3Com Switch 4500 10/100 Family

DATA SHEET

Enables **Secure Converged Networks** with:

- End-to-end network security
- Smart PoE for convergence of VoIP and wireless LAN mobility
- Layer 2/3 switching and routing
- Scalable up to 384 users per stack

Product Overview

The 3Com® Switch 4500 family of managed, stackable 10/100 Ethernet switches provides secure, flexible LAN connectivity for enterprise and branch office networks. The Switch 4500 family offers Layer 2 switching and dynamic Layer 3 routing, as well as robust security, quality of service (QoS), and management features to deliver intelligent edge connectivity for essential business applications.

Four new switch models – stackable in any combination up to eight units – include:

- **3Com Switch 4500 26-Port**: 24 10/100 ports plus 2 dual-personality Gigabit ports
- **3Com Switch 4500 50-Port**: 48 10/100 ports plus 2 dual-personality Gigabit ports
- **3Com Switch 4500 PWR 26-Port**: 24 10/100 Power over Ethernet ports plus 2 dual-personality Gigabit ports
- **3Com Switch 4500 PWR 50-Port**: 48 10/100 Power over Ethernet ports plus 2 dual-personality Gigabit ports

Secures the Network

Essential security features provide user and device authentication, enforce access control for switch management, and enhance overall network security to protect critical resources and information.

The Switch 4500 also functions as an integral part of the 3Com Quarantine* solution, enabling automatic containment of security threats.

Empowers Application Convergence

The Switch 4500 family combines high performance switching, quality of service (QoS), and advanced traffic management features to ensure essential applications get priority. Additionally, 3Com Smart PoE delivers intelligent power management with dynamic allocation of available power resources.

Reduces Deployment Costs

Power over Ethernet provides electrical power and data connectivity over a single Ethernet cable - resulting in significant cost savings when deploying devices like IP phones, wireless access points, and IP security cameras.

Increases Flexibility and Scalability

The Switch 4500 family employs a flexible design with user-configurable "dual personality" Gigabit Ethernet interfaces, and the ability to stack up to eight switch units (384 10/100 connectivity ports) that can be managed as a single entity.

Enhances Management and Control

Easy to use and manage, the Switch 4500 family is designed to increase business productivity by reliably supporting business applications that drive productivity improvements.

* For details on the 3Com Quarantine solution, see http://www.3com.com/other/pdfs/products/en_US/3Com-400915.pdf

Key Benefits

Security
The Switch 4500 family ensures secure access to resources using standard 802.1X network access control combined with RADIUS authentication. Additionally, RADIUS Authenticated Device Access (RADA) enables authentication of attached devices via MAC address for an additional level of endpoint security. Port-based Access Control Lists (ACLs) effectively enable usage policies at each point of access to the network via the switch.

Secure Shell (SSHv2) and SNMPv3 support ensure secure management access to switches via authentication and encryption of management traffic.

Dynamic Voice over IP
Unique Voice VLAN feature detects the presence of IP phones* and dynamically assigns switch ports to the Voice VLAN, enabling automated configuration and prioritization of VoIP traffic. This powerful feature minimizes cost and complexity associated with adding or moving IP phones.

Performance
Designed for high-performance network connectivity, the Switch 4500 family features 26-port and 50-port models providing aggregate switching capacity up to 8.8 Gbps and 13.6 Gbps, respectively. Dual Gigabit uplinks on each switch unit enable high-speed connections to the network backbone or locally attached servers.

Prioritization and Bandwidth Management
Eight priority queues per port enable 802.1p Class of Service / Quality of Service (CoS/QoS). Bandwidth rate limiting and protocol filtering capabilities allow the Switch 4500 family to enforce controls on each port for efficient use of network resources and prioritization of "business-critical" or "time-sensitive" applications, including Voice over IP (VoIP).

Power over Ethernet (PoE)
Two models in the Switch 4500 family provide inline power to attached devices via industry-standard 802.3af Power over Ethernet (PoE). The internal power supply provides a power budget of 300 Watts, which is dynamically allocated to PoE ports. Supplemental power can be provided by an optional external DC power system, supplying up to 15.4 Watts of power to all PoE ports in a switch or stack.

