

# Dial Bundles for the Cisco 3700 Series Routers

Cisco® Systems is leading the way at the edge of the enterprise network with Cisco 3700 Series multiservice access routers, which enable dramatically higher levels of application and service integration in enterprise branch offices. With on-board LAN/WAN connectivity, new high-density service modules, and support for multiple advanced integration modules (AIMs), the Cisco 3700 Series delivers new levels of branch-office service density in a compact form factor.

The availability of digital modem bundles for the Cisco 3700 Series makes remote-access configurations for the Cisco 3700 Series easier to order. Cisco 3700 Series dial bundles allow enterprise and service provider customers to easily deploy the popular Cisco 3700 Series routers as remote-access servers or concentrators in the branch office and to take advantage of the incredible flexibility these platforms offer. Cisco 3700 Series dial bundles complement Cisco 3600 dial bundles, extending the tradition of affordable digital dial capabilities in high-performance modular routers.

## New Cisco 3700 Series Dial Bundles

The benefits of these bundles include ease of ordering (only one SKU), the ability to support other multiple services, the ease of migration to future technologies, the ability to support remote users at the maximum connection speeds available, and the inclusion of feature-rich Cisco IOS® Software.

Table 1 lists the new product numbers created for Cisco 3700 Series dial bundles.

Table 1 Cisco 3700 Series Dial Bundles Ordering Information

Cisco 3700 Series Dial Bundle Part Numbers	Cisco 3700 Series Dial Bundle Description
3725MBUNDLE-24DM	Cisco 3725 PRI Dial Bundle, with NM-1CT1-CSU, NM-24DM, IP IOS
3725MBUNDLE-30DM-U	Cisco 3725 PRI Dial Bundle, with NM-30DM, NM-1CE1U, IP IOS
3725MBUNDLE-30DM-B	Cisco 3725 PRI Dial Bundle, with NM-30DM, NM-1CE1B, IP IOS
3725MBUNDLE-4B-S/T	Cisco 3725 BRI Dial bundle, with NM-12DM, NM-4BRI-S/T, IP IOS
3725MBUNDLE-8B-S/T	Cisco 3725 BRI Dial bundle, with NM-18DM, NM-8BRI-S/T, IP IOS
AS3745-T1-48	3700 Access Concentrator NM-2CT1-CSU, 2x NM-24DM, and IP IOS
AS3745-E1-60	3700 Access Concentrator 2x NM-30DM, and IP IOS



## Features at a Glance

### Cisco 3745 Primary Rate Interface (PRI) Bundles

- Easy ordering
- 48 or 60 active digital modems
- 2 x 10/100 Ethernet LAN connection
- A choice of additional WAN interface card (WIC), AIM, or network module interfaces
- 56 K (V.90 or V.92<sup>1</sup>) support
- V.110 support
- Software-upgradable modems
- A high-performance routing engine
- VPN capabilities, including firewall, encryption, and tunneling options
- Modem/fax dial-out support (via third-party applications)

Note: 60 modem bundles need to be ordered with separate Bal or unbal PRI Network Module

### Cisco 3725 PRI Bundles

- Easy ordering
- 24 or 30 active digital modems
- A built-in channel service unit (CSU) on the 24-modem version
- A 30-modem version (available in either unbalanced or balanced)
- A 2 x 10/100 Ethernet LAN connection
- A choice of additional WIC or AIM interfaces
- 56 K (V.90 or V.92<sup>1</sup>) support
- V.110 support
- Software-upgradable modems
- A high-performance routing engine
- VPN capabilities, including firewall, encryption, and tunneling options
- Modem/fax dial-out support (via third-party applications)

### Cisco 3725 Basic Rate Interface (BRI) Bundles

- Easy ordering
- Four or eight BRI interfaces with S/T interfaces available
- Eight or 16 active digital modems
- 2x 10/100 Ethernet LAN connection
- A choice of WIC or AIM interfaces
- 56 K (V.90 or V.92<sup>1</sup>) support

1. V.92 support requires Cisco IOS Software Release 12.2(11)YT or later. For more information, please visit: <http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122relnt/3700/m3700yt.htm>



- V.110 support
- Software-upgradable modems
- A high-performance routing engine
- VPN capabilities, including firewall, encryption, and tunneling options
- Modem/fax dial-out support (via third-party applications)

### Cisco 3600 Series Dial Bundle Comparison

Cisco 3700 Series dial bundles offer superior value when compared to the existing Cisco 3600 Series dial bundles. Cisco 3700 Series dial bundles provide the same capabilities as a similarly equipped Cisco 3600 Router while offering greater flexibility and investment protection at the same or lower solution price. Cisco 3700 Series dial bundles offer the following advantages:

- Two built-in Fast Ethernet ports
- Three built-in WIC slots
- Two built-in AIM slots
- Greater processing power
- Increased default memory

These new Cisco 3700 Series dial bundles ease digital dial ordering on the Cisco 3700 Series, and provide greater migration options from the existing Cisco 3600 Series for customers who are looking for similar dial solutions on the Cisco 3700 Series. The possible migration options are listed in Table 2.

