

# 64-bit Sequence Numbers

- draft-looney-tcpm-64-bit-seqnos-00
- IETF 98 - Chicago, IL

# Problem Statement

- High-performance networking is changing life:
  - Larger window sizes?
  - Higher precision timestamps?
  - Both?
- How are we going to safely support this?

# Assumptions

- TCPng is a non-starter, so must be backwards compatible
- 64-bit SNs required in about 10 years
- It takes about 10 years to roll out major TCP changes

# Proposed Solution

- Use 64-bit sequence numbers
  - Place the upper 32-bits in an option
  - Generally, try to leave the TCP frames “looking the same” and make TCP “work the same” from the perspective of middleboxes
  - Provide automatic negotiation on session startup and backwards compatibility for hosts that only understand 32-bit SNs

# What Are You Thinking?

- The proposed solution is simple in theory, hard in practice:
  - Changes 35+ years of assumptions in RFCs, implementations, etc.
  - Just what option space do we have for this?
- So, this is non-trivial and not something to be taken lightly

# No, I Really Mean It

- It looks like we will need something, and the time to start thinking about this is now
- This *seems* like a workable approach, but there may be other, better approaches
- So, yes, hard, but necessary (to do something, even if not this exact proposal)