

BCN Calibration Simulation Results

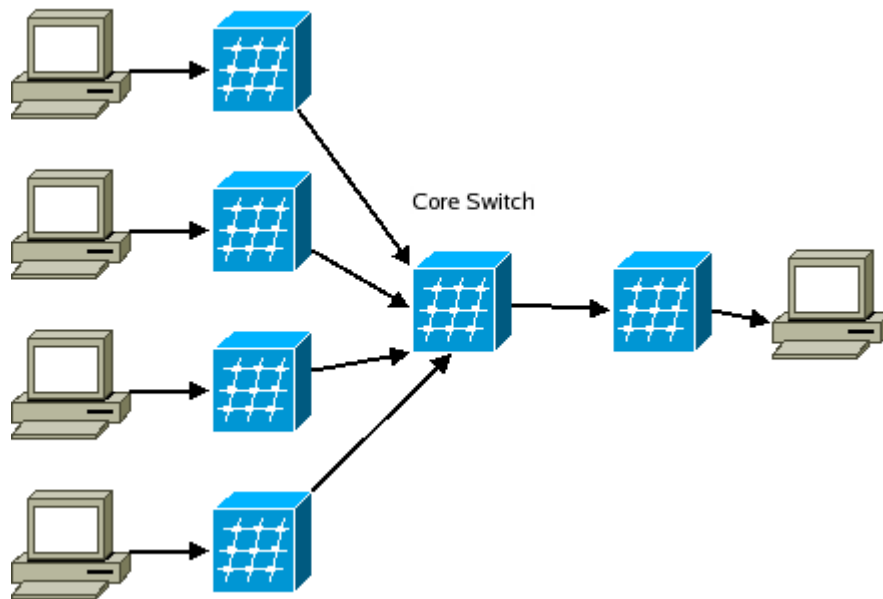
Zhi-Hern Loh
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Workload

- **Traffic Type: 100% UDP (or raw Ethernet) Traffic**
- **Destination: EP0-EP3 sending to EP4**
- **Frame Size Distribution: 1500 byte fixed**
- **Arrival Distribution: Bernoulli temporal distribution**
- **Offered load at endpoint = 50%**

Topology



- Link capacity 10Gbps
- Core switch egress port buffer size infinite
- Rate limiter queue buffer size 150KB
- Switch latency (1 us)
- Link length (not modelled, 0 latency)
- Endpoint response time (not modelled, 0 latency)

BCN Parameters

- **Qeq 375 * 64 byte pages**
- **Frame Sampling 150KB +- 5KB (random jitter)**
- **W = 2**
- **Gi = 5.3 x 10⁻¹**
- **Gd = 2.6 x 10⁻⁴**
- **Ru = 1 Mbps**

