- **IEEE 802.21 MEDIA INDEPENDENT HANDOVER**
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- Title:

  Amendment for MIH_Network_Address_Information (6.2.5.3, 7.4.13)
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- Abstract:

New care of address pre-configuration in the previous PoA has a benefit in reducing the address configuration delay which can affect the performance of seamless handover. To provide this, we suggest amendment to the MIH remote command, MIH_Network_Address_Information by adding a new field, new care of address to the current .response format and by defining a new command, MIH_NCoA_Validation.

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Problem Statements

- MIH_Network_Address_Information command
  - To discover mobile terminal's network address related information before handover
  - Currently this .response primitive contains,
    - FA Address for MIPv4
    - Access Router Address for MIPv6
    - Network Address Information
      - Agent Advertisement for MIPv4
      - Router Advertisement for MIPv6
- Address configuration delay in the new PoA can affect the performance of seamless handover.
- NCoA(New Care of Address) needs to be pre-configured in the previous PoA.

Problem Statements (2)

- NCoA can be statefully assigned by the NPoA's DHCPv4 or DHCPv6 without confliction.
- The FACoA for MIPv4 is the same as the FA's address that is already included in the current .response format.
- The stateless address auto-configuration for MIPv6 requires the DAD checking which result in significant delay.

Our Proposal

- Adding a new field in MIH_Network_Address_Information.response

Name	Type	Valid Range	Description
New Care of Address	IPv4/IPv6 Address	N/A	

- This NCoA is the address which is statefully assigned by the DHCPv4 or DHCPv6 in the new PoA.

Our Proposal (2)

- To support the stateless address auto-configuration for MIPv6, we suggest a new remote command for NCoA validation
- MIH_NCoA_Validation
  - MIH_NCoA_Validation.request
  - MIH_NCoA_Validation.response

MIH_NCoA_Validation.request

Name	Type	Valid Range	Description
CommandSource	UPPER_LAYER_TYPE	N/A	The origination point from where the command is initiated. This is usually some form of upper layer such as a policy engine, or a L3 Mobility protocol, transport, application etc.
CommandDestination	MIH_LOCAL, MIH_REMOTE		This specifies the command destination which can be either local or remote MIH Function.
CurrentLinkIdentifier	Network Identifier. Can be one of different 802 and Cellular networks.		This identifies the current access network over which the command needs to be sent. This is valid only for remote commands which need to be sent to remote MIHF. The command is then sent either at L2 or at L3
TransportLayer	TRANSPORT_L2, TRANSPORT_L3		This identifies the transport layer L2 or L3 over which the command needs to be sent to remote MIHF entity. This is valid only for remote commands.
MACMobileTerminal	MAC Address		MAC Address of Mobile Terminal
Home Address	IPv6 Address		Home IPv6 Address of Mobile Terminal
PCoA	IPv6 Address		Previous Care of Address of Mobile Terminal
Old Access Router Address	IPv6 Address		IPv6 address of old Access Router.
NCoA	IPv6 Address		New Care of Address of Mobile Terminal which is DAD checking required.
New Access Router Address	IPv6 Address		IPv6 address of new Access Router.

MIH_NCoA_Validation.response

Name	Type	Valid Range	Description
CommandSource	UPPER_LAYER_TYPE	N/A	The origination point from where the command is initiated. This is usually some form of upper layer such as a policy engine, or a L3 Mobility protocol, transport, application etc.
CommandDestination	MIH_LOCAL, MIH_REMOTE		This specifies the command destination which can be either local or remote MIH Function.
CurrentLinkIdentifier	Network Identifier. Can be one of different 802 and Cellular networks.		This identifies the current access network over which the command needs to be sent. This is valid only for remote commands which need to be sent to remote MIHF. The command is then sent either at L2 or at L3.
TransportLayer	TRANSPORT_L2, TRANSPORT_L3		This identifies the transport layer L2 or L3 over which the command needs to be sent to remote MIHF entity. This is valid only for remote commands.
MACMobileTerminal	MAC Address		MAC Address of Mobile Terminal
Home Address	IPv6 Address		Home IPv6 Address of Mobile Terminal
NCoA	IPv6 Address		New Care of Address of Mobile Terminal which is DAD checked. If the MN suggested NCoA is failed in DAD checking, the new proposed NCoA can be contained in this field.
New Access Router Address	IPv6 Address		IPv6 address of new Access Router.

Additional Comments

- Only network prefix, not full encapsulation of Agent/Router advertisement in .response's Network Address Information.
  - "FA Address" and "Access Router Address" are already included in the current .response format.
  - Movement detection
    - L2 movement detection through MIH event service
    - L3 movement detection only requires the L3 network prefix of NPoA
  - Address configuration
    - MIPv4
      - FACoA is the same as the FA address.
      - CoCoA can be acquired by using proposed New Care of Address field.
    - MIPv6
      - Use of proposed New Care of Address field and MIH_NCoA_Validation command.
  - Network reachability
    - Current "Access Router Address" field can be used not only for MIPv6 but also for MIPv4.

Additional Comments (2)

- Section 7.4 MIH_SAP Primitives
  - The description about MIH_Handover_Commit is missing.
  - The roles of MIH_Hanover_Initiate and MIH_Handover_Commit
    - If this is similar relationship with the IEEE 802.16e' s the MOB_MSHO-REQ and MOB_HO-IND,
    - The SuggestedNewPoAIdentifer can be the candidate lists not the specific PoA.
    - Why is the "Optional" marked for SuggestedNewPoAIdentifer ?