

Ganesh Devarajan & Don LeBert

**VDLDS – ALL YOUR VOICE ARE
BELONG TO US**

Agenda

- Introduction
- Problem
- Background
- Scenarios
- Architecture
 - Server Model
 - Distributed Client server model
- Demo
- Future Work

Introduction

- Ganesh Devarajan
- Don LeBert

Problem

- People give out a lot of information on the phone calls
 - PII Data
 - Account information
 - Insider information

Background

- Government has the ability to tap Phone conversations and look for key words
 - Jihad, terrorist, etc.
- This is done at the provider level or with an expensive bug

Background

- What is DLP?
- Why is it important?

Background – In the News

- Sony PS3 Hack
- RSA
- Citi Bank Hack
- ADP

Background

- What is VoIP?
- How does a VoIP phone call work?
- SIP, RTP

Scenarios

- Social Engineering
- Insider Trading/Leaks
- Calls to bookies/Brokers
- Call centers
- Vendor Account information
- Spy on People?
- PII Data
- Credit Cards

Architecture



Architecture



Architecture

- VoIP data to Audio file
 - WireShark
 - VoIPong
 - VOMIT
 - Oreka
 - RTPBreak
 - RTPscan, RTPdump, RTPplay
 - Cain & Abel

Architecture

Architecture

- Audio to Text Converter
 - Microsoft Speech (Now called "Tellme")
 - Sphinx (3/4)
 - OSX (use NSSpeechRecognizer Class)
 - Other Commercial

Architecture

- Sphinx 4 Architecture
 - Speech recognition system written in java
 - Portable (mobile, osx, linux, windows...)
 - Interaction with engine via scripting languages
 - Easy to hide ;)

Architecture

- Keyword Detection Engine
 - Script based
 - Completely custom in what you are trying to pull out
 - Takes some skill
 - Rule based
 - Easy for Joe sixpack
 - Low customization

Deployment Architecture



Deployment Architecture



Deployment Architecture

Demo

Future Work

- Extension for Mobile devices
 - Disguised App
 - Conversation sniffer
- Real time Voice Obfuscator
- Interact with conversation
 - Filter
 - Inject

References

- <http://cmusphinx.sourceforge.net/wiki/tutorialconcepts>
- <http://cmusphinx.sourceforge.net/sphinx4/>

Questions?

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