ENSC 427 :COMMUNICATION NETWORKS FINAL PROJECT PRESENTATION

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WLAN-WiMAX Network Analysis

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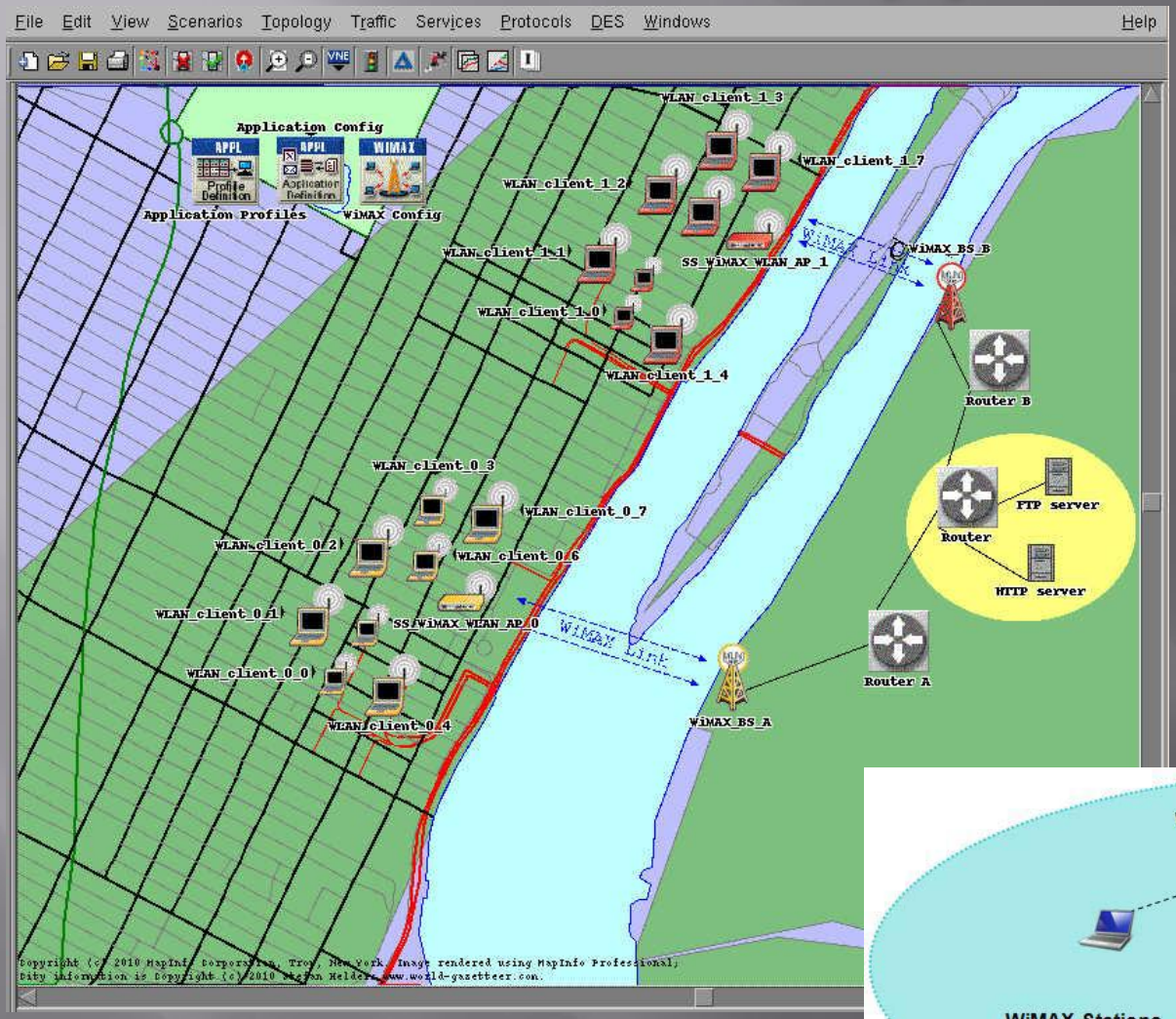
Introduction

