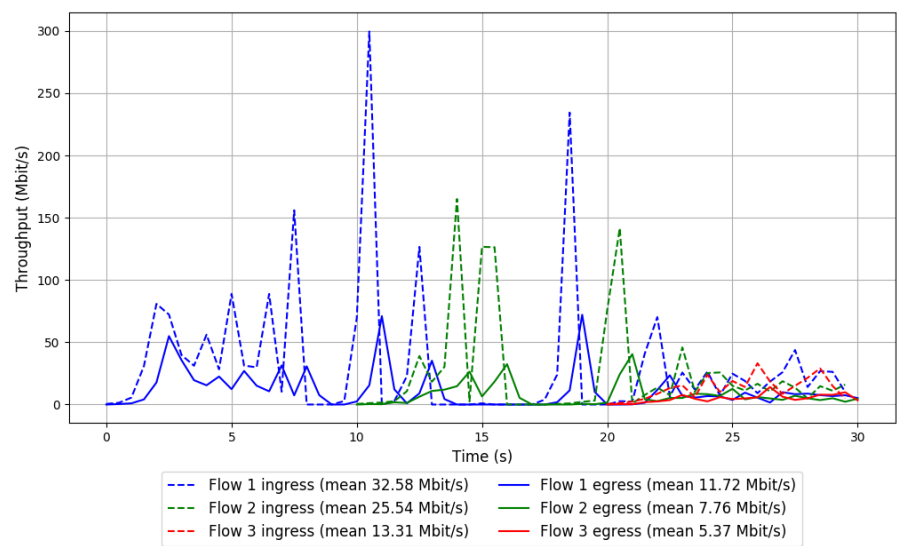


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-15 11:28:11  
End at: 2018-11-15 11:28:41  
Local clock offset: -4.308 ms  
Remote clock offset: 20.788 ms

# Below is generated by plot.py at 2018-11-15 13:55:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 18.57 Mbit/s  
95th percentile per-packet one-way delay: 292.773 ms  
Loss rate: 65.90%  
-- Flow 1:  
Average throughput: 11.72 Mbit/s  
95th percentile per-packet one-way delay: 292.495 ms  
Loss rate: 64.32%  
-- Flow 2:  
Average throughput: 7.76 Mbit/s  
95th percentile per-packet one-way delay: 302.602 ms  
Loss rate: 70.14%  
-- Flow 3:  
Average throughput: 5.37 Mbit/s  
95th percentile per-packet one-way delay: 220.568 ms  
Loss rate: 61.20%

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

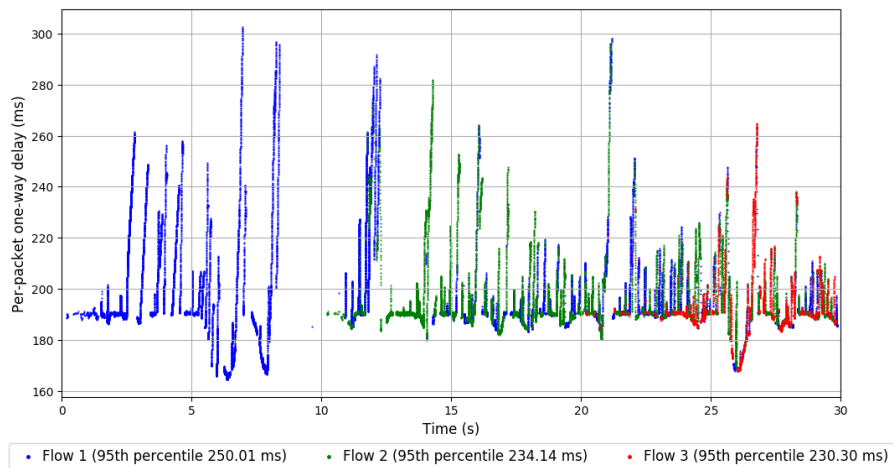
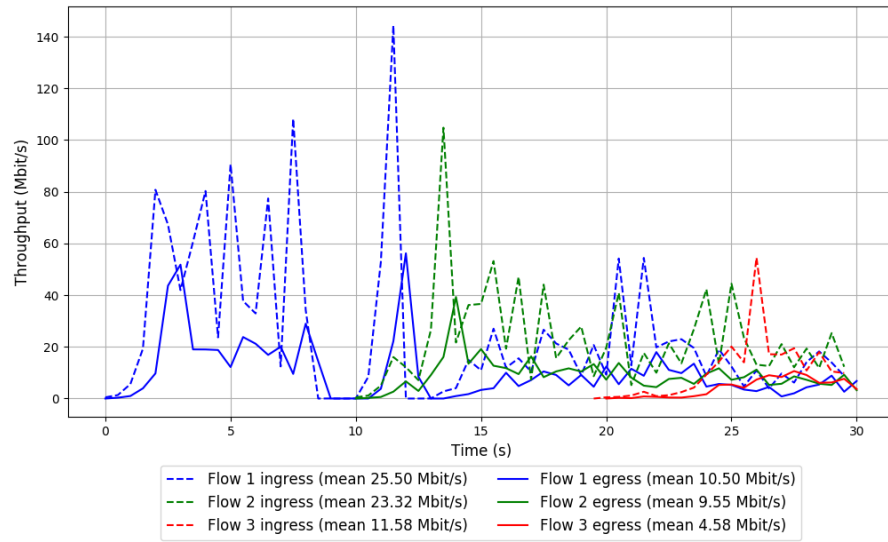


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 12:00:21  
End at: 2018-11-15 12:00:51  
Local clock offset: -1.827 ms  
Remote clock offset: 56.332 ms

# Below is generated by plot.py at 2018-11-15 13:55:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 18.26 Mbit/s  
95th percentile per-packet one-way delay: 243.688 ms  
Loss rate: 59.39%  
-- Flow 1:  
Average throughput: 10.50 Mbit/s  
95th percentile per-packet one-way delay: 250.006 ms  
Loss rate: 59.02%  
-- Flow 2:  
Average throughput: 9.55 Mbit/s  
95th percentile per-packet one-way delay: 234.138 ms  
Loss rate: 59.48%  
-- Flow 3:  
Average throughput: 4.58 Mbit/s  
95th percentile per-packet one-way delay: 230.300 ms  
Loss rate: 61.50%

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

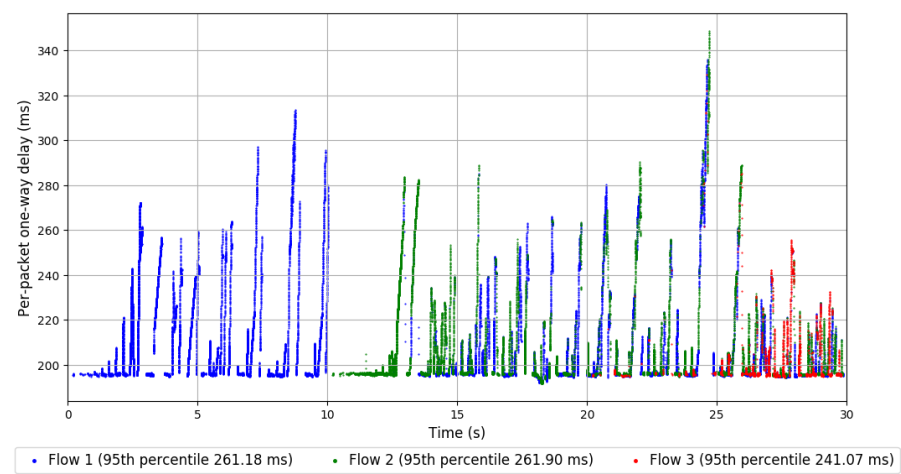
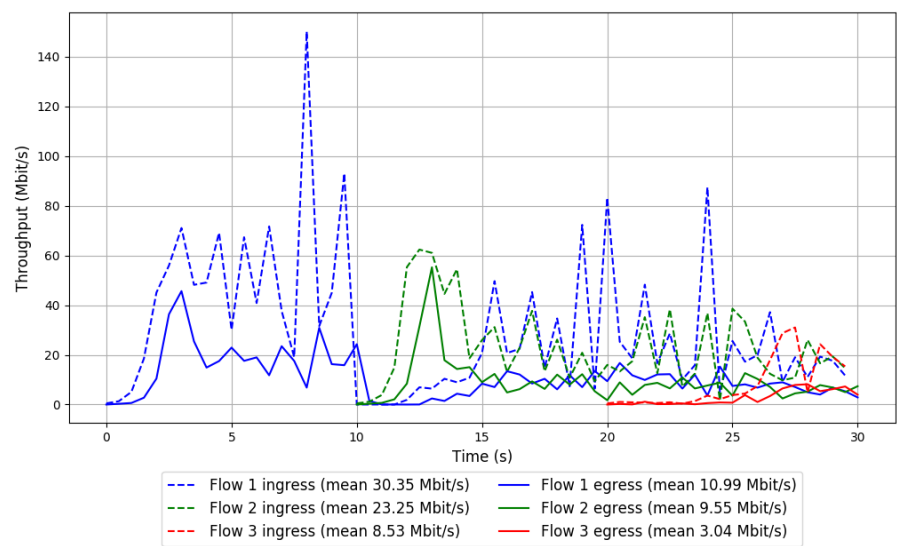


Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-15 12:39:45  
End at: 2018-11-15 12:40:15  
Local clock offset: 15.806 ms  
Remote clock offset: 45.087 ms

# Below is generated by plot.py at 2018-11-15 13:55:50  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 18.30 Mbit/s  
95th percentile per-packet one-way delay: 260.509 ms  
Loss rate: 62.64%  
-- Flow 1:  
Average throughput: 10.99 Mbit/s  
95th percentile per-packet one-way delay: 261.179 ms  
Loss rate: 64.11%  
-- Flow 2:  
Average throughput: 9.55 Mbit/s  
95th percentile per-packet one-way delay: 261.905 ms  
Loss rate: 59.19%  
-- Flow 3:  
Average throughput: 3.04 Mbit/s  
95th percentile per-packet one-way delay: 241.069 ms  
Loss rate: 65.67%

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





Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-15 13:25:38

End at: 2018-11-15 13:26:08

Local clock offset: 18.246 ms

Remote clock offset: 8.432 ms

# Below is generated by plot.py at 2018-11-15 13:55:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 18.43 Mbit/s

95th percentile per-packet one-way delay: 236.138 ms

Loss rate: 58.20%

-- Flow 1:

Average throughput: 10.87 Mbit/s

95th percentile per-packet one-way delay: 241.753 ms

Loss rate: 58.59%

-- Flow 2:

Average throughput: 6.30 Mbit/s

95th percentile per-packet one-way delay: 226.785 ms

Loss rate: 54.37%

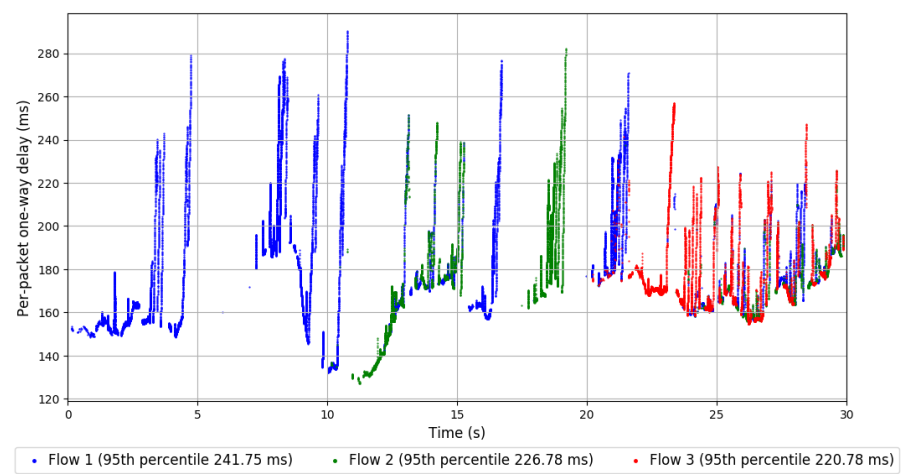
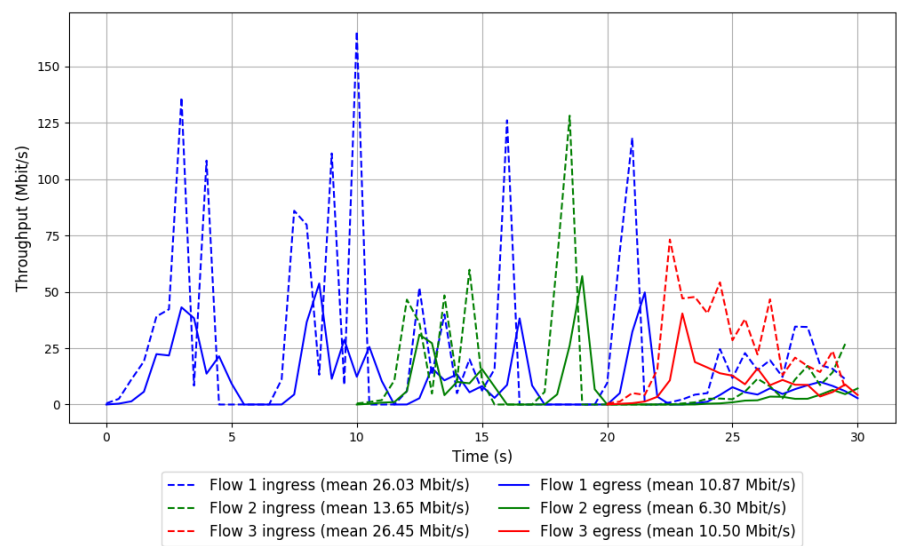
-- Flow 3:

Average throughput: 10.50 Mbit/s

95th percentile per-packet one-way delay: 220.779 ms

Loss rate: 61.04%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 13:52:09

End at: 2018-11-15 13:52:39

Local clock offset: -4.166 ms

Remote clock offset: 74.85 ms

# Below is generated by plot.py at 2018-11-15 13:55:57

# Datalink statistics

-- Total of 3 flows:

Average throughput: 18.56 Mbit/s

95th percentile per-packet one-way delay: 249.870 ms

Loss rate: 61.61%

-- Flow 1:

Average throughput: 12.48 Mbit/s

95th percentile per-packet one-way delay: 251.161 ms

Loss rate: 58.00%

-- Flow 2:

Average throughput: 6.85 Mbit/s

95th percentile per-packet one-way delay: 242.820 ms

Loss rate: 66.99%

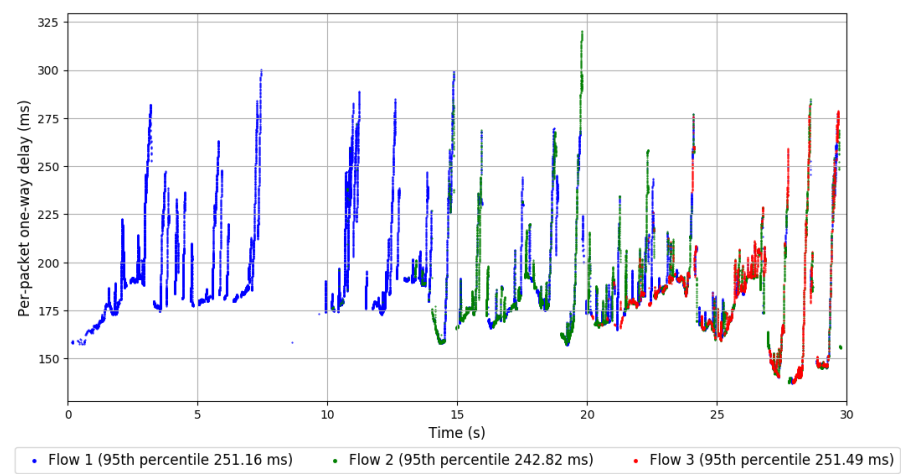
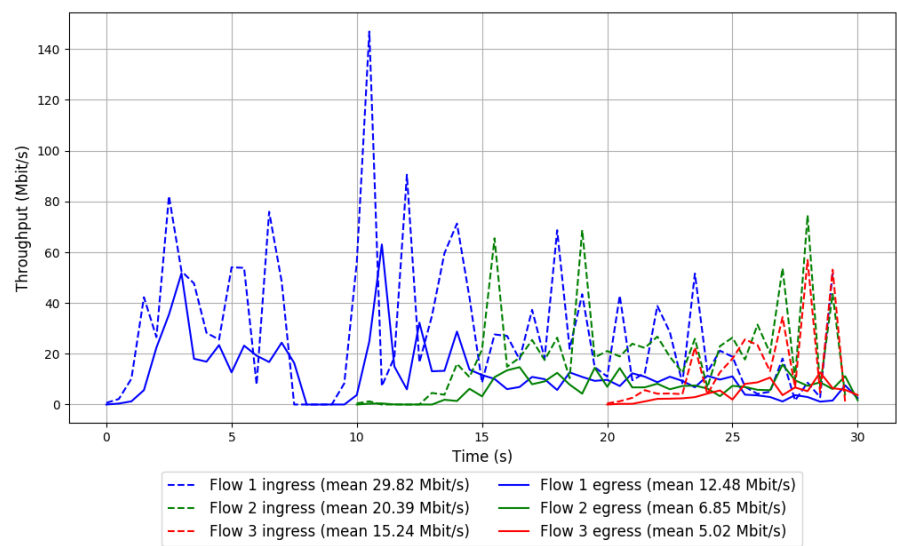
-- Flow 3:

Average throughput: 5.02 Mbit/s

95th percentile per-packet one-way delay: 251.492 ms

Loss rate: 68.15%

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

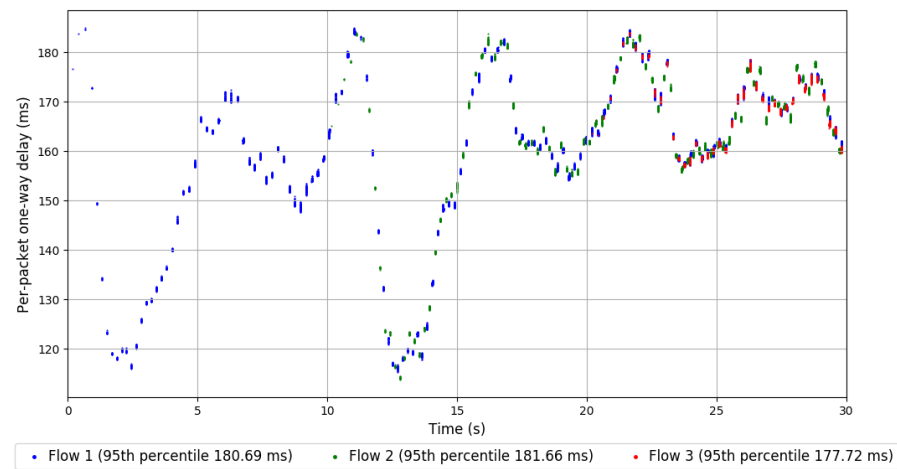
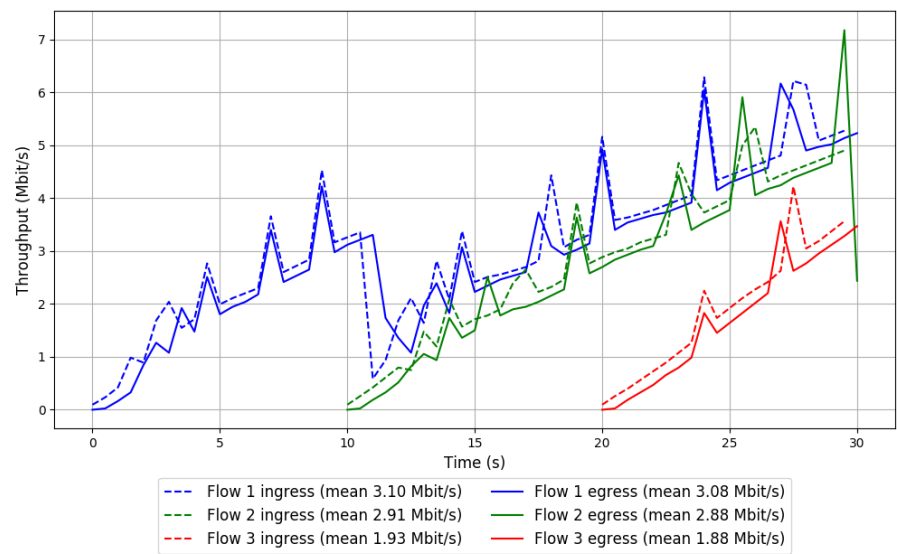


Run 1: Statistics of LEDBAT

Start at: 2018-11-15 11:04:24  
End at: 2018-11-15 11:04:54  
Local clock offset: 2.574 ms  
Remote clock offset: 25.921 ms

# Below is generated by plot.py at 2018-11-15 13:55:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.59 Mbit/s  
95th percentile per-packet one-way delay: 180.922 ms  
Loss rate: 2.08%  
-- Flow 1:  
Average throughput: 3.08 Mbit/s  
95th percentile per-packet one-way delay: 180.686 ms  
Loss rate: 1.49%  
-- Flow 2:  
Average throughput: 2.88 Mbit/s  
95th percentile per-packet one-way delay: 181.661 ms  
Loss rate: 2.14%  
-- Flow 3:  
Average throughput: 1.88 Mbit/s  
95th percentile per-packet one-way delay: 177.723 ms  
Loss rate: 4.75%

Run 1: Report of LEDBAT — Data Link

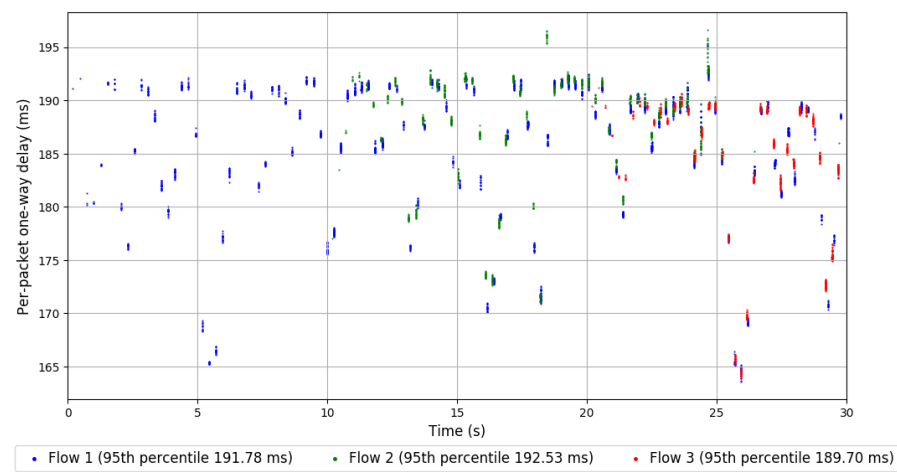
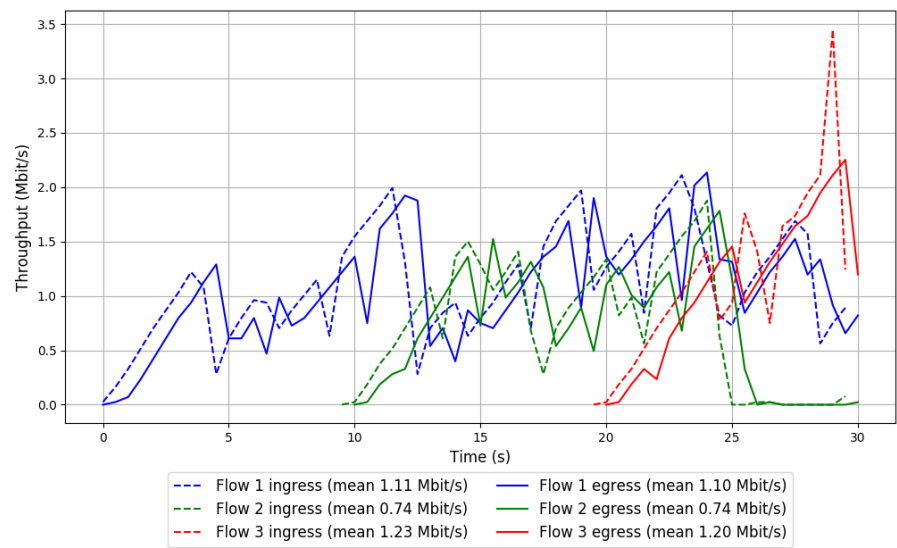


Run 2: Statistics of LEDBAT

Start at: 2018-11-15 11:32:06  
End at: 2018-11-15 11:32:36  
Local clock offset: -2.981 ms  
Remote clock offset: 19.227 ms

# Below is generated by plot.py at 2018-11-15 13:55:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.97 Mbit/s  
95th percentile per-packet one-way delay: 191.961 ms  
Loss rate: 2.40%  
-- Flow 1:  
Average throughput: 1.10 Mbit/s  
95th percentile per-packet one-way delay: 191.784 ms  
Loss rate: 1.77%  
-- Flow 2:  
Average throughput: 0.74 Mbit/s  
95th percentile per-packet one-way delay: 192.533 ms  
Loss rate: 1.39%  
-- Flow 3:  
Average throughput: 1.20 Mbit/s  
95th percentile per-packet one-way delay: 189.697 ms  
Loss rate: 5.37%

Run 2: Report of LEDBAT — Data Link



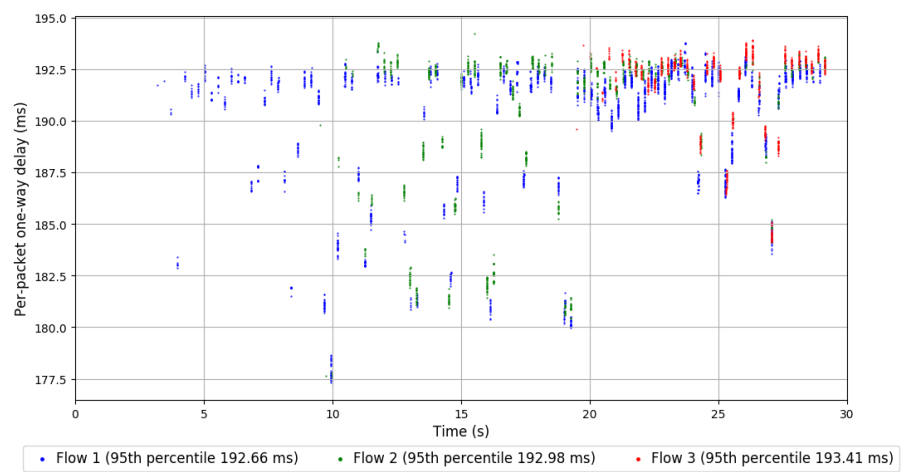
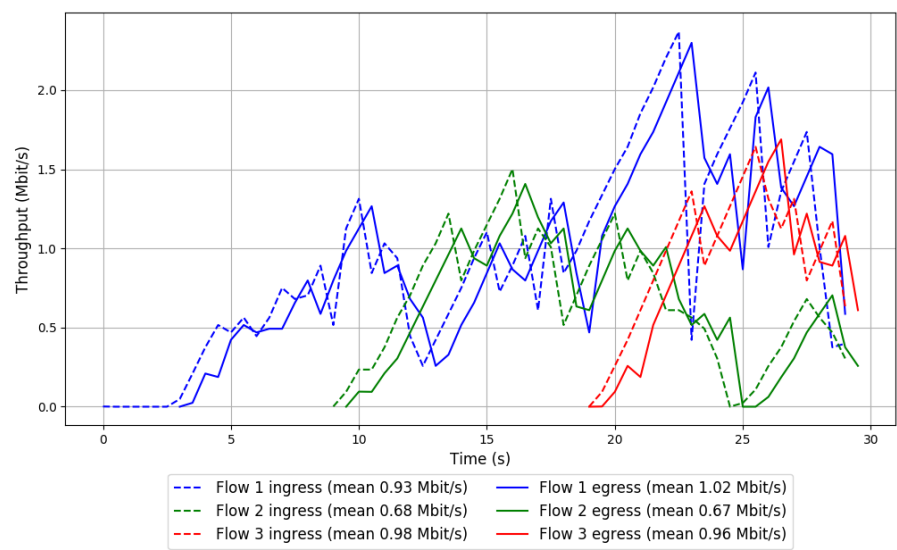


Run 3: Statistics of LEDBAT

Start at: 2018-11-15 12:04:23  
End at: 2018-11-15 12:04:53  
Local clock offset: -1.598 ms  
Remote clock offset: 57.676 ms

# Below is generated by plot.py at 2018-11-15 13:55:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.88 Mbit/s  
95th percentile per-packet one-way delay: 193.046 ms  
Loss rate: 2.60%  
-- Flow 1:  
Average throughput: 1.02 Mbit/s  
95th percentile per-packet one-way delay: 192.664 ms  
Loss rate: 1.84%  
-- Flow 2:  
Average throughput: 0.67 Mbit/s  
95th percentile per-packet one-way delay: 192.978 ms  
Loss rate: 2.77%  
-- Flow 3:  
Average throughput: 0.96 Mbit/s  
95th percentile per-packet one-way delay: 193.410 ms  
Loss rate: 4.48%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

