QCN: Benchmark Simulations
- Scenario 4

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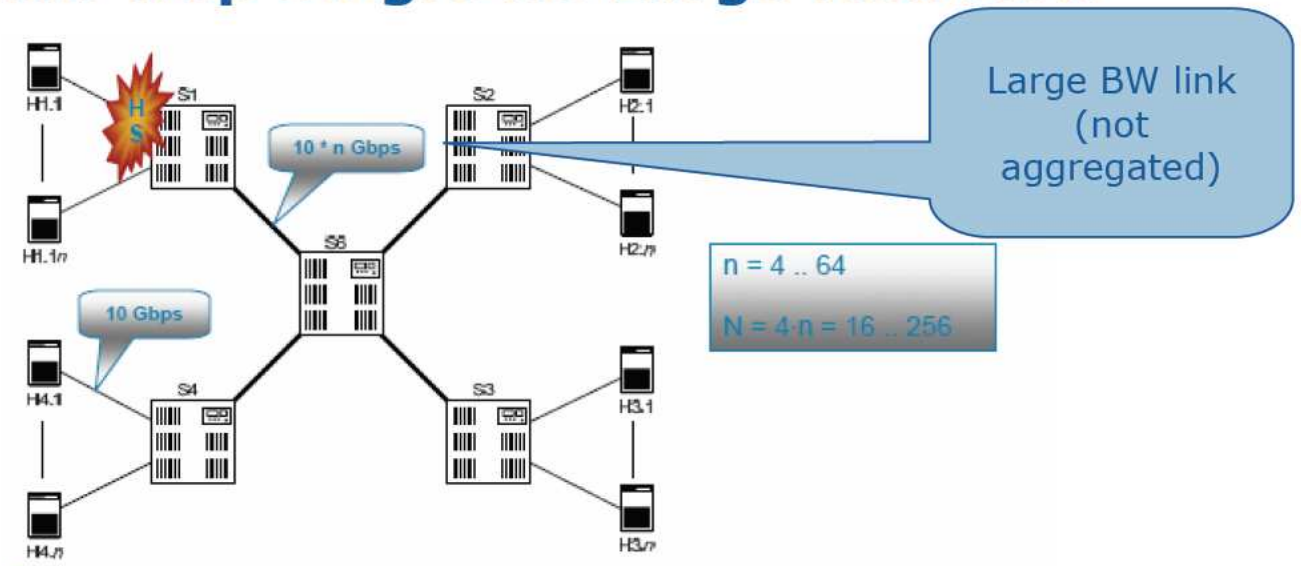
Simulation Parameters

- Traffic
  - i.i.d. Bernoulli arrivals
  - Uniform destination distribution (to all nodes except self)
  - Fixed frame size = 1500 B
- Switch
  - VOQ with 2.4MB shared mem
  - Partitioned memory per input, shared among all outputs
  - No limit on per-output memory usage
- Adapter
  - RLT: VOQ and single; RR service
  - One rate limiter per destination
  - Egress buffer size = 1500 KB,
  - Ingress buffer size = Unlimited
- QCN
  - W = 2.0
  - Q_EQ = 33 KB
  - GD = 0.0078125
  - Base marking: once every 150 KB
  - Margin of randomness: 30%
  - R_{unit} = 1 Mb/s
  - MIN_RATE = 10 Mb/s
  - BC_LIMIT = 150 KB
  - TIMER_PERIOD = 15 ms
  - R_AI = 5 Mbps
  - R_HAI = 50Mbps
  - FAST_RECOVERY_TH = 5
  - Quantized_Fb: 6 bits

