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Study & overview and performance evaluation of quality of services of different types of Wimax network

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Abstract : Wimax is stands for Worldwide Interoperability for Microwave Access.IEEE802.16 based wimax is an emerging wireless internet technology. it has various features like internet facility over long distance, scalability, quality of service etc .it support hundreds of user per channel at speeds similar to recently for DSL, cable or a T1 connection. Wimax supports high bandwidth and promise to provide a range of 30 miles as an alternative to wired broadband like cable and DSL. it could easily provides broadband access to remote places. it use point-to-multipoint architecture. it is design for delivering broadband seamless quality multimedia services.

The implementation stage involves careful planning, investigation of the existing system and its constaint on implementation, designing of methods to achieve changeover and evaluation of changeover methods. implementation is the process of converting a new system into operation.

Key Words : Wimax, Worldwide Interoperability for Microwave Access, wireless internet technology

Wi MAX Parameters:

- Service Classes
- Efficiency Mode configure
- Physical Layer (PHY) Profiles configure
- Associate SS with BS
- Service Flows
- Assign Traffic to Service Classes
- Configuring Physical Layer Parameters

In this Study , three main parts are:

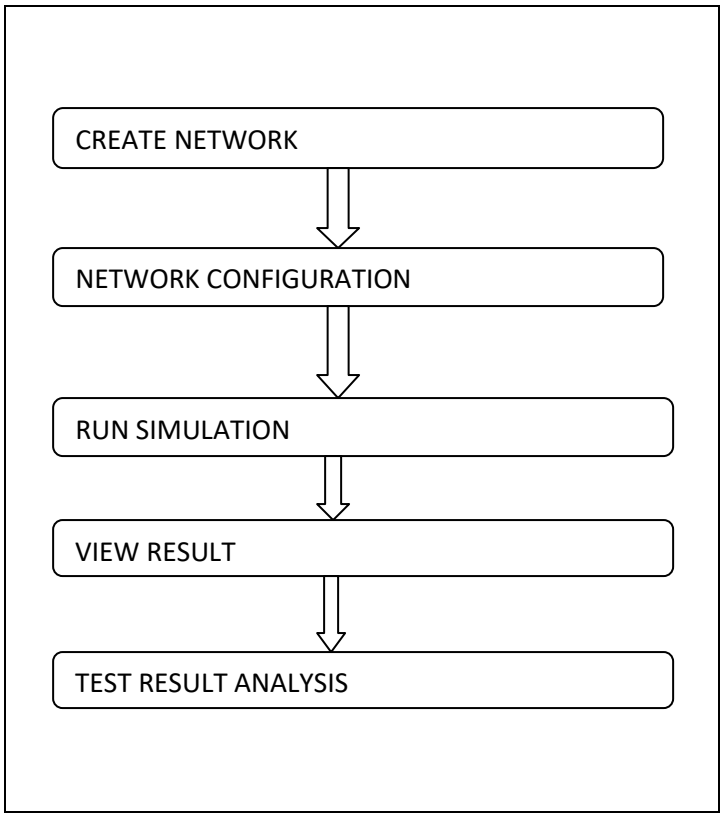
- Network model
- Node model
- Process model

Modeler provides a comprehensive development environment supporting the modeling of communication networks and distributed systems. Both behavior and performance of modeled systems can be analyzed by performing discrete event simulations. The Modeler environment incorporates tools for all phases of a study, including model design, simulation, data collection, and data analysis.

- Multiple User Communities
- Key System Features

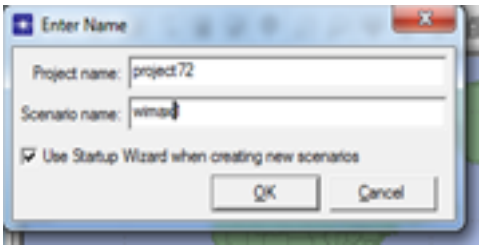
- Typical Applications of Modeler
- Modeler Architecture

FLOW CHART:



SIMULATION STEPS

1. IN FIRST WE CREATE A PROJECT NAME AND GIVE A SCENARIO NAME.



2. THEN CREATE EMPTY SCENARIO.

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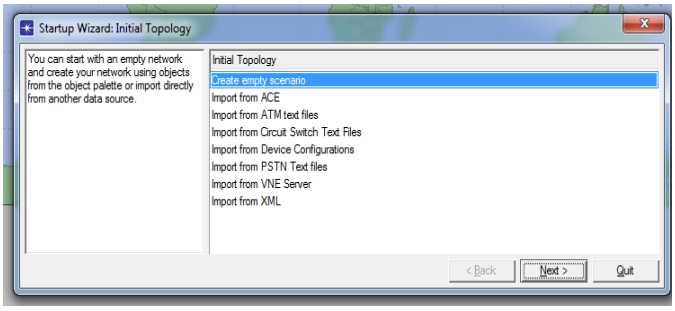
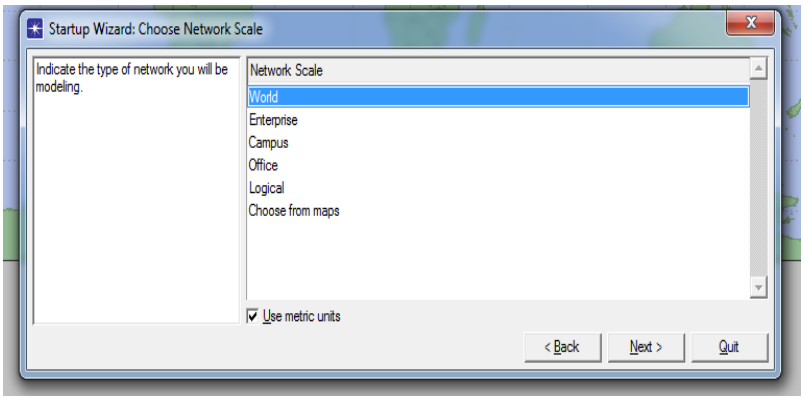


3. SELECT THE ENTERPRISE FOR MY MODEL NETWORK.

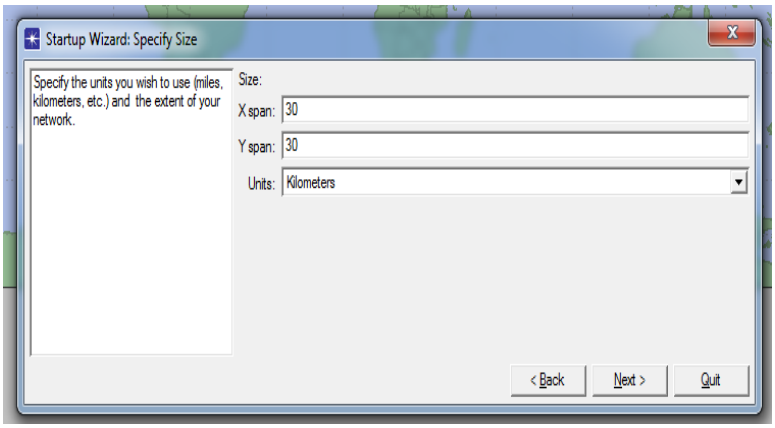


4. THEN SELECT THE X AND Y SPAN

X=30

Y=30

UNIT=KILOMETERS



5. NOW FROM THE OBJECT PALETTE DRAG THE MODELS

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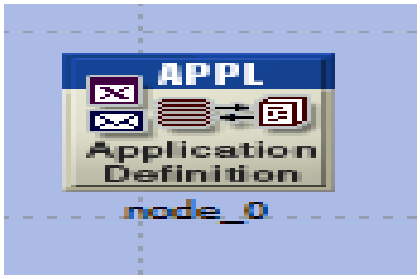

