CoSystems Incorporated

Convertix™

Powerful System Solutions for Packetizing the PSTN Edge

Convertix™ GR303

Highlights

- **Converts BellCore GR-303 to VoIP**
  - Based on widely deployed CoSystems GR-303 protocol stack
- **Open source call control on Pentium based host CPU**
  - Open source CGL 2.0 Linux
  - Open source Asterix IP-PBX
  - SIP Call Control - northbound
  - GBE Ethernet Uplink
- **EdgeBlade - V4800IP**
  - GR303 RDT & IDT – 16xT1 ports
  - Layer 3 Call Control
  - Layer 2 Link Redundancy
  - DTMF & call progress tones
  - Caller ID
  - 10K BHCA @ 99.999% call completion reliability
  - VoIP 100Ethernet - 380 Channels
  - G.711 & lbr Codecs
  - G.168-2002 upto 128 msec echo cancellation
  - T.38 fax & Tone relay
- **Compact PCI**
  - 2 slot chassis with 120v or –48v
  - Optional redundant power supply
  - Hot swappable EdgeBlade
  - CLI port, alarms & status

1981 - 2006
25
years of excellence

GR-303 RDT & IDT for Local Exchange Migration to VoIP

Overview

Convertix-GR303 is a powerful PSTN to Voice-over-IP conversion system supporting 16 x T1 GR303 interfaces to DLC or Class 5 switch and a 1Gb/sec VoIP Ethernet interface to IP networks. Convertix-GR303 is a complete, fully integrated system ready for building carrier solutions to implement VoIP centric networks at both at the access layer and at the central office switch

Integrating VoIP Access Networks

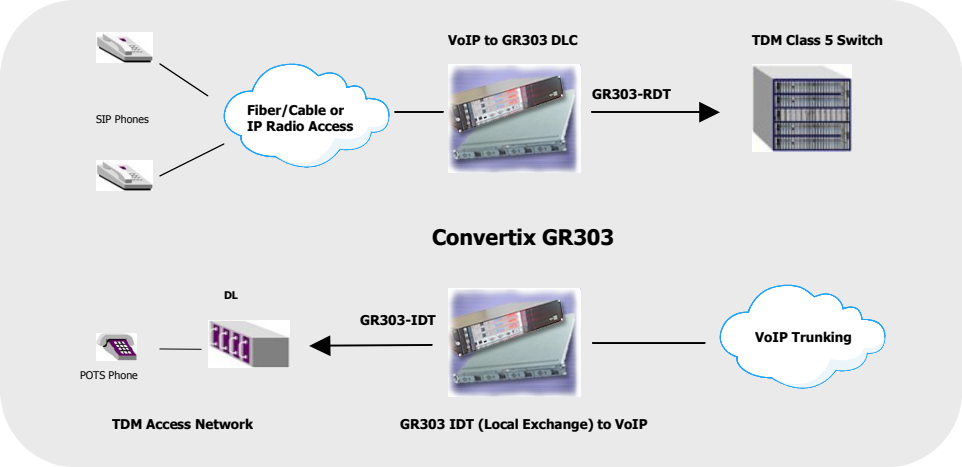
Network elements built with Convertix-GR303 as RDT can terminate new access networks such as WiMAX, WiFi, Cable, Satellite and broadband Fiber/DSL with VoIP/Ethernet and connect into an existing Class 5 switch over GR-303 RDT links. In this mode, Convertix-GR303 translates VoIP calls and tones to TDM for connection to Class 5 switch.

Building an VoIP NGN Central Office Switch

An NGN VoIP centric switch based on Convertix supports legacy TDM access networks and loop carriers. Convertix-GR303 as IDT can convert incoming TDM calls to either VoIP or maintain outgoing TDM trunking format. In this mode, Convertix-GR303 provides pcm voice, dial-tone, DTMF, call progress tones, CallerID and other functions required of a Class 5 switch.

Traffic Engineering Solutions

To create powerful traffic engineering solutions, a single Convertix-GR303 system can be partitioned partially as an DLC and as a Local Exchange. Such a node can be programmed to selectively divert PSTN calls into a VoIP network. As an example, dialtone can be distributed from an underutilized GR303 switch over an IP network to an overloaded Central Office switch thus avoiding a costly switch upgrade. Many combinations are possible for optimizing traffic/cost parameters at intersection points between the legacy TDM PSTN networks and the emerging VoIP based architectures.



