

The Dialogic® Vision™ VX Integrated Media Platform is a standards-based integrated media and signaling platform that supports the creation and deployment of multimedia audio and video telephony services using VoiceXML and CCXML, which allows the rapid prototyping and deployment of rich audio and video services.

The Vision VX Integrated Media Platform provides two valuable functions for application developers, OEMs, and system integrators. It can be used to quickly develop and deploy voice and mobile video applications across a broad range of network interfaces and media types, and it can also enable seamless migration among circuit-switched, packet-switched, and mobile networks, in addition to IMS-based networks through support of BICC/Nb-Up.

The Vision VX Integrated Media Platform can also support real-time video and voice transcoding, allowing service providers and mobile operators to deliver enhanced video quality and interoperability for converged services, such as video portals, multimedia contact centers, and multi-terminal video conferencing.

Because of its ability to integrate ISDN and SS7/ISUP signaling in a single 2U unit and scale up to 5000 ports per SS7 point code, the Vision VX Integrated Media Platform allows for extremely efficient deployment. It features web-based management with remote configuration, management, and monitoring, and easy scalability in carrier networks by permitting capacity upgrades through software licenses. Support of redundant SS7 links improves reliability by reducing service downtime.



Features	Benefits
<b>Standards-based control using VoiceXML and CCXML</b>	Allows the rapid prototyping and deployment of rich audio and video services
<b>3G-324M support that includes H.264</b>	Enables the same video services to perform comparably on 3G wireless and IP networks
<b>Real-time any-to-any video transcoding and rate adaptation on demand</b>	Adapts codec, rate, and size dynamically as a video moves between mobile network devices and IP network devices to improve efficiency and the viewer experience
<b>Video refresh</b>	Reduces video corruption while maintaining a high frame rate
<b>FastCall setup that includes MONA</b>	Allows similar setup times for both video and voice calls
<b>Simultaneous support of TDM voice calls</b>	Supports seamless failover of video to voice calls with very low voice latency to eliminate complex routing schemes and multiple element management
<b>Redundant SS7 link support</b>	Improves reliability by reducing service downtime, which is important in a carrier environment
<b>BICC/Nb-Up support</b>	Can be deployed in both traditional mobile networks and next-generation IMS networks

## Applications

### Mobile Interactivity:

- Personalization:
  - Video Ring Tones and CRBT
  - Video, Voice, and Text SMS
  - Video and Voice Messaging
  
- Entertainment
  - Video Portal
  - Televoting
  - Video Dating

- Information
  - Mobile TV
  - Video Sharing
  - Video-Based Training
  - Video Surveillance

### Network Services

- Business Productivity
  - Voice and video self-service contact center
  - Auto-attendant
  - Emergency notification
  - Predictive dialing

## Ease of Application Development and Deployment

The Vision VX Integrated Media Platform can ease the work of application developers and system integrators who are eager to respond quickly to subscriber demand for cutting-edge multimedia applications.

Figure 1 provides an illustration of the heterogeneous environment and rich set of media services that the Vision VX Integrated Media Platform can support. The platform has an integrated PSTN-SIP audio and video gateway and optional ISDN signaling services, making it suitable for a variety of network types including IP, PSTN, 3G-324M, and IMS networks. On the media side, the platform can also support a broad set of options, including SIP video endpoints, speech and multimedia input, and emerging 3G-324M video solutions.

