

MOP Extension & Capabilities

draft-rahul-roll-mop-ext-01

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Need of MOP-extension?

- Mode of Operation (MOP)

- Mandates primitives to be supported by the 6LRs
- 3-bits in size
- Already exhausted

MOP	Used for
0	No downward routes
1	Non-storing
2	Storing with no mcast
3	Storing with mcast
4	P2P-RPL
5,6,7 (Unused)	(AODV-RPL, P-DAO-NS, P-DAO-Storing)

Already in
Contention

MOP Extension

- MOPex Option

- New RPL Control message option
- Applicable only if base DIO-MOP = 0x7
- Final MOP = base MOP + MOPex

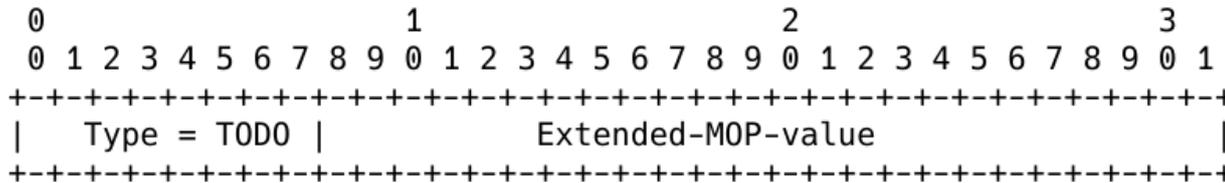


Figure 1: Extended MOP Option

Base MOP	MOPex	Final MOP
0	NA	0
1	NA	1
:	:	:
6	NA	6
7	0	7
7	1	8
7	2	9
:	:	:

Table 1: Final MOP calculation

Introducing Capabilities

- Capabilities indicate the set of features supported
 - Could be mandatory or ***optional***
 - Specs defining new capability indicate whether it is mandatory/optional
- Why MOP is not sufficient?
 - MOP ***mandates*** primitives needed by the routers
 - Unlike MOP, Capabilities can be ***negotiated***,
 - using DIO/DAO/DAO-ACK

Capabilities (Caps) Option

- Defined as new RPL Control message option
 - Can be part of DIO/DAO/ACK

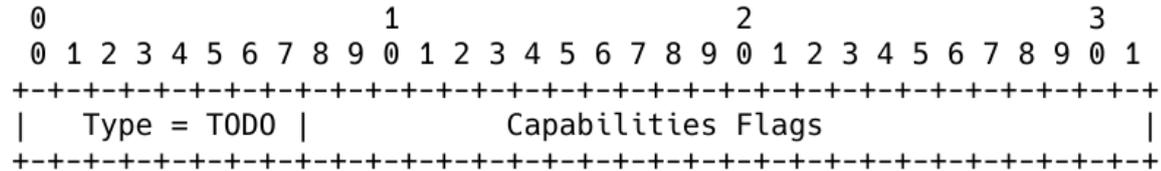
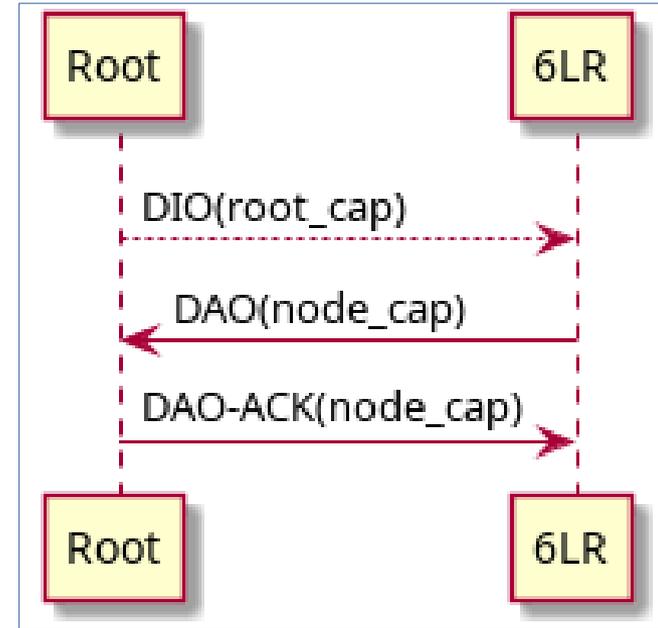


