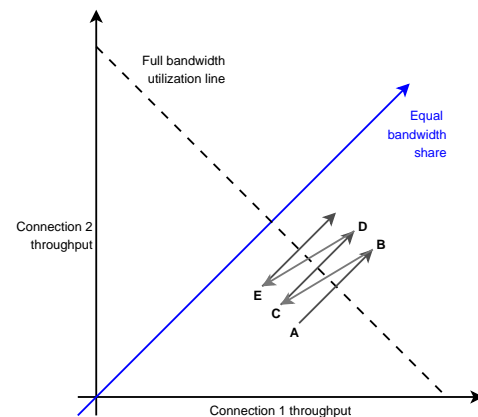


10th Assignment: Network Protocols and Architectures, WS 13/14

Question 1: (20 points) *Fairness of TCP: AIMD vs. AIAD*

Refer to the figure on the right which illustrates the convergence of TCP's additive-increase, multiplicative-decrease (AIMD) algorithm. The figure shows the throughput by the two TCP connections 1 and 2. Suppose that instead of a multiplicative-decrease TCP decreases the window size by a constant amount. Would the resulting additive-increase, additive-decrease converge to an equal share algorithm? Justify your answer using a diagram similar to the figure on the right.



Question 2: (10 points) *Resource Allocation: Congestion Control*

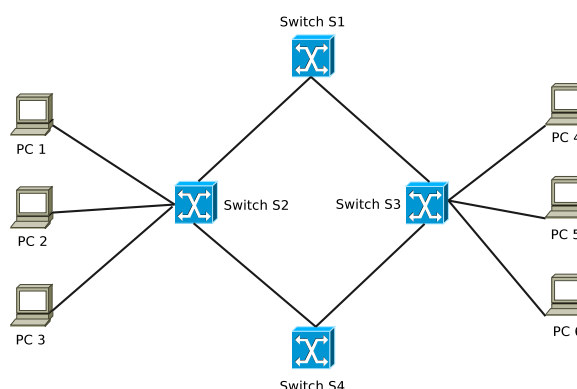
Discuss how the Internet would look like if every flow would be based on UDP and does not use congestion control.

Question 3: (10 points) *Security of ARP*

Explain the principle of ARP spoofing and discuss a way to defend against it.

Question 4: (10 points) *Switching Loops*

For redundancy reasons it might be a good idea to have a switch connected to several switches instead of only one. Have a look at the Figure below and explain why it can cause problems having switches S2 and S3 connected to both switches S1 and S4 and what can be done to prevent this.



Due Date: Wednesday, January, 15th 2014 only until 09:55 h s. t.

- As PDF files (no MS Office or OpenOffice files): Uploaded via ISIS (<https://www.isis.tu-berlin.de/2.0/course/view.php?id=349>)
- Put your name, StudentID number (Matrikelnummer) **and** the name of your tutor on your solution.