| 1 | Hillstone Product Portfolio |
| 2 | Key Technologies and Solutions |

Hillstone Product Portfolio

Hillstone's Product Portfolio

Hillstone NETWORKS

Centralized Management	HSA/vHSA — Hillstone Security Audit Platform	HSM/vHSM — Hillstone Security Management Platform	CloudView — Cloud Security Monitoring & Analytics

Core Products	PERIMETER PROTECTION	BREACH PREVENTION	DATA CENTER PROTECTION	CLOUD PROTECTION
	E-Series NGFW	I-Series sBDS		CloudHive Micro-segmentation
	S-Series NIPS	T-Series iNGFW	X-Series DCFW	CloudEdge Virtual NFGW
	AX-Series ADC			

Security Services: StoneShield · Sandbox · Intrusion Prevention · Anti-Virus · URL Filtering · Anti-Spam · IP Reputation · Botnet C&C Prevention

Perimeter Protection

E-Series
Next-Generation Firewalls (NGFW)

S-Series
Network Intrusion Prevention
System (NIPS)
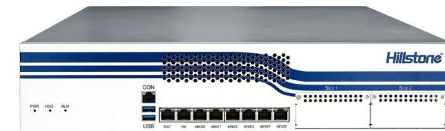
AX-Series
Application Delivery
Controller (ADC)

E-Series: Next-Generation Firewalls

- **Full-concurrence, High-performance Architecture**

- **Fine-granular & Multi-dimensional Control**

- **High Efficient L2-L7 Full Security Protection**

- **Advanced Networking Features**

- **Comprehensive Security Report**

S-Series: Network Intrusion Prevention System

- Unparalleled threat protection without performance compromise

- Granular reporting with user targeted viewpoints

- Ease of deployment and centralized management

- High Availability without network Interruption

AX-Series：Application Delivery Controller (ADC)

Hillstone NETWORKS

Improved system availability through comprehensive load balancing and health check

Best user access experience based on improved server / bandwidth efficiency, and optimized application performance

Effortless IPv6 migration and SSL offloading performance guaranteed HTTPS upgrading

End-to-end secure application delivery

Intelligent Breach Prevention

T-Series
Intelligent Next-Generation Firewalls (iNGFW)

I-Series
Sever Breach Detection System (sBDS)

T-Series: Intelligent NGFW
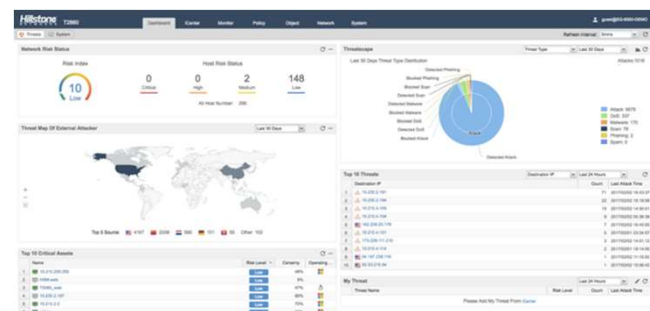
Complete Risk/Threat Visibility Besides Traffic/Apps/Users

Complete Kill Chain Mapping

Rich Forensic Information on Advanced Threats

Immediate Mitigation

Industry Best Threat Intelligence Feeds

I-Series: Hillstone Server Breach Detection System

Hillstone Post-Breach Detection Solution to Protect Critical Servers from Advanced Threats

Detection	Visibility	Forensic	Mitigation
ABD/ATD	IOCs	Kill Chain	Admin Actions
NTA/Deception	Topology	Threat Details	Block list / Whitelist
Threat Correlation	Threat/Traffic	PCAP	Block w/ Firewall
…	…	…	…

Datacenter Protection

Hillstone NETWORKS

X-7180   X-9180   X10800

Data Center Next-Generation Firewalls

Hillstone Data Center Firewall: X-7180

- Customers
  - Carriers, Large Enterprises, Higher Education & Government, Managed Security Service Providers
- Deployment Scenarios
  - Carrier MAN and Mobile
  - Carrier IDC, Government Cloud Data-Center
  - Data Center or University Campus Internet Exit

- High Performance

- Carrier-Grade Reliability

- Low Power Consumption

- Unique Twin-Mode Firewall

- Massive Virtual Firewall for MSSPs

- Comprehensive NAT/IPV6 Support

- Rich L2-L7 Security Functionality

X9180 at a Glance

Product Name：SG-6000-X9180

Product: 7U, front panel 6 horizontal slots, rear panel 4 vertical slots, 4 power supplies, 20 fans, maximum power 2300W

Performance: 500 Gbps throughput, 5.4M new sessions per second, 240M concurrent sessions, IPSec 150G, IPS 200G

HA: Carrier grade reliability at 99.999%; support twin-mode HA deployment for redundant data centers

Architecture: Fully distributed architecture; same HW & SW architecture with X10800; can use X10800 expansion modules

HW highlights：Fully redundant architecture; front and rear air supply; 100GE interface; support future upgrade and expansion

Software features: 3000+ applications identification and control, tens of millions of URL filtering; support up to1000 vSys

X10800 at a Glance

Hillstone NETWORKS

Product Name：SG-6000-X10800

Size：18U

Performance：1.2 Tbps throughput，10 million new sessions per second，480 million concurrent sessions

Processing capability: 2 times more than X7180

Architecture: Same as X7180 platform, scalable to 7 Tbps in the future

HW highlights：Front and rear air supply, 100GE interface, switching Module redundancy, and 12 full-width slots

Software features: application identification and control, IPS, URL filtering and antivirus

Cloud Protection

CloudEdge

Security Solution for
Network Function Virtualization (NFV)

CloudHive

Micro-Segmentation Solution for
Virtualized Data Centers

CloudEdge: Virtual NGFW

North-South Traffic Protection for tenants

- NAT, Access Control, Attack Defense
- Application control
- IPS
- URL Filtering
- VPN
- Antivirus
- Cloud-Sandbox…

CloudEdge

CloudEdge

CloudEdge

VPC

VPC

VPC

CloudHive: Micro-Segmentation for Cloud
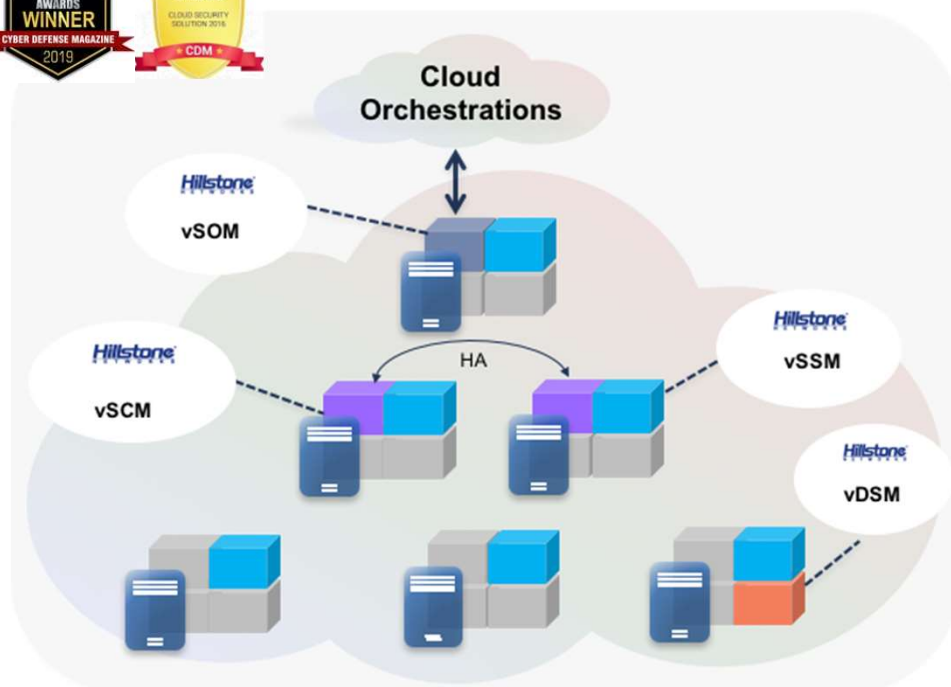
One vSOM, Two vSCMs, Up to 200 vSSMs,
One or Multiple vDSM