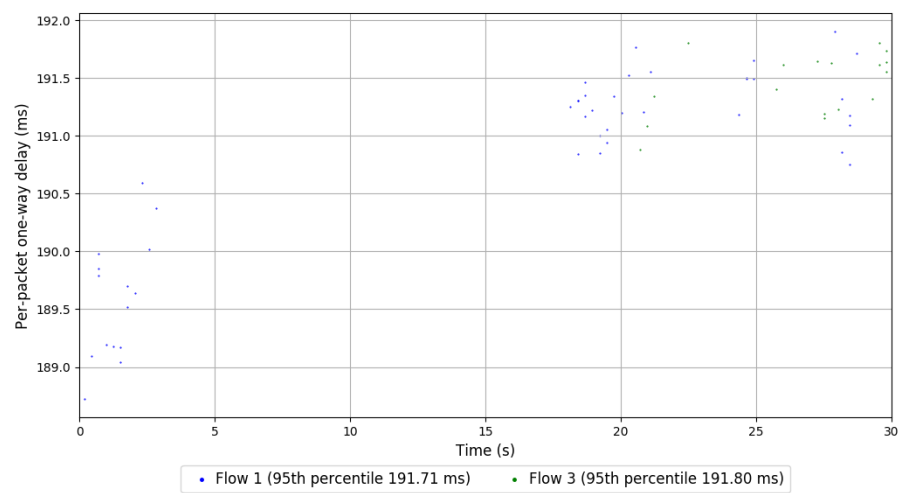
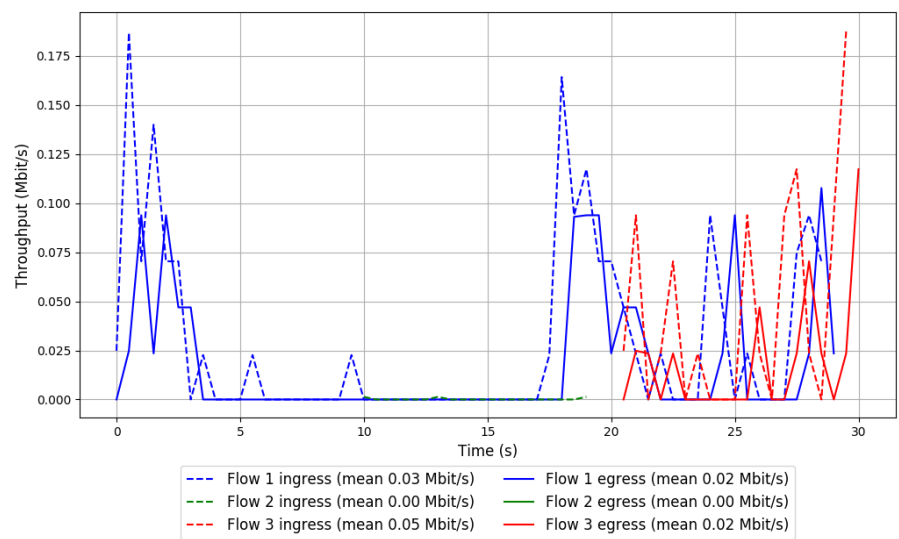
Start at: 2018-11-15 12:46:42

End at: 2018-11-15 12:47:12

Local clock offset: 19.291 ms

Remote clock offset: 46.612 ms

Run 4: Report of LEDBAT — Data Link

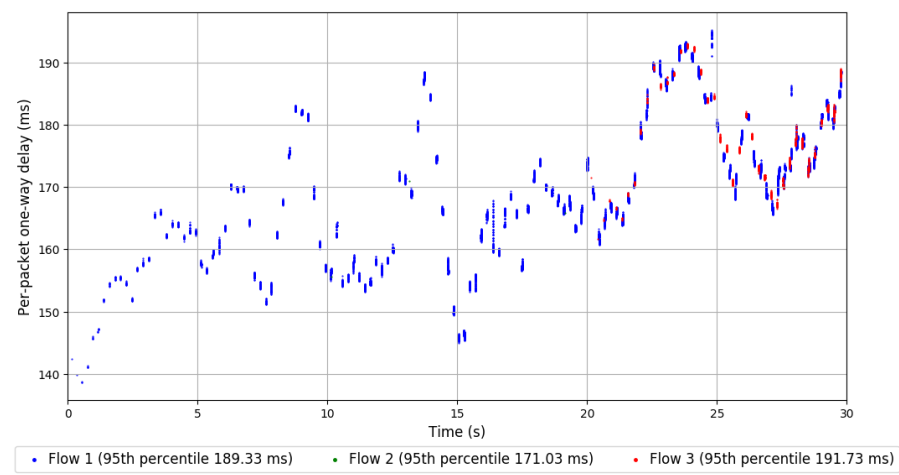
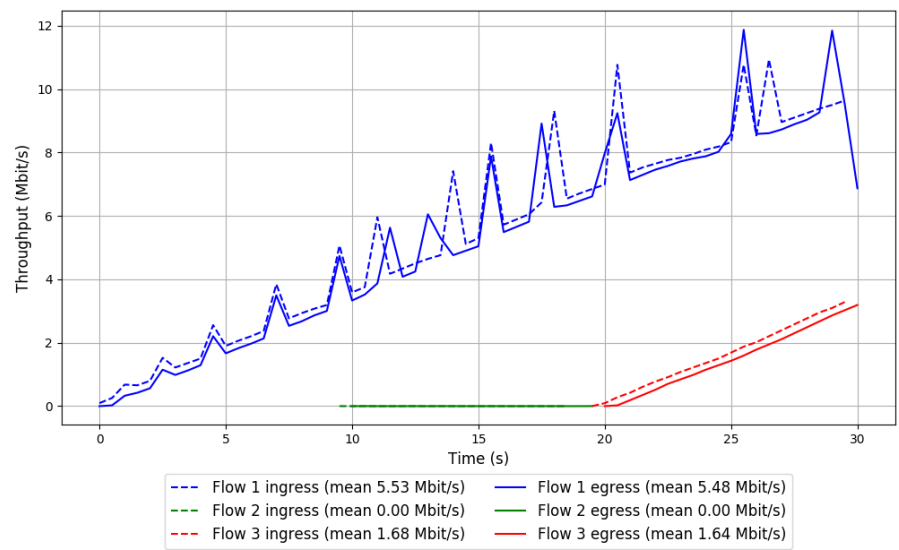


Run 5: Statistics of LEDBAT

Start at: 2018-11-15 13:28:30  
End at: 2018-11-15 13:29:00  
Local clock offset: 14.481 ms  
Remote clock offset: 24.095 ms

# Below is generated by plot.py at 2018-11-15 13:55:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.02 Mbit/s  
95th percentile per-packet one-way delay: 189.394 ms  
Loss rate: 1.79%  
-- Flow 1:  
Average throughput: 5.48 Mbit/s  
95th percentile per-packet one-way delay: 189.331 ms  
Loss rate: 1.46%  
-- Flow 2:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 171.031 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 1.64 Mbit/s  
95th percentile per-packet one-way delay: 191.730 ms  
Loss rate: 5.03%

Run 5: Report of LEDBAT — Data Link

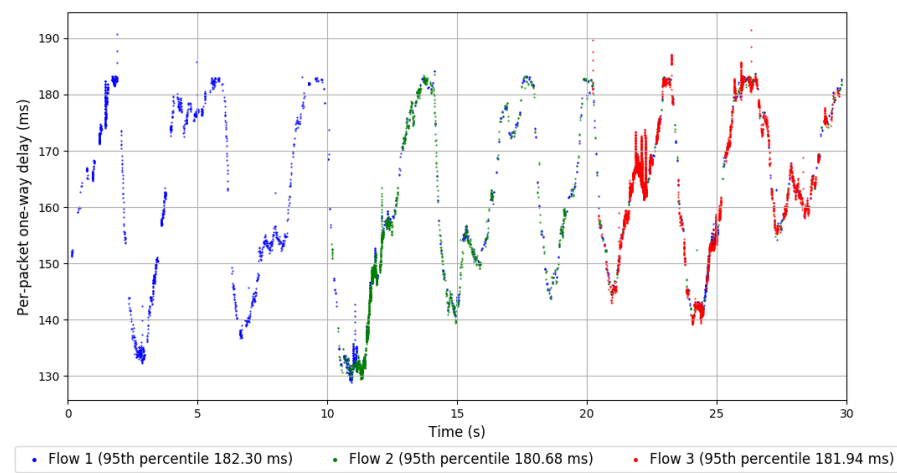
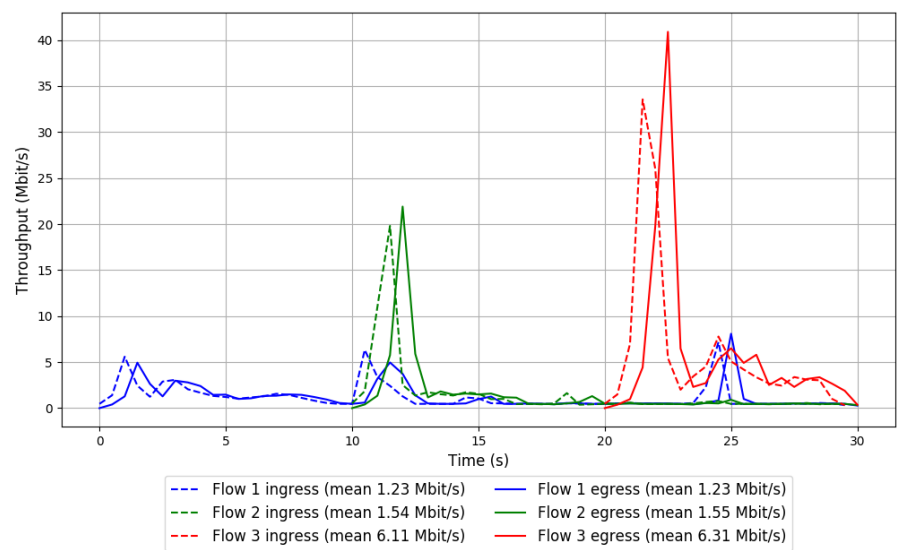


Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 11:14:14  
End at: 2018-11-15 11:14:44  
Local clock offset: -2.11 ms  
Remote clock offset: 26.886 ms

# Below is generated by plot.py at 2018-11-15 13:55:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.28 Mbit/s  
95th percentile per-packet one-way delay: 181.948 ms  
Loss rate: 0.35%  
-- Flow 1:  
Average throughput: 1.23 Mbit/s  
95th percentile per-packet one-way delay: 182.300 ms  
Loss rate: 0.51%  
-- Flow 2:  
Average throughput: 1.55 Mbit/s  
95th percentile per-packet one-way delay: 180.675 ms  
Loss rate: 0.42%  
-- Flow 3:  
Average throughput: 6.31 Mbit/s  
95th percentile per-packet one-way delay: 181.945 ms  
Loss rate: 0.21%

Run 1: Report of Indigo-Muses — Data Link



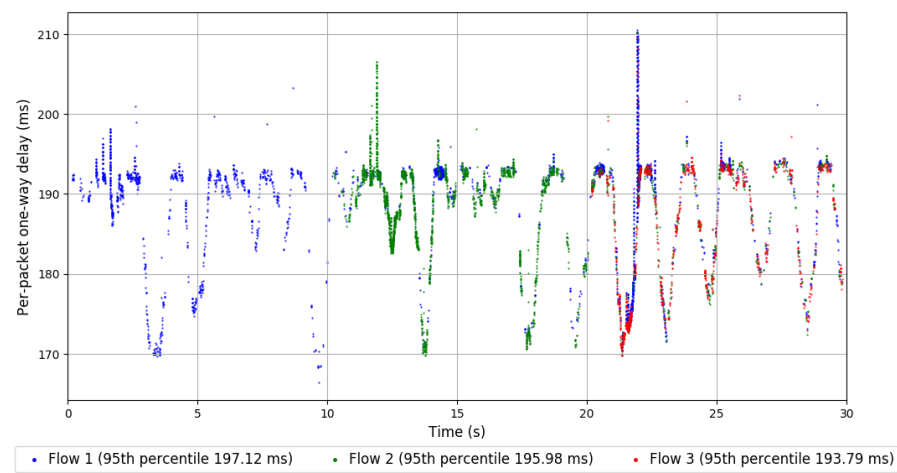
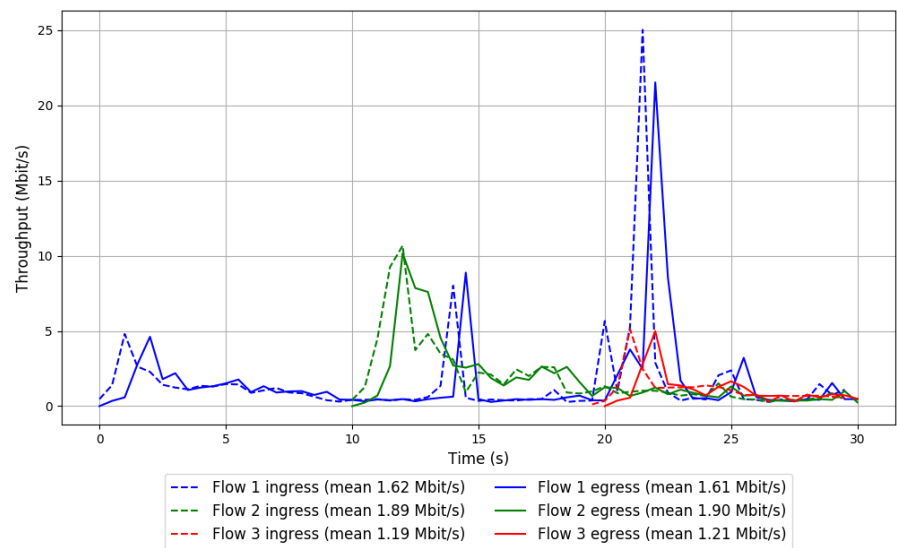


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 11:44:02  
End at: 2018-11-15 11:44:32  
Local clock offset: -1.865 ms  
Remote clock offset: 25.669 ms

# Below is generated by plot.py at 2018-11-15 13:55:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.25 Mbit/s  
95th percentile per-packet one-way delay: 196.017 ms  
Loss rate: 1.65%  
-- Flow 1:  
Average throughput: 1.61 Mbit/s  
95th percentile per-packet one-way delay: 197.123 ms  
Loss rate: 2.06%  
-- Flow 2:  
Average throughput: 1.90 Mbit/s  
95th percentile per-packet one-way delay: 195.981 ms  
Loss rate: 1.18%  
-- Flow 3:  
Average throughput: 1.21 Mbit/s  
95th percentile per-packet one-way delay: 193.787 ms  
Loss rate: 1.47%

Run 2: Report of Indigo-Muses — Data Link

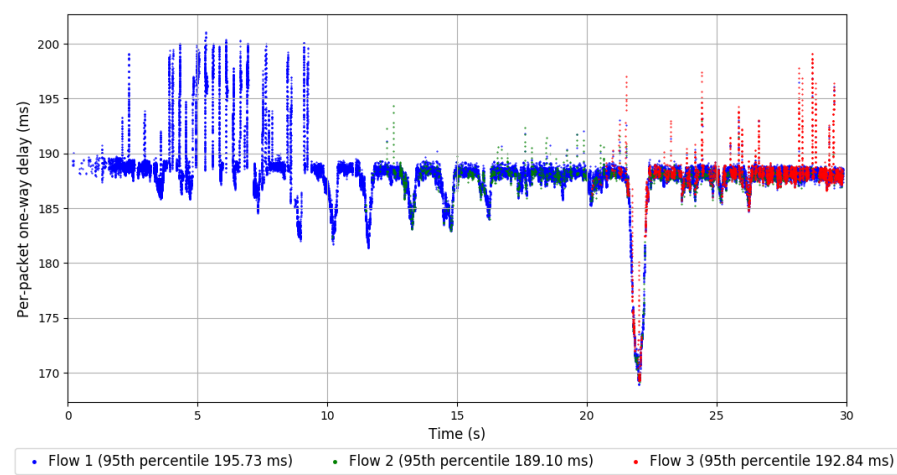
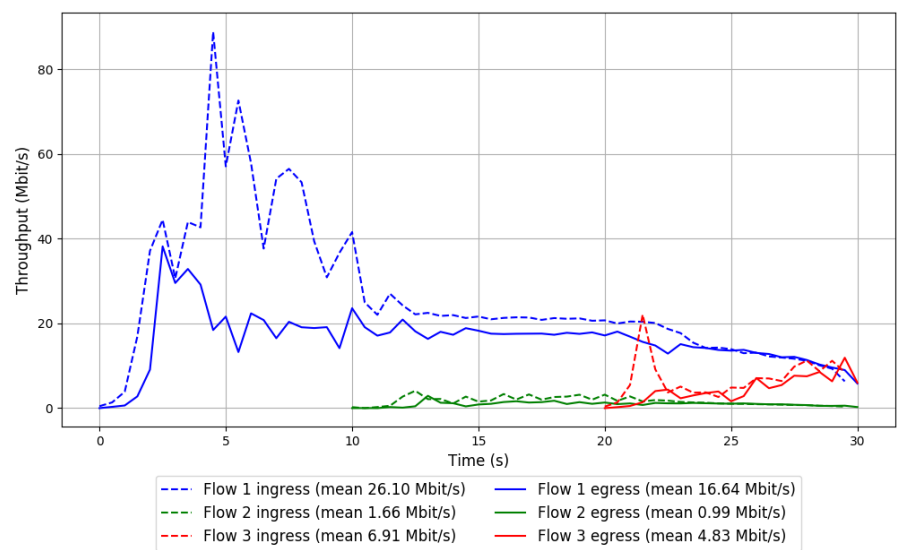


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 12:17:36  
End at: 2018-11-15 12:18:06  
Local clock offset: -1.878 ms  
Remote clock offset: 63.413 ms

# Below is generated by plot.py at 2018-11-15 13:56:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 18.87 Mbit/s  
95th percentile per-packet one-way delay: 195.210 ms  
Loss rate: 36.59%  
-- Flow 1:  
Average throughput: 16.64 Mbit/s  
95th percentile per-packet one-way delay: 195.733 ms  
Loss rate: 36.81%  
-- Flow 2:  
Average throughput: 0.99 Mbit/s  
95th percentile per-packet one-way delay: 189.097 ms  
Loss rate: 41.03%  
-- Flow 3:  
Average throughput: 4.83 Mbit/s  
95th percentile per-packet one-way delay: 192.841 ms  
Loss rate: 31.95%

Run 3: Report of Indigo-Muses — Data Link

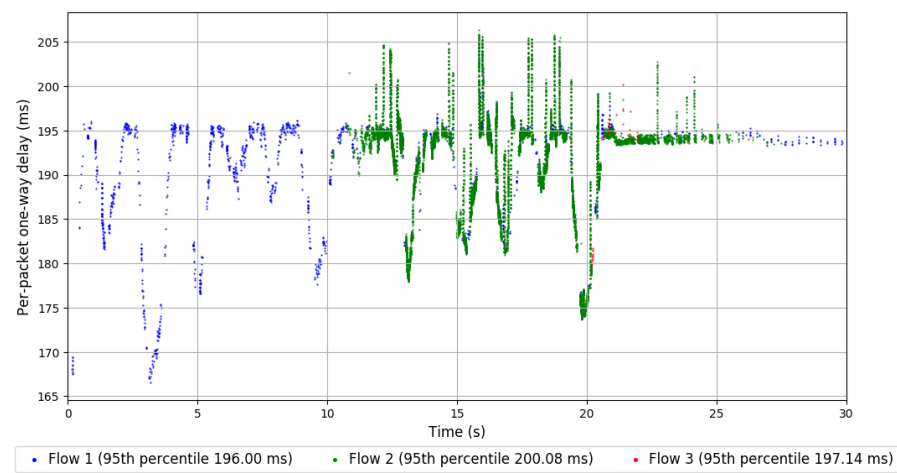
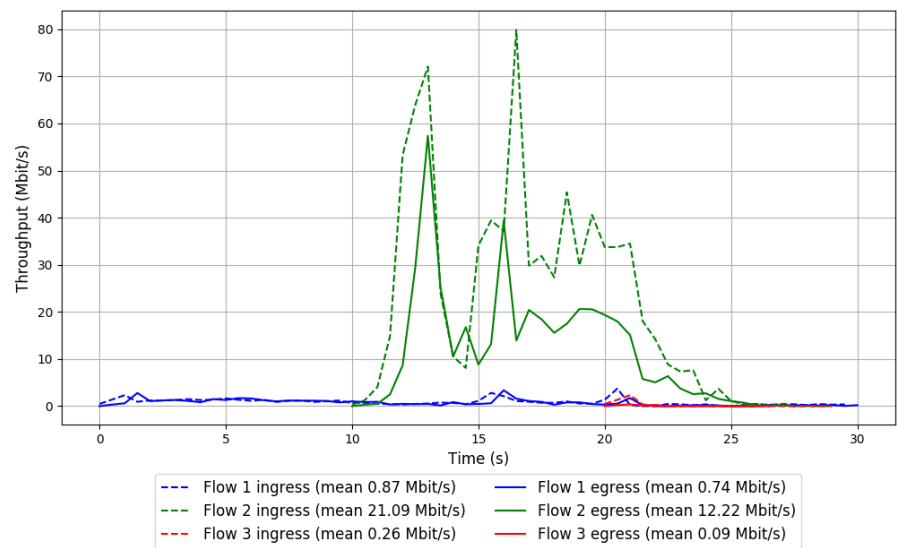


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 12:59:08  
End at: 2018-11-15 12:59:38  
Local clock offset: 21.928 ms  
Remote clock offset: 19.946 ms

# Below is generated by plot.py at 2018-11-15 13:56:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 7.87 Mbit/s  
95th percentile per-packet one-way delay: 199.706 ms  
Loss rate: 46.30%  
-- Flow 1:  
Average throughput: 0.74 Mbit/s  
95th percentile per-packet one-way delay: 195.999 ms  
Loss rate: 15.27%  
-- Flow 2:  
Average throughput: 12.22 Mbit/s  
95th percentile per-packet one-way delay: 200.082 ms  
Loss rate: 48.11%  
-- Flow 3:  
Average throughput: 0.09 Mbit/s  
95th percentile per-packet one-way delay: 197.139 ms  
Loss rate: 78.20%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 13:38:58

End at: 2018-11-15 13:39:28

Local clock offset: 1.69 ms

Remote clock offset: 57.07 ms

# Below is generated by plot.py at 2018-11-15 13:56:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 9.06 Mbit/s

95th percentile per-packet one-way delay: 217.781 ms

Loss rate: 10.81%

-- Flow 1:

Average throughput: 2.54 Mbit/s

95th percentile per-packet one-way delay: 203.897 ms

Loss rate: 15.30%

-- Flow 2:

Average throughput: 5.14 Mbit/s

95th percentile per-packet one-way delay: 213.033 ms

Loss rate: 2.60%

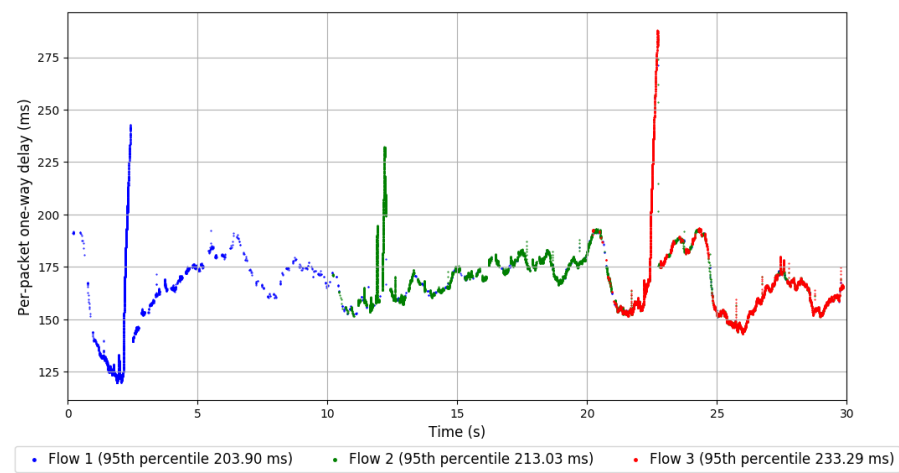
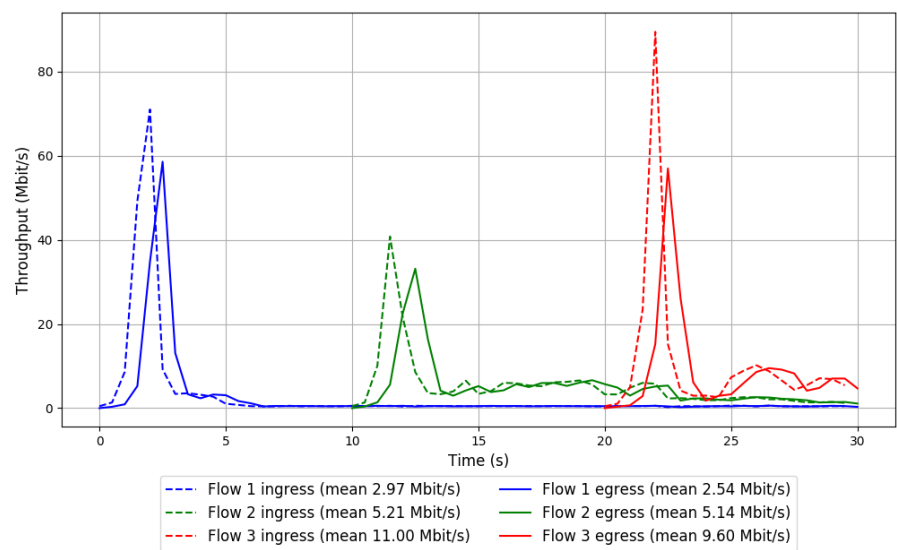
-- Flow 3:

Average throughput: 9.60 Mbit/s

95th percentile per-packet one-way delay: 233.287 ms

Loss rate: 14.97%

Run 5: Report of Indigo-Muses — Data Link



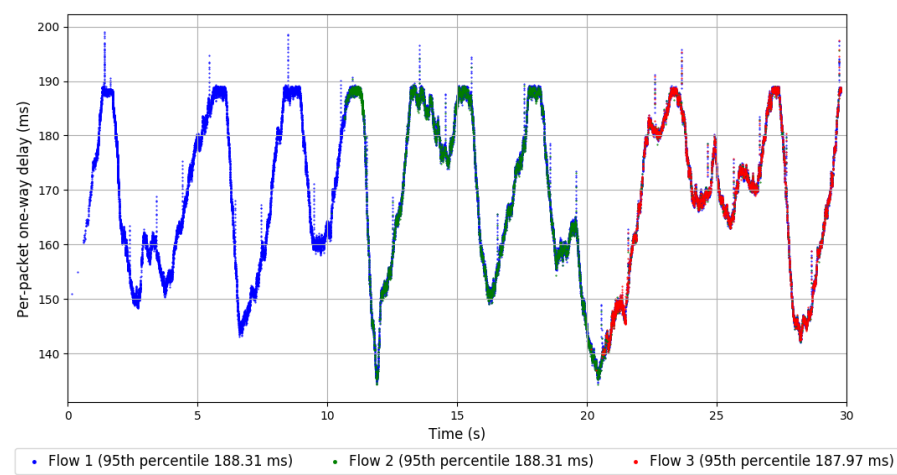
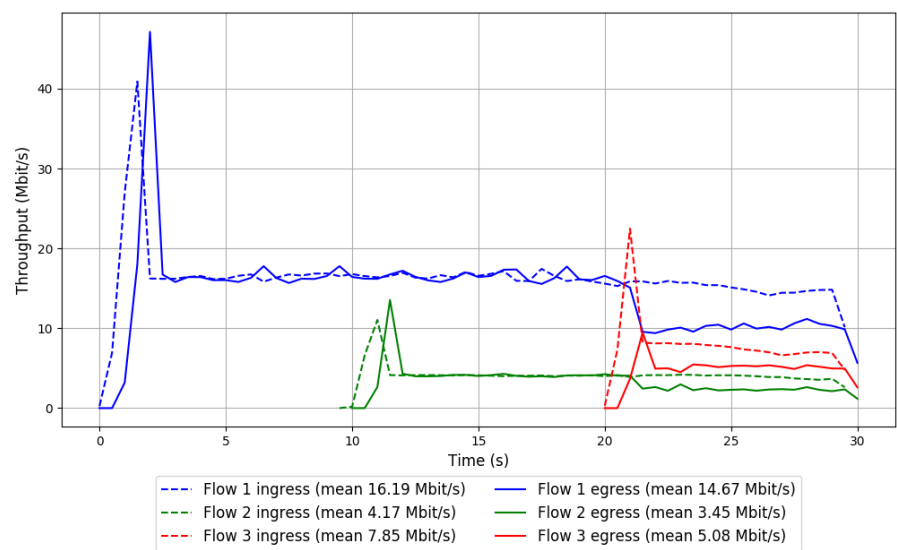


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 11:09:56
End at: 2018-11-15 11:10:26
Local clock offset: -0.586 ms
Remote clock offset: 21.571 ms

