VoiceCyber

Table of Contents

VoiceCyber Technologies Limited $^®$

VoiceCyber Technologies is a professional manufacturer and leader of multimedia logging and monitoring, audio conference and web conference solutions and applications. VoiceCyber Technologies was founded in 1986.

VoiceCyber empowers total logging and monitoring, call quality assurance by VoiceCyber® logging system and real-time collaboration by VoiceCyber® talk system. VoiceCyber voicelogging solutions are installed in the leading call- and contactcenters, public safety, governments, financial institutions etc. all around the world.

As one of the earliest CTI product manufacturers, VoiceCyber has being engaged in providing cost-effective and the best performance products to customers. VoiceCyber solutions are an answer on the increasing demand for modern and advanced voicelogging, screen recording and quality monitoring solutions, all around the world.

VoiceCyber Europe B.V.

VoiceCyber Europe B.V. is distributor of VoiceCyber Technologies Ltd. China. The European Head Office is located in The Netherlands.
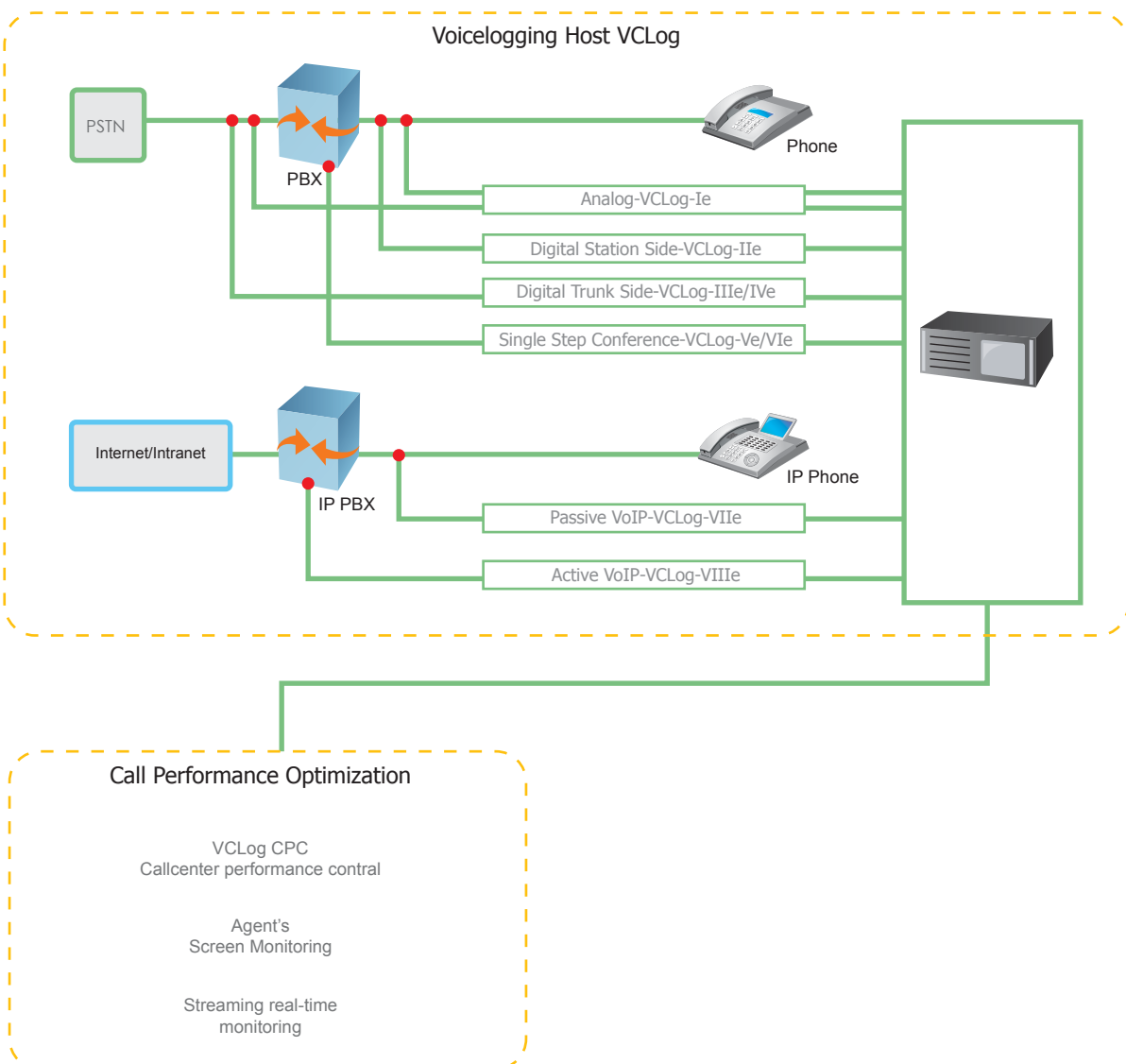
Introduction to VoiceCyber Logging System®

VoiceCyber Logging System ® is a feature-rich platform with 100% focus on the voicelogging and monitoring industry. With the latest cutting edge technologies such as passive tap recording, packet sniffing for VoIP, real-time monitor via network etc., VoiceCyber Logging System ® assistants their customers to face the increasing need to record and monitor telephone conversations in order to improve customer service and to meet legal and contractual obligations.

Based on the concept of "total logging and monitoring", VoiceCyber Logging System® includes several segments which cover the following applications: voicelogging and quality monitoring, screen activity logging and monitoring and call quality control.

VoiceCyber Logging System® can be segmented into three main parts:

1. Voicelogging host -VCLog
2. Call Center Call performance optimization -VCLog CPC
3. Options

Voicelogging Host VCLog

- PSTN
- PBX
- Phone
- Analog-VCLog-Ie
- Digital Station Side-VCLog-IIe
- Digital Trunk Side-VCLog-IIIe/IVe
- Single Step Conference-VCLog-Ve/VIe
- Internet/Intranet
- IP PBX
- IP Phone
- Passive VoIP-VCLog-VIIe
- Active VoIP-VCLog-VIIIe

Call Performance Optimization

VCLog CPC
Callcenter performance contral

Agent's
Screen Monitoring

Streaming real-time
monitoring

Introduction to VoiceCyber Logging System®

VoiceCyber Logging System®

Voicelogging Host VCLog

| | Call Quality Control |

Passive Voicelogging

Single Step Conference Recording

VoIP Voicelogging

VCLog CPC

| Analog line | Digital extension | Digital trunk | Analog line | Digital trunk | | Agent's Screen Monitoring |

| VCLog-Ie * | VCL-IIe | VCL-IIIe、IVe | VCL-Ve | VCL-VIe | VCL-VIIe (Passive) VCL-VIIIe (Active) | Streaming real-time monitoring |

Comment: * (do also for VCLog-IIe, VCLog-III etc).

