

# Large BGP Communities

Job Snijders

[job@ntt.net](mailto:job@ntt.net)

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: [38.103.8.1](#)

BGP.local\_pref: 100

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



# 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 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!

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

Versions: [00](#) [01](#) [02](#) [03](#) [04](#)

IDR J. Heitz  
Internet-Draft Cisco  
Intended status: Standards Track K. Patel  
Expires: March 10, 2017 Arrcus  
J. Snijders  
NTT  
I. Bagdonas  
Equinix  
A. Simpson  
Nokia  
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",  
"SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "MAY NOT" are to be interpreted as described in RFC 2119.





# 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/>