DHCPv6 LeaseQuery

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Changes Since Montreal

• Removed all query types except “by-address”
  – Query can return at most a single client that either has that address OR has been delegated the prefix which contains the address
  – No more bulking
• Removed bulking related options as no longer needed
• Meets basic Relay Agent requirements to rebuild client/address mappings on “reboot”
  – Requires other techniques to deal with rebuilding prefix delegation routing tables without need for traffic (Markus Stenberg to discuss)
Two Messages

• LEASEQUERY – to request information from a server
• LEASEQUERY-REPLY – response from server
• Both use “client” message format:
  – First Octet: message-type
  – Next 3 Octets: transaction-id
  – Remaining Octets: Options
Messages

• Servers only process requests if Server Identifier matches or none specified (like client messages)
• Relays may unicast or multicast requests to server, either directly or via other relays
• Server returns as client message, though destination need not be link-local
OPTION_LQ_QUERY

query-type = QUERY_BY_ADDRESS (1)
OPTION_CLIENT_DATA

• Encapsulates information about the client that has the requested address
  – Options always returned are Client Identifier, IAADDR (one for each address),
    IAPREFIX (one for each prefix), and Client Last Transaction Time
  – Additional options can be requested in ORO in the OPTION_LQ_QUERY
  – Note IA_NA, IA_TA, and IA_PD are not returned? Should they be? Don’t believe
    they are needed as RAAN doesn’t include them
• No OPTION_CLIENT_DATA option in reply means address is not allocated
OPTION_CLT_TIME

- Number of seconds since server last communicated with client (relative to time LEASEQUERY_REPLY sent)
- Allows relay to choose which server has more recent information (though all servers could have active data)
Other Parameters

• **New Status Codes**
  – UnknownQueryType (TBD) - The query-type is unknown to or not supported by the server
  – MalformedQuery (TBD) - The query is not valid, for example a required query-option is missing from the OPTION_LQ_QUERY
  – NotConfigured (TBD) - The server does not have the target address or link in its configuration
  – NotAllowed (TBD) - The server does not allow the requestor to issue this LEASEQUERY

• **Transmission and Retransmission Parameters**
  – LQ_TIMEOUT (1 sec) – Initial LEASEQUERY timeout
  – LQ_MAX_RT (10 secs) – Max LEASEQUERY timeout value
  – LQ_MAX_RC (5) – Max LEASEQUERY retry attempts
Sample LeaseQuery

1. Set the "msg-type" field to LEASEQUERY and generate a transaction ID
2. Add an OPTION_CLIENTID (in this case the Relay Agent’s)
3. Add an OPTION_LQ_QUERY:
   • zero the link-address
   • add the OPTION_IAADDR containing the target address (lifetimes are set to 0)
   • add optional OPTION_ORO for client options desired
Sample LeaseQuery Reply

- Set msg-type to LEASEQUERY-REPLY and copy the transaction ID from the LEASEQUERY.
- Add the server’s OPTION_SERVERID.
- Copy the client’s OPTION_CLIENTID from the LEASEQUERY.
- Add the OPTION_CLIENT_DATA containing:
  - OPTION_CLIENTID – client that leased the queried address
  - OPTION_IAADDR and OPTION_IAPREFIX as needed for the client’s leases on the link for the queried address
  - Add optionally requested client options if available.
Next Steps

• Comments / Questions?
• Ready for WG Last Call?

• Interest in expanding LeaseQuery - as a separate I-D!
  – More query types, including bulk queries
  – Using DHCPv6 or other protocol