The Host Simp Protocol Module

A rough design specification

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HOSTSIMP, the host SIMP protocol module, is basically a
multiplexer, allowing fake hosts and a gateway to all talk to the
same SIMP. In addition it can, if desired, do some functions that
otherwise would have to be duplicated by all processes using it,
such as recognizing a restart condition or resending packets
which were refused.

A fake host will communicate with HOSTSIMP by first
executing an EMT which HOSTSIMP will define, passing parameters
identifying the fake host, and possibly some flags telling HOSTSIMP
how to treat that host, and HOSTSIMP will return IPP numbers over
which the host can send and receive data to and from HOSTSIMP. A
read on the IPP from HOSTSIMP to the fake host will complete when
the SIMP sends data addressed to that host, either a packet or
information about one of the host's previous packets. A packet
written on the IPP port from the fake host to HOSTSIMP will be sent
on to the SIMP, after HOSTSIMP assigns the next sequential host
reference number in place of the 7 bit reference number assigned
by the host. When HOSTSIMP receives an accepted message, HOSTSIMP
will translate the host reference number into the 7 bit number
originally assigned by the host. Other than that HOSTSIMP could
conceivably just send everything through to the host.
The Gateway/HOSIMP interface

HOSIMP receives and queues packets from the gateway and sends them on to the SIMP after substituting the next sequential host reference number for the number supplied by the gateway. Refused packets are placed back in the queue of packets to be sent, whereas accepted packets are discarded. HOSIMP does not send any control information back to the gateway. The gateway is not concerned with restarts, it does not use any of the options that return control information (like SENT messages), and HOSIMP drops any packet for which it receives any REFUSED message (other than resources busy).

Fake Host/HOSIMP interface--option 1

In this option HOSIMP behaves as it does with the gateway, but it passes all control messages (except for REFUSED--resources busy) back to the fake host.

Fake Host/HOSIMP interface--option 2

In this option HOSIMP does not requeue refused messages. HOSIMP, except for substituting a different host reference number, merely passes packets and control information through. The fake host maintains its own queue of packets. However, the packet it sends to HOSIMP does get queued, because it must compete with other traffic sources and the packets HOSIMP has queued for retransmission.

The fake host chooses which option it wants by passing a parameter in the original EMT it executes.
Queuing algorithm

The method of ordering queued packets has yet to be resolved. One method is giving gateway traffic the highest priority. Another is to send packets in the order they are received. Another would be to simulate as closely as possible the algorithm the SIMP uses for ordering packets.