Dialogic®
Making Innovation Thrive™

White Paper

Cost-Effective TDM-IP Solution Smoothes Transition to an All-IP Network

APEX and Dialogic® Products Enable IP Services on TDM Networks

Cost-Effective TDM-IP Solution Smoothes Transition to an All-IP Network

APEX and Dialogic® Products Enable IP Services on TDM Networks

White Paper

Executive Summary

In today's transitional communications market, service providers need to be ready to deploy solutions that work equally well in both IP and TDM networks and that are easy to transition from TDM to IP. The multi-service OmniVox3D® Voice and Video Application Server from APEX Voice Communications has successfully met these business challenges. OmniVox3D uses Dialogic® Host Media Processing (HMP) Software for IP media resources within its platform and then uses the specially designed Dialogic® HMP Interface Boards (DNI Boards) to connect the IP platform to a TDM network as necessary. When customers are ready to move to all-IP solutions, they can simply remove the DNI Boards and transition to IP without changes to their application.

Cost-Effective TDM-IP Solution Smoothes Transition to an All-IP Network

APEX and Dialogic® Products Enable IP Services on TDM Networks

White Paper

Table of Contents

Cost-Effective TDM-IP Solution Smoothes Transition to an All-IP Network

APEX and Dialogic® Products Enable IP Services on TDM Networks

White Paper

Choosing a Solid Strategy for Moving to IP

Time Division Multiplex (TDM) technology represented a major advance in the evolution of telephone networks, having replaced rotary dial technology in the move from the original analog telephone network to a digital one. The evolution is continuing as carriers and businesses see the significant advantages and cost savings in moving to IP-based applications and VoIP. Since TDM technology still serves the industry well, most carriers and businesses are moving to IP at a judicious pace and taking advantage of their sizeable investment in TDM by continuing to use it during this time of transition.

Moving directly to an all-IP solution can have advantages, such as simplicity and immediate access to a completely standards-based environment. However, these advantages have to be weighed against the following:

- Disruption of changing to a totally different type of environment quickly
- Possibility that the new IP feature set may not exactly match the TDM feature set currently in use if a new vendor is used
- Learning curve for support staff
- Large initial investment required

Simple Solutions for a Hybrid Environment

Many organizations are opting for hybrid TDM-IP transitional solutions, partly because of the smartly engineered applications and network components that allow a simple transition from a TDM to a mixed TDM-IP environment, and then to an all-IP environment with minimal disruption and no additional cost.

Although each environment usually has its own special challenges, the scenarios described in this section can be considered typical. The solutions offered are already in place and have been provided by APEX Voice Communications and the Dialogic Corporation using the following products:

- APEX's OmniVox3D® Application Server
- Dialogic® Host Media Processing Software
- Dialogic® HMP Interface Boards (referred to as DNI Boards in this paper)

Because both APEX and Dialogic had previously offered very successful TDM versions of their current IP products, basic feature sets are equivalent for TDM and IP, and are enhanced with cutting-edge features such as video functionality. As pioneers in developing TDM solutions, APEX and Dialogic were able to leverage their expertise to develop innovative IP solutions and hybrid components that allow an easy transition from the old technology to the new.

Case 1: New Customer Cannot Delay Move to IP

A regional wireless carrier with operations in Colombia decided to move directly to an all-IP environment, scrapping its TDM network to enjoy the advantages of a completely new, state-of-the-art contact center and Interactive Voice Response (IVR) system. To accomplish this, the company purchased 720 sessions of the OmniVox3D Application Server, which uses Dialogic HMP Software to provide IP call control and media resources to enable the all-IP contact center and IVR applications. At the same time, the company commissioned a new IP infrastructure.

The IP contact center and IVR system application based on OmniVox3D and Dialogic® products was ready on time, but the IP infrastructure provider could not meet the previously agreed on deadline for the new network infrastructure – and would not be ready to support the new IP contact center application for an additional six to nine months. This was a particular hardship because the company moving to an IP environment was quickly outgrowing its old TDM-based contact center and needed to move to the new solution or risk losing considerable revenue.

Solution 1: Move Enabled Using Interface Boards

By using Dialogic® DNI/1200TEPHMP Digital Network Interface Boards, the move to a new IP call center based on OmniVox3D and Dialogic HMP Software was quickly accomplished via a connection to the old TDM network. Once the connection was made with the DNI Boards, the new system began answering calls immediately because APEX did not have to change any part of its application or call flow. When the customer's IP network was finally ready, APEX simply disabled the DNI boards to complete the all-IP contact center and IVR solution — again without change to the APEX application or to the call flow.

Case 2: Existing Customer Gradually Moves to IP

A wireless carrier with operations across the Americas had more than 1000 lines of OmniVox3D deployed using Dialogic® TDM boards, and wanted to move gradually to an all-IP environment. The customer was depending on APEX to help it move with a hybrid system that would support all

current functionality and would be easy to convert to an all-IP environment without additional cost.

