ADVANTAGES AND DISADVANTAGES OF USING CLOUD STORAGE SYSTEMS FOR ELECTRONIC DOCUMENTS

Fayziyeva Dilsora Salimovna
Alfraganus university, faculty of digital Technologies,
associate professor, department of digital technologies
dilsora.salimovna@gmail.com

Abstract:
This article provides information about cloud storage systems, as well as highlights the advantages and disadvantages of using cloud technologies for storing electronic documents, based on the characteristics of each.

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According to Google Vice President Vint Cerf, in the near future there is a high risk of losing a lot of data and documents due to the obsolescence of storage media. Indeed, today it is not easy to find a device for reading floppy disks; At the same time, formats are becoming obsolete - software developers often refuse to support old versions of files, so working with such versions becomes problematic. If possible, it is recommended not to delay the transfer of data from the appropriate format. One of the newest forms of electronic document storage is cloud storage. Currently, this widespread technology is actively being developed and modified in the market of electronic document management systems (EDMS). Currently, this storage method is especially popular for small and medium-sized businesses. Remote storage of documents compared to local storage benefits both consumers and businesses.

Cloud EDMS appeared in the world relatively recently - in 2008. They began to be actively used in our country around 2012. Public clouds are mainly widespread, but government agencies mainly use private ones, and this applies not only to Russia. According to experts, cloud technologies will eventually displace the classic methods of working with documents.

Let's consider the main advantages that cloud storage of electronic documents provides for users and organizations.

Some of the most important advantages are accessibility and mobility. Accessibility means the ability to access all documents, files, folders in the cloud from anywhere in the world. Of course, provided that you have the necessary credentials and Internet access. Also, the type of device does not matter, information stored in the cloud can be accessed from a computer, laptop, tablet or mobile device connected to the Internet. Employees with a busy work schedule or living far from the corporate office can use this feature to get to know clients and colleagues better. The need to transfer files between devices has also been eliminated, which annoys users, and also complicates the process of working with documents, i.e. There is an opportunity to

synchronize data. In addition, files remain the same on all devices, as they are automatically updated when changes are made. Regardless of when or how they were checked, the user will always have the latest version of the file.

Building on the above benefits, the next benefit is increased collaboration. If an enterprise has two or more employees, then collaboration should be a priority for the company. Cloud computing makes collaboration easier. Just as transferring files back and forth between devices can be tedious, sending dozens of emails to share files can be frustrating. With cloud storage, there is a solution for this. Team members can easily and securely view and share data on a cloud platform. Some cloud services even provide collaborative social spaces to connect employees across the organization, which increases engagement. Collaboration is possible without using cloud computing, but it is less streamlined and efficient.

The next benefit is ease of use. Users can easily drag and drop documents and files into cloud storage. The data itself can be easily stored in the cloud and does not require any technical knowledge. Cloud storage systems have the ability to easily share access with another user in a cloud environment. Data stored in the cloud is easily and securely shared with clients and colleagues. Also, the cloud interface for working with documents is usually visual and intuitive, which makes it easier to learn and work with employees of the organization.

In addition, we can highlight such advantages as efficiency. Businesses and individuals using cloud services are more likely to reduce their operating costs than those using proprietary solutions or external hard drives. The organization may not buy expensive, powerful computers and software or create its own data center, but only pays for the rental of such equipment, using all the capabilities of the provider. The payment is usually made once a month. It is also worth noting that when data is transferred to the cloud, it disappears from devices and equipment. That is, the data does not take up valuable space in your home or office, since the provider offers virtual storage space. There is also no need to hire IT staff to maintain the EDMS.

The next advantage is high technology and productivity. As mentioned above, when working with documents, the provider platform is used. This allows you to use it to store and process data using all the power of computers, since cloud providers, as a rule, use modern high-performance equipment and technologies specifically designed for processing large volumes of data. Accordingly, cloud EDMS has scalability.

One of the most important advantages is quality control. Poor, inconsistent reporting can undermine business success. In a cloud system, all documents should be stored in one place and in one format. By ensuring that everyone has access to the same information, it is possible to maintain the "consistency" of data, avoid human error, and accurately record any changes or updates.

Another important advantage is automatic software updates. For employees who are fully loaded with their work, waiting for a system update to install can be an annoying factor. Cloud

applications are updated automatically, so IT doesn't have to manually update the entire organization. This saves valuable IT staff time and money spent on consulting.

Next, advantages such as data reliability and security are considered. Cloud services usually provide quick data recovery for all types of emergencies, from natural disasters to power outages and system failures. To prevent data leakage, a cloud document storage system uses backup. It is worth noting that the client is practically not involved in setting up data security, which significantly reduces the risk of errors. Thus, equipment failure does not affect data security in any way, since the data is stored on a server in the cloud. In addition, many cloud EDMS use encryption to prevent data theft by hackers. The type of encoding, as a rule, can be selected by the client. In this case, the data is encrypted before leaving the organization's network. Backup is performed after encryption. Thus, a cloud document management system offers very reliable solutions for data security, but it is important to remember that almost any security system can be bypassed.

