

## Pantheon Report

Generated at 2018-09-08 04:12:02 (UTC).

Data path: Stanford on **eno1** (*remote*) → AWS California 1 on **ens5** (*local*).

Repeated the test of 18 congestion control schemes 5 times.

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

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

### System info:

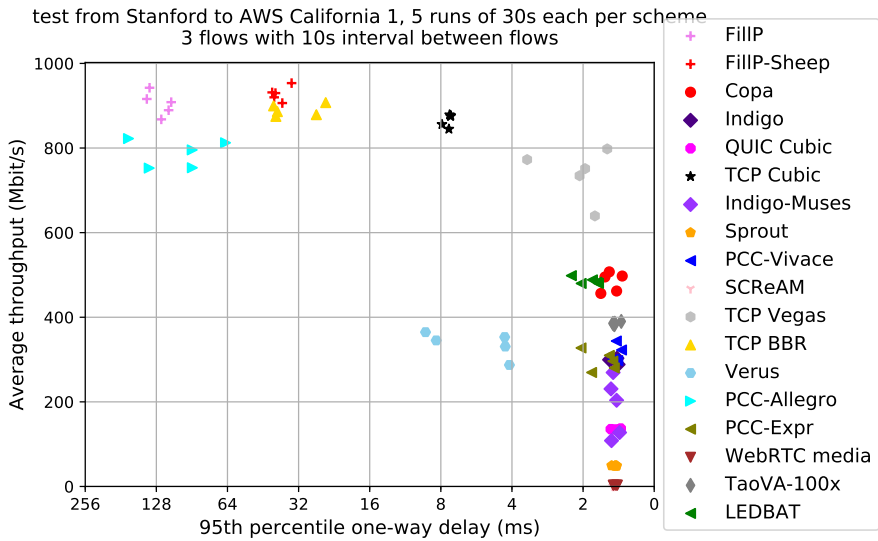
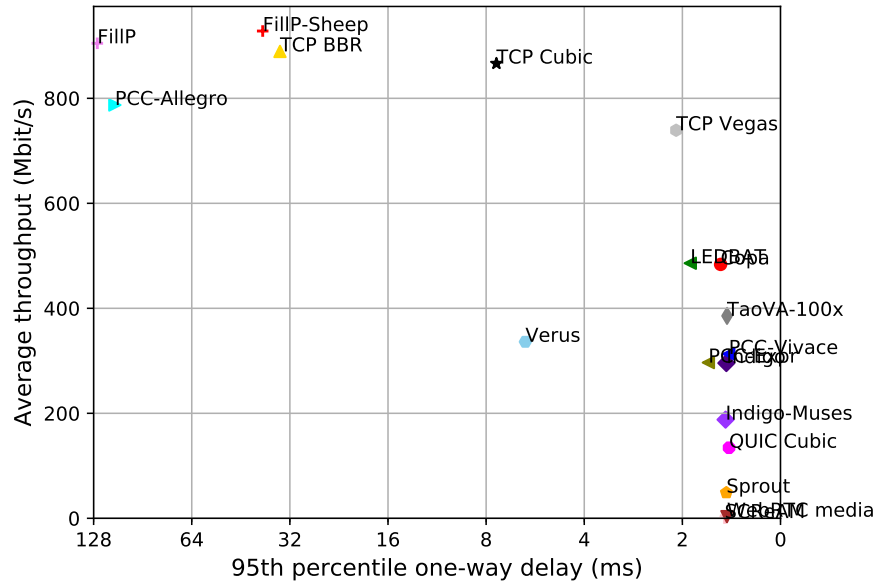
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

