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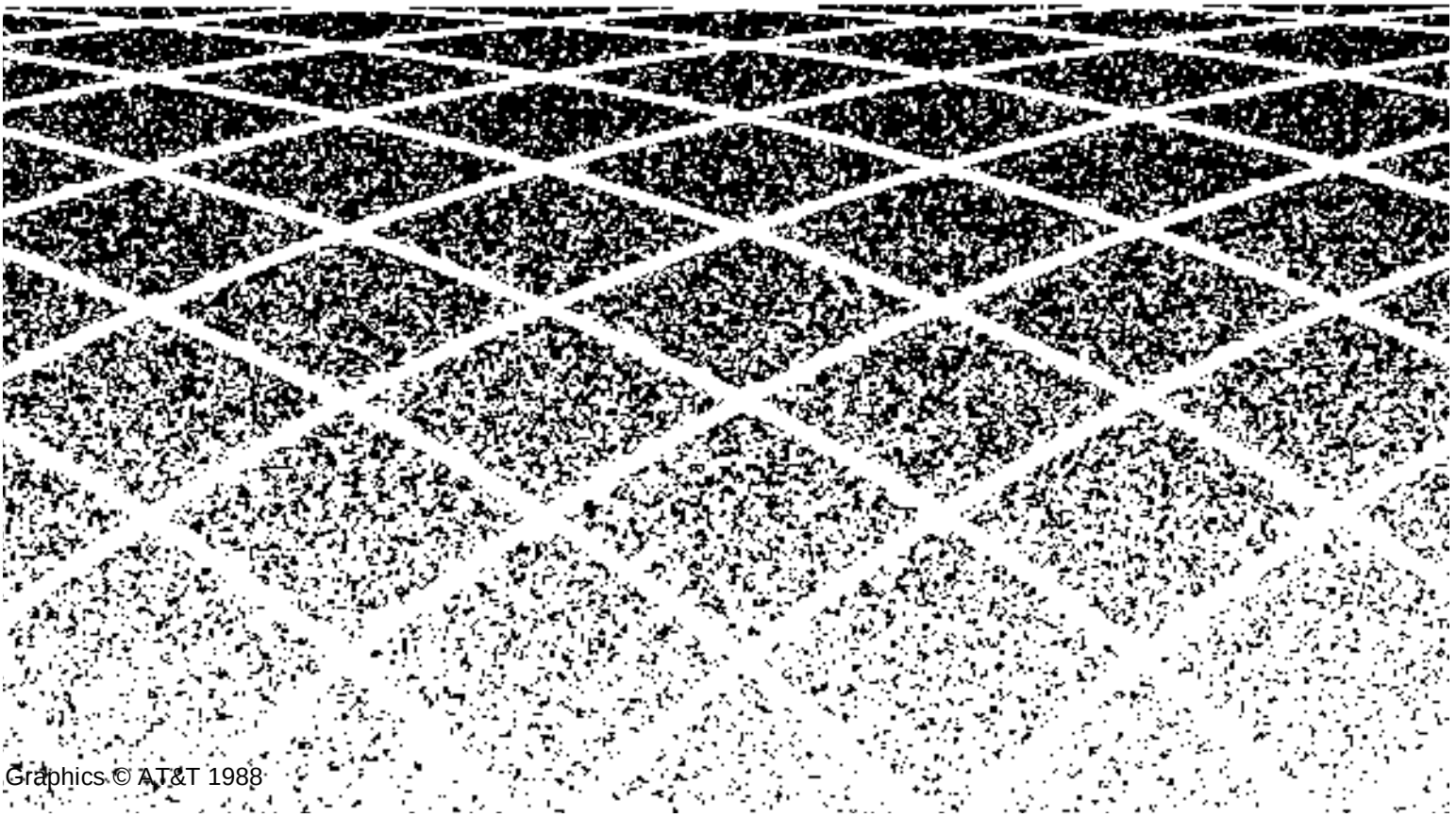
Intuity CONVERSANT VIS V5.0
System Description



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About This Book

Purpose

The *Intuity CONVERSANT VIS V5.0 System Description*, 585-310-225, is designed to answer basic questions about the AT&T Intuity™ CONVERSANT® Voice Information System (VIS) Version 5.0 (V5.0) and its usage. It provides an overview of the service it provides, as well as a technical description of the current VIS hardware platforms, software, and features, including specifications, performance, and capacity information. Appendices are included containing release history information and application examples.

Intended Audiences

There are many audiences, both internal and external to AT&T that will utilize this document. Anyone associated with the marketing, sales, sales support, technical support, development or purchase of an Intuity CONVERSANT VIS V5.0 who requires basic information about the functionality or content of the platform is a member of the target audience.

The System Description book is intended primarily for the following users:

- AT&T Sales and Support Division (SSD)
- AT&T Voice Processing Overlay Sales (Affiliate Sales)
- AT&T National Technical Marketing
- AT&T National Proposal Center
- AT&T Design Center
- AT&T Sales and Technical Resource Center (STRC)
- GBCS Research and Development

- GBCS Customer Focused Development Team (CFDT)
- Customers (Prospective and Confirmed)

Secondary audiences include:

- GBCS Corporate Training
- AT&T Technical Service Center (TSC)
- AT&T National Service Assistance Center (NSAC)
- AT&T International Technical Assistance Center (ITAC)
- Voice Processing Co-Marketers (VPCs)

How This Book Is Organized

This document is divided into the following chapters:

- Chapter 1, "Introduction"

  This chapter provides a brief overview of the Intuity CONVERSANT VIS V5.0, including its functionality, its hardware platforms, base and package features introduced in the latest version release, and a comprehensive list of its optional feature packages.

- Chapter 2, "Hardware"

  This chapter describes the major physical components of the system, including platforms, magnetic peripherals, circuit cards, and external peripherals. This chapter also gives an architectural representation of the VIS, defining internal and external hardware relationships.

- Chapter 3, "Software"

  This chapter describes the base and optional software packages.

- Chapter 4, "Features"

  This is a new chapter devoted entirely to the base functionality of the Intuity CONVERSANT VIS. Coverage in this chapter includes descriptions of such basic items as user interfaces, customer interfaces, (basic analog and digital telephony), as well as operational and administration functionality.

- Chapter 5, "Feature Packages"

  This chapter describes the optional feature packages available with Intuity CONVERSANT VIS Version 5.0.

- Chapter 6, "Requirements and Specifications"

  This chapters discusses provisioning concerns such as power requirements, environmental considerations, and equipment specifications for each of the Intuity CONVERSANT VIS V5.0 platforms.

- Chapter 7, "Performance Information"

  This chapter provides an overview of system and application capacity and performance issues to be considered when installing or designing a system.

- Appendix A, "Release and Platform History"

  This appendix summarizes the hardware and software features introduced with past CONVERSANT VIS releases, including V2.1, V3.0, V3.1, and V4.0.

- Appendix B, "Application Examples"

  This appendix provides five examples of voice processing solutions provided by an Intuity CONVERSANT VIS.

- "Abbreviations"

  This section provides a list of abbreviations, including acronyms, used in Intuity CONVERSANT VIS user documentation.

- "Glossary"

  This section provides a definition of terms used in Intuity CONVERSANT VIS documentation.

- "Index"

  This section provides an alphabetical listing of principal subjects covered in this book.

How to Use This Book

This book is a reference manual that describes the functionality, hardware, software and features offered by the Intuity CONVERSANT VIS V5.0. There are no procedural instructions on administration, operations, or maintenance of the product within this document. Refer to “How This Book Is Organized” for an outline of the document, and to “Related Resources” for a complete list of core and OEM vendor documentation within the library

Related Resources

This book is designed to supplement all other volumes in the Intuity CONVERSANT VIS V5.0 library. Always refer to the appropriate book for specific information on installing, operating, and maintaining the VIS. A full description of each document is available in the *Intuity CONVERSANT VIS V5.0 Documentation Guide*, 585-310-020.

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Introduction

1

This chapter provides a high-level overview of the Intuity CONVERSANT Voice Information System (VIS), including:

- Voice response basics
- Functional description of the VIS
- Physical description of the VIS

Voice Response Basics

The Intuity CONVERSANT VIS is an interactive voice response system for automatic telephone transactions. Using synthesized or recorded speech stored in memory, the VIS can respond to (answer) an incoming call, request specific information from the caller, and provide information or services to the caller based on the data from the caller.

The VIS allows either full or partial automation of telephone transactions that would otherwise be performed by an operator attendant. These automated transactions are known as *applications*. Each application is designed and developed to meet a specific customer's need. An application *script* is a set of instructions written for the VIS that informs it how to carry out the automated transaction. Scripts define the flow of the call and determine what the caller hears and how the caller responds to the system.

When an incoming call is connected to the VIS, the system prompts the caller with prerecorded, synthesized speech. The caller responds by entering touch tones or by speaking into the telephone. The dialog between the VIS and the caller is determined by the particular transaction and its corresponding application script.

The application script can be simple or complex, depending on the purpose of the call. For example, a simple script may accept a caller's request for information, perform a quick search of a local database, and then respond to the caller with that information. A more complex script may accept a caller's request for information, prompt for the caller to provide additional touch tone or spoken format information, and then access a remote host computer database to retrieve information related to the caller. The script then forwards the call to an operator/attendant who uses the information previously acquired to respond and interact with the caller.

Sample Transaction Between an Operator and Caller

A bank has several operators whose duties include providing callers with certain information, such as account balances and current interest rates for different types of accounts. The operators also answer a variety of questions. Some of the information, such as interest rates, is located on a sheet of paper in front of the operator. Other information, such as account balances, must be obtained from the bank's computer.

When necessary, these operators can also transfer callers to specialized customer service representatives for further information. The following represents a typical conversation, or *transaction*, between a caller and an operator at a bank:

Operator: "Thank you calling River Bank. How may I help you?"

Caller: "What is the current interest rate on your automobile loans?"

Operator: (referring to a chart of interest rates)

"The interest rate for our auto loans is 7.9%. May I help you with anything else?"

Caller: "Yes. I'd like to check my savings account balance."

Operator: "What is your account number?"

Caller: "My account number is 0653202782."

Operator: "To verify that this is your account, what are the last four digits of your Social Security number?"

Caller: "9087"

Operator: "One moment, please."

(accesses account balance using a computer terminal)

"Your savings account balance is $2,010.27. May I help you with anything else?"

Caller: "Yes. I'd like to speak to someone about an auto loan."

Operator: "I'll transfer you to one of our loan office representatives. One moment, please." (transfers caller to loan officer, who must then access the computer to gain the customer's credit history)

General VIS Application Principles

In the sample call above, the following types of interactions between the caller and the operator can be seen:

1. The operator greets the caller.
2. The operator prompts the caller and receives a request for information.
   - In the sample call, this includes such items as interest rate, account balance, etc.
3. The operator takes the following action on the caller request:

- If necessary, the operator prompts the caller for further information (type of rate, type of account, ID number, etc.).
- The operator looks up the information.
- The operator reports the information.

4. The operator repeats steps 2 and 3.
5. The caller requests information that can only be provided by someone else, which requires a transfer.

Virtually all transactions consist of the five basic steps listed. The caller's "request for information" shown in step 2 can be rather diverse depending upon the transaction.

A caller's request for information may be as simple as the need to hear a checking account balance, or the latest stock market value. More complex requests might be the request to place a sales order or request information on a particular product be sent via a FAX.

In the sample banking transaction, when the caller asks for an interest rate, the operator simply looks at a chart and reads the information to the caller. However, when the caller wants to know account balance information, the operator must ask for additional information (the caller's account number and social security number), then use a computer terminal to enter the caller information and read the balance displayed on the screen.

Finally, when the caller requests information on automobile loans, the operator must transfer the call to a loan officer who has the means to further investigate and service the inquiry.

When automating a transaction using the VIS, one must think in terms the application script replacing the operator. The transaction steps remain the same, but the caller interacts with the VIS instead of an operator. The VIS uses the application script for instructions about the setting, what to say during a transaction, and possible options that the caller may wish to investigate.

Intuity CONVERSANT VIS Functional Description

At its most basic level, the Intuity CONVERSANT VIS is a minicomputer consisting of controlling and speech processing hardware, plus a UnixWare 1.1 operating system and Intuity CONVERSANT VIS application software. Three different minicomputers provide the hardware platform for the system. These three hardware platforms may be thought of "small," to "large," and a particular platform is selected based upon the projected call traffic volume, complexity of the applications, and the use of additional features.

The VIS has a powerful central processing unit (CPU) and extensive memory. It can be used as a stand-alone system that provides Intuity CONVERSANT VIS V5.0 functionality, or offer other co-resident services such as AUDIX Voice Power (voice mail) and FAX Attendant (fax mail).

In addition to the basic hardware and software, all systems contain some form of custom written, or prepackaged application and database software that is used to automate one or more particular aspects of the script.

Optional feature packages, consisting of hardware and software, that perform specific functions of the application may also part of the functional system. These packages can provide enhancements such as data network interfaces or additional basic hardware resources.

Finally, prerecorded, digitized speech files are usually present on the system disk(s). These speech files are used to construct prompting phrases that the VIS uses to instruct the caller during the automated transaction. The amount of custom application software and speech present on a particular VIS varies, and is based on each customer's specific needs.

A variety of data network communication arrangements are supported by the Intuity CONVERSANT VIS V5.0 that allow it to interface with other computer systems. Various physical and logical network protocols may be used to implement communications between a remote system and the VIS. These include system network architecture (SNA) and TCP/IP protocols over physical links provided by synchronous data link control (SDLC), Token Ring, and local area network (LAN).

On its own, the system is very versatile, and can perform tasks such as screen and route calls, make outgoing (bridged) connections, perform voice and fax messaging, and interact with a local resident database. To facilitate stand-alone operations, the system includes an industry standard structured query language (SQL) relational database-management package and high-capacity on-board data storage devices.

Intuity CONVERSANT VIS V5.0 Features and Feature Packages

This section provides a brief overview of the functionality provided by the Intuity CONVERSANT VIS V5.0. Chapter 4, "Features", and Chapter 5, "Feature Packages", contain more detailed information on each feature and feature package designed and supported for use in your VIS.

A *feature* is a functionality within the Intuity CONVERSANT VIS V5.0 product, either software and/or hardware in nature. Some features require nothing additional to be completely functional and usable by the customer. However, some features may require the addition of a *feature package* to be more complete, more advanced, etc. Feature packages can be hardware and/or software in nature and provide specific functions that enhance the operation or capacities of the base system. The following example illustrates:

> The Intelligent Call Transfer capability of the Intuity CONVERSANT VIS V5.0, described later in this book, is thought of as a *feature*. In an Intelligent Transfer, the application dials a third party number to start the transfer and then waits to see what the outcome of the call to third party. In other words, in an intelligent transfer, the transfer call is placed and then the VIS classifies the call. The capabilities provided by intelligent call classification analysis are standard with each VIS purchase, and provide a rudimentary voice-energy detector for identifying answered calls.
>
> Intelligent call classification on T/R cards recognizes the following call progress tones, such as busy, audible ring, dial tone, etc. Intelligent call classification analysis on T1 or PRI digital lines provides answer and disconnect supervision only. LST1 digital lines provide disconnect supervision. If the detection of call progress tones with T1, LST1 or PRI lines is desired, the optional Full CCA *feature package* is needed.

Intuity CONVERSANT VIS Physical Description

The hardware system that Intuity CONVERSANT VIS V5.0 software operates on is called a Multi-Application Platform (MAP). Applications supported on the MAP are:

- Intuity CONVERSANT VIS V5.0
- AUDIX Voice Power R2.5
- FAX Attendant R2.5

AUDIX Voice Power and/or FAX Attendant can reside on the same platform with the V5.0 application.

As discussed earlier, three different hardware platforms are available as the physical basis for the VIS. These platforms have different capacities, and can present system resources in various configurations, allowing each Intuity CONVERSANT VIS to be tailored to match the customer's projected call volumes and office arrangement, at the most economical price.

Based on the customer's needs, the hardware platform that can most efficiently handle the transaction automation is selected. Most businesses do not have the calling volumes to need more than one Intuity CONVERSANT VIS V5.0 platform to handle the traffic, but certain applications can require multiple systems to provide transaction automation for more than the maximum simultaneous calls that a single platform can serve.

Each platform is different in terms of its design and capacity. The following information is a brief overview of each platform. Chapter 2, "Hardware", contains more detailed information on each platform, as well as the specific hardware components designed and supported for use in your VIS.

- MAP/100C — The MAP/100C is a central office frame-mounted hardware platform with an AT ISA bus architecture that can handle 96 simultaneous incoming calls, providing a maximum of 120 incoming and bridged outgoing telephone network connections for use at any one time. It contains an Intel 486DX, 50-MHz central processing unit (CPU). The unit can be operated from standard -48 VDC central office power supplies, with an optional AC power supply interface available. The platform consists of one physical unit with two main physical areas: an integral 25-slot backplane and a power supply unit. The MAP/100C platform accommodates business customers with a large amount of VIS activity and a central office telecommunications hardware area.
- MAP/100 —The MAP/100 is a convertible freestanding or rack-mountable hardware platform with an AT ISA bus architecture that can handle 96 simultaneous incoming calls, providing a maximum of 120 incoming and bridged outgoing telephone network connections for use at any one time. It contains an Intel 486DX, 50-MHz CPU. The unit is equipped to operate from a standard AC power supply source, and provides battery backup for emergency power when commercial AC connections are interrupted. The platform consists of one physical unit with two main physical areas: a 25-slot backplane, and a peripherals bay with the power supply unit behind. The MAP/100 is suited for business customers with moderate to large amounts of VIS activity with or without a central office telecommunications area.
- MAP/40 — The MAP/40 is a PC-sized unit, mounted in a deskside, tower configuration, that supports 48 telephone network connections. It contains either an Intel 486SX, 25-MHz, or an Intel 486DX, 50-MHz CPU. The unit is powered from a standard 110 VAC power source. Depending on the anticipated use of the system, the MAP/40 platform can be ordered with either of the CPUs listed above in order to accommodate customers with small or moderate amounts of VIS activity at the most economical price.

Hardware

2

What's in This Chapter

This chapter defines the Intuity CONVERSANT VIS V5.0 hardware, including functional descriptions, illustrations, and lists of supported and orderable devices in the following categories:

- MAP/100C, MAP/100, and MAP/40 hardware descriptions
- Standard hardware components
- Optional hardware components
- Peripheral equipment
- Intuity CONVERSANT VIS V5.0 overall architecture

Platform Descriptions

Software provided with the Intuity CONVERSANT VIS V5.0 product can operate on three different multi-application platforms—the MAP/100C, MAP/100, or MAP/40. These platforms, their standard and optional hardware, and their overall architectures are described in this section.

MAP/100C Hardware Platform

The MAP/100C is a central office frame-mounted unit used primarily to provide services that enhance the functionality of large central office telecommunication switches and services operated by local, long distance, and foreign telephone companies. The entire unit may be mounted in either a 24-inch, 4ESS switch, or 5ESS switch equipment rack.

The platform has two main physical areas: the front chassis unit with the card backplane and the power supply unit.

The CPU is an Intel 80486DX processor running at 50-MHz with a minimum of 32 Mbytes of Random Access Memory (RAM) in the form of two 16-Mbyte single in-line memory module (SIMM). Up to four SIMMs may be attached to the CPU circuit card, allowing a maximum of 64 Mbytes of system RAM.

A passive backplane with 25 I/O expansion slots resides inside the front chassis. All slots conform to Intel's 16-bit ISA specification. Slots 17 through 22 also conform to the 32-bit extended industry standard architecture (EISA).

The passive backplane is oriented horizontally in the back of the front chassis unit. All circuit cards are mounted vertically with any interface cables exiting from the top of the platform. Access to the backplane is provided through a hinged door on the front of the platform. Four of the 25 backplane expansion slots are used for standard circuit cards that provide basic platform functionality. The remaining slots are available for voice response/processing cards as well as cards to support local area networks, host, FAX Attendant, etc.

This platform is equipped with a disk bay with space for three full-height peripherals or six half-height peripherals, or some combination thereof (for example, two full-height and two half-height). The internal 1.44-Mbyte 3.5-inch floppy drive is located in the front chassis area and is accessible from the user interface panel. An internal cartridge tape drive is located below the floppy drive and consumes a half-height slot.

The MAP/100C operates on standard -48 VDC central office power, with an optional 120 VAC power supply also available.

An optional analog tip/ring (T/R) distribution panel is located on the top rear of the chassis.

Figure 2-1 shows the front view of the MAP/100C, while Figure 2-2 shows the back view.

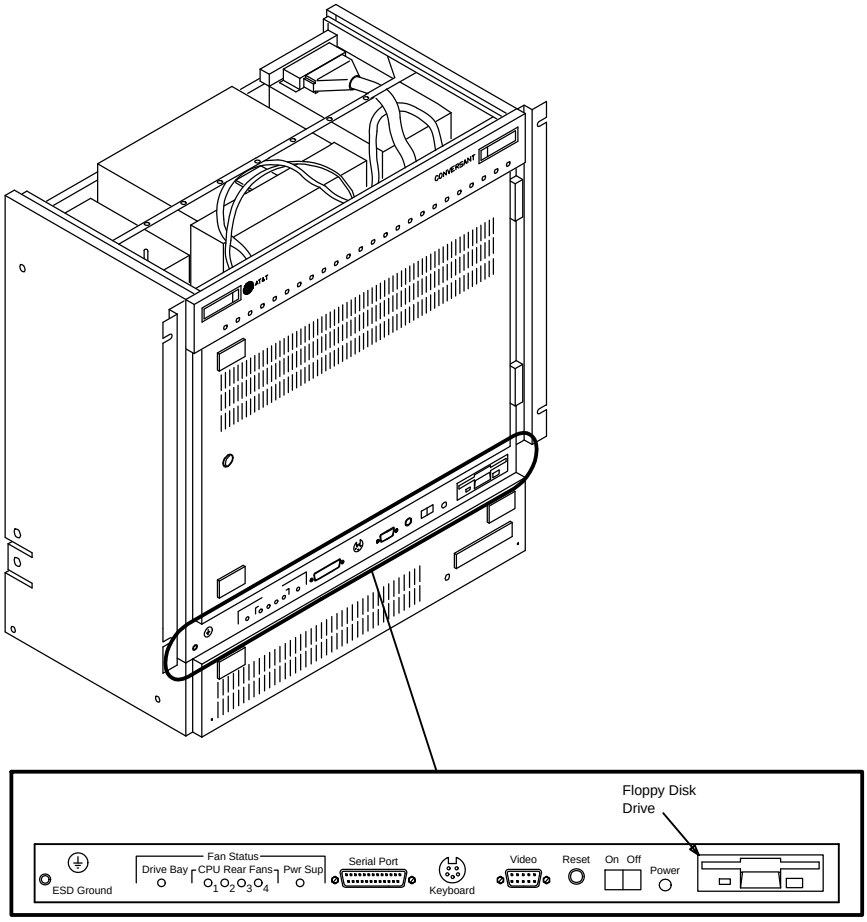


Figure 2-1. Front View of the MAP/100C

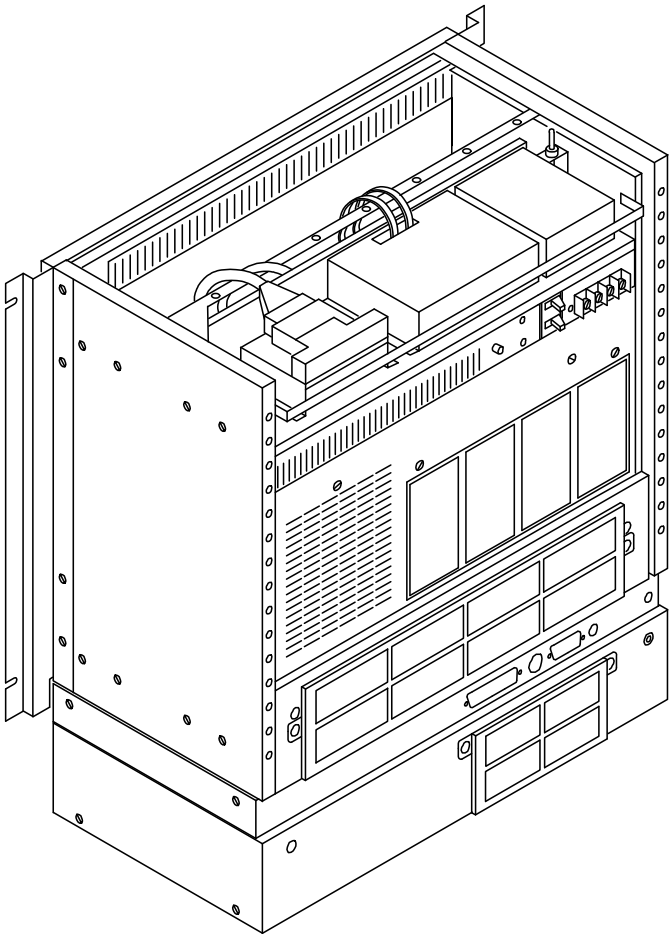


Figure 2-2. Back View of the MAP/100C

MAP/100 Hardware Platform

The MAP/100 is a convertible, freestanding or rack-mountable hardware unit that utilizes an access tandem (AT) industry standard architecture (ISA) bus architecture. The entire unit may be mounted in either a 19-inch equipment rack.

The platform has one physical unit with two main physical areas: the card backplane and a peripheral bay (disk bay)/power supply unit.

The CPU is an Intel 80486DX processor running at 50-MHz with a minimum of 32 Mbytes of RAM in the form of two 16-Mbyte SIMMs. Up to four SIMMs may be attached to the CPU circuit card, allowing a maximum of 64 Mbytes of system RAM.

A passive backplane with 25 I/O expansion slots resides inside the front chassis. All slots conform to Intel's 16-bit ISA specification. Slots 17 through 22 also conform to the 32-bit extended industry standard architecture (EISA).

The passive backplane is oriented vertically in the card cage. All circuit cards are mounted horizontally with any interface cables exiting from back of the platform. Access to the backplane is provided through a hinged door on the left side of the platform. Four of the 25 backplane expansion slots are used for standard circuit cards that provide basic platform functionality. The remaining slots are available for voice response/processing cards as well as cards to support local area networks, host, FAX Attendant, etc.

This platform is equipped a disk bay with space for four full-height peripherals or eight half-height peripherals, or some combination thereof (for example, two full-height and two half-height). The internal 1.44-Mbyte, 3.5-inch floppy drive is located in the top of the peripheral bay and is accessible behind the right front door of the platform. An internal cartridge tape drive is located above the floppy drive.

The MAP/100 operates on 120 VAC power supply and provides an emergency battery backup power supply, with a maximum of 15 minutes of operation under full load if a blackout situation occurs. It also provides regulated power in the event of brownouts or surges.

The optional analog tip/ring (T/R) distribution panels mount on the rear of the chassis.

Figure 2-3 shows the front view of the MAP/100, while Figure 2-4 shows the back view.

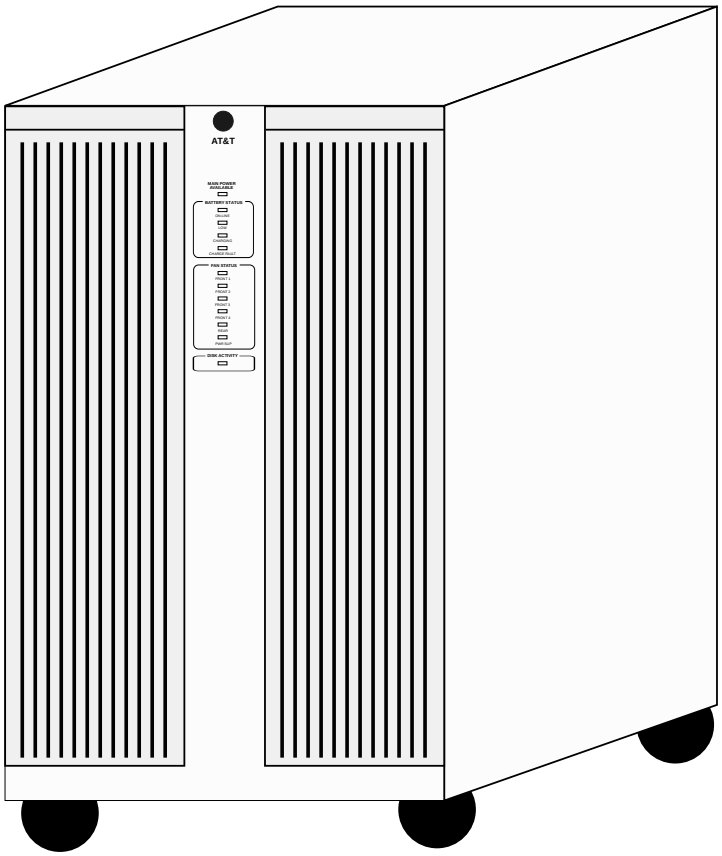


Figure 2-3. Front View of the MAP/100

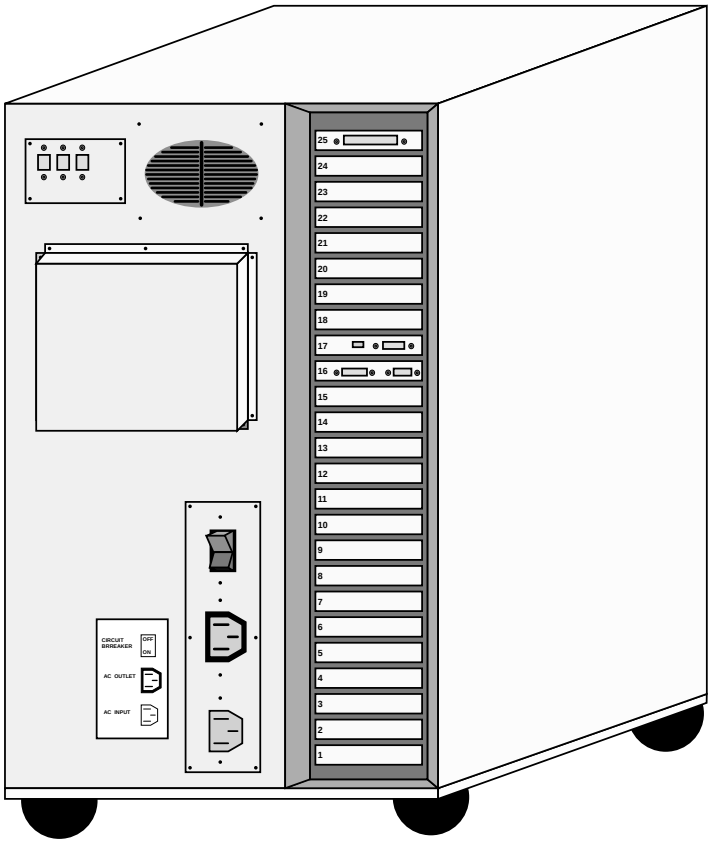


Figure 2-4. Back View of the MAP/100

MAP/40 Hardware Platform

The MAP/40 platform is a deskside (tower), PC-sized unit designed for use in a typical office setting.

For V5.0, MAP/40s can be ordered in two different CPU configurations:

- An Intel 80486DX processor running at 50-MHz with a minimum of 32 Mbytes of RAM in the form of two 16-Mbyte SIMMs
- An Intel 80486SX processor running at 25-MHz with a minimum of 32 Mbytes of RAM in the form of two 16-Mbyte SIMMs

Up to four SIMMs may be attached to the CPU circuit card, allowing a maximum of 64-Mbytes of system RAM.

A passive backplane with 12 I/O expansion slots is located inside the CPU chassis. All slots conform to Intel's 16-bit ISA specification. Four of the eight slots are used for standard circuit cards that provide basic platform functionality. The remaining eight slots are available for voice response/processing cards as well as cards to support local area networks, host, FAX Attendant, etc.

The passive backplane is oriented vertically. The cards are mounted horizontally with any interface cables exiting from the back of the platform. Access to the backplane is provided by removing an exterior dress cover, an internal card cage access cover, and a circuit card cage retaining bracket.

This platform is equipped a disk bay with space for four half-height peripherals. The internal 1.44-Mbyte, 3.5-inch floppy drive is located in the top of the peripheral bay and an internal cartridge tape drive is located above the floppy drive. The MAP/40 operates on 110 VAC power supply.

The optional analog tip/ring (T/R) distribution panels mount on the rear of the chassis.

Figure 2-5 shows the front view of the MAP/40, while Figure 2-6 shows the back view of the MAP/40.

