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MPLS EXP/TC BIT EXPANSION
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Abstract

This document specifies the new label/header architecture for a new Multiprotocol Label Switching and proposes a new Label Standard. With this new architecture the aim is to provide more QoS options.

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1. Introduction

This internet draft outlines a proposed change for the MPLS architecture as defined in RFC 3031 and the MPLS Label Stack Encoding RFC 3032 to suit the need of differentiated services and their requirements for more differentiated QoS.

Current services require more specific QoS parameters then the 8 possibilities provided by the 3 bit in the EXP/COS/TC field.

3 bits is not enough to differentiate in our current service oriented environment.

With this Proposed Standard a possibility of 32 QoS settings can be achieved.

2. Conventions used in this document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

In this document, these words will appear with that interpretation only when in ALL CAPS. Lower case uses of these words are not to be interpreted as carrying significance described in RFC 2119.

In this document, the characters ">>" preceding an indented line(s) indicates a statement using the key words listed above. This convention aids reviewers in quickly identifying or finding the portions of this RFC covered by these keywords.

3. Overview and Current Encoding of the Label Stack

The current label stack as described in RFC 3032 is represented as a sequence of "label stack entries".
Each label stack entry is represented by 4 octets.

This is shown in Figure 1:

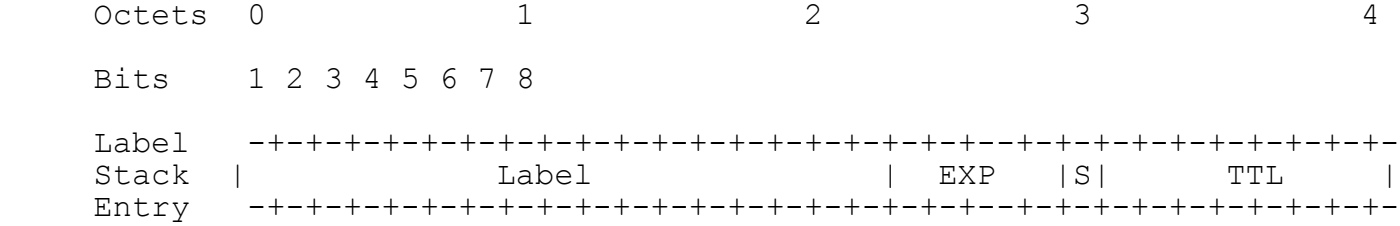

Figure 1

Label: Label Value, 20 bit
EXP/TC/COS: 3 bits defined as TC, RFC 5462
S: Bottom of Stack, 1 bit
TTL: Time to Live, 8 bits

4. New Proposed Encoding of the Label Stack

The New label stack described is represented as the same sequence of "label stack entries" as in RFC 3032. However the assigned 8 bits to TTL have been deducted by 2, to a total of 6 bits and added to the EXP/TC/COS stack which will now be a 5 bits entry.

This is shown in Figure 2.

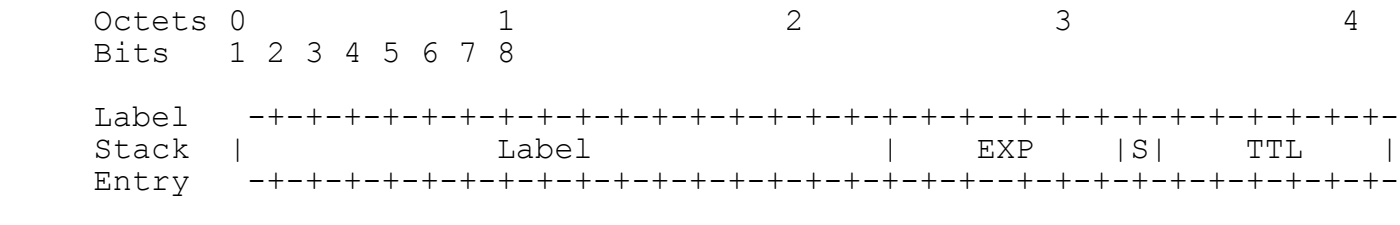

Figure 2

Label: Label Value, 20 bit
EXP/TC/COS: 5 bits defined in New Proposed Format
S: Bottom of Stack, 1 bit
TTL: Time to Live, 6 bits

5. More QoS parameters

With the addition of 2 more bits in the EXP/TC stack, more QoS parameters can be set to suit the needs of current IP Internet services.

A TTL value of 255 provided by the 8 bits was never used to the full extend and will be never used to this extend, thus moving the 2 bits to the EXP field which is used for QoS will create a richer service deployment environment.

6. Formal Syntax

The following syntax specification uses the augmented Backus-Naur Form (BNF) as described in RFC-2234 [RFC2234].

7. Security Considerations

There are no security considerations.

8. IANA Considerations

This document has no actions for IANA.

9. Conclusions

With this document a necessary and easy change is advised. More diverse QoS settings will enable a more service oriented network.

10. References

10.1. Normative References

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[3] Bradner, S.,"Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[4] L. Andersson, Acreo AB, R. Asati, Multiprotocol Label Switching (MPLS) Label Stack Entry:"EXP" Field Renamed to "Traffic Class" Field,RFC 5462, February 2009

10.2. Informative References

No Informative References

11. Acknowledgments

This document was prepared using 2-Word-v2.0.template.dot.

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