### Git summary:

```
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
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 Stanford to AWS California 1, 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	5	515.97	399.42	323.61	25.03	35.98	48.90	0.39	0.69	1.10
Copa	5	287.63	232.64	124.03	1.27	1.17	1.21	0.03	0.05	0.20
TCP Cubic	5	515.72	376.15	301.11	8.22	6.96	7.02	0.06	0.10	0.27
FillP	5	543.45	393.14	301.88	111.35	118.88	148.38	3.09	3.46	4.18
FillP-Sheep	5	556.86	399.13	319.86	35.15	45.05	42.62	0.67	0.95	1.04
Indigo	5	164.53	148.69	98.45	1.10	1.12	1.13	0.05	0.09	0.19
LEDBAT	5	285.62	219.70	168.77	1.69	2.09	1.80	0.04	0.06	0.33
Indigo-Muses	5	100.33	92.91	77.90	1.12	1.11	1.10	0.01	0.03	0.16
PCC-Allegro	5	629.60	177.80	120.89	117.77	40.10	1.89	1.68	1.04	0.31
PCC-Expr	5	212.02	90.99	73.42	2.01	1.13	1.10	0.03	0.08	0.22
QUIC Cubic	5	74.03	64.09	53.48	1.05	1.04	1.02	0.05	0.09	0.21
SCReAM	5	0.22	0.22	0.22	1.12	1.12	1.14	0.08	0.11	0.28
Sprout	5	24.54	24.47	24.55	1.11	1.09	1.09	0.07	0.11	0.27
TaoVA-100x	5	219.40	193.15	113.52	1.05	1.10	1.31	0.04	0.07	0.22
TCP Vegas	5	410.86	343.99	298.69	1.90	2.68	1.94	0.05	0.09	0.20
Verus	5	203.19	146.55	108.23	7.25	2.98	2.28	0.04	0.06	0.23
PCC-Vivace	5	226.70	94.02	72.42	1.05	1.07	1.05	0.02	0.10	0.23
WebRTC media	5	1.51	1.10	0.49	1.09	1.09	1.09	0.06	0.07	0.14



Run 1: Statistics of TCP BBR

Start at: 2018-09-08 00:50:15

End at: 2018-09-08 00:50:45

Local clock offset: 1.587 ms

Remote clock offset: 3.32 ms

# Below is generated by plot.py at 2018-09-08 03:13:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 907.43 Mbit/s

95th percentile per-packet one-way delay: 24.569 ms

Loss rate: 0.59%

-- Flow 1:

Average throughput: 535.51 Mbit/s

95th percentile per-packet one-way delay: 23.705 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 396.21 Mbit/s

95th percentile per-packet one-way delay: 25.818 ms

Loss rate: 0.74%

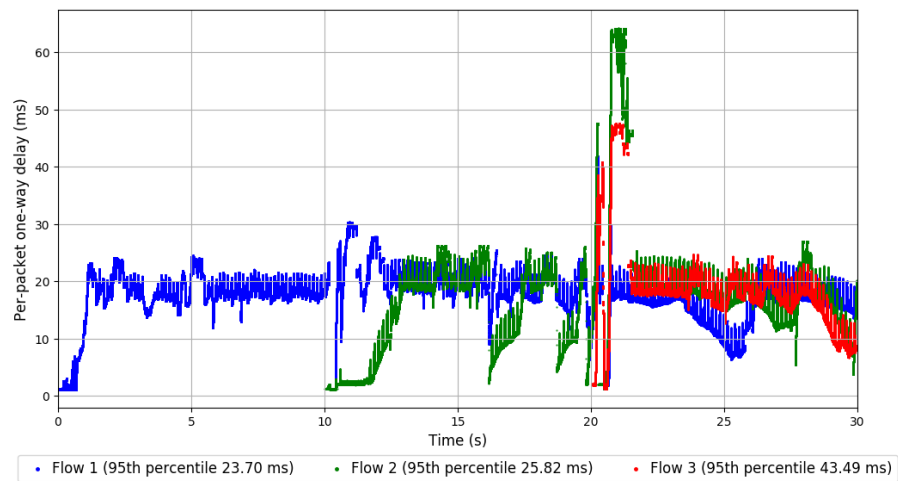
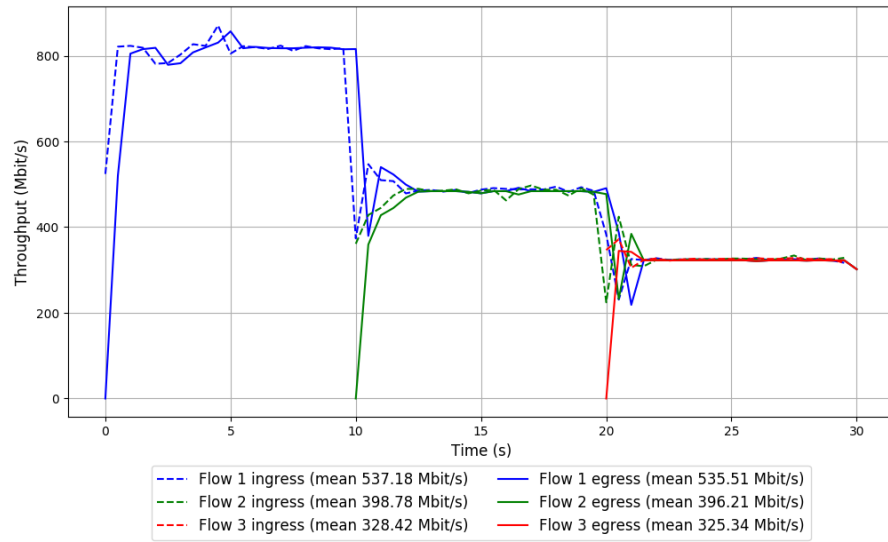
-- Flow 3:

Average throughput: 325.34 Mbit/s

95th percentile per-packet one-way delay: 43.495 ms

Loss rate: 1.15%

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



Run 2: Statistics of TCP BBR

Start at: 2018-09-08 01:19:30

End at: 2018-09-08 01:20:00

Local clock offset: 0.791 ms

Remote clock offset: 3.476 ms

# Below is generated by plot.py at 2018-09-08 03:13:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 886.09 Mbit/s

95th percentile per-packet one-way delay: 39.348 ms

Loss rate: 0.52%

-- Flow 1:

Average throughput: 512.81 Mbit/s

95th percentile per-packet one-way delay: 26.402 ms

Loss rate: 0.38%

-- Flow 2:

Average throughput: 400.50 Mbit/s

95th percentile per-packet one-way delay: 41.982 ms

Loss rate: 0.56%

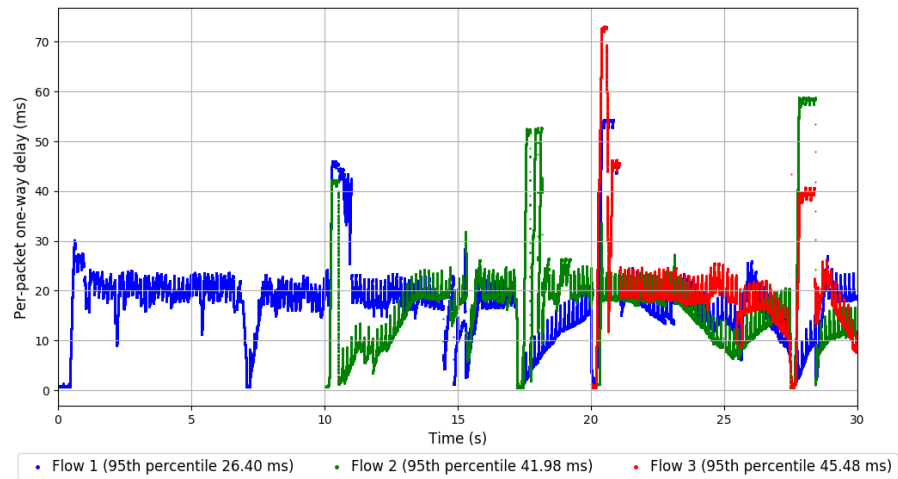
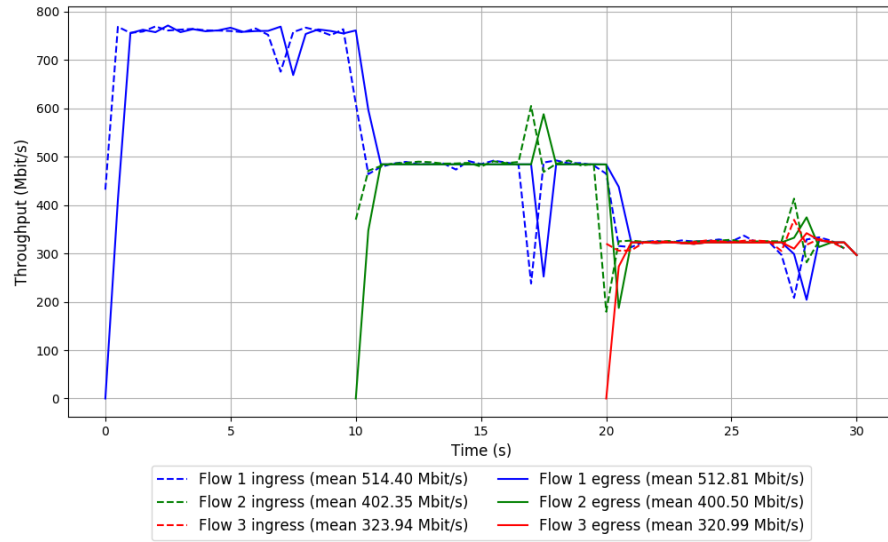
-- Flow 3:

Average throughput: 320.99 Mbit/s

95th percentile per-packet one-way delay: 45.478 ms

Loss rate: 1.11%

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



Run 3: Statistics of TCP BBR

Start at: 2018-09-08 01:48:44

End at: 2018-09-08 01:49:14

Local clock offset: 3.41 ms

Remote clock offset: 2.991 ms

# Below is generated by plot.py at 2018-09-08 03:13:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 874.77 Mbit/s

95th percentile per-packet one-way delay: 39.924 ms

Loss rate: 0.52%

-- Flow 1:

Average throughput: 498.70 Mbit/s

95th percentile per-packet one-way delay: 24.498 ms

Loss rate: 0.32%

-- Flow 2:

Average throughput: 402.21 Mbit/s

95th percentile per-packet one-way delay: 41.582 ms

Loss rate: 0.63%

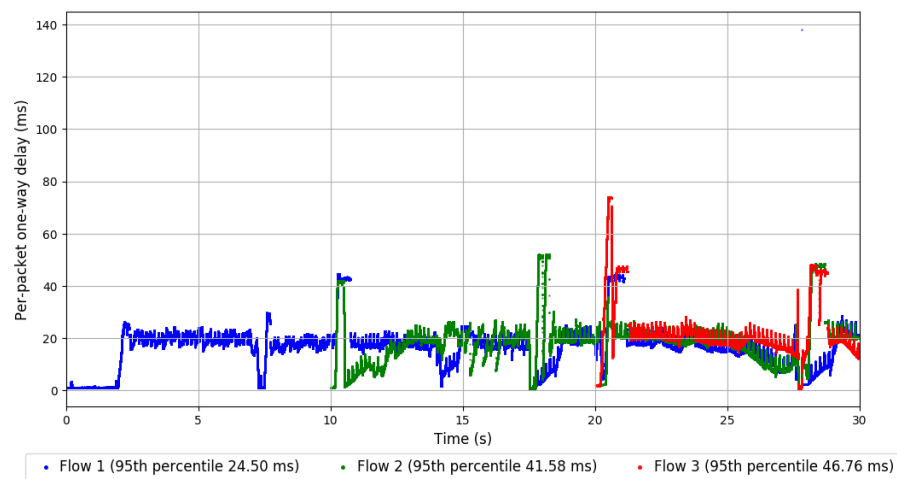
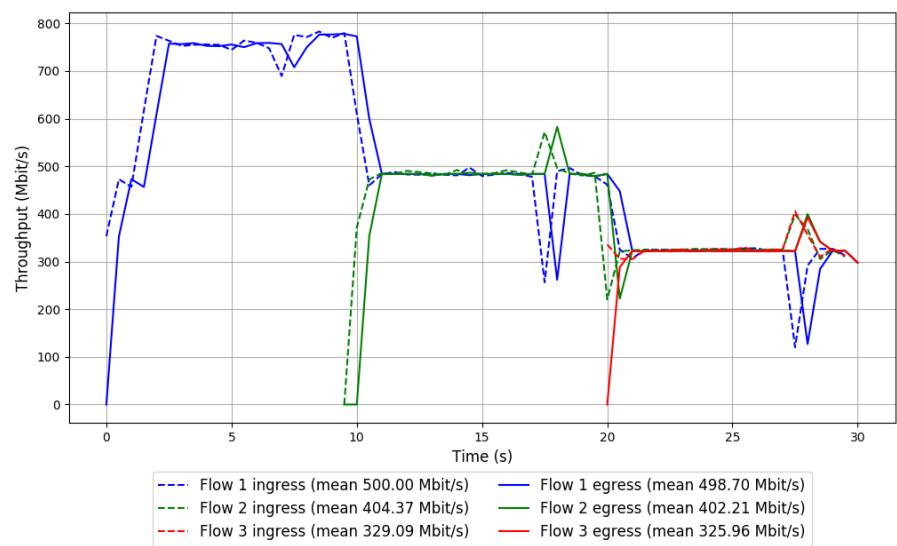
-- Flow 3:

Average throughput: 325.96 Mbit/s

95th percentile per-packet one-way delay: 46.759 ms

Loss rate: 1.15%

Run 3: Report of TCP BBR — Data Link

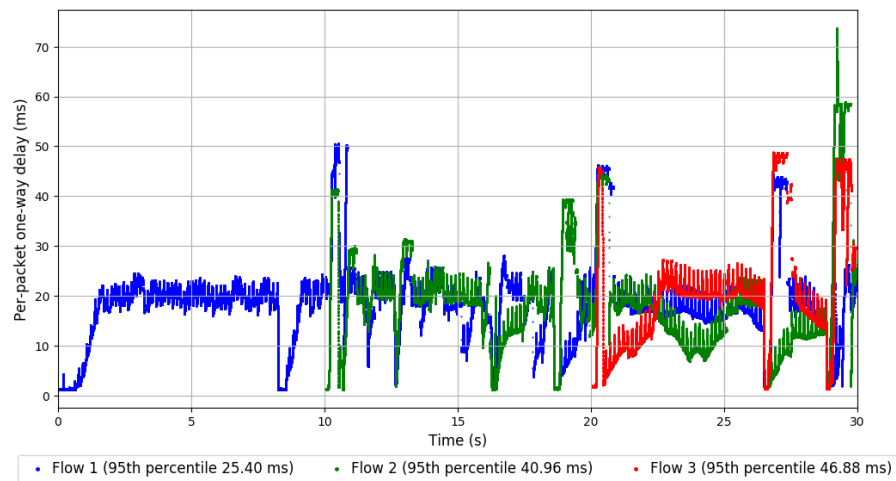
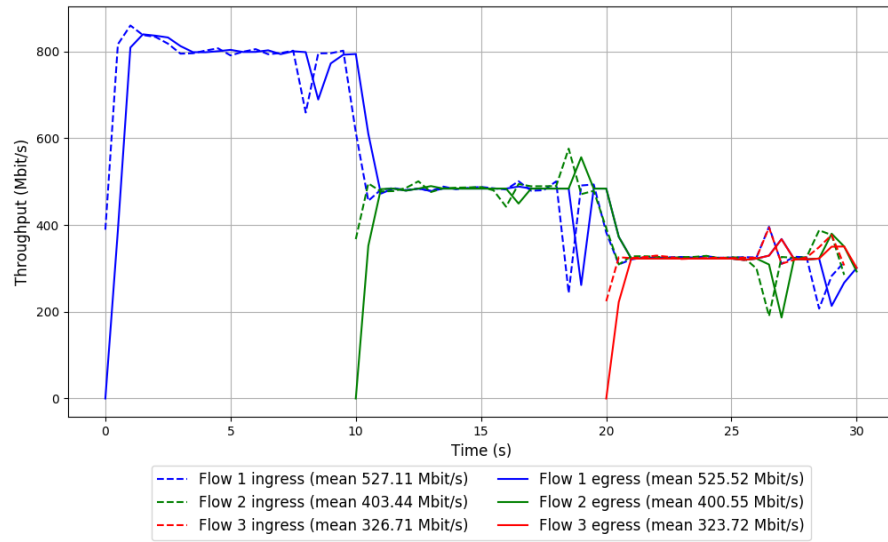


Run 4: Statistics of TCP BBR

Start at: 2018-09-08 02:17:59  
End at: 2018-09-08 02:18:29  
Local clock offset: 2.426 ms  
Remote clock offset: -1.115 ms

# Below is generated by plot.py at 2018-09-08 03:13:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 899.64 Mbit/s  
95th percentile per-packet one-way delay: 40.833 ms  
Loss rate: 0.59%  
-- Flow 1:  
Average throughput: 525.52 Mbit/s  
95th percentile per-packet one-way delay: 25.398 ms  
Loss rate: 0.37%  
-- Flow 2:  
Average throughput: 400.55 Mbit/s  
95th percentile per-packet one-way delay: 40.957 ms  
Loss rate: 0.81%  
-- Flow 3:  
Average throughput: 323.72 Mbit/s  
95th percentile per-packet one-way delay: 46.877 ms  
Loss rate: 1.12%

# Run 4: Report of TCP BBR — Data Link





Run 5: Statistics of TCP BBR

Start at: 2018-09-08 02:47:13

End at: 2018-09-08 02:47:43

Local clock offset: 0.195 ms

Remote clock offset: -4.97 ms

# Below is generated by plot.py at 2018-09-08 03:13:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 878.88 Mbit/s

95th percentile per-packet one-way delay: 26.909 ms

Loss rate: 0.60%

-- Flow 1:

Average throughput: 507.33 Mbit/s

95th percentile per-packet one-way delay: 25.170 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 397.61 Mbit/s

95th percentile per-packet one-way delay: 29.538 ms

Loss rate: 0.72%

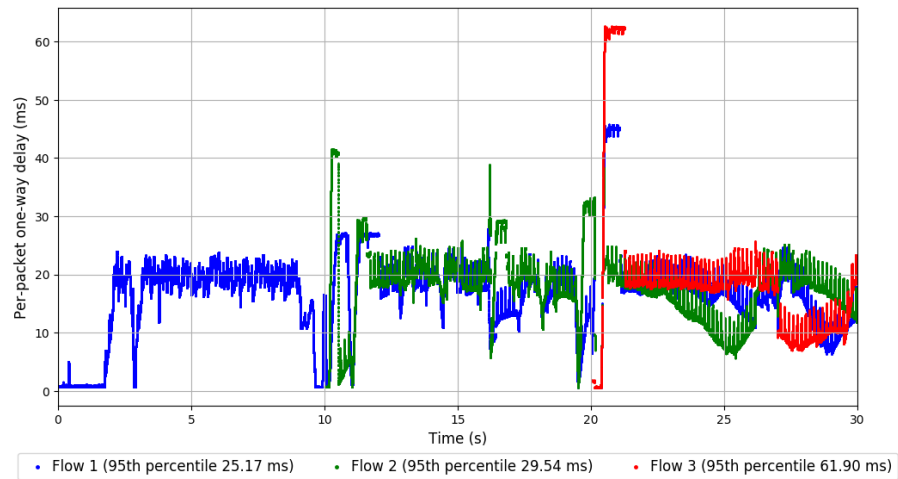
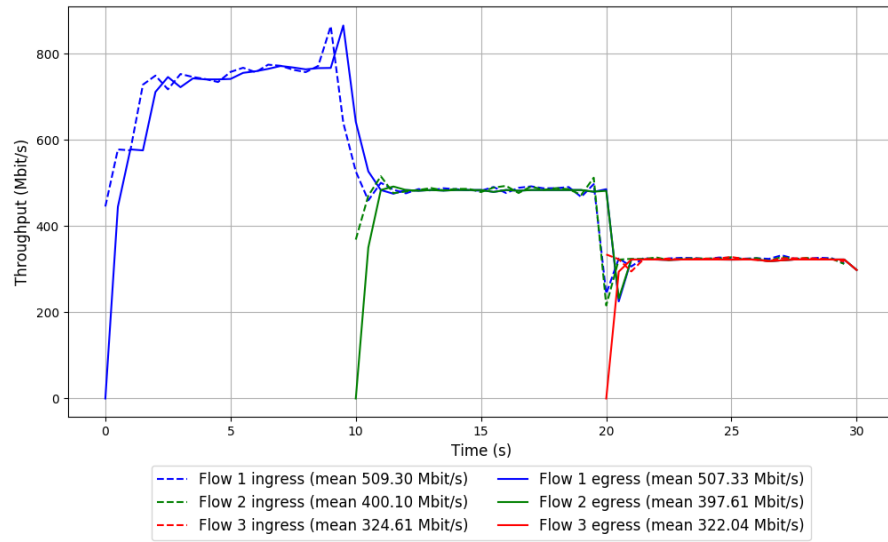
-- Flow 3:

Average throughput: 322.04 Mbit/s

95th percentile per-packet one-way delay: 61.897 ms

Loss rate: 0.99%

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



Run 1: Statistics of Copa

Start at: 2018-09-08 00:46:40

End at: 2018-09-08 00:47:10

Local clock offset: 2.587 ms

Remote clock offset: 3.306 ms

# Below is generated by plot.py at 2018-09-08 03:13:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 456.31 Mbit/s

95th percentile per-packet one-way delay: 1.501 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 269.77 Mbit/s

95th percentile per-packet one-way delay: 1.670 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 216.66 Mbit/s

95th percentile per-packet one-way delay: 1.391 ms

Loss rate: 0.05%

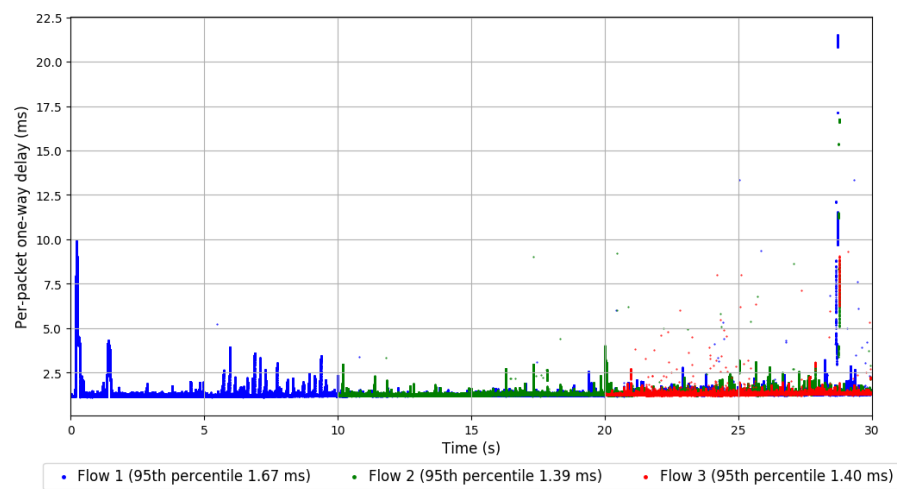
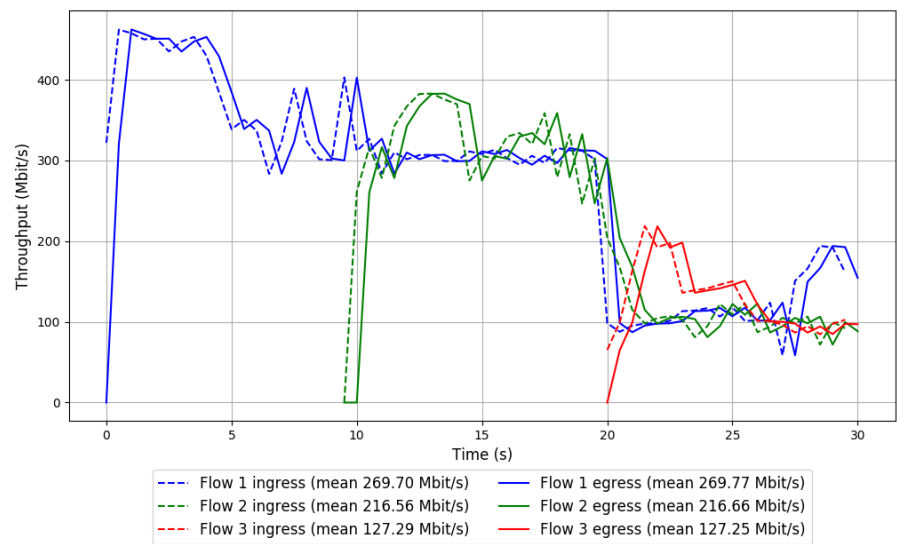
-- Flow 3:

Average throughput: 127.25 Mbit/s

95th percentile per-packet one-way delay: 1.397 ms

Loss rate: 0.22%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-08 01:15:51

End at: 2018-09-08 01:16:21

Local clock offset: -0.486 ms

Remote clock offset: 3.689 ms

# Below is generated by plot.py at 2018-09-08 03:13:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 497.41 Mbit/s

95th percentile per-packet one-way delay: 0.899 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 304.39 Mbit/s

95th percentile per-packet one-way delay: 0.960 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 229.68 Mbit/s

95th percentile per-packet one-way delay: 0.747 ms

Loss rate: 0.05%

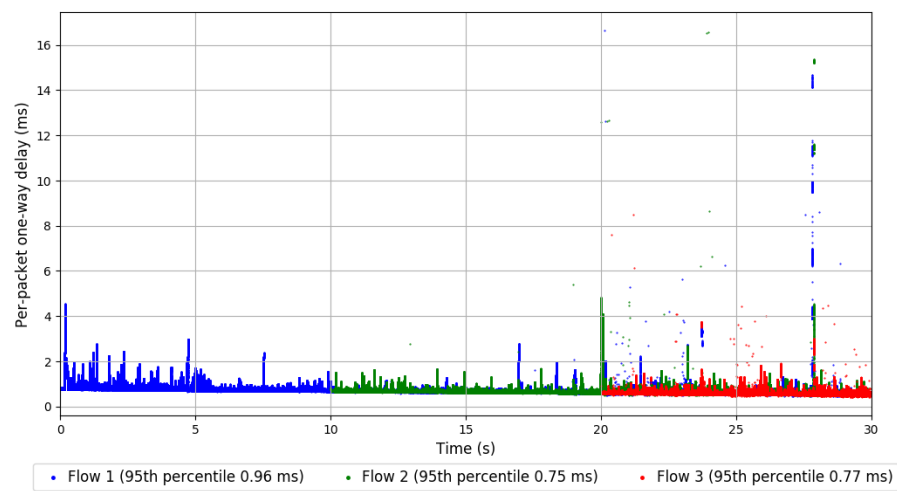
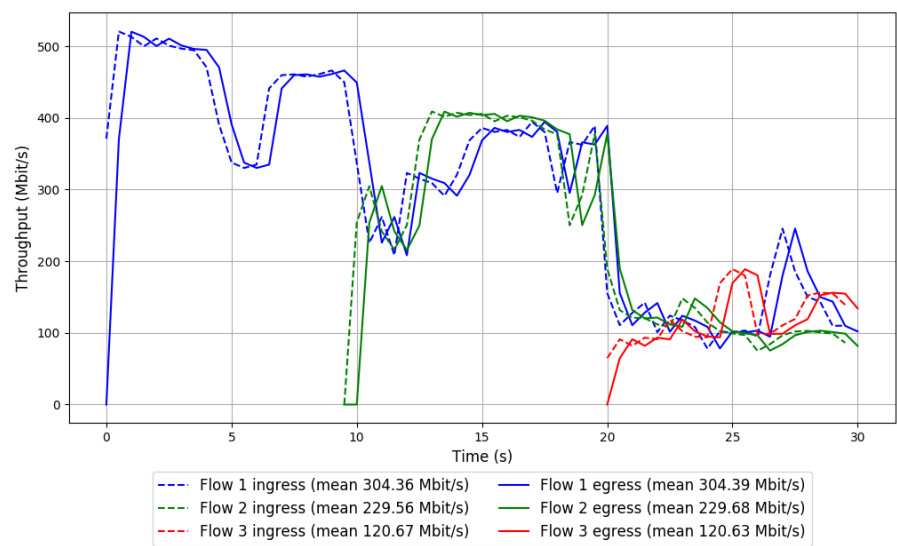
-- Flow 3:

Average throughput: 120.63 Mbit/s

95th percentile per-packet one-way delay: 0.766 ms

Loss rate: 0.24%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-08 01:45:11

End at: 2018-09-08 01:45:41

Local clock offset: 3.488 ms

Remote clock offset: 3.248 ms

# Below is generated by plot.py at 2018-09-08 03:13:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 495.22 Mbit/s

95th percentile per-packet one-way delay: 1.385 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 289.52 Mbit/s

95th percentile per-packet one-way delay: 1.416 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 256.29 Mbit/s

95th percentile per-packet one-way delay: 1.367 ms

Loss rate: 0.06%

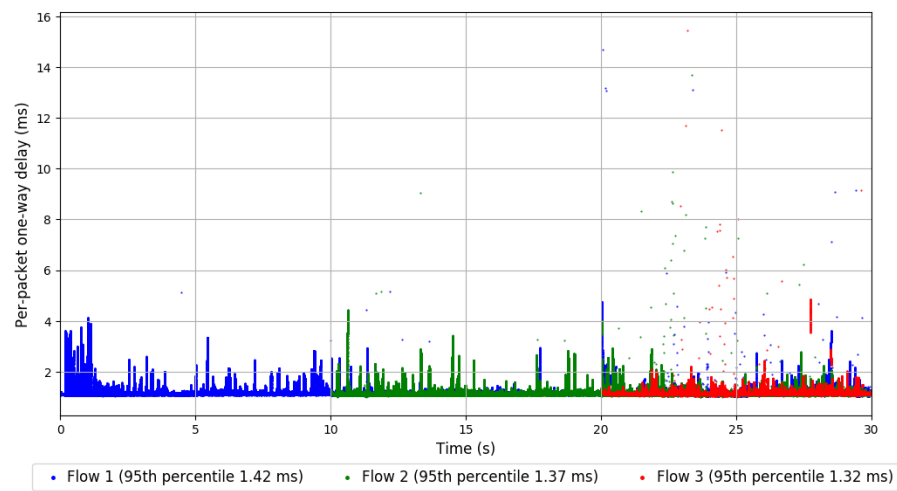
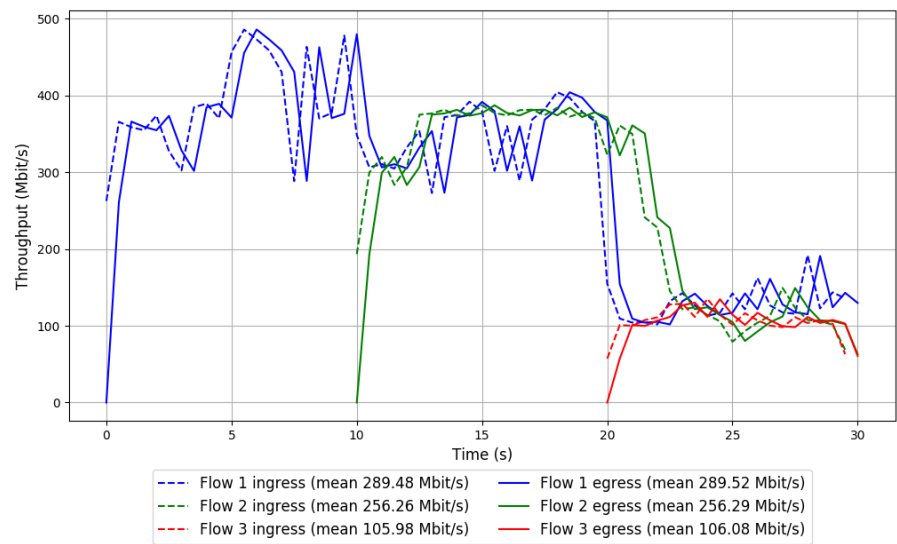
-- Flow 3:

Average throughput: 106.08 Mbit/s

95th percentile per-packet one-way delay: 1.318 ms

Loss rate: 0.11%

Run 3: Report of Copa — Data Link



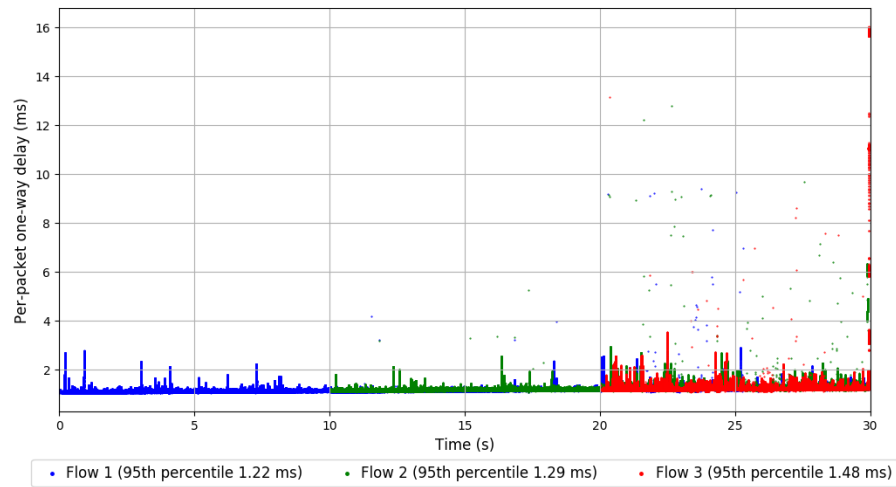
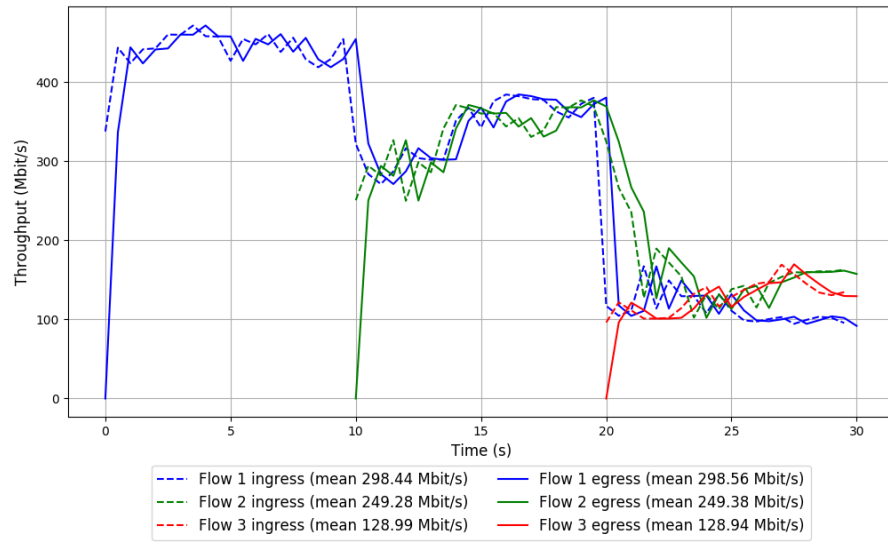


Run 4: Statistics of Copa

Start at: 2018-09-08 02:14:21  
End at: 2018-09-08 02:14:51  
Local clock offset: 3.446 ms  
Remote clock offset: -0.952 ms

# Below is generated by plot.py at 2018-09-08 03:23:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 507.28 Mbit/s  
95th percentile per-packet one-way delay: 1.263 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 298.56 Mbit/s  
95th percentile per-packet one-way delay: 1.221 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 249.38 Mbit/s  
95th percentile per-packet one-way delay: 1.287 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 128.94 Mbit/s  
95th percentile per-packet one-way delay: 1.476 ms  
Loss rate: 0.25%

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

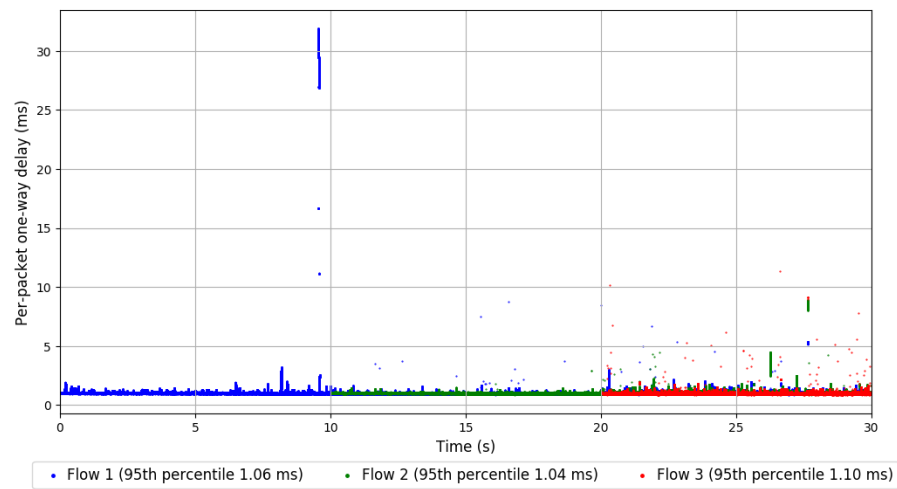
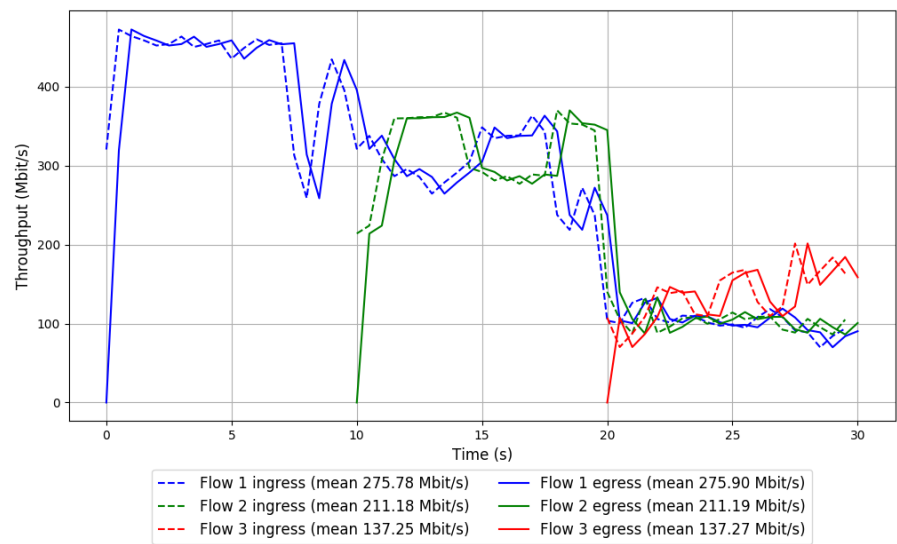


Run 5: Statistics of Copa

Start at: 2018-09-08 02:43:37  
End at: 2018-09-08 02:44:07  
Local clock offset: -0.733 ms  
Remote clock offset: -4.646 ms

# Below is generated by plot.py at 2018-09-08 03:23:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 461.99 Mbit/s  
95th percentile per-packet one-way delay: 1.057 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 275.90 Mbit/s  
95th percentile per-packet one-way delay: 1.060 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 211.19 Mbit/s  
95th percentile per-packet one-way delay: 1.038 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 137.27 Mbit/s  
95th percentile per-packet one-way delay: 1.096 ms  
Loss rate: 0.19%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-08 00:35:46

End at: 2018-09-08 00:36:16

Local clock offset: 3.234 ms

Remote clock offset: 3.341 ms

# Below is generated by plot.py at 2018-09-08 03:23:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 874.93 Mbit/s

95th percentile per-packet one-way delay: 7.278 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 511.23 Mbit/s

95th percentile per-packet one-way delay: 7.995 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 392.44 Mbit/s

95th percentile per-packet one-way delay: 6.577 ms

Loss rate: 0.10%

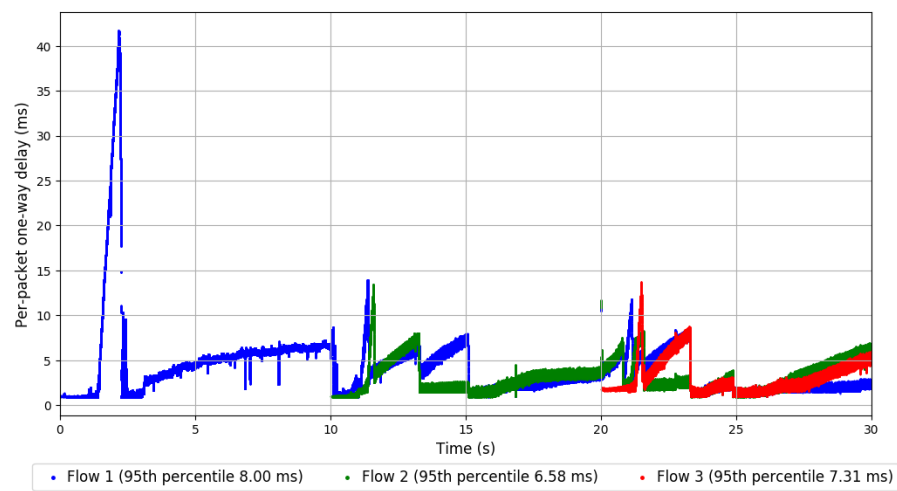
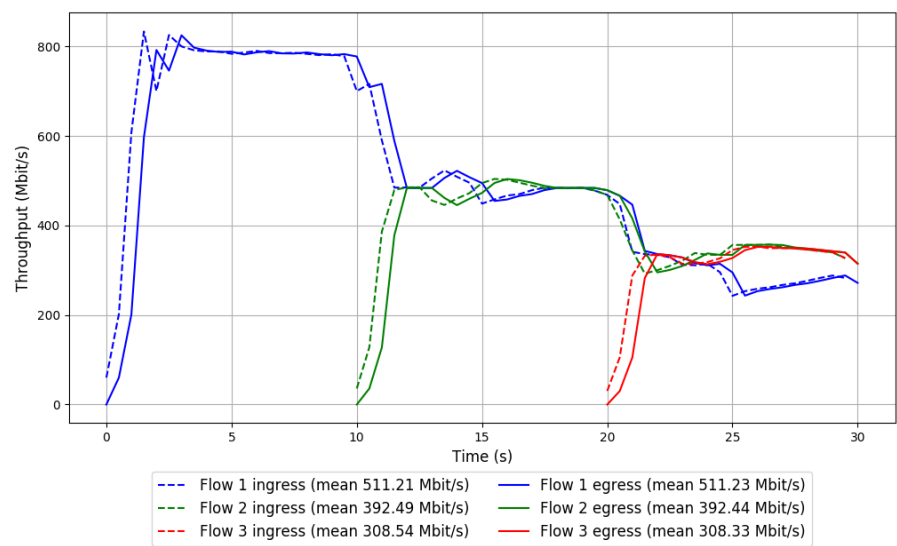
-- Flow 3:

Average throughput: 308.33 Mbit/s

95th percentile per-packet one-way delay: 7.306 ms

Loss rate: 0.26%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-08 01:04:55

End at: 2018-09-08 01:05:25

Local clock offset: -0.309 ms

Remote clock offset: 3.687 ms

# Below is generated by plot.py at 2018-09-08 03:23:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 855.86 Mbit/s

95th percentile per-packet one-way delay: 7.912 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 529.66 Mbit/s

95th percentile per-packet one-way delay: 9.179 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 340.68 Mbit/s

95th percentile per-packet one-way delay: 7.403 ms

Loss rate: 0.08%

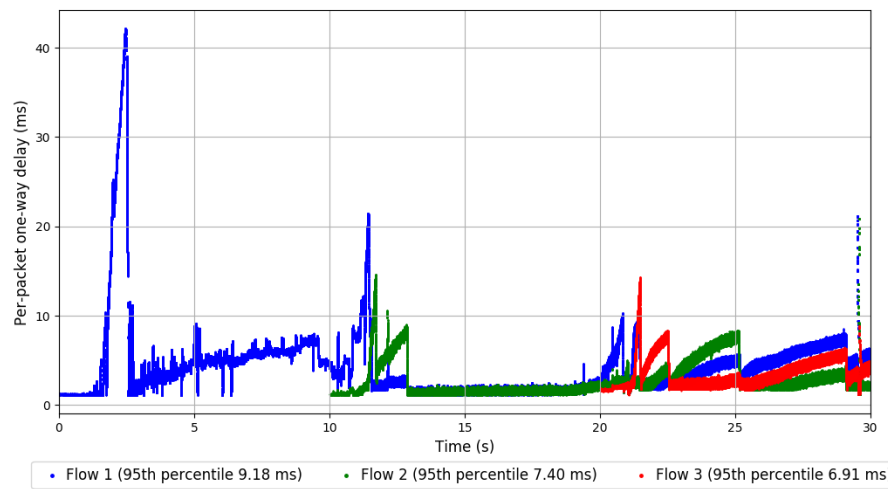
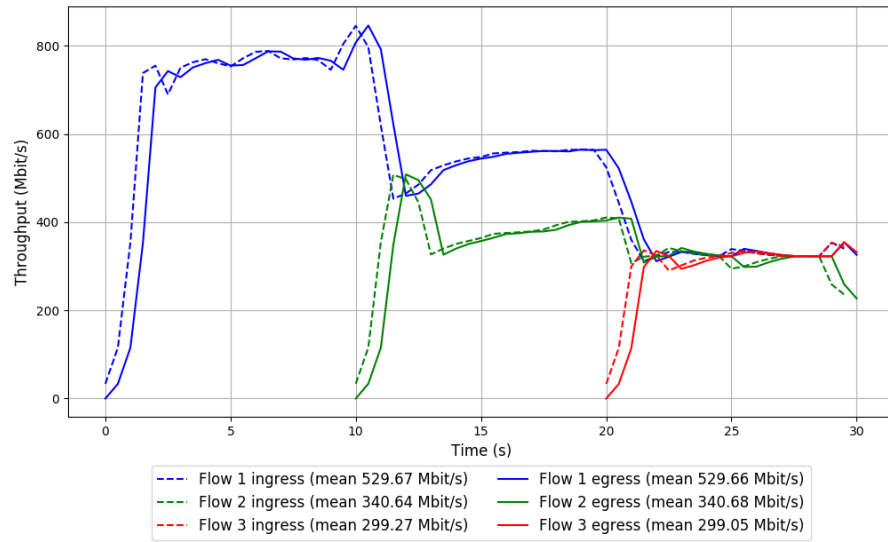
-- Flow 3:

Average throughput: 299.05 Mbit/s

95th percentile per-packet one-way delay: 6.909 ms

Loss rate: 0.27%

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





Run 3: Statistics of TCP Cubic

Start at: 2018-09-08 01:34:15

End at: 2018-09-08 01:34:45

Local clock offset: 2.979 ms

Remote clock offset: 3.185 ms

# Below is generated by plot.py at 2018-09-08 03:23:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 878.66 Mbit/s

95th percentile per-packet one-way delay: 7.346 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 524.64 Mbit/s

95th percentile per-packet one-way delay: 8.140 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 382.98 Mbit/s

95th percentile per-packet one-way delay: 7.070 ms

Loss rate: 0.08%

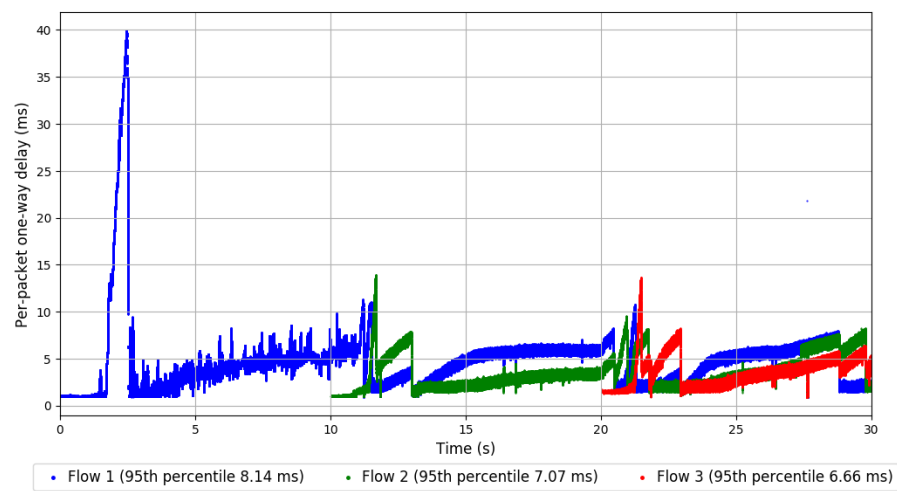
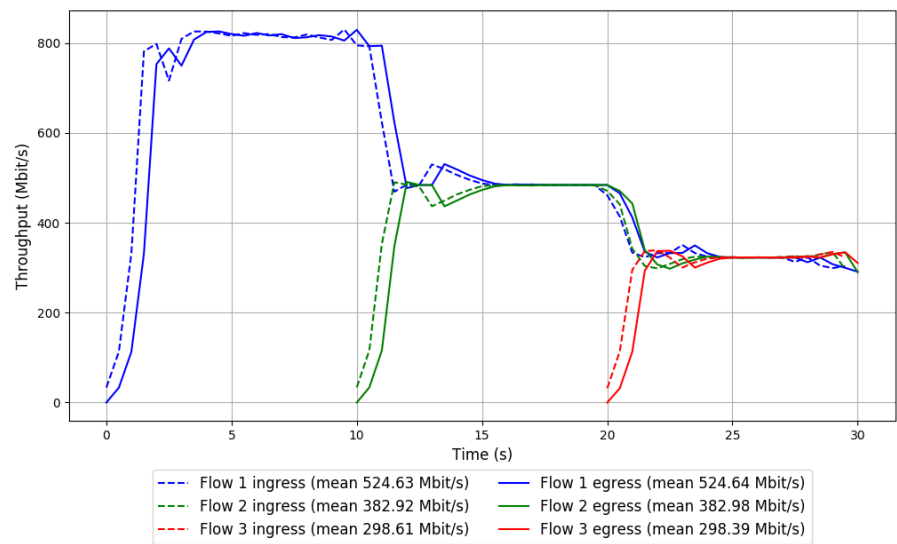
-- Flow 3:

Average throughput: 298.39 Mbit/s

95th percentile per-packet one-way delay: 6.655 ms

Loss rate: 0.27%

Run 3: Report of TCP Cubic — Data Link

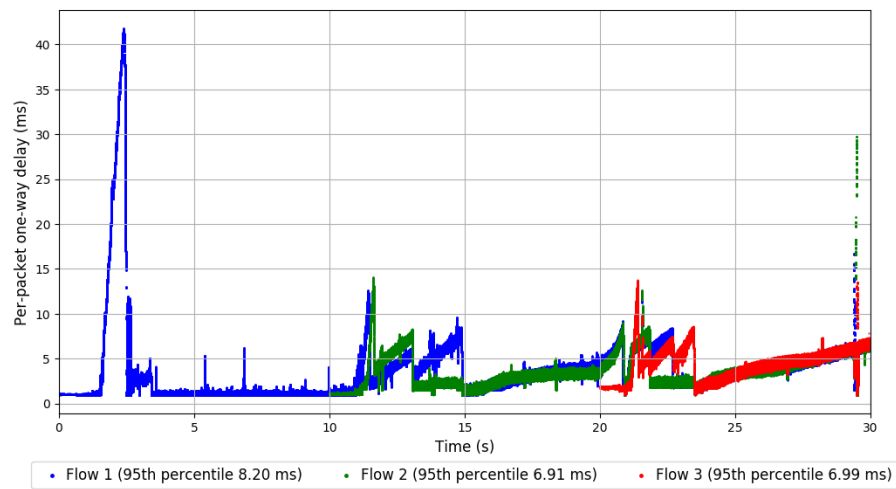
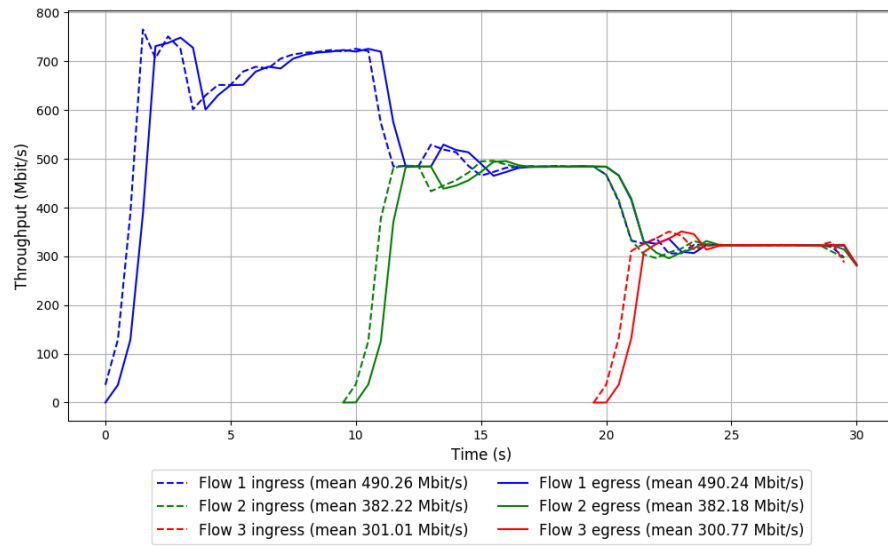


Run 4: Statistics of TCP Cubic

Start at: 2018-09-08 02:03:22  
End at: 2018-09-08 02:03:52  
Local clock offset: 3.389 ms  
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2018-09-08 03:23:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 844.88 Mbit/s  
95th percentile per-packet one-way delay: 7.397 ms  
Loss rate: 0.10%  
-- Flow 1:  
Average throughput: 490.24 Mbit/s  
95th percentile per-packet one-way delay: 8.200 ms  
Loss rate: 0.07%  
-- Flow 2:  
Average throughput: 382.18 Mbit/s  
95th percentile per-packet one-way delay: 6.912 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 300.77 Mbit/s  
95th percentile per-packet one-way delay: 6.988 ms  
Loss rate: 0.26%

# Run 4: Report of TCP Cubic — Data Link

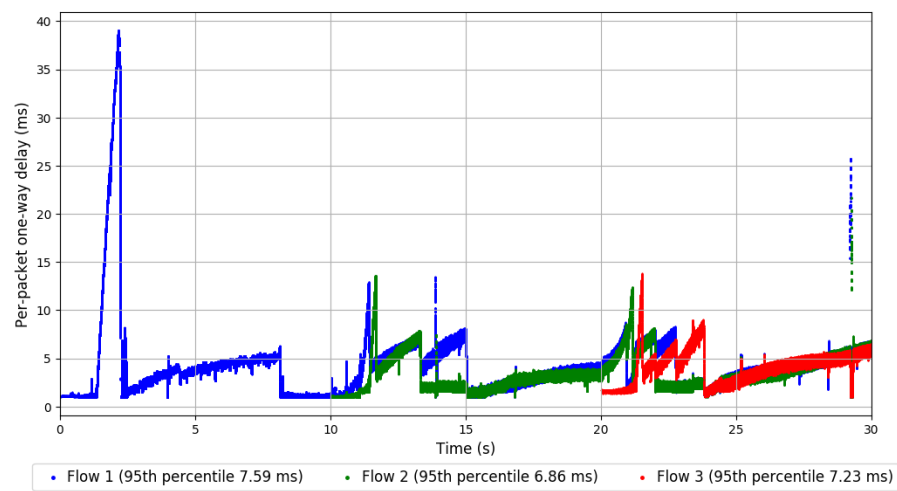
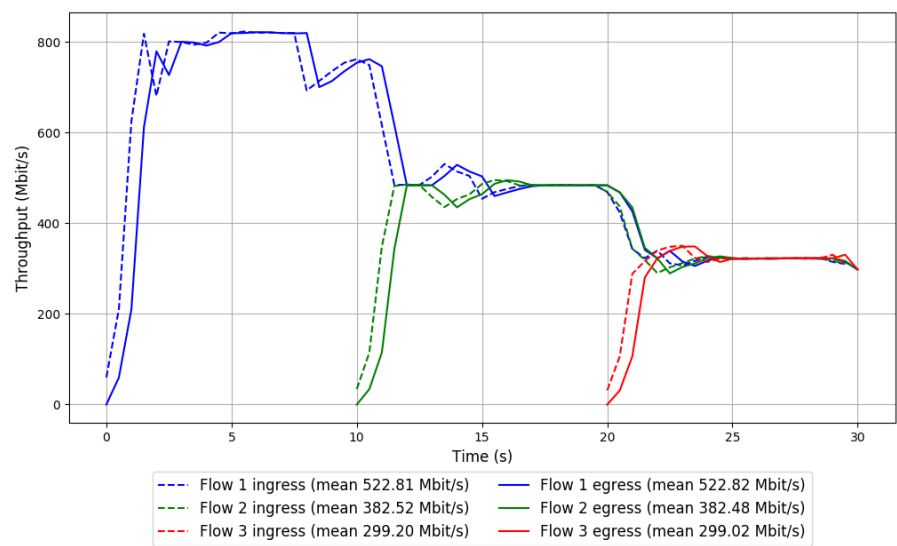


Run 5: Statistics of TCP Cubic

Start at: 2018-09-08 02:32:41  
End at: 2018-09-08 02:33:11  
Local clock offset: -0.036 ms  
Remote clock offset: -3.431 ms

# Below is generated by plot.py at 2018-09-08 03:23:40  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 876.90 Mbit/s  
95th percentile per-packet one-way delay: 7.261 ms  
Loss rate: 0.10%  
-- Flow 1:  
Average throughput: 522.82 Mbit/s  
95th percentile per-packet one-way delay: 7.588 ms  
Loss rate: 0.06%  
-- Flow 2:  
Average throughput: 382.48 Mbit/s  
95th percentile per-packet one-way delay: 6.861 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 299.02 Mbit/s  
95th percentile per-packet one-way delay: 7.234 ms  
Loss rate: 0.27%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-08 00:52:12

End at: 2018-09-08 00:52:42

Local clock offset: 1.15 ms

Remote clock offset: 3.419 ms

# Below is generated by plot.py at 2018-09-08 03:26:25

# Datalink statistics

-- Total of 3 flows:

Average throughput: 908.43 Mbit/s

95th percentile per-packet one-way delay: 110.735 ms

Loss rate: 3.94%

-- Flow 1:

Average throughput: 544.80 Mbit/s

95th percentile per-packet one-way delay: 108.031 ms

Loss rate: 4.22%

-- Flow 2:

Average throughput: 396.96 Mbit/s

95th percentile per-packet one-way delay: 102.647 ms

Loss rate: 3.10%

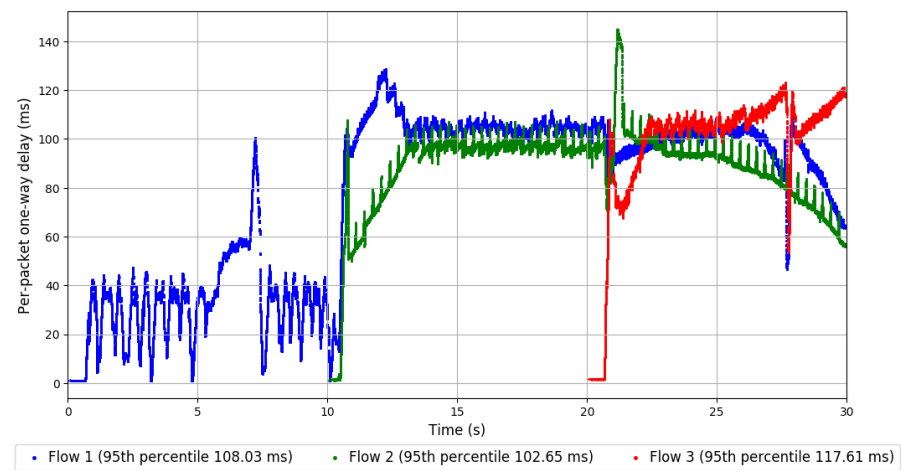
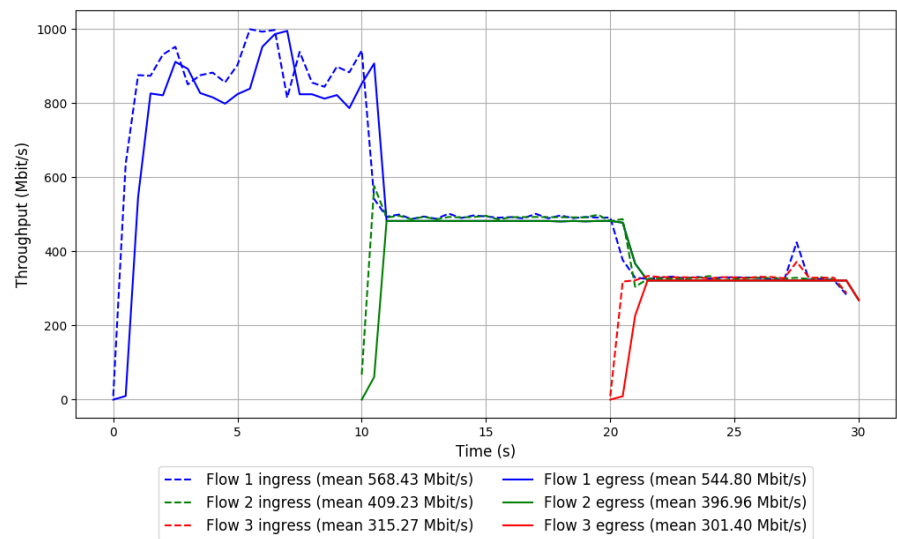
-- Flow 3:

Average throughput: 301.40 Mbit/s

95th percentile per-packet one-way delay: 117.613 ms

Loss rate: 4.59%

Run 1: Report of FillP — Data Link





Run 2: Statistics of FillP

Start at: 2018-09-08 01:21:27

End at: 2018-09-08 01:21:57

Local clock offset: 1.41 ms

Remote clock offset: 3.447 ms

# Below is generated by plot.py at 2018-09-08 03:34:58

# Datalink statistics

-- Total of 3 flows:

Average throughput: 942.44 Mbit/s

95th percentile per-packet one-way delay: 136.772 ms

Loss rate: 2.16%

-- Flow 1:

Average throughput: 583.27 Mbit/s

95th percentile per-packet one-way delay: 116.307 ms

Loss rate: 1.75%

-- Flow 2:

Average throughput: 394.49 Mbit/s

95th percentile per-packet one-way delay: 138.707 ms

Loss rate: 2.61%

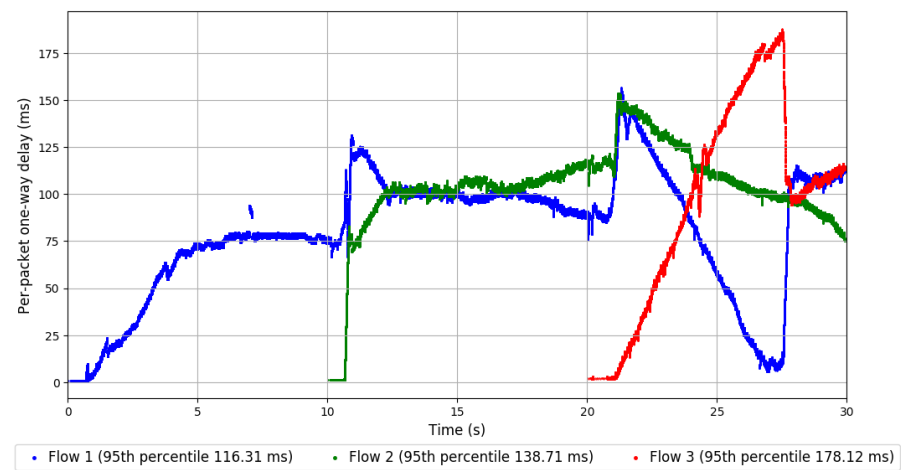
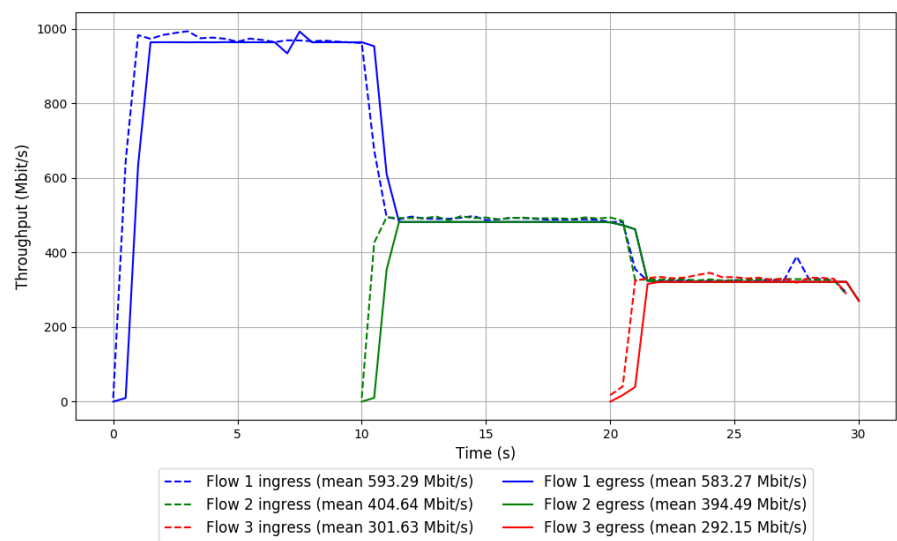
-- Flow 3:

Average throughput: 292.15 Mbit/s

95th percentile per-packet one-way delay: 178.125 ms

Loss rate: 3.39%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-08 01:50:39

End at: 2018-09-08 01:51:09

Local clock offset: 3.396 ms

Remote clock offset: 2.297 ms

# Below is generated by plot.py at 2018-09-08 03:34:58

# Datalink statistics

-- Total of 3 flows:

Average throughput: 889.43 Mbit/s

95th percentile per-packet one-way delay: 113.569 ms

Loss rate: 2.77%

-- Flow 1:

Average throughput: 528.78 Mbit/s

95th percentile per-packet one-way delay: 119.498 ms

Loss rate: 2.33%

-- Flow 2:

Average throughput: 387.46 Mbit/s

95th percentile per-packet one-way delay: 106.120 ms

Loss rate: 2.88%

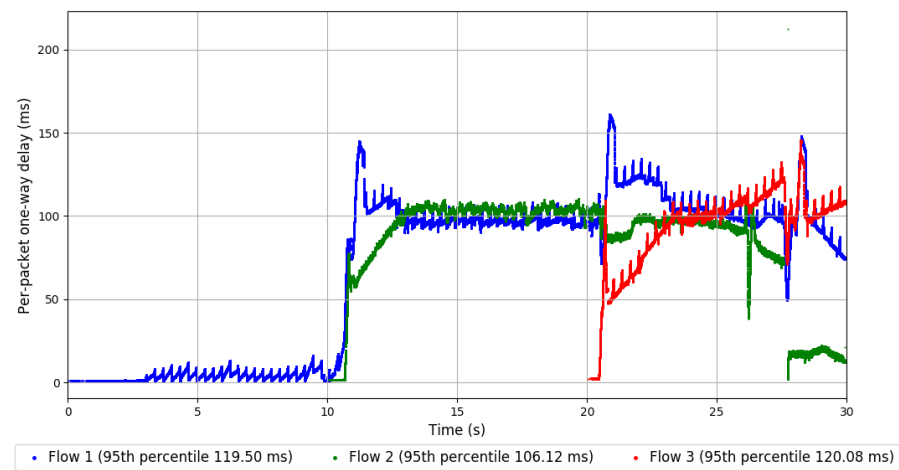
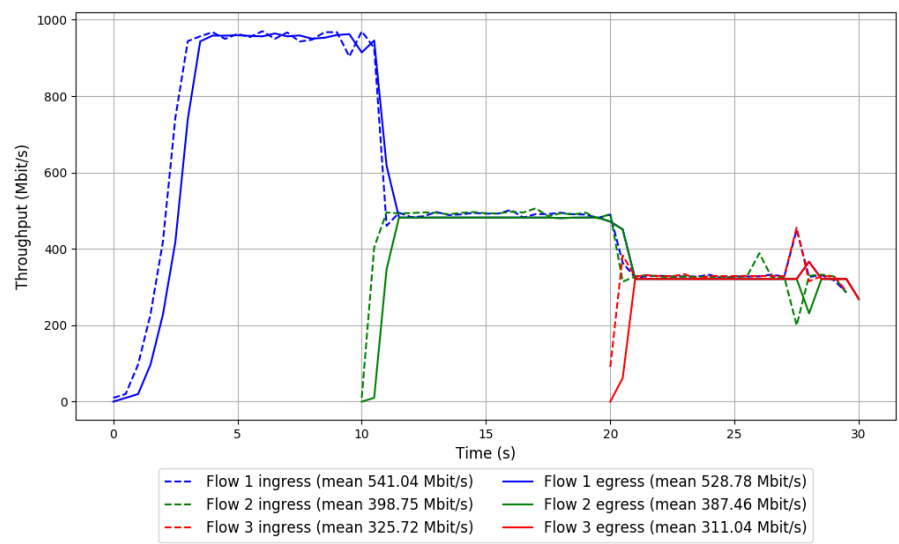
-- Flow 3:

Average throughput: 311.04 Mbit/s

95th percentile per-packet one-way delay: 120.084 ms

Loss rate: 4.70%

Run 3: Report of FillP — Data Link

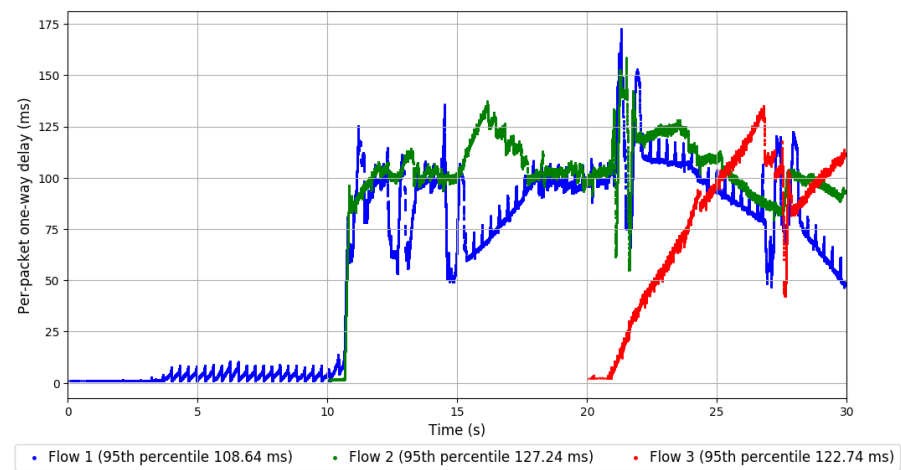
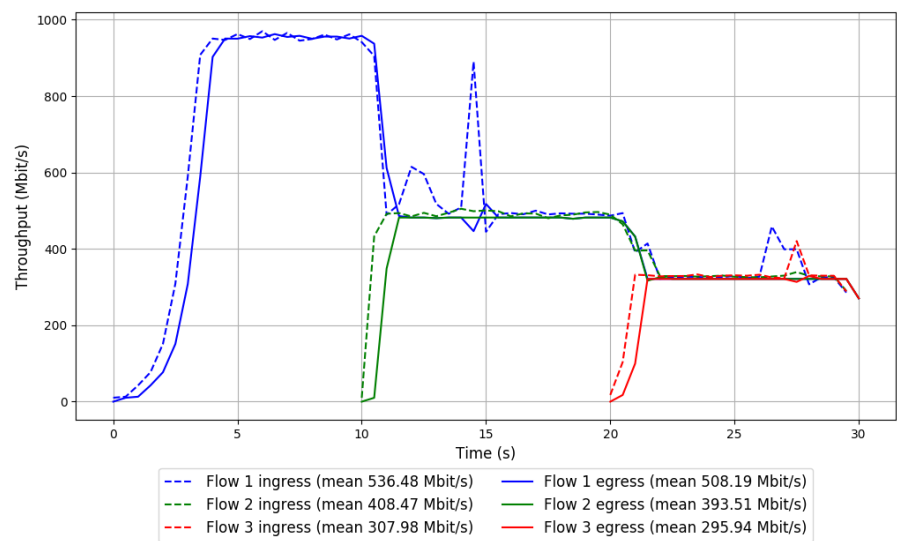


Run 4: Statistics of FillP

Start at: 2018-09-08 02:19:56  
End at: 2018-09-08 02:20:26  
Local clock offset: 1.808 ms  
Remote clock offset: -1.256 ms

# Below is generated by plot.py at 2018-09-08 03:34:58  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 867.76 Mbit/s  
95th percentile per-packet one-way delay: 121.979 ms  
Loss rate: 4.73%  
-- Flow 1:  
Average throughput: 508.19 Mbit/s  
95th percentile per-packet one-way delay: 108.641 ms  
Loss rate: 5.33%  
-- Flow 2:  
Average throughput: 393.51 Mbit/s  
95th percentile per-packet one-way delay: 127.242 ms  
Loss rate: 3.76%  
-- Flow 3:  
Average throughput: 295.94 Mbit/s  
95th percentile per-packet one-way delay: 122.740 ms  
Loss rate: 4.10%

Run 4: Report of FillP — Data Link

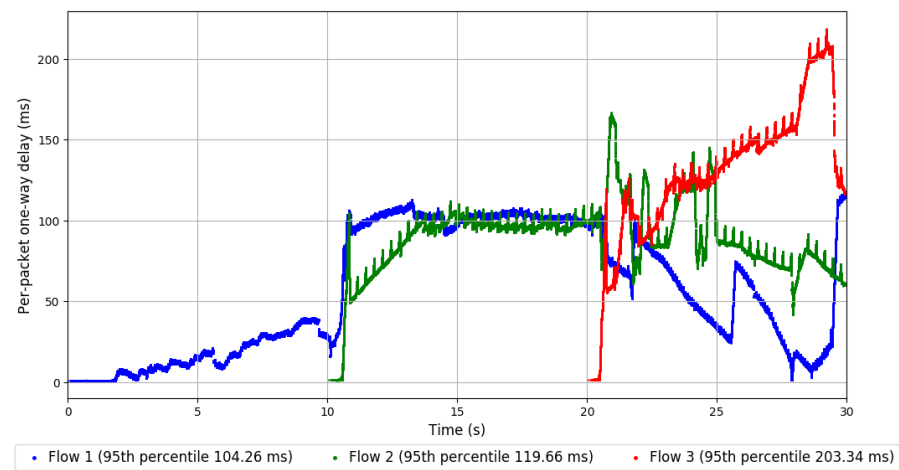
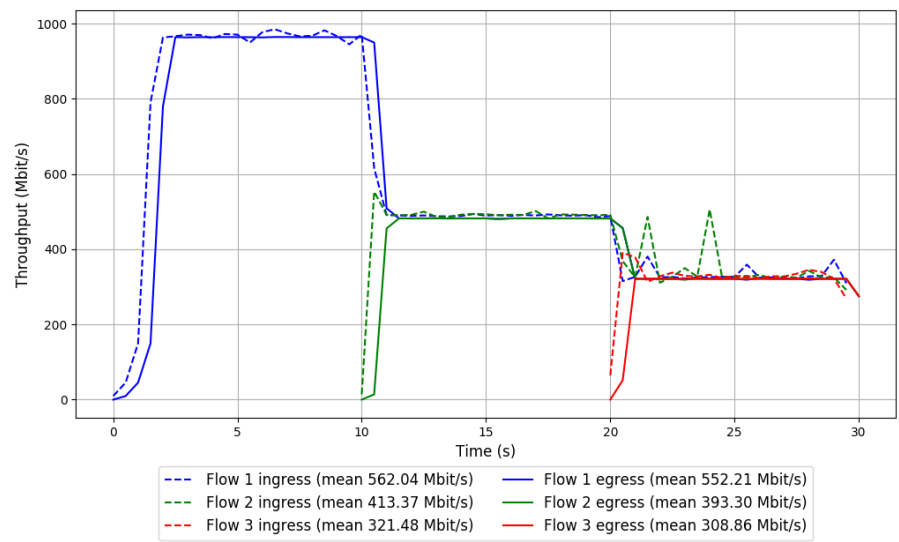


Run 5: Statistics of FillP

Start at: 2018-09-08 02:49:09  
End at: 2018-09-08 02:49:39  
Local clock offset: 0.884 ms  
Remote clock offset: -5.172 ms

# Below is generated by plot.py at 2018-09-08 03:35:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 915.92 Mbit/s  
95th percentile per-packet one-way delay: 140.451 ms  
Loss rate: 2.99%  
-- Flow 1:  
Average throughput: 552.21 Mbit/s  
95th percentile per-packet one-way delay: 104.259 ms  
Loss rate: 1.81%  
-- Flow 2:  
Average throughput: 393.30 Mbit/s  
95th percentile per-packet one-way delay: 119.662 ms  
Loss rate: 4.95%  
-- Flow 3:  
Average throughput: 308.86 Mbit/s  
95th percentile per-packet one-way delay: 203.345 ms  
Loss rate: 4.12%

Run 5: Report of FillP — Data Link





Run 1: Statistics of FillP-Sheep

Start at: 2018-09-08 00:44:55

End at: 2018-09-08 00:45:25

Local clock offset: 3.306 ms

Remote clock offset: 3.349 ms

# Below is generated by plot.py at 2018-09-08 03:35:09

# Datalink statistics

-- Total of 3 flows:

Average throughput: 906.31 Mbit/s

95th percentile per-packet one-way delay: 37.503 ms

Loss rate: 0.77%

-- Flow 1:

Average throughput: 535.03 Mbit/s

95th percentile per-packet one-way delay: 34.495 ms

Loss rate: 0.72%

-- Flow 2:

Average throughput: 399.26 Mbit/s

95th percentile per-packet one-way delay: 41.721 ms

Loss rate: 0.79%

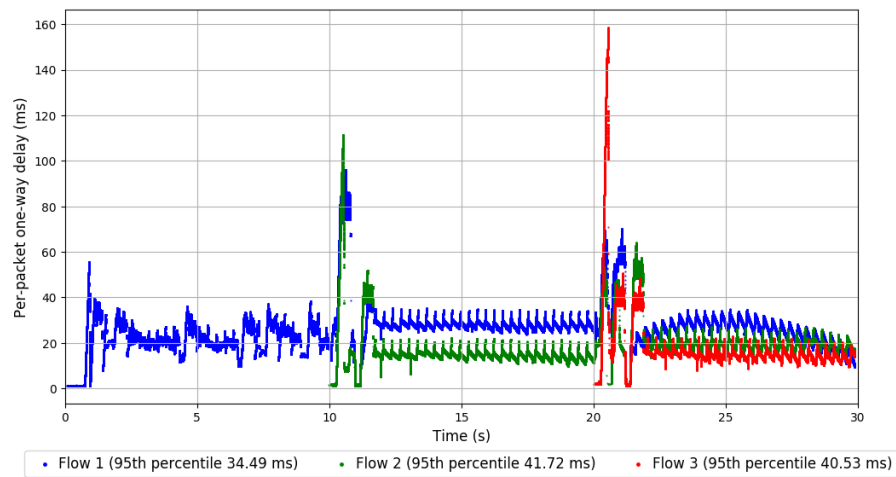
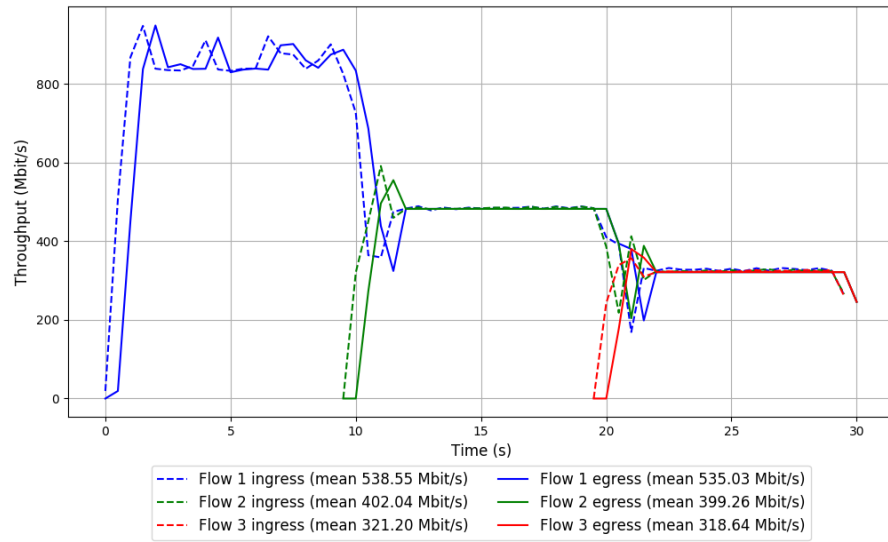
-- Flow 3:

Average throughput: 318.64 Mbit/s

95th percentile per-packet one-way delay: 40.534 ms

Loss rate: 0.98%

# Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-08 01:14:04

End at: 2018-09-08 01:14:34

Local clock offset: -0.849 ms

Remote clock offset: 3.958 ms

# Below is generated by plot.py at 2018-09-08 03:36:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 953.45 Mbit/s

95th percentile per-packet one-way delay: 34.260 ms

Loss rate: 1.02%

-- Flow 1:

Average throughput: 581.64 Mbit/s

95th percentile per-packet one-way delay: 32.408 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 399.99 Mbit/s

95th percentile per-packet one-way delay: 53.373 ms

Loss rate: 1.37%

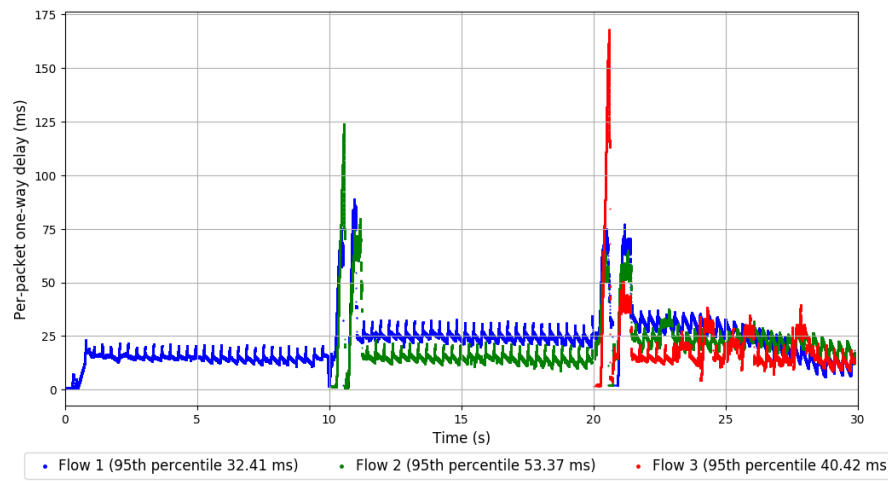
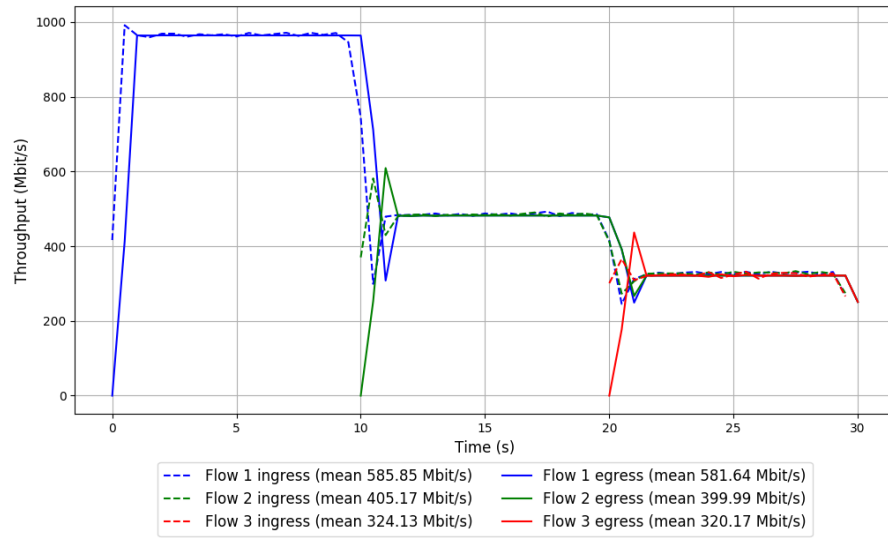
-- Flow 3:

Average throughput: 320.17 Mbit/s

95th percentile per-packet one-way delay: 40.417 ms

Loss rate: 1.42%

## Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-08 01:43:25

End at: 2018-09-08 01:43:55

Local clock offset: 3.441 ms

Remote clock offset: 3.254 ms

# Below is generated by plot.py at 2018-09-08 03:36:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 929.84 Mbit/s

95th percentile per-packet one-way delay: 40.093 ms

Loss rate: 0.67%

-- Flow 1:

Average throughput: 559.31 Mbit/s

95th percentile per-packet one-way delay: 34.374 ms

Loss rate: 0.56%

-- Flow 2:

Average throughput: 397.25 Mbit/s

95th percentile per-packet one-way delay: 42.274 ms

Loss rate: 0.86%

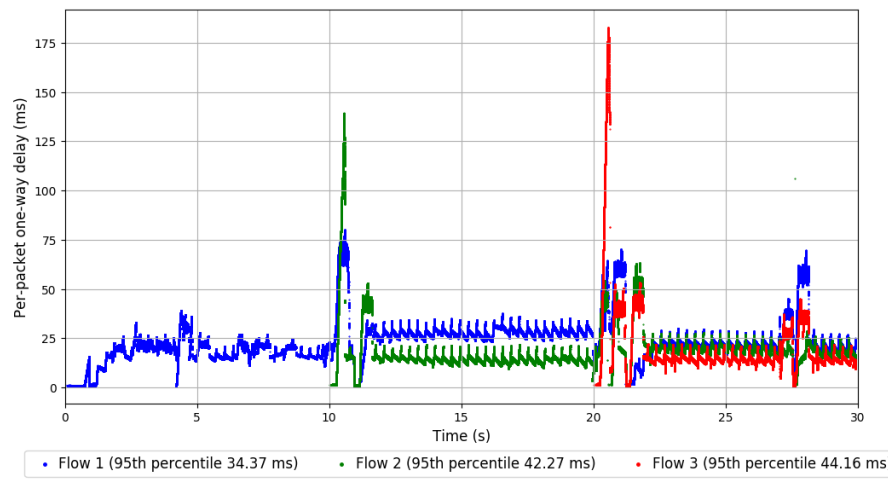
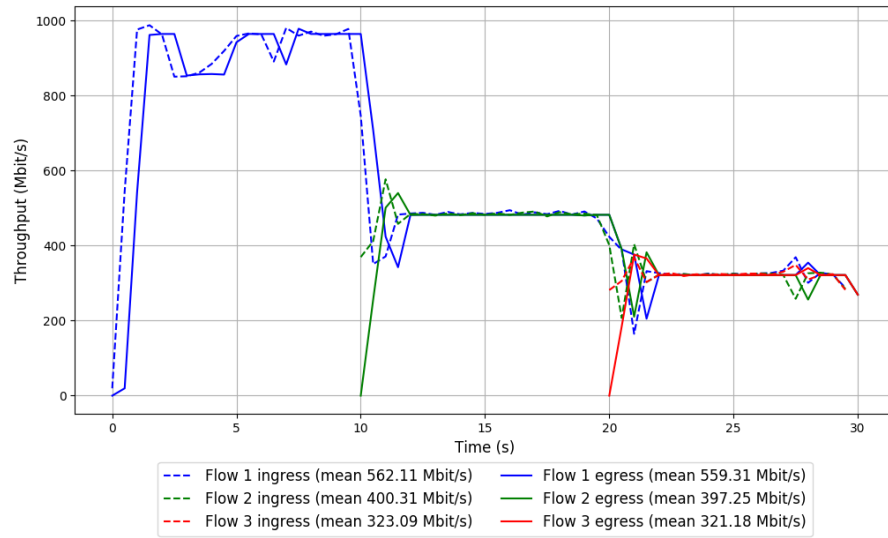
-- Flow 3:

Average throughput: 321.18 Mbit/s

95th percentile per-packet one-way delay: 44.156 ms

Loss rate: 0.78%

### Run 3: Report of FillP-Sheep — Data Link

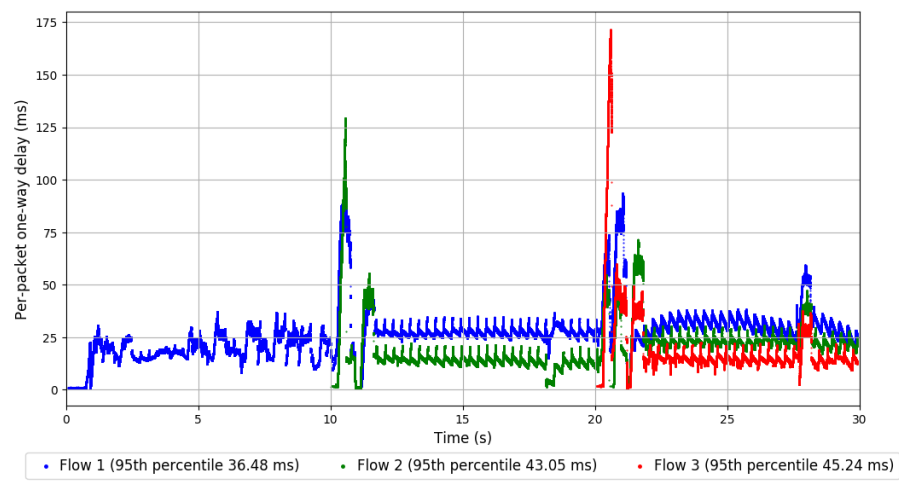
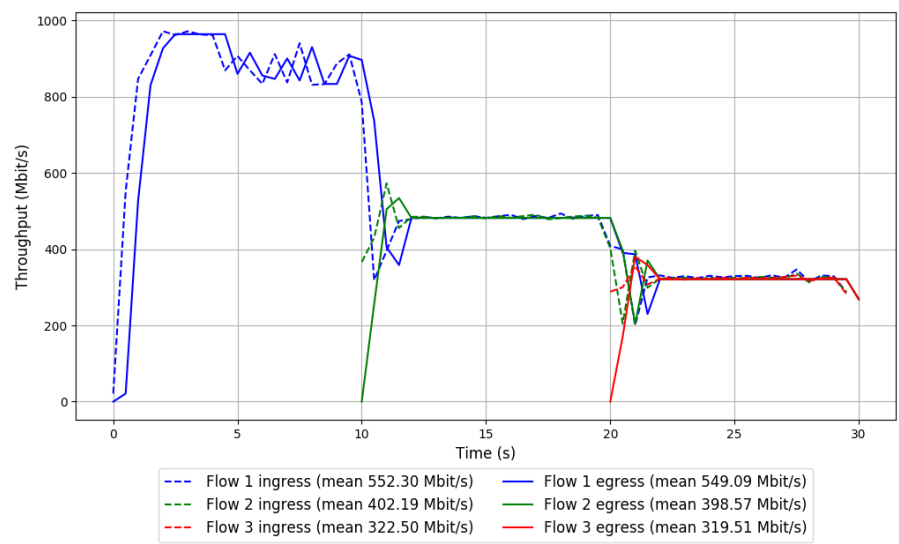


Run 4: Statistics of FillP-Sheep

Start at: 2018-09-08 02:12:34  
End at: 2018-09-08 02:13:04  
Local clock offset: 3.429 ms  
Remote clock offset: -0.844 ms

# Below is generated by plot.py at 2018-09-08 03:40:24  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 919.86 Mbit/s  
95th percentile per-packet one-way delay: 40.598 ms  
Loss rate: 0.80%  
-- Flow 1:  
Average throughput: 549.09 Mbit/s  
95th percentile per-packet one-way delay: 36.480 ms  
Loss rate: 0.64%  
-- Flow 2:  
Average throughput: 398.57 Mbit/s  
95th percentile per-packet one-way delay: 43.045 ms  
Loss rate: 0.99%  
-- Flow 3:  
Average throughput: 319.51 Mbit/s  
95th percentile per-packet one-way delay: 45.242 ms  
Loss rate: 1.12%

Run 4: Report of FillP-Sheep — Data Link



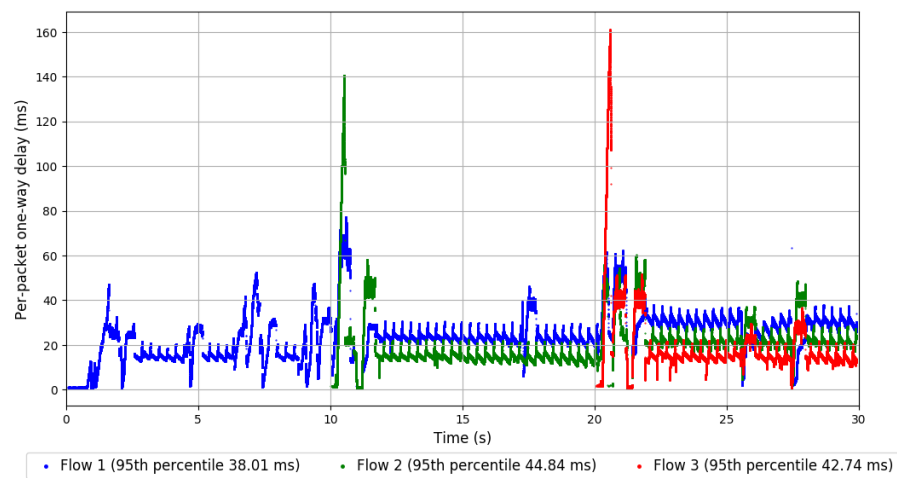
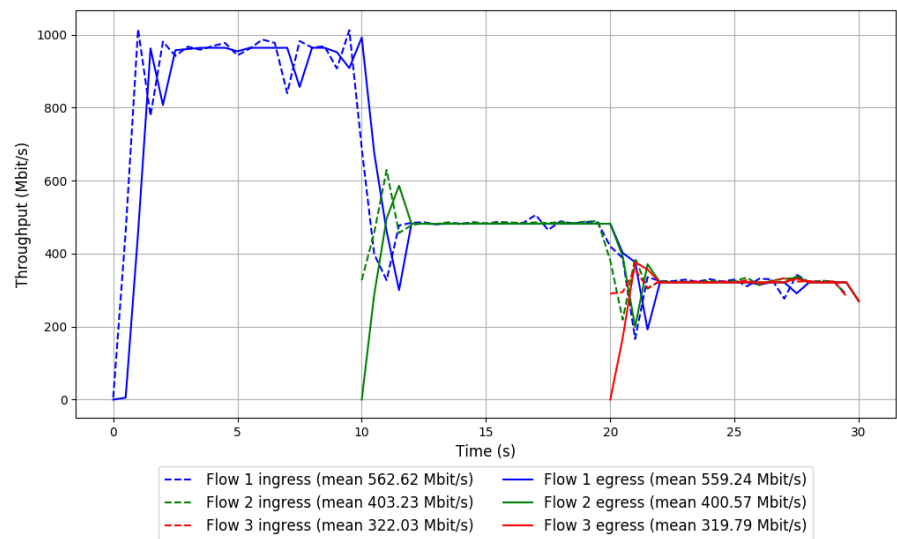


Run 5: Statistics of FillP-Sheep

Start at: 2018-09-08 02:41:51  
End at: 2018-09-08 02:42:21  
Local clock offset: -0.646 ms  
Remote clock offset: -4.485 ms

# Below is generated by plot.py at 2018-09-08 03:47:36  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 931.50 Mbit/s  
95th percentile per-packet one-way delay: 41.402 ms  
Loss rate: 0.71%  
-- Flow 1:  
Average throughput: 559.24 Mbit/s  
95th percentile per-packet one-way delay: 38.013 ms  
Loss rate: 0.66%  
-- Flow 2:  
Average throughput: 400.57 Mbit/s  
95th percentile per-packet one-way delay: 44.845 ms  
Loss rate: 0.76%  
-- Flow 3:  
Average throughput: 319.79 Mbit/s  
95th percentile per-packet one-way delay: 42.740 ms  
Loss rate: 0.90%

Run 5: Report of FillP-Sheep — Data Link

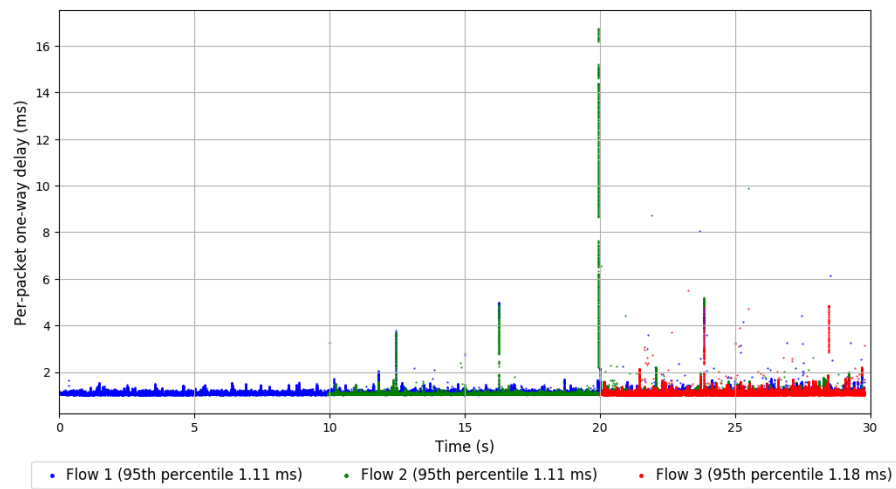
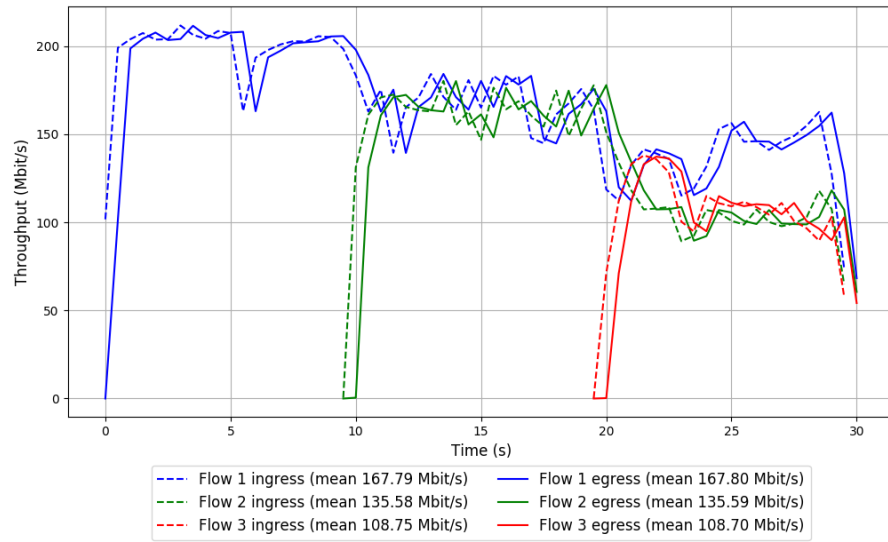


