

Pantheon Report

Generated at 2019-01-03 09:11:28 (UTC).
Data path: India cellular on ppp0 (*remote*) → AWS India 1 on ens5 (*local*).
Repeated the test of 19 congestion control schemes 3 times.
Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.
NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

System info:

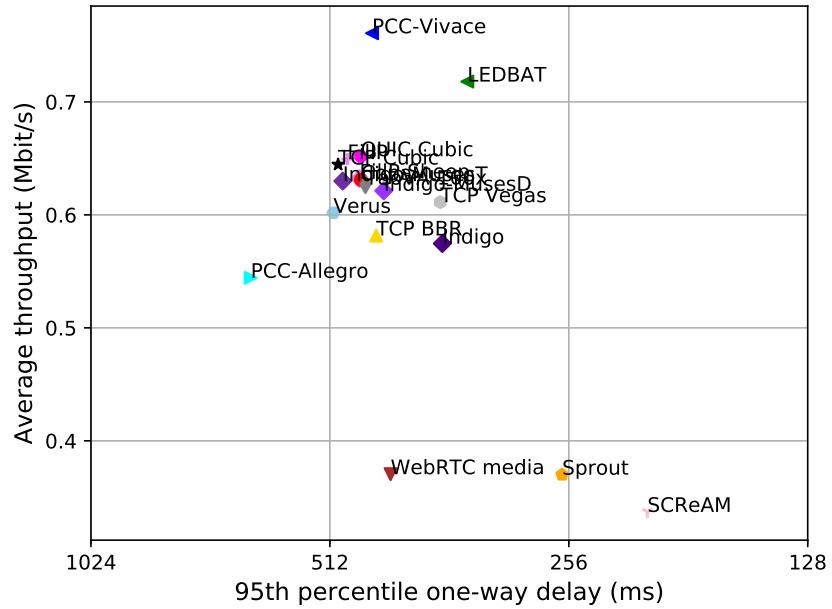
```
Linux 4.15.0-1029-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

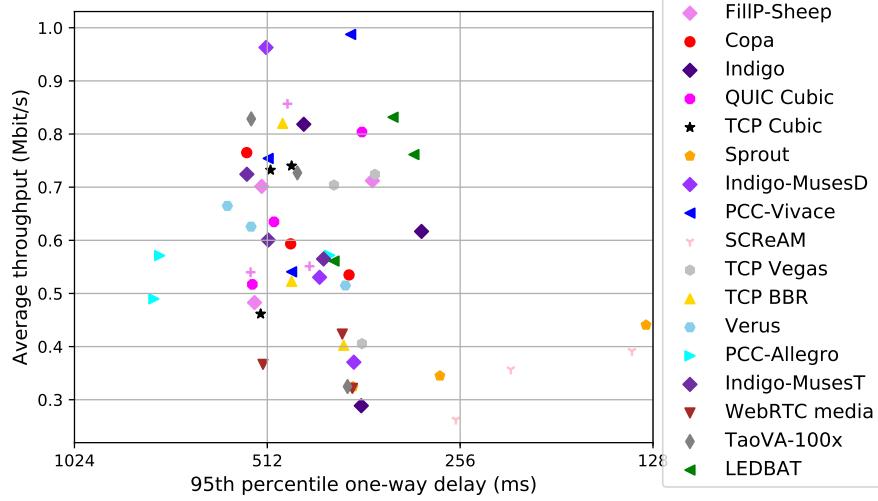
```
branch: muses @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fce6963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
```

```
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



test from India cellular to AWS India 1, 3 runs of 30s each per scheme
3 flows with 10s interval between flows



4

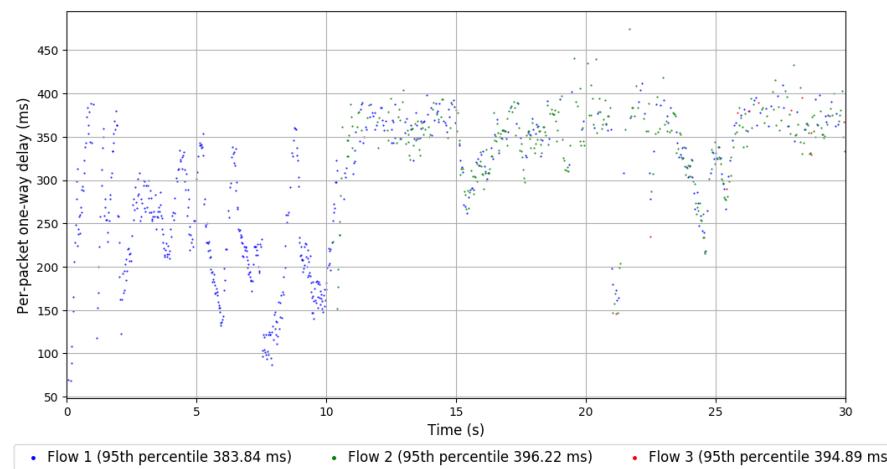
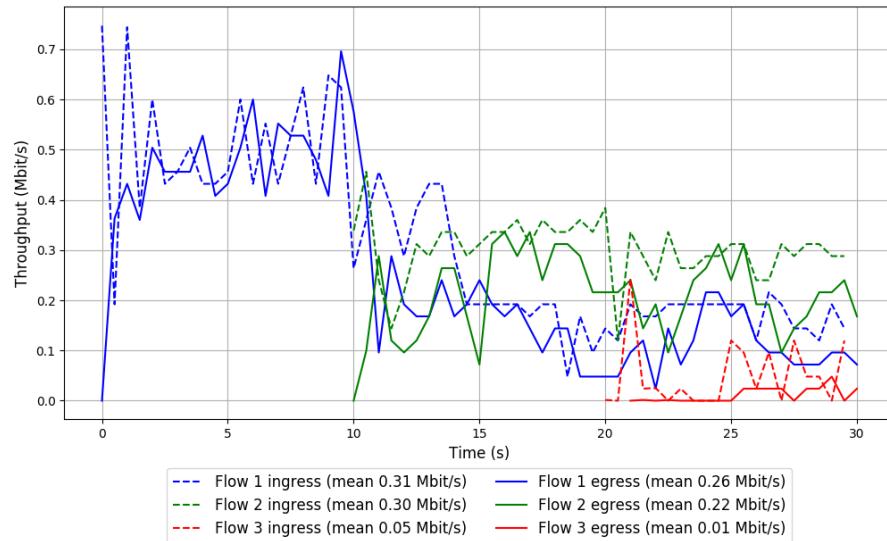
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	0.36	0.23	0.24	446.30	447.92	446.99	16.26	26.42	39.96
Copa	3	0.40	0.24	0.23	456.14	478.38	475.87	4.66	12.32	16.68
TCP Cubic	3	0.40	0.26	0.23	499.03	496.35	504.99	6.73	9.19	13.18
FillP	3	0.42	0.24	0.22	482.85	491.67	486.74	49.20	69.00	78.17
FillP-Sheep	3	0.39	0.26	0.21	467.86	470.61	473.12	28.26	53.59	70.70
Indigo	3	0.31	0.27	0.28	350.31	375.84	396.18	5.75	10.42	20.40
Indigo-MusesD	3	0.36	0.29	0.21	432.80	439.64	442.19	18.90	25.69	46.57
Indigo-MusesT	3	0.36	0.30	0.24	493.69	487.83	493.84	64.65	72.33	78.82
LEDBAT	3	0.34	0.31	0.58	329.31	343.41	358.10	0.70	0.65	2.10
PCC-Allegro	3	0.41	0.15	0.13	465.89	657.47	749.71	90.49	95.77	97.15
PCC-Expr	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
QUIC Cubic	3	0.38	0.30	0.26	467.18	463.54	477.91	21.77	25.98	41.26
SCReAM	3	0.18	0.15	0.17	191.96	204.61	254.78	0.27	0.41	1.92
Sprout	3	0.18	0.19	0.19	256.97	257.67	274.27	0.40	1.20	3.20
TaoVA-100x	3	0.37	0.34	0.16	462.77	459.07	463.92	49.87	58.43	74.89
TCP Vegas	3	0.31	0.30	0.31	353.60	384.00	393.99	1.82	3.82	6.01
Verus	3	0.52	0.06	0.14	506.20	509.95	512.56	33.47	71.08	65.40
PCC-Vivace	3	0.50	0.31	0.19	453.87	447.31	451.76	63.79	76.58	85.16
WebRTC media	3	0.15	0.15	0.08	424.54	431.25	425.43	13.83	17.22	18.25

Run 1: Statistics of TCP BBR

```
Start at: 2019-01-03 08:15:00
End at: 2019-01-03 08:15:30
Local clock offset: 0.32 ms
Remote clock offset: -0.211 ms

# Below is generated by plot.py at 2019-01-03 09:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 389.131 ms
Loss rate: 24.38%
-- Flow 1:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 383.839 ms
Loss rate: 18.67%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 396.220 ms
Loss rate: 28.88%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 394.886 ms
Loss rate: 77.88%
```

Run 1: Report of TCP BBR — Data Link

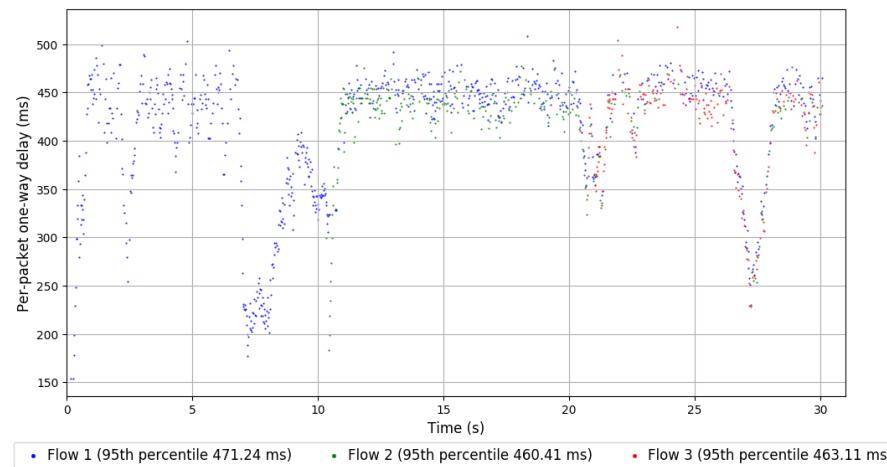
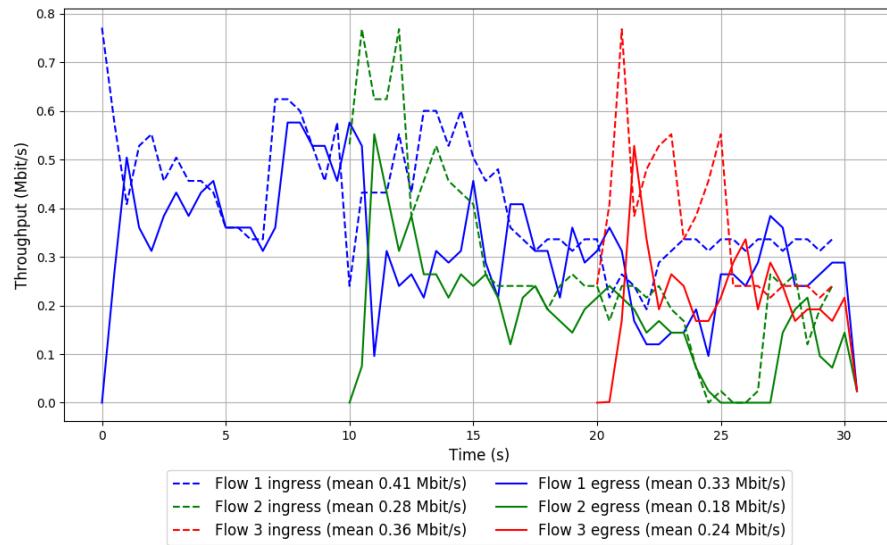


Run 2: Statistics of TCP BBR

```
Start at: 2019-01-03 08:37:10
End at: 2019-01-03 08:37:40
Local clock offset: 0.412 ms
Remote clock offset: -83.954 ms

# Below is generated by plot.py at 2019-01-03 09:10:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 469.098 ms
Loss rate: 27.58%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 471.239 ms
Loss rate: 21.11%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 460.413 ms
Loss rate: 36.16%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 463.105 ms
Loss rate: 36.32%
```

Run 2: Report of TCP BBR — Data Link

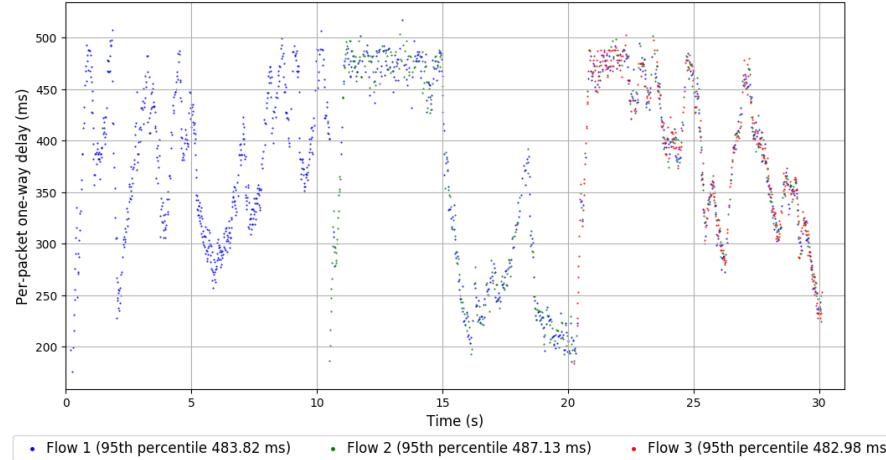
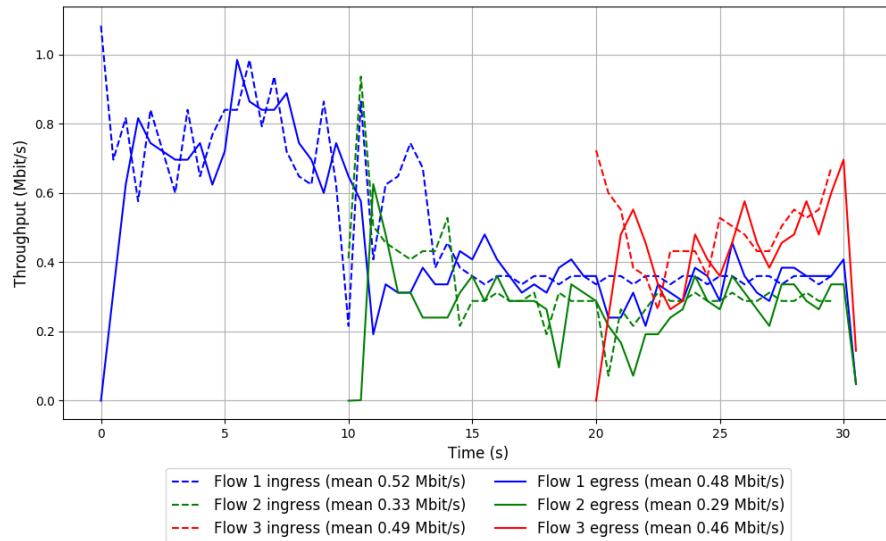


Run 3: Statistics of TCP BBR

```
Start at: 2019-01-03 08:59:30
End at: 2019-01-03 09:00:00
Local clock offset: -0.485 ms
Remote clock offset: -121.257 ms

# Below is generated by plot.py at 2019-01-03 09:10:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 484.571 ms
Loss rate: 9.68%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 483.818 ms
Loss rate: 9.01%
-- Flow 2:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 487.132 ms
Loss rate: 14.23%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 482.978 ms
Loss rate: 5.68%
```

Run 3: Report of TCP BBR — Data Link

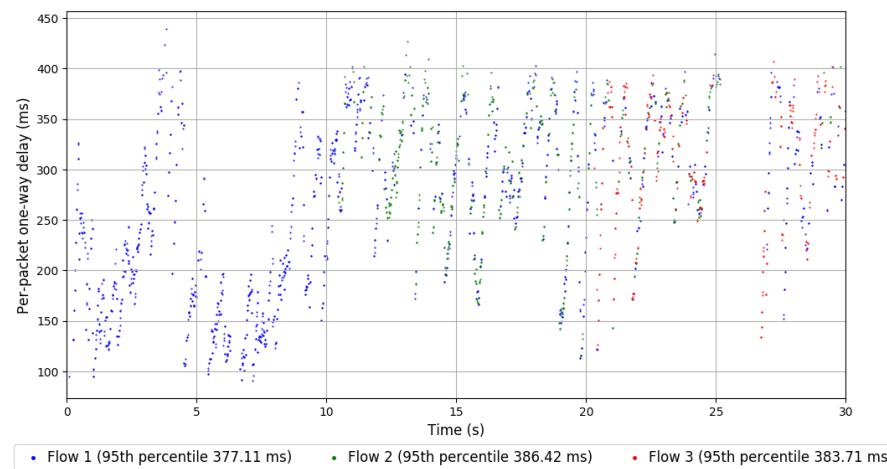
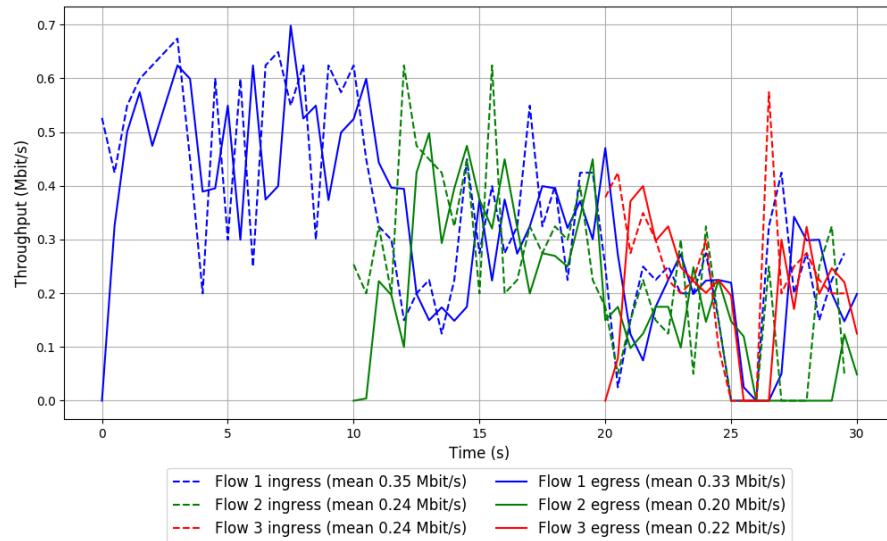


Run 1: Statistics of Copa

```
Start at: 2019-01-03 08:13:52
End at: 2019-01-03 08:14:22
Local clock offset: 3.09 ms
Remote clock offset: -24.205 ms

# Below is generated by plot.py at 2019-01-03 09:10:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 381.682 ms
Loss rate: 8.62%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 377.107 ms
Loss rate: 4.76%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 386.420 ms
Loss rate: 15.70%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 383.712 ms
Loss rate: 11.68%
```

Run 1: Report of Copa — Data Link

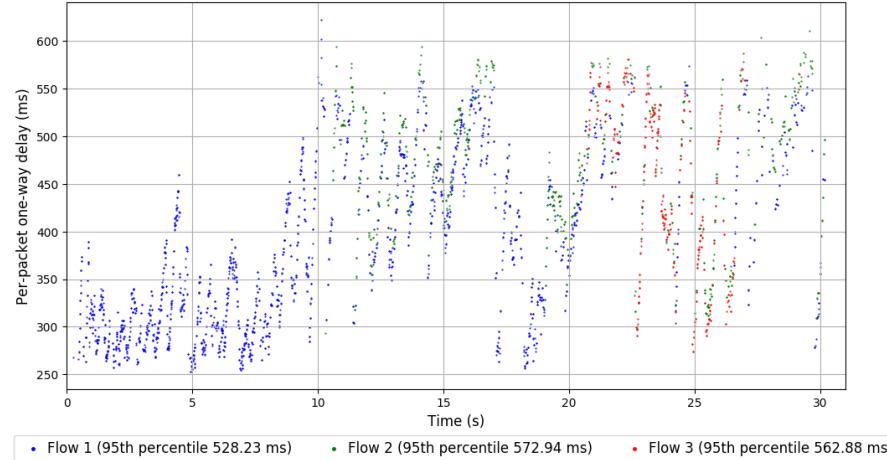
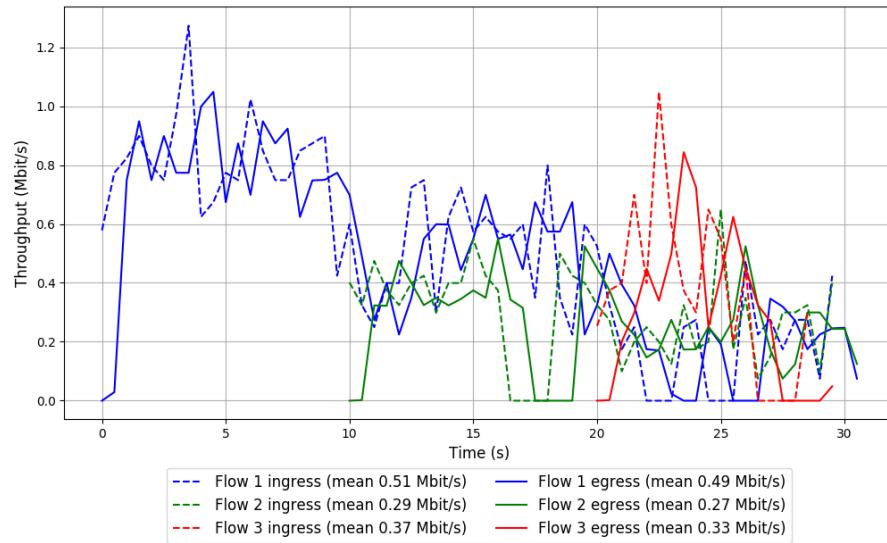


Run 2: Statistics of Copa

```
Start at: 2019-01-03 08:36:00
End at: 2019-01-03 08:36:30
Local clock offset: 2.823 ms
Remote clock offset: -188.717 ms

# Below is generated by plot.py at 2019-01-03 09:10:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 551.300 ms
Loss rate: 5.70%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 528.228 ms
Loss rate: 3.83%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 572.942 ms
Loss rate: 6.50%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 562.880 ms
Loss rate: 12.91%
```

Run 2: Report of Copa — Data Link

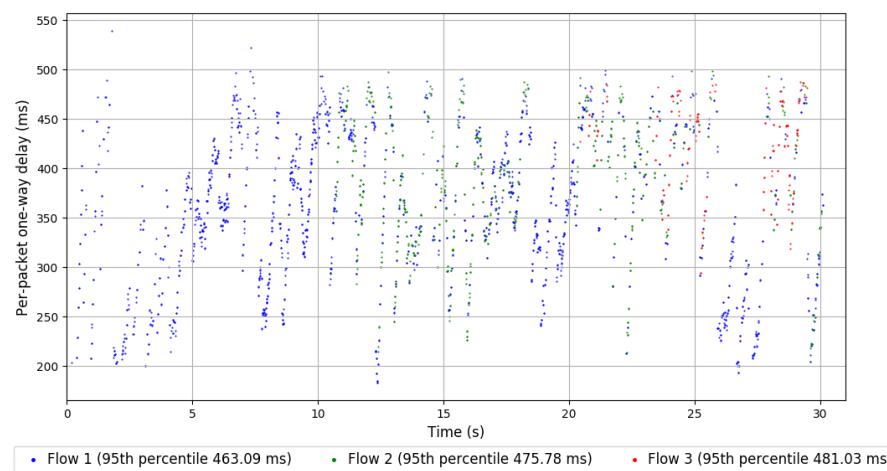
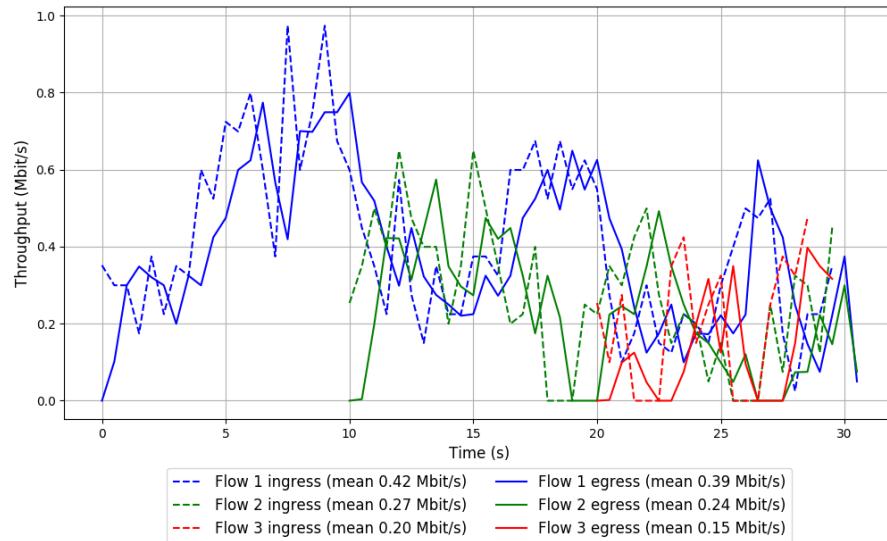


