# *ASCEND Competitive Bulletin*

## Ascend MAX line Vs. Cisco AS5x00 Family Access Servers

### Brief Description: Cisco AS5x00 (5200/5300) Universal Access Server

The AS5200/5300 Universal Access Servers from Cisco Systems are integrated high-end access switches targeted at the service provider point of presence and the corporate enterprise.

The AS5200 began shipping in September 1996; it has been positioned as a low-cost medium density access server to compete with the Ascend MAX™ 20XX and 40XX.

The AS5300 is expected to ship in November 1997 with MICA K56flex-compatible modem cards. It is positioned as a high density, access concentrator against the high-end of the MAX 40XX product line.  Stacked in the telco rack as part of the AccessPath – a pre-wired rack system that combines the 5300 chassis with a 7502 router and a Catalyst Switch, Cisco's competitive answer to the MAX TNT™.

### AS5200

- Modular, 3-slot system
- Microcom modems – 12 ports per modem card
- Analog/ISDN support for up to 48 modems per box
- Supports two T1/PRI cards per box  (48 concurrent sessions)
- One Ethernet and two serial interfaces
- Routing platform based on the 2500 series router
- LAN-to-LAN routing support for IP, IPX and AppleTalk

List Pricing dropped  in Q3'97 with the introduction of the AS5300
- $22,130 ($461 per port in 48 port configuration)
- 12-port modem module: $8,895  (Microcom)
- Modem Management Software: $7,200 (supports two Microcom modem cards)

### AS5300

- Hardware platform: Based Cisco 4700 router engine
  - Claims the processor has a secondary memory cache to help it sustain large call volume
- Supports both Microcom and new Cisco MICA modems (from Telebit acquisition)
  - Microcom modules are 12-port cards (remains 48 modem maximum per box)
  - Cisco MICA modems are two per DSP (24-port module, or 96 modems/box)
- Supports four T1/E1/PRI per box – 96 (120 internationally with E1) calls
- Promises to support native R2 signaling
- LAN-to-LAN routing support for IP, IPX and AppleTalk
- Support for 10Base-T and 100Base-T Ethernet (UTP)
- No serial (sync or async) interfaces

List pricing starts at $44,960 (approximately $468/port in 96 port configuration)
MICA modem management software $9,600 per 96 port configuration

### AccessPath

Cisco would need the ability to stack twenty AS5x00s per telco rack to achieve its density claims, but full capacity is 12 to 14 units - a maximum 1344 modems, and 56 T1s per rack

- AS5x00 for dial-in
- 7205 router
- Catalyst 5000 switching fabric
- 2511 router for backup management paths
- Pre-loaded CiscoIOS with optional compression and encryption
- Includes the Cisco AccessPath Manager, a web-based software that provides status monitoring, traffic reporting and configuration features to multiple units from a central location
- Multichassis Multilink PPP support
- Using CiscoIOS, supports L2F virtual private networking, billing, security and encryption

## Ascend MAX line competitive advantages - " The Silver Bullets"

- High degree of scalability and flexibility:  Ascend is the leader in providing scalable and flexible access concentrator solutions. The MAX line provides scalable and flexible configurations from 8 to 672 modems and up to 4 T1 or PRI connections (MAX 20XX/40XX) and up to T3 and 150 Frame Relay/T1s (MAX TNT) thus covering a wide array of customer needs
- High-density modem integration and mixed analog/ISDN sessions: Ascend's MAX 400X line can support a maximum of  96 (120 sessions with E1)modems and provide up to 672 concurrent sessions with the MAX TNT
- Most comprehensive set of security features including fully integrated, dynamic firewall capability and extended RADIUS dictionary (over 120 enhancements)
- Guaranteed interoperability with a wide number of modem manufacturers and carrier networks including carriers in over 36 countries
- End-to-end network management: Ascend's NavisAccess™ is a multi-vendor solution that provides total POP management - designed specifically for ISPs, carriers and corporations to support a variety of network access services and devices.  NavisXtend provides discovery and mapping, configuration management, performance measurement, and fault monitoring functionality to provide a customized view of the network as a whole, or device by device
- Proven track record and investment protection: Ascend has the largest installed base of integrated access switches and has been shipping high density access concentrators for over three years. Customers can be assured of investment protection because of Ascend's commitment to developing scalable, compatible and high performance platform solutions
- Support for a complete set of  WAN access protocols – Switched 56, DDS 56, T1/FT1, E1, ISDN BRI and PRI, and Frame Relay
- MP+ and Multi-chassis MP+ support; with the introduction of MAX Stack, a feature which maximizes bandwidth availability by enabling multiple MAX WAN access switches to function together as one logical switch for Multilink PPP  calls, Ascend has clearly established itself as the only remote access vendor providing comprehensive bandwidth management features.  For example, a single incoming MP call that requests greater bandwidth is given additional unused channels anywhere in the stack. MAX Stack reduces the complexity and increases the simplicity of provisioning access to multiple central site WAN access switches
- Support for IDSL technology on the MAX 400X platform and MultiDSL™ technology support on the MAX TNT

