

Pantheon Report

Generated at 2019-10-29 02:09:44 (UTC).

Tested in mahimahi: mm-delay 20 mm-link 100mbps.trace 100mbps.trace
--uplink-queue=droptail --uplink-queue-args=packets=300

Repeated the test of 9 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

System info:

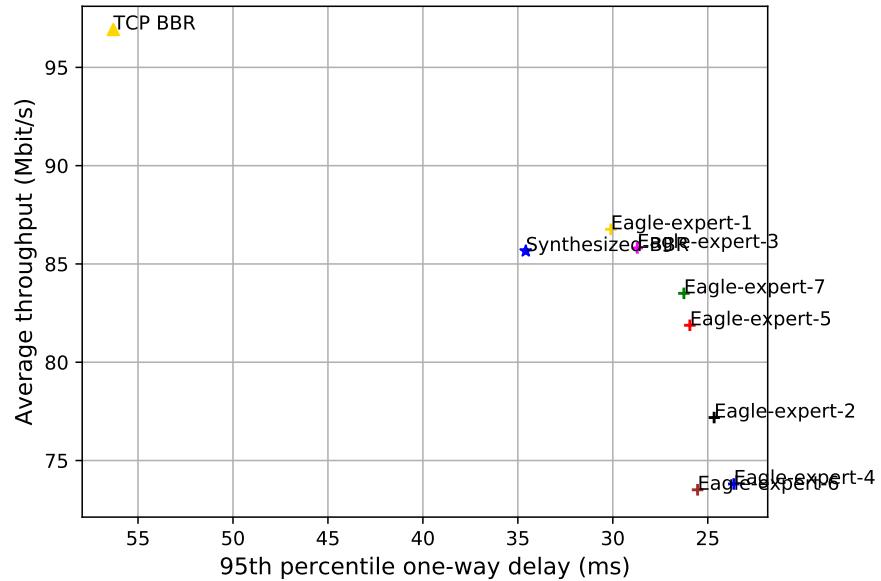
```
Linux 4.15.0-65-generic
net.core.default_qdisc = fq
net.core.rmem_default = 212992
net.core.rmem_max = 212992
net.core.wmem_default = 212992
net.core.wmem_max = 212992
net.ipv4.tcp_rmem = 4096 87380 6291456
net.ipv4.tcp_wmem = 4096 16384 4194304
```

Git summary:

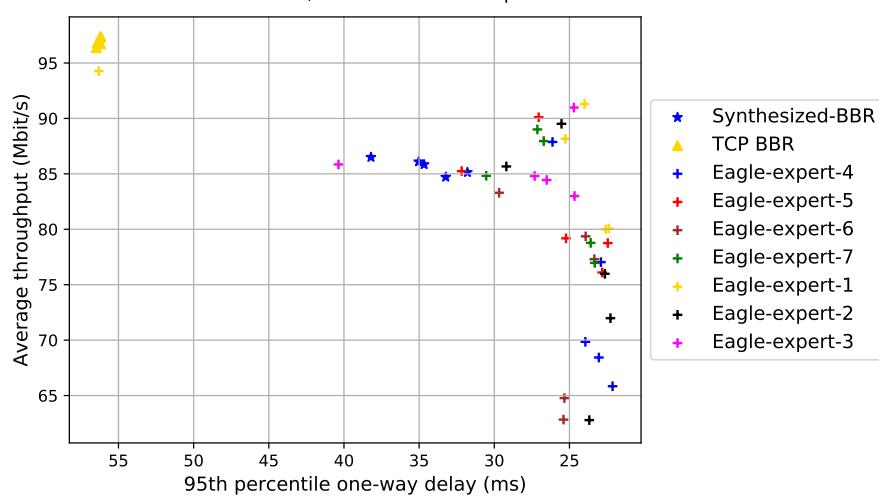
```
branch: master @ b54fc866b3140559c1fa1782d26fa636f7a43a8d
third_party/aurora @ f3e943d61015b39960854ba6391797e0c7984d74
third_party/aurora-model @ e292c316c23fb837255c4e142e40590d154bbe95
third_party/eagle-v1 @ c68d985e042be5c30704c0aee48c363861951a95
third_party/eagle-v2 @ c8a1737b3c84d7d49eadab5b8785045d272a70120
third_party/eagle-v3 @ d5f1ab4416fa417052ddc65de5dbdbd20955d293
M sender-receiver/sender-receiver/sender_receiver/envs/__pycache__/datagram_pb2.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/__pycache__/helpers.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/__pycache__/mahimahi.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/__pycache__/project_root.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/__pycache__/receiver.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/example-xentropy-random-switch.py
M sender-receiver/sender-receiver/sender_receiver/envs/example-xentropy.py
D sender-receiver/sender-receiver/sender_receiver/envs/model-xentropy/model-xentropy-2.pt
D sender-receiver/sender-receiver/sender_receiver/envs/model-xentropy/model-xentropy-240it
M sender-receiver/sender-receiver/sender_receiver/envs/model-xentropy/model-xentropy.pt
M sender-receiver/sender-receiver/sender_receiver/logs.txt
third_party/fillp @ d6da1459332fceef56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fc45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
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/synthesizedBBR @ d5f1ab4416fa417052ddc65de5dbdbd20955d293
M sender-receiver/sender-receiver/sender_receiver/_pycache__/_init__.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/_init__.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/datagram_pb2.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/helpers.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/mahimahi.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/project_root.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/receiver.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/sender_receiver_env.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/example-xentropy.py
M sender-receiver/sender-receiver/sender_receiver/logs.txt
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

local test in mahimahi, 5 runs of 30s each per scheme
 (mean of all runs by scheme)



local test in mahimahi, 5 runs of 30s each per scheme



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	96.92	56.30	2.95
Eagle-expert-1	5	86.76	30.11	5.27
Eagle-expert-2	5	77.19	24.66	0.25
Eagle-expert-3	5	85.82	28.71	0.42
Eagle-expert-4	5	73.81	23.63	0.20
Eagle-expert-5	5	81.88	25.94	0.41
Eagle-expert-6	5	73.51	25.54	0.19
Eagle-expert-7	5	83.50	26.26	0.22
Synthesized-BBR	5	85.66	34.58	0.32

Run 1: Statistics of TCP BBR

Start at: 2019-10-29 01:31:36

End at: 2019-10-29 01:32:06

Below is generated by plot.py at 2019-10-29 02:00:57

Datalink statistics

-- Total of 1 flow:

Average capacity: 100.00 Mbit/s

Average throughput: 97.29 Mbit/s (97.3% utilization)

95th percentile per-packet one-way delay: 56.228 ms

Loss rate: 2.82%

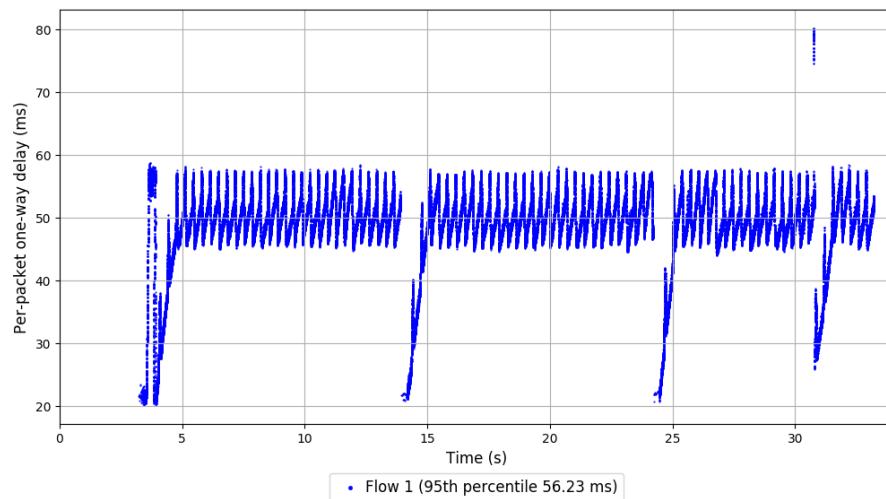
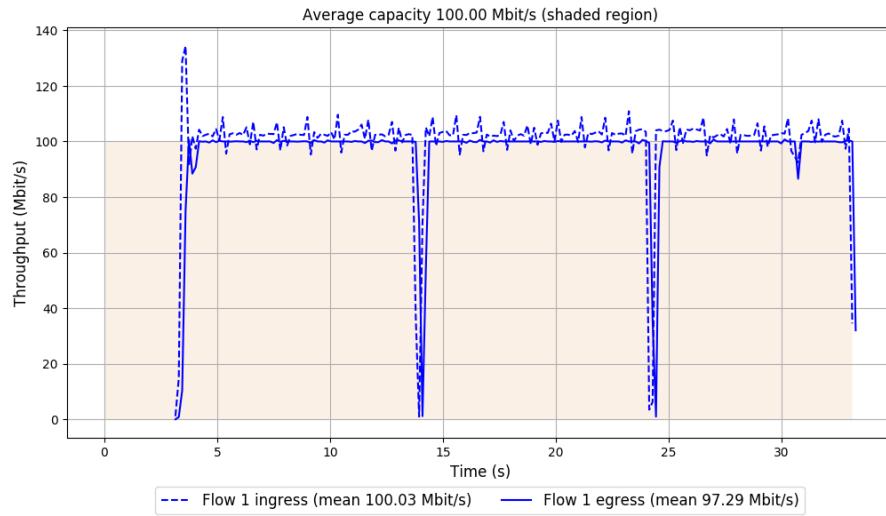
-- Flow 1:

Average throughput: 97.29 Mbit/s

95th percentile per-packet one-way delay: 56.228 ms

Loss rate: 2.82%

Run 1: Report of TCP BBR — Data Link



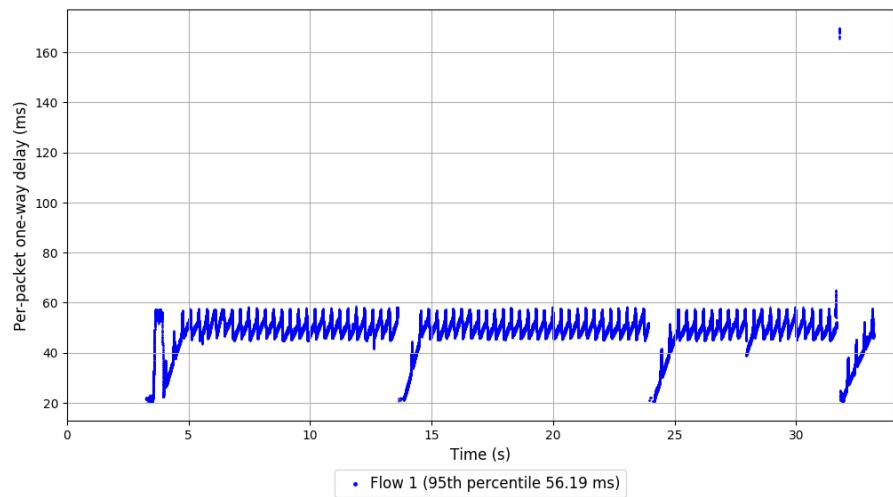
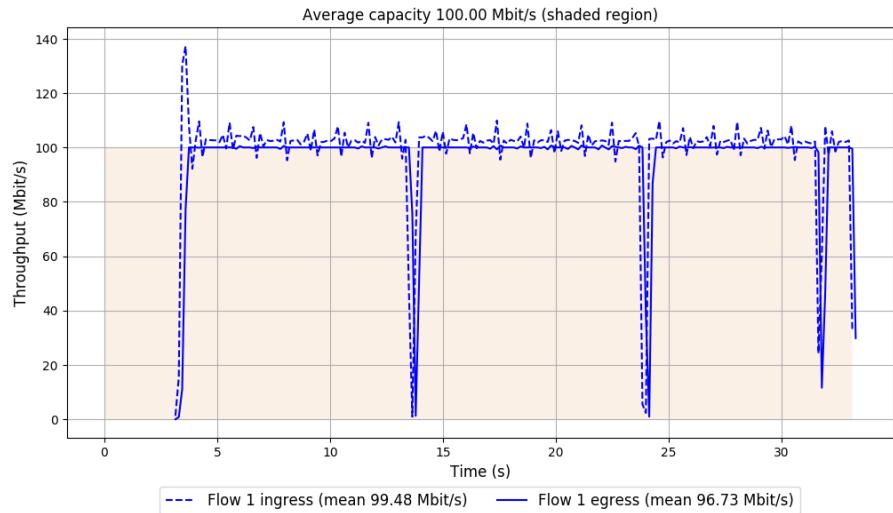
Run 2: Statistics of TCP BBR

Start at: 2019-10-29 01:37:30

End at: 2019-10-29 01:38:00

```
# Below is generated by plot.py at 2019-10-29 02:00:57
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 96.73 Mbit/s (96.7% utilization)
95th percentile per-packet one-way delay: 56.193 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 96.73 Mbit/s
95th percentile per-packet one-way delay: 56.193 ms
Loss rate: 2.82%
```

Run 2: Report of TCP BBR — Data Link



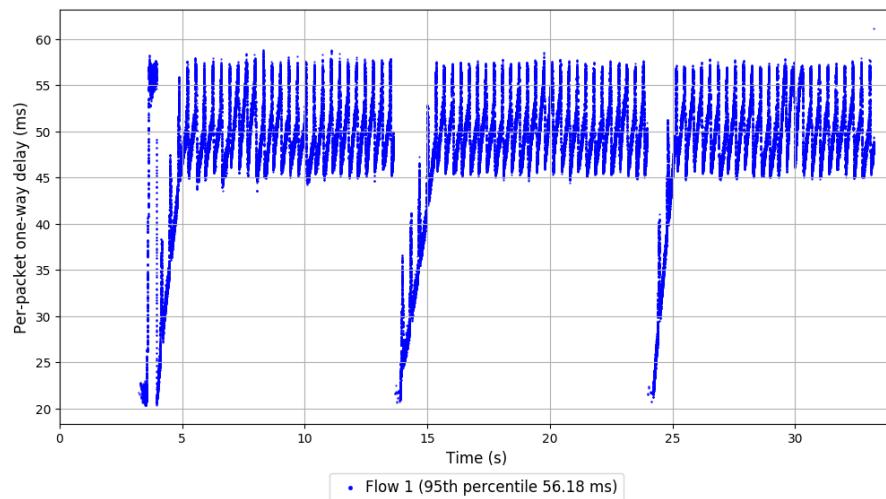
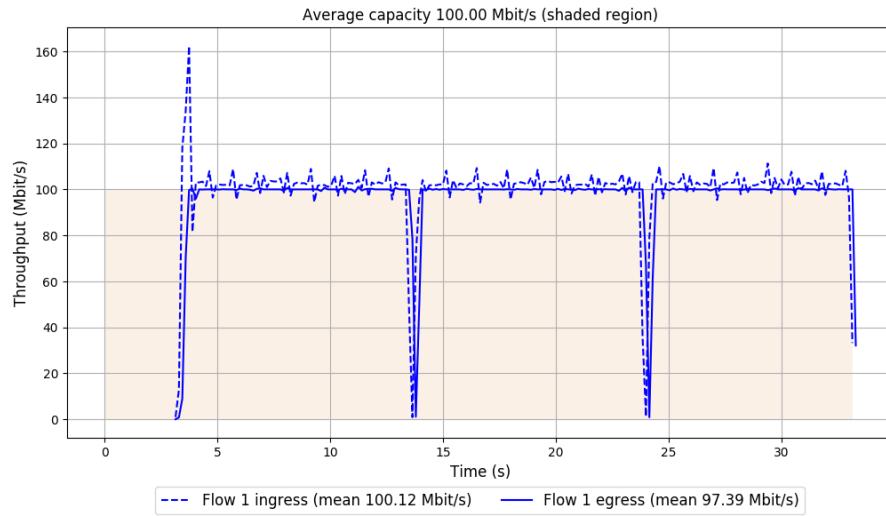
Run 3: Statistics of TCP BBR

Start at: 2019-10-29 01:43:24

End at: 2019-10-29 01:43:54

```
# Below is generated by plot.py at 2019-10-29 02:00:57
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 97.39 Mbit/s (97.4% utilization)
95th percentile per-packet one-way delay: 56.177 ms
Loss rate: 2.79%
-- Flow 1:
Average throughput: 97.39 Mbit/s
95th percentile per-packet one-way delay: 56.177 ms
Loss rate: 2.79%
```

Run 3: Report of TCP BBR — Data Link



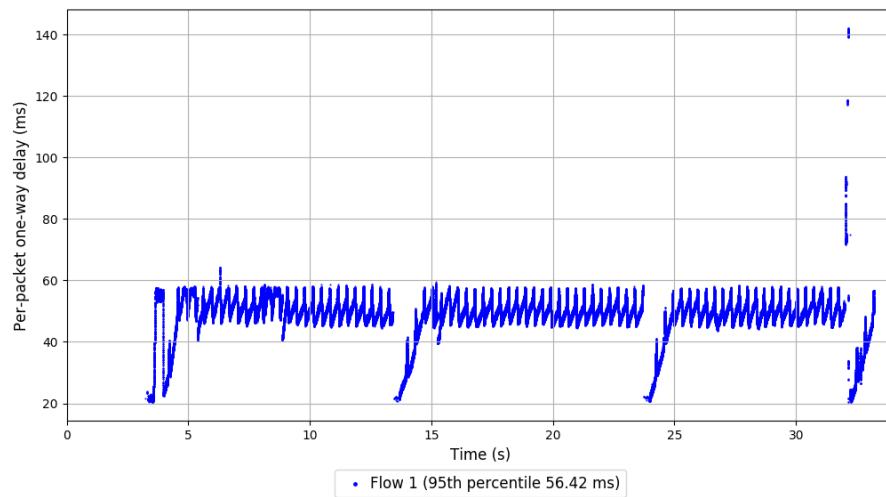
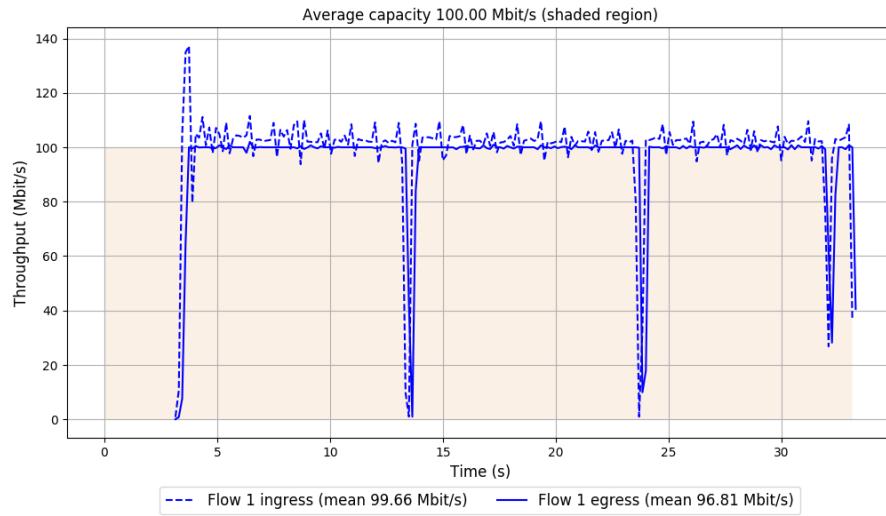
Run 4: Statistics of TCP BBR

Start at: 2019-10-29 01:49:17

End at: 2019-10-29 01:49:47

