

Root initiated routing state in RPL

draft-ietf-roll-dao-projection

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ROLL Virtual Meeting

Simplifying changes

- Only one main Instance / One main DODAG
- Only non-storing mode main instance
- Only storing P-DAO in main
- Storing P-Route is strict hop by hop
- And cannot be encapsulated in another track
- Multiple Targets Option but just one (SR)VIO

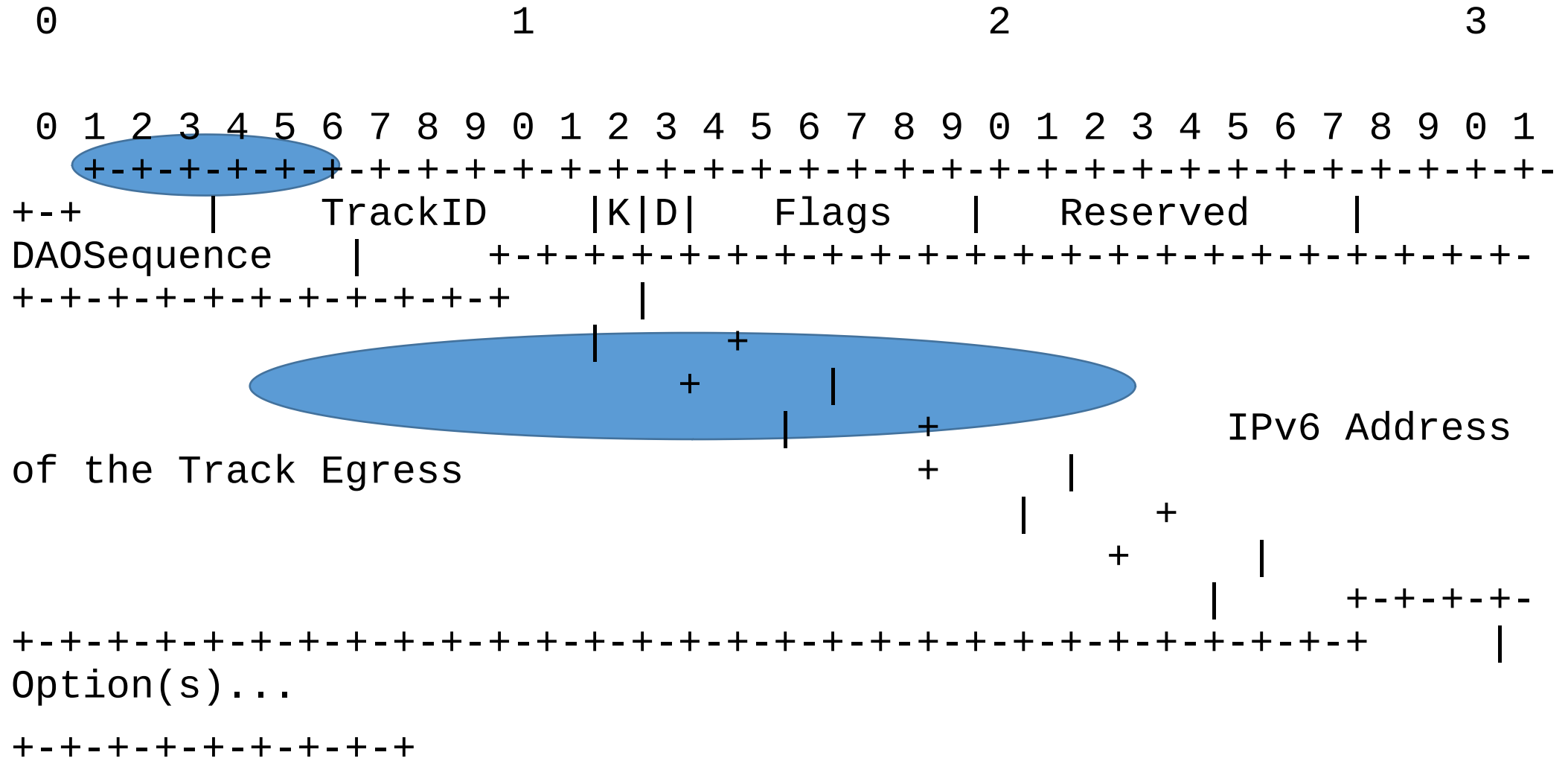
Changes Highlights (some major!)

