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White Paper

Mobile Video — A New Opportunity

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White Paper

Executive Summary

A rising demand for mobile video services is creating major new opportunities for both network operators and application developers worldwide. The growth of 3G networks is allowing mobile operators to open up new revenue streams by increasing subscriber adoption rates of unique and innovative applications and services. But mobile video is not a simple medium. Developers face stringent performance requirements, multiple interoperability issues, and a variety of other technical challenges. Fortunately, advanced platforms and toolkits from industry leaders such as Dialogic can shield developers from many of the technical complexities of mobile video and offer them the help they need to produce compelling and profitable applications quickly.

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The Growing Demand for Mobile Video Services

Consumers and business users alike have come to rely on mobile voice and data communications. Now demand is building for mobile video services as well. ABI Research believes that the move to all-digital TV will pave the way for mobile TV services that can "attract over 500 million viewers by 2013." [ABI] Add to this the revenue of other mobile video services and applications, and the market potential grows even larger. Infonetics projects worldwide mobile video service revenue to increase at a 5-year CAGR of 130%, reaching $35 billion by 2011 [Infonetics].

Traditional carriers see mobile video as a way to reverse declining Average Revenue Per User (ARPU) caused by the decline in revenue from voice-only services. Others, including application and infrastructure developers, see it simply as a major new opportunity. Wainhouse Research expects worldwide revenues for personal mobile video communications — including professional services, software, toolkits, and other infrastructure products — to grow to a billion dollar industry by 2010 [Wainhouse].

Mobile Video Service Examples

Dozens of video services are already available on the internet, and these services are beginning to be offered on mobile handsets as well. The services fall into two broad categories: consumer-oriented and business-oriented. The two lists presented here provide just a sample of mobile video service possibilities – and revenue opportunities.

Consumer-Oriented Mobile Video Services

Consumer-oriented mobile video focuses on entertainment and social networking:

- Mobile TV
- Video on Demand (VoD)
- Video sharing with family and friends
- Viral video sharing
- Video blogging
- Conversational video
- Video portal
- Video messaging
- Video SMS
- Multimedia ring-back tone
- Mobile advertising
- Social networking

Business-Oriented Mobile Video Services

Business-oriented mobile video services emphasize enhanced communications and collaboration:

- Interactive Voice and Video Response (IVVR)
- Conversational video
- Video sharing between a business and its customers
- Video training
- Video messaging and video SMS
- Video conferencing

3G-324M Enables Mobile Video

Mobile operators who understand the inherent challenges of deploying low-latency video applications with high service quality in a 3G network realize that it is important to focus on solutions that incorporate the 3G-324M protocol. Using solutions based on 3G-324M can enable the immediate deployment of video applications supporting a broad range of 3G handsets, with minimal network investment. Although other protocols are emerging that address the technical issues of deploying streaming video in low-bandwidth channels for digital video broadcasting on handhelds and for digital multimedia broadcasting, these protocols lack some of the advantages of 3G-324M and require investment in network resources and updated user handsets.

Widespread compliance with the 3G-324M standard has been an important ingredient in the growth of the mobile video market. Developed under the auspices of the Third-Generation Partnership Project (3GPP), 3G-324M is an umbrella standard for the delivery of real-time multimedia services over existing circuit-switched mobile networks. The 3G-324M specification provides for the multiplexing of audio, video, and H.245 signaling over shared 64-kbps TDM channels — the same channels in today's mobile networks. Within each channel, up to 42 kbps is allocated to video, up to 12.2 kbps to audio, and the remainder to signaling. With modern codec technology, this relatively modest bandwidth can deliver multiplexed audio, video, and control over the same channel while supplying a remarkably satisfying user experience.

A great deal of work has gone into the 3G-324M standard to optimize call setup time. Until recently, mobile video call setup could be uncomfortably slow; protocols such as the Number Simple Retransmission Protocol (NSRP) could take 10 seconds or more to establish a connection. Although Windowed NSRP (WNSRP) improved on NSRP, the more recent Media Oriented Negotiation Acceleration (MONA) call setup enhancement (an ITU-T standard) promises further breakthroughs by bringing mobile video call setup times in line with traditional call setup.