Unparalleled live traffic visibility

Reduce the attack surface to near-zero

Effortlessly scale security through active orchestration

Improve efficiency while reducing costs

Centralized Management

HSM/vHSM
Hillstone Security
Management Platform

CloudView
Cloud Security Monitoring &
Analytics

HSA/vHSA
Hillstone Security Audit Platform

HSM: Centralized and Efficient Management

Hillstone Networks

Hillstone Security Management Platform (HSM)
A Centralized Management, Configuration and Monitoring Solution
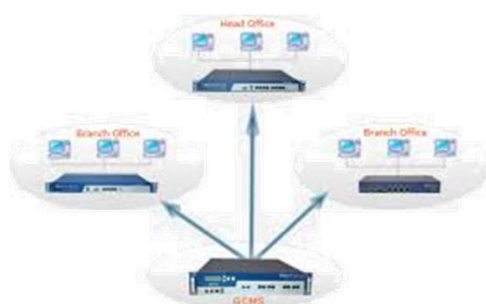
**Centralized
Device Management**
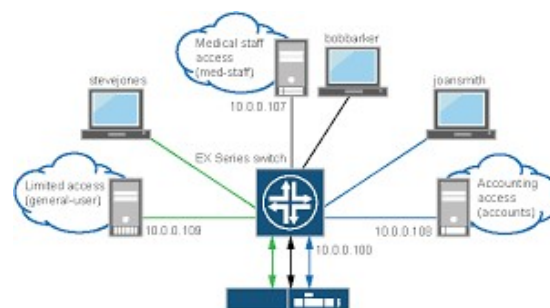
**Centralized
Policy Configuration**

**Centralized
Security Monitoring**

HSA: Take Control of Your Security Posture

Hillstone Security Audit Platform (HSA)
A centralized logging, analytics and reporting solution
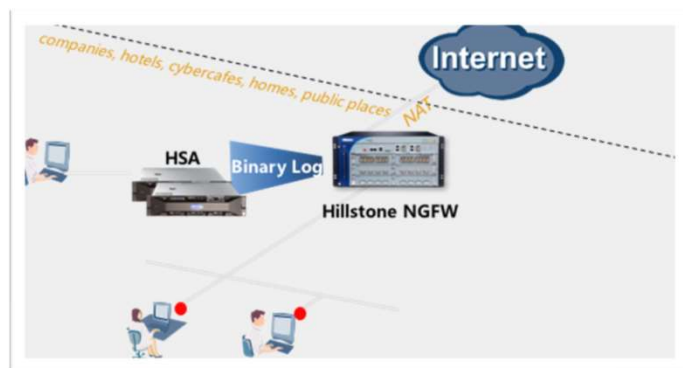
Forensics – NAT Tracking
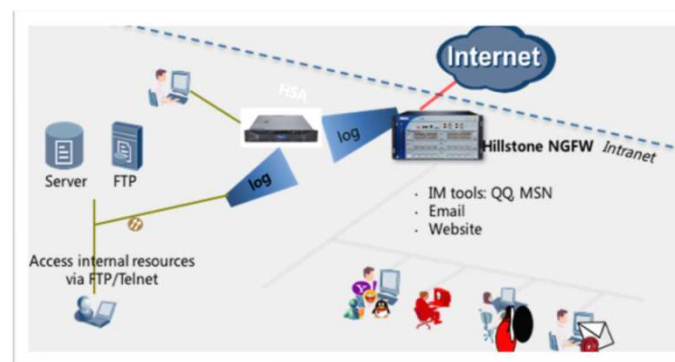
Network Behavior Monitoring

CloudView: Security Management and Analysis Service

Hillstone NETWORKS

Centralized Device Monitoring
- System/threat monitoring
- Device license status and renewal
- Cloud inspection

CloudView

Threat Analysis and Alarm
- Threat and event logs
- Comprehensive reports
- Real-time message and alarms
- Threat intelligence

Real-time Monitoring

- 24/7 monitoring and alerts
- Threat analysis and reports
- Mobile/web access

Ease of Deployment

- No deployment required
- No maintenance
- Easy and instant subscription

Low/Flexible Investment Options

- Free to initiate (Includes essential features)
- Pay to subscribe (For advanced features, Professional Version)
- Security as a Service (SaaS)
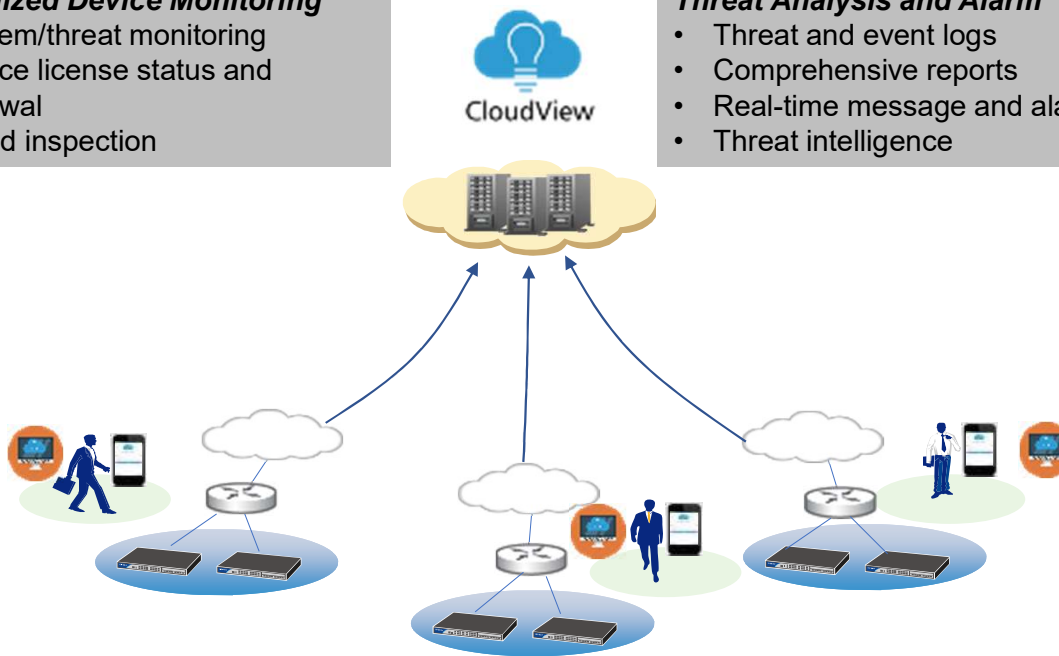
Security Subscription Service

Pre-Breach
- Anti-Spam
- Intrusion Prevention
- IP Reputation
- URL Filtering
- Anti-Virus

Breach
- Anti-Virus
- Sandbox

Post-Breach
- Botnet C&C Prevention
- StoneShield
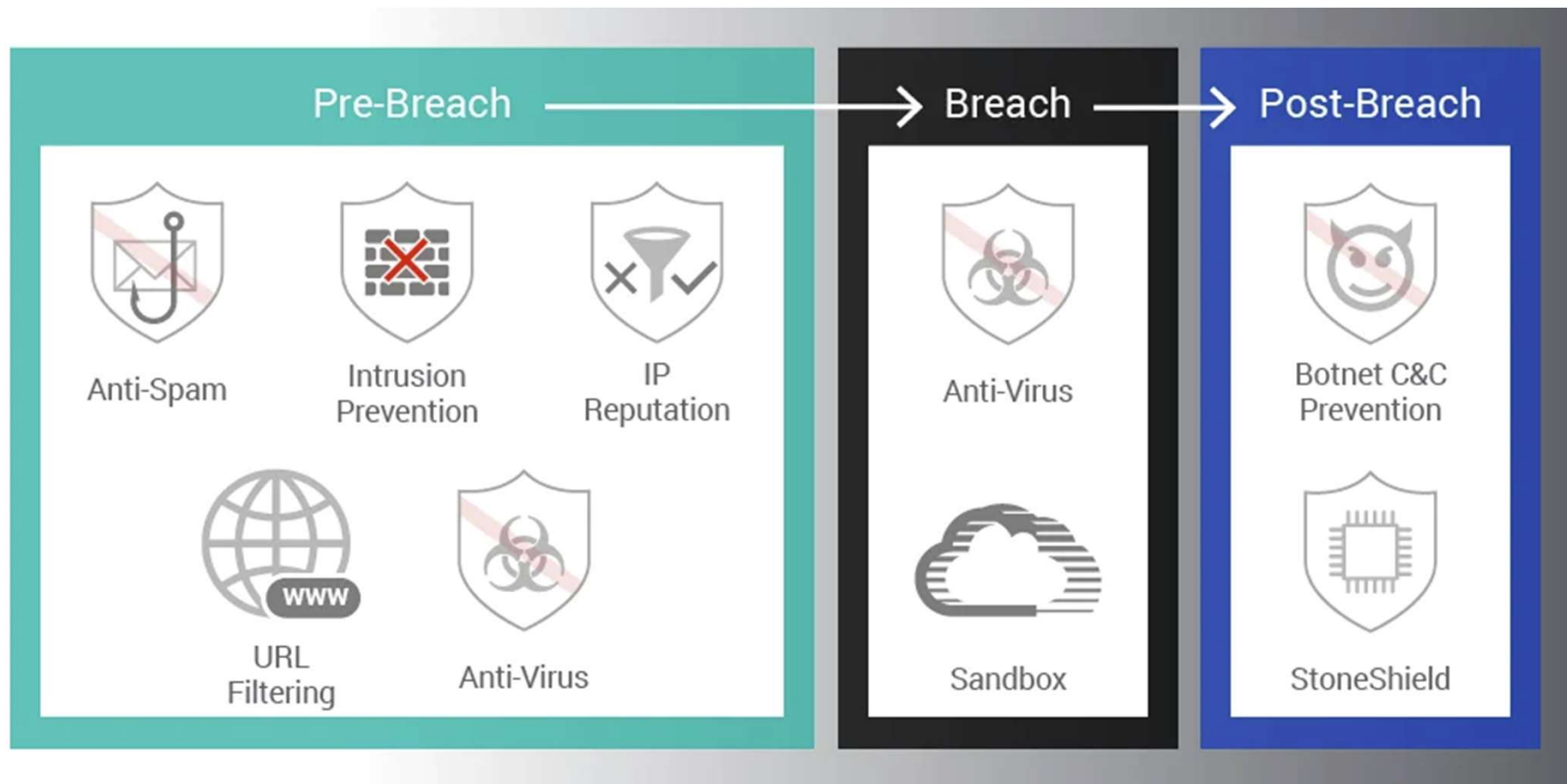
Anti-Spam
- Real-time Spam Classification and Prevention

