

SRv6 SPAN

draft-li-span-over-srv6-00

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Background and Motivation

Today, the scale of networks is becoming larger, network traffic is becoming more complex, and the requirements for network operation and maintenance are becoming more and more sophisticated:

- SPAN(Switch Port Analyzer) technology is one of the essential tools
- For large-scale data centers and distributed AI training scenarios,SPAN/RSPAN is not sufficient
- To remove the limitation that the mirror server needs to be directly connected on the physical/L2 link during networking, overlay tunneling like ERSPAN is used
- ERSPAN uses GRE for tunneling encapsulation,but the most popular tunneling protocol for data centers now is VXLAN
- SRv6 is capable of connecting overlay and underlay networks, and widely deployed
- So, It's time to do something to keep things simple in pure SRv6 network (No VXLAN or GRE)
- With SRv6 SRH SID list, the imagination of SRv6 SPAN is just beginning

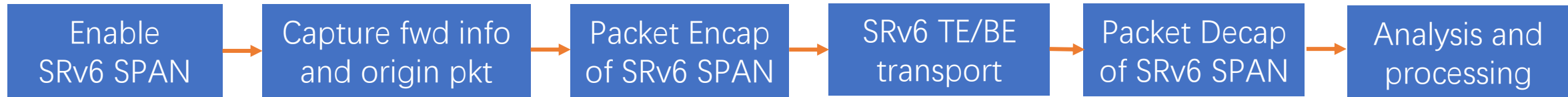
Principles and considerations

To compatible as much as possible with a large number of analysis software that supports ERSPAN ,and to take full advantage of SRv6's capabilities, we propose an **SRv6 SPAN** solution, so as to:

- Simplify the network architecture where the SPAN/mirroring technology is used and deployed
- Be compatible with the packet formats of conventional mirrors(erspan)
- Enhance the mirroring technology to meet new requirements

Function Process of SRv6 SPAN

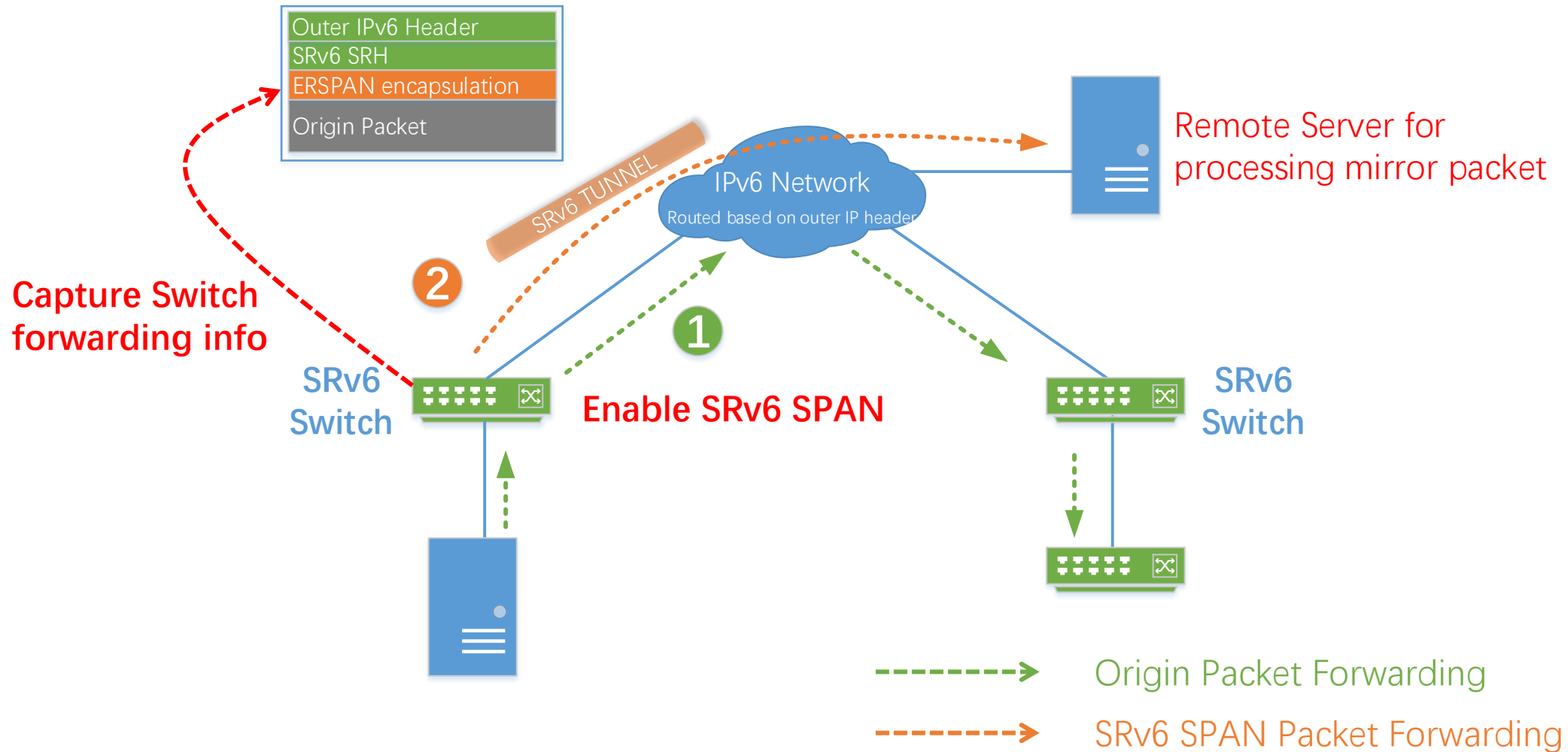
SRv6 SPAN is not only compatible with a device that supports only an IPv6 capability, but also matches with a network device with SRv6 SRH processing capability



Function Process

- Enable device SRv6 SPAN function
- Device capture forward information and mirror original packet
- Packet encapsulation of SRv6 SPAN
- SRv6 SPAN packets transport through SRv6 TE/BE path
- The remote mirror server decapsulate the SRv6 SPAN packet
- The mirror server analysis and process the mirror packet and its metadata

Packet Forwarding of SRv6 SPAN



Basic Capability of SRv6 SPAN

The following are basic capabilities that need to be supported in the current version of SRv6 SPAN

Capability	Category	This Draft (Support)
Enable SRv6 SPAN	Port Based	Y
	Flow Based (Five Tuples)	Y
Capture switch forwarding info	SRv6 SPAN Header Contains: timestamp, Hw ID, SGT, CoS , etc	Y
	Origin Packet	Y
SRv6 SPAN packet encapsulation	The SRH of SRv6 SPAN is encapsulated with 128bit SRv6 SID	Y

Next Step of SRv6 SPAN

SRv6 SPAN will be further developed, and enhancement points will be detailed in subsequent documents.

Capability	Classification	Future Draft
Enable SRv6 SPAN	Event Based (Drop, Exception, or Threshold)	Working
	ECN Based (ECN Mark Protocol)	Working
	Latency & Jitter Based (Egress Latency – Ingress Latency) of Switch	Working
Capture fwd info	Flex selection of packet forwarding Info (Flex Mode)	Working
	Compressed Origin Packet (To avoid Path MTU check fail)	Working
Packet Encap	Encap SRH with G-SRv6 SID	Working
	Retransmission of SRv6 SPAN Packet for Lossy Network	Working
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Thanks for your time.

Comments are welcome to improve the document.

Welcome to join our work.