Structural features of accounting automation application

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Abstract. The article discusses the behavior of the "1C platform: Enterprise 8" in different launch environments on devices running Unix, Windows, and Android operating systems. The load testing of the platform was carried out on the example of an application solution for automating the distribution of labor tasks of an organization to determine the optimal hardware and software part of user devices.

1. Introduction

To date, among all enterprise management systems, 31 % of implementations relate to 1C solutions, which exceeds the nearest leader, Galaktika ERP, by almost 4 times (Fig. 1). It is important to understand that the implementation of any information system must be accompanied by its fast, stable and trouble-free operation. Often, as the number of users increases, the amount of data entered, and the number of operations increases, the system response time increases critically. This leads to dissatisfaction of users of the system at all levels of work with it.

Figure 1. Popular ERP systems
2. Methods and materials
Despite the fact that in most cases the reasons for the low performance of 1С are the writing and use of suboptimal queries and program code in general, not optimal indexing of object tables and the load on the disk subsystem, some of the problems with the performance of information databases can be solved by increasing hardware capacity.

For the purpose of a comprehensive assessment of the platform performance "1С: Enterprise 8", determining the behavior of the system in real conditions under different loads in terms of level and duration, a number of tests were conducted to determine the class of causes of unsatisfactory operation of the equipment on which the platform is installed.

3. Results and discussion
The source data is a module for automating the distribution of enterprise tasks, which is an extension of the configuration and can be connected to any standard solution, and the user's scenarios for working with the system, shown in Table 1.

Table 1. Test scenarios

| Name  | Number of performers | The number of documents "Certificates" in the contractor | Number of tasks | Number of documents " Changing the task status» |
|-------|----------------------|--------------------------------------------------------|-----------------|-----------------------------------------------|
| TC_01 | 100                  | 5                                                      | 100             | 100                                           |
| TC_02 | 500                  | 10                                                     | 1 000           | 100                                           |
| TC_03 | 1 000                | 15                                                     | 10 000          | 200                                           |

In general, the test logic is as follows: the test manager starts the test client and performs actions according to the prescribed scenario. The separation between the client and the test manager is ensured by the automated testing mechanism built into the platform. Automated testing is a process that simulates interactive user actions and checks the results of these actions [1, 4, 5].

The testing client is the module under test, the main objects of which are the employees of the enterprise and the tasks for distribution. Each employee has a certain list of personal documents confirming their qualifications, and also has the ability to manage their tasks.

It was decided to test not only the platform that users and developers usually deal with when working in file, client-server or web launch options, but also mobile. The mobile platform "1С: Enterprise 8" is the name of a technology that allows you to develop solutions that work on smartphones and tablets of Google Android or Apple iOS [2, 3, 6].

Since the capabilities of the mobile client are limited in some sense, the lack of automated testing methods is a special case of unintended technologies. To solve this problem, testing is implemented in the form of processing built into the testing client and provides for the software creation and execution of objects.

For testing on 64-bit OS with all the latest updates, the platform 8.3.13.1513 was installed, the platform was installed with x64 bitness on Linux and x32 + x64 on Windows, but due to the same results with x32, the average value of all runs is given. As the final results, the average value of the three test runs is given in the table 2 and in Figure 2.
Among the operating systems of personal computers, Windows 7 showed the lowest result. Windows 10 turned out to be more productive, compared to Windows 7, the final result of the evaluation exceeds it by 20 %, which is a significantly high indicator [7-10].

The leading modern systems from the Linux OS family with powerful graphical shells, Ubuntu 18.04 and Debian 9.7, showed a result that exceeds the value of Windows 10 by 25 %. This all suggests that the OS based on the Linux kernel is able to work with the 1C system no worse than the Windows OS family.

If we evaluate the performance of the mobile platform, then operations on a mobile device take much longer than on a personal computer. The indicators of the latest version of Android 8.1 showed results on average 4 times lower than Windows 7. So it is recommended to use the mobile solution on portable devices with the latest version of the operating system and only if there is no access to a personal computer, as well as employees who periodically need to visit customers, based on the specifics of the work.

4. Conclusion
The following conclusions can be drawn:

- A list of tests required for load testing is formed and implemented as a separate application solution.
- Load testing of the information base for automating the distribution of labor tasks of the organization was performed.
- A space of features that affect the choice of device software is formed.
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