

IPV6 Network Boot for IETF73 DHC

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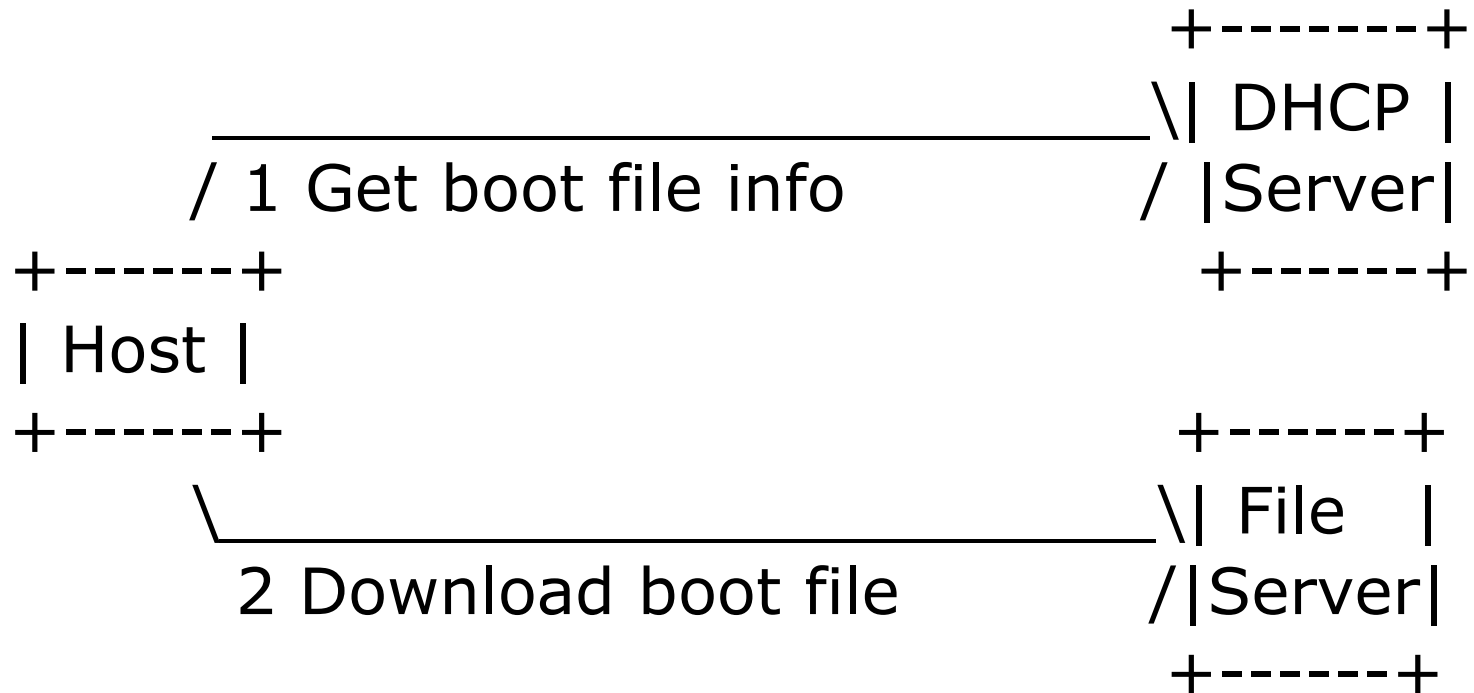
Agenda

