TCP Testing Session

Saturday, 27 January 1979

10:00 - Discussion of Procedures

10:30 - Testing Begins

Scoring

Featherweight Division

2 points for talking to yourself (opening a connection)

2 points for saying sometning to yourself (sending and receiving data)

2 points for gracefully ending the conversation (closing the connection without crashing)

1 point for a repeating the above without reinitializing the TCP

5 points for a complete conversation via the testing gateway

Middleweight Division

5 points for talking to someone else (opening a connection)

5 points for saying something to someone else (sending and receiving data)

5 points for gracefully ending the conversation (closing tne connection witnout crashing)

2 points for a repeating tne above without reinitializing the TCP

10 points for a complete conversation via tne testing gateway

Heavyweight Division

10 points for being able to talk to more than one otner TCP at tne same time (multiple connections open and active simultaneously with different TCPs)

20 points for correctly being able to process a "Kamikaze" packet (AKA Nastygram, Christmas tree packet, lamp test segment, et al.) (That is correctly handle a segment with the maximum combination of features at once, e.g., a SYN URG EOL FIN segment with options and data)

20 points for KOing your opponent with legal blows (That is, operate a connection until one TCP or the other crasnes, the surviving TCP has KOed the other. Legal blows are segments that meet the requirements of the specification.)

10 points for KOing your opponent with dirty blows (Dirty blows are segments that do not meet the requirements of tne specification.)

Bonus Points

3 points for the best excuse

4 points for the fewest excuses

5 points for the longest conversation

6 points for correctly handling urgent data

7 points for correctly handling rubber baby buffer bumpers in both directions (End of Letter sequence number adjustments)

8 points for the most simultaneous connections

9 points for correctly handling sequence number wraparound

The following tests have been identified for checking the capabilities of a TCP implementation. These may be useful in attempting to KO an opponent.

1. Single connection. Open & close a single connection many times.

2. Multi connections. Open several connections simultaneously. Two connections to the same socket (i.e., a-b and a-c) check proper separation of data.

3. Half Open Connection. Open a connection, crash local TCP and attempt to open same connection again.

4. Piggy-back Loop. Open connections via Telnet.

```
user telnet--->TCP--->TCP--->server telnet
                                  !
                                  V
server telnet<---TCP<---TCP<---user telnet
    !
    V
user telnet--->...
```

5. Maximum connections. Open connections between a pair of TCP until refused or worse.

6. Refused connection. Open a connection to a non-accepting socket, does it get refused?

7. Zero Window. Try to send data to a TCP that is presenting a zero window.

8. Fire Hose. Make many connections to data source ports (e.g., TTYTST at TENEX)

9. Urgent Test. Try to send data to a user program tnat only receives data when in urgent mode.

10. Kamikazi Segment. Send and Receive NASTYGRAMS. A NASTYGRAM is a segment with SYN, EOL, URG, and FIN on and carrying one octet of data.

11. Sequence Wraparound. Test proper functioning when sequence numbers (a) pass 2**31 (i.e., go from plus to "minus") and (b) pass 2**32 (i.e., go from 2**32-1 to 0).

12. Buffer size. With buffer size not equal to one, send data in letters of various sizes, use urgent occasionally.

13. Send a NASTYGRAM into a half open connection when the sequence number is about to wrap around.