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Oleg Pozdnyakov¹, Natallia Zhukova²,

¹PhD student, CST Dpt., NU “Zaporizhzhia Polytechnic”

²PhD (Philology), associate professor NU “Zaporizhzhia Polytechnic”

ANALYSIS OF CLOUD SOLUTIONS FOR DEVELOPMENT AND OPERATION OF SOFTWARE

SAP Business Technology Platform is an enterprise cloud platform that allows companies to develop their applications, extensions, or add-ons for existing SAP products or create a hybrid IT landscape by integrating cloud solutions. The analysis of the limitations and services of SAP Business Technology Platform is performed in this work. The method of business application development in the Cloud Foundry environment of SAP Business Technology Platform is presented [1].

Extensive data management, the Internet of Things (IoT), analytics, machine learning, robotics of routine operations are modern technologies that can be used by enterprises and companies to implement innovative scenarios in business. Ready-made cloud platforms, assembled by large suppliers of software and services provided by subscription, help in building modern digital enterprise-scale solution.

Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS) are existing cloud service delivery models [2].

Studies have shown that SaaS is the most understandable and convenient model of providing cloud service from the end user's point of view. It is often more comfortable and more efficient to use the ready-made SaaS that is already configured for specific requirements. Nevertheless, ready-made solutions don't always exist, and in this case, PaaS and IaaS models are recommended. There is no universal approach for introducing cloud technologies to improve the enterprise's IT landscape. The selection of a model and the process of migrating to the cloud are non-trivial tasks.

German company SAP is one of the world's market leaders in enterprise applications. The company helps organizations of all sizes and specializations to increase the efficiency of their business management.

The company offers the whole line of solutions for the IoT, which are included into the digital innovation system SAP Leonardo [3].

Significantly, SAP Leonardo platform combines various software capabilities: machine learning, the IoT, Big Data, analytics, and blockchain on SAP Business Technology Platform (BTP) together with the design thinking methodology.

SAP cloud technologies open up endless opportunities to develop the company's resources. They also give the green light to the usage of different innovative technologies. BTP provides the ability to connect people, objects, and businesses, as well as technologies for implementing the Internet of Things and Industry 4.0 in digital logistics, manufacturing, and asset management.

BTP offers tools based on the PaaS model, designed to develop and run cloud applications. BTP is a cloud solution that works on the principle of IaaS.

SAP HANA Enterprise Cloud can be used as a IaaS and PaaS services.

SAP Business Technology Platform is based on open-source standards and gives the developers flexibility and control over clouds, applications and environments deploying. BTP uses different development environments, including Neo and Cloud Foundry, and provides several programming languages.

Thus, the two main tasks that the BTP platform solves are development and operation of IT solutions (hosting, monitoring, scaling, etc.).

BTP provides a full range of service directories, including database, data storage, and backup, report service, and transaction-level for cross-platform software development. BTP clients can use this cloud environment to control software development or they can also use a hybrid model based on the cloud environment and in their own development environment.

The BTP can be integrated with SAP applications, third-party applications, or internal company solutions for data receiving and software development. The platform provides creation, integration, and expansion of cloud applications without spending time and financial costs for IT infrastructure maintenance.

CALMS framework allows assessment of transition to DevOps readiness and can be used as a model to identify possible improvements in the software development, implementation and maintenance processes. Also, an important feature of BTP is the support of BYOL (Bring Your Own Language) model, which provides the usage of any programming language, such as PHP, Python, and others [4].

Analysis of related works, in which examples of development in BTP environment for different tasks are provided, made it possible to form a generalized method for business application developing. It is based on the usage of global standard for cloud application development Cloud Foundry (CF), which allows developers to concentrate more on the tasks and facilitates the process of application deployment and management [5].

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