Communication Networks

Spring 2022

Tobias Bühler

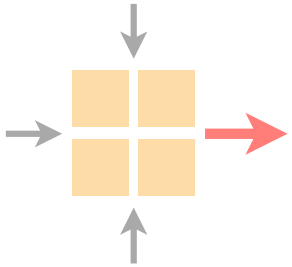
https://comm-net.ethz.ch/

ETH Zürich

April 28 2022

Communication Networks

Exercise 8



Routing project information

Introduction to this week's exercise

Time to solve the exercise/ask questions

Project deadline is tomorrow at midnight

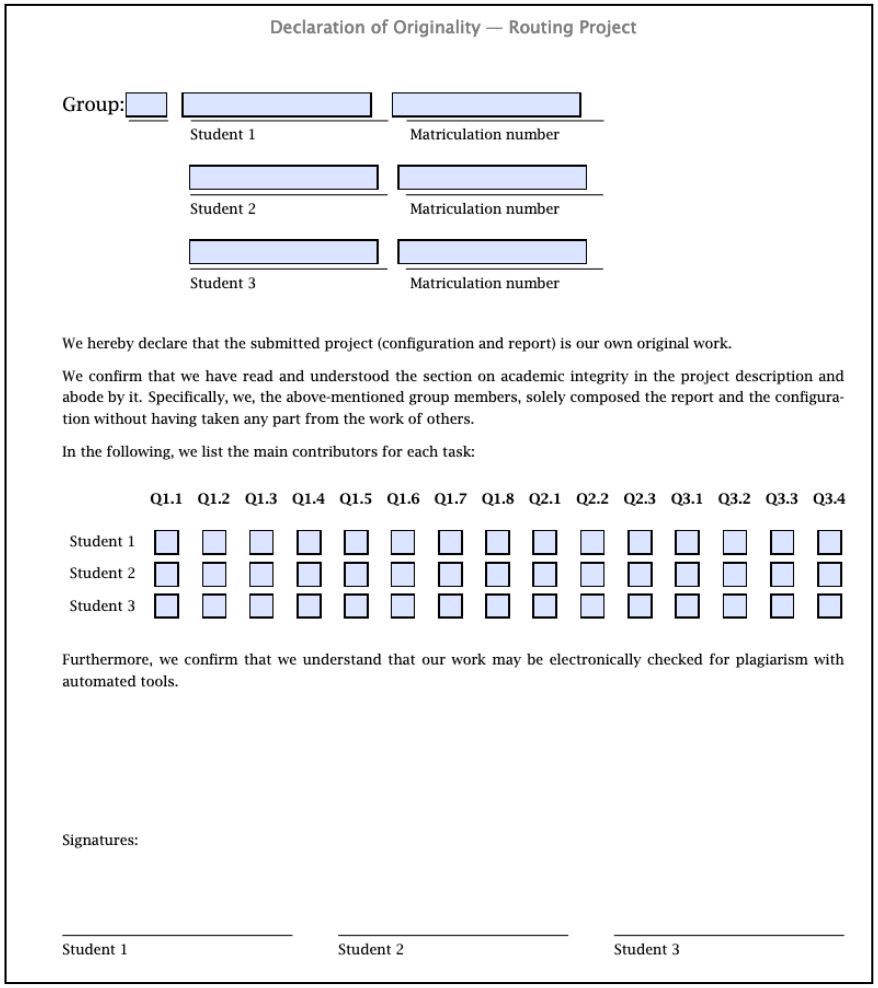
Make sure that you push your final config, report
and declaration of originality to your GitLab repository

Late submissions are possible but will result in
partial credits as described here: https://comm-net.ethz.ch/

Let us know via Slack or email if there are any problems

But don’t expect us to answer late at night

Fill out the declaration of originality



Declaration of Originality — Routing Project

Group:

Student 1 Matriculation number

Student 2 Matriculation number

Student 3 Matriculation number

We hereby declare that the submitted project (configuration and report) is our own original work.

