BCN Calibration Simulation Results
Innocent Flows With Varying Hot Spot Degree

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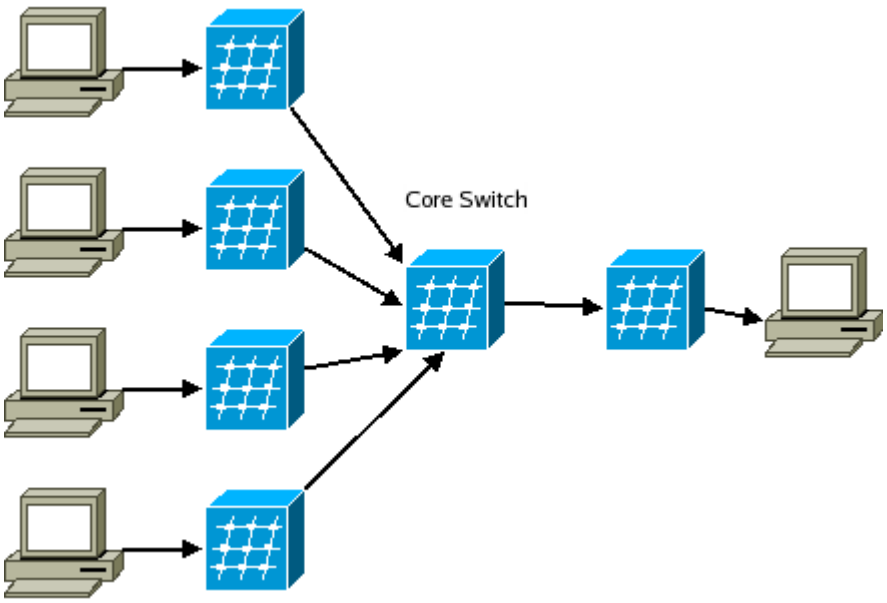
Workload

- **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%**

Baseline Topology

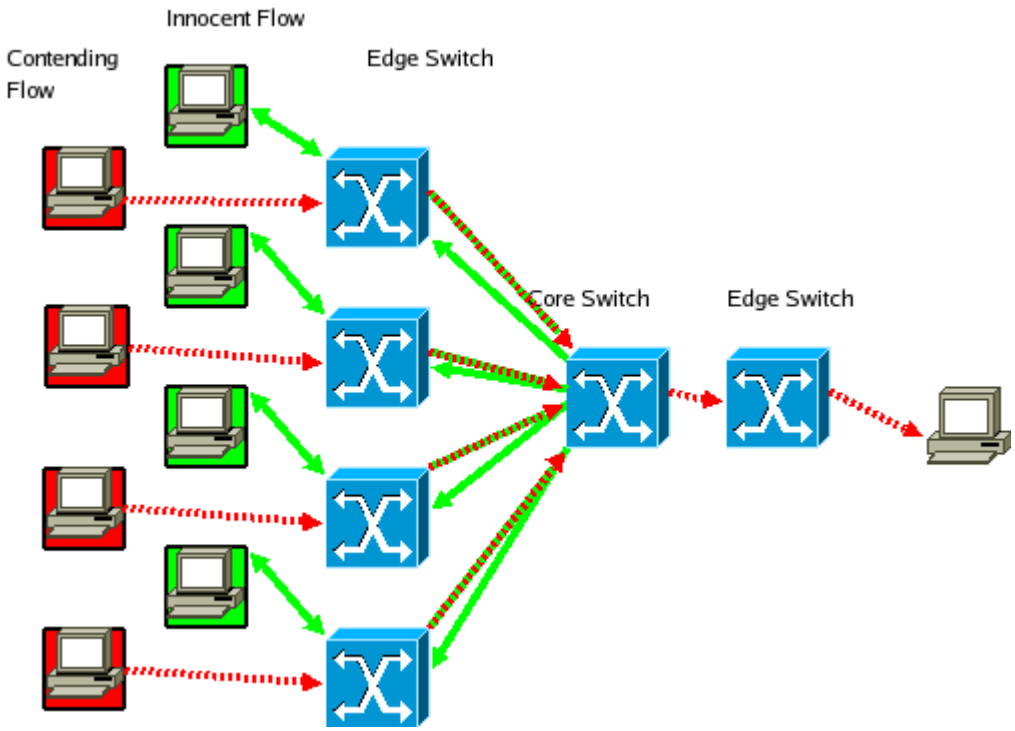


- Link capacity 10Gbps
- Core switch egress port buffer size infinite
- Rate limiter queue buffer size 150KB
- Switch latency (1 us)
- Link length (not modelled, 0 latency)
- Endpoint response time (not modelled, 0 latency)

