

BP Expected CLA Services

IETF 115 DTN WG

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Background

- During development of the TCP Convergence Layer Version 4 there was some mailing list discussion about documenting or harmonizing the logical interface(s) between BPA and CLA
 - The conclusion at that time was: no, there is too much variability between CL types, between CLAs, and between implementations that no common interface was realizable
- The lack of common *logical* interface poses risks:
 - Implementations choose slightly different behaviors which are allowed by the CL definition but fail to interoperate at a network level
 - Differing terminology between CLA implementations causes confusion for interface users and for BPA configuration management (e.g. “are these two CLA terms really referring to the same thing?”)
 - The lack of a common interface makes adding, changing, or swapping CLAs with a BPA more tedious and error prone to users

Goals for This Document

- The purpose is to use existing standard (and even non-standard) convergence layers as case studies to answer the question “What does a BPA expect of its CLAs?” from a logical perspective
 - It is also desirable to cover to as many CLs as possible
- This document does *not* define an actual API between subsystems (*i.e.*, what PKCS #11 does)
 - This document defines only a logical interface at an Informational status
- This document is explicitly not intended to update any current CL definitions
 - In areas where an existing CL does not fully meet the harmonized interface, the purpose of this document is to identify the gap and provide an incentive for future CL updates to clarify behavior relative to this interface
 - In some cases behavior can be *unspecified* by a CL but allowed by a CLA and in these cases the purpose is to guide CLA implementations to a harmonized and interoperable behavior
- In the long-term, this will help deployments to be able to swap implementations from a large menu of CLAs
 - Similar to how we can avoid caring about exact details of an IP stack as long as it “acts enough like a (POSIX) socket interface” to be usable by an endpoint

Current Service Summary

- 3.1. Bundle Transmission
 - Begin Transmission
 - Transmission Started
 - Transmission Progress
 - Transmission Success
 - Transmission Failure
 - Interrupt Transmission
- 3.2. Bundle Reception
 - Reception Started
 - Reception Progress
 - Reception Success
 - Reception Failure
 - Interrupt Reception
- 3.3. Persistent Session Keeping
 - Attempt Session
 - Terminate Session
 - Session State Changed
 - List Sessions
- 3.4. Passive Listening
 - Begin Listening
 - End Listening

Next Steps

- An initial draft of the document exists
<https://www.ietf.org/archive/id/draft-sipos-dtn-bpv7-cla-services-00.html>
- This service list is preliminary and feedback from other CL types is welcome and encouraged
 - Some discrepancies with TCPCL and LTPCL have already been identified
- Coauthors and contributors are also welcome