Test suite for Lua port of MR-UDP

Test requirements

1. periodic transmission of UID segment, for maintaining an open connection.

2. correct transmission of all segments of Simple R-UDP (ACK, EAK, SYN, etc.)

3. bufferization and delivery of packets in FIFO order

4. transmission and reception of packets at high rate (packet storm), to check if the socket can handle it

5. correct segmentation/reassembly of an application object when it is larger than the payload of DAT segment

6. repeated attempts of transmission of bufferized packets while connection is active.

7. notification of disconnection (callback in application listener)

8. notification of packets received (callback in application listener)

Test scripts

All tests feature a pair of scripts, each to be launched in a separate, properly set up terminal; first the server script, then the client script.

01_uid

Performs test 1.

Scripts:

- lac/mrudp/tests/spec/01_uid/uidserver.lua
- lac/mrudp/tests/spec/01_uid/uidclient.lua

Output:

Packet log redirected to standard output. Periodic transmission of UUID can be verified in output.

020306_loss

Performs tests 2, 3 and 6. Sends a file with a configurable packet loss rate (20% by default). This exercises Simple R-UDP packets, as well as retransmission and management of the buffer.

Scripts:

- lac/mrudp/tests/spec/020306_loss/lossserver.lua
- lac/mrudp/tests/spec/020306_loss/lossclient.lua

Output:

Packet log redirected to standard output at server. Simulated losses may be seen in the packet log. At the end of execution, the MD5 checksum of the transmitted data is verified both at the server and client. Matching checksums indicate that the file was successfully transmitted.

04_packetstorm

Performs test 4. Client launches 50 coroutines, all of them connecting to the same server and sending different payloads. Server handles all connections.

Scripts:

- lac/mrudp/tests/spec/04_packetstorm/psserver.lua
- lac/mrudp/tests/spec/04_packetstorm/psclient.lua

Output:

Packet log redirected to standard output at server. At the end of execution, the MD5 checksum of the transmitted data is verified both at the server and client. Matching checksums indicate that the file was successfully transmitted.

05_dat

Performs test 5. Client sends a large file (500,000 bytes) in a series of large send() operations (10,000 bytes each). Correct segmentation/reassembly of the data is required, as each send() operation exceeds the payload size of DAT segments.

Scripts:

- lac/mrudp/tests/spec/05_dat/datserver.lua
- lac/mrudp/tests/spec/05_dat/datclient.lua

Output:

Packet log redirected to standard output at server. Matching checksums indicate that the file was successfully transmitted.

0708_callbacks

Performs tests 7 and 8. Client performs a series of periodic transmissions then disconnects. Server receives data through application callbacks that inform the arrival of data.

Scripts:

- lac/mrudp/tests/spec/0708_callbacks/cbserver.lua
- lac/mrudp/tests/spec/0708_callbacks/cbclient.lua

Output:

Packet log redirected to standard output at server. Callbacks are displayed in standard output, and receive operations are launched as callbacks are activated. Disconnection is also reported through a callback.