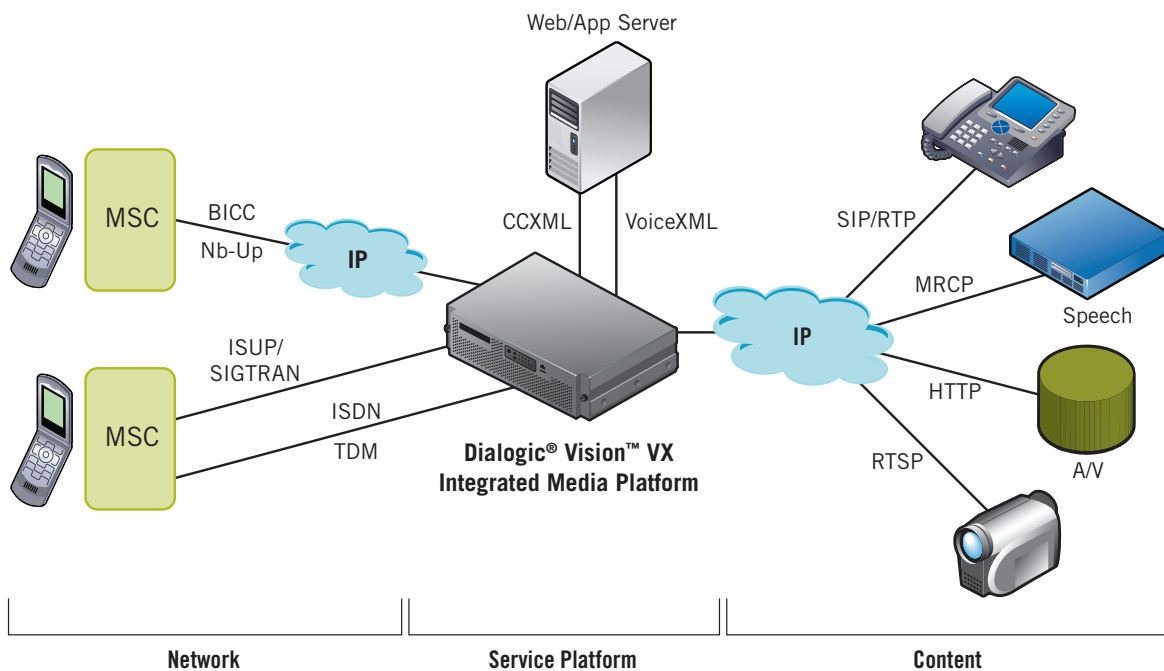


Figure 1. Dialogic® Vision™ VX Integrated Media Platform in a Heterogeneous Network

## Ready for Voice

The Vision VX Integrated Media Platform allows developers to quickly bring to market carrier-level applications, because it can integrate easily with leading ASR and TTS vendor platforms and supports the industry-standard MRCP protocol. Applications can include speech-enabled IVR, voice messaging, audio conferencing, and outbound dialing.

Voice applications that involve audio mixing can benefit from the Vision VX Integrated Media Platform's support of CCXML-controlled applications. Other sources of audio (for example, music-on-hold and voice-based advertising) can be added easily and controlled by CCXML dialogs. These capabilities are also suitable for contact center features, such as coaching and call recording.

## Designed for Video

In addition to its audio processing capabilities, the Vision VX Integrated Media Platform supports video applications and multimedia services in both currently deployed 3G networks (3G-324M) and IMS network architectures. Video applications already successfully deployed on the Vision VX Integrated Media Platform include video SMS, video blogging, gaming, and entertainment.

The Vision VX Integrated Media Platform's support of RTSP and VCR-like controls enables the delivery of rich media streaming services, such as Mobile TV, directly to subscriber handsets. The combination of audio and video capabilities, offered through VoiceXML dialogs, results in exceptionally powerful interactive multimedia services.

## Real-Time Any-to-Any Video Transcoding

The Vision VX Integrated Media Platform offers excellent efficiency and an enhanced viewer experience by providing real-time any-to-any video transcoding only when needed. Rate matching and size matching of video streams is available on demand, and video transcoding capabilities include H.264 to H.263/MPEG-4 for interoperability between web-based video content and mobile video handsets.

Table 1 lists the dynamic video transcoding available with the Vision VX Integrated Media Platform.

		Video Service			
		3G-324M Mobile Video Handset (QCIF)	SIP Video Phone (QCIF/CIF)	3GPP Stored Content (QCIF)	IP Video Streaming (QCIF/CIF)
<b>3G-324M Mobile Video Handset</b>	H.264	x	x	x	x
	MPEG-4	x	x	x	x
	H.263	x	x	x	x

Table 1. Video Transcoding Supported

The Vision VX Integrated Media Platform also enables a high-quality 3G video experience by incorporating advanced standards in mobile video technology. The Vision VX Integrated Media Platform supports H.264 for high-quality video as well as industry-standard fast call setup procedures such as MONA, WNSRP, and Packed245.