```
# Below is generated by plot.py at 2019-10-29 02:00:59
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 96.81 Mbit/s (96.8% utilization)
95th percentile per-packet one-way delay: 56.419 ms
Loss rate: 2.94%
-- Flow 1:
Average throughput: 96.81 Mbit/s
95th percentile per-packet one-way delay: 56.419 ms
Loss rate: 2.94%
```

Run 4: Report of TCP BBR — Data Link

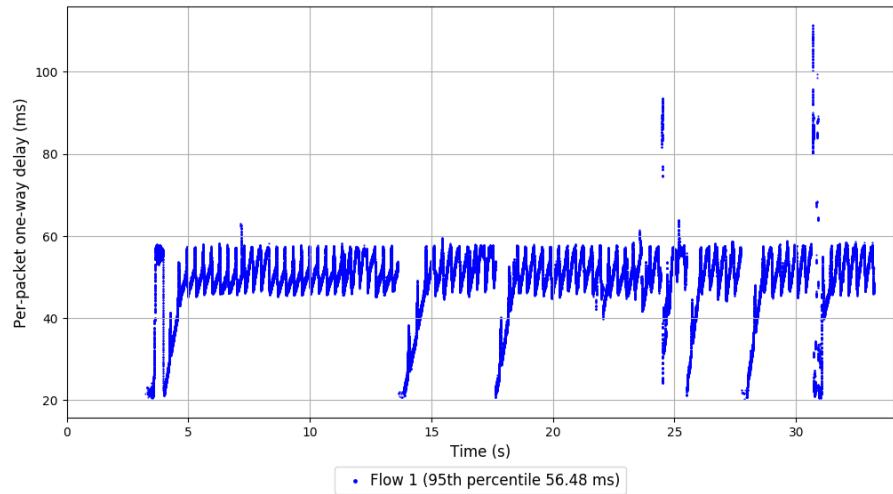
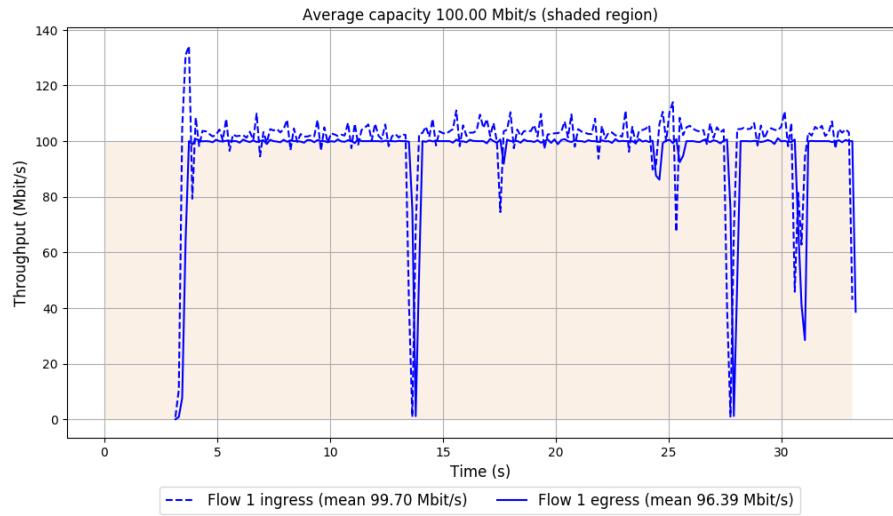


```
Run 5: Statistics of TCP BBR

Start at: 2019-10-29 01:55:11
End at: 2019-10-29 01:55:41

# Below is generated by plot.py at 2019-10-29 02:01:34
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 96.39 Mbit/s (96.4% utilization)
95th percentile per-packet one-way delay: 56.476 ms
Loss rate: 3.38%
-- Flow 1:
Average throughput: 96.39 Mbit/s
95th percentile per-packet one-way delay: 56.476 ms
Loss rate: 3.38%
```

Run 5: Report of TCP BBR — Data Link

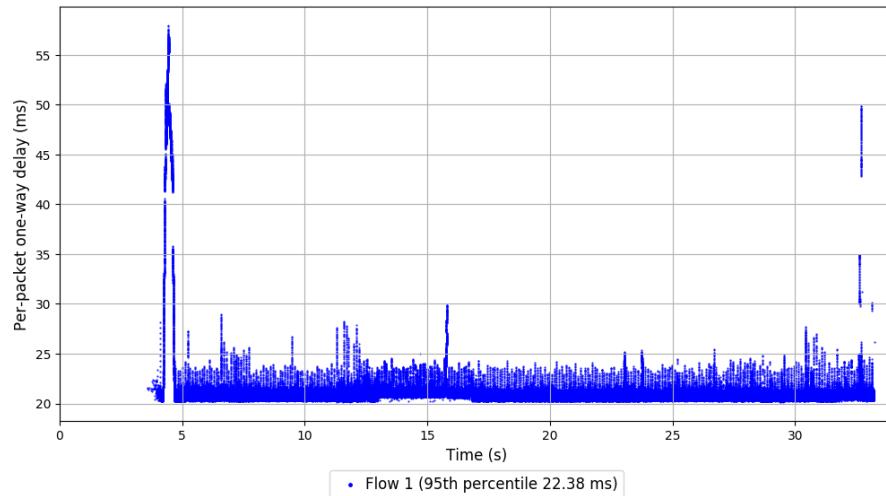
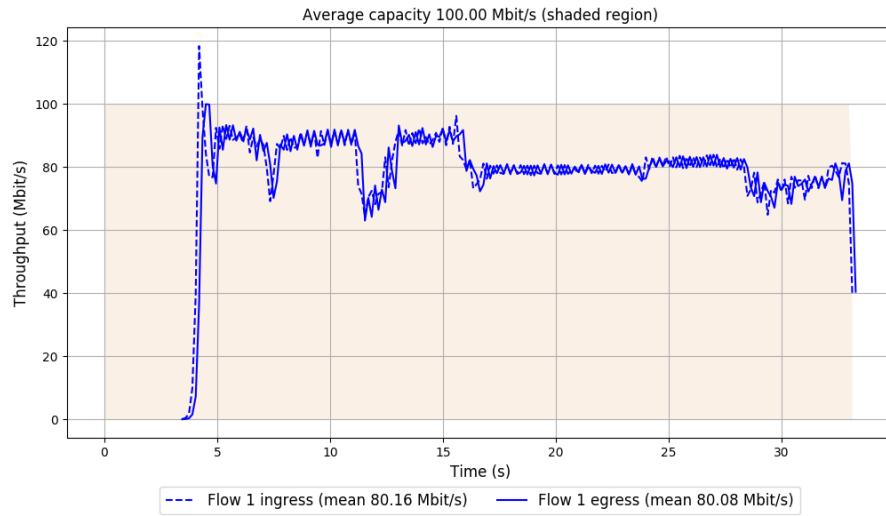


```
Run 1: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:26:20
End at: 2019-10-29 01:26:50

# Below is generated by plot.py at 2019-10-29 02:01:37
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 80.08 Mbit/s (80.1% utilization)
95th percentile per-packet one-way delay: 22.384 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 80.08 Mbit/s
95th percentile per-packet one-way delay: 22.384 ms
Loss rate: 0.15%
```

Run 1: Report of Eagle-expert-1 — Data Link



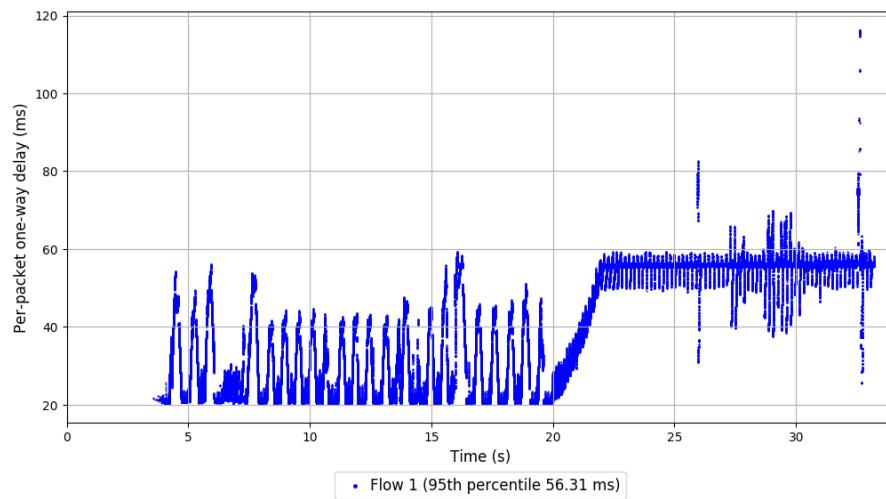
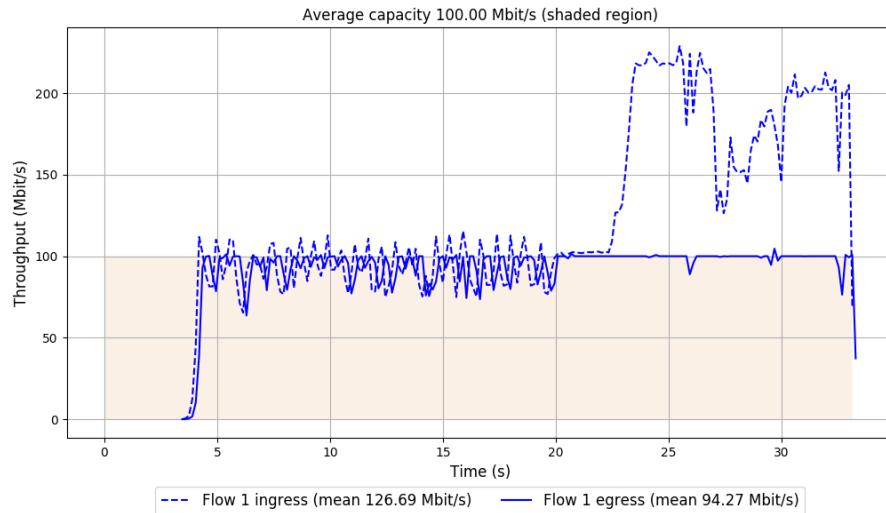
Run 2: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:32:15

End at: 2019-10-29 01:32:45

```
# Below is generated by plot.py at 2019-10-29 02:01:54
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 94.27 Mbit/s (94.3% utilization)
95th percentile per-packet one-way delay: 56.310 ms
Loss rate: 25.67%
-- Flow 1:
Average throughput: 94.27 Mbit/s
95th percentile per-packet one-way delay: 56.310 ms
Loss rate: 25.67%
```

Run 2: Report of Eagle-expert-1 — Data Link



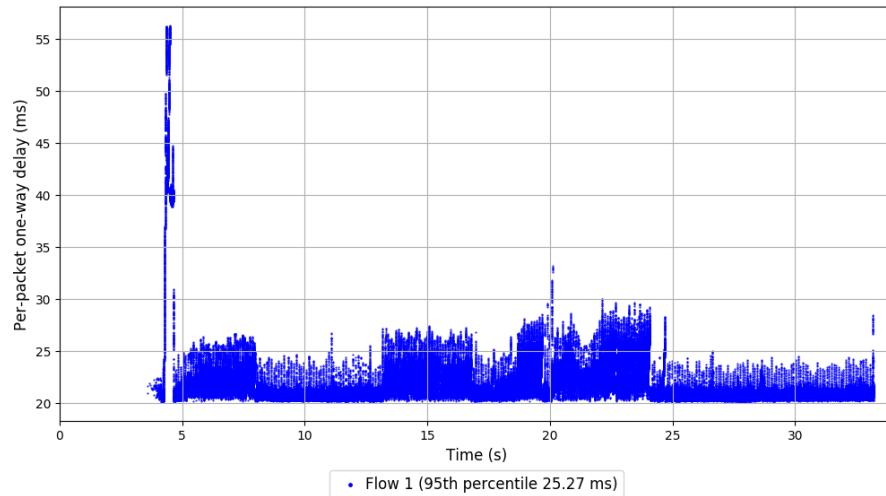
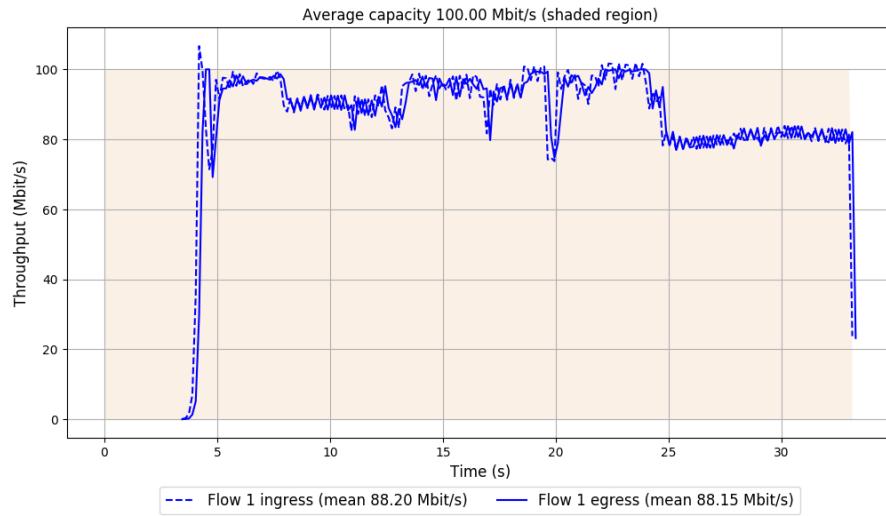
Run 3: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:38:10

End at: 2019-10-29 01:38:40

```
# Below is generated by plot.py at 2019-10-29 02:01:54
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 88.15 Mbit/s (88.2% utilization)
95th percentile per-packet one-way delay: 25.269 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 88.15 Mbit/s
95th percentile per-packet one-way delay: 25.269 ms
Loss rate: 0.11%
```

Run 3: Report of Eagle-expert-1 — Data Link

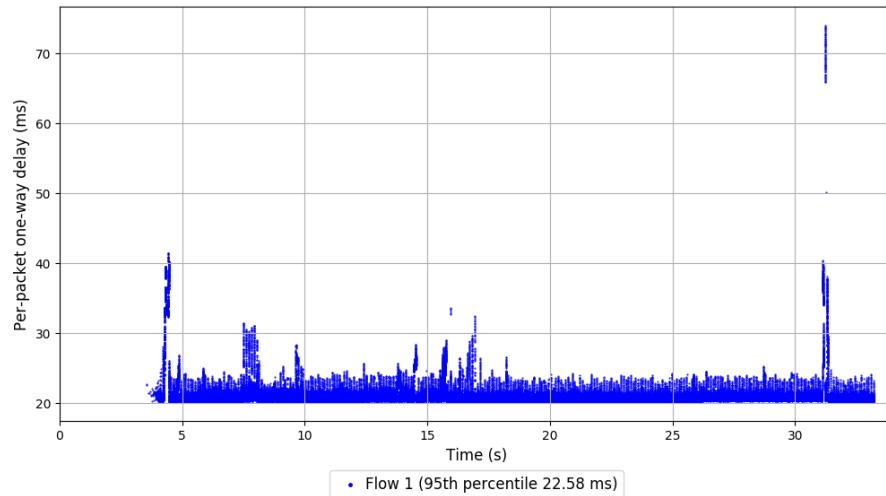
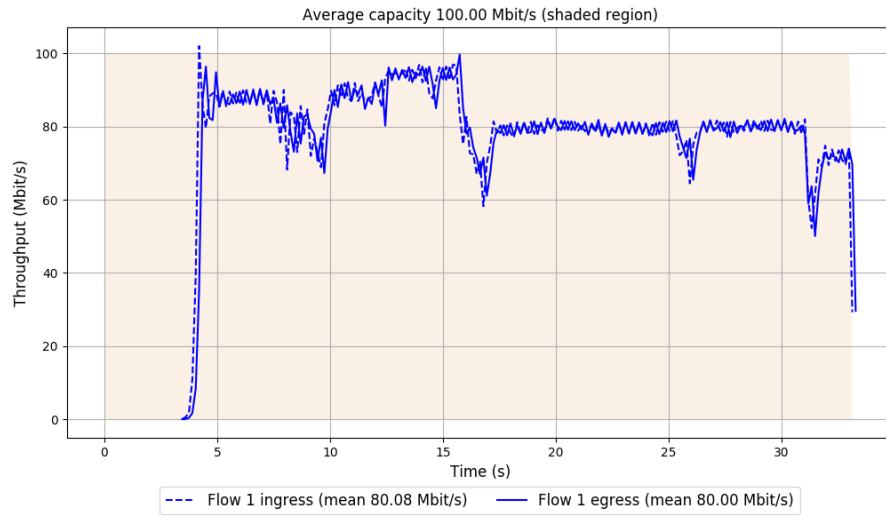


```
Run 4: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:44:03
End at: 2019-10-29 01:44:33

# Below is generated by plot.py at 2019-10-29 02:02:24
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 80.00 Mbit/s (80.0% utilization)
95th percentile per-packet one-way delay: 22.578 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 80.00 Mbit/s
95th percentile per-packet one-way delay: 22.578 ms
Loss rate: 0.23%
```

Run 4: Report of Eagle-expert-1 — Data Link

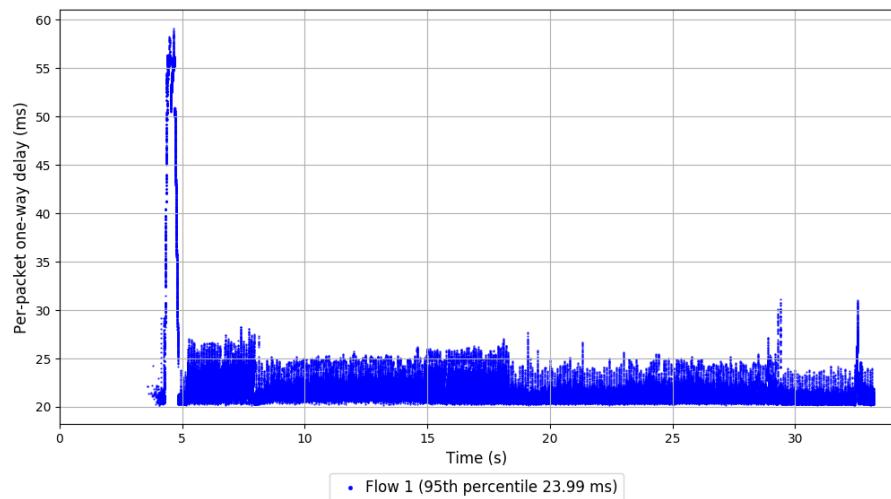
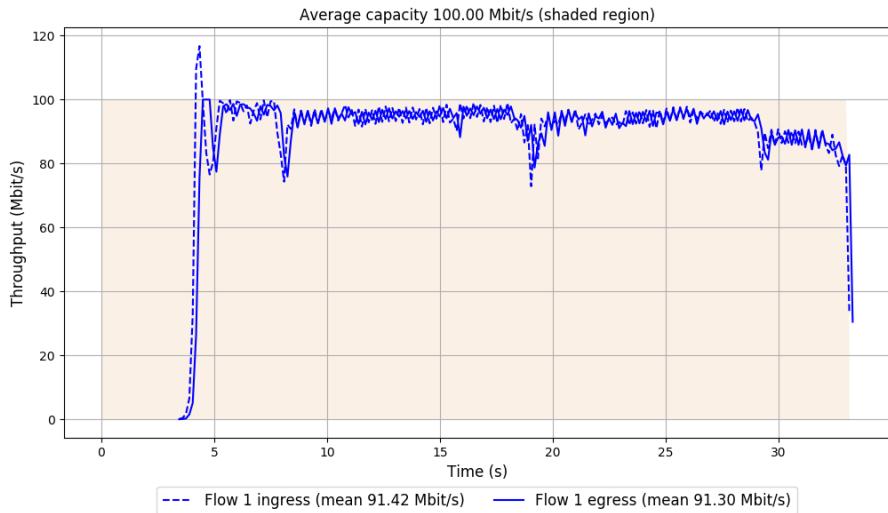