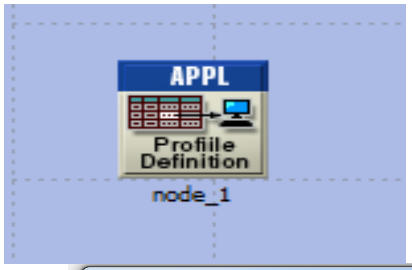

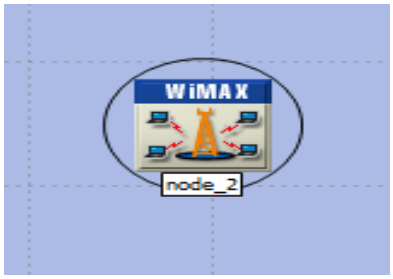

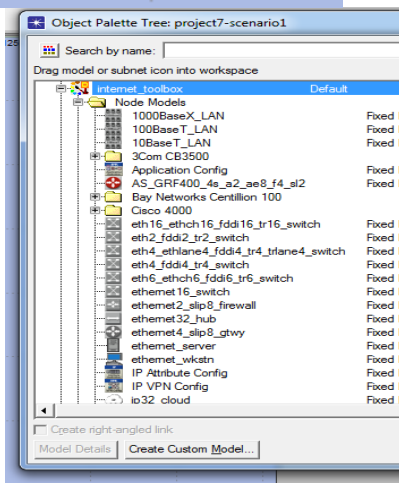

6. FIRSLTY SELECT THREE MAIN PARTS.THEY ARE:
    - APPLICATION CONFIGURATION
    - PROFILE CONFIGURATION
    - WIMAX CONFIGURATION

FIRST MODEL :

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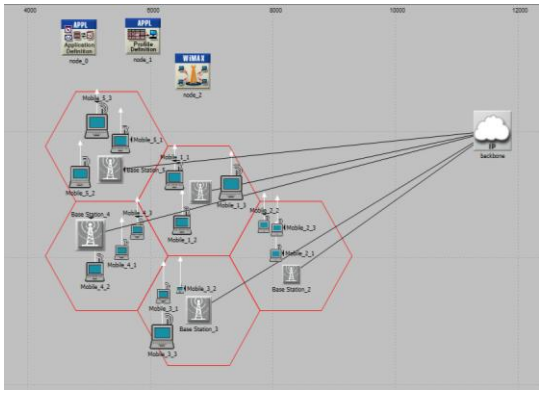
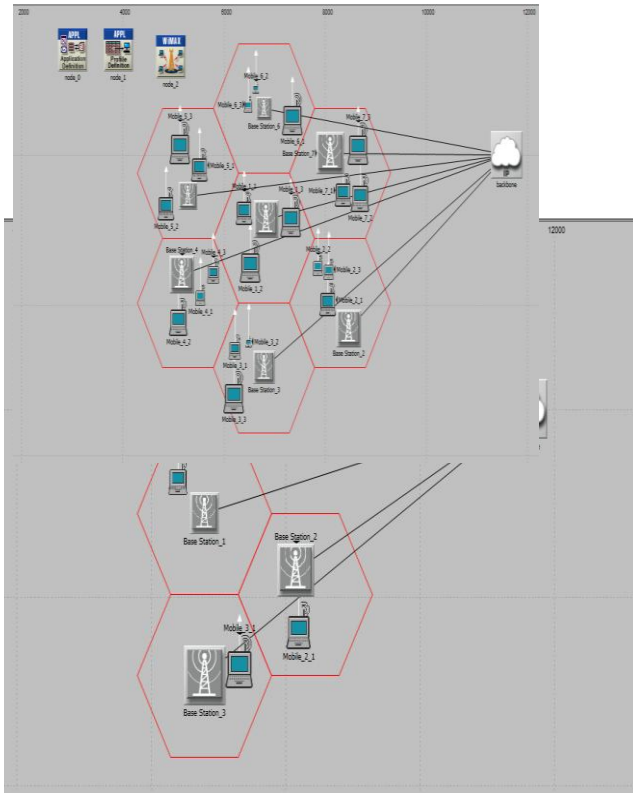


Configuration Summary

Technology	WiMAX
Overlay	Cell (Hexagon)
Node Placement	Random
Number of Base Stations	5
Number of Subscriber Stations	15
Nodes with Mobility Configured	15



Configuration Summary

Technology	WiMAX
Overlay	Cell (Hexagon)
Node Placement	Random
Number of Base Stations	7
Number of Subscriber Stations	21
Nodes with Mobility Configured	21

Configuration Summary

Technology	WiMAX
Overlay	Cell (Hexagon)
Node Placement	Random
Number of Base Stations	3
Number of Subscriber Stations	3
Nodes with Mobility Configured	3

SECOND MODEL :

THIRD MODEL:

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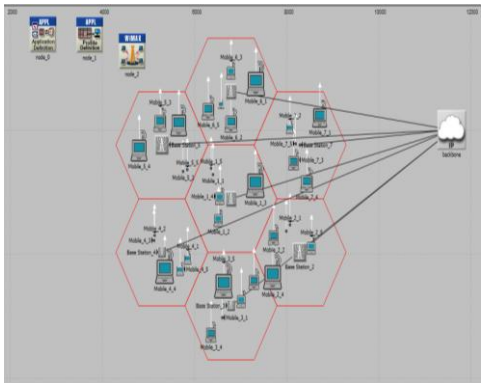
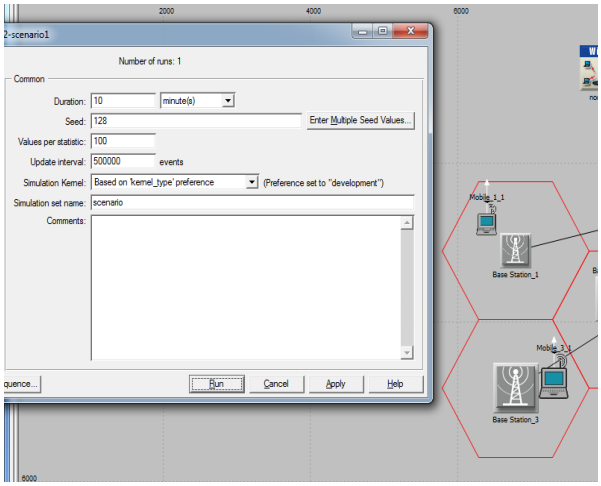
FOURTH MODEL:



SIMULATION STEPS

FIRST MODEL :



Configuration Summary

Technology	WiMAX
Overlay	Cell (Hexagon)
Node Placement	Random
Number of Base Stations	7
Number of Subscriber Stations	35
Nodes with Mobility Configured	21

