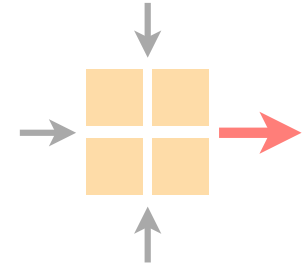


Communication Networks

Spring 2019



Thomas Holterbach

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

ETH Zürich

March 14 2019

Don't hesitate to ask questions
also over Slack (email) after the session

Main contact persons:

Tobias Eng. & Ger.

Alexander Eng. & Ger.

Rüdiger Eng. & Ger.

Hendrik Eng. & Ger.

Eric Eng. & Ger.

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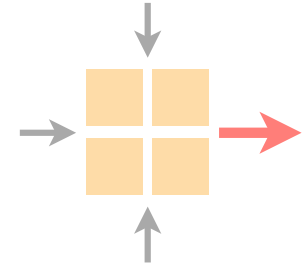
But today....

Thomas Eng. & French

Edgar Eng. & Spanish

Communication Networks

Exercise 3



Overview current assignment

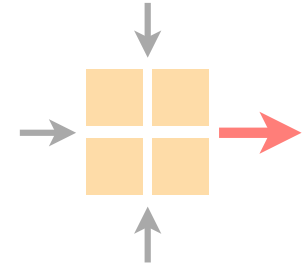
Questions?

Time for you to solve the tasks

Solutions will be published next week

Communication Networks

Exercise 3

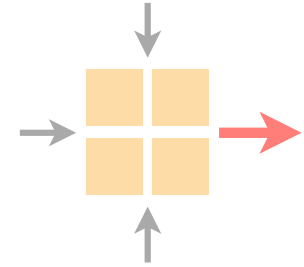


Reliable Transport Concepts (Part 2)

Ethernet & Switching

Communication Networks

Exercise 3



Reliable Transport Concepts (Part 2)

Ethernet & Switching

Task 1: Negative Acknowledgement

Instead of a confirmation for received packets, indicate what you did not receive with NACKs.

Example:

Received packets: 1, 2, 4, 5, 7

Send a NACK: for 3 and 6

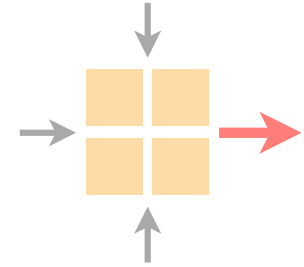
Task 2: Fairness - Min-max fair allocation

- step 1 Start with all flows at rate 0
- step 2 Increase the flows until there is
a new bottleneck in the network
- step 3 Hold the fixed rate of the flows
that are bottlenecked
- step 4 Go to step 2 for the remaining flows

Done!

Communication Networks

Exercise 3



Reliable Transport Concepts (Part 2)

Ethernet & Switching

Task 3: Impostor

Who am I?

MAC-to-IP binding

How do I acquire an IP address?

Dynamic Host Configuration Protocol

Who are you?

IP-to-MAC binding

Given an IP address reachable on a link,
How do I find out what MAC to use?

Address Resolution Protocol

Task 3: Impostor

Who am I?

MAC-to-IP binding

How do I acquire an IP address?

Dynamic Host Configuration Protocol

Who are you?

