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# 云计算应用研究网络技术与计算机大数据分析技术

摘要:随着计算机网络技术的发展,各个领域都迎来了大数据时代。合理开发计算机信息资源,采用云计算网络技术和计算机大数据分析技术对信息数据进行处理,可以促进社会的稳定发展。然而,云计算和大数据对专业素养的要求很高,如何科学合理地应用,充分发挥计算机技术的最大价值是主要的研究方向。本文首先讨论了数据处理的必要性和不足,然后分析了云计算网络技术和大数据分析技术的优缺点,最后讨论了云计算网络技术和大数据分析技术的具体应用,使它们能够相辅相成,在未来发挥更大的作用。

关键词:云计算,网络技术,计算机,大数据,应用研究

## 1.引言

由于科技的飞速发展,近年来人们的研究方向集中在大数据、云计算、人工智能等方面。这些新技术的不断发展也不断改善着人们的日常生活和工作方式。如今,由于网络时代信息的快速增长,各行各业对信息计算和处理领域的要求也逐渐提高。大数据分析技术在计算方面具有可视化、大数据分析预测等显著优势,云计算网络技术具有虚拟化、多租户等特点。云计算技术和计算与大数据分析技术可以实现数据挖掘的准确性,同时分析数据计算功能强大,各行各业都在逐步应用云计算和计算机技术。因此,深入探索云计算网络技术和计算机大数据分析技术具有重要意义,也可以为信息技术的发展和社会的可持续发展奠定良好的基础。

## 2.数据处理的必要性和不足

### 2.1. 数据处理的必要性

#### 2.1.1. 加快信息数据的开发利用

通过网络形成的信息系统包含了大量的数据信息,通过对数据信息系统的分析研究,可以提取出有使用价值的信息数据。数据信息类型多样,结构复杂,值密度低,很可能有些信息数据应用意义较小。而要在大量复杂的数据信息系统中找到更多有意义的信息内容,只有对数据进行处理和深入研究,才能将数据信息转化为内涵丰富、形式多样、有意义的有用资源。从这个角度来看,数据处理就是对原始数据和信息内容的重新综合利用,只有通过数据处理,才能充分发挥原始数据的意义,使数据和信息资源发挥应有的价值。

#### 2.1.2. 提高决策的科学性

数据处理也给企业的现代化管理带来了很大的帮助。科学的管理不仅需要了解事件的表面问题,还需要进一步了解事件的本质,梳理事件之间的相关性,从而发现问题并提供有针对性的处理措施。要实现这一目标,就需要通过对数据的统计和分析,从表面上分析事件的本质,发现事件内部隐藏的规律性,从而为科学决策提供参考依据。

### 2.2. 数据处理的不足

通过网络形成的信息量非常丰富,增长速度也很快,但由于信息秩序混乱,数据的价值密度往往很低,在广泛的信息资源中,可能只有一小部分是具有价值的,

因此需要将所有信息整合起来，才能真正发现其中蕴含的意义。这就需要更精确的分析和更快的处理来满足社会发展的要求。

传统处理方法的缺陷主要在于缺乏安全性和可靠性，无法有效地管理非结构化信息。信息安全一直是数据分析的难点，大量的数据信息关乎个人隐私和商业秘密，一旦信息安全工作处理不当，就会造成数据信息泄露和巨大损失。如果所有的数据处理项目都交给大数据分析企业负责，会浪费公司大量的资金和时间，在一定程度上会降低公司的整体运营效率。因此，深入研究云计算网络技术和计算机大数据分析技术显得尤为重要。

### 3. 云计算的基本内涵是网络技术和计算机大数据分析技术

#### 3.1. 云计算网络技术

云计算技术是指利用互联网的“云”，将海量数据的计算过程分解为无数个小进程，然后以多个数据库组成的操作系统为基础，有效地管理小进程反馈的结果，并将其发送回用户。现阶段，它被认为是分布式计算、效用计算、并行计算及其负载均衡相结合的产物，互联网存储等先进的信息技术，并具有更高层次的灵活性、安全性、可扩展性、智能化等新特点。云计算网络的产生，实现了资金池向虚拟资金的转化，再将全方位的数据放在这些资金之上，形成公有云、私有云和混合云等形态。

