

## The ECHO™- Avaya Connection

### *ECHO™, and how it interacts with Avaya's Telephony Solutions*



#### Executive Brief

Teleformix's ECHO™ digital recording solution integrates seamlessly with Avaya's telephony systems. It supports legacy G3 DEFINITY switches as well as the latest S8000 series media servers and media gateways. TDM, VoIP or both, to ECHO™ there is no difference.

#### Introduction

ECHO™ communicates directly with Avaya's system. This direct connection eliminates the technical failures and the overhead of wiring to each phone. Whether TDM or VoIP-based, the audio is 100% digital — never converted to analog — ensuring high quality voice recording.

The benefits of ECHO™-Avaya systems integration are:

- **Seamless integration** – ECHO™ and Avaya's telephony solutions interact using the same standards and protocols.
- **Flexible and scalable** – ECHO's open modular architecture answers any challenge.
- **Clarity** – ECHO's recordings are as clear as the original conversations.

#### How ECHO™ Works with Avaya

ECHO™ and Avaya's systems communicate via an Ethernet LAN using TSAPI and JTAPI. These protocols are supported by Avaya's CallVisor/LAN (CVLAN) and Application Enablement Services (AES). TSAPI and JTAPI integrate ECHO™ with Avaya to monitor ports by performing call control and routing functions.

Circuit-switched TDM Avaya products that support DMCC (Device, Media and Call Control Services — formerly CMAPI) protocols have the option of transporting audio to the ECHO™ recorders via the network, packet-switched as VoIP. In this case, data and media (audio) share the network.

Products that cannot support VoIP must send audio to the recorders using T1 channels. VoIP switches can be configured to send audio to the recorders as T1, depending on site recording requirements discovered during the site survey.

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TDM, VoIP or both, to ECHO™ there is no difference.



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## The Site Survey

A site survey form is sent to the customer once a final quotation is approved. The customer's recording requirements and the survey results decide the architecture of the ECHO™ installation at the surveyed site. In addition to physical and power considerations, the site survey documents the existing Private Branch Exchange (PBX) configuration so that Teleformix can provide quick, trouble-free onsite installation.

Included in the survey:

- Location
- Rack space
- Network cable connections
- ECHO port assignment
- Power capacity/run length/back up
- Remote access (VPN or dial-up)
- IP addresses
- DNS server addresses
- CTI details
- Tivoli Storage Manager details
- Avaya information (TDM and/or VoIP)

Avaya's PBXs may be purely TDM (circuit-switching) or VoIP (packet-switching) or both. Depending on their model, media servers and media gateways may or may not share the same case or chassis. Because ECHO's design interacts through Avaya's APIs, knowing what APIs are available and licensed is important. The time to make these discoveries is during the site survey.

The following are required to obtain the best overall VoIP performance:

- Data and voice traffic occupy separate VLANs (Virtual LANs).
- No voice VLAN or Logical Call Center (LCC) exceeds 128 nodes.
- If a single ECHO™ recorder monitors a voice VLAN spanning more than one switch, there must be adequate bandwidth between these switches (fiber recommended).

## Implementing ECHO™ with Avaya

ECHO's network topography and number of recorders depend upon the customer's existing equipment and recording requirements. Though it is impossible to account for every possible configuration, the following examples are typical of ECHO's versatility regarding various Avaya TDM – VoIP combinations.

**Note:** 'Administration' indicates the network connection ECHO™ users and administrators utilize to access ECHO's functions. This connection also allows ECHO™ and Avaya's telephony equipment to communicate. 'Monitoring' indicates the T1 or Ethernet connections used by ECHO™ to record telephone conversations.