- Background
- Problem statement
- Option Tags
- Opens

Background

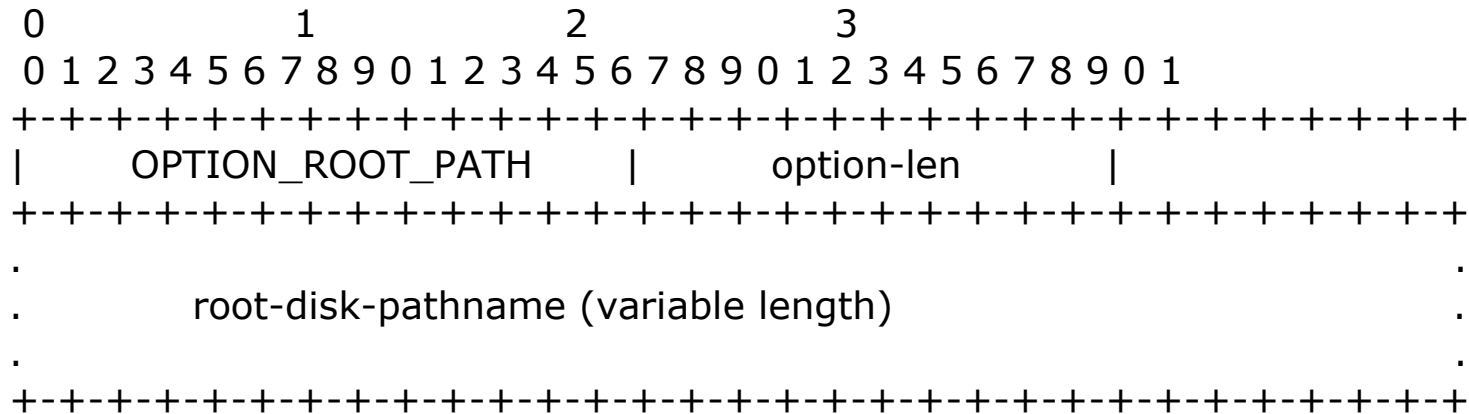
- Follow-on to IETF 72 problem statement
 - <http://www.ietf.org/proceedings/08jul/slides/dhc-12.pdf>
- UEFI Forum (uefi.org) defining requirements and APIs between OS loader and platform BIOS
 - UEFI = “Unified Extensible Firmware Interface”
 - Contributions from Apple, Dell, HP, IBM, Intel, Microsoft
 - Goals:
 - Make iSCSI and PXE network boot support IPv6
 - Maintain feature parity with IPv4
 - Leave protocol work to the IETF (hence this request)
- Latest Draft
 - <http://www.ietf.org/internet-drafts/draft-zimmer-dhc-dhcpv6-remote-boot-options-01.txt>

Problem statement



Network Boot Sequence

Root Path Option (TBD1)



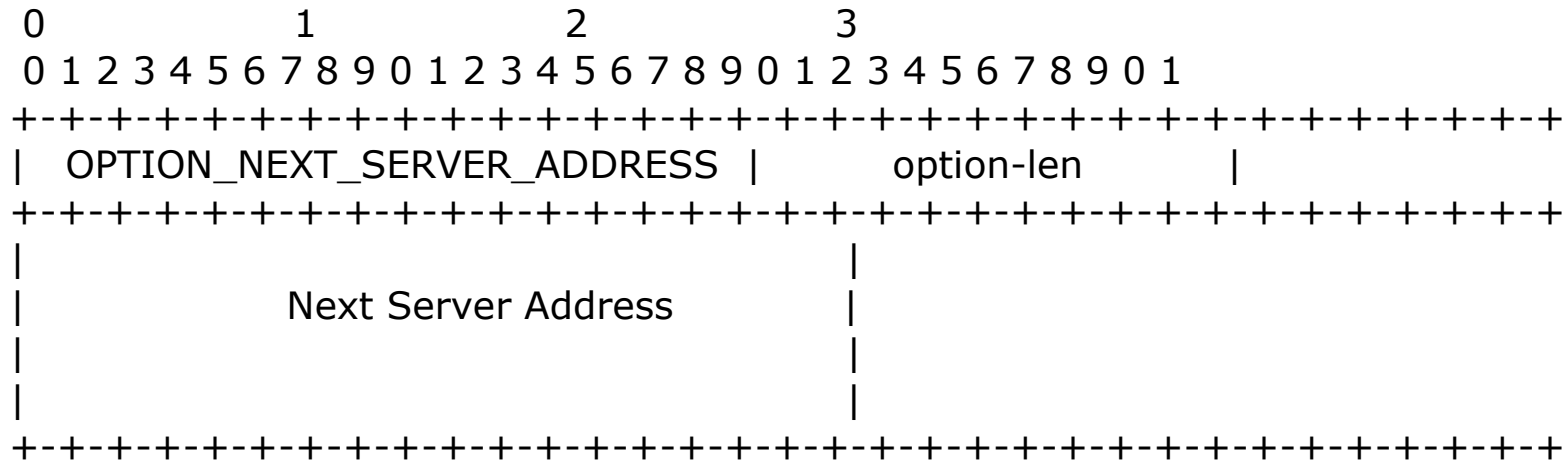
option-code OPTION_ROOT_PATH (TBD1).

option-len Length of Root Path Name in octets.

root-disk-pathname

This NULL-terminated ASCII string is the URL (conforming to [RFC2396]) to a boot file. This string starts with the protocol which is used for downloading. Separated by '://', the hostname or IPv6 address of the server hosting the boot file (see also the note below), the path, file name and query parts of the URL follow. For iSCSI, the format of the URL is specified in [RFC4173] section 5.

