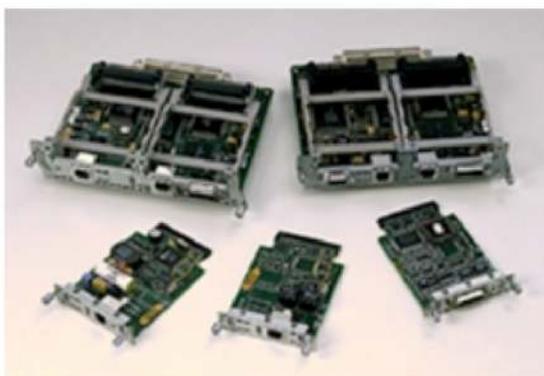# Cisco Ethernet/Token Ring Mixed Media Network Modules

The NM-1FE2W, NM-2FE2W, NM-2W, NM-1FE1R2W, NM-1FE2W-V2, NM-2FE2W-V2, and NM-1FE-FX-V2 WAN combination 10/100 Ethernet and WAN Interface Cards carrier modules allow customers using Cisco 2600, 2800, 3600, 3700 and 3800 Series Routers to benefit from the increased performance and density capabilities delivered by this family of network modules. Features include auto-sensing 10/100 Mbps Fast Ethernet ports and TDM capabilities.

Figure 1. 10/100 LAN/WAN Combo Network Modules

Introduction

Table 1. Four Different Network Modules Are Available to Increase LAN/WAN Densities for the Cisco 2600, 2691, 2800, 3600, 3700 and 3800 Series of Multi-Service and Integrated Services Routers

Part Number	Description
NM-1FE2W and NM-1FE2W-V2	1-port 10/100 Ethernet 2 WAN Card Slot Network Module
NM-2FE2W and NM-2FE2W-V2	2-port 10/100 Ethernet 2 WAN Card Slot Network Module
NM-1FE1R2W	1-port 10/100 Ethernet 1 4/16 Token Ring 2 WAN Card Slot NM
NM-1FE-FX-V2	1-Port Fast Ethernet Network Module, FX Only
NM-2W	2 WAN Card Slot Network Module (No LAN Interface)

Features

- Supported on Cisco 2600 (NM-2W only) 2691, 2800, 3600, 3700 and 3800 Series Branch office routers
- Supports WICs and VWICs (see below for a complete list)
- Increase WIC density in Cisco 2600, 2691, 3700 and 3800 series
- Support for up to 8Mb throughput on a WIC interface
- 10/100 autosensing full/half duplex
- Full and half duplex Token Ring Support
- TDM enabled

The following WICs and VWICs are supported:

- WIC-1B-S/T
- WIC-1B-S/T-V3
- WIC-1B-U
- WIC-1B-V2
- WIC-1DSU-56K4
- WIC-1DSU-T1
- WIC-1DSU-T1-V2
- WIC-1T
- WIC-2T
- WIC-2A/S
- WIC-1AM
- WIC-2AM
- WIC-1ADSL
- WIC-1ADSL-V2
- WIC-1GSHDSL
- VWIC-1MFT-T1*
- VWIC-1MFT-E1*
- VWIC-1MFT-T1-DI*
- VWIC-1MFT-E1-DI*
- VWIC-2MFT-E1*
- VWIC-2MFT-T1*
- VWIC-2MFT-T1-DI*
- VWIC-2MFT-E1-DI*
- VWICs in data mode only

Table 2. Comparison of Supported Features and the Major Enhancements over the Current Legacy Mixed-Media Network Modules

Feature	NM-1E2W and NM-2E2W	NM-1FE2W, NM-2FE2W, NM-1FE1R2W
Max T1/E1 WIC Connections	2	4
VWIC Support	Limited	Full
WIC Support	Limited	Full
WIC Throughput	2 Mb	8 Mb
TDM Support	No	Yes
Ethernet Support	10 Mb	10/100 Mb
G.703 WIC Support **	No	Yes
Full Duplex Token Ring	No	Yes

**FCS 2HW/00

Table 3.   Maximum Number of Network Modules that Are Supported in the 2600, 2691, 3600, 3700 and 3800 Families

