DHCP Relay agent Request from Multi Address Pool

(draft-zi-dhc-agent-request-multi-pool-00.txt)

IETF 64

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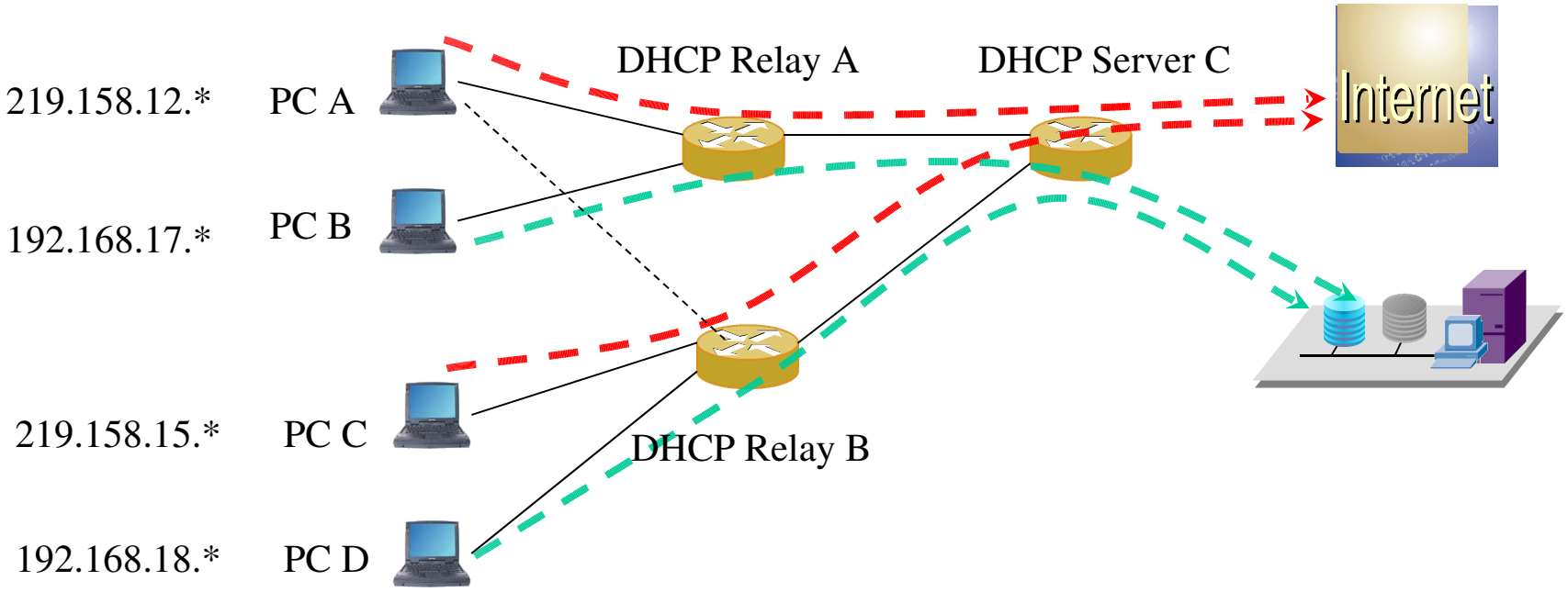
Motivation

- In some applications there is a need for DHCP Server which can allocate a suitable IP address from multi-address pools.
- This draft describes two alternatives for this application.

Use Case


219.158.12.*
PC A
192.168.17.*
PC B
219.158.15.*
PC C
192.168.18.*
PC D
DHCP Relay A
DHCP Server C
Internet
DHCP Relay B

Use Case

Example:

- PC A and PC B connect to the DHCP Relay A.
- PC C and PC D connect to the DHCP Relay B.
- These DHCP Relay all connect to the DHCP Server C.
- PC A can access Internet, IP address may be 219.158.12.*.
- PC B can only access campus network, IP address may be 192.168.17.*.
- PC C can access Internet, IP address may be 219.158.15.*.
- PC D can only access campus network, IP address may be 192.168.18.*.
- PC A can also connect to the DHCP Relay B, and may use IP address 219.158.15.* like PC C.
- DHCP Server C know the MAC address and type of these PCs, but DHCP Server can not make sure PC A connected to the Relay A.

