BGP Communities (Customer Guide)

Enabling Customers to Take Control of Their Traffic Flows

- AFN's IP transit network offers a range of BGP Community options to help control the scope of announcements and path selection.

Notes & Disclaimer

- BGP Communities and tools are to be used at your own risk. Improper use of these tools can result in traffic loss.
    - Example 1: the RTBH community could be applied to all routes and drop all traffic entering the AFN network causing loss of connectivity for your network.
    - Example 2: the “Do Not Advertise” community is advertised to all but one of AFN’s peers and that one peer has an outage potentially causing an outage for your network.
- These communities and tools are subject to change without notice.
- These are provided on a best effort basis and not subject to product-specific SLAs.

Prepends and Do Not Announce

- IP Transit customers can use predefined communities to prepend or deny announcements to specific AFN peers. Communities modify route advertisements at exit points of the AFN network.
- When multiple communities are used, they will be applied in priority order. The order of priority, from highest to lowest:
    - Do Not Announce
    - 4 prepends
    - 3 prepends
    - 2 prepends
    - 1 prepend

- Only the highest-priority action will be applied.
- Informational communities are added to received routes from all AFN peers. These communities can be used to verify the source of a received route.
- X is the number of prepends (x = 1, 2, 3, 4) or do NOT announce (x = 9).

Peer	AS	Informational Community	Atlanta	Nashville
NTT	2914	40463:60101	40463:101x	
Arelion	1299	40463:60102		40463:102x
CommunityIX	63221	40463:60201	40463:201x	
Amazon	16509	40463:60301	40463:301x	
Google	15169	40463:60302	40463:302x	

- Example 1: To add 3 prepends to your advertisements to Arelion in Nashville, you would tag your advertisements to AFN with 40463:1023.
- Example 2: To troubleshoot potential network issues with AFN's peers, you could temporarily tag the route in question with a "Do No Advertise" community to your AFN peering.

Remote Triggered Blackhole Community

- The RTBH community allows customers to tag announced prefixes with a community that will cause the AFN network to automatically discard (null-route) traffic destined for the tagged prefix as soon as it enters our network.
- IPv4 and IPv6 prefixes can be tagged up to a /32 for V4 or /128 for v6, respectively. AFN advises using the smallest possible mask to assure the blackhole is narrowly applied.

Community	Description
40463:666	RTBH

- Example: If IP 1.2.3.4 was experiencing a DDoS attack that was affecting your network's throughput limits, then either a manual route update or a DDoS response tool could create a route for 1.2.3.4/32 with community 40463:666 and advertise it to the AFN peering. This will cause the AFN network to discard all traffic destined to that IP before it enters your network.
- *Warning: using the RTBH community will drop all AFN traffic to the affected IP/IPs.*

Local Preference Actions

- Customers also have the option to change the default local preference setting within AS40463 (AFN IP Transit Network).
- BGP Graceful Shutdown

- AFN accepts and honors the BGP Graceful Shutdown community. The purpose of this is to reduce the amount of traffic lost when BGP sessions are to be shut down, for example, during planned work. When announced by a customer, AFN will set local-preference to 10, which will ensure the use of alternative paths, if they exist.

Community	**Description**	**Local Preference**
65535:0	BGP Graceful Shutdown	10
40463:50	Lowest Possible	50
40463:100	Equal to transit peers	100
40463:120	Equal to PNI & IX peers	120
40463:140	Backup	140
Default	Customer	150