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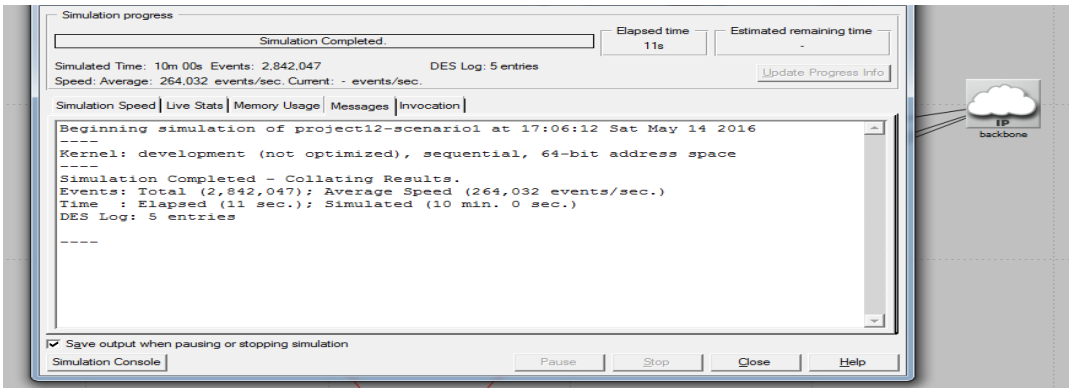
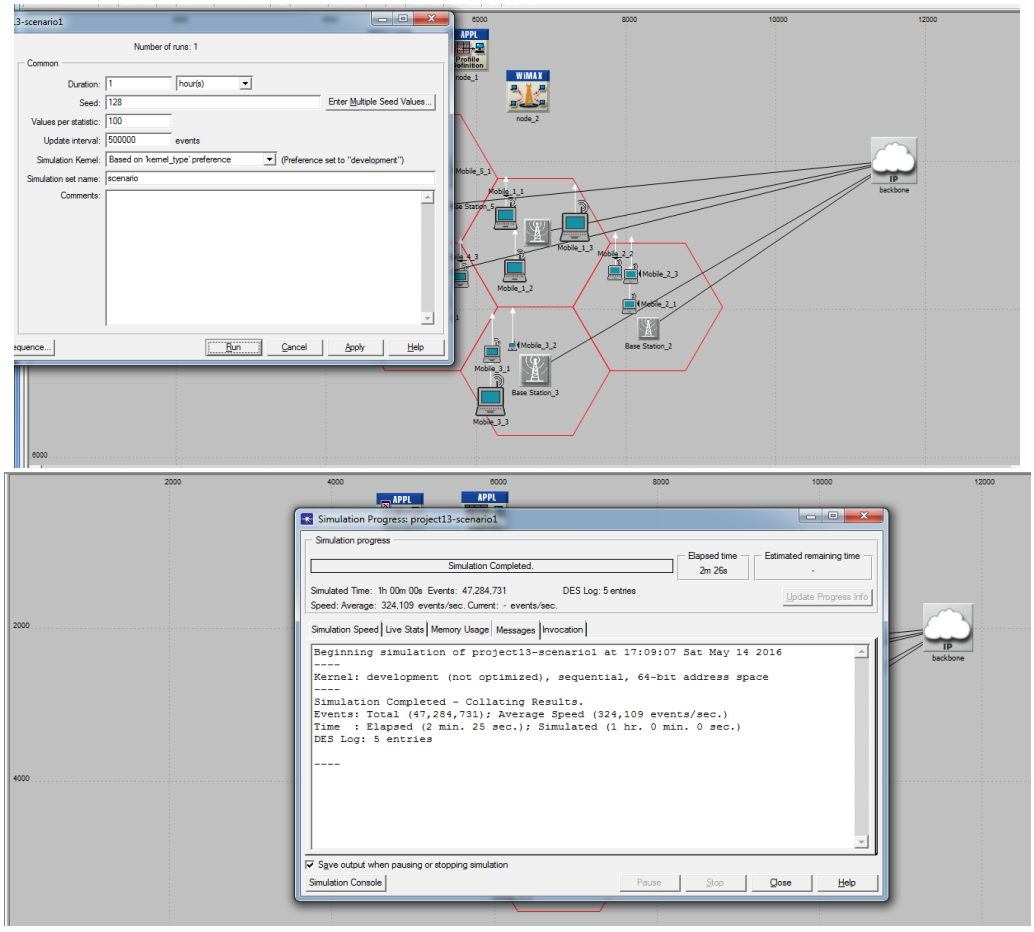
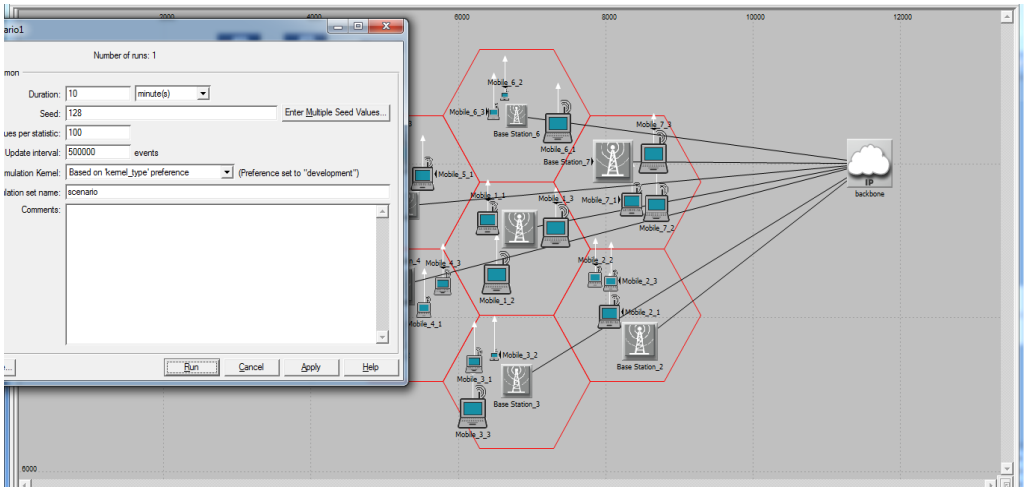
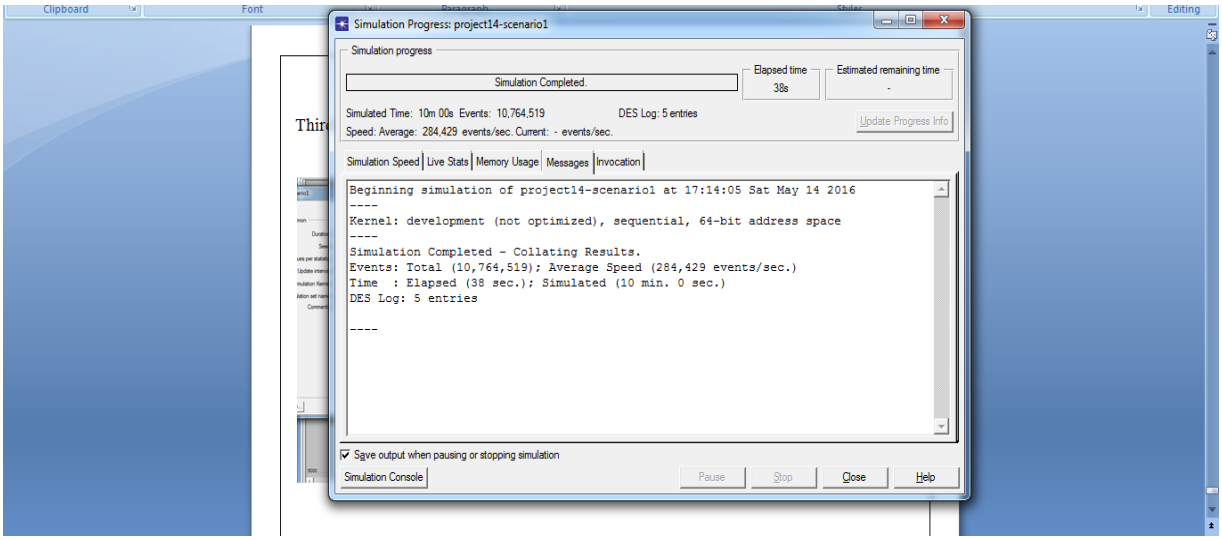


