Dialogic®

White Paper

Building a Multimedia Ring Back Tone Service with Dialogic® Multimedia Platform for AdvancedTCA Product

Executive Summary

Multimedia Color Ring Back, referred to herein as Multimedia Ring Back Tone (MRBT), is one in the family of video services that has excited the interest of users and service providers. This white paper focuses on the MRBT service and a variety of implementation approaches using Dialogic® products in order to show how MRBT can be actualized through the use of Dialogic® building blocks and appliances to provide a high quality robust service solution in mobile environments. The Dialogic-based AdvancedTCA (Advanced Telecommunications Computing Architecture) platforms provide a scalable, flexible and expandable solution for Next Generation network deployments. They allow for growth and incorporation of new services, enabling service providers a cost-effective roadmap to stay abreast of evolving user needs and marketplace requirements.

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Introduction

With the explosion of the wireless market segment and the emerging deployment of 3G networks, service providers are seeking to develop features and services that take advantage of the multimedia capabilities these maturing technologies offer. By doing so, they hope to launch innovative value-added services that will ultimately generate new profitable revenue streams to keep existing subscribers, as well as attract new ones, to the Next Generation (NG) services. These services are intended to increase the Average Revenue Per User (ARPU), while being cost-effective to develop, deploy and maintain.

Service providers are embarking to deliver these new services, which include Video-telephony, Video Color Ring Back (Multimedia Color Ring Back), Video Conferencing, Video Mail, and Video Streaming. To quickly deliver these potentially lucrative services with the high quality customers expect, operators are seeking to deploy solutions that are flexible, scalable, easy to implement in their network infrastructure, and compatible with both Operations Support Systems (OSS) and Business Support Systems (BSS).

Spearheaded by the convergence of telephone systems with IP-based data networks, service providers not only are looking to offer such features, but also to capitalize on mobile content delivery. Mobile video is widely regarded by mobile operators, value-added service providers, and mobile device manufacturers as a spark set to ignite new mobile revenue growth to unparalleled heights.

Each video service presents a multimedia challenge in terms of implementation and network challenges (that is, call setup time, quality of service, lip synchronization, delay, interoperability between new and legacy networks, and a wide variety of mobile devices). Multimedia Color Ring Back, referenced herein as Multimedia Ring Back Tone (MRBT), is one in the family of video services that has excited the interest of users and service providers.

MRBT, an extension of the Color Ring Back Tone (CRBT) and Customized Ring Back Tone personal ring back service, introduces audio and video media to subscribers to further customize their mobile service. CRBT and Customized Ring Back Tone are synonymous for a type of personalized ring back service offered to mobile phone subscribers. This service enables subscribers to personalize the look and feel of their mobile communications with sounds, jokes, and user-recorded messages, and replaces the monotonous audio ring tones of the past. CRBT has achieved remarkable success in Korea, Japan, Singapore, Hong Kong, Taiwan, China and other Asia-Pacific countries [3G Americas]. Mobile operators have taken advantage of this innovative technology to attract new customers, reduce churn, increase APRU, and increase market share [China Daily].

Dialogic® Multimedia Platform for AdvancedTCA products are designed and created for demanding telecommunications environments, such as service provider Next Generation Network (NGN) deployments. Showcasing a robust feature set and world class performance, Dialogic MMP for ATCA products can address the needs of Telecom Equipment Manufacturers (TEMs) and other vendors that build next-generation multimedia solutions. Dialogic® products offer a comprehensive set of building blocks for enabling development of multimedia servers and gateways for various service solutions. This white paper describes how to utilize the features and capabilities of Dialogic® NG products to deliver an MRBT service to 3G mobile subscribers. It presents a generic MRBT solution showcasing Dialogic products for enabling deployment of a scalable service that is poised to meet today's requirements with the ability to expand as demand increases. The solutions enable service delivery across IP, TDM, and hybrid network architectures.

In addition, this white paper shows how Dialogic's solutions integrate into the Global System for Mobile communication (GSM) based network architectures. The discussion is limited to GSM systems due to the system's current worldwide popularity, with over 700 GSM mobile phone operators, across 218 countries, with more than 2.6 billion users [Poikselka], [WCISDATA].

This whitepaper assumes reader familiarity with basic telephony concepts, mobile technology, mobile architecture, and mobile frameworks. It also assumes knowledge of specifications as defined by Internet Engineering Task Force (IETF), International Telecommunication Union (ITU), and 3rd Generation Partnership Program (3GPP) standards organizations.

MRBT Value Proposition: Operators and Subscribers

MRBT offers personalized ring back tone service and provides the user with a multimedia-rich experience. The subscriber can personalize the calling experience for the

originating party by configuring a video clip to play during the ringing phase of call set up. Operators have the flexibility to determine how the content is created, purchased, and administered for particular subscribers. They can offer the service to support many content variations; for example:

- Content created by the called party for display to the calling parties or to specific called parties.
- Content created by third parties and selected by the called party for display to all calling parties or specific calling parties.
- Content relating to any group with which the called party or calling party is affiliated.
- Default content selected by the operator or network when the called party has not selected any.
- Content that is responsive to pre-determined preferences (such as adult content controls) specified by the calling party, called party, or operator.
- Advertising content selected by the operator or network, the calling party, or the called party.
- Content services comprising changing or timely content, such as news, sports or entertainment information.
- Locality-based content, such as information relating to the calling party's or the called party's locale.

Note: How the content is determined and its administration are outside the scope of this white paper.

Network Analysis

In general, when approaching a project a system developer will analyze the network topology, architecture, and other factors to determine a particular configuration solution, which tends to be based on factors such as the anticipated network traffic and operating environment. Although often not comprehensive, this analysis usually incorporates factors such as:

- Expected number of subscribers
- Average content type and size
- Location where content will be stored
- Content format strategy
- Archiving, indexing and search capabilities
- Expected call rate
- Deployment model (distributed versus coresident)
- Service provider evolution and migration strategy
- Network architecture (GSM, Release 99, Release 4, Release 5 (IMS), or some hybrid)

Service implementers account for these factors to determine a particular solution configuration. Upon analysis completion, implementers can select one of the solution set configurations described in subsequent sections for their MRBT service deployment.

Multimedia Ring Back Tone Implementation Models

Two basic models have been adopted by providers in support of personal ring back services. Dialogic®-based solutions support both models for MRBT service deployment. These models differ based on the provider's approach to managing the call control and handling aspects when the service is triggered. The basic models are:

MRBT Platform Control (MPC) Model — This model allows the MRBT platform to manage the call processing and content delivery aspects of the call. A network Switching Point (SP) detects that the call requires MRBT service and passes control to the MPC to complete the call and deliver MRBT to the calling party.

Network Switch Control (NSC) Model — This model involves incorporation of all service control logic in a network entity (that is, SP or Service Control Point [SCP]) and uses the media platform for delivering MRBT content only. No call processing is performed by the media platform.