#### 3.2. 计算机大数据分析技术

大数据是传统软件和工具在有限时间内无法捕捉、管理和处理的大数据的集合，具有海量、多样性、高速、真实性和低价值密度等鲜明特征。与传统的大数据仓库分析相比，计算机大数据分析可以对非结构化数据进行对象分析，从数据中获得更大范围的洞察。作为大数据分析时代的伴生物，计算机化的大数据分析已经在商业领域兴起，是各行业追逐的重要利益焦点，未来发展空间不可估量。

### 4. 云计算网络技术和计算机大数据分析技术的优势

#### 4.1. 云计算网络技术的优势

云计算是传统计算机技术与互联网技术相结合的结果，在大数据挖掘中具有以下优势：首先，降低计算成本。与普通的计算机操作方式相比，云计算不需要硬盘，完全可以在云端完成操作，节省了大量硬盘空间，减少了操作时间。从而提高了运行效率。云计算系统包含较少的程序，保证了计算机系统的顺利、安全工作，提高了计算机系统的工作效率。最后，数据存储更加安全。由于传统硬盘空间的限制，很容易发生硬盘破裂的现象，从而造成大量数据的丢失。云计算的空间基本上是无限制的，大量的数据存储云端相当于完成了一次备份，从而保证了信息的安全性。

#### 4.2. 计算机大数据分析技术的优势

计算机大数据分析技术的主要优点有：一、大数据挖掘算法。大数据挖掘算法是大数据分析的关键技术，由于网络信息技术的发展，大量的大数据算法被应用于数据分析中，对各类不同格式的互联网信息进行分析。目前，常用的大数据挖掘算法一般包括决策树计算、普通贝叶斯计算、支持向量机计算等。但这些计算都有相应的优缺点，在实际应用中，往往需要科学地选择一种或几种计算方法来进行数据分析和挖掘工作。大数据挖掘算法的运用将能够很好地挖掘数据信息

的价值。第二，可预测的数据分析。由于大数据分析是基于网络技术的发展，大数据分析可以利用模型对一些事件的未来发展做出科学的预测。例如，产品企业可以利用市场销售信息来预测未来一段时间内产品的市场供求情况，为产品生产提供依据。第三，产品可视化分析技术。这是大数据分析的一个关键功能，使用可视化分析技术可以更直观地展示产品的数据结构和信息特征。

## 5. 云计算网络技术和计算机大数据分析技术的缺点

### 5.1. 云计算网络技术的缺点

首先，安全性不够。虽然云计算的空间非常大，甚至可以称之为“无限量”。但是对于客户的使用安全问题，现阶段还没有达到切实可行的保障。其次，云计算网络虚拟化系统也存在一些安全隐患。虚拟化操作场景下，无论是操作系统，还是基础硬件，都会带来很多变化。数字信息存储、计算等领域也将如此。因此，在一定程度上，云计算网络虚拟化设计给客户的信息安全带来了隐患。

### 5.2. 计算机大数据分析技术的不足

首先，如果有意收集各个领域的信息，会在一定程度上干扰公众的生活，产生隐私泄露等安全风险。其次，虚假数据的产生。在大数据全面普及的背景下，还有更多的信息无法进行有效筛选和审核，而是在很多平台上大肆宣传，这些不真实的宣传会直接导致一些信息成为虚假数据，产生不良影响。

## 6. 云计算网络技术和计算机大数据分析技术的应用

### 6.1. 广泛应用于交通领域

如今，随着中国整体经济消费水平的不断增长，普通大众对日常生活质量的要求也越来越高。“私家车”无处不在，确实促进了城市的整体经济发展，提高了当地的消费水平，但也不时造成城市的交通问题。由于城市规划的空间和道路限制，快速增长的车辆数量明显无法容纳，特别是在那些相对发达的城市，通勤时段的拥堵高峰已成为常态。大数据分析和云计算网络技术在交通运输行业的应用已经发展成为“智慧交通”。通过在特定位置安装交通传感器，实现对相应交通章的实时检测。通过在特定位置安装交通传感器，实现对相应交通章的实时检测有效提高各种道路信号的传输和采集，有效提高道路交通状态监测和管理能力，促进道路交通智能化和一体化进程，在高效信息采集的基础上缓解城市交通拥堵问题。此外，随着大数据分析技术和云计算网络信息技术的应用，人们可以使用专门设计的交通应用程序进行详细的路况信息查询。不仅可以知道到达目的地的具体里程，还可以查看每条道路的实际拥堵情况，大大优化了人们的交通参与体验。