Flexibility and Scalability
Two Gigabit ports on each model of the Switch 4500 family may be used for stacking or for high-speed uplink connectivity to the network backbone or to locally attached servers. Each Gigabit port offers a choice of copper or fiber media: 1000Base-T (via RJ45) or 1000Base-X (via optional "SFP" Small Form Factor Pluggable transceiver modules).

Stacking capability allows up to 8 units to be combined in a single managed stack, scaling up to as many as 384 10/100 ports. A comprehensive set of switching features, including multicast filtering and Rapid Spanning Tree Protocol support, act to further improve scalability and availability of network resources.

Management and Control
The Switch 4500 family is powered by the 3Com Operating System, the same proven software featured in 3Com premium enterprise switches - including the Switch 5500, Switch 7700, and Switch 8800 families. Network configuration and control features are accessible via command line interface (CLI), or by using SNMP management software such as 3Com Enterprise Management Suite (EMS) and 3Com Network Director.

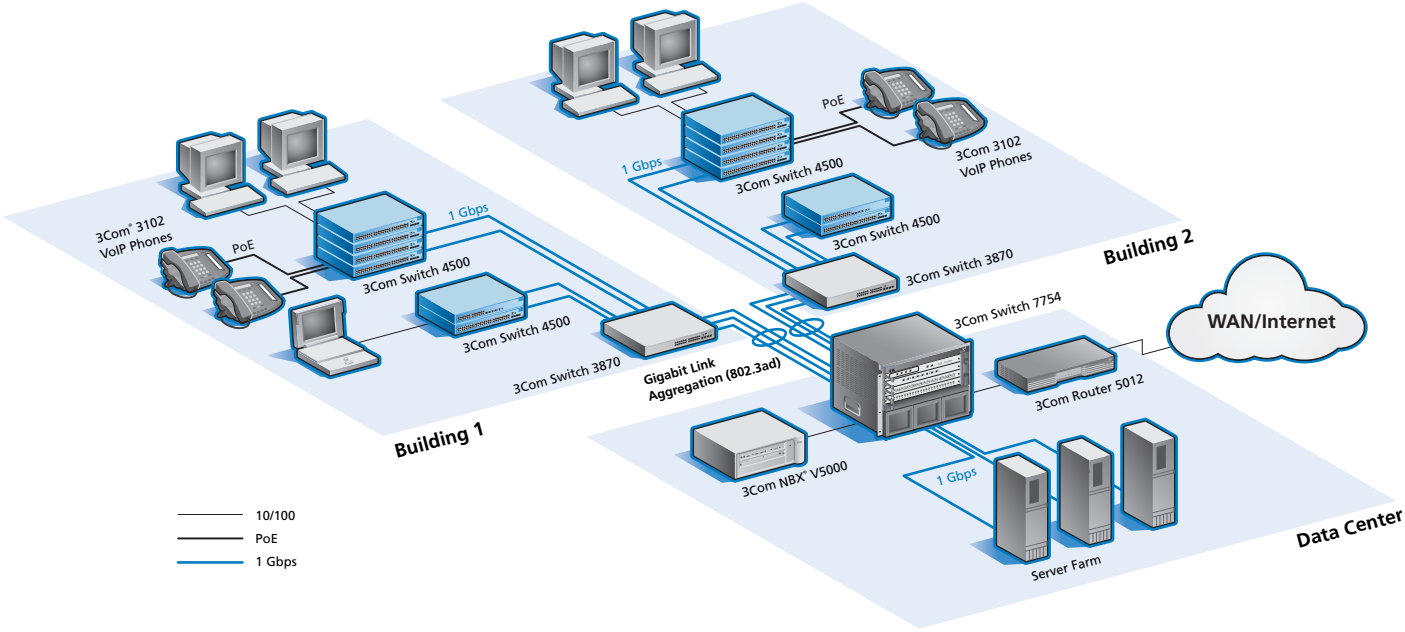
Ease of Use
Dynamic routing with RIP (Routing Information Protocol) allows automatic updating of Layer 3 network topologies. Speed and duplex mode on all ports are negotiated automatically, preventing the possibility for improper configuration. Switches detect and adjust to cross-over or straight through cable connections via "Auto MDI/MDIX" feature, eliminating the need for different cables to interconnect network devices.

