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