Peer to Peer Systems
Master Degree in Computer Science,
Computer Science and Networking,
Business Informatics
Academic Year 2015/2016

Final Term
Analysis of a Gossip Framework
Deadline 07-01-2016

The goal of this assignment is to investigate the generic framework presented in [1] which defines a peer-sampling service in decentralized manner. This is obtained by constructing and maintaining dynamic unstructured overlays through gossiping membership information. The framework is more general with respect to the one presented in the P2P Systems lectures and can be instantiated by specifying the values of a set of key parameters to obtain different gossip behaviours. These parameters are the following ones: the strategy to select the peer to gossip with, the way the gossiping peers exchange information and the strategy for selecting the portion of view to exchange with the gossip partner. The paper presents also a set of evaluations of the proposed framework conducted through the Peersim simulator.

This assignment requires:

- a description of the framework: it is required to present a set of simple examples showing the behaviours which can be obtained by instantiating the parameters of the framework in different ways.

- a discussion on the experimental results presented in the paper. In particular, it is required to discuss the results related to the important properties of the overlay in correspondence with particular settings of the parameters of the framework. Interesting properties are degree distribution, average path length, clustering coefficient and behaviour of the overlay in presence of churn.

The assignment is optional. It must be done individually and its deadline is 7 January 2016. If the evaluation of both the mid and of this final term will be positive, the student will be relieved from the oral exam. Submit the assignment through Moodle. Its evaluation will be notified through the Moodle as well.

References

[1] Mark Jelasity, Spyros Voulgaris, Rachid Guerraoui, Anne Marie Kermarrec, Maarten van Steen, *Gossip-based peer sampling*, ACM Transaction on Computer Systems, October 2007.