Limited Lifetime Hardware Warranty
Limited Lifetime Hardware Warranty with Advance Hardware Replacement. See **www.3com.com/warranty** for details.

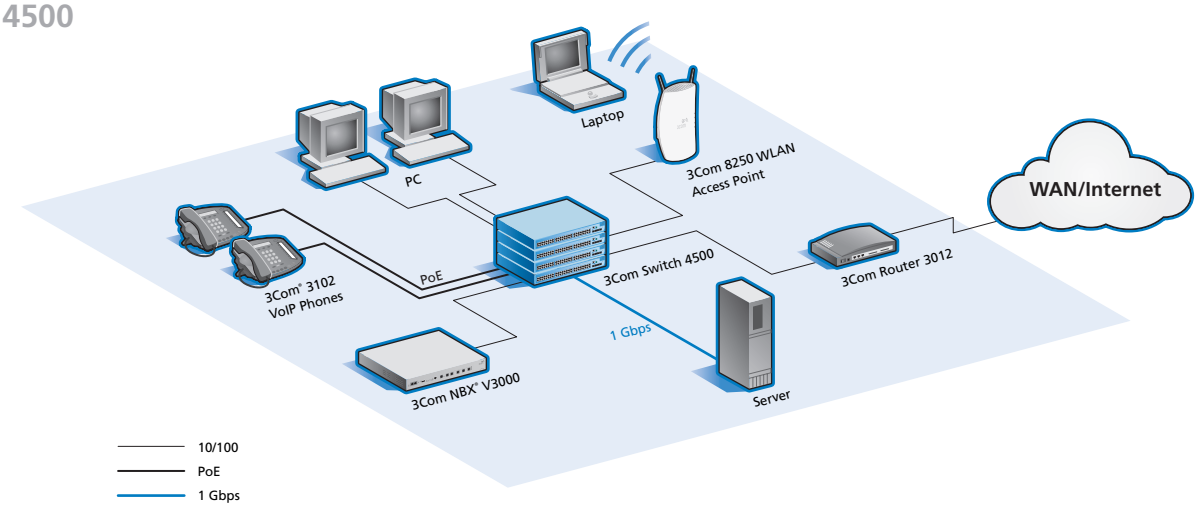
Service and Support
3Com products are backed by 3Com Global Services and authorized partners with demonstrated expertise in network assessment, implementation, and maintenance. Ask about 3Com's Network Health Check, installation services, and maintenance service packages available in your area.

* By default, the Switch 4500 will automatically recognize and classify IP phones from 3Com, Cisco, Pingtel, and Polycom. Additional manufacturer profiles can be defined by the user.

