

# FECN Performance for Multistage Output Generated Hotspot Configuration

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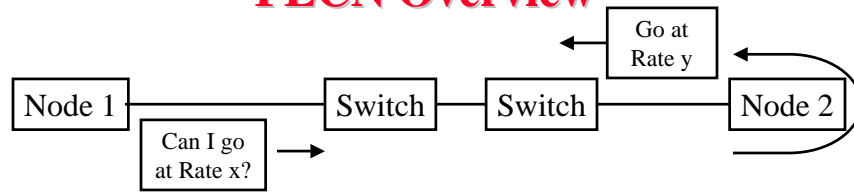
These slides are also available at:

<http://www.cse.wustl.edu/~jain/ieee/fecn707a.htm>



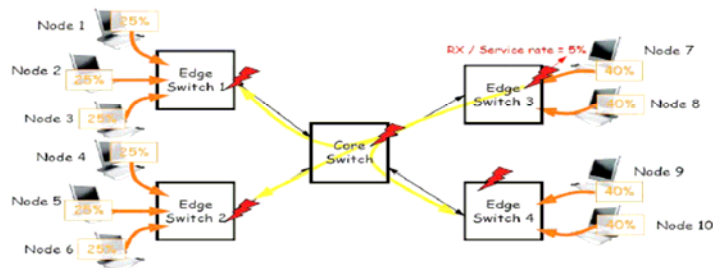
- Multistage Hot-Spot, Fast Start
- BCN
- FECN

## FECN Overview

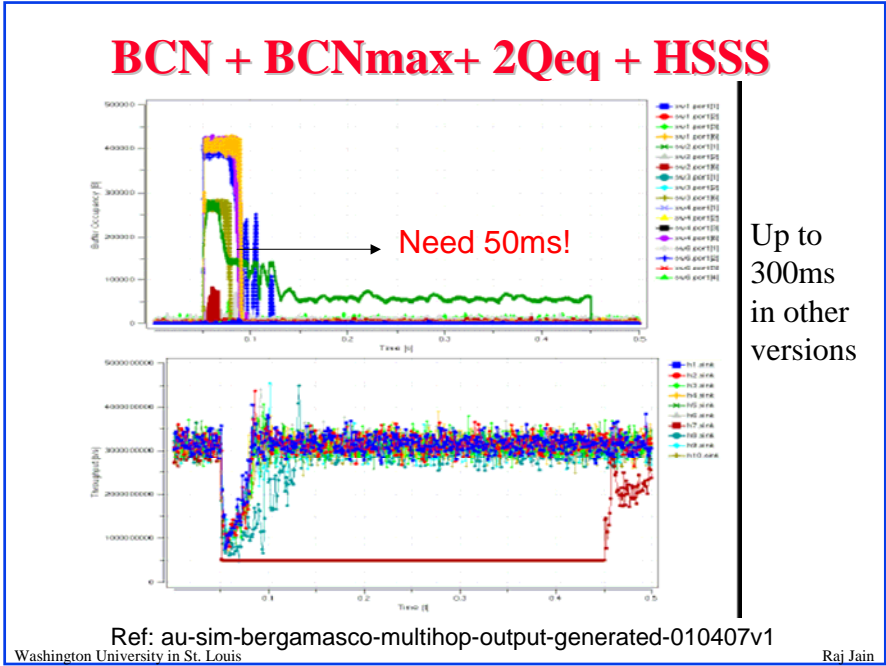


- ❑ Periodically, the sources probe the network for best available rate using “Rate Discovery packet”
- ❑ The probe contain only rate, Rate limiting Q ID
- ❑ The sender initializes the probes with rate=-1 ( $\Rightarrow \infty$ )
- ❑ Each switch computes an “advertised rate” based on its load
- ❑ The switches adjust the rate in probe packets down if necessary
- ❑ The receiver reflects the RD packets back to the source
- ❑ Source send at the rate received

