

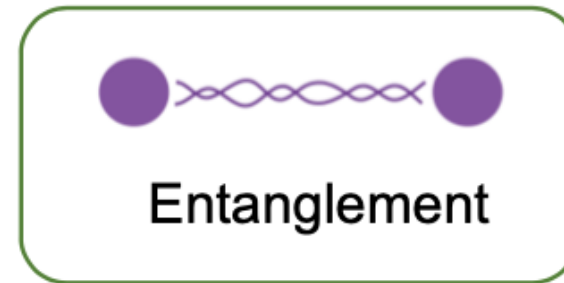
Link layer for quantum networks

draft-dahlberg-ll-quantum

IETF106 Singapore



Link layer service



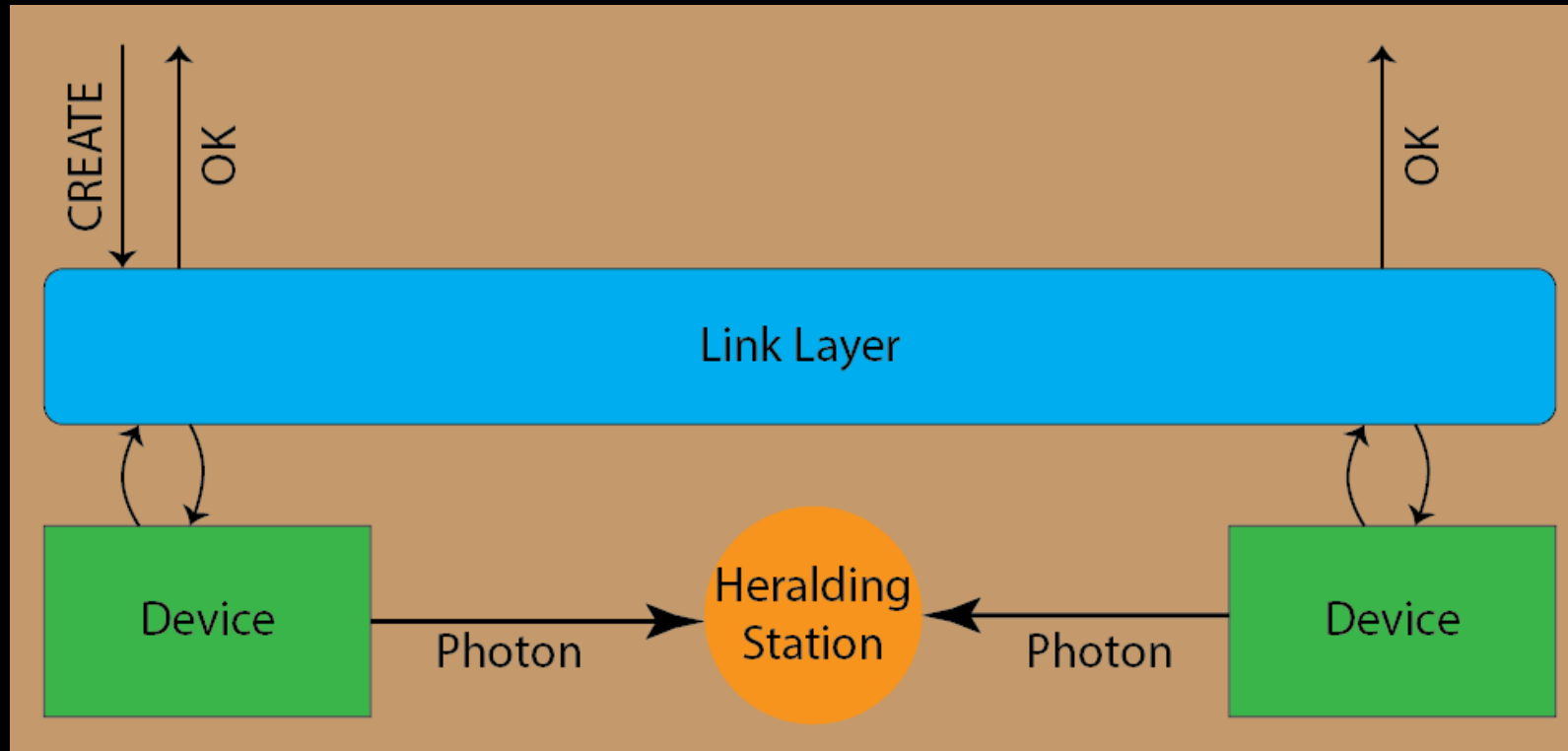
Classical vs Quantum

Link layer service

- **Task:** Generate entanglement (adjacent nodes)
- Turns a PL making entanglement *attempts* into a robust entanglement generation *service*.
- Allows requester to identify generated entanglement.
- More details and a protocol, see <https://arxiv.org/abs/1903.09778>.