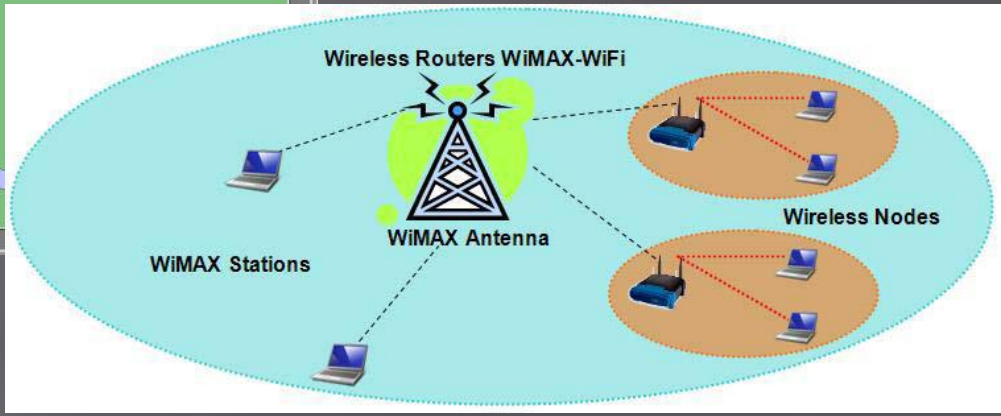
- WIMAX(world Interoperability for Microwave Access) is based on the IEEE 802.16 standard.
- Provide wireless broadband service in real world communication.
- Test the efficiency by building two component of WiMAX-Wlan model.
- Goal:

  WiMAX-Wlan model

  WiMAX connection model

WLAN-WiMAX Application Model

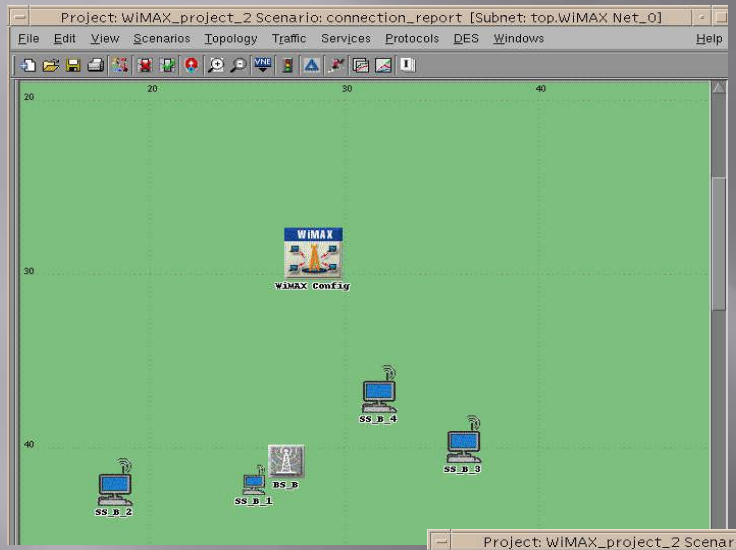


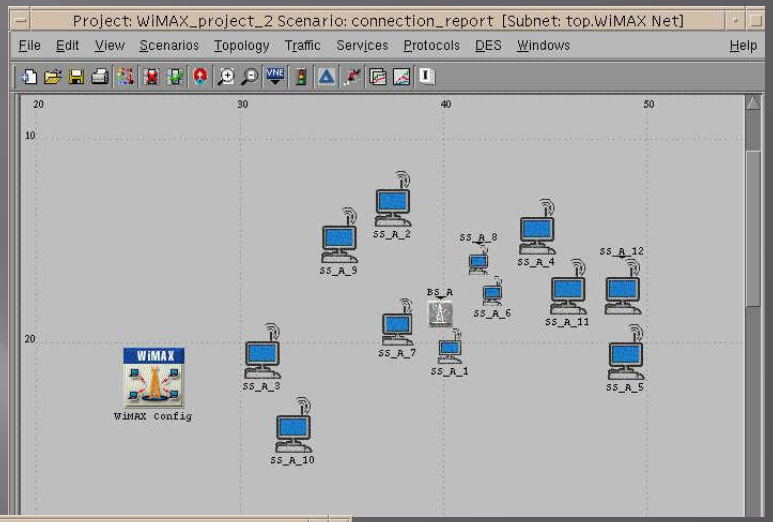


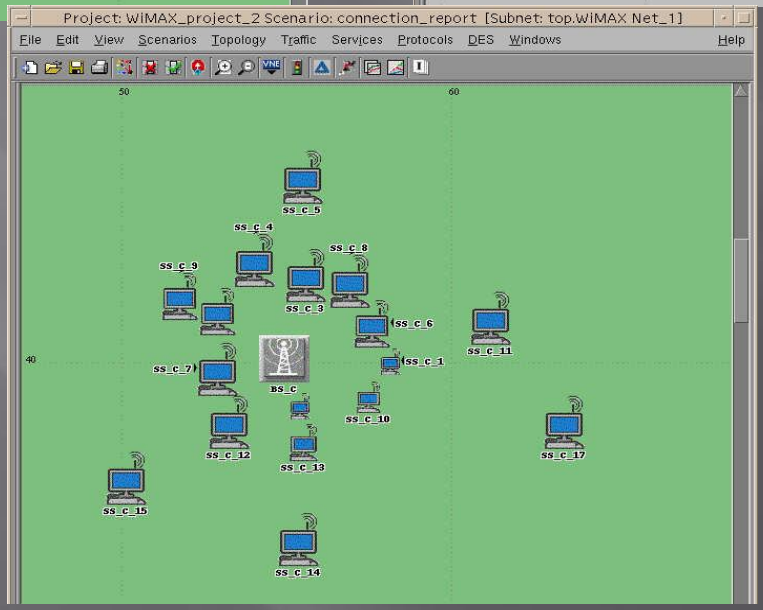
Implementation Details: WLAN-WiMAX Model

- Decompose the whole model into two basic elementary Model.
- WiMAX Connection Model test the efficiency of the WiMAX connection between Base Station and work station.
- WLAN-WiMAX Network Model test the file transfer performance.

