# CER ID Option

## draft-donley-dhc-cer-id-option-05

Chris Donley, Michael Kloberdans          CableLabs

John Brzozowski                                       Comcast

Chris Grundemann                                   ISOC

# Purpose of this draft

- Several home network addressing mechanisms require identification of Customer Edge Router (CER)

- One such mechanism is Service Provider edge Router Interaction

  - http://tools.ietf.org/html/draft-winters-homenet-sper-interaction-01

- Others include RFC-7084 compliant routers
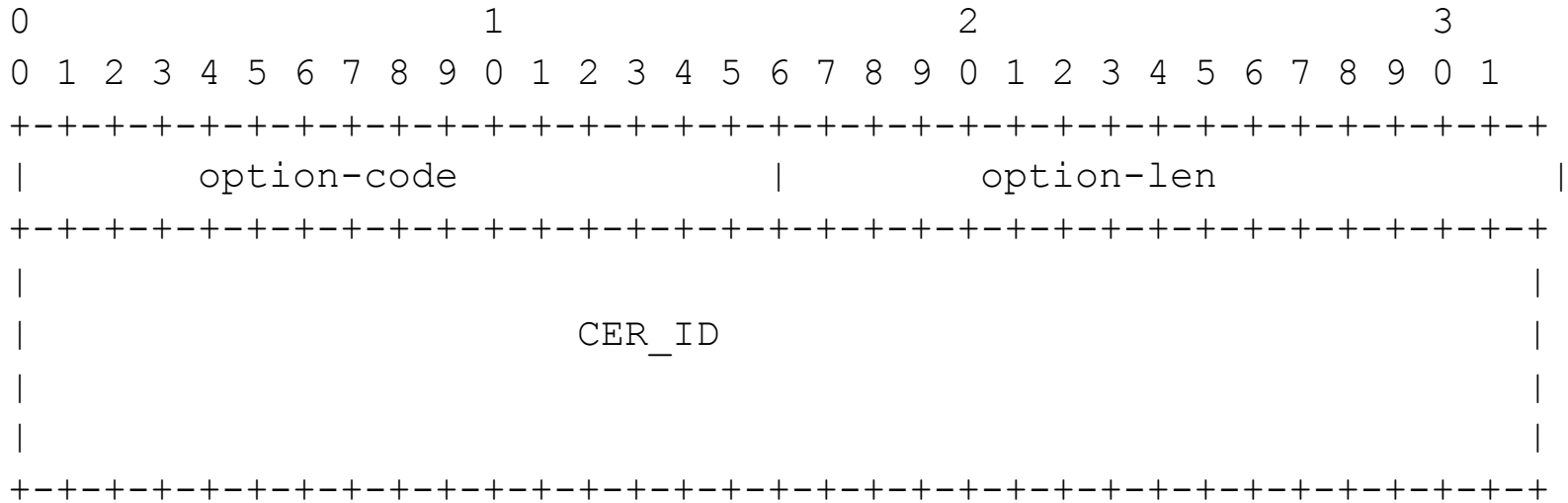
- Provide a complement protocol

# Example: 7084 Router

- CER determines that it is the CER, or CER is manually assigned

- IRs determine that they are IRs

- IRs respond to IA_NA requests directly but relay all IA_PD requests "up" towards root of tree

- CER responds to all IA_PD requests

# CER ID via DHCPv6 Option

- CER could be identified via a DHCPv6 option
- Indications that a router isn't the CER
  - By setting the CER ID option to ::
- CER populates the CER ID option with its LAN IPv6 address
- Internal Routers (IRs) learn the CER ID option and pass it to other IRs

# CER ID Option

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|         option-code           |          option-len           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|                           CER_ID                              |
|                                                               |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

   option-code     OPTION_CER_ID (TBD).
   option-len          16
   CER_ID value       128  (IPv6 address of CER)

# Applicability

- Developed along with [http://tools.ietf.org/html/draft-winters-homenet-sper-interaction-01](http://tools.ietf.org/html/draft-winters-homenet-sper-interaction-01)

- Also could be used for other addressing mechanisms that require CER identification

- Could be extended to include other information (e.g. size of prefix delegated by the ISP) for distribution in the home

- RFC-7084 compliant Router are existing clients for this CER option.