Each model has characteristics that offer specific benefits and disadvantages that the service provider can consider when determining the Implementation model it will utilize. The following sections discuss the two models in more detail and present a side-by-side characteristic comparison of each. This white paper does not favor nor recommend any of the models discussed, as Dialogic® solutions support both. It is the responsibility of the service providers to assess which model best meets their needs.

MPC Model

The MPC Model allows the MRBT platform to manage the call control and media content delivery throughout end-to-end establishment between the two end points. This approach mimics how many service providers have implemented CRBT and consequently provides an upgrade path for those service providers. Enabling operators to support MRBT without changing their basic model for personalized ring back service can reduce their risk as well as shorten service TTM. The MPC processing sequence begins with a call origination, which is determined by a network switching entity (that is, serving GMSC) to terminate to an active MRBT subscriber; the call is then handed off to the MRBT server to manage both the forward and reverse legs. The server provides MRBT ring back to the caller (party-A), while establishing a connection to the destination (party-B); when the called party answers the call, the MRBT server terminates the video ring back to party-A and bridges the two legs of the call together. Note that in this model the MRBT platform will remain in the call for the duration of the call; it serves as a third party service controller that contains the service logic to deliver the multimedia content as well as manage the two call paths.

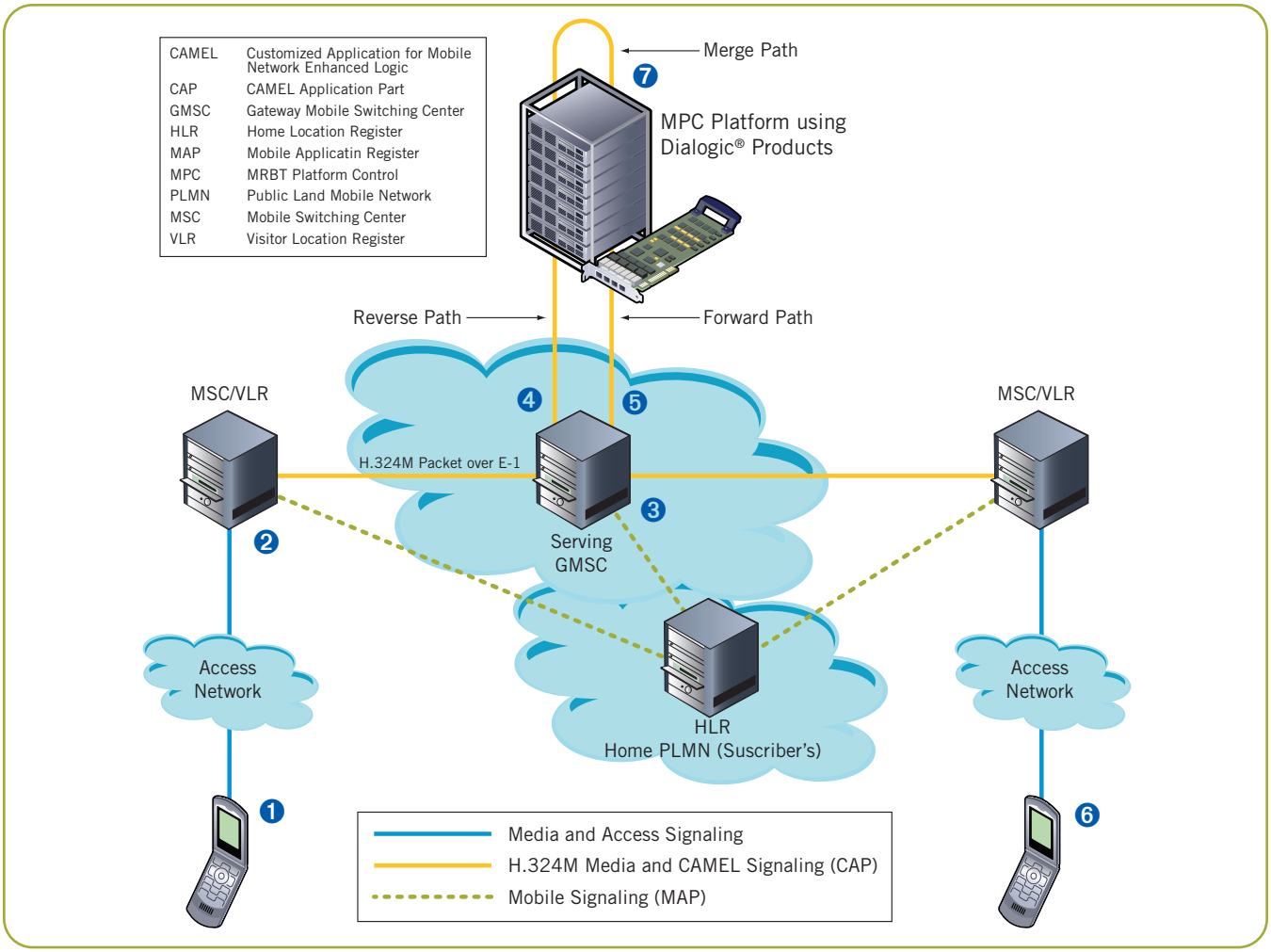

Figure 1. Multimedia Ring Back Tone Call Delivered Using the MPC model

Figure 1 depicts a high level interaction between network entities for a mobile-to-mobile call. The mobile network environment is Release 99 supporting H.324M for multimedia over TDM [3GPP O&S], [3GPP Release1999]. Both Party-A and Party-B have 3G compatible phones and are roaming outside their Home PLMN (the GSM network where the user is a subscriber). In this example, Customized Application for Mobile Network Enhanced Logic (CAMEL) and various network protocols (CAP, MAP, ISUP, BSSAP, etc.) provide the call control and information exchange in support of the MRBT service.

MPC Usage Sequence Flow

Figure 1 shows a flow of events that occurs when utilizing an MPC model to deliver MRBT service. The step-by-step (shown in Figure 1) sequence is discussed at a high level and summarizes the network and platform processing.

1. Party-A dials the mobile subscriber Party-B. The Access Network forwards the information to the serving Mobile Switching Center/Visitor Location Register (MSC/VLR) for Party-A.
2. The MSC/VLR determines the location of the Home Location Register (HLR) for the mobile terminated call (MTC). It queries the HLR for information about Party-B, then sends the call to the serving GMSC in Party-B's Home Public Land Mobile Network (PLMN).
3. The GMSC queries the HLR and gets subscriber information about Party-B, realizes that Party-B is an active subscriber to MRBT, and forwards the call to a Dialogic® MPC server.
4. The MPC receives the call and establishes a reverse media path to Party-A. It plays a designated multimedia clip back to Party-A. A billing trigger is initiated when this step completes.
5. The MPC also establishes a forward path of the call to Party-B via the GMSC, MSC/VLR and Access Network (AN), alerting Party-B of an incoming call.
6. Party-B answers the call and notification is sent to the MSC via the AN, MSC/VLR, and GMSC.
7. The MPC terminates the MRBT to Party-A, then merges the two legs of the call together.

