An Alternative Delta Time encoding for CCNx using Interval Time from RFC5497
draft-gundogan-ccnx-timetlv-01
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Updates on Section 4: Compressed Time Encoding

- Update formulae based on IEEE 754 (Thanks to Marc for this hint)
- Add sample values to show time ranges of the selected configuration

8-bit time code (e=5, m=3)

\[
t(e, m, b) = \begin{cases} 
(0 + \frac{m}{m_{\text{max}}}) \cdot 2^{(1+b)} & e = 0 \quad \text{subnormal} \\
(1 + \frac{m}{m_{\text{max}}}) \cdot 2^{(e+b)} & e > 0 \quad \text{normalized}
\end{cases}
\]
Precision & Range of Selected Configurations (exp., mant., bias)

![Graph showing precision and range of selected configurations. The x-axis represents time code, and the y-axis represents time [s]. The graph includes a dotted line marked with a line notation (3, 5, 0).]
Precision & Range of Selected Configurations (exp., mant., bias)

![Graph showing time [s] against time code with two distinct line patterns representing different configurations. The line patterns are denoted as (3, 5, 0) and (4, 4, 0).]
Precision & Range of Selected Configurations (exp., mant., bias)

![Graph showing time code vs. time in seconds for different configurations.]

- (3, 5, 0)
- (4, 4, 0)
- (5, 3, 0)
Precision & Range of Selected Configurations (exp., mant., bias)

Time [s] vs Time code

- (3, 5, 0)
- (4, 4, 0)
- (5, 3, 0)
- (5, 3, -5)
Updates on Section 5: Protocol Integration

- Compression for Interest Lifetime (IL) & Recommended Cache Time (RCT)
- RCT turns into relative time in compressed form
- Use compressed time encoding, if TLV Length == 1

Alternative Integrations
- Nested TLV (likely to introduce overhead)
- New Top-TLV variants, e.g., Interest-Lifetime-Compressed
Next Steps

Further discussion needed for:

- Protocol integration

Based on feedback from Marc:

- Add table of all time values for (5, 3, -5) to appendix
- Provide pseudo algorithm to convert to and from time codes in appendix

Ready for RG adoption?