Extention of DHCP Relay Agent Information Option

2009-03

Content

> ➤ **Background**

> ➤ Purpose

> ➤ Mechanism

Backgroud

➢ As defined in RFC 3046, Relay Agent Information option is inserted by the DHCP relay agent (or downstream network element) when forwarding client-originated DHCP packets to a DHCP server. Servers recognizing the Relay Agent Information option may use the information to implement IP address or other parameter assignment policies.

➢ Relay Agent Information option can only be added by one DHCP relay agent from client to server.

Content

➢ Backgroud

➢ Purpose

➢ Mechanism

Purpose

➢ This draft extended DHCP relay agent information option to Make the option contain more path information from client to server. And then IP address assignment policies of different granularities can be made by DHCP server.

Content

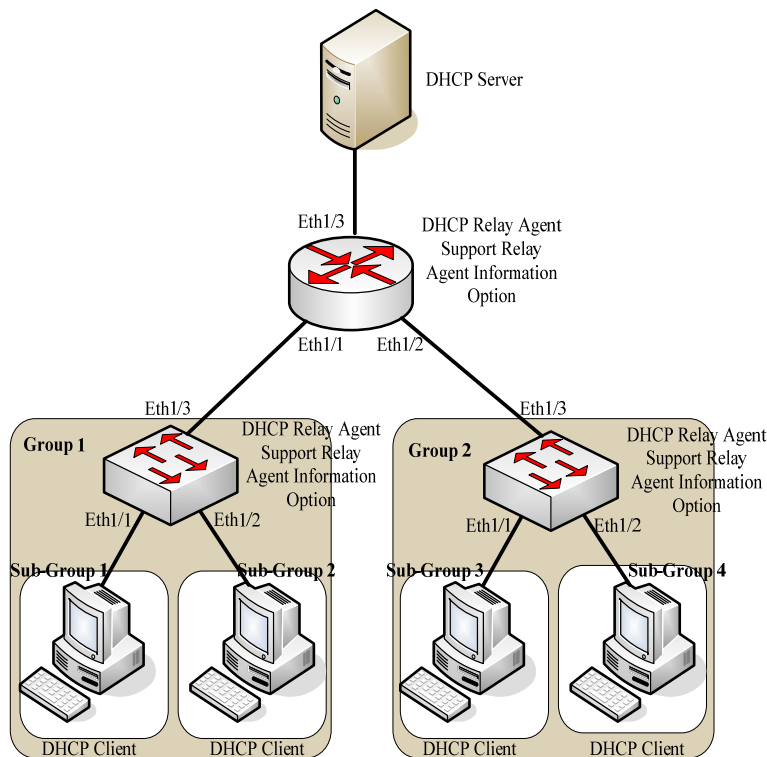- ➤ Background

- ➤ Purpose

- ➤ Mechanism

Mechanism

- DHCP Server
- Eth1/3
- DHCP Relay Agent Support Relay Agent Information Option
- Eth1/1 Eth1/2
- Eth1/3
- Group 1
- DHCP Relay Agent Support Relay Agent Information Option
- Eth1/1 Eth1/2
- Sub-Group 1 Sub-Group 2
- DHCP Client DHCP Client
- Eth1/3
- Group 2
- DHCP Relay Agent Support Relay Agent Information Option
- Eth1/1 Eth1/2
- Sub-Group 3 Sub-Group 4
- DHCP Client DHCP Client

➢ There is still unique Relay Agent Information option in a DHCP message, but this option can be modified by multiple relay agents between DHCP client and DHCP server.

➢ Reuse the sub-options forms that are defined in RFC 3046, such as sub-option1(circuit) and sub-option2(remote).

➢ Define a new sub-option whose type field is y and len field is 0, which are used to identify the end of option modification of one relay agent.

Mechanism

➢ When receiving a dhcp message originated by client, relay agent check whether Relay Agent Information is already exist.

  ➢ If there is no Relay Agent Information option in the message, then add a new one and plus a sub-option(type y, len 0) to indicate the end of modification.

  ➢ If there is one, then add the new information after existed option and plus a sub-option(type y, len 0) to indicate the end of modification.

Mechanism

➢ Format

```
+------+-----+----+

|Code(x)|Len(N)|Value|

+------+-----+----+

Value:

+---+----+-------+---+----+--------+---+---+
| 1 | N1 | a1~aN1 | 2 | N2 | b1~bN2 | y | 0 |
+---+----+-------+---+----+--------+---+---+
| 1 | N3 | c1~cN3 | 2 | N4 | d1~dN4 | y | 0 |
+---+----+-------+---+----+--------+---+---+
/                    ...                    \
\                    ...                    /
+---+----+-------+---+----+--------+---+---+
| 1 | N51| y1~yN3 | 2 | N52| z1~zN52| y | 0 |
+---+----+-------+---+----+--------+---+---+
```

Mechanism

- DHCP server can allocate different IP address according to the multiple groups of relay agent information

```
+------+------+-----+
|Code(x)|Len(N)|Value|
+------+------+-----+
Value:

+---+----+-------+---+----+-------+---+---+
| 1 | N1 | a1~aN1 | 2 | N2 | b1~bN2 | y | 0 |        ====> Relay_Agent_1 info
+---+----+-------+---+----+-------+---+---+
| 1 | N3 | c1~cN3 | 2 | N4 | d1~dN4 | y | 0 |        ====> Relay_Agent_2 info
+---+----+-------+---+----+-------+---+---+
/                   ...                   \
\                   ...                   /
+---+----+-------+---+----+-------+---+---+
| 1 | N51| y1~yN3 | 2 | N52| z1~zN52| y | 0 |
+---+----+-------+---+----+-------+---+---+
```

Thanks