Run 3: Statistics of Copa

```
Start at: 2019-01-03 08:58:19
End at: 2019-01-03 08:58:49
Local clock offset: 2.807 ms
Remote clock offset: -112.991 ms

# Below is generated by plot.py at 2019-01-03 09:10:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 470.758 ms
Loss rate: 9.81%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 463.088 ms
Loss rate: 5.40%
-- Flow 2:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 475.784 ms
Loss rate: 14.77%
-- Flow 3:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 481.026 ms
Loss rate: 25.46%
```

Run 3: Report of Copa — Data Link

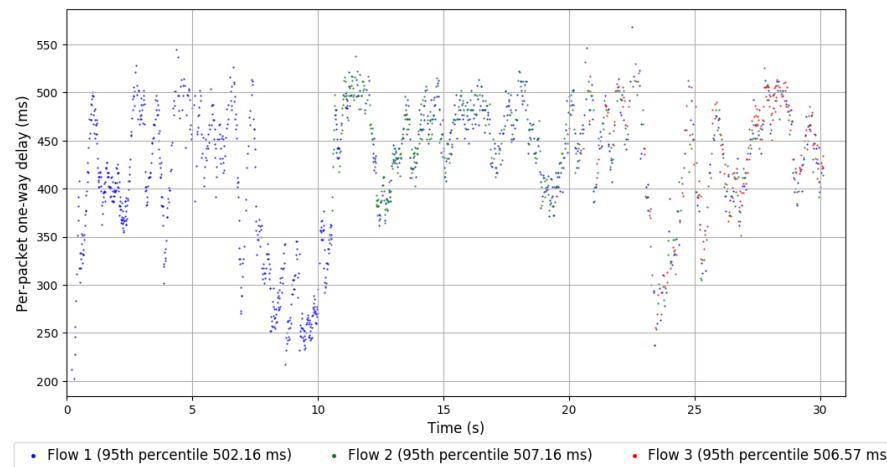
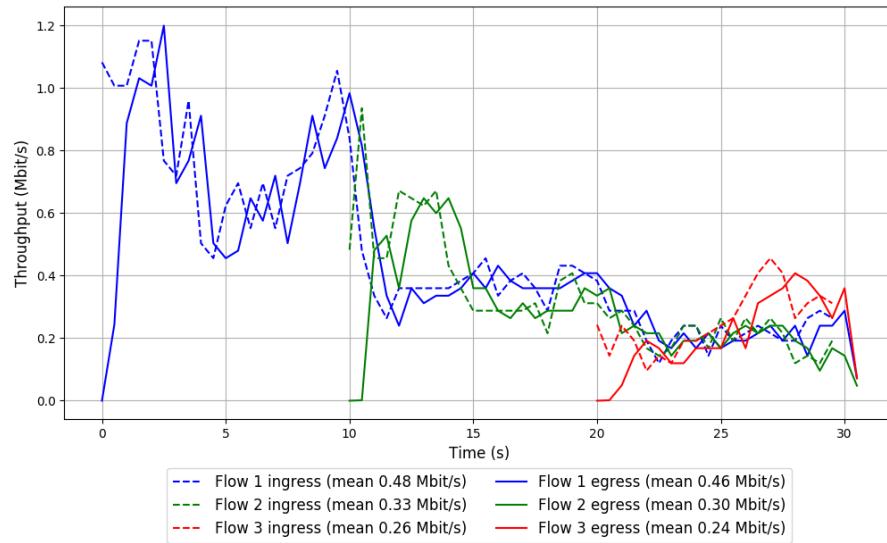


```
Run 1: Statistics of TCP Cubic

Start at: 2019-01-03 08:25:22
End at: 2019-01-03 08:25:52
Local clock offset: 0.491 ms
Remote clock offset: -150.267 ms

# Below is generated by plot.py at 2019-01-03 09:10:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 506.145 ms
Loss rate: 6.84%
-- Flow 1:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 502.164 ms
Loss rate: 5.41%
-- Flow 2:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 507.159 ms
Loss rate: 8.47%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 506.569 ms
Loss rate: 10.79%
```

Run 1: Report of TCP Cubic — Data Link

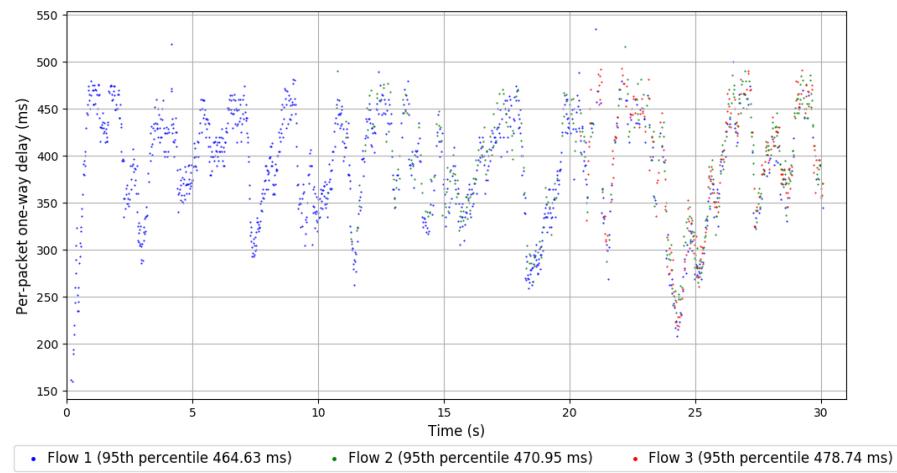
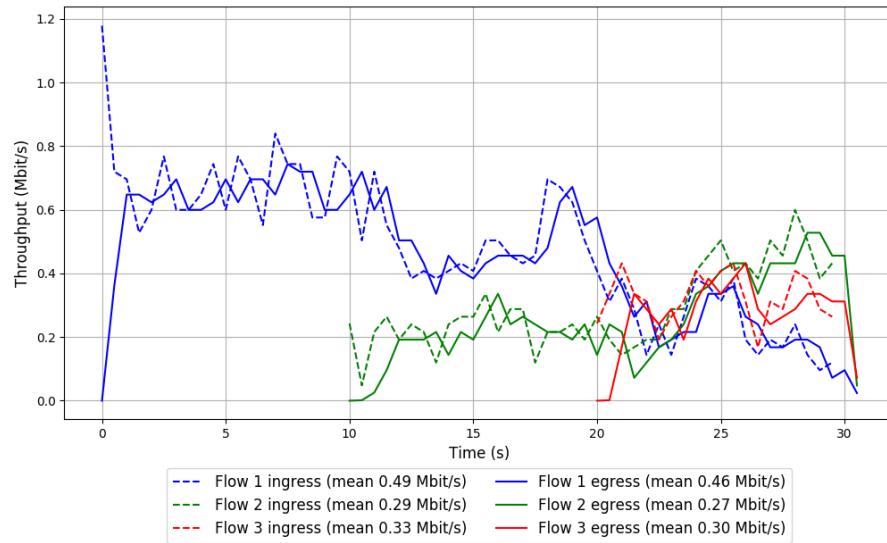


Run 2: Statistics of TCP Cubic

```
Start at: 2019-01-03 08:47:41
End at: 2019-01-03 08:48:11
Local clock offset: -0.908 ms
Remote clock offset: -105.449 ms

# Below is generated by plot.py at 2019-01-03 09:10:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 469.206 ms
Loss rate: 6.20%
-- Flow 1:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 464.628 ms
Loss rate: 4.62%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 470.955 ms
Loss rate: 8.06%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 478.737 ms
Loss rate: 10.03%
```

Run 2: Report of TCP Cubic — Data Link

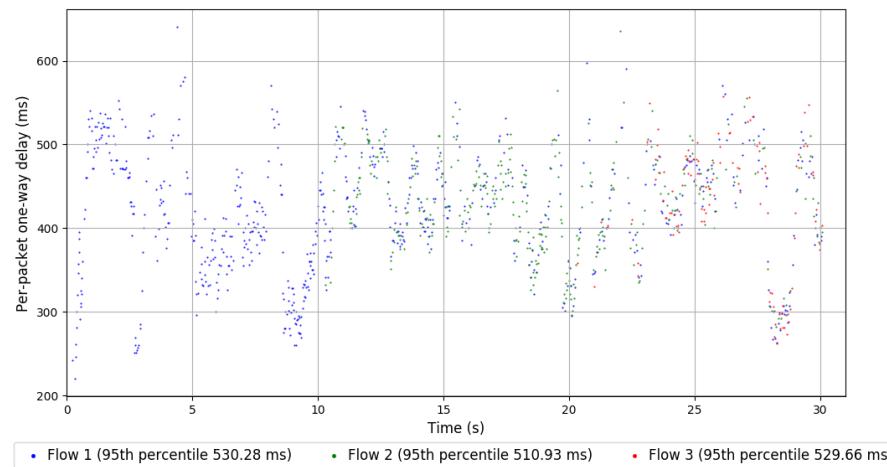
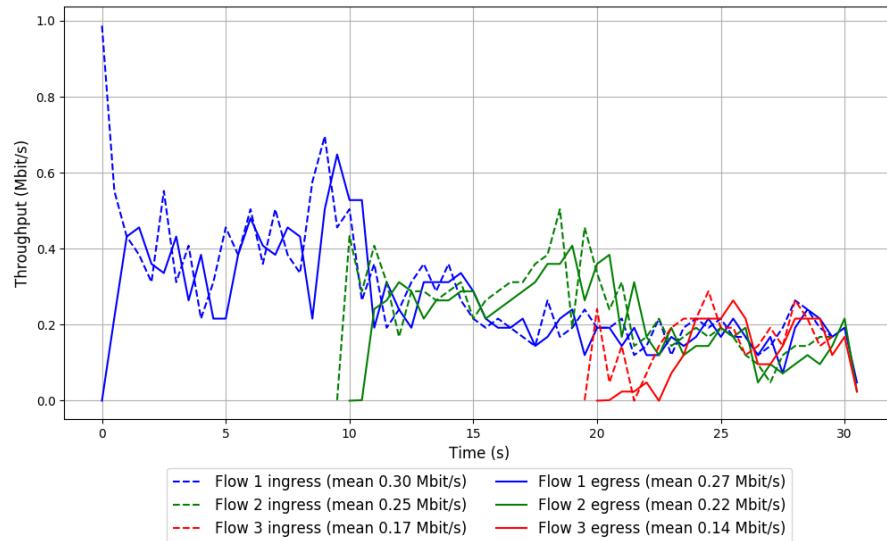


Run 3: Statistics of TCP Cubic

```
Start at: 2019-01-03 09:10:07
End at: 2019-01-03 09:10:37
Local clock offset: 0.835 ms
Remote clock offset: -150.0 ms

# Below is generated by plot.py at 2019-01-03 09:10:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 524.438 ms
Loss rate: 11.36%
-- Flow 1:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 530.284 ms
Loss rate: 10.17%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 510.933 ms
Loss rate: 11.03%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 529.658 ms
Loss rate: 18.73%
```

Run 3: Report of TCP Cubic — Data Link

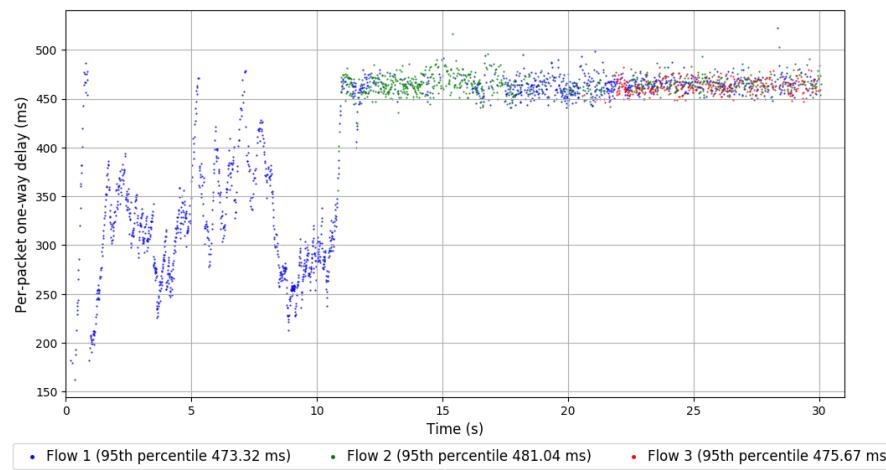
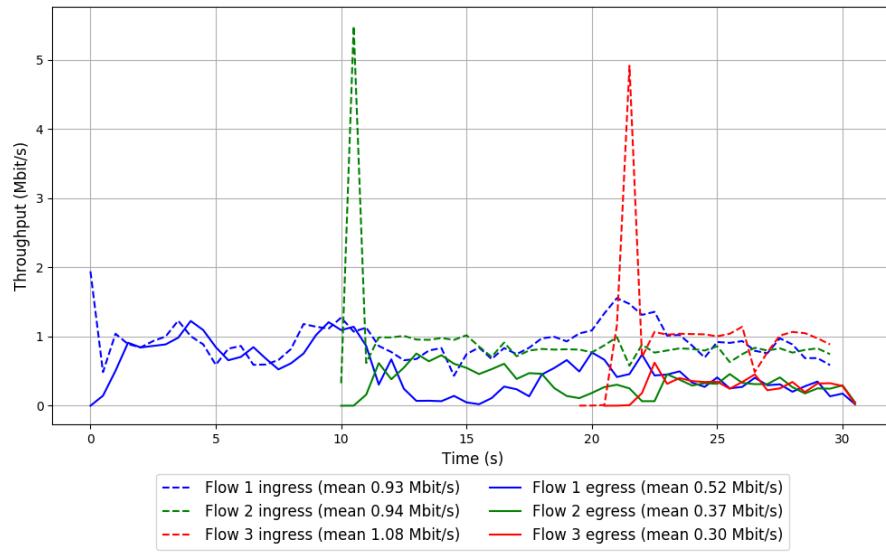


```
Run 1: Statistics of FillP

Start at: 2019-01-03 08:24:12
End at: 2019-01-03 08:24:42
Local clock offset: 0.569 ms
Remote clock offset: -108.89 ms

# Below is generated by plot.py at 2019-01-03 09:10:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 476.172 ms
Loss rate: 55.35%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 473.324 ms
Loss rate: 44.07%
-- Flow 2:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 481.035 ms
Loss rate: 61.51%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 475.671 ms
Loss rate: 73.88%
```

Run 1: Report of FillP — Data Link

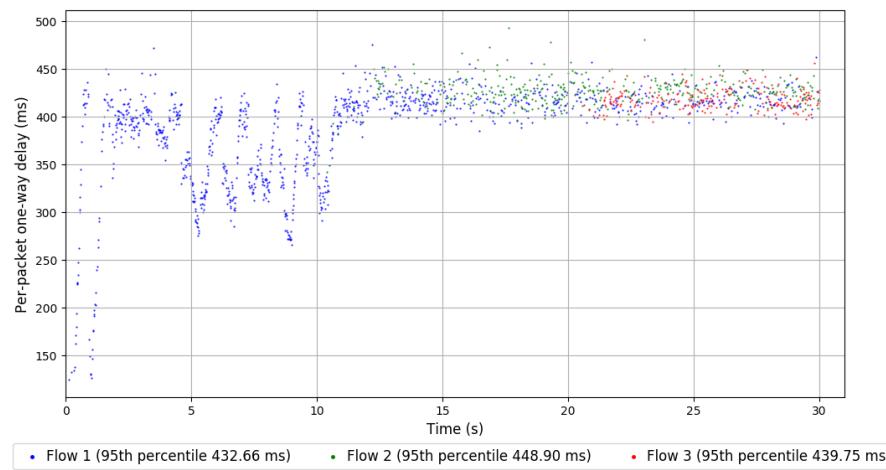
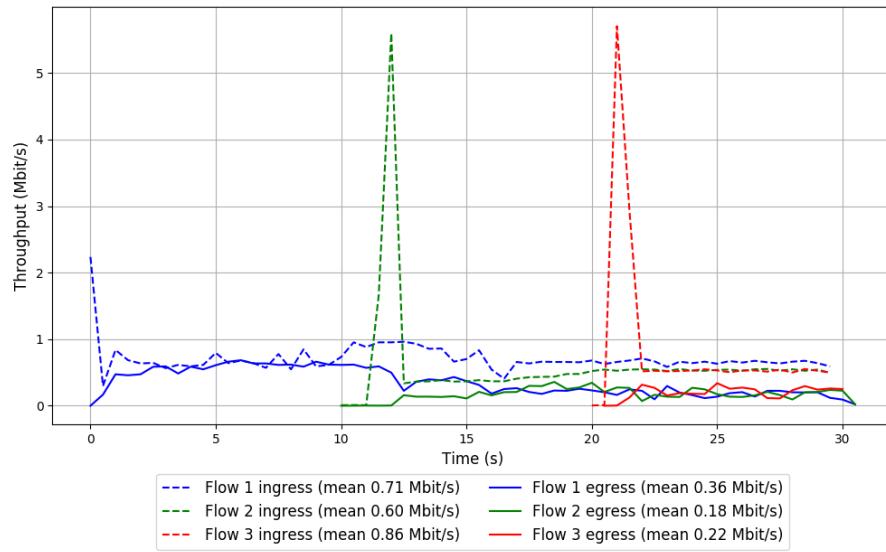


Run 2: Statistics of FillP

```
Start at: 2019-01-03 08:46:30
End at: 2019-01-03 08:47:00
Local clock offset: 1.392 ms
Remote clock offset: -51.862 ms

# Below is generated by plot.py at 2019-01-03 09:10:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 439.861 ms
Loss rate: 60.61%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 432.660 ms
Loss rate: 48.99%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 448.899 ms
Loss rate: 70.13%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 439.755 ms
Loss rate: 76.33%
```

Run 2: Report of FillP — Data Link

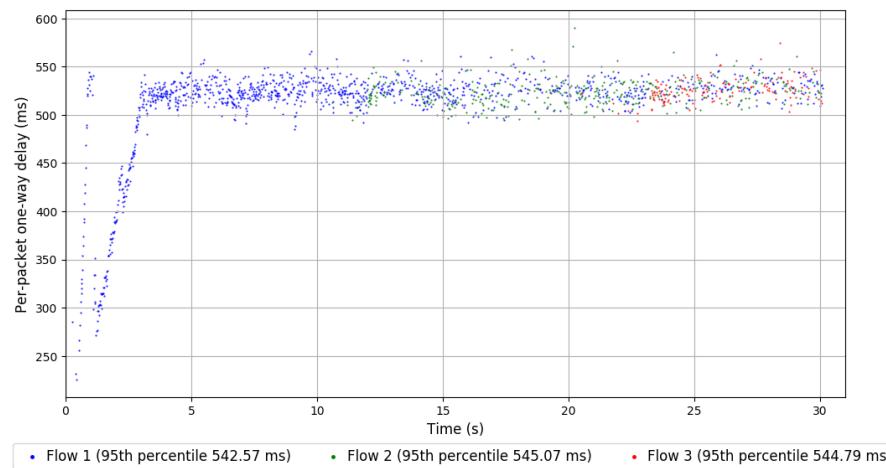
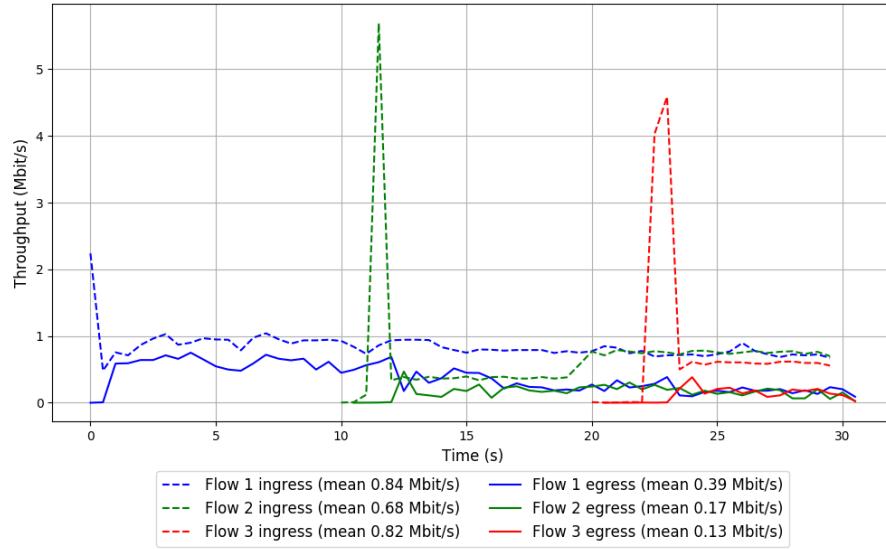


Run 3: Statistics of FillP

```
Start at: 2019-01-03 09:08:56
End at: 2019-01-03 09:09:26
Local clock offset: 0.989 ms
Remote clock offset: -162.068 ms

# Below is generated by plot.py at 2019-01-03 09:10:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 543.716 ms
Loss rate: 65.70%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 542.565 ms
Loss rate: 54.54%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 545.067 ms
Loss rate: 75.36%
-- Flow 3:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 544.793 ms
Loss rate: 84.31%
```

Run 3: Report of FillP — Data Link

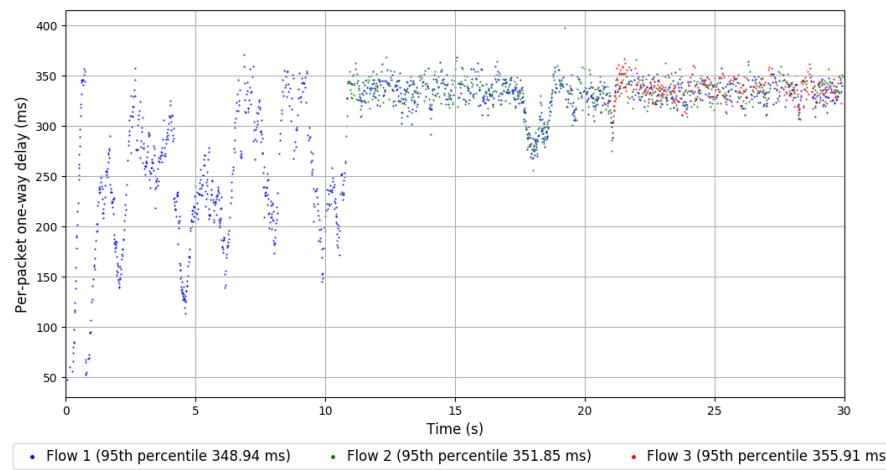
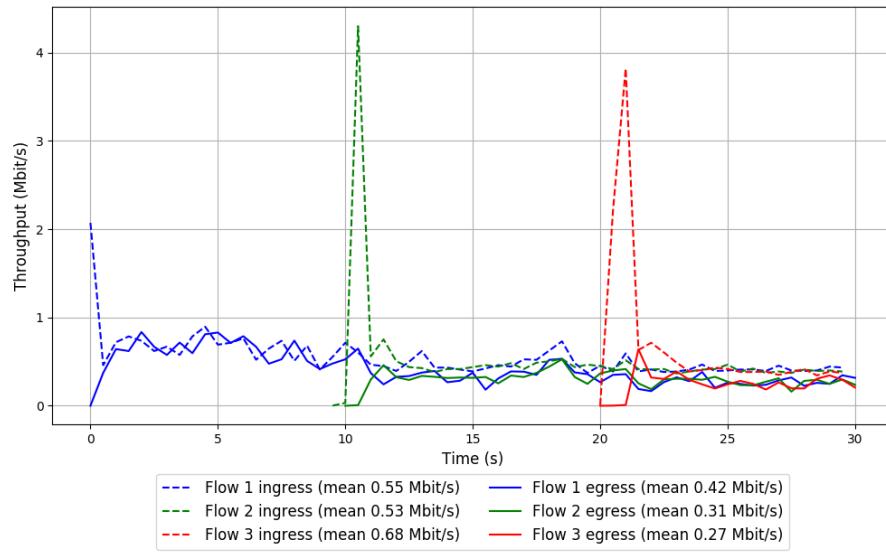


```
Run 1: Statistics of FillP-Sheep
```

```
Start at: 2019-01-03 08:17:18
End at: 2019-01-03 08:17:48
Local clock offset: 4.261 ms
Remote clock offset: 17.668 ms

# Below is generated by plot.py at 2019-01-03 09:10:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 350.917 ms
Loss rate: 36.96%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 348.942 ms
Loss rate: 23.27%
-- Flow 2:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 351.853 ms
Loss rate: 42.39%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 355.912 ms
Loss rate: 61.86%
```

