

TTL Proposal: Proposed Modifications

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Abstract

This presentation presents flaws in the Theoretical Throughput Limit TTL proposal 06/928r0 and presents amendments resolving them.

Average Contention Window

- **Given the made assumptions, the back off employed for each transmission of a frame**
 - is uniformly distributed in between $[0, CW_{min}]$,
 - has a mean of $CW_{min} / 2$, and
 - is thus a random variable
- **As the throughput, here TTL, depends on the back off**
 - the TTL is a random variable as well, and
 - its mean is NOT restricted to integer values
- **This is not reflected in the TTL proposal text 06/928r0 but shall be --> incorporate required changes in 06/928r0**

Example calculation

- **The reader should be provided with a reason why a frame size of 1024 octets has been chosen for the example calculation in Section 4.4. At least the choice should be marked as “arbitrary”**
- **Additionally, a note should be included to provide information on the max. allowable MSDU size for .11 frames (2304 octets without encryption). Possibly, reference to 802.11 Section 7.1.2 could be included.**

Changes resolving these issues

Changes to TTL proposal (1)

- **Section 4.1, Step 3: change**
“Best case backoff = $CW_{min} / 2 = 15 / 2 = 7$ ”
into
“Best case backoff = $CW_{min} / 2 = 15 / 2 = 7.5$ ”
- **Section 4.2, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15$ ”
into
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15.5$ ”
- **Section 4.3, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 63 / 2 = 31$ ”
into
“Best case backoff = $CW_{min} / 2 = 63 / 2 = 31.5$ ”

Changes to TTL proposal (2)

- **Section 4.4, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 15 / 2 = 7$ ”
into
“Best case backoff = $CW_{min} / 2 = 15 / 2 = 7.5$ ”
- **Section 4.4: Adopt the “Example Calculation” accordingly**
- **Section 4.5, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15$ ”
into
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15.5$ ”
- **Section 4.6, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15$ ”
into
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15.5$ ”

Changes to TTL proposal (3)

- **Section 4.7, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 7$ ”
into
“Best case backoff = $CW_{min} / 2 = 15 / 2 = 7.5$ ”
- **Section 4.8, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15$ ”
into
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15.5$ ”
- **Section 4.9, Step 2: change**
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15$ ”
into
“Best case backoff = $CW_{min} / 2 = 31 / 2 = 15.5$ ”

Changes to TTL proposal (4)

- **Include a footnote in Section 4.4, Example calculation, Step 2 as follows:**

“The chosen frame size of 1024 octets is arbitrary and represents a typical MSS limit as found in LAN. The maximal employable value corresponds to the max. MSDU size of 2304 octets for unencrypted data delivery (ref. to 802.11 Section 7.1.2)”

References

- **802.11 REVma D5.1**