Cache Digests for HTTP/2

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Changes from draft-02

• switch to Cuckoo Hash
• open issues:
  – negotiating the use #410
  – remove etag / stale support #516
Negotiating the Use #410
Current approach: use SETTINGS

- **SENDING_CACHE_DIGEST:**
  - indicates client-support
- **ACCEPT_CACHE_DIGEST:**
  - indicates server-support
  - sent in 0.5 RTT in TLS 1.3 full handshake
  - client can remember
Current approach: issues

- server’s indication is per-connection
  - need to be per-origin?
    - use ORIGIN frame?
- require clients to cache the info?
  - currently it’s a MAY
remove etag / stale support #516
Current approach: four types of digests

<table>
<thead>
<tr>
<th>digest key / cache state</th>
<th>server’s strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>match found</td>
</tr>
<tr>
<td>SHA(URL) / fresh</td>
<td>do not push</td>
</tr>
<tr>
<td>SHA(URL) / stale</td>
<td>push Etag only**</td>
</tr>
<tr>
<td>SHA(URL + Etag)* / fresh</td>
<td>do not push</td>
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*: hard to use unless h2 endpoint and cache (that store’s the Etag value) exist on a single machine

**: up-to-date value of the Etag needs to be transferred, but how?

***: existing clients do not adopt the pushed response if it has a fresh cache
Proposal: remove etag / stale support

• i.e. concentrate on \textit{SHA(URL)} / fresh case
  – since majority of the resources that block rendering are long-term cacheable
  – see \url{http://bit.ly/crit-res-cacheability} by Yoav