Bisync-to-IP Conversion for Automated Teller Machines

Feature History

Release	Modification
12.2(4)T	This feature was introduced.
12.2(13)T	The **bstun peer-map-poll** command was added.

This document describes the Bisync-to-IP Conversion for Automated Teller Machines feature in Cisco IOS Release 12.2(4)T and the enhancement introduced in Cisco IOS Release 12.2(13)T and includes the following sections:

Feature Overview

The Bisync-to-IP Conversion for Automated Teller Machines feature enables customers to attach a binary synchronous communication (bisync) automated teller machine to a serial interface on a Cisco router running bisync-to-IP (BIP) protocol translation, and then to route the data over a TCP/IP network directly to an IP-based application host.
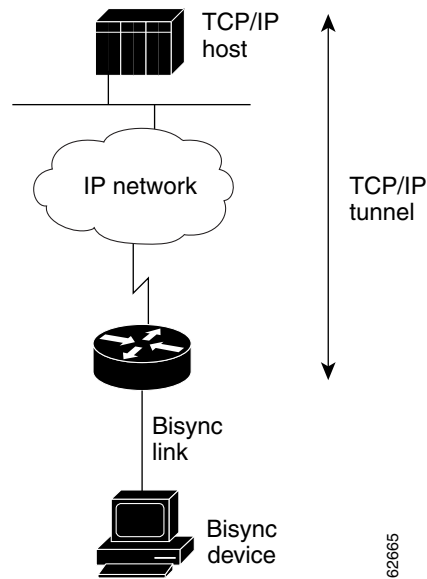
This feature works by removing the bisync protocol headers enclosing the application data, creating a TCP/IP connection with the application host, and delivering the data directly to the TCP/IP application running on that host.

At the router, application data from the attached bisync device is encapsulated in IP. At the host site, traffic is delivered directly to the application host computer through use of a new command provided with this feature, **bstun route** (BIP). The **bstun route** (BIP) command is used to specify BIP peer tunneling as the method to be used to encapsulate data from a Block Serial Tunnel (BSTUN) interface to a bisync device to a remote host over an IP network. For more information about this command, see the "Command Reference" section of this document.
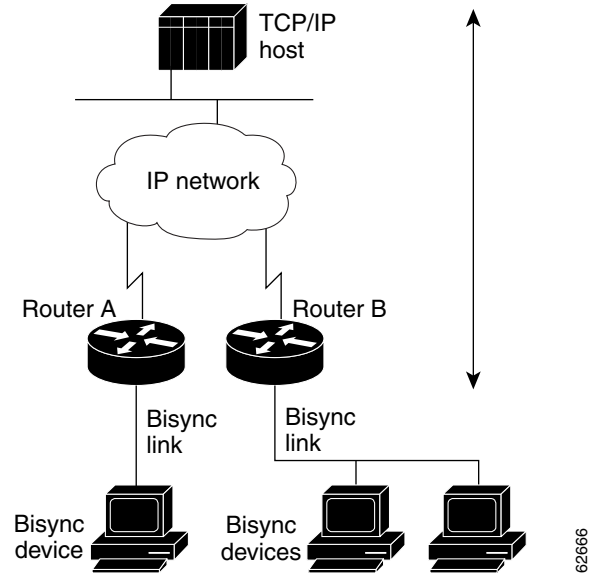
Figure 1 shows how you can configure the bisync link between two devices so that converted traffic is delivered to a host using BIP.

Figure 1   Cisco Router Support of Bisync Devices with BIP

Figure 2 shows how you can configure the bisync link between multiple routers and multiple bisync devices so that converted traffic is delivered to a host using BIP.

Figure 2   *Cisco Router Support of Multiple Routers and Multiple Bisync Devices with BIP*

This feature is closely associated with BSTUN and the procedures for configuring them. To configure this feature, you will use many of the same procedures and commands required for configuring BSTUN, without the previous requirement of terminating the connection on a peer Cisco router and recreating the bisync serial protocol at the peer. For this feature, rather than one end of the tunnel terminating on another router, the tunnel terminates on a non-Cisco host computer. This feature is designed to address the specific requirements of automated teller machines only, and requires that the host application accommodate this specific method. This restriction is necessary because the Bisync-to-IP Conversion for Automated Teller Machines feature provides conversion for a single device within a 3270 control unit.

For more information, see the "Prerequisites" section and the "Configuration Tasks" section later in this document.

Mapping the Peer State to Polling

When using BIP, Automated Teller Machines (the peer devices) are polled when the BIP tunnel between the host machine and the Automated Teller Machine becomes active. At the same time the Automated Teller Machine is powered on and could be active. Because the state of the host application is unknown at this point, there can be a window in which the host is not ready to receive anything from the Automated Teller Machine even though the Automated Teller Machine is active.

