

# The Application of Internet Security Technique in Point Source Information System of Geology and Mineral Resources

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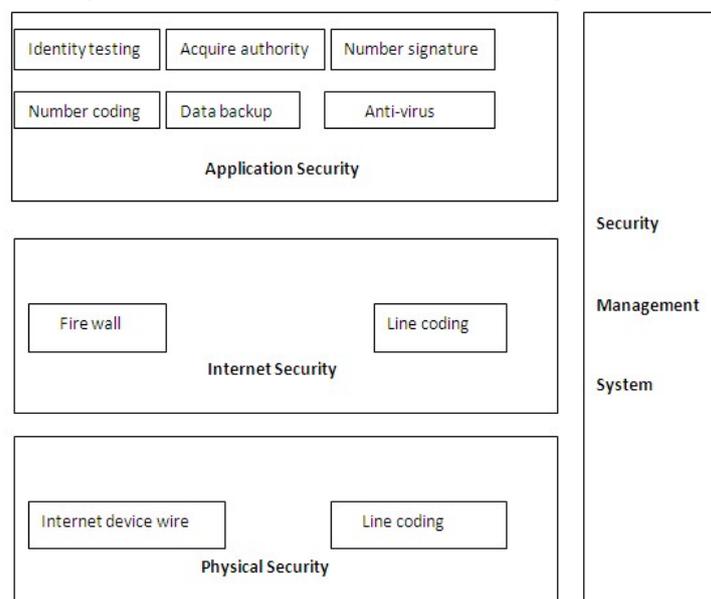
**Abstract.** Point source information system of geology and mineral resource consist of three major parts including reconnaissance data management, reconnaissance data processing and geological mineral source appraisal. Its structure lies in the combination of technique methods and application models. The core of it is point source data base. With the application utilized more frequently, various datum on the Internet drastically increase which will cause more and more Internet attacks. Diverse security issues are hampering the normal running of the system. Therefore, it has been a critical problem and pressing job to guarantee a efficient and secure geological mineral information website.

## Introduction

Internet security includes physical security and logical security. Physical security means physical protection of the telecommunication devices and many related devices from destruction and loss. Logical security includes information integrity, confidentiality and usability. Confidentiality means that information can't be leaked to those not licensed. Integrity means that the computer system is able to prevent itself from illegal altering and deleting. Usability means that the computer system has the ability to cease the illegal computer resource and data and meet the normal needs of its legal user. Security threats in the Internet computer mainly include identity stealing, identity faking, data stealing, data altering, operation denying, unlicensed visit and computer viruses [1].

## Establishment of a Internet Security System

The definition of the Internet Security System: Internet Security System is a application system which combines the security technique with security management in order to realize a multi-layered and safe system. The security mechanism of the entire Internet System is as the following [2].



## **The Realization of Internet Security System.**

The system must be designed according to the features of the geology and mineral information system. Besides, unified security plan ought to be made for the use of Internet system. All these will come true in terms of security management and technique in the security system of the Internet information system.

### **a. Fulfilling the security regulation of geology and mineral info Internet.**

The establishment of the security management system is the core of the entire Internet security system. It is essential to set up a department which is exclusively responsible for the management of information security and to take a series of measures [3]. These rules ought to involve the aspects of computer Internet security construction, computer Internet security management, security confidentiality management, out-and-in rules in the machine room and data backup rules.

### **b. Security techniques of geology and mineral information Internet.**

#### **(1) Division of VLAN.**

The geology and mineral information Internet which utilizes exchanging zone Internet techniques is able to use VLAN technique to intensify the internal Internet management. The core part of VLAN technique is Internet subsection. The Internet can be divided into several parts and separated according to different applied business and security levels through which visit limit can be realized to restrain the visit of those illegal users. Internet divisions involve physical division and logical division. Physical division divides the Internet into several parts from the physical layers and the data lines, but direct telecommunication can't be realized between those parts. Logical division divided the whole Internet into parts on the Internet layers. At present, the newly built geology and mineral Info Internet basically uses KM technique with advanced property whose central exchanging machine utilizes a three-level one and is able to well support VLAN. In order to guarantee convenience and security of different functional and management departments as well as stability of the whole Internet operating, we ought to use VLAN tech based on COM port to divide fictitious Internet into several VLANs including office [4], laboratory, teaching and student dorm.