Run 1: Report of FillP-Sheep — Data Link

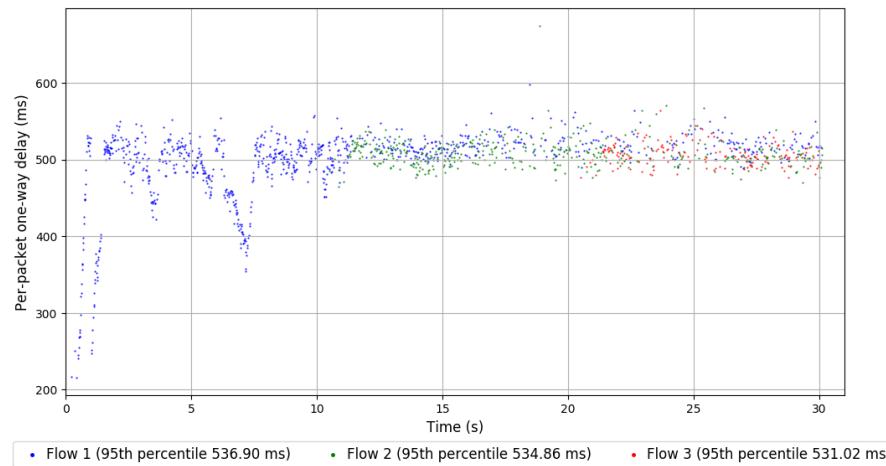
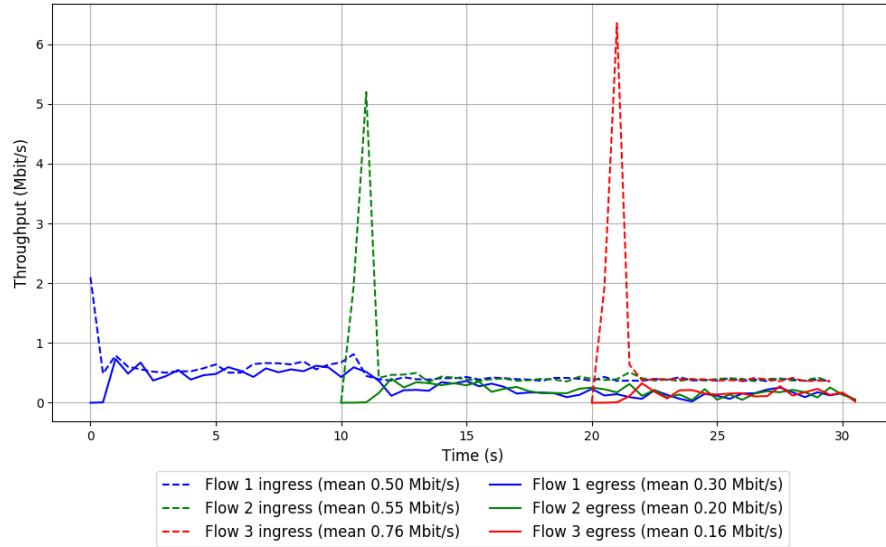


Run 2: Statistics of FillP-Sheep

```
Start at: 2019-01-03 08:39:30
End at: 2019-01-03 08:40:00
Local clock offset: -0.925 ms
Remote clock offset: -147.891 ms

# Below is generated by plot.py at 2019-01-03 09:10:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 536.074 ms
Loss rate: 56.81%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 536.899 ms
Loss rate: 39.73%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 534.857 ms
Loss rate: 64.35%
-- Flow 3:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 531.022 ms
Loss rate: 79.55%
```

Run 2: Report of FillP-Sheep — Data Link

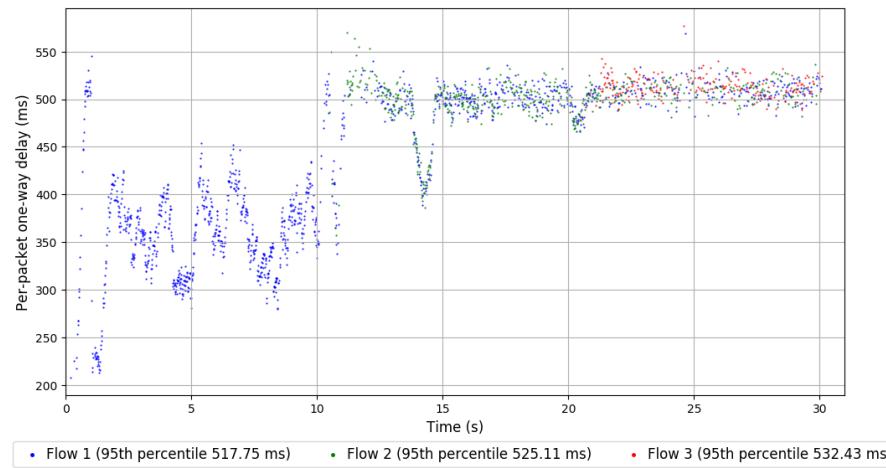
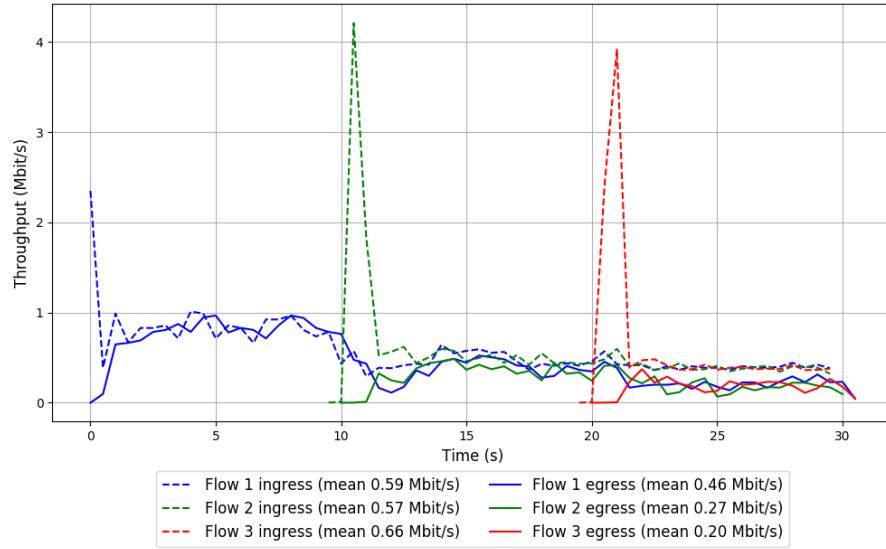


Run 3: Statistics of FillP-Sheep

```
Start at: 2019-01-03 09:01:52
End at: 2019-01-03 09:02:22
Local clock offset: 1.553 ms
Remote clock offset: -144.811 ms

# Below is generated by plot.py at 2019-01-03 09:10:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 522.417 ms
Loss rate: 41.04%
-- Flow 1:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 517.749 ms
Loss rate: 21.77%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 525.113 ms
Loss rate: 54.03%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 532.434 ms
Loss rate: 70.70%
```

Run 3: Report of FillP-Sheep — Data Link

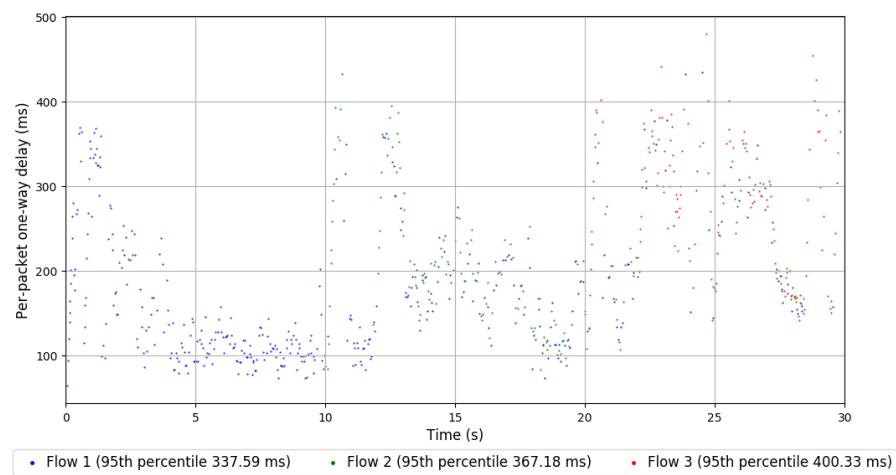
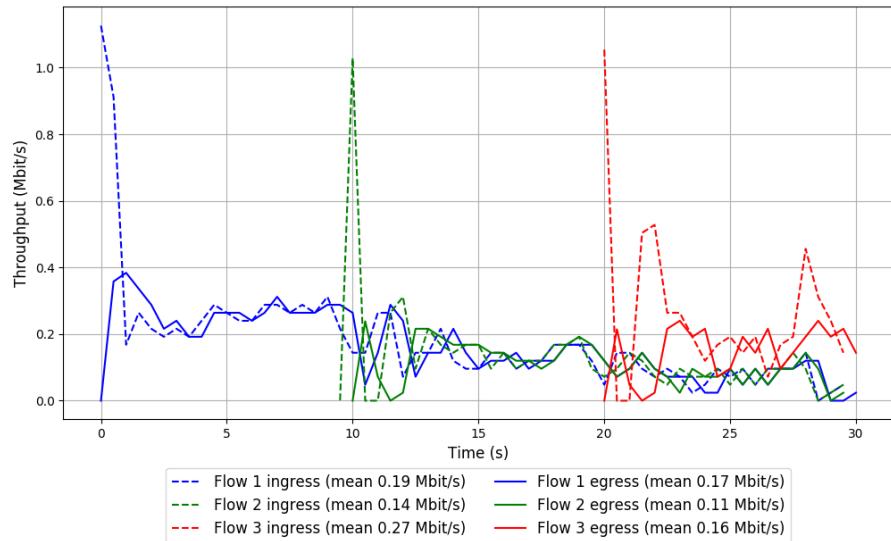


Run 1: Statistics of Indigo

```
Start at: 2019-01-03 08:09:11
End at: 2019-01-03 08:09:41
Local clock offset: 3.615 ms
Remote clock offset: -0.601 ms

# Below is generated by plot.py at 2019-01-03 09:10:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 365.233 ms
Loss rate: 20.27%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 337.587 ms
Loss rate: 11.36%
-- Flow 2:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 367.177 ms
Loss rate: 18.84%
-- Flow 3:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 400.333 ms
Loss rate: 40.56%
```

Run 1: Report of Indigo — Data Link

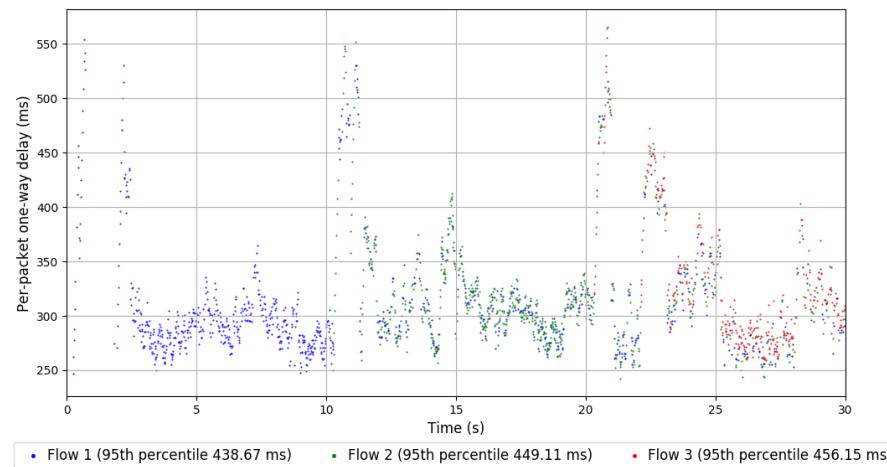
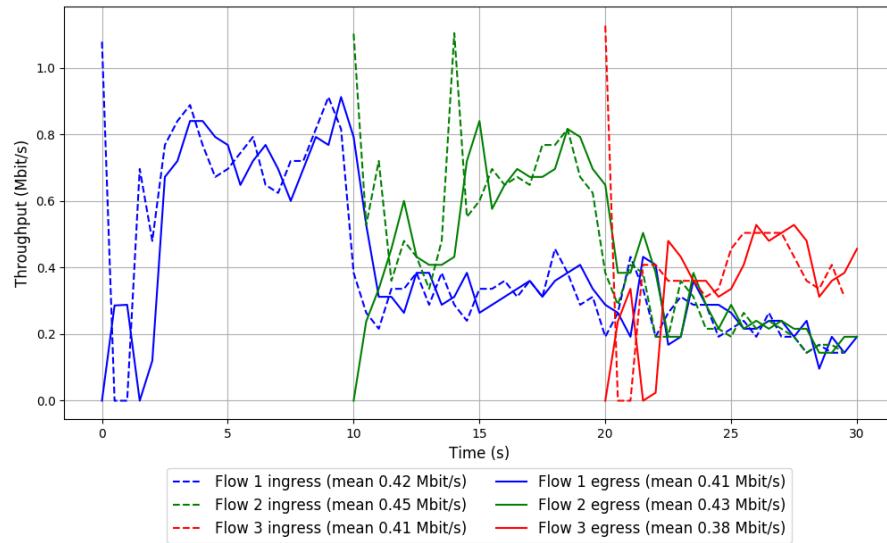


Run 2: Statistics of Indigo

```
Start at: 2019-01-03 08:31:15
End at: 2019-01-03 08:31:45
Local clock offset: 3.629 ms
Remote clock offset: -180.601 ms

# Below is generated by plot.py at 2019-01-03 09:10:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 449.108 ms
Loss rate: 4.16%
-- Flow 1:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 438.666 ms
Loss rate: 2.22%
-- Flow 2:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 449.108 ms
Loss rate: 4.96%
-- Flow 3:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 456.146 ms
Loss rate: 8.41%
```

Run 2: Report of Indigo — Data Link

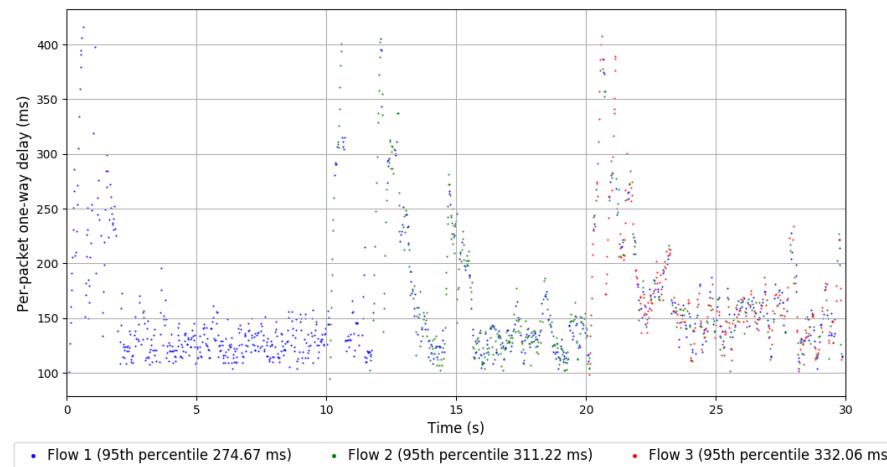
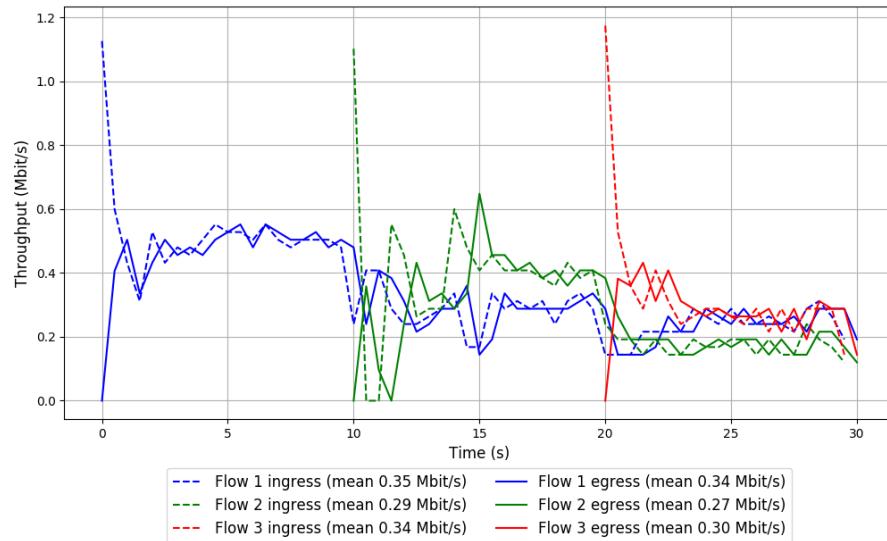


Run 3: Statistics of Indigo

```
Start at: 2019-01-03 08:53:34
End at: 2019-01-03 08:54:04
Local clock offset: 1.709 ms
Remote clock offset: -29.568 ms

# Below is generated by plot.py at 2019-01-03 09:10:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 294.119 ms
Loss rate: 6.25%
-- Flow 1:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 274.669 ms
Loss rate: 3.67%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 311.220 ms
Loss rate: 7.45%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 332.063 ms
Loss rate: 12.23%
```

Run 3: Report of Indigo — Data Link

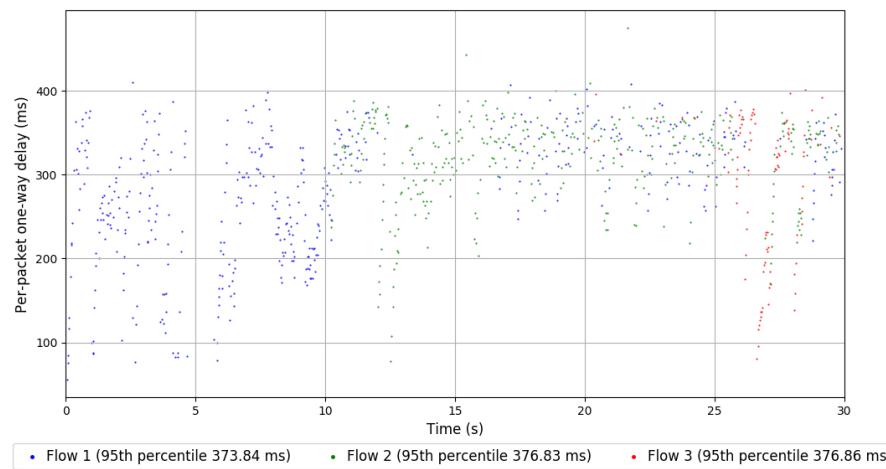
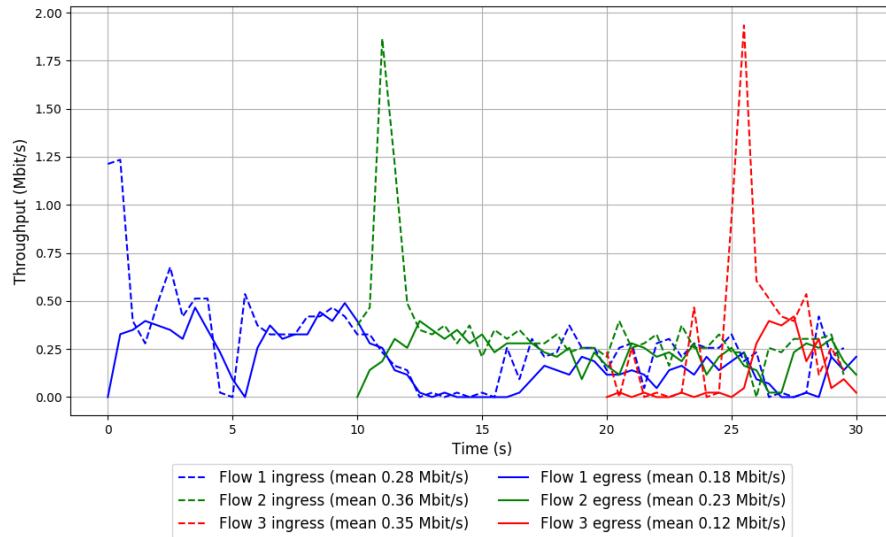


```
Run 1: Statistics of Indigo-MusesD
```

```
Start at: 2019-01-03 08:10:19
End at: 2019-01-03 08:10:49
Local clock offset: 0.896 ms
Remote clock offset: 0.159 ms

# Below is generated by plot.py at 2019-01-03 09:11:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 375.143 ms
Loss rate: 41.19%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 373.837 ms
Loss rate: 34.97%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 376.830 ms
Loss rate: 36.03%
-- Flow 3:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 376.858 ms
Loss rate: 66.77%
```

Run 1: Report of Indigo-MusesD — Data Link

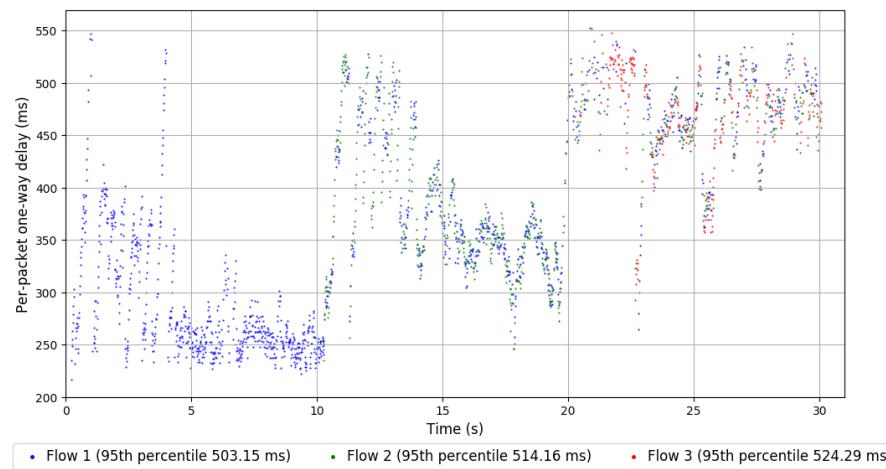
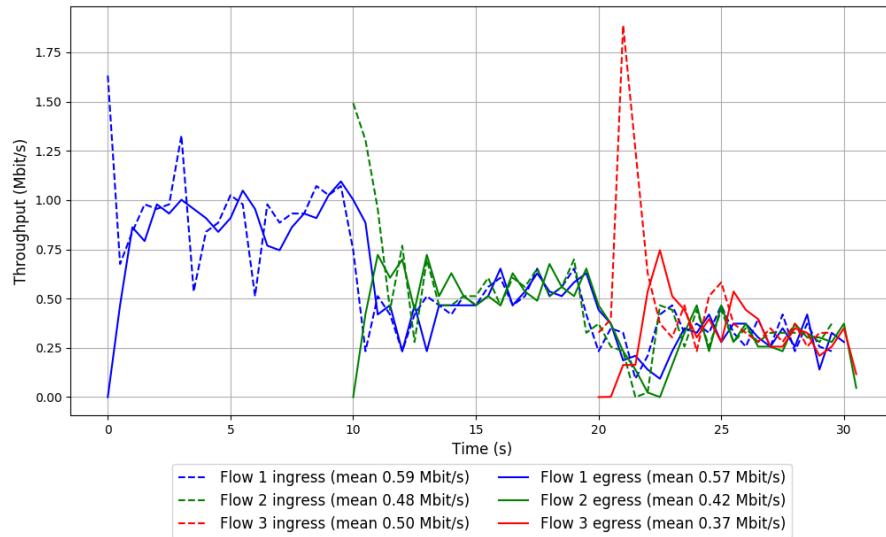