Link layer service

- Types of request (TPE):
 - **K** : Create and keep
 - **M** : Measure directly



Issues

- ⓘ **Switch to using Type-Length-Value (TLV) messages**

#3 opened on Apr 8 by AcksID

- ⓘ **Specify scope of (remote) node IDs**

#2 opened on Apr 8 by AcksID

Changes in headers

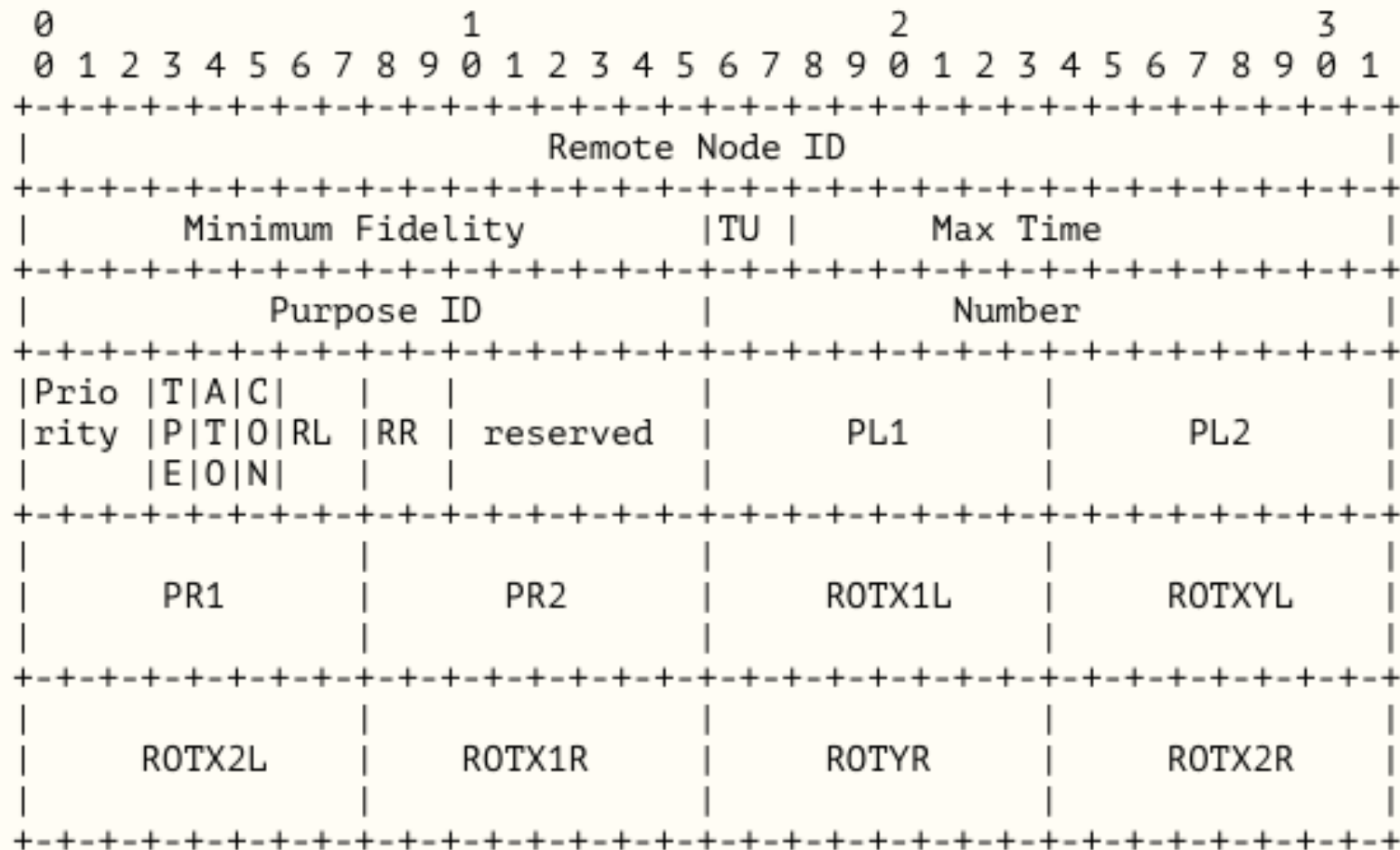


Figure 1: CREATE message header format

Changes in headers

