

Master Course Computer Networks

Exercise 5

(submission until January 14th, 10:30 CET via SVN)

(submission of corrected version until January 17th, 10:30 CET via SVN)

Note: Each subproblem gives you 0, 1 or 2 points. See the slides from October 29th for more information on the 0.3 bonus.

Note 2: Subproblems marked by * can be solved without preceding results.

IPv6 (AutoConf FTW?)

- a)* IPv6 hosts can configure their network addresses automatically using stateless auto configuration. Describe how this process works!
- b) What other forms of address configuration are available with IPv6? What are their advantages and disadvantages compared to IPv6 stateless address autoconfiguration?
- c)* How do the IPv6 privacy extensions work? Describe their purpose and use case!

Routing (BGPotaroo)

Figure 1 shows a topology with the Autonomous Systems A, ..., G. The arrows show the connections between the ASes and also their relationship. $A \leftarrow C$ means that A is a provider AS for the customer AS C. $C \leftrightarrow F$ means that C and F are peering ASes.

- a)* Which routes are announced by B in Figure 1 if the goal is to make as much financial profit as possible while avoiding loss?
- b)* What does the k-core algorithm determine? Apply the k-core algorithm applied to the topology in Figure 1! Which are the remaining ASes?
- c)* How would the connectivity of Autonomous Systems be organized when the diameter (maximum path length) is logarithmically to the number of ASes?
- d)* What is the difference between prefix hijacking and AS hijacking?

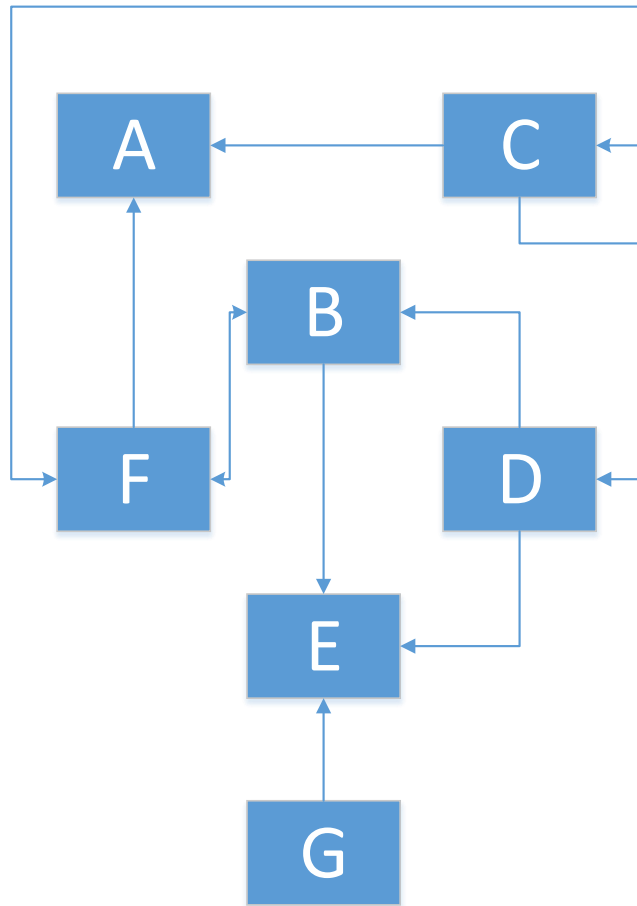


Figure 1: Autonomous System topology.