## Allows Broad Choice of Service Creation Tools

The Vision VX Integrated Media Platform supports a variety of leading GUI-based Service Creation Environments (SCEs). Application developers can choose the SCE that most closely matches their needs and can build VoiceXML dialogs with graphical tools. By using object-based sets, developers writing VoiceXML-based applications can easily create VoiceXML dialogs for rapid deployment.

### Simplifies Transition to the IMS Environment

The Vision VX Integrated Media Platform can ease the transition to IMS deployments because it can provide Media Resource Function (MRF) services in a configuration such as the example shown in Figure 2. The Vision VX Integrated Media Platform can supply a wide range of media processing services, including those required for complex IMS multimedia applications, such as announcements, media transcoding, and audio and video IVR.

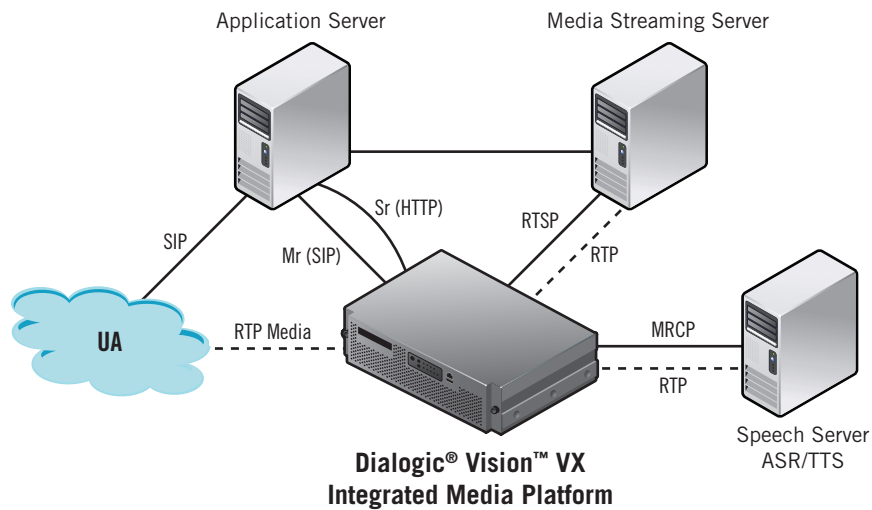


Figure 2. Dialogic® Vision™ VX Integrated Media Platform Used As an MRF

Through SIP and optional SS7 signaling services, the Vision VX Integrated Media Platform integrates easily into IMS network architectures. By using the Vision VX Integrated Media Platform, an existing system with PSTN interfaces can be configured to support IMS when network deployment requires it, avoiding the risk and expense of a forklift upgrade.

### Feature Rich and Compliant with Important Industry Standards

Important operational, management, and provisioning features are supplied with the Vision VX Integrated Media Platform, such as a web-based management console for remote support, command-line interfaces, and SNMP support.

The Vision VX Integrated Media Platform is built on a high-availability server platform and is equipped with redundant AC or DC power and a RAID 1 disk array. The Vision VX Integrated Media Platform supports active/standby redundancy for SS7 connections, which can provide the reliability for carrier deployments.

### SS7 Signaling for the Carrier Network

The Vision VX Integrated Media Platform is ready for deployment in carrier environments, with a very efficient, highly scalable SS7 network interface. The Vision VX Integrated Media Platform also provides 1+1 fault tolerant SS7/ISUP or SIGTRAN support and other redundancy and availability features for reliability.

A single Vision VX Integrated Media Platform supports a full feature set for ISUP/SS7 or SIGTRAN signaling, and can be used cost-effectively for trial, test, or small-scale deployments. Initial commercial deployments in a carrier environment normally require fault-tolerance, and the Vision VX Integrated Media Platform can provide 1+1 redundancy through a single point code with two units. From such an initial deployment, the Vision VX Integrated Media Platform scales easily to 20 units and 5000 ports — with redundancy. See Figure 3 for an example of such a full-scale, high-density, redundant deployment using Vision VX Integrated Media Platforms.

