NetVenue
Product guide

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NØRTEL NETWORKS™

NetVenue
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This is the standard release of the product guide.

Table of Contents

1 About this guide

This document provides an overview of the features, functionality and connectivity of the NetVenue system, which uses a combination of multimedia and telephony to provide a wide variety of services. It also includes information about Millennium Manager, and the administration tools that allow the service providers to sell their products and services through the terminals.

This guide is intended as a general information tool for personnel involved with the initial planning, provisioning, engineering, administration and maintenance of NetVenue.

A complete list of all the documents for installing, maintaining, operating and administrating NetVenue is also provided.

How this guide is organized

The *NetVenue Product guide* is organized into the following sections:

Chapter 1: **About this guide** describes the intent of the guide and outlines the contents.

Chapter 2: **Understanding NetVenue** gives an overview of the different components of the NetVenue system and how they interact with each other.

Chapter 3: **Hardware** describes the physical construction of NetVenue.

Chapter 4: **Software** describes the software that is on the terminal, and the administrative and developmental software needed to set up and maintain the NetVenue network.

Chapter 5: **Multimedia features** describes the features of the multimedia component.

Chapter 6: **Pay telephony features** describes benefits of the NetVenue telephony features.

Chapter 7 **Payment Methods** describes the types of cards accepted by the terminals.

Chapter 8 **Provisioning** provides an overview of the requirements for installing a NetVenue system.

Chapter 9 **NetVenue General specifications** provides detailed component and performance information on the NetVenue terminal.

Chapter 10 **Finding NetVenue information** provides a list of all documents relevant to the NetVenue.

Glossary: A list of terms useful in understanding NetVenue.

Index: Provides a comprehensive cross-reference guide for this module.

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2 Understanding NetVenue

Nortel Networks NetVenue is designed to bring both high quality phone service and fast, reliable multimedia services to the public. The system can work in the field with an existing payphone network, or can run on a private network without pay telephony.

Figure 2-1 shows the relationship between the components of the NetVenue system.

Figure 2-1: **System Overview**
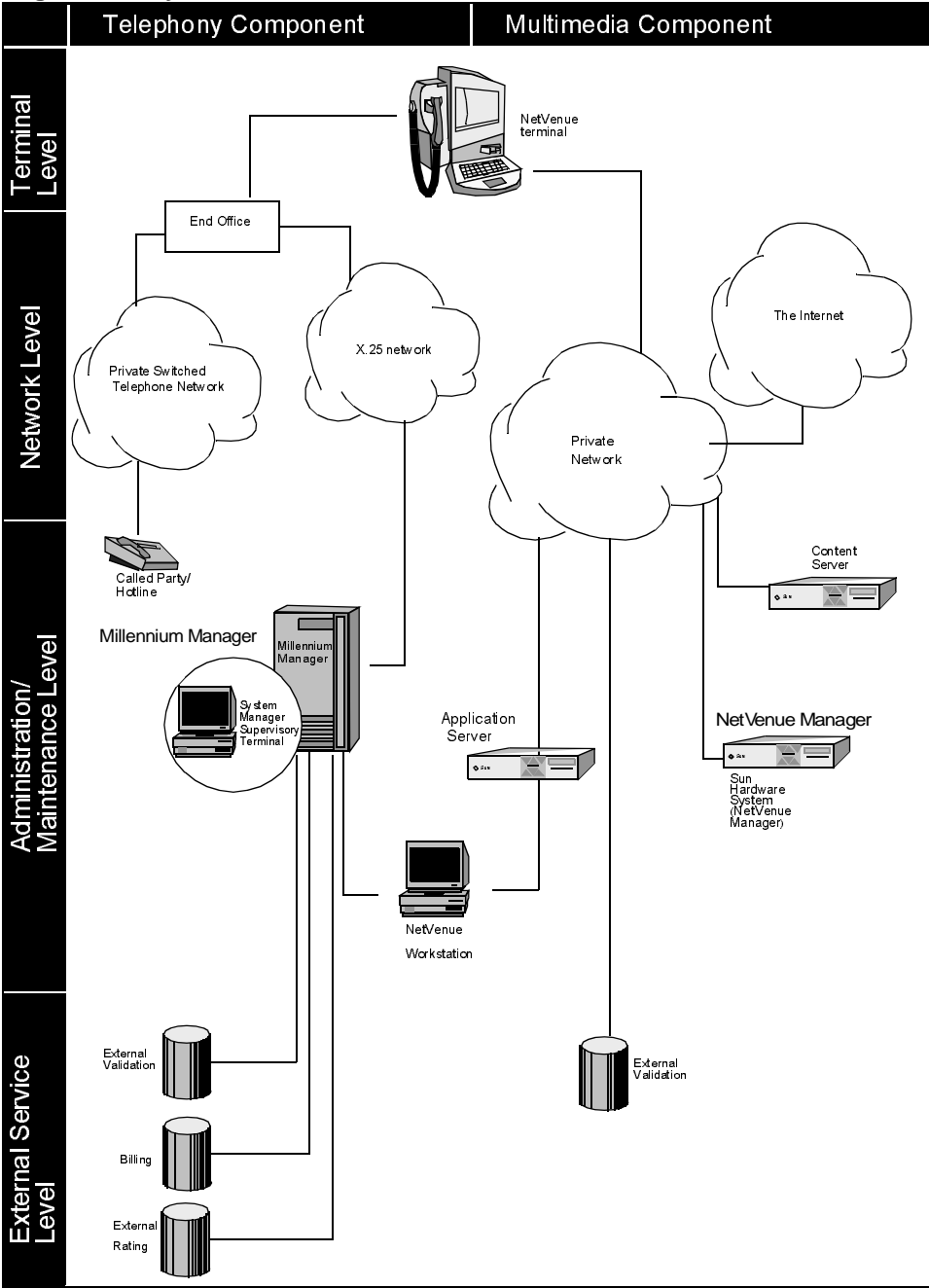
The left side of Figure 2-1 contains the portions of the system that are related to the telephony component. The right side of the figure shows portions of NetVenue that are related to the multimedia component.

Both of these components can be broken down into four levels:

- Terminal level
- Network level
- Administration and maintenance level
- External service level

Terminal level

The terminal level is the only portion of the NetVenue system that the public interacts with. It consists of NetVenue terminals, where users can access the Internet/ Intranet, send and view E-mail, purchase products and services, and make phone calls.

Network level

The network level can be configured in many ways. It can consist of any or all of the following networks:

- A private IP network allows the terminals to connect with the Multimedia Manager, workstations, content servers, and the Internet/Intranet.
- Users can access different types of content and public Web servers on the Internet.
- The X.25 network allows the telephony component of the NetVenue terminal to connect with the Millennium Manager through the terminal's POTS line or ISDN line.
- The Private Switched Telephone Network is used by the telephony component of the NetVenue terminal to contact a called party or the help line.

Administration and maintenance level

The administration and maintenance level is where the system administrators, help desk personnel, and maintenance technicians control and interact with the system. It consists of:

- The Millennium Manager system runs the pay telephony component of NetVenue. The Millennium Manager receives call detail records and coordinates rating and billing of phone calls. This software is run by a *Tandem computer, and controlled from PC workstations.

- The NetVenue Manager system runs the multimedia portion of the NetVenue. The NetVenue Manager coordinates pay-per-use services, stores alarms when the terminals are not operating properly, and stores terminal configuration information. This software is run on a *Sun Microsystems or Windows NT computer, and controlled from workstations.

- Content servers provide Web-based content and services that run on the NetVenue terminals.

- The application server enables administrative personnel to make changes to the configuration from workstations.

External service level

The external service level consists of the services provided by other companies for the NetVenue system. These include:

- Card validation facilities, to clear credit cards.

- Call rating databases, such as CGI and Morris, which rate pay telephony calls.

3 Hardware

NetVenue terminals are built with high quality components. The result is a durable, compact, visually appealing device that provides good service.

External components

While the NetVenue terminal is designed to withstand the wear and tear of public use, it is meant for semi-secure, indoor installations.

Table 3-1 lists the external components of the NetVenue terminal.

Table 3-1: External NetVenue components

Component	Description
handset	With the handset, users can make pay telephony calls, if pay telephony is enabled, or contact help-desk personnel. The handset is Nortel Networks' public strength payphone handset, durable enough to stand the wear and tear of public use. It connects to the left side of the payphone with a swivel bezel.

Component	Description
LCD	The LCD (Liquid Crystal Display) displays all of the multimedia content, as well as the soft payphone interface. The LCD has a high quality, 1024x786 display. The LCD is a 15" flat panel screen, with a pixel pitch of .31 mm.
touch screen	The touch screen is a transparent screen in front of the LCD, which allows users to activate on-screen buttons and links by touching the screen. It has a touch force of 85 grams, and a touch point density greater than 100,000 / sq. inch.
keyboard	With the keyboard, users can fill in forms, compose E-mail, and navigate the Internet. The keyboard is dust proof and spill proof. Its layout is designed for Nortel Networks; it is smaller than an extended keyboard, but still has the escape, delete, page-up and page-down keys. The keyboard bezel is made of durable plastics.
glidepad	The glidepad is a pointing device similar to a mouse. Users can move the on-screen cursor by touching the glidepad.
enclosure	The enclosure is composed of soft-tooled aluminum. The keyboard bezel is made of plastic.
card reader	The card reader allows users to perform financial transactions on the NetVenue terminal. It is Nortel Networks' standard multicard reader, and can accept credit cards, smart cards, calling cards, and loyalty cards. It can be configured to accept other cards, as well.

Component	Description
ID bezel	The ID bezel is located at the top of the terminal, and can be customized to suit the needs of the customer. The customer is responsible for supplying the artwork to be silk-screened on to the terminal. The dimensions of the bezel are: 44.5mm x 146mm
speaker	A speaker inside the terminal outputs audio from the multimedia component. It has a mono channel.

Figure 3-1 shows the exterior of the NetVenue terminal. Each of the components listed above is labelled.