```
Run 5: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:49:57
End at: 2019-10-29 01:50:27

# Below is generated by plot.py at 2019-10-29 02:02:42
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 91.30 Mbit/s (91.3% utilization)
95th percentile per-packet one-way delay: 23.990 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 91.30 Mbit/s
95th percentile per-packet one-way delay: 23.990 ms
Loss rate: 0.20%
```

Run 5: Report of Eagle-expert-1 — Data Link

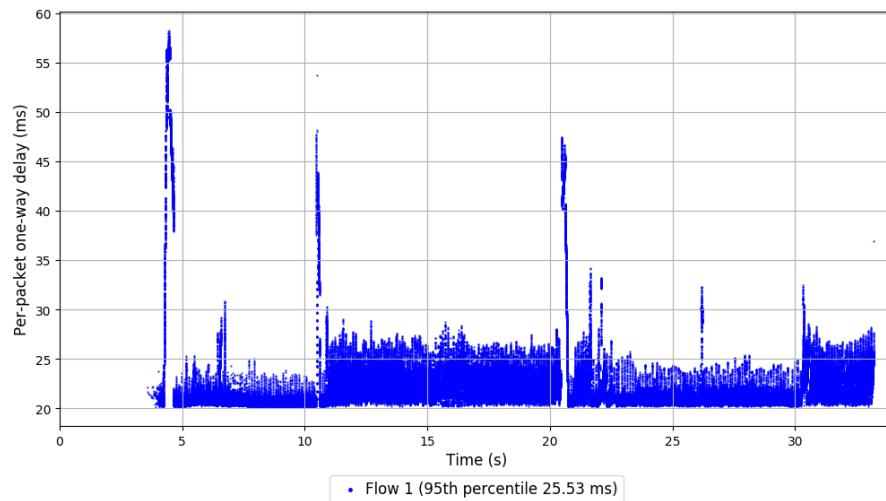
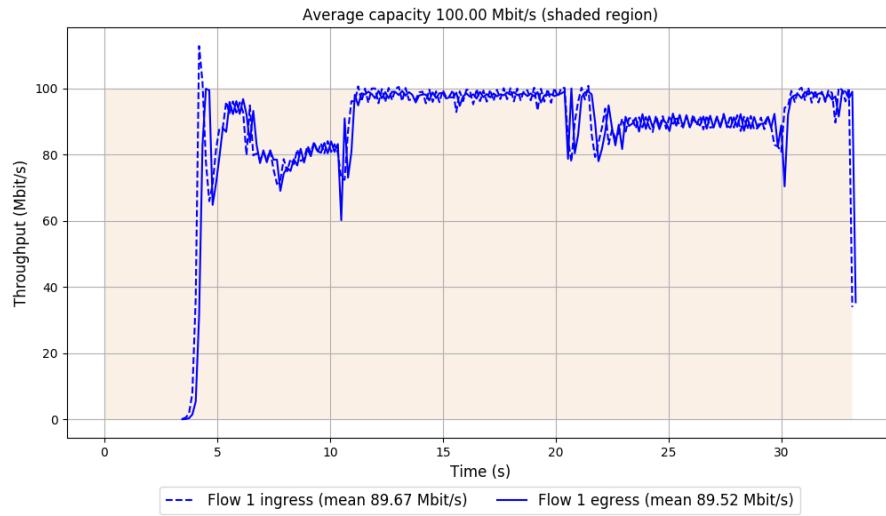


```
Run 1: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:26:59
End at: 2019-10-29 01:27:29

# Below is generated by plot.py at 2019-10-29 02:02:45
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 89.52 Mbit/s (89.5% utilization)
95th percentile per-packet one-way delay: 25.529 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 89.52 Mbit/s
95th percentile per-packet one-way delay: 25.529 ms
Loss rate: 0.21%
```

Run 1: Report of Eagle-expert-2 — Data Link



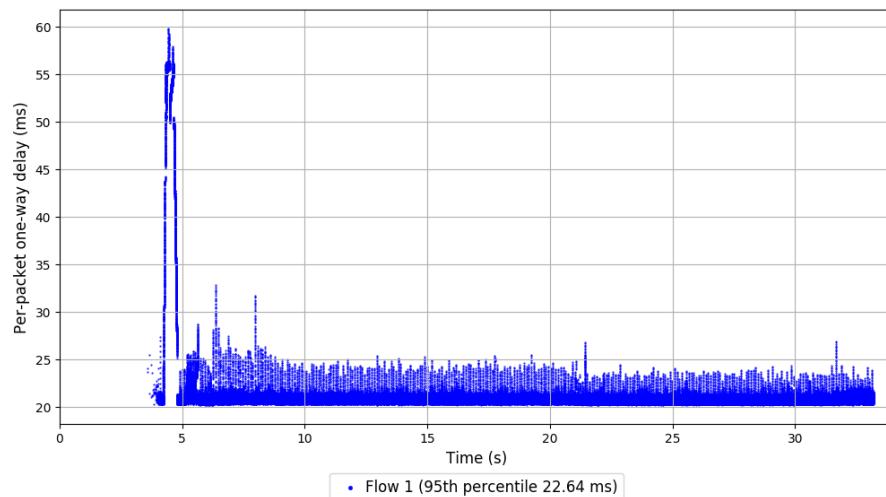
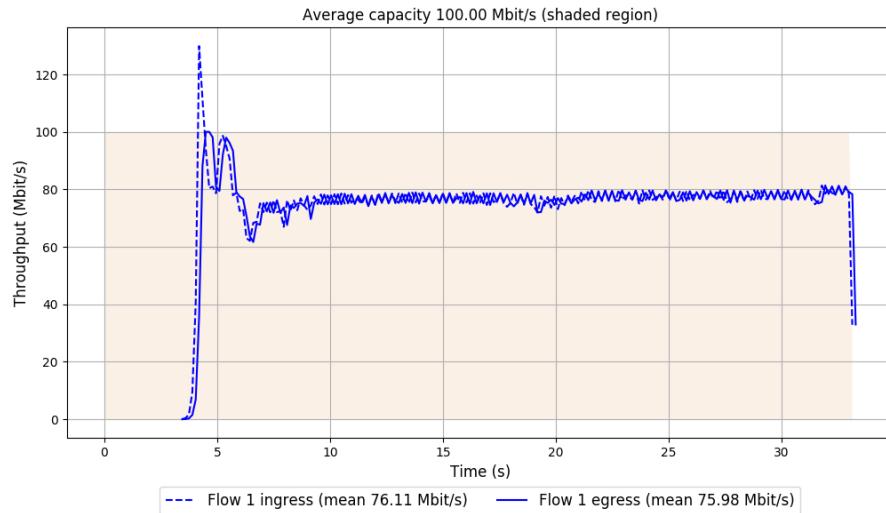
Run 2: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:32:56

End at: 2019-10-29 01:33:26

```
# Below is generated by plot.py at 2019-10-29 02:02:46
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 75.98 Mbit/s (76.0% utilization)
95th percentile per-packet one-way delay: 22.642 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 75.98 Mbit/s
95th percentile per-packet one-way delay: 22.642 ms
Loss rate: 0.25%
```

Run 2: Report of Eagle-expert-2 — Data Link

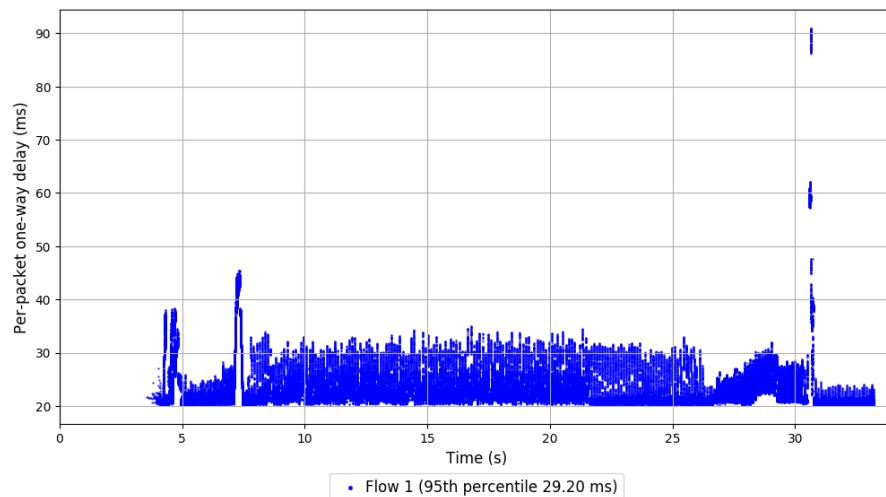
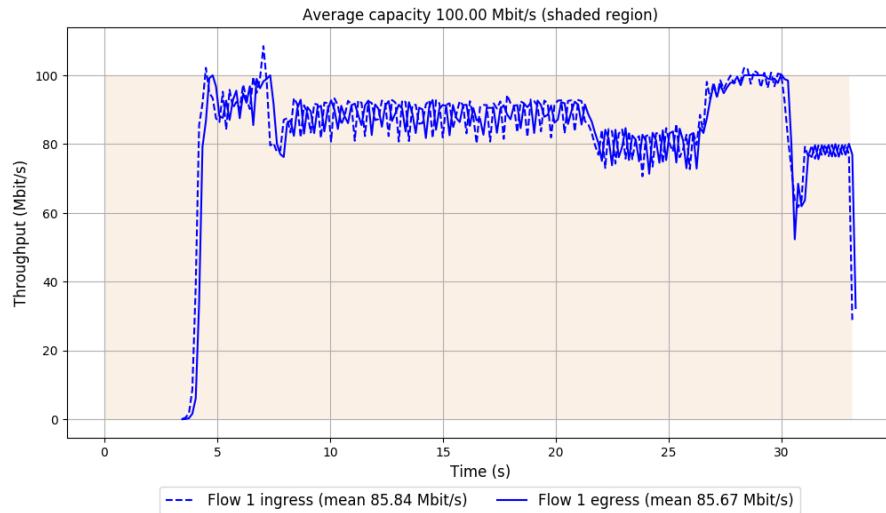


```
Run 3: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:38:49
End at: 2019-10-29 01:39:19

# Below is generated by plot.py at 2019-10-29 02:03:19
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 85.67 Mbit/s (85.7% utilization)
95th percentile per-packet one-way delay: 29.198 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 85.67 Mbit/s
95th percentile per-packet one-way delay: 29.198 ms
Loss rate: 0.28%
```

Run 3: Report of Eagle-expert-2 — Data Link



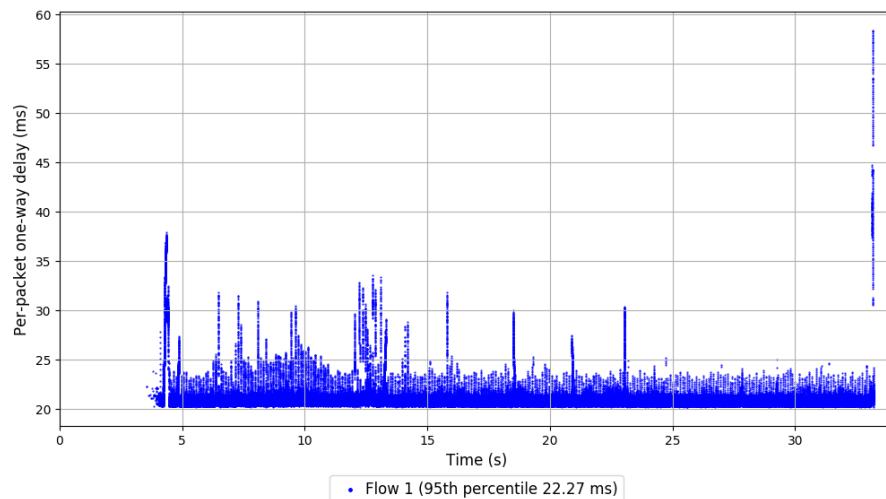
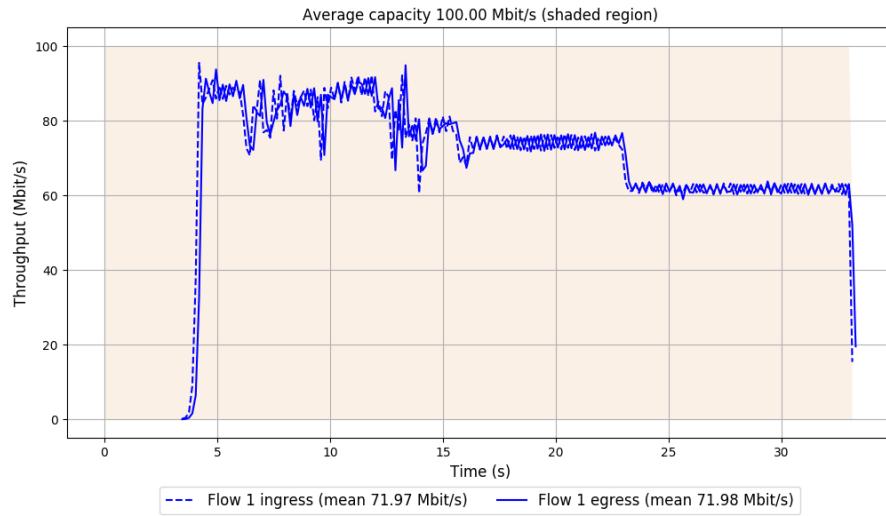
Run 4: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:44:43

End at: 2019-10-29 01:45:13

```
# Below is generated by plot.py at 2019-10-29 02:03:30
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 71.98 Mbit/s (72.0% utilization)
95th percentile per-packet one-way delay: 22.273 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 71.98 Mbit/s
95th percentile per-packet one-way delay: 22.273 ms
Loss rate: 0.13%
```

Run 4: Report of Eagle-expert-2 — Data Link

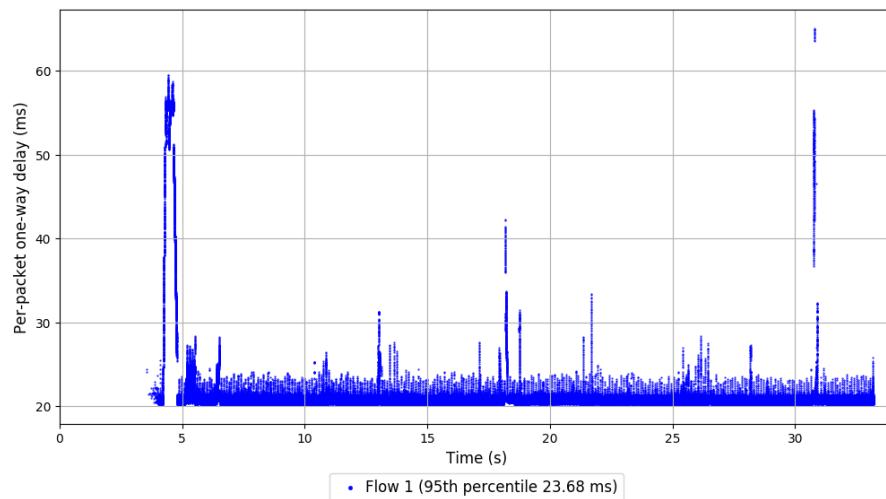
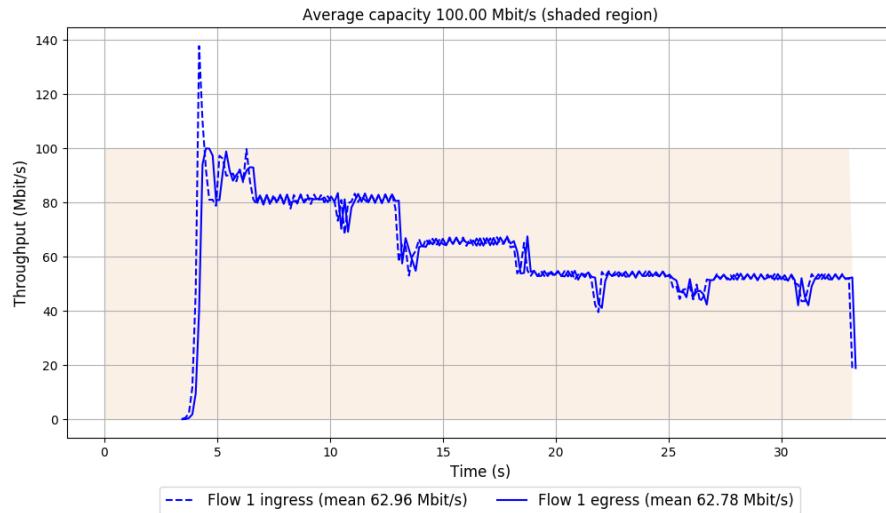


```
Run 5: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:50:37
End at: 2019-10-29 01:51:07

