



Telephone Network Switching Products

Vistacom has developed a product line which is designed to reduce long distance telecommunications costs. This goal is accomplished by switching telephone network trunk circuits. Our products accept incoming long distance traffic, and channel each arriving call to the outgoing telephone line which is the best choice at that time (minimum cost of placing the call). This is done via Least Cost Routing. With the proper selection of outgoing facilities, overall toll costs are significantly reduced. These savings can be successfully utilized in a variety of business applications. Several are described below.

Each product is designed to provide the maximum level of flexibility, both in hardware and software. In these rapidly changing times in the telecommunications arena, it is imperative to obtain the ability to evolve system functions as needs dictate. Vistacom products achieve this by extensive use of microprocessors — as much of the system functions are defined in software as is possible, which increases the longevity of the hardware — future enhancements can be implemented with a software update rather than a replacement of existing hardware with new. State-of-the-art technology is exploited to best benefit our customers.

Vistacom is heavily oriented towards research and development. Customers can rest assured that our R & D team is constantly searching for new technologies to be applied to our product line, with the goal of minimizing the time it takes to transfer new ideas and components directly to the end user. This has been the case since the company's creation in 1981, with its roots in the long distance resale business. At that time we were disappointed in the lack of sophistication and excessive expense of switching equipment on the market; we knew a better job could be done with available technology, so we did it ourselves for internal corporate use. Now that the fruits of the product development are available to others, everyone can benefit from these successes.

LONG DISTANCE RESALE

- * Complete System: Least Cost Routing, Reports, and Billing
- * Dial-up with Authorization Codes
- * Equal access with ANI Information
- * Feature Groups A, B, and D
- * Battery Backup for Power Failures
- * Easily Upgradable to Larger Sizes

SHARED TENANT SERVICES

- * Ideal for "Retrofit" Buildings
- * Direct Access from Tenant's PBX, Key System, or Single Line Phone
- * Also Provides 800 InWats Service
- * Directly Produces Tenants' Bills
- * Acts as an Access Gateway for Other Telecommunications Services

TELEMARKETING

- * Automates proper selection of lines
- * Increase Profit Margin
- * Direct access from each telephone
- * Reports usage to track success rate
- * Bill Back Clients with a professional appearance Bill
- * Preferable Over Adapted PBX's Not Designed for Concentrated Traffic

GENERAL BUSINESS

- * Add-on to Existing PBX or Key System
- * Provides Advanced Least Cost Routing Cost Reduction Without Replacing Main Telephone System
- * Charge Clients with Directly Produced Bills
- * Manage Internal Communications Costs with Extensive Reports

Switching Module

- * Distributed Microprocessor Control
- * "Precise" Ready Tone Prompts Customer
- * Accepts Authorization Code and Acknowledges with a Beep
- * Permits Called Telephone Number with or Without a Preceding "1"
- * Acknowledges Telephone Number with a Double Beep
- * Permits Entry of Billing Code
- * Acknowledges Receipt of Billing Code with Triple Beep
- * Entry Error Correction with a "4"
- * Silent Dialing of Party on Outgoing Port
- * Compatible with Feature Groups A, B, D
- * Equal Access Availability for Presubscribers, 10XXX Calling, and Cut-through
- * Modular in Groups of 24 Ports
- * MF Tone Decoding and Transmission
- * DTMF Tone Decoding and Transmission
- * Local Dial Tone Detection
- * Ready Tone Detection for Placing Calls Over Other Carriers
- * Cabinet Houses Entire System

TELCRO II ANALOG

- * Available from 24 through 144 Ports
- * Ports Split into Incoming and Outgoing
- * Two-wire Switch
- * Nonblocking Analog Crosspoint Matrix
- * Solid State Switching Matrix
- * Incoming Lines Two-wire Ground Start, Loop Reverse Battery, or Direct from Telephone Instrument
- * Outgoing Lines Two-wire Loop Start or Simulation of Central Office Ground Start
- * Any Incoming Line Can Be Connected to Any Outgoing Line
- * Switch Loss Under 3 dB

TELCRO III DIGITAL

- * Available from 24 Through 384 Ports
- * Ports Can be Used Universally as Incoming, Outgoing, or Bidirectional
- * Four-Wire Switch
- * Digital Pulse Code Modulation, Mu-Law
- * Digital Time Slot Interchange Switching
- * Each Port Can be Connected to Any Port
- * Port Cards: Two-Wire Loop and Ground Start; Four-Wire E&M Types 1-5, SF, and Ground Start; and Station Card for Direct Access or Two-Wire Loop Reverse Battery
- * T1 Interface Card Replaces 24 Port Cards
- * Interface Card for Connection to Radio Systems and Other Equipment
- * On-card Hybrid, Transmit and Receive Gain, Balancing, Signal Limiting, and Transmit and Receive Equalization
- * Software Controllable Transmit and Receive Gains, and Signal Limiting