Simulation run

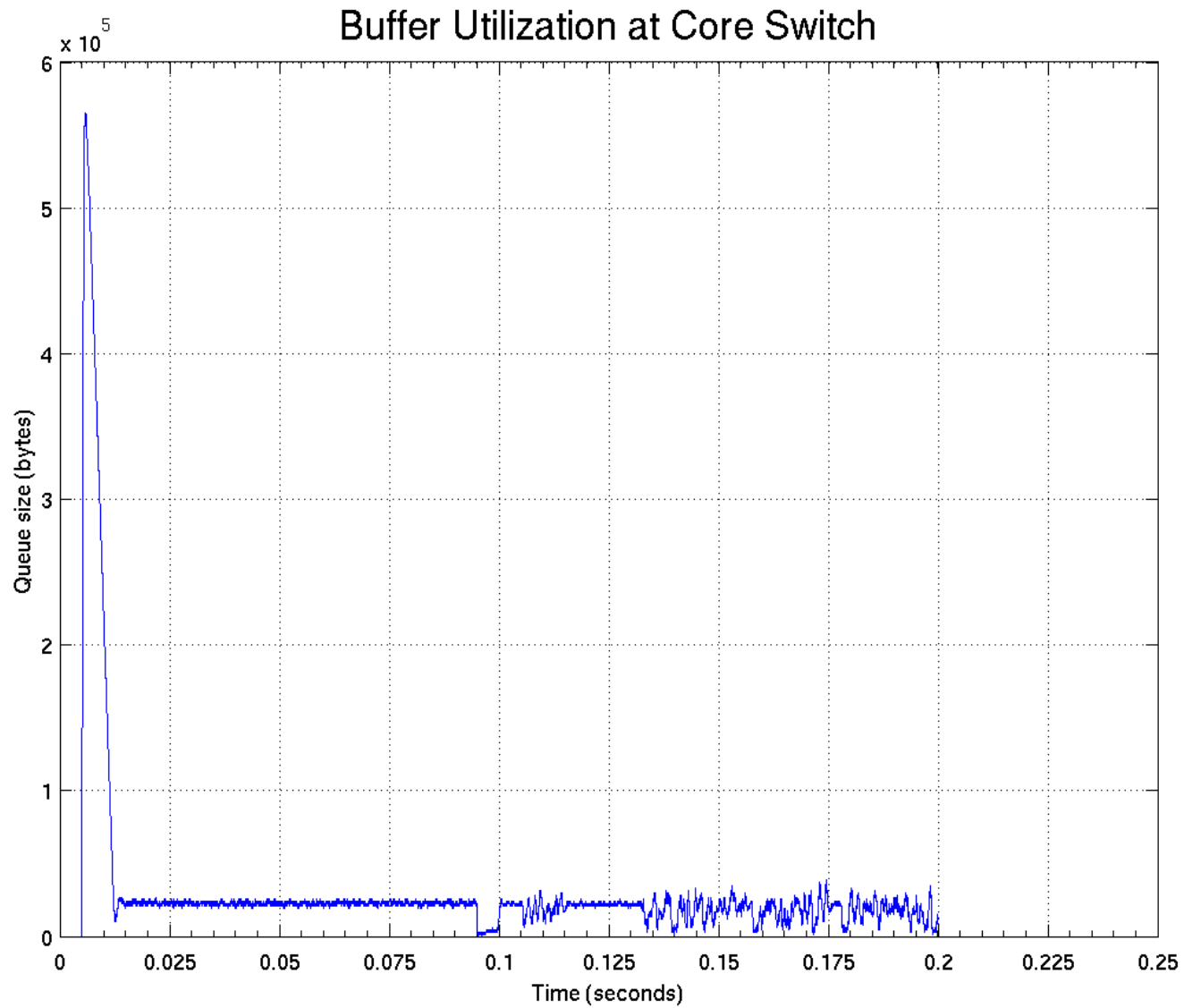
- **Simulation**

- Duration 200 ms
- Sources start at $t = 5\text{ms}$
- 2 flows stop at $t = 95\text{ms}$
- Simulation stops at $t = 200\text{ ms}$