### 6.2. 广泛应用于销售领域

大数据分析和云计算网络技术在销售领域的广泛应用，形成了较为成熟的运营体系，带来的效益至今尤为显著。在推动精准销售和个性化营销新业态发展的同时，也在客户关系管理和维护等各个方面提供了很多便利。例如，当大数据分析和云计算技术应用于电商平台时，平台自动记录并保留消费者的在线浏览足迹，包括浏览时间、页面信息、点击次数等，从而即时掌握消费者的购买意愿，将其购买动机转化为购买行为。在获取上述数据信息后，被终端平台及时收集，成为消费者意愿预测的依据。之后，系统会利用预测的信息，推荐相应客户可能感兴

趣的产品，吸引目标客户的眼球，从而促进有效的消费行为，完成电商平台的精准推广。

### 6.3. 广泛应用于医学领域

医疗服务业作为传统行业，无疑对大数据和云计算的应用起到了很大的推动作用。医疗服务领域包括临床服务、支付/定价、技术研发、创新商业模式、公共卫生等，是未来基于大数据和云计算网络的重点研究领域。在这五个领域中，大数据技术和云计算技术的研究和应用对于实现治疗质量和疗效的高效提升无疑具有重要的价值。利用大数据和云计算技术，可有效提高患者治疗效果和卫生服务质量。在会诊过程中，可以建立完整的患者基本信息数据库，方便各科室医护人员针对患者制定针对健康的护理方案，从而达到提高整体健康服务水平的目的。在治疗的整体流程上，合理运用大数据分析和云计算技术，可以为患者进行数据采集，为患者提供有效的医疗服务依据。

## 7. 结论

计算机网络技术的发展给人类的日常生活和生产操作方式带来了巨大的变化，从而产生了更加丰富的数字信息。云计算技术的普及，特别是云计算技术与计算机大数据分析技术的联合应用，在许多领域发挥了充分的作用，从而推动了社会的不断发展。

# **Research on the Application of Cloud Computing Network Technology and Computer Big Data Analysis Technology**

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**Abstract:** Along with the development of computer network technology, various fields have ushered in the era of big data. The reasonable exploitation of computer information resources and the adoption of cloud computing network technology and computer big data analysis technology for information data processing can promote the stable development of society. However, cloud computing and big data require high professionalism, and how to apply them scientifically and reasonably to give full play to the maximum value of computer technology is the main research direction. This paper discusses the necessity and shortage of data processing at first, then analyzes the advantages and disadvantages of cloud computing network technology and big data analysis technology, and finally discusses the specific application of cloud computing network technology and big data analysis technology, so that they can complement each other and play a greater role in the future.

**Keywords:** cloud computing, network technology, computer, big data, application research

## **1. Introduction**

Due to the rapid development of technology, people have focused their research in the direction of big data, cloud computing, and artificial intelligence in recent years. The continuous development of such new technologies is also continuing to improve people's daily life and work style. Nowadays, due to the rapid growth rate of information in the network era, the requirements of various industries in the field of information computing and processing are gradually increasing. The analysis technology of big data has significant advantageous features such as visualization and big data analysis and prediction in computing, while cloud computing network technology has features such as virtualization and multi-tenancy. Cloud computing technology and computing and big data analysis technology can achieve the accuracy of data mining, while the analysis of data computing powerful, all walks of life are gradually applying cloud computing and computer technology. Therefore, it is significant to deeply explore cloud computing network technology and computer big data analysis technology, and also can lay an excellent foundation for the development of information technology and sustainable social development.

## **2. Necessity and shortcomings of data processing**

### **2.1. Necessity of data processing**

#### **2.1.1. Speeding up the development and utilization of information data**

The information system formed through the network contains a large amount of data information, and it is possible to extract the information data that have value for use through the analysis and research of the data information system[1]. There are various types of data information, complex structure, and low value density, so it is likely that some of the information data has less application significance. And in order to find more meaningful information content in the large number of complex data information systems, only data processing and in-depth research can be conducted to turn data information into useful resources with rich connotation, various forms and meaningfulness. From this viewpoint, data processing is the comprehensive use of the original data and information content again, and only through data processing can the meaning of the original data be fully played out, so that the data and information resources play their due value.