# Below is generated by plot.py at 2019-10-29 02:03:30
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 62.78 Mbit/s (62.8% utilization)
95th percentile per-packet one-way delay: 23.680 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 62.78 Mbit/s
95th percentile per-packet one-way delay: 23.680 ms
Loss rate: 0.36%
```

Run 5: Report of Eagle-expert-2 — Data Link

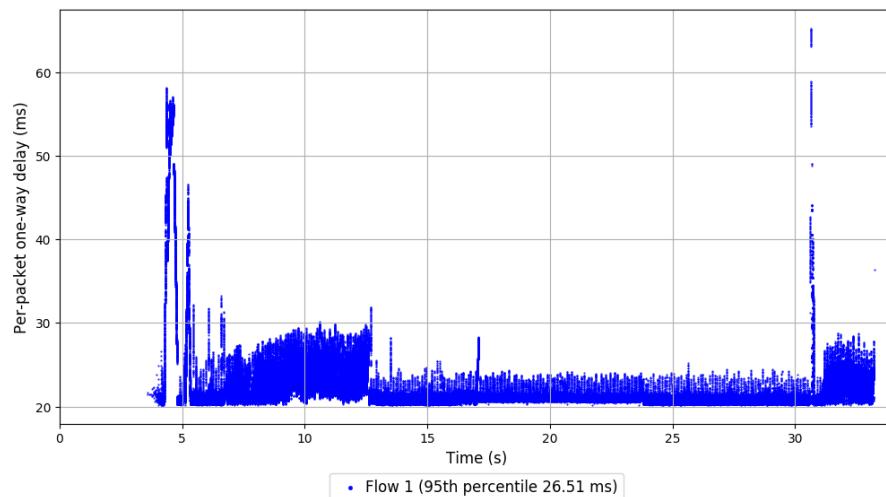
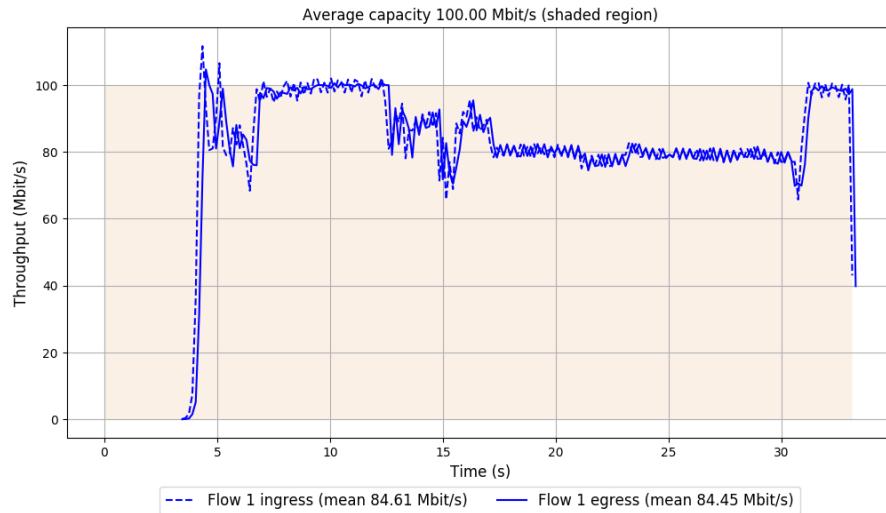


```
Run 1: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:27:39
End at: 2019-10-29 01:28:09

# Below is generated by plot.py at 2019-10-29 02:03:44
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 84.45 Mbit/s (84.4% utilization)
95th percentile per-packet one-way delay: 26.514 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 84.45 Mbit/s
95th percentile per-packet one-way delay: 26.514 ms
Loss rate: 0.24%
```

Run 1: Report of Eagle-expert-3 — Data Link



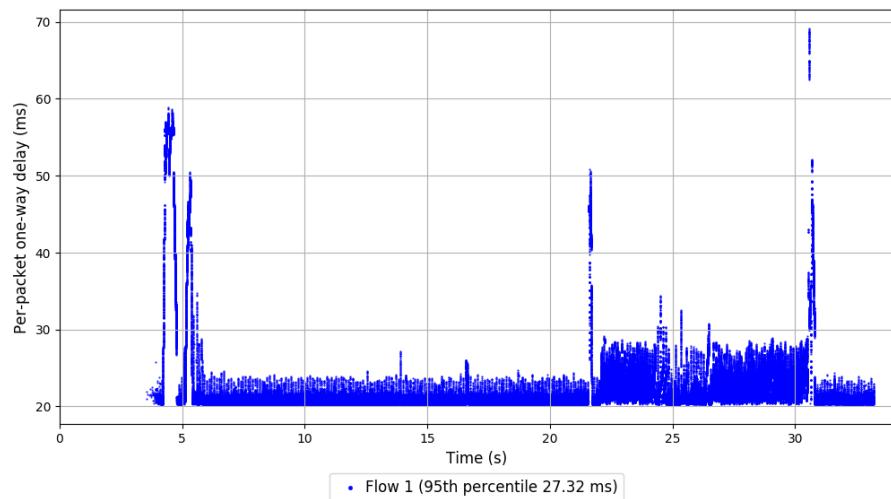
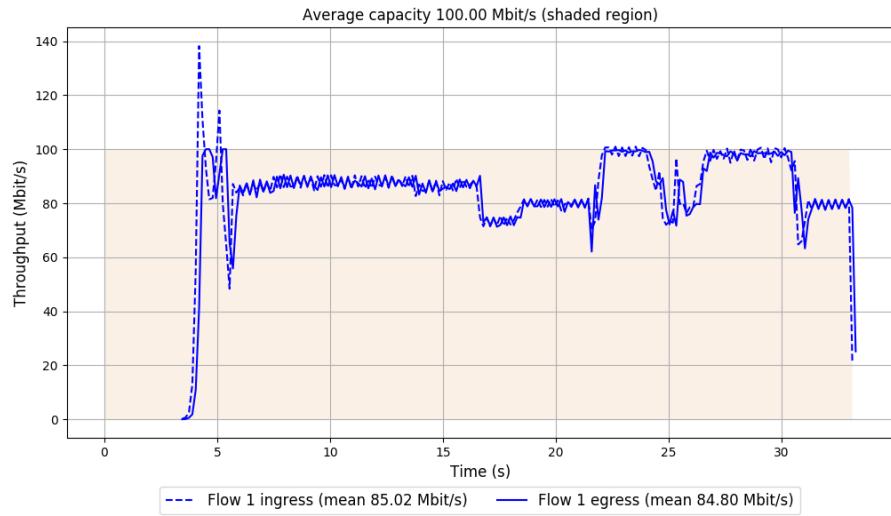
Run 2: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:33:35

End at: 2019-10-29 01:34:05

```
# Below is generated by plot.py at 2019-10-29 02:04:04
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 84.80 Mbit/s (84.8% utilization)
95th percentile per-packet one-way delay: 27.315 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 84.80 Mbit/s
95th percentile per-packet one-way delay: 27.315 ms
Loss rate: 0.38%
```

Run 2: Report of Eagle-expert-3 — Data Link



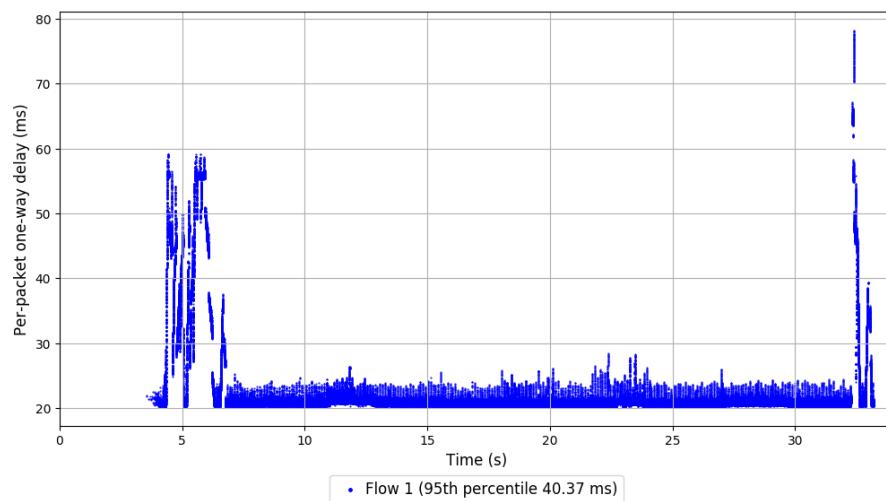
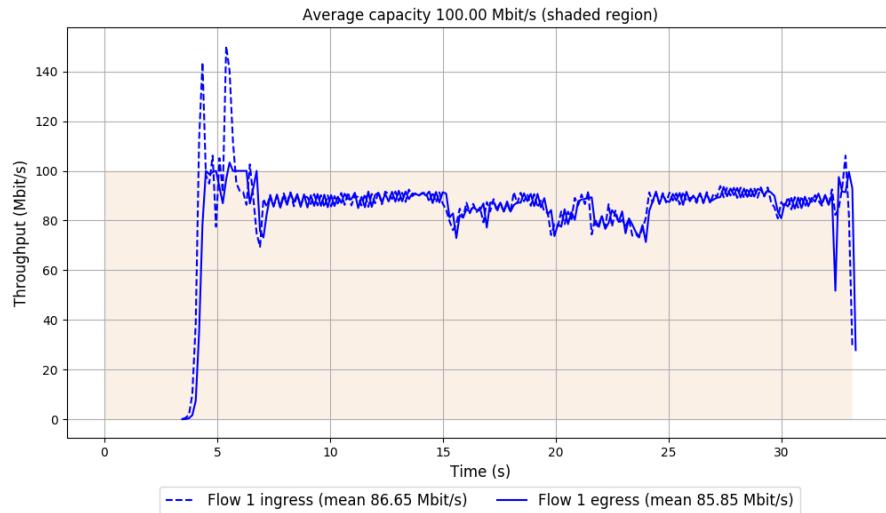
Run 3: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:39:29

End at: 2019-10-29 01:39:59

```
# Below is generated by plot.py at 2019-10-29 02:04:18
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 85.85 Mbit/s (85.8% utilization)
95th percentile per-packet one-way delay: 40.366 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 85.85 Mbit/s
95th percentile per-packet one-way delay: 40.366 ms
Loss rate: 1.01%
```

Run 3: Report of Eagle-expert-3 — Data Link



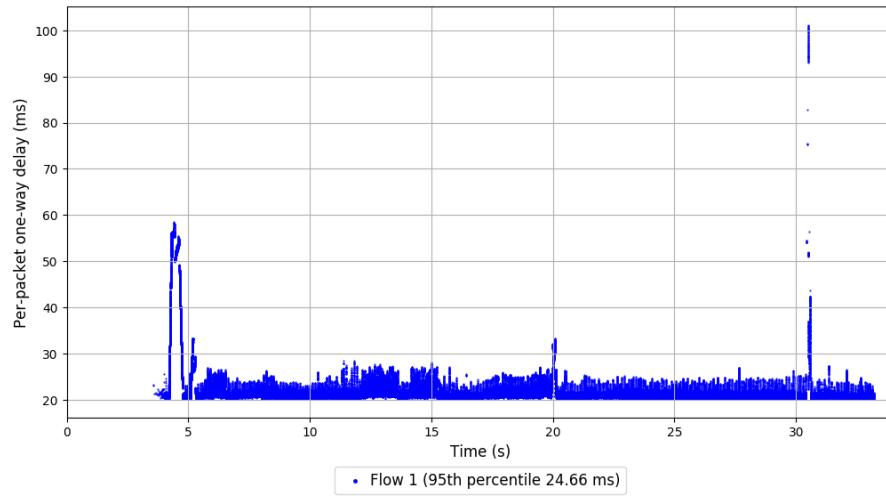
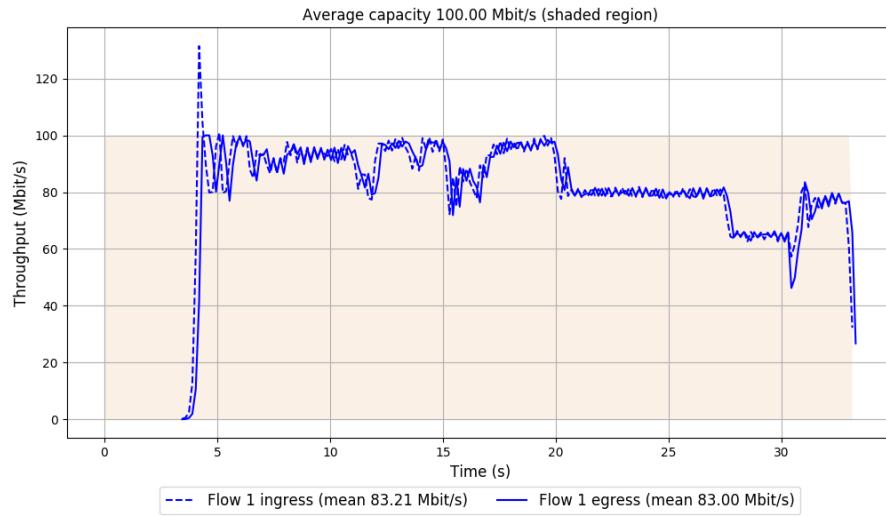
Run 4: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:45:22

End at: 2019-10-29 01:45:52

```
# Below is generated by plot.py at 2019-10-29 02:04:24
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 83.00 Mbit/s (83.0% utilization)
95th percentile per-packet one-way delay: 24.662 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 83.00 Mbit/s
95th percentile per-packet one-way delay: 24.662 ms
Loss rate: 0.35%
```

Run 4: Report of Eagle-expert-3 — Data Link

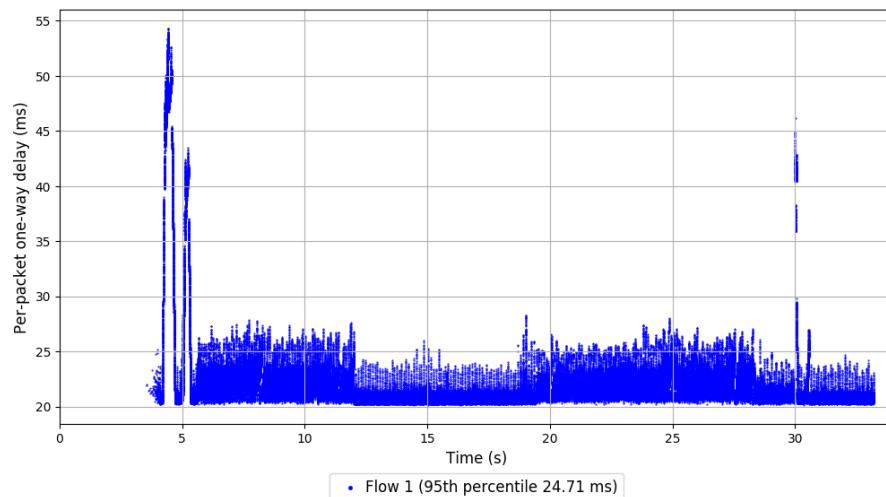
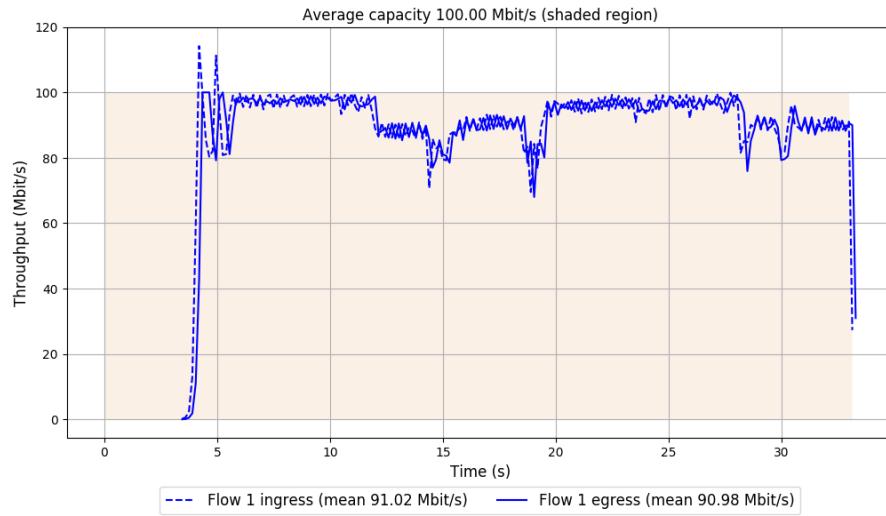


```
Run 5: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:51:15
End at: 2019-10-29 01:51:45

# Below is generated by plot.py at 2019-10-29 02:04:29
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 90.98 Mbit/s (91.0% utilization)
95th percentile per-packet one-way delay: 24.707 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 90.98 Mbit/s
95th percentile per-packet one-way delay: 24.707 ms
Loss rate: 0.12%
```

Run 5: Report of Eagle-expert-3 — Data Link

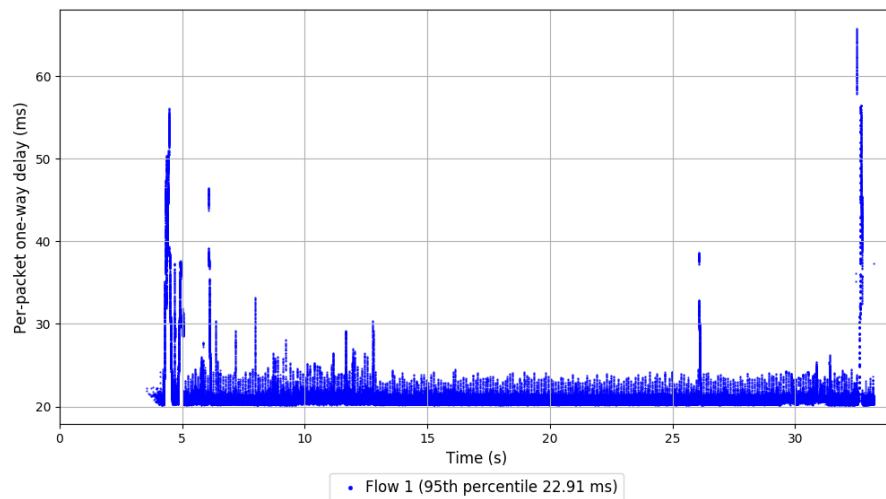
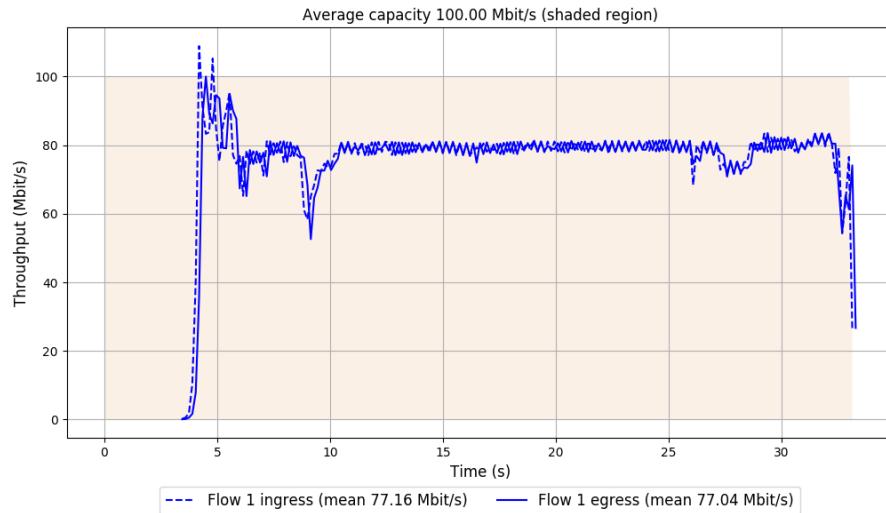


```
Run 1: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:28:19
End at: 2019-10-29 01:28:49