Table 2 Cisco 3700 Series Migration Options

Cisco 3620 Dial Bundle	Replacement Cisco 3725 Dial Bundle
3620MBUNDLE-24DM	3725MBUNDLE-24DM
3620BUNDLE-30DM	3725MBUNDLE-30DM-U
	3725MBUNDLE-30DM-B
3640AMBUND-4B-S/T	3725MBUNDLE-4B-S/T
3640AMBUND-8B-S/T	3725MBUNDLE-8B-S/T
AS3640A-T1-48DM	AS3745-T1-48
AS3640A-E1-60DM	AS3745-E1-60
3640AMBUND-4B-U	No equivalent Cisco 3700 Series bundle is planned due to the extremely low sales of the 3640AMBUND-4B-U bundle
3640AMBUND-8B-U	No equivalent Cisco 3700 Series bundle is planned due to the extremely low sales of the 3640AMBUND-8B-U bundle



## Cisco 3700 Series Dial Bundle Features and Benefits

### Overview

Cisco 3700 Series routers, installed with digital modem network modules and PRI/BRI interfaces, offer the most flexible, scalable, manageable, and high-performance dial-access solutions available in the market today.

Cisco 3700 Series PRI modem bundles use either a one- or two-port PRI network module in combination with digital modem network modules to offer support for up to 60 remote modem users at speeds of up to 56 Kbps. The Cisco 3700 PRI bundles support 24, 30, 48, or 60 integrated digital modems. Additional WICs and AIMs can be ordered to increase performance. The benefits of these bundles include ease of ordering (only one SKU), the ability to support remote users at the maximum connection speeds available, and the inclusion of feature-rich Cisco IOS Software.

Cisco 3725 BRI bundles use either a four- or eight-port BRI network module together with a digital modem network module to provide connectivity for up to 16 concurrent remote users. Additional WICs and AIMs can be ordered to increase performance. The benefits of this bundle include ease of ordering (only one SKU), the ability to support remote users at the maximum connection speeds available, and the inclusion of the feature-rich Cisco IOS Software.

Cisco 3700 Series bundles can take incoming Integrated Services Digital Network (ISDN) or voice (modem) calls and automatically switch them to the appropriate internal circuitry. The PRI/BRI switching is based on Q.931 messaging in the ISDN D channel. This out-of-band signaling channel provides a way for the telephone network to label each call by call type. When an incoming call is labeled “voice” by the telephone network, the Cisco 3700 Series dial bundle directs it to one of its modems. A call labeled “ISDN data” is directed to one of its High-Level Data Link Control (HDLC) controllers. This feature allows one phone number to work for both modem and ISDN users. R2 and CT1 interfaces also support this switching ability. BRI WICs do not support this “call switching” feature.

### Modem Capabilities

Cisco 3700 Series dial bundles provide complete centrally managed modem capabilities, key requirements for branches and enterprises building midsize dial-in pools. The digital modems can be managed via the same Simple Network Management Protocol (SNMP)-based tools used to manage the rest of the network, providing network managers with one solution at a central management point. Optional enhanced modem management (Management Modem Technology License [MMTL]) capabilities allow for the gathering of modem statistics, real-time call-in-progress, monitoring modem activity log, modem hard/soft busy out, and the ability to accomplish modem firmware upgrades.

The installed modems can be used by LAN users for dial-out and fax-out applications, using third-party applications such as clients available from Tactical Software. The modems can be assigned as dial-in, dial-out, or both. Dial-out support allows LAN users to use the modems during the day for outgoing calls and use the same modems in the evening for incoming calls from home users. The ever-expanding numbers of remote users can be easily accommodated with dial bundle’s support for multilink multichassis Point-to-Point Protocol (PPP), allowing dial-in pools of lines to span numerous Cisco 3700 Series routers. This option gives users flexible, scalable bandwidth options by bonding channels together to provide amalgamated bandwidth. Through the use of Layer 2 Forwarding (L2F) technology and the exclusive Cisco Stack Group Bidding Protocol (SGBP), the Cisco 3700 Series can grow to meet the requirements of fast-growing and frequently changing dial environments. Since the essential building block is a relatively small investment, enterprises and branch offices can scale from very small to larger installations.



Cisco IOS Software maximizes dial bandwidth, using numerous features such as bandwidth on demand and protocol spoofing, directly reducing line usage and reducing the cost associated with a remote-access solution. Lower operating costs are achievable with the Cisco 3700 Series' set of central management tools. The Cisco 3700 Series and its internal modems can be managed with CiscoWorks software. In addition, Cisco configuration management capabilities provide network managers with complete control over network statistics and the ability to configure and tune network operations from a central location. Finally, comprehensive debugging tools in Cisco IOS Software substantially reduce the time and cost associated with problem isolation and correction.

