Huawei AntiDDoS8000 DDoS Protection System

Terabit-level Capacity, Second-level Response, Precise Protection, Value-added Operation

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

Huawei AntiDDoS8000 DDoS Protection System

Terabit-level Capacity, Second-level Response, Precise Protection, Value-added Operation

As the Internet and IoT thrive, DDoS attacks are developing new characteristics:

- Attacks increase in frequency and traffic volume, and the peak attack traffic is up to 600 Gbps in 2015.
- Reflection amplification attacks spread across the world, congesting links.
- Low-rate application-layer attacks target precisely at service systems like e-finance or gaming.

Reflection amplification and low-rate application-layer attacks are gaining momentum, and layered defense becomes the first choice in anti-DDoS. Huawei AntiDDoS8000 employs big data analysis to conduct modeling for 60+ types of traffic, offering Terabit-level protection, second-level response, and comprehensive defense against 100+ types of attacks. It works with Huawei cloud cleaning center to deliver layered cleaning, providing full-fledged protection that covers network link bandwidths and online services.

Product Appearances

AntiDDoS8030

AntiDDoS8080

AntiDDoS8160

Solution Function

Defense against high-volume DDoS attacks

- Multi-core distributed architecture and big data-based intelligent protection engine to offer Terabit-level protection performance.
- Second-level attack response to rapidly block attack traffic.

Defense against application-layer DDoS attacks

- Collection of all traffic, Layer 3~7 per-packet analysis, and modeling for 60+ types of network traffic to provide the most precise and comprehensive attack detection.
- All-round reputation system of local session behavior reputation, location reputation, and Botnet IP reputation to precisely defend against application-layer DDoS attacks launched from Botnets, reducing false positives and improving user experience.
- Comprehensive defense against 100+ types of attacks to protect key service systems, such as Web, DNS, DHCP, and VoIP.

Anti-DDoS operation

- Tenant-specific automatic and manual defense policies for comprehensive protection.
- Tenant-specific report statistics and report sending via email to simplify management.
- Self-service portal for tenants to increase their loyalty.
- Differentiated operation for 100,000 tenants.

Dual-stack (IPv4/IPv6) DDoS attack defense

- Defense against dual-stack (IPv4/IPv6) DDoS attacks.

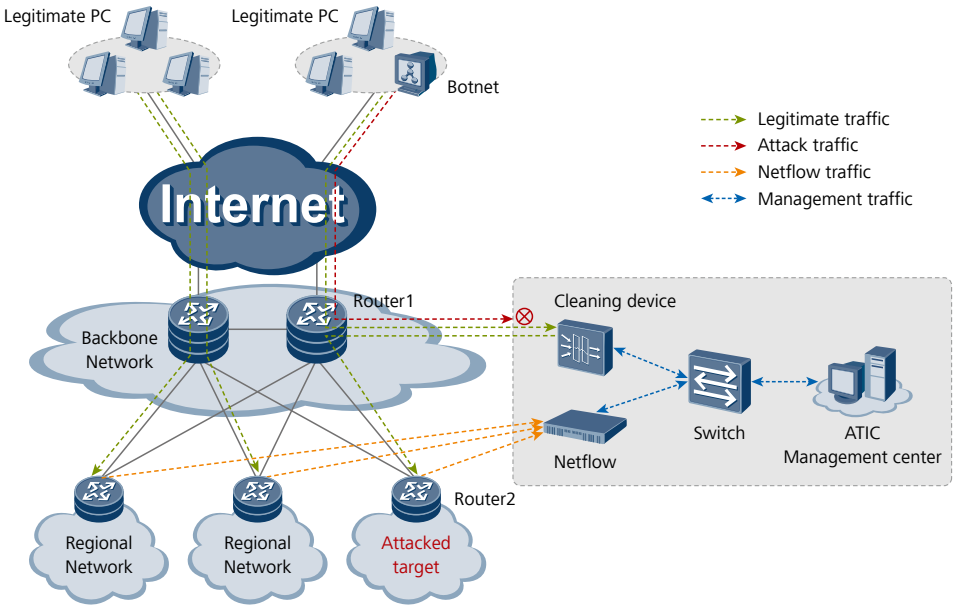
On-premise + Cloud layered anti-DDoS

- The on-premise device is online in real time to protect user services.
- When a link is congested, the on-premise device can automatically send cloud signals to start cloud cleaning and protect user links.
- 2Tbps+ cloud mitigation capacity. 10+ cloud scrubbing center with global scheduling. Minute-level defense response.

