

Network Working Group
Internet Draft
Expiration Date: November 2002

Acee Lindem
Anand Oswal
Redback Networks
June 2002

Extended Hitless OSPF Restart
draft-lindem-ospf-hitless-extended-restart-00.txt

Status of this Memo

This document is an Internet-Draft and is in full conformance with all provisions of [Section 10 of RFC2026](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

Abstract

This memo documents an enhancement to OSPF "hitless restart" whereby an OSPF router can request that its forwarding state be maintained longer than the router dead interval on one or more router interfaces. This is useful when the OSPF software is being updated and the router dead interval on one or more interfaces is configured to a small value.

Table of Contents

1	Overview	2
2	Changes to restarting router operation	2
3	Changes to helper neighbor operation	2
4	Backward compatibility	3
5	Security Considerations	3
6	References	3
7	Acknowledgments	3
8	Authors' Addresses	3

[1.](#) Overview

"Hitless OSPF Restart" [Ref2] describes an enhancement to the OSPF protocol [Ref1] which allows an OSPF router to continue forwarding after the OSPF routing software has been restarted. This memo documents an extension which allows the restart time to exceed the router dead interval on one or more interfaces. This is useful when the routing software is being updated and the router dead interval on one or more interfaces is configured to a very small value.

[2.](#) Changes to restarting router operation

When the restarting router is to be brought down for a period which may exceed the router dead interval on one or more router interfaces, a unique value will be used for the Hitless restart reason (Type=2, length=1) TLV. Currently, a value of 4 (extended maintenance) is used for this purpose. Once the grace-LSA has been originated on an interface, the restarting router must assure that it does not send any hello packets until it actually restarts. This is required to prevent helper neighbors from resetting their router dead interval timer corresponding to the restarting router to the configured value.

Routers that support both planned and unplanned restart should save the restart reason in non-volatile storage. When the OSPF restarts, the saved restart reason is examined to determine whether or not grace-LSAs need to be originated. The restart reason will be 0 (unknown) for unplanned restarts. This indicates the restarting router must originate grace-LSAs prior to sending any hellos

(as specified in [section 5](#) of "Hitless OSPF restart" [Ref2]).

[3.](#) Changes to helper neighbor operation

When a router Y receives a grace-LSA from router X and all criteria for entering helper are satisfied (as specified in [section 3.1](#) of "Hitless OSPF restart" [Ref2]), it will enter helper mode. If Hitless restart reason TLV in the grace-LSA indicates "extended maintenance" and the router dead interval will expire sooner than the grace period expiration, the router dead interval timer for the restarting router will be reset to expire at the same time as the grace period expiration.

Lindem, Oswal

[Page 2]

Internet Draft

Extended Hitless OSPF Restart

June 2002

Additionally, local policy may be implemented to disallow router dead interval extension when entering helper mode.

[4.](#) Backward compatibility

This extension to "Hitless OSPF Restart" [Ref2] does not introduce any new backward compatibility issues. If an OSPF router supports hitless OSPF restart but does not support this extension and the router dead timer for a restarting OSPF router expires, it will simply exit helper mode and the resume normal OSPF operation.

[5.](#) Security Considerations

The described technique does not introduce any new security issues into OSPF protocol.

[6.](#) References

[1] Moy, J., "OSPF Version 2", [RFC 2328](#), April 1998.

[2] Moy, J., "OSPF Hitless Restart", work in progress.

[7.](#) Acknowledgments

The authors wish to thank Naiming Shen and Tony Przygienda for their helpful comments.

[8.](#) Authors' Addresses

Acee Lindem
Redback Networks
102 Carric Bend Court

Anand Oswal
Redback Networks
350 Holger Way

Cary, NC 27519
e-mail: acee@redback.com

San Jose, CA 95134
e-mail: aoswal@redback.com

Lindem, Oswal

[Page 3]