## TDM Express Installation



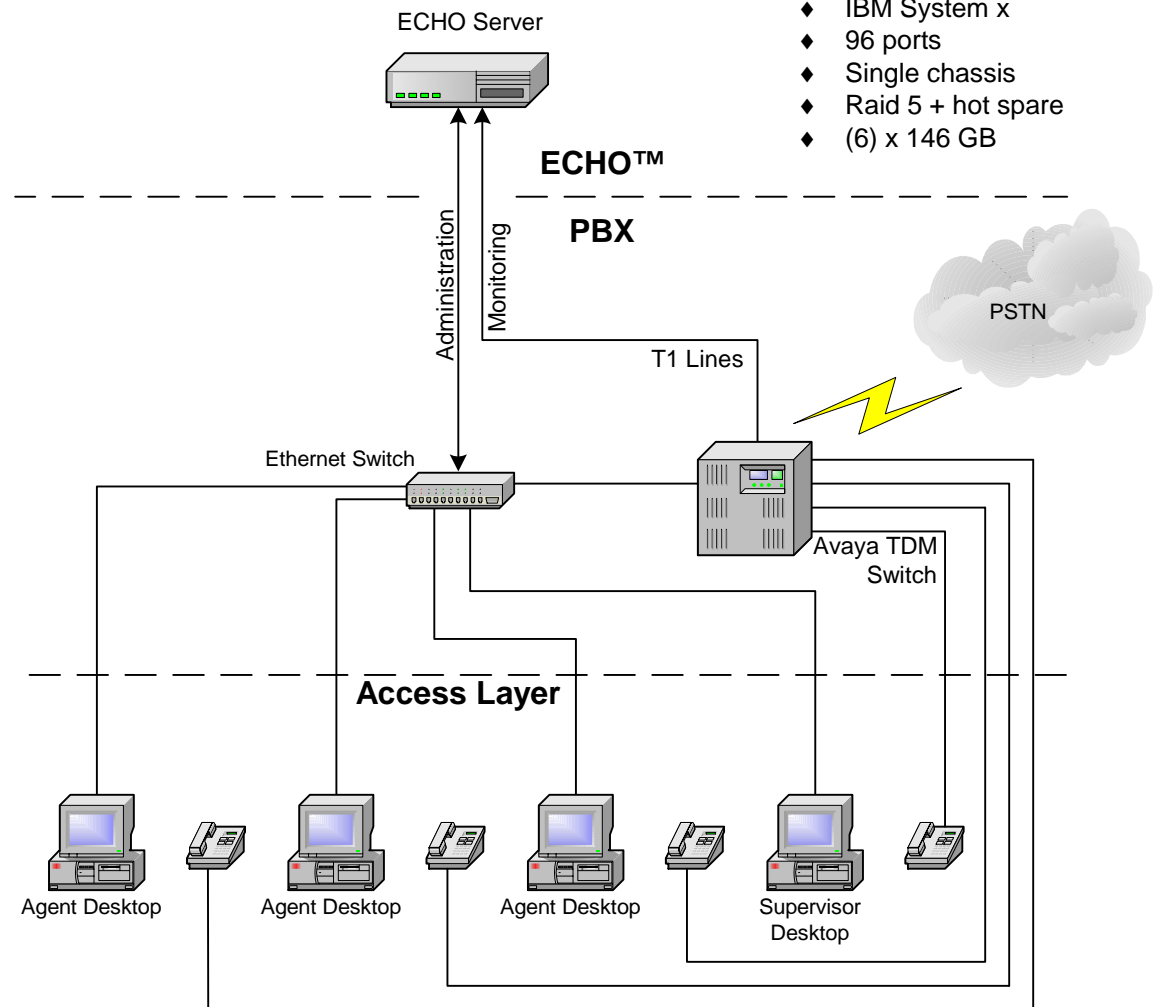
Express installations use a single ECHO™ server/recorder. In this example the telephony equipment consists of a single Avaya TDM switch (MAP-D) with CVLAN. MAP-D (Multi-Application Platform for DEFINITY) is a card plugged into the Avaya switch. CVLAN runs in this Unix-like environment, administering links between the switch and ECHO™ in response to TSAPI and JTAPI program calls and event messages.