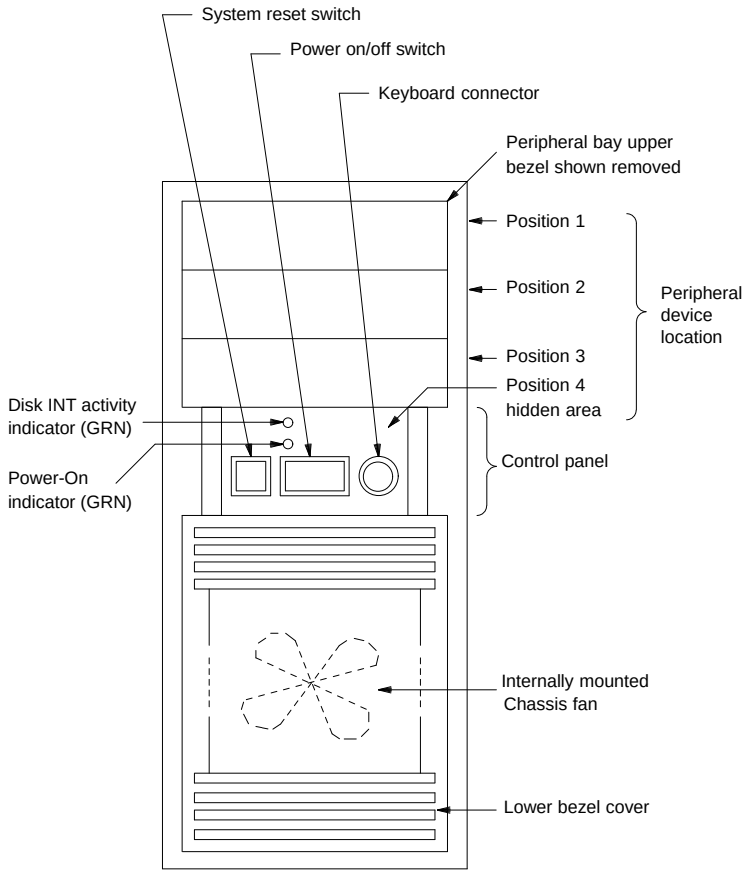


Figure 2-5. Front View of the MAP/40

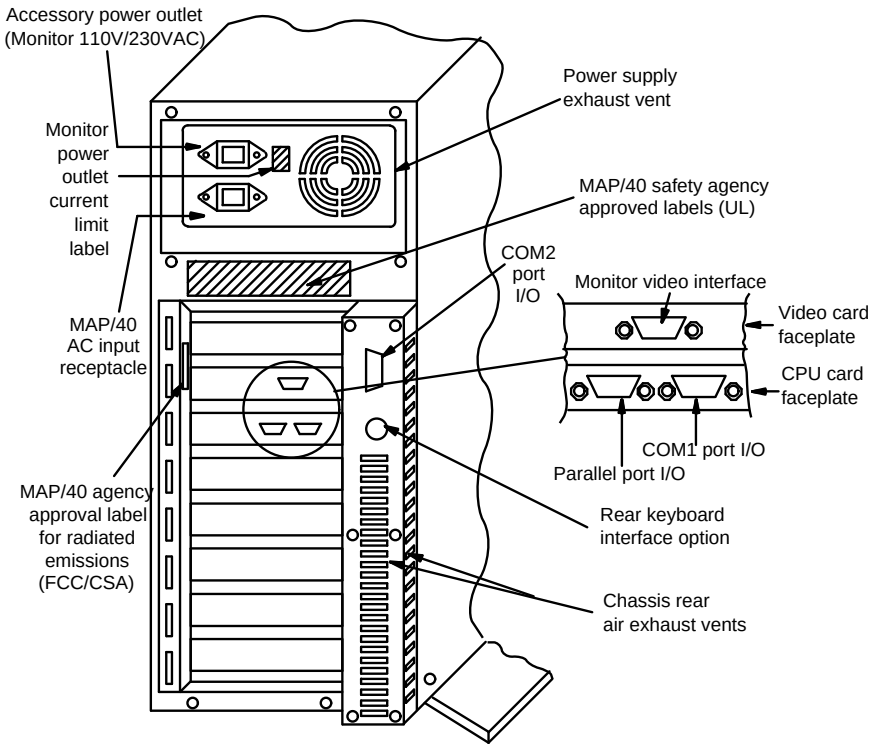


Figure 2-6. Back View of the MAP/40

Basic Intuity CONVERSANT VIS Hardware

Regardless of the type of application and/or features being supported, the MAPs require a minimum set of hardware components for properly function. Detailed information on each component follows the table.

The following table illustrates the basic hardware for each MAP. If no "X" appears in the platform column, that hardware component is not available for that platform (for example, the 80486SX 25-MHz is *not* available on the MAP/100 or MAP/100C).

Table 2-1. Basic Hardware Components

Hardware Component	MAP/100C	MAP/100	MAP/40
AC power supply	X	X	X
DC power supply	X		
Battery module		X	
25-slot backplane	X	X	
12-slot backplane			X
486DX, 50-MHz CPU with a minimum of 32 Mbyte of main memory	X	X	X
486SX, 25-MHz CPU with a minimum of 32 Mbyte of main memory			X
SCSI 1.75 G-byte hard disk drive	X	X	X
SCSI 1.2 G-byte hard disk drive (upgrade customers only)	X	X	X
SCSI 525-Mbyte cartridge tape drive	X	X	X
SCSI bus cable	X	X	X
1.44-Mbyte, 3.5-inch floppy disk drive	X	X	X
SCSI peripheral controller card	X	X	X
VGA video controller card	X	X	X
Remote maintenance circuit card, with/without modem	X	X	X
Time division multiplexing (TDM) bus cable	X	X	X

Power Supply

The power supply used in the platforms are as follows:

- MAP/100C
  - — -48 VDC running at 25 AMPs
  - — Single phase, 110-130 VAC +/- 5%, 50-60 Hz running at 20 AMPs
- MAP/100 — Single phase, 110-130 VAC +/- 5%, 60-Hz running at 15 AMPs. Equipped with four battery cells to the uninterruptable power supply (UPS) for source voltage during *brownout* and most *blackout* periods.
- MAP/40 — Single phase, 90-130 VAC +/- 5%, 47-63 Hz running at 8 AMPs

Backplane

Each platform is equipped with a backplane providing slots or circuit card mounting positions. The MAP/100 and MAP/100C backplanes have 25 total slots with 21 slots available for customer-selected cards. The MAP/40 backplane has 12 total slots with 8 slots available for customer-selected cards.

Peripheral Devices

The Intuity CONVERSANT VIS V5.0 platforms support magnetic peripheral devices including hard disk, floppy disk, and cartridge tape drives. The MAP/100C, MAP/100 and MAP/40 are currently supplied with data storage/transfer devices in the Small Computer System Interface (SCSI) format.

The IDE and ESDI disk are *not* supported in V5.0. Pre-V5.0 system must upgrade to SCSI peripherals. For more information on the capabilities and use of SCSI magnetic peripherals, refer to Chapter 4, "Features".

Hard Disk Drive

A hard disk is a magnetic peripheral device used to provide storage and random access to large amounts of data within the system architecture. This data can include the operating system, application software, speech data, and database tables.

Two distinct hard disk drives are currently supported by the Intuity CONVERSANT VIS V5.0 software in all platforms (MAP/40, MAP/100, MAP/100C). These hard disks are:

- 1.75-Gbyte SCSI hard disk drive (installed in all new sales of V5.0 platforms) — This disk is a half-height peripheral identified by a MICROPOLIS model number of 2217. Its physical dimensions are approximately 5.75x4x1.75,

and is mounted in the peripheral bay using a combination of anodized (gold colored) adaptor brackets. This drive accepts a 2-row, 50-pin bus connector.

- 1.2-Gbyte SCSI hard disk drive (supported for upgrades to V5.0) — This disk is a half-height peripheral identified by a MAXTOR model number of MXT-1240S. Its physical dimensions are approximately 5.75x4x1.75 inches, and is mounted in the peripheral bay using a combination of anodized adaptor brackets. This disk drive accepts a 2-row, 50-pin bus connector.

Floppy Disk Drive

The floppy disk drive is sometimes used to load and back up system software using standard, 3.5-inch, 1.44-Mbyte, high-density floppy disks. A single floppy disk drive is supported by all platforms.

Cartridge Tape Drive

The cartridge tape drive allows a user to back up and restore files from a tape cartridge. This unit eliminates the need to install and back up files from floppy disks that can be tedious and time consuming if a software package is large and requires many floppy disks. A single cartridge tape can store as much information as 365 floppy disks.

New Intuity CONVERSANT VIS V5.0 MAPs are equipped standard with a single 525-Mbyte, SCSI-format cartridge tape drive using 6525 (525 Mbyte) or 6320 (320 Mbyte) cartridge tapes. These tapes can be purchased from several different vendors.

Controller Circuit Cards

Controller cards are used to control the processes of the platform, making it a stable and operational computing environment. These cards provide the standard central processing, video, peripheral and certain basic communication functions of the system, and are standard equipment in all platforms. The following circuit cards are basic hardware components in Intuity CONVERSANT VIS V5.0 platforms.

CPU Controller Card

The system processor, an Intel 80486 format with a minimum of 32 Mbytes of RAM, as follows:

- Intel 80486DX operating at 50-MHz
- Intel 80486SX operating at 25-MHz (MAP/40 *only*)

The 386 CPU controller cards are *not* supported in V5.0. Pre-V5.0 system must upgrade to 486 CPUs.

SCSI Host Adapter Controller Card

Provides the interface between the system processor and the SCSI bus via the ISA backplane bus. This circuit card and the associated SCSI bus control up to:

- 6 SCSI-format hard disk drives in the MAP/100
- 5 SCSI-format hard disk drives in the MAP/100C
- 2 SCSI-format hard disk drives in the MAP/40

Video Display Circuit Card

Provides the interface between the system processor and the video monitor, as follows:

- model WDXLR831124 (installed in all new sales of V5.0 platforms)
- model WDXLR83160 (supported for upgrades to V5.0)
- model VDC600U (supported for upgrades to V5.0)

NOTE:
Only model numbers WDXLR83160 and WDXLR831124 can be used with the Graphical Speech Editor and/or the FlexWord Toolkit.

Remote Maintenance Circuit Card

Provides a method of remote monitoring and access for off-site technicians. This circuit card is available with a built-in modem.

SCSI Bus Cable

The SCSI bus cable serves as the interface between the SCSI peripherals and the SCSI host adapter controller card, as well as the interface from SCSI component to component (for example, from the hard disk drive to the cartridge tape drive).

TDM Bus Cable

The TDM bus cable is used by the voice processing cards (T/R, T1, and SP/CMP) when they send digitized speech to other cards in the system.

Optional Intuity CONVERSANT VIS Hardware

Optional hardware is not required for the basic platform to function, yet many operations, features, and functions cannot be accomplished without some of these components. For example, to view files stored on your hard disk drive a keyboard and monitor are required, but these components are not required for the basic MAP to function.

Circuit Cards

The circuit cards within each MAP various depending on the different functions and features in each VIS. Certain cards are known as *controller* cards are covered in the previous section, "Basic Intuity CONVERSANT VIS Hardware".

Other circuit cards are used to perform unique functions. These cards provide functions such as analog and digital interfaces to the public switched (telephone) network, remote alarming, network communications, and speech processing capabilities. For more information concerning software associated with the following hardware, refer to Chapter 4, "Features", and Chapter 5, "Feature Packages".

Tip/Ring Circuit Card

The Tip/Ring (T/R) card provides an analog interface to the VIS over a telephone line. All T/R cards installed in a system can be used to process incoming calls, bridged outgoing calls, or any combination of both. All T/R cards connect to the TDM bus.

The following T/R circuit cards are supported for V5.0:

- IVP6 — These are six-port analog T/R cards. The AYC5 is the oldest version of T/R circuit card that is supported, but no longer in production. It was replaced by the AYC5B that contains a built-in audio jack on the external faceplate of the card, allowing speech recording and editing equipment to be plugged directly into the system, instead of requiring a modular jack interface kit.

  The AYC5B is supported but has since been replaced with the AYC28. The AYC28 radiates less radio-frequency emissions and is required to support the increased T/R capacity of V5.0 systems.

  All IVP6 cards supply six analog T/R modular connections on the circuit card faceplate. As stated previously, the AYC5B and AYC28 also feature a built-in audio jack on the faceplate that allows the direct connection of an audio jack for monitoring and recording purposes.

  - — AYC28 (installed in all new sales of V5.0 platforms)
  - — AYC5B (supported for upgrades to V5.0)
  - — AYC5 (supported for upgrades to V5.0)
- IVP4 — These cards are four-port analog T/R cards. The AYC6 is an early version of the IVP4 circuit card that is supported, but no longer in production. It was replaced with the AYC6B containing a time-division muliplexer (TDM) interface component built into it. To use an AYC6 circuit card in a V5.0 system, a TDM bus upgrade kit must be applied to each AYC6 card.
  - — AYC6B (supported for upgrades to V5.0)
  - — AYC6 (supported for upgrades to V5.0)

The number of simultaneous incoming calls and maximum number of incoming and bridging outgoing telephone network connections depends on the type of T/R card used, as well as your platform.

- MAP/40 can support up to 8 T/R cards
  - — 8 IVP6 cards = 48 telephone network connections
  - — 8 IVP4 cards = 32 telephone network connections
- MAP/100(C) can support up to 12 T/R cards
  - — 12 IVP6 cards = 72 telephone network connections
  - — 12 IVP4 cards = 48 telephone network connections

T1 Trunk Interface Circuit Card

The T1 circuit card provide the digital telephony interface to the VIS. The single T1 digital trunk carries 24 telephone network connections on two twisted-pair (two-wire) cables. T1 cards accept an ISDN PRI or DS-1 two-way digital trunk and converts it to two-way analog audio channels.

An SP circuit card (described later), must be used when supporting one or more T1 cards being used in coding and playback situations. All T1 circuit cards connect to the TDM bus cable.

The following T1 circuit cards are supported for V5.0:

- AYC11 (installed in all new sales of V5.0 platforms and supported in upgrades) — It contains new circuit components and enhanced performance, although the basic functionality of the card is nearly identical. The card features a 15-pin, D-subminiature T1 connector on the external faceplate that provides an interface port between the VIS and Channel Service Unit (CSU) or Private Branch Exchange (PBX) switch.

- AYC3B (supported for upgrades to V5.0) — An early version of the T1 circuit card that is supported, but no longer in production. The card features a 15-pin, D-subminiature T1 connector on the circuit card's external faceplate that provides an interface port between the VIS and a CSU or PBX switch.

The T1 card capabilities are:

- 24 telephone network connections with Touch Tone detection
- 23 telephone network connections with Touch Tone and Primary Rate Interface (PRI) — 23 telephone network connections of PRI require one T1 and one SP card, as well as one SP dedicated to PRI service if playback and coding are simultaneous; 24 through 47 channels require an additional T1 card
- PRI NFAS (24+D, 47+D channels) with Touch Tone

Platform maximums, if the system is all T1, are:

- MAP/40 — 2 T1 cards, for a maximum of 48 telephone network connections
- MAP/100(C) — 5 T1 cards, for a maximum of 120 telephone network connections

Signal Processor Circuit Card

The Signal Processor (SP) card is used in large-channel-count voice response or voice coding applications or for any applications that require sophisticated algorithms (for example, speaker-independent speech recognition, robust call classification, etc.). The SP does not connect directly to the telephone network and must be used in conjunction with at least one T1 or T/R card.

When being used for speech recognition or playback and coding tasks, each SP circuit card can be shared by multiple application requests; for example, a single card may service one network connection with speech recognition functions, and another connection with playback and coding.

NOTE:
Unless specifically stated otherwise, a dedicated SP is needed for speech play and coding, Call Classification Analysis (CCA), Text To Speech (TTS), PRI, WholeWord Recognition, and FlexWord Recognition. Speech play and coding and speech recognition can be done on the same SP card. TTS needs dedicated AYC9 SP card(s).

Certain features rely more heavily on SP circuit card processing than other features do, creating noticeable differences in the number of channels of service an SP can provide between features. The list below notes the basic capacities of an SP card:

The following SP circuit cards are supported for V5.0:

- AYC2C (installed in new sales of V5.0 platforms and supported in upgrades) — Replaces the AYC2B, containing new circuit components and enhanced performance, although the basic functionality of each card is nearly identical.
- AYC2B (supported for upgrades to V5.0) — An early version that is supported, but no longer in production.
- AYC9 (installed in new sales of V5.0 platforms and supported in upgrades) — Includes high-speed (50-MHz) digital signal processor (DSP) chips and additional memory that is used to support the TTS.

A single SP circuit card can provide service for up to:

- Six transactions of CCA
- Six transactions of TTS (AYC9 only)*
- Eight transactions of FlexWord Speech Recognition; requires 2 CMP cards
- 12 transactions of WholeWord Speech Recognition; requires 2 CMP cards
- 20 transactions of voice or background music recorded in SBC format†
- 48 channels of voice or background music recorded in PCM or ADPCM‡
- 30 channels of basic T1 service

Companion Circuit Card

The Companion (CMP) card is used to support only the Speech Recognition features. It is connected to the SP card by two SP-to-CMP cables, and still requires its own ISA slot. All of the signal interfaces come from the SP card.

Each CMP card can support the following channels of service:

- Up to four channels of FlexWord Speech Recognition
- Up to six channels of WholeWord Speech Recognition

NOTE:
An single SP card can support a maximum of two CMP cards.

* This is provided by the AYC9 only.

† These capacities reflect the AYC2C. The AYC2B can only provide 12 channels.

‡ These capacities reflect the AYC2C. The AYC2B can only provide 30 channels.

The CMP card is used only in speech recognition applications, and is connected to the SP card via an SP-to-CMP interface cable. Refer to the *Intuity CONVERSANT VIS V5.0 Hardware Installation* book for your specific platform, and/or *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228, for additional information on the use of these circuit cards.

Only one version of the CMP card, the AYC7, is supported in all V5.0 systems.

Synchronous Host Communications Circuit Card

An optional data communications circuit card may be used to implement synchronous data communication between the VIS and a host computer. For more information about the use of these cards, and the feature package they support, refer to the heading “3270 Synchronous Host Communications” in Chapter 5, "Feature Packages".

The following synchronous host communication cards are supported for V5.0:

- FIFO/SIB (installed in all new sales of V5.0 platforms) — Replaces the PC/XL circuit card. It can be distinguished by its length; the FIFO-SIB is a half-length card while the PC/XL is full length. One FIFO/SIB can support up to 128 host sessions or logical units (LUs). Two FIFO/SIB cards are required for two physical links to host machines, although the total number of LUs may not exceed 128.
- PC/XL Revision D or later (supported for upgrades to V5.0) — An early version from CLEO communications that is supported, but no longer in production. Older PC/XL card sold prior to Revision D are *not* supported for use in V5.0 (look for *assembly Revision D* etched on the noncomponent side of the card on the printed wiring board next to the faceplate).

  Because of interrupt and I/O address conflicts, only *one* PC/XL is allowed (two cards were previously allowed in V4.0).

  Because of new networking software, a single PC/XL circuit card will be able to support up to 128 LUs, removing the need to support two PC/XL circuit cards for more than 32 LUs. However, if a customer uses two PC/XL circuit cards for two physical links to hosts, an upgrade to two FIFO/SIB cards is *mandatory*.

IBM 16/4 ISA-16 Adapter Circuit Card

The Token Ring card has been introduced to the Intuity CONVERSANT VIS V5.0 product so that connectivity to a Token Ring communications network can be established. In this release, a Token Ring network is able to support SDLC and TCP/IP networking protocols. For more information about the use of this card, and the feature package it supports, refer to the sections, "Host Interface" and "Local Area Network Connectivity" in Chapter 5, "Feature Packages"

SMC Elite 16 Ultra Combo Adapter Circuit Card

The EtherCard provides an interface for communication with other systems connected to a Local Area Network (LAN) using 10BASE-T (RJ-45 Twisted Pair), 10BASE2 (Thin Coax BNC), and AUI (Thick Coax DB-15) interfaces. This card replaces the NP600A Ethernet and StarLAN 10 Network PC NAU circuit cards that were supported during the V4.0 product release. More information about the use of this card, and the feature package it supports, refer to the heading "Local Area Network Connectivity" in Chapter 5, "Feature Packages".

Multi-Port Asynchronous Communications Circuit Card

This circuit card provides additional serial data connections on the VIS. These connections can be used to support up to two asynchronous host computer links, multiple serial printers, on-site and remote monitoring systems, or an extra modem. More information about the use of these cards, and the feature package they support, refer to the heading "Multi-Port Asynchronous Communications Interface" in Chapter 5, "Feature Packages".

The following asynchronous communication cards are supported for V5.0:

- IPC-900 (supported for upgrades to V5.0) — The earliest version of the eight-port circuit card supported for use with upgraded platforms, but is no longer in production. This card is identified by a 62-pin, D-subminiature connector on the faceplate of the card that is split into eight RJ-45 modular connections through the use of an optional T-bar adapter.
- CTC Gemini-1000 (supported for upgrades to V5.0) — Replaced the IPC-900 and is supported for use with upgraded platforms, but is not sold with V5.0. The CTC Gemini-1000 card is nearly identical to the IPC-900, requiring a T-bar adapter to supply eight RJ-45 modular connections.
- Equinox (installed in all new sales of V5.0 platforms) — Functionally equivalent to the IPC-900 and CTC Gemini-1000 circuit cards, but streamlines external connectivity by providing RJ-25 modular connectors on the faceplate of the card, eliminating the use of the T-bar adapter.

PC/ISDN Interface Circuit Card

Also known as the IPCI circuit card, this card supports the D-channel basic rate interface from the switch for an Adjunct/Switch Application Interface (ASAI) link. For more information about the use of this card, and the feature package it supports, refer to the heading "Adjunct/Switch Application Interface" in Chapter 5, "Feature Packages".

PC/PBX Interface Circuit Card

Also known as the DCP circuit card, this card supports the AUDIX Voice Power R2.5 application switch integration with a DEFINITY System 75 G1/G3. This card must be used when utilizing AUDIX Voice Power Coresidency and a DEFINITY System75 G1/G3 switch integration package. For more information about the use of this card, and the feature package it supports, refer to the heading "AUDIX Voice Power Coresidency" in Chapter 5, "Feature Packages".

FAX Attendant Circuit Card

This card provides the correct intelligent analog telephony characteristics required by the FAX Attendant Coresidency feature. It provides four analog ports that are dedicated to providing FAX Attendant service.

The following FAX Attendant circuit cards are supported for V5.0:

- Brooktrout TR114+I4L (installed in all new sales of V5.0 platforms)
- Brooktrout TR114-I4L (supported in upgrades to V5.0)

For more information on the use of this card or the feature package it supports, refer to the heading "FAX Attendant Coresidency" in Chapter 5, "Feature Packages".

External Alarms Interface Circuit Card

This circuit card is used *only* in the MAP/100C, and provides eight alarm relay contact sets for activating external alarms. The external alarm relay contacts are triggered by maintenance messages from the VIS that are software controlled. For more information on the use of this card, or the feature package it supports, refer to the heading "External Alarms", in Chapter 5, "Feature Packages".

Peripheral Equipment

The Intuity CONVERSANT VIS V5.0 platforms can interface with peripheral equipment. In some cases such as printers, the equipment is not standard and must be obtained as optional hardware. Details on peripheral connections to the MAPs can be found in Chapter 3, “Connecting Peripherals and Powering Up,” of the *Intuity CONVERSANT VIS V5.0 Hardware Installation* book specific to your platform.

The peripheral equipment described in this section is not an exhaustive list of all devices capable of interfacing with MAPs, but rather is a reference. If you have compatible or like equipment that you would like to use with V5.0, discuss all questions concerning specific peripheral equipment compatibility with an Intuity CONVERSANT VIS V5.0 sales representative.

NOTE:
In some cases, AT&T does not provide or recommend a particular model or brand of each device when ordering. Customers must inform their sales

representative about the desired peripheral equipment during the planning of a new Intuity CONVERSANT VIS V5.0.

Monitor/Remote Terminal

A color monitor or remote terminal can be connected to any VIS platform, so that a visual user interface may be used. It is an optional feature since many VIS installations use multiple systems that can be serviced by only one or two terminals.

The NCR monitor (model 3001-0022-8090) is the monitor offered when a monitor is ordered.

The following remote terminals, connected to the VIS through a data port and/or modem are offered:

- AT&T 705
- AT&T 715

Keyboard

The KKey Tronics keyboard (model E03600QLATT) is the 101-key keyboard offered when a keyboard is ordered.

Serial Mouse

The Agilar AGM600E three-button serial mouse is offered standard with the FlexWord Toolkit and Graphical Speech Editor feature packages. The serial mouse supplied in V4.0 is supported for upgrades to V5.0.

A mouse is optional for use with the base V5.0 software; the voice system is completely operable and administrable without a mouse. A mouse is required, however, to effectively use the GUI features of UnixWare.

Under open interfaces, any other mouse supported by UnixWare may be supplied and installed *by the customer*. At this time, the mice supported by UnixWare are PS2, Logitech bus and serial MouseMan, and Microsoft bus and serial mouse.

Printer

Both serial and parallel printers are offered/recommended for use with all of the Intuity CONVERSANT VIS V5.0 platforms.

The following printers are offered:

- Parallel printer — AT&T/NCR 6417
- Serial printer — AT&T 572 or AT&T 573

Modem

An external modem can be connected to a V5.0 system to allow administrators, operators, or remotely located technical support personnel to initiate commands and remotely monitor the system for installation and maintenance purposes. Access is gained by dialing into the VIS with a pre-assigned dial string. A modem is also used if asynchronous or synchronous communications with another machine or device is needed. In such cases, a modem is only used if the device is located too far away from the VIS to use a null-modem.

For new V5.0 systems, a modem is used as part of the remote maintenance circuit card (used by AT&T technical support personnel). A customer may choose to (optionally) supply a modem themselves for their use (for example, for file transfer). Customer provided modems are in addition to one provided with the RBM.

The Paradyne Dataport Express 14.4 modem is offered when a modem is ordered.

Resource Assignments

The following table illustrates the resource assignments for each of the hardware component supported in V5.0. Values are listed for each resource in order preferred, with second and third (and fourth, etc.) choices following. Note that only the values supported by VIS V5.0, not all the values supported by the card, are listed. The Configuration Program has the complete set of values.

Table 2-2. Resource Assignments for VIS V5.0

Component	IRQ	I/O Ports	RAM	Notes
CPU card	13	00–FF, 370		
Floppy Drive	6	3F0 (2)		DMA 2
Video Controller (VGA)			A0000 (128K) and C0000 (32K)	
CPU card parallel printer port	7	378 (8)		
CPU card serial port #1	4	2E8 (8)		
CPU card serial port #2	3	2F8 (8)		
BusLogic 542B SCSI controller card	14	330 (4)	C80000(8K)	SCSI DMA 5

Continued on next page

IVP4/6 card	2, 15, 5	[1–3, 5–7, 9–A]00 (32/bd)		Cards 8–15
SP card	11	120–13C (4/bd)		Cards 0–3
CMP card				
RMB card	4	180	C[C–F]000, D[0–F]000 (4K)	
IPC asynchronous card	10, 15, 4	380, [23][9–E]0 (16)	C[8ACE]000, D0000 (8K)	
Equinox asynchronous card			C[8C]000, D[04C]000 (16K)	
IPCI card	3, 2		[D0, D8, CC]000 (16K)	
DCP card	3	380 (8)		AVP
DCP card	2	380 (8)		FAX
Brooktrout FAX card	10, 15, 3, 5, 7, 2	240, 260, 2C0 (32)	0	DMA 3

Table 2-2. Resource Assignments for VIS V5.0 — *Continued*

Component	IRQ	I/O Ports	RAM	Notes
PC/XL synchronous card	3, 5	3[ABE]0, 2[ABE]0 (16)	[CD][048C]000 (16K)	
FIFO/SIB synchronous card	10, 3, 5, 9, 11,12, 13, 14	380, 2[56BE]0, 3{AE}0 (16)		
Token Ring	2, 7, 3	A20–A23 (4)	[CD]C000 (.5K) [CD][048C]000 (16K)	
EtherCard	15, 3, 5, 7, 10, 11, 2	2[02468jACE]0, 3[02]0 (32)	[ECD][02468ACE]000 (16K)	

Platform Capacity Maximums

Every V5.0 system requires a MAP with certain basic equipment:

Table 2-3. Basic V5.0 MAP Configurations

Component	MAP/40	MAP/100	MAP/100C
Power Supply	AC	AC	AC or DC
486 CPU	25 or 50 MHz	50 MHz	50 MHz
Memory	32 Mbyte	32 Mbyte	32 Mbyte
Floppy Disk Drive	3.5 inch	3.5 inch	3.5 inch
SCSI Tape Drive	525 Mbyte	525 Mbyte	525 Mbyte
SCSI Hard Disk	1	1 or 2*	1 or 2*
Controller Cards	Video, SCSI, and RMB	Video, SCSI, and RMB	Video, SCSI, and RMB

*MAP/100 systems with more than 72 telephone network connections require 2 SCSI disks.

However, to balance the system basics, there are also certain maximums for each platform that cannot be exceeded. These maximums are critical to remember when designing a V5.0 system.

Open SCSI Architecture

The MAPs have the following capabilities for the addition of SCSI devices, under the Open SCSI Architecture, on a single SCSI bus cable:

NOTE:
The tape drive is the only peripheral to have terminating resistors on the MAP/40 and MAP/100. On the MAP/100C the first hard disk drive is the only terminated peripheral.

MAP/100 — This platform has seven shelves in the peripheral bay. One is occupied by a tape drive, another is occupied by a hard disk drive in a standard configuration. The remaining shelves may be used for any SCSI device supported by UNIXWare with the following physical guidelines:

- When installing devices leave open shelves between when possible. If this is not possible, the power dissipation of a device per shelf may not exceed 14 watts. If any device dissipates more than 14 watts, it *must* have a vacant shelf above it.

  The total power dissipation within the peripheral bay *must not exceed* 95 watts for the fans to adequately remove the heat.

- Some MAP/100 systems were shipped with a minimum of peripheral bay disk power cables. Check your MAP/100 to see if you need additional cables. They may be ordered by comcode 406664946.

  If you are adding hard disk drives and you have ordered them from AT&T GBCS as PEC 70806 you will receive a cable with each drive.

MAP/100C — This platform has six shelves in the peripheral bay. One is occupied by a tape drive, another is occupied by a hard disk drive in a standard configuration. The remaining shelves may be used for any SCSI device supported by UNIXWare with the following physical guidelines:

- When installing devices, install only one per vertical shelf pair when possible. If this is not possible, the power dissipation of a device per shelf may not exceed 14 watts. If any device dissipates more than 14 watts, it *must* reside in the vertical shelf pair alone.

  The total power dissipation with the peripheral bay *must not exceed* 80 watts for the fans to adequately remove the heat.

MAP/40 — This platform has three half height disk locations. One is occupied by a tape drive, the second has a disk drive for the standard configuration. The remaining locations may be used for any SCSI device supported by UNIXWare with the following physical restriction:

- The device *must* not have power dissipation in excess of 14 watts.

Peripheral Maximums

The following table summarizes the maximum number of magnetic peripherals that can be installed on each platform:.

Table 2-4. Magnetic Peripheral Maximums

Device	MAP/40	MAP/100	MAP/100C
Floppy Disk Drive	1	1	1
SCSI Hard Disk Drive*	2	6	5
SCSI Cartridge Tape Drive	1	1	1

*These maximums reflect the maximum number of disk that can be mounted inside the cabinet. Customers can also use the external SCSI interface connector on the MAP platform, but they must provision and engineer the external SCSI devices consistent with the open SCSI interface feature (discussed above).

Circuit Card Maximums

The following table identifies all of the functional circuit card types and lists how many may be installed in each platform:

Table 2-5. Circuit Card Maximums

Circuit Card Name	MAP/40	MAP/100 and MAP/100C	TDM Bus Connectivity	Notes
486 CPU	1	1	No	
SCSI host adapter	1	1	No	
Video	1	1	No	
Remote Maintenance	1	1	No	
EtherCard	1	1	No	
PC/XL	1	1	No	
FIFO/SIB	2	2	No	
Token Ring	1	1	No	
Multi-Port Asynchronous	1	1	No	
Tip/Ring	8	12*	Yes	
T1	2	5	Yes	Must be AYC3 or AYC11
Signal Processor	7	8	Yes	Must be either AYC9 or AYC2C
Companion	4	8	No	Must be AYC7. A maximum of 2 CMP cards can be associated with each SP.
PC/ISDN Interface	1	1	No	
PC/PBX Interface	1	1	No	
FAX Attendant	3	3	No	Must be Brooktrout TR114-I4L or TR114+I4L. Maximum of 12 telephone network connections of FAX Attendant service.
External Alarms	0	1 (MAP/100C)	No	

*In an upgrade, at least four of the cards must be AYC28 to meet FCC Part 15 Electromagnetic Compatibility.

Hardware Architecture

The modular design of the Intuity CONVERSANT VIS V5.0 permits the components described in this chapter to be configured in different ways to satisfy the requirements of many different applications. Not all of the hardware described in this chapter can or will be used simultaneously in a single platform.

To help develop a better general understanding of the system, Figure 2-7 depicts an architectural view of an Intuity CONVERSANT VIS V5.0 platform with all optional circuit cards installed. This figure is being used to illustrate the relationships between the internal and external connectivity of the system hardware. As stated before, this figure illustrates each hardware component available for the platform. Because of hardware and feature conflicts, this arrangement is not possible in a real platform configuration.

The generic and optional software running on the platform controls the operation of the equipment. The software associated with some of the hardware components is listed and described in Chapter 3, "Software". The features and feature packages associated with some hardware components shown are described in detail in Chapter 4, "Features", and Chapter 5, "Feature Packages".