- Compressing P-DAO natively
 - Using RFC 8138
- Specified TrackID as a RPL instanceID
 - Enables to signal the flow in the packet
=> (destination IP + local Instance)
 - Missing segment ID
- Added Sibling information
 - Optional metrics container
 - Sibling Selection out of Scope (need OF-type plug-in)

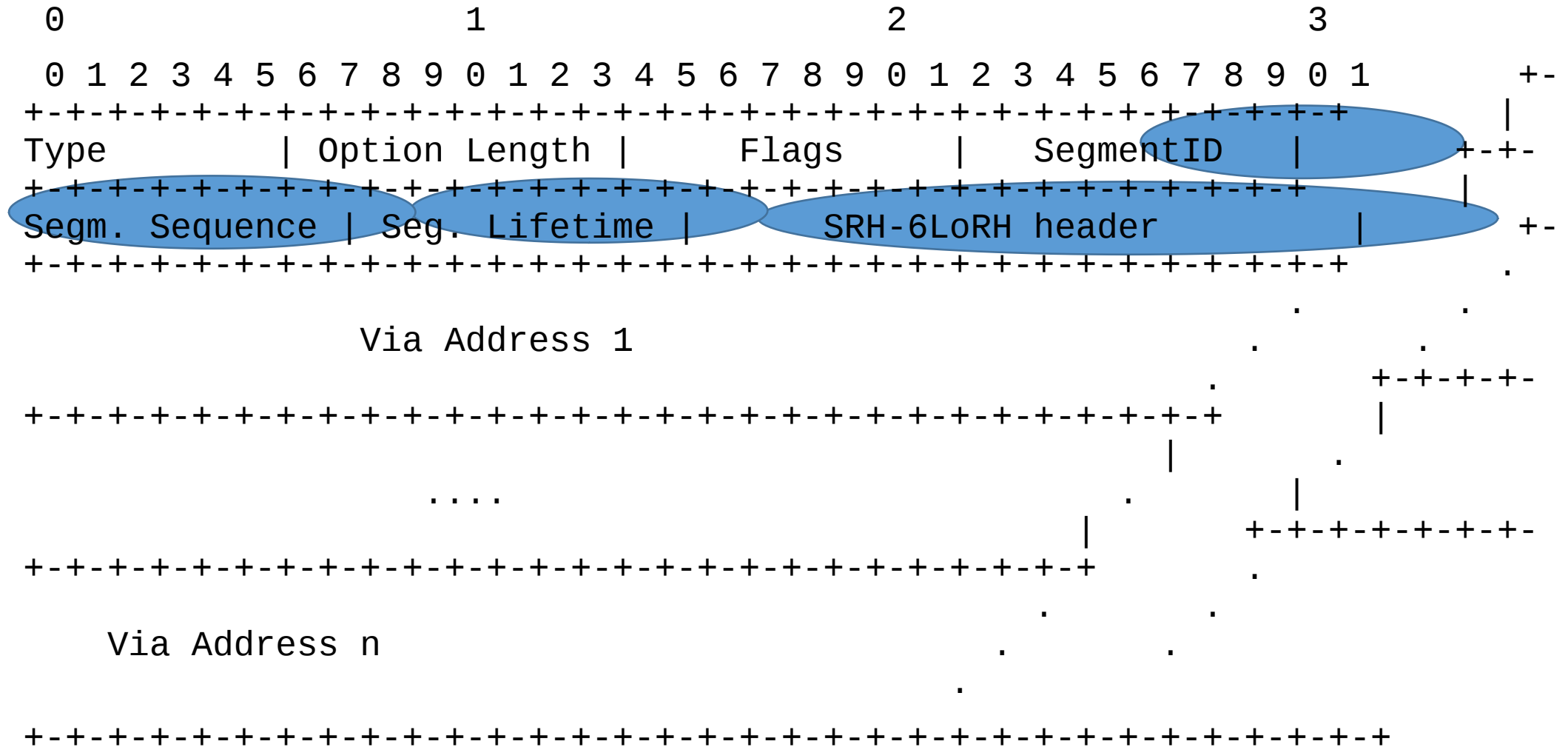
Changes Highlights (Cont.)