Sample campus LAN configuration supported by the Switch 4500



Sample small to medium LAN configuration supported by the Switch 4500



Features

PERFORMANCE	
Switching capacity, maximum	50-port models: 13.6Gbps; 26-port models: 8.8 Gbps
Forwarding rate, maximum	50-port models: 10.1Mpps; 26-port models: 6.5 Mpps Wirespeed performance across all ports within stack or fabric Store-and-forward switching; latency <10 µs
Stacking bandwidth	2 Gbps full-duplex stacking
LAYER 2 SWITCHING	
MAC address	8K MAC addresses Static MAC addresses: 12 in addition to the default address
VLAN	IEEE 802.1Q Port-based VLANs: 256
Link aggregation	IEEE 802.3ad Link Aggregation Control Protocol (LACP) Manual aggregation Trunk groups: 25 groups (50-port); 13 groups (26-port) 8 10/100 ports or 2 Gigabit ports per group
Auto-negotiation	Auto-negotiation of port speed and duplex
Traffic control	IEEE 802.3x full-duplex flow control Back pressure flow control for half-duplex
Spanning Tree/Rapid Spanning Tree	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) BPDU (Bridge Protocol Data Unit) protection included in Fast Start
Multicast snooping	Internet Group Management Protocol (IGMP) v1 and v2 snooping IGMP Querier Filtering for 128 multicast groups
LAYER 3 SWITCHING	
Routes	Hardware-based routing Static routes: 12 in addition to the default address Dynamic / static ARP (Address Resolution Protocol) entries : 1990 / 10
IP routing	IP interfaces: 4 RIP (Routing Information Protocol), v1 and v2: 2K via default route plus 10 locally learned routes
Multicast Routing	IGMP v1 and v2 snooping
Network protocol	DHCP Relay (Dynamic Host Configuration Protocol Relay): 2 KB max
STACKING	
Stacking	Eight units, or 384 Fast Ethernet ports Single IP address and management interfaces for stack-wide control
CONVERGENCE	
Priority queues	Eight hardware queues per port
Traffic prioritization	IEEE 802.1p Class of Service/Quality of Service (CoS/QoS) on egress DSCP EF (DiffServ Code Point Expedited Forwarding) for prioritization of VoIP traffic
Queue handling	Weighted Round Robin
Traffic shaping	Egress rate limiting, port-based Application and protocol blocking
SECURITY	
Network login	IEEE 802.1X user authentication: RADIUS authentication, multiple users per port by locking to the MAC address, automatic port assignment of VLANs, multiple RADIUS server realm definitions RADIUS Authenticated Device Access (RADA): authenticate devices based on MAC address against RADIUS server, authenticate multiple devices per port, automatic assignment of VLANs to a port specific to the devices attached PAP, CHAP, EAPoL (EAP over LAN) authentication, for multiple users per port and 1,024 users per fabric Port-based MAC address lockdown using Disconnect Unknown Device (DUD) with continuous learning
Packet filtering	Wirespeed packet filtering in hardware Layer 2/3/4 ACL filters: source and/or destination MAC address, 16-bit Ethertype, source and/or destination IP address, TCP source and/or destination port, UDP source and/or destination port
Switch protocol security	MD5 cipher-text authentication and clear-text authentication for RIP v2 packets and SNMP v3 traffic Trusted MAC and IP address Concurrent sessions; four access-privilege levels

Features, *continued*

Switch management	IEEE 802.1X network administrator authentication
	Secure management via SSH v2.0 or SNMPv3
	Management activity logs automatically recorded for detailed analysis
	Administrative password recovery
MANAGEMENT	
System configuration and management	CLI (Command Line Interface) via the console port or Telnet
	Embedded web management interface
	System configuration with SNMP v1, 2, and 3
	RMON (Remote Monitoring) groups: statistics, history, alarm, and events
	ACL/QoS statistics
	Comprehensive IP interface statistics and rates
Traffic redirection	1-to-1 port mirroring
	Ability to apply QoS profile to mirror port, forwarding only certain traffic types and preventing over-subscription of copy port
System maintenance	Detailed alarm/debug information
	Supports ping and traceroute
	Backup and restore of software image
	Network debugging tools: DHCP Relay, UDP Helper
	Multiple configuration file support
System file transfer mechanisms	Xmodem
	FTP (File Transfer Protocol)
	TFTP (Trivial File Transfer Protocol)
3Com Management Applications	3Com Network Director for comprehensive, turn-key network management for the enterprise.
	3Com Network Supervisor for basic, turnkey network management for small and medium businesses
	3Com Enterprise Management Suite for flexible, extensible management in advanced enterprise IT environments
POWER	
IEEE 802.3af Power over Ethernet (PoE)	DC power injection into Category 5 or 5e LAN wiring (PWR models only)
DC Supplemental Power System	Available Standards-based DC power supply from leading provider of integrated power systems
	(Provides supplemental DC power injection for Switch 4500 PWR models)