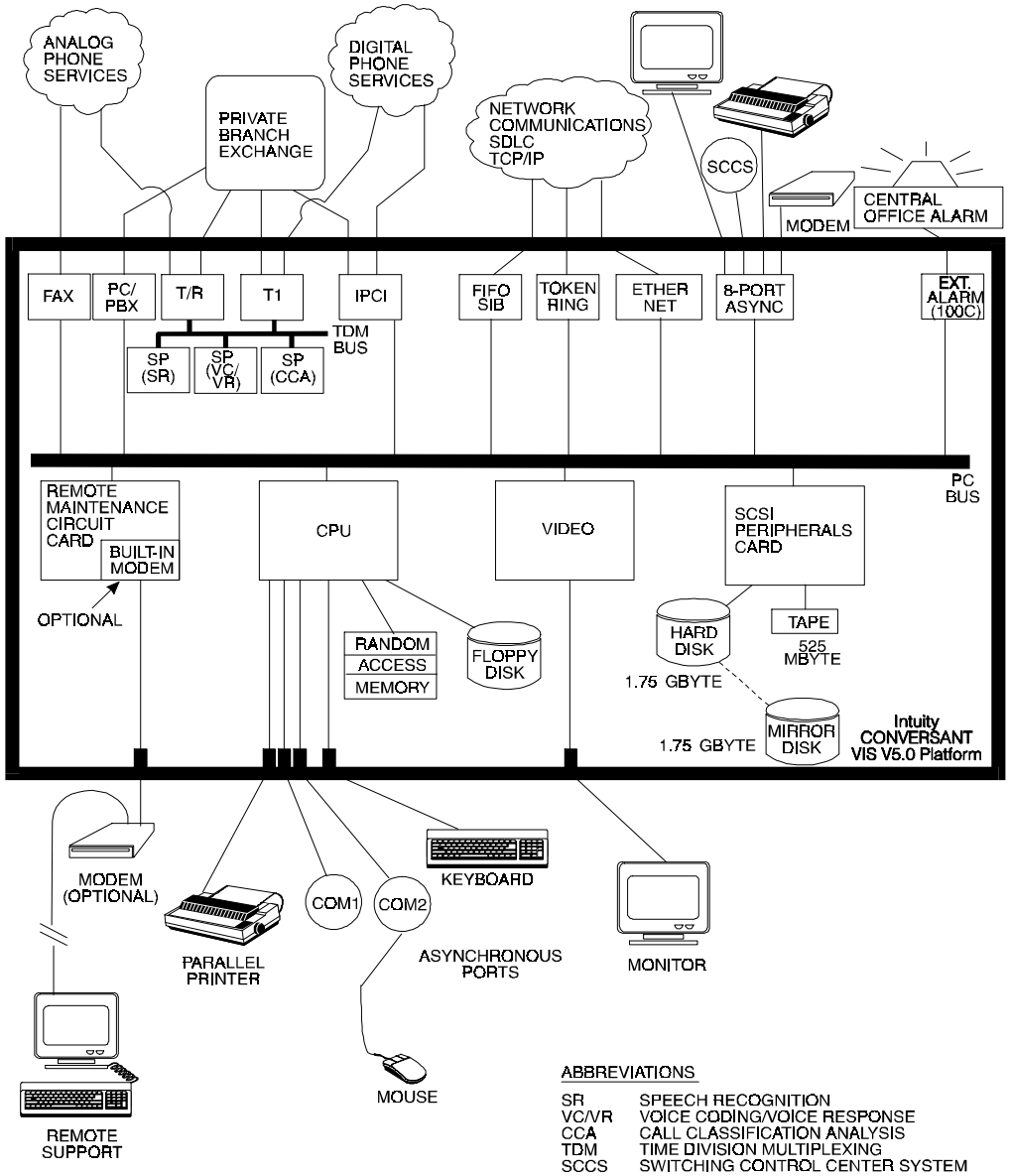


Figure 2-7. Intuity CONVERSANT VIS V5.0 Hardware Architecture

Software

3

The purchase of an Intuity CONVERSANT VIS includes a number of software packages, including UnixWare 1.1 operating system and Intuity CONVERSANT VIS V5.0 base software. In addition, optional Intuity CONVERSANT VIS V5.0 feature packages are available, and are often implemented with some combination of custom software (for example, a speech recognition package or application), speech software, and hardware.

This chapter describes the following Intuity CONVERSANT VIS software:

- UnixWare operating system
- Intuity CONVERSANT VIS V5.0 application
- Intuity CONVERSANT VIS V5.0 optional feature packages

NOTE:
In order to see a list of what software is installed in your system, use the **displaypkg** command.

UnixWare 1.1 Operating System

All of the UnixWare software listed in Table 3-1 is provided standard with the Intuity CONVERSANT VIS V5.0 system. The UnixWare operating system is the software platform upon which all of the Intuity CONVERSANT VIS software (including feature packages and applications) run. Included within UnixWare are additional files including peripheral and networking utilities, software programming packages and electronic documentation. Two packages from VERITAS are provided in conjunction with the operating system. These packages allow the manipulation of the UNIX file system and control of the hard disk drive partitions.

Listing

Table 3-1. Operating System Software

Package Name	Media
UnixWare for Intuity Boot Floppies	3 floppy diskettes
Intuity CONVERSANT VIS V5.0 UnixWare for Intuity	On Tape #1
Software Development Kit and Personal Utilities 1.1	On Tape #1
UnixWare Guides Set 1.1	On Tape #1
VERITAS Volume Manager 1.2.1.1	4 floppy diskettes
VERITAS Advanced File System 1.1	1 floppy diskette

Description

Brief descriptions of each software item listed in Table 3-1 are provided by the following list:

- UnixWare for Intuity Boot Floppies
- UnixWare for Intuity, UnixWare Guides 1.1, and UnixWare Software Development Set and Utilities (on Tape #1)

  These package are smaller, installable packages that provide the base operating system along with key peripheral and user interface utilities. The guides contains a complete set of on-line documentation for UnixWare. The software development set and utilities package are tools that help an application developer create script applications. These files include packaging tools, on-line manuals, command libraries, and demos. The files are shown on the following page:

Table 3-2. UnixWare Packages Listing

Package Name		
Base System	Printer Support	Network Utilities
Enhanced Application Compatibility	Graphics Utilities	Adobe Type Manager (TM)
Desktop Manager	Advanced Commands	Networked Graphics
OA&M	Extended Backup and Restore	Terminfo Utilities
BSD Compatibility*	Applications and Demos	NetWare UNIX Client*

Continued on next page

Table 3-2. UnixWare Packages Listing — *Continued*

Package Name		
Motif Runtime Package	Basic NetWare Server*	European Language Supplement*
User Upgrade	Fingertip Librarian	Command Reference Manual
System Files and Devices Reference Manual	ATM Basic Fonts	Distributed File System Utilities
Remote Procedure Calls	Internet Utilities	Commands Networking Extensions
Internet Reference	UnixWare Supplement	Windowing Korn Shell
Software Packaging Tools	C Optimized Compilation System	Enhanced Debugger
XWIN GWS Development	Desktop Manager Development	MooLIT Development*
Motif Intrinsics Libraries and Includes	Kernel Debugger*	ISV Sample Source Code
IHV Sample Source	Operating System API Reference Manual	Windowing Service API Reference Manual
NetWare C Interface Reference Manual	Motif API Reference	Device Driver Reference
XWIN GWS Fonts	UNIX Software Development Tools	Programming in Standard C
Programming with UNIX System Calls	Network Programming Interface	NetWare Transports
NetWare C Interface Programming	Graphics User Interface Programming	STREAMS Modules and Drivers
Portable Device Interface	Device Driver Programming	XWIN Screen Interface Specification
Motif Programming Guide	Motif Style Guide	Introduction to System Administration
TCP/IP Administration	NFS/RPC/NIS Administration	Software Development Kit Update
Ethernet Hardware Support*	Token Ring Hardware*	CD-ROM File System*

*These packages are not installed as part of your Intuity CONVERSANT VIS V5.0 system.

- VERITAS Volume Manager 1.2.1

  This package provides support for mirroring by keeping identical copies of individual file systems on disks that are participating in mirroring.

- VERITAS File System 1.3

  This package offers the capability of changing filesystem sizes dynamically without disrupting services. This dynamic sizing is very useful for increases and decreasing the database or speech filesystem sizes after the system is initially configured. In previous releases of the product, in order to increase or decrease space, the operating system had to be reinstalled and the disk repartitioned at that time.

Intuity CONVERSANT VIS V5.0 Base Software

The base software acts as a generic software leader for the rest of the system and directs the VIS hardware according to the application software running on the platform. The packages listed in Table 3-3 are standard with a new or upgraded Intuity CONVERSANT VIS purchase. This software is what is shipped if you order PEC 1321-150.

NOTE:
All base software packages are licensed on a per machine basis.

Listing

The Intuity CONVERSANT VIS V5.0 base software includes the packages listed in Table 3-3.

Table 3-3. Intuity CONVERSANT VIS V5.0 Base Software

Package Name	Media	Installation Status
Intuity CONVERSANT VIS V5.0 Application Software	On Tape #2	Mandatory
Intuity CONVERSANT VIS V5.0 Configuration Package	Floppy diskette	Optional
Configuration Data Diskette (Created during factory assembly)	Floppy diskette	Optional
Intuity CONVERSANT VIS V5.0 Feature Test Script Package	Floppy diskette	Optional
Remote Maintenance Board Utilities	Floppy diskette	Mandatory

Continued on next page

Table 3-3. Intuity CONVERSANT VIS V5.0 Base Software — *Continued*

Package Name	Media	Installation Status
Intuity CONVERSANT VIS V5.0 Voice Mail External Actions Package	Floppy diskette	Optional
Intuity CONVERSANT VIS V5.0 IRAPI Client Library	On Tape #2	Mandatory
Intuity CONVERSANT VIS V5.0 Tip/Ring Board Driver	On Tape #2	Optional
Intuity CONVERSANT VIS V5.0 T1 Board Driver	On Tape #2	Optional
Intuity CONVERSANT VIS V5.0 SP Board Driver	On Tape #2	Optional
Intuity CONVERSANT VIS V5.0 Base ORACLE RDBMS 7.0.12	On Tape #2	Mandatory
Intuity CONVERSANT VIS V5.0 Extended ORACLE RDBMS 7.0.12	On Tape #2	Optional

Description

Brief descriptions of each software item listed in Table 3-3 are provided by the following list:

- Application Software

  This is the software package that provides the core of Intuity CONVERSANT VIS functionality. It contains all major Intuity CONVERSANT process, maintenance, and operations-related software utilities and subsystems such as: *tas, tsm, alerter, logger, mtc, administration, ad, cdh, rm, IRAPI, lib, vrop* and *dio.* The IRAPI client library provides the basis for the Intuity Response Application Programming Interface (IRAPI) application development environment by providing a complete set of C-language files that perform specific voice response functions inside of another larger C-language program written to be used as an application script. Installation of this software package is mandatory.

- Configuration Package

  This software package is used to configure the hardware of the Intuity CONVERSANT VIS platform. When run, the package requests information concerning all of the optional hardware (feature related circuit cards) currently in the system. When all hardware items are identified, this software packages will allocate system and CPU resources, such as memory addresses and interrupt request numbers, in the most efficient manner. It also informs the user if hardware items have been selected or installed that are incompatible. Installation of this package is optional.

- Configuration Data Diskette (Created during factory assembly)

  This diskette contains a record of the hardware configuration of the Intuity CONVERSANT VIS platform when it was shipped from the factory. Any custom configuration ordered by the customer will be recorded on this disk. Installation of this package is optional.

- Feature Test Script Package

  This software package provides a library of pre-recorded speech, and short application scripts that allow the Intuity CONVERSANT VIS user to test the system's integrity by performing limited voice response tests. Installation of this package is optional. These tests will utilize most of the key system processes and resources of the Intuity CONVERSANT VIS based upon the feature packages previously loaded on the system. Four basic tests are always offered by the test regardless of the feature packages installed. They are:

  — Call Classification Analysis

  — Playback and Coding

  — Chantst

  — Transfer Test

  Five additional test scripts may be installed from this package if the associated feature packages have been previously installed. These scripts test:

  — Full Call Classification Analysis

  — Text To Speech

  — Whole Word Speech Recognition

- Remote Maintenance Board Utilities

  This software packages provides the driver software and command/utilities package for providing an asynchronous communications link between the VIS and AT&T technical support staff using the Remote Maintenance Circuit Card. Installation of this package is mandatory. (Refer to Appendix A for more information on the RMB.)

- Voice Mail External Actions Package

  This software package provides the instructions necessary to allow an Intuity CONVERSANT VIS Script Builder application to invoke AUDIX Voice Mail services through the use of "external actions" within the Script Builder application script. The AUDIX Voice Power product and its software must be purchased separately. Installation of this package is optional.

- Tip/Ring Board Driver

  This software provides the firmware needed to operate the analog T/R circuit cards installed in the platform. Installation of this software package is optional.

- T1 Board Driver

  This software provides the firmware needed to operate the digital T1 circuit cards installed in the platform. Installation of this software package is optional.

- SP Board Driver

  This software provides the firmware needed to operate the digital Signal Processing circuit cards installed in the platform. Installation of this software package is optional.

- ORACLE Relational Database Management (RDBMS) System 7.0.12

  This is the core software package that allows an Intuity CONVERSANT VIS user to establish and maintain a local ORACLE RDBMS on the Intuity CONVERSANT VIS. Other optional ORACLE software packages are used to enhance or extend the operation of the standard ORACLE database. Installation of this package is mandatory.

- Extended ORACLE RDBMS 7.0.12

  This software is an extension of the base ORACLE RDBMS that provides additional utility packages and enhancements to the base software. Installation of this package is optional.

Intuity CONVERSANT VIS V5.0 Optional Software

Tables 3-6 and 3-7 lists the optional Intuity CONVERSANT VIS V5.0 software packages available for use with the product. Most of the software packages listed here are directly related to an Intuity CONVERSANT VIS feature package. The relationships between feature packages and software packages is discussed in Chapter 4, "Features", and Chapter 5, "Feature Packages".

Listing

The Intuity CONVERSANT VIS V5.0 optional software includes the packages listed in Table 3-3.

Table 3-4. Intuity CONVERSANT VIS V5.0 Optional Software

Package Name	Media
Intuity CONVERSANT VIS V5.0 Software Upgrade Assistance Package	Floppy diskette
Token Ring Hardware Support	Floppy diskette
SMC Ethernet STREAMS Device Driver	Floppy diskette

Continued on next page

Table 3-4. Intuity CONVERSANT VIS V5.0 Optional Software — *Continued*

Package Name	Media
Equinox Megaport/Megaplex STREAMS Device Driver (ISA/EISA)	Floppy diskette
Intuity CONVERSANT VIS V5.0 Script Builder (includes *tas*, *tsm*, *sb*, *external actions*)	Floppy diskette (3)
Intuity CONVERSANT VIS V5.0 Form Filler Plus	Floppy diskette
CLEO LINKix packages linkix_sib, Link Level (3.0.2.1) linkix_coproc, Link Level (3.0.2.1) linkix_tkrn, Link Level (3.0.2.4) linkix_sna_128lu, SNA Level (3.0.2.0) linkix_3270, Feature Level 1 (3.0.2.3) linkix_netman, Feature Level 1 (3.0.2.0) linkix_mgmt, Feature Level 1 (3.0.2.0) linkix_hte, Feature Level 2 (3.0.2.7)	On Tape #3
Intuity CONVERSANT VIS V5.0 Synchronous Host Interface	Floppy diskette (2)
Intuity CONVERSANT VIS V5.0 3270 Enhanced File Transfer	Floppy diskette
Intuity CONVERSANT VIS V5.0 3270 NetView Alarm Interface	Floppy diskette
Intuity CONVERSANT VIS V5.0 Intelligent Ports Card	Floppy diskette
Asynchronous Host Toolkit Version 1.0 ASYNC_TEST Transactions Script Builder Backup ASYNCH_TEST Speech Script Builder Backup	Floppy diskette (3)
ORACLE Development Tools Pro*C 1.5.6.2.1 SQL*Forms 3.0.16.12.3 SQL*Menu 5.0.11.13.3 SQL*ReportWriter 1.1.14.7.2	On Tape #4
Intuity CONVERSANT VIS SQL*NET TCP/IP for ORACLE 7.0.12	Floppy diskette
Intuity CONVERSANT VIS V5.0 Call Classification Analysis	Floppy diskette
Intuity CONVERSANT VIS V5.0 Speech Recognition – US English	Floppy diskette
Intuity CONVERSANT VIS V5.0 Speech Recognition – Canadian French	Floppy diskette
Intuity CONVERSANT VIS V5.0 Speech Recognition – Mexican Spanish	Floppy diskette
Intuity CONVERSANT VIS V5.0 FlexWord Recognition	Floppy diskette (2)
Intuity CONVERSANT VIS V5.0 FlexWord Toolkit	Floppy diskette (2)
Intuity CONVERSANT VIS V5.0 Text To Speech	Floppy diskette (4)
Intuity CONVERSANT VIS V5.0 Graphical Speech Editor	Floppy diskette
Intuity CONVERSANT VIS V5.0 Speech Collection Toolkit (limited distribution)	Floppy diskette (2)

Continued on next page

Table 3-4. Intuity CONVERSANT VIS V5.0 Optional Software — *Continued*

Package Name	Media
Intuity CONVERSANT VIS V5.0 Standard Speech (Female) – US English	Floppy diskette
Intuity CONVERSANT VIS V5.0 Standard Speech (Male) – US English	Floppy diskette
Intuity CONVERSANT VIS V5.0 CompuLert/SCCS Interface	Floppy diskette
Intuity CONVERSANT VIS V5.0 External Alarms (MAP/100C only)	Floppy diskette
CALLVISOR PC ASAI Package	Floppy diskette
CALLVISOR PC ISDN Package	Floppy diskette
Intuity CONVERSANT VIS V5.0 Adjunct/Switch Application Interface	Floppy diskette (2)
Intuity CONVERSANT VIS V5.0 Line Side T1 – DEFINITY	Floppy diskette
Intuity CONVERSANT VIS V5.0 Line Side T1 – Galaxy	Floppy diskette
FAX Attendant R2.5 Switch Integration Software for S75/DEFINITY G1/G3 (for use *without* AUDIX Voice Power)	Floppy diskette (2)
FAX Attendant R2.5 Switch Integration Software for S85/DEFINITY G2 (for use *without* AUDIX Voice Power)	Floppy diskette (2)
FAX Attendant R2.5 (for use *without* AUDIX Voice Power)	Floppy diskette (9)
FAX Attendant R2.5 Switch Integration Software for S25 (for use *with* AUDIX Voice Power)	Floppy diskette (2)
FAX Attendant R2.5 Switch Integration Software for S75/DEFINITY G1/G3 (for use *with* AUDIX Voice Power)	Floppy diskette (3)
FAX Attendant R2.5 (for use *with* AUDIX Voice Power)	Floppy diskette (7)
FAX Attendant R2.5 Script Builder FAX Actions FAX Attendant R2.5 Script Builder FAX Actions – SBFAX_demo FAX Attendant R2.5 Script Builder FAX Actions – SBFAX_demo Backup Transactions	Floppy diskette (4)
AUDIX Voice Power R2.5 – Software	Floppy diskette (3)
AUDIX Voice Power R2.5 – Speech	Floppy diskette (3)
AUDIX Voice Power R2.5 Switch Integration Software for S75/DEFINITY G1 PBX	Floppy diskette (2)
AUDIX Voice Power R2.5 Switch Integration Software for S25 PBX	Floppy diskette

A description of each optional package is located in Chapter 5, "Feature Packages".

Features

4

What's in This Chapter

This chapter presents a detailed description of the features available with the Intuity CONVERSANT VIS V5.0 product.

Intuity CONVERSANT VIS V5.0 Features

Features are basic capabilities of the VIS that can be implemented or invoked with the base system that may or may not require additional optional software and/or hardware.

- Open Interface
- Software and Hardware Upgrade
- User Interfaces
- Application Development
- Voice Response Features
- System Status and Monitoring
- Speech
- Communication
- Data Network
- Database Environment
- SCSI Mirroring

Open Interface

Version 5.0 moves towards providing a more open solution for customers. The term *open* means different things to different people, but in general the expectations include adherence to industry standards and the ability to integrate hardware and software provided by third-party providers.

The benefit to customers is that they can buy hardware and software that is not provided by V5.0 to enhance their applications. With this benefit comes a commensurate responsibility to be aware of and design to the interfaces. The following provides guidelines regarding the specifications for the V5.0 open interfaces.

With the move to more open solutions comes some change in terminology. You may see a difference in the usage of terms such as *channel*, *port*, and *transaction*, as well as new terms such as *telephone network connection*. Consult the Glossary at the end of this book for more information on these terms.

ASAI

ASAI is an AT&T standard interface which provides Computer Telephony Integration (CTI) between a switch and adjunct. In V5 this interface is available in different ways that trade-off complexity versus flexibility to ultimately provide a variety of customer options. The simplest use of ASAI in V5 is via the Intuity CONVERSANT ASAI Feature which provides a set of pre-package applications. These applications are built on top of the ASAI interface and allow the user to adjust certain application parameters within a prepackaged context.

If more detailed use of the ASAI interface is required, AT&T can provide custom development services to meet these needs. SDO/Professional Services will provide the interface for quotes, and schedules, and the development expertise in ASAI and VIS. This provides the optimum solution where full ASAI integration with the VIS application is required.

SCSI

Refer to the section titled, "Open SCSI Architecture" in Chapter 2, "Hardware", of this book for specific information V5.0 SCSI open architecture.

Numerous references on the SCSI interface are available:

- ANSI X3.131. Title: Information Systems – Small Computer System Interface
- BS EN 29316. Title: 1991 Information Processing Systems – Small Computer System Interface (SCSI) (ISO 9316: 1989)
- ISO 9316. Title: Information Processing Systems – Small Computer System Interface (SCSI)
- ISO DIS 9316. Title: Information Processing Systems – Small Computer System Interface (SCSI)

Users of this interface will also want to consult UnixWare System Administration documents that discuss software administration in support of SCSI peripherals.

Finally, users of this open interface must make sure that their MAP platform provides adequate physical space, power supply, cooling, etc. for the SCSI peripherals which are to be added. These specifications vary for each MAP platform. Consult these specifications and also be familiar with the specifications (power demand, heat dissipation, etc.) for the SCSI devices they wish to add. Refer to Chapter 6 of this book for more information on platform specifications.

UnixWare

In moving to UnixWare 1.1 in V5.0, the underlying operating system is more standardized. Customers and developers may now more easily tailor and enhance their total system via the interfaces UnixWare provides. Increased standardization ultimately increase the ability to use and control the product.

At the highest level, UnixWare allows customizing via its system administration capabilities, its shell interfaces, its programming development environments, and its networking interfaces. NOVELL's UnixWare documentation is the starting point for definition of these interfaces, and there is also supplement information available throughout the industry.

A recent book jointly published by Sybex and NOVELL (*Novell's Guide To UnixWare 1.1, Chris Negus & Larry Schumer*, ISBN 0-7821-1292-7) also provides a wealth of information regarding UnixWare's open interfaces. The following are actual specifications that define the interfaces provided by UnixWare 1.1:

- IEEE P1003.1-1988 POSIX (Portable Operating Systems Interface for Unix) System V Interface Definition: (various publishers)
- ANSI X3J11 C Language Specifications
- Intel Application Binary Interface Specification (maintained by NOVELL, adherence to this specification ensures that compiled applications are compatible with UnixWare on Intel platforms)

IRAPI

Refer to the section, "Application Development", found later in this chapter.

ORACLE

Refer to the section, "Database Environment", found later in this chapter.

HLLAPI

HLLAPI is an IBM standard interface that allows the user to write a program to communicate with a host computer using the 3270 data stream protocol. The Script Builder Send and Get Screen Actions are implemented with the HLLAPI interface, and provide most voice system users with a convenient high level interface to their host computer. A full HLLAPI library, provided by CLEO Communications, is also available for customers who wish to create their own custom DIPs. Development of a custom DIP requires CONVERSANT expertise, as well as detailed knowledge of the Host application. Detailed information on the HLLAPI interface can be found in *HLLAPI Programmer's Guide*, 585-310-912, provided with the V5.0 host interface offer.

Software and Hardware Upgrades

V5.0 builds on the foundation started in V4.0 to simplify system upgrades and make them less time consuming.

Software Upgrade Assistance Package

This feature assists in the task of upgrades to the Intuity CONVERSANT VIS V5.0 platform. The software generic upgrades supported by this package include V3.0, V3.0.1, V3.1, and V4.0. The upgrade assistance package works in four phases:

- Phase 1 —
    1. Performs a system backup, for disaster recovery of your source system, at user's discretion.
    2. Asks questions to obtain information required to perform setup and other operations.
    3. Gets the system configuration and parameter data required to determine [re]installation configuration and stores this information so it is available.

4. Saves customer and other source system data, such as: an identified set of user files; database information; applications (including speech); configurations/parameter data. All speech stored on the source system is preserved *except* pre-recorded speech associated with installable CONVERSANT software programs; this speech is replaced when the V5.0 package is installed. See Appendix B, "Application Examples", for a list of files and directories preserved.

   NOTE:
   For upgrades to V5.0, no packages are actually removed, since all upgrades involve at least an operating system change that overwrites the existing contents of the disk

5. Creates an installable package to be installed on the target system that includes all control and data files needed to complete the assisted upgrade procedure.
6. *MANUAL STEPS* — Perform required hardware upgrades and/or install CPU or tape drive firmware updates, repartition disk, install operating software (including network software, if applicable).

- Phase 2 —

7. Assists in installing the replacement of all VIS packages (and backed up ORACLE database tables) that were installed on the source system, taking into consideration order dependencies. In this phase, the program helps to install packages up to the first package that requires the kernel to be rebuilt.
8. Rebuilds operating system kernel; reboots system.

- Phase 3 —

9. Installs the remainder of the packages to replace source system functionality.

- Phase 4 —

10. Restores customer data, such as: preserved user files, speech, applications, configuration/parameters.
11. Performs upgrade conversion operations: converts Script Builder applications and attempts to verify and install them, and reports any native language application script incompatibilities.

CAUTION:
A word of caution to customers upgrading to V5.0 with packaged applications. Your packaged applications must also be upgraded to be supported by the new UnixWare operating system. Please refer to Intuity CONVERSANT VIS V5.0 Upgrade, 585-310-152, for specific information.

Hardware Upgrades

Several previously supported configurations are discontinued in V5.0. Hardware upgrades are intended to make the migration from older, obsolete hardware to newer hardware as easy as possible. Among the hardware that must be upgraded is:

Table 4-1. Hardware Upgrades

If you have:	Then you must:
386 CPU	Upgrade to a 486 CPU with BIOS version 2.1c and 32 Mbyte
486 CPU with BIOS earlier than version 2.1c and/or 16 Mbyte of memory	■ Update the BIOS to version 2.1c ■ Add 16 Mbyte of memory to equal at least 32 Mbyte
ESDI components, including hard disk drives, cartridge tape drives, and controller cards	Upgrade to SCSI components
IDE components, including hard disk drives, cartridge tape drives, and controller cards	Upgrade to SCSI components
Wangtek SCSI tape drive(s) with firmware KS23569	Update the firmware on the tape drive(s) to 5525ES REV7
SCSI hard disk drive with disk usage greater than 80%	Upgrade to larger SCSI hard disk drive or plan to add an additional hard disk drive
Dual/multiple SCSI hard disk drive	Low-level format all non-boot SCSI hard disk drive(s)
WDXLR83160 Video controller card	Remove jumper block from JP3
WDXLR831124 Video controller card	Remove jumper block from JP5
T1 cards in your system and you plan to add a Token Ring card	You must reset the base I/O address switch settings on your T1 card(s)
planned to have more than 8 Tip/Ring cards in your target V5.0 system and your power supply was manufactured prior to March 1, 1993	Upgrade your power supply
2 PC/XL host communication cards for dual host connectivity	Replace both cards with FIFO/SIB cards
2 PC/XL host communication cards for support of more than 32 LUs to the same host	■ You may reuse 1 PC/XL card* (save the one you remove for a spare) OR remove both PC/XL cards and replace with 1 FIFO/SIB card

Table 4-1. Hardware Upgrades — *Continued*

If you have:	Then you must:
	Continued on next page
PC/XL host communication card prior to Revision D (look for *assembly Revision D* hand-written on the back side of the card near the RS232 connector)	■ Replace with a PC/XL Revision D (or later) OR ■ Replace with a FIFO/SIB card
EMULEX host communication card	Replace with a FIFO/SIB card
AYC3 T1 card	Replace with a AYC3B or AYC11 T1 card
AYC2 SP card	Replace with a AYC2B or AYC2C SP card
AYC6 IVP4 card	Install the TDM Upgrade for each IVP4 card, if it is not already installed
AYC16 IVP6IU T/R card†	Replace with AYC28 IVP6 T/R card
AYC26 IVP6IA T/R card†	Replace with AYC28 IVP6 T/R card
AYC1 VRS6 T/R card	Replace with AYC28 IVP6 T/R card
Ethernet and StarLAN cards	Replace with EtherCard interface card

*A single PC/XL (must be Revision D or later) can support up to 128LUs in Version 5.0.

†These cards are not supported in a domestic market.

For specific information about these hardware upgrades, refer to *Intuity CONVERSANT VIS V5.0 Upgrade*, 585-310-152.

Hardware Upgrade Kits

This feature provides hardware kits which allow existing customers to upgrade their systems to newer hardware technology, including Small Computer System Interface (SCSI) magnetic peripherals and 486 central processing units (CPUs).

The Hardware Upgrade Kits allow resource and feature improvements on an embedded MAP base hardware platform.

There are three different Hardware Upgrades to choose from, depending on the platform that is being updated:

- MAP/100(C) 486 CPU Upgrade Kit — allows any MAP/100(C) platform with a 386 CPU and SCSI peripherals to be upgraded to a 50 MHz 486DX CPU, with 16-Mbytes of memory.

- MAP/100(C) SCSI Peripherals Upgrade Kit — allows any MAP/100(C) platform with ESDI peripherals to be upgraded to SCSI peripherals.
- MAP/40 Upgrade Kits — allows any MAP/40 platform with a 386 CPU and IDE peripherals to be upgraded to a 486, 50-MHz CPU and SCSI peripherals. Another version of this kit allows a MAP/40 using a 486SX 25-MHz CPU to be upgraded to a 486DX 50-MHz processor.

Refer to *Intuity CONVERSANT VIS V5.0 Upgrade*, 385-310-152, for more information.

User Interfaces

This section discusses the various ways that a user can interface with their Intuity CONVERSANT VIS V5.0 system.

NOTE:
Not all user interfaces are available for all software package.

Graphical User Interface

Graphical user interface or GUI provides access to applications running on the VIS through the use of icons and windows. Systems equipped with a mouse (through open interfaces) provide system administration functions from the Desktop GUI. Intuity CONVERANT VIS V5.0 has three packages that are GUI.

- UnixWare 1.1 (mouse may be used through open interfaces)
- Graphical Speech Editor (mouse is standard)
- FlexWord Toolkit (mouse is standard)

UnixWare

An Intuity CONVERSANT VIS system installed with UnixWare 1.1 is fully capable of providing a variety of GUI environments within which to work. All systems are loaded with UnixWare graphics capabilities necessary to support the built-in UnixWare Desktop GUI, or the native X-windows and Motif GUI. On-line documentation is provided through the UnixWare Fingertip Librarian that explains how to make use of these different GUI interfaces.

As explained in Chapter 2, "Hardware", the use of a mouse with UnixWare is up to the customer to configure and install. See the section on the mouse in Chapter 2 for more information.

Graphical Speech Editor and FlexWord Toolkit

These packages take advantage of the more advanced GUI capabilities such as X-windows and Motif GUI.

Command Line

The command line user interface is initiated from the system's UnixWare prompt. Though most operations can be accomplished through the **cvis_menu** screens, the option of invoking certain operations from the command line is there for users. CONVERSANT commands that are valid and supported for V5.0 are documented in *Intuity CONVERSANT VIS V5.0 Command Reference*, 585-310-230.

Screens

The screen user interface is invoked by first using a command, **cvis_menu**, or **sysadm**, to take the user into a series of menus and screens from which they can perform various system operations, such as adding users, running reports, etc. This interface is provided also for system administrators who do not have access to or choose not to use a mouse.

Application Development

As discussed in the overview chapter of this book, the automated transactions are known as *applications*. Each application is designed and developed to meet a specific customer's need. An application *script* is a set of instructions written for the VIS that informs it how to carry out the automated transaction. Scripts define the flow of the call and determine what the caller hears and how the caller responds to the system.

In V5.0, there are three mechanisms for developing applications:

- Script Builder
- Native Script
- Intuity Response Application Programming Interface (IRAPI)

Script Builder

Script Builder is designed to assist in the development of custom voice response applications on the VIS. It is a menu-driven, screen-oriented tool that can be used by a broad range of customers. It is targeted toward designers familiar with the specific application, who also have a knowledge of logical programming concepts. Specifically the designer should be familiar with high-level programming languages such as BASIC, COBOL, and applications such as dBASE, and LOTUS 1-2-3. Although not required, it is helpful to have some basic knowledge of the C programming language and the UnixWare operating system. A basic knowledge of telephony is also beneficial when working with the VIS and Script Builder.

Native Script

Native script is an assembly language-type instruction. Running within the generic TSM software are a sequence of library function calls that manage the low level interactions required to operate the system. At any time, a script can be assembled (using TAS), loaded, changed, or replaced without affecting the other scripts running on TSM or other IRAPI programs running the system. For more information, refer to *Intuity CONVERANT VIS V5.0 Application Development,* 585-310-227.

Intuity Response API

Sophisticated developers have requested a C language to develop VIS applications that can be directly integrated with the other features of the UnixWare system. IRAPI is a C language API that offers users the capabilities offered by the VIS script language — ability to play and code phrases, collect touch tone digits, answer incoming calls, generate outgoing calls, etc. — from a C language program.

In addition, IRAPI *within the VIS* reduces the role and structure of TSM. The reduced TSM has been completely recoded in terms of the IRAPI, and compatibility with Script Builder and older scripts is maintained. The Resource Manager (RM) manages the resources and the Application Dispatch (AD) process controls the dispatching of application with some help from the IRAPI library.

IRAPI is delivered with every Intuity CONVERSANT VIS V5.0 system as a C library. Users write C programs, compile them using the standard C compiler, and link these objects against the IRAPI library to create scheduled UnixWare processes. Applications written using the IRAPI coreside with script applications. IRAPI applications can execute a TSM script language program or Script Builder application, but Script Builder application and script language applications cannot execute IRAPI applications. Application can communicate (that is, send messages).

For more information, refer to *Intuity CONVERANT VIS V5.0 IRAPI Programming Guide*, 585-310-226.

Voice Response Features

The Intuity CONVERSANT system is capable of many voice response functions without the installation of additional software. Although most of these functions can be accomplished through a script instruction in the script language, use the Script Builder package to simplify writing the script.

The following sections discuss the most common functions used in a voice response application.

In the following sections, refer to *Intuity CONVERSANT VIS V5.0 Application Development*, 585-310-227, for more information on script instructions. Refer to *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727, for more information on Script Builder action steps.

Announce

Some terminology may refer to Announce as *Whisper*. When the system speaks to the caller it is accomplished by using the Announce step in Script Builder. One to 15 phrases, values, and/or line of text (from Text To Speech) may be played in succession in a single Announce action step.

Answer

Answer the line, or take the line off-hook, is accomplished through a script instruction called **tic('a')** or by using the Answer Phone action step in Script Builder.

Background

Background connects a caller to background music or speech that has been pre-recorded and installed on the system. Background music or speech is accomplished by using the Background action step in Script Builder.

