

# Ipv6 Multipath MTU Detection

<https://www.ietf.org/id/draft-qian-6man-ipv6-multipath-MTU-detection-00.html>

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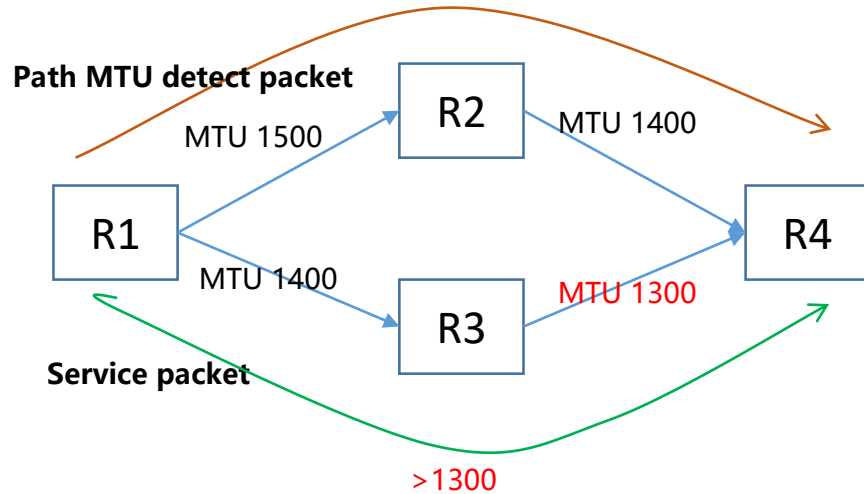
IETF 113

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# Motivation & solution

In load balancing network scenario, current detection mechanisms have a defect, typical load balancing mechanism cannot cover all forwarding paths, wrong PATH MTU will be discovered in such condition

AS IS



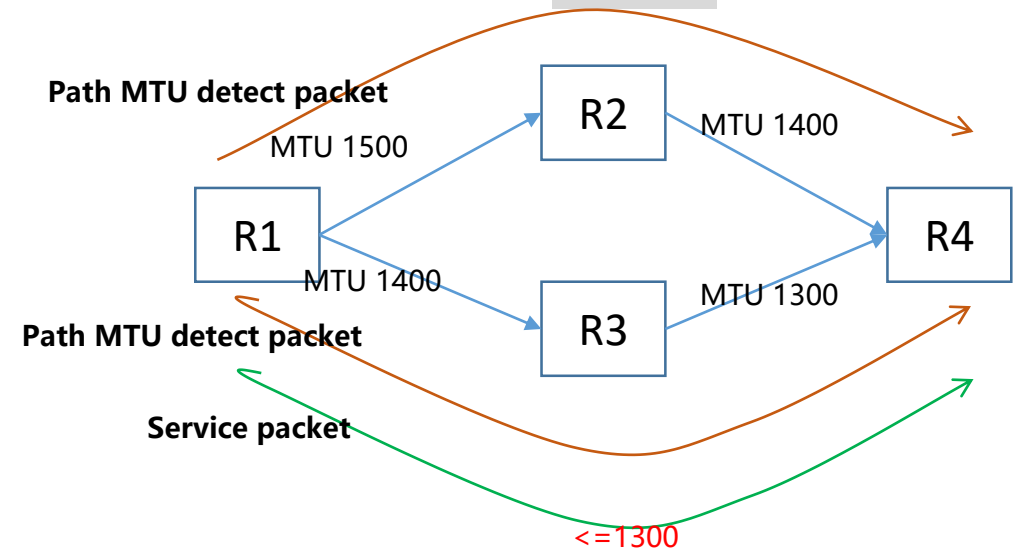
## Path MTU detection:

Path of Path MTU detection: R1-R2-R4, and detected path MTU is 1400

## Service packet:

If Service packet transfer through R1-R3-R4, because R3 interface MTU is 1300, So if packet size larger than 1300, it will be discarded at R3

