

# Pantheon Report

Generated at 2019-07-11 23:57:03 (UTC).

Tested in mahimahi: mm-delay 10 mm-link 12mbps.trace 10-every-200.trace

Repeated the test of 24 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

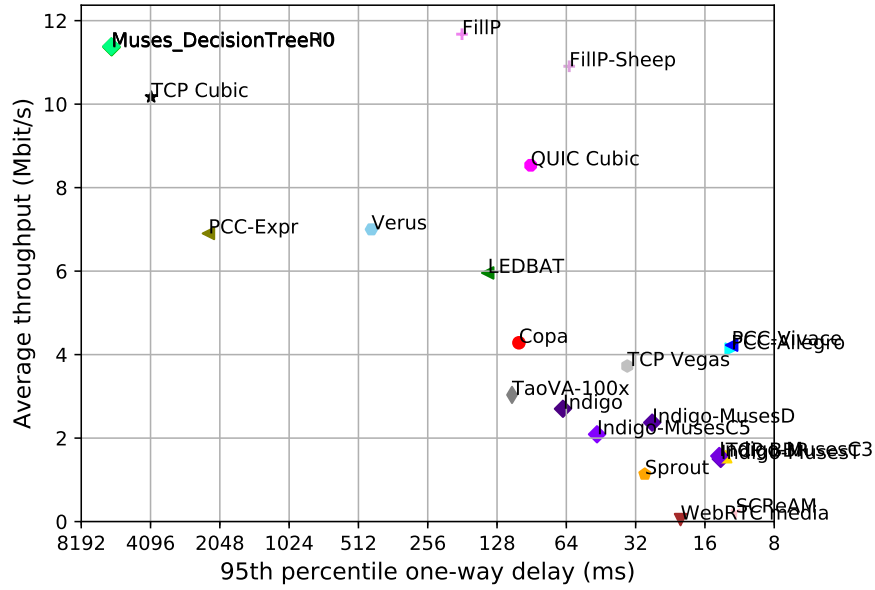
## System info:

```
Linux 4.15.0-1034-gcp
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
```

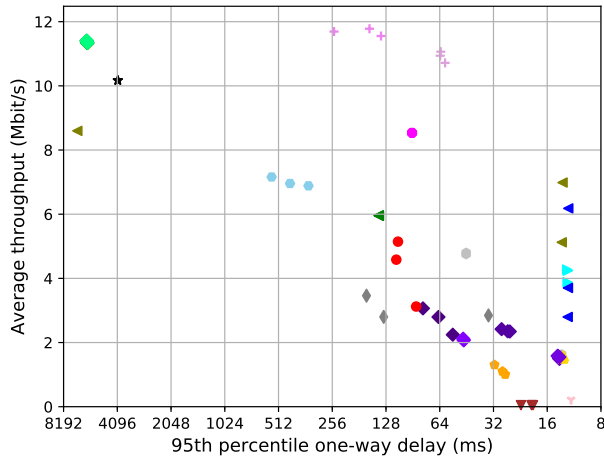
## Git summary:

```
branch: muses @ 2076e1149a241f3edb4365d686df32342bf9561f
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/muses_dtree @ 8bb93ffff2b107204a92d8b72449fc0c55e15f00
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-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
```

local test in mahimahi, 3 runs of 30s each per scheme  
(mean of all runs by scheme)



local test in mahimahi, 3 runs of 30s each per scheme



- + FillIP-Sheep
- ◆ Indigo
- Sprout
- ◆ Indigo-MusesD
- ◆ Indigo-MusesT
- ◆ Muses\_DecisionTree
- Verus
- PCC-Allegro
- ▼ WebRTC media
- ▼ LEDBAT
- ▼ PCC-Expr
- Copa
- QUIC Cubic
- ★ TCP Cubic
- ▲ PCC-Vivace
- TCP Vegas
- ◆ TaoVA-100x
- ◆ Muses\_DecisionTreeR0
- + FillIP
- ▲ TCP BBR
- ◆ Indigo-MusesC5
- ◆ Muses\_DecisionTreeH0
- ▼ SReAM
- ◆ Indigo-MusesC3

scheme	# runs	mean avg tput (Mbit/s)	mean 95th-%ile delay (ms)	mean loss rate (%)
		flow 1	flow 1	flow 1
TCP BBR	3	1.55	12.99	0.08
Copa	3	4.28	102.84	0.02
TCP Cubic	3	10.17	4069.43	18.43
FillP	3	11.67	181.71	0.55
FillP-Sheep	3	10.91	62.18	0.07
Indigo	3	2.70	66.21	0.27
Indigo-MusesC3	3	1.57	13.86	0.19
Indigo-MusesC5	3	2.09	47.09	0.28
Indigo-MusesD	3	2.37	27.12	0.53
Indigo-MusesT	3	1.50	13.66	0.03
LEDBAT	3	5.96	140.52	0.93
Muses_DecisionTree	3	11.36	6044.72	23.01
Muses_DecisionTreeH0	3	11.38	6060.01	23.00
Muses_DecisionTreeR0	3	11.38	6059.71	23.00
PCC-Allegro	3	4.13	12.31	0.04
PCC-Expr	3	6.90	2295.90	13.34
QUIC Cubic	3	8.53	91.43	0.15
SCReAM	3	0.22	11.76	0.09
Sprout	3	1.14	29.19	0.22
TaoVA-100x	3	3.03	110.20	0.01
TCP Vegas	3	3.73	34.79	0.03
Verus	3	7.00	449.64	6.28
PCC-Vivace	3	4.23	12.25	0.04
WebRTC media	3	0.05	20.42	0.00

Run 1: Statistics of TCP BBR

Start at: 2019-07-11 23:19:03

End at: 2019-07-11 23:19:33

# Below is generated by plot.py at 2019-07-11 23:54:40

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.56 Mbit/s (13.0% utilization)

95th percentile per-packet one-way delay: 12.932 ms

Loss rate: 0.05%

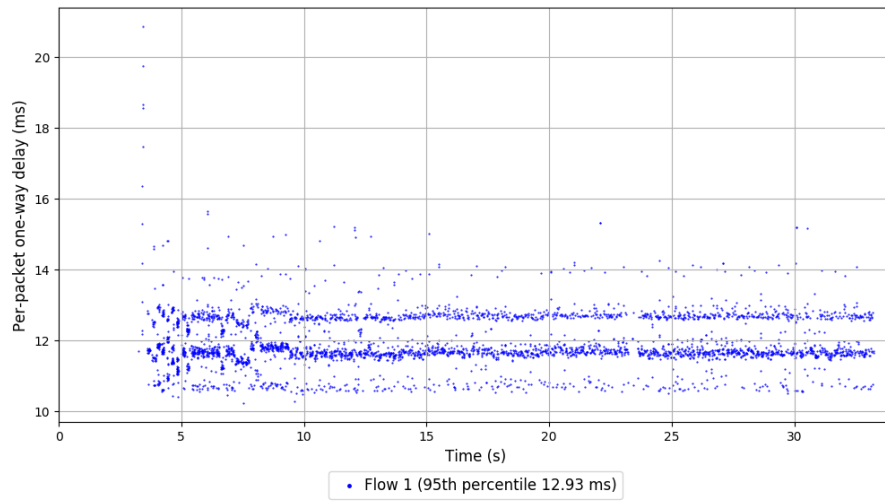
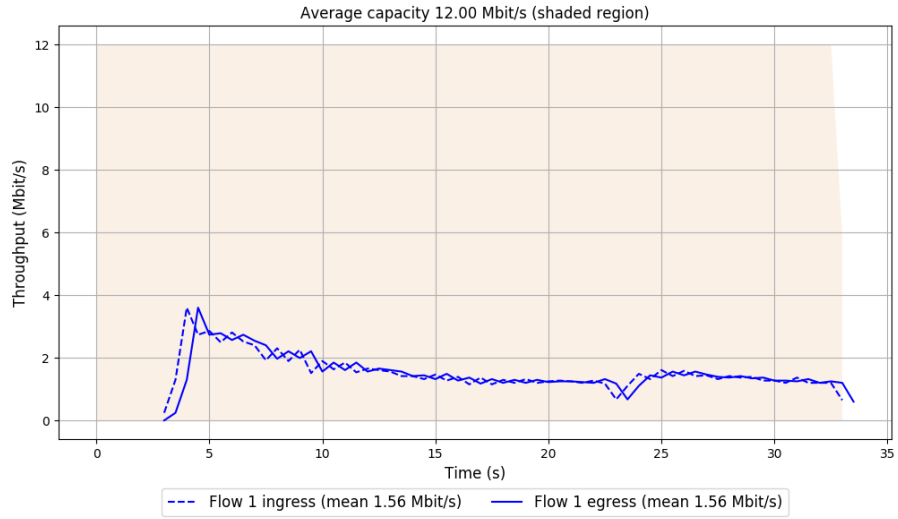
-- Flow 1:

Average throughput: 1.56 Mbit/s

95th percentile per-packet one-way delay: 12.932 ms

Loss rate: 0.05%

# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2019-07-11 23:33:10

End at: 2019-07-11 23:33:40

# Below is generated by plot.py at 2019-07-11 23:54:40

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.60 Mbit/s (13.3% utilization)

95th percentile per-packet one-way delay: 12.974 ms

Loss rate: 0.10%

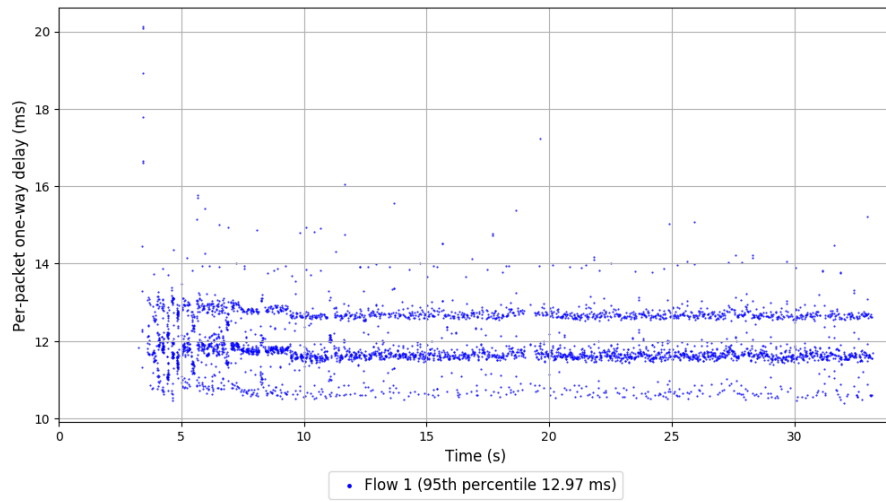
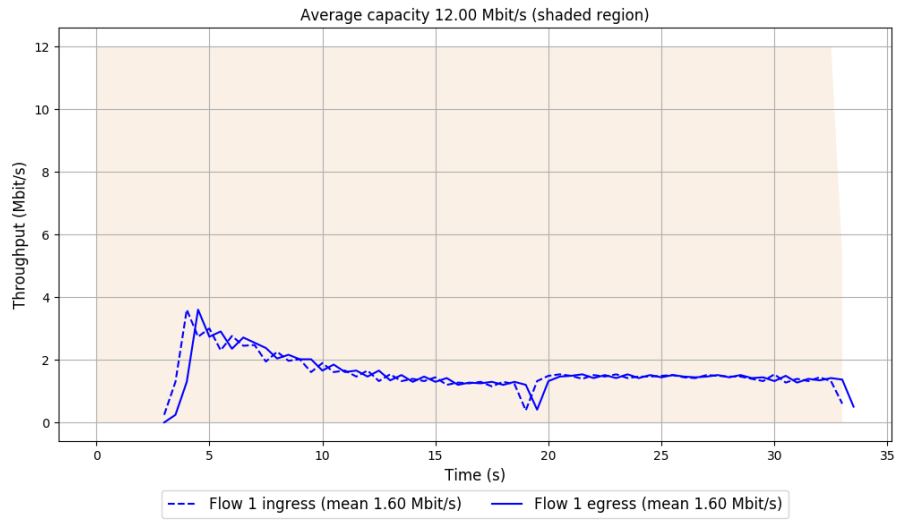
-- Flow 1:

Average throughput: 1.60 Mbit/s

95th percentile per-packet one-way delay: 12.974 ms

Loss rate: 0.10%

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



Run 3: Statistics of TCP BBR

Start at: 2019-07-11 23:47:19

End at: 2019-07-11 23:47:49

# Below is generated by plot.py at 2019-07-11 23:54:40

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.50 Mbit/s (12.5% utilization)

95th percentile per-packet one-way delay: 13.073 ms

Loss rate: 0.08%

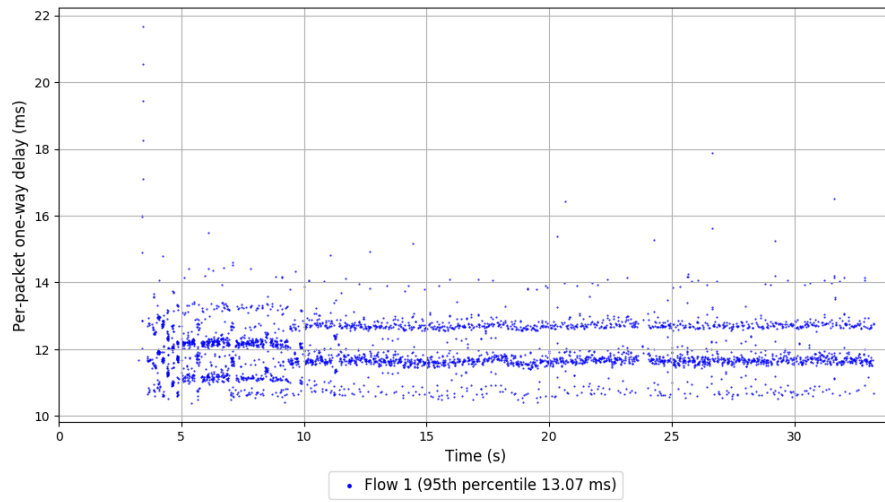
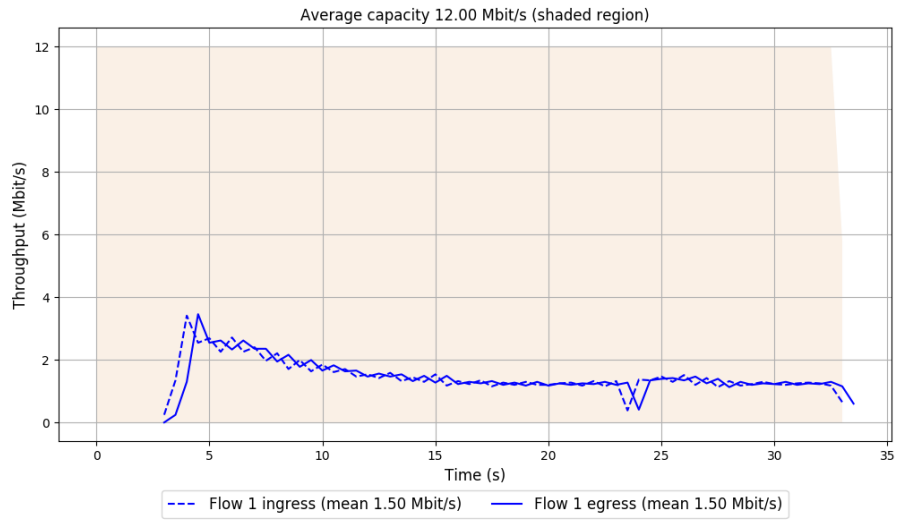
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 13.073 ms

Loss rate: 0.08%

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



Run 1: Statistics of Copa

Start at: 2019-07-11 23:21:24

End at: 2019-07-11 23:21:54

# Below is generated by plot.py at 2019-07-11 23:54:50

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 4.58 Mbit/s (38.2% utilization)

95th percentile per-packet one-way delay: 112.072 ms

Loss rate: 0.02%

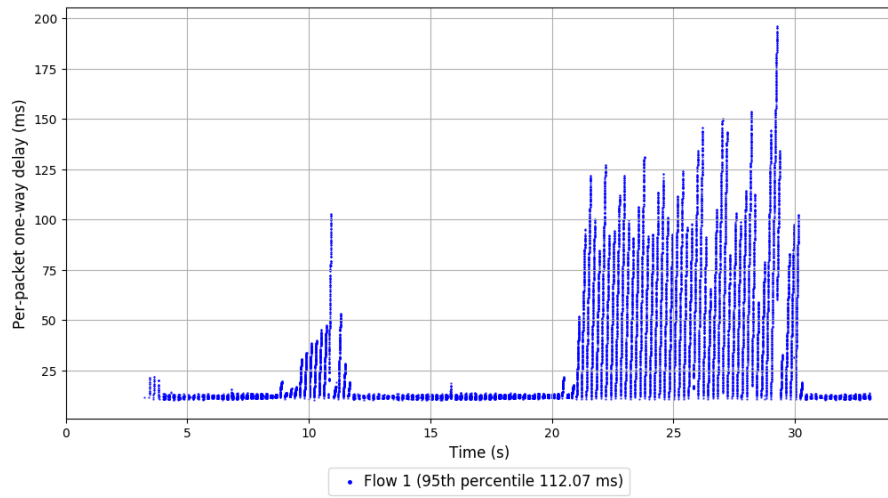
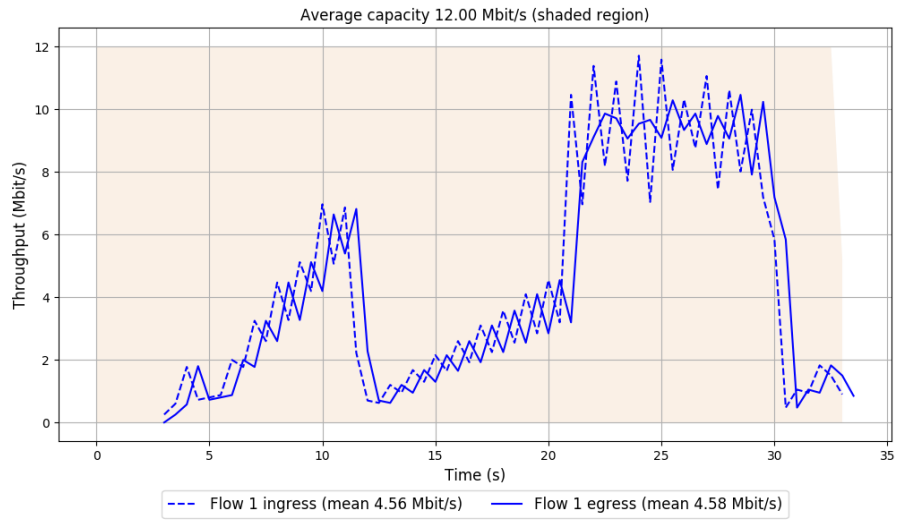
-- Flow 1:

Average throughput: 4.58 Mbit/s

95th percentile per-packet one-way delay: 112.072 ms

Loss rate: 0.02%

# Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2019-07-11 23:35:32

End at: 2019-07-11 23:36:02

# Below is generated by plot.py at 2019-07-11 23:54:50

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 3.12 Mbit/s (26.0% utilization)

95th percentile per-packet one-way delay: 86.769 ms

Loss rate: 0.03%

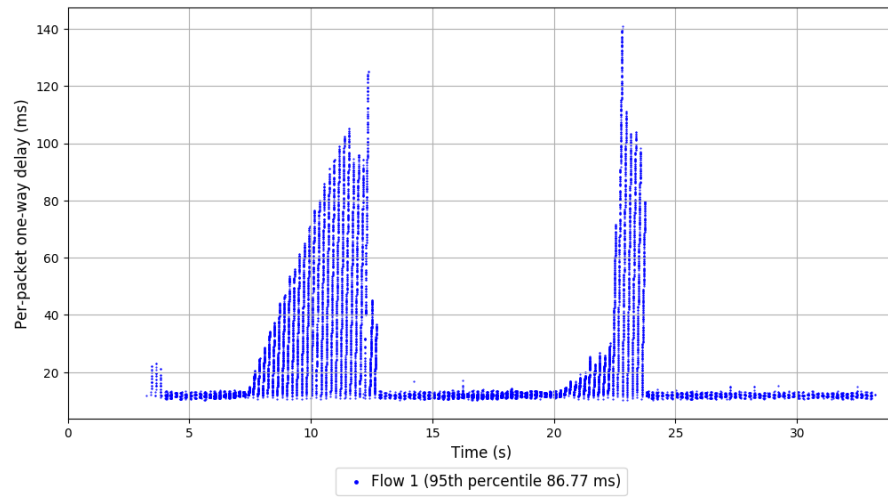
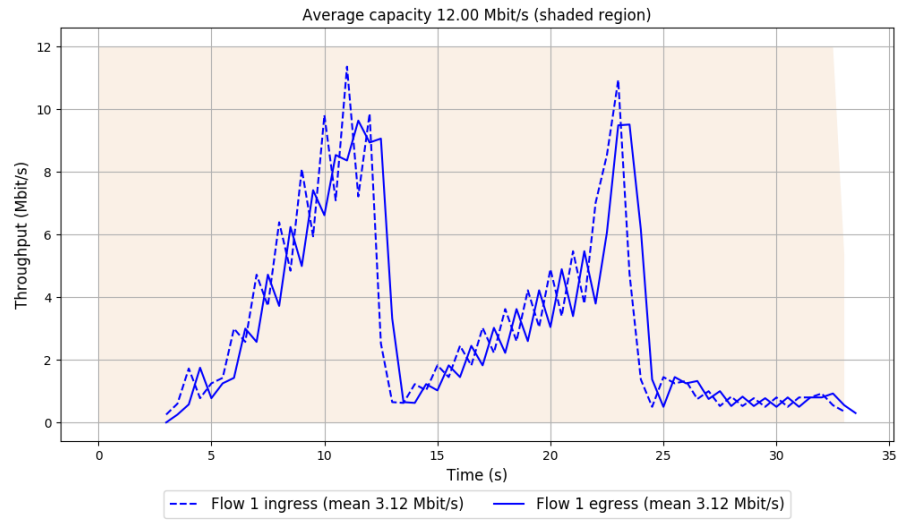
-- Flow 1:

Average throughput: 3.12 Mbit/s

95th percentile per-packet one-way delay: 86.769 ms

Loss rate: 0.03%

## Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2019-07-11 23:49:41

End at: 2019-07-11 23:50:11

# Below is generated by plot.py at 2019-07-11 23:54:51

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 5.14 Mbit/s (42.9% utilization)

95th percentile per-packet one-way delay: 109.689 ms

Loss rate: 0.01%

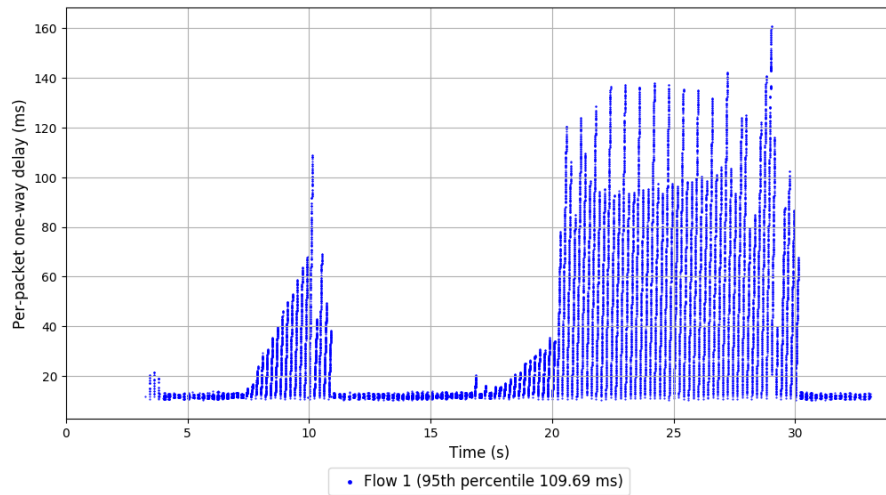
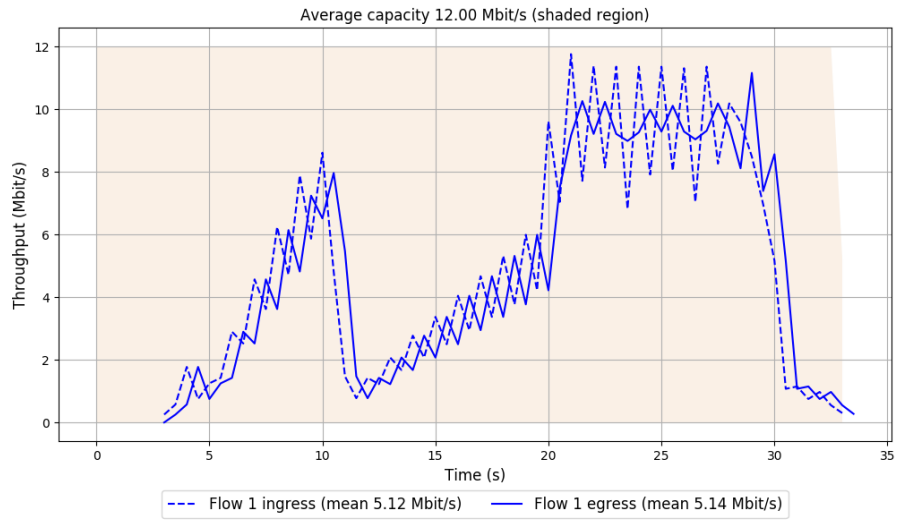
-- Flow 1:

Average throughput: 5.14 Mbit/s

95th percentile per-packet one-way delay: 109.689 ms

Loss rate: 0.01%

### Run 3: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2019-07-11 23:25:31

End at: 2019-07-11 23:26:01

# Below is generated by plot.py at 2019-07-11 23:54:52

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.17 Mbit/s (84.7% utilization)

95th percentile per-packet one-way delay: 4062.196 ms

Loss rate: 18.41%

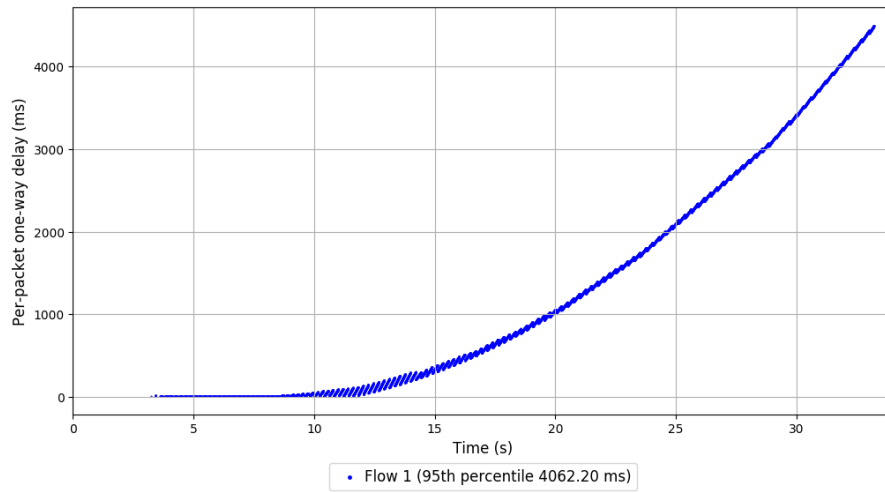
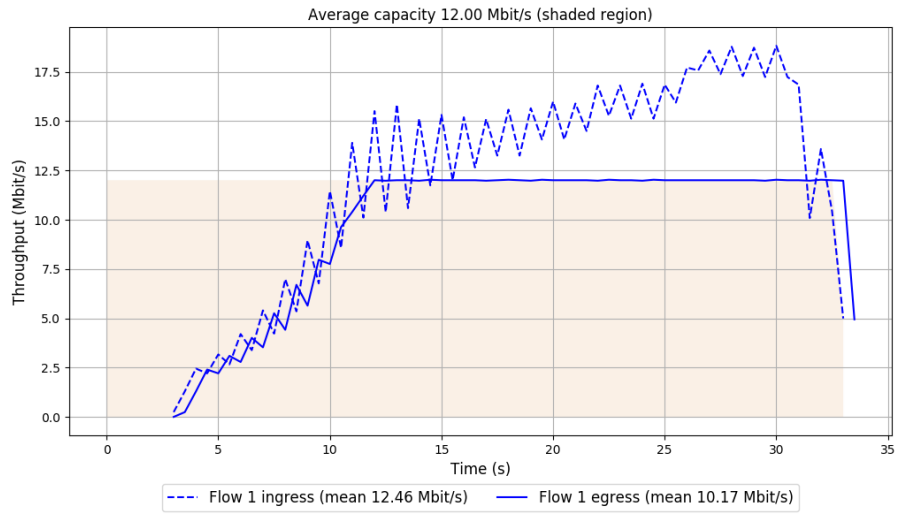
-- Flow 1:

Average throughput: 10.17 Mbit/s

95th percentile per-packet one-way delay: 4062.196 ms

Loss rate: 18.41%

# Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2019-07-11 23:39:39

End at: 2019-07-11 23:40:09

# Below is generated by plot.py at 2019-07-11 23:54:52

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.17 Mbit/s (84.8% utilization)

95th percentile per-packet one-way delay: 4071.986 ms

Loss rate: 18.43%

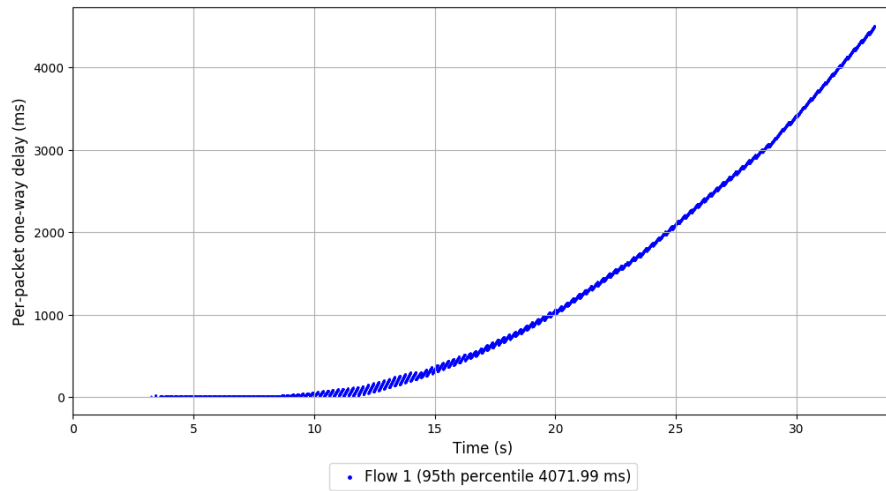
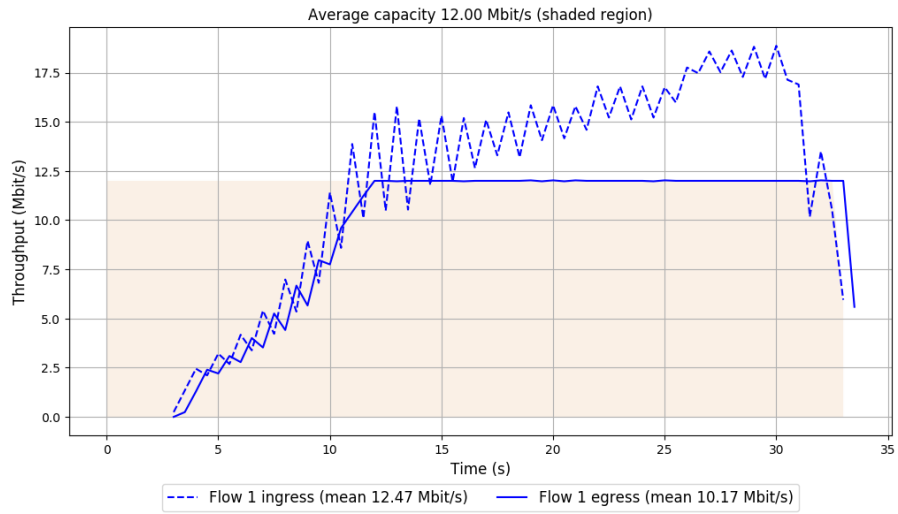
-- Flow 1:

