ICN BGP Community White Paper

ICN utilizes BGP communities to determine route preference and filtering. This standard allows customers to control more effectively how their routes are treated within the ICN backbone and advertised to peers and transit providers.

Almost all BGP customers will make no changes, and no community will be needed. The default community will be advertised to all ICN peers and transit providers including I2 as the primary route:

Most other BGP customers will use communities to allow for primary and backup connections:

Primary:	none or 6325:100
Secondary:	6325:90
Black Hole:	6325:666

Some customers may have special needs that can only be addressed by the following communities. In order to provide details on this, some background is in order.

Advanced configurations begin on the following pages of this document.

Advanced BGP Community Configuration
The following tables briefly describe types of advertisements, the basic terms and what they mean.

6325:100	**Primary routes** will be preferred over secondary routes. (within ICN)
6325:90	**Secondary routes** will be preferred only if the primary route is down. (within ICN)
6325:40	**DoNotPref routes** will be routes of last resort. NOTE: in effect, these routes will not even win out over external routes (routes on the internet) This can be used to set routes that will only be used in the event of a failure of their primary provider. Generally, it's better to use I2 and Peers only for this purpose, so that the best quality of service is received when communicating with other ICN constituents. *'DoNotPref' Routes without the proper prepends WILL CAUSE NETWORK OUTAGES for your routes.*
6325:666	**BlackHole Routes** are routes (usually /32 addresses) that you need to have ICN black hole in order to redirect a DDOS attack. Use with caution, and only in such cases.
6325:8000	**Do Not Advertise to I2**
6325:8001	**Do Not Advertise to Peers**
6325:8002	**Do Not Advertise to Commodity Internet**
No-export	**Do Not Advertise to any peers outside of ICN's ASN (6325)**

To achieve the desired routing, multiple communities may be used.

Examples:

Make this a primary path for the network:
      ASN 6325:100

Advertise this route to Internet2 only and primary:
      ASN 6325:8001 6325:8002 6325:100

Use this for Commodity internet and Peers, but no I2. (Also Primary):
      ASN 6325:8000 6325:100

Same as above, but an alternate connection(secondary):
      ASN 6325:8000 6325:90

Only use this route if the link to our other provider is down:
      ASN 6325:40 -- also