

IP SLA and Remote SPAN in a Campus Environment

Aim: To demonstrate the configuration and use of IP SLA and Remote SPAN (RSPAN) in a campus environment for performance monitoring and traffic analysis.

Theory: 1. IP SLA (IP Service Level Agreement)

IP SLA is a Cisco feature used to measure network performance and monitor service levels by generating synthetic traffic between network devices. It helps in:

Measuring latency, jitter, packet loss, and availability

Verifying QoS (Quality of Service)

Troubleshooting network paths

Tracking reachability to trigger dynamic routing changes

How it works:

IP SLA sends test traffic (like ICMP, UDP, or HTTP) to a target IP address.

It records statistics like round-trip time and availability.

You can schedule these tests and track trends over time.

Remote SPAN (RSPAN)

Remote SPAN extends the Switched Port Analyzer (SPAN) feature to span traffic across multiple switches in a campus environment. It is used to:

Monitor traffic on remote switches

Capture packets from a source port/VLAN to a central analyzer

Troubleshoot performance or security issues centrally

How it works:

You configure a special RSPAN VLAN to carry mirrored traffic.

Source switches send mirrored traffic to this VLAN.

The destination switch receives mirrored traffic on an RSPAN port where an analyzer or packet capture tool is connected.

Code:**1. IP SLA Configuration Example (Cisco CLI)**

```
conf t
ip sla 1
icmp-echo 192.168.1.1
frequency 10
exit
ip sla schedule 1 life forever start-time now
track 1 ip sla 1 reachability
This config pings 192.168.1.1 every 10 seconds and tracks its availability.
```

2. Remote SPAN Configuration Example

On the Source Switch:

```
conf t
vlan 999
remote-span
exit
monitor session 1 source interface FastEthernet0/1
monitor session 1 destination remote vlan 999
```

On the Destination Switch:

```
conf t
vlan 999
remote-span
exit
monitor session 1 source remote vlan 999
monitor session 1 destination interface FastEthernet0/24
```

Connect a Wireshark PC or analyzer tool to Fa0/24 on the destination switch to capture traffic

Conclusion:

In this practical, we implemented IP SLA to simulate and monitor network performance metrics and configured Remote SPAN to mirror traffic across switches for remote analysis. These tools are essential in campus networks for proactive monitoring, troubleshooting, and ensuring service reliability, especially in large distributed environments.