

# Handover Security in Wireless and Mobile Networks

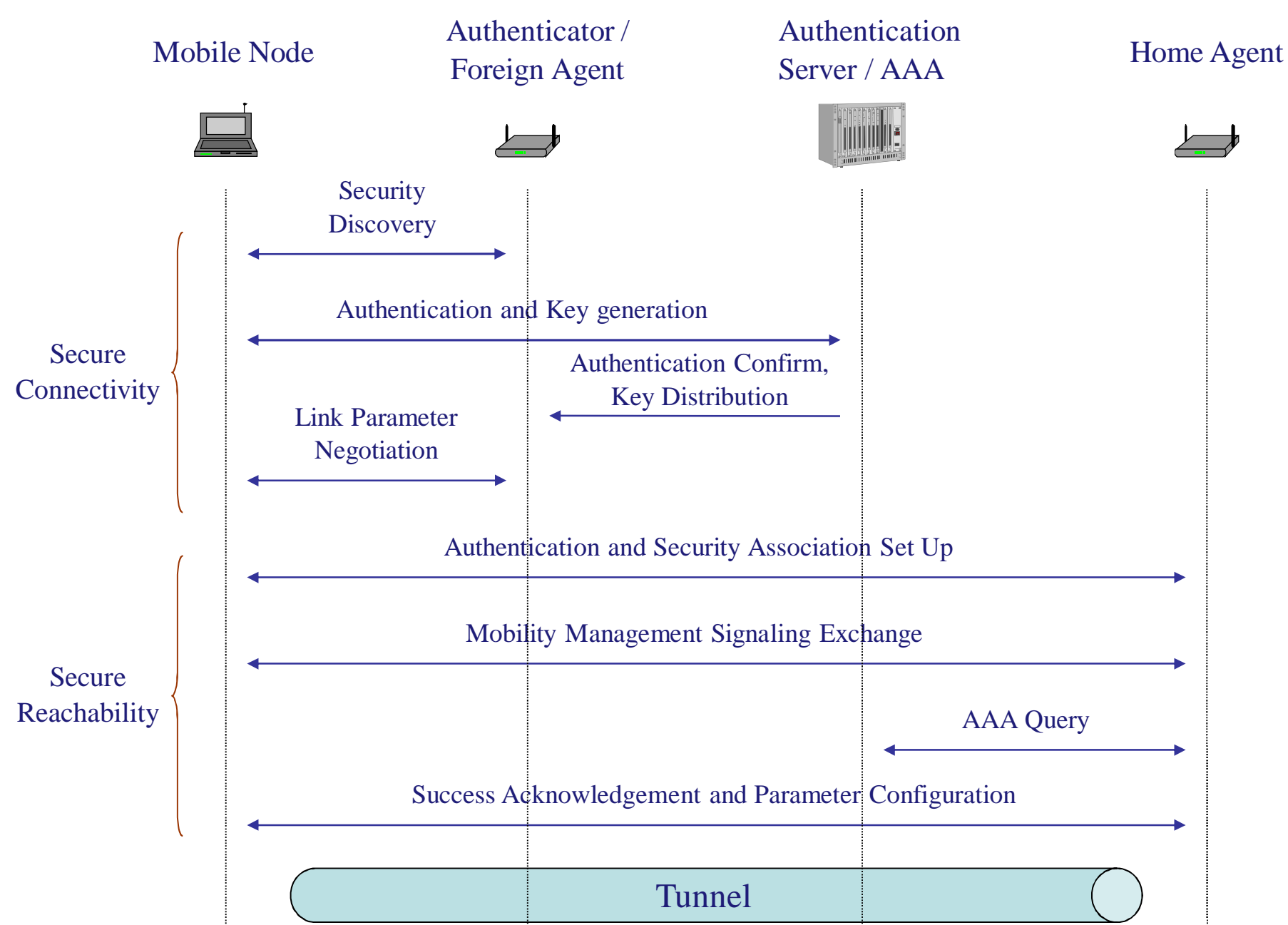
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## Background and Motivation