**Any feedback or suggestions are most welcome. This bulletin will be updated regularly. Also, please send any pertinent competitive information from the field to the attention of the Competitive Marketing group in Alameda (x2081).**

# Comparison of Key Features - Ascend MAX line Vs. Cisco AS5x00

| Feature | MAX 40XX | MAX TNT | Cisco AS5200 | Cisco AS5300 | Cisco AccessPath |
|---|---|---|---|---|---|
| **Density/List Price** | | | | | |
| -Max.modems/box | 8 to 96 | 672 | 48/60 | 96/120 | N/A |
| -Max modems/rack | | 4032 | | | 1344 |
| -Price/modem | $542-$750 | $625 | $461- $615 | $468-$589 | $575 |
| -Max. PRI/box | 2 to 4 | 28 | 2 | 4 | N/A |
| -PRI/Telco rack | | 168 | | | 56 |
| -Concurrent sessions (T1/E1 versions) | 48/60 to 96/120 | 4032 | 48 | 96/120 | 1344 |
| -Firewall Pricing | $4,000 | $20,000 | $9,000 - $40,000 | $9,000 - $40,000 | $9,000 - $40,000 |
| **LAN/WAN Connectivity** | | | | | |
| -T1/E1 | Yes | Yes | Yes | Yes | Yes |
| -V.34 | Yes | Yes | Yes | Yes | Yes |
| -56K | Yes | Yes | NO | Yes | Yes |
| -ISDN BRI | Yes | No | Yes | NO | NO |
| -ISDN PRI | Yes | Yes | Yes | Yes | Yes |
| -T3 | NO | Yes | NO | NO | NO |
| -PPP | Yes | Yes | Yes | Yes | Yes |
| -Frame Relay | Yes | Yes | Yes | Yes | Yes |
| -AppleTalk Remote Access | Yes | Yes | Yes | Yes | Yes |
| -10/100Base-T | No | Yes | NO | Yes | Yes |
| **Bandwidth Management** | | | | | |
| - Multilink Protocol (MP) | Yes | Yes | Yes | Yes | Yes |
| -Multilink Protocol Plus™ (MP+) | Yes | Yes | NO | NO | NO |
| -Hardware Data Compression | Yes | Yes | Yes | Yes | Yes |
| -Multi-Chassis MP | Yes | Yes | Yes | Yes | Yes |
| -Multi-Chassis MP+ | Yes | Yes | NO | NO | NO |
| | Yes | Yes | NO | NO | NO |
| **Security** | | | | | |
| -PAP/CHAP | Yes | Yes | Yes | Yes | Yes |
| -TACACS & TACACS+ | Yes | Yes | Yes | Yes | Yes |
| -Dynamic Firewall | Yes | Yes | NO | NO | NO |
| -RADIUS | Yes | Yes | Yes | Yes | Yes |
| -Extended RADIUS | Yes | Yes | NO | NO | NO |
| -Integrated Firewall | Yes | Yes | NO | NO | NO |
| -CLID | Yes | Yes | Yes | Yes | Yes |
| -VPN Tunneling support | | | | | |
| -L2F | Yes | Yes | Yes | Yes | Yes |
| -PPTP | Yes | Yes | NO | NO | NO |
| -L2TP | Yes | Yes | Yes | Yes | Yes |
| **Network Management** | | | | | |
| -Full SNMP MIB support | Yes | Yes | Yes | Yes | Yes |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| -Total Network (multi-device) management | Yes | Yes | NO | NO | NO |
| -Multi-vendor router/switch support | Yes | Yes | NO | NO | NO |
| -QoS Reporting | Yes | Yes | NO | NO | NO |
| - Complete discovery and mapping | Yes | Yes | NO | NO | NO |
| **Routed/Routing Protocol Support** | | | | | |
| -IP | Yes | Yes | Yes | Yes | Yes |
| -IPX | Yes | Yes | Yes | Yes | Yes |
| -OSPF | Yes | Yes | Yes | Yes | Yes |
| -RIP 2 | Yes | Yes | Yes | Yes | Yes |
| **Server Functions** | | | | | |
| -STAC comp. | Yes | Yes | Yes | Yes | Yes |
| -Terminal Server | Yes | Yes | Yes | Yes | Yes |
| -FAX out | Yes | Yes | NO | NO | NO |
| -Remote Software Download | Yes | Yes | Yes | Yes | Yes |
| -LAN to LAN | Yes | Yes | Yes | Yes | Yes |
| **Carrier Support** | | | | | |
| -Redundant Power supply | Yes | Yes | NO | Yes | Yes |
| -Cellular service support | Yes | Yes | NO | NO | NO |
| **DSL support** | IDSL | IDSL, SDSL, RASDL | NO | NO | NO |
| **Open 56K support** | Yes | Yes | Yes | Yes, with MICA modem cards | Yes, with AS5300 |

