Bundle Protocol Status IETF 99

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draft-ietf-dtn-bpbis-07

- Posted 22 June 2017.
- Reflects consensus decisions on all comments received on draft-ietf-dtn-bpbis-06 except:
  - Still need to add authoritative references to CRC-16 and CRC-32 algorithms.
  - Failed to move CRC to the end of the Canonical Block header, an oversight.
- Includes removal of custody transfer.

Custody Transfer in BIBE

- Posted Internet Draft draft-burleigh-dtn-bibect-00, a proposal to move Custody Transfer procedures into the Bundle-in-Bundle Encapsulation convergence-layer protocol specification rather than into a BP extension block specification.
- In this formulation Custody Transfer would be an optional feature of BIBE, turning BIBE into a reliable CL protocol like TCPCL except able to operate over disrupted links.

Advantages of BIBE-CT (1)

- Preserves key benefit of CT: enables reliable bundle forwarding over a possibly disrupted unidirectional path with acknowledgments arriving over a different, possibly disrupted unidirectional path.
- Removal of CT from BP simplifies BP; smaller BP implementations.
- Clean interface, self-contained within BIBE, rather than injection of CT procedures at various points in BP processing.
- Can be combined with BIBE bpsec confidentiality and integrity, e.g., for defense against traffic analysis.

Advantages of BIBE-CT (2)

- Simplifies CT itself:
  - No need for procedures to deal with partial custody transfer resulting from bundle fragmentation.
  - No need for special procedures in forwarding nodes that don't want to take custody.
- Compatible with multi-point delivery: each forwarding branch is a separate convergence-layer transmission, which can be BIBE-CT.
- Bundle Delivery Time Estimation (delivery at destination) can be used to compute CT retransmission timeout interval.

Disadvantages of BIBE-CT

- Encapsulation in another bundle entails adding a second bundle header (primary block and extension blocks). Somewhat more overhead.
- Next custodian must be known, as it is the destination of the encapsulating bundle.
  - Not necessarily a problem for opportunistic forwarding, as the discovered neighboring node may typically be the node you want to transfer custody to.
  - Knowing the next custodian enables somewhat efficient timeout-triggered custodial retransmission.