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COMPETITIVE FLASH

Cisco AS5800 Remote Access Concentrator vs. MAX TNT

February 1998 – Ascend Competitive Mktg. Group

ASCEND

Brief Summary of Announcement

Cisco announced the AS5800 access concentrator on February 23,1998. Per the announcement, the box will support up to 720 ports (576 ports for a T1 system and 720 for an E1 system), aiming to compete against the MAX TNT™. Pricing will start at $515 per port. Cisco does not state when the product will ship although it states that the product is orderable immediately.

Cisco is positioning the AS5800 as a "highly available", carrier-class product. The announcement stresses NEBS Level 3-compliance/ ETSI compliance and a Mean Time Between Failure (MTBF) rate of greater than 500,000 hours.

Like the AS5200 and AS5300, the AS5800 is expected to be a component of Cisco's "Dial Access Stacking Architecture (DASA)" and the AccessPath system.

AS5800

- 14-slot chassis-based Dial Shelf that provides access concentration/termination functions
- The Dial Shelf and router boxes are connected together by an external cable running from the Dial Shelf controller card to the router and managed by Cisco IOS.
- 7206 router that provides routing/management functions
- Dial Shelf modules
  - 72-port MICA modem card
  - 12-port T1/E1/PRI cards
- Shelf controller card
- Maximum density is 576/720 modems using two 12-port T1/E1 cards with integrated analog/ISDN support.
- Starting per port price (based on a fully configured system) is US $515. Modem management license has to be purchased separately at $100 per port.
- Cisco is saying that T3 card and 144 port high-density modem cards will be available sometime in the future.
- 7206 router modules
  - One processor card and four other interface cards (Ethernet, Fast Ethernet, HSSI, Serial, FDDI) can be placed in this chassis-based router
  - Cisco IOS support

Other claims (Note: These are just marketing claims by Cisco. Product shipment is at least two to three quarters away):

- Enables new and differentiated services, such as: VPNs, multiple service levels, detailed billing, network gaming, voice-over-IP and fax-over-IP
- Multiple network interfaces, including DS3, E3, and ATM OC-3
- SS7 support based on technology from LightSpeed International acquisition
- Support for up to 10,000 ports using a single hunt group

Ascend Response/Selling against the AS5800

Cisco AS5800 architecture is "unsuitable" for carrier-class networks because it is not a truly integrated and a distributed platform

While both the dial shelf and router will be managed by Cisco IOS, the router (7206) will still be a stand-alone box and not integrated with the Dial Shelf box. This poses a management nightmare for customers. Also, the router being separate is a single point failure. From an architecture standpoint, the Cisco AS5800 does not have an integrated, dynamic TDM backplane. Without this TDM switch, the AS 5800 box will have to "map" individual channels to modems within each modem card. If a modem fails, then calls cannot be received on the T1/E1 channel that the modem is mapped to. The AS5800 is not a multi-processor architecture. The 7206 router is used centrally for all route processing and if this system fails, then the entire system will come to a halt. The Ascend MAX TNT is a true multiprocessor architecture. When additional slot cards are added to a MAX TNT system, the processing power is added to cope with the new resource demands and routing is distributed. Cisco's reliance on the 7200 to perform the routing for the complete system using IOS makes it an uni-processing system and a single point of failure.

So, Cisco's claim of providing support up to 10,000 ports within a single hunt group is not a suitable proposition for demanding carrier-class access networks. The MAX TNT provides integrated and distributed routing functionality that very well suited for carrier-class networks. In addition, Cisco's reliability (MTBF) claims are based on internal engineering assessment and not based on data from an installed production network.

Cost of operation in a production network for an AS5800 will be much higher compared to the MAX TNT

The AS5800 is more than twice the size of the MAX TNT on a per chassis basis and can accommodate only up to 1152/1440 modems in a 7' Telco rack. The MAX TNT, on the other hand, can accommodate over 2016 modems in a 7' Telco rack. So, the MAX TNT can provide more than 40% port density in a standard Telco rack. Note: Cisco is promising a higher density MICA modem card, but that is way into the future

The AS 5800 heat dissipation (6800 BTU/hr) is about three times the rating of the MAX TNT (2322 BTU/hr) on a per unit basis. The AS5800 can be only add to the power consumption burden of customers thus increasing the net cost of operating an access network.

Cisco has not announced an actual ship date for the AS5800.

This is a product announcement only – it is unclear when the AS5800 will actually be available – given Cisco's delivery track record, customers can expect to see a production version of the A5800 probably during the latter part of this year. By this time, Ascend's MAX TNT platform will be a generation ahead. Cisco is very late with a carrier-class, high-density product. Ascend was the first to announce a high-density, carrier-class product in September of 1996 and the MAX TNT has been in production networks since early 1997.

Cisco will charge extra $100 per port for MICA modem management license. Also, additional DRAM cards will have to be inserted for the modem management software to work. So, Cisco's effective per port price will be about $625.

The AS5800 / AccessPath uses Cisco proprietary software applications, forcing NSPs to implement a Cisco-centric network in order to fully exploit its features/benefits.