Note: This model could be implemented with an SCP containing the service logic for managing the actions of the MPC and GMSC.

Network Switch Control (NSC) Model

The NSC Model approach allows the MRBT platform to function as a content provider only, without end-to-end management of the call. This model requires a network switch element (GMSC, SCP) to manage the establishment of both legs of the call, as in the previous model. The network entity establishes a connection with the MRBT platform and instructs it to play the multimedia ring clip. The network controller element (that is, SCP) establishes the forward path to the called party and determines when the two call legs should get bridged/merged. Figure 2 depicts how a mobile call is processed in Release 99 architecture utilizing this Implementation model.

Note that this model only requires a single trunk resource between GMSC and MRBT server. An optional signaling link between a Service Control Point (SCP) is shown, as it may be required, depending on the network.

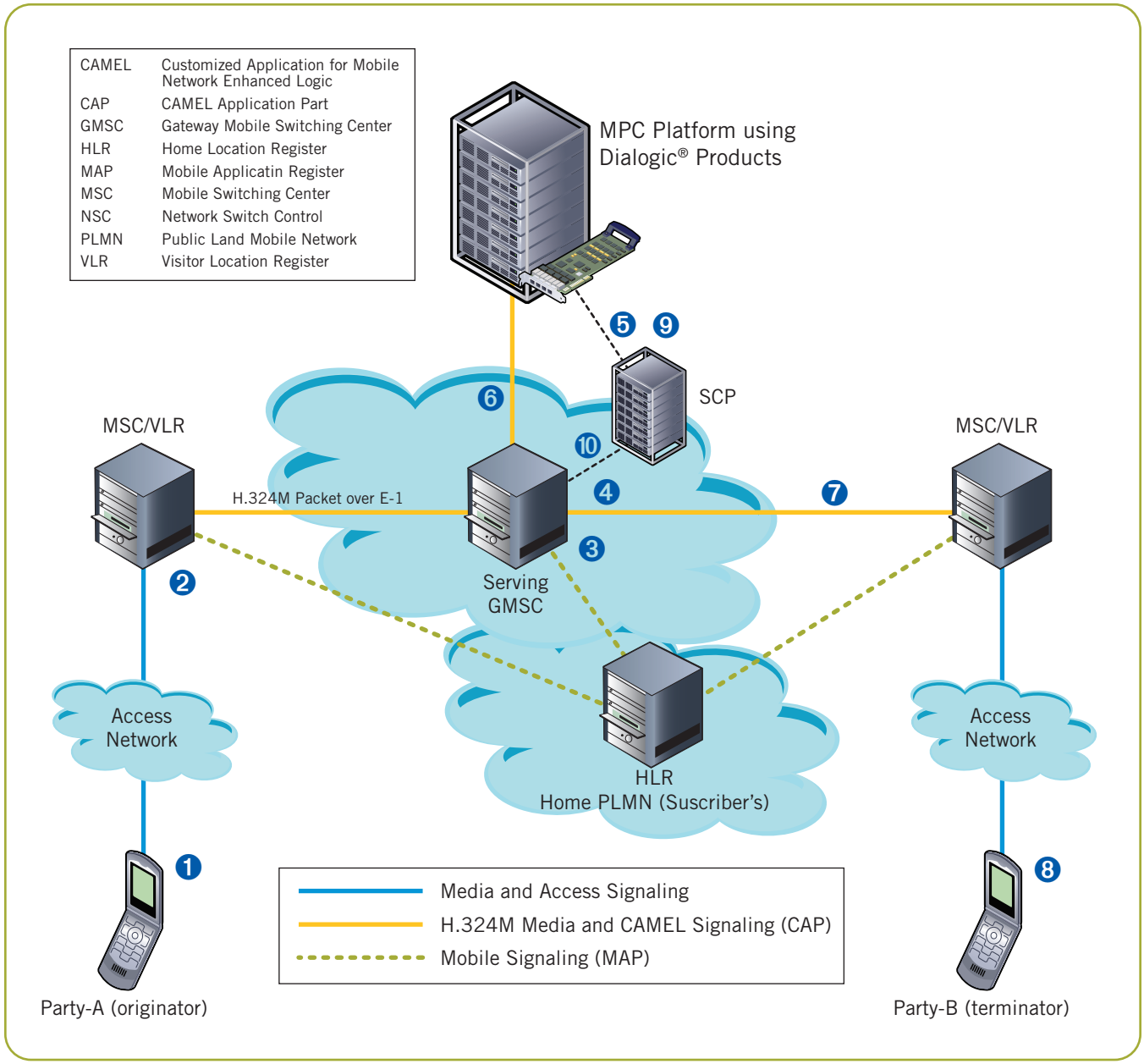

Figure 2. Multimedia Ring Back Tone Call Delivered Using the NSC Model

NSC Usage Sequence Flow

The following describes a sequence flow of events that occurs when utilizing a NSC model to deliver MRBT service. The step-by-step (shown in Figure 2) sequence is discussed at a high level and summarizes the network and platform processing.

1. Party-A dials the mobile subscriber Party-B. The Access Network forwards the information to the serving Mobile Switching Center/Visitor Location Register (MSC/VLR) for Party-A.
2. The MSC/VLR determines the location of the Home Location Register (HLR) for the mobile terminated call (MTC). It queries the HLR for information about Party-B, then sends the call to the serving GMSC in Party-B's Home Public Land Mobile Network (PLMN).
3. The GMSC queries the HLR and gets subscriber information about Party-B, and realizes that Party-B is an active subscriber to MRBT.

4. The GMSC triggers a dialog with the SCP, which will execute the MRBT service control logic for the call.
5. The SCP instructs the NSC/GMSC to establish a reverse media path to Party-A via NSC-GMSC-MSC/VLR-AN, and notifies the NSC to start sending the MRBT clip.
6. The NSC starts playing the MRBT clip via the reverse path established in step 5. A billing trigger is initiated when this step completes.
7. The SCP establishes a forward path of the call to Party-B via GMSC-MSC/VLR-AN, alerting Party-B of an incoming call.
8. Party-B answers the call and notification is sent to the SCP via the AN-MSC/VLR-GMSC.
9. The SCP instructs the NSC to terminate the MRBT to Party-A.
10. The SCP instructs the GMSC to merge the two legs of the call together and terminate the service dialog.

Table 1 presents a comparison of the two Implementation models and some characteristics associated with each.