Global Spam Collection (Partner)

Structure Patterns

Cloud-Based Spam Database

Email Checksum Query   **Spam Classification**

Drop   Drop
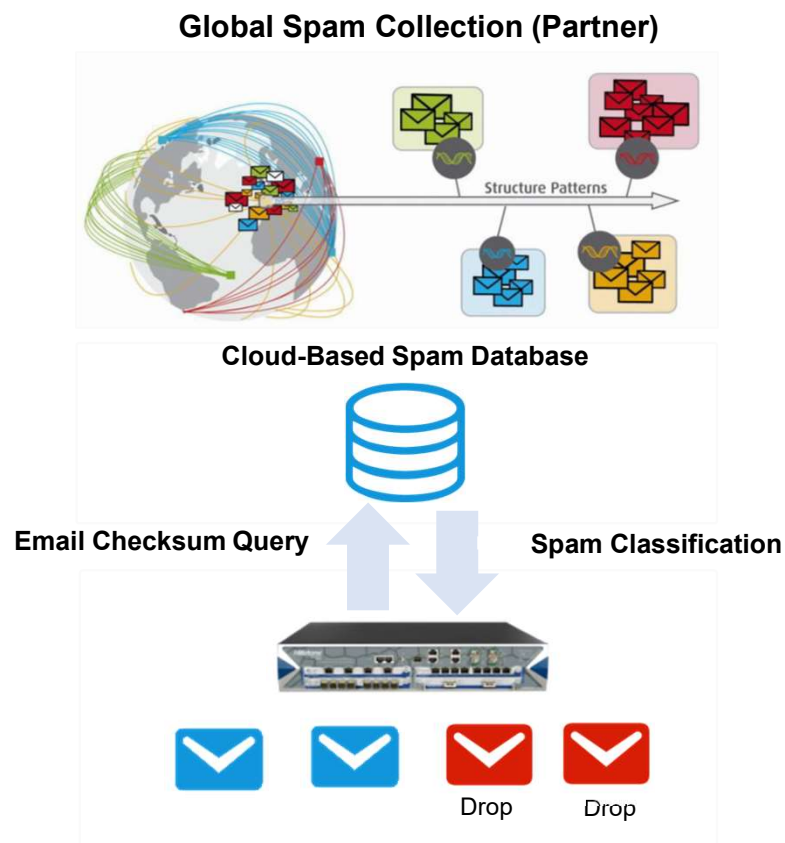
Hillstone Anti-Spam Key Features

- Real-time Spam Classification and Prevention

- Support Spam Classification: Confirmed Spam, Suspected Spam, Bulk Spam, Valid Bulk

- Regardless of the language, format, or content of the message

- Works on both SMTP and POP3 email protocols

- Inbound and outbound detection

- White lists to allow emails from trusted domain

IPS: Unparalleled Protection at the Best Value

- Top IPS **Detection Rate**
  - **99.6%** blocking rate of static exploits from the NSS exploit library
  - **98.32%** blocking of live exploits in NSS lab test
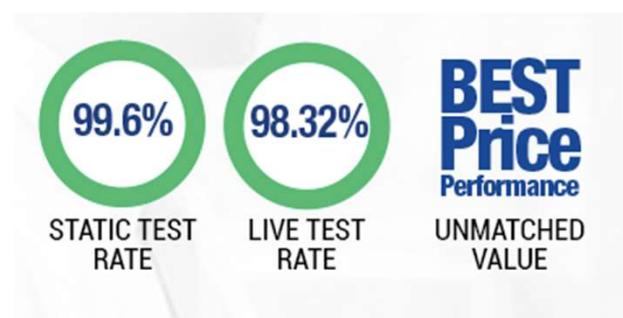
- Lower **False Positives** with a patented **high-performance** detection engine and **advanced threat breeds** offered in conjunction with leading technology partners

IP Reputation

IP Reputation is the threat intelligence classification based on IP.

It evaluates and classifies the risky IPs.

GOOD?
IP or IP?

Spammer

Brute force attacker

Botnet host

Proxy server

Breached host

Tor node

Scanner

DDoS attacker
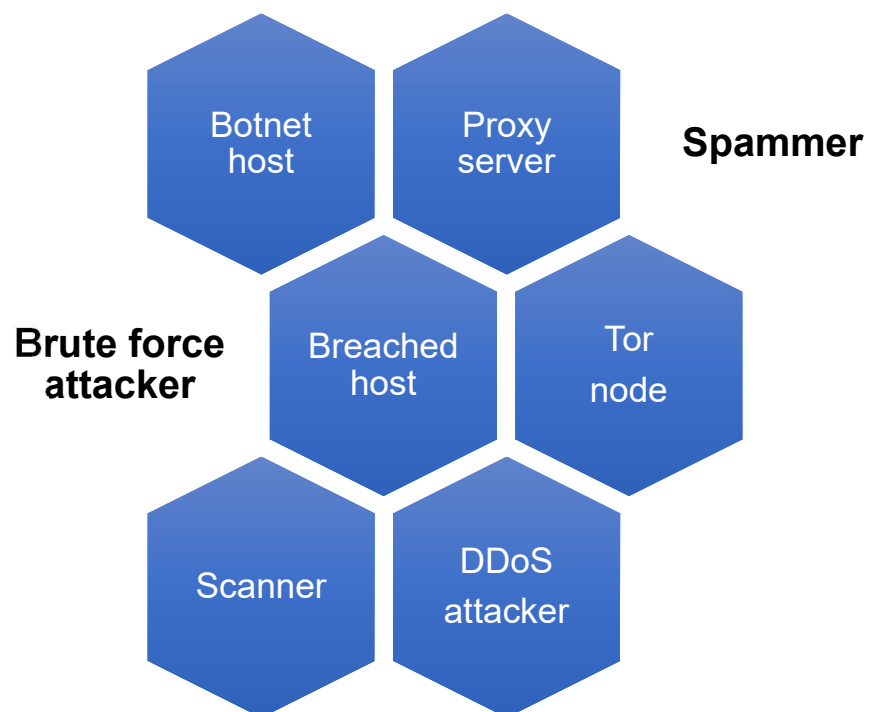
URL Filtering: Dynamic Web Filtering

- Flow-based web filtering inspection

- Dynamic web filtering with cloud-based

  real-time categorization database

- Over 140 million URLs with 64 categories

- Additional web filtering features

Antivirus:
Effectively Detects and Blocks Malwares

- High performance, low latency
- Virus detection on various file transmission protocols: HTTP, HTTPS, SMTP, POP3, FTP, IMAP4
- Virus detection on various file types: **RAR, ZIP, GZIP, BZIP2, TAR**
- Support for **compressed** file virus scanning
- **3.2 million** virus signature library
- Forensics
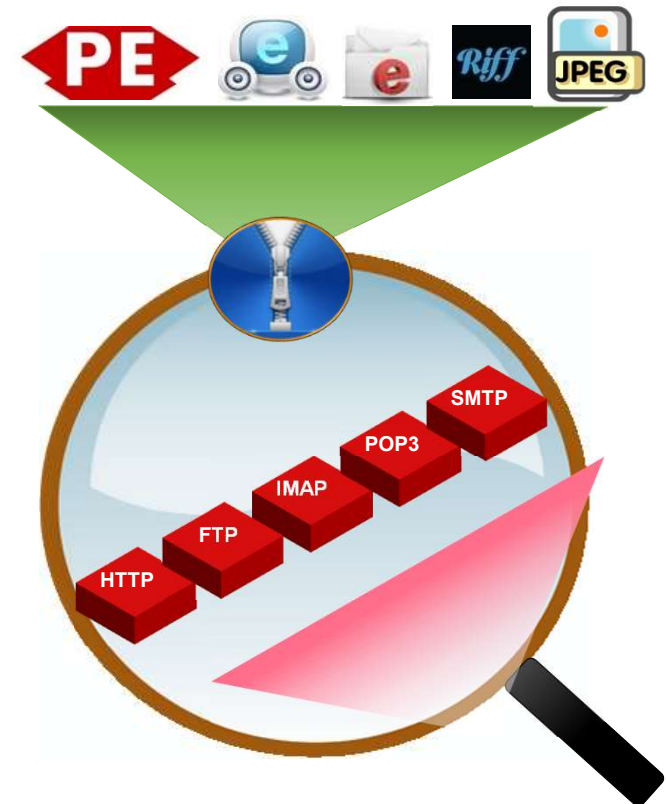
Cloud Sandbox
- Near Real-time Prevention and Cloud Intelligence

