3COM SWITCH 4500 10/100 FAMILY

Intelligent and secure edge connectivity, ideal for small and medium enterprise and branch office networks.

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 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 port pairs

- 3Com Switch 4500 50-Port:
  48 10/100 ports plus 2 dual-personality Gigabit port pairs

- 3Com Switch 4500 PWR 26-Port:
  24 10/100 Power over Ethernet (PoE) ports plus 2 dual-personality Gigabit port pairs

- 3Com Switch 4500 PWR 50-Port:
  48 10/100 PoE ports plus 2 dual-personality Gigabit port pairs

KEY BENEFITS

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.

EMPOWERS APPLICATION CONVERGENCE

The Switch 4500 family combines high performance switching, QoS and advanced traffic management features to help ensure essential applications get the appropriate priority for efficient utilization of network resources.

REDUCES DEPLOYMENT COSTS

Two Switch 4500 models provide Power over Ethernet (PoE). PoE 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

Dual-personality ports allow for both copper and fiber Gigabit uplink connections. The switch supports true stacking with the ability to stack up to eight switch units—384 10/100 ports per stack—with single IP management and distributed aggregated links for high uplink resiliency. Alternatively, cluster manage up to 32 geographically distributed devices together, with any mix of Switch 5500G, 5500, 4500G, 4500, 4200G and 4210s.
The Switch 4500 family is easy to use and manage, designed to increase business productivity by reliably supporting business applications. Additionally, the PoE models deliver intelligent power management ("smart PoE") with dynamic allocation of available power resources.

**MINIMIZE VOICE OVER IP COMPLEXITY**
Minimize the cost and complexity associated with adding or moving IP phones: the Switch 4500 detects the presence of IP phones and dynamically assigns switch ports to the voice VLAN, enabling automated configuration and prioritization of Voice over IP (VoIP) traffic.

**DELIVER HIGH PERFORMANCE**
No need to buy new switches when additional network performance is needed, as 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.

The Switch 4500 also supports jumbo frames at sizes up to 9,216 bytes for greater efficiency in large data transfers.

**REDUCE CONFIGURATION EXPENSE**
Automatic updating of Layer 3 network topologies, negotiation of port speed and duplex mode, and detection and adjustment of cable type reduces configuration time and expense.

**REDUNDANT POWER SYSTEM SUPPORT**
The two 3Com Switch 4500 PWR models support a redundant power system (RPS) connection.

RPS units provide these benefits:
- For PWR switches, an RPS can deliver more power budget for IEEE 802.3af Power over Ethernet than what the switches alone can provide. For example, the Switch 4500G PWR 50-port switch has a PoE power budget of 300 Watts, which means that approximately half of the ports can provide the full 802.3af PoE power of 15.4 Watts. With an RPS providing power, all 48-ports can provide a full 15.4 Watts of PoE power.
- They deliver redundant power to switches so there is continued operation should the switch unit power supply fail. This allows for continuous operation of advanced Enterprise networks, particularly important for converged networks running IP phones on the network.

**3Com H3C RPS Systems**
3Com switches are compatible with 3Com H3C® RPS solutions. These are enterprise-class power redundancy systems that work with many 3Com fixed-conﬁguration switches. 3Com Corporation manufactures networking equipment under the H3C brand for sale into many markets.

The H3C RPS 1000 is 1U high and provides multiple power output connections to support multiple switch units at the same time. Two power rectifiers can be installed for 1+1 load sharing and power redundancy. It supports switches with -54V RPS connections, and delivers sufficient power to fully provision all PoE ports of a switch with full power redundancy.

**SUPPORTED BY LIMITED LIFETIME HARDWARE WARRANTY**
3Com gives a Limited Lifetime Hardware Warranty on the Switch 4500 10/100 Family. Also provided is Advanced Hardware Replacement, with next business day shipment available in most regions, and telephone support and limited lifetime software updates.
FEATURE HIGHLIGHTS

**FEATURE** | **DESCRIPTION**
--- | ---
IEEE 802.1X network access control | Standards-based security combined with RADIUS authentication
RADIUS Authenticated Device Access | Authentication of attached devices via MAC address for additional level of endpoint security
Access Control Lists (ACLs) | Enable usage policies at each point of access to the network via the switch
Bandwidth rate limiting and protocol prioritization of delay-sensitive VoIP traffic | Enforce controls on each port for efficient use of network resources and filtering
PoE support | Internal power supply provides a total PoE power budget of 300 Watts to PoE-enabled devices like IP phones; optional supplemental power available
“Dual-personality” Gigabit Ethernet interfaces | Choice of copper or fiber media for flexible uplinks
Multicast filtering and Rapid Spanning Tree Protocol support | Improve QoS, scalability and network availability
Dynamic routing network topologies | Routing Information Protocol (RIP) allows automatic updating of Layer 3
Secure management (SSH v2) and SNMP v3 | Authentication and encryption of management traffic via Secure Shell
3Com Operating System | Proven software featured in 3Com premium enterprise switches such as the Switch 5500, 7700 and 8800 families
Service and Support | Backed by 3Com Global Services and authorized partners with demonstrated expertise in network assessment, implementation and maintenance

