

# **CoAP over Bundle Protocol (BP)**

## **draft-gomez-core-coap-bp-03**

Intended Status: Standards Track

**Carles Gomez**

**Anna Calveras**

Universitat Politècnica de Catalunya

# Status

- draft-gomez-core-coap-bp
  - -00 presented in IETF 119
    - CoRE and DTN WGs
  - -01 presented in IETF 120
    - CoRE and DTN WGs
  - -02 presented in IETF 121
    - CoRE WG
- Revision -03
  - Addresses feedback from IETF 121
  - Provides more content

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## 4.3. Payload-length option

- Indicates the size of the payload of a CoAP message
  - The option value is an integer number of bytes
  - Allows message aggregation

- Definition:

No.	C	U	N	R	Name	Format	Length	Default
TBD	x				Payload-length	uint	0 or more	(none)

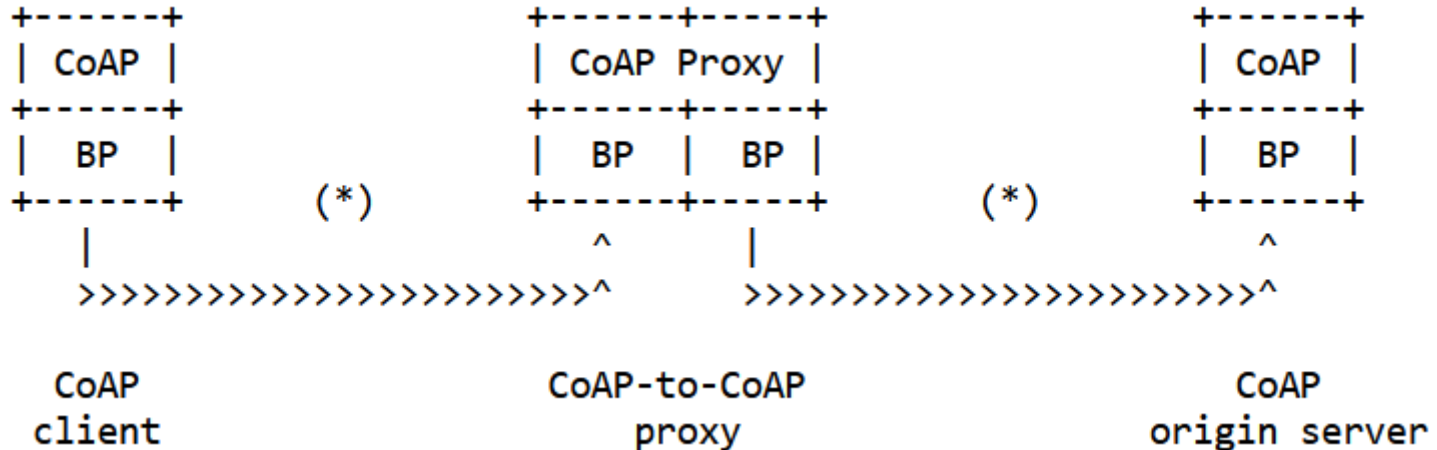
C = Critical, U = Unsafe, N = NoCacheKey, R = Repeatable  
(\*) See below.