Hillstone
NETWORKS

Static Analysis/Pre-Processing

- ☐ URL whitelist, file signature verification
- ☐ Cloud-based suspicious samples
- ☐ MD5 query for file behavior; verification and report

Behavioral Analysis

- ☐ Windows/Android/MacOS simulation
- ☐ Behavioral analysis to file process, Registry action, network behavior
- ☐ Evasion detection

Cloud Intelligence

- ☐ Identify the malicious files
- ☐ Generate threat log and report
- ☐ Share the threat intelligence
- ☐ Block the threat by firewalls

Malicious Files

Reporting   Signature update

NGFW   iNGFW   NIPS   CloudEdge

Botnet C&C Prevention

Botnet controlled server

Intranet broilers

- Effectively discover intranet broilers and prevent further attacks of advanced threats through comparison of information obtained with the C&C address database

- Regular Botnet server address updates

- C&C IP and domain detection methods

- TCP, HTTP, and DNS detection support

- IP and domain whitelist design

Note: Base 5.5R5F2

StoneShield: ABD and ATD

Unique Detection Engine I
Abnormal Behavior Detection (ABD)
Engine

Behavior Learning & Modeling
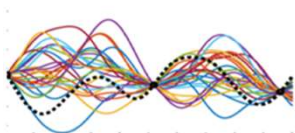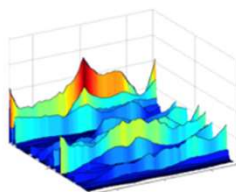
Abnormal behavior Analysis

Threat & Risk Identification

Risk Level   Certainty

Medium   100%

- Host/server behavior modeling by adaptive machine learning
- Layer 4-7, hundreds of behavior dimensions

- Real time Behavior Model and rules
- Identify abnormal dimensions by behavior partnering

- Quantitate risk severity and certainty by correlation analysis
- Threat forensics including suspicious and relevant PCAP

Unique Detection Engine II
Advanced Threat Detection (ATD)
Engine

Known malware Samples   Machine Learning   Sample Parameter 1 / Sample Parameter 2 / Sample Parameter 3   Clustering Modeling   Malware Behavior set 1 / Malware Behavior set 2 / Malware Behavior set 3

Hillstone Intelligent Next-Generation Firewall

Unknown Malware   Malware Behavior Learning   Unknown Malware Behavior Patterns   Identify Malware Variants

Portfolio: Performance Matrix

80Gbps-----20Gbps-----10Gbps-----1Gbps

E-Series NGFW		S-Series NIPS	AX-Series ADC	T-Series iNGFW	I-Series sBDS	X-Series DC NGFW	Cloud
E6360/E6368			AX4060/4060S	T5860		X10800	CloudHive
E5960	E6160 /6168	S5560	AX2000/2000S	T5060	I-5850	UP to 1.2 Tbps	
E5568/E5660	E5760	S3860		T3860			Each vSSM02 / vSSM04 5Gbps, up to 1Tbps
		S3560	AX1000/1000S		I-3850	X9180	
E5260 / E5268 E3965 / E5168		S2660				UP to 500 Gbps	CloudEdge
E3960 /E3968		S2160		T2860		X7180	
E2800	E3662 /E3668 E2860 /E2868	S1560	vADC AX02/AX04 /AX08	T1860	I-1850/ I-2850	UP to 680 Gbps	VM01, 2Gbps/10Gbps VM02, 4Gbps/20Gbps VM04, 8Gbps/30Gbps
E1606/E1700	E2300	S1060	vADC				
E1100W	E1600	S600					

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Key Technologies and Solutions

2

Hillstone Key Technologies

AI-powered Intelligent Breach Prevention

- Abnormal Behavior Detection and Network Traffic Analytics
- Advanced Malware Detection Algorithm
- Advanced Threat Correlation Analytics
- Complete Cyber Kill Chain Mapping

Protect Cloud Data Centers Inside Out

- Terabit Performance and High Scalability
- Innovative Twin-Mode HA
- Unparalleled Visibility into East-West Traffic
- Complete L2~L7 Security Protection
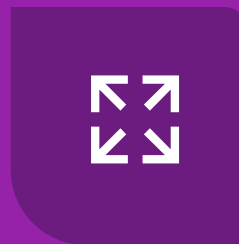
Secure SD-WAN for Distributed Enterprise

- Built on Security Foundations
- Centralized Mgmt. w/ Effortless Provision
- Intelligent Multilink Mgmt. & Optimization
- Seamless & Comprehensive Encryption

AI-powered Intelligent Breach Prevention

AI-powered Intelligent Breach Prevention
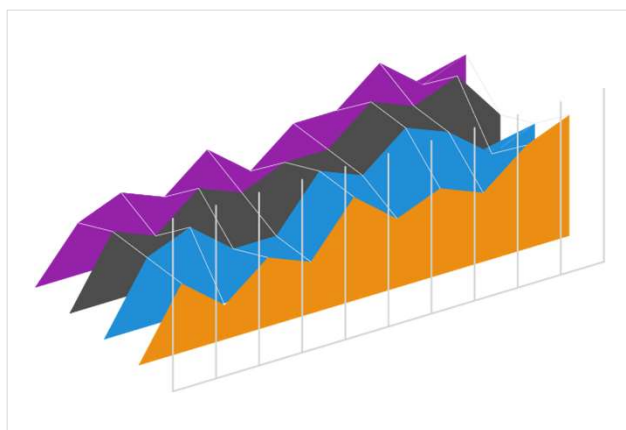
Abnormal Behavior Detection

Unknown Malware Detection

Known Malware Samples → Machine Learning → Sample Parameters → Clustering Modeling → Malware Behavior

Hillstone Intelligent Next-Generation Firewall

Unknown Malware → Malware Behavior Learning → Unknown Malware Behavior Patterns → Identified Malware Variants

StoneShield
Sandbox
Intrusion Prevention
Anti-Virus
URL Filtering
Anti-Spam
IP Reputation
Botnet C&C Prevention

Intrusion Attacks
Unknown Threat
Malware
Threat Event
Abnormal Behavior

Ransomware
Crypto Mining
Botnet Attack
DGA
Internal Scan Attack
Suspicious File Transfer

Threat Correlation Analytics

Complete Cyber Kill Chain

Reconnaissance   Weaponization   Delivery   Exploitation   Command and control   Exfiltration

StoneShield   Sandbox   IPS   Anti-Virus   URL Filtering   Anti-Spam   IP Reputation   Botnet C&C Prevention

Abnormal Behavior Detection (ABD)

Hillstone
NETWORKS

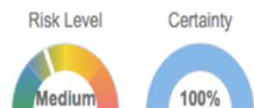### Behavior Learning and Modeling

- Host/server behavior modeling by adaptive machine learning
- Layer 4-7, hundreds of behavior dimensions
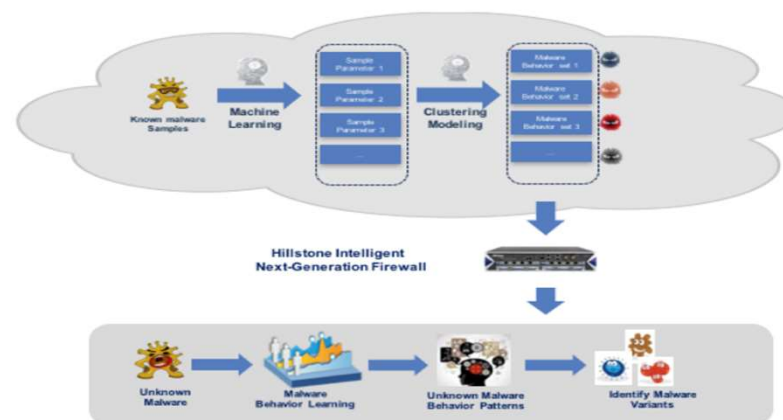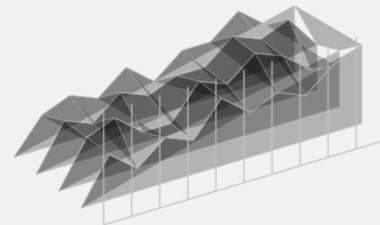
Abnormal Behavior Analytics

- Real time Behavior Model and rules
- Identify abnormal dimensions by behavior partnering
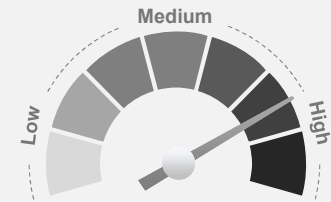
Threat and Risk Identification

