# Cisco AS5200

AS5200 Overview

The AS5200 is Cisco's first entry into a new product line of universal integrated access servers. Shipping since June 1996, the AS5200 provides dial access to enterprise and service provider networks from single users or from remote networks by using either asynchronous modems or digital Integrated Services Digital Network (ISDN) technology.

The AS5200 has become extremely popular because it integrates the functions of standalone channel service units (CSUs), channel banks, modems, communication servers, switches, and routers into a single, stackable chassis. The AS5200 contains digital ISDN and asynchronous modem access server functionality, ideal for the mixed-media dial environments that are becoming more prevalent every day.

By terminating both analog and digital calls on the same chassis, from the same trunk line, the AS5200 gives customers a clear, simple, and easy migration path from today's predominantly analog dial services to tomorrow's principally digital ISDN dial services.

Figure 1   The AS5200 combines async and ISDN dial-in fuctionality.
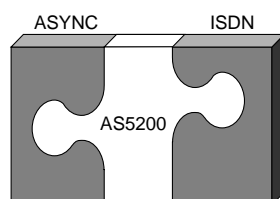
Features at a Glance

The AS5200 provides the following key advantages:

- One phone number can be used to service and terminate modem and ISDN calls
- Two Primary Rate Interface (PRI)/T1 lines with integrated CSUs are terminated in the AS5200, meaning a network manager can have up to 48 simultaneous callers terminated in one box
- Two PRI/E1 lines, for most services outside North America, are terminated in the AS5200 up to 60 simultaneous calls
- Up to 60 fully managed modems can be installed in the AS5200 to service all calls on both PRI/T1 or PRI/E1 trunks
- One Ethernet port provides the ability to route data locally
- Two synchronous serial ports provide the ability to route data to other sites (backhaul)
- Modems come with a choice of management functionality levels
- Router engine is based on the reliable and proven Cisco 2500; over 500,000 of these router engines are deployed in the field
- Full Cisco Internetwork Operating Systems (Cisco IOS™) software support allowing customers with current Cisco network infrastructures to leverage the training and management investments they have already made

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- Full remote management of the integrated CSUs, router, and modems via the router's command-line interface (CLI), Simple Network Management Protocol (SNMP) Management Information Bases (MIBs), or a CiscoView™ graphical user interface (GUI) applet
- Modular design allows easy implementation of future technology
- Internal socket for future compression-assist engine

Figure 2   AS5200 rear view

Benefits

Universal Access
The AS5200 allows ISDN and analog modem callers to dial into the same chassis, using the same telephone number. This enables customers to save money by using one trunk line instead of two for all calls, thus reducing the number of system components, which reduces operational costs. The AS5200 also supports the widest array of networking and routing protocols available in the industry. Deploying the AS5200 provides central site administrators the ability to connect users with a single, easy-to-use platform. The AS5200 is designed to be flexible enough to fit in many different network designs.

The Cisco IOS Advantage
Since the Cisco IOS is the software running on most of the world's internetworks (both on Cisco routers and on many partners' platforms), the AS5200 offers guaranteed compatibility to those networks. The breadth and depth of protocols supported by the Cisco IOS software is another benefit of the AS5200. Not only does the AS5200 support remote-node and remote-LAN dial protocols, it supports the full suite of routing protocols as well. Customers can leverage their current training and experience on other Cisco equipment to install, configure, and manage the AS5200.

Modem Technology
As many network administrators have learned over the years, all modems are not created equally. Connect rates, throughput, reliability, and manageability are all important factors for modems deployed in a central site to possess. The AS5200 integrates modem technology from Microcom, a leader in the central site modem environment. Microcom's modem software and hardware solutions have proven capable of withstanding the rigors of central site deployment. Our tests show that Microcom modem technology competes favorably with other central site modem manufacturers' solutions and far surpasses many competitive products with standard, off-the-shelf modem chip sets integrated in their access servers.

Scalability
The AS5200 supports ISDN B-channel aggregation over multiple chassis. Using Multichassis Multilink Point-to-Point Protocol (MMP) across several AS5200 chassis Cisco has developed the means to aggregate multiple calls terminated on multiple servers. Network managers have the ability to stack multiple AS5200s, for high-density access server systems. This is just another Cisco IOS software feature, also available on other Cisco platforms that support ISDN.

Single Vendor Support
The AS5200 solves a major problem of MIS managers—multivendor finger pointing when something goes wrong. With the AS5200, the router, access server, CSU, and modems are all supported by Cisco's world-class 7 x 24 global support team.

