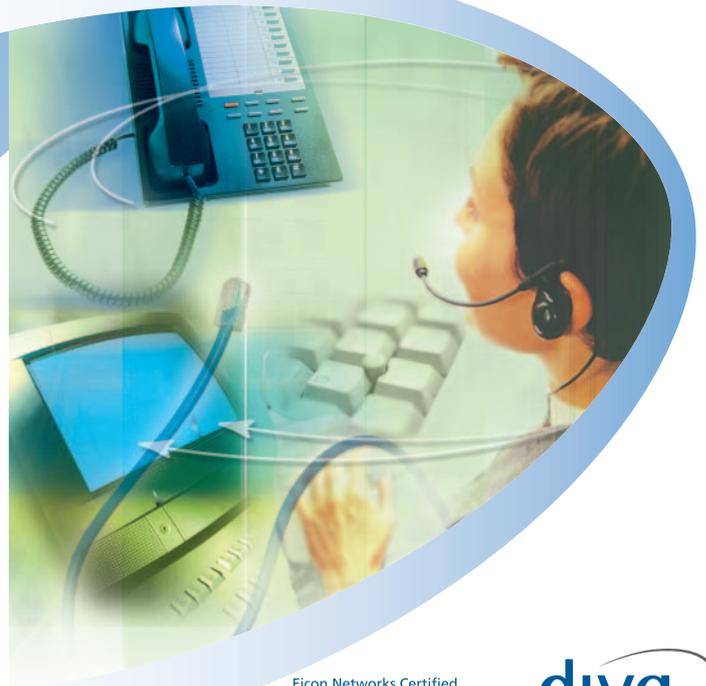# Enabling Voice Applications with Diva™ Server

*Eicon Networks' **Diva Server** has long been regarded as the enabling platform of choice for a wide range of communications applications. This application brochure focuses on using Diva Server in Voice Applications.*

Written for the application developer, it focuses on how Diva Server can enhance voice, speech and conferencing applications, provide cost-effective CTI and basic voice solutions, and provide unrivalled flexibility in the IP telephony and hybrid IP/TDM worlds.

Eicon Networks Certified
ISO 9001 2000

diva server

Key voice applications

Enhanced Voice, Speech & Conferencing	CTI, Basic Voice	IP Telephony
• *Speech-enabled IVR, ASR/TTS* • *Enhanced Self-service* • *Voice Portal* • *Conferencing Server*	• *Voice mail* • *IVR, DTMF controlled* • *Voice Recording* • *Alarm Server* • *ACD, Call Center*	• *IP PBX* • *VoIP Gateway* • *Media Server*

Diva Server also has rich on-board functionality for fax, unified communication, modem, RAS and other applications – see our separate brochures for more information on developing applications using Diva Server for fax and unified communications.

Diva™ Server Family

Diva Server is a family of hardware and software products aimed at voice, speech and conferencing applications. The Diva Server family encompasses robust, intelligent communication hardware adapters for E1/T1, ISDN Basic Rate (BRI) and Primary Rate (PRI), analog connections and a software adapter for VoIP; together these adapters provide a consistent and complete platform for speech applications. The support of open standards, and a single programming API ensure that Diva Server can be used in the widest spectrum of solutions, and that applications can handle calls no matter which technology or which network carried them.

No matter what communications you have in mind, Eicon has the most flexible, scaleable, open platform you could want.

Diva Server Products for Voice, Speech and Conferencing

Diva Server PRI/E1/T1 adapters are powerful, full duplex adapters for standard voice applications, including IVR.

Diva Server PRI/E1/T1-CTI is a single-span E1/T1 adapter capable of supporting 30/24 concurrent calls for applications such as DTMF-controlled IVR, call switching and call

Diva Server PRI/E1/T1-CTI

recording. Based on a very compact, half-size PCI form factor it offers a simple and powerful, yet cost-effective entry-level platform for voice and Computer Telephony applications.

Diva Server SoftIP is a software-based adapter supporting Voice over IP (VoIP). With Diva Server SoftIP, calls that arrive via a VoIP network can access the same speech engines and applications that work with the Diva Server hardware. Diva Server hardware and software solutions can run together, in the same server, and can even interconnect calls between VoIP and traditional networks.