We confirm that we have read and understood the section on academic integrity in the project description and abode by it. Specifically, we, the above-mentioned group members, solely composed the report and the configuration without having taken any part from the work of others.

In the following, we list the main contributors for each task:

	Q1.1	Q1.2	Q1.3	Q1.4	Q1.5	Q1.6	Q1.7	Q1.8	Q2.1	Q2.2	Q2.3	Q3.1	Q3.2	Q3.3	Q3.4
Student 1															
Student 2															
Student 3															

Furthermore, we confirm that we understand that our work may be electronically checked for plagiarism with automated tools.

Signatures:

Student 1 Student 2 Student 3

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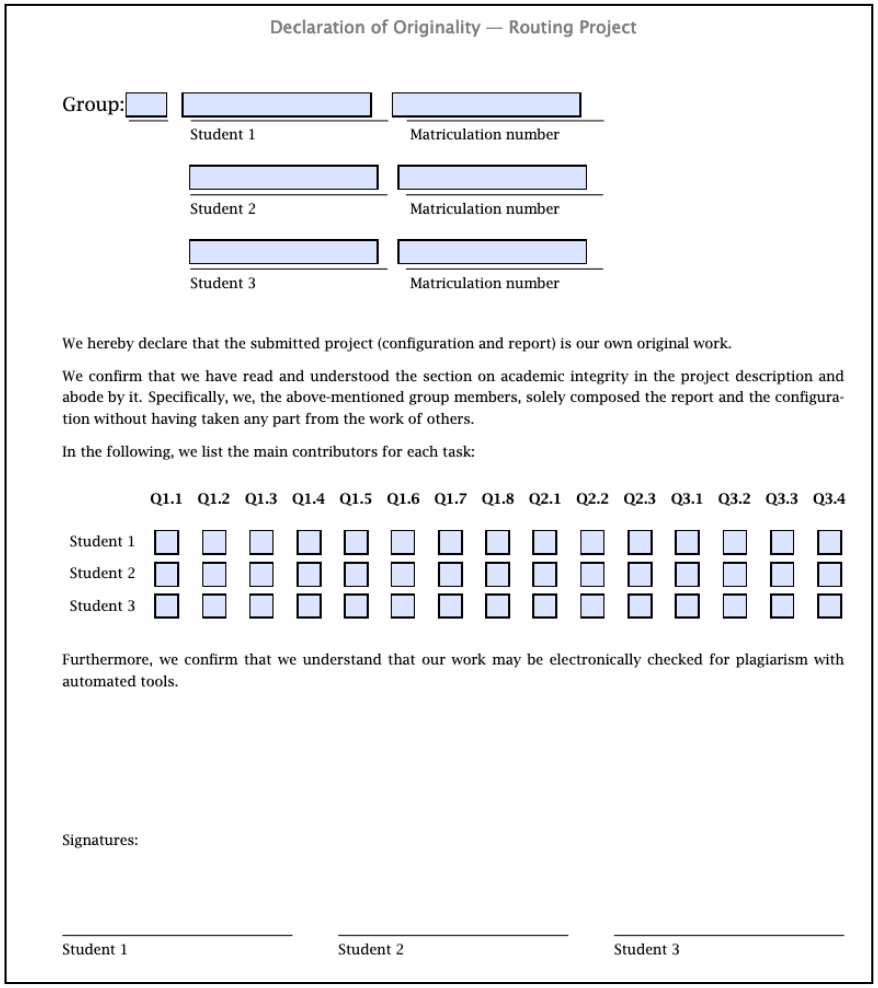

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Student 1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Student 2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Student 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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← Would allow us to detect severe problems, e.g. one student who did not work at all

Normally, every group member will get the same final grade

Important information to your report

Remove unrelated entries from e.g., print screens

Only show the relevant pieces

As long as we can easily understand what you want to express, we do not care about the report layout

If you cannot show something because of your neighbors, explain that in the report and we will accept it

Submission demo

Watch the recorded video!

