Communication Networks
Spring 2020

Tobias Bühler
nsg.ee.ethz.ch

ETH Zürich (D-ITET)
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Two important pillars of today’s Internet

Internet-wide routing
Covered in the first project

Reliable transport
Main focus of the second project
Implement your own **Reliable** Transport Protocol

recover from packet loss
and reordering
Implement your own **Reliable** Transport Protocol

recover from packet loss and reordering

Part 1

Complete a simple Go-Back-N implementation

Retransmit all packets after a timeout

Part 2

Add support for Selective Repeat

Fast retransmission after duplicated ACKs

Part 3

Add support for Selective Acknowledgements (SACK)

SACK contains blocks of correctly received segments

Bonus

Implement your own congestion control algorithm
We use a custom header for the GBN protocol

<table>
<thead>
<tr>
<th>Mandatory header</th>
<th></th>
<th>Optional header</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Options</td>
<td>Segment Length</td>
</tr>
<tr>
<td>Header Length</td>
<td>Sequence Number</td>
<td>Window</td>
</tr>
<tr>
<td>Block Length</td>
<td>Left edge 1st block</td>
<td>Length 1st block</td>
</tr>
<tr>
<td>Padding</td>
<td>Left edge 2nd block</td>
<td>Length 2nd block</td>
</tr>
<tr>
<td>Padding</td>
<td>Left edge 3rd block</td>
<td>Length 3rd block</td>
</tr>
</tbody>
</table>

Payload
The assignment text online contains detailed instructions

This project counts as 10% to your final grade
Every group member receives the same grade

You will once again write a report
Max 10 pages but should be much shorter

Most of the tasks also include a theoretical question
Answer them in the report
A new VM waits for you

All the scrips are already on your VM
Use scp or git (private GitLab repo) to transfer files

You keep your group number from the first project
**Important:** VM port number is 3000 + group number

Use the password received via email this morning
Let’s see how the final sender and receiver should look like
There are multiple options to test your implementation

Run your sender against your receiver
Should be your main focus

Test with the implementation of another group
Good way to find out if you follow all the specifications

**Optionally**, use our test framework
Passing all the tests does not guarantee a 6
If you have questions

Ask on Slack or send us an email
Please use the #transport_project channel

We will announce additional online Q&A sessions
During the sessions we also offer voice/video chats
Final comments

Deadline: May 22 2020, at midnight
Submit your code and report via email

Read the assignment text carefully
Make sure you follow all the specifications

Do not copy code from other groups
We will check your code with automated tools