- Quantitate risk severity and certainty by correlation analysis
- Threat forensics including suspicious and relevant PCAP

Medium

Low

High

Advanced Threat Detection (ATD)

Known Malware Samples → Machine Learning → Sample Parameters → Clustering Modeling → Malware Behavior

Malware Behavior: Family 1, Family 2, Family 3, Family 4, Family 5, Family 6 (ACTIONS vs ATTRIBUTES)

Hillstone Intelligent Next-Generation Firewall

Unknown Malware → Malware Behavior Learning → Unknown Malware Behavior Patterns → Identified Malware Variants
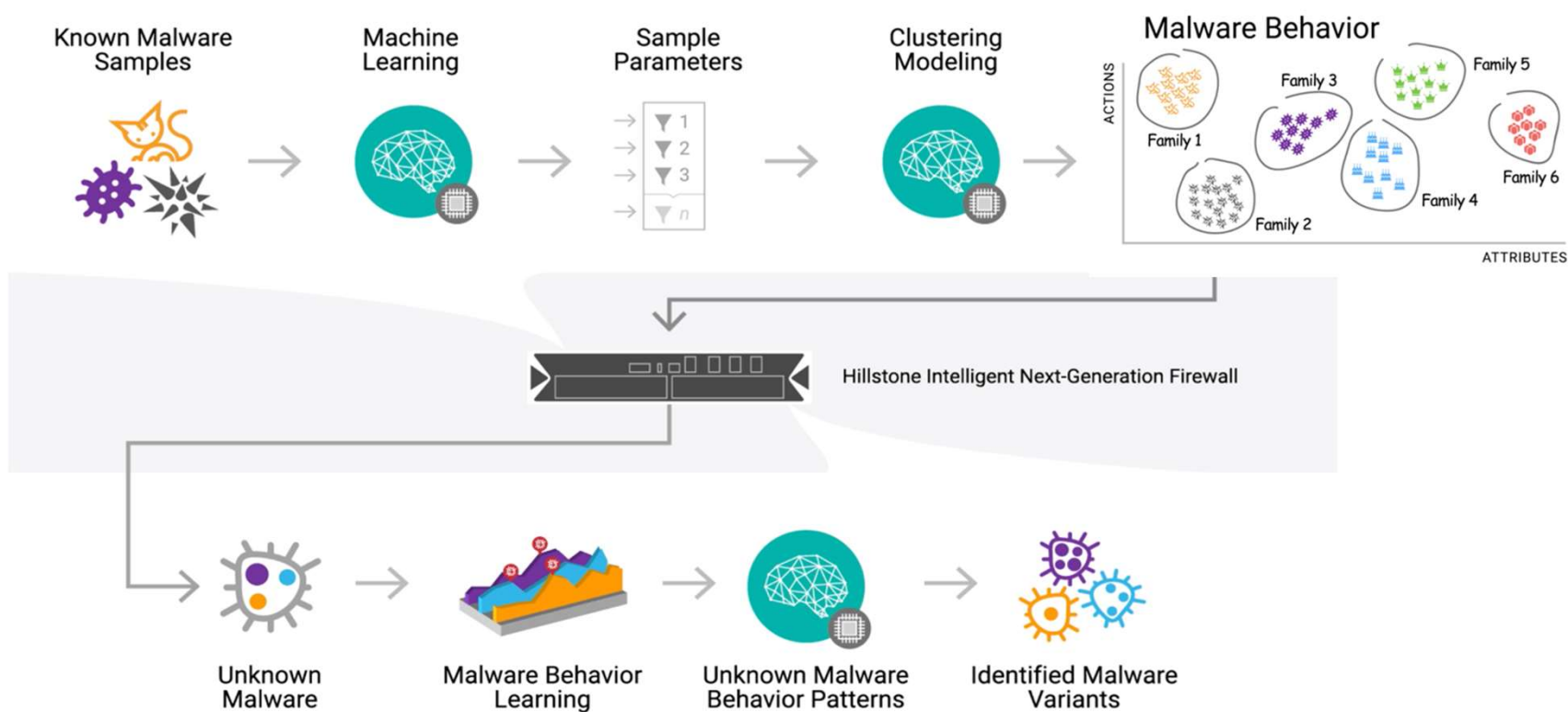
Indicator of Compromises (IOCs)

Hillstone NETWORKS

| Threat Detection Engines Detect Threat Events | Threat Correlation Analytics | IOCs |

Threat Detection Engines Detect Threat Events

- StoneShield
- Sandbox
- Intrusion Prevention
- Anti-Virus
- URL Filtering
- Anti-Spam
- IP Reputation
- Botnet C&C Prevention

Intrusion Attacks

Unknown Threat

Variants

Malware

Threat Event

Threat Event

Abnormal Behavior

Intrusion Attacks

IOCs

- Ransomware
- Crypto Mining
- Botnet Attack
- DGA
- Internal Scan Attack
- Suspicious File Transfer

Complete Kill Chain Detection

Hillstone
NETWORKS
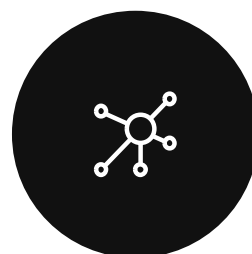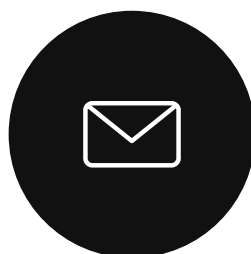
| Reconnaissance | Weaponization | Delivery | Exploitation | Command and control | Exfiltration |

| StoneShield | Sandbox | IPS | Anti-Virus | URL Filtering | Anti-Spam | IP Reputation | Botnet C&C Prevention |

Hillstone Intelligent Breach Prevention Offerings

Hillstone NGFW

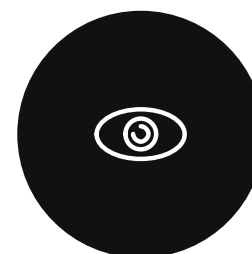Comprehensive Threat Detection and Prevention with Granular App Control

6 Years

in Gartner Magic Quadrants for Enterprise Network Firewalls

Hillstone sBDS

Detects Advanced Threats Targeting Critical Servers and Hosts

Representative Vendor in

Gartner® Market Guide for NTA

Hillstone NIPS

Intrusion Detection and Prevention with Best Efficacy and Performance

Representative Vendor in

Gartner® Market Guide for IDPS

Protect Cloud Data Centers Inside Out

Protect the Cloud Data Center Inside Out

Hillstone NETWORKS

- ➤ **Fully Distributed SW Architecture**
- ➤ **Fully Redundant HW Architecture**
- ➤ **Innovative Twin-mode HA for Modern Data Centers**
- ➤ **Complete Security Features**

N S
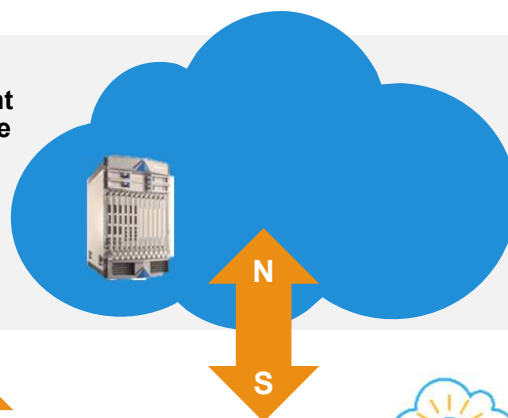
CloudEdge

Protect Each VPC   Integrate with NFV

Public Cloud   **Private Cloud**

CloudHive

Protect VMs with Micro-segmentation

Private Cloud

CloudEdge

N S

CloudHive

amazon web services
Microsoft Azure
Alibaba Cloud
VPC

Open Source MANO
ETSI
NFV

W E   W E
W E   W E

openstack
vmware
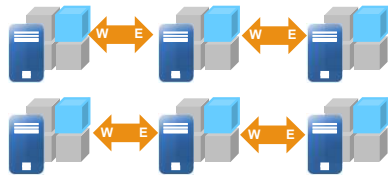
Security Challenges in Data Center Perimeter

- Will firewalls become the bottleneck for network performance?

- How do you secure applications running in the data center?

- How do you guarantee secure remote access?

