Network Working Group
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COMMENTS ON IMP/HOST PROTOCOL CHANGES, (RFCS 687 AND 690)

Basically, the proposed set of changes in RFC 687 seems reasonable, as are the comments in RFC 690.

The major problem, as pointed out by Postel, is the change in the combined length of the IMP and Host leaders to a total of 120 bits, which is not a multiple of both 8 and 36 bits.

The suggested solution is to increase the length of the host to host protocol leader by 24 bits, creating a total length of 144 bits. The problem, however, is that the only way of compatibly changing this length would be to have the IMP either insert or delete the extra 24 bits when converting to/from the old format leader. The problems with this solution are obvious.

The better solution is to change the length of the new proposed IMP leader. I suggest 104 bits instead of 80 bits. The complaint that 104 is not a multiple of an IMP word is valid, but it should not be that difficult if the following rules are observed.

1. The last 8 bits are never used to convey information.

2. The network is not required to pass them from source to destination, or to return them to the source.

3. When sending messages of types other than zero, (irregular messages), the IMP is allowed to send either 96, 104 or 112 bits of data, the choice being at the IMP's convenience.

4. Also, if desired, either 96 or 112 could be used as the new leader length for irregular messages.

It must be faster (and cheaper) to just change the IMP program to handle a 104 bit leader, than to force additional changes in all hosts using the standard protocol.

Another suggested extension to the protocol would add a new type of IMP to Host message. This message has a table of Host names (people type character strings) and Host network addresses. Send this message(s) to the Host after each interface reset, or alternatively, it could be a response to a new Host to IMP request for this information.

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