# Below is generated by plot.py at 2018-11-15 13:56:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.60 Mbit/s
95th percentile per-packet one-way delay: 188.289 ms
Loss rate: 14.31%
-- Flow 1:
Average throughput: 14.67 Mbit/s
95th percentile per-packet one-way delay: 188.307 ms
Loss rate: 10.08%
-- Flow 2:
Average throughput: 3.45 Mbit/s
95th percentile per-packet one-way delay: 188.311 ms
Loss rate: 18.15%
-- Flow 3:
Average throughput: 5.08 Mbit/s
95th percentile per-packet one-way delay: 187.968 ms
Loss rate: 36.65%
```

Run 1: Report of PCC-Allegro — Data Link

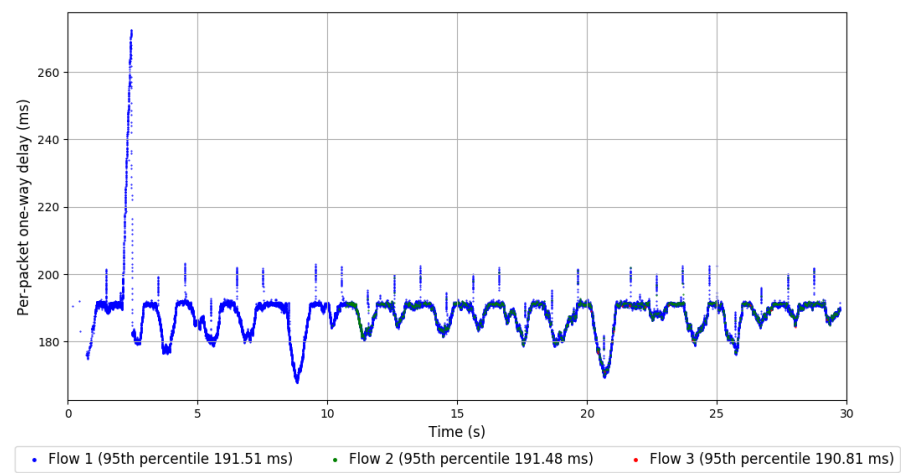
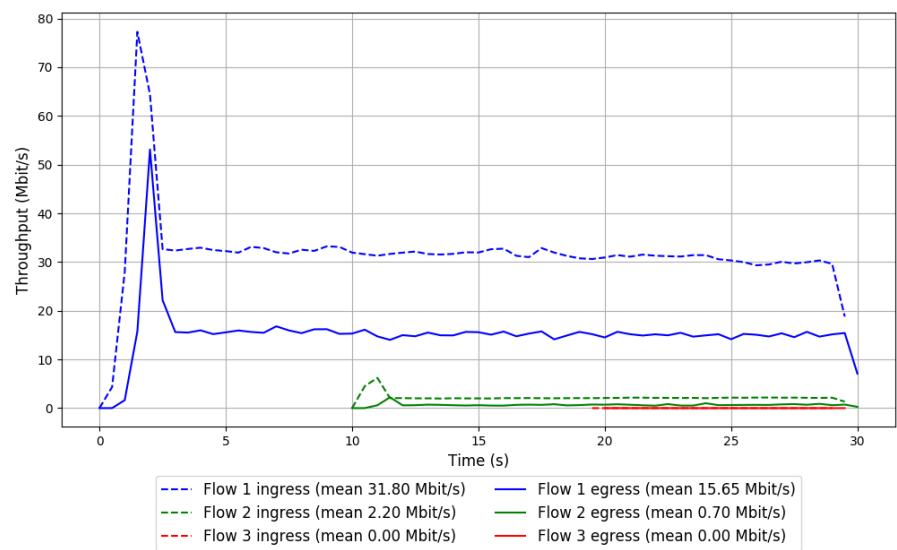


Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 11:37:55  
End at: 2018-11-15 11:38:25  
Local clock offset: -2.014 ms  
Remote clock offset: 19.519 ms

# Below is generated by plot.py at 2018-11-15 13:56:08  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 16.11 Mbit/s  
95th percentile per-packet one-way delay: 191.506 ms  
Loss rate: 52.02%  
-- Flow 1:  
Average throughput: 15.65 Mbit/s  
95th percentile per-packet one-way delay: 191.508 ms  
Loss rate: 51.25%  
-- Flow 2:  
Average throughput: 0.70 Mbit/s  
95th percentile per-packet one-way delay: 191.484 ms  
Loss rate: 68.74%  
-- Flow 3:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 190.815 ms  
Loss rate: 4.86%

Run 2: Report of PCC-Allegro — Data Link

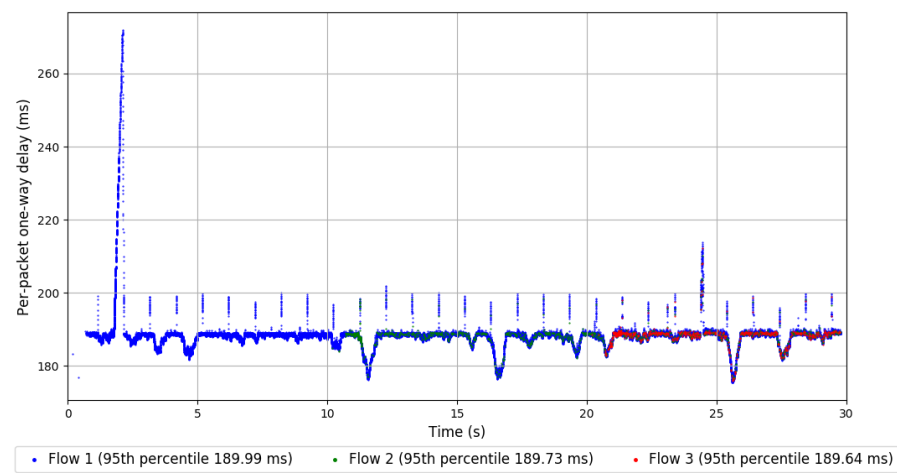
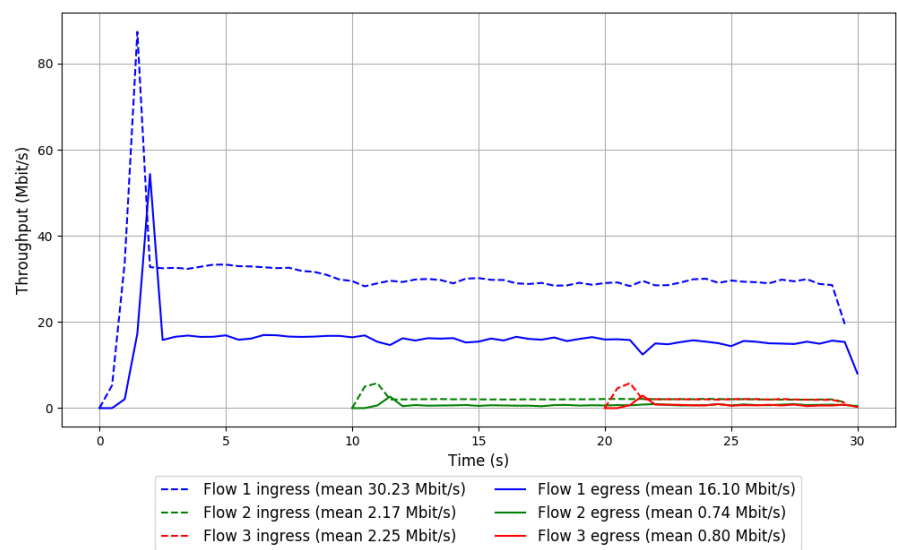


Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 12:10:15  
End at: 2018-11-15 12:10:45  
Local clock offset: -2.01 ms  
Remote clock offset: 64.851 ms

# Below is generated by plot.py at 2018-11-15 13:56:10  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 16.85 Mbit/s  
95th percentile per-packet one-way delay: 189.966 ms  
Loss rate: 48.45%  
-- Flow 1:  
Average throughput: 16.10 Mbit/s  
95th percentile per-packet one-way delay: 189.994 ms  
Loss rate: 47.17%  
-- Flow 2:  
Average throughput: 0.74 Mbit/s  
95th percentile per-packet one-way delay: 189.732 ms  
Loss rate: 66.54%  
-- Flow 3:  
Average throughput: 0.80 Mbit/s  
95th percentile per-packet one-way delay: 189.637 ms  
Loss rate: 65.58%

Run 3: Report of PCC-Allegro — Data Link

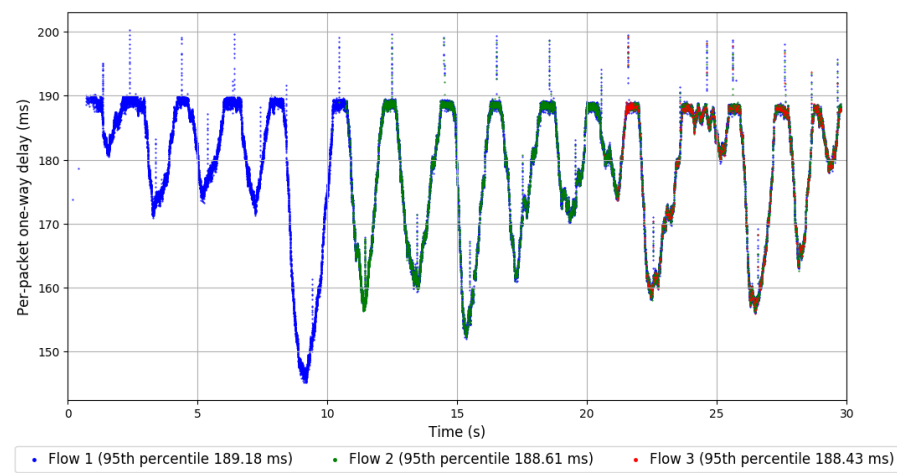
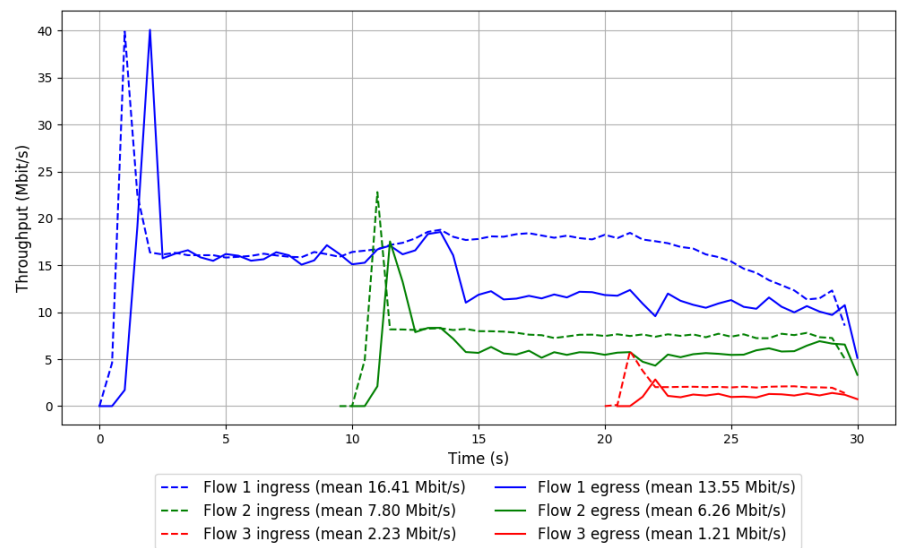


Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 12:53:18  
End at: 2018-11-15 12:53:48  
Local clock offset: 22.291 ms  
Remote clock offset: 32.874 ms

```
# Below is generated by plot.py at 2018-11-15 13:56:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.07 Mbit/s
95th percentile per-packet one-way delay: 189.066 ms
Loss rate: 19.67%
-- Flow 1:
Average throughput: 13.55 Mbit/s
95th percentile per-packet one-way delay: 189.181 ms
Loss rate: 18.15%
-- Flow 2:
Average throughput: 6.26 Mbit/s
95th percentile per-packet one-way delay: 188.607 ms
Loss rate: 20.77%
-- Flow 3:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 188.432 ms
Loss rate: 47.22%
```

Run 4: Report of PCC-Allegro — Data Link



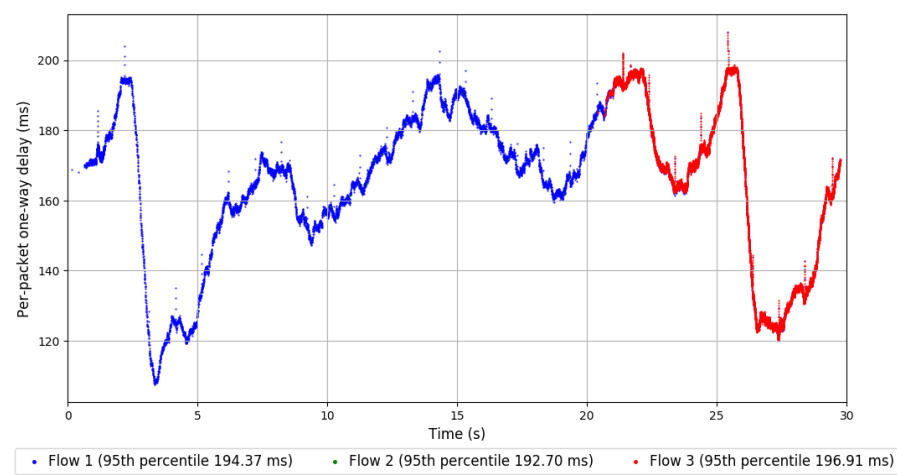
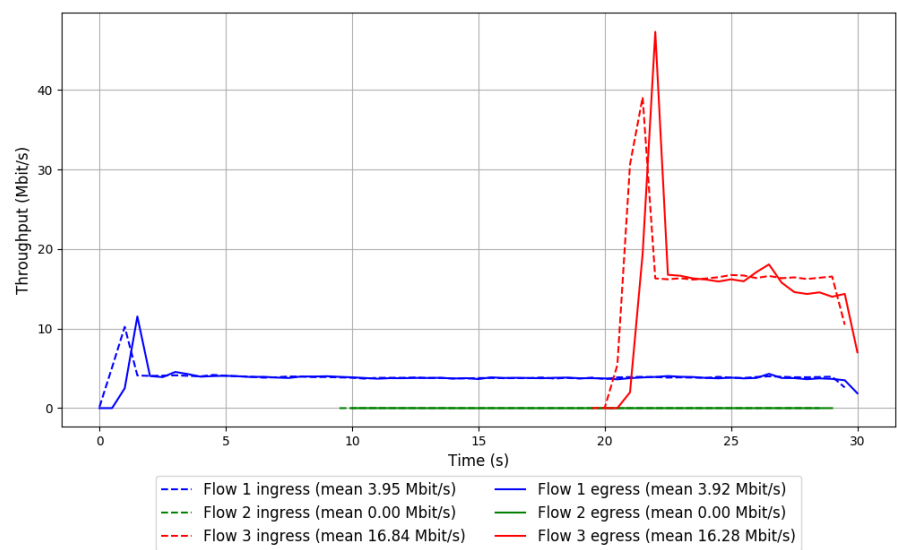


Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 13:34:25  
End at: 2018-11-15 13:34:55  
Local clock offset: 5.874 ms  
Remote clock offset: 45.525 ms

# Below is generated by plot.py at 2018-11-15 13:56:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 9.21 Mbit/s  
95th percentile per-packet one-way delay: 196.627 ms  
Loss rate: 4.02%  
-- Flow 1:  
Average throughput: 3.92 Mbit/s  
95th percentile per-packet one-way delay: 194.374 ms  
Loss rate: 1.50%  
-- Flow 2:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 192.697 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 16.28 Mbit/s  
95th percentile per-packet one-way delay: 196.911 ms  
Loss rate: 5.81%

Run 5: Report of PCC-Allegro — Data Link

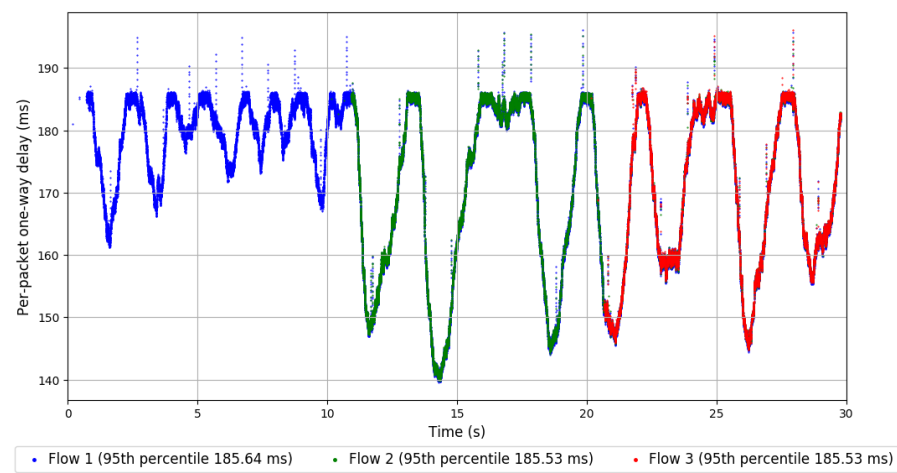
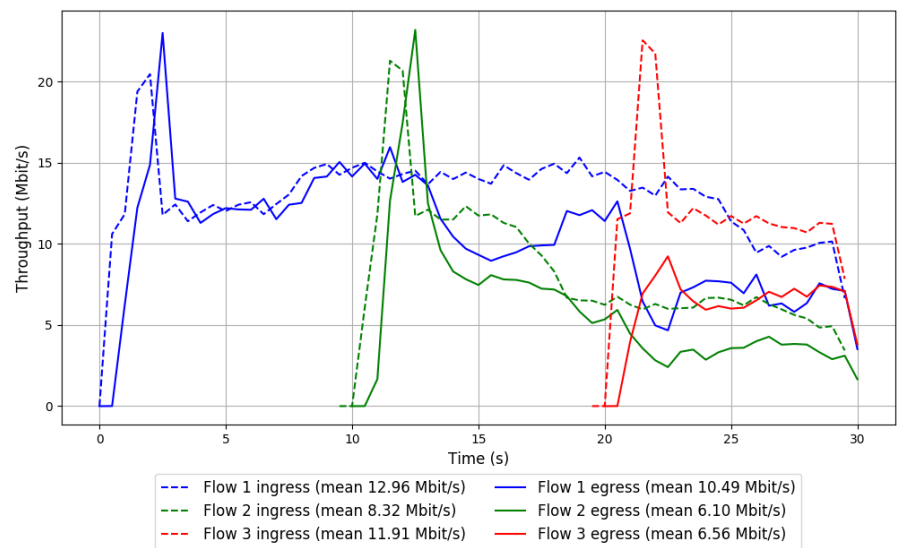


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 11:24:58
End at: 2018-11-15 11:25:28
Local clock offset: -4.709 ms
Remote clock offset: 23.233 ms

# Below is generated by plot.py at 2018-11-15 13:56:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.66 Mbit/s
95th percentile per-packet one-way delay: 185.604 ms
Loss rate: 26.38%
-- Flow 1:
Average throughput: 10.49 Mbit/s
95th percentile per-packet one-way delay: 185.644 ms
Loss rate: 19.75%
-- Flow 2:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 185.525 ms
Loss rate: 27.67%
-- Flow 3:
Average throughput: 6.56 Mbit/s
95th percentile per-packet one-way delay: 185.530 ms
Loss rate: 46.42%
```

Run 1: Report of PCC-Expr — Data Link

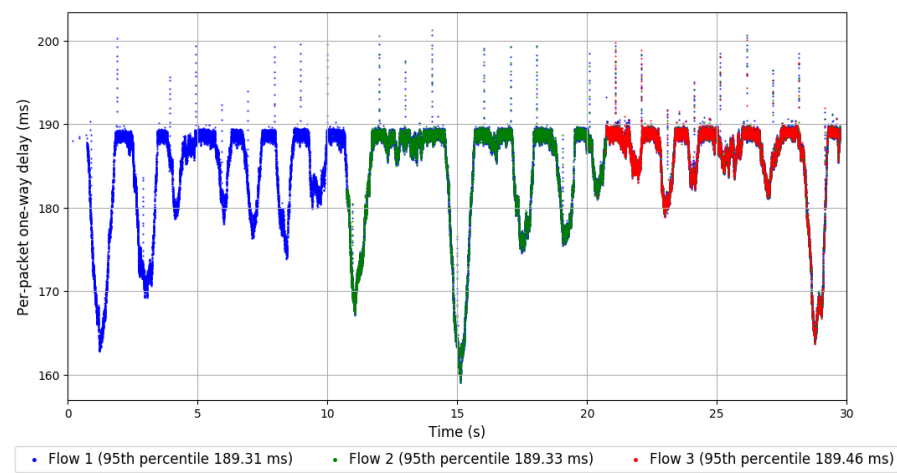
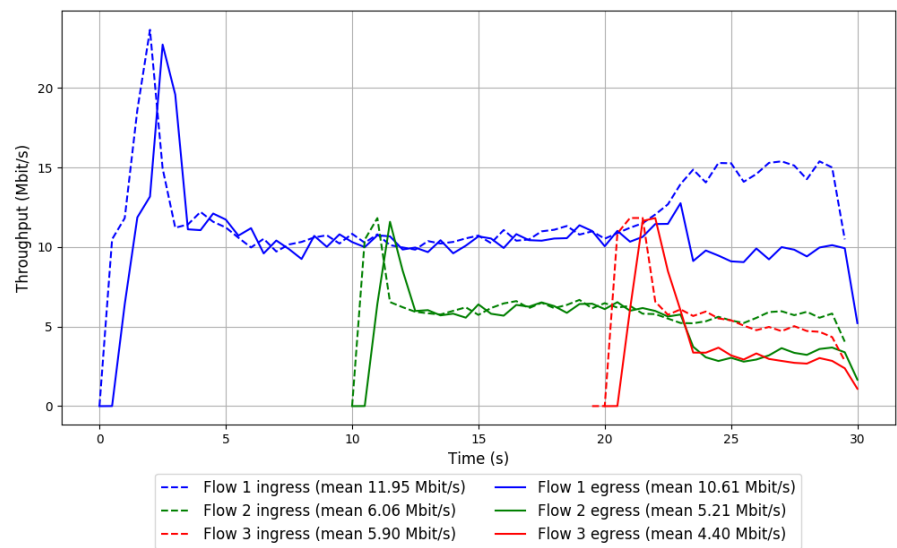


Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 11:56:25  
End at: 2018-11-15 11:56:55  
Local clock offset: -2.156 ms  
Remote clock offset: 53.717 ms

# Below is generated by plot.py at 2018-11-15 13:56:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 15.49 Mbit/s  
95th percentile per-packet one-way delay: 189.333 ms  
Loss rate: 14.39%  
-- Flow 1:  
Average throughput: 10.61 Mbit/s  
95th percentile per-packet one-way delay: 189.306 ms  
Loss rate: 11.99%  
-- Flow 2:  
Average throughput: 5.21 Mbit/s  
95th percentile per-packet one-way delay: 189.327 ms  
Loss rate: 15.12%  
-- Flow 3:  
Average throughput: 4.40 Mbit/s  
95th percentile per-packet one-way delay: 189.464 ms  
Loss rate: 27.58%

Run 2: Report of PCC-Expr — Data Link

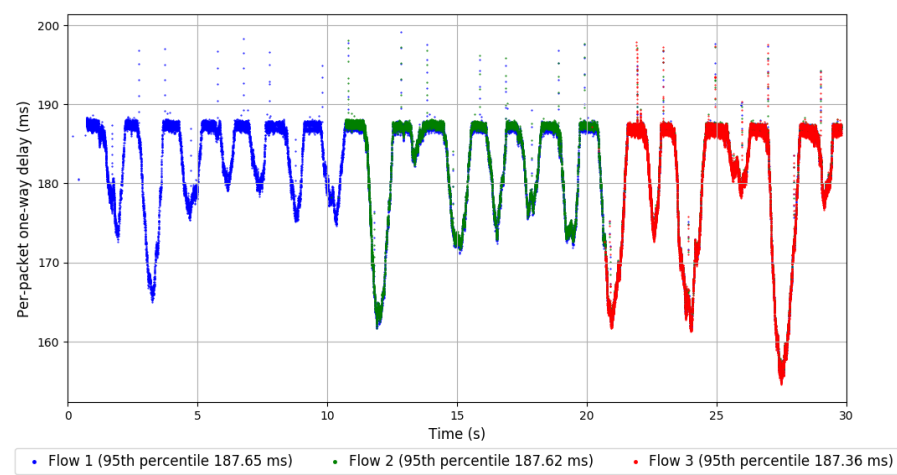
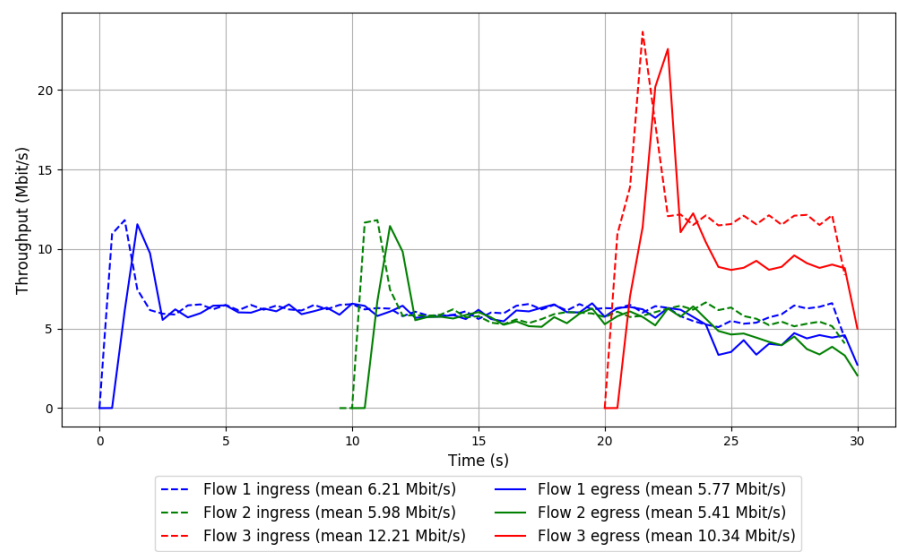


Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 12:36:10  
End at: 2018-11-15 12:36:40  
Local clock offset: 12.645 ms  
Remote clock offset: 47.497 ms

# Below is generated by plot.py at 2018-11-15 13:56:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 12.70 Mbit/s  
95th percentile per-packet one-way delay: 187.580 ms  
Loss rate: 11.44%  
-- Flow 1:  
Average throughput: 5.77 Mbit/s  
95th percentile per-packet one-way delay: 187.653 ms  
Loss rate: 7.91%  
-- Flow 2:  
Average throughput: 5.41 Mbit/s  
95th percentile per-packet one-way delay: 187.615 ms  
Loss rate: 10.73%  
-- Flow 3:  
Average throughput: 10.34 Mbit/s  
95th percentile per-packet one-way delay: 187.357 ms  
Loss rate: 17.59%

Run 3: Report of PCC-Expr — Data Link





Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 13:22:33

End at: 2018-11-15 13:23:03

Local clock offset: 18.028 ms

Remote clock offset: 0.074 ms

# Below is generated by plot.py at 2018-11-15 13:56:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 12.22 Mbit/s

95th percentile per-packet one-way delay: 187.781 ms

Loss rate: 15.95%

-- Flow 1:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 179.895 ms

Loss rate: 86.98%

-- Flow 2:

Average throughput: 16.14 Mbit/s

95th percentile per-packet one-way delay: 187.577 ms

Loss rate: 14.47%

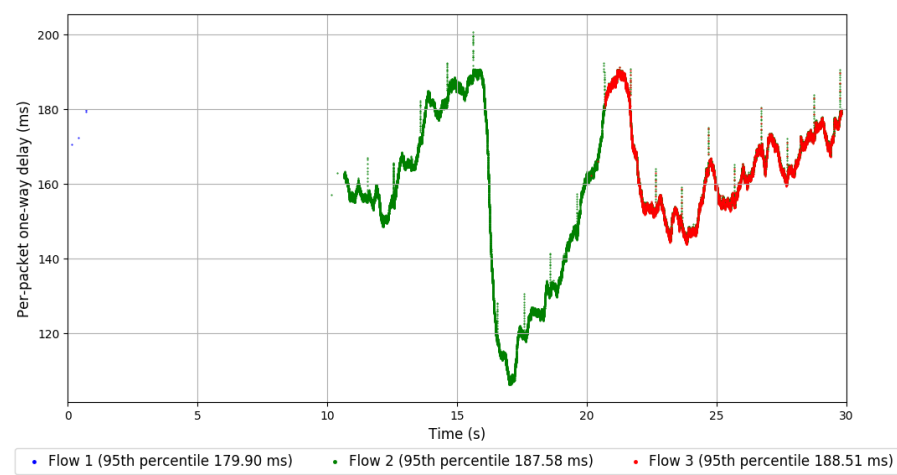
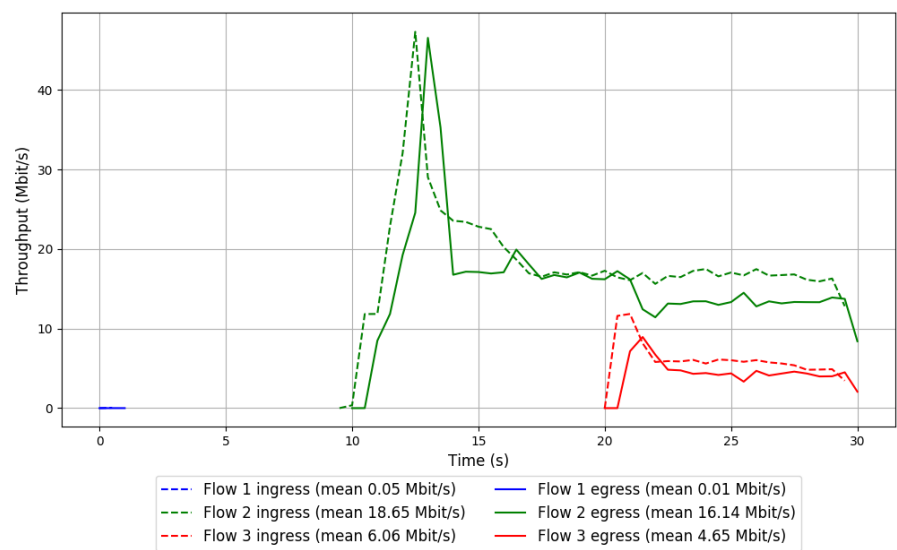
-- Flow 3:

Average throughput: 4.65 Mbit/s

95th percentile per-packet one-way delay: 188.514 ms

Loss rate: 25.07%

Run 4: Report of PCC-Expr — Data Link

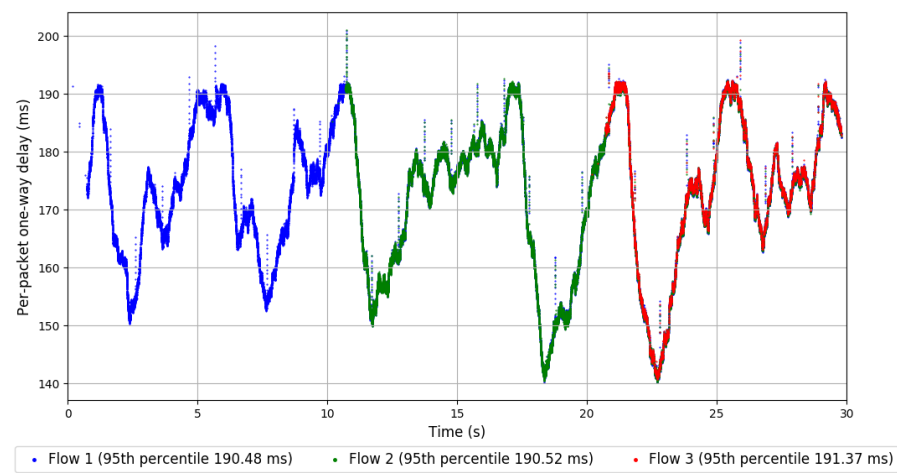
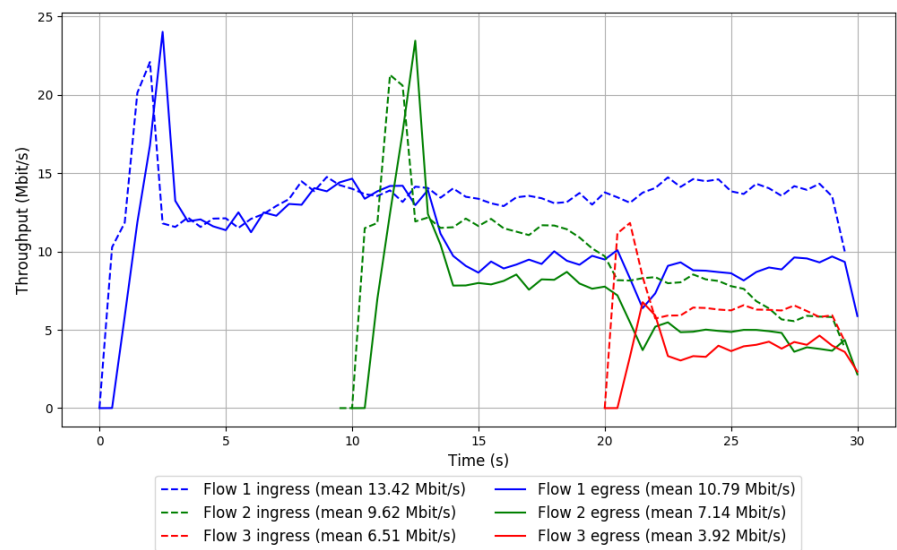


Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 13:49:11  
End at: 2018-11-15 13:49:41  
Local clock offset: -3.341 ms  
Remote clock offset: 72.904 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 16.80 Mbit/s  
95th percentile per-packet one-way delay: 190.636 ms  
Loss rate: 24.24%  
-- Flow 1:  
Average throughput: 10.79 Mbit/s  
95th percentile per-packet one-way delay: 190.483 ms  
Loss rate: 20.33%  
-- Flow 2:  
Average throughput: 7.14 Mbit/s  
95th percentile per-packet one-way delay: 190.519 ms  
Loss rate: 26.73%  
-- Flow 3:  
Average throughput: 3.92 Mbit/s  
95th percentile per-packet one-way delay: 191.372 ms  
Loss rate: 41.26%

Run 5: Report of PCC-Expr — Data Link

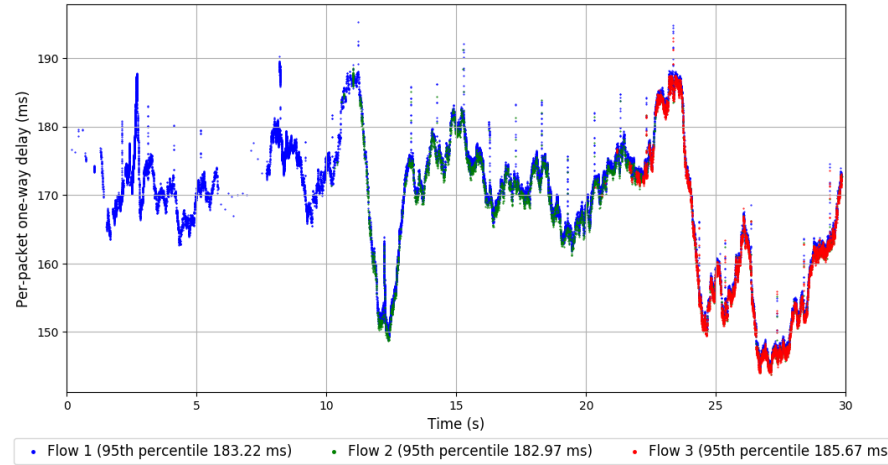
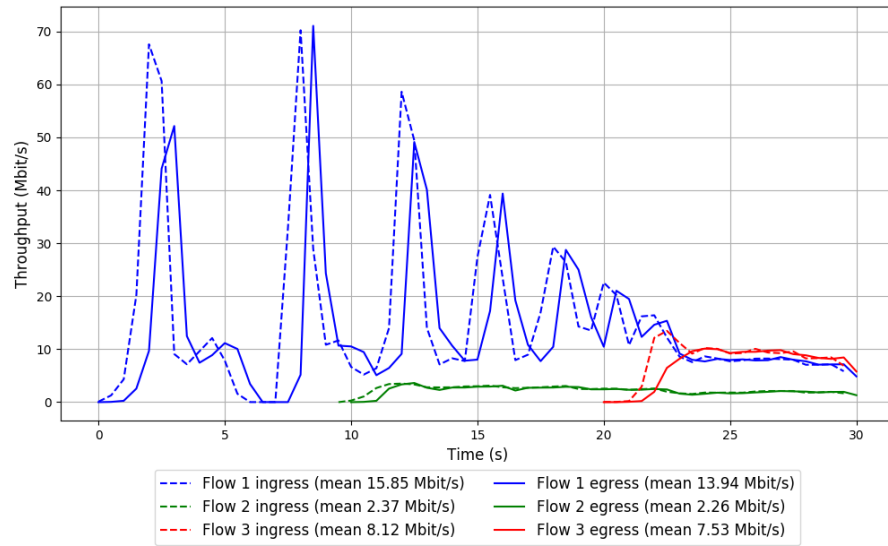


Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 11:07:07  
End at: 2018-11-15 11:07:37  
Local clock offset: 0.651 ms  
Remote clock offset: 22.689 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 17.85 Mbit/s  
95th percentile per-packet one-way delay: 183.842 ms  
Loss rate: 11.71%  
-- Flow 1:  
Average throughput: 13.94 Mbit/s  
95th percentile per-packet one-way delay: 183.225 ms  
Loss rate: 12.72%  
-- Flow 2:  
Average throughput: 2.26 Mbit/s  
95th percentile per-packet one-way delay: 182.968 ms  
Loss rate: 5.41%  
-- Flow 3:  
Average throughput: 7.53 Mbit/s  
95th percentile per-packet one-way delay: 185.671 ms  
Loss rate: 9.46%

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

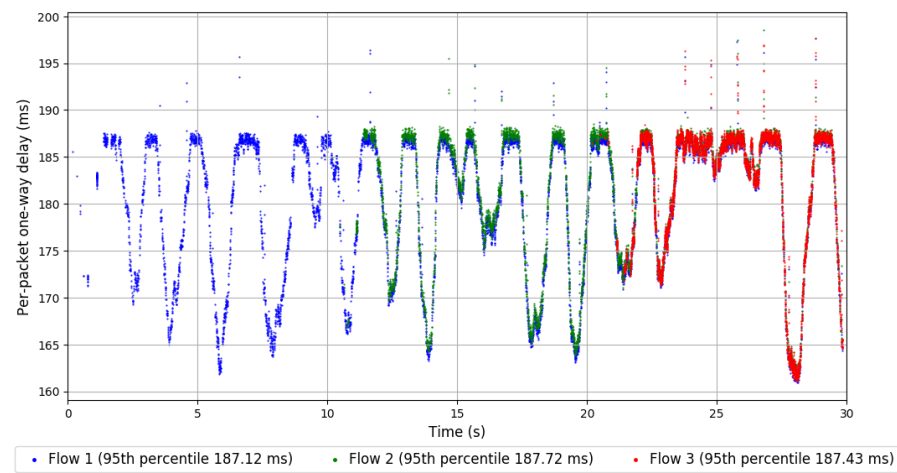
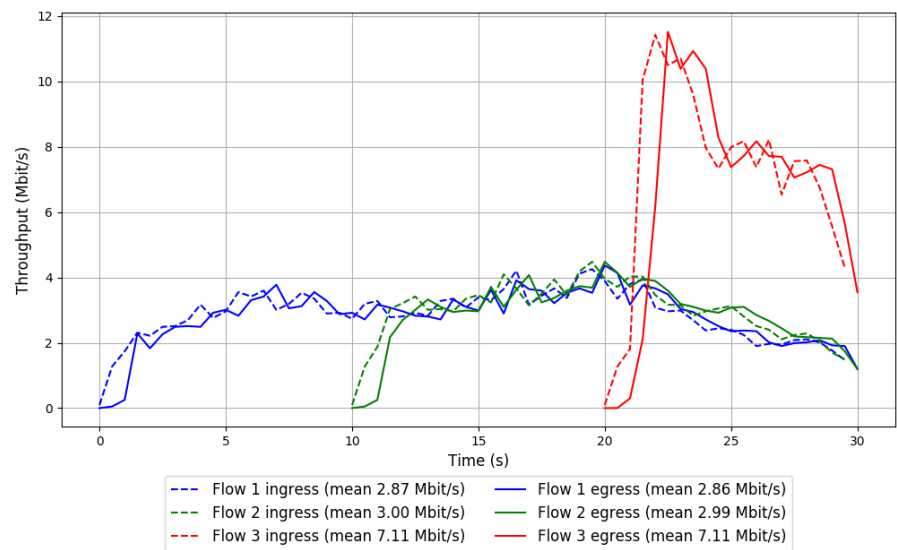


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 11:35:00  
End at: 2018-11-15 11:35:30  
Local clock offset: -2.618 ms  
Remote clock offset: 21.323 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 7.14 Mbit/s  
95th percentile per-packet one-way delay: 187.458 ms  
Loss rate: 1.96%  
-- Flow 1:  
Average throughput: 2.86 Mbit/s  
95th percentile per-packet one-way delay: 187.117 ms  
Loss rate: 1.45%  
-- Flow 2:  
Average throughput: 2.99 Mbit/s  
95th percentile per-packet one-way delay: 187.721 ms  
Loss rate: 1.82%  
-- Flow 3:  
Average throughput: 7.11 Mbit/s  
95th percentile per-packet one-way delay: 187.429 ms  
Loss rate: 2.70%

Run 2: Report of QUIC Cubic — Data Link



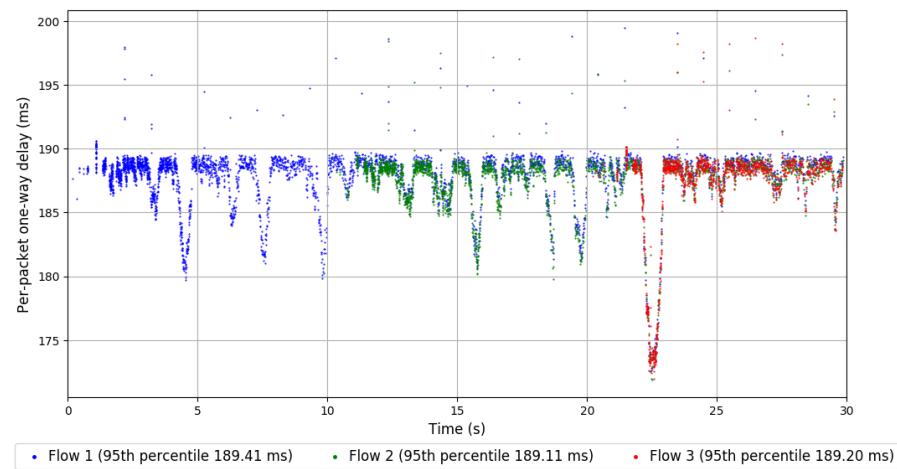
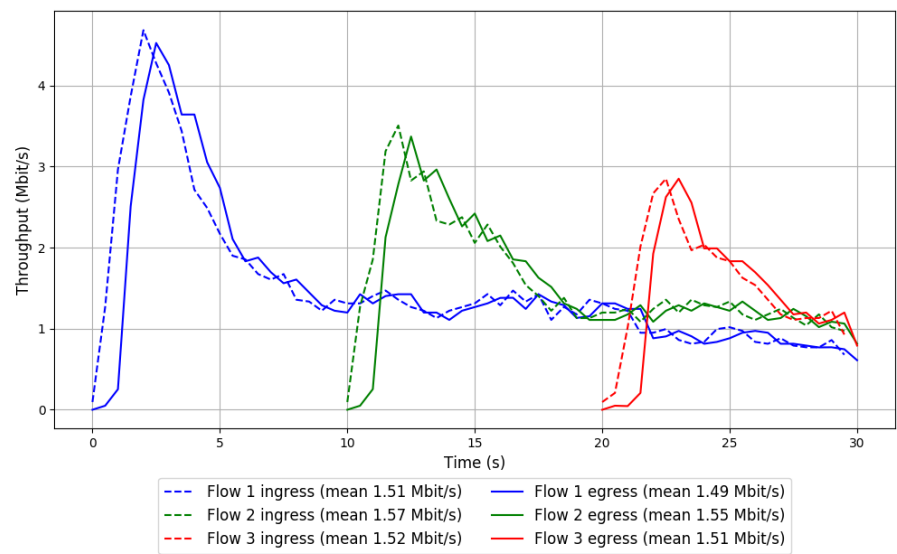


Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 12:07:22  
End at: 2018-11-15 12:07:52  
Local clock offset: -1.824 ms  
Remote clock offset: 63.598 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.01 Mbit/s  
95th percentile per-packet one-way delay: 189.310 ms  
Loss rate: 2.63%  
-- Flow 1:  
Average throughput: 1.49 Mbit/s  
95th percentile per-packet one-way delay: 189.413 ms  
Loss rate: 2.32%  
-- Flow 2:  
Average throughput: 1.55 Mbit/s  
95th percentile per-packet one-way delay: 189.108 ms  
Loss rate: 2.57%  
-- Flow 3:  
Average throughput: 1.51 Mbit/s  
95th percentile per-packet one-way delay: 189.202 ms  
Loss rate: 3.68%

Run 3: Report of QUIC Cubic — Data Link

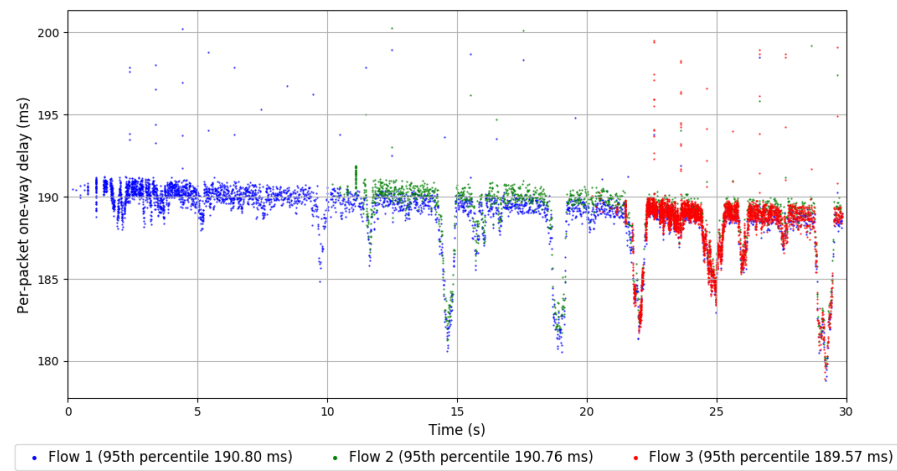
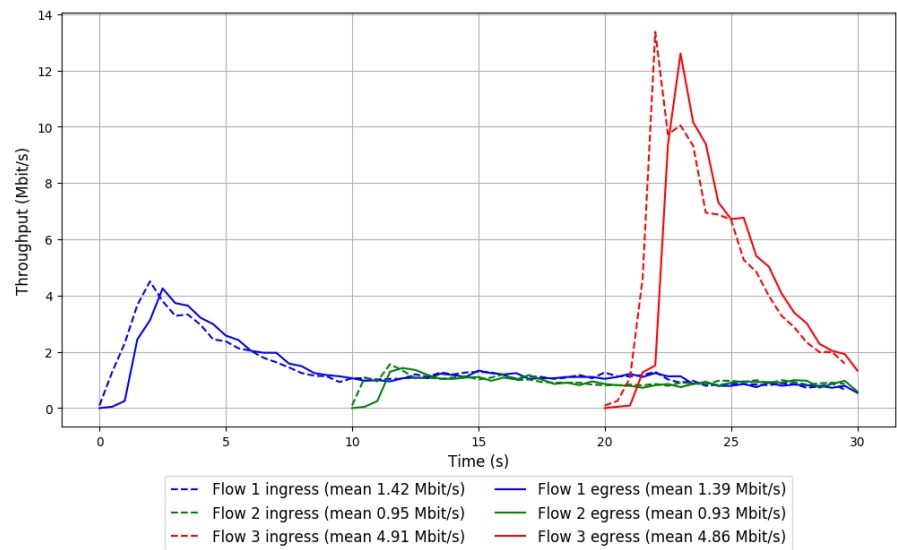


Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 12:50:05  
End at: 2018-11-15 12:50:35  
Local clock offset: 21.207 ms  
Remote clock offset: 43.159 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.59 Mbit/s  
95th percentile per-packet one-way delay: 190.637 ms  
Loss rate: 3.19%  
-- Flow 1:  
Average throughput: 1.39 Mbit/s  
95th percentile per-packet one-way delay: 190.797 ms  
Loss rate: 2.53%  
-- Flow 2:  
Average throughput: 0.93 Mbit/s  
95th percentile per-packet one-way delay: 190.763 ms  
Loss rate: 3.70%  
-- Flow 3:  
Average throughput: 4.86 Mbit/s  
95th percentile per-packet one-way delay: 189.575 ms  
Loss rate: 3.56%

Run 4: Report of QUIC Cubic — Data Link

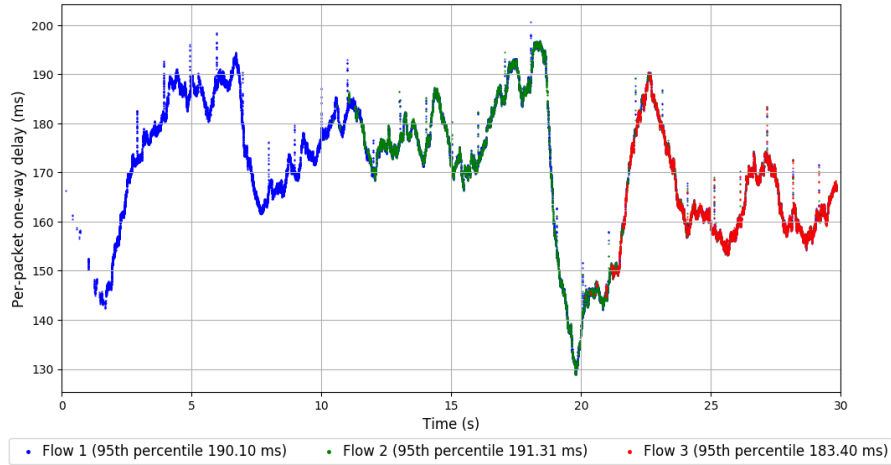
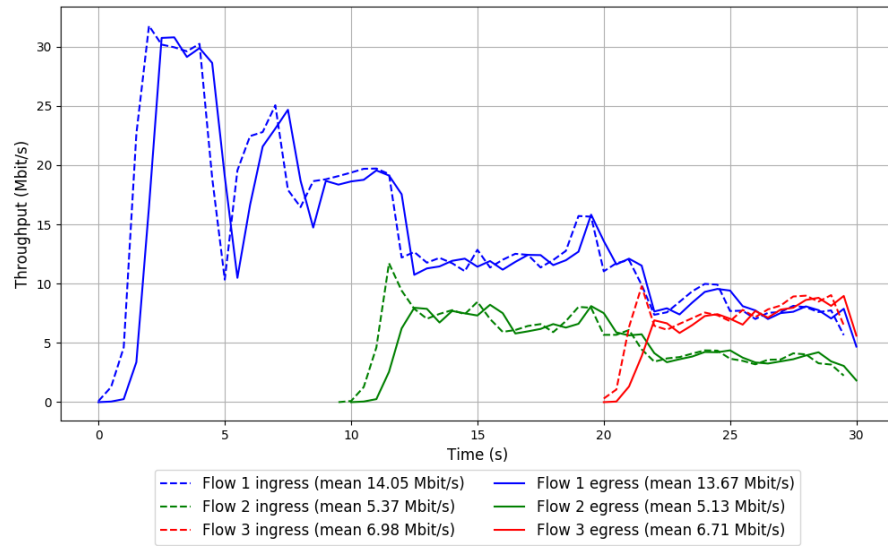


Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 13:31:26  
End at: 2018-11-15 13:31:56  
Local clock offset: 9.504 ms  
Remote clock offset: 36.028 ms

```
# Below is generated by plot.py at 2018-11-15 13:56:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.26 Mbit/s
95th percentile per-packet one-way delay: 189.851 ms
Loss rate: 4.14%
-- Flow 1:
Average throughput: 13.67 Mbit/s
95th percentile per-packet one-way delay: 190.101 ms
Loss rate: 3.46%
-- Flow 2:
Average throughput: 5.13 Mbit/s
95th percentile per-packet one-way delay: 191.313 ms
Loss rate: 5.63%
-- Flow 3:
Average throughput: 6.71 Mbit/s
95th percentile per-packet one-way delay: 183.402 ms
Loss rate: 5.92%
```

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

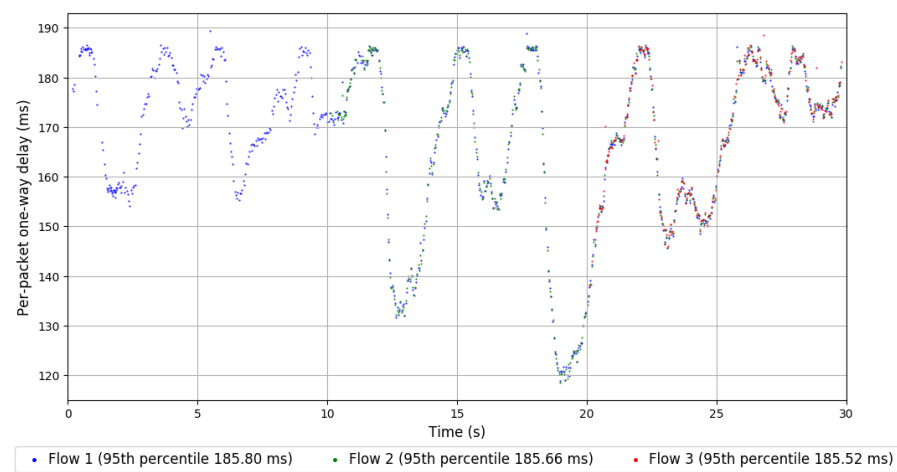
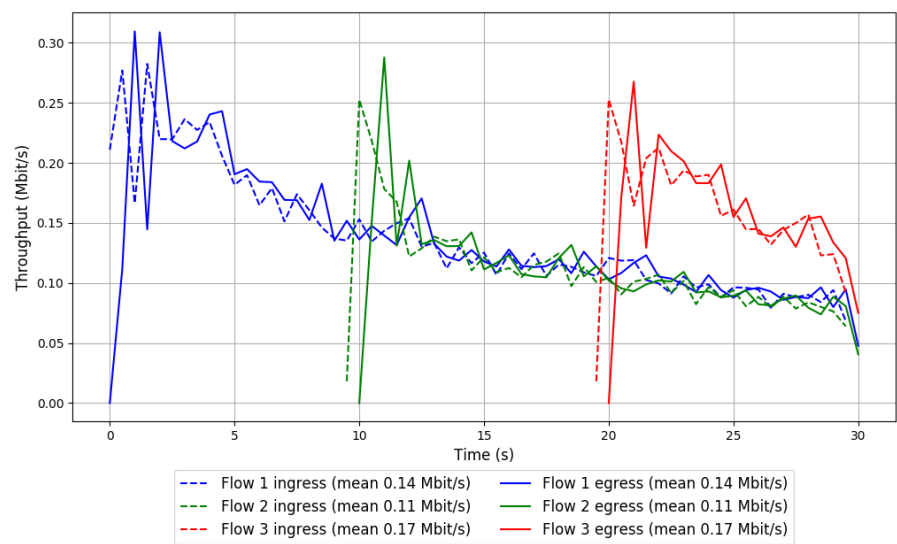


```
Run 1: Statistics of SCReAM

Start at: 2018-11-15 11:17:08
End at: 2018-11-15 11:17:38
Local clock offset: -2.956 ms
Remote clock offset: 23.47 ms

# Below is generated by plot.py at 2018-11-15 13:56:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 185.753 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 185.796 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 185.663 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 185.521 ms
Loss rate: 1.90%
```

Run 1: Report of SReAM — Data Link



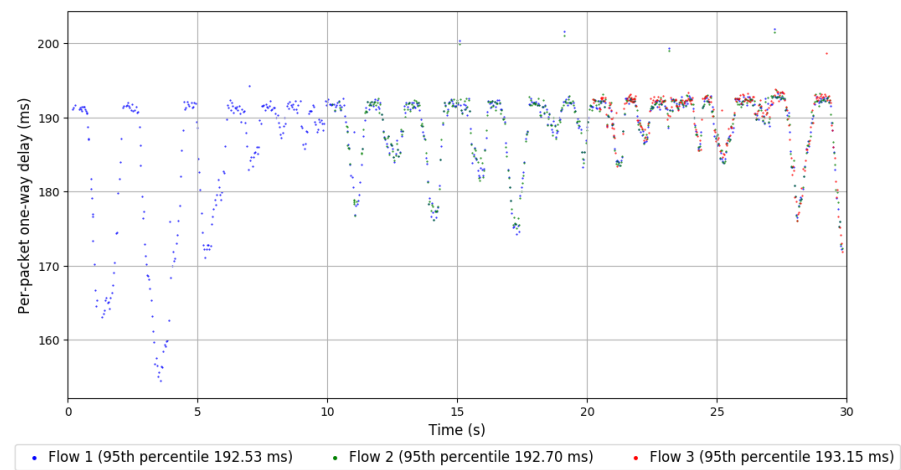
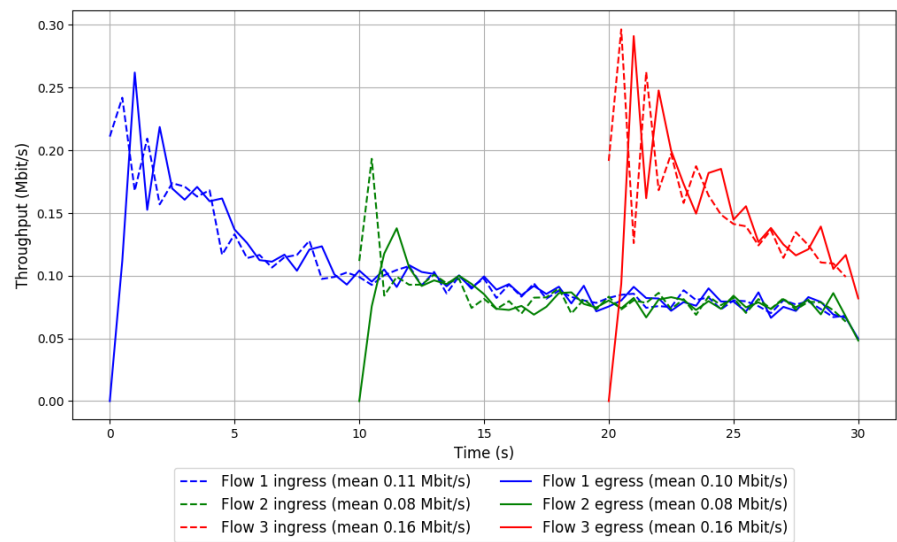


Run 2: Statistics of SCReAM

Start at: 2018-11-15 11:48:04  
End at: 2018-11-15 11:48:34  
Local clock offset: -1.829 ms  
Remote clock offset: 37.76 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 192.784 ms  
Loss rate: 2.18%  
-- Flow 1:  
Average throughput: 0.10 Mbit/s  
95th percentile per-packet one-way delay: 192.534 ms  
Loss rate: 1.84%  
-- Flow 2:  
Average throughput: 0.08 Mbit/s  
95th percentile per-packet one-way delay: 192.696 ms  
Loss rate: 2.49%  
-- Flow 3:  
Average throughput: 0.16 Mbit/s  
95th percentile per-packet one-way delay: 193.151 ms  
Loss rate: 2.54%