Baseline 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

Innocent Flow Topology



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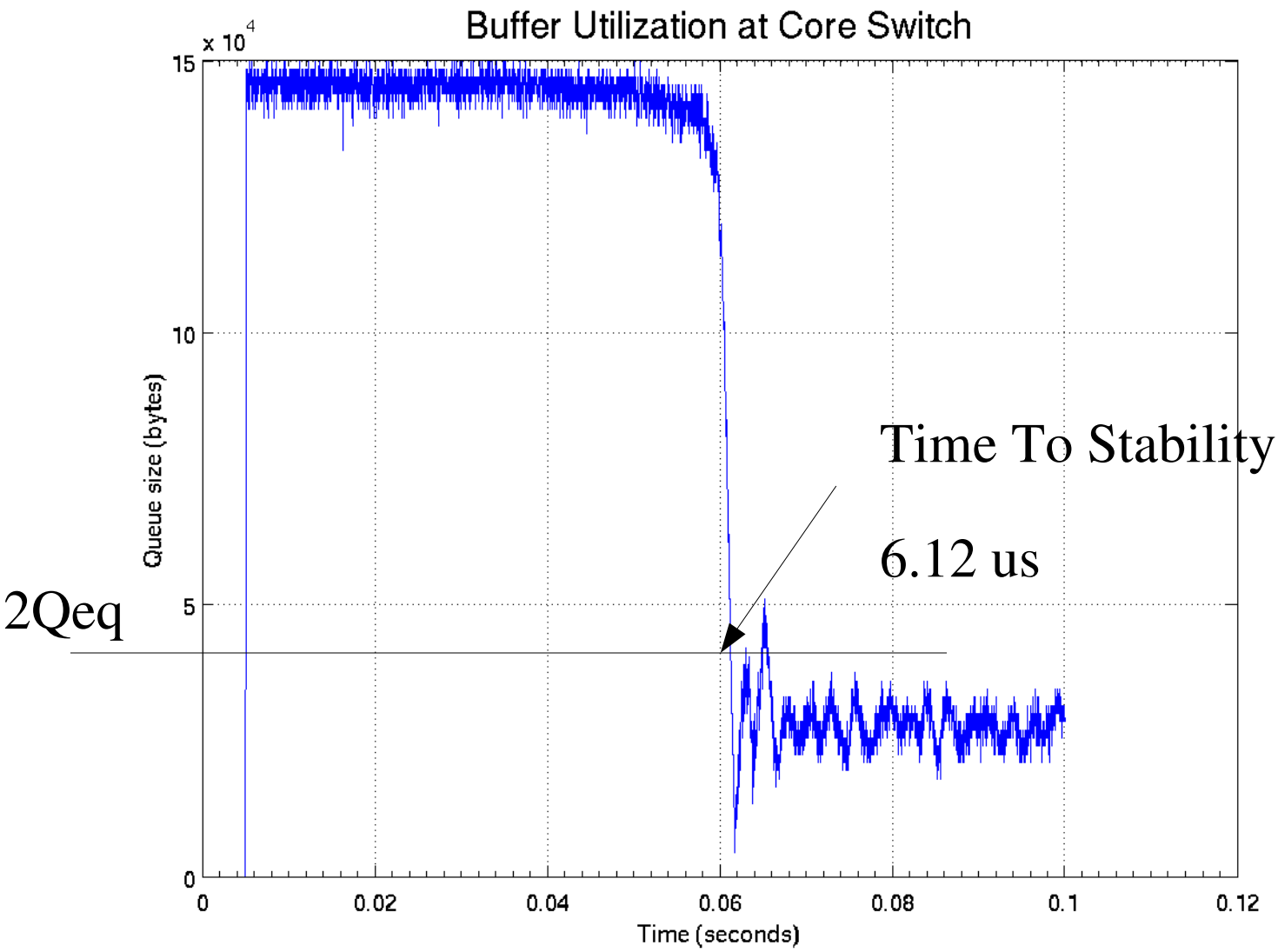
Simulation Setup

