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Features of Using Cloud Technologies

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Abstract

Cloud technologies have rapidly gained popularity in recent years, providing businesses and individuals with numerous benefits such as flexibility, scalability, and cost savings. In this article, we explore the key features of cloud technologies, including on-demand self-service, broad network access, resource pooling, rapid elasticity, measured service and others. We examine how these features enable cloud users to easily and efficiently deploy and manage a wide range of IT resources, from software applications to storage and processing power. We also discuss the potential drawbacks and challenges associated with cloud technologies, such as security risks and the need for robust data management practices.

Keywords: private cloud, public cloud, hybrid cloud, infrastructure as a service, platform as a service, applications as a service

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Introduction

Cloud technologies provide the user with a convenient virtual environment for data storage and processing, combining hardware, software, communication channels and technical support. Storing information in the "cloud" with access to the Internet allows you to access it from almost any device anywhere on the planet. Cloud technologies have revolutionized the way businesses and individuals store, access and manage their IT resources. These technologies provide many benefits, including flexibility, scalability and cost savings, making them an attractive option for organizations of all sizes. In this article, we'll explore the key features of cloud technologies and see how they enable users to deploy and manage IT resources more efficiently.

On-demand self-service: One of the key features of cloud technologies is on-demand self-service, which allows users to quickly and easily access and manage IT resources without human intervention. will give. [1] This feature allows users to rapidly provision and deploy resources such as servers, storage, and applications, reducing the time and effort required for manual configuration and setup.

Wide network access: Cloud technologies also offer wide network access that allows users to access their resources from anywhere with an Internet connection. [2] This feature provides greater flexibility and mobility, allowing users to work from home or on the go while still having access to their own IT resources.

Resource pooling: Another important feature of cloud technologies is resource pooling, which allows multiple users to share and use the same IT resources at the same time. [3] This feature allows for more efficient use of resources, reducing the need for individual organizations to invest in their own infrastructure and hardware.

Rapid scalability: Cloud technologies also provide rapid scalability, allowing users to quickly and easily scale up or down their resources as needed. This feature enables organizations to quickly respond to changing business demands without requiring expensive and time-consuming hardware upgrades.

Security Risks: One of the biggest concerns with cloud technologies is the risk of security breaches. [4] Cloud providers often have access to sensitive data and information, and therefore organizations must ensure that their data is properly secured and protected from unauthorized access or data breaches.

Data Management: Another challenge with cloud technologies is the need for reliable data management methods. [5] Organizations must ensure that their data is properly organized, labeled, and accessible, especially when working with multiple cloud providers or hybrid cloud environments.

Vendor Lock-In: Cloud providers often offer proprietary technologies and services that can make it difficult for organizations to switch to another provider or move their resources to an on-premises environment. [6] This can limit flexibility and lead to higher costs over time.

Performance and availability: Finally, cloud technologies can face performance and availability issues, especially during periods of congestion or when there are problems with the provider's infrastructure. [7] Organizations should consider these risks when choosing cloud providers and designing their IT architecture.

Metered Service: The technology offers a metered service that allows users to monitor and track resource usage in real-time. This feature provides greater visibility into resource consumption, allowing users to optimize their use and reduce waste. Hybrid and multi-cloud environments: While cloud technologies offer many advantages, they may not be the best fit for all IT workloads. [8] Hybrid and multi-cloud environments allow organizations to deploy workloads across multiple cloud providers or integrate cloud resources with on-premises infrastructure, providing greater flexibility and control over their IT resources.

Artificial intelligence and machine learning in the cloud: Cloud technologies are also used to power artificial intelligence (AI) and machine learning (ML) workloads. [9] This allows organizations to quickly and easily harness the power of AI and ML without having to invest heavily in hardware and infrastructure.

Cloud-based disaster recovery: Cloud technologies also provide a cost-effective and efficient way to implement disaster recovery (DR) solutions. [10] By replicating critical systems and data to the cloud,

organizations can ensure rapid disaster recovery without the need for expensive and complex hardware and infrastructure.

Serverless Computing: Serverless computing is an emerging cloud technology that allows organizations to host and run applications without the need for dedicated servers or infrastructure. [11] This allows for greater scalability and cost savings, as organizations pay only for the computing resources they actually use.