## *Selling Against the Cisco AS5x00*

- **Cisco AS5x00 is not a scalable line of product offerings on the same platform**
- **AS5x00 is not a carrier class product:** The MAX TNT has the density, scalability, WAN interfaces (includingT3 functionality) and high level of redundancy to be carrier class.
- **Moving from the AS5200 to the AS5300 is a forklift upgrade:** Users will have to deal with a new, unproven hardware platform and new software. Cisco is cannabalizing its AS5200 line, without adding significant improvements.
- **AS5x00 has no track record**: Cisco has a poor track record with ISDN modem integration, and the new MICA modems are not field tested. The MAX platform is market proven. It has been in the field for over three years.
- **AS5x00 is a loosely integrated product:** This new hardware platform mixes technologies from different sources –server technology from Livingston, modem technology from Microcom and Telebit.
- **AS5x00 is a high cost product when necessary software, memory upgrades, etc. are added:** At $542 to $750 per port, the MAX 40XX is still the low cost, high value solution.
- **Modem management software requires added costs:** The licensing fee for Microcom modems is $7,200 per 48 modems, and early indications put the MICA fee at $9,600 per 96 modems. Required memory upgrades also add to the expense.
- **Cisco is delivering 56K late, and the new software is not market tested:** Ascend has shipped over a million Series56™ (K56flex compatible) modems to date
- **AS5x00 only promises *future* support of xDSL:** Ascend's MAX TNT supports IDSL, SDSL and RADSL *today*.
- **CiscoWorks and AccessPath Network Management provides Cisco-centric management of multiple Cisco devices only:** Ascend's NavisAccess provides total end-to-end management of multiple services and multi-vendor network devices.

- **Cisco has limited security features:** CiscoIOS support for RADIUS is not a complete implementation of the IETF standard. The MAX line offers integrated, dynamic firewall capability and complete RADIUS implementation with an extended RADIUS dictionary (over 120 enhancements).
- MultiChassis MP on the AS5200 requires an external router to work (Cisco recommends this).

## *Selling Against the Cisco AccessPath "rack solution"*

- **AccessPath has no track record**: The MAX TNT is market tested - it has been in production networks since Q1'97.
- **AccessPath lacks the range of WAN connectivity**: In addition to ISDN PRI, the MAX TNT supports Channelized E1/T1, Channelized T3 and Frame Relay.
- **AccessPath is only an interim attempt to counter the MAX TNT**; It integrates disparate access server, router, switch, and management products in an attempt to simplify the network and streamline product ordering. AccessPath is three Cisco pieces thrown into one - not a truly integrated system - and any problems suffered by the parts will likely be present in the whole. The MAX TNT is a discreet platform designed specifically for high-density access applications.
- **AccessPath only promises *future* support of new xDSL technologies**: Ascend's MAX TNT supports IDSL and RADSL *today*.
- **AccessPath cannot compete with the MAX in true port density per Telco rack:** It is unclear how many concurrent sessions AccessPath supports *per rack* (80'x 23' x 36'). The Ascend MAX TNT supports 672 concurrent sessions per three shelf system and up to 4032 sessions per Telco rack – *almost six times the AccessPath's density in the same floor space!*
- **AccessPath Manager provides Cisco-centric management of multiple AccessPath devices only:** Ascend's NavisAccess provides total end-to-end management of multiple services and multi-vendor network devices. NavisAccess also delivers all of the services - such as encryption, VPN, integrated security, billing, and classes of service - that today's network manager needs (see NavisAccess product launch information for more details).
- **AccessPath is an extremely high-priced solution:** Cisco has revealed that the system will "start" at $133K - but, in fact, this conglomeration of boxes will be very high-cost:
    * 14 AS5300 @ $54,560 (list pricing including modem management software) = $763,840
    * Additional cost for 7200 Chassis = $ 5,000
    * Additional cost for Catalyst 5000 Chassis = $5,000