Chapter 1
ADC Introduction

Training Team

HCSA-ADC Official Training

Integrative Cybersecurity
Visionary. AI-powered. Accessible.

Hillstone
NETWORKS

Agenda

ADC Overview

ADC Model

ADC Function Modules

1 ADC Overview

Application Delivery Controller-ADC
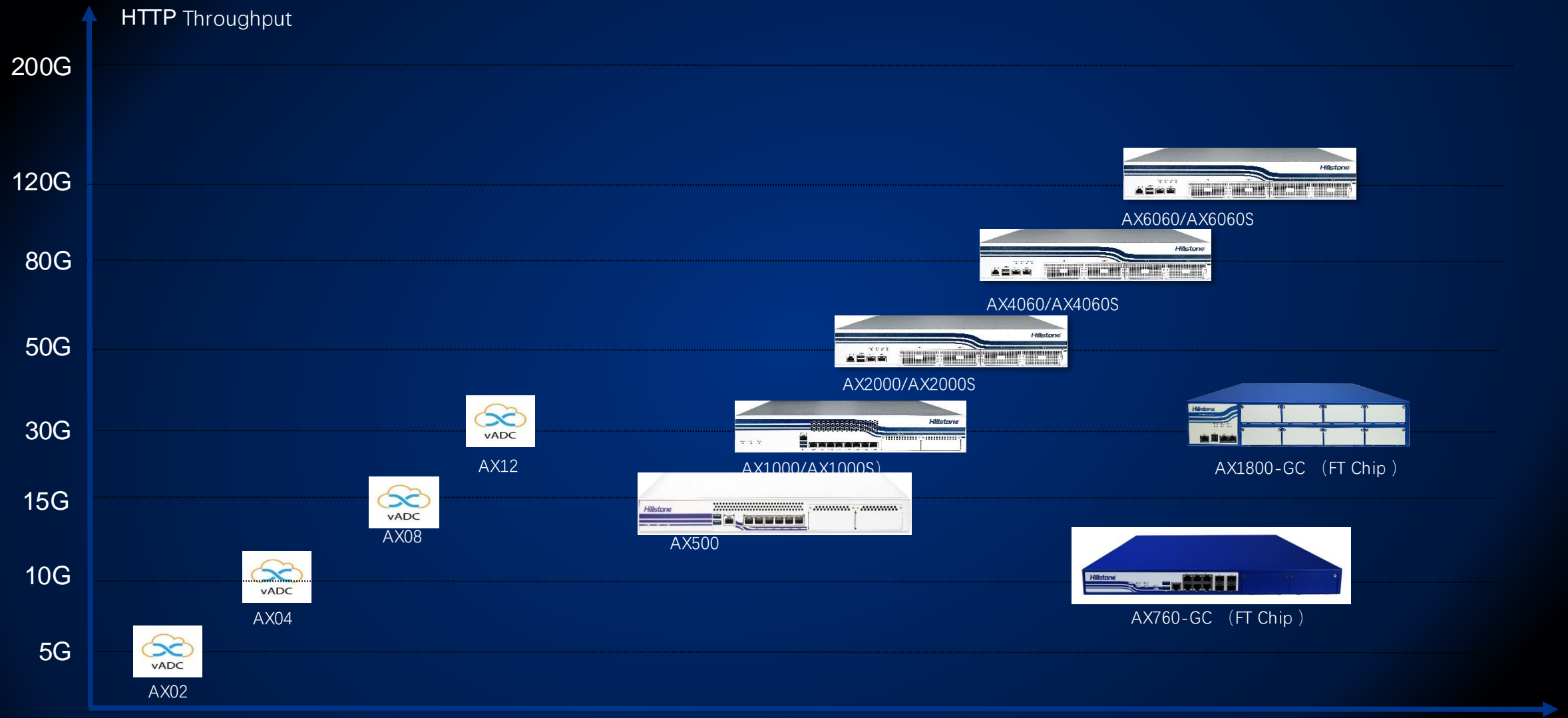
Hillstone
NETWORKS

Application Delivery Controller - ADC

- Develop from traditional load balancing Products.