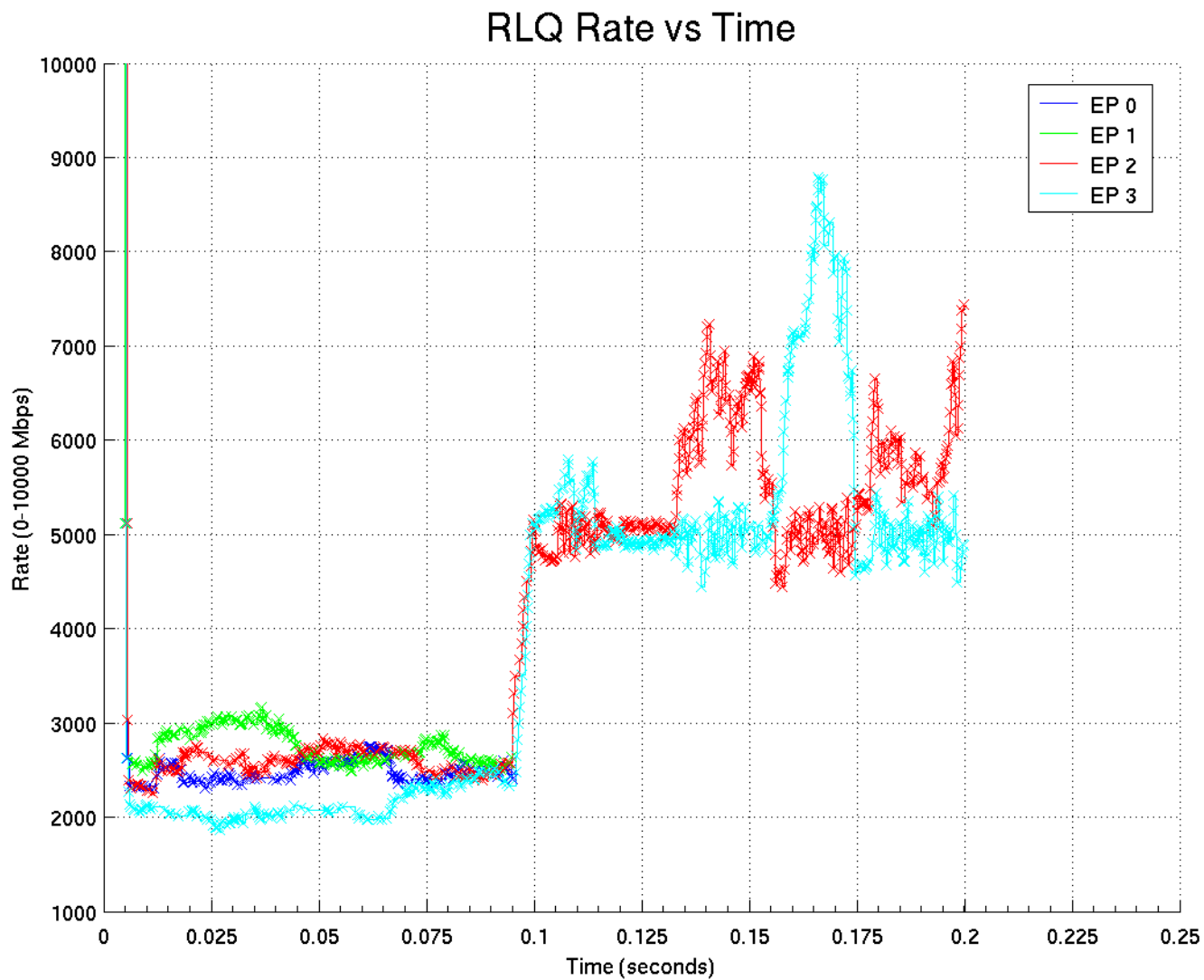
- **Results**

- Throughput 10 Gbps, except when 2 flows end
- Packets transmitted (during 5ms – 95ms): 149978
- Packets received (during 5ms – 95ms): 74945
- Packets dropped (during 5ms – 95ms): 74611
 - 0 drop at CP