Diva Server V-Series adapters are all no-compromise, full-function enhanced speech and conferencing adapters that come with ample DSP resources so that every channel can employ the most processing-intensive features without limitation. Key features include VAD, generic tone detection, large conferences and full support for ASR and TTS applications with barge-in.

Diva Server V-4BRI-8

Diva Server V-BRI-2

The Diva Server V-BRI-2 and V-4BRI-8 are V-Series adapters for ISDN Basic Rate connections, available in single BRI (2-channel) and 4-BRI (8-channel) variants. They have on-board DSPs and support the full range of basic IVR and enhanced features including conferencing, echo cancellation and VAD.

The Diva Server V-PRI/E1-30 and PRI/T124 are single-span V-Series adapters, supporting up to 30/24 concurrent calls via ISDN PRI, E1 or T1 interfaces.

Diva Server V-PRI/E1-30
Diva Server V-PRI/T1-24

Diva Server V-4PRI/E1-120

Diva Server V-2PRI and V4PRI are dual- and quad-span V-Series adapters that provide up to 120/96 concurrent calls via up to four ISDN PRI, E1 or T1 interfaces.

The Diva Server V-Analog-4P and V-Analog-8P V-Series adapters allow connection to traditional analog phone lines, so that applications and speech engines can access the PSTN in the same way that they would connect to T1/E1 or VoIP. They are programmed using the same APIs as all other Diva Server adapters.

Diva Server V-Analog-4P

Diva Server V-Analog-8P

Other Diva Server Products

Diva Server Universal, Multifunction Adapters are designed for the Unified Communications market and include all the functions of the V-Series and add comprehensive fax and modem capabilities. Key additional features are high-speed DSP-based fax receiver and transmitter with up to 33.6 bps transmission rate, support for RAS (dial-in remote access using up to V.90 analog modems, ISDN and GSM) and SMS messaging.

Diva Server – A Powerful Speech Solution

The Diva Server family has all the software and hardware features you need to build a state-of-the-art IVR or CTI application:

- **World class protocol software:** Including Q-SIG, E1-R2, T1 RBS, CAS, ETSI-DSS1 (Euro-ISDN), H.323 VoIP, NI-1, DMS-100, INS-64, INS-1500.

- **Inbound/outbound call processing:** Processing of called (DNIS) and calling (ANI, CLI) numbers. Processing of redirected/redirecting numbers. Control ringing, reject and line busy-out. Answer calls based on called/calling numbers and/or timeslot/channel.

- **Call Progress:** Cause codes; ISDN call states; In-band tones.

- **Tone Detection:** On board detection includes DTMF; busy tone; ring tone; SIT tone; modem/fax tone, programmable generic tone detector.

- **VAD:** On-board voice activity detection for human speech and silence detection.

- **Conferencing:** With AGC; G.168 echo cancellation with NLP; active talker detection; talk/listen control based on conference member rights. DTMF clamping and filtering. On-board mixing (no host CPU overhead).

- **Continuous audio streaming with barge-in:** All Diva Server boards have full-duplex audio support. Barge-in supported through DTMF, VAD trigger or external trigger (e.g. triggered by external ASR engine). On board DTMF generation.

- **Audio Prompts/Audio Streaming:** Supports prompt play from file, with formats A-law, mu-law, PCM, ADPCM, WAV or raw. Supports rewind; pause; continue; forward; cancel; pitch control. Plays audio streams from memory for music-on-hold or TTS.

- **Speech Recognition Support:** Echo-cancellation, gain control and barge-in.

- **Audio Recording:** Recording of audio to memory or disk (A-law, mu-law, PCM, in WAV/raw).

- **Concurrent VoIP and traditional telephony (E1/T1, analog, ISDN):** Diva Server adapters and SoftIP can be used together to make hybrid CTI solutions, or custom VoIP gateway solutions.

- **Supplementary Services:** CD; MWI; UUI; Facility; CW; HOLD; ECT; AOC; DDI; MSN; CLIP; CLIR (includes Q-SIG and VoIP H.450).

- **Logging and Monitoring:** Standard boards can be used for call tapping and monitoring applications, i.e. record audio and signalling information to disk as a passive (high impedance) line monitor.

- **Audio Provider Interface:** SDK features specific interface to allow third party ASR and TTS engines to efficiently stream audio without copying data multiple times.

