



**VIDEO STREAMING OVER THE
802.11G AND THE 802.11N WLAN
TECHNOLOGIES**

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TEAM #6**

- **Purpose:**

Analyze the performance of 802.11g and the 802.11n WLAN Technologies in limited bandwidth usage for video streaming and overload in data traffic.

- **Quality of service (QoS) determining factors:**

Packet End-to-End Delay	Packet Delay Variation
Traffic Received/Traffic Sent	Throughput
Data dropped	



- **Implementation details and simulation results**
- **Network Topology:**

Small office Network with 1 video server and some wireless workstation clients.
- **Physical layer:**
 - a. 802.11g at 54Mbps
 - b. 802.11n at 108Mbps (Opnet does not support 802.11n in the model library, I use 100Mbit/s Ethernet instead for comparison with 802.11g)
- **Video bit rate (maximum:6Mbps)**



○ OPNET model

○ Scenarios:

1. **Three Scenarios (802.11g) to simulate video streaming at 2Mbps, 3Mbps, 6Mbps respectively with 10 clients**
2. **Upgrade the server's CPU (for 3Mbps)**
3. **Increase the transmit power of the video server to 100mW**
4. **Two Scenarios (802.11g) to simulate video streaming at 2Mbps, 3Mbps with 3 clients in 3 different distances away from the video server**
5. **Another three Scenarios (100Mbit/s Ethernet) to simulate video streaming at 2Mbps, 3Mbps, 6Mbps respectively with 10 clients**
6. **Increase the number of clients to 20 clients.**



○ Conclusion

1. 802.11g is good in doing SD video streaming with 10 clients.
2. Ethernet is much more stable for controlling delay to provide smooth streaming.
3. No helpful to improve the wireless performance by upgrading the CPU.
4. Increase the transmit power of wireless server can help reduce packet delay variation.

