Graceful Restart Extensions for BGP

draft-keyupate-idr-bgp-gr-extensions-00

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Motivation

- Current BGP Graceful Restart mechanism limits its usage to BGP messages other than BGP Notification messages

- Any error within BGP results into generation of BGP Notification messages
  - Without GR support, BGP Notification messages are disruptive. They result in removal of routes from RIB and FIB

- Extending GR support for BGP Notification messages would result in avoiding unwanted routing flaps within routers and across the network
BGP GR Extensions

- New AF based GR capability Extension flag “BGP Graceful Notification (N) bit” defined:
  
  0 1 2 3 4 5 6 7  
  +--+-+---+-+-+  
  |F|N| Reserved |  
  +----------+-+

- Upon a successful GR capability negotiation with N bit set, both the peers transition into GR mode when BGP Notification messages are generated or received.

- New BGP Notification type Cease message subcode known as “Hard Reset” defined to explicitly prevent peers from getting into GR mode: Analogous to neighbor shutdown command without GR Support.
BGP GR Extensions (Cont’d)

- Both the peers are supposed to preserve their RIB and FIBs and follow normal GR procedures for Notification messages.
- Consecutive restarts should not result in purging of RIB and FIB with this extension.
Questions?