Run 2: Statistics of Indigo-MusesD

```
Start at: 2019-01-03 08:32:26
End at: 2019-01-03 08:32:56
Local clock offset: 3.152 ms
Remote clock offset: -159.742 ms

# Below is generated by plot.py at 2019-01-03 09:11:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 514.318 ms
Loss rate: 10.25%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 503.151 ms
Loss rate: 4.36%
-- Flow 2:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 514.159 ms
Loss rate: 11.68%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 524.289 ms
Loss rate: 28.60%
```

Run 2: Report of Indigo-MusesD — Data Link

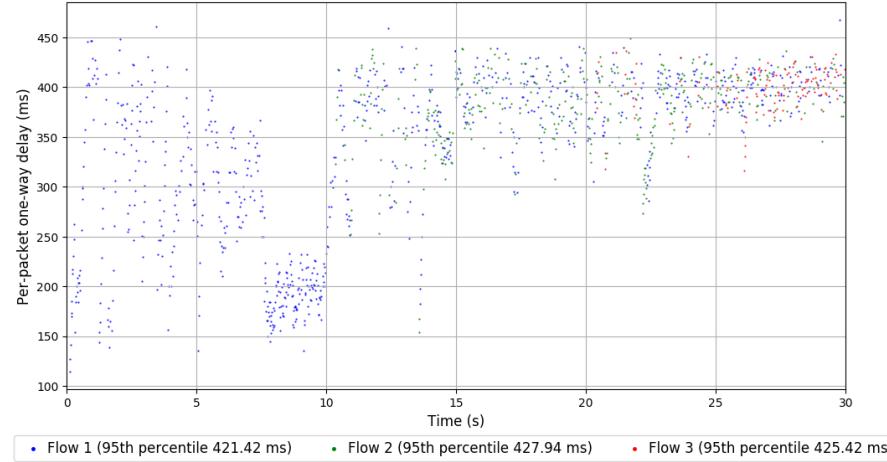
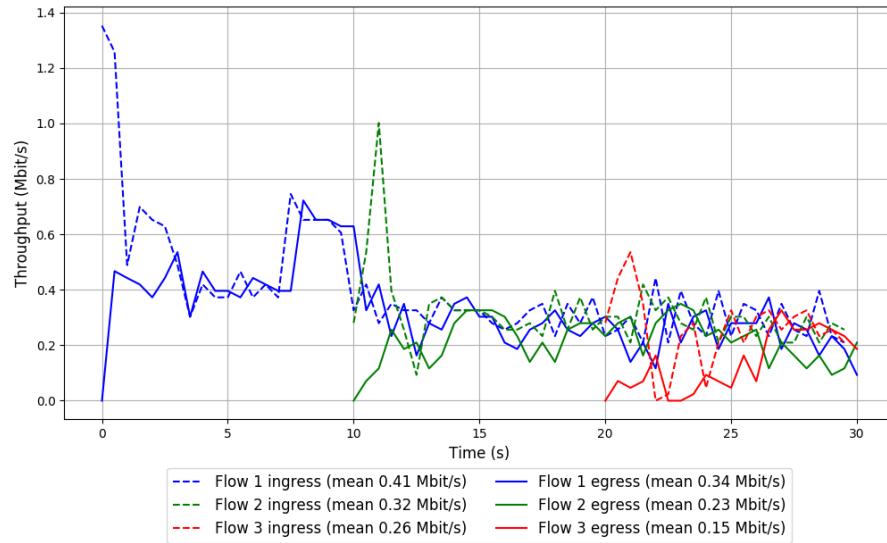


Run 3: Statistics of Indigo-MusesD

```
Start at: 2019-01-03 08:54:44
End at: 2019-01-03 08:55:14
Local clock offset: -0.898 ms
Remote clock offset: -55.753 ms

# Below is generated by plot.py at 2019-01-03 09:11:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 424.263 ms
Loss rate: 24.29%
-- Flow 1:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 421.421 ms
Loss rate: 17.37%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 427.941 ms
Loss rate: 29.36%
-- Flow 3:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 425.419 ms
Loss rate: 44.33%
```

Run 3: Report of Indigo-MusesD — Data Link

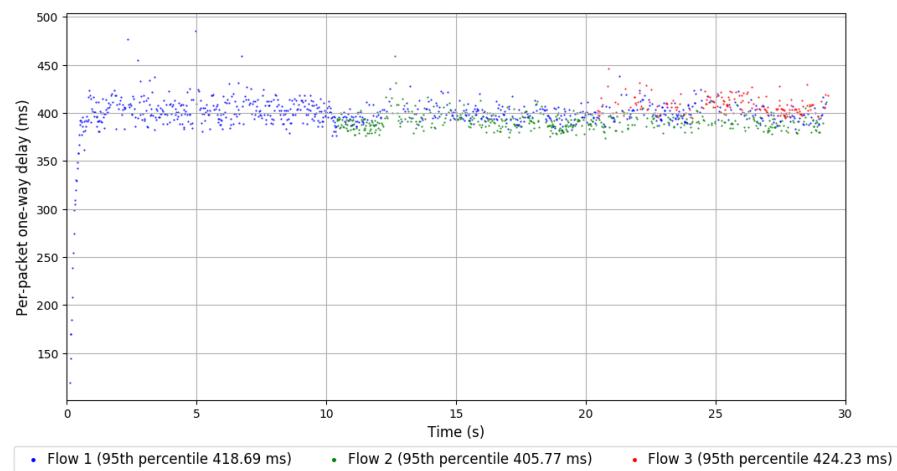
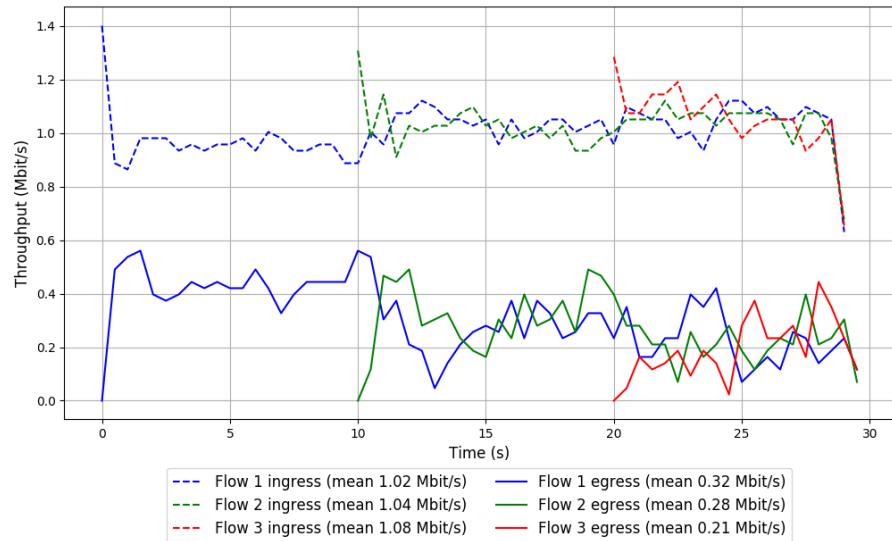


```
Run 1: Statistics of Indigo-MusesT
```

```
Start at: 2019-01-03 08:16:10
End at: 2019-01-03 08:16:40
Local clock offset: 3.688 ms
Remote clock offset: -25.906 ms

# Below is generated by plot.py at 2019-01-03 09:11:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 418.277 ms
Loss rate: 72.46%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 418.687 ms
Loss rate: 68.86%
-- Flow 2:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 405.771 ms
Loss rate: 73.55%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 424.229 ms
Loss rate: 81.00%
```

Run 1: Report of Indigo-MusesT — Data Link

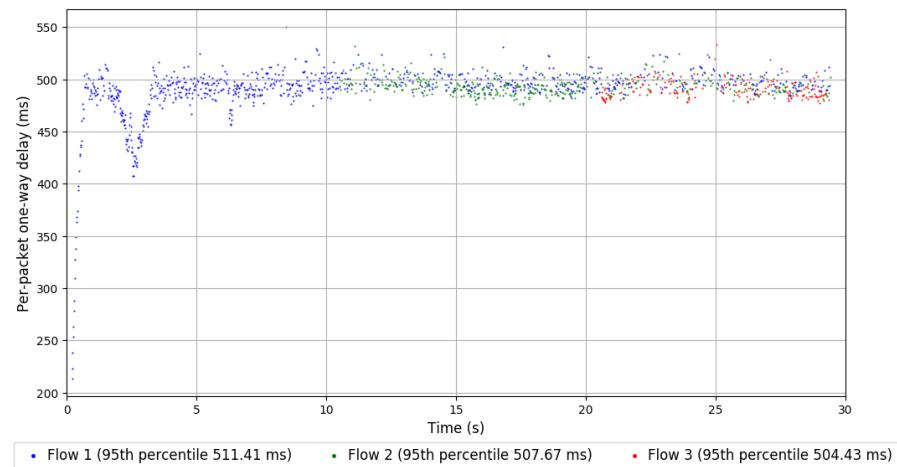
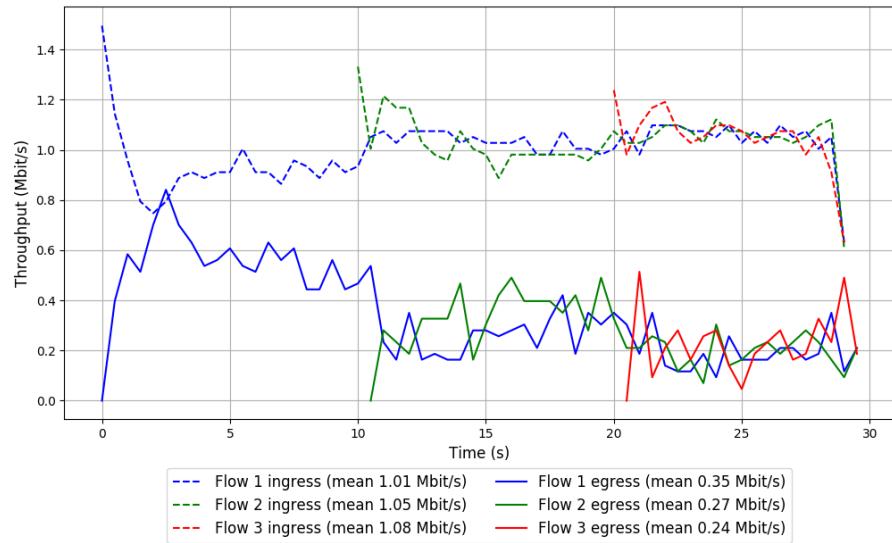


Run 2: Statistics of Indigo-MusesT

```
Start at: 2019-01-03 08:38:20
End at: 2019-01-03 08:38:50
Local clock offset: 1.809 ms
Remote clock offset: -122.348 ms

# Below is generated by plot.py at 2019-01-03 09:11:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 510.284 ms
Loss rate: 70.65%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 511.406 ms
Loss rate: 65.34%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 507.666 ms
Loss rate: 74.54%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 504.431 ms
Loss rate: 78.52%
```

Run 2: Report of Indigo-MusesT — Data Link

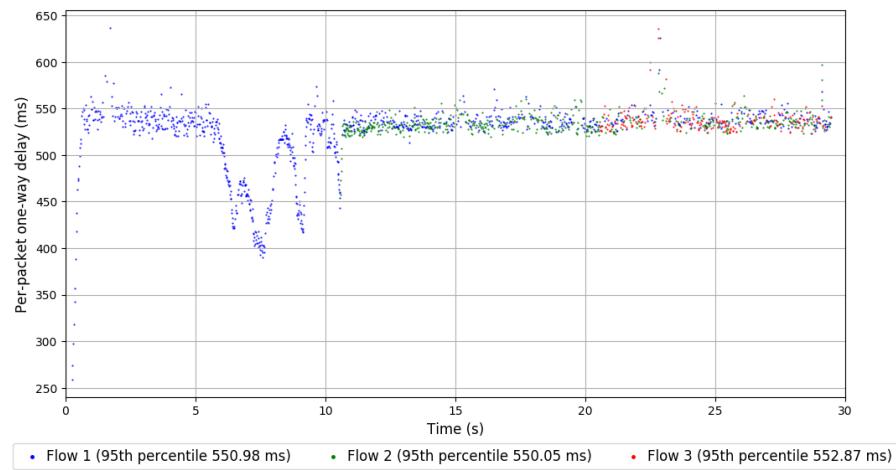
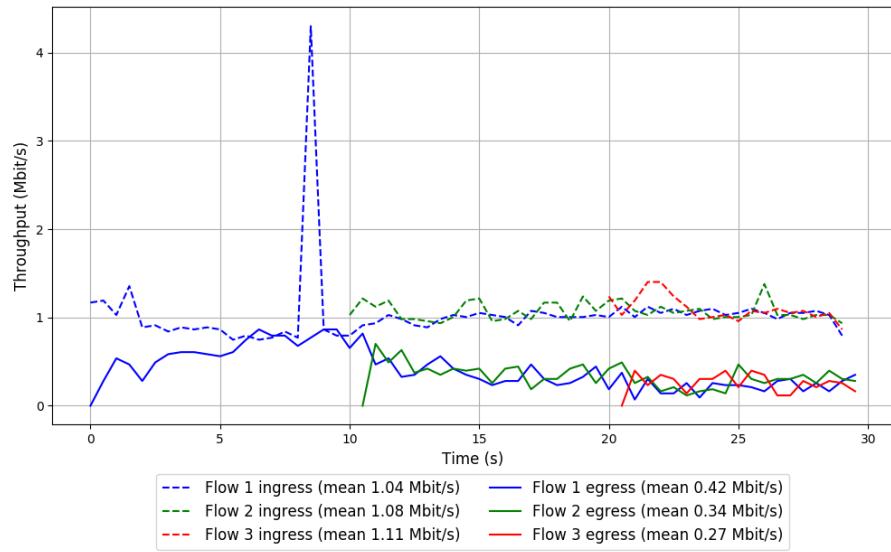


Run 3: Statistics of Indigo-MusesT

```
Start at: 2019-01-03 09:00:40
End at: 2019-01-03 09:01:10
Local clock offset: 0.319 ms
Remote clock offset: -170.944 ms

# Below is generated by plot.py at 2019-01-03 09:11:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 551.046 ms
Loss rate: 65.75%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 550.984 ms
Loss rate: 59.75%
-- Flow 2:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 550.052 ms
Loss rate: 68.91%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 552.869 ms
Loss rate: 76.93%
```

Run 3: Report of Indigo-MusesT — Data Link

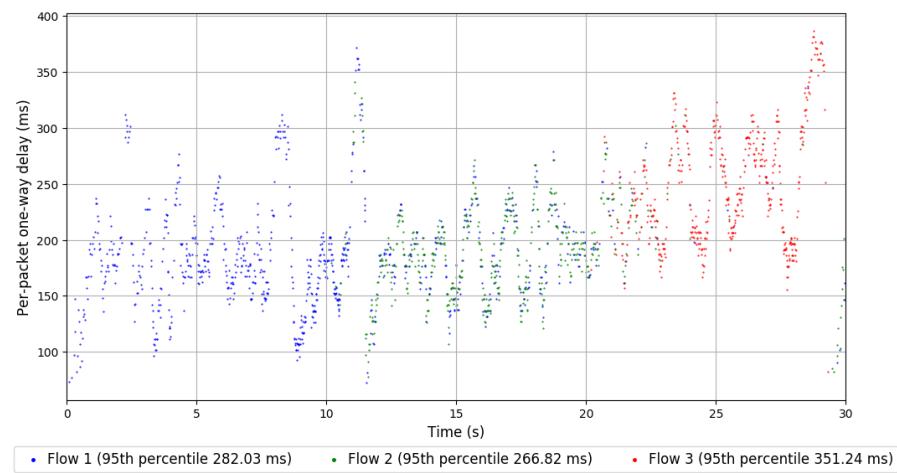
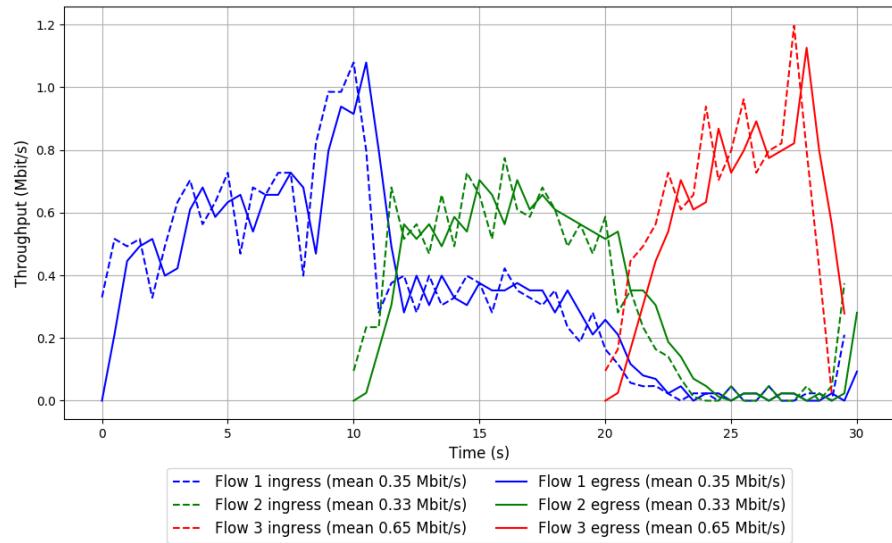


Run 1: Statistics of LEDBAT

```
Start at: 2019-01-03 08:21:53
End at: 2019-01-03 08:22:23
Local clock offset: 4.365 ms
Remote clock offset: -0.544 ms

# Below is generated by plot.py at 2019-01-03 09:11:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 302.302 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 282.033 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 266.824 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 351.244 ms
Loss rate: 0.59%
```

Run 1: Report of LEDBAT — Data Link

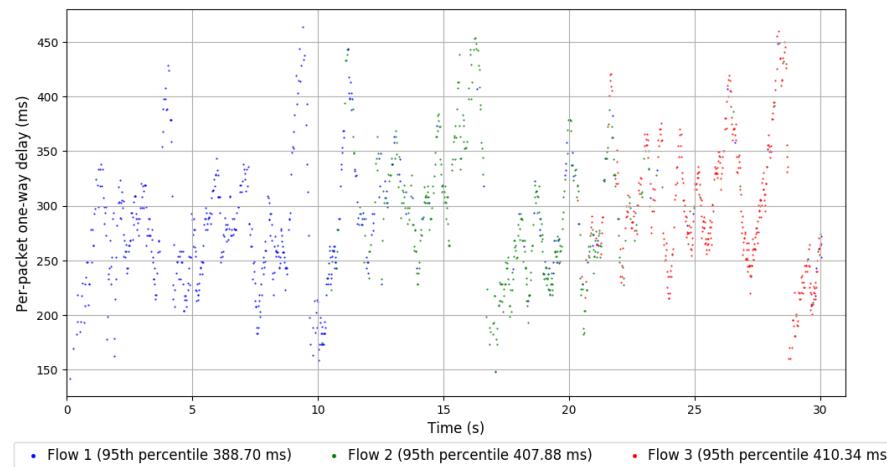
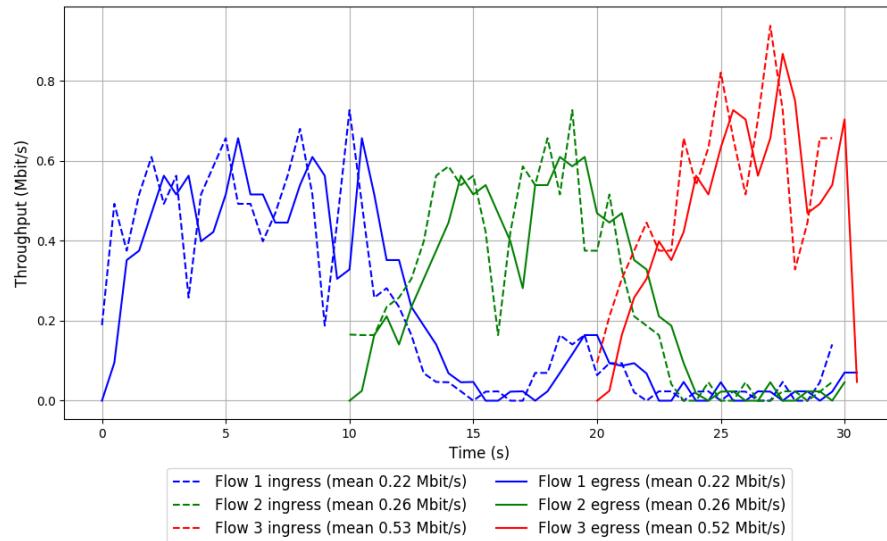


Run 2: Statistics of LEDBAT

```
Start at: 2019-01-03 08:44:11
End at: 2019-01-03 08:44:41
Local clock offset: -0.761 ms
Remote clock offset: -78.415 ms

# Below is generated by plot.py at 2019-01-03 09:11:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 402.831 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 388.702 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 407.884 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 410.343 ms
Loss rate: 2.91%
```

Run 2: Report of LEDBAT — Data Link

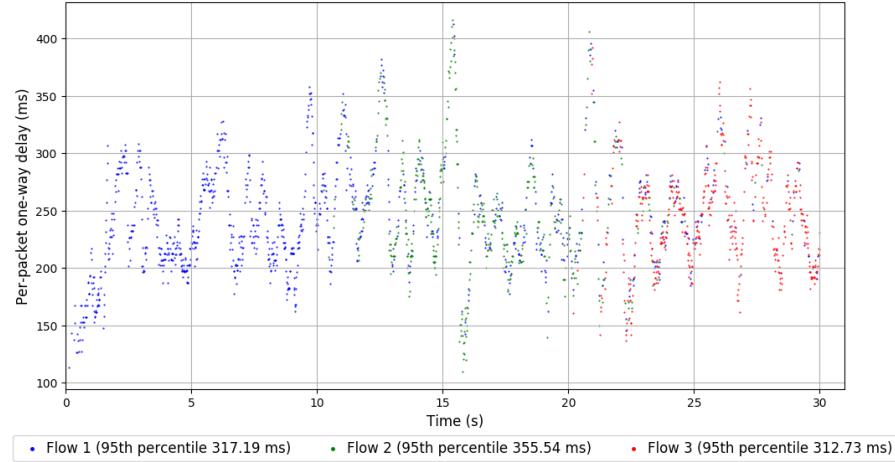
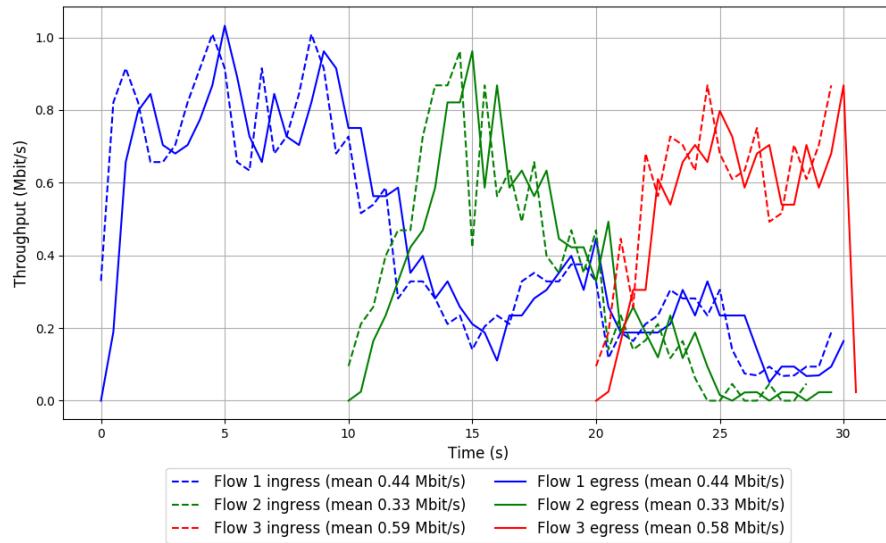


Run 3: Statistics of LEDBAT

```
Start at: 2019-01-03 09:06:35
End at: 2019-01-03 09:07:05
Local clock offset: 2.683 ms
Remote clock offset: -44.022 ms

# Below is generated by plot.py at 2019-01-03 09:11:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 325.862 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 317.186 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 355.535 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 312.726 ms
Loss rate: 2.80%
```