	Benefits/Considerations	
Characteristic	**MPC Model**	**NSC Model**
Network Resources	Redirects call processing to the MRBT platform and offloads network switching resources Service control logic part of MRBT platform Requires two trunks to route calls results in tromboning	Service control logic is part of a network entity (that is, SCP) NSC only provides MRBT content Network handles Reverse, Forward and call merger Must ensure media compatibility Only requires a single trunk; no tromboning
Media Platform Resources	Requires two bidirectional channels per call Can perform transcoding, transrating, and transsizing when merging call paths	Requires one bidirectional channel per call
Call Service Processing Capacity	Reduced capacity during high traffic; more resources required per call Resource availability low (required for entire call) Native hairpinning or end-to-end renegotiation will increase capacity	Greater capability during high traffic; one channel resource required per call Resource availability high (required only during alerting)
Media Platform Engagement	Required for the duration of the call	Only required during call alerting phase

Table 1. Comparison of MPC and NSC Models

Accounting/Billing

The white paper does not address accounting, and in particular billing. It is not clear how billing will be charged when MRBT is deployed. The question of who gets charged when the ring clip is supplied to the caller (Party-A) is unsettled; does Party-A (the caller) get charged for the duration of the ring back or is this covered by the MRBT subscriber Party-B (called)? How is billing between competing service providers handled when roaming outside of one's Home Public Land Mobile Network (HPLMN)? Although not an issue with CRBT, billing can present a dilemma for MRBT, since a connection is established and multimedia content is delivered to the calling party.

This white paper does highlight potential trigger points for billing in both usage sequence flows presented. These points represent detection points that can trigger billing business logic for the MRBT service. The actual billing logic details and resolution to billing questions raised is outside the scope of this white paper.

Application Configuration Solution Sets

Solution set configurations for MRBT applications can vary depending on the design the service provider selects based on network analysis factors previously discussed. The service provider can either select a centralized or distributed model to introduce this service. The centralized model is geared more toward low density, enterprise deployments; however, it can scale to higher densities if necessary. The distributed model lends itself toward higher density service provider deployments.

Associated with each deployment model are multiple configuration options that provide additional solution flexibility for service designers and implementers and that can scale easily to accommodate future service growth. The following sections highlight a few Dialogic® solution sets that enable MRBT service deployment.

Coresident Application Configurations

A "coresident" solution configuration can provide a solution where the network signaling applications reside on the same server platform as the media processing and media access transport components. These configurations provide solutions that are considered cost-effective and easy to deploy.

Coresident Configuration 1: ATCA Solution Set

Figure 3 illustrates a solution with all ATCA components. The following is a brief description of each component:

Signaling SIU — The signaling SIU is a single ATCA SBC with RSI/ISUP/MTP signaling stack running on an AMC, which receives SS7 signaling from a MSC/GMSC via an ISUP link. It converts the signaling to Remote Signaling Interface (RSI) over an IP link to the MMP for ATCA.

MMP — The MMP is a Dialogic® Multimedia Platform for ATCA with Media resources and RSI signaling interface for SS7 over IP from the SGW. Multimedia is provided via a TDM interface, which sends 3G-324M data (audio, video and control) to the MSC containing the multimedia ring clip. The application interfaces to both SS7 signaling for call control and multimedia processing via a single API called Dialogic® GlobalCall/R4 API.

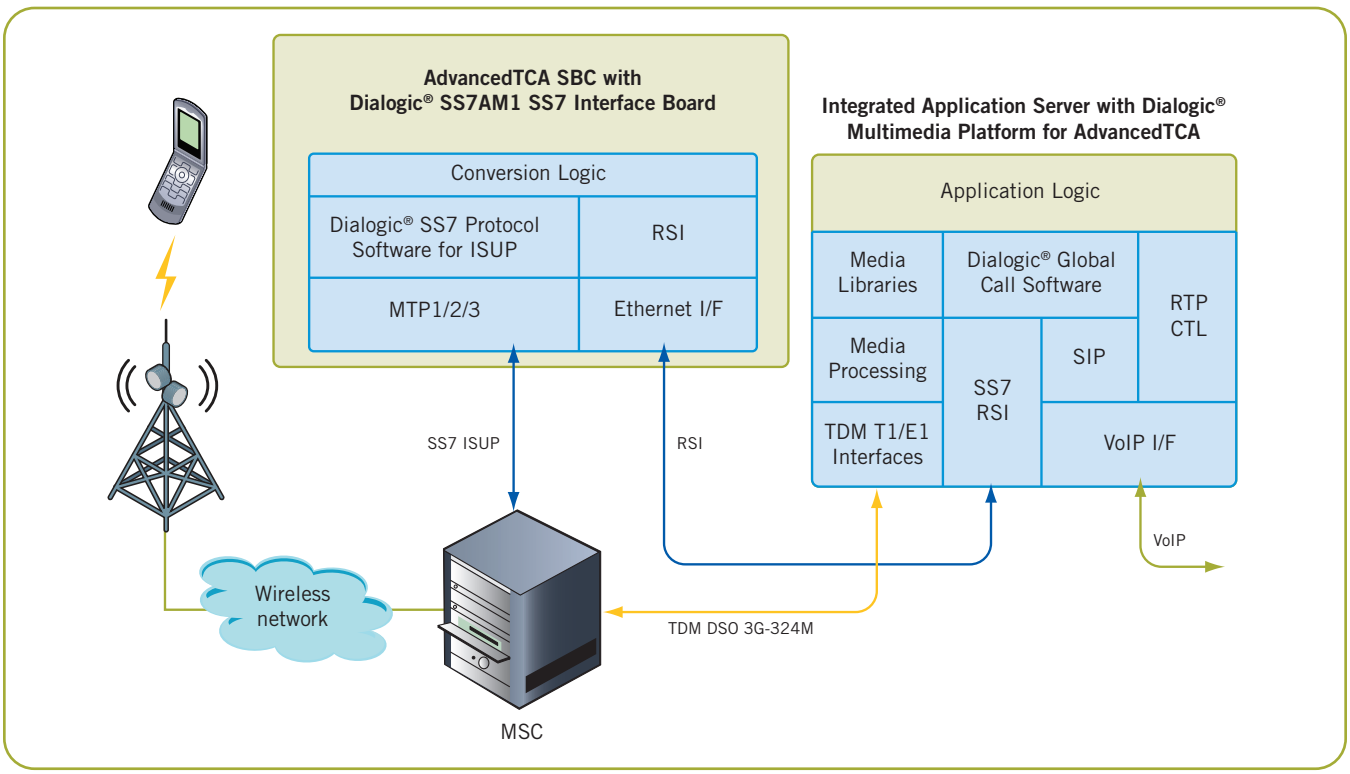

Figure 3. Coresident AdvancedTCA Solution Set

Benefits:

- Scalable to 740 ports of multimedia processing (3 MMPs: requires load sharing logic across MMPs)
- 240 multimedia ports per MMP for ATCA
- Good for moderate-volume signaling traffic (500K BHCA)
- Release 99 deployable

Coresident Configuration 2: RMS and ATCA Solution Set

Figure 4 illustrates a combination solution with ATCA and RMS components. The following is a brief description of each component:

Signaling Server — The signaling server is a 2U carrier grade RMS signaling server with SIU software running RSI/ISUP/MTP stack, which receives SS7 signaling from a MSC/GMSC. It interfaces with the MMP for ATCA via the RSI interface over an IP link.

