Load balancing in Exchange 2007 - Part 1: Overview of Windows NLB Clusters

By implementing a load balancing solution, you can distribute workloads between servers, boosting performance and reducing system downtime.

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In this article, I will show you how to balance the Exchange 2007 Client Access Servers (CAS) with NLB (Network Load Balancing) technology. By implementing a load balancing solution, you can distribute workloads between servers, increasing performance and reducing downtime by eliminating the only points that exist in topology. a client access server.

Download solution can also be implemented using third-party solutions, but mentioned here, we will only implement the NLB component in Windows Server 2003. The truth is that NLB has given see good performance and is an appropriate solution for most business organizations.

What is NLB and how does it work?

Load balancing technology (NLB) can be used to distribute client requests on servers. Windows NLB is often used to secure applications such as extending IIS web servers by adding servers to increase client load. Performing this action ensures that the clients always get the right level of performance. In addition, it will reduce downtime causing a server failure.

Windows NLB groups (clusters) can provide scalability for TCP and UDP-based services and applications. You can have up to 32 servers in a Windows NLB cluster.

Windows NLB is available in both Windows Server 2003 Standard and Enterprise versions (even the Web version includes this component). And since it is a standard component, it does not require you to use any special or specific server hardware for each member server that belongs to the NLB group.

When Windows NLB is properly configured, all servers in the NLB cluster will be represented by a virtual and default IP address with a standard domain name (FQDN). When a client request appears, it will send to all servers in the Windows NLB cluster. The client will be mapped to a specific server and requests to other servers will be ignored. Here, you can use the relationship to direct a specific client request to other member servers, which can configure each member server with priority order.

Figure 1.1 below shows a simple installation of two Client Access servers configured in Windows NLB. Both Client Access servers accept client requests and send them to the corresponding back-end servers in the required manner.

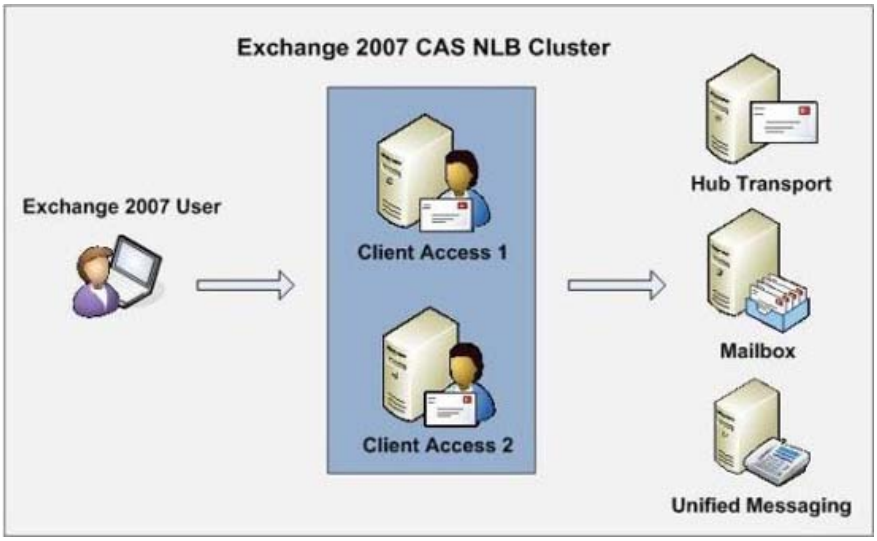

Figure 1.1: Load balancing topology of the Exchange 2007 Client Access Server

Unicast and Multicast modes

The Windows NLB cluster can be configured in unicast or multicast mode, where unicast is the default mode.

Unicast mode

With the WNLB cluster configured in unicast mode, the MAC address of each server's network adapter will be changed to the MAC address of the virtual group, this is the MAC address that will be used by all the internal servers. Windows NLB cluster. When unicast mode is enabled, clients can only connect to servers with the group's MAC address.

Multicast mode

With the Windows NLB cluster configured in multicast mode, the MAC address in this case will be added to the group adapter of each server in the group. Note that 'added' here is that each server maintains their original MAC addresses.

A Windows NLB cluster, however configured, will still work with the network adapter installed on each server, but it is recommended to install a second network adapter in each server to perform performance optimizations. and separate network traffic.

So which mode should be used for the Exchange 2007 Client Access solution and how many network adapters should I install in each Client Access server? The best solution here is to install two network adapters and use unicast mode, so that the network traffic of the cluster and the host is separated in their own respective network adapter.

Note:
In addition to Windows NLB, you can also use DNS round robin mechanisms to load balance for servers in the Exchange 2007 messaging environment, but Windows NLB should only use DNS round robin because later Only provide a minimum automatic failover level. The reason this problem exists is because if a certain Client Access server does not respond to client requests, the client requests must be repeated until the server responds

to the client connection information. as well as the unavailability of Client Access server. Because the Windows NLB component is available in both Windows Server 2003 Standard and Enterprise editions, there is no reason why we should choose DNS round robin on WNLB.

Although the above introductions may sound complicated and take a long time to deploy a Windows NLB load balancing solution, the fact of the implementation is easy, we will introduce them to you. you have those problems in the following sections.

Purpose of Client Access server

Before going into the configuration of the Windows NLB cluster, I will show you some brief details about what purpose Client Access servers are. This will focus on clarifying why it is important to balance these Exchange 2007 servers.

Client Access Server replaces front-end servers that we still know in Exchange 2000 and 2003 and some additional functions. The Client Access server allows mailbox access for all Exchange client types except for Outlook MAPI clients, the client connects directly to the Mailbox Server. This means that the Client Access server manages any user who accesses their mailbox with Outlook Anywhere (formerly known as RPC over HTTP), Outlook Web Access (OWA), Exchange ActiveSync (EAS), POP3 and IMAP4.

In addition to providing client access, the Client Access server is also responsible for providing access to things such as automatic profile configuration, free / busy information, Out of Office (OOF) messages, and Offline. Address Book (OAB) as well as Unified Messaging (UM), but only for Outlook 2007 and Outlook Web Access 2007 (and later Windows Mobile 6.0 devices). There are only two clients, which can take advantage of the new Web Exchange Autodiscover and Availability service, which is responsible for providing access to the above mentioned client features.

Note:
Legacy clients like Outlook 2003 and earlier, along with Windows mobile 5.0 devices cannot use Autodiscover or availability service.

Prerequisites

If you want to deploy the solution introduced in this article on a lab environment, you need the following:

- 1 server acts as Domain Controller (Microsoft CA component installed)
- 2 servers have deployed the Client Access server role (two NICs in each of these servers)
- A server has deployed the Mailbox and Hub Transport server role
- 1 Windows XP / Vista client has installed Outlook 2007

Depending on your specific hardware specifications, you can install the Mailbox and Hub Transport server roles on the domain controller, but in a lab environment, you should separate these roles separately.

You already know what NLB cluster is and have been able to start setting up your lab environment. Now that you are ready for the next section, the section will walk you through the steps to configure the Windows NLB cluster.