Typical Scenarios

Scenario 1: MAN Attack Defense

A metropolitan area network (MAN) provides a platform on which comprehensive services of a city are transmitted. MANs often apply to large and medium-sized cities. The MANs provide common and public network architecture and allow data, voice, images, and videos to be effectively transmitted at high speeds, meeting changeable Internet application requirements.

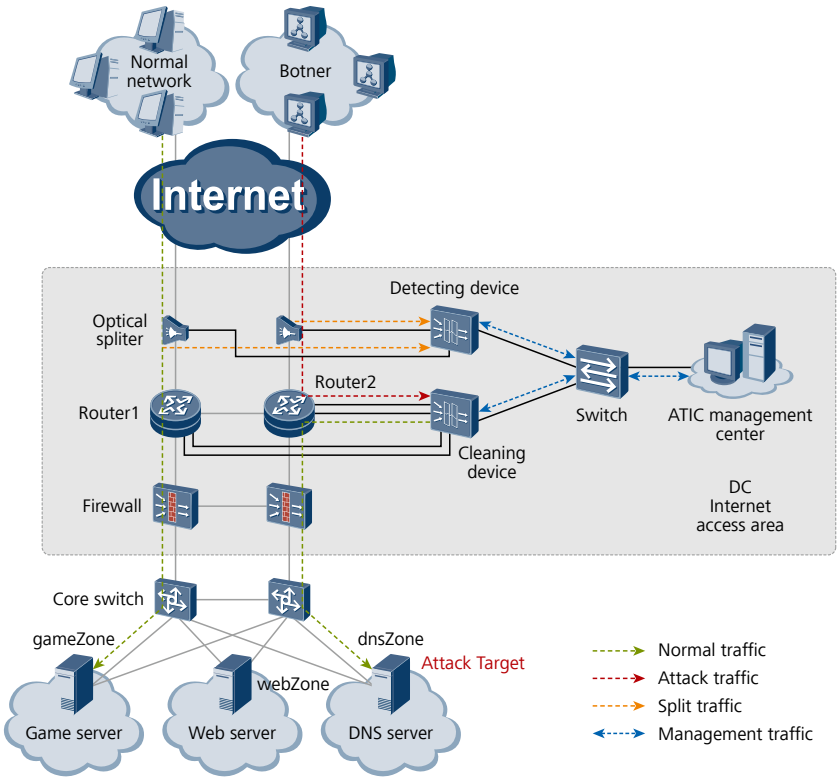


On the network shown in above figure, a netflow detection device collects the logs from routers in real time to determine whether the traffic in the network is abnormal. When traffic is abnormal, cleaning device is notified to start the cleaning. The cleaning device is attached to the core router Router1 to clean traffic destined for the Zone. After cleaning traffic, the cleaning device injects normal traffic back to the original link in MPLS LSP injection mode. Router2 then forwards the traffic to the Zone.

The cleaning device is directly connected to Router1 only through one interface. Traffic is diverted to the cleaning device through the main interface, while injected back through a sub-interface. The traffic can also be injected back through another interface if there are enough interfaces.

Scenario 2: Data Center Protection and Managed Security Service

An Internet Data Center (IDC) is a part of basic network resources. It provides large-scale, high-quality, secure, and reliable data transmission services and high-speed access services for Internet content providers, enterprises, media, and each types of websites. The IDC provides DNS servers, Web servers, game servers, and other services. In recent years, more and more Internet-initiated DDoS attacks target IDCs. As a result, important servers are attacked; data center link bandwidth is occupied; videos and games are compromised by application-layer attacks.



On the network shown in above figure, a cleaning device is attached to the core router1 and router2 to detect and clean the traffic destined for the Zone. The traffic must be diverted to the cleaning device using BGP in real time. After traffic is cleaned, normal traffic is injected back to the original link through PBR and finally forwarded to the Zone.

ATIC management center supports managed security service. ATIC management center can be configured with customized defense policies based on the tenant's service features. When attack happened, ATIC management center can initiate automatic protection and send alarm information by email or other methods. Tenants can query attack and protection information by visiting self-service portal. Data center operators can design business models based on tenants and expand business revenue.