Call Transfers

Transfer is used to transfer the caller to another telephone number, referred to here as a third party. Two types of transfers are available: blind and intelligent. Both types may be used during a single call. Both types of transfer allow the application to transfer the caller to a third party, using the transfer and or 3-way calling feature of the PBX.

Because Transfer utilizes the transfer capability of the PBX or central office, you are limited to transferring to telephone numbers within the capability of the PBX or central office. Consequently, some PBX and central offices are limited in the number to which they can transfer.

Transfer capabilities are not provided with voice channels that are serviced by trunks (such as PRI B or T1 channels). The Line Side T1 feature does allow customers with T1 lines to accomplish Blind Transfers only.

Transfers are accomplished by using the **tic** script instructions (with several different options) or the Transfer Call action step in Script Builder.

Blind Transfer

In a Blind Transfer, the application dials the third party number to start the transfer and then relinquishes all call handling responsibilities. In other words, in a blind transfer, the transfer call is placed and then the caller is released. The caller is left to deal with a busy signal, no answer, or whatever the condition may be. The call is completed as soon as the third party number is dialed without waiting to see the outcome.

Intelligent Transfer

In an Intelligent Transfer, the application dials the third party number to start the transfer and then waits to see what the outcome of the call to third party. In other words, in an intelligent transfer, the transfer call is placed and then the VIS classifies the call. The capabilities provided by intelligent call classification analysis are standard with each VIS purchase, and provide a rudimentary voice-energy detector for identifying answered calls.

Intelligent call classification on T/R cards recognizes the following call progress tones:

- Busy
- Fast busy (reorder)
- Audible ring
- Dial tone
- Stutter dial tone

Intelligent call classification analysis on T1 or PRI digital lines provides answer and disconnect supervision only. LST1 digital lines provide disconnect supervision. The caller can then be returned to the voice response application, instead of being dropped, as in blind transfers.

For PBX and central offices that allow outside transfers, the network tones received may vary and may not be recognized correctly by the intelligent transfer feature, resulting in some network tones being recognized as an answer and the caller being dropped from the VIS. Intercept tones used by AT&T PBXs for invalid extensions has been added in V5.0.

If the detection of call progress tones with T1, LST1 or PRI lines is desired, the optional Full CCA feature package is needed.

Call Bridging

Call Bridge allows an application to place an outbound call to a third party and maintain the connection while the caller interacts with the third party. When the third party hangs up, the script continues with the next action step. The Call Bridge feature is used most often when Call Transfer is not available on the PBX or central office.

This connection to a third party is accomplished through the **hbridge** script instruction or the Call_Bridge action step in Script Builder.

Disconnect

Disconnect or hang-up, disconnects the system from the caller and is accomplished through the **tic('h')** script instruction or the Disconnect action step in Script Builder.

NOTE:
Disconnecting the call does not stop the execution of the application script. An application terminates execution when it reaches a Quit instruction.

Originate

An application may be set up to place or originate calls. An example of when this may be done is for a company to call all their customers stored in a database to have the VIS perform a survey.

Originate is accomplished by using the **tic('O')** and **tic('o')** script instructions or the Make Call action step in Script Builder.

Converse Vector Step

Converse Vector Step (CVS) is used in some AT&T PBXs to maintain control of a call while capabilities of Intuity CONVERSANT are being used. Intuity CONVERSANT VIS V5.0 provides a Script Builder external action called *converse_data* that supports the DEFINITY Converse Vector Step capability on both T/R and Line Side T1 lines. For detailed information on this feature, refer to *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727.

System Status and Monitoring

The Intuity CONVERSANT VIS is set up with several mechanisms to help customers determine, troubleshoot, and correct problems with the system. This section highlights some of those mechanisms that monitor and troubleshoot the system.

In the following sections, refer to *Intuity CONVERSANT VIS V5.0 Operations*, 585-310-550, for more information on any menus and screens. Refer to *Intuity CONVERSANT VIS V5.0 Command Reference*, 585-310-230, for more information on commands.

Diagnostics

The diagnose procedure is used to perform diagnostics on Tip/Ring, T1, or SP circuit cards or the TDM bus. To fully diagnose the system hardware, diagnose all the cards and the bus.

Diagnose is accomplished through the Configuration Management menu or the **diagnose card** and **diagnose bus** commands.

System Monitor

System Monitor is used to verify that each incoming telephone line and its associated Tip/Ring or T1 circuit card is functioning properly. Through the System Monitor menus, you may display the Voice Channel and Host Session Monitors.

System Monitor is accomplished through the System Monitor menus or the **sysmon** command.

Trace

Tracing capabilities allow you to trace the actions of a specified process or channel. Trace messages are stored to a trace buffer for future viewing. The trace capability is one way to view how a call is being handled and therefore is a useful tool when troubleshooting problems in an application.

Trace is accomplished through the Command Menu Trace Service menu or the **trace** command as documented in *Intuity CONVERSANT VIS V5.0 Command Reference*, 585-310-230.

Local System Status and Alerting

The Intuity CONVERANT VIS uses system messages to alert you to problems, potential problems, or a change in the status of the system. These message are collected in the Message Log Report, and can be displayed to screen using the Message Log Report screen. Through the use of this Message Log Report, the system messages, and the *Intuity CONVERSANT VIS V5.0 Maintenance*, 585-310-153, book, a customer or technician can detect, report, and fix problems as quickly as possible to minimize disruption to normal service.

For more detailed information system messages, repair procedures, and running the Message Log Report, refer to *Intuity CONVERSANT VIS V5.0 Maintenance*, 585-310-153.

Remote Maintenance Board

This feature is a circuit card included as standard equipment with all V5.0 hardware orders, and is also bundled with the 486 hardware upgrade kit feature. The Remote Maintenance board provides a built-in modem. With this standard feature installed in a platform, a technician or remote system administrator is able to log into the system through the Remote Maintenance board over analog T/R lines to observe or administer the platform.

Reports

Reports offer you the ability to create a compiled list of system statistics. This information may include the number of calls made to the system, transfer attempts, or call information for a specific day. The Reports Administration screen gives you access to system reports, including VIS call classification reports, call data detail reports, call data summary reports, message log reports, and traffic reports. The VIS enables you to tailor each report to your needs and specifications.

Table 4-2 illustrates the capacity information regarding system reports:

Table 4-2. Report Capacities

Item	Max. Number	Notes
Days of Call Data Detail Report storage	7	Current day plus previous 7 days are stored; data is then summarized
Days of Call Classification Report storage	365	

Continued on next page

Table 4-2. Report Capacities

Item	Max. Number	Notes
Days of Call Data Summary Report storage	7	Can be modified for 0–7 days
Days of Traffic Summary Report storage	7	
Number of Event Log Messages storage	500–20K (compressed)	

Speech

Speech is stored on the Intuity CONVERSANT system in talkfiles (speech files). The speech played during a call is the system's main interaction with the caller, and is therefore an important part of any application.

Speech Development

There are several methods for developing speech:

- Record a professional speaker
- Use Script Builder to produce self-recorded customer speech (optional feature package)
- Purchase the Standard Speech package from AT&T (optional feature package)
- Purchase a custom speech package from A&T (optional feature package)
- Use Text To Speech (optional feature package)
- Use Graphical Speech Editor (optional feature package)
- Share speech already recorded for another application
- Import speech from another application

Coding and Storage

Once speech is recorded, it must be encoded and digitized into an acceptable format. You can digitize speech by using:

- Graphical Speech Editor (optional feature)
- Script Builder (optional feature)
- AT&T for custom speech packages

Digitized speech phrases are stored as digital data. The VIS then assigns a phrase number and stores the phrases in talkfiles. There are certain talkfile numbers that are reserved for various optional features. For example, talkfiles 8 and 9 are associated with the Form Filler Plus application.

Talkfiles, by default, are stored in a very specific place on the system; in **/home2/vfs/talkfiles**, or for MAP/100(C) systems that have more than 72 telephone network connections and have a second hard disk drive for speech storage, in **/home3/vfs/talkfiles**.

It is possible to store talkfiles in other locations on the system, as long as you tell the system where to find the speech. You do this by modifying the **/vs/data/irAPI.rc** file. For more information on developing speech, talkfiles and their location, refer to *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228.

Speech Play and Coding Capacities

The number of telephone network connections that support simultaneous use of either speech playback or voice coding are listed in Table 4-3. The default coding method used for recording speech on the VIS is adaptive differential pulse code modulation (ADPCM) using a sampling rate of 32 Kbps.

The maximum capacities are the same for all platforms (MAP/100C, MAP/100, and MAP/40). The constraints occur at the card level, not at the system level.

The capacities are listed by speech coding method per card. For example, one AYC2C SP card can support a maximum of 29 transactions of speech playback simultaneously (assuming the speech was recorded at 32 Kbps ADPCM). This means no more transactions could be supported if applications are active with other operations while some telephone network connections are strictly in the playback mode. This also says that if two AYC2C SP cards are present, there is enough capacity on the system to support 48 transactions of simultaneous speech playback or coding for ADPCM coded speech. Both SP and T/R cards are shown in Table 4-3.

NOTE:
The IVP circuit card values shown in the table represent the cards being set to *talk* rather than *tdm*. If an IVP circuit card is set to *tdm*, the value shown for the SP circuit cards apply.

Table 4-3. Speech Channel Capacities

Card	PCM 64 Kbps	ADPCM 16/32 Kbps	SBC 16/24 Kbps
T/R IVP6	6	6/6	6/6
T/R IVP4	4	4/4	4/4
SP AYC2C	48	48/30	12/12
SP AYC9	48	48/48	20/20
SP AYC2B	30	30/20	8/8

Speech Storage Capacities

Table 4-4 illustrates the speech storage capacities. The descriptions of the columns shown in the table are as follows:

- Disk setup — Lists each possible hard disk configuration available for Version 4.0
- Speech blocks — Total amount of space available. One speech block holds 4 seconds of speech and uses 8 Kbytes.
- 16-Kbyte ADPCM/SBC — Hours of speech available for the given disk configurations using speech encoded at a rate of 16 Kbps. The speech-encoding method used can be either the ADPCM of sub band coding (SBC).
- 24-Kbit SBC — Hours of speech available for the given disk configuration using speech encoded at a rate of 24 Kbps. The speech-encoding method is SBC.
- 32-Kbit ADPCM — Hours of speech available for the given disk configuration using speech encoded at a rate of 32 Kbps. This speech-encoding method and rate is the default used when encoding speech on the VIS.
- 64-Kbit PCM — Hours of speech available for the given disk configuration using speech encoded at a rate of 64 Kbps. The speech-encoding method is pulse code modulation (PCM).

The numbers shown are theoretical maximums not likely to be achieved because there is wasted space whenever a speech phrase does not fill a block. For example, standard speech is stored at 32-Kbyte ADPCM. One block of speech hold 4 seconds of speech. If a phrase is less than 4 seconds, the remaining space within that speech block is not available for other use.

Table 4-4. Hours of Storage Speech Available According to Disk Configuration

Disk Configuration	Speech Blocks	16 Kbit ADPCM/SBC	24 Kbit SBC	32 Kbit ADPCM	64 Kbit PCM
1.2 Gbyte SCSI	20,487	23.8 hrs.	15.8 hrs.	11.9 hrs.	6.0 hrs.
*Dual 1.2 Gbyte SCSI	72,307	80.4 hrs.	54.5 hrs.	40.2 hrs.	20.1 hrs.
1.7 Gbyte SCSI	32,019	35.6 hrs.	23.7 hrs.	17.8 hrs.	8.9 hrs.
*Dual 1.7 Gbyte SCSI	107,776	119.8 hrs.	79.7 hrs.	59.9 hrs.	30.0 hrs.

*This configuration is supported only in MAP/100(C) with more than 72 telephone network connections. The second disk is dedicated to speech storage.

Speech Administration Capacities

Table 4-5 illustrates the capacities associated with recording speech from the speech administration screens.

Table 4-5. Speech Administration Capacities

Item	Max. Number	Notes
Phrase length when recorded in Script Builder	240 sec.	Playing phrases consecutively eliminates the constraint
Phrase tag length	50 characters	

Communications

The Intuity CONVERSANT VIS connects to the public switch telephone network (PSTN) to communicate with external callers, and in some VIS applications, private data networks in order to access host computer databases for information to complete certain types of calls.

The interface to PSTN uses either an analog connection or a digital connection. These transmissions, either analog or digital, are methods of sending information to callers.

The VIS supports two different forms of private data network interfaces; asynchronous and synchronous. These interfaces provide connections from the VIS to other computing devices such as remote monitoring systems or host computer databases.

Telephony Interfaces

This section discusses in general terms the analog and digital interface configurations on a V5.0 system.

Analog Interface

The section describes the basic analog telephony interfaces available when the right combination of base and optional features are used. Analog interfaces are accomplished through the Tip/Ring and FAX circuit cards.

In an analog configuration, the VIS provides connectivity to PBX and automatic call distribution (ACD) premise equipment. It also supports interfaces to Centrex services (domestic local exchange carriers).

Specific supported analog connections include:

- Connection to 5ESS
- Connection to AT&T PBXs
  - — DEFINITY G1/G3
  - — DEFINITY G2
  - — Dimension
  - — Merlin Legend

    NOTE:
    Merlin Legend support is available for the basic V5.0 voice system, but is *not* available as a support switch for use with coresident applications like AUDIX Voice Power and FAX Attendant.

  - — System 25
  - — System 75
  - — System 85
- Connections to other switch facilities that match 5.0 analog requirements

For more information on analog interfaces relative to your system design, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

For more information on analog connection switch settings, refer to Chapter 6, “Switch Interface Administration,” in *Intuity CONVERANT VIS V5.0 Operations*, 585-310-550.

Digital Interface

The section describes the basic digital telephony interfaces available when the right combination of base and optional features are used. Digital interfaces are accomplished through the T1 circuit cards. Supported protocols are T1 E&M, Line Side T1 (LST1), and Primary Rate Interface (PRI).

In a digital configuration, the VIS provides connectivity through a T1 circuit to digital network facilities such as a central office switch. T1 connections also provide dialed number identification service (DNIS) information for automation of incoming calls for customers with multiple 800 or 900 numbers. In order to have DNIS with Line Side T1, you must use Adjunct/Switch Application Interface (ASAI) or Converse Vector Step.

Digital T1 interfaces also support line side connection of a VIS and a PBX. ASAI is operable when using LST1. ASAI is supported on Line Side T1 when using only DEFINITY switches.

For more information on digital interfaces, including T1, Line Side T1, PRI, and ASAI, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

For more information on digital connection switch settings, refer to Chapter 6, “Switch Interface Administration,” in *Intuity CONVERANT VIS V5.0 Operations*, 585-310-550.

Data Network

Intuity CONVERSANT VIS V5.0 provides, through base and optional software and hardware, support for several data network communication interfaces, including:

- SNA 3270 (described in Chapter 5, "Feature Packages" of this book in the section titled, "Host Interface")
- TCP/IP (described in Chapter 5 of this book in the section titled, "Local Area Network Connectivity")
- SQL*NET (described in the following section, "Database Environment")
- Asynchronous (described in Chapter 5 of this book in the section titled, "Multi-Port Asynchronous Communications Interface")

Database Environment

V5.0 works with software provided by ORACLE to provide database features and functionality.

ORACLE Relational Database Management System 7.0.12

Although ORACLE RDBMS 7.0.12 (ORACLE 7) provides some new or enhanced features compared to earlier releases of ORACLE, database functionality has not changed in V5.0.

The ORACLE RDBMS is the core software package that allows an Intuity CONVERSANT VIS user to establish and maintain a local ORACLE RDBMS on the Intuity CONVERSANT VIS. Installation of this package is mandatory.

Extended ORACLE RDBMS is an extension of base ORACLE that provides additional utility packages and enhancements to the base software. Installation of this package is mandatory.

Optional ORACLE software packages are used to enhance or extend the operation of the standard ORACLE database; available in V5.0 is the Intuity CONVERSANT VIS V5.0 SQL*NET TCP/IP 1.2.7. The SQL*NET TCP/IP software is required if connection to a remote ORACLE database machine is desired.

The optional development software (or add-on package) is available for customers who want to develop more sophisticated database applications to go beyond the database interfaces provided in the base and extended ORACLE software. Namely, this software includes the following development ORACLE packages:

- Pro*C 1.5.6.2.1.
- SQL*Forms 3.0.16.12.3.
- SQL*Menu 5.0.11.13.3.
- SQL*ReportWriter 1.1.14

Customers can purchase any other ORACLE software, from either the ORACLE Corporation or the third-party vendors, to install on the V5.0 machine.

Refer to *ORACLE7 for Intel UNIX SVR4 (iABI) Installation & Configuration Guide* or vendor-provided installation documents for the specific requirements and installation procedures. ORACLE maintains a list of ORACLE development partners (third party vendors); contact ORACLE directly for more information, (800) 542-1170.

Database Capacities

Table 4-6 illustrates the database capacities used within a Script Builder application script.

Table 4-6. Database Capacities

Item	Max. Number	Notes
Local database (LDB) table name	11 characters	
Length of LDB filed names	24 characters	
LDB field size – char	50 characters	
LDB field size – num	11 digits	
LDB field size – date	10 characters	Fixed size
LDB field size – time	11 characters	Fixed size
Number of open cursors on the system	255, default size	This can be tuned higher. Refer to Appendix B of *Intuity CONVERSANT VIS V5.0 Operations*, 585-310-550, for more detail on tuning the open cursor number.
Different database tables accessed per application	10	Includes both local and remote tables

Continued on next page

Fields specified in one LDB table with Script Builder	15	Includes both local and remote tables
Number of remote databases accessed per system	4	Up to five database interfaces supported; one is dedicated to local database (requires SQL*NET).
Overall database size		Free space restricted only by amount of space available in all filesystems

SCSI Disk Mirroring

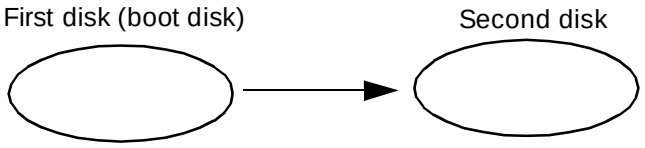
This feature provides a method of configuring and managing a system so that a SCSI hard disk drive on the platform has an identical backup copy of its stored data kept on another hard disk drive; a *mirrored* disk. Mirroring improves system reliability by ensuring that operations and resources are not lost if a hard disk drive fails.

This feature is supported by all platforms and requires that the VERITAS Volume Manager and VERITAS File System Administration packages be installed and fully operational. (VERITAS also provides the ability to grow or shrink all filesystems except **root**). In addition, the hardware platform must have at least two SCSI hard disk drives.

The trend towards larger disks means that loss of a disk in a non-mirrored system is extremely costly from an operational standpoint. Mirroring minimizes the impact of losing a disk drive, and provides a more efficient method of replacing the information that is lost because of such a failure.

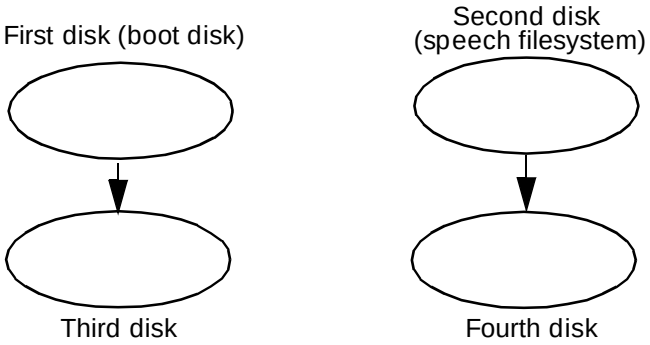
V5.0 allows mirroring configurations for the following:

- Two SCSI disks — The first disk (boot disk) is mirrored to the second disk



- Four SCSI disks for systems with more than 72 telephone network connections with the second disk is used for the speech filesystem — Two additional SCSI disks are supported for mirroring the first two disks:

  The first disk is mirrored to the third disk; the second disk is mirrored to the fourth disk.



For more information on mirroring, refer to Appendix C, “Disk Operations,” in *Intuity CONVERSANT VIS V5.0 Operations*, 585-310-550.

Feature Packages

5

What's in This Chapter

This chapter presents a detailed description of the feature packages available with the Intuity CONVERSANT VIS Version 5.0.

As a general rule, the packages described in this chapter are installed *in addition to* the Intuity CONVERSANT VIS V5.0 Application Software.

When reading this chapter, the sections titled "Software and Hardware Requirements" assume that the base application software and platform-required hardware (such as CPU) are already installed.

Intuity CONVERSANT VIS V5.0 Feature Packages

Feature packages are those optional software packages that are not required for the basic VIS to function, and conversely are not supplied with the base system. These packages are purchased separately and in many cases, require both software and hardware for the feature package to be fully operable.

- Asynchronous Host Interface Toolkit
- Adjunct/Switch Application Interface
- AUDIX Voice Power Coresidency
- Call Classification Analysis
- CompuLert/SCCS Interface
- Enhanced File Transfer
- External Alarms
- FAX Attendant Coresidency
- FlexWord Toolkit
- Form Filler Plus
- Graphical Speech Editor
- Host Interface
- Line Side T1
- LINKix Host Interface
- Local Area Network (LAN) Connectivity
- Multi-port Asynchronous Communications Interface
- NetView Alarm Interface
- Primary Rate Interface
- Script Builder
- Speech Collection Toolkit
- Speech Production Kit
- Speech Recognition
  - — WholeWord
  - — FlexWord
- Text-to-Speech

Asynchronous Host Interface Toolkit

This feature package provides a toolkit of operational software, source code, user level documentation and design level documentation for the development of VIS applications that access host computers using an asynchronous TTY interface to send and retrieve data. The asynchronous host interface toolkit software provides the following functionality:

- Sends messages of application specified content to the remote host
- Supplies host response data to the application
- Accepts unsolicited messages from the host and makes them available for application processing
- Provides these services simultaneously to independent hosts on multiple asynchronous lines.
- Multiplexes messages from multiple channels onto the asynchronous lines
- Handles multiple asynchronous messages per second on a 9.6 Kbps link and still perform normal transaction processing functions on a fully loaded system.

Software and Hardware Requirements

This feature package requires that the CSG Asynchronous Host Interface Toolkit Version 1.0 software, as well as the proper asynchronous communications hardware and software, like the Multi-Port Asynchronous Communications card and driver package be installed and operational.

Table 5-1. Asynchronous Host Interface Toolkit Capacities

Item	Max. Number	Comments
Number of physical asynchronous connections allowed to the VIS	■ 2, without the Multi-port card ■ 10, with the Multi-port card	COM1 is always used by the RMB.
Number of host system to which asynchronous connections may be made	2	Can be increased by custom modification and the use of an eight-port asynchronous communications interface.
Number of multiplexed channels (sessions) allowed per link	24	48 channels is the maximum number per system (two links)

Continued on next page

Table 5-1. Asynchronous Host Interface Toolkit Capacities — *Continued*

Item	Max. Number	Comments
Transfer rate, in bits/second	9600 bps	
Message size, in characters	127	
Maximum number of messages recognized by the VIS per link per second.	2	At 9.6-Kbps

Consult your account representative for more information about this feature package.

Adjunct/Switch Application Interface

The Adjunct/Switch Application Interface (ASAI) provides an Integrated Services Digital Network (ISDN)-based interface between switches and adjunct processors. The ASAI feature package supports this application interface for communications with the AT&T DEFINITY Communications System, Generic 3 (hereafter referred to as DEFINITY G3). This digital signaling interface allows the VIS to monitor and route calls on the DEFINITY G3. When used in conjunction with tip/ring (T/R) or digital Line Side T1 interfaces, the ASAI interface allows the VIS to monitor and control incoming calls delivered to the VIS.

The feature package discussed in this section is the basic ASAI that is shipped with V5.0, when the ASAI feature package is ordered. In addition, there are custom ASAI libraries that can be purchased compiled into the application by the application developer. An application requiring this type of the custom work requires an ASAI link between the VIS and DEFINITY G3 equipped with Expert Agent Selection.

NOTE:
Various versions of DEFINITY G3 (such as G3i, G3r, etc.) have been, (or are being) certified with the ASAI feature package. For the latest G3(x) versions certified for compliance with the ASAI feature package, contact the AT&T Design Center.

Software and Hardware Requirements

In order for the ASAI feature package to be implemented, the following software packages must be installed:

- Intuity CONVERSANT VIS V5.0 Adjunct/Switch Application Interface Package
- Intuity CONVERSANT VIS V5.0 CALLVISOR PC ASAI
- Intuity CONVERSANT VIS V5.0 CALLVISOR PC ISDN

The ASAI feature package also requires that a PC/ISDN circuit card (also known as the IPCI circuit card) is installed in the system. This card supports the D-channel basic rate interface from the switch for an Adjunct/Switch Application Interface (ASAI) link.

Inherently, the VIS must also be fully integrated with a switch or PBX, using analog Tip/Ring or digital Line Side T1 (LST1) cabling. Consult the DEFINITY PBX documentation library for information on hardware and software requirements when interfacing the VIS with a DEFINITY system.

Table 5-2. ASAI Capacities

Item	Max. Number	Notes
Number of ASAI BRI data links (D-channels) between PBX and VIS	1	
Number of Analog T/R lines between PBX and VIS	72	
Number of Line Side T1 lines between PBX and VIS	MAP/40 – 2 MAP/100(C) – 4	Represents the equivalent of 48 or 96 incoming analog channels.

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

AUDIX Voice Power Coresidency

The Intuity CONVERSANT VIS supports co-residency with the AUDIX Voice Power R2.5 application feature package. AUDIX Voice Power is a software package that can provide up to 12 channels of the following services when coresident with V5.0

NOTE:
Although the software packages are now Release 2.5, the user documentation used to support AUDIX Voice Power is Release 2.1.1.

The use of AUDIX Voice Power provides the following services:

- Automated Attendant — This directs callers through a series of prompts to the desired extension. If there is no answer or the line is busy, the caller can either leave a message or try another extension.
- Call Answer — Allows a caller to either leave a message or transfer to another extension when the original extension has failed to answer (for example, no answer or the line is busy).
- Voice Mail — Allows subscribers to send messages to other people in the system, retrieve their own messages, and administer their own greeting message, name and password.
- Message Drop — Similar to an answering machine in that it is used for callers to leave a message, and callers can direct their messages to specific extensions.
- Information — A customer oriented call-in information line. The caller will hear a message and then be disconnected. The message might be similar to "I'm sorry, ACME Manufacturing is not open now. Our normal business hours are nine to five, Monday through Friday, except holidays."

This feature package allows both AUDIX Voice Power services and VIS applications to run simultaneously on different channels of the VIS. The AUDIX Voice Power administrative screens are accessible directly from the VIS administrative menus and screens.

Software and Hardware Requirements

This feature package requires that the following to be installed and fully operational on a VIS platform. *Only one of the switch integration packages is required depending upon the particular switch with which the VIS interfaces.*

- AUDIX Voice Power Release 2.5 – Software
- AUDIX Voice Power Release 2.5 – Speech
- AUDIX Voice Power Switch Integration Software for S75/DEFINITY G1/G3 PBX
- AUDIX Voice Power Switch Integration Software for S25 PBX

NOTE:
If FAX Attendant for use with AUDIX Voice Power is used, only the *one* FAX Attendant switch integration package is allowed on the system. Do *not* install both the AUDIX Voice Power and FAX Attendant switch integration package.

- Voice Mail External Actions Package

A PC/PBX circuit card (also known as the DCP circuit card) must be installed in the system to support the AUDIX Voice Power R2.5 application switch integration with a System 75/DEFINTITY G1/G3.

Table 5-3. AUDIX Voice Power Coresidency Capacities

Item	Max. Number	Notes
Number of AUDIX Voice Power channels coresident with V5.0	12	A maximum of 48 (MAP/40) or 72 (MAP/100s) analog telephone network connections. AUDIX Voice Power service can utilize up to 12 of these, limiting the number available for other VIS use.
Number of AUDIX Voice Power subscriber mailboxes or accounts.	300	

For more information, refer to *Intuity CONVERSANT VIS V5.0 Operations*, 585-310-550, as well as the following AUDIX Voice Power books:

- *AUDIX Voice Power Release 2.1.1 Installation and Maintenance Guide*, 585-310-108
- *AUDIX Voice Power Release 2.1.1 System Manager's Guide*, 585-350-520
- *AUDIX Voice Power Release 2.1.1 Switch Notes for System 75 Communications System*, 585-310-010, **or**
- *AUDIX Voice Power Release 2.1.1 Switch Notes for System 25 Communications System*, 585-310-012

Call Classification Analysis

Call Classification Analysis (CCA) allows application developers to classify the disposition of originated and transferred calls. Some of the dispositions include busy, answered, ring no-answer, and reorder. There are several types of call classification analysis. The standard level, referred to as "Intelligent," is available with the base V5.0 software (as described in Chapter 4). Intelligent CCA is needed to make call transfers and call bridges, as described in *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727.

An enhanced level of call classification, *Full CCA*, is available as an optional package in V5.0. Full CCA is the feature package discussed in this section.

Full CCA

Full CCA provides the following advantages over the base intelligent call classification analysis:

- Better answer detection using a more sophisticated voice-energy detector
- Detection of busy and audible ring tones generated by older or faulty equipment that does not conform to the precise tone plan standards
- Detection of special information tones (SITs) that indicate why an originated call failed (this feature package allows for reliable call classification over the public-switched network)
- Detection of modem tones
- Detection of all call dispositions on analog T/R, T1, LST1, and PRI lines

Applications created with earlier versions of VIS software that use intelligent CCA are compatible with the VIS V5.0 software. For more information on upgrading applications for Full CCA transfer, refer to *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727.

Full CCA can be activated when a call is dialed out during a flash transfer, a call bridge (internal transfer), or a call originate, as defined in Script Builder.

Software and Hardware Requirements

This feature package requires the Intuity CONVERSANT VIS V5.0 Call Classification Analysis Package software, and at least one signal processor (SP) circuit card to be installed and operational. A single SP card can handle six simultaneous channels of CCA.

NOTE:
The SP card must be installed in the system before you install the CCA software.

Table 5-4. Full CCA Capacities

Item	Max. Number	Notes
Number of concurrent instances of full CCA on one dedicated AYC2C SP card	6	An error is generated if a script attempts to use full CCA and the maximum number of CCA instances are running; no further attempts are made after the error is logged

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727, and *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

CompuLert/SCCS Interface Package

This feature package provides remote monitoring and alarming capabilities to customers who have multiple systems in a central office environment. CompuLert is a centralized maintenance system for monitoring minicomputers, computer mainframes, and similar devices. The Switching Control Center System (SCCS) is a centralized maintenance system for 4ESS switch, 5ESS switch, and other central office switching equipment. The CompuLert/SCCS interface allows a central office based VIS user to monitor and administer the VIS remotely from the CompuLert/SCCS location. In addition, this feature package can be coupled with an Alarm Relay Unit (ARU) to provide an alarm notification at the central office site.

Software and Hardware Requirements

This feature package requires the Intuity CONVERSANT VIS V5.0 CompuLert/SCCS Interface Package software be installed and operational. As stated above, an ARU can be connected to the VIS platform to provide central office alarm notification.

Table 5-5. CompuLert/SCCS/ARU Interface Capacities

Item	Max. Number	Notes
Number of supported data links per system	2	One serial port can simultaneously support both SCCS and ARU or two serial ports can simultaneously support SCCS and ARU
Number of alarms reported by either SCCS or ARU	Unlimited	All system alarms are logged by the system message log, the SCCS and the ARU.
Number of systems connected to one ARU.	2	An ARU can monitor up to two CONVERSANT systems.

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

Enhanced File Transfer

The Enhanced File Transfer feature package uses the file transfer system to interactively or directly transfer files between the VIS and a synchronous host processor on a designated Logical Unit (LU). File transfer is performed directly from the UNIX system command line, shell script, or a program using the system call. This feature package allows the transfer of speech, applications, and database data, and adds significant enhancements to the existing file transfer capabilities provided by the standard Synchronous Host Interface Package.

Software and Hardware Requirements

This feature package requires that the Intuity CONVERSANT VIS V5.0 3270 Enhanced File Transfer software be installed and operational. Inherently, communications between the VIS and a host processor must be established through the installation of the Intuity CONVERSANT VIS V5.0 Synchronous Host Interface package.

Table 5-6. Enhanced File Transfer Capacities

Item	Max. Number	Notes
Simultaneous Enhanced File Transfer sessions	1	Enhanced File Transfer may only be initiated on a single LU of one link.
Transmission Speed	56Kbps	Is dependent on the hardware connections between the machines. May operate between 4.8Kbps and 56Kbps.

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

External Alarms

The External Alarms Interface package, used only on the MAP/100C, provides a means for administering external alarms in a central office environment. The alarm can use lights or audible alarm indicators based on the hardware that is installed. Most central office telecommunications equipment separate their system maintenance and alarm messages into three classes: Critical, Major, and Minor. This feature package allows a programmer to classify VIS messages into one of the three classes above, and to subsequently trigger separate alarms corresponding each alarm class.

The External Alarms circuit card includes eight relay contacts. One relay contact operates as a sanity timer control jumper and another relay contact operates as a power fail indicator. The remaining contacts are used to trigger specific alarms.

Software and Hardware Requirements

This features requires the Intuity CONVERSANT VIS V5.0 External Alarms Package and External Alarms circuit card be installed and operational.

Table 5-7. External Alarms Capacities

Item	Max. Number	Notes
Amount of time between system sanity checks	60	Any integer value, in seconds, can be specified in the UNIX file controlling this function, although 60 is the recommended maximum. 20 seconds is default.
Maximum current capacity of External Alarm Interface hardware, in amps:	5 1 5	Operating at 250 VAC. Operating at 125 VDC Operating at 30 VDC

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

FAX Attendant Coresidency

This feature package provides FAX Attendant services by supporting the coresidency of FAX Attendant R2.5 hardware and software in much the same fashion that AUDIX Voice Power coresidency is supported. This coresidency provides up to 12 channels of FAX attendant service.

