



Hillstone Data Center Security Solution

Overview

Hillstone data center firewall is a high-performance, fully distributed firewall platform built from the ground up for today's virtualized data centers. With unique Elastic Firewall Architecture (EFA) and Virtual Elastic Firewall Architecture (vEFA), Hillstone data center firewalls overcome the performance and deployment limitations of legacy firewalls in a virtual environment. As your virtualized data center resources grow, shrink, and migrate, firewall performance scales elastically, maintaining continual, seamless virtual machine protection.

Available in both hardware and software deployment models, X-Series firewall solutions provide the highest levels of security, performance, flexibility and agility to address the growing north-south and east-west traffic of today's flat data centers.

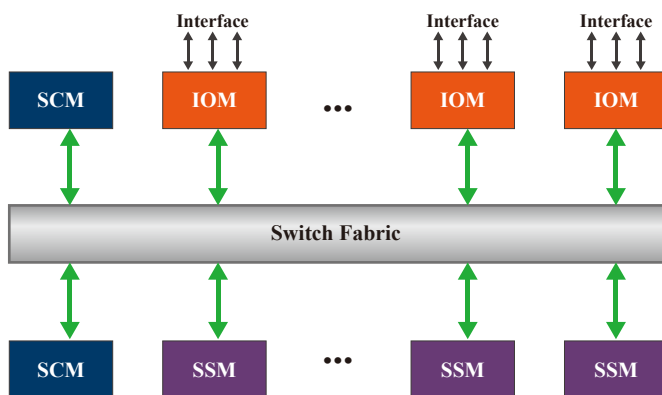
It's Time for Elastic Security in Virtualized Data Centers



- Traditional firewalls can't to scale elastically to support exploding virtualized data center growth. They quickly become performance bottlenecks
- Positioning legacy firewalls is not effective in flattened, virtualized data centers, particularly with the tremendous growth in east-west server-to-server traffic
- Most available virtual firewall technologies provide only basic security functions on virtual machines while compromising security performance

Hillstone EFA and vEFA Technologies

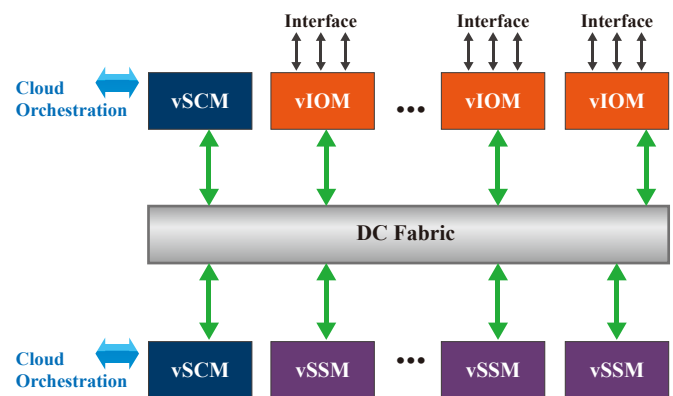
- Hillstone's next generation, distributed Elastic Firewall Architecture (EFA) and virtual Elastic Firewall Architecture (vEFA) technologies are designed specifically to secure today's virtualized data centers
- Hillstone EFA is a hardware based, fully distributed firewall architecture offering unprecedented elastic scalability, surpassing the performance of current hardware firewalls by leaps and bounds



Elastic Firewall Architecture (EFA)

- A patented resource distribution management algorithm, allocates CPU resources efficiently and allows firewall performance to scale with number of CPUs in a linear fashion
- Distributed processing eliminates performance bottlenecks typical of traditional firewall hardware architectures. Specialized Security Service modules (SSMs) process advanced security functions while I/O modules (IOMs) handle the fast forwarding of the data stream, maximizing the performance of each function
- Integrated with VLAN and SDN technologies redirecting virtual machine traffic to the hardware firewall, isolating and securing all virtual-machine-to-virtual-machine traffic

