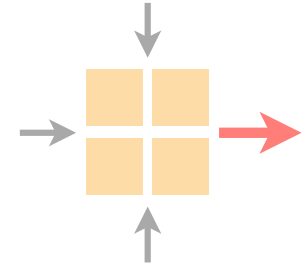


Communication Networks

Spring 2020



Tobias Bühler

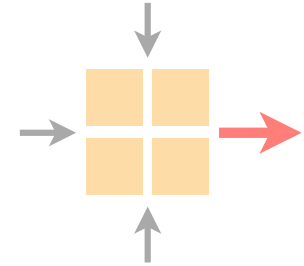
<https://comm-net.ethz.ch/>

ETH Zürich

April 9 2020

Communication Networks

Exercise 7



Routing project

Overview current assignment

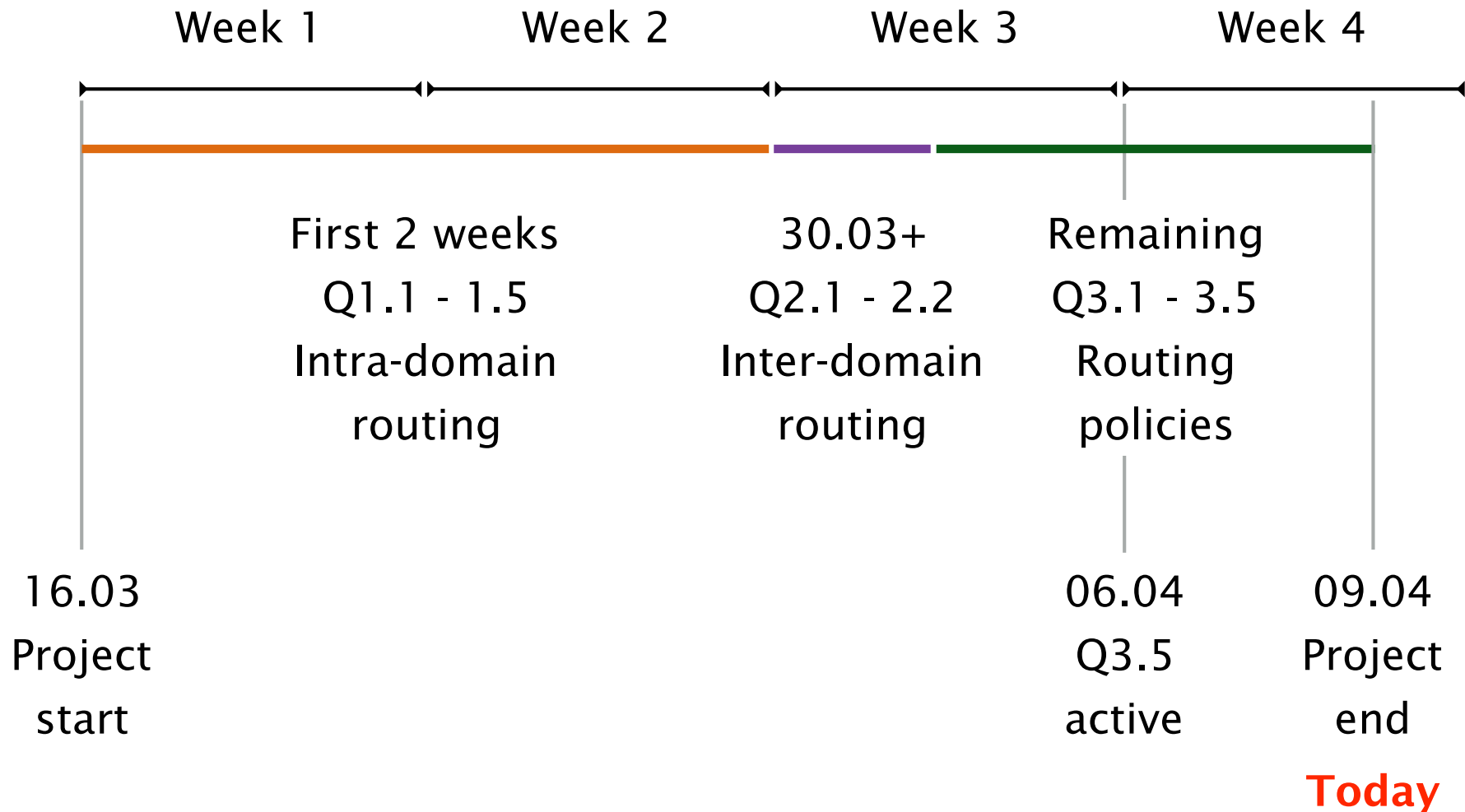
Old exam multiple choice question

Solutions will be published next week

[illegible]

08.04 around 11:00

Routing project timetable



The deadline for the routing project is
today at midnight

You can still ask us questions
during the exercise session or later today

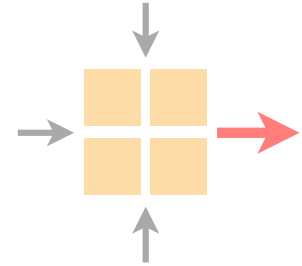
Submit your configs (**newest version**) as well as your report
via email. Subject: **[comm net] groupX project 1**