TO BE



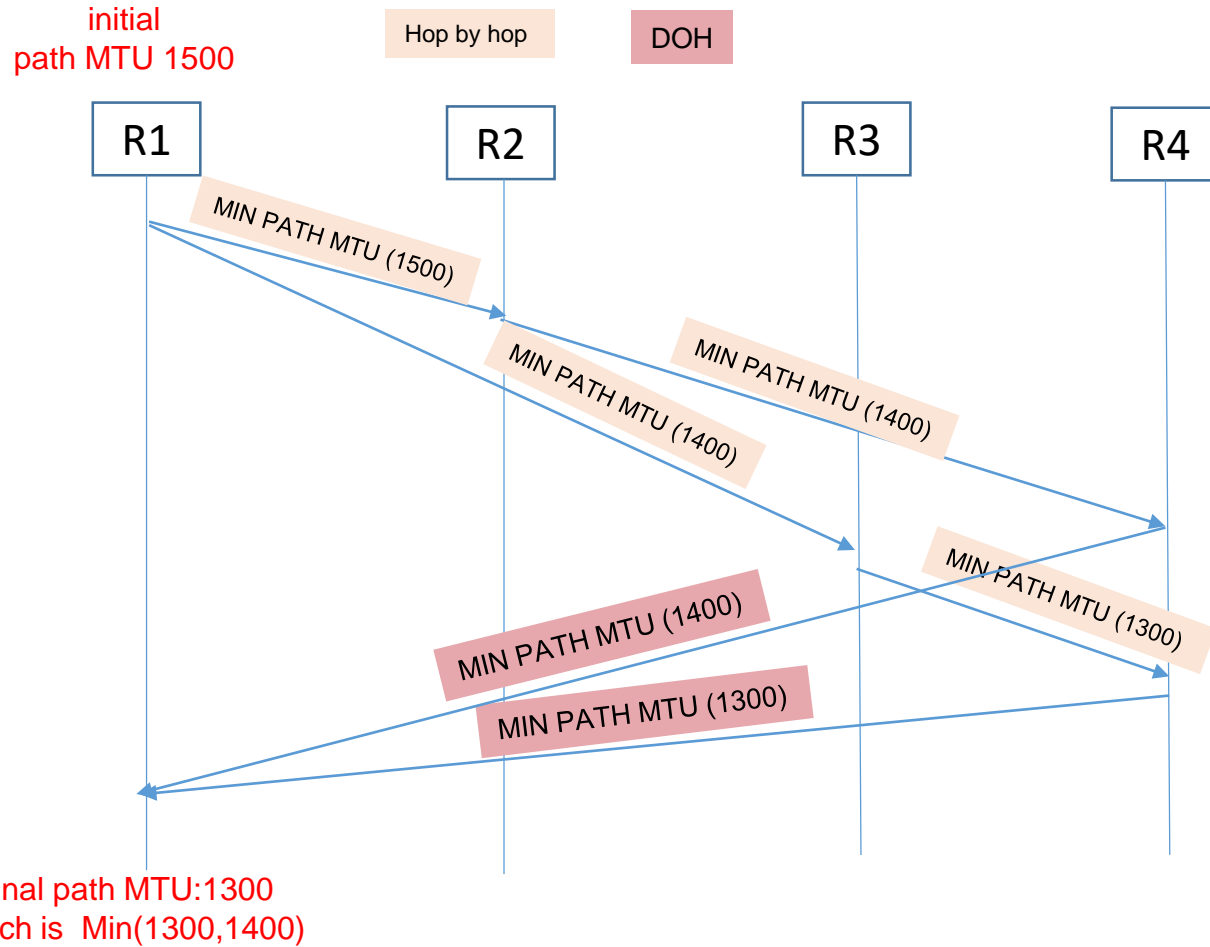
## Path MTU detection:

path MTU detection path is R1-R2-R4, R1-R3-R4, So, the final path MTU is in  $(\text{path mtu} (R1-R2-R4, R1-R3-R4))$ , that is  $\min(1300, 1400)$ , that is 1300

## Service packet:

If Service packet transfer through R1-R3-R4, packet will be cut to no more than 1300, and will be transferred successful

# Replication-based detection scheme and IANA consideration



The hop-by-hop extension header is used in common IP packet. The TTTT needs to be allocated by the IANA.

Option Type	Option Data Len	Option Data
BBCTTTT	0000011	RRRRRRMD -----MTU-----

R:Reserved

M:Path MTU detection flag

D:Load balancing duplicating flag

MTU:Minimum MTU on the path

The reply packet uses the DH extension header, and the TTTT needs to be allocated from the IANA.

