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Tag Switching Protocols

This chapter describes two protocols which deal with tag switching:

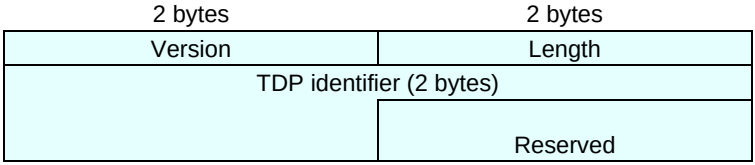
- TDP - Tag Distribution Protocol.
- MPLS - Multi Protocol Label Switching

TDP

IETF draft-doolan-tdp-spec-01

TDP (Tag Distribution Protocol) is a two party protocol that runs over a connection oriented transport layer with guaranteed sequential delivery. Tag switching routers use this protocol to communicate tag binding information to their peers. TDP supports multiple network layer protocols including, but not limited to IPv4, IPv6, IPX and AppleTalk. Tag Switching Routers (TSRs) create tag bindings, and then distribute the tag binding information among other TSRs. TDP provides the means for TSRs to distribute, request, and release tag binding information for multiple network layer protocols. TDP also provides the means to open, monitor and close TDP sessions and to indicate errors that occur during those sessions. TCP is used as the transport for TDP.

The format of the packet is shown in the following illustration:



TDP packet structure

Version
The version number of the protocol.

Length
The length in octets of the data portions.

TDP identifier
A unique identifier for the TSR that generated the PDU.

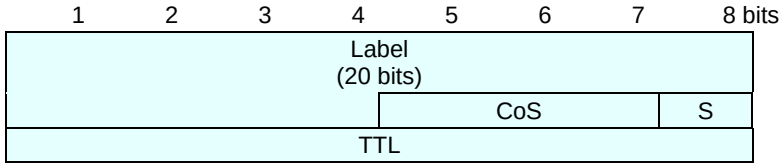
Reserved
A reserved field.

MPLS

IETF draft-rosen-tag-stack-02.txt

Multi Protocol Label Switching (MPLS) is a set of procedures for augmenting network layer packets with "label stacks", thereby turning them into labeled packets. It defines the encoding used by a label switching router to transmit such packets over PPP and LAN links. It is an Ethernet Tag Switching protocol. This protocol attaches labels to IP and IPv6 protocols in the network layer, after the data link layer headers, but before the network layer headers. It inserts a 4 or 8 byte label.

The format of the MPLS label stack is shown in the following illustration:



MPLS label stack

Label

The field contains the actual value for the label. This gives information on the protocol in the network layer and further information needed to forward the packet.

CoS

Class of Service. The setting of this field affects the scheduling and or discard algorithms which are applied to the packet as it is transmitted through the network.

S

Bottom of the Stack, 1-bit field set to one for the last entry in the label stack and zero for all other label stack entries.

TTL

Time to Live, 8-bit field used to encode a time to live value.