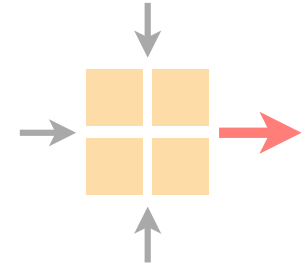


Communication Networks

Spring 2020



Tobias Bühler

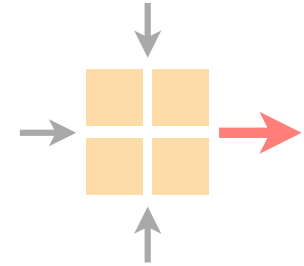
<https://comm-net.ethz.ch/>

ETH Zürich

March 19 2020

Communication Networks

Exercise 4



Routing project

Overview current assignment

Solutions will be published next week

Routing project has started

If you do not have a group,
please send us an email/Slack message

Every registered group should have received
an email with access instructions

Important: updated group/AS numbers:

https://comm-net.ethz.ch/registration/files/groups_nethz.pdf

The email contains

Group number and password. Use SSH to access you container:

```
ssh -p 2000+X root@snowball.ethz.ch      X your group number
```

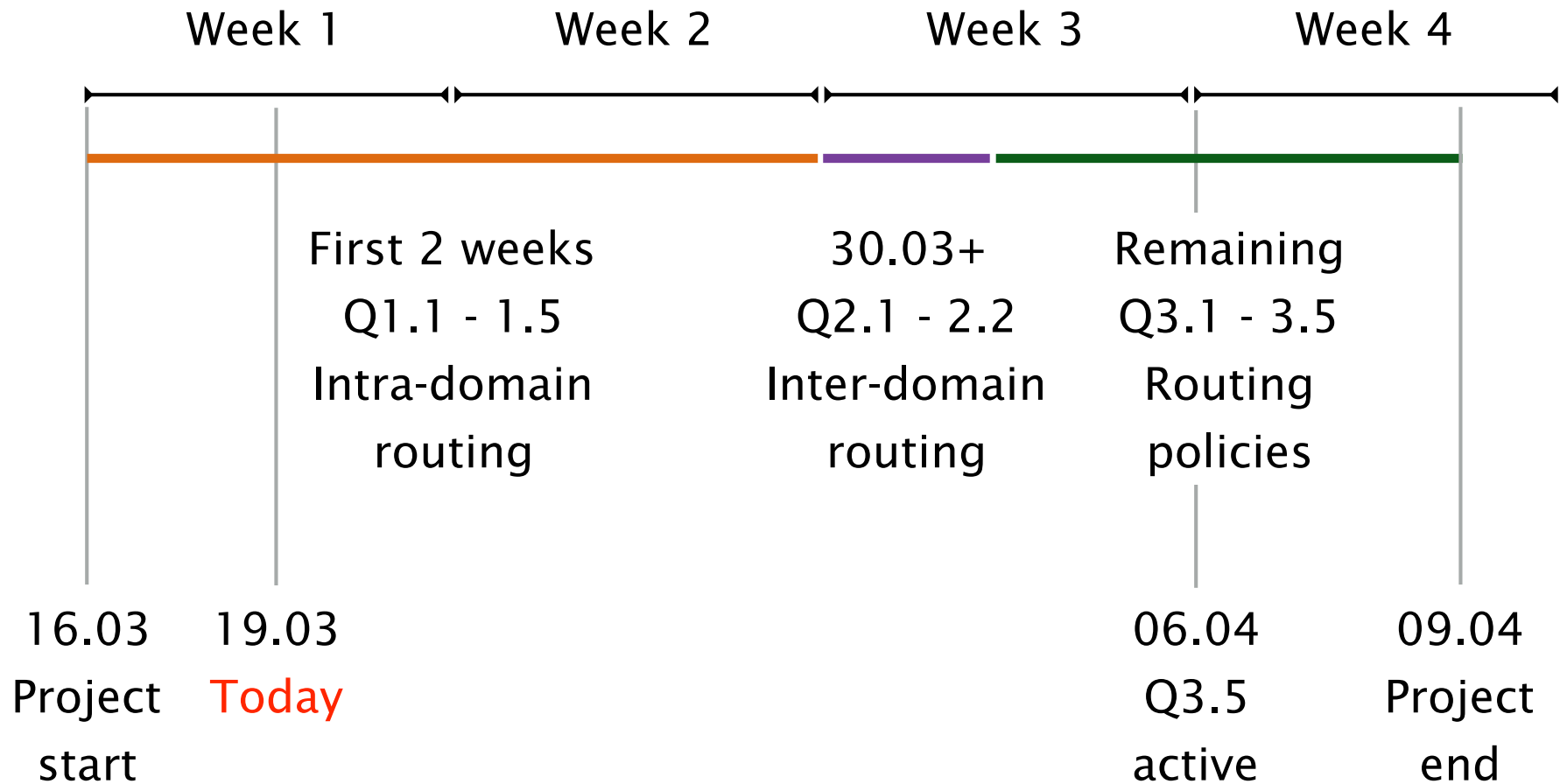
A password for the measurement container.

