BGP Integrity Check using IRR

draft-kengo-bgp-integrity-check-00.txt

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Motivation

- Multiple Origin ASes are often observed
- Most of them are severe
- Filtering by prefix list requires much human costs
- The goal of this draft is to detect MOAS route automatically

Requirements

- To detect MOAS routes automatically:
  - Scalability
    - need to sustain route flapping environment
  - Integrity
    - need to check origin AS in BGP UPDATE is correct or not

Overview(1)

- BGP router receives BGP UPDATE:
  - Mark origin AS in AS_PATH (ASo)
  - Look up cache in BGP router (key = NLRI prefix+prefixlen)

Overview(2)

- If not entry in cache:
  - Query IRR database (route object)
  - IRR DB searches its database (key=NLRI, prefix + prefixlen)
  - Reply origin AS in IRR-DB (ASd) to BGP router
- Compare ASo and ASd :
  - ASo = ASd -> correct origin AS
  - ASo != ASd -> invalid origin AS and surpress its update
  - then bgp router caches NLRI and its related origin ASd

Consideration for requirements

- Scalability
  - By introducing cache, it can adapt in route flapping environment
- Integrity
  - check origin AS in BGP UPDATE and origin AS in IRR-DB

Open issues

- IRR-DB utilization
  - Current utilization of IRR-DB (# of route object/ # of bgp routes) is 50-55%
  - consider other approaches (AS RR/bgp.in-addr.arpa. DNS)