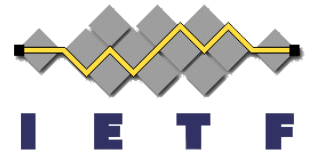


Flowspec Path-id Redirect

(draft-vandavelde-idr-flowspec-path-redirect)

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Wim Henderickx
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IETF94 – RTGWG
2 November 2015



Do not Panic!

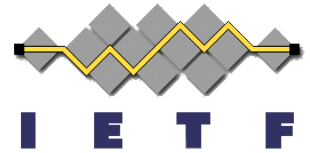
PATH_ID

Renamed to

INDIRECTION_ID

(In this presentation the term PATH_ID is renamed to INDIRECTION_ID to better reflect its intentions and remove existing confusion. Nothing else changed
The text in the draft will be updated accordingly)

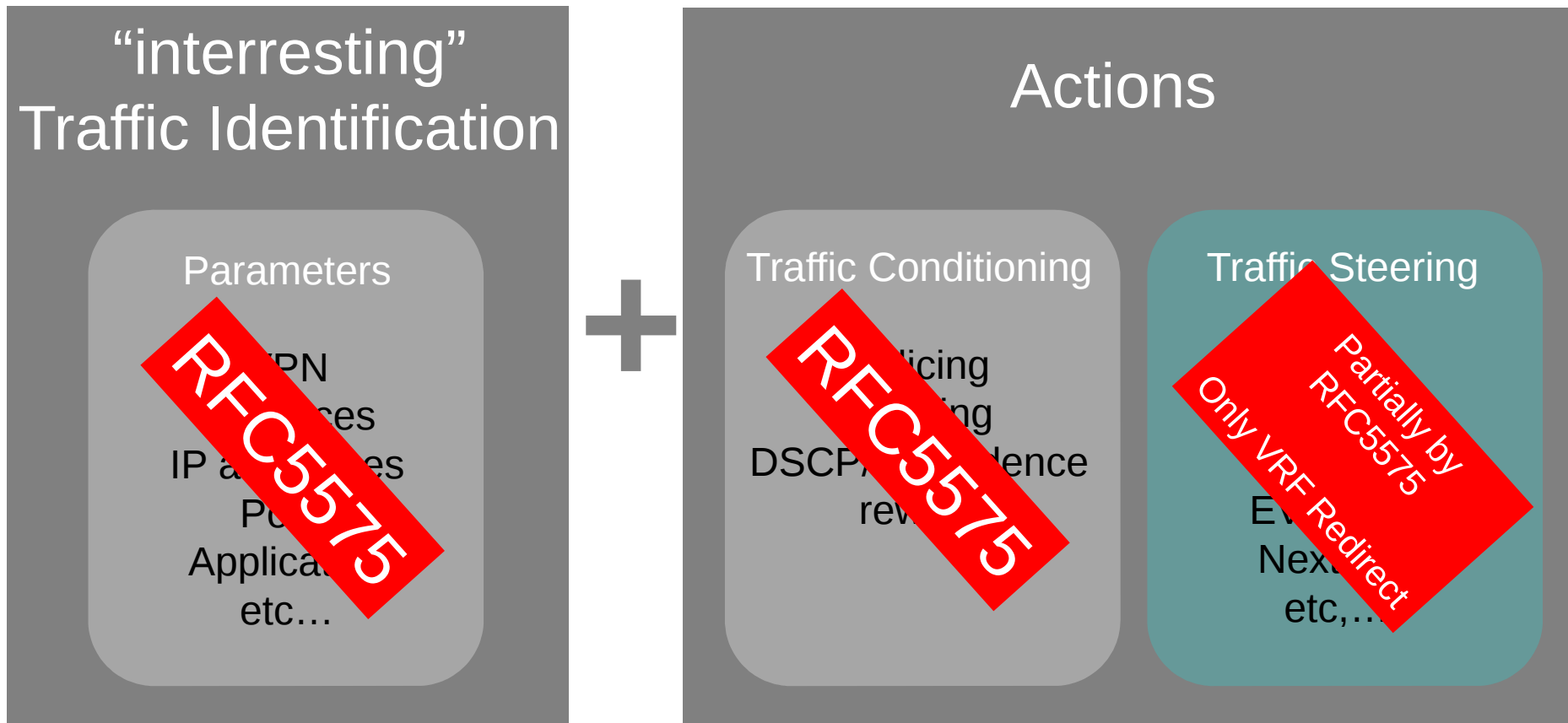
