

ABSTRACT

Kubyshyn M. Y. Traffic loading research of computer networks

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The thesis deals with the research of traffic loading in passive computer networks. Network bandwidth is increasing year by year, so for the purpose of effective resource usage, it is need to connect the maximum number of users to one line and apply maximum of fiber's transmission line information potential. The EPON technology of network designing providing access over one fiber to a large amount of users is the solution for this problem. Research reveals network bandwidth traffic built with GEPON technology. While researching a computer network traffic it has been discovered for the first time a model dependency of studied signals durations, which gives an opportunity to analyze different signal durations with different model types. The prior reasoning of mathematical models has been done including the research duration, and reasoned model dependency from received research statics data. It has been recommended to use different model types to evaluate traffic loading depending on data registration time. In particular cases, model Queuing System is appropriate for daily traffic loading, PCRS — for weekly using, fractal analysis methods — for monthly and annual usage. The method, which allows performing prognostication network loading using statistical traffic loading data in passive networks has been introduced for the first time.

Keywords: passive network, traffic loading, signal, statistical specifications.