Hillstone
N E T W O R K S

Tier-1 Internet Service Provider Using Hillstone X7180 Data Center Firewall Carrier Grade Network Address Translation (CGNAT) Service to Support 10 Million Users

The
Customer

The Tier-1 internet service provider is a global leading telecommunication company, offering extensive information technology services. It provides comprehensive solutions across a wide range of services including landline to mobile, narrowband to wideband, personal demand to industrial information, among others. It operates both a 3G wireless broadband network and a 4G-LTE network simultaneously, bringing voice and data services to millions of retail and enterprise customers.

The
Challenge

The company has embraced an unprecedented development since the government licensed 4G services to the business in 2015. With network support and the accelerated adoption of 4G subscription on mobile phones, the company has rapidly expanded its user base since then. By the beginning of 2017, the company had about 10 million users, with a 48 times increase from 0.2 million in the beginning of 2015. As available IPv4 addresses were being exhausted, and the number of connecting devices was expected to increase rapidly, the effective utilization and preservation of IPv4 addresses suddenly became an imperative.

In addition, the company continues to experience a major shift in customers adopting smartphones, tablet computers, and machine-to-machine (M2M) devices, which coincided with explosive growth in data services over its network. The carrier's many data centers host services such as instant messaging, voice over LTE (VoLTE), video optimization, Transmission Control Protocol (TCP) optimization, multicast, and DNS services. Continued growth in 4G-LTE device adoption and the corresponding data usage increase has been overtaxing many of the company's network components, resulting in scalability issues.

Tier-1 Internet Service Provider Using Hillstone X7180 Data Center Firewall Carrier Grade Network Address Translation (CGNAT) Service to Support 10 Million Users

The
Solution

To support its increasing 4G users and data usage growth, the company needed a network firewall solution that provided high capacity, scalability and the ability to handle high traffic throughput.

To meet these goals, the company deployed four Hillstone X7180 Data Center Firewalls as the Carrier Grade Network (CGN) devices and enabled NAT444 features on the CGN device to conduct real-time analysis of the traffic and message content through the 4G LTE network. The company also deployed Hillstone Security Audit Platform (HSA), which provides instant visibility into billions of log records.

Enabling IP Addresses for Rapidly Increasing Devices

The implementation of Carrier-Grade NAT (CGNAT) with Hillstone Networks data center firewall X7180 greatly extends the availability of existing IPv4 addresses, which maps private addresses onto public IPv4 addresses with advanced stateful tracking of active sessions. Hillstone's solution was highly evaluated for its support for more than 3000 applications via an application control function that converts IP addresses included in the data payload, as well as operating NAT444 with high transmission.

The company generates millions of events every day. Hillstone Security Audit Platform provide high performance log storage and near instantaneous query results to analyze an explosion of data generated by X7180 Data Center Firewalls. In addition, Hillstone's NAT logs can translate a public IP address into a private IP address/port and user name, which provides powerful forensic detail.

"The Hillstone Security Audit Platform provides split-second searches, which quickly provide instant visibility into millions of log records."
——IT manager

Increased data capacity with scalability

In a typical data center within the company network, the company is able to increase firewall performance significantly to meet the rapidly changing traffic usage characteristics associated with 4G-LTE services. With Hillstone multi-core hardware platform and shared-distributed architecture, the Hillstone firewall delivers 100 Gbps firewall throughput, and maximum 50 million concurrent connections at peak. "The company has about 10 million users now; the Hillstone solution fulfills our data service requirements," continued the IT manager.

Hillstone's X7180 hardware is composed of multiple security and networking modules that provide scalability for future growth. It leverages a distributed multi-core architecture enabling wire-speed performance up to 680 Gbps throughput, 240 million concurrent sessions and 4.8 million new sessions per second.

"The Hillstone hardware architecture provides scalability to support our growing subscription base, a critical reason as to why we chose Hillstone."
——IT manager