# 9. Proxying (I)

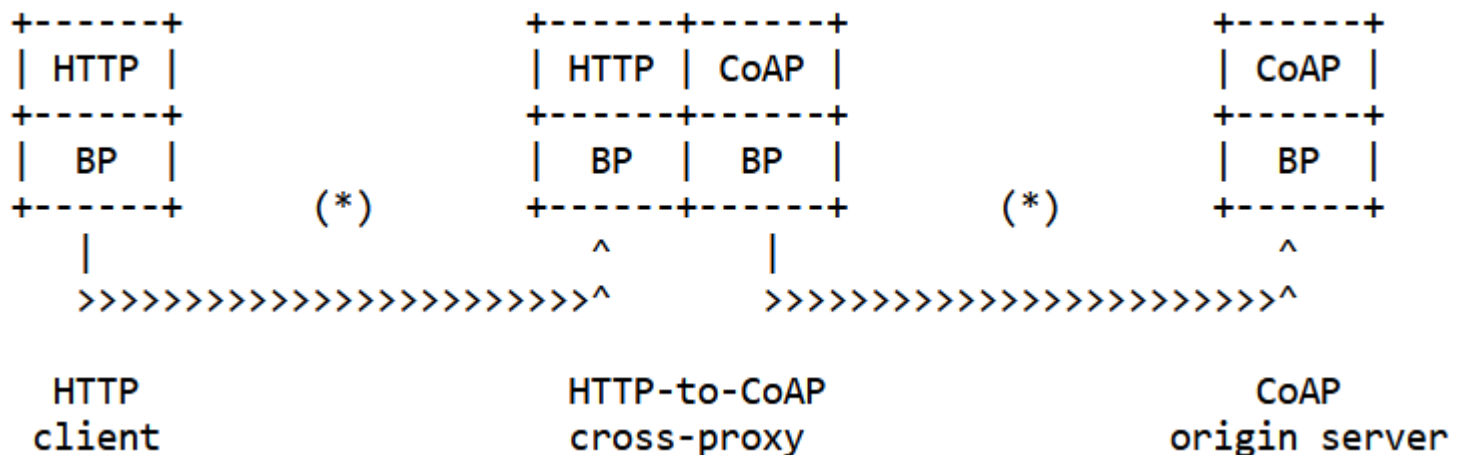
- CoAP proxy (RFC 7252)
  - A CoAP endpoint, an intermediary
  - Forwarding requests and relaying back responses
    - Caching, namespace translation, or protocol translation
  - Service a response from a cache in order to reduce response time and network bandwidth or energy consumption
    - Useful benefits also where BP is used

# 9. Proxying (II)

- CoAP-to-CoAP proxy:



- HTTP-to-CoAP cross-proxy:



# 11. Securing CoAP over BP (I)

- BPSec allows to protect all fields of a CoAP message carried over BP
- In scenarios with CoAP proxies, BPSec cannot ensure the protection of application-layer data between a CoAP client and the CoAP origin server
  - In that case, OSCORE SHOULD be used to protect application-layer data between the two actual CoAP endpoints

# 11. Securing CoAP over BP (II)

- In scenarios without CoAP proxies, both OSCORE or BPSec MAY be used to provide end-to-end application-layer data protection
- Open question: is there any reason why both OSCORE and BPSec should be simultaneously used in a scenario known to be proxy-less?



## 12.3. CoAP option numbers registry

- IANA is requested to add the Payload-length option to the CoAP Option Numbers registry:

Number	Name	Reference
TBD1	Payload-length	[[this document]]

# Other updates

- Section 5. Encapsulating bundle lifetime of an Aggregate message is set to:
  - $\text{EXCHANGE\_LIFETIME} + \text{MAX\_AGGR\_DELAY}$ 
    - If the Aggregate message only comprises CON messages
    - $\text{MAX\_AGGR\_DELAY}$ : maximum time since the first Single message is generated until the Aggregate message is passed to the BP layer
  - $\text{NON\_LIFETIME} + \text{MAX\_AGGR\_DELAY}$ 
    - If the Aggregate message only comprises NON messages
  - $\max(\text{EXCHANGE\_LIFETIME}, \text{NON\_LIFETIME}) + \text{MAX\_AGGR\_DELAY}$ 
    - Otherwise
- Section 7. Observe:
  - draft-ietf-core-conditional-attributes now mentioned

