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Construction of a safety information system for the online sport shop

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ABSTRACT

The online sport shop is an extension for the present private shop as well as a supplement for the traditional business structure. Sports goods is absolutely necessary for physical exercise, online network technology provides technical support to buy sports goods. With the increase of some software as well as hardware instruments, sport users can connect the shop system with family computers to do some common shop business, which remedies the deficiency of operating branches as well as operating time for traditional sport shop business. To realize adopting firewall on network layers which prevent extraneous attack and guarantee the safety for business data transportation on the public internet, integrity identification as well as key management should be simultaneously implemented on the application layers for sensitive data as well as encrypted information. In the context of the safety for internal sport shop business system as well as the safety for external shop business, this project preceded the internet safety design from the aspects of various sport shop business, business connection between the head office and branches, OA system and internet sport shop. In this project, high-quality firewalls are equipped on the panel points of all subsidiary shops of different levels, which guarantee the confidentiality of the IP package. Meanwhile, sport buyers' sensitive information can be protected in business system from illegally distorted, which will achieve the safety functions of encryption as well as identification for sport business data.

KEYWORDS

Implementation; Safety information system; Sport shop.

INTRODUCTION

Regardless of many advantages in the internet sport shop for shops as well as users and under this situation, the promotion of internet sport shop will encounter tremendous risks, and the security of internet shop should be enhanced immediately. According to the analysis of common reports, criminals mostly use the Trojan virus to filch users' information, for example hackers firstly transfuse the Trojan program into users' computer system, and the monitoring system remains in the target computers can intercept and monitor the system as well as the internet shop password window when users are surfing the internet[1,2]. In other words, when users are inputting the ID number or password in the internet shop system, the computer will automatically deliver the code of relevant information to the hackers, which can be reversely read as well as decoded, and in this way money is carried away by the hackers. With the large-scale popularization of the internet, each shop has been progressively developing its own internet shop system. The promotion of internet shop operation has critical significance of reducing cost as well as increasing efficiency and simultaneously brings about safety threats, which tremendously confines the further generalization of internet sport shop operation. In recent years, many cases of internet sport shop defrauds have been reported. Criminals filch users' ID number as well as password to steal or falsely use large quantity of money[3].

Information network technology application is increasingly popular and wide. through the Internet, application fields transfer gradually from the traditional small business system to large key business system; typical party and government departments such as information systems, and financial service system, the enterprise business system, etc. In a word, the open, free, and internationalized development of the Internet in government agencies, enterprises and institutions has brought the revolutionary reform and opening up, so that they can use the Internet to improve work efficiency and market reaction ability, and accordingly become more competitive[4]. Through the Internet, they can retrieve the important data from other places, and at the same time, face the problem that the open Internet may bring new challenges and new risks for data safety. Based on this kind of situation, considering the complexity of the application system, to establish the system of network security and comprehensive solution is imminent. Network security has become an important problem affecting network performance[5,6], and the Internet is open, international and free in increasing the application degree of freedom at the same time. The security puts forward higher request, this mainly displaying in: the open network leads to the fact that the network technology is fully open, and any one person or group could get in, so the network may face various destruction and attack; the network attack not only come from the local network users, but also from the Internet or machines; liberty means the network users' free use and does not provide any technical constraints, so the users can have free access to the network, to use and distribute various types of information freely[6].

ANALYSIS OF THE HIDDEN DANGERS OF SPORT SHOPS ON THE NET

The net system's main problem is that the users' security is too dependent on the quality of the users themselves. For those whose safety awareness is poor, their password is easy to be stolen, so the "trust users" safe mode design is not reasonable[7]. If the users' computer installs Trojans, their actions are likely to be monitored and stolen. The safe net system should be designed as such: suppose net administrator is hackers, and in the end user computer installation Trojan and can monitor the user's all keyboard mouse operation net silver, the administrator can also for system management and operation, but net administrator is still unable to through the net system to steal the money end users. If you can do this, then the net system is a relatively safe.

If a computer hackers successful control for "chicken", so when the user use the computer for online shop operation, hackers may monitor to the relevant online shop operation action, and use the Trojans get account password, and by using the users are using the U shield and mobile hardware

number certificate, success will are using online shop transfer[8]. This is the premise of possible, first is causes by remote computer control, second it is the users are using U shield for Internet shop transfer, and third is the user didn't use cell phone verification and other services.

