draft-ietf-taps-transports

Services provided by IETF transport protocols and congestion control mechanisms

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Overview

- Charter: “Define a set of Transport Services, identifying the services provided by existing IETF protocols and congestion control mechanisms. As a starting point, the working group will consider services used between two endpoints.”
- Abstract: “This document describes services provided by existing IETF protocols and congestion control mechanisms. It is designed to help application and network stack programmers and to inform the work of the IETF TAPS Working Group.”

Status -03

- Terminology fixed to agreement post-Honolulu
  - “Transport Services” made up of “Features”
  - “Transport Protocols” made up of “Components”
    - “Transport Service Instance”: a given configuration of a given protocol which implements a specific Transport Service
- Enhancements to §3.1 TCP, §3.6 DCCP
- New text:
  - §3.3. SCTP (thanks, Michael Tuexen!)
  - §3.4. UDP (thanks, Kevin Fall!)

Components in -03

(no RTP, HTTP, WebSockets, TLS)

- unicast
- unicast, broadcast, multicast and anycast
- unidirectional
- (bidirectional)
- 2-tuple endpoints
- connection setup with feature negotiation and application-to-port mapping
- service codes
- port multiplexing
- reliable delivery
- reliable or partially reliable delivery
- non-reliable, non-ordered delivery
- non-reliable, ordered delivery
- ordered delivery for each byte stream
- ordered and unordered delivery within a stream
- drop notification

Components in -03
(no RTP, HTTP, WebSockets, TLS)

- error detection (checksum) / integrity
- error detection (checksum), optional
- partial integrity protection
- stream-oriented delivery in a single stream
- multiple prioritised streams
- message-oriented delivery
- jumbograms
- data bundling (Nagle's algorithm)
- application PDU bundling
- application PDU fragmentation and reassembly
- segmentation
- flow control
- congestion control
- transport layer multihoming for resilience
- transport layer mobility
- timestamps

Status -04

- Structure of each transport protocol section is coming together.
- Additional protocol contributions in progress:
  - §3.7 RTP (Varun Singh)
  - §3.9 HTTP pseudotransport (Dragana Damjanovic)
  - §3.10 WebSockets (Dragana Damjanovic)
- Looking for additional protocol contributors:
  - §3.2 Multipath TCP
  - §3.8 Transport protocol components of TLS/DTLS
  - Additional contributions to existing sections welcome!

Next steps

- finish transport protocol descriptions → -04, -05
- Discuss, harmonize protocol descriptions → -06
- Extract features, build table in §4 → -07
- Submit to IESG and declare victory before Prague

How to contribute

- Structure of each section semi-fixed:
  - §3.x.1 Protocol Description:
    summary of how the protocol works
  - §3.x.2 Interface Description:
    summary of how the protocol is (generally) used by applications:
    what do APIs expose?
  - §3.x.3 Transport Protocol Components:
    a decomposition of the protocol from which common features
    can be extracted
- https://github.com/britram/taps-transports
  - edit in Markdown and send a pull request
  - or edit Markdown, XML, or plain text and send mail to the editors