Figure 3-1: External Components

lock

speaker

ID bezel

LCD Display & Touchscreen

Handset

Card Reader

Keyboard

Glidepad

Receipt Printer
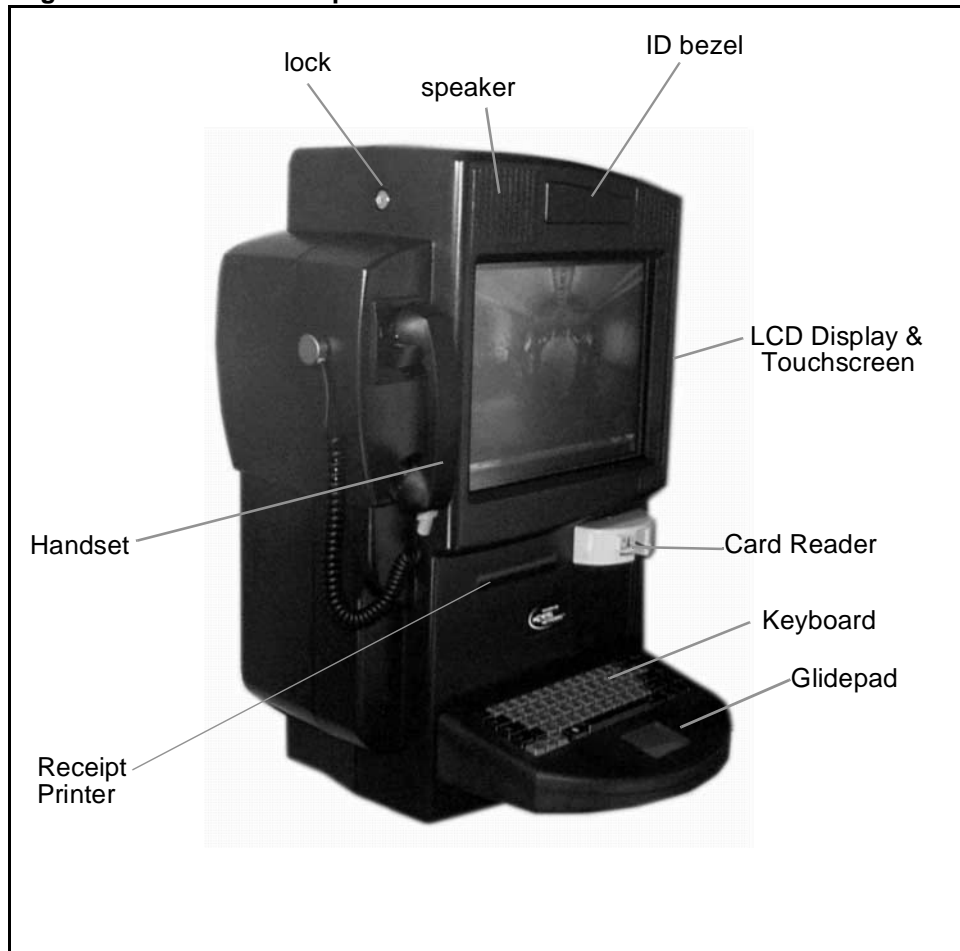
Internal components

The interior of the NetVenue terminal consists of high quality multimedia and telephony components. Table 3-2 lists the internal componets of the NetVenue terminal.

Table 3-2: Internal Components

computer assembly	The computer assembly consists of the motherboard and hard drive. It stores and runs applications, and communicates with internal devices and external ports. For the NetVenue terminal, the processor is an *Intel *Celeron 300A. It also includes 128MB of DRAM.
rear terminal board	The rear terminal board controls the analog line, and monitors when the terminal is opened.
IAS module	The Inferred Answer Supervision module is required only when the terminal is used for pay telephony and the analog line does not have answer supervision.
ISDN router	This device is available only as a kit for ISDN connections.
receipt printer	The receipt printer prints receipts on a roll of thermal paper. The NetVenue terminal uses a thermal printer, which does not need an ink cartridge.
printer control	The printer control card communicates between the printer and the multimedia component.
touch screen controller	The touch screen controller is an adapter for the touch screen, which allows it to communicate with the multimedia component.
main power supply	The DC power supply provides power for the telephony and multimedia engines.
display power supply	The display power supply provides power for the LCD monitor.
receipt printer power supply	The receipt printer power supply provides elecricity for the receipt printer and the router.

control PCP	The control PCP (printed circuit pack) provides all the advanced features of the telephony component of the terminal. The NetVenue terminal uses Millennium MTR 2.0 control board running special firmware.
telephony PCP	The Telephony PCP is the Millennium standard telephony board.

Figure 3-2 shows the rear assembly of an open terminal, while Figure 3-3 show the front assembly.

Figure 3-2: Rear assembly
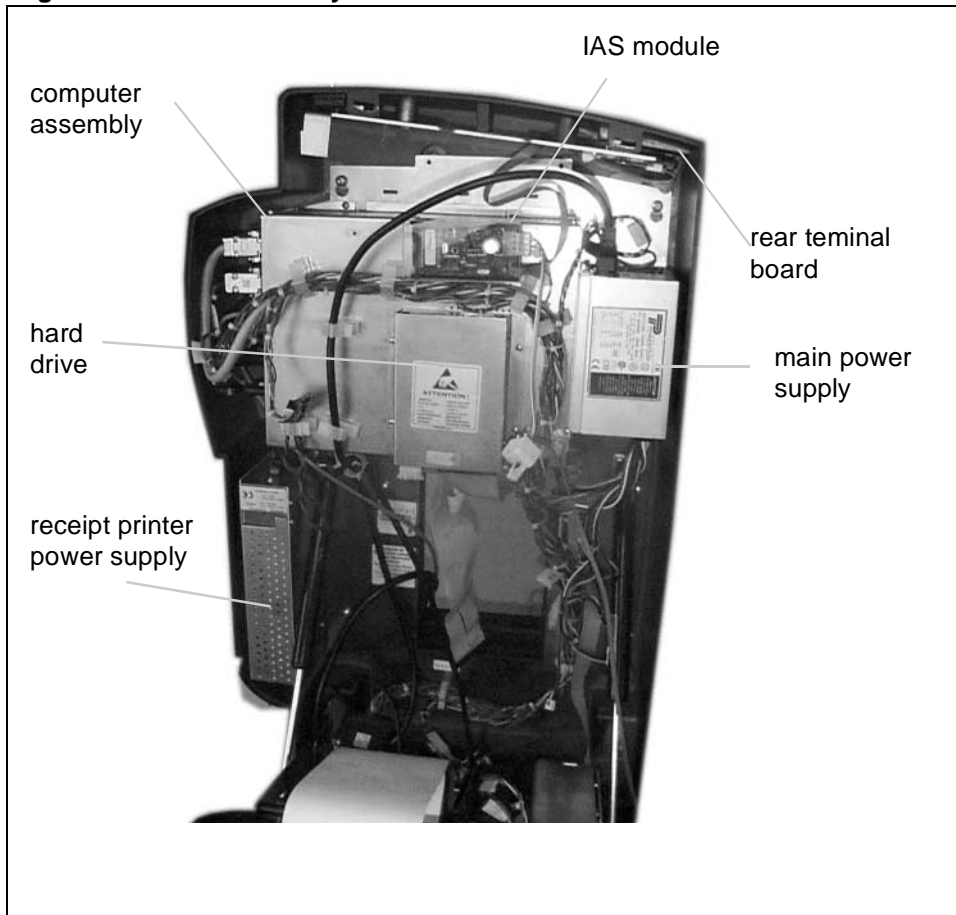
Figure 3-3: Front assembly

display power supply

receipt printer

telephony boards

touchscreen adapter

LCD/touchscreen

speaker
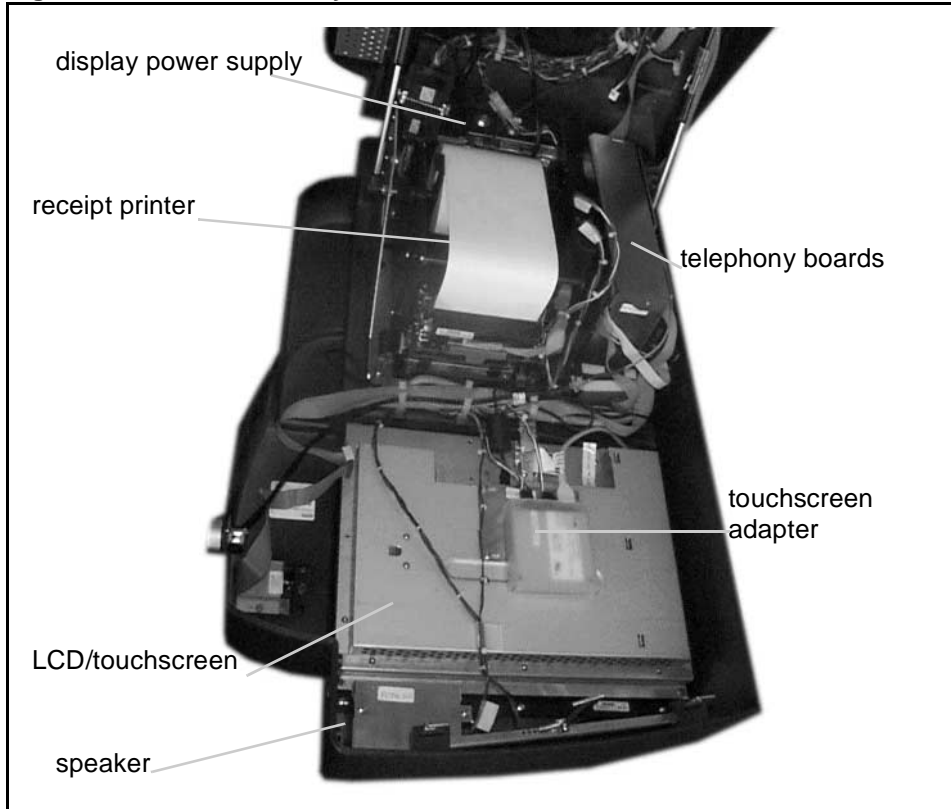
4 Software

Several software packages are provided with NetVenue terminals, to run, develop, and administer the NetVenue network.