SECOND MODEL:



THIRD MODEL:





FOURTH MODEL:

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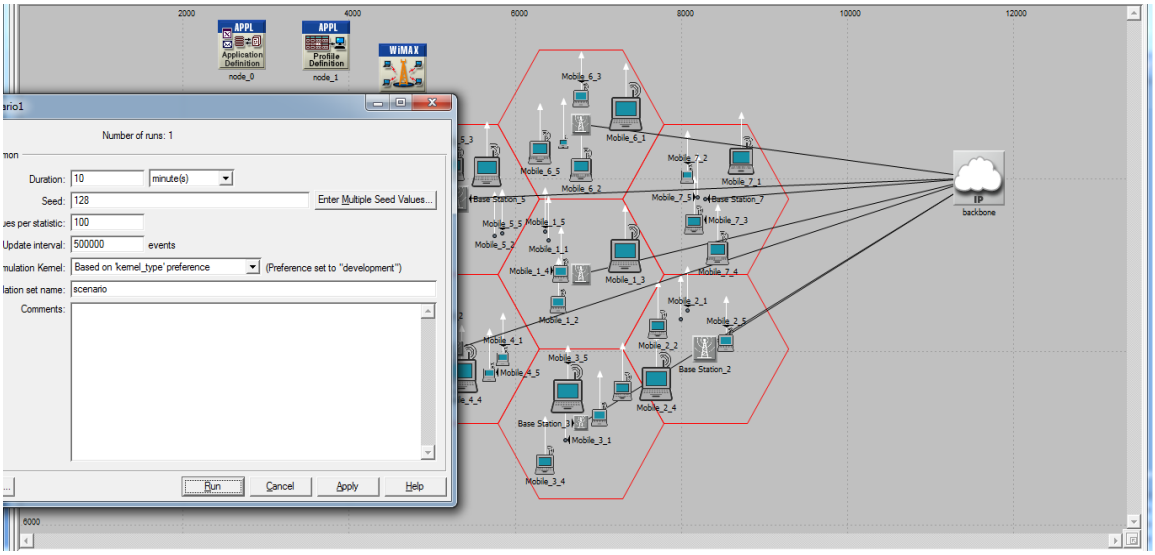