Solution 2: Gradual Move to IP in Progress

APEX worked with its customer to provide a detailed step-by-step conversion plan. Because OmniVox3D and Dialogic HMP Software are both built on the previous generations of TDM-based products, the IP features sets, performance, and reliability are equivalent. APEX moved the IP version of OmniVox3D, which uses Dialogic HMP Software, into place, connecting it to the company's current TDM network with DNI Boards. APEX was also able to tell its customer that the DNI Boards offer an additional advantage — they are more cost-effective than the previous generations of TDM boards — and when the company's new infrastructure is in place, the DNI Boards will be removed at no additional cost and with minimal effort.

Case 3: Serving Customers in a Mixed Environment

A large regional service provider of IVR and SMS services maintains a network of hosting centers serving six countries in the Middle East, all of which have different internal networks requiring from 75 to 810 ports with unique mixes of R2, ISDN, and IP connections. In this case, the challenge was not to move one network completely to IP but rather to interface an all-IP application environment successfully to six different networks, each of which has unique characteristics and will move to all-IP environments on its own individual timetable.

Solution 3: Connecting IP to Different Network Configurations

The regional service provider, which already had the IP version of OmniVox3D in place, was able to benefit from the media and density flexibility of Dialogic HMP Software and DNI Boards. Both products are field-proven to support a wide range of TDM and IP protocols, which allows the regional provider to meet the many different network requirements of its customers and to support them seamlessly if they decide to convert their mixed network infrastructures to all-IP.

How APEX and Dialogic Technologies Work Together Successfully

APEX and Dialogic technologies enjoyed many years of success working together in a wide variety of network environments. This section provides an in-depth look at the three technologies we have been discussing in this white paper: the OmniVox3D Application Server, Dialogic HMP Software, and DNI Boards.

APEX OmniVox3D Application Server

The APEX OmniVox3D Application Server provides the power to design, develop, and deliver customized enhanced services and value-added IP multimedia services on a flexible, open architecture. Applications developed in OmniVox3D can run on both IP and TDM/SS7 networks, making it an excellent choice for today's hybrid environments that include both existing and next-generation services. Because its design is modular, OmniVox3D can provide outstanding results on today's networks, including those running VXML gateways or IMS softswitches. Its architecture makes the underlying network interfaces and protocols transparent to the application, providing the ability to create or import an application once and run it in a variety of environments, including wireline and wireless intelligent networks.

Dialogic® HMP Software

Dialogic HMP Software is an important component of OmniVox3D. Used as a media server, it allows both timely voice and video service creation and successful service delivery. Both products are designed to support the latest open standards to enable easy integration with advanced voice and video technologies.

Dialogic HMP Software performs media processing tasks on general-purpose servers based on standard server architecture without requiring specialized DSP-based hardware. It supports the initiation and termination of multimedia calls, which include SIP-based call control and H.263 video format. The software synchronizes voice and video streams for playback on IP video phones and IP-enabled soft clients and allows 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.

Because it understands the value of open standards to service creation and delivery in the OmniVox3D environment, Dialogic strives to provide the highest level of interoperability by developing Dialogic HMP Software to use SIP, H.323, and 3GPP standards as well as MSML. Dialogic engineers continually perform interoperability testing between Dialogic HMP Software and third-party components, and they focus on adding new standards-based functionality (such as video using 3G-324M) as early as possible. Dialogic's goal is to help APEX developers accelerate their work by allowing them to focus on enhancing OmniVox3D for their customers without interoperability concerns.

Dialogic® HMP Interface Boards (DNI Boards)

Dialogic's DNI Boards enable the flexibility of host-based media resources (scalable and licensed in single-unit increments) to mate with a TDM network interface, providing APEX developers and integrators with a new level of configuration flexibility and cost efficiency. This is a departure from traditional media span products that require onboard Digital Signal Processors (DSPs) to provide media and audio transcoding resources, which create fixed costs and often fixed or limited configurations of media to complement network interface density.

Architectural Design Delivers Service Reliability and Performance

Because of their excellent initial design and wisely engineered enhancements, the multi-service OmniVox3D Application Server and its complementary development environment, which is called the OmniView® Service Creation Environment, have continued to be a leading system for designing, developing, and delivering services since their introduction in 1989. With its integrated OAM&P environment, OmniView can also manage applications from a single point once they have been deployed, whether on a single server or a network of servers, for service provider and enterprise customers worldwide.

Figure 1 provides an illustration of how the OmniVox3D Application Server can be configured in a network environment. DNI Boards are denoted as "HMP Interface Boards" and work directly with the media server provided by Dialogic HMP Software.