Worldwide, more than 100 network operators and 50 million subscribers are already using 3G-324M. Support for 3G-324M in mobile handsets is pervasive in Europe and Asia and beginning to take hold in the Americas. Compliance with 3G-324M by an expanding range of mobile devices can make it possible for service providers and application developers to leverage their efforts across a major portion of the global market. The 3G network build-out resulting from the WCDMA license recently awarded to China Unicom and the widely anticipated 2009 auction of 3G licenses in India should sustain the rapid rate of growth of mobile subscribers using 3G-324M handsets.

Mobile Video Application Requirements

Mobile video is not a simple medium, and standards compliance is only one step towards successful applications. Application developers must overcome a number of other technical challenges before they can claim their share of the mobile video market opportunity. Several of these challenges are discussed in this section.

Using IP-Based Media with TDM-Based Devices

One challenge in creating mobile video applications is making IP-based media work with TDM-based user devices. The 3G-324M standard is designed for 64-kbps TDM channels, but most video is targeted for IP networks, which are packet-switched networks with their own signaling and transport protocols that generally handle video at rates greater than 64 kbps. (Figure 1 illustrates this situation, and notes the marked difference in network speeds.) Transporting video directly over mobile networks via IP would eliminate some of the interoperability issues, but IP-based mobile video does not always match the responsiveness achievable with 3G-324M. In addition, mobile network operators have a large investment in TDM-based networks, which they do not wish to abandon. For this reason, 3G-324M, which leverages the existing TDM infrastructure, billing systems, and so on, appears likely to remain the standard for real-time multimedia over mobile networks for the foreseeable future. The result is that mobile video applications — or the underlying infrastructure — will have to mediate between TDM-based 3G-324M protocols and packet-based IP protocols for some time to come.

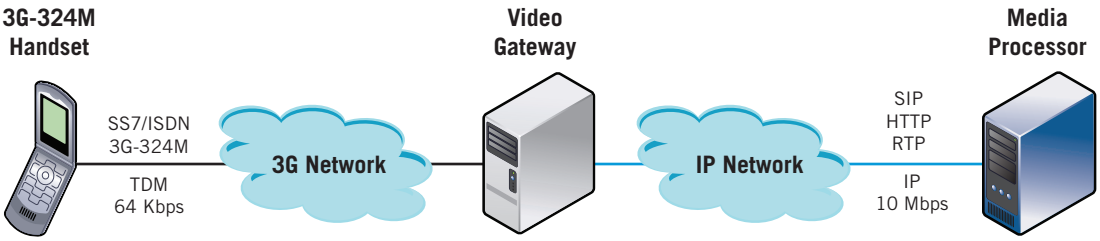

Figure 1. IP-Based Media Must Work with TDM-Based User Devices

Coping with Diversity

To reach the maximum number of subscribers, video applications must cope with diverse endpoint devices, which consist of a wide variety of mobile handset types with different screen resolutions, aspect ratios, frame rates, bit rates, and so on. This situation forces the video delivery infrastructure to adjust media streams on the fly for optimal viewing on each type of device. Likewise, multiple video codecs (H.263, MPEG-4, and H.264) are in use, each with different characteristics. To reach the largest audience with the most applications, the infrastructure must translate between diverse encoding schemes without unduly degrading video or audio quality. Efficiently matching the bitrates used by the sending and receiving devices is very important for maintaining video quality.

Bandwidth Constraints

The challenge of obtaining the highest quality video delivery while using the lowest amount of network bandwidth is critical for mobile devices and has led to significant innovation. Popular video compression techniques have been surpassed by the newer H.264 standard, which can improve compression 200% to 300%.

In order to take advantage of H.264's improved compression scheme and adapt it to different screen capabilities, the video content is transcoded and transrated. Transcoding is a fundamental network-based video-processing operation in which one video format is decompressed to a raw stream, which is then compressed into another format. Transrating matches speeds to enable connectivity between broadband and mobile networks. These operations are optimally done in the network, minimizing the bandwidth required to transmit the content and alleviating the handset of processor-intensive adaptation operations.

To maintain video quality, the infrastructure must also support a feature known as Video Fast Update (VFU). A video media stream is comprised of a reference frame (I-frame), which encodes a complete video picture, followed by a series of "delta" frames that encode the changes since the last reference frame. Some video sources send only a single reference frame at the beginning of each session, while others send reference frames at regular intervals. Sending frequent reference frames increases picture quality, but comes at the cost of consuming more bandwidth. A mobile video application must strike a delicate balance between video quality and bandwidth consumption.