Decree No. PF-6079 of the President of the Republic of Uzbekistan on the approval of the "Digital Uzbekistan - 2030" strategy and measures for its effective implementation" states that "virtual and augmented reality, artificial intelligence in economic sectors , cryptography, machine learning, big data analysis, and studying the possibilities of using "cloud" computing technologies and putting them into practice" are defined as one of the main tasks. [12]

Here are some suggestions for improving the adoption and use of cloud technologies in Uzbekistan:

Increase Awareness and Education: One of the key challenges to the adoption of cloud technologies in Uzbekistan is the lack of awareness and understanding of the potential benefits and risks. Increasing education and awareness about the cloud, its benefits, and how to properly secure and manage data in the cloud can help promote its adoption.

Develop Local Cloud Providers: Currently, many organizations in Uzbekistan are hesitant to adopt cloud technologies due to concerns about data security and sovereignty. Developing local cloud providers that can offer secure and reliable cloud services, while also complying with local data regulations, can help address these concerns and promote the adoption of cloud technologies.

Provide Incentives and Support: The government can provide incentives and support for businesses and organizations that adopt cloud technologies, such as tax breaks or subsidies. This can help encourage adoption and support the development of a robust cloud ecosystem in Uzbekistan.

Address Infrastructure Challenges: One of the key challenges to the adoption of cloud technologies in Uzbekistan is the limited availability and reliability of high-speed internet connectivity. Addressing this infrastructure challenge, through investments in broadband infrastructure and increasing competition among internet service providers, can help promote the adoption of cloud technologies.

Develop Cloud-specific Regulations: Developing cloud-specific regulations and guidelines can help ensure that cloud providers operate in a transparent and secure manner, while also promoting innovation and competition in the cloud ecosystem. This can help build trust in cloud technologies among businesses and consumers.

Based on the above, cloud services can be offered to business structures as an alternative virtual form of IT infrastructure.

RESEARCH METHODOLOGY

The method of analysis and synthesis was effectively used in the research process. In addition, theoretical and scientific research methods were widely used during the research, and the scientific works of scientists who researched this topic were studied by the authors.

LEVEL OF STUDY OF THE TOPIC

I.A. Khasanshin, A.A. Kudryashov and Ye.V. Kuz'min gave the following definition of cloud technology: "Cloud technologies are data processing technologies that provide computer resources as an online service to the Internet user. The word 'cloud' is used here as a metaphor for a complex infrastructure that hides all the technical details." [2, 130 p.]

When choosing a delivery model for any cloud service, a decision must be made on which type of cloud the solution will be deployed on. The level of corporate data security can also depend on the type of cloud. There are the following cloud types: private, public, and hybrid. Ye. Nesterkina described these types of clouds in his article as follows:

"Private cloud is a set of services developed and managed by a private enterprise, which is a pool of computer resources, i.e. a private cloud is used to provide services within a single company that is the customer and the service provider. This is an option for the implementation of the cloud concept, since the company organizes it for itself.

A public cloud is a shared cloud for large groups of users whose infrastructure is created and maintained by a cloud service provider.

Hybrid cloud is a combination of the previous two deployment models. Enables data and application import between private and public cloud." [13]

Currently, there are various models of cloud services, and we will consider the three main ones:

1. Infrastructure as a Service (Infrastructure as a Service or IaaS).
2. Platform as a Service (Platform as a Service or PaaS).
3. Software as a Service (Software as a Service or SaaS).

S.S.Gulyamov, R.Kh.Ergashev, S.N.Khamraeva described these models as follows:

Infrastructure as a Service (IaaS) consists of a set of physical resources, such as servers, network equipment and storage devices, which are provided as services to the customer. Infrastructure services address the issues of properly and efficiently equipping a data processing center by providing computing power as needed. [4, 96 p.]

Platform as a Service (PaaS) is a service model that provides the user with applications as a set of services (created or purchased). In particular, it includes intermediate DT as a service, messaging as a service, integration as a service, information as a service, communication as a service and other similar services. For example, Workplace as a Service (WaaS), Data as a Service (DaaS), Security as a Service (SeaaS). [4, 96 p.]

Software as a Service (SaaS) considers access to applications as a service, that is, the provider's applications are launched in the cloud and run as a service according to the user's requirements. The customer does not manage the basic infrastructure of the cloud, including the network, servers, operating systems. The end user is solely responsible for the security of access parameters (login, password, etc.) and for following the instructions of the provider for the secure configuration of the applications. [4, 97 p.]

