
DHCPv6 Leasequery

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Introduction

- Based on RFC3315
- Leverage RFC for DHCPv4 Leasequery, where applicable
- DHCPv6 Leasequery packet structure
- New status codes
- New options
- Explicit nature of DHCPv6 Leasequery

Drivers

- Specification required to facilitate the retrieval of IP lease information from DHCPv6 servers
 - For access control or dynamic filter creation
 - For external access to IP lease data
 - For routing table reconstruction associated with DHCP PD

Message and Option Definitions

- Messages
 - LEASEQUERY
 - LEASEQUERY-REPLY
- Options
 - Query Option
 - Reply Size Option
 - Cookie Option
 - Client Data Option
 - Client Last Transaction Time Option
- Status Codes
 - UnknownQueryType
 - MalformedQuery
 - StaleCookie
 - TooShort
 - NotConfigured
 - NotAllowed
- Transmission and Retransmission Parameters
 - LQ_TIMEOUT
 - LQ_MAX_RT
 - LQ_MAX_RC

Supported Query Types

- By IP address
- By prefix
- By DUID
- By link-address
- By remote-ID
- By device-ID

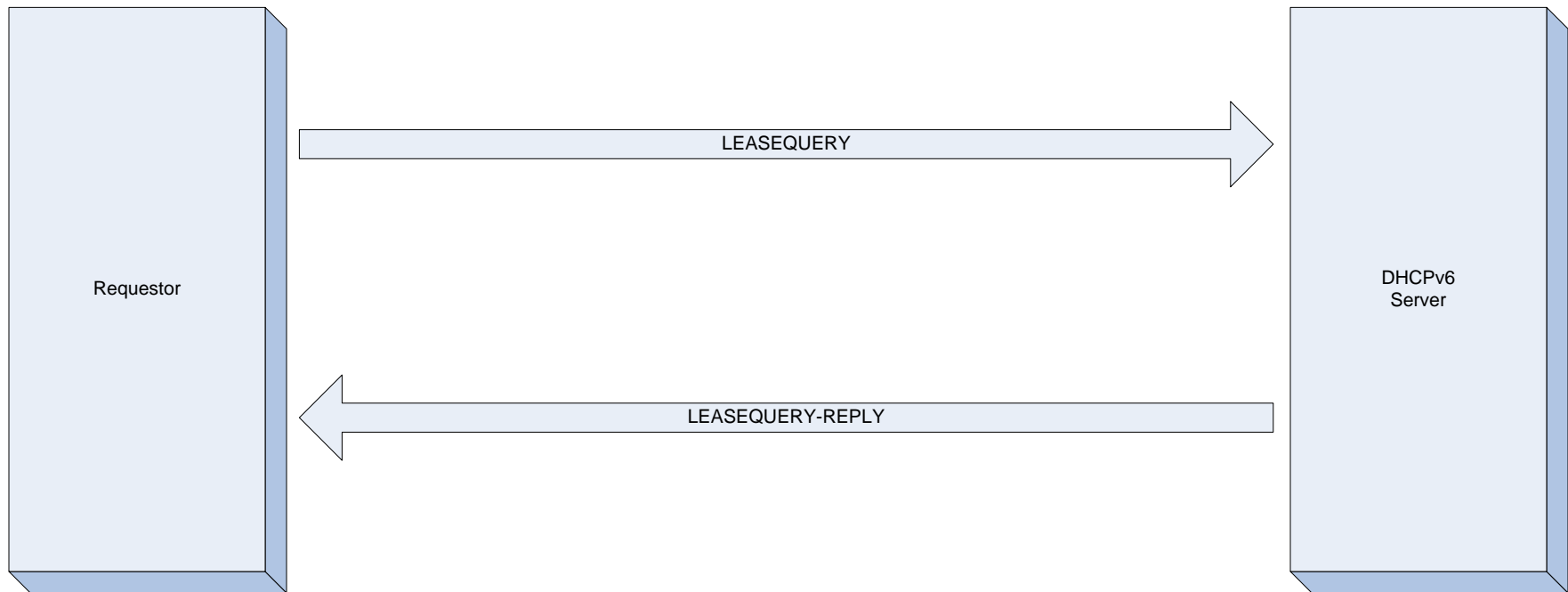
Requestor Behavior

- Requests transmitted using DHCPv6
- Requests can be unicast, relayed, or multicast to DHCPv6 server
- Requestor is able to specify supported reply message size
- Explicitly defined queries (OPTION_LQ_QUERY)
 - Contains link-address and one or more options
 - ORO to specify data desired in server response
- Data returned from each query type may vary
 - Single reply
 - Bulk replies
- Handling of DHCPv6 client data received from multiple sources (DHCPv6 servers)
 - Requestor must be able to support the merging of multiple Client Data Options for the same client in multiple LEASEQUERY-REPLY messages
 - Application of Client Last Transaction Time Option

Server Behavior

- Matching criteria per query type
- Definition of default response data
- Processing of non-bulk lease queries
- Processing of bulk lease queries
 - Cookie Options
 - Multiple Client Data Options
- Best effort when constructing Client Data Options in LEASEQUERY-REPLY messages
 - Application of ORO transmitted by requestor

Requestor/Server Interaction



Open Items/Next Steps

- DHCPv6 Leasequery I-D submitted to DHC WG
 - Accept as WG item?
 - Discussion on the DHC WG mailing list

Example

- Requestor request:
 - Query for link-address 2000::0
 - Maximum-message-size 8192 bytes
- Server response:
 - Server Identifier option
 - LQ Client data option (for client #1)
 - Client Identifier
 - IAADDR #1
 - IAADDR #2
 - IAPREFIX #1
 - Other client related options
 - Relay agent information option
 - » header - link address/peer-address
 - » Options (May encapsulate other relay agent information options)
 - LQ Client data option (for client #2)
 - Client Identifier
 - IAPREFIX #2
 - Other client related options
 - relay agent ...
 - ...
 - Cookie Option w/cookie data

Example (continued)

- LQ Client requests next part of data, includes:
 - Same query as original request (above)
 - Server Identifier option (so only that server will respond)
 - Cookie from above LQ server response
- LQ Server returns (second batch of data)
 - Server Identifier option
 - LQ Client data option (for client #10)
 - ...
 - LQ Client data option (for client #11)
 - ...

Conclusion

- Questions, comments, suggestions
- Participated in discussions/design to date:
 - John Jason Brzozowski
 - Ralph Droms
 - Richard Johnson
 - Kim Kinnear
 - Josh Littlefield
 - Hemant Singh
 - Pak Siripunkaw
 - Bernie Volz
 - Shengyou Zeng