Working Group Draft for TCPCLv4

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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. Adding extension capability for TCPCL sessions and transfers.
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.

• Add long-term extensibility and interoperable security.
Latest Draft Changes

• Editorial changes based on IESG and AD feedback.

• Added Section 3 descriptive subsections for:
  • PKIX Environments and CA Policy – Explaining the rationale of supporting Node ID and DNS-ID certificate authentication.
  • Session Keeping Policies – Explaining the extremes of how a BP agent can use TCPCL sessions, including push vs. pull (polling).

• Made separate proposal for how a CA can validate ownership of a Node ID in draft-sipos-acme-dtnnodeid.

• No further comments have been received.

• Waiting for final IESG reviews.
Remaining Issues

• One behavioral issue brought up in IESG review is the coupling between CL peer authentication and Bundle Protocol Agent (BPA) verification:

  • The CL can authenticate that the peer has a Node ID authenticated by a trusted PKIX CA.

  • When the CL session changes state to Established the peer Node ID is available to the BPA.

  • There is the potential for a BPA to attempt a CL session with dtn://nodeA/bpa and actually gets a peer dtn://nodeB/bpa.

  • What requirements are on the BPA to ensure that the peer Node ID is the one desired? And what does a BPA do if the Node ID is not expected? Should the CL care?