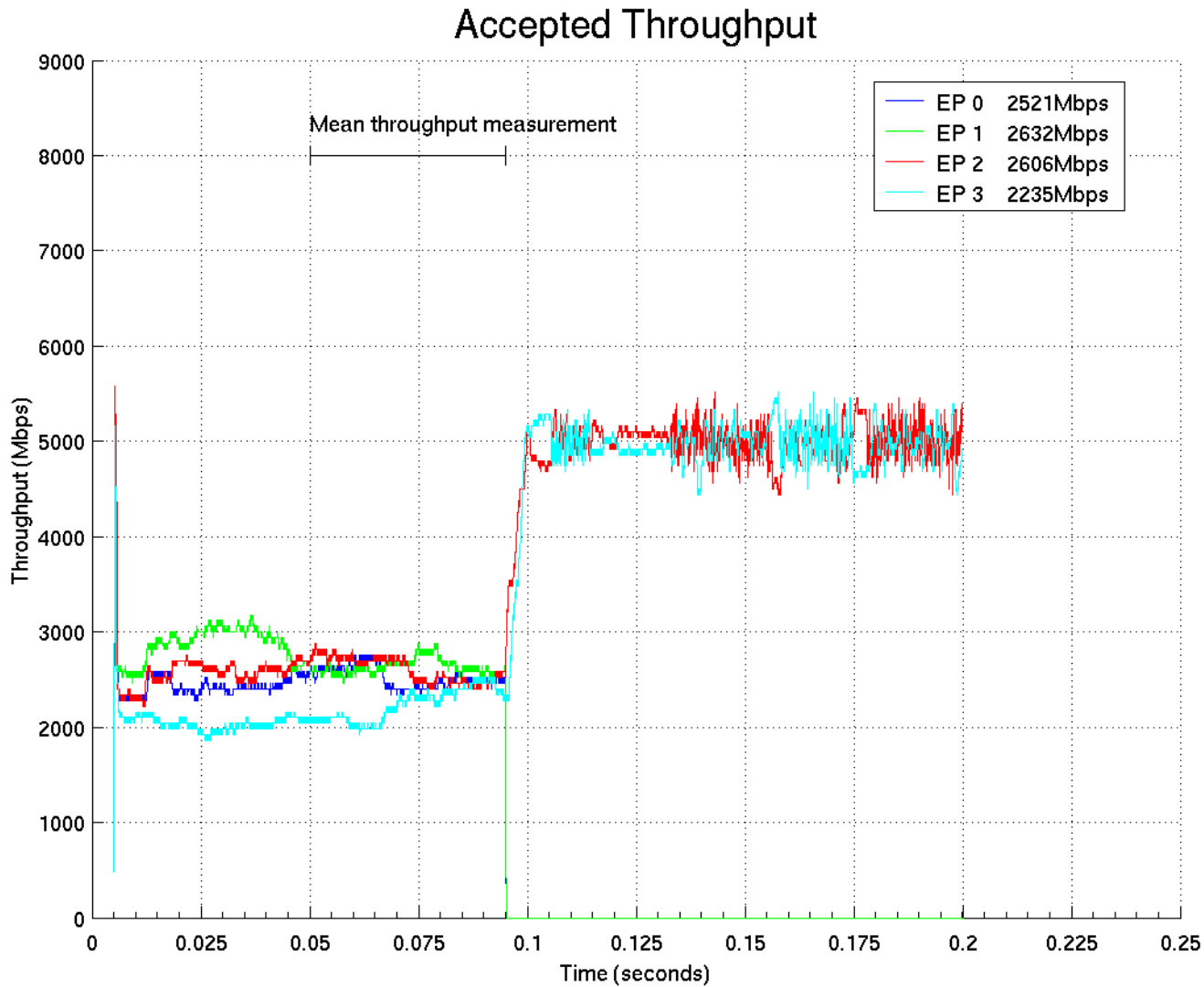
Buffer Utilization at Core switch



RLQ Rate vs Time

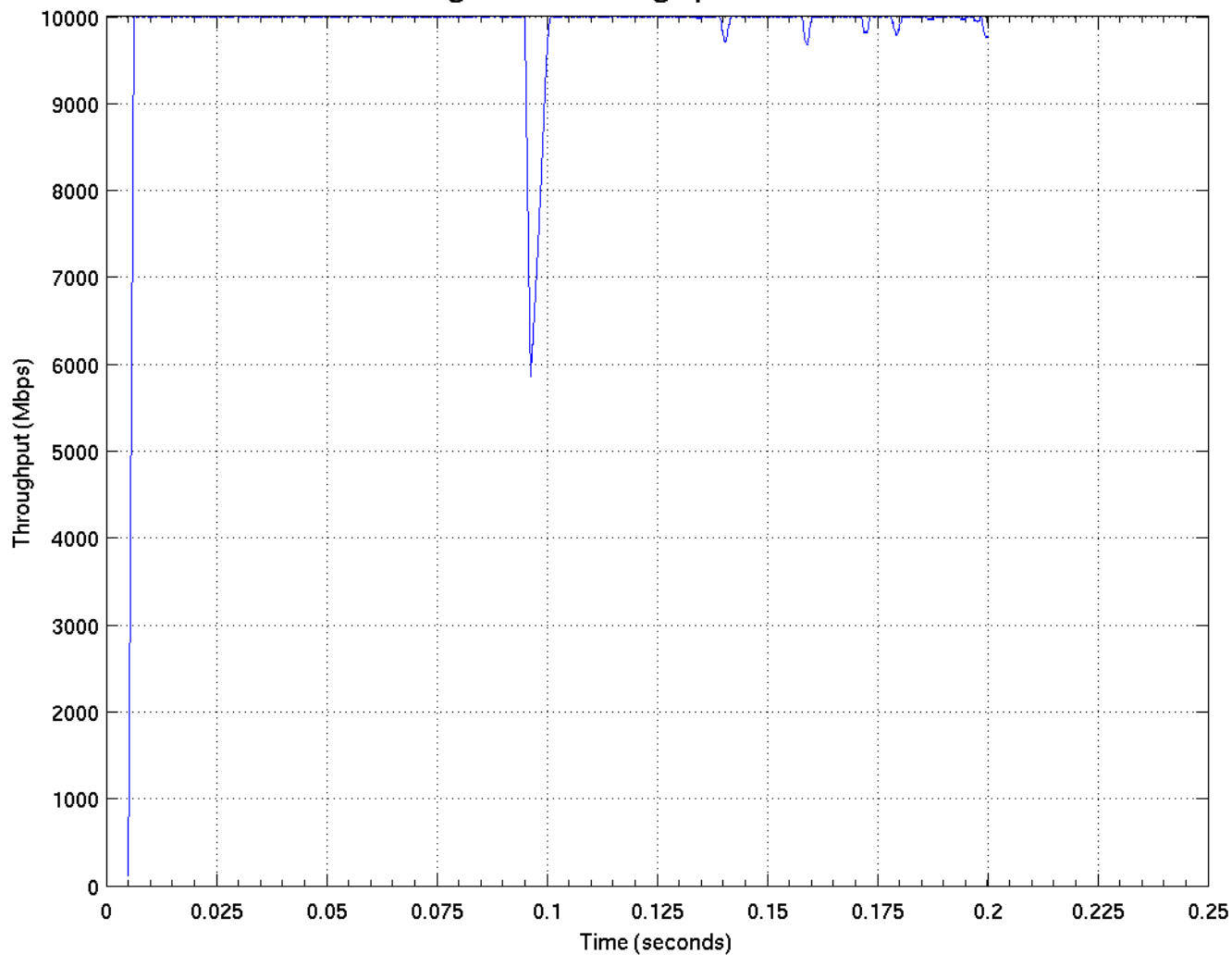


Accepted Load



