

Research on the Application of Computer Software Technology in the Era of Big Data

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Abstract: The era of big data is put forward by the globally well-known consulting company McKinsey& Co, to describe and define mass data produced from the times with information explosion and name relative technological development and innovation. In the times of big data, the scale and range of information content is increasingly wide, which has an unconscious impact on people's life, such as improving life quality and work efficiency and enriching learning content. Nowadays, with the rapid development of China's science and technology, the technology of computer software development is gradually mature and obtains better achievements, which is widely applied by people so as to meet social development trend. On the basis of this situation, this paper discusses the application of computer software technology in the times of big data so as to provide reference.

With the constant progress of China's science and technology, people's lifestyle has been transformed with higher requirement for life. At present, Internet has penetrated into various aspects of people's life, providing mass data information and improving life efficiency. The times of big data bring a certain impact on the application of computer software technology, however, it also brings opportunities to its development. Therefore, related personnel shall think correctly about the era of big data, develop and upgrade computer software technology in the times of big data, so as to ensure that it can keep pace with the times, provide higher service functions and satisfy the different processing requirements for data information.

1. The Significance of Applying Computer Software Technology in Big Data

As known to everyone, the application of computer software technology provides benefits for people's work and study, effectively improves the work efficiency of all walks of life, and promotes its stable development in the society to obtain legal economic benefits [1]. With the advent of big data, information data spreads around the network, and people can obtain information data from Internet at any time. Thus, it is important to reasonably apply computer software technology, and its significance is demonstrated in two aspects.

On the one hand, the application of computer software technology in big data times can bring great convenience for users. At present, there are various types of computer software, including service program, operating program, data management system, language program, word processing software, education and entertainment software, assistant design software, information management software, real-time control software and so on [2]. Therefore, the professional personnel shall apply computer software into big data, and constantly update computer technology software, especially its data storage ability and database, so that it can bring convenience for all the people and develop scientifically and reasonably.

On the other hand, the application of computer software technology in big data is the inevitable trend of times development. Currently, the requirement of each user for Internet is different. Influenced by popularized network, the upgrading of computer software is rapid, which is a serious challenge for the development of computer software technology [3]. Therefore, the professional personnel shall keep close pace with the development trend of big data, improve its data collection ability and data processing ability, pay attention to integrate related resources, improve its application system, so that the industrial development of computer software is more standardized

and normalized to produce more economic benefits and satisfy the development requirement of the times.

2. The Application Types of Computer Software Technology in Big Data

In the big data, the application type of computer software is diversified, such as diagnostic program, debugging routine, exercise program, assembly program, compiling routine, interpretive routine, operating system, database management system, word processing software, assistant design software and so on [4]. Thus, the computer software derived is also diversified, including cloud storage, virtualization technology and information data security technology, so as to help people's work and study and improve the efficiency. The application types of computer software in big data is analyzed for reference.

First of all, cloud storage technology. It, as an emerging network storage technology, is a new concept expanded from cloud computing. It is a system to integrate many different types of storage devices in network and work cooperatively to provide data storage and access to the services function by cluster application, network application, distributed file system and other functions [5]. It has many advantages. Specifically, storage management is automatic and intellectualized with high storage efficiency, lower operating costs, and scale effect and elastic extension, so that it can better back up local data and process daily data remotely with more visits and stronger competition. At the same time, in the process of using cloud storage technology for file management, users do not need to synchronize all the files in the cloud to the Windows computer. Instead, they can selectively synchronize it on the Windows client as needed, and can also perform automatic synchronization, file sharing, rapid deployment, historical version recovery and so on, which effectively save the work time of users and improve the work efficiency. So it is widely applied by many users. According to a large amount of data, in the 2015 TechTarget cloud storage survey, 50.00% of respondents said that they use cloud storage technology as the main storage method for production data, and 63.00% of IT departments show that they use cloud storage technology as data backup, and 43.00 % of users use cloud storage technology for data archiving. It can be seen that cloud storage is now the priority choice for enterprises. In general, cloud storage is divided into public cloud storage, internal cloud storage and mixed cloud storage. In terms of public cloud storage, it has characteristics of independence, low costs, and the large quantity of file. In the application, suppliers can ensure that the storage of each customer is independent. Typical representatives include Kingsoft disk, Nutstore, McCloud, Kanbox, 115, LeCloud, 360 Cloud, VDisk, Tencent Micro Cloud, cStor Cloud Storage, Sohu Enterprise Network Disk, and Baidu Cloud Disk, shown in Figure 1. The internal cloud storage is often installed inside enterprises' firewalls, such as Lenovo network disk, Eucalyptus, 3A Cloud, minicloud, etc. The mixed cloud storage combines public cloud and private/internal cloud together, performs effective access according to different customers, implement temporary configuration of capacity, and divide a part of capacity to configure a private or internal cloud from public cloud if necessary, which can effectively help enterprise to realize the real-time storage and download of data information and reduce the negative impact to lowest in the face of rapidly increasing load fluctuation and network peak.



Figure 1 Baidu Cloud

Secondly, virtualization technology. It mainly refers to abstracting, transforming, and then presenting various physical resources such as server, network, memory, and storage of the computer.