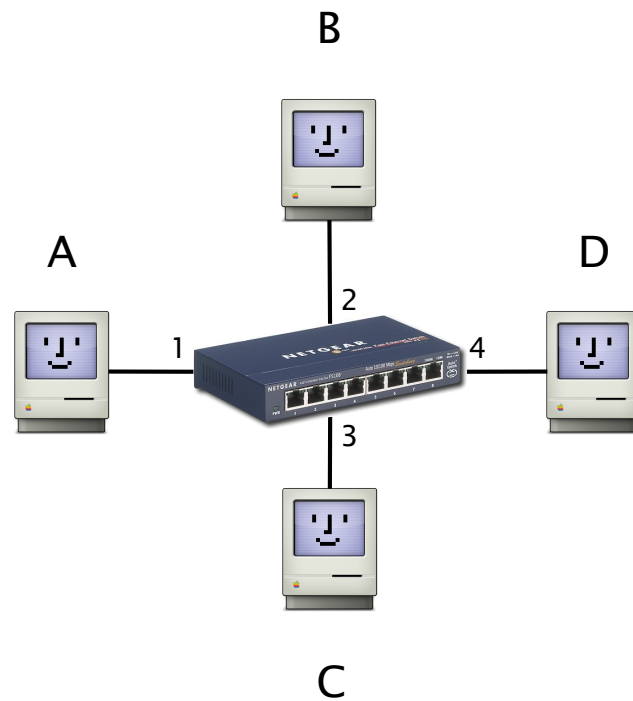
IP-to-MAC binding

Given an IP address reachable on a link,
How do I find out what MAC to use?

