Mobile Radio System

Branch : Electrical and

Q

Subject : Mobile Communication

Unit: MOBILE
NETWORK LAYER AND
TRANSPORT LAYER

Cellular System Design Fundamentals and Wireless Data Networking

and Mobile radio propagation

Characteristics of radio waves

MOBILE NETWORK LAYER AND TRANSPORT LAYER

Mobile IP

IP packet delivery

Agent discovery

Registration

IPv6

Cellular IP

Mobile ad-hoc networks

Tunneling and encapsulation

Types of encapsulation

Optimizations of Mobile-IP

Traditional TCP

Classical TCP improvements

TCP OVER 2.5/3G WIRELESS NETWORKS.

Performance enhancing proxies

Transaction-oriented TCP

Wireless Systems

Agent discovery

Introduction:

Electronics Engineering

To find a foreign agent mobile IP describes two methods: agent advertisement and agent solicitation. This solves the problem of finding a foreign agent after moving MN.

Agent advertisement:

- Foreign agents and home agents advertise their presence periodically using special agent advertisement messages.
- For these advertisements Internet control message protocol (ICMP) messages are used with some mobility extensions.
- Routers also advertise their routing service periodically to the attached links
- The agent advertisement packet is shown in Figure 6.2 The upper part represents the ICMP packet while the lower part is the extension needed for mobility.
- The TTL field of the IP packet is set to 1 for all advertisements to avoid forwarding them.
- The IP destination address according to standard router advertisements can be either set to 224.0.0.1, which is the multicast address for all systems on a link or to the broadcast address 255.255.255.

Fields of ICMP:

- The *type* is set to 9, the code can be 0, if the agent also routes traffic from *non-mobile nodes*, or 16, if it does not route anything other *than mobile traffic*.
- The number of addresses advertised with this packet is in #addresses
- Lifetime denotes the length of time this advertisement is valid.
- Lifetime denotes the length of time this advertisement is valid.
 Preference levels for each address help a node to choose the router that is the most eager one to get a new node.

Fields for the Extension:

- Type is set to 16, length depends on the number of COAs provided with the message and equals 6 4*(number of addresses).
- An agent shows the total number of advertisements sent since initialization in the sequence number
- Registration lifetime specify the maximum lifetime in seconds a node can request during registration.
- R bit: shows, if a registration with this agent is required even when using a collocated COA at the MN.

Cellular System Design
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 H bit and F bit: indicates if the agent offers services

Q

as a home agent

 M and Gbit: specify minimal encapsulation and G generic routing

• V bit: indicates that reverse tunneling

encapsulation.

- T bit: indicates that reverse tunneling
- The following fields contain the COAs

Previous

type = 16 | length | sequence number
registration lifetime | R|B|H|F|M|G|r|T| reserved

COA 1

COA 2

Study Material

router address 1

preference level 1

router address 2

preference level 2

addr. size

Home

*76~

#addresses

Figure 6.3 Agent advertisement packet

Next

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lifetime

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Question	