The main advantages of cloud-based electronic document management systems are listed. Usability and mobility, increased collaboration, ease of use, cost-effectiveness, high technology, quality control, automatic software updates, as well as reliability and data security. However, the last advantage is still controversial.

Currently, there is no ideal way to store electronic documents. There is always the possibility of data leakage and data loss due to corruption, equipment failure or large-scale system failure. However, cloud document management systems, like cloud technologies, are currently in the development stage, and every year new solutions appear to improve them, as well as eliminate errors.

Currently, cloud systems have a number of shortcomings and shortcomings. Organizations that do not take into account the risks associated with this technology and rely entirely on advertising companies can put their business at risk. Since the technology is still in its development stage, cloud computing is still far from being a model for such a system. Creating new standards, including ensuring the security of cloud technologies, is a priority in the IT industry today, and cloud solutions are developing along with the emergence of new, reliable methods of storing and processing data.

Much depends on who provides cloud services. If the provider reliably protects the client's data, creates backup copies, encrypts them, and has been operating on the market for several years and has a good reputation, then a threat to data security may never arise. As the famous cryptography and computer security expert Bruce Schneier says, it's all a matter of trust1.

Let's take a closer look at the main disadvantages and risks associated with cloud storage systems for electronic documents:

- The client's complete dependence on the Internet. Any malfunction in the Internet can lead to a restriction or even a complete cessation of user access to data, which can seriously slow down the organization's work. However, this disadvantage is not so significant, since

problems with Internet connectivity are not so common today. As for data loss when the Internet is disconnected, the solution can be a backup copy of the data provided by most providers.

- Technical problems and system failures. Any information technology is constantly subject to failures and other technical problems. One of the problems that can arise when working with cloud equipment is that a cloud service may fail, which will lead to the failure of the entire system. Although this rarely happens, there are examples of failures in cloud centers that have led to server failures.

Many cloud storage services have built-in security features, thanks to which they do not even experience failures in the history of their systems. However, even if it is possible to restore data after a failure, for example, using a backup, such a failure will disrupt the work of an office or organization for a long time, which can lead to downtime.

- Lack of data control. The advantage of the fact that the client does not need to spend time and resources on maintaining and monitoring his cloud is also a serious disadvantage. The client can only manage and control the applications, data and services running on the system, but not the internal infrastructure itself.

Businesses can also lose control over sensitive data. The problem is that when using third-party file sharing services, the data is typically sourced from outside the company's IT environment, meaning that data privacy settings are not under the control of the enterprise. Since most cloud services rely on real-time backup of their data, much of the unshared data can be viewed by unauthorized employees. The best way to avoid this risk is to ensure that the provider encrypts the organization's files at rest.

1. Lifetime costs. The convenience of a low monthly rental fee may seem attractive at first, especially for companies starting out. However, when using public cloud storage, the price can increase significantly over the years.
2. Furthermore, if you calculate the total cost of renting a cloud server for document management over three, four, or five years, the question remains whether it will really be cheaper than using your own hardware and local network.
3. Limited bandwidth. Not all cloud providers are created equal. Ideally, you should use a provider that offers unlimited bandwidth. SaaS offerings typically start with a free package, but then you have to pay for additional space and new offerings. It is unclear whether a company's business will be able to cover the costs as its needs expand and grow.
4. Cybercrime. Files in the cloud are most vulnerable to hacking if the provider does not adhere to security measures. Their storage and transmission over the Internet is a major risk factor. And even if the cloud service provides file encryption, data can still be intercepted on its way to its destination. The best form of protection against this threat is to ensure that data is encrypted and transmitted over a secure connection, which prevents unauthorized people from accessing cloud metadata.

5. Possibility of data loss. As you know, nothing on the Internet is completely reliable and secure, so there is always a possibility of losing confidential information, not intentionally. The reasons for the loss of valuable information can be errors in the provider's work, employee negligence, and insufficient compliance with security measures for data protection by the supplier and the client. So, we have considered the main disadvantages of using cloud-based electronic document storage systems, we can name the complete dependence of the client on the Internet, technical problems and system failures, lack of data control, lifetime costs, limited bandwidth, cybercrime and the possibility of data loss. Each of these disadvantages should be taken into account when choosing a cloud storage or online backup service for working with documents. It should be said that not all of these aspects are serious problems. Many cloud companies have found ways to solve them in one way or another. The client has the right to independently analyze the offers of cloud servers suitable for working with documents and choose the most optimal one, taking into account the infrastructure and budget of his organization.