Implementation Details: WiMAX Connection Model



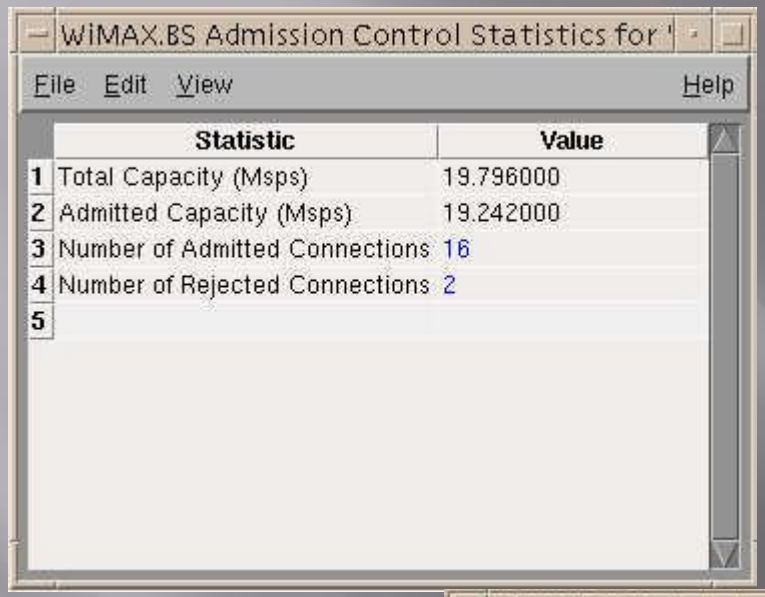


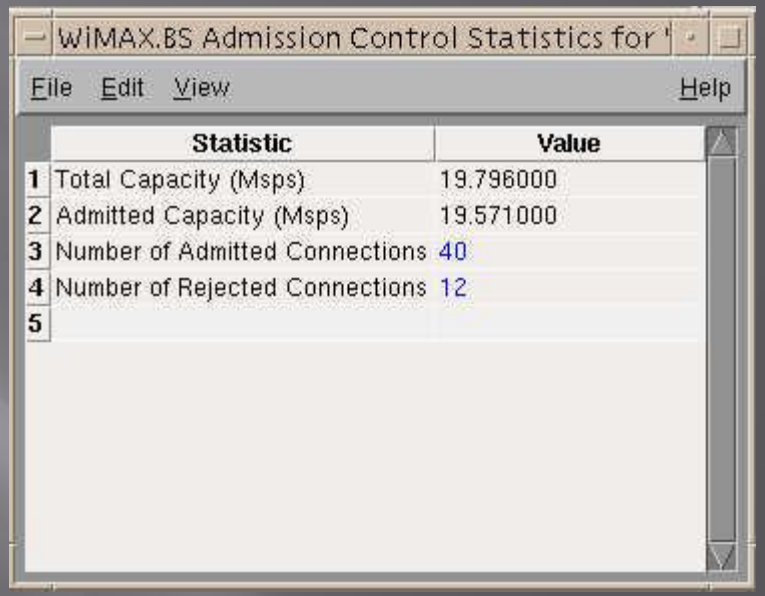


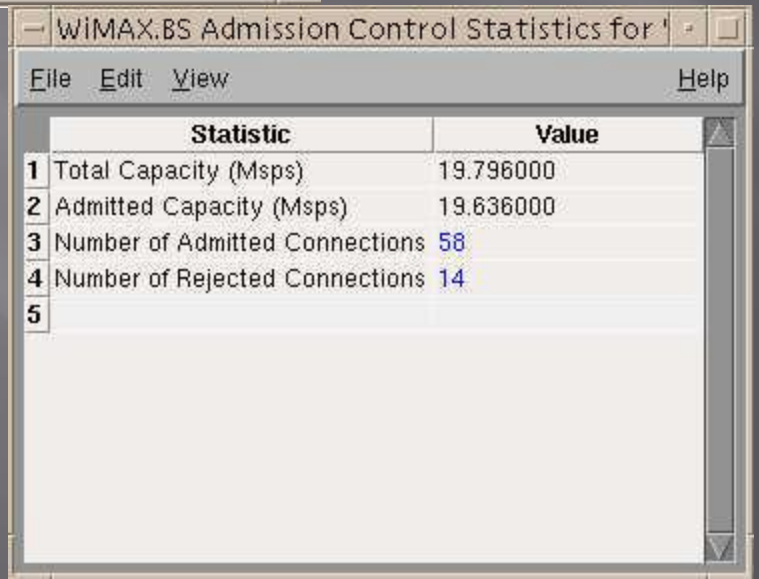
3 connection model

- Model 1: 4 workstations randomly spread out.
- Model 2: 12 workstations randomly spread out ,but has more workstations than model1.
- Model3: 17 workstations randomly spread out, but more concentrated around the Basestation.

