Upcoming BGP Changes in response to Operator requests

IDR-chairs
IETF 82
Types of Errors

• Do you desire to change basic Error processing?
  – Question: Poor service or No service
  – RFC 4271: No service on error: “Drop” if error”
  – New: Poor service rather than “No Service”
    • Keep going with Error in Ribs
    • Add Monitoring, Route Refresh of peers , Add 1-Time RR filters

• IETF Operational Docs
  – Requirements for BGP error handling
    Grow-ops-reqs-bgp-error-handling-01
Problems with Poor instead of “No Service”

• BGP
  – Junk can hang on
  – Clear reset and flush avoids long-term errors

• Restoring health
  – Limit to affected NLRIs
  – Limit to RIB
  – If nothing else, session reset
Errors with “Treat as withdraw”

• e-bgp – two cases
  – Prefix in Adj-Rib-In of neighbor is use in Global RIB that forwards
  – Not in use
  – Potential issues with e-bgp treat as withdrawn are: Inconsistent BGP tables, L3 VPNs (BGP), L2 VPN endpoints, BGP MAC VPNS

• i-BGP case
  – Use of “treat-as-withdraw” may cause routing loops
  – Operators state: Better than AFI shutdown
How to Recovering RIBs

- Ways
  - Refresh RIB in IBGP/EBGP
  - Partial one-time-filters
    - Zeng-one-time-prefix-orf
    - Enhanced RR
    - Timer based GR with no DROP
    - EOR flags
  - Thread RIB by “this was withdraw/AS” but I kept it
Call to Operators

• Final Call for operators for input on requirements for Error/Monitoring

• IDR will open work on Error / Monitoring specification
  – Grow-ops-reqs-bgp-error-handling-01
  – Draft-ietf-grow-bmp-01

• Catch your window for change now
Future

• IDR will take on Graceful Restart / Graceful Shutdown next

• Requirements
  – Requirements for Graceful Shutdown [RFC 6198]
  – MED considerations [RFC 4451]
Q&A
Operational Toolset

• Message to replace notification
  – I got broken prefixes [prefix, number, what?]
  – I over my broken prefix limit – hit me with a RR
  – It’s so broken I’m going to drop AFI

• Diagnostic
  – Razuk-bgp-diangoitc
  – Idr-advisory
  – Grow-BMP

• Comments on Queueing
  – Are we requiring separate queue for messages
  – Do we augment keepalive
  – In-band/snmp/other
grow-ops-reqs-for-bgp-error-handling

• Error handling
  – Syntax check: error length check
  – Valid parsing NLRIs
    • NLRI, MP-REACH, MP-UNREACH OK
  – Validate Path Attributes
    • Bad Flags
    • Opt/Transitive Broken
      – Use Neighbor Complete Flags
    • Well Known broken