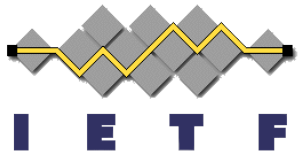
Flowspec Path-id Redirect

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

Gunter Van de Velde
Wim Henderickx
Keyur Patel



IETF94 – IDR WG
2 November 2015

Do not Panic!

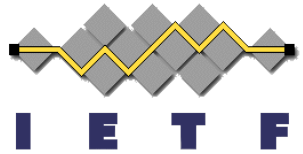
PATH_ID

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 acordingly)

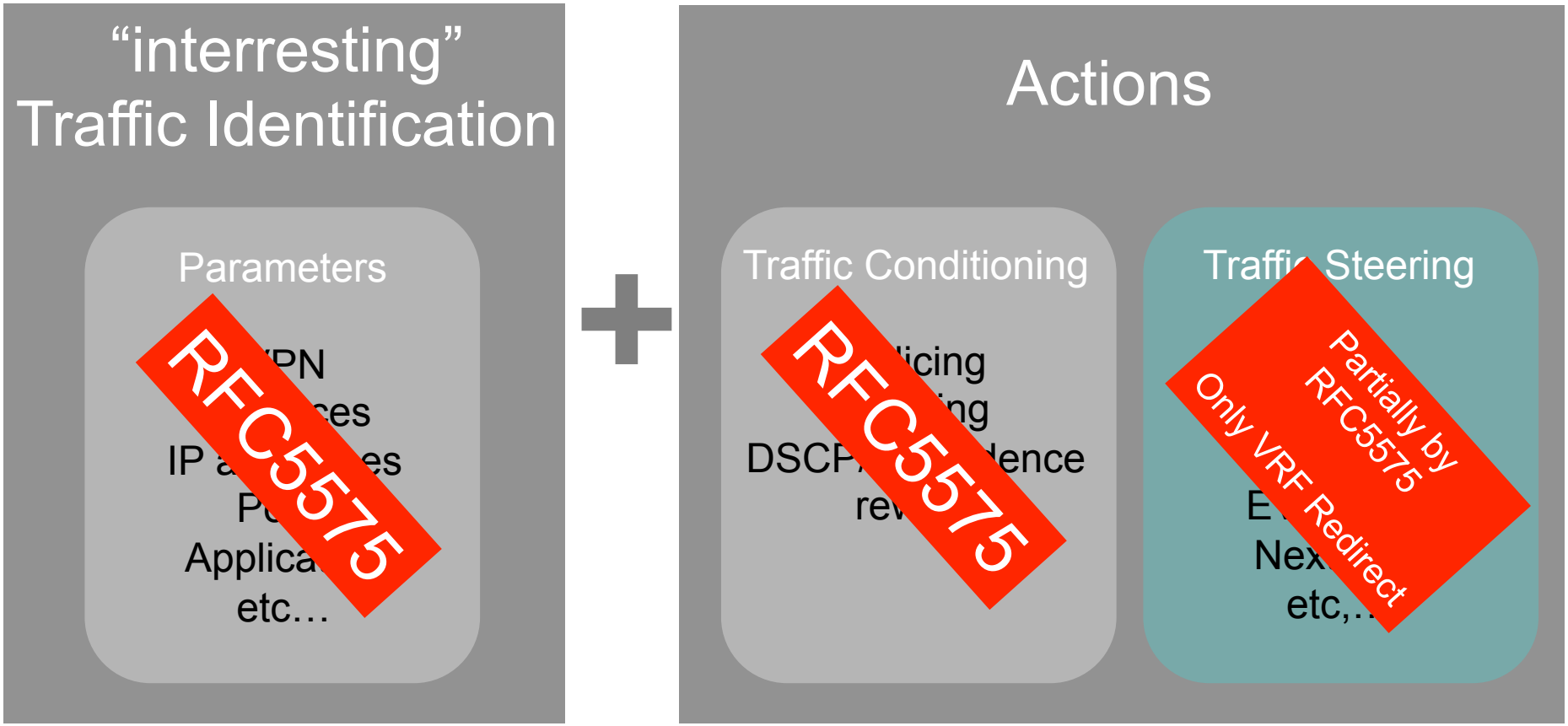
Flowspec “Indirection-id” Redirect