The demo closely follows the instructions
from the wiki („1.1 General Instructions“)

Communication Networks

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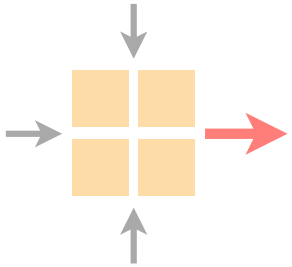

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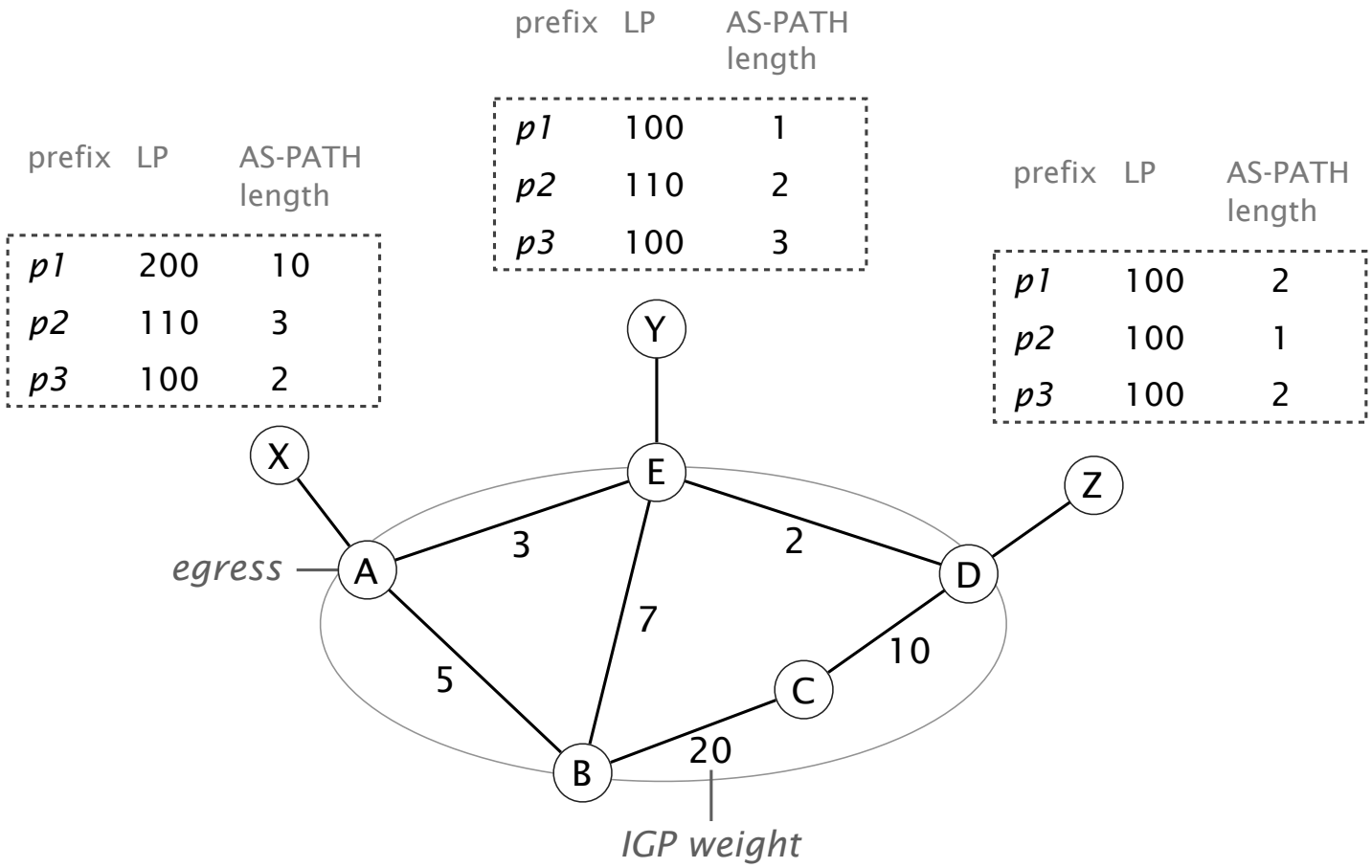
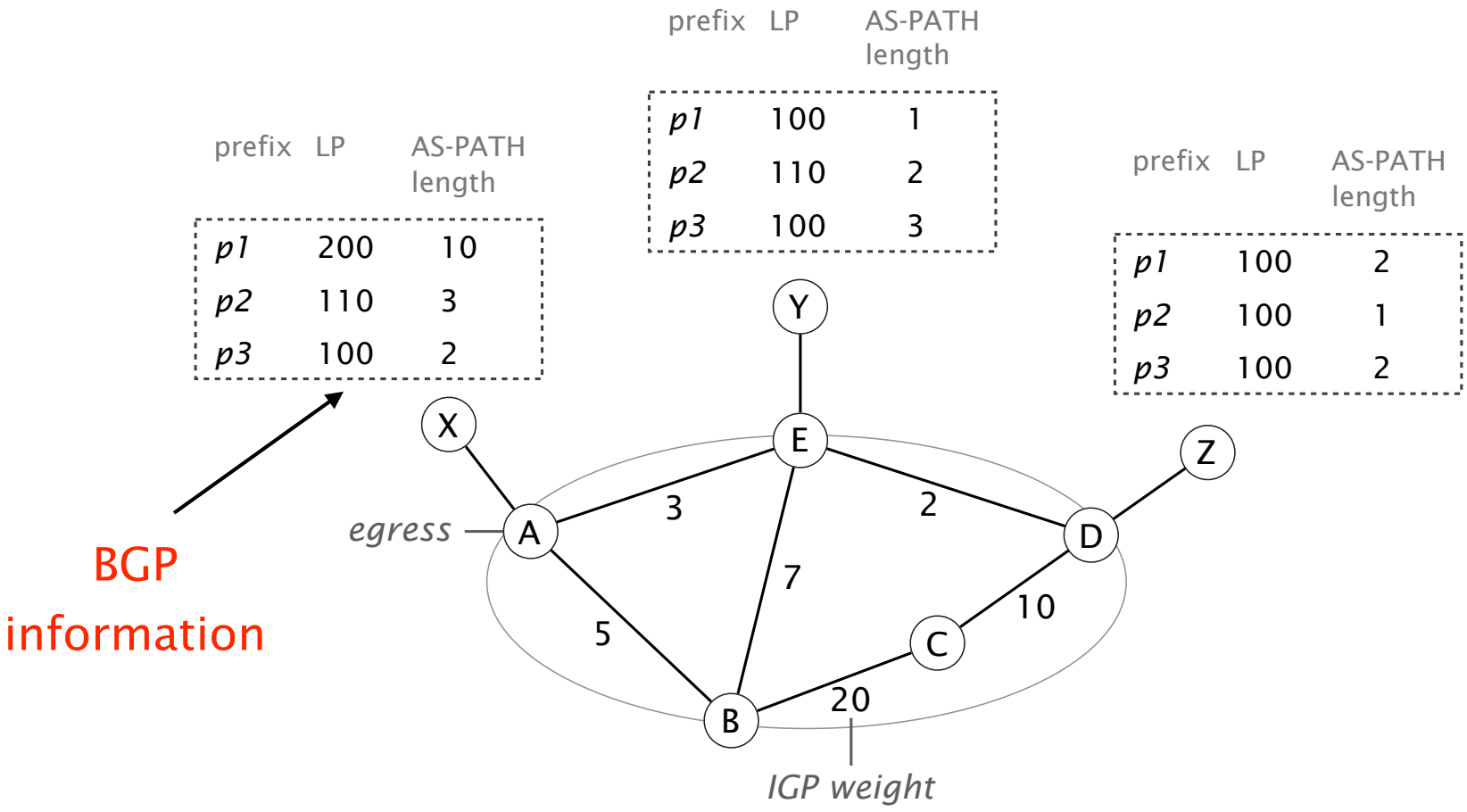
Task 8.1: Putting Everything Together