Computer Module

- * Multiple Processors Allow Gentle Growth Without System Degradation
- * A Range of Central Processing Units to Best Meet Speed and Economic Requirements Without Overkill
- * Software Compatibility Over Entire Product Line of Speeds and Sizes
- * Integrated System Controls from One to Sixteen Switching Modules
- * Control of Switching Module with a Single RS-232 Connection
- * Switching Modules May Be Colocated or Remote from Computer Module
- * Supports a "Console Terminal" for Actions Affecting the Switching Module
- * Supports a "Field Office Terminal" for Applications Software: Route Guide, Call Searcher, Customer Database, Reports, and Billing Programs
- * Supports a System Printer
- * All User Interfaces Are Menu Driven for Ease of Operation

CALL PROCESSING

- * Validation of Authorization Code or ANI Information from Feature Groups B or D
- * Speed Calling for Simulation of 800 InWats or Foreign Exchange Services
- * Billing Codes from 1 through 99,999,999
- * Sophisticated Least Cost Routing
- * Typical Call Processing Time: 1/4 Second
- * Failed Lines Taken Out of Service, Logged, and Retested Periodically
- * Port Test Code to Go Directly to a Line
- * Call Data Stored on Winchester Disk Drive

ROUTE GUIDE

- * Set Up By Menu Driven Program to Provide Instructions for Least Cost Routing
- * 10- and 6-Digit Translation
- * Change Route Orders Automatically at 30 Minute Intervals by Day-of-Week
- * Perform Different Decisions Based on Class of Service and Incoming Linetype
- * Chain from Route Group to Route Group
- * Single Route Guide for up to 16 Modules
- * Supports Automatic Transfer of Calls Between Switching Modules with Lookahead

CALL SEARCHER

- * Searches Call Data Records to Locate a Single Call, or a Group of Calls
- * Finds Calls from Known Information
- * Displays All Information Regarding Call
- * Search Criteria Selected from Menu
- * Search Based on Any AND/OR Condition Related to Each of the Elements of Call
- * Ability to List All Matches
- * Track Trouble to Carrier at Fault
- * Pinpoint Customer Problems
- * Investigate Individual Routing Decisions

CUSTOMER DATABASE

- * Assign Customer Account Numbers from 1 to Maximum Number of Customers Desired
- * Select Class of Service for Routing Restrictions, Rates, Charges, and Reports
- * Choose Particular Authorization Codes, Or Permit Automatic Random Selection
- * Enter Customer Telephone Numbers for Equal Access or Feature Group B
- * Multiple Telephone Numbers for Customers
- * Supply Authorization Code Access, Equal Access, or Both by Each Account

REPORTS

- * Line History Report Shows all Failed, Restored, and Operator Overrides of Lines
- * Powerful Report Generator for End User Selection of Desired Management Report
- * Restrict Report Data to any AND/OR Combination of Elements of Call Record
- * Collect Number of Calls, Accumulated Call Durations, Averages, and Variance
- * Break Down by Port, Linetype, Area Code, Exchange, Route, and More
- * Prepackaged Standard Reports Included

BILLS

- * Calls Priced Daily as Records Collect
- * Display Current Bill During Month
- * Bill Printing of Priced Calls Within Hours of End of Billing Period
- * Handles Cycle Billing
- * All Price Structures and Printed Bill Format Controlled by End User
- * Supports V&H Based Mileage Band Pricing
- * Includes Tier Group and Zone Pricing
- * Volume Discounts and Service Charges
- * Can Handle All Known Types of OCC Tariffs

Systems

VISTACOM

By matching one or more Switching Modules with an appropriate Computer Module, Vistacom can create a cost effective overall system to best meet the needs of its customers. Other considerations are standby batteries for backup power during a commercial outage, packaging, and requirements for billing and management reports. Don't pay for what you don't need. The modular hardware and software designs permit us to find a configuration best matched to your desires. Many of the features are maintained throughout the entire product line, and are all upward compatible. The Telcro Family of Systems ranges from 24 to over 6000 ports. A low end system obtained today can serve as a solid base for a larger system of tomorrow, reducing hardware and software obsolescence.

