Wang Computer Systems

SNA 3274 Emulation

VS Processor

(Other VS Multipoint Operations)

Modem

Multipoint

Local Workstations

Local Workstations

Local Printer

Local Workstations
—3278 Mode
— VS Mode
— WP Mode

(Other Host Multipoint Operations)

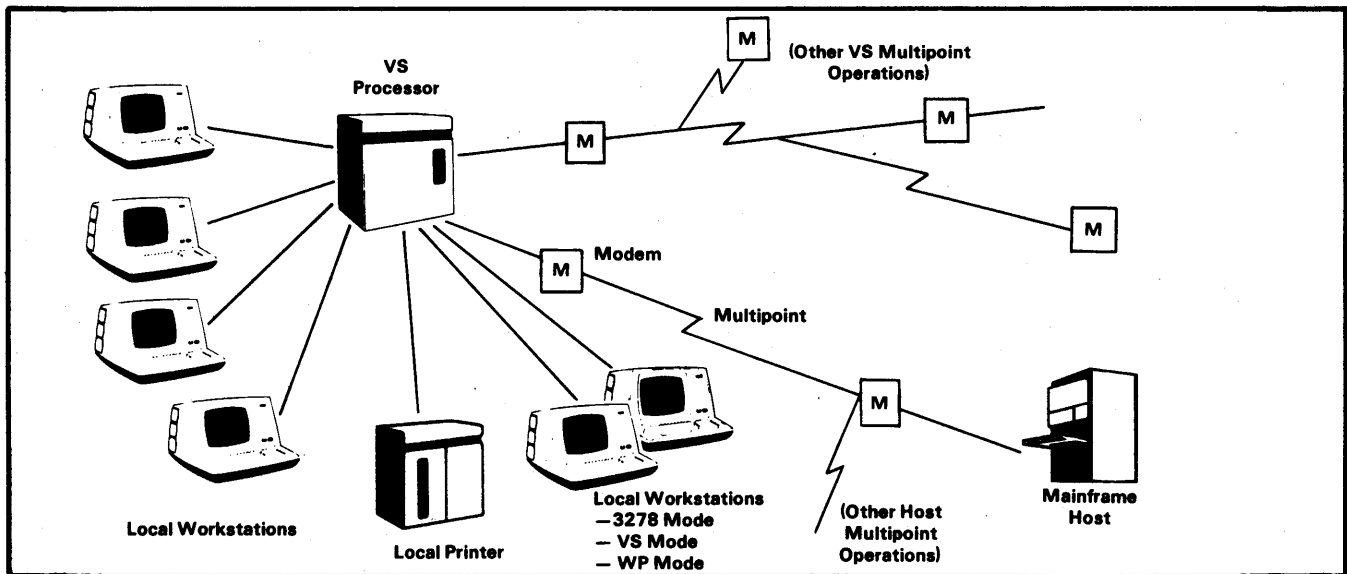Mainframe Host

When equipped with 3274 communications software, the Wang VS computer can emulate an IBM 3274 Information Display System operating in the IBM Systems Network Architecture (SNA), using the Synchronous Data Link Control (SDLC) line discipline. The VS/SNA 3274 emulator can communicate in half-duplex mode with a host computer that supports the following devices on multipoint lines, using the IBM-compatible EBCDIC transmission code.

● A 3274 Control Unit, Model 1C

This SNA/SDLC remote cluster controller, which supports a 1920-character buffer and the EBCDIC character set, is emulated by a VS-resident master control program. This program can be initialized as an interactive foreground task from any local workstation which is not a VS operator's console, or it can be run as a background task from a procedure submitted as a job from any local workstation. The workstation initializing the master control program in foreground becomes the emulating cluster's Master Console, and provides user access to system error messages and other information

such as line diagnostic, event, and control monitor blocks.

● Attached 3278 Display Stations, Model 2 (with typewriter keyboard option)

These display stations, with 24 lines by 80 characters per line (1920 characters), are emulated by microcode-loaded local VS workstations (except the Model 2246P); the workstations may be logically attached to (or detached from) the master control program via a VS-resident attachment task run under user control at each workstation. When acting as a 3278 display station, a local VS workstation is dedicated to the emulation operation and cannot perform normal VS functions; however, the workstation's HELP key, in conjunction with the PF16 key, may be used at any time to detach the device from the emulator and switch it to its normal capabilities without affecting other workstations in the same emulating cluster. Should a hardware malfunction or other problem prevent detaching a workstation in this manner, it may be detached via the workstation designated as the emulator's Master Console.

