# RCM Fairness Analysis

## Necdet Uzun and Pinar Yilmaz

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# Agenda

- **Analysis**
- **Simulation scenario**
- **Simulation results**
- **Conclusion**

# Analysis

- $RCF = (C - \Sigma r_i) / \Sigma w_i$

- $f_i = r_i + w_i * RCF$

- Question:
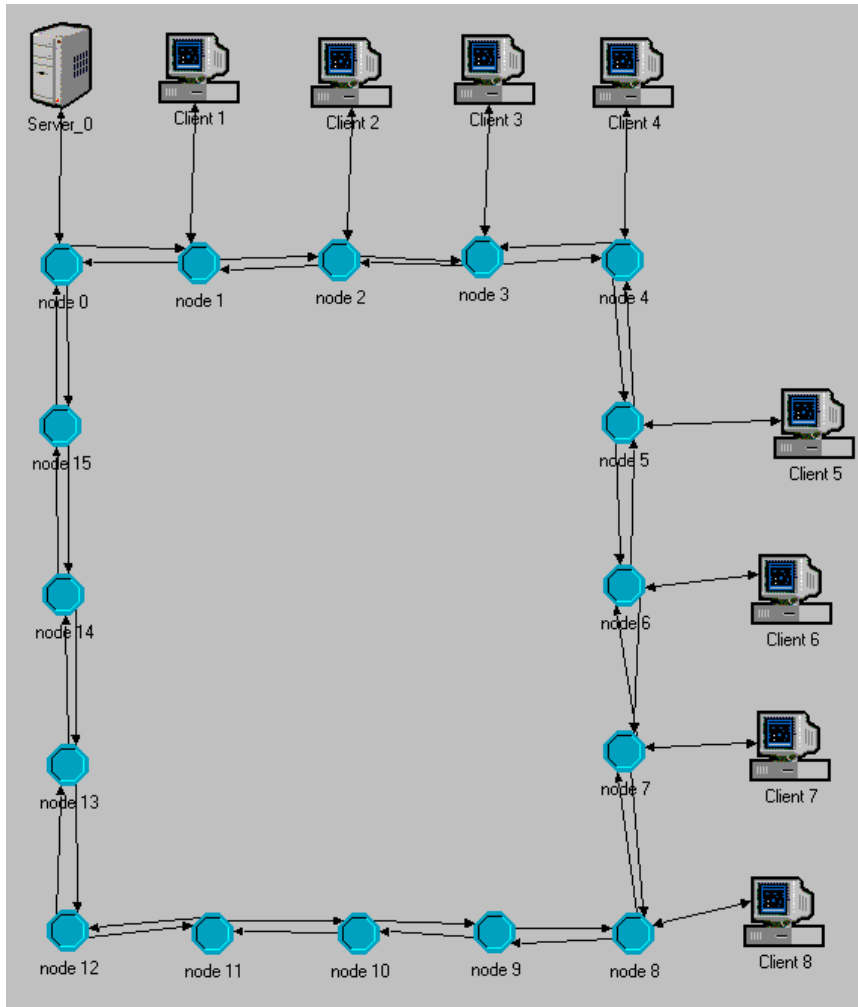    - If a node wants to transmit less than $f_i$, can the other nodes utilize the spare BW?