- **Normal BCN, pause enabled (no BCN(0,0) BCN(max))**
  - Pause On 140K, Pause Off 130K, Sample Period 100K
- **Run with increasing hotspot degree, i.e. increasing number of senders 2, 4, 6 ...**
- **Keep hotspot severity constant, total congesting throughput = 20Gbps**

Define Metric: Time To Stability

- **Want to measure length of congestion period**
  - Indicates how long pause will be asserted when pause enabled.
  - Rough measure of drop period if dropping frames.
- **Metric**
  - Time To Stability = Simulation time when queue length first falls below 2 * Qeq

Hot Spot Degree: 22 Senders



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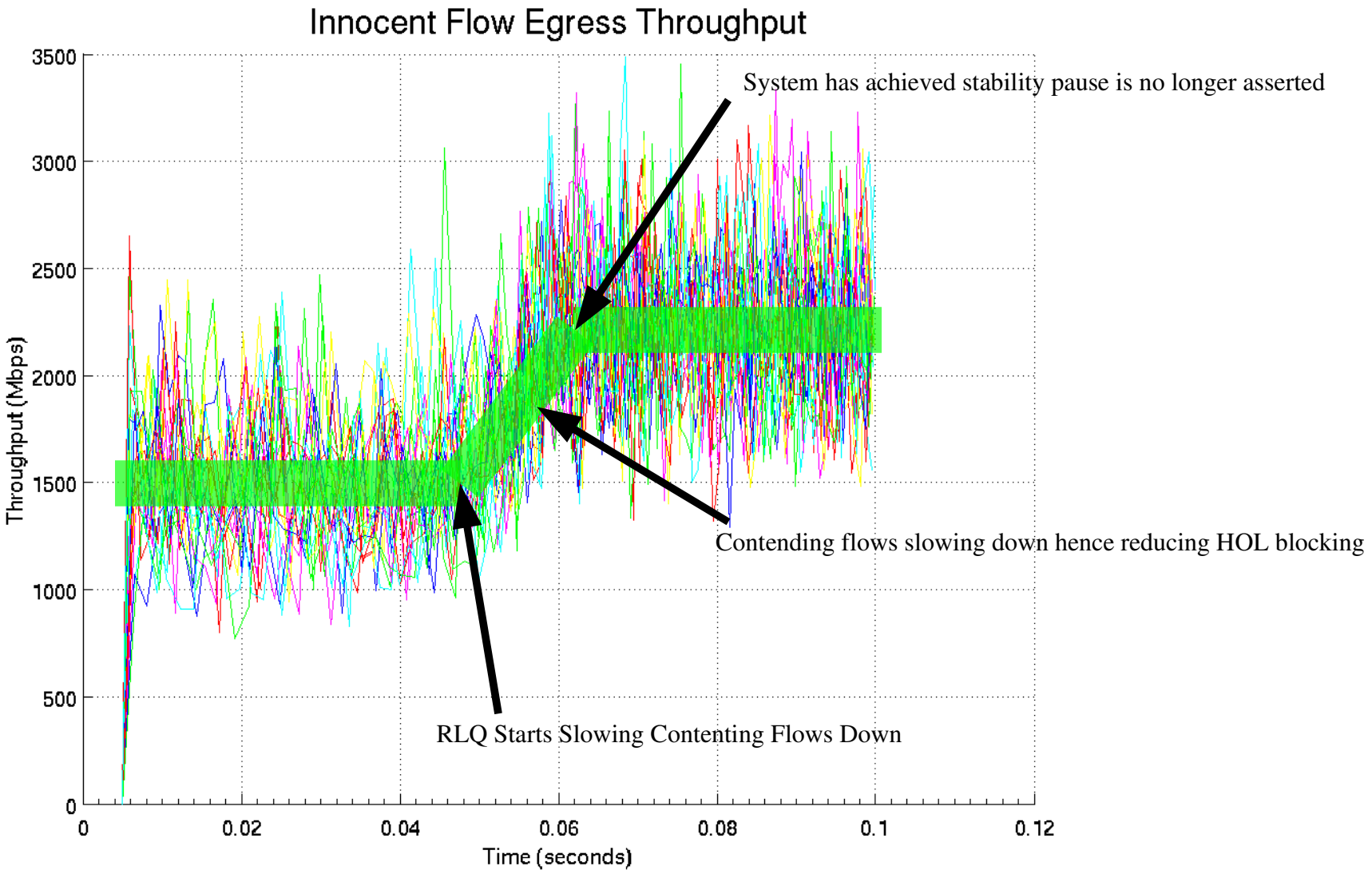
Hotspot Degree 22: Innocent Flow Thpt.



