

Lab7 实验报告

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Here's the check7 test results.

My partner is 221900051-吴子奕.

— Solo Portion

Successfully start and end a conversation with another copy of itself.

```
(base) kenaz@Kenaz:~/minnow/build$ ./apps/endtoend server cs144.keithw.org 3000
DEBUG: Network interface has Ethernet address 02:00:00:3b:24:55 and IP address 172.16.0.1
DEBUG: Network interface has Ethernet address 02:00:00:bc:0f:da and IP address 10.0.0.172
DEBUG: adding route 172.16.0.0/12 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 192.168.0.0/16 => 10.0.0.192 on interface 1
DEBUG: Network interface has Ethernet address 76:1d:81:3c:ef:94 and IP address 172.16.0.100
DEBUG: minnow listening for incoming connection...
DEBUG: minnow new connection from 192.168.0.50:21515.
Hello from server:Kenaz123
Hello from client:Kenaz123
```

图 1: server end

```
(base) kenaz@Kenaz:~/minnow/build$ ./apps/endtoend client cs144.keithw.org 3001
DEBUG: Network interface has Ethernet address 02:00:00:0e:83:5f and IP address 192.168.0.1
DEBUG: Network interface has Ethernet address 02:00:00:3e:87:0e and IP address 10.0.0.192
DEBUG: adding route 192.168.0.0/16 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 172.16.0.0/12 => 10.0.0.172 on interface 1
DEBUG: Network interface has Ethernet address b2:57:e0:18:bc:14 and IP address 192.168.0.50
DEBUG: Connecting from 192.168.0.50:21515...
DEBUG: minnow connecting to 172.16.0.100:1234...
DEBUG: minnow successfully connected to 172.16.0.100:1234.
Hello from server:Kenaz123
Hello from client:Kenaz123
```

图 2: client end

File transfer test on my own host.

```
(base) kenaz@Kenaz:~/minnow/build$ ./apps/endoend server cs144.keithw.org 8000 < /tmp/big.txt
DEBUG: Network interface has Ethernet address 02:00:00:43:66:ba and IP address 172.16.0.1
DEBUG: Network interface has Ethernet address 02:00:00:23:79:56 and IP address 10.0.0.172
DEBUG: adding route 172.16.0.0/12 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 192.168.0.0/16 => 10.0.0.192 on interface 1
DEBUG: Network interface has Ethernet address e6:6b:4f:9f:7f:d0 and IP address 172.16.0.100
DEBUG: minnow listening for incoming connection...
DEBUG: minnow new connection from 192.168.0.50:49558.
DEBUG: minnow inbound stream from 192.168.0.50:49558 finished cleanly.
DEBUG: Inbound stream from 172.16.0.100 finished.
DEBUG: Outbound stream to 172.16.0.100 finished.
DEBUG: minnow waiting for clean shutdown... DEBUG: minnow outbound stream to 192.168.0.50:49558 finished (63000 seqnos still in flight).
DEBUG: minnow outbound stream to 192.168.0.50:49558 has been fully acknowledged.
DEBUG: minnow TCP connection finished cleanly.
done.
Exiting... done.
```

图 3: transfer-server

```
(base) kenaz@Kenaz:~/minnow/build$ < /dev/null ./apps/endoend client cs144.keithw.org 8001 > /tmp/big-received.txt
DEBUG: Network interface has Ethernet address 02:00:00:fc:9b:e6 and IP address 192.168.0.1
DEBUG: Network interface has Ethernet address 02:00:00:7c:a1:ef and IP address 10.0.0.192
DEBUG: adding route 192.168.0.0/16 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 172.16.0.0/12 => 10.0.0.172 on interface 1
DEBUG: Network interface has Ethernet address b2:38:48:2b:9a:ca and IP address 192.168.0.50
DEBUG: Connecting from 192.168.0.50:49558...
DEBUG: minnow connecting to 172.16.0.100:1234...
DEBUG: minnow successfully connected to 172.16.0.100:1234.
DEBUG: Outbound stream to 172.16.0.100 finished.
DEBUG: minnow outbound stream to 172.16.0.100:1234 finished (0 seqnos still in flight).
DEBUG: minnow outbound stream to 172.16.0.100:1234 has been fully acknowledged.
DEBUG: minnow inbound stream from 192.16.0.100:1234 finished cleanly.
DEBUG: Inbound stream from 172.16.0.100 finished.
DEBUG: minnow waiting for clean shutdown... DEBUG: minnow TCP connection finished cleanly.
done.
Exiting... done.
```

图 4: transfer-client

```
(base) kenaz@Kenaz:~/minnow/build$ sha256sum /tmp/big.txt
0dfba452ac0b3aaac9acd0fbdb03a940574be666650ddcc1167e1f724da85e6b /tmp/big.txt
(base) kenaz@Kenaz:~/minnow/build$ sha256sum /tmp/big-received.txt
0dfba452ac0b3aaac9acd0fbdb03a940574be666650ddcc1167e1f724da85e6b /tmp/big-received.txt
```

图 5: file shasum

二 Group Portion

First trying to connect to my partner's server and then end the connection.

```
(base) kenaz@Kenaz:~/minnow/build$ ./apps/endtoend client cs144.keithw.org 5001
DEBUG: Network interface has Ethernet address 02:00:00:ce:6a:b3 and IP address 192.168.0.1
DEBUG: Network interface has Ethernet address 02:00:00:aa:8d:f3 and IP address 10.0.0.192
DEBUG: adding route 192.168.0.0/16 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 172.16.0.0/12 => 10.0.0.172 on interface 1
DEBUG: Network interface has Ethernet address 8a:f8:3c:b4:ef:19 and IP address 192.168.0.50
DEBUG: Connecting from 192.168.0.50:61756...
DEBUG: minnow connecting to 172.16.0.100:1234...
DEBUG: minnow successfully connected to 172.16.0.100:1234.
hello from client:Kenaz123
hello from server:JamesWU
DEBUG: Outbound stream to 172.16.0.100 finished.
DEBUG: minnow outbound stream to 172.16.0.100:1234 finished (0 seqnos still in flight).
DEBUG: minnow outbound stream to 172.16.0.100:1234 has been fully acknowledged.
DEBUG: minnow inbound stream from 172.16.0.100:1234 finished cleanly.
```