# Simulation Scenario

- **Hub Scenario**
- **N8→N7→N6→N5→N4→N3→N2→N1→N0**
- **Node 0 is the hub**
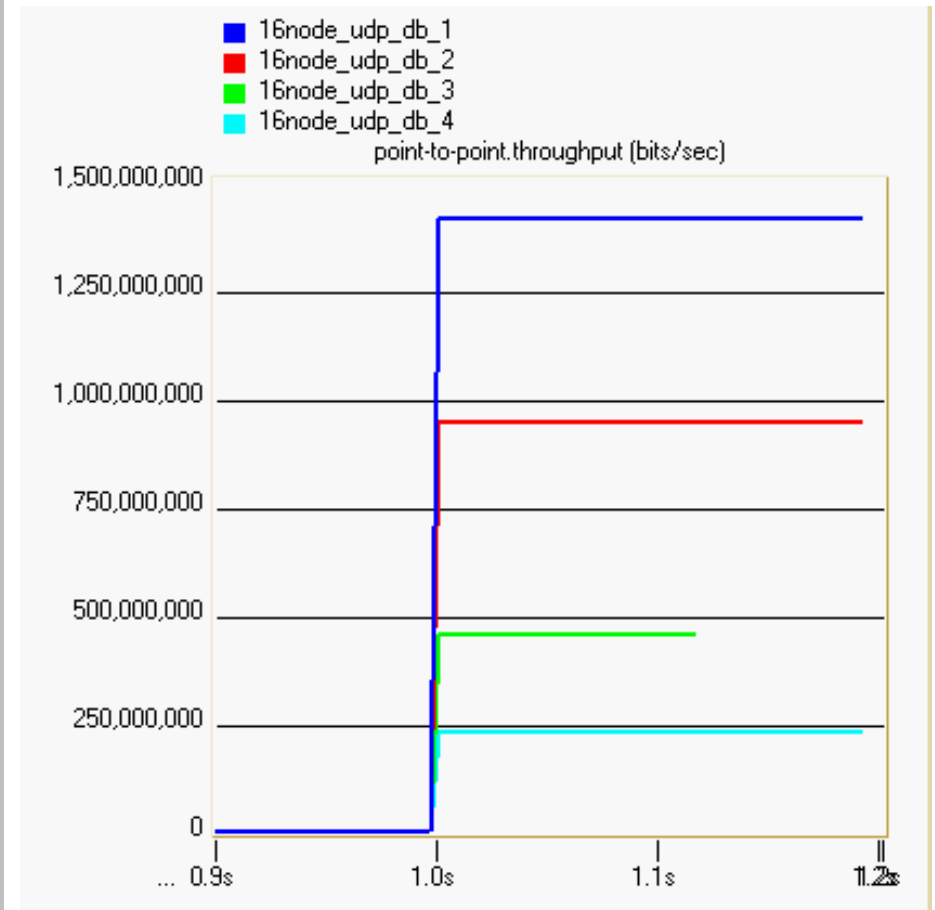- **No reserved BW, all weights equal to 1**