Useful for connectivity tests between ASes

Ports and certificates for two VPN access points.

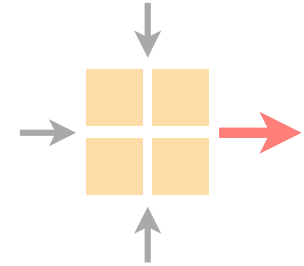
Only needed for the bonus question (optional)

Routing project timetable



Communication Networks

Exercise 4

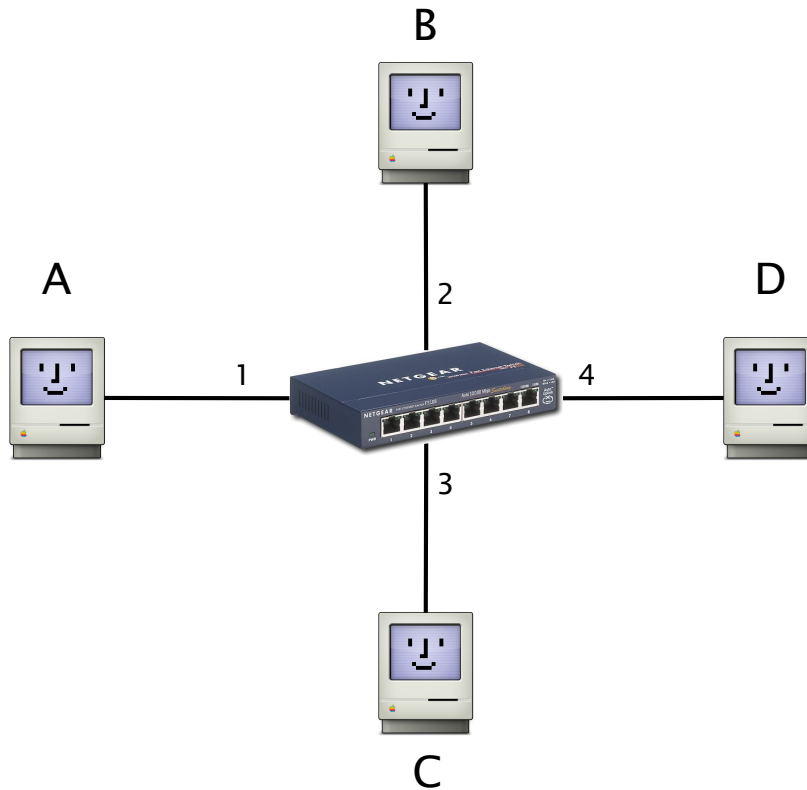


Routing project

Overview current assignment

Solutions will be published next week