图 6: client end

Then act as a server and wait for the client to connect and then end the connection.

```
(base) kenaz@Kenaz:~/minnow/build$ ./apps/endtoend server cs144.keithw.org 5000
DEBUG: Network interface has Ethernet address 02:00:00:e9:80:ee and IP address 172.16.0.1
DEBUG: Network interface has Ethernet address 02:00:00:4d:56:b3 and IP address 10.0.0.172
DEBUG: adding route 172.16.0.0/12 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 192.168.0.0/16 => 10.0.0.192 on interface 1
DEBUG: Network interface has Ethernet address 6e:4d:1a:38:d4:93 and IP address 172.16.0.100
DEBUG: minnow listening for incoming connection...
DEBUG: minnow new connection from 192.168.0.50:43593.
Hello from server: Kenaz123
Hello from client: JamesWU
DEBUG: Outbound stream to 172.16.0.100 finished.
DEBUG: minnow outbound stream to 192.168.0.50:43593 finished (0 seqnos still in flight).
DEBUG: minnow outbound stream to 192.168.0.50:43593 has been fully acknowledged.
```

图 7: server end

Successfully received the file from my partner's server.

```
(base) kenaz@Kenaz:~/minnow/build$ < /dev/null ./apps/endtoend client cs144.keithw.org 5001 > /tmp/big-received.txt
DEBUG: Network interface has Ethernet address 02:00:00:bc:cc:b3 and IP address 192.168.0.1
DEBUG: Network interface has Ethernet address 02:00:00:43:80:b6 and IP address 10.0.0.192
DEBUG: adding route 192.168.0.0/16 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 172.16.0.0/12 => 10.0.0.172 on interface 1
DEBUG: Network interface has Ethernet address 92:5b:94:98:46:5b and IP address 192.168.0.50
DEBUG: Connecting from 192.168.0.50:678...
DEBUG: minnow connecting to 172.16.0.100:1234...
DEBUG: minnow successfully connected to 172.16.0.100:1234.
DEBUG: Outbound stream to 172.16.0.100 finished.
DEBUG: minnow outbound stream to 172.16.0.100:1234 finished (0 seqnos still in flight).
DEBUG: minnow outbound stream to 172.16.0.100:1234 has been fully acknowledged.
DEBUG: minnow inbound stream from 172.16.0.100:1234 finished cleanly.
DEBUG: Inbound stream from 172.16.0.100 finished.
DEBUG: minnow waiting for clean shutdown... DEBUG: minnow TCP connection finished cleanly.
done.
Exiting... done.
```

图 8: transfer-client

```
~/playground/ComputerNetwork/minnow | main sha256sum /tmp/big.txt
b5be2354786388996534c02177d5073a849c964072e491ded03abdf6ce05b395 /tmp/big.txt
```

图 9: file shasum

```
(base) kenaz@Kenaz:~/minnow/build$ sha256sum /tmp/big-received.txt
b5be2354786388996534c02177d5073a849c964072e491ded03abdf6ce05b305 /tmp/big-received.txt
```

图 10: file shasum

Successfully transfered the file to my partner's client.

```
(base) kenaz@Kenaz:~/minnow/build$ ./apps/endtoend server cs144.berkeley.edu 8000 < /tmp/big.txt
DEBUG: Network interface has Ethernet address 02:00:00:13:f0:b0 and IP address 172.16.0.1
DEBUG: Network interface has Ethernet address 02:00:00:97:67:f9 and IP address 10.0.0.172
DEBUG: adding route 172.16.0.0/12 => (direct) on interface 0
DEBUG: adding route 10.0.0.0/8 => (direct) on interface 1
DEBUG: adding route 192.168.0.0/16 => 10.0.0.192 on interface 1
DEBUG: Network interface has Ethernet address f2:4a:43:64:d9:a5 and IP address 172.16.0.100
DEBUG: minnow listening for incoming connection...
DEBUG: minnow new connection from 192.168.0.50:44526.
DEBUG: minnow inbound stream from 192.168.0.50:44526 finished cleanly.
DEBUG: Inbound stream from 172.16.0.100 finished.
DEBUG: Outbound stream to 192.168.0.100 finished.
DEBUG: minnow waiting for clean shutdown... DEBUG: minnow outbound stream to 192.168.0.50:44526 finished (63000 seqnos still
in flight).
DEBUG: minnow outbound stream to 192.168.0.50:44526 has been fully acknowledged.
DEBUG: minnow TCP connection finished cleanly.
done.
Exiting... done.
```

图 11: transfer-server

```
(base) kenaz@Kenaz:~/minnow/build$ sha256sum /tmp/big.txt
0dfba452ac0b3aaac9acd0fbd03a940574be66650ddcc1167e1f724da85e6b /tmp/big.txt
```

图 12: file shasum

```
~/playground/ComputerNetwork/minnow | main$ sha256sum /tmp/big-received.txt
0dfba452ac0b3aaac9acd0fbd03a940574be66650ddcc1167e1f724da85e6b /tmp/big-received.txt
```

图 13: file shasum

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