

An Introduction to Dialogic® Software Video Transcoder (SVT)

Technology Brief

The Dialogic® Software Video Transcoder (SVT) provides scalable, real-time MPEG-4 and H.263 transcoding for video application developers. SVT works in conjunction with Dialogic® NaturalAccess™ Video Access Toolkit and Dialogic® CG Series Media Boards.

Developers designing video applications, such as video mail, video chat, and streaming video, can take advantage of the SVT's dynamic management of transcoder resource pools. This innovative feature provides a cost-effective use of scarce transcoder resources. In addition, combining video with the text and image overlay features of SVT enables developers to enhance user interaction with the application.

Developers also need the ability to guarantee a given Quality of Service (QoS) for streaming video applications. To address this need, SVT supports QoS via a user-configurable IPv4 Type of Service (ToS) field.

Features

- **Video transcoding engine implemented as a networked resource** — Provides a scalable option that allows the user to incrementally grow resources as needed
- **Low-delay transcoding and transrating engine** — Supports 3G-324M and IP terminals running at different frame rates and sizes in real-time applications
- **Half-duplex channel access** — Enables efficient resource utilization in support of gateway, messaging, and batch processing applications running simultaneously
- **Text and image overlay** — Allows text, menus, and other graphics to be combined with video content to enrich the user experience
- **Runs on the Linux operating system** — Makes the SVT compatible with affordable and scalable hardware platforms
- **Interoperable with Dialogic® NaturalAccess™ Video Access Toolkit** — Can reduce time-to-market for video gateway or messaging applications

Seamless Interoperability

Support of industry-standard protocols and formats (including RTP, MPEG-4, H.263, and RTCP) provides a high degree of interoperability.

Seamless interoperability is also enabled by client-side APIs, which give mobile video application developers fine-grained control over transcoding functions, such as format conversion, transrating, and transcoding performed on a per stream basis.

Unmatched Performance

The SVT 2.1 is tuned for low-latency, real-time throughput, and error resilience. These properties are important for delay-sensitive applications, such as 3G wireless video conferencing, streaming video, and multimedia gaming.

Architecture

The architecture of SVT has three elements:

- **Video Transcoding Platform (VTP)** — Networked system performing the transcoding operations
- **Transcoder Resource Control (TRC)** — API controlling the VTP through a network IP connection
- **Video Transcoder Management Interface (VTMNG)** — Manages transcoder resources with an API through an IP connection

Figure 1 provides an illustration of this architecture. The TRC is co-located on the same system as the video application, and VTPs can be distributed across multiple systems. One TRC supports up to five networked VTPs.