Flowspec “Indirection-id” Redirect



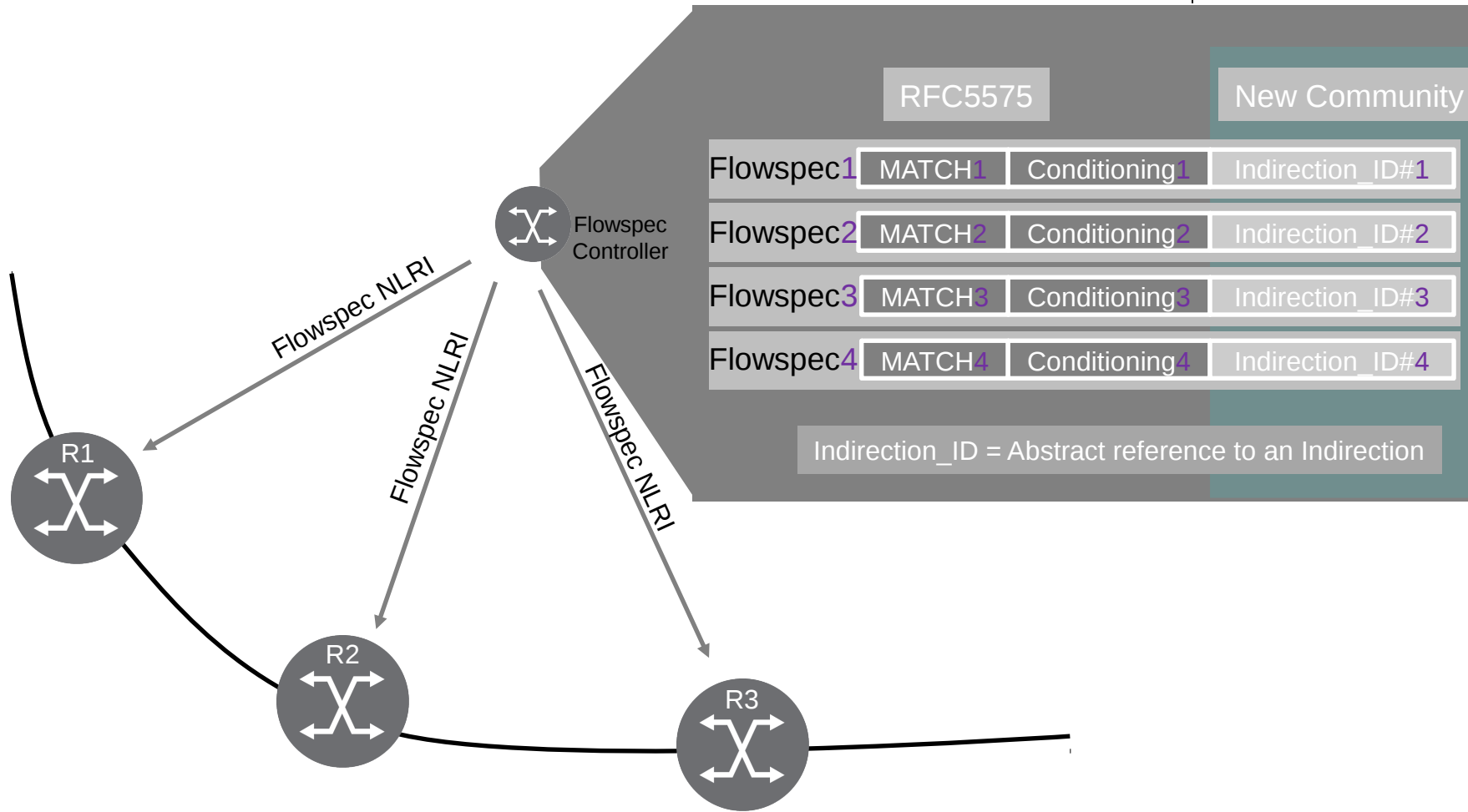
- Use-case: Traffic Steering Service
 - Provide a scalable apparatus to selective steer traffic onto an Tunnel (or Interface)
 - Routing system to propagate a reference of indirection supporting localised redirection
 - Decouple Steering Service and Underlay Topology
- **None Use-case: Tunnel Setup signaling**
 - No signaling of encapsulations using Flowspec NLRI
 - Flowspec does not exchange additional attributes
 - No signaling to setup a tunnel
 - No signaling for tunnel TE operational purpose