Several different types of systems are shown below. One of these may best serve you. Other systems can be created by rearranging submodules. Consult the factory for other applications hardware or software telecommunications products which can be jointly developed or specifically contracted.

Customized solutions built on a highly flexible
hardware and software base — that's Vistacom!

STAND ALONE

- * Complete Least Cost Routing System
- * Computer Module Executes All Applications Software
- * For Up to Several Hundred Ports
- * Requires Switching Module(s) and Computer Module

VAX HOST

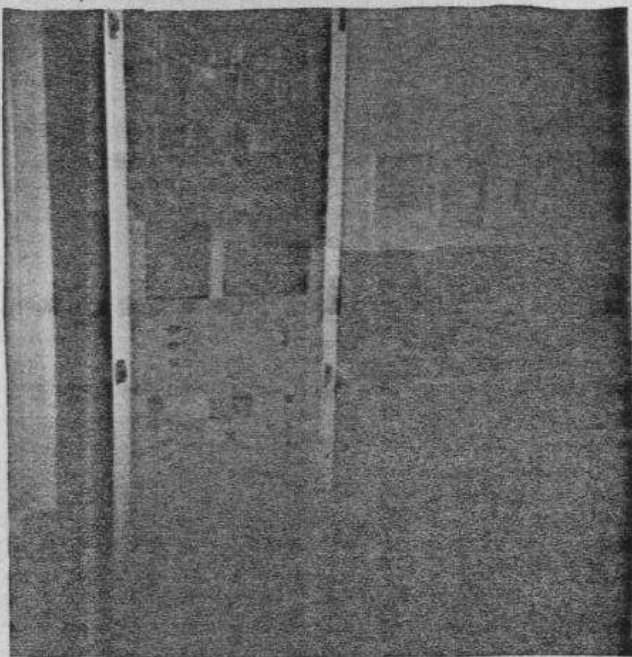
- * Complete Least Cost Routing System
- * Software Provided for Digital Equipment Corporation VAX 11/750 Computer
- * All Applications Software Executes on VAX
- * Least Cost Routing and Switching Functions Performed by Computer Module
- * Automated Data Communications Between VAX and Multiple Computer Modules
- * Integrated Multi-User System for Centralized Control of Many Switches
- * Requires VAX plus Multiple Computer and Switching Modules

E.A.S.E.E.

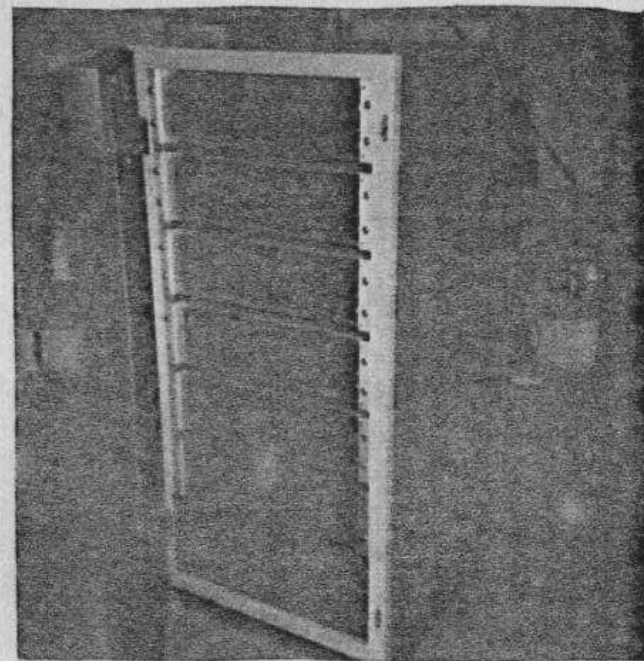
- * "Equal Access Service Extender Equipment"
- * Upgrades Other Switching System to Handle Equal Access
- * Goes Between Central Office Lines and Switch Access Ports
- * Completely User Programmable to Match Switch and Equal Access Requirements
- * Handles 0 + and Cut-through Calls
- * Performs Lookup or Conversion from ANI to Authorization Code
- * Requires Switching Module Only
- * Remote Data Entry Computer Available

