Matrix™ N-Series Chassis-based Enterprise Switches

- High-performance switching and routing for the premium edge, collapsed backbone, distributed switching and server farm aggregation
- Low entry cost, leveraging Enterasys' Advanced Distributed Architecture
- High availability through Enterasys' innovative Integrated Services Design that provides the industry's first stateful fail-over capability
- Performance and capacity scales as more Distributed Forwarding Engines are added

- **High-performance switching and routing**
  - DFE switching/routing performance: 13.5 Mpps
  - Matrix N1 performance: 13.5 Mpps
  - Matrix N3 aggregate performance: 40.5 Mpps
  - Matrix N5 aggregate performance: 67.5 Mpps
  - Matrix N7 aggregate performance: 94.5 Mpps
- **Switch fabric capacity**
  - DFE switching capacity: 18 Gbps per module
  - Aggregate chassis switching capacity: Matrix N1, 18 Gbps; Matrix N3, 240 Gbps; Matrix N5, 800 Gbps; Matrix N7, 1.68 Tbps
- **Optimized high-availability services**
  - All failures architecturally isolated to one engine (stateful fail-over)
  - Redundancy scales with the number of modules
- **Inherent scalability**
  - Performance/capacity scale as modules are added
  - Support 10-Gigabit Ethernet today and scale up to 40-Gigabit Ethernet per slot
- **Simplified system maintenance**
  - All modules have the same firmware version
  - Each module keeps a copy of the current configuration
- **Ideal for converged applications**
  - Integrated Power-over-Ethernet (POE)
  - Standards-based 802.3af

A New Generation of Premium Enterprise Switches

Providing intelligent switching at user and server access points, the Matrix N-Series is the ideal solution for the premium edge, collapsed backbone, distribution switching, and server aggregation applications, including performance networking, business-critical applications, end-to-end security, and convergence applications such as voice and video.

To support a wide array of configurations, the Matrix N-Series is available in four different chassis-based models, all of which support any of the N-Series Distributed Forwarding Engine (DFE) modules:

- **Matrix N1**—A single-slot chassis for flexible deployment in all environments
- **Matrix N3**—A three-slot chassis for small to medium-size networks
- **Matrix N5**—A modular five-slot chassis with an integrated Power-over-Ethernet (POE) power shelf
- **Matrix N7**—A modular seven slot chassis for high-density environments

(Please note: A Matrix N Standalone switch is also available.)

With so many flexible options available, customers can choose to deploy the Matrix N-Series solution that perfectly meets their density, capacity and performance requirements—now and in the future.

The Matrix N-Series was engineered to provide for high availability through its distributed passive backplane. The N-Series backplane is a point-to-point matrix design with fully meshed interswitch links that provide increased scalability and performance. The interswitch links can support 20 Gbps to 80 Gbps of switching capacity per link. Total system aggregate switching capacity for the Matrix N1 is 18 Gbps; the Matrix N3 is 240 Gbps; the Matrix N5 is 800 Gbps; the Matrix N7 has the capability to scale to 1.68 Tbps.

The Matrix N-Series chassis supports standards-based 802.3af PoE for connecting VoIP phones, wireless access points (e.g., RoamAbout AP3000), and remote security scanners and cameras, eliminating the need for individual power sources for these devices.

The Matrix N5 has an integrated PoE power shelf and the Matrix N1, N3 and N7 leverage an external power shelf. Total available power for all Matrix N-Series chassis is 4,800 watts, which allows a fully loaded Matrix N7 to support a Class 2 (7.5 watt) PoE device on every port simultaneously.

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Supported Modules

The Matrix N-Series supports Enterasys' next-generation modules called Distributed Forwarding Engines (DFEs). Based on a new family of nTERA™ ASICs, DFEs provide high port density to new and emerging technologies such as 10 Gbps, with support for over 18 Gbps of switch capacity. DFEs introduce new innovations like Enterasys Integrated Services Design, multi-user authentication and policy, multi-user packet classification, and self-healing maintenance, all leveraging the distributed flow-based switching architecture to ensure maximum uptime, and sophisticated traffic management and control. All Matrix N-Series chassis supports two versions of Distributed Forwarding Engines: **Platinum DFEs** and **Gold DFEs**.