Run 2: Report of SReAM — Data Link

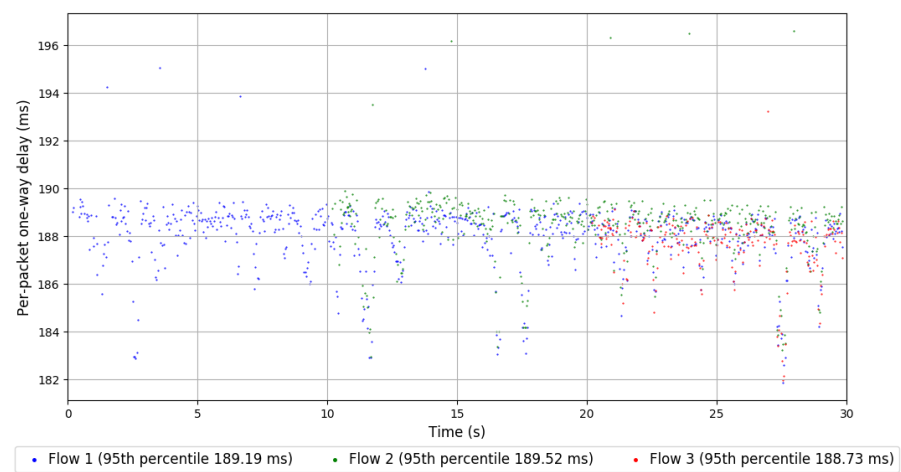
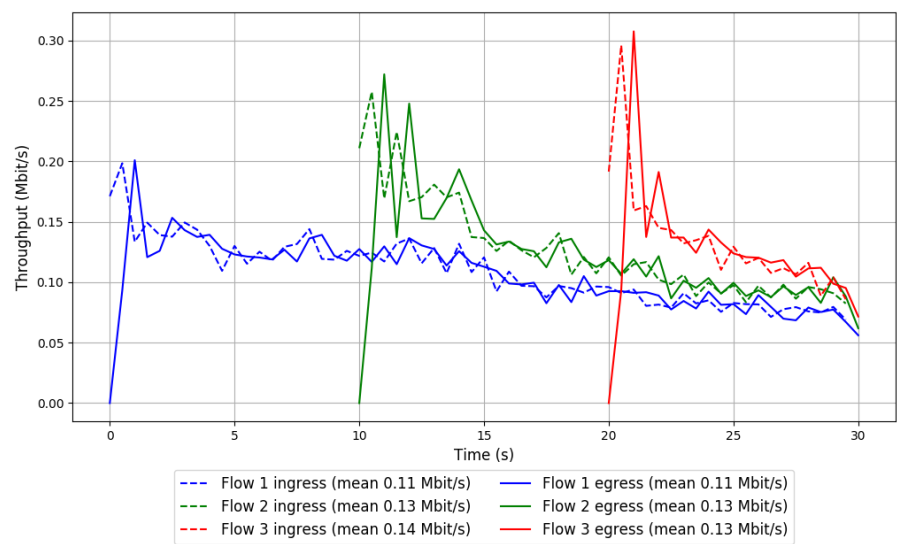


Run 3: Statistics of SCReAM

Start at: 2018-11-15 12:23:47  
End at: 2018-11-15 12:24:17  
Local clock offset: -2.235 ms  
Remote clock offset: 54.266 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.23 Mbit/s  
95th percentile per-packet one-way delay: 189.354 ms  
Loss rate: 2.93%  
-- Flow 1:  
Average throughput: 0.11 Mbit/s  
95th percentile per-packet one-way delay: 189.192 ms  
Loss rate: 2.53%  
-- Flow 2:  
Average throughput: 0.13 Mbit/s  
95th percentile per-packet one-way delay: 189.516 ms  
Loss rate: 3.01%  
-- Flow 3:  
Average throughput: 0.13 Mbit/s  
95th percentile per-packet one-way delay: 188.726 ms  
Loss rate: 3.78%

Run 3: Report of SReAM — Data Link

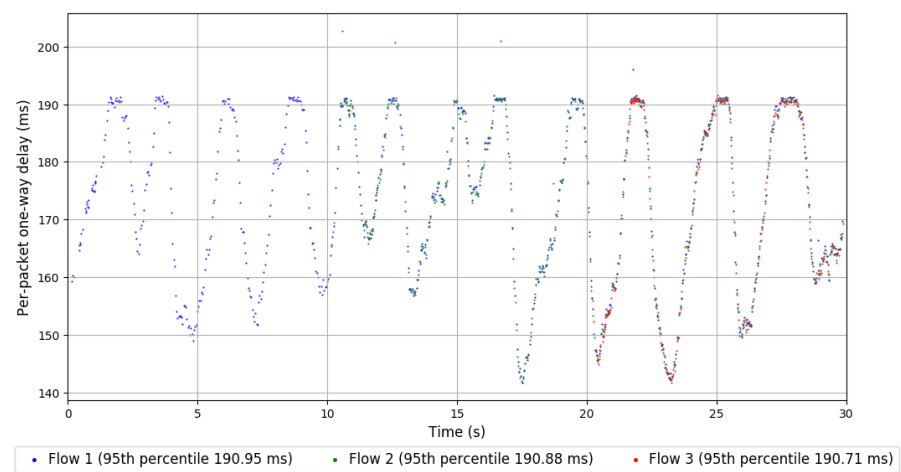
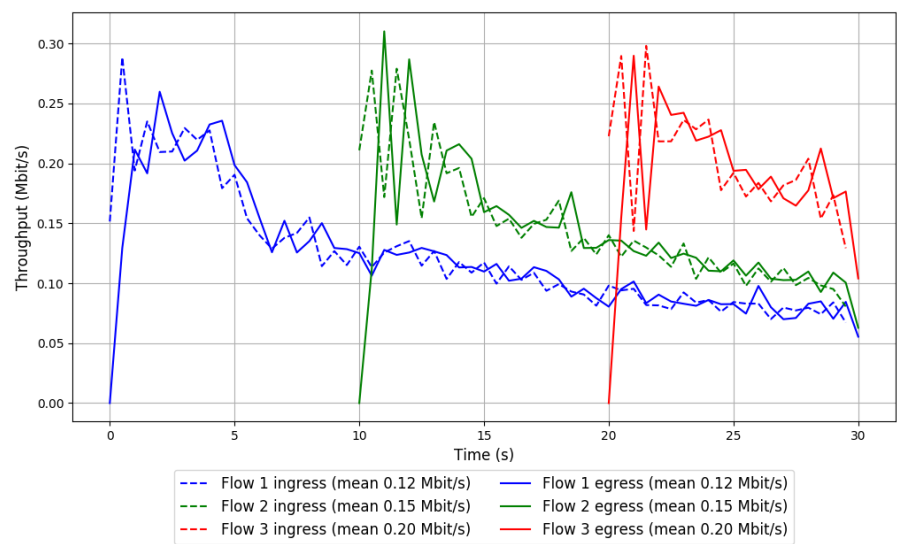


Run 4: Statistics of SCReAM

Start at: 2018-11-15 13:11:17  
End at: 2018-11-15 13:11:47  
Local clock offset: 18.003 ms  
Remote clock offset: 8.091 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.29 Mbit/s  
95th percentile per-packet one-way delay: 190.898 ms  
Loss rate: 1.18%  
-- Flow 1:  
Average throughput: 0.12 Mbit/s  
95th percentile per-packet one-way delay: 190.946 ms  
Loss rate: 0.76%  
-- Flow 2:  
Average throughput: 0.15 Mbit/s  
95th percentile per-packet one-way delay: 190.878 ms  
Loss rate: 1.23%  
-- Flow 3:  
Average throughput: 0.20 Mbit/s  
95th percentile per-packet one-way delay: 190.710 ms  
Loss rate: 1.90%

Run 4: Report of SReAM — Data Link

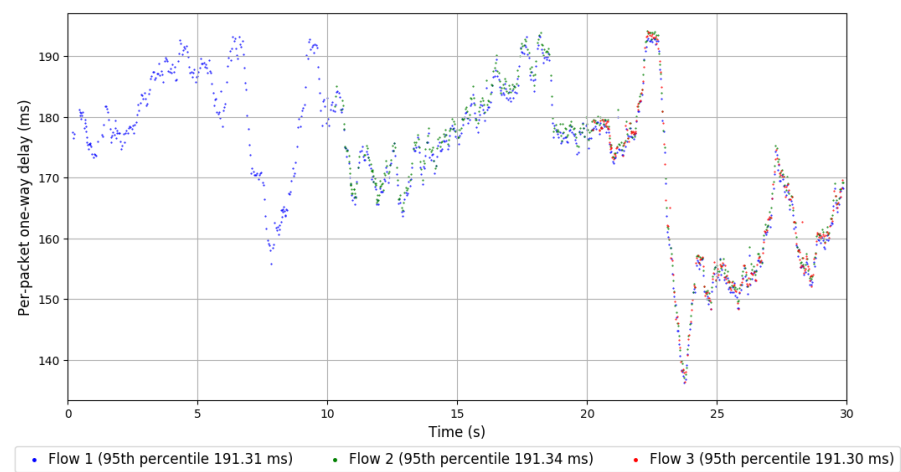
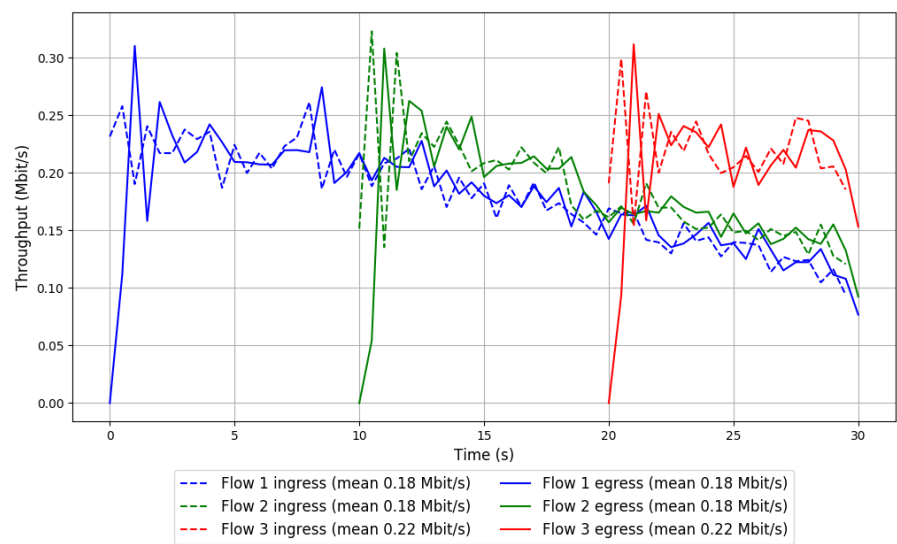


Run 5: Statistics of SCReAM

Start at: 2018-11-15 13:42:04  
End at: 2018-11-15 13:42:34  
Local clock offset: -0.161 ms  
Remote clock offset: 62.116 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.37 Mbit/s  
95th percentile per-packet one-way delay: 191.347 ms  
Loss rate: 1.06%  
-- Flow 1:  
Average throughput: 0.18 Mbit/s  
95th percentile per-packet one-way delay: 191.311 ms  
Loss rate: 0.47%  
-- Flow 2:  
Average throughput: 0.18 Mbit/s  
95th percentile per-packet one-way delay: 191.343 ms  
Loss rate: 1.19%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 191.300 ms  
Loss rate: 2.30%

Run 5: Report of SReAM — Data Link





Run 1: Statistics of Sprout

Start at: 2018-11-15 11:22:03

End at: 2018-11-15 11:22:33

Local clock offset: -4.179 ms

Remote clock offset: 21.29 ms

# Below is generated by plot.py at 2018-11-15 13:56:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 188.190 ms

Loss rate: 1.43%

-- Flow 1:

Average throughput: 0.77 Mbit/s

95th percentile per-packet one-way delay: 188.171 ms

Loss rate: 0.97%

-- Flow 2:

Average throughput: 0.80 Mbit/s

95th percentile per-packet one-way delay: 188.191 ms

Loss rate: 1.32%

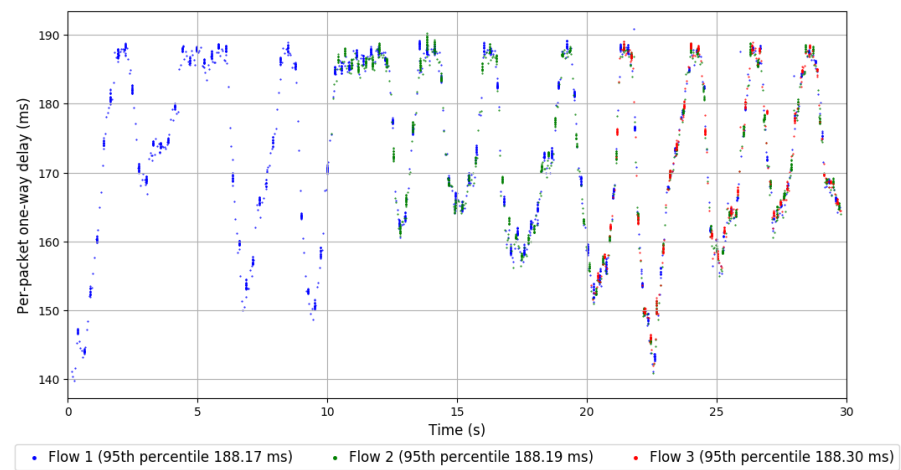
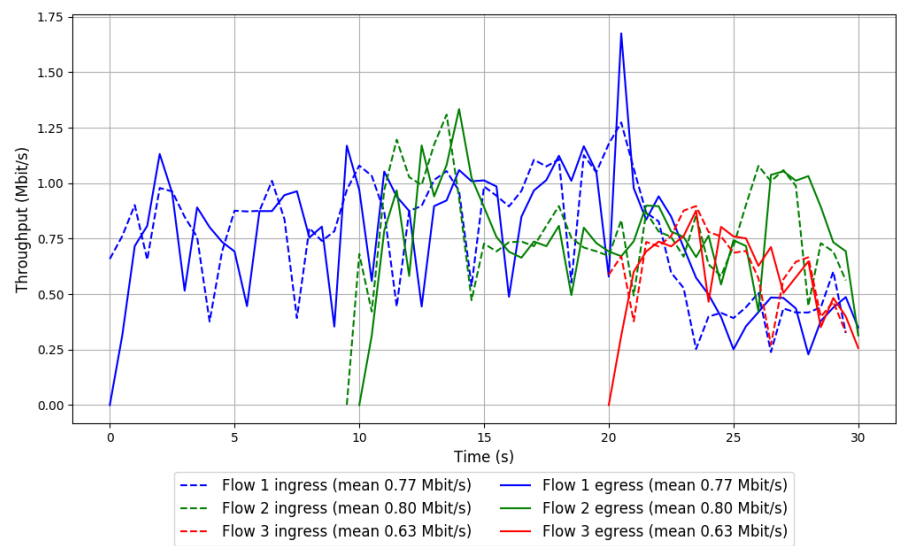
-- Flow 3:

Average throughput: 0.63 Mbit/s

95th percentile per-packet one-way delay: 188.296 ms

Loss rate: 3.37%

Run 1: Report of Sprout — Data Link

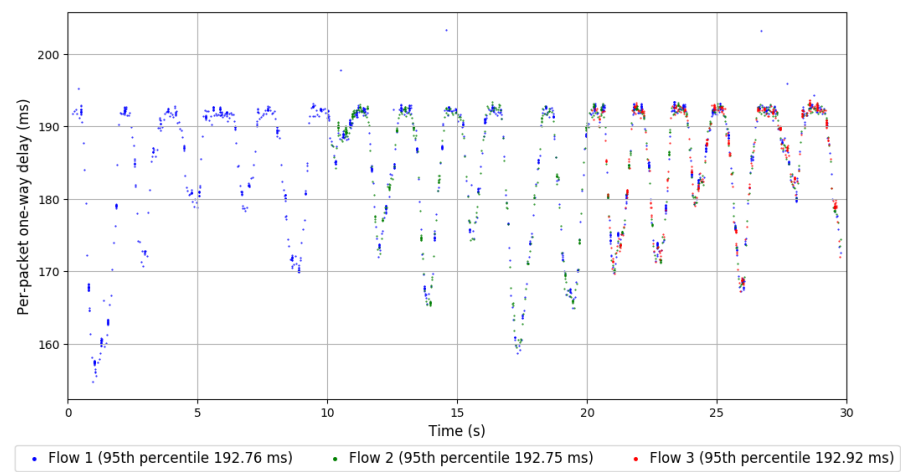
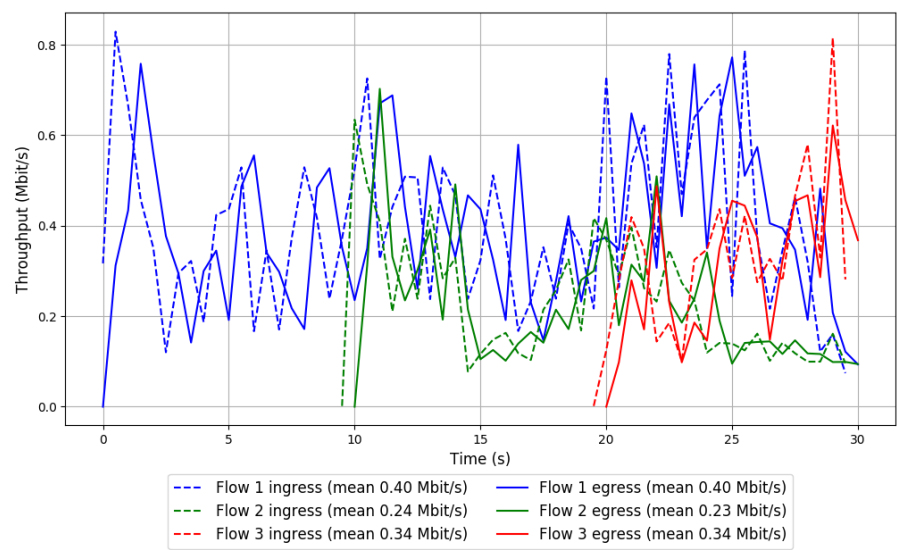


Run 2: Statistics of Sprout

Start at: 2018-11-15 11:53:22  
End at: 2018-11-15 11:53:52  
Local clock offset: -1.841 ms  
Remote clock offset: 46.985 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.67 Mbit/s  
95th percentile per-packet one-way delay: 192.782 ms  
Loss rate: 2.01%  
-- Flow 1:  
Average throughput: 0.40 Mbit/s  
95th percentile per-packet one-way delay: 192.757 ms  
Loss rate: 0.70%  
-- Flow 2:  
Average throughput: 0.23 Mbit/s  
95th percentile per-packet one-way delay: 192.747 ms  
Loss rate: 3.33%  
-- Flow 3:  
Average throughput: 0.34 Mbit/s  
95th percentile per-packet one-way delay: 192.921 ms  
Loss rate: 4.83%

Run 2: Report of Sprout — Data Link

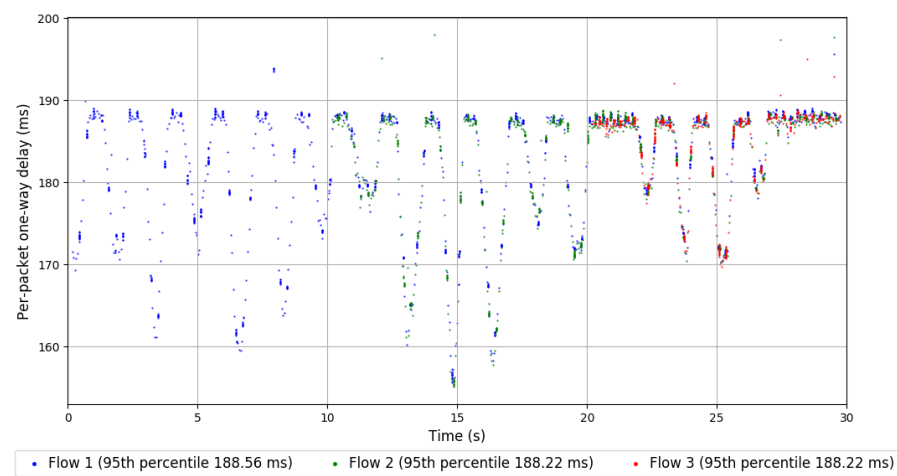
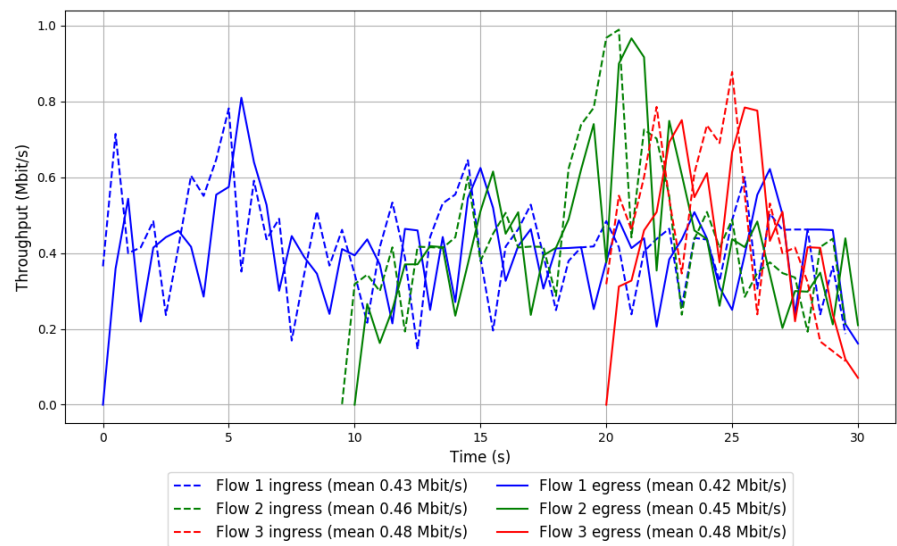


### Run 3: Statistics of Sprout

Start at: 2018-11-15 12:33:00  
End at: 2018-11-15 12:33:30  
Local clock offset: 9.005 ms  
Remote clock offset: 48.257 ms

```
# Below is generated by plot.py at 2018-11-15 13:56:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 188.423 ms
Loss rate: 3.01%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 188.555 ms
Loss rate: 2.70%
-- Flow 2:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 188.222 ms
Loss rate: 4.01%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 188.224 ms
Loss rate: 1.88%
```

Run 3: Report of Sprout — Data Link

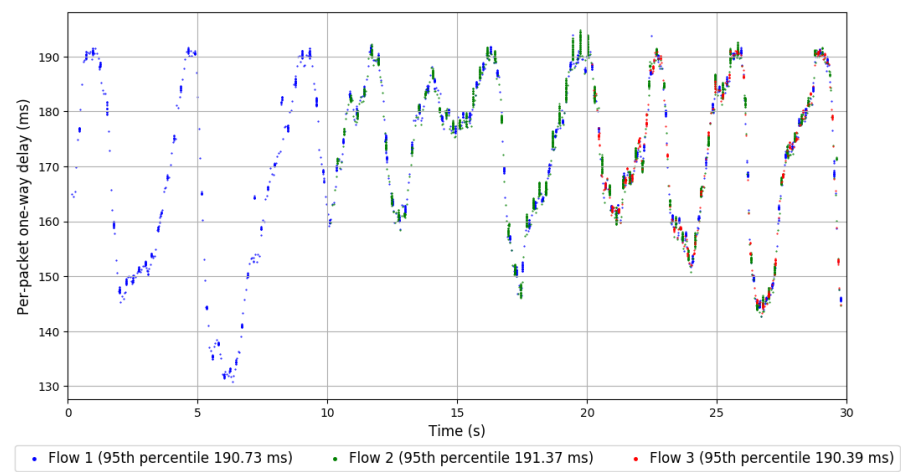
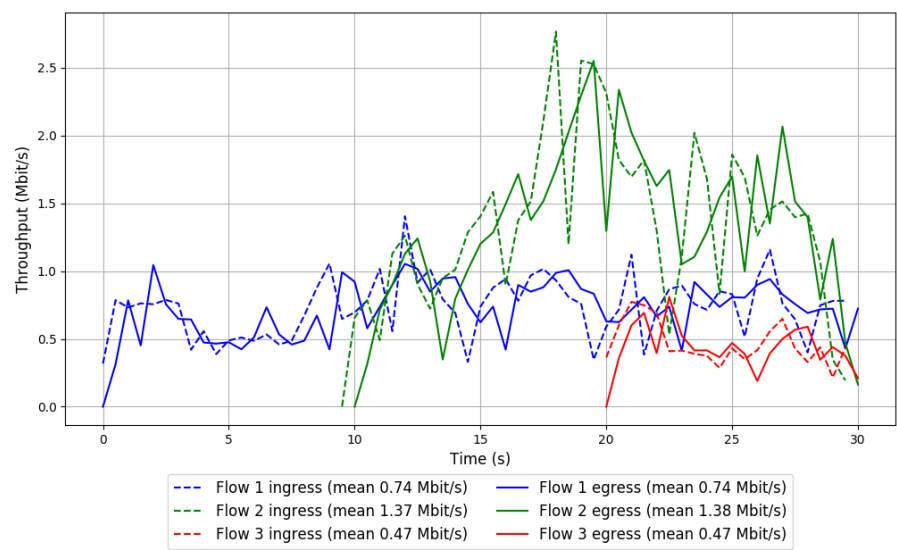


#### Run 4: Statistics of Sprout

Start at: 2018-11-15 13:15:35  
End at: 2018-11-15 13:16:05  
Local clock offset: 17.974 ms  
Remote clock offset: 3.173 ms

```
# Below is generated by plot.py at 2018-11-15 13:56:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.80 Mbit/s
95th percentile per-packet one-way delay: 190.965 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 190.726 ms
Loss rate: 1.17%
-- Flow 2:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 191.371 ms
Loss rate: 0.92%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 190.392 ms
Loss rate: 2.74%
```

Run 4: Report of Sprout — Data Link



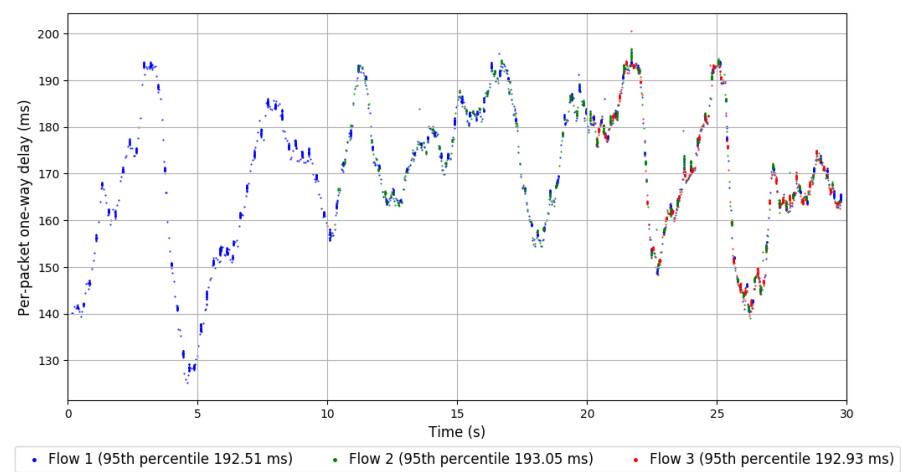
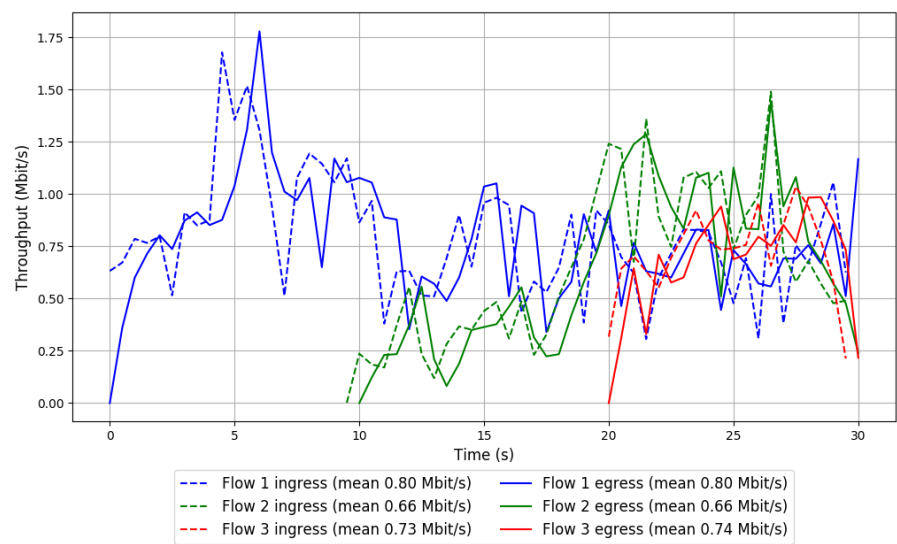


Run 5: Statistics of Sprout

Start at: 2018-11-15 13:46:29  
End at: 2018-11-15 13:46:59  
Local clock offset: -2.309 ms  
Remote clock offset: 68.518 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.47 Mbit/s  
95th percentile per-packet one-way delay: 192.765 ms  
Loss rate: 0.91%  
-- Flow 1:  
Average throughput: 0.80 Mbit/s  
95th percentile per-packet one-way delay: 192.511 ms  
Loss rate: 0.17%  
-- Flow 2:  
Average throughput: 0.66 Mbit/s  
95th percentile per-packet one-way delay: 193.047 ms  
Loss rate: 1.97%  
-- Flow 3:  
Average throughput: 0.74 Mbit/s  
95th percentile per-packet one-way delay: 192.926 ms  
Loss rate: 1.46%

