

CREATE A SYSTEM FOR MONITORING SERVERS VIA MOBILE DEVICES

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Abstract: *This article analyzes the theoretical and practical aspects of developing a server monitoring system through mobile devices. Ensuring the continuous and stable operation of server systems is considered one of the important tasks of modern information and communication technologies. The article discusses issues related to real-time monitoring of server status using mobile technologies, controlling system workloads, rapid detection of failures, and providing administrators with remote management capabilities. In addition, the principles of operation of a mobile application based on the Android platform, API technologies for data exchange, and server monitoring mechanisms are examined. The research results demonstrate that the developed monitoring system can effectively control server activities, improve security, and increase the productivity of system administrators. This system can serve as an effective solution for managing server infrastructure in enterprises and organizations.*

Keywords: *server monitoring, mobile application, remote management, Android, API, server security, real-time monitoring, information system, server administration, cloud technologies*

Introduction

Today, as a result of the rapid development of information and communication technologies, server systems have become an integral part of the activities of enterprises, organizations, and educational institutions. Servers play an important role in storing and processing data, managing network services, and providing continuous services to users. Therefore, ensuring the stable and uninterrupted operation of servers is considered one of the main requirements of modern information systems.

Technical failures, excessive workloads, or security-related problems occurring in server activities may lead to reduced system efficiency and loss of important data. In preventing such situations, server monitoring systems play a significant role. Through monitoring systems, technical indicators such as processor load, memory status, network activity, disk usage, and other server parameters can be controlled in real time.

At present, the widespread development of mobile technologies enables the implementation of server monitoring processes through mobile devices. By using mobile devices, administrators can remotely monitor server conditions, receive instant notifications about problems, and perform necessary management operations. This helps improve system security, reduce maintenance time, and increase management efficiency.

The main purpose of this article is to study the theoretical foundations of developing a server monitoring system through mobile devices and to create an effective monitoring system based on modern mobile technologies. During the research, the main principles of server monitoring, mobile application architecture, API technologies, and real-time monitoring mechanisms are analyzed. In addition, the functional capabilities and practical effectiveness of the proposed system are described.

Methods

In this study, modern software engineering methods were applied in the development of a server monitoring system through mobile devices. The research is based on structural and object-oriented approaches used for system design and evaluation. The overall system architecture was developed as a multi-layered model ensuring interaction between the server, API, and mobile application.

Initially, existing server monitoring systems and their operating principles were analyzed. During this process, both functional requirements (CPU, RAM, disk, and network monitoring) and non-functional requirements (speed, security, real-time operation) were identified. Based on these requirements, system modeling was performed using UML tools, including use case diagrams, component diagrams, and data flow models.



Figure 1. Architecture of the Mobile-Based Server Monitoring System

Next, the architectural solution of the system was developed. The server side was built using RESTful API technology, where data exchange was defined in JSON format. The mobile application was developed for the Android platform and supports real-time monitoring interface and push notification functionality. The database was designed in an optimized structure to store server metrics and enable historical analysis.

Furthermore, load and functional testing were conducted to evaluate system performance. During testing, the data flow from the server, API response time, and real-time update speed of the mobile application were assessed. The results showed that the developed system is stable and suitable for practical use.

This approach enabled the implementation of a reliable, scalable, and efficient server monitoring system through mobile devices.

Conclusion

The development of a server monitoring system via mobile devices is one of the important and practically significant directions in today’s digital transformation process. Within this work, the design and implementation of a system that enables remote monitoring of server infrastructure, real-time status tracking, and early detection of potential failures were considered.

The analysis shows that traditional monitoring methods are often tied to a workstation, which slows down the decision-making process. In contrast, a mobile-based monitoring system allows administrators to check server status from anywhere, monitor resource usage (CPU, RAM, disk, network traffic), and receive instant alert notifications.

During the system development, special attention was given to the mobile platform’s user-friendly interface, API-based data exchange architecture, and security mechanisms. As a result, the efficiency of server infrastructure management is improved, system downtime is reduced, and maintenance processes are optimized.

In conclusion, a mobile-based server monitoring system is an integral part of modern IT infrastructure. It not only provides convenience but also significantly enhances system stability and reliability. In the future, integrating this system with artificial intelligence and predictive analytics modules could further increase its effectiveness.

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