Please send the email to:

Ivanbever@ethz.ch, thomahol@ethz.ch and buehlert@ethz.ch

Communication Networks

Exercise 7



Routing project

Overview current assignment

Old exam multiple choice question

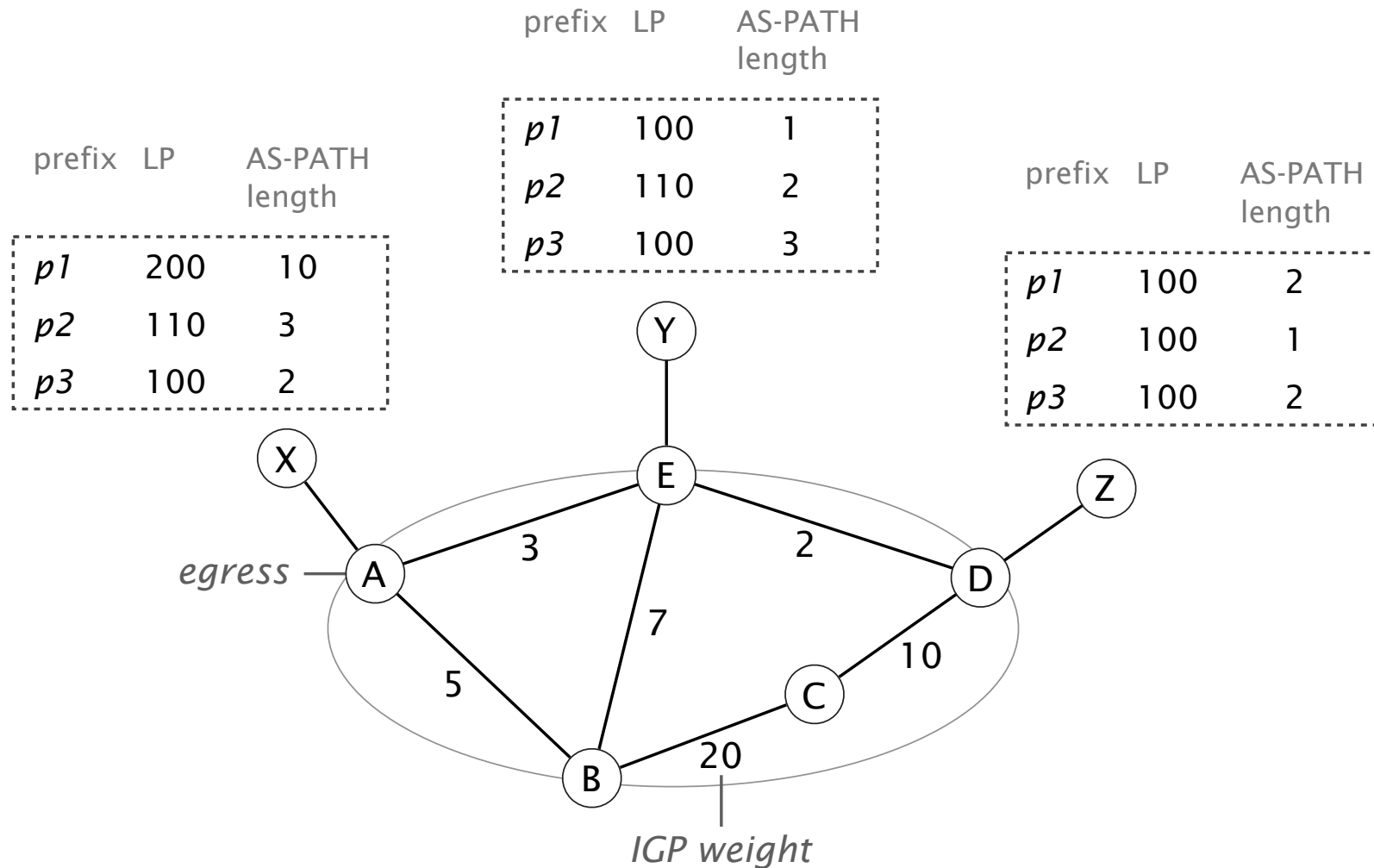
Solutions will be published next week

Today's exercise consists of two old BGP exam questions

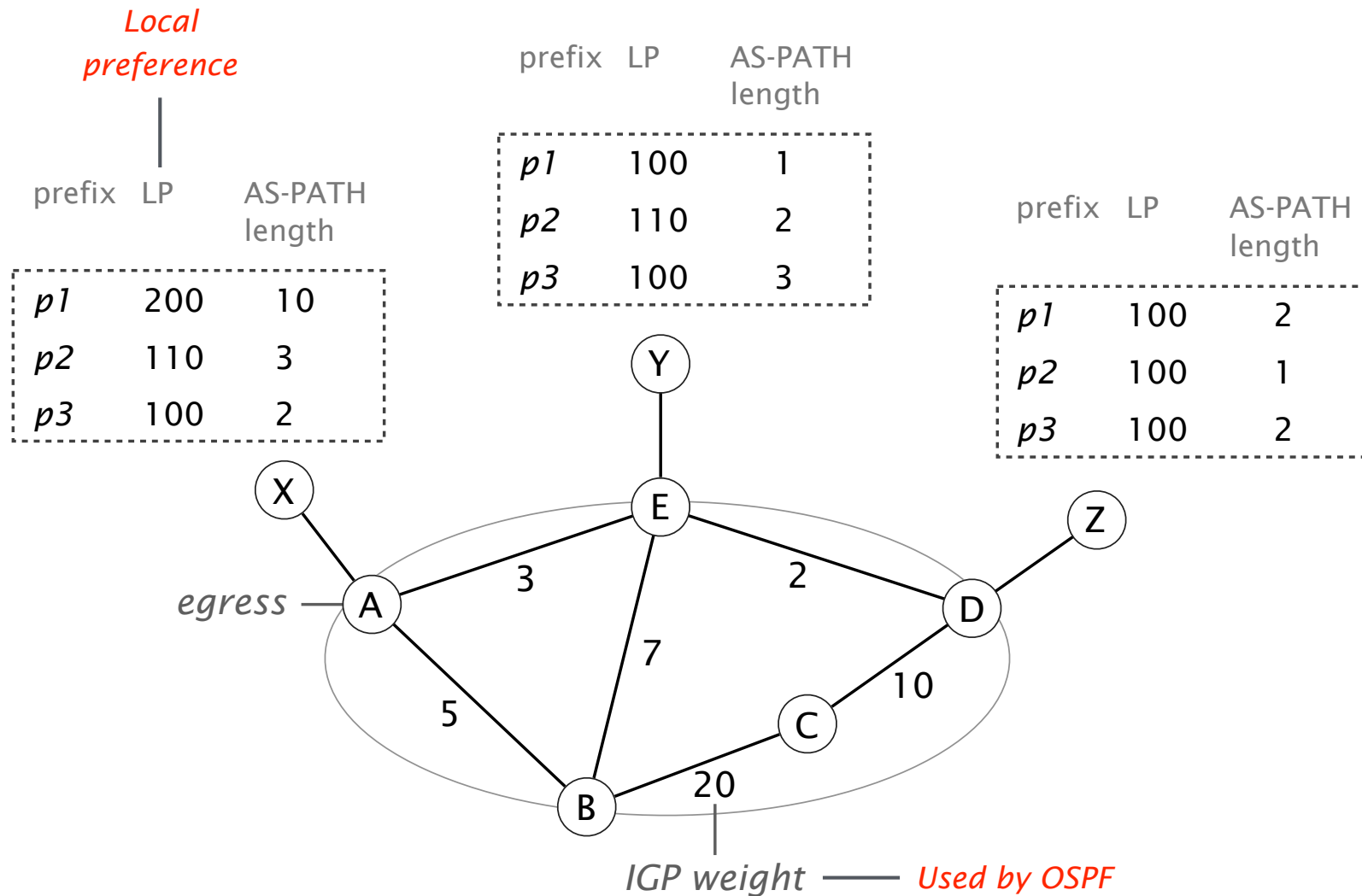
As normal, you will receive detailed solutions next week,
unlike for the old exams online

BGP is a main topic of the lecture,