Compatibility
With the CSU, modems, router, and access server components integrated into one chassis, the AS5200 avoids incompatibility concerns that plague multivendor installations. The AS5200 is designed for seamless interoperability among its integrated components. Additionally, Cisco IOS software, which has been fully integrated into the AS5200, is the software running on over 80 percent of the Internet's backbone routers, ensuring compatability with today's features, as well as with tomorrow's more advanced features.

Future

The AS5200's modular design allows rapid implementation of new technologies as they become available. (Compression, 56 Kbps modems, etc...)

Applications

Service Provider POPs

The AS5200 is ideally suited as a distributed analog/digital dial platform in networks with multiple, geographically dispersed points of presence (POPs). The AS5200 accepts calls from service users over a variety of protocols and allows ISDN users to dial into the same platform as analog modem users, using a single ISDN PRI trunk. The AS5200 is fully manageable, using both a CLI and CiscoWorks™. The AS5200 has many remote diagnostic features specifically for the demands of a service provider network.

Figure 3   AS5200s deployed in a geographically dispersed architecture
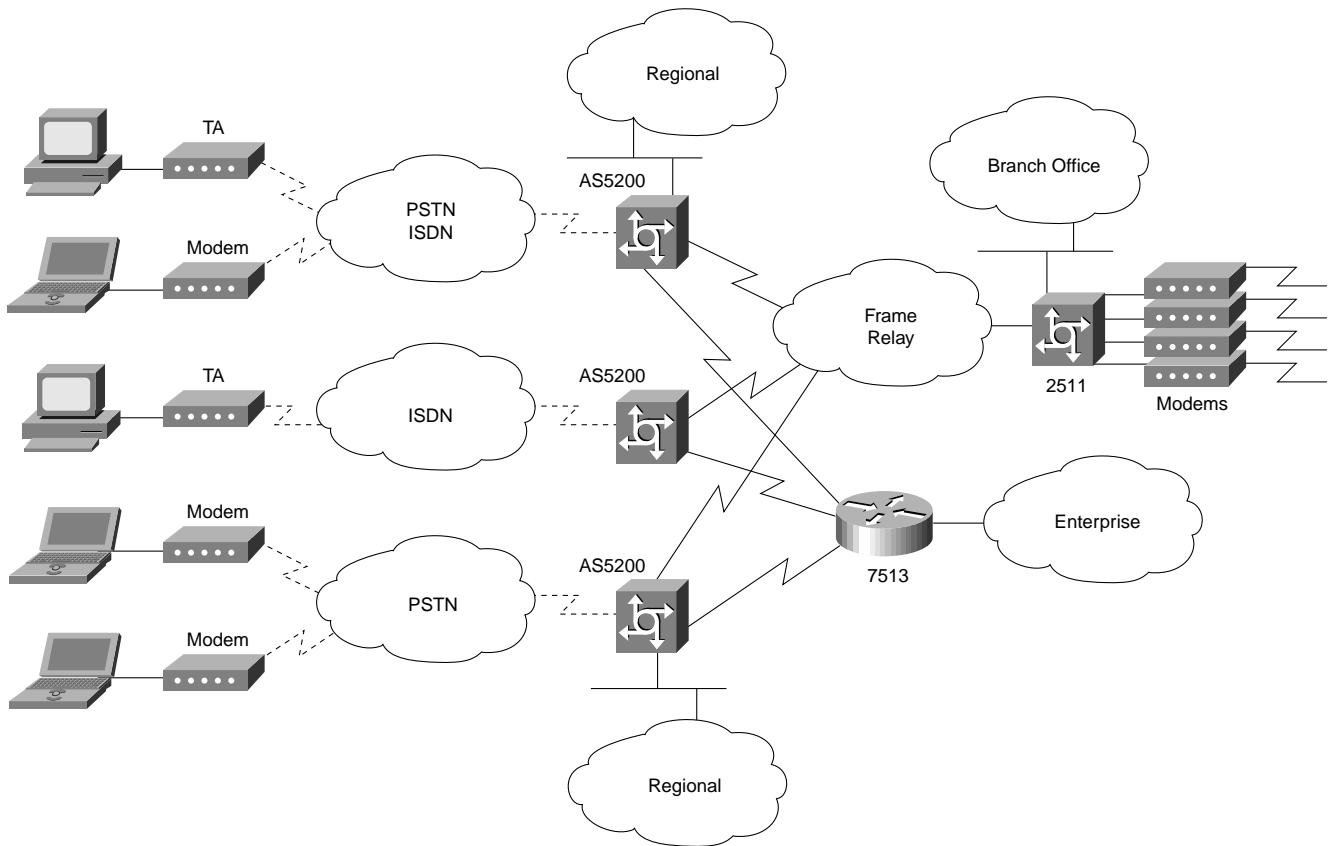
Centralized Corporate Dial Access Site