This configuration records telephone conversations through T1 connections. ECHO's administration, supervision and evaluation functions are performed through the customer's Ethernet network.

### • TDM Express Installation

#### TDM Express features:

- ◆ IBM System x
- ◆ 96 ports
- ◆ Single chassis
- ◆ Raid 5 + hot spare
- ◆ (6) x 146 GB



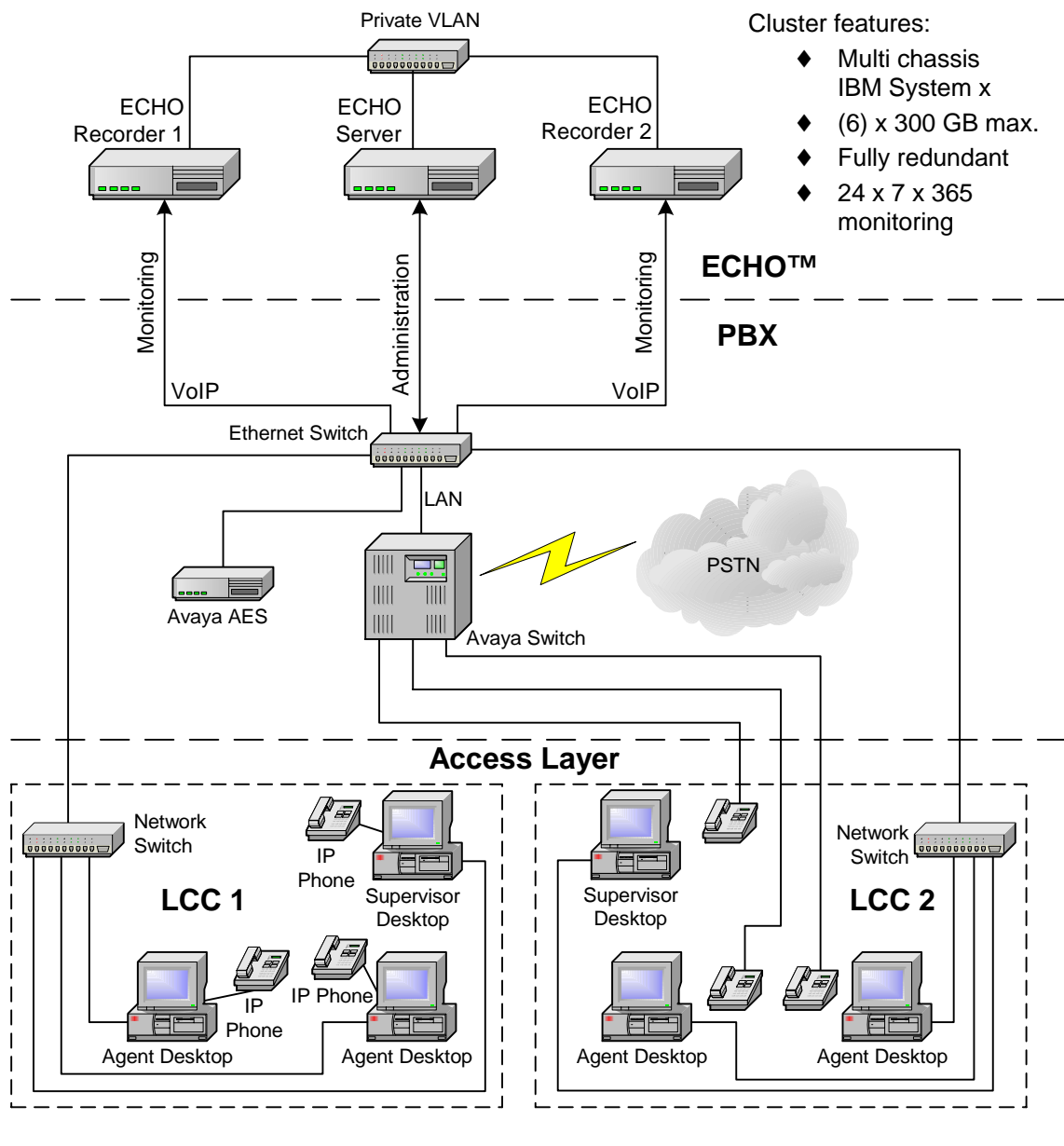


### TDM/VoIP Cluster Installation

Monitoring more than 96 TDM ports requires multiple ECHO™ recorders. In this case the telephony equipment consists of an Avaya switch running with AES for TDM and VoIP phones (circuit and packet-switching). AES includes DMCC or CMAPI, which is used to send audio to the ECHO™ recorders as VoIP via the Ethernet