you can also expect a large BGP part in this year's final exam

Task 1: Putting everything together (exam 2016)



Task 1: Putting everything together (exam 2016)



Task 1: Putting everything together (exam 2016)

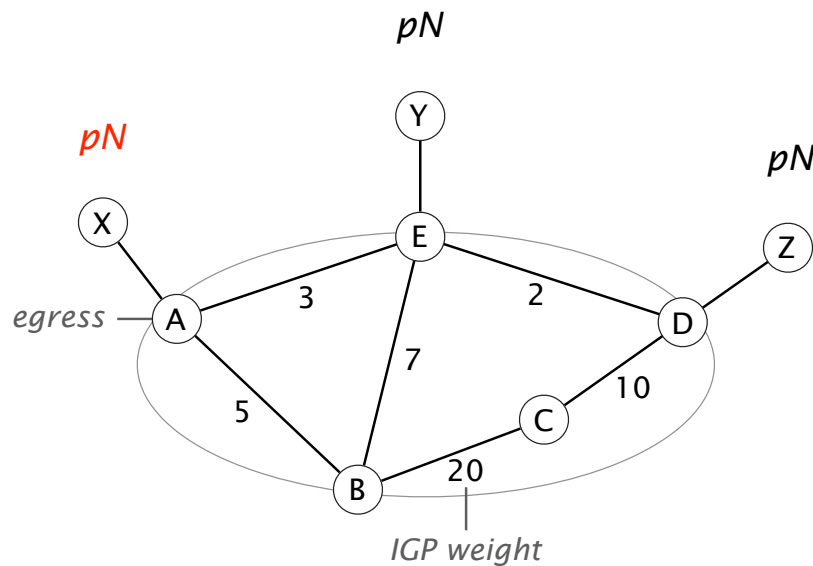
Your goal: find the used *egress* and *internal next hop* for all routers (A, B, C, D, E) and each prefix (p1, p2, p3)

Use (part of) the BGP decision algorithm:

- Local preference value (higher is better)
- AS path length (shorter is better)
- IGP path to the next-hop (lowest cost is preferred)