Baseline #4

4. Multi-Hop Single HS Large Network

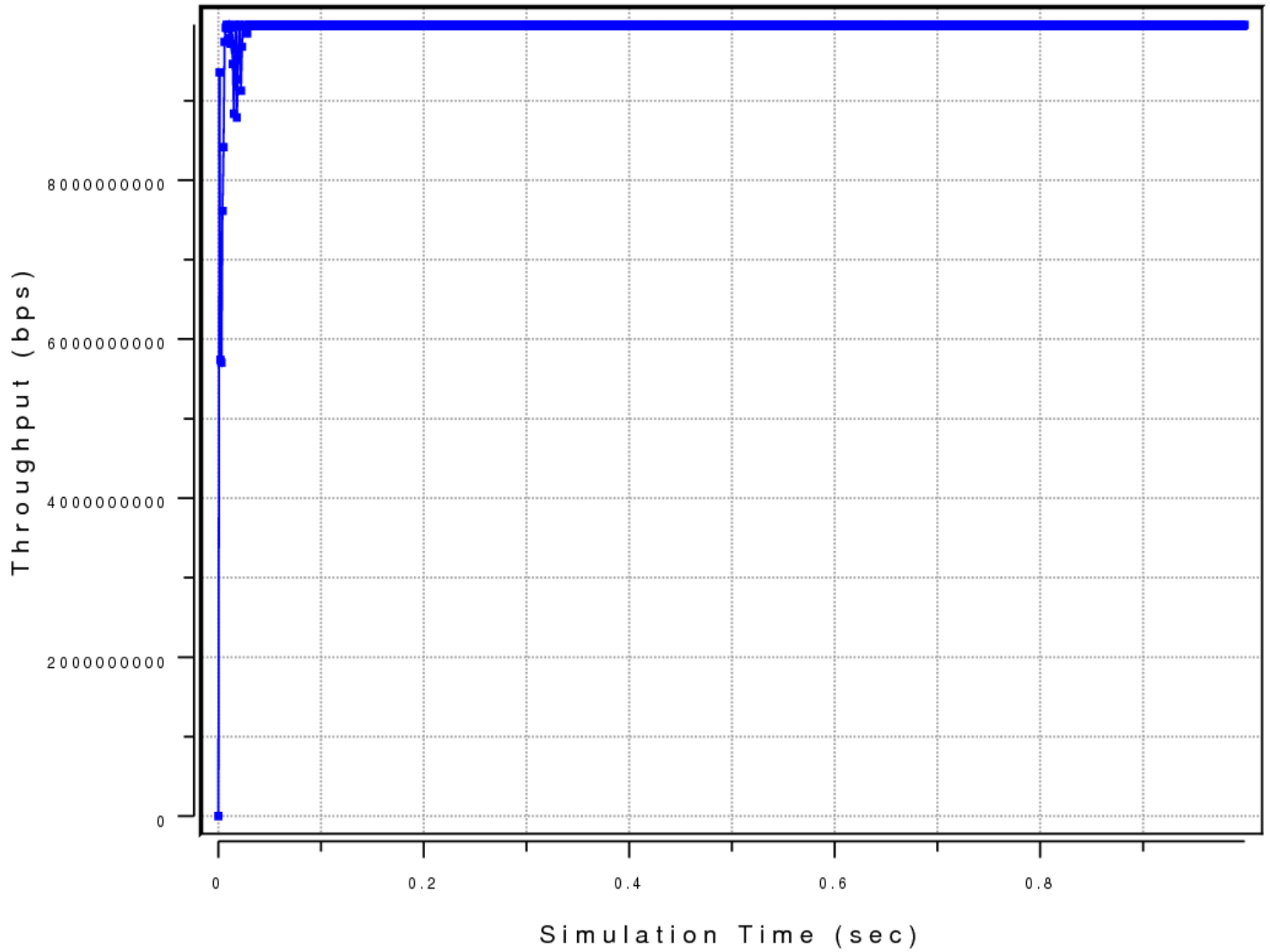


Workload:

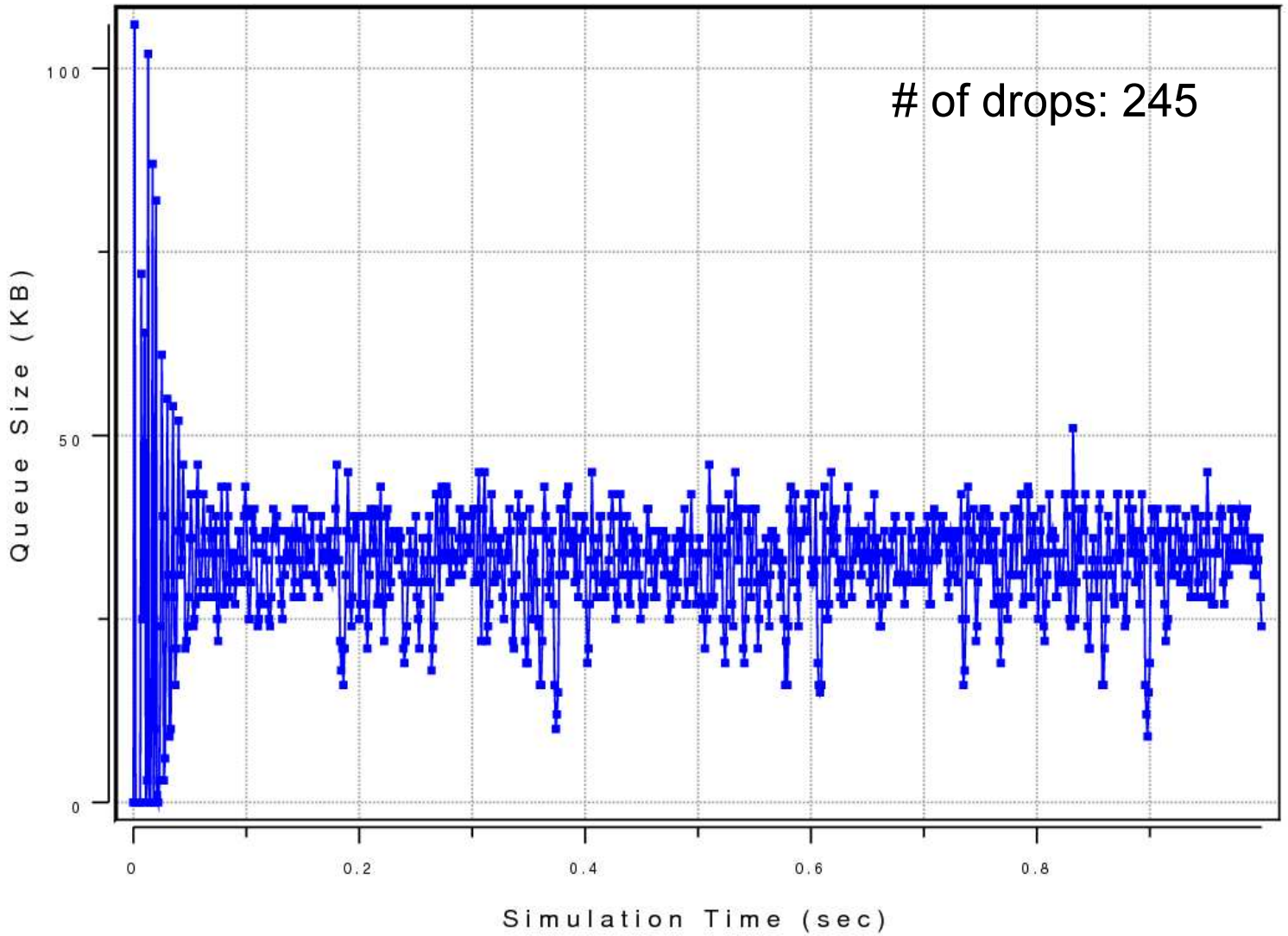
- Load: H1.1 -- H4.n λ = 85%, Skewed Uniform
  - H1.1 is targeted with 2λ
  - All other nodes with λ (N-2)/(N-1)
- Congestion Point:
  - Node H1.1
  - HS degree = N
  - HS severity = 1.7 : 1

