CoAP: Non-traditional response forms

draft-bormann-core-responses-01

Carsten Bormann, Christian Amsüss

2022-03-25
CoRE at IETF 113 in Vienna
A history of ... relevant things

<table>
<thead>
<tr>
<th>RFC7252 simplest case</th>
<th>Single request, single response(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC7252 multicast</td>
<td>Single request, different responses with different source addresses</td>
</tr>
<tr>
<td>RFC7641</td>
<td>Observe notifications come in until further notice</td>
</tr>
<tr>
<td>core-coap-sms</td>
<td>Response-To-Uri-Host/-Port – triangular requests</td>
</tr>
<tr>
<td>core-coap-endpoint-id</td>
<td>Observations across server address changes</td>
</tr>
<tr>
<td>core-responses-00</td>
<td>Configured requests, Response-For</td>
</tr>
<tr>
<td>RFC9177</td>
<td>Responding with multiple blocks</td>
</tr>
<tr>
<td>core-groupcomm-proxy</td>
<td>Multicast-Timeout</td>
</tr>
</tbody>
</table>

\(^1\)Retransmits are not necessarily identical, but either way the client usually only processes one.

...all on the same token.
A history of non-traditional responses

RFC7252 simplest case: Single request, single response

RFC7252 multicast: Single request, different responses with different source addresses

RFC7641: Observe notifications come in until further notice

core-coap-sms: Response-To-Uri-Host/-Port – triangular requests

core-coap-endpoint-id: Observations across server address changes

core-responses-00: Configured requests, Response-For

RFC9177: Responding with multiple blocks

core-groupcomm-proxy: Multicast-timeout

...which can all be described with common terminology.

---

2 The retransmits, even when changed, are barely not considered nontraditional.
Defining non-traditional responses

*Non-traditional response*: A response that is not the single response generated for a request received on the same transport.

One response is non-traditional $\Rightarrow$ all responses are non-traditional ... but often, only one is “matching”.
Defining non-traditional responses

Non-traditional response: A response that is not the single response generated for a request received on the same transport.

One response is non-traditional \(\Rightarrow\) all responses are non-traditional … but often, only one is “matching”.

Non-matching response: A response that has properties (typically options) that make it incompatible with the original request, and thus in particular unsuitable as a cached response to that request (but possibly suitable to populate the cache for a similar request).
What to do with it?

- Provide terminology and general concepts usable for other specifications.  
  
  groupcomm-proxy and multicast-notifications are concrete candidates.

- Provide terminology and general concepts usable for implementers.  
  
  Ongoing experimentation in Python and Rust implementations.

- Provide concepts usable for applications.  
  
  Statically configured requests.  
  
  (Dynamic configured requests can follow multicast-notifications pattern.)

- Provide options usable for generic applications (Response-For, Respond-To, Leisure-Time).  
  
  Can double as examples for further specifications.
Next steps

- Is the working group interested in general work on non-traditional responses?
- Is the working group interested in this document for…
  - …its taxonomy?
  - …its concrete options?
- Are there any conflicts with existing concepts?
- Any other feedback?