Psychic Transmission

Application layer UDP networking protocol which is reliable but unordered

Connection protocol:

* Client initiates connection by sending connection request to server
  + This is repeated until some timeout occurs or client receives connection acceptance
* Server accepts the connection by sending connection accept to client
  + The server will reply with connection accept every time it receives a connection request from the client, even if it is already connected
* Once the server receives the connection request, it considers the client connected.
* Once the client receives the connection accept, it considers the server connected

Data transfer

* Server and client can send messages to each other – the messages are automatically delimited (by packet)
* Messages are not ordered, but will be reliably delivered
* Messages are identified by their message number:
* Each packet will contain:
  + The next required message number
  + The message number of the current message (if there is one)
  + The message itself (if there is one)

Packet format:

General packet format:

0

+--------+

|RAX00000|

+--------+

R: Client->Server Connection Request

A: Server->Client Connection Acceptance

X: Connection Data

Client->Server Connection Request

0 8 16 24

+--------+--------+--------+--------+

|10000000| CONVID |

+--------+--------+--------+--------+

| CONVID |

+--------+

CONVID: The ID of the current conversation (new for each client) – this is equal to (the time since epoch in milliseconds) % (2^32)

Server->Client Connection Acceptance

0 8 16 24

+--------+--------+--------+--------+

|01000000| CONVID |

+--------+--------+--------+--------+

| CONVID |

+--------+

CONVID: The ID of the current conversation (new for each client) – this is equal to (the time since epoch in milliseconds) % (2^32)

Connection Data

0 8 16 24

+--------+--------+--------+--------+

|00100000| ACK |

+--------+--------+--------+--------+

| MSGNUM | DATA...|

+--------+--------+--------+--------+

ACK: The next required message number

MSGNUM (optional): The message number of the data contained in this packet

DATA (optional): The data of this packet