Required

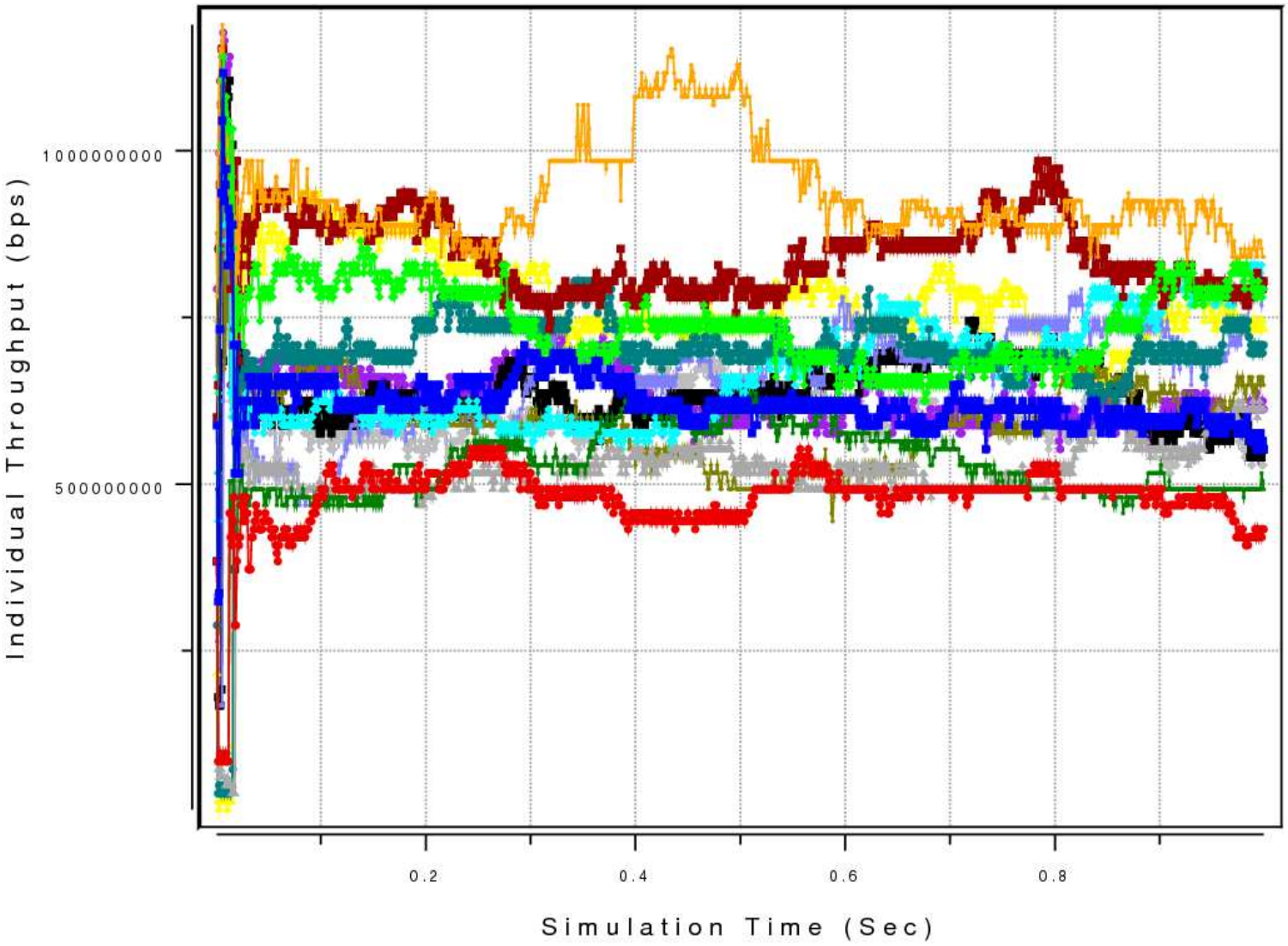
Link Throughput
- The Congested Link (n = 4)