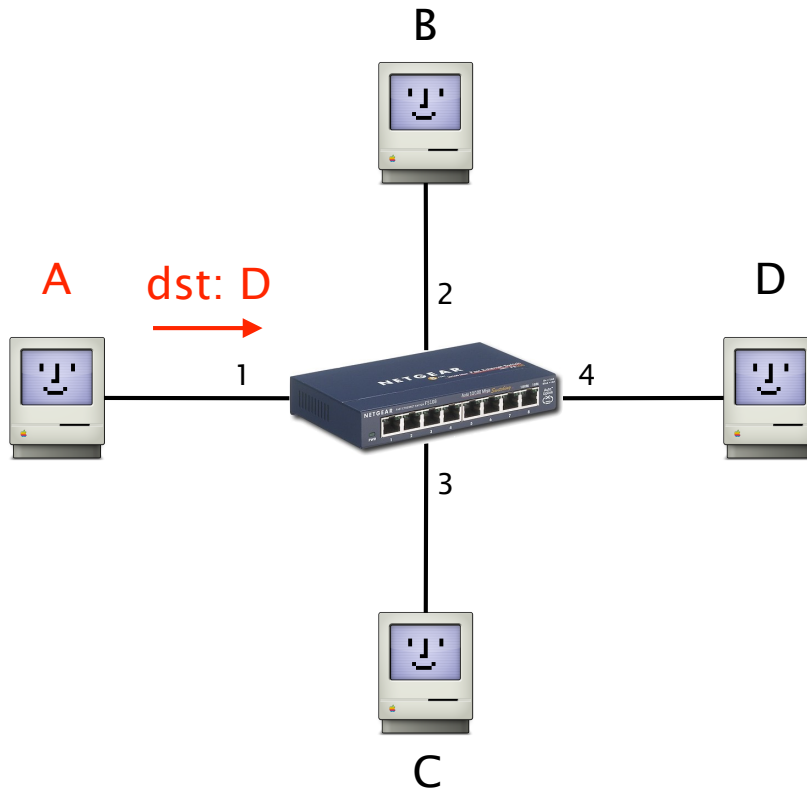
Task 1: Duplicate MAC address



dst	port

Switch learns how to map **MACs** to **ports**

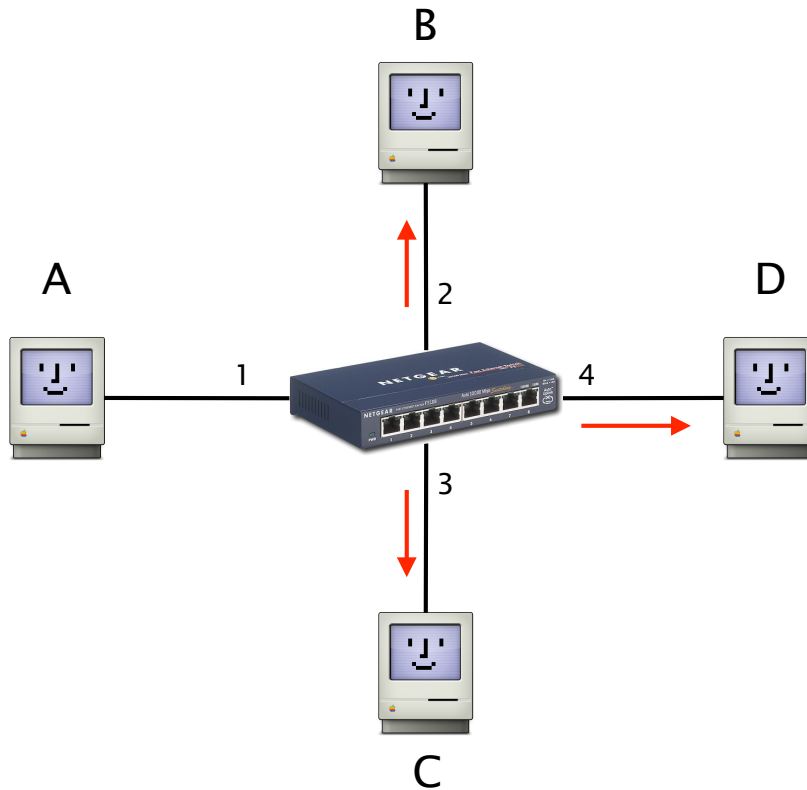
Task 1: Duplicate MAC address



dst	port
A	1

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

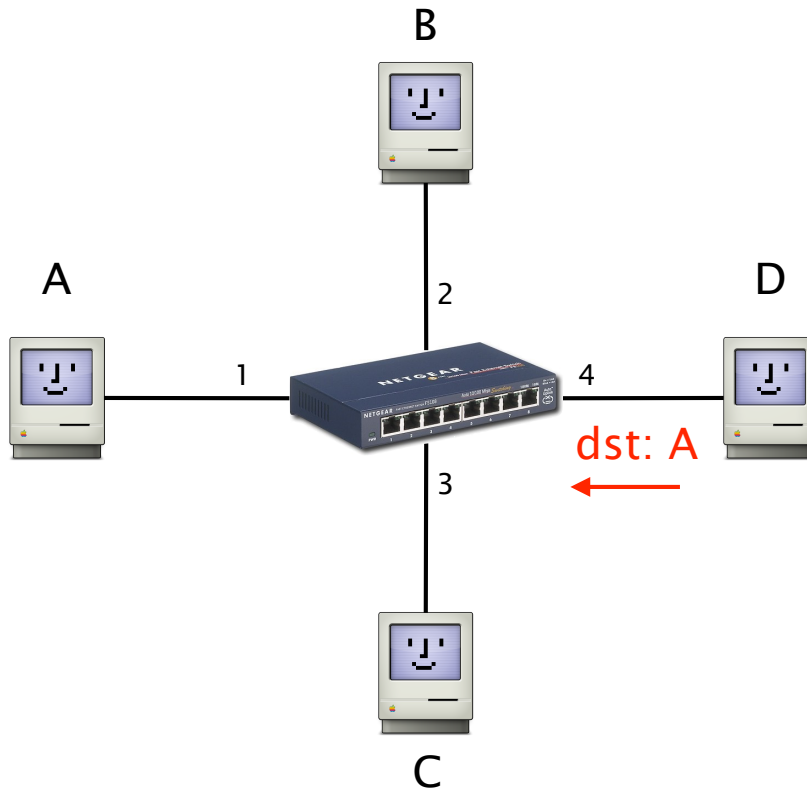
Task 1: Duplicate MAC address



dst	port
A	1

Dst **D** unknown: **broadcast**