Run 5: Report of Sprout — Data Link

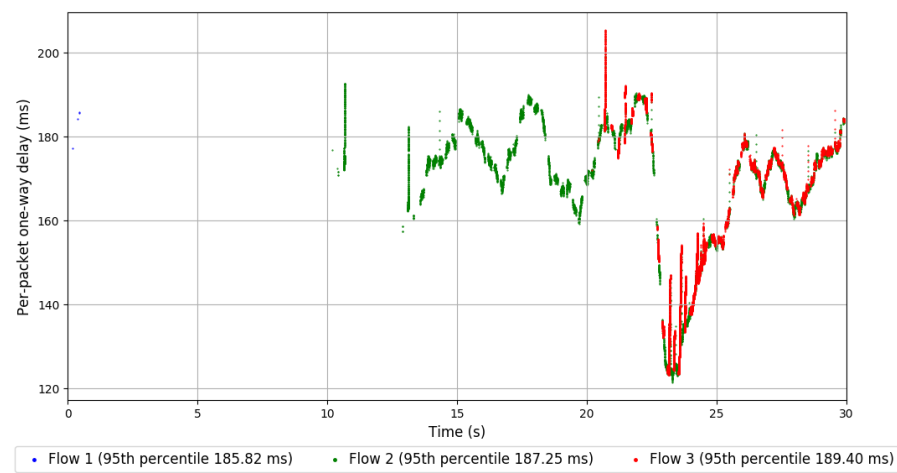
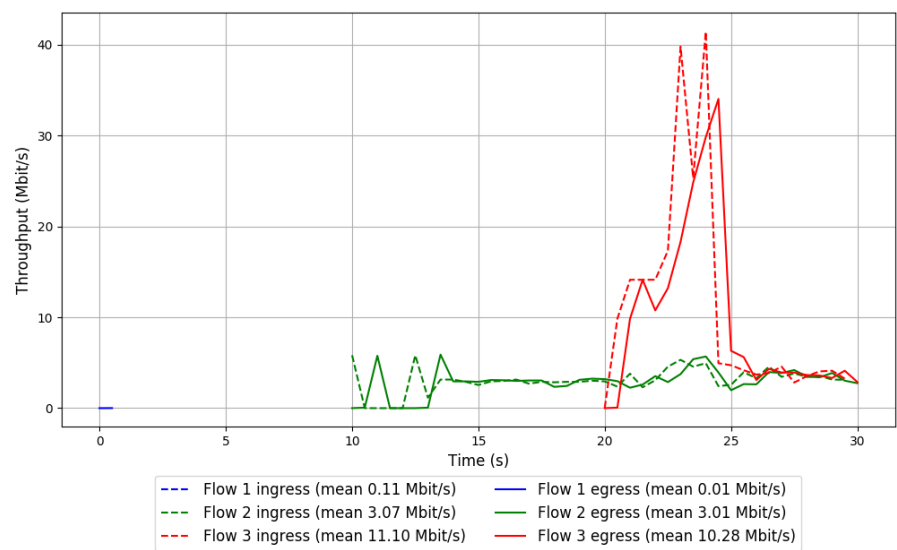


Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 11:05:45  
End at: 2018-11-15 11:06:15  
Local clock offset: 1.411 ms  
Remote clock offset: 20.277 ms

# Below is generated by plot.py at 2018-11-15 13:56:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.36 Mbit/s  
95th percentile per-packet one-way delay: 188.910 ms  
Loss rate: 6.83%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 185.820 ms  
Loss rate: 88.63%  
-- Flow 2:  
Average throughput: 3.01 Mbit/s  
95th percentile per-packet one-way delay: 187.251 ms  
Loss rate: 2.60%  
-- Flow 3:  
Average throughput: 10.28 Mbit/s  
95th percentile per-packet one-way delay: 189.395 ms  
Loss rate: 9.16%

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

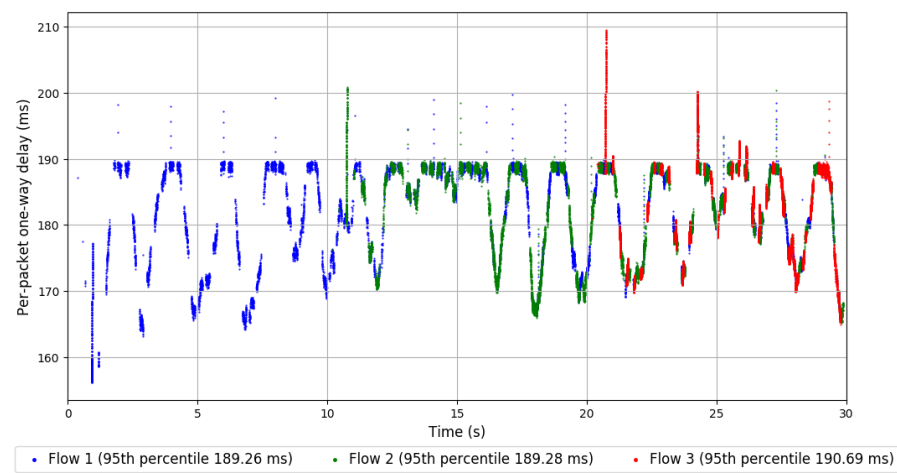
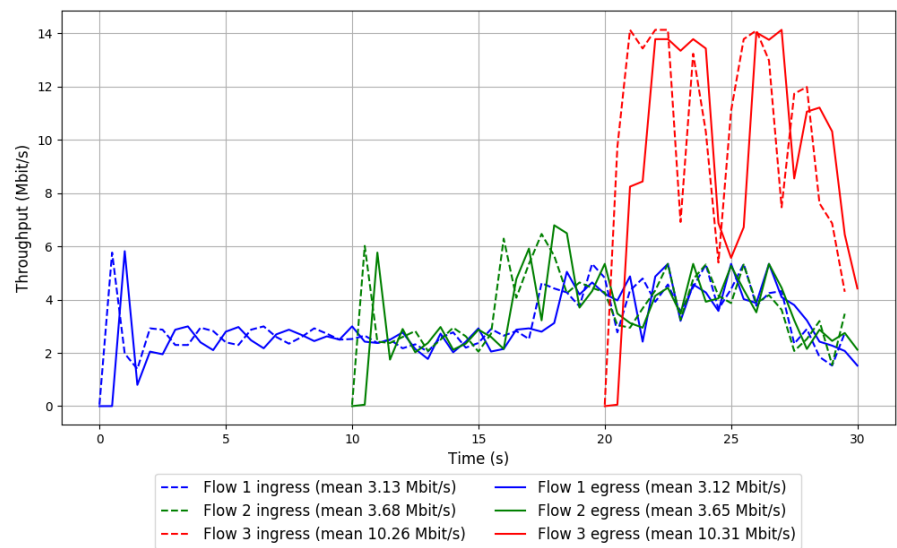


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 11:33:28  
End at: 2018-11-15 11:33:58  
Local clock offset: -2.625 ms  
Remote clock offset: 19.648 ms

# Below is generated by plot.py at 2018-11-15 13:56:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.90 Mbit/s  
95th percentile per-packet one-way delay: 189.407 ms  
Loss rate: 2.28%  
-- Flow 1:  
Average throughput: 3.12 Mbit/s  
95th percentile per-packet one-way delay: 189.261 ms  
Loss rate: 1.94%  
-- Flow 2:  
Average throughput: 3.65 Mbit/s  
95th percentile per-packet one-way delay: 189.277 ms  
Loss rate: 2.16%  
-- Flow 3:  
Average throughput: 10.31 Mbit/s  
95th percentile per-packet one-way delay: 190.690 ms  
Loss rate: 2.68%

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

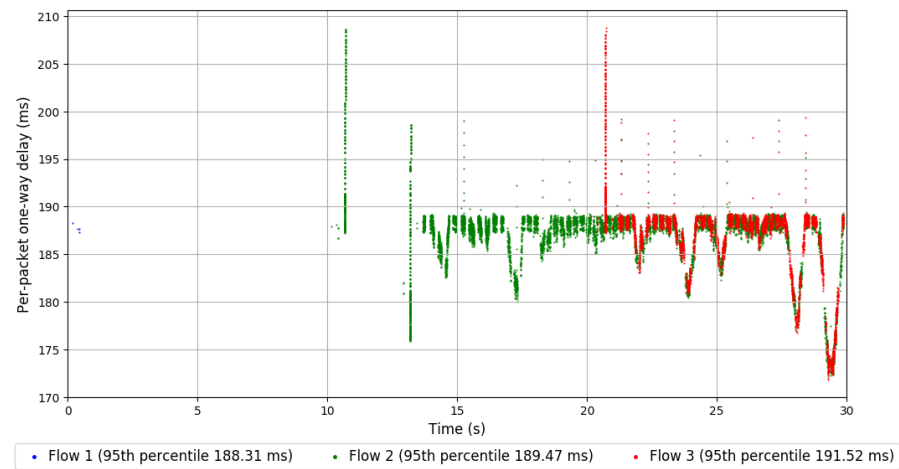
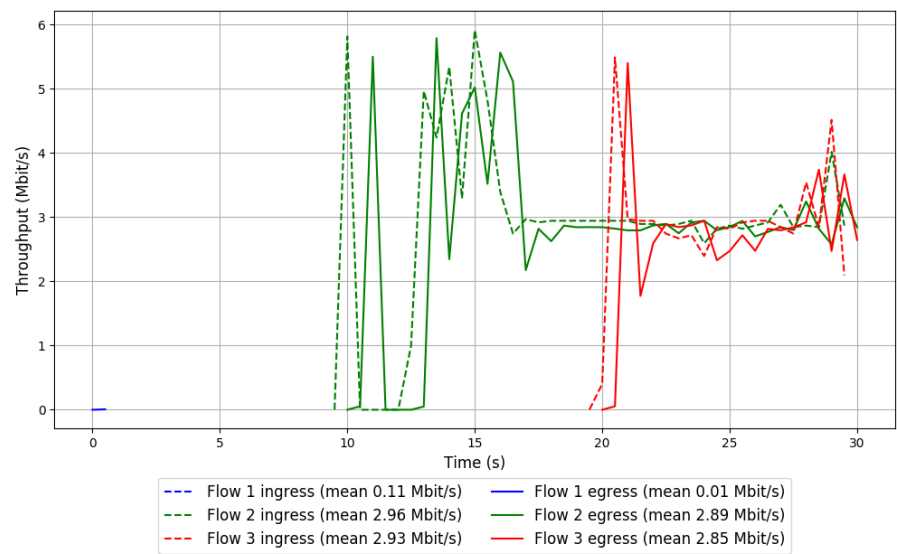


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 12:05:51  
End at: 2018-11-15 12:06:21  
Local clock offset: -1.684 ms  
Remote clock offset: 62.528 ms

# Below is generated by plot.py at 2018-11-15 13:56:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.85 Mbit/s  
95th percentile per-packet one-way delay: 190.295 ms  
Loss rate: 4.13%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 188.305 ms  
Loss rate: 88.63%  
-- Flow 2:  
Average throughput: 2.89 Mbit/s  
95th percentile per-packet one-way delay: 189.473 ms  
Loss rate: 3.54%  
-- Flow 3:  
Average throughput: 2.85 Mbit/s  
95th percentile per-packet one-way delay: 191.522 ms  
Loss rate: 5.25%

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



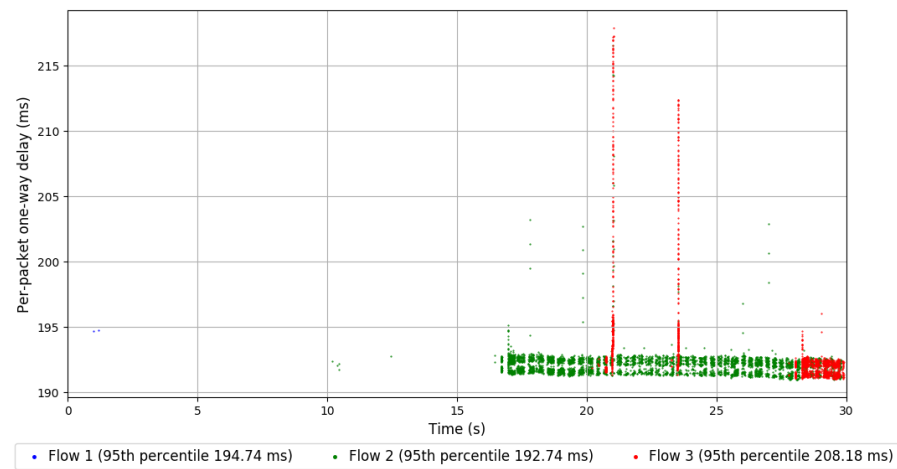
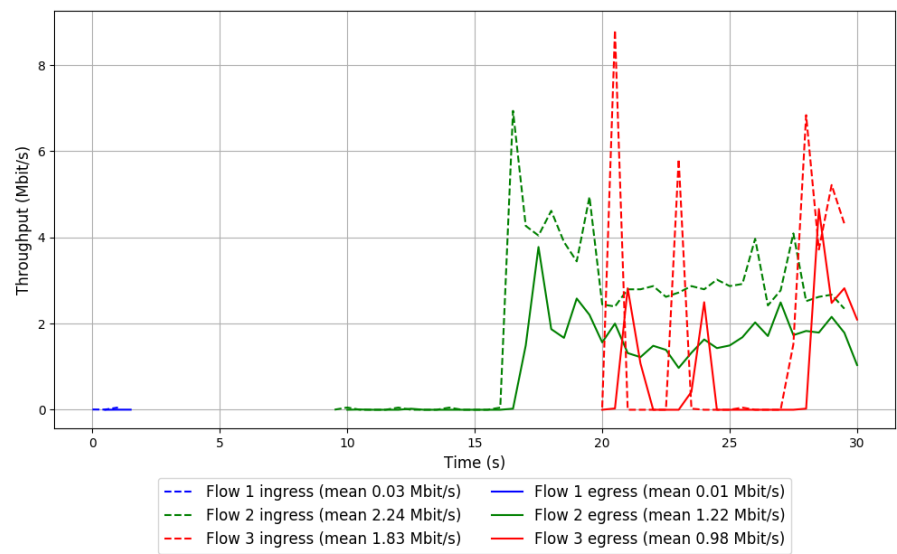


Run 4: Statistics of TaoVA-100x

Start at: 2018-11-15 12:48:23  
End at: 2018-11-15 12:48:53  
Local clock offset: 20.513 ms  
Remote clock offset: 44.021 ms

# Below is generated by plot.py at 2018-11-15 13:56:52  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.15 Mbit/s  
95th percentile per-packet one-way delay: 195.044 ms  
Loss rate: 46.82%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 194.742 ms  
Loss rate: 93.42%  
-- Flow 2:  
Average throughput: 1.22 Mbit/s  
95th percentile per-packet one-way delay: 192.742 ms  
Loss rate: 46.31%  
-- Flow 3:  
Average throughput: 0.98 Mbit/s  
95th percentile per-packet one-way delay: 208.182 ms  
Loss rate: 47.98%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 13:29:53

End at: 2018-11-15 13:30:23

Local clock offset: 11.609 ms

Remote clock offset: 31.22 ms

# Below is generated by plot.py at 2018-11-15 13:57:06

# Datalink statistics

-- Total of 3 flows:

Average throughput: 14.79 Mbit/s

95th percentile per-packet one-way delay: 187.032 ms

Loss rate: 4.25%

-- Flow 1:

Average throughput: 11.91 Mbit/s

95th percentile per-packet one-way delay: 187.063 ms

Loss rate: 2.07%

-- Flow 2:

Average throughput: 2.91 Mbit/s

95th percentile per-packet one-way delay: 190.092 ms

Loss rate: 1.81%

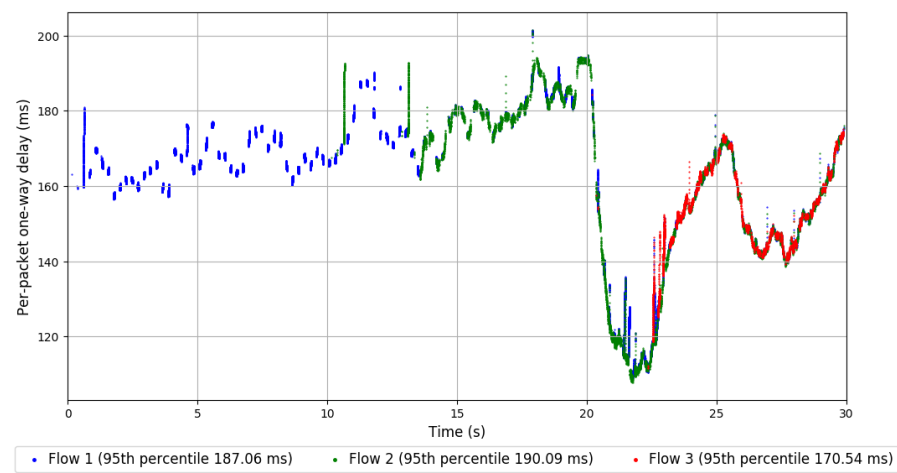
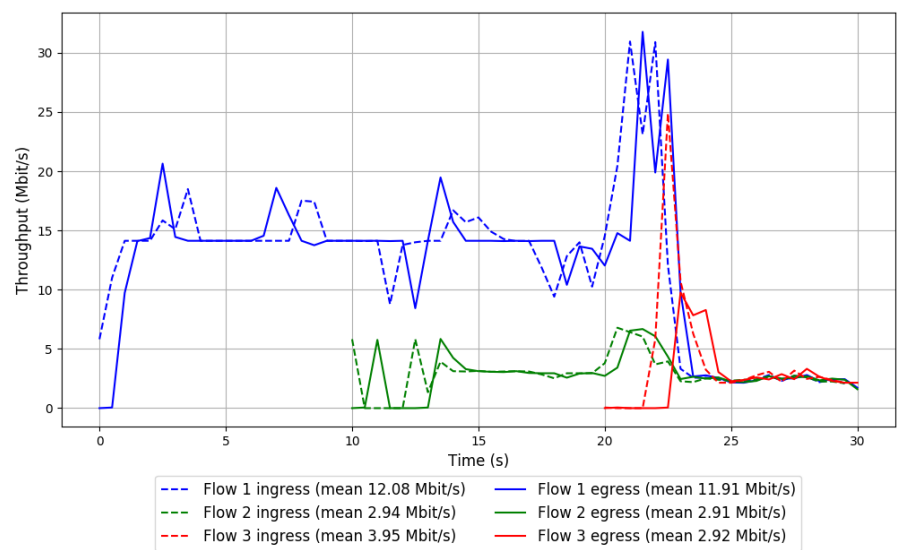
-- Flow 3:

Average throughput: 2.92 Mbit/s

95th percentile per-packet one-way delay: 170.540 ms

Loss rate: 27.98%

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

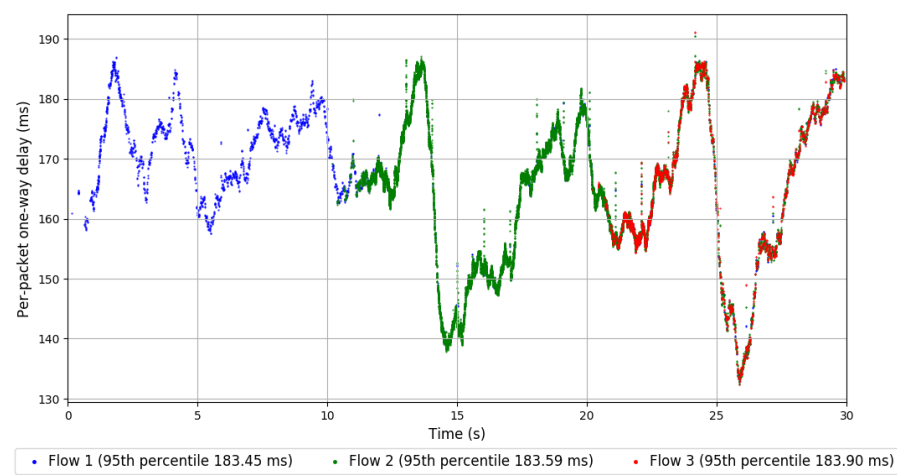
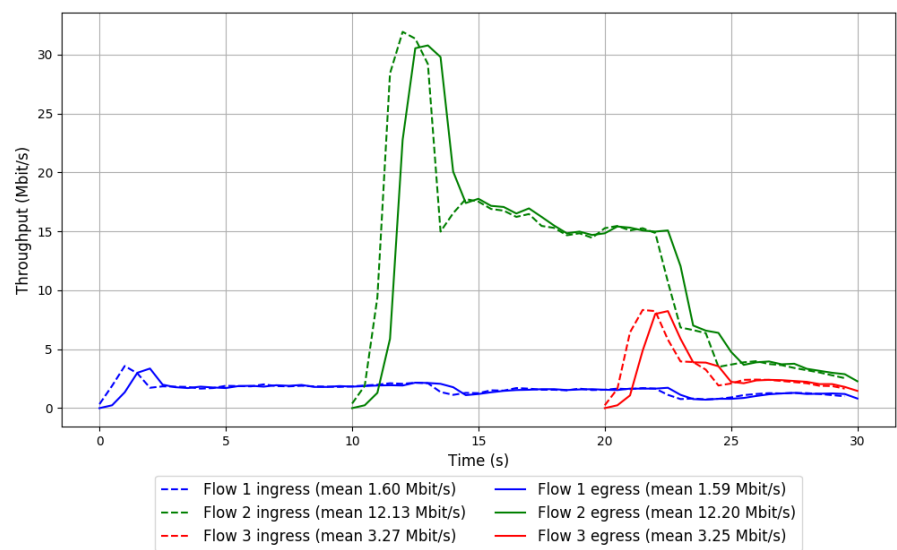


Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 11:08:32  
End at: 2018-11-15 11:09:02  
Local clock offset: 0.024 ms  
Remote clock offset: 24.356 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.74 Mbit/s  
95th percentile per-packet one-way delay: 183.588 ms  
Loss rate: 0.89%  
-- Flow 1:  
Average throughput: 1.59 Mbit/s  
95th percentile per-packet one-way delay: 183.450 ms  
Loss rate: 0.95%  
-- Flow 2:  
Average throughput: 12.20 Mbit/s  
95th percentile per-packet one-way delay: 183.589 ms  
Loss rate: 0.56%  
-- Flow 3:  
Average throughput: 3.25 Mbit/s  
95th percentile per-packet one-way delay: 183.904 ms  
Loss rate: 3.28%

Run 1: Report of TCP Vegas — Data Link

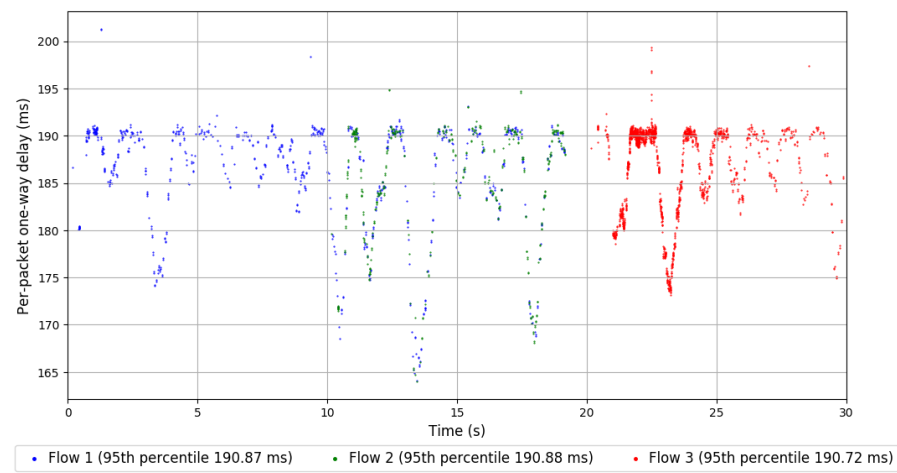
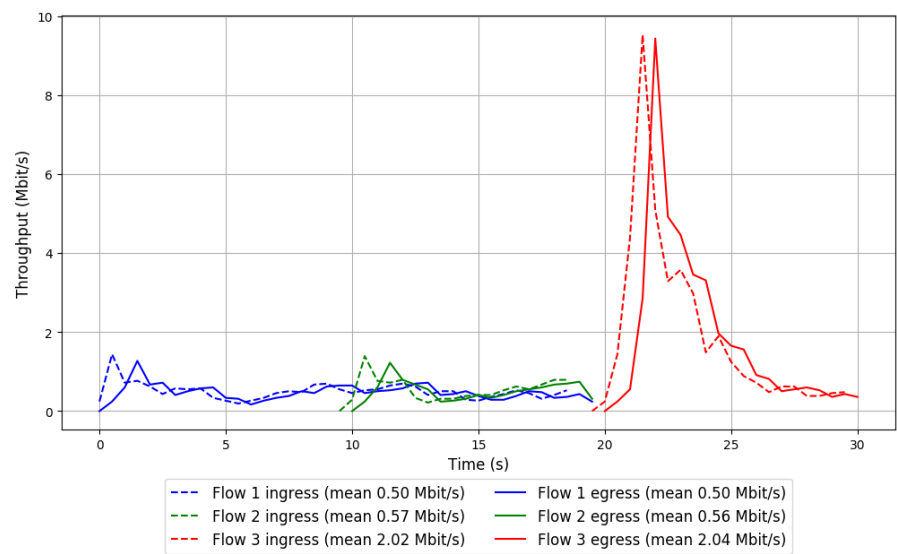


Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 11:36:30  
End at: 2018-11-15 11:37:00  
Local clock offset: -2.295 ms  
Remote clock offset: 20.485 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.15 Mbit/s  
95th percentile per-packet one-way delay: 190.760 ms  
Loss rate: 1.83%  
-- Flow 1:  
Average throughput: 0.50 Mbit/s  
95th percentile per-packet one-way delay: 190.867 ms  
Loss rate: 2.00%  
-- Flow 2:  
Average throughput: 0.56 Mbit/s  
95th percentile per-packet one-way delay: 190.876 ms  
Loss rate: 1.63%  
-- Flow 3:  
Average throughput: 2.04 Mbit/s  
95th percentile per-packet one-way delay: 190.715 ms  
Loss rate: 1.79%

Run 2: Report of TCP Vegas — Data Link



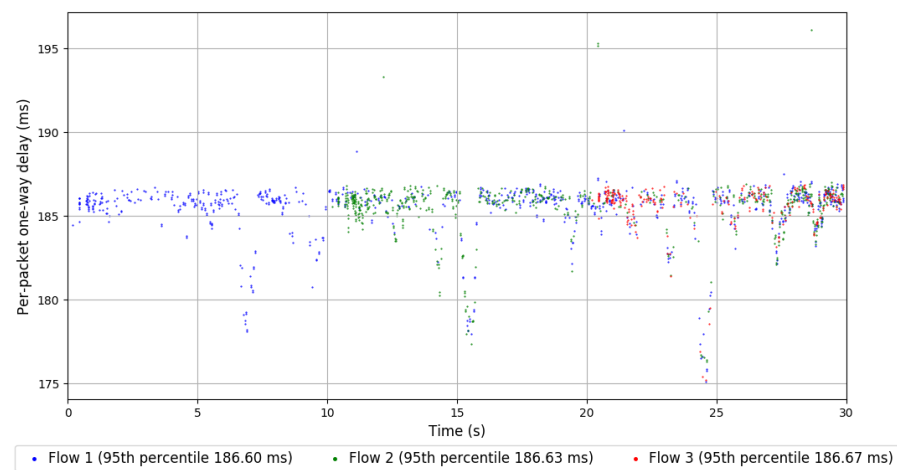
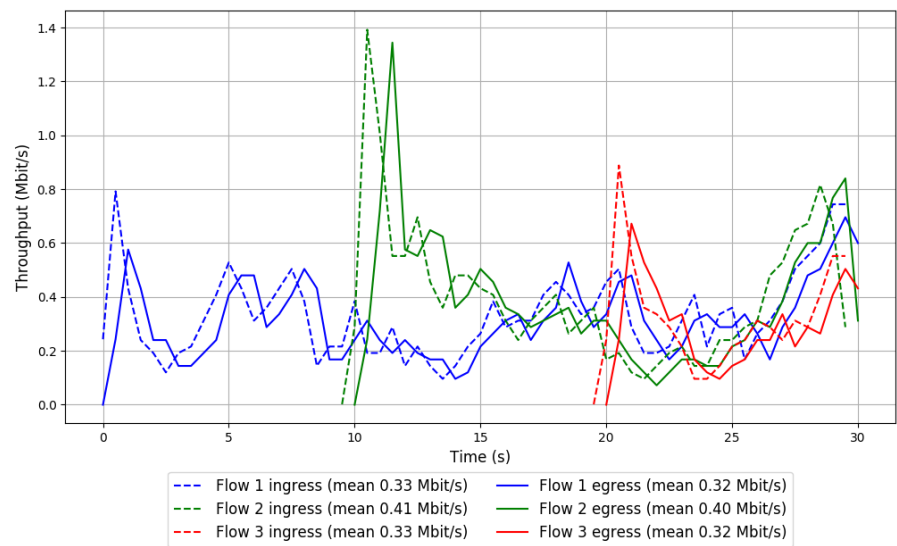


Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 12:08:50  
End at: 2018-11-15 12:09:20  
Local clock offset: -1.983 ms  
Remote clock offset: 67.048 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.69 Mbit/s  
95th percentile per-packet one-way delay: 186.628 ms  
Loss rate: 4.48%  
-- Flow 1:  
Average throughput: 0.32 Mbit/s  
95th percentile per-packet one-way delay: 186.605 ms  
Loss rate: 4.57%  
-- Flow 2:  
Average throughput: 0.40 Mbit/s  
95th percentile per-packet one-way delay: 186.626 ms  
Loss rate: 3.24%  
-- Flow 3:  
Average throughput: 0.32 Mbit/s  
95th percentile per-packet one-way delay: 186.668 ms  
Loss rate: 7.24%