Features:

- Uni-Platform. To save customers' investment, all input channels including incoming analog lines, digital extensions, digital trunk and VoIP are centralized in one single Logger
- Selectable CODES per channel, such as: GSM, Microsoft GSM, WAV, ADPCM, G.729A, G.723 (Not recommend)
- Advanced Streaming to prevent data loss during monitoring the lines, assure the recording's integrality and consistency
- Random monitoring and capturing agents' screen activity while recording.
- Flexible approaches to voicelogging, including: Total Recording, Selective Recording, Recording on Demand
- Selectable ways to alarm, including: voice and light alarm, SMS alarm (option).
- Selectable ways to start recording, including: voltage, network, on/off hook, D-channel, Desktop application etc.
- Selectable storage media, including tape, DVD+/-R(RW), NAS (network access storage), SAN (storage area network)
- Put out the different industry editions specially for the different industry's particularity, for instance: contact center edition, finance edition, public safety, etc.

Introduction to VoiceCyber Logging System®

Application

Call- and contactcenters

VoiceCyber™ Logging System is a scalable quality monitoring solution complimenting any size of call- and contactcenter against an affordable price to suit any budget. Flexible recording strategies including total recording, selective recording and recording on demand enable you to capture customers' contacts in the most reliable ways. VoiceCyber™ Logging System is designed to accommodate to the most complicated infrastructures. You can easily record and monitor not only call interaction but also IP telephony. By monitoring and recording agent's screen activities, you can ensure yourself as a manager to have a 360°view of your callcenter performance. Supporting wide-range computer telephony integration (CTI) types enables you to assign specific attributes or "tags" to contacts for quick and easy identification, such as account names and numbers over recording and call indexing. Furthermore, you can integrate the recording system into your own business system seamlessly. Avoiding the complexity and time-consuming, VCLog CPC provides you the more effective and sophistic way for your callcenter's performance management.

Contact center

Financial institutions

For both law enforcement and service level evaluation purposes, you need sophisticated and robust recording, retrieval and storage solutions. VoiceCyber ™ Logging System provides you highly reliable logging and monitoring technologies enabling you record thousands of calls without any missing. Multiple level passwords mechanism and anti-virus plans protect your archiving from any unauthorized access. The centralized storage strategy provides you a more effective and easier way to access and manage the archives.

Financial institutions

Public safety

Public safety

The public safety departments (fire-, alarm- and police departments) must be always on duty. Any failure and intermission might be result in inestimable and terrible loss. All phone calls must be responded promptly and effectively. In this kind of mission-critical environment, a required recording system must be easily operated and run in the most reliable way, because the call records could be the evidence for taking the next actions. After an incident, public safety control departments are able to confirm what happened, where, when and who was involved, simply by playbacking the record. VoiceCyber ™ Logging System provides the long-tested and most reliable call and radio recording solution that helps the public safety sector to handle all kinds of incidents promptly and effectively.

Utilities

Traffic control

Traffic control

Utilities

Insurance

Introduction to VoiceCyber Logging System®

Total Recording

Total recording is applied to those trades which finished by telephone, for example, the customer service systems of financial institutions, bank, insurance, etc. In these mission critical environments,
every call must be recorded in order to avoid the customer's dissension and offer the important attestation.

Applications:

- Financial institutions
- Insurance
- Customer service system.

Selective Recording

Agents are able to do selective recording based on various kinds of variables, such as date, dialled number, automatic number, agent ID, agent group and some CTI information. This kind of recording is used on the occasion of recording specific or important calls.

Applications:

- Call- and contactcenter quality control.

Features:

- Reduce the system hardware expenses
- Utilize the storage media fully
- Search the recording documents expediently.

Recording on Demand

Agents are able to start and stop the recording rapidly through pushing procedure buttons or telephone keystrokes. This function is usually used for recording emergency calls, such as calls of complaint or the call that agent think it is relatively important. Agents can control the whole recording process by just using some simple buttons.

Applications:

- Call- and contactcenters
- Financial institutions
- Public safety
- Complaint.

Features:

- Combines selective recording and recording on demand to save the recording and memory resource. Therefore it is the most economic and effective solution
- It can choose important content to recording flexibly and start the recording discretionarily
- For searching and statistic, you can add a simple comment after recording.
- Interface always on top.

VCLog-Ie, Analog Voicelogger

The VCLog-Ie, a member of the VoiceCyber Logging System® product line, is ideally suited for discreet analog voicelogging. The high impedance line interface makes it a complete hardware solution for any voicelogging application. The VCLog-Ie passively taps an analog loop or ground start 2-wire trunk in parallel, providing audio data while never interrupting service. The VCLog-Ie contains all the necessary features to build high-density intelligent Call-Logging systems while eliminating the need for costly external conversion hardware.
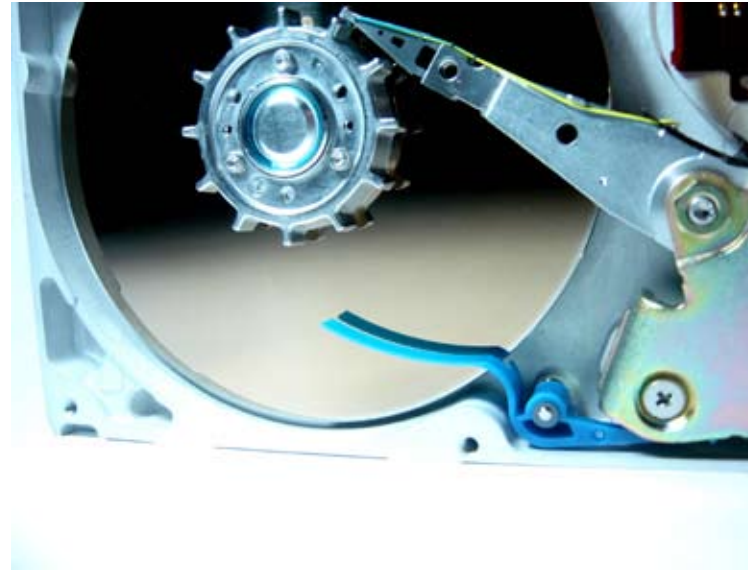
Features:

- 8~256 channels per system, widely be accommodated with different scale of systems
- Advanced voltage regulation technology, adapted to various kinds of PBX circuit extensively
- One-site industrial standard solution, easy to install and save storing room
- Support total recording and recording on demand
- Support playbacking via network, phone and local playback
- Selectable ways to start recording, such as: voltage, vox, network, on/off hook, DTMF
- Streaming live monitoring via network without any further burden on call logging host
- Real-time monitoring 16 channels via single audio jack
- Automatic Gain and Volume Control (AGC/AVC)
- Selectable storage media, such as: DVD+/-R(RW), tape (DAT)
- Redundant array of independent disk (RAID) (Option).

