The VIDA Transcoder

- Allows multiple air interfaces and vocoders on a single VIDA Network
- Supports design flexibility in providing best available audio quality to dispatcher
- Supports the Harris Enhanced Dual Data Mode P25 feature

The Voice, Interoperability, Data, and Access (VIDA) Transcoder is a network product that uses standard off-the-shelf components and sophisticated digital voice coding software to allow customers to deploy VIDA networks using multiple air interfaces and digital voice formats. With the Transcoder, a single VIDA network can support communication between any combination of OpenSky®®, P25IP (Phase 1 and Phase 2), EDACSIP, and legacy analog sites and terminals.

VIDA Transcoder Overview

The VIDA Transcoder uses a vocoder library that is based on AMBE+2™ technology for all modes. AMBE+2 provides superior voice quality, noise suppression, and gain control. AMBE+2 technology produces P25 full rate voice that is backwards compatible with legacy IMBE™ technology. The VIDA Transcoder uses the Parametric Conversion method to transcode between modes and provide the highest quality voice with negligible degradation in quality due to the conversion. The VIDA Transcoder supports the following modes:

- P25 Phase 1 (full rate)
- P25 Phase 2 (half rate)
- ProVoice™
- OpenSky 2™ (AMBE+2-2400)
- ADPCM (32 kbps)

Mixed Mode Systems

In a mixed mode system, the transmitting radio and RF site operate in their native format (P25, in the example shown on the reverse side of this page). Other P25 sites as well as the dispatch consoles, logging recorders, and Interoperability Gateway receive the audio in this same format. The VIDA Transcoder converts the voice packets for forwarding to RF sites and radios which use other formats (OpenSky in the example shown).

System Design Flexibility

In most critical communication systems, the audio quality heard by the dispatchers is of utmost importance. In a VIDA system that includes the Interoperability Gateway to interface to legacy analog systems, the VIDA Transcoder can be used to provide the highest level of audio quality for these sources. In this scenario, the Interoperability Gateway and C3 Maestro® and V® Consoles can be configured to use the ADPCM Codec for communication with the analog systems, and the VIDA Transcoder will convert the packets to P25 mode (as an example) for interoperability with trunked users.

This design flexibility extends to other scenarios where more than one vocoder type is employed, such as during system migrations.

VIDA Transcoder Design Features

Other features of the VIDA Transcoder design include:

- Ability to transcript calls between different encryption algorithms (AES-128, AES-256).
- Server multiplicity – multiple transcoder servers can share the call load and back each other up in case of a server failure.
- Provisioning via the VIDA Device Manager, Harris’ infrastructure and terminal programming tool.
- Call activity and alarm reporting to the VIDA management systems.
- Information Assurance certified to support the highest levels of system security.
- Support for Harris’ Enhanced Dual Data Mode feature which allows mixed P25 Phase 1 and Phase 2 usage on an RF site.
VIDA Transcoder

Hardware Components
- Windows Server® 2008 Enterprise Operating System
- 1 Rack Unit 19-inch Chassis
- Dual E5-2640 Processors
- Two 146-GB Hard Drives
- Integrated SAS RAID 1
- 16 GB RAM
- Gigabit Ethernet Card
- DVD ± RW

Note that the VIDA Transcoder runs on a virtual machine on the VIDA Application Server for VIDA Premier and VIDA Foundation configurations.

Operational Features
- Up to 200 concurrent calls for VIDA Enterprise or 100 concurrent calls for VIDA Premier
- Supports P25 Full Rate (Phase 1), P25 Half Rate (Phase 2), ProVoice, OpenSky (AMBE-2400), OpenSky 2 (AMBE+2-2400), and ADPCM (32 kbps) voice formats
- Supports Transcription between AES-128 and AES-256
- Supports remote key loading from the Network Key Management Facility (KMF) for P25 and from the Unified Administration Server (UAS) for OpenSky
- Allows Static Configuration via VIDA Device Manager
- Dynamic Database information from the Unified Administration Server
- Provides Call Activity to the Activity Warehouse
- Provides fault and error indications to the Regional Network Manager (RNM)
- Multiple Server Architecture