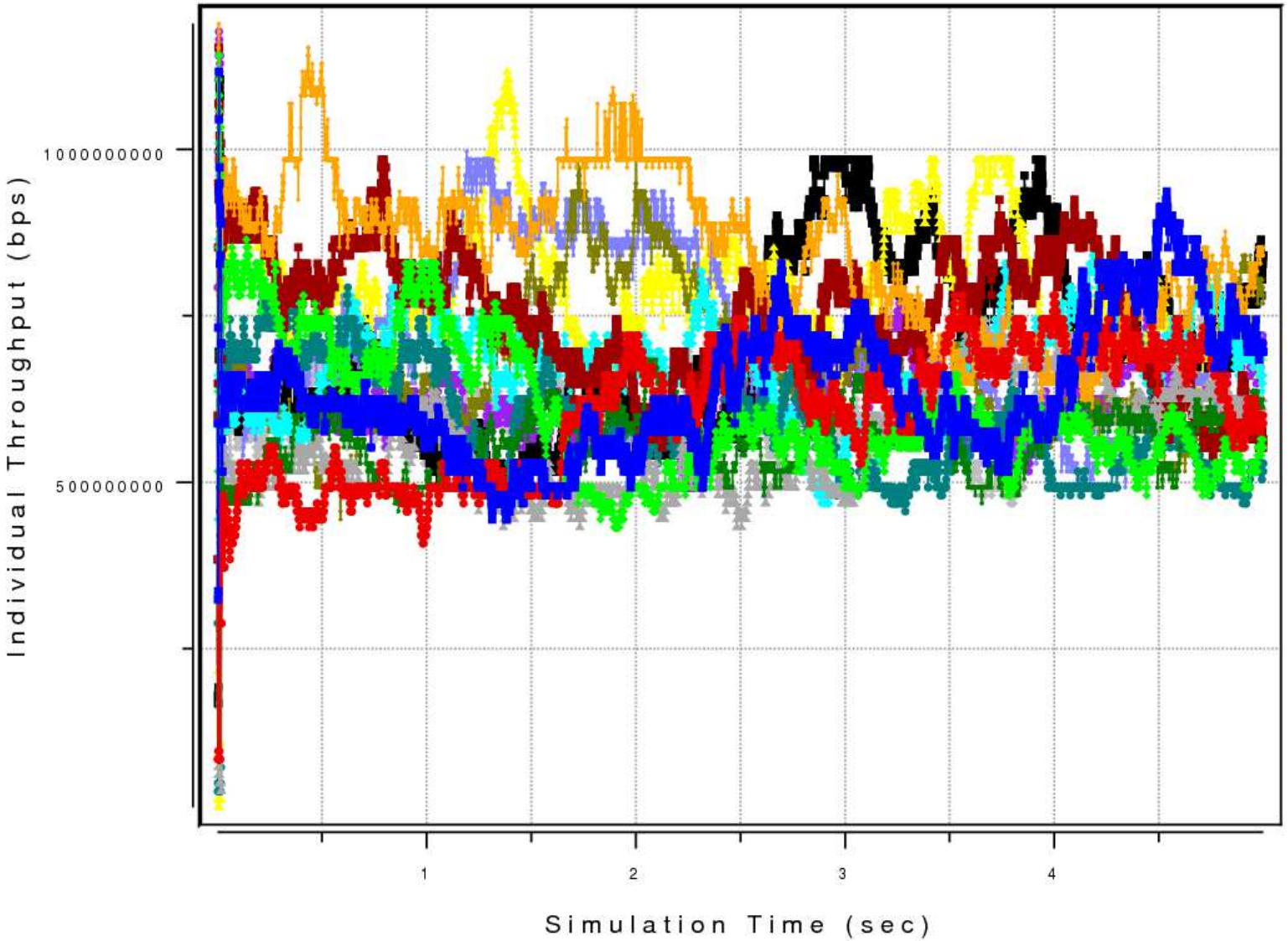
- Congested Queue Size (n = 4)



