
Lab 4: UDP multicast – beaconing and discovery

The objective of this lab is to complete the peer-to-peer application developed in the previous lab to allow users to discover each others in order to be able to start gossiping sessions with the remote users.

The discovery mechanism relies on small messages, called *beacons*, sent periodically by each user to announce its presence. The beacons are sent to a multicast group, that all peers join when they start running the application. When a peer receives a beacon related to a user he never heard before, he adds this user to his neighbors list along with the time when the beacon has been received.

When a beacon is received, if it is related to an unknown user or a user that has not been seen for a long time, a new gossiping session is started in order to exchange files with this user.

Moreover, when a new user appears, a thread is started that periodically scans the directory of this user and a new gossiping session is started when the directory content changes.

The format of a beacon sent by a user to announce his host name and udp port used for the gossiping is the following (code: 4)¹:

code	version	IP_addr	udp_port	n	user_name
1	1	4 or 16	2	1	n

Complete the gossiping program to be able to start gossiping sessions by relying on the discovery mechanism, without asking user's inputs about the remote users informations.

Assignment: give an executable jar file with the Java sources. The program should display a help message describing the expected command line arguments when it is launched with the -h option

¹the version field represents the IP version (4 or 6) and determines the address length (4 or 16)