

BULETINUL INSTITUTULUI POLITEHNIC DIN IAȘI

Publicat de
**UNIVERSITATEA TEHNICĂ „GHEORGHE ASACHI”
DIN IAȘI**

**Tomul LVI (LX)
Fasc. 3**

Secția
ELECTROTEHNICĂ. ENERGETICĂ. ELECTRONICĂ

EXTRAS

ROUTE REDISTRIBUTION – A CASE STUDY

BY

EUGEN PETAC and BOGDAN MUȘAT

ROUTE REDISTRIBUTION – A CASE STUDY

BY

EUGEN PETAC and *BOGDAN MUȘAT

Abstract. A lab platform which is used to experiment route redistribution is studied. The particularity of this case study platform is that, besides existent dedicated network equipment, a number of general computer systems is added. On these systems runs the Zebra / Quagga software package. Zebra [13] and Quagga [12] are two routing software packages which support traditional IPv4 routing protocols but also support IPv6 routing protocols. Quagga is an alternative to GNU Zebra (last version is Zebra-0.94), the latter being developed by Kunihiro Ishiguro. These two software packages provide TCP/IP services and routing protocols, like: RIP version 1 (RIPv1), RIP version 2 (RIPv2), OSPF version 2, OSPF version 3, BGP version 4 and BGP version 4+ [12].

Key words: route redistribution; routing protocol; RIP; OSPF; EIGRP; BGP; Quagga.

1. Introduction

Route redistribution [5], [7] means using a routing protocol [1] to advertise routes that are learned by other means, such as: another routing protocol, static routes or directly connected routes.

It is recommended that a single routing protocol be used in an IP network. On the other hand, multi-protocol routing is required in a number of situations, such as: merging companies, multiple departments managed by many network administrators and network media which use different vendor models. Running multiple routing protocols is a requirement needed since the planning phase of a network. Therefore, the existence of a communication medium running multiple routing protocols makes redistribution mandatory. The differences between characteristics of routing protocols, such as metrics, administrative distance, classfull [14] and classless capabilities, may affect

Multi-protocol routing is a requirement in a number of situations, such as: merging companies, multiple departments managed by many network administrators and network media which use different vendor models. Running multiple routing protocols is a requirement needed since the planning phase of a network. Therefore, the existence of a communication medium running multiple routing protocols makes redistribution mandatory. This case study outlined the success of route redistribution between different routing protocols.

Received, March 20, 2010

„Ovidiu” University, Constantza,
e-mail: epetac@gmail.com

and

*ITC Foundation, Constantza
musatb@yahoo.com

REFERENCES

1. Halabi S., *Internet Routing Architectures*. Cisco Press, Indianapolis, Indiana, USA, 2000.
2. Donahue G. A., *Network Warrior*. O'Reilly Media, Inc., Sebastopol, California, USA, 2007.
3. Doyle J., Carroll J.D., *Routing TCP/IP*. Cisco Press, Indianapolis, Indiana, USA, 2001.
4. Griffin T.G., Sobrinho J.L., *Metarouting*. <http://conferences.sigcomm.org/sigcomm/2005/paper-GriSob.pdf>.
5. Le F., Xie G.G., Hui Zhang, *Understanding Route Redistribution*. IEEE Internat. Conf. on Network Protocols, Beijing, China, October 16-19, 2007.
6. Malhotra R., *IP Routing*. O'Reilly Media, Inc., Sebastopol, California, USA, 2002.
7. Moy J., *OSPF. Complete Implementation*. Addison-Wesley, Longwan, Publ. Co., Inc., Boston, USA, 2000.
8. Pham P.P., Perreau S., *Performance Analysis of Reactive Shortest Path and Multi-Path Routing Mechanism with Load Balance*. Proc. of IEEE Infocom, San Francisco, USA, March-April 2003.
9. Sobrinho J., *An Algebraic Theory of Dynamic Network Routing*. IEEE/ACM Trans. on Networking, 2005, 1160-1173.
10. Thomas S., *IP Switching and Routing Essentials*. J. Wiley a. Sons, New York, 2002.
11. Zhong Z., Nelakuditi S., *On the Efficacy of Opportunistic Routing*. Proc. of the IEEE SECON, 2007.
12. * * *Quagga Routing Software Suite*. <http://www.quagga.net/>.
13. * * *GNU Zebra*. <http://www.zebra.org/>.
14. * * *RFC1519-Classless Inter-Domain Routing (CIDR)*, <http://www.faqs.org/rfcs/rfc1519.html>.

REDISTRIBUIREA RUTELOR – STUDIU DE CAZ

(Rezumat)

Se descrie o platformă de laborator dedicată experimentării rutării multiprotocol și redistribuirii rutelor. Particularitatea acesteia constă în faptul că echipamentelor