Run 3: Report of TCP Vegas — Data Link

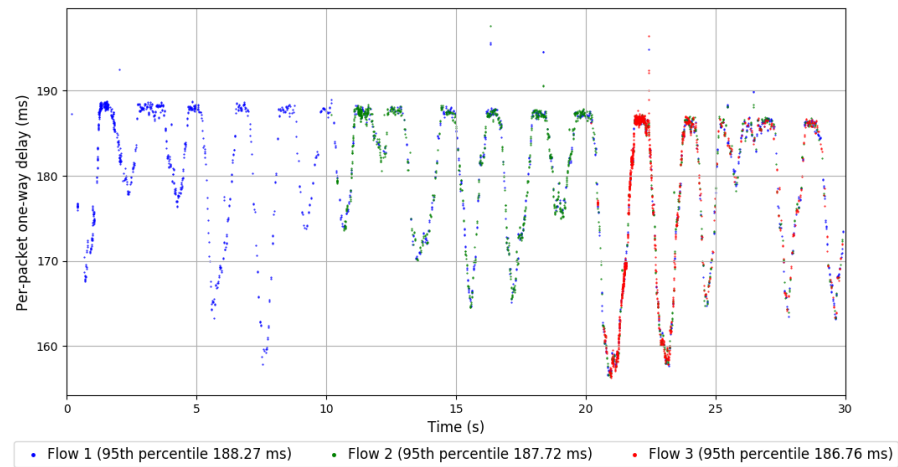
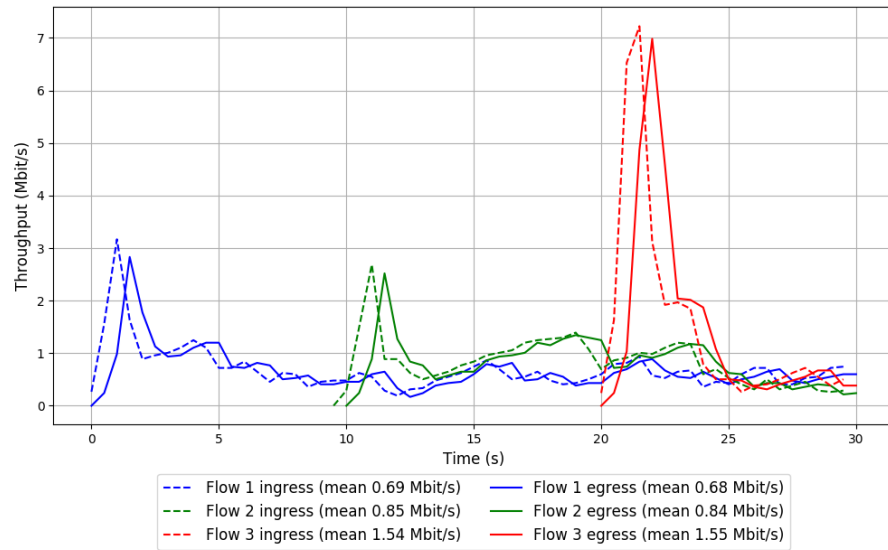


Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 12:51:45  
End at: 2018-11-15 12:52:15  
Local clock offset: 21.824 ms  
Remote clock offset: 39.317 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.74 Mbit/s  
95th percentile per-packet one-way delay: 187.989 ms  
Loss rate: 2.14%  
-- Flow 1:  
Average throughput: 0.68 Mbit/s  
95th percentile per-packet one-way delay: 188.271 ms  
Loss rate: 2.44%  
-- Flow 2:  
Average throughput: 0.84 Mbit/s  
95th percentile per-packet one-way delay: 187.717 ms  
Loss rate: 1.64%  
-- Flow 3:  
Average throughput: 1.55 Mbit/s  
95th percentile per-packet one-way delay: 186.762 ms  
Loss rate: 2.27%

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

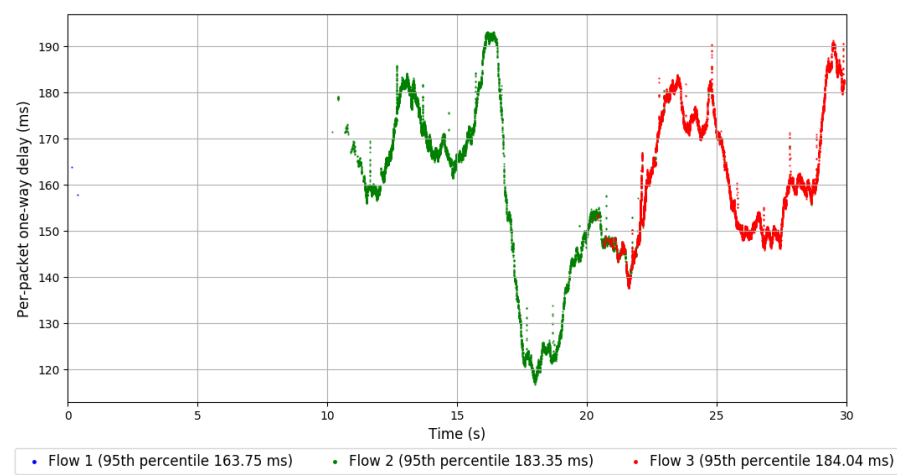
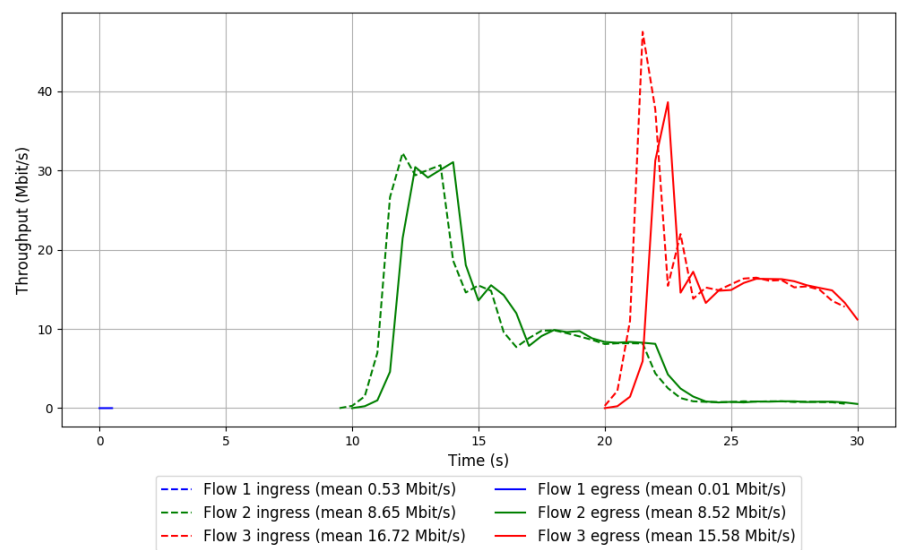


Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 13:32:58  
End at: 2018-11-15 13:33:28  
Local clock offset: 7.312 ms  
Remote clock offset: 42.395 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.74 Mbit/s  
95th percentile per-packet one-way delay: 183.654 ms  
Loss rate: 5.77%  
-- Flow 1:  
Average throughput: 0.01 Mbit/s  
95th percentile per-packet one-way delay: 163.749 ms  
Loss rate: 98.79%  
-- Flow 2:  
Average throughput: 8.52 Mbit/s  
95th percentile per-packet one-way delay: 183.347 ms  
Loss rate: 2.67%  
-- Flow 3:  
Average throughput: 15.58 Mbit/s  
95th percentile per-packet one-way delay: 184.038 ms  
Loss rate: 8.91%

Run 5: Report of TCP Vegas — Data Link

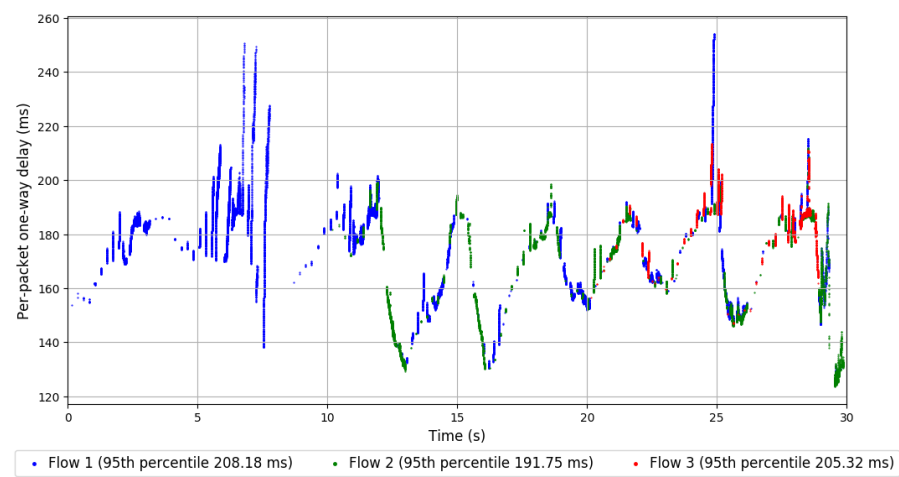
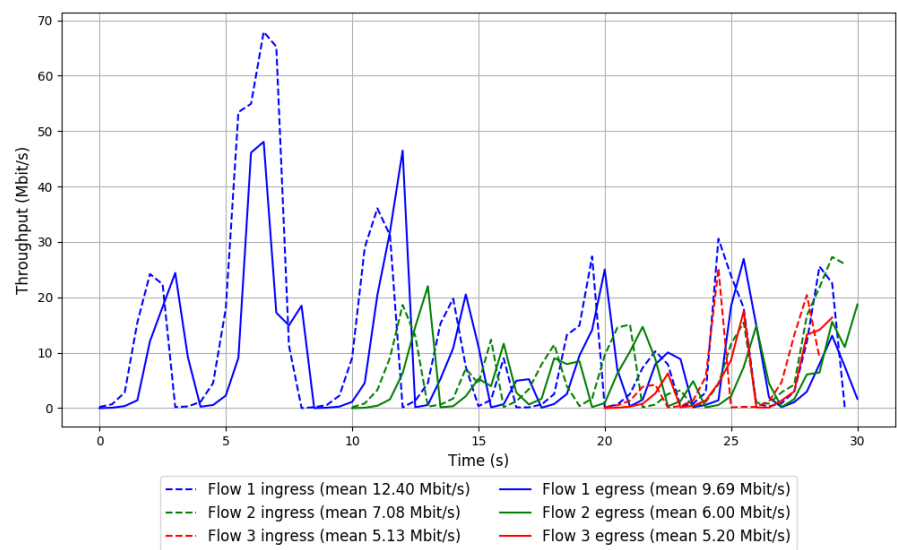


Run 1: Statistics of Verus

Start at: 2018-11-15 11:11:27  
End at: 2018-11-15 11:11:57  
Local clock offset: -1.344 ms  
Remote clock offset: 22.205 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 15.16 Mbit/s  
95th percentile per-packet one-way delay: 203.944 ms  
Loss rate: 19.10%  
-- Flow 1:  
Average throughput: 9.69 Mbit/s  
95th percentile per-packet one-way delay: 208.175 ms  
Loss rate: 22.49%  
-- Flow 2:  
Average throughput: 6.00 Mbit/s  
95th percentile per-packet one-way delay: 191.755 ms  
Loss rate: 16.06%  
-- Flow 3:  
Average throughput: 5.20 Mbit/s  
95th percentile per-packet one-way delay: 205.325 ms  
Loss rate: 1.15%

Run 1: Report of Verus — Data Link



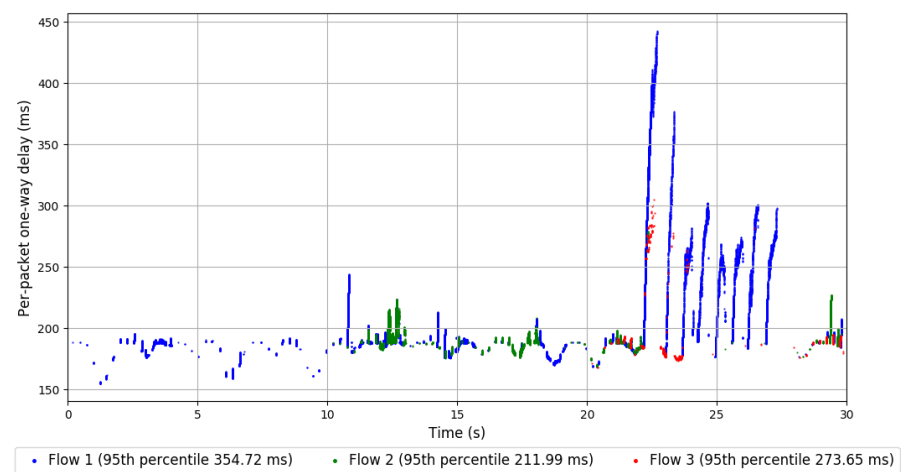
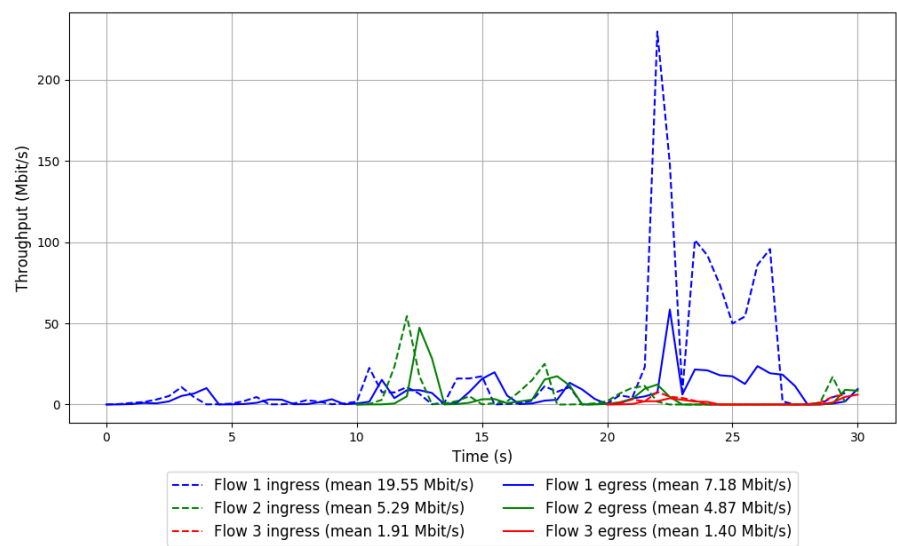


Run 2: Statistics of Verus

Start at: 2018-11-15 11:40:27  
End at: 2018-11-15 11:40:57  
Local clock offset: -1.97 ms  
Remote clock offset: 20.261 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.83 Mbit/s  
95th percentile per-packet one-way delay: 327.076 ms  
Loss rate: 54.62%  
-- Flow 1:  
Average throughput: 7.18 Mbit/s  
95th percentile per-packet one-way delay: 354.721 ms  
Loss rate: 63.59%  
-- Flow 2:  
Average throughput: 4.87 Mbit/s  
95th percentile per-packet one-way delay: 211.992 ms  
Loss rate: 9.70%  
-- Flow 3:  
Average throughput: 1.40 Mbit/s  
95th percentile per-packet one-way delay: 273.652 ms  
Loss rate: 28.30%

Run 2: Report of Verus — Data Link

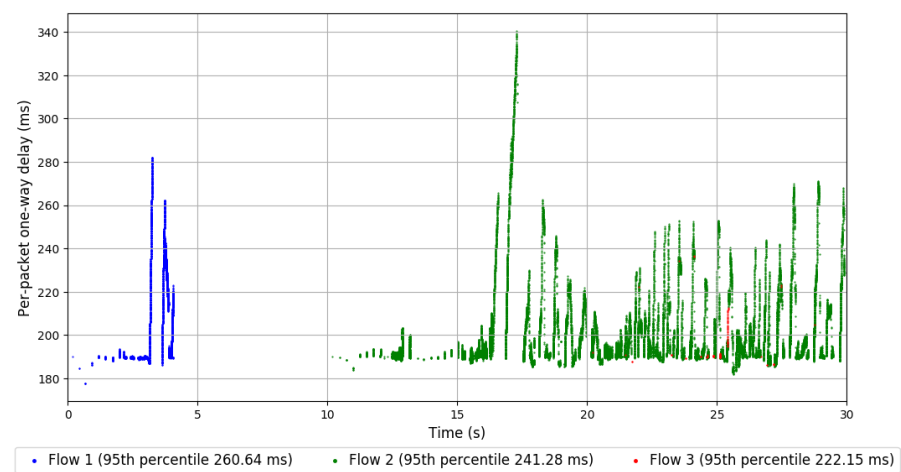
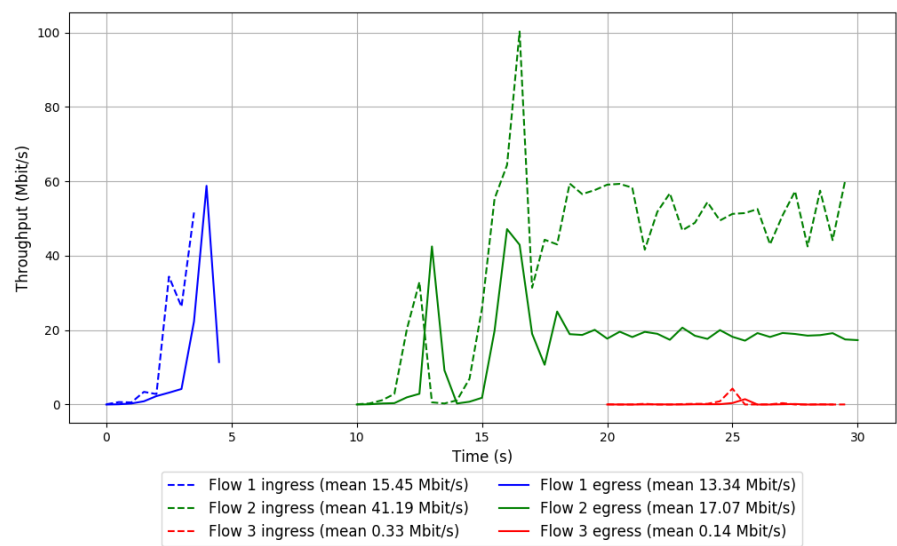


Run 3: Statistics of Verus

Start at: 2018-11-15 12:12:45  
End at: 2018-11-15 12:13:15  
Local clock offset: -1.787 ms  
Remote clock offset: 65.395 ms

# Below is generated by plot.py at 2018-11-15 13:57:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 13.10 Mbit/s  
95th percentile per-packet one-way delay: 247.562 ms  
Loss rate: 55.97%  
-- Flow 1:  
Average throughput: 13.34 Mbit/s  
95th percentile per-packet one-way delay: 260.642 ms  
Loss rate: 13.68%  
-- Flow 2:  
Average throughput: 17.07 Mbit/s  
95th percentile per-packet one-way delay: 241.282 ms  
Loss rate: 59.03%  
-- Flow 3:  
Average throughput: 0.14 Mbit/s  
95th percentile per-packet one-way delay: 222.149 ms  
Loss rate: 62.41%

Run 3: Report of Verus — Data Link

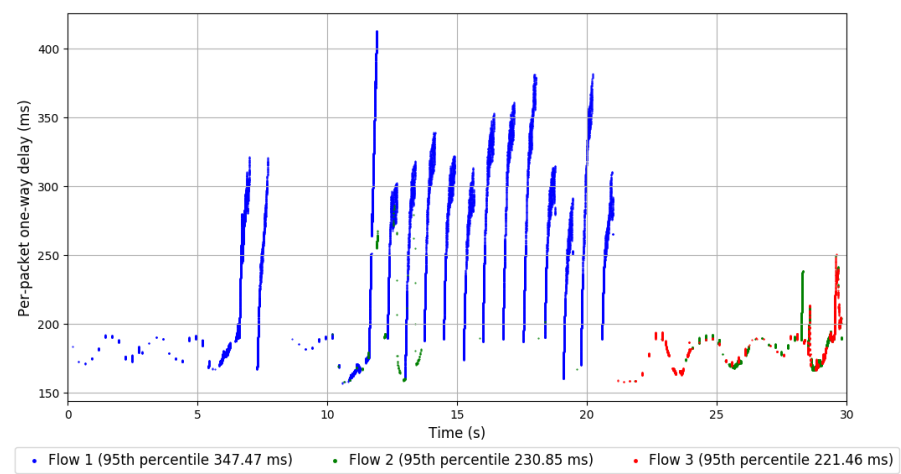
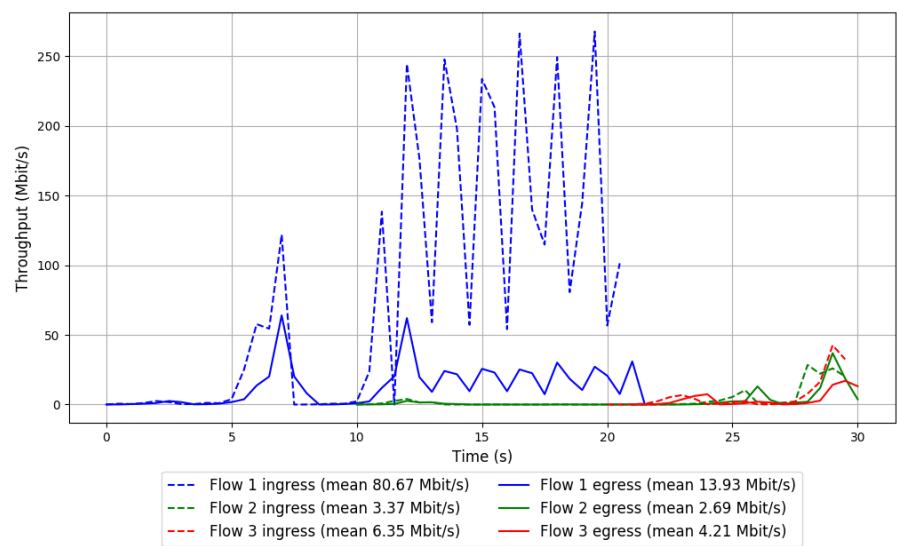


Run 4: Statistics of Verus

Start at: 2018-11-15 12:55:09  
End at: 2018-11-15 12:55:39  
Local clock offset: 23.087 ms  
Remote clock offset: 27.477 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 12.79 Mbit/s  
95th percentile per-packet one-way delay: 339.084 ms  
Loss rate: 78.98%  
-- Flow 1:  
Average throughput: 13.93 Mbit/s  
95th percentile per-packet one-way delay: 347.467 ms  
Loss rate: 82.66%  
-- Flow 2:  
Average throughput: 2.69 Mbit/s  
95th percentile per-packet one-way delay: 230.847 ms  
Loss rate: 21.79%  
-- Flow 3:  
Average throughput: 4.21 Mbit/s  
95th percentile per-packet one-way delay: 221.463 ms  
Loss rate: 42.59%

Run 4: Report of Verus — Data Link

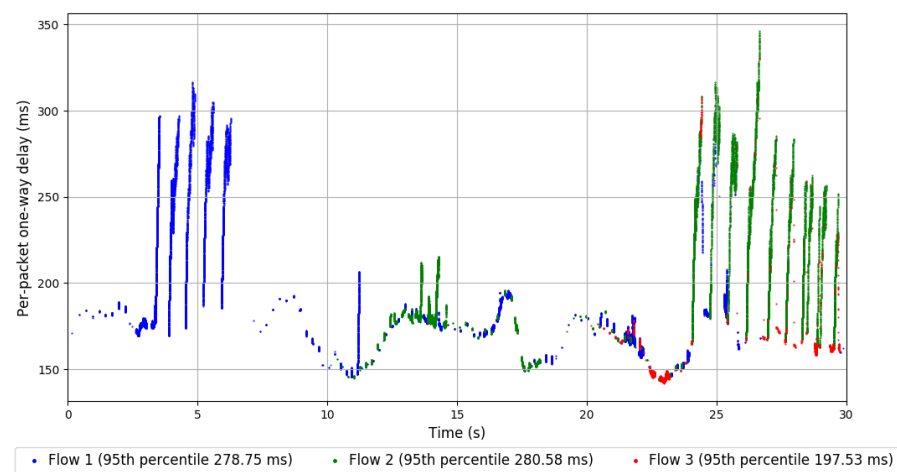
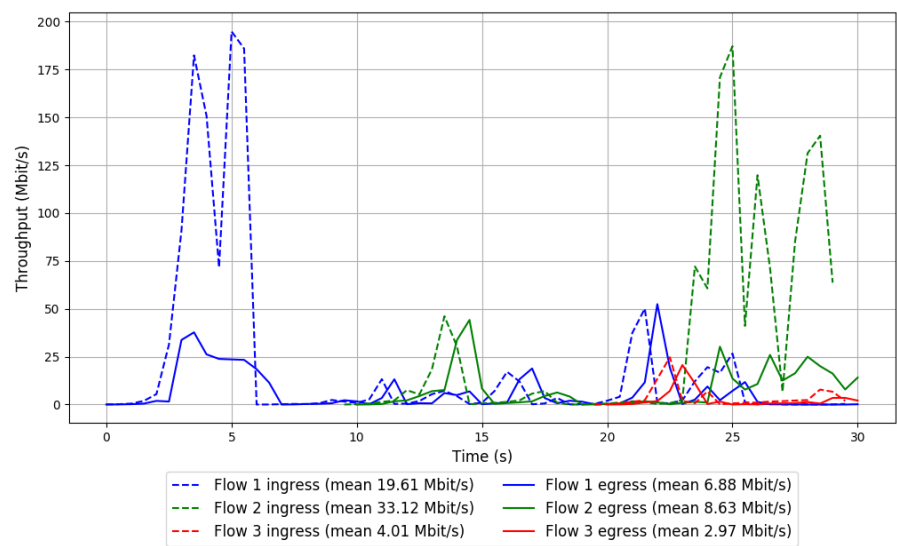


Run 5: Statistics of Verus

Start at: 2018-11-15 13:35:55  
End at: 2018-11-15 13:36:25  
Local clock offset: 4.046 ms  
Remote clock offset: 50.052 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 13.52 Mbit/s  
95th percentile per-packet one-way delay: 278.788 ms  
Loss rate: 68.44%  
-- Flow 1:  
Average throughput: 6.88 Mbit/s  
95th percentile per-packet one-way delay: 278.749 ms  
Loss rate: 65.22%  
-- Flow 2:  
Average throughput: 8.63 Mbit/s  
95th percentile per-packet one-way delay: 280.584 ms  
Loss rate: 73.86%  
-- Flow 3:  
Average throughput: 2.97 Mbit/s  
95th percentile per-packet one-way delay: 197.528 ms  
Loss rate: 27.75%

Run 5: Report of Verus — Data Link



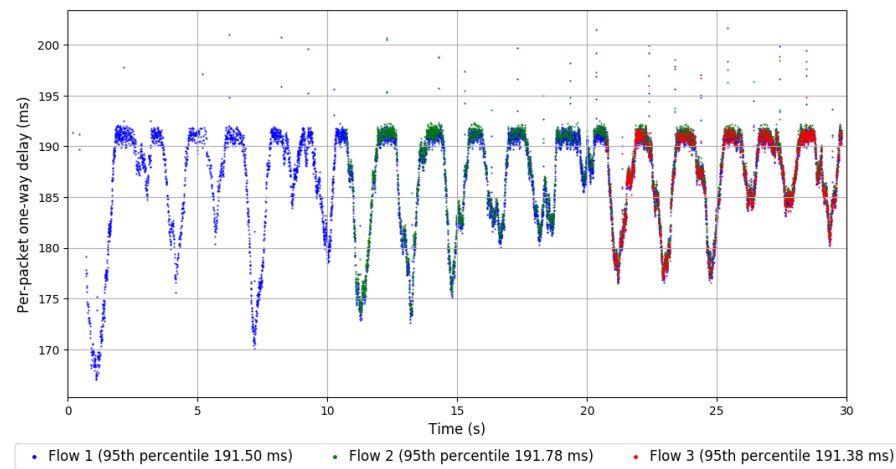
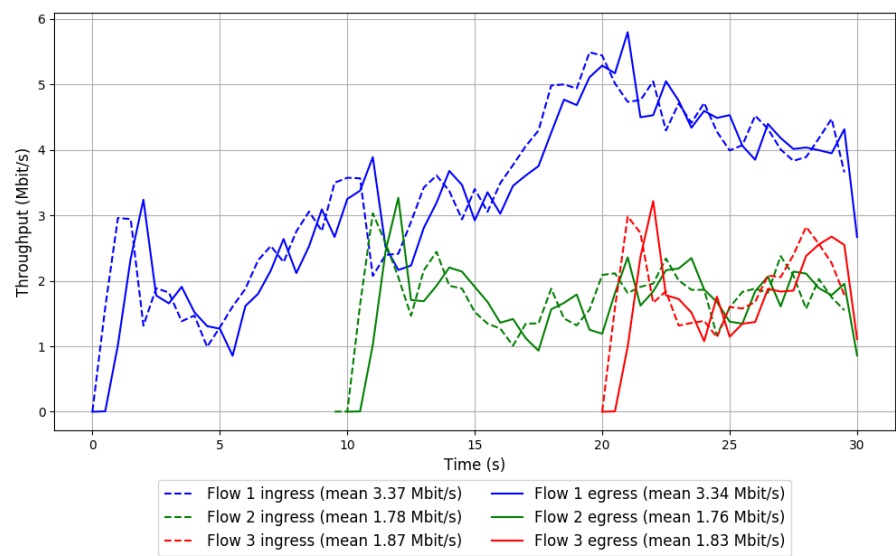


Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 11:30:37  
End at: 2018-11-15 11:31:07  
Local clock offset: -3.533 ms  
Remote clock offset: 19.299 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.10 Mbit/s  
95th percentile per-packet one-way delay: 191.579 ms  
Loss rate: 2.36%  
-- Flow 1:  
Average throughput: 3.34 Mbit/s  
95th percentile per-packet one-way delay: 191.502 ms  
Loss rate: 1.94%  
-- Flow 2:  
Average throughput: 1.76 Mbit/s  
95th percentile per-packet one-way delay: 191.783 ms  
Loss rate: 2.37%  
-- Flow 3:  
Average throughput: 1.83 Mbit/s  
95th percentile per-packet one-way delay: 191.384 ms  
Loss rate: 4.64%