U shield is the function of trading information to encrypt the authentication; the authentication of trading information can meet the accurate and complete, and shall not forge undeniable characteristics. In the actual net operation process, users in the IE browser form trading information, again by IE browser the transaction information to the U shield for the authentication. U shield fully trust the IE browser, even if IE submitted a pen after tamper with the deal[9], Many online shops and the third party trading platform on the butt, this will give hackers steal the user of the shop on the net capital provides in machine. The third party trading platform had been can be use of loopholes, and happen too much money on user stolen case. Because the shop on the net and the third party trading platform are closely related, therefore the safety of third party trading platform for the development of the shop on the net effect also knots allow to ignore. Usages also cannot find so for the authentication. Therefore, if a Trojan virus through some technical means, able to take full control of the IE browser, can to net user's transaction information manipulation, once the user the confirmation, the business is tampered and normal trade, after the authentication, send, and ultimately perform.

The virus in the monitor to the computer users in online shopping, will take the user's current page jump to hackers special set false payment page. Because of the online shopping but are generally the same home third-party payment platform (such as clap nets of payee is Shenzhen ten cent technology company, taboo's payee is Zhejiang pay treasure network co., LTD., etc.), true and false web pages with only order number and transaction amount of difference, this situation often have careless users click confirm payment, the result that normal shopping money to pay for hackers in the bogus account.
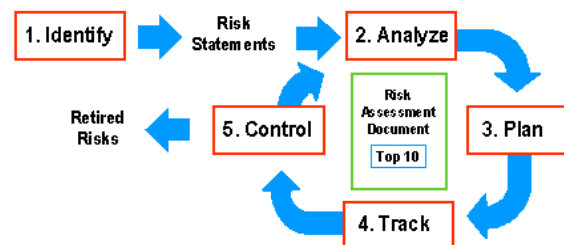

Figure 1 : Risk management in online sport shop

THE PRINCIPLE OF DESIGN AND REALIZATION OF THE SPORT SHOP ON THE NET SECURITY SYSTEM

A security defense system is usually to achieve the objective: to prevent outside hacker attacks; To prevent from the inside of the malicious attacks; Network resource access control; Network transmission of real-time monitoring; Strong safety audit mechanism; Event analysis and warning measures, etc. In order to achieve the above purpose, usually by in the network layer on the firewall to prevent foreign attack and guarantee business data in the public network safe transmission, at the same time in the application layer to provide a sensitive data encryption message integrity identification and key management[10]. This program will from various business shop, shop head office and branch business links and OA system, the shop on the net all aspects of network security design. Design in the various branch node equipped with high performance firewall to ensure confidentiality of IP packet, and at the same time in the business system to protect the user sensitive information, prevent information is illegal manipulation, realize the business data encryption, identity authentication and so on security function[12]. Therefore, in the shop all an export configure the firewall, the head office and branch of the joint network, also configuration firewall, foreign prevent hackers, internally to prevent internal personnel's malicious attack or due to internal personnel caused by the problem of network security.
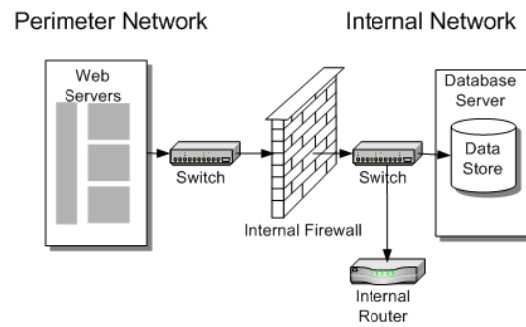
Figure 2 : Perimeter and internal network protection

DESIGN OF SPORT BUSINESS AND OFFICE SYSTEM SAFETY

In the sport shop business system security design, mainly involves are the shop head office and branch network interconnection and shop internal office operation system. Security measures are:

On the network shop to various applications, including RMB business system, foreign currency business system, internal OA system and a series of business, the business is a link between, to guard against infringement use resources, especially the shop system and office OA system, the operation system is the guarantee of the isolation system security industry an important link. In the shop's internal, each business systems use host IP address is strictly distinguish, to build access control mechanism is the core of the isolation measures provide convenience[12]. Points head office, branch and branch between, through the VLAN division, business VLAN and OA VLAN, isolation office network and network, can isolate business VLAN and OA VLAN as needed to realize communication.