Run 3: Report of LEDBAT — Data Link

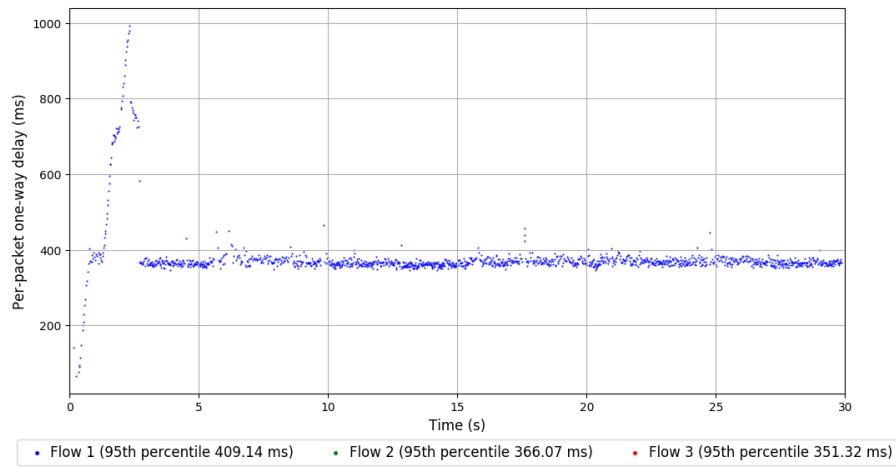
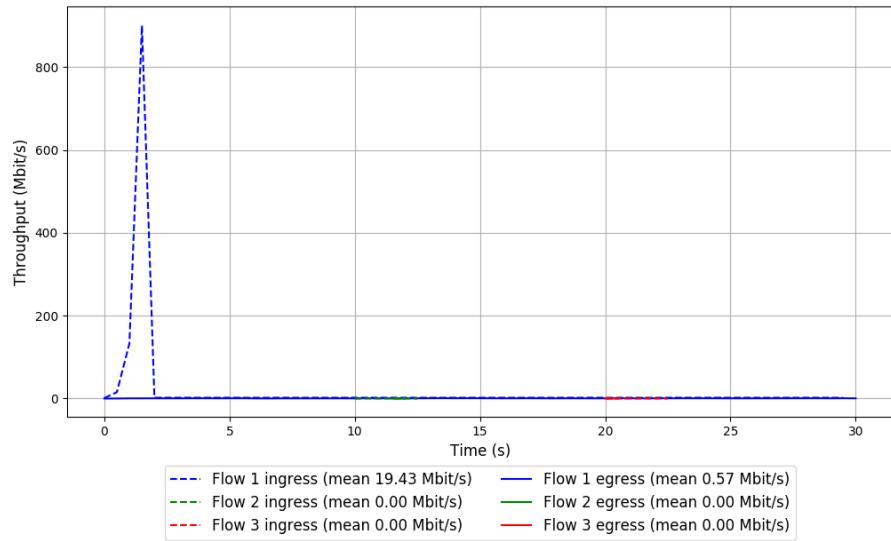


```
Run 1: Statistics of PCC-Allegro
```

```
Start at: 2019-01-03 08:11:28
End at: 2019-01-03 08:11:58
Local clock offset: 3.002 ms
Remote clock offset: -1.48 ms

# Below is generated by plot.py at 2019-01-03 09:11:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 409.140 ms
Loss rate: 97.08%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 409.140 ms
Loss rate: 97.08%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 366.075 ms
Loss rate: 92.31%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 351.319 ms
Loss rate: 92.31%
```

Run 1: Report of PCC-Allegro — Data Link

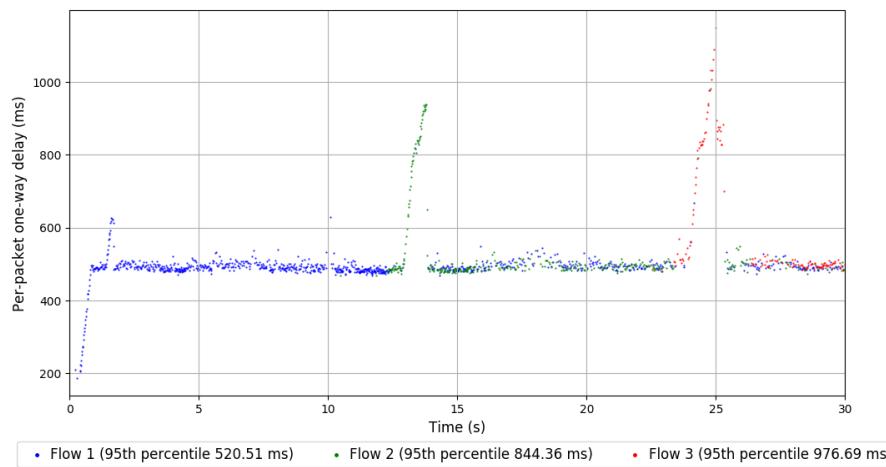
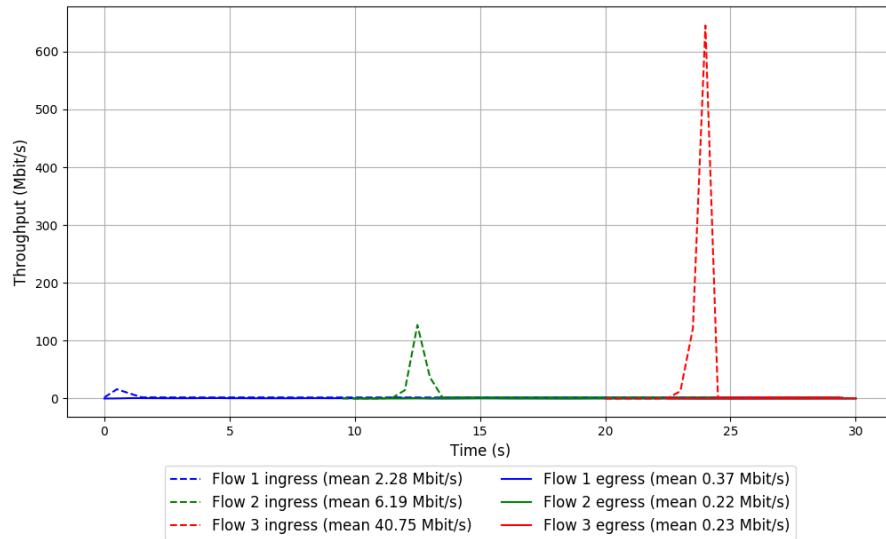


Run 2: Statistics of PCC-Allegro

```
Start at: 2019-01-03 08:33:36
End at: 2019-01-03 08:34:06
Local clock offset: 1.806 ms
Remote clock offset: -123.098 ms

# Below is generated by plot.py at 2019-01-03 09:11:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 753.760 ms
Loss rate: 97.13%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 520.507 ms
Loss rate: 83.86%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 844.364 ms
Loss rate: 96.48%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 976.693 ms
Loss rate: 99.58%
```

Run 2: Report of PCC-Allegro — Data Link

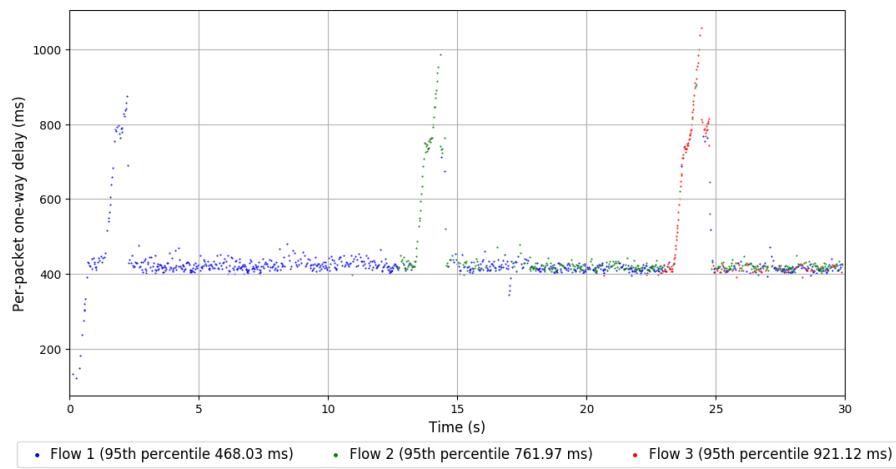
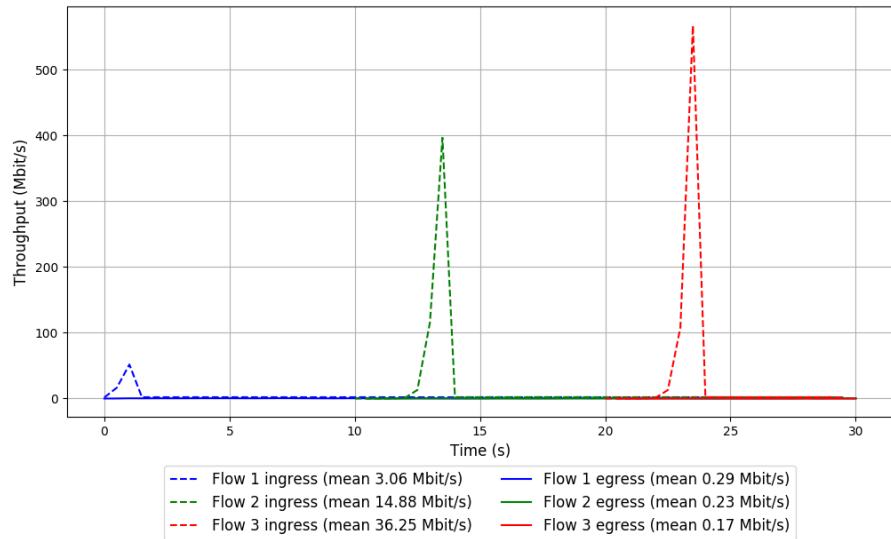


Run 3: Statistics of PCC-Allegro

```
Start at: 2019-01-03 08:55:53
End at: 2019-01-03 08:56:23
Local clock offset: 1.324 ms
Remote clock offset: -41.475 ms

# Below is generated by plot.py at 2019-01-03 09:11:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 769.753 ms
Loss rate: 98.04%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 468.029 ms
Loss rate: 90.53%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 761.966 ms
Loss rate: 98.52%
-- Flow 3:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 921.118 ms
Loss rate: 99.57%
```

Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

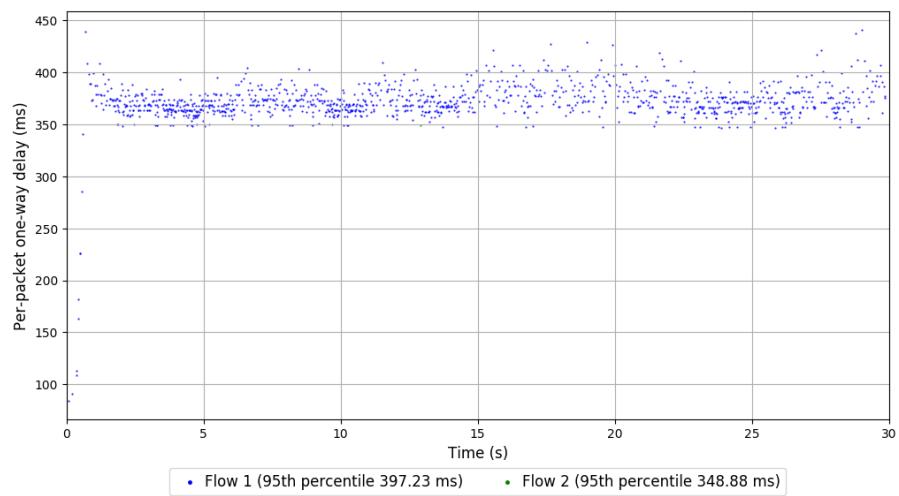
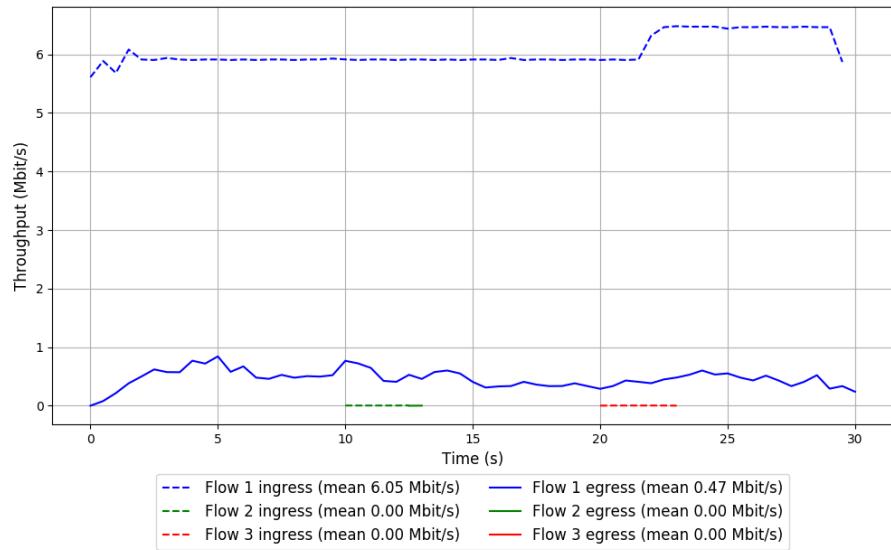
Start at: 2019-01-03 08:04:20

End at: 2019-01-03 08:04:50

Local clock offset: 3.273 ms

Remote clock offset: -0.595 ms

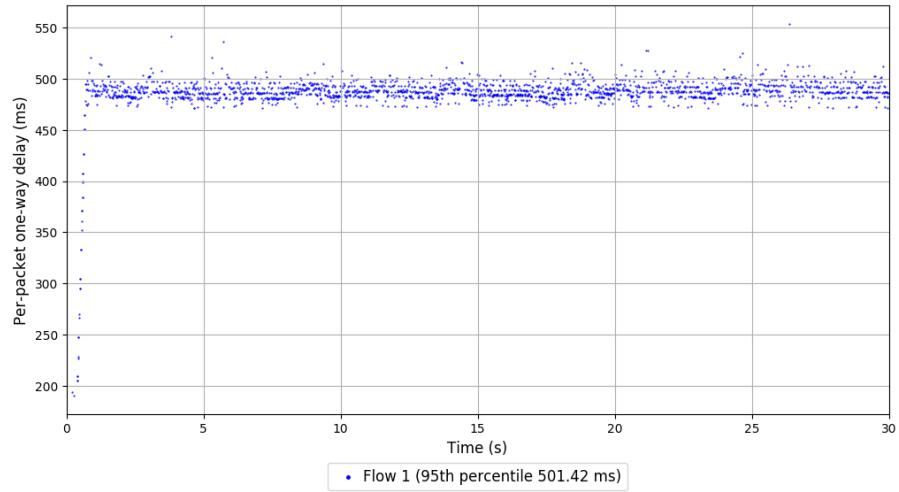
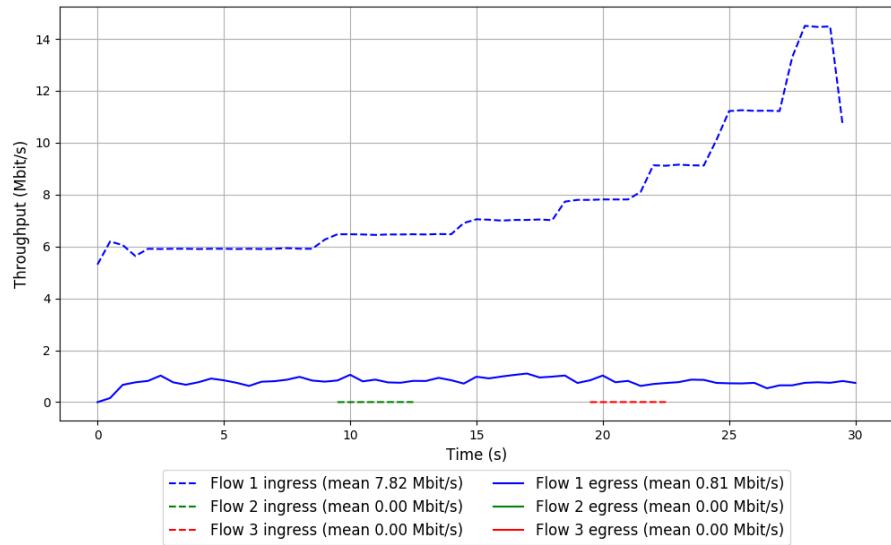
Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2019-01-03 08:26:32
End at: 2019-01-03 08:27:02
Local clock offset: 1.612 ms
Remote clock offset: -127.86 ms

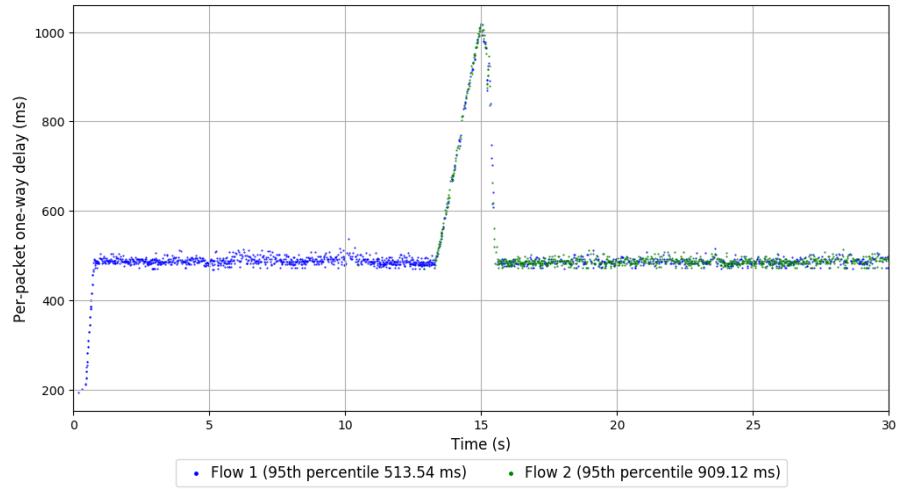
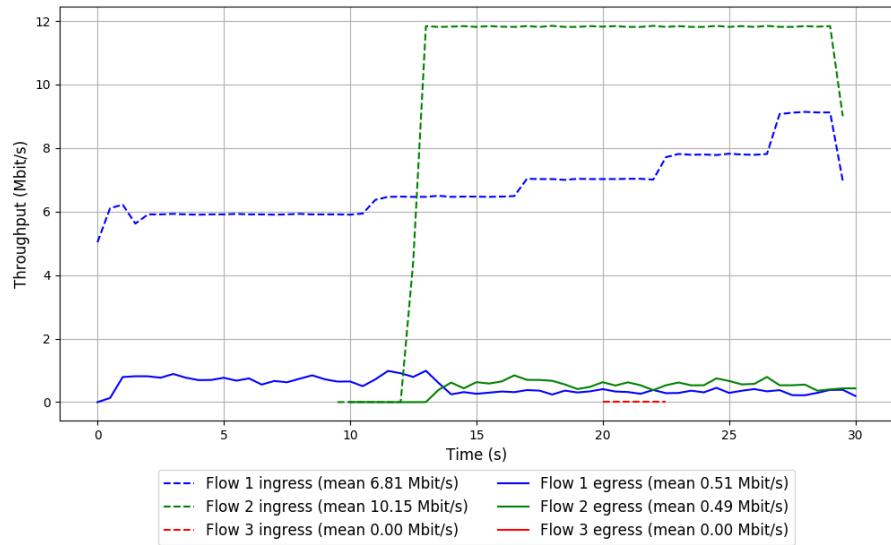
Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2019-01-03 08:48:50
End at: 2019-01-03 08:49:20
Local clock offset: 3.399 ms
Remote clock offset: -118.853 ms

Run 3: Report of PCC-Expr — Data Link

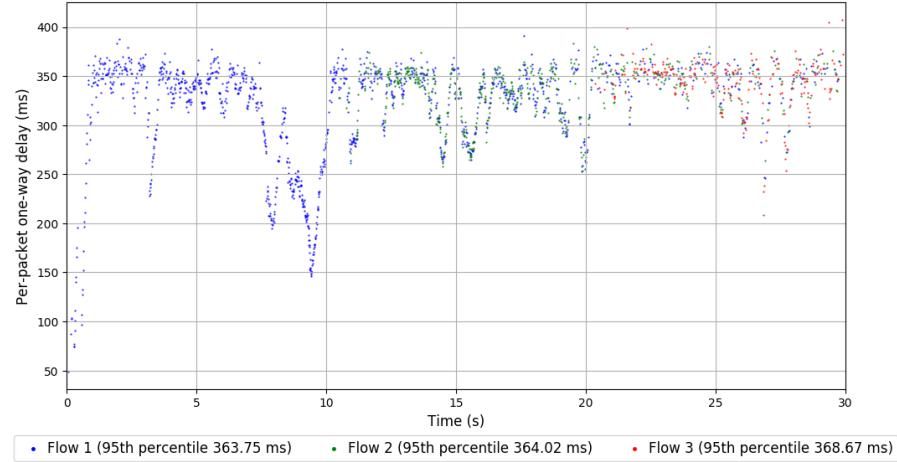
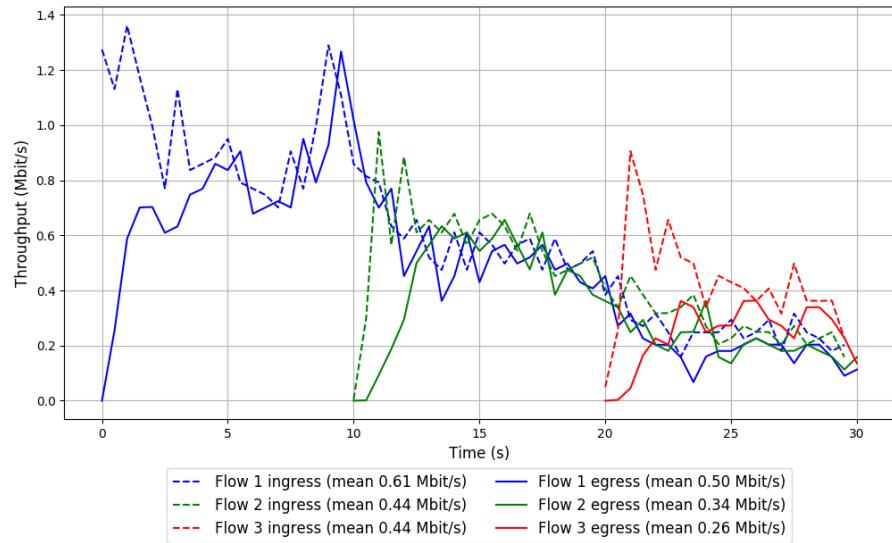


Run 1: Statistics of QUIC Cubic

```
Start at: 2019-01-03 08:23:02
End at: 2019-01-03 08:23:32
Local clock offset: 1.605 ms
Remote clock offset: 0.015 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 364.341 ms
Loss rate: 23.19%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 363.753 ms
Loss rate: 18.56%
-- Flow 2:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 364.022 ms
Loss rate: 23.49%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 368.669 ms
Loss rate: 42.19%
```

