Use Case For Handling Dynamic Chaining And Service Indirection

draft-purkayastha-sfc-service-indirection-00

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Motivation

- 5G applications and low latency requirements are forcing service providers to push functions towards the edge of the network (e.g. MEC)
- Handling user mobility and non-deterministic availability of compute and storage resources is challenging
- Requires dynamic and fast switching of service path between Service Functions
  - A.k.a. “Service Indirection”

Current Handling of Service Indirection by SFC

- NSH Control Plane
  - Service Path Identifier (SPI): identifies service path
  - Service Index (SI): identifies the location
- Indirection is handled in following steps
  - Packet arrives at a particular node, contact policy manager
  - Identifies the current classification is incorrect
  - Reclassifies the packet, i.e. change the SPI
  - Inserts the packet in the pipe, possibly towards the SFF

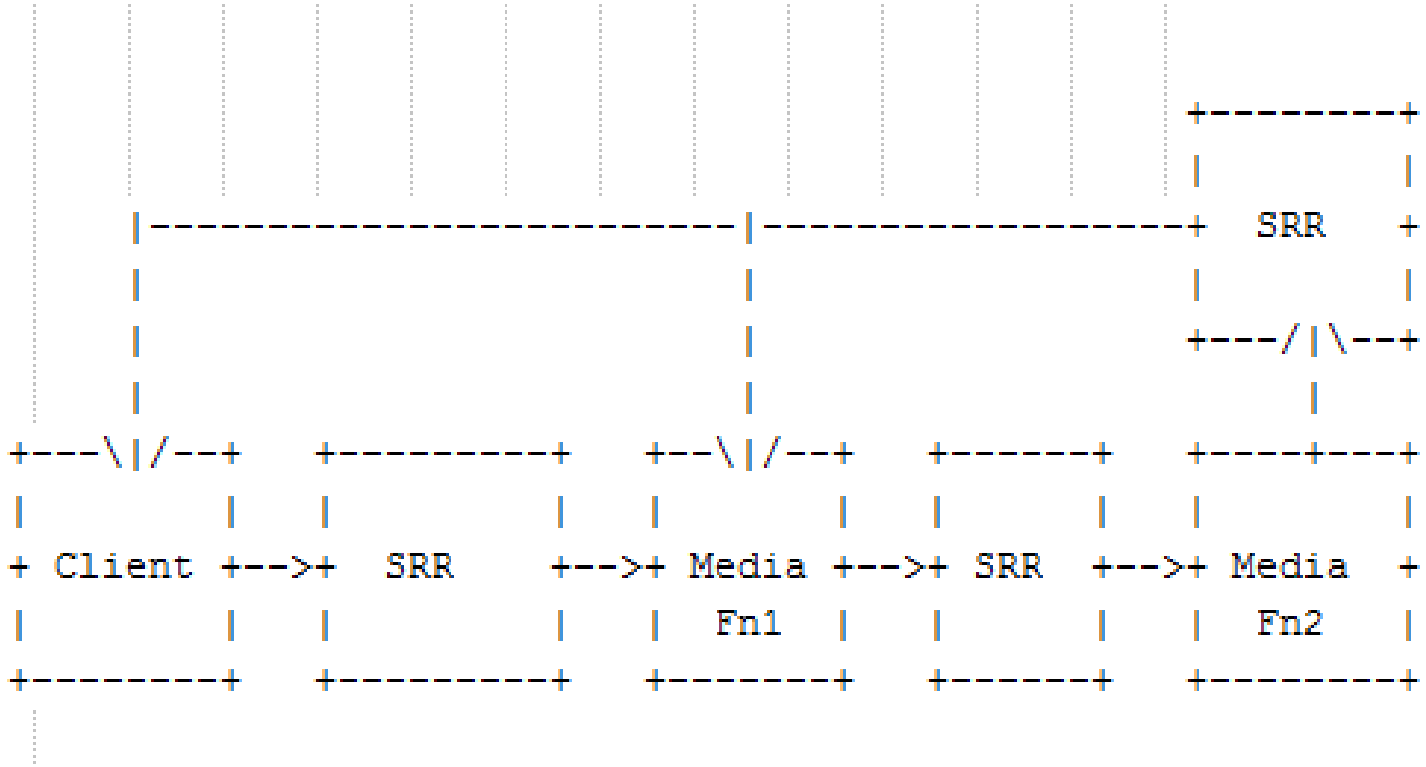
Improving Service Indirection in SFC

- Indirection mechanism in SFC through reclassification makes it suitable to handle dynamic indirection requirements
- Proposed SRR service function provides an additional method to handle dynamic indirection of service requests
  - Without relying on the reclassification mechanism
- Combining these two techniques may provide flexibility and improvement over single method.

Proposed SRR Service Function (1/3)

- Decouples the service consumer and service endpoint
- Desired features:
  - Fast switching, not relying on only DNS based mechanism
  - Direct path mobility, avoiding the use of anchor points
  - Indirect service requests at the network level
  - New methods for forwarding, such as path-based forwarding, direct path routing etc.

Proposed SRR Service Function (2/3)



Proposed SRR Service Function (3/3)

- For Service Consumer (SC) and Service Provider (SP) scenario, if we have SC and [SP1…SPn] (i.e., N virtual instances of the SP)
  - Assume SC is chained to SP1 first
  - Then we need to explicitly re-classify towards SPn with some out-of-band decision about which 'n' to pick

- Benefit of introduction of SRR as an independent SF
  - Decouples Service Consumer (SC) and Service Providers (SP)
  - Single SC may be connected to multiple SPs through this SRR SF
  - Reclassification may not be required, switches traffic flow to any SPs
    - Based on Instantaneous situation, Policy etc.

Proposed Next steps

- Collect feedback from the WG
- Continue extending the use case with more details and requirements
- We will work on this use case and a solution in the H2020 FLAME project with experiments planned for early 2018 and beyond