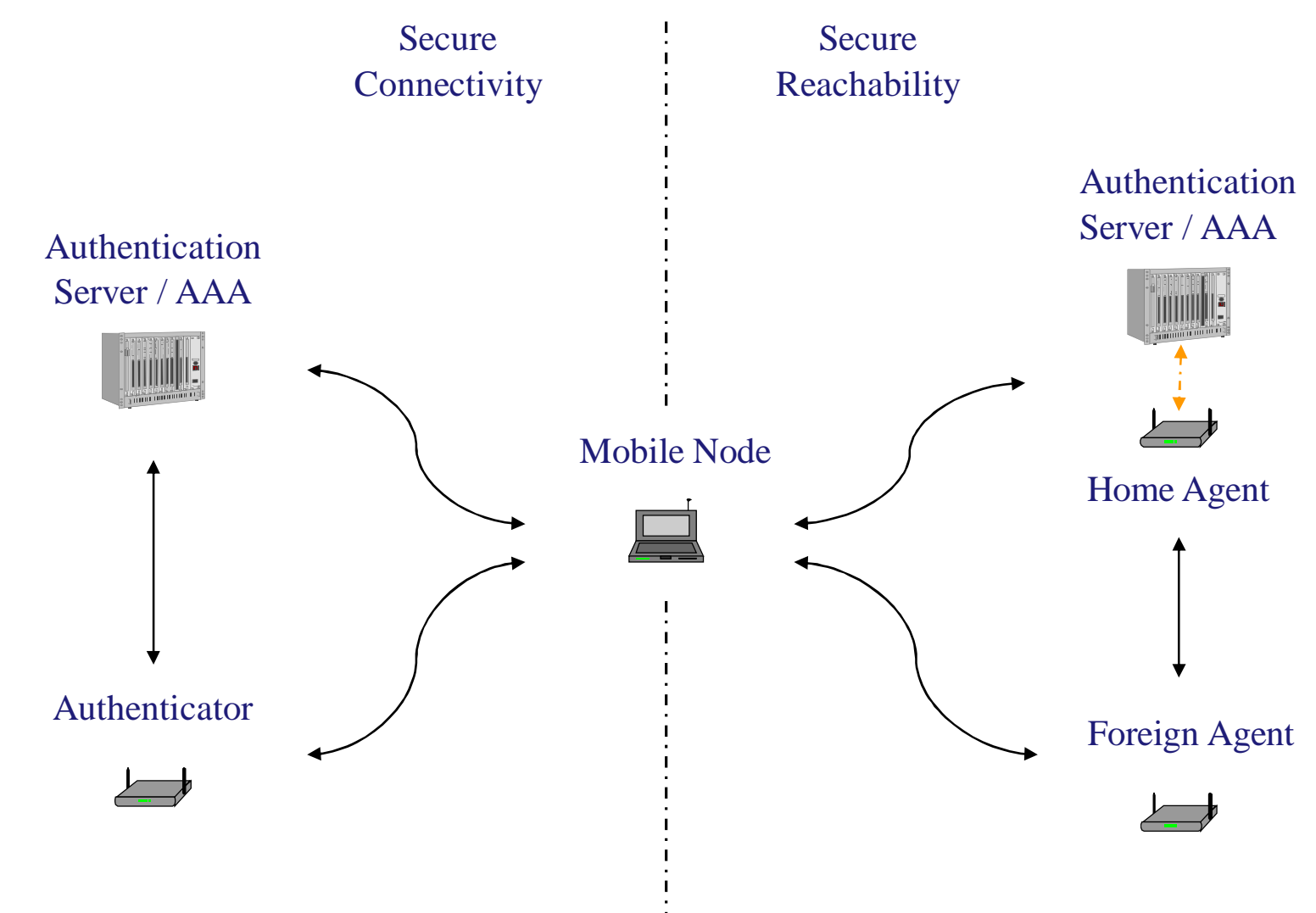
- IP based heterogeneous wireless access environment
- Mobile devices with mobile Internet services
- Handover aims at: always-on connection, best possible performance and user experience

## Merits

- Localized handovers with less latency
- Avoids frequent signaling across Internet
- Less key management overhead
- Fast authentication with re-authentication schemes