CAMPUS LAN CONFIGURATION SUPPORTED BY THE SWITCH 4500
**PRODUCT WARRANTY AND OTHER SERVICES**

<table>
<thead>
<tr>
<th><strong>Warranty</strong></th>
<th>3Com Limited Lifetime Warranty. For as long as the original end user owns the product, or for five years after 3Com discontinues the sale of the product, whichever occurs first.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware coverage</strong></td>
<td>Covers the complete unit including power supply and fan.</td>
</tr>
<tr>
<td><strong>In-warranty hardware replacement</strong></td>
<td>Advanced Hardware Replacement of hardware for the duration of the warranty. In the US 48 contiguous states this is same-day ship with next business day delivery when call received before noon Pacific time. For Canada, Alaska and Hawaii, this is same-day ship when call received before noon Pacific time. For the rest of the world, it is next-business-day ship. Actual delivery times may vary depending on customer location. Reasonable commercial efforts apply.</td>
</tr>
<tr>
<td><strong>Software coverage</strong></td>
<td>90 days for media replacement.</td>
</tr>
<tr>
<td><strong>Software updates</strong></td>
<td>Access to releases with incremental software features and bug fixes. For the Switch 4500, updates are all releases within the licensed 3Com OS software level.</td>
</tr>
<tr>
<td><strong>Telephone support</strong></td>
<td>Technical support via phone for 90 days.</td>
</tr>
<tr>
<td><strong>Online Knowledgebase support</strong></td>
<td>Access to online troubleshooting tool for the duration of the warranty.</td>
</tr>
</tbody>
</table>

*These services are not included as part of the Warranty and 3Com reserves the right to modify or cancel this offering at any time, without advance notice. This offering is not available where prohibited by law. Services are effective at warranty start date, and are enabled with product registration. Customers receive a user ID with eSupport registration.

**SERVICE AND SUPPORT**

3Com Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized focus in the local language helps drive productivity and minimize expenses. Because 3Com understands both the technology and the business, we’re the partner you need to maintain your competitive edge and remain strong.

**Additional Service, Support and Training Offerings**

**3Com Guardian™ Maintenance Service**
This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades

**3Com Express™ Maintenance Service**
This service provides speedy access to 3Com shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades

**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 Installation and Implementation Services**
Experts set-up and configure equipment and integrate technologies to maximize functionality and minimize business disruption
For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration

**Project Management**
Provides extra focus and resources that special projects demand
3Com engineers 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 University**
Self-paced and instructor-led technology and product courses, plus certification programs
SMALL-TO-MEDIUM LAN CONFIGURATION SUPPORTED BY THE SWITCH 4500

SPECIFICATIONS

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

CONNECTORS

26-port non-PWR
26 total available ports, comprised of:
- 24 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX
- 2 dual-personality Gigabit port pairs, configurable as 10BASE-T/100BASE-TX/1000BASE-T or SFP

26-port PWR
26 total available ports, comprised of:
- 24 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX; IEEE 802.3af in-line power
- 2 dual-personality Gigabit SFP port pairs
Unit ships with two 1000BASE-T SFPs

50-port models
50 total available ports, comprised of:
- 48 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX; IEEE 802.3af in-line power for PWR model
- 2 dual-personality Gigabit SFP port pairs
Unit ships with two 1000BASE-T SFPs

PERFORMANCE

26-port
8.8 Gbps switching capacity, max.
6.5 Mpps forwarding rate, max.

50-port
13.6 Gbps switching capacity, max.
10.1 Mpps forwarding rate, max.

All models
Switch fabric bandwidth: 32 Gbps
Wirespeed performance across all ports within stack or fabric
Store-and-forward switching; latency <10 µs
2 Gbps full-duplex stacking bandwidth

LAYER 2 SWITCHING

8,192 MAC addresses in address table
64 static MAC addresses, in addition to default address
256 Port-based VLANs (IEEE 802.1Q)
IEEE 802.3ad Link Aggregation Control Protocol (LACP); automated and manual aggregation
Jumbo Frame Support
GARP VLAN Registration Protocol (GVRP)
Per-switch trunk groups: 13 groups (26-port); 25 groups (50-port)
8 10/100 or 2 Gigabit ports per group
Auto-negotiation of port speed and duplex
IEEE 802.3x full-duplex flow control
Back pressure flow control for half-duplex
Supports broadcast storm suppression per VLAN
IEEE 802.1D Spanning Tree Protocol (STP)
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
Bridge Protocol Data Unit (BPDU) protection
Internet Group Management Protocol (IGMP) snooping (v1, 2 and 3)
on Layer 2 interfaces
Filtering for 128 multicast groups
Spanning Tree enable / disable per port
Spanning Tree fast-start mode
Bridge Protocol Data Unit (BPDU) protection
DHCP snooping
SPECIFICATIONS (continued)

LAYER 3 SWITCHING
Hardware based routing
12 static routes, in addition to default address
1,990 dynamic Address Resolution Protocol (ARP) entries; 16 static 4 IP interfaces
Routing Information Protocol (RIP) v1 and 2; supports 2,000 entries
Dynamic Host Configuration Protocol Relay (DHCP Relay)