#### **(2) Deployment of firewall.**

A firewall is to be deployed between the Internet and the geological mineral internal information net, which plays an vital role as a solid security barrier. External servers such as WWW, MAIL, FTP, DNS are connected to the DMZ zone of the firewall which is separated with both the internal and external net. The internal net port is connected to the internal exchanging machine of the geological mineral information net while the external net port will be connected to Internet through routers. Therefore, those public users just have access to the service which is open to the public. For example, WWW, MALL, FTP, DN [5].

The Internet security of firewall can be increased in the following methods:

1)According to the net security plans and aims, we can correctly make out secure filtering rules and strictly examine the IP including treaties, COM port, source address, destination address and flowing direction so as to prohibit the unnecessary and illegal visit.

2)Configure the firewall to be an IP bag which is able to filter the illegal IP.

3)Regularly check the visiting log of the firewall and timely find out the potential attacks and vicious Internet records.

4)Internet cards should be allowed for the setting of firewall in order to increase the management security of the firewall.

#### **(3)The use of VPN.**

With VPN, both the internal and external Internet connection can be realized. Besides, the data security can be assured. The administrators have the right to make special rules with a VPN server, allowing those to connect VPN who conform to some required conditions. Moreover, SINFOR SSL VPN skill, combined by SLL coding with USBKey-based dual identity recognition method, can be used to provide security ways which are suited for all terminal devices.

The effects brought by SSL and VPN:

1)User testing: test the identity of the user and strictly limit the access to VPN.

2)Data coding: the date conveyed through the public Internet must be coded so as to prevent the

users not licensed from reading the information.

3)Key management: generate a basic treaty widely used in the public Internet. The VPN plan which is based on PPTP and L2TP can not only meet all the basic requirements, but also make full use of the advantages of Internet.

4)Absence of client side: greatly decrease the cost of Internet management.

5)Monitoring around the clock: the administrator can monitor the running conditions of SSL VPN through distant monitoring platform. System log can help us timely position the breakdown and carry out distant maintenance. Through GUI interface, the administrator can also check the conditions of every online user at any time and make dialogs with people at will. Thus, it will be an efficient and convenient plan.

**(4) The control of visiting.** The major task is to ensure that the Internet resources will not be used and visited illegally. The entry of the users is usually controlled through user examination, user's commanding test, user's account checking. When a user enters the Internet, the Internet will endow the users visiting right to some degree and the users can only operate within the range of the right given to ensure that the net resource will not be visited and used illegally.

**(5) Internet data backup and recovering.** An ideal Internet backup system should include the following functions: Centralization management: Internet storing backup management system manages the entire data of the Internet. With this management method, the administrator is able to manage all the backup plans of the whole Internet,

and the backup server can monitor the work of all the computers, alter the backup plan, browser all the catalogues at any time. Automatic backup: automatic backup system can reasonably backup the data which is actually needed by the users without any interference of people. File management: the user can file all the datum regularly according to time and project. Data storing format called Open Tape Format will be provided to ensure that all the datum can be kept in the same format permanently.

**(6) Internet backup and store management system.** The working principle of backup and store management system is to choose an applied server to be data storing management server and install terminal software as backup server of the entire Internet. The core of Internet data storing management system is the backup management software. At present, this kind of management software mainly include Legato Networker, Ibmadsn, Veritas Netbackup.

**(7) Disaster recovery.** Disaster recovery usually include two kinds. The first kind is overall recovery. The second kind is individual recovery. Overall recovery is usually applied when accidental disasters happen to the server, which cause the loss of all the datum and the crashing of the system. Individual recovery is to use the recovery function of the Internet backup system to fix some harmed document. Browser the backup data base, find the individual document, activate the recovery function and the software will recover the specified document automatically.

## Summary

As the society is drastically developing, it is essential to constantly perfect the geology and mineral information system to conform to the fast paces of this ever-changing world.

The construction of geological mineral information Internet is a complicated and systematical project whose security construction requires to be taken into full consideration as it is a long plan. In addition, its advancement and expandability should be guaranteed. Technically, it must be adapted to the ever-changing conditions on the Internet. This passage just makes some superficial discoveries and attempts in terms of designing of the Internet security system. Many more shortcomings and disadvantages are yet to be researched and improved.

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