Average throughput: 10.17 Mbit/s

95th percentile per-packet one-way delay: 4071.986 ms

Loss rate: 18.43%

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



Run 3: Statistics of TCP Cubic

Start at: 2019-07-11 23:53:48

End at: 2019-07-11 23:54:18

# Below is generated by plot.py at 2019-07-11 23:55:01

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.17 Mbit/s (84.8% utilization)

95th percentile per-packet one-way delay: 4074.122 ms

Loss rate: 18.44%

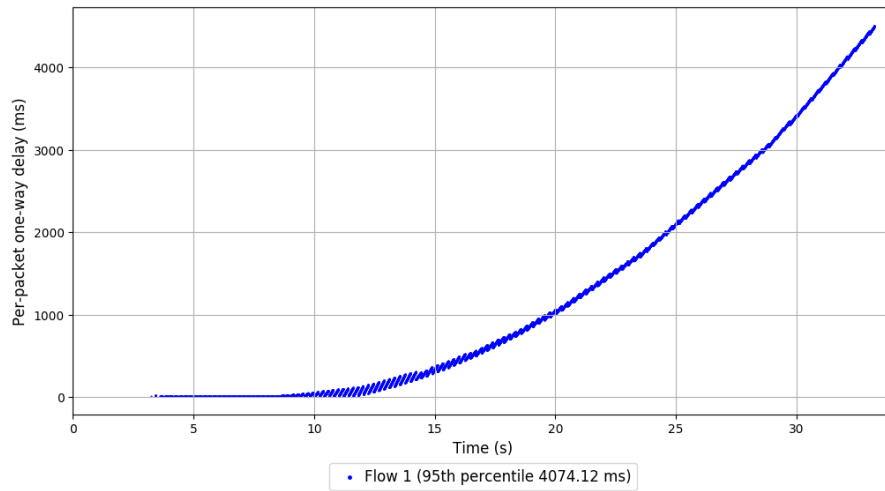
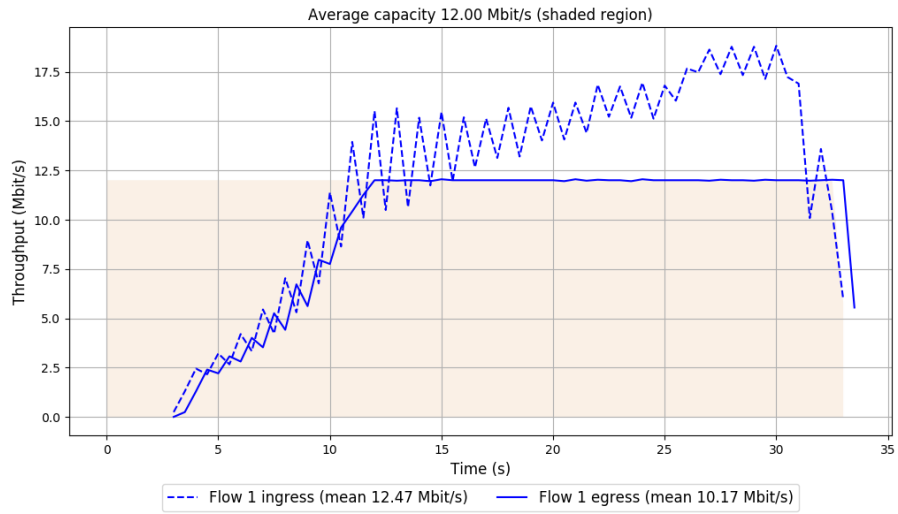
-- Flow 1:

Average throughput: 10.17 Mbit/s

95th percentile per-packet one-way delay: 4074.122 ms

Loss rate: 18.44%

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



Run 1: Statistics of FillP

Start at: 2019-07-11 23:16:06

End at: 2019-07-11 23:16:36

# Below is generated by plot.py at 2019-07-11 23:55:05

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.55 Mbit/s (96.3% utilization)

95th percentile per-packet one-way delay: 136.497 ms

Loss rate: 0.32%

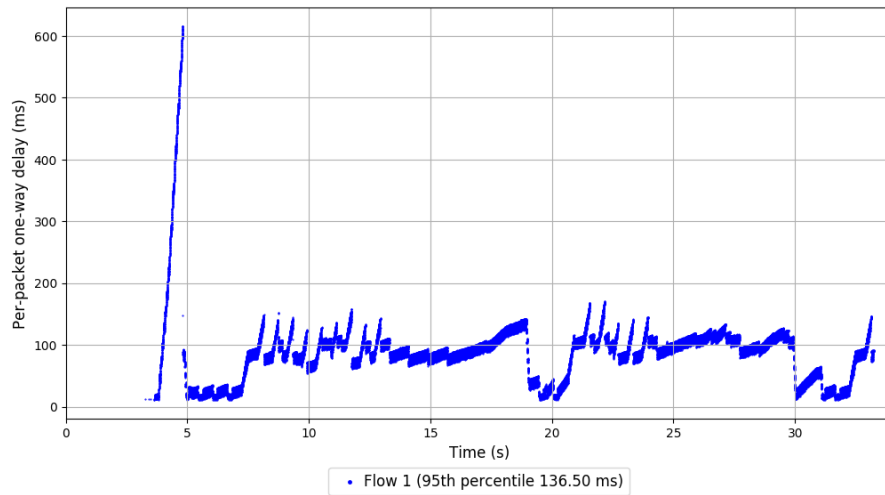
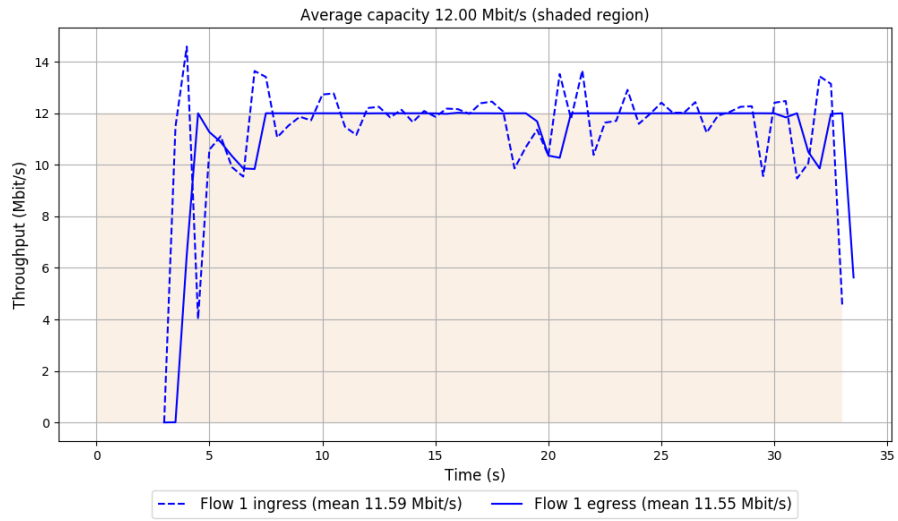
-- Flow 1:

Average throughput: 11.55 Mbit/s

95th percentile per-packet one-way delay: 136.497 ms

Loss rate: 0.32%

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



Run 2: Statistics of FillP

Start at: 2019-07-11 23:30:14

End at: 2019-07-11 23:30:44

# Below is generated by plot.py at 2019-07-11 23:55:06

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.78 Mbit/s (98.2% utilization)

95th percentile per-packet one-way delay: 158.410 ms

Loss rate: 0.53%

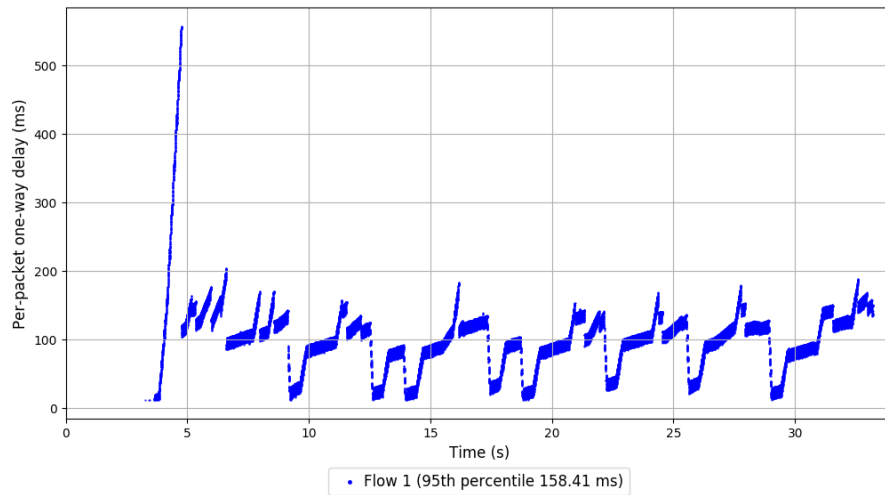
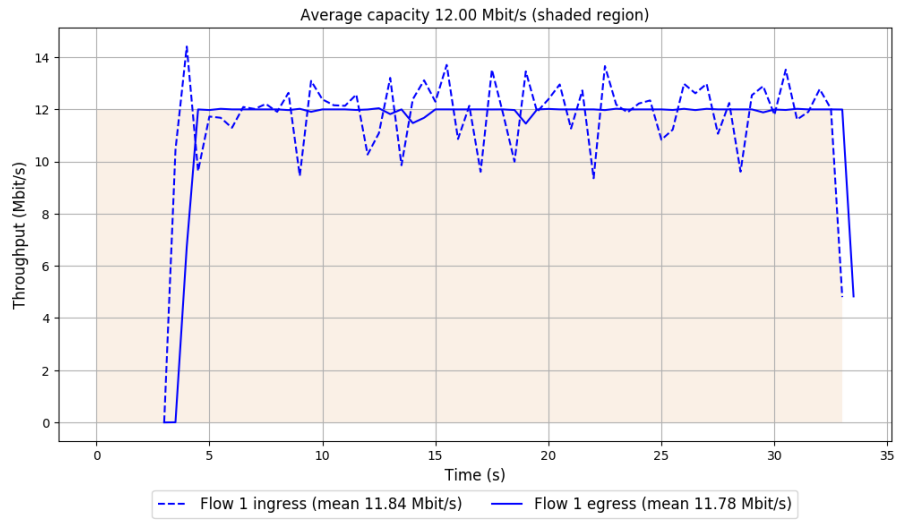
-- Flow 1:

Average throughput: 11.78 Mbit/s

95th percentile per-packet one-way delay: 158.410 ms

Loss rate: 0.53%

## Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2019-07-11 23:44:22

End at: 2019-07-11 23:44:52

# Below is generated by plot.py at 2019-07-11 23:55:13

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.69 Mbit/s (97.4% utilization)

95th percentile per-packet one-way delay: 250.233 ms

Loss rate: 0.80%

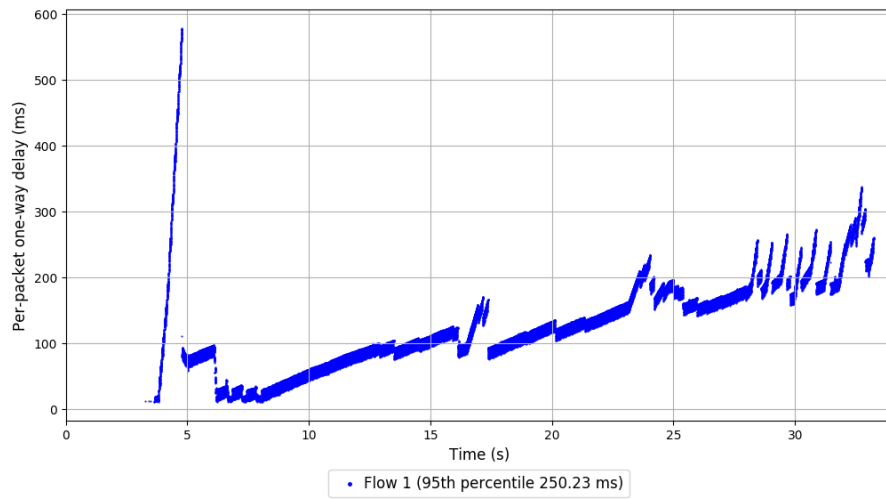
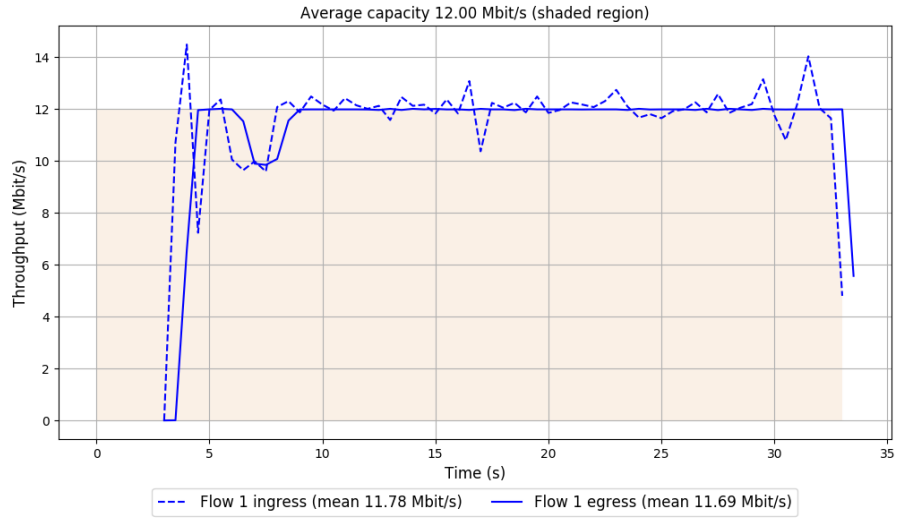
-- Flow 1:

Average throughput: 11.69 Mbit/s

95th percentile per-packet one-way delay: 250.233 ms

Loss rate: 0.80%

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



Run 1: Statistics of FillP-Sheep

Start at: 2019-07-11 23:20:14

End at: 2019-07-11 23:20:44

# Below is generated by plot.py at 2019-07-11 23:55:16

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.94 Mbit/s (91.2% utilization)

95th percentile per-packet one-way delay: 63.645 ms

Loss rate: 0.01%

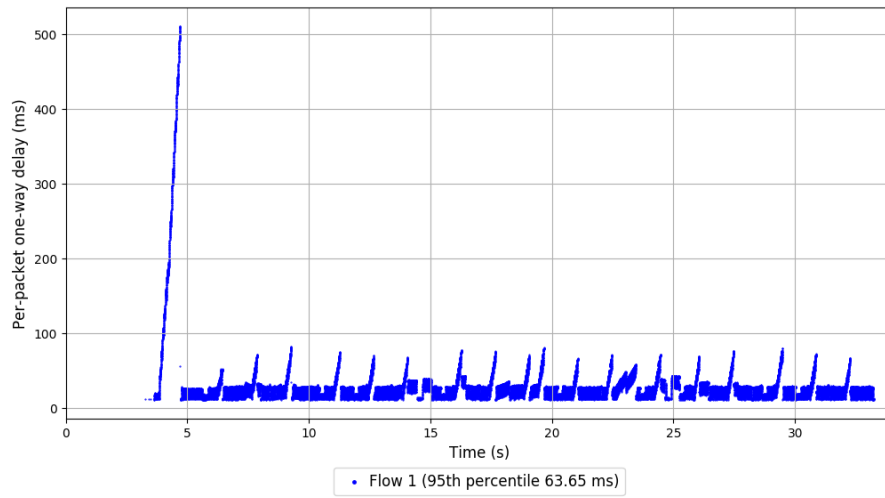
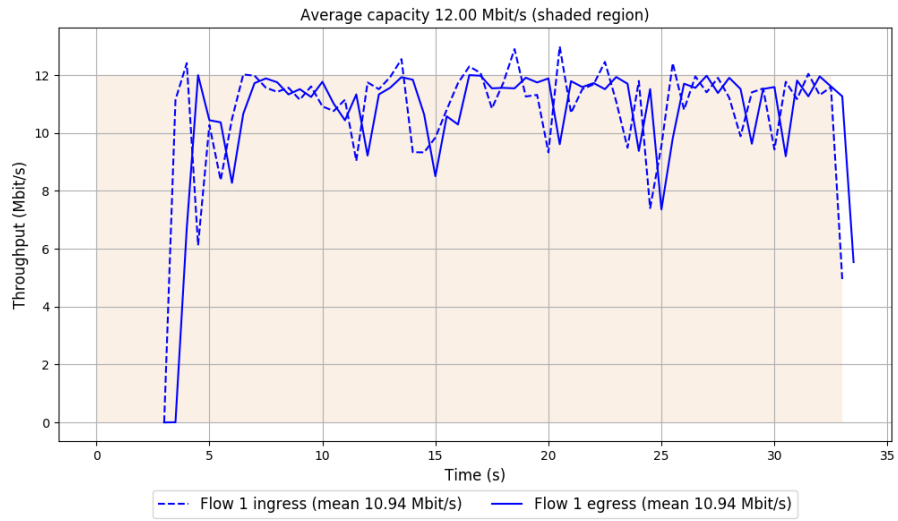
-- Flow 1:

Average throughput: 10.94 Mbit/s

95th percentile per-packet one-way delay: 63.645 ms

Loss rate: 0.01%

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



Run 2: Statistics of FillP-Sheep

Start at: 2019-07-11 23:34:21

End at: 2019-07-11 23:34:51

# Below is generated by plot.py at 2019-07-11 23:55:17

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 10.72 Mbit/s (89.3% utilization)

95th percentile per-packet one-way delay: 59.749 ms

Loss rate: 0.12%

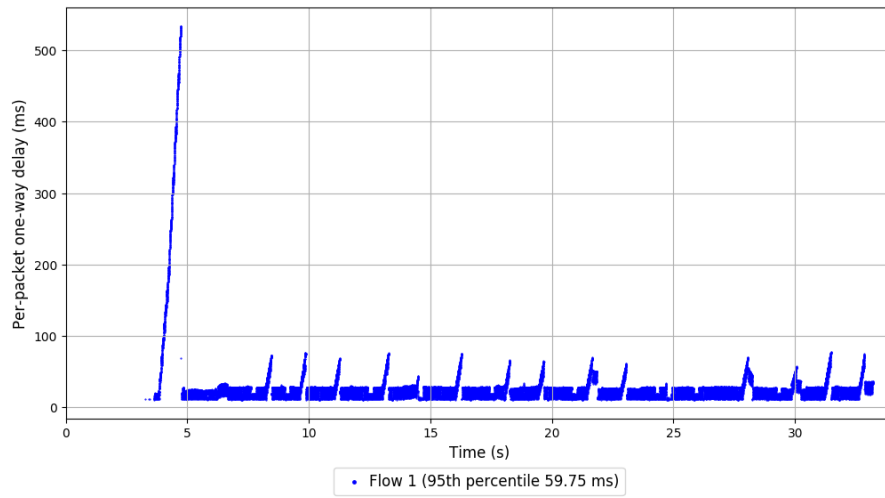
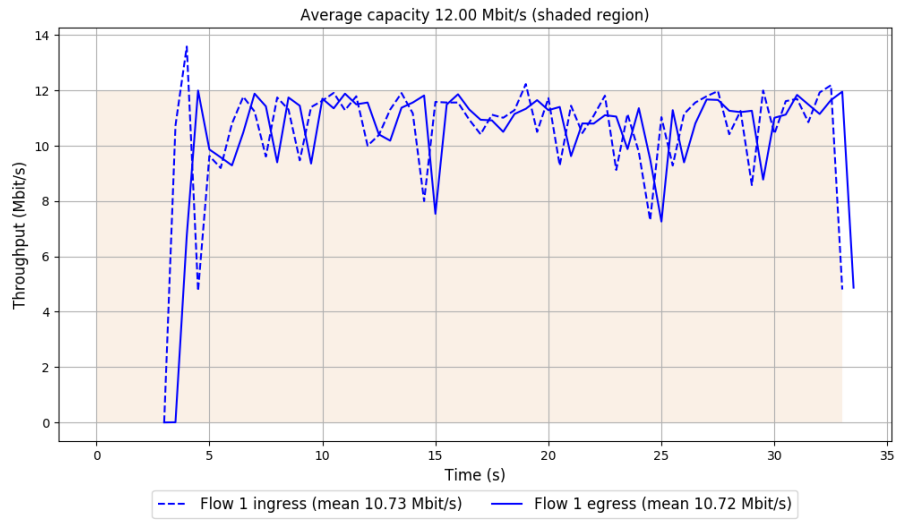
-- Flow 1:

Average throughput: 10.72 Mbit/s

95th percentile per-packet one-way delay: 59.749 ms

Loss rate: 0.12%

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



Run 3: Statistics of FillP-Sheep

Start at: 2019-07-11 23:48:30

End at: 2019-07-11 23:49:00

# Below is generated by plot.py at 2019-07-11 23:55:19

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.06 Mbit/s (92.2% utilization)

95th percentile per-packet one-way delay: 63.143 ms

Loss rate: 0.09%

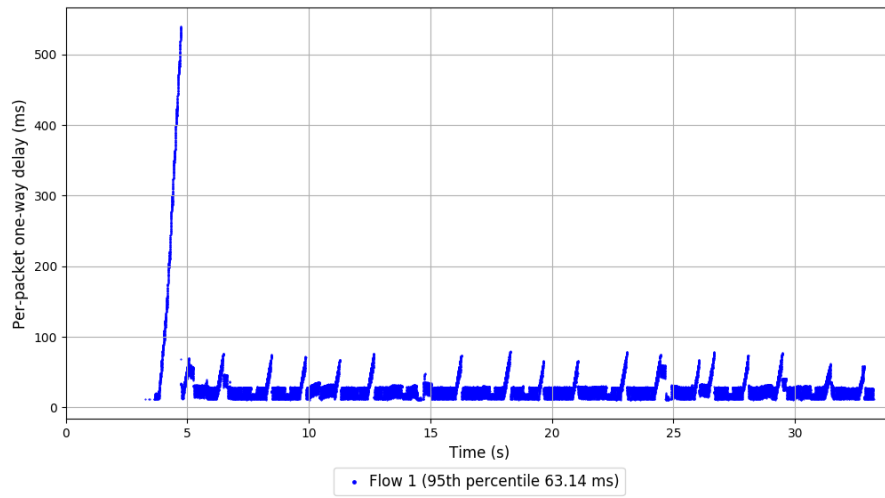
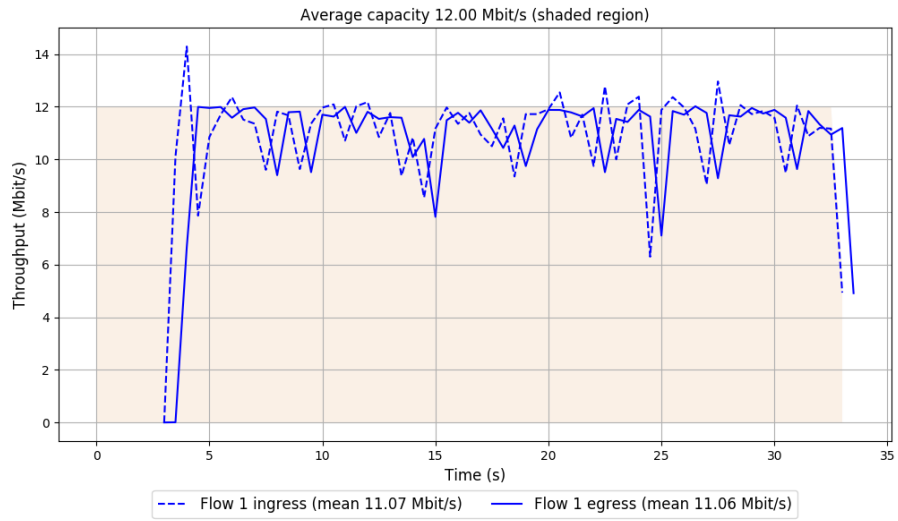
-- Flow 1:

Average throughput: 11.06 Mbit/s

95th percentile per-packet one-way delay: 63.143 ms

Loss rate: 0.09%

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



Run 1: Statistics of Indigo

Start at: 2019-07-11 23:23:10

End at: 2019-07-11 23:23:40

# Below is generated by plot.py at 2019-07-11 23:55:19

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.80 Mbit/s (23.3% utilization)

95th percentile per-packet one-way delay: 65.047 ms

Loss rate: 0.25%

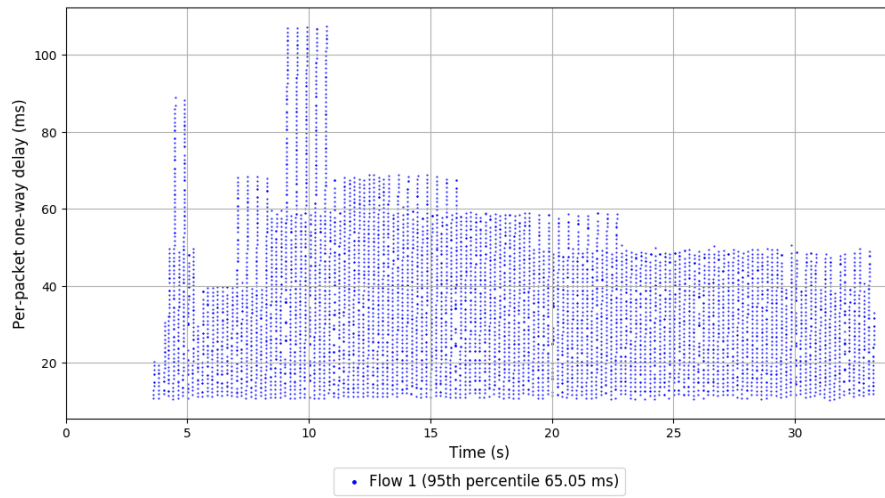
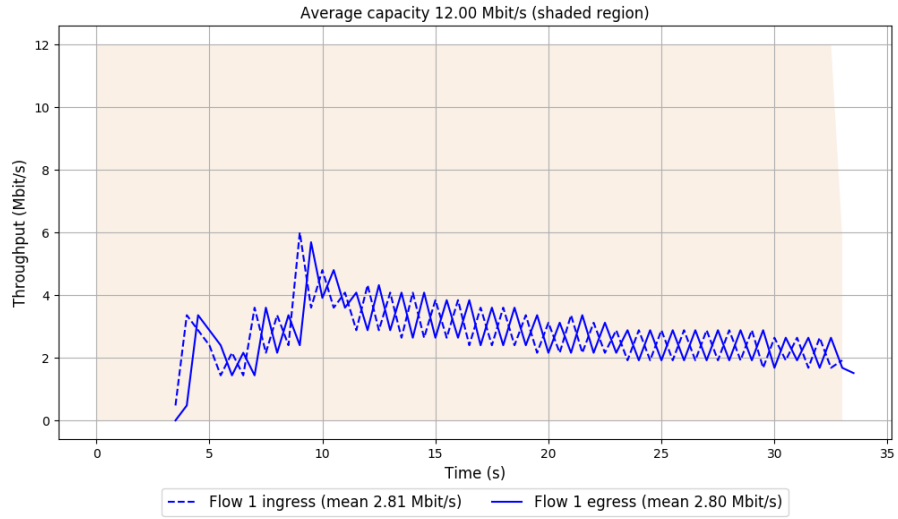
-- Flow 1:

Average throughput: 2.80 Mbit/s

95th percentile per-packet one-way delay: 65.047 ms

Loss rate: 0.25%

# Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2019-07-11 23:37:18

End at: 2019-07-11 23:37:48

# Below is generated by plot.py at 2019-07-11 23:55:19

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 3.07 Mbit/s (25.5% utilization)

95th percentile per-packet one-way delay: 79.493 ms

Loss rate: 0.38%

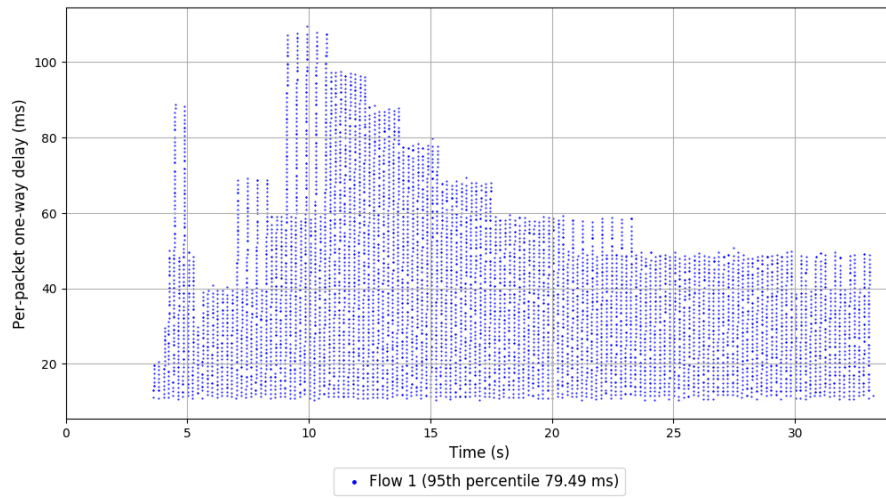
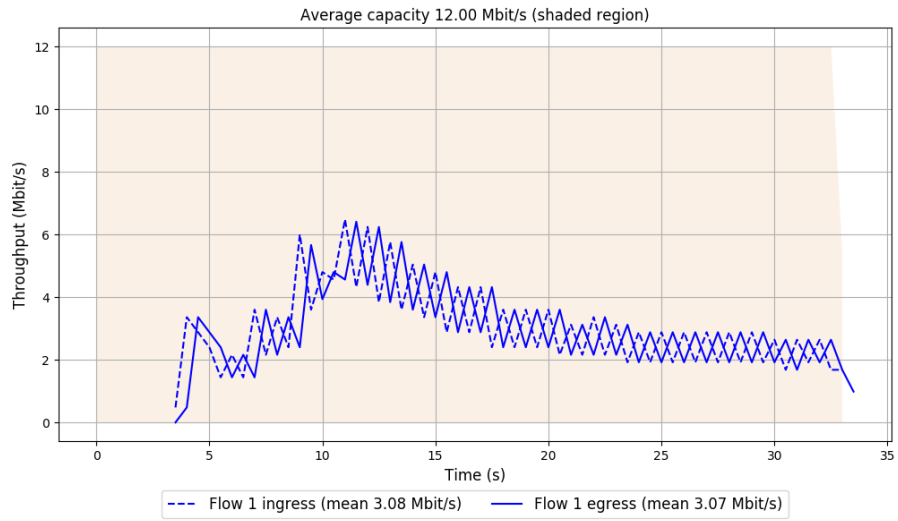
-- Flow 1:

Average throughput: 3.07 Mbit/s

95th percentile per-packet one-way delay: 79.493 ms

Loss rate: 0.38%

## Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2019-07-11 23:51:27

End at: 2019-07-11 23:51:57

# Below is generated by plot.py at 2019-07-11 23:55:19

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.24 Mbit/s (18.7% utilization)

95th percentile per-packet one-way delay: 54.099 ms

Loss rate: 0.18%

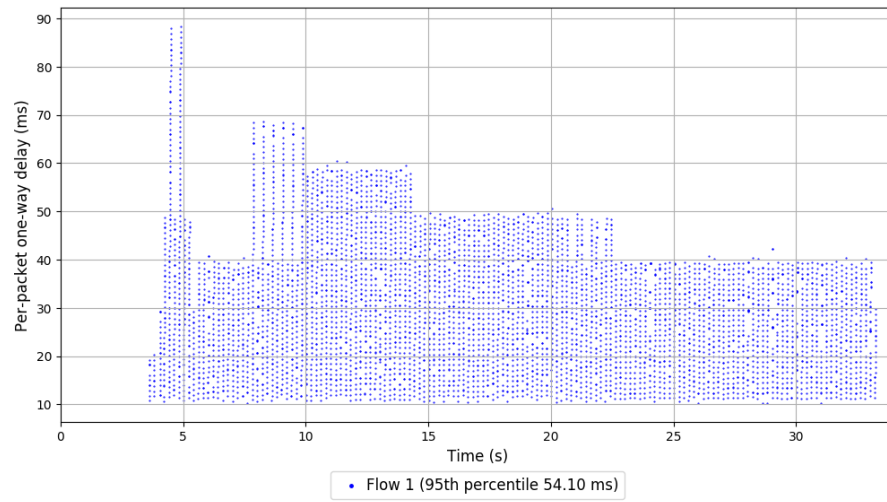
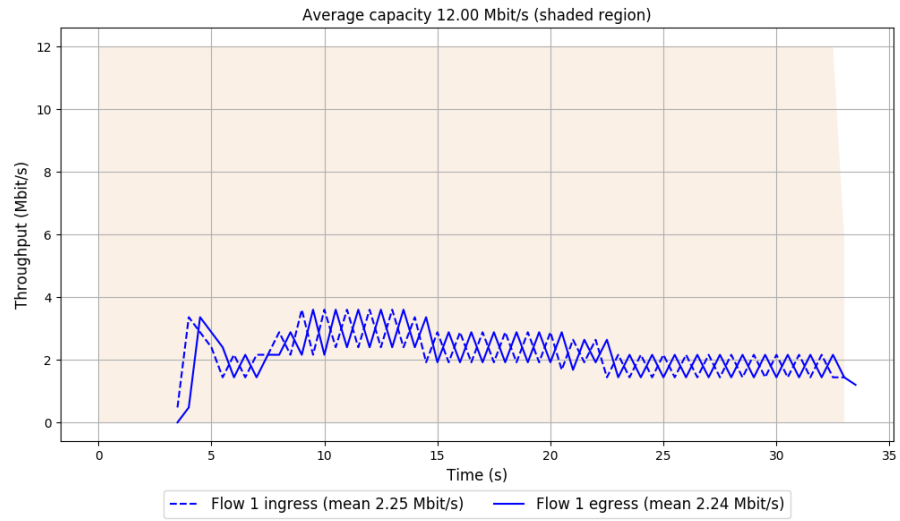
-- Flow 1:

Average throughput: 2.24 Mbit/s

95th percentile per-packet one-way delay: 54.099 ms

Loss rate: 0.18%

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



Run 1: Statistics of Indigo-MusesC3

Start at: 2019-07-11 23:17:17

End at: 2019-07-11 23:17:47

# Below is generated by plot.py at 2019-07-11 23:55:19

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.59 Mbit/s (13.2% utilization)

95th percentile per-packet one-way delay: 13.937 ms

Loss rate: 0.05%

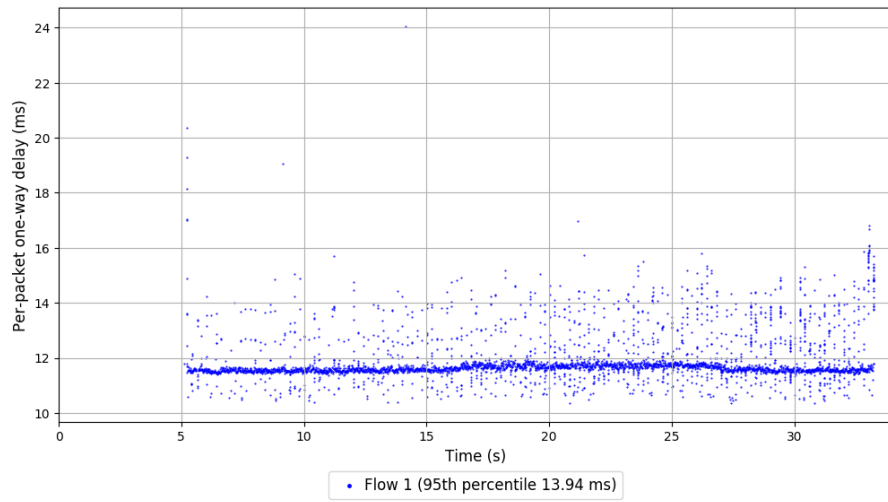
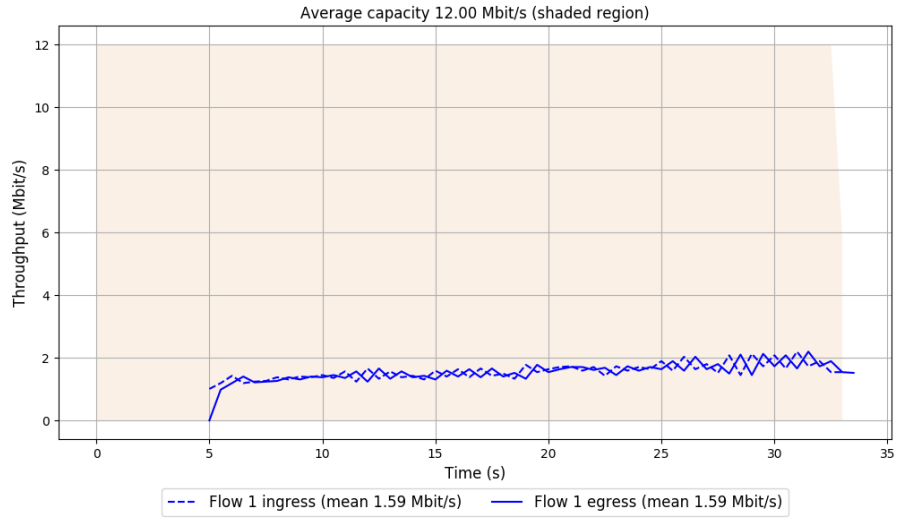
-- Flow 1:

Average throughput: 1.59 Mbit/s

95th percentile per-packet one-way delay: 13.937 ms

Loss rate: 0.05%

# Run 1: Report of Indigo-MusesC3 — Data Link



Run 2: Statistics of Indigo-MusesC3

Start at: 2019-07-11 23:31:24

End at: 2019-07-11 23:31:54

# Below is generated by plot.py at 2019-07-11 23:55:19

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.55 Mbit/s (12.9% utilization)

95th percentile per-packet one-way delay: 13.674 ms

Loss rate: 0.16%

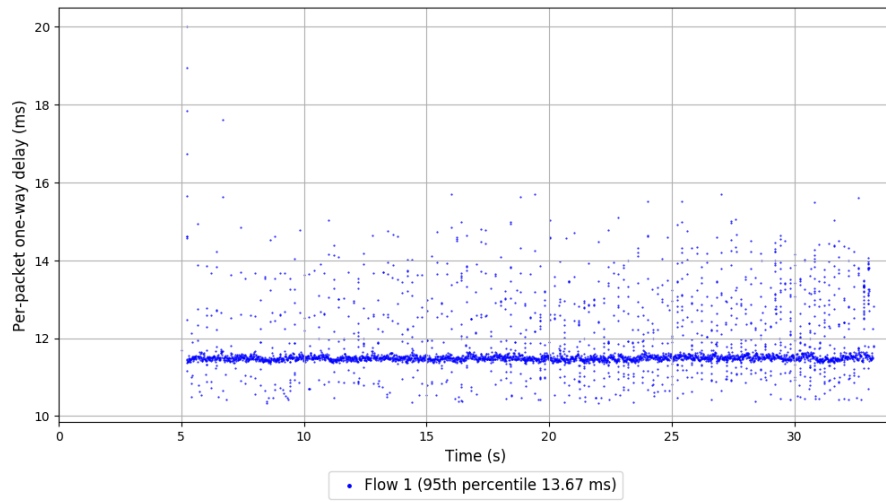
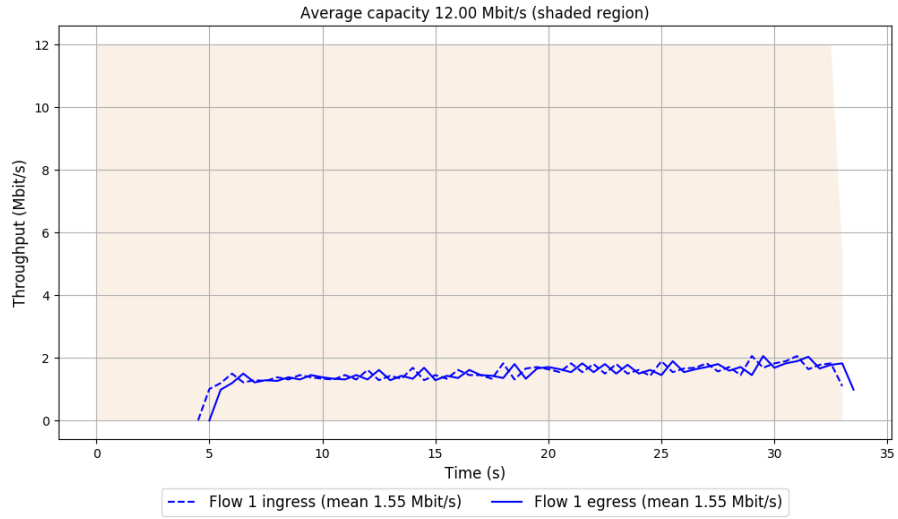
-- Flow 1:

Average throughput: 1.55 Mbit/s

95th percentile per-packet one-way delay: 13.674 ms

Loss rate: 0.16%

## Run 2: Report of Indigo-MusesC3 — Data Link



Run 3: Statistics of Indigo-MusesC3

Start at: 2019-07-11 23:45:33

End at: 2019-07-11 23:46:03

# Below is generated by plot.py at 2019-07-11 23:55:22

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.58 Mbit/s (13.2% utilization)

95th percentile per-packet one-way delay: 13.983 ms

Loss rate: 0.37%

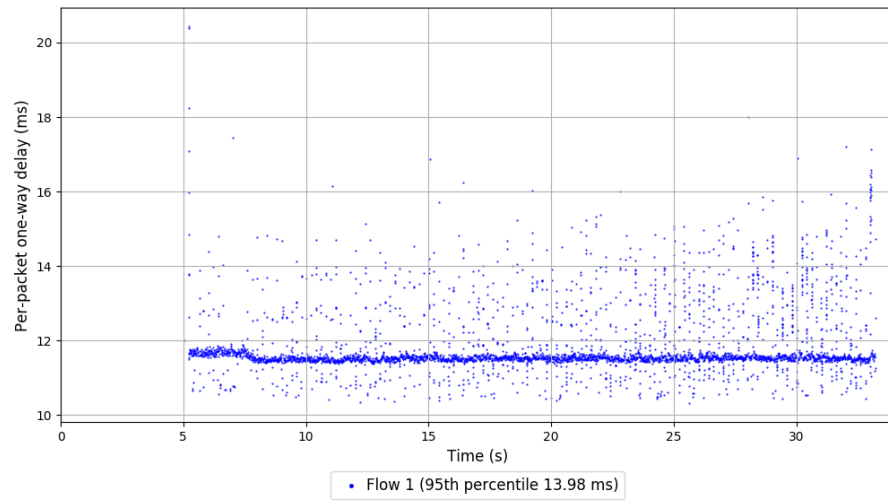
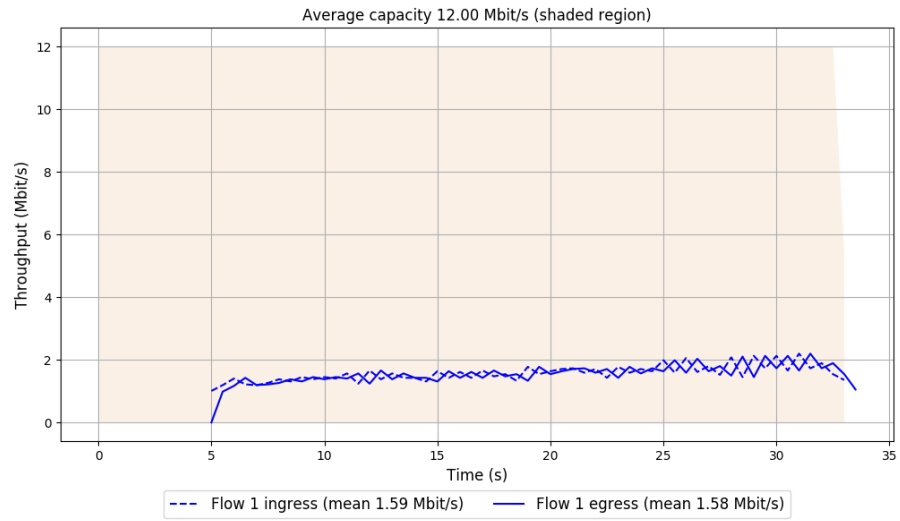
-- Flow 1:

Average throughput: 1.58 Mbit/s

95th percentile per-packet one-way delay: 13.983 ms

Loss rate: 0.37%

### Run 3: Report of Indigo-MusesC3 — Data Link



Run 1: Statistics of Indigo-MusesC5

Start at: 2019-07-11 23:23:45

End at: 2019-07-11 23:24:15

# Below is generated by plot.py at 2019-07-11 23:55:24

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.07 Mbit/s (17.2% utilization)

95th percentile per-packet one-way delay: 46.952 ms

Loss rate: 0.34%

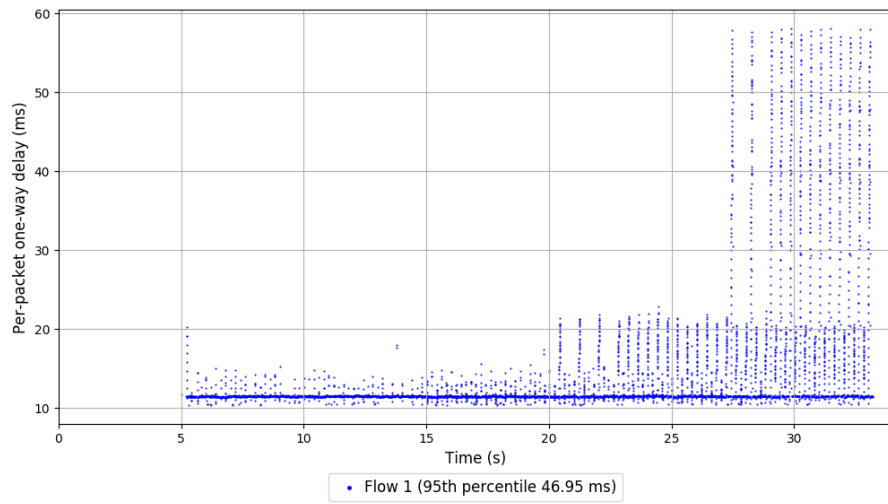
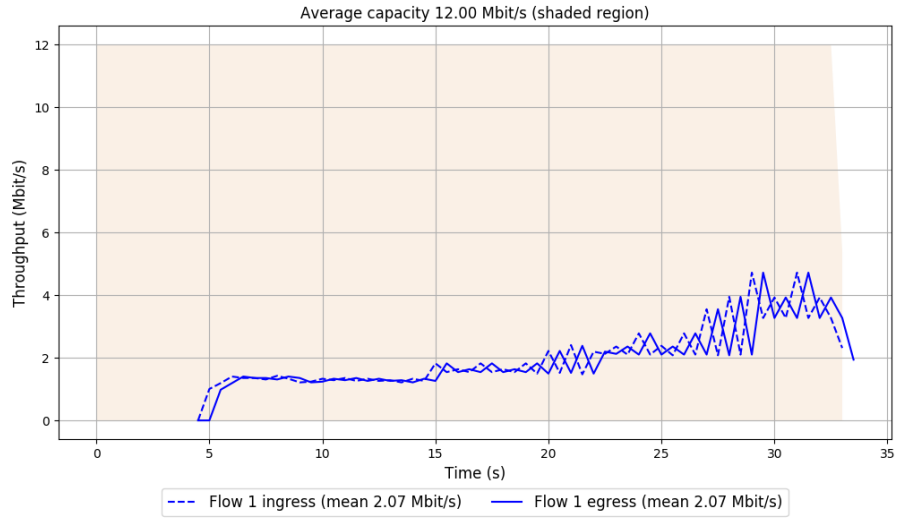
-- Flow 1:

Average throughput: 2.07 Mbit/s

95th percentile per-packet one-way delay: 46.952 ms

Loss rate: 0.34%

# Run 1: Report of Indigo-MusesC5 — Data Link



Run 2: Statistics of Indigo-MusesC5

Start at: 2019-07-11 23:37:53

End at: 2019-07-11 23:38:23

# Below is generated by plot.py at 2019-07-11 23:55:24

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.12 Mbit/s (17.7% utilization)

95th percentile per-packet one-way delay: 47.317 ms

Loss rate: 0.29%

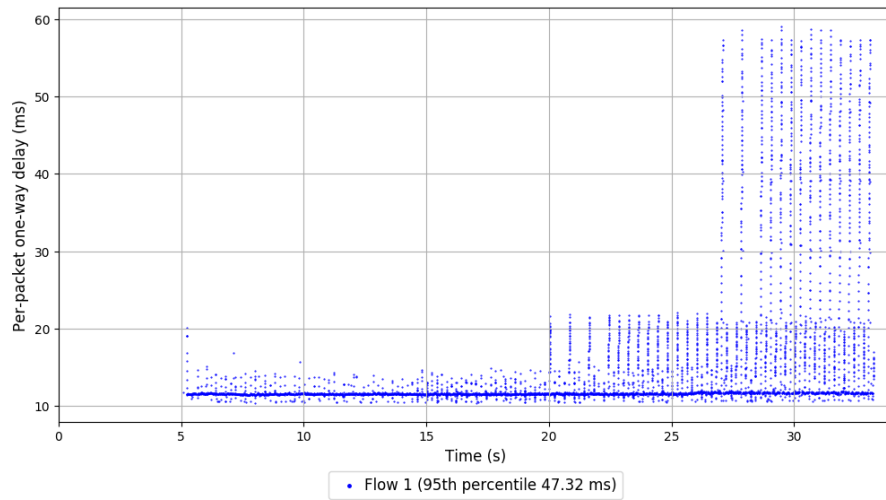
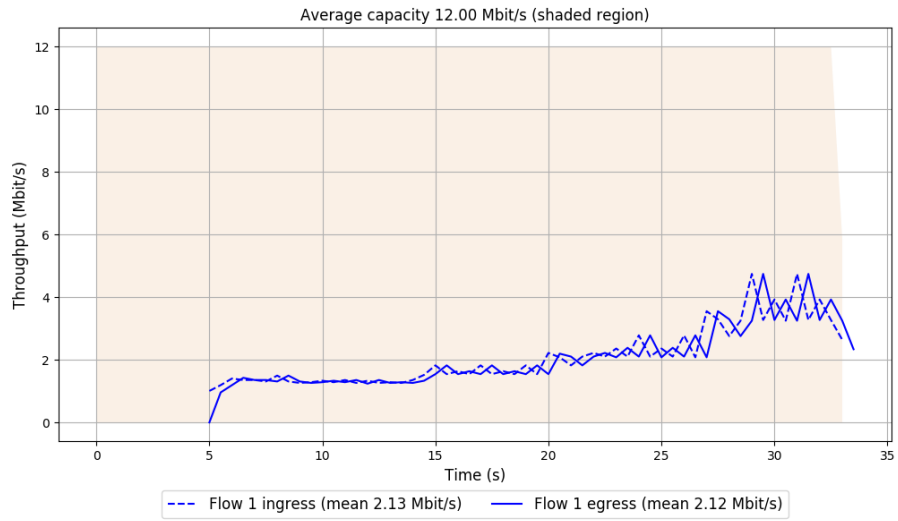
-- Flow 1:

Average throughput: 2.12 Mbit/s

95th percentile per-packet one-way delay: 47.317 ms

Loss rate: 0.29%

## Run 2: Report of Indigo-MusesC5 — Data Link



Run 3: Statistics of Indigo-MusesC5

Start at: 2019-07-11 23:52:02

End at: 2019-07-11 23:52:32

# Below is generated by plot.py at 2019-07-11 23:55:28

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.08 Mbit/s (17.4% utilization)

95th percentile per-packet one-way delay: 47.013 ms

Loss rate: 0.20%

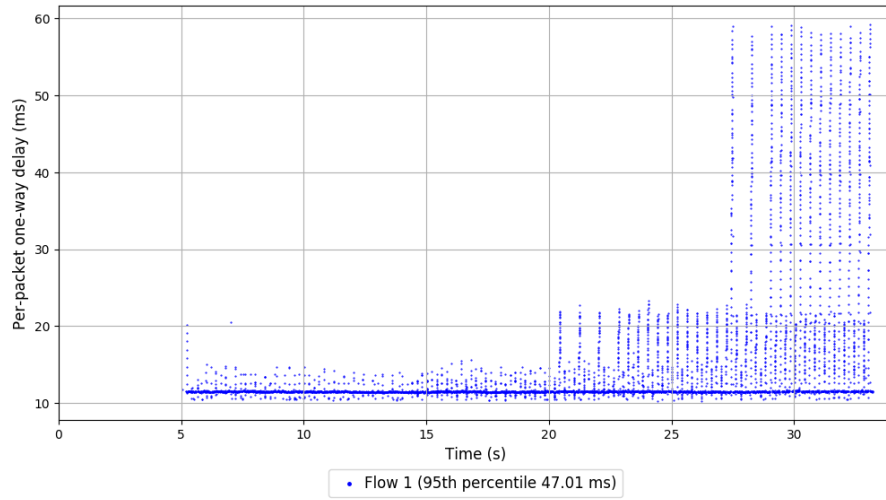
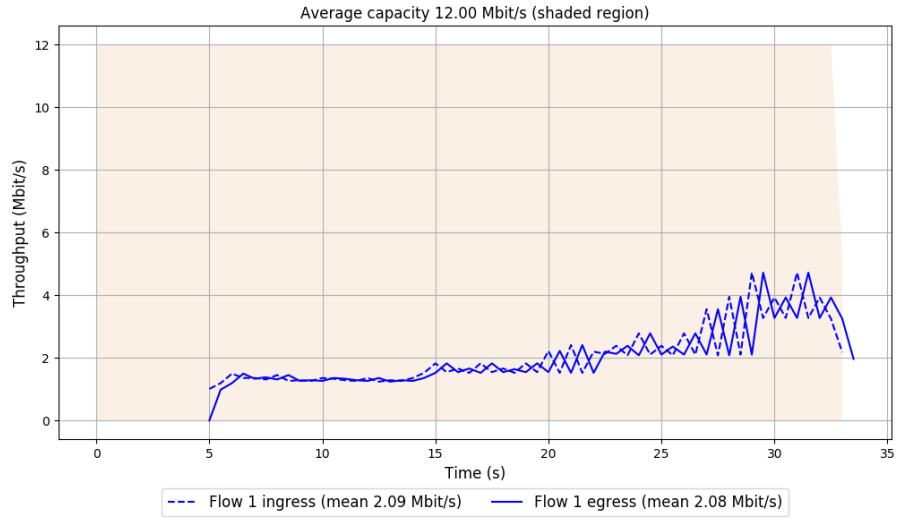
-- Flow 1:

Average throughput: 2.08 Mbit/s

95th percentile per-packet one-way delay: 47.013 ms

Loss rate: 0.20%

### Run 3: Report of Indigo-MusesC5 — Data Link



Run 1: Statistics of Indigo-MusesD

Start at: 2019-07-11 23:13:09

End at: 2019-07-11 23:13:39

# Below is generated by plot.py at 2019-07-11 23:55:29

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.42 Mbit/s (20.1% utilization)

95th percentile per-packet one-way delay: 28.824 ms

Loss rate: 0.55%

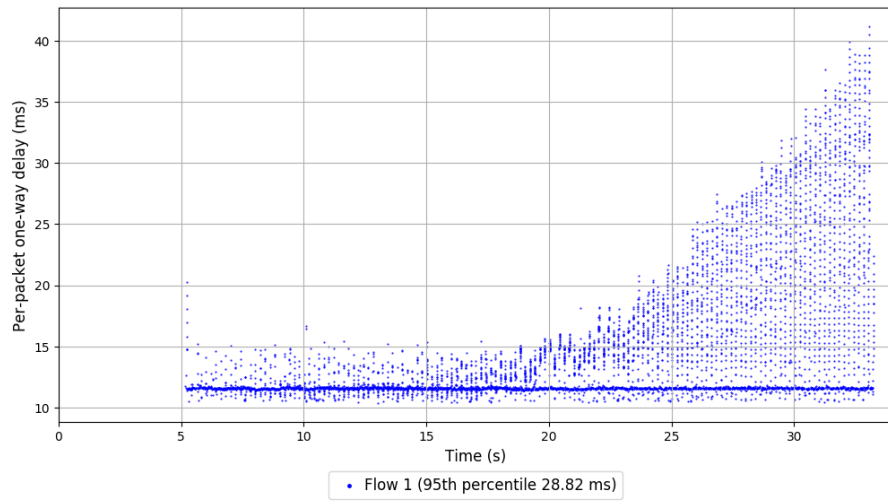
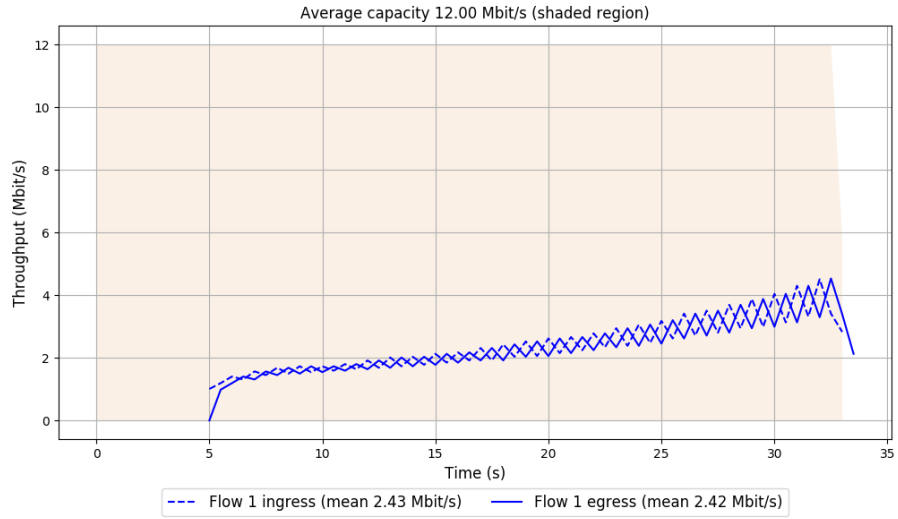
-- Flow 1:

Average throughput: 2.42 Mbit/s

95th percentile per-packet one-way delay: 28.824 ms

Loss rate: 0.55%

# Run 1: Report of Indigo-MusesD — Data Link



Run 2: Statistics of Indigo-MusesD

Start at: 2019-07-11 23:27:17

End at: 2019-07-11 23:27:47

# Below is generated by plot.py at 2019-07-11 23:55:30

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.35 Mbit/s (19.6% utilization)

95th percentile per-packet one-way delay: 26.620 ms

Loss rate: 0.49%

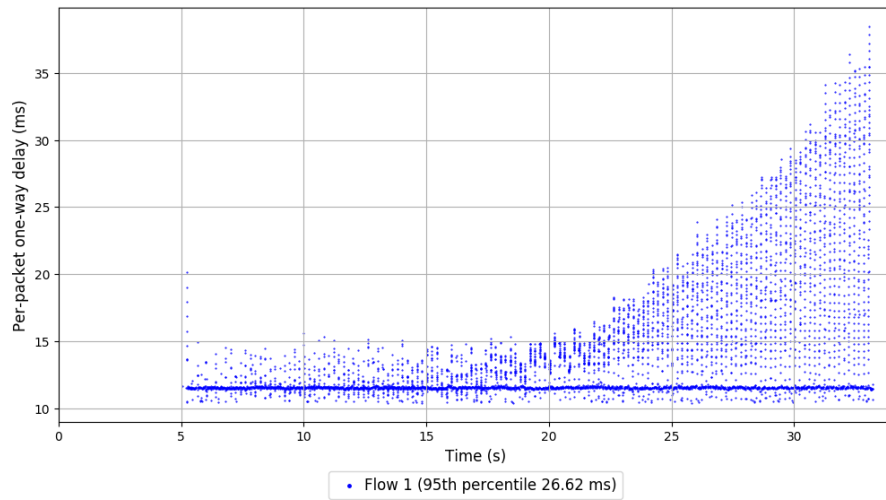
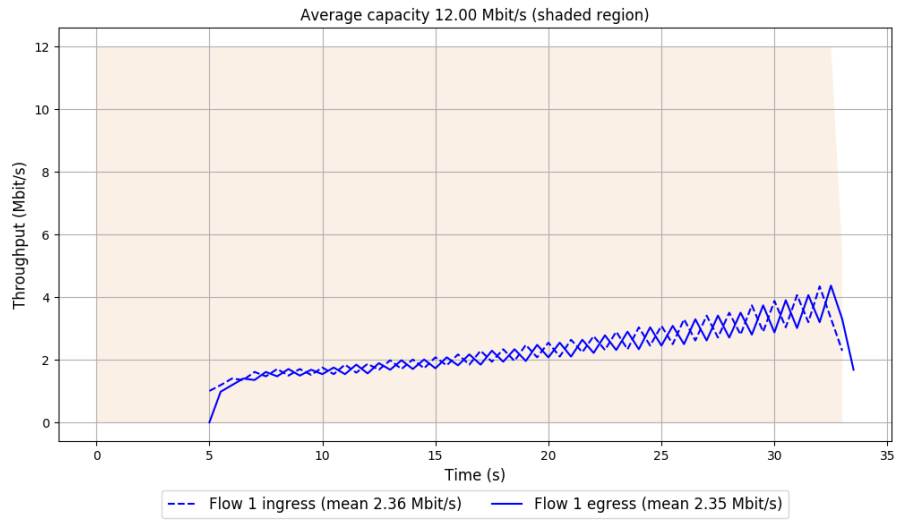
-- Flow 1:

Average throughput: 2.35 Mbit/s

95th percentile per-packet one-way delay: 26.620 ms

Loss rate: 0.49%

## Run 2: Report of Indigo-MusesD — Data Link



Run 3: Statistics of Indigo-MusesD

Start at: 2019-07-11 23:41:25

End at: 2019-07-11 23:41:55

# Below is generated by plot.py at 2019-07-11 23:55:30

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.34 Mbit/s (19.5% utilization)

95th percentile per-packet one-way delay: 25.923 ms

Loss rate: 0.55%

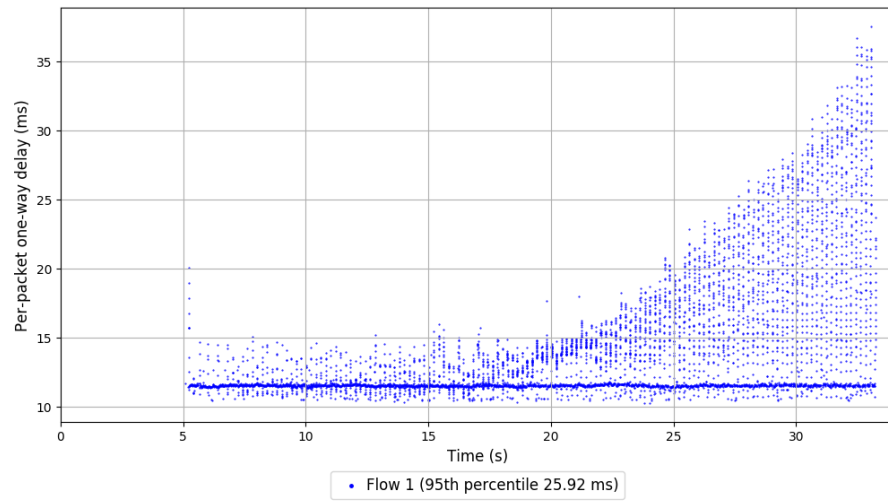
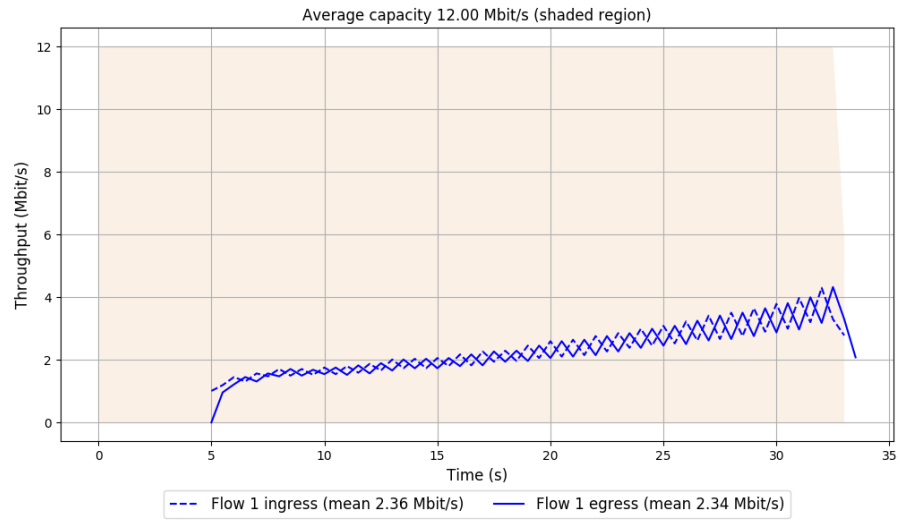
-- Flow 1:

Average throughput: 2.34 Mbit/s

95th percentile per-packet one-way delay: 25.923 ms

Loss rate: 0.55%

### Run 3: Report of Indigo-MusesD — Data Link



Run 1: Statistics of Indigo-MuseST

Start at: 2019-07-11 23:15:31

End at: 2019-07-11 23:16:01

# Below is generated by plot.py at 2019-07-11 23:55:31

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.50 Mbit/s (12.5% utilization)

95th percentile per-packet one-way delay: 13.672 ms

Loss rate: 0.03%

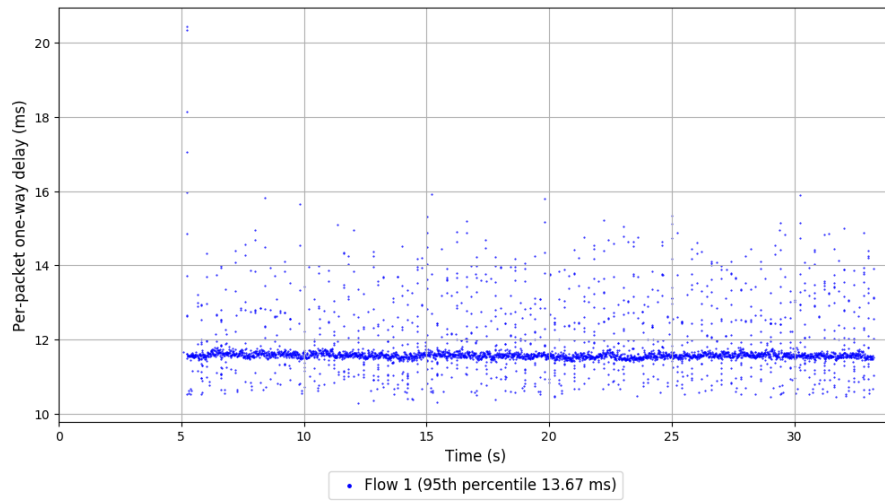
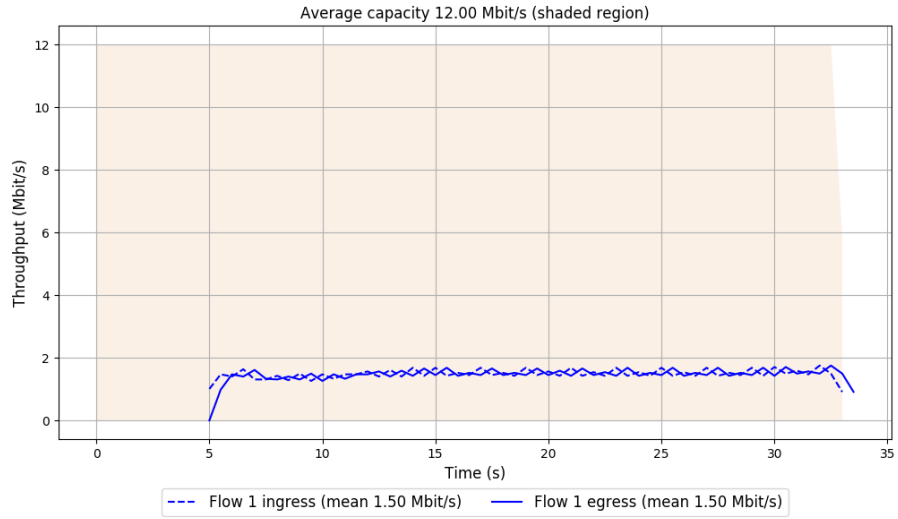
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 13.672 ms

Loss rate: 0.03%

# Run 1: Report of Indigo-MusesT — Data Link



Run 2: Statistics of Indigo-MuseST

Start at: 2019-07-11 23:29:39

End at: 2019-07-11 23:30:09

# Below is generated by plot.py at 2019-07-11 23:55:34

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.50 Mbit/s (12.5% utilization)

95th percentile per-packet one-way delay: 13.658 ms

Loss rate: 0.03%

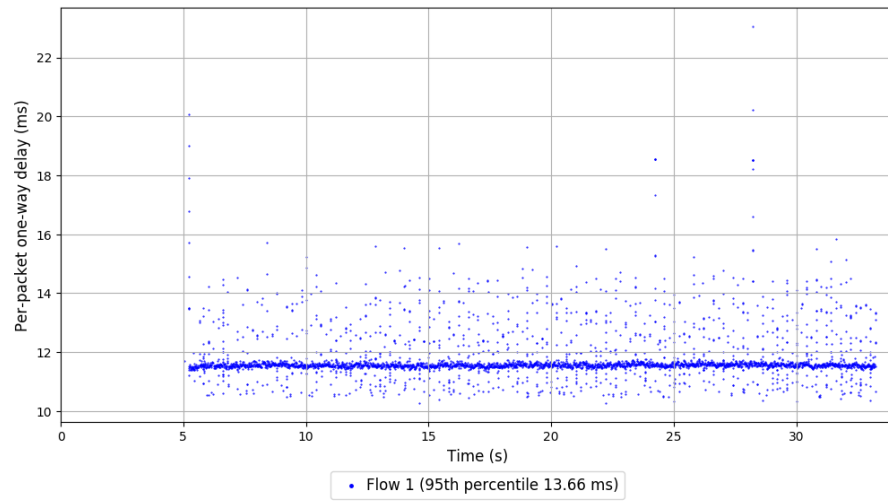
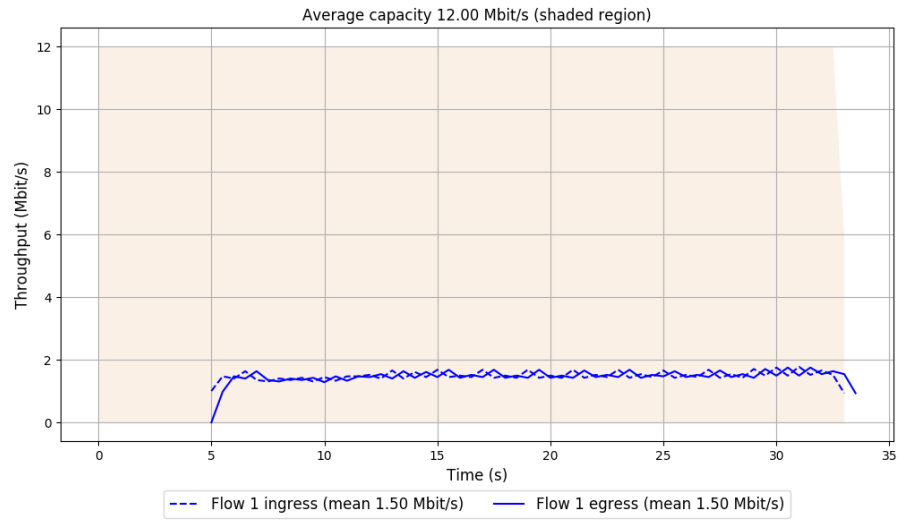
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 13.658 ms

Loss rate: 0.03%

## Run 2: Report of Indigo-MusesT — Data Link



Run 3: Statistics of Indigo-MuseST

Start at: 2019-07-11 23:43:47

End at: 2019-07-11 23:44:17

# Below is generated by plot.py at 2019-07-11 23:55:35

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.50 Mbit/s (12.5% utilization)

95th percentile per-packet one-way delay: 13.664 ms

Loss rate: 0.03%

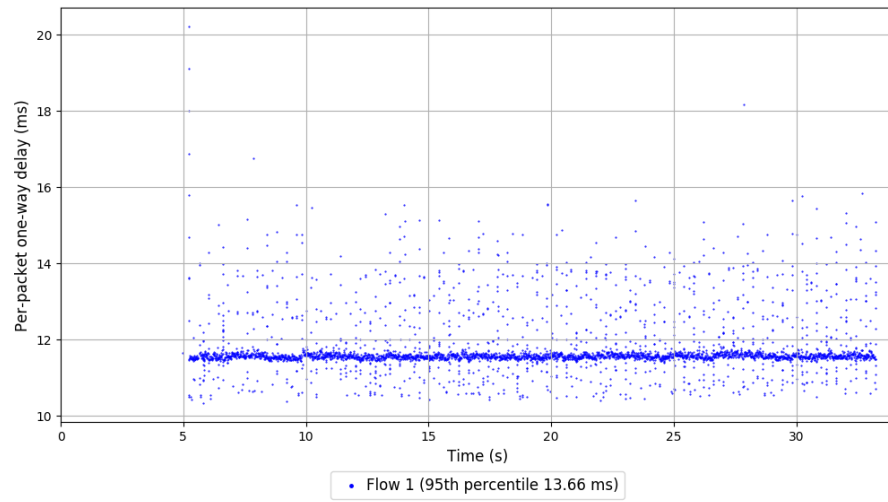
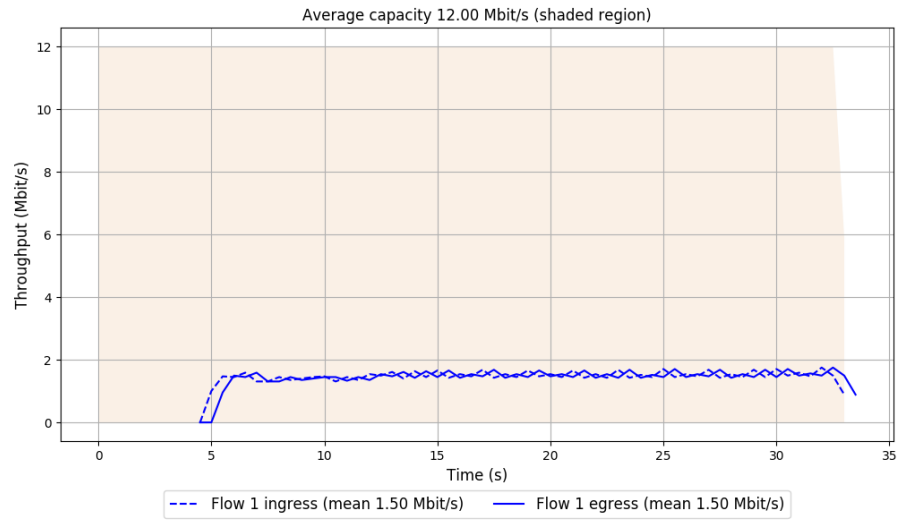
-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 13.664 ms

Loss rate: 0.03%

### Run 3: Report of Indigo-MusesT — Data Link



Run 1: Statistics of LEDBAT

Start at: 2019-07-11 23:17:52

End at: 2019-07-11 23:18:22

# Below is generated by plot.py at 2019-07-11 23:55:41

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 5.96 Mbit/s (49.6% utilization)

95th percentile per-packet one-way delay: 140.832 ms

Loss rate: 0.92%

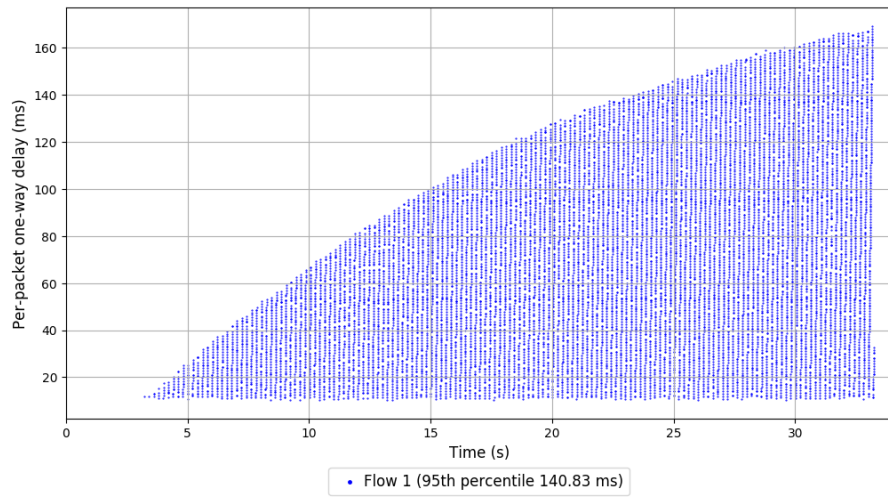
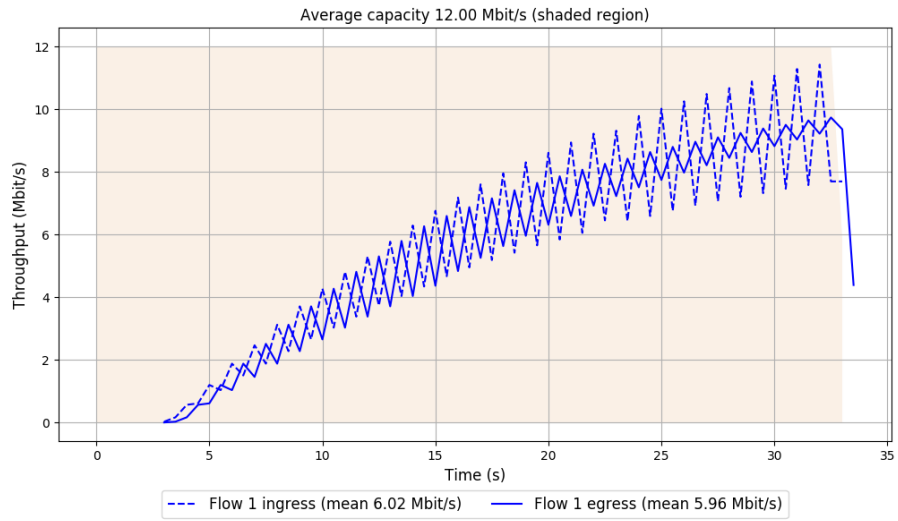
-- Flow 1:

Average throughput: 5.96 Mbit/s

95th percentile per-packet one-way delay: 140.832 ms

Loss rate: 0.92%

# Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2019-07-11 23:31:59

End at: 2019-07-11 23:32:29

# Below is generated by plot.py at 2019-07-11 23:55:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 5.95 Mbit/s (49.6% utilization)

95th percentile per-packet one-way delay: 140.191 ms

Loss rate: 0.92%

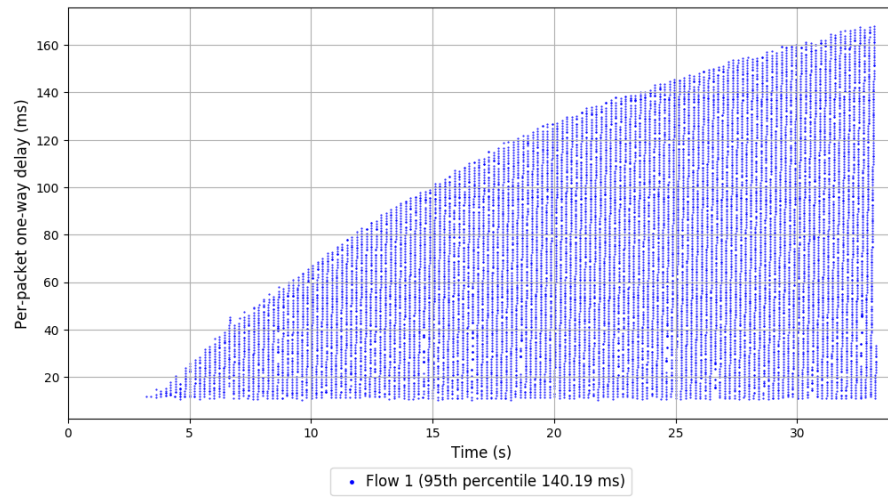
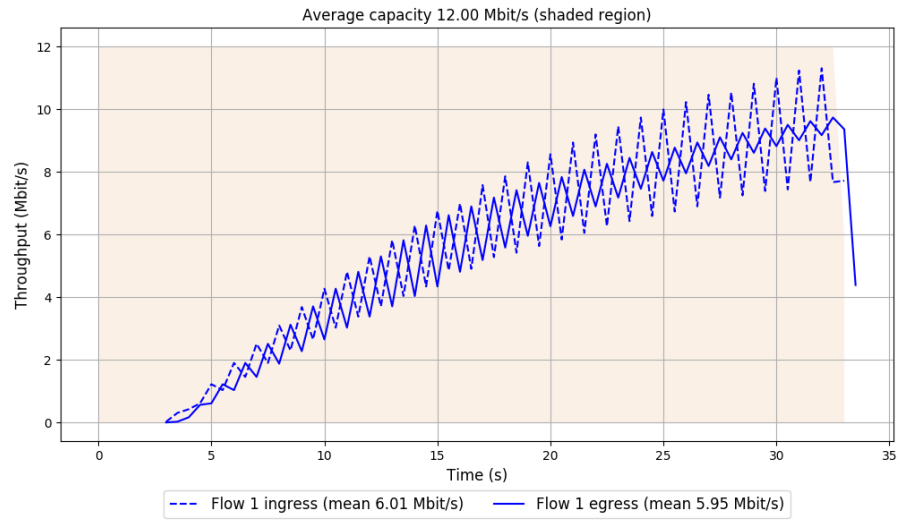
-- Flow 1:

Average throughput: 5.95 Mbit/s

95th percentile per-packet one-way delay: 140.191 ms

Loss rate: 0.92%

## Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2019-07-11 23:46:08

End at: 2019-07-11 23:46:38

# Below is generated by plot.py at 2019-07-11 23:55:43

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 5.96 Mbit/s (49.7% utilization)

95th percentile per-packet one-way delay: 140.526 ms

Loss rate: 0.96%

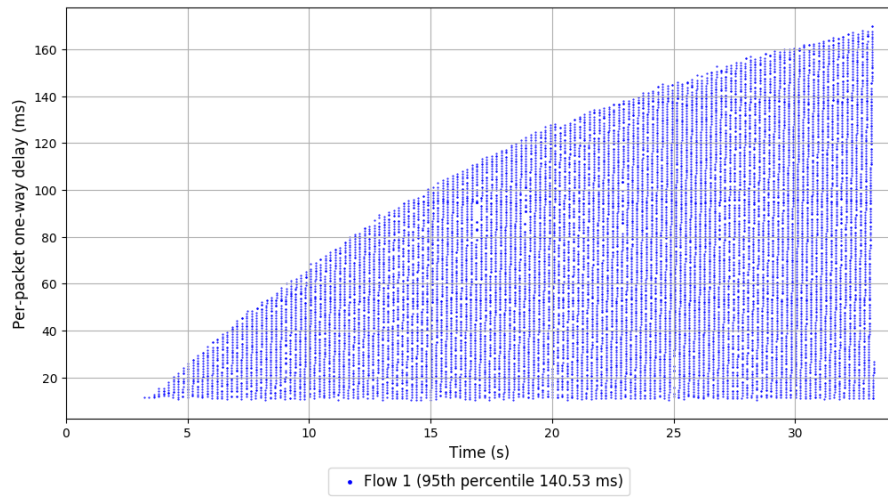
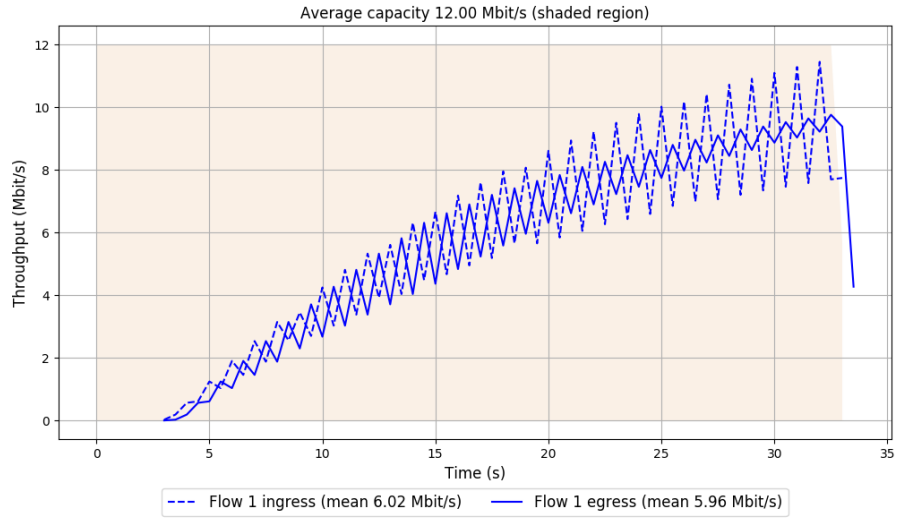
-- Flow 1:

Average throughput: 5.96 Mbit/s

95th percentile per-packet one-way delay: 140.526 ms

Loss rate: 0.96%

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



Run 1: Statistics of Muses\\_DecisionTree

Start at: 2019-07-11 23:14:55

End at: 2019-07-11 23:15:25

# Below is generated by plot.py at 2019-07-11 23:55:52

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.33 Mbit/s (94.4% utilization)

95th percentile per-packet one-way delay: 6027.239 ms

Loss rate: 23.05%

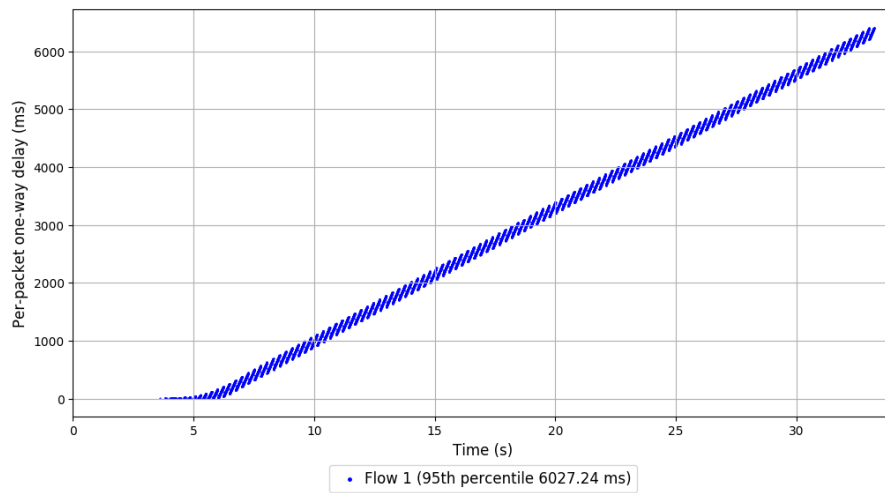
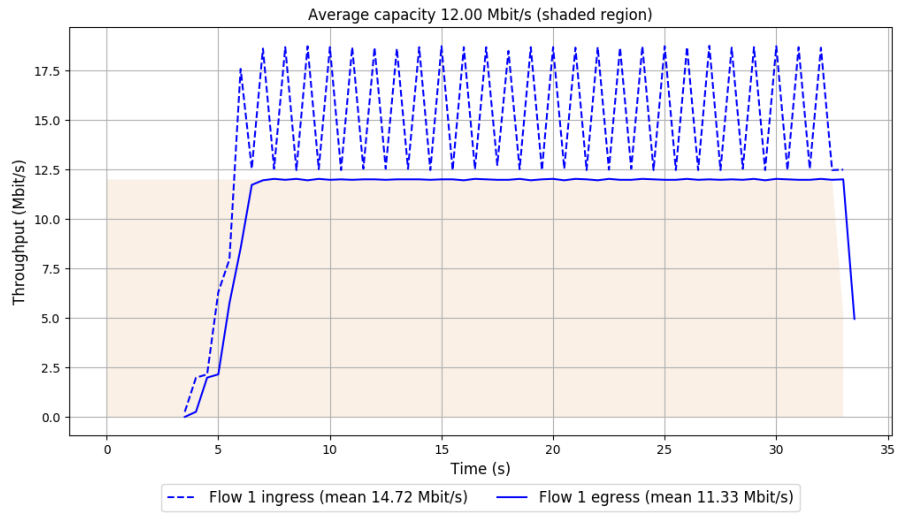
-- Flow 1:

Average throughput: 11.33 Mbit/s

95th percentile per-packet one-way delay: 6027.239 ms

Loss rate: 23.05%

# Run 1: Report of Muses\_DecisionTree — Data Link



Run 2: Statistics of Muses\\_DecisionTree

Start at: 2019-07-11 23:29:03

End at: 2019-07-11 23:29:33

# Below is generated by plot.py at 2019-07-11 23:55:54

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.40 Mbit/s (95.0% utilization)

95th percentile per-packet one-way delay: 6074.974 ms

Loss rate: 23.01%

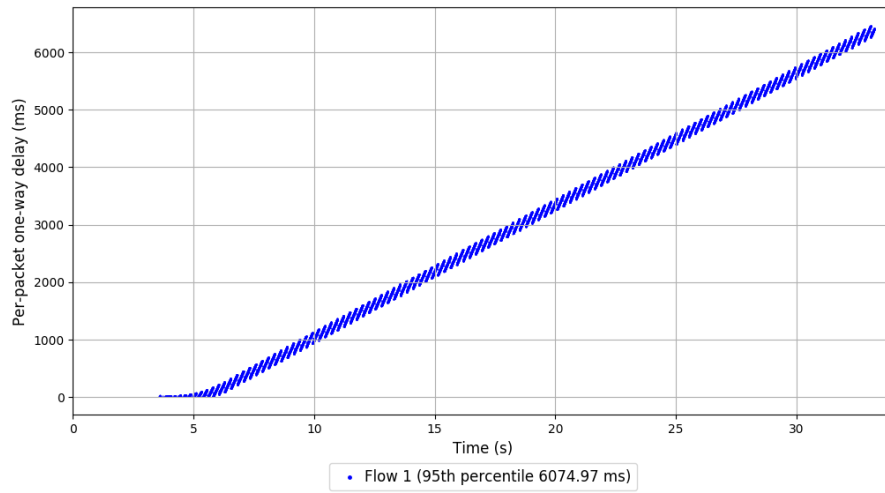
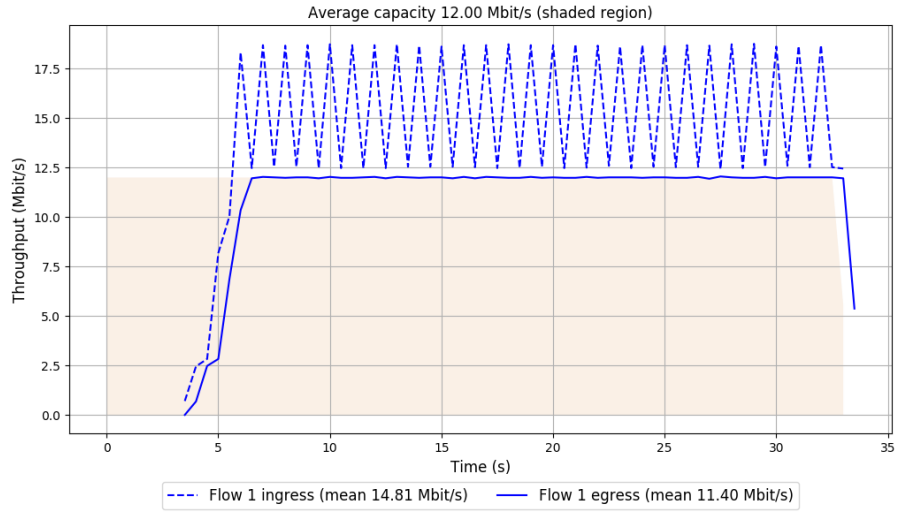
-- Flow 1:

Average throughput: 11.40 Mbit/s

95th percentile per-packet one-way delay: 6074.974 ms

Loss rate: 23.01%

Run 2: Report of Muses\_DecisionTree — Data Link



Run 3: Statistics of Muses\\_DecisionTree

Start at: 2019-07-11 23:43:12

End at: 2019-07-11 23:43:42

# Below is generated by plot.py at 2019-07-11 23:55:54

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.35 Mbit/s (94.6% utilization)

95th percentile per-packet one-way delay: 6031.946 ms

Loss rate: 22.97%

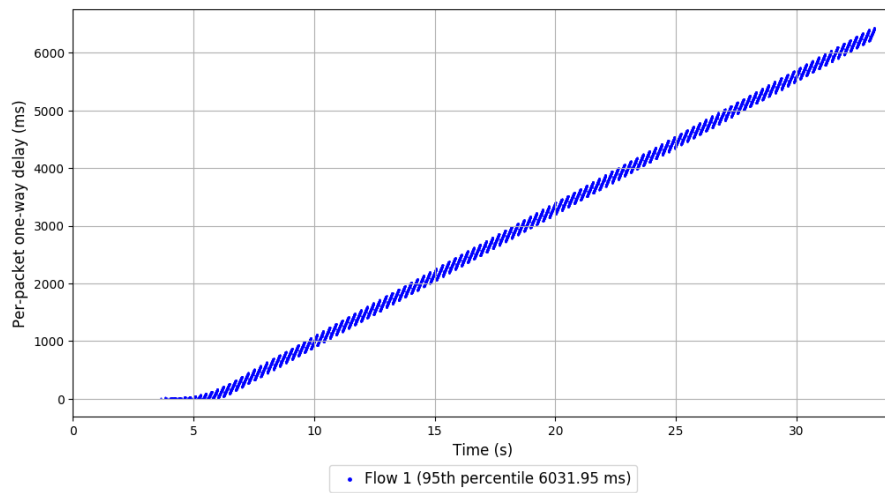
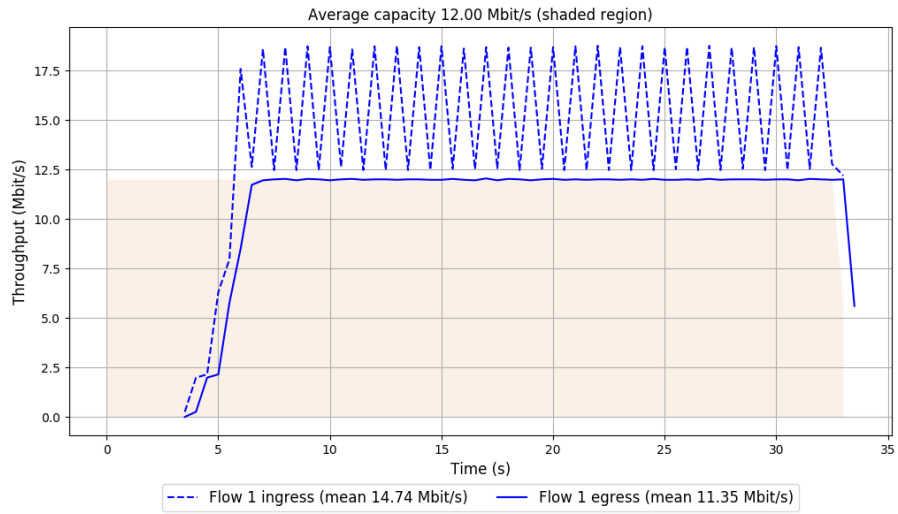
-- Flow 1:

Average throughput: 11.35 Mbit/s

95th percentile per-packet one-way delay: 6031.946 ms

Loss rate: 22.97%

### Run 3: Report of Muses\_DecisionTree — Data Link



Run 1: Statistics of Muses\\_DecisionTreeH0

Start at: 2019-07-11 23:18:27

End at: 2019-07-11 23:18:57

# Below is generated by plot.py at 2019-07-11 23:55:56

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.34 Mbit/s (94.5% utilization)

95th percentile per-packet one-way delay: 6032.539 ms

Loss rate: 22.97%

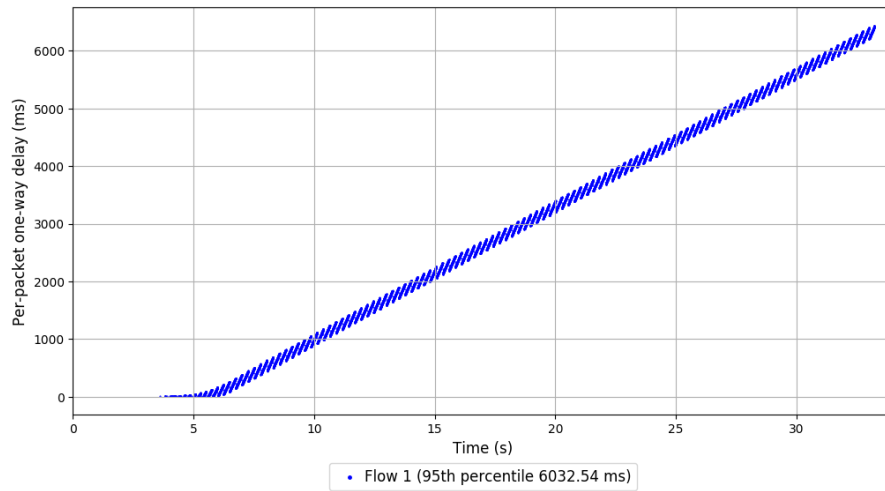
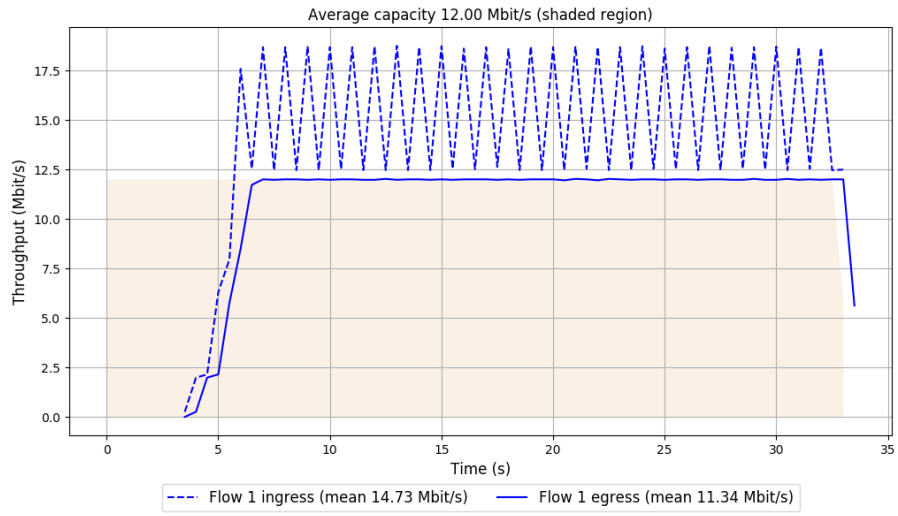
-- Flow 1:

Average throughput: 11.34 Mbit/s

95th percentile per-packet one-way delay: 6032.539 ms

Loss rate: 22.97%

Run 1: Report of Muses\_DecisionTreeH0 — Data Link



Run 2: Statistics of Muses\\_DecisionTreeH0

Start at: 2019-07-11 23:32:35

End at: 2019-07-11 23:33:05

# Below is generated by plot.py at 2019-07-11 23:55:57

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.40 Mbit/s (95.0% utilization)

95th percentile per-packet one-way delay: 6070.553 ms

Loss rate: 23.05%

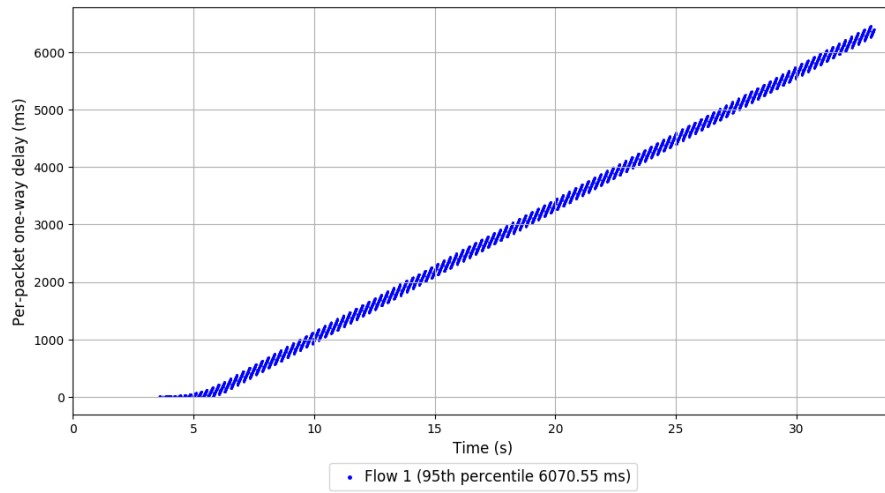
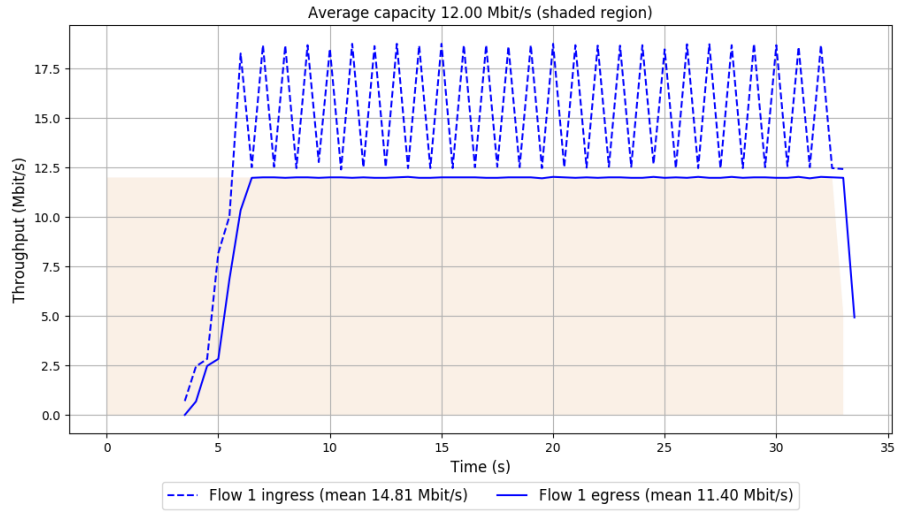
-- Flow 1:

Average throughput: 11.40 Mbit/s

95th percentile per-packet one-way delay: 6070.553 ms

Loss rate: 23.05%

Run 2: Report of Muses\_DecisionTreeH0 — Data Link



Run 3: Statistics of Muses\\_DecisionTreeH0

Start at: 2019-07-11 23:46:44

End at: 2019-07-11 23:47:14

# Below is generated by plot.py at 2019-07-11 23:56:05

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.40 Mbit/s (95.0% utilization)

95th percentile per-packet one-way delay: 6076.950 ms

Loss rate: 22.98%

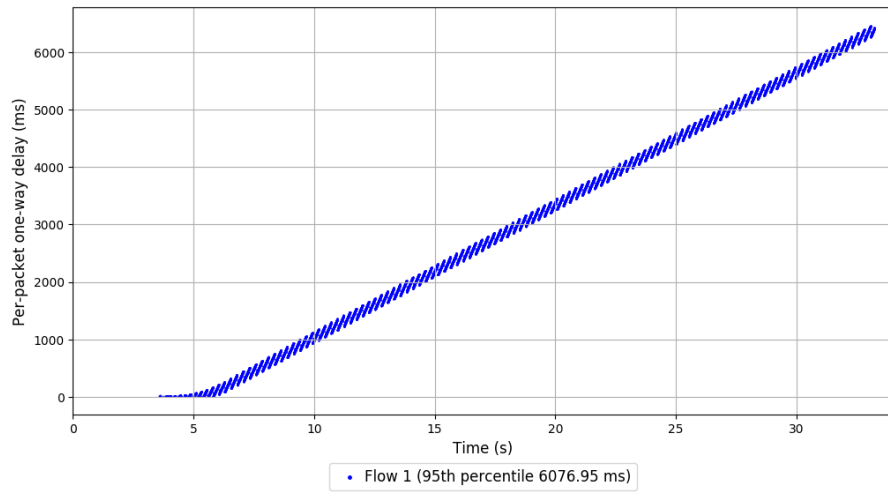
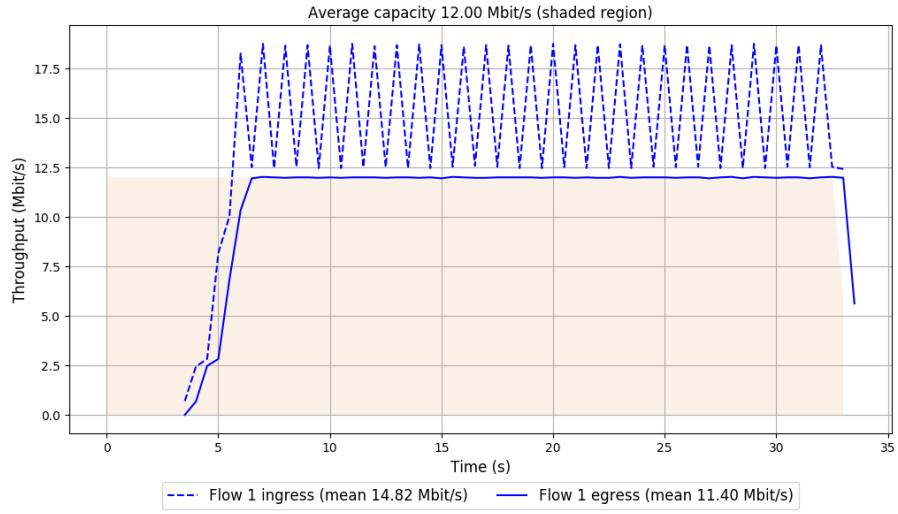
-- Flow 1:

Average throughput: 11.40 Mbit/s

95th percentile per-packet one-way delay: 6076.950 ms

Loss rate: 22.98%

### Run 3: Report of Muses\_DecisionTreeH0 — Data Link



Run 1: Statistics of Muses\\_DecisionTreeR0

Start at: 2019-07-11 23:19:38

End at: 2019-07-11 23:20:08

# Below is generated by plot.py at 2019-07-11 23:56:07

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.40 Mbit/s (95.0% utilization)

95th percentile per-packet one-way delay: 6069.765 ms

Loss rate: 23.05%

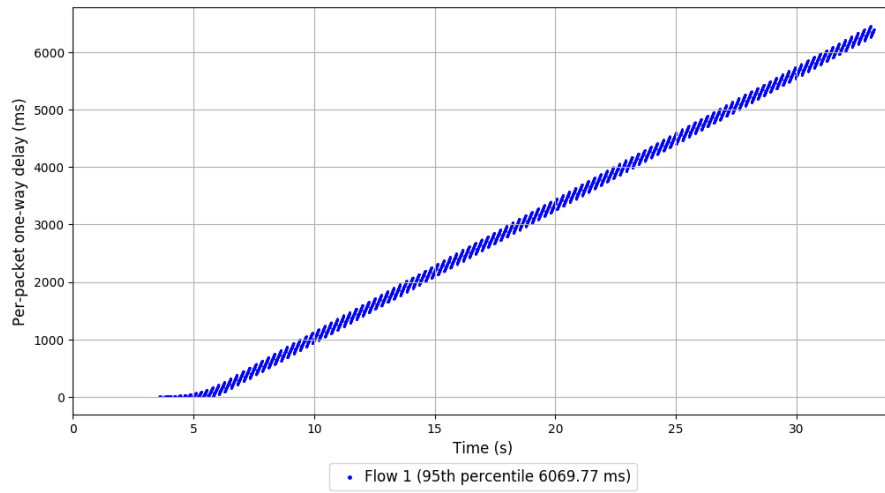
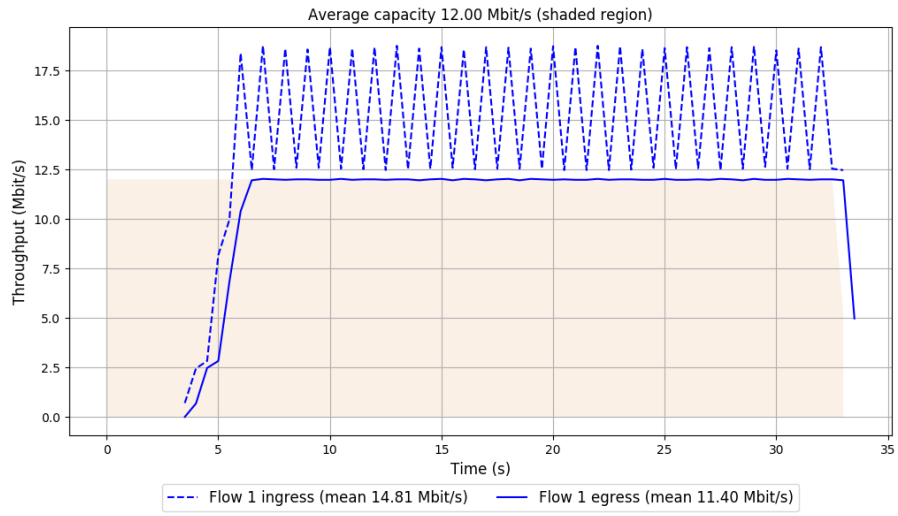
-- Flow 1:

Average throughput: 11.40 Mbit/s

95th percentile per-packet one-way delay: 6069.765 ms

Loss rate: 23.05%

Run 1: Report of Muses\_DecisionTreeR0 — Data Link



Run 2: Statistics of Muses\\_DecisionTreeR0

Start at: 2019-07-11 23:33:45

End at: 2019-07-11 23:34:16

# Below is generated by plot.py at 2019-07-11 23:56:07

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.34 Mbit/s (94.5% utilization)

95th percentile per-packet one-way delay: 6032.153 ms

Loss rate: 22.98%

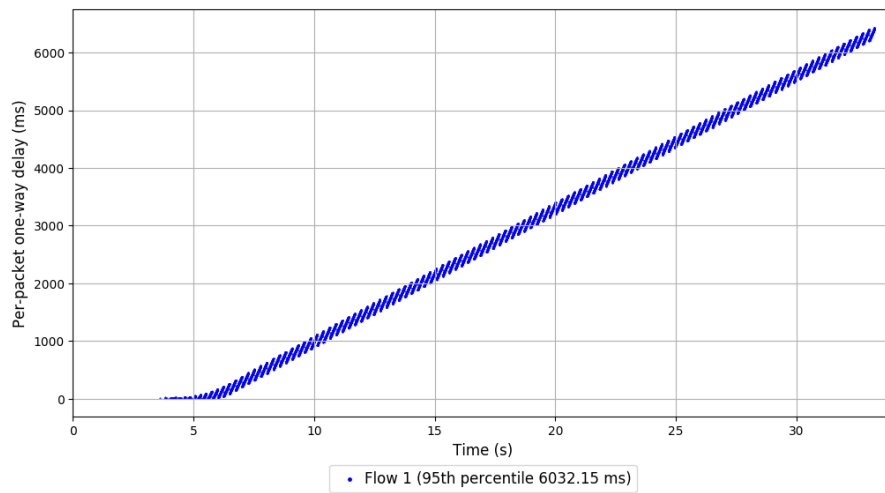
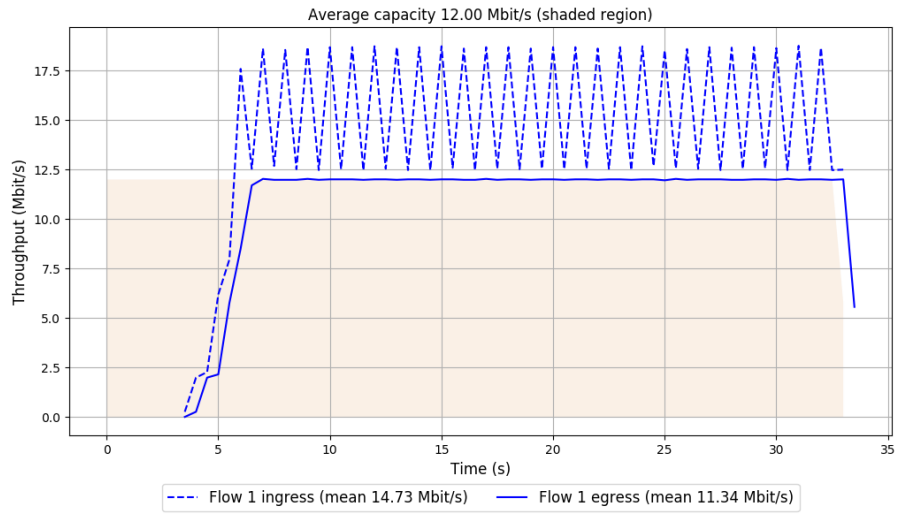
-- Flow 1:

Average throughput: 11.34 Mbit/s

95th percentile per-packet one-way delay: 6032.153 ms

Loss rate: 22.98%

## Run 2: Report of Muses\_DecisionTreeR0 — Data Link



Run 3: Statistics of Muses\\_DecisionTreeR0

Start at: 2019-07-11 23:47:55

End at: 2019-07-11 23:48:25

# Below is generated by plot.py at 2019-07-11 23:56:14

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.40 Mbit/s (95.0% utilization)

95th percentile per-packet one-way delay: 6077.212 ms

Loss rate: 22.98%

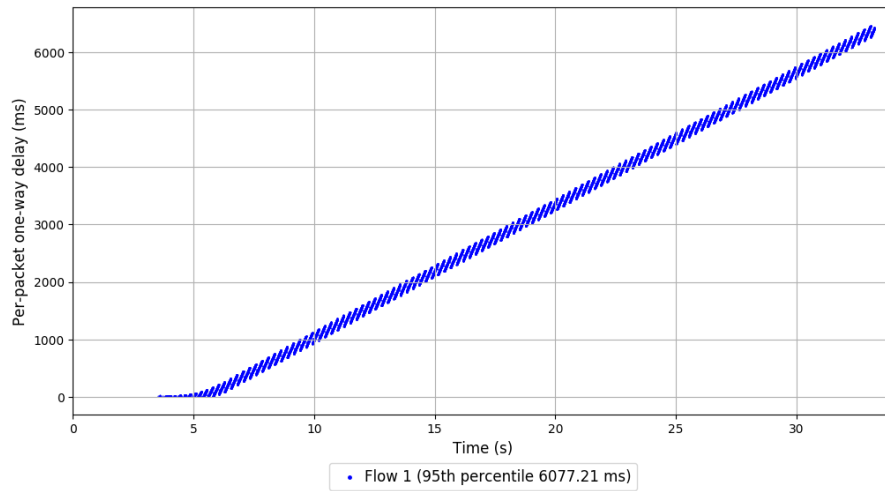
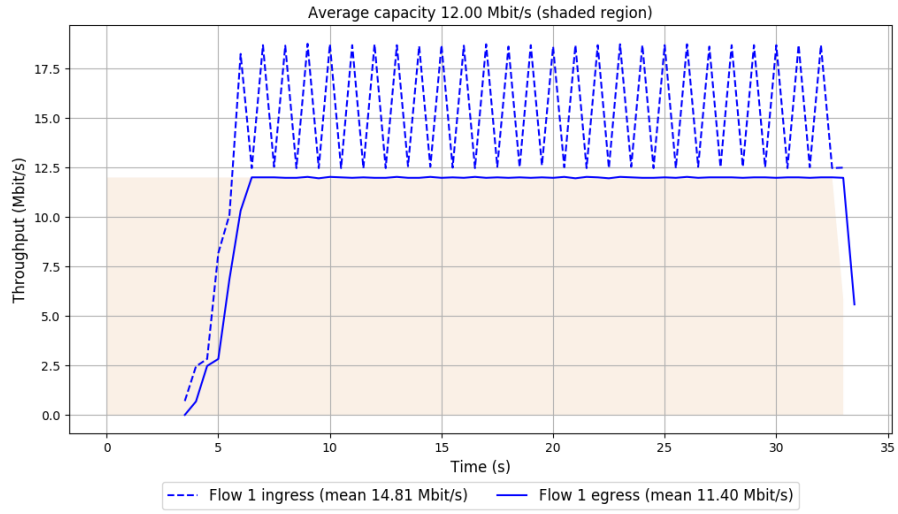
-- Flow 1:

Average throughput: 11.40 Mbit/s

95th percentile per-packet one-way delay: 6077.212 ms

Loss rate: 22.98%

### Run 3: Report of Muses\_DecisionTreeR0 — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2019-07-11 23:24:20

End at: 2019-07-11 23:24:50

# Below is generated by plot.py at 2019-07-11 23:56:14

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 3.88 Mbit/s (32.3% utilization)

95th percentile per-packet one-way delay: 12.300 ms

Loss rate: 0.04%

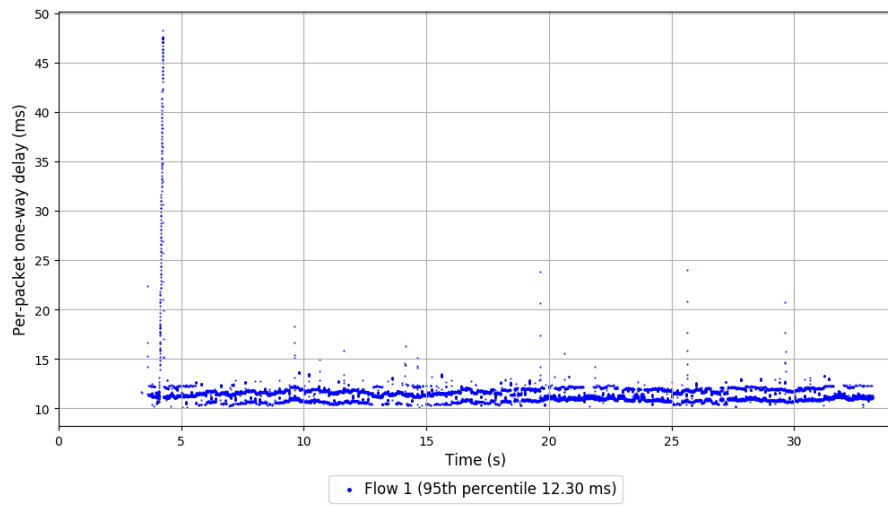
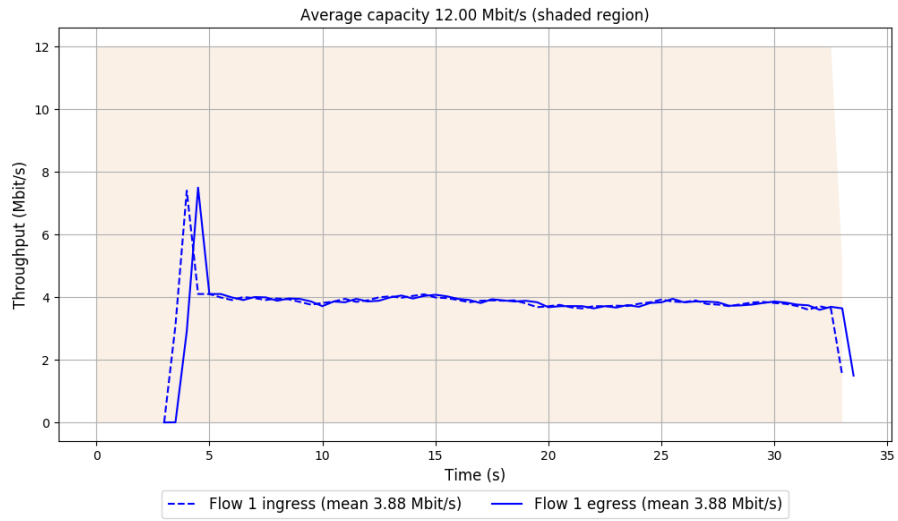
-- Flow 1:

Average throughput: 3.88 Mbit/s

95th percentile per-packet one-way delay: 12.300 ms

Loss rate: 0.04%

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



Run 2: Statistics of PCC-Allegro

Start at: 2019-07-11 23:38:28

End at: 2019-07-11 23:38:58

# Below is generated by plot.py at 2019-07-11 23:56:14

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 4.27 Mbit/s (35.6% utilization)