### **2.1.2. Improving the scientific character of decision making**

The amount of information formed through the network is very rich and its growth speed is fast, but because the information order is disorganized, the data value density is often very low, and only a small part in a wide range of information resources is likely to be valuable, hence it is necessary to integrate all the information so that the meaning contained in it can be truly discovered. This requires more precise analysis and faster processing to meet the requirements of social development.

The defects of traditional processing methods mainly lie in the lack of security and reliability causing the inability to manage unstructured information efficiently. Information security has always been the difficulty of data analysis, a large amount of data information is about personal privacy and commercial secrets, once the information security work is not handled properly, it will cause data information leakage and huge losses[3]. If all the data processing projects are given to the big data analysis enterprises to be responsible, it will waste a lot of money and time of the company, and to a certain extent, it will reduce the overall operating efficiency of the company. Therefore, it is especially important to deeply study cloud computing network technology and computer big data analysis technology.

## **3. The basic connotation of cloud computing network technology and computer big data analysis technology**

### **3.1. Cloud computing network technology**

Cloud computing technology refers to the use of the "cloud" of the Internet, which can decompose the massive data computing process into numerous small processes, and then use the operating system composed of multiple databases as the basis to effectively manage the results of the feedback from the small processes and send them back to the user. At this stage, it has been regarded as the product of the integration of distributed computing, utility computing, parallel computing and its load balancing, Internet storage and other advanced information technology, and has a higher degree of flexibility, security, scalability, intelligence and other new features. The generation of cloud computing network has realized the transformation of the pool of funds into virtual funds, and then put a full range of data on top of these funds,

forming public clouds, private clouds and hybrid clouds and other forms.

### **3.2. Computer big data analysis technology**

Big data is a collection of large data that cannot be captured, managed and processed by conventional software and tools within a limited period of time, and has distinctive features such as massive volume, diversity, high speed, authenticity and low value density[4]. Compared with the traditional big data warehouse analysis, computer big data analysis can analyze the object for unstructured data and obtain a greater scope of insight from the data. As a companion of the era of big data analysis, computerized big data analysis has emerged in the business field, and it is an important focus of interest that various industries chase and its space for future development will be immeasurable.

## **4. Advantages of cloud computing network technology and computer big data analysis technology**

### **4.1. Advantages of cloud computing network technology**

Cloud computing is the result of the combination of traditional computer technology and Internet technology, which has the following advantages in big data mining: At first, the cost of computing is reduced. Compared with the ordinary computer operation mode, cloud computing does not need hard disk and is completely able to complete the operation in the cloud, saving a lot of hard disk space and reducing the operation time. Then, the operation efficiency is improved. The cloud computer system contains fewer programs and ensures the smooth and safe work of the computer system, which improves the working efficiency of the computer system. Finally, data storage is more secure. Because of the traditional hard disk space limitations, it is easy to occur the phenomenon of hard disk rupture and thus cause a lot of data loss. The cloud computer space is basically unlimited, a large amount of data stored in the cloud is equivalent to the completion of a backup, thus ensuring the security of information.

### **4.2. Advantages of computer big data analysis technology**

The main advantages of computer big data analysis technology are: One, big data mining algorithm. Big data mining algorithm is the key technology of big data analysis, due to the development of network information technology, a lot of big data algorithms have been used in data analysis to analyze various categories and different formats of Internet information. At present, the common big data mining algorithms generally include decision tree calculation, plain Bayesian calculation, support vector machine calculation, etc. However, these calculations have corresponding advantages and drawbacks, and in real applications, it is often necessary to scientifically select one or several calculation methods to carry out data analysis and mining work[5]. The use of big data mining algorithms will be able to explore the value of data information well. Second, predictable data analysis. Since big data analysis is based on the development of network technology, big data analysis can use models to make scientific forecasts of the future development of some events. For example, product companies can use the market sales information to predict the market supply and



demand of products in the future period, which provides the basis for product production. Third, the product visualization analysis technology. This is a key function of big data analysis, the use of visual analysis technology can show the product data structure and characteristics of information more intuitive.