- Can security easily scale up with the need for more performance?
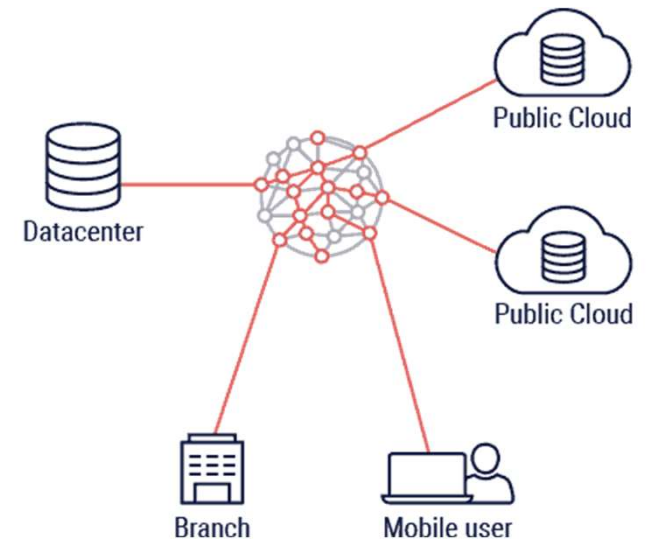
Future Proofed Architecture for Data Center Perimeter Protection

Hillstone NETWORKS

X-Series

500Gbps ~ 1Tbps

Fully Distributed SW Architecture

Fully Redundant HW Architecture

Innovative Twin-mode HA for Redundant Data Centers

Complete L2-L7 Security Features

Carrier Grade High Reliability

Hillstone
NETWORKS

Hardware

Power/Fan
Redundancy

Bypass

Hardware Bypass
Modules

Modules

SCM/SSM
Redundancy

Software

ISSU,
Resource Allocation

System

AA/AP
Deployment

Enable Carrier Grade Reliability at 99.999%
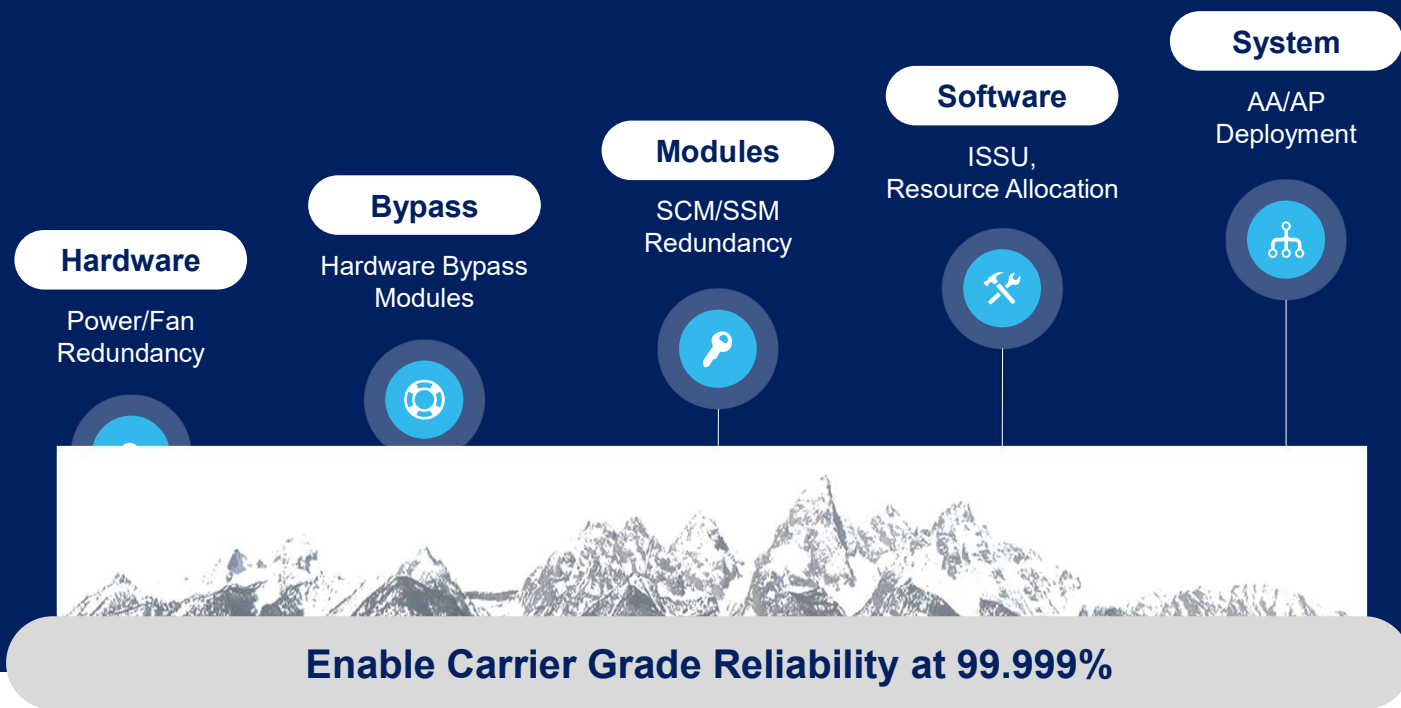
Hillstone X-Series Value Proposition

Guaranteed business continuity of modern data centers

Security scales up with performance growth

Complete L2~L7 security protection

Energy Efficiency

Security Challenges inside Data Center

Large amounts of VMs
Vanishing perimeters
VMs move frequently

- Need east-west traffic visibility.

- How to protect lateral movement?

- Can security scale easily inside the cloud?
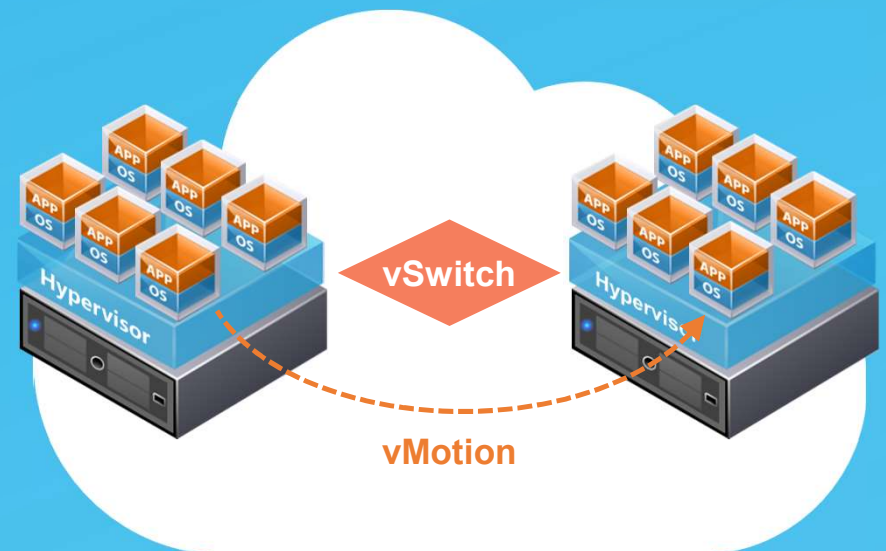
Micro-Segmentation for Virtualized Data Center

Logical Segmentation

Department A/B/C
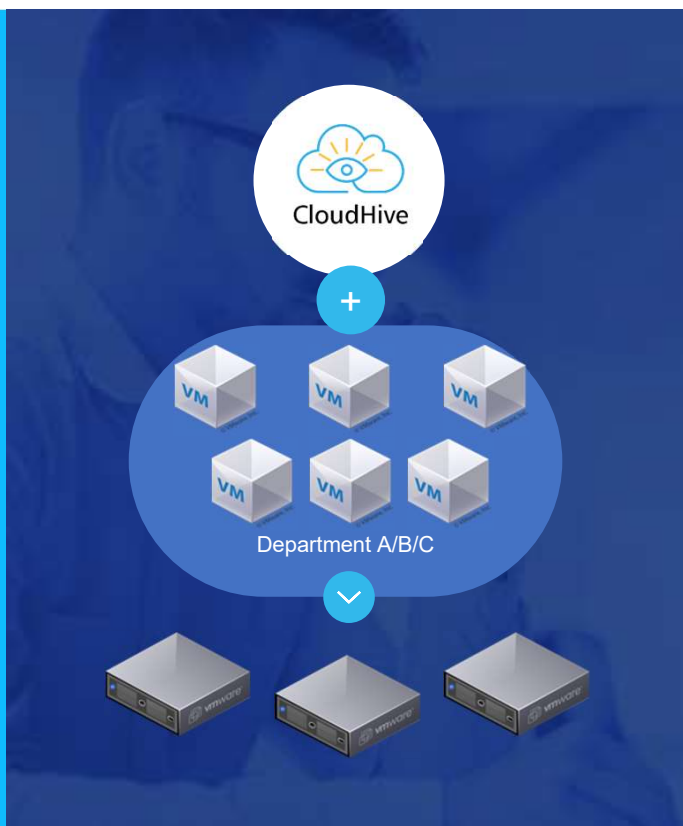
Department A   Department B   Department C
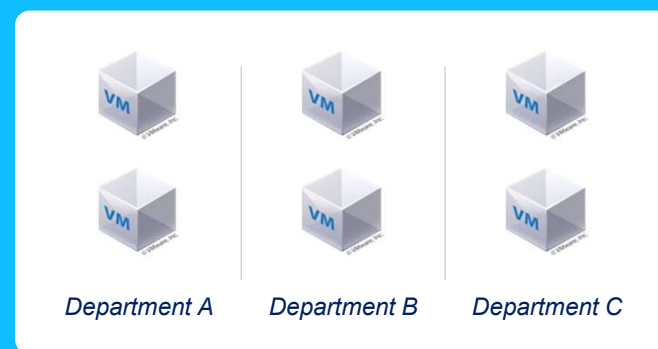
Segment applications between different departments without physical/logical network changes

Comprehensive Protection

Hillstone
NETWORKS

Application Control

3000+
Application
identification

Intrusion Prevention

8000+
IPS signatures

Antivirus

Real-time Updated
Virus and malware
detection

Network Attack Defense

Attack Defense
Anti-DoS/DDoS,
protocol anomaly

User Control

Authentication
Combined with AD
authentication account

VM/Port Group Protection

Automatic IP address
change

URL Filtering

140+ Million
Dynamic URL filtering

Firewall

Application policies,
NAT, DNS, VPN, etc.