# Below is generated by plot.py at 2019-10-29 02:04:54
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 77.04 Mbit/s (77.0% utilization)
95th percentile per-packet one-way delay: 22.907 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 77.04 Mbit/s
95th percentile per-packet one-way delay: 22.907 ms
Loss rate: 0.23%
```

Run 1: Report of Eagle-expert-4 — Data Link

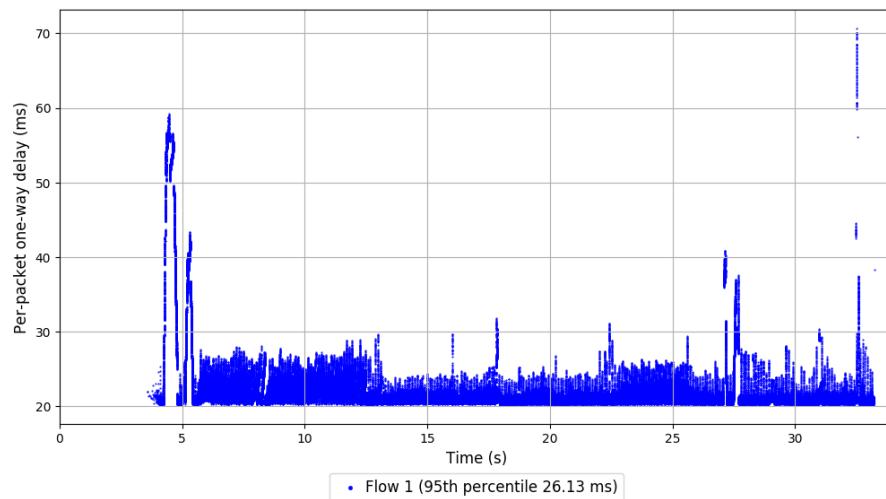
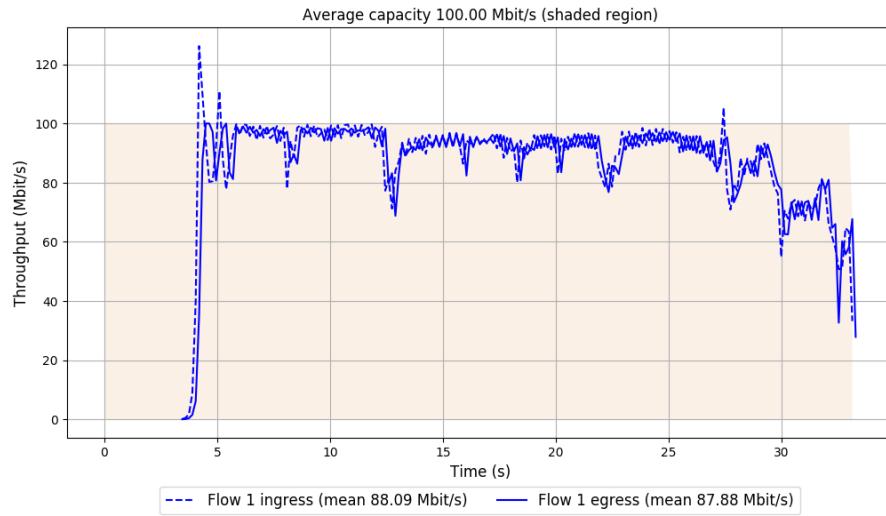


```
Run 2: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:34:14
End at: 2019-10-29 01:34:44

# Below is generated by plot.py at 2019-10-29 02:05:14
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 87.88 Mbit/s (87.9% utilization)
95th percentile per-packet one-way delay: 26.127 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 87.88 Mbit/s
95th percentile per-packet one-way delay: 26.127 ms
Loss rate: 0.26%
```

Run 2: Report of Eagle-expert-4 — Data Link

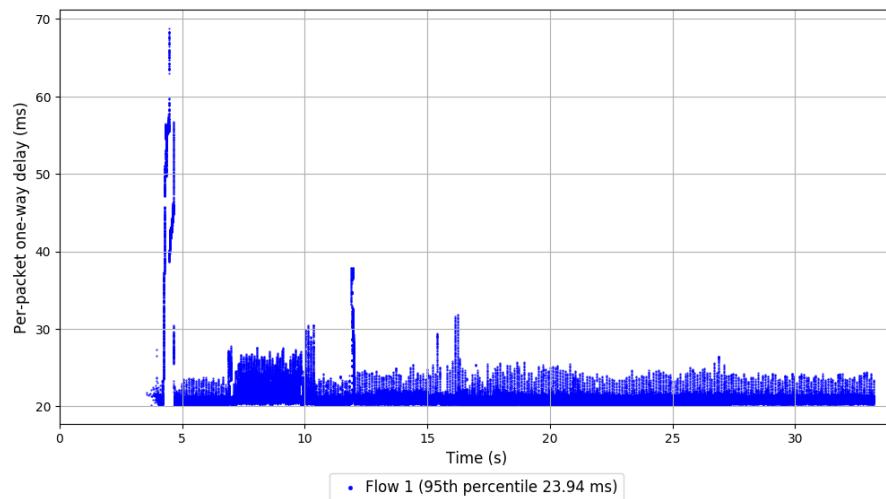
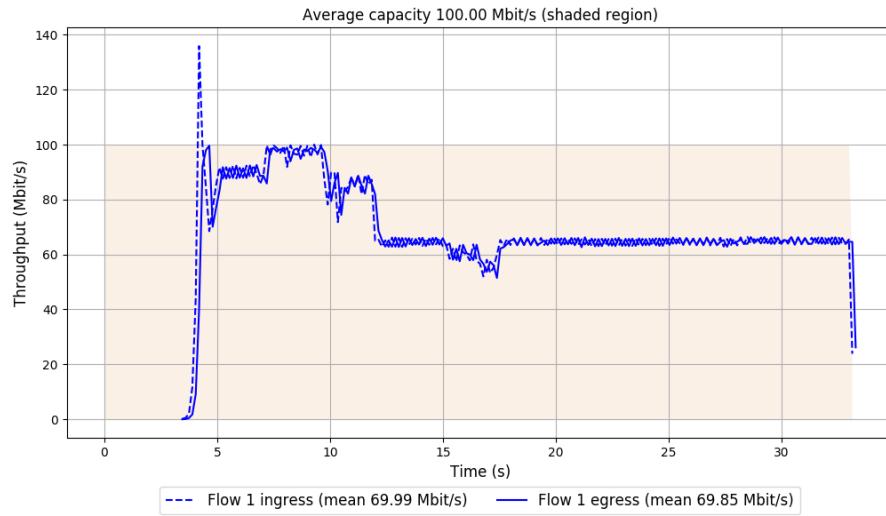


```
Run 3: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:40:08
End at: 2019-10-29 01:40:38

# Below is generated by plot.py at 2019-10-29 02:05:16
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 69.85 Mbit/s (69.8% utilization)
95th percentile per-packet one-way delay: 23.940 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 69.85 Mbit/s
95th percentile per-packet one-way delay: 23.940 ms
Loss rate: 0.26%
```

Run 3: Report of Eagle-expert-4 — Data Link



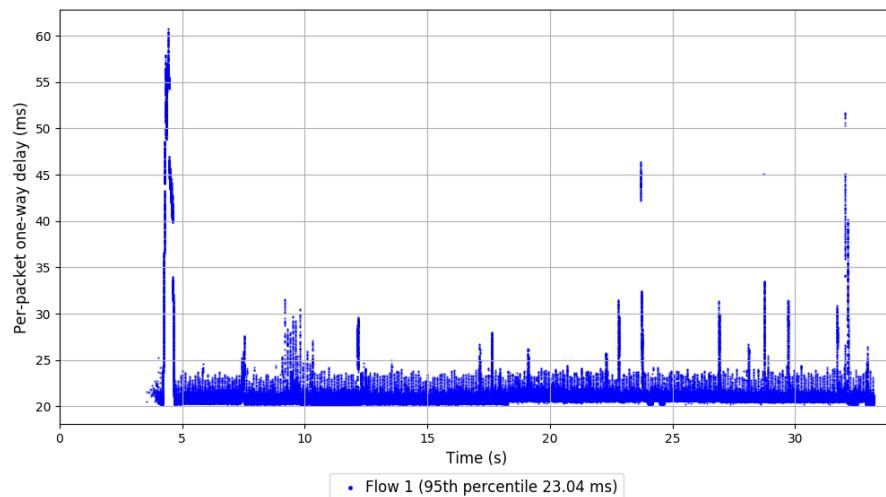
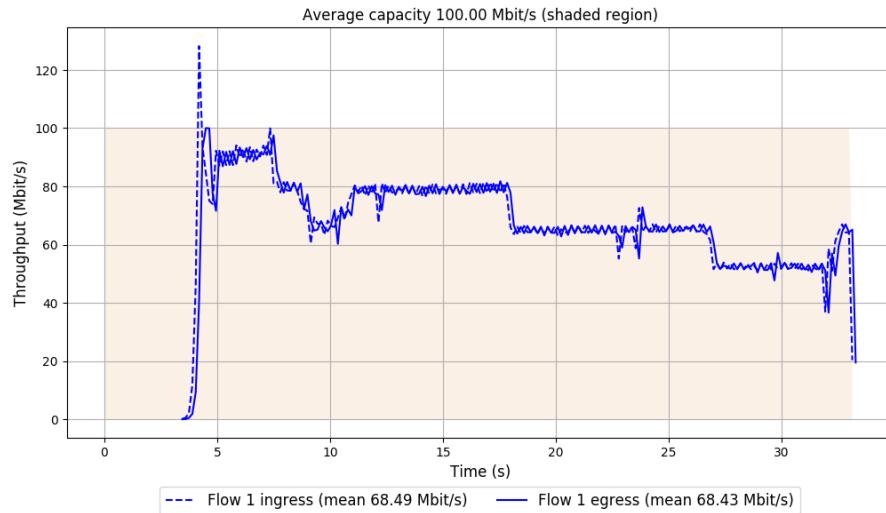
Run 4: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:46:01

End at: 2019-10-29 01:46:31

```
# Below is generated by plot.py at 2019-10-29 02:05:16
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 68.43 Mbit/s (68.4% utilization)
95th percentile per-packet one-way delay: 23.044 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 68.43 Mbit/s
95th percentile per-packet one-way delay: 23.044 ms
Loss rate: 0.18%
```

Run 4: Report of Eagle-expert-4 — Data Link

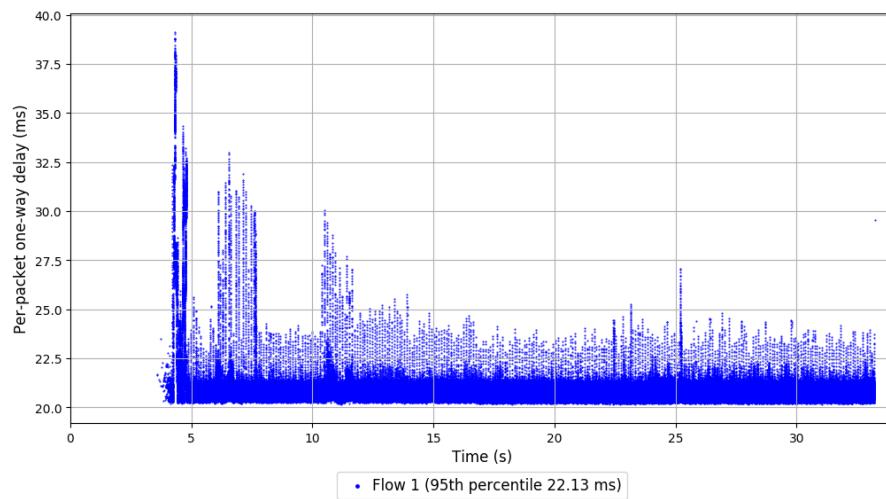
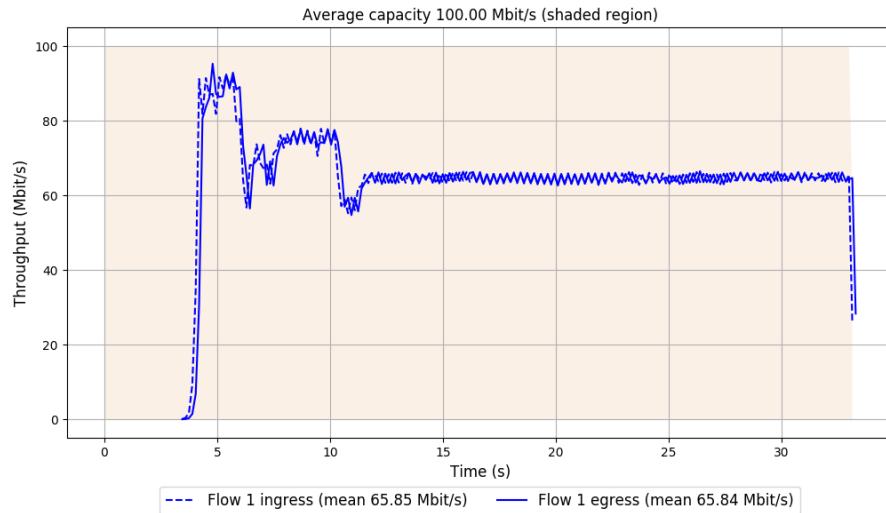


```
Run 5: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:51:55
End at: 2019-10-29 01:52:25

# Below is generated by plot.py at 2019-10-29 02:05:47
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 65.84 Mbit/s (65.8% utilization)
95th percentile per-packet one-way delay: 22.131 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 65.84 Mbit/s
95th percentile per-packet one-way delay: 22.131 ms
Loss rate: 0.06%
```

Run 5: Report of Eagle-expert-4 — Data Link

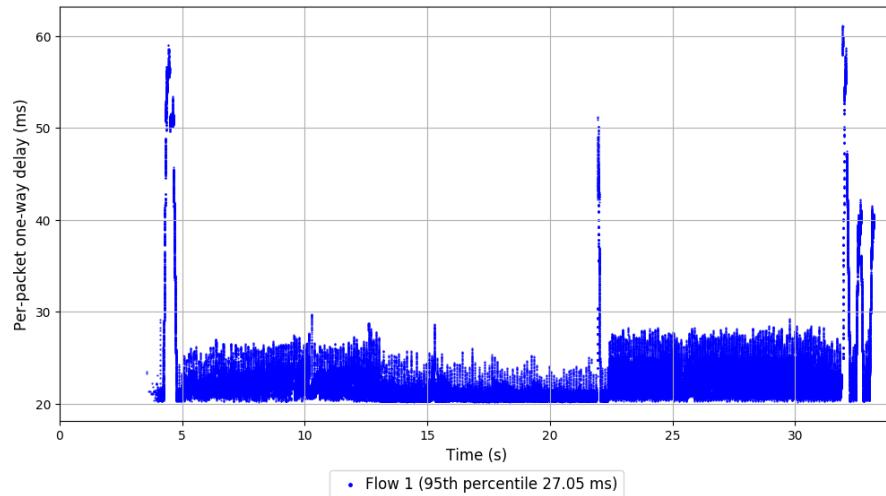
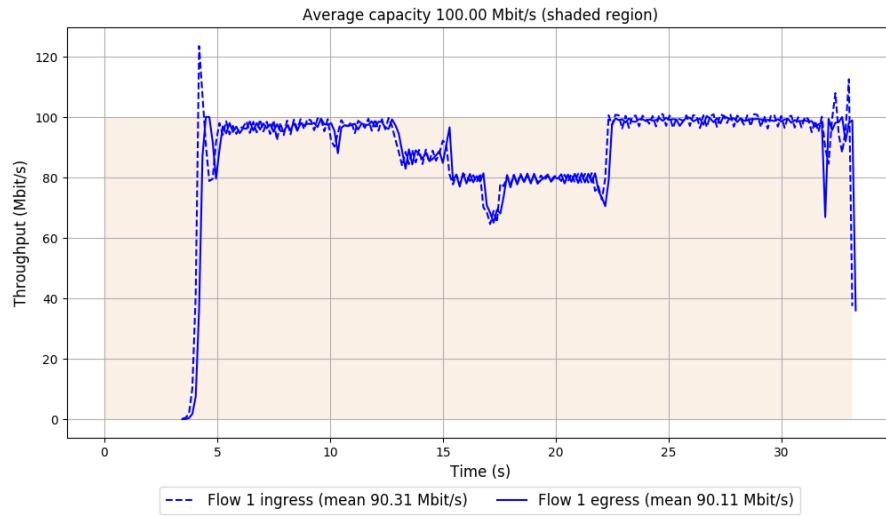


```
Run 1: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:28:58
End at: 2019-10-29 01:29:28

# Below is generated by plot.py at 2019-10-29 02:06:13
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 90.11 Mbit/s (90.1% utilization)
95th percentile per-packet one-way delay: 27.047 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 90.11 Mbit/s
95th percentile per-packet one-way delay: 27.047 ms
Loss rate: 0.34%
```

Run 1: Report of Eagle-expert-5 — Data Link



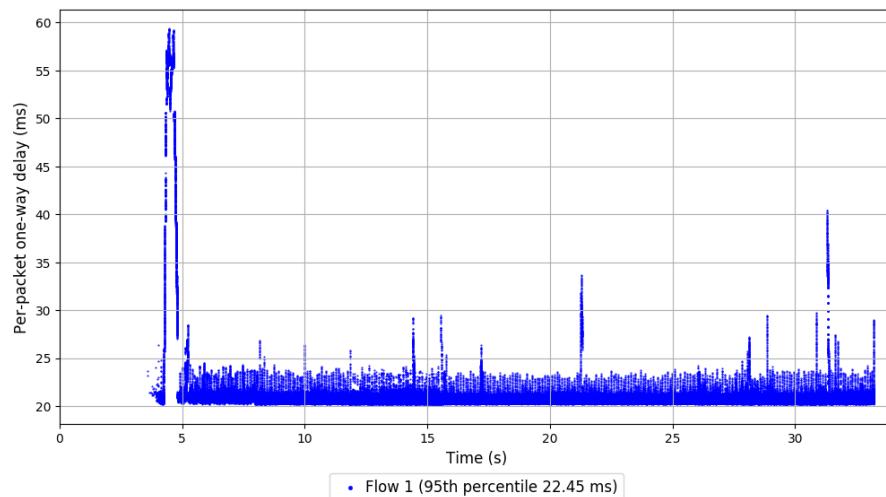
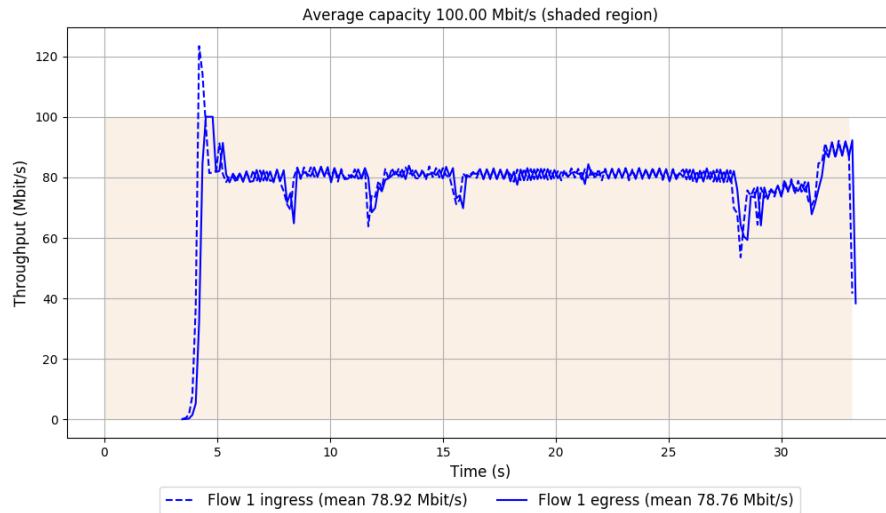
Run 2: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:34:54

End at: 2019-10-29 01:35:24

