MIF DHCPv6 Route Options Update

draft-ietf-mif-dhcpv6-route-option-02

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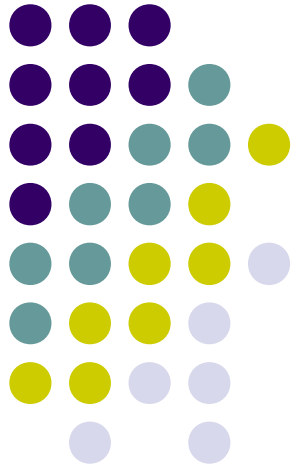
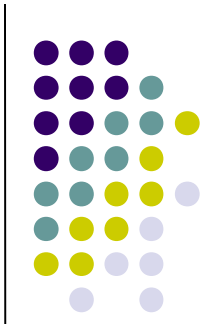


Background

- Adopted by MIF
- Originally a DHCPv6 based route configuration mechanism for dealing with multi-homing
- Possible much broader application:
  routing configured over DHCPv6
- Discussion on the mailing list:
  - Applicability to 3GPP. Clarified by adding proposed text
    - *“The solution described in this document applies to multi-homed scenarios including ones where the client is simultaneously connected to multiple access network (e.g. WiFi and 3G). “*

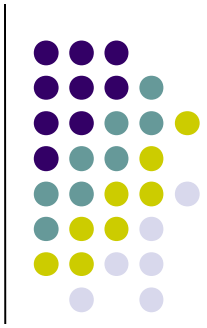
Overview



- Simple „bare-bones” info
- A single IA_RD option (empty)
  - One or more IA_NEXT_HOP options (address)
    - One or more IA_RT_PREFIX (prefix-len, metric, prefix)
- Extensible framework for possible future extensions:

  Preferred/valid lifetime, MTU, flow-info, source address, preference

Routing: DHCPv6 vs RA



- Considerable interest from enterprise user community
- Many previous proposals => a real need for this
- “Only one way to configure default gateway”
  - “Only one way to configure IPv6 address”
- Benefits:
  - Specify routing on a per host basis
  - Speed up configuration (mobile, after handover)
  - Better failure recovery (RA only: router goes down => clients stop seeing each other)

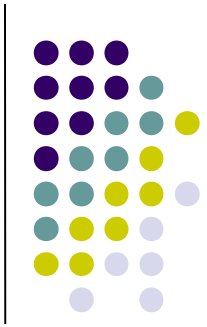
-01 => -02 Update

- RtgDir Review
  - Editorial clarifications regarding references and allowed message types
  - Clarified that *"The maximum number of routing information in one DHCPv6 message depend on the maximum DHCPv6 message size defined in [RFC3315]"*
  - Routing into black holes problem
    - Pointed out in -01, addressed in -02
    - Still unresolved concerns, working with RtgDir

Routing into black holes solution

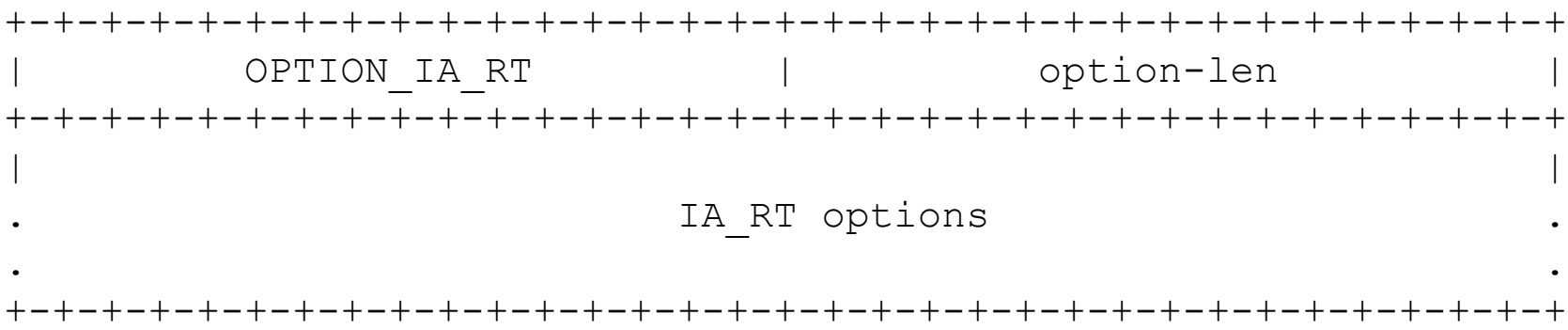
- Using NUD before using to avoid unreachable router (MUST)
- Recommendation for periodic checks (MAY)
- The „usual” DHCPv6 methods for refresh:
  - Use information refresh time option
  - May refresh during RENEW, REBIND,CONFIRM
- Flushing of routes following a link flap on the DHCPv6 client interface
- Essentially a matter of trust between client and server

