ENSC 427: Communications Networks
Spring 2012
Final Project Presentation

Mobile IP Over WLAN

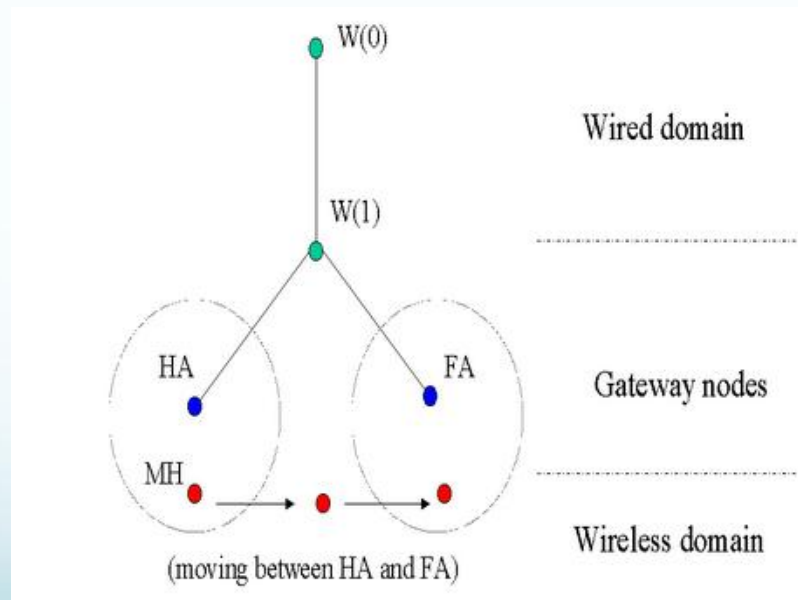| Anthony DiNicolo | 301078718 |
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Group #4

Introduction

- Motivation for project
  - Constant growth of mobile usage
  - Variations of mobile usage has increased
  - Becoming part of everyday life for all ages

- What is Mobile IP?

- Implementation of our project

- Simulation results

Related Work

- ENSC 835 Project - "Analysis of Mobile IP in Wireless LANs"

- Marc Greis' Tutorial for the Network Simulator "ns"

What is Mobile IP?

- Mobile IP (MIP) is an IETF protocol used to maintain a consistent IP address while a device moves through a number of networks

- Enables seamless transfer between nodes for continuous data transfer
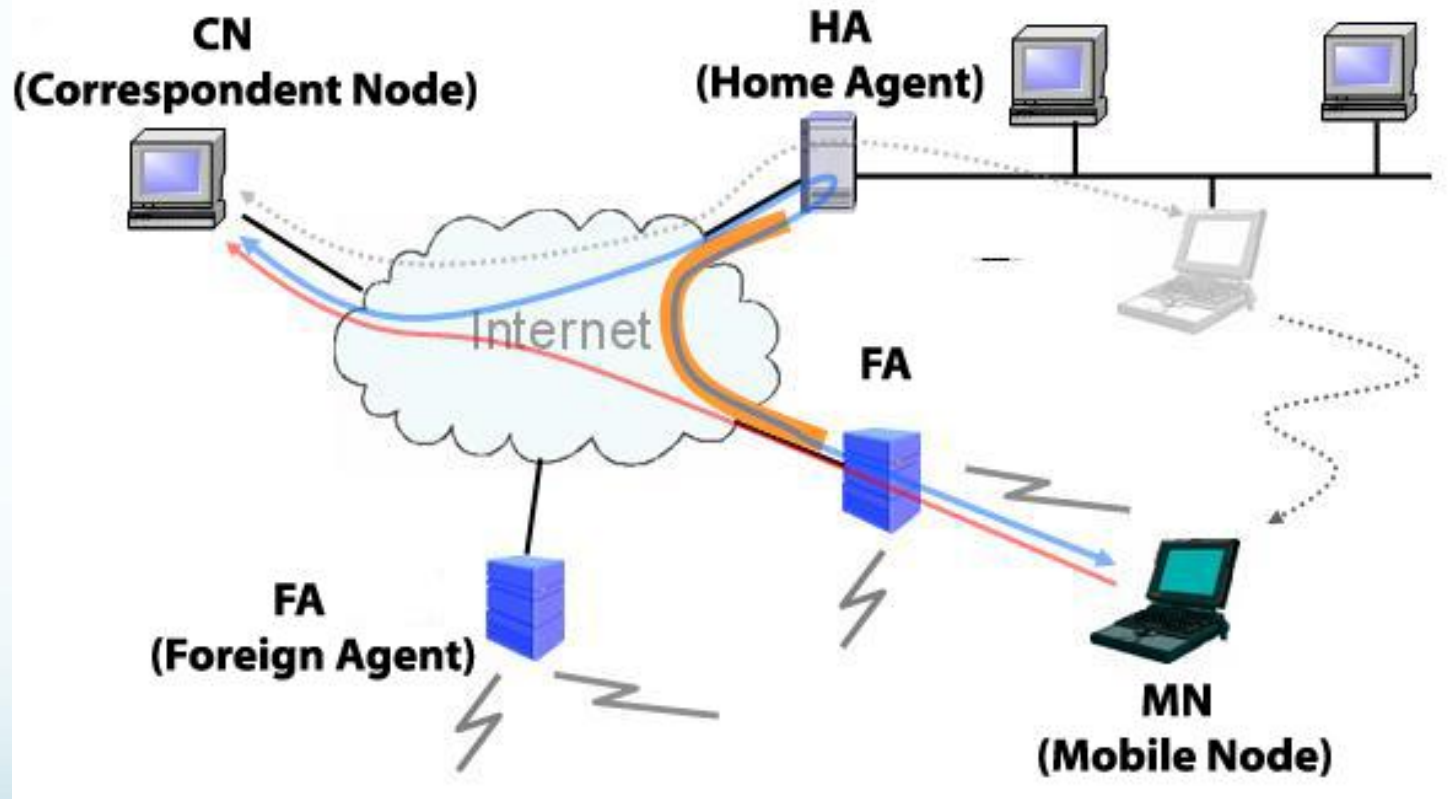
IETF – Internet Engineering Task Force