```
Run 1: Statistics of Indigo

Start at: 2018-09-08 00:27:52
End at: 2018-09-08 00:28:22
Local clock offset: 3.356 ms
Remote clock offset: 3.08 ms

# Below is generated by plot.py at 2018-09-08 03:47:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 293.83 Mbit/s
95th percentile per-packet one-way delay: 1.120 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 167.80 Mbit/s
95th percentile per-packet one-way delay: 1.113 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 135.59 Mbit/s
95th percentile per-packet one-way delay: 1.113 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 108.70 Mbit/s
95th percentile per-packet one-way delay: 1.178 ms
Loss rate: 0.18%
```

## Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-08 00:57:04

End at: 2018-09-08 00:57:34

Local clock offset: 0.418 ms

Remote clock offset: 3.431 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 299.54 Mbit/s

95th percentile per-packet one-way delay: 1.255 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 169.04 Mbit/s

95th percentile per-packet one-way delay: 1.240 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 153.65 Mbit/s

95th percentile per-packet one-way delay: 1.260 ms

Loss rate: 0.10%

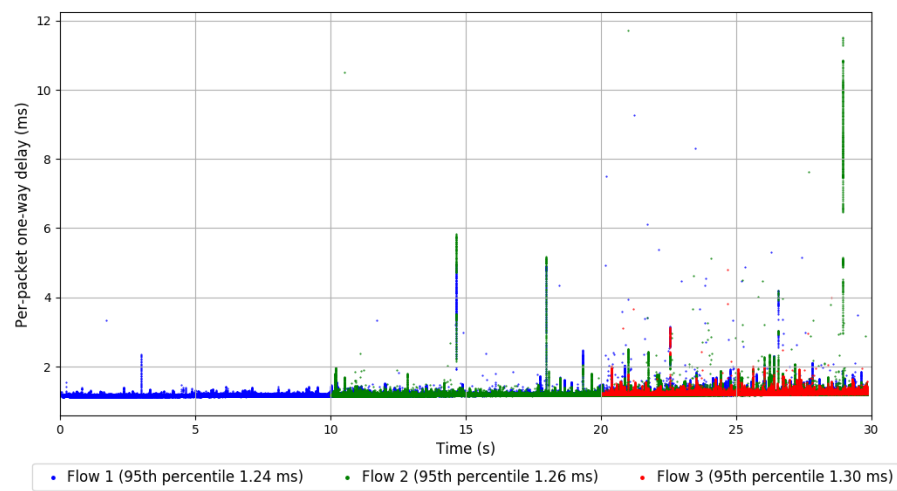
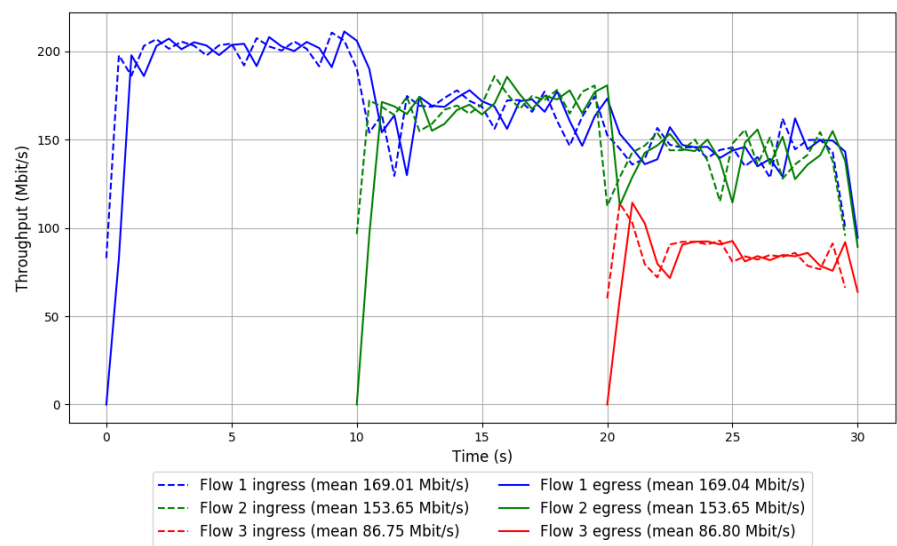
-- Flow 3:

Average throughput: 86.80 Mbit/s

95th percentile per-packet one-way delay: 1.297 ms

Loss rate: 0.15%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-08 01:26:20

End at: 2018-09-08 01:26:50

Local clock offset: 2.309 ms

Remote clock offset: 3.208 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 288.39 Mbit/s

95th percentile per-packet one-way delay: 1.014 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 160.22 Mbit/s

95th percentile per-packet one-way delay: 1.015 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 151.88 Mbit/s

95th percentile per-packet one-way delay: 1.011 ms

Loss rate: 0.10%

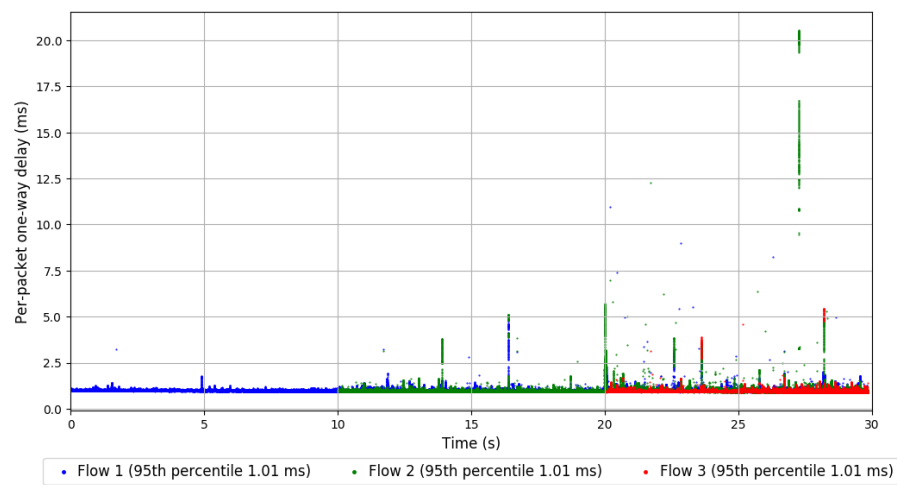
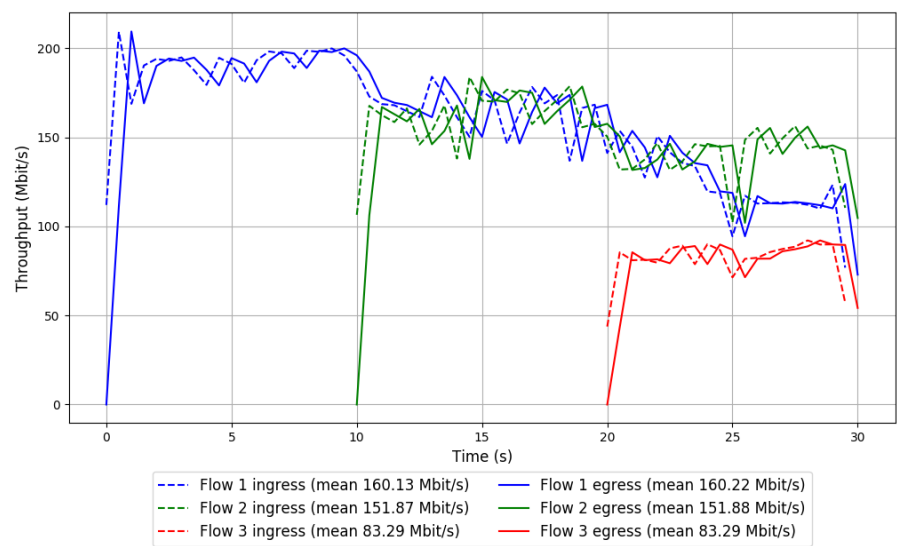
-- Flow 3:

Average throughput: 83.29 Mbit/s

95th percentile per-packet one-way delay: 1.011 ms

Loss rate: 0.21%

Run 3: Report of Indigo — Data Link





Run 4: Statistics of Indigo

Start at: 2018-09-08 01:55:31

End at: 2018-09-08 01:56:01

Local clock offset: 3.363 ms

Remote clock offset: 1.009 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 303.05 Mbit/s

95th percentile per-packet one-way delay: 1.048 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 156.09 Mbit/s

95th percentile per-packet one-way delay: 1.045 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 153.57 Mbit/s

95th percentile per-packet one-way delay: 1.065 ms

Loss rate: 0.10%

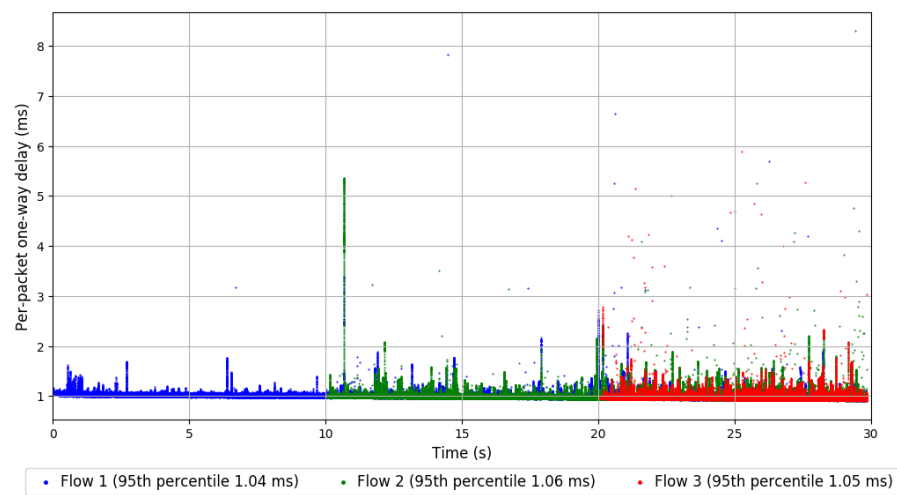
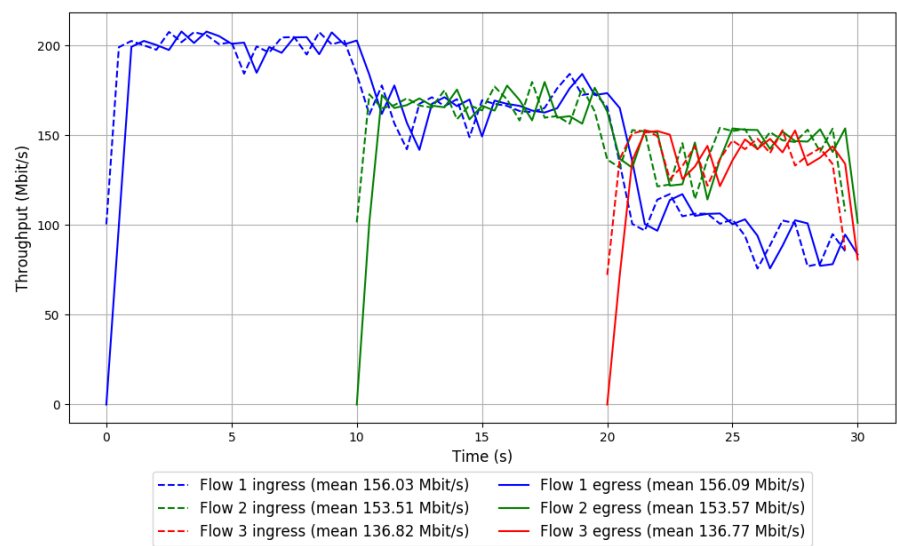
-- Flow 3:

Average throughput: 136.77 Mbit/s

95th percentile per-packet one-way delay: 1.051 ms

Loss rate: 0.20%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-08 02:24:49

End at: 2018-09-08 02:25:19

Local clock offset: 0.851 ms

Remote clock offset: -2.07 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 293.50 Mbit/s

95th percentile per-packet one-way delay: 1.082 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 169.49 Mbit/s

95th percentile per-packet one-way delay: 1.069 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 148.74 Mbit/s

95th percentile per-packet one-way delay: 1.129 ms

Loss rate: 0.08%

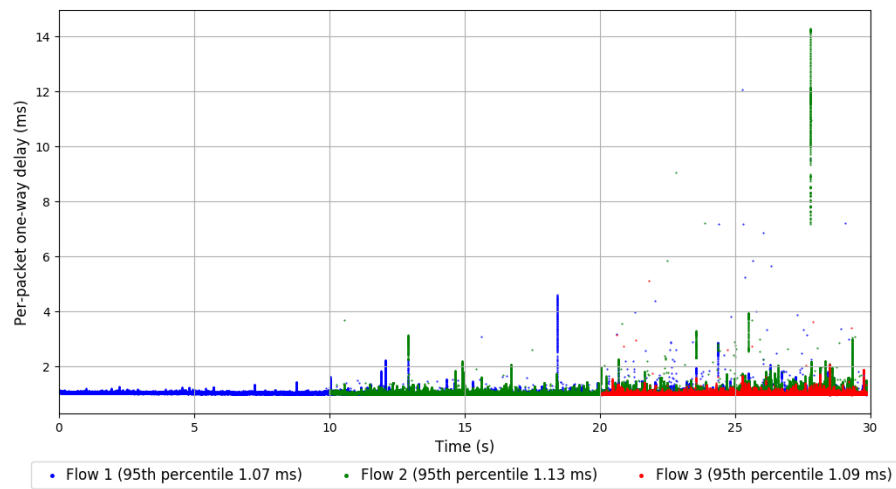
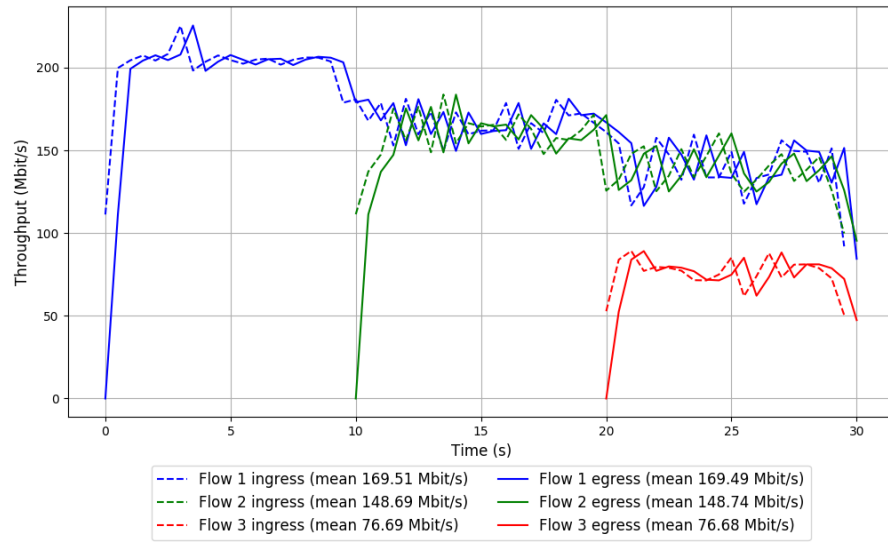
-- Flow 3:

Average throughput: 76.68 Mbit/s

95th percentile per-packet one-way delay: 1.090 ms

Loss rate: 0.22%

## Run 5: Report of Indigo — Data Link

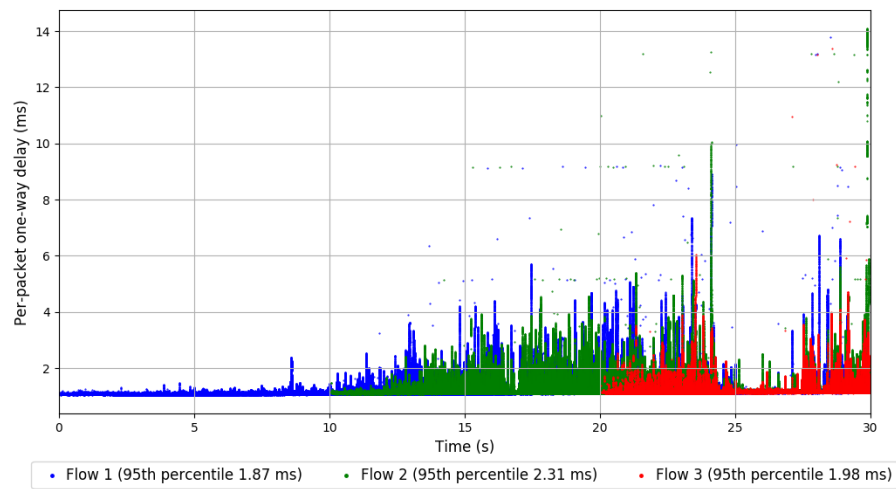
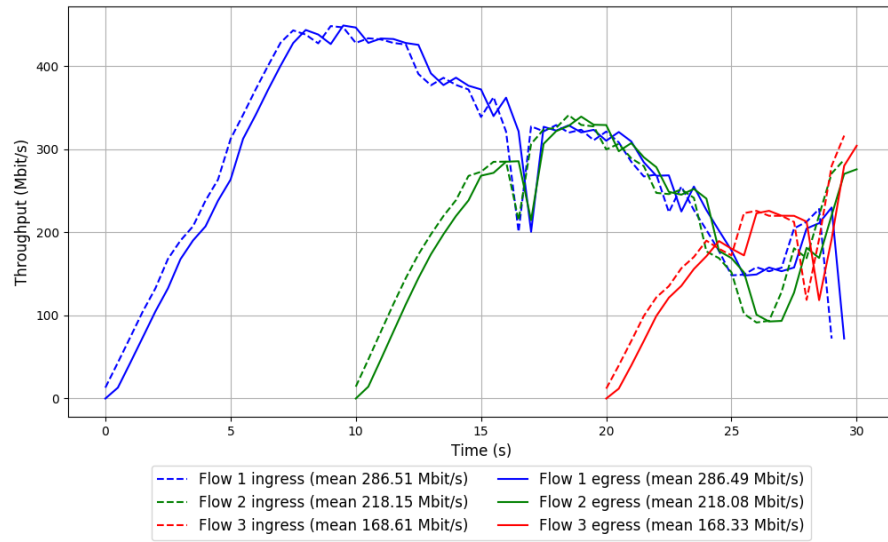


```
Run 1: Statistics of LEDBAT

Start at: 2018-09-08 00:53:59
End at: 2018-09-08 00:54:29
Local clock offset: 0.901 ms
Remote clock offset: 3.486 ms