Anatomy of PBR

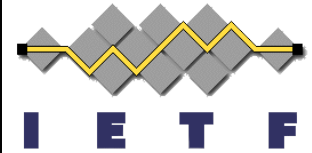
Note that PBR is NOT used at all to initiate/create/signal Tunnels



Intro to Indirection_ID



Indirection_ID Table is localised Info



Indirection_ID Table on R1

Indirection_ID	Localised Indirection Information
Indirection_ID#1	SR-TE (R5->R8)
Indirection_ID#2	EVPN ESI redirect to ESI#foo
Indirection_ID#3	Manual Configured next-hop
Indirection_ID#4	IP Routing Table Lookup

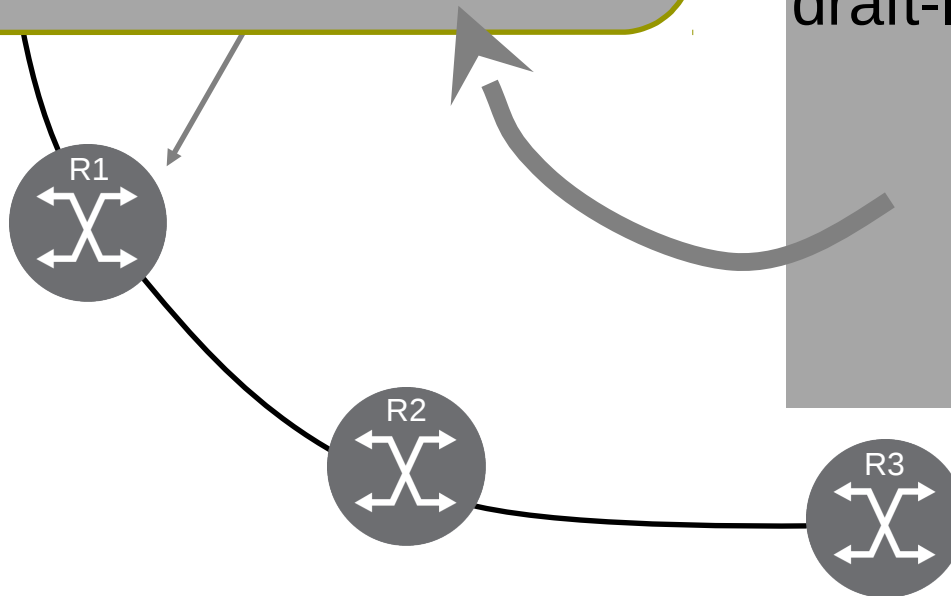
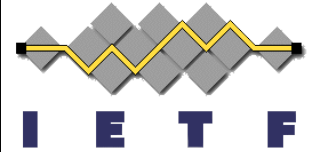


Table is decoupled from Flowspec
&
Table is independly populated

Potential tools:
draft-li-idr-mpls-path-programming
PCE PLSP-ID
manual config
XML/XMPP
netconf/yang
traditional routing
voodoo
etc...