CONVERGENCE
Eight hardware queues per port
Weighted Round Robin (WRR)
IEEE 802.1p Class of Service/Quality of Service (CoS/QoS) on egress
IEEE 802.1p QoS marking/remarking
Weighted Fair Queuing (WFQ)
Auto prioritization of voice traffic determined by vendor OUI
DiffServ Code Point Expedited Forwarding (DSCP EF) remarking for prioritization of VoIP traffic
IEEE 802.1p QoS marking/remarking
Strict Priority Queuing (SP)
Auto prioritization of voice traffic determined by vendor OUI
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IEEE 802.1p QoS marking/remarking

POE (PWR MODELS ONLY)
IEEE 802.3af PoE injection into Category 5 or 5e LAN wiring
(300 W total maximum)
Available standards-based DC supplemental power system supplies up to 15.4 W each of power to all PoE ports in a switch or stack
(5,914 W total maximum)

SECURITY
IEEE 802.1X Network login user authentication:
• EAP over LAN (EAPoL) transport with EAP-MDS, EAP-TLS,
  EAP-TTLS, PAP, PEAP and CHAP authentication
• Multiple users per port
• 1024 users per fabric
Local, RADIUS and HWTACACS server authentication
RADIUS session accounting
Automatic VLAN assignment via RADIUS server
Wirespeed packet filtering in hardware
ACLs filter at Layers 2, 3 and 4:
• Source/destination MAC address
• Ethernet type
• Source/destination IP address
• Source/destination TCP port
• Source/destination UDP port
RADIUS Authenticated Device Access (RADA): authenticate devices based on MAC address against RADIUS server, and assign VLAN ID and ACL
IEEE 802.1X user authentication of switch management on switch Telnet and console sessions; four access privilege levels
Hierarchical management and password protection for management interface
SNMP v3 encryption
SSH v2
HTTPS web interface encryption
ARP attack detection and suppression
Port-based MAC address Disconnect Unknown Device (DUD)
Denial of Service protection
Local switch log-in password
Switch login via RADIUS
Trusted IP Management Addresses
Isolated port in VLAN
Blackhole MAC address

STACKING
Up to 384 10/100 front panel ports
Single IP address and management interfaces for stack-wide control
Distributed Link Aggregation
Clustering management with Switch 5500G, 5500, 4500G, 4500, 4210 and 4200G

MANAGEMENT
CLI via console or Telnet
Remote configuration via modem dial-up
3Com Operating System / Comware V3
Embedded web management interface
System configuration with SNMP v1, 2 and 3
IPv6 management including pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6 and ARPv6
IPv6 management interface IP address configuration
Comprehensive statistics, including ACL/QoS and IP interface
Remote Monitoring (RMON) groups statistics, history, alarm and events
1-to-1 and many-to-1 port mirroring
Detailed alarm and debug information
Supports ping and traceroute
Syslog remote logging
Network Time Protocol (NTP)
Configuration file for backup and restore; multiple configuration files available
DHCP Relay and UDP Helper
System file transfer mechanisms: Xmodem, File Transfer Protocol (FTP), Trivial File Transfer Protocol (TFTP)
IP address allocation via DHCP, bootP
Network Time Protocol
Link Layer Discovery Protocol (LLDP / LLDP-MED)
3Com Management Applications:
• 3Com Enterprise Management Suite for flexible, extensible management in advanced enterprise IT environments
• 3Com Intelligent Management Center, Enterprise Edition for comprehensive management with the rich functionality required to meet the needs of advanced Enterprise networks
• 3Com Network Director for complete, turn-key network management for the enterprise
• 3Com Network Supervisor for basic, turn-key network management for mid-market businesses

DIMENSIONS
Height: 43.6 mm (1.7 in or 1 RU)
Width: 440.0 mm (17.3 in)
Depth:
Non-PWR models: 270.0 mm (10.6 in)
PWR models: 427.0 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 max.
Power consumption (max.)
26-port: 24 W
50-port: 40 W
26-port PWR: 48 W plus up to 300 W for PoE
50-port PWR: 59 W plus up to 300 W for PoE
SPECIFICATIONS (continued)

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)

HEAT DISSIPATION (MAX)
26-port: 82 BTU/hour
50-port: 137 BTU/hour
26-port PWR: 163 BTU/hour; excludes heat from PoE
50-port PWR: 203 BTU/hour; excludes heat from PoE

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)

IEEE 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 802.3ab (1000BASE-T)
IEEE 802.3ad (Link Aggregation)
IEEE 802.3af [Power over Ethernet]
IEEE 802.3i (10BASE-T)
IEEE 802.3u (Fast Ethernet)
IEEE 802.3x (Flow Control)
IEEE 802.3z (1000BASE-X)

RFC STANDARDS
RFC 783 (TFTP)
RFC 791 (IP)
RFC 793 (TCP)
RFC 826 (ARP)
RFC 951 (BootP)
RFC 1157 (SNMP)
RFC 1723 (RIP)
RFC 1305 (NTP)
RFC 2131 (DHCP client)
RFC 2236 (IGMP Snooping)
RFC 2284 (EAP over LAN)
RFC 2819 (RMON)