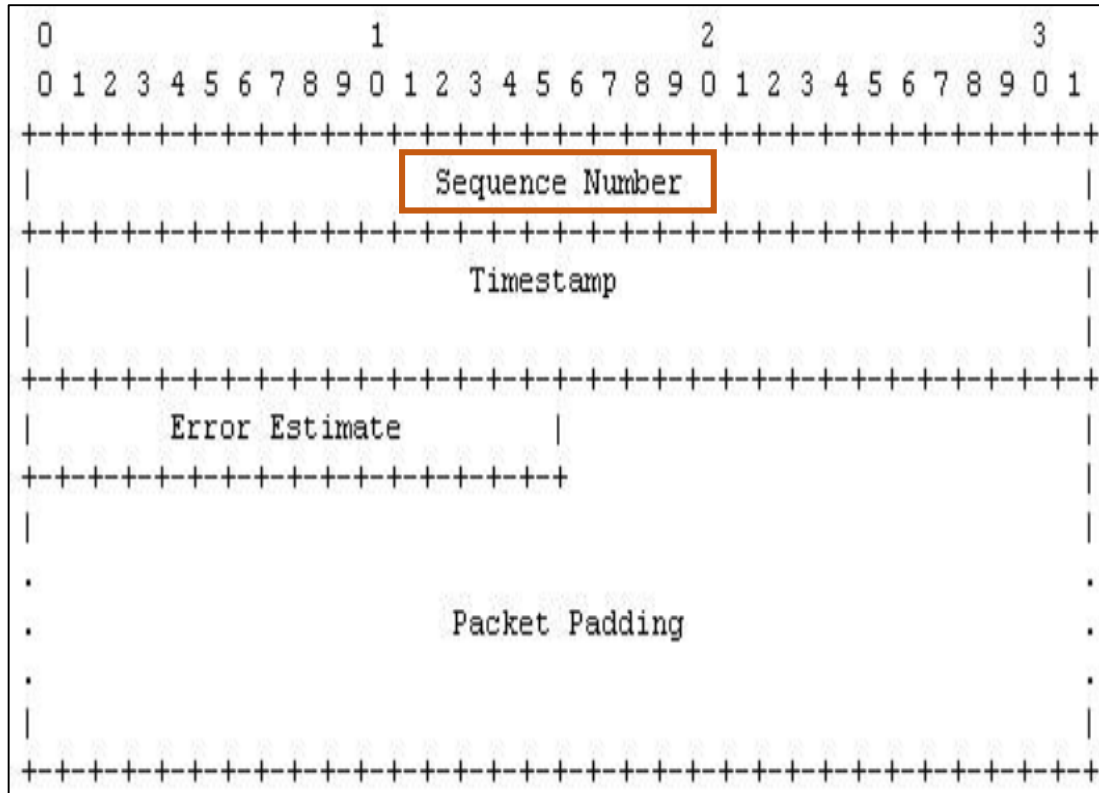
Option Type	Option Data Len	Option Data
BBCTTTT	0000010	-----MTU-----

MTU:Minimum MTU on the path

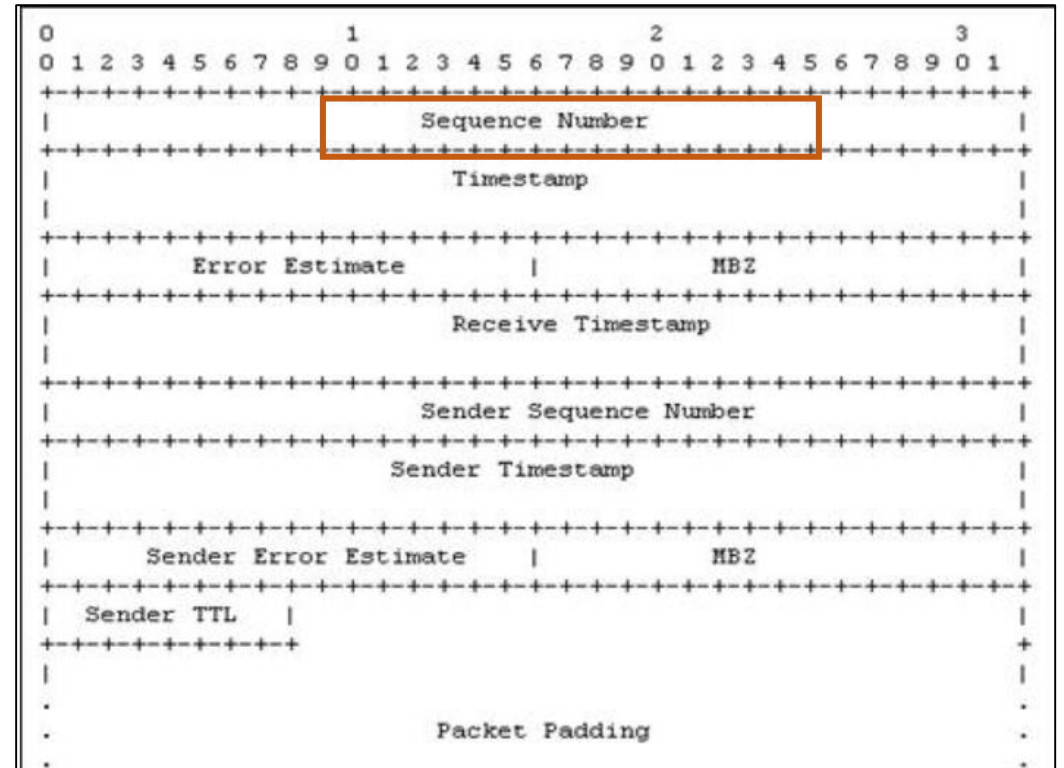
# Upper-layer protocol example

Twamp-light trigger the path MTU detection periodically

Request packets reflected by the sender to the responder



Response packets reflected by the Responder to the Sender



sequence is used as the synchronization identifier of a probe.

Thank You