Address Resolution Protocol

More details in slides 35-52

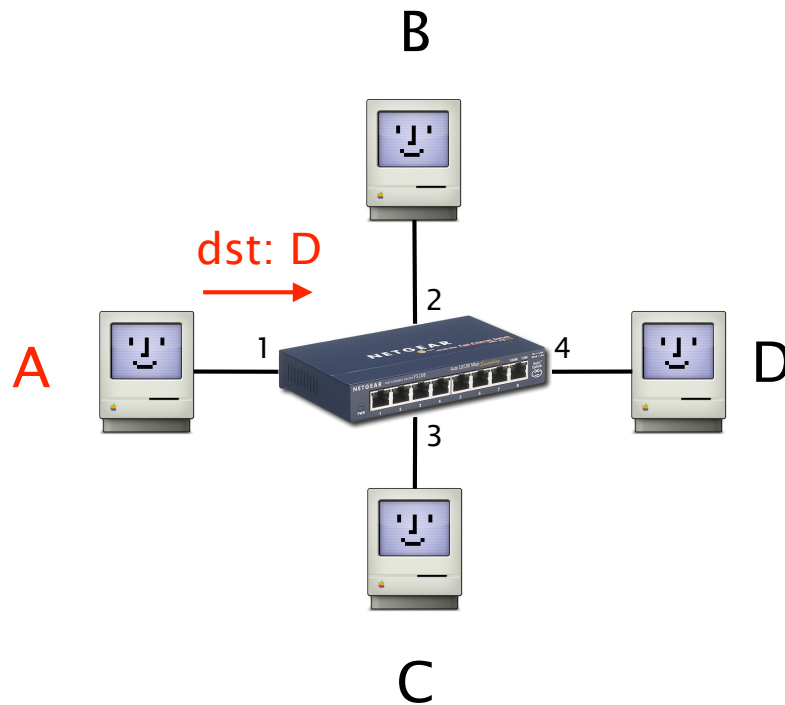
Task 4: Duplicate MAC address



dst	port

switch learns how to map **MACs** to **ports**

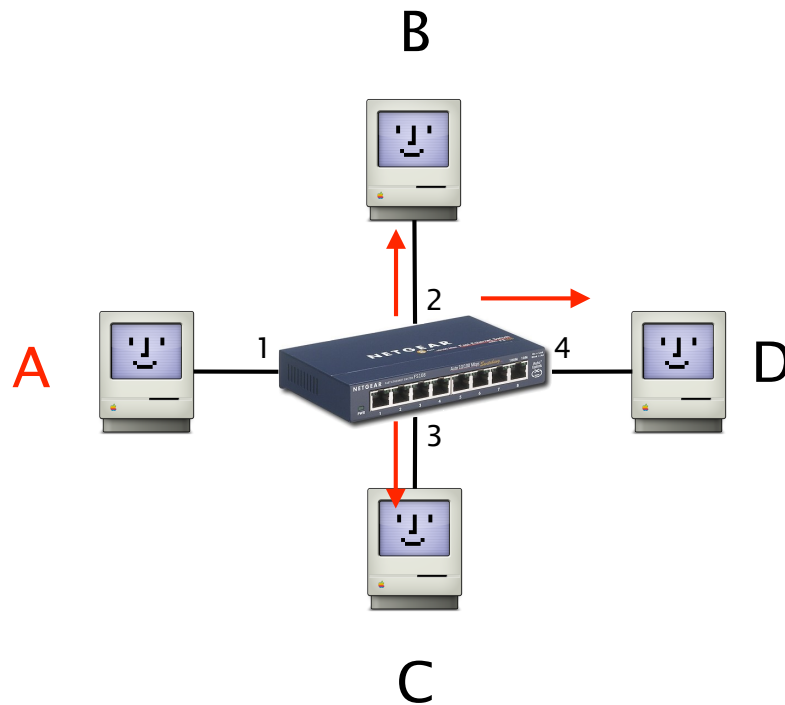
Task 4: Duplicate MAC address



dst	port
A	1

switch learns how to map **A** to **port 1**

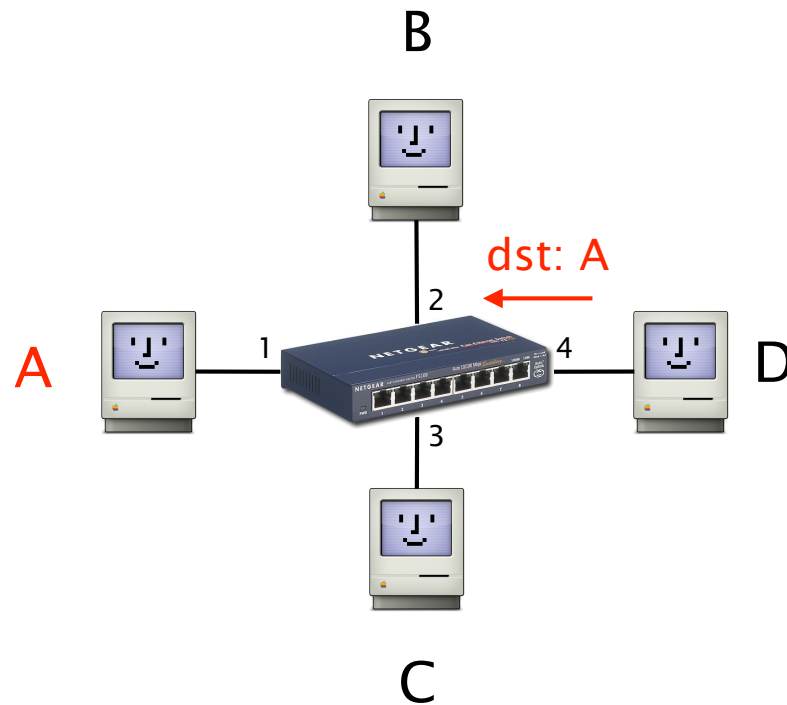
Task 4: Duplicate MAC address



dst	port
A	1

when dst unknown it **broadcasts**

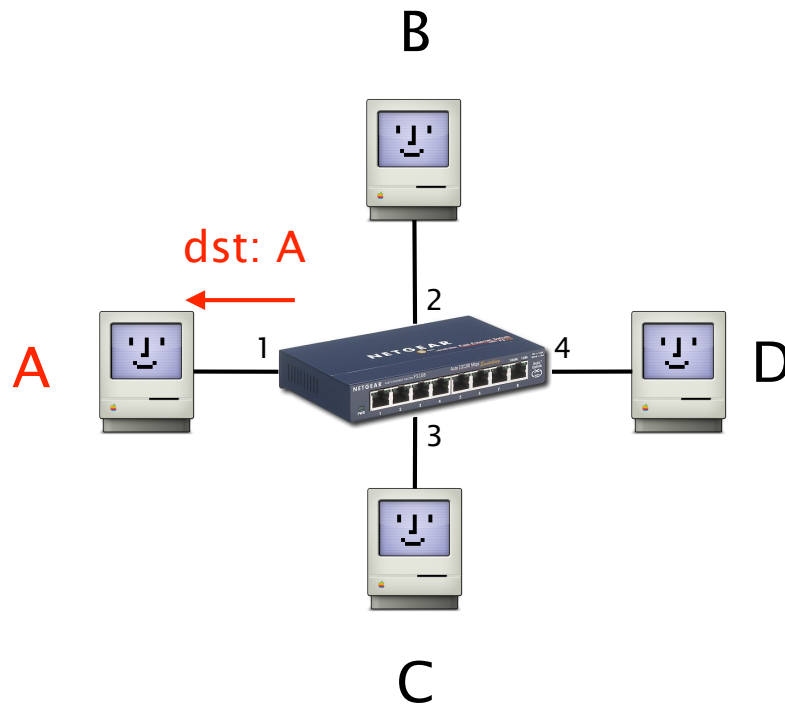
Task 4: Duplicate MAC address



dst	port
A	1
D	4

switch learns how to map D to 4

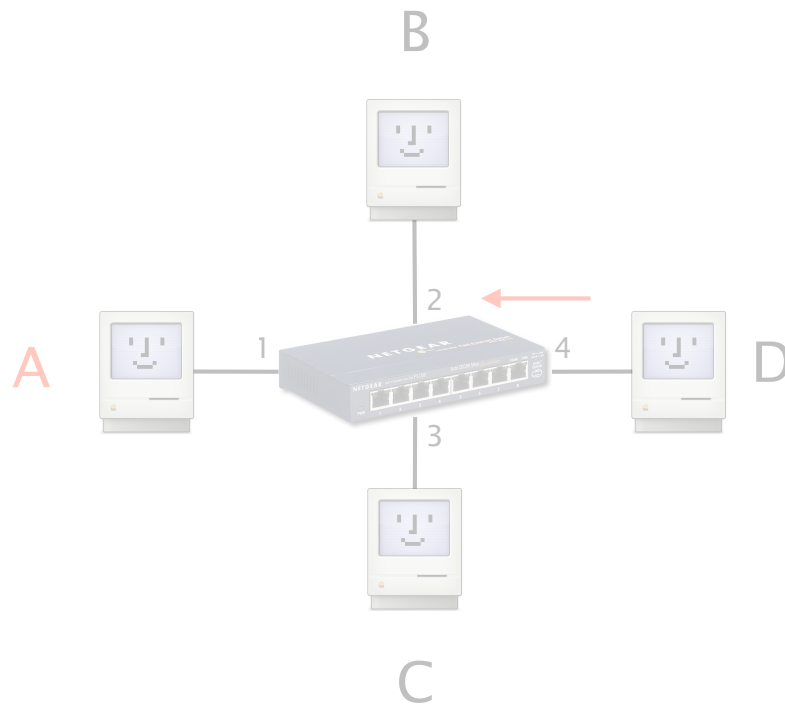
Task 4: Duplicate MAC address



dst	port
A	1
D	4

switch learns how to map D to 4

Task 4: Duplicate MAC address

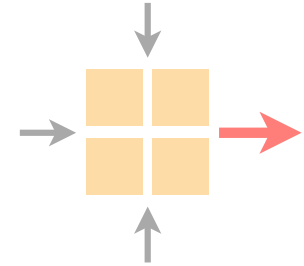


dst	port
A	1
D	4

More details in slides 71-79

Communication Networks

Exercise 3



Overview current assignment

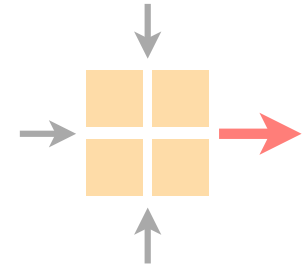
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Communication Networks

Exercise 3



Overview current assignment

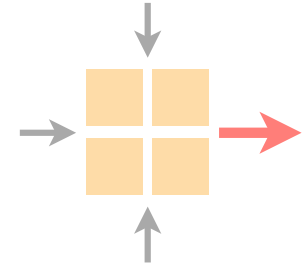
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Exercise 3



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