OPTIONAL SERVICE AND SUPPORT	
Network Health Check	An activity-auditing service focused on improving network performance and productivity
	Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations
	Extensive report provides blueprint for action
Network Design	Includes review of business plan, extensive inventory of requirements, and complete design document specifying implementation details
Network Installation	Experts set up and configure equipment and integrate technologies to maximize functionality and minimize business disruption
	Service may include physical site survey, network design, and engineering based on evaluation of business objectives
Project Management	Provides extra focus and resources that special projects demand
	3Com personnel manage entire process from initial specifications to post-project review
	Using structured methodology, requirements are identified, projects planned, and progress of implementation activities tracked
3Com Guardian℠ Maintenance Service	Provides comprehensive onsite support, including advance hardware replacement, telephone technical support, and software upgrades: • Telephone support backed by powerful call-tracking database and replication laboratory • Software upgrades ensure access to pertinent patches
3Com Express℠ Maintenance Service	Benefits customers who prefer to maintain own hardware
	Bolsters in-house resources with convenient and speedy access to 3Com hardware replacements, software upgrades, and telephone support

Specifications

All information in this section is relevant to all members of the 3Com Switch 4500 10/100 family, unless otherwise stated.

Connectors
24 or 48 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX

2 dual-personality Gigabit port pairs: user configurable for RJ45 (copper) or SFP-based (fiber) interfaces.

RJ-45 console port

PWR switch models include IEEE 802.3af in-line power on all 10Base-T/100Base-TX ports and support redundant power supply (-48 VDC) connector

Security
RADIUS authentication

RADIUS session accounting

SSH v2.0

IEEE 802.1X network login

Access Control Lists (ACL)

Packet filtering

Private Ports

SNMP v3 encryption

Stacking
Up to 384 10/100 front panel ports

Performance
26-port
8.8 Gbps switching capacity, maximum

6.5 Mpps forwarding rate, maximum

8,000 MAC addresses supported

50-port
13.6 Gbps switching capacity, maximum

10.1 Mpps forwarding rate, maximum

8,000 MAC addresses supported

Reliability
(MTBF @ 25˚C)

26-port: 47 years (411,000 hours)

26-port PWR: 25 years (221,000) hours)

50-port: 38 years (334,000 hours)

50-port PWR: 22 years (189,000 hours)

Dimensions
Height: 43.6 mm (1.7 in or 1U)

Width: 440 mm (17.3 in)

Depth:
Non-PWR models: 270 mm (10.6 in)
PWR models: 427 mm (16.8 in)

Weight:
Non-PWR models: 3.3 kg (7.3 lb)
PWR models: 6.3 kg (13.9 lb)

Power Supply
AC Line Frequency: 50/60 Hz

Input Voltage: 90-240 VAC

Current Rating: 1.0A maximum

Environmental Requirements
Operating temperature: 0° to 40°C (32° to 104°F)

Storage temperature: -10° to 70°C (14° to 158°F)

Humidity (operating and storage): 10% to 95% non-condensing

Standard: EN 60068 (IEC 68)

Industry Standards Supported
IEEE 802.1D (STP)

IEEE 802.1p (CoS)

IEEE 802.1Q (VLANs)

IEEE 802.1w (RSTP)

IEEE 802.1X (Security)

IEEE 802.3 (Ethernet)

IEEE 802.3ad (Link Aggregation)

IEEE 802.3ab (1000BASE-T)

IEEE 802.3af (Power over Ethernet)

IEEE 802.3i (10BASE-T)

IEEE 802.3u (Fast Ethernet)

IEEE 802.3x (Flow Control)

IEEE 802.3z (Gigabit Ethernet)

IETF Standards
Management, including MIBs Supported
RFC 1213/2233 (MIB II)

RFC 1724 (RIP Version 2 MIB Extension)

RFC 1907 (SNMP v2c, SMI v2 and Revised MIB-II)

RFC 2021 (RMON II Probe Config MIB)

RFC 2233 (Interfaces MIB)

RFC 2571 (FrameWork)

RFC 2571-2575 (SNMP)