## **5. Disadvantages of cloud computing network technology and computer big data analysis technology**

### **5.1. Disadvantages of cloud computing network technology**

First, the security is not enough. Although the cloud computing space is very large, and can even be called "unlimited". But for the use of customer security issues, the current stage has not reached a practical guarantee. Second, there are also some potential safety hazards in the cloud computing network virtualization system. Virtualization operation scenario, whether it is the operating system, or the basic hardware, will bring a lot of changes. So will the field of digital information storage, computing and other fields. Therefore, to a certain extent, the cloud computing network virtualization design brings hidden risks to the customer's information security.

### **5.2. Disadvantages of computer big data analysis technology**

Firstly, if information in various fields is collected intentionally, it will interfere with the life of the public to a certain extent and create security risks such as privacy leakage[6]. Secondly, the generation of false data. In the background of the comprehensive popularization of big data, there are still more information that cannot be screened and examined effectively, but be advertised in many platforms, and these untrue propaganda will directly cause some information to become false data, which will have adverse effects.

## **6. Application of cloud computing network technology and computer big data analysis technology**

### **6.1. Widely used in the field of transportation**

Nowadays, as the overall economic consumption level in China continues to grow, the general public has set more standards for the quality of daily life. "Private cars" are everywhere, which indeed promotes the overall economic development of the city and increases the local consumption level, but also causes the traffic problems in the city from time to time. Due to the space and road constraints of urban planning, the rapidly rising number of vehicles can not be accommodated obviously, especially in those relatively developed cities, and the peak congestion during commuting hours has become the norm. The application of big data analysis and cloud computing network technology to the transportation industry has developed into "smart transportation". By installing traffic sensors to specific locations, real-time detection of the corresponding traffic chapter is realized. By monitoring and integrating the means of transmission and acquisition of various road signals, the road traffic status monitoring and management capabilities are effectively improved, and the process of road traffic intelligence and integration is promoted, and the traffic congestion

problems in the city are alleviated on the basis of efficient information collection. In addition, with the application of big data analysis technology and cloud computing network information technology, people can use the specially designed traffic application to make detailed road condition information inquiries[7]. Not only can we know the specific mileage to the destination, but also we can check the actual congestion of each road, which greatly optimizes people's experience of traffic participation.

## **6.2. Widely used in the field of sales**

The extensive use of big data analysis and cloud computing network technology in the field of sales has formed a more mature operation system and the benefits it brings are particularly significant so far. While promoting the development of new forms of accurate sales and personalized marketing, they also provide a lot of convenience in various aspects such as managing and maintaining customer relationships. For example, when big data analysis and cloud computing technology are applied to e-commerce platforms, the platform automatically records and retains consumers' online browsing footprints, including browsing time, page information, and number of clicks, so as to instantly grasp consumers' willingness to purchase and transform their purchase motivation into purchase behavior[8]. After acquiring the above data information, it is collected by the terminal platform in time and becomes the basis for consumer intention prediction. After that, the system will use the predicted information to recommend products that may be of interest to the corresponding customers to catch the eyes of the target customers, thus effective consumption behavior is promoted and the accurate promotion of the ecommerce platform is completed.

## **6.3. Widely used in the field of medicine**

The medical service industry, as a traditional industry, has undoubtedly played a great role in pushing the application of big data and cloud computing. The medical service field includes clinical services, payment/pricing, technology research and development, innovative business models, and public health, which are the key research areas on the basis of big data and cloud computing network in the future. Among these five areas, the research and application of big data technology and cloud computing technology is undoubtedly of great value to achieve efficient improvement of treatment quality and effectiveness. Based on the use of big data and cloud computing technology, the effectiveness of patient treatment and the quality of health services can be effectively improved. In the consultation process, a complete database of basic patient information can be established to facilitate the medical staff of each department to make health-specific care plans for patients and thus achieve the purpose of improving the overall health service level[9]. In terms of the overall process of treatment, the rational use of big data analysis and cloud computing technology can carry out data collection for patients and provide an effective basis for medical services for patients.

## **7. Conclusion**

The development of computer network technology has brought about great changes in the daily life and production operation mode of human beings, thus producing richer digital information. The popularity of cloud computing technology, especially the joint use of cloud computing technology and computer big data analysis technology, has given full play to many fields, thus promoting the continuous development of society.