Revised Error Handling for BGP Updates from External Neighbors

draft-chen-ebgp-error-handling-00.txt

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Problem

- RFC4271 specifies that a malformed attribute resets the session

- Relaxed for optional transitive attributes

- There are other cases not covered such as

  - AS-PATH

  - Length of an optional transitive attribute

- Session rest is disruptive

  - No distinction between good / bad prefixes

  - Multiple networks / ASes

Goals

- Minimize the scope of networks being impacted

- Limit the impact to only the routes involved

- Maintain the protocol correctness

Proposal

- Partially revise error handling for updates from EBGP

- Do not reset an EBGP session if all possible

- Treat as withdraw

  - As long as the prefixes can be parsed

  - Safe, like applying a filter

  - Debugging facility must be provided

- About session integrity

  - NLRI field must be parsed completely

  - Validation of the BGP message header (synchronization header, message length and type)

Parsing of the NLRI Fields

- It is fundamental to the proposed approach

- Format the prefixes in the very front of the message

    - MP-REACH / MP-UNREACH as the first attribute

    - Use MP-REACH / MP-UNREACH for IPv4 Unicast

What about IBGP

- In general "treat-as-withdraw" is unsafe for IBGP

- Error handling (i.e., session reset) remains unchanged

- Once prefixes are identified, apply filters at the ingress

- Not pursuing automation of the procedures in protocol
  - Issues from EBGP typically dominate
  - Require significant changes to the protocol