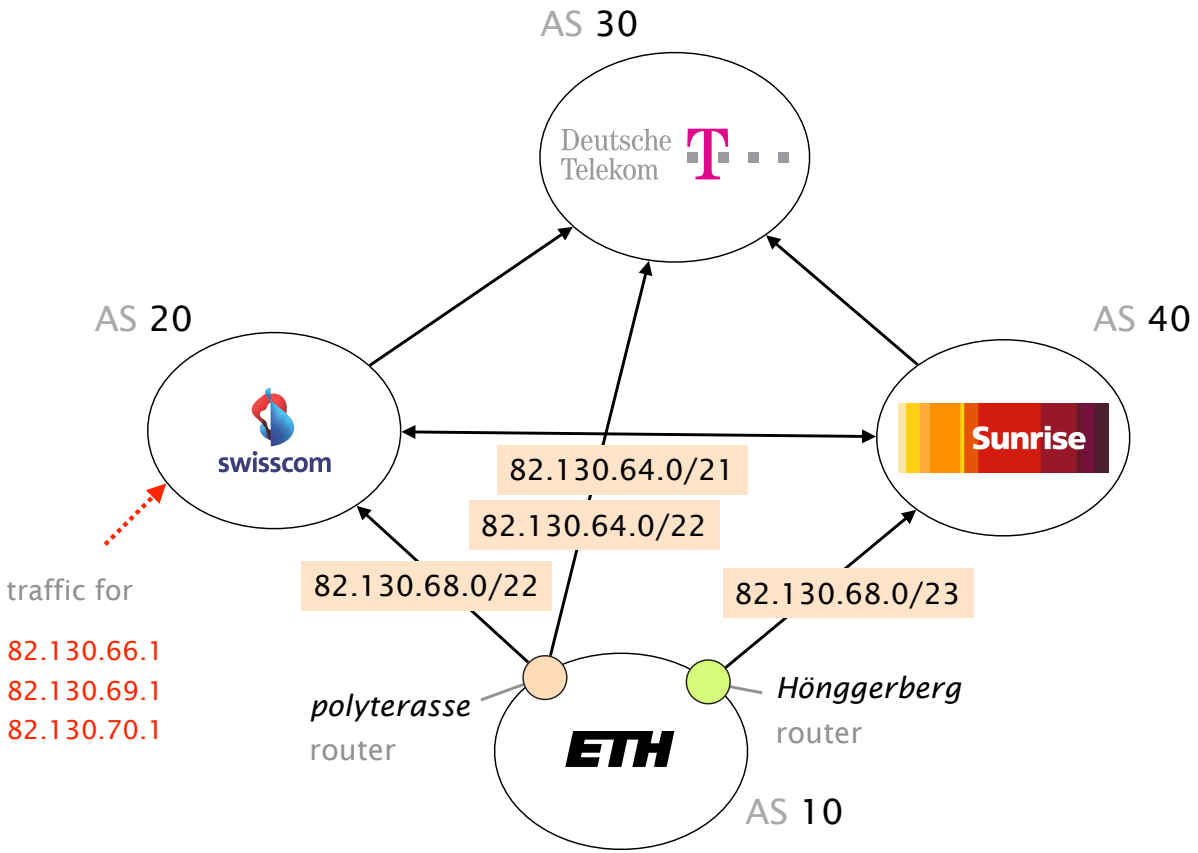


For each router and prefix, find the selected egress and next-hop

Task 8.1: Putting Everything Together

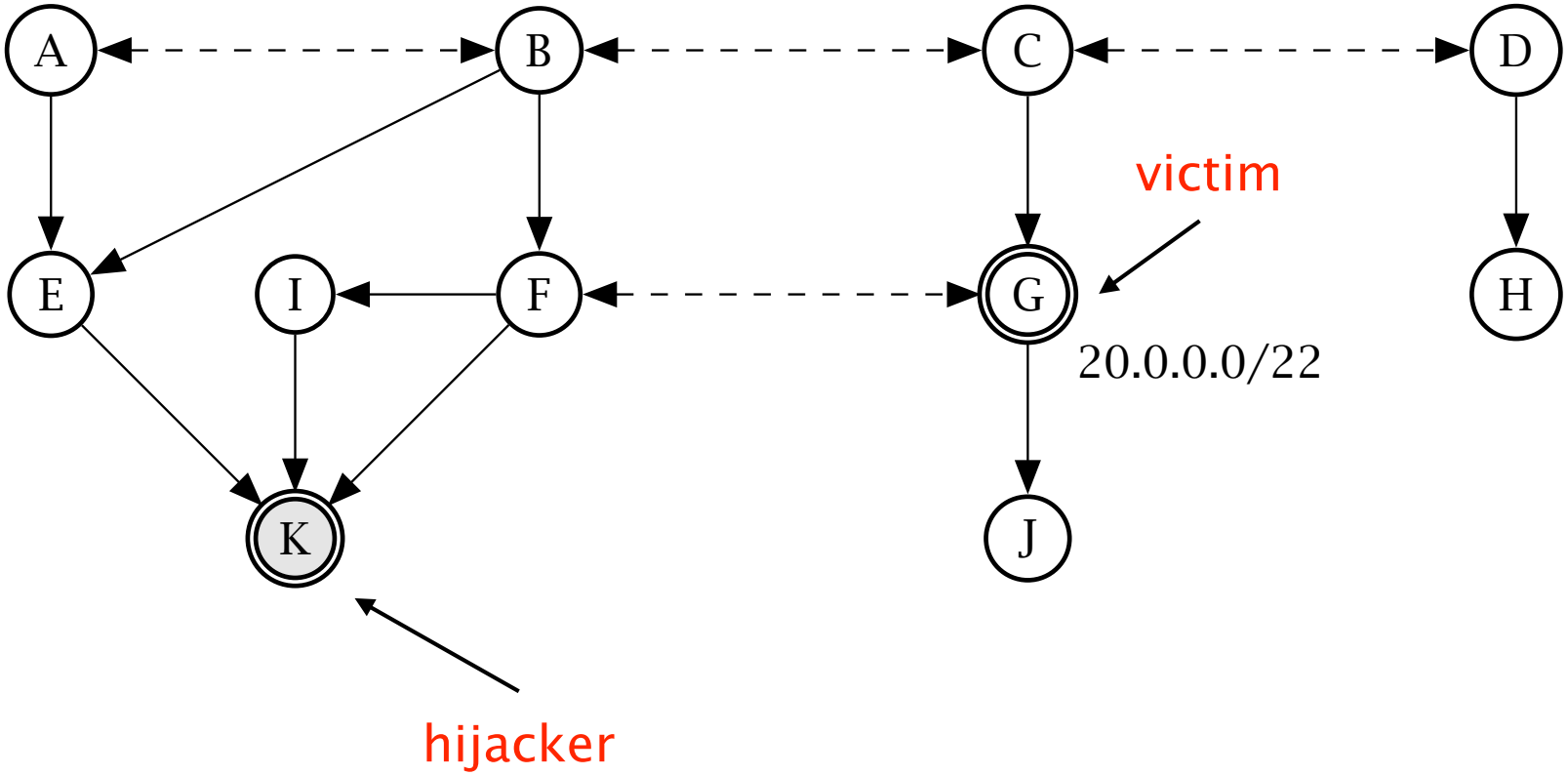


Task 8.2: Traffic (not so much) Engineered



Remember, forwarding based on the longest-matching prefix

Task 8.3: BGP Hijack



Explore different attack scenarios with various success and visibility

Task 8.3: BGP Hijack

For this exercise, assume that AS G (victim) always prefers its internal route to reach IPs in 20.0.0.0/22

You will encounter the principle of AS path poisoning

Abuse the BGP loop prevention mechanism,
by adding specific ASes to the AS path

AS path poisoning gives the hijacker some control over which ASes are/are not affected by the hijack

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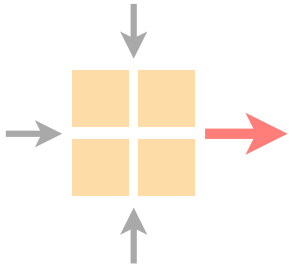

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