

## ABSTRACT

Degree work's main part consist of the 82 pages, 26 illustrations, 20 references.

In this master's dissertation, an overview of theoretical issues of building IP-telephony networks, including the basic concepts and protocols. The analysis of the Principles of Construction and Methods for Practical Implementation of IP-telephony Corporate Network Based on Asterisk, as well as the ways of practical implementation using virtualization and containerization technologies Vagrant and Docker, respectively. As a result, an assessment is made of the performance of the Asterisk software implementation. IP-PBX models with built-in technologies are built.

Keywords: VOIP, SIP, ASTERISK, VAGRANT, KVM, DOCKER.

**The relevance of the topic** is to assess the performance of the implementation of Asterisk software using the technology of virtual machines, containers with the help of the appropriate tools for studying the state of the real time.

**The aim** is to consider the existing principles for building corporate networks based on VoIP technology and to identify practical implementation methods using the existing infrastructure and additional software, namely, the software product Asterisk, Vagrant virtualization technology, KVM/QEMU, libvirt, Docker containerization technology, monitoring systems Glances, cAdvisor, Prometheus/Grafana.

**The object of the research** is the software solution of Asterisk computer telephony (including, VoIP) with open source.

**The subject of the research** is the methods of implementation of IP-telephony based on the platform Asterisk using virtualization and containerization technologies.

**The solvable problem** is the assessment of the performance of the Asterisk software implementation using the technology of virtual machines, containers with the help of the appropriate tools for researching the state of the real time.