IP – Internet Protocol
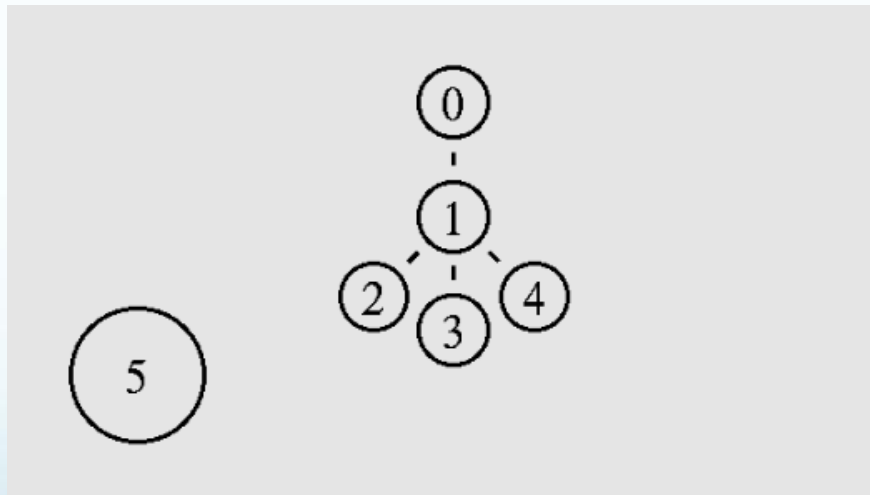
Terminology

- Mobile Node (MN)
  - Entity contained within a wireless mobile station
  - Allow communications with other MIP components.

- Home Agent (HA)
  - Base station where the MN is initially registered
  - Forwards applicable packets to applicable FA when MN out of range

- Foreign Agent (FA)
  - Base station that transfers data when MN is out of range of HA
  - Accepts packets from HA and redistributes to mobile station

