the main direction of both external and internal trade of RB in the coming years. These measures will be aimed at reducing the import component while redirecting export flows to the previously mentioned countries. Import substitution measures can help to stabilize external trade balances with countries where imports exceed exports of goods and services.

In the course of the study, we highlight the following, the most important areas of foreign economic activity of the Republic of Belarus in the next 5 years: emphasis on the policy of import substitution, strengthening the position of the Republic of Belarus in such organizations as the SCO and the EAEU, reorientation of large export flows to friendly countries in order to achieve a positive foreign trade balance in goods and services.

Reference

1. Внешняя торговля товарами и услугами [Электронный ресурс] // Министерство экономики Республики Беларусь. — Режим доступа: https://economy.gov.by/uploads/files/VED/Itogi-2021-god-.pdf. — Дата доступа: 08.11.2022.

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MANAGEMENT OF HIGH-LOAD SYSTEMS

Управление высоконагруженными системами

1. Introduction. The purpose of the study: to identify problems that arise during the design of highly loaded information systems, as well as to determine the directions of their solution.

Such scientific methods as comparative analysis, synthesis, description, classification and specification were used in the work.

I set myself the following tasks: to study the literature on the development of systems with high-loaded data; to analyze the problems encountered in the design of high-loaded information systems; to describe approaches to solving problems in the development of high-loaded systems.

2. Definition of the concept of "High-loaded systems (highload)". It is impossible not to notice the popularity of the use of the term "High-loaded systems (highload)". Let's define it. High-load systems are systems whose load cannot be sustained by a single server or which have thousands or millions of users.

Often the term "highload" in our country is used in relation to web servers, i.e. for multi-user Internet sites. But this is only a part of highly loaded systems, they also include various management and business applications.

High load in highload can occur due to the following factors: a large number of simultaneous users; a large amount of processed data; the presence of numerous complex calculations and calculations.

3. Problems arising in the design and use of high-load systems (highload). The direction of solving these problems. The key source of problems for high-load applications is the amount of data, their complexity and the speed of change. Therefore, it is important that the overall architecture of a large application is developed both in terms of software components and the hardware on which they operate.

Problems in the design of data-intensive systems arise in the following segments: data volumes, data dissemination, data correction, use of open source software, data retrieval, processing and analysis, information modeling.

The problems that arise are called failures, and the systems created based on them are resistant to failures.

When it comes to large data centers, it is known that hardware failures occur all the time. There are several ways to solve this problem. The first is to create an architecture without shared access, which will allow each node of the system to work independently of each other, since there is no central server. Another method is to increase the redundancy of individual components of the system, aimed at reducing the frequency of failures, which allows the spare component to take over all the functionality when any other component fails.

4. **Conclusion.** Thus, the sphere of highly loaded systems is under active development, and a huge number of different technologies and tools that contribute to solving specific tasks can be found on the market. Of course, there are a number of problems that arise when designing highly loaded information systems, to which you need to choose the right approach to solve them. Therefore, it is impossible to talk about some universal sets of technologies, they should be selected individually for your project in each situation.

References

1. *Amirov, S.N.* Features of the development of high-load systems [Electronic resource] / S.N. Amirov // Service in Russia and abroad. — Mode of access: https://cyberleninka.ru/article/n/osobennosti-razrabotki-vysokonagruzhennyh-sistem/viewer. — Date of access 13.11.2022.

2. Pattern: Command Query Responsibility Segregation (CQRS) [Electronic resource]. — Mode of access: https://microservices.io/patterns/data/cqrs.html. — Date of access: 13.11.2022.