

## Pantheon Report

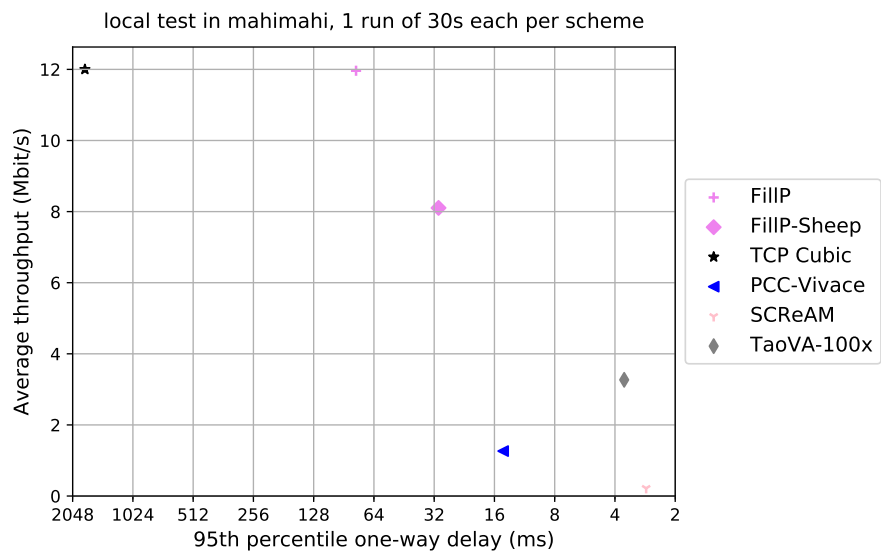
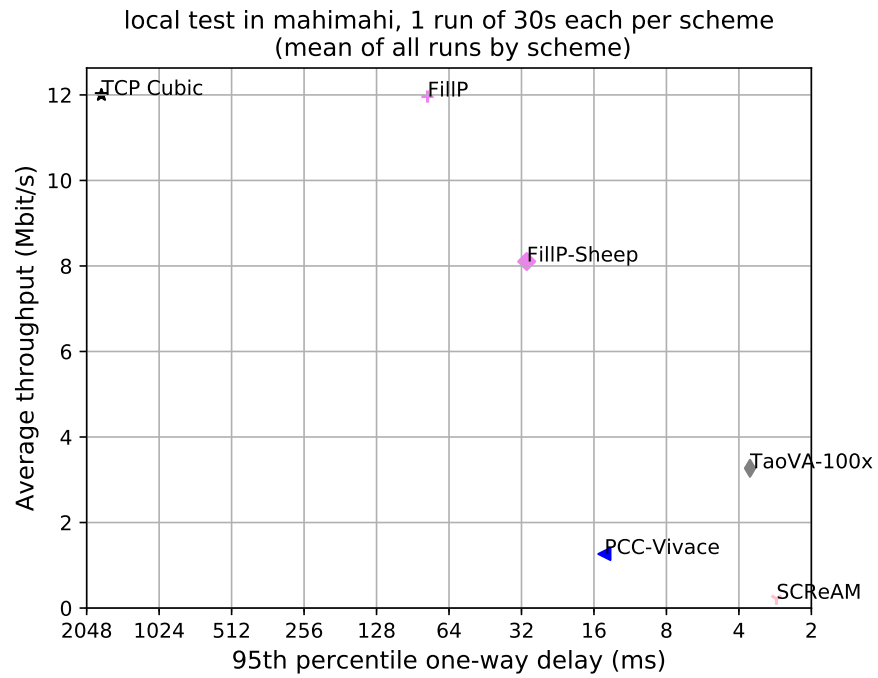
Generated at 2025-04-17 16:55:58 (UTC).  
Tested in mahimahi: mm-link 12mbps.trace 12mbps.trace  
Repeated the test of 17 congestion control schemes once.  
Each test lasted for 30 seconds running 1 flow.