Specifications

DDoS Defense Specifications

Defense against protocol abuse attacks Defense against Land, Fraggle, Smurf, WinNuke, Ping of Death, Teardrop, and TCP error flag attacks	Web application protection Defense against HTTP GET flood, HTTP POST flood, HTTP slow header, HTTP slow post, HTTPS flood, SSL DoS/DDoS, WordPress reflection amplification, RUDY, and LOIC attacks; packet validity check

Defense against scanning and sniffing attacks Defense against address and port scanning attacks, and attacks using Tracert packets and IP options, such as IP source route, timestamp, and record route	DNS application protection Defense against DNS query flood, DNS reply flood, and DNS cache poisoning attacks; source limit
Defense against network-type attacks Defense against SYN flood, SYN-ACK flood ACK flood, FIN flood, RST flood, TCP fragment flood, UDP flood, UDP fragment flood, IP flood, ICMP flood, TCP connection flood, sockstress, TCP retransmission, and TCP empty connection attacks	SIP application protection Defense against SIP flood/SIP methods flood attacks, including Register, Deregistration, Authentication, and Call flood attacks; source limit
Defense against UDP-based reflection amplification attacks Defense against NTP, DNS, SSDP, Chargen, TFTP, SNMP, NetBIOS, QOTD, Quake Network Protocol, Portmapper, Microsoft SQL Resolution Service, RIPv1, and Steam Protocol reflection amplification attacks	Filter IP, TCP, UDP, ICMP, DNS, SIP, and HTTP packet filters Location-based filtering Traffic block or limit based on the source IP address location
Attack signature database RUDY, slowhttptest, slowloris, LOIC, AnonCannon, RefRef, ApacheKill, and ApacheBench attack signature databases; automatic weekly update of these signature databases	IP reputation Tracking of most active 5 million zombies and automatic daily update of the IP reputation database to rapidly block attacks; local access IP reputation learning to create dynamic IP reputation based on local service sessions, rapidly forward service access traffic, and enhance user experience

Management and Report

Management functions Account management and permission allocation; defense policy configuration and report display based on Zones (up to 100,000 Zones, namely tenants); device performance monitoring; source tracing and fingerprint extraction through packet capture; email, short message, and audio alarms; log dumping; dynamic baseline learning	Report functions Comparison of traffic before and after cleaning; top N traffic statistics; application-layer traffic comparison and distribution; protocol distribution; traffic statistics based on the source location; attack event details; top N attack events (by duration or number of packets); distribution of attacks by category; attack traffic trend; DNS resolution success ratio; application-layer top N traffic statistics (by source IP address, HTTP URI, HTTP HOST, and domain name); download of reports in HTML/PDF/Excel format; report push via email; periodical generation of daily, weekly, monthly, and yearly reports; self-service portal for tenants

Deployment

Deployment mode	Traffic diversion and injection
In-line or out-of-path deployment	Traffic diversion: supports manual, and PBR or BGP based automatic traffic diversion. Traffic injection: supports static route injection, MPLS VPN injection, MPLS LSP injection, GRE tunnel injection, Layer 2 injection, PBR based injection, etc

Hardware Specifications

Model	AntiDDoS8030	AntiDDoS8080	AntiDDoS8160
Interfaces and performance			
Throughput	Up to 120 Gbps	Up to 720 Gbps	Up to 1440 Gbps
Throughput/slot	Up to 80 Gbps	Up to 160 Gbps	Up to 160 Gbps
Mitigation rate/slot	Up to 60 Mpps	Up to 60 Mpps	Up to 60 Mpps
Latency	80 μs	80 μs	80 μs
Expansion slot	3	8	16
Expansion LPU	FW-LPUF-120, 2 sub-slots	FW-LPUF-120, 2 sub-slots FW-LPUF-240, 2 sub-slots	FW-LPUF-120, 2 sub-slots FW-LPUF-240, 2 sub-slots
Expansion interfaces	24×GE (SFP); 5×10GE (SFP+); 6×10GE (SFP+); 12×10GE (SFP+); 1×40GE (CFP); 1×100GE (CFP)		
Dimensions			
Height × Width × Depth	DC: 175mm × 442mm × 650mm (4U) AC: 220mm × 442mm × 650mm (5U)	620mm × 442mm × 650mm (14U)	1420mm × 442mm × 650mm (32U)
Weight	DC chassis: 15kg (empty), 30.7 kg (full) AC chassis: 25kg (empty), 40.7 kg (full)	43.2 kg (empty), 112.9 kg (full)	94.4 kg (empty), 233.9 kg (full)
Power and Environment			
Power supply	Rated input voltage: DC: -48 V AC: 175 V to 264 V; 50/60 Hz Maximum input voltage range: DC: -72 V to -38 V AC: 90 V to 264 V; 50/60 Hz	Rated input voltage: DC: -48 V AC: 175 V to 264 V; 50/60 Hz Maximum input voltage range: DC: -72 V to -38 V AC: 90 V to 264 V; 50/60 Hz	Rated input voltage: DC: -48 V AC: 175 V to 264 V; 50/60 Hz Maximum input voltage range: DC: -72 V to -38 V AC: 90 V to 264 V; 50/60 Hz

