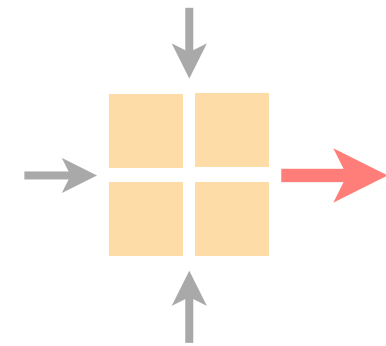


Communication Networks

Spring 2020



Rüdiger Birkner

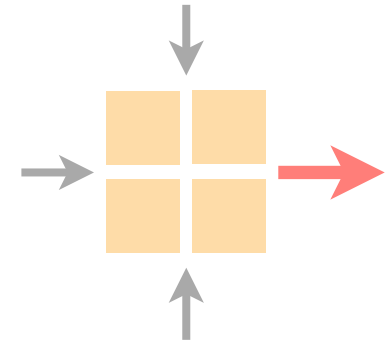
<https://comm-net.ethz.ch/>

ETH Zürich

May 14 2020

Communication Networks

Exercise 11



Transport project

Overview current assignment

Old exam questions

Solutions will be published next week

The end (of the transport project) is near...

Q&A Session

May 18 2020 from 4 to 5pm

Exercise Session

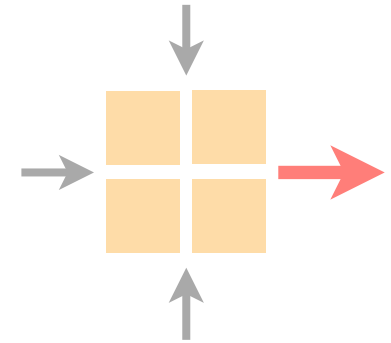
Cancelled because of Ascension day

Deadline

May 22 2020 at midnight

Communication Networks

Exercise 11



Transport project

Overview current assignment

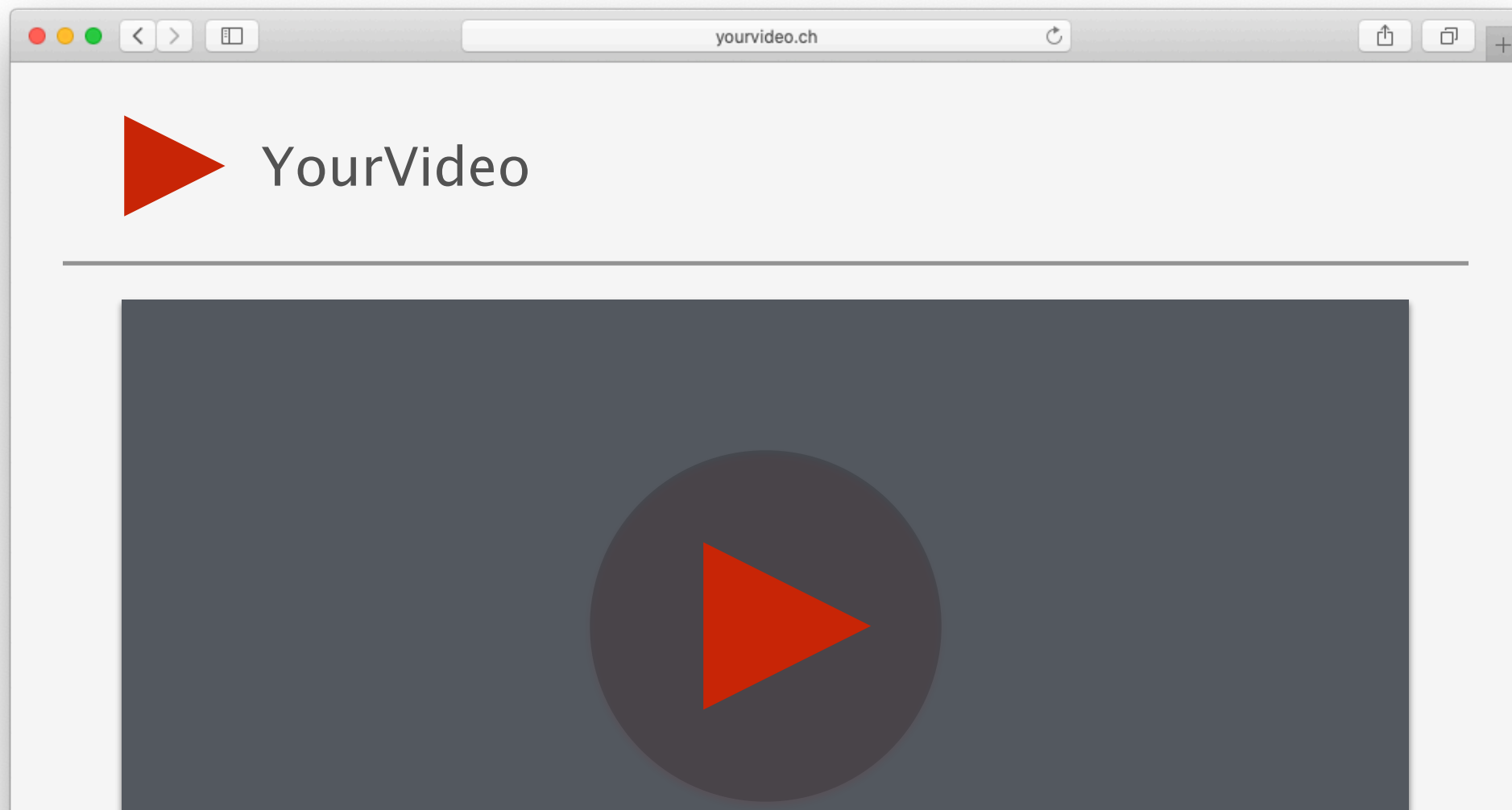
Old exam questions

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11.1 Setting up a video streaming service

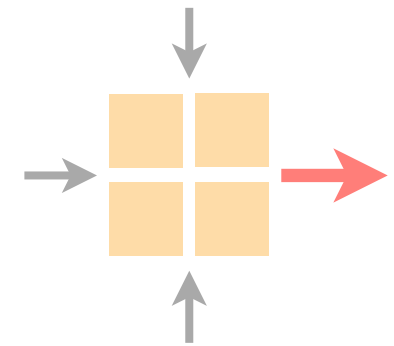
Exam question from 2019

Combines the topics of the lecture: HTTP and Video



Communication Networks

Exercise 11



Transport project

Overview current assignment

Old exam questions

Solutions will be published next week

Exam 2018 - Task 5 c): Network debugging

The figure shows the output of traceroute from a host within ETH to google.ch.

```
1 $ traceroute google.ch
2 traceroute to google.ch (172.217.168.67), 64 hops max, 52 byte packets
3  1  82.130.102.1  1.038 ms  1.072 ms  0.672 ms
4  2  10.10.0.41  0.963 ms  0.824 ms  0.747 ms
5  3  10.1.11.129  0.985 ms  1.018 ms  0.867 ms
6  4  192.33.92.170  0.887 ms  0.826 ms  0.871 ms
7  5  192.33.92.11  0.833 ms  0.982 ms  0.975 ms
8  6  130.59.38.110  0.766 ms  1.002 ms  1.006 ms
9  7  72.14.195.4  4.369 ms  19.821 ms  1.224 ms
10 8  74.125.243.129  2.667 ms
11   74.125.243.113  1.805 ms
12   74.125.243.129  2.624 ms
13 9  64.233.175.167  2.562 ms
14   172.253.50.5  2.675 ms  2.696 ms
15 10 172.217.168.67  1.075 ms  1.088 ms  1.121 ms
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Exam 2018 - Task 5 c): Network debugging

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What is the meaning of the time measurements reported by `traceroute` (e.g. “1.038 ms” in line 3 in Figure 17)? (1 Point)

Exam 2018 - Task 5 c): Network debugging

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```