### System info:

Linux 5.4.0-84-generic  
net.core.default\_qdisc = fq\_codel  
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 131072 6291456  
net.ipv4.tcp\_wmem = 4096 16384 4194304

### Git summary:

branch: master @ 23e738ce5acae1d36e321886cd613b0b9401ac11  
third\_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519  
third\_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9  
third\_party/genericCC @ d0153f8e594aa89e93b032143cedbdfef58e562f4  
third\_party/indigo @ 463d89b09699a57bfdfbae351646df6a60040b90  
third\_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf  
third\_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd  
third\_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1  
third\_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab  
third\_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42  
third\_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2  
third\_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26  
third\_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494  
third\_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4  
third\_party/webRTC @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	0	N/A	N/A	N/A
Copa	0	N/A	N/A	N/A
TCP Cubic	1	12.00	1778.67	4.01
FillP	1	11.96	78.61	0.23
FillP-Sheep	1	8.10	30.44	0.00
Indigo	0	N/A	N/A	N/A
LEDBAT	0	N/A	N/A	N/A
PCC-Allegro	0	N/A	N/A	N/A
PCC-Expr	0	N/A	N/A	N/A
QUIC Cubic	0	N/A	N/A	N/A
SCReAM	1	0.22	2.79	0.13
Sprout	0	N/A	N/A	N/A
TaoVA-100x	1	3.27	3.60	0.01
TCP Vegas	0	N/A	N/A	N/A
Verus	0	N/A	N/A	N/A
PCC-Vivace	1	1.26	14.48	0.03
WebRTC media	0	N/A	N/A	N/A

Run 1: Statistics of TCP BBR

Start at: 2025-04-17 16:50:41

End at: 2025-04-17 16:51:11

Run 1: Report of TCP BBR — Data Link

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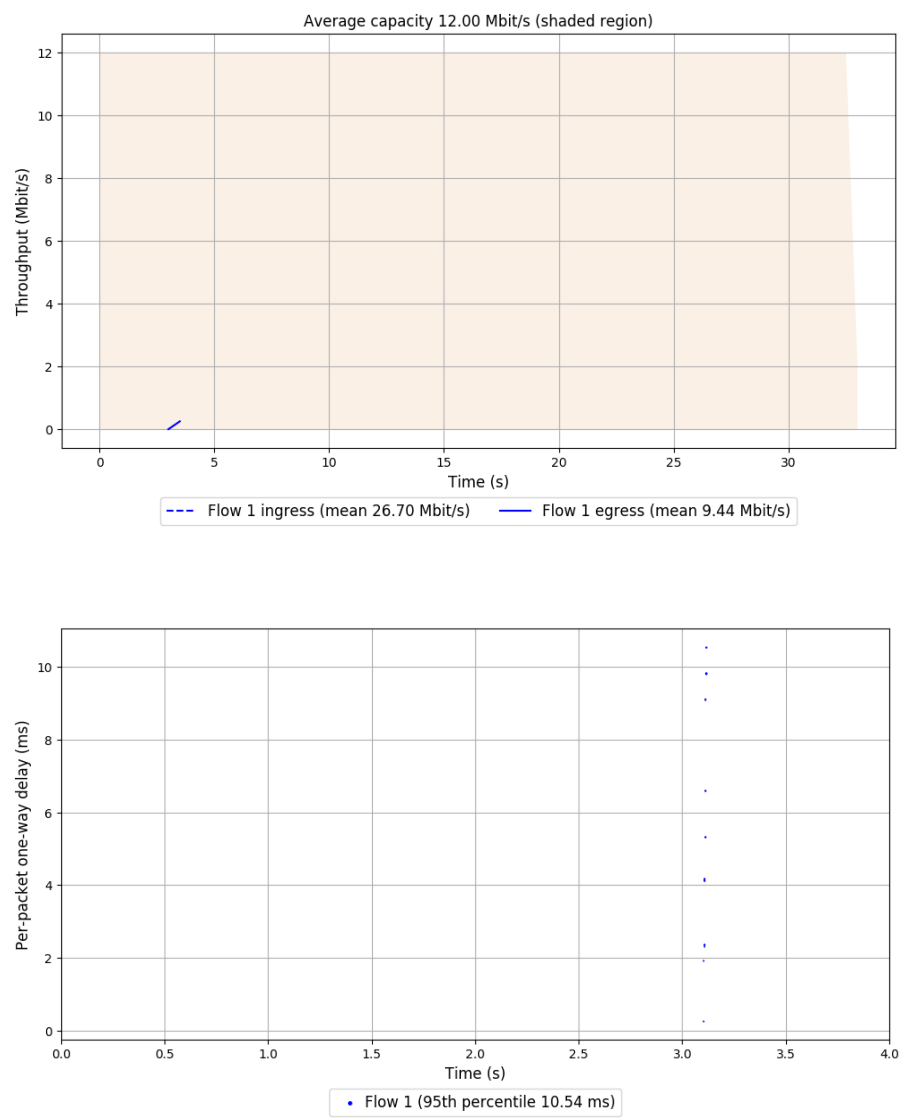
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Run 1: Statistics of Copa

