

# Hillstone Security Solution for School System Metropolitan Area Network

## 1. Public Education System

The public education system in China mainly consists of primary and high schools. They are all managed by the education department at district, county and city levels. As usage of multimedia computers is becoming increasingly prevalent in education process, primary and high schools throughout the country build campus network of their own. This enables teachers to provide rich multi-media online education for students and reaching more education resources on the Internet.

The public education system MAN interconnects all the schools and educational institutions in the region, also it is also connected to the CERNET and the Internet. This provides a reliable, high-speed, and manageable network environment for local schools, offers extensive resource sharing as well as rich and convenient network application for users. This network is part of “Campus Communication Program” for local schools.

**The general education MAN mainly has following security risks and vulnerabilities:**

### 1. Lack of effective defense against a variety of attacks

- Attacks based on application vulnerabilities and applications with evasive techniques challenge traditional firewalls.
- Widespread of computer and network viruses threaten network security and stability at any time.
- ARP flood attacks cause access paralysis of the entire network.

### 2. P2P traffic consumes network bandwidth

- P2P traffic accounts for more than 60 percent of the total traffic, seriously affect the normal business.
- P2P software is becoming the main channel through which computer viruses and Trojans are spreaded.

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- Need to provide flow control for users and selected applications.

### 3. Remote security access

- Need to provide secure and fast VPN access for working from remote offices and at home

### 4. Internal network monitor and user behavior control

- Need to monitor network operation status and user network behavior through analysis and statistics gathering of traffic, protocol and sessions
  - Need to record the network behavior and BBS posting content to provide strict network control and complete network auditing

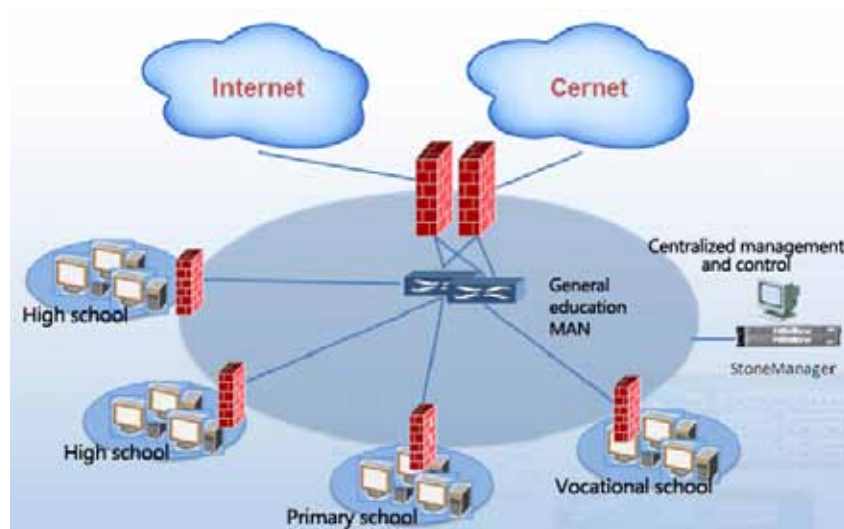
### 5. Unified and centralized management system

- Need a unified and centralized management platform when deploying the whole network
  - Need statistics reports on traffic status, session status, and attack statistics from the management platform

## 2. Hillstone Networks Solutions

Hillstone series security appliance offers following solutions for the public education networks:

Figure: Security solution for a public education MAN



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### 1、 High-performance security defense

**Network attack defense:** With multi-core parallel processing and application layer attack detection mechanism, Hillstone series security appliance can identify and prevent traditional network attacks.

**ARP spoofing attack defense:** The traditional IP/Mac binding is no longer enough for ARP spoofing prevention. Hillstone series security appliance guards against ARP spoofing with the following functionalities:

- Hillstone Secure Defender Client
- Mac-IP-Port binding
- Port isolation function
- Auto-Send of Gratuitous ARP for gateway or for other PCs/servers
- ARP reverse query
- Limit IP address per MAC

**Anti-Virus:** Cooperating with Kaspersky, Hillstone offers parallel stream based virus scanning that effectively block virus while at the same time provide high throughput data transfer.

**IPS:** Hillstone StoneOS adopts a new generation of application identification based on application behavior and characteristics. The deep application identification technology breaks the port-based network defense methodology. Only after identifying the application that a flow is corresponding to, can we start protecting against attacks that targets that application.

### 2、 P2P flow management and control

To deal with waste bandwidth on public education networks, Hillstone offers professional QoS solutions to help administrators manage their network traffic, which can put a stop to the problem of bandwidth overconsumption by one IP address and guarantees available bandwidth for every user.

Hillstone offers proprietary IAI (Intelligent Application Identification), which can classify hundreds of network applications, even encrypted P2P (Bit Torrent, Emule, Xunlei etc.) and IM traffics. Traffic can be identified and marked according its application type. Traffic bandwidth can be controlled and prioritized according to the application

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identification and marking result. One typical scenario is that the administrator can assign a lower priority and limit the maximum bandwidth P2P downloading traffic consumed in the campus network and guarantee the bandwidth for protocols such as FTP, HTTP, SMTP and POP3, enhancing the network efficiency and greatly reducing the delay in Web surfing and mail delivering.

Hillstone also offers variety of statistics reports from which user can easily find out the IP address, user, or application with the most bandwidth consumption, the application protocol usage of an IP address, and the IP address using an application protocol most frequently. This is convenient for network administrators to see real-time statistics and analyze the network status.

### 3、 Secure, reliable, and convenient SSL VPN remote access

Hillstone SSL VPN provides convenient access to campus network for faculty members working off site and other remote users. It provides maintenance free deployment that includes auto installation and upgrade. User authentication based on SSL is also integrated. Working with functions such as USB-Key authentication, hardware binding for connected users and PCs, security scanning of user PC to determine user level of access, etc., Hillstone SSL VPN can guarantee the security of the entire network and reduce security risks while providing safe data transmission.

### 4、 Flexible and efficient Network Behavior Control (NBC)

Hillstone series security appliance provides unified management for needs of authentication, accounting, auditing, and behavior monitoring and control for campus network and its users. Hillstone network behavior control offers full control of user actions such as online gaming, IM, online stock trading, P2P download, web surfing, outbound email and web posting. And based on user, time period, different actions can be configured. Hillstone solution also comes with flexible control and logging functionality. Working with Hillstone Security Management (HSM) system, user activity logs can be searched and audited, enabling network administrators to make policy and control their networks.

### 5、 Unified management of the entire network devices

Hillstone Security Management (HSM) system offers unified and centralized management of multiple Hillstone devices, including log collecting, real-time device



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status monitoring, history querying, and security auditing reports. The real-time device status monitoring could provide comprehensive information of managed devices, such as CPU utilization, memory utilization, number of sessions, number of VPN tunnels, total traffic, number of attacks and virus detected.

Through statistics collected, administrators can see traffic status of each IP, each application, and even that of various applications of a given IP. It is an essential aid for administrators to monitor network status, locate network problems, and optimize network operation.