95th percentile per-packet one-way delay: 12.361 ms

Loss rate: 0.04%

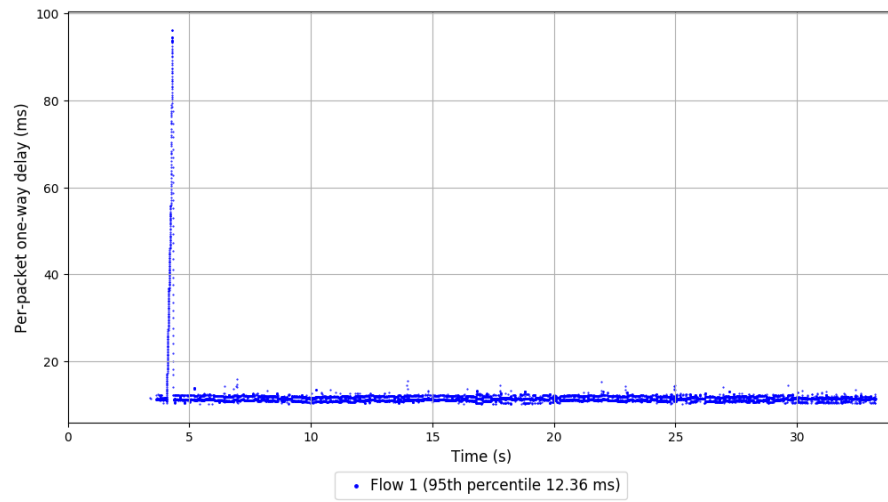
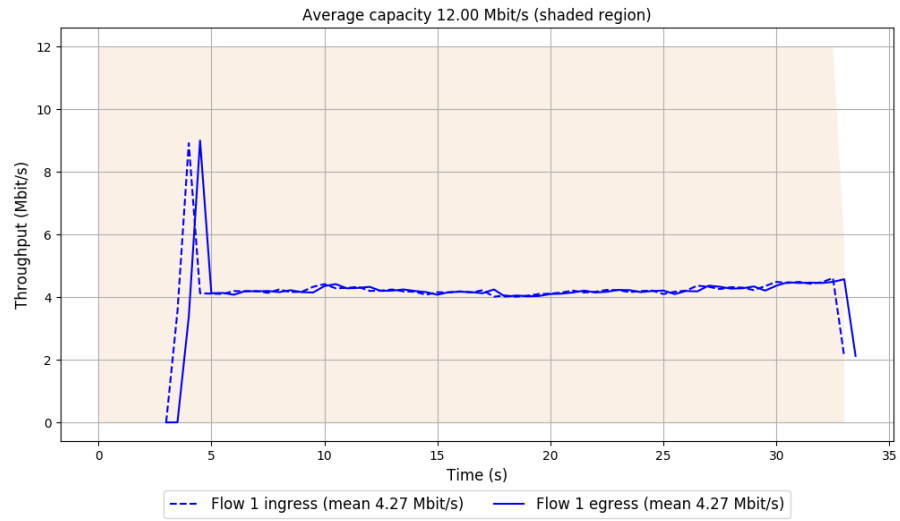
-- Flow 1:

Average throughput: 4.27 Mbit/s

95th percentile per-packet one-way delay: 12.361 ms

Loss rate: 0.04%

## Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2019-07-11 23:52:37

End at: 2019-07-11 23:53:07

# Below is generated by plot.py at 2019-07-11 23:56:14

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 4.24 Mbit/s (35.3% utilization)

95th percentile per-packet one-way delay: 12.255 ms

Loss rate: 0.03%

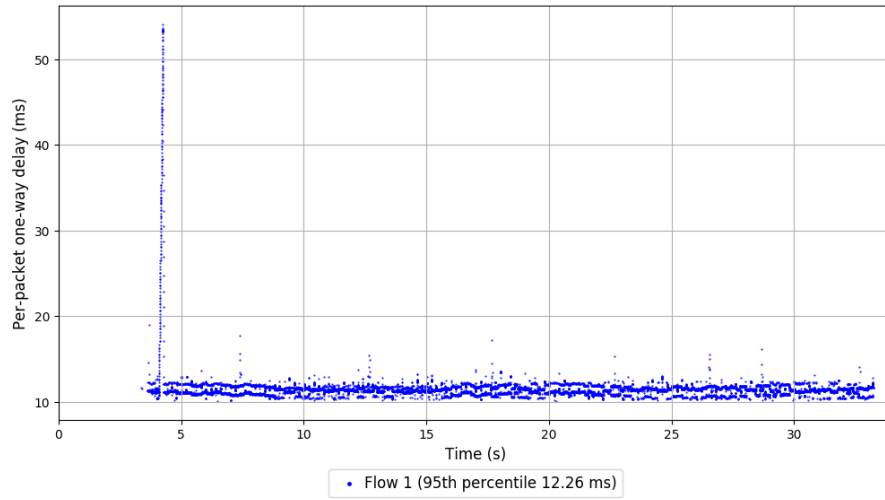
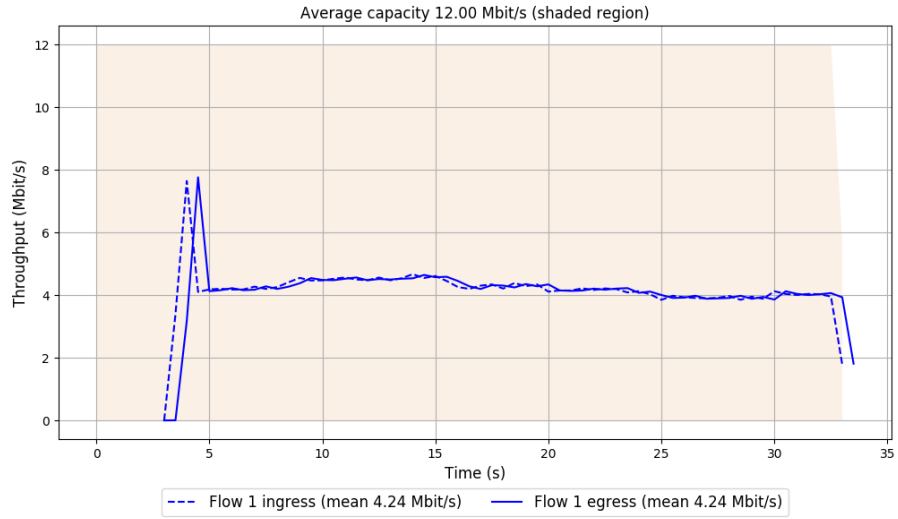
-- Flow 1:

Average throughput: 4.24 Mbit/s

95th percentile per-packet one-way delay: 12.255 ms

Loss rate: 0.03%

### Run 3: Report of PCC-Allegro — Data Link



Run 1: Statistics of PCC-Expr

Start at: 2019-07-11 23:13:44

End at: 2019-07-11 23:14:14

# Below is generated by plot.py at 2019-07-11 23:56:23

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 6.99 Mbit/s (58.2% utilization)

95th percentile per-packet one-way delay: 13.132 ms

Loss rate: 0.04%

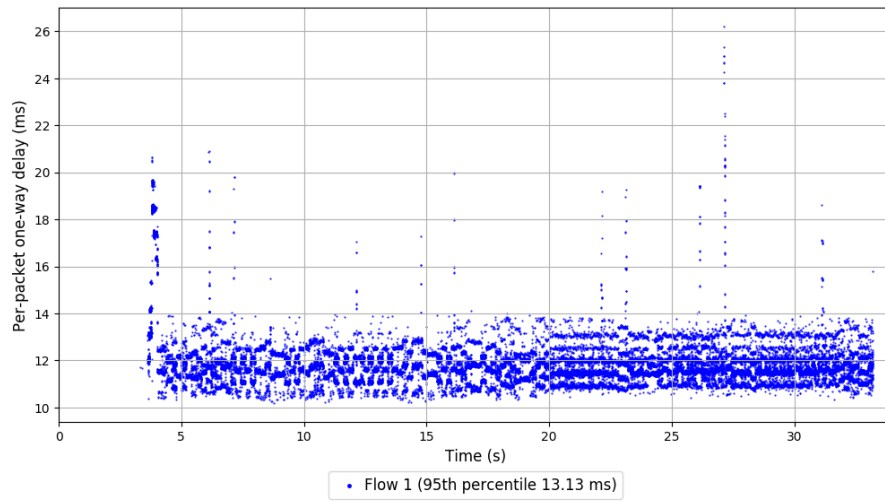
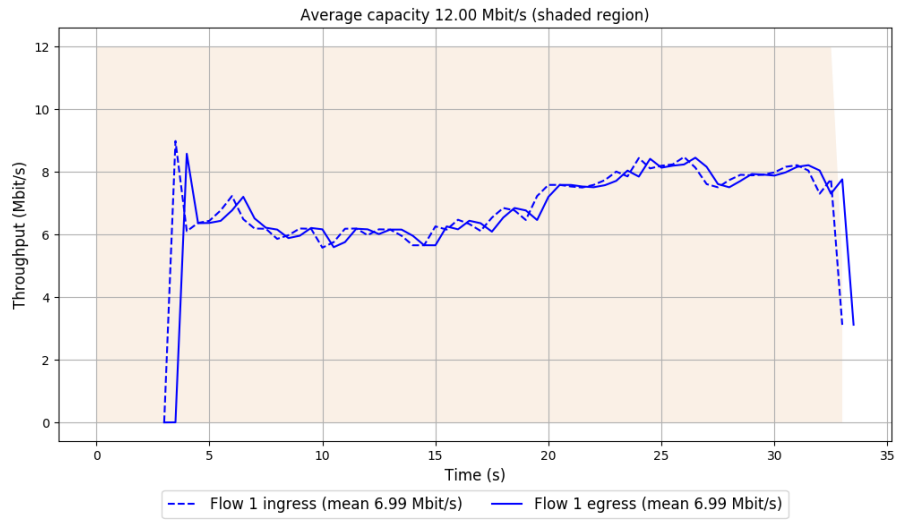
-- Flow 1:

Average throughput: 6.99 Mbit/s

95th percentile per-packet one-way delay: 13.132 ms

Loss rate: 0.04%

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



Run 2: Statistics of PCC-Expr

Start at: 2019-07-11 23:27:52

End at: 2019-07-11 23:28:22

# Below is generated by plot.py at 2019-07-11 23:56:25

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 5.12 Mbit/s (42.7% utilization)

95th percentile per-packet one-way delay: 13.271 ms

Loss rate: 0.02%

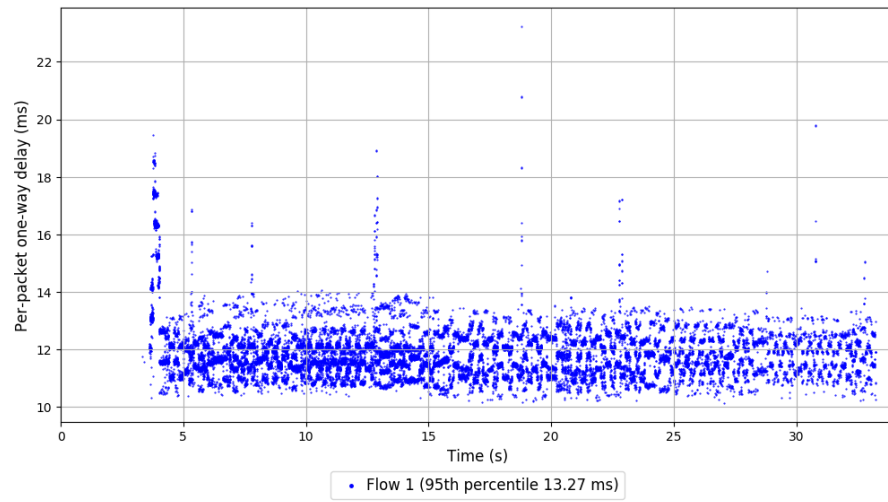
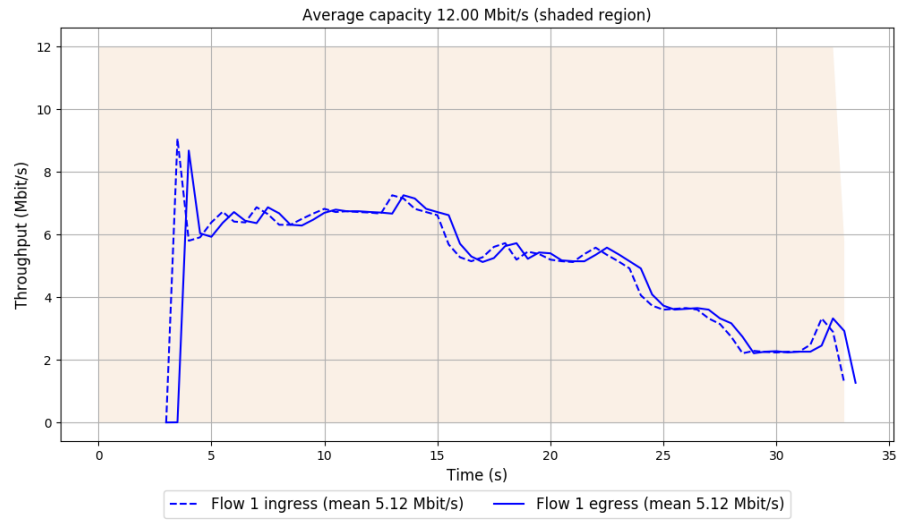
-- Flow 1:

Average throughput: 5.12 Mbit/s

95th percentile per-packet one-way delay: 13.271 ms

Loss rate: 0.02%

## Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2019-07-11 23:42:00

End at: 2019-07-11 23:42:30

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 8.60 Mbit/s (71.6% utilization)

95th percentile per-packet one-way delay: 6861.290 ms

Loss rate: 39.96%

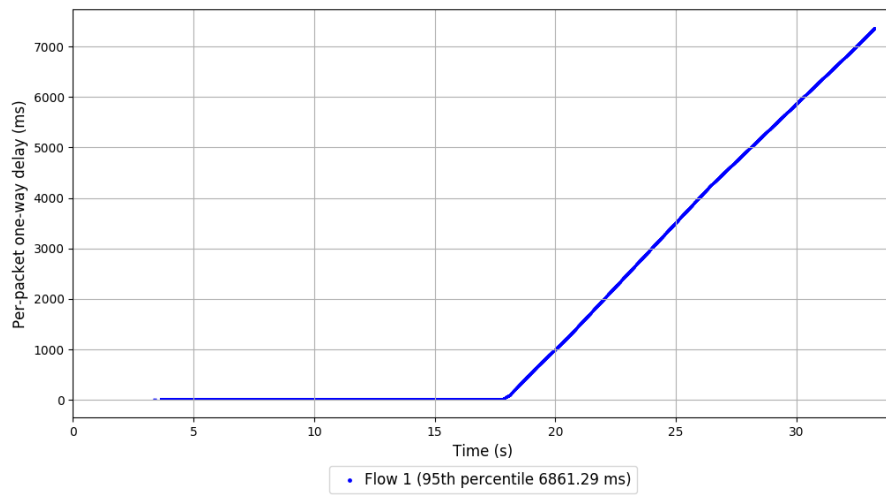
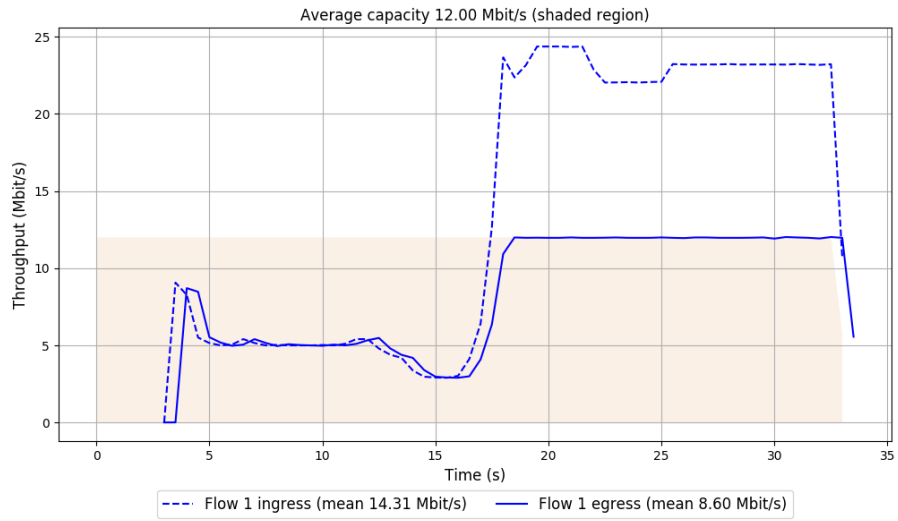
-- Flow 1:

Average throughput: 8.60 Mbit/s

95th percentile per-packet one-way delay: 6861.290 ms

Loss rate: 39.96%

### Run 3: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2019-07-11 23:11:58

End at: 2019-07-11 23:12:28

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 8.53 Mbit/s (71.1% utilization)

95th percentile per-packet one-way delay: 91.296 ms

Loss rate: 0.20%

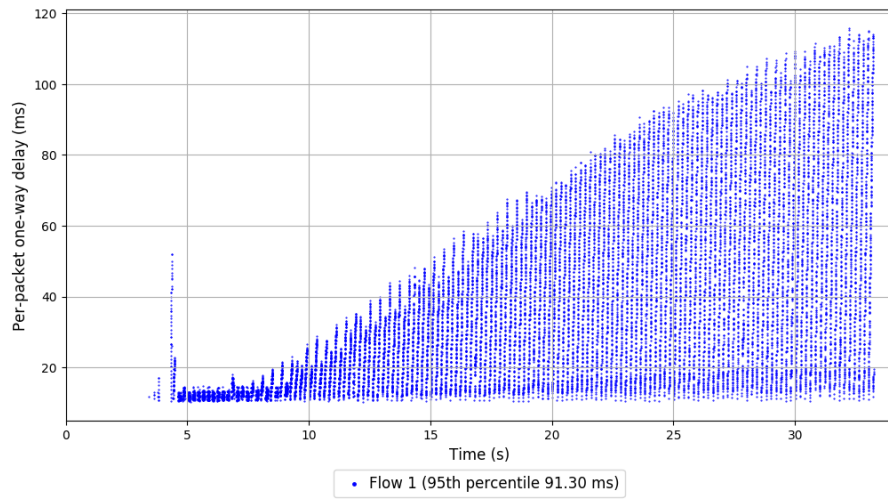
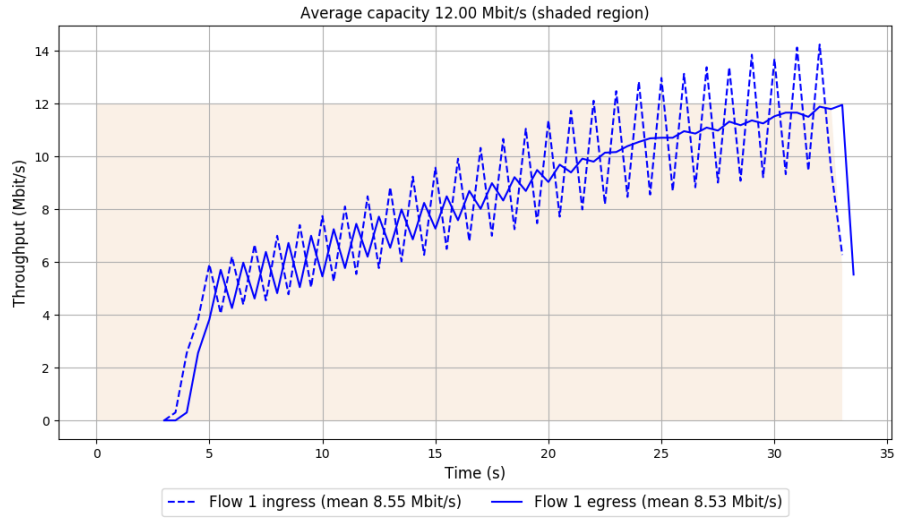
-- Flow 1:

Average throughput: 8.53 Mbit/s

95th percentile per-packet one-way delay: 91.296 ms

Loss rate: 0.20%

# Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2019-07-11 23:26:07

End at: 2019-07-11 23:26:37

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 8.53 Mbit/s (71.1% utilization)

95th percentile per-packet one-way delay: 91.477 ms

Loss rate: 0.09%

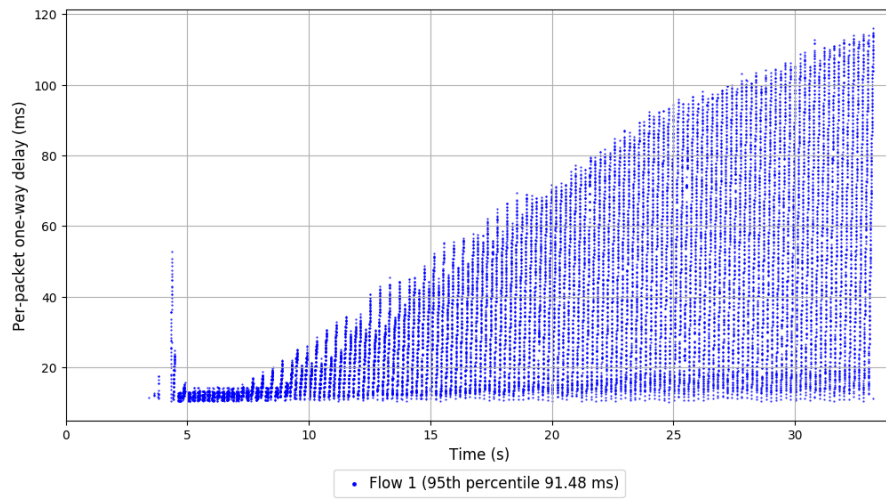
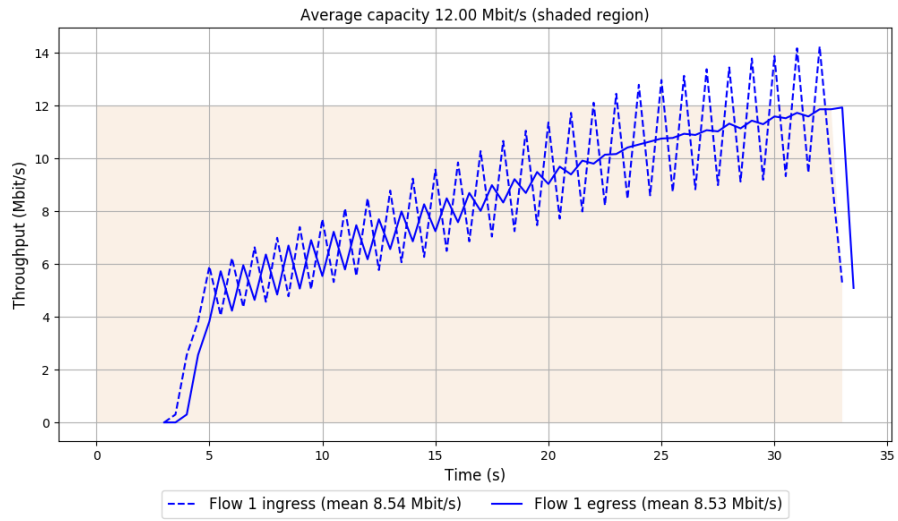
-- Flow 1:

Average throughput: 8.53 Mbit/s

95th percentile per-packet one-way delay: 91.477 ms

Loss rate: 0.09%

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



Run 3: Statistics of QUIC Cubic

Start at: 2019-07-11 23:40:14

End at: 2019-07-11 23:40:44

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 8.54 Mbit/s (71.2% utilization)

95th percentile per-packet one-way delay: 91.520 ms

Loss rate: 0.15%

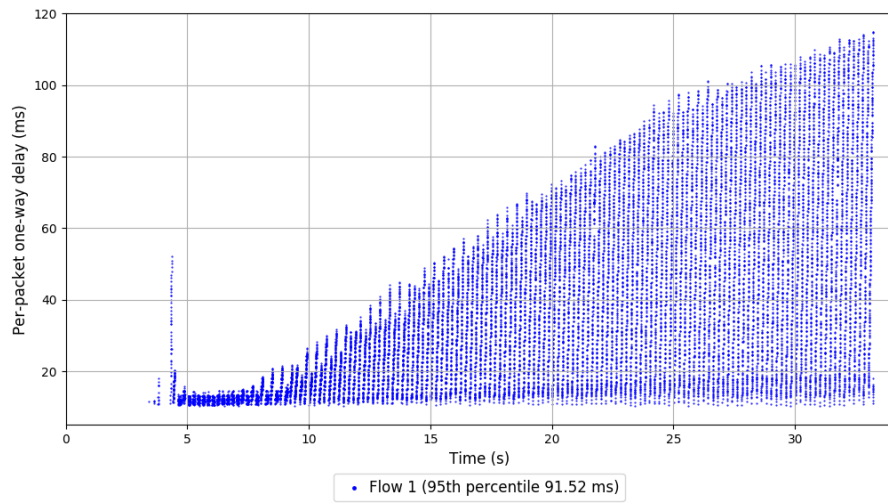
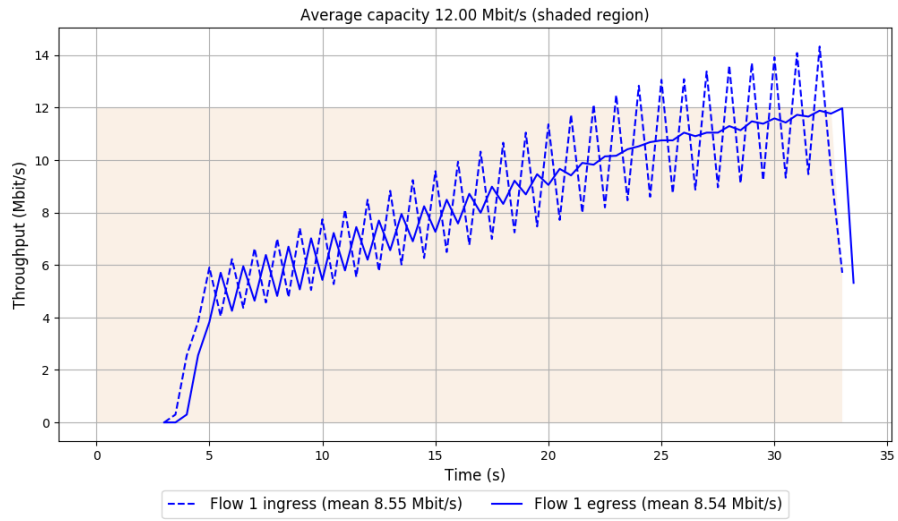
-- Flow 1:

Average throughput: 8.54 Mbit/s

95th percentile per-packet one-way delay: 91.520 ms

Loss rate: 0.15%

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



Run 1: Statistics of SCReAM

Start at: 2019-07-11 23:12:34

End at: 2019-07-11 23:13:04

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 0.22 Mbit/s (1.8% utilization)

95th percentile per-packet one-way delay: 11.819 ms

Loss rate: 0.13%

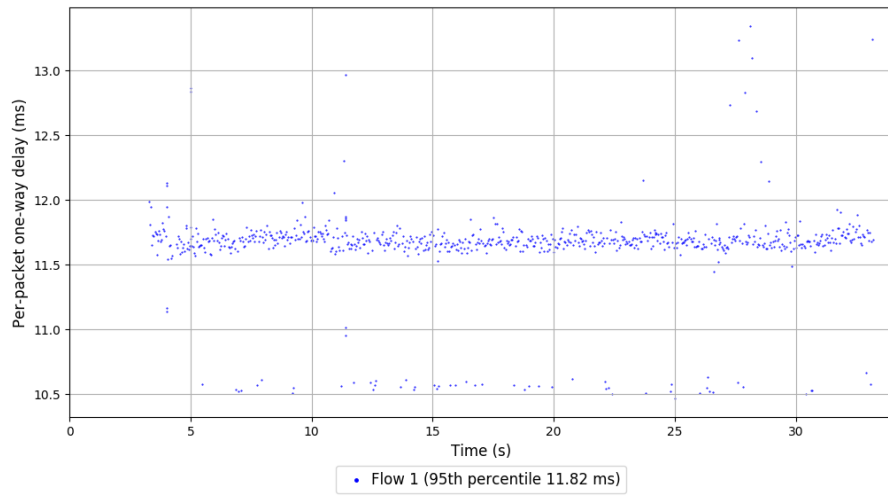
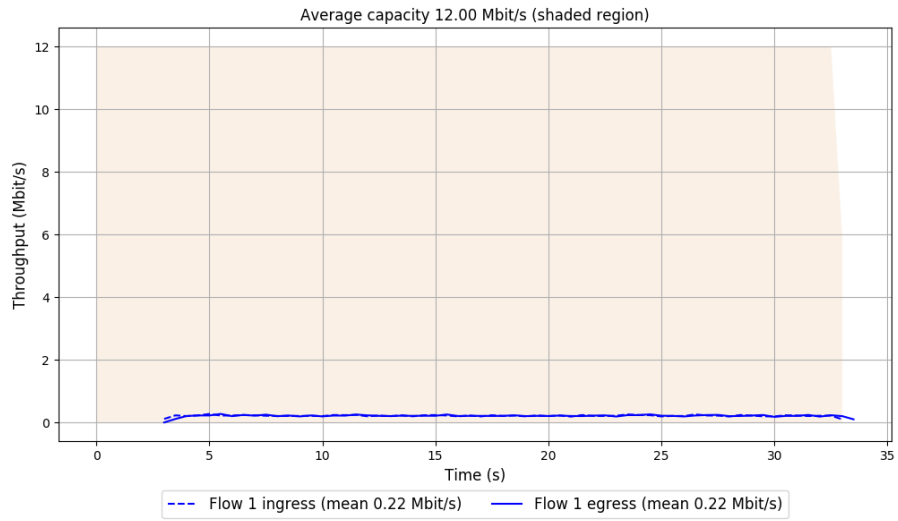
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 11.819 ms

Loss rate: 0.13%

# Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2019-07-11 23:26:42

End at: 2019-07-11 23:27:12

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 0.22 Mbit/s (1.8% utilization)

95th percentile per-packet one-way delay: 11.723 ms

Loss rate: 0.13%

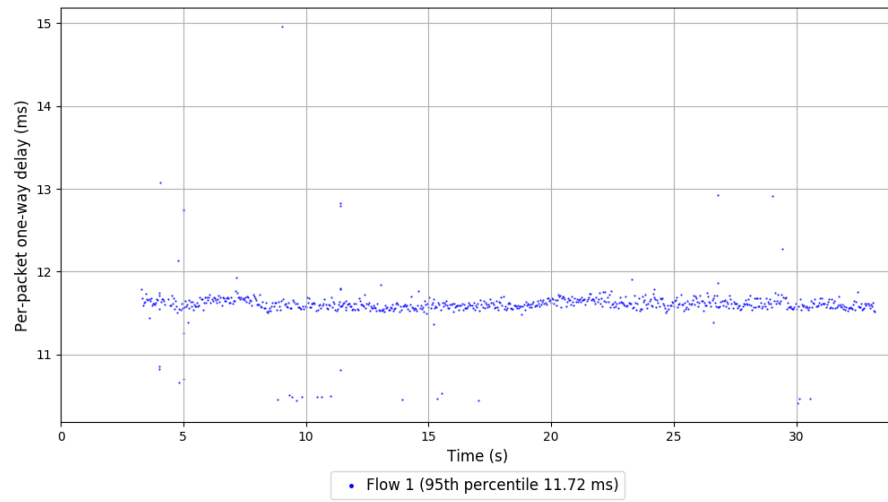
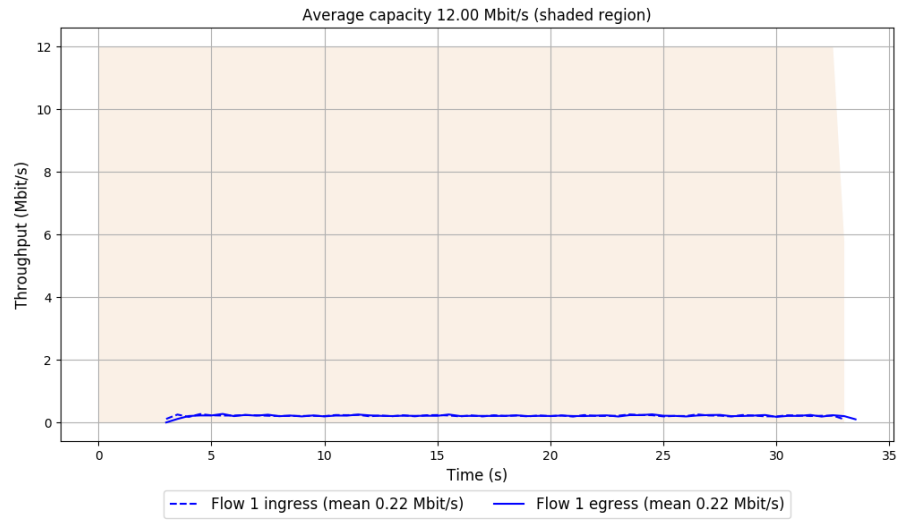
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 11.723 ms

