

SIP - PROXIES & ROUTING

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As we know, a proxy server can be either stateless or stateful. Here, in this chapter, we will discuss more on proxy servers and SIP routing.

Stateless Proxy Server

A stateless proxy server simply forwards the message it receives. This type of server does not store any information of the call or transaction.

- Stateless proxies forget about the SIP request once it has been forwarded.
- Stateless proxies scale very well, and can be very fast. They are good for network cores.

Stateful Proxy Server

A stateful proxy server keeps track of every request and response that it receives. It can use the stored information in future, if required. It can retransmit the request if it does not receive a response from the other side.

- Stateful proxies remember the request after it has been forwarded, so they can associate the response with some internal state. In other words, stateful proxies maintain *transaction* state. Stateful *implies* transaction state, **not** call state.
- Stateful proxy servers don't scale as much as stateless ones.
- Stateful proxies can fork and provide services that stateless ones can't
callforwardbusy, forexample.

Neither stateful nor stateless proxies need to maintain call state, although they can.

Via & RecordVia-route

Record-Route

The Record-Route header is inserted into requests by proxies that want to be in the path of subsequent requests for the same call-id. It is then used by the user agent to route subsequent requests. The mechanism is similar to a source-route, copying the Record-Route information into a set of Route headers. The Request-URI is set to the first Route header.

Via

Via headers are inserted by servers into requests to detect loops and to allow responses to find their way back to the client. They have no influence on the routing of future requests *or* responses.

- A UA generating a request records its own address in a Via header field.
- A proxy forwarding the request adds a Via header field containing its own address to the top of the list of Via header fields.
- A proxy or UA generating a response to a request copies all the Via header fields from the request in order into the response, then sends the response to the address specified in the top Via header field.
- A proxy receiving a response checks the top Via header field and matches its own address. If it does not match, the response has been discarded.
- The top Via header field is then removed, and the response forwarded to the address specified in the next Via header field.

Via header fields contain protocol name, version number, and transport

SIP/2.0/UDP, SIP/2.0/TCP, etc. and may contain port numbers and parameters such as received,

rport, branch, maddr, and ttl.

- A received tag is added to a Via header field if a UA or proxy receives the request from a different address than that specified in the top Via header field.
- A branch parameter is added to Via header fields by UAs and proxies, which is computed as a hash function of the Request URI, and the To, From, Call-ID, and CSeq number.

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