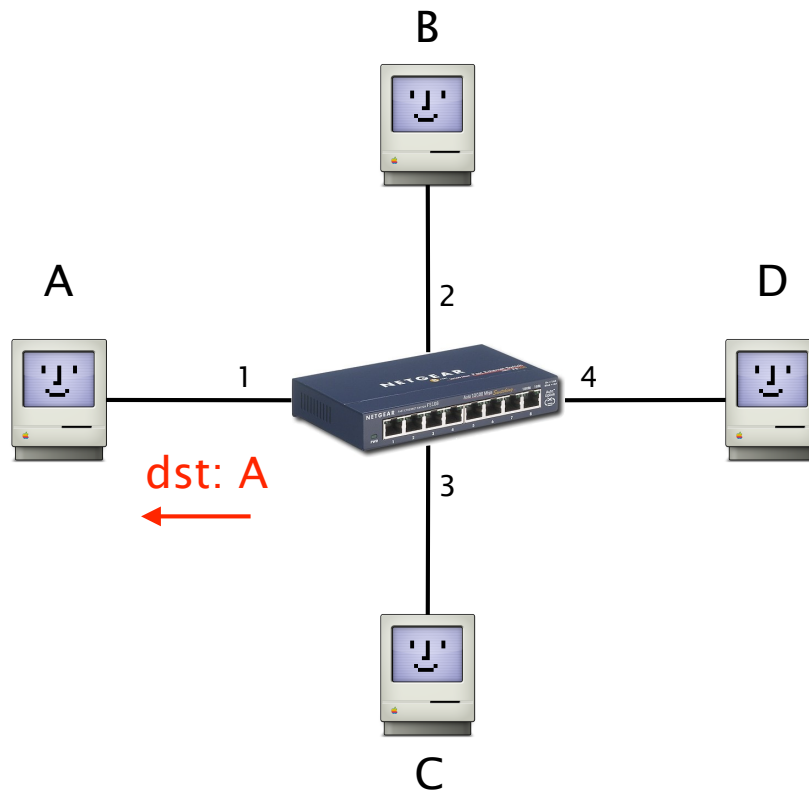
Task 1: Duplicate MAC address



dst	port
A	1
D	4

Switch learns how to map **D** to **port 4**

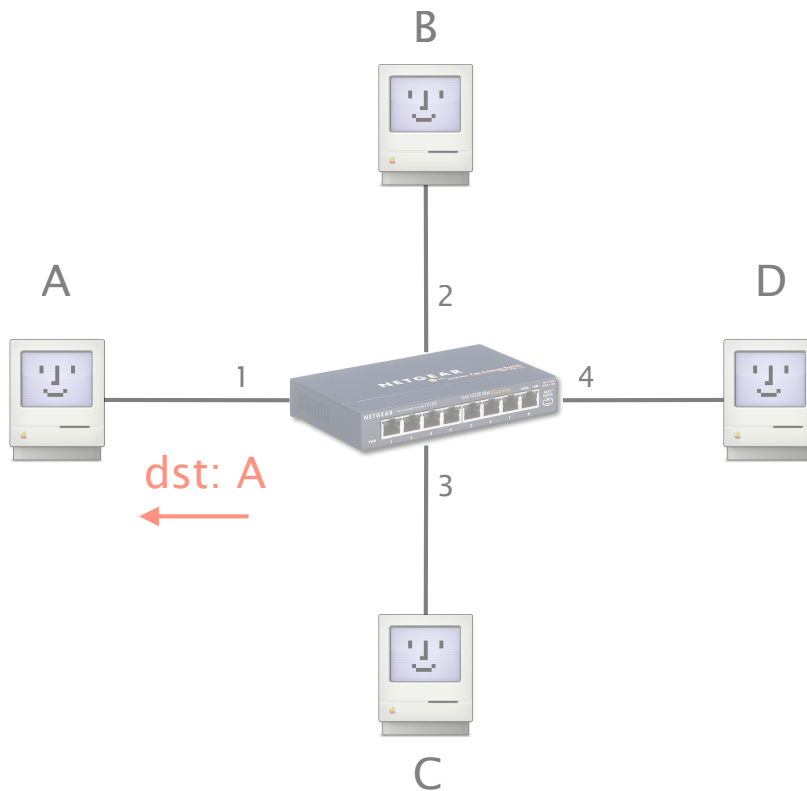
Task 1: Duplicate MAC address



dst	port
A	1
D	4

Dst A known, **no broadcast** required

Task 1: Duplicate MAC address



dst	port
A	1
D	4

More details: Slides 79-87 (week 4)

Task 2: Imposter

Who am I?