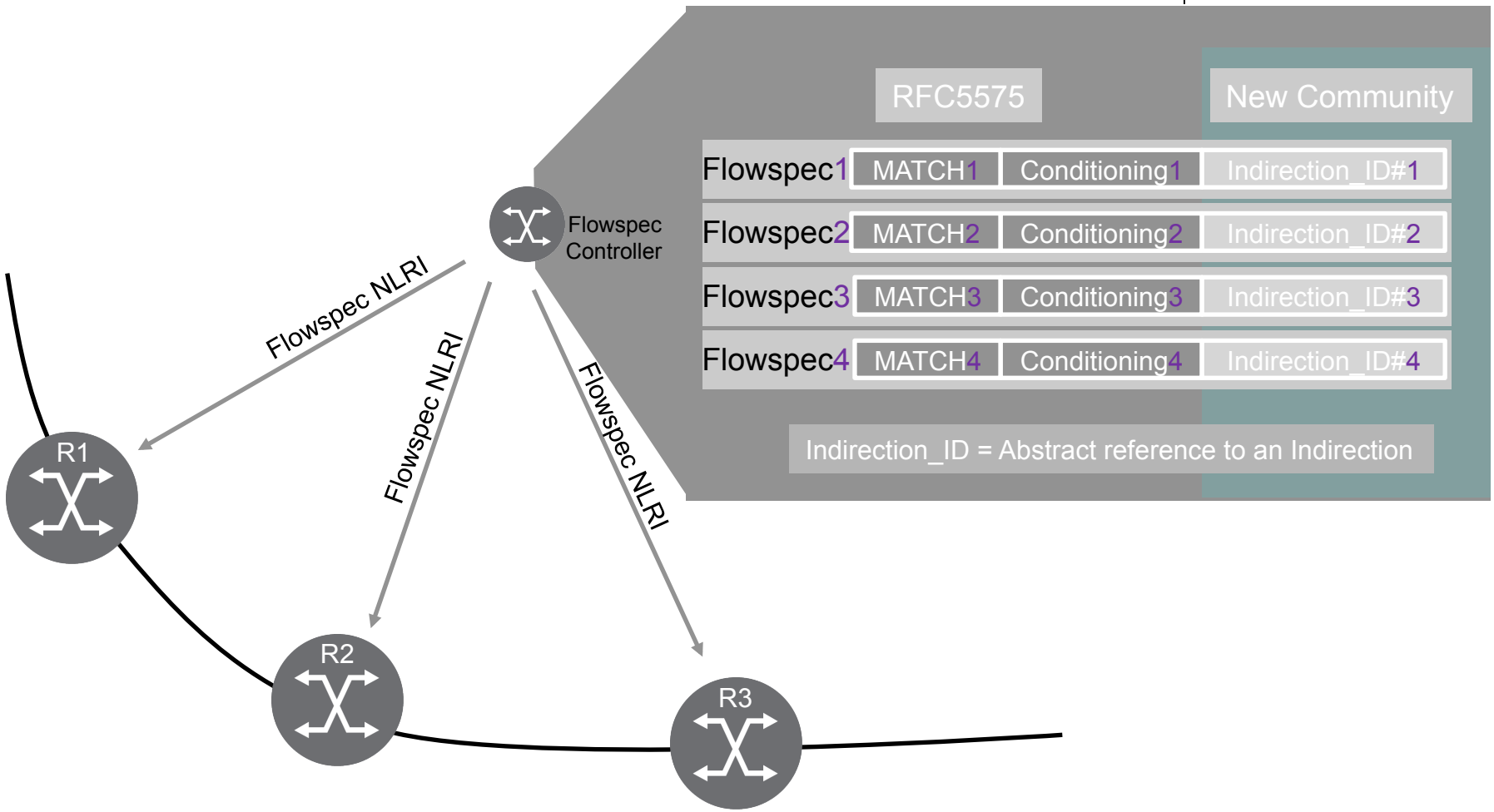
- Use-case: Traffic Steering Service
  - Provide a scalable apparatus to selective steer traffic onto an Tunnel (or Interface)
  - Routing system to propagate a reference of indirection supporting localised redirection
  - Decouple Steering Service and Underlay Topology
- None Use-case: Tunnel Setup 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