Task 1: Putting everything together (exam 2016)

Example: we want to find the egress and internal NH for prefix pN . We know that X advertises the best route

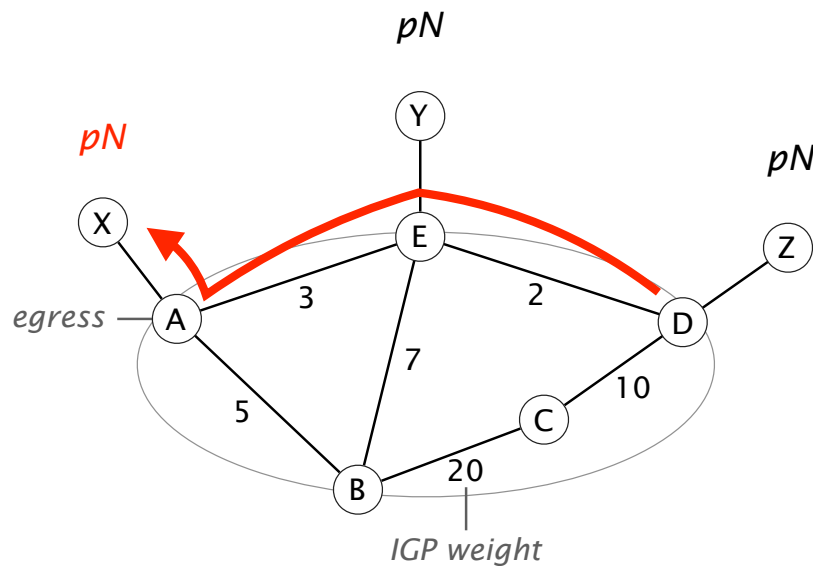


D

prefix egress internal NH

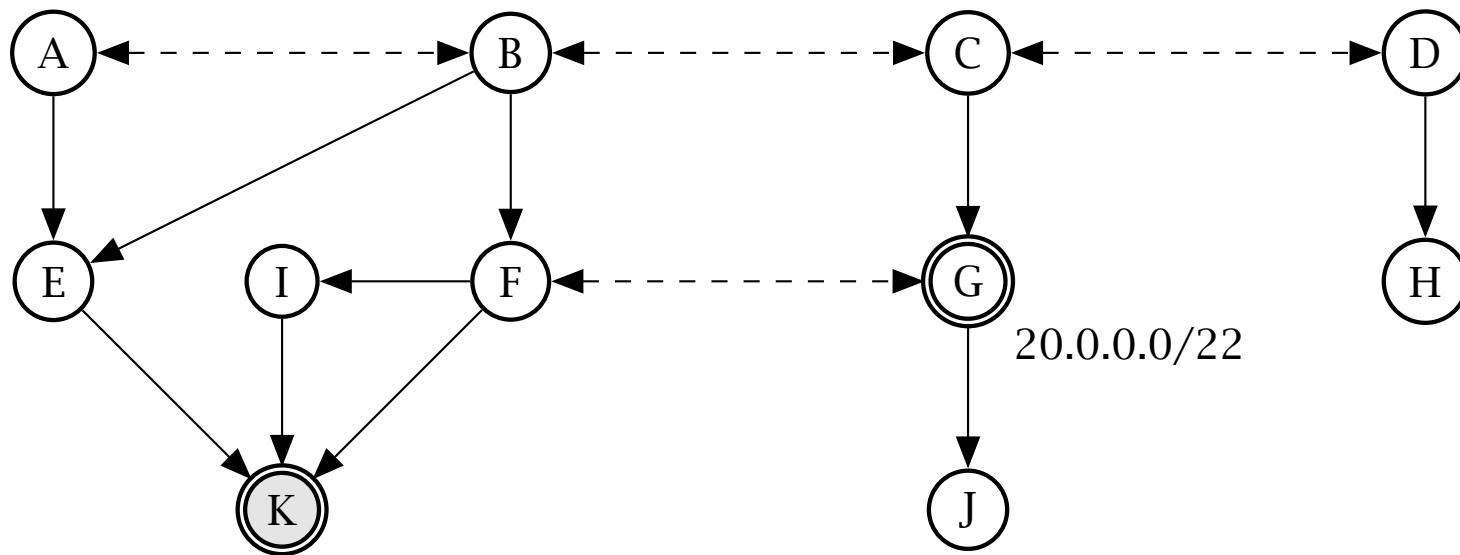
Task 1: Putting everything together (exam 2016)

Example: we want to find the egress and internal NH for prefix pN . We know that X advertises the best route

