Analysis on the University's Network Security Level System in the Big Data Era

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Abstract: The rapid development of science and technology, the continuous expansion of the scope of computer network applications, has gradually improved the social productive forces, has had a positive impact on the increase production efficiency and industrial scale of China's different industries. Combined with the actual application of computer network in the era of large data, we can see the existence of influencing factors such as network virus, hacker and other attack modes, threatening network security and posing a potential threat to the safe use of computer network in colleges and universities. In view of this unfavorable development situation, universities need to pay attention to the analysis of the situation of large data age, combined with the requirements of network security use, to build a reliable network space security system from the equipment, systems, data and other different levels. To avoid the security risks exist in the network. Based on this, this paper will analyze the hierarchical security system of cyberspace security in the era of large data.

1. Introduction

It is helpful to strengthen the network security of colleges and universities and to analyze the influencing factors of network use in colleges and universities, and to give the network information security guarantee in colleges and universities. Therefore, the practice process should start from the data, system, equipment and network level, combined with the practical application of the university network in the era of large data, to build a reliable network space security system, to achieve its network security protection, and to provide protection for network performance of the university optimization. At the same time, colleges and universities should strengthen the network security awareness, enhance the level of network security awareness in the era of large data, and according to their own actual situation, use the effective strategies to enhance the network space security level of security system applicability.

2. the practice of network security and network space security overview

2.1 the Overview of network security in the course of practice

The so-called network security refers to the security of computer network practice application, which includes the security of network space and information management, and emphasizes the security of all the management links on the network. In the process of strengthening the network security management, which is conducive to the protection of information security, enabling users to access the computer in the process of information can be security, optimize the computer security performance at the same time help reduce the incidence of information leakage incidents.

2.2 Overview of cyberspace security in the course of practicing

While the core issue to be addressed cybersecurity is the same as cyberspace security during the practice: the security management of information. However, the focus of the two differences. Among them, cyberspace security is from the spatial level of network security performance to give the necessary attention to the overall security of the network were fully considered. Compared with the network security, the information involved in cyberspace security is more advantageous in terms of depth and breadth, which is helpful to enhance the practical application effect of computer network and put the overall safety management level of our information industry at a higher level. Therefore, the practice should pay attention to the concept of network space security and network security between the concept and connotation analysis, in order to develop and implement reference of China's network space management measures.

3. The Analysis of the Focus on the Importance of Cyberspace Security in the Large Data Era

The arrival of large data age increases the total amount of data in the application of network practice in colleges and universities, and puts forward higher requirements for its network service function. Under the influence of the secondary situation, the opportunities and challenges in the use of the university network coexist, and the cyberspace security needs to pay more attention. Specific performance in the following areas:

(1) Pay attention to the security of cyberspace, which is conducive to deepening the potential of network space development in colleges and universities, and timely processing the potential influencing factors to realize the effective maintenance of network information security, and to make the university network to provide more quality service for teachers and students. At the same time, under the support of reliable network space management measures, the university network space will be scientifically managed and respond positively to the call of the country in the network security space management, which is very important for its long and stable development.

(2) Implementing the work of cyberspace security management, highlight the important position of cyberspace security, it is helpful to improve the efficiency of information transmission in the application of network practice in colleges and universities, and give full play to this virtual space in the process of human-computer interaction to promote the communication equipment. Computer systems can be efficient use, and indirectly accelerate the pace of construction of university information.

(3) Concerned about the security of cyberspace, is conducive to improving the level of security management in the network operation of colleges and universities, it can promote the computer network to better serve the university, to adapt to the development requirements of large data age. At the same time, the development and implementation of the network space security initiative in colleges and universities will also improve the level of internal information management and strengthen the external relations and improve the network space of colleges and universities in the efficiency of security issues.

4. Analysis on the Potential Threats of Network Space Security in Colleges and Universities in the Big Data Age

In support of in the computer technology, cloud services, computer network facilities and other aspects which based on the era of large data, can achieve a powerful information management system to build and make information management that can be applied to the daily management work. Like the campus "card" to promote the use of a certain extent for college teachers and students to provide a convenience. However, due to its use involved in a number of platforms, which still exist a certain degree of information security risks. At the same time, due to the prominent group of network space, objectively determines the need for in-depth analysis of the potential threat of cyberspace security faced by colleges and universities in the era of large data. Specific performance in the following areas:

4.1 Highly dangerous high-level sustainability threats

This kind of threat is abbreviated as APT, and the social engineering principle is fully utilized in the course of practice. Through the deep analysis of the loopholes in the university network, the cyberspace security has a threat of sustainability. Compared with the general network attack mode, the high level of sustainable security threat posed by the cyberspace security of colleges and universities is more harmful, and it has the characteristics of concealment, it is difficult to carry out effective recognition and increase the cyberspace security risk objectively.

