Working Group Draft for TCPCLv4

Brian Sipos
RKF Engineering Solutions
IETF101
Overview

• Background
• Current state of TCPCL
• Late Changes to Draft
• Way Forward for TCPCL
Motivations for Updates to TCPCL

1. During implementation of TCPCLv3, Scott Burleigh found an ambiguity in bundle acknowledgment and refusal.

2. For use in a terrestrial WAN, author has a need for TLS-based authentication and integrity. TCPCLv3 mentions TLS but does not specify its use. IETF strongly in favor of TLS for new general-use protocols.

3. Reduced sequencing variability from TCPCLv3

4. Allow an endpoint to positively reject a message (rather than simply ignoring it).
Goals for TCPCLv4

• Do not change scope or workflow of TCPCL!
  ◦ As much as possible, keep existing requirements and behaviors. The baseline spec was a copy-paste of TCPCLv3.
  ◦ Still using single-phase contact negotiation, re-using existing headers and message type codes.
  ◦ Allow existing implementations to be adapted for TCPCLv4.

• Re-use existing encoding, type and reason codes.
  ◦ New IANA registries are requested but where purpose is identical to TCPCLv3 the registries and codes are re-used.
  ◦ Since workflow is preserved, majority of message types are retained.
Draft Edits for Review Comments

• These were included in draft-ietf-dtn-tcpclv4-06.

• Edits to the draft have been made in response to all review comments received to-date.

• Added an introduction subsection “Convergence Layer Services” to explicitly identify what services the CL provides to the BP agent.

• Many of these edits were to simplify or reconcile requirements inherited from TCPCLv3, making the new draft more easily understandable and hopefully more easily implementable.
  ◦ Moved requirements out of Section 3 to allow that section to be purely descriptive.
Late Draft Edits

• These changes did not come soon enough to make the IETF101 I-D cutoff on March 5; are now in in draft-ietf-dtn-tcpclv4-07.

• Updated CL services listing to add missing items.

• Added contact header extension item to negotiate use of BP-agent-layer reactive fragmentation.
  ◦ This is using an extension type because TCPCL is used to signal the negotiation of the capability, but not the actual fragmentation behavior.

• Simplified session shutdown behavior.
  ◦ After a SHUTDOWN is sent or received, any in-progress transfer can be completed but no new transfer begun.
  ◦ If a node chooses to simply shutdown the TCP connection (and cause any in-progress transfer to fail) that is always an implementation option.
Way Forward for TCPCLv4

• Current specification draft is complete
  ◦ All comments to-date have been addressed and many have led to draft edits.

• Working implementation exists and is available for interoperability testing
  ◦ Updated to current I-D content
  ◦ Implemented in scapy/python for ease of understanding
  ◦ Handles concurrent sessions
  ◦ Does not implement BP agent behavior, only CL behavior