Mobility Management using Proxy-MIPv4 and Radius Mobility Extensions

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Overview

• Proxy Mobile IPv4
• Novel Mobility Architecture using PMIP and AAA mobility extensions
• PMIP operation
• AAA mobility extensions
• Mobility Management using the proposed architecture
Proxy Mobile IP

• Mobility Management of the user on the network side
• MPA and HA of the PMIP does the registration for the user and route the traffic to the user terminal
• Issues of “user ID, user movement in access networks, user details for MPA during registration, multihoming, IP address allocation to user in visiting networks, registration revocation” are not addressed
Novel Architecture using PMIP and AAA mobility extensions
Radius Mobility Extensions

• AAAH and AAAF
  – NAS sends a request for authentication to AAAF
  – AAAF checks the Realm of the user and process the NAS request
  – Sends a mobility context request to the AAAF parallel with the authentication request to the AAAH
  – AAAH responds with the user details for mobility to the AAAF

• AAAH consultation with HA
  – When the mobility registration request from the AAAF, AAAH sends a request for mobility details of the user to the HA.
  – Upon receiving user details from HA, AAAH sends response to AAAF with the details from HA.
  – When the user belongs to the home network it sends the registration revocation to HA

• AAAF consultation with MPA
  – After receiving response from AAAH the AAAF sends the registration request with user details to MPA.
  – After receiving response from the MPA, if the registration is success the AAAF provides access to user terminal in the access network or else it rejects access to user.
PMIP with Radius Mobility Extensions

- **HA**
  - HA receives two types of request from the AAAH, one is user context details and the other is registration revocation
  - On the first request HA sends a response when there is a request from AAAH with the user details collected from its database
  - On the second request HA will clear the user cache and sends MPIv4 registration revocation to MPA which the user is connected before.
  - Does the registration when there is a MIPv4 registration request for the user from MPA.

- **MPA**
  - Collects the details from AAAF mobility registration request
  - Does the mobility registration with HA with the user details from AAAF
  - Sends the user details like home address to DHCP server
  - Sends a mobility registration success or failure to AAAF
Mobility Management

- Mobility registration
- Registration Revocation
Being at Home Network

- NAS sends an authentication request to the home AAA server
- AAAH sends registration revocation to HA
- HA initiating the Registration Revocation
  - Erases the MN entry from the mobility registration database
  - Sends a MIPv4 registration revocation message to MPA

(Note: Mobility Context Request – AAAH send a HA consultation message in order to get information of the MN.

Mobility Access request – AAAH sends a registration revocation to HA)
Other Issues

• Multihoming
• Address Allocation (DHCP / Radius IP allocation)
• Routing Issues (Proxy ARP)
• Security Considerations
• IANA Considerations
• Packet formats, codes.
Questions ...