



CommTEL – A Contact Center Communication Suite

Marketing White-paper

Version 1.0

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Published in 03 FEBRUARY 2008

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India.

Publishing History

Version number	Release Date
1.0	03 FEBRUARY 2008

List of Acronyms

ACD	- Automatic Call Distribution
AJAX	- Asynchronous Java Script and XML
CDR	- Call Detail Record
DSS	- Decision Support Systems
DTMF	- Dual-tone Multi Frequency
PSTN	- Public Switched Telephone Network
SME	- Small & Medium Enterprises
SMB	- Small & Medium Businesses
SIP	- Session Initiation Protocol

Table of contents

INTRODUCTION	5
Overview of the Solution	5
Operating Cycle.....	6
Platform	7
ARCHITECTURE OF COMMTEL.....	7
Architecture Overview	7
Speech Engine	7
IVR.....	7
ACD	8
CallDesk	8
Additional components.....	9
SmartBilling.....	9
VoiceREC	9
CRM.....	9
FEATURES	9
Speech enabled IVR	10
Intelligent skills-based routing	10
Self-service.....	10
Distributed agents	10
Integrated agent desktop	10
In-built cost calculations for out-bound campaigns	10
Call handling Quality checks	11
Integration with enterprise-wide CRM or ERP applications	11
BENEFITS.....	11
Always on and Always open feel.....	11
Reduce caller churn	11
Priority-based customer handling.....	11
ROI	11
Business enabling asset not a “cost of doing business”	12
Converged services.....	12
Future	12
SYSTEM REQUIREMENTS.....	12
MARKET ANALYSIS	13
FUTURE PROSPECTS.....	13
REFERENCE DOCUMENTS	13
CONTACT INFORMATION.....	13
APPENDIX 1 – INFORMATION ABOUT E1 CARDS.....	14

Introduction

LAKSHYA CommTEL – a first-of-its-kind application suite for a state-of-the-art contact / call center which leverages the power of VoIP and delivers a software solution that is exactly the requirements of any business categorized either as an SME or large enterprise with vastly distributed operations. In today's customer centric world, business growth can be achieved, maintained and guaranteed with only one factor – customer relationship. To establish better customer relationship the company has to be in constant touch with their customers and this can be done only through an “always-on, effective, and efficient” communication channel. This communication channel is a super efficient call center and today every company dealing with customers wants to have a call center setup. Only the prohibitive investment for proprietary solutions is the obstacle.

LAKSHYA CommTEL kernel is based on Open Source Asterisk platform and its modular architecture enables to get a functional call center up and running at minimal cost, wherein additional components can be added subsequently as business and requirements grow.

Overview of the Solution

The LAKSHYA CommTEL call centre software suite has been designed with the fundamental objective of addressing the needs of thousands of enterprises who deeply realize the necessity of a call center setup to better customer relationships in order to multiply business, but do not have –

- The finances of going with a proprietary solution
- The requirement of the entire call centre suite of applications initially.

CommTEL from LAKSHYA is designed to exactly meet these requirements –

- **Low initial cost of implementation** enables clients to have a dedicated, full-featured call center up and running.
 - Reuses existing LAN cabling setup
 - Limited investment on hardware
 - Supports open standards like SIP, to enable seamless interoperability
- The modular architecture of CommTEL means – **as business grows, client can scale** up the features as well as the capacity of the CommTEL by adding modules as and when required.

A high-level component break-up of the LAKSHYA CommTEL would reveal 2 major parts, which are namely –

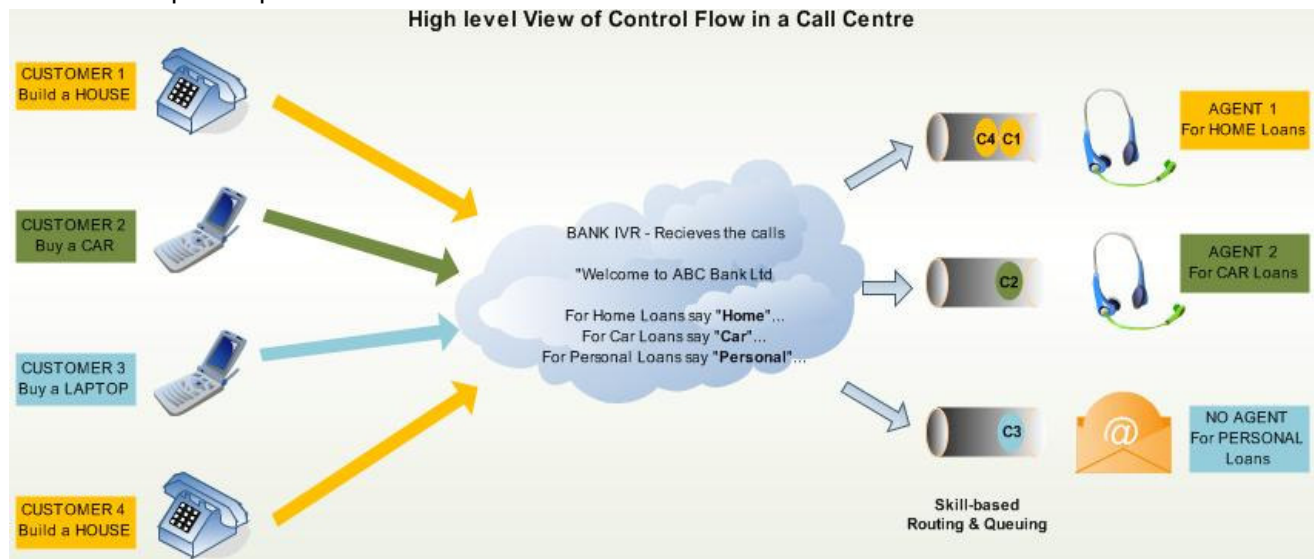
1. **The Kernel** – this is the heart of the CommTEL system, which is in itself based on a core of Asterisk. The kernel consists of the system level functionalities like
 - a. Voice engine,
 - b. Automatic Call Distribution (ACD) algorithm and routing plans
 - c. Dial-plans & IP Extension mapping tables
 - d. Agent management module
 - e. CommTEL Configuration Manager module

2. **CallDesk** – one of the most powerful Agent desktop interfaces available in the world of contact centre solutions. This is a Web-based interface which makes use of some innovative technologies like “server-push architecture” and AJAX which nullifies the requirement of page refresh to update page content or status. Can support more than 400 agents simultaneously with 1GB of memory. Incorporates in-built non-intrusive supervisory features, which helps in better call handling and increased “1st call resolutions”.

Operating Cycle

Call centers work in 2 modes – inbound and outbound. Inbound mode deals with receiving a call from a customer and then handling the call in a manner useful and effective in resolving the reason behind the call. Whereas the outbound mode deals with the call centre employee making a call to a customer in order to inform or solicit about a product or a service.

A high level operating cycle view of a call centre gives 3 basic components that are most prominent, they are– the **IVR**, the **Queues** and the **Agents**. The “IVR” is the component that receives the incoming call with a front-end greeting and announces the menu options. Based on the requirement the caller selects the option and the call is routed into a “Queue” of calls that will ultimately land with an “Agent” who can best handle the call based upon expertise.

