

AMQP Bindings

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AMQP Core

Core AMQP is divided into 5 parts

1. Type System
2. Peer-to-Peer transport
3. Messaging
4. Transactions
5. Security

Peer-to-Peer transport and Security make assumptions of TCP-like behaviour

Transport

- *Connections*: communication between two containers, multiplexing sessions.
- *Sessions*: full-duplex ordered sequence of frames - a conversation between two containers.
- *Links*: communication between sources and targets

A binding to an alternate transport should not require the use of an alternate API.

This requires any such binding to support the same concepts and semantics for Sessions and Links.

Building a stateless bridge from one transport to another is highly desirable

This implies no re-fragmentation of messages implying a max frame size is agreed to be the lowest max frame size of any stage of the network.

Impact of alternate bindings

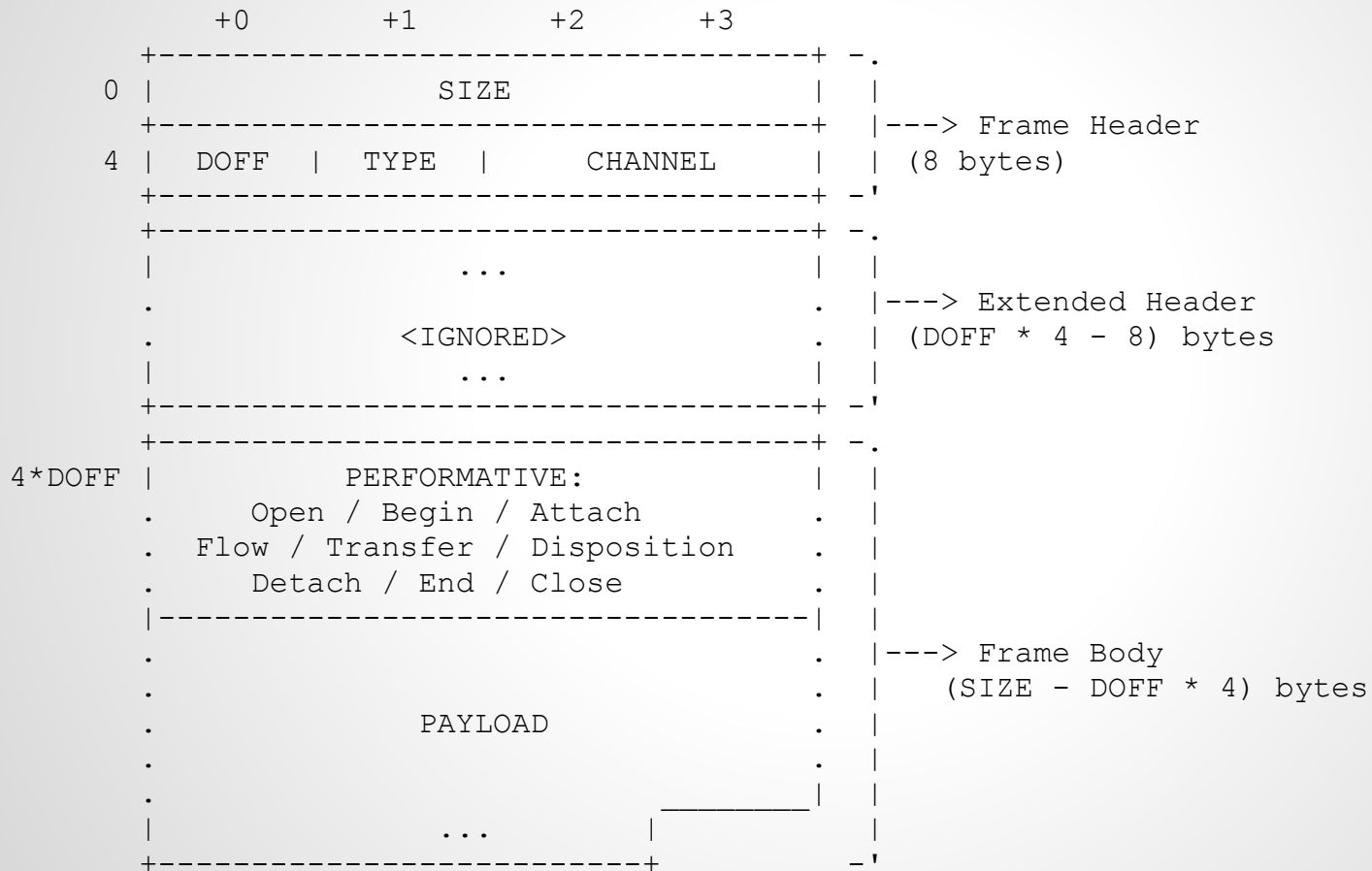
An alternate transport may provide features which AMQP has to build on top of TCP, e.g.

- provide multiplexed conversations on a single "connection"
- be a frame/message (rather than byte) transport
- implement heartbeating

Alternatively it may lack features of TCP which AMQP relies on (such as a guaranteed order of delivery).

Where a feature is present in the underlying transport, we can aim to eliminate the duplication in the AMQP binding (e.g. for SCTP we can use SCTP streams in place of AMQP channels, and remove the notion of channel from the framing).

AMQP Frame (TCP Binding)



Potential Issues

- Ordering:

Version negotiation, and then the open performative MUST be sent/processed before any other frames.

Similarly, the close performative is used to signal the end of communication across all sessions

If a transport does not maintain order between multiplexed streams, how is this to be managed?

- Security Layers:

SSL layering requires the order of bytes to be maintained. If a transport provides its own multiplexing system this may no longer be guaranteed over the entire connection.

Message/Frame boundaries of the encrypted stream may not coincide with frame boundaries in AMQP - how does this affect the usage of a transports message framing.

Alternate authentication schemes may be appropriate for some transports where external information may be available.