	2600	2691	2800	3640	3660	3725/3825	3745/3845
NM-1FE2 and NM-1FE2W-V2	N/A	1	N/A	4	6	2	4
NM-2FE2W and NM-2FE2W-V2	N/A	1	N/A	4	6	2	4
NM-1FE1R2W	N/A	1	N/A	4	6	2	4
NM-2W	1	1	N/A	3	6	2	4
NM-1FE-FX-V2	N/A	N/A	1	1	1	1	1

Orderability, Availability, Compatibility, Minimum Software, and Memory Requirements

Table 4.   10/100 LAN/WAN Combo Network Modules Product Numbers and Description

Product Number	Description
NM-1FE2W/NM-1FE2W-V2	1-port 10/100 Ethernet with 2 WAN Card Slot Network Modules
NM-2FE2W/NM-2FE2W-V2	2-port 10/100 Ethernet with 2 WAN Card Slot Network Modules
NM-1FE1R2W	1-port 10/100 Ethernet, 1-4/16 Token Ring, 2 WAN Card Slot Network Modules
NM-1FE-FX-V2	1-Port Fast Ethernet Network Module, FX Only

For the NM-1FE2W, NM-2FE2W, NM-1FE1R2W, and NM-2W the minimum level of IOS is 12.0(7)XK or 12.1(1)T.

For the NM-1FE2W-V2 and NM-2FE2W-V2 the minimum level IOS is 12.2(12)M and 12.2(13)T.

Table 5.   10/100 LAN/WAN Combo Network Modules (NM-1FE2W, NM-2FE2W, NM-1FE1R2W, and NM-2W) Platforms Supported, Minimum Cisco IOS® Release, Minimum Memory and Maximum Number Supported

Product	Minimum Cisco IOS Software Required	Cisco IOS Feature Set	Maximum Supported
Cisco 2600 Series	12.0(7)XK	All Cisco IOS Feature Sets	1
Cisco 2600XM Series	12.2(8)T	All Cisco IOS Feature Sets	1
Cisco 2691	12.2(8)T	All Cisco IOS Feature Sets	1
Cisco 3620	12.0(7)XK	Any Cisco IOS Feature Set	2**
Cisco 3640	12.0(7)XK	All Cisco IOS Feature Sets	4**
Cisco 3660	12.0(7)XK	All Cisco IOS Feature Sets	6
Cisco 3725	12.2(8)T	All Cisco IOS Feature Sets	2
Cisco 3825	12.3(11)T	All Cisco IOS feature sets	2
Cisco 3745	12.2(8)T	All Cisco IOS Feature Sets	4
Cisco 3845	12.3(11)T	All Cisco IOS Feature Sets	4

* The NM-1FE2W-V2 and NM-2FE2W-V2 have the same memory requirements as the non-V2 network modules.
** Only 1 of the NM-2W is supported in the 3620, and only 3 NM-2W are supported in the 3640.

Physical Specifications

Table 6. Standards and Compliance Support

Product Feature	Product Specifications
Dimensions	1.55 x 7.10 x 7.2 in (H x W x D)
Weight	2.5 lbs. Maximum
Environmental Conditions	• Operating temp. 32°-104°F (0°-40°C) • Non-operating temp. -13° to -158°F (-25 to 70°C)
Power Requirements	15 watts Maximum
Relative Humidity	5 to 95%
MTBF	• NM-2W-1,720,096 hours • NM-1FE2W and NM-1FE2W-V2-846,192 hours • NM-2FE2W and NM-2FE2W-V2-569,302 hours • NM-1FE1R2W-507,634 hours
Protocols Supported	Full Cisco IOS Software as of 12.0(7)XK
WIC Performance	Up to 8Mb/s per network module
EMI	FCC Part 15 Class B-CISPR 22 Class B
Cabling	• WAN cables dependent on WICs • LAN interfaces have 10/100BaseT cables for Ethernet and STP/UTP cables for Token Ring
LEDs	• Token ring 4/16 speed indication • Ethernet 10/100 Speed Indication • Link and full Duplex LEDS
Network Interfaces	Compatible with all existing network modules and WICS supported by Cisco 2600/2691/3600/3700/3800 routers

Supported Management Information Base (MLBS)

The 10/100 LAN/WAN network modules support the standard Management Information Base (MIBs).

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site at:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

Regulatory Approval

UL 1950