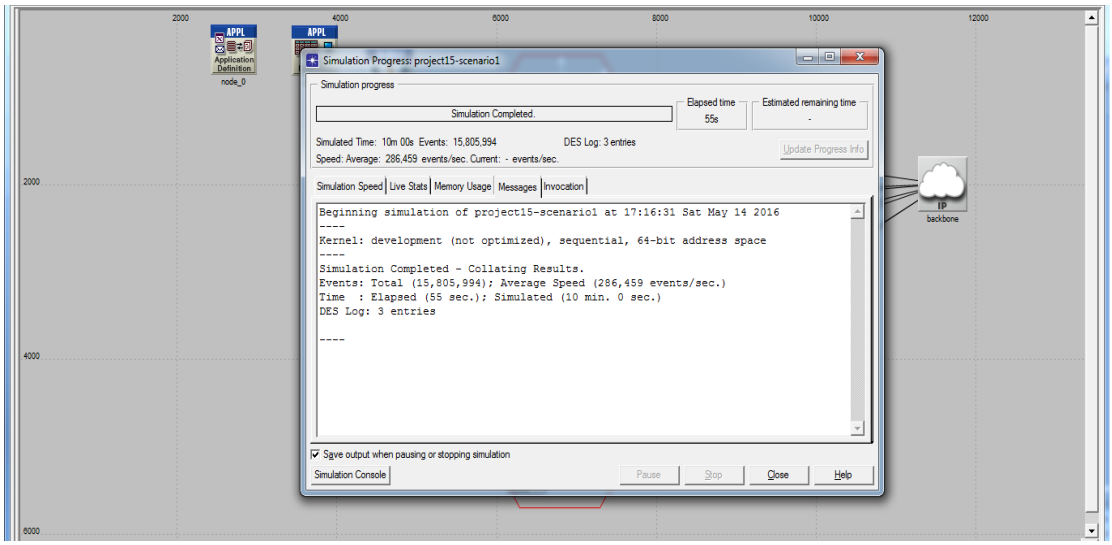

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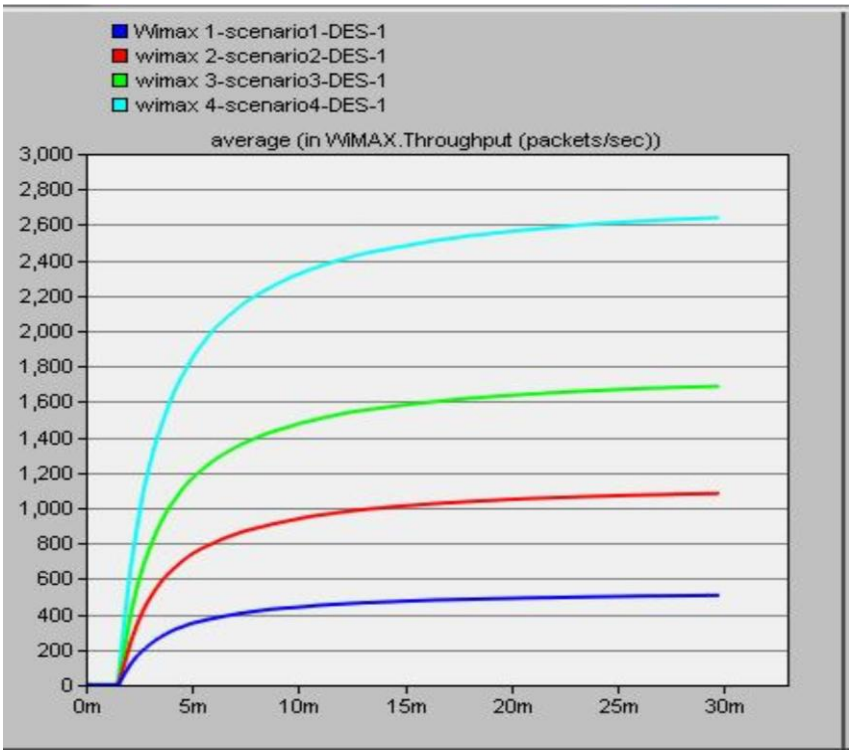
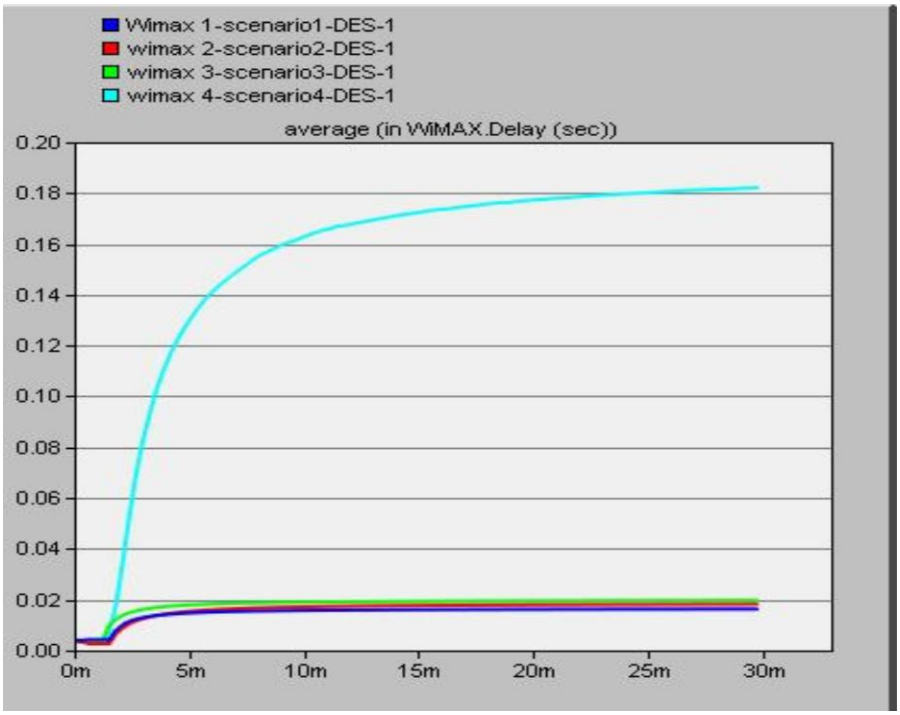
SIMULATION RESULT IN GRAPH