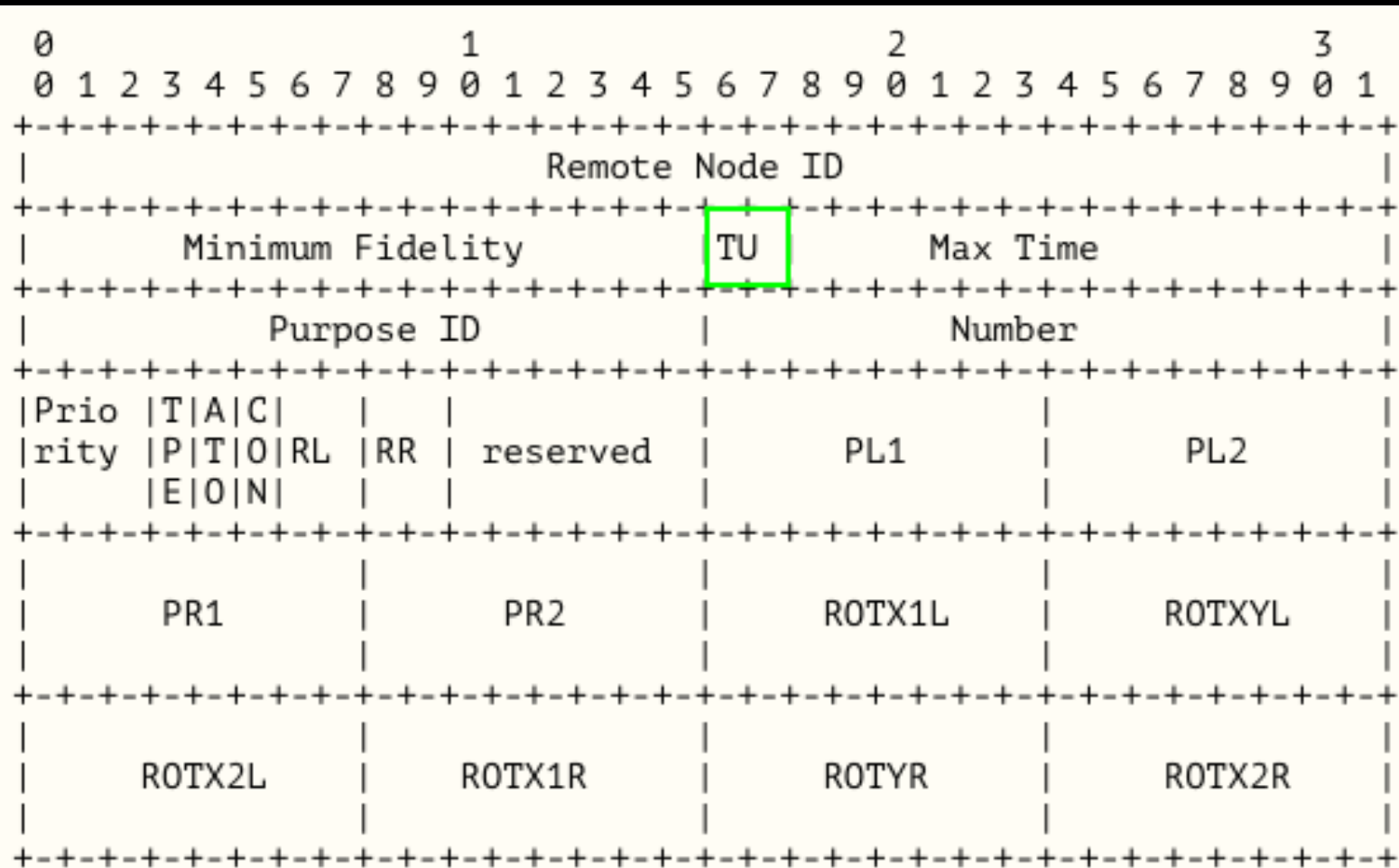


Figure 1: CREATE message header format

Changes in headers

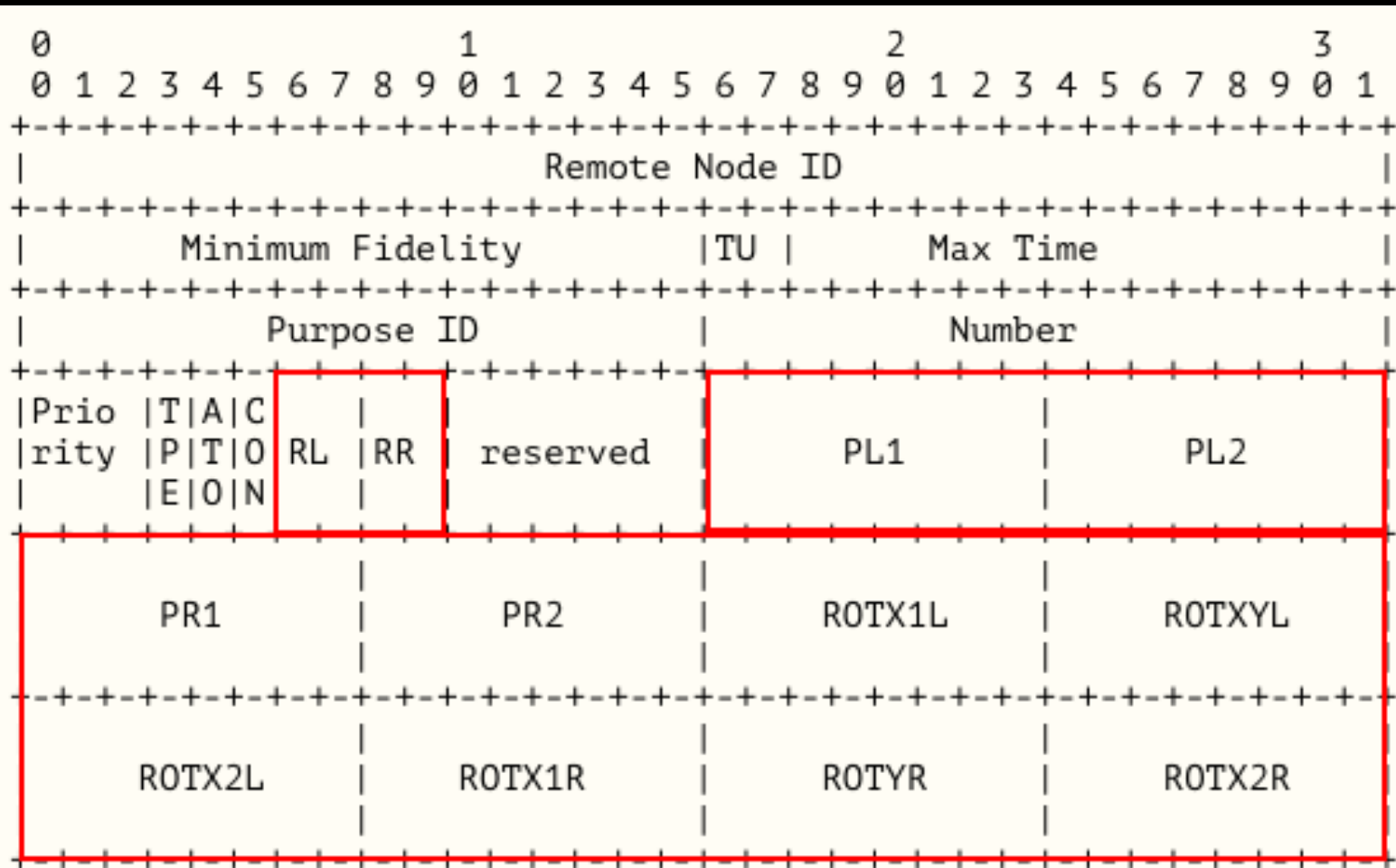
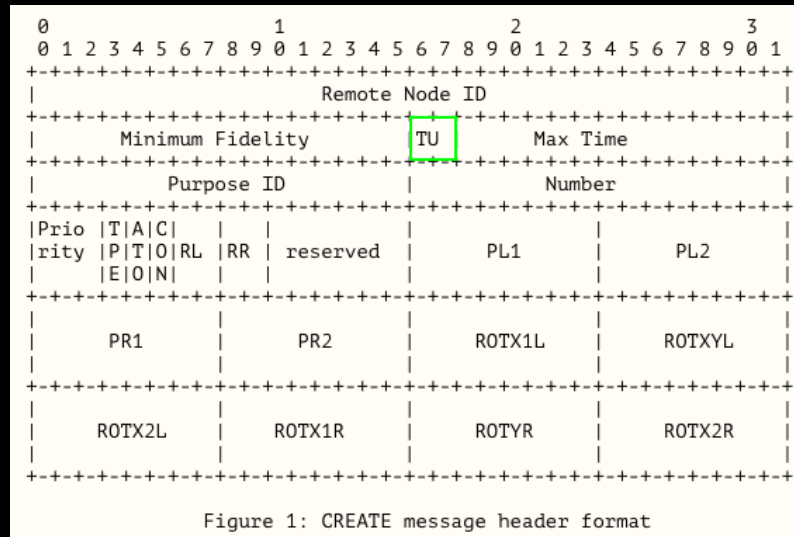