LAN. ECHO's Cluster installations use a private VLAN that coordinates activities between the ECHO™ server and its recorders. Every ECHO™ recorder supports up to 96 TDM nodes.

Cluster features:

- ◆ Multi chassis IBM System x
- ◆ (6) x 300 GB max.
- ◆ Fully redundant
- ◆ 24 x 7 x 365 monitoring



• TDM/VoIP Cluster Installation





## VoIP Express Installation

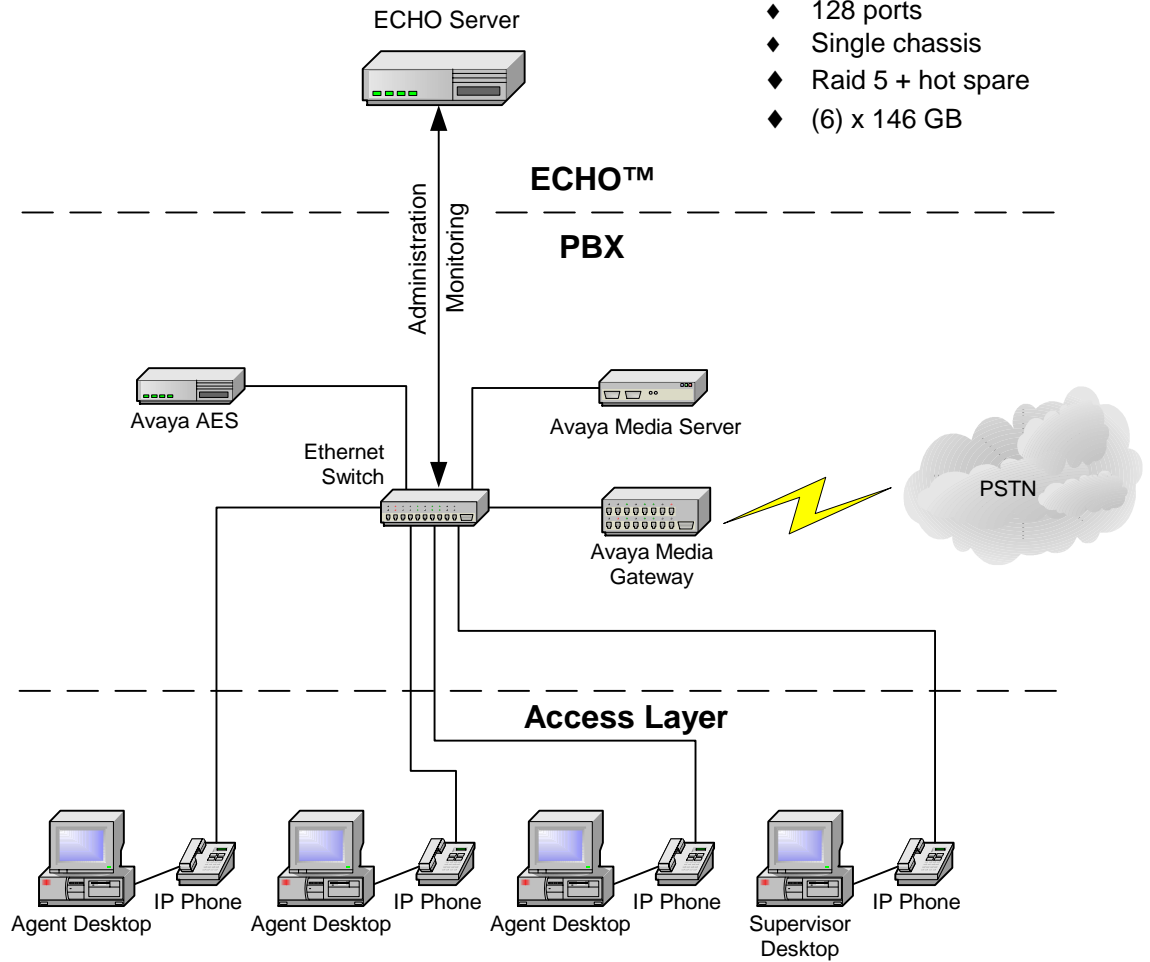
This ECHO™ Express installation is integrated with an Avaya VoIP telephony solution that is entirely IP-based. In this example, the media server and media gateway are individual components (other models share the same case or chassis). Monitoring is performed through the LAN, using DMCC or CMAPI virtual stations as recording ports.