# Below is generated by plot.py at 2018-09-08 03:47:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 479.92 Mbit/s
95th percentile per-packet one-way delay: 2.038 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 286.49 Mbit/s
95th percentile per-packet one-way delay: 1.872 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 218.08 Mbit/s
95th percentile per-packet one-way delay: 2.308 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 168.33 Mbit/s
95th percentile per-packet one-way delay: 1.984 ms
Loss rate: 0.37%
```

## Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-08 01:23:14

End at: 2018-09-08 01:23:44

Local clock offset: 1.682 ms

Remote clock offset: 3.329 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 482.84 Mbit/s

95th percentile per-packet one-way delay: 1.611 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 254.48 Mbit/s

95th percentile per-packet one-way delay: 1.454 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 243.71 Mbit/s

95th percentile per-packet one-way delay: 1.787 ms

Loss rate: 0.04%

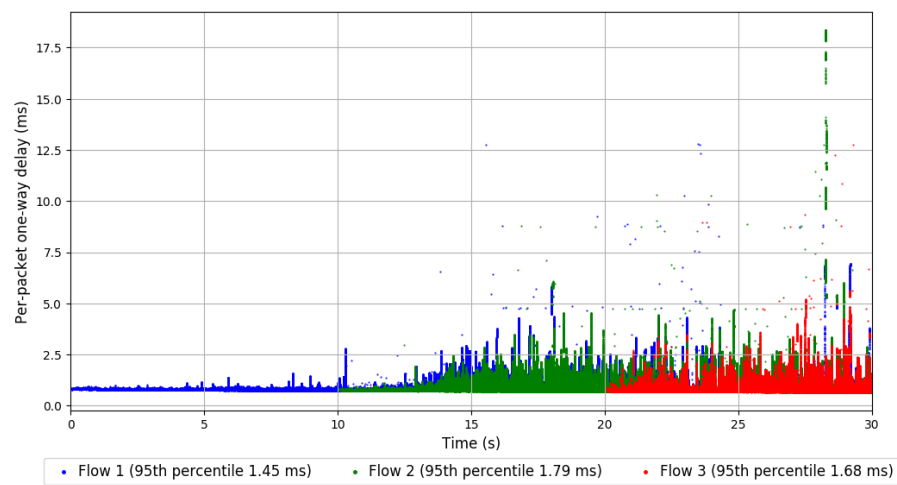
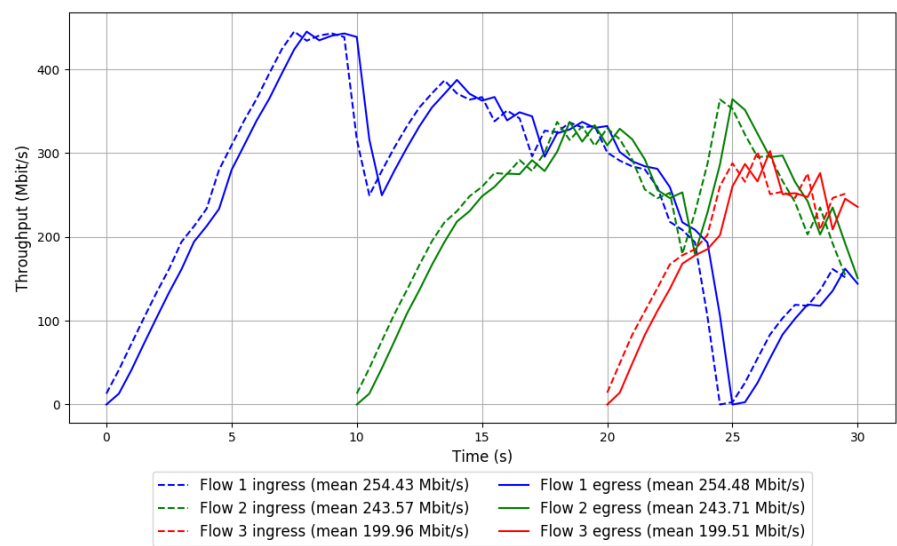
-- Flow 3:

Average throughput: 199.51 Mbit/s

95th percentile per-packet one-way delay: 1.683 ms

Loss rate: 0.42%

Run 2: Report of LEDBAT — Data Link





Run 3: Statistics of LEDBAT

Start at: 2018-09-08 01:52:25

End at: 2018-09-08 01:52:55

Local clock offset: 3.372 ms

Remote clock offset: 1.766 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 488.38 Mbit/s

95th percentile per-packet one-way delay: 1.738 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 294.04 Mbit/s

95th percentile per-packet one-way delay: 1.565 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 216.92 Mbit/s

95th percentile per-packet one-way delay: 1.969 ms

Loss rate: 0.00%

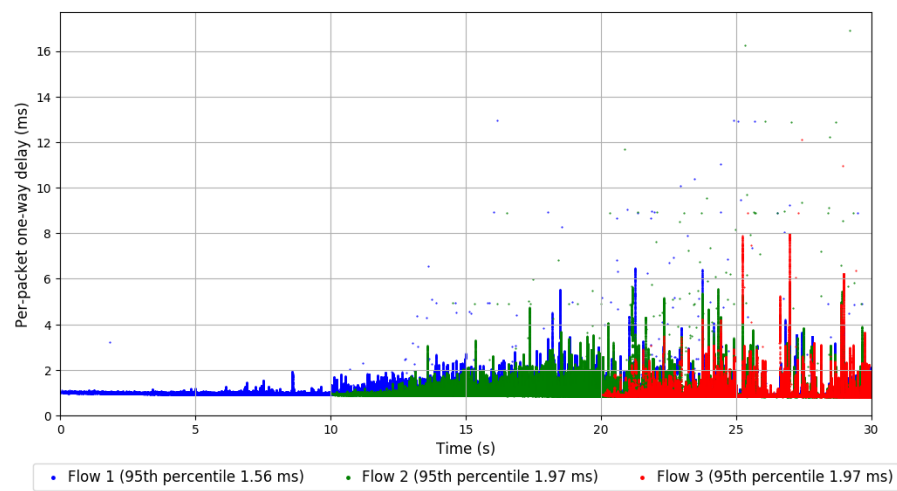
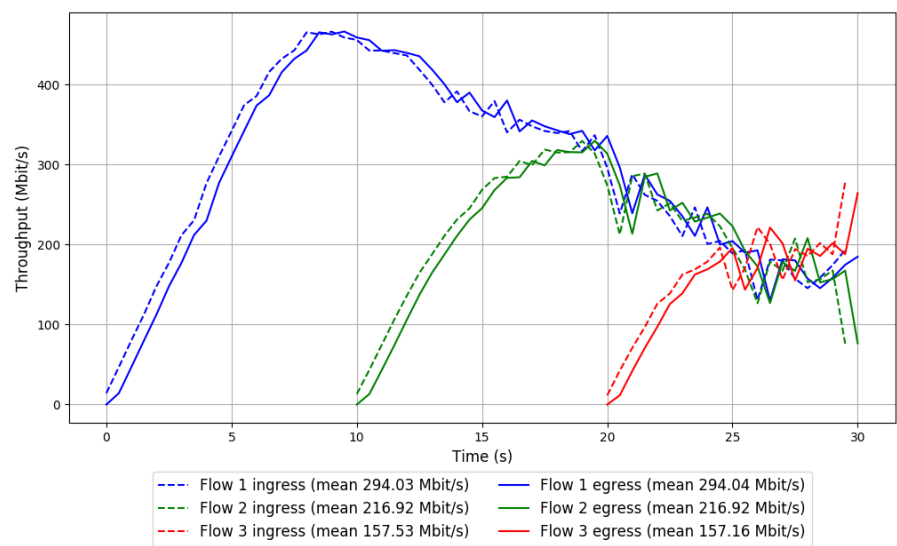
-- Flow 3:

Average throughput: 157.16 Mbit/s

95th percentile per-packet one-way delay: 1.970 ms

Loss rate: 0.44%

Run 3: Report of LEDBAT — Data Link

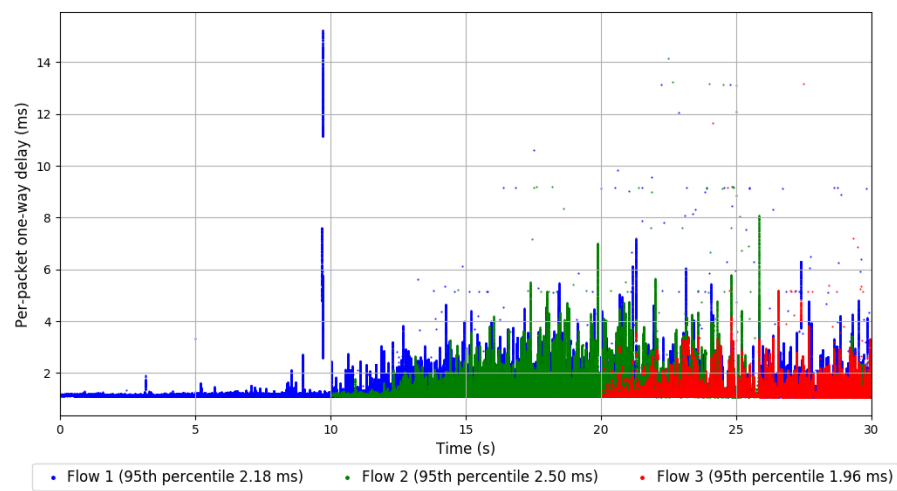
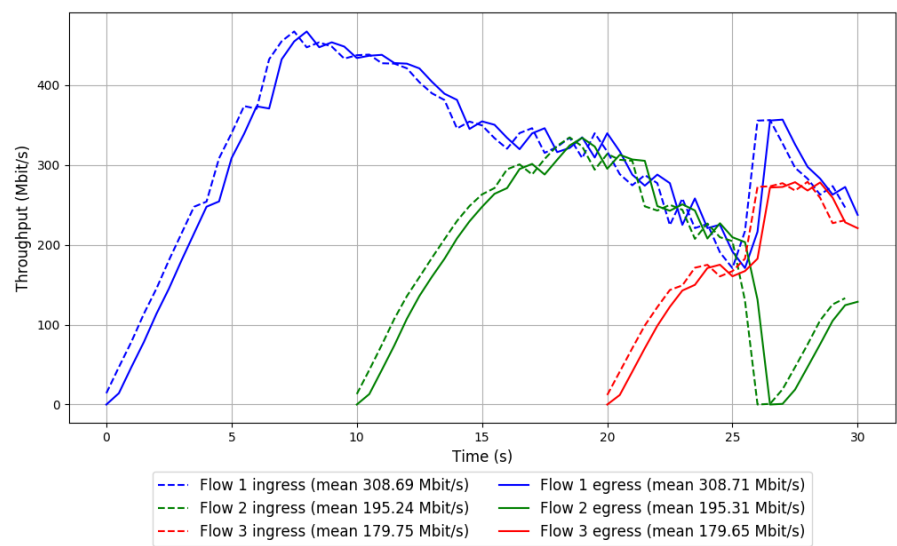


Run 4: Statistics of LEDBAT

Start at: 2018-09-08 02:21:42  
End at: 2018-09-08 02:22:12  
Local clock offset: 1.431 ms  
Remote clock offset: -1.326 ms

# Below is generated by plot.py at 2018-09-08 03:47:36  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 498.30 Mbit/s  
95th percentile per-packet one-way delay: 2.243 ms  
Loss rate: 0.09%  
-- Flow 1:  
Average throughput: 308.71 Mbit/s  
95th percentile per-packet one-way delay: 2.183 ms  
Loss rate: 0.06%  
-- Flow 2:  
Average throughput: 195.31 Mbit/s  
95th percentile per-packet one-way delay: 2.502 ms  
Loss rate: 0.08%  
-- Flow 3:  
Average throughput: 179.65 Mbit/s  
95th percentile per-packet one-way delay: 1.963 ms  
Loss rate: 0.28%

Run 4: Report of LEDBAT — Data Link

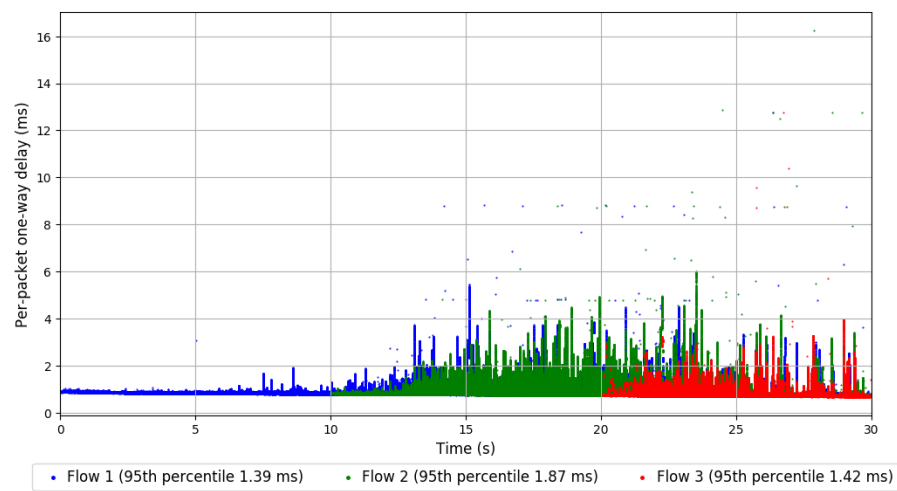
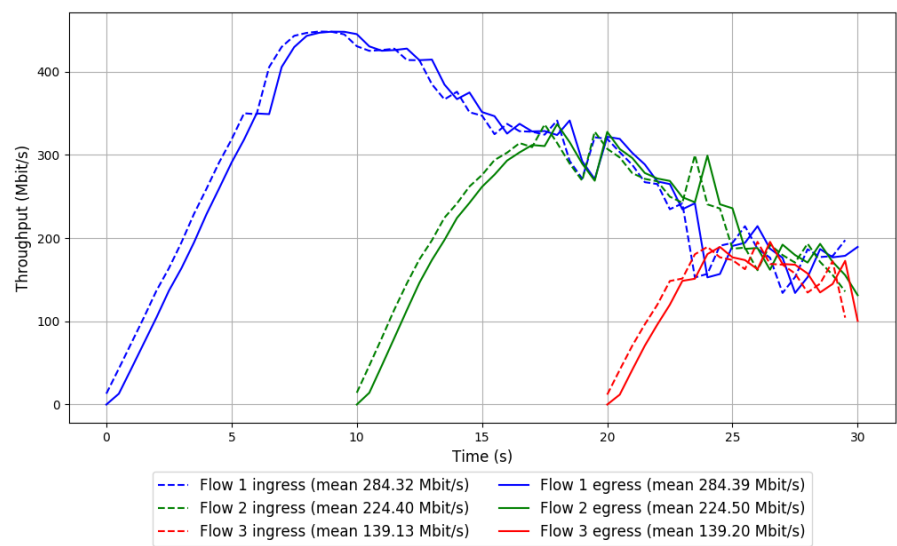


Run 5: Statistics of LEDBAT

Start at: 2018-09-08 02:50:56  
End at: 2018-09-08 02:51:26  
Local clock offset: 1.389 ms  
Remote clock offset: -5.254 ms

# Below is generated by plot.py at 2018-09-08 03:47:36  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 480.03 Mbit/s  
95th percentile per-packet one-way delay: 1.567 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 284.39 Mbit/s  
95th percentile per-packet one-way delay: 1.385 ms  
Loss rate: 0.05%  
-- Flow 2:  
Average throughput: 224.50 Mbit/s  
95th percentile per-packet one-way delay: 1.868 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 139.20 Mbit/s  
95th percentile per-packet one-way delay: 1.424 ms  
Loss rate: 0.14%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-08 00:34:19

End at: 2018-09-08 00:34:49

Local clock offset: 3.325 ms

Remote clock offset: 3.324 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 203.68 Mbit/s

95th percentile per-packet one-way delay: 1.057 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 106.24 Mbit/s

95th percentile per-packet one-way delay: 1.049 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 133.73 Mbit/s

95th percentile per-packet one-way delay: 1.076 ms

Loss rate: 0.06%

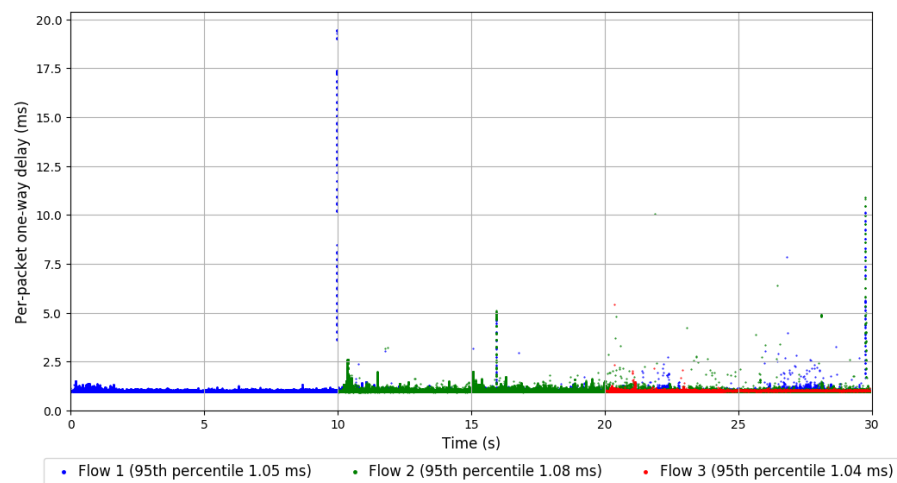
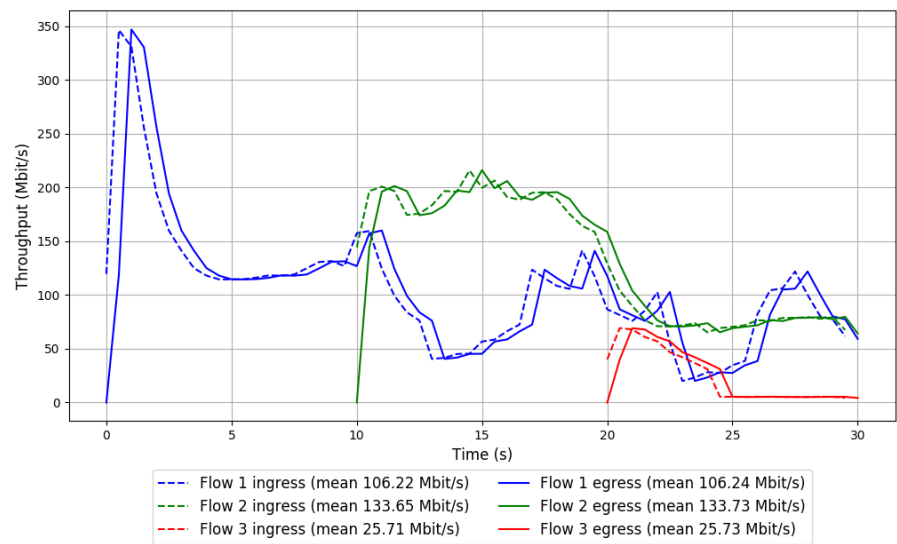
-- Flow 3:

Average throughput: 25.73 Mbit/s

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

Loss rate: 0.03%

Run 1: Report of Indigo-Muses — Data Link





Run 2: Statistics of Indigo-Muses

Start at: 2018-09-08 01:03:31

End at: 2018-09-08 01:04:01

Local clock offset: -0.217 ms

Remote clock offset: 3.613 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 108.32 Mbit/s

95th percentile per-packet one-way delay: 1.201 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 25.69 Mbit/s

95th percentile per-packet one-way delay: 1.188 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 78.32 Mbit/s

95th percentile per-packet one-way delay: 1.189 ms

Loss rate: 0.01%

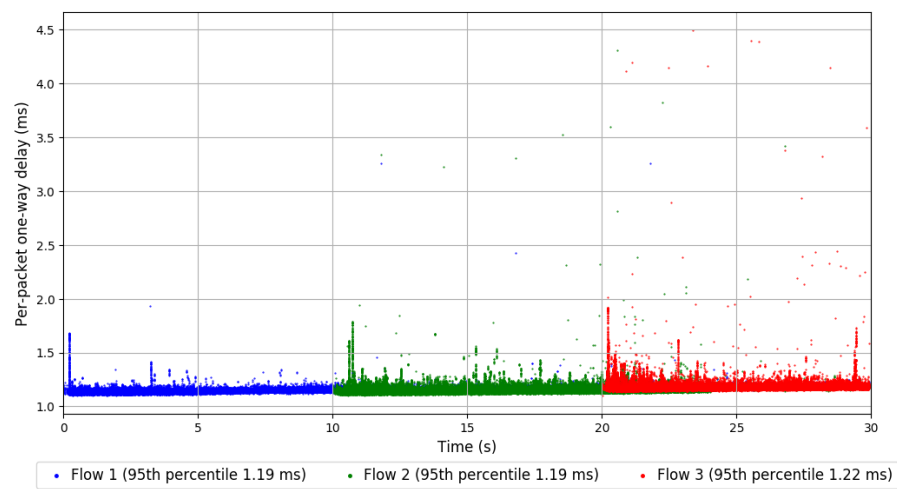
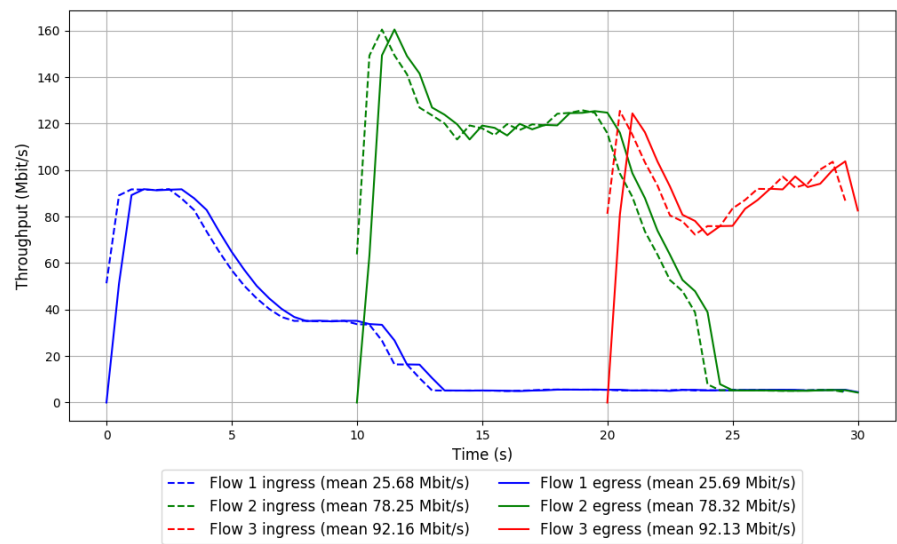
-- Flow 3:

Average throughput: 92.13 Mbit/s

95th percentile per-packet one-way delay: 1.221 ms

Loss rate: 0.23%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-08 01:32:46

End at: 2018-09-08 01:33:16

Local clock offset: 2.963 ms

Remote clock offset: 3.173 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 269.35 Mbit/s

95th percentile per-packet one-way delay: 1.155 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 192.08 Mbit/s

95th percentile per-packet one-way delay: 1.179 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 81.03 Mbit/s

95th percentile per-packet one-way delay: 1.107 ms

Loss rate: 0.02%

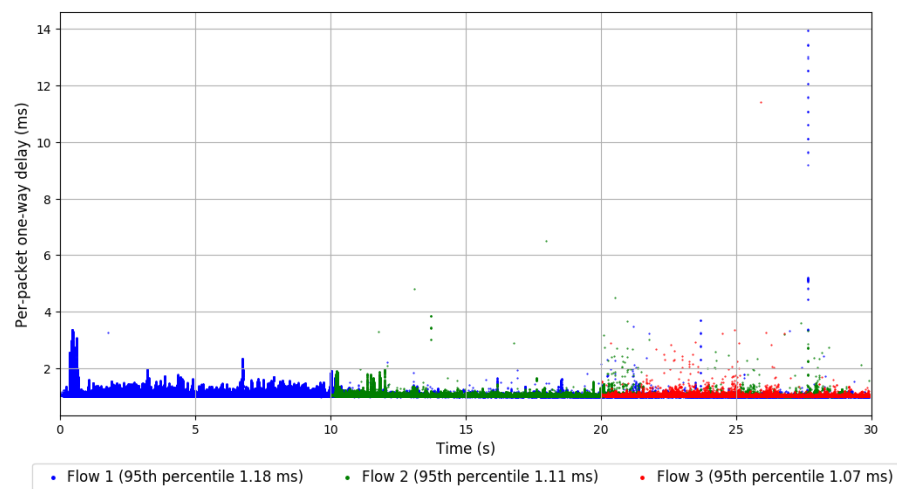
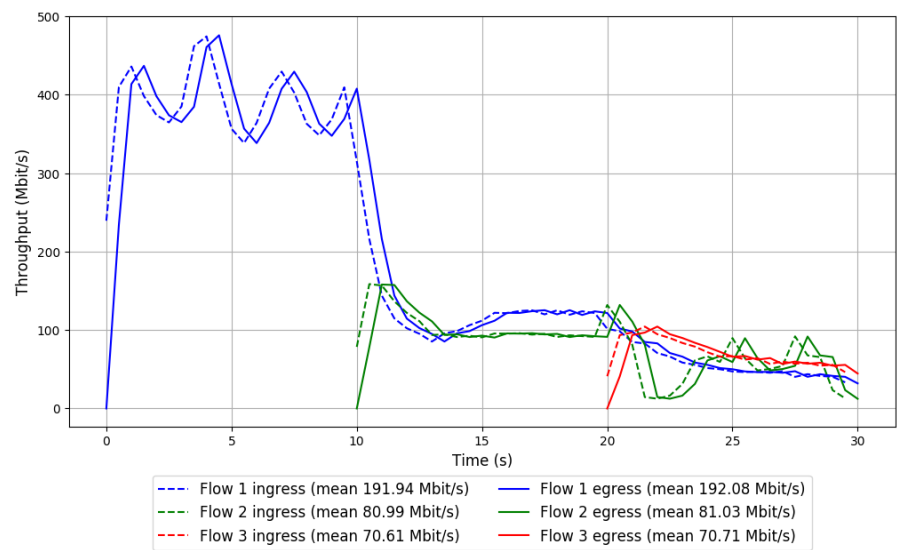
-- Flow 3:

Average throughput: 70.71 Mbit/s

95th percentile per-packet one-way delay: 1.070 ms

Loss rate: 0.14%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-08 02:01:58

End at: 2018-09-08 02:02:28

Local clock offset: 3.289 ms

Remote clock offset: 0.039 ms

# Below is generated by plot.py at 2018-09-08 03:47:36

# Datalink statistics

-- Total of 3 flows:

Average throughput: 127.53 Mbit/s

95th percentile per-packet one-way delay: 0.974 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 79.52 Mbit/s

95th percentile per-packet one-way delay: 0.977 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 32.23 Mbit/s

95th percentile per-packet one-way delay: 0.955 ms

Loss rate: 0.01%

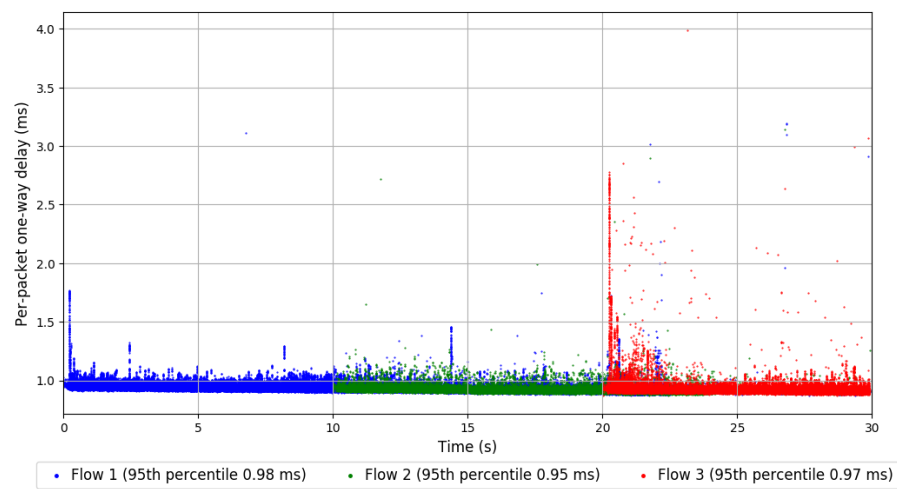
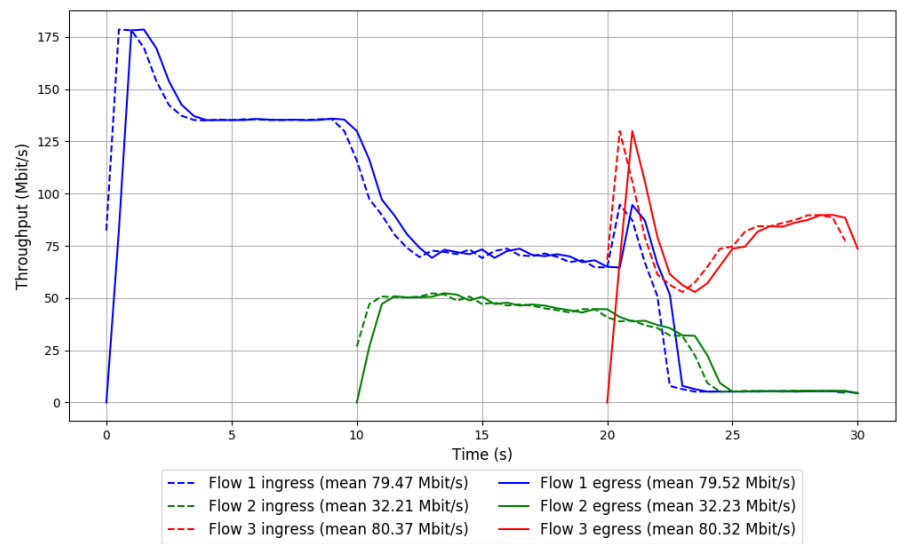
-- Flow 3:

Average throughput: 80.32 Mbit/s

95th percentile per-packet one-way delay: 0.969 ms

Loss rate: 0.25%

Run 4: Report of Indigo-Muses — Data Link

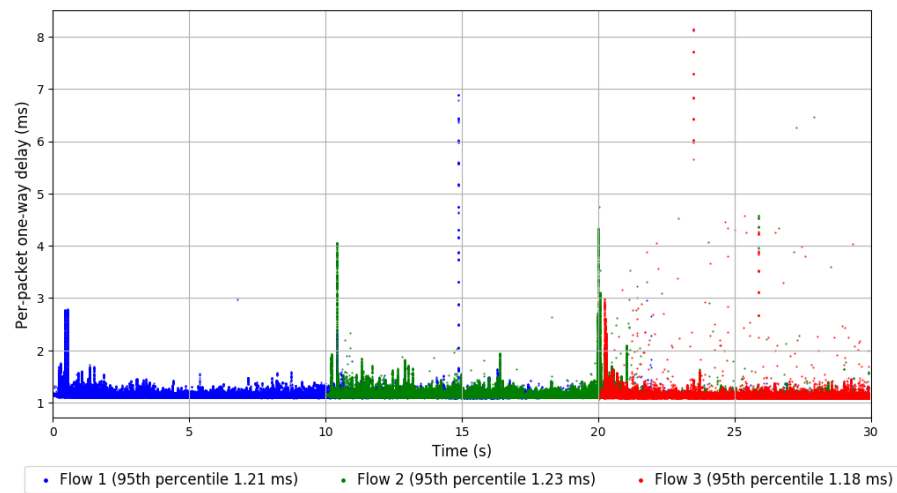
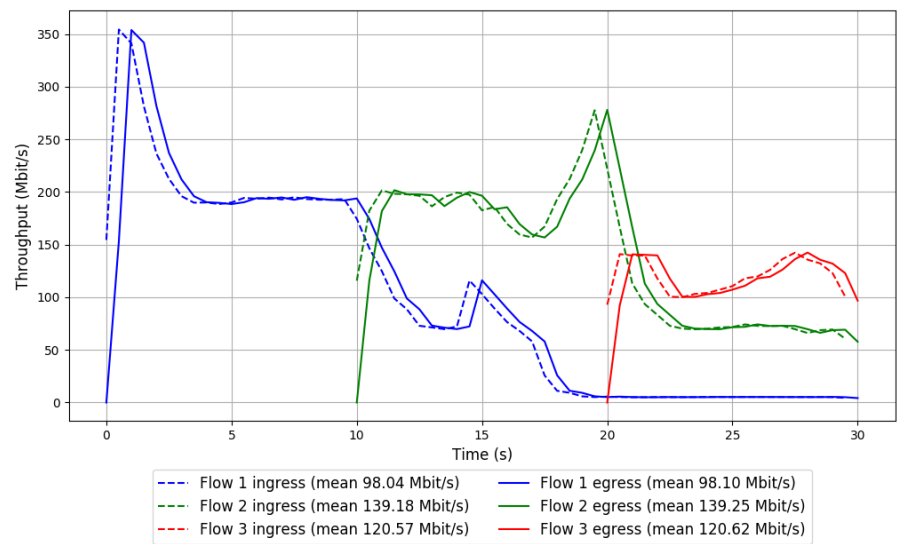


Run 5: Statistics of Indigo-Muses

Start at: 2018-09-08 02:31:13  
End at: 2018-09-08 02:31:43  
Local clock offset: 0.19 ms  
Remote clock offset: -3.234 ms

# Below is generated by plot.py at 2018-09-08 03:47:36  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 230.68 Mbit/s  
95th percentile per-packet one-way delay: 1.215 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 98.10 Mbit/s  
95th percentile per-packet one-way delay: 1.212 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 139.25 Mbit/s  
95th percentile per-packet one-way delay: 1.231 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 120.62 Mbit/s  
95th percentile per-packet one-way delay: 1.180 ms  
Loss rate: 0.17%

Run 5: Report of Indigo-Muses — Data Link



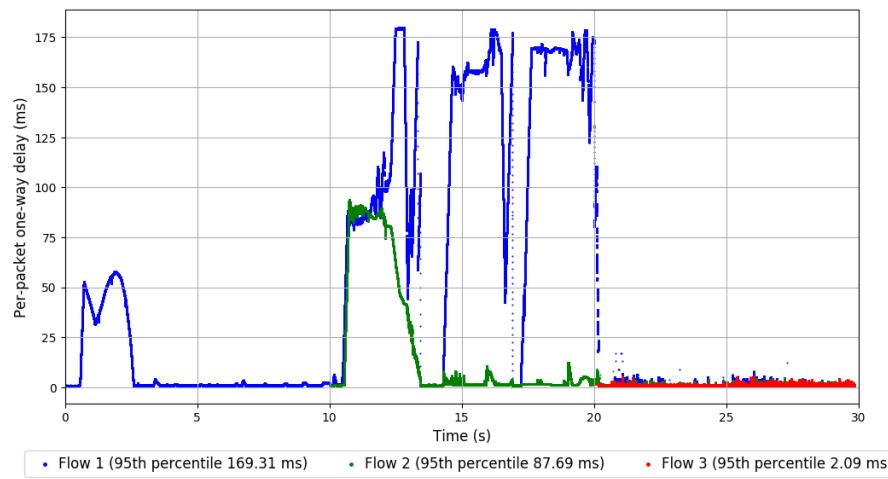
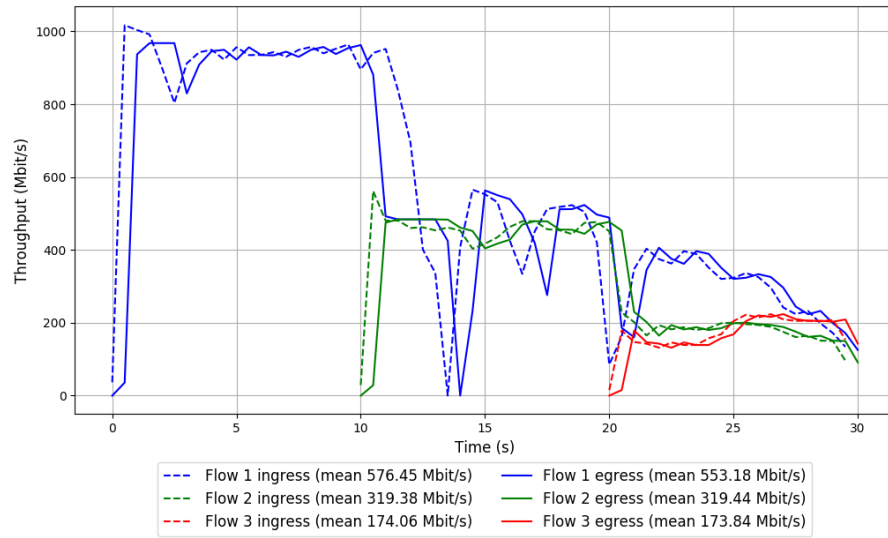


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-08 00:29:25
End at: 2018-09-08 00:29:55
Local clock offset: 3.252 ms
Remote clock offset: 3.12 ms

# Below is generated by plot.py at 2018-09-08 03:53:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 822.37 Mbit/s
95th percentile per-packet one-way delay: 167.881 ms
Loss rate: 2.85%
-- Flow 1:
Average throughput: 553.18 Mbit/s
95th percentile per-packet one-way delay: 169.314 ms
Loss rate: 4.11%
-- Flow 2:
Average throughput: 319.44 Mbit/s
95th percentile per-packet one-way delay: 87.692 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 173.84 Mbit/s
95th percentile per-packet one-way delay: 2.092 ms
Loss rate: 0.33%
```

# Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-08 00:58:38

End at: 2018-09-08 00:59:08

Local clock offset: 0.17 ms

Remote clock offset: 3.562 ms

# Below is generated by plot.py at 2018-09-08 03:53:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 795.60 Mbit/s

95th percentile per-packet one-way delay: 90.238 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 729.60 Mbit/s

95th percentile per-packet one-way delay: 90.285 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 87.27 Mbit/s

95th percentile per-packet one-way delay: 1.570 ms

Loss rate: 0.21%

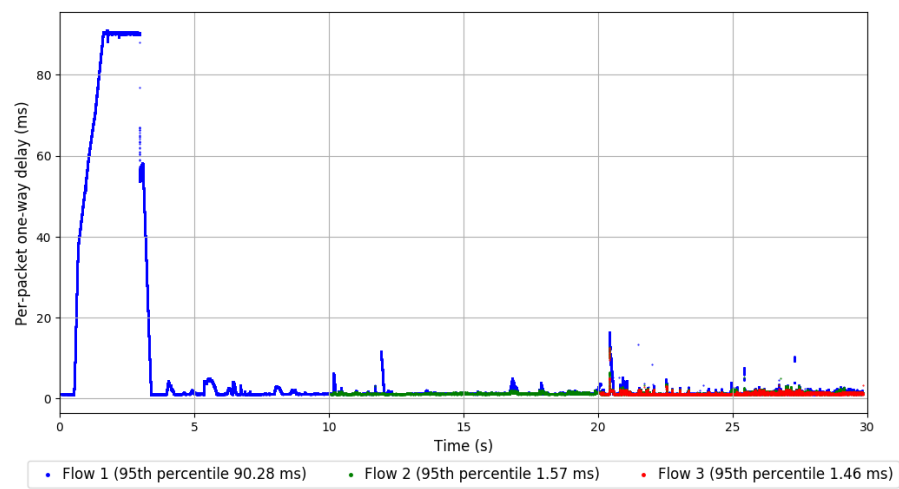
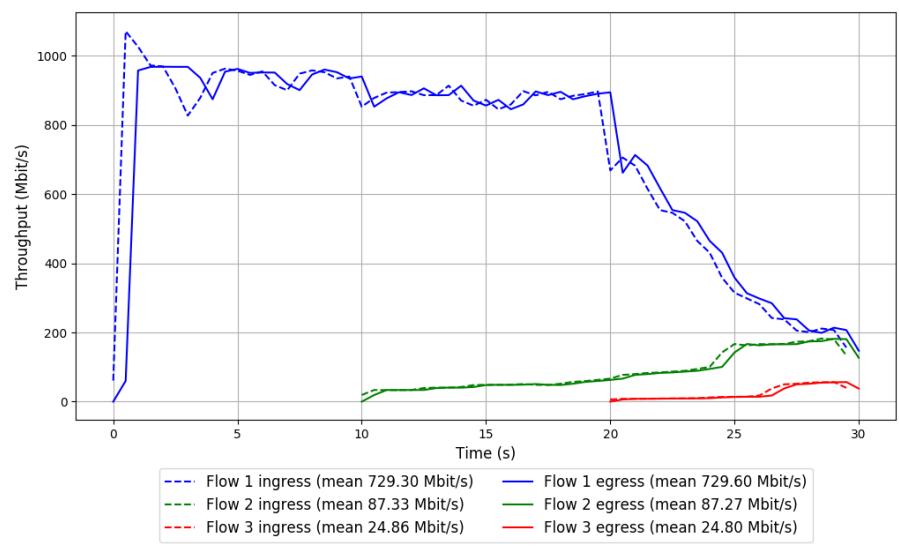
-- Flow 3:

Average throughput: 24.80 Mbit/s

95th percentile per-packet one-way delay: 1.462 ms

Loss rate: 0.46%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-08 01:27:53

End at: 2018-09-08 01:28:23

Local clock offset: 2.416 ms

Remote clock offset: 3.286 ms

# Below is generated by plot.py at 2018-09-08 03:53:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 752.59 Mbit/s

95th percentile per-packet one-way delay: 137.207 ms

Loss rate: 4.05%

-- Flow 1:

Average throughput: 489.56 Mbit/s

95th percentile per-packet one-way delay: 169.048 ms

Loss rate: 4.19%

-- Flow 2:

Average throughput: 322.50 Mbit/s

95th percentile per-packet one-way delay: 107.899 ms

Loss rate: 4.58%

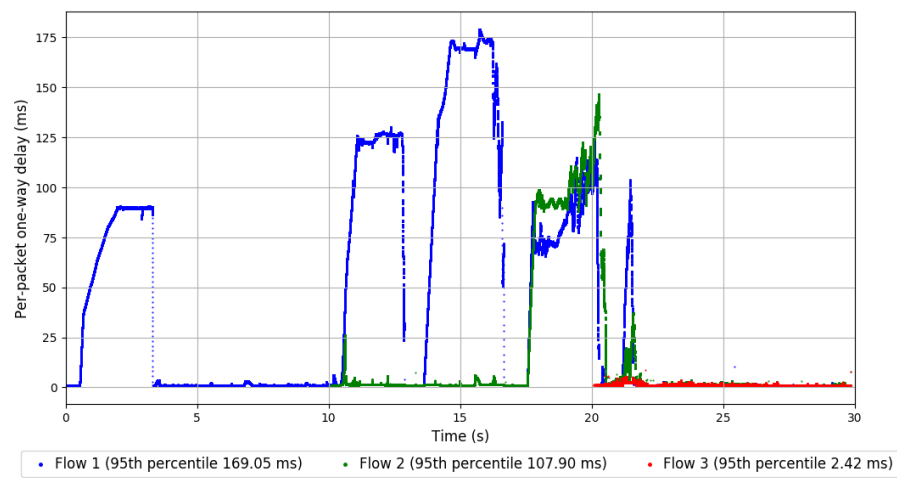
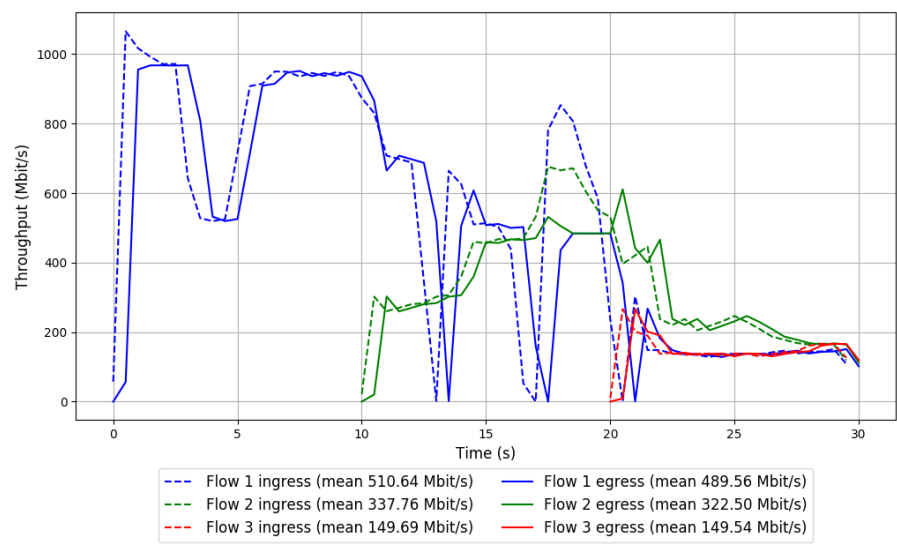
-- Flow 3:

Average throughput: 149.54 Mbit/s

95th percentile per-packet one-way delay: 2.420 ms

Loss rate: 0.24%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-08 01:57:04

End at: 2018-09-08 01:57:34

Local clock offset: 3.346 ms

Remote clock offset: 0.826 ms

# Below is generated by plot.py at 2018-09-08 03:53:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 812.43 Mbit/s

95th percentile per-packet one-way delay: 65.208 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 715.46 Mbit/s

95th percentile per-packet one-way delay: 69.966 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 105.88 Mbit/s