Discussion: Connection Report





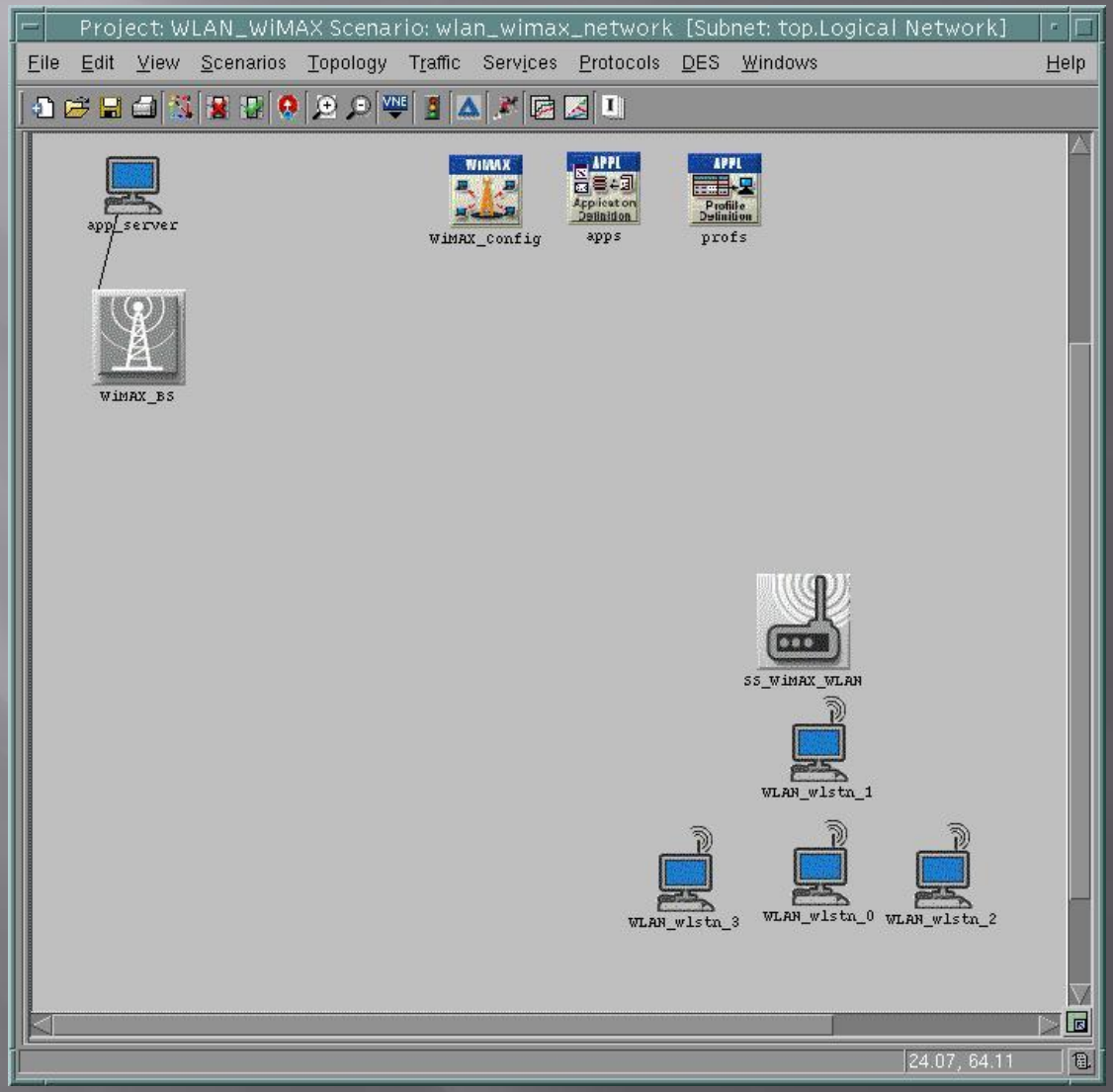


Connection report for 3 models

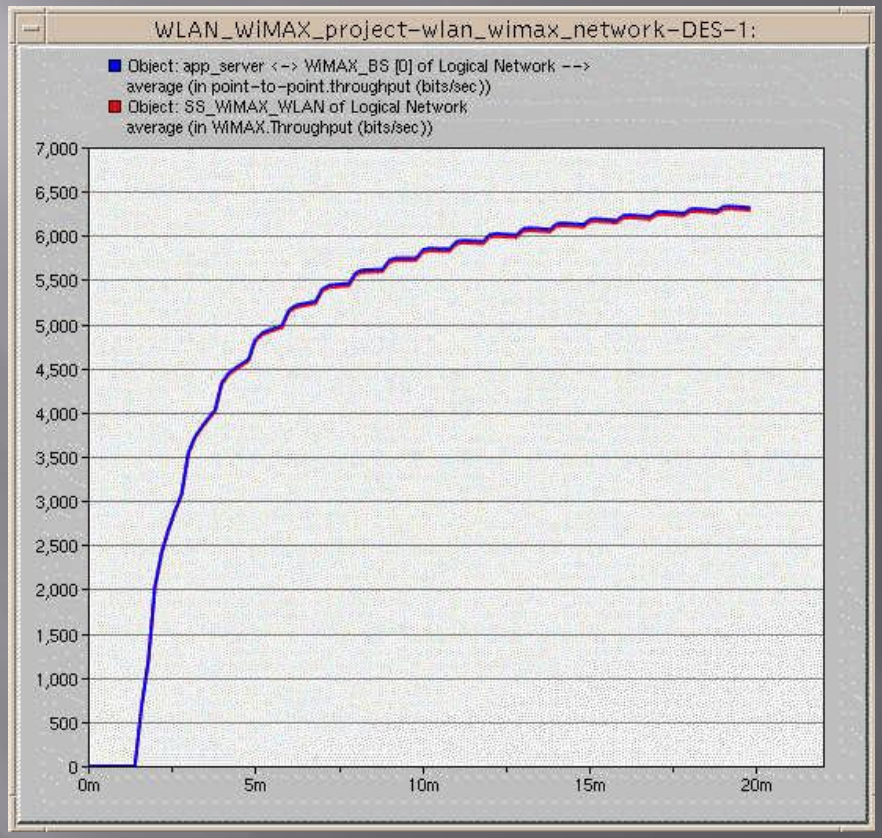
- **Efficiency = admitted connections/total connections**
- Model 1: 88.9%
- Model 2: 76.9%
- Model 3: 80.56%