Often a receiving device requires an "unscheduled" reference frame to recover from network errors or to start a recording session. A terminal device on the TDM side of the network can send or receive a 3G-324M VFU request to or from the IP side of the network, requesting a reference frame. A terminal device on the IP side of the network can send or receive a VFU request embedded in a mid-session SIP INFO message. To deliver top-quality video, the infrastructure must be able to interpret both types of VFU requests and promptly return valid reference frames.

Interactivity

Interactivity presents further challenges. A video portal, which gives users access to multiple TV channels and other services, is a good example to study. The portal displays service menus based on each user's activities, access rights, service subscriptions, and so on. Typically, the menu is a numbered list, and users press the corresponding key on the handset to select an option. (Figure 2 provides a sample illustration of how a dynamic menu can be mapped.) To create the menu, the application controls the infrastructure, which dynamically generates the numbered list and displays it as a static overlay on top of the current video stream. This same technology can be used to display logos or text for branding or targeted advertising based on the user's activity or location.

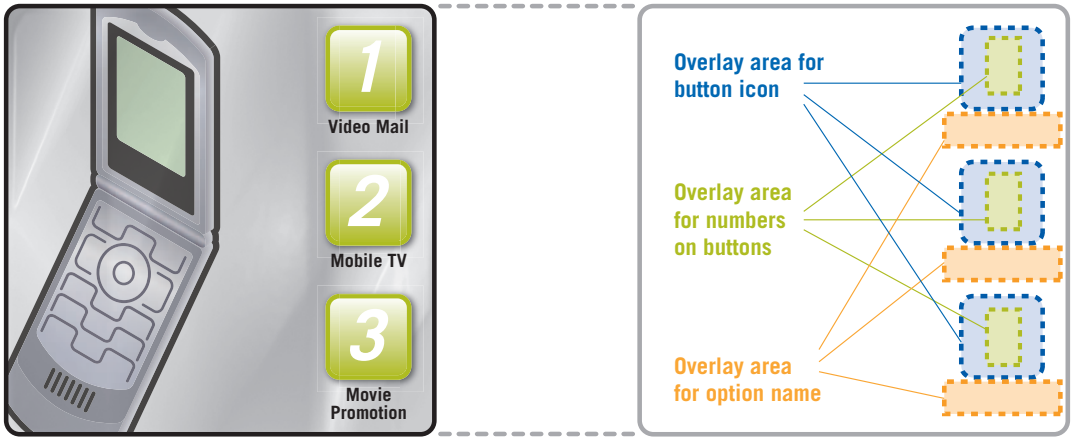

Figure 2. Dynamic Menu Generation Map

Along with displaying menus, the portal must accept user input (most commonly DTMF tones when the user presses a key to make a selection) and switch to the appropriate channel or service. On the TDM side of the infrastructure, the DTMF tones may be carried as in-band audio or encoded as H.245 control messages. On the IP side, the tones may be carried as media, or they may be represented in SIP INFO messages. To support the widest range of terminals, networks, and applications, the mobile video infrastructure must accept and translate between the various tone-carrying techniques.

Mobile Video Architecture

To meet the challenges of delivering high-quality mobile video, the architecture supporting an application requires several components as shown in Figure 3: video gateways, transcoders, application servers, media servers, and mobile handsets. The functions of these components are discussed briefly in this section.

Application Servers

An application server hosts the application, which provides the business logic for a service and oversees interactions with users. An application controls or cooperates with other network elements to display service selection menus, authorize subscriber access, set up and tear down sessions, switch between different content sources, generate billing records, and provide other functions. An application rarely "touches" actual audio and video streams. Instead, it controls control the elements — media servers and gateways — that generate or manipulate the media.