4.2 Potential threats in distributed denial of service

Under the support of the network transmission protocol, the effective effect of the distributed denial of service can play the traffic amplification attack through the transmission protocol loopholes involved in the university network space. Under the new situation, the speed of development of network technology is accelerated, which makes the attack frequency of distributed denial of service increase, and can act on reflection loopholes in transmission protocol loopholes, which makes the existing network security system of colleges and universities can be threatened greatly. The collapse of the problem, affecting the network space security.

4.3 Potential threats to privacy and security

With the increase of the amount of data in the large data age background, personal privacy and security has brought a greater threat. Among them, the occurrence of information disclosure problems, will make the university network space security is facing greater challenges, indirectly, increased the university network security management work pressure. And the current college students in the personal information security awareness is still need to be strengthened, personal privacy and security need to be effectively protected. In the course of practice, if the attack mode in the network space of the university gets the personal information of the teachers and students, it may cause the privacy leak to happen and threaten the cyberspace security of the university. Combined with different reference materials and survey activities, we can see that about 50% of colleges and universities in the college students into the network space has been threatened by the invasion, such as application software download, web login and so on. In the process of using different social software, because the personal information will be recorded, and the information has a certain relevance, it is easy to be part of the lawless elements to use, threatening the privacy of personal privacy, these need colleges and universities build a sound cyberspace security hierarchical security system to ensure that teachers and students can get personal information security.

4.4 the Potential threat of portable intelligent terminal security

The rapid development of information technology, computer network service functions is increasingly perfect, they can promote intelligent terminals for college teachers and students. Like smart phones, tablet PCs, etc., for college teachers and students of the daily study and life can provide a lot of convenience. However, due to the convenience of portable terminal applications, and need to access the network, maybe it will subject to network viruses and other attacks, the impact of their own defense performance and security caused a potential threat, whichmay make contained the information disclosed.

5. Analysis on the Construction of Network Security Level System in Colleges and Universities

5.1 Determine the components of the security system

The construction of cyberspace security level system in colleges and universities can achieve the expected effect, and it needs to analyze the constituent elements of the network space security system, so as to meet the requirements of the security system. Specific performance in: (1) focus on the protection of the main body of the reasonable settings. In the process of constructing the hierarchical security system of network space security in colleges and universities, it is necessary to select reliable routers, controllers and other related equipment to ensure the effectiveness of the protection of the

main body; (2) the potential threat analysis of security. The protection system should consider the information leakage, APT impact, mobile intelligent terminal use risk, so as to provide a reference for the formulation and implementation of the relevant response measures; (3) the improvement of the protection mechanism. Under the action of the scientific guarantee mechanism, it can defend the virtual attack mode in the network space of colleges and universities. It can improve the security mechanism of cyberspace in colleges and universities through the use of digital signature, authentication, firewall and so on. The protection system needs to build a more scientific, to maintain its good practice application effect.

5.2 the Security System Needs to Build the Equipment Security Layer

As an important part of cyberspace security in colleges and universities, the reasonable setting of equipment safety layer is helpful to optimize the performance of equipment and reduce the occurrence rate of failure in long-term use of equipment, so as to provide a guarantee for the construction of network space security security system. Therefore, in the process of constructing the security system, a reliable equipment security layer should be set up to realize the effective response of electromagnetic interference and electronic damage in the use of network equipment in colleges and universities. At the same time, in order to avoid the loss of college network equipment, teachers and students of information leakage incidents, but also in the equipment security layer settings focus on remote information backup, and expand the scope of magnetic shielding technology to protect equipment applications. A university network space security control model diagram is shown in Figure 1.