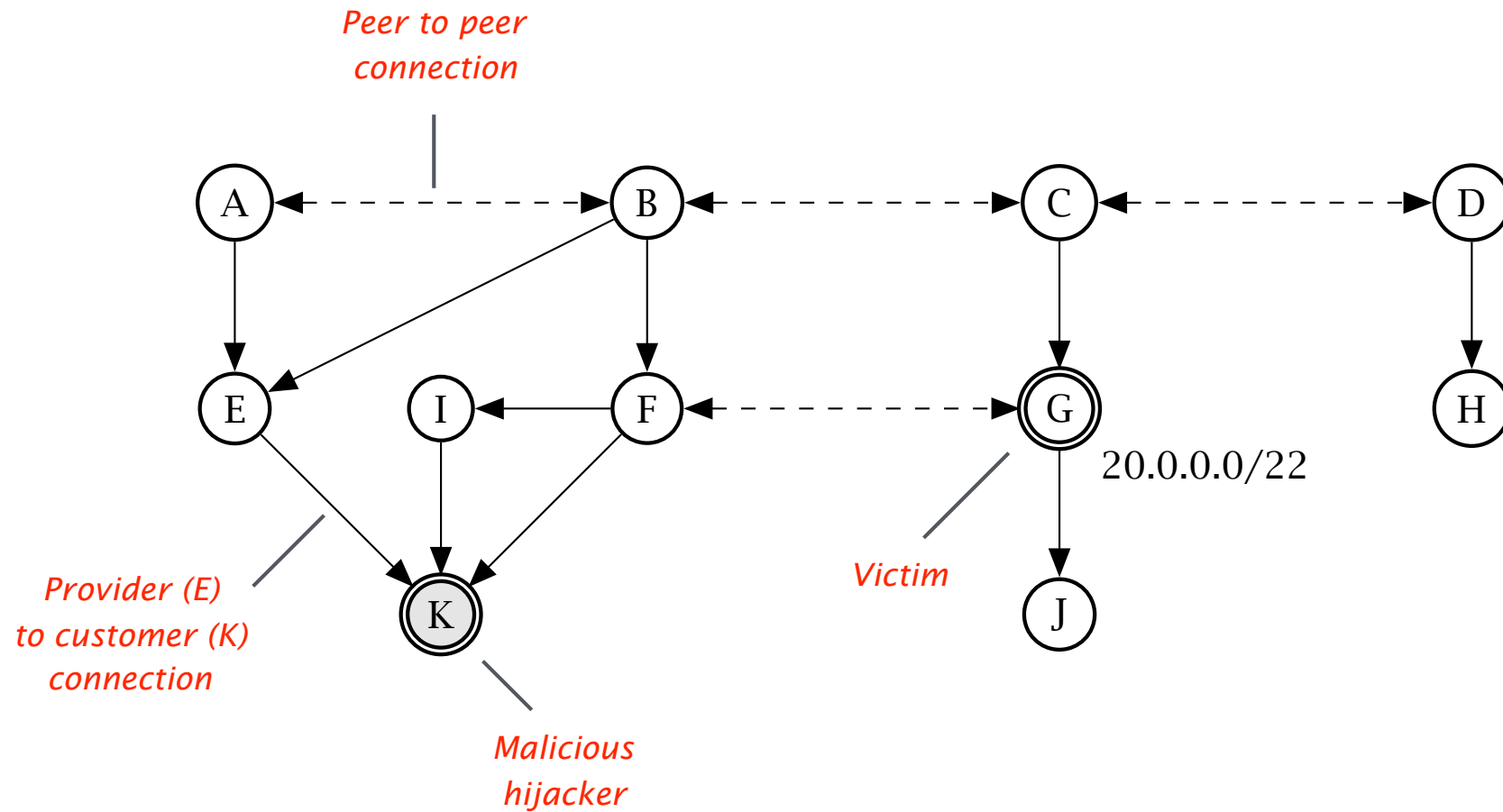


D		
prefix	egress	internal NH
pN	A	E

Task 2: BGP Hijack (exam 2018)



Task 2: BGP Hijack (exam 2018)



Task 2: BGP Hijack (exam 2018)

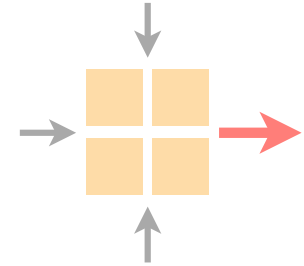
Apply your knowledge from the lecture
and question 3.5 from the routing project

Hijacker's goal 1: attract/hijack as much traffic as possible
(from as many ASes as possible)

Hijacker's goal 2: keep a return path open
to perform an *interception* rather than a *blackhole* attack

Communication Networks

Exercise 7



Routing project

Overview current assignment

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Exam 2017 - Task 3: Warm-up (true/false questions)

Normally, we always ask a set of true/false questions at the beginning of each larger exam topic

Rules:

You select the correct answer: +1 point

You select the wrong answer: -1 point

You do not select anything: 0 point

In each true/false block you cannot receive fewer than zero points

Exam 2017 - Task 3: True/false question 1

In the classical BGP selection and exportation policies (with providers, peers, customers), an Autonomous System (AS) will never announce a route received from a provider to another provider.

Exam 2017 - Task 3: True/false question 1

In the classical BGP selection and exportation policies (with providers, peers, customers), an Autonomous System (AS) will never announce a route received from a provider to another provider.

True

Exam 2017 - Task 3: True/false question 2

An AS has full control over its outgoing traffic.

Exam 2017 - Task 3: True/false question 2

An AS has full control over its outgoing traffic.

True

Exam 2017 - Task 3: True/false question 3

The forwarding table of a BGP router contains all routes received from its BGP peers whereas the routing table only contains the BGP best path.

