ACEdirector™

8-PORT 10/100 MBPS ETHERNET WEB SWITCH

Leading a new generation of Web switches, Alteon WebSystems' award-winning ACEdirector products provide a broad range of high-speed traffic management functions. Built on an innovative distributed processing architecture, ACEdirector products support Alteon's Web OS Internet traffic control services (see Web OS data sheet).

The ACEdirector delivers simultaneous support for Layer 2, 3 and 4 through 7 switching. Unlike traditional packet switches, the ACEdirector combines a unique collection of traffic management services within a high-performance Ethernet switch - optimized for switching hundreds of thousands of Web sessions every second. Local and global server load balancing, application redirection, Secure Sockets Layer (SSL) load balancing, URL-based redirection and load balancing and advanced TCP/IP filtering functions are all performed in one Web switch.

FEATURES

- Eight selectable 10/100 Mbps Ethernet ports
- One Gigabit Ethernet uplink (AD3/4)
- Simultaneous Layer 2, 3, 4-7 switching
- Full inspection of URLs, cookies and host headers, up to 4,500 bytes across multiple packets (AD3/4)
- SSL ID load balancing
- Persistent connections using source IP addresses, HTTP cookies and SSL IDs (AD3/4)
- TCP, UDP and IP load balancing, including HTTP (persistent and non-persistent), HTTPS, FTP and passive FTP, SMTP, POP3, IMAP, SSL, DNS, Radius, Telnet and NNTP
- Unlimited number of virtual IP addresses
- Transparent redirection of any traffic type to up to 256 servers located anywhere
- Up to 224 packet filtering rules per switch
- Full network address translation support
- Intelligent health checks to ensure server, application and content availability
- Load balancing metrics: round-robin, least-connections, hashing and minimum misses with maximum connection threshold and weighted bias per server
- Hot-standby configuration with in-band keep-alives and configuration updates
- Full-mesh topologies with no single point of failure
- Supports L3/L4 active-active redundancy configurations (AD3/4)
- Content-intelligent bandwidth management (AD3/4)
- EtherChannel™-compatible trunk groups
- Web-based user interface with Alteon WebSystems' SNMP MIB support

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High Performance Server Load Balancing

Server load balancing on the ACEdirector enables virtually unbounded server capacity. Unlike competing server load balancing products built around a single, central processor, the ACEdirector employs two powerful RISC processors on each of its eight 10/100 Mbps ports. The ACEdirector can switch Web sessions at blazing speeds—up to 200,000 sessions per second can be load-balanced.

Flexible Groupings of Applications and Servers

The ACEdirector provides Virtual IP (VIP) addresses to represent the target servers and applications—assigning each session to the most available server associated with the destination VIP specified in the session request packet. It monitors each session from start to finish, providing full address translation as it forwards packets between the client and server. VIPs can be administered in blocks, allowing virtually unlimited numbers of virtual addresses while making administration fast, simple and error-free. Up to 2048 applications can be grouped on one VIP.

Global Server Load Balancing

Global server load balancing allows mirrored servers or server farms to be distributed around the world, enabling requests to be directed to the best site. Web switches determine the best site based on server health, proximity to the client and server response time. Web switches automatically exchange this information with all other Web switches. With a global view of every site's health and performance, each Web switch develops a list of the best performing sites. The switches then direct traffic to sites in proportion to the sites' performance measurements. As a result, the best performing sites receive more connections than others, according to their ability to handle more connections.

Simple, Effective Load-Balancing Algorithms

System managers can configure the load-balancing method—round-robin, least-connections, hashing or minimum misses. Maximum connection thresholds and different weightings can be assigned to servers to avoid overloading any server. Any server can be designated as a backup or overflow server for another server or server group, further insuring application availability.

Content-Awareness

New URL-based Web cache redirection and server load balancing (AD3 and AD4) optimizes cache server farms and Web farms by sending requests with specific URLs or URL "sub-string" matches to designated cache or Web servers. Up to 64 content rules can be applied per switch allowing server tuning by separating static and dynamic content requests via URL parsing.

Secure Sockets Layer Load Balancing

Secure Socket Layer (SSL)-based load balancing optimizes SSL sessions and ensures session persistency - allowing users to continue to re-establish secure connections to a particular server. SSL session IDs can be selected for persistence in SSL/HTTPS load balancing.

Flexible Filtering

Filtering on the ACEdirector delivers unprecedented levels of network traffic control. Administrators can forward, drop or redirect packets based on application type, protocol and IP source and destination addresses. Up to

ACEdirector™

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Part #	Product	Description
700111	ACEdirector 2	10/100 Mbps Web Switch
700106	ACEdirector 3	10/100/1000 Mbps Web Switch with one Gigabit Ethernet uplink and 2 MB memory per port
700117	ACEdirector 4	10/100/1000 Mbps Web Switch with one Gigabit Ethernet uplink with 4 MB memory per port

224 filtering rules can be created per switch with any or all rules applied to each port.