Run 1: Report of QUIC Cubic — Data Link

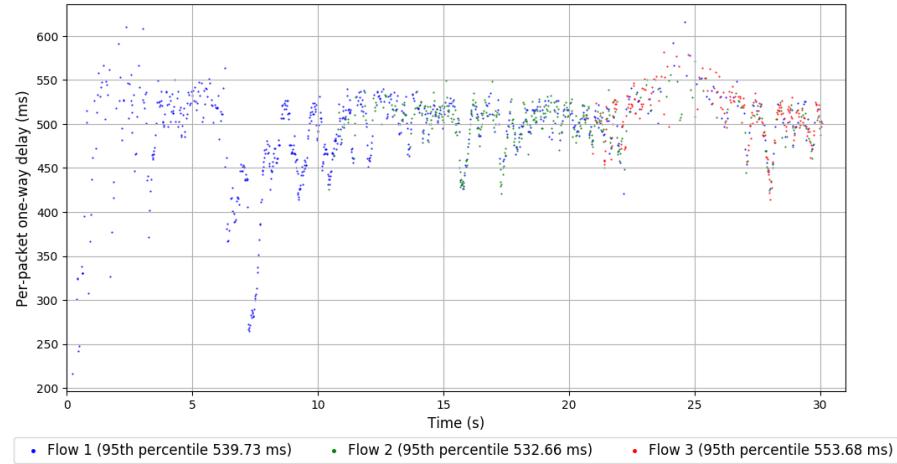
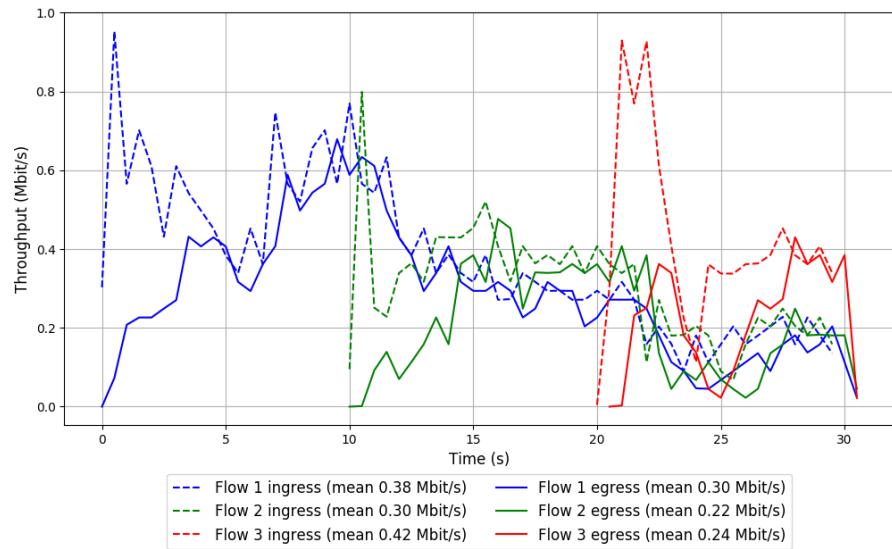


Run 2: Statistics of QUIC Cubic

```
Start at: 2019-01-03 08:45:21
End at: 2019-01-03 08:45:51
Local clock offset: 1.473 ms
Remote clock offset: -153.98 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 540.270 ms
Loss rate: 28.41%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 539.728 ms
Loss rate: 22.12%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 532.665 ms
Loss rate: 28.13%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 553.680 ms
Loss rate: 45.88%
```

Run 2: Report of QUIC Cubic — Data Link

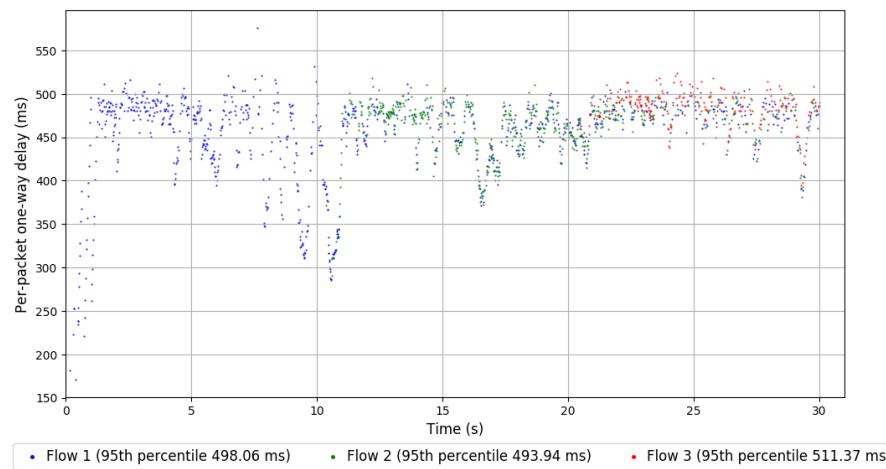
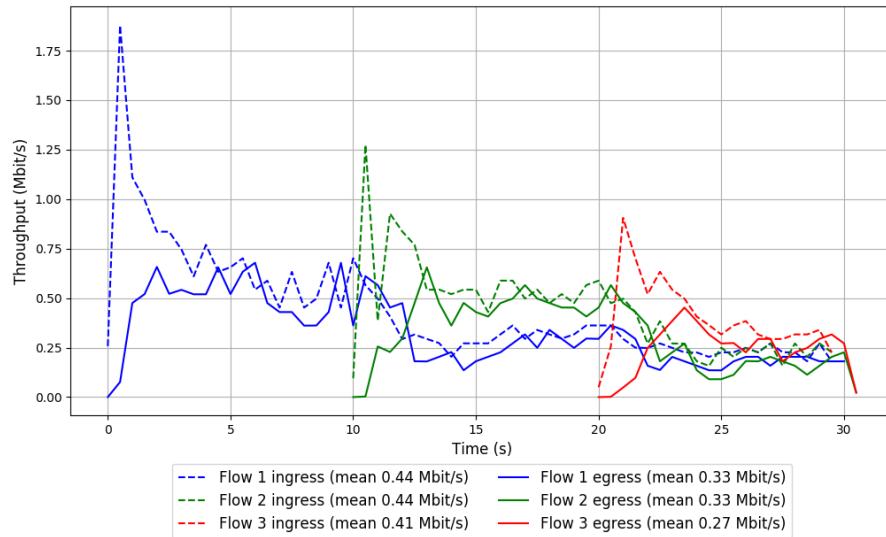


```
Run 3: Statistics of QUIC Cubic
```

```
Start at: 2019-01-03 09:07:46
End at: 2019-01-03 09:08:16
Local clock offset: 2.828 ms
Remote clock offset: -120.048 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 499.879 ms
Loss rate: 26.92%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 498.055 ms
Loss rate: 24.62%
-- Flow 2:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 493.938 ms
Loss rate: 26.33%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 511.373 ms
Loss rate: 35.72%
```

Run 3: Report of QUIC Cubic — Data Link

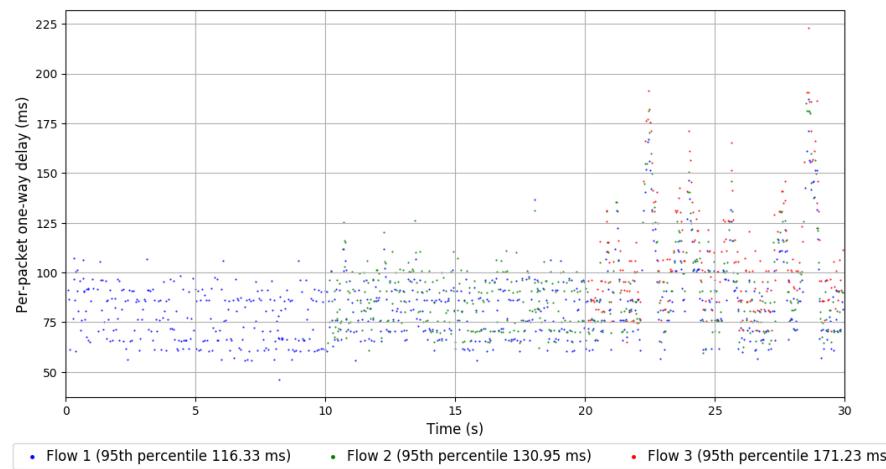
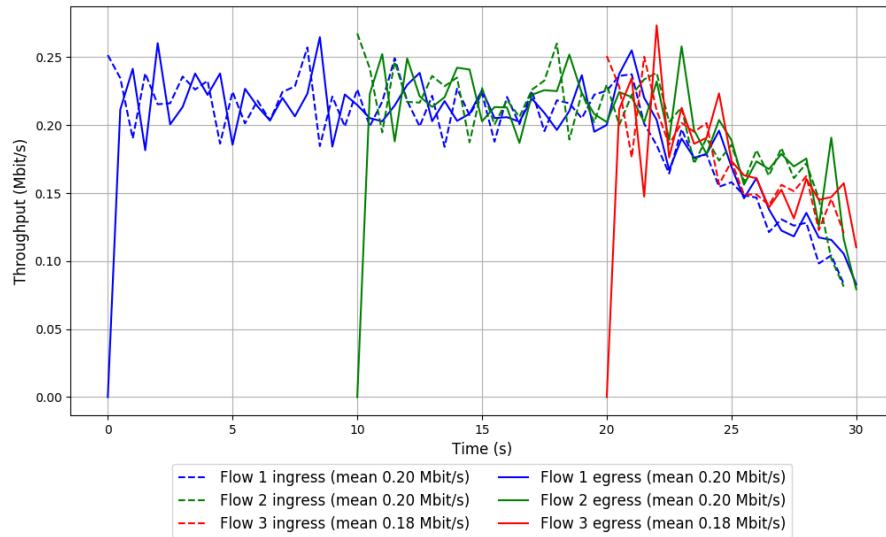


Run 1: Statistics of SCReAM

```
Start at: 2019-01-03 08:20:44
End at: 2019-01-03 08:21:15
Local clock offset: 4.387 ms
Remote clock offset: -0.216 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 138.050 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 116.334 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 130.953 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 171.229 ms
Loss rate: 0.90%
```

Run 1: Report of SCReAM — Data Link

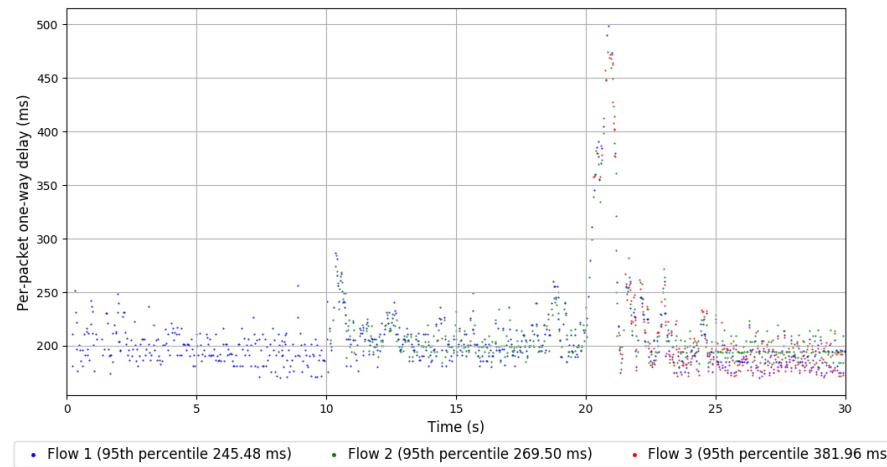
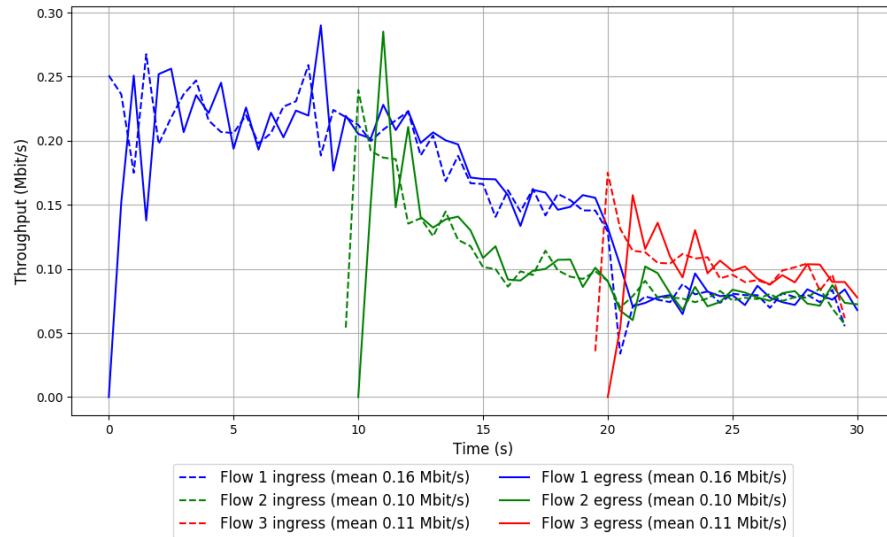


Run 2: Statistics of SCReAM

```
Start at: 2019-01-03 08:43:01
End at: 2019-01-03 08:43:31
Local clock offset: 2.63 ms
Remote clock offset: -108.769 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 259.988 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 245.477 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 269.500 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 381.958 ms
Loss rate: 3.77%
```

Run 2: Report of SCReAM — Data Link

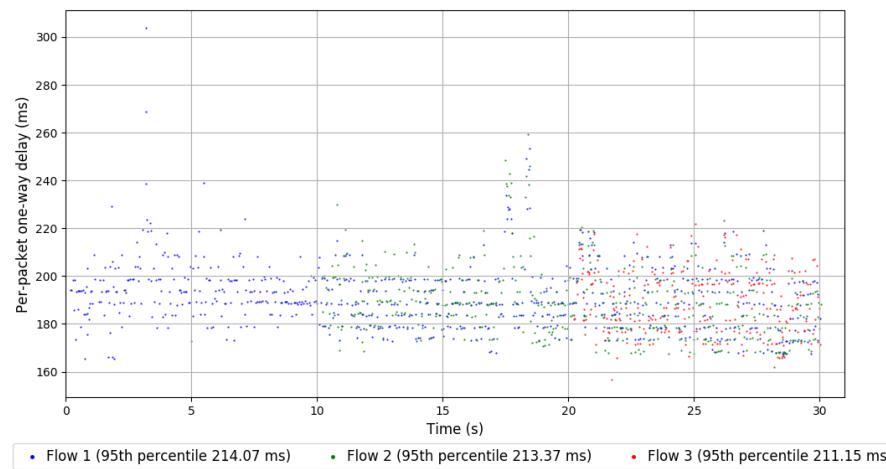
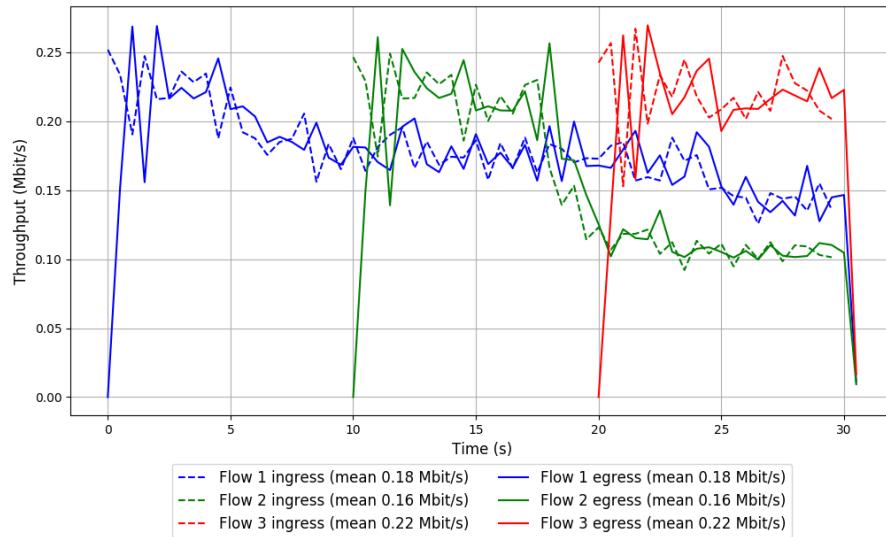


Run 3: Statistics of SCReAM

```
Start at: 2019-01-03 09:05:25
End at: 2019-01-03 09:05:55
Local clock offset: 1.729 ms
Remote clock offset: -104.374 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 213.367 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 214.068 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 213.367 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 211.153 ms
Loss rate: 1.10%
```

Run 3: Report of SCReAM — Data Link

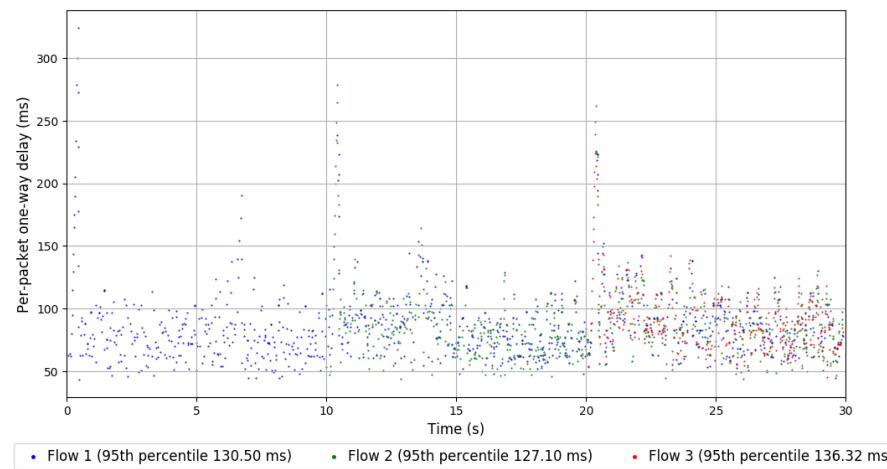
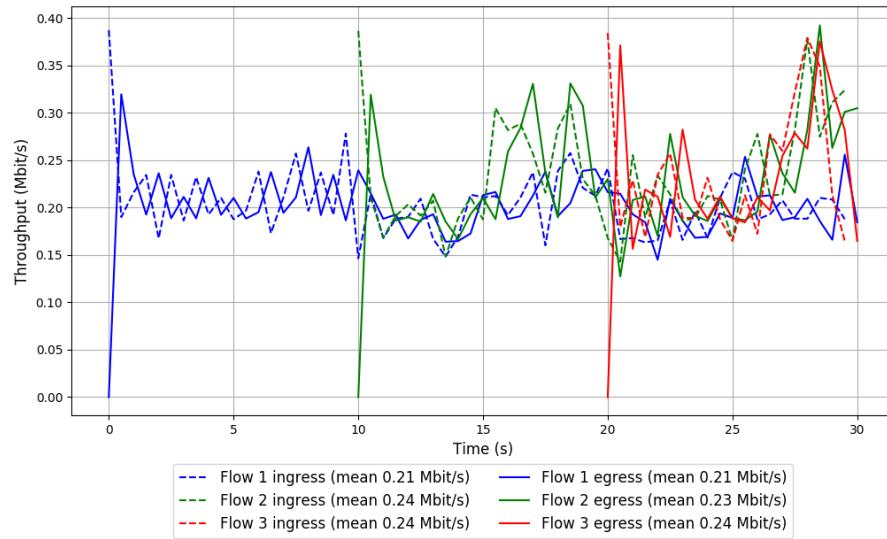


Run 1: Statistics of Sprout

```
Start at: 2019-01-03 08:18:27
End at: 2019-01-03 08:18:57
Local clock offset: 0.507 ms
Remote clock offset: -0.825 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 131.241 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 130.498 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 127.101 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 136.317 ms
Loss rate: 0.53%
```

Run 1: Report of Sprout — Data Link

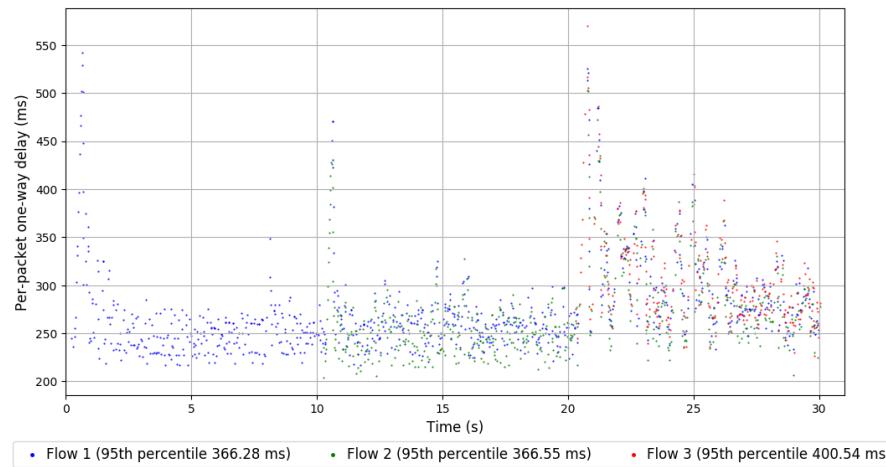
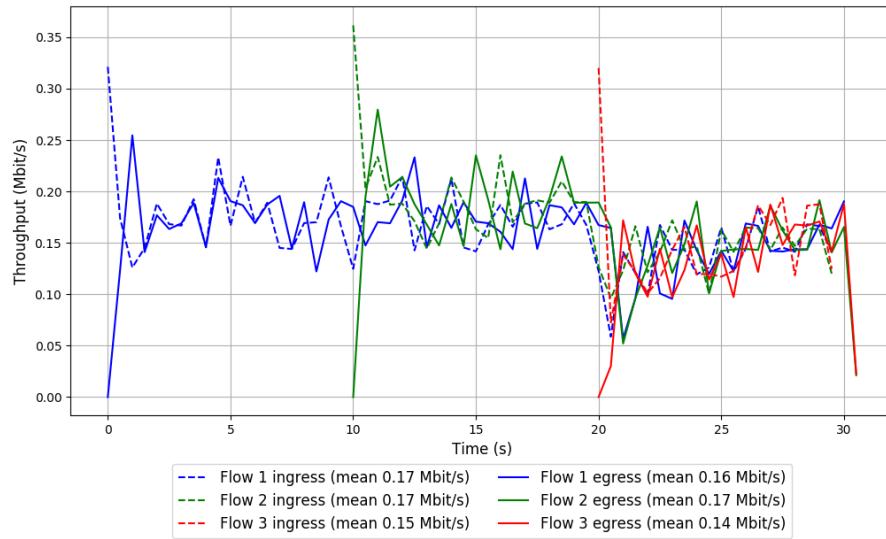


Run 2: Statistics of Sprout

```
Start at: 2019-01-03 08:40:40
End at: 2019-01-03 08:41:10
Local clock offset: 1.683 ms
Remote clock offset: -156.558 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 376.417 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 366.278 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 366.554 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 400.541 ms
Loss rate: 6.22%
```

Run 2: Report of Sprout — Data Link

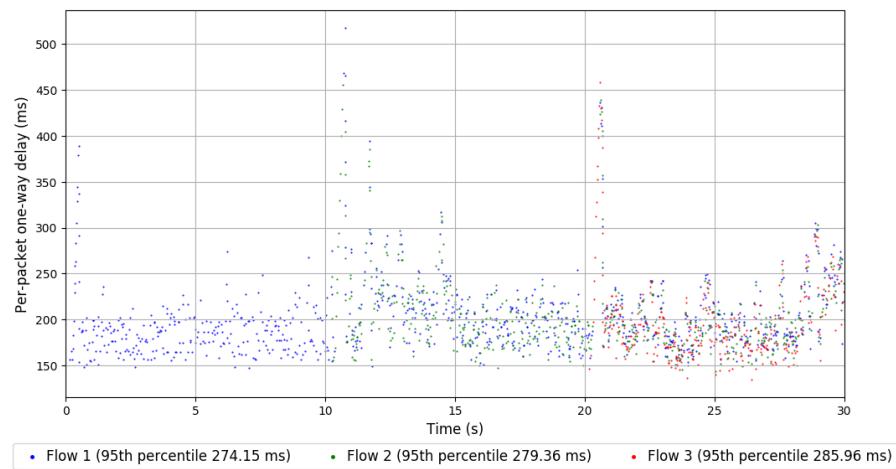
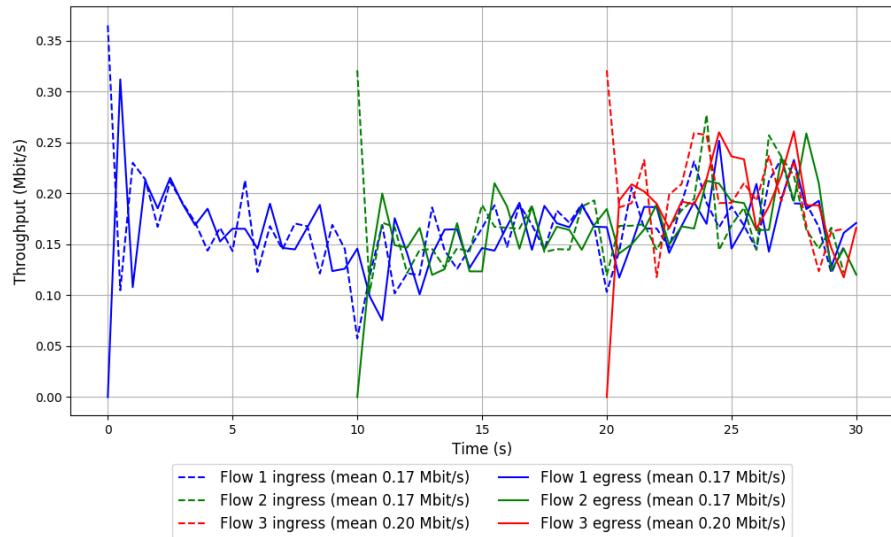