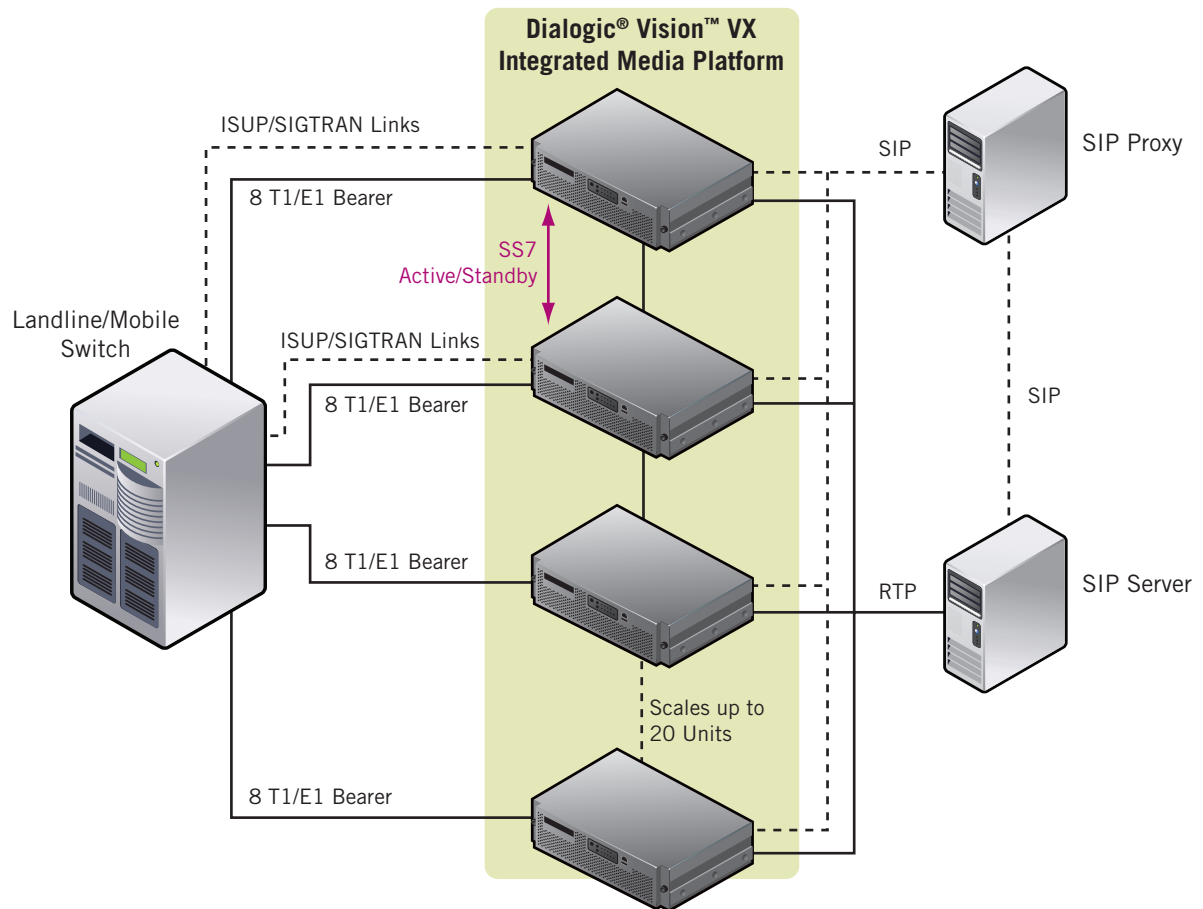


Figure 3. Full-Scale SS7 Deployment

## Technical Specifications

### System Features

- Simultaneous support of PSTN and IP calls
- Simultaneous support of audio and video
- Seamless migration of PSTN to IMS
- IMS-compatible MRF (delegation model TR.24.880)
- Flexible configurations supporting audio only, audio with video, optional integrated PSTN-SIP gateway, or IP-only
- Outbound and/or inbound call control through CCXML
- Video streaming support, with VCR controls
- Video transcoding through optional Video Transcoder server
- Audio conferencing support for contact-center-like functions
- Fault tolerant system for carrier deployments
- Capacity upgrade through software license

### Web Protocols

- VoiceXML 2.1
- CCXML 1.0
- MRCP v1
- SRGS 1.0
- SSML 1.0
- SISR 1.0
- HTTP(S)
- ID draft-burke-vxml