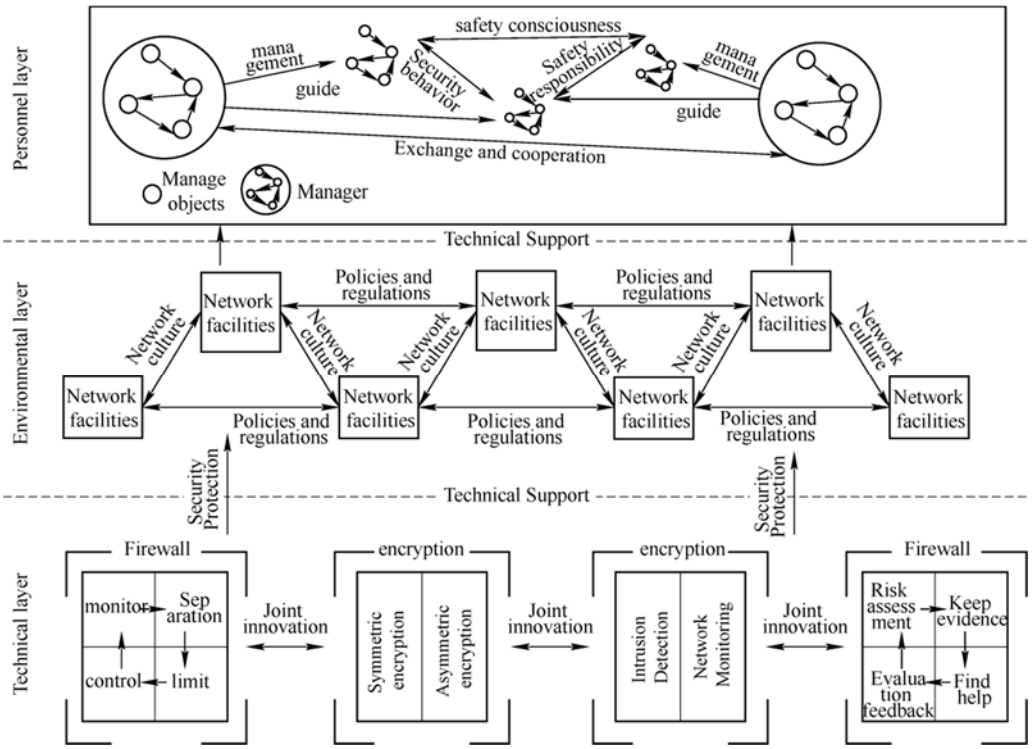

Figure 1 Schematic diagram of a cyberspace security control model in a university

5.3 the Security System to build the System Security Layer

Combined with the practical application of network space in colleges and universities, we can see that the application of security in the system security layer is the most likely to be attacked. If the hacker in the effective attack means to enter the university network space, will threaten its system security layer, resulting in the interference of network space operation, may lead to the emergence of network collapse and cause information disclosure. Therefore, the network space security security system in

colleges and universities should consider the system defense performance and be optimized to ensure the stable operation of computer system in colleges and universities.

5.4 the Security System to Build the Data Security Layer

The increase in the total amounts of data in the era of large data, the higher requirements of the university website system service function. When the university website system is running information collection, it may be affected by the network attack mode, which affects the data security in the university network space. Therefore, it is necessary to pay attention to the reasonable setting of data security layer and establish an efficient information security recognition mechanism to ensure the high efficiency of information processing and reduce the problem of data chaos in the network space of colleges and universities the probability of now. Part of the network security technology development and development process are as shown in Table 1.

Table 1 part of the network security technology development and development process

Network security technology	Technical principle	Advantages and limitations	trend
Firewall	Four−level state detectio	The control level is not high	UTM Anti−X(AV)
Intrusion Detection	Analysis of Network Information Matching Characteristics	A certain detection effect, false positives	IDS VS.IPS
GAP Gatekeeper GAP	Protocol stripping, physical isolation and so on	Connectivity	Secret system
Flow cleaning	Bypass traction special flow	Anti−DOOS	Security service center

5.5 The content security layer in the construction of the security system

Due to the inclusion of a lot of content in the application of cyberspace in colleges and universities, it indirectly increases the risk of its safe operation and increases the threat of network security. In order to effectively deal with these threats, it is necessary to strengthen the content security layer setting in the construction of cyberspace security level system in colleges and universities, to deal with the information leakage and privacy theft in the operation of cyberspace, and to establish a reliable public opinion early warning mechanism, Realizing the Information Management in the Network Space of Colleges and Universities under the Function of Cloud Computing. At the same time, this security system in the content security layer settings, but also make the university network space to better adapt to large data environment.

6. Concluding remarks:

In the era of big data, the overall service level of college network practice is increasing day by day, and its service function is becoming more and more perfect. However, due to the high degree of openness of the computer network, making the university network operation is still facing a greater challenge: the use of network security. In this context, the future network construction should take full account of its network security performance and structure, pay attention to the network space security security system building, promote their own network can be in a safe and efficient operation, and improve the quality of data transmission, enhance the security of information transmission in the network.

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