CONCENTRATORS

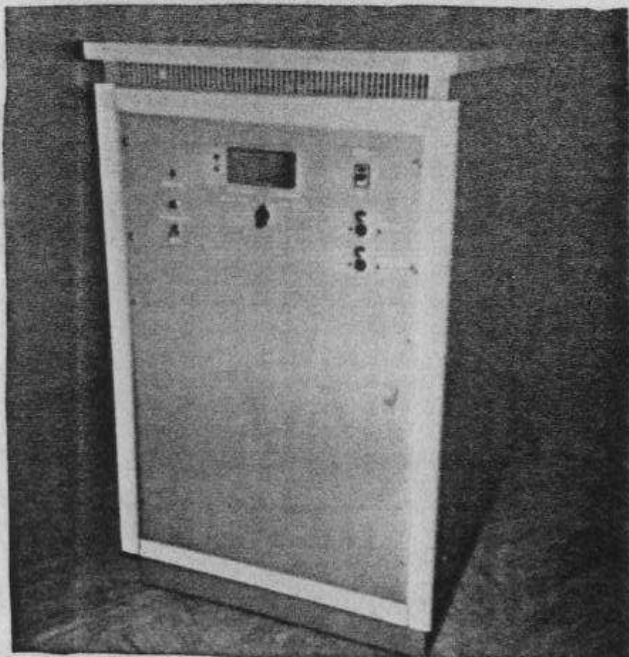
- * Concentrates Traffic from Many Ports to Fewer Ports
- * Store and Forward Operation
- * Can Relay Authorization Codes or ANI Information in Addition to Called Number
- * Useful to Front End a Switch
- * Reduce Many Direct Access Lines from Tenants to Fewer, Traffic Dense Lines
- * Combine Many End Office Equal Access Lines into Single Group For Switch
- * Requires Switching Module Only



Computer Module capable
of controlling three
Switching Modules.
Battery Backup Power
control system housed in
bottom half of cabinet.

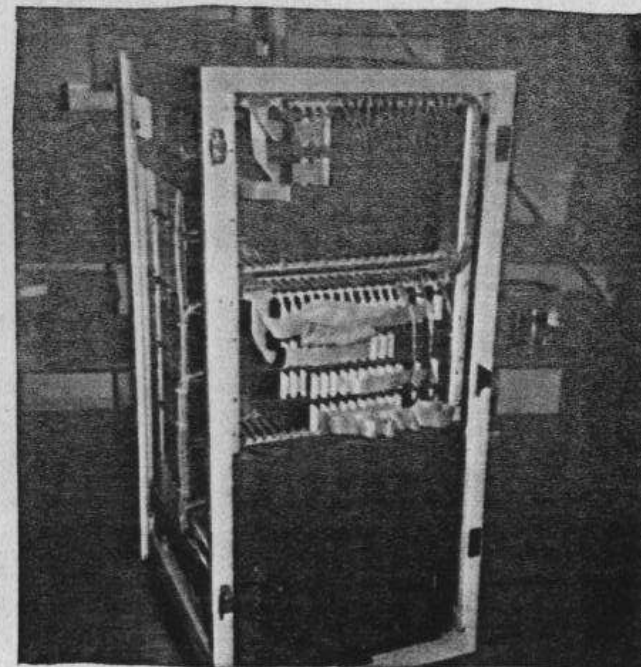


72 Port Telcro II Analog
Switching Module. Front
of unit housing line cards.



Power Cart Subsystem.
Contains charging circuitry,
batteries, monitors, and
alert output.

72 Port Telcro II Analog
Switching Module. Rear
of unit housing common
control equipment.



INVOICE - Customer Copy

Period 04/10/85 - 04/19/85	Charges
Universal Charge - From Universal Detail	29.17
Other Charges	
Taxes	
State ...	0.00
Federal ...	0.00
Total Current Charges	29.17
TOTAL DUE - PAY THIS MONTH	29.17

John B. Doe
300 Green Valley Drive
Atlanta, Ga. 30301

Check Number 1
Check Date 1
Check Amount 1
Account Number 1

Form 100-100, 20 Copies Mkt. Court, Chicago, Ill. 60611 (301) 363-2388

INVOICE - Return Copy

INVOICE FROM CREDIT
Write your V.S.B. Account Number (2409) on your check.