MANAGEMENT, INCLUDING MIBS SUPPORTED
RFC 1212 [Concise MIB definitions]
RFC 1213/2233 (MIB II)
RFC 1493 (Bridge MIB)
RFC 1724 (RIP v2 MIB Extension)
RFC 1907 (SNMP v2c, SMI v2 and Revised MIB-III)
RFC 2021 (RMON II Probe Config MIB)
RFC 2233 (Interfaces MIB)
RFC 2571 (SNMP Framework)
RFC 2572-2575 (SNMP)
RFC 2665 (EtherLike MIB)
RFC 2667 (IP Tunnel MIB)
RFC 2674 (VLAN MIB Extension)
RFC 2737 (Entity MIB)
RFC 2819 (RMON MIB)

EMISSIONS / AGENCY APPROVALS
CISPR 22 Class A
FCC Part 15 Class A
EN 55022 1998 Class A
EN 61000-3-2 2000, 61000-3-3
ICES-003 Class A
VCCI Class A

IMMUNITY
EN 55024

SAFETY AGENCY CERTIFICATIONS
UL 60950
IEC 60950-1
EN 60950-1
CAN/CSA-C22.2 No. 60950-1-03

WARRANTY AND OTHER SERVICES
Limited Lifetime Hardware Warranty, including fans and power supply
Limited Software Warranty for 90 days
Advance Hardware Replacement with Next Business Day shipment in most regions
Limited Lifetime software updates
90 days of telephone technical support
Refer to www.3com.com/warranty for details.
### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>PRODUCT DESCRIPTION</th>
<th>3COM SKU</th>
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<tbody>
<tr>
<td>3Com Switch 4500 26-Port</td>
<td>3CR17561-91</td>
</tr>
<tr>
<td>3Com Switch 4500 50-Port</td>
<td>3CR17562-91</td>
</tr>
<tr>
<td>3Com Switch 4500 PWR 26-Port</td>
<td>3CR17571-91</td>
</tr>
<tr>
<td>3Com Switch 4500 PWR 50-Port</td>
<td>3CR17572-91</td>
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</tbody>
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<table>
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<tr>
<th>TRANSCEIVERS</th>
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<tbody>
<tr>
<td>1000BASE-SX SFP</td>
<td>3CSFP91</td>
</tr>
<tr>
<td>1000BASE-LX SFP</td>
<td>3CSFP92</td>
</tr>
<tr>
<td>1000BASE-T SFP</td>
<td>3CSFP93</td>
</tr>
<tr>
<td>1000BASE-LH SFP</td>
<td>3CSFP97</td>
</tr>
</tbody>
</table>

**3COM GLOBAL SERVICES**

- 3Com Network Health Check, Installation Services and Express Maintenance [www.3com.com/services_quote](http://www.3com.com/services_quote)
- 3Com University Courses [www.3com.com/3comu](http://www.3com.com/3comu)

Visit [www.3com.com](http://www.3com.com) for more information about 3Com network solutions.
3COM SWITCH 4500G GIGABIT FAMILY

High-performance, secure voice-ready Gigabit connectivity, ideal for medium businesses and small enterprises

OVERVIEW
The 3Com® Switch 4500G Gigabit Family delivers flexible quad-speed performance—10/100/1000 and 10-Gigabit—and advanced voice-optimized features such as Power over Ethernet (PoE) and auto-voice VLAN and QoS. This makes the Switch 4500G ideal for medium businesses and small enterprises seeking to build a secure converged network.

KEY BENEFITS

MANAGED LAYER 2 AND LAYER 3 GIGABIT CONNECTIVITY
Wirespeed Layer 2 Gigabit switching with dynamic Layer 3 Gigabit routing make the Switch 4500G ideal for wiring closet, workgroup and small core connectivity requirements. In addition, four of the ports are dual-personality, operating either as 10/100/1000 or SFP-based fiber providing greater flexibility. These switches also accommodate up to four extra optional 10-Gigabit high-speed links, enabling connectivity to a core network or to high-performance servers.

SECURE
Enterprise-class security features include IEEE 802.1X network login, SSH/SSL encrypted device login, and Access Control Lists, protecting mission-critical business applications.

VOICE-READY
Minimize the cost and complexity associated with adding or moving IP telephones: the Switch 4500G detects the presence of IP phones and dynamically assigns switch ports to the voice VLAN, enabling automated configuration and prioritization of Voice over IP (VoIP) traffic. Optional PoE models provide electrical power and data connectivity over a single Ethernet cable—resulting in significant cost savings when deploying these phones.

VARIEY OF MODELS
The Switch 4500G is available in four models, clusterable in any combination up to thirty-two units:

› 3Com Switch 4500G 24-Port:
  24 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots

› 3Com Switch 4500G 48-Port:
  48 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots

› 3Com Switch 4500G 24-Port PWR:
  24 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots; 10/100/1000 ports are PoE-enabled

› 3Com Switch 4500G 48-Port PWR:
  48 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots; 10/100/1000 ports are PoE-enabled
KEY BENEFITS (continued)

INVESTMENT PROTECTION
10-Gigabit uplinks and robust IPv6 support future-proof your network. These switches come with a limited lifetime warranty covering the unit, power supply and fan. Also provided is Advanced Hardware Replacement, with next business day shipment available in most regions, and telephone support and limited lifetime software updates.