Recognized by Industry Analysts

Hillstone CloudHive

CloudHive

Protects Each VM with Comprehensive East-West Traffic Visibility

Representative Vendor in

Gartner. Market Guide for CWPP

Gartner.

Market Guide for Cloud Workload Protection Platforms

Published 14 April 2020 - ID G00716192 - 33 min read

Protection requirements for cloud-native applications are evolving and span virtual machines, containers and serverless workloads in public and private clouds. Security and risk management leaders must address the unique and dynamic security requirements of hybrid cloud workloads.

Overview

Key Findings

- Enterprises using endpoint protection platform (EPP) offerings designed solely for protecting end-user devices (e.g., desktops,

Hillstone CloudHive Value Proposition

Unparalleled live traffic visibility

Fine grained protection for virtualized workload

Effortlessly scale security through active orchestration

Improved efficiency while reducing TCO

Secure SD-WAN for Distributed Enterprise

Hillstone Integrates SD-WAN with Security

Centralized Management and Analysis

Zero-Touch Provisioning

Seamless Encryption

HSM

StoneOS

VPN	LLB	iQoS	APP/User Identification	HA	Access Control

StoneShield	Sandbox	IPS	Anti-Virus	URL Filtering	Anti-Spam	IP Reputation	Botnet C&C Prevention

Secure SD-WAN

NGFW

Secure SD-WAN for Distributed Enterprises

Hillstone NETWORKS

HQ — SD-WAN Controller (HSM)

Intelligent Multilink Management and Optimization

Zone A

VPN HUB (CloudEdge)

Zone B

VPN HUB (NGFW)

VPN HUB (NGFW)

Centralized Management with Zero-Touch Provisioning at the Edge

Branch 1
CPE (NGFW)

Branch 2
CPE (NGFW)

Branch 3
CPE (NGFW)

Branch n
CPE (NGFW)
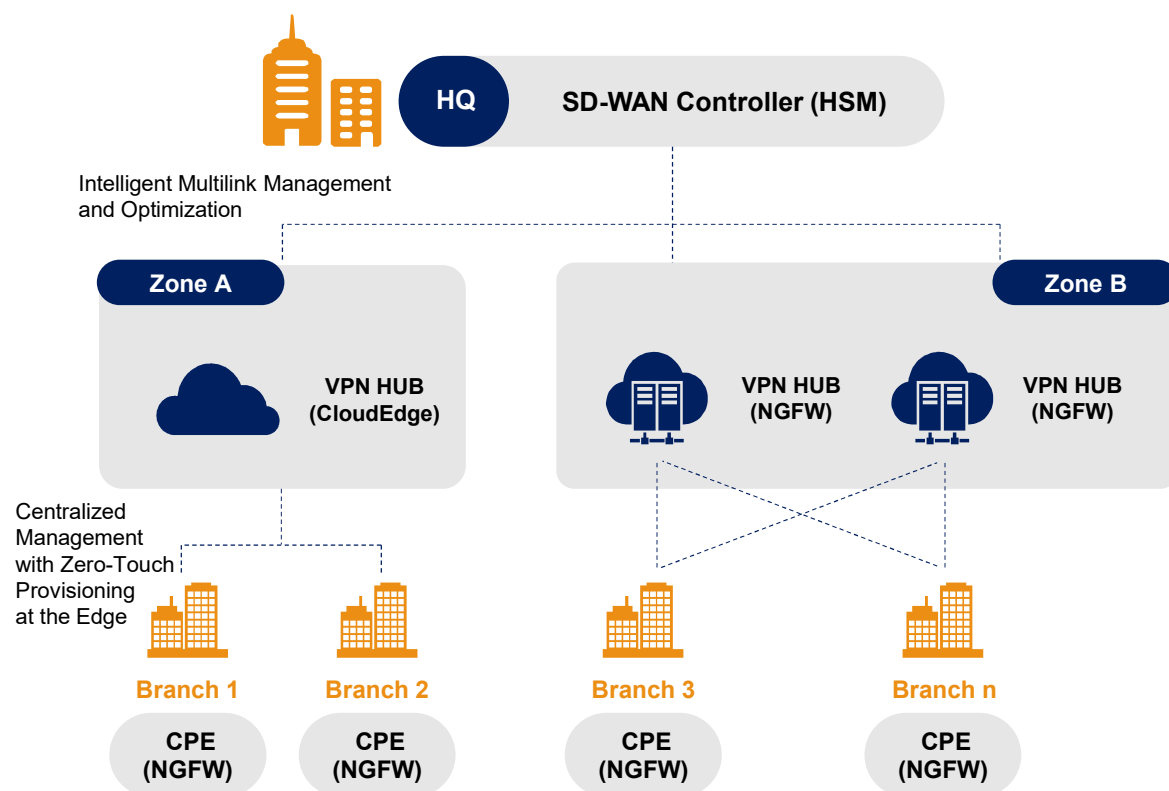
Solution Highlights

Zero-Touch Provisioning

Seamless and Comprehensive Encryption

Award-Winning Enterprise-Grade Security Foundation

Centralized Management and Analysis

Value Propositions

Fast and flexible business launch

Efficient operation enabled by automation

End-to-end security protection

Greatly reduced cost with limited maintenance needs

Zero Touch Provisioning Simplifies Branch Onboarding

Hillstone
N E T W O R K S

Headquarters

Branch Store

Administrator

BootStrap Config

Branch Manager

- HSM (SD-WAN Controller) - Centralized management of branch devices

- Device automatic online
- Automatic configuration
- Automatic version/ license update
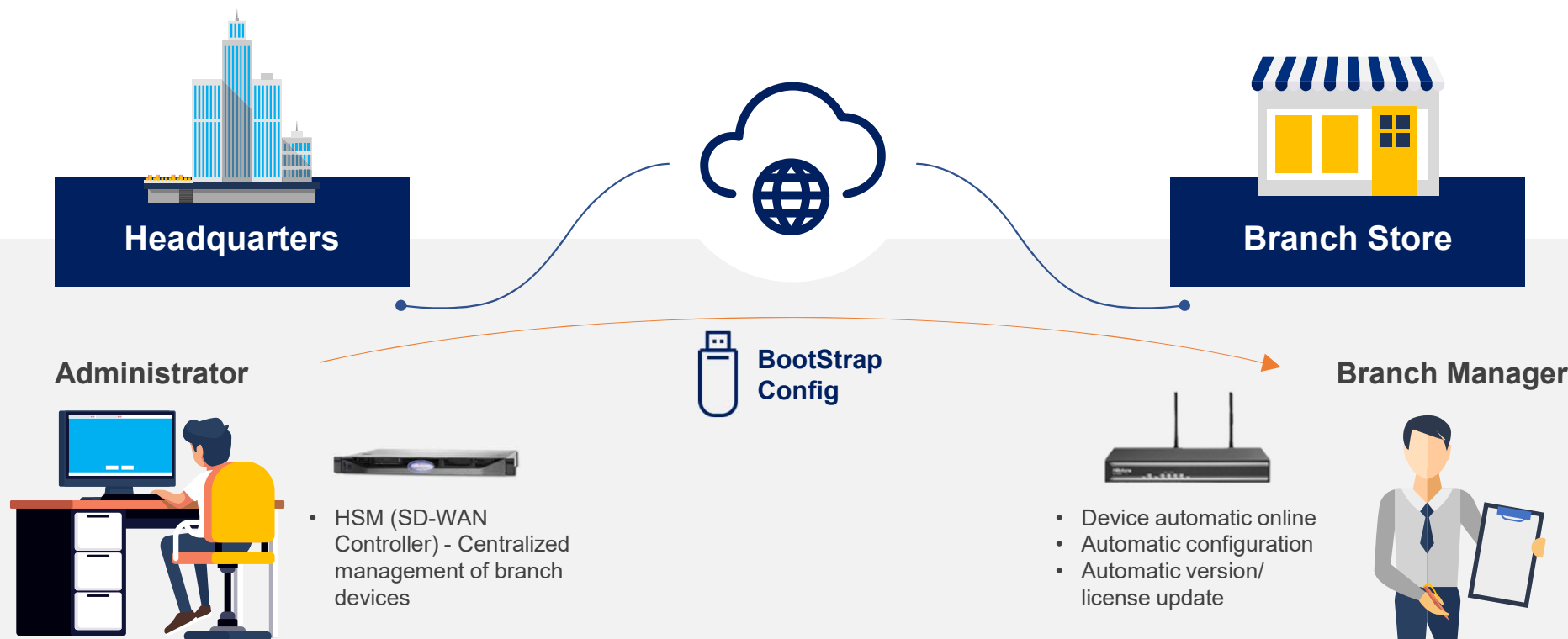
VPN over Multiple Links with Intelligent Routing

