

Default Route Advertisement In BGP2 And BGP3 Versions Of The Border Gateway Protocol

Status of this Memo

This RFC specifies an IAB standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "IAB Official Protocol Standards" for the standardization state and status of this protocol. Distribution of this memo is unlimited.

Abstract

This document specifies the recommendation of the BGP Working Group on default route advertisement support in BGP2 [1] and BGP3 [2] versions of the Border Gateway Protocol.

This recommendation only applies to BGP2 and BGP3 versions of the Border Gateway Protocol since starting with the BGP4 [3] version a default route advertisement capability is built in the protocol.

1. Overview

The purpose of the default route advertisement capability is to advertise the IP address of a border gateway which can be used as the default next hop to destinations that are not listed explicitly in the BGP peer's routing table.

This capability will allow routers, that are unable to maintain a complete routing table (e.g., due to its size) to learn a border gateway that is ready to handle the default traffic. Also, in contrast to static defaults, if there is more than one default gateway, this would make it possible for a BGP speaker to express a preference for one over the other. It also reduces the need to configure default routes in routers.

2. Default Route Advertisement

A default route is advertised in an UPDATE message that carries reachability information for network 0.0.0.0. A Network field of such an UPDATE message must contain the IP address 0.0.0.0 as the indication that it carries a default route. The NEXT_HOP path attribute of such a message provides the IP address of a border

gateway that can be used as a default next hop to destinations that are not listed in the BGP peer's routing table. The value of the ORIGIN attribute should be 2 (INCOMPLETE). The AS_PATH attribute should be constructed according to the same rules that apply to a conventional network advertisement.

If multiple default routes are advertised by a BGP speaker, the INTER-AS-METRIC path attribute can be included in the corresponding UPDATE messages to express preference levels for entry points to the same AS.

The UNREACHABLE path attribute is used to indicate that a previously advertised default route has become unreachable.

UPDATE messages containing the default route advertisements should be handled according to the rules that apply to all other UPDATE messages. If multiple default route are acquired by a BGP speaker, a route is selected according to the local policies adopted by this BGP speaker.

References

- [1] Lougheed, K., and Y. Rekhter, "A Border Gateway Protocol (BGP)", RFC 1163, cisco Systems, T.J. Watson Research Center, IBM Corp., June 1990.
- [2] Lougheed, K., and Y. Rekhter, "A Border Gateway Protocol 3 (BGP-3)", RFC 1267, cisco Systems, T.J. Watson Research Center, IBM Corp., October 1991.
- [3] Rekhter, Y., and T. Li, "A Border Gateway Protocol 4 (BGP-4)", Work in Progress, T.J. Watson Research Center, IBM Corp., cisco Systems, December 1992.

Security Considerations

Security issues are not discussed in this memo.

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