Software on the NetVenue terminal

Both the multimedia and telephony components in the terminal contain a large software component.

The computer assembly uses an Intel Celeron 300A platform and the software includes the *Windows NT Workstation 4.0 operating system, third party software, Nortel Networks proprietary software, and customer content and services.

The telephony component operates on a microprocessor based platform running Nortel Networks proprietary firmware.

The following sections provide more details on both components.

Multimedia component

Table 4-1 outlines the base software included in the NetVenue terminal.

Table 4-1: Software in NetVenue terminal

Type	Notes
Operating system	Provides hardware, network, and file system support
Embedded Web browser	Supports Web-based content
Front end menu system	Provides the front end user interface (menus)
Pay telephony application	Provides a payphone interface which the user can interact with
JDBC™ driver	Provides JDBC access to remote data-base servers

The operating system is Windows NT Workstation 4.0. The user has no direct interaction with the OS, as it launches the NetVenue software on start-up.

The embedded Web browser displays Web services. A customizable Web toolbar can be created for the browser.

The front end menu system is designed using the NetVenue Admin Tools Suite. These menus allow the user to access content and services.

The pay telephony application takes the place of the dial-pad and two line display normally found on a payphone. For more information, see the *Pay Telephony features* section of this document.

Telephony component

Please refer to the applicable Millennium telephony documentation for details of the firmware architecture.

System architecture

The following sections provide information on the architecture of the NetVenue terminal system.

Pay telephony component

The Payphone component of the terminal communicates with the Millennium Manager for rate verification, billing, terminal management, and call statistics. The payphone component can also provide credit card verification for the multimedia component.

Multimedia component

The Multimedia Component supports superior multimedia content with embedded Web browser component, *Quick-Time, and *Java. The NetVenue manager distributes menu graphic files to the terminal.

Figure 4-1 provides an overview of the relationships between the software components. The figure represents the levels that exist between the hardware and the user. The user interacts directly with the e-commerce dialogues, custom services, and navigational menus. The hardware interacts with the operating system. The levels between represent the architecture of the software.

Figure 4-1: Multimedia software architecture

Remote Maintenance	Terminal Services	Web services	Menus	Pay Telephony	Java Services
		Embedded Web browser			
			Java Virtual Machine		
Security software					
Windows NT 4.0					
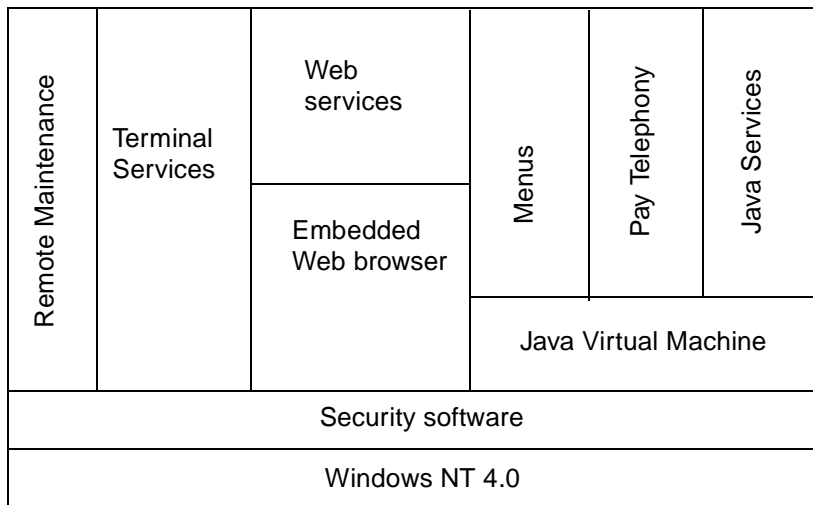
The following are some notes on the terminal software architecture:

- The Nortel Networks software provides the front-end menus (user interface).

- Customer services are written in HTML, Java, or *Active X.

- Multimedia support is provided by a media layer as well as the embedded Web browser component.

- The embedded Web browser supports the Web services.

- Java Applets are supported in Web services using the Web browser component's Java Virtual Machine.

Local cache

The NetVenue terminal uses Java on the local hard drive to minimze network usage. This cache is updated each idle check-in and when the terminal restarts.

The NetVenue terminal accesses both the local and remote data sources using Java Database Connectivity (JDBC).

Network monitoring

The terminal software detects problems with peripherals and sends the information to NetVenue Manager. Maintenance technicians use the NetVenue Admin Tools Suite to monitor the status of the terminal and its devices.

Transaction Support

E-Commerce transactions are cleared by the terminal over Internet Protocol (IP). The terminal also supports clearing transactions through the Millennium Manager or the terminal provider. For more information on card transactions, see the *Application developer handbook*.

5 Multimedia features

The NetVenue terminalt provides the user with an easy-to-use interface. This allows terminal owner/operators to combine videos, sound files, images, and HTML files in a seamless interface.

Menu bar

Custom services are accessed through the front-end navigation menus. The menus can be configured to access E-mail, the help line, pay telephony, or any custom service.

Web browsing

If Web browsing is enabled by the terminal owner/operator, users can access the Internet from the front-end menus. Figure 5-1 shows an example of a Web browser.

Figure 5-1: Web browser
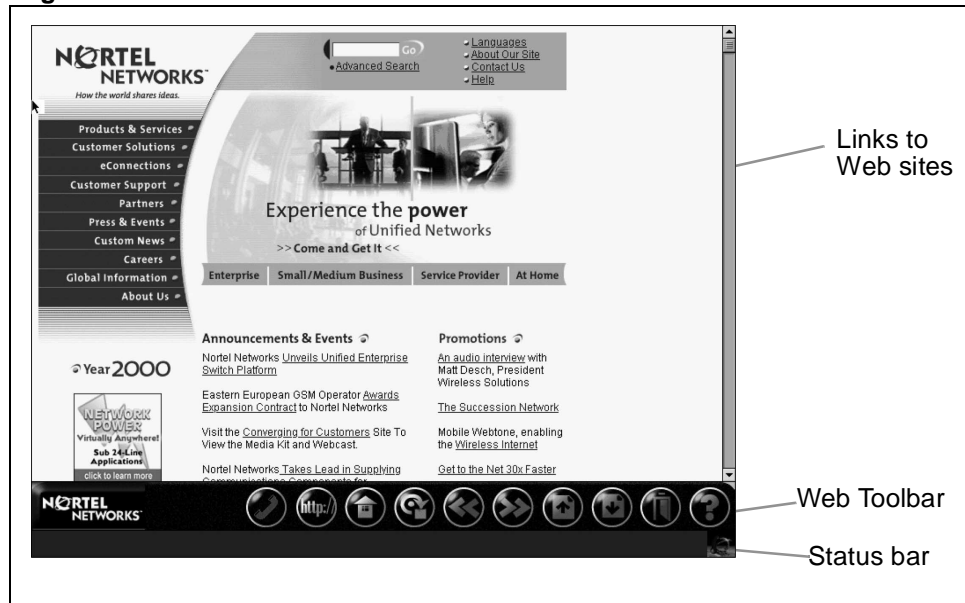
Pay-per-use

When a user selects a paid service, the NetVenue provides the cost of using the service and prompts the user for payment. The service begins only when the terminal receives proper authorization for the user's card. An optional grace period allows users time to log into services such as an E-mail account.

Web toolbar

When a user selects a Web service from one of the terminal's menu pages, the Web browser loads the first Web page, and the Web toolbar appears on the screen.

The toolbar buttons are customizable, and can include:

- Back

- Forward

- Exit

- Reload

- Page Up

- Page Down

- Go To

Audio and video

The terminal can play audio and motion video content on Intranet/Internet sites. Video appears on the display, and audio plays over the multimedia speaker. Multimedia audio does not play on the telephony handset.

Internet transactions

Some Internet sites sell goods or services to users by credit card, debit card, or smart card. The terminal supports 128-bit strong Secure Sockets Layer (SSL) encryption for Web servers that provide secure transaction support.

Content restriction

Some Internet sites provide the ability to download software, audio, graphics, video, and data files for local storage. The terminal does not allow downloading of information to the hard drive, to ensure that the terminal remains secure and stable.

The standard NetVenue system does not restrict access to questionnable or objectionable Web sites. There are off-the-shelf proxy servers which include content filtering support.

Exiting the service

Once users are finished their Internet browsing, they can quit using the "Exit" button on the Web toolbar. If this was a Pay-per-Use service, the terminal determines the total charge for this session and applies it to the users' credit card or smart card, if they were used. A subsequent user cannot access the history of Web sites visited by a previous user.

Customer defined content

NeVenue allows for several types of custom service:

- Front-end navigation menus
- Web-based services
- Java services
- Terminal services

Front-end navigation menus

Service providers can create front-end navigation menus and the Web toolbar using the Admin Tools Suite. These navigation menus are stored on the central server and are downloaded to the hard drive on the NetVenue terminal.

Figure 5-2 shows a typical navigational menu.