```
# Below is generated by plot.py at 2019-10-29 02:06:13
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 78.76 Mbit/s (78.8% utilization)
95th percentile per-packet one-way delay: 22.450 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 78.76 Mbit/s
95th percentile per-packet one-way delay: 22.450 ms
Loss rate: 0.28%
```

Run 2: Report of Eagle-expert-5 — Data Link



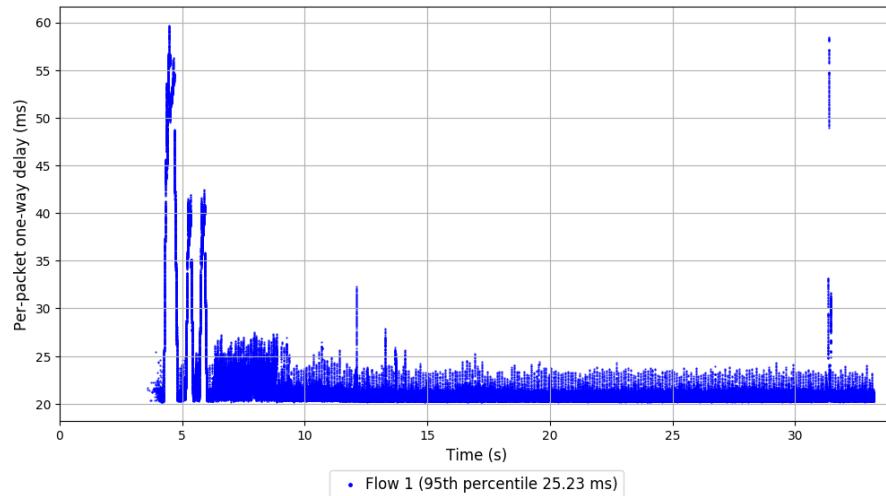
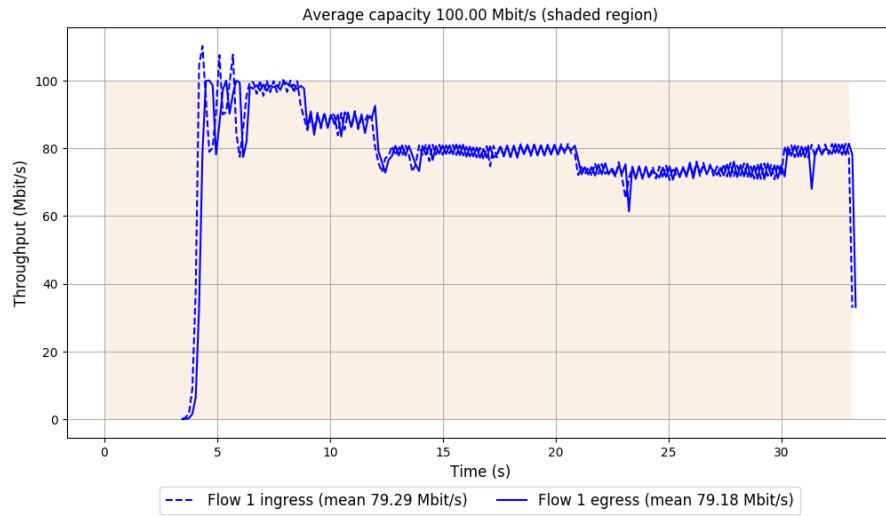
Run 3: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:40:47

End at: 2019-10-29 01:41:17

```
# Below is generated by plot.py at 2019-10-29 02:06:13
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 79.18 Mbit/s (79.2% utilization)
95th percentile per-packet one-way delay: 25.229 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 79.18 Mbit/s
95th percentile per-packet one-way delay: 25.229 ms
Loss rate: 0.21%
```

Run 3: Report of Eagle-expert-5 — Data Link



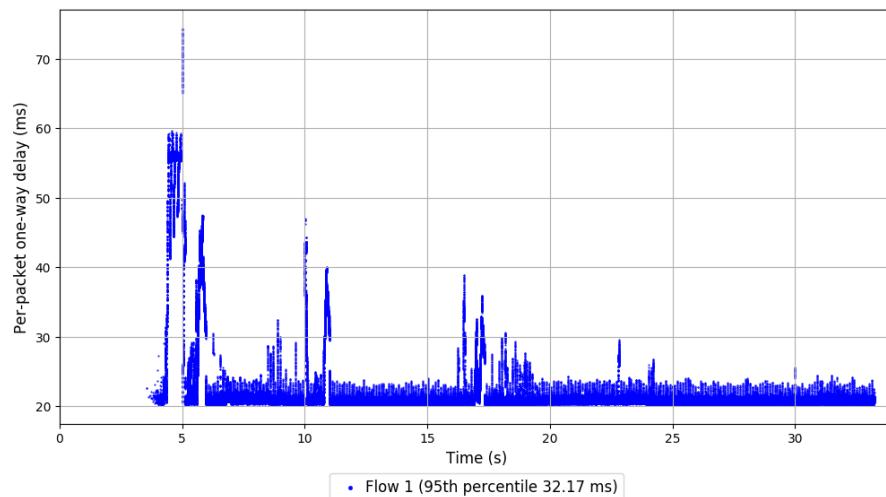
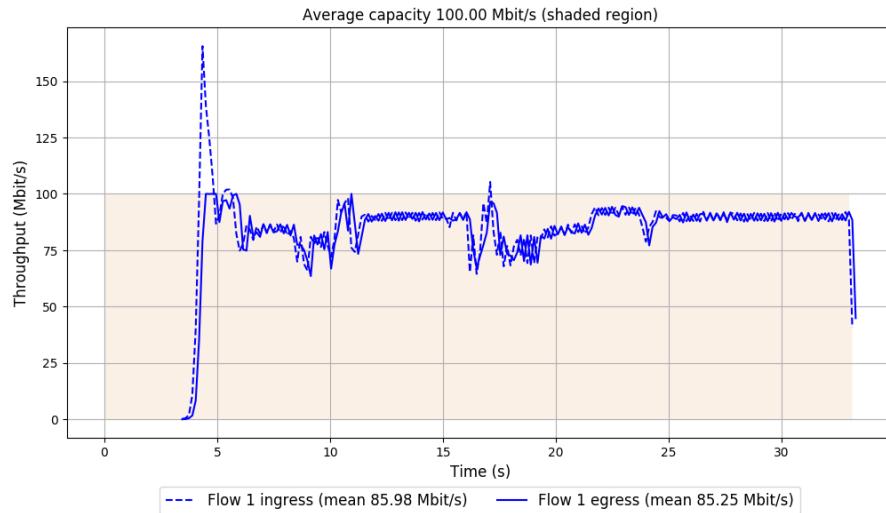
Run 4: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:46:40

End at: 2019-10-29 01:47:10

```
# Below is generated by plot.py at 2019-10-29 02:06:36
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 85.25 Mbit/s (85.2% utilization)
95th percentile per-packet one-way delay: 32.171 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 85.25 Mbit/s
95th percentile per-packet one-way delay: 32.171 ms
Loss rate: 0.93%
```

Run 4: Report of Eagle-expert-5 — Data Link

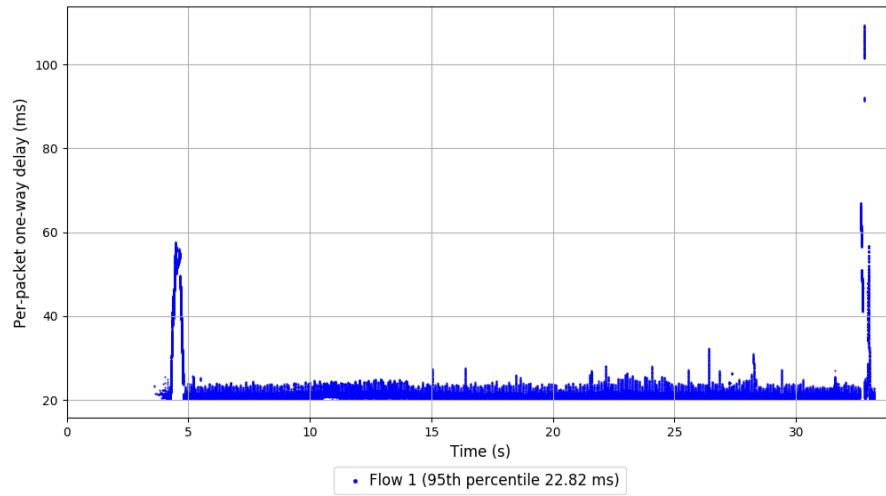
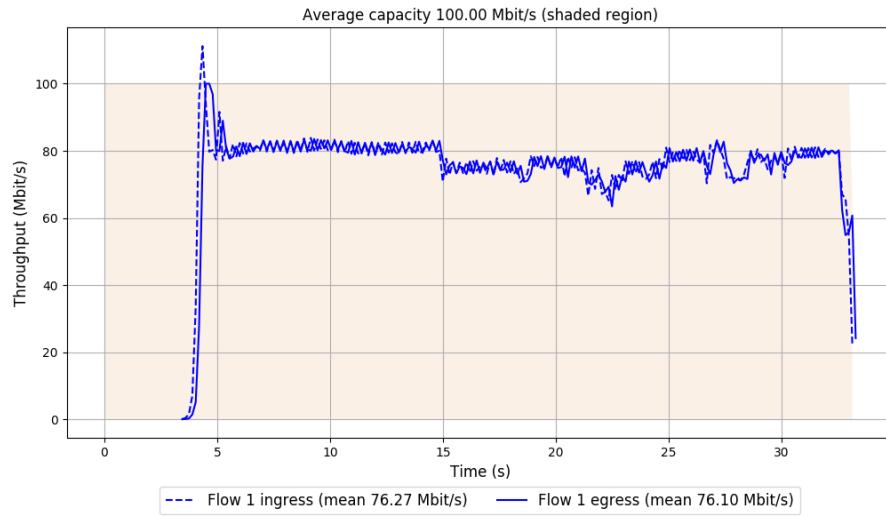


```
Run 5: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:52:33
End at: 2019-10-29 01:53:03

# Below is generated by plot.py at 2019-10-29 02:06:56
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 76.10 Mbit/s (76.1% utilization)
95th percentile per-packet one-way delay: 22.821 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 76.10 Mbit/s
95th percentile per-packet one-way delay: 22.821 ms
Loss rate: 0.31%
```

Run 5: Report of Eagle-expert-5 — Data Link

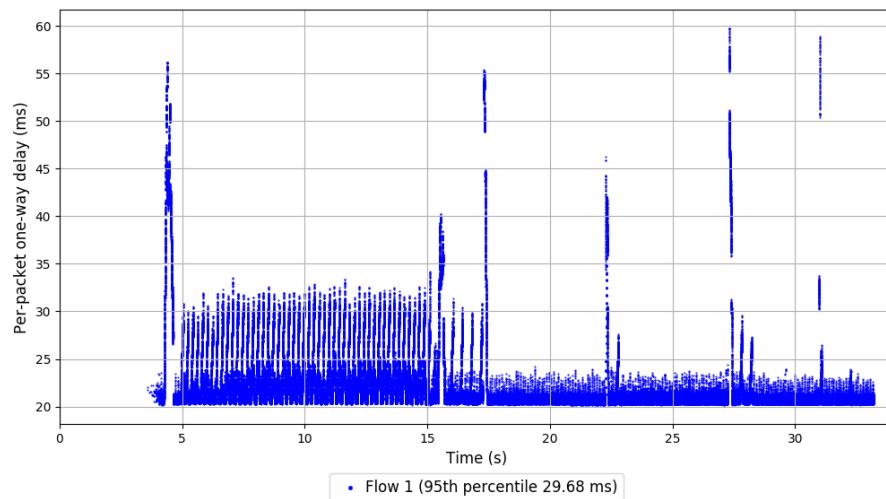
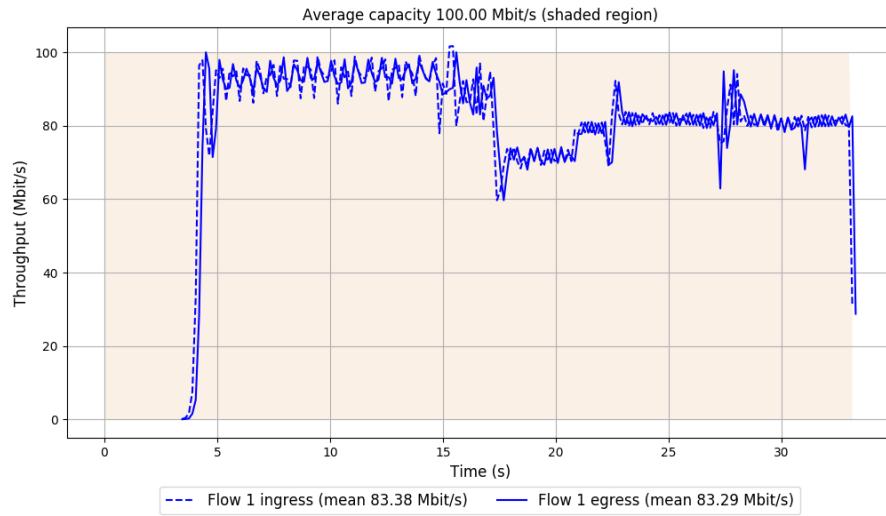


```
Run 1: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:29:38
End at: 2019-10-29 01:30:08

# Below is generated by plot.py at 2019-10-29 02:07:03
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 83.29 Mbit/s (83.3% utilization)
95th percentile per-packet one-way delay: 29.678 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 83.29 Mbit/s
95th percentile per-packet one-way delay: 29.678 ms
Loss rate: 0.18%
```

Run 1: Report of Eagle-expert-6 — Data Link

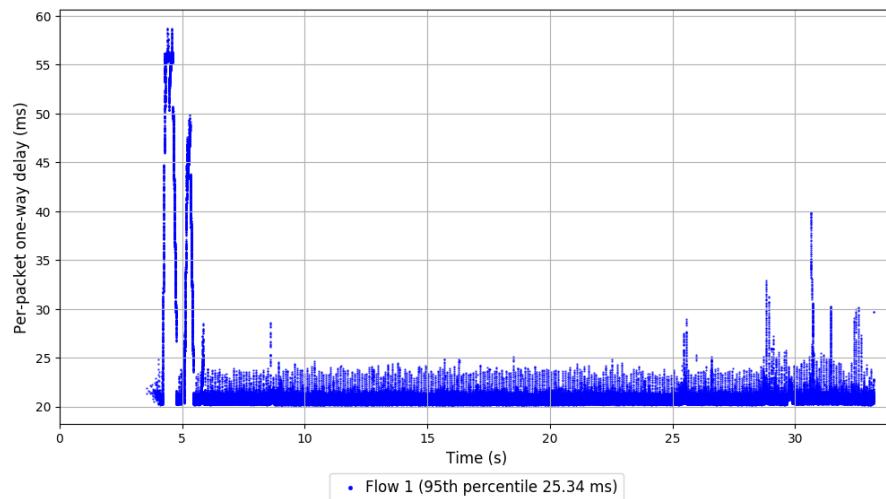
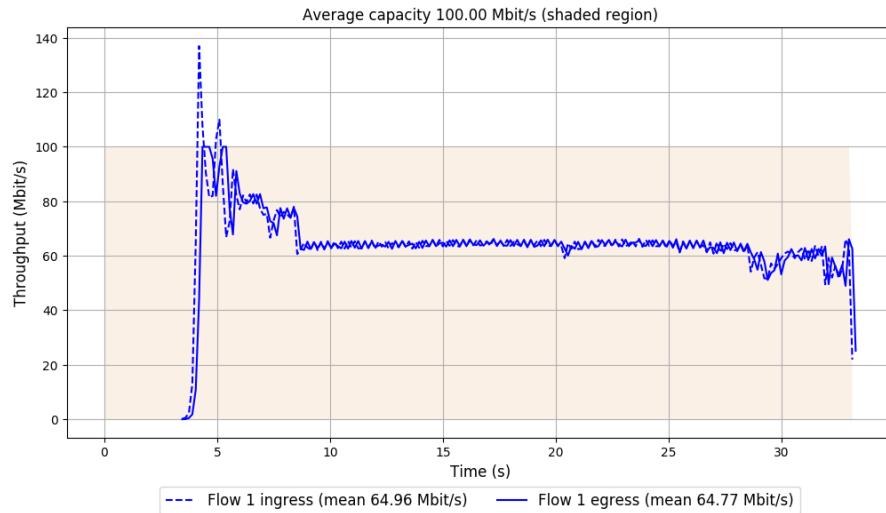


```
Run 2: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:35:33
End at: 2019-10-29 01:36:03

# Below is generated by plot.py at 2019-10-29 02:07:03
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 64.77 Mbit/s (64.8% utilization)
95th percentile per-packet one-way delay: 25.336 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 64.77 Mbit/s
95th percentile per-packet one-way delay: 25.336 ms
Loss rate: 0.32%
```

Run 2: Report of Eagle-expert-6 — Data Link

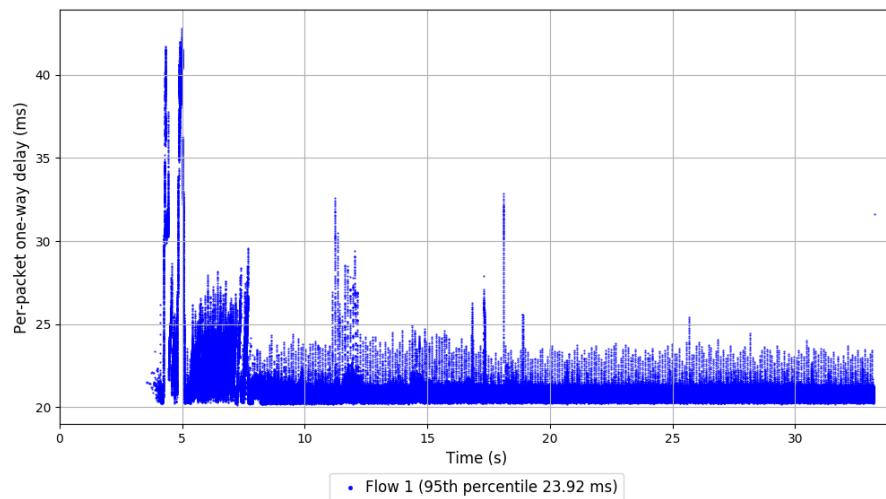
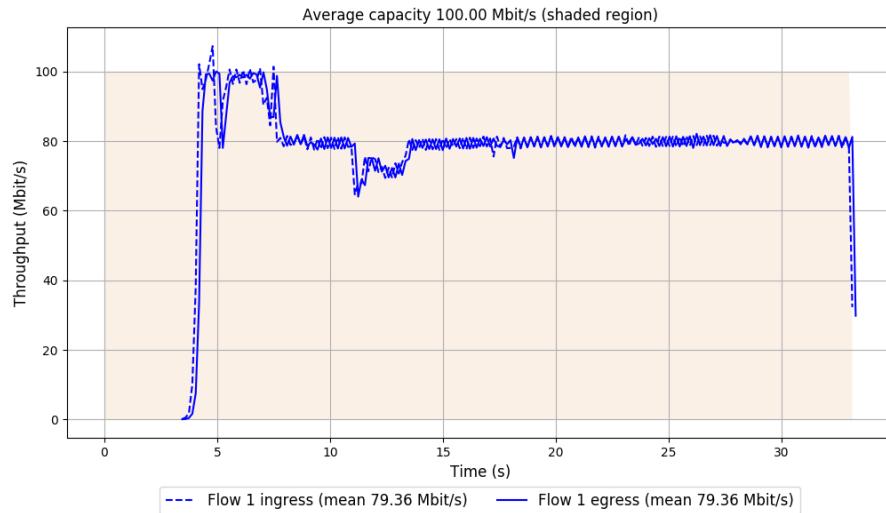


