Large BGP Community
draft-ietf-idr-large-community-07

IETF 97, November 2016
Seoul

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Benefits

• Today’s RFC1997 communities are 4 octets each. 2 for ASN and 2 to indicate the action.

• With 4 octets for the ASN, it is mapped one to one to your actual globally unique assigned ASN. Clean name space!

• With 8 octets for the action, you can easily create opaque action code points: you have room for a “target” and an “action”

Example:

• “2914:303:199036” (In NTT: prepend 3 times to 32-bit AS 199036)
  • (currently not possible with NTT’s standard BGP Communities)
Encoding

0                   1                   2                   3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                   Global Administrator                   |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                 Local Data Part 1                  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                 Local Data Part 2                  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

• GA is an ASN... usually.
• The owner of the ASN defines the Local Data Part.
• Uses:
  • Others tell the ASN owner how to treat the route.
  • ASN owner tells others properties of the route.
  • Community is used privately: GA can be anything.
Canonical Representation

• Each large community is represented as a:b:c
  • a, b and c are each a non-negative decimal integer
    • a – ASN
    • b – Local Data 1
    • c – Local Data 2

• Why it matters
  • ISPs publish their communities in a consistent format.
  • [https://onestep.net/communities/](https://onestep.net/communities/)
The road was rough

30 → 31 → 32
“Dogfooding” is **very** important

After early allocation of a **transitive optional attribute**, immediately do the following:

- Inform networking community you are putting up a beacon
- Announce beacon into DFZ
- Look at RIPE Atlas, RIPE RIS, routeviews, etc
- Put real users behind it
The test lab
Issue with 30

• Huawei implemented a different feature on Attribute-30
• The implementation considered the attribute malformed, because the Large Communities length did not match their expected length
• Treat-as-withdrawal

Conclusion: The Large Communities deployer was punished, thus incentive is for Large to renumber

Further reading: https://labs.ripe.net/Members/emileaben/large-bgp-communities-largely-accepted-now
Future work

1. NTT (Jared + Job) will perform controlled probing of the Attribute space in 2017. This will be a longer term, slow paced, well documented & published project.

2. Clean up existing known garbage: draft-snijders-idr-deprecate-30-31-129 (Which also covers 241, 242, 243)

3. When you get an early allocation, make sure you are in a position to immediately test and if necessary return the codepoint