MMP — Same as configuration 1.

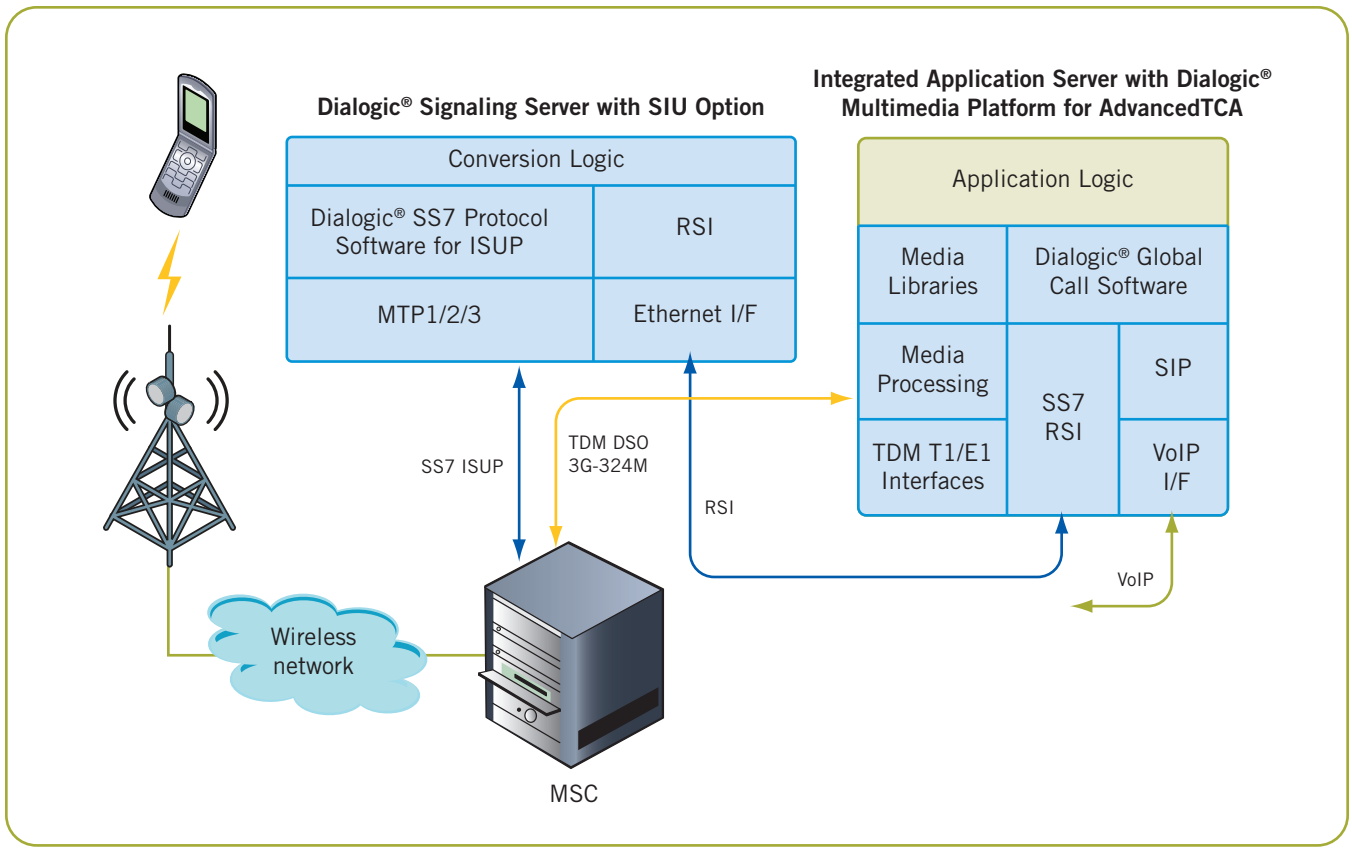

Figure 4. Coresident RMS and ATCA Solution Set

Benefits:

- Good for low-volume signaling traffic (<500K BHCA)
- Quicker TTM: SIU/SG is easy to deploy and configure
- Offloads call processing from MMP for ATCA
- Release 99 deployable

Distributed Configurations

This solution supports environments that require multiple multimedia processing servers that are strategically located within the network (distributed). The media servers are centrally controlled by a signaling application server processing call control via ISUP or BICC. The application server uses MSML media control protocol and SIP to manage media and establish sessions remotely. The following configurations highlight the supported configuration solution sets for MRBT.

Distributed Configuration 1: ATCA Solution Set

Figure 5 illustrates a distributed solution with ATCA components. The following is a brief description of each component:

Application Server — Co-located signaling server and Multimedia application server. The signaling is provided by ACM/ATCA with traditional SS7 stack. Also includes MSML client used for remote media control. Media session call control is provided by SIP.

Multimedia Server — An ATCA Multimedia Platform with Dialogic® Host Media Processing Software resources and protocol stacks. Multimedia is provided via a TDM interface, which will send 3G-324M data (audio, video and control) to MSC/GMSC containing the multimedia ring clip.