RFC 2613 (Remote Network Monitoring MIB Extensions)

RFC 2665 (Pause control)

RFC 2668 (IEEE 802.3 MAU MIB)

RFC 2674 (VLAN MIB Extension)

RFC 2819 (RMON MIB)

Emissions / Agency Approvals
CISPR 22 Class A

FCC Part 15 Class A

EN 55022 1998 Class A

ICES-003 Class A

VCCI Class A

EN 61000-3-2 2000, 61000-3-3

Immunity
EN 55024

Safety Agency Certifications
UL 60950

IEC 60950-1

EN 60950-1

CAN/CSA-C22.2 No. 60950-1-03

Management
SNMP and Telnet support

RMON Groups: Statistics, History, Alarms and Events

Statistics gathering and reporting

Command line interface

Management through 3Com management applications

- 3Com Network Supervisor

- 3Com Network Director

- 3Com Enterprise Management Suite

Warranty
Limited Lifetime Hardware Warranty with Advance Hardware Replacement, including Power Supply and fans. Limited Software Warranty for ninety (90) days. See www.3com.com/warranty for details.

Other Benefits
90 days of telephone technical support.

See www.3com.com/warranty for more detail.

Register products at http://eSupport.3com.com.

Service
Americas:
www.3com.com/products/en_US/global_services

International:
http://emea.3com.com/globalservices

Ordering Information

PRODUCT DESCRIPTION	3COM SKU
3Com Switch 4500 26-Port	3CR17561-91
3Com Switch 4500 50-Port	3CR17562-91
3Com Switch 4500 PWR 26-Port	3CR17571-91
3Com Switch 4500 PWR 50-Port	3CR17572-91
Transceivers	
3Com 1000BASE-SX SFP	3CSFP91
3Com 1000BASE-LX SFP	3CSFP92
3Com 1000BASE-T SFP	3CSFP93
3Com 1000BASE-LH SFP	3CSFP97
DC Power System Components[†]	
Powerware RPS Rackmount 3 Rectifier System with Load Distribution	APS3-058
Powerware RPS Rackmount 3 Rectifier System with Load and Battery Distribution	APS3-059
Powerware RPS Desktop 3 Rectifier System with Load Distribution	APS3-060
Powerware RPS Desktop 3 Rectifier System with Load and Battery Distribution	APS3-061
Powerware RPS Rackmount 6 Rectifier System with Load Distribution	APS6-058
Powerware RPS Rackmount 6 Rectifier System with Load and Battery Distribution	APS6-059
Powerware RPS 1,500W Rectifier	APR48
Powerware RPS 720W Rectifier	APU48

[†] Provides supplemental or redundant DC power for Switch 4500 PWR models. Available from authorized 3Com resellers. See www.3com.com/rps for details.

Redundant Power System

3Com has tested and qualified a Redundant Power System (RPS) solution designed for the 3Com Switch 4500 by Eaton Powerware Corporation, a leading global provider of power quality and management solutions.

The Powerware DC RPS systems come in either 3RU or 6RU form-factors, delivering up to 9,000W of DC power to a stack of Switch 4500 PWR units. The 3RU RPS unit can house up to three hot-swappable rectifiers supplying up to 4,500W of power, and supports up to eight separately-fused DC outputs, while the 6RU unit can house up to six hot-swappable rectifiers provisioning a total of 9,000W.

The RPS supports SNMP management, including MIB II, which is easily accessible through the built-in RJ-45 or serial port. It is fully compatible with the IEEE 802.3af Power over Ethernet standard, providing supplemental power for the 3Com Switch 4500 PWR models. With this RPS, all 384 10/100 ports on a stack of eight Switch 4500 PWR 26-Port or 50-port units can receive the industry standard 15.4W of power per port, with N+1 power redundancy.

The RPS ships with the power input fully configured and can be connected to a UPS with battery backup. For more details, please refer to www.3com.com/rps.

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To learn more about 3Com solutions, visit www.3com.com. 3Com is publicly traded on NASDAQ under the symbol COMS.

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