Indirection_ID Table is localised Info



Indirection_ID Table on R1

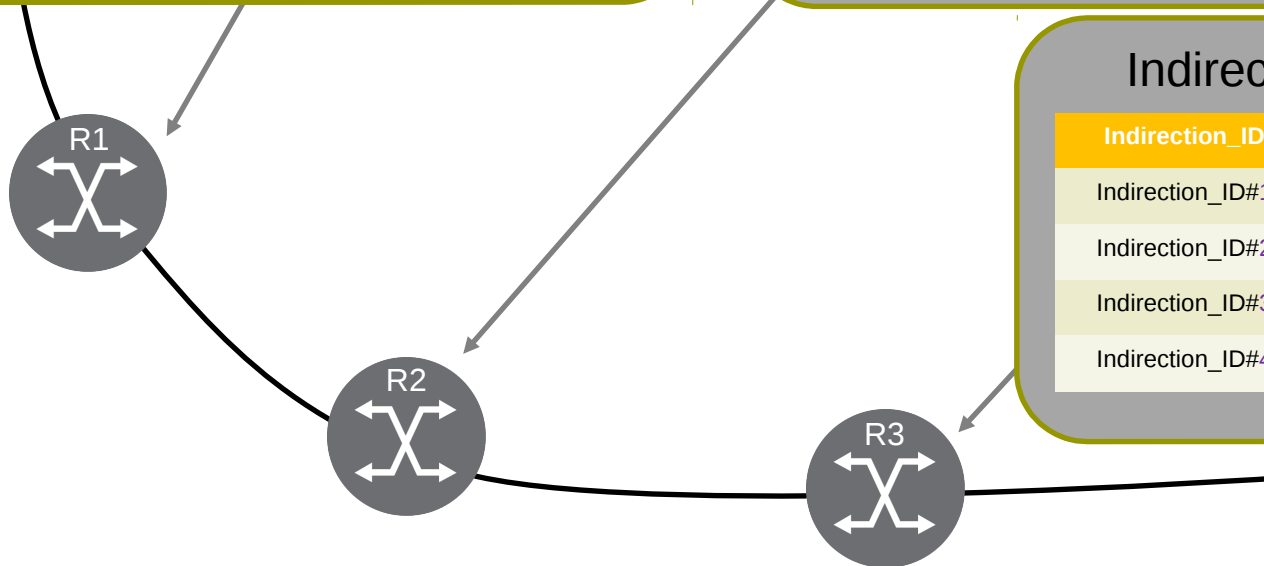
Indirection_ID	Localised Indirection Information
Indirection_ID#1	SR-TE (R5->R8)
Indirection_ID#2	EVPN ESI redirect to ESI#foo
Indirection_ID#3	Manual Configured next-hop
Indirection_ID#4	IP Routing Table Lookup

Indirection_ID Table on R2

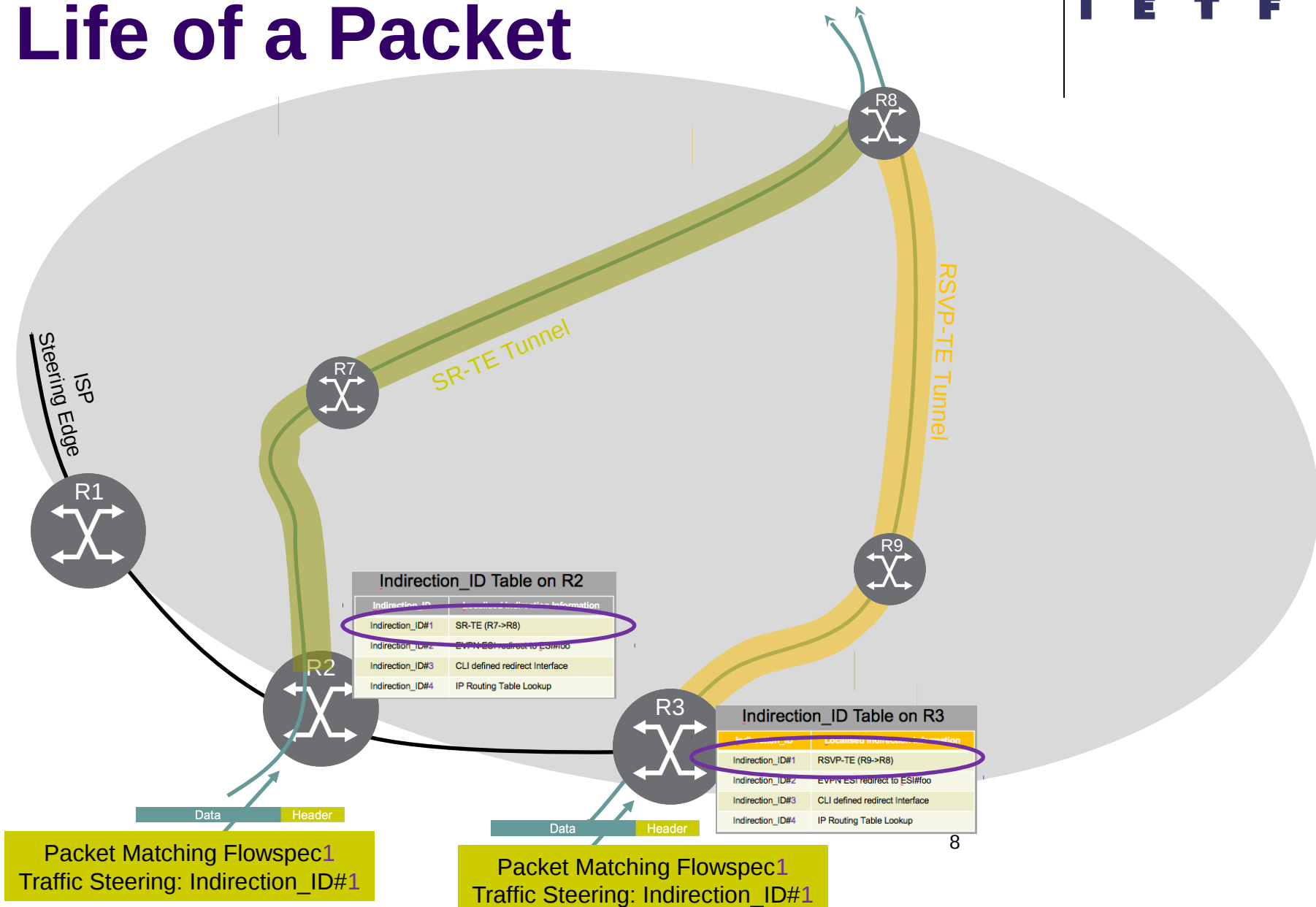
Indirection_ID	Localised Indirection Information
Indirection_ID#1	SR-TE (R7->R8)
Indirection_ID#2	EVPN ESI redirect to ESI#foo
Indirection_ID#3	CLI defined redirect Interface
Indirection_ID#4	IP Routing Table Lookup