ANALYSIS AND RESULTS

When implementing the SaaS model of a cloud service, the provider is responsible for ensuring the operation of the program, and the user, if the service is paid, only pays for what he uses or pays a subscription fee. In this case, the user does not have to immediately spend a large amount of money to purchase licensed software, and the developer protects his product from unauthorized use and distribution.

An example. For end customers: Microsoft Office 365, SaaS to Gmail, Yandex and Google services, Netflix, Photoshop.com, Acrobat.com, Intuit QuickBooks Online, IBM LotusLive. In the enterprise segment: 1C, amoCRM, "Bitrix 24", Sugar CRM and Webex.

A major part of the growing mobile application market is the result of successful SaaS deployments.

Using the PaaS model, all the technological procedures of web application development, testing and deployment can be carried out in one integrated environment, which saves the costs of supporting individual applications for certain technological stages, as well as the purchase of equipment, maintenance significantly reduces the costs of rendering and servicing the service itself. An example of the use of such a model can be a hosting service for websites.

An example. Codenvy cloud development environment; IBM SmartCloud Application Services; Google App Engine, Microsoft Azure, or AWS application hosting; Docker application deployment tool; Serverless application development services from AWS, databases from Oracle, and more.

Usually, IaaS uses virtualization technology, which means that a certain unit of equipment can be used by several clients (for example, dividing a physical server into virtual parts and providing these virtual parts to different clients).

An example of an IaaS service is a "virtual data center" from IBM SmartCloud Yenterprise, VMWare, Amazon YEC2, "Selectel" or "CloudLITE", "ISPserver" or "RuVDS".

Uzbekistan was one of the first among Central Asian countries to introduce "cloud" technologies. In the decision of the President of the Republic of Uzbekistan dated July 3, 2018 "On measures to develop the digital economy in the Republic of Uzbekistan", the introduction of various types of "cloud" technologies into the economy is defined as one of the main directions.

Selectel, a Russian provider of cloud services and data center services, has localized the Selectel cloud platform in Uzbekistan. Today, Uzbekistan has Selectel Office office programs and multifunctional SelectelChat messenger, that is, a business application for organizing convenient and efficient work, as well as launching the Selectel cloud platform. It allows you to quickly and cheaply create infrastructure for digital products of any scale and complexity. [14]

UZCLOUD (provider of video conferencing and remote work services) "cloud" data, which meets the growing demand of state bodies, institutions, economic entities, population for information storage and transmission by the national communications operator "Uzbektelecom" JSC center was created.

On the basis of the "cloud" data center of "Uzbektelecom" JSC, localization of server equipment and many services of IT giants were carried out in cooperation with global companies providing Internet services. Thanks to this, Internet users in Uzbekistan can get information and download data much faster.

"Uzbektelecom" company also offers "VDC Virtual Data Center", "VDI Virtual Desktop", "VKS - Videoconferencing", "Colocation", "Webhosting", "Cloud video surveillance" and a number of other "cloud" services and data center services. developed.

Global public cloud market size, $ billion

Segment	2022	2023	2024 (forecast)
IaaS (Infrastructure as a Service)	120.33	143.93	182.22
PaaS (Platform as a Service)	119.58	145.32	176.49
SaaS (Software as a Service)	174.42	205.22	243.99
BPaaS (Business Processes as a Service)	61.56	66.34	72.92
DaaS (Desktop as a Service)	2.43	2.78	3.16
Total	478.32	563.59	678.79

CONCLUSION

The use of cloud technologies in the activities of enterprises can be relevant, useful and profitable at the same time, because there is no need to constantly maintain a large staff of specialists, and all data

processing functions can be transferred to cloud technologies. Cloud technologies play an important role in modern enterprises and provide a number of advantages and opportunities:

1. Flexibility and scalability: Cloud resources allow companies to quickly scale their operations based on needs without investing in expensive hardware.

2. Reduced costs: Companies can avoid large capital expenditures on equipment and infrastructure by paying only for the resources they actually use.

3. Availability and Convenience: Cloud services are generally available 24/7 from anywhere with internet access. This ensures ease of work and collaboration for the company's employees.

4. Data Security: Many cloud providers offer high levels of data protection and adhere to security standards that help companies ensure the privacy and integrity of their data.