### VoiceXML Features

- VoiceXML 2.0 and 2.1 compliant
- SIP interface allows load balancing and redundant configurations
- VoiceXML files cached according to http headers

### CCXML Features

- CCXML 1.0 W D June 29, 2005 compliant
- Call Control for SS7, ISDN, and SIP
- Call leg management (ANI, DNIS)
- Conferencing control
- Dialog integration with VoiceXML sessions
- Early media (through delayed ANM)
- Bridged, blind call transfer between audio and/or video

### Speech Recognition

- VoiceXML server control of speech servers through MRCP v1
- Streaming RTP conversion from T1/E1 bearer channels directly to ASR servers
- Load balancing with multiple ASR servers
- Application-selected ASR

## Technical Specifications *(continued)*

### Text to Speech

- Synthesized prompts cached for improved performance
- Prompt engine provides low-latency streaming of synthesized speech-to-bearer channels
- Application selected TTS

### Media Processing

- G.711 A-law/ $\mu$ -law, AMR-NB, G.723.1, G.726, G.729a
- H.263, H.264, MPEG-4
- On-demand, any-to-any, real-time video transcoding supported through optional video transcoder server
- DTMF detection and generation
- Echo cancellation, up to 64 ms
- Voice Activity Detection
- Audio transcoding
- Audio conferencing (small party)
- VCR controls (audio and video)

### Conferencing Support

- Conferencing support through CCXML control
- Echo cancellation
- AGC, DTMF tone clamp
- Coaching mode
- Call recording
- Music-on-hold

### Video Support

- Video support through VoiceXML
- Optional embedded 3G-324M gateway
- H.264, MPEG-4, H.263 with any-to-any video transcoding
- FastCall Setup (H.324 Annex A, C, K)
- Video rate & size adaptation (43Kb to 384Kb, QCIF/CIF)
- Video refresh (RFC 5168)
- Integrated with ASR and TTS support
- Separate audio or video sources through <par> tag
- Simultaneous video play and record (video karaoke)
- Streaming video with RTSP connection sharing

### Application Management

- Provisioned through Web Management Console
- DNIS to application URI mapping

### Supported ASR Servers

- ScanSoft
- Nuance
- Telisma
- Loquendo
- MRCP v1 compatible engines

## Technical Specifications *(continued)*

### Supported TTS Servers

- ScanSoft Realspeak
- ScanSoft Rhetorical
- Acapela
- Loquendo
- CVOX
- MRCP v1 compatible engines

### Supported Streaming Servers

- Helix Mobile Server (Real)
- Darwin Streaming Server (Apple)

### Media Formats

- .wav
- .raw
- .au
- SPHERE
- .3gp (324M video)

### Media Interfaces

- FILE:// local or remote
- HTTP(S)://local or remote, with caching per header
- RTSP://streaming audio or video

### Media Transport

- RFC 3550/3551 (RTP)
- RFC 2326 (RTSP)
- RFC 2833 (DTMF)
- RFC 3267/IF2 (AMR)
- RFC 2190 (H.263)
- RFC 2429 (H.263)
- RFC 3016 (MPEG-4)
- RFC 3984 (H.264)
- Comfort Noise Generation RFC

### Network Interfaces

- Simultaneous PSTN and VoIP support with integrated PSTN-SIP gateway
- Gigabit Ethernet (redundant)
- T1/E1
- SS7/ISUP
- ISDN
- SIP

## Technical Specifications *(continued)*

### SS7/ISUP Compliance

- Embedded SS7 support per server
- Redundant support through external SS7 Signaling Server
- Technology deployed in over 50 countries
- China ISUP
- EN 300-356-1, ETSI ISUP V.3, 1998
- ETS 300-121, ETSI ISUP V.1, 1992
- ETS 300-356-1, ETSI ISUP V.2, 1995
- ETS 300-356-33, ETSI
- Q.730-737, ITU-T, 1992
- Q.761-764, ITU-T, 1997
- Q.767, ITU-T, 1992
- Q.784, ITU-T, 1996-1997
- T1.113, 236, ANSI, 1995
- NTT Q.761-764

