



# Hillstone Network Optimization Solution for Financial Industry

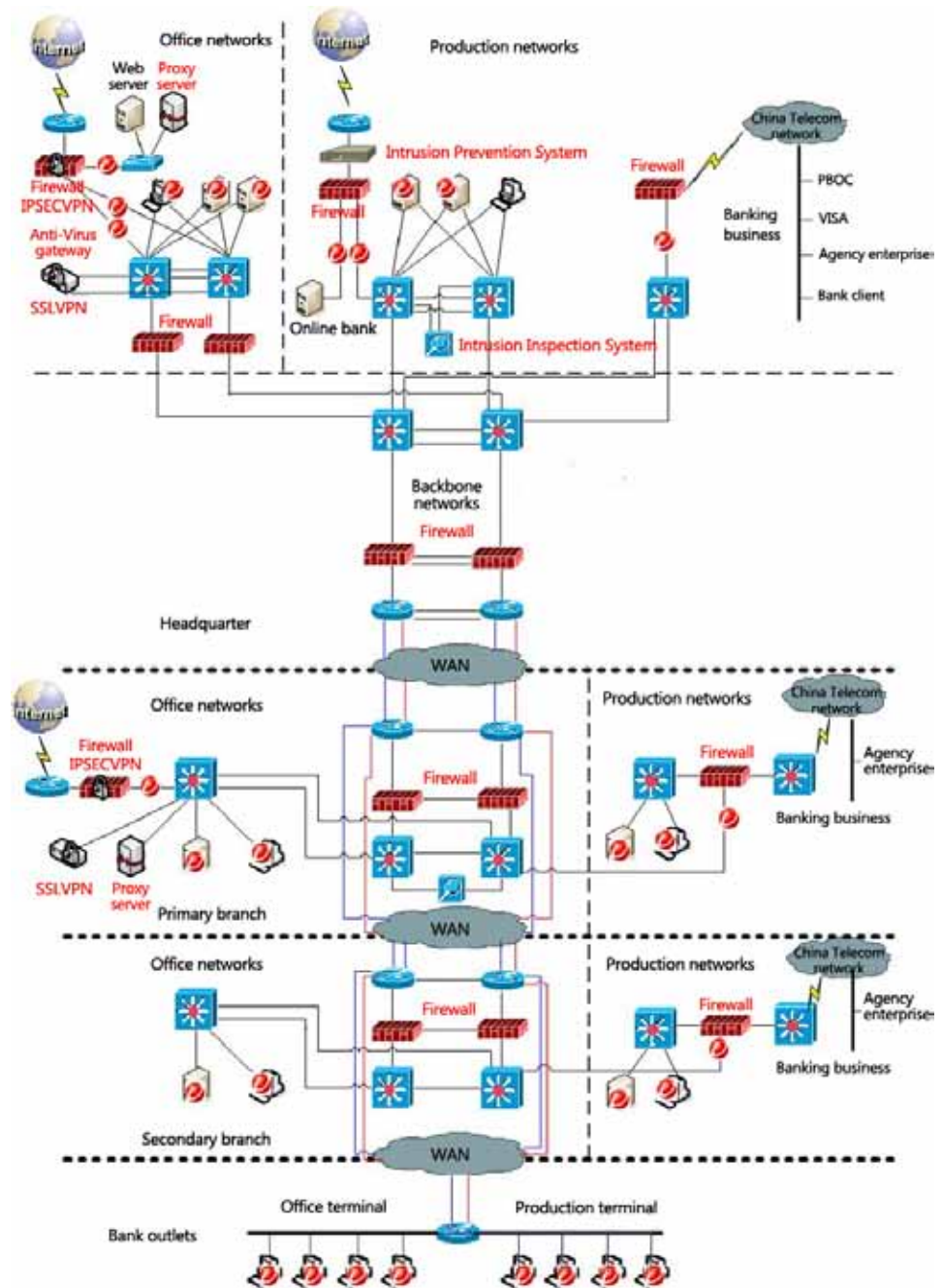
## 1、 Analysis of Network Status and Security Problems for Financial Industry

As financial reforms advances in China, all banks put the focus of competition on service. The banks are increasingly investing in digitize services, and expanding the scale of computer network and application coverage. However, it should be noted that these initiatives while brings benefits also brings new security issues, and these issues are now becoming more and more urgent. The reasons lies mainly in three aspects: First, along with China' s economic reform, financial reform deepens, the financial risks increase rapidly. Guarding against and defusing financial risks have become a very important issue for governments at all levels and the financial sector. Second, as computer applications are getting widespread and computers are more networked nowadays, the system' s security vulnerabilities have also increased. For many years, the banks constantly expanded computerized banking outlets and launched new varieties of computerized services under competitive pressures, but ignored the building of computer management system and security measures. This makes computer security issues more prominent. Third, with spreading of network technology and the internationalization of financial networks, technology of computer crimes are improving and cases of computer crimes are on the rise. This also demands a bank information system with a higher security mechanism.

Development of network communication technology has given rise to breakthroughs in time and space constraint for banking businesses (such as universal cash saving and withdrawing service, bank card business, intermediary business, telephone banking business, and the upcoming online banking business, etc.). It greatly improves the business process, and even to some extent changes the traditional business model. However, adopting new technologies and new systems is accompanied by information security risks. With deeper penetration of information technology, information security will be more closely linked to core bank business. The information security construction of commercial banks should be able to ensure the safety application of

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new technologies, so that it can guarantee the safety as well as play an important role in business operation.