HSM

SD-WAN Controller

Branch Site

Dynamic Multi-link Optimization

INTERNET

PRIVATE LINKS

Cloud Data Center

SaaS

Enterprise Data Center
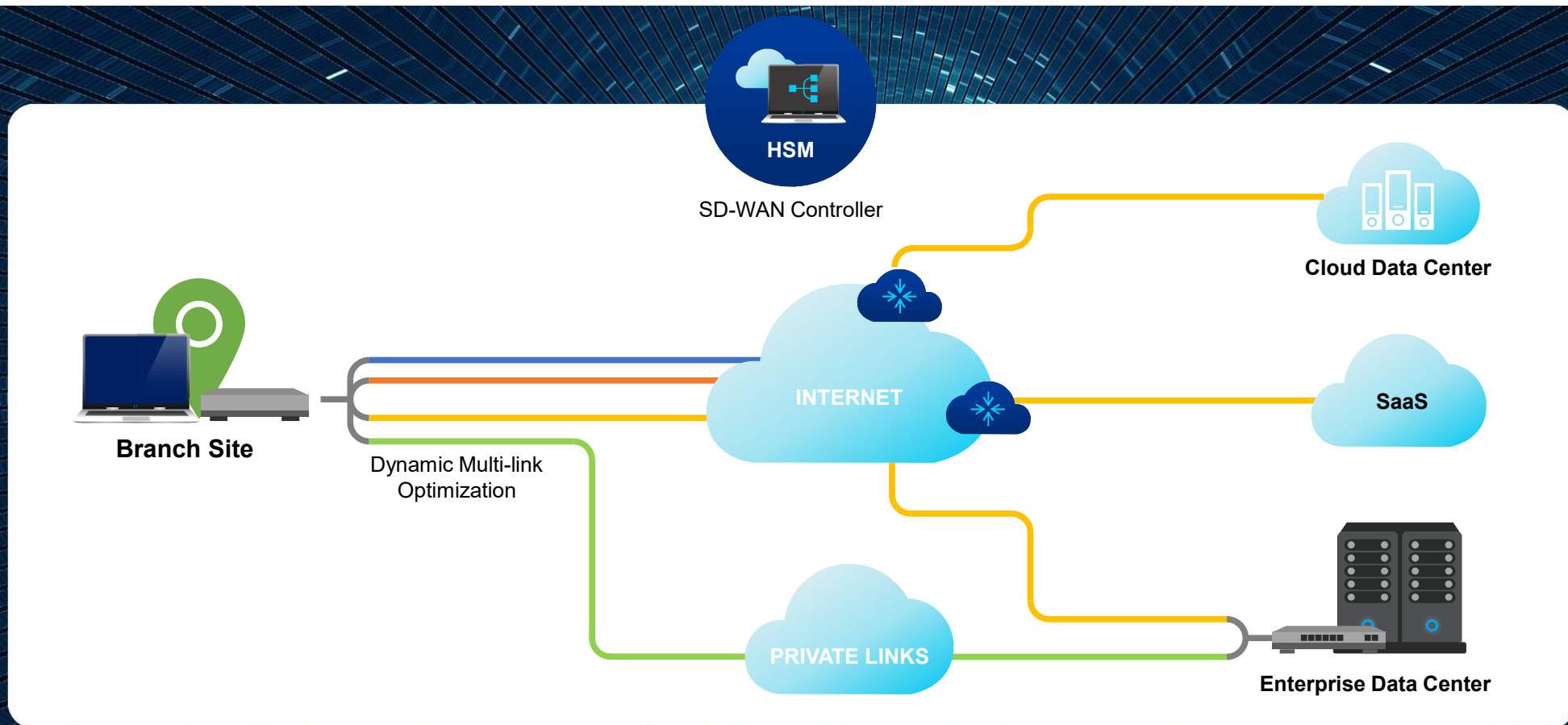
Centralized Management and Monitoring

Global Monitoring

SD-WAN Controller
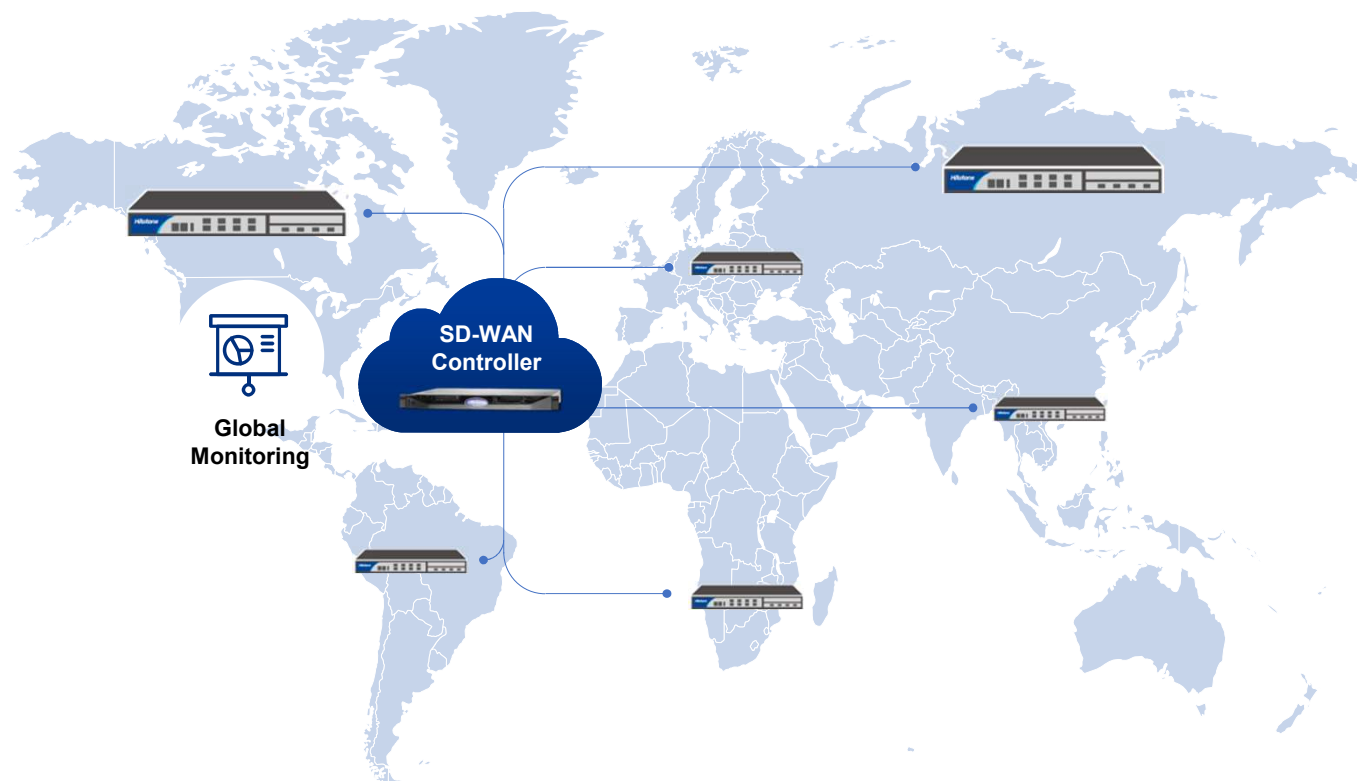
Centralized

VPN Network Deployment

Security Policy Management

Monitoring of Devices and Links

Comprehensive Protection

Hillstone
NETWORKS

Application Control
3000+ Application identification

Intrusion Prevention
8000+ IPS signatures

Antivirus
Real-time Updated
Virus and malware detection

Network Attack Defense
Attack Defense
Anti-DoS/DDoS, protocol anomaly

User Control
Authentication Combined with AD authentication account

VM/Port Group Protection
Automatic IP address change

URL Filtering
140+ Million Dynamic URL filtering

Anti-Spam
SMTP & POP3
Real-time classification and prevention

Sandbox
Multiple protocols & file types
Complete behavior analysis

Firewall

Hillstone Secure SD-WAN Highlights

Zero Touch Provisioning

- **No branch IT support needed**

Multiple Links

- **3G, 4G LTE, 5G, Broadband, DSL, etc.**

Intelligent Routing

- **Policy-based routing**
- **Application-based routing**
- **Automated failover**

Centralized Management

- **VPN network**
- **Security policies**

Natively Secure

- **Complete security - Firewall, URL Filtering, AD, AV, IPS, etc.**

Fast and flexible business launch

Greatly reduced cost with limited maintenance needs

Hillstone Secure SD-WAN Value Propositions

End-to-end security protection

Efficient operation enabled by automation

Security that Works!

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