Policy-Based Application Redirection

Policy-based redirection and load balancing allows network managers to use powerful filtering rules to intercept traffic for any device and redirect it to a group of the same type of devices, such as firewalls or routers. Application redirection also enables the use of transparent caches and firewalls in clusters to enable scaling of Web sites.

IP Switching & Cisco EtherChannel™ Trunking

For complete topological flexibility, servers in a load sharing server group, as well as backup and overflow servers, can be located anywhere in a routed network, even across a WAN. IP switching also simplifies configuration and increases security by allowing load-balanced servers to use private IP addresses while the public accesses them through different virtual IP addresses. The ACEdirector support EtherChannel-compatible trunks enabling seamless trunking to Cisco routers and switches while balancing across the group at both Layer 2 and 3 to optimize the use of all links.

High Availability

All ACEdirectors protect applications against failure of a server link, switch port or switch, with sub-second detection and failover. The ACEdirector constantly monitors server, application and content availability, bypassing unhealthy servers when it distributes new sessions and automatically re-enrolling them upon service restoration. Intelligent application health checking ensures integrity of the entire data path. Alteon's ACEdirector 3 and 4 can also be deployed in active-active and active-standby redundancy configurations. Based on the Virtual Router Redundancy Protocol (VRRP) and Alteon extensions to VRRP, the ACEdirector 3 and 4 support the active and simultaneous operation of Layer 3 interfaces and Layer 4 services across switches.

Bandwidth Management and QoS

With Alteon's ACEdirector 3 and 4 users can meter, control and account for bandwidth use – by client, server farm, virtual service, application, user class, content type and many other traffic classes – using a variety of Layer 2 through 7 attributes. Bandwidth policies composed of three bandwidth rates can be assigned to each traffic classification. These rates include a *Committed Information Rate* which is the guaranteed minimum bandwidth, a *Soft Limit* which is the metered rate used when bandwidth is available, and a *Hard Limit* which is the maximum burst rate.

Adaptive Network Management

All ACEdirector functions can be fully managed and configured via any Web browser, SNMP management application or through a command line interface—accessible via remote access, serial or Telnet connection, with full password protection. The ACEdirector supports a private MIB, four groups of RMON on every port and port mirroring.

S P E C I F I C A T I O N S

Standards Supported

Spanning Tree (IEEE 802.1d), Logical Link Control (IEEE 802.2), 10BASE-T/100BASE-TX (IEEE 802.3, 802.3u), Flow Control (IEEE 802.3x), RMON (RFC 1757), SNMP (1213 MIB-II, 1643 Ethernet, 1493 Bridge), 1000BASE-SX (IEEE 802.3z), IP, RIPv1, TFTP (RFC 783), BootP (RFC 1542), BootP (RFC 951), Telnet (RFC 854)

10BASE-T/100BASE-TX Ports

10/100 full or half-duplex (auto-negotiation) with RJ-45 connections for UTP ports

RS-232C Console

DB-9 serial connection, female DCE interface for out-of-band management

1000BASE-SX Port

Full-duplex Gigabit Ethernet with SC fiber connector

Layer 2/3 Support

802.1Q (256 VLANs), Jumbo Frames (all ports), EtherChannel-compatible trunk groups, 802.1d Spanning Tree, 4K MAC addresses per port, 8K per switch. IP switching, 256 IP interfaces, four default routes supported by load balancing, health checking and automatic failover, IP-based trunk groups.

Environmental

Operating
– Temperature 0 to 40° C
– Humidity 5% to 85% (non-condensing)
Power
– Auto-ranging supply: 90-265 VAC@ 47-65 Hz
– Power consumption: 80 W

Certifications

Emissions: FCC, CFR 47 Part 15, Subpart A ANSI C63.4D11.4 1991, VCCI Class 1, FCC OST 55, CISPR 16, CISPR 22, CSA C108.8-M1983 (R1989), EN55022, CE, EN6100-3-2, EN60555-2
Safety: UL 1950, CUL, DIN/VDE 0805, CSA 22.2, No. 950-93, IEC 950, EN 60950 TUV EMKO-TSE (74-SEC) 207/94 Nordic Deviations to EN 60950

Dimensions

Width: 17.00 inches (43.8 cm)
Depth: 18.00 inches (36.8 cm)
Height: 3.47 inches (8.74 cm)
Weight: 9 lbs (4.1 kg)
(Standard 19" EIA rack or wall mountable)

Network Magazine PRODUCT OF THE YEAR 1999

PC MAGAZINE EDITORS' CHOICE April, 2000

1999 NETWORK COMPUTING WELL-CONNECTED AWARD

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DS-0006D-US 06/2000