- Conclusion:
- Less workstations model's efficiency is High
- More concentrated spread out model's efficiency is high
- The effect of concentrated spread out is less than the quantity of workstations.

Implementation Details: WLAN-WiMAX Network Model

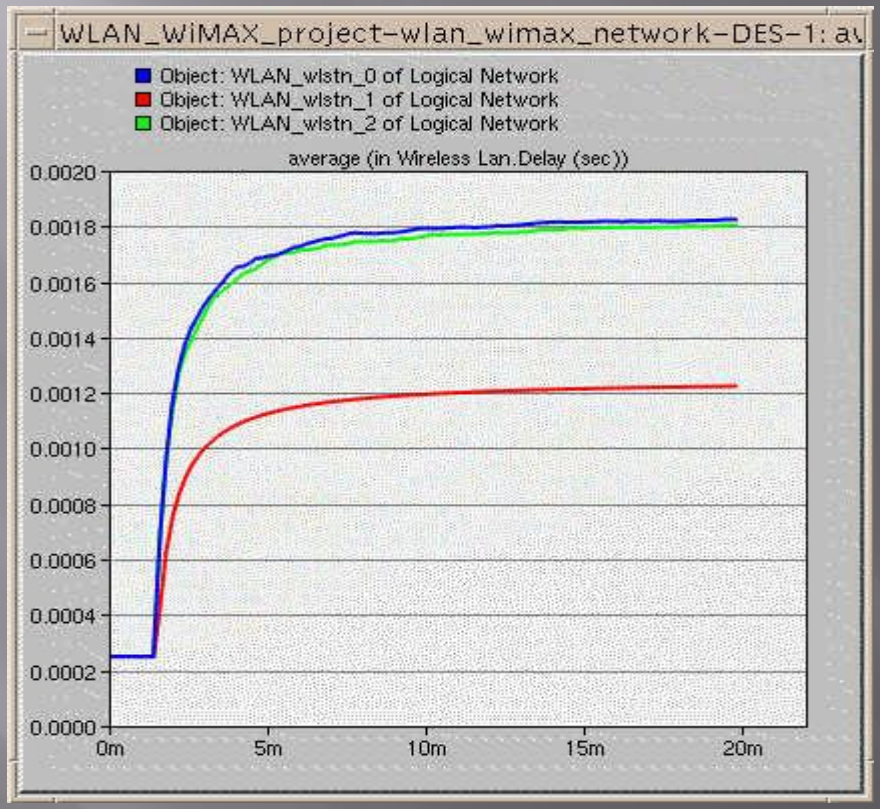


Discussion: File Transfer Result



- Blue: Throughput of WIMAX Basestation
- Red: Throughput of WIMAX WLAN Router

Discussion: File Transfer Result



Delay of each workstations with WLAN Router

Conclusion

- In small range which is between Basestation and Router, File Transfer efficiency is very high.
- However, WLAN workstation delay depends on the distance from WLAN Router.
- So, in WLAN-WIMAX network model, File Transfer efficiency depends on WLAN performance.

Thank you

Questions?

Refrence

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