Start at: 2025-04-17 16:46:47

End at: 2025-04-17 16:47:17

Run 1: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2025-04-17 16:48:27

End at: 2025-04-17 16:48:57

# Below is generated by plot.py at 2025-04-17 16:55:55

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 12.00 Mbit/s (100.0% utilization)

95th percentile per-packet one-way delay: 1778.674 ms

Loss rate: 4.01%

-- Flow 1:

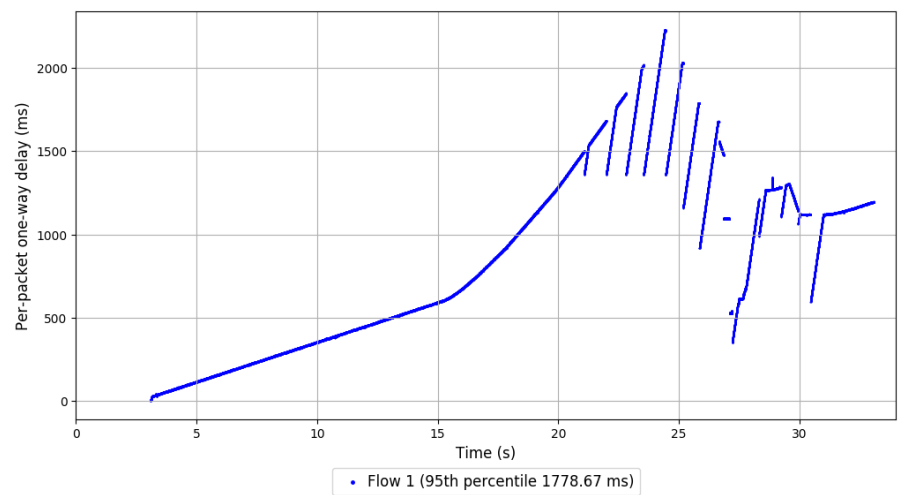
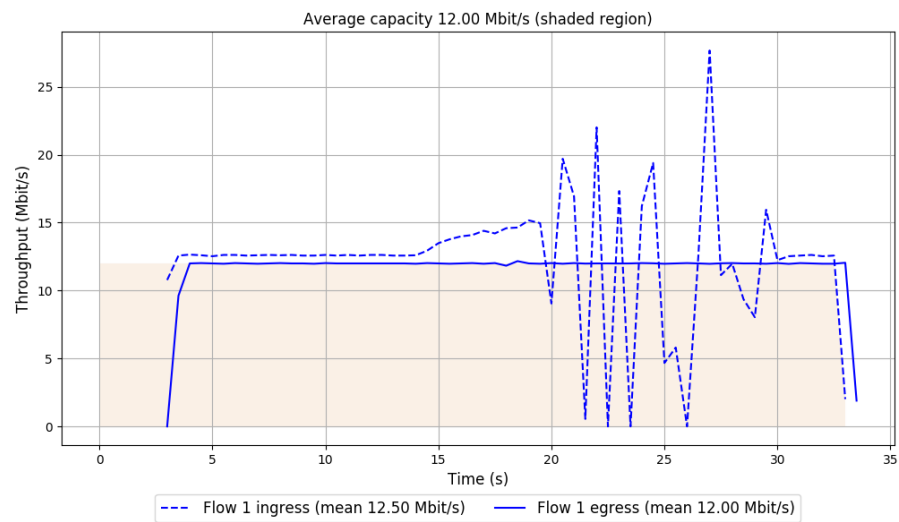
Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 1778.674 ms