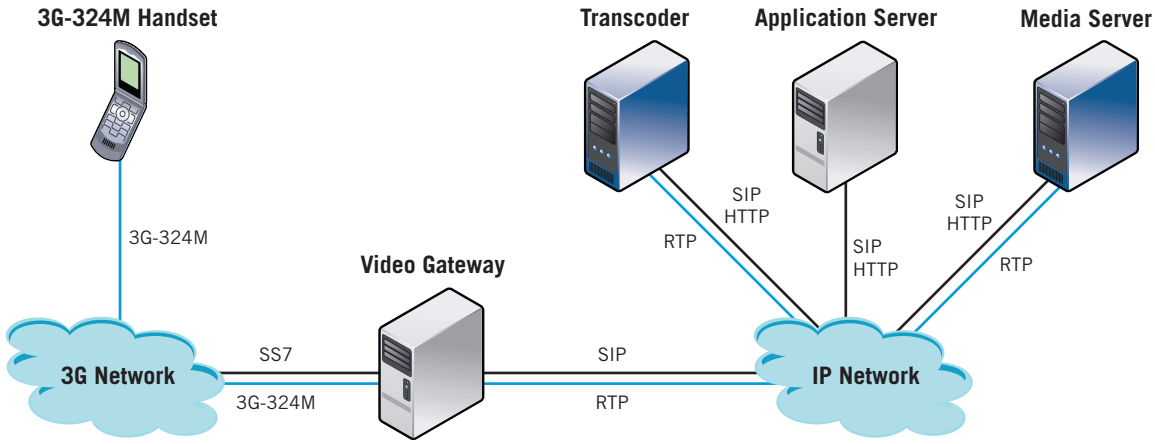

Figure 3. Basic Components for Mobile Video Services

Components for Core Functions

Gateways, transcoders, and media servers constitute the "core" of an architecture that delivers mobile video.

Gateways

Essentially part of the transport infrastructure, gateways address the challenge of network interactivity. A 3G-324M-to-IP gateway, for example, interfaces between a TDM-based mobile network and an IP network. It multiplexes and de-multiplexes audio, video, and control streams on the TDM side, packetizes and depacketizes media on the IP side, and translates between 3G-324M and IP signaling and control protocols. A 3G-324M-to-IP gateway allows video stored on IP-based servers to be viewed on 3G mobile handsets without requiring an IP client, and allows video encoded on 3G handsets to be received by IP-based terminals, such as media servers. Similarly, a gateway supports the interoperability between 3G-324M and IP devices in conversational applications.

Transcoders

Transcoders resolve codec mismatches. For example, a media server might use an MPEG-4 codec operating at 250 kbps while a mobile handset requests H.263 video at 42 kbps. To resolve this difference, a transcoder converts between the two encoding schemes as the video flows between the endpoints. A transcoder control application allows other network elements — for example, gateways or application servers — to request transcoding services and specify the operations to be performed. Transcoders also resolve bit-rate mismatches with transrating services. In addition, the transcoding concept can be generalized to include audio functions, such as DTMF handling, and additional video functions, such as image and text overlay.

Image and text overlay applications have a variety of uses, such as dynamic menu generation, special effect creation, assistance for the hearing impaired in interpreting content, and help in ensuring Digital Rights Management. Such applications require that video content be converted to its uncompressed (raw) format, and then combined with additional content (such as a text crawl at the bottom of the screen) before recompression and packetization.

The transcoding function is sometimes performed by a stand-alone transcoding element, but it is commonly combined with a gateway. Combining the functions can help reduce both the footprint of network equipment and operational complexity.

Media Servers

Media servers "sit" between the applications and the transport network, providing general-purpose audio and video processing functions under application control, to deliver a variety of services. Here are a few examples:

- **Messaging or announcements** — Messaging servers are media servers that can record and playback short audio/video streams. For mobile applications, they can play and record media to and from 3GP and other industry-standard or proprietary multimedia container formats. Messaging servers are useful for video mail, playing short multimedia clips, multimedia ring-back tones, and other popular applications.
- **Streaming video** — The Real Time Streaming Protocol (RTSP), developed by the IETF, is a popular means of enabling streaming video. RTSP allows a client to remotely control a streaming media server, using VCR-like commands such as "play," "fast-forward," and "pause." RTSP servers are often used in conjunction with a media server for applications such as video portals, which stream a wide variety of content.
- **IVVR** — Video-enabled media servers that support VoiceXML can provide a convenient interface for the deployment of IVVR applications. In addition to playing and recording audio and video media, they may also support advanced functions such as speech recognition or speech synthesis. The actions of a VoiceXML-capable platform, including real-time interaction with users, are driven by VoiceXML scripts. The standard VoiceXML language, although intended for voice applications, can be used for video applications as well, without modification to the language. VoiceXML brings to video application developers the same benefits that have made VoiceXML so popular for speech applications — dramatic reduction in the effort required to build, modify, and maintain interactive applications.

