



УДК 665.642

ИССЛЕДОВАНИЕ КОРПОРАТИВНЫХ МУЛЬТИСЕРВИСНЫХ СЕТЕЙ



RESEARCH CORPORATE MULTISERVICE NETWORKS

Бахтияров Исрафил Натик

докторант кафедры
управления и системной инженерии,
Азербайджанский государственный
университет нефти и промышленности
israfilbaxtiyarov@gmail.com

Bakhtiyarov Israfil Natik

Doctorated study
of Department Control
and System Engineering,
Azerbaijan state oil and industry university
israfilbaxtiyarov@gmail.com

Аннотация. Рассмотрена структурная схема функционирования исследуемой модели корпоративных мультисервисных сетей связи с использованием сетевых элементов программно-конфигурируемых сетей. Получены формулы для расчета показателей вероятностно-временных характеристик корпоративных мультисервисных сетей связи.

Annotation. A structural diagram of the functioning is investigated model corporate multiservice communication networks using network elements software-defined networks is considered. Formulas are obtained for calculating the indicators of the probability-time characteristics corporate multiservice communication networks.

Ключевые слова: мультимедийные услуги, корпоративные мультисервисные сети связи, контроллер, коммутатор, программно-конфигурируемая сеть.

Keywords: multimedia services, corporate multiservice communication networks, controller, switch, software-defined network.

Creation of new and improvement of existing corporate multiservice communication networks is of great importance for the development of the telecommunication infrastructure of management systems of industrial companies, organizations, departments and government bodies. As a rule, for such communication networks it is created on the basis of renting a network, channel and information resource from the operators of the Unified Telecommunication Network [1, 2]. Based on the systematic and technical analysis, it was found that among the above-mentioned digital and network technologies, an important place is occupied by the technology of software-configurable networks (PCN), providing the provision of the Triple Play services and Bandwidth on Demand services, which requires the provision of maximum bandwidth, average latency and bandwidth on demand of users.

In [4, 5, 6], the principles of building corporate communications networks using the architectural concepts of next-generation networks based on circuit switching are discussed in detail. Our study is dedicated to solving the problem formulated above – the study and assessment of the probability-time characteristics of corporate multiservice communication networks based on the architectural concept of future FN networks using PKS technology. Based on the study of corporate multiservice communication networks based on FN architectural concepts, it was established in [5, 7] that the main and most popular multimedia services are access to telecommunication networks, the Internet, IP-telephony (Internet Protocol), a local area network, and a global network in which it is necessary to analyze in more detail the network technology of software-configured networks.

It should be noted that in software-configured networks, as you know, the main fundamental feature is the separation of functions that are responsible for data transfer, and the removal of control applications to a separate server – controller. To describe the useful and service traffic passing between the network switches and the controllers of the PKS, an analysis of their statistical characteristics and the selection of an adequate MM random process are required.

In the study of the functioning efficiency of corporate multiservice communication networks using the PKS technology, an important task arises of developing a mathematical model (MM), based on simplifications in the description of the studied concept of a single infocommunication space.

On the basis of the PKS MM network, explicit analytical expressions are obtained for the stationary probability distribution of the QS corresponding to the simplified model of corporate multiservice networks based on FN.

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