Advertising a default route in BGP

There are four ways to distribute a default route in BGP.

Three of them, the **network 0.0.0.0** , the **default-information originate** and *redistribution* from another routing protocol, are all similar in the resulting effect: they will inject the default route into BGP RIB and it will be advertised to all BGP neighbors. The difference is in the origin of the default route that is injected into BGP. Specifically:

- **network 0.0.0.0** will inject the default route into BGP *only if the default route is currently present in the routing table*.

- *redistribution* will inject the default route into BGP *only if the default route is currently present in the routing table* and *if it has been learned by a specific source protocol we are redistributing from*.

- **default-information originate** causes the default route to be artificially generated and injected into the BGP RIB, *regardlessly of whether it is present in the routing table*. The newly injected default will be advertised to all BGP peers (because it now resides in the BGP RIB)

The fourth method:

- **neighbor X.X.X default-originate** is similar to the **default-information originate** in that the default route is "artificially generated" (it does not need to be present in the routing table in order to make the advertisement effective) [1].
  However, the **neighbor X.X.X.X default-originate** is different from the the **default-information originate** in that the default route will be advertised *only to this specific BGP neighbor and not to all existing BGP neighbors* as with the previous approaches. *The default route will not be installed in the BGP RIB of the router that is configured with the **neighbor X.X.X.X default-originate** command* and so *it won't be generally advertised to all BGP neighbors*.

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[1] By doing the 'default-originate', you request a routerA (provider A) to send a route 0.0.0.0/0 via BGP out to RouterB (customer B). This is useful in many cases where customer B doesn't really want to accept a full BGP feed (for example in stub autonomous systems).