

Terminology Definition

Gorry Fairhurst <gorry@erg.abdn.ac.uk>

Brian Trammell <ietf@trammell.ch>

Mirja Kühlewind <mirja.kuehlwind@tik.ee.ethz.ch>

Nov 11, 2014
taps IETF91 Honolulu

Transport Service

... as defined in the charter

„We use the term „Transport Service“ to mean an end-to-end facility provided by the transport layer. [...] Four examples of Transport Services are reliable delivery, ordered delivery of data, content privacy to in-path devices, and minimal latency.“

Is a Transport Service...

1) one particular "facility" that a transport protocol provides (as in the charter definition)

or

2) one concrete set of "facilities" one transport protocol provides?

Terminology

Transport service component: end-to-end facility e.g reliability or integrity

Transport service (composition): a set of transport service components
(without an association to a certain framing protocol)

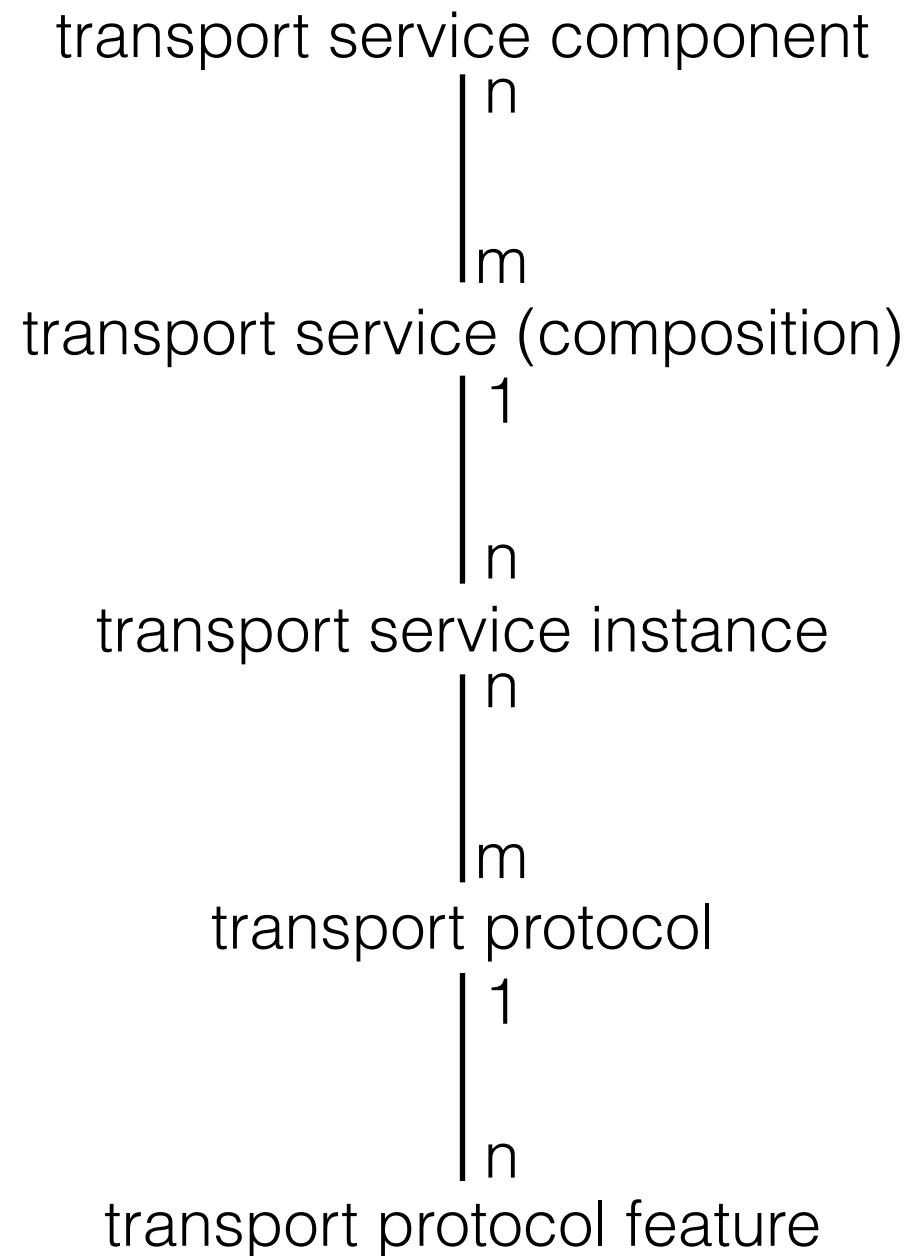
Transport protocol: an implementation (using a specific framing/header format)
that provides one or more different transport service (compositions)

Transport protocol feature: an implementation of one transport service component
e.g. reliability using ACKs (instead of NACKs)

Transport service instance: arrangement of transport protocols
with a selected set of features (and a certain parameterization)
that implements one transport service (composition)
e.g. a protocol stack (RTP over UDP) or even something that switches
between two protocols depending on the network conditions

Application: entity that uses the transport layer

Relation



Transport Service Component

An end-to-end facility provided by the transport layer that impacts the design, operation, or deployment of the application using it. Example Transport Services include reliable delivery of data, ordered delivery of data, confidentiality of data with respect to in-path devices, or latency guarantees for data transport.

Transport Service Composition

A set of Transport Services Components taken together to meet the requirements of an application for a given end-to-end interaction. Note that some potential sets of Transport Services Components may preclude the simultaneous use of other Transport Services Components for a given end-to-end interaction (e.g. "reliable delivery" and "time-dependent expiry of unacknowledged messages" as per SCTP-PR are mutually exclusive). An example of a Transport Service Composition would be that provided by the BSD `SOCK_STREAM` socket type: reliable, ordered, non-boundary-perserving, stream-oriented transport, with limited out of band capability.

Transport Protocol

A Transport Protocol is an implementation that can provide different Transport Service Compositions. Usually the implementation is linked to a certain framing/header format such as TCP or UDP.

Transport Protocol Feature

A Transport Protocol Feature is an implementation of one Transport Service Component within one Transport Protocol. Different implementations of the same Transport Service Component may exist e.g. reliability using ACKs (instead of NACKs).

Transport Service Instance

A Transport Service Instance is an arrangement of transport protocols, potentially encapsulated, and configurations thereof using a selected set of transport protocol features (and a certain parameterization) that implement a Transport Service Composition. A given Transport Service Composition may be implemented by multiple Instances (e.g., SOCK_STREAM can be implemented atop TCP, SCTP, or SCTP over UDP).

Application

In this and subsequent documents, an Application is defined as an entity that uses the transport layer to interact with a remote Application according to some set of requirements which can be met by Transport Services.