

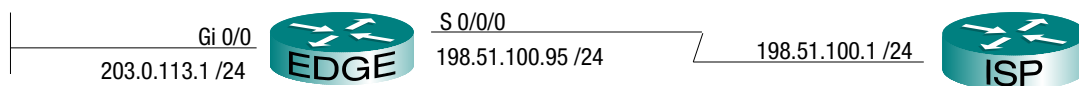
SLA (Service Level Agreement)—Monitoring capabilities to document that eponymous network availability obligations are being met.

Probe—Artificial traffic generated on network devices to measure the network response (jitter, delay, loss). Some have both a source and responder device.

ICMP Echo Probe—basically a ping. Doesn't need an SLA responder because it measures round-trip.

C O N F I G U R A T I O N A N D U S E

This example configures an IP SLA on our edge router to keep track of our ability to access the internet by periodically pinging the ISP. The source address of these periodic pings will be our edge router's inside LAN interface so that our routing tables are also checked.



```

1 EDGE(config)# ip sla 42
2                               42 is an arbitrary identifying "entry number"
3 EDGE(config-ip-sla)# icmp-echo 198.51.100.1 source-ip 203.0.113.1
4 EDGE(config-ip-sla-echo)# frequency 5
5                               Ping every 5 seconds. This is the minimum allowed. Default 60.
6 EDGE(config-ip-sla-echo)# threshold 100
7                               The round trip time should be under 100 ms
8 EDGE(config-ip-sla-echo)# history filter all
9                               Keep all data in the history
10 EDGE(config-ip-sla-echo)# history buckets-kept 6
11                               Limit historical data to the last 6 ping results (result code + time)
12 EDGE(config-ip-sla-echo)# history lives-kept 1
13 EDGE(config-ip-sla-echo)# exit
14
15 EDGE(config)# ip sla schedule 42 life forever start-time now
16                               Instead of "forever," you could set the life to a number of seconds (default 3600)
  
```

If you need to remember the syntax, just think of the french revolution and the guillotine—low *threshold* of guilt, high *frequency* of executions, ... *history*, *lives*, and *buckets* should be self-explanatory. [Don't look now, Cisco's getting annoyed.]

V E R I F I C A T I O N

```

1 EDGE# show ip sla statistics 42
2 IPSLAs Latest Operation Statistics
3
4 IPSLA operation id: 42
5     Latest RTT: 16 milliseconds
6 Latest operation start time: 13:02:57 UTC Mon Jan 2 2006
7 Latest operation return code: OK
8 Number of successes: 10
9 Number of failures: 99
10 Operation time to live: Forever

```

To view a history of results, the author [Odom, 2016] uses a command not present in ios 15.1

```
show ip sla summary
```

He also uses commands that are more readily available.

```

1 EDGE# show ip sla history 42
2     Point by point History
3 Entry      = Entry number
4 LifeI      = Life index
5 BucketI    = Bucket index
6 SampleI    = Sample index
7 SampleT    = Sample start time (milliseconds)
8 CompT      = RTT (milliseconds)
9 Sense      = Response return code
10
11 Entry LifeI      BucketI      SampleI      SampleT      CompT      Sense      TargetAddr
12 42     1          133         1            3922148     8          1          198.51.100.1
13 42     1          134         1            3927148     79         1          198.51.100.1
14 42     1          135         1            3932148     79         1          198.51.100.1
15 42     1          136         1            3937148     16         1          198.51.100.1
16 42     1          137         1            3942148     16         1          198.51.100.1
17 42     1          138         1            3947148     35         1          198.51.100.1

```

The top part of the output [Lines 3-9] is just a legend that explains the columns that follow.

- The Entry column shows the number we chose for our SLA entry (42). In this case, we limited the output of this command to that entry by typing "42" at the end of the command
- CompT shows varying ping round-trip times, from 8ms to 79. I caused the variation by changing the clock rate of the serial connection. A ping time of 0 could be probably a failure; you'll have to check the next column.
- The "Sense" column tells us that the ping worked at all (1=Okay, 4=timeout)