- New Message to query a P-DAO
 - P-DAO request and PDR-ACK
- **Stitching P-DAO segments**
 - **Correlated by TrackID**
 - **Missing stitching operation (e.g. Replication)**
- **Aligned Track def. with 6TiSCH and RAW**
- **Need improvements on security section**

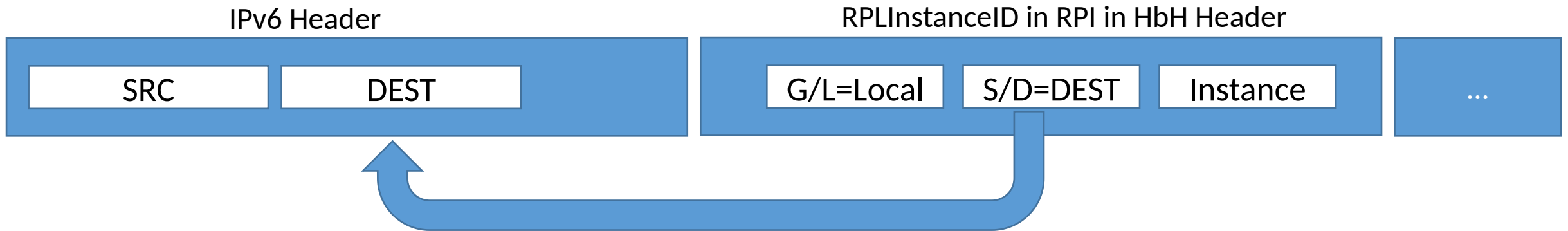
P-DAO Format for a Track



Updated Route Projection Options

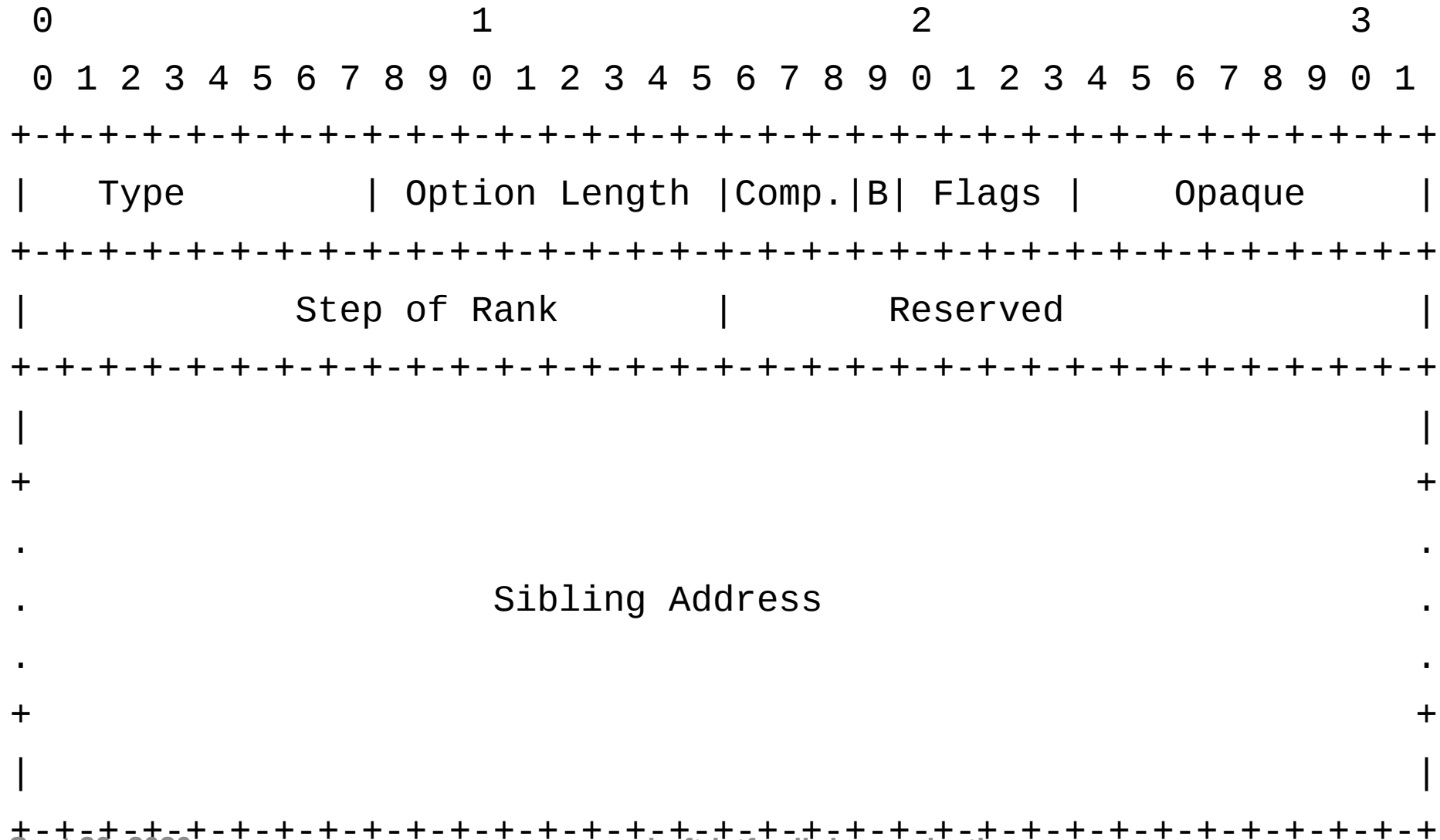


Signaling the Track in Packet



- A Track is a Local Instance of the destination
- Signaled in the packet in the classical RPL fashion