Run 1: Report of PCC-Vivace — Data Link

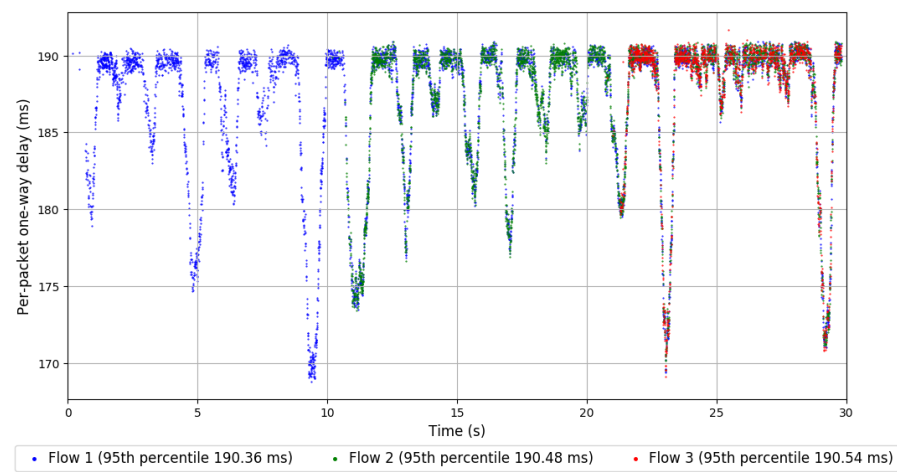
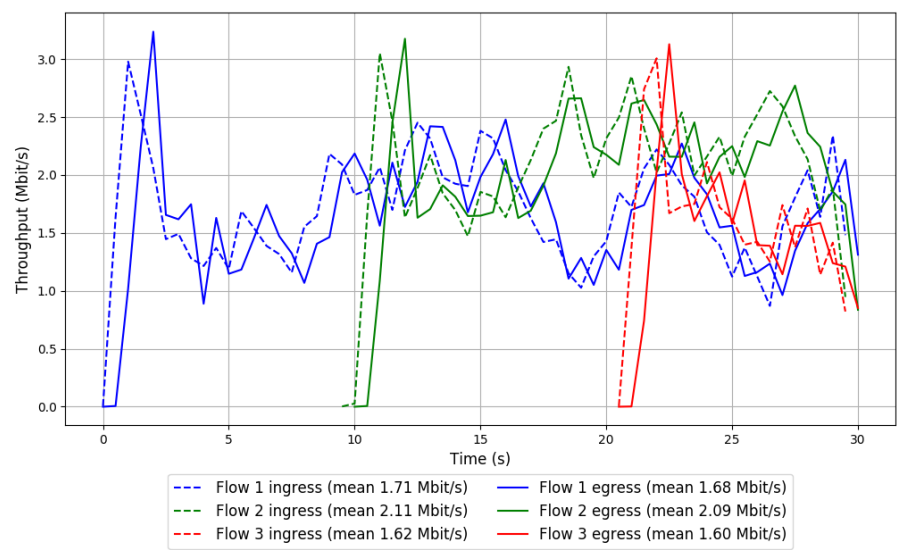


Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 12:02:47  
End at: 2018-11-15 12:03:17  
Local clock offset: -1.708 ms  
Remote clock offset: 58.825 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.55 Mbit/s  
95th percentile per-packet one-way delay: 190.440 ms  
Loss rate: 2.69%  
-- Flow 1:  
Average throughput: 1.68 Mbit/s  
95th percentile per-packet one-way delay: 190.356 ms  
Loss rate: 2.51%  
-- Flow 2:  
Average throughput: 2.09 Mbit/s  
95th percentile per-packet one-way delay: 190.480 ms  
Loss rate: 2.48%  
-- Flow 3:  
Average throughput: 1.60 Mbit/s  
95th percentile per-packet one-way delay: 190.542 ms  
Loss rate: 3.94%

Run 2: Report of PCC-Vivace — Data Link

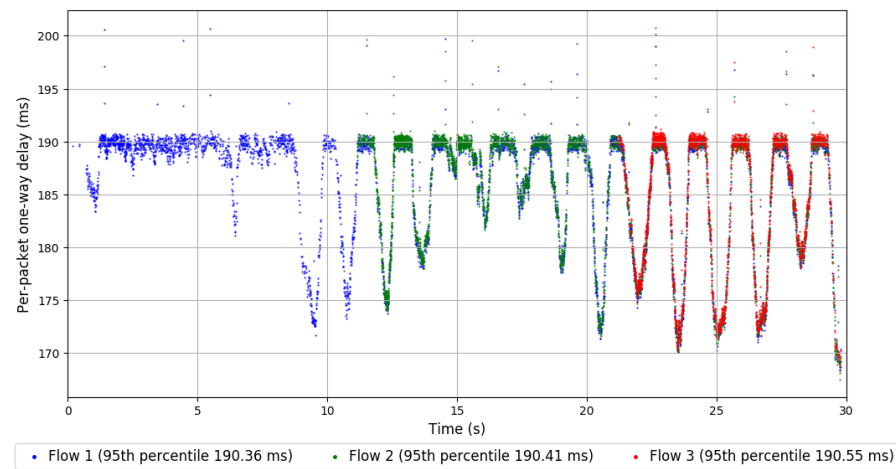
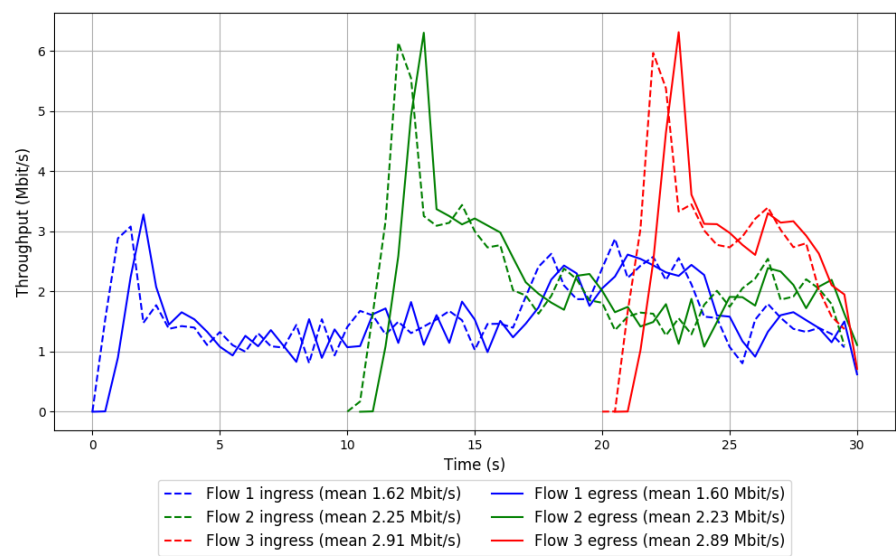


Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 12:43:44  
End at: 2018-11-15 12:44:14  
Local clock offset: 18.417 ms  
Remote clock offset: 44.152 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.93 Mbit/s  
95th percentile per-packet one-way delay: 190.420 ms  
Loss rate: 2.39%  
-- Flow 1:  
Average throughput: 1.60 Mbit/s  
95th percentile per-packet one-way delay: 190.364 ms  
Loss rate: 2.05%  
-- Flow 2:  
Average throughput: 2.23 Mbit/s  
95th percentile per-packet one-way delay: 190.405 ms  
Loss rate: 2.20%  
-- Flow 3:  
Average throughput: 2.89 Mbit/s  
95th percentile per-packet one-way delay: 190.552 ms  
Loss rate: 3.30%

Run 3: Report of PCC-Vivace — Data Link

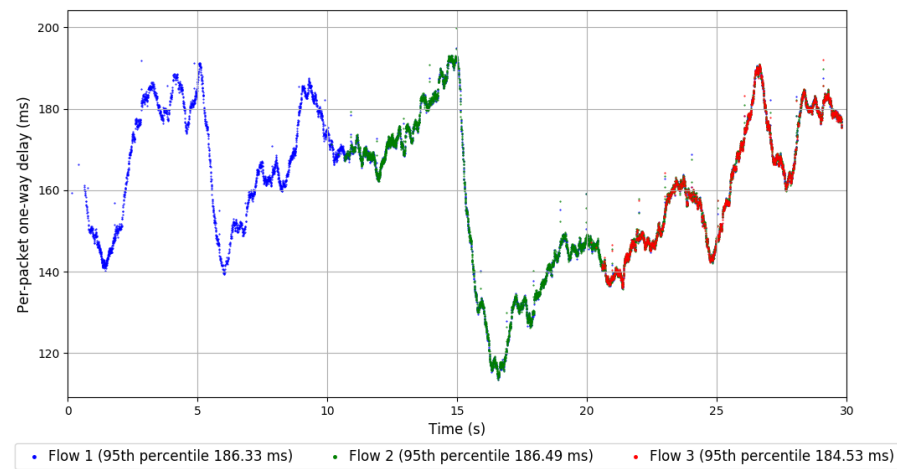
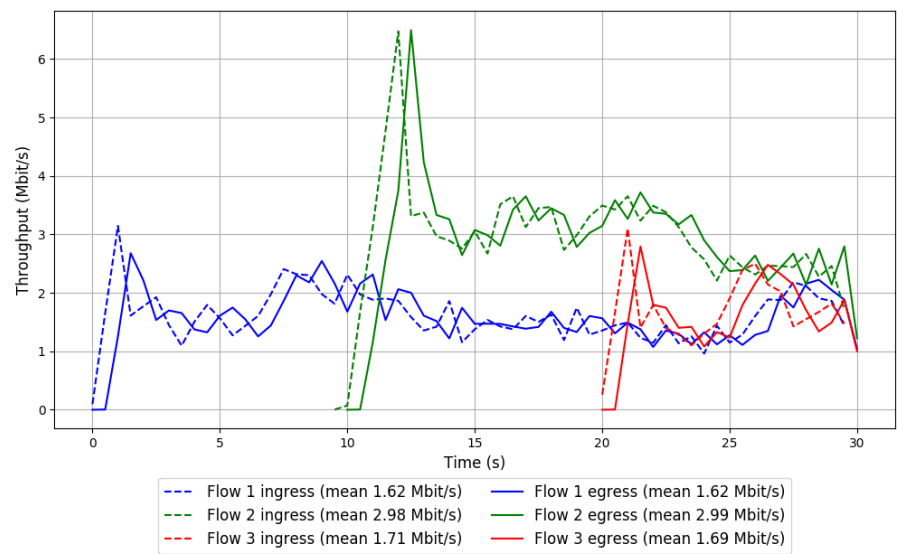


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 13:27:08  
End at: 2018-11-15 13:27:38  
Local clock offset: 17.404 ms  
Remote clock offset: 18.803 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.15 Mbit/s  
95th percentile per-packet one-way delay: 186.184 ms  
Loss rate: 1.29%  
-- Flow 1:  
Average throughput: 1.62 Mbit/s  
95th percentile per-packet one-way delay: 186.327 ms  
Loss rate: 0.97%  
-- Flow 2:  
Average throughput: 2.99 Mbit/s  
95th percentile per-packet one-way delay: 186.486 ms  
Loss rate: 0.99%  
-- Flow 3:  
Average throughput: 1.69 Mbit/s  
95th percentile per-packet one-way delay: 184.525 ms  
Loss rate: 3.25%

Run 4: Report of PCC-Vivace — Data Link



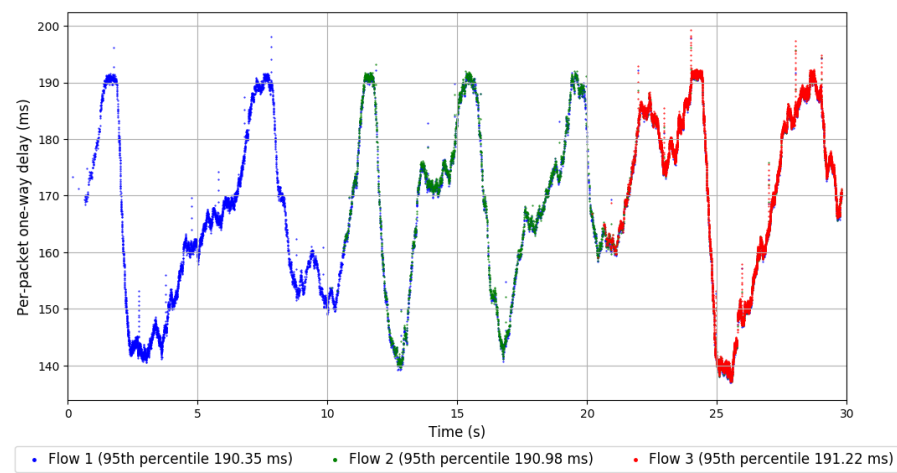
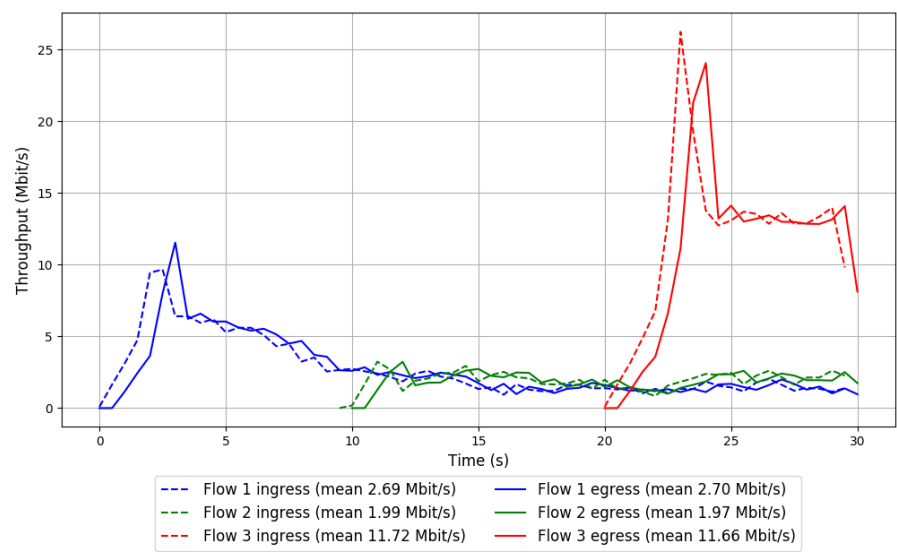


Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 13:53:42  
End at: 2018-11-15 13:54:12  
Local clock offset: -4.789 ms  
Remote clock offset: 76.938 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 7.79 Mbit/s  
95th percentile per-packet one-way delay: 190.837 ms  
Loss rate: 2.05%  
-- Flow 1:  
Average throughput: 2.70 Mbit/s  
95th percentile per-packet one-way delay: 190.350 ms  
Loss rate: 0.67%  
-- Flow 2:  
Average throughput: 1.97 Mbit/s  
95th percentile per-packet one-way delay: 190.983 ms  
Loss rate: 2.12%  
-- Flow 3:  
Average throughput: 11.66 Mbit/s  
95th percentile per-packet one-way delay: 191.224 ms  
Loss rate: 2.98%

Run 5: Report of PCC-Vivace — Data Link

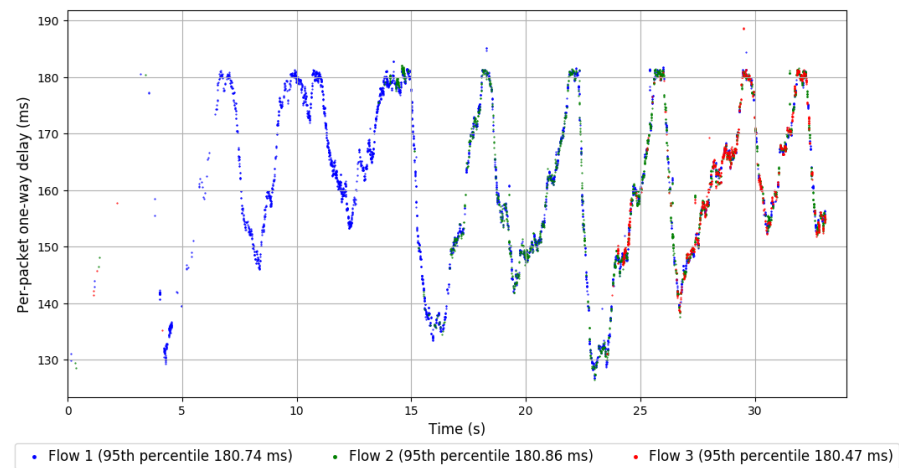
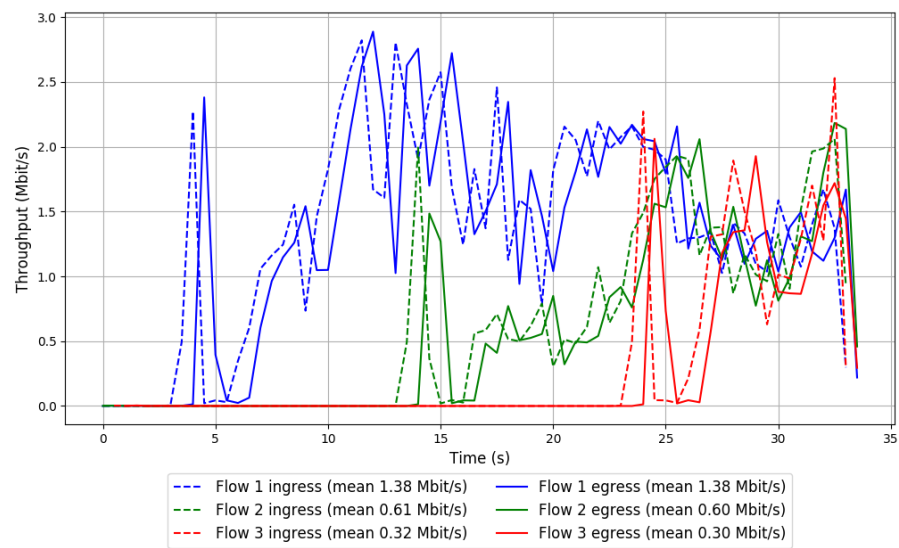


Run 1: Statistics of WebRTC media

Start at: 2018-11-15 11:12:54  
End at: 2018-11-15 11:13:24  
Local clock offset: -1.548 ms  
Remote clock offset: 28.514 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.26 Mbit/s  
95th percentile per-packet one-way delay: 180.744 ms  
Loss rate: 2.11%  
-- Flow 1:  
Average throughput: 1.38 Mbit/s  
95th percentile per-packet one-way delay: 180.742 ms  
Loss rate: 0.81%  
-- Flow 2:  
Average throughput: 0.60 Mbit/s  
95th percentile per-packet one-way delay: 180.859 ms  
Loss rate: 2.98%  
-- Flow 3:  
Average throughput: 0.30 Mbit/s  
95th percentile per-packet one-way delay: 180.468 ms  
Loss rate: 6.16%

Run 1: Report of WebRTC media — Data Link

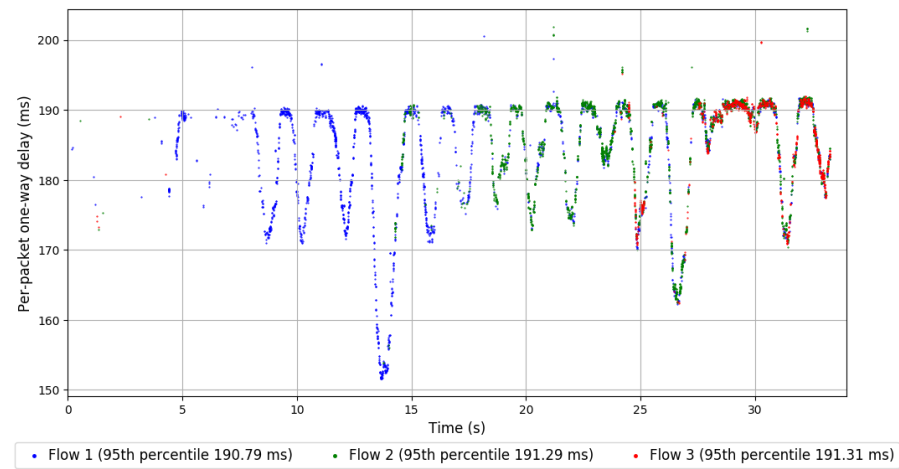
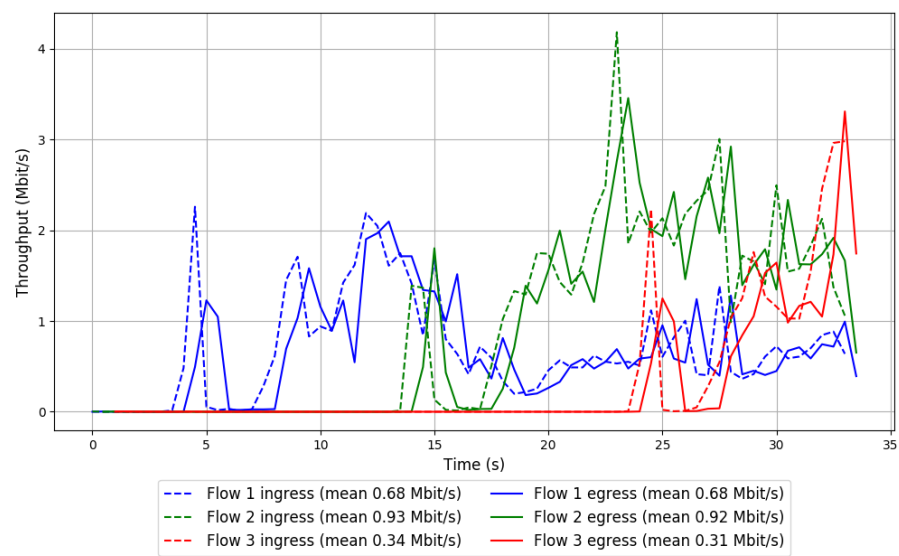


Run 2: Statistics of WebRTC media

Start at: 2018-11-15 11:42:35  
End at: 2018-11-15 11:43:05  
Local clock offset: -1.891 ms  
Remote clock offset: 23.245 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.88 Mbit/s  
95th percentile per-packet one-way delay: 191.182 ms  
Loss rate: 3.73%  
-- Flow 1:  
Average throughput: 0.68 Mbit/s  
95th percentile per-packet one-way delay: 190.792 ms  
Loss rate: 1.90%  
-- Flow 2:  
Average throughput: 0.92 Mbit/s  
95th percentile per-packet one-way delay: 191.286 ms  
Loss rate: 2.52%  
-- Flow 3:  
Average throughput: 0.31 Mbit/s  
95th percentile per-packet one-way delay: 191.310 ms  
Loss rate: 10.90%

Run 2: Report of WebRTC media — Data Link

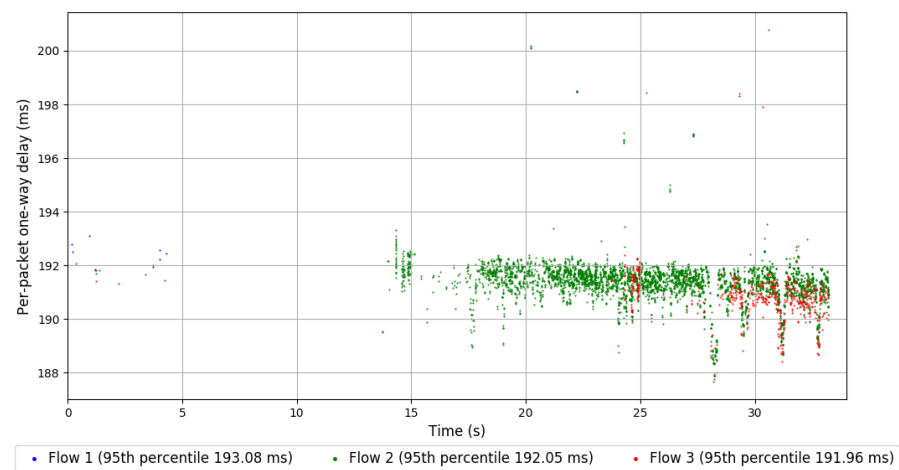
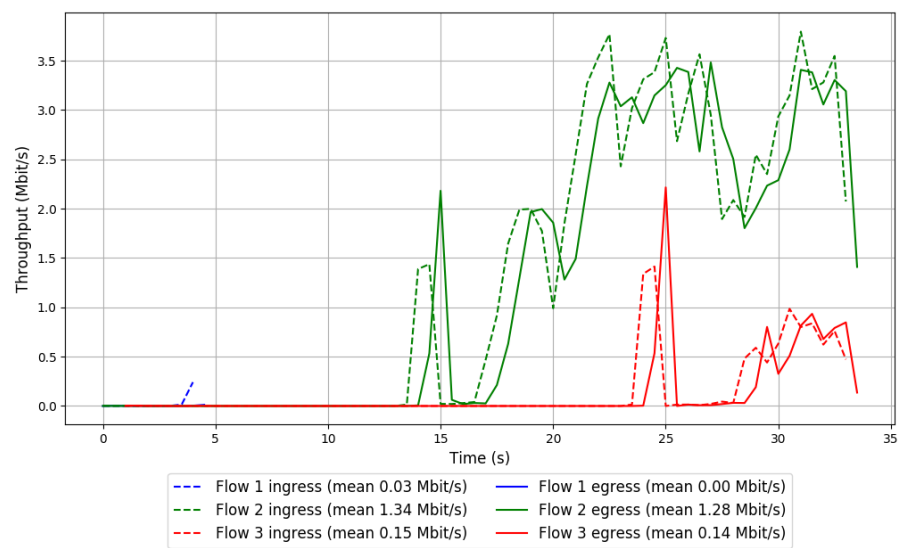


Run 3: Statistics of WebRTC media

Start at: 2018-11-15 12:16:08  
End at: 2018-11-15 12:16:38  
Local clock offset: -1.954 ms  
Remote clock offset: 65.972 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.41 Mbit/s  
95th percentile per-packet one-way delay: 192.043 ms  
Loss rate: 5.36%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 193.080 ms  
Loss rate: 92.29%  
-- Flow 2:  
Average throughput: 1.28 Mbit/s  
95th percentile per-packet one-way delay: 192.049 ms  
Loss rate: 4.96%  
-- Flow 3:  
Average throughput: 0.14 Mbit/s  
95th percentile per-packet one-way delay: 191.964 ms  
Loss rate: 6.60%

Run 3: Report of WebRTC media — Data Link



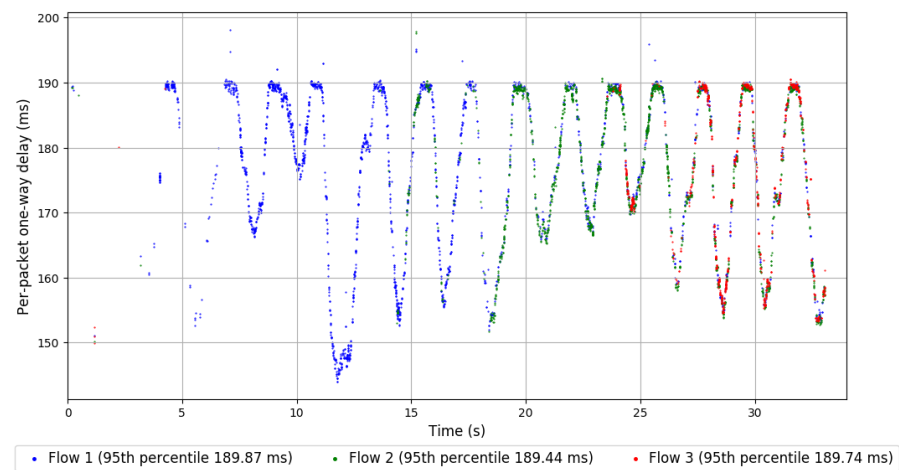
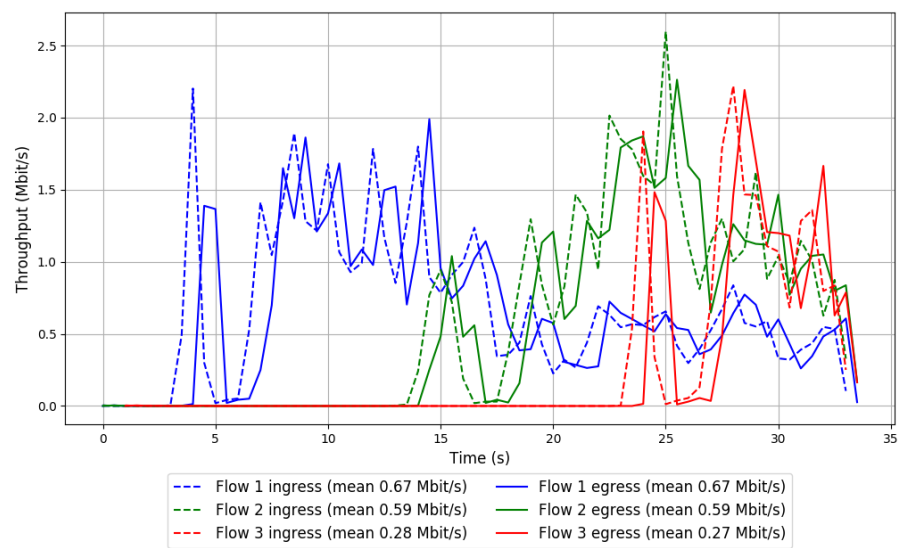


Run 4: Statistics of WebRTC media

Start at: 2018-11-15 12:57:42  
End at: 2018-11-15 12:58:12  
Local clock offset: 22.794 ms  
Remote clock offset: 23.371 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.52 Mbit/s  
95th percentile per-packet one-way delay: 189.705 ms  
Loss rate: 2.12%  
-- Flow 1:  
Average throughput: 0.67 Mbit/s  
95th percentile per-packet one-way delay: 189.865 ms  
Loss rate: 1.48%  
-- Flow 2:  
Average throughput: 0.59 Mbit/s  
95th percentile per-packet one-way delay: 189.442 ms  
Loss rate: 2.00%  
-- Flow 3:  
Average throughput: 0.27 Mbit/s  
95th percentile per-packet one-way delay: 189.741 ms  
Loss rate: 3.95%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-15 13:37:33  
End at: 2018-11-15 13:38:03  
Local clock offset: 2.486 ms  
Remote clock offset: 53.296 ms

# Below is generated by plot.py at 2018-11-15 13:57:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.19 Mbit/s  
95th percentile per-packet one-way delay: 182.247 ms  
Loss rate: 2.04%  
-- Flow 1:  
Average throughput: 1.32 Mbit/s  
95th percentile per-packet one-way delay: 184.325 ms  
Loss rate: 0.65%  
-- Flow 2:  
Average throughput: 0.60 Mbit/s  
95th percentile per-packet one-way delay: 179.765 ms  
Loss rate: 1.61%  
-- Flow 3:  
Average throughput: 0.27 Mbit/s  
95th percentile per-packet one-way delay: 179.573 ms  
Loss rate: 9.37%

Run 5: Report of WebRTC media — Data Link