Loss rate: 4.01%



Run 1: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2025-04-17 16:51:48

End at: 2025-04-17 16:52:18

# Below is generated by plot.py at 2025-04-17 16:55:55

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 11.96 Mbit/s (99.7% utilization)

95th percentile per-packet one-way delay: 78.612 ms

Loss rate: 0.23%

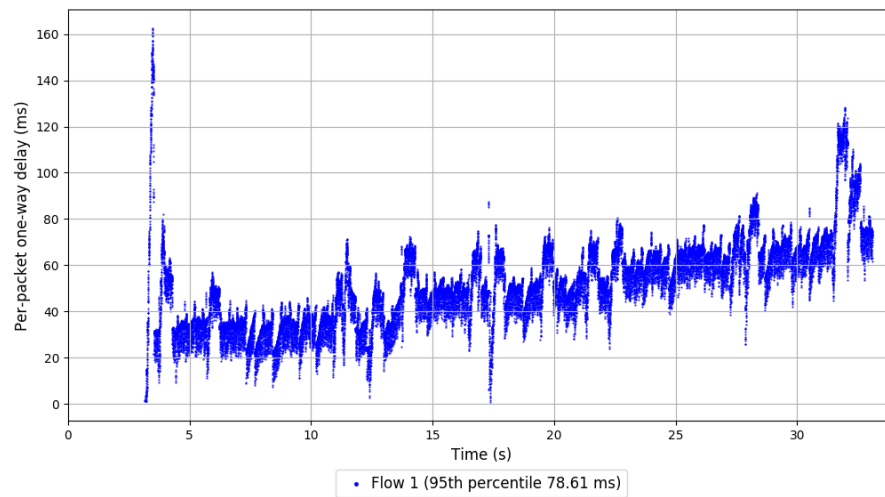
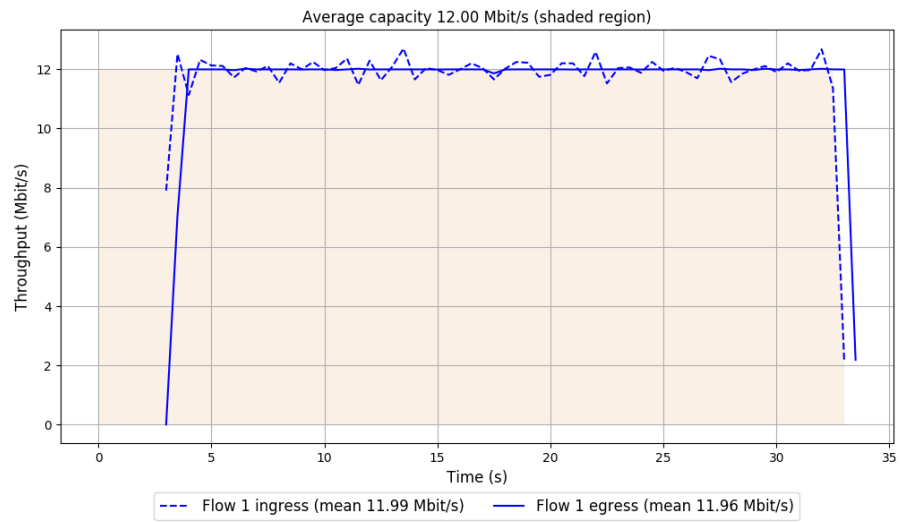
-- Flow 1:

Average throughput: 11.96 Mbit/s

95th percentile per-packet one-way delay: 78.612 ms

Loss rate: 0.23%

## Run 1: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2025-04-17 16:46:14

End at: 2025-04-17 16:46:44

# Below is generated by plot.py at 2025-04-17 16:55:55

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 8.10 Mbit/s (67.5% utilization)

95th percentile per-packet one-way delay: 30.438 ms

Loss rate: 0.00%

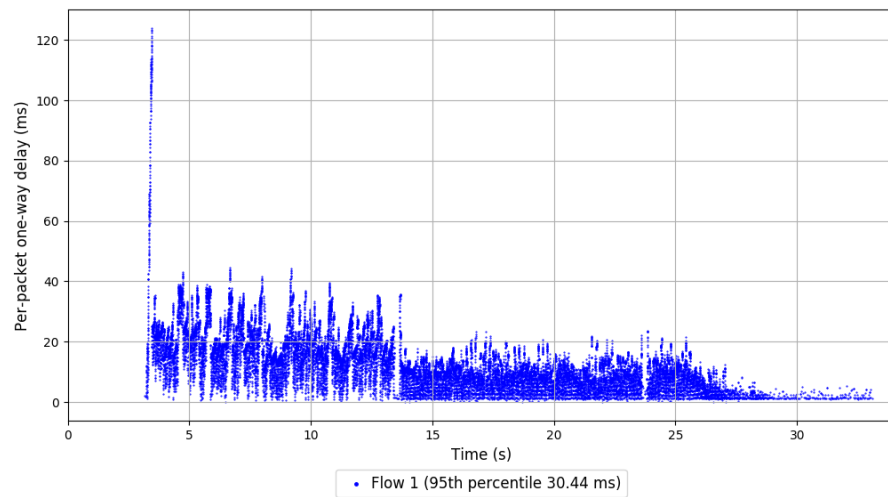
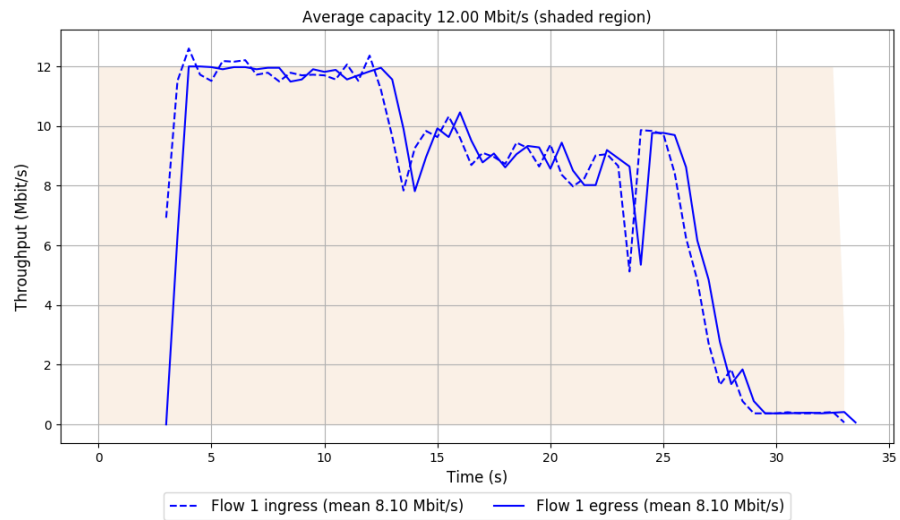
-- Flow 1:

Average throughput: 8.10 Mbit/s

95th percentile per-packet one-way delay: 30.438 ms

Loss rate: 0.00%

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



Run 1: Statistics of Indigo

Start at: 2025-04-17 16:47:21

End at: 2025-04-17 16:47:51

Run 1: Report of Indigo — Data Link

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Run 1: Statistics of LEDBAT

Start at: 2025-04-17 16:54:35

End at: 2025-04-17 16:55:05



Run 1: Report of LEDBAT — Data Link

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Run 1: Statistics of PCC-Allegro