Exam 2017 - Task 3: True/false question 3

The forwarding table of a BGP router contains all routes received from its BGP peers whereas the routing table only contains the BGP best path.

False

Exam 2017 - Task 3: True/false question 4

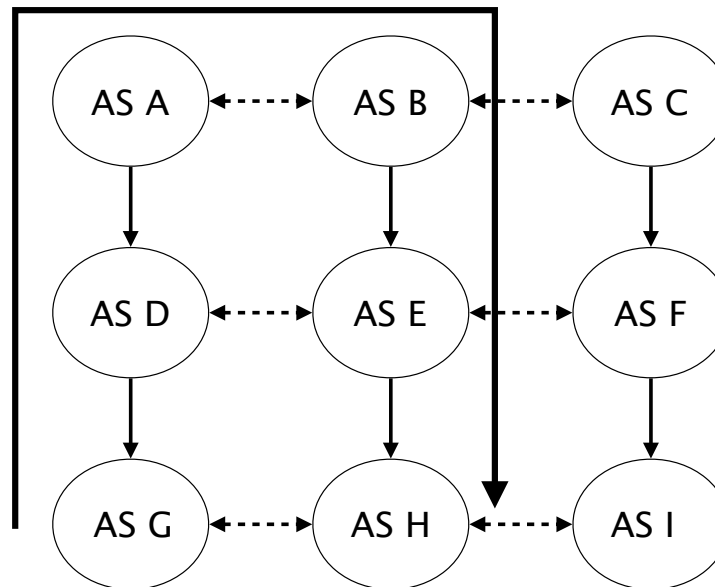
Tier-1s only have Tier-2s as customers.

Exam 2017 - Task 3: True/false question 4

Tier-1s only have Tier-2s as customers.

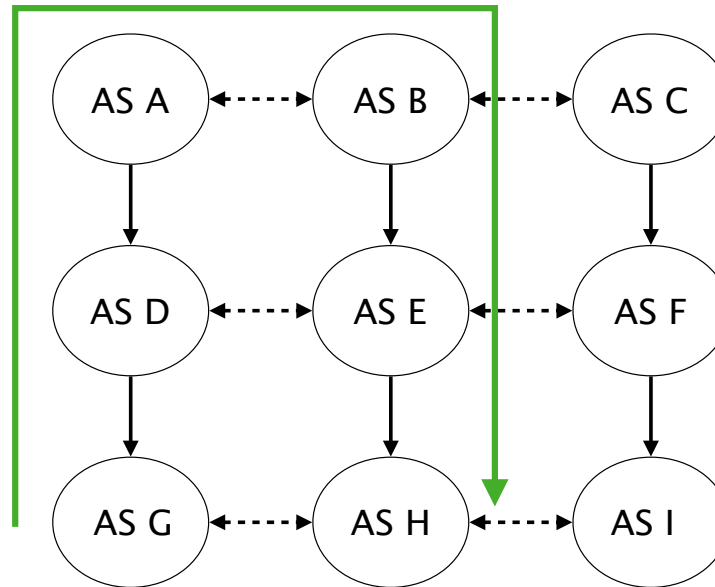
False

Exam 2017 - Task 3: True/false question 5



The path [G, D, A, B, E, H] from AS G to AS H is valid.

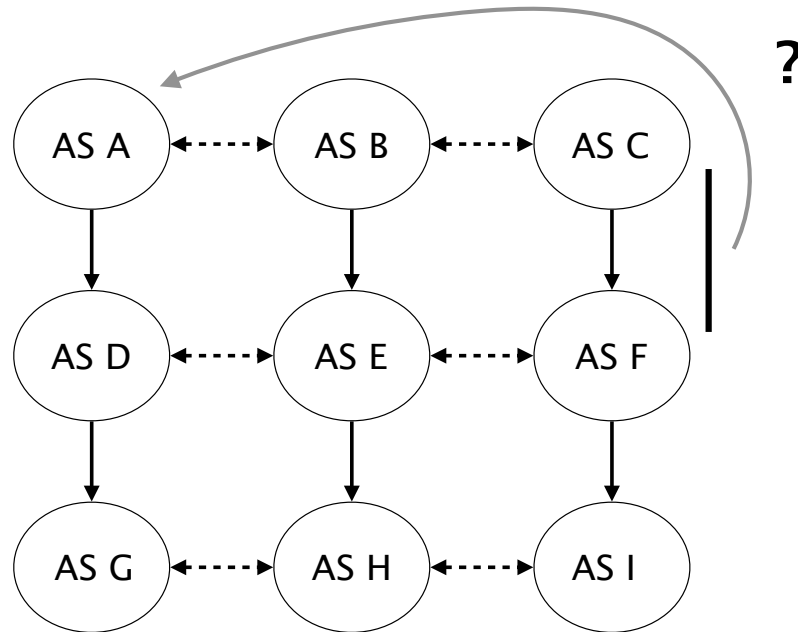
Exam 2017 - Task 3: True/false question 5



The path [G, D, A, B, E, H] from AS G to AS H is valid.