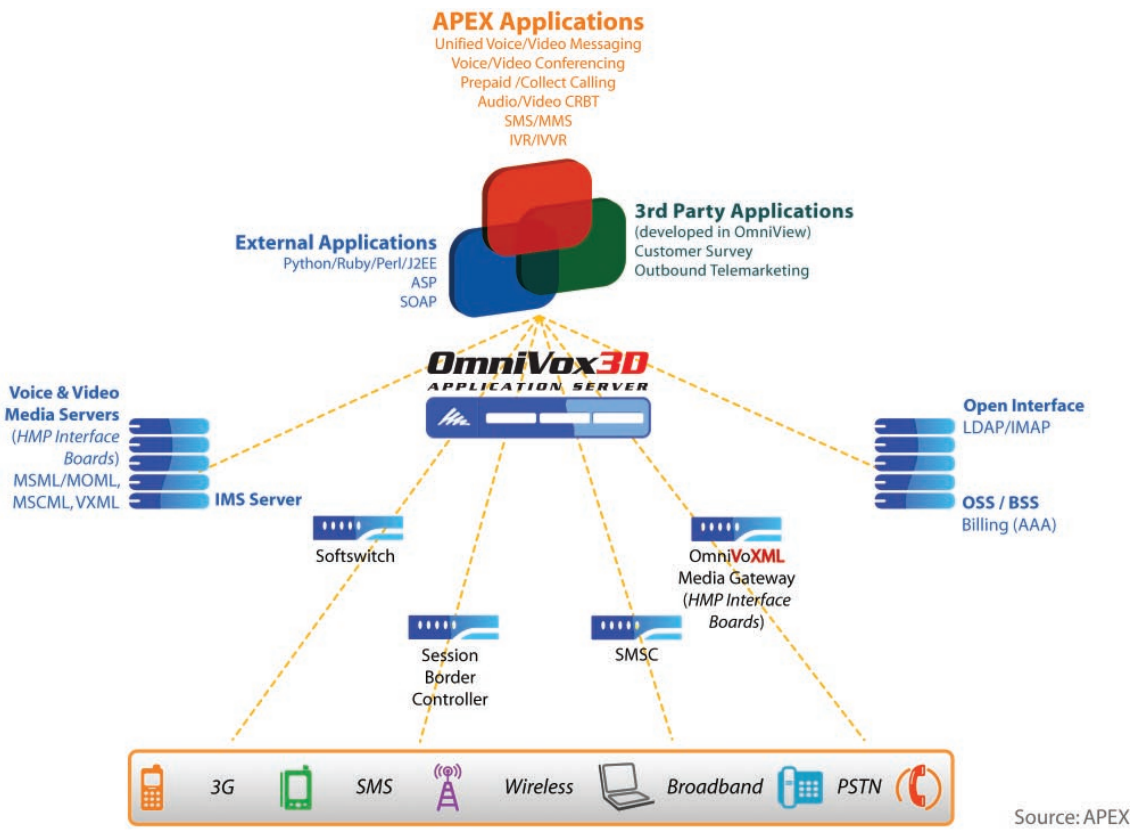

Figure 1. OmniVox3D Application Server in a Network Environment

Cost-Effective TDM-IP Solution Smoothes Transition to an All-IP Network

APEX and Dialogic® Products Enable IP Services on TDM Networks

Dialogic and APEX: A Shared Vision

Dialogic and APEX Voice Communications share a vision of standards-based voice and video solutions. They both focus on providing the market with proven technically sophisticated products that can reduce the time, cost, and complexity of delivering services in today's highly competitive communications environment. Both Dialogic and APEX are also dedicated to providing their customers with the high-quality technical support, educational, and professional services, designed to help reduce time-to-market, but increase time-in-market. Both Dialogic and APEX dedicate themselves to placing open-standards-based advanced voice and video technologies in the hands of their customers quickly and cost effectively.

About APEX Voice Communications

APEX Voice Communications is a global leader in multi-service SIP Application Servers. Uniquely capable of delivering the platforms for the latest value-added voice and video enhanced services, since 1989 APEX has enabled wireless and wireline service providers to generate revenue and minimize churn, while ensuring scalability and flexibility as market demands grow and user needs change. With over 15,000 installations across 95 countries, including more than 250 network operators and service providers, APEX consistently brings value to its customers by providing products that enhance the end-user experience and increase customer satisfaction, allowing its customers to remain competitive in their markets worldwide.

About Dialogic

Dialogic Corporation is a leading provider of world-class technologies based on open standards that enable innovative mobile, video, IP, and TDM solutions for Network Service Providers and Enterprise Communication Networks. Dialogic's customers and partners rely on its leading-edge, flexible components to rapidly deploy value-added solutions around the world.

Learn More about This Innovative Solution

For general information, proof points, and case studies about the products described in this white paper, visit http://www.apexvoice.com and http://www.dialogic.com.

Dialogic®
Making Innovation Thrive™

www.dialogic.com

Dialogic Corporation
9800 Cavendish Blvd., 5th floor
Montreal, Quebec
CANADA H4M 2V9

08/08 11084-01