Start at: 2025-04-17 16:53:29

End at: 2025-04-17 16:53:59

Run 1: Report of PCC-Allegro — Data Link

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Run 1: Statistics of PCC-Expr

Start at: 2025-04-17 16:55:09

End at: 2025-04-17 16:55:39

Run 1: Report of PCC-Expr — Data Link

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Run 1: Statistics of QUIC Cubic

Start at: 2025-04-17 16:52:55

End at: 2025-04-17 16:53:25

Run 1: Report of QUIC Cubic — Data Link

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Run 1: Statistics of SCReAM

Start at: 2025-04-17 16:52:22

End at: 2025-04-17 16:52:52

# Below is generated by plot.py at 2025-04-17 16:55:55

# 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: 2.794 ms

Loss rate: 0.13%

-- Flow 1:

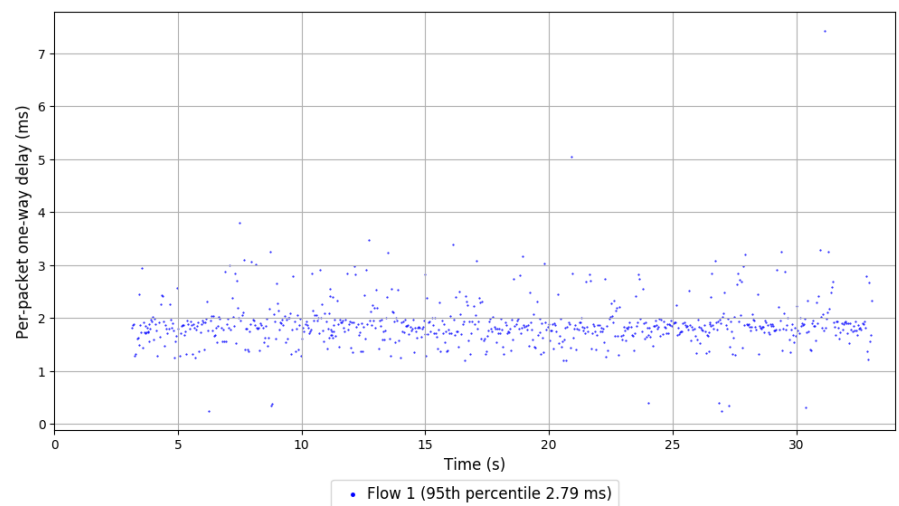
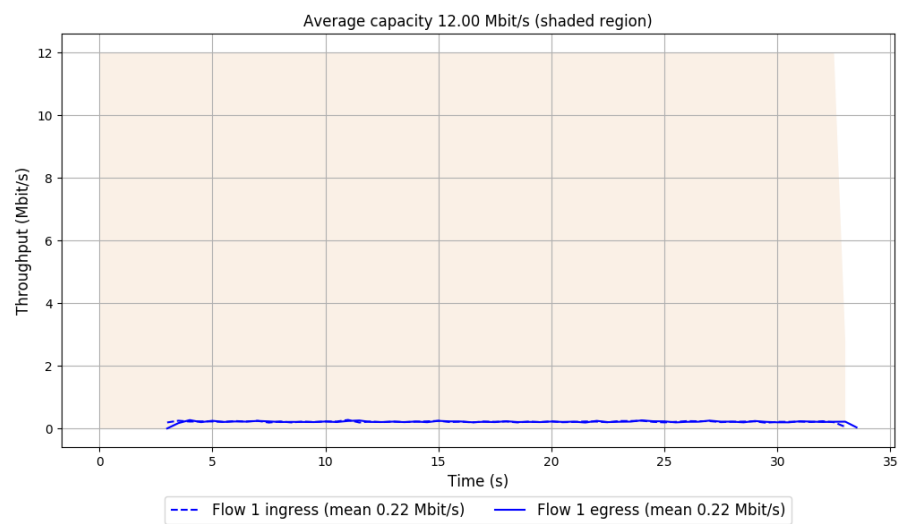
Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 2.794 ms