As of Cisco IOS Release 12.2(13)T you can use the **bstun peer-map-poll** command in global configuration mode to map the Automated Teller Machine state to polling. The default is to not map the peer state to polling. If you configure this command, BIP activates polling when the BIP tunnel becomes active and stops polling when the tunnel connection is terminated. When the peer state-to-polling is not mapped, BIP waits for the host to issue an "active" status message across the BIP tunnel before polling the Automated Teller Machine device and polling is stopped when an "inactive" status message is received across the tunnel or the tunnel connection is terminated.

Benefits

Improves System Performance

This feature has the advantage of removing complexity from central data centers, thus reducing cost and enabling a data center to more easily use multiservice applications. At the same time, it improves system performance by removing potential points of failure and allowing for multiple paths for delivery of the application data.

Accommodates Improved Network Design

This feature supports the conversion of bisync to native TCP for direct delivery to host applications enabled for TCP devices. This enhanced support eliminates the need for headend tunnel routers, and allows for network designs that provide higher availability. It allows the remote, serially attached bisync device to attach to the application host through a LAN interface instead of through a serial interface.

Restrictions

This feature addresses the specific requirements of automated teller machines only. It requires that the host application accommodate removing the BIP headers encapsulating the application data. This restriction is necessary because the Bisync-to-IP Conversion for Automated Teller Machines feature provides conversion for a single device within a 3270 control unit.

Related Features and Technologies

- Bridging and IBM networking
- BSTUN

Related Documents

- *Cisco IOS Bridging and IBM Networking Configuration Guide*, Release 12.2
- *Cisco IOS Bridging and IBM Networking Command Reference*, Release 12.2

Supported Platforms

- Cisco 1600 series
- Cisco 1700 series
- Cisco 2500 series
- Cisco 2600 series
- Cisco 3600 series
- Cisco 7200 series

Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that are supported on specific platforms. To get updated information regarding platform support for this feature, access Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com at this URL:

http://www.cisco.com

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

http://www.cisco.com/go/fn

Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

Note To find the releases and platforms associated with this feature, choose BIP from the list of available features.

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

• CISCO-BSTUN-MIB

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

No new or modified standards are supported by this feature.

Prerequisites

Before you configure the Bisync-to-IP Conversion for Automated Teller Machines feature, BSTUN must be enabled. For more information about BSTUN, refer to the following chapters of the *Cisco IOS Bridging and IBM Networking Configuration Guide*, Release 12.2:

• "Overview of IBM Networking" chapter

• "Configuring Serial Tunnel and Block Serial Tunnel" chapter (specifically, the "Block Serial Tunneling (BSTUN) Overview" and the "BSTUN Configuration Task List" sections)

Configuration Tasks

See the following sections for configuration tasks for the Bisync-to-IP Conversion for Automated Teller Machines feature. Each task in the list is identified as either required or optional.

• Enabling BSTUN (required)

• Mapping the Peer State to Polling (optional)

• Defining the Protocol Group (required)

• Setting the Reconnect Interval (required)

• Enabling BSTUN Remote Keepalive (required)

- Configuring BSTUN on the Serial Interface (required)
- Assigning a Serial Interface to a BSTUN Group (required)
- Configuring Bisync Options on a Serial Interface (required)
- Specifying How Frames Are Forwarded (required)
- Verifying the Status of BSTUN (optional)

Enabling BSTUN

To enable BSTUN in IP networks, use the following command in global configuration mode:

Command	Purpose
Router(config)# **bstun peer-name** *ip-address*	Enables BSTUN.

The IP address in the **bstun peer-name** command defines the address by which this BSTUN peer is known to other BSTUN peers that are using the TCP transport. If this command is unconfigured or the **no** form of this command is specified, all BSTUN routing commands with IP addresses are deleted. BSTUN routing commands without IP addresses are not affected by this command.

Mapping the Peer State to Polling

To map the peer state to polling, us the following command in global configuration mode:

Command	Purpose
Router(config)# **bstun peer-map-poll**	Enables BSTUN to map the peer state or received status messages to polling.

Defining the Protocol Group

To define the protocol group, use the following command in global configuration mode:

Command	Purpose
Router(config)# **bstun protocol-group** *group-number* **bsc-local-ack**	Defines the protocol group.

The **bsc-local-ack** keyword is the only one supported by BIP.

Setting the Reconnect Interval

To set the amount of time for the system to wait before trying to reconnect to a peer, use the following command in global configuration mode:

Command	Purpose
Router(config)# **bstun reconnect-interval** *time-value*	Sets the amount of time the system waits before trying to reconnect to the peer. This command applies only to BSTUN route BIP connections that are defined as active.