Diva Server – Key Benefits

- **High Performance:** Diva Server adapters are built on the same high-performance technology of on-board RISC processors and digital signal processors (DSPs), which process real-time tasks that would ordinarily bog-down the host CPU. Thanks to DSP-based voice activity detection (VAD), in-band tone detection, automatic gain control and echo cancellation Diva Server is perfectly suited for speech-enhanced Interactive Voice Response (IVR) platforms. Diva Server boards communicate with each other via the PCI bus, which allows high-speed transfer of multiple audio streams between boards without involving the host CPU. This gives a highly scaleable platform capable of supporting 480 channels per server, even for demanding tasks such as conferencing and IVR.

- **Unrivalled Software:** Eicon's years of experience allows interoperation with a huge range of switch and network hardware. Supplementary services implementations are complex and vary across platforms and across the world: our understanding and experience of protocols (for example in ECT, MWI, UUI) is unsurpassed.

- **Easy Application Development:** The Diva Server SDK is a free software development kit that provides application programming interfaces (APIs) for software vendors to easily develop their own voice, speech and conferencing applications for Diva Server. The same API is used for all Diva Server products, so for example an application written for E1 will also work for analog and for Soft IP.

- **Flexibility:** Up to eight Diva Server adapters can be mixed and matched into one system in any combination to meet your communication needs. Traditional telephony and VoIP can be mixed in one server using our powerful combination of Diva Server SoftIP and hardware adapters.

- **Easy to Install and Use:** Diva Server conforms to Plug and Play standards, eliminating complex installation tasks. Our GUI configurator offers a visual configuration and monitoring environment that is the best in its class.

- **Operating System Support:** Diva Server supports the most commonly used operating systems, including Windows Server 2003, Windows XP, Windows 2000 and Linux. Diva Server for Windows 2000/2003/XP is officially certified by the Windows Hardware Quality Labs (WHQL).

- **Best Production Quality:** All Diva Server adapters conform to ISO 9001-2000, ensuring the highest production standards. Eicon's Diva Server is shipped to our distribution channel with a 5-year warranty giving customers real peace of mind available only from one of the world's leading communications hardware manufacturers.

Diva Server - Strong through Partnership

Eicon Networks Technology Partner Program

The Diva Server family provides a true open communications platform with high flexibility to support a great variety of applications. The Diva Server adapters are the essential hardware components to build Remote Access , Fax , Unified Messaging and voice solutions as well as VoIP and Soft-PBXs. To provide a complete solution to satisfy customer needs, the Diva Server hardware is used in combination with communication software provided by Independent Software Vendors (ISVs). Eicon has established the Eicon Networks Technology Partner program to work closely with different ISVs to provide an ideal selection for a customer's communication needs. Together, through close relationships with more than 100 ISVs, the Diva Server family is feature rich and continuously improved to address market requirements. Eicon is constantly extending partnerships in all communications areas. These strong partnerships have already made the Diva Server family the leading European hardware supplier for Fax and Unified Messaging.

Eicon Networks
Technology Partner

Microsoft Partnership

Diva Server has a longstanding history of supporting Microsoft's operating systems as an important server operating system. Eicon is committed to supporting Microsoft's Windows 2000, Windows 2003 and Windows XP. As a testimony to this, all Microsoft Windows 2000, 2003 and XP CDs include the Eicon Diva Server drivers. Eicon has been working closely with Microsoft's development team from the earliest stages of the product life cycle. With an Eicon Systems Engineer on site at Microsoft's headquarters in Redmond, USA, Eicon is able to develop and test its own products in tandem with those of Microsoft. This cooperative relationship ensures that Eicon's products are tightly integrated with Microsoft's latest generation of PC computing, providing its customers with truly compatible and secure product offerings. All Diva Server drivers are officially tested and certified by the Windows Hardware Quality Labs (WHQL).

Microsoft
GOLD CERTIFIED
Partner

ISV Software Solutions

Windows
Telecommunications
Alliance Member

Designed for
Microsoft®
Windows®2000
Server

Designed for
Microsoft®
Windows®
Server 2003

Microsoft®
Windows xp
COMPLIANT

Speech Partners

There are many companies that depend on Diva Server and our integration into speech-engine software. We have worked with market leaders such as **Nuance**, **Scansoft** and **Loquendo** to ensure that our speech platform offers the best software implementation, the best performance, and the best, most consistent, range of telephony solutions.