2-Phase Model of Handover Security



Security and Trust Relation in Handover

## Challenges

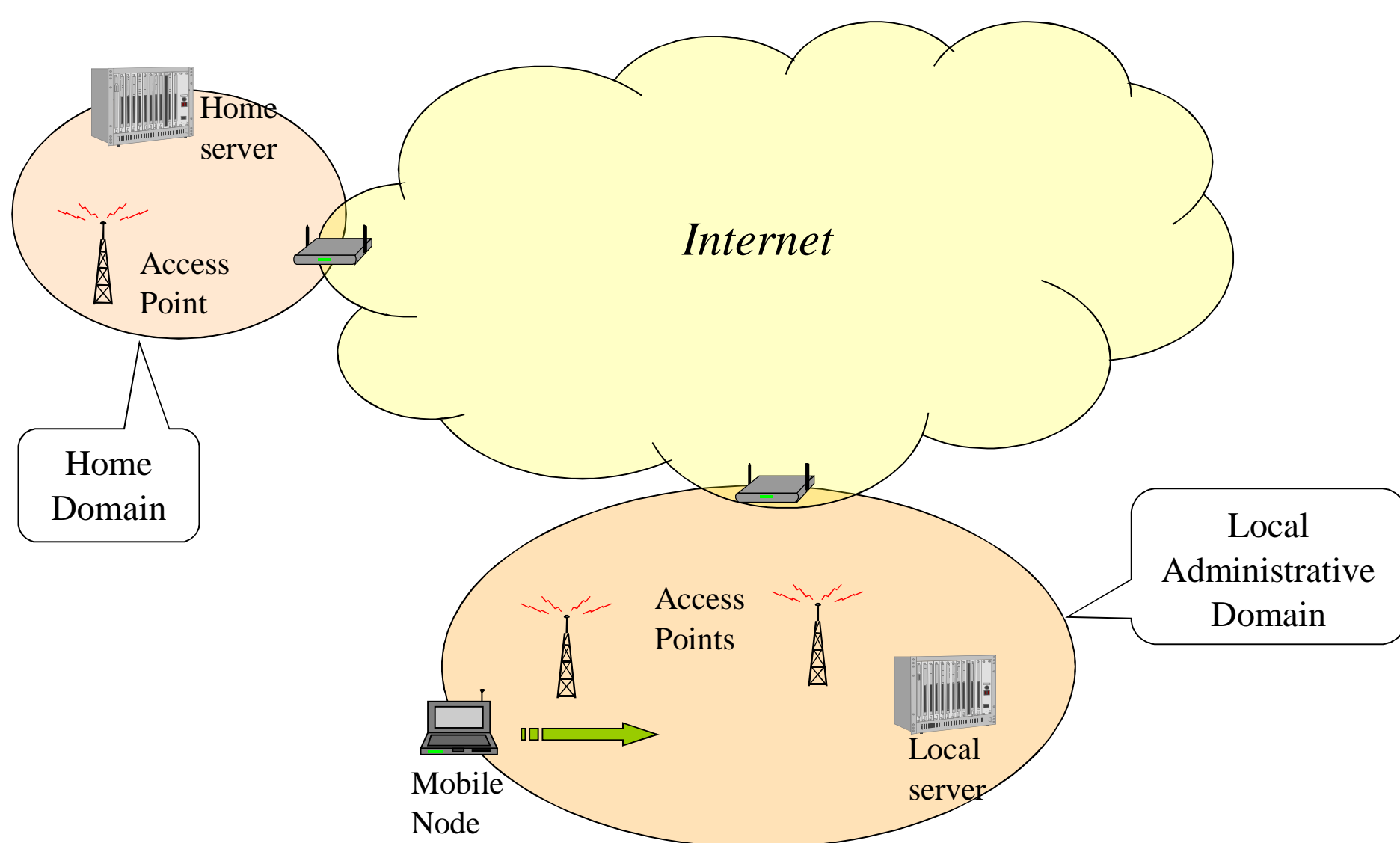
- Security in handover: user confidential context, mutual authentication, key management
- Demanding requirements from real time applications
- Overhead from security implementations: latency, energy
- Seamless and Secure

## Research Question

- Is it feasible to achieve a balance between security and performance in handover?