5. Innovation and competitiveness: The use of cloud technologies allows companies to quickly introduce new technologies and innovations, which helps to increase their competitiveness in the market.

6. Data backup and recovery: Many cloud services automatically back up data and provide data recovery in case of failures or disasters.

In general, cloud technologies help enterprises to be more flexible, efficient and innovative, which contributes to their success in the market.

REFERENCES:

Mell, P., & Grance, T. (2011). The NIST definition of cloud computing (NIST Special Publication 800-145). National Institute of Standards and Technology:
https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf

Buyya, R., Yeo, C. S., Venugopal, S., Broberg, J., & Brandic, I. (2009). Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility. Future Generation Computer Systems, 25(6), 599-616:
https://www.sciencedirect.com/science/article/pii/S0167739X09002538

Armbrust, M., Fox, A., Griffith, R., Joseph, A. D., Katz, R., Konwinski, A., ... & Zaharia, M. (2010). A view of cloud computing. Communications of the ACM, 53(4), 50-58:
https://dl.acm.org/doi/10.1145/1721654.1721672

Ponemon Institute. (2019). The state of data security in the cloud:
https://www.ponemon.org/library/the-state-of-data-security-in-the-cloud-2019/

Саидов, Н. В. (2019). Значение гражданской авиации в современной России. *Актуальные проблемы авиации и космонавтики*, *3*, 559-561.

Тухтабаев, А. (2023). ЎзССРда тиббиёт авиацияси тарихи. Общество и инновации, 4(6/S), 117-120.

Тухтабаев, А. Ш. (2023). История Воздушного Сообщения В Центральной Азии. CENTRAL ASIAN JOURNAL OF SOCIAL SCIENCES AND HISTORY, 4(6), 132-135.

Тўхтабаев, А. Ш. (2020). ҲАВО ТРАНСПОРТИ ТАРИХИ. Интернаука, (22-3), 46-47.

Ravshanova, M. (2021). Transformation of the modern national identity of the peoples of Japan and Uzbekistan. Asian Journal of Multidimensional Research (AJMR), 10(3), 491-494.

RAVSHANOVA, M. PROBLEM OF THE CONCEPT OF PERSONALITY AND PERSON IN JAPANESE CULTURE. UNIVERSITETI XABARLARI, 2019,[1/1] ISSN 2181-7324.

Bekmirzayev, A., & Omonova, M. (2023). ZAMONAVIY INSONIYATNING MADANIY XILMA XILLIGI VA FALSAFANING INTEGRATSION VAZIFASI. Models and methods in modern science, 2(6), 143-146.

Omonova, M. (2023). THE PROBLEM OF EXISTENTIALISM IN JAPANESE PHILOSOPHY. Solution of social problems in management and economy, 2(5), 84-88.

Омонова, М. М. К. (2023). ПАРАДИГМА НАЦИОНАЛЬНОЙ ИДЕНТИЧНОСТИ НАРОДОВ ЯПОНИИ И УЗБЕКИСТАНА (ФИЛОСОФСКО-КОМПАРАТИВНЫЙ АНАЛИЗ). Oriental renaissance: Innovative, educational, natural and social sciences, 3(3), 967-980.

Равшанова, М. М. К. (2022). ФИЛОСОФСКИЙ АНАЛИЗ МЕЖКУЛЬТУРНОЙ КОММУНИКАЦИ: ЯПОНИЯ И УЗБЕКИСТАН. Oriental renaissance: Innovative, educational, natural and social sciences, 2(5), 827-833.

Абсаламова, Г. (2021). Bolalar tarbiyasi haqida. Общество и инновации, 2(5/S), 390-402.

Absalamova, G. (2021). FRANSUZ MUTAFAKKIRI MICHEL DE MONTEN FARZAND TARBIYASI XUSUSIDA: FRANSUZ MUTAFAKKIRI MICHEL DE MONTEN FARZAND TARBIYASI XUSUSIDA. Журнал иностранных языков и лингвистики, 4(9).

Sharifovna, A. G. (2022). Views of french renaissance thinkers on child upbringing. Asian Journal of Research in Social Sciences and Humanities, 12(5), 386-390.