Rate checks payable to V.S.B.
Please note my name, address, or phone number changes on back
If any, note on back

Total Due in 14 Days 30.05
Less Corrections 1
Amount Enclosed 1

Please send the following people information about V.S.B. -

NAME	ADDRESS	CITY	STATE	ZIP	PHONE
land Charles E.	11000 South Bill Company	John B. Doe			
Suite 100	300 Green Valley Drive	Atlanta, Ga. 30301			
	1 Market Street				
	Holliston, Pa. 17041				

Form 100-100, 20 Copies Mkt. Court, Chicago, Ill. 60611 (301) 363-2388

Universal Detail For John B. Doe		Account # 2409	
04/10/85 - 04/19/85		Page 1	
Date	Day Time Rate Place and Number Called	Min	Dir Dial V.S.B.
04/10	Wed 09:10PM EL YORK	PA (717) 761-1681	18.0 2.02 1.70
04/10	Wed 09:10PM EL YORKVILLE	PA (717) 867-1176	1.9 0.29 0.24
04/11	Thu 01:15PM EL YORK	PA (717) 848-8133	9.5 1.70 1.45
04/12	Fri 09:15AM EL YORK	PA (717) 848-8133	1.0 0.28 0.24
04/12	Fri 09:15AM EL YORK	PA (717) 865-9787	3.0 0.44 0.36
04/12	Fri 01:17PM EL YORK	PA (717) 273-6740	4.9 0.79 0.79
04/12	Fri 09:15AM EL YORK	PA (717) 848-8133	31.0 5.61 4.77
04/16	Sun 09:15AM EL YORK	PA (717) 848-8133	4.9 0.83 0.66
04/16	Sun 09:15AM EL YORK	PA (717) 848-8133	7.9 1.08 0.87
04/16	Tue 02:12PM EL YORK	PA (717) 273-6740	4.3 0.74 0.74
04/16	Tue 02:12PM EL YORK	PA (717) 848-8133	9.0 1.61 1.37
04/16	Tue 02:12PM EL YORK	PA (717) 273-6740	4.3 0.74 0.74
04/16	Tue 02:12PM EL YORK	PA (717) 273-6740	4.9 0.83 0.74
04/16	Tue 07:07PM EL YORK	PA (717) 725-3956	6.0 0.72 0.62
04/16	Tue 07:14PM EL YORK	PA (717) 761-6089	19.9 2.53 2.10
04/16	Tue 07:12PM EL YORK	PA (717) 761-6089	3.3 0.50 0.39
04/16	Tue 09:14AM EL YORK	PA (717) 848-8133	1.0 0.28 0.24
04/16	Tue 10:10PM EL YORK	PA (717) 848-8133	1.0 0.28 0.24
04/17	Wed 09:15AM EL YORK	PA (717) 273-6740	4.9 0.79 0.79
04/17	Wed 09:15AM EL YORK	PA (717) 848-8133	14.9 2.61 2.16
04/17	Wed 11:10PM EL YORK	PA (717) 848-8133	19.9 2.14 1.87

Form 100-100, 20 Copies Mkt. Court, Chicago, Ill. 60611 (301) 363-2388

Universal Detail For John B. Doe		Account # 2409	
04/10/85 - 04/19/85		Page 2	
Date	Day Time Rate Place and Number Called	Min	Dir Dial V.S.B.
04/18	Thu 09:15AM EL YORK	PA (717) 848-8133	9.5 1.70 1.45
04/18	Thu 09:15AM EL YORK	PA (717) 848-8133	1.8 0.36 0.31
04/18	Thu 11:10AM EL YORK	PA (717) 854-9177	1.0 0.28 0.24
04/18	Thu 01:12PM EL YORK	PA (717) 245-6050	1.0 0.48 0.47
04/17	Fri 08:12PM EL YORK	PA (717) 848-8133	1.9 0.41 0.32
04/17	Fri 09:15AM EL YORK	PA (717) 273-6740	4.9 0.79 0.79
04/17	Fri 09:15AM EL YORK	PA (717) 848-8133	6.9 1.29 1.07
04/17	Fri 09:15AM EL YORK	PA (717) 273-6740	8.5 1.75 1.60
04/17	Fri 11:10AM EL YORK	PA (717) 848-8133	1.9 0.44 0.31
04/17	Fri 11:10AM EL YORK	PA (717) 848-8133	3.9 0.79 0.79
Non-Travel Totals		Calls 32	Dir Dial 16.84
		Minutes 6.44	V.S.B. 50.07
Guaranteed Savings of 2% =		7.29	
Guaranteed Savings Adjustment =		40.05	
Total Non-Travel Charge =		29.17	

Form 100-100, 20 Copies Mkt. Court, Chicago, Ill. 60611 (301) 363-2388

Travel Totals Calls 0 V.S.B. 0.00

Total Universal Usage = 29.17

PA call amounts include appropriate taxes surcharges

Form 100-100, 20 Copies Mkt. Court, Chicago, Ill. 60611 (301) 363-2388

For Billing and Service questions call Customer Service toll free at 1 (800) 335-9440

See To Symbols in "Rate" Column on Universal Detail Pages:

Rate Periods: For Call

- D - Day Rates
- E - Evening Rates
- N - Night/Weekend Rates
- R - Call Crosses Rate Periods

Call Type

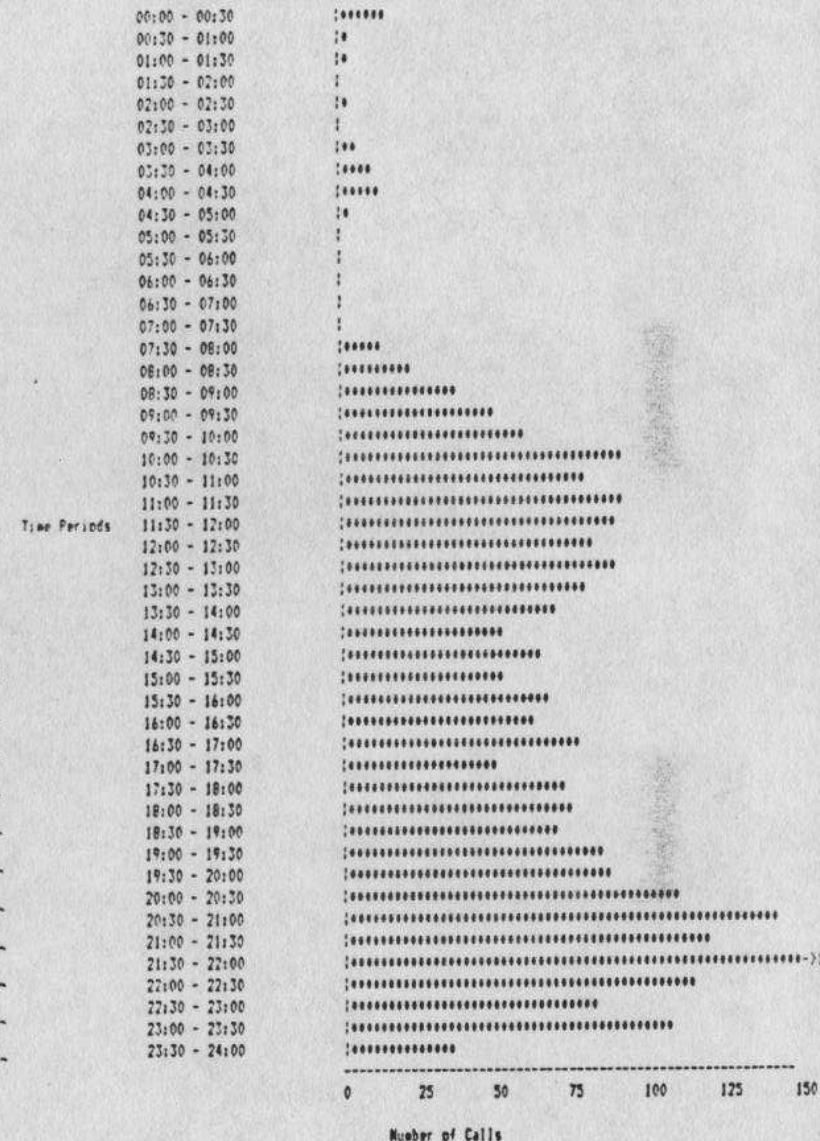
- I - Interstate (between two states)
- R - Intrastate (within a state)
- L - Intrastate (within a state - a geographic calling area)
- P - Puerto Rico, Virgin Islands

Rates shown in Direct Dial Column are based on those rates in effect October 1, 1984

Form 100-100, 20 Copies Mkt. Court, Chicago, Ill. 60611 (301) 363-2388

Switch 1 (5/19/85), Incoming Line Type/Time Period Example

BALTO (301) 995-4900



Above: Example of the type of Bill which can be created by the user

Above: Example of a histogram created by the Report Generator



BUILDING CONCENTRATOR

Vistacom's Building Concentrator permits the long distance reseller or carrier to offer dedicated access services cost effectively to multiple tenants within a building or building complex. Each tenant accesses a port, or a group of ports, on the input side of the Concentrator (see figure) through his existing PBX or key telephone system. The call is placed on one of the (fewer) trunk lines feeding the network switch.

The Building Concentrator allows the fixed charges attributable to the dedicated trunk facilities to be split among all of the tenants. This greatly reduces the required billing of each to cost justify the service, which can be as low as \$150 per port. A completely new class of customer is created that can access the network via dedicated connections. The highest transmission quality is achieved by dedicated connections, customer turnover is reduced, and Telco access charges are eliminated.

