

# Improvement of Handoff Performance in Wireless Mesh Networks

Fahim Masud Choudhury

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## Acknowledgement

## Abstract

# Chapter 1

## Introduction

1.1 Introduction

1.2 Research Motivation

1.3 Contribution of the Work

1.4 Organization of the Project

# Chapter 2

## Literature Review

### 2.1 Wireless Mesh Network

#### 2.1.1 Network Architecture

Infrastructure/Backbone WMNs

Client WMNs

Hybrid WMNs

#### 2.1.2 Management

#### 2.1.3 Operation

#### 2.1.4 Application

Broadband Home Networking

Community and Neighborhood Networking

Enterprise Networking

Metropolitan Area Networks (MAN)

Transportation Systems

Building Automation

Health and Medical Systems

Transportation Systems

Security Surveillance Systems

### 2.2 Handoff Management

#### 2.2.1 Types of Handoff in Wireless Mesh Network Systems

Intra-system Handoff

Inter-system Handoff

Hard Handoff

Soft Handoff

**2.2.2 Conditions of Handoff**

**2.2.3 Objectives of Handoff**

**2.2.4 Types of Handoff**

**Link Layer Handoff**

**Network Layer Handoff**

**2.3 Related Work**



## Chapter 3

# Methodology

### 3.1 Existing Approaches

#### 3.1.1 Routing Based Location Update

### 3.2 Multihash Location Management

### 3.3 Existing Methodology

### 3.4 Improved Methodology

# Chapter 4

## Implementation

### 4.1 IEEE 802.11 standard

### 4.2 IEEE 802.11s

Description

### 4.3 802.11 Mesh Architecture

Routing Protocols

### 4.4 Network Simulator

#### 4.4.1 ns-1

#### 4.4.2 ns-2

#### 4.4.3 ns-3

### 4.5 IEEE 802.11s Model in ns-3

### 4.6 Network Simulator 3

#### 4.6.1 Model Design

Supported Features

Unsupported Features

#### 4.6.2 Model Implementation

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### 4.7 Simulation Environment

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## Chapter 5

# Experimental Results and Discussion

### 5.1 Simulation Output

#### 5.1.1 Comparison with Traditional Handoff

### 5.2 Trace Data Analysis

### 5.3 Result Analysis

#### 5.3.1 Average End-to-End Delay Vs Simulation Time Delay for TCP

#### 5.3.2 Average End-to-End Delay Vs Simulation Time Delay for UDP

#### 5.3.3 Average Packet Delivery Ratio Vs Simulation Time for TCP

#### 5.3.4 Average Packet Delivery Ratio Vs Simulation Time for UDP

## Chapter 6

# Conclusion

### 6.1 Conclusion

### 6.2 Future Improvements