Next Server Address Option (TBD3)

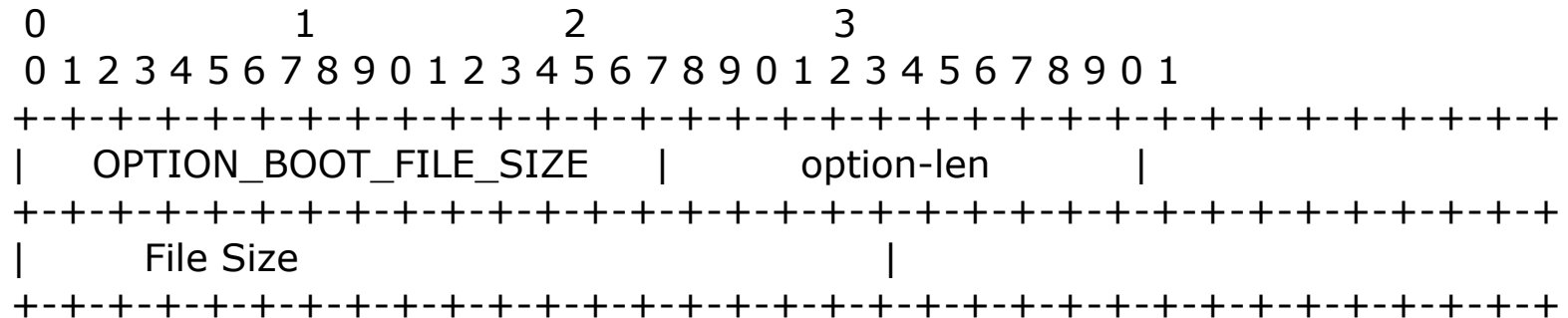


option-code	OPTION_NEXT_SERVER_ADDRESS (TBD3).
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```
option-len      16
```

Next Server Address The IPv6 address or IPv4-mapped address of the next server

Boot File Size Option (TBD4)

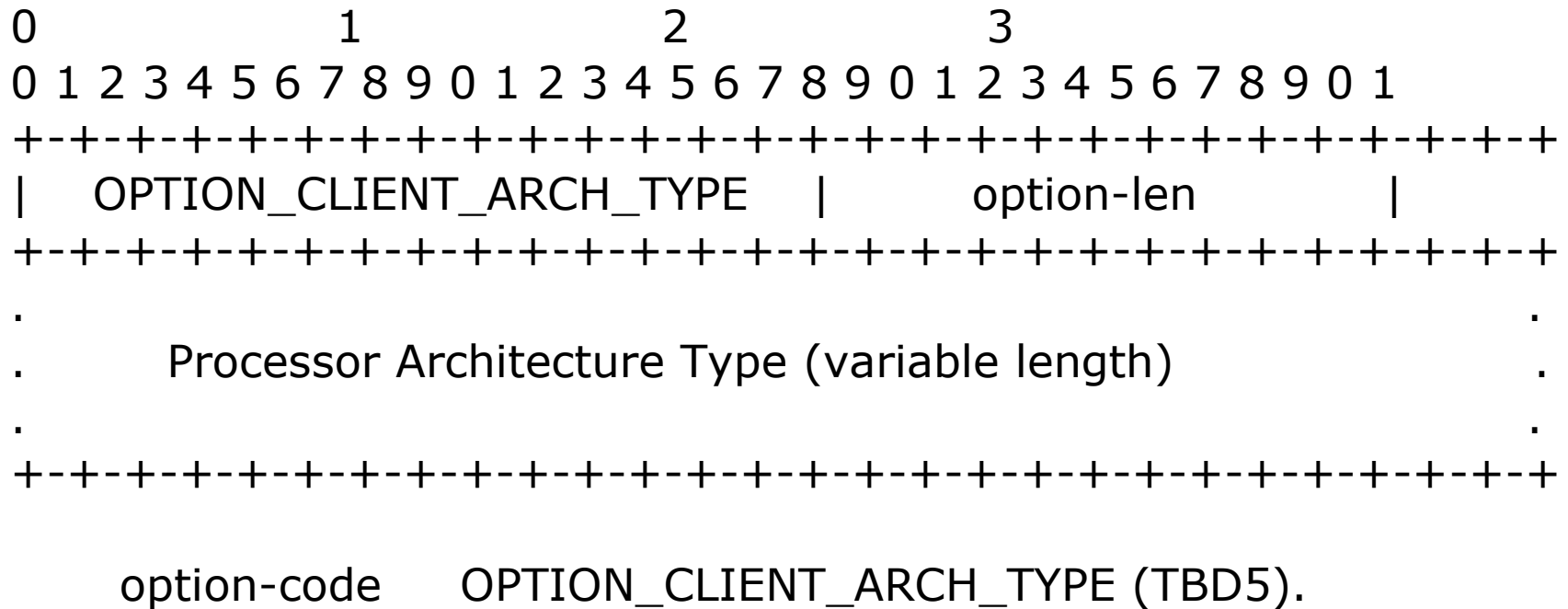


option-code `OPTION_BOOT_FILE_SIZE` (TBD4).

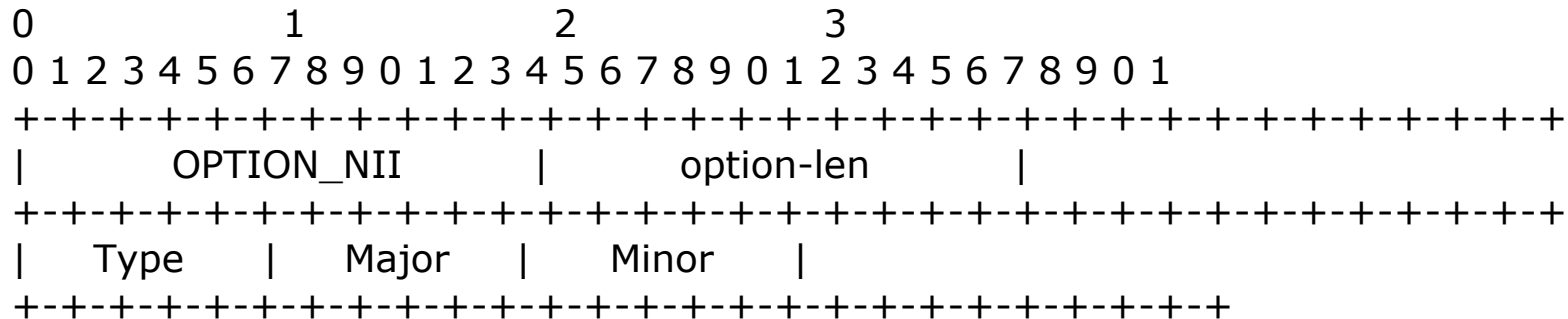
option-len 4

File Size The length in 512-octet blocks of the boot image for the client.

Client Architecture Type Option (TBD5)



Client Network Interface Identifier Option (TBD6)