Mobile Video Implementation

End users are seldom interested in the difficulty of the technical challenges of mobile video. They expect the same quality, reliability, and responsiveness as broadcast TV, and will not be satisfied unless mobile video measures up. Other expectations include:

- High video quality, regardless of the type of mobile device used
- Perfectly synchronized audio and video
- Easy access to a rich catalog of entertainment and information
- Immediate response when a video source is selected or a video call is placed

Unless mobile video services meet all these expectations, the mobile video market will not realize its full potential.

Practical Tactics for Meeting Expectations

Advanced hardware and software technology, designed specifically for mobile audio and video, can help developers satisfy customer demands and high expectations. One shortcut, which can reduce development time, deployment costs, and time-to-market, is using advanced platforms and toolkits from innovative component providers such as Dialogic. Using proven components can shield developers from unnecessary complexity and allow them to focus their resources on their special area of expertise — the mobile video application.

The components described in the architecture discussion of this paper require specialized knowledge and advanced technology. The algorithms are highly sophisticated — for example, simultaneous transcoding and transrating — and components must operate in real time and with minimal latency to maintain the quality, reliability, and responsiveness that users require. Moreover, the technology must be continually updated to keep pace with evolving standards and innovations. If application developers were forced to design, implement, and test advanced hardware and software themselves, costs would be very high and video service applications would very likely be too late to a volatile and demanding market to be competitive.

How Dialogic Meets the Challenge of Mobile Video

Video components from Dialogic provide effective tools and environments for developing flexible and scalable mobile video applications. Video and transcoder APIs can provide a proven foundation for a wide range of powerful applications, including 3G-324M-to-SIP gateways, IP video media adaptation servers, and wireless video messaging and streaming servers. Developers can quickly implement new video-based applications using flexible video and transcoder APIs in conjunction with an easy-to-use development environment, or by using the high-density media processing capabilities of host media processing software to build robust solutions and components, including 3G-324M video servers and gateways for 3G wireless networks. Dialogic also offers a highly integrated, carrier-ready platform that can further simplify the development of interactive voice and video applications.

To check the effectiveness of its mobile video products in real-world networks, Dialogic takes a leadership role in the interoperability testing activities of the International Multimedia Telecommunications Consortium (IMTC). Through rigorous inter-vendor testing, Dialogic works to enable the compatible operation of its products in multi-vendor infrastructures. Frequent testing cycles help Dialogic reach early compliance with emerging 3G-324M standards components such as MONA.

Dialogic® Products for Mobile Video

Dialogic provides mobile video components and platforms that help meet the challenges of heterogeneous networks, endpoint diversity, video quality within bandwidth constraints, and interactivity. These products include:

- **Dialogic® Vision™ VX Integrated Media Platform** — An appliance compliant with W3C VoiceXML. With the Vision VX Integrated Media Platform, network connections for ISDN, ISUP, SIP, and IMS are transparent to application developers, as well as the intricacies of managing complex video processes. Developers can rapidly create and deploy sophisticated VoiceXML-controlled voice and video services without spending valuable time and resources mastering the intricacies of low-level tools and components. In addition, the Vision VX Integrated Media Platform includes an optional 3G-324M gateway.
- **Dialogic® Vision™ CX Video Gateway** — An appliance that provides the gateway functionality to connect SIP-based video and multimedia services to both PSTN endpoints and 3G-324M mobile video-enabled phones. Rich multimedia applications can be quickly prototyped and deployed using the gateway's standards-based CCXML interface to ease call control programming. The ability of the Vision CX Video Gateway to simultaneously support voice-only calls simplifies the routing and switch logic needed for both video and voice services, and its integrated ISDN and SS7/ISUP signaling enable efficient integration into carrier network environments.
- **Dialogic® NaturalAccess™ Video Access Toolkit** — Software that includes a 3G-324M gateway API and a messaging server API. Compatible with industry-standard hardware and operating systems, these APIs control 3G-324M gateway and messaging server software engines that run on Dialogic® CG Series Media Boards to provide high-density voice and video processing platforms.
- **Dialogic® Software Video Transcoder (SVT)** — Two software modules for transcoding are provided. The Video Transcoder Platform (VTP) supplies transcoding resources for industry-standard hardware and operating systems, along with the Transcoder Resource Controller (TRC), an API through which applications can control VTP resources. SVT supports a wide array of video transcoding and transrating services as well as specialized media processing functions such as dynamic menu generation and video fast update.
- **Dialogic® Host Media Processing (HMP) Software for Linux** — Media server software that performs media processing tasks on general-purpose servers without requiring specialized hardware. Dialogic HMP Software supports the initiation and termination of multimedia calls, which include SIP-based call control as well as 3G-324M transcoding for 3G applications. Dialogic HMP Software synchronizes voice and video streams for playback on IP video phones and video-enabled soft clients and connection to a 3G network. Dialogic HMP Software can also deliver only the audio portion of a video call to an audio-only endpoint for 3G/2G gateway functionality.