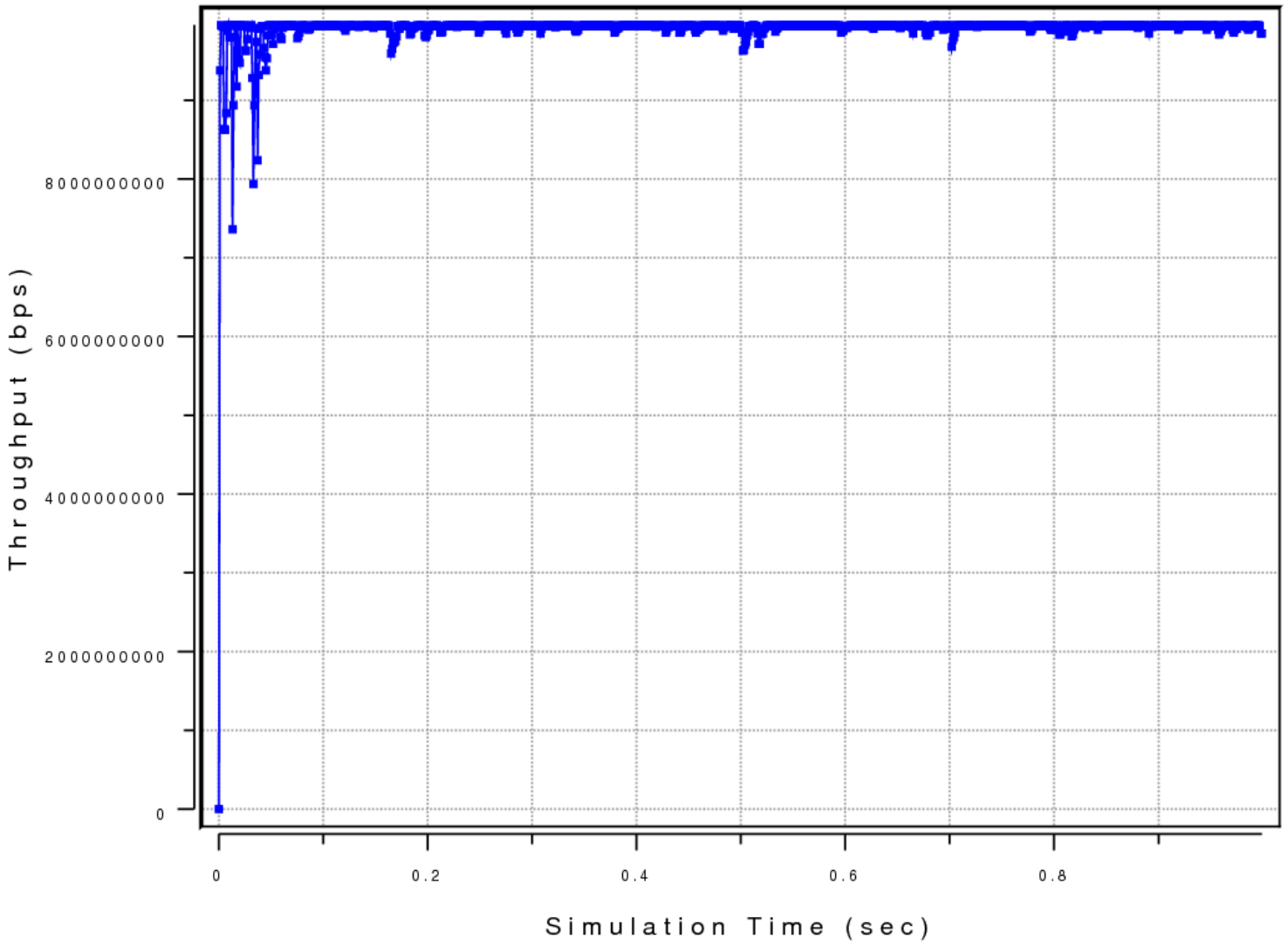
- Individual Flow Rates (n = 4, N = 15)