Enabling BSTUN Remote Keepalive

To enable detection of the loss of a peer, use the following commands in global configuration mode, as needed:

:

Command	Purpose
Router(config)# **bstun remote-peer-keepalive** *seconds*	Enables detection of the loss of a peer.
Router(config)# **bstun keepalive-count**	Specifies the number of times to attempt a peer connection.

Configuring BSTUN on the Serial Interface

Configure BSTUN on the serial interface before issuing any further BSTUN or protocol configuration commands for the interface. To configure the BSTUN function on a serial interface, use the following commands in interface configuration mode:

	Command	Purpose
Step 1	Router(config-if)# **interface serial** *number*	Specifies a serial port.
Step 2	Router(config-if)# **encapsulation bstun**	Configures BSTUN on an interface.

Note Configure the **encapsulation bstun** command on an interface before configuring any other BSTUN commands for the interface.

Assigning a Serial Interface to a BSTUN Group

Each BSTUN-enabled interface on a router must be assigned to a previously defined BSTUN group. Packets will travel only between BSTUN-enabled interfaces that are in the same group. To assign a serial interface to a BSTUN group, use the following command in interface configuration mode:

Command	Purpose
Router(config-if)# **bstun group** *group-number*	Assigns a serial interface to a BSTUN group.

Configuring Bisync Options on a Serial Interface

To configure bisync options on a serial interface, use the following commands in interface configuration mode, as needed:

Command	Purpose
`Router(config-if)#` **`bsc char-set`** {**`ascii`** | **`ebcdic`**}	Specifies the character set used by the bisync support feature.
`Router(config-if)#` **`full-duplex`**	Specifies that the interface can run bisync in full-duplex mode.
`Router(config-if)#` **`bsc pause`** *`time`*	Specifies the amount of time (in tenths of a second) between the start of one polling cycle and the next. • The default value is 10 (that is, 10 tenths of a second, or 1 second). The maximum time is 255 tenths of a second (25.5 seconds).
`Router(config-if)#` **`bsc poll-timeout`** *`time`*	Specifies the timeout for a poll or a select sequence.
`Router(config-if)#` **`bsc primary`**	Specifies that the router is acting as the primary end of the bisync link.
`Router(config-if)#` **`bsc retries`** *`retry-count`*	Specifies the number of connection attempts before a device is considered to have failed.
`Router(config-if)#` **`bsc servlim`** *`servlim-count`*	Specifies the number of cycles of the active poll list that are performed between polls to control units in the inactive poll list.

Specifying How Frames Are Forwarded

To specify how frames are forwarded when received on a BSTUN interface, use the following command in interface configuration mode:

Command	Purpose
`Router(config-if)#` **`bstun route`** {**`address`** *`cu-address`*} {**`bip`** *`ip-address`*} {**`fport`** *`port-number`*} {**`lport`** *`port-number`* | **`passive`**} [**`tcp-queue-max`**] [**`transparent`**]	Propagates the serial frame that contains a specific address. The BIP form of TCP encapsulation is used to propagate the serial frames.

Verifying the Status of BSTUN

To display statistics for BSTUN interfaces, protocol groups, number of packets sent and received, local acknowledgment states, and other activity information, use the following commands in privileged EXEC mode, as needed:

Command	Purpose
`Router#` **`show bstun`** [**`group`** *`bstun-group-number`*] [**`address`** *`address-list`*]	Displays the current status of STUN connections.
`Router#` **`show bsc`** [**`group`** *`bstun-group-number`*] [**`address`** *`address-list`*]	Displays status of the interfaces on which bisync is configured.
`Router#` **`show interfaces`**	Displays the current status information for the interface.
`Router#` **`debug bstun events`**	Displays BSTUN connection events and status.
`Router#` **`debug bstun packets`**	Displays packet information on packets traveling through the BSTUN links.

Configuration Examples

This section provides the following BSTUN traffic routing example. BSTUN traffic with the control unit address C5 is routed to and from the host computer specified by the IP address 192.168.60.100. The BIP form of TCP encapsulation (as indicated by the **bip** keyword) is used to propagate the serial frames.

```
bstun route address C5 bip 192.168.60.100 fport 2000 lport 3005
```

Command Reference

The following commands are introduced or modified in the feature or features documented in this module. For information about these commands, see the *Cisco IOS Bridging Command Reference* at http://www.cisco.com/en/US/docs/ios/bridging/command/reference/br_book.html or the *Cisco IOS IBM Networking Command Reference* at http://www.cisco.com/en/US/docs/ios/ibm/command/reference/ibm_book.html. For information about all Cisco IOS commands, go to the Command Lookup Tool at http://tools.cisco.com/Support/CLILookup or to the *Cisco IOS Master Commands List*.

New Commands

- **bstun peer-map-poll**
- **bstun reconnect-interval**
- **bstun route (BIP)**

Modified Command

- **show bstun**