IA_RT Option

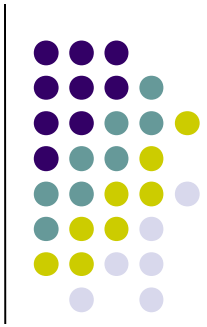


A single **IA_RT** option (empty, just a container)

- One or more NEXT_HOP options (address)
  - One or more RT_PREFIX (prefix-len, metric, prefix)



NEXT_HOP Option



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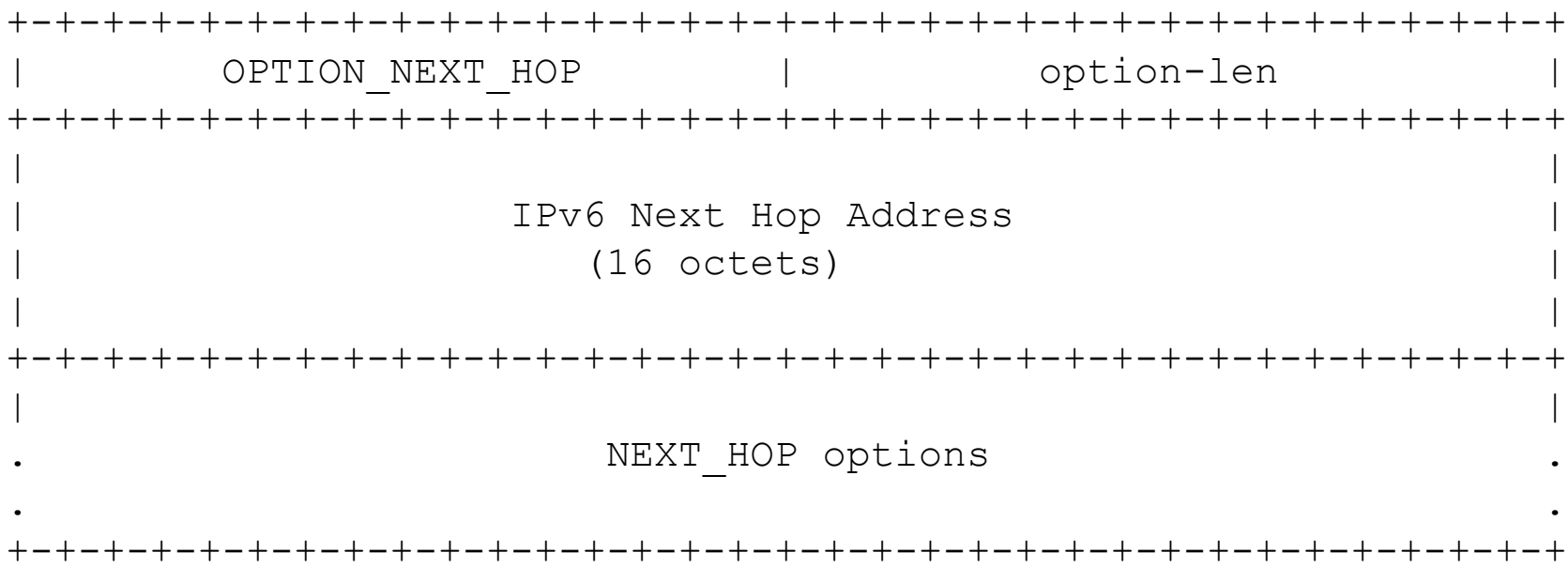
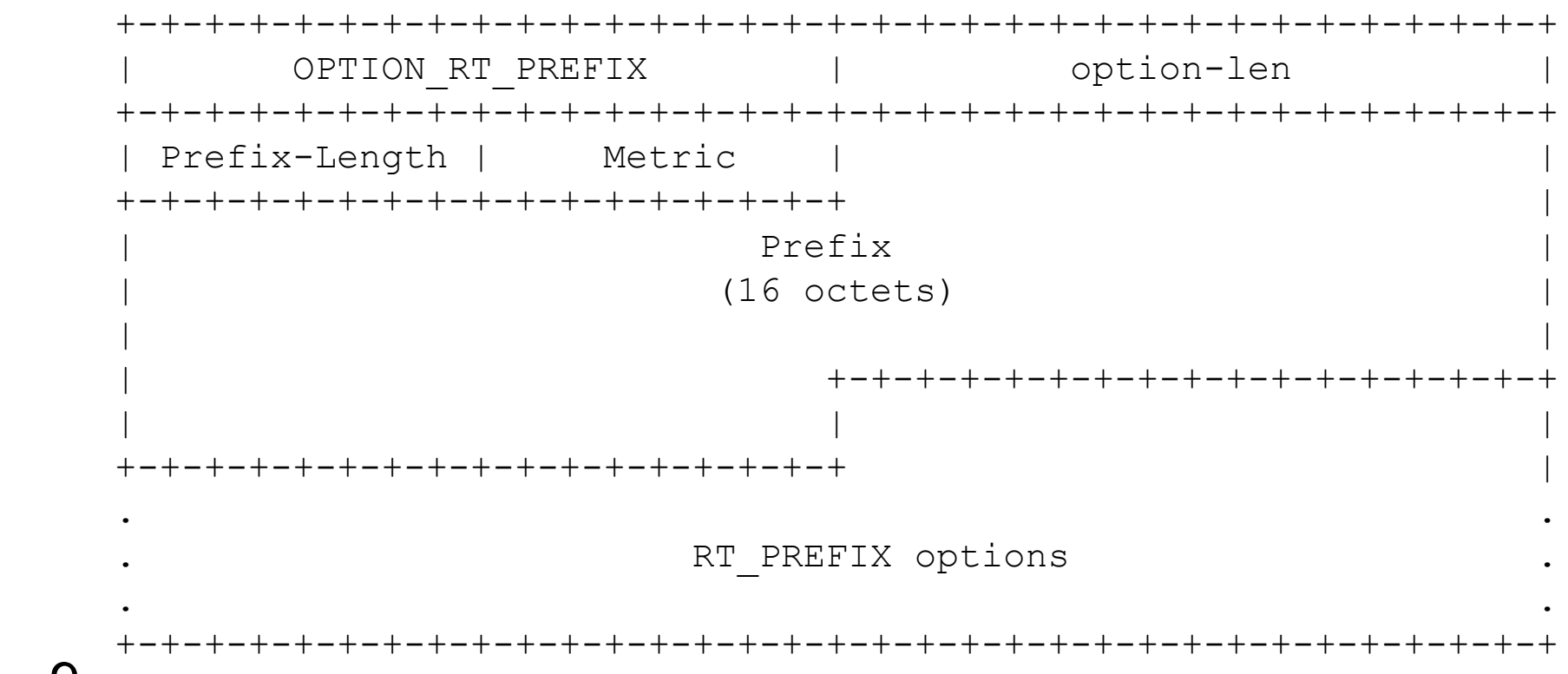


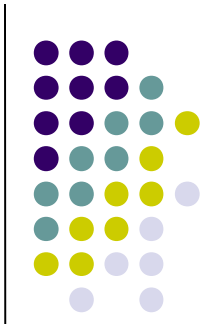
RT_PREFIX Option

A single IA_RD option (empty, just a container)

- One or more IA_NEXT_HOP options (address)
  - One or more **RT_PREFIX** (prefix-len, metric, prefix)

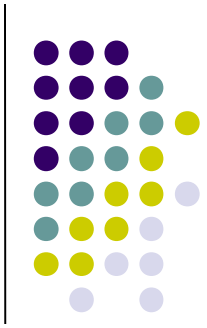


Open items:



- How to specify that no routes are available?

  Proposal: IA_RT with StatusCode=NoPrefixAvail
- Add IAID to IA_RT for reference?
  - Do we need more than one IA_RT?
- Numerous possible future extensions:
  - Route preferences, MTU, flow labels, etc.
  - Separate drafts, keep the base spec simple



Thank you

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