

CTIX™ IBM Communication Products

SNA NETWORK GATEWAY

- Implements PU type 2 functions
- Supports SDLC line protocol in secondary, full and half duplex, point-to-point and multipoint modes
- Provides support for 3274/3276 SNA devices
- Operates over leased lines at speeds up to 9600 bps and on dial-up lines up to 4800 bps
- Up to 32 SNA RJE and/or SNA 3270 CRT/printer sessions per gateway

SNA 3270 EMULATOR

- LU types 1, 2, and 3
- Emulates IBM 3274/3276 control unit, 3278 display stations, 3284/86/87/88 printer subsystems
- Printed output can be spooled or filed directly
- Provides PU and LU statistics, link status, and summary diagnostic and performance data

SNA RJE

- For batch transfer
- Permits concurrent SNA RJE sessions, concurrent operation with CTIX SNA 3270
- Unattended operation
- Local control of job sessions
- Operates with Power, JES2, JES3, and RES
- Supports compression and compaction

BSC 2780/3780

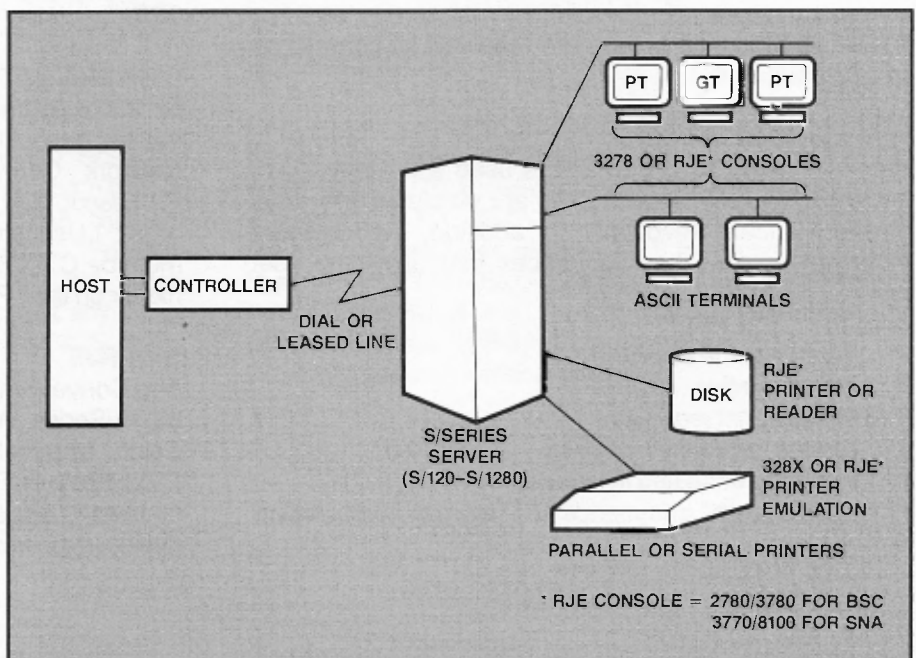
- For batch file transfer
- Emulates IBM 2780 and 3780 remote terminals
- Operates in half-duplex point-to-point mode
- Supports transparent and nontransparent transmission
- Supports blank compression
- Can be used to access multiple hosts

BSC 3270

- For interactive communications
- Emulates IBM 3271/74/76 control unit, 3277/8 display stations, 328x printers
- Line monitor and trace facilities
- Operates over point-to-point and multipoint lines, at speeds up to 9600 bps
- Printed output can be spooled, stored, or printed directly
- Supports local print operations

Convergent®'s CTIX IBM Communication products allow Workgroup Servers™ to participate in IBM networks and to gain access to the processing power and databases often found on large mainframes. Customers can integrate S/Series Workgroup Servers into IBM* networks without changing the software environment in the host computer.

Communication with an IBM mainframe or compatible system can be accomplished using either Binary Synchronous Communications (BSC) or Systems Network Architecture/Synchronous Data Link Control (SNA/SDLC) protocols. Emulation of both batch and interactive communication is available under both SNA and BSC.



Convergent's IBM Communication products can be operated concurrently with other CTIX™ applications and feature CTIX loadable device drivers for flexible use of communications ports.

SNA PRODUCTS

Convergent SNA products are modular and can be configured in a variety of ways. IBM's System Network Architecture is based on a layered protocol design. SNA's lower layers provide data transport and network management facilities; these are normally device controller specific and are called *physical units* (PUs). These layers are supported in Convergent's SNA Gateway software. The higher layers of SNA focus on device control and data presentation for specific IBM subsystems, called logical units (LUs). These LU layers are supported in Convergent's SNA 3270 and SNA RJE software subsystems.

SNA 3270 Subsystem

The Convergent CTIX SNA 3270 Emulator allows the S/Series Workgroup Servers to access any host-based subsystem that supports IBM 3274/3276 cluster controllers, including CICS, IMS, and TSO.

