

Team30 20140040 Keonil Kim

CS341 Project3-1 Report

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[-----] 12 tests from TestEnv_Any
[ RUN    ] TestEnv_Any.TestTransfer_Connect_Send_Symmetric
[ OK     ] TestEnv_Any.TestTransfer_Connect_Send_Symmetric (48 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Connect_Send_EOF
[ OK     ] TestEnv_Any.TestTransfer_Connect_Send_EOF (61 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Connect_Recv_Symmetric
[ OK     ] TestEnv_Any.TestTransfer_Connect_Recv_Symmetric (84 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Connect_Recv_EOF
[ OK     ] TestEnv_Any.TestTransfer_Connect_Recv_EOF (86 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Connect_Recv_SmallBuffer1
[ OK     ] TestEnv_Any.TestTransfer_Connect_Recv_SmallBuffer1 (142 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Connect_Recv_SmallBuffer2
[ OK     ] TestEnv_Any.TestTransfer_Connect_Recv_SmallBuffer2 (448 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Accept_Send_Symmetric
[ OK     ] TestEnv_Any.TestTransfer_Accept_Send_Symmetric (61 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Accept_Send_EOF
[ OK     ] TestEnv_Any.TestTransfer_Accept_Send_EOF (59 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Accept_Recv_Symmetric
[ OK     ] TestEnv_Any.TestTransfer_Accept_Recv_Symmetric (84 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Accept_Recv_EOF
[ OK     ] TestEnv_Any.TestTransfer_Accept_Recv_EOF (77 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Accept_Recv_SmallBuffer1
[ OK     ] TestEnv_Any.TestTransfer_Accept_Recv_SmallBuffer1 (142 ms)
[ RUN    ] TestEnv_Any.TestTransfer_Accept_Recv_SmallBuffer2
[ OK     ] TestEnv_Any.TestTransfer_Accept_Recv_SmallBuffer2 (458 ms)
[-----] 12 tests from TestEnv_Any (1751 ms total)

[-----] Global test environment tear-down
[=====] 12 tests from 1 test case ran. (1751 ms total)
[ PASSED ] 12 tests.
root@a31b0dd4cee1:~/cs341/KENSv3#
```

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127         map<struct PidFd, pair<UUID, pair<void *, size_t>>>
read_info_list;
128     map<struct PidFd, deque<uint8_t>> read_buffer_list;
129         map<struct PidFd, pair<size_t, map<int, Packet *>>>
internal_buffer_list;
130     map<struct PidFd, map<UUID, deque<pair<int, Packet *>>>>
blocked_packet_list;
131         map<struct PidFd, deque<pair<UUID, size_t>>>
blocked_uuid_list;

```

These are added structures for project 3-1

read\_info\_list save blocked read call

read\_buffer\_list save read buffer for each connection

internal\_buffer\_list is maintained with pair of total size and packets mapped to expected ack number

blocked\_packet\_list saves blocked write packet, which are saved with the expected ack number. All mapped to its syscallUUID.

blocked\_uuid\_list saves the order of blocked write packet's UUID. The unblocking order is determined with this and blocked\_packet\_list.

- read

For read function, check if read buffer is empty, and if it is not, read data from read buffer by size of count

- write

First, create packet with the maximum data length of 512 and check internal buffer. If there is enough space, send Packet immediately. Otherwise, block the packet.

- PacketArrived(when ACK arrived)

Data transfer packets contain ACK flag.

First To handle the ACK which is response of data successfully received, we first check out the internal buffer. If there is a packet with ack, identical to expected value, remove it from buffer. Then check the size of buffer so that if the space is enough, unblock the packet in order.

To handle the ack which is coming with data, read the data and save it to the read\_buffer. Check if there is blocked read call, and if exists, unblock it and return. Then, if successfully reads all data, send ACK packet with proper ack number immediately.