Figure 1: CREATE message header format

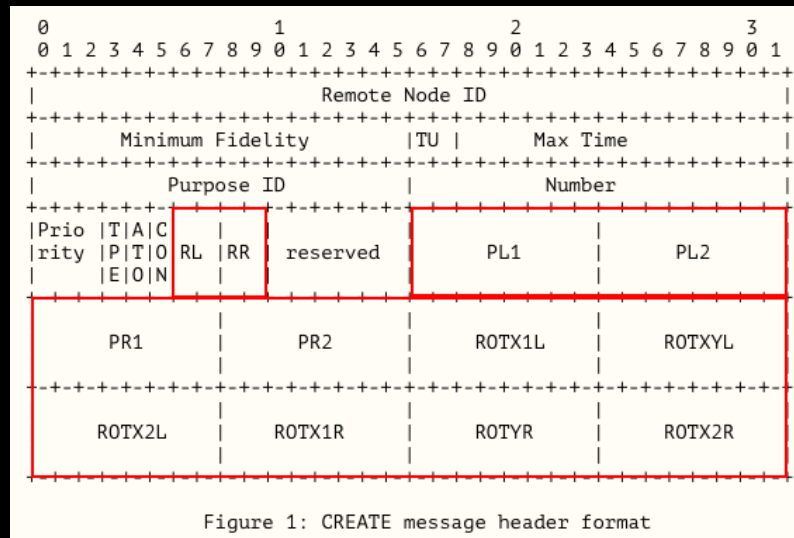
Time units (TU)

- micro-seconds (00)
- milli-seconds (01)
- seconds (10)
- (11 unused)



Measurement bases

- $P\{L,R\}\{1,2\}$: Probability distributions
- $ROT\{X1,Y,X2\}\{L,R\}$: Rotations (pre-measure)



Contribute

<https://github.com/SoftwareQuTech/draft-dahlberg-qirg-ii-quantum>



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