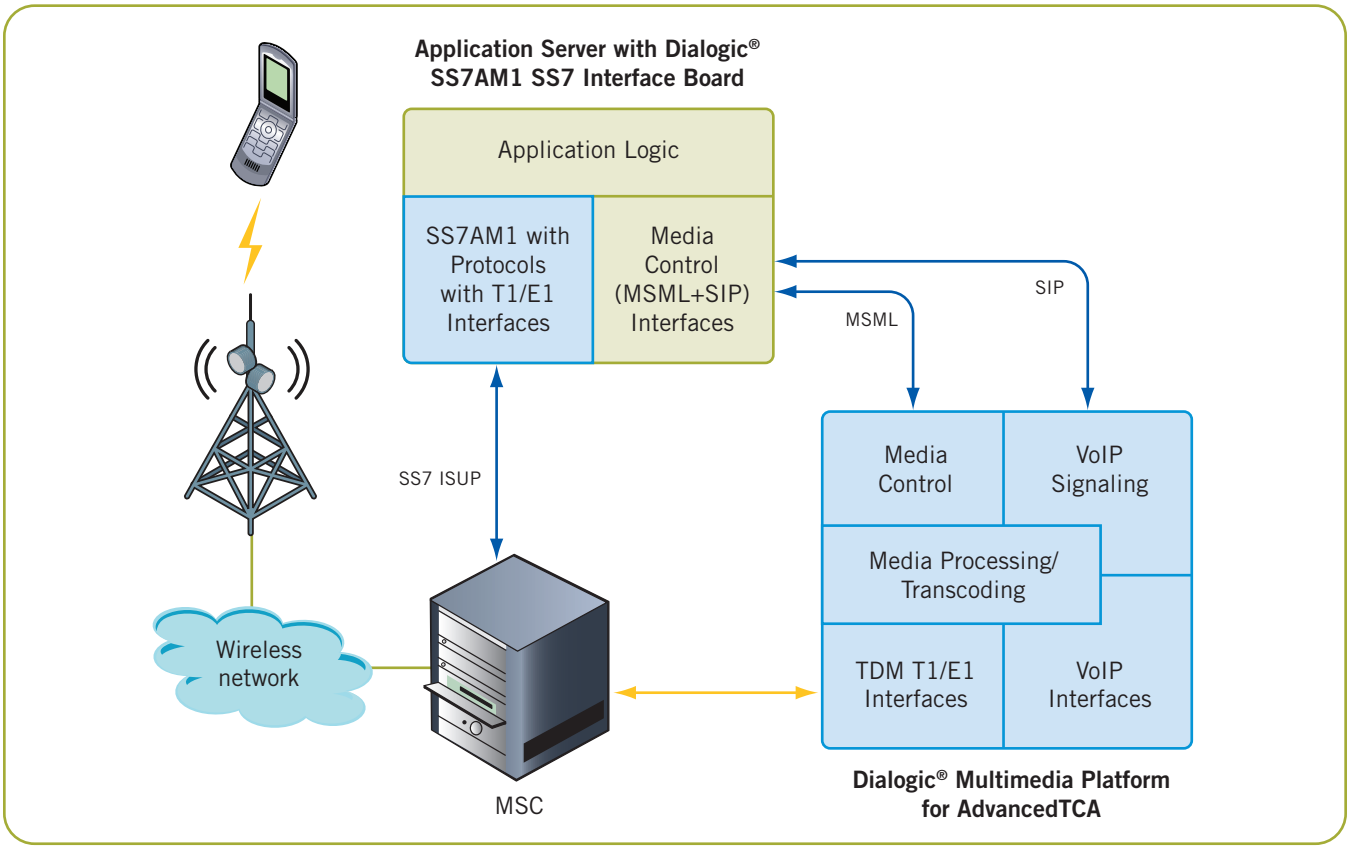

Figure 5. Distributed ATCA Solution Set

Benefits:

- Rapidly develop new applications in distributed networks with MSML
- Scalable to 960 ports of multimedia processing
- Lower footprint: 4 ATCA blades 240 ports of multimedia per MMP for ATCA
- Good for high-volume signaling traffic (>500K BHCA)
- Release 99 deployable

Distributed Configuration 2: RMS and ATCA Solution Set

Figure 6 illustrates a distributed solution with a combination of ATCA and RMS components. The following is a brief description of each component:

Signaling Server — The signaling server is a 2U carrier grade RMS signaling server with SIU software running RSI/ISUP/MTP stack, which receives SS7 signaling from a MSC/GMSC over ISUP links. It interfaces with the Application server via the RSI interface over an IP link.

Applications Server — Same as configuration 1, with signaling interface between Signaling Server via RSI/Dialogic® Global Call Software stack. Media Control is the same as configuration 1.

Multimedia Server — Same as configuration 1.

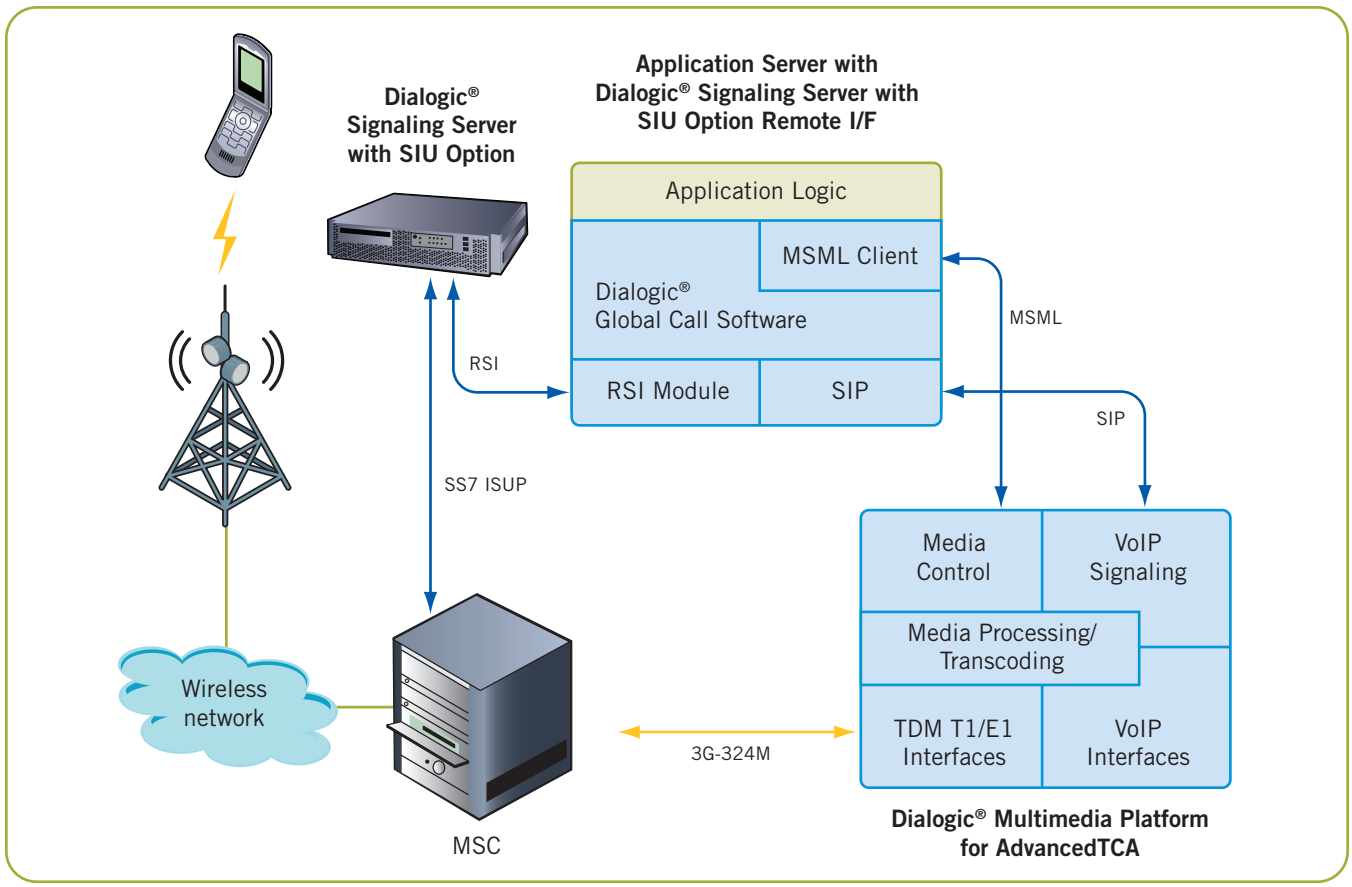

Figure 6. Distributed RMS and ATCA Solution Set

Benefits:

- Rapidly develop new applications in distributed networks with MSML
- SIU is easy to deploy and configure; can connect to up to 64 application servers
- Cost-effective for low-volume signaling traffic (<500K BHCA)
- RSI interface is a more cost-effective option
- Release 99 deployable

Distributed Configuration 3: RMS and ATCA for IP Based Solution Set

Figure 7 highlights a distributed configuration using a SIU/SGW signaling server between the core network and MMP for ATCA /application server. It converts ISUP SS7 call control signaling to SIGTRAN and forwards to the application server. The application server uses BICC instead of ISUP for bearer call control, which replaces the proprietary RSI protocol included in configuration 2. Media Control is the same as configuration 1.

Signaling Server — Signaling server is a 2U carrier grade RMS signaling gateway running a full SS7 ISUP and SIGTRAN protocol stack. It receives SS7 signaling from a MSC/GMSC over ISUP links and converts it to SIGTRAN/IP before passing it to the application server.

Application Server — Signaling and Multimedia application server. The signaling is provided by a GC/BICC/IP stack. A MSML client for media control and GC/SIP for session control is provided to the application.

Multimedia Server — Support for NbUP over IP is added, which delivers 3G-324M content to the MSC/GMSC.

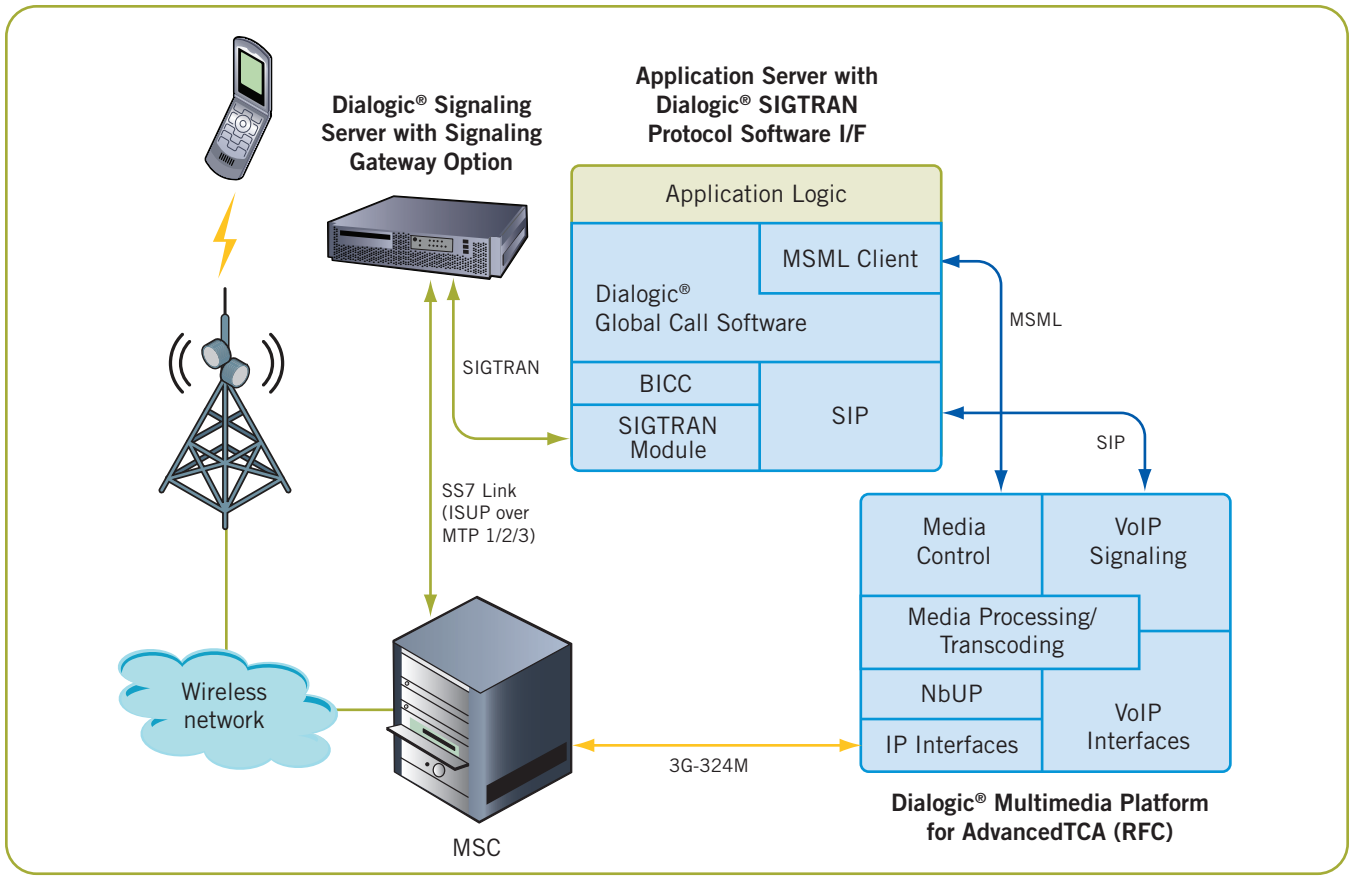

Figure 7. Distributed RMS and ATCA for IP Solution Set

Benefits:

- Rapidly develop new applications with MSML
- Scalable, distributable over multiple locations
- Release 4/Release 5 deployable

Multimedia Ring Back Development

The actual product selection (both hardware and software) and configuration will be influenced by the resolution of the factors mentioned in the Network Analysis section. Solution providers should thoroughly understand and address each factor before selecting a solution set configuration.

Multimedia Ring Back Solution Set Components

The Dialogic® components required to build a MRBT service solution consist of a Signaling Server, Application Server, and Multimedia Server. Solution configurations can combine functional components so they are co-located on a single server or separate servers, as previously mentioned. The following sections describe the Dialogic components used in the solution.