Figure 5-2: Navigational menu
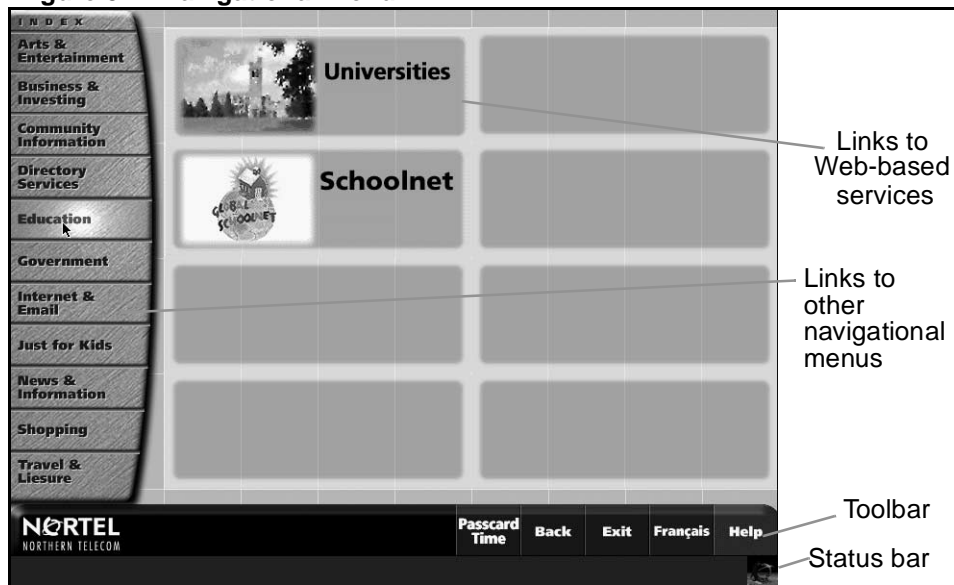
Web services

Web services run on a propreitary browser that uses Microsoft Internet Explorer. The Nortel APIs offers a number of HTML tags that are unique to the NetVenue system. These tags allow the NetVenue terminal to print receipts, perform a credit-card transaction, or dial a phone numbers from within a service.

Java services

Java services use the Java Virtual Machine on the terminal to operate. When a Java service begins, it appears over top of the menu it was summoned from, and remains on the screen until it is finished running. The NetVenue terminal supports Java 1.2 (2.0).

Terminal services

Like Java services, terminal services run independent of other software on the terminal. They use an ActiveX API set to communicate with the terminal. They can be written in any language that supports ActiveX APIs, including Visual Basic or C++.

E-mail

If E-mail is enabled, all users can use E-mail, even those who do not have E-mail accounts. This service gives users the option of sending anonymous E-mail or accessing their own e-mail account. These options can be disabled by the terminal owner/operator.

Figure 5-5 shows the general appearance of the E-mail interface.This interface is created in HTML, and is entirely customizable.

Figure 5-3: E-mail interface

E-mail options

E-mail toolbar
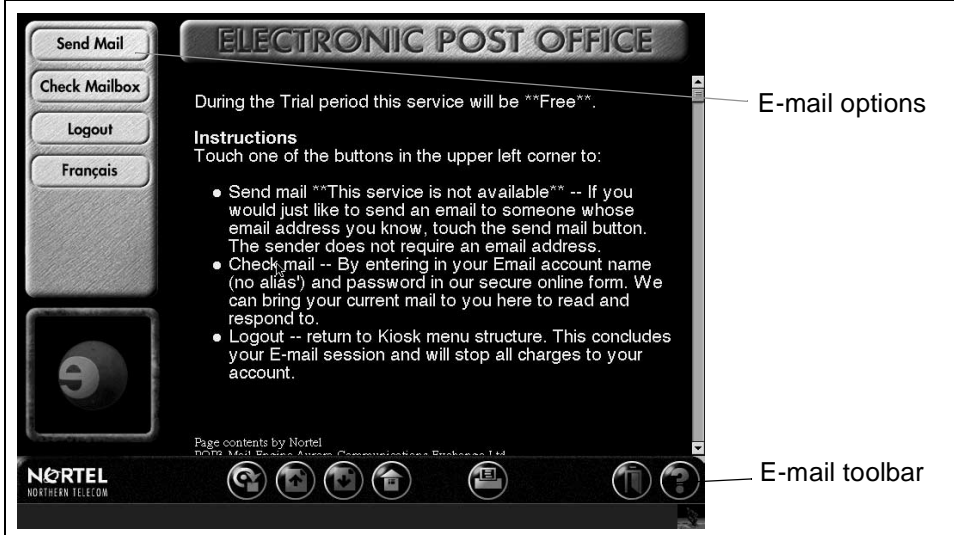
Anonymous E-mail

If users choose to send anonymous E-mail, they are asked to enter the destination address and message body, using the keyboard. Once the message is complete, it can be sent.

POP3 E-mail access

If a user choose to check their POP3-based E-mail account, the terminal prompts for POP3 E-mail account and password. Users then press the OK button to begin the E-mail session. Entering an alias (yourname@location.com) may result in an invalid account/password message. The user must enter the entire mail server name. For example, if a user's E-mail address is jsmith@nortel.com, the address including mail server may be jsmith@mail.nortel.com.

If the account and password combination is valid, the software retrieves all of the outstanding E-mail from the user's account.

The terminal displays all of the E-mail messages in the account. The users can read the messages by selecting them with the touch screen or pointing device.

Once the message appears, the user can read it, reply to it, print it, or jump to the previous or next message.

The Web-based E-mail feature simply provides a view of the user's E-mail without removing it from their account.

Attachments

For security reasons, the terminal does not support E-mail attachments.

Forwarding

The terminal supports message forwarding, as well as courtesy copying (cc). Users who access their own e-mail account can compose and send new E-mail messages, as detailed in the description of sending anonymous mail above.

6 Pay telephony features

The telephony component of the NetVenue terminal is based on Millennium Terminal Release (MTR) 2.0. The payphone feature is a customer orderable option. When disabled, users can still reach designated numbers using the handset.

Components

The pay telephony feature has four components:

- Software residing inside the multimedia component (soft payphone)

- Firmware residing inside the payphone component (based on MTR 2.0)

- The PC to Payphone Interface Protocol which provides the communication and command protocol between the multimedia component and the payphone component.

- The Millennium Manager which provides central control of the payphone component's call rating, etc.

User input reaches the telephony component from the keyboard, glidepad, or touch screen, then through the multimedia component, and finally through the PC to payphone interface protocol. The telephony component communicates with the Millennium Manager through the POTS line.

User interface

The soft interface provides users with the same interface they have come to expect on Millennium payphones. The only difference is that the buttons do not physically exist. Instead, their images appear on the screen. All interaction with the payphone is done through the touch screen, the glidepad, or the keyboard. The user interface is intended to look identical to the traditional payphone interface. It features a two-line display similar to a payphone's Vacuum Fluorescent Display (VFD), 12 button keypad, and ten quick access keys.

Accessing the interface

Users can access the payphone interface through front-end navigation menus, through a button on a Web toolbar or by lifting the handset.

The craft interface

For installation and repair purposes, craft messages appear on the two-line display above the keypad.

Quick access keys

As with the standard Millennium payphones, the NetVenue Terminal has quick access keys, which can be customized to dial commonly called numbers. Graphic labels can be applied to these buttons.

Rating and billing

See the Payment methods section of this document.

7 Payment methods

This section provides details of the payment methods supported on NetVenue.

Card validation

The cards that can be accepted by the terminal depend on the type of card, and on the merchant agreements between the operating company, the card issuing institutions, and the merchant services organization that provides card authorizations.

Table 7-1 shows what types of cards are supported for different services, and how the transactions are cleared.

Table 7-1: Card clearing

Service	Card Type			
	Credit Card	**Debit Card**	**Smart Card**	**Loyalty Card**
Pay-per-use	Cleared by multimedia component	Not currently supported	Cleared by payphone component	Not currently supported
Pay telephony	Cleared by payphone Component	Not currently supported	Cleared by payphone component	Not currently supported
One-Time purchase	Cleared by Multimedia component	Not currently supported	Cleared by payphone component	Cleared by Service pro-vider's back-end system

In order to accept these cards, the operating company must provide merchant agreements with each of the card authorizers. The operating company must also decide whether it will clear the cards itself, or have Nortel Networks clear the cards.

Other card types

NetVenue can be configured to accept almost any magnetic stripe or chip card. For example, some companies may want to accept loyalty cards, and schools may want to accept student cards. For these cards you must supply art for the Card prompt screen.

Debit card support

The NetVenue software supports debit cards. However, debit card transactions require a secure vending pad for PIN entry. This is available as a kiosk addition to the NetVenue terminal.

Pay-per-use

Pay-per-use (PPU) is a method of charging for terminal usage based on elapsed time. This permits terminal users to decide how much time and money they are willing to spend. E-mail and Internet browsing are potential PPU services.

All service types (Web services, Java services, and terminal services) are supported with PPU. A Web service starts once the first URL of the Web service starts loading and ends when the user exits the service or the service completes.

Credit cards and prepaid Nortel Networks stored value smart cards are the supported method of payment for PPU services.

The following rates are configurable per service and are charged to the user:

- An up-front charge to cover the transaction costs and possibly material costs. This covers a number of min-utes, such as $2.50 for the first three minutes.

- Charge rate per minute, for example $0.50 per minute.

- An authorization amount (credit card only).

The following parameters are configurable per service:

- A time limit per session which, when exceeded, causes another card authorization to occur. This works with the above authorization amount for credit cards.

- An initial grace period, in seconds, during which the user incurs no charges.

Call rating

All rating for pay telephony calls occurs through the Millen-nium Manager. The terminal can rate some calls internally, and fetch rates for other calls from an external database.

Internally, the terminal can be configured to rate some calls, such as local calls and 1-800 numbers. It can be set to deny calls as well. Other calls must be rated through interfaces to external databases.

Two external databases are supported. CGI provides rating services for U.S. customers and the MORRIS rating system provides services for Canadian customers.

Customers must supply the necessary rating structures for input into MORRIS or CGI before putting the NetVenue into service.

Call billing preparation

Billing information for pay telephony calls flows from the terminal to the Millennium Manager and Multimedia manager, for telephony and multimedia transactions, respectively. The Millennium Manager creates billing files, and downloads them to the telco across XCOM or FTP lines or lines using a similar protocol.

The requirements of each billing computer are unique. Talk to your Technical Account Manager or billing department about your billing provisioning needs. The Millennium Manager supports all standard file-transfer formats.