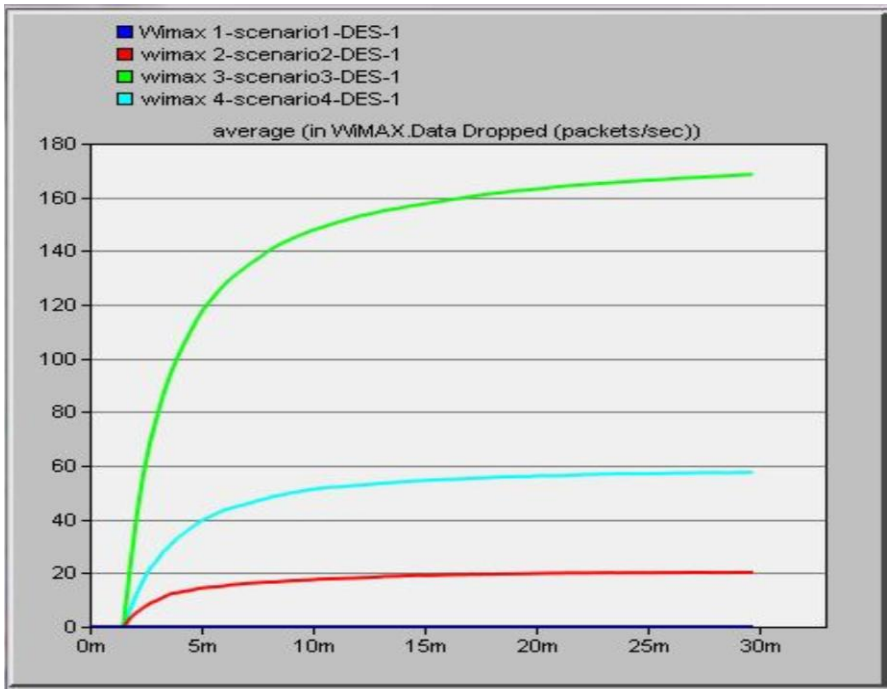
1. **AVERAGE THROUGHPUT**



2. **AVERAGE DELAY**



3. AVERAGE DATA DROPPED



CONCLUSION

This research work provide the overview and performance evalution of quality of services of different types of wimax network. Here all wimax network model are multiprocessor architecture and all are

interconnected connection. Here we use opnet modeler to simulate this different types of network and find the performance criteria of these network model.
The conclusion is that our network models are shorten the times quite a bit for find the performance criteria measurement of end-to-end delay as well as throughput also used as an effective parameter for this purpose.

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