NOTE:
Although the software packages are now Release 2.5, the user documentation used to support FAX Attendant is Release 2.1.1.

In V5.0, there are two FAX Attendant coresidency offerings:

- FAX Attendant Release 2.5 (for use *without* AUDIX Voice Power)
  - — FAX Attendant R2.5 Switch Integration Software for System 75/DEFINITY G1/G3
  - — FAX Attendant R2.5 Switch Integration Software for System 85/DEFINITY G2
- FAX Attendant Release 2.5 (for use *with* AUDIX Voice Power)
  - — FAX Attendant R2.5 Switch Integration Software for System 25
  - — FAX Attendant R2.5 Switch Integration Software for System 75/DEFINITY G1/G3

As with AUDIX Voice Power coresidency, FAX Attendant administrative screens are accessible directly from the VIS administrative menus and screens. FAX Attendant processes fax messages and controls announcements. FAX Attendant prompts internal and external callers to make menu choices by pressing the appropriate touch tone button.

The VIS can invoke the following FAX Attendant services through Script Builder application scripts:

- FAX Mail — Allows subscribers to send fax messages to one or more fax numbers or use a distribution list, retrieve fax messages from their mailbox, record personal greetings, change their account passwords, delivery report setting, administer outcalling, and create fax distribution lists.
- FAX Call Answer — Allows FAX Attendant to receive fax messages for subscribers whose fax machines are busy or out of paper. This feature package also allows subscribers to use personal fax mailboxes for confidential receipt and remote access to fax messages.
- FAX Response — Allows companies to dedicate a phone number for their prospective customers to call and retrieve information on their products or services, news or virtually any other hard copy information by fax.

Software and Hardware Requirements

The two different offers require unique combinations of FAX Attendant software to be used.

- FAX Attendant Release 2.5 (for use *without* AUDIX Voice Power)
  - — FAX Attendant R2.5 Switch Integration Software for S75/DEFINITY G1/G3
  - — FAX Attendant R2.5 Switch Integration Software for S85/DEFINITY G2
- FAX Attendant Release 2.5 (for use *with* AUDIX Voice Power)
  - — FAX Attendant R2.5 Switch Integration Software for S25
  - — FAX Attendant R2.5 Switch Integration Software for S75/DEFINITY G1/G3

  NOTE:
  If FAX Attendant for use with AUDIX Voice Power is used, only the *one* FAX Attendant switch integration package is allowed on the system. Do *not* install both the AUDIX Voice Power and FAX Attendant switch integration package.

- FAX Attendant R2.5 Script Builder FAX Actions

A maximum of 12 Tip/Ring network connections are supported for FAX Attendant co-residency through the use of the Brooktrout TR114+I4L (or TR114-I4L) circuit card.

In the case of the FAX Attendant for use with AUDIX Voice Power packages, a PC/PBX circuit card (also known as the DCP circuit card) must be installed in the system to support the switch integration with a System 75/DEFINTITY G1/G3.

Table 5-8. FAX Attendant Coresidency Capacities

Item	Max. Number	Notes
Maximum number of FAX Attendant analog telephone network connections	12	A maximum of 48 (MAP/40) or 72 (MAP/100s) analog telephone network connections. AUDIX Voice Power service can utilize up to 12 of these, limiting the number available for other VIS use.
Maximum number of FAX Attendant circuit cards	3	Four-channel Brooktrout TR114+I4L (or TR114-I4L) card

For more information on this feature package, refer to:

- *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229
- *Intuity CONVERSANT VIS V5.0 Operations*, 585-310-550
- *AT&T FAX Attendant System User's Guide*, 900-500-418
- *AT&T FAX Attendant System Installation and Maintenance Guide*, 999-550-417
- *AT&T FAX Attendant System Manager's Guide*, 999-500-416

FlexWord Toolkit

Intuity CONVERSANT VIS V5.0 provides enhancements to the FlexWord recognition feature package by providing a FlexWord Toolkit that separates FlexWord vocabularies from the FlexWord Recognition package.

This toolkit allows end-users to create their own words, wordlists, and vocabularies. The FlexWord Toolkit consists of the tools and documentation necessary to create FlexWord wordlists, to verify and fine tune the phonetic definition of the words in the wordlists, and to package and install the customer-defined vocabularies.

The FlexWord Toolkit is a separate installable package from the FlexWord Speech Recognition Package. Customers interested in FlexWord have the option to purchase the Toolkit and create their own FlexWord vocabularies, or to purchase custom vocabularies from a custom vocabulary provider.

Intuity CONVERSANT VIS V5.0 also incorporates FlexWord technology improvements, namely, word spotting and phrase screening, into the FlexWord Speech Recognition Package. Word spotting provides the ability to search past extraneous speech input during recognition. Phrase screening provides the ability to reject the speech that is not part of the FlexWord vocabulary.

The wordlist size limit is 500 words, and the maximum number of wordlists on a system is 200, with a maximum total number of words of 2,000.

During development of a FlexWord vocabulary, the developer *must* use the Text-to-Speech (TTS) feature package to ensure that errors have not been introduced while editing the FlexWord phoneme strings. This checking helps avoid minor errors in the FlexWord phoneme string that can introduce a large degradation in recognition accuracy. In V5.0, a system running the FlexWord Toolkit must have the Text-to-Speech feature package so that these errors can be minimized.

Software and Hardware Requirements

This feature package requires:

- Intuity CONVERSANT VIS V5.0 FlexWord Toolkit package
- Intuity CONVERSANT VIS V5.0 Text To Speech
- SP card driver
- T/R card driver

An SP circuit card (AYC9 to support TTS) and T/R card must also be installed. Because of the user interface in the FlexWord Toolkit, a mouse is also required.

For more information on the FlexWord Toolkit, refer to *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228.

Form Filler Plus

The Form Filler Plus feature package provides the capability for application scripts to record callers' verbal or spoken responses to prompts for later transcription and review. As many as ten 1 through 999-second responses can be recorded per call session. Caller responses are recorded and then stored in the Form Filler Plus database, where they can be retrieved at a later time using the form retriever transcription script.

Application voice "forms" that prompt for and record caller input for Form Filler Plus are available through a high-level Script Builder application template, FFtemplate, provided with the Form Filler Plus package. Customized Form Filler Plus applications are developed by copying and modifying this template to suit individual needs.

Software and Hardware Requirements

The feature package requires that the Intuity CONVERSANT VIS V5.0 Form Filler Plus and Intuity CONVERSANT VIS V5.0 Script Builder software be installed and operational.

Table 5-9. Form Filler Plus Capacities

Item	Max. Number	Notes
Number of channels simultaneously using FF Plus	96	
Number of channels simultaneously running transcribe script	96	
Number of coding rates supported	4	16, 24 SBC;16,32 ADPCM
Responses recorded per call session (or application)	10	
Maximum coded phrase length	999 sec	Default is 20 sec
Number of talkfiles coded and stored	1	Talkfile 8 is dedicated for storage; talkfile 9 is dedicated to transcription
Initial time-out to detect speech during a code session	5 sec	
Inter-word time-out to detect silence during a code session	5 sec	

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727.

Graphical Speech Editor

This feature package provides a simple way of making changes to existing speech phrases, by allowing a customer to cut, copy, and paste speech segments in either a speech file or across multiple speech files, as well as the ability to change the volume of individual speech segments.

Users can build their own graphical speech editing environments using a product such as BitWorks for editing speech phrases and using the edited speech in a VIS application.

Software and Hardware Requirements

The GSE toolkit can be supported on any V5.0 platform that operates with an 486 50 MHz CPU. The Intuity CONVERSANT VIS V5.0 Graphical Speech Editor package must be installed and operational.

This feature package also requires a Tip/Ring card to receive audio input for recording and to output audio speech. The GSE supports the following T/R circuit cards:

- AYC5, AYC6
- AYC5B, AYC6B
- AYC28

Because of the user interface in the Graphical Speech Editor, a mouse is also required.

Table 5-10. Graphical Speech Editor Capacities

Item	Max. Number	Notes
Maximum length of speech phrase stored in buffer, in minutes	4	

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228.

Host Interface

The host interface is a combination of hardware and software designed to allow the transmission of information over the network. The host interface software allows up to 128 logical units (that is, 3278 Model 2 terminals) connected to it. The host interface card is typically linked to a front-end processor and uses either synchronous data link control (SDLC) or token ring data streams.

The host interface provides the ability for application to get data from the host computer through the use of a host DIP.

The customer can develop methods to integrate the VIS OA&M with network management procedures provided by the host, such as NetView. Additional file transfer capabilities can be obtained with the "Enhanced File Transfer" feature package.

Software and Hardware Requirements

The software that must be installed are various combinations of the following Host Interface software packages:

- Link levels — The link level package(s) needed depend on the type of protocol that is being used and the type of interface card (hardware).
  - — linkix_sib, Link Level — For use with FIFO/SIB
  - — linkix_coproc, Link Level — For use with PC/XL (must be Revision D or later)
  - — linkix_tkrn, Link Level — For use with the Token Ring

    NOTE:
    The SDLC link level and Token Ring link level packages can be installed and operate on the same system. However, two SDLC packages (sib and coproc) *cannot* be installed on the same system. The installation procedure prevents these packages from being installed on the same system.

- SNA levels (installable only *after* the link level package)
  - — linkix_sna_128lu, SNA Level — For support of 128 LUs
- Feature Level 1 packages — The packages below, except for NetView Alarms (netman), are used in all SNA configurations. The NetView package is used only in NetView Alarms monitoring systems.
  - — linkix_3270, Feature Level 1 — The LINKix 3270 feature package
  - — linkix_netman, Feature Level 1 — The LINKix management utilities feature package
  - — linkix_mgmt, Feature Level 1 — The LINKix NetView feature package

- Feature Level 2 packages (installable only *after* the feature level 1 packages)
  - — linkix_hte, Feature Level 2 — The LINKix HLLAPI TE feature package
- VIS host packages (must be installed in this order) — These packages work with the CLEO software to give you host interface capabilities.
  - — Intuity CONVERSANT VIS V5.0 Host Interface
  - — Intuity CONVERSANT VIS V5.0 3270 Enhanced File Transfer
  - — Intuity CONVERSANT VIS V5.0 3270 NetView Alarm Interface
- Token Ring Hardware Support — To support the Token Ring circuit card

The hardware required for this feature package is one of the following combinations:

- 1 FIFO/SIB or 1 PC/XL (Revision D or later) card to support 128 LUs
- 2 FIFO/SIB to support dual host connectivity
- 1 Token Ring
- 1 or 2 FIFO/SIB and 1 Token Ring
- 1 PC/XL (Revision D or later) and 1 Token Ring

Table 5-11. Host Interface Capacities

Item	Max. Number	Notes
Host screen initial time-out	300 sec	Amount of time to wait for any screen to arrive from host (10 is recommended; default is 60)
LU availability time-out	300 sec	Time to wait for LU to become available while phone rings before answering
Unrecognized screen time-out	300 sec	Time to wait for valid screens to become available after GET_HOST (returns invalid screen)
Number of LUs	128	Requires 1 PC/XL (Revision D or later) or 1 FIFO/SIB card
Logins/passwords for host interface	128	Must have same amount as LUs specified
Number of shared host applications	8	Multiple applications sharing same host application

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Table 5-11. Host Interface Capacities — *Continued*

Host screen identifier length in characters when defining host screens	128	
Field Length in characters when used in host screens	128	
Data passed per host screen in bytes	988 - X	X = No. of fields defined (application dependent); define a second screen if additional bytes required

Line Side T1

This feature package provides a 24-channel, digital interface between a customer-based PBX and the VIS. Line Side T1 (LST1) uses existing T1 circuit card technology with new protocol-level software and VIS user interface modifications to significantly improve system connectivity and reduce the amount of hardware required to support 24 channels of digital service. This feature package is compatible with DEFINITY G3 PBX and Galaxy 8 and 9 Automatic Call Distributing (ACD) systems. Its highlights include:

- Call Transfer capability
- Script Builder compatibility
- Full Call Classification Analysis (CCA) compatibility
- ASAI compatibility with DEFINITY PBXs
- Voice Response Integration compatibility with DEFINITY PBXs
- Intercept tones used by AT&T PBXs for invalid extensions

LST1 supports blind call origination (outcalling) and blind call transfers for DEFINITY PBXs, such as is normally performed on T/R lines. Blind transfers do not detect call progress tones or provide any form of answer supervision. LST1 cannot detect dial tone or stutter dial tone prior to dialing. This is true for LST1 when used with or without Full CCA.

Software and Hardware Requirements

This feature package requires that one or more of the following software packages be installed and operational:

- Intuity CONVERSANT VIS V5.0 Line Side T1 Interface Package — DEFINITY
- Intuity CONVERSANT VIS V5.0 Line Side T1 Interface Package — Galaxy
- Intuity CONVERSANT VIS V5.0 T1 Board Driver
- Intuity CONVERSANT VIS V5.0 SP Board Driver

This feature package requires at least one T1 circuit card and one SP circuit card.

Table 5-12. Line Side T1 Capacities

Item	Max. Number	Notes
Telephone network connections	24	Per T1 circuit card (AYC3B or AYC11)
T1 circuit cards	2 – 5	2 per MAP/40 5 per MAP/100C or MAP/100

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

Local Area Network Connectivity

In order to accommodate the flexibility needs for data connectivity and host interface, the data connectivity architecture of the VIS has changed to separate the physical connectivity from the access protocols. This change allows customers to independently choose both a physical connectivity type (for example, SDLC) and an access method (for example, TCP/IP or SNA) in combinations that are compatible with their current data networks.

Transmission Control Protocol/Internet Protocol (TCP/IP) is a process-to-process protocol. TCP/IP within the VIS provides high speed data transmission over an Ethernet or Token Ring network.

Software and Hardware Requirements

This feature package requires the driver specific to the card be installed and operational:

- SMC Ethernet Streams Device Driver — supports the SMC EtherCard circuit card
- Token Ring Hardware Support — supports the Token Ring circuit card

The hardware required on the VIS for using the TCP/IP protocol depends on your physical link layer (both may installed in the same system, but both are not needed):

- SMC Elite 16 Ultra Combo Adapter (EtherCard)
- IBM 16/4 ISA-16 Adapter (Token Ring card)

Table 5-13. Local Area Network (LAN) Connectivity Capacities

Item	Max. Number	Notes
Number of remote database systems	4	
Number of sessions per remote database connection	3	

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

Multi-Port Asynchronous Communications Interface

This feature package provides hardware and software for additional asynchronous serial data connections to the VIS platform. These connections can be used to support up to two asynchronous host computers, serial printers, on-site and remote monitoring systems (CompuLert/SCCS/ARU, for example) or an extra modem in addition to the modem connected to the Remote Maintenance board.

The Intuity CONVERSANT VIS provides two asynchronous communication ports as standard equipment. These ports, labeled COM1 and COM2, are separate and fully functional in addition to the eight additional ports provided by this feature package.

Software and Hardware Requirements

This feature package requires the Equinox Megaport/Megaplex STREAMS Device Driver and the Equinox Megaport Asynchronous Communications card be installed and operational.

In older, existing platforms, the IPC-900 or CTC Gemini-1000 (with 8-port T-bar adapter hardware) and the Intuity CONVERSANT VIS V5.0 Intelligent Ports Card driver are still supported, as these provide the same functionality.

Table 5-14. Multi-Port Asynchronous Communications Capacities

Item	Max. Number	Notes
Number of additional physical asynchronous ports	8	These connections are in addition to the standard system COM1/COM2 serial ports
Data Speed	9.6-Kbps	
Number of lines used for host communication interfaces	2	

For more information on Asynchronous Communications, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

NetView Alarm Interface

The NetView Alarm Interface package interacts with the Intuity CONVERSANT VIS V5.0 software to allow you to monitor VIS message as part of your current NetView environment. The VIS logs alarms and events that occur during voice system operations. The maintenance transmitter process scans this log to determine when the errors occurred and transmits critical, major, or minor errors to the host as operator-generated alerts (OGAs) over the 3270 host link.

Software and Hardware Requirements

This feature package requires the Intuity CONVERSANT VIS V5.0 3270 NetView Alarm Interface package be installed and operational.

Table 5-15. NetView Alarms Capacities

Item	Max. Number	Notes
Maximum number of OGAs accepted by the FIFO/SIB circuit card, per second.	1	The maintenance transmitter sends OGAs as soon as possible in a first-in/first-out order.
Amount of time between status checks when host connection is lost.	5	In minutes. Status checks are initiated by the maintenance transmitter.
Amount of time required to resume sending OGAs once a connection is established.	5	In minutes. Transmission is controller by the maintenance transmitter.
Number of OGAs the maintenance transmitter can spool during period of host disconnection.	100	The oldest OGA in the spool will be discarded for every OGA over the first 100 received.

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

Primary Rate Interface

This feature package allows the CONVERSANT VIS to communicate directly with an AT&T switch using ISDN Primary Rate Interface (PRI). The ISDN PRI is a digital interface and therefore only supports T1 line usage.

Supported switches include:

- 4ESS
- 5ESS
- DEFINITY — G3i, System 85, and System 75
- Phase 1 or Phase 2 Service Node Controller
- ISDN Network Controller

There are three different versions of the Primary Rate Interface feature package that can be used with V5.0. The versions include:

- Commercial PRI

  This version of PRI is generally available for any application that needs an ISDN/VIS interface. It gives the customer a controlled and limited ISDN PRI interface at the script level using the VIS script programming language.

- Network PRI

  This version is similar to Commercial PRI in that it provides an ISDN/VIS interface at the script level by requiring that Commercial PRI be installed and operational. However, the Network PRI package itself provides additional flexible alerting capabilities that, if misused, could lead to serious signaling errors or fraud. Because of this, it is *only available to AT&T affiliates*.

- General PRI

  This version of PRI is a custom development platform for applications requiring more signaling information than is available with Commercial or Network PRI. General PRI includes expanded and full access to all relevant ISDN PRI signaling information, and provides a C language programming interface. General PRI is the most flexible version of PRI, but requires considerable development expertise. Due to the development expertise required, and the potential for signaling errors or fraud, General PRI is *only available for AT&T affiliates*.

The remainder of this section covers Commercial PRI only.

Software and Hardware Requirements

The Commercial PRI feature package requires the Intuity CONVERSANT VIS V5.0 ISDN Primary Rate Interface package be installed and operational.

This feature package also requires at least one T1 circuit card and one dedicated SP be installed.

Table 5-16. Primary Rate Interface Capacities

Item	Max. Number	Notes
Data channel	1 per system	For example, two 23 B+D interfaces are not supported
Number of supported bearer channels per system	119	23B+D, 47B+D, 71B+D, 95B+D, or 119B+D. Depends on the capability of the switch (not all switches support all PRI configurations).
Number of SP circuit cards required to support PRI	1	Must be a dedicated SP card. AYC2C is preferred. AYC2B is still supported. AYC9 is usable, but is more costly

NOTE:
PRI with DEFINITY G3i supports a maximum of 95 B+D.

For capacities and limitations concerning Network PRI and General Purpose PRI, consult an AT&T Intuity CONVERSANT VIS sales representative.

For more information on Commercial PRI, refer to *Intuity CONVERANT VIS V5.0 Communication Development*, 585-310-229.

Script Builder

Script Builder is an optional software package designed to assist in the development of custom voice response applications on the VIS. It is a menu-driven, screen-oriented tool that can be used by a broad range of customers. It is targeted toward designers familiar with the specific application, who also have a knowledge of logical programming concepts. Specifically the designer should be familiar with high-level programming languages such as BASIC, COBOL, and applications such as dBASE and LOTUS 1-2-3. Although not required, it is helpful to have some basic knowledge of the C programming language and the UnixWare operating system. A basic knowledge of telephony is also beneficial when working with the VIS and Script Builder.

This feature package requires that the Script Builder software package be installed and operational. The purchase of Script Builder software entitles the buyer to four hours of telephone consultation with AT&T or a VPC, as appropriate. These hours must be used in 30-minute minimum increments. Additional telephone consultation also is available for a fee through AT&T or the VPC.

There are many subtle application capacities that provide limits or constraints while performing application development using Script Builder. These capacities are listed in the following tables. Capacities and constraints are also referenced in *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727, and *Intuity CONVERSANT VIS V5.0 Application Development*, 585-310-227.

Software and Hardware Requirements

This feature package requires the Intuity CONVERSANT VIS V5.0 Script Builder package be installed and operational. No additional hardware is required.

Table 5-17. Script Builder Application Related Capacities

Item	Max. Number	Notes
Characters in application name	11	
Characters in field names	24	
Applications on system	See note	Restricted only by disk space
Call data events per application	100	For numeric or 12-character fields
	50	For 7-character strings (phone numbers)
	33	For 8-character dates
	25	For 14-character credit card numbers
	14	For 24-character names
Transaction statements	1000	Action steps (for example, “Answer Phone”, “Announce” only) recommended, not currently enforced in software)
Script labels per application	2400	Label maximum per application
Length of comment line (characters)	50	
Arguments passed between external function and transaction	5	
Label name length (characters)	20	
Digits accepted for a prompt and collect action step	64	Either touch tones or spoken
Number of tries to collect in prompt and collect	9	
Initial time-out in prompt and collect	60 sec	
Interdigit time-out in prompt and collect	60 sec	
Cases of correct input within the non-standard checklist of a prompt and collect	12	
Number of touch tones accepted for call transfer	16	Minimum is 1

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Table 5-17. Script Builder Application Related Capacities — *Continued*

Item	Max. Number	Notes
Number of channels that can simultaneously use background feature	48	Refer to Chapter 9 of the *Intuity CONVERSANT VIS V5.0 Script Builder*, 585-310-727, for additional information.
Digits used in phone number of call bridge	24/16	■ T1 (all types) has a limit of 15 digIts for outdialing ■ Minimum is 1
Digits used in DNIS number passed from central office	16	Incoming DNIS is limited to 15 for PRI. Configured in switch administration screens; refer to the *Intuity CONVERSANT VIS V5.0 Operations,* 585-310-550.
Arguments passed between applications using “Execute External Action”	10	
Data space available per channel using “Execute External Action”	552 bytes	Characters used in argument passing
External function names length	12	In characters
Simultaneous voice mail applications per system	12	
Message duration for Voice Mail messages	999	In seconds
Phrase length for coding messages	999	In seconds. If 0 is specified, coding continues indefinitely
Number of phrases coded per system	48,000	
Number of talkfiles coded and stored	256	
Initial time-out to detect speech during a code session	30	In seconds. Minimum is 0; default is 5
Completion time-out to detect silence during a code session	30	In seconds. Minimum is 0; default is 5

For more information on this feature package, please refer to the Intuity *CONVERSANT VIS V5.0 Script Builder*, 585-310-727.

Speech Collection Toolkit

This feature package provides a toolkit consisting of a separately installable software package, documentation, and personal support by AT&T Bell Laboratories to support the collection of speech samples by authorized AT&T affiliates. This allows someone using this tool to perform custom speech recognition model building for the particular data that was collected. This data is also forwarded and archived at AT&T for future speech model building. This data collection and development is key for producing new WholeWord speech recognition vocabularies.

WholeWord speech recognition vocabulary development requires a large number of speech samples for each utterance or word to be recognized. This toolkit provides the proper method of speech sample collection so that expanded vocabularies can be developed. Because of the need for extremely uniform and accurate sample taking, this feature package is only provided to certain development partner affiliates who agree to collect speech samples to further enhance their WholeWord speech recognition accuracy. As stated earlier, all speech samples collected by each affiliate is also forwarded to AT&T in order to further refine existing WholeWord speech recognition software packages.

This tool may also be used to create custom vocabulary sets outside of the “zero” through “nine”, “yes”, “no”, and “oh” list of words that are included in the standard vocabulary set. Custom vocabulary creation using this toolkit, however, is still time consuming and more costly to develop than a FlexWord vocabulary.

This feature package is a product of AT&T development, and is available only on a custom basis to customers outside of the AT&T development community. Because of its intended use, it is not thoroughly discussed in other V5.0 documentation. It is listed here, however, to reflect all offerings available with Intuity CONVERSANT VIS V5.0.

Speech Production Kit

This feature package provides a hardware interface to older Tip/Ring circuit cards for speech recording and storage through the use of a microphone and/or recording and playback equipment, instead of through a telephone handset.

The older IVP4 and IVP6 circuit cards do not provide direct audio input/output jacks. This means that recording speech with a system equipped with older T/R circuit cards must occur through a telephone that has been used to dial the VIS through a particular T/R port for the purpose of speech recording. New IVP4 and IVP6 circuit cards contain built-in audio jack connectors to eliminate this inefficiency.

The unit accepts audio through an audio jack from a tape recording system or microphone, and feeds it to the CONVERSANT VIS through a modular telephone connection terminating at a single port on an older IVP4 or IVP6 Tip/Ring circuit card (AYC6 or AYC5, respectively). This direct connection results in a much cleaner recording than if the sound had traveled through air and an inefficient telephone handset before being digitized and stored in memory.

Software and Hardware Requirements

This feature package can be used with the Graphical Speech Editor. It comes standard as part of the Script Builder feature package.

The speech production unit, including the microphone, are required.

No strict maximum capacities are associated with the Speech Production Kit. Refer to *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228, or *Intuity CONVERSANT VIS V5.0 Script Builder* 585-310-727, for additional information about the installation and use of this feature package.

Speech Recognition

Speech Recognition is an Intuity CONVERSANT VIS capability that allows the system to recognize and respond to spoken voice responses from the caller. Certain applications require minimal or no touch tone input for a number of reasons, including the fact that the caller does not have access to DTMF facilities (they are using a rotary dialed phone) or would rather utilize a more simple method of data input. Because of the differences in speech recognition applications, there are two distinct methods of providing this feature package:

- WholeWord Speech Recognition
- FlexWord Speech Recognition

For more information on either type of speech recognition, refer to *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228.

WholeWord Speech Recognition

WholeWord speech recognition provides a *whole word* method of recognition by comparing an entire spoken word with a statistical model of the same word spoken by thousands of different people. WholeWord speech recognition is available with two vocabulary packages, standard and custom.

The standard vocabulary package includes simple words that are frequently used in transactions. These words include the digits “zero” through “nine,” “yes,” “no,” and “oh.” This standard vocabulary is available in American English, as well as other international languages.

The custom vocabulary package is, as the name implies, custom. If special words such as “checking,” “savings,” etc. need to be recognized, AT&T can develop the software to recognize those requested words by collecting speech samples of those requested words, and creating statistical models of each word.

Although WholeWord speech recognition vocabularies are more expensive than FlexWord vocabularies (FlexWord is described on the following page), the recognition accuracy for WholeWord can be nearly 100% for single word recognition. If recognition accuracy is extremely important, and a custom vocabulary is needed, WholeWord custom speech recognition may be more beneficial than a custom made FlexWord wordlist.

V5.0 supports bi-lingual speech recognition, meaning that up to two speech recognition packages can be installed for recognition of those languages:

- Speech Recognition Package — Canadian French
- Speech Recognition Package — Mexican Spanish
- Speech Recognition Package — US English

Software and Hardware Requirements

This software package requires that one of the Speech Recognition software packages, as well as at least one dedicated SP circuit card and one CMP circuit card be installed and operational.

Table 5-18. WholeWord Speech Recognition Capacities

Item	Max. Number	Notes
Standard vocabulary words	13	Numbers 0 - 9, “yes,” “no,” and “oh”
Supported languages	2	Two language packages can be in use simultaneously: American English, Canadian French or Mexican Spanish.
Channels of simultaneous speech recognition per CMP card	6	The hardware required is application and configuration dependent
Connected Digits recognized	24	Application dependent; recognition accuracy improves significantly if fixed length is used. Accuracy =.97^N, where N = no. of connected digits
Custom recognition types per SP	20	Application dependent
Custom vocabulary words per SP	(See note)	Application dependent on quality of the model; better models have more mixtures of speech which result in better accuracy

FlexWord Speech Recognition

FlexWord speech recognition provides a different method of constructing and recognizing speech vocabularies than WholeWord does. Using sub-word speech recognition technology, the FlexWord speech recognition package relies on phonemic recognition. The English language is made of approximately 40 phonemes. These phonemes are blocks of sound that, when strung together in particular orders, form recognizable words. The word “one,” for example, consists of three phonemes: “w-uh-n.” The FlexWord speech recognition package operates on this principle so that custom vocabularies can be created much more easily and cheaper than if done with WholeWord technologies.

FlexWord vocabularies are produced on a per-customer basis like WholeWord Custom Vocabularies. Because FlexWord vocabularies are much easier and less time consuming to construct, it provides customers with a cost-effective method of designing large, customized vocabularies. V5.0 provides enhancements to the FlexWord recognition feature package by providing a FlexWord Toolkit that separates FlexWord vocabularies from the FlexWord Recognition package. See the section in this chapter titled, “FlexWord Toolkit.”

Software and Hardware Requirements

This software package requires that the Intuity CONVERSANT VIS V5.0 FlexWord Speech Recognition package, as well as at least one dedicated SP circuit card and one CMP circuit card be installed and operational on the VIS.

Table 5-19. FlexWord Speech Recognition Capacities

Item	Max. Number	Notes
Number of words in a wordlist	500	
Number of wordlists	200	
Number of total words	2000	
Channels of simultaneous speech recognition per CMP	4	Number of supported channels is application and configuration dependent
Supported languages	1	American English only

Text To Speech

The Text To Speech (TTS) feature package allows an application to play speech (in male voice only) directly from ASCII text by converting that text to synthesized speech. The text can be used for prompts or for text retrieved from a database or host, and can be spoken in an application with synthesized speech. TTS application development is supported through the Script Builder software package.

TTS is an alternative to using prerecorded phrases for voice response. It can be essential in some applications that must speak dynamic text (for example, names and addresses) and that have large speakable text (for example, electronic news). Without TTS, these types of applications can require many hours of recording and much disk space. These applications can also use TTS for static text for consistency.

The TTS technology constructs speech by concatenating chunks of speech already recorded. When constructing speech, parameters such as pitch and duration are adjusted to make the outcome sound natural. In addition, the ASCII text is preprocessed to expand abbreviations. For example, “Dr.” could be expanded to “doctor” or “drive,” depending on the context).

Software and Hardware Requirements

This feature package requires that the Intuity CONVERSANT VIS V5.0 Text-to-Speech package, as well as an AYC9 SP card be installed and operational. Each AYC9 provides a maximum of six channels of simultaneous TTS. This SP is fully compatible with the standard SP card (AYC2C or AYC2B). An AYC9 used for TTS must be dedicated to that function; it is not possible to share an AYC9 between TTS and any other function such as speech playback or recognition.

Table 5-20. Text To Speech Capacities

Item	Max. Number	Notes
Number of concurrent instances of TTS on one dedicated AYC9 SP card	6	An error is generated if a script attempts to use TTS and the maximum number of TTS channels are being used; An attempt is made every 2 seconds to access an SP resource

For more information on this feature package, refer to *Intuity CONVERSANT VIS V5.0 Speech Development*, 585-310-228.

Requirements and Specifications

6

This chapter provides information on the requirements and specifications that each Intuity CONVERSANT VIS V5.0 requires for proper operation. These requirements include:

- Platform specifications including:
  - Power
  - Space
  - Environmental
  - System specifications
- Telephone network characteristics
  - Tip/Ring telephony interface specifications
  - T1/PRI telephony interface specifications
- Data communication characteristics

Platform Specifications

Power Requirements

This section describes the power requirements for each multi-application platform. Certain power cabling and requirements are standard across all platforms, as described below:

- Each MAP, modem, and printer should be located near a power receptacle.
- The AC power output receptacle on the back of each unit is to be used *only* for a monitor. Never plug any other device into this receptacle.
- Communication cables must be kept separate from power cables. Installation of communication and power cables must be in accordance with National Electrical Codes (NEC).

Table 6-1 lists the power that must be available for each MAP/100C, MAP/100, MAP/40.

Table 6-1. Power Requirements for MAPs

Attribute	MAP/100C	MAP/100	MAP/40
Volts AC	110-130 VAC +/-5%	110-250VAC +/-5%	90-130 VAC +/-5%
Volts DC	-48 VDC	none	none
Hertz (Hz) (Power)	60 Hz	50–60 Hz	47-63 Hz
Phase	Single	Single	Single
Breaker Amps	20(AC), 25(DC)	15	8
Nominal Current Draw	7(AC), 15(DC)	7	4
Power Input	NEMA 5–15P	NEMA 5–15P	NEMA 5–15P
Power Output	600 watts	600 watts	325 watts
Heat Dissipation	2500 BTU	2500 BTU	1100 BTU
Battery Backup Time	none	15 minutes	none

Table 6-2 lists the power that must be available for each optional printer and monitor:

Table 6-2. Power Requirements for Printer and Monitor

Attributes	Printer	Monitor
Volts AC	115 VAC +/-5%	110–240 VAC auto sensing
Hertz (Hz) (Power)	50–60 Hz	50–87 Hz
Phase	Single	Single
Breaker Amps	2	1
Input Cord	NEMA 5–15P (6 feet)	Included with monitor (3 feet)
Unit Input	IEC-320	IEC-320

Space Requirements

Table 6-3 details the space requirements for the MAP/100C, MAP/100 and MAP/40, including the following considerations:

- The MAP/100C is only capable of rack-mounting in a standard, 24-inch commercial frame.
- The MAP/100 may be mounted in 19-inch commercial frame or can sit deskside on the floor.
- The MAP/40 is utilized in a deskside, tower fashion.

Table 6-3. Space Requirements for MAPs

Platform	Width	Height	Depth	Weight
MAP/100C (in frame)	22.6 in.	24 in.	14.5 in.	140 lbs.
MAP/100 (in frame)	19.5 in.	24 in.	22 in.	140 lbs.
MAP/100 (deskside)	17.5 in.	21.5 in.	22 in.	140 lbs.
MAP/40 (deskside)	12.6 in.	17.7 in.	20 in.	37 lbs.

Environmental Considerations

Locate each of the platforms in an area able to maintain the temperature and humidity requirements shown in Table 6-4 and Table 6-5, respectively.

