

# Microsoft Network Load Balancing

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## Abstract

This document describes the level of support of Microsoft Network Load Balancing (NLB) on Enterasys switches.

## Microsoft Network Load Balancing

Microsoft NLB may be enabled by the end-user in one of two modes: unicast or multicast. These modes determine the network characteristics of the cluster nodes. In both modes, the cluster requires that all nodes receive all traffic destined to the cluster address; in multicast mode, the cluster address is a multicast MAC address; in unicast mode the cluster address is a unicast MAC address which will never be learned by the network (as it is never sourced by the cluster). In both cases, the cluster uses ARP responses to prime the upstream network devices with the cluster's IP/MAC binding. At least one Microsoft Application (the ISA Firewall) is known to run in a significantly degraded mode if multicast NLB is used, thus driving the need of unicast NLB support in hardware.

## Microsoft Network Load Balancing – Multicast Mode

The Matrix N-Series currently supports multicast NLB in hardware, through the automatic (or administrative) provisioning of the multicast MAC ARP entries in the router Host Table and the administrative provisioning of a static multicast MAC entry in the Filtering Database. These entries are bound to a single VLAN and return the list of ports to which the traffic will be forwarded. Prior to firmware version 6.01.01, unicast NLB was not supported through the hardware path and was handled by the CPU (as the destination address is unlearned). In such configuration, it is not recommended to use unicast NLB in scenarios in which the Matrix N-Series is supporting the LAN (or VLAN) on which the cluster resides.

## Microsoft Network Load Balancing – Unicast Mode

Starting with firmware version 6.01.01, the Matrix N-Series introduced a new feature to support unicast NLB in hardware. A new MIB object and CLI command allows the user to enable this feature: once enabled, the Matrix N-Series will extend the “search” phase of the Layer 2 lookup in an attempt to match an unlearned destination MAC address against static multicast MAC entries. In order to accomplish this, the address will be temporarily modified for the lookup by OR'ing in the MAC multicast bit. This means that a cluster address of “02-03-04-05-06-07” (unicast address) will be configured in the switch as “03-03-04-05-06-07” (multicast address).

## Hardware Platforms – Firmware Versions Support

The following table lists the hardware platforms supporting NLB in multicast mode, along with the associated firmware versions.

Hardware Platform	Firmware Version
SecureStack A2	2.01.00
SecureStack B2	4.01.01
SecureStack B3	1.01.01
SecureStack C2	5.01.01
SecureStack C3	1.01.01
Matrix E1	3.07.02
Matrix DFE-G	5.21.24
Matrix DFE-P	5.21.24
Matrix DFE-D	5.36.03
Matrix X	1.5.1
Industrial I3	1.00.37

*Note that the SecureStack platform only supports NLB in multicast mode at layer 2 (bridging only, no routing).*

The following table lists the hardware platforms supporting NLB in unicast mode, along with the associated firmware versions.

Hardware Platform	Firmware Version
Matrix DFE-G	6.01.01
Matrix DFE-P/D	6.01.01

## Support Matrix

	SecureStack				Matrix			
	A2	B2/B3	C2/C3	E1	DFE-G	DFE-P/D	X	I3
Multicast Mode	✓	✓	✓	✓	✓	✓	✓	✓
Unicast Mode	x	x	x	x	✓	✓	x	x

## Contact Us

For more information, call Enterasys Networks toll free at **1-877-801-7082**, or +1-978-684-1000 and visit us on the Web at [enterasys.com](http://enterasys.com)



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