

Problem Statement for MTU configuration

draft-liu-rtgwg-mtu-config-ps-00

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MTU Requirement on Customers and Business Carrying

- Customer Request
 - CE customer requested that IP datagram's up to a length of 1600 bytes (including the IP header, aka. baby giant) must not be fragmented in the Supplier's network (from CE to CE). The receiving sequence of data packets at the destination location must match the sending sequence at the source location
- Business carrying MTU requirement

Problem Statement

- 1. Some router vendors configure MTU based on L2 while others based on L3.
- 2. Some router vendors bring up an ISIS adjacency to UP with a mismatched MTU.
- 3. Number of MPLS label stack applied differently in multi-vendor devices – (some vendor isn't configurable - but does affect the MTU.)

Observations with Testing

- Preconditions:
 - Upgrade MTU from 1500 to 4470 among multi-vendors networks
 - In IP network(ISIS) and MPLS network(OSPF)
 - Test on 4 Vendors (A\B\C\D)
- Test Case:
 - TC1: ISIS network MTU configuration
 - TC2: MTU negotiation in ISIS adjacency
 - TC3: MPLS network MTU configuration

MTU in ISIS

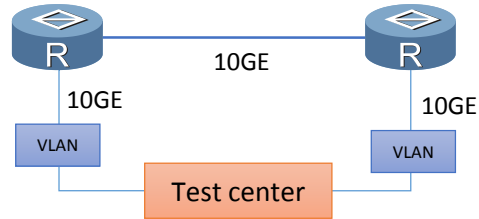


Figure 1 Test Network topology

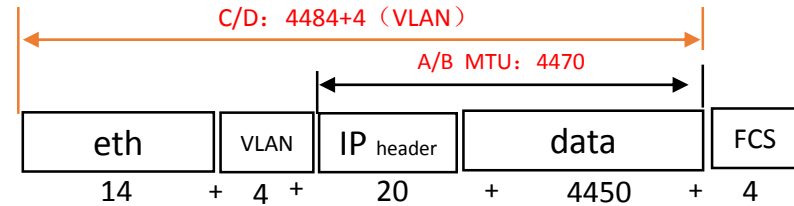


Figure 2 MTU diagram by routing configuration

Vendors	Desired IP MTU:	Default action if larger than MTU
A	4470	Drop
B	4470	Fragment
C	4484+4(vlan)	Fragment
D	4484+4(vlan)	Fragment

Table 1 MTU configuration Multi-vendor network

MTU Negotiation in ISIS

	A:4470	B:4470	C:4488	D:4488
A:1500		Init	UP	UP
B:1500	Init		UP	UP
C:1518	Init	Init		UP
D:1518	Init	Init	UP	

Table 2 MTU Negotiation with mismatch MTU in Multi-vendor network

Vendor A/B check MTU strictly, both side should be equal.
Vendor C/D Negotiation MTU with the minimum MTU.

MTU in MPLS

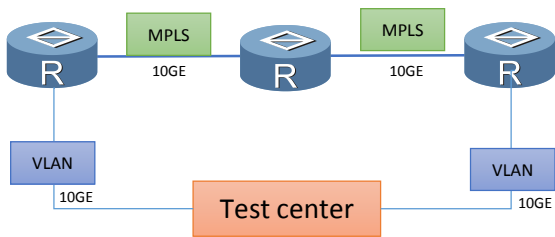


Figure 3 Test Network topology

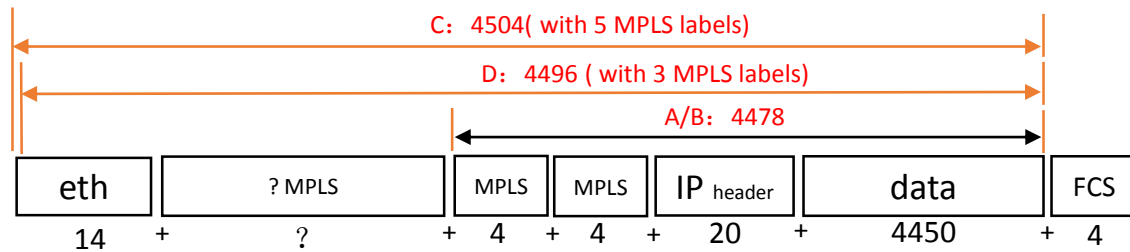


Figure 4 MTU diagram

Vendors	Desired IP MTU:	Diagram	Default action if larger than MTU
A	4478	IP+2Mpls	Drop
B	4478	IP+2Mpls	Fragment
C	4504	IP+Eth hdr+5Mpls	Fragment
D	4496	IP+Eth hdr+3Mpls	Fragment

Table 3 MTU configuration Multi-vendor network

Considerations

- One place to summarize all vendors implementation for reference.
- Is the WG interested in this problem?
- How should be document this problem? informational ?
- Current draft only include MPLS/ISIS, do we need include BGP-LDP?
- Interesting in finding co-authors

Thank You!

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Question?