Product Specifications:

- Min. channels per system: 4
- Max. channels per system: 256
- Extension unit: 4/16/24
- Trunk type: Loop Start / Ground Start
- AC impedance: software Selectable, minimum 18 K Ohms Impedance
- Voltage Detection:
  - two software programmable threshold
  - range: -61V~ 61V
  - accuracy: +/- 2V
  - min Operating Voltage 4.5Vdc
- Silence Detection: programmable from API
- Activity Detection: programmable from API
- Idle channel noise: less than 20dBrnc.

VCLog-IIe, Digital Station Side Voicelogger

The VCLog-IIe, member of the VoiceCyber Logging System® product line, is ideally suited for digital voicelogging. VCLog-IIe can log all kind of digital phone sets and digital PBX without any traditional DAC D /A conversion devices. By using CTI the VCLog-IIe can capture extra information via D-channel which could be used for recording on demand or data mining for call- and contactcenters.

VCLog-IIe supports a wide-range type of digital PBX and phone sets and can be upgrade up to 256 recording channels per logger. In one VCLog-IIe Server you can install more and different kind of voicelogging boards (BRI / PRI).

Features:

- Carrying out tap recording in digital PBX side without any traditional DAC D/A conversion devices
- Support the most of mainstream digital PBX and digital phone
- can be upgrade up to 256 channels recording capability per logger smoothly
- Selective Recording based on DNIS, ANI, agent ID
- Total Recording and Recording on Demand
- Streaming live monitoring via network without burden on call logging host.(Option)
- Real-time monitoring 24 channels via single audio jack.
- Recording activated by D-channel information
- Capturing call information such as DNIS, ANI, Call direction, DTMF etc. from D-channel
- Support playbacking via network, phone and local playback
- Selectable storage media, such as: tape(DAT), DVD+/-R(RW)
- Redundant array of independent disk (RAID)(Option).

Product Specifications:

- Min. channels per system: 8
- Max. channels per system: 256
- Extension unit: 8
- Trunk type: digital PBX station side
- D-channel events: PBX events and phone set events
- AC impedance: software adjustable 1KΩ /100Ω
- Supported digital PBX and digital phone sets: see APPENDIX 4.
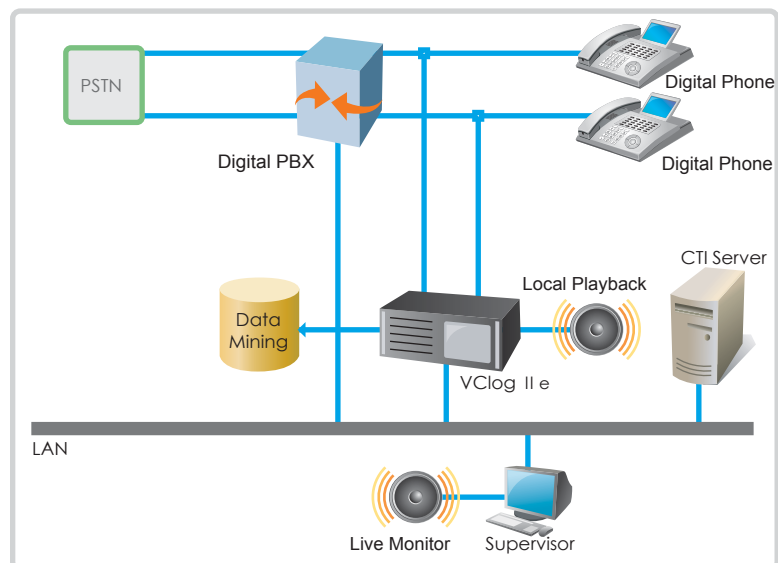
VCLog-IIIe, ISDN BRI Voicelogger

The VCLog-IIIe Voicelogger, member of the VoiceCyber Logging System® family, is ideally suited for digital voicelogging.

Features:

- Maximum channel per system: 256
- Suitable for ISDN BRI (2B+D)
- High-impedance tap recording while never interrupting service
- One-site industrial standard solution, easy to install and save storing room
- Total Recording, Selective Recording, Recording on Demand
- Clean local hard disk regularly in order to release storage capacity
- Streaming live monitoring via network to assure the call's integrality and consistency
- Support playbacking via network, phone and local playback
- Selectable storage media, such as: tape(DAT), DVD-RAM
- Redundant array of independent disk (RAID)(Option).

Product Specifications:

- Max. channels per system: 256
- Extension unit: 8
- Trunk type: ISDN BRI
- AC impedance: 1KΩ/100Ω
- MF R2: all 15digits, forward and reverse per Q.441
- DTMF CAS: all 16digits.
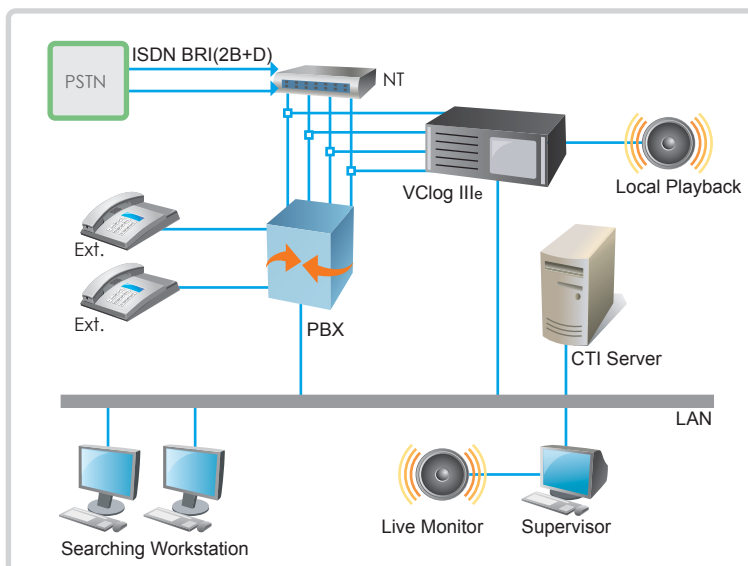
VCLog-IVe, Trunk Side Voicelogger

The VCLog-IVe Voicelogger, member of the VoiceCyber Logging System® family, is ideally suitable for digital trunk type of E1(R2) /T1and ISDN (PRI) high impedance tap .recording. It can support a wide range of telephony signalling systems.

Features:

- Client/Server architecture, wonderful scalability
- Streaming live monitoring via network to assure the call's integrality and consistency.
- Software switchable between T1 and E1
- Total Recording, Selective Recording, Recording on Demand
- Clean local hard disk regularly in order to release storage capacity
- One-site industrial standard solution, easy to install and save storing room.
- High density call logging is more cost-effective
- Support playbacking via network, phone and local playback
- Selectable storage media, such as: tape(DAT), DVD+/-R(RW)
- Redundant array of independent disk (RAID)(Option).