# Thanks!

## Questions? Comments?

Carles Gomez

Anna Calveras

Universitat Politècnica de Catalunya

# **CoAP in space**

## **draft-gomez-core-coap-space-02**

Intended Status: Informational

**Carles Gomez**

Universitat Politècnica de Catalunya

**Sergio Aguilar**

Sateliot

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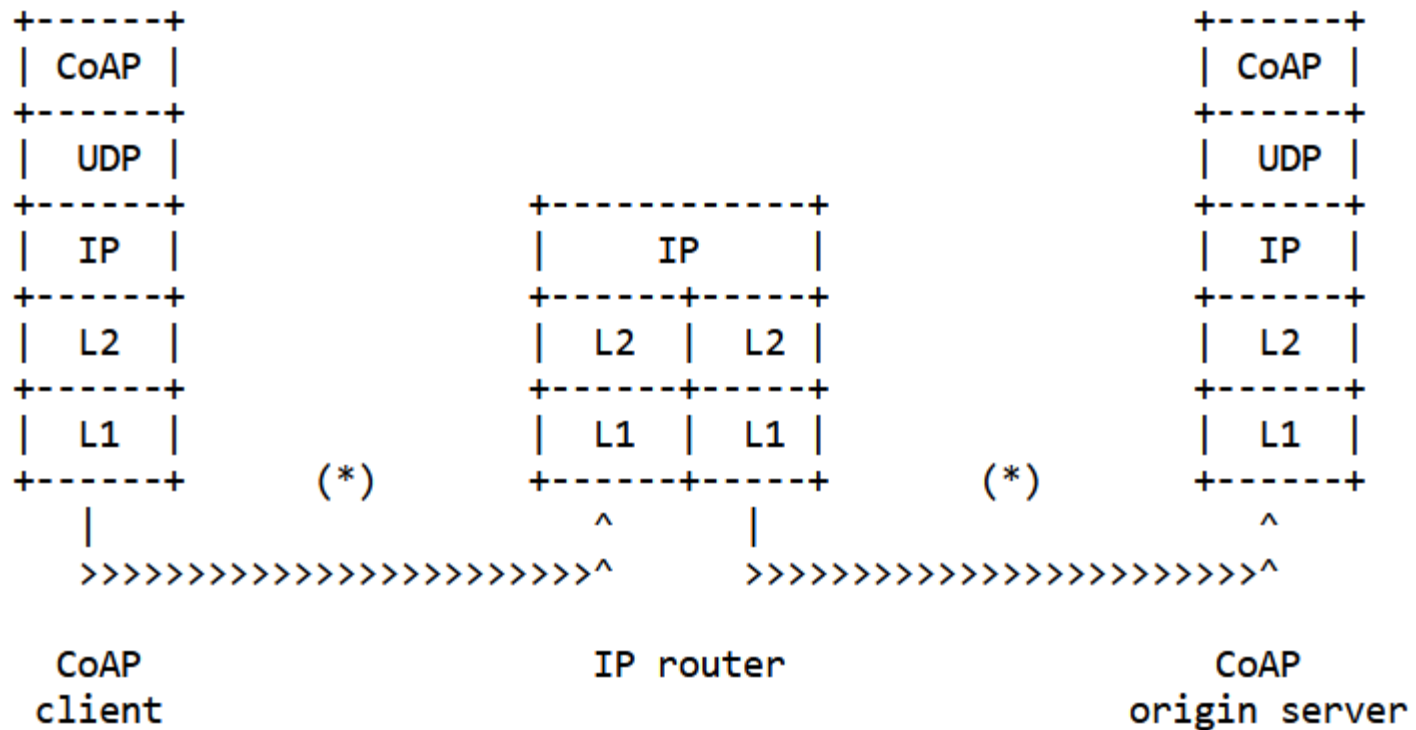


# 5. Proxying

- CoAP proxy (RFC 7252)
  - A CoAP endpoint, an intermediary
  - Forwarding requests and relaying back responses
    - Caching, namespace translation, or protocol translation
  - Service the response from a cache in order to reduce response time and network bandwidth or energy consumption
    - Useful benefits also in (e.g. deep) space environments