In the shop system there are many sensitive data area (such as the shop system host, etc.), these sensitive data area requirements strictly confidential, to access permissions have strict restrictions. But the shop system all the host in the same network system inside, if not controlled, it is easy to cause the network and network within the malicious attacks, so in these data area entrances will be strictly controlled, so in these places configuration firewall, as shown in figure 2 shows. The firewall performs the following control functions: to visit packet filtering, the only allowed verify lawful host packets through the ban all unauthorized host access; to visit the user verification, to prevent illegal user's intrusion. Using network address translation and application agent make data storage area and business front host isolation, business front host does not directly and data storage area to establish the network connection, all of the data access through the firewall application agency completed, to ensure the safety of data storage area[14].
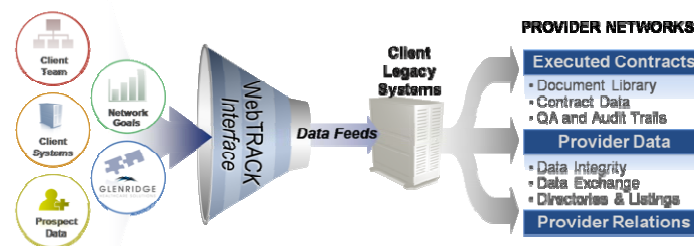

Figure 3 : Sensitive data area protection scheme

Data encryption

In the sport shop's wan transmission system, from the head office to branch, the branch to branch, branch to a small local branch and so on, these line most are made by public sector communications company provide, and many users in a system to carry out their business. Because

these lines at the same time exposed to the public, it is apt to cause the data stolen[15]. So for data transmission encryption is a very important link. In this method, the headquarters to each branch, and branch to branch using VPN encryption technology for data encryption. Implement all of the VPN products can realize communication. In the system, and use VPN technology to encrypt data transmission way as shown in figure 4.
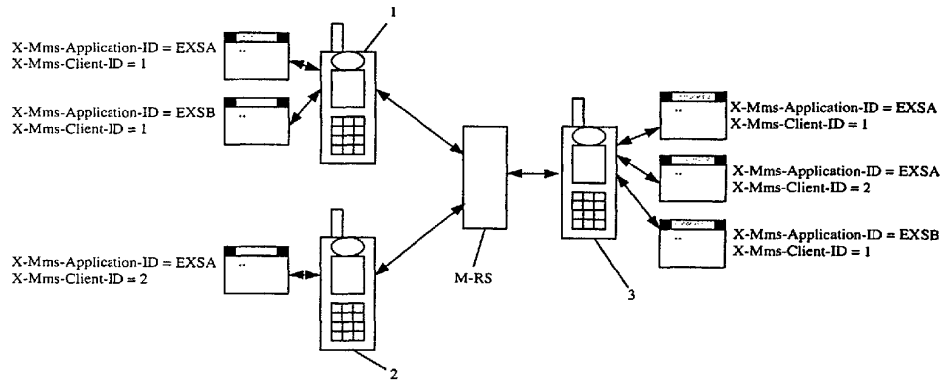

Figure 4 : Data transmission

Firewall for protection

To ensure the security of the network, firewall must protect itself to ensure safety. System power supply, hardware fault and other special situation occurs, will make the firewall system paralysis, and seriously hinder the network communication, so the requirement firewall has redundancy protection measures and enough ability to attack. Here the firewall dual-machine backup plans, as shown in figure 5:
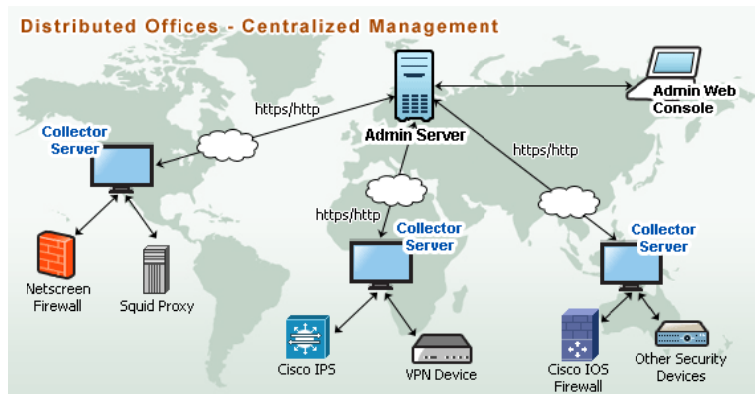