Product Specifications:

- Min. channels per system: 24
- Max. channels per system: 240
- Extension unit: 24 or 32
- AC impedance: 1KΩ/100Ω.
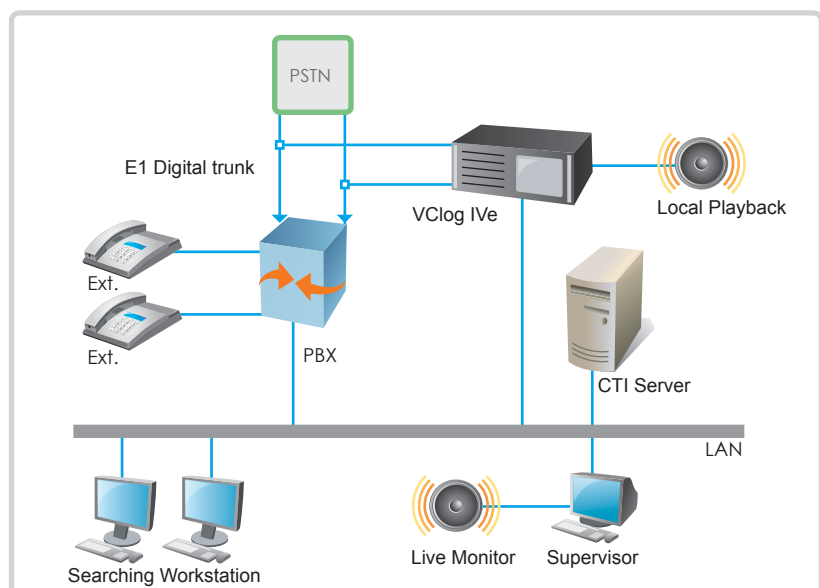
VCLog-Ⅴe,Ⅵe Analog, E1 Single Step conference Voicelogger

The VCLog-Ve (analog) and VCLog-VIe (digital trunk side), members of the VoiceCyber Logging System® family, are designed for Single Step conference voicelogging & monitoring. Single step conference recording is a cost-effective solution because the number of input channels of the logger can be less than the real quantities of extensions which need to be recorded. This solution works together with a CTI Server.

Features:

- Maximum channel per system: 256 (Analog), 240 (E1)
- Total Recording, Selective Recording, Recording on Demand
- Support call logging application over VoIP
- One-site industrial standard solution, easy to install and save storing room
- Capture a plenty of CTI data via CTI Sever
- Support playbacking via network, phone and local playback
- Selectable storage media, such as: tape(DAT), DVD+/-R(RW)
- Redundant array of independent disk (RAID)(Option).
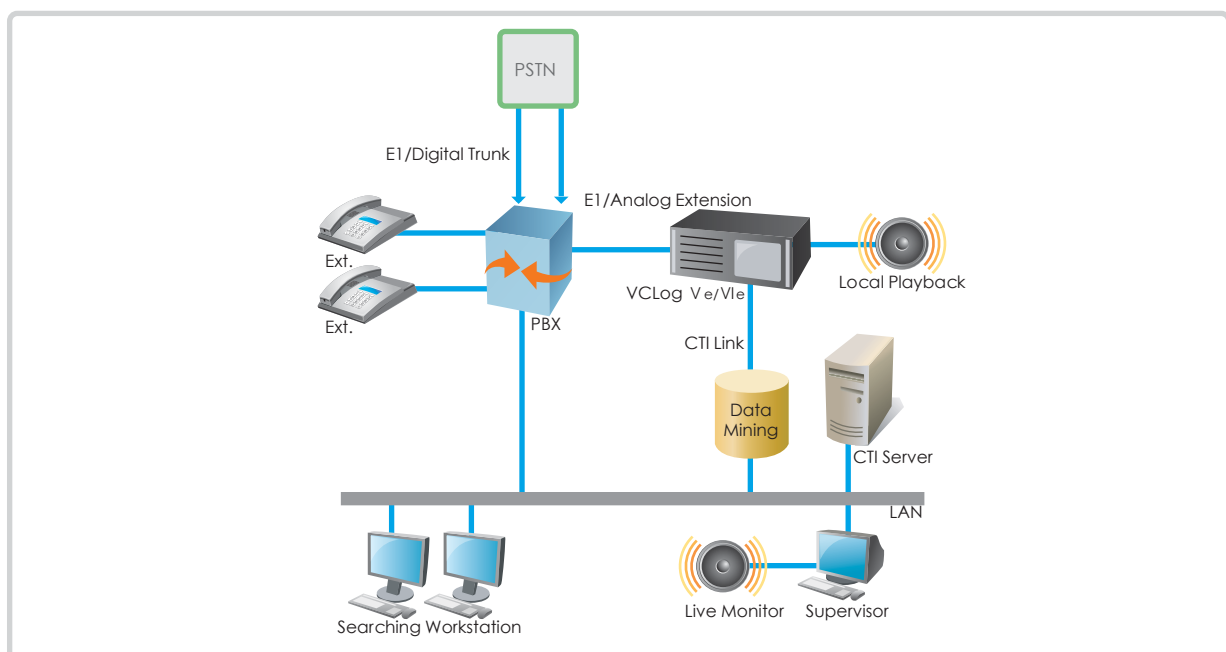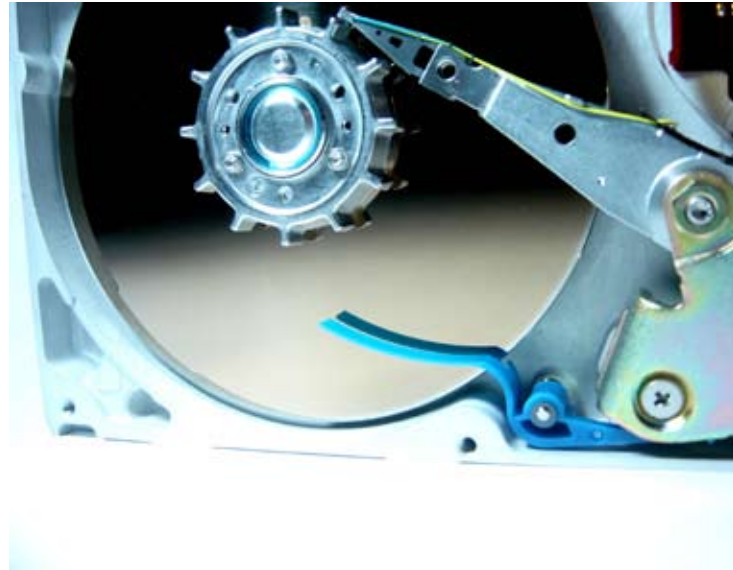
VCLog-VIIe, VIIIe VoIP Voiceloggers
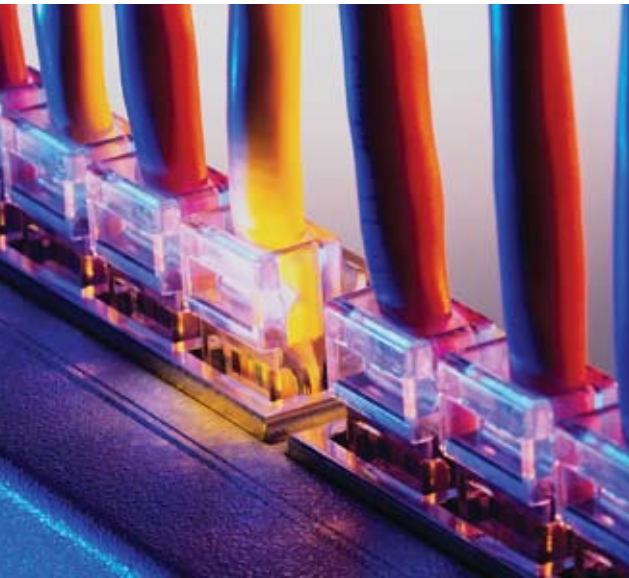
The VCLog-VIIe and VCLog VIIIe, members of the VoiceCyber Logging System® family, are designed for VoIP environments. There are two kinds of VoIP voicelogging; Passive mode (purely based on software) and Active (conferencing) mode.