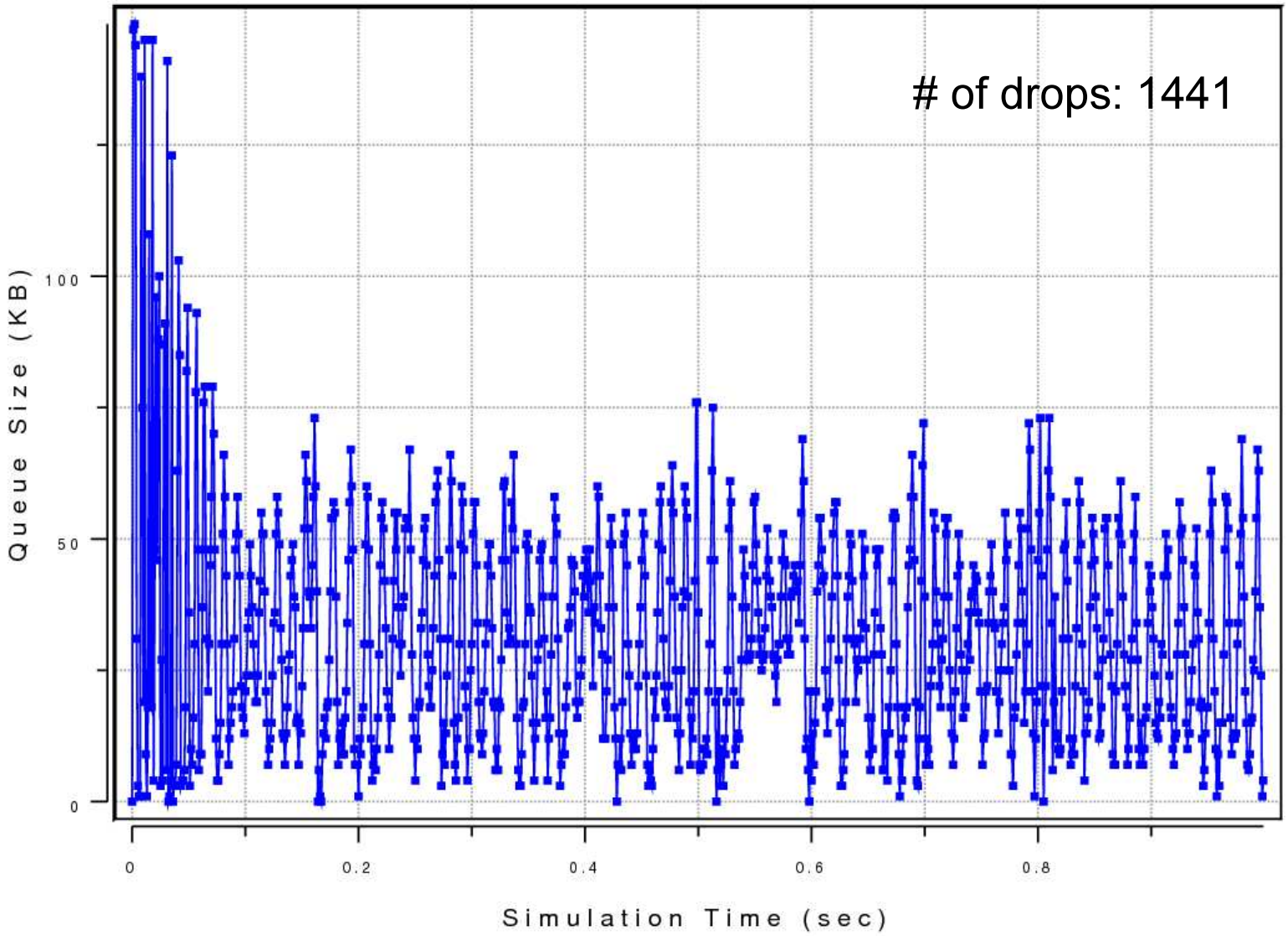
-Individual Flow Rates (n = 4, N = 15)
- extended time to show fairness



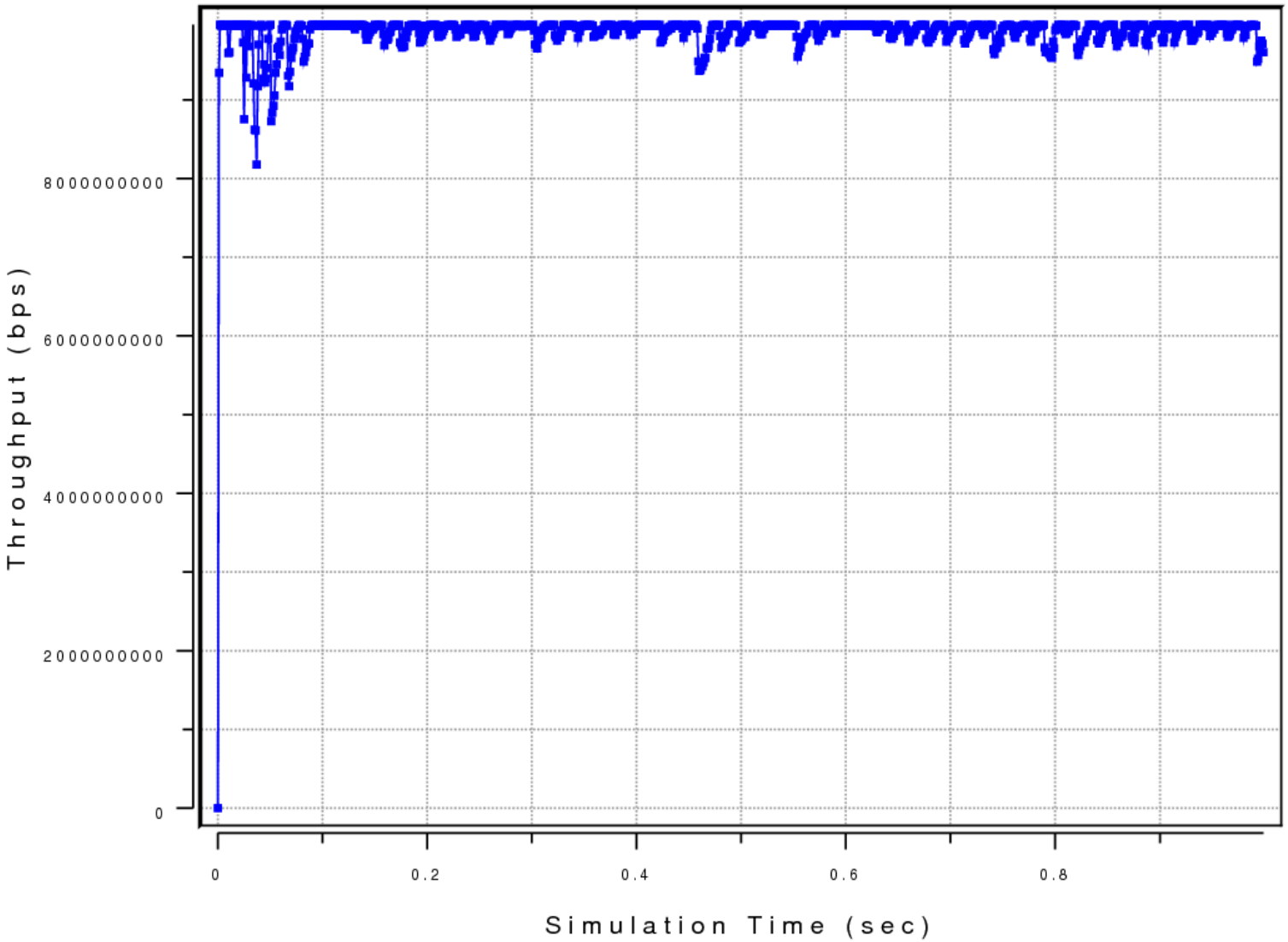
Link Throughput
- The Congested Link (n = 16)