95th percentile per-packet one-way delay: 1.744 ms

Loss rate: 0.18%

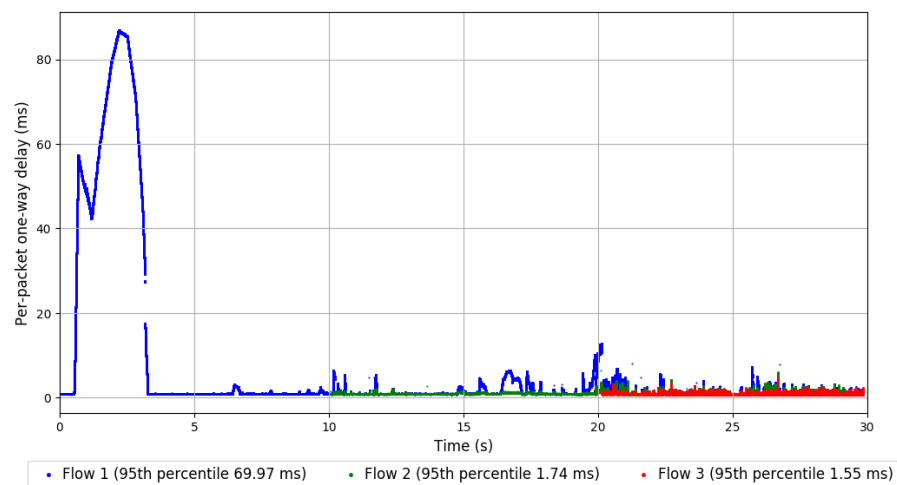
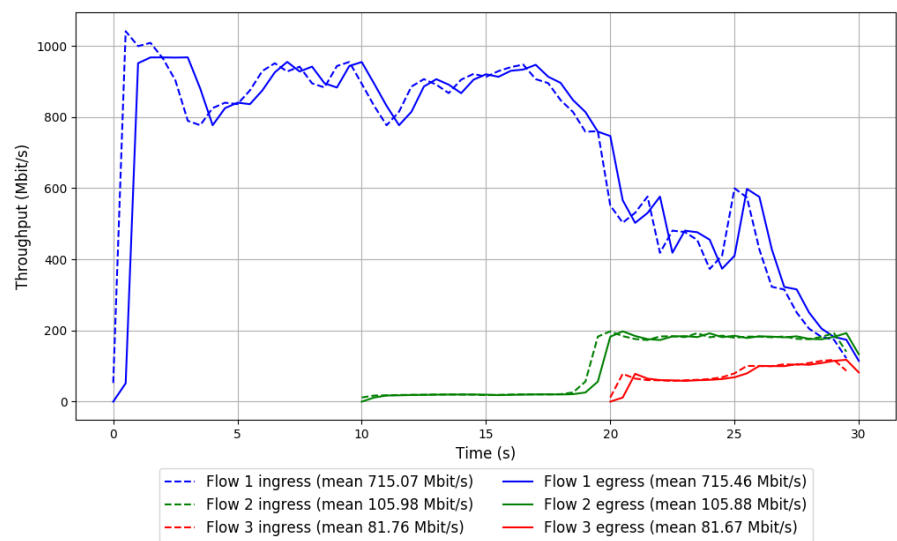
-- Flow 3:

Average throughput: 81.67 Mbit/s

95th percentile per-packet one-way delay: 1.554 ms

Loss rate: 0.30%

Run 4: Report of PCC-Allegro — Data Link



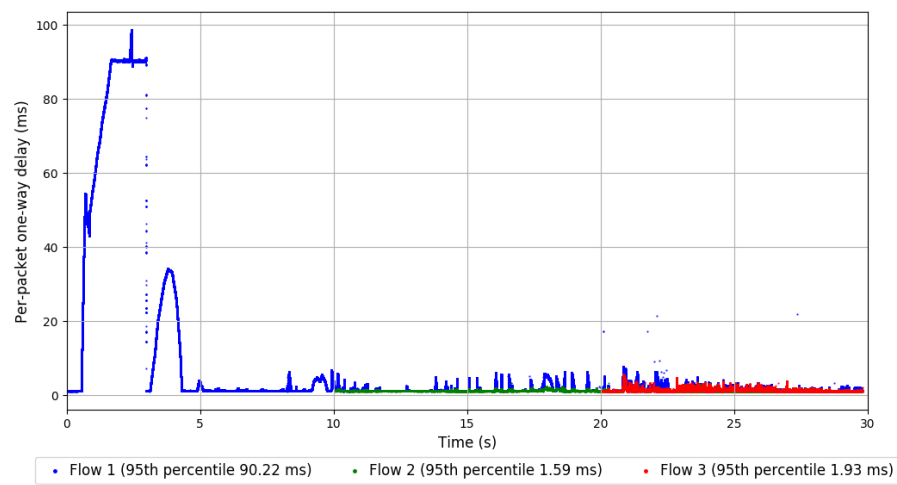
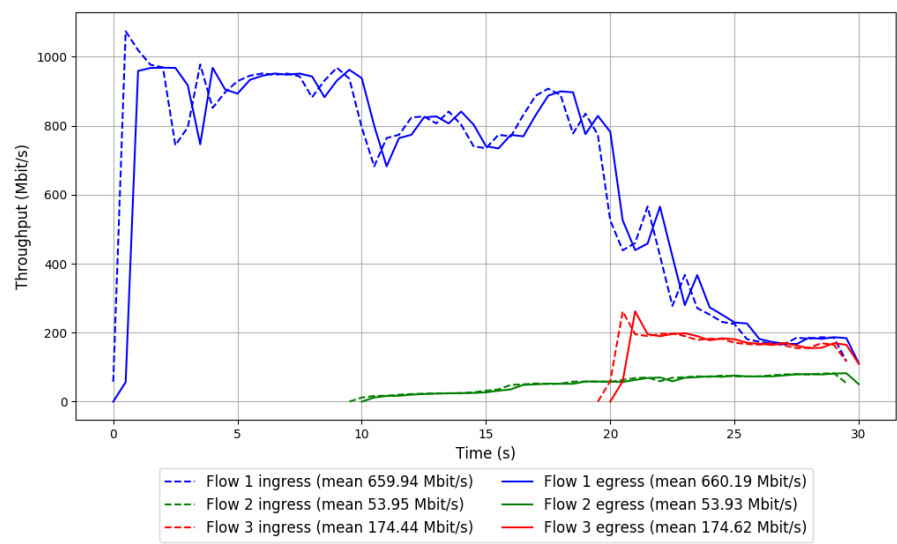


Run 5: Statistics of PCC-Allegro

Start at: 2018-09-08 02:26:23  
End at: 2018-09-08 02:26:53  
Local clock offset: 0.721 ms  
Remote clock offset: -2.359 ms

# Below is generated by plot.py at 2018-09-08 03:53:48  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 753.40 Mbit/s  
95th percentile per-packet one-way delay: 90.127 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 660.19 Mbit/s  
95th percentile per-packet one-way delay: 90.217 ms  
Loss rate: 0.04%  
-- Flow 2:  
Average throughput: 53.93 Mbit/s  
95th percentile per-packet one-way delay: 1.588 ms  
Loss rate: 0.15%  
-- Flow 3:  
Average throughput: 174.62 Mbit/s  
95th percentile per-packet one-way delay: 1.925 ms  
Loss rate: 0.21%

Run 5: Report of PCC-Allegro — Data Link

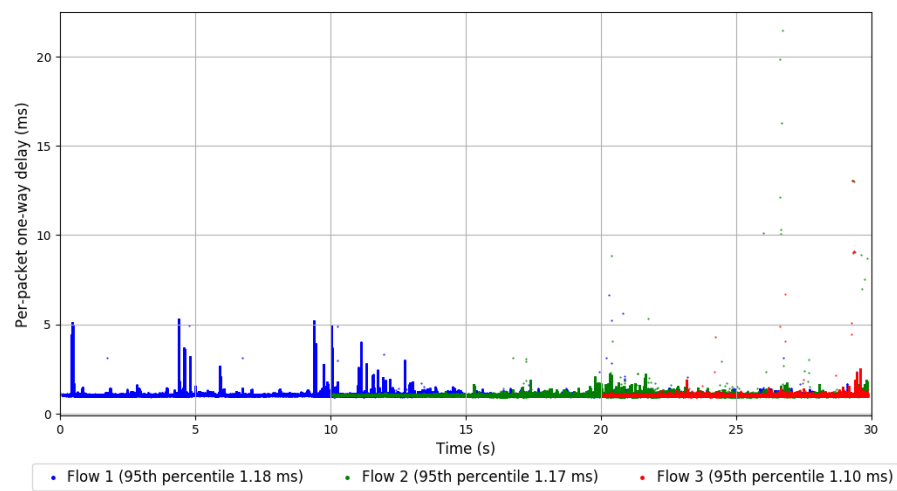
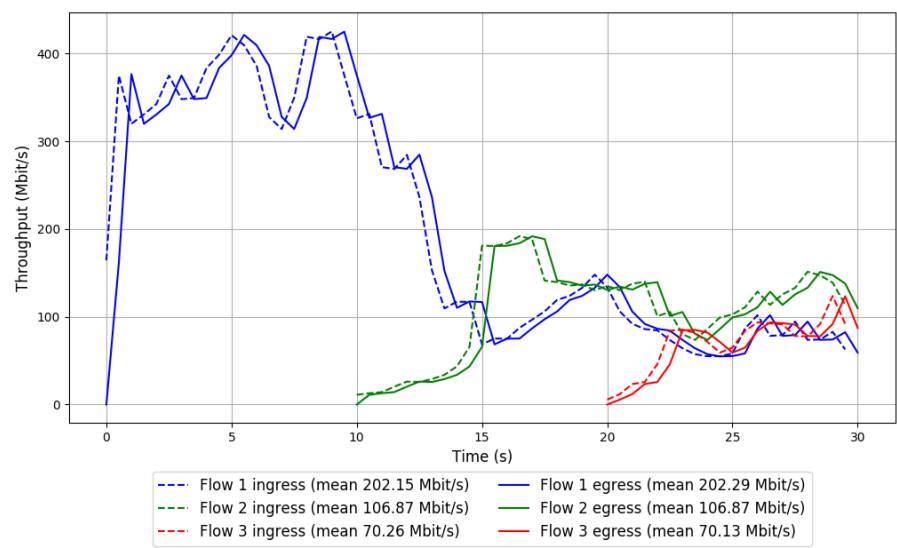


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-08 00:32:40
End at: 2018-09-08 00:33:11
Local clock offset: 3.326 ms
Remote clock offset: 3.229 ms

# Below is generated by plot.py at 2018-09-08 03:53:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 296.34 Mbit/s
95th percentile per-packet one-way delay: 1.164 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 202.29 Mbit/s
95th percentile per-packet one-way delay: 1.179 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 106.87 Mbit/s
95th percentile per-packet one-way delay: 1.166 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 70.13 Mbit/s
95th percentile per-packet one-way delay: 1.101 ms
Loss rate: 0.38%
```

Run 1: Report of PCC-Expr — Data Link

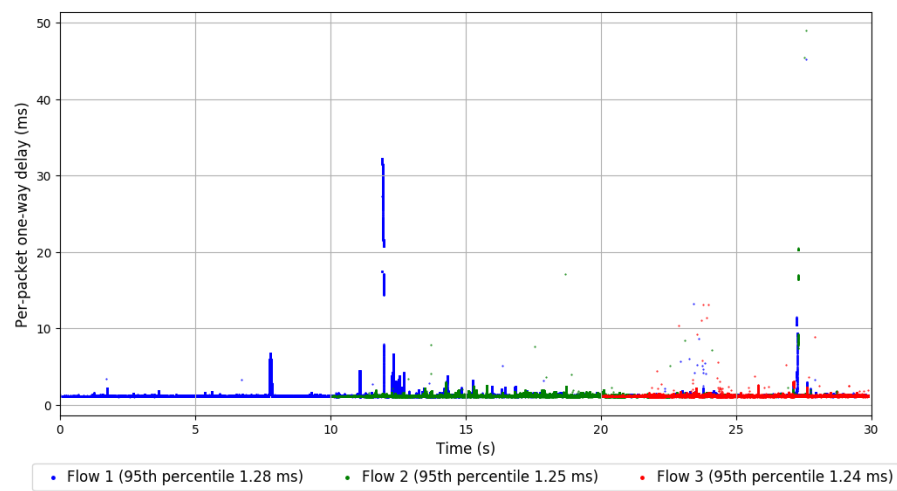
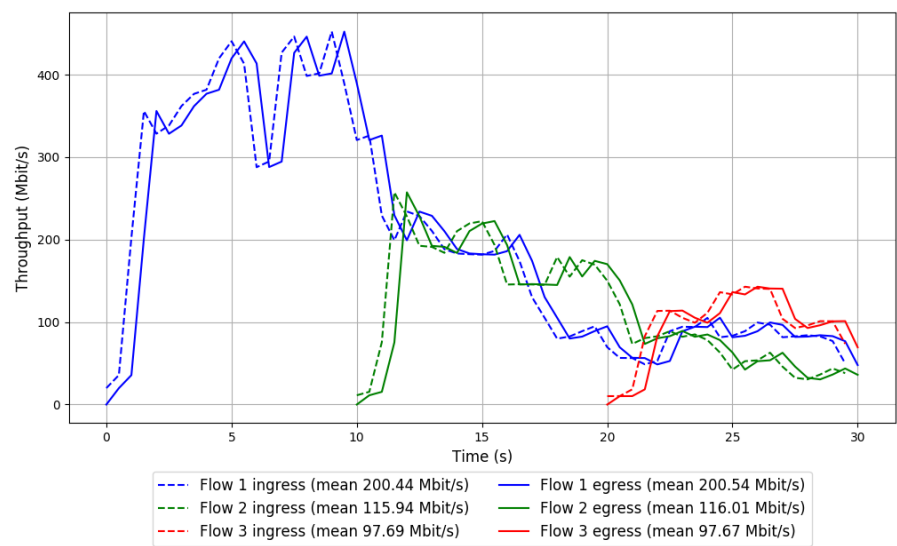


```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-08 01:01:52
End at: 2018-09-08 01:02:22
Local clock offset: -0.081 ms
Remote clock offset: 3.598 ms

# Below is generated by plot.py at 2018-09-08 03:53:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 309.82 Mbit/s
95th percentile per-packet one-way delay: 1.263 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 200.54 Mbit/s
95th percentile per-packet one-way delay: 1.276 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 116.01 Mbit/s
95th percentile per-packet one-way delay: 1.254 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 97.67 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.23%
```

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-08 01:31:06

End at: 2018-09-08 01:31:36

Local clock offset: 2.834 ms

Remote clock offset: 3.268 ms

# Below is generated by plot.py at 2018-09-08 03:55:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 327.45 Mbit/s

95th percentile per-packet one-way delay: 2.041 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 222.49 Mbit/s

95th percentile per-packet one-way delay: 4.248 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 114.68 Mbit/s

95th percentile per-packet one-way delay: 1.103 ms

Loss rate: 0.06%

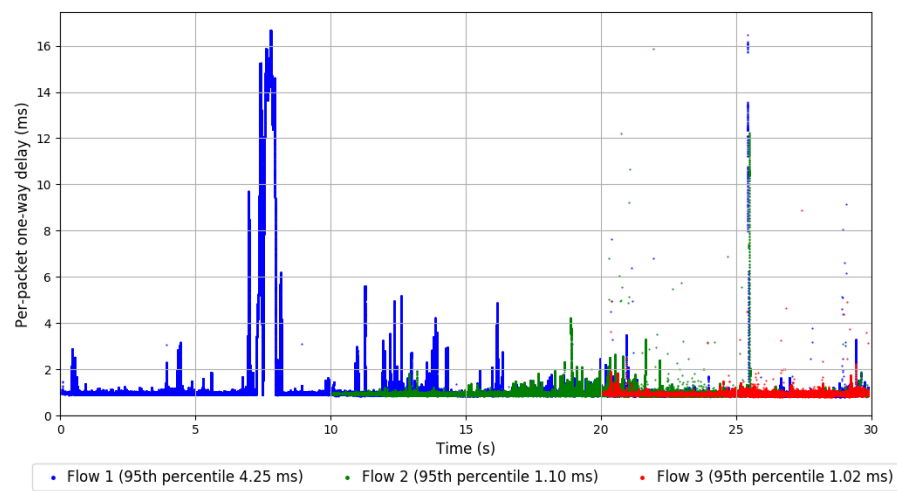
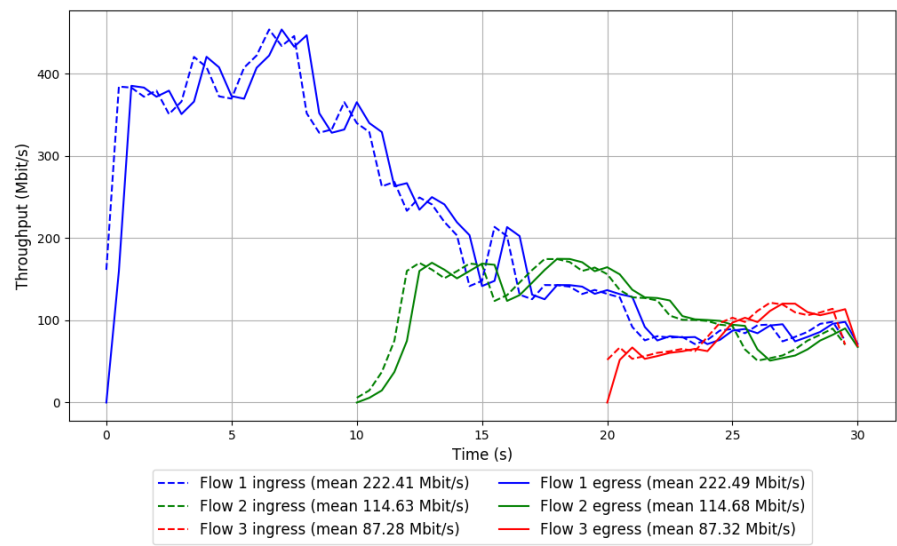
-- Flow 3:

Average throughput: 87.32 Mbit/s

95th percentile per-packet one-way delay: 1.022 ms

Loss rate: 0.13%

Run 3: Report of PCC-Expr — Data Link





Run 4: Statistics of PCC-Expr

Start at: 2018-09-08 02:00:20

End at: 2018-09-08 02:00:50

Local clock offset: 3.37 ms

Remote clock offset: 0.335 ms

# Below is generated by plot.py at 2018-09-08 03:57:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 280.21 Mbit/s

95th percentile per-packet one-way delay: 1.124 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 218.48 Mbit/s

95th percentile per-packet one-way delay: 1.205 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 62.12 Mbit/s

95th percentile per-packet one-way delay: 0.963 ms

Loss rate: 0.08%

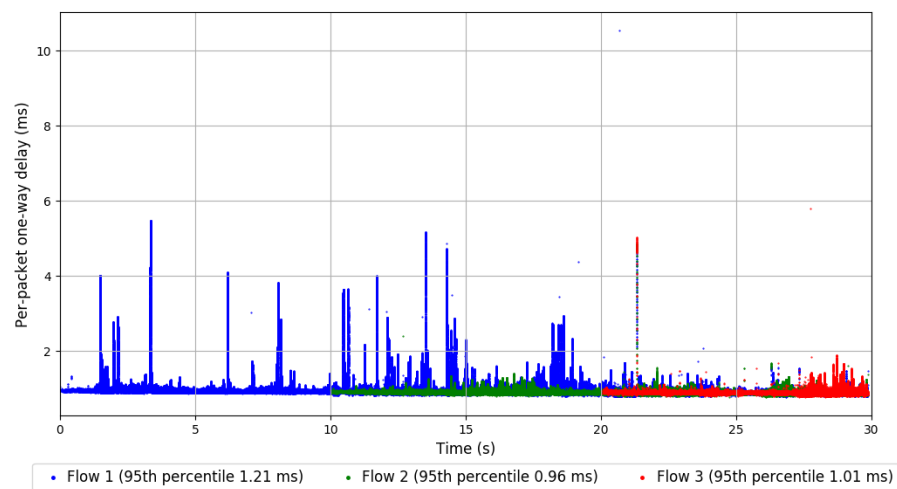
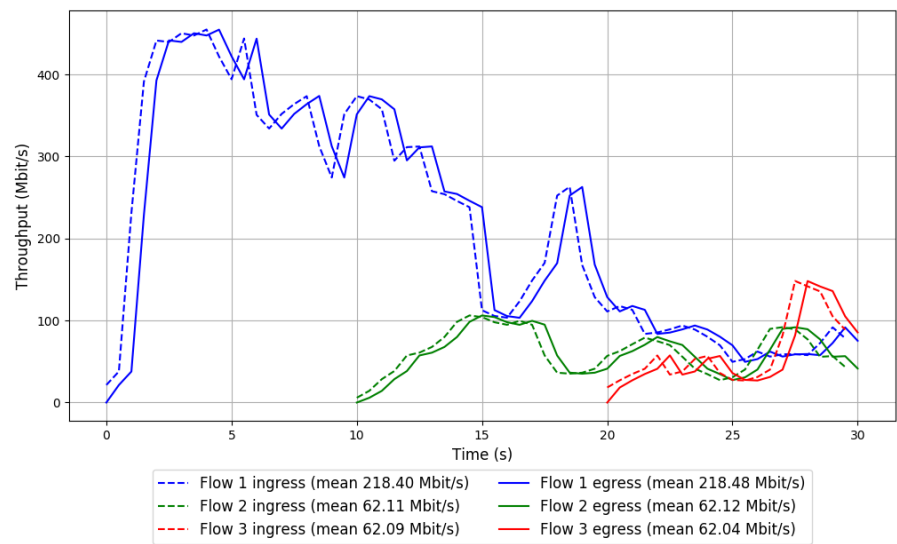
-- Flow 3:

Average throughput: 62.04 Mbit/s

95th percentile per-packet one-way delay: 1.013 ms

Loss rate: 0.27%

Run 4: Report of PCC-Expr — Data Link

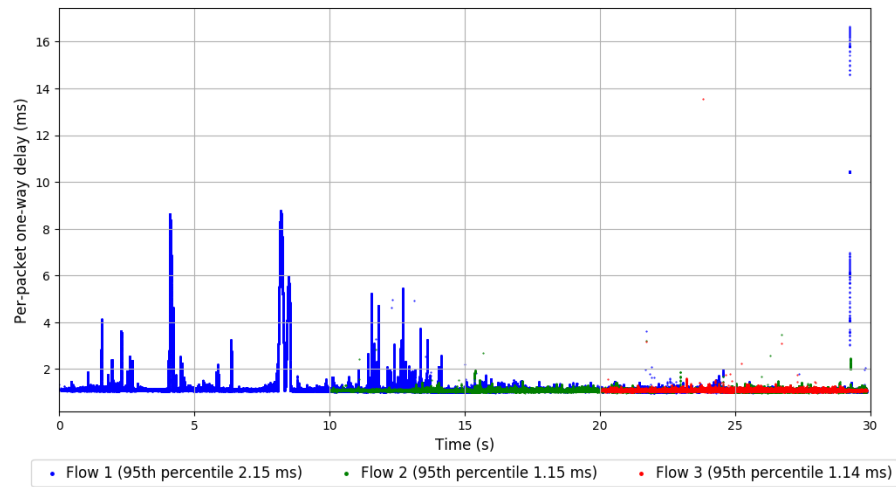
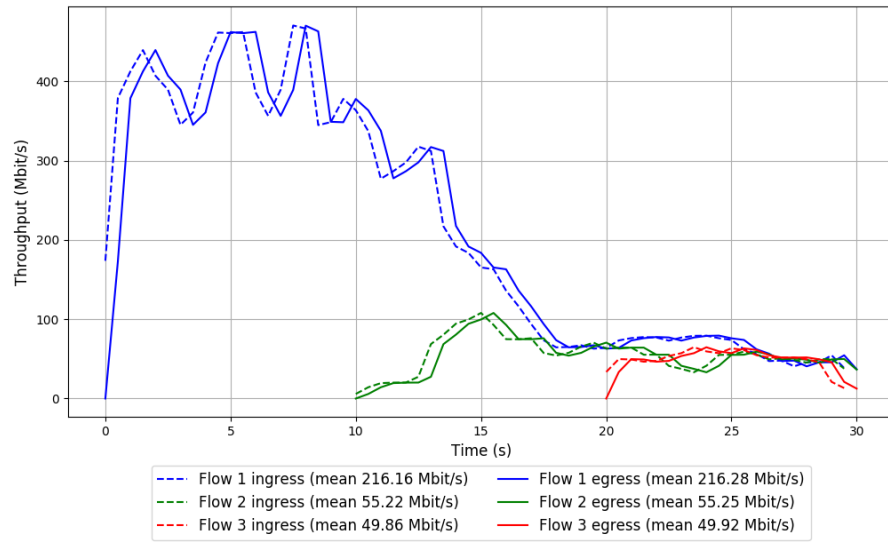


Run 5: Statistics of PCC-Expr

Start at: 2018-09-08 02:29:36  
End at: 2018-09-08 02:30:06  
Local clock offset: 0.339 ms  
Remote clock offset: -2.966 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 269.45 Mbit/s  
95th percentile per-packet one-way delay: 1.761 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 216.28 Mbit/s  
95th percentile per-packet one-way delay: 2.148 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 55.25 Mbit/s  
95th percentile per-packet one-way delay: 1.146 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 49.92 Mbit/s  
95th percentile per-packet one-way delay: 1.144 ms  
Loss rate: 0.08%

# Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-08 00:55:40

End at: 2018-09-08 00:56:10

Local clock offset: 0.655 ms

Remote clock offset: 3.47 ms

# Below is generated by plot.py at 2018-09-08 03:57:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 135.45 Mbit/s

95th percentile per-packet one-way delay: 1.222 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 75.54 Mbit/s

95th percentile per-packet one-way delay: 1.214 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 62.55 Mbit/s

95th percentile per-packet one-way delay: 1.224 ms

Loss rate: 0.10%

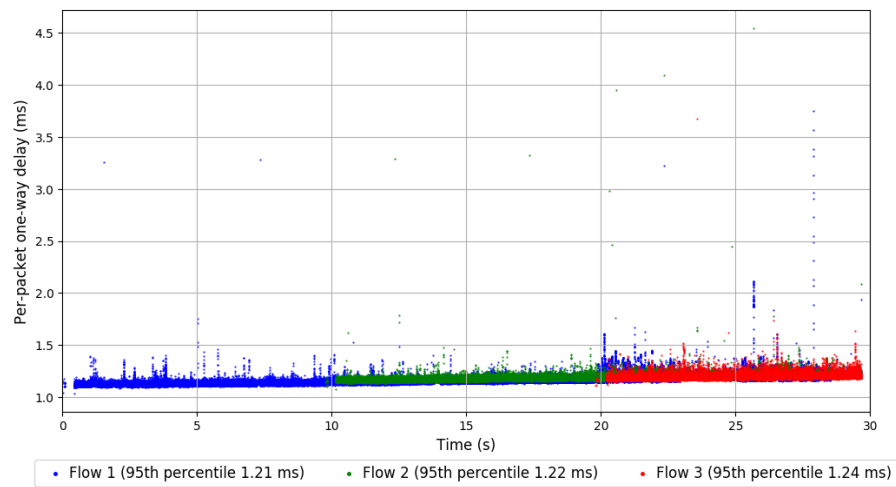
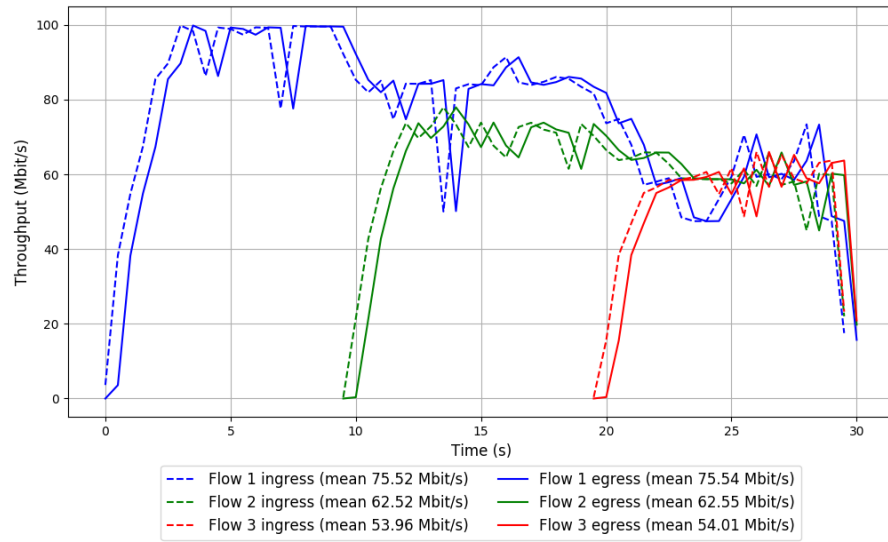
-- Flow 3:

Average throughput: 54.01 Mbit/s

95th percentile per-packet one-way delay: 1.237 ms

Loss rate: 0.24%

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



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-08 01:24:55

End at: 2018-09-08 01:25:25

Local clock offset: 2.097 ms

Remote clock offset: 3.27 ms

# Below is generated by plot.py at 2018-09-08 03:57:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 137.01 Mbit/s

95th percentile per-packet one-way delay: 0.940 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 76.97 Mbit/s

95th percentile per-packet one-way delay: 0.945 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 63.83 Mbit/s

95th percentile per-packet one-way delay: 0.928 ms

Loss rate: 0.08%

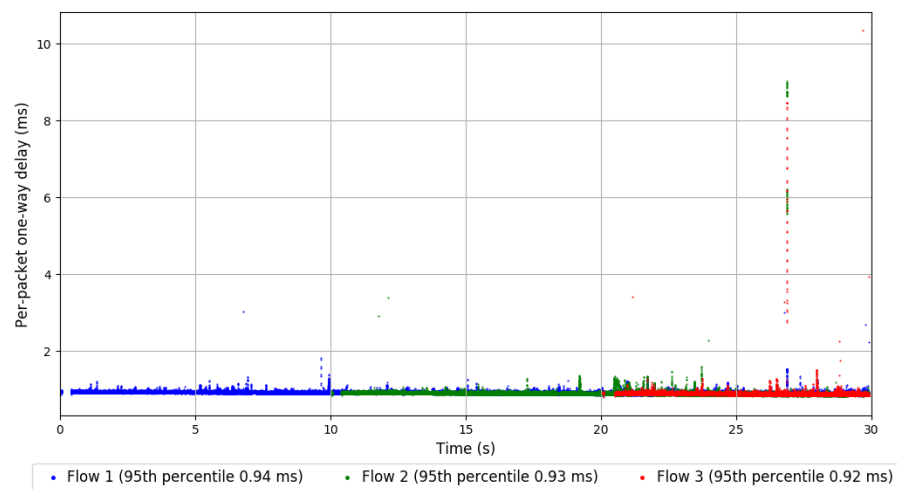
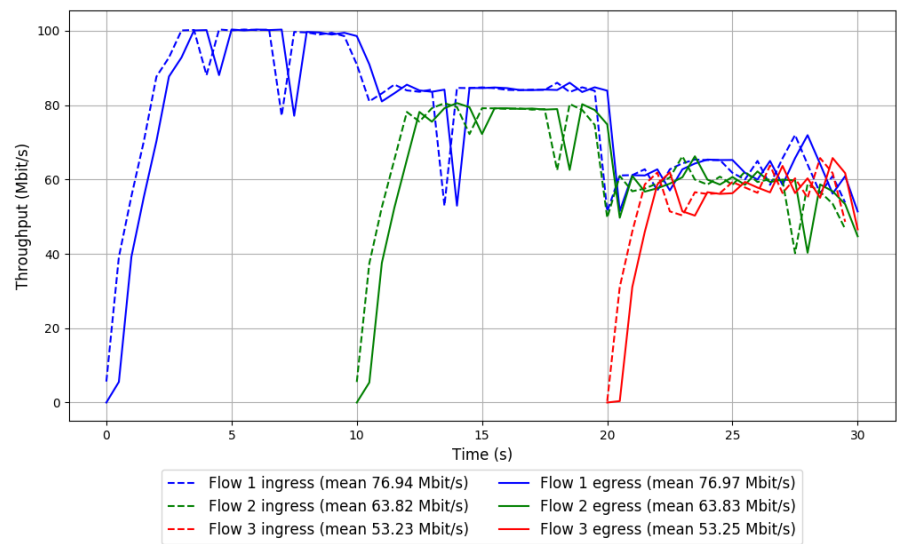
-- Flow 3:

Average throughput: 53.25 Mbit/s

95th percentile per-packet one-way delay: 0.916 ms

Loss rate: 0.20%

Run 2: Report of QUIC Cubic — Data Link





Run 3: Statistics of QUIC Cubic

Start at: 2018-09-08 01:54:06

End at: 2018-09-08 01:54:36

Local clock offset: 3.349 ms

Remote clock offset: 1.307 ms

# Below is generated by plot.py at 2018-09-08 03:57:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 129.68 Mbit/s

95th percentile per-packet one-way delay: 0.994 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 72.38 Mbit/s

95th percentile per-packet one-way delay: 0.999 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 61.12 Mbit/s

95th percentile per-packet one-way delay: 0.987 ms

Loss rate: 0.12%

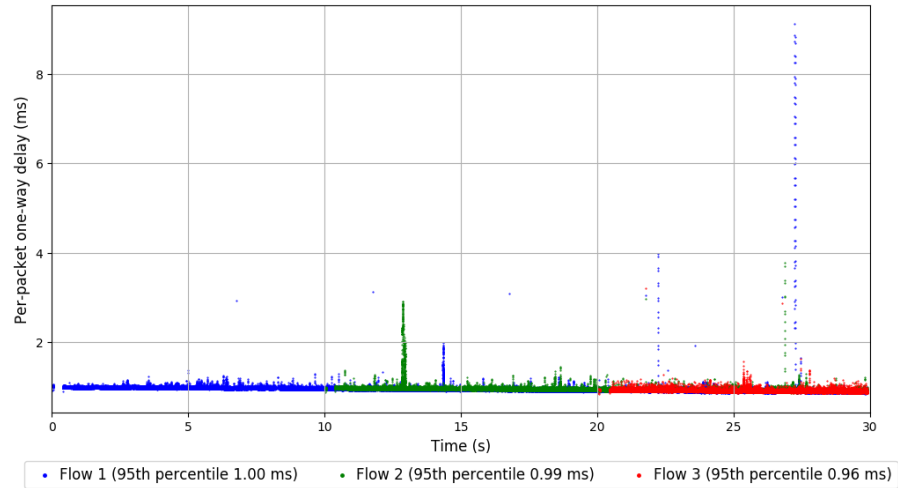
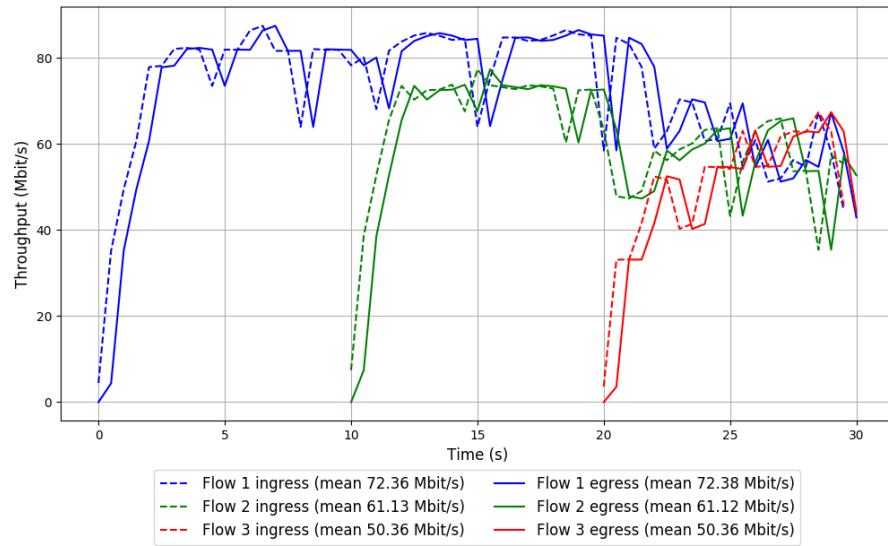
-- Flow 3:

Average throughput: 50.36 Mbit/s

95th percentile per-packet one-way delay: 0.956 ms

Loss rate: 0.18%

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

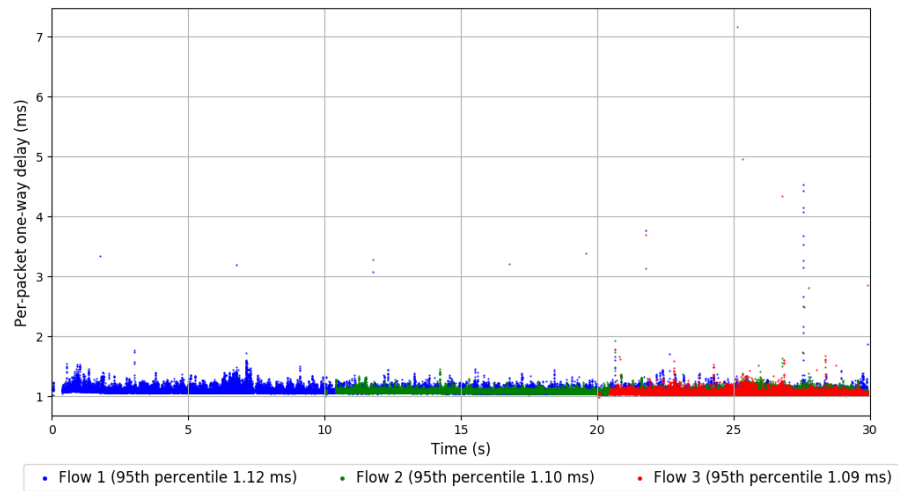
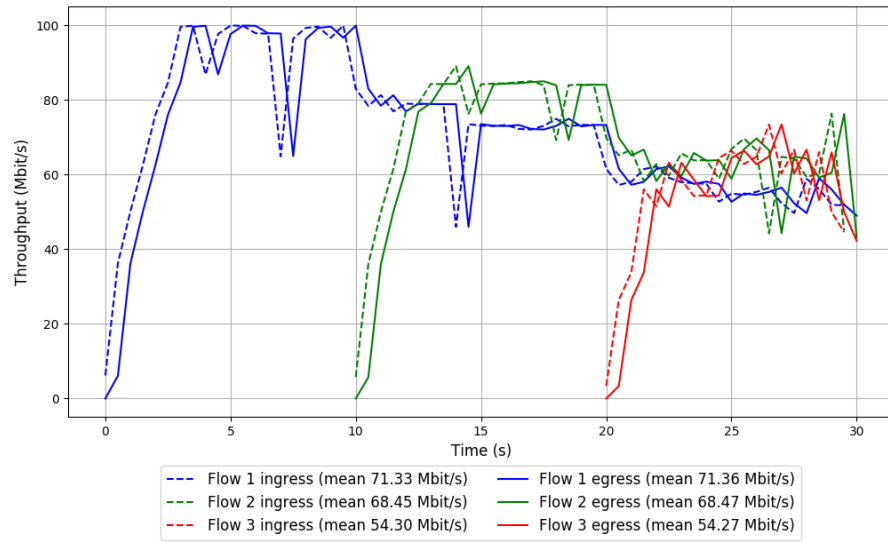


Run 4: Statistics of QUIC Cubic

Start at: 2018-09-08 02:23:24  
End at: 2018-09-08 02:23:54  
Local clock offset: 1.179 ms  
Remote clock offset: -1.674 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 134.83 Mbit/s  
95th percentile per-packet one-way delay: 1.109 ms  
Loss rate: 0.09%  
-- Flow 1:  
Average throughput: 71.36 Mbit/s  
95th percentile per-packet one-way delay: 1.116 ms  
Loss rate: 0.07%  
-- Flow 2:  
Average throughput: 68.47 Mbit/s  
95th percentile per-packet one-way delay: 1.104 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 54.27 Mbit/s  
95th percentile per-packet one-way delay: 1.090 ms  
Loss rate: 0.22%

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

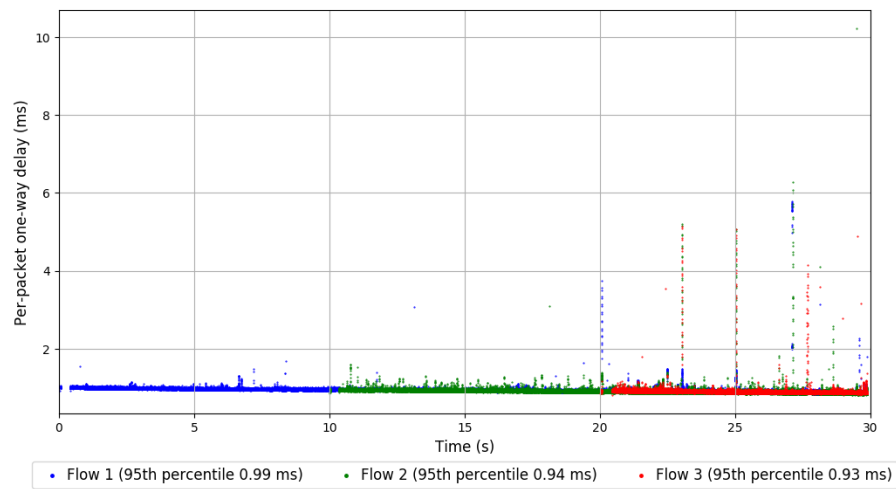
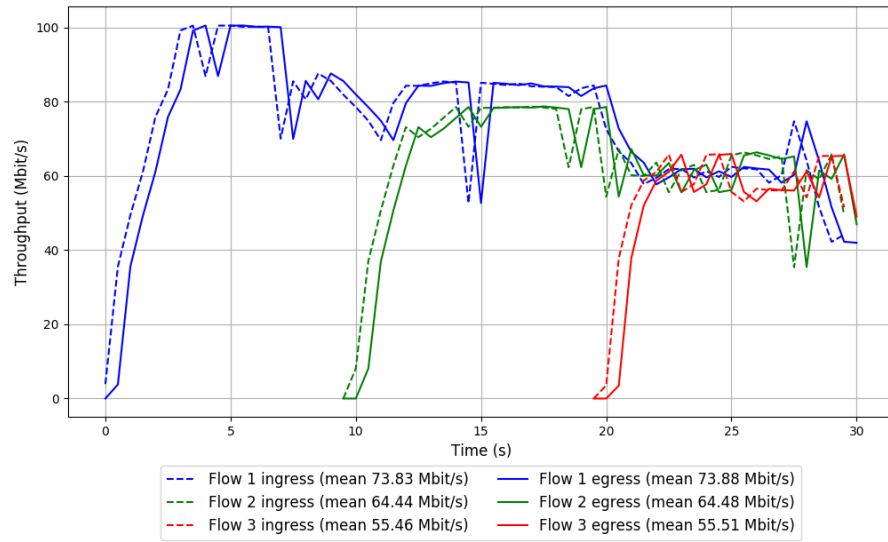


Run 5: Statistics of QUIC Cubic

Start at: 2018-09-08 02:52:38  
End at: 2018-09-08 02:53:08  
Local clock offset: 1.783 ms  
Remote clock offset: -5.493 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 135.15 Mbit/s  
95th percentile per-packet one-way delay: 0.979 ms  
Loss rate: 0.09%  
-- Flow 1:  
Average throughput: 73.88 Mbit/s  
95th percentile per-packet one-way delay: 0.988 ms  
Loss rate: 0.05%  
-- Flow 2:  
Average throughput: 64.48 Mbit/s  
95th percentile per-packet one-way delay: 0.945 ms  
Loss rate: 0.10%  
-- Flow 3:  
Average throughput: 55.51 Mbit/s  
95th percentile per-packet one-way delay: 0.925 ms  
Loss rate: 0.23%

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

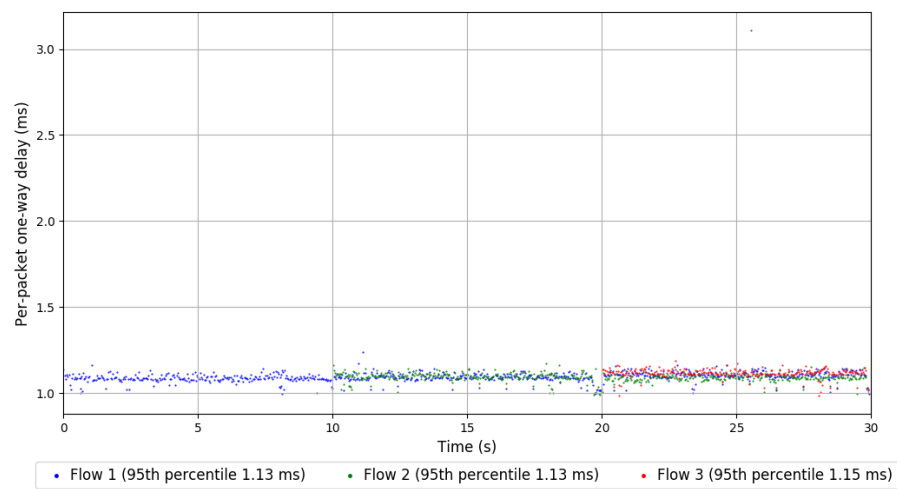
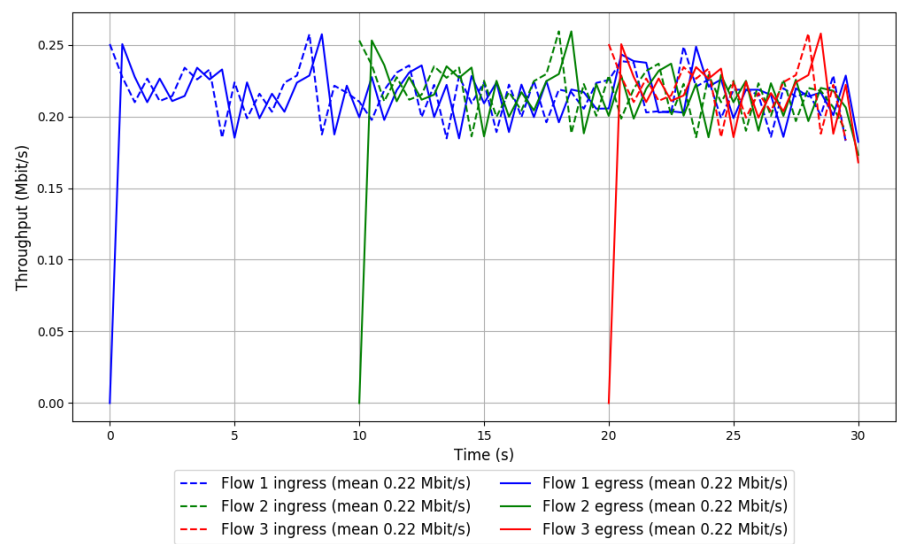