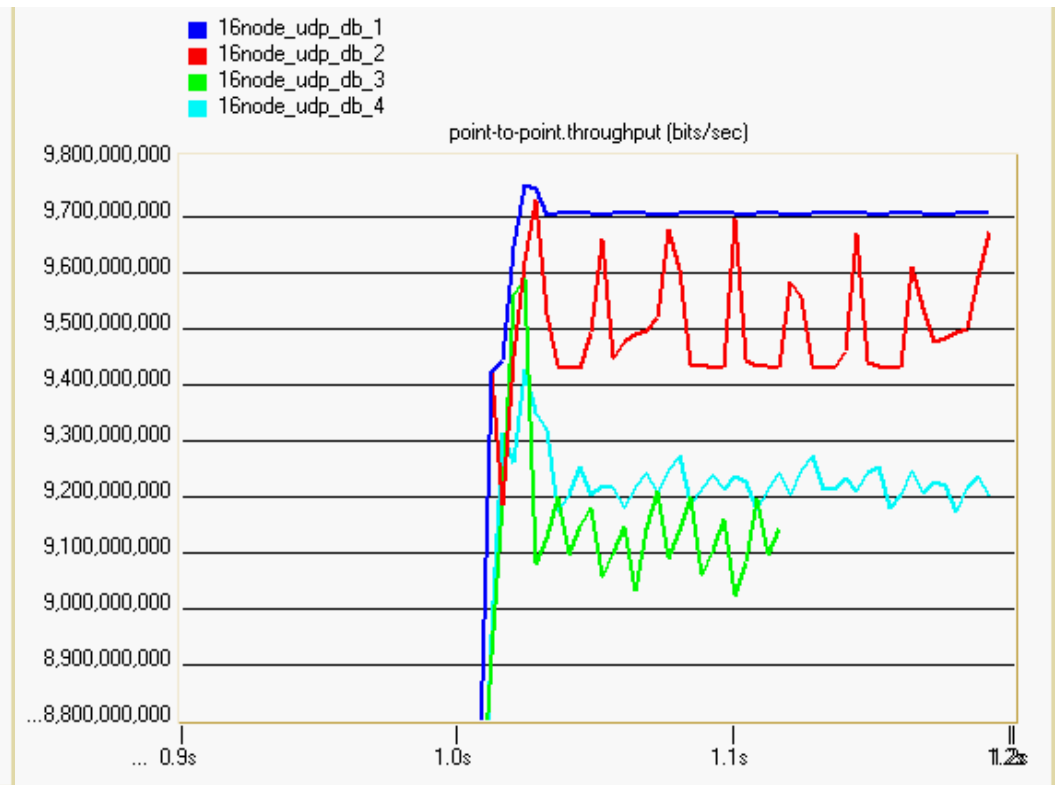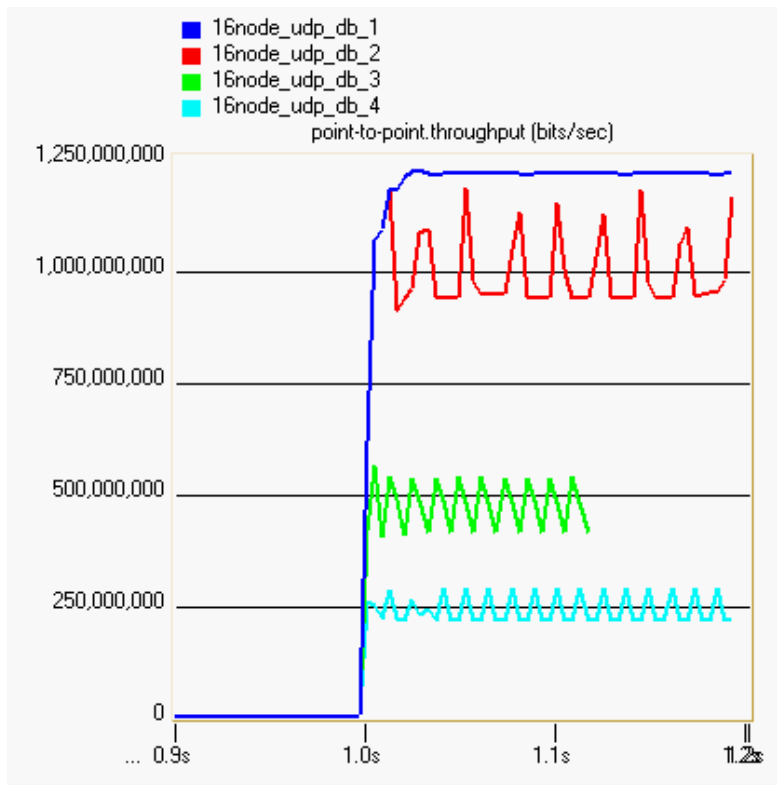| Scenario | N7-N1 sends | N8 sends |
|----------|-------------|-----------|
| 1 | 1.4 Gbps | 1.4  Gbps |
| 2 | 1.4 Gbps | 0.9  Gbps |
| 3 | 1.4 Gbps | 0.45 Gbps |
| 4 | 1.4 Gbps | 0.25 Gbps |

# Simulation Scenario

## Client 8 traffic

# Simulation Results

Node 8→Node 7
throughput

Node 1→Node 0
throughput

# Conclusion

- If a node is sending less traffic than fair rate assigned, the other nodes cannot reclaim the spare BW

- This leads to poor utilization of the links.

- Fair rate calculation based on reserved rate and weights alone is not sufficient.