VCLog-VIIe (Passive mode)

In Passive mode the VCLog-VIIe passively monitors the LAN for VoIP calls. When the system detects a call that needs to be recorded, the logger receives and mixes the voice stream of each extension that was included in the call, and accomplishes two directions voice summation locally. (Based on a pre-defined list of IP addresses or extensions)

VCLog-VIIIe

In Active (conferencing) mode, connected by a dedicated CTI voicelogging link, the VCLog-VIIIe will be invited to join the conference calls and capture the conversation.

About software based VoIP voicelogging system

In order to meet the voicelogging demands for medium-sized and Enterprise companies with VoIP telephony environments, VoiceCyber provides also purely software based VoIP voicelogging system. Without any further proprietary hardware investment, it can be installed on a standard Server, running with Windows 2000, 2003 Server or XP.

Features:

- Hardware based decoding and capturing packets to make sure that your single system can widely meet the demands for 2~60 channels VoIP recording
- Never interrupt the conversation by passive tap recording to capture the LAN for VoIP calls. (Only for the VCLog VIIe)
- If you have been VCLog's user ever, no extra hardware investment is needed. The only thing you need to do for building up your own VoIP Logger is that upgrade your present VCLog software kit.
- Uni-platform design, you can mix all types of input channels in single one chassis, such as: analog, digital station-side, digital trunk-side, VoIP etc.
- One-site industrial standard solution, easy to install and save storing room
- Streaming real-time monitoring via network and support the G.729a CODECS for compression of voice files, assure the recording quality and consistency
- Selectable storage media, such as: tape (DAT),DVD+/-R(RW),NAS (network access storage), SAN (storage area network)
- Can get a plenty of call information by integrate CTI-Link while having the conference recording.

Product Specification:

- Type differences:
  VCLog-VIIe: Passive VoIP recording
  VCLog-VIIIe: Active (Conference) VoIP recording
- Min. capability per system: 2 Channel
  Max capability per system: 60 Channel
- Ways to active/terminate recording: on/off hook, TCP/IP.

- Voice format:

    G.729a   8Kb/s

    GSM 6.10, Microsoft GSM   12Kb/s (Not applicable for VCLog-VIIIe)

    G.723(Not recommended)   5Kb/s

    G.726   16Kb/s

- DTMF detection: VCLog-VIIe (yes)   VCLog-VIIIe (no)
- Vox detection: VCLog-VIIe (yes) VCLog-VIIIe (no)
- Silence detection: VCLog-VIIe (yes) VCLog-VIIIe (no)

Passive VoIP Call Recording — VCLog-VIIe
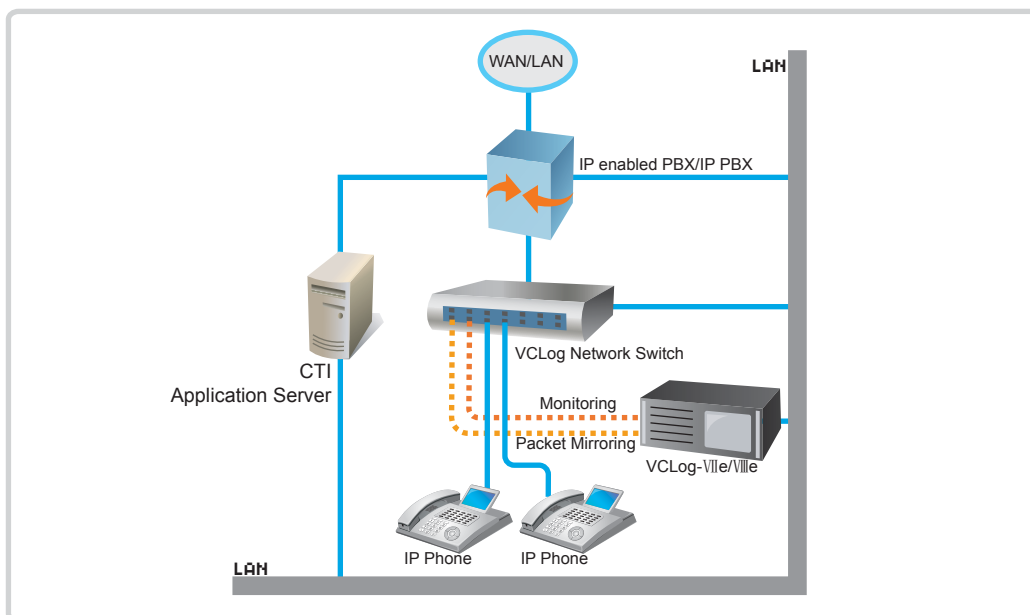
Active VoIP Call Recording—VCLog-VIIIe
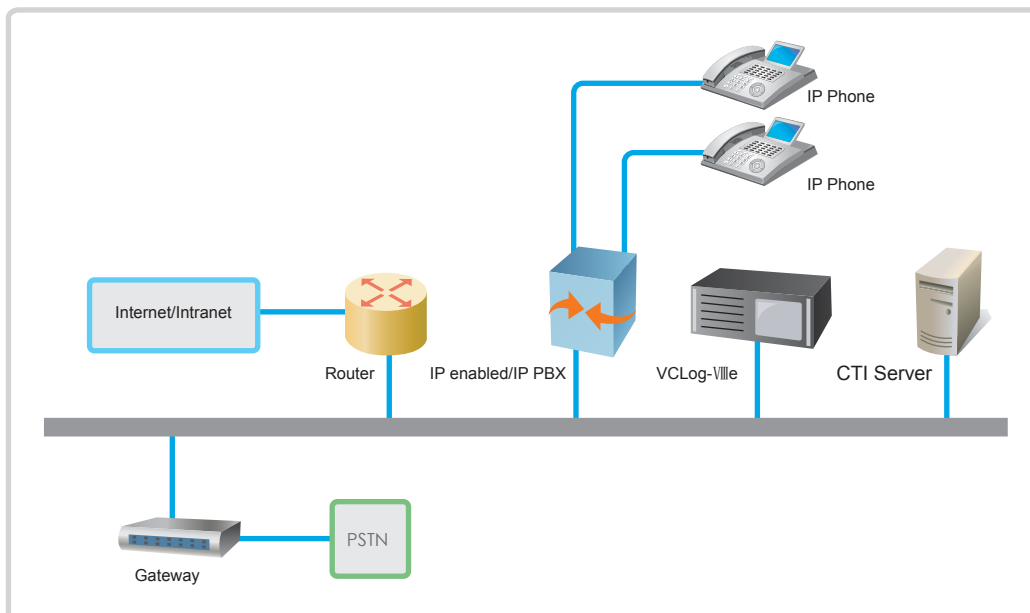
VCLog ScreenLogger, Screen Monitoring & Logging