8 Provisioning

This section outlines the provisioning requirements for the NetVenue terminal. For complete provisioning requirements, refer to the NetVenue Provisioning Guide.

Terminal provisioning

☐ Ensure locations are serviced by a CO switch that can provide the correct lines, such as the ISDN line.

☐ Perform a site survey prior to installation to verify:
   • Location meets the operating company site requirements.
   • Supplementary power requirements are met.
   • Adequate wiring for each terminal (up to three wire pairs per station)

☐ Ensure supplementary power--110 volt outlet--is available at all terminal sites.

☐ Ensure that power source is suitable and not accessible to user.

☐ Design artwork to identify the operating company.

☐ Design the decals required to cover the terminal and make arrangements for their supply.

☐ Obtain customer-specific keys.

NetVenue Manager provisioning

☐ Connect the appropriate network lines to the site.

☐ Install the necessary hardware for the server.

☐ Install the operating system, database, and other necessary software on the server.

☐ Configure the uninterruptible power supply (UPS) to last for at least 20 minutes.

☐ Set up workstations.

☐ Establish procedures for assigning new terminal orders.

☐ Establish detailed methods for network engineering.

☐ Establish procedures for notifying the technical administrator of new installations.

☐ Establish trouble call handling procedures for NetVenues.

☐ Establish problem escalation procedures and management of alarms.

☐ Establish procedures for modifying the terminal configuration.

☐ Establish call settlement and accounting procedures.

☐ Establish and communicate security policies for password control, administration tools, terminal monitoring and maintenance, E-commerce and administration.

IP network provisioning

☐ Establish the number of servers required and housing facilities needed.

☐ Assign personnel to maintain the server.

☐ Establish a network between servers, terminals, and workstations.

ISDN provisioning

(complete only if ISDN terminals are being used)

☐ Ensure that the terminals ordered are the ISDN model.

☐ Connect an appropriate line to the site.

Ethernet provisioning

(complete only if Ethernet terminals are being used)

☐ Ensure that the terminals ordered are the Ethernet model.

☐ Connect an appropriate line to the site.

Content servers provisioning

☐ Determine the number and location of content servers and application servers required on the network.

☐ Set up housing facilities and network connections for the servers.

Millennium Manager provisioning

(complete only if the NetVenue terminals will be used for pay telephony).

☐ Set up a Tandem computer for running the Millennium Manager

☐ Set up workstations with the necessary software on them.

Payphone network provisioning

(complete only if the NetVenue terminals will be used for pay telephony.)

☐ Establish connections to an X.25 network connected to the Millennium Manager.

☐ Establish a procedure for receiving and managing payphone alarms.

Maintenance center provisioning

☐ Establish destination equipment and appropriate communications facilities for alarm distribution.

☐ Obtain tools and equipment for installing, maintaining, and repairing the terminals.

☐ Obtain spare parts for the terminals.

□ Install workstations for maintenance of the telephony and multimedia components.

Service provisioning

□ Create Web toolbars with Admin Tools Suite.

□ Create Web services.

□ Create artwork and buttons for the telephony application if required.

□ Create front-end navigational menus with Admin Tools Suite.

□ Create attract loop movies for in and out of service.

Help desk provisioning

□ Determine the requirements for staffing the help desk.

□ Install telephony equipment.

□ Install workstations for the maintenance of the telephony and multimedia components.

Payment method provisioning

□ Provide list of commercial credit cards that will be accepted for each merchant for multimedia services.

□ Provide list of smart cards that will be accepted.

□ Determine the processing requirements for the billing methods.

□ Provide merchant agreements for each accepted commercial credit card.

□ Provide operating company rating structures for services (complete only if the NetVenue terminals will be used for telephony).

□ Provide rating structures for participating carriers for input into rating databases for phone service (complete only if the NetVenue terminals will be used for pay telephony).

☐   Establish procedures for the on-going maintenance of rating data (complete only if the NetVenue terminals will be used for pay telephony).

Personnel management provisioning

☐   Define and schedule training requirements.

☐   Identify team members and publish a contact list and procedures.

Configuration provisioning

☐   Obtain IP addresses for content servers, service providers, terminals, workstations and laser printers.

☐   Obtain basic pay telephony configuration information for terminal function.

9   NetVenue terminal general specifications

This section outlines the specifications of the NetVenue terminal with respect to its performance, product safety, reliabilty maintenance and repair.

External components

The following section describes the components visible to the user, or which provide output to the user.

Keyboard

The keyboard is designed specifically for the keyboard, and has the general layout of a laptop/powerbook keyboard. It is resistant to dust and spills.

Travel: 0.15"

Operation Force: 60 grams

Environmental: dust resistant, spill resistant

The keyboard is available in either a French or English configuration. Figure 9-1 shows the English keyboard layout. Figure 9-2 shows the French keyboard layout.

Figure 9-1: English keyboard Layout

Figure 9-2: French keyboard Layout

LCD

This section outlines specifications for the LCD.

Size:	15" diagonal
Resolution:	800 x 600 (can also support 1024 x 768)
Pixel Pitch:	0.297 mm
View Angle:	> +/- 70 degrees horizontal
	> +/- 50/-70 degrees vertical
Colors:	256k

Brightness: 250 nits

Refresh: 60 Hz

Touch screen

The touch screen is infront of the monitor, and acts as a pointing device. When configured properly, touching any point on a screen is the same as clicking that point with a mouse.

Density: 400 touch points/ linear inch

Accuracy: +/- 2mm

Response: 10.4 msec

Touch Force: 55-85 grams

Glidepad

The glidepad is located on the keyboard bezel, below the spacebar on the keyboard.

Size: 2.75" x 3.0"

Tracking speed: 30" per second

Resolution: 400 counts per inch

Touch Force: no pressure required

Card reader

The card reader is used by both the telephony and multi-media components of the NetVenue terminal.

This card reader can read magnetic stripe cards and pre-paid integrated circuit cards (PICC), known as smart cards.

Magnetic stripe cards: For magnetic stripe cards, the card reader reads all data present on track 2 of all standard magnetic stripe cards. The reader reads on withdrawal, with card rates between 5 and 50 inches per second.

Smart cards: Cards compliant with ISO 7816, Parts 1, 2, and 3 can be read. The card remains in the card reader for the duration of the call.

Stripe/chip combination cards: If the stripe and chip are on opposite sides, the side facing up is what gets read by a multi-card reader. If both the magnetic stripe and the chip are on the same side, the chip takes precedence. Because of possible fraud situations, this type of card is not recommended by Nortel Networks.

Receipt printer

The receipt printer connects to the motherboard through a serial port.

Print Width: 112 mm

Resolution: 8 dots/mm

Speed: 50 mm/sec

Speaker

50 ohm, 2" x 3" oval

User Volume Adjust: supported through software

Output Mode:mono

Control board functions

The control board must have supplementary power to function. Therefore, when the power fails to the terminal, the functions described below do not work. The exception is the

retention of data memory for a minimum of 24 hours, facilitated by the super capacitor.

Internal power regulation

Converts the supplementary power input into the voltages needed by the various terminal components. The regulator protects the power supply against over voltage and short circuits.

Modem

The modem is a one-chip 212A 1200 baud modem that is used to communicate with the Millennium Manager interface.

Control microprocessor

The control microprocessor communicates with the telephony microprocessor and controls the voice synthesis , modem and card reader interface.

Memory

This built-in memory stores such data as call statistics and call detail records. The memory stores information for a minimum of 24 without power.

Voice synthesis

The terminal generates high quality digital speech. The speech encoding method is ADPCM generated using an 8 kHz sample. This respresents a bit rate of approximately 32 kbps.

Telephony board functions

The following section describes the telephony board specifications.

Network

This chip provdies two-wire to hour-wire conversion, creating superior voice quality. This circuit interfaces with the electret microphone and dynamic receiver located in the handset.

Receive amplification

Up to 18 dB of amplification is provided for the handset receiver.

Telephony microprocessor

The telephony microprocessor interfaces with the voice network, provides dual tone multi-frequency (DTMF) tones and communicates with the control processor.

Telephony power supply

The telephony power supply provides power to the telephony processor from the telephone line.

Lineswitch PCP (External interface PCP)

Ther terminal does not have a traditional hookswitch. When the handset is lifted from its cradle or replaced, the resulting movements of the plunger causes a micro switch to operate. The state of the microswitch is sensed by the telephony microprocessor and a relay makes the connection to the telephone line. The lineswitch PCP contains the microswitch mentioned above.

Computer assembly

The computer assembly is comprised of the motherboard, CPU, RAM, Ethernet and hard drive. It stores and runs applications, and communicates with internal devices and external ports.

Hard Drive

The hard drive has a minimum capacity of 4.3 GB.

CPU

The CPU is an Intel Celeron chip.

Memory

The memory in the telphony control board is defined and not expandable. In the multimedia engine, however, memory, which includes Level 2 cache for the processor, video RAM, DRAM, and Hard drive size, is expandable. The configuration of the memory for a NetVenue terminal are as follows:

- Level 2 cache = 128 KB

- Video RAM = 8 MB

- DRAM = 128 MB

Serial card

The serial card allows interaction between the touchscreen, receipt printer, and other devices to the multimedia platform.

Line and system features

This section describes the line function features of the terminal.

CO answer supervision

The terminal requires "Wink" or "Hard Reversal" to indicate that the called party has answered. Under normal conditions, line polarity is CO battery voltage of 27 to 56 V for ring and ground for tip. Wink is defined as a momentary reversal of, typ-ically, 100 ms of polarity, while a hard reversal is defined as a reversal in polarity from the time the called party answers

the set until the call is terminated. The terminal supports answer supervision provided it is in a format similar to a DMS switch with RMR and RMT enabled. This means, false supervision on operator assisted calls and true supervision on toll or local calls.

IAS module

If answer supervision is not available on the line, an inferred answer supervision (IAS) module can be installed inside the terminal.

The IAS module can be ordered in either of two versions.

