Development of the Bandwidth Measurement Techniques for Wireless Local Area Networks

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Abstract

An increasing number of web users and the types of services in demand have led to the need for higher bandwidths. However, it is not always possible to make bandwidth investments immediately when needed. Thus, estimating active usable bandwidth has continued to gain importance. In this project, methods for estimating available bandwidth were analyzed and the Initial Gap Increasing (IGI) method for wired networks was improved and applied to wireless networks. The appropriate environment was prepared to test the method of measuring bandwidth based on the dispersion of packages over the network. The method's weaknesses were spotted in this environment. An algorithm was developed to increase the pace of the bandwidth measurement process. The IGI and this method were comparatively analyzed in the test environment. The parameters of the algorithm showing the best performance were specified. A significant amount of speed was gained in wired networks via these parameters. Finally, two different test environments containing both wired and wireless connections were established in order to measure wireless network performance and the working conditions of the algorithm developed.

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