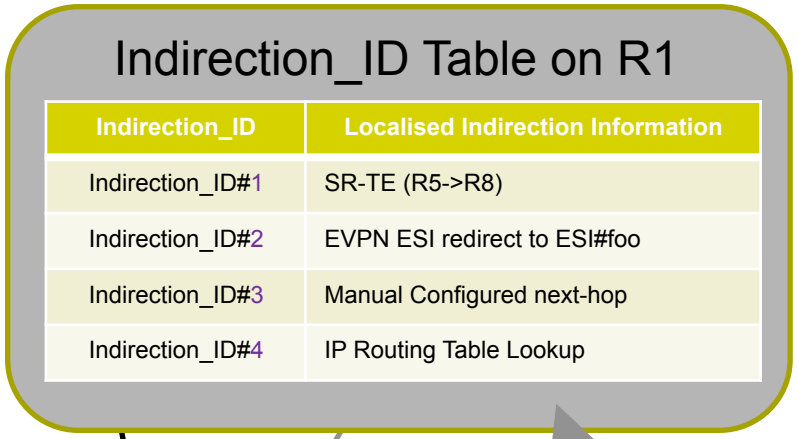
Note that PBR is NOT used at all to initiate/create/signal Tunnels



Intro to Indirection_ID



Indirection_ID Table is localised Info



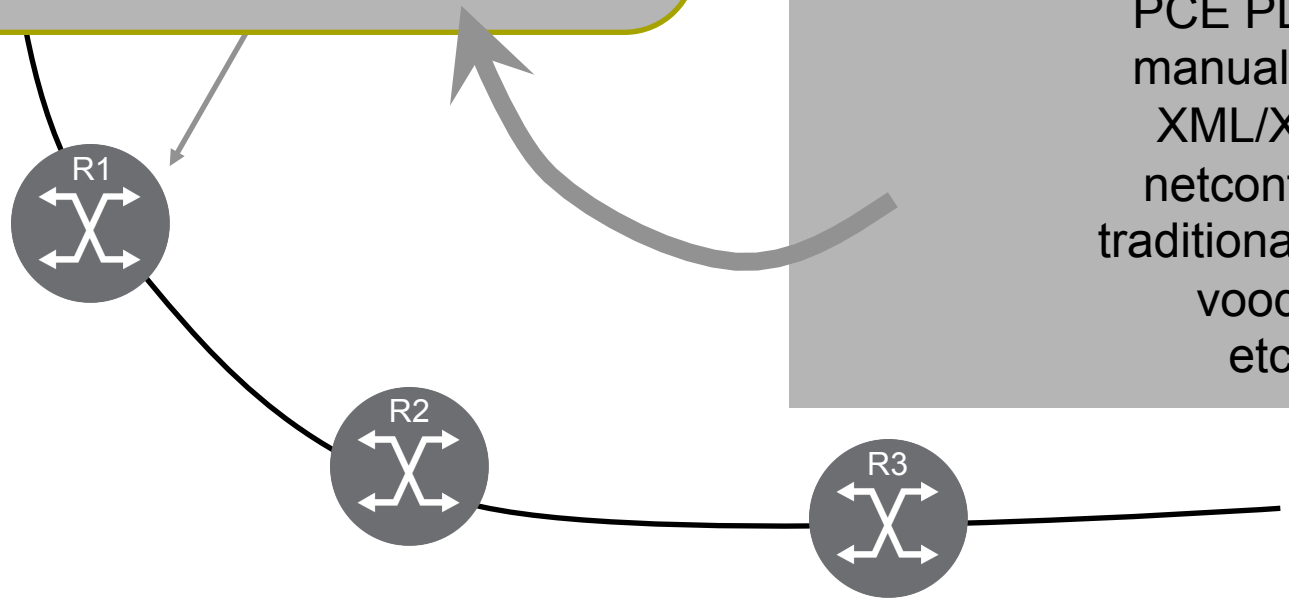


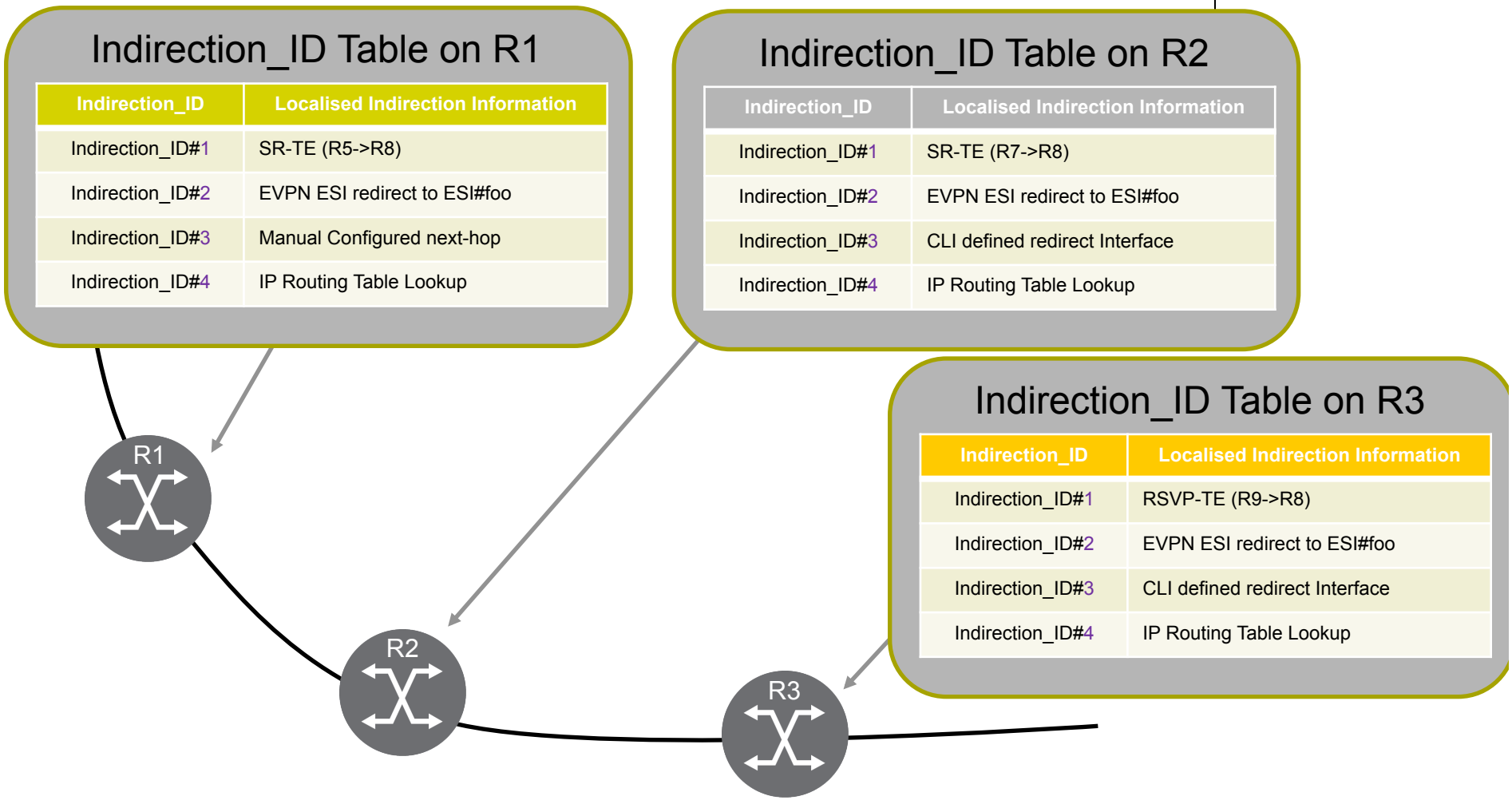
Table is decoupled from Flowspec

&

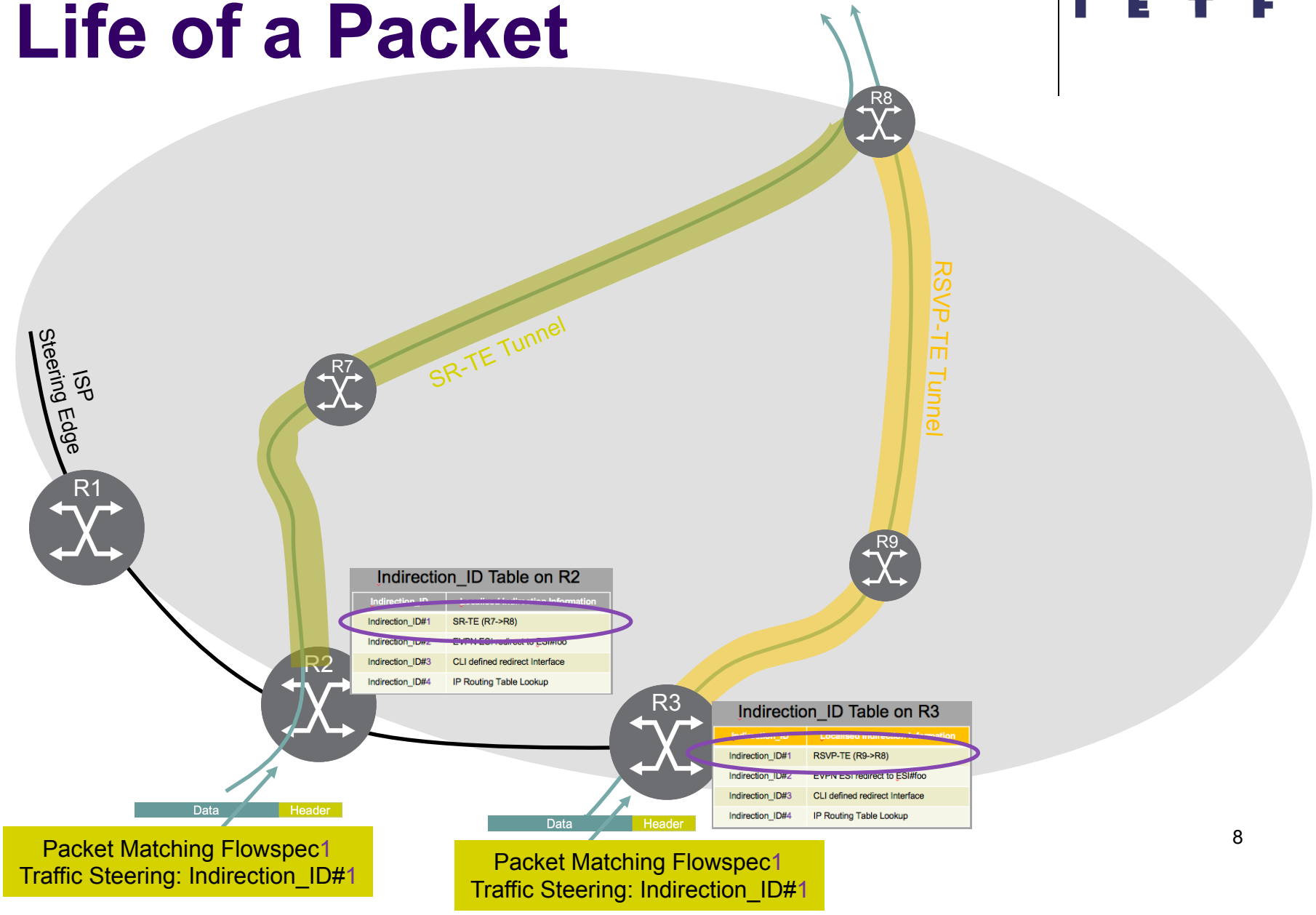
Table is independly populated

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

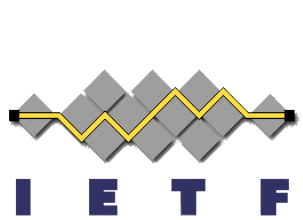
Indirection_ID Table is localised Info



Life of a Packet



Details: Flowspec Redirect-to-PATH Community

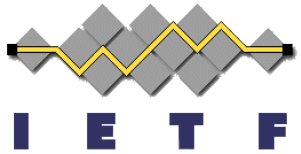


- New Flowspec Traffic Action Community
- Indiredirect_ID is either 32 or 128 bit identifier
- Assumption
  - Router has Indirection_ID table pre-populated
  - Population of this table is outside the scope of Flowspec Redirect-to-PATH (work for RTGWG?)
  - Each “Indirection_ID” is represents a unique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

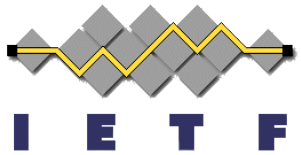
```
0                   1
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|           Reserved          |TID|C|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

  - Indirection_ID is 32 or 128 bit value
  - 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 controler 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!