EMPOWERS APPLICATION CONVERGENCE
The Switch 4500G family combines high-performance Gigabit switching, QoS and traffic management features to help ensure essential applications get the appropriate priority for efficient utilization of network resources.

ENHANCES MANAGEMENT AND CONTROL
Easy to use and manage, the Switch 4500G is designed to increase business productivity by reliably supporting business applications. Cluster together up to 32 devices for easy administration, with single IP management across 3Com switching lines—with mixed clusters of Switch 4210, 4200G, 4500G and Switch 5500 and Switch 5500G switches.

DELIVERS HIGH PERFORMANCE
The Switch 4500G family provides wire-speed aggregate switching capacity of up to 176 Gbps and 131 Mpps performance on the 48-port model.

DYNAMIC LAYER 3 ROUTING
Easy-to-administer dynamic Layer 3 routing increases performance and enhances network security.

ROBUST IPV6 SUPPORT
Internet Protocol version 6 (IPv6) is the successor to today’s IPv4, bringing many more IP addresses and higher levels of security. The Switch 4500G supports this important protocol, delivering IPv6 routing features like RIPng as well as comprehensive IPv6 management capabilities.

REDUNDANT POWER SYSTEM SUPPORT
The two 3Com Switch 4500G PWR models support a redundant power system (RPS) connection. RPS units provide these benefits:

› For PWR switches, an RPS can deliver more power budget for IEEE 802.3af Power over Ethernet than what the switches alone can provide. For example, the Switch 4500G PWR 48-port switch has a PoE power budget of 370 Watts, which means that approximately half of the ports can provide the full 802.3af PoE power of 15.4 Watts. With an RPS providing power, all 48-ports can provide a full 15.4 Watts of PoE power.

› They deliver redundant power to switches so there is continued operation should the switch unit power supply fail. This allows for continuous operation of advanced Enterprise networks, particularly important for converged networks running IP phones on the network.

3Com H3C RPS Systems
3Com switches are compatible with 3Com H3C® RPS solutions. These are enterprise-class power redundancy systems that work with many 3Com fixed-configuration switches. 3Com Corporation manufactures networking equipment under the H3C brand for sale into many markets.

The H3C RPS 1000 is 1U high and provides multiple power output connections to support multiple switch units at the same time. Two power rectifiers can be installed for 1+1 load sharing and power redundancy. It supports switches with -54V RPS connections, and delivers sufficient power to fully provision all PoE ports of a switch with full power redundancy.
## FEATURE HIGHLIGHTS

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<tr>
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<tbody>
<tr>
<td>Layer 3 dynamic (RIP) routing</td>
<td>Gives additional flexibility in deployment to boost network performance</td>
</tr>
<tr>
<td>Voice-ready networking</td>
<td>Automatic prioritization of voice traffic, secure voice traffic with voice VLAN, and Power over Ethernet models</td>
</tr>
<tr>
<td>IEEE 802.1X network access control</td>
<td>Standards-based security combined with RADIUS authentication</td>
</tr>
<tr>
<td>RADIUS Authenticated Device Access (RADA)</td>
<td>Authentication of attached devices via MAC address for an additional level of endpoint security</td>
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<td>Access Control Lists (ACLs)</td>
<td>Enable usage policies at each point of access to the network via the switch</td>
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<tr>
<td>Bandwidth rate limiting and protocol filtering</td>
<td>Enforce controls on each port for efficient use of network resources and prioritization of delay-sensitive VoIP traffic</td>
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<tr>
<td>“Dual-personality” Gigabit Ethernet interfaces</td>
<td>Choice of copper or fiber media for flexible uplinks</td>
</tr>
<tr>
<td>Choice of 10G connections</td>
<td>Plug-in modules give 10-Gigabit flexibility. Choose XFP or SFP+ interface types for fiber links, or copper-based CX4 local connections</td>
</tr>
<tr>
<td>100 MB and 1000 MB fiber connections</td>
<td>Use SFPs to add fiber connections to the network. Dual-speed support makes network migration easier</td>
</tr>
<tr>
<td>Multicast filtering and Rapid Spanning Tree protocol support</td>
<td>Improve QoS, scalability and network availability</td>
</tr>
<tr>
<td>Secure management</td>
<td>Authentication and encryption of management traffic via Secure Shell (SSH v2), SSL/HTTPS, and SNMP v2</td>
</tr>
<tr>
<td>3Com Operating System</td>
<td>Proven software featured in 3Com premium enterprise switches such as the Switch 8800, 7700, 5500, 5500G and 4200G families and enterprise routers like the Router 6000, 5000 and 3000 families</td>
</tr>
<tr>
<td>Service and Support</td>
<td>Backed by 3Com Global Services and authorized partners with demonstrated expertise in network assessment, implementation and maintenance</td>
</tr>
</tbody>
</table>

![Switch 4500G 2-Port 10-Gigabit Module (XFP) (3C17766)]
In the above network, 3Com Switch 4500G and Switch 5500G-EI units are managed as a single cluster.

