Communication Networks

Spring 2021

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

ETH Zürich

18 March 2021

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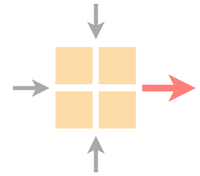

Exercise overview

Old exam question

Time to solve tasks

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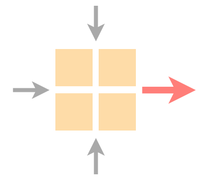

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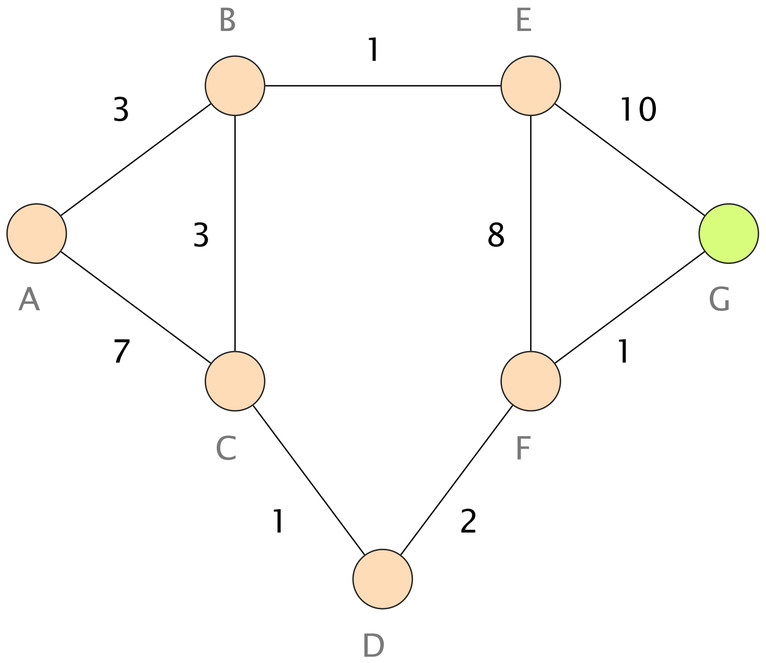
Task 1
Distance Vector

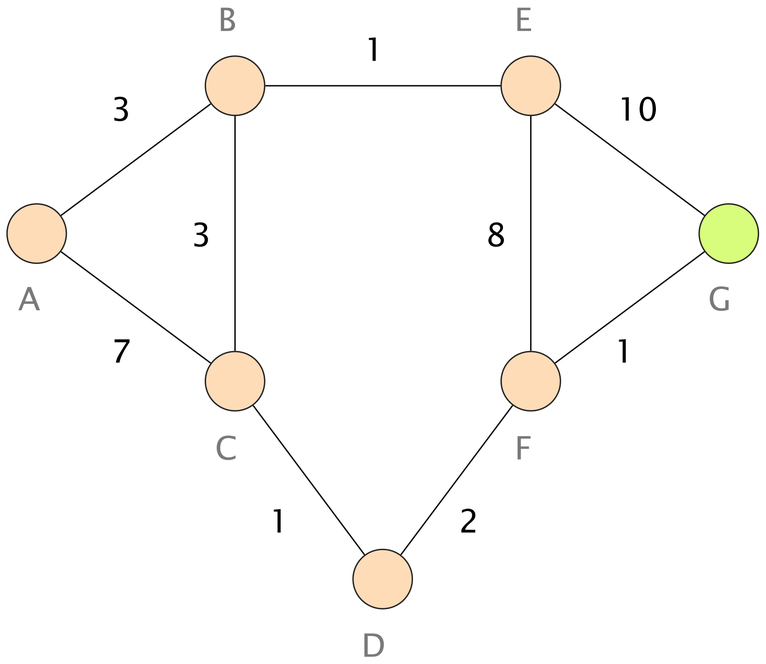


Lecture refresher

Essentially,
there are three ways to compute valid routing state

	Intuition	Example
#1	Use tree-like topologies	Spanning-tree
#2	Rely on a global network view	Link-State SDN
#3	Rely on distributed computation	Distance-Vector BGP

Task 1
Distance Vector



"Compute the paths [..] **to G**"

each link takes one time step to transmit DV messages

parallelized "flooding" possible

tie break: alphabetical order

Task 2 + 3

Transport Concepts

analyse characteristics
of (un)reliable transport

assess the usefulness
of “negative” ACKs

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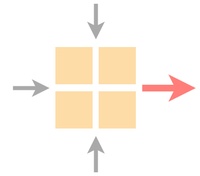

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Exam 2017: multiple choice

menti.com: 5343 6947

The content of the TCP header is independent of the network layer technology used below (i.e. IPv4 or IPv6).

It is not possible to reliably transmit data over the Internet using UDP as a transport protocol.

2868 0878

In a loss-free and congestion-free network, sending small amounts of data with UDP is faster than with TCP.

Consider a TCP connection. Doubling the sender and receiver windows will double the observed bandwidth.

5547 8667

In a sliding window protocol with cumulative ACKs, a new ACK (observed for the first time) will always move the sender window.

Exam 2017: multiple choice

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✓ The content of the TCP header is independent of the network layer technology used below (i.e. IPv4 or IPv6).

✗ It is not possible to reliably transmit data over the Internet using UDP as a transport protocol.

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✓ In a loss-free and congestion-free network, sending small amounts of data with UDP is faster than with TCP.

✗ Consider a TCP connection. Doubling the sender and receiver windows will double the observed bandwidth.

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✗ In a sliding window protocol with cumulative ACKs, a new ACK (observed for the first time) will always move the sender window.

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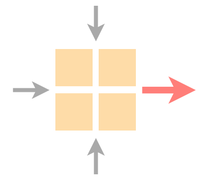

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