VoiceCyber screen capture application, VCLog ScreenLogger allows you to capture all activity on your agent's desktop. It provides the supervisor real-time visual status of each agent. You can define any agent you want to monitor and capture the screen activity. Once the voicelogging for the agent starts, the application will be triggered simultaneously.

VCLog ScreenLogger does not transmit all data of this agent's screen but just its changes. In addition, it transmits data using an advanced protocol and data compression. As a result of this, no network block and time dither will occur during the capturing of an agent's screen.

One of the most important purposes of using VCLog ScreenLogger is training agents. Reviewing actual multimedia interaction is an excellent way to find out the possible mistakes made by agents. By illustrating the problem and immediately correcting the identified problems an agent could possibly have, work will be done more efficiently and more effectively which will result in more productivity.

Thanks to the synchronized audio and screen recording, the callcenter manager is able to not only obtain a lot of customer information, but also get valuable data regarding his callcenters' service level. Using this information the manager can keep on improving the processes used which will certainly lead to more customer loyalty.

Features:

- Screen capturing, monitoring and playback can be executed by any client workstation of LAN
- Starting and playback screen and audio recording are synchronized
- Capturing screen activity only when it changes reduces traffic rate
- Agents do not see a flash or flicker on their screen, nor do they experience any performance degradation when a supervisor is monitoring
- Using screen capture in conjunction with voice recording provides a complete picture for accurate evaluation.

Hardware System Requirement

- PC of supervisor and agent: Pentium II or equivalent 400 MHz or better
- Resolution of agent pc's monitor should be configured as 640*480, 800*600, 1024*768
- VGA memory: not less than 16M, and 32M or above is recommended.

VCLog LineMonitor, Network Live Monitor

The supervisor can real-time monitor via network through VCLog LineMonitor whatever the trunk is at the situation of recording or not. It provides two solutions for remote monitoring.

Solution 1:

Streaming real-time monitoring via network by VCLog client application without any further burden on logging host and no time-lapse.
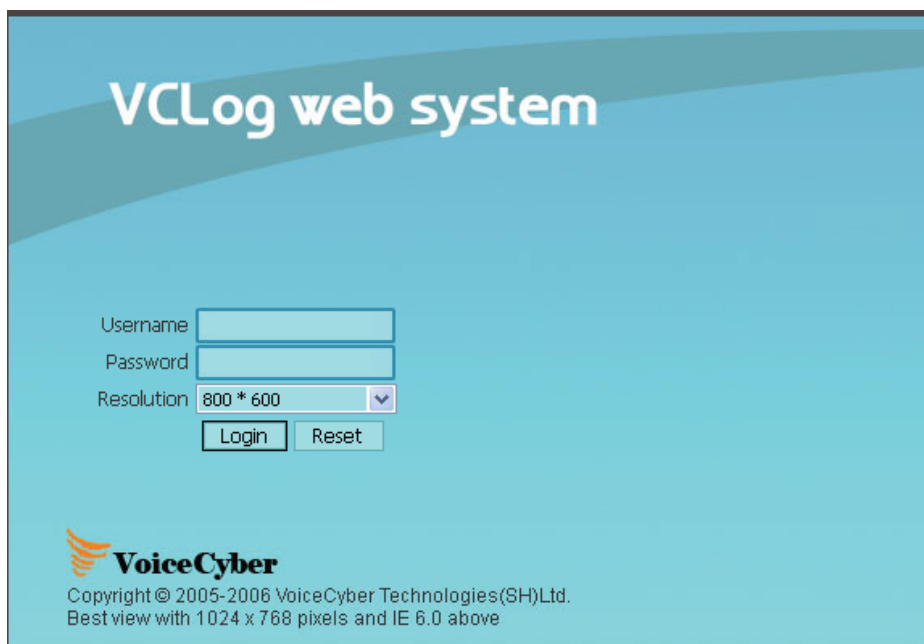
Solution 2:

Use VCLog LineMonitor, the supervisor can on-line grade via VCLog CPC and improve the service quality after finding the agents disadvantages.

Supervisor PC System Requirements:

- Pentium II 300 or above
- 64Mbytes physical memory
- Resolution: 1024 ×768
- CD-ROM
- Microsoft NT 4.0 or Microsoft Windows 2000, Windows 98
- Network Interface card
- Sound card.

Browser based management VCLog Easyweb

By integrated with the most popular user interface today, web browser, VCLog Easyweb enables you manage, access, search and playback audio records in the easiest way. Wherever you are, just by simply typing the IP address of the logger, user name and password, you are able to have full control of your logger.
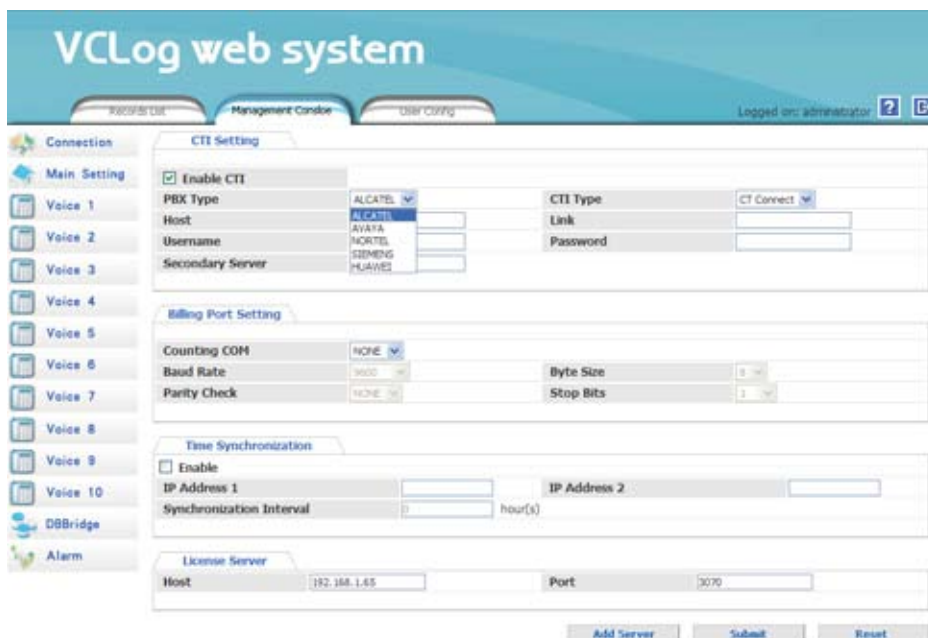
Functions:

Searching & Playback

- Multiple searching criteria: Agent ID, extension, call direction, date etc.
- Customer defined records information in addition to default setting
- Playback directly via browser
- Live-monitor (Java virtual machine is needed)

Management Console

With Management Console, the manager has fully control over the most important settings of the logger like: connections, network, CTI type, database, encoding & decoding, screen capture setting (option) etc.