```
Run 1: Statistics of SReAM

Start at: 2018-09-08 00:38:56
End at: 2018-09-08 00:39:26
Local clock offset: 3.226 ms
Remote clock offset: 3.385 ms

# Below is generated by plot.py at 2018-09-08 03:57:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.135 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.132 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.127 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.148 ms
Loss rate: 0.36%
```

Run 1: Report of SReAM — Data Link



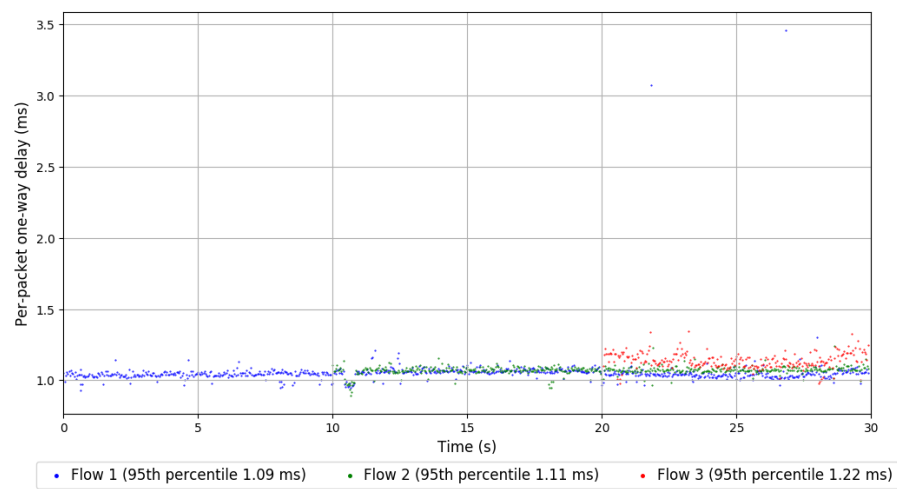
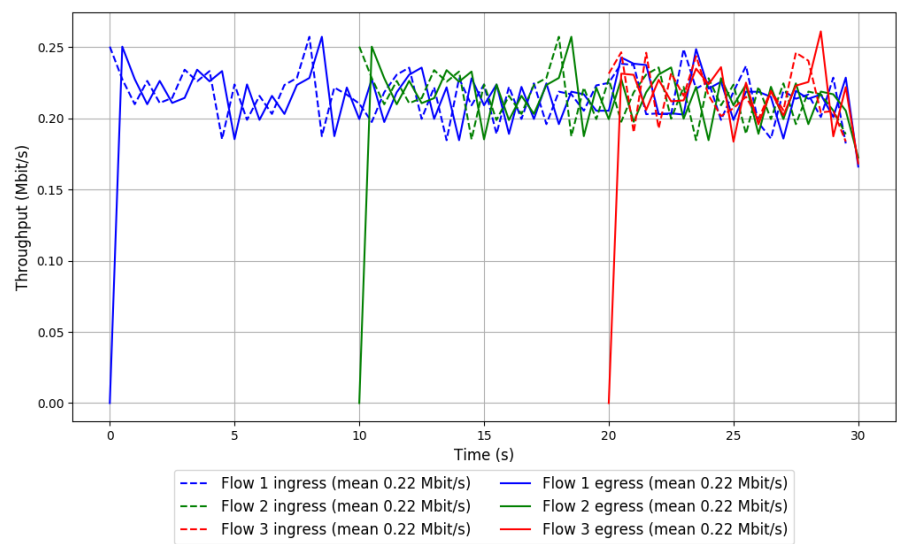


Run 2: Statistics of SReAM

Start at: 2018-09-08 01:08:05  
End at: 2018-09-08 01:08:35  
Local clock offset: -0.632 ms  
Remote clock offset: 3.814 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 1.170 ms  
Loss rate: 0.19%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.093 ms  
Loss rate: 0.13%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.107 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.222 ms  
Loss rate: 0.35%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-09-08 01:37:26

End at: 2018-09-08 01:37:56

Local clock offset: 3.146 ms

Remote clock offset: 3.215 ms

# Below is generated by plot.py at 2018-09-08 03:57:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 1.087 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.081 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.096 ms

Loss rate: 0.19%

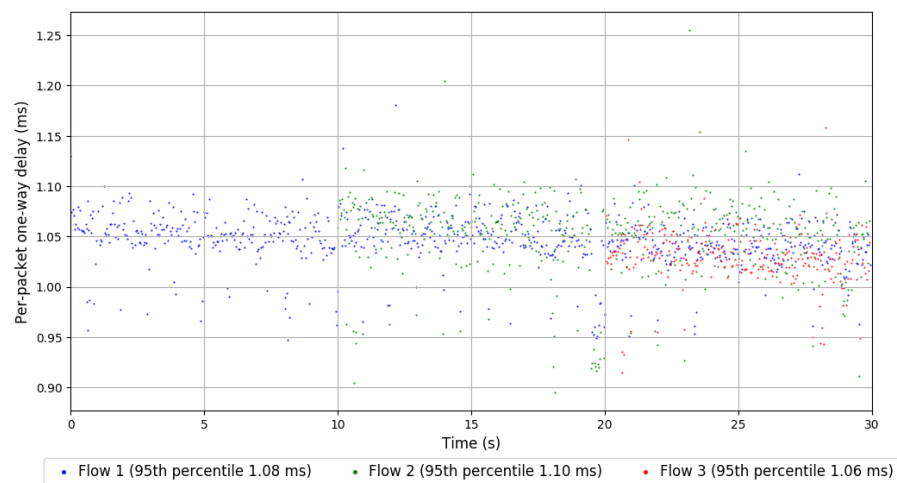
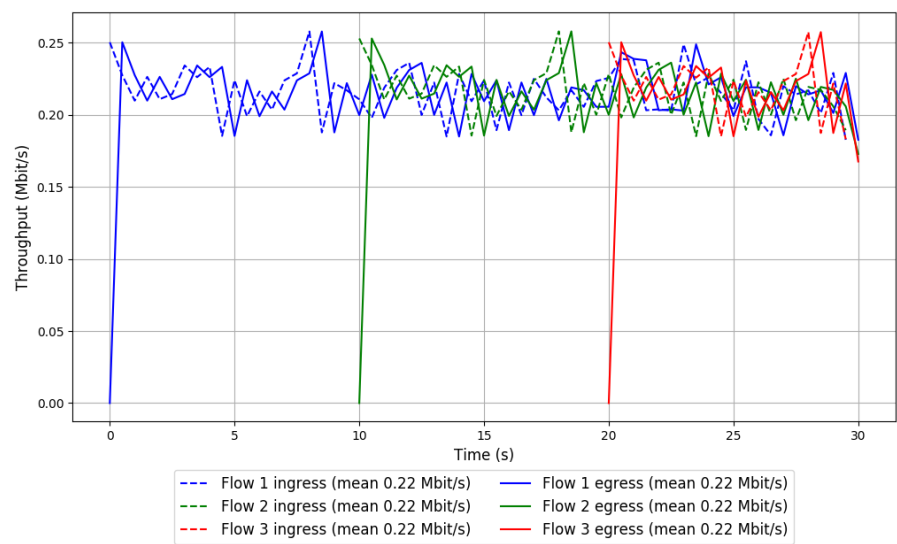
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.062 ms

Loss rate: 0.36%

Run 3: Report of SReAM — Data Link

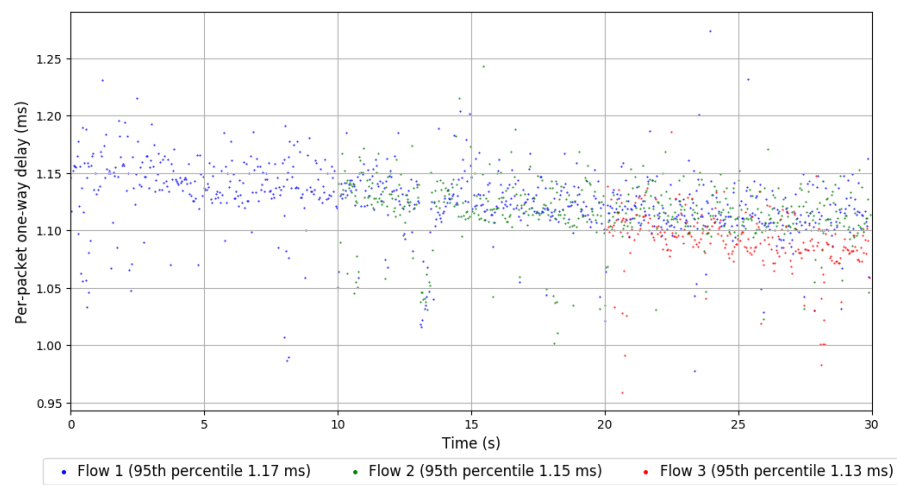
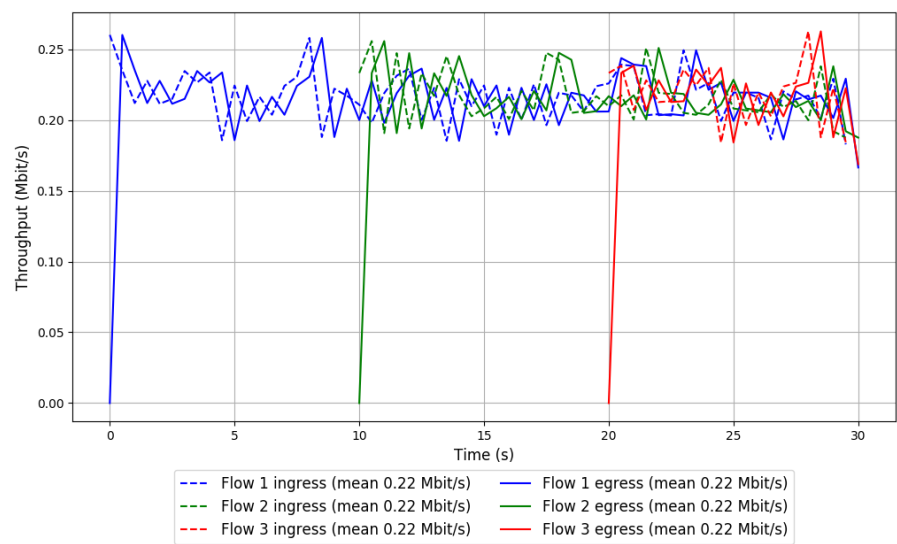


Run 4: Statistics of SReAM

Start at: 2018-09-08 02:06:32  
End at: 2018-09-08 02:07:02  
Local clock offset: 3.385 ms  
Remote clock offset: -0.413 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 1.162 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.167 ms  
Loss rate: 0.13%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.151 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.128 ms  
Loss rate: 0.35%

Run 4: Report of SReAM — Data Link

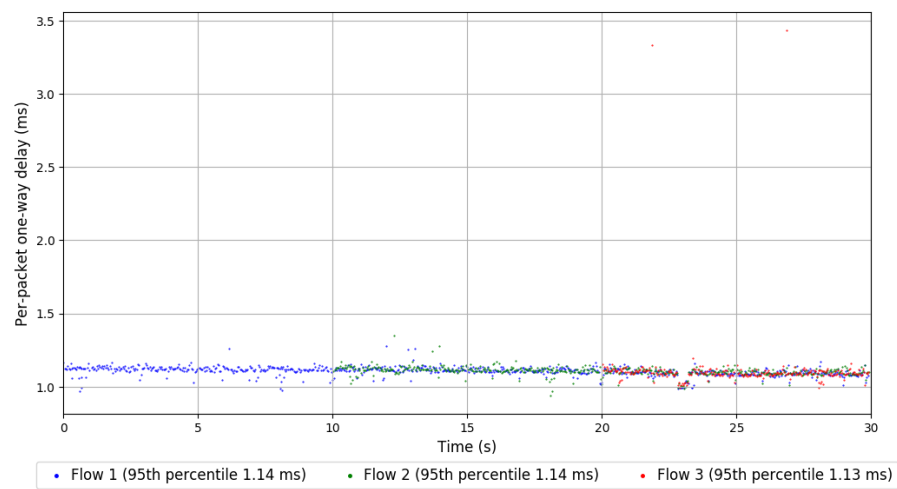
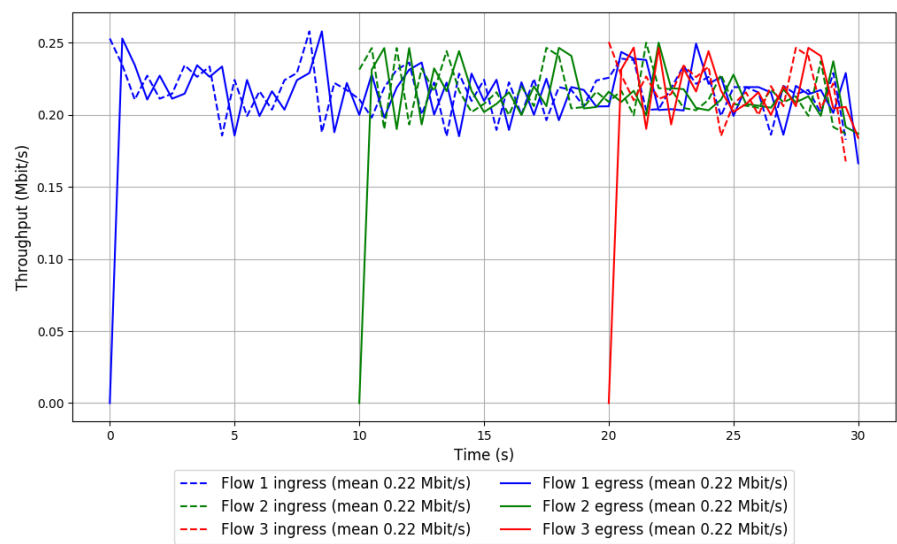


Run 5: Statistics of SReAM

Start at: 2018-09-08 02:35:52  
End at: 2018-09-08 02:36:22  
Local clock offset: -0.286 ms  
Remote clock offset: -3.847 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 1.142 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.143 ms  
Loss rate: 0.13%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.142 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.133 ms  
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



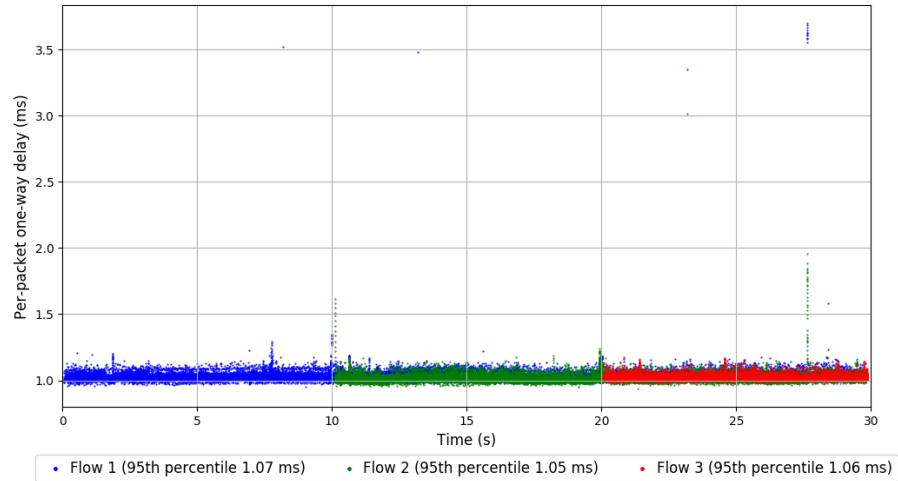
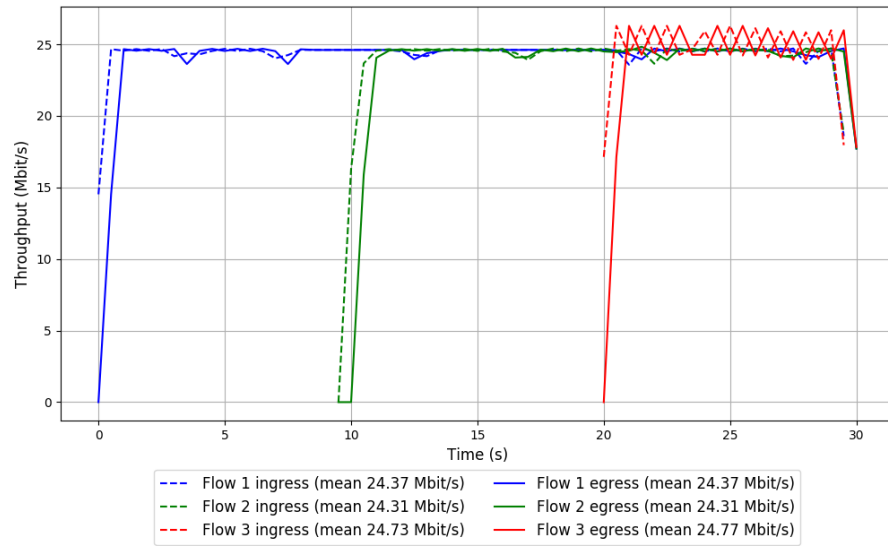


Run 1: Statistics of Sprout

Start at: 2018-09-08 00:37:35  
End at: 2018-09-08 00:38:05  
Local clock offset: 3.229 ms  
Remote clock offset: 3.342 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 48.69 Mbit/s  
95th percentile per-packet one-way delay: 1.061 ms  
Loss rate: 0.07%  
-- Flow 1:  
Average throughput: 24.37 Mbit/s  
95th percentile per-packet one-way delay: 1.067 ms  
Loss rate: 0.06%  
-- Flow 2:  
Average throughput: 24.31 Mbit/s  
95th percentile per-packet one-way delay: 1.051 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 24.77 Mbit/s  
95th percentile per-packet one-way delay: 1.057 ms  
Loss rate: 0.03%

## Run 1: Report of Sprout — Data Link



## Run 2: Statistics of Sprout

Start at: 2018-09-08 01:06:44

End at: 2018-09-08 01:07:14

Local clock offset: -0.456 ms

Remote clock offset: 3.716 ms

# Below is generated by plot.py at 2018-09-08 03:57:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 49.26 Mbit/s

95th percentile per-packet one-way delay: 1.197 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 25.02 Mbit/s

95th percentile per-packet one-way delay: 1.207 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 24.32 Mbit/s

95th percentile per-packet one-way delay: 1.187 ms

Loss rate: 0.09%

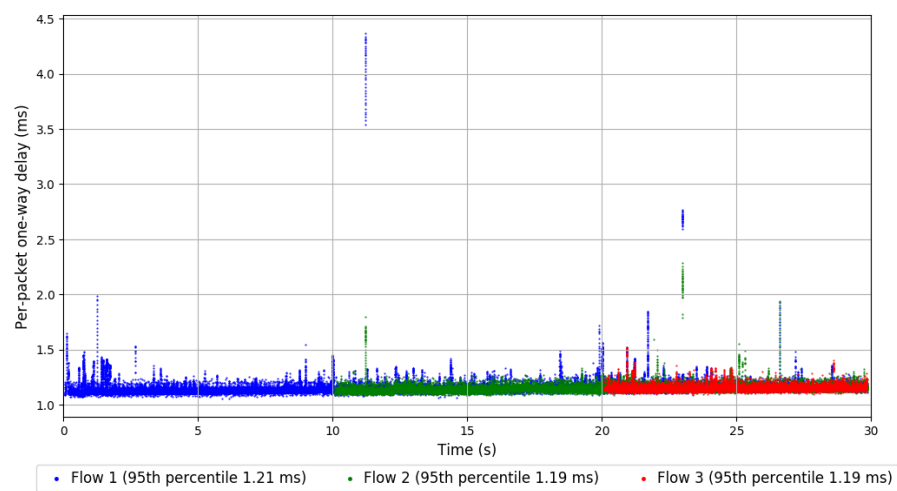
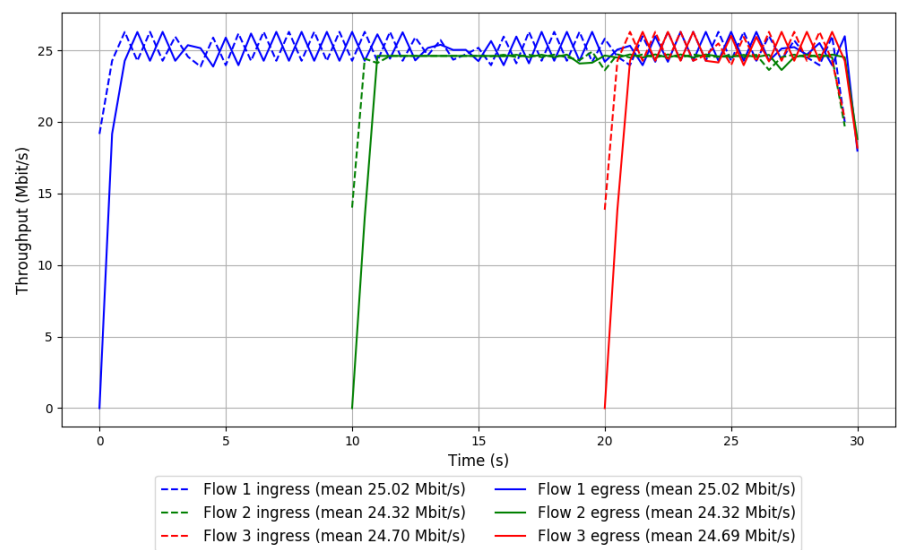
-- Flow 3:

Average throughput: 24.69 Mbit/s

95th percentile per-packet one-way delay: 1.191 ms

Loss rate: 0.42%

Run 2: Report of Sprout — Data Link

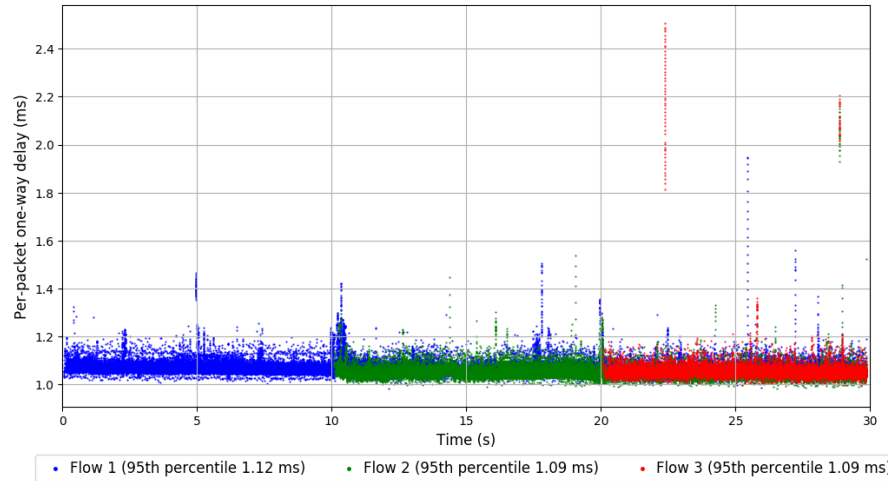
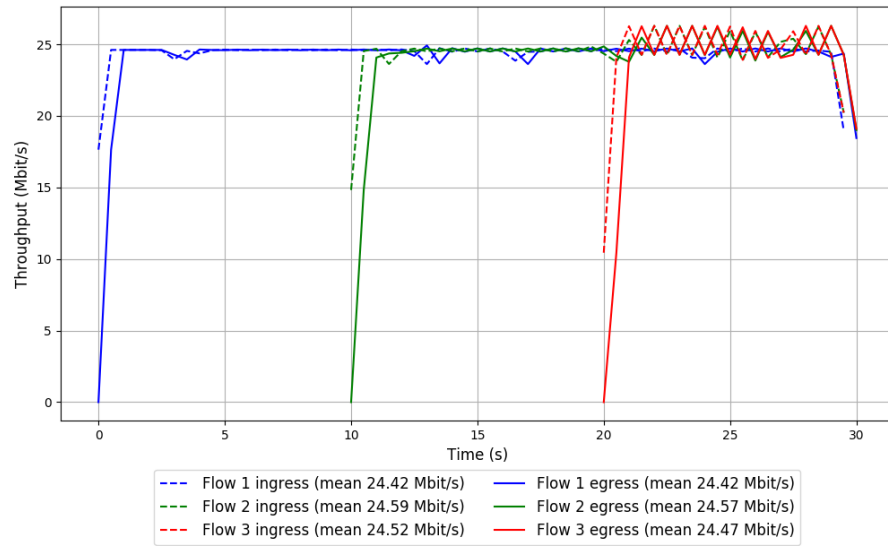


### Run 3: Statistics of Sprout

Start at: 2018-09-08 01:36:05  
End at: 2018-09-08 01:36:35  
Local clock offset: 3.176 ms  
Remote clock offset: 3.208 ms