### SIGTRAN Compliance

- M3UA (RFC 4666, ETSI TS 102 381 v1.1.1)
- SCTP (RFC 2960, RFC 3309)

### BICC Compliance

- ITU-T Q.1902.1 – Q.1902.6, 07/2001
- ANSI T1.673-2000
- ANSI T1.673-2002 (CS1+)
- Paired with media supported: Nb-Up (IP-324M)

### ISDN Compliance

- AT&T 5ESS10
- Nortel DMS-100
- Bellcore National 2
- Euro ISDN and Euro Numbers
- NTT INS 1500
- QSIG
- ANSI T1.607

### SIP Compliance

- RFC 3261 (SIP core)
- RFC 3263 (Locating SIP Servers)
- RFC 3264 (Offer/Answer)
- RFC 3515 (REFER)
- RFC 2327 (SDP)
- RFC 2976 (INFO)
- RFC 5168 (Video Refresh)

## Technical Specifications *(continued)*

### IMS / MRF Compliance

- MRF supporting delegation model
- 3GPP TR 24.880 (section 4.3.1)
- RFC 4240 (netann)
- draft-burke-vxml-02 (03)

### PSTN Physical Interfaces (optional)

- 4 or 8 T1/E1 trunks
- T1: ANSI T1.102, T1.403
- E1: G.703 2,048 kbps
- RJ-45 connectors, each with 2 trunks
- 120 ohm termination, or 75 ohm (w/optional SEP panel)

### SS7 Physical Interfaces (optional)

- 4 T1/E1 trunks, with or with voice channels
- RJ-45 connectors, each with 2 trunks
- 4, 16, or 32 low speed links, or 4 high speed links (DS1)

### IP Media Physical Interfaces

- Dual Gigabit Ethernet
- Two RJ-45 connectors per 4 T1/E1 PSTN trunks
- Configurable for failover or load balanced

### Vision VX Integrated Media Platform Physical

- Kontron carrier class (2U TIG family)
- 2U, 19 in. rackmount, NEBS-compliant
- Height: 3.45 in (87.6 mm)
- Width: 17.14 in (435.3 mm)
- Depth: 20 in (508 mm)
- 600 mm standard telcom rack

### Optional Video Transcoder Physical

- 1U, 19" rack mount (600 mm standard telcom rack)
- Height: 1.72 in (43.7 mm)
- Width: 17.14 in (435.3 mm)
- Depth: 20 in (508 mm)
- Environmental: 5°C to 40°C operating, -40°C to 70°C non-operating

### Operating System

- Red Hat Linux

### Hardware Availability

- Dual RAID 1 disks, hot swap, front accessibility
- Dual 1+1 power supply, with dedicated fans, hot swappable, rear accessibility
- Quad fan sub-system for CPU and network cards
- Redundant network connections

## Technical Specifications *(continued)*

### Storage

- For OS, media/xml cache, and local files
- 73 Gb SCSI disk (x 2 configured RAID 1)

### Power

- Dual 600 W AC
- Dual 600 W DC

### Management

- Web Management Console
- Usage indication: CDR reporting
- Detailed event logging with configurable levels
- Front panel visual: info/minor/major/critical
- SNMP v2/v3
- Lights-out management, restart
- IPMI 1.5 compliant
- DB-15 telco alarm connector

### Environmental

- 5°C to 35°C operating
- -40°C to 70°C non-operating

### Compliance

- Safety, EMC, Telco, NEBS-3/ETSI-designed
- May be approved as NFV2122A or NFV2122B

### Capacity per server, audio

- VoiceXML: 240 ports
- PSTN: 240 ports
- 160 3-way conferences
- Capacity upgrade through software license

### Capacity per server, video

- VoiceXML: 120 ports
- PSTN: 240 ports
- Capacity upgrade through software license

### Optional Video Transcoder Capacity (per unit)

- Capacity depends on codec, frame rate, bit rate, and size. For example:
  - At least 480 streaming ports of H.263/MPEG-4 transcoding/transrating
  - Up to 180 streaming ports of H.263 to H.264 (QCIF) transcoding

### Approvals, Standards, and Compliance

Hazardous substances: RoHS Compliance Information at <http://www.dialogic.com/rohs>

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