### **V.92 and V.44 Support**

The V.92 and V.44 standards provide consumers and teleworkers with a “broadband-lite” Internet experience at dialup prices. V.92 and V.44 support are available today for Cisco 3700 Series dial bundles in Cisco IOS Software Release 12.2(11)YT.

V.92 encompasses numerous specifications, including “Quick Connect,” which dramatically improves how quickly users can connect with their ISP or a branch office, and “modem on hold,” which enables users to suspend and reactivate their dialup connection to either receive or initiate a telephone call. This can be a tremendous productivity enhancement for teleworkers because they do not have to waste valuable time dialing back into a central site every time they get a phone call.

V.44 technology provides a new standard for compressing data. When compared to V.42, throughput is increased 20 to 60 percent because of a new compression algorithm that is optimized for typical Web content. Of all the new features, V.44 is the only one that speeds the delivery of Web pages to the end user.

**Note:** The V.92 standard also includes support for pulse code modulation (PCM) upstream, which boosts the upstream data rates from the user. However, PCM upstream is not supported on digital modem network modules because of limitations in the Modem ISDN Channel Aggregation (MICA) modem technology.

### **Flexibility**

Cisco 3700 Series dial bundles can evolve with your network. For instance, as your remote user base migrates from dial to virtual private network (VPN) connections via DSL or cable, the Cisco 3700 Series can adapt to allow for limited remote-user VPN support as well as site-to-site VPN support. This flexibility makes the Cisco 3700 Series an ideal dial platform for small branch offices, enterprises, and service providers. VPNs can help companies reap benefits such as dramatically lowered WAN costs, improved global connectivity, and better reliability, while enabling capabilities such as secure extranet communications. Remote dial, Internet, intranet, and extranet access can all be consolidated over a single WAN connection to the Internet. The Cisco 3700 Series provides robust VPN support through hardware-based encrypted tunneling at Triple Data Encryption Standard IP Security (3DES IPsec) speeds of up to 90 Mbps. In addition, the Cisco 3700 Series incorporates Cisco IOS Firewall technology (CiscoSecure Integrated Software), supporting stateful-firewall and intrusion detection functions.

As your WAN connectivity solutions evolve, so can your Cisco 3700 Series router. With three WICs, your Cisco 3700 Series router can easily migrate from Frame to T1/E1 to DSL connections without requiring completely new hardware. This flexibility provides increased investment protection and allows your organization to take advantage of emerging WAN connectivity technologies without extensive network infrastructure upgrades.

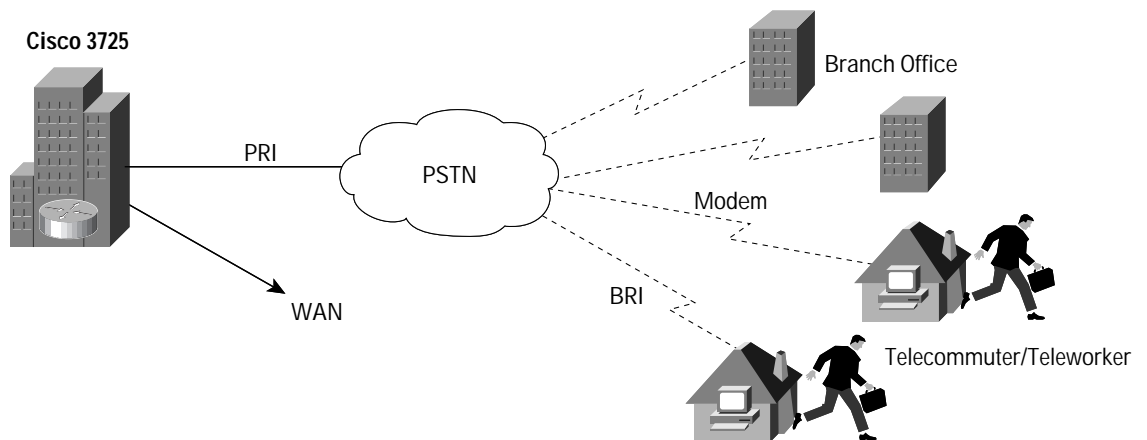


## Digital Modem Bundle Applications

Historically, branch-office connectivity has been synonymous with connecting the local LAN to a regional or central site. With the rapid growth in mobile computing and telecommuting, more branch offices need to add user-to-LAN capabilities. At the same time, V.92 modems are becoming the standard for remote users and to satisfy their throughput requirements, many enterprises and smaller ISPs have installed digital public switched telephone network (PSTN) connections, either ISDN BRI or PRI, at their premises. Cisco 3700 Series PRI bundles are designed to address the one and two PRI digital dial markets, providing a powerful routing engine and a competitive price point. Up to 60 concurrent users are supported.