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● Attached Printers (with Vertical Forms Control)

The master control program provides functionally-compatible emulation of buffered maximum 132-character-per-line printers. Received print data is converted to VS print format and routed either to an online VS printer or to the VS print spooler.

In addition to emulating a 3274 cluster controller with attached display stations and printers (up to 32 devices per cluster), the Wang 3274 emulation software provides a "virtual terminal" capability that allows a user-written COBOL application program, running concurrently with the emulator, to logically attach itself to the emulator and appear to the host as one or more physically attached 3278 display stations. This feature enables distributing COBOL applications by allowing them to fetch additional data from the host's data base in situations where the information cannot be located at the VS site. A user's COBOL program may emulate up to 32 display stations, and up to 32 COBOL programs may be logically attached to the emulator at once, so long as the total combination of attached virtual terminals and actual devices (workstations plus printers) does not exceed 32 per cluster. The cluster's Master Console can be used to detach a virtual terminal as well as to detach an actual workstation.

Local VS workstations in 3278 mode, or user-written COBOL programs, can perform inquiry, interactive transaction processing, or data entry operations — the primary functions of 3274 Information Display Systems. The VS/SNA 3274 emulation software supports formatted or unformatted screen images sent from a host. Screen formatting, field protection, and field validation are under the control of the host-supplied attribute byte for each field displayed on a screen: information handling occurs on a field-by-field basis according to attribute byte characteristics.

VS/SNA 3274 EMULATION SPECIFICATIONS

Emulation
IBM 3274-1C Control Unit; 3278-2 Display Stations; Buffered Printers

Communicates With
Any host system supporting 3274 SNA/SDLC operations

Line Discipline
Half-duplex SNA/SDLC multipoint operation, using EBCDIC line code

Line Speeds
Up to 9600 bps

Modems
● For multipoint communications over dedicated networks, any RS-232-C/CCITT V.24-compatible synchronous modem (not available from Wang) can be used; modems at both ends of the communications link must be compatible with each other
● For communications up to 50 feet (15.2 m) over RS-232-C/CCITT V.24-compatible cables, a null modem (available from Wang) can be used

Telecommunications Processor
A Model 6554-1, -2, -3, or -4 Telecommunications Processor (TCP) is required, depending on how many 3274 emulator programs are run concurrently (each 3274 emulator requires its own 6554 TCP port) and on the overall communications configuration of the particular VS system supporting the emulator

Addressing
● Using the IBM-defined control unit addresses, the Wang emulator can be initialized as any one of a possible 32 control units on a multipoint line from a host
● Using the IBM-defined device unit addresses, a mix of up to 32 Wang virtual terminals and actual devices (workstations plus printers) can be logically attached to each emulator cluster, providing distributed processing flexibility

3278 Features Supported
Typewriter-style 3278-2 keyboard functions, including ENTER, Auto Skip, Insert Mode, ERASE End-of-Field, RESET, New Line, and Delete Character. Wang supplies a function strip which can be attached to the local VS workstation below the PF keys to indicate the following functions when in 3278 mode:

● SYS REQ   ● PF1—PF24
   (System Request)
● DUP (Duplicate)   ● CLEAR
● FM (Field Mark)   ● ERASE INPUT
● PA1, PA2, PA3   ● Erase End-of-File
● Local Copy   ● DEV CNCL (Device Cancel)

(The IBM 3278 Cursor Blink, Alternate Cursor, Click Key, Ident Key, and Cursor Select functions, and the selector light pen, magnetic stripe reading devices, and security keylock, however, are not supported)

Characters Displayed
Uppercase/lowercase ASCII

Error Checking
Full SDLC error detection and recovery

3274 Control Unit Commands Supported
● Read Buffer   ● Erase/Write
● Read Modified   ● Erase/Write Alternate
● Read Modified All ● Erase All Unprotected
● Write

3274 Control Unit Orders Supported

1. Buffer Control
   ● Set Buffer Address (SBA)
   ● Insert Cursor (IC)
   ● Program Tab (PT)
   ● Start Field (SF)
   ● Erase Unprotected to Address (EUA)
   ● Repeat to Address (RA)
   ● Suppress Index (SI)

2. Print Format
   ● New Line (NL)
   ● End of Message (EM)
   ● Form Feed (FF)
   ● Carriage Return (CR)
   ● Vertical Form Control (VFC)

3274 SNA Commands Supported
All except:
● Error Recovery Procedure ACTPU/ACTLU
● Request Maintenance Statistics (REQMS)

Aid Codes Supported
All except:
● Selector light pen attention
● Magnetic stripe reading devices
● Printer program attention (PA) and cancel

Wang Laboratories reserves the right to change specifications without prior notice.