Model	AntiDDoS8030	AntiDDoS8080	AntiDDoS8160
Power consumption	1 × FW-LPUF-120 + 2 × ADS-SPUC-B + 2 × ADS-SPC-80-01: DC: 1066 W (avg), 1272 W (max) AC: 1185 W (avg), 1414 W (max)	3 × FW-LPUF-240 + 5 × ADS-SPUD-B + 10 × ADS-SPC-80-01: DC: 4025 W (avg), 4823 W (max) AC: 4282 W (avg), 5132 W (max)	6 × FW-LPUF-240 + 9 × ADS-SPUD-B + 18 × ADS-SPC-80-01: DC: 7387 W (avg), 8930 W (max) AC: 7858 W (avg), 9500 W (max)
Power redundancy	DC: Double hot-swappable power modules AC: Double hot-swappable power modules	DC: 4 hot-swappable PEM modules AC: 4 PEM modules+1 external AC power chassis	DC: 8 hot-swappable PEM modules AC: 8 PEM modules+2 external AC power chassises
Operating temperature	0°C to 45°C (long-term), -5°C to 50°C (short-term)		
Storage temperature	-40°C to 70°C		
Operating humidity	5% RH to 85% RH, non-condensing (long-term), 5% RH to 95% RH, non-condensing (short-term)		
Storage humidity	0% RH to 95% RH		
Certifications			
Safety Certifications	Electro Magnetic Compatibility (EMC) certification CB, Rohs, FCC, MET, C-tick, and VCCI certification		

Order Information

Model	Description
Main Equipment	
ADS8030-BASE-DC-01	AntiDDoS8030 DC Basic Configuration(include X3 DC Chassis, 2*MPU)
ADS8030-BASE-AC-01	AntiDDoS8030 AC Basic Configuration(include X3 AC Chassis, 2*MPU)
ADS8080-BASE-DC-01	AntiDDoS8080 200G DC Basic Configuration(include X8 DC Chassis, 2*SRU200A, 1*SFU200C)
ADS8160-BASE-DC-01	AntiDDoS8160 200G DC Basic Configuration(include X16 DC Chassis, 2*MPU, 4*SFU200B)
Service Processing Card Module	
ADS-SPUC-B	AntiDDoS8030 Service Processing Unit(Base Board)
ADS-SPUD-B	AntiDDoS8080&AntiDDoS8160 Service Processing Unit(Base Board)
ADS-SPC-40-01	DDoS Protection Service Card(with 1 CPU)

Model	Description
ADS-SPC-80-01	DDoS Protection Service Card(with 2 CPUs)
Line Processing Card Module	
FW-LPUF-120	120G Line Processing Unit
FW-LPUF-240	240G Line Processing Unit
FW-6X10G-SFP+	6*10GE SFP+ Daughter Card
FW-1X100G-CFP	1*100GE CFP Daughter Card
FW-12X10G-SFP+	12*10GE SFP+ Daughter Card
E8KE-X-101-5X10GE-SFP+	5-Port 10GBase LAN/WAN-SFP+ Flexible Card A(P101, 1/2wide, Occupy two sub-slots)
E8KE-X-101-24XGE-SFP	24-Port 100/1000Base-X-SFP Flexible Card(P101, 1/2wide, Occupy two sub-slots)
E8KE-X-101-1X40GE-CFP	1-Port 40GBase LAN CFP Flexible Card(P101, 1/2wide, Occupy two sub-slots)
Management Software	
LIC-ADS-NOFA00	ATIC Basic Feature Summary

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

Version No.: M3-032102-20161220-C-1.0

www.huawei.com