Vistacom's Building Concentrator provides true store and forward operation by supplying ready tone, permitting dialing errors to be corrected, and collecting accounting codes (optional by port). Upon receipt of all customer information, an idle trunk line is seized, and the call placed. Each tenant access port is preassigned with an authorization code, which is automatically forwarded to the network switch. Peg counts and accumulated traffic durations are kept by access port and outgoing trunk line. All system parameters are accessible via a dial-up modem from the network control center. The units are self-enclosed and powered from 120 volts AC.

Building Concentrators can be upgraded to offload traffic locally prior to relaying to the network center, and to produce customer bills locally.

MULTI-TENANT BUILDING

DRN BY: DJD

DATE: 9/9/85

APP'D BY:

DATE:



MULTI-TENANT ACCESS CONCEN.

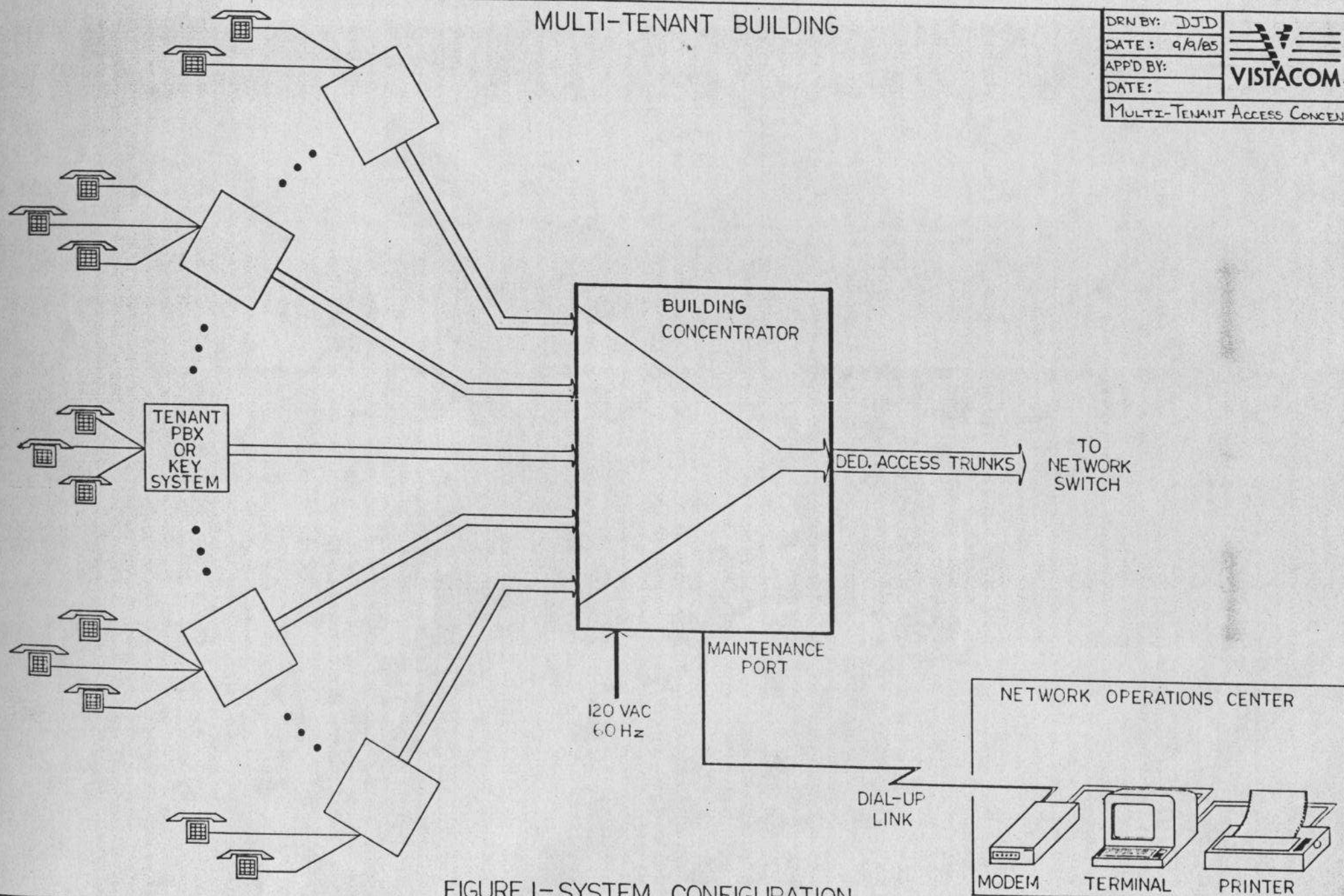


FIGURE I-SYSTEM CONFIGURATION



Sample Price List

Prices depend upon which options are included in a particular configuration, and can only be quoted when the specifics are known. These prices are given as representative examples only.