• One version is most compatible with high-quality lines, where weaker signals are clearly discernible.

• A second version can be used where the CO equipment is older or the lines or environment are noisier.

Nortel Networks has a separate general specification describing this module. This document is available upon request.

Voice and data on a single CO line

The terminal can make data and voice calls on the same line. This allows the terminal to receive validation for credit and calling cards and rate information for smart card toll calls before it dials out the number.

When the terminal performs a rate request for smart card toll calls, it displays the initial and subsequent charges on the LCD. When the call is connected, the LCD displays the remaining time left on the card as the call proceeds.

If no card validation or rate information is required, then no data call is made, and the voice call proceeds as normal.

This feature also allows statistics records created by the terminal to piggyback on data calls, which helps keep

terminal records below threshold levels, alleviating the need for a forced call-in, which would disrupt customer service.

Supplementary power

The pay-telephony component requires seperate supplementary power, which is supplied by the receipt printer power supply.

Remote alarms and diagnostics

The pay telephony component transmits alarms to the Millennium Manager when interruptions in service occur. The messages are passed on to whatever service destinations the operating company has designated. These alarm messages are listed in Appendix A of the installation guide and in the Millennium terminals troubleshooting guide.

At the terminal, the craftsperson uses the craft interface to pinpoint the area of the problem and the module causing the problem. These error messages are listed in Appendix B of the installation guide and in the Millennium terminals troubleshooting guide.

ISDN Router

If the NetVenue terminal is connected to an ISDN line rather than an Ethernet line, then the ISDN router is necessary. This is available as a kit.

Telephony specifications

This section describes the performance characteristics which will be maintained over the expected life of the product and over the full range of environmental conditions, as described in Environmental Requirements, Chapter 6.

For information on the soft payphone application, see Multimedia performance requirements.

Transmission characteristics

The transmission characteristics of the product comply with the requirements described in the following sections.

Transmit performance

The performance requirements during transmission are described in the following sections:

Transmit objective loudness rating

Transmit measurements are made as specified in IEEE Standard 661-1979 and Standard 269-1983 using an external feeding bridge of 2x200 W, 2x2 mF, at 48 Vdc using 26 gauge (0.4 mm) artificial line. The TOLR shall be:

- At 0 km (0 kft): -46 ± 4.5 dB
- At 4.575 km (15 kft): -42 ± 4.5 dB

For points between 0 and 4.575 km, the TOLR shall be proportional to loop cur-rent.

Transmit frequency response

The transmit frequency response meets EIA-470 and falls inside the limits shown in Figure 9-3 for a loop length of 0 km (0 kft).

Figure 9-3: Transmit frequency response
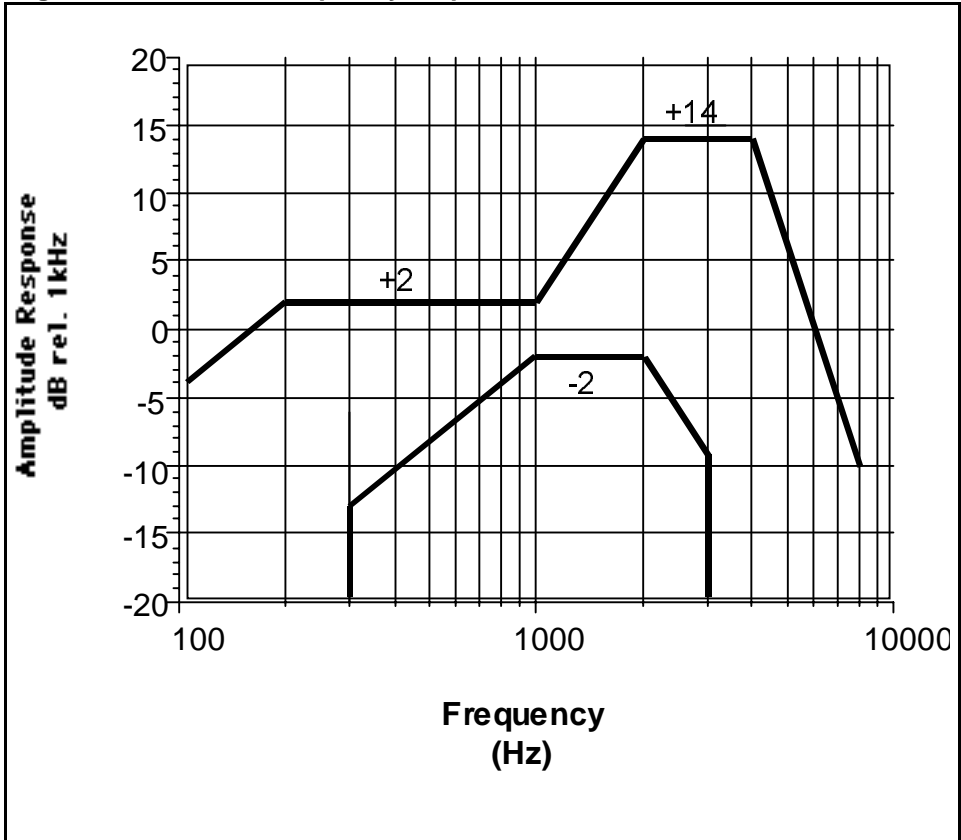
Lower Boundary	Upper Boundary
-12.5 dB @ 300 Hz	-4 dB @ 100 Hz
-2 dB @ 1000 Hz	+2 dB @ 200 Hz
-2 dB @ 2000 Hz	+2 dB @ 1000 HZ
-9 dB @ 3000 Hz	+14 dB @ 2000 Hz
	+14 dB @ 4000 Hz
	-10 dB @ 8000 Hz

Parallel set operation

The terminal does not support parallel set operation due to the fraud and abuse potential.

Distortion

The total harmonic distortion at 1000Hz does not exceed 5% when tested per IEEE standard 269-1983, except that the input sound pressure level is fixed at +6dBPa and the line current is 25mA.

Off-hook noise

Off-hook noise is less than 15 dBrnc.

Receive performance

The performance requirements during reception are described in the following sections.

Receive objective loudness rating

Receive measurements shall be made as specified in IEEE Standard 661-1979 and Standard 269-1983. Measurements shall be made using an external feeding bridge of 2x200 W, 2x2 mF, at 48 Vdc using 26 gauge (0.4 mm) artificial line. The ROLR shall be as follows:

- At 0 km (0 kft): 49 ± 5 dB
- At 4.575 km (15 kft):53 ± 5 dB

At intermediate points between 0 and 4.575 km, the ROLR shall be proportional to loop current.

Receive frequency response

The receive frequency response meets EIA-470 and falls inside the limits shown in Figure 9-4 and in the table below for a loop length of 0 km (0 kft).

Figure 9-4: Receive frequency response
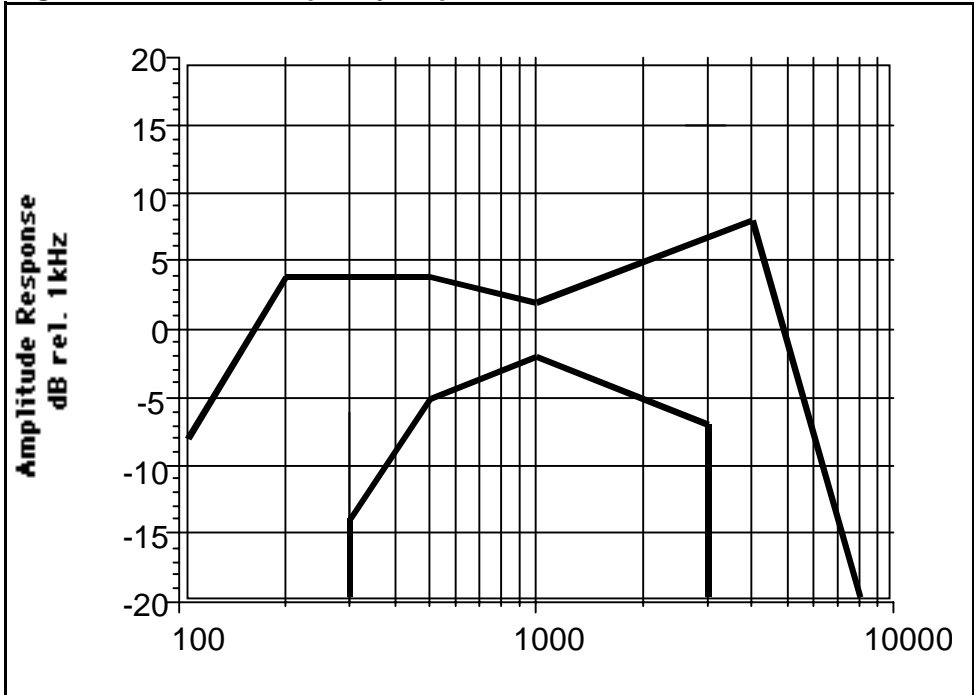
Lower Boundary	Upper Boundary
-14 dB @ 300 Hz	-8 dB @ 100 Hz
-5 dB @ 500 Hz	+4 dB @ 200 Hz
-2 dB @ 1000 Hz	+4 dB @ 500 HZ
-7 dB @ 3000 H	+2 dB @ 1000 Hz
	+8 dB @ 4000 Hz
	-20 dB @ 8000 Hz

Acoustic shock (maximum acoustic output)

The acoustic shock/peak acoustic pressure from the receiver does not exceed +36 dBPa when a simulated 10x1000 micro-second lightning voltage surge of 800 V is applied to the tip and ring of the terminal.

Receive noise

With nominal receive volume setting, for any line current between 20 mA and 100 mA, the maximum receive output does not exceed a sound level of 37 dB(A) on a quiet line termination.

On-hook receive sensitivity

With a 1 kHz,1 V signal applied to the tip and ring leads in the on-hook condition, the output from the receiver unit is less than -70 dBPa.