Figure 2: Capabilities Option

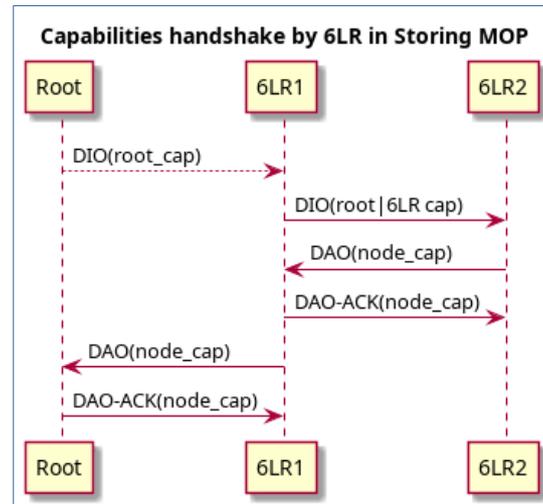
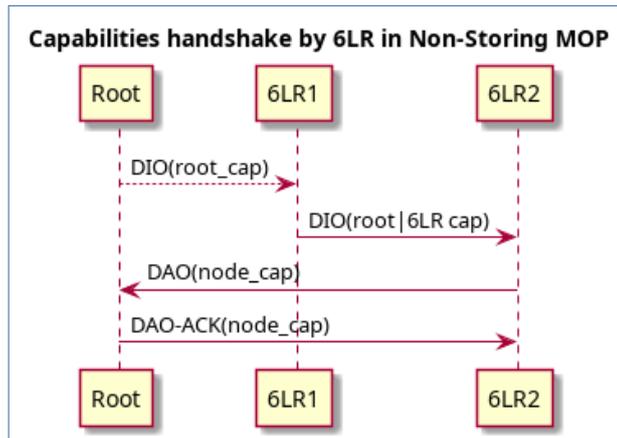
Use-case for Root

- Used by root
 - In DIO: Inform all the 6LR/6LN of root's capabilities
 - In DAO-ACK: Inform the 6LR/6LN about accepted capabilities from Root.



Use-case for 6LR/6LN

- Used by 6LR/6LN
 - In DIO: Inform its child nodes about its capabilities (for 6LRs)
 - In DAO: Inform parent/ancestors/root of this 6LR's capabilities

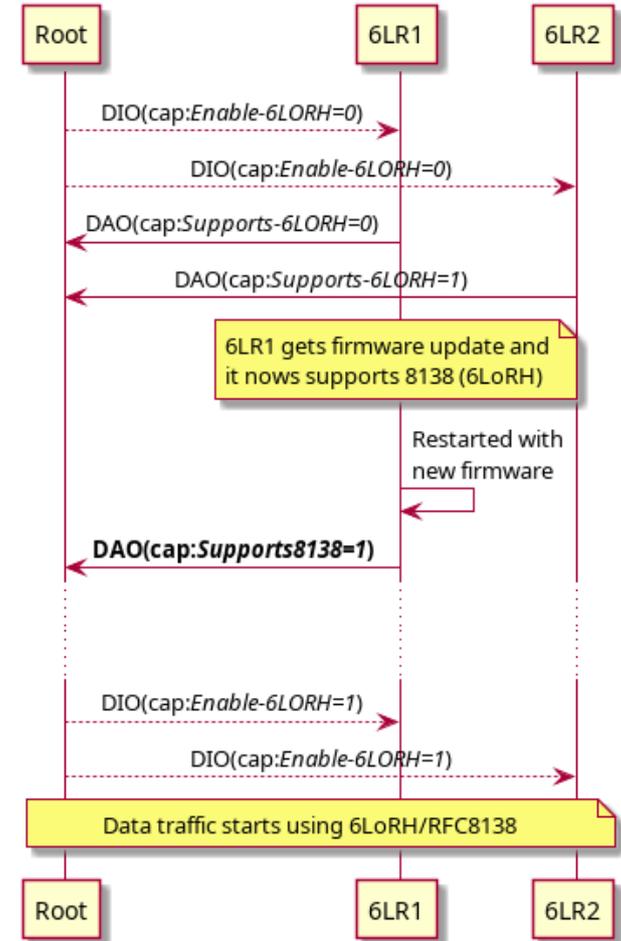


Points to ponder

- CAPs can work with existing MOPs
 - CAPs and MOPs are not dependent on each other
- Reducing CAPs control overhead
 - Eliding mechanism similar to DIO Configuration Option?
- How to reduce control overhead of MOPex?

Turnon-6LoRH, a use-case

- Can be handled without changing RFC 6550?
 - Note that this is not what is suggested in the draft, currently.



ACK

- Thanks to Georgious for the review
- Updates
 - Clarification: what if MOPex option is absent but the base MOP is 7.
 - Made explicit: CAP and MOPex are mutually exclusive
 - Added detailed IANA considerations