

Scalability of SFC

<https://tools.ietf.org/html/draft-ao-sfc-scalability-analysis-03>

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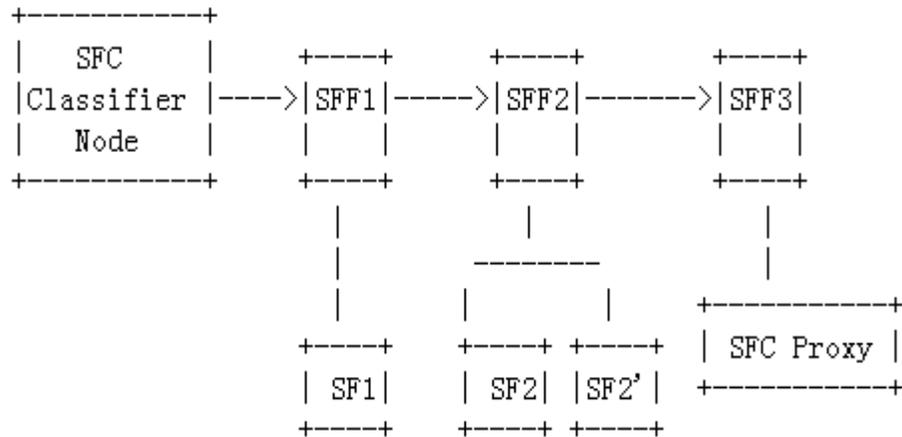
Scenarios of scalability

- SFC scalability is the capability of the SFC that is resilient to scale out and scale in horizontally or vertically.
- Four scenarios of scalability
 - Join: SF can be added into an existing SFC so that the SFC has more service function
 - Redundancy: One or more SFs are added into the SFC to meet the protection or load balance
 - By-pass: Some SFs are by-passed since no need the Service function
 - Failover: Some SFs are removed because of failure

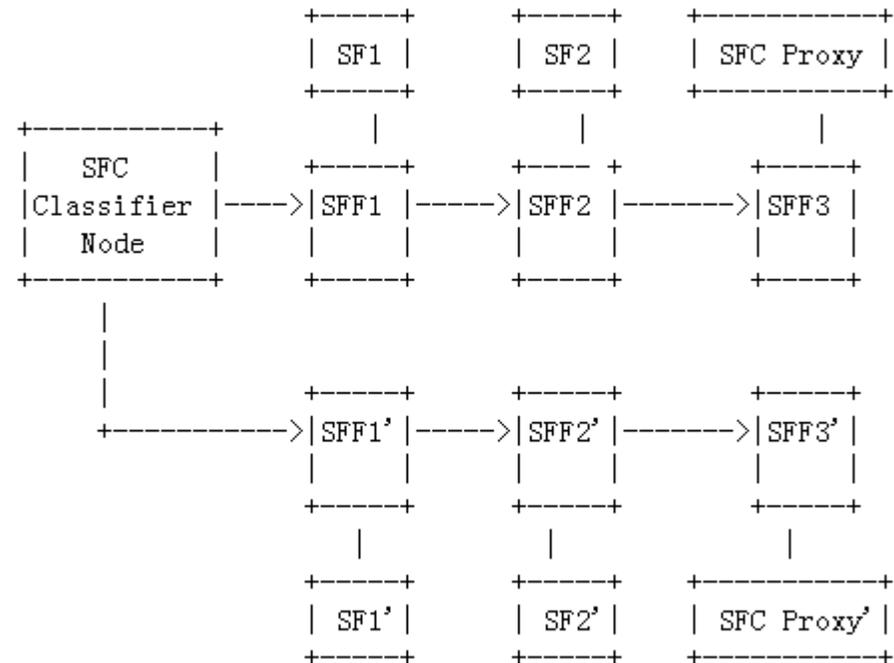
	Scale out	Scale in
Horizon	Join	By-pass
Vertical	Redundancy	Failover

SFC Redundancy

- SF redundancy:
 - One or more SFs are added into the SFC to meet the redundancy or load balance requirements for some certain SFs.

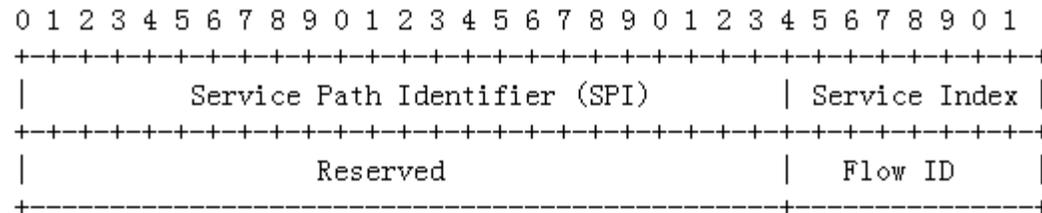


- SFP redundancy:
 - SFC is scaled out to two SFP paths. One SFP is redundant to another SFP, and the two SFPs are for protection or load balance.

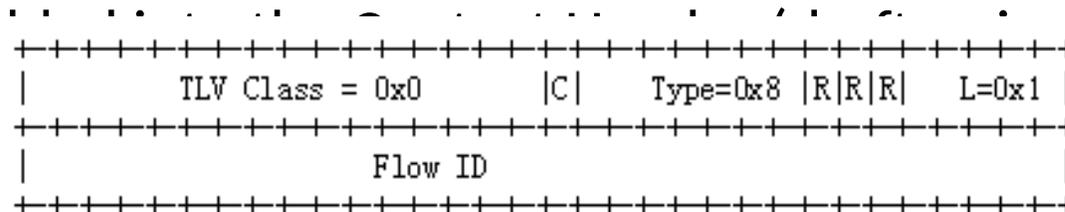


Requirements- Data plane

- For load balance or active-active protection, a Flow ID is needed to differentiate the SFPs in a SFC.
 - Flow ID is added into the Service Path Header



- Flow ID is a [Service Path Header TLV \(sfc-nsh-tlv-04\)](#)



Requirements- Control plane

- Interfaces in control plane:
 - C1:Interface between SFC Control Plane & SFC Classifier
 - C2:Interface between SFC Control Plane & SFF
- C2 interface
 - Register Message to SFF to notify that a SF is going to be joined. Installing new entries in the SFP Forwarding Policy Table. The message contains indication th at the SF is joined as a new SF or into a group.
 - De-register Message to SFF to notify that a SF is going to be removed. The me ssage contains indication that if it is removed from SFC or a group.
- C1 interface
 - Message to Classifier to notify that the SFC is redundant or LB with some SFPs as a group.

Next Steps

- Comply with draft-ietf-sfc-control-plane-08
- Update the draft and give more specific message information both in C1 and C2 interface
- Comments, questions always welcome and greatly appreciated
- Call for WG adoption