- **Dialogic® IP Media Server** — A robust, software-based product that leverages the simplicity and openness of SIP, VoiceXML, and MSCML to provide a cost-effective and scalable IP media server solution. The IP Media Server supplies rich multimedia processing capabilities for video play and record, conference mixing, speaker identification and verification, simultaneous play/record, audio transcoding, DTMF tone detection, and fax tone detection. These capabilities can be used to power a broad range of solutions that require a media resource function. The IP Media Server is field-proven on a wide range of industry-standard hardware platforms and is suitable for deployment in wireline, wireless, and broadband networks, including the IMS network architecture.

Video Success Stories Using Dialogic® Products

Dialogic products have already been proven in a variety of video applications. A selection of these success stories is included in this section.

Video Yellow Pages: Bay Talkitec

A leading provider of communications-technology platforms and business-enabling solutions based in India, Bay Talkitec (BTT) recently won a Dialogic® Innovator Award for its pioneering Video Yellow Pages, a business solution based on a Video Portal model, which uses SMS for easy access, 3G mobile for convenience, and video for content.

BTT created the new solution quickly with its SmartCall ADT, a development platform, and the latest video enhancements to Dialogic HMP Software for Linux, and then deployed it using the SmartCall converged application platform. Dialogic® HMP Interface Boards (DNI Boards) provide a video gateway that connects SmartCall to the mobile network. Development took only a few days and the TDM-based technique BTT uses for video streaming costs significantly less per call than packetized delivery.

The Video Yellow Pages solution capitalizes on the interest in Asia Pacific in accessing short pieces (songs, movie trailers, and videos) by entering a code into a mobile phone. By applying this technique to a business application, BTT created a business directory that can be used in many different ways to deliver customized content in convenient video messages.

For example, the Video Yellow Pages service allows trade show attendees to review the offerings of the exhibitors at an event from their homes or offices or while waiting at airports or in train stations. Attendees simply send an inexpensive SMS message with the exhibitor's name or code to initiate a video push. They then see short videos that introduce the companies exhibiting at the show and their products – and the videos are streamed free-of-charge, normally at the respective exhibitors' expense. Attendees can then plan their trade show time efficiently and at their leisure – and in a very entertaining way.

A similar technique can be used in mobile advertising. Prospective customers might see an ad with a special code in a magazine or on a billboard. By inputting the code into a mobile phone, prospects can immediately view a short video about a luxury car, an exotic vacation destination, or some other enticing product or service. Because the video is interactive, prospects can choose from a variety of options during the video clip by pressing specific keys on their phone's keypad. They can connect directly to a sales representative to become eligible for a special offer or price, order a brochure, enter a contest, or make an immediate purchase. In this way, advertisers can also identify prospective customers for future campaigns.

Innovative Real-World Video Solutions: OASIS Systems

Since 1988, OASIS Systems has been a leading telecommunication solutions provider, dedicated to delivering high-performance solutions quickly. Utilizing its key strengths, OASIS offers the OASIS Multimedia Platform, an open-standards-based telephony platform that delivers high performance, high scalability, and high availability. The OASIS Video Web Gateway allows person-to-person video calling and video conferencing, using a standard web client with no special client software.

Based in Australia, OASIS Systems also has almost two decades of experience with Dialogic® products, and has been working with Dialogic HMP Software since its original Linux beta version in 2004. OASIS also uses DNI Boards and the Dialogic® Multimedia Kit (MMK).

The OASIS IN Platform is an excellent choice for developing video applications for several reasons: its flexibility and scalability, its ability to handle both circuit-switched and VoIP environments, its heritage of handling robust interactivity, and its use of open standards such as VoiceXML. With fully integrated CAMEL support, the OASIS IN Platform is also field-proven through wide use in carrier-grade environments running mission-critical applications.