Most NSPs do not want to be tied to a proprietary IOS package that binds them with Cisco for other network components. Ascend's MAX TNT does not tie the user into one vendor for its network core or edge – Ascend's operating system and NavisAccess™ are standards-based, and offers multi-vendor, multi-device management capabilities.

Most of the AS5800's product "enhancements" and advertised protocols/features will not be available upon initial release.

- No DS3/E3 support today
- No voice/fax-over-IP today
- No SS7 support - this may be hard to deliver despite the LightSpeed acquisition
- No VPN support in the initial release. All the differentiated services within the IOS are in the distant future.

Note: Cisco's SS7 signaling support announcement is merely following Ascend's initiative to provide SS7 signaling support in access concentrator platforms. Extending LightSpeed SS7 technology to IOS is an immense challenge and could be several quarters away.

No support for 56K yet. Cisco is not shipping a 56K upgrade for the AS5300 MICA product currently. The MAX TNT has been supporting 56K for about a year now. (Note: Cisco has mentioned that it will not ship any 56K modems until the ITU standard V.90 modem interoperability testing is completed)

The AS5800 doesn't have xDSL support, and no plans for support were included in this announcement.

xDSL is the key component of the Carrier/ISP network strategy. MAX TNT has support for IDSL, SDSL and RADSL TODAY. There is no question as to Ascend's commitment with its MultiDSL™ product offering and experience/track record to date.

Selling the MAX TNT Advantage

Carriers and large service providers have the following key requirements when selecting a vendor/product for their mission-critical networks:

- Field Experience and record in terms of deployment and support
- Lower cost of operation/Reliability
- Performance/Scalability
- Full range of WAN connectivity options
- Bandwidth Management and Control
- Investment Protection
- International Interoperability
- Comprehensive Network Management
- Security and VPN capability

Cisco is late to the market with a high-density platform and still does not match up to the MAX TNT value proposition. Ascend's MAX TNT is a field-tested product that meets key customer requirements TODAY. Ascend's ability to meet customer requirements can be summarized as follows:

Key Customer Requirements	Ascend MAX TNT Advantage
Field Experience/Track record	The Ascend MAX™ line has won and maintained a clear market leadership position for over three years! • The MAX platform is used in 85 of the world's top 100 Internet Service Providers and leverages Ascend's access software development used in over 40,000 MAX family installations worldwide. • Ascend had a worldwide market share of 62.2% of PRI access concentrator sales and 50.6% of analog access concentrator port sales in Q3'97 (Dell'Oro Group 11/97)
Performance/Scalability	The MAX TNT has been tested by an independent testing agency (The Tolly Group). These performance tests simulated real-world usage and demonstrate that the MAX TNT scales linearly. Also, recently Data Communications awarded the MAX TNT with "Top Performer" award
Lower cost of operation/reliability	The MAX TNT provides higher port density and less power consumption compared to the AS5800 solution. This results in significant operational cost savings for the customer. Also, MAX TNT is NEBS3-compliant and has been installed in many carrier networks world-wide
WAN Connectivity	Full range of WAN connectivity options: • Redundant DS-3 support • T1/E1/PRI • High-speed serial – HSSI, • Serial WAN – V.35, RS449 • Frame Relay UNI/NNI Support • Support for 4032 Frame Relay PVCs

Key Customer Requirements	Ascend MAX TNT Advantage
Bandwidth Management and Control	Comprehensive set of features including Multilink PPP (MP), Multilink Protocol Plus™ (MP+), Multichassis MP and MP+ • B-channel aggregation within the chassis or between multiple chassis • BACP support • NFAS support • DS3/T3 Bandwidth Aggregation support • Bonding of ISDN B-channel support
Investment Protection	• Long history of deployment in the access concentrator/Network Service Provider market • Market share leadership with field-tested products • Guaranteed interoperability with a wide number of modem manufacturers and carrier networks including carriers in over 36 countries • MAX TNT software is based on MAX 4000 software – which has over a 3-year track record in over 40,000 installations. • Market proven ISDN expertise
International interoperability	• Supports up to 720 concurrent analog or ISDN sessions per system in E1 version (over 2000 in a 7' telco rack) • Up to 28 T1/E1/ PRIs • DS3 support • Guaranteed interoperability with a wide number of modem manufacturers and carrier networks including carriers in over 36 countries
Network Management	• NavisAccess™ manages the entire network from single terminal and provides support across product families and multi-vendor equipment-device grouping. • Includes pre-compiled MIBs and comprehensive GUI-based management of many third-party products.
Security and VPN capability	• Comprehensive security options including : • RADIUS extensions (120+), • TACACS/TACACS+ Support • Token-based Security support • Calling Line ID (CLID) Support • Secure Access™ Integrated dynamic firewall option • (The Winner of the PC Magazine Editor's Choice Award for Firewalls – October, 1997) • VPN support for over one year with ATMP, PPTP and delivering L2TP, L2F support

The Bottom Line:

Cisco is late to the market with this product and has very little to offer in terms of “value” compared to Ascend’s MAX TNT. Cisco’s solution is not suitable for carrier-class networks and can only be expected to provide higher operating costs compared to the MAX TNT. The MAX TNT has been widely deployed in many carriers and large NSP networks since early 1997 and has been given “Top Performer” award by Data Communications magazine.

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