Figure 5 : Firewall in centralized management

DESIGN OF ONLINE BUSINESS SAFETY

In this scheme, we combined with online shop system structure and its facing the problem of network security, adopt the following safety measures: in shop electronic commercial platform and Internet outlet installed Net Screen - 100 firewall; The Net screen - 100 virtual IP technology, electronic commerce server do load balance; In the shop and shop comprehensive e-commerce platform between network installation Net Screen - 100 firewall; Enable Net screen - 100 VPN channel function, using the standard encryption technology to transfer data encryption. In the shop electronic commercial platform and Internet installed Net Screen between 100 -, -, through its based on state detection of packet filter, can effectively will be illegal packet out outside the firewall; Through the NAT (network address

translation) will internal server (such as providing e-commerce services server) IP address into external IP address, can effectively prevent hackers from through various means to attack or invasion of internal server, in order to ensure that the electronic commercial platform from invasion, and all the information blockade, and open in hope to provide services[16].

The following diagram illustrates the six steps of the risk management process: identify, analyze and prioritize, plan and schedule, track and report, control, and learn. It is important to understand that the process of managing each risk goes through all of these steps at least once and often cycles through numerous times. Also, each risk has its own timeline, so multiple risks might be in each step at any point in time.

Risk Management Process Steps

The following is a brief introduction to the six steps of the risk management process.

•Identify - Risk identification allows individuals to identify risks so that the operations staff becomes aware of potential problems. Not only should risk identification be undertaken as early as possible, but it also should be repeated frequently.

•Analyze and prioritize - Risk analysis transforms the estimates or data about specific risks that developed during risk identification into a consistent form that can be used to make decisions around prioritization. Risk prioritization enables operations to commit resources to manage the most important risks.

•Plan and schedule - Risk planning takes the information obtained from risk analysis and uses it to formulate strategies, plans, change requests, and actions. Risk scheduling ensures that these plans are approved and then incorporated into the standard day-to-day processes and infrastructure.

•Track and report - Risk tracking monitors the status of specific risks and the progress in their respective action plans. Risk tracking also includes monitoring the probability, impact, exposure, and other measures of risk for changes that could alter priority or risk plans and ultimately the availability of the service. Risk reporting ensures that the operations staff, service manager, and other stakeholders are aware of the status of top risks and the plans to manage them.

•Control - Risk control is the process of executing risk action plans and their associated status reporting. Risk control also includes initiating change control requests when changes in risk status or risk plans could affect the availability of the service or service level agreement (SLA).

•Learn - Risk learning formalizes the lessons learned and uses tools to capture, categorize, and index that knowledge in a reusable form that can be shared with others.
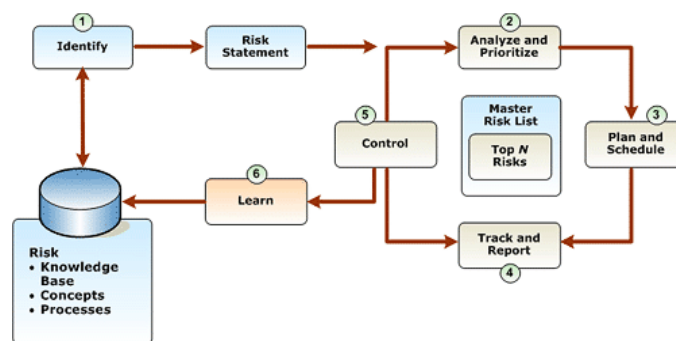

Figure 6 : The process of managing risk

CONCLUSION

The safety system construction of the internet sport shop application system is an extraordinary complicated systematical engineering, it Should not only meet the needs of sports buyers, guarantee the diversity of sports goods, also have to consider the network safety and quick. This requires programming in advance as well as deliberate choice. In most situations, various safety technologies as well as management should be integrated to achieve it. The safety for hardware instruments as well as

system platform can be enhanced or preceded by multiple technologies. In Sports shop online operation process, it need the safety of normal operation of e-commerce, which analyzes its successful example, explore the regularity and safety, operation mode, the processing of all kinds of information, ensure security and confidentiality of the process of data transmission, so as to guarantee the sports goods purchase smoothly. It is reminded that many safety threatens derive from management deficiency as well as cognition for safety threatens, especially the vulnerable safety awareness of the users as well as the management system vulnerability, other means of communication also need to improve. A favorable safety management contributes to enhancing security of the system, which includes finding safety vulnerabilities of the system in time, investigating the safety system, enhancing the education of safety knowledge for users and establishing a complete management institution of the system.

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