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Banking network is divided into business network and office automation network. The two networks are physically separated. The authentication server, CA server, front-end processor, and intermediate business front-end processor are connected to business network. Intrusion detection system and virus prevention system are connected to the main switch. The authentication server, CA server, and intrusion detection system are managed by secure management terminal and auditing terminal. The root CA server is placed in an isolation area and not connects with any network to ensure the safety of the root CA. Business network is connected to the first level network through VPN and firewall.

Web server, online banking server, and Email server are placed in the DMZ zone, connecting to the Internet through anti-virus security appliance, IPS, and firewall. Office network is also connected to the Internet through VPN and firewall.

## 2、 Countermeasures and Suggestions for Financial Network Security Problems

### Security Protection for Office Network

The office system is for office automation of internal users. OA system connects internal users through the LAN and enables users in different department to share resources as well as exchange information via the office network. Hillstone series security appliance deployed in the bank office network offers:

- High-performance firewall with network layer attack prevention
- Provide link load balancing and policy-based routing
- Bandwidth management of dynamic port applications such as P2P, IM, Internet video, etc.
- Bandwidth management and session control based on IP address
- High-performance virus detection and filtering
- Authentication based on Web redirection and L2TP
- Network visiting log record and network behavior auditing, including websites category database of URL filter, BBS posting record, email sending recode, and access control based on key words
- The third-generation SSL VPN
- Load balancing and various security checking technologies
- Provide security mechanism under IPv6

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### Security Protection for Banking Business

There are many kinds of banking business, for example credit card service, IC cards, personal and commercial banking, etc. It is vital to fully protect the network security of banking business. Hillstone series security appliance provides:

- DoS/DDoS and SYN protection
- Application layer intrusion prevention system (IPS), inspect and defend against over 3,000 attacks
- ARP attack defense.
- Session control and session rampup per second to protect back-end server
- Load balance and various security checking technologies
- DNS proxy and recursive DNS query control
- Support IPSec VPN
- Record and audit of network connection log
- Record and statistics of traffic log

### Security Protection for Backbone Network

The bank network in China is an internal business system with three-class network architecture from headquarters to provincial branches to prefecture branches. The headquarter network is a first-class node, the provincial branch network form a second-class node, and the prefecture branch or the sub-branch network is a third-class node.

Sales servers, business servers, and intermediary business servers are aggregated to the core switch. Core switches usually have redundant backup. The core switch connects sales servers, business servers with prefecture branch network centers and the sub-branch network centers. The servers are also connected to telecom operators, China Mobile, and stock exchanges. These servers provide business services to bank outlets.

For backbone and business network, Hillstone series security appliance provides high-integrated and easily extensible solutions:

- Up to 480G backplane bandwidth to carry the original load of the aggregation layer switch
- Up to 44 ports convenient for exchange and policy control
- Bandwidth management and session control based on IP address
- Authentication based on Web redirection and L2TP
- Session control and session rampup per second to protect back-end server
- Load balance and various security checking technologies
- Support IPSec VPN



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- Record and audit of network connection log
- Record and statistics of traffic log

### Security Protection for Online Bank

Online banking is attracting increasing number of customers because its rich features, simple procedure, flexible configuration and convenient. However, online banking also could easily be targeted by unlawful intrusion and malicious attacks because of vulnerabilities in the protection system and the weak security awareness. Hacker or attacker may hide many miles away and evading the justice system. The numerous financial transaction data in the open network not only involves great economic benefits, but also contains substantial user privacy, which will attract intrusion, monitoring, spoofing, and attack from network lawbreakers.

Hillstone security appliance provides highly integrated and easily expended solutions for online banking.

- DoS/DDoS and SYN protection
- Up to 480G backplane bandwidth to carry the original load of the aggregation layer switch
- Up to 44 ports convenient for exchange and policy control
- Bandwidth management and session control based on IP address
- Authentication based on Web redirection and L2TP
- Session control and session rampup to protect back-end server
- Load balance and various security checking technologies
- High-performance virus detection and filtering
- Record and audit of network connection log
- Record and statistics of traffic log

### Extend SSL VPN Solution for Financial Network

The third-generation SSL VPN technology – Hillstone security connection VPN provides secure, reliable, encrypted, integrated, and non-repudiated communication mechanism:

- Login authentication based on HTTPS, high-strength encryption and fast data transfer equivalent that of IPSec VPN.
- Provide USB-Key authentication and can combine with the third-party authentication
- Support hardware binding for connected users and PCs



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- Support security scanning of user PC to determine user level of access

### Unified Log Audit as well as Device Management and Monitor

After deployment of the high-performance security appliance, administrator faces the problem of managing the device: monitoring the device, collecting network usage log, collecting network operation status, and recording user behavior.

Hillstone Security Management (HSM), Hillstone's centralized management system, provides:

- Record attack log and statistics
- Record traffic log and statistics
- Record network behavior: such as webpage browsing, content of BBS posting, content and attachment of outgoing emails, record of access based on port IP, etc.
- Record log and statistics of virus detected by anti-virus function
- Record log and statistics of attacks detected by IPS mechanism
- Record statistics of top N users who occupy the most upstream and downstream bandwidth and session
- Record statistics of device operation status