Platinum DFEs are ideal for high-feature, high-performance, end-to-end enterprise connectivity, including edge, distribution and IP core applications. Gold DFEs are specifically optimized for network edge connectivity.

Density and Performance

The Matrix N-Series provides high performance and high density:

	Matrix N1	Matrix N3	Matrix N5	Matrix N7
Performance (Mpps)	13.5 Mpps	40.5 Mpps	67.5 Mpps	94.5 Mpps
Capacity	18 Gbps	54 Gbps	90 Gbps	126 Gbps
10/100 Base-TX Ports	72	216	360	504
10/100/1000 Base-TX Ports	60	180	300	420
100Base-FX Ports	48	144	240	336
1000 Base-X Ports	12	36	60	84
10-Gigabit Ethernet Ports	2	6	10	14

Edge Deployment

- 24 10/100Base-TX RJ45 ports with one expansion slot
- 48 10/100Base-TX RJ45 ports with one expansion slot
- 48 10/100Base-TX RJ-21 (Telco) ports with one expansion slot
- 72 10/100Base-TX RJ45 ports
- 72 10/100Base-TX RJ21 (Telco) ports
- 40 10/100/1000Base-TX RJ45 ports with one expansion slot
- 60 10/100/1000Base-TX RJ45 ports
- 48 100Base-FX MT-RJ ports with one expansion slot

Edge Deployment with PoE

- 48 10/100Base-TX RJ45 ports with PoE and one expansion slot

Distribution/Core/Server Deployment

- 30 10/100/1000Base-TX RJ45 ports
- 10-12 1000Base-X Mini-GBIC ports
- 2 10GE (Xenpak) 10GBase Optics slot
- Network expansion module with 6 1000Base-X ports via Mini-GBICs

Specifications

Physical Specifications

Dimensions
Matrix N1: 8.81 cm (3.48") H x 144.46 cm (17.62") W x 51.92 cm (20.44") D

Matrix N3: 35.56 cm (14") H x 49.53 cm (19.5") W x 44.45 cm (17.5") D

Matrix N5: 58.67 cm (23.1") H x 44.45 cm (17.5") W x 47.5 cm (18.7") D

Matrix N7: 77.47 cm (30.5") H x 36.83 cm (14.5") W x 44.04 cm (17.34") D

Power-over-Ethernet Power Shelf:
12.9 cm (5.12") H x 44.6 cm (17.56") W x 39.73 cm (15.7") D

Weight
Matrix N1: 6.36 kg (14 lbs)
Matrix N3: 19.1 kg (42 lbs)
Matrix N5: 27.2 kg (60 lbs)
Matrix N7: 23.6 kg (52 lbs)
Power-over-Ethernet Power Shelf: 8.2 kg (18 lbs)

Rack Mounting
19"

Rack Unit Height
Matrix N1: 2
Matrix N3: 8
Matrix N5: 14
Matrix N7: 18
Power-over-Ethernet Power Shelf: 3

Power Supply Redundancy
1+1

Power Supply Wattage
Matrix N1: 250 watts maximum
Matrix N3: 863 watts maximum
Matrix N5: 1,200 watts per supply
Matrix N7: 1,600 watts per supply

Power-over-Ethernet Power Shelf
Matrix N1, N3 and N7: External
Matrix N5: Internal
PoE Power Supply: 1,200 watts per supply
Maximum PoE Power: 4,800 watts (4x1,200 watts)

Input Frequency
50 to 60 Hz

Input Voltage Range
100 to 125 Vac

Input Current
Matrix N1: 120V 3.6 Amps;
240V 1.6 Amps

Matrix N3: 120V 12.0 Amps;
240V 6.0 Amps

Matrix N5 : 120V 16.0 Amps;
240V 8.0 Amps

Matrix N7 : Dual Input
120V 12.0 Amps;
240V 6.0 Amps

Minimum Power Supplies
1

Network Management
NetSight™ Console
NetSight Policy Manager
NetSight Inventory Manager
NetSight Automated Security Manager

Environmental Specifications

Operating Temperature
5° C to +40° C (41° F to 104° F)