Total Ports	<u>24</u>	<u>48</u>	<u>72</u>	<u>144</u>
-------------	-----------	-----------	-----------	------------

EASEE, Analog Switch	\$ 8,000	\$12,000	\$18,000	\$38,000
----------------------	----------	----------	----------	----------

Least Cost Routing	16,000	21,000	27,000	
--------------------	--------	--------	--------	--

Analog Switching System
for Tail End of PBX.

General Business Application

Reseller's Analog Switching System. Including Battery Backup and Billing Package.			50,000	78,000
---	--	--	--------	--------

Total Ports	<u>144</u>	<u>288</u>	<u>432</u>	<u>576</u>
-------------	------------	------------	------------	------------

Reseller's Multi-Module Analog Switching System	\$90,000	\$150,000	\$210,000	\$270,000
--	----------	-----------	-----------	-----------

Total Ports	<u>72</u>	<u>144</u>	<u>192</u>	<u>384</u>
-------------	-----------	------------	------------	------------

Reseller's Digital Switching System, all Analog Ports	\$76,000	\$114,000	\$140,000	\$250,000
---	----------	-----------	-----------	-----------

Total Ports	<u>384</u>	<u>768</u>	<u>1152</u>	
-------------	------------	------------	-------------	--

Reseller's Multi-Module Digital Switching System, all Analog Ports	\$265,000	\$500,000	\$750,000	
--	-----------	-----------	-----------	--

7/85

ANNOUNCING TELCRO:

Fill the niche created by new demands in today's long distance telecommunications. Our switch is designed to suit your specific telephone needs.

Telephone Least Cost Routing (TELCRO) uses sophisticated microprocessor controlled digital

technology to intelligently manage communications. TELCRO actively selects the least cost, available long distance channel among

WATS, FX, Sprint, MCI Telesaver, TDX, SBS and AT&T, etc.—and provides management reports. Besides routing selection, TELCRO also economically provides more outgoing trunks than a PBX. This ensures your users can always get a line . . . at the least possible charge!

The system collects the pertinent data to print bills and to help you reach network optimization.

A NEW NICHE SWITCH

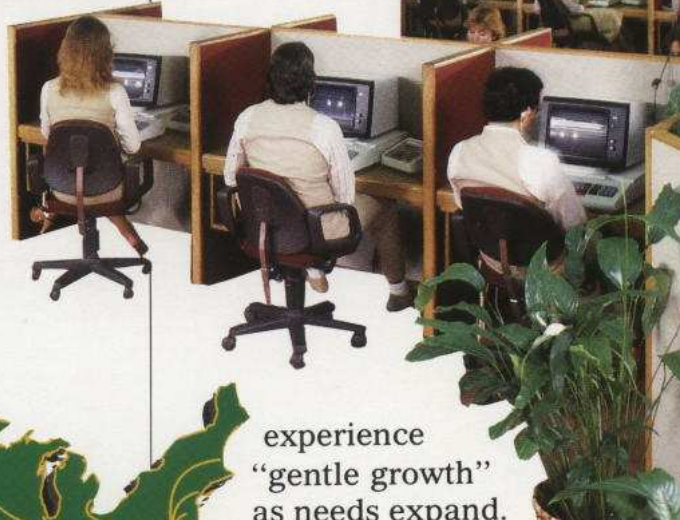
**IT'S NOT A PBX,
IT'S A SWITCH**

Handles Digital or Voice Data

Digitized signals enable TELCRO to operate in a T-carrier environment and handle digital or voice data.

A Switch In Time . . . TELCRO III

An American-made digital switching system, TELCRO III now accommodates 12 to 192 communication paths (per module) and a maximum 16 modules. Its proven modular design—customized to your specifications—allows you to



experience “gentle growth” as needs expand. For added reliability, TELCRO III provides remote monitoring and testing.

Here are a few of today's niches:

- Telephone system management
- Large telemarketers with multi-trunk use
- Commercial developers enhancing building value
- Your company seeking revenue generation and savings from its phone system

TELCRO III goes the distance for you! For more information, give us a call or write today:

TELCRO

20 Gwynns Mill Court
Owings Mills, Maryland 21117
(301) 363-2500