New Sibling Information option



New P-DAO Request

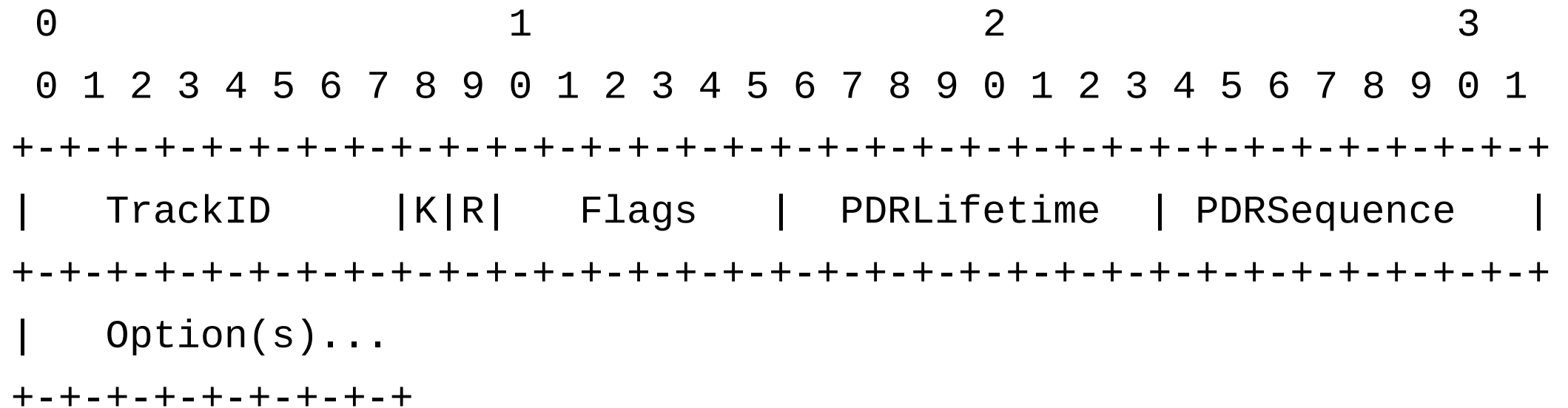
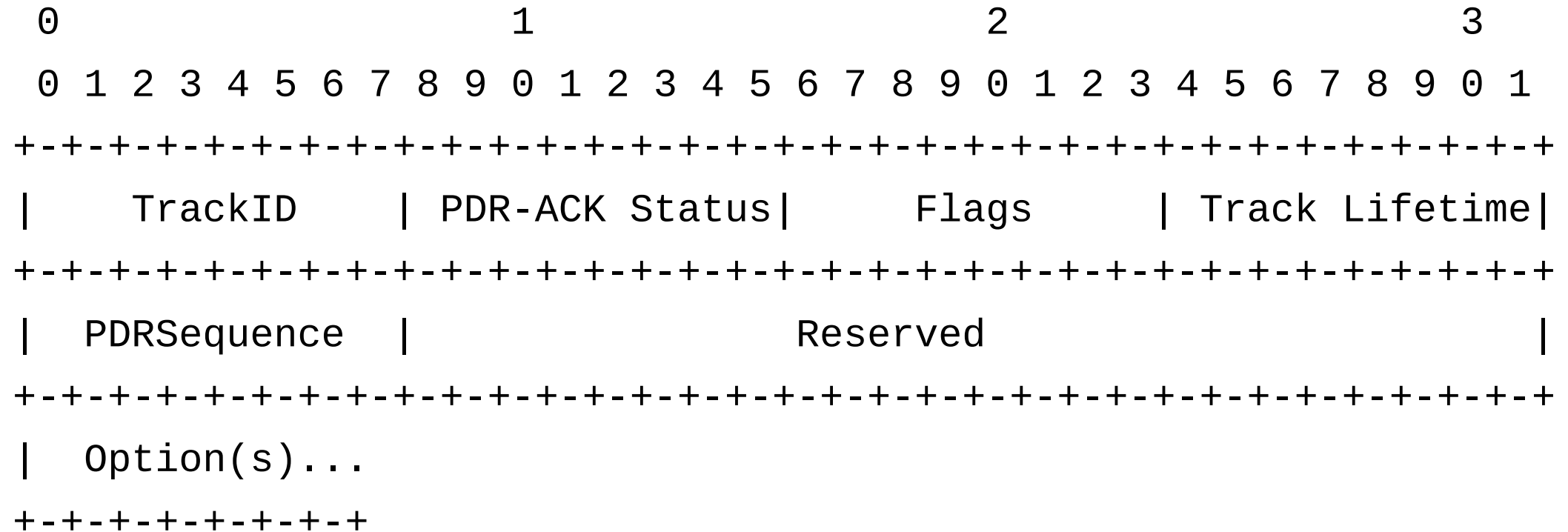


Figure 1: New P-DAO Request Format

New PDR-ACK



Pending Issues / Missing features

- Signal Egress as last element in (SR)VIO?
 - Useful if RFC 8138 compression
 - Needed in Global instance
 - Duplicate with DODAGID in Track
- Inter DODAGs?
 - Sibling in another DODAG?

Pending Issues / Missing features

- Security Considerations (Ticket #179)
- How P-DAO messages could be abused by
 - a) rogue nodes
 - b) via replay of messages
 - c) if P-DAO messages may deal with any threats?
- Lifetime, MOP, Retransmissions, Cleanup (Ticket #180)
- Configuration parameters for Local Instance in P-DAO
 - Also P-DAO parameter option in PDAO request

Next Steps

- Gather feedback on the proposals
- Remaining bugs
 - Dodagid of the main dodag elided (we do only storing mode)
 - Duplicate and inconsistent text
- WGLC around next IETF ?