```
# Below is generated by plot.py at 2018-09-08 03:57:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.78 Mbit/s
95th percentile per-packet one-way delay: 1.106 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 24.42 Mbit/s
95th percentile per-packet one-way delay: 1.119 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 24.57 Mbit/s
95th percentile per-packet one-way delay: 1.091 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 24.47 Mbit/s
95th percentile per-packet one-way delay: 1.091 ms
Loss rate: 0.23%
```

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

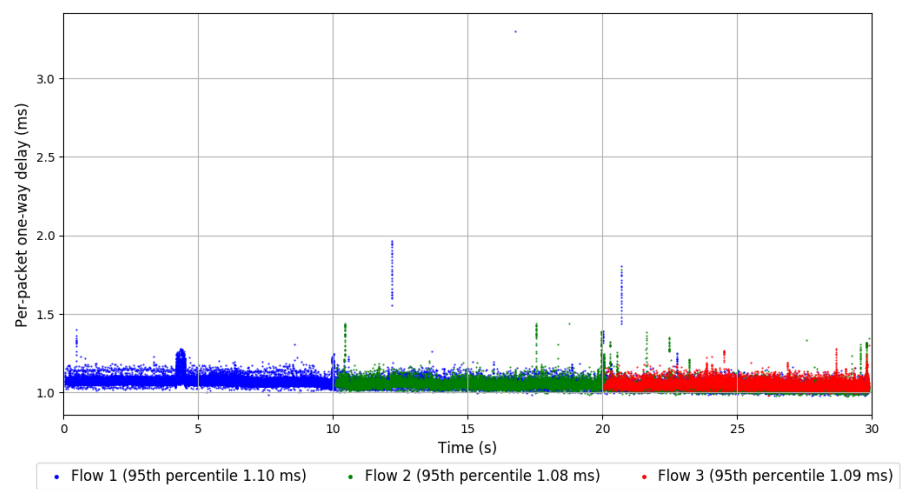
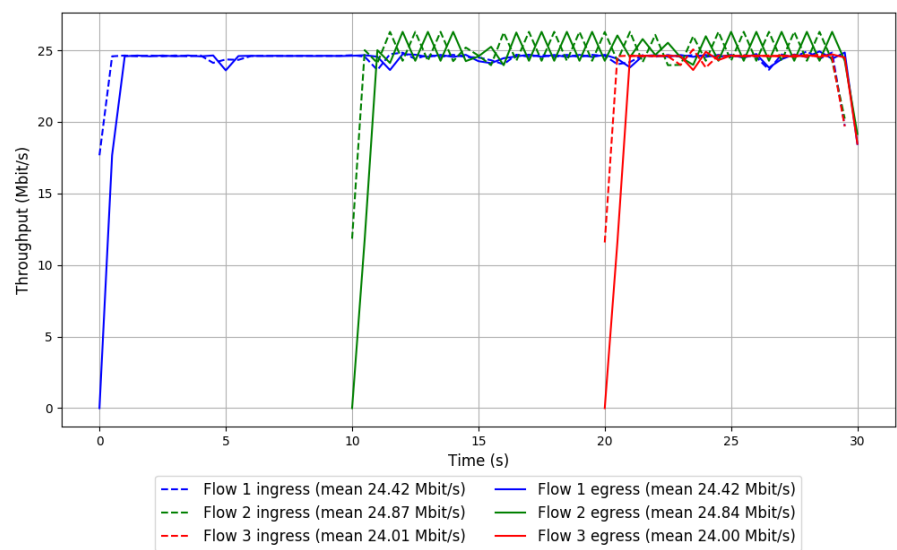


Run 4: Statistics of Sprout

Start at: 2018-09-08 02:05:11  
End at: 2018-09-08 02:05:41  
Local clock offset: 3.399 ms  
Remote clock offset: -0.287 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 48.80 Mbit/s  
95th percentile per-packet one-way delay: 1.095 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 24.42 Mbit/s  
95th percentile per-packet one-way delay: 1.101 ms  
Loss rate: 0.09%  
-- Flow 2:  
Average throughput: 24.84 Mbit/s  
95th percentile per-packet one-way delay: 1.083 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 24.00 Mbit/s  
95th percentile per-packet one-way delay: 1.091 ms  
Loss rate: 0.26%

Run 4: Report of Sprout — Data Link



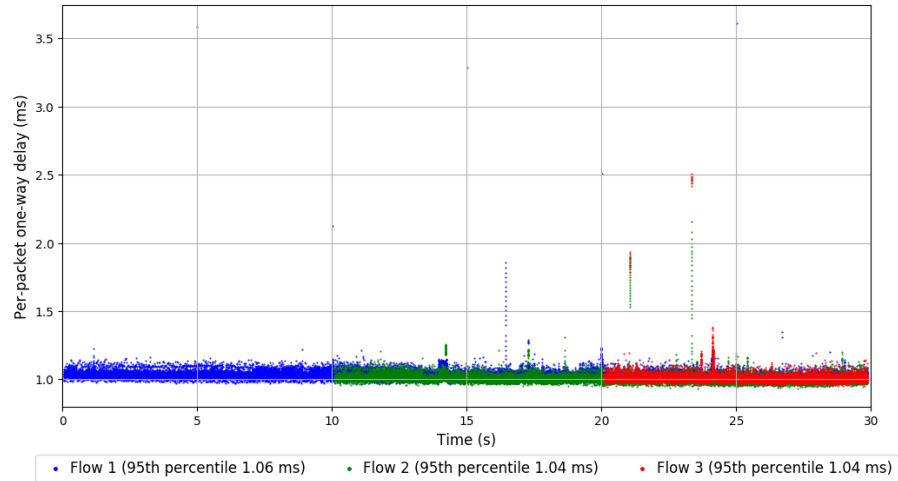
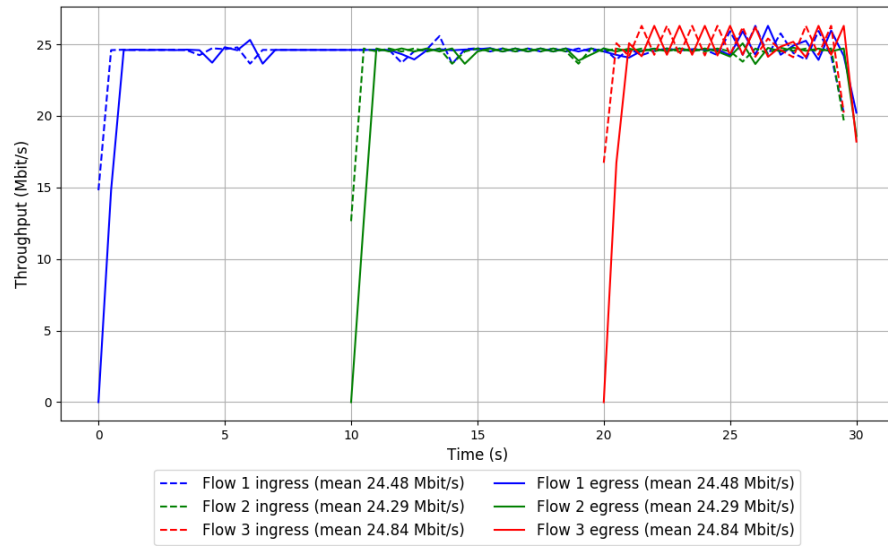


Run 5: Statistics of Sprout

Start at: 2018-09-08 02:34:31  
End at: 2018-09-08 02:35:01  
Local clock offset: -0.192 ms  
Remote clock offset: -3.654 ms

# Below is generated by plot.py at 2018-09-08 03:57:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 48.77 Mbit/s  
95th percentile per-packet one-way delay: 1.058 ms  
Loss rate: 0.11%  
-- Flow 1:  
Average throughput: 24.48 Mbit/s  
95th percentile per-packet one-way delay: 1.065 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 24.29 Mbit/s  
95th percentile per-packet one-way delay: 1.045 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 24.84 Mbit/s  
95th percentile per-packet one-way delay: 1.044 ms  
Loss rate: 0.41%

## Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-08 00:43:10

End at: 2018-09-08 00:43:40

Local clock offset: 3.299 ms

Remote clock offset: 3.312 ms

# Below is generated by plot.py at 2018-09-08 04:03:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 385.53 Mbit/s

95th percentile per-packet one-way delay: 1.161 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 218.91 Mbit/s

95th percentile per-packet one-way delay: 1.107 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 192.31 Mbit/s

95th percentile per-packet one-way delay: 1.140 ms

Loss rate: 0.05%

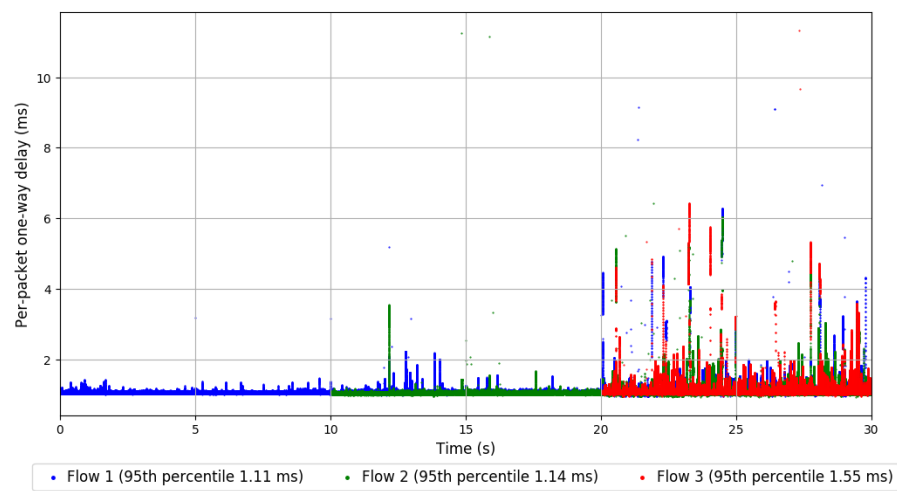
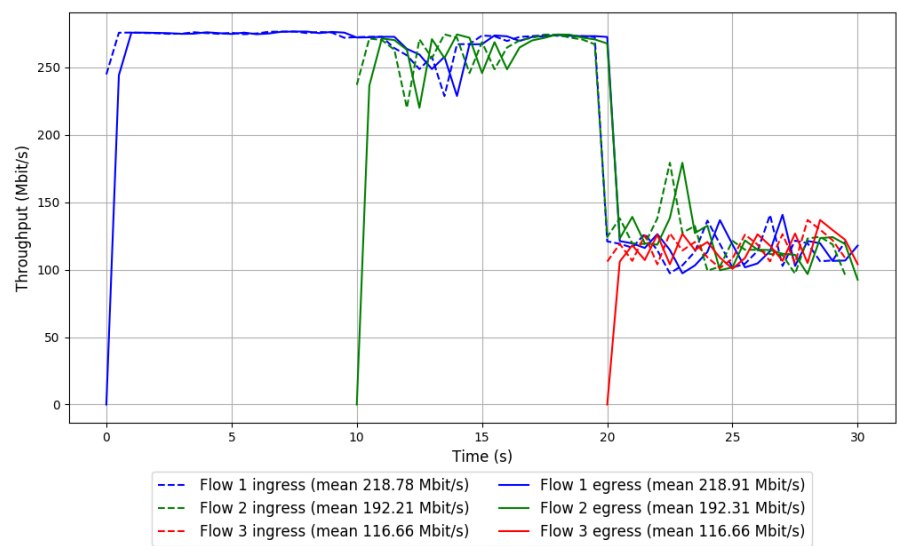
-- Flow 3:

Average throughput: 116.66 Mbit/s

95th percentile per-packet one-way delay: 1.549 ms

Loss rate: 0.20%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-08 01:12:19

End at: 2018-09-08 01:12:49

Local clock offset: -0.839 ms

Remote clock offset: 3.849 ms

# Below is generated by plot.py at 2018-09-08 04:03:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 382.38 Mbit/s

95th percentile per-packet one-way delay: 1.118 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 218.62 Mbit/s

95th percentile per-packet one-way delay: 1.078 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 190.60 Mbit/s

95th percentile per-packet one-way delay: 1.138 ms

Loss rate: 0.09%

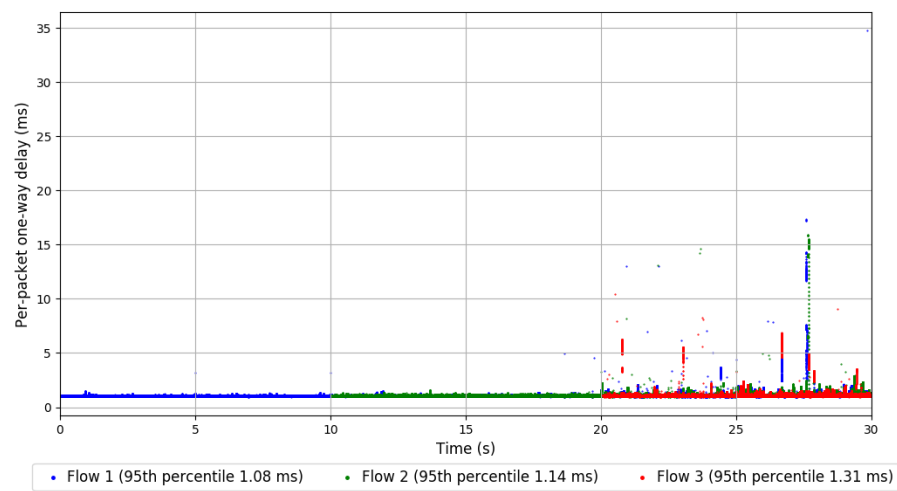
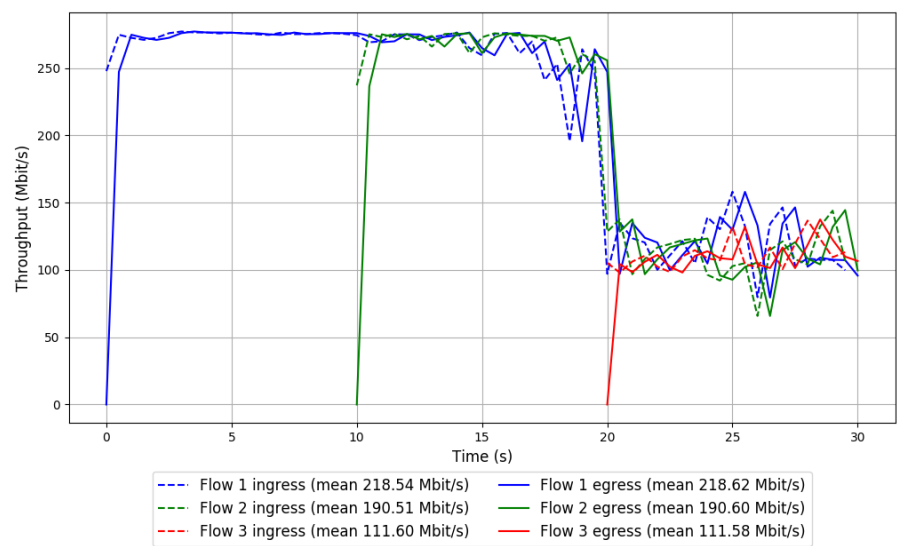
-- Flow 3:

Average throughput: 111.58 Mbit/s

95th percentile per-packet one-way delay: 1.308 ms

Loss rate: 0.30%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-08 01:41:40

End at: 2018-09-08 01:42:10

Local clock offset: 3.385 ms

Remote clock offset: 3.207 ms

# Below is generated by plot.py at 2018-09-08 04:03:48

# Datalink statistics

-- Total of 3 flows:

Average throughput: 383.92 Mbit/s

95th percentile per-packet one-way delay: 1.137 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 216.82 Mbit/s

95th percentile per-packet one-way delay: 1.102 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 196.33 Mbit/s

95th percentile per-packet one-way delay: 1.144 ms

Loss rate: 0.05%

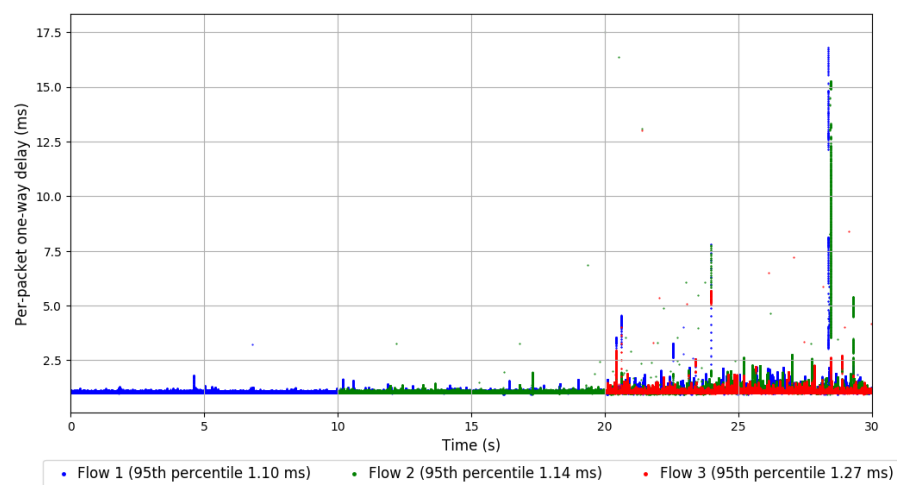
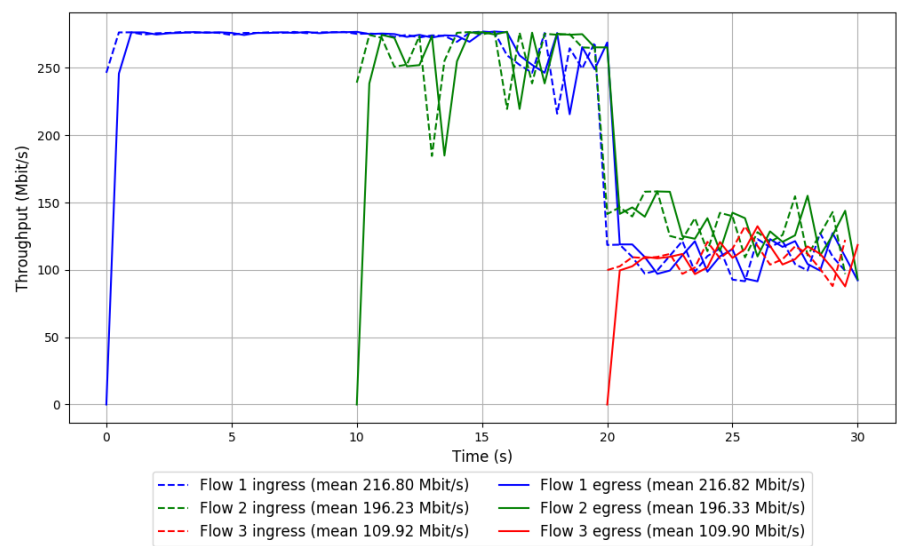
-- Flow 3:

Average throughput: 109.90 Mbit/s

95th percentile per-packet one-way delay: 1.269 ms

Loss rate: 0.18%

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





Run 4: Statistics of TaoVA-100x

Start at: 2018-09-08 02:10:49

End at: 2018-09-08 02:11:19

Local clock offset: 3.337 ms

Remote clock offset: -0.65 ms

# Below is generated by plot.py at 2018-09-08 04:04:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 390.17 Mbit/s

95th percentile per-packet one-way delay: 0.926 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 218.87 Mbit/s

95th percentile per-packet one-way delay: 0.916 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 198.57 Mbit/s

95th percentile per-packet one-way delay: 0.931 ms

Loss rate: 0.12%

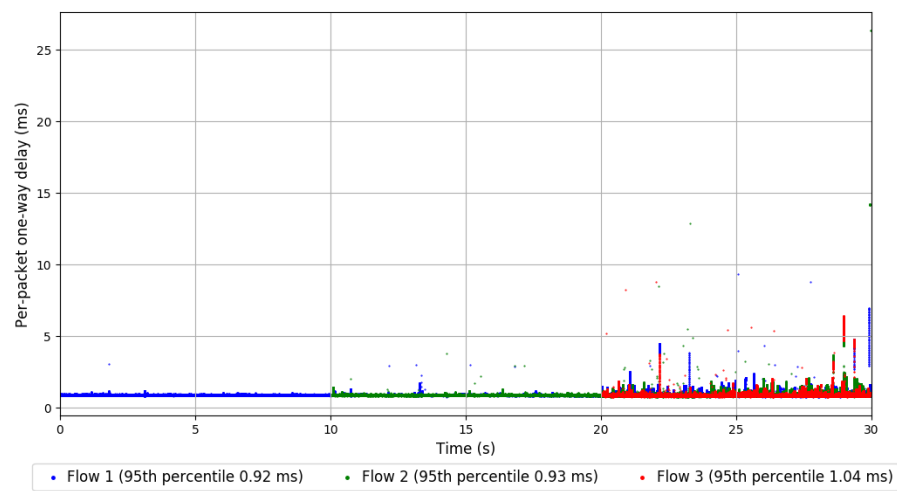
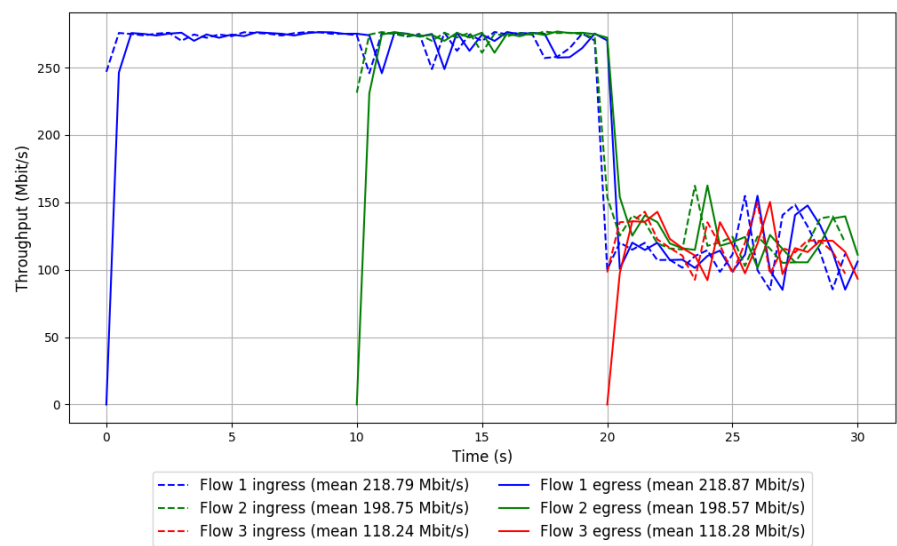
-- Flow 3:

Average throughput: 118.28 Mbit/s

95th percentile per-packet one-way delay: 1.036 ms

Loss rate: 0.17%

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

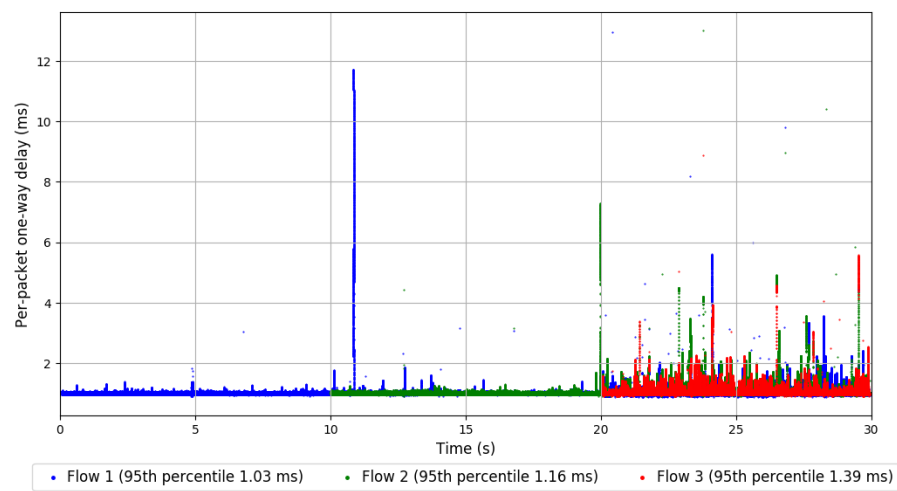
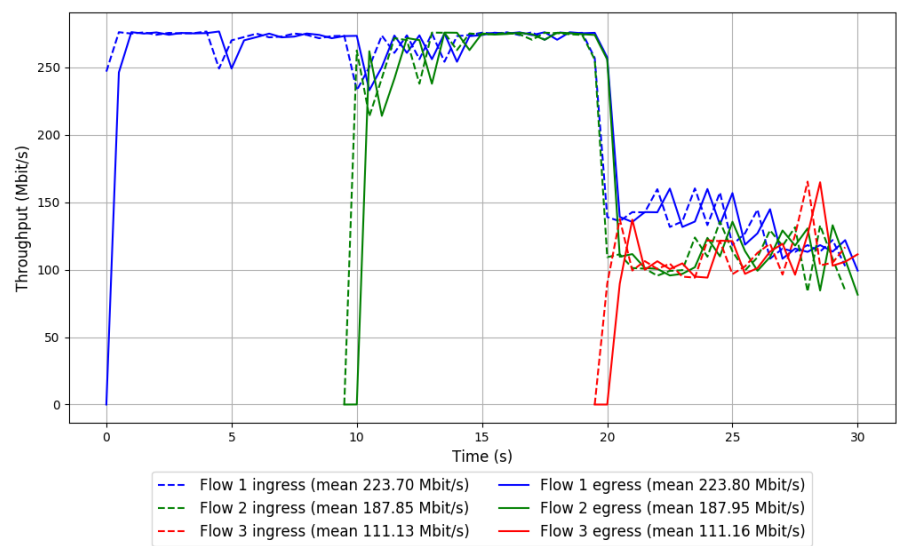


Run 5: Statistics of TaoVA-100x

Start at: 2018-09-08 02:40:05  
End at: 2018-09-08 02:40:35  
Local clock offset: -0.456 ms  
Remote clock offset: -4.223 ms

# Below is generated by plot.py at 2018-09-08 04:04:08  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 385.96 Mbit/s  
95th percentile per-packet one-way delay: 1.108 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 223.80 Mbit/s  
95th percentile per-packet one-way delay: 1.033 ms  
Loss rate: 0.03%  
-- Flow 2:  
Average throughput: 187.95 Mbit/s  
95th percentile per-packet one-way delay: 1.162 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 111.16 Mbit/s  
95th percentile per-packet one-way delay: 1.391 ms  
Loss rate: 0.24%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-08 00:48:29

End at: 2018-09-08 00:48:59

Local clock offset: 2.083 ms

Remote clock offset: 3.359 ms

# Below is generated by plot.py at 2018-09-08 04:04:24

# Datalink statistics

-- Total of 3 flows:

Average throughput: 772.60 Mbit/s

95th percentile per-packet one-way delay: 3.450 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 462.79 Mbit/s

95th percentile per-packet one-way delay: 3.142 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 353.42 Mbit/s

95th percentile per-packet one-way delay: 4.516 ms

Loss rate: 0.10%

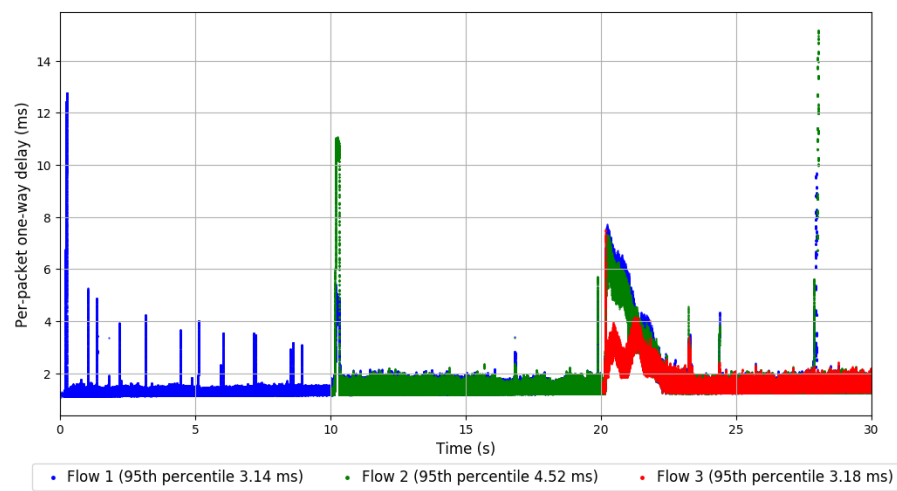
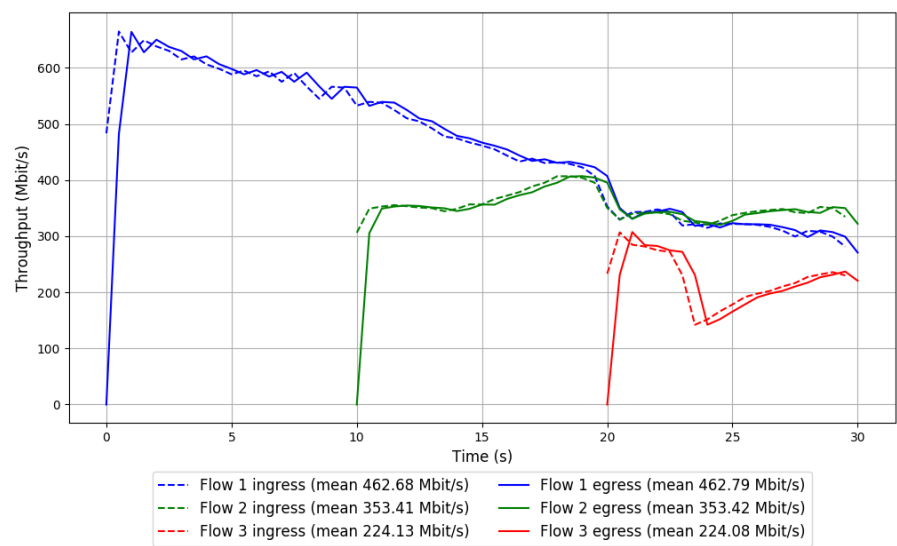
-- Flow 3:

Average throughput: 224.08 Mbit/s

95th percentile per-packet one-way delay: 3.176 ms

Loss rate: 0.21%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-08 01:17:44

End at: 2018-09-08 01:18:14

Local clock offset: 0.258 ms

Remote clock offset: 3.606 ms

# Below is generated by plot.py at 2018-09-08 04:07:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 797.86 Mbit/s

95th percentile per-packet one-way delay: 1.321 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 447.31 Mbit/s

95th percentile per-packet one-way delay: 1.248 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 353.56 Mbit/s

95th percentile per-packet one-way delay: 1.350 ms

Loss rate: 0.09%

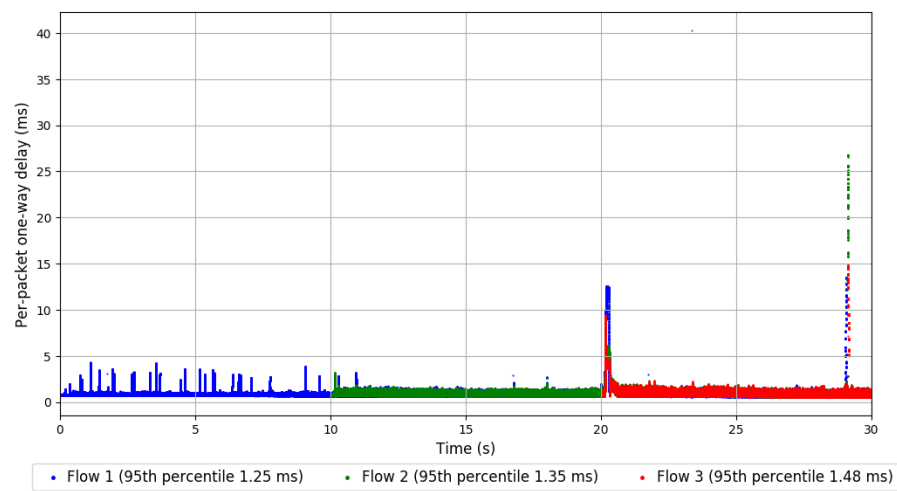
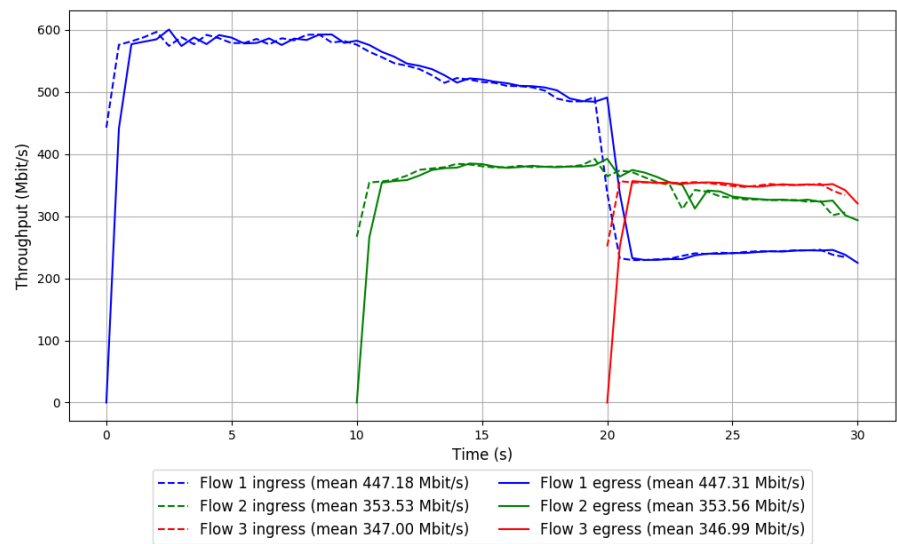
-- Flow 3:

Average throughput: 346.99 Mbit/s

95th percentile per-packet one-way delay: 1.483 ms

Loss rate: 0.19%

Run 2: Report of TCP Vegas — Data Link





Run 3: Statistics of TCP Vegas

Start at: 2018-09-08 01:47:03

End at: 2018-09-08 01:47:33

Local clock offset: 3.453 ms

Remote clock offset: 3.294 ms

# Below is generated by plot.py at 2018-09-08 04:07:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 639.52 Mbit/s

95th percentile per-packet one-way delay: 1.668 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 376.82 Mbit/s

95th percentile per-packet one-way delay: 1.579 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 227.73 Mbit/s

95th percentile per-packet one-way delay: 1.688 ms

Loss rate: 0.12%

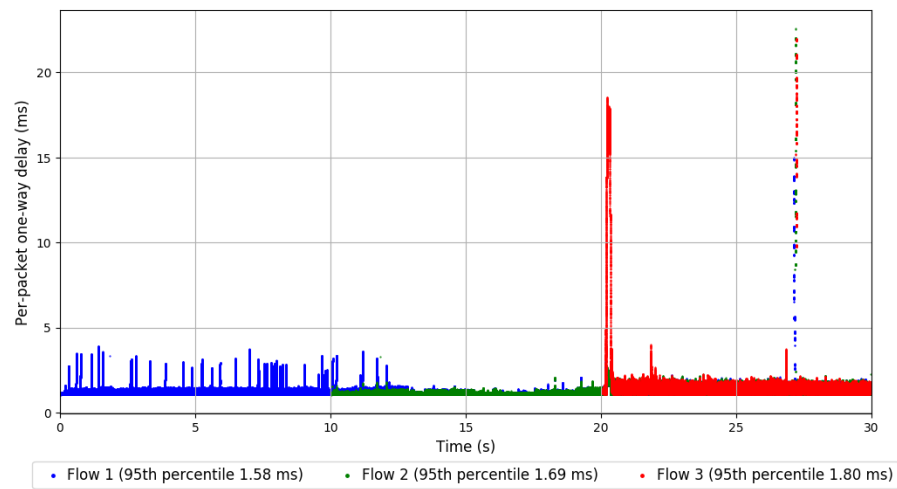
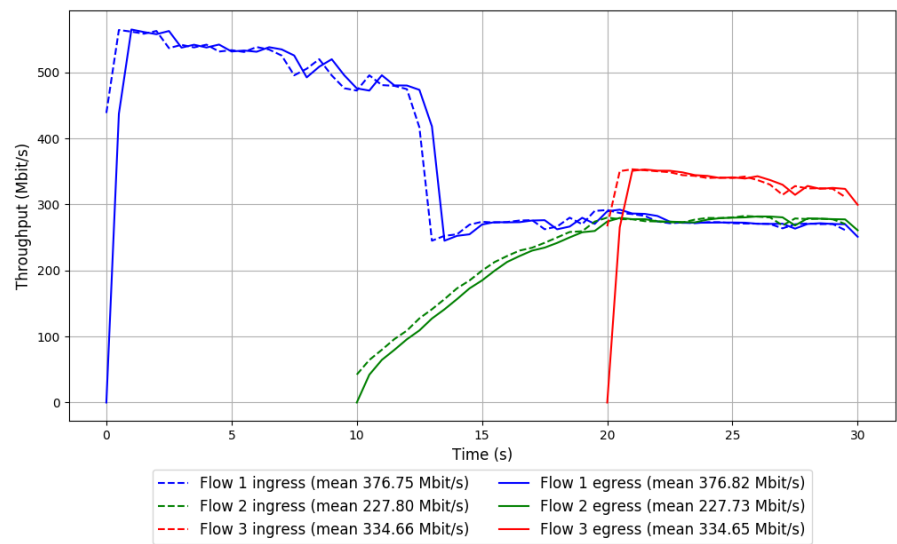
-- Flow 3:

Average throughput: 334.65 Mbit/s

95th percentile per-packet one-way delay: 1.796 ms

Loss rate: 0.19%

Run 3: Report of TCP Vegas — Data Link

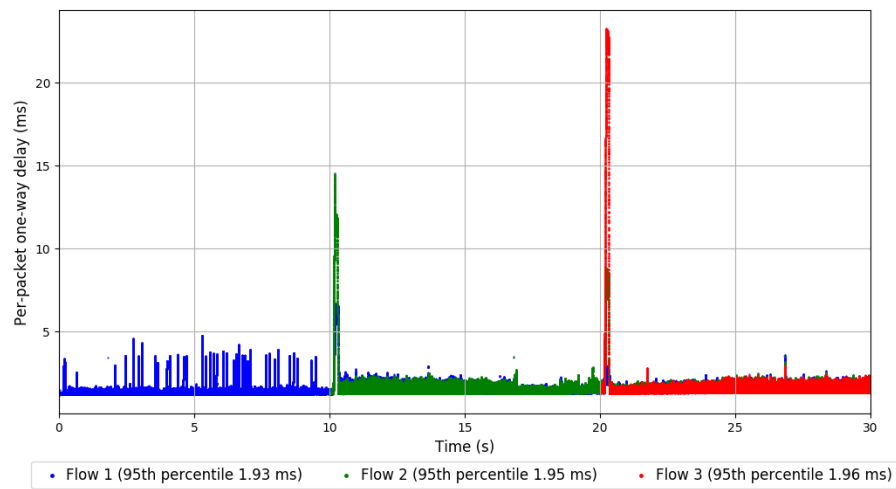
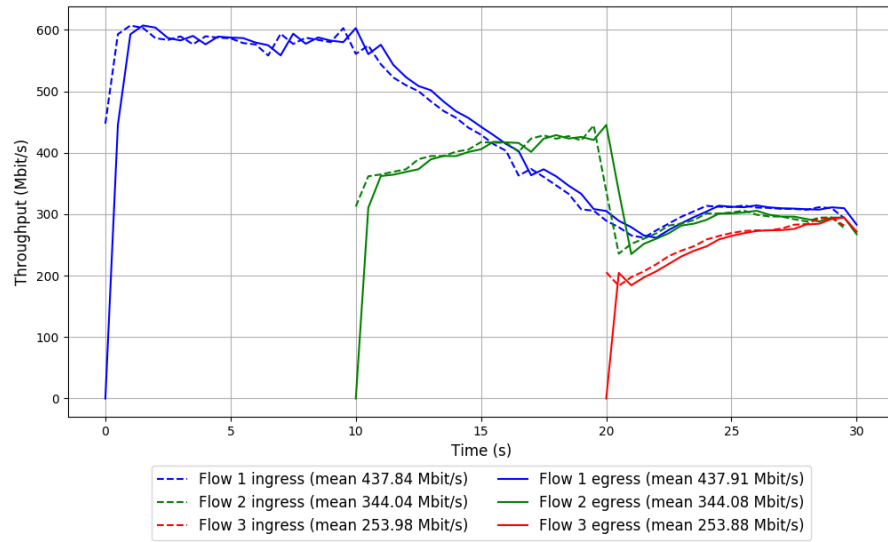


Run 4: Statistics of TCP Vegas

Start at: 2018-09-08 02:16:14  
End at: 2018-09-08 02:16:44  
Local clock offset: 2.936 ms  
Remote clock offset: -1.053 ms

# Below is generated by plot.py at 2018-09-08 04:11:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 751.30 Mbit/s  
95th percentile per-packet one-way delay: 1.943 ms  
Loss rate: 0.08%  
-- Flow 1:  
Average throughput: 437.91 Mbit/s  
95th percentile per-packet one-way delay: 1.932 ms  
Loss rate: 0.05%  
-- Flow 2:  
Average throughput: 344.08 Mbit/s  
95th percentile per-packet one-way delay: 1.952 ms  
Loss rate: 0.09%  
-- Flow 3:  
Average throughput: 253.88 Mbit/s  
95th percentile per-packet one-way delay: 1.963 ms  
Loss rate: 0.22%

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

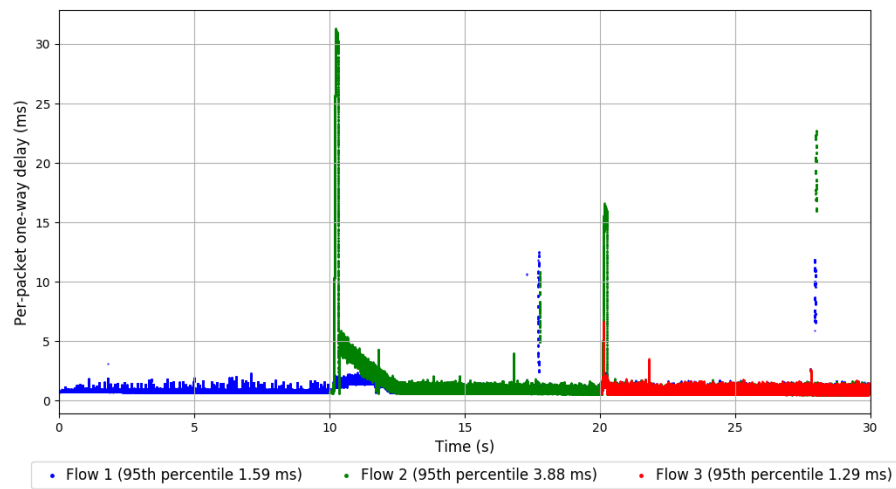
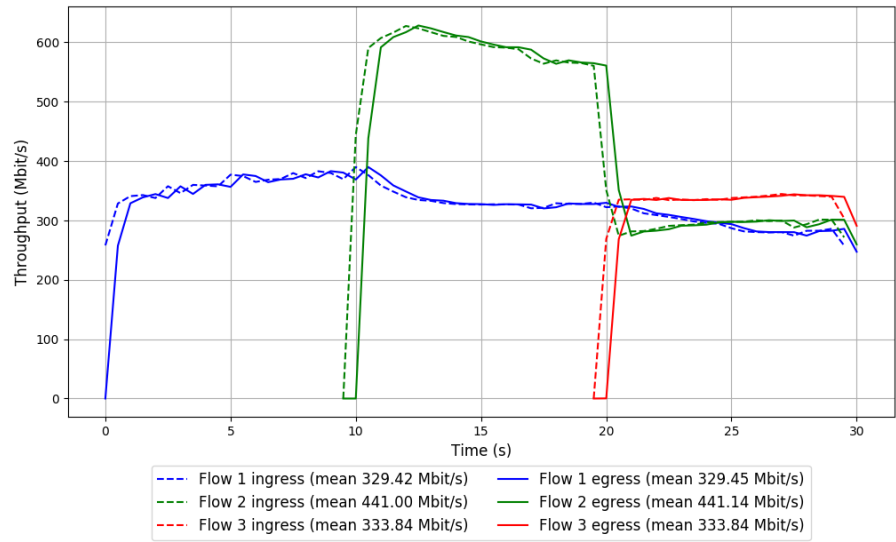


Run 5: Statistics of TCP Vegas

Start at: 2018-09-08 02:45:28  
End at: 2018-09-08 02:45:58  
Local clock offset: -0.467 ms  
Remote clock offset: -4.797 ms

# Below is generated by plot.py at 2018-09-08 04:11:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 734.47 Mbit/s  
95th percentile per-packet one-way delay: 2.069 ms  
Loss rate: 0.08%  
-- Flow 1:  
Average throughput: 329.45 Mbit/s  
95th percentile per-packet one-way delay: 1.589 ms  
Loss rate: 0.06%  
-- Flow 2:  
Average throughput: 441.14 Mbit/s  
95th percentile per-packet one-way delay: 3.881 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 333.84 Mbit/s  
95th percentile per-packet one-way delay: 1.289 ms  
Loss rate: 0.20%

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



Run 1: Statistics of Verus

Start at: 2018-09-08 00:41:34

End at: 2018-09-08 00:42:04

Local clock offset: 3.309 ms

Remote clock offset: 3.328 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 345.24 Mbit/s

95th percentile per-packet one-way delay: 8.368 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 214.71 Mbit/s

95th percentile per-packet one-way delay: 9.862 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 145.35 Mbit/s

95th percentile per-packet one-way delay: 5.517 ms

Loss rate: 0.09%

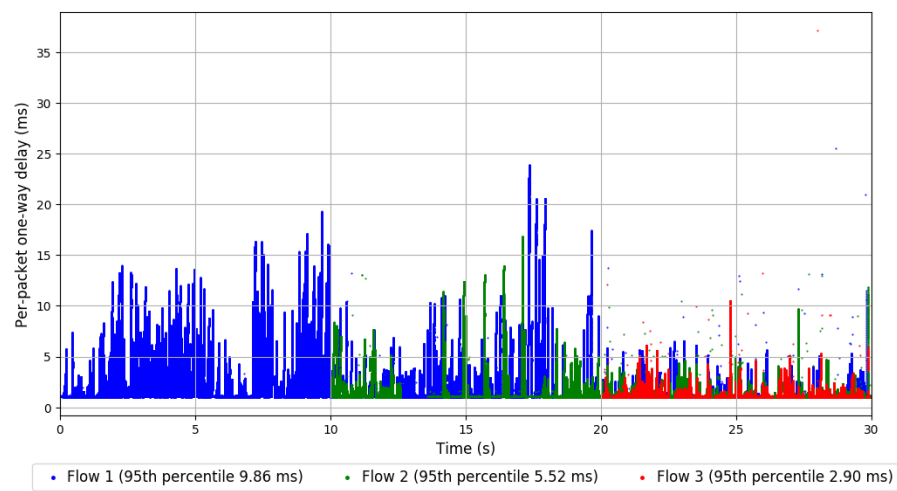
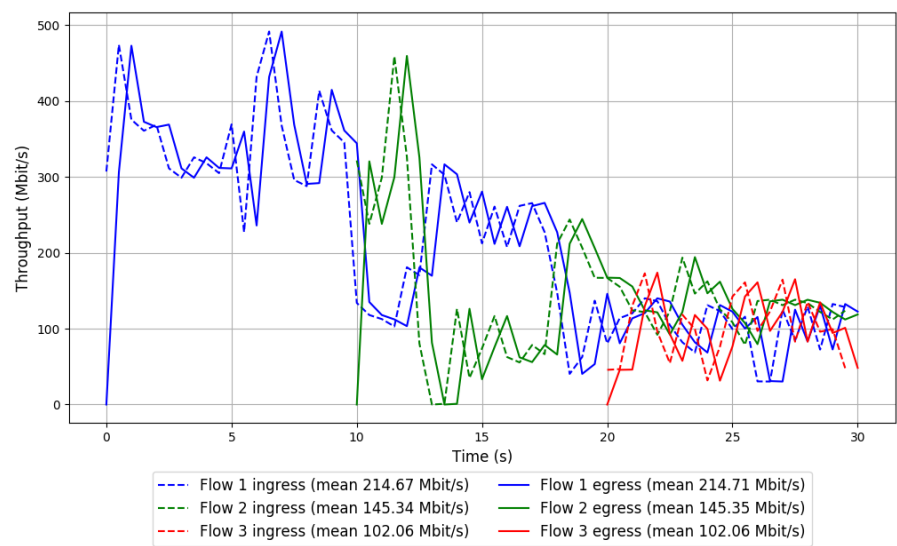
-- Flow 3:

Average throughput: 102.06 Mbit/s

95th percentile per-packet one-way delay: 2.897 ms

Loss rate: 0.00%

Run 1: Report of Verus — Data Link





Run 2: Statistics of Verus

Start at: 2018-09-08 01:10:44

End at: 2018-09-08 01:11:14

Local clock offset: -0.762 ms

Remote clock offset: 3.888 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 330.74 Mbit/s

95th percentile per-packet one-way delay: 4.270 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 206.77 Mbit/s

95th percentile per-packet one-way delay: 5.358 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 149.07 Mbit/s

95th percentile per-packet one-way delay: 2.476 ms

Loss rate: 0.05%

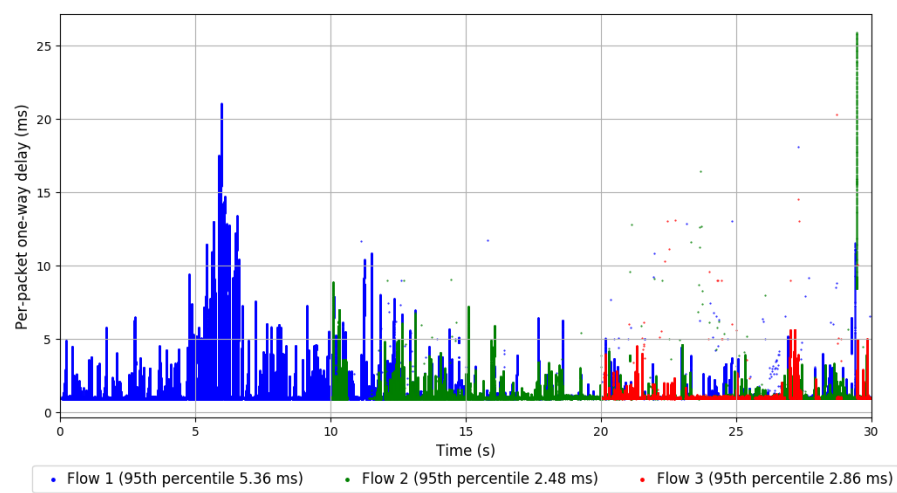
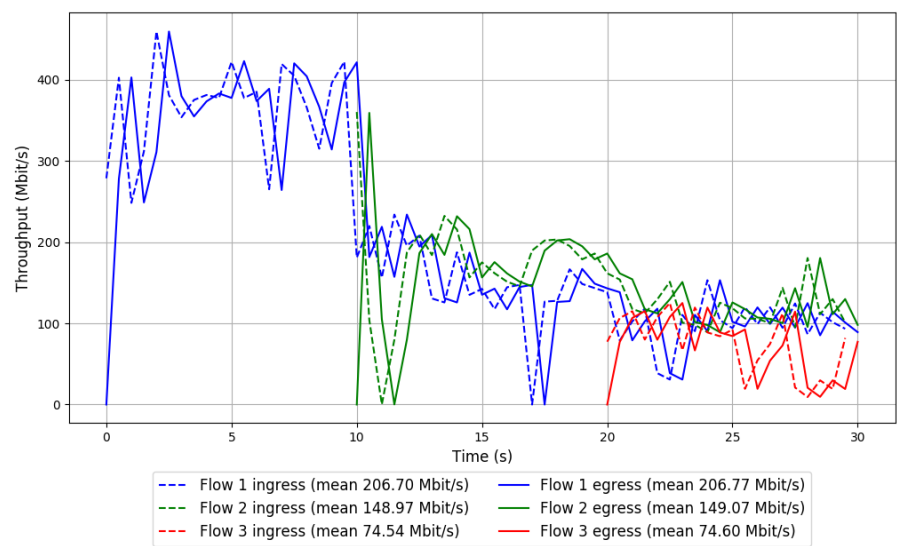
-- Flow 3:

Average throughput: 74.60 Mbit/s

95th percentile per-packet one-way delay: 2.859 ms

Loss rate: 0.32%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-08 01:40:05

End at: 2018-09-08 01:40:35

Local clock offset: 3.255 ms

Remote clock offset: 3.192 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 353.17 Mbit/s

95th percentile per-packet one-way delay: 4.293 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 215.72 Mbit/s

95th percentile per-packet one-way delay: 5.131 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 141.44 Mbit/s

95th percentile per-packet one-way delay: 2.326 ms

Loss rate: 0.11%

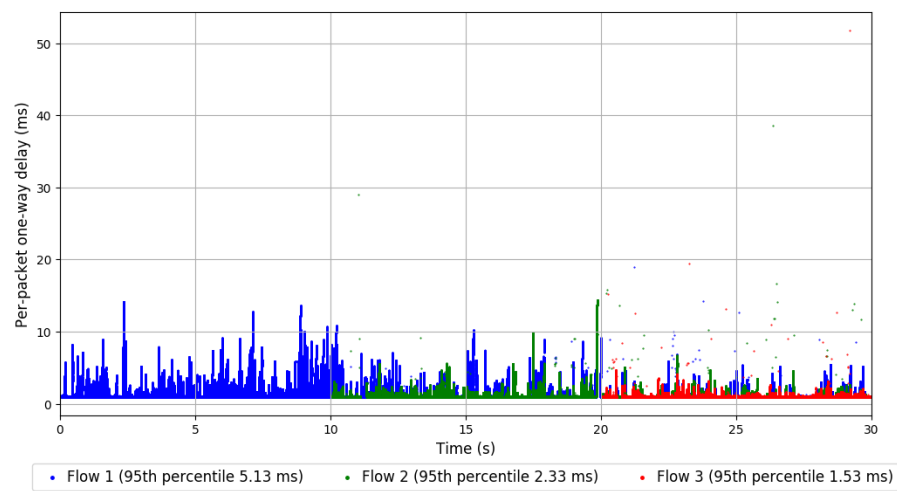
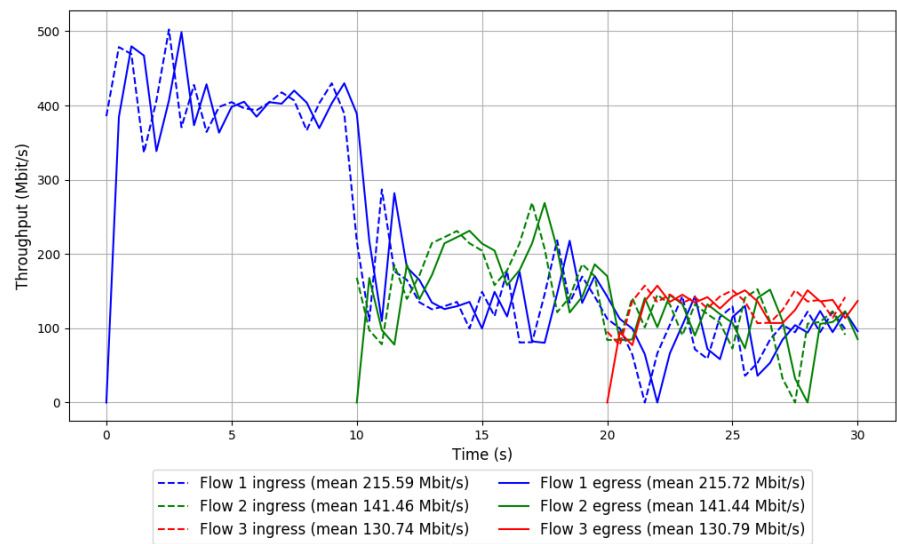
-- Flow 3:

Average throughput: 130.79 Mbit/s

95th percentile per-packet one-way delay: 1.526 ms

Loss rate: 0.21%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-08 02:09:12

End at: 2018-09-08 02:09:42

Local clock offset: 3.394 ms

Remote clock offset: -0.63 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 364.76 Mbit/s

95th percentile per-packet one-way delay: 9.287 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 215.54 Mbit/s

95th percentile per-packet one-way delay: 10.886 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 162.17 Mbit/s

95th percentile per-packet one-way delay: 2.323 ms

Loss rate: 0.04%

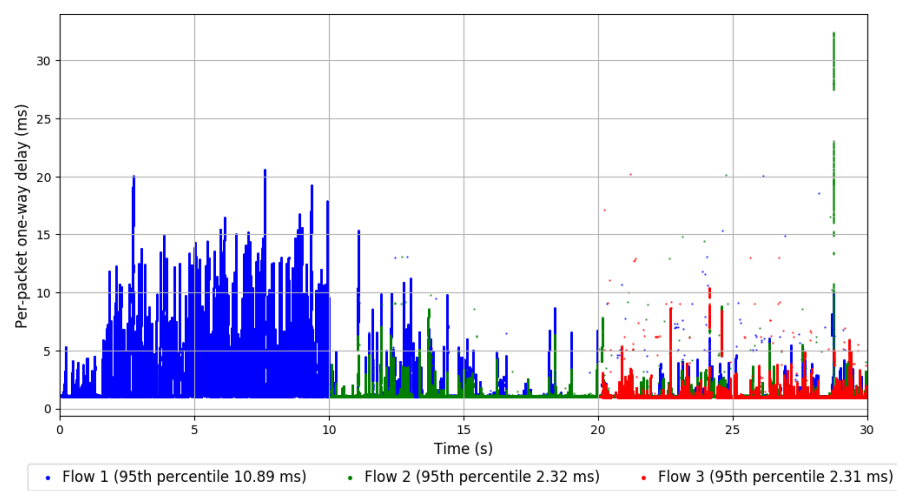
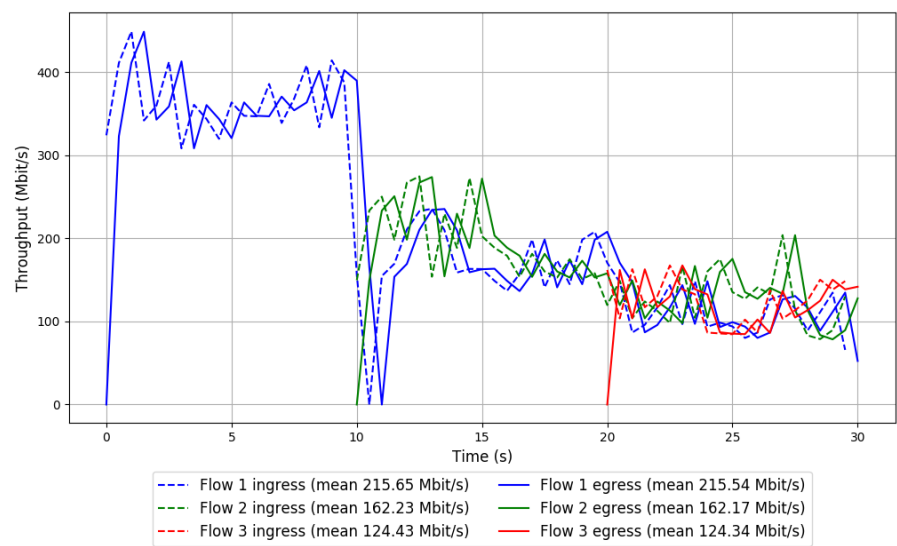
-- Flow 3:

Average throughput: 124.34 Mbit/s

95th percentile per-packet one-way delay: 2.313 ms

Loss rate: 0.27%

Run 4: Report of Verus — Data Link

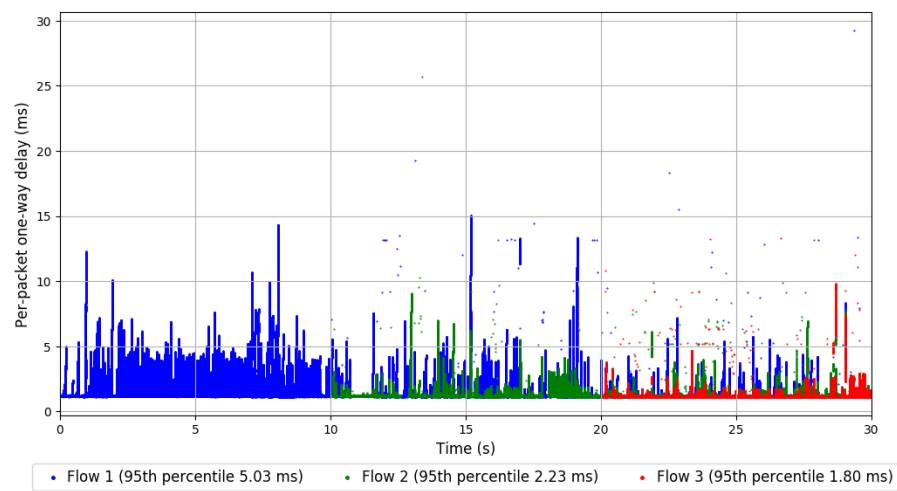
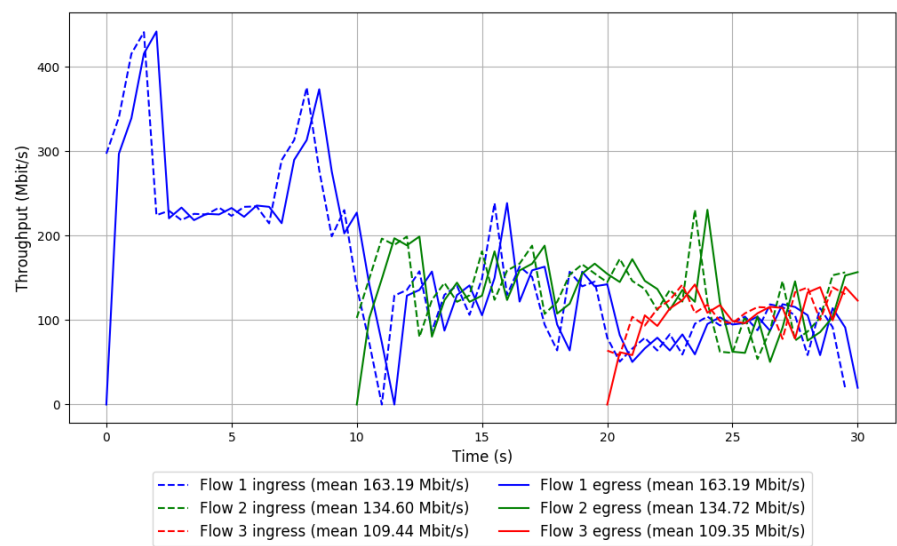


Run 5: Statistics of Verus

Start at: 2018-09-08 02:38:32  
End at: 2018-09-08 02:39:02  
Local clock offset: -0.356 ms  
Remote clock offset: -4.194 ms

# Below is generated by plot.py at 2018-09-08 04:11:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 287.19 Mbit/s  
95th percentile per-packet one-way delay: 4.100 ms  
Loss rate: 0.04%  
-- Flow 1:  
Average throughput: 163.19 Mbit/s  
95th percentile per-packet one-way delay: 5.028 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 134.72 Mbit/s  
95th percentile per-packet one-way delay: 2.234 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 109.35 Mbit/s  
95th percentile per-packet one-way delay: 1.801 ms  
Loss rate: 0.35%

Run 5: Report of Verus — Data Link





Run 1: Statistics of PCC-Vivace

Start at: 2018-09-08 00:31:05

End at: 2018-09-08 00:31:35

Local clock offset: 3.241 ms

Remote clock offset: 3.229 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 322.59 Mbit/s

95th percentile per-packet one-way delay: 0.920 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 209.12 Mbit/s

95th percentile per-packet one-way delay: 0.913 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 136.50 Mbit/s

95th percentile per-packet one-way delay: 0.920 ms

Loss rate: 0.04%

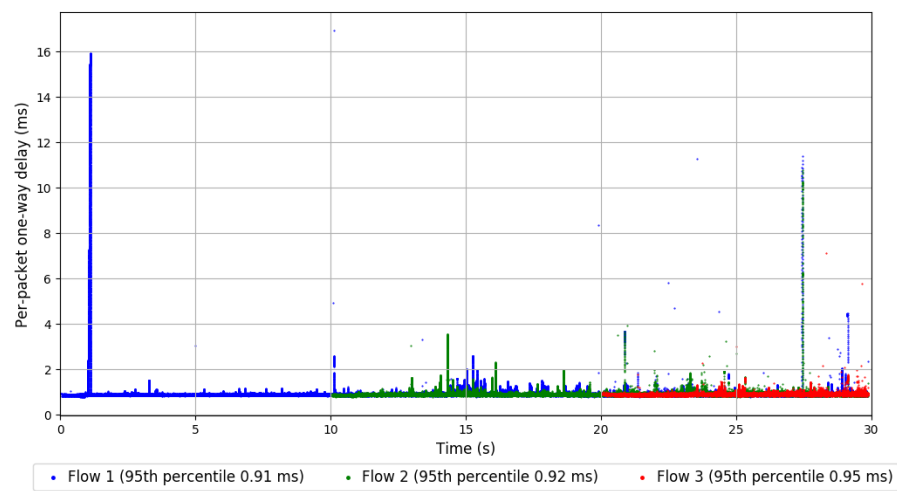
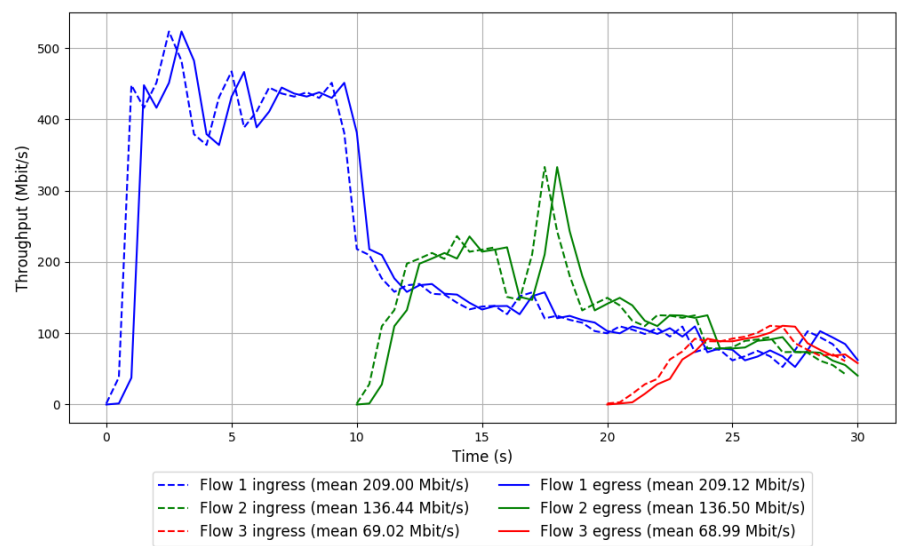
-- Flow 3:

Average throughput: 68.99 Mbit/s

95th percentile per-packet one-way delay: 0.947 ms

Loss rate: 0.23%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-08 01:00:17

End at: 2018-09-08 01:00:47

Local clock offset: -0.012 ms

Remote clock offset: 3.575 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 301.03 Mbit/s

95th percentile per-packet one-way delay: 1.113 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 229.75 Mbit/s

95th percentile per-packet one-way delay: 1.097 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 80.27 Mbit/s

95th percentile per-packet one-way delay: 1.157 ms

Loss rate: 0.09%

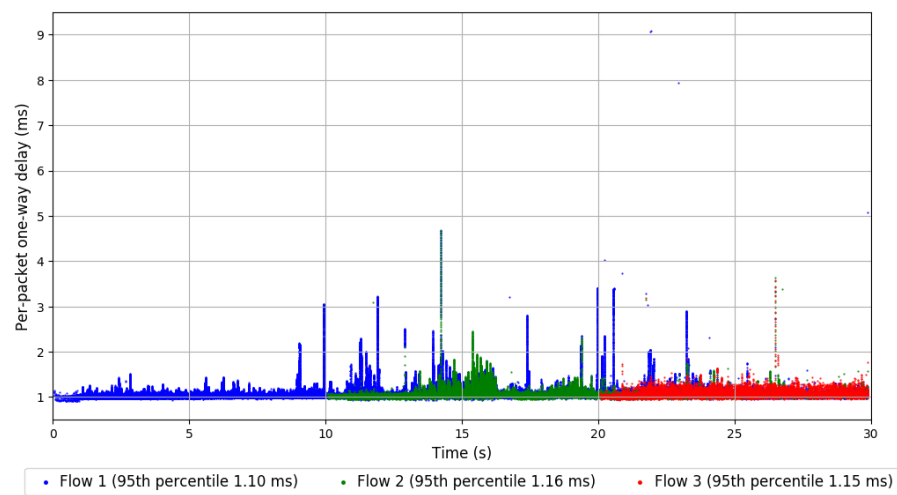
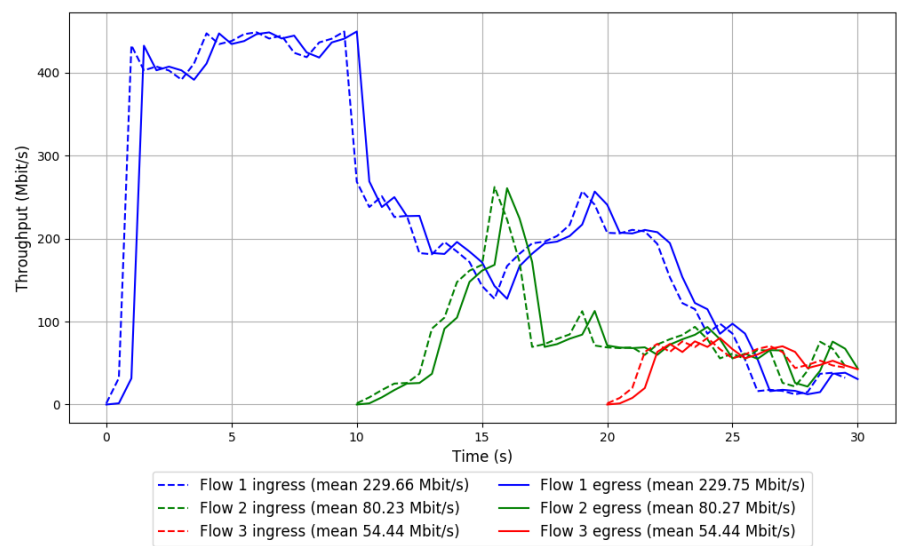
-- Flow 3:

Average throughput: 54.44 Mbit/s

95th percentile per-packet one-way delay: 1.151 ms

Loss rate: 0.20%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-08 01:29:32

End at: 2018-09-08 01:30:02

Local clock offset: 2.684 ms

Remote clock offset: 3.227 ms

# Below is generated by plot.py at 2018-09-08 04:11:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 297.48 Mbit/s

95th percentile per-packet one-way delay: 1.025 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 213.79 Mbit/s

95th percentile per-packet one-way delay: 1.024 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 91.57 Mbit/s

95th percentile per-packet one-way delay: 1.064 ms

Loss rate: 0.07%

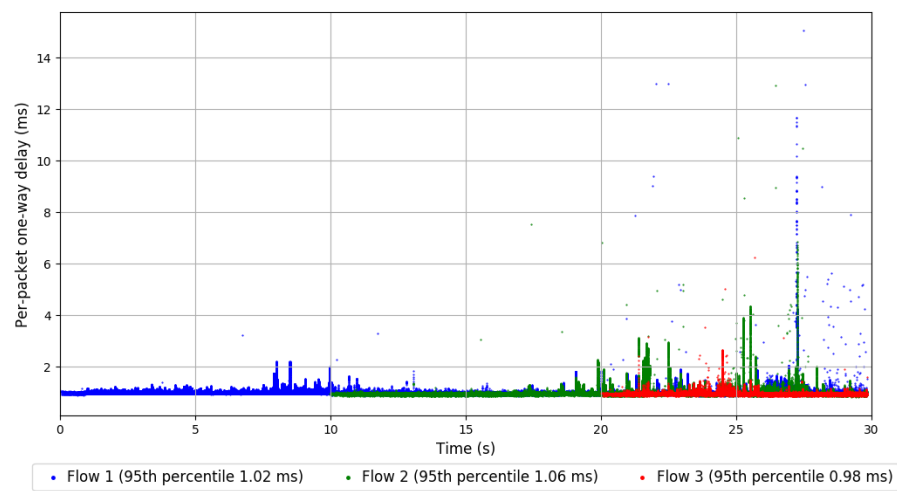
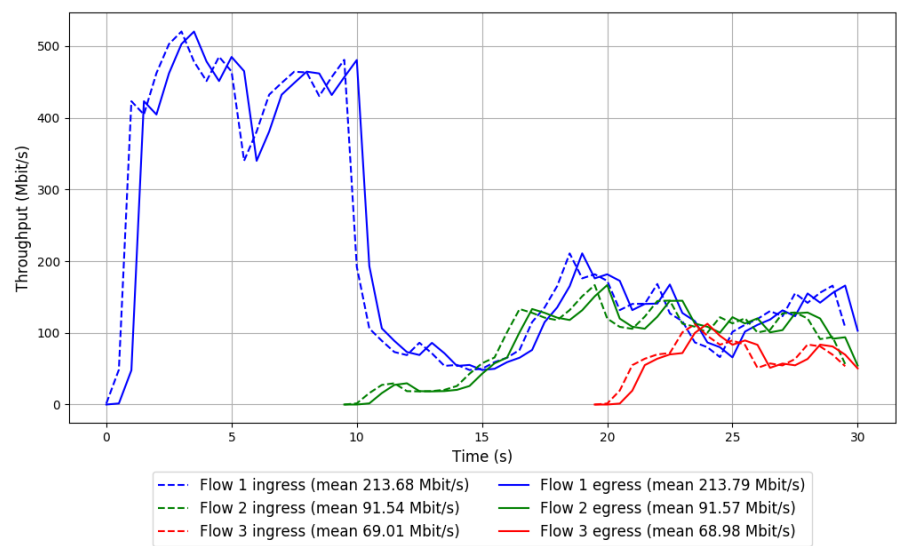
-- Flow 3:

Average throughput: 68.98 Mbit/s

95th percentile per-packet one-way delay: 0.983 ms

Loss rate: 0.24%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-08 01:58:43

End at: 2018-09-08 01:59:13

Local clock offset: 3.373 ms

Remote clock offset: 0.443 ms

# Below is generated by plot.py at 2018-09-08 04:11:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 343.80 Mbit/s

95th percentile per-packet one-way delay: 1.066 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 248.53 Mbit/s

95th percentile per-packet one-way delay: 1.068 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 111.19 Mbit/s

95th percentile per-packet one-way delay: 1.061 ms

Loss rate: 0.13%

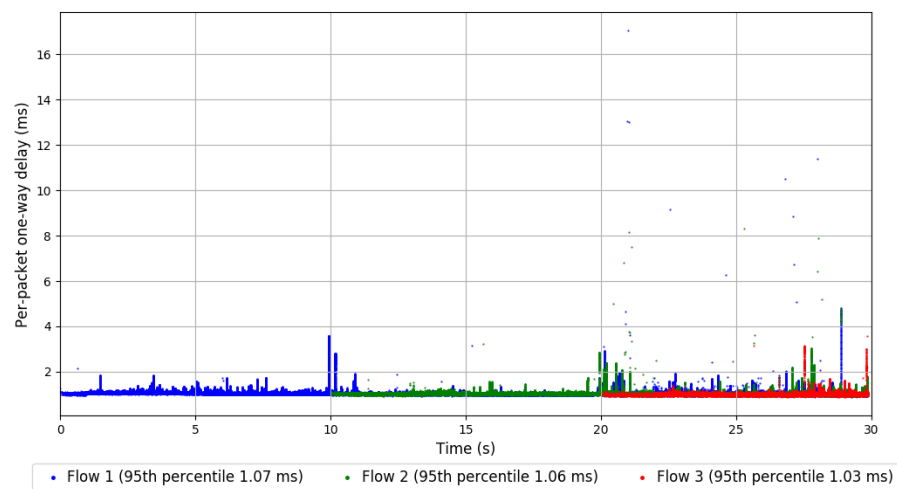
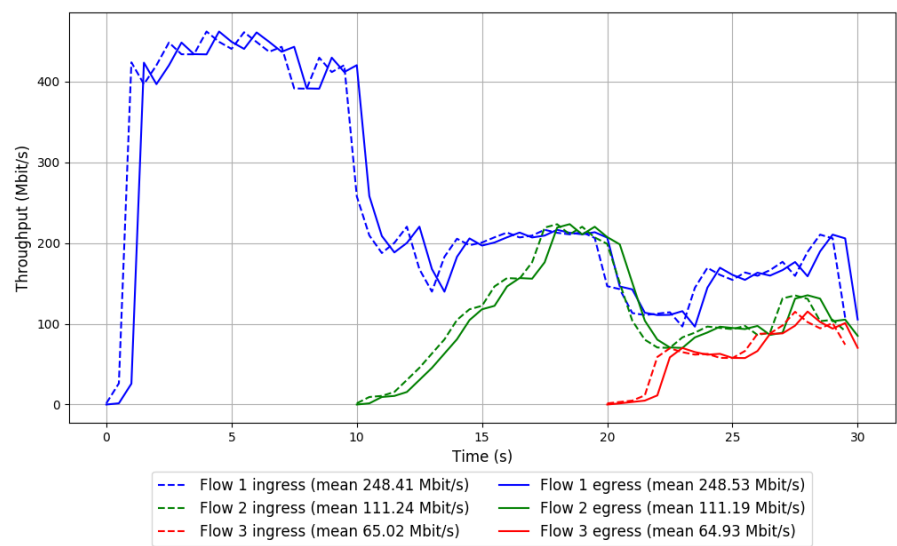
-- Flow 3:

Average throughput: 64.93 Mbit/s

95th percentile per-packet one-way delay: 1.035 ms

Loss rate: 0.32%

Run 4: Report of PCC-Vivace — Data Link



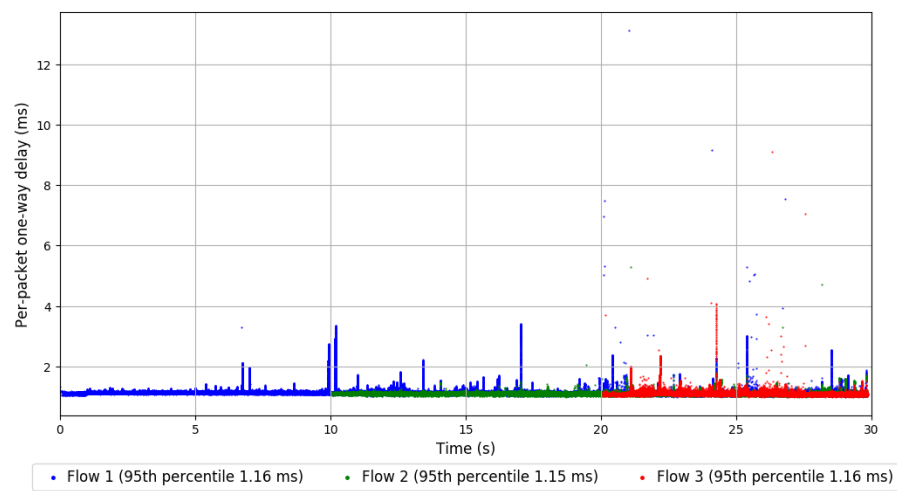
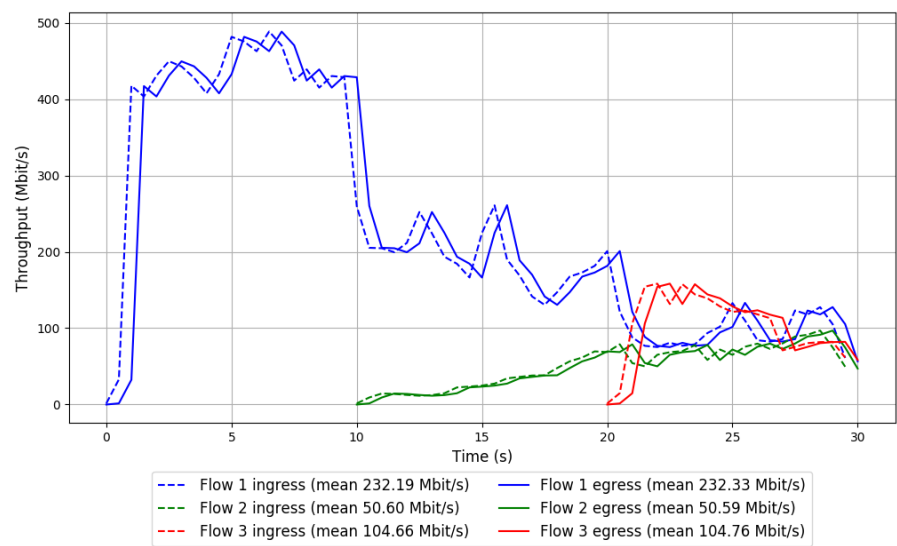


Run 5: Statistics of PCC-Vivace

Start at: 2018-09-08 02:28:01  
End at: 2018-09-08 02:28:32  
Local clock offset: 0.533 ms  
Remote clock offset: -2.694 ms

# Below is generated by plot.py at 2018-09-08 04:11:59  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 300.39 Mbit/s  
95th percentile per-packet one-way delay: 1.154 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 232.33 Mbit/s  
95th percentile per-packet one-way delay: 1.155 ms  
Loss rate: 0.03%  
-- Flow 2:  
Average throughput: 50.59 Mbit/s  
95th percentile per-packet one-way delay: 1.145 ms  
Loss rate: 0.15%  
-- Flow 3:  
Average throughput: 104.76 Mbit/s  
95th percentile per-packet one-way delay: 1.159 ms  
Loss rate: 0.15%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-08 00:40:15

End at: 2018-09-08 00:40:45

Local clock offset: 3.308 ms

Remote clock offset: 3.425 ms

# Below is generated by plot.py at 2018-09-08 04:11:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.13 Mbit/s

95th percentile per-packet one-way delay: 1.086 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 1.51 Mbit/s

95th percentile per-packet one-way delay: 1.092 ms

Loss rate: 0.21%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 1.084 ms

Loss rate: 0.00%

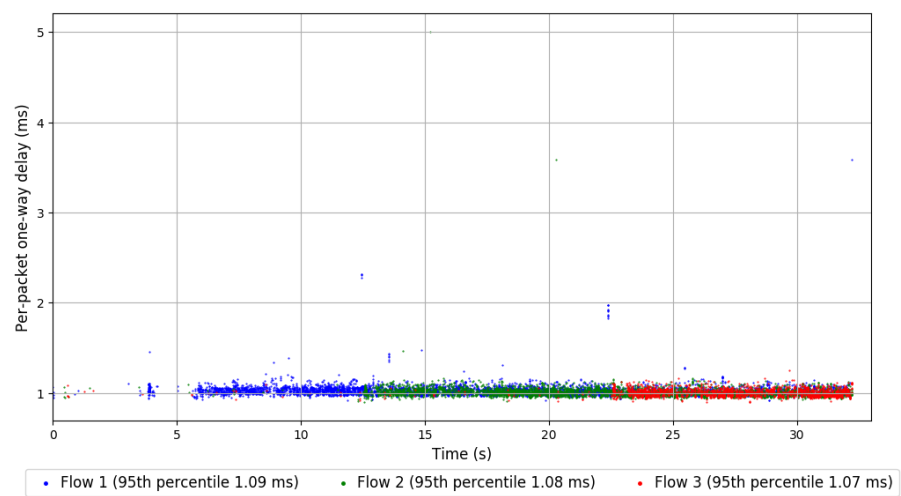
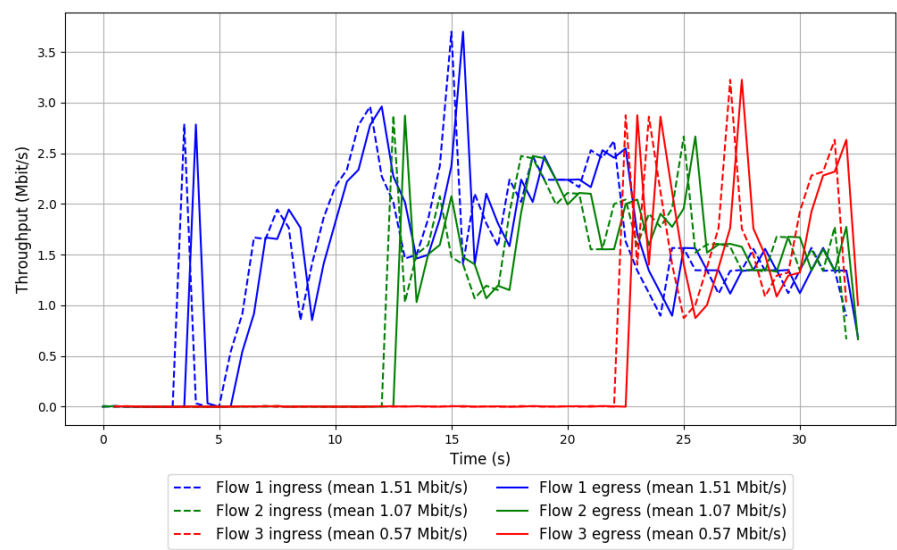
-- Flow 3:

Average throughput: 0.57 Mbit/s

95th percentile per-packet one-way delay: 1.074 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-08 01:09:24

End at: 2018-09-08 01:09:54

Local clock offset: -0.68 ms

Remote clock offset: 3.775 ms

# Below is generated by plot.py at 2018-09-08 04:11:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.19 Mbit/s

95th percentile per-packet one-way delay: 1.139 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 1.62 Mbit/s

95th percentile per-packet one-way delay: 1.137 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 1.14 Mbit/s

95th percentile per-packet one-way delay: 1.138 ms

Loss rate: 0.00%

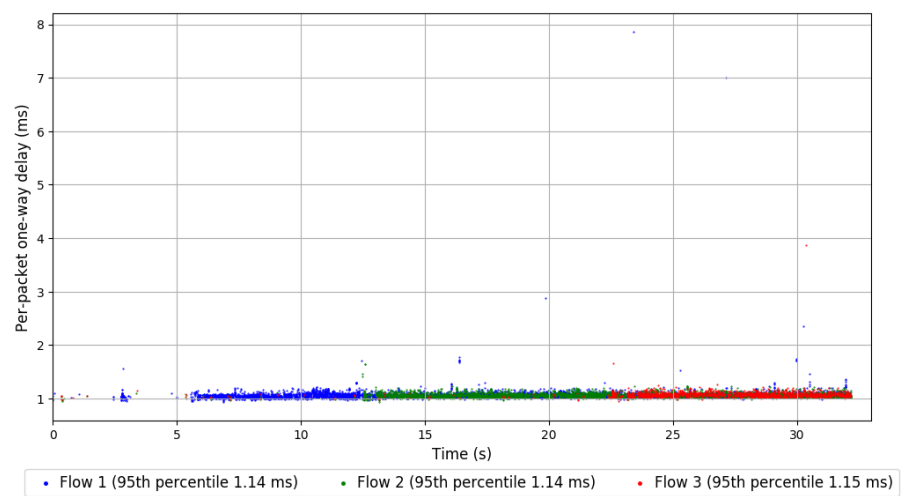
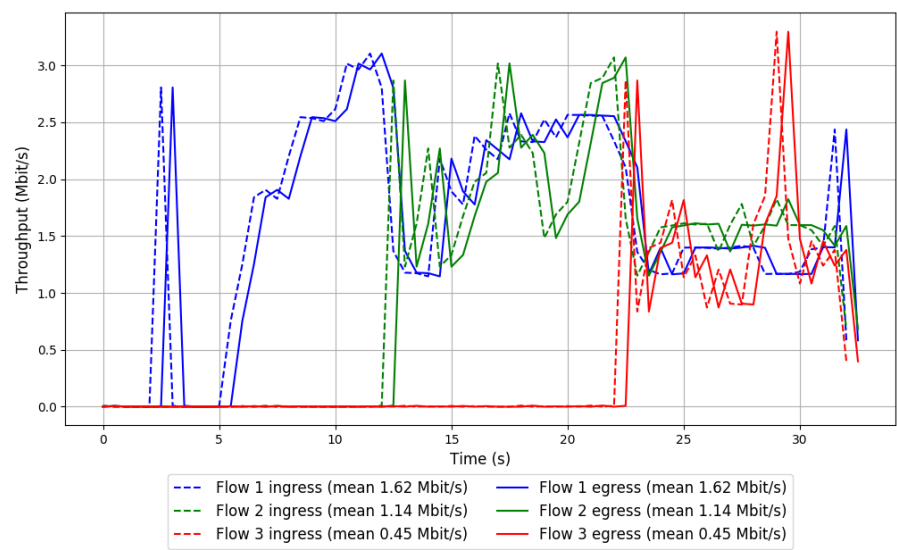
-- Flow 3:

Average throughput: 0.45 Mbit/s

95th percentile per-packet one-way delay: 1.147 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-08 01:38:45

End at: 2018-09-08 01:39:15

Local clock offset: 3.289 ms

Remote clock offset: 3.173 ms

# Below is generated by plot.py at 2018-09-08 04:11:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 2.95 Mbit/s

95th percentile per-packet one-way delay: 1.151 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 1.43 Mbit/s

95th percentile per-packet one-way delay: 1.153 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 1.151 ms

Loss rate: 0.00%

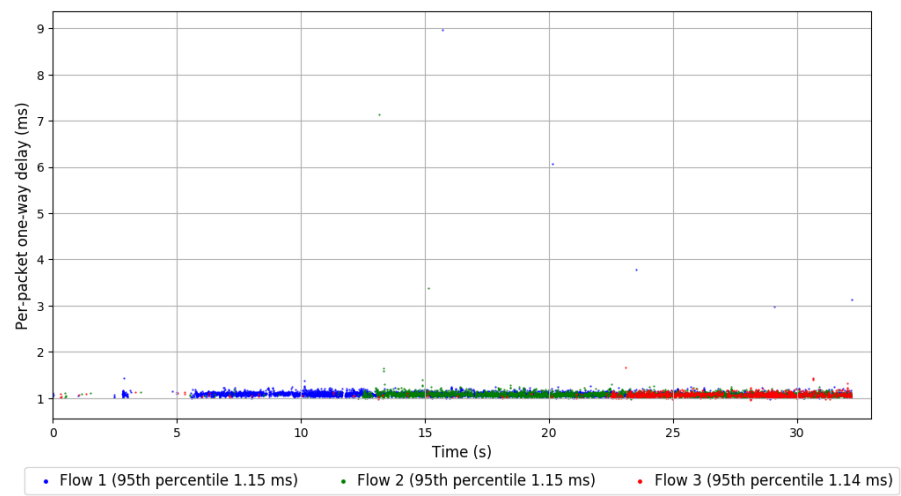
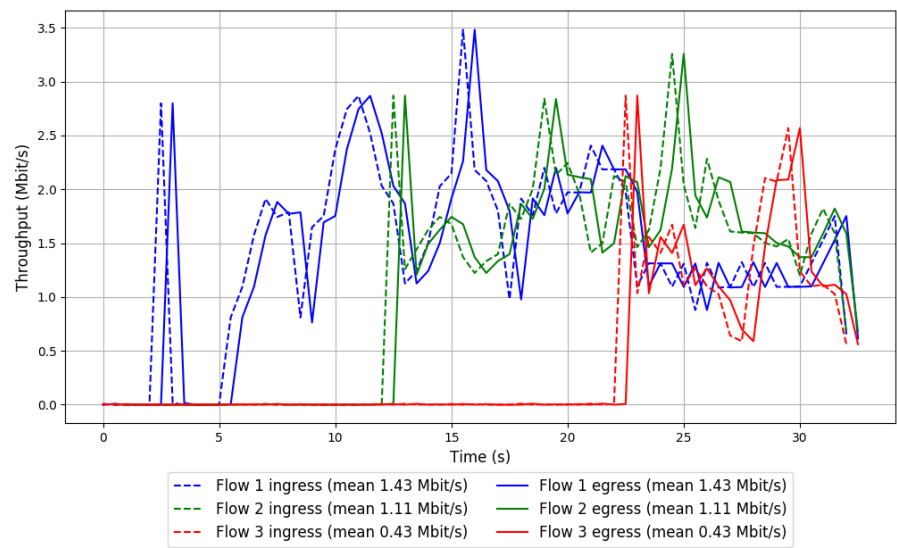
-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 1.141 ms

Loss rate: 0.01%

Run 3: Report of WebRTC media — Data Link



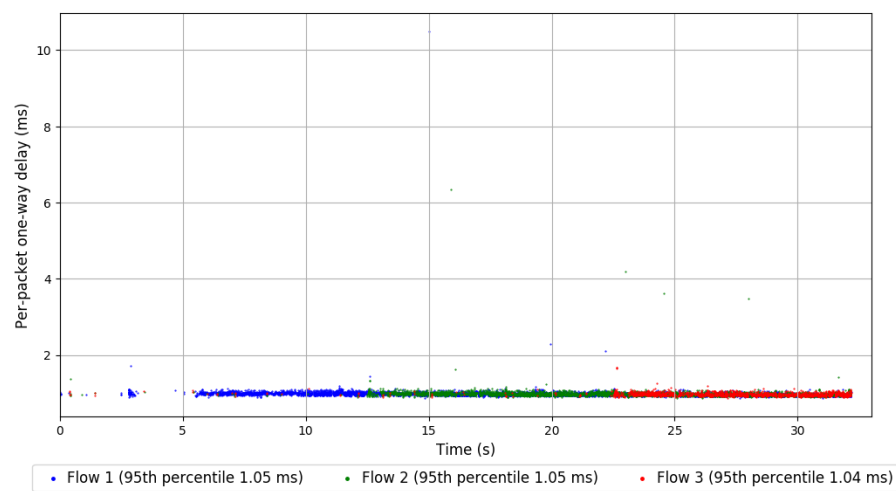
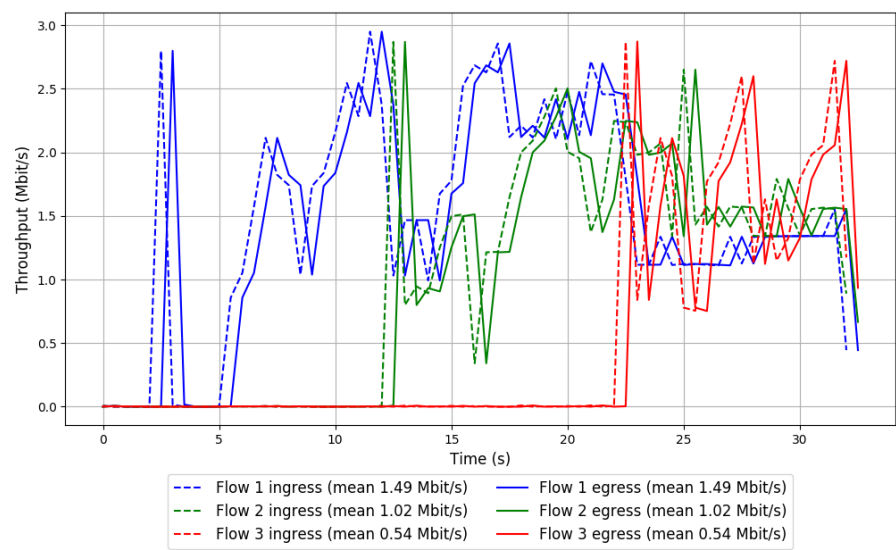


Run 4: Statistics of WebRTC media

Start at: 2018-09-08 02:07:52  
End at: 2018-09-08 02:08:22  
Local clock offset: 3.384 ms  
Remote clock offset: -0.485 ms

# Below is generated by plot.py at 2018-09-08 04:11:59  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.03 Mbit/s  
95th percentile per-packet one-way delay: 1.048 ms  
Loss rate: 0.24%  
-- Flow 1:  
Average throughput: 1.49 Mbit/s  
95th percentile per-packet one-way delay: 1.050 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.02 Mbit/s  
95th percentile per-packet one-way delay: 1.048 ms  
Loss rate: 0.34%  
-- Flow 3:  
Average throughput: 0.54 Mbit/s  
95th percentile per-packet one-way delay: 1.044 ms  
Loss rate: 0.69%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-08 02:37:12  
End at: 2018-09-08 02:37:42  
Local clock offset: -0.371 ms  
Remote clock offset: -3.969 ms

# Below is generated by plot.py at 2018-09-08 04:11:59  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.14 Mbit/s  
95th percentile per-packet one-way delay: 1.037 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.52 Mbit/s  
95th percentile per-packet one-way delay: 1.037 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.18 Mbit/s  
95th percentile per-packet one-way delay: 1.040 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.47 Mbit/s  
95th percentile per-packet one-way delay: 1.028 ms  
Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