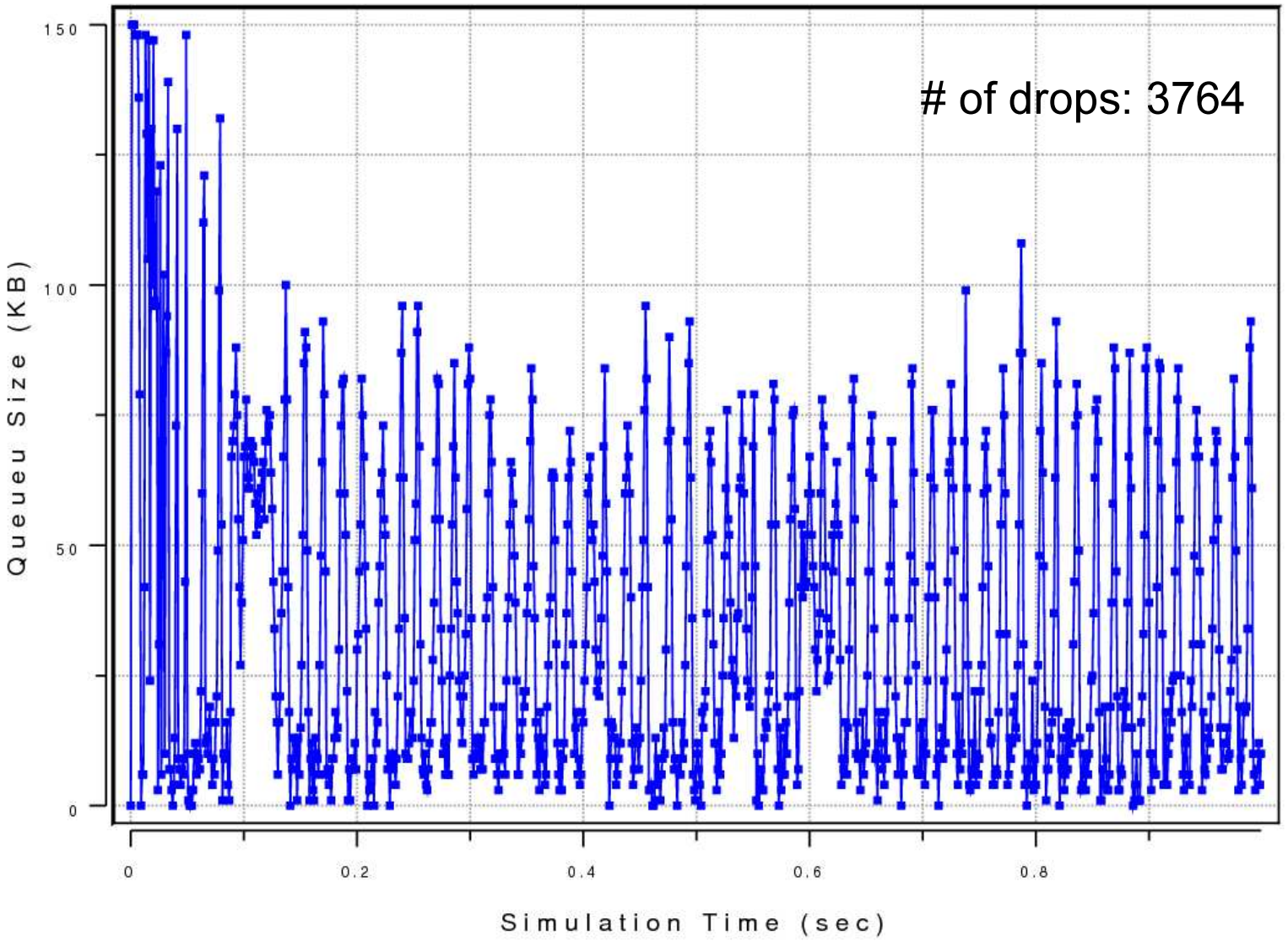
- Congested Queue Size (n = 16)