```
Run 3: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:41:26
End at: 2019-10-29 01:41:56

# Below is generated by plot.py at 2019-10-29 02:07:30
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 79.36 Mbit/s (79.4% utilization)
95th percentile per-packet one-way delay: 23.921 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 79.36 Mbit/s
95th percentile per-packet one-way delay: 23.921 ms
Loss rate: 0.08%
```

Run 3: Report of Eagle-expert-6 — Data Link



Run 4: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:47:20

End at: 2019-10-29 01:47:50

Below is generated by plot.py at 2019-10-29 02:07:47

Datalink statistics

-- Total of 1 flow:

Average capacity: 100.00 Mbit/s

Average throughput: 77.30 Mbit/s (77.3% utilization)

95th percentile per-packet one-way delay: 23.347 ms

Loss rate: 0.15%

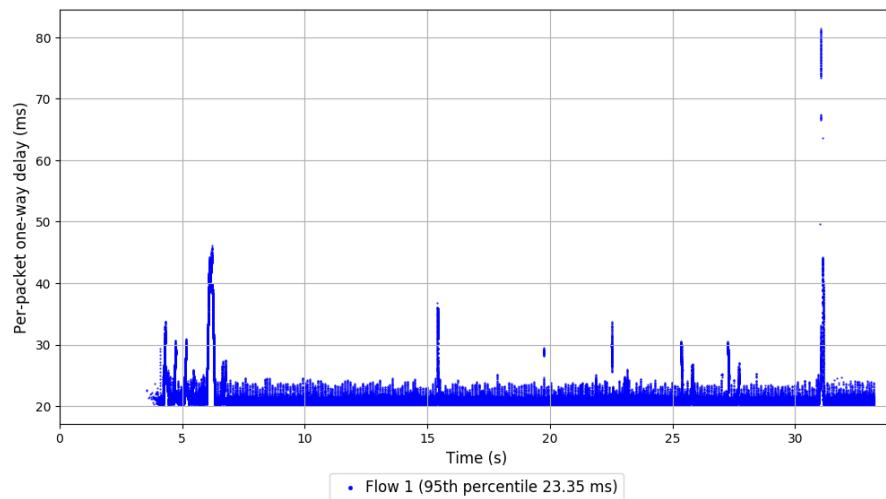
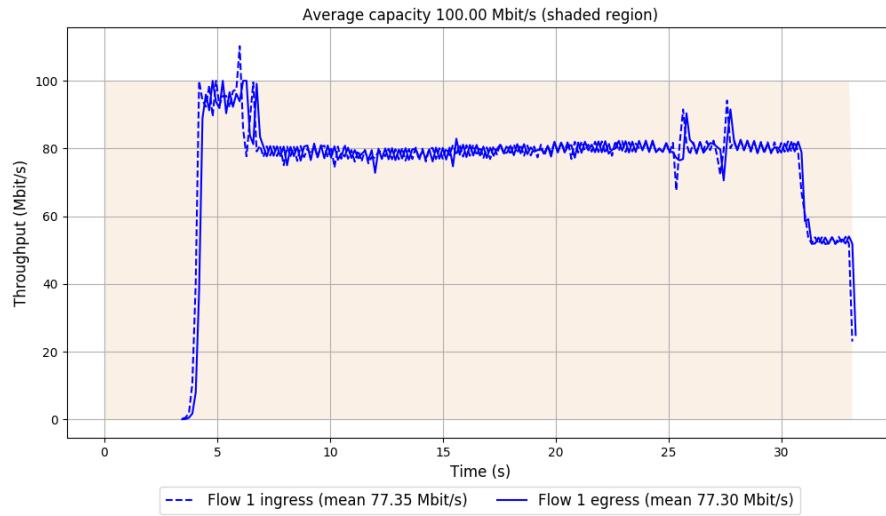
-- Flow 1:

Average throughput: 77.30 Mbit/s

95th percentile per-packet one-way delay: 23.347 ms

Loss rate: 0.15%

Run 4: Report of Eagle-expert-6 — Data Link

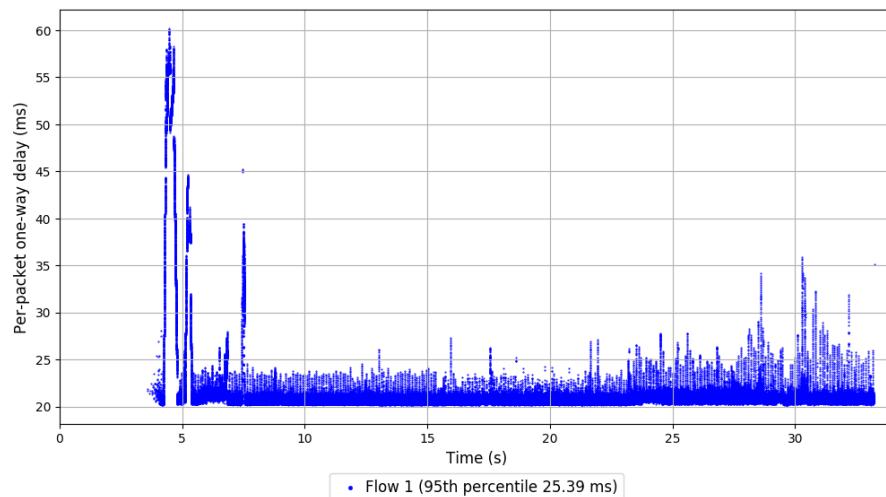
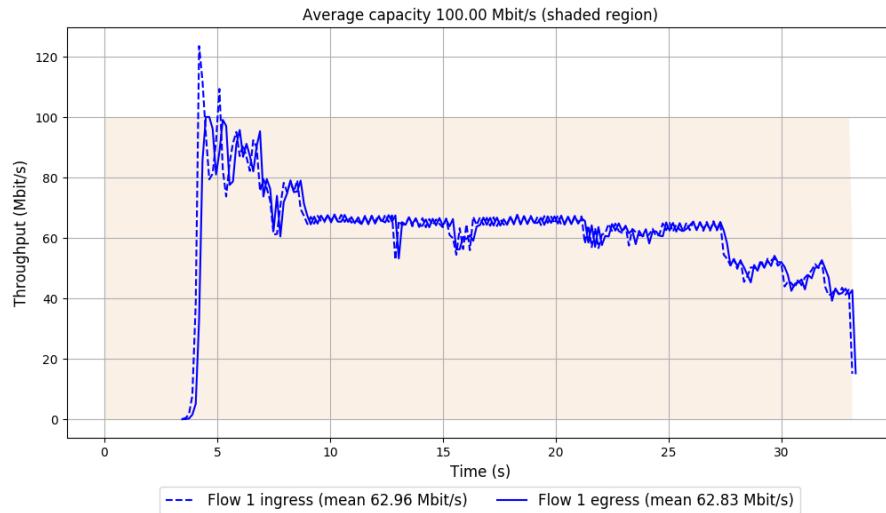


```
Run 5: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:53:13
End at: 2019-10-29 01:53:43

# Below is generated by plot.py at 2019-10-29 02:07:47
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 62.83 Mbit/s (62.8% utilization)
95th percentile per-packet one-way delay: 25.394 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 62.83 Mbit/s
95th percentile per-packet one-way delay: 25.394 ms
Loss rate: 0.24%
```

Run 5: Report of Eagle-expert-6 — Data Link

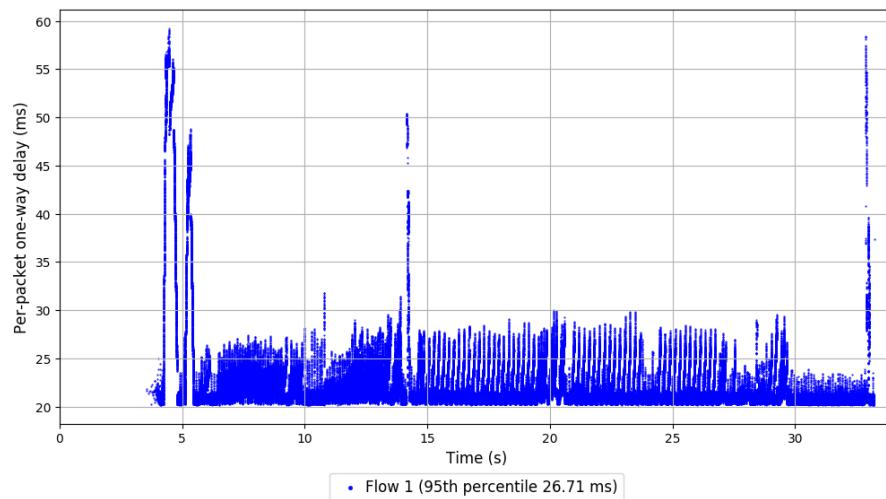
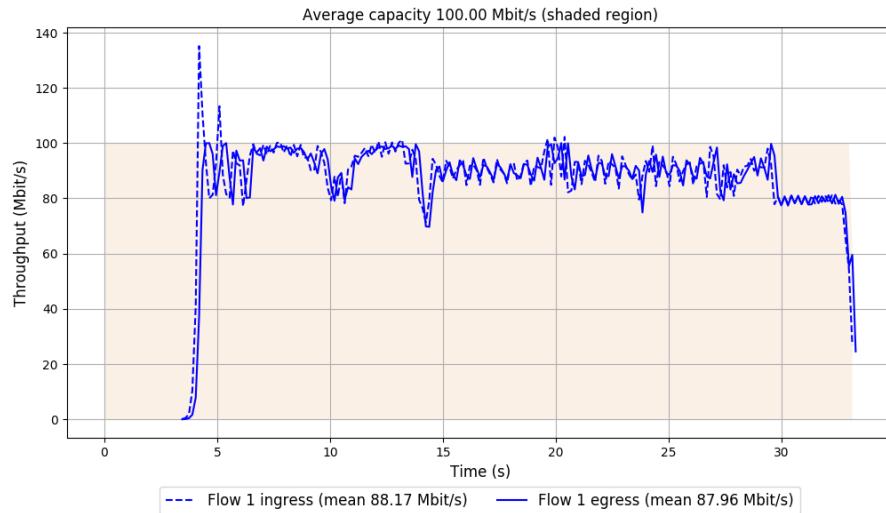


```
Run 1: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:30:17
End at: 2019-10-29 01:30:47

# Below is generated by plot.py at 2019-10-29 02:07:59
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 87.96 Mbit/s (88.0% utilization)
95th percentile per-packet one-way delay: 26.711 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 87.96 Mbit/s
95th percentile per-packet one-way delay: 26.711 ms
Loss rate: 0.31%
```

Run 1: Report of Eagle-expert-7 — Data Link



Run 2: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:36:12

End at: 2019-10-29 01:36:42

Below is generated by plot.py at 2019-10-29 02:08:24

Datalink statistics

-- Total of 1 flow:

Average capacity: 100.00 Mbit/s

Average throughput: 84.82 Mbit/s (84.8% utilization)

95th percentile per-packet one-way delay: 30.536 ms

Loss rate: 0.08%

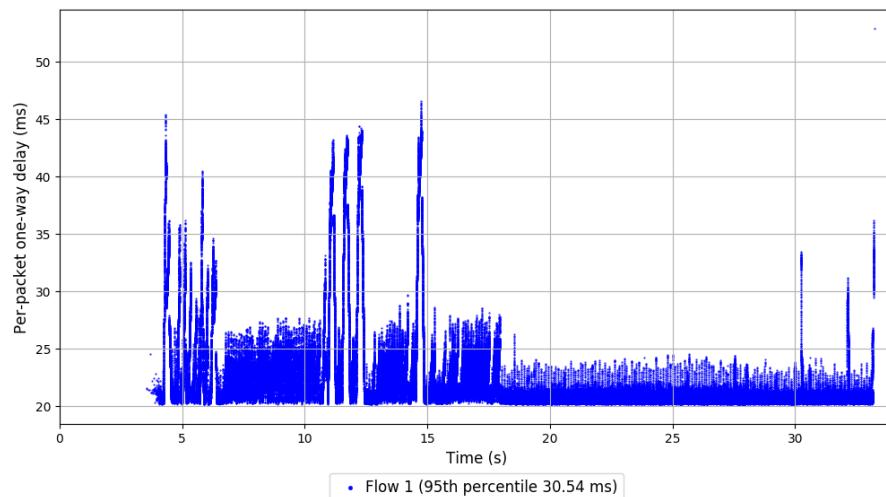
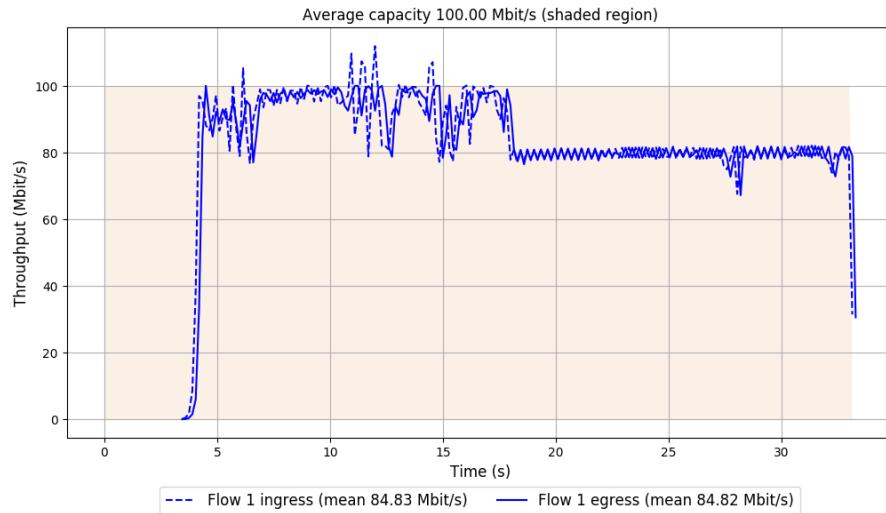
-- Flow 1:

Average throughput: 84.82 Mbit/s

95th percentile per-packet one-way delay: 30.536 ms

Loss rate: 0.08%

Run 2: Report of Eagle-expert-7 — Data Link

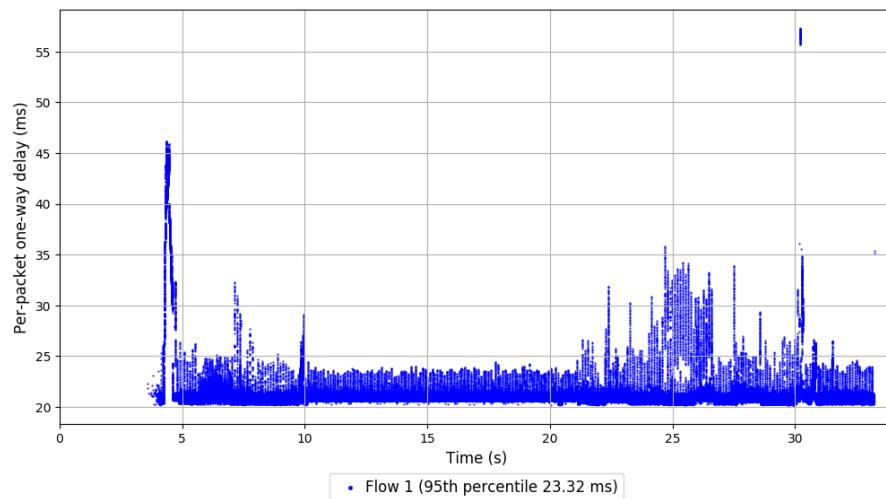
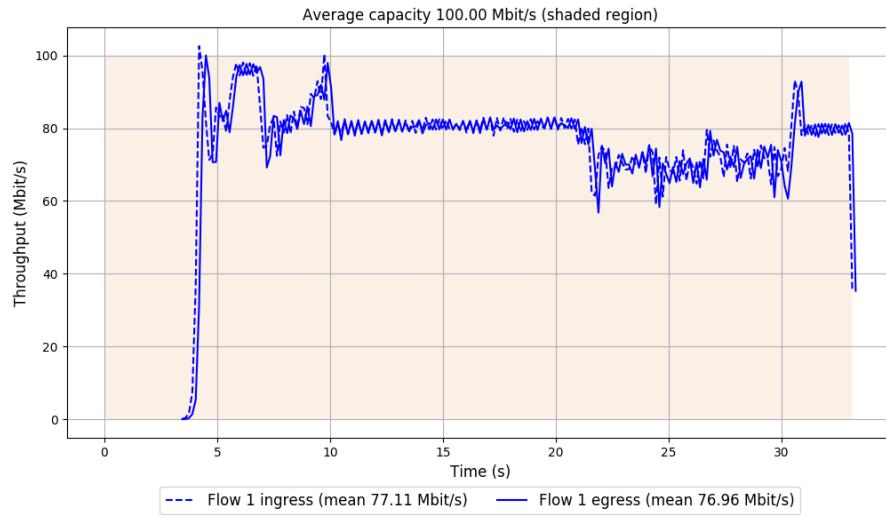


```
Run 3: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:42:06
End at: 2019-10-29 01:42:36