At this stage, it can effectively break the uncuttable obstacles between physical structures, so that different users can effectively apply these resources in a better way of original configuration. It, generally is divided into hardware virtualization, virtual machines (virtual devices, simulators, portable applications, platform virtualization, etc.), virtual memory, storage virtualization, network virtualization, desktop virtualization, database virtualization, software virtualization, service virtualization, virtualization development timeline. It mainly performs operations according to the actual needs of the user, so its operation is more flexible. The main principle of virtualization technology is presented. Virtual machines are abstractions and simulations of real computing environments. Virtual Machine Monitor needs to allocate a set of data structures to each virtual machine to manage their state, including a full set of registers of virtual processors, physical memory usage, virtual device state, and more. At the same time, the Virtual Machine Monitor needs to restore part of the state to the host system when scheduling the virtual machine. In this case, the host processor directly runs the machine command of the virtual machine (Guest OS). Since the virtual machine (Guest OS) runs at a low privilege level, when accessing the privileged state of the host system, the insufficient authority causes the exception in the host processor, and the running right is automatically returned to the virtual machine monitor (Virtual Machine Monitor), thereby effectively improving the processing speed of data information and realizing optimal configuration of network resource data.

Thirdly, the technological analysis of information data security. Nowadays, with the gradually accelerating development of Internet industry, network security is gradually weakening, so that various information and data is often stolen by lawbreakers, which has a very serious negative impact. Therefore, under the background of big data, the personnel need to use the security technology of information data reasonably, optimize and rectify the computer network system, and take setting up firewalls and other measures to effectively avoid hacking, so as to protect information data and reduce the probability of network security issue.

3. Notes on the Application of Computer Software Technology in Big Data

In the era of big data, in order to successfully apply computer software technology, enterprises shall pay attention to several problems to ensure the completeness of data information and avoid data loss.

Firstly, it is necessary to focus on information data communication in the application of computer software technology in the era of big data. When enterprises carry out the forecasting and analysis of information data, due to the diversification of data, some information data is always missed to be analyzed, which results in the declining accuracy of data analysis and convenient services for users. Thus, enterprises shall focus on information data communication in applying computer software technology so as to effectively guarantee the processing effect of information data and drive its stable development.

Secondly, it is urgent to stress the problem of information data risks. There are certain risks in applying computer software technology in the big data era. Specifically, first of all, in developing data, it involves a series of parts, such as sampling, developing, revising, model using, evaluation and so on, which are all important with higher operating requirements. Otherwise, problems of data loss easily occur, which seriously influences the processing result of data analysis and the representativeness of data information. Then, enterprises need to deeply explore some data information so as to make full use of valuable part of data information. At this stage, if the processing of data by the staff is not targeted and accurate, the hidden value inside these data information cannot be fully explored, and the accuracy of enterprises' decision-making is reduced, which causes certain risks. Finally, enterprises need to appropriately revise some contents in data selection and data establishment, which involves product code, data conversion and binning operation. So if operation is non-standardized, there will be data risks, which will impact the completeness of data.

4. The Application of Computer Software in Big Data

The application of computer software in big data is mainly shown in two aspects.

On the one hand, in the era of big data, it is applied in communication. At present, enterprises often have analysis errors when conducting customer flow analysis, and it is difficult to formulate effective operational decisions and provide high-quality services to customers, which affects the development trend of enterprises and reduces the economic benefits of enterprises. The application of computer software to enterprises allows enterprises to analyze customer data in detail through computer software (such as data processing software, etc.), analyze the behavior of different groups of people, recent industry trends, etc., obtain accurate data information, and then formulate specific decision-making and operation methods of the enterprise. In this way, it can provide customers with higher-quality services to meet the individual needs of different customers, thus helping enterprises to obtain more economic benefits and achieve sustainable development.

On the other hand, in the era of big data, it is applied in commercial operation. Commercial operation refers to the profit-making activities of enterprises engaged in product exchange, which can be simply understood as “buying and selling”. In the era of big data, people can purchase the required goods online through the network. Therefore, enterprises need to make full use of computer software to build a commercial operation platform, which requires management personnel to instantly access consumer business information and provide better services; also needs to enable consumers to browse the products they need at any time, and then make purchases on the platform. In this way, a good relationship of trust shall be established between consumers and enterprises, and then the sales volume of the company's products can be increased to be favored by more consumers. It can be seen that in the era of big data, the application of computer software in commercial operation is the inevitable trend, which helps enterprises improve economic benefits and perform commercial economic development; and enhance the competitiveness of enterprises in the market. Therefore, it is significant.

5. Conclusion

With the advent of big data, the development space of computer software technology has been expanded. Therefore, the reasonable application of computer software technology is the key task currently. The personnel shall keep pace with the development trend of big data, carefully plan its application range, perform well its improvement and service optimization, and make sure that computer software can give play to its value and advantages to satisfy the requirement of different people. Meanwhile, the personnel shall focus on the development of computer software technology and conduct innovations constantly, so as to guarantee the maturity of computer software technology, effectively improve the processing efficiency of data and better satisfy the requirement of development in the era of big data.

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