Technology

Convertix-GR303 is complete with all features required to terminate a PSTN interface as a Digital Loop Carrier (DLC - RDT) or as Local Exchange (IDT) and a fully featured, state-of-the-art VoIP engine which converts 380 channels of TDM voice into G.711 and various LBR codecs with upto 128 msec of echo cancellation. Convertix-GR303 is based on a GCL 2.0 Linux Pentium based CPU host card and Asterix open source IP-PBX which controls CoSystems EdgeBlade™ blade product. This offers a complete yet open source based customer extensible system. Convertix-GR303 incorporates the widely deployed CoSystems GR303 protocol stack as the basis for a solid, reliable and scaleable product. Fully qualified at 10,000 BHCA with 99.999% call completion reliability, Convertix-GR303 supports all necessary PSTN signaling and tones with a dedicated on-board DSP engine.

© 1999-2006 CoSystems, Inc. All Rights Reserved

created using BCL easyPDF Printer Driver
Click here to purchase a license to remove this image

Selected Technical Specifications

PSTN – BellCore GR303 – Remote Digital Terminal (DLC) and Integrated Digital Terminal (Class 5 Switch)

Channel Capacity	Upto 380 Channels on 16 x T1 links allowing for link redundancy and management. Configurable as RDT or IDT or partially both. (Optionally available in 8 and 12 x T1 link versions upon request)
Call Control	Based on Open Source Asterix IP-PBX and CGL 2.0 Linux environment running on a Pentium host CPU. Integrates low level channel driver for EdgeBlade V4800IP module. Customer extensible open source supplied with system.
Management	Asterix integrated management GUI for configuration, protection, alarms, monitoring and performance management function. Supplied in source code form and fully customer extensible.
BellCore Standards	Full BellCore compliance to specifications: • GR303-CORE
GR303 Layer 3	Q.931 with adaptation for GR303-CORE Generic API for Call Control. Supports access to EOC Channel
GR303 Layer 2	Stateless Layer 2 (LAPD) and Link Protection Switching Multiplexor.
PSTN Signaling	Robbed Bit
Tone Detection	DTMF, MF-R1/R2/Telephony tones on upto 380 channels
Tone Generation	Dial-tone, CallerID, Call Waiting

VoIP Module

Channel Capacity	Configurable upto 1008 channels of G.711. 1 x 100 Mb/sec Fast Ethernet Interface
IETF Standards	RFC791(IP), RFC768(UDP), RFC1889 (RTP/RTCP), RFC 2833 (tone relay)
Codec Support	Total channel mix: 1008 (Can support multiple base GR303 Blades) G.711 - 1008 max channels (supports A-law to u-law conversion for G.711) G.726 - 864 max channels G.723.1 – 160 max channels G.729A, G.729B – 240 max channels T.38 Fax – 200 max channels.
Echo Cancellation	Compliant with G.168-2002 with upto 128 msec echo tail
DTMF	DTMF detection and generation. Support for R1 and R2 signaling.
Tones	• DTMF/MF-R1/R2 Telephony tones detection and generation upto 480 channels • Collect DTMF digits: 0 to 9,*,#,A,B,C,D per ITU-T Q..23 and Q.24 • 2100 Hz fax/modem detection
Voice Quality Enhancement	Adaptive noise reduction, ITU G.169 - automatic level control, silence suppression, spectral comfort noise (G.711), Packet loss concealment, Audio conferencing
Fax	T.38 compliant fax relay
Management Support	SNMP V1: Standard MIB-2, RTP-MIB, CoSystems proprietary MIBs

Hardware

Chassis	2 slot horizontal chassis: • Slot 1 - Pentium host CPU • Slot 2 – EdgeBlade V4800IP • -48v DC or 120v AC power supply options
Ethernet	1 port @ 1 GBE on host CPU
PSTN	16 T1 ports on high density 68 pin connector Optional: cable and patch-panel available to terminate on RJ45 or AMP/CHAMP connector
Front panel	Alarm, Power, Active LEDs. 8 digit HEX alpha-numeric display for status RS-232-C CLI port
RTB panel	High density 68 pin connector for PSTN (Cable and patch panel optional) 4 x RJ45 for Ethernet 1 x RJ45 for BITS clock 1 x RJ45 for hardware redundancy
Power	100 Watts
Temperature	Operating: Commercial 0c – 50c, Storage: -20c – 80c
Humidity	10-90% relative humidity, non-condensing

CoSystems Incorporated

1263 Oakmead Parkway
Sunnyvale California 94085
USA
(408) 522-0500
www.cosystems.com

created using BCL easyPDF Printer Driver
Click here to purchase a license to remove this image