Loss rate: 0.13%



Run 1: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2025-04-17 16:49:01

End at: 2025-04-17 16:49:31

Run 1: Report of Sprout — Data Link

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Run 1: Statistics of TaoVA-100x

Start at: 2025-04-17 16:51:15

End at: 2025-04-17 16:51:45

# Below is generated by plot.py at 2025-04-17 16:55:56

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 3.27 Mbit/s (27.2% utilization)

95th percentile per-packet one-way delay: 3.597 ms

Loss rate: 0.01%

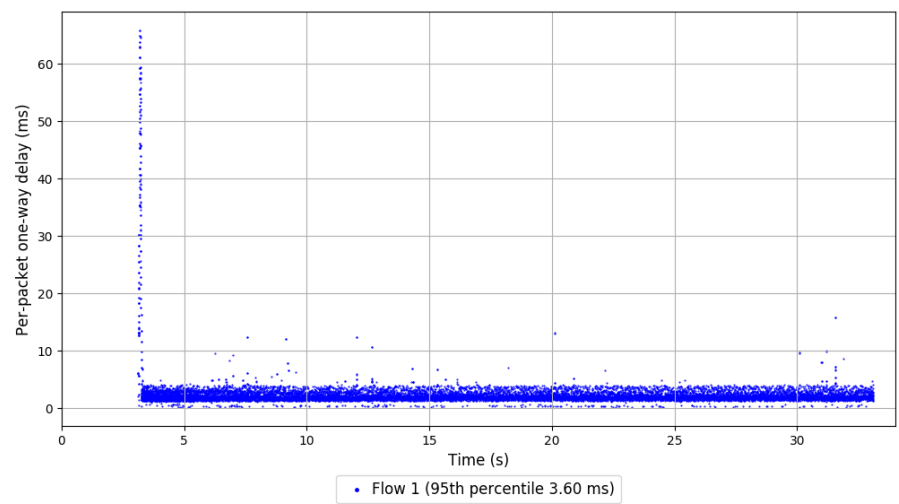
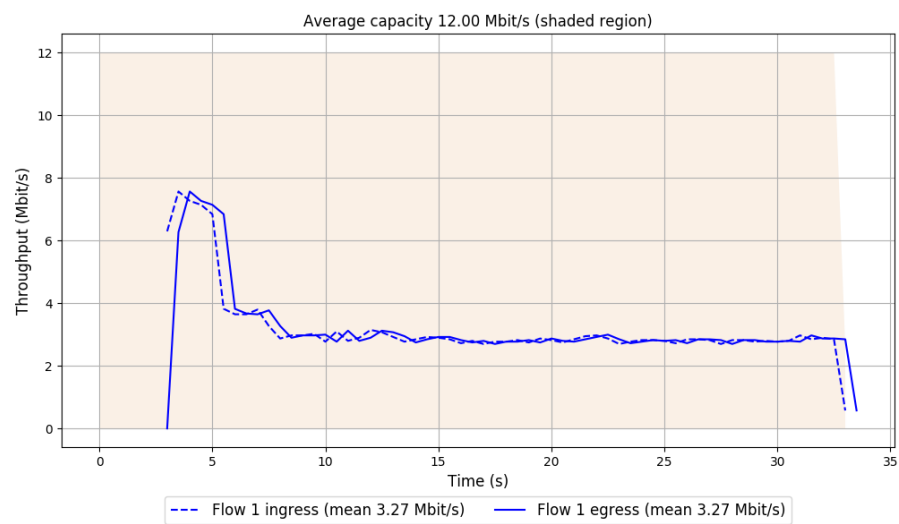
-- Flow 1:

Average throughput: 3.27 Mbit/s

95th percentile per-packet one-way delay: 3.597 ms

Loss rate: 0.01%

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



Run 1: Statistics of TCP Vegas

Start at: 2025-04-17 16:50:08

End at: 2025-04-17 16:50:38

Run 1: Report of TCP Vegas — Data Link

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Run 1: Statistics of Verus

Start at: 2025-04-17 16:47:54

End at: 2025-04-17 16:48:24



Run 1: Report of Verus — Data Link

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Run 1: Statistics of PCC-Vivace