Run 3: Statistics of Sprout

```
Start at: 2019-01-03 09:03:03
End at: 2019-01-03 09:03:33
Local clock offset: 1.574 ms
Remote clock offset: -85.94 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 275.344 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 274.147 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 279.361 ms
Loss rate: 1.77%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 285.956 ms
Loss rate: 2.84%
```

Run 3: Report of Sprout — Data Link

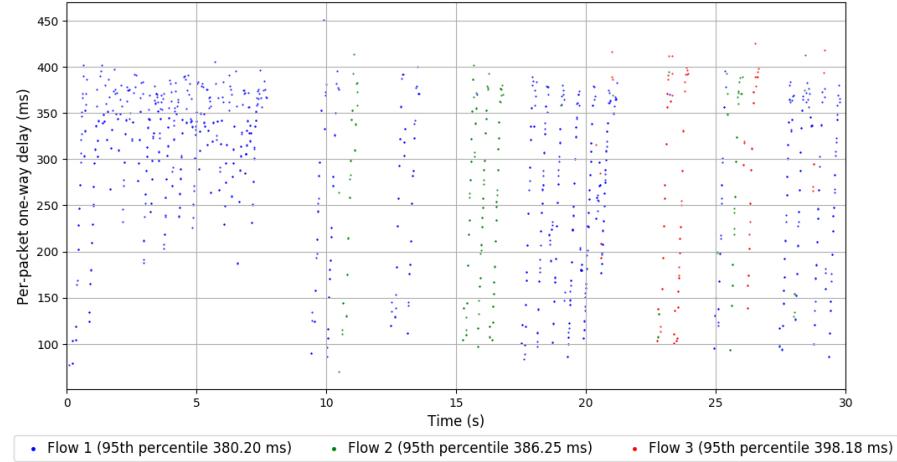
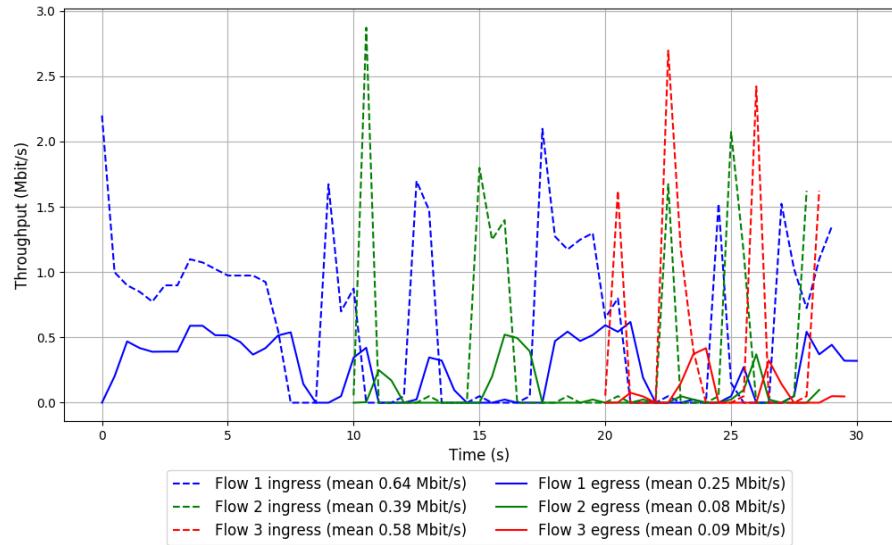


Run 1: Statistics of TaoVA-100x

```
Start at: 2019-01-03 08:05:35
End at: 2019-01-03 08:06:05
Local clock offset: 4.391 ms
Remote clock offset: -0.684 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 383.709 ms
Loss rate: 68.81%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 380.198 ms
Loss rate: 60.44%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 386.248 ms
Loss rate: 80.40%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 398.179 ms
Loss rate: 83.84%
```

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

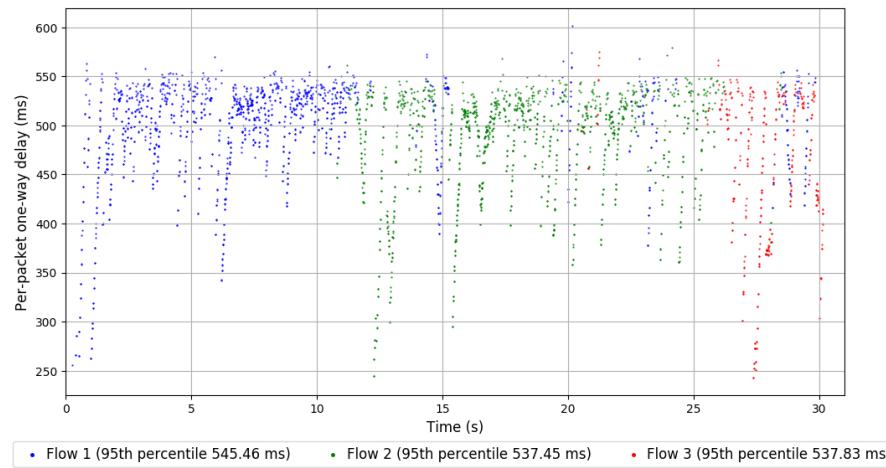
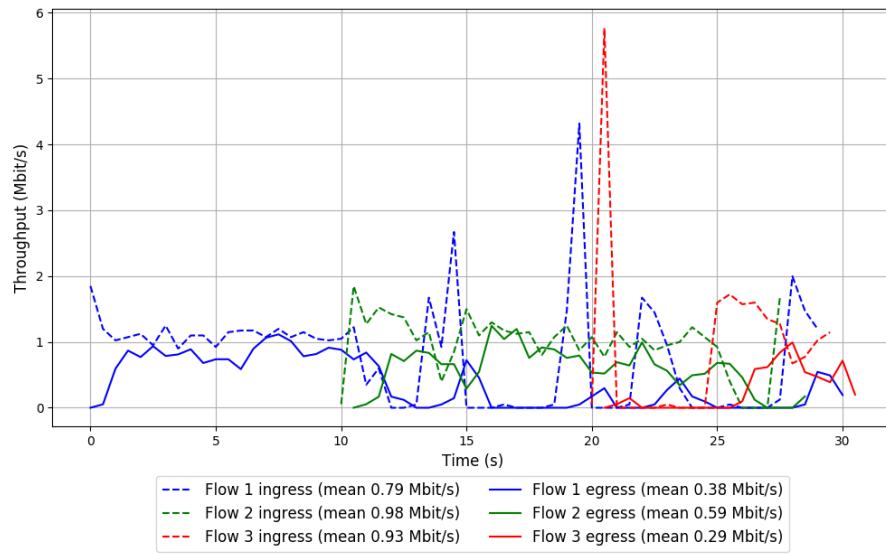


Run 2: Statistics of TaoVA-100x

```
Start at: 2019-01-03 08:27:44
End at: 2019-01-03 08:28:14
Local clock offset: 2.229 ms
Remote clock offset: -173.066 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 542.424 ms
Loss rate: 50.55%
-- Flow 1:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 545.456 ms
Loss rate: 51.07%
-- Flow 2:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 537.451 ms
Loss rate: 39.82%
-- Flow 3:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 537.830 ms
Loss rate: 69.63%
```

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

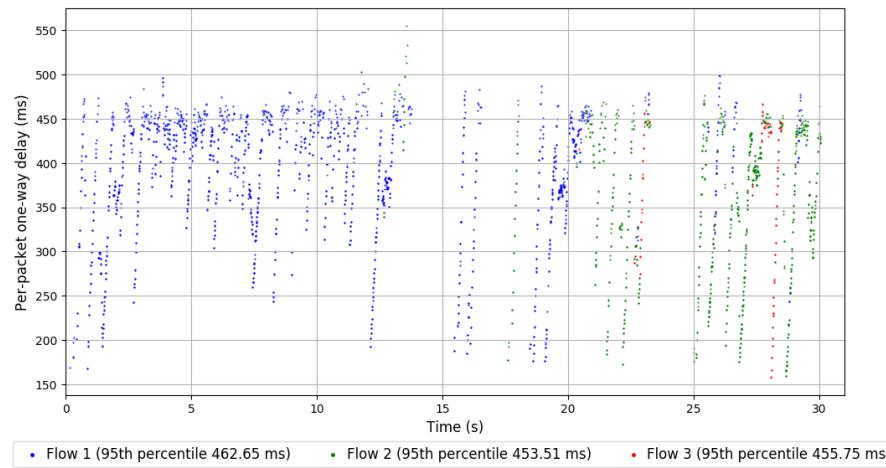
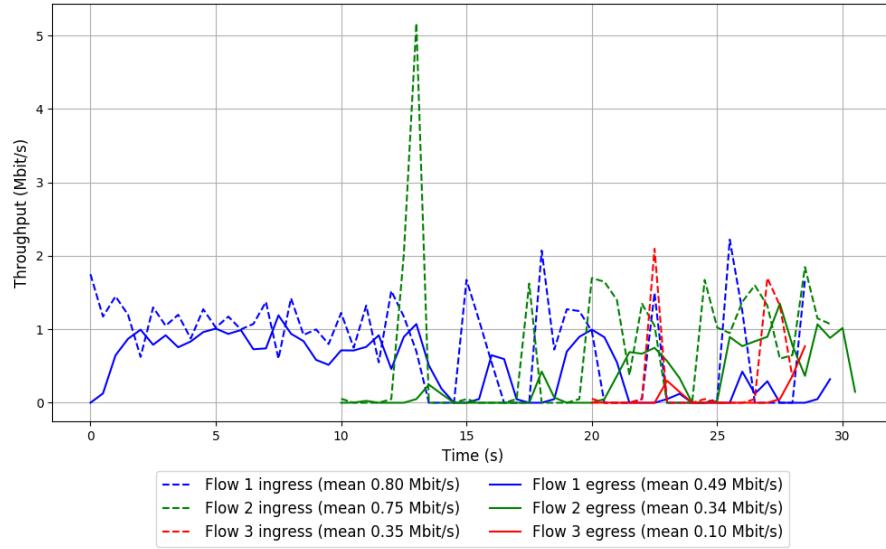


Run 3: Statistics of TaoVA-100x

```
Start at: 2019-01-03 08:50:05
End at: 2019-01-03 08:50:35
Local clock offset: 0.774 ms
Remote clock offset: -84.651 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 459.539 ms
Loss rate: 46.62%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 462.654 ms
Loss rate: 38.09%
-- Flow 2:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 453.513 ms
Loss rate: 55.07%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 455.746 ms
Loss rate: 71.20%
```

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

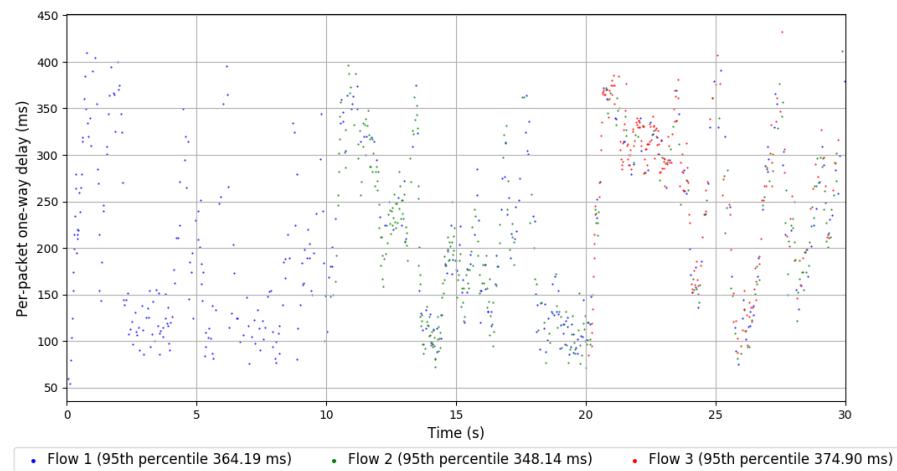
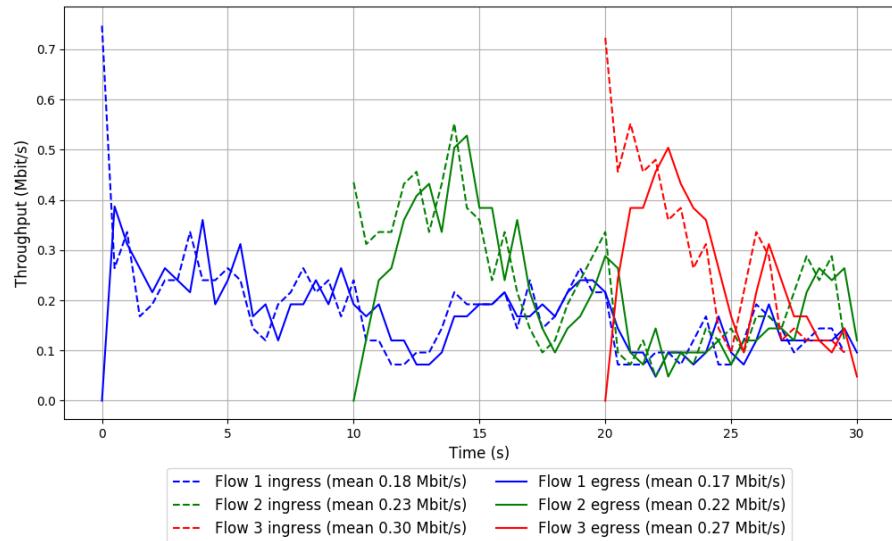


Run 1: Statistics of TCP Vegas

```
Start at: 2019-01-03 08:06:50
End at: 2019-01-03 08:07:20
Local clock offset: 4.745 ms
Remote clock offset: -1.103 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 364.369 ms
Loss rate: 6.31%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 364.188 ms
Loss rate: 3.79%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 348.137 ms
Loss rate: 6.70%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 374.898 ms
Loss rate: 10.37%
```

Run 1: Report of TCP Vegas — Data Link

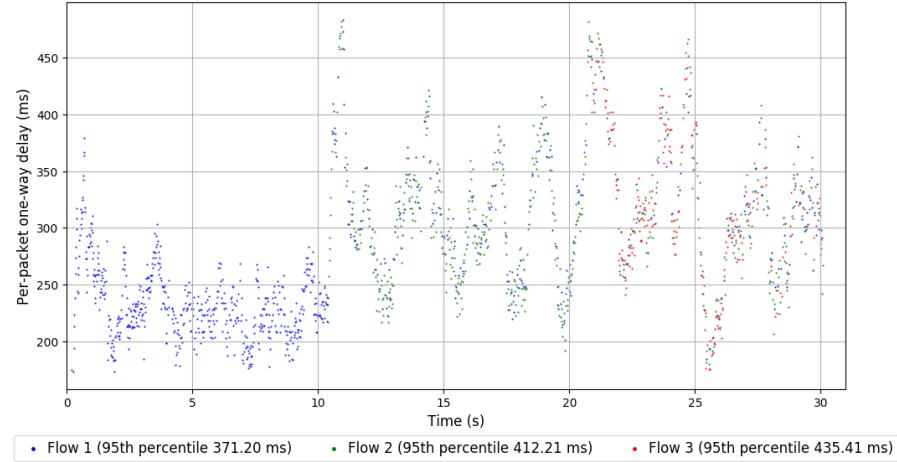
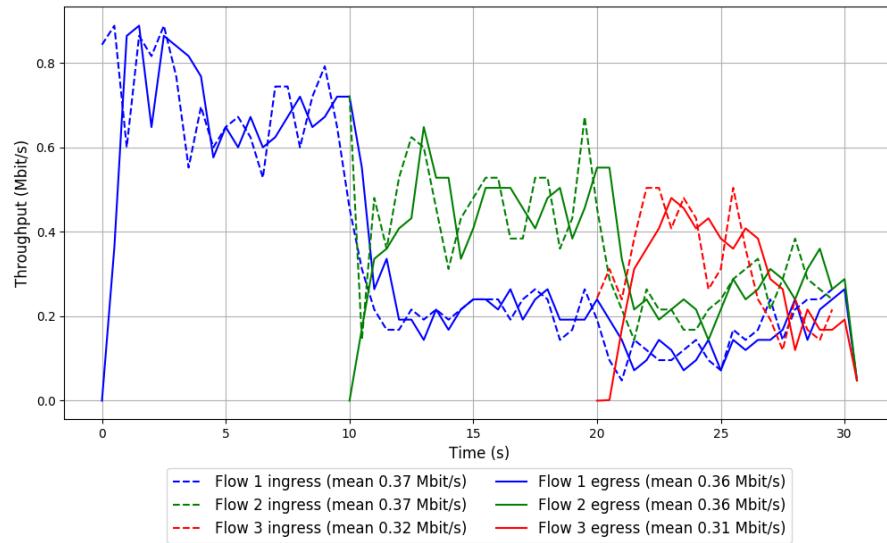


Run 2: Statistics of TCP Vegas

```
Start at: 2019-01-03 08:28:54
End at: 2019-01-03 08:29:24
Local clock offset: 3.611 ms
Remote clock offset: -107.42 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 402.911 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 371.202 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 412.209 ms
Loss rate: 2.12%
-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 435.411 ms
Loss rate: 3.83%
```

Run 2: Report of TCP Vegas — Data Link

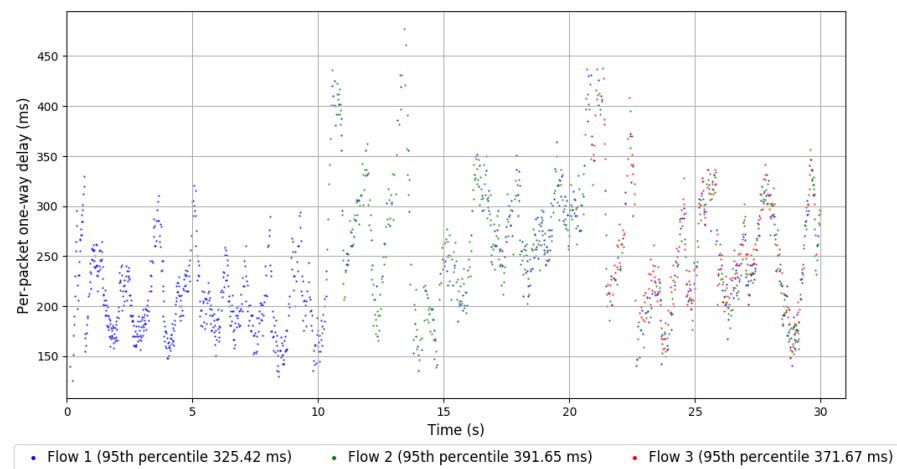
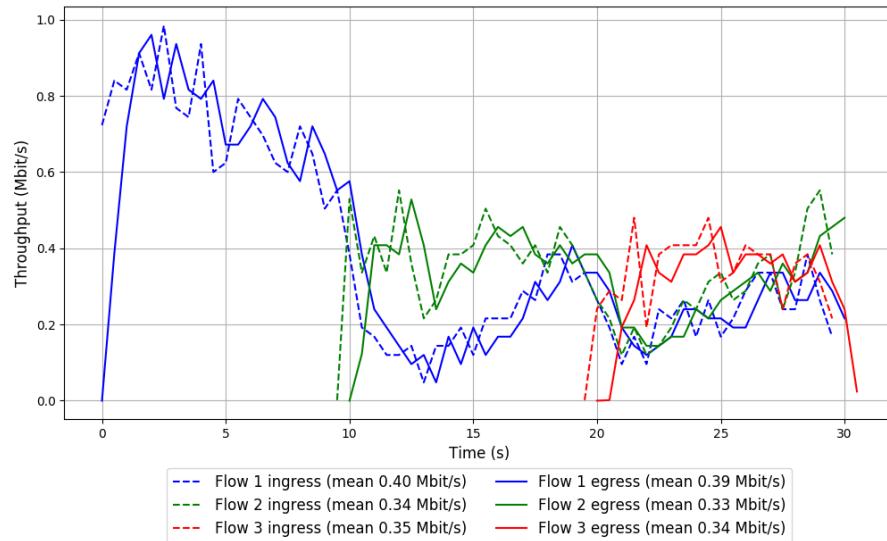


Run 3: Statistics of TCP Vegas

```
Start at: 2019-01-03 08:51:15
End at: 2019-01-03 08:51:45
Local clock offset: 1.777 ms
Remote clock offset: -59.843 ms

# Below is generated by plot.py at 2019-01-03 09:11:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 347.746 ms
Loss rate: 1.90%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 325.424 ms
Loss rate: 0.91%
-- Flow 2:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 391.651 ms
Loss rate: 2.65%
-- Flow 3:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 371.669 ms
Loss rate: 3.83%
```

Run 3: Report of TCP Vegas — Data Link

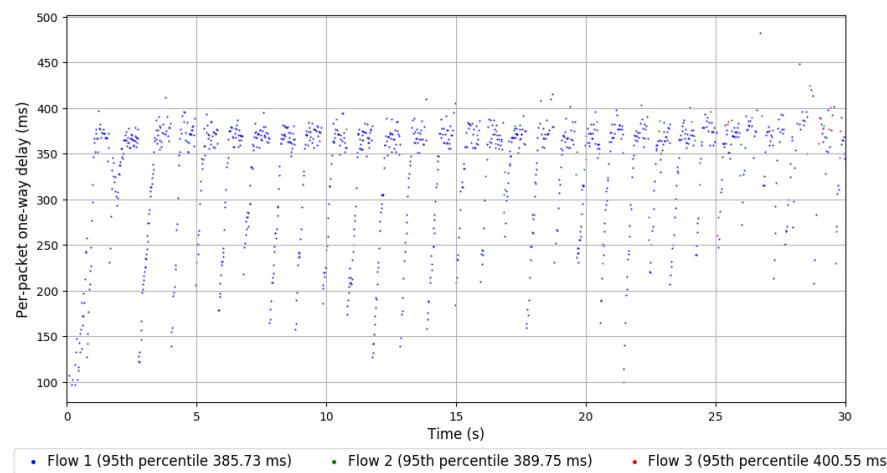
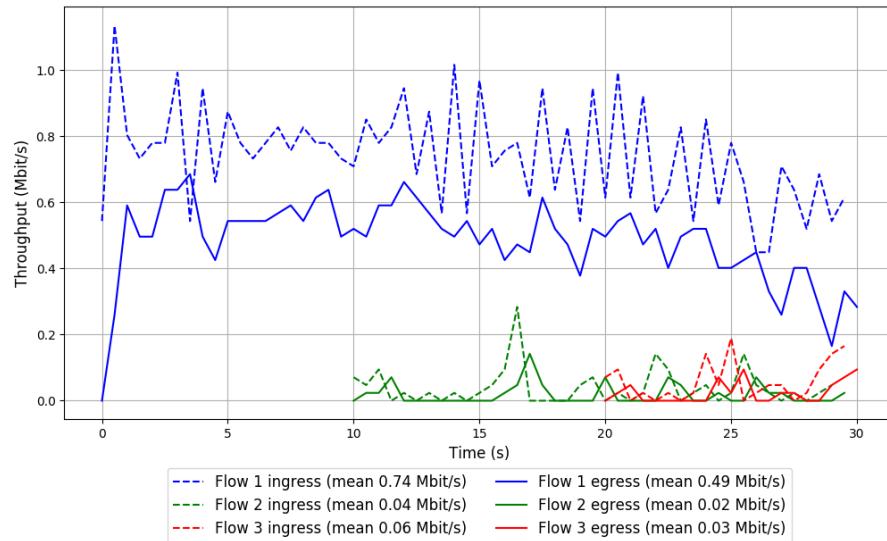


Run 1: Statistics of Verus

```
Start at: 2019-01-03 08:12:42
End at: 2019-01-03 08:13:12
Local clock offset: -1.971 ms
Remote clock offset: -14.125 ms

# Below is generated by plot.py at 2019-01-03 09:11:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 386.648 ms
Loss rate: 34.97%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 385.727 ms
Loss rate: 33.85%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 389.747 ms
Loss rate: 52.31%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 400.550 ms
Loss rate: 55.10%
```

