

Observe Notifications as CoAP Multicast Responses

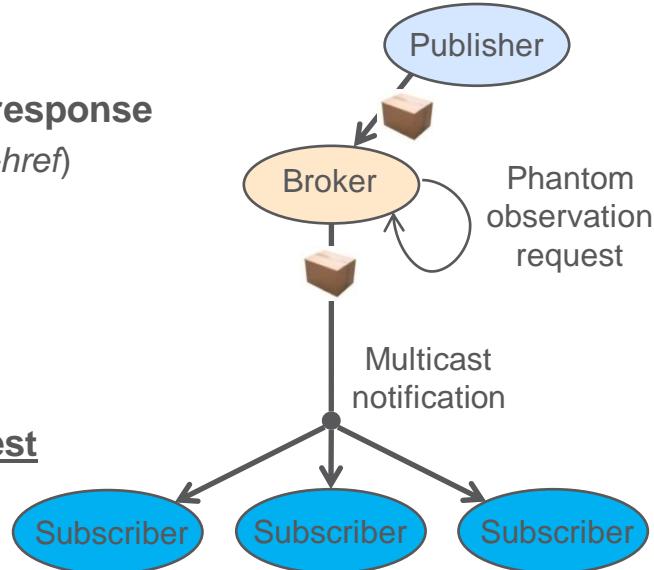
draft-ietf-core-observe-multicast-notifications-12

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Recap

- › **Observe notifications as multicast responses**
 - Many clients observe the same resource on a server (e.g., pub-sub)
 - Improved performance due to multicast delivery
- › **Clients configured by the server, with a 5.03 error informative response**
 - Transport-specific information are provided as CRIs (*draft-ietf-core-href*)
- › **All clients in a group observation use the same Token value**
 - The Token space belongs to the group (clients)
 - The group entrusts the server to manage the token space
- › **Multicast notifications bound to a Phantom Observation Request**
 - By means of the same Token value for that observation
- › **Group OSCORE to protect multicast notifications**
 - The server aligns all clients of an observation on a same *external_aad*
 - All notifications for a resource are protected using that *external_aad*



Updates in v -12

Section 4.2 – “Informative Response”

› Changed CBOR type of ‘ending’

- › Time when the group observation of the target resource is planned to be canceled
- › Now ~time, i.e., integer or floating-point number (was uint)
- › Consistent with the related NumericDate in Section 2 of RFC 7519

› Avoid limiting the informative response to this protocol

- › Confirmed: the Content-Format is “application/informative-response+cbor”
- › Confirmed: the payload is a CBOR map, with CBOR abbreviations from a dedicated IANA registry
- › Clarified: when using the method specified in this document, the CBOR map is composed
 - as defined in Section 4.2, with specific meanings for its parameters
- › Clarified: other specifications may define different uses of the informative response,
 - to provide alternative information for other protocols and applications (e.g., see [1])

```
informative_response_payload = {  
    0 => array, ; 'tp_info' (transport-specific information)  
    ? 1 => bstr, ; 'ph_req' (transport-independent information)  
    ? 2 => bstr, ; 'last_notif' (transport-independent information)  
    ? 3 => uint, ; 'next_not_before'  
    ? 4 => ~time ; 'ending'  
}
```

Updates in v -12

- › Two minor updates in Appendix C – “OSCORE Group Self-Managed by the Server”
 - › Setup with the server acting as Group Manager for the OSCORE group
- 1. Updated CBOR type of the ‘exp’ parameter, also in the 5.03 informative response
 - › Expiration time of the keying material of the OSCORE group managed by the server
 - › The CBOR type is now ~time, i.e., integer or floating-point number (was uint)
 - › Consistent with the same update made for the ‘ending’ parameter (see previous slide)
- 2. Addressed a long-pending Editor’s note
 - › Consistent renaming of another parameter, also in the 5.03 informative response
 - › ‘sign_enc_alg’ → ‘gp_enc_alg’ // Group Encryption Algorithm used in the OSCORE group
 - › Aligned with the naming of the latest *draft-ietf-ace-key-groupcomm-oscore*

Updates in v -12

- › The CoAP transport used to distribute multicast notifications is indicated:
 - › From the CRI 'tpi_server' in the 5.03 informative response
 - › Based on the URI scheme and 'authority' component
- › Determine the URI scheme
 - › scheme-id from the CRI → CRI scheme number
 - › Retrieve the corresponding URI scheme from the "CRI Scheme Numbers" IANA registry
 - › Details in *draft-ietf-core-href*
- › A host-name in 'authority' has to be resolved
 - › Result indicating multiple transports? → Invalid CRI
- › Check the right entry in the new IANA registry 
 - › See the 'Transport Information Details' column
 - › Compose/parse 'tpi_details' accordingly

```
informative response payload = {  
    0 => array, ; 'tp_info' (transport-specific information)  
    ? 1 => bstr, ; 'ph_req' (transport-independent information)  
    ? 2 => bstr, ; 'last_notif' (transport-independent information)  
    ? 3 => uint, ; 'next_not_before'  
    ? 4 => ~time ; 'ending'  
}  
  
tp_info = [  
    tpi_server: CRI-no-local, ; Addressing information of the server  
    ? tpi_details ; Further information about the request  
]  
  
tpi_details = (  
    + elements ; The number, format, and encoding of the elements  
    ; depend on the scheme-id and authority of the CRI  
    ; specified as tpi_server  
)
```

CoAP Transport	Transport Information Details	Reference
CoAP over UDP	tpi_client tpi_token	Section 4.2.1.1 of [RFC-XXXX]

Next steps

- › **Pending technical points**
 - › More precise requirements on avoiding link-local addresses (used and indicated)
 - › Have Max-Age in the first notification INIT_NOTIF stored at the server?
- › **Address two comments from IANA**
 - › Provide a preferred value range for the two registrations of CoAP Option Numbers
 - › Value of the 'Transport Information Details' column, in the new registry "CoAP Transport Information"
 - › The listed elements can be better separated by commas, rather than by new lines
- › **Split the document into two documents – Strongly wished for at IETF 122 [2]**
 - › MK: The starting specification does not have to cover all corner cases such as proxies.
 - › MK: While ensuring that it works through a proxy is important, reduce the scope and then extend from there.
 - › CB: Great that we have thought through all this, but it does not have to be in the same document.
 - › ED: Splitting it out could be good.
 - › CA: Work on proxies is not about specifying what to do, but about showing that all still works transparently, without breaking the REST architecture. We can take that content out into an informative document.

[2] <https://datatracker.ietf.org/doc/minutes-122-core/#observe-notifications-as-coap-multicast-responses-marco-tiloca-10>

Splitting plan

- › **Prepare a PR on the Github repository [3]**
 - › All content about proxies collected into a new “Appendix OUT”, including:
 - › Selected parts from Sections 3 and 16.3
 - › Full Sections 8.4, 11,12, and 15.3
 - › Full Appendices E, F, G, and H
 - › Some parts of Section 2, Appendix A, and Appendix D are shortened or removed
- › **Split out “Appendix OUT” as a separate WG document**
 - › E.g., *draft-ietf-core-multicast-notifications-proxy*
 - › We do have precedents for these splits (*-conditional-attributes*, *-oscore-key-limits*, *-oscore-id-update*)
 - › Should the intended status be Informational?
- › **For the present document:**
 - › Merge the PR, remove "Appendix OUT", submit a new version

Thank you!

Comments/questions?

<https://github.com/core-wg/observe-multicast-notifications>