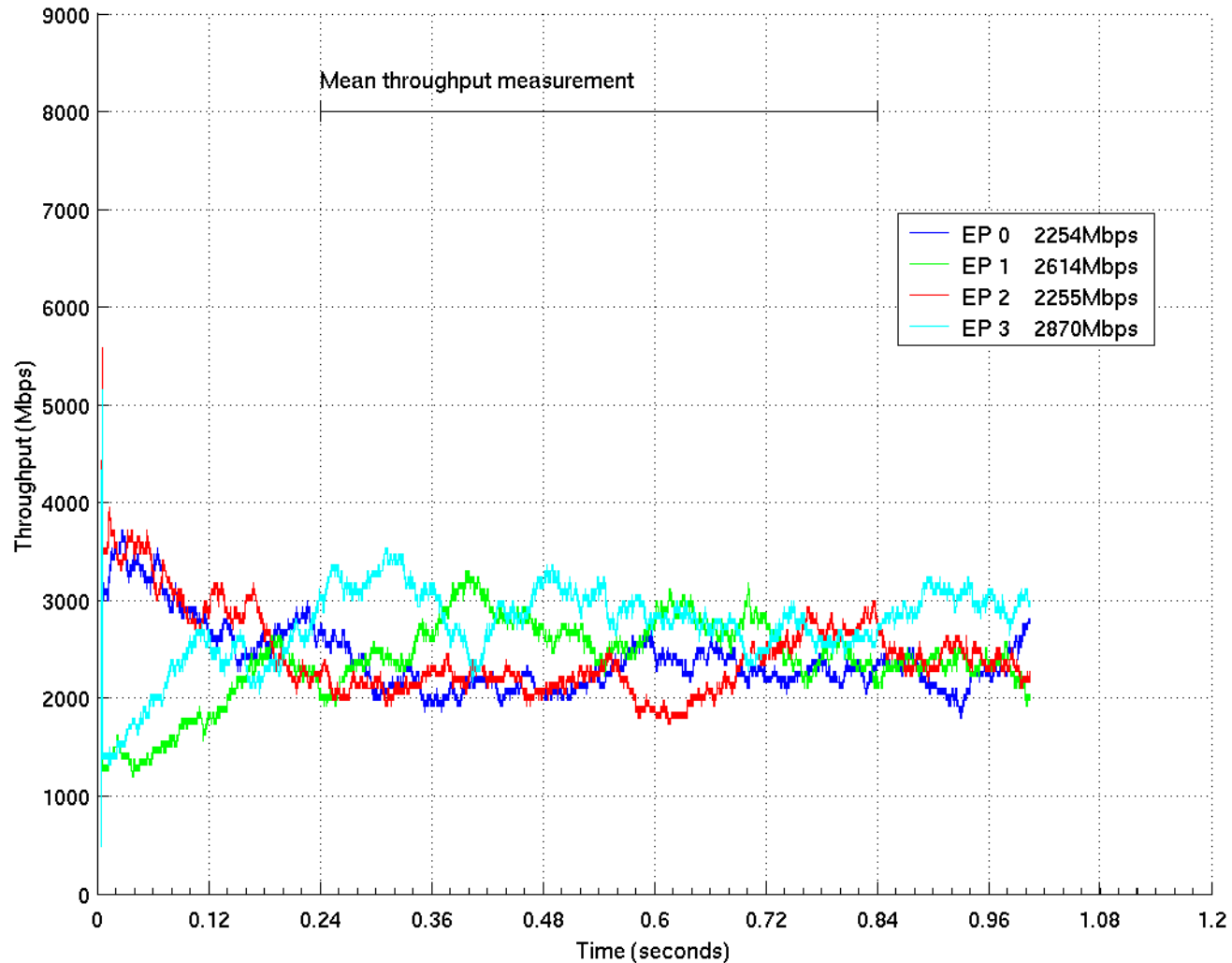
Egress Throughput

Egress Throughput vs Time



4 Long Lived Flows Accepted Load

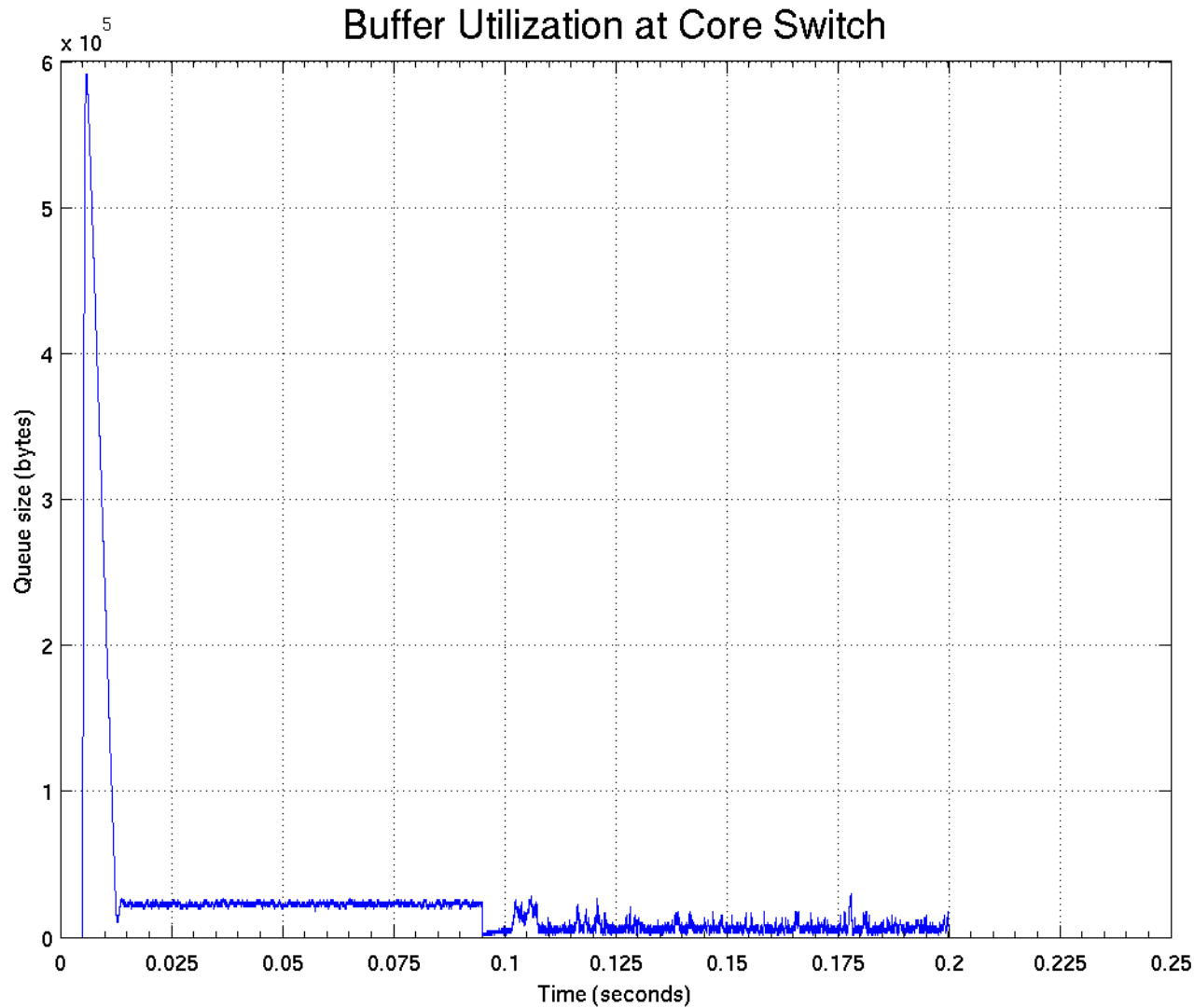
Accepted Throughput



