
DHCPv6 Leasequery

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Overview

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

Drivers

- Specified by DOCSIS 3.0
- Specification required to facilitate the retrieval of IP lease information from DHCPv6 servers
 - For routing table reconstruction associated with DHCP PD
 - For access control or dynamic filter creation
 - For external access to IP lease data

Client

- Requests transmitted using DHCPv6
- Requests can be unicast, relayed, or multicast to DHCPv6 server
- Client specifies message size supported in request
- Query types are as follows:
 - By IP address
 - By delegated prefix
 - By DUID
 - By link-address
- No multi-criteria requests
- Use ORO to specify data desired in server response
- Data returned from each query type may vary
 - Individual replies
 - Bulk replies

Server

- Definition of default response data
- Managing responses to Leasequery requests
 - Using “cookies” to allow for the segmenting of replies with larger amounts of lease data
- Organization of lease data in query responses

Example

- Client 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 #1
 - 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)
 - ...

Open Items/Next Steps

- Define lease data and options to be returned
 - IA_NA, IA_PD, IA_TA or just IAADDR/IAPREFIX
- Concerns
 - Bulk messages over DHCPv6
- Leasequery message identification
 - Unique ID for each type vs use options to specify type
- Implications of Rapid Commit
 - Introduction of multiple, overlapping replies
- Use reply message or define new LQ Reply message
- Status codes
 - Message too small
 - No data available
- Securing Leasequery exchanges
- I-D is being prepared
- Accept as WG work item or wait until after I-D published before making that decision?

Conclusion

- Thank you
- 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
- Discussion taken to the DHC WG mailing list