option-code OPTION_NII (TBD6).

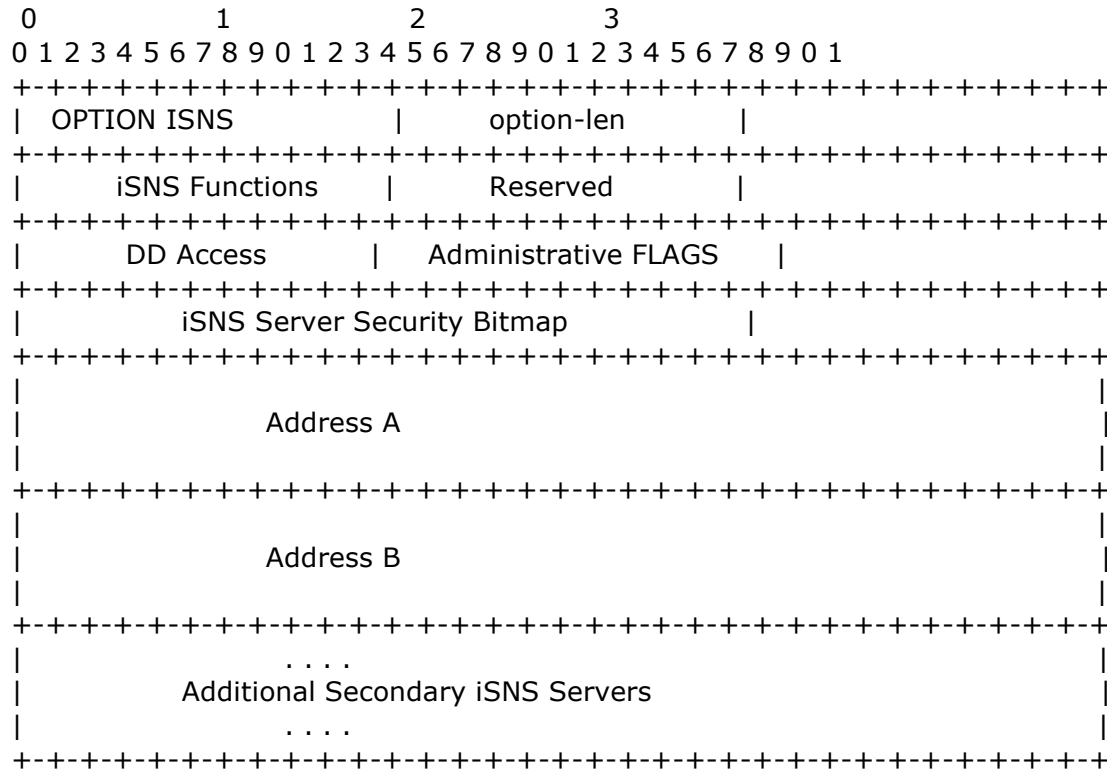
```
option-len    3
```

Type	As specified in [RFC4578] section 2.2.
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Major	As specified in [RFC4578] section 2.2.
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Minor	As specified in [RFC4578] section 2.2.
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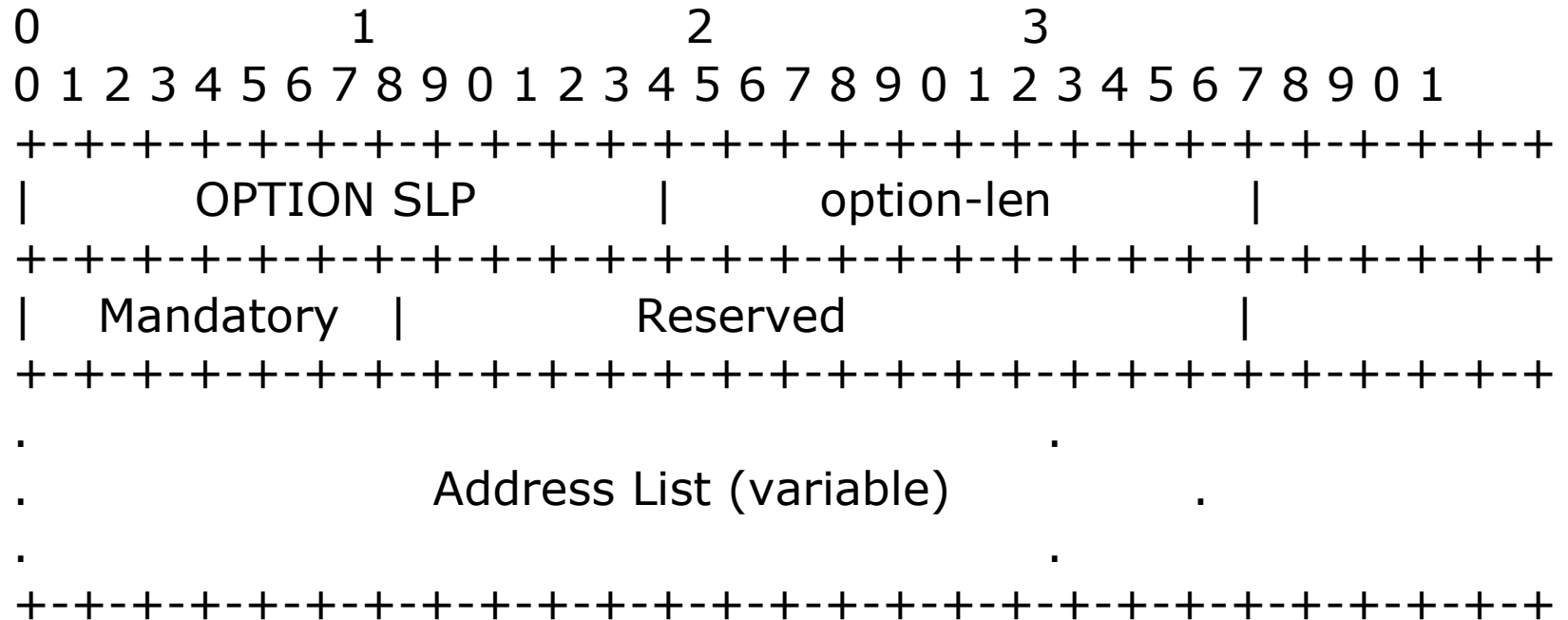
iSNS Option (TBD2)



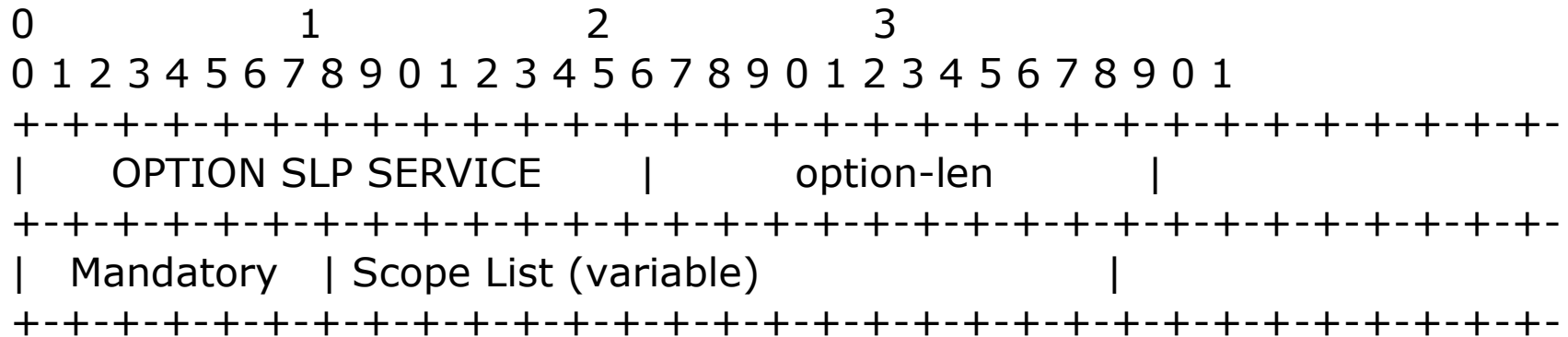
iSNS Option (Cont)

option-code	OPTION_ISNS (TBD7)
option-len	2
iSNS Functions	As specified in [RFC4174] section 2.
Reserved	MUST be set to zero
DD Access	As specified in [RFC4174] section 2.
Administrative FLAGS	As specified in [RFC4174] section 2.
iSNS Server Security Bitmap	As specified in [RFC4174] section 2.
Address A	As specified in [RFC4174] section 2, except that it contains an IPv6 address.
Address B	As specified in [RFC4174] section 2, except that it contains an IPv6 address.
Additional Secondary iSNS Servers	As specified in [RFC4174] section 2, except that it contains IPv6 addresses.

iSCSI SLP Directory Agent Option (TBD7)



SLP Service Scope Option (TBD8)



option-code OPTION_SLP_SERVICE (TBD8)

