Oblivious Relay Feedback

draft-rdb-ohai-feedback-to-proxy-04
IETF 114 · July 2022

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Agenda

• Updates to address feedback from the WG
• Align with draft-ietf-httpapi-ratelimit-headers
Problem Recap

- Excessive traffic from an oblivious relay to a target will cause target to rate-limit that relay
- Rate-limiting the oblivious proxy harms all clients using that relay
Proposal

- Signal overload from server to oblivious proxy
- Proxy uses the feedback to rate limit transactions from overzealous or misbehaving clients.
- Use draft-ietf-httpapi-ratelimit-headers, it publishes quotas (or service limits) to clients.
New *ohhttp-target* Quota Policy Parameter

- Rate-limit quota policy for the Oblivious Relay

HTTP/1.1 200 OK
Date: Wed, 27 March 2022 04:45:07 GMT
Cache-Control: private, no-store
RateLimit-Limit: 10
RateLimit-Policy: 10; **ohhttp-target=2;attack-severity="high"; comment="abnormal header matching a WAF rule"**
Content-Type: message/ohhttp-res
Content-Length: 38 <content is the encapsulated 400 response>

...encrypted content...
Example Message Flow

Client → Relay Resource → Gateway Resource → Target Resource

Encapsulated Request → Encapsulated Request → Request

Target is overloaded

5XX Response + RateLimit-* fields + ohttp-target parameter → Encapsulated 5XX response

200 Response + RateLimit-* fields + ohttp-target Parameter

Encapsulated 5XX response

Relay applies rate-limit to all the clients

Encapsulated Response
ohttp-target Parameter values

• 1 =&gt; RateLimit fields are applicable to all the clients
• 2 =&gt; Ratelimit offending client
  • The relay does not immediately rate-limit requests from the offending client
  • Rate-limits requests only when the ratio of “potential malicious requests” (value=2) to “legitimate requests” is high (no ohttp-target parameter)
  • Malformed HTTP requests are linkable whereas the valid HTTP requests are not linkable.

The target will not be able to partition the anonymity set of legitimate clients.
Ohttp-Outside-Encap Header

- On forwarding requests, Oblivious gateway indicates HTTP headers that will be moved
- On receiving response, Oblivious gateway moves those headers+values outside encapsulation
  - Allows Oblivious relay to access and act on those headers
- Useful when Oblivious gateway and target are managed by separate entities.

Ohttp-Outside-Encap: RateLimit-Limit|RateLimit-Remaining|RateLimit-Reset|RateLimit-Policy
• Comments and suggestions are welcome.