AppleTalk Overview

Note Effective with Cisco IOS Release 15.0(1)M, this feature is not available in Cisco IOS software.

The Cisco IOS software supports a variety of routing protocols. The *Cisco IOS AppleTalk Configuration Guide* discusses AppleTalk network protocols; it contains these sections:

- AppleTalk
- Configuring AppleTalk

The *Cisco IOS IP Configuration Guide* discusses the following network protocols:

- IP
- IP Routing

This overview chapter provides a high-level description of AppleTalk. For configuration information, see the appropriate section in this publication.

For the latest feature information and caveats, see the release notes for your platform and software release. Additionally, use Cisco Feature Navigator to find information about feature, platform, and software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn.

AppleTalk

This section provides background on AppleTalk and briefly describes the Cisco implementation of AppleTalk.

Background on AppleTalk

AppleTalk is a LAN system designed and developed by Apple Computer, Inc. It can run over Ethernet, Token Ring, and FDDI networks, and over the Apple proprietary twisted-pair media access system (LocalTalk). AppleTalk specifies a protocol stack comprising several protocols that direct the flow of traffic over the network.

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Apple Computer uses the name *AppleTalk* to refer to the Apple network protocol architecture. Apple Computer refers to the actual transmission media used in an AppleTalk network as LocalTalk, TokenTalk (AppleTalk over Token Ring), EtherTalk (AppleTalk over Ethernet), and FDDITalk (AppleTalk over FDDI).

The Cisco Implementation of AppleTalk

Cisco IOS software supports AppleTalk Phase 1 and AppleTalk Phase 2. For AppleTalk Phase 2, Cisco devices support both *extended* and *nonextended* networks.

A Cisco router or access server may receive equivalent routes advertised by neighboring routers with one router giving an AppleTalk Phase 1 form of the route (for example, 101), and another giving an AppleTalk Phase 2 form of the route (for example, 101-101). When neighboring routers advertise equivalent overlapping routes to a router, the router always uses the AppleTalk Phase 2 form of the route and discards the AppleTalk Phase 1 route.

Media Support

The Cisco implementation of AppleTalk routes packets over Ethernet, Token Ring, and FDDI LANs, and over X.25, High-Level Data Link Control (HDLC), Frame Relay, and Switched Multimegabit Data Service (SMDS) WANs.

Standard AppleTalk Services

The Cisco implementation of AppleTalk supports the following standard AppleTalk protocols:

- AppleTalk Address Resolution Protocol (AARP)
- AppleTalk Port Group
- Datagram Delivery Protocol (DDP)
- Routing Table Maintenance Protocol (RTMP)
- Name Binding Protocol (NBP)
- Zone Information Protocol (ZIP)
- AppleTalk Echo Protocol (AEP)
- AppleTalk Transaction Protocol (ATP)

AARP, DDP, and RTMP provide end-to-end connectivity between internetworked nodes. AARP maps AppleTalk node addresses to the addresses of the underlying data link, thus making it possible for AppleTalk to run on several data links. DDP provides socket-to-socket delivery of packets. RTMP establishes and maintains routing tables.

NBP and ZIP maintain node name and zone information. NBP maps network names to AppleTalk addresses. ZIP tracks which networks are in which zones.

AEP is an echo (or ping-type) protocol. It generates packets that test the reachability of network nodes.

ATP is a reliable transport protocol that provides data acknowledgment and retransmission for transaction-based applications, such as file services provided by the AppleTalk Filing Protocol (AFP) and print services provided by the Printer Access Protocol (PAP).

Our software provides support for the AppleTalk MIB variables as described in RFC 1243.

Enhancements to Standard AppleTalk Services

The Cisco AppleTalk implementation includes the following enhancements to standard AppleTalk support:

- Support for EtherTalk 1.2 and EtherTalk 2.0 without the need for translation or transition routers.
- Support for Ethernet-emulated LANs. For more information on emulated LANs (ELANs) and routing AppleTalk between them, refer to the "Configuring LAN Emulation" chapter of the *Cisco IOS Switching Services Configuration Guide*.
- Support for VLANs. For more information on VLANs and routing AppleTalk between them over Inter-Switch Link (ISL) or IEEE 802.10, refer to the "Configuring Routing Between VLANs with ISL Encapsulation" and "Configuring Routing Between VLANs with IEEE 802.10 Encapsulation" chapters of the *Cisco IOS Switching Services Configuration Guide*.
- Support for WAN protocols, including SMDS, Frame Relay, X.25, and HDLC.
- Configurable protocol constants (including the control of the aging of entries in the routing table and control of the AARP interval and number of retransmissions).
- No software limits on the number of zones or routes. However, per AppleTalk specification you can only have a maximum of 255 zones per segment.
- MacTCP support via a MacIP server.
- Support of IPTalk, which provides IP encapsulation of AppleTalk, IPTalk, and the Columbia AppleTalk Package (CAP).
- Access control for filtering network traffic by network number, ZIP filtering, by NBP entity names, filtering routing table updates, and filtering GetZoneList (GZL) responses.
- Integrated node name support to simplify AppleTalk network management.
- Interactive access to AEP and NBP provided by the **test appletalk** command.
- Configured (seed) and discovered interface configuration.
- Support for the AppleTalk Responder, which is used by network monitoring packages such as *Inter•Poll*.
- Simple Network Management Protocol (SNMP) over AppleTalk.
- Encapsulation (tunneling) of AppleTalk RTMP packets over an IP backbone.
- Support for AppleTalk static routes.

Security

AppleTalk, like many network protocols, makes no provisions for network security. The design of the AppleTalk protocol architecture requires that security measures be implemented at higher application levels. Cisco supports AppleTalk distribution lists, allowing control of routing updates on a per-interface basis. This security feature is similar to those that Cisco provides for other protocols.

Note that the Cisco implementation of AppleTalk does not forward packets with local source and destination network addresses. This behavior does not conform with the definition of AppleTalk in the Apple Computer *Inside AppleTalk* publication. However, this behavior is designed to prevent any possible corruption of the AARP table in any AppleTalk node that is performing address gleaning through MAC.