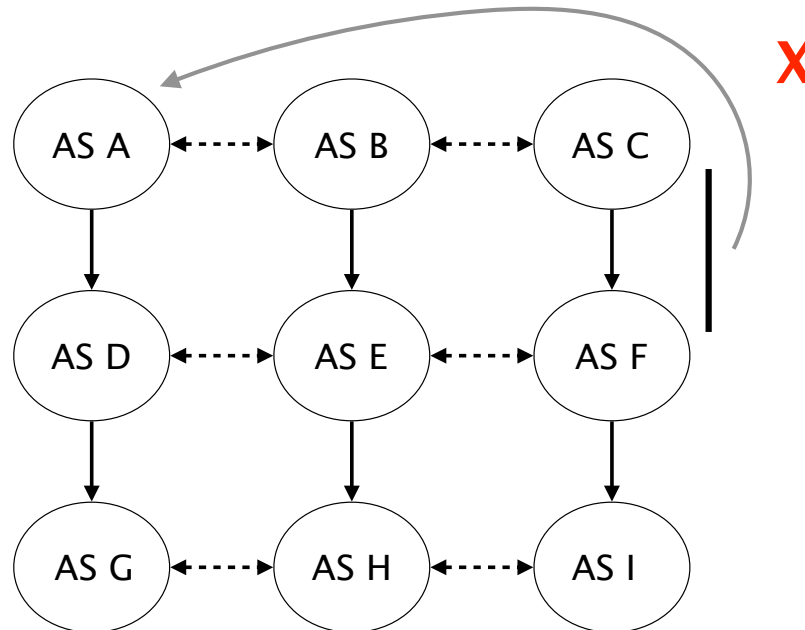
True

Exam 2017 - Task 3: True/false question 6



AS A receives at least one route traversing the link between AS C and AS F.

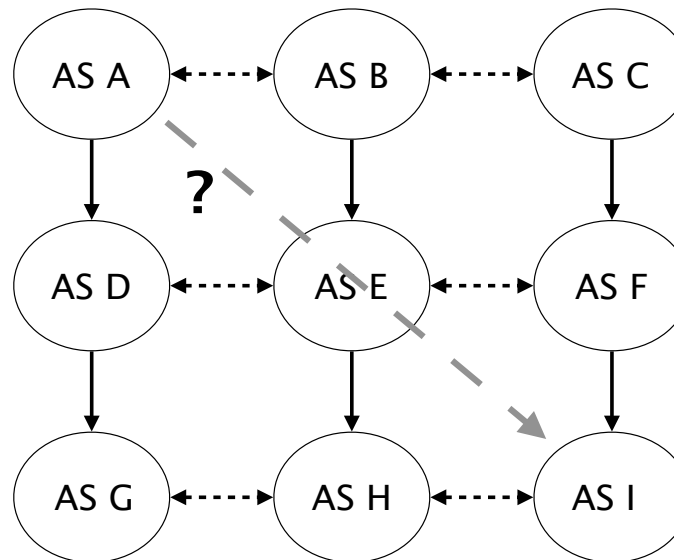
Exam 2017 - Task 3: True/false question 6



AS A receives at least one route traversing the link between AS C and AS F.

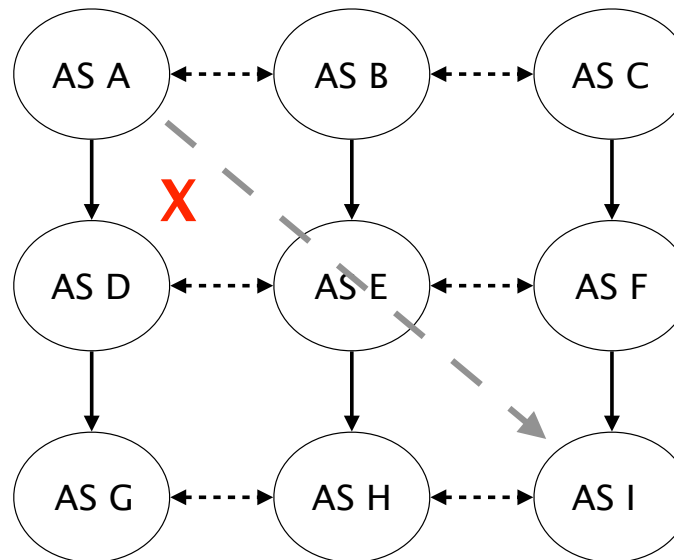
False

Exam 2017 - Task 3: True/false question 7



AS A's best route to reach AS I has an AS-PATH length of 4.

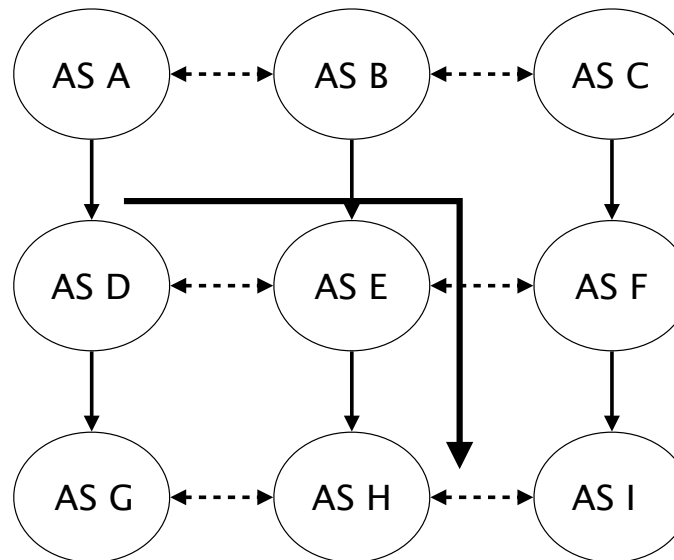
Exam 2017 - Task 3: True/false question 7



AS A's best route to reach AS I has an AS-PATH length of 4.