What is the meaning of the time measurements reported by `traceroute` (e.g. “1.038 ms” in line 3 in Figure 17)? (1 Point)

Answer: The time measurements shows the round trip time from the source to every hop.

Exam 2018 - Task 5 c): Network debugging

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How many IP packets did the host need to send to obtain the results shown in Figure 17?
Explain how you obtained the number. (1 Point)

Exam 2018 - Task 5 c): Network debugging

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```

How many IP packets did the host need to send to obtain the results shown in Figure 17?
Explain how you obtained the number. (1 Point)

Answer: In total the host sent 30 IP packets.

It sent 3 IP packets per TTL (1 to 10).

Exam 2018 - Task 5 c): Network debugging

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How many ICMP packets did the device with IP address 192.33.92.11 (line 7 in Figure 17) generate because of this **traceroute** execution? Explain how you obtained the number.

Exam 2018 - Task 5 c): Network debugging

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How many ICMP packets did the device with IP address 192.33.92.11 (line 7 in Figure 17) generate because of this `traceroute` execution? Explain how you obtained the number.

Answer: It generated 3 ICMP packets as three IP packets expired at this router (time exceeded).

Exam 2018 - Task 5 c): Network debugging

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Compare line 9 with the lines 10–12 of the output in Figure 17 and explain what these lines tell you about the paths between the host and `google.ch` (2 Points)

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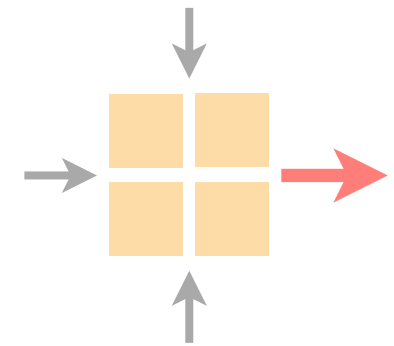
Compare line 9 with the lines 10–12 of the output in Figure 17 and explain what these lines tell you about the paths between the host and `google.ch` (2 Points)

Answer: In line 9, all packets expire at the same router.

In lines 10–12, the packets expire at two different routers. The traffic is load balanced.

Communication Networks

Exercise 11



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