# Below is generated by plot.py at 2019-10-29 02:08:38
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 76.96 Mbit/s (77.0% utilization)
95th percentile per-packet one-way delay: 23.316 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 76.96 Mbit/s
95th percentile per-packet one-way delay: 23.316 ms
Loss rate: 0.21%
```

Run 3: Report of Eagle-expert-7 — Data Link



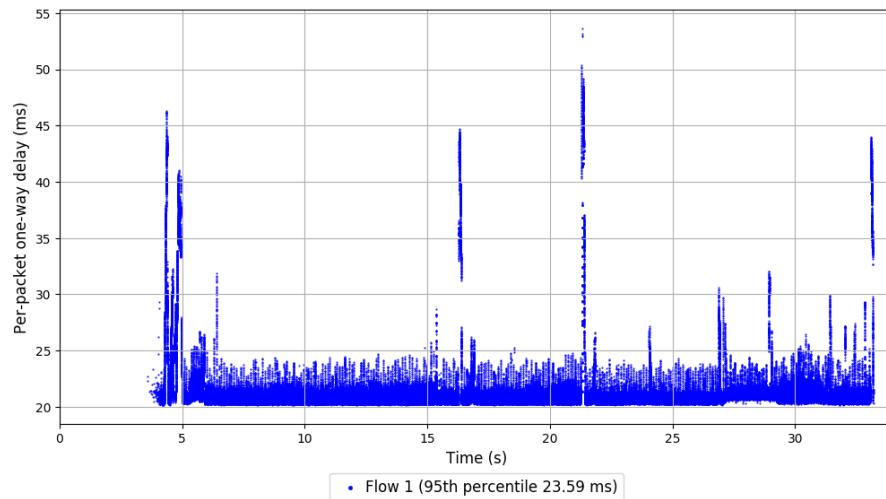
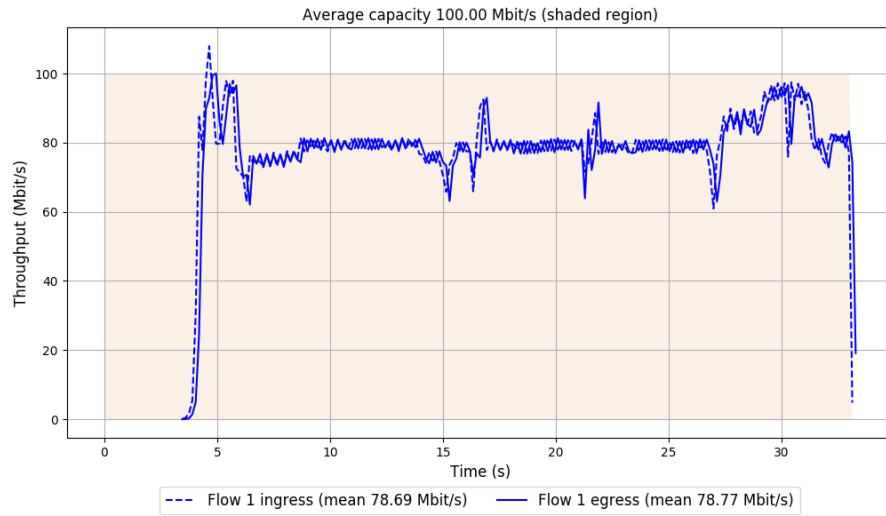
Run 4: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:47:59

End at: 2019-10-29 01:48:29

```
# Below is generated by plot.py at 2019-10-29 02:08:41
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 78.77 Mbit/s (78.8% utilization)
95th percentile per-packet one-way delay: 23.587 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 78.77 Mbit/s
95th percentile per-packet one-way delay: 23.587 ms
Loss rate: 0.04%
```

Run 4: Report of Eagle-expert-7 — Data Link

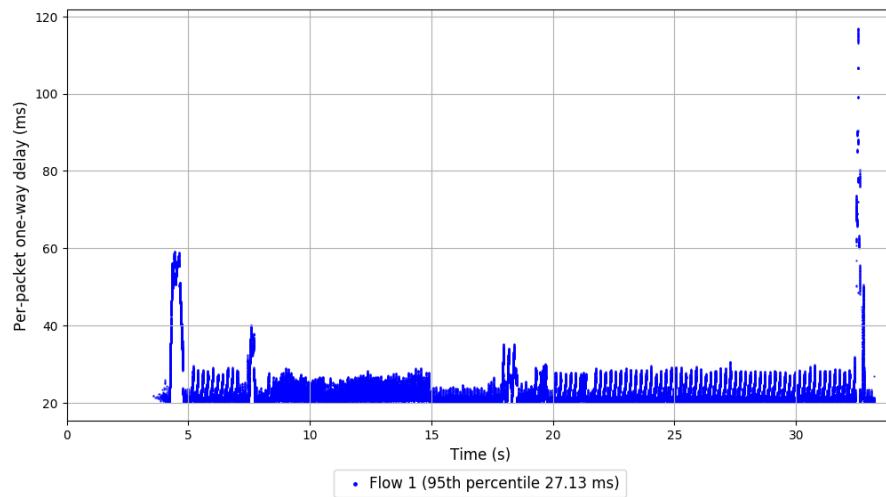
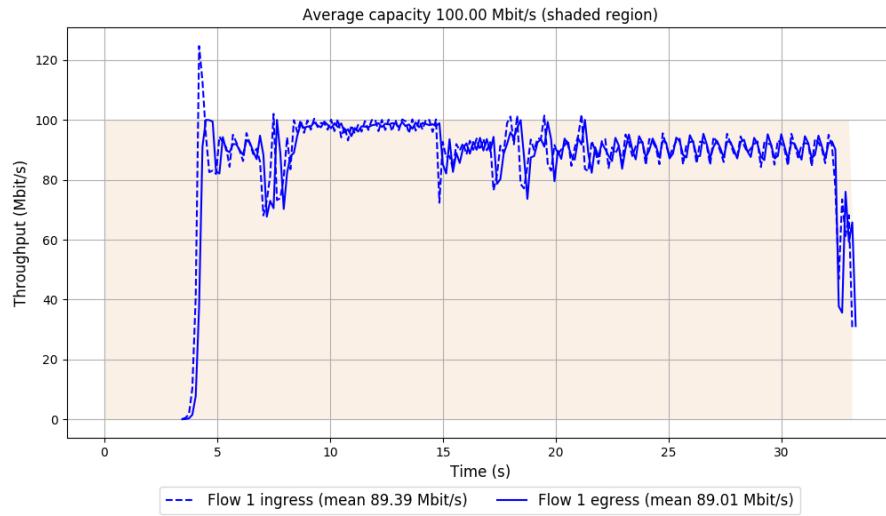


```
Run 5: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:53:51
End at: 2019-10-29 01:54:21

# Below is generated by plot.py at 2019-10-29 02:08:53
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 89.01 Mbit/s (89.0% utilization)
95th percentile per-packet one-way delay: 27.133 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 89.01 Mbit/s
95th percentile per-packet one-way delay: 27.133 ms
Loss rate: 0.47%
```

Run 5: Report of Eagle-expert-7 — Data Link



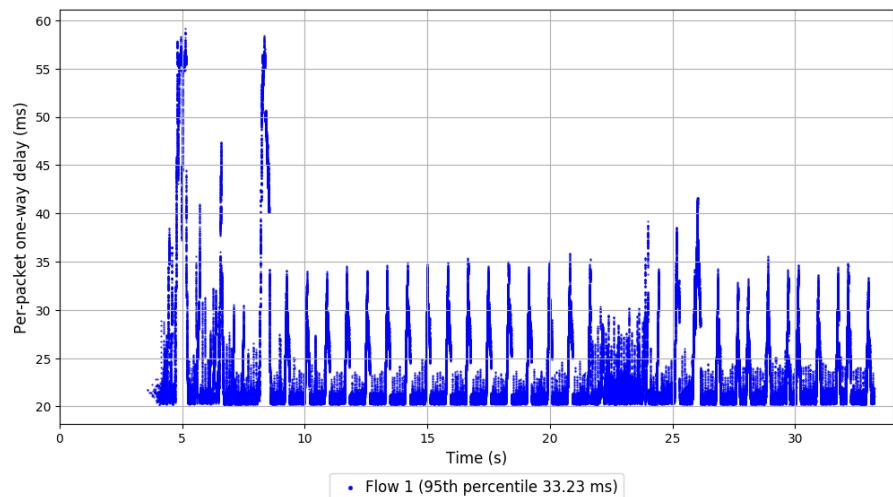
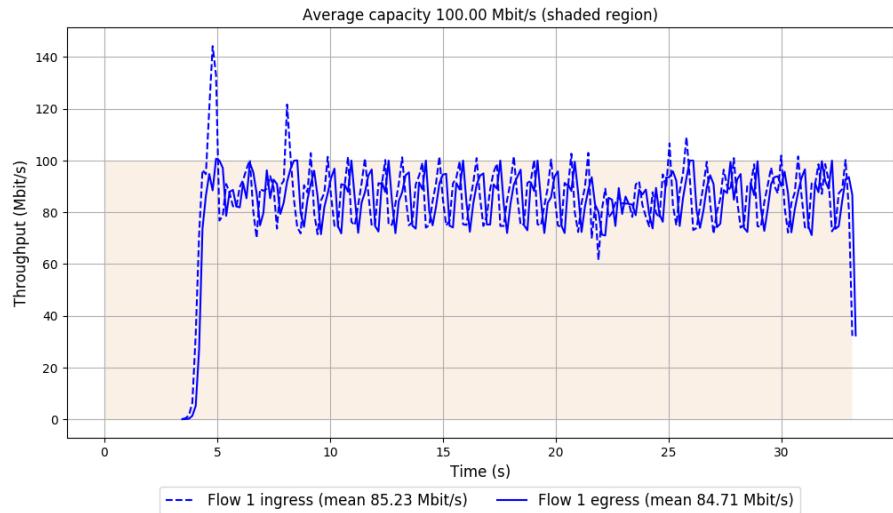
Run 1: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:30:57

End at: 2019-10-29 01:31:27

```
# Below is generated by plot.py at 2019-10-29 02:09:29
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 84.71 Mbit/s (84.7% utilization)
95th percentile per-packet one-way delay: 33.229 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 84.71 Mbit/s
95th percentile per-packet one-way delay: 33.229 ms
Loss rate: 0.67%
```

Run 1: Report of Synthesized-BBR — Data Link



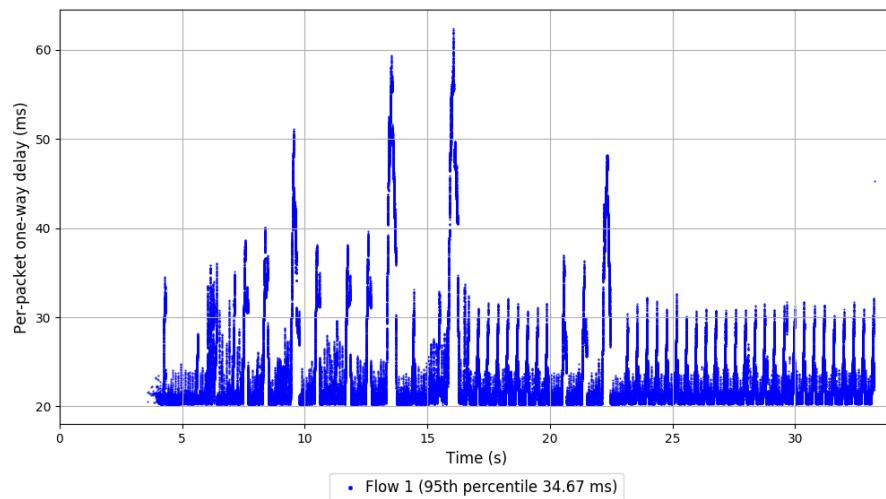
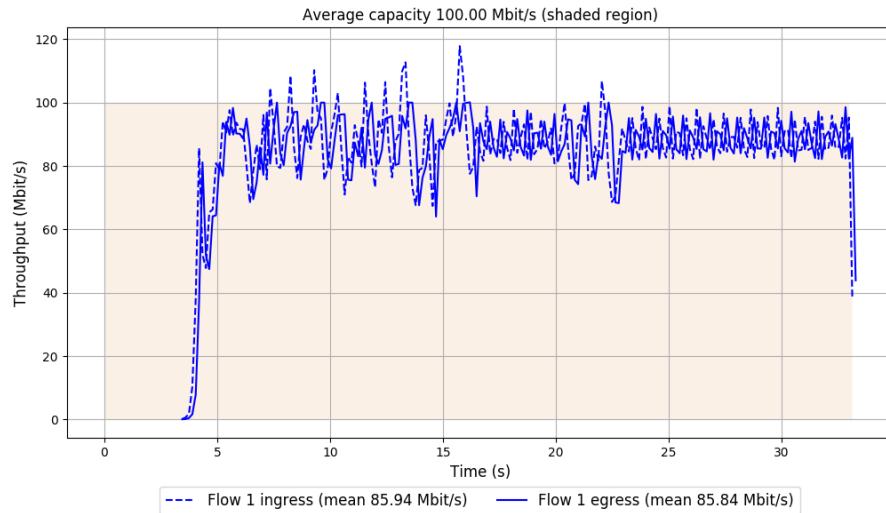
Run 2: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:36:51

End at: 2019-10-29 01:37:21

```
# Below is generated by plot.py at 2019-10-29 02:09:33
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 85.84 Mbit/s (85.8% utilization)
95th percentile per-packet one-way delay: 34.669 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 85.84 Mbit/s
95th percentile per-packet one-way delay: 34.669 ms
Loss rate: 0.15%
```

Run 2: Report of Synthesized-BBR — Data Link



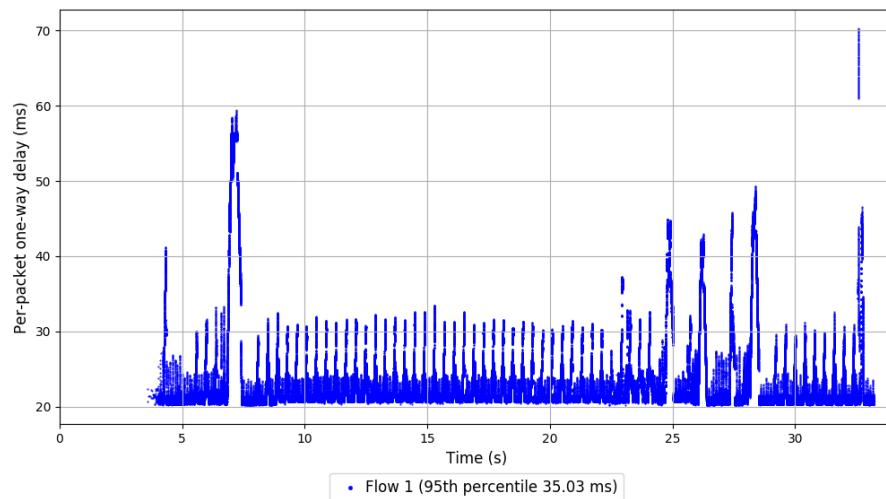
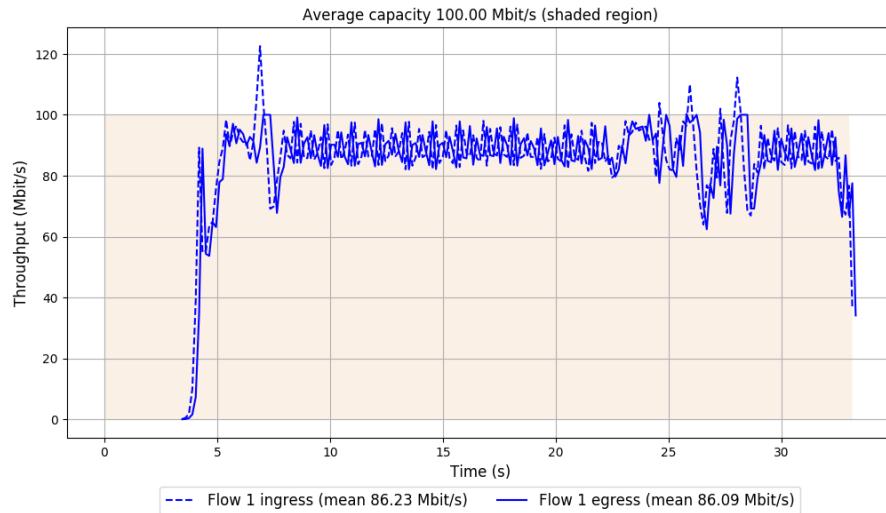
Run 3: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:42:45

End at: 2019-10-29 01:43:15

```
# Below is generated by plot.py at 2019-10-29 02:09:34
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 86.09 Mbit/s (86.1% utilization)
95th percentile per-packet one-way delay: 35.031 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 86.09 Mbit/s
95th percentile per-packet one-way delay: 35.031 ms
Loss rate: 0.31%
```

Run 3: Report of Synthesized-BBR — Data Link



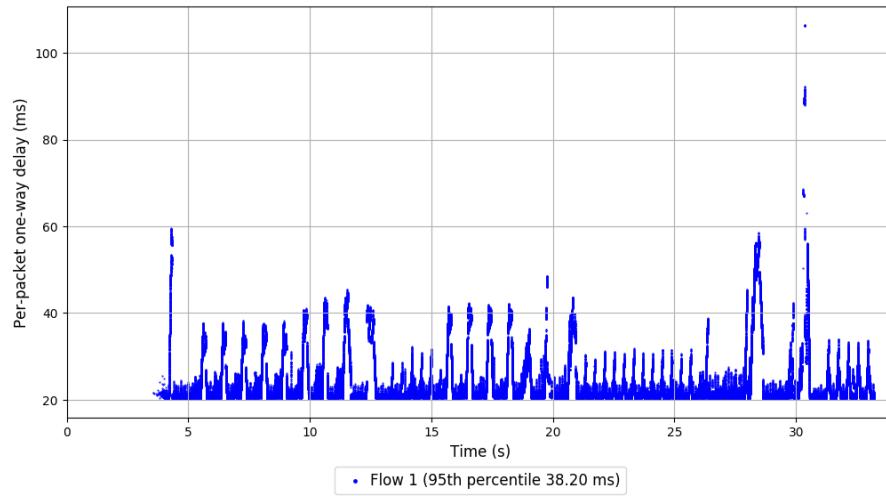
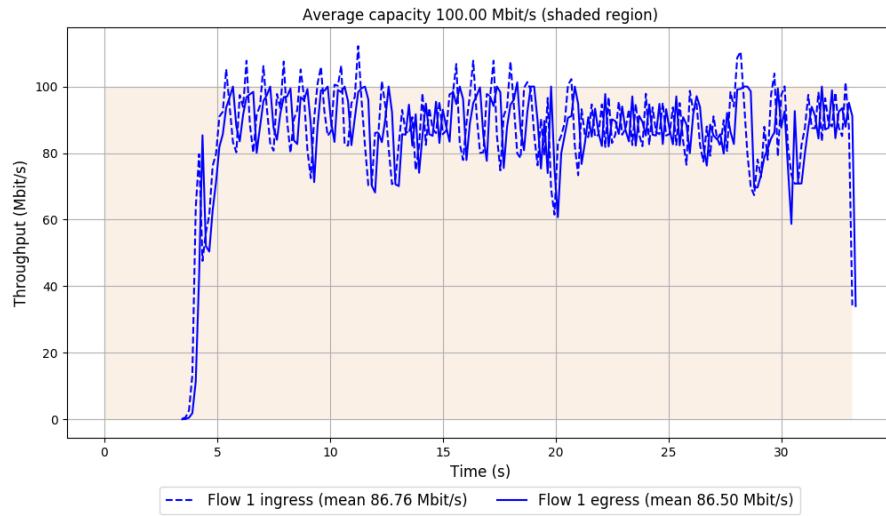
Run 4: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:48:38

End at: 2019-10-29 01:49:08

```
# Below is generated by plot.py at 2019-10-29 02:09:39
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 86.50 Mbit/s (86.5% utilization)
95th percentile per-packet one-way delay: 38.205 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 86.50 Mbit/s
95th percentile per-packet one-way delay: 38.205 ms
Loss rate: 0.37%
```

Run 4: Report of Synthesized-BBR — Data Link



Run 5: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:54:31

End at: 2019-10-29 01:55:01

```
# Below is generated by plot.py at 2019-10-29 02:09:43
# Datalink statistics
-- Total of 1 flow:
Average capacity: 100.00 Mbit/s
Average throughput: 85.14 Mbit/s (85.1% utilization)
95th percentile per-packet one-way delay: 31.787 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 85.14 Mbit/s
95th percentile per-packet one-way delay: 31.787 ms
Loss rate: 0.12%
```

Run 5: Report of Synthesized-BBR — Data Link