### PRODUCT WARRANTY AND OTHER SERVICES

<table>
<thead>
<tr>
<th>Warranty</th>
<th>3Com Limited Lifetime Warranty. For as long as the original end user owns the product, or for five years after 3Com discontinues the sale of the product, whichever occurs first.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware coverage</td>
<td>Covers the complete unit including power supply and fan.</td>
</tr>
<tr>
<td>In-warranty hardware replacement*</td>
<td>Advanced Hardware Replacement of hardware for the duration of the warranty. In the US 48 contiguous states this is same-day ship with next business day delivery when call received before noon Pacific time. For Canada, Alaska and Hawaii, this is same-day ship when call received before noon Pacific time. For the rest of the world, it is next-business-day ship. Actual delivery times may vary depending on customer location. Reasonable commercial efforts apply.</td>
</tr>
<tr>
<td>Software coverage</td>
<td>90 days for media replacement.</td>
</tr>
<tr>
<td>Software updates*</td>
<td>Access to releases with incremental software features and bug fixes. For the Switch 4500G, updates are all releases within the licensed 3Com OS software level.</td>
</tr>
<tr>
<td>Telephone support*</td>
<td>Technical support via phone for 90 days.</td>
</tr>
<tr>
<td>Online Knowledgebase support*</td>
<td>Access to online troubleshooting tool for the duration of the warranty.</td>
</tr>
</tbody>
</table>

* These services are not included as part of the Warranty and 3Com reserves the right to modify or cancel this offering at any time, without advance notice. This offering is not available where prohibited by law. Services are effective at warranty start date, and are enabled with product registration. Customers receive a user ID with eSupport registration.
SERVICE AND SUPPORT
3Com Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized focus in the local language helps drive productivity and minimize expenses. Because 3Com understands both the technology and the business, we’re the partner you need to maintain your competitive edge and remain strong.

Additional Service, Support and Training Offerings

3Com Guardian℠ Maintenance Service
This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades

3Com Express℠ Maintenance Service
This service provides speedy access to 3Com shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades

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 Installation and Implementation Services
Experts set-up and configure equipment and integrate technologies to maximize functionality and minimize business disruption
For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration

Project Management
Provides extra focus and resources that special projects demand
3Com engineers 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 University
Self-paced and instructor-led technology and product courses, plus certification programs
SPECIFICATIONS

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

CONNECTORS

24-port
24 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit ports

48-port
48 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit ports

PWR models
IEEE 802.3af in-line power on all 10/100/1000 ports
Support for redundant supplemental power supply (-48 VDC) connector
PWR units with AC power have 370W available for PoE, at maximum 15.4W per port.

All models
2 rear slots for dual-port 10-Gigabit modules, XFP-based or CX4 local connection
RJ-45 console port

PERFORMANCE

24-port
128.0 Gbps switching capacity
95.2 Mpps forwarding rate

48-port
176.0 Gbps switching capacity
131.0 Mpps forwarding rate

All models
Wirespeed performance across ports
Store-and-forward switching; latency <10 µs

LAYER 2 SWITCHING

8,192 MAC addresses in address table
128 static MAC addresses [in addition to default address]
Jumbo Frames support
4,094 Port-based VLANs (IEEE 802.1Q)
IEEE 802.3ad Link Aggregation
Control Protocol (LACP), automated and manual aggregation
GARP VLAN Registration Protocol (GVRP)
IEEE 802.1 Q-in-Q double-tagged VLANs
MAC-based VLANs using RADA auto-VLAN assignment
IEEE 802.1ag Service Layer Operations, Administration and Maintenance (OAM)
12 trunk groups per switch
Auto-negotiation of port speed and duplex
IEEE 802.10 Spanning Tree Protocol (STP)
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
Bridge Protocol Data Unit (BPDU) protection
Internet Group Management Protocol (IGMP v3) snooping on Layer 2 interfaces
Filtering for 128 multicast groups
IPv4-ready hardware

LAYER 3 SWITCHING

IEEE 802.3x full-duplex flow control and back pressure
Half-duplex back pressure flow control
Undirectional Link Detection (UDLD)
Broadcast, Multicast and Unicast traffic suppression
Spanning Tree root guard
Hardware based routing
64 static routes
Dynamic routing (RIP v2); 512 routes
64 virtual IP interfaces
DHCP snooping
DHCP querier (Layer 2)
DHCP tracker

CONVERGENCE

Eight hardware queues per port
Weighted Round Robin queuing
Strict Priority queuing
IEEE 802.1p Class of Service/Quality of Service (CoS/QoS) on egress
Ingress and egress rate limiting
Port-based traffic shaping
Application and protocol blocking
Auto VLAN assignment for voice traffic determined by vendor OUI
DiffServ Code Point (DSCP) priority/expedited remarking of packets
Wake-on-LAN support
IEEE 802.3af Power over Ethernet standards-compliant [PWR models]

