

# 以網域名稱服務達到伺服器負載平衡的方法

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## 摘要

本論文主要研究如何在多部伺服器間公平分配工作以提升系統效能。由於伺服器的工作負載會隨時間變化，因此我們提出依照伺服器的負載分配工作的AWS(Adaptive-Weighted-Scheduling)方法。本方法會將服務要求分配給負載較輕的伺服器服務以提升整體系統效能。由於本論文所提出的AWS方法雖然會提昇整體系統效能，但由於必須回報負載資訊給DNS伺服器因此會有較大的Overhead，所以本論文也針對回報週期機制門檻值的設計加以探討。最後由模擬數據顯示，套用AWS除了可提升整體系統效能之外，套用本論文所設計的回報週期機制也可降低回報所產生的流量以減少Overhead。

關鍵詞：負載平衡、DNS 伺服器、演算法。

## 目錄

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## 參考文獻

- [1] 資策會IDEAS-FIND/經濟部技術處, Available at <http://www.find.org.tw/find/home.aspx>
- [2] ISC, Available at <http://www.isc.org/>
- [3] J. F. Huber, "Mobile next-generation networks," IEEE Multimedia. Vol.11, Jan-March 2004, pp.72-83
- [4] T. Brisco, "DNS support for load balancing," RFC 1794, April 1995.
- [5] 台灣微軟網站, Available at <https://www.microsoft.com/taiwan>
- [6] V. Cardellini, M. Colajanni, P. Yu, "Dynamic load balancing on web-server system," IEEE Internet Computing, vol.3, May 1999, pp.28-39.
- [7] H. Bryhni, E. Klovning, and O. Kure, "A comparison of load balancing techniques for scalable web servers," IEEE Network, vol.14, July-August 2000, pp.58-64.
- [8] V. Cardellini, M. Colajanni and P. Yu, "Redirection algorithms for load sharing in distributed web-server systems," Proceedings of IEEE. 19th Int. Conf. on Distributed Computing Systems (ICDCS '99), May 1999, pp.528-535.
- [9] A. Bestavros, M. Cmvelia, J. Liu, and D. Martin, "Distributed packet rewriting and its application to scalable server architectures," Proceeding of 6th IEEE Int. Conf. on Network Protocols (ICNP '98), Oct. 1998, pp.290-297.
- [10] P. Srisuresh and D. Gan, "Load balancing using IP network address Translation (LSNAT), " RFC 2391, August 1998.
- [11] O. Damani, P. Chung, Y. Huang, C. Kintala, and Y. Wang. "ONE-IP: Techniques for Hosting a Service on a Cluster of Machines," Computer Networks and ISDN Systems, vol.29, April. 1997, pp.1019-1027.
- [12] K. Egevang and P. Francis, "The IP network address translator (NAT), " RFC 1631, May 1994.
- [13] B. Carpenter, "Architectural principles of the internet," RFC 1958, June 1996.
- [14] B. Carpenter and S. Brim, "Middleboxes: Taxonomy and Issues," RFC 3234, February 2002.
- [15] LVS KB, Available at. [http://kb.linuxvirtualserver.org/-/wiki/Main\\_Page](http://kb.linuxvirtualserver.org/-/wiki/Main_Page)
- [16] BIND, Available at <http://www.isc.org/BIND/>