- Correspondent Node (CN)
  - A peer with which a MN is communicating

- Care-Of Address
  - Address assigned to mobile node by foreign network
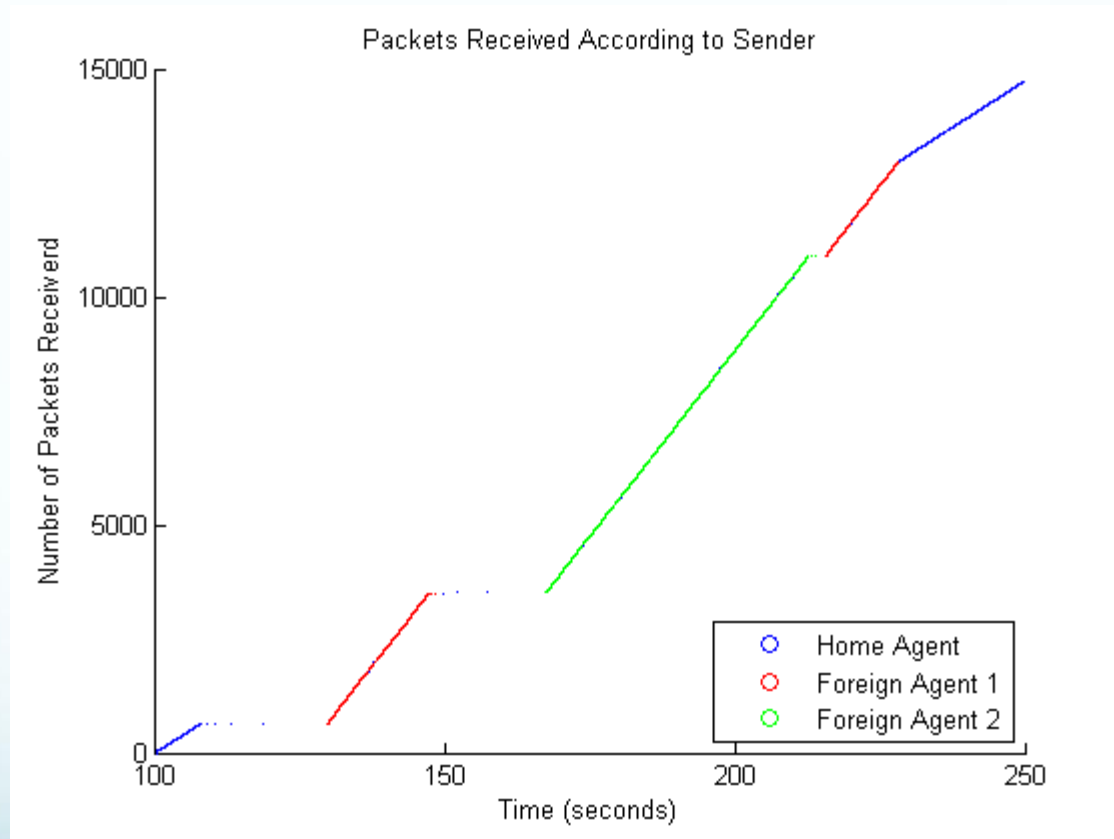
Mobile IP

Implementation Details

- Simulation time: 250s

- MN movement speed: 10m/s – 20m/s

- TCP packet flow start/stop time: 100s/250s

TCP – Transmission Control Protocol

Discussion

Packets Received According to Sender

Future Work

- Implementation of more realistic handoff model using Shadowing

- More complex simulations involving more MN's and FA's

- Update to latest version of Mobile IP (MIPv6)

Conclusion

- Gained an understanding of the details of Mobile IP and its importance in data transfer in mobile devices

- Importance of overlapping networks for seamless transfer to avoid packet loss

- Deeper understanding of ns-2 and its limitations for simulating wireless networks

References

- [1] B. Shahabi and S. Yang, Analysis of Mobile IP in Wireless LANs, Simon Fraser University, Burnaby, BC, 2011

- [2] "Mobile IP." Internet: http://en.wikipeia.org/wiki/Mobile_IP, [April 2012]

- [3] M. Greis. "Marc Greis Tutorial for the UCB/LBNL/VINT Network Simulator "ns"." Internet: http://www.isi.edu/nsnam/ns/tutorial/, [April 2012].

- [4] "The ns Manual." Internet: http://www.isi.edu/nsnam/ns/ns-documentation.html, [April 2012].

- [5] C. Palazzi, B. Chin, P. Ray, G. Pau, M. Gerla, M. Rochetti. "High Mobility in a Realistic Wireless Environment: a Mobile IP Handoff Model for NS-2." Internet: http://www.math.unipd.it/~cpalazzi/papers/Palazzi-MobileIP.pdf, [April 2012].

Questions

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