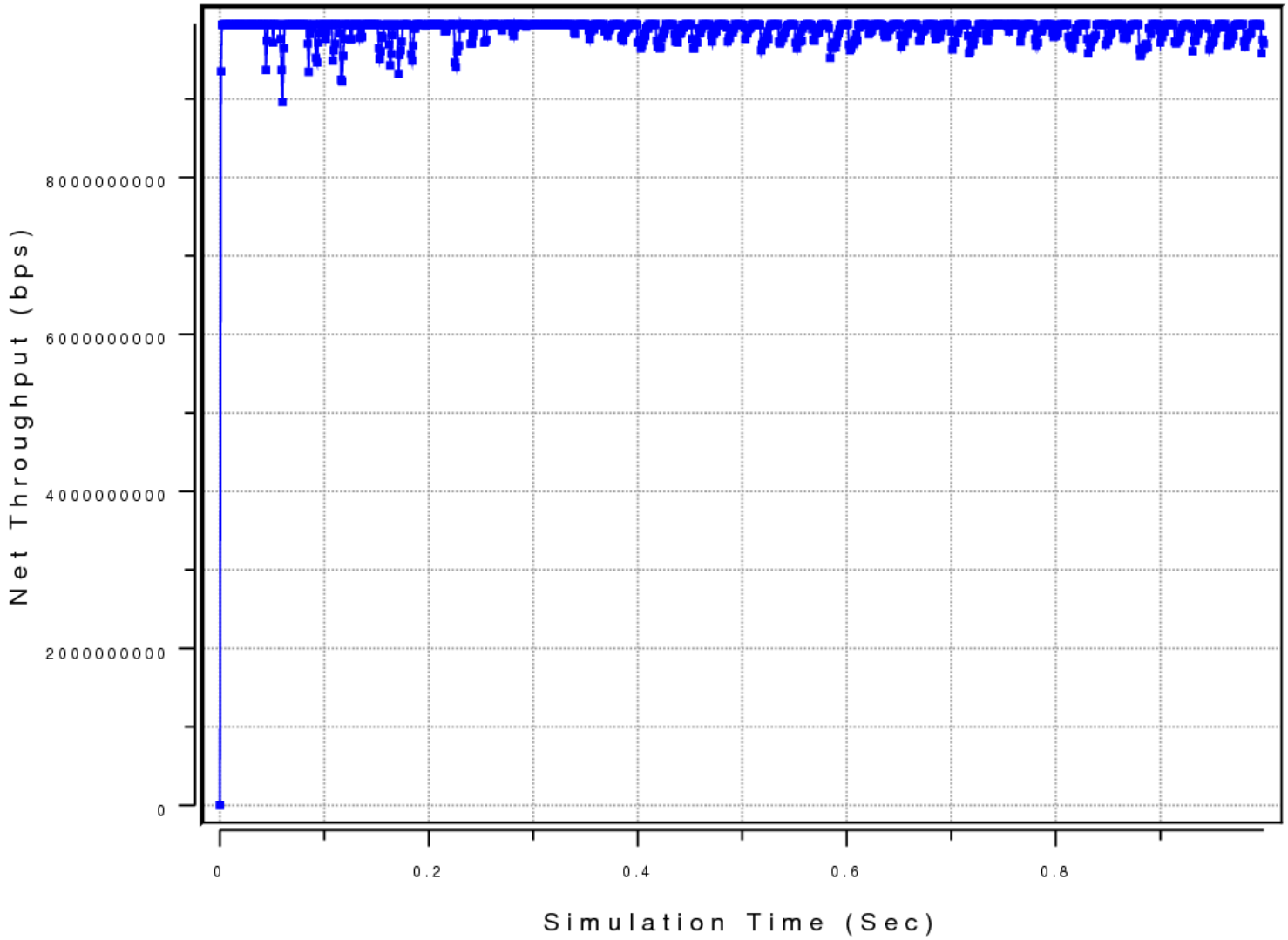
Link Throughput
- The Congested Link (n = 32)



- Congested Queue Size (n = 32)



Link Throughput
- The Congested Link (n = 64)



- Congested Queue Size (n = 64)