Receive requirements for hard of hearing

- Magnetic flux coupling: The terminal provides magnetic coupling with hearing aids. The magnetic field generated by the receiver meets the require-ments of CSA Standard CAN3-T515-M85 Section 4.

- Amplified receive: The terminal provides three levels of amplification (approx. 6.7, 13.3, and 20 dB) above the normal level (0dB). The maximum level of amplification meets CSA Standard CAN3-T515-M85 Section 5.

Sidetone characteristics

The following section describes sidetone characteristics of the terminal.

Sidetone objective loudness rating

Sidetone measurements shall b emade as specified in IEEE Standard 661-1979 and standard 269-1983 using an external feeding bridge of 2 X 200 W, 2 x 2 mf, at 48 Vdc using 26 gauge (0.4 mm) artificial line. The SOLR falls between 0 and +23 dB for all loops up to 15 kft.

Sidetone distortion

The distortion does not exceed 7% when tested as per IEEE Standard 269-1983. The calibration distance for the test shall be .76 centimeters.

Tone signaling

The tone signaling characteristics of the product comply with the requirements de-scribed in the following sections.

Tone frequencies and tolerance

Each depression of each button on the dial pad generates two tones, as defined in Figure 9-5. No output tone is gener-ated if two or more buttons are actuated si-multaneously. If a second key is depressed before the first released, the second key is ignored.

Each frequency is within ± 1.0% of nominal when tested at 20 ºC.

The above constraints apply for any loop current from 20 mA to 100 mA.

Figure 9-5: Tone frequencies generated

Tone output levels

The limits for tone output levels when tested in the circuit shown in Figure 9-6 are shown in Table 9-1 for the loop current adjusted to 20mA, and Table 9-2 for the loop current adjusted to 100 mA.

Table 9-1: 20 mA tone output levels

20mA		
	minimum	**maximum**
low frequency components	-7.5 dBm	-1.0 dBm
high frequency components	-5.5 dBm	0.0 dBm

Table 9-2: 100 mA tone output levels

100mA		
	minimum	**maximum**
low frequency components	-10.0 dBm	--5.0 dBm
high frequency components	-12.0 dBm	-4.5 dBm

In addition, levels of high frequency components are 2 dB ± 1.5 dB higher than lowfrequency components.

For currents between 20 and 100 mA, the level is proportional to current.

Figure 9-6: DTMF signaling measurements
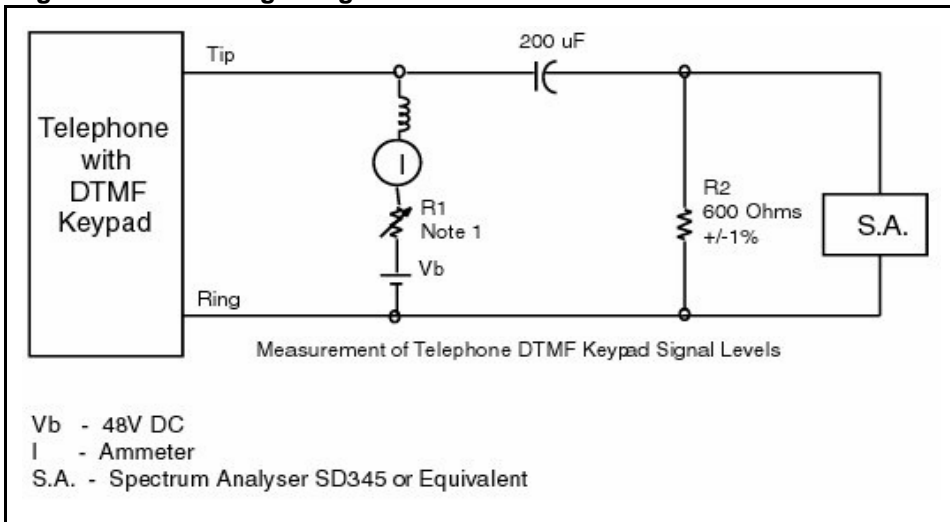
Notes:

- Adjust Resistor R1 to provide the range of DC station loop current required. Use battery voltage necessary to furnish required current levels.

- Inductance of battery feed coil, L, at maximum current must be at least 5H. Typical is WECO 1011 (Resis-

tance < 400 Ohms).

Modem signaling

The modem in the payphone component signals using Bell 212A 1200 bps Differential Phase Shift Keying (DPSK) standard protocol.

Electrical requirements

Power requirements are 120 VAC, 60Hz, 3A current.

Environmental requirements

The NetVenue terminal can operate in ambient temperatures between +10 C and +40 C (+50F and +104F). Storage termperatures can be from -40 C to +47C (-40F to +117F). Relative humidity should stay within the limits of 35% to 75% RH.

Regulatory and safety requirements

This section describes the standards that the terminal adheres to.

Electromagnetic compatibility (EMC)

Radiated EMC

The radiated electric field from the unit shall meet the limits of CISPR 22 Class A and FCC Part 15 Class A using ANSI 63.4 test methods.

Conducted EMC

The conducted EMI measured at the power lines of the unit shall meet the limits of CISPR 22 Class A and FCC Part 15 Class A using ANSI 63.4 test methods.

Electrostatic discharge (ESD)

ESD immunity (direct)

The unit will withstand IEC 61000-4-2 (1999-05) air discharge severity level 4. This specifies test voltage of up to 15kV using a 330 ohm / 150 pF probe. Occasaional computer malfunction at levels of 12-15kV require use of the built-in remote reset.

ESD immunity (Indirect)

The unit meets **IEC 61000-4-2 (1999-05)** indirect discharge severity level 4. This specifies a test voltage of 8kV using a 330 ohm / 150 pF probe.

ESD test method

Test methods and set up shall follow IEC 61000-4-2 (1999-05).

Electrical fast transient immunity

IEC 61000-4-4 (1995-01) severity level 2 is met. On this product, each of the two tests specified will be applied for a duration of 1 minute. The LAN line and the telephone line will be tested along with the Main Power supply coming into the unit.

Network protection

The terminal complies with the regulatory requirements of Industry Canada's CS-03 and the United States' FCC Part 68.

Product safety

The terminal meets the mandatory regulation requirements, these being

- CSAC22.2 No950-95 or CSAC22 No225-M1.
- UL1950 or UL1459

Telephony performance standards

The terminal will meet most performance requirements contained in:

- CSA-T-510
- EIA spec 470
- Bellcore TA-TSY-000456 lss 1

Resistance to abuse

Impact to display

The display is highly resistant to heavy blows by the telephone handset.

Keyboard

The keyboard bezel can withstand a 60lb load without damage.

Front housing

The front housing can withstand an 80lb load on the open front housing without damage.

Reliability

Hookswitch mechanical life is rated at 500,000 cycles

Card reader life is rated at 100,000 card reads. Cleaning the mechanism should be necessary no more than once per 5,000 cards read or once per year.

10Finding NetVenue information

This chapter lists documentation relevant to the NetVenue system.

The NetVenue suite of documents includes:

- *Product guide*
- *Provisioning guide*
- *Installation, maintenance, and troubleshooting guide*
- *Service developer handbook*
- *Repair guide*

Other Millennium documents that pertain to NetVenue include:

- *Using the craft interface*
- *System manager handbook*
- *Millennium provisioning guide*

Appendix A: Extended configurations

The NetVenue system supports many devices not included with the basic hardware. These devices can be connected to the terminal, and mounted inside a larger unit. Currently, three additional devices are supported:

- debit pad

- ticket printer

- laser printer

As well, there are various kiosks in which these devices can be mounted. These kiosks are either free standing or wall mounted.

Glossary

The following terms and abbreviations appear in this document or documents mentioned in this one.

ac

See alternating current

alternating current

A flow of electricity that changes its direction on a regular basis.

API

See application programming interface.

application programming interface

(API) Software that an application program uses to request and carry out lower-level service performed by the computer's or telephone system's operating system. For the NetVenue terminals, API can be written in the HTML code, to activiate the printer or payphone.

attachment

A file that is sent along with an E-mail.

attract loop video

A video that is repeatedly displayed by the NetVenue terminal to attract potential users.

billing validation

> The verification and authorization of calls billed to sources such as collect calls, third number calls and credit card calls.

call detail record

> (CDR) A feature that provides information such as calling and called numbers, date, time of connection and call duration for calls originating from, and sometimes completed to, the stations of a business communication system, allowing communication costs to be allocated to individual users or departments and station activity to be measured for system management purposes. For the NetVenue terminal, this information is collected by the Millennium Manager.

call rating

> Checking a call against a database to see what the charges for that call are. The NetVenue terminal can use the CGI or MORRIS databases to rate calls in Canada and the US. Local calls and 1-800 numbers can be rated internally.

calling-card validation

> (CCV) A Common Channel Signaling 7 (CCS7) service that allows operators to validate card numbers in the network service database system.

card clearing

> Making sure a card is valid, or that enough funds exist on the card. The NetVenue terminal can clear cards using records stored in the system, or with records from an external source.

card reader

> A device that reads information off of stripe or chip cards, such as smart cards or credit cards.

CCITT

> The French acronym for the International Telegraph and Telephone Consultative Committee.

CDR

> *See* call detail record

central processing unit

(CPU) The portion of a computer that executes programmed instructions, perform arithmetic and logical functions on data, and controls input/uotput functions.

content server

A computer which stores NetVenue terminal content, usually HTML API content.

CPU

See central processing unit

craft interface

Part of the maintenance level of the Web Terminals. It is used by technicians to maintain, install, and operate the telephony component of the terminal. It appears on the soft-payphone interface.

credit card

Users can pay for services by charging them to a card, then paying the credit card company at a later date.

database

(DB) A set of data, part or the whole of another set of data and consisting of at least one file, that is sufficient for a given purpose or for a given data processing system.

DB

See database.

dc

See direct current.

decal

An adhesive image that is applied to the surface of a terminal. It often contains company logos.

direct current (dc)

> An almost nonpulsating unidirectional current in which the changes in value are either zero or so small that they can be ignored.