- The traditional load balancer only focus on traffic distribution, session persistence, and health check for servers and links.

- Application delivery controller not only have load balancing functions, but also provides application optimization, acceleration, and security functions.

- ADC also have three functional deployment which are server load balancing, link load balancing, and global load balancing.

![Hillstone NETWORKS]

2 **ADC Model**

Hillstone AX-Series ADC Portfolio

HTTP Throughput

200G

120G ··· AX6060/AX6060S

80G ··· AX4060/AX4060S

50G ··· AX2000/AX2000S

30G ····· vADC ··· AX1800-GC （FT Chip ）
AX12 ············· AX1000/AX1000S）

15G ····· vADC ···
AX08 ············· AX500

10G ····· vADC ··· AX760-GC （FT Chip ）
AX04

5G ····· vADC
AX02

3 ADC Function Modules

Hillstone Network Unified Network Security – StoneOS

Server Load Balancing	Link Load Balancing	Global Load Balancing/Smart DNS	SSL Offloading/Proxy	SSL Inspection
IPv6 Tansformation	Disconnect Internet with one key	Application Recognition	Application Accelaration	Policy Control
DDOS	Routing	ALG	Traffic Control	IPSEC VPN
HA	SNMP	Restfual API	Central Mangement	Hillstone Cloud Platform

StoneOS（64 Bit Fully Parallel Operating System）

Software Platform	Multi-core Fully Parallel Architecture Hardware Platform

Public Cloud (AWS, Azure, Ali Cloud, Tencent Cloud…)	Private Cloud (VMWare, KVM, Xen,Hyper-V…)	Virtualization Technology	

Standard Server	X86 Hardware Platform

Kunpeng Server	ARM Hardware Platform

ADC – Server Load Balancing

Hillstone
N E T W O R K S

Server load balancing:

- The ADC device can map the addresses of multiple real servers to a single virtual server address (Virtual IP). When the user's access requests reach the ADC device, the virtual server will forward the requests to the real servers according to the configured SLB rule or load balance algorithm. At the same time, the device will monitor the status of real servers. If any abnormality is found in a real server, it will forward the requests to other real servers that work normally.
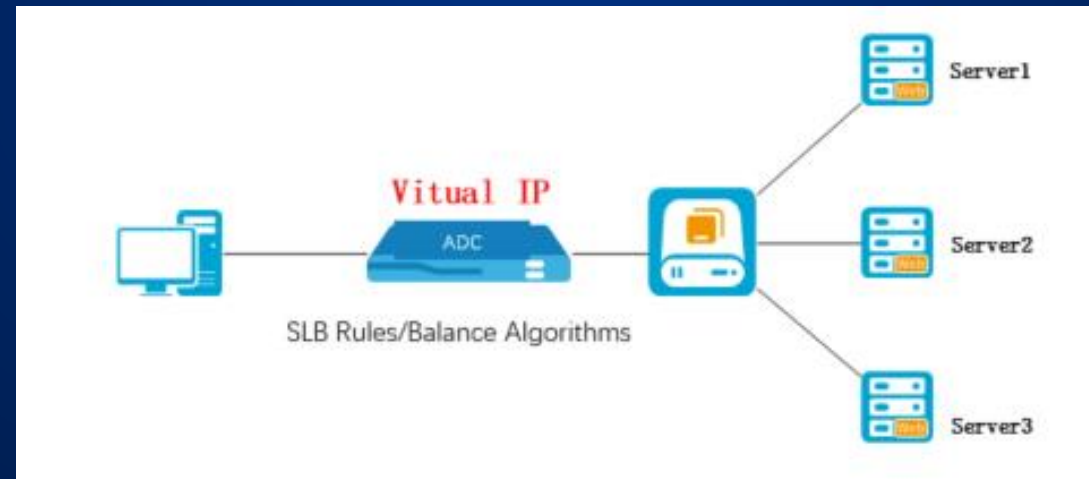
ADC – Server Load Balancing

Server Load Balancing Typical Functions:

- Health Check: System performs health checks on the status of real servers. If a server works abnormally, it will be excluded from the server resources that can be allocated to ensure that client requests are distributed to working servers.

