Large BGP Communities

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NTT Communications

Current BGP communities: RFC 1997

Prefix: 94.142.240.0/21

Type: BGP unicast univ

BGP.origin: IGP

BGP.as_path: 2914 8283

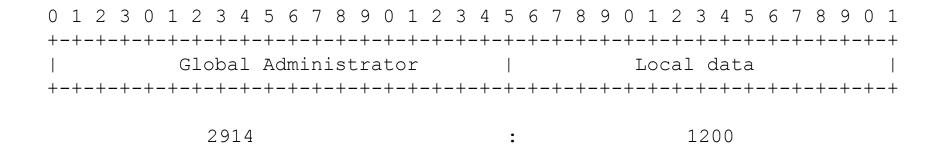
BGP.next_hop: <u>38.103.8.1</u>

BGP.local pref: 100

Communities: 2914:420 2914:1206 2914:2203 2914:3200 65504:8283

RFC 1997 Community

32 bit value



The common design pattern

https://www.us.ntt.net/support/policy/routing.cfm

Customers wanting to alter their route announcements to selected peers.

NTT Communications BGP customers may choose to prepend to selected peers with the f peer's ASN:

Community	/ Description
65400:nnn	do not advertise to peer nnn in North America
65401:nnn	prepends o/b to peer nnn 1x in North America
65402:nnn	prepends o/b to peer nnn 2x in North America
65403:nnn	prepends o/b to peer nnn 3x in North America
65410:nnn	announce to peer nnn in North America, disregards 2914:429 and 65500:nnn
65420:nnn	do not advertise to peer nnn in Europe
65421:nnn	prepends o/b to peer nnn 1x in Europe
65422:nnn	prepends o/b to peer nnn 2x in Europe
65423:nnn	prepends o/b to peer nnn 3x in Europe
65430:nnn	announce to peer nnn in Europe, disregards 2914:429 and 65500:nnn

The Problem

You can't fit a 32 bit value in a 16 bit field

Thus:

- No clean namespace
- 4-byte ASN owners put private ASNs in the global field (collision risk)
- Can't target 4-byte ASNs

Some Efforts so far

- Flexible BGP Communities (2002)
- 4-Octet AS Specific BGP Extended Community (2009)
- Wide BGP Communities (2010)

And now Large BGP Communities!

G

https://tools.ietf.org/html/draft-heitz-idr-large-community-04

[Docs] [txt|pdf|xml] [Tracker] [Email] [Diff1] [Diff2] [Nits]

Versions: 00 01 02 03 04

IDR

Internet-Draft

Intended status: Standards Track

Expires: March 10, 2017

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September 6, 2016

The solution

Large BGP Community draft-heitz-idr-large-community-04

Abstract

A new type of BGP community attribute that contains communities that each hold a 4-octet AS number and a 8-octet opaque field is defined.

Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",

Example: 2914:65400:1299

Each Large Community is encoded as a 12-octet quantity, as follows:

Autonomous System Number: This field indicates the Autonomous System in which the Large Community has a meaning.

Local Data part 1: data set by network operator

Local Data part 2: data set by network operator

This provides us with:

- Unique namespace per ASN
- No collisions
- Enough bytes to target a 4 byte ASN and still have room for an action
- Something that is easy to implement for vendors
- Easy to remember and tell each other on the phone

What has been done so far?

- ExaBGP supports the attribute
- Cisco IOS XR has an engineering release (ultra ultra alpha code ;-))
- Got half a BIRD patch
- Got half an OpenBGPd patch
- Nokia committed to implement but timeline not available yet
- Tracking implementations here: http://largebgpcommunities.net/implementations/
- The Internet-Draft is going through IETF
 - Status: requested IDR WG to adopt the Internet-Draft

What can you do?

Everybody: Ask your routing vendor (Cisco, Juniper, Brocade, etc) to implement Large BGP Communities.

http://LargeBGPCommunities.net/