E-commerce

> Electronic commerce. Financial transactions for a commercial business is done through an electronic medium, such as the Internet.

E-mail

> *See* electronic mail.

E-mail server

> A database which stores the E-mail accounts of users.

electronic mail

> (E-mail) A form of communication, developed as an alternative to the exchange of physical documents by traditional postal or courier services, that allows users to send messages by electronic means and to consult received messages at their convenience. Electronic mail services are generally considered to include telex, teletex, facsimile, and electronic messaging.

electrostatic discharge

> A transfer of electrostatic charge either caused by direct contact between two bodies that have a different electrostatic potentials, or induced by an electrostatic field. It is important to protect against ESD as sensitive components in the terminal can be damaged.

embedded Web browser

> A software application for Web navigation that runs inside another program.

encryption

> A security function that allows information to be put into a code before it is sent. It is unlocked when it reaches its destination. The NetVenue terminal supports 128 bit encryption, which is the highest level of encryption currently available for Internet use.

ESD

> *See* electrostatic discharge.

Ethernet

> A communications network standard that

> - is for a10-Mbps (megabit per second) baseband local area network (LAN) bus using carrier sense multiple access with collision detection (CSMA/CD) as the access method,

> - is implemented at the Physical Layer in the International Organization for Standardization (ISO) Open Systems Interconnection -- Reference Model (OSI-RM), and

> - establishes

>> (i)   the physical characteristics of the network and

>> (ii) the use of various cabling technologies, such as thick or thin coaxial cable, unshielded twisted pair cables, and fiber optic cables.

FCC

> Federal Communications Commission. The US government body which regulates the American telecommunications industry.

file transfer protocol

> (FTP) The Transmission Control Protocol/Internet Protocol (TCP/IP) protocol that is

> (a) a standard high-level protocol for transferring files from one computer to another,

> (b) usually implemented as an application level program, and

> (c) uses the Telnet and TCP protocols.

firmware

An ordered set of instructions and data stored in a way that is functionally independent of main storage. The term "firmware" describes microcode in read-only memory (ROM). At the time they are coded, micro-instructions are software. When they are put into ROM they become part of the hardware (microcode), or a combination of hardware and software (microprograms). Usually, microcode is permanent and cannot be modified by the user, but there are exceptions.

frame relay

A statistically multiplexed interface protocol for packet-switched data communications. Characteristics of frame relay include fast data transmission speeds, and neither flow control nor error correction.

front-end navigation menus

A series of user friendly screens that help the user find information.

FTP

See File Transfer Protocol.

glidepad

A pointing device activated when a user touches a small surface on the keyboard bezel. It controls an on-screen cursor.

hard drive

A stand-alone disk drive that reads and writes data on rigid disks and can be attached to a port on the system unit.

hardware

Any part of a computer that physically exists. The monitor, hard-drive, and printer are all examples of hardware.

HTML

See hypertext markup language.

hypertext markup language

> (HTML) An application of SGML (Standard Generalized Markup Language [ISO 8879]) implemented in conjunction with the World Wide Web to facilitate the electronic exchange and display of simple documents using the Internet.

IAS

> *See* inferred answer supervision

integrated services digital network

> (ISDN) A set of standards proposed by the CCITT to establish compatibility between the telephone network and various data terminals and devices. ISDN is a fully digital network, in general evolving from a telephone integrated digital network. It provides end-to-end connectivity to support a wide range of services, including circuit-switched voice, circuit-switched data, and packet-switched data over the same local facility.

Industry Canada Label

> The certification process that ensures that equipment meets certain telecommunications network protective, operational, and safety requirements. This certification does not guarantee the equipment will operate to the satisfaction of the user.

inferred answer supervision

> The process of determining when a call has been connected by mechanical means when answer supervision is not available on the telephone line.

Internet

> A worldwide interconnection of individual networks operated by government, industry, academia, and private parties.The Internet originally served to interconnect laboratories engaged in government research, and has now been expanded to serve millions of users and a multitude of purposes.

Internet protocol address

> (IP address) A unique address for a specific computer or network device (TCP/IP host) on the Internet. IP addresses are normally printed in dotted decimal form such as 128.127.50.224.

Intranet

A private network that uses Internet software and Internet standards. It is generally reserved for use by people who have been given the authority and passwords necessary to use that network.

IP address

See Internet protocol address.

ISDN

See integrated services digital network

ISDN router

Connects an ISDN line to an Ethernet line.

Java

An object oriented networked programming language and platform. Popular on the Internet, because it runs on any system.

Java Applets

Small programs written in the Java programming language that can run inside a Web browser.

loyalty card

A card provided by institutions or businesses. It can allow users to charge transactions to the card, or give users discounts on transactions.

memory

See random access memory

menu

A list of choices that a user can select from.

merchant agreement

An agreement between a card-issuing institution and a merchant who wishes to accept that card as a method of payment. In the case of the NetVenue terminal, the operating company is that merchant.

Millennium Manager

> The control centre of the telephony portion of the NetVenue terminal network.

Telco Maximizer

> A Windows-based application that works with a PC and a Tandem mainframe in client-server architecture. It provides a graphical user interface into the Millennium Manager.

motherboard

> The main circuit board within a computer, bearing the primary components of a computer system, including the processor, main storage, support circuitry, bus controller and bus connector.

multimedia

> The combination of multiple elements of communication, such as sound, text, graphics, and animation.

NetVenue Manager

> A central database which stores information and records for the multimedia side of the NetVenue system.

ODBC

> See Open database connectivity

open database connectivity

> (ODBC) A Microsoft standard that allows databases created by various relational and non-relational database programs to be accessed by a common interface.

operating system

> (OS) The software that interprets instructions given by applications software programs and causes a computer's or telephone system's components (CPU, peripherals) to work according to those instructions.

OS

> *See* operating system.

packet-switched network

> (PSN) A specialized communication system designed to carry digital data. Streams of data are divided into packets or units of standard size and sent along the network. Each packet has an address and system for checking the accuracy of the original data.

Pay-per-use

> A system requiring users to pay for a service based on how much they use it.

PCP

> See printed circuit pack

Pixel

> Abbreviation for picture element. The smallest unit of area of a video screen image. The single point on a CRT display. The single point in a facsimile transmission.

plug-and-play

> (PnP) A technology consisting of hardware andsoftware components that card, PC and operating system manufacturers incorporate into their products in order to make an add-in card capable of identifying itself and the resources it requires.

POTS

> Plain Ordinary Telephone Service or Plain Old Telephone Service. In reference to the NetVenue terminals, this is one method that connects the telephony component of theNetVenue terminal to the end office.

PPU

> *See* Pay-Per-Use.

Pre-paid integrated circuit card

> Also known as a smart card, telecard, or chip card. Users buy the cards and use them to pay for telephone calls or PPU services by inserting them into the card reader. They contain an electrically erasable programmable read-only memory chip that records the value of the card. This value decreases as the card is used.

printed circuit pack

>A series of circuits manufactured as a card. There are two printed-circuit packs (PCPs) in the credit card and multi-pay terminals. The control PCP contains the integrated circuits that control all the functions of the terminal except those available in the power-fail mode. The telephony PCP contains the circuits that interface with the telephone line.

PSN

>*See* packet-switched network.

PSTN

>*See* public switched telephone network.

public-switched telephone network

>(PSTN) The worldwide voice telephone network accessible to all those with telephones and access privileges.

QuickTime

>A format for displaying videos.

RAM

>See random access memory

random access memory

>(RAM) Memory into which data can be written and from which data can be read. A solid state memory device used for transient memory stores. Information can be entered and retrieved from any storage position.

remote database

>A database that replicates the central database, and acts as a database to a smaller number of terminals.

server

>A network device that provides service to the network users by managing shared resources.

silk-screen

A method of painting the company logos or other images on to a terminal.

smart card

See pre-paid integrated circuit card

soft-tooling

Manufacturing by computer.

software

Programs, applications, and utilities that exist as binary code. They can be run, edited, and erased.

Tandem

A computer with two processors that run simultaneously. If one processor breaks down, the other carries on.

TCP/IP

See transmission control protocol/Internet protocol

terminal emulation package

Software that allows a user at one computer interface to display output from and submit input to a dissimilar computer platform.

tip and ring

An old fashioned way of saying "plus" and "minus", or ground and positive in electrical circuits.

touch force

The amount of pressure required to operate a button or key.

touch screen

A transparent screen which fits over the monitor. Users can touch the screen to activate on-screen buttons, in the same way that clicking with a mouse would activate them.

transmission control protocol/Internet protocol

(TCP/IP) A protocol stack, designed to connect different networks, on which the Internet is based. It was designed to withstand a partial deterioration of the network.

uniform resource locator

(URL) A standardized way of representing different documents, media and network services on the World Wide Web.

Uninterruptible power supply

(UPS) A device that is inserted between a primary power source, such as a commercial utility, and the primary power input of equipment to be protected, such as a computer system, for the purpose of eliminating the effects of transient anomalies or temporary outages.

UPS

See uninterruptible power supply

URL

See uniform resource locator.

vacuum flourescent display

The dot matrix display which Millennium payphones use to display visual prompts, the craft interface, and advertising. On the NetVenue terminals, the VFD is replaced by the soft-payphone interface which appears on the monitor.

validation

See card validiation.

value-added network

(VAN) A network using the communication services of other commercial carriers, using hardware and software that permit enhanced telecommunication services to be offered.

VAN

See value added network.

VFD

> *See* vacuum flourescent display.

VGA adapter

> Allows a VGA monitor to be used by a Macintosh system.

watchdog

> A device which restarts parts of the NetVenue terminal system that are not responding.

workstation

> A computer that allows technicians and administrators to interact with a database, server, terminal, or other computer.

X.25 network

> A CCITT-defined network layer protocol that is used in packet switching to establish, maintain, and clear virtual circuit connections between an ISDN terminal and a destination in the packet switching network.

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NetVenue
Product Guide

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