Start at: 2025-04-17 16:49:34

End at: 2025-04-17 16:50:04

# Below is generated by plot.py at 2025-04-17 16:55:56

# Datalink statistics

-- Total of 1 flow:

Average capacity: 12.00 Mbit/s

Average throughput: 1.26 Mbit/s (10.5% utilization)

95th percentile per-packet one-way delay: 14.481 ms

Loss rate: 0.03%

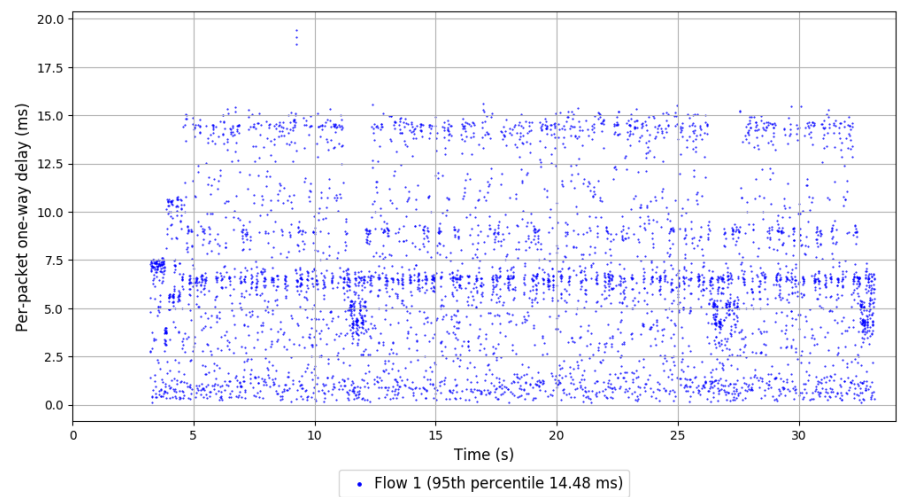
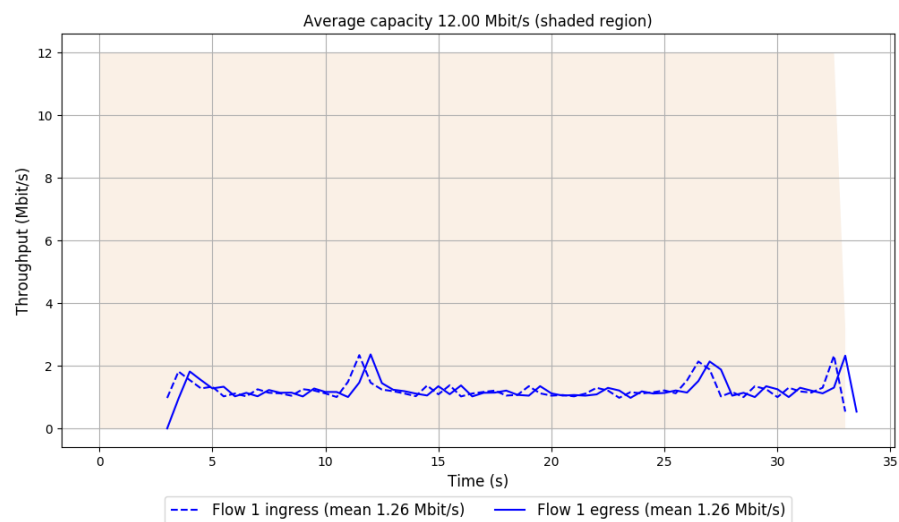
-- Flow 1:

Average throughput: 1.26 Mbit/s

95th percentile per-packet one-way delay: 14.481 ms

Loss rate: 0.03%

Run 1: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2025-04-17 16:54:02

End at: 2025-04-17 16:54:32

Run 1: Report of WebRTC media — Data Link