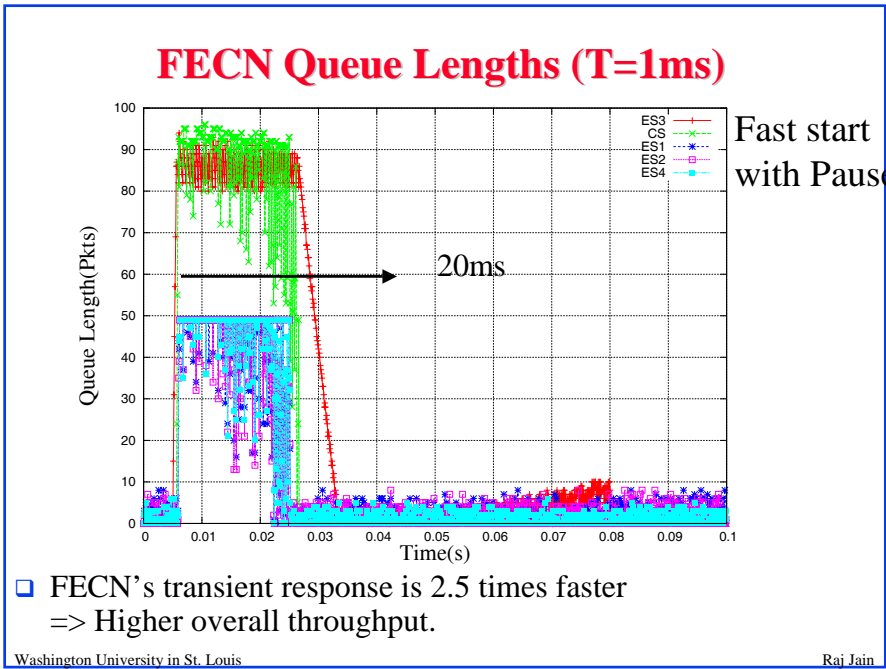
## Simulation Results(Multi-Stage Hotspot)



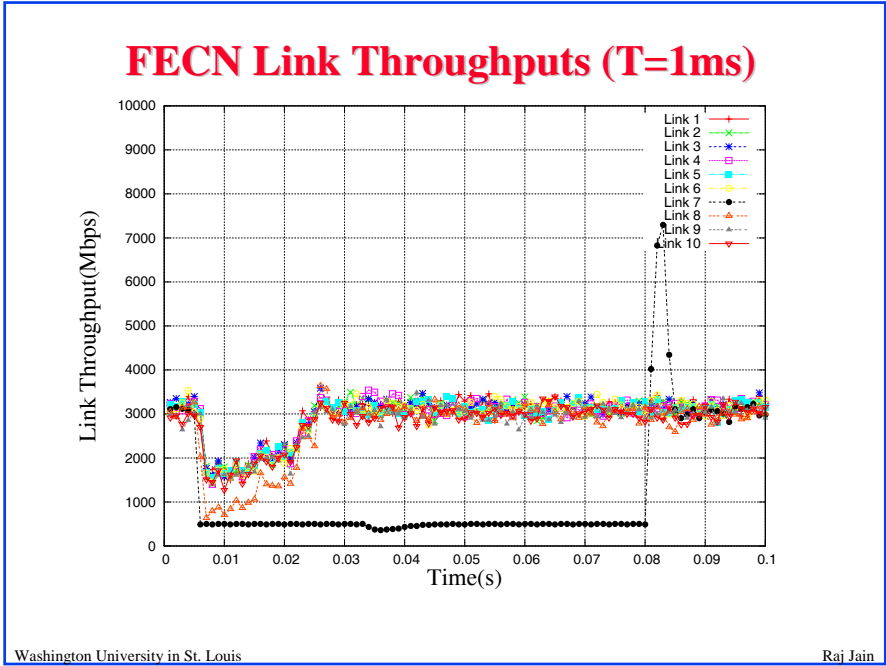
- Multi-stage Output-Generated Hotspot Scenario
  - Link Speed = 10Gbps for all links
  - Loop Latency = 8us
- Traffic Pattern
  - 100% UDP (or Raw Ethernet) Traffic
  - Destination Distribution: Uniform distribution to all nodes (except self)
  - Frame Size Distribution: Fixed length (1500bytes) frames
  - Offered Load
    - Nodes 1-6 = 25% (2.5Gbps)
    - Nodes 7-10 = 40% (4Gbps)