Table 6-4. Temperature Requirements for MAPs

Operating State	Temperature
Operating	+10 to +32C (+50 to +90F)
Nonoperating	-40 to +60C

Table 6-5. Humidity Level Requirements for MAPs

Operating State	Humidity
Nonoperating	5% to 92%, noncondensing
Continuous operating	20% to 55%, noncondensing
Short-term operating	20% to 80%, noncondensing

System Specifications

Table 6-6 details the general system specifications for the Version 5.0 platforms.

Table 6-6. General Specifications for the Version 5.0 Platforms

Attribute	Specification
Operating system:	Base on UnixWare 1.1
System memory:	486 CPU with 32 Mbytes of RAM standard
Clock speed:	486 CPU with 50 MHz standard 486 CPU with 25 MHz standard (MAP/40 only)
Expansion slots:	MAP/100(C) — 25 (all slots are 16-bit ISA; 6 slots are 32-bit EISA) MAP/40 — 12 (all slots are 16-bit ISA)
Tape drive:	525-Mbyte internal, removable cartridge SCSI format
Floppy disk drive:	1.44-Mbyte, 3.5 inch
Hard disk drive:	1.75-Gbyte SCSI (Standard)
Speech coding:	32 and 16 Kbps ADPCM 24 and 16 Kbps SBC 64 Kbps PCM

Telephone Network Characteristics

Table 6-7 details the general telephone network characteristics for the Version 5.0 platforms.

Table 6-7. Telephone Network Characteristics for Version 5.0 Platforms

Attribute	Characteristic
Telephone Network Connections	■ MAP/100(C): 120 — 96 maximum transactions — Telephone network connections not used for transactions are available for bridging ■ MAP/40: 48 — 48 maximum transactions — Telephone network connections not used for transactions are available for bridging
System input	Dual Tone Multi Frequency North American English Canadian French Mexican Spanish
Network approval	Part 68, AS593M-17926-VW-E
Safety approval	All components UL approved #1459
Connectors	Analog — RJ21X or RJ25C Digital — 15-pin D subminiature
Lines	Analog — (loop start) signaling Digital T1 — (E&M) signaling Line Side T1 Digital ISDN — ISDN PRI Layer 1 signaling

T/R Telephony Interface Specifications

Table 6-8 through Table 6-12 detail the various tip/ring (T/R) telephony interface specifications.

Table 6-8. T/R Circuit Card General Specifications

Attribute	Value
Type of Service	Four or six channels of loop-start POTS
Loop current detection	15 mA minimum
Ringing voltage detection	88 VRMS at 20 Hz (nominal)
Ringer Equivalence for T/R	■ .5 B for AYC5, AYC5B, AYC6 and AYC6B ■ .7 B for AYC28
Wink Detection*	80 msec - 800 msec
Flash Duration*	40 msec - 1550 msec
Register Recall*	Timed Break/Earth Recall
Answer Delay*	0–10 rings

*Adjustable through Application Switch Interface (ASI) packages

Table 6-9. T/R Circuit Card DTMF Tone Detection Specifications

Attribute	Value
Digits	0 - 9, *, #, A - D
Amplitude	+3 to -22 dBm total power (nominal tones)
On/Off timing	80 msec minimum on, 23 msec off
Gaps bridged	23 msec
Signal/noise ratio	23 dB (nominal tones at -19 dBm total power)
Twist	+4 to -8dB (high to low tone)
Frequency deviation	+-1.5

Table 6-10. T/R Circuit Card Transmission Level Plan

Attribute	Value
Input gain	0 dB fixed
Output gain	0 dB fixed
IVOL (card voice coding only)	Input gain selectable from -9 to +12 dB
OVOL (card voice playback only)	Output gain selectable from -9 to +12 dB
TDM output gain	Selectable from -30 to +6 dB

Table 6-11. T/R Circuit Card DTMF Addressing Specifications

Attribute	Default Value
Digits	0 - 9, *, #, A - D
On/off timing*	100 msec on, 60msec off
Frequency	Precise tones
Twist*	0 dB
Amplitude*	-3 dBm per frequency

*Adjustable through Application Switch Interface (ASI) packages.

Table 6-12. T/R Circuit Card Call Progress Tone Detection Specifications

Tone	Hz*	Amplitude (dBm)	S/N Ratio (dB)	Twist (Max;dB)	Frequency Deviation(%)	Cadence*
Dial tone	350 + 440	+1 to -24	55	+3	+-.5	Present for 1 sec
Stutter dial tone	350 + 440	+1 to -24	55	+3	+-.5	3 cycles of 120–150 msec on, 120–150 msec off, followed by 1 sec on
Ringback tone	440 + 480	+1 to -24	55	+3	+-.5	500–2000 msec on
Slow busy tone	480 + 620	+1 to -24	55	+3	+-.5	60 IPM, 250–500 msec on, 500–750 msec off
Fast busy tone	480 + 620	+1 to -24	55	+3	+-.5	120 IPM, 100–250 msec on, 250–450 msec off

*Adjustable through Application Switch Interface (ASI) packages

For additional information on T/R circuit card transmission level plan, refer to Chapter 2, “Analog Telephony Interfaces” in *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

T1/PRI Telephony Interface Specifications

Table 6-13 through Table 6-16 detail the various interface specifications for T1 and PRI. These values also apply to Line Side T1 communication arrangements.

Table 6-13. T1/PRI Telephony Interface General Specifications

Attribute	Specification
Physical connector	Subminiature DB-15 male receptacle
FCC registration	AS593M-17926-VM-E
Safety approval	UL Type Approved
Signal regeneration	CSU required over 666 feet.
Loopback capability	CSU required for remote capability
TLP at DS-1 interface	0 ELP, 0 DLP
TLP at TDM interface	0 ELP, 0 DLP
Call progress tone frequency	Precise tone frequencies
Call progress tone levels	-6 dBm total (nominal)
Call progress tone timing	Ringing – on/off: 2/4 sec Busy – on/off: .5/.5 sec
Call progress tone detection	Not supported by T1 card Must use optional CCA feature if this capability is required
DS-1 timing source	Slave to DS-1 source (loop timed)
DS-1 timing (Free running)	Stratum 4
Suggested CSU types	AT&T Paradyne PEC 2152-ESF, Verilink 551VST List 2, or equivalent
Supported configurations	Tie trunk (robbed-bit E&M) ISDN-PRI

Table 6-14. T1 Telephony Interface Specifications for Tie Trunk Type Configurations Only

Attribute	Specification
DS-1 framing	D4 type only
DS-1 line coding	Zero code suppression (ZCS)
Protocol	Robbed-bit (4-wire) E&M
Alerting in/out	Wink/wink
Wink generation	230 msec default (Selectable: 20–2500 msec)
Wink detection range	100–350 msec
Addressing (outgoing)	DTMF (touch tone)
DTMF output timing	70 msec on, 70 msec off
DTMF output levels	-8 dBm per frequency (nominal)
Number of digits	16-digit maximum
Number of digits for outdialing	15-digit maximum
Addressing (incoming)	DTMF (touch tone)
DTMF receivers	LSSGR compatible
Number of receivers	24 (one per DS-0 channel)
Number of digits (DNIS)	Can wait for up to 16 digits (selectable) (can be provisioned not to wait for digits)
Initial digit timer	Will wait up to 4 seconds for first digit (can be provisioned not to wait for digits)
Interdigital timer	Will wait up to 2 sec between digits
Audible ring starts	As soon as selected number of digits is received, or when one of the above timers expire (whichever occurs first)
DNIS capacity	0–16 digits
ANI capacity	Not supported
Transfer capability	Not supported in tie trunk configurations

Table 6-15. T1 Telephony Interface Specifications for Tie Trunk Type Configurations Only

Attribute	Specification
DS-1 framing	D4 type only
DS-1 line coding	ZCS
DNIS capacity	0–16 digits
ANI capacity	Not supported
Transfer capability	Not supported in tie trunk configurations

Table 6-16. T1/PRI Telephony Interface Specifications for ISDN-PRI Type Configurations Only

Attribute	Specification
DS-1 framing	D4 or ESF (selectable)
DS-1 line coding	ZCS (with D4 framing only) B8ZS (with ESF framing only)
B-channel capacities	23 B+D to 119 B+D with 1 to 5 T1 cards (AYC3B or AYC11)
D-channel capacities	Maximum of 1 D channel per system (for example, two 23 B+D interfaces are not supported)
Interface ID	1 (for card with D-channel, not selectable) 2–4 (for card without D-channel)
DNIS capacity	0–15 digits
ANI capacity	0–15 digits
D-channel backup	Not supported
Transfer capability	Not supported by ISDN-PRI protocol

For additional information on T1 telephony interfaces, refer to Chapter 3, “Digital Telephony Interfaces” in *Intuity CONVERSANT VIS V5.0 Communication Development*, 585-310-229.

Data Communications Characteristics

Table 6-17 details the data communications characteristics for the Version 5.0 platforms.

Table 6-17. Data Communications Characteristics for Version 5.0 Platforms

Attribute	Asynchronous	Synchronous
Ports	1–9	1–2
Ports available for Host Communication	1–2	1–2
Simultaneous Host Sessions (LUs)	24–128	32–64
Mode	Full duplex	Half/full duplex
Protocols	Xon/Xoff	3270 SNA/SDLC
Data rates	To 9600 bps	To 56000 bps
Interface	EIA-232C	EIA-232C

Performance Information

7

What's in This Chapter

This chapter provides information to help insure proper sizing of the system, and includes performance considerations for:

- System architecture
- Software components
- Other processes

Also included are sections on know poor performers and general conclusion about performance.

NOTE:
Understanding the performance considerations aid in identifying and resolving performance-related problems in applications. Use this chapter in conjunction with the repair procedure "Reducing the Load" in Chapter 4, "Common Maintenance Procedures," of *Intuity CONVERSANT VIS V5.0 Maintenance*, 585-310-153, to help pinpoint the root cause of a particular performance problem.

Performance Considerations

The performance of a VIS depends greatly on factors such as amount of memory, amount of speech, size of the application or applications, call volume, etc. Since performance is a function of customer application, it is not possible to predict the performance of a given customer setup in the scope of this section. However, some general conclusions can be made based on performance and load tests done of a representative VIS.

System Architecture

The following sections provide performance information in relation to the VIS system architecture.

Voice Processing Architecture

With respect to performance, the most important aspect of the VIS architecture is the technique used to move speech data from disk to main memory to voice processing cards (assume for simplicity voice play as opposed to voice code in which case the direction is reversed). Coded speech requires 4 Kbytes of memory for every second of speech with the ADPCM32 coding algorithm. With 96 telephone network connections of voice processing activity, the main central processing unit (CPU) could be required to move up to 384 Kbytes of data per second. (The figure is twice what you might expect to allow for reading from disk and writing to the voice card.) Once the data is on the speech card, the cards themselves have digital signal processors (DSP) which then convert that speech data into a form suitable for telephony.

It is important to note the significance of the buffer cache. The buffer cache is an area in memory set aside for speech data. Once speech is read off the disk it resides in the buffer cache indefinitely. Since some applications may play the same speech over many telephone network connections, the speech data only has to be read into memory once. From that point, speech data will be written directly out to the voice cards from memory and the extra step of reading the speech data off of the disk will be eliminated. Speech data is removed from the buffer cache if it is least recently used and there is not enough room in memory to accommodate new speech required by the application.

The size of the buffer cache is tunable through the nbufs parameter in the **/vs/data/spchconfig** file. It is set to 240 by default. Minimally, it should be set to 2.5 times the number of telephone network connections in the system.

Once the data is on the voice card the DSPs process the data and send it out over the telephone network.

Effect of Real Time Requirements

Speech must be played in real time. Therefore, speech data must be available when it needs to be played. With voice processing, speech cannot be sputtered on the telephone line as conventional multitasking computer systems can do with other data when sending it to an output device. If speech data is sent in this manner to the caller, the information is unintelligible and it can not be reviewed by the caller.

UnixWare is a time-shared operating system as it tries to satisfy all tasks of the applications running on it on request. The UnixWare system is not concerned of what gets done when from the VIS perspective. The UnixWare system queues may lead to unacceptable delays in voice processing. Therefore, the CPU must always be available to service voice processing requests. When processes are queued on the CPU for any significant amount of time, the real-time requirement is violated. Experience has shown that when CPU occupancy rates approach 60%, performance-related problems begin to appear.

Effect of Memory Requirements

The CPU is capable of satisfying 96 simultaneous requests for data at a rate of 32 Kbit/sec (or 200 Kbytes/sec) total system throughput. Additional testing shows that the CPU is capable of loads of 300 Kbytes/sec. Processes, if resident in memory, can satisfy a great quantity of voice processing. If, however, a process (or part of it) is forced out of disk due to insufficient memory resource, and then needed later, the time it takes to retrieve the process from the disk may be too great. If this process is in a real-time computational path, speech processing delays can occur. Therefore, it is imperative that all processes and data required to meet an application's needs fit in the core memory simultaneously. It is more important to consider memory usage than CPU or disk usage when combining features or developing data interface processes (DIPs).

Paging

Excessive paging can lead to swapping; a much more serious problem than paging depending on which processes are swapped. Increasing the amount of CPU memory (for example, going from 32 Mbyte to 48 Mbyte) solves the paging problem.

Software Components

The following sections detail the features identified as having major impacts on system performance. Each section includes a description of the feature (that is, how it works) and the feature's effect on performance, memory resources, CPU resources, and disk resources.

Speech Playback

Speech playback is the most widely used feature of the system. It poses some difficult performance issues due to the architecture of the system, the real-time nature of speech, and the great variability that can be found in how applications use speech. Variables that affect play performance include phrase length, active speech pool size, and speech coding rate:

- Phrase length — Affects play performance in two ways. The concatenation of several short phrases requires the VIS to process several talk requests. This involves retrieving several different phrases from the speech file system. The initial talk request is retrieved from disk and stored in core memory for quicker access at a later time if the phrase is played again. With a single longer phrase, a single talk instruction is processed by the VIS and only one initial retrieval from disk is necessary.

  Phrase length also affects the utility of speech buffers. Longer phrases typically make more efficient use of speech buffers. Inefficient use of speech buffers requires more data to be moved than what is actually used, causing wasted speech buffer cache memory and SP window buffer contention. The best way to enhance speech buffer utilization is to eliminate unnecessary short phrases from applications. Do not use short phrases for silence if the silence can be concatenated with longer phrases. Avoid trimming phrases to the absolute minimum and then speaking silence phrases between other phrases. Record phrases that are always used together as a single phrase. Also, note that speech buffer efficiency cannot be calculated by taking the average of the phrases in the application talk file, but must be calculated by considering the frequency that each phrase is used during a typical execution of the application.

- Active Speech Pool — The active speech pool is a list of all phrases used during system operation. The size of this pool is the quantity (in bytes or seconds) of the speech. If a large quantity of unique speech is required by the applications running on the system, it is unlikely that the system speech buffer cache can be used effectively. As new phrases are required for speech, old phrases are flushed out of the cache and must be reread from disk when needed later. It is best to share speech across applications and reuse speech in applications wherever possible.

- Speech coding rate — By default, the voice system can store 720 seconds of speech in the buffer cache. However, due to speech buffer inefficiencies, the actual value is likely to be closer to 360 seconds.

  The speech coding rate affects voice play in two ways: bytes per second of speech required, and digital Signal Processor (DSP) resource requirements. Coding rates requiring fewer bytes per second (for example, SBC16) lessen the load on the CPU and the disk and reduce the memory requirements if phrases would have required more than a single block with the standard coding algorithm (ADPCM32). Coding rates also reduce storage space. The drawback of SBC-type algorithm occurs in DSP requirements. To avoid DSP overload, do not exceed any of the capacities shown in Table 4-3. DSP resources are adequate with IVP cards to handle any coding type, but when using SP cards for voice, capacities are reduced

Speech Playback Usage Summary

The following information summarizes the speech playback feature usage on the system.

CPU — Usage varies widely among applications. Copying for play is typically the most CPU intensive activity in the entire system. Using 16Kb/s code speech, ensuring efficient use of speech buffers and maintaining speech in the speech buffer cache can help alleviate CPU load due to play.

Disk — Disk usage may increase not only to copy coded speech to disk but also to reclaim speech for play which was over written in the buffer cache to make room for the newly coded speech. Also be aware of capacity limitations. A system coding on 96 telephone network connections continuously and simultaneously using the ADPCM32 coding algorithm will easily fill a 600 Mbyte disk to capacity in less than one hour.

Memory — Be sure that too big a buffer cache is not forcing paging on the system. See “System Architecture” earlier in this chapter. If a wide variety of speech is played (greater than 20% of max_phrases with the default setting of 32,000), a large amount of memory may be used by phrase list blocks (PLBs). Consider making max_phrases as small as possible, particularly if speech requirements are not expected to grow. Phrase list blocks are used to find the address of a phrase on disk. Phrases Ids are hashed (uniformly distributed) into a table and the appropriate address for the phrase is found. This technique provides for very fast identification of where phrases are on the disk. The drawback it that addresses of every phrase on the disk(s) must be stored in shared memory (in core or on the swap device). The hash table is sized at system startup, its size is proportional to max_phrases. Since hash algorithms attempt to uniformly distribute indexes across the table, it is possible that system with only a small speech pool will require the entire hash table to reside in core, this can be wasteful. When max_phrases is set to 32,000, 234 pages of shared memory are reserved for this table.

Voice Code

Voice coding requires more resources than voice play. Additional resources are required for setting up the code, and since coding does not benefit from the system buffer cache, it tends to increase disk activity and reduce the effectiveness of the system buffer cache. The ADPCM coding types also require more SP resources for coding than playing speech. However, voice coding does not generally share the same complexities found in play due to the combination of buffer efficiency and phrase concatenation. CPU usage is increased during voice coding since an available phrase-id from the requested talkfile must be found, and speech buffers must be allocated in core memory prior to code start.

The voice coding algorithm also effects load for the same reasons discussed under play. Code length also effects the likelihood of problems. Code is a continuous process, the longer the code, the more likely that the system will get bogged down performing some other activity.

Voice Coding Usage Summary

The following information summarizes the voice coding feature usage on the system.

CPU — Copying data from the voice cards to memory to disk is the main CPU resource consumer. Denser coding algorithms can be used to lessen this load.

Disk — Disk usage may increase not only to copy coded speech to disk but also to reclaim speech for play which was over written in the buffer cache to make room for the newly coded speech. Also be aware of capacity limitations. A system coding on 96 telephone network connections continuously and simultaneously using the ADPCM32 coding algorithm will easily fill a 600 Mbyte disk to capacity in less than one hour.

Memory — Memory requirement increase by about 20 pages for coding over play alone. More of the Phrase List Block structure will be required in memory.

Events

In general, a reasonable number of script events (8 events on calls with a hold time of 2 minutes over 96 telephone network connections) can be handled without any serious performance degradation. As scripts process more events, however, event processing costs can become significant. This is due to heavy use of disk resources. The processing of events impedes the voice system from retrieving speech from the disk fast enough to avoid speech breaks. Since event processing is spawned from the script when the call completes, it is also possible to overload the system with calls having relatively few events but very short call hold times. That is, the load introduced by Events is a function of both the call rate and the number of Events per script. For applications under very tight performance specifications, call data logging can be turned off by starting cdh with the *-ns* option. This change should be made to the files **/etc/inittab** and **/vs/data/CONVERSANT**.

Events Usage Summary

The following information summarizes the events feature usage on the system.

CPU — CPU usage will increase at the rate of about 0.5% CPU utilization per event per second for 486 CPUs.

Disk — Disk throughput, assuming basic voice system play and touch tone type activity, will be saturated at about 16 events per second on a SCSI system.

Memory — No effect measured.

Touch Tones

Although the system is efficient and accurate in processing touch tones, this processing overhead can be significant under load conditions. Each touch tone results in a message sent from the board interface process to TSM. Processing of these messages can get expensive if touch tones are received at very high rate (greater than 2 touch-tones per second per channel over 96 telephone network connections). Applications are not likely to see performance related problems resulting from touch tone overloads, but keep in mind that they do have a cost.

Touch Tone Usage Summary

The following information summarizes the touch tone feature usage on the system.

CPU — The system requires approximately 0.2% per touch tone per second for 486 CPUs.

Disk — No effect measured.

Memory — No effect measured.

Local Database

The local database is difficult to characterize since applications can vary widely. In general, all tables should be indexed on the primary key. Other things to watch out for are tables which change in size as the database never reclaims the space for a table after it has grown and shrunk. This is true for VIS tables such as events and cdh. Rollback segments also grow in this manner and can cause space problems.

Since the Script Builder database querying capabilities do not support many of the features found in high level database query languages, views could be used to encapsulate common queries across tables, thereby eliminating processing required at the script level. Through the use of views, there exists a potential of increasing the amount of work ORACLE has to do.

Complicated ORACLE interaction takes more time than sets of simple interactions. The time to update a particular field is roughly proportional with the overall complexity of the database request. That is, it takes much less time to performs 30 simple updates that it takes to perform 1 update with 30 components.

Local Database Usage Summary

The following information summarizes the local database feature usage on the system.

CPU — Depends too heavily on application to attempt a figure.

Disk — Depends too heavily on application to attempt a figure.

Memory — Additional 200 pages of memory required for applications using the local database. This is the expected increment for most small database applications.

Feature Packages

The following section details the performance impact of some features packages available with the Intuity CONVERSANT VIS. Due to the enormity of features available with the VIS, all feature packages are not formally characterized. Performance assessment of these features can be made under the following assumptions:

- Features are used in such a way that the load they place on the system is proportional to the number of active channels on the system.
- The use of the feature is no more disk or CPU intensive than if the telephone network connection using the feature was performing voice code or play.

Most features meet these assumptions as the sections explain below. Memory cannot be put under these assumptions. In real time, all processes cannot run on the CPU or access the disk, but all processes required to meet the needs of an application must be resident in memory at all times. For this reason, in conjunction with the assumption given above, only a memory requirement for each feature is given. This memory requirement should be subtracted from the free memory of an application. If the free memory value drops below 100 pages, serious consideration should be given to reducing the memory requirements of the application.

Features Using SP Cards

Speech Recognition, Text-to-Speech (TTS), Call Classification Analysis (CCA), and Primary Rate Interface (PRI) use the processors on the Signal Processor (SP) and Companion (CMP) cards to perform the computations required to provide the feature functionality. The SP cards contain a microprocessor similar in power to the processor of the main voice system plus some DSP chips which are used to perform the signal processing portion of their operations. The voice system software understands the limits of the SP cards for operations they perform, and SP cards are guaranteed to perform with no performance related problems up to those limits.

Thus, the SP cards themselves will never show any load related problems. It is up to the application designer to ensure that there are enough SP resources available to handle the application at hand. In the case of Speech Recognition, TTS and CCA, an SP can be thought of as a multiple server resource, it can be modeled with standard queuing theory techniques. Knowing the rate at which service for the SP resource will arrive, the mean service time and the number of telephone network connections of service an SP can deliver, the probability of insufficient SP resources can be calculated for any number of SP's. Note that queuing models assume that blocked jobs will be queued, this is provided automatically by TTS but must be programmed with Speech Recognition and CCA, presumably through some retry strategy. For additional information about performance issues on features using SP cards refer to "Optional Features Effects on Performance" below.

Optional Features Effects on Performance

Most of these features will have a no effect on the performance or will actually improve performance when compared with applications using standard voice system functionality unless the DIPs introduced with these features cause paging problems.

- Speech Recognition improves system performance since this feature, as a data gathering technique, is much slower than touch-tone input. As a result, the CPU will spend more time waiting for an Speech Recognition response than waiting for a touch-tone response.
- TTS also improves performance. Rather than the system moving around 4,000 bytes per channel per second with voice play, it only has to move a few bytes with TTS, those being the English text of the phrase. While the TTS SP card is playing, the main system remains idle for that channel.
- CCA is used to improve the accuracy of outbound call classification. The performance effect of CCA depends on two concepts: Firstly, in comparison to intelligent calls, full CCA calls which fail will return more quickly. Secondly, during Call Classification, no other system resources are being used. The combined effect is that idle time will be reduced. How much depends on call rates and the probability of call failure.

- The PRI SP is used only to perform protocol analysis from the PRI D channel. Load on the SP from PRI protocol analysis will be proportional to the rate of calls to the VIS. The call rate will be throttled by the main CPU before the PRI SP resources are exhausted. The throttling of the call rate by the CPU exists independently of PRI.
- Form Filler is simply an application over the existing voice system with a small database. The bulk of the work in form filler is with voice code. Form filler will not use resources at a level significantly greater than those being used by standard voice code applications.
- Host is not any worse than local database in terms of resource consumption. Response times depend heavily on the number of concurrent host activities being generated by the system, the number of sessions, and the response time of the host. Low bandwidth communications channels (9600 baud), will have difficulty supporting 30 telephone network connections of host access. The host uses CPU resources primarily. There is little or no load placed on the link with the host.
- AUDIX Voice Power is not any worse than standard voice code and play applications with the possible exception of a larger speech pool and longer code times. However, the AUDIX Voice Power application is limited to 12 telephone network connections.
- Remote database, in comparison to a local database application, will have the following performance impact: slower response times unless the database server is much faster than the VIS, less disk utilization since database access will be performed on a remote system, and less CPU usage. Use of a VIS for voice processing and as a centralized database server is not recommended for systems with high voice traffic. Remote database is an attractive feature for systems which are currently heavily loaded with simultaneous voice and local database activity.
- The effect of the network will depend largely on the application. Note the effect of background process performing activities on the system in parallel for call processing. For example, copying phrases coded from an earlier call to a centralized machine, yet allowing new calls to continue to code speech. The ability of the VIS will be reduced by as much as half since, in aggregate, the VIS will be performing twice the work per coded phrase.

Other System Processing

With a properly written application, the voice system usually operates without any performance problems. The introduction of non-voice system activities to the system, however, can degrade voice processing performance. Although the additional processing may seem light in terms of disk and CPU use, memory usage is impacted significantly.

When new processes are started on the system, they force other processes or data, or at least parts of them, to be placed on disk. This is referred to as swapping or paging. If a critical part of a voice system process is placed on disk, it will not be able to run when the system needs it and delays in speech processing will occur. The UnixWare system does what it can to keep the most important or active process or data in memory but it can only guess what will be needed next. Therefore, logging onto the system during call processing may result in user perceptible delays and speech breaks. Operational, administration and maintenance activities should be done during off hours. Script development (with Script Builder, etc) should also be done in off hours or on a development machine.

IRAPI scripts and application DIPs should be written to consume as little memory as possible. They should also avoid forks and execs. The use of shell scripts for call processing is discouraged. Non-VIS processes that take up excessive amounts of memory (like X-windows) should be avoided. If utilities are written for administration and other activities, they should be run during off hours. Shell scripts are very dangerous since they typically execute many processes. As processes are formed in UnixWare, they consume memory. This memory consumption forces other processes out of memory, potentially critical voice system processes.

After the processes are running for some time they will find their working set, and assuming sufficient memory, will perform adequately. With shell scripts however, processes are typically spawned off very frequently and continuously. This behavior is likely to force critical processes out of core memory. Shell scripts are also wasteful of CPU resources. If shell scripts are written, they should be used sparingly and only to control operations at a very high level. Scripts which contain looping constructs with process executions within the body of loops are typically poor performers. ksh features to perform mathematical and lexical operations should be used over standard UnixWare commands.

Known Poor Performers

The following types of applications have been identified as poor performers either through testing or in the field. The VIS can support these applications but only at reduced channel counts or with carefully-tuned applications. Where appropriate, a recommended telephone network connection capacity is given for the application type. Customer application designers should be aware of these as potential pitfalls. Reference prior sections of this document for more details about some of these application types in their respective sections. The 486 processor reduces the impact to the application.

- Applications making inefficient use of speech buffers — This includes applications playing many small phrases in such a variety that they cannot be contained in memory simultaneously.

- Applications using PCM64 coding algorithm — If PCM64 is used for most speech processing and the application spends the majority of call connect time doing voice code or play, systems should be limited to approximately 72 telephone network connections.
- Applications with memory intensive dips or non-voice system processes — If these processes force paging (check memory usage data), channel count should be decreased to free up memory used for speech processing and script data space. Typically, reducing channel count will not free memory in a linear manner if at all. If memory usage cannot be reduced, the only recourse may be to reduce load enough so the system can live with the paging.
- Applications with large numbers of call data events — See the section on 'Events" earlier in this chapter.
- Systems used simultaneously for both application development and call processing — Customers should be strongly encouraged to purchase low end development systems to support script development (or to hang onto their old systems). If customers insist on doing script development on production systems then they should be warned up front about the performance impact. Since script development is a memory consumer and activity will be sporadic, a suggested reduction in capacity cannot be given.
- Applications taking calls during hours when call data records are summarized — If customers expect high traffic volumes overnight, the call data summary cron jobs should be moved to the lowest call volume time of the day.
- Systems experiencing OA&M and voice processing simultaneously — Such activities are similar to script development and carry the same risks. Running reports via cvis_menu is extremely memory intensive.
- X-windows

General Conclusions About Performance

There are two general conclusions which are important to the understanding of performance on the Intuity CONVERSANT VIS.

- Performance limitations are probabilistic numbers.
- The Intuity CONVERSANT VIS is a general purpose computing device.

The limitations advertised for the VIS are numbers that are acceptable for most applications. The vast majority of field applications will never see any performance related problems. For those that do see problems, it is likely that tweaking the application, with the understanding of the underlying architecture and how it effects performance, can remove those problems. The idea of the VIS as a general purpose computing device lends the VIS to all the same performance issues of any other general purpose computing device. Since the VIS is programmable, there is nothing that prevents customers from writing applications that can seriously effect performance. These applications, in most cases, can also lend themselves to more intelligent solutions aided through the understanding of the principles discussed here.

Release and Platform History

A

What's in This Appendix

This appendix includes summaries of the hardware and software features introduced with the following Intuity CONVERSANT VIS in releases:

- Version 2.1
- Version 3.0
- Version 3.1
- Version 4.0

Version 2.1 Features

CONVERSANT VIS V2.1 was introduced in December, 1991, and was offered on three different platforms:

- MAP/100C — Central Office unit that is nearly the same as the MAP/100C unit available with V4.0. It used ESDI magnetic peripherals and a 25 MHz, 386 CPU with 8-Mbytes of memory standard.
- MAP/100 — Commercial version of the MAP/100C unit that is nearly the same as the MAP/100 unit available with V4.0. It used ESDI magnetic peripherals and a 25 MHz, 386 CPU with 8-Mbytes of memory standard.
- 6386WGS — This unit was the low-end CONVERSANT platform. It was a desktop PC that provided basic features. It used IDE magnetic peripherals and a 25 MHz, 386 CPU with 8-Mbytes of memory standard. It replaced the 16 MHz 6386WGS that had been previously used for CONVERSANT VIS V2.0

Features provided by CONVERSANT VIS Version 2.1 included:

- Integrated services digital network (ISDN) primary rate interface (PRI)

  This feature provided a digital interface between the VIS and another network entity, such as a 4ESS switch or DEFINITY PBX. This feature provides the following benefits which includes: voice response application access to information about calling party number (often referred to as ANI) and called party number, faster call setup, and the ability to choose the Q.931 network-specific facilities (NSF) service type for outgoing calls.

- Speech recognition of connected digit strings and isolated key words

  This feature provided the ability for the VIS to accept connected strings of digits, such as an account number or credit card number during Speech Recognition transactions. The ability to recognize one key word out of a spoken phrase has also been added. Benefits of this feature include the ability to allow callers to enter specific data that can be used to identify information in a database for use during the call. The speech recognition improvements allow an application to handle callers who do not have touch tone phones. With the prompt interrupt and keyword spotting capabilities of this speech recognition package, callers have added flexibility and naturalness in transaction automation.

- Advanced Call Classification Analysis (CCA)

  This feature provided more detailed identification of SITs (Special Information Tones) and higher accuracy in call progress tone classification for call transfers and outgoing calls in inter-switch and intra-switch situations.

- ADPCM and SBC speech coding

  This feature provided additional choices of 16 or 24-Kbps Sub-Band Coding (SBC), 16 or 32-Kbps Adaptive Differential Pulse Code Modulation (ADPCM), or 64-Kbps PCM for speech during coding or playback. This allows the application developer to select the type of speech coding and rates used based on the trade-offs between storage space and subjective speech playback quality.

- New transaction state machine (TSM) script capabilities

  This feature provided several additions to the existing VIS script capabilities, including the following listed here. For more information see the *CONVERSANT VIS Version 2.1 Application Guide.*

  — The “exec” instruction for starting a different script from a script

  — Background music, playing at any time, with up to one unique background for each channel

  — Touch tone type-ahead option with the “setttfl” instruction

  — Playback fast-forward, pause, and rewind using a new option in “tflush” and the new “talkresume” instruction

  — The ability to specify the length of a phrase, when coding, in terms of seconds (instead of bytes) with the “phreserve” instruction

  - The ability to determine how coding was terminated and get back the length of a coded phrase from the “vc” instruction
  - The ability to have a DIP interrupt a script using the “DIP_INT” IPC message and the “EDIPINT” script event
  - Bit logical operations with the “and”, “or”, and “not” instructions

- Script Builder load time improvements

  This feature provided quicker load times for Script Builder application scripts. For example, a script with 6300 phrases takes 35 seconds to load instead of the 20 to 30 minutes it previously took.

- Faster phrase listing in Script Builder

  This feature provided quicker list times for application scripts, when using CHOICE or LIST keys. For example, an application with 6300 phrases takes 40 seconds to list, compared to 20 minutes previously.

- Script Builder Hardware Integration

  Script Builder Voice Editor (SBVE) now works with an SP circuit card as well as IVP cards.

  NOTE:
  The SBVE is currently limited to working with 32-Kbps ADPCM.

- New Tip/Ring circuit card

  This release introduced a new tip/ring circuit card, the IVP6, that contains more advanced signal processing capabilities. The new card, also called the AYC5, provided six channels of analog tip/ring service, and was meant to replace the VRS6 Tip/Ring network interface cards

- Manual Configurator software program

  This feature introduced a configuration program for installation that selects an acceptable combination of default CPU resources for the cards being used. It assigns all optional circuit cards appropriate Interrupt numbers and RAM addresses based on the particular combination of hardware and software selected for each particular platform.

