ALCATEL

Fast Handoff Scheme in WLANs for Real-Time systems

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- ▼ Support for real-time systems

- ▼ IAPP does not offer fast handoff

- ▼ Explicit Multicast (XCAST)

- ▼ Layer 2 re-association prior trigger

- ▼ No unique multicast group @

- ▼ Uses unicast @ of group members to route datagrams

- ▼ XCAST source inserts unicast @s into XCAST header (sender-initiated)

- ▼ XCAST capable routers processes XCAST headers and duplicates or just forwards datagrams depending upon routing table entries

XCAST

- ▼ Narrow-cast

- ▼ Applications like video conferencing, real-time collaborative applications, multiparty networked games, VoIP.

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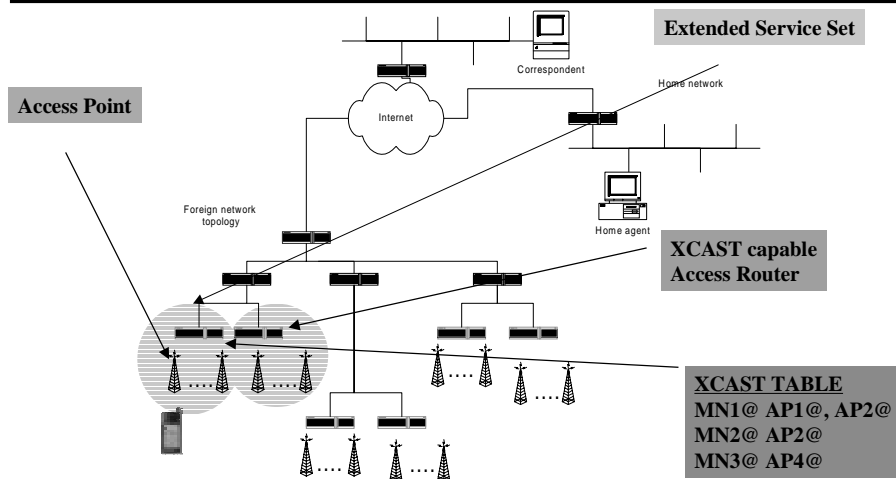September 27-28, 2001

Advantages of XCAST

- ▼ No unique multicast group @ required

- ▼ No multicast routing protocols required

- ▼ XCAST routers do not have to maintain state info for each group

- ▼ Suitable for large number of small groups

- ▼ Quickly adapts to link failures

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Role of XCAST in handoffs

- ▼ Group members can be adjacent Access Points

- ▼ Many groups (each MN has a unique group associated with its own IP address)

- ▼ Small groups; during handoffs at the most there would only be two members within a group (old AP, new AP)

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Protocol

- ▼ Layer2 trigger before Re-association takes place (Re-association prior trigger)

- ▼ Either old AP or the MN initiates a XCAST join message with the new AP's IP address

- ▼ Once re-association is performed new AP sends a re-association complete message to the XCAST capable Access Router

- ▼ XCAST router removes the old AP's IP address from the MN's XCAST entry

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▼ Re-association prior trigger is used to initiate XCAST group join procedure

▼ New AP is added to the XCAST group of the MN

▼ Old and New APs thus become members of the same XCAST group.

▼ Once handoff is finished new AP sends a re-association complete message to the XCAST capable AR

▼ AR removes the old AP from the XCAST table entry for the MN

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▼ XCAST capable Access Router duplicates packets and sends it over the distribution system to both the APs in the XCAST table .

▼ As soon as the handoff is completed only the new AP receives the datagrams destined for the MN

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Extended Service Set

Correspondent

Home network

Access Point

Internet

Foreign network topology

Home agent

XCAST capable Access Router

XCAST TABLE
MN1@ AP1@, AP2@
MN2@ AP2@
MN3@ AP4@

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▼ Fast and smooth handoffs can be achieved using XCAST

▼ Unlike regular multicast, this protocol does not need to keep state info for each mobile at each XCAST router

▼ Duplication of packets takes place only during handoffs, once handoff is complete it is regular unicast

▼ Access Routers have to be XCAST capable

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