Figure 1 illustrates a typical application for the Cisco 3725 PRI modem bundle.

Figure 1—Cisco 3725 PRI Bundles

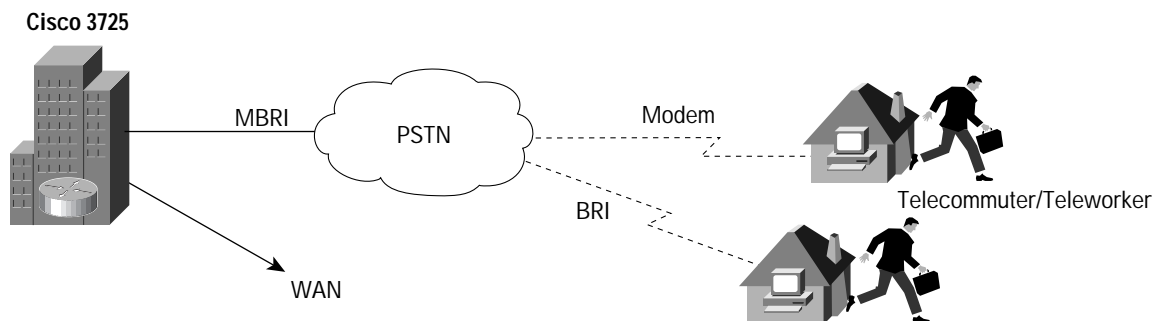


For basic telephone users, including mobile workers and people working from hotel rooms, both 33.6 K and 56 K modem calls can be terminated through the PRI connection into a digital modem network module. For teleworkers with BRI access, the same phone number can be used to connect to the same Cisco 3700 Series router, achieving 64 Kbps noncompressed, or 128 Kbps with multilink PPP. V.110 connectivity (used with GSM phones) is also available.

For teleworkers with BRI access, the same phone number can be used to connect to the same Cisco 3725 router, achieving 64 Kbps noncompressed, or 128 Kbps with multilink PPP.

Figure 2 illustrates a typical application for the Cisco 3725 BRI modem bundle.

Figure2—Cisco 3725 BRI Bundles





## Modem Protocols Supported

### Carrier Protocols

- V.92 (requires Cisco IOS Software Release 12.2(11)YT or higher)
- V.90
- K 56 Flex
- V.110 support
- ITU V.23 at 75/1200 bps
- Bell 103 at 300 bps
- ITU V.21 at 300 bps
- ITU V.22 at 1200 bps
- Bell 212A at 1200 bps
- ITU V.22bis at 2400 bps
- ITU V.32 up to 9600 bps
- ITU V.32bis up to 14,400 bps
- V.32 turbo up to 19,200 bps
- V.34 up to 33,600 bps

### Error-Correcting Link Access Protocols

- V.42 LAPM, MNP 2-4

### Compression Protocols

- V.42bis (includes MNP-5)
- V.44 (requires Cisco IOS Software Release 12.2(11)YT or beyond)

## Upgradability

The digital modem software is upgradable to future modem and fax standards. The modem management option provides for modem statistics, real-time call-in-progress, monitoring modem activity log, and modem hard/soft busy out. For further details, reference the digital modem management document support available at:

[http://www.cisco.com/en/US/products/hw/modules/ps2797/products\\_tech\\_note09186a008009454c.shtml](http://www.cisco.com/en/US/products/hw/modules/ps2797/products_tech_note09186a008009454c.shtml)

## Cisco IOS Software Support

Cisco 3700 Series dial bundles will initially ship with Cisco IOS Software Release 12.2(13)T. The software release will change as future enhancements, such as V.92 support, become available.

## Summary

Cisco 3700 Series dial bundles allow enterprise and service provider customers to easily deploy popular Cisco 3700 Series routers as remote-access concentrators and to take advantage of the incredible flexibility these platforms offer. Cisco 3700 Series dial bundles complement Cisco 3600 Series dial bundles, extending the tradition of affordable digital dial capabilities in high-performance modular routers.



Corporate Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

European Headquarters  
Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

Americas Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

Asia Pacific Headquarters  
Cisco Systems, Inc.  
Capital Tower  
168 Robinson Road  
#22-01 to #29-01  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the  
**Cisco Web site at [www.cisco.com/go/offices](http://www.cisco.com/go/offices)**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia  
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland  
Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland  
Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden  
Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

All contents are Copyright © 1992–2003 Cisco Systems, Inc. All rights reserved. Cisco, Cisco IOS, Cisco Systems, and the Cisco Systems logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company.  
(0303R) 202861/ETMG\_04/03