- Optional touch tone Pass Through for T1 and PRI cards.

  This feature, also known as “Muting off,” supported the ability to accept DTMF tones from a bridged line.

- Read-only and Write-Only Speech File Permissions

  This feature provided Read-Only and Write-Only speech access permissions to speech files on the system. This prevents files from being overwritten or tampered with by unauthorized individuals.

Customers upgrading from older CONVERSANT VIS releases to CONVERSANT VIS V2.1 noticed a few changes. Version 2.1 introduced optional feature packages, and some of the administrative screens had been changed to accommodate new capabilities. In addition, please note that Version 2.1 was not supported on the 16 MHz AT&T 6386 WGS processor (CPUs 63 and 64).

Version 3.0 Features

CONVERSANT VIS V3.0 was introduced in June, 1992, and was offered on three different platforms:

- MAP/100C — Central Office unit that is nearly the same as the MAP/100C unit available with V4.0. It used ESDI magnetic peripherals and a 25 MHz, 386 CPU with 8-Mbytes of memory standard.
- MAP/100 — Commercial version of the MAP/100C unit that is nearly the same as the MAP/100 unit available with V4.0. It used ESDI magnetic peripherals and a 25 MHz, 386 CPU with 8-Mbytes of memory standard.
- 6386WGS — This unit was the low-end CONVERSANT platform. It was a desktop PC that provided basic features. It used IDE magnetic peripherals and a 25 MHz, 386 CPU with 8-Mbytes of memory standard. It continued to replace the 16 MHz 6386WGS that had been previously used for CONVERSANT VIS V2.0

New hardware introduced with CONVERSANT VIS Version 3 included:

- An 8-Mbyte, 50 MHz Signal Processor (SP) card required for TTS (AYC9)
- An 8-port asynchronous interface card replacement (IPC-900)
- A 3270 synchronous host card replacement (CLEO PCXL 3270)
- A 4-channel T/R card (AYC6)
- A StarLAN 10 Network PC NAU 10BASET network card (PC-NAU)
- An Ethernet TCP/IP 10BASE2 network card (NP600A)
- A circuit card to support AUDIX Voice Power System 75 integration (DCP)
- An circuit card required for D-channel ASAI Interfaces (IPCI)
- Alarm Relay Unit

Features provided by CONVERSANT VIS Version 3 included:

- Text-to-Speech (TTS)

  This feature allowed an application to play speech directly from ASCII text. Benefits of this feature include the use of TTS as an alternative to prerecorded phrases in applications which require speaking frequently changing text (such as names and addresses), or which have a large amount of speakable text (for example, electronic news).

- Adjunct/Switch Application Interface (ASAI)

  This feature supported the AT&T ASAI for communication with the DEFINITY Communications System, Generic 3. One benefit of this feature is voice response application access to information about calling party number (often referred to as Automatic Number Identification or ANI) and called party number, with standard Tip/Ring (T/R) lines. Other benefits of this feature include the ability to monitor and route calls, and the ability to pass the status of calls to a host for use in presenting data screens to live agents.

- AUDIX Voice Power Coresidency

  This feature allowed access to AUDIX Voice Power Voice Mail capabilities by CONVERSANT VIS Script Builder scripts. The ability of AUDIX Voice Power R2.1.1 to coreside with CONVERSANT VIS provides the capability for both AUDIX Voice Power and CONVERSANT VIS applications to run simultaneously on different channels of the system.

- Local Area Network (LAN) Connectivity

  This feature provided the interface between a CONVERSANT VIS and a 10BASET (StarLAN-10) or a 10BASE2 (ThinNet) TCP/IP Local Area Network (LAN). Benefits of this feature include the ability to communicate with other systems, including non-CONVERSANT VIS, on the LAN.

- Remote Database Access

  Employing SQL*NET and a TCP/IP LAN, this enhancement provided Script Builder developed scripts with the ability to read and modify tables in remote ORACLE databases. Script Builder access to remote ORACLE databases for table creation/schema modification and read/modify access during script development is also provided.

- Form Filler Plus

  This feature allowed scripts to capture speech from callers for later retrieval and transcription. Benefits of this feature include the ability to capture, by spoken word, information which would be difficult to enter with Touch Tones, such as a name and address.

- CompuLert/Switching Control Center System (SCCS) Interface

  This feature provided an interface to both the CompuLert centralized maintenance system for minicomputers and the SCCS centralized maintenance system for local 4ESS switching systems. Benefits of this feature include the ability for a user at the CompuLert/SCCS to monitor and remotely administer the CONVERSANT VIS. This feature can be coupled with an alarm relay unit (ARU) to provide alarm notification.

- NetView Alarm Interface

  This feature provided a mechanism for transmitting high priority CONVERSANT VIS error messages to an IBM host as Operator Generated Alarms (OGAs) over the same link used for the 3270 interface.

Enhancements introduced in CONVERSANT VIS Version 3 include:

- Dynamic Data Interface Process (DIP) Assignment. This enhancement prevented DIP number clashes among DIPs for different applications by automatically allocating a unique message queue at run time for each DIP.
- ORACLE Version 6.0.30
- Script Builder Enhancements:
  - External Action / External Function Enhancement. Any argument of External Actions / External Functions could be used to return numeric data to the calling script. This facilitates programming with external actions and external functions by removing the restriction requiring arguments to be of type character if data were to be returned to them.
  - Background Music or Speech Action. A Script Builder External Action which provided the ability for a script to connect the caller to background music or speech which has been prerecorded and loaded on the system.
  - Message Coding Action. This is a Script Builder External Action provided the ability for a script to record the caller's speech and store it in the system.
  - Execute Action. A Script Builder External Action which provided the ability for a script to terminate the current application on a channel, without hanging up the call, and execute another application on the same channel. Data may be transferred from the terminated application to the newly executed application.
  - Type-ahead Action. A Script Builder External Action which provided the ability for a caller to enter touch tone digits in advance of prompts, after which the script will advance the caller to the appropriate point in the script.

Many of the external actions above were available previously only at a native script language level.

- T1 DTMF Recognition Algorithm option. A modified algorithm was provided as an option from the standard LSSGR DTMF recognition algorithm. This optional algorithm is less prone to the simulation of DTMF digits by echoed human voice prompts originating from the CONVERSANT VIS. It also eliminates the recognition of echoed tones which have passed through a bridged configuration.
- 3270 Host Interface Enhancements
  - Dual hosts. This enhancement provided an additional Physical Unit (PU) support from a CONVERSANT VIS. This allows connection of a CONVERSANT VIS to two different Front End Processors (FEPs) or to a single FEP shared by one or more hosts, each link supporting up to thirty-two Logical Units (LUs).

  - File Transfer. This enhancement provided the ability for file transfer, initiated by a CONVERSANT VIS, to be conducted in either direction between an IBM host and the VIS.

- PRI Enhancements:
  - Provided the ability for PRI channels to specify the type of ANI a Script Builder script gets.
  - Provided the ability for intercepted calls to determine the dialed number (redirecting number).
  - Provided the ability for the Script Builder scripts to determine the service type on incoming calls.
  - Provided the ability for the Script Builder scripts to set the ANI on outbound calls.
- Command line entry. This enhancement provided the ability to run a subset of CONVERSANT VIS administrative commands via a command line entry interface.
- Software Load from cartridge tape. This enhancement provided the ability for both UNIX software and the base CONVERSANT VIS software to be installed from cartridge tape.

Version 3.1 Features

CONVERSANT VIS V3.1 was introduced in April, 1993, and its software was offered on three different platforms:

- MAP/100C — Central Office unit that is nearly the same as the MAP/100C unit available with V3.0. It used SCSI or ESDI magnetic peripherals and a 25 MHz, 386 CPU with 12-Mbytes of memory standard.
- MAP/100 — Commercial version of the MAP/100C unit that is nearly the same as the MAP/100 unit available with V3.0. It used SCSI or ESDI magnetic peripherals and a 25 MHz, 386 CPU with 12-Mbytes of memory standard.
- MAP/40 — This unit was newly introduced as a replacement to the previous low-end CONVERSANT platform, the 6386WGS. It was a deskside PC that provided basic and advanced features. It used IDE magnetic peripherals and a 25 MHz, 386 CPU with 12-Mbytes of memory standard. It replaced the 25 MHz 6386WGS that had been previously used for CONVERSANT VIS V2.0

New hardware introduced with CONVERSANT VIS Version 3.1 include:

- A new hardware platform, the MAP/40, a PC-sized replacement for the AT&T 6386WGS
- A 1.2-Gbyte Small Computer System Interface (SCSI) hard disk drive
- A 525-Mbyte SCSI cartridge tape drive

- New 4-channel T/R card, the AYC6B
- New 6-channel T/R card, the AYC5B
- New T1 circuit card, the AYC11
- A circuit card that supported central office external alarming
- A speech production kit

Features provided by CONVERSANT VIS Version 3.1 include:

- Base UNIX Software Upgrade

  The CONVERSANT VIS V3.1 introduced a software upgrade from UNIX release 3.2 Version 2.2, to UNIX Release 3.2 Version 2.3. The UNIX upgrade was required to support the SCSI peripherals feature also added in this release. In addition, it provides a flexible platform for expanding the system memory beyond 12-Mbytes.

- 3270 Host Communication Enhancements for Remote Operations

  This feature added significant enhancements to the existing file transfer capabilities in the 3270 Synchronous Host Communications package. Some of the benefits include:

  — A procedure for modifying the application-dependent features of the file transfer capability in a way transparent to the software

  — Establishing and maintaining a Logical Unit-to-Logical Unit (LU-LU) session between the VIS and IBM mainframe, via a dedicated LU at up to 56 Kbps.

  — Sending files from the VIS to a specified destination on the IBM mainframe when available and/or on demand.

  — Requesting files from the IBM mainframe at configurable times

  — Executing batch files and sending the output to the IBM mainframe.

  The above functionality provides a defined interface to link the VIS remote OA&M capabilities into network management on the host. This is not a turn-key package, hence, customer-developed software must be developed to make use of this defined interface.

- Improved System Maintenance

  This base system improvement of CONVERSANT VIS V3.1 allowed the system to assist with the determination and explanation of problems it encounters during operation. The following system enhancements provided for improved system maintenance and troubleshooting:

  — Certification of a specific terminal as suitable for use as a VIS remote terminal.

  — The ability to cause an automatic reboot following a UNIX operating system panic

  — System maintenance message audit and correction

- — System maintenance message presentation improvements
- — T1 diagnostic test improvements
- — A new alarm circuit card to drive externally located remote alarms.

- Small Computer System Interface (SCSI) Magnetic Peripherals

  This feature introduced SCSI magnetic peripherals to two VIS hardware platforms. The devices include the hard disk drive, cartridge tape drive, and the controller circuit card. The following summarizes these improvements:

  - — SCSI hard disk drives 1.2-Gbytes in size are supported for new MAP/100C and MAP/100 platforms. Older platforms are not allowed to be upgraded to replace ESDI peripherals with SCSI devices.
  - — SCSI cartridge tape drives 525-Mbytes in size are supported for new MAP/100C and MAP/100 platforms. Older platforms are not allowed to be upgraded to replace ESDI peripherals with SCSI devices.
  - — Mixing ESDI and SCSI peripherals on a platform is not supported.
  - — CONVERSANT VIS V3.1 software continues to support ESDI peripherals on older hardware platforms. This allows software functionality to be upgraded on existing hardware platforms.

- SCSI Disk Mirroring

  This feature introduced mirroring for SCSI hard disk drives in MAP/100C and MAP/100 systems. Mirroring configures and manages a data storage system so that each hard disk drive has an independent backup copy kept on another identical hard disk drive.

  The functionality of SCSI disk mirroring is only available with systems equipped with two SCSI hard disk drives.

- Updated Tip/Ring and T1 Circuit Cards

  This was a user transparent feature that provided support for updated tip/ring and T1 circuit cards, functionally equivalent to the previous circuit cards certified for V3.0 systems. Minor modifications were made because certain components used in manufacturing the cards are no longer available. The updated cards have improved profiles because of relocated TDM bus connectors on each one. The new circuit cards are designated as follows:

  - — AYC5B — New IVP6 circuit card
  - — AYC6B — New IVP4 circuit card
  - — AYC11 — New T1 circuit card

- Speech Production Kit

  This orderable feature package, designed to be used with the optional Script Builder software feature package, provided an interface to the CONVERSANT VIS for speech recording and storage through the use of a microphone and/or recording/playback equipment, instead of through a telephone handset. The unit accepts audio from a tape recording system or microphone, and feeds it to the CONVERSANT VIS through a standard tip/ring port. This direct connection results in a much cleaner recording than if the sound had traveled through air and an inefficient telephone handset before being digitized and stored in memory.

- Central Office External Alarms

  This feature package, used only on the MAP/100C supported a means for administering externally accessible alarm relay units for central office isle alarms.

  External Alarms provides the capability to enable, disable, display, reinit, retire, or test external alarms using commands included with the External Alarms Interface software package.

Version 4.0 Features

CONVERSANT VIS V4.0 was introduced in October, 1993, and its software was offered on three different platforms:

- MAP/100C — Offered with SCSI magnetic peripherals for new sales with resuse of ESDI supported, and a 50 MHz 486 CPU with 12-Mbytes of memory standard for new sales with reuse of 386 CPU supported.
- MAP/100 — Offered with SCSI magnetic peripherals for new sales with resuse of ESDI supported, and a 50 MHz 486 CPU with 12-Mbytes of memory standard for new sales with reuse of 386 CPU supported.
- MAP/40 — Offered with SCSI magnetic peripherals for new sales with reuse of IDE supported, and a 25 MHz or 50 MHz 486 CPU with 12-Mbytes of memory standard for new sales with reuse of 386 CPU supported.

New hardware introduced with CONVERSANT VIS Version 4.0 include:

- 50 MHz 486 CPU with 12 Mbytes of memory standard
- 25 MHz 486 CPU with 12 Mbytes of memory standard (for MAP/40 ONLY)
- FAX card TR114-I4L Version 1.3 Firmware
- FAX card TR112 Revision F
- T/R card AYC16 IVP6-IU

- Remote Maintenance Board (RMB)

  When the VIS is powered on or rebooted, the RMB monitors the power-on diagnostics and stores the results in a buffer on the RMB. Upon completion of power-on diagnostics (Power-On Self Test, or "POST") the RMB takes charge of the system and allows a logged-in user the option of viewing the stored diagnostics and/or performing other tests on the platform. Using a brief time window, if the diagnostic option is ignored or if no one is logged on, the RMB releases the VIS to proceed with the boot process.

  With the system operational, the RMB continues to monitor the power supply (via the PC-AT bus) and internal temperature (via a sensor on the RMB). The RMB is also capable of monitoring MAP/100 internal fans and the MAP/100 battery backup power supply.

  Thresholds and actions for these parameters are configured on the RMB. The RMB can be configured to automatically report an alarm to a remote location via its modem port, and it can be used to reset the system from a remote location.

- Hardware Upgrade kits

  Hardware upgrade kits support the following:

  — ESDI-SCSI hard disk upgrades on MAP/100s

  — 386-486 50 MHz CPU upgrades on MAP/100s

  — 386-486 CPU upgrades (25 and 50 MHz) bundled with IDE-SCSI hard disk upgrades on MAP/40

  — 50 MHz 486 CPU upgrades for MAP/40s already equipped with a 25 MHz 486 CPU and SCSI

  SCSI upgrades shall include a single 1.2 Gbyte SCSI hard drive and a SCSI streaming tape drive. The CPU upgrades include the new CPU and any required cables/adapters to connect it to the keyboard and reset interfaces in the MAP platform being upgraded. The new CPU keyboard cables shall be capable of supporting the RMB remote reset capability, MAP/100 fan monitoring, and MAP/100 business platform battery backup monitoring. Every kit contians all necessary cables and parts to complete the upgrade.

Features provided by CONVERSANT VIS Version 4.0 include:

- Upgrade Assistance Program — software package designed to facilitate upgrades to Version 4.0
- Target country technical specifications

  Target countries are: Canada, the United Kingdom, Mexico, and Hong Kong. Type approvals included hardware testing for compliance with country-specific standards for signaling and safety.

- Speech Recognition for UK English, Canadian French and Mexican Spanish

  These orderable feature packages supported the languages listed above (as well as US English) based on the whole word speech recognition package. Recognition capabilities are similar to the 0–9, yes, no and oh capabilities found in the US English domestic offering, but the capabilities are offered in the native language equivalents for the country. These languages include speech models and grammars for each language.

- Bi-lingual Speech Recognition

  The introduction of country-specific speech recognition in V4.0 is further enhanced by a new generic capability which allows concurrent recognition of any two of the V4.0 generic whole word speech recognition languages.

  Concurrent use means that any two of the supported speech recognition packages may be installed on the system at any one time, and the VIS system is capable of recognizing either of the two languages during a transaction.

  Using this capability, a single system can be configured to conduct transactions in two different languages simultaneously. Shared usage of the recognizer continues to operate according to the current memory capacity rules of the SP and SP Companion boards, assuming that country-specific dialect considerations do not cause the vocabulary size of the country-specific speech recognition packages to become larger than 13 words.

- FlexWord Speech Recognition

  This feature is a limited set of subword speech recognition capabilities. The purpose of these capabilities in V4.0 is to offer opportunities for quick lower cost turnaround of custom speech recognition vocabularies, to gain experience with subword recognition technology, and to set the stage for subword recognition technology in future generics. FlexWord also offers the potential for increased vocabulary size when compared to the existing VIS speech recognition feature.

  In V4.0 FlexWord, is based on a phoneme set derived from U.S. English.

  Accuracy of each custom vocabulary will vary. In addition to the normal things which affect recognition accuracy such as telephony conditions and regional dialects, FlexWord performance is affected by the length of the words being recognized as well as by the specific mix of words in the set during a specific recognition. In general, longer words (that is, several syllables) will result in better accuracy than short words (that is, one syllable).

- Speech Collection Toolkit

  This feature provides a toolkit consisting of a separately installable software package and documentation to support the collection of speech samples.

The purpose of the Speech Collection Toolkit is to allow authorized third-parties (for example VPCs and development partners) to collect speech data that can be forwarded to AT&T for speech recognition model building. In this way, the process of developing new speech recognition vocabularies for the VIS whole word recognizer is facilitated.

This feature includes a generic application which answers calls and collects speech samples, a capability for audibly monitoring the speech collection script, and associated shell programs to run under UNIX. At least one speech recognition package and an SP/CMP board pair must be installed for this feature to operate.

The data collection application is an application that can be maintained and modified by Script Builder so that it can be customized for various data

- Tip/Ring Switch Interface

  The switch integration packages are installable packages that accommodate differences in Call Progress Tones (CPTs) for DEFINITY PBXs and the national telecommunication network in each target country. CPTs include:

  — Busy

  — Congestion or re-order

  — Dial tone

  — Audible ring tone

  — Stutter tone (where provided by DEFINITY)

  A separate installable package is provided for each target country. Each installable package contains defined parameters for both the public switched telephone network (PSTN) and the DEFINITY switch available in that country.

  Multiple switch integration packages may be installed on a system at any one time, but only one set of switch integration parameters may be in use by the system at any one time.

- Line Side T1

  T1 provides the VIS with 24 channels at a lower cost than 24 tip-ring channels because more boards (4 TR versus 1 T1 and 1 SP) are required for tip-ring. “Line Side T1” refers to a protocol which allows a T1 channel to behave as T/R lines do, which includes the ability to transfer calls.

  The term “line side” comes from the PBX world where all of the PBX telephones (all on tip-ring lines in the old days) were connected to the “line side” of the PBX and all of the network connections were made on the “trunk side” of the PBX. Line Side T1 provides line side PBX features using the existing VIS T1/SP board pair. The feature is supported on either AYC3B or AYC11 T1 boards used with either AYC2B, AYC2C or AYC9 SP boards.

In V4.0, LST1 capabilities is compatible with DEFINITY G3i Release 4.0, DEFINITY G3r Release 5.4, DEFINITY G2, and Rockwell Galaxy 8 and 9.

Subject to limitations of the PBX, V4.0 LST1 call control capabilities include call origination, call answer, and blind transfer.

- Converse Vector Step

  This capability allows the DEFINITY to exchange information with a line-side adjunct using touch tone signals.

  In V4.0 the existing Script Builder Prompt and Collect action is used to receive Converse Vector Step information at the start of a call. V4.0 provides a new Script Builder external function to send Converse Vector Step information from the VIS at the end of the call. VIS V4.0 support for DEFINITY Converse Vector Step is usable within scripts which run on tip-ring and LST1 channels only.

- Asynchronous Host Interface Toolkit

  This feature provides a toolkit which helps VIS applications access host computers using an asynchronous TTY interface to send and retrieve data. Although the toolkit will not allow the VIS to interact with screen oriented host applications, it does provide a robust message based protocol with Script Builder External Function support to reduce application development intervals and costs.

  The asynchronous host interface toolkit uses a specific message oriented protocol. Any host that follows the protocol can use the interface. The customer typically needs to create host software to provide the host side of the interface.

  The protocol between the TTY interface and the Host computer does not support a login protocol; the host is expected to have opened the port and be ready to accept messages whenever the VIS is operational. The system is able to handle up to two asynchronous messages per second (steady state) and still perform normal transaction processing functions on a 48 channel system.

  The toolkit consists of operational software, source code, user level documentation, and design level documentation.

- FAX Attendant Co-residency

  DTMF, voice, and electronic computer-to-computer exchanges are the information formats that CONVERSANT VIS can currently use to communicate with its customers. Fax is also a standard form of information exchange for our customers, and almost without exception our competitors offer some form of fax communication.

  This feature will provide FAX features in VIS V4.0 by supporting coresidency of the latest Fax Attendant Software and Brooktrout hardware.

  The following Fax Attendant packages are supported in V4.0:

- — AT&T Fax Attendant Co-resident Application Software R2.1.1 V2
- — AT&T Fax Attendant Non-coresident Application Software R2.1.1 V2
- — AT&T Fax Attendant S75/DEFINITY Co-resident Integration Software R2.1.1 V2
- — AT&T Fax Attendant S75/DEFINITY Non-coresident Integration Software R2.1.1 V2
- — System 75 switch integration package with DCP support for use with package #2
- — AT&T Fax Attendant S85/DEFINITY Non-coresident Integration Software R2.1.1 V2
- — System 85 switch integration package with DCP support for use with package #2
- — IAT&T Fax Attendant S25 Co-resident Integration Software R2.1.1
- — System 25 switch integration package for use with package #1

Using various combinations of the above packages on a VIS V4.0 system, Fax Attendant can be either stand-alone or integrated with AUDIX Voice Power. Various switch integration options, including DCP with S75/Definity and S85/Definity, is supported. Consistent with other switch integration packages, multiple switch integration packages may be installed on the system at any one time, but only one set of switch integration parameters may be in use at any one time.

Functional offerings available with Fax Attendant coresidency include Fax Mail, Fax Call Answer, and Fax Response services. These services provide Fax reception and storage in a mailbox, Fax printing, Fax transmission (and broadcast), Fax machine call coverage, multi-level Fax bulletin board, and system cover sheet application capabilities.

In addition, V4.0 includes a set of utilities which provide integration between VIS scripts and Fax Attendant scripts. Using these utilities, it shall be possible for VIS scripts to invoke Fax Attendant capabilities, thereby achieving integration between the two applications.

- Graphical Speech Editor

  There are currently three ways to get prerecorded speech into a VIS for script development: (a) use Script Builder facilities (b) use the VIS standard speech libraries, or (c) have the speech recorded by professional studios or AT&T. These mechanisms allow phrases to be created, erased, and copied, but there are no provisions for other desirable functions such as changing the volume of a phrase or cutting and pasting phrase segments.

With the graphical speech editing capability, the ability to manipulate the speech files and make minor changes to the phrases is significantly improved. To facilitate the ease of use of such a tool, an industry standard graphical windowing interface is provided. This is implemented using X windows and Motif GUI environment. With this tool, the customer is able to display the speech file in a suitable window, mark and play speech segments, and perform basic editing capabilities such as cut, copy and paste operations. An “Undo” feature to correct the previous editing action is also provided.

The graphical speech editor is supported on any VIS V4.0 MAP system equipped with a 50 MHz 486 CPU processor, Tip/Ring Card and WDXLR-model video card.

Application Examples

B

What's in this Appendix

This section lists and describes various transactions that can be automated by the Intuity CONVERSANT VIS, along with the functionality that the system provides to customers while automating a business transaction.

The Intuity CONVERSANT VIS is designed to meet a wide variety of user needs, by allowing clients to purchase it for a specific application, and expand the system capabilities at a later date to support additional applications.

Application Creation

The Intuity CONVERSANT VIS represents a custom voice system for companies who purchase it. Most applications that are run on the system are uniquely designed to support the business requirements of the purchasing company. All applications can be programmed by using the Script Builder application development software package. The application software can be written by any of the following groups:

- The purchasing company's system administrator
- Software development groups within AT&T
- External organizations such as AT&T Voice Processing Co-marketers (VPCs)

Typical Applications

There are five typical categories of CONVERSANT Applications:

- Automated attendant

  These functions allow callers to access departments or individuals without the use of personnel or expensive Direct Inward Dial (DID) facilities. These types of applications increase both productivity and client satisfaction since customers can quickly be connected with the correct department or individual.

- Bulletin board

  This type of application is typically used for the dissemination of frequently requested information. Some examples of bulletin board applications include providing callers with the hours of operations, or rates and pricing quotes.

- Form filler

  This allows a caller to verbally “fill in a form” by responding to voice prompts. This versatile application greatly increases staff productivity since callers leave pertinent information that can be transcribed by personnel at non-peak hours.

- Transactions

  Applications based on a transaction are generally interactive between either a host computer and database, or a local database residing on the CONVERSANT platform itself. Transaction-based applications are usually more interactive between the caller and the CONVERSANT VIS, and include examples such as funds transfers, order entry, or completing account applications.

- Product Coresidency Integration

  This category of application allows a single VIS application script to invoke other standard telecommunication products such as AUDIX Voice Power and FAX Attendant. These products give an application the liberty to invoke voice mail features such as the ability to record, send, and retrieve messages, produce broadcast messages, light a message waiting lamp, and support group listings, and provide the same basic functionality towards FAX transmissions as well.

  This type of application requires the purchase of at least one of the following:

  — AUDIX Voice Power Software

  — FAX Attendant Software

Sample Applications

The following pages represent a few of the possible transactions that can be automated by the CONVERSANT VIS.

Automated Attendant

One of the country's largest processors of bank card transactions provides credit authorizations for more than 3,700 financial institutions and 500,000 retail merchants nationwide. Although ¾ of the authorizations are completed through point-of-sale terminals, the company still receives a high volume of "voice authorizations," about 30,000 per day. Because of this high amount of voice authorizations, the company had to increase its staff during busy holiday seasons, adding to the already expensive cost/authorization ratio associated with voice authorizations.

The company added three voice systems to work with its System 85 ACD and MEGACOM 800 Service. The 800 service can be configured to the client's specifications, so that the ACD automatically refers incoming calls to either an operator or to the CONVERSANT VIS, which uses a simulated voice to prompt the caller through the authorization process easily and quickly.

Because each CONVERSANT VIS can manage the transaction volume of 32 operators, the company has essentially increased its capabilities by an equivalent of more than 64 people, without the attendant labor costs. The company has reduced operator staffing by 70 percent, and reallocated 25 percent of the work space reserved for voice authorizations since the voice system went into service in 1989.

The CONVERSANT VIS currently handles more than 60 percent of all voice authorizations, with the same speed and reliability of the operators. The systems are expected to save the company an estimated $750,000 per year in labor cost alone.

Bulletin Board Application

A New Jersey-based transportation company that serves only the eastern and central U.S. is receiving an increasing number of rate and shipment tracking inquiries from customers across the nation. Customers call the local trucking office during regular business hours and speak to a customer service agent who provides rate quotes and shipment-tracking status, as well as actually taking orders for shipments. This company cannot handle the increased call volumes and still maintain a high level of customer service.

With the help of a CONVERSANT VIS, a centralized electronic solution was made to provide callers with rate quotes and shipment tracking. A single 800 number was established for nationwide access to the business, and 14 T1 trunks terminated directly to the CONVERSANT VIS at their headquarters in New Jersey.

The CONVERSANT VIS is linked to a host computer, which stores rate tables and shipment tracking information. Callers seeking rate quotes are prompted to input the zip code of the originating and terminating locations, shipment weight, and class. For shipment tracking, the caller is prompted to enter the Bill of Lading or Purchase Order number which is translated by the CONVERSANT VIS to the host computer to retrieve the shipment record. The CONVERSANT VIS then uses synthesized voice to convey the shipment information back to the caller.

Form Filler Application

A midwestern university needed to better manage its quarterly course registration process for 50,000 students. Coordinating the schedules of student, faculty, and classrooms was a major undertaking. In addition, the university wanted to incorporate a fee assessment feature so that students who change classes can have their fees shifted accordingly.

The university chose a CONVERSANT VIS to automate its registration system so the process could be less time consuming for students and administrators alike. When students call the course registration number, they enter the quarter for which they want to register, their social security number, their personal access code, and their schedule request. The system provides voice prompts to lead the students through the registration process. Students can add or drop classes, choose secondary classes if a selected class is closed, verify fee statements, and check current mailing addresses.

The university can better manage resources because the CONVERSANT VIS enables it to analyze course demand from preregistration levels, then issue a revised schedule that matches students' preferred class times with faculty and classroom availability. An on-line fee assessment feature automatically changes fees according to schedule changes made by students. For example, if a part-time student makes changes that qualify him/her for full-time status, the fees will reflect this change. In the future, students will be allowed to pay fees through the system by entering their credit card numbers.

Transaction Application

A Detroit-based company that sells and administers vehicle service contracts was short-staffed because of growing business and a management directive to not increase the staff size. The 24-agent inbound telemarketing center, which handled calls from car dealership and individual customers, was handling more than 3,000 calls a day.

The company installed a CONVERSANT VIS to work with it's AT&T System 75 and MEGACOM® 800 Service. The System 75's automatic call distributor (ACD) directs calls that come in on the consumer 800 number to live agents, and calls from a second 800 number through the CONVERSANT VIS. Dealers are able to process multiple contract transactions on each call, and because the system is available 24 hours-a-day, dealers can call at their convenience, often after their own business hours have ended.

With the CONVERSANT VIS, dealers can enter a customer's vehicle identification, or service contract number, determine what the individuals' warranty or contract covers, and update the customer's records on the mainframe computer.

Product Coresidency Applications

A hotel and casino in Nevada wanted to upgrade the telecommunications capabilities at its properties. The new system had to link a seven building casino complex in Reno with its Lake Tahoe resort by using a single system. The resort wanted to offer new guest services, such as automatic wake up and automatic room display on telephone sets. In addition, the resort wanted to cut down on guest phone write-offs due to "ring/no-answer" calls.

The resort installed an AT&T DEFINITY Communications System Generic 1, and a VIS which offers coresident AUDIX Voice Power voice mail. More than 3,000 employees use AUDIX VP and guests can access its auto attendant feature for information on restaurants, airlines, shows, etc.

Persons around the country can dial a 1-800 number to receive information in the form of FAX transmissions on shows, rates, and schedules through the use of FAX Attendant Coresidency with the VIS and AUDIX Voice Power. Requests for walk-up calls are accepted by a VIS and are provided by the coresident AUDIX. Reservations to the resort are also provided by the VIS. Future plans include PBX-to-host computer applications, where guest preferences (from casino games to restaurants) will be easily accessed from the database by reservation agents. The open architecture of the system provides the resort with a flexible platform.