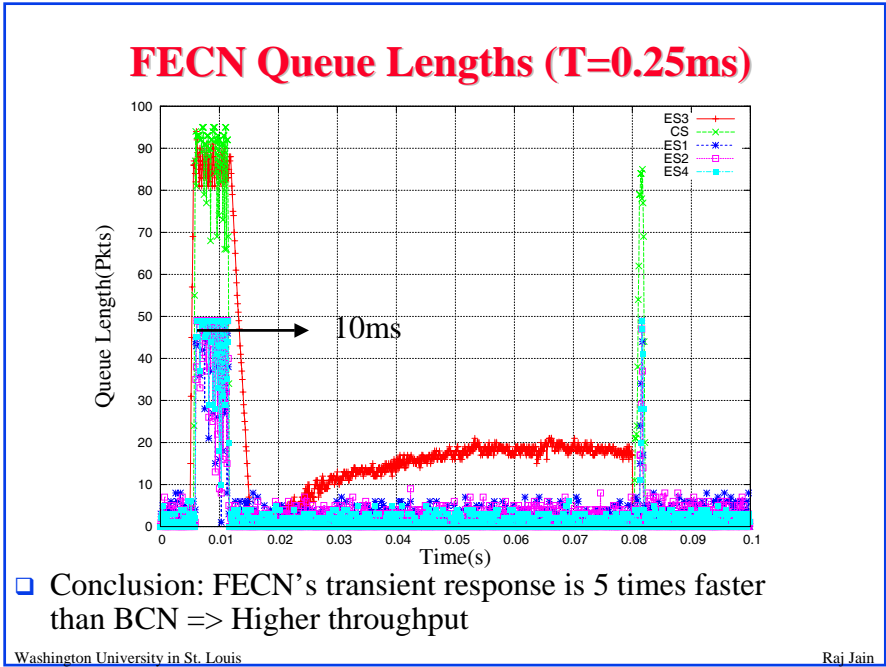
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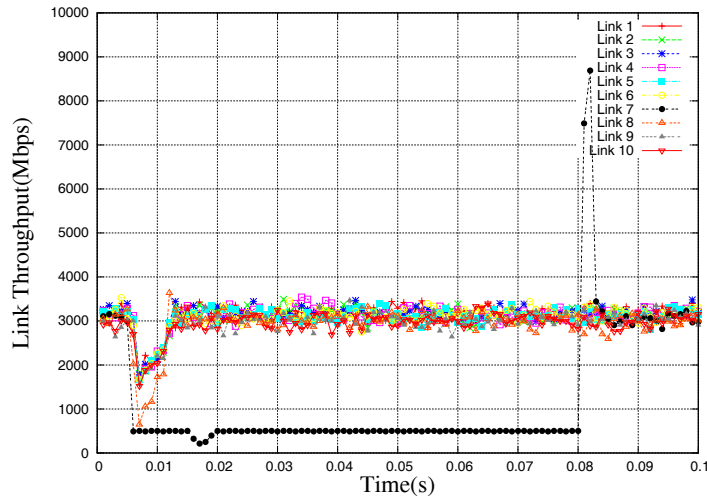


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## FECN Link Throughput (T=0.25ms)

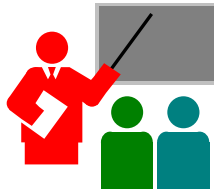


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## Summary



1. FECN by itself works well even with Fast start
2. FECN is 2.5 faster than BCN in multi-stage hot-spot cases
3. FECN has ten times lower overhead than BCN with 10% sampling
4. FECN can be made even faster by decreasing the sampling interval

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