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AUTOMATED SYSTEM FOR SETTING UP AND ADMINISTRATING DISTRIBUTED INFORMATION SYSTEM

A characteristic feature of our time is the intensive development of informatization processes in almost all spheres of human activity. This led to a new information infrastructure formation, which is related to a new type of social intercourse (information intercourse), a new reality (virtual reality), new information technologies in various activities. The heart of modern information technologies are distributed information systems.

The word combination "distributed information system" usually means application-oriented system for collecting, storing, searching and processing textual or factual information. The vast majority of information systems work in the mode of dialogue with a user. In the most general case, the typical software components, that constitute the distributed information system, implement: dialog input and output, dialog logic, application logic of data processing, logic of data management, operations of files and databases manipulating.

Currently the development of general capabilities and computer systems performance is performed. Development of network technologies and data transmission systems, extensive integration of computer technologies with a variety of equipment allows us to constantly increase the performance of distributed information systems and their functionality.

The main idea of distributed information system is based on the following statements:

- there are a lot of organizationally and physically distributed users, that are working with general data – common database (users with different names, including the ones located on different computers, with different responsibilities and tasks);
- logically and physically distributed data, that creates and constitutes a common database (separate tables, records and even fields can be located on different computers or can be included into different local databases).

A constant search for new, more convenient and versatile methods of software and technological information systems implementation has been performed recently, alongside with the information systems hardware development.

The considered information system is implemented by means of cloud computing technologies. Cloud computing is a model of providing universal and convenient access-on-demand to the shared pool of computing resources (e.g. communication networks, servers, mass data storages, applications and services) via the network. Those resources should be configured and can be efficiently provided or released with minimal administrative costs and appeals to the provider.

Cloud services, that allow you to move computing resources and data to the remote Internet servers, became one of the main trends in the IT-technologies development in recent years.

Cloud computing software is provided to users as an Internet service. Customer has access to his own data, but cannot manage and shouldn't care about the infrastructure, operating system and software, with which he works. In common usage, the term "Cloud" is essentially a metaphor for the Internet, which hides all the technical details. According to the IEEE's document, published in 2008, "Cloud computing is a paradigm, in which information is permanently stored on servers, located in the Internet network, and is temporarily cached on the client side."

The main advantage of working with cloud technologies is using the services of equipment renting instead of its buying. In such a way you can rent the computing power and storage space via the Internet. The benefits of this approach are: accessibility (user pays only for the resources he needs) and flexible scalability. Customers get rid of the necessity to create and maintain their own computing infrastructure.

Cloud computing providers offer their services according to several fundamental models:

- **Software-as-a-Service** (SaaS) – a model of software offering, when cloud providers install and operate application software in the cloud, and cloud users access this software via cloud clients. Cloud users do not manage the cloud infrastructure and platform, where the application runs. They do not pay for owning the software itself, but pay for its usage.
- **Platform-as-a-Service** (PaaS) – a service model, when a user gets an opportunity to deploy applications he bought or developed into the cloud-based infrastructure. Those applications should be developed using programming languages, libraries, and tools, provided by a cloud provider. A user is not able to manage and control the basic cloud infrastructure (which is composed of communication networks, servers, operating systems, protections, etc.), but he controls the deployed applications and, in some cases, settings of the environments they are deployed to.
- **Infrastructure-as-a-Service** (IaaS) - a model of service, when a user is given the opportunity to manage the processing and storage facilities, communications networks, and other fundamental computing resources. Basing on these resources, he can deploy and run any software, which may include operating systems and applications. A user does not manage the physical and virtual infrastructure, that constitutes the clouds, but he controls the operating systems, storage systems, installed programs and, in some cases, have a limited control over some network components (e.g. firewall nodes).

The considered distributed information system is a combination of two above mentioned models: Platform-as-a-Service and Infrastructure-as-a-Service. Therefore, it forms a universal model of Platform-as-infrastructure (PAI), providing a complete platform and infrastructure simultaneously.

The process of such a system installing and configuring requires several technical specialists, that are professionals in different tight areas, and requires rather a big amount of time. So it makes sense to develop a system for automatic configuration and management of the given platform in order to facilitate this process and allow an ordinary technical specialist with limited knowledge of technology to perform such operations using modern web technologies.