MAC-to-IP binding

How do I acquire an IP address?

Dynamic Host Configuration Protocol (DHCP)

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 (ARP)

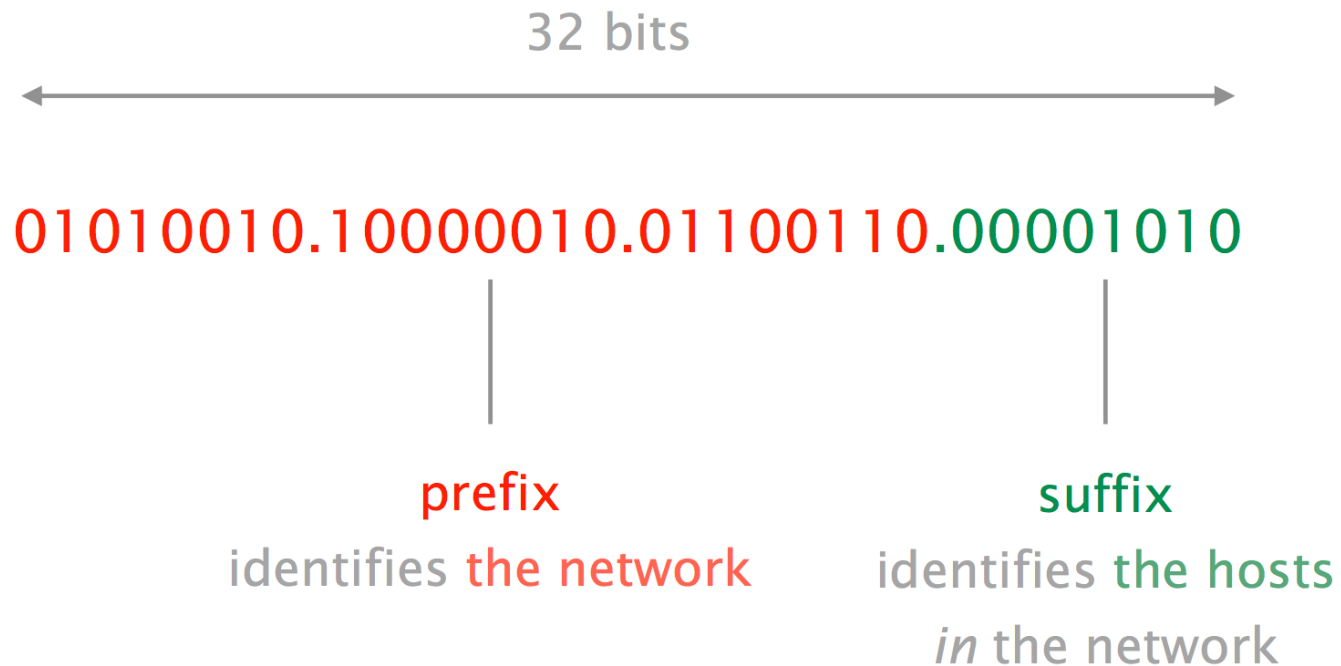
More details: Slides 45-60 (week 4)

Task 3 & 4: Spanning Tree

More details: Slides 90-100 (week 4)

Tip: compared to a single switch,
you already have knowledge of the entire network.
E.g., you know immediately which switch will be the root.

Task 5: IPv4 computations



Please do not use any tools/programs for the calculations

More details: Slides 43-80 (week 5)

Questions?

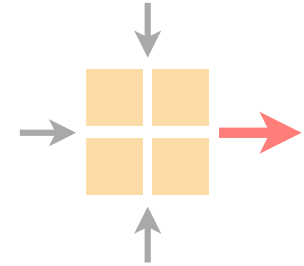
Any time via Slack/email

During the normal exercise time slot (**Thursday 10-12**) multiple TAs will actively monitor Slack.

You can expect immediate answers to your questions

Communication Networks

Exercise 4



Routing project

Overview current assignment

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