The AS5200 is designed with high-density, centralized environments in mind. The AS5200 uses only two rack units of real estate, allowing for high concentrations of modem and ISDN dial users to be serviced in less physical space than multibox, multivendor solutions. The AS5200 can aggregate calls using MMP across multiple chassis. This feature allows the AS5200 to scale to many more PRI lines than a single chassis. This capability also enables a highly resilient network implementation where a CPU or power supply failure impacts only a small part of the access solution.

Mixed-Media Enterprise Dial

The AS5200 also operates very effectively in the mixed-media enterprise environment. The AS5200 supports the needs of mobile users, who typically use modems to dial in from disparate locations, and telecommuters, who are increasingly using high speed ISDN Basic Rate Interface (BRI) technology to access the enterprise network. Both types of users have specific needs when dialing in, and the AS5200 services them both in a single, easy-to-manage platform. By deploying the AS5200, network managers can leverage training that their people have on other Cisco equipment.
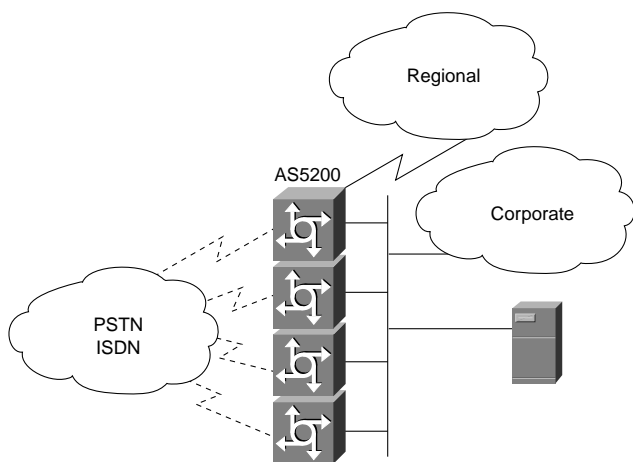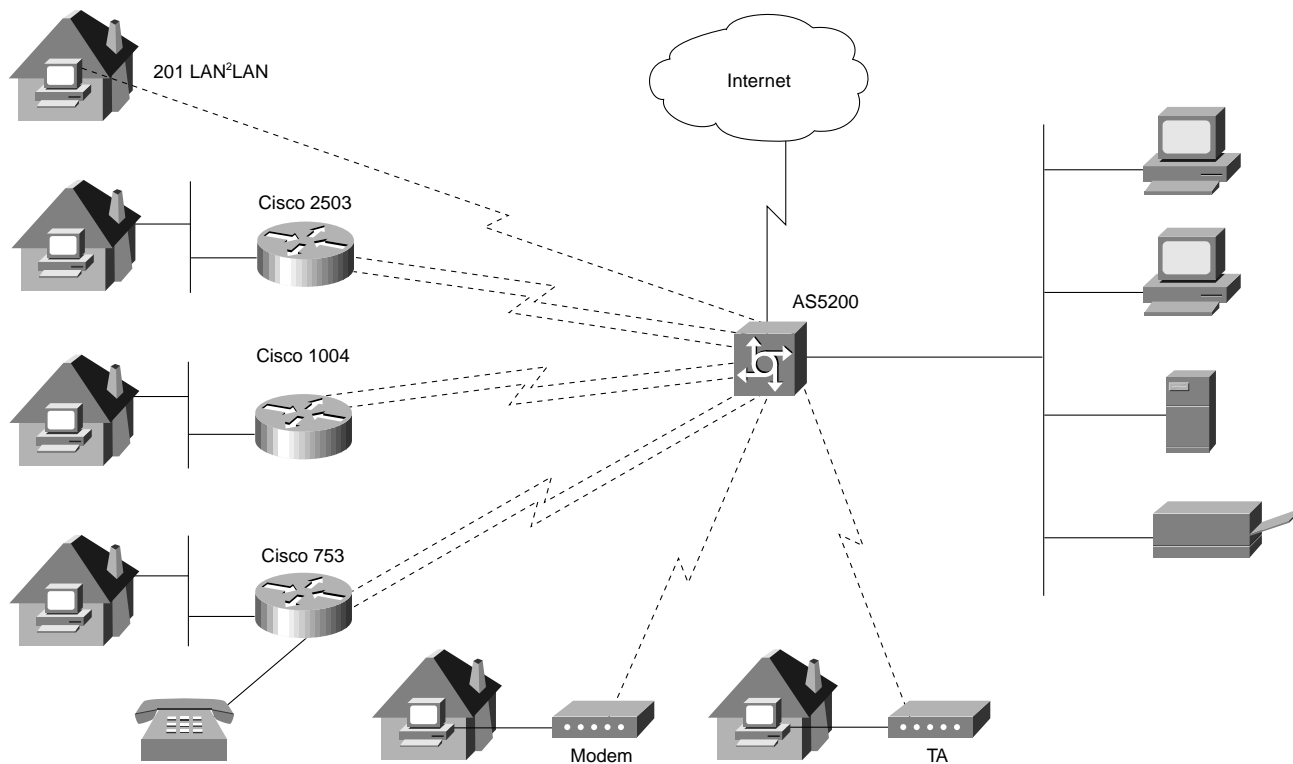
Figure 4   AS5200s stacked in a central site