The SNA 3270 Emulator appears to an SNA network as a Logical Unit Type 2 (LU.T2) 3278 Display Stations, and Type 1 (LU.T1) and Type 3 (LU.T3) 328x printer interfaces. It can support up to 32 LUs on the S/Series Workgroup Servers. It is connected to the host system using switched or dedicated lines, in point-to-point and multipoint modes, at speeds up to 9600 bps.

Convergent's terminals, the S/T2, Programmable Terminal (PT) and Graphics Terminal (GT), as well as most ASCII terminals, can be used to emulate the functions of an IBM 3278 display station. Terminal screen formats may be 24 x 80, 32 x 80, or 43 x 80. The last two lines on the screen are reserved for commands status information.

KEYBOARD MAPPING

When the SNA 3270 package is used with Convergent terminals, all IBM function keys are emulated with keys on the standard keyboard. In addition, the keyboard mapping provides key sequences that allow the user to:

- Terminate the session
- Initiate printing
- Monitor print requests
- Display the keyboard layout
- Reset the emulated keyboard
- Invoke UNIX* commands and return to SNA session

With most ASCII terminals, the keyboard can be mapped to emulate the special keys on the IBM 3278 keyboard. Control sequences can be defined to position the cursor, highlight data, and so on.

PRINTER SUPPORT

The SNA 3270 Emulator operates as an SNA LU.T1 device, emulating an IBM 3287 printer using SNA Character Stream (SCS), and also as an LU.T3 device, emulating the IBM 3287 printer operating in 3270 Data Stream Compatibility mode. Output directed by the host to a printer can be printed via spooling or stored in a disk file.

HOST CONFIGURATION FILES

Host configuration files containing device, control unit and administration parameters. Several configurator files may be created to allow users to access different LUs for the same host.

S/SERIES IMPLEMENTATION

The S/Series implementation of the CTIX SNA 3270 Emulator, with the exception of the S/1280, operates in conjunction with the CTIX SNA Network Gateway, which emulates the IBM 3274/6 control unit. Emulation of the 3278 and the 3284/86/87/88 printers is provided by CTIX SNA 3270 Emulator.

CTIX SNA 3270 Emulator supports a maximum of 32 LUs. The operating systems must be CTIX 5.0 or higher.

S/1280 IMPLEMENTATION

The S/1280 implementation of the CTIX SNA 3270 Emulator operates in conjunction with the CTOS™ SNA Network Gateway, which emulates the 3274/3276 controller unit. Emulation of the 3278 display and the 3284/86/87/88 printers is provided by the CTIX SNA 3270 Emulator.

CTIX SNA 3270 Terminal Emulator occupies 50 KB in an S/1280 Applications Processor (AP), and also requires 1 KB for each emulated Logical Unit. The CTOS SNA Network Gateway resides in an S/1280 Terminal Processor (TP) or Cluster Processor (CP). A maximum of 32 LUs can be configured. The operating system must be CTIX 5.0 or higher on the AP and CTOS 5.0 or higher on the TP or CP.

SNA RJE

The Convergent CTIX SNA RJE software product allows the S/Series Workgroup Server to emulate IBM 3770 Batch Terminal control units 3776/7 Models 3 and 4. CTIX SNA RJE, in conjunction with CTIX SNA Network Gateway, appears to an SNA network as a PU.T2 device, supporting LU.T1.

Convergent's terminals, as well as most ASCII terminals, may be used as RJE workstations to communicate with IBM's Job Entry Subsystems (Power, JES2, JES3, and RES).

CTIX SNA RJE can support concurrent sessions, so that multiple line printer and disk reader functions can occur simultaneously. Bidirectional transfer of data between the host and the S/Series Workgroup Server is supported. Received data can be spooled for later printing, or stored on a disk file. Data compression/expansion, compaction, and the SNA Character String (SCS) features are supported. All remote commands and Function Management Header (FMH) Types 1 and 3 are supported. (FMH Type 2 is also supported on the S/1280.)

CTIX SNA RJE can operate concurrently with CTIX SNA 3270 Emulator and with local CTIX applications.

S/SERIES IMPLEMENTATION

The S/Series implementation of the CTIX SNA RJE Emulator, with the exception of the S/1280, operates in conjunction with the CTIX SNA Network Gateway, which provides the PU.T2 emulation.

CTIX SNA RJE can support a maximum of six concurrent sessions. It requires CTIX 5.1 or higher operating system.

S/1280 IMPLEMENTATION

The S/1280 implementation of CTIX SNA RJE operates in conjunction with CTOS SNA Network Gateway, which provides the PU.T2 emulation. This allows the S/1280 to emulate an IBM 3790 or IBM 8100 system utilizing the SNA RJE facilities.

