Improving QUIC Protocol Documents

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ABSTRACT

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1 INTRODUCTION

ASCII packet header diagrams are the single-most widely adopted formalism in IETF standards documents, allowing for the visualisation of packet formats. However, QUIC [1] includes a number of features – for example, packet protection and variable-length integer encoding – that diminish the utility of such diagrams. As a result, correct parser implementations are much more reliant upon the careful interpretation of prose within the QUIC standards documents. This is a situation that is likely to result in non-conformant implementations.

Eliminating ambiguity in the description of protocols requires a formalism that goes beyond ASCII packet header diagrams, allowing for increasingly complex protocol features to be captured. However, such a formalism must not overly complicate the protocol standardisation process: the poor adoption of previous packet format definition languages serves as a lesson. Finally, any formalism should be flexible in how protocols are described, and the types of artefacts that can be generated from those descriptions.

In this paper, we ..

We structure the remainder of this paper as follows.

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