# CER Change History

- CER proposal 01 – initial proposal to IETF

- CER proposal 02 – added security features for authentication

- CER proposal 03 – fixed text inconsistencies

- CER proposal 04 – removed security features

- CER proposal 05 – clarifications and to extend draft life (couldn't present at IETF 91)

# Summary

- CER-ID is a complement protocol to other protocols
  - Additional tool in the tool box
- This protocol doesn't interfere with any known existing protocols
  - No harm, no foul
- Easy manual administration – if desired
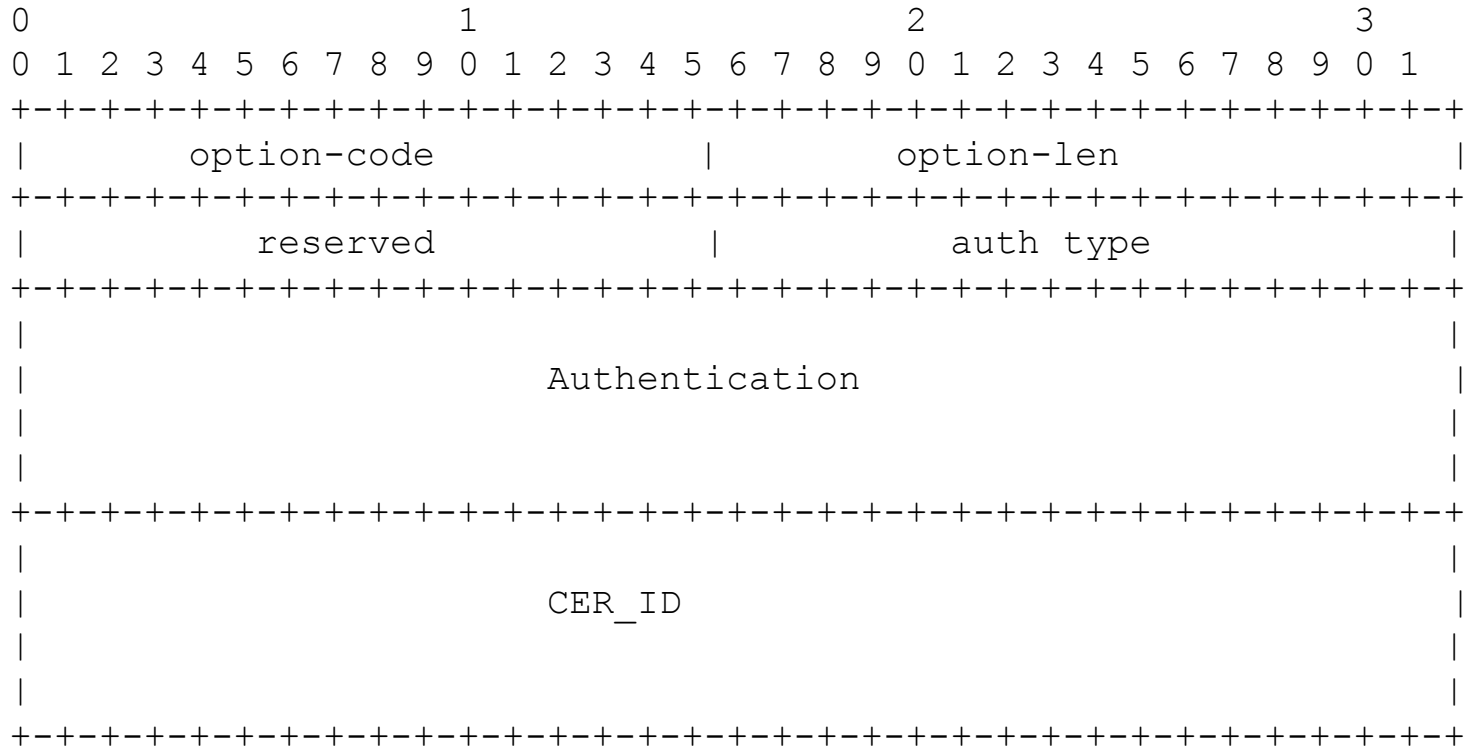- Security features available

# Next Steps

Looking for WG feedback

- Should this option be extended?

- Should this draft become a WG document?

# Backup Slides if needed for security discussion

# CER ID Option

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|           option-code            |           option-len          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|            reserved              |           auth type           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                                 |
|                    Authentication                               |
|                                                                 |
|                                                                 |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                                 |
|                       CER_ID                                    |
|                                                                 |
|                                                                 |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

option-code      OPTION_CER_ID (TBD).
option-len        16
reserved          16
auth type         16
Authentication    128
CER_ID value      128  (IPv6 address of CER)

# CER Change History

- CER proposal 01 – initial proposal to IETF

- CER proposal 02 – added security features for authentication
  - type 0      null authentication
  - type 1      simple authentication
  - type 2      cryptographic authentication