

AS15169

External route filtering

# Background

- Pretty much self explanatory why routing security matters, but if you ask me to say ...
- Sending/receiving route hijacks, leaks, mitms, etc hurts

# The problems



# So in 2019

AS15169 will start to apply stricter filters to BGP announcements on all peering sessions

# Route Data Sources

IRR, RPKI, <internal TE>

- IRR data for what peers think they will be sending
- RPKI data where available to validate IRR data
- Internal TE sources to limit further if required

# The Plan

1. Notify peers (howdy!) that this is going to start happening
2. Collect data regularly (daily?)
3. Parse and place into internal data service
4. Create per-ASN filter content
5. Apply changes to network device(s)
6. Mark today, drop tomorrow

# Notification

- <https://isp.google.com>
- Plans to enhance portal feature to display current data set for your ASN
- Implement ability to request 'update my filter because I updated my data' by peer(s)
- Feedback once this is working will be important!

# How would we collect data?

- IRR data is relatively easy to find:
  - `ftp://ftp.radb.net/`
  - But there are others too ...
- Decide on which IRR databases to collect and parse
  - We will use RADB, RIPE, APNIC, AFRINIC, ARIN, CenturyLink and NTT
- If you need another one please let us know
- AS-SET from PeeringDB record



# Parse IRR data

- IRR data is generally formatted
  - Follow the AS -> Maintainer -> AS-SET trees...
  - 'Everyone' keeps theirs updated, right?
  - (these aren't really IRR problems as such)
- What tooling exists for this today?
  - Irrtoolset - no
  - Bgpq3 - not usable (internal problems)
  - Run a local IRRd... doesn't actually solve the problem of making the data available to the other tooling used
  - ISOC/MANRS is coordinating some data:
    - [github.com/manrs-tools/...](https://github.com/manrs-tools/)

# Create per ASN filter

## Vendor Neutral Formatting

- OpenConfig(OC) sounds right
- This is a request from the internal(google) service owners
- Output for configuration generation system in OC form
- Probably OC is fine
- Internal tooling already knows OC
- Policy application is a simple prefix-list and associated matching policies (v4/v6)

# Applying and updating the filters

## Apply Changes as Required

- When changes arrive, apply them in the normal fashion
- Follow existing device configuration processes
- New processes are bad/hard/problems

# When

Goal is to start marking routes based on filter inclusion / exclusion by July 2019.

Reject/Drop by September-October 2019

# FAQ

- I do not have any IRR object. Would AS15169 accept my prefixes?
  - No. If you do not have any IRR object AS15169 won't accept any routing data from the BGP session(s) with your ASN.
- I modified some IRR objects. How long would take Google to process it?
  - We automatically process new data every day, so allow a period of 24hrs for our systems to update. If you encounter any problem or you have an emergency please contact the NOC.
- Where can I find more information and updates?
  - <https://peering.google.com> for general information
  - <https://isp.google.com> for specific information about your network

# How do I peer with AS15169?

- Check your PeeringDB record is up to date. Add AS-SET record there if you use one
- Check your IRR objects
- Make the request using a company valid email address
- Check our peering locations at <https://www.peeringdb.com/asn/15169>
- And then, only then go to <https://peering.google.com/iwantpeering>

# What else are we working on?

- Preventing ourselves from being the leaker (making progress!)
- Signing ROAs and studying data
- Implementing this into our peering policy
- MANRS

**Thanks!**