SECURITY

IEEE 802.1X network login:
• EAP over LAN (EAPoL) transport with EAP-MD5, PAP, CHAP, PEAP, and EAP-TLS authentication
• Multiple users per port
• 1024 max online users
TACACS+ network login
Local and RADIUS server authentication
RADIUS session accounting
Automatic VLAN assignment via RADIUS server
Wirespeed packet filtering in hardware
ACLs filter at Layers 2, 3 and 4:
• Source/destination MAC address
• Ethernet type
• Source/destination IP address
• Source/destination TCP port
• Source/destination UDP port
RADIUS Authenticated Device Access (RADA): authenticate devices based on MAC address against RADIUS server, and assign VLAN ID and ACL
Port-based MAC address Disconnect Unknown Device (DUD)
IEEE 802.1X user authentication of switch management on switch Telnet and console sessions; four access privilege levels
Hierarchical management and password protection for management interface
SNMP v3 encryption
SSH v2 secure CLI access
Secure FTP
SSL/HTTPS secure web access
Denial of Service protection
Guest VLAN option
Multiple authentication server realm definitions
Centralized MAC address authentication
AAA authentication
RADIUS/TACACS+ session accounting
Combined MAC and IEEE 802.1X authentication on same port
Black-hole MAC addresses
DHCP Tracker
DHCP snooping, including DHCP Trust
Wirespeed packet filtering in hardware
ARP inspection and IP source guard
ARP spoofing prevention
Trusted management station IP and/or MAC address
Encoded Archival Description (EAD)

CLUSTERED STACKING

Single IP address and management interfaces for centralized control
Compatibility with 4210, 42000, 4500, 48000, 5500, 55000 clustering
Up to 255 devices per cluster

MANAGEMENT

CLI via console or Telnet
3Com Operating System / Comware V5
Embedded web management interface
System configuration with SNMP v1, 2c and 3
Comprehensive statistics, including ACL/QoS and IP interface
SPECIFICATIONS (continued)

Remote Monitoring (RMON) groups statistics, history, alarm and events
Many-to-1 port mirroring
Detailed alarm and debug information
Syslog log-host
Configuration file for backup and restore; multiple configuration files available
DHCP Relay and UDP Helper
System file transfer mechanisms: Xmodem, FTP, Trivial FTP (TFTP), Secure FTP (SFTP)
IPv4 management including ping, traceroute, TELNET, and remote ping
IPv6 management including pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6 and AR Pv6
IPv6 management interface IP address configuration
Supports multiple software images and bank swap, stored in nonvolatile memory
Backup and restore of software images
Configuration file for backup and restore, stored in non-volatile memory; multiple configuration files available
Remote port mirroring (RSPAN)
Front panel indicators for port and unit status information
Network Time Protocol (NTP)
DHCP Relay and UDP Helper
Device Link Detection Protocol (DLDP)
Link Layer Discovery Protocol (LLDP and LLDP-MED)
sFlow
Power alarms; fan and temperature alarms
Debugging information output
Port loopback detection
3Com management applications:
• 3Com Enterprise Management Suite for flexible, extensible management in advanced enterprise IT environments
• 3Com Intelligent Management Center, Enterprise Edition for comprehensive management with the rich functionality required to meet the needs of advanced Enterprise networks
• 3Com Network Director for complete, turn-key network management for the enterprise
• 3Com Network Supervisor for basic, turn-key network management for mid-market businesses
• 3Com Network Access Manager for IEEE 802.1X and RADA integration with IAS/Active Directory
• 3Com Switch Manager for virtual clustering support across 3Com switch families

DIMENSIONS
Height: 43.6 mm (1.7 in or 1 RU)
Width: 440.0 mm (17.4 in)
Depth: non-PWR: 300.0 mm (11.8 in)
PWR: 420.0 mm (16.5 in)
Weight: 24-port: 4.0 kg (8.8 lbs)
48-port: 4.5 kg (9.9 lbs)
24-port PWR: 6.0 kg (13.2 lbs)
48-port PWR: 6.5 kg (14.3 lbs)

POWER SUPPLY
AC Line Frequency: 50/60 Hz
Input Voltage: 90-240 VAC
Current rating (AC)
24-port: 1.5A
48-port: 2.0A
24-port PWR: AC 8.0A; DC 15.0A
48-port PWR: AC 8.0A; DC 18.0A
Power consumption (max)
24-port: 58 W
48-port: 108 W
24-port PWR: 87 W, plus up to 370W PoE budget
48-port PWR: 133 W, plus up to 370W PoE budget

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)

HEAT DISSIPATION (MAX)
24-port: 176 BTU/hour
48-port: 369 BTU/hour
24-port PWR: 295 BTU/hour
48-port PWR: 454 BTU/hour

RELIABILITY
(MTBF @ 25°C)
24-port: 46 years (401,000 hours)
48-port: 35 years (310,000 hours)
24-port PWR: 41 years (362,000 hours)
48-port PWR: 28 years (245,000 hours)
2-port 10-Gigabit module: 371 years (3,255,000 hours)
2-port Local Connect module: 1,798 years (15,758,000 hours)

IEEE 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 802.3ab (1000BASE-T)
IEEE 802.3ad (Link Aggregation)
IEEE 802.3af (Power over Ethernet)
IEEE 802.3i (10BASE-T)
IEEE 802.3u (Fast Ethernet)
IEEE 802.3x (Flow Control)
IEEE 802.3z (1000BASE-X)