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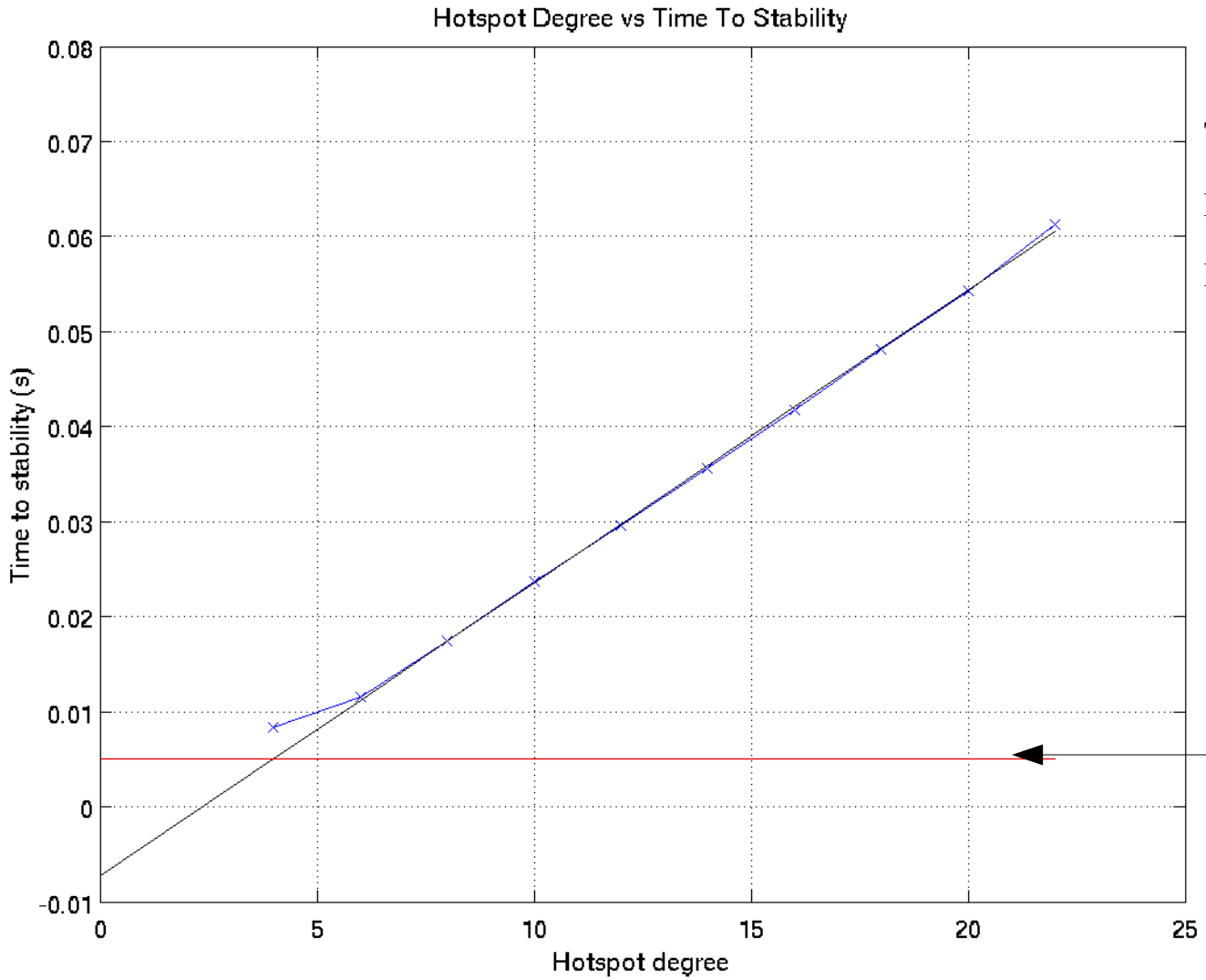
Hotspot Degree vs Time To Stability



Time To Stability

Linear w.r.t. Hot Spot Degree

Sim Start

Time 5ms

1 Run per datapoint

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