

Problem:

The Scheduled Transfer Protocol (STP) does not encode an unambiguous address mapping that can be used by an implementation using IPv4/IPv6 (AF_INET) addressing. This causes a problem during connection setup. The ambiguity is due to the fact that STP connections only encode the destination and source Universal LAN MAC address (ULA) which can have a one to many mapping with IP addresses.

Example:

INTERFACE A	INTERFACE B
ULA 00:00:00:00:00:01	ULA 00:00:00:00:00:02
IPA0 – Primary IP	IPB0 – Primary IP
IPA1 – IP Alias 1	IPB1 – IP Alias 1
IPA2 – IP Alias 2	IPB2 – IP Alias 2

When connecting from IPA2 to IPB1 we encode the source interface A ULA (S_ULA) and destination interface B ULA (D_ULA) in the MAC header with the Request_Connection message. When the Request_Connection appears at the destination the STP does not know where to bind. Should it bind to IPB0, IPB1 or IPB2?

This ambiguity causes problems in fail-over environments or an environment in which IP aliases may be moving between interfaces or machines. It would be desirable to reject STP connections if an alias is no longer associated with an interface.

Proposal:

Define two optional payload opcodes; One for IPv4 addressing and one for IPv6 addressing. The opcodes contain a destination/source IP pair. The opcodes are defined as follows.

For IPv4:

Style	Option-code	Length	Meaning
2	b'00000111'	8	Encodes the destination then the source IPv4 addresses

For IPv6:

Style	Option-code	Length	Meaning
2	b'00001000'	16	Encodes the destination IPv6 address

The IPv6 format does not contain the source because an option payload length can only be at most 32 bytes. If both the source and destination were included the option payload would be 34 bytes.

Example : opcode when connection from source IPv4 10.10.10.1 to destination IPv4 10.10.10.2

Byte 0	Byte 1	Bytes 2-5	Bytes 6-9
b'00000110'	10	0x0a0a0a01	0x0a0a0a02

Disposition:

At the October, 2000 HIPPI Working Group Meeting in Nashua, NH, the committee agreed that option codes b'00000111' and b'00001000' should be assigned for this function. Due to the effort required to make changes in a standard, it was also agreed that this information would be documented on the web site (www.hippi.org) until there were additional required changes.

Implementators are encouraged to use these options as needed. The T11.1 working group will treat these option assignments as part of the Scheduled Transfer baseline and will only make changes to these option codes using their normal collaborative consensus-seeking process for changing any existing standard.