Multi-Threaded Routing Toolkit (MRT) Routing Information Export Format with BGP Additional Paths Extensions

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• Advertisement of Multiple Paths in BGP
draft-ietf-idr-add-paths-11

• Defines new NLRI encoding for BGP messages
• Negotiated via BGP capabilities

Before:

+------------------------------------------+
| Length (1 octet)                        |
+------------------------------------------+
| Prefix (variable)                       |
+------------------------------------------+

After:

+------------------------------------------+
| Path Identifier (4 octets)              |
+------------------------------------------+
| Length (1 octet)                        |
+------------------------------------------+
| Prefix (variable)                       |
+------------------------------------------+
Problem statement

• A current MRT (RFC6396) parser (e.g. BGPdump) cannot know how many bytes should be in the NLRI

• Parsing this message requires knowledge of the capabilities negotiated at OPEN of session

• Desire to preserve this new Path Identifier in both raw UPDATE messages, and RIB table dumps
Existing examples

• BGP4MP Type

  • BGP4MP_MESSAGE vs BGP4MP_MESSAGE_LOCAL

  • Carries the semantics of whether this message was received, or locally generated

• BGP4MP Type

  • BGP4MP_MESSAGE_AS4 & BGP4MP_MESSAGE_AS4_LOCAL

  • Tells the parser how many bytes to expect in ASN fields of the MRT record and the AS_PATH attribute
Proposal

- Add new Subtype codes to signal to a parser how to interpret the NLRI and MP_NLRI
- New BGP4MP subtypes:
  - BGP4MP_MESSAGE_AP
  - BGP4MP_MESSAGE_AS4_AP
  - BGP4MP_MESSAGE_LOCAL_AP
  - BGP4MP_MESSAGE_AS4_LOCAL_AP
Proposal

• Add new Subtype codes to signal to a parser how to interpret the NLRI and MP_NLRI

• new TABLE_DUMP_V2 subtypes:
  • RIB_IPV4_UNICAST_AP
  • RIB_IPV4_MULTICAST_AP
  • RIB_IPV6_UNICAST_AP
  • RIB_IPV6_MULTICAST_AP
  • RIB_GENERIC_AP
Proposal

• draft-petrie-grow-mrt-add-path

• Adds these new subtype codes, to indicate to a parser how many bytes to expect in the NLRI

• Permits representation of Additional Paths data within MRT export format
Feedback

- Comments?
- Questions?
- Co-author?
- WG adoption?