Собирова, Э. А., & Мухсинова, М. Х. (2020). СОВРЕМЕННЫЕ МЕТОДЫ ДИАГНОСТИКИ РЕАКТИВНОГО АРТРИТА У ДЕТЕЙ. In НАУКА И ТЕХНИКА. МИРОВЫЕ ИССЛЕДОВАНИЯ (pp. 219-222).

MUKHSINOVA, M., Ortikov, U. U., Khudjaeva, F. S., Abduvokhidov, J. Z., & Abdurazakova, Z. K. EURASIAN BULLETIN OF PEDIATRICS. EURASIAN BULLETIN OF PEDIATRICS Учредители: Ташкентский педиатрический медицинский институт, Санкт-Петербургский государственный педиатрический медицинский университет, (3), 98-105.

Eshonkulov, U. K. O. G. L., Shukurov, A. Y., Kayumov, O. A. O. G. L., & Umirzoqov, A. A. (2021). STUDY OF THE MATERIAL COMPOSITION OF TITANIUM-MAGNETIC ORE OF THE TEBINBULAK DEPOSIT. Scientific progress, 2(7), 423-428.

Umirzoqov, A. (2020). Justification of rational parameters of transshipment points from automobile conveyor to railway transport. Scienceweb academic papers collection.

Eshonqulov, U. K. O. G. L., Umirzoqov, A. A., Khodjakulov, A. M., & Quziyev, H. J. (2021). DEVELOPMENT OF A TECHNOLOGICAL SCHEME OF SAMPLE ENRICHMENT TITANIUM-MAGNETIC ORE OF THE TEBINBULAK DEPOSIT. Scientific progress, 2(7), 407-413.

Umirzoqov, A. (2020). Using Intermediate Buffer Temporary Warehouses Inside the Working Area of the Gold Mining Quarry. Scienceweb academic papers collection.

Umirzoqov, A. (2020). Justification of the Need for Selective Development of the Phosphorite Reservoir by Horizontal Milling Combines. International Journal of Engineering and Information Systems (IJEAIS).

Nasirov, U., Umirzoqov, A., & Fathiddinov, A. (2021). ANALYSIS OF THE MODERN DEVELOPMENT OF MINING AND PROCESSING COMPLEXES IN UZBEKISTAN. 36ipHrn наукових праць ЛОГОХ.

Umirzoqov, A. A. (2021). SMALL-SCALE QUARRY TRANSPORTATION SYSTEM. Scientific progress, 2(5), 492-497.

Umirzoqov, A. (2020). Development and Implementation of Technical Solutions Aimed at Increasing the Performance of the DTC Complex. Scienceweb academic papers collection.

Umirzoqov, A. (2020). On the Results of Research on the Causes of Abnormally High Reservoir Pressures in the Fields of the South-Eastern Part of the Bukhara-Khiva Region. Scienceweb academic papers collection.

Umirzoqov, A. (2020). Justification of the Need for Selective Development of the Phosphorite Reservoir by Horizontal Milling Combines. International Journal of Engineering and Information Systems (IJEAIS).

Umirzoqov, A. (2020). Calculation of the Optimal Distance Between Parallel-Converged Charges When Exploding High Ledges. Scienceweb academic papers collection.

Umirzoqov, A. (2020). Analysis of the Improving Dynamic Craft and Small-Scale Deposits. Scienceweb academic papers collection.

Umirzoqov, A. (2020). Development and Implementation of Technical Solutions Aimed at Increasing the Performance of the DTC Complex. Scienceweb academic papers collection.

Djurayevich, K. K., Kxudoynazar O'g'li, E. U., Sirozhevich, A. T., & Abdurashidovich, U. A. (2020). Complex Processing Of Lead-Containing Technogenic Waste From Mining And Metallurgical Industries In The Urals. The American Journal of Engineering and Technology, 2(09), 102-108.

Abdurashidovich, U. A. How to Develop Economic and Mathematical Modeling of Rational Progress of Small and Artificial Gold Deposits. 56. Abdurashidovich, UA Special Issue On Environmental Management In The Small-Scale Mining Industry, 57.

Umirzoqov, A. (2020). The Analysis Of Influence Of Productions Of Open Mountain Works On Environment At Formation Of Various Zones On Deep Open-Cast Mines. Scienceweb academic papers collection.

Umirzoqov, A. (2020). As A Road to Sustainability in Small Scale Mining. International Journal of Engineering and Information Systems (IJEAIS).