## 5. Proxying. Scenarios (I)

- No proxy



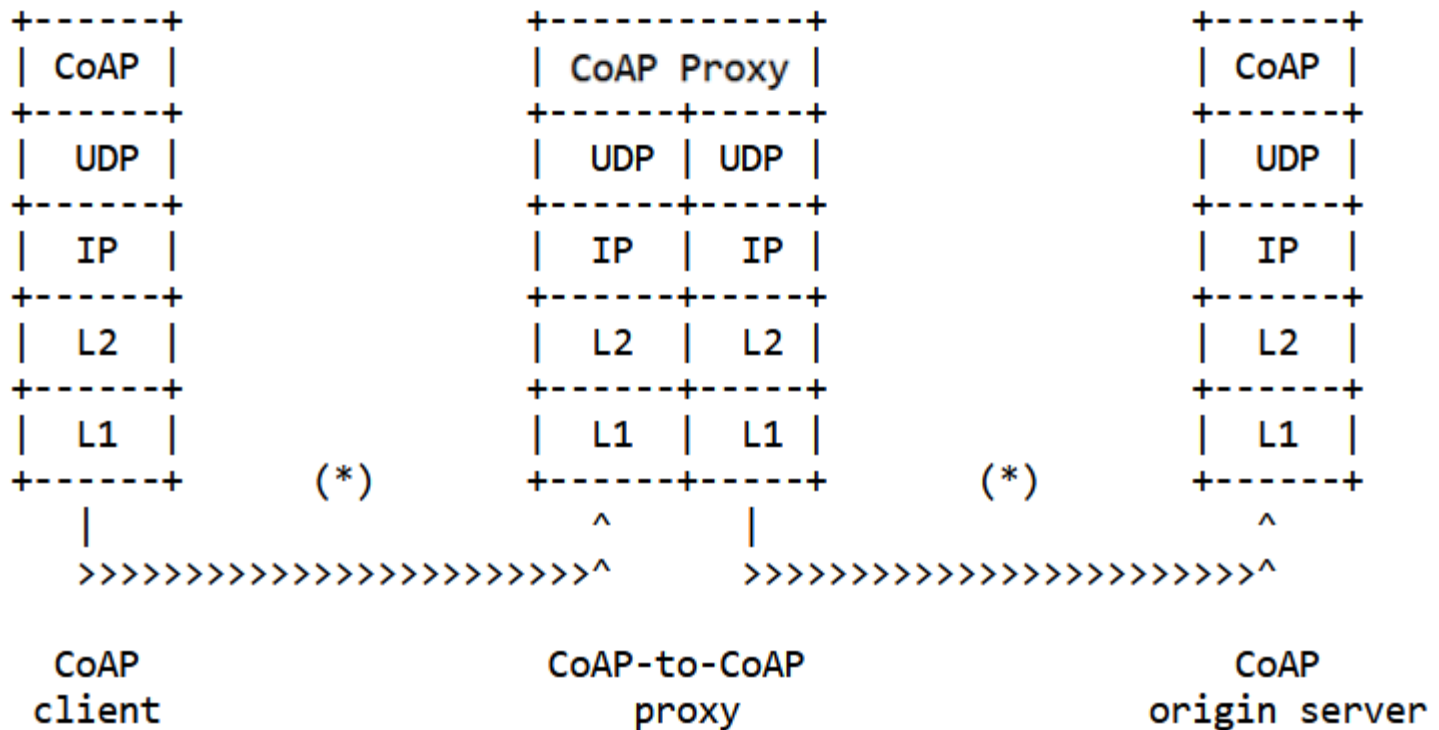
E.g., Earth

## Mars orbiter

## Mars

## 5. Proxying. Scenarios (II)

- CoAP-to-CoAP proxy



E.g., Earth

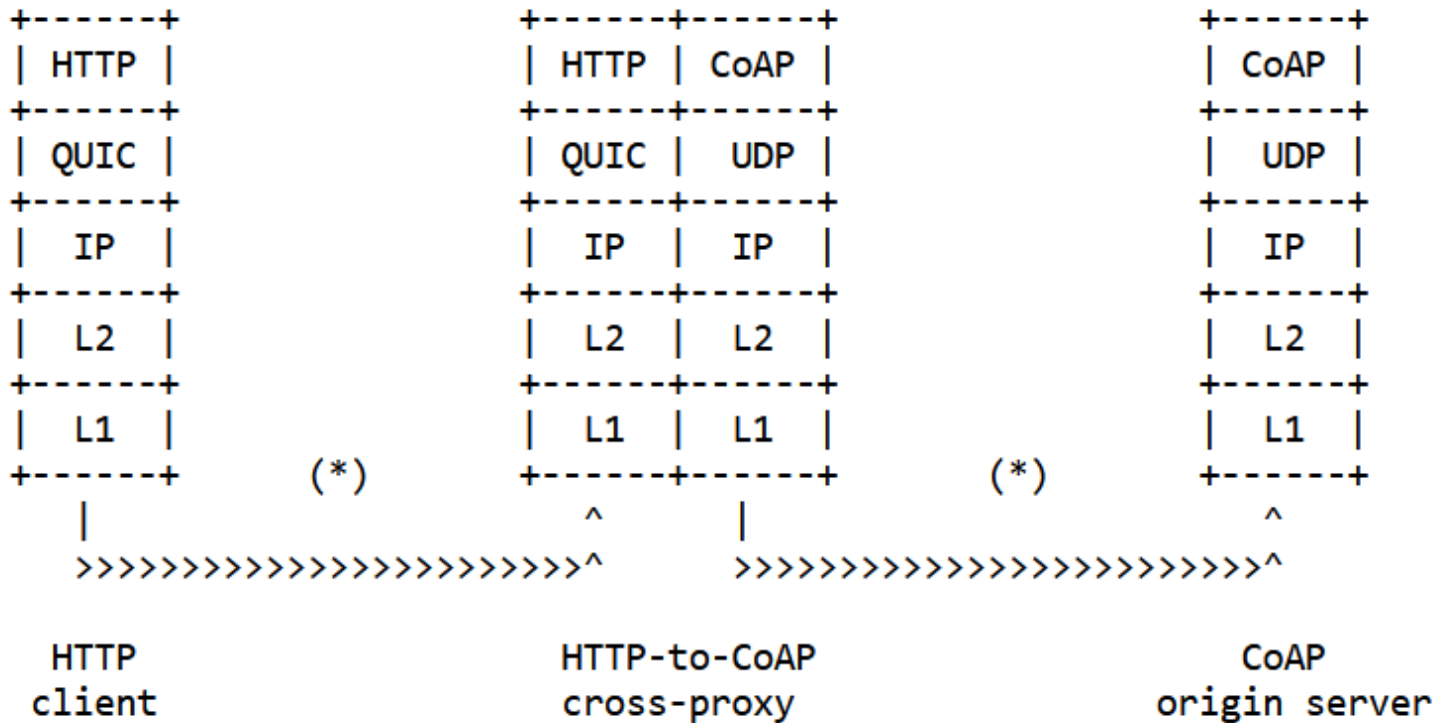
## Mars orbiter

## Mars



# 5. Proxying. Scenarios (III)

- HTTP-to-CoAP proxy



E.g., Earth

Mars orbiter

Mars

# 8. Message aggregation

- CoAP Payload-length option [draft-ietf-core-coap-bp]
  - Allows CoAP messages destined to the same endpoint to be aggregated and carried as the payload of a single encapsulating lower-layer data unit (e.g., UDP datagram)
- Aggregate message:
  - A concatenation of messages that carry the Payload-length option
- Message aggregation:
  - May be compatible with application requirements
  - Reduces protocol overhead

# Thanks!

## Questions? Comments?

Carles Gomez

Universitat Politècnica de Catalunya

**Sergio Aguilar**

Sateliot