

ENSC 427: Communication Networks  
Spring 2010  
Final Project Presentation

# Comparison of the Quality of Service (QoS) on the IEEE 802.11e and the 802.11g Wireless LANs

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# Roadmap

- ▶ Introduction
- ▶ Implementation Details
- ▶ Simulation and Results
- ▶ Conclusion

# Introduction

- ▶ Project Idea
  - Comparison of the Quality of Service (QoS) over two specifications of WiFi – IEEE 802.11g and 802.11e
- ▶ Key Issues
  - Packet End-to-End Delay
  - Packet Delay Variation
  - Media Access Delay
  - Network Delay

# Scenarios

- ▶ A workstation receives both video and FTP traffic. Simulation results are collected for both to compare QoS determining factors
  - One scenario (802\_11g) uses the standard DCF mechanism
  - Another scenario (802\_11e) uses the HCF mechanism to prioritize traffic streams
- ▶ 5 workstations receive video traffic. Simulation results are collected for both to compare QoS determining factors
  - One scenario (5nodes802\_11g) uses the standard DCF mechanism
  - Another scenario (5nodes802\_11e) uses the HCF mechanism to prioritize traffic streams

DCF: Distribution Coordination Function  
HCF: Hybrid Coordination Function

# Simulation Properties

- ▶ Scenarios with 1 workstation
  - Simulated Time: 1 hour (3600 seconds)
  - Simulation Time: 53 minutes
  - Seed: 128
  - Streaming Video
    - Low Resolution
    - Poisson Distribution
  - FTP Traffic
    - High Load
- ▶ Scenarios with 5 workstations
  - Similar to first scenario except simulated time is 5 minutes

# Conclusion

- ▶ Packet Delay Variation, Packet End-to-End Delay, and Media Access Delay are both lower for the QoS-enabled protocol (IEEE 802.11e).
- ▶ As expected, the higher the number of workstations, the higher the packet delay and variation.
- ▶ Also, as illustrated by the Client FTP Download Response Time, IEEE 802.11e provides lower bandwidth to lower priority traffic streams.