Video applications currently available from OASIS include:

- Video and Voice Mail
- Video Web Gateway
- Video Dating
- Video Content Portal and IVVR
- Video Chat
- Video Blogging and User-Generated Content
- Video Avatar (Person-to-Person and Multi-Party Chat)
- Video Advertising
- Interactive Video Promotions
- Video Conferencing
- Video-Enabled Contact Centers
- Video and Voice Color Ring-Back Tone
- Video Gaming
- Video and Voice Call Completion
- Video Gateways (3G to Web, 3G to IP, and 3G to 2G)
- Video and Voice Media Server (Network-Agnostic)

Mobile Video Portal: Golden Dynamic

Golden Dynamic, one of Asia's leading providers of mobile entertainment applications and content management platforms, recently won two prestigious awards for its VOIR Portal, a 3G video portal application built on the Dialogic® Vision™ VX Integrated Media Platform. The Vision VX Integrated Media Platform provides a solid foundation for building self-service voice and video applications and deploying them in different types of networks.

Golden Dynamic's VOIR Portal, for example, can simulate the conventional TV user interface for instant channel selection and content switching on 3G mobile phones. The VOIR interface requires minimal "clicks" to access video content, which is a much friendlier experience than the traditional one of browsing through numerous WAP menus to access content. VOIR also includes a comprehensive system for content management, subscription, and billing.

VOIR is easily customized to meet the different needs of telecom operators or content owners, and can provide an attractive interface that mobile operators can use as a front-end to interactive content that can increase ARPU, create customer loyalty, and offer distinct brand differentiation.

Mobile operator CSL, a pioneer in the mobile communications market in Hong Kong, has launched Hong Kong's first 3G mobile TV service using Golden Dynamic's VOIR Portal. Competition is increasing steadily in Hong Kong, and deployment of the first 3G mobile TV service is a significant differentiator for CSL.

Conversational Video: Interactive Media

Interactive Media, an Italian telecom solutions provider, is using Dialogic® toolkits and platforms to help Italy's largest telecom operator meet consumer demand for fixed-line home videophone service. Interactive Media designs and delivers high-performance systems for computer telephony applications in Italy and throughout the world. The company used the Dialogic® Software Video Transcoder (SVT), Dialogic® NaturalAccess™ Video Access Toolkit, and other Dialogic® components to implement a conversational video gateway between 3G mobile videophone users and fixed SIP-based videophone users in their homes.

Conversational video is a natural evolution from person-to-person voice calls; however, conversational video is technically more complex. Conversational video calls may need to be completed between devices on different types of networks, for example, between 3G-324M-compliant mobile handsets on a 3G network and SIP softphones or handsets on an IP network. In Interactive Media's implementation, conversational video was enabled by enhancing the carrier infrastructure with specialized video gateway and video transcoder platforms based on Dialogic products. In addition, the video gateway took on limited media server characteristics by playing an audio/video "ring-back tone" while calls are waiting and by connecting the participants' media streams when calls are answered. Calls can originate or terminate from either side of the gateway.

Dialogic: Making Innovation Thrive™ in Mobile Video

The market for mobile video services promises to expand rapidly over the next several years. To exploit this opportunity, application developers and service providers must move quickly, providing innovative new services with the quality, responsiveness, and price points that users find attractive. But mobile video is a complex medium, presenting developers with a variety of technical challenges. Rather than spend valuable resources trying to solve component-level challenges, developers can rely on products from Dialogic. Platforms, software, and toolkits from Dialogic allow developers to concentrate on enhancing their innovative applications and create exciting, must-have, revenue-generating mobile video services.

The Dialogic products discussed in this paper provide a rich mix of options and opportunities for meeting the technical challenge of mobile video. They simplify development complexity, removing the necessity of mastering the details of 3G-324M compliance or video transcoding. These platforms and toolkits also help developers address specific performance and cost requirements. For example, to enhance scalability, certain video functions might best be delivered on a dedicated server. For more cost-sensitive situations, functions might be combined on the same server or platform. Whatever the requirements, flexible mix-and-match platforms, toolkits, and other components from Dialogic help developers bring their applications to market more quickly and at an attractive price point.

For More Information

Dialogic® Host Media Processing Software for Linux

Dialogic® NaturalAccess™ Video Access Toolkit

Dialogic® Software Video Transcoder

Dialogic® CG Series Media Boards

Dialogic® Vision™ CX Video Gateway

Dialogic® Vision™ VX Integrated Media Platform

Dialogic® IP Media Server

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