```
option-len    2
```

Scope List As specified in [RFC2610] section 4

Opens

- Put the list of RFC4578 option 93 machine types into appendix and make IANA-maintained
 - Presently passed in this proposal in “Client Architecture Type Option (TBD5)”
 - Presently discordant assignment across PXE2.1, UEFI2.2, 4578 – deprecate former 2 in lieu of latter?
- Can we pass IPV6 address as “Next Server Address Option (TBD2)”?
 - Problem: in theory, the DHCP response could be through relay DHCP, and in that case, the IPv6 address in the IPHeader might be different from the DHCP server who provide the response

Opens (cont.)

- This work relative to draft-ietf-dhc-dhcpv6-opt-netboot
- Background:
 - draft-ietf-dhc-dhcpv6-opt-netboot appears to add functionality that is not present in DHCPv4 options, but doesn't include all the options needed for PXE and iSCSI.
 - draft-zimmer-dhc-dhcpv6-remote-boot-options-*.txt (with corrections in -01) includes all options needed for PXE and iSCSI but doesn't add any functionality that is not present in DHCPv4 options.
- Suggestion:
 - The WG needs to decide whether it wants to take on the additional functionality beyond what is possible in DHCPv4 today, and if so, define sufficient options for both DHCPv4 and DHCPv6.
 - Either in the same draft or in a separate draft, have DHCPv6 equivalents for DHCPv4 functionality today.
 - draft-zimmer-dhc-dhcpv6-remote-boot-options-*.txt currently follows the second approach, assuming that it would be better to do so in separate drafts, but would like WG to decide which approach folks prefer