CN-SIM:
Performance Metrics Discussion

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Notes on Performance Metrics

- **Throughput**
  - Granularity
    - Application level throughput (workload dependent)
    - Aggregate link throughput
    - Per flow throughput
  - Measured at
    - Most congested bottleneck Link
    - Uncongested link
  - Fairness across flows contributing to congestion
    - Fairness definition required (i.e. Max-Min Fairness)
    - Jain's fairness index may be used to characterize CN protocol capabilities
- **Latency**
  - Mean, Min, Max, Variance
- **Buffer Utilization**
  - Measured at congestion detection point
  - Measure in units of bytes (not packets)
  - Mean, Max, Variance
- **Packet Drop Probability (included from 6/2006 slide set)**
  - Number of packets dropped in switching interconnect due to congestion
  - However, depends on buffer resources available in switching interconnect
- **Time to Fairness**
  - Time required to achieve a specific fairness goal following the introduction of a persistent congestion event.
  - Requires definition of target goal for fairness

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Issues

- **Measurement Timescale**
  - Timescale over which metrics are measured requires definition

- **Simulation Stopping Criteria**
  - Requires definition

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