### • VoIP Express Installation

VoIP Express features:

- ◆ IBM System x
- ◆ 128 ports
- ◆ Single chassis
- ◆ Raid 5 + hot spare
- ◆ (6) x 146 GB



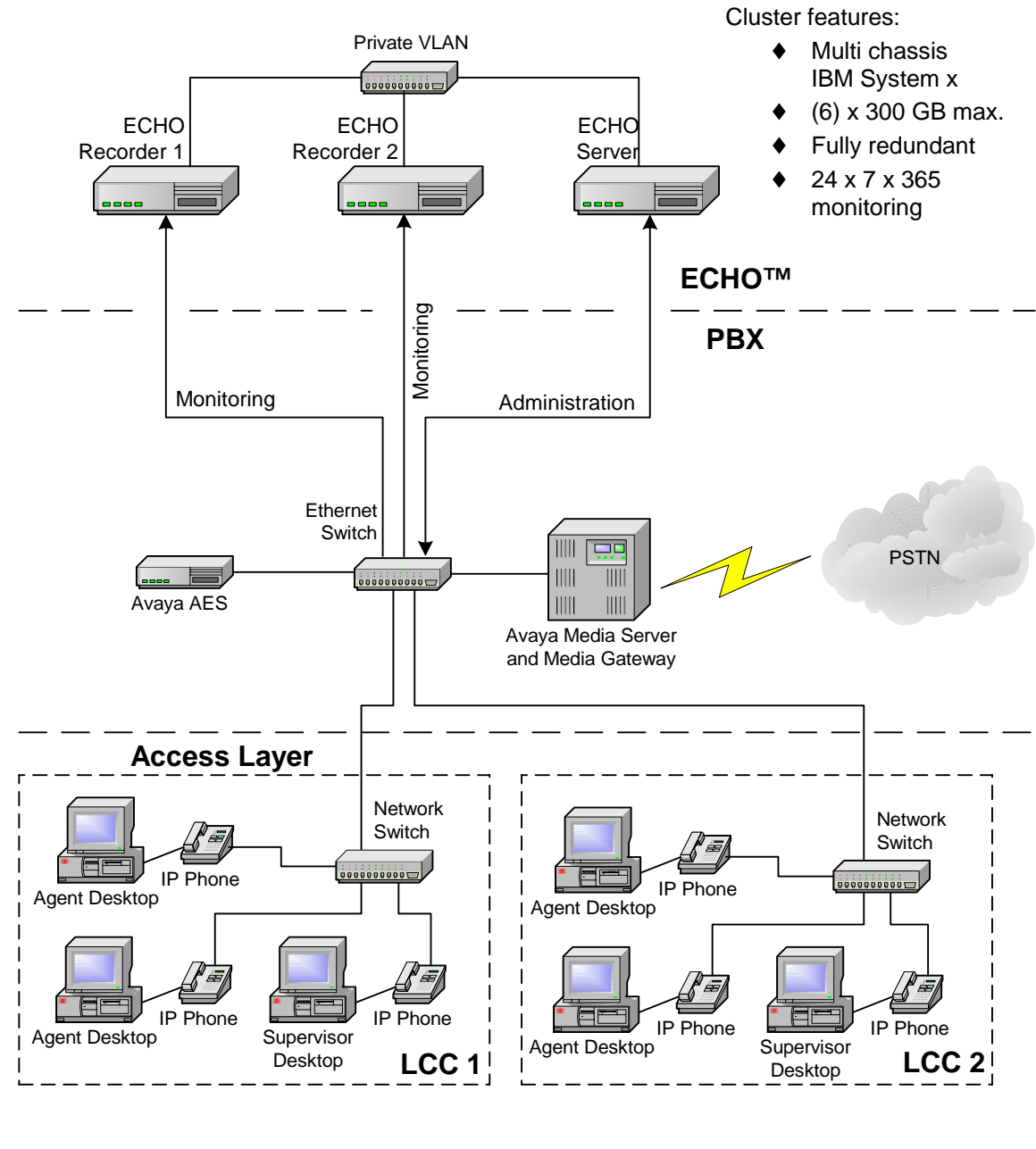


### VoIP Cluster Installation

In this example more than 128 nodes are monitored, using multiple LCCs and ECHO™ recorders integrated with an Avaya VoIP telephony solution. This model media server and media gateway occupy the same chassis. ECHO's private VLAN coordinates activities between the ECHO™ server and its recorders. Every ECHO™ recorder supports up to 128 VoIP nodes.



• VoIP Cluster Installation





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**ECHO™ is simply the best telephony monitoring solution.**



## Summary

ECHO's seamless integration with Avaya TDM and VoIP systems enables the pooling of TDM and/or VoIP station ports. ECHO™ then groups and monitors these ports according to the customer's business strategies.

## About ECHO™

One or more IBM System x servers are at the heart of ECHO's system. They execute IBM WebSphere, Informix and Tivoli services within a highly stable Linux environment. ECHO™ is accessed through an intuitive browser-based user interface or through optional Web services modules.

ECHO™ produces searchable synchronized voice and screen recordings with "over the shoulder" screen clarity (screen recording optional). It allows unlimited questions and criteria to be integrated into the evaluation of a campaign's delivery and results. The recordings and related review material are available for electronic delivery, storage, or generation of detailed reports based on customer-specified metrics. Now QA Managers have the tools they need to accurately assess CSR ability, training and performance.

These capabilities present a new standard within the CRM community as the ideal CRM-QA platform for digital voice recording and quality monitoring. ECHO™ is simply the best telephony monitoring solution.

## About Teleformix, LLC

Teleformix offers a comprehensive range of competitively priced software solutions designed to manage today's business transaction challenges by optimizing performance and providing a rapid ROI. Teleformix offers customizable and highly scalable solutions to seamlessly integrate into any existing business architecture.

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Teleformix™ is an IBM® Business Partner who has demonstrated success in delivering solutions to meet the needs of business. ECHO™ runs on IBM on demand infrastructure including Tivoli® software, WebSphere®, System x® and Linux®. This proven technology is tailored to address the business and IT needs of companies like yours.

For more information about Avaya's networking and telephony solutions, visit [www.avaya.com](http://www.avaya.com). For more information about IBM's on demand technology, visit [www.ibm.com](http://www.ibm.com).

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