

# **MPLS Payload Protocol Identifier**

**draft-xu-mpls-payload-protocol-identifier-01**

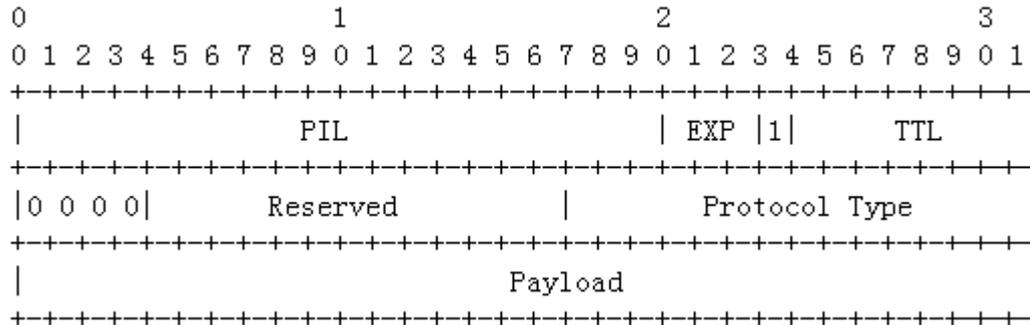
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# Motivation

- The MPLS label stack has no explicit protocol identifier field to indicate the protocol type of the MPLS payload.
- This document proposes a mechanism for containing a protocol identifier field within the MPLS packet, which is useful for any new encapsulation header which may need to be encapsulated with an MPLS header.
- With this protocol identifier field, there is no need for each new encapsulation header to deal with the notorious first nibble issue associated with MPLS individually.
  - More specifically, there is no need to intentionally avoid the first nibble of each new encapsulation header from being 0100 (IPv4) or 0110 (IPv6).

# MPLS Protocol ID



- **Protocol Identifier Label (PIL):** This field contains a special purpose label with value of <TBD> or an extended special purpose label [RFC7274] with value of <TBD> which indicates that a Protocol Type field appears immediately after the bottom of the label stack.
- **EXP:** The usage of this field is in accordance with the current MPLS specification [RFC3032].
- **S:** The Bottom of Stack (BoS) field is set since the PIL MUST always appear at the bottom of the label stack.
- **TTL:** The usage of this field is in accordance with the current MPLS specification [RFC3032]. Reserved MUST be set to 0 and ignored on reception.
- **Protocol Type:** This field indicates the protocol type of the MPLS payload as per [ETYPES].
- **Payload:** This field contains the MPLS payload which can be an IP packet, an Ethernet frame, or any other type of payload (e.g., network service header).

# Data Plane Processing of PIL

## ▪ Egress LSRs

- Suppose egress LSR Y is capable of processing the Protocol Type field contained in MPLS packets. LSR Y indicates this to all ingress LSRs via signaling. LSR Y MUST be prepared to deal with both packets with an imposed Protocol Type field and those without;

## ▪ Ingress LSRs

- If an egress LSR Y indicates via signaling that it can process the Protocol Type field, an ingress LSR X can choose whether or not to insert it into the MPLS packet destined for LSR Y. The ingress LSR X MUST NOT insert the Protocol Type field into that MPLS packet unless the egress LSR X has explicitly announced that it could process it.

## ▪ Transit LSRs

- Transit LSRs MAY operate with no change in forwarding behavior. If a transit LSR recognizes the PIL and the subsequent Protocol Type field, it MAY be allowed to do some additional value-added processing, such as MPLS payload inspection, on the received MPLS packet.

# Next Steps

- **Comments?**