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Analysis of Computer Network Security Prevention Strategy in Big Data

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ABSTRACT: Based on the overview of big data and computer network security, this paper analyzes various threats faced by computer network security in the era of big data, and puts forward computer network security prevention strategies to promote the health and sustainability of India's Internet industry development. Big data analytic index in traditional data warehouse applications, has a large amount of data, analysis of complex features. In order to design suitable for large data analysis of data warehouse architecture, the paper double the big data analysis platform need some several important characteristics of the current mainstream implementation platform.

KEYWORDS: Big data; network security; prevention strategies; internet industry.

I. INTRODUCTION

With the continuous advancement of science and technology, the development of computer networks has become more and more mature and perfect, but in the era of big data, computer information security has become a major concern of people from all walks of life. It is undeniable that big data provides great convenience for serving people's production and life, and also plays an important role in promoting social and economic development and progress, but it is also accompanied by the increase of computer information network security risks, social news. The network technology crimes reported above are endless, and the vital interests of the general public will be affected. Therefore, it is necessary to take scientific and reasonable measures to improve this situation and ensure the information security of Internet people. To prevent the occurrence of computer network information security problems, it is necessary to fully integrate big data and network technology's own characteristics, scientifically control and reasonably prevent, in order to promote the healthy development of the computer network industry.

II. BIG DATA OVERVIEW

Big data can also be defined as a large amount of unstructured or structured data from various sources. From an academic perspective, the emergence of big data has led to novel research on a wide range of topics. This has also led to the development of various big data statistical methods. Big data is not statistically the sampling method; it is just to observe and track what is happening. Therefore, the size of big data usually contains more data than traditional software can handle within an acceptable time. Due to recent technological advances, the convenience of publishing new data, and higher transparency requirements of most governments around the world, big data analysis has become increasingly prominent in modern research.

Big data include structured, semi-structured,and unstructured data, and unstructured data is increasingly becoming a part of the data. Big data have been just an appearance or characteristic of the development of the Internet to the present stage. There is no need to mythologize it or keep it in awe. Under the backdrop of the cloud of technological innovation represented by cloud computing, these looked like Data that is difficult to collect and use is beginning to be easily used. Through continuous innovation in all walks of life, big data will gradually create more value for humanity.

III. BIG DATA AND COMPUTER NETWORK SECURITY OVERVIEW

Big data refers to technologies that analyze and process huge amounts of data. The characteristics of big data usually include: large scale and variety of data, fast data processing speed, and low data value density. The focus of computer network

security is computer network information security. As the name implies, it refers to the security of user network information in a computer network environment.The main methods and

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means used are technology. The specific content involves avoiding information leakage of network users, and preventing network users from being subjected to malicious attacks such as hackers.Computer network security needs to be guaranteed by establishing a special computer network information protection system. Various advanced technologies are the prerequisites for building this system. The ultimate goal is to effectively ensure the peace and harmony of the network environment and ensure the information of computer network users in all directions.

Secondly, the systematic cognitive big data, must decompose it comprehensively and meticulously, and proceed from three levels:

1. The first level is a theory. Theory is a necessary way of cognition and a baseline that is widely recognized and disseminated. Here we understand the industry's overall depiction and characterization of big data from the definition of big data characteristics; from the discussion of the value of big data for in-depth analysis of the preciousness of big data; insight into the development trend of big data; from big data privacy is particularly important view of the long-term game between people and data.
2. The second level is technology, which is the means and a cornerstone for the advancement of big data value. Here, the development of cloud computing, distributed processing technology, storage technology, and perception technology are used to illustrate the entire process of big data from the collection, processing, storage, and formation of results.
3. The third level is practice, which is the ultimate value of big data. Here are four aspects
   1) Big data of the Internet
   2) Big data of the government
   3) Big data of enterprises and
   4) Big data of individuals.