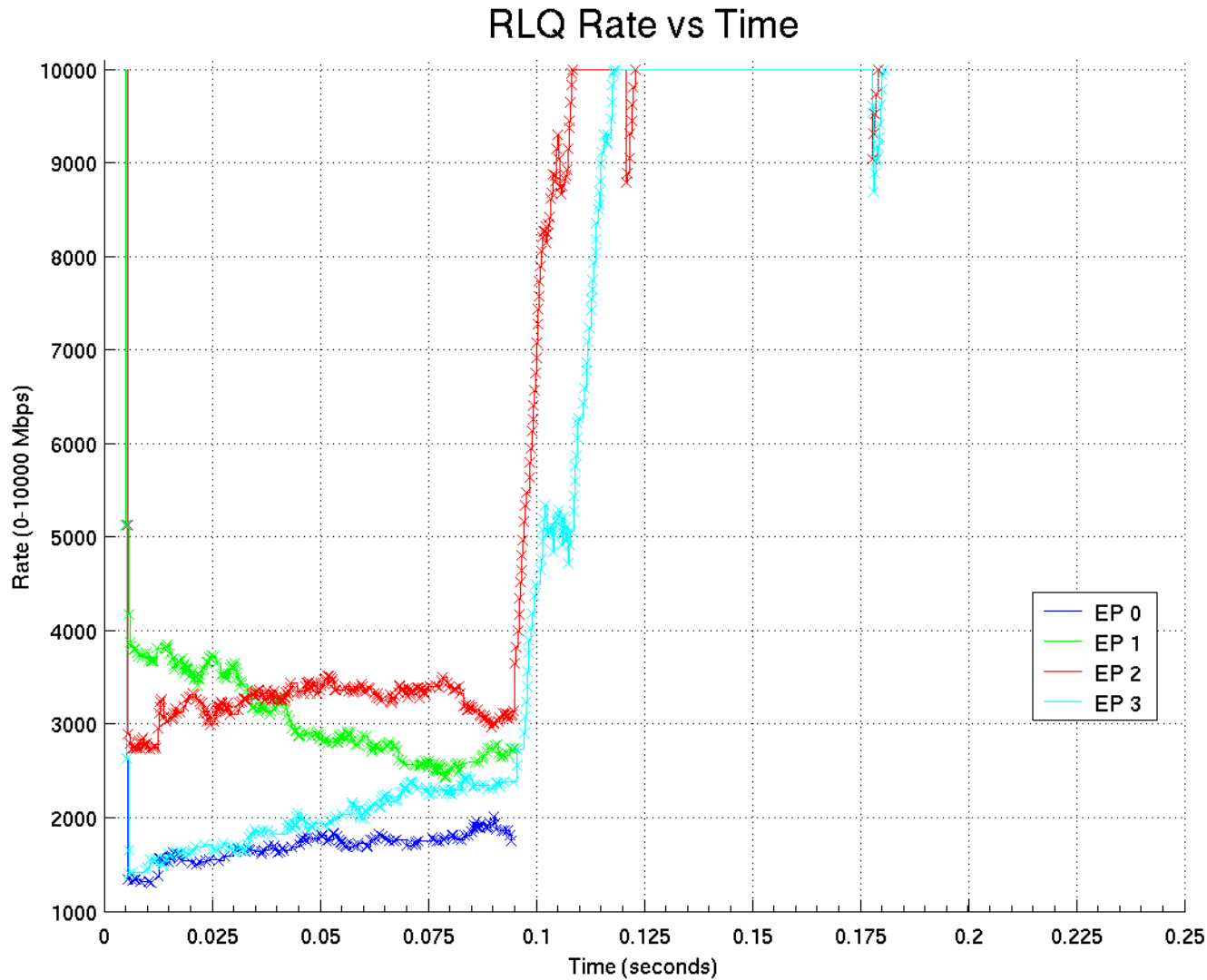
Workload 2

- Reduced offered load
 - No congestion after 2 sources end, previously had congestion due to inter-packet gap.
 - Offered load 49%
- Results
 - Packets transmitted (during 5ms-95ms): 146966
 - Packets received (during 5ms-95ms): 74945
 - Packets dropped (during 5ms-95ms): 71598