Requirements

- The DHCP server needs to know the gateways of clients and which one that the DHCP Relay can supports. Then the DHCP server can select a suitable address pool and allocates IP address for its client.

Solution

Two alternatives:

- Change the subnet selection option
- New multi-gateway-selection sub-option of the relay-agent-information

Alternative 1

- Subnet selection option defined in RFC 3011

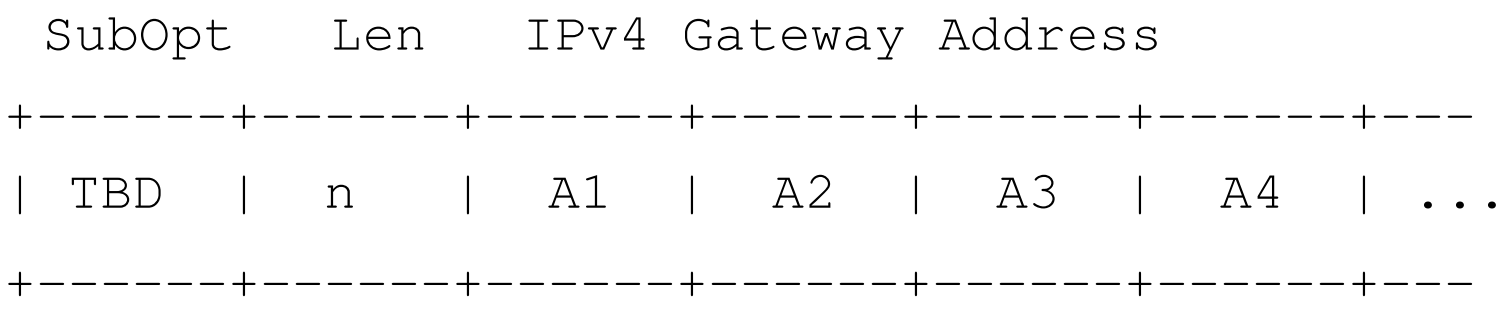
```
+-----+-----+-----+-----+-----+-----+
| 118 |  4  | A1  | A2  | A3  | A4  |
+-----+-----+-----+-----+-----+-----+
```

- We only need to change the length to n*4:

```
+-----+-----+-----+-----+-----+-----+-----
| 118 | n*4 | A1  | A2  | A3  | A4  | ...
+-----+-----+-----+-----+-----+-----+-----
```

Alternative 2

- Multi-gateway-selection sub-option of the relay-agent-information



comment

- First, it changes the meaning of the subnet selection option. This is easy to deal with - just use a different option code.
- Second, though, and more serious, it doesn't explain what it's trying to do. What is the server supposed to do? It sounds like you want the server to allocate two or more IP addresses, but you don't explain how the server will return these IP addresses to the client. If you want to allocate more than one IP address, the only way that I think you can really do it is to either use a different protocol (that is, not DHCP), or do more than one DHCP packet exchange, using a different client identifier for each desired IP address. Ted Lemon

comment

- I got the impression that the draft is trying to address the issue where the Relay agent is unable to determine which of a multitude of subnets a client is originating from. Ted Lemon

- Yes, this draft is trying to address the issue where the Relay agent is unable to determine which of a multitude of subnets a client is originating from. But the Relay agent knows the subnets.

Z. Kang

comment

- While this is not explicitly allowed in RFC2131/2132, a conforming DHCP server will treat a client that identifies itself with two separate IP addresses as two separate clients, and as a result a DHCP client that wants more than one IP address can, in practice, use two DHCP client identifiers and thereby get two IP addresses. Ted Lemon

- Note that this is specifically used in the CableHome specifications. The
  CableHome device has multiple "personalities" each distinguished by a
  different ClientID. Andre Kostur

comment

- If what you want isn't for the client to get two IP addresses, then you need to explain what you do want. Ted Lemon

- However, having said that, DHCP Servers today can deal with this issue by some mechanism of grouping together various subnets at the DHCP server, offhand this draft seems to be a solution in search of a problem. Andre Kostur

- Only the DHCP Server can allocate from which subnet for the client, but the DHCP Server also need to know which subnets the Relay agent can support. So, the DHCP Server can select one subnet from the subnets which the Relay agent tell it. Z. Kang