SRH Extension for Redundancy Protection

draft-geng-spring-sr-redundancy-protection-02
draft-geng-6man-redundancy-protection-srh-00

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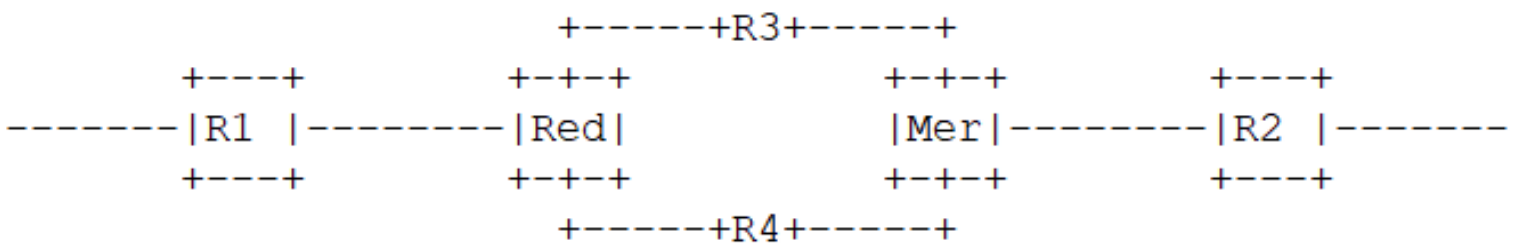
What is Redundancy Protection?

- Service Protection comes from Deterministic Networking (DetNet)
- New requirement for providing strict E2E reliability SLA guarantee to services, e.g. cloud VR, cloud game, HDV applications
- Definition
  - is one of the mechanisms to achieve service protection
  - follows the principle of PREOF (Packet Replication/ Elimination/Ordering Function)
- Example scenario:

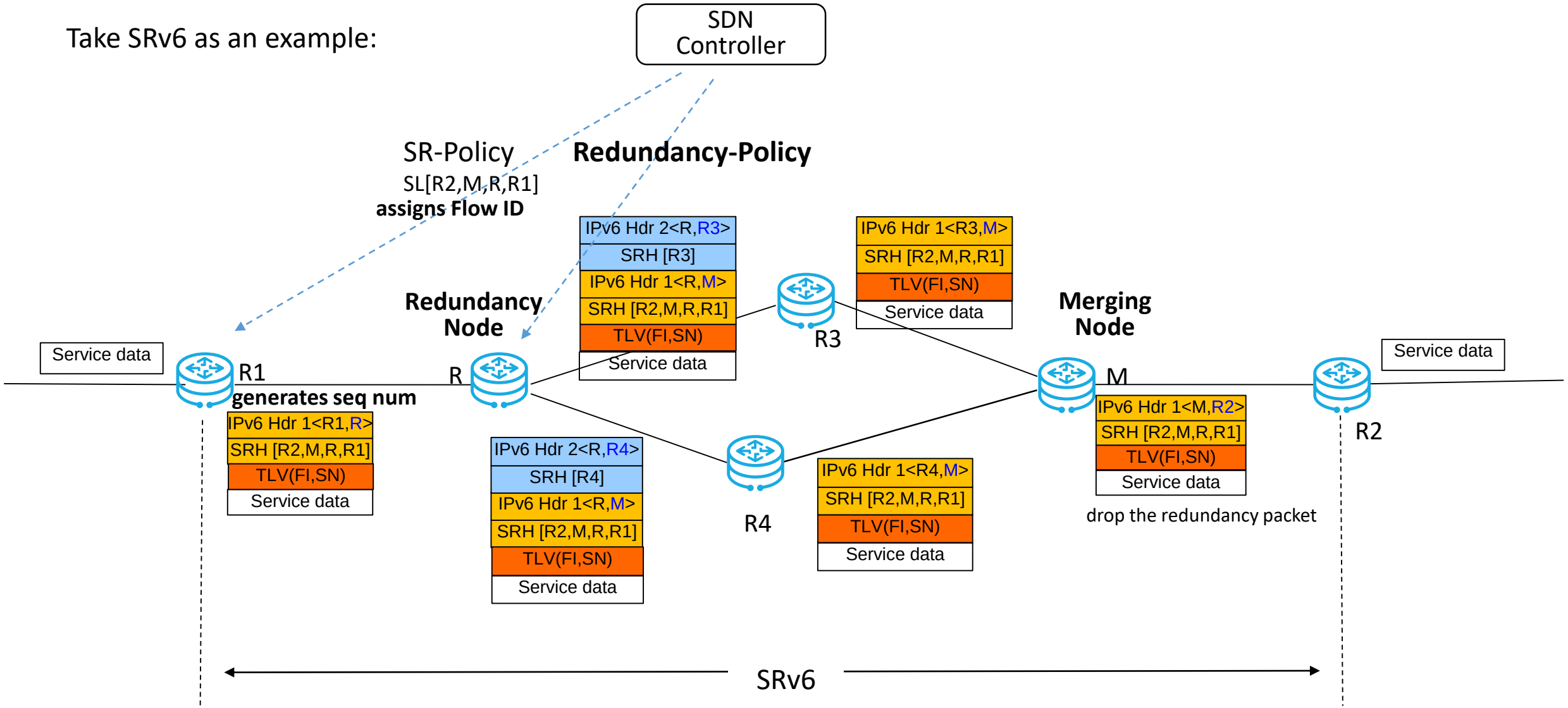


To support Redundancy Protection

- **Redundancy Segment:**
  - to perform the packet replication function on Redundancy Node
  - associated with a Redundancy policy (a variant of SR Policy) to steer the flow
  - in case of SRv6, new behavior End.R is defined
- **Merging Segment:**
  - to perform the packet elimination and ordering (optional) function on Merging Node
  - in case of SRv6, new behavior End.M is defined
- **Flow ID and sequence number:**
  - Flow Identification: to identify a unique flow
  - Sequence Number: to identify the packet sequence within one flow
  - Extend SRH optional TLV to encapsulate them
- **Redundancy Policy:**
  - Redundancy Policy is a variant of SR policy
  - includes more than one ordered lists of segments between Redundancy Node and Merging Node
  - all the ordered lists of segments are used at the same time

Redundancy Protection Process

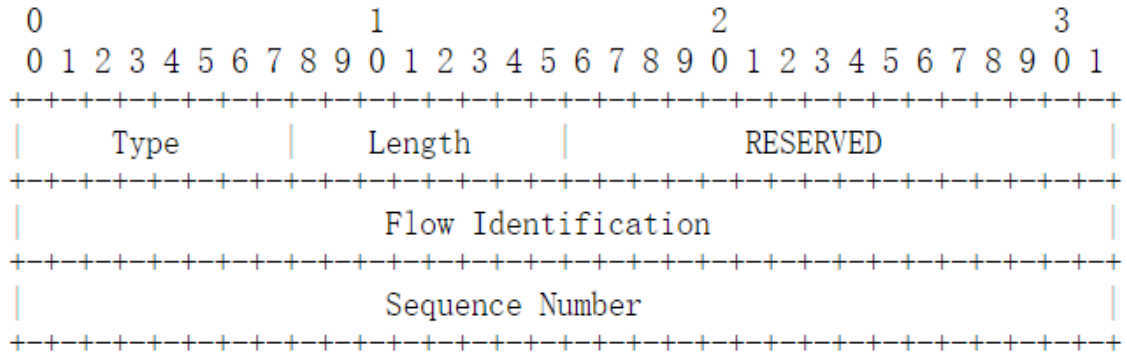
Take SRv6 as an example:



Flow ID and Sequence Number Encapsulation

SRH Encapsulation in *draft-geng-6man-redundancy-protection-srh-00*

A TLV is defined to carry flow ID and sequence number



- Flow Identification: 32 bits, to identify a unique flow
- Sequence Number: 32 bits, to identify the packet sequence within one flow

Next Step

- Refine the overall solution and SRH encapsulation
- Comments and discussions in mailing list
- Seek for collaborations
  - Scalability discussion of flow ID and sequence number
  - Segment specification in SR-MPLS data plane