SS7 Signaling Server Components

Dialogic® Signaling Server with SIU Option — RMS Signaling Interface Unit (SIU) software provides an interface to SS7 networks for distributed application platforms via LAN. RMS offers two optional software packages, SIGTRAN Signaling Gateway and Digital Signal Conversion, which enable signaling and protocol interworking for a wide range of signaling protocols. It supports SS7 MTP and User Parts (ISUP, SCCP, TCAP, MAP, IS41/IS826, INAP/CAMEL), BICC, and SIGTRAN M2PA and M3UA protocols. For more details regarding this server, refer to Dialogic's product documentation on the Dialogic web site (see the *For More Information* section).

Dialogic® SS7AM1 SS7 Interface Board — AMC card for SS7 signaling and call control included in all ATCA solutions. The board supports 124 low-speed or 4 high-speed SS7 links and a comprehensive set of SS7 protocols. For more details regarding this board, refer to Dialogic's product documentation on the Dialogic web site (see the *For More Information* section).

Application Server Component

The application server contains the business logic application for MRBT. It processes the SS7 signaling from the signaling server and controls the multimedia server for delivery of the ring back content. Based on the deployment model and solution set configuration, the application can use Dialogic® APIs (that is, Global Call, DKAPI, MSML) to process and control network signaling and perform media processing. For more details regarding this server, refer to Dialogic's product documentation on the Dialogic web site (see the *For More Information* section).

Multimedia Server Component

The Multimedia Platform Server is available in AdvancedTCA/AdvancedMC or RMS form factors supporting IP, PSTN, and Next Generation 3G-324M interfaces. This component utilizes Dialogic HMP Software, which provides a universal API for session signaling (SIP) and media control. The Platform also supports MSML remote media control interface for media and session control. Refer to the product brief for more details at http://www.dialogic.com/products/ip_enabled/docs/10081_MMP_pb.pdf.

Dialogic® Multimedia Server Products

Dialogic® Multimedia Platform for AdvancedTCA is a powerful and cost-effective product that can be used to deliver MRBT, as well as a full array of video telephony services, provided to mobile and fixed video capable end users. The products offer a large range of signaling, media and interface protocols (for example, SS7 ISUP, AIN, IN, CAP, MAP, BICC, SCTP, M3UA, and NbUP). Dialogic offers a PICMG compliant SS7 AMC card (Dialogic® SS7AM1 SS7 Interface Board) extending signaling solutions to AdvancedTCA deployments. The SS7AM1 Interface Board supports 124 low-speed or 4 high-speed SS7 links to deliver scalable enhanced services such as messaging, prepaid calling, roaming, video portal, CRBT, and MRBT.

Dialogic diversified configuration solution sets can integrate into today's telecommunication networks, and offer a wide range of service flexibility that enables rapid development, with an eye toward increasing revenue potential and ROI.

Dialogic® products are offered that provide from 250 to 500 multimedia call sessions and configurations are available that scale to 1000 ports. The MMP for ATCA products enable connectivity between 3G-324M environments and IP-based domains. The signaling products coupled with MMP for ATCA provide building blocks for developing a variety of audio and video applications (for example, Video mail, Video portal, Video call center, push-to-talk [video], etc.). Next-generation Dialogic products that include Dialogic HMP

Software allow applications to manage media resources remotely in a client/server model. The client module uses a standardized MSML interface that exposes the media server functionality remotely.

Platform Features

The Dialogic® MRBT solution offers a considerable number of features that can enhance the service, maintainability, and increase operator and user experience, as well as provide a high ROI to the operator. For more details about these features, visit the Dialogic web site (see the *For More Information* section).

Summary

As the mobile network evolves toward fixed converged networks and legacy networks migrated to NG, more emphasis and excitement about providing subscribers with multimedia services and features is poised to occur. MRBT is just one of these features, which already has a deep-seated market base with CRBT.

Migration to IP, video, and wireless environments can create new market segment opportunities. New applications and services such as MRBT require more bandwidth, media processing, and signaling capabilities. Dialogic® media and signaling products address this need and provide the bridges to migrate services from legacy networks to NG. Products are based on the standard open modular AdvancedTCA and RMS architectures, and provide building blocks to support various deployment models.

The Dialogic HMP Software and MMP for ATCA products are high performance and high density media processing building blocks for multimedia-enabled applications, and can be used to deliver services such as video portals, Video IVR, Video Streaming, Video conferencing and, of course, MRBT. They are designed for next generation voice and video media processing solutions that leverage the state of the art technology. Dialogic's building blocks and appliances provide tools that can be used to create NG services, such as MRBT, and offer flexibility to the meet changing needs of the market place.

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Acronyms

3G 3rd Generation Mobile System, based on the 3GPP system specifications/interfaces. It uses UTRAN radio access network.

3GPP 3rd generation partnership program. The 3GPP was formed in December 1998 as a collaboration agreement bringing together a number of telecommunication standards bodies.

ATCA The PCI Industrial Computer Manufacturers Group (PICMG) specification for next generation carrier grade communications equipment.

BHCA Busy Hour Call Attempts (BHCA) is a teletraffic engineering measurement used to evaluate and plan capacity for telephone networks. BHCA is the number of telephone calls attempted at the busiest hour of the day (peak hour), and the higher the BHCA, the higher the stress on the network processors.

CN Core Network. An evolved GSM network infrastructure that includes new elements introduced with UMTS that integrates circuit and packet switched traffic. Some of the elements include MSC, VLR, HLR, SGSN, GGSN, Auc, and EIR.

GMSC Gateway Mobile Switching Centre. A Gateway Mobile Switching Centre provides an edge function within a PLMN (Public Land Mobile Network). It terminates the PSTN (Public Switched Telephone Network) signaling and traffic formats and converts this to protocols employed in mobile networks.

GSM Global System for Mobile communication. The Global System for Mobile communications is a second generation cellular telecommunication system.

HLR Home Location Register. Part of the CN that is a database within the HPLMN (Home Public Land Mobile Network). It contains routing information for mobile terminated calls and SMS. It also maintains user subscription information, which is distributed to VLR or SGSN.

IMS IP Multimedia Subsystem. A core network architecture defined to support 3GPP 3G mobile wireless network.

IN Intelligent Network. A network in which the intelligence is centralized and separated from the switching function.

MAP Mobile Application Part. A protocol that enables real time communication between nodes in a mobile cellular network. A typical usage of the MAP protocol would be for the transfer of location information from the VLR (Visitor Location Register) to the HLR (Home Location Register).

MSC Mobile Switching Center. A Mobile Switching Center is a telecommunication switch or exchange within a cellular network architecture that is capable of interworking with location databases.

SS7 Signaling System No. 7: A CCS (Common Channel Signaling) system defined by the ITU-T (International Telecommunications Union-Telecommunication Standardization Sector). SS7 is used in many modern telecoms networks and provides a suite of protocols that enables circuit and non-circuit related information to be routed about and between networks.

VLR Visitor Location Register. Part of the CN that contains all subscriber data required for call handling and mobility management for mobile subscribers that are in its control area.

For More Information

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