- Session Persistence: To maintain the continuity and consistency of a session, requests from the same client will be distributed to the same server instead of multiple servers.

- Layer 4 and 7 Content Switching: Dispatch business request according to the fields in network layer 4 and 7, and ensure the accuracy of business.

- Layer 7 Content Rewrite: According to the customer demand, redirect the business request or add, delete, and change the header and body of HTTP.

- Performance Optimization: Reduce server stress and increase user access speed by link reuse, web optimization, HTTP cache, and compression technology.

- aRule programmable step: provide customizable script interface to meeting complex individual requirements.

- Load Balancing Algorithm: multiple load balancing algorithms facing to different application needs.

ADC – Link Load Balancing

Link Load Balancing:

- The system provide the load balancing function for outbound traffic. For the outbound traffic, the system will forward traffic smoothly to each outbound links according to the load balancing algorithm. Users can control the outbound traffic and implement load balancing by configure flexible LLB module, and configure LLB rules to bind LLB module to routes (currently, system only support for destination route and policy based route).
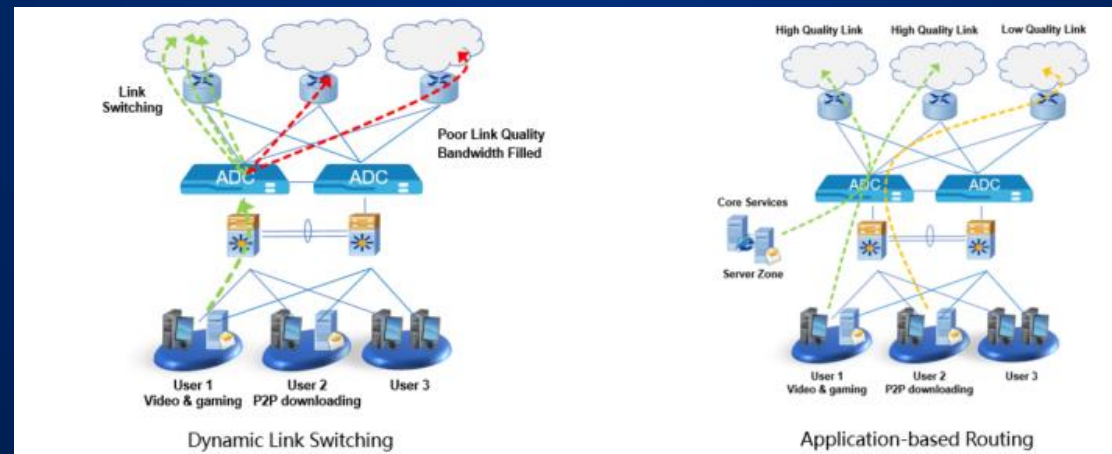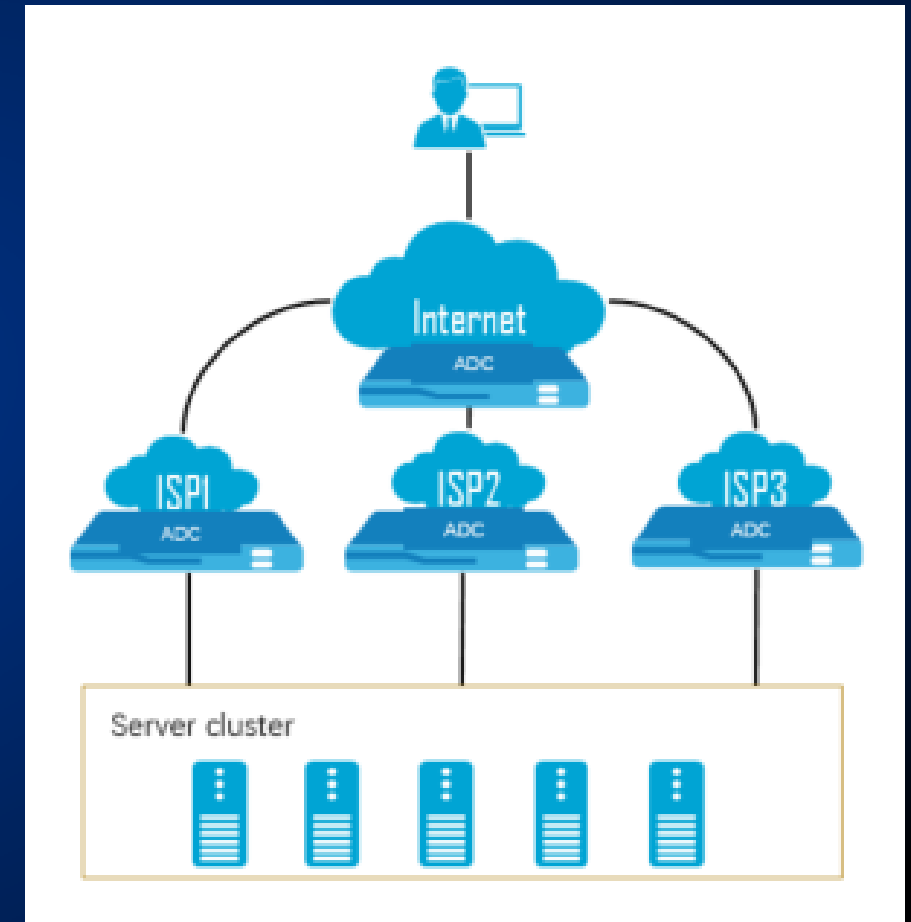
ADC – Link Load Balancing

