Router Advertisement Prefix Option Extension for On-Demand Mobility

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Motivation

• Router Advertisement / Router Solicitation is one of the ways an IPv6 node can configure their routing address

• In some cases, there may be a need to do something specific to a particular technology (e.g., 3GPP or IoT) where the traditional RA may need to be extended to express a meaning with an associated prefix
An example use case: 3GPP

• Mobile nodes often times change their mobile IP prefix due to node moving around network
  • Would like to be able to specify a way for the network to provide graceful replacement of an IP prefix
Requirements

• What is needed
  • Ability to express the type of continuity service that is associated with a prefix
    • Session-lasting IP address – network supports continued service until the end of the session
    • Fixed IP address – where the IP address is fixed for a “very long time”
    • Graceful-replacement – network will provide a graceful period of time for the mobile host to transition to the new IP prefix
    • Non-persistent – no guarantees of service continuity

• Ability for mobile host to select the appropriate IP prefix from an RA
Adding On Demand to RA

• A number of ways exist
  • Modify RA itself (e.g., creating a VSO to RA)
    - ) Really at the wrong level since it’s about prefixes
    - ) Significant uphill battle to do
  • Creating a new Information prefix option
    • Add a new Information prefix option in the options field
      -) Slightly wrong level (source LLA, target LLA, prefix info
        +) Cleaner
    • Modify existing Prefix Information Option to support continuity type
      • Add information to prefix information option to specify connection type
        -) Need to modify one of the “reserved” fields
        +) All prefix-related information will be retained in this option
Is there interest here?

• Who would like to join this effort?

• Draft
  Draft-feng-ra-prefixtype-00.xml
  https://datatracker.ietf.org/doc/draft-feng-dmm-ra-prefixtype/
Next steps?