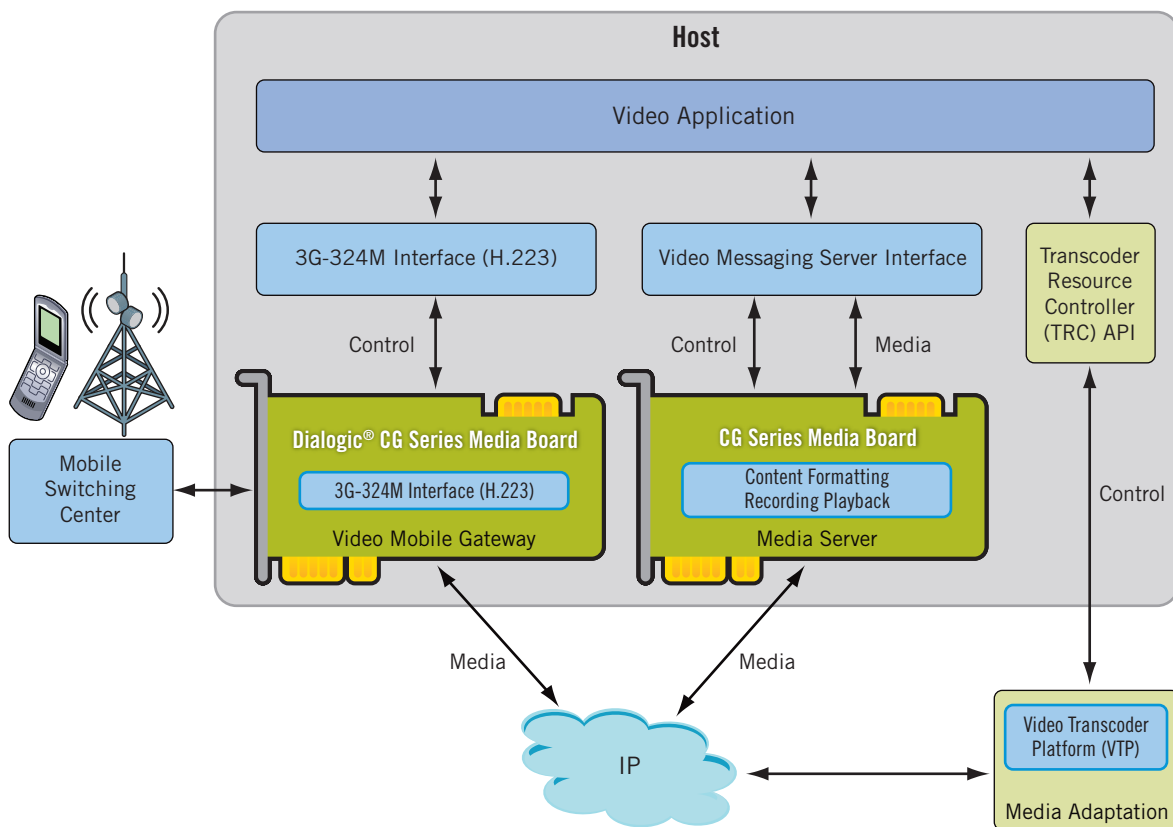


Figure 1. SVT Architecture

Technical Information

General

Seamless integration with Dialogic® NaturalAccess™ Video Access Toolkit for real-time configuration of transcoding resource on a session-by-session basis

Transcoding and transrating of permutations between MPEG-4 and H.263

Support for text and image overlay

Features supported per half-duplex (simplex) channel

IP Interface

Video transported over RTP/UDP

RFC3550 and RFC3551 for RTP and RTCP

RFC2190 (for H.263)

RFC2429 (for H.263)

RFC3016 (MPEG-4)

Proprietary protocol over IP with APIs

Video Formats

H.263 baseline profile level 10, 20, 30

MPEG-4 simple profile levels 0 through 3

Transcoding (and Transrating)

Picture format, frame rate, and bit rate adaptation

- MPEG-4 to/from H.263

- H.263 to/from H.263

- MPEG-4 to/from MPEG-4

Frame Size and Rates

QCIF, CIF

Programmable output up to 30 frames/second

Programmable output from 40 kbps to 384 kbps

Input Resiliency

Reordering out-of-order packets

Optional filtering of partial frames

Quality of Service

User programmable IPv4 ToS

RTCP

Configuration Flexibility

Five networked VTPs supported per TRC

Multiple application-sharing of one VTP

Remote management for configuration, status, and statistics

Technical Information *(continued)*

VTP Hardware Environment

Minimum system requirements

- Dual 3.4 GHz Intel Xeon with EM64T
- Support for SSE3 (streaming SIMD extensions 3) and hyperthreading
- 800 MHz FSB
- Dual 1 Gbps Ethernet interfaces

VTP Software Environment

Supported Operating System:

- Red Hat Enterprise Linux ES 4.0

TRC Software Environment

Supported Operating Systems

- Windows Server® Enterprise Edition
- x86 Solaris 10 (32-bit)
- SPARC Solaris 10 (32-bit and 64-bit)
- Red Hat Enterprise Linux ES 4.0 (32-bit)

Density

Number of Networked VTPs	Maximum Number of Half-Duplex Ports	Maximum Number of Full-Duplex Ports (channels)
1	60	30
2	120	60
3	180	90
4	240	120
5	300	150

Ordering Information

Order Code	Description
Runtime Licenses	
VHL210004	Software Video Transcoder 2.1 license, 4 sessions
VHL210024	Software Video Transcoder 2.1 license, 24 sessions
VHL210030	Software Video Transcoder 2.1 license, 30 sessions
VHL210048	Software Video Transcoder 2.1 license, 48 sessions
VHL210060	Software Video Transcoder 2.1 license, 60 sessions
VHL213060	Video Transcoder 2.1, 60 sessions, 90 Day Trial
Capacity Upgrades	
VHL210024U	Software Video Transcoder 2.1 capacity upgrade, 24 sessions
VHL210030U	Software Video Transcoder 2.1 capacity upgrade, 30 sessions
Version Upgrades	
VHL212004	Software Video Transcoder 2.1 version upgrade, 4 sessions
VHL212024	Software Video Transcoder 2.1 version upgrade, 24 sessions
VHL212030	Software Video Transcoder 2.1 version upgrade, 30 sessions
VHL212048	Software Video Transcoder 2.1 version upgrade, 48 sessions
VHL212060	Software Video Transcoder 2.1 version upgrade, 60 sessions

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