

MPLS Entropy Label capability: BGP signaling.

## BGP Next-Hop dependent Capabilities

draft-decraene-idr-next-hop-capability-03

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## Recaps: MPLS Entropy Label

- Entropy Label improve load-balancing in MPLS.
  - also applicable to MPLS Segment Routing.
- Defined by the MPLS WG in RFC 6790.
- LSP egress required to first signal its capability to process EL.
  - signaling defined for LDP, BGP, RSVP-TE
  - for BGP, defines a specific transitive attribute (Entropy Label Capability Attribute)
- RFC 7447 deprecates this BGP attribute.
  - because a transitive BGP Attribute can't fulfill the EL signaling requirements
  - and calls a future replacement.

## draft-decraene-idr-next-hop-capability

- Goal 1: signal EL capability.
- Re-specify the BGP control plane signaling.
  - to signal the capability to receive EL as egress LSR
- In short: copy/paste from RFC 6790 but using a non-transitive BGP attribute.

# draft-decraene-idr-next-hop-capability

- Goal 2: make it generic.
- At no cost, we can define capability values to allow the advertisement of future features.
- Provides a generic BGP tool to signal NLRI/path capabilities which are BGP Next-Hop dependent.
- Useful for incremental deployment of future features.
  - non-transitive attribute required to enforce the signaling behavior (reset when NH change)
  - non-transitive attribute are more painful to deploy (limited incremental deployment)
  - by using a existing non-transitive BGP attribute, we benefit from pre-existing implementations of this attribute. Ease incremental deployment.

# BGP Next-Hop dependent Capabilities Attribute

- New optional non-transitive BGP Attribute.
- Generic tool to advertise next-hop dependent capabilities.
  - typically forwarding plane capabilities.
- Attribute operation:
  - Propagated while BGP Next-Hop is unchanged;
  - Removed (possibly modified) when BGP Next-Hop is changed;
  - (removed if not supported/unknown as per RFC 4271).
- Encoding borrowed from RFC 3392 (BGP (session) capability):

```
+-----+
| Capability Code (1 octet) |
+-----+
| Capability Length (1 octet) |
+-----+
| Capability Value (variable) |
~                               ~
+-----+
```

# Entropy Label capability.

- Encoding:
  - BGP Next-Hop dependent Capabilities Attribute;
  - Entropy Label Next-Hop Capability type code 1.

```
+-----+  
| Capability Code: 1 |  
+-----+  
| Capability Length: 0 |  
+-----+
```

- Operation:
  - When advertised, EL labels may be sent to the BGP Next-Hop, for the labelled NLRI advertised in the BGP Update.
  - Specific EL rules copy/pasted from RFC 6790 (EL RFC)

# IETF WGs

- Feedback & comments welcomed.
  
- Presented twice:
  - IDR WG during IETF 92 (Dallas)
  - MPLS WG during IETF 93 (Prague)
    - → IDR would be the preferred hosting WG as per MPLS & IDR chairs feedback.
  
- Would like to ask for IDR WG adoption.

Thank you