Abbreviations

A

AC
Alternating current

ACD
Automatic call distributor

AD
Application Dispatch

AD-API
Application dispatch application programming interface

ADPCM
Adaptive differential pulse code modulation

ADU
Asynchronous data unit

AGL
Application generation language

ALERT
VIS Alerter process

ANI
Automatic number identification

API
Application programming interface

ARU
Alarm relay unit

ASAI
Adjunct/Switch Application Interface

ASCII
American Standard Code for Information Interchange

ASI
Analog switch integration

B

BB
Bulletin board

bps
Bits per second

BRDG
Call bridging process

BSC
Binary synchronous communication

C

CCA
Call classification analysis

CDH
Call data handler

CELP
Continuously Excited Linear Prediction

CGEN
Voice system general message class

CICS
Customer Information Control System

CMP
Companion circuit card

CMS
Call Management System

CO
Central office

CPE
Customer provided equipment or customer premise equipment

CPN
Calling party number

CPT
Call progress tones

CPU
Central processing unit

CSU
Channel service unit

CVS
Converse vector step

D

dB
Decibels

DB
Database

DBC
Database checking process

DBMS
Database management system

DC
Direct current

DCE
Data communications equipment

DCP
Digital communications protocol

DIO
Disk input and output process

DIP
Data interface process

DMA
Direct memory access

DNIS
Dialed number identification service

DSP
Digital signal processor

DTE
Data terminal equipment

DTMF
Dual tone multi-frequency

DTR
Data terminal ready

E

EBCDIC
Extended Binary Coded Decimal Interexchange Code

EIA
Electronic Industries Association

EISA
Extended Industry Standard Architecture

EMI
Electromagnetic interference

ESD
Electrostatic discharge

ESDI
Extended Serial Data Interface

ESS
Electronic Switching System

ET
Error tracker

EXTA
External alarms feature message class

F

FCC
Federal Communications Commission

FDD
Floppy disk drive

FEP
Front end processor

FFE
Form Filler Plus feature message class

FIFO
First-in-first-out processing order

foos
Facility out-of-service state

FTS
File transfer process message class

G

GEN
PRISM logger and alerter general message class

GSE
Graphical Speech Editor

GUI
Graphical user interface

H

HDD
Hard disk drive

HLLAPI
High Level Language Application Programming Interface

HOST
Host interface process message class

hwoos
Hardware out-of-service state

Hz
Hertz

I

IBM
International Business Machines

ICK
Integrity checking process message class

ID
Identification

IDE
Integrated Disk Electronics

IE
Information element

INIT
Voice system initialization message class

inserv
In-service state

IPC
Interprocess communication

IPC
Intelligent Ports Card (IPC-900)

IPCI
Integrated personal computer interface

IRAPI
Intuity Response Application Programming Interface

IRQ
Interrupt request

ISA
Industry Standard Architecture

ISDN
Integrated Services Digital Network

ISV
Independent Software Vendor

ITAC
International Technical Assistance Center

IVP4
Integrated Voice Processing card with 4 analog channels

IVP6
Integrated Voice Processing card with 6 analog channels

IVPSS
Integrated Voice Processing System Software

K

Kbps
Kilobites per second

Kbyte
Kilobyte

L

LAN
Local area network

LDB
Local database

LED
Light-emitting diode

LIFO
Last-in-first-out processing order

LN
Load number

LOG
VIS logger process message class

LST1
Line side T1

LU
Logical unit

M

manoos
Manually out-of-service state

MAP/100
Multi-Application Platform 100

MAP/100C
Multi-Application Platform 100C

MAP/40
Multi-Application Platform 40

Mbps
Megabits per second

Mbyte
Megabyte

ms
Millisecond

msec
Millisecond

MHz
Megahertz

MTC
Maintenance process

N

NCP
Network Control Program

NEBS
Network Equipment Building Standards

NEMA
National Electrical Manufacturers Association

netoos
Network out-of-service state

NFAS
Non-Facility Associated Signaling

NFS
Network file sharing

NMVT
Network Management Vector Transport

NM-API
Network Management - Application Programming Interface

nonex
Nonexistent state

NRZ
Non Return to Zero

NRZI
Non Return to Zero Inverted

O

OEM
Original equipment manufacturer

OGA
Operator generated alert

P

PBX
Private branch exchange

PC
Personal computer

PCB
Printed circuit board

PCM
Pulse code modulation

PEC
Price element code

PRI
Primary rate interface

PSTN
Public switch telephone network

PS&BM
Power supply and battery module

R

RAM
Random access memory

RECOG
Speech recognition feature message class

RDBMS
ORACLE relational database management system

REN
Ringer equivalence number

RFS
Remote file sharing

RM
Resource manager

RMB
Remote maintenance board

RTS
Request to send

S

SBC
Sub-band coding

SCCS
Switching Control Center System

SCSI
Small Computer System Interface

SDLC
Synchronous Data Link Control

SDN
Software Defined Network

SID
Station identification

SIMM
Single inline memory module

SLIP
Serial Line Interface Protocol

SNA
Systems Network Architecture

SNMP
Simple Network Management Protocol

SP
Signal processor circuit card

SPIP
Signal processor interface process

SPPLIB
Speech processing library

SQL
Structured Query Language

SR
Speech recognition

SYS
UNIX system calls message class

sysgen
System generation

T

tas
Transaction assembler

TCC
Technology Control Center

TCP/IP
Transmission control protocol/internet protocol

TDM
Time division multiplexing

TE
Terminal emulator

THR
Threshold message class

TKR
Token Ring

TLI
Transport layer interface

TLP
Transmission level plan

T/R
Tip/Ring circuit card

TRIP
Tip/Ring interface process

TSO
Technical Service Organization

TSO
Time Share Operation

TSM
Transaction state machine process

TTS
Text-to-Speech

TWIP
T1 interface process

U

UK
United Kingdom

USOC
Universal service ordering code

UVL
Unified Voice Library

V

VDC
Video display controller

VIS
Intuity CONVERSANT Voice Information System

VPC
Voice processing comarketer

VRU
Voice response unit

VROP
Voice response output process

Glossary

Numerics

3270 interface
A link between one or more Intuity CONVERSANT Voice Information System (VIS) machines and a host mainframe. In Intuity CONVERSANT VIS documentation, the 3270 interface means the link between one or more VIS machines and an IBM host mainframe.

4ESS
A large AT&T central office switch used to route calls through AT&T's telephone network.

A

ACD
See "automatic call distributor."

ADPCM
See "adaptive differential pulse code modulation."

adaptive differential pulse code modulation
A means of encoding analog voice signals into digital signals by adaptively predicting future encoded voice signals. This adaptive modulation method reduces the number of bits required to encode voice. See also "pulse code modulation."

adjunct products
Products (for example, Adjunct/Switch Application Interface) that the Intuity VIS administers via cut-through access to the inherent management capabilities of the product itself; this is in opposition to CONVERSANT VIS's ability to administer the switch directly.

Adjunct/Switch Application Interface
An optional feature package that provides an Integrated Services Digital Network-based interface between AT&T PBX's and adjunct processors.

affiliate
A business organization that AT&T controls or which with AT&T is in partnership.

alarm relay unit
A unit used in central office telecommunication arrangements that transmits warning indicators from telephone communications equipment (like the Intuity CONVERSANT VIS) to audio.

alerter
A system process that responds to patterns of events logged by the "logdaemon" process.

analog
An analog signal, such as voice or music, that varies in a continuous manner. An analog signal may be contrasted with a digital signal, which represents only discrete states.

application
Made of several components that provide an automated version of the communication between a caller and an attendant. The Intuity CONVERSANT VIS provides several methods for creating applications, including Script Builder, the Intuity Response Application Programming Interface (IRAPI), and transaction state machine (TSM) script language.

application administration
The component of the Intuity CONVERSANT VIS that provides access to the applications currently available on your system and helps you to manage and administer them.

application installation
A two-step process in which the Intuity CONVERSANT VIS invokes the TSM script assembler for the specific application name and files are moved to the appropriate directories.

application verification
A process in which the Intuity CONVERSANT VIS verifies that all the components needed by an application are complete.

ASCII
An acronym for American Standard Code for Information Interchange, a standard for data representation. ASCII code represents alphanumeric characters as binary numbers. The code includes 128 upper- and lowercase letters, numerals, and special characters. Each alphanumeric and special character has an ASCII code (binary) equivalent that is 1 byte long.

asynchronous communication
A method of data transmission in which bits or characters are sent at irregular intervals and are spaced by start and stop bits and not by time. See also “synchronous communication.”

asynchronous data unit
An electronic communications device that allows computer systems to communicate over asynchronous lines more than 50 feet in length.

AUDIX Voice Power
A complete voice-mail messaging system accessed and operated by touch-tone telephones and integrated with a switch or “Private Branch Exchange.”

automatic call distributor
A telephone system that recognizes and answers incoming calls and completes these calls based on a set of instructions contained in a database. The Automatic Call Distributor can send the call to an operator or group of operators as soon as the operator has completed a previous call or after the system has played a message to the caller.

automatic number identification
A method of identifying the calling party by automatically receiving a string of digits that identifies the calling station of a particular customer.

B

back up
The preservation of the information in a file in a different location, so that the data is not lost in the event of hardware or system failure.

backing up an application
A utility that makes an archive copy of a completed application or makes an interim copy of an application in progress. The backup copy can be restored to the VIS if the online version is damaged, or if you make revisions and wish to go back to the previous version.

barge-in
A capability provided by WholeWord speech recognition that allow callers to speak their responses to the VIS prompt and have those responses recognized before the prompt has finished playing.

batch file
A file containing one or more lines, each of which is a command executable by the UNIX shell.

binary synchronous communications
A character-oriented synchronous link protocol.

blind transfer protocol
A protocol in which a call is completed as soon as the extension is dialed, without having to wait to see if the telephone is busy or if the caller answered.

bridging
The process of connecting one telephone network connection to another telephone network connection over the Intuity CONVERSANT VIS TDM bus. Bridging decreases the processing load on the system since an active bridge does not require speech processing, database access, host activity, etc., for the transaction.

BSC
See “binary synchronous communication.”

bundle
In the context of the Enhanced File Transfer package, this term is used to denote a single file, a group of files (package), or a combination of both.

byte
A unit of storage in the computer. On many systems, a byte is 8 bits (binary digits), the equivalent of one character of text.

C

call classification analysis
An optional feature package that allows application developers to classify the disposition of originated and transferred calls.

call data event
A parameter that specifies a list of variables that are appended to a call data record at the end of each call.

call data handler process
A software process that accumulates generic call statistics and application events.

called party number
The number dialed by someone making a telephone call. It can be used by telephone switching equipment to selectively route an incoming call to a particular department or agent.

caller
The party that calls for a service, gets connected to the Intuity CONVERSANT VIS, and interacts with the system. As the Intuity CONVERSANT VIS is also capable of making outbound calls for service, the caller can also be the person who responds to those outbound calls.

call progress tones
Standard telephony sounds that indicate the status of the call. These sounds include busy, fast busy, ringback, reorder, etc.

card cage
An area within a Intuity CONVERSANT VIS platform that contains and secures all of the standard and optional circuit cards used in the system.

cartridge tape drive
A high-capacity data storage/retrieval device that can be used to transfer large amounts of information onto high-density magnetic cartridge tape based on a predetermined format. This tape can be removed from the system and stored as a backup, or used on another system.

caution
An admonishment used when there is a possibility of a service interruption or a loss of data.

CCA
See “call classification analysis.”

CDH
See “call data handler process.”

central office
An office or location in which large telecommunication machines such as telephone switches and network access facilities are maintained. These locations follow strict installation and operation requirements.

central processing unit
A component of the Intuity CONVERSANT VIS that is based on either the Multi-Application Platform 100 (MAP/100), MAP/40, or MAP/100C.

channel
See “port.”

CICS
See “Customer Information Control System.”

circuit card upgrade
A new circuit card that replaces an existing one in the platform. Usually the replacement is an updated version of the other card, and the replacement is designed to deal with technology made obsolete by industry trends or a new VIS release.

cluster controller
A bisynchronous interface that provides a means of handling remote communication processing.

command
An instruction or request given by the user to the VIS software to perform a particular function. An entire command consists of the command name and options.

CompuLert/SCCS interface
An optional feature that enables remote or console monitoring of error messages generated from the Intuity CONVERSANT VIS. CompuLert is a centralized maintenance system for monitoring minicomputers, computer mainframes, etc. The Switching Control Center System (SCCS) is similar to the CompuLert system, but is used to support 4ESS local switching systems.

configuration
The arrangement of the software and hardware of a computer system or network. The Intuity CONVERSANT VIS configuration includes either a standard or custom processor, peripheral equipment (for example, printers, modems), and software applications. Configuration also refers to the way the switch network is set up; that is, the types of products that are in the network and how those products communicate.

configuration management
The component of the VIS that allows you to manage the current configuration of voice channels, host sessions, and database connections, assign scripts to run on specific voice channels or host sessions assign functionality to SP and T1 cards, and perform various maintenance functions.

Converse Data Return (conv_data)
A Script Builder action that supports the DEFINITY call vectoring (routing) feature by enabling the switch to retain control of vector processing in the VIS environment. It supports the DEFINITY "converse" vector command to establish a two-way routing mechanism between the switch and the VIS to facilitate data passing and return.

controller circuit card
A circuit card used on a computer system that controls its basic functionality and makes the system operational. These cards are used to control magnetic peripherals, video monitors, and basic system communications.

copying an application
A utility in which information from a source application is directed into the destination application.

coresidency
The ability of two products or services to operate and interact with each other on a single hardware platform. An example of this is the use of AUDIX Voice Power along with Intuity CONVERSANT on the same VIS platform.

CPU
See "central processing unit."

crash
An interactive utility for examining the operating system core and for determining if system parameters are being exceeded.

custom speech
Unique words or phrases to be used in Intuity CONVERSANT VIS voice prompts that AT&T records for a customer on a custom basis.

custom vocabulary
A specialized package of unique words or phrased created on a per-customer basis and used by WholeWord or FlexWord speech recognition.

Customer Information Control System
Part of the operating system that manages resources for running applications (for example, IND$FILE). Note that TSO and CMS provide analogous functionality in other host environments.

D

danger
An admonishment used when there is a possibility of personal injury.

data interface process
A software process that communicates with Script Builder applications.

database
A structured set of files, records, or tables.

database field
A field used to extract values from a local database and form the structure upon which a database is built.

database table
A structure, made up of columns and rows, that holds information in a database. Database tables provide a means of storing information that changes too often to "hard-code," or permanently store, in the transaction outline.

debug
The process of locating and correcting errors in computer programs. This process is also referred to as "troubleshooting."

default
The way a computer performs a task in the absence of other instructions.

default owner
The owner of a channel when no process takes ownership of that channel. The default owner holds all idle, in-service channels. In terms of the IRAPI, this is typically the Application Dispatch process.

diagnose
The process of performing diagnostics on Tip/Ring, T1, or SP circuit cards or a bus.

dialed number identification service
A service that allows incoming calls to contain information about the telephone number for which it is destined.

directory
A type of file used to group and organize other files or directories.

DNIS
See "dialed number identification service."

DIP
See "data interface process."

display errdata
A command that displays system errors sent to the logger.

DTMF
See “dual tone multi-frequency.”

dual 3270 links
A feature that provides an additional physical unit (PU) to allow a cost-effective means of connecting to two host computers. The customer can connect a VIS to two separate FEPs or to a single FEP shared by one or more host computers. Each link supports a maximum of 32 LUs.

dual tone multi-frequency
A touch tone.

dump space
An area of the disk that is fixed in size and should equal the amount of RAM on the system. The operating system “dumps” an image of core memory upon system crashes. The dump can be fetched after rebooting for analysis of what may have caused the crash.

E

editor system
A system that allows speech phrases to be displayed and edited by a user. See “Graphical Speech Editor.”

Enhanced File Transfer
A feature that allows the transferring of files automatically between the Intuity CONVERSANT VIS and a synchronous host processor on a designated logical unit.

Enhanced Serial Data Interface
A software- and hardware-controlled method used to store data on magnetic peripherals.

error message
A message on the screen indicating that something is wrong and possibly suggesting how to correct it.

Error Tracker process
See “etStub.”

Ethernet
A name for a local area network that uses 10BASE5 or 10BASE2 coaxial cable and InterLAN signaling techniques.

etStub
A system process that processes pre-Version 3.1 error message logging requests. These requests are transformed and passed on to the “logdaemon” process.

event
The notification given to an application when some condition occurs.

external actions
Specific tasks and interfaces controlled by Intuity CONVERSANT VIS software that allow a Script Builder application script to invoke processes and interact with other products or services. For example, a Intuity CONVERSANT VIS application script can invoke AUDIX Voice Power functionality through the used of an external action within an application script.

F

feature
A function or capability of a product or an application within the Intuity CONVERSANT VIS.

feature package
An optionally purchased package that may contain both hardware and software resources, which provides additional functionality to a standard system.

feature_tst script package
A standard CONVERSANT VIS software program that allows a VIS user to perform self-tests of critical hardware and software functionality.

field
A “slot” in a VIS window that holds one column of information in a row.

file
A collection of data treated as a basic unit of storage.

file transfer
An option that allows you to transfer files interactively or directly to and from UNIX using the File Transfer System.

filename
Alphabetic characters used to identify a particular file.

FlexWord speech recognition
A type of speech recognition based on subword technology that recognizes phonemes or parts of words of American English vocabularies. See “subword technology.”

Form Filler Plus
An optional feature package that provides the capability for application scripts to record caller’s responses to prompts for later transcription and review.

function key
A key, labeled F1 through F8, on your keyboard to which the Intuity CONVERSANT VIS software gives special properties for manipulating the user interface.

G

Graphical Speech Editor
A window-driven, X Windows/Motif based, graphical user interface (GUI) that can be accessed to perform different functions associated with the creation and editing of speech files to be used by VIS applications.

H

hard disk drive
A high-capacity data storage/retrieval device that is located inside a computer platform. A hard disk drive stores data on nonremovable high-density magnetic media based on a predetermined format for retrieval by the system at a later date.

hardware
The physical components of a computer system. The central processing unit, disks, tape and floppy drives, etc., are all hardware.

hardware upgrade
Replacement of one or more fundamental platform hardware components (for example, the CPU or hard disk drive), but the existing platform and other existing optional circuit cards remain.

High Level Language Applications Programming Interface (HLLAPI)
An application programming interface that allows user to write custom applications that can communicate with the host via an API.

HLLAPI
See “High Level Language Applications Programming Interface.”

host computer
A computer linked to a network providing a range of services, such as database access and computation. The host computer operates in a time-sharing manner with other computers linked to it via the network.

I

iCk
The system integrity checking process.

idle channel
A channel that either has no owner or is owned by its default owner and is onhook.

IND$FILE
The standard SNA file transfer utility that runs as an application under CICS, TSO, and CMS. IND$FILE is independent of link-level protocols such as BISYNC and SDLC.

indexed table
A table that, unlike a nonindexed table, can be searched via a field name that has been indexed.

initialize
To start up the system for the first time.

Integrated Services Digital Network
A network that provides end-to-end digital connectivity to support a wide range of voice and data services.

Integrated Voice Processing circuit card
The IVP4 or IVP6 circuit card.

intelligent transfer protocol
A transfer protocol that monitors the line after dialing is complete to determine whether a busy, reorder (fast busy), or other failure has been encountered. It also recognizes when the extension is answered or if the extension is not answered after a specified number of rings.

interface
The access point of a system. With respect to the Intuity CONVERSANT VIS, the interface is designed to provide you with easy access to the software's capabilities.

interrupt
The termination of voice and/or telephony functions when some condition occurs.

Intuity Response Application Programming Interface
A library interface the provides a standard development interface for voice-telephony applications.

ipcs
A command that reports interprocess communication facilities status.

IRAPI
See "Intuity Response Application Programming Interface."

ISDN
See "Integrated Services Digital Network."

K

keyboard mapping
In emulation mode, this feature enables the keyboard to send 3270 keyboard codes to the host according to a configuration table set up during installation.

keyword spotting
A capability provided by WholeWord Speech Recognition that allows the VIS to recognize a single word in the middle of an entire phrase spoken by a caller in response to a prompt.

L

LAN
See "local area network."

library states
The state information about channel activities maintained by the IRAPI.

line side T1
A digital method of interfacing a Intuity CONVERSANT VIS to a PBX or switch using T1-related hardware and software.

listfile
An ASCII catalog that lists the contents of one or more talkfiles. Each application script is typically associated with a separate listfile. The listfile maps speech phrase strings used by application scripts into speech phrase numbers.

local area network
A data communications network in a limited geographical area. The local area network provides communications between computers and peripherals.

local database
A database residing on the Intuity CONVERSANT VIS.

logical unit
A type of SNA Network Addressable Unit.

logdaemon
System information and error logging process.

logger
See “logdaemon.”

logging on/off
Entering or exiting the Intuity CONVERSANT VIS software.

LU
See “logical unit.”

M

magnetic peripherals
Data storage devices that use magnetic media to store information. Such devices include hard disk drives, floppy disk drives, and cartridge tape drives.

main screen
The Intuity CONVERSANT VIS VERSION 5.0 screen from which you are able to enter System Administration or Voice System Administration.

maintenance process
A software process that runs temporary diagnostics.

Manual Configurator Program
A software program that resolves or blocks the allocation of CPU and memory resources for controlling and optional circuit cards.

masked event
An event that an application can ignore (that is, the application can ask not to be informed of the event).

master
A board that provides clock information to the TDM bus.

megabyte
A unit of memory equal to 1,048,576 bytes (1024 x 1024). It is often rounded to one million.

Microsoft
A company that manufactures software products, primarily for IBM-compatible computers.

mirroring
A method of data backup that allows all of the data transactions to the primary hard disk drive to be copied and maintained on a second identical drive in near real time. If the primary disk drive crashes or becomes disabled, all of the data stored on it (up to 1.2 billion bytes of information) is accessible on the second mirrored disk drive.

MS-DOS
A personal computer disk operating system developed by the Microsoft Corporation.

MTC
See “maintenance process.”

multi-threaded application
A single process/application that controls several channels. Each thread of the application is managed explicitly. Typically this means state information for each thread is maintained and the state of the application on each channel is tracked.

N

NetView
An optional feature package that transmits high-priority (major or critical) messages to the host as Operator-Generated Alerts (OGAs) over the 3270 host link. The NetView Alarm feature package does not require a dedicated LU.

new error logging environment
A more flexible and informative environment for logging errors and status messages (introduced in CONVERSANT VIS Version 3.1). Customer applications created earlier than V3.1 that log messages require conversion to this new environment.

new operating system
The UnixWare operating system being introduced in Intuity CONVERSANT VIS V5.0.

nonindexed table
A table that may be searched only in a sequential manner and that cannot be searched via a field name.

nonmasked event
An event that must be sent to the application. Generally, an event is nonmaskable if the application would likely encounter state transition errors by trying to ignore the event.

null value
An entry containing no value. A field containing a null value is normally displayed as blank and is different from a field containing a value of zero.

O

obsolete hardware
Hardware that is no longer supported on Intuity CONVERSANT VIS V5.0.

on-line help
Messages or information that appear on the user's screen when a "function key" (F1 through F8) is pressed.

Operator Generated Alerts
System monitoring messages transmitted from the CONVERSANT VIS or other computer system to an IBM host computer that are classified as critical or major.

option
An argument used in a command line to modify program output by modifying the execution of a command. When you do not specify any options, the command will execute according to its default options.

ORACLE
A company that produces Relational Database Management software. It is also used as a generic term that identifies a database residing on a local or remote system that is created and maintained using an ORACLE RDBMS product.

P

PBX
See "private branch exchange."

PCM
See "pulse code modulation."

peripheral (device)
Equipment such as printers or terminals that is in addition to the basic processor.

permanent process
A process that starts and initializes itself before it is needed by a caller.

phoneme
A single basic sound of particular spoken language. The English language contains 40 phonemes that represent all basic sounds used with the language. As an example, the word "one" can be represented with three phonemes, "w" - "uh" - "n." Phonemes vary between languages because of guttural and nasal inflections and syllable constructs.

phrase filtering
The rejection of unrecognized speech. The WholeWord and FlexWord speech recognition packages can be programmed to reprompt the caller if the spoken response was not recognized by the VIS.

phrase tag
A string of up to 50 characters that identify the contents of a speech phrase used by an application script.

platform migration
See “platform upgrade.”

platform upgrade
The process of replacing the existing platform with a new platform.

poll
A message sent from a central controller to an individual station on a multipoint network inviting that station to send if it has any traffic to send.

polling
A network arrangement whereby a central computer asks each remote location whether they wish to send information. This arrangement enables each user or remote data terminal to transmit and receive information on shared facilities.

port
A connection or link between two devices that allows information to travel to a desired location. See “telephone network connection.”

Primary Rate Interface
An optional feature package that provides a digital interface capable both of receiving and originating telephone calls directly from/to an AT&T 4ESS switch.

private branch exchange
A private switching system, either manual or automatic, usually serving an organization, such as a business or government agency, and usually located on the customer’s premises.

processor
In Intuity CONVERSANT VIS documentation, the computer on which UnixWare and Intuity CONVERSANT VIS software runs. In general, the part of the computer system that processes the data. Also known as the “central processing unit.”

ps
A command that shows active processes. This command displays the process table and can be used to determine which processes are consuming large amounts of system resources, such as CPU time.

pseudo driver
A driver that does not control any hardware.

pulse code modulation
A digital modulation method of encoding voice signals into digital signals. See also “adaptive differential pulse code modulation.”

R

recovery
The process of using copies of the VIS software to reconstruct files that have been lost or damaged. See also “restore.”

remote database
The component of the VIS that provides access to information not currently on the VIS.

remote maintenance board
A Intuity CONVERSANT VIS board that is equipped standard on all new MAP/100 and MAP/40 platform purchases. This card, available with a built-in modem, allows remote personnel (for example, field support) to access all Intuity CONVERSANT VIS machines with a standard simplified process.

reports administration
The component of the VIS that provides access to system reports, including VIS call classification reports, call data detail reports, call data summary reports, message log reports, and traffic reports. In addition, if AUDIX Voice Power R2.1.1 is installed on your system, the reports administration component gives you access to AUDIX Voice Power reports.

restore
The process of recovering lost or damaged files by retrieving them from available backup tapes or from another disk device. See also “recovery.”

restore application
A utility that replaces a damaged application or restores an older version of an application.

reuse
The concept of reusing an existing system component after a software upgrade or platform migration.

roll back
To cancel changes to a database since the point at which changes were last committed.

rollback segment
A portion of the database that records actions that should be undone under certain circumstances. Rollback segments are used to provide transaction rollback, read consistency, and recovery.

S

sar
A command that is associated with the system activity report package.

screen pop
A method of delivering a screen of information to a telephone operator at the same time a telephone call is delivered. This is accomplished by a complex chain of tasks that include identifying the calling party number, using that information to access a local or remote ORACLE database, and pulling a “form” full of information from the database using an ORACLE database utility package.

script
The set of instructions for the Intuity CONVERSANT VIS to follow during a transaction.

Script Builder
An optional software package that provides a menu-oriented interface designed to assist in the development of custom voice response applications on the VIS.

SCSI
See “Small Computer System Interface.”

shared database table
A database table that is used in more than one application.

shared speech
Speech that is a part of more than one application.

shared speech pools
A parameter that allows the user of a voice application to share speech components with other applications.

Single Inline Memory Modules
A method of containing random access memory (RAM) chips on narrow circuit card strips that attach directly to sockets on the CPU circuit card. Multiple SIMMs are sometimes installed on a single CPU circuit card.

single-threaded application
An application that runs on a single voice channel.

slave
A circuit card that depends on the TDM bus for clock information.

Small Computer System Interface
A disk drive control technology in which a single SCSI adapter card plugged into a PC slot is capable of controlling as many as seven different hard disks, optical disks, tape drives, etc.

software
The set or sets of programs that instruct the computer hardware to perform a task or series of tasks — for example, UnixWare software and the Intuity CONVERSANT VIS Version 5.0 software.

software upgrade
The installation of a new version of software. The existing platform and circuit cards are kept.

source system
The system from which you are upgrading (that is, your system as it exists *before* you upgrade).

speech energy
The amount of energy in an audio signal. Literally translated, it is the output level of the sound in every phonetic utterance.

speech envelope
The linear representation of voltage on a line. It reflects the sound wave amplitude at different intervals of time. This envelope can be plotted on a graph to represent the oscillation of an audio signal between the positive and negative extremes.

speech file
A file containing an encoded speech phrase.

speech filesystem
A collection of several talkfiles. The filesystem is organized into 16-Kbyte blocks for efficient management and retrieval of talkfiles. The Intuity CONVERSANT VIS speech filesystem is not consistent with standard UNIX filesystems, and can not be referenced with standard UNIX commands such as **ls**, **cat**, etc.

speech modeling
Creating WholeWord speech recognition algorithms by collecting thousands of different speech samples of a single word and comparing them all to obtain a statistical average of the word. This average is then used by a WholeWord speech recognition program to recognize a single spoken word.

speech phrase
A continuous speech segment encoded into a digital string.

speech space
An area that contains all digitized speech used for playback in the applications loaded on the system.

standard speech
The speech package containing simple words and phrases produced by AT&T for use with an Intuity CONVERSANT VIS. This package includes digits, numbers, days of the week, and months, each spoken with initial, medial, and falling inflection. The speech is in digitized files stored on the hard disk to be used in the voice prompts played by the VIS.

standard vocabulary
A standard package of simple word speech models provided by AT&T and used for WholeWord speech recognition purposes. These phrases include the digits "zero" through "nine," "yes," "no," and "oh."

string
A contiguous sequence of characters treated as a unit. Strings are normally bounded by white spaces, tabs, or a character designated as a separator. A string value is a specified group of characters symbolized by a variable.

Structured Query Language
A standard data programming language used with data storage and data query applications.

subword technology
A method of speech recognition that recognizes phonemes or parts of words of American English vocabularies. See "whole-word technology."

switch
A software and hardware device that controls and directs voice and data traffic. A customer-based switch is known as a "private branch exchange."

switch hook
The device at the top of most telephones that is depressed when the handset is resting in the cradle (on hook). The device is raised when the handset is picked up (the telephone is off hook).

switch hook flash
A signaling technique in which the signal is originated by momentarily depressing the "switch hook."

switch interface administration
The component of the VIS that enables you to define the interaction between the VIS and switches by allowing you to establish and modify switch interface parameters and protocol options for both analog and digital interfaces.

switch network
Two or more interconnected switching systems.

synchronous communication
A method of data transmission in which bits or characters are sent at regular time intervals, rather than being spaced by start and stop bits. See also "asynchronous communication."

System 75
An advanced digital switch supporting up to 800 lines that provides voice and data communications for its users.

System 85
An advanced digital switch supporting up to 3000 lines that provides voice and data communications for its users.

system administrator
The person assigned the responsibility of monitoring all VIS software processing, performing daily system operations and preventive maintenance, and troubleshooting errors as required.

system architecture
The manner in which the Intuity CONVERSANT VIS software is structured.

system message
An event or alarm generated by either a VIS or end-user process.

system monitor
A component of the VIS in which tests are performed to verify that each incoming telephone line and its associated tip/ring or T1 card is functional. Through the "System Monitor" component, you are able to see displays of the Voice Channel and Host Session Monitors.

T

T1
A digital transmission link with a capacity of 1.544 Mbps.

table
A collection of records that are logically grouped together.

talkfile
An ASCII file that contains the speech phrase tags and phrase tag numbers for all the phrases of a specific application. The speech phrases are organized and stored in groups. Each talkfile can contain up to 65,535 phrases and the speech filesystem can contain multiple talkfiles.

target system
The system to which you are upgrading (that is, your system as you expect it to exist *after* you upgrade).

TDM
See "time-division multiplex."

telephone network connection
The point at which a telephone network connection terminates on an Intuity CONVERSANT VIS. Supported telephone connections are Tip/Ring and T1.

Terminal Emulator
Software that allows the VIS to temporarily transform itself into a "look alike" of an IBM 3270 terminal. In addition to providing full 3270 functionality, the Terminal Emulator enables you to transfer files to and from UNIX.

Text-to-Speech
An optional feature that allows an application to play speech directly from ASCII text by converting that text to synthesized speech. The text can be used for prompts or for text retrieved from a database or host, and can be spoken in an application with prerecorded speech. Text-to-Speech application development is supported through Script Builder.

ThickNet
A 10-millimeter (10BASE5) coaxial cable used to provide InterLAN communications.

ThinNet
A 5-millimeter (10BASE2) coaxial cable used to provide InterLAN communications.

time-division multiplex
A method of serving a number of simultaneous channels over a common transmission path by assigning the transmission path sequentially to the channels, with each assignment being for a discrete time interval.

Tip/Ring
A term used to denote analog telecommunications using four-wire media.

Token/Ring
A ring type of local area network that allows any station in the network to communicate with any other station.

trace
A command that can be used to monitor the execution of a script.

traffic
The flow of information or messages through a communications network for voice, data, or audio services.

transaction
Comprised of the exchanges between the caller and the voice system. A transaction can involve one or more telephone network connections and voice responses from the Intuity CONVERSANT VIS. It can also involve one or more of the VIS optional features, such as speech recognition, 3270 host interface, FAX response, etc.

transaction state machine process
A multi-channel IRAPI application that runs applications driven by script information.

transient process
A process that is created dynamically only when needed.

troubleshoot
The process of locating and correcting errors in computer programs. This process is also referred to as debugging.

TSM
See “transaction state machine process.”

TTS
See “Text-to-Speech.”

U

UNIX Operating System
A multiuser, multitasking computer operating system developed by the Bell Telephone Laboratories division of AT&T.

UNIX shell
The command language that provides a user interface to the UNIX operating system.

upgrade image tape
A tape, optionally provided to you by the Technical Service Organization, containing the new operating system and Intuity CONVERSANT VIS V5.0 base software in a standard configuration which is compatible with your target system.

upgrade scenario
The particular combination of current hardware, software, application and target hardware, software, applications, etc.

V

vi editor
A screen editor used by the Intuity CONVERSANT VIS to create and change electronic files.

virtual channel
A channel that is not associated with an interface to the telephone network (Tip/Ring, T1, or PRI). Virtual channels are intended to run "data only" applications which do not interact with callers but may interact with DIPs. Voice or network functions (for example, coding or playing speech, call answer, origination, or transfer) will not work on a virtual channel. Virtual channel applications may be initiated only by a "virtual seizure" request to TSM from a DIP.

VIS
See "Voice Information System."

vocabulary
A collection of words that a VIS is able to recognize using either WholeWord or FlexWord speech recognition.

vocabulary activation
The set of active vocabularies that define the words and wordlists known to the FlexWord recognizer.

vocabulary loading
The process of copying the vocabulary from the system where it was developed and adding it to the target system.

voice channel
A channel that is associated with an interface to the telephone network (Tip/Ring, T1, or PRI). Any Intuity CONVERSANT VIS application can run on a voice channel. Voice channel applications may be initiated by being assigned to particular voice channels or dialed numbers to handle incoming calls or by a "soft seizure" request to TSM from a data interface process (DIP) or the **soft_szr** command.

Voice Information System
A computer connected to a telephone network that handles touch-tone input, voice response, and line transfer. The Voice Information System uses a screen-based, menu-driven user interface to interact with the system operator or administrator.

voice processing co-marketer
A company licensed to purchase voice processing equipment, such as the Intuity CONVERSANT VIS, to market and sell based on their own marketing strategies.

voice response output process
A software process that transfers digitized speech between system hardware (for example, Tip/Ring and SP cards) and data storage devices (that is, hard disk, etc.)

Voice System Administration
The means by which you are able to administer both voice- and nonvoice-related aspects of the system.

VROP
See “voice response output process.”

W

warning
An admonishment used when there is a possibility of equipment damage.

WholeWord speech recognition
An optional feature based on whole-word technology that provides speaker independence, connected digit recognition, key word spotting, prompt interrupt, and DTMF support functionality. See “whole-word technology.”

whole-word technology
The ability to recognize an entire word, not the phoneme or a part of a word. See “subword technology.”

wink signal
An interruption of current to a busy lamp indicating that there is a line on hold.

word
A unique utterance understood by the recognizer.

wordlist
A set of words identified by a wordlist name. If the wordlist is part of an active vocabulary, the wordlist name appears as a recognition type in the Prompt & Collect mode field.

word spotting
The ability to search past extraneous speech during a recognition.

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