Figure 5   AS5200 supports multiprotocol dial-in needs of enterprise customers

Availability and Orderability

The AS5200 is currently shipping. See Ordering Information for details.

Table 1 AS5200 Software Features and Benefits Summary

Features	Comment/Descriptions	Benefits
Cisco IOS Software	Proven internetworking software used in most networks; 80 percent of the Internet	• Software you can depend on
Routing	RIP, RIP2, SAP, IGRP, EIGRP, NHRP, PIM, OSPF, IS-IS, BGP4, EGP, IDRP	• Multiprotocol routing support eliminates the need for an external router
WAN Optimization	Dial-on-demand routing, bandwidth-on-demand routing, dial back-up, snapshot, filtering static routes, synchronous and asynchronous routing	• Lowers ongoing operating costs associated with operating a geographically dispersed WAN network
Management	Telnet, SNMP, MIB II, enterprise MIB, SNMP2, RMON, CiscoWorks, ISDN MIB, Modem MIB	• Gives network managers flexibility in measuring network statistics and in isolating problems
Remote Node	SLIP, CSLIP, PPP, IPXCP, ATCP, NBFCP, ARA V.1, ARA V.2, MacIP, BOOTP, DHCP, local IP pools, per-user addressing, per-interface addressing, IP header compression, IPX header compression, CCP (Stac, Predictor), MP	• Comprehensive remote-node features allow the network manager more choice in how to implement dial solutions
Terminal Services (Legacy)	Telnet, Rlogin, TN3270, XRemote, user menus, X.28, X.25 PAD, protocol translation, LAT, Reverse Telnet, LPR	• Allows terminal service applications to migrate to more robust remote-node applications when they are needed
Virtual Dial	Supports virtual dial over both IP and X.25	• Allows users to dial a local number, enter an IP or X.25 network, and set up a tunnel back to the corporate network; users can then route multiprotocol traffic over a public network in a secure fashion
Security	TACACS+, RADIUS, user/password, internal database, PAP, CHAP, token cards, filtering, access lists, external logging, Kerberos V, PPP callback, EXEC callback, per-user accounting, protocol accounting, access list violation logging	• Network managers can use Cisco's industry-leading security support to protect corporate data and prevent unauthorized users from entering a network by configuring the AS5200 as a firewall

Table 2 AS5200 Hardware Features and Benefits Summary

Category	Protocol/Feature	Benefits

Cisco 2500 Engine	• Dual Flash bank is an optional feature
	  – Allows multiple software images to be stored
	  – Boot code contained in flash for easy remote upgrades
		• Reliable and proven design
		• Ease of use

Modular Design	• Feature cards easily installed • Customers can conveniently upgrade to new technology as it becomes available	• Easy future technology upgrades • FRU costs reduced when compared to fixed configuration platforms • Customers pay for configuration they need now, and expand as network grows
Modem Selection	• Cisco offers several choices of modem technology • Microcom modem technology is incorporated into the AS5200, which provides this platform with superior modem connectivity and throughput • Modems are available either managed or unmanaged, and all include Flash-based microcode (for software upgrades)	• Cisco supports integrated modems sold with chassis • Cisco is committed to working with best-of-class modem manufacturers to integrate new technology as it becomes available

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