Run 1: Report of Verus — Data Link

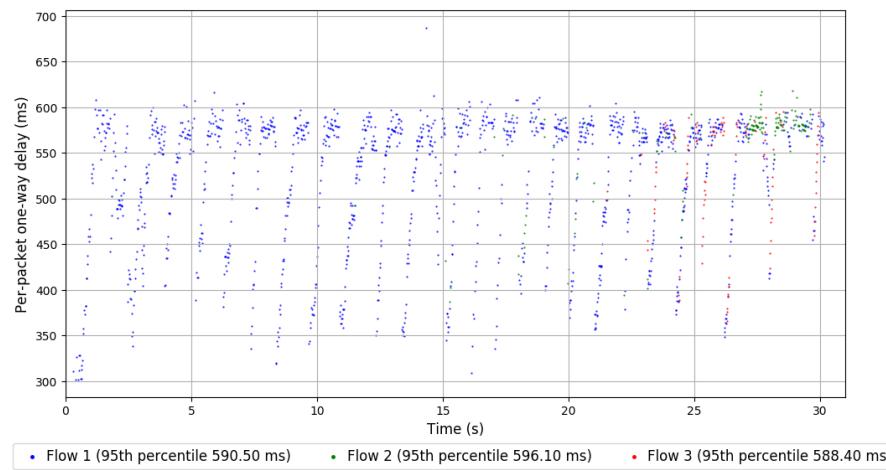
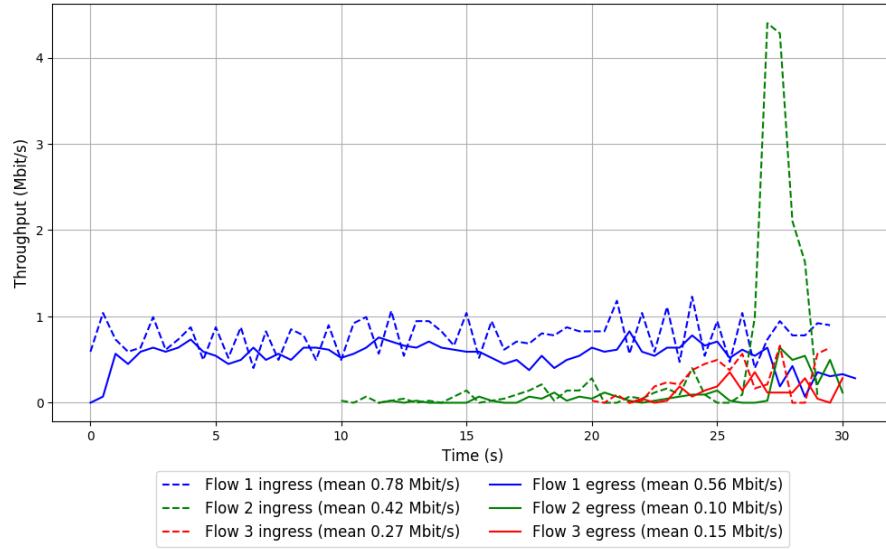


Run 2: Statistics of Verus

```
Start at: 2019-01-03 08:34:50
End at: 2019-01-03 08:35:20
Local clock offset: 2.791 ms
Remote clock offset: -219.221 ms

# Below is generated by plot.py at 2019-01-03 09:11:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 590.975 ms
Loss rate: 41.47%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 590.495 ms
Loss rate: 27.97%
-- Flow 2:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 596.099 ms
Loss rate: 76.62%
-- Flow 3:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 588.405 ms
Loss rate: 53.12%
```

Run 2: Report of Verus — Data Link

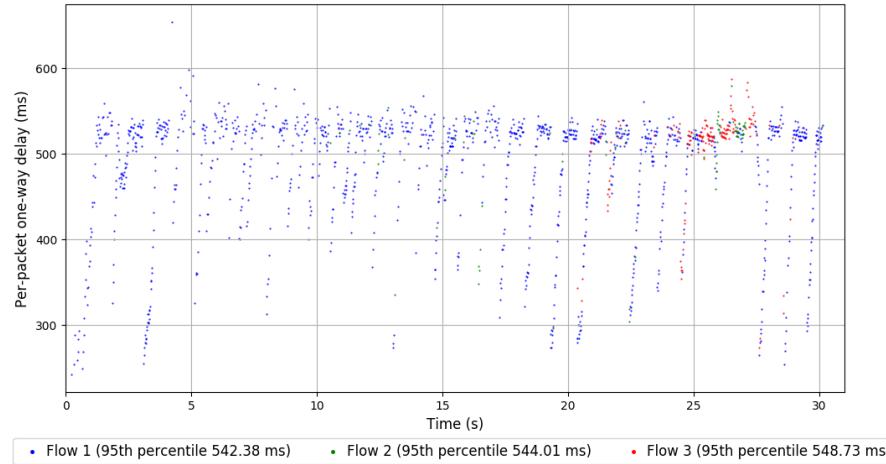
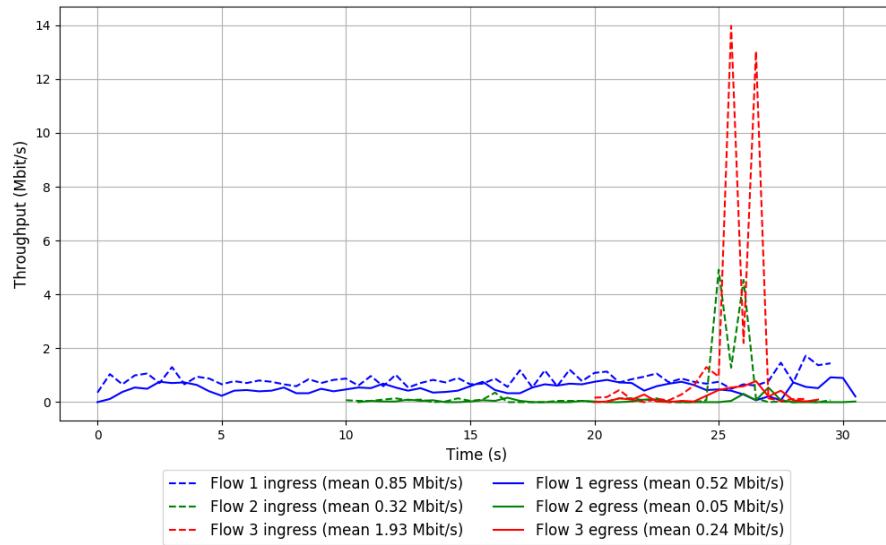


Run 3: Statistics of Verus

```
Start at: 2019-01-03 08:57:09
End at: 2019-01-03 08:57:39
Local clock offset: 3.133 ms
Remote clock offset: -163.277 ms

# Below is generated by plot.py at 2019-01-03 09:11:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 542.817 ms
Loss rate: 61.76%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 542.375 ms
Loss rate: 38.58%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 544.010 ms
Loss rate: 84.31%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 548.727 ms
Loss rate: 87.99%
```

Run 3: Report of Verus — Data Link

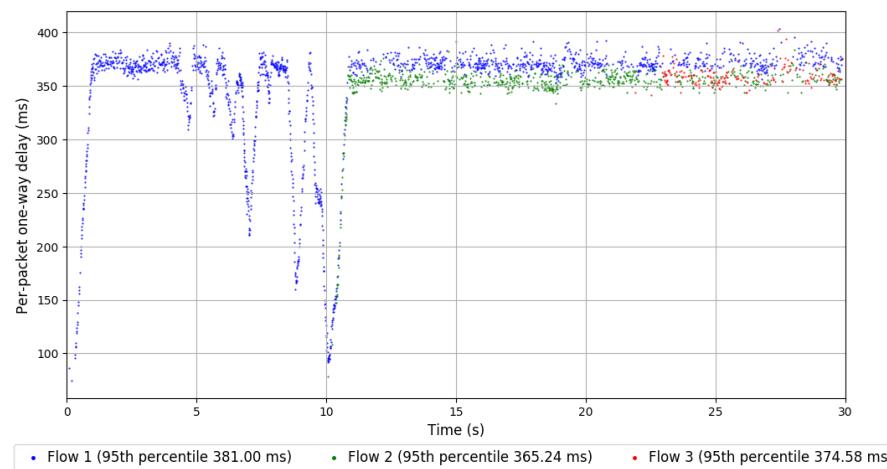
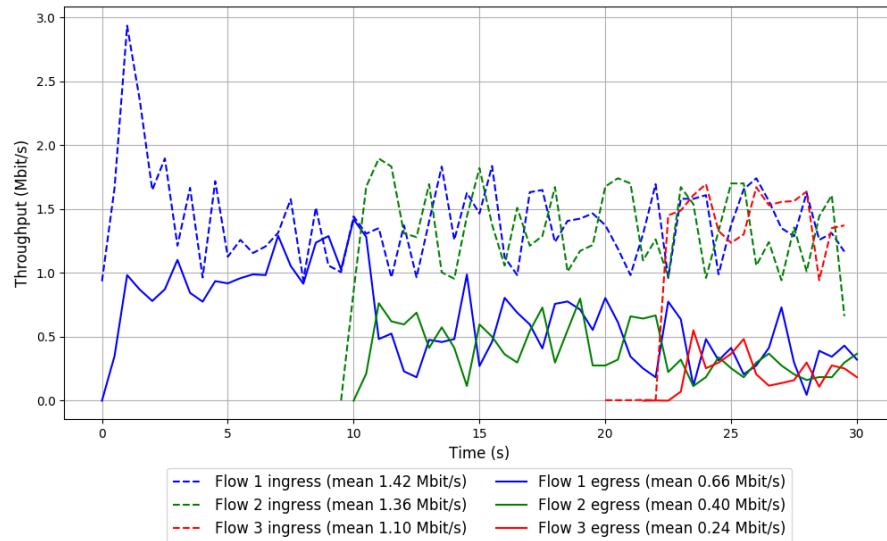


Run 1: Statistics of PCC-Vivace

```
Start at: 2019-01-03 08:19:35
End at: 2019-01-03 08:20:05
Local clock offset: 0.444 ms
Remote clock offset: -0.108 ms

# Below is generated by plot.py at 2019-01-03 09:11:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 379.490 ms
Loss rate: 63.30%
-- Flow 1:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 381.005 ms
Loss rate: 53.69%
-- Flow 2:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 365.242 ms
Loss rate: 70.54%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 374.585 ms
Loss rate: 82.68%
```

Run 1: Report of PCC-Vivace — Data Link

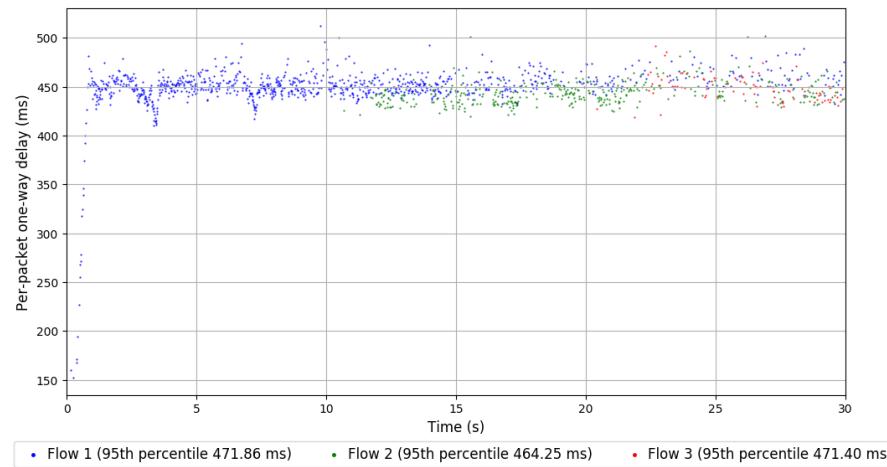
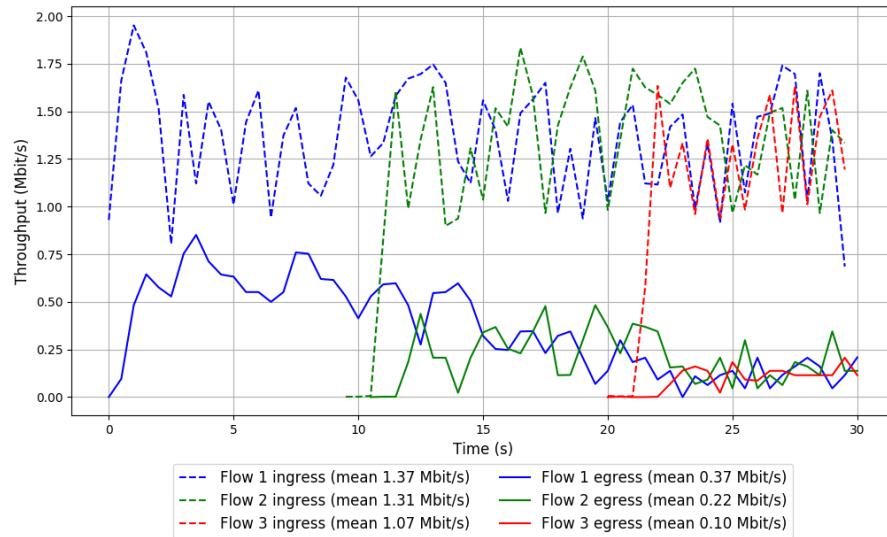


Run 2: Statistics of PCC-Vivace

```
Start at: 2019-01-03 08:41:50
End at: 2019-01-03 08:42:20
Local clock offset: 1.02 ms
Remote clock offset: -73.28 ms

# Below is generated by plot.py at 2019-01-03 09:11:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 469.236 ms
Loss rate: 79.22%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 471.860 ms
Loss rate: 73.17%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 464.248 ms
Loss rate: 84.05%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 471.400 ms
Loss rate: 90.73%
```

Run 2: Report of PCC-Vivace — Data Link

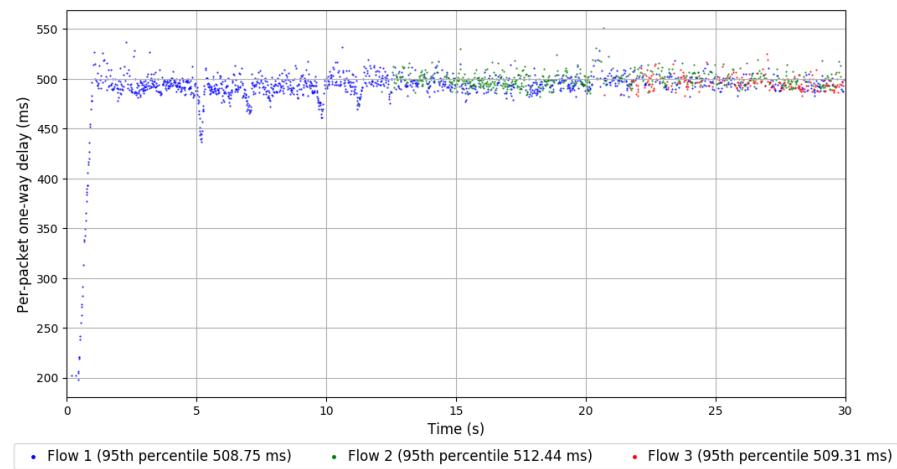
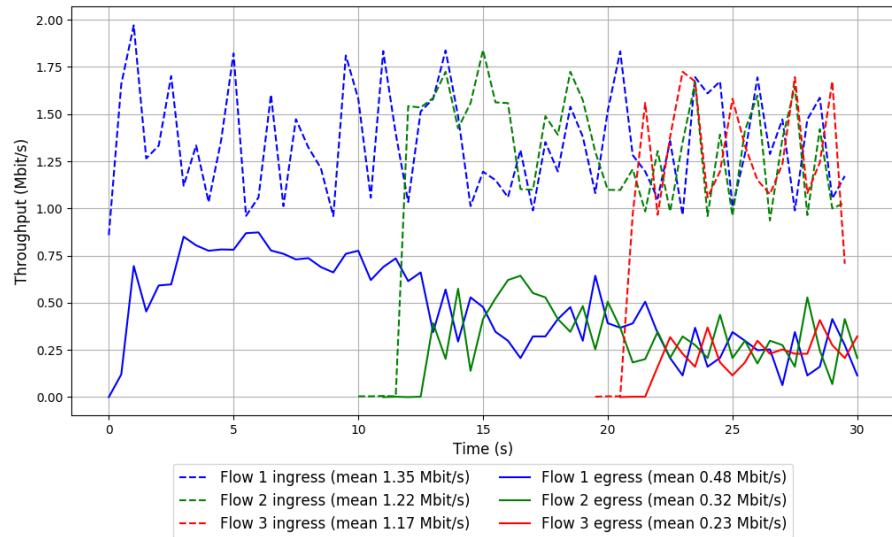


Run 3: Statistics of PCC-Vivace

```
Start at: 2019-01-03 09:04:14
End at: 2019-01-03 09:04:44
Local clock offset: 3.974 ms
Remote clock offset: -120.894 ms

# Below is generated by plot.py at 2019-01-03 09:11:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 510.473 ms
Loss rate: 70.58%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 508.746 ms
Loss rate: 64.51%
-- Flow 2:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 512.438 ms
Loss rate: 75.16%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 509.305 ms
Loss rate: 82.08%
```

Run 3: Report of PCC-Vivace — Data Link

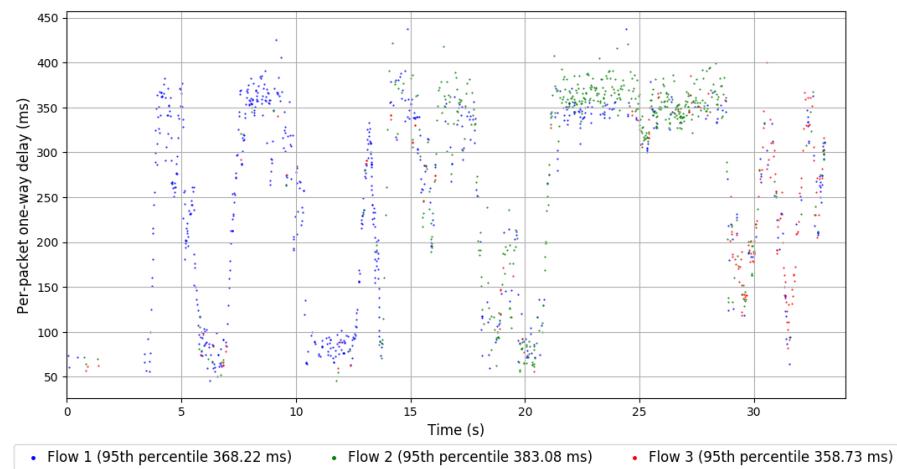
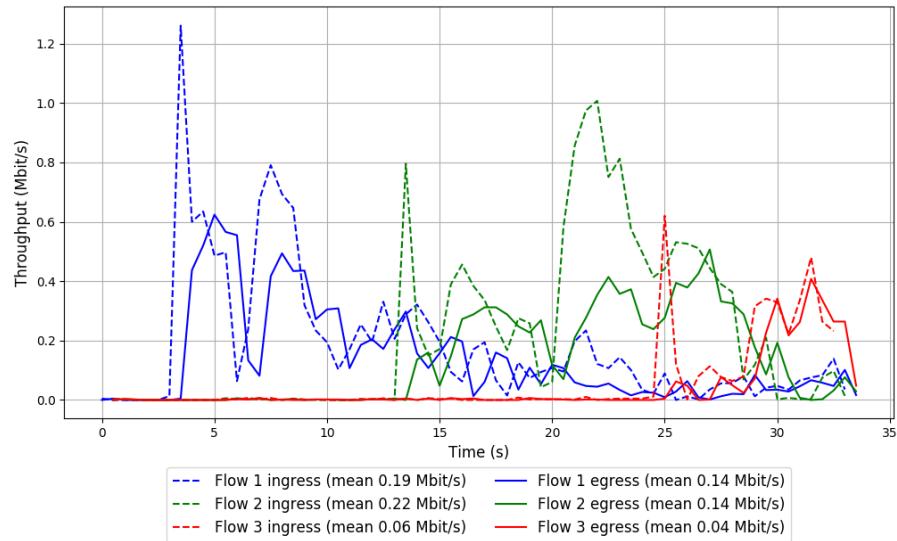


```
Run 1: Statistics of WebRTC media

Start at: 2019-01-03 08:08:01
End at: 2019-01-03 08:08:31
Local clock offset: 4.209 ms
Remote clock offset: -0.93 ms

# Below is generated by plot.py at 2019-01-03 09:11:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 377.094 ms
Loss rate: 30.93%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 368.223 ms
Loss rate: 25.36%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 383.079 ms
Loss rate: 36.93%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 358.731 ms
Loss rate: 26.84%
```

Run 1: Report of WebRTC media — Data Link

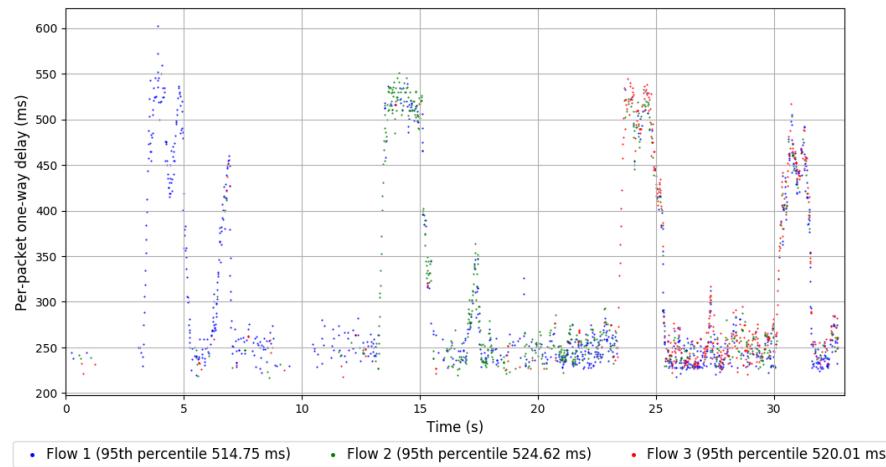
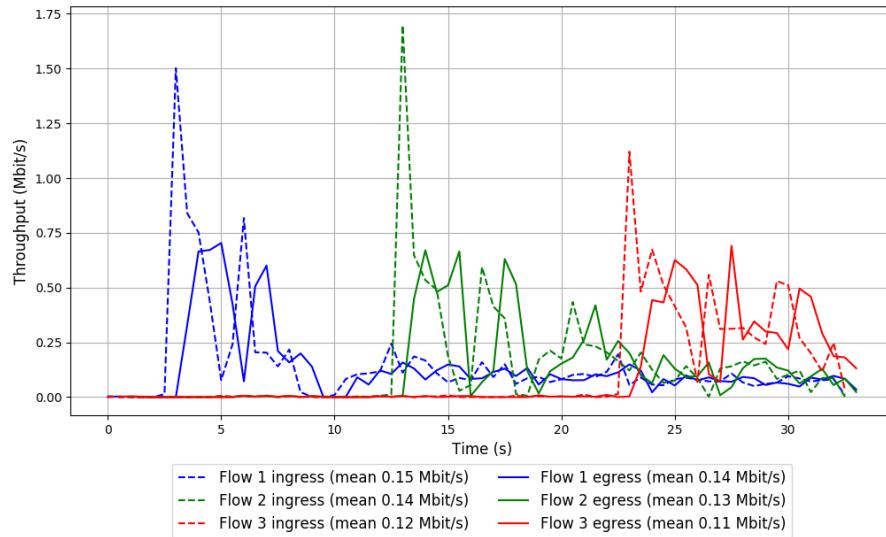


```
Run 2: Statistics of WebRTC media

Start at: 2019-01-03 08:30:05
End at: 2019-01-03 08:30:35
Local clock offset: 0.631 ms
Remote clock offset: -173.245 ms

# Below is generated by plot.py at 2019-01-03 09:11:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 519.954 ms
Loss rate: 9.72%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 514.746 ms
Loss rate: 9.61%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 524.615 ms
Loss rate: 9.59%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 520.014 ms
Loss rate: 10.02%
```

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

```
Start at: 2019-01-03 08:52:24
End at: 2019-01-03 08:52:54
Local clock offset: 0.666 ms
Remote clock offset: -37.195 ms

# Below is generated by plot.py at 2019-01-03 09:11:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 391.006 ms
Loss rate: 8.72%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 390.657 ms
Loss rate: 6.52%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 386.063 ms
Loss rate: 5.14%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 397.536 ms
Loss rate: 17.88%
```

Run 3: Report of WebRTC media — Data Link