- Software-based Virtual Elastic Firewall Architecture (vEFA) technology distributes firewall processing across multiple, distributed virtual machines, scaling and pooling security resources in a highly flexible, elastic manner
 - Specialized Virtual Security I/O Modules (vIOMs), Virtual Security Service Modules (vSSMs) and Virtual Security Control Modules (vSCMs) deploy easily on cloud platforms as virtual machines with few changes to the existing networks



virtual Elastic Firewall Architecture (vEFA)

- vIOMs provide rack-level security for all north-south and east-west virtual machine traffic, ensuring minimal performance impact and robust security protection
- Unique, patented flow migration technology re-establishes sessions and maintains policies as virtual machines migrate across the data center, ensuring non-stop performance and business continuity and providing a unified view of data center data planes
- vIOMs and vSSMs can be scaled elastically to maintain performance as network traffic grows, ensuring stable firewall performance

Features and Capabilities

- High-performance data center hardware firewall based on Hillstone's EFA technology*
- Fully distributed EFA hardware architecture scales processing and performance linearly
 - Scales throughput to 360Gps, 120 million concurrent sessions and 2.4 million new sessions (HTTP) per second via security service module (SSM) expansion modules
 - Only 5U high with a maximum power requirement of 1300W. One fourth to one third the power requirements of similar products
- Virtual firewall technology creates independent tenant security planes and allocates security resources on demand for each data center tenant
 - Each virtual firewall gets its own system resources, allowing tenant CPUs, sessions, policies, ports, etc. to be scaled dynamically
 - Each virtual firewall has its own separate management interface, to deploy security policies flexibly based on each user's security requirements



* Demo of software X-Series firewall and vEFA technology is currently available for trial.

IT and Business Value

- Supports both traditional data center deployment with a hardware-based architecture and virtualized data center deployment with cloud-based software architecture
- Protects infrastructure investments and meets the elastic performance requirements of virtual data centers by scaling performance linearly via unique, patented EFA and vEFA architectures
- Ensures business continuity by re-establishing sessions and maintaining policies automatically after virtual machine migrations
- Centralized, efficient management via vEFA allows IT to manage multiple firewall virtual machines deployed across the data center



X-Series Firewall Specifications

Specification	SG-6000-X7180
	 
Firewall throughput	360Gbps
Max. concurrent sessions	120M
New sessions per second	2.4M ⁽¹⁾
Expansion module slot	10 universal expansion slots, 2 system control module expansion slots, and 1 SD card slot
Power specification	2+2 redundant hot-swappable power supply, max. power: 1300W
Dimensions (WxDxH, mm)	5U (440 x 590 x 225)

Notes: (1) New sessions per second are measured by HTTP method

- Attack Protection
 - TCP/IP scanning (IP address and port scanning) attacks
 - SYN Flood, DNS Query Flood and other DoS/DDoS attacks
 - 2-Layer attacks (IP-MAC static binding, host defense, ARP protection, and DHCP Snooping)
- Dynamic Routing
 - RIP, RIPv2, OSPF, BGP
- Virtual Firewall
 - Up to 1,000 virtual firewalls with elastic resource quotas (CPU, sessions, policies, ports, services, etc.)
 - Independent policy configuration, administrators, and security logs
- High Availability
 - Redundancy of key components
 - Active/Active mode (A/A) and Active/Passive mode (A / P)
 - Configuration synchronization, and session synchronization
- IPv6
 - Neighbor Discovery Protocol (NDP), Duplicate Address Detection (DAD) and security protection
 - ICMPv6, DNSv6, IPv6ALG (FTP, TFTP, MSRPC, RSH), IPv6NAT
 - Dual-stack, DS-Lite, DNS64/NAT64
- VPN
 - IPSec VPN, SSL VPN, L2TP over IPSec, GRE, dial-up VPN, PnP VPN (Plug & Play VPN)



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