Huawei Switch ACL Convergence



Overview

To achieve this, on Interface 1 of the switch, apply an ACL on the inbound direction so that the packets from the R&D department to the finance server are denied on the interface.

Key Takeaways

ACL convergence on Huawei switches depends on rule processing order, ACL type, and interface application, with proper configuration ensuring rapid and predictable enforcement of access policies.

Understanding AC

L ConvergenceACL convergence refers to the time and efficiency with which ACL rules take effect after being configured or modified on a Huawei switch. Convergence is influenced by: ACL Type: Huawei switches support Basic ACLs, Advanced ACLs, and Layer 2 ACLs.

Basic AC

Ls filter IPv4 packets based on source IP, fragment info, or time ranges, while Advanced ACLs allow filtering by source/destination IP, protocol, and port numbers. Layer 2 ACLs operate at the data link layer. Rule Processing Order: ACLs are processed in ascending order of rule IDs.

Each packet is matched sequentially against rules until a match is found. Properly numbering rules and using increments can reduce processing overhead and improve convergence predictability. Interface Application: ACLs are applied to inbound or outbound directions on interfaces.

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Convergence is faster when ACLs are applied directly to the relevant interface rather than globally, as the switch only evaluates packets passing through that interface.

Factors Affecting Convergence Speed

Number of Rules: More rules increase the time for packet matching. Using rule aggregation or specificity ordering (deny rules first, allow rules later) can optimize performance.

AC

L Type and Complexity: Advanced ACLs with multiple match criteria may take slightly longer to process than basic ACLs due to additional checks on ports, protocols, and IP ranges. Hardware Capabilities: High-end Huawei switches (e.g., S5700, S6700 series) use hardware-based ACL processing, which significantly reduces convergence time compared to software-based processing on lower-end models. Dynamic Changes: Frequent ACL updates or additions can temporarily affect convergence, especially if applied to multiple interfaces simultaneously.

Using incremental rule IDs and pre-planned ACL structures helps maintain stability.

Best Practices for Fast ACL Convergence

Plan AC

L Hierarchy: Place deny rules before allow rules to ensure critical traffic is filtered immediately. Minimize Rule Count: Combine similar rules and avoid redundant entries to reduce processing time.

Use Hardware AC

Ls: Deploy ACLs on switches that support TCAM-based processing for high-speed enforcement.

Apply AC

Ls at the Edge: Apply ACLs as close to the traffic source as possible to reduce unnecessary packet evaluation. Monitor and Test: Use commands like display acl to verify rule application and ensure expected traffic is filtered correctly.

Conclusion

Huawei switch ACL convergence is primarily determined by rule order, ACL type, interface application, and hardware capabilities. By following best practices such as proper rule sequencing, minimizing rule count, and leveraging hardware acceleration, network administrators can ensure rapid and reliable ACL enforcement, maintaining network security and performance.

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Article Content

Configuring an Advanced ACL

Compared with a basic ACL, an advanced ACL is more accurate, flexible, and provides more functions. For example, if you want to filter packets based on source and destination IP addresses, configure

01-02 ACL CONFIGURATION

To achieve this, on Interface 1 of the switch, apply an ACL on the inbound direction so that the packets from the R&D department to the finance server are denied on the interface. On Interface 2, apply no

01-01 ACL CONFIGURATION

To ensure quality of video services on NetworkA, configure an ACL on the Switch and reference the ACL in a traffic policy so that all the packets sent to NetworkA are processed by the Switch before being

Access Control List example (Huawei)

How to confgure access list on Huawei? An Access Control List (ACL) is a set of rules that classify packets to filter them. An ACL can contain multiple.

How to configure Access Control List (ACL) on Huawei

An Access Control List (ACL) in Huawei devices is a set of rules used to permit or deny specific network traffic based on criteria such as source/destination IP address, protocol, or port...

Huawei Access-Lists | Huawei ACL Configurations ⋆ IPCisco

In this lesson, we will show Basic Access Lists (Basic ACLs) and Advanced Access Lists (Advanced ACLs) with specific examples. Let''s firstly start with Basic Access List Configuration. You

Huawei S3700, S5700 and S6700 Switches Support Guide, Manuals

S3700&S5700&S6700 Series: Access product manuals, HedEx documents, product images and visio stencils.

Network ACL Overview_Virtual Private Cloud-Huawei Cloud

If both security group and network ACL rules are configured, traffic is matched against network ACL rules first and then security group rules. You can add security group rules as required

Huawei simplifies the use of traffic-filter ACLs in traffic policies ...

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The version of Huawei switch after V200R020C is denied any service by default. If you want to enable remote login, such as telnet, ssh or http, you need to type a command to specify that any IP releas...

Huawei CloudEngine S6730-S-V2 Series Switches Datasheet

Introduction Huawei CloudEngine S6730-S-V2 switches are next-generation enterprise-class core and aggregation switches that offer high performance, high reliability, cloud management, and intelligent

HUAWEI eKitEngine AR580 Series Converged Gateway Datasheet

Huawei eKitEngine AR580 series gateways can be deployed at the egress of the headquarters or branches of small- and medium-sized enterprises (SMEs). The series includes AR580, AR580 Plus,

Huawei PoE Switches | 90W Hi-PoE & Multi-GE

Explore Huawei PoE, PoE+, PoE++ and 90 W Hi-PoE switches—multigig speed, iStack scalability, AI O&M. Fast shipping and expert sizing at Network-switch .

Configuring a Basic ACL

Configuring a Basic ACL Prerequisites If you need to configure a time-based ACL, create a time range and associate the time range with the ACL rules. For details, see (Optional) Creating a Time Range

Typical ACL Configuration

This document provides typical configuration examples for campus networks and individual features on Huawei switches.

Example for Using ACLs to Control Access to the Specified Server in

The following configurations are performed on the Switch. The configuration roadmap is as follows: Configure the time range, advanced ACL, and ACL-based traffic classifier to filter packets from users

Example for Using Advanced ACLs to Implement Unidirectional

Example for Using Layer 2 ACLs in QoS to Implement Traffic Policing Example for Using User-Defined ACLs to Filter the Specified Packets Example for Using User ACLs to Control Network Access Rights

Configuring an Advanced ACL

Configuring an Advanced ACL Prerequisites If you need to configure a time-based ACL, create a time range and associate the time range with the ACL rules. For details, see (Optional) Creating a Time

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How to configure Access Control List (ACL) on Huawei

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