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
Issues

• Measurement Timescale
  – Timescale over which metrics are measured requires definition

• Simulation Stopping Criteria
  – Requires definition