CTIX SNA RJE can support a maximum of five concurrent sessions, and requires CTIX 5.0 or higher operating system.

SNA NETWORK GATEWAY

The CTIX SNA Network Gateway gives the S/Series Workgroup Servers the capability to communicate with a mainframe computer operating in an IBM System Network Architecture (SNA) environment. Without changing the software environment in the host computer, the Gateway can be used to access any 3270, host-based application subsystem, including CICS, IMS, and TSO.

The CTIX SNA Network Gateway emulates an IBM 3274 or 3276 cluster controller by implementing an SNA PU.T2. The Gateway supports SDLC line protocol in secondary, full- and half-duplex, point-to-point and multipoint modes. The Gateway can operate over a switched or leased line at speeds up to 9600 bps. Configuration parameters that can be specified include:

- SDLC station address
- Maximum number of outstanding SDLC frames
- Number of LUs (32 maximum)
- Starting LU number
- Maximum PIU size
- Switched/dedicated connection
- Half-duplex/Full-duplex operation
- Two/Four wire circuit
- NRZI (Non Return to Zero Inversion)/NRZ operation (S/320 only)
- The CTIX SNA Network Gateway supports one or both RS-232 ports on the S/Series main CPU board

These options are specified in a configuration file. Several configuration files can be created and used at different times on a single CTIX system, in order to allow connections to multiple hosts.

A monitoring facility is included in the SNA Status Monitor component of SNA Network Gateway. It provides a full-screen display of data link, PU, and LU statistics. The SNA Status Monitor is used to verify configuration and operational status, and it also provides a tool for diagnosing error conditions.

When used with one of Convergent's application subsystems such as CTIX SNA 3270 Emulator, the Gateway allows the S/Series Workgroup Server system to communicate with an SNA network in both an interactive and batch processing mode.

BSC PRODUCTS

Convergent software products conforming to the IBM Binary Synchronous Communication protocol include CTIX BSC 3270 Emulator and CTIX BSC 2780/3780 Emulator. CTIX BSC 3270 Emulator is a software product that emulates an IBM 3270 Information Display System. CTIX BSC 2780/3780 is a complete implementation of the standard Binary Synchronous Communications (BSC) protocol for an IBM 2780 or 3780 remote batch terminal device.

Both products provide printer support and line monitoring and are tailored via configuration files.

The printer emulator allows output to be spooled, stored, or printed directly. The local copy function is also supported.

Three maintenance and line monitoring utilities are provided. They can be used to maintain an audit file and to monitor and display communications activities on the line.

Both CTIX BSC products can be configured to support a variety of communications options. The options are specified in a configuration file. Several configuration files can be created and used at different times on a single CTIX system, in order to allow connections to different hosts.

BSC 3270 Emulator

The Emulator enables users of the S/Series of Workgroup Servers to communicate interactively with a remote host-based application supporting IBM BSC 3270 protocols. CTIX BSC 3270 Emulator can be used to access any host-based subsystem that supports an IBM 3271/74/76 control unit, including CICS, IMS, and TSO. CTIX BSC 3270 Emulator allows the S/Series Workgroup Server to function as an IBM 3271 Model 2 cluster controller. The software package emulates the IBM 3277/8 Model 2 display station and the IBM 328x printer family (3284, 3286, 3287, or 3288). The Emulator can be operated over a switched or leased line in either a point-to-point or multipoint environment.

KEYBOARD MAPPING

Convergent's terminals are preconfigured for emulation of the function keys and special keys of the IBM 3277/8. A keyboard mapping facility allows customers to define a mapping arrangement appropriate for most ASCII

terminals using the UNIX keyboard mapped files. This facility can be used to define control sequences to position the cursor, highlight data, and perform other special functions.

MPCC

The BSC 3270 emulator supports use of the S/Series Multi Protocol Communications Controller (MPCC). Up to four physical lines may be connected to one or more hosts. The Bisync protocol executes on-board the MPCC thereby offloading communications processing from the S/Series' main CPU.

BSC 2780/3780

CTIX BSC 2780/3780 Emulator allows users of the S/Series of Workgroup Servers to exchange data and to do program development with one or more IBM (or compatible) mainframes. It also permits the exchange of data between similarly configured S/Series systems.

CTIX BSC 2780/3780 emulates the IBM 2780 or 3780 remote terminal. The emulator can be operated over switched or leased lines at speeds up to 9600 bps in a half-duplex, point-to-point environment. The software package supports blank compression, transparent and nontransparent modes.

CTIX BSC 2780/3780 operates concurrently with other local CTIX applications and is accessible by multiple users. The package also provides a facility for the user to manage transmit queues and to monitor the status of the files in the queue. Using the CTIX cron utility, the user can request that files be transmitted at a specified time of day. For example, the user may wish to have batch files sent to the host after hours when activities are light.

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