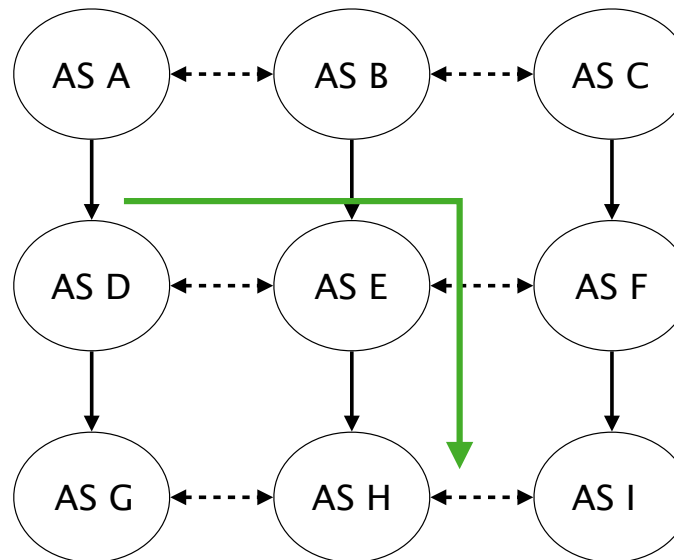
False

Exam 2017 - Task 3: True/false question 8



AS D uses the path [D, E, H] to reach AS H.

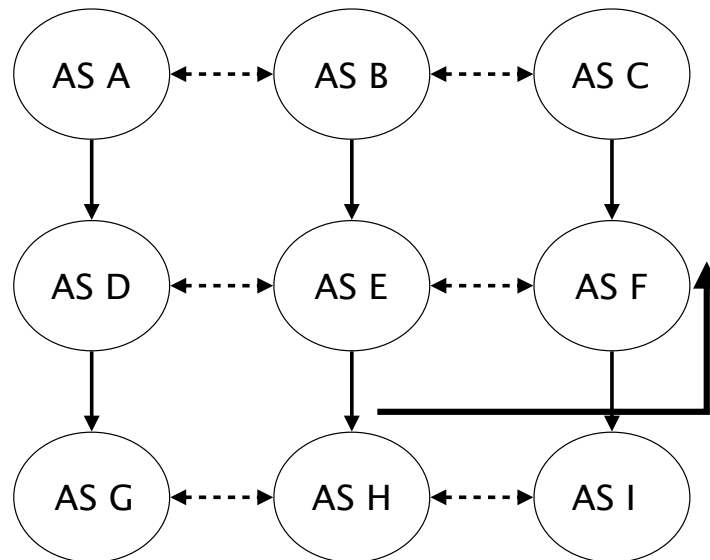
Exam 2017 - Task 3: True/false question 8



AS D uses the path [D, E, H] to reach AS H.

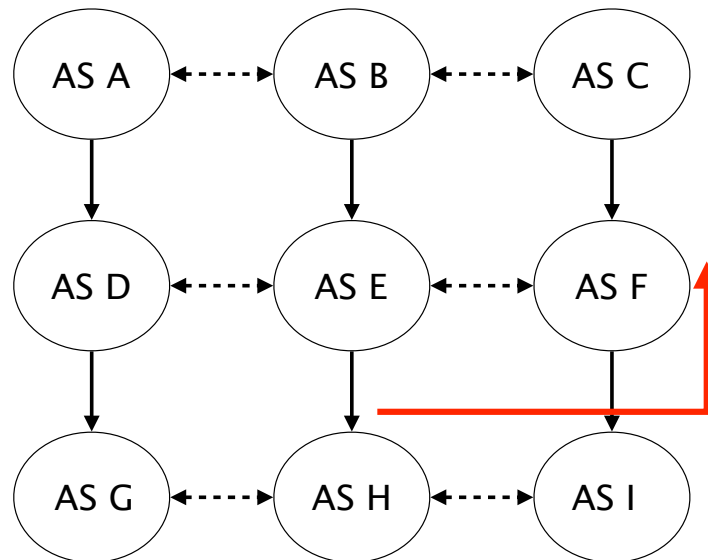
True

Exam 2017 - Task 3: True/false question 9



AS H uses the path [H, I, F] to reach AS F.

Exam 2017 - Task 3: True/false question 9

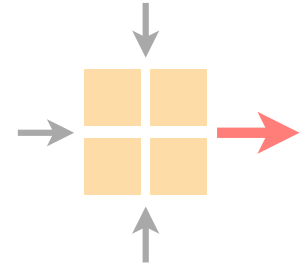


AS H uses the path [H, I, F] to reach AS F.

False

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Exercise 7



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