Indirection_ID Table on R3

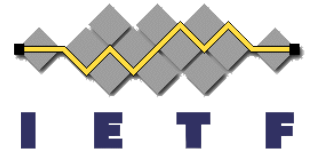
Indirection_ID	Localised Indirection Information
Indirection_ID#1	RSVP-TE (R9->R8)
Indirection_ID#2	EVPN ESI redirect to ESI#foo
Indirection_ID#3	CLI defined redirect Interface
Indirection_ID#4	IP Routing Table Lookup



Life of a Packet

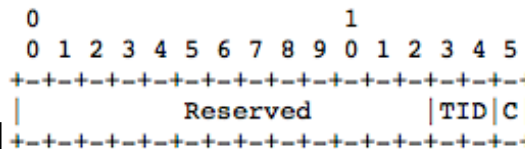


Details: Flowspec Redirect-to-PATH Community



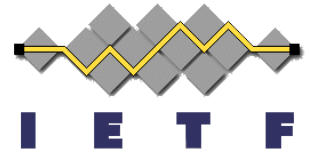
- New Flowspec Traffic Action Community
- Indirect_ID is either 32 or 128 bit identifier
- Assumption
 - Router has Indirection_ID table pre-populated
 - Population of this table is outside the scope of Flowspec Redirect-to-PATH (work for RTGWG?)
 - Each “Indirection_ID” is represents a unique Redirect Service identifier for the network

- Indirection_ID structure



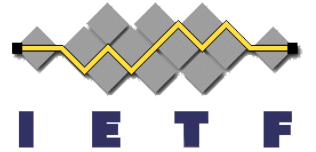
- Indirection_ID is 32 or 128 bit val
- C-bit (1 bit): copy original packet onto the Re-direct
- TID (2 bit): support for nested redirects (i.e. SR Segments) or Multi-path functions

- Note: Indirection_ID could also be seen as Superset of Redirect-to-IP indirection where Indirection_ID has additional context as IP address (in this case Indirection_ID and Redirect IP are the same)



Looking at WG questions

- Difference with other flowspec redirect-to-tunnel drafts?
 - Flowspec NLRI does **NOT** carry “tunnel-encap attribute” or any other tunnel attributes
 - This draft does not intend to signal tunnel setup information
 - Total de-coupling of Steering Service and underlay network
 - Total de-coupling of Steering Service and localised Tunnel information
- Purpose of TID: nested tunnels, Multi-Path, push SR segments
- If the Indirection_ID is down/non-exist in the Indirection_ID Table
 - If the next-hop or interface is down, then just like PBR behaviour the rule is not applied on the router. No difference with PBR behaviour from this perspective
- Flowspec Validation
 - It should be possible for Flowspec controller to withdraw the signalled Flowspec NLRI
- Indirection_ID Table questions
 - Construction is outside scope
 - It could be populated CLI, Netconf/Yang, protocol extensions, etc.. (see before)
- Difference between Redirect-to-IP and Redirect-to-PATH is small
 - Redirect to Indirection_ID is indeed superset of Redirect-to-IP (in Redirect-to-ip the 32/128 bit number has IP address context correlation)
- Tunnel Setup Questions
 - Tunnel Setup is outside scope of this draft



THANK YOU!