Loss rate: 0.13%

## Run 2: Report of SCReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2019-07-11 23:40:50

End at: 2019-07-11 23:41:20

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 0.22 Mbit/s (1.8% utilization)

95th percentile per-packet one-way delay: 11.748 ms

Loss rate: 0.00%

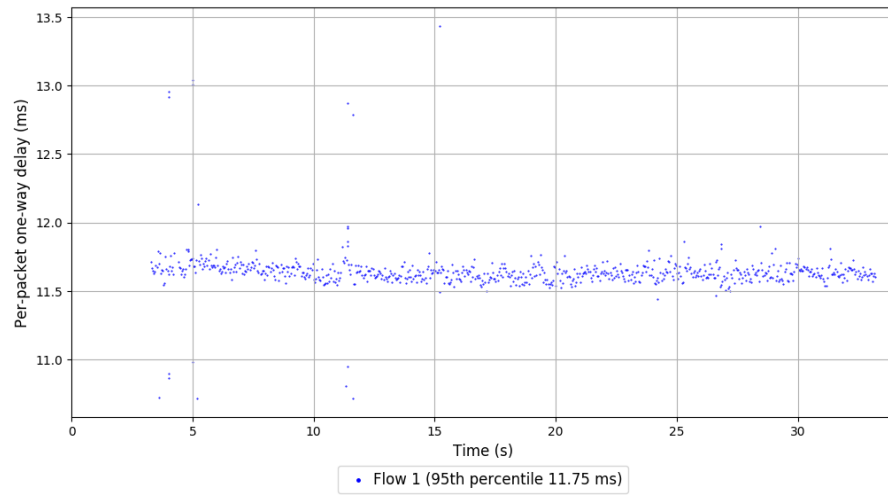
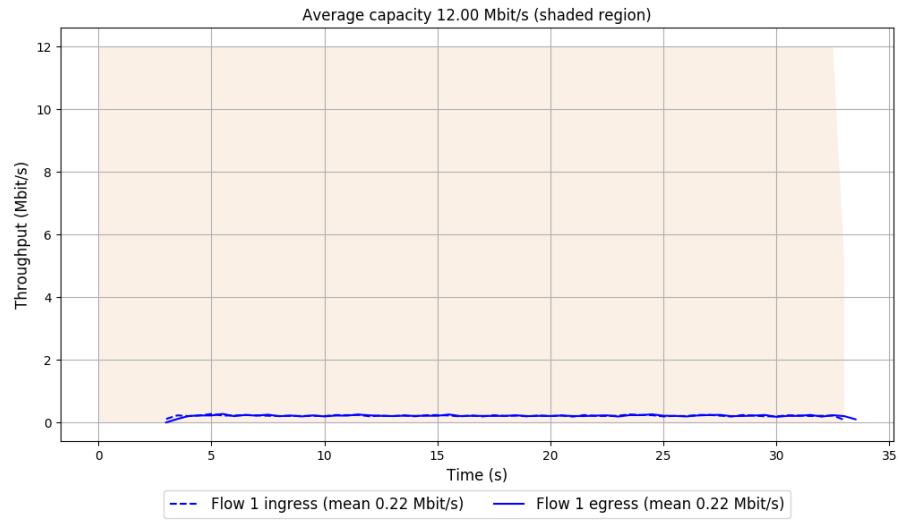
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 11.748 ms

Loss rate: 0.00%

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



Run 1: Statistics of Sprout

Start at: 2019-07-11 23:20:49

End at: 2019-07-11 23:21:19

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.10 Mbit/s (9.2% utilization)

95th percentile per-packet one-way delay: 28.478 ms

Loss rate: 0.00%

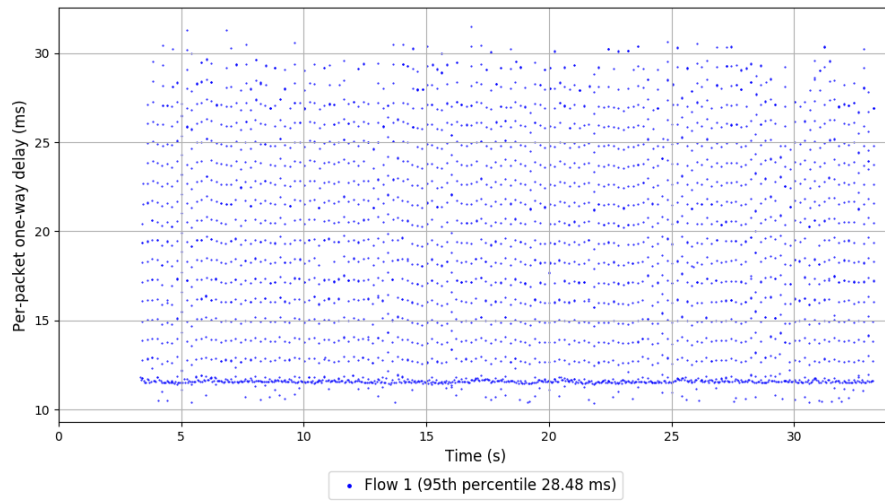
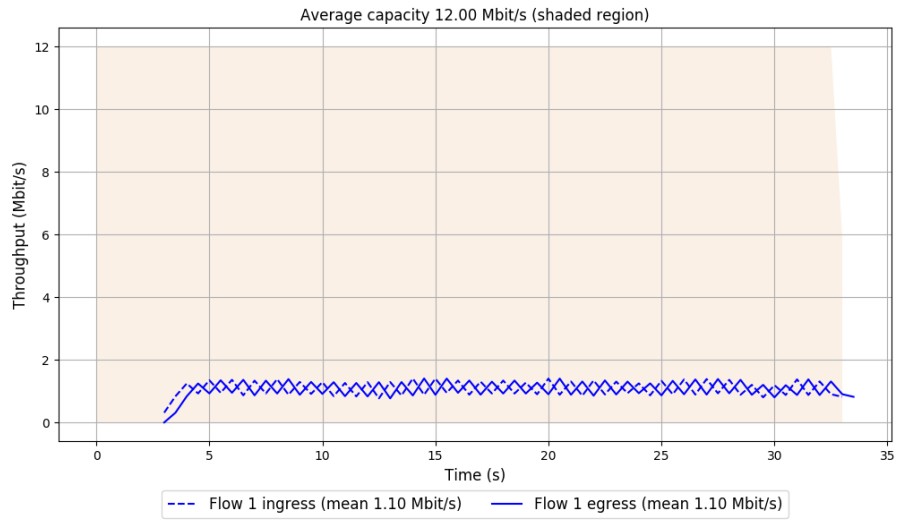
-- Flow 1:

Average throughput: 1.10 Mbit/s

95th percentile per-packet one-way delay: 28.478 ms

Loss rate: 0.00%

# Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2019-07-11 23:34:57

End at: 2019-07-11 23:35:27

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.01 Mbit/s (8.4% utilization)

95th percentile per-packet one-way delay: 27.511 ms

Loss rate: 0.00%

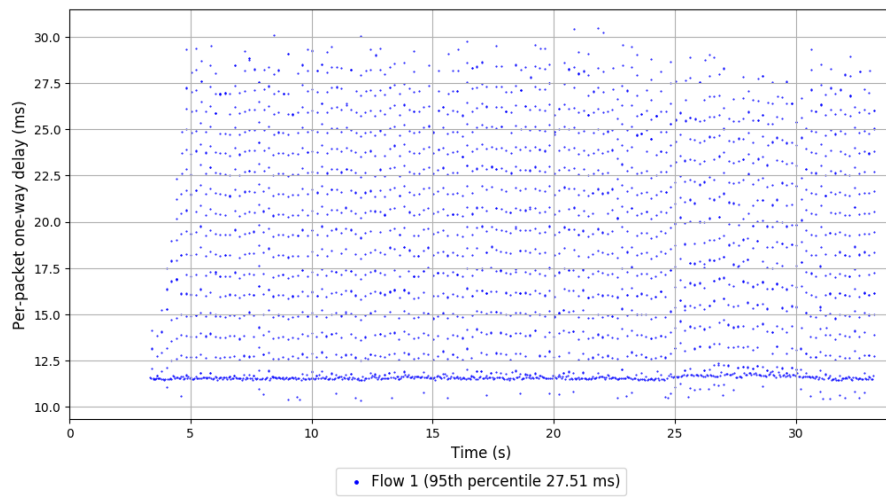
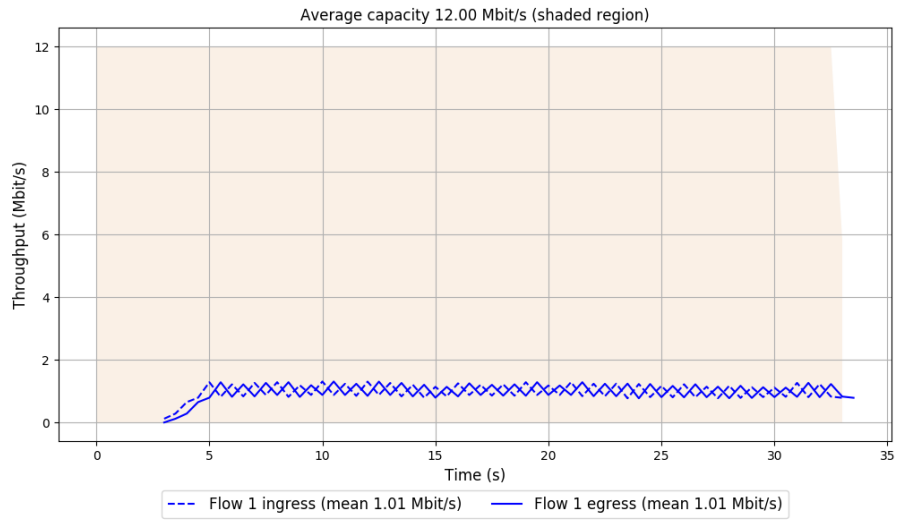
-- Flow 1:

Average throughput: 1.01 Mbit/s

95th percentile per-packet one-way delay: 27.511 ms

Loss rate: 0.00%

## Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2019-07-11 23:49:06

End at: 2019-07-11 23:49:36

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.31 Mbit/s (10.9% utilization)

95th percentile per-packet one-way delay: 31.583 ms

Loss rate: 0.67%

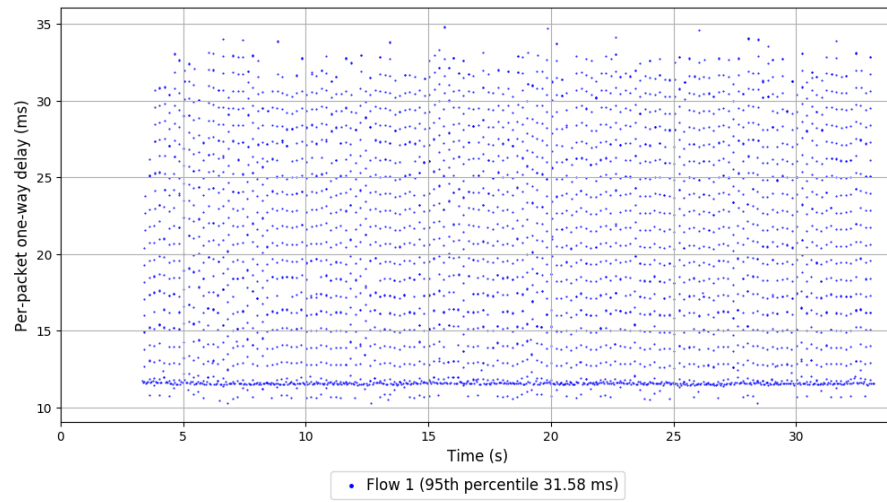
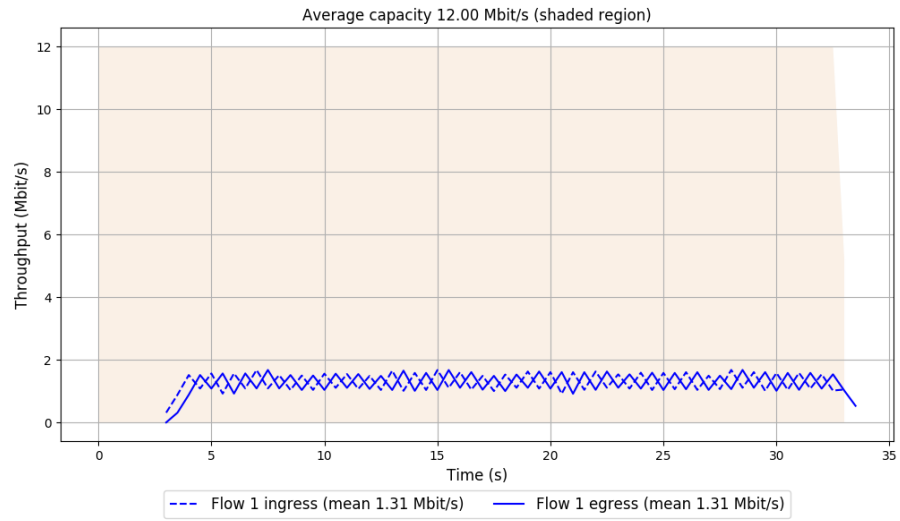
-- Flow 1:

Average throughput: 1.31 Mbit/s

95th percentile per-packet one-way delay: 31.583 ms

Loss rate: 0.67%

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



Run 1: Statistics of TaoVA-100x

Start at: 2019-07-11 23:22:35

End at: 2019-07-11 23:23:05

# Below is generated by plot.py at 2019-07-11 23:56:42

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.80 Mbit/s (23.3% utilization)

95th percentile per-packet one-way delay: 131.871 ms

Loss rate: 0.00%

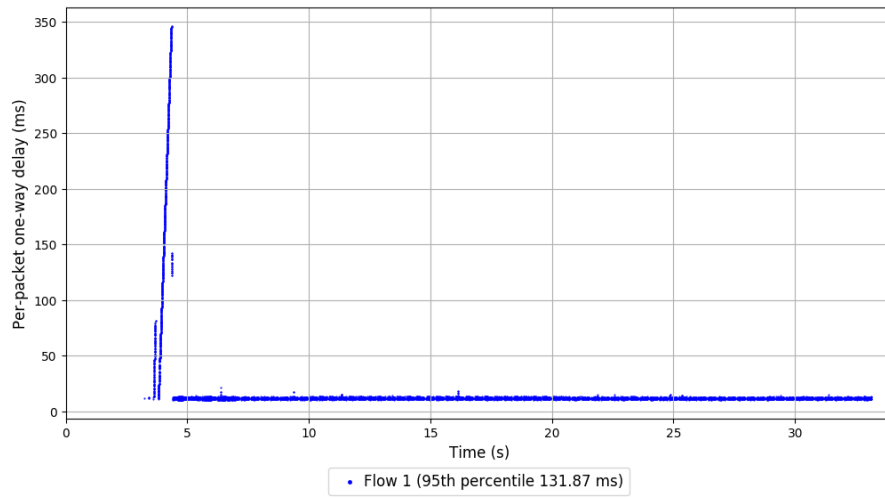
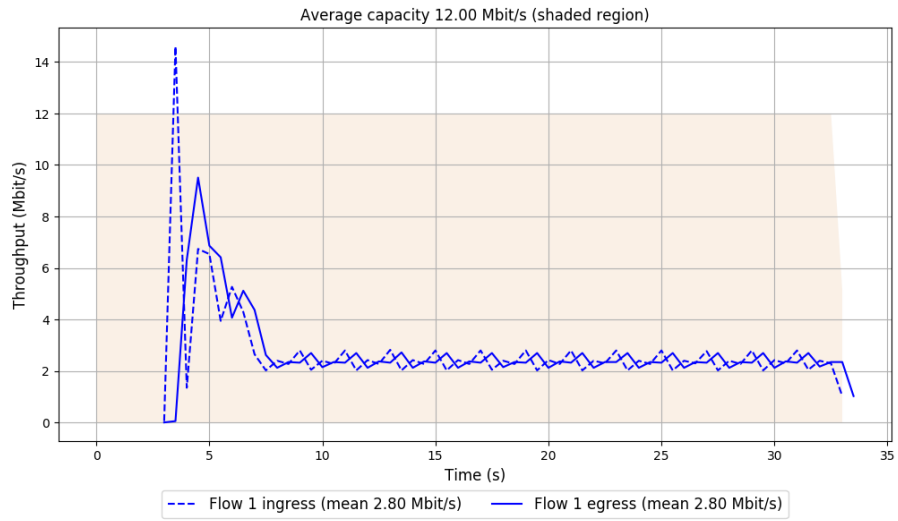
-- Flow 1:

Average throughput: 2.80 Mbit/s

95th percentile per-packet one-way delay: 131.871 ms

Loss rate: 0.00%

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



Run 2: Statistics of TaoVA-100x

Start at: 2019-07-11 23:36:42

End at: 2019-07-11 23:37:12

# Below is generated by plot.py at 2019-07-11 23:56:43

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.84 Mbit/s (23.7% utilization)

95th percentile per-packet one-way delay: 34.127 ms

Loss rate: 0.01%

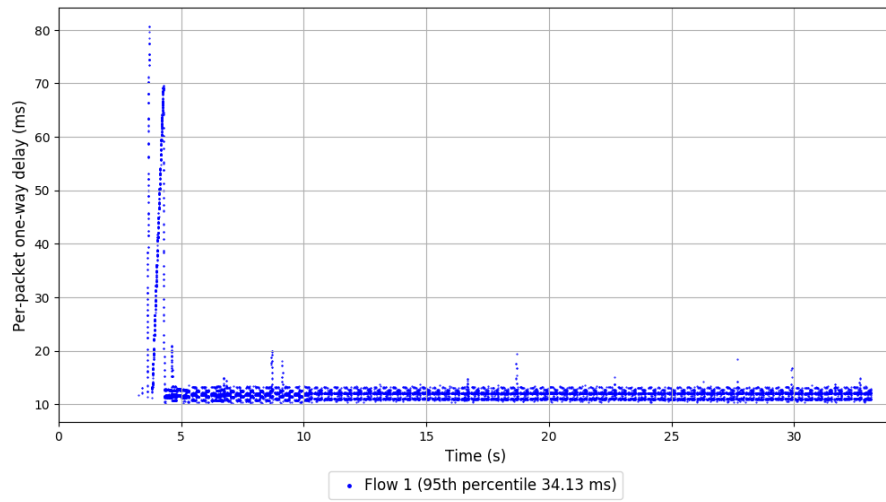
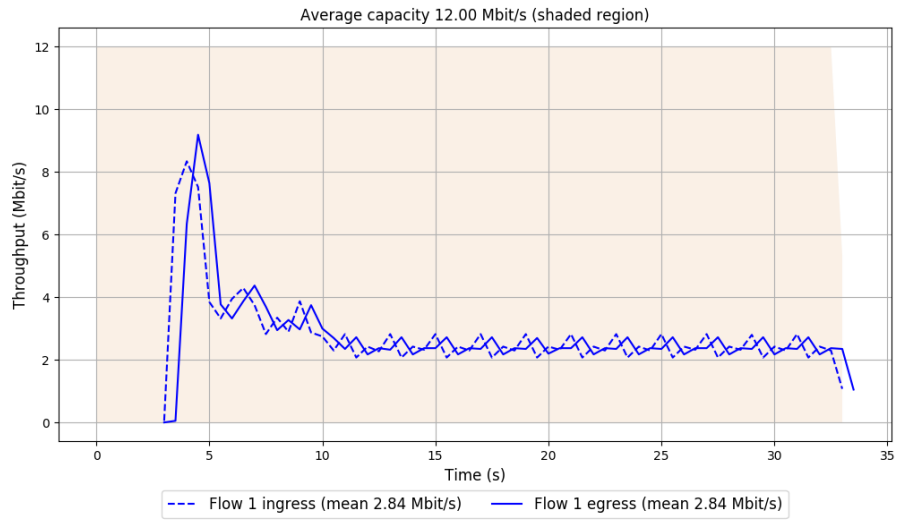
-- Flow 1:

Average throughput: 2.84 Mbit/s

95th percentile per-packet one-way delay: 34.127 ms

Loss rate: 0.01%

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



Run 3: Statistics of TaoVA-100x

Start at: 2019-07-11 23:50:52

End at: 2019-07-11 23:51:22

# Below is generated by plot.py at 2019-07-11 23:56:44

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 3.46 Mbit/s (28.8% utilization)

95th percentile per-packet one-way delay: 164.613 ms

Loss rate: 0.01%

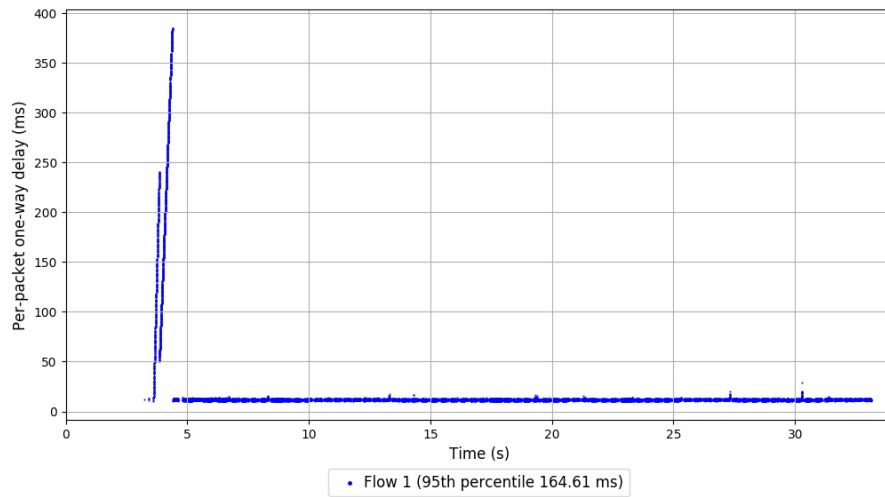
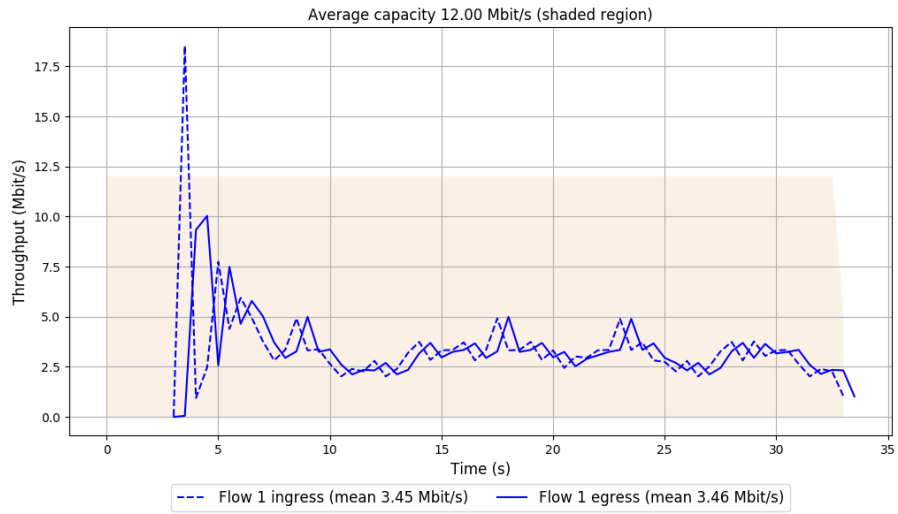
-- Flow 1:

Average throughput: 3.46 Mbit/s

95th percentile per-packet one-way delay: 164.613 ms

Loss rate: 0.01%

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



Run 1: Statistics of TCP Vegas

Start at: 2019-07-11 23:22:00

End at: 2019-07-11 23:22:30

# Below is generated by plot.py at 2019-07-11 23:56:44

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.63 Mbit/s (13.6% utilization)

95th percentile per-packet one-way delay: 13.277 ms

Loss rate: 0.05%

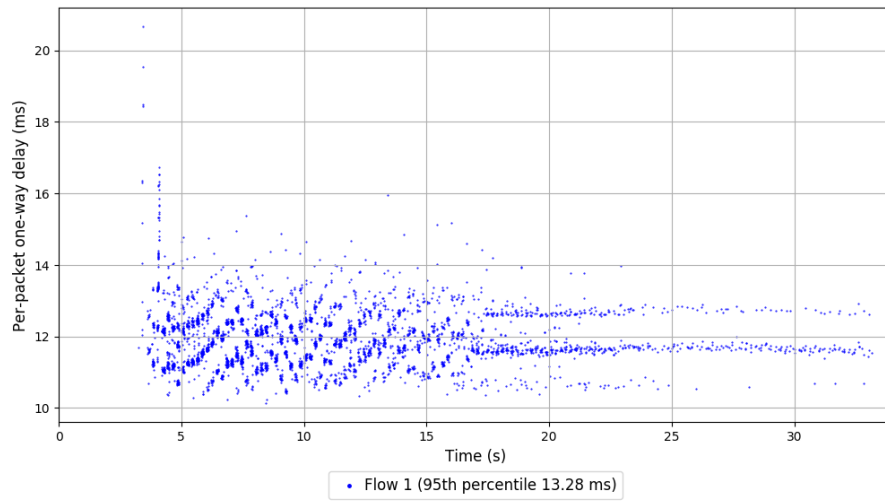
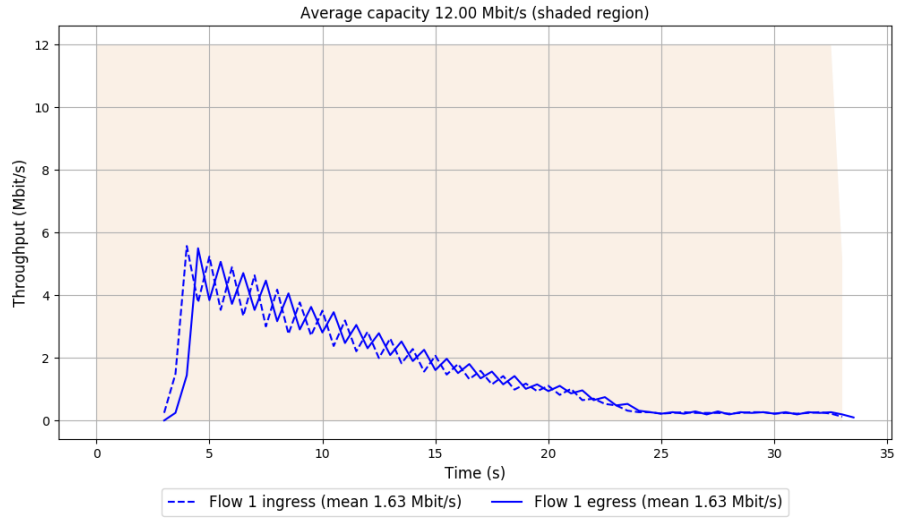
-- Flow 1:

Average throughput: 1.63 Mbit/s

95th percentile per-packet one-way delay: 13.277 ms

Loss rate: 0.05%

# Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2019-07-11 23:36:07

End at: 2019-07-11 23:36:37

# Below is generated by plot.py at 2019-07-11 23:56:47

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 4.80 Mbit/s (40.0% utilization)

95th percentile per-packet one-way delay: 45.522 ms

Loss rate: 0.02%

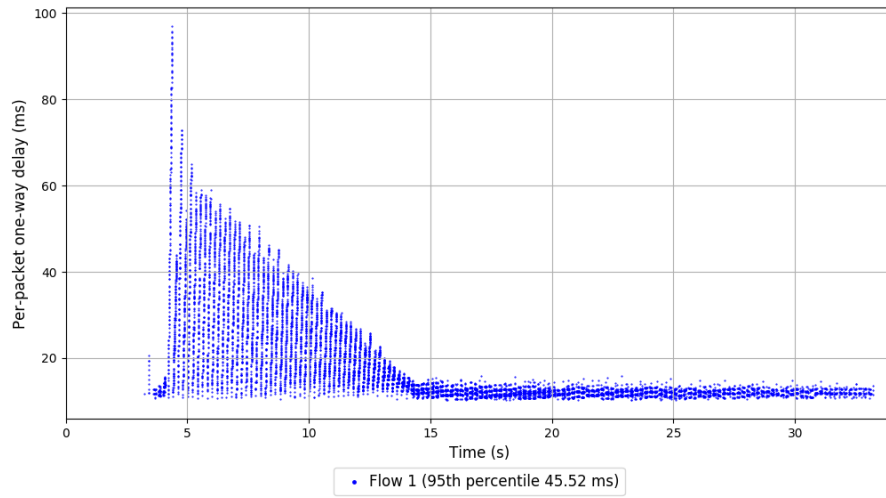
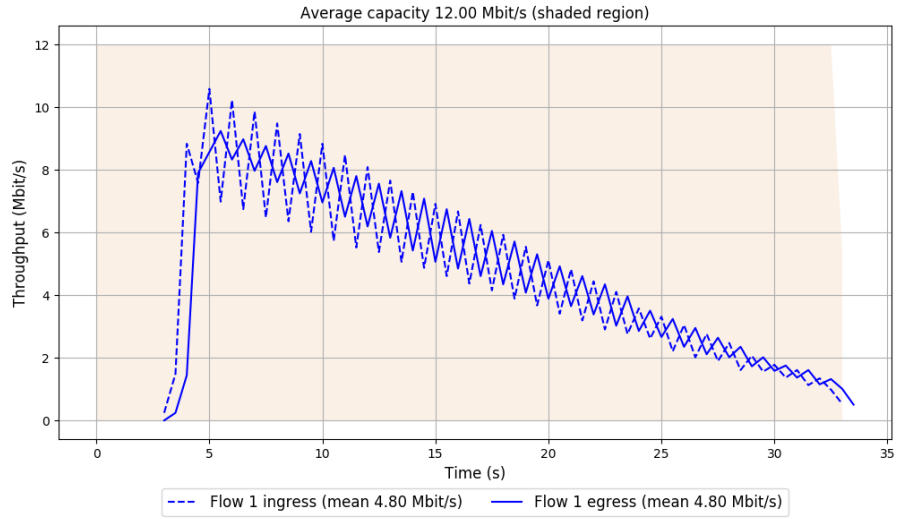
-- Flow 1:

Average throughput: 4.80 Mbit/s

95th percentile per-packet one-way delay: 45.522 ms

Loss rate: 0.02%

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



Run 3: Statistics of TCP Vegas

Start at: 2019-07-11 23:50:17

End at: 2019-07-11 23:50:47

# Below is generated by plot.py at 2019-07-11 23:56:48

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 4.75 Mbit/s (39.6% utilization)

95th percentile per-packet one-way delay: 45.569 ms

Loss rate: 0.03%

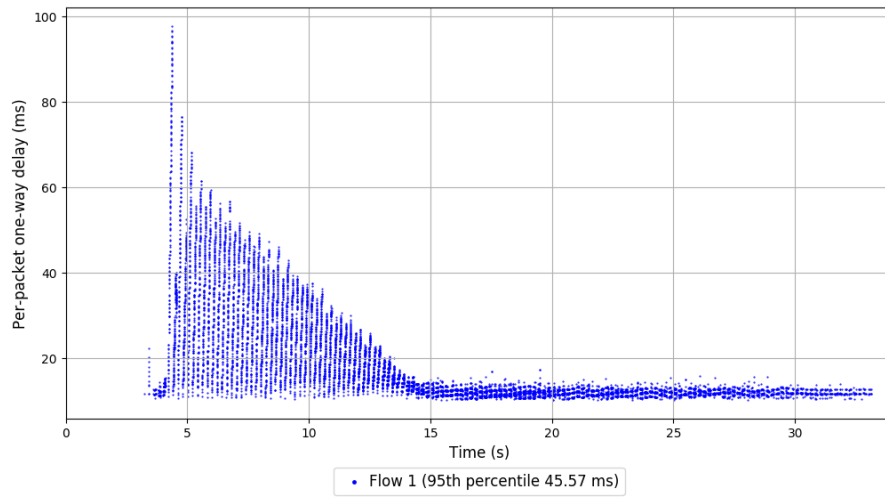
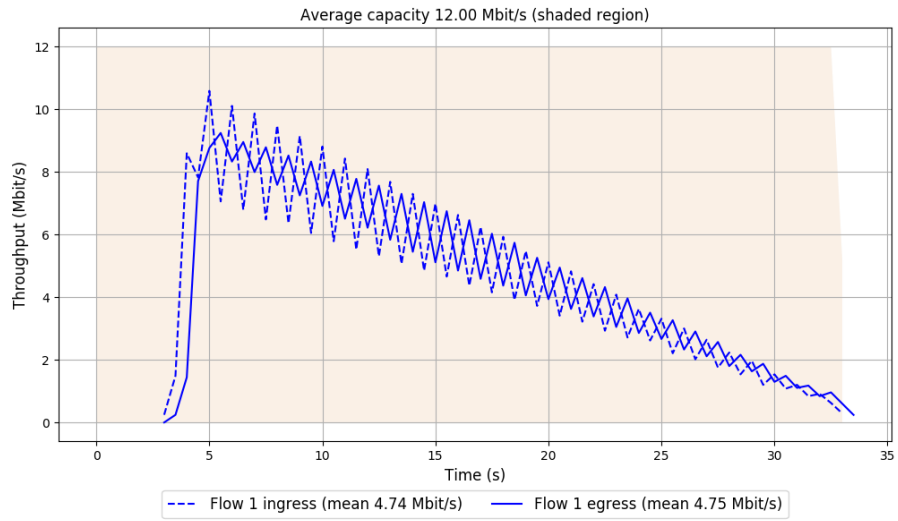
-- Flow 1:

Average throughput: 4.75 Mbit/s

95th percentile per-packet one-way delay: 45.569 ms

Loss rate: 0.03%

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



Run 1: Statistics of Verus

Start at: 2019-07-11 23:14:20

End at: 2019-07-11 23:14:50

# Below is generated by plot.py at 2019-07-11 23:56:52

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 6.96 Mbit/s (58.0% utilization)

95th percentile per-packet one-way delay: 441.376 ms

Loss rate: 17.32%

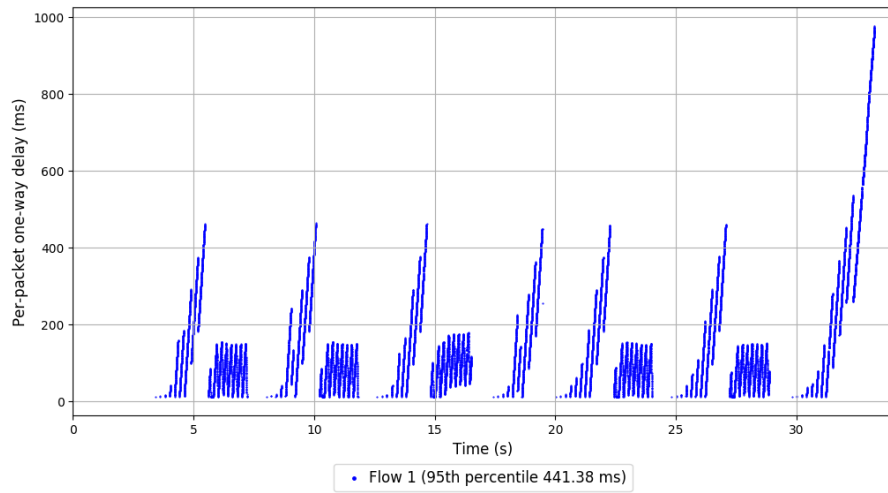
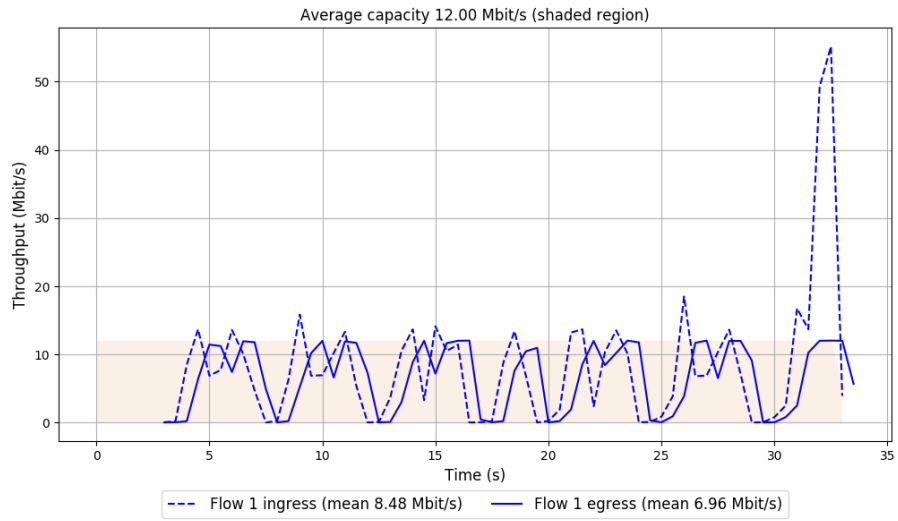
-- Flow 1:

Average throughput: 6.96 Mbit/s

95th percentile per-packet one-way delay: 441.376 ms

Loss rate: 17.32%

# Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2019-07-11 23:28:28

End at: 2019-07-11 23:28:58

# Below is generated by plot.py at 2019-07-11 23:56:55

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 7.16 Mbit/s (59.7% utilization)

95th percentile per-packet one-way delay: 559.629 ms

Loss rate: 0.75%

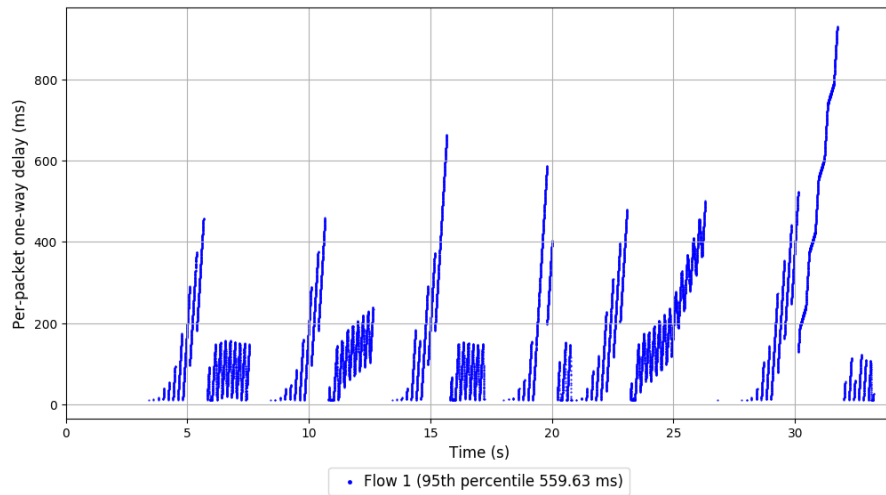
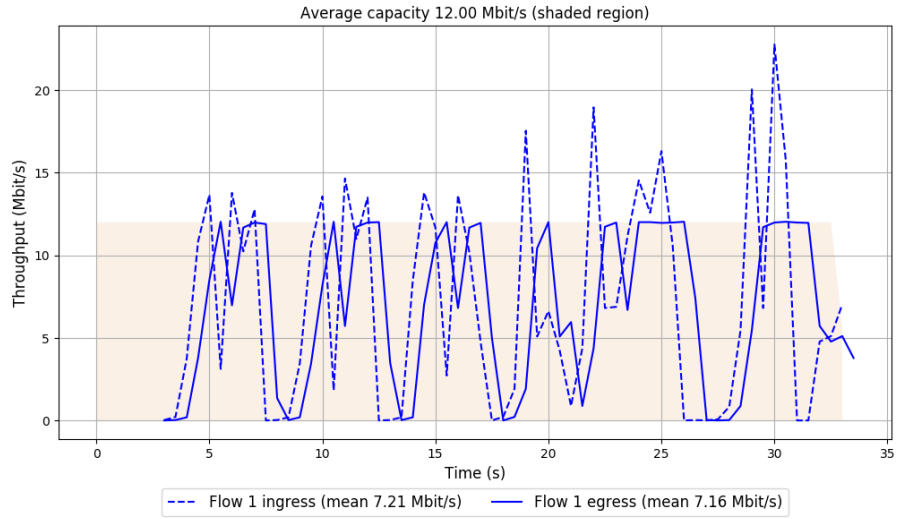
-- Flow 1:

Average throughput: 7.16 Mbit/s

95th percentile per-packet one-way delay: 559.629 ms

Loss rate: 0.75%

## Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2019-07-11 23:42:36

End at: 2019-07-11 23:43:06

# Below is generated by plot.py at 2019-07-11 23:56:58

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 6.88 Mbit/s (57.4% utilization)

95th percentile per-packet one-way delay: 347.924 ms

Loss rate: 0.77%

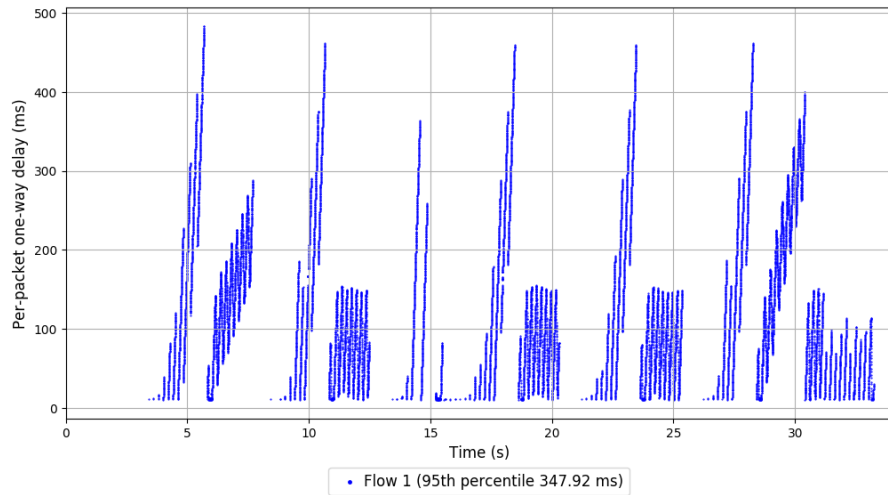
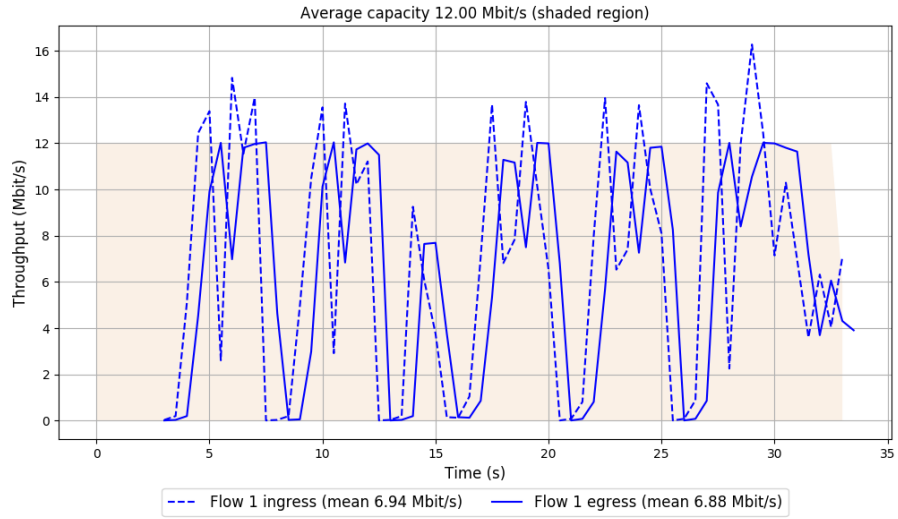
-- Flow 1:

Average throughput: 6.88 Mbit/s

95th percentile per-packet one-way delay: 347.924 ms

Loss rate: 0.77%

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



Run 1: Statistics of PCC-Vivace

Start at: 2019-07-11 23:24:56

End at: 2019-07-11 23:25:26

# Below is generated by plot.py at 2019-07-11 23:57:00

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 6.18 Mbit/s (51.5% utilization)

95th percentile per-packet one-way delay: 12.199 ms

Loss rate: 0.04%

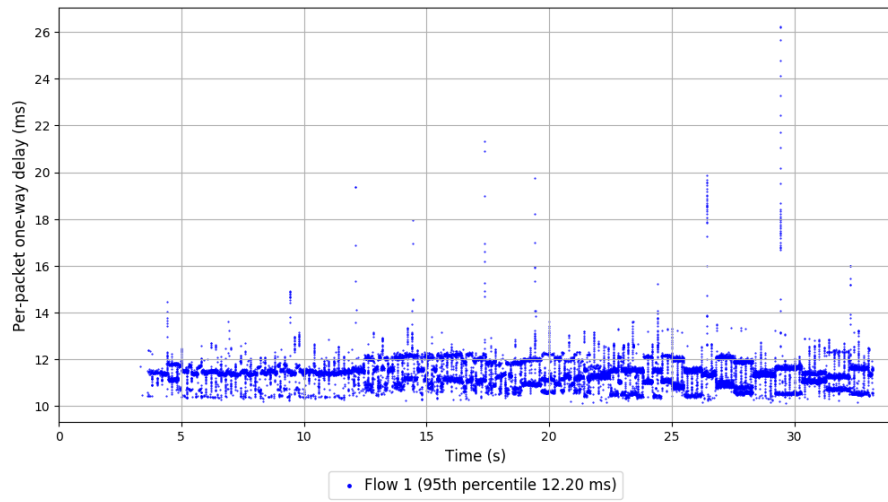
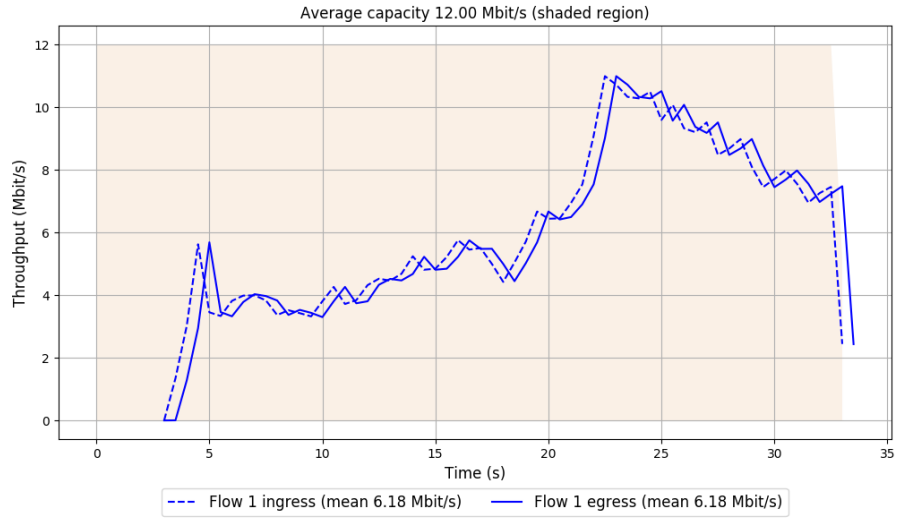
-- Flow 1:

Average throughput: 6.18 Mbit/s

95th percentile per-packet one-way delay: 12.199 ms

Loss rate: 0.04%

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



Run 2: Statistics of PCC-Vivace

Start at: 2019-07-11 23:39:03

End at: 2019-07-11 23:39:33

# Below is generated by plot.py at 2019-07-11 23:57:00

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 2.80 Mbit/s (23.3% utilization)

95th percentile per-packet one-way delay: 12.295 ms

Loss rate: 0.05%

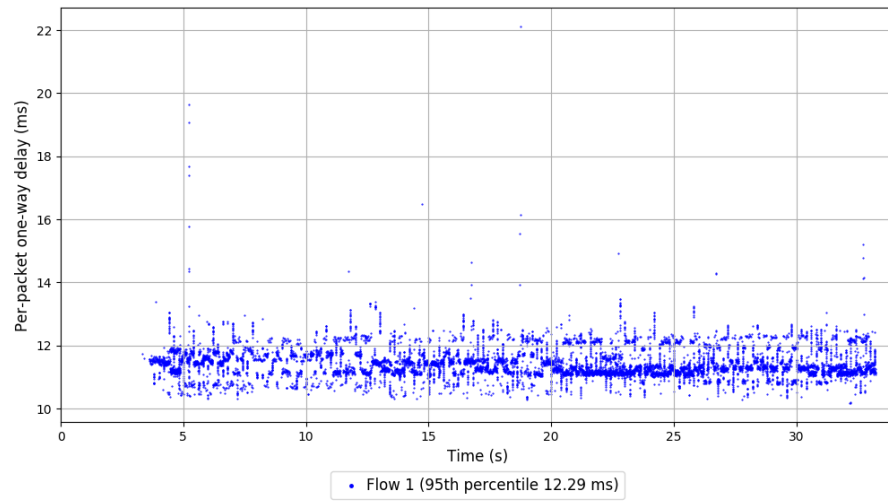
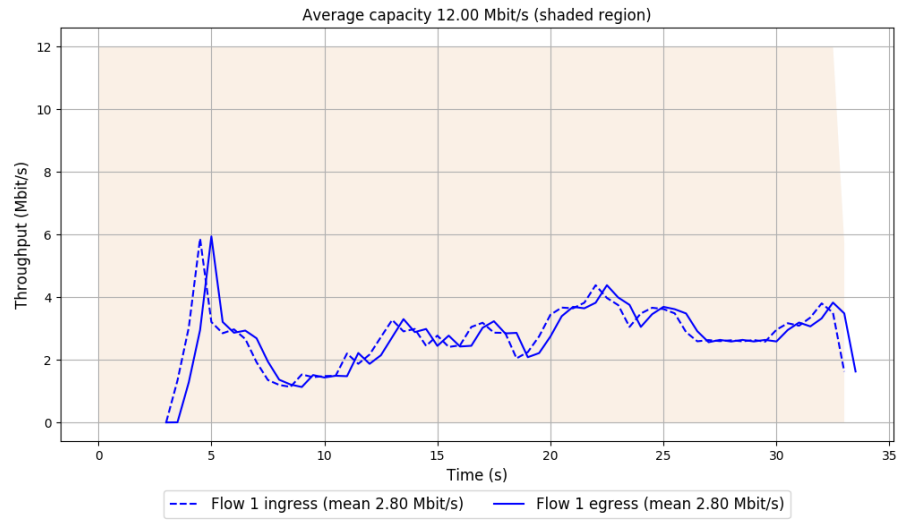
-- Flow 1:

Average throughput: 2.80 Mbit/s

95th percentile per-packet one-way delay: 12.295 ms

Loss rate: 0.05%

## Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2019-07-11 23:53:13

End at: 2019-07-11 23:53:43

# Below is generated by plot.py at 2019-07-11 23:57:00

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 3.70 Mbit/s (30.9% utilization)

95th percentile per-packet one-way delay: 12.251 ms

Loss rate: 0.04%

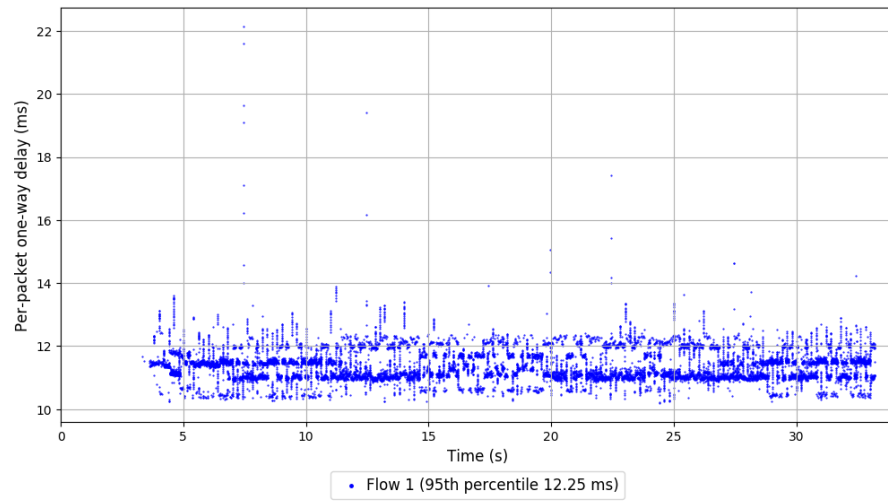
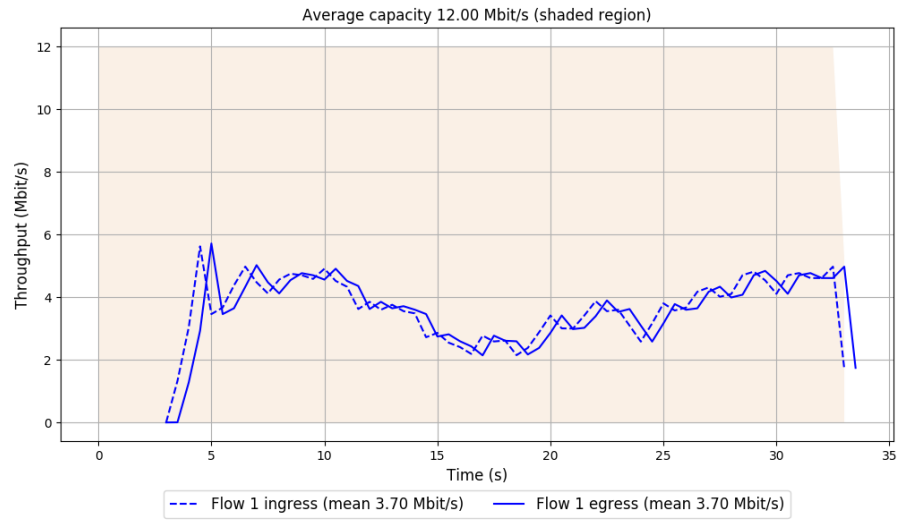
-- Flow 1:

Average throughput: 3.70 Mbit/s

95th percentile per-packet one-way delay: 12.251 ms

Loss rate: 0.04%

### Run 3: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2019-07-11 23:16:42

End at: 2019-07-11 23:17:12

# Below is generated by plot.py at 2019-07-11 23:57:00

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 0.05 Mbit/s (0.4% utilization)

95th percentile per-packet one-way delay: 22.441 ms

Loss rate: 0.00%

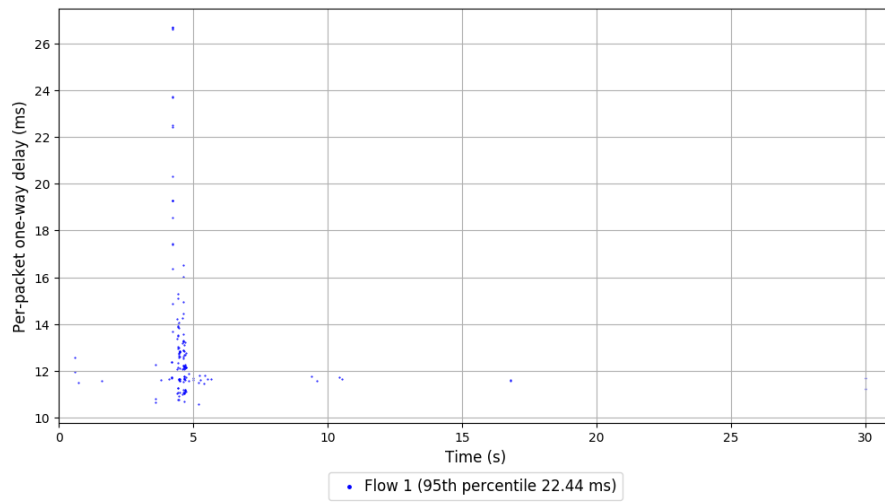
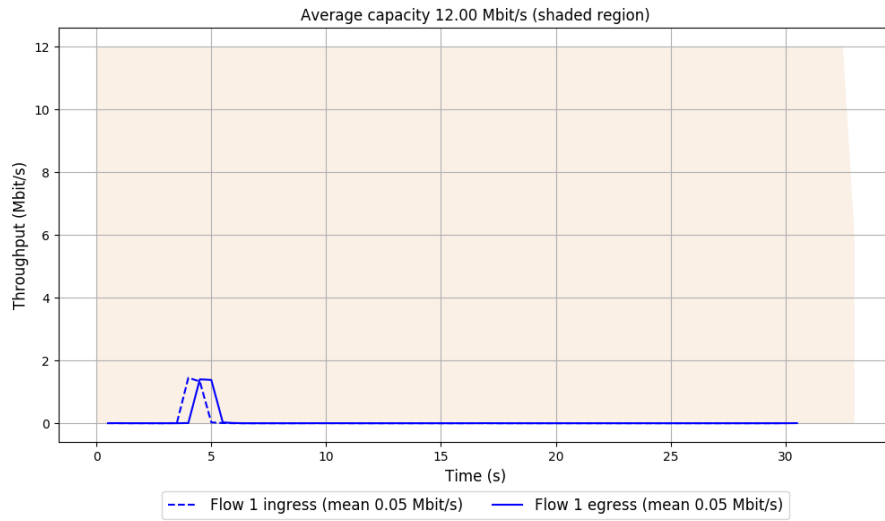
-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 22.441 ms

Loss rate: 0.00%

### Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2019-07-11 23:30:49

End at: 2019-07-11 23:31:19

# Below is generated by plot.py at 2019-07-11 23:57:00

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 0.05 Mbit/s (0.4% utilization)

95th percentile per-packet one-way delay: 19.232 ms

Loss rate: 0.00%

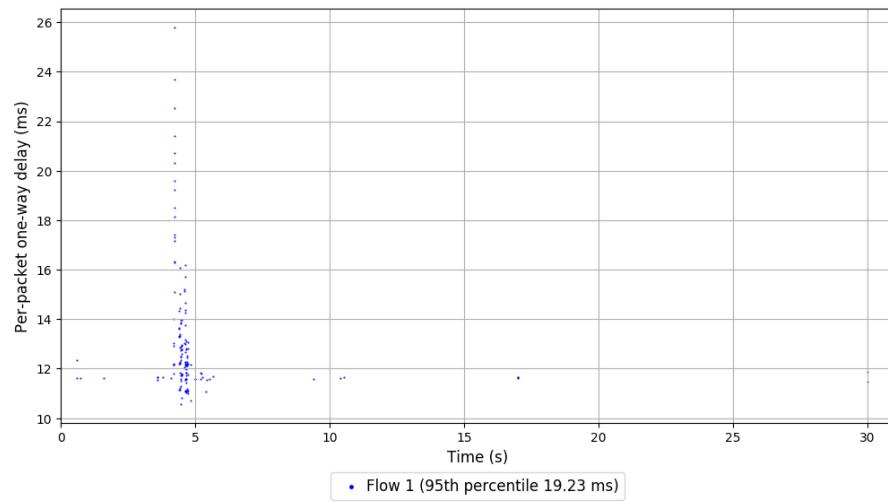
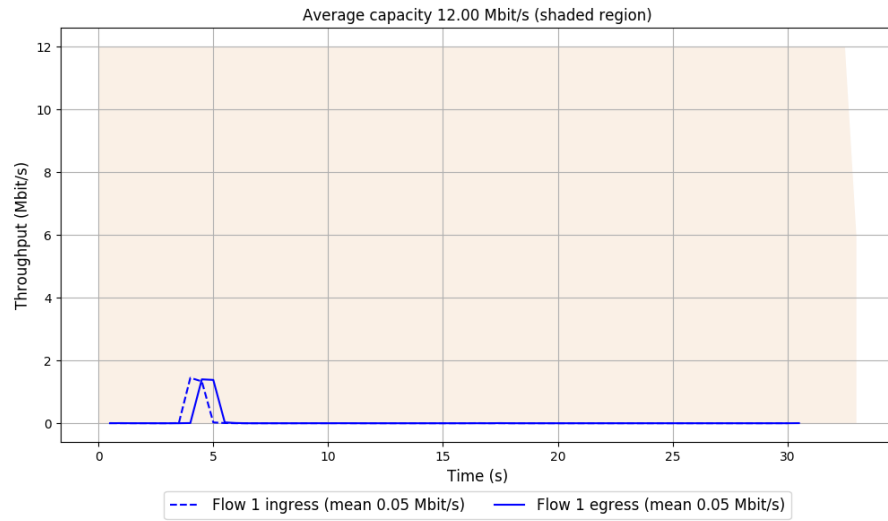
-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 19.232 ms

Loss rate: 0.00%

## Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2019-07-11 23:44:58

End at: 2019-07-11 23:45:28

# Below is generated by plot.py at 2019-07-11 23:57:00

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 0.05 Mbit/s (0.4% utilization)

95th percentile per-packet one-way delay: 19.589 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.05 Mbit/s

95th percentile per-packet one-way delay: 19.589 ms

Loss rate: 0.00%

### Run 3: Report of WebRTC media — Data Link