RFC STANDARDS
RFC 783 (TFTP)
RFC 791 (IP)
RFC 793 (TCP)
RFC 826 (ARP)
RFC 951 (BootP)
RFC 1157 (SNMP)
RFC 1723 (RIP)
RFC 2080 RIP for IPv6/RIPng
RFC 2131 (DHCP client)
RFC 2236 (IGMP Snooping)
RFC 2284 (EAP over LAN)
RFC 2452 IP Version 6 MIB for the Transmission Control Protocol
RFC 2454 IP Version 6 MIB for the User Datagram Protocol/UDPv6
RFC 2460 IPv6 Specification
RFC 2461 Neighbor Discovery for IPv6
RFC 2462 IPv6 Stateless Address Autoconfiguration
RFC 2463 ICMP & Path Discovery
RFC 2464 Transmission of IPv6 over Ethernet
RFC 2710 Multicast Listener Discovery (MLD) IPv6
RFC 2767 Dual stacks IPv4 & IPv6
RFC 2819 (RMON)
RFC 3513 IPv6 Addressing Architecture
RFC 3587 IPv6 Global Unicast Address
Management, including MIBs Supported
RFC 1212 (Concise MIB definitions)
RFC 1213/2233 (MIB II)
RFC 1493 (Bridge MIB)
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 (SNMP Framework)
RFC 2572-2575 (SNMP)

SPECIFICATIONS (continued)
SPECIFICATIONS (continued)
RFC 2665 (EtherLike MIB)
RFC 2667 (IP Tunnel MIB)
RFC 2674 (VLAN MIB Extension)
RFC 2737 (Entity MIB)
RFC 2819 (RMON MIB)

EMISSIONS / AGENCY APPROVALS
FCC Part 15 :2004 Class A
ICES-003 :2004 Class A
VCCI :2004 Class A
CISPR 22 :2003 Class A
IEC 61000-3-2:2001/EN 61000-3-2-2000
Korean EMI Class A
ETSI EN 300 386 V1.3.3 :2005

IMMUNITY
ETSI EN 300 386 V1.3.3 :2005

SAFETY AGENCY CERTIFICATIONS
UL 60950-1:2003
EN 60950-1:2001
CSA 2.22 # 60950-1:2003
IEC 60950-1:2001
EU RoHS Compliant

WARRANTY AND OTHER SERVICES
Limited Lifetime Hardware Warranty, including fans and power supply
Limited Software Warranty for 90 days
Advance Hardware Replacement with Next Business Day shipment in most regions
Limited Lifetime software updates
90 days of telephone technical support
Refer to www.3com.com/warranty for details.

ORDERING INFORMATION

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<th>PRODUCT DESCRIPTION</th>
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<tr>
<td>3Com Switch 4500G 24-Port</td>
<td>3CR17761-91</td>
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<tr>
<td>3Com Switch 4500G 48-Port</td>
<td>3CR17762-91</td>
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<tr>
<td>3Com Switch 4500G PWR 24-Port</td>
<td>3CR17771-91</td>
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<tr>
<td>3Com Switch 4500G PWR 48-Port</td>
<td>3CR17772-91</td>
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<td>MODULES</td>
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<tr>
<td>Switch 4500G 1-Port 10-Gigabit Module (XFP)</td>
<td>3C17768</td>
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<tr>
<td>Switch 4500G 2-Port 10-Gigabit Module (XFP)</td>
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<tr>
<td>Switch 4500G 2-Port 10-Gigabit Module (SFP+)</td>
<td>0231A9RL</td>
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<td>Switch 4500G 2-Port 10-Gigabit Local Connection Module</td>
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<td>GIGABIT SFP TRANSCIEVERS</td>
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<td>10GBASE-SX SFP</td>
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<td>10GBASE-LH SFP</td>
<td>3CSFP97</td>
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<td>FAST ETHERNET SFP TRANSCIEVERS</td>
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<tr>
<td>10GBASE-FX SFP (Dual-Model)</td>
<td>3CSFP9-81</td>
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<td>10GBASE-LX SFP (Dual-Mode)</td>
<td>3CSFP9-82</td>
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<td>10-GIGABIT XFP TRANSCIEVERS</td>
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<tr>
<td>10GBASE-LR</td>
<td>0231A438 or 3CFXP92</td>
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<tr>
<td>10GBASE-SR</td>
<td>0231A494 or 3CFXP94</td>
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<tr>
<td>10GBASE-CX4</td>
<td>3CFXP95</td>
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<td>10GBASE-ER</td>
<td>0231A72X or 3CFXP96</td>
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<tr>
<td>10-GIGABIT SFP+ TRANSCIEVERS</td>
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<tr>
<td>10GBASE-LR</td>
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<tr>
<td>10GBASE-SR</td>
<td>0231A0A6</td>
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<tr>
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<tr>
<td>CABLES</td>
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<tr>
<td>CX4 Local Connection Cable – 50 cm</td>
<td>3C17775</td>
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<tr>
<td>CX4 Local Connection Cable – 100 cm</td>
<td>3C17776</td>
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<tr>
<td>CX4 Local Connection Cable – 300 cm</td>
<td>3C17777</td>
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<td>3COM GLOBAL SERVICES</td>
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<td>3Com Network Health Check, Installation Services and Express Maintenance</td>
<td><a href="http://www.3com.com/services_quote">www.3com.com/services_quote</a></td>
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<tr>
<td>3Com University Courses</td>
<td><a href="http://www.3com.com/3comu">www.3com.com/3comu</a></td>
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