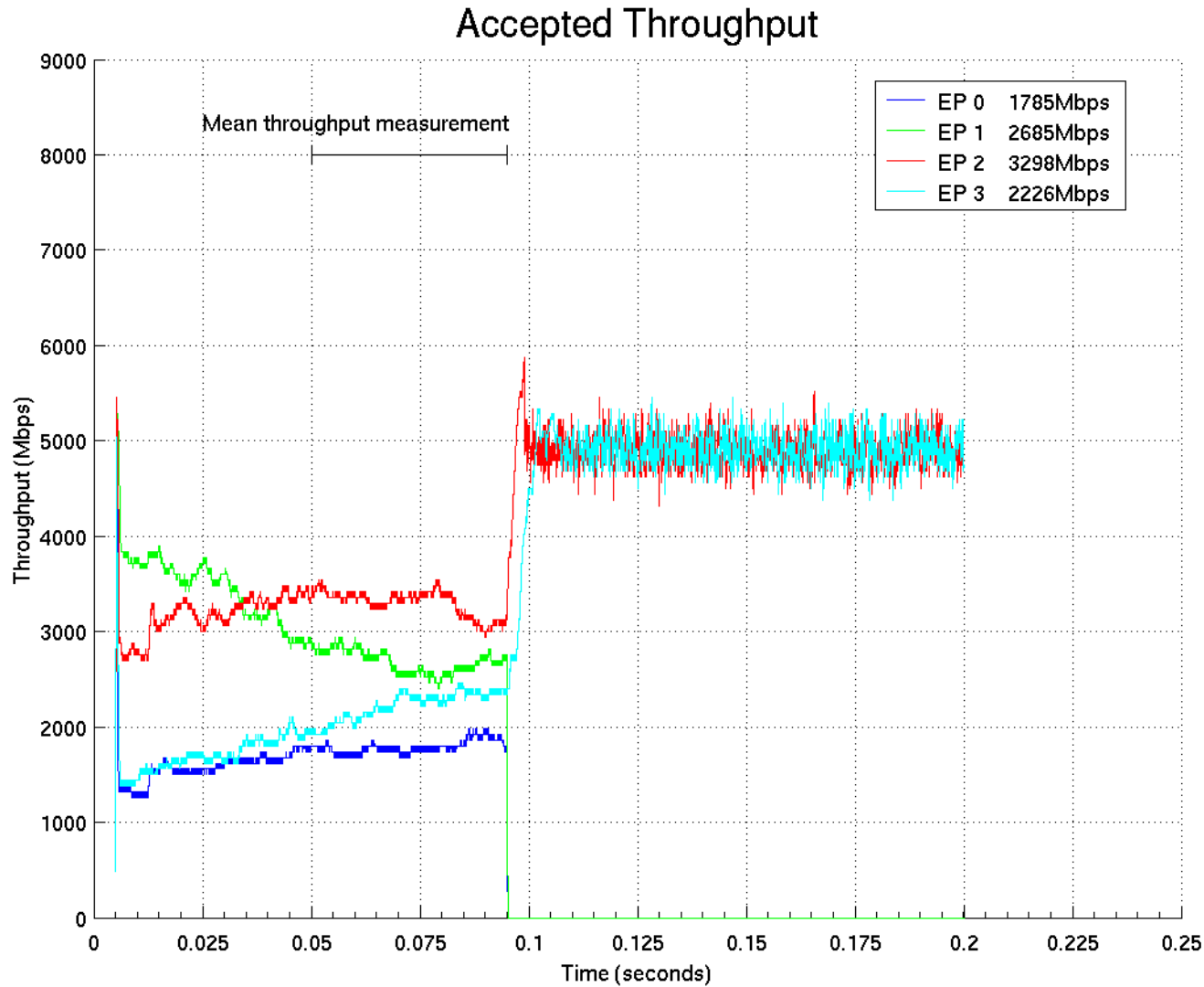
Workload 2: Core buffer Utilization



Workload 2: RLQ Rate vs Time



Workload 2: Accepted Load



Workload 2: Egress Throughput

Egress Throughput vs Time