6-1

Software Development Kit VCLog SDK

A plenty of call information, such as: Agent ID, work flow No., call direction etc. can be captured by VCLog during call recording. This information could be very useful for many business software. VCLog SDK enables the integration of record and replay functionality with 3rd party software applications.

VCLog SDK provides a standard interface to all supported VCLog loggers. It can therefore be considered equivalent to a device driver by hiding the complexity of the kernel hardware from the software developer. In this case, a software developer can accomplish the customization by himself more or less without changing the VCLog application.

VCLog SDK can be employed in many different ways to provide various business benefits. For example, a bank needs to provide a customer list with the successful transactions, further to customer's request.

The business software adds tags for every transaction record. VCLog SDK provides the interface to search or match records by basing customized 3rd party application criteria by integrating VCLog SDK functionality with current business software. Using VCLog SDK, a specialized solution or integration can be easily developed to satisfy and individual extra business functionalities.

VCLog SDK keeps continuously updating. Correspondingly, the SDK functionality will be broadened to support new interfaces as they are published. Please contact your VCLog local agent for the latest information.

APPENDIX 1

VCLog — An Approach to Your VoIP Voicelogging System

Historically, telephone calls were made through Public Switched Telephone Networks (PSTN), which provided high-quality voice transmission between two or more parties. However, since the demand for data traffic is growing faster than voice traffic, we've seen a gradual shift towards packet-based networks like IP, ATM and Frame Relay. Packet-based networks provides high cost-benefit ratio and an increasing number of businesses are realizing the value of transporting their voice circuits over IP networks to reduce expenses.

VoIP technology allows the company to launch telephony in markets where the economics didn't justify the cost of a circuit-switched architecture. "VoIP, once viewed as just a new recognized as a reliable and cost-effective business solution".

Challenge for VoIP recording

VoIP systems digitize and transmit analog voice signals as a stream of packets over a digital data network. IP networks allow each packet to independently find the most efficient path to the intended destination, thereby using the best network resources at any given instant. Packets associated with a single source may take many different paths to the destination when traversing the network. With the different paths, arrivals will vary greatly due to delays; they may arrive out of sequence or possibly not arrive at all. At the destination, the packets are re-assembled and converted back into the original voice signal. VoIP technology insures proper reconstruction of voice signals, compensating for echoes made audible due to the end-to-end delay, for jitter and for dropped packets.

Obviously, this is a quite different environment from the traditional circuit switched telephony network.

Traditional voicelogging systems captures some call information such as DTMF, Caller ID etc. and call state, by integrated them into recording application. The call recording system provides all kinds of value-added services. All those functions are also expected by the potential VoIP customers. VoIP voicelogging demands a different approach to solve voicelogging solutions for VoIP users.

Passive or Active?

In passive VoIP recording mode, VCLog-VIIe sniffs all packetized data travelling over the network and accomplish decoding, summation. etc locally (based on SIP, RTP protocol). This kind of solution is just like Cisco's Switched Port Analyzer (SPAN) or port mirroring. It saves PBX's ports resources and will not reduce logging host performance due to hardware based encoding/decoding. The unfortunate truth is that many switches and routers do not support SPAN, and if they do, they may occupy all the ports. No problem, VCLog-VIIe is a packaged solution, which means that it will help you upgrade your network to make things work.

In Active (Conference) mode, VCLog-VIIIe monitors all extensions which need to be recorded via CTI-Link, even Dedicated Recording Link. To start recording, PBX will initial a three parties conference call which VCLog-VIIIe will be invited to participate. Due to the mechanism of active VoIP recording, a certain number of PBX ports will be occupied for logger connection. Meanwhile, the logger will not run as standalone equipment any more. The positive fact is that it saves customers' investment especially for high density VoIP recording environment.

Comparison between VCLog-VIIe (Passive) and VCLog-VIIIe (Active)

		Passive (Sniff)	Active (Conference)
Cost	1-32 channels	Medium	High
	100 channels (20% or above extensions need to be recorded simultaneously)	High	Medium
	100 channels (85% or above extensions need to be recorded simultaneously)	High	High
Dynamic resource assignment		No (terminals type independent)	YES
Need CTI interface connection		No	YES
Need to occupy PBX's ports resource		No	YES

APPENDIX 2

Comparison table for VCLog e Series

Specification	I e	II e	II e	IV e	V e	VI e	VII / VIII
Trunk type	Analog	Digital extension	BRI	E1(R2、30B+D)	Analog	E1	VoIP
Max. channel	256	256	256	240	256	240	60
Min. channel	2	8	8	30	8	30	2
Max. Audio compression rate	8K	8K	8K	8K	8K	8K	5K
CALLER ID	YES	YES	YES	YES	YES	YES	*
On/off hook activating	YES	YES	YES	YES	----	----	YES
Vox activating	YES	YES	YES	YES	----	----	----
DTMF activating	YES	YES	YES	YES	----	----	----
D channel activating	----	YES	YES	YES	----	----	----
Network activating	YES	YES	YES	YES	YES	YES	YES
Playback via phone	YES	YES	YES	YES	YES	YES	----
Digital logging	----	See APPENDIX 4	----	----	----	----	----
Digital logging mode	A/D-D/A	D/D	D/D	D/D	----	----	----
Total recording	YES	YES	YES	YES	YES	YES	YES
Selective recording	YES	YES	YES	YES	YES	YES	YES
Recording on demand	YES	YES	YES	YES	YES	YES	----
Support WAV format	YES	YES	YES	YES	YES	YES	YES
Support GSM format	YES	YES	YES	YES	YES	YES	YES
Support G.729A	YES	YES	YES	YES	YES	YES	YES

* Depend on switch type, please confirm with the sales representative.