Link Load Balancing Typical Functions:

• ISP Dispatch Algorithm: route based on the carriers. For example, use Telecom's link forward the traffic from Telecom's IP address; The ISP address database will be updated automatically to ensure the accuracy of routing; When accessing to the non-Telecom address, the traffic will be dispatched according to the algorithm.

• DNS Proxy: intercept users' DNS requests, and distribute requests to each link's carrier's DNS server according to the policy.

• Application routing: route based on application, for example, game and online banking use Telecom's link, and for downloading traffic use Mobile's link.

• Dynamic routing: passively detect the link quality, select the optimal link for routing.

• Link status visibility: display load status and statistics for each links according to the link monitor: detect the link status in real time, automatic disturbance switching; dual deployment + session backup, ensure the high availability, no interruption for accessing during the disturbance switching.

• Domain name traffic routing: match the domain name by domain name signature database and distribute matched domain name to the specified link.

ADC – Global Load Balancing

Global Load Balancing:

- Global Server Load Balance (GSLB) is implemented based on DNS services. In a multi-data center environment, when a client initiates a DNS query, GSLB will resolve the query based on the location, operator and other information of the client, and return the optimal resolution record to direct the traffic intelligently, so that users in different locations or with different operators can access the nearest server to obtain the service in the optimal path.

ADC – Global Load Balancing

Global Load Balancing Typical Functions:

- Smart DNS: help users select the optimal links to the data center.

- Session Persistence: ensure the continuity of business accessing by session persistence of cross-data center.

- Balancing Algorithm: ensure the fast dispatching and switching of cross-data center by flexible algorithms and disturbance switching.

- Global synchronization: ensure the identical configurations, sessions, and service status for different data centers to reach the ideal failover for different data centers.

ADC – SSL Offloading

SSL Offloading Typical Functions:

- Support for RSA and SM2, SM3, SM4 National Secret Algorithms.

- Support for National Secret and RSA certificate at the same time on the same site (virtual service). Ensure the smooth expansion of services to the national secret algorithm.

- Support for configure multiple certificates to a single IP + PORT.

- Support for one way or bi-directional SSL Certificate Authentication.

- Support for OCSP and OCSP stapling, certificate status check.

- Support for pass-through encoding format for different certificate information.

- Support for transmit certificate and certificate parameters to back-end server.

Hillstone
N E T W O R K S

Integrative Cybersecurity

Visionary. AI-powered. Accessible.

+1 408 508 6750

inquiry@hillstonenet.com

5201 Great America Pkwy, #420

Santa Clara, CA 95054

www.hillstonenet.com