Storage Temperature
-30° C to 73° C (-22° F to 164° F)

Operating Humidity
5%–90% RH, non-condensing

Agency and Standards Specifications

Safety
UL 60950, CSA 60950, EN 60950, EN 60825 and IEC 60950

Electromagnetic Compatibility
47 CFR Parts 2 and 15, CSA C108.8, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, and VCCI V-3

MTBF (Predicted) Systems
Matrix N1: > 100,000 hours
Matrix N3: > 200,000 hours
Matrix N5: > 200,000 hours
Matrix N7: > 200,000 hours

Ordering Information

Matrix N1

7C111
Matrix N1 Single-Slot Chassis including integrated redundant AC power supplies and fans

Matrix N3

7C103
Matrix N3 Chassis and fan tray

7C203-1
Matrix N3 863-Watt AC Power Supply

7C403
Fan unit for Matrix N3 (spare)

N3-SYSTEM
Matrix N3 system bundle including chassis, fan tray and one chassis power supply (North America Only)

N3-SYSTEM-R
Matrix N3 system bundle including chassis, fan tray and two chassis power supplies

Matrix N5

7C105-P
Matrix N5 Chassis and fan tray with integrated PoE power shelf

7C405
Fan unit for Matrix N5 (spare)

7C205-1
1200W AC Power Supply for Matrix N5 (includes two 15 Amp power outlets)

N5-SYSTEM
Matrix N5 system bundle including chassis, fan tray and one chassis power supply

N5-SYSTEM-R
Matrix N5 system bundle including chassis, fan tray and two chassis power supplies

Matrix N7

7C107
Matrix N7 Chassis and fan tray

6C407
Fan unit for Matrix E7 and Matrix N7 (spare)

6C207-3
1600W AC Power Supply for Matrix E7 and Matrix N7 (includes two 15 Amp power outlets)

N7-SYSTEM
Matrix N7 system bundle including chassis, fan tray and one chassis power supply

N7-SYSTEM-R
Matrix N7 system bundle including chassis, fan tray and two chassis power supplies

Ordering Information (continued)

Power over Ethernet

N-POE

Power-over-Ethernet Power Shelf (supports four 1200W power supplies)

N-POE-1200W

1200W Power-over-Ethernet power supply for Matrix N5 and N-POE

Matrix Software

N-EOS-L3

Enterasys Operating System (EOS) Layer 3 routing package upgrade for Matrix N-Series switches

N-EOS-PPC

Enterasys Operating System (EOS) Matrix Platinum DFE port capacity increase key

N-EOS-PUC

Enterasys Operating System (EOS) Matrix Platnium DFE extra user capacity activation key

N-EOS-RED

Enterasys Operating System (EOS) 1+1 High-Availability upgrade for Matrix Gold DFEs

Notes:
1. Base system "bundles" are not available outside North America; only spares and system components are available in regions outside North America.
2. Basic EOS routing is included with each DFE. EOS supports static routes and RIP.
3. Only one advanced Routing Package (N-EOS-L3) is required per chassis (N1, N3, N5, or N7).
4. The Advanced Routing Package (N-EOS-L3) includes OSPF, DVMRP, and PIM-SM.
5. Matrix N1, N3, N5, and N7 chassis support only Distributed Forwarding Engines (DFEs).
6. The Matrix N1, N3, N5, and N7 do not support first-, second-, and third-generation modules.
7. Matrix N-Series bundles are available in North America only.

Warranty

As a customer-centric company, Enterasys is committed to providing the best possible workmanship and design in our product set. In the event that one of our products fails due to a defect in one of these factors, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired as soon as possible.

Service and Support

Enterasys understands that superior service and support is a critical component of *Networks that Know.*™ The Enterasys **SupportNet Portfolio**—a suite of innovative and flexible service and support offerings—completes the Enterasys solution. SupportNet offers all the post-implementation support services you need—online, onsite or over the phone—to maintain your network availability and performance.

Additional Information

For additional information on the Matrix, visit **enterasys.com/products/switching**

Contact Information

Contact Enterasys Sales at **877-801-7082** or **enterasys.com/corporate/contact/contact-sales.html**

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