APPENDIX 3

Product specifications for the VCLog voicelogger series

4~256 channels per system

Signal/Noise ratio: 35dB ~ -15dBm

Ring detection: 30Vrms(min).16-68Hz

Frequency response: 300Hz – 3400Hz +/-3dB

Operation conditions:

- Operating Temperature: 0C to +60C
- Storage Temperature: -20C to +85C
- Humidity: 8% to 80% non-condensing
- Storage humidity: 8% to 80% non-condensing

Codecs:

8Kb/s:	G.729A
13 Kb/s:	GSM 6.10, Microsoft GSM
16 Kb/s:	G.726
24 Kb/s:	G.726, OKI
32 Kb/s:	G.726, OKI
40 Kb/s:	G.726
64 Kb/s:	µ-law or A-law per G.711, 8 bit linear PCM
128 Kb/s: 1	6 bit linear PCM
Wav format:	Microsoft GSM, 16-bit PCM

Audio signal:

Receive range:	-68 dBm to + 3 dBm
Input gain control:	+24 to -64 dB
Silence Detection:	Programmable from API
Transmit volume control:	+24 to -64 dB
Automatic Gain Control (AGC):	Programmable from API
Automatic Volume Control (AVC):	Programmable from API
Activity Detection:	Programmable from API
Alert Tone:	Programmable from APIs

Trigger conditions:

- On/off hook
- VOX
- Raw D channel
- Network TCP/IP
- Voltage detection

Selective recording parameters:

- Agent or agent ID
- Channel ID
- Inbound or outbound
- DNIS or ANI
- Date

Record on Demand:

- Via desktop application
- DTMF detection

System Safety:

- Disk RAID
- Disk Mirroring

System administration:

- Multi-grade password
- Multi-grade system administration

Communication interfaces:

RS232、Ethernet、modem

Operation environment:

OS：Microsoft Windows NT4.0、Microsoft Windows2000、Microsoft Windows XP、Windows 2003 Server

Databases：MySQL、SQL Server、Oracle

Audio, Visual and SMS (Option) alarms trigger conditions:

- Recording malfunctioning i.e. If any channel is not recording.
- Failure of any Module/Card
- Failure of storing device
- Any other malfunction

APPENDIX 4

Digital PBX and Phone Set supported by VCLog- IIe

Manufacturer	PBX	Phones	Firmware
Alcatel	4200, 4400	Reflexes™ (4000 series)	(vox)
Aspect	ACD System	Teleset® series	(vox)
Avaya	Definity® (2-wire)	64xx series, 84xx series,CallMaster I, II, III, IV, Vb,and VI	(D-channel)
Avaya	Definity® (2-wire)	6408 D+, 6416 D+, 6424 D+, 8410 D, and CallMaster V<Superscript>b	(D-channel)
Avaya	Definity® (4-wire)	74xx series, 84xx series,CallMaster I, II, III and IV	(vox)
Avaya	Merlin Magix	4400, 4400D, 4406D+,4412D+, 4424D+, and 4424LD+	(D-channel)
Avaya	Merlin Magix	4400, 4400D, 4406D+,4424D+, and 4424LD+	(D-channel)
Avaya	Merlin Magix(DAC BRI Only)	MLX	(vox)
Bosch	Integral	TH93M	(vox)
Comdial	Impact SCS	Impact SCS	(vox)
Ericsson	MD110, BusinessPhone	Dialog 3200 and 3600 series, DBC 200, and 600 series	(vox)
Ericsson	MD110	DBC 199, 201, 202, 203,210, 211, 212, 601, 661, 662, and 631	(D-channel)
Fujitsu	F9600	DT24DS, DT12DS, DT12S,DT12, and DT12D	(vox)
Intecom	Intecom E(2-wire only)	ITE Series	(vox)
Intertel	Axxess	KTS Executive w/LCD and KTS Standard w/LCD	(D-channel)
Intertel	Axxess	KTS Executive w/LCD and KTS Standard w/LCD	(D-channel)
NEC	Electra Elite,Professional	DTU 32 D-2 and DTU 16 D-2	(vox)
NEC	Electra Elite 192	DTU 32 D-2 and DTU 16 D-2	(D-channel)
NEC	NEAX 2000 and 2400	DTU 32 D-2 and DTU 16 D-2	(D-channel)
NEC	NEAX 1000,2000 and 2400	DTU 32 D-2 and DTU 16 D-2	(vox)
Nitsuko	i-Series	i-Series	(vox)
Nortel	Meridian1	2006, 2008, 2009, 2012, 2216, 2317, 2616, 3110, 3310, 3820, 3901, 3902, 3903, 3904, and 3905	(vox)
Nortel	Meridian1,SL100	2006, 2008, and 2616	(D-channel)
Nortel	Norstar	7100, 7208, 7310,7316, and 7324	(D-channel)
Nortel	Norstar	7208, 7310, and 7324	(D-channel)
Siemens	Hicom 100E,150E, 300E	Optiset E Series, OptiPoint 500 Standard	(vox)
Siemens	Hicom 100E and 150E	Optiset E Series, OptiPoint 500 Standard	(D-channel)
Telrad	Integrated Systems IS 32, 128, 400, 1000 (2-Wire only)	Digital Keyphones	(vox)
Tone Comman der	S/T 4-Wire NI-1 (BRI) (DAC BRI Card Only)	Tone Commander 6210 and 6220	(vox)
Tone Comman der	Standard (DAC BRI Card Only)	Tone Commander 6210 and 6220	(D-channel)
Rockwell	Spectrum (DAC BRI Card Only)	ISDN Console 100(Spectra View 1), ISDN Console 151 (Spectra View 2)	(vox)

More digital PBX and phone set will be supported by VCLog-IIe, this published information may not be up to date.

Please check the current status with our representative in your region.

APPENDIX 5

VCLog storage size by codecs

CODEC	Bits/second	K Bytes/minute	M Bytes/hour
μ-law 8-bit PCM	64000	480.00	28.8
A-law 8-bit PCM	64000	480.00	28.8
Linear 8-bit PCM(Signed)	64000	480.00	28.8
Linear 8-bit PCM(Unsigned)	64000	480.00	28.8
Linear 16-bit PCM	128000	960.00	57.6
Linear Unsigned 8-bit PCM	64000	480.00	28.8
Linear Unsigned 16-bit PCM	128000	960.00	57.60
Linear,6 Khz,8-bit PCM	9600	720.00	43.20
GSM 6.10	13000	97.50	5.85
Microsoft GSM	13000	97.50	5.85
Dialogic (0Ki) ADPCM	24000	180.00	10.80
Dialogic (0Ki) ADPCM	32000	240.00	14.40
G.726 ADPCM	16000	120.00	7.20
G.726 ADPCM	24000	180.00	10.80
G.726 ADPCM	32000	240.00	14.40
G.726 ADPCM	40000	300.00	18.00
G.729a	8000	60.00	3.60
G.723.1	64000	48.00	2.88
G.723.1	5333	40.0	2.40

Note: 1. The above-mentioned data are calculated by basing of 1Kbytes=1,000Bits, 1Mbytes=1,000,000Kbytes

2. e.g. 100 hours' recording material compressed by G.729A codes will take 3.6MB x 100hours=360MB.