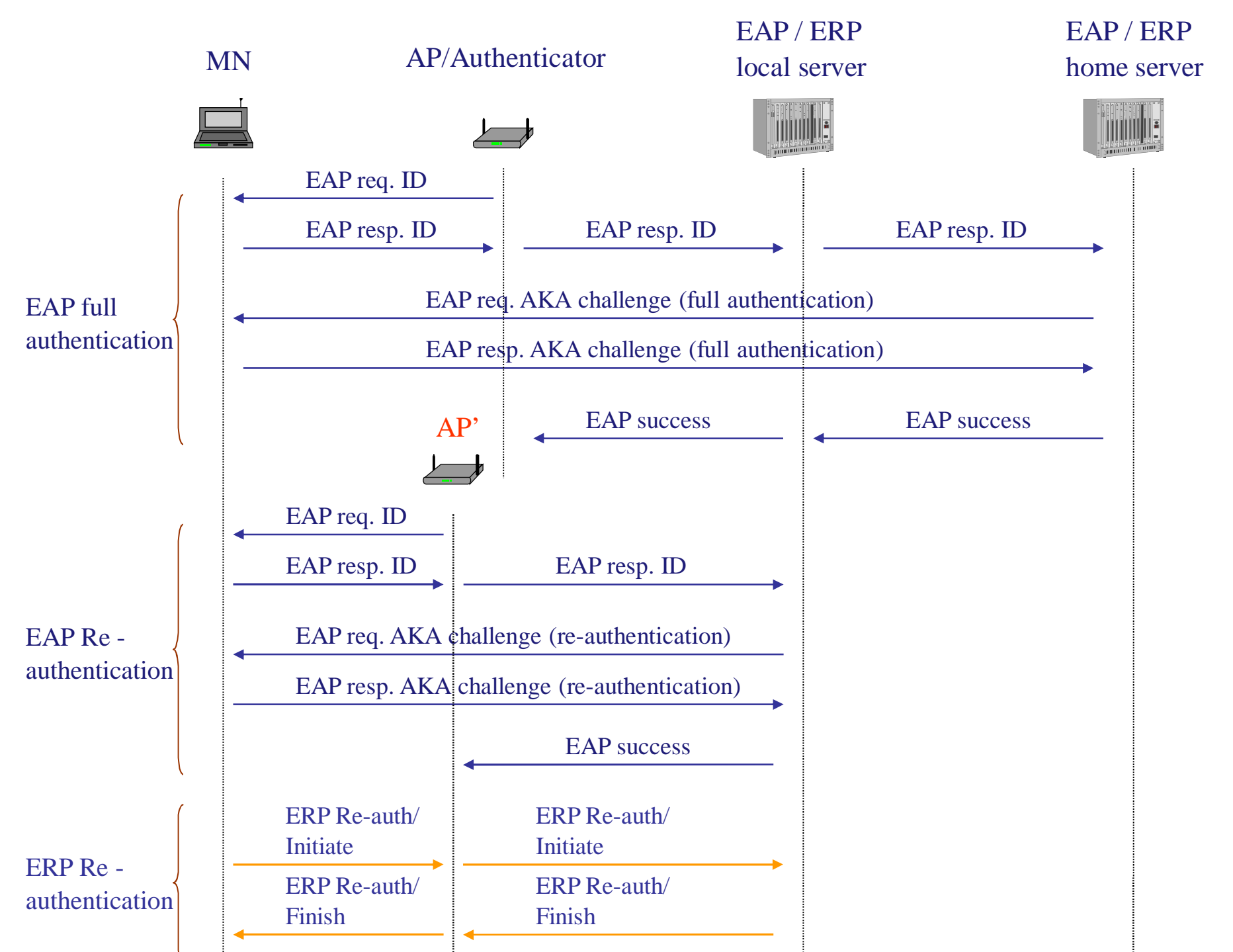
## Proposal

- Local Administrative Domain (LAD)



## Main Technique

- Secure Connectivity: EAP, EAP-AKA, ERP, Diameter
- Secure Reachability: Proxy Mobile IP, IKEv2, IPSec



EAP based authentication: EAP-AKA, ERP

## Current Work

- Security impact analysis
- Mobility requirements from security perspective
- Performance analysis of handover security in LAD
- Implementing handover security protocols in ns-2

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WISEciti Project (2008 – 2010)

<http://www.cs.helsinki.fi/group/wiseciti>