IV. THREATS TO COMPUTER NETWORK SECURITY IN THE ERA OF BIG DATA

4.1 COMPUTER NETWORK INFORMATION SECURITY RISKS INDUCED BY ENVIRONMENTAL FACTORS

Objectively speaking, the problem of external hardware equipment of the computer constitutes a potential information security risk of the computer network. If the external equipment of the computer network can operate safely, it is necessary to create a comfortable external environment for it as much as possible, and to avoid the external hardware equipment of the computer network in a high temperature and humid environment. In addition, damage to the line caused by natural disasters such as lightning, water,fire, and earthquakes will directly cause hidden dangers to computer network information, such as the loss of user information and data. At present, there is no way to prevent the computer network information security risks caused by natural disasters on a global scale.

4.2 COMPUTER NETWORK INFORMATION SECURITY RISKS INDUCED BY SYSTEM SOFTWARE VULNERABILITIES

An inducing factor of computer network information security is the system software's own loopholes. System software is a computer's own software. If the system software itself has loopholes, it will bring huge security risks, such as the discovery and utilization of system software by people with ulterior motives. Vulnerabilities of one's own will directly cause leakage and damage of computer network information. At present, in the process of developing computer system software, in order to avoid the above situation, the method of encryption and authorization processing of the system software's own vulnerabilities is often adopted. This is a preventive strategy, but it is not an absolutely safe strategy. It can take effect. The premise is that the system is not maliciously attacked by people with ulterior motives, and once an unfortunate event occurs, the loss will be immeasurable.

4.3 COMPUTER NETWORK INFORMATION SECURITY RISKS INDUCED BY HUMAN FACTORS

Some lawbreakers can use high-tech technology to steal the information of netizens, which may cause property damage to the elderly or juvenile network groups with little awareness. With the widespread popularity of computer network systems in India, there are more and more people who can access computer networks. Some of these netizens have low computer literacy and little knowledge of the operation of computer systems. Therefore, in the process of using computers Unintentional installation of computer viruses and malware, browsing illegal websites that steal personal information, setting simple network payment passwords and loss of property, etc. All kinds of security risks are related to the personal

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qualities of computer network users, resulting in human factors. Computer network information security risks, causing unnecessary losses.

V. COMPUTER NETWORK SECURITY PREVENTION STRATEGIES IN THE ERA OF BIG DATA

5.1 IMPROVE THE INFORMATION SECURITY MANAGEMENT SYSTEM IN THE COMPUTER NETWORK

The computer network information security system guarantees computer network information security from the system level, which is also a fundamental measure made from the source of information. The first step is to restrict the access rights of computer users, set up basic access verification processes: password,fingerprint, SMS verification, etc., and verify and verify the relevant identities of computer users. Limit subsequent visits to websites by computer users who violate operations. Strictly manage the behavior of users who do not have access rights related to the website, and implement totally closed management on the website access behavior of such personnel. Computer network information data will block the subsequent actions of computer users without access rights. At the same time, computer users without permission will be forced to close the site.

5.2 STRENGTHEN THE AWARENESS OF THE PREVENTION OF HACKER ATTACKS IN THE OPERATION OF THE COMPUTER NETWORK

Some lawbreakers with high-tech technology can use the computer network to obtain improper benefits. The background of the big data era provides these people with strong technical support and certain convenience. Ordinary computer network users have to guard against such high-tech crimes in order to protect their own property and personal safety. For each enterprise, it is necessary to master the general hacker's network attack technology, and knowing oneself and others can effectively improve the early warning speed of computer network hackers stealing information. As far as the internal computer system of an enterprise is concerned, it is necessary to constantly update its own system and reduce the vulnerabilities of the system software itself; secondly, use firewalls, anti-virus software and other technologies to prevent normalized viruses and avoid their invasion. Enterprises should also do a good job of keeping data confidential, strictly control outside access, and at the same time do a good job of real-time authentication of computer network information review to maintain information security of the computer network.

5.3 STRENGTHEN COMPUTER NETWORK SECURITY MANAGEMENT

Improving the computer network security management mechanism is a macro-level control at the institutional level. This is a prerequisite for combating Cyber-crime. The implementation of the system can effectively improve the effectiveness of computer network security management Network information security is closely linked to people's privacy and property. This information is particularly important in the era of big data. Once criminals use technical means to steal the personal information of computer network users, stealing users' money is a matter of minutes. All kinds of enterprises need to formulate relevant computer network security management systems, and implement the relevant content of network security management in the system. For example, through regular training, to enhance the security awareness and risk prevention awareness of computer users, to cultivate computer users Computer use professional literacy. Through the establishment of a reward and punishment mechanism, employees are encouraged to consciously implement information security management from the source of information in the internal system of the enterprise.

5.4 IMPROVE THE IDENTIFICATION TECHNOLOGY IN THE NETWORK

The improvement of network identification technology is mainly to solve the problem of theft of passwords frequently issued by computer network information security, which is conducive to the management of computer network information security. At present, computer networks mainly use passwords for information collection and management. This method is traditional and backward, mainly because of its low security performance. With the development of network identification technology,biometric identification technology came into being. This technology is more cutting-edge and higher-end, mainly with strong security performance, which can effectively avoid being impersonated by people, thereby further avoiding information leakage. The development of network identification in the direction of biometric identification is progressive, and plays an important role in effectively protecting the security of people's network information and personal property.

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5.5 PROMOTE NETWORK SECURITY SYSTEM SOFTWARE

Vigorously promoting network security system software can effectively prevent most network malicious attacks People's life and work are usually inseparable from the computer network in the era of big data, which provides convenience for the promotion of network security system software, The installation of firewalls and anti-virus software on computers is the two main contents of the promotion of network security system software. The targets of promotion include both individual computer users and various enterprises. Among them, the firewall can be said to be the first line of defense to ensure the security of computer networks, anti-virus software is the system software to ensure network security,which has a defensive role against general virus attacks. The development department of the network security system software should combine the big data technology to constantly update the virus database to match the constantly updated various network viruses, and promote the safe and stable development of network information technology on the basis of improving its own technical level.

VI. TRENDS IN COMPUTER NETWORK SECURITY AND BIG DATA

Trend 1: RESOURCE DATA

What is meant by resources means that big data has become an important strategic resource that companies and society have paid attention to, and has become a new focus that everyone is competing for? Therefore, enterprises must formulate big data marketing strategic plans in advance to seize market opportunities.

Trend 2: DEEP INTEGRATION WITH CLOUD COMPUTING

Big data is inseparable from cloud processing. Cloud processing provides flexible and scalable basic equipment for big data and is one of the platforms for generating big data. Since 2018, big data technology has begun to closely integrate with cloud computing technology, and it is expected that the relationship between the two will be closed in the future. Besides, emerging computing forms such as the Internet of Things and the mobile Internet will also help the big data revolution and make big data marketing more influential.

Trend 3: BREAKTHROUGH IN SCIENTIFIC THEORY

With the rapid development of big data, just like computers and the Internet, big data is likely to be a new round of technological revolution. The related data mining, machine learning, artificial intelligence and other related technologies that may arise may change many algorithms and basic theories in the data world and achieve scientific and technological breakthroughs.

Trend 4: THE ESTABLISHMENT OF DATA SCIENCE AND DATA ALLIANCE

In the future, data science will become a specialized discipline, recognized by more and more people. Major universities will set up special data science majors, and will also create several new jobs related to them. At the same time, based on the basic platform of data, a cross-domain data-sharing platform will also be established. After that, data sharing will expand to the enterprise level and become a core part of the future industry.

Trend 5: DATA LEAKAGE IS RAMPANT

The growth rate of data breaches in the next few years may reach 100% unless the data can be secured at the source. It can be said that in the future, every Fortune 500 company will face data attacks, regardless of whether they have already made security precautions. All companies, regardless of size, need to revisit today's definition of security. In Fortune 500 companies, more than 50% will set up the position of a chief information security officer. Enterprises need to ensure their own and customer data from a new perspective. All data needs to be secured at the beginning of its creation, not at the last link of data storage. It is proved to be of no avail to strengthen the latter's security measures.

Trend 6: DATA MANAGEMENT BECOMES CORE COMPETITIVENESS

Data management has become core competitiveness, which directly affects financial performance. When the concept of "data assets are the core assets of the enterprise" is deeply rooted in the hearts of the people, the enterprise has a clearer definition of data management, data management as the core competitiveness of the enterprise, sustainable development, strategic planning and use of data assets, become enterprise data The core of management. The efficiency of data asset management is significantly positively related to the growth rate of main business revenue and sales

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revenue; besides, for companies with Internetthinking, the proportion of data asset competitiveness is 36.8%, and the management effect of data assets will directly affect The financial performance of the enterprise.

Trend 7: DATA QUALITY IS THE KEY TO THE SUCCESS OF BI (BUSINESS INTELLIGENCE)

Enterprises that adopt self-service business intelligence tools for big data processing will stand out. One of the challenges is that many data sources will bring a lot of low-quality data. To succeed, companies need to understand the gap between raw data and data analysis to eliminate low-quality data and get better decisions through BI.

Trend 8: THE DATA ECOSYSTEM IS BECOMING MORE COMPLEX

The world of big data is not just a single, huge computer network, but an ecosystem composed of a large number of active components and multiple participant elements. Terminal equipment providers, infrastructure providers, network service providers, network access Ecosystem built by a series of participants including service providers, data service enablers, data service providers, contact services, data service retailers, etc.

VII. THE IT ANALYSIS TOOLS IN THE BIG DATA AND NETWORK SECURITY

The concept of big data is applied to the data generated by IT operation tools. Big data can enable IT management software vendors to solve a wide range of business decisions. IT systems, applications, and technical infrastructure generate data every second every day. Big data unstructured or structured data represent absolute records of "all users' actions, service levels, security, risks, fraud, and more."

The generation of big data analysis is aimed at IT management. Enterprises can combine real-time data flow analysis with historical related data, and then big data analysis and discover the models they need. In turn, it helps predict and prevent future outages and performance issues. Further, they can use big data to understand usage models and geographic trends, thereby deepening big data's insight into important users. They can also track and record network behaviour, and big data can easily identify business impacts; accelerate profit growth with a deep understanding of service utilization, and at the same time collect data across multiple systems to develop IT service catalogs.

The idea of big data analysis, especially in IT operations, big data has no effect on our invention, but we have been in it. Basically, they have emphasized that if IT is introducing fresh inspiration, they will throw away the old methods of big data and develop a new IT operation analysis platform.

VIII. THE VALUE OF BIG DATA IS REFLECTED IN THE FOLLOWING ASPECTS:

(1) Enterprises that provide products or services to a large number of consumers can use big data for precise marketing.

(2) Small and medium-sized enterprises that are small and beautiful can use big data for service transformation.

(3) Traditional enterprises that must transform under the pressure of the Internet need to keep pace with the times and make full use of the value of big data.

IX. THE FOLLOWING SITUATIONS THAT ARE BENEFICIAL TO THE ENTERPRISE MAY OCCUR:

(1) Timely analysis of the root causes of failures, problems and defects may save companies billions of dollars every year

(2) Plan real-time traffic routes for thousands of express vehicles to avoid congestion.

(3) Analyze all and set prices and clear inventory with the goal of maximizing profits.

(4) According to the customer's buying habits, give him preferential information that may be of interest to him.

(5) Quickly identify gold customers from a large number of customers.

(6) Use clickstream analysis and data mining to avoid fraud.

X. CONCLUSION

In summary, in the context of the era of big data, the problem of computer network information security is a general concern of the

majority of computer network users. Big data brings a lot of convenience to people's production and life. At the same time, with the occurrence of network information security problems, the personal information and property of network users are in a certain risk state. To solve the problem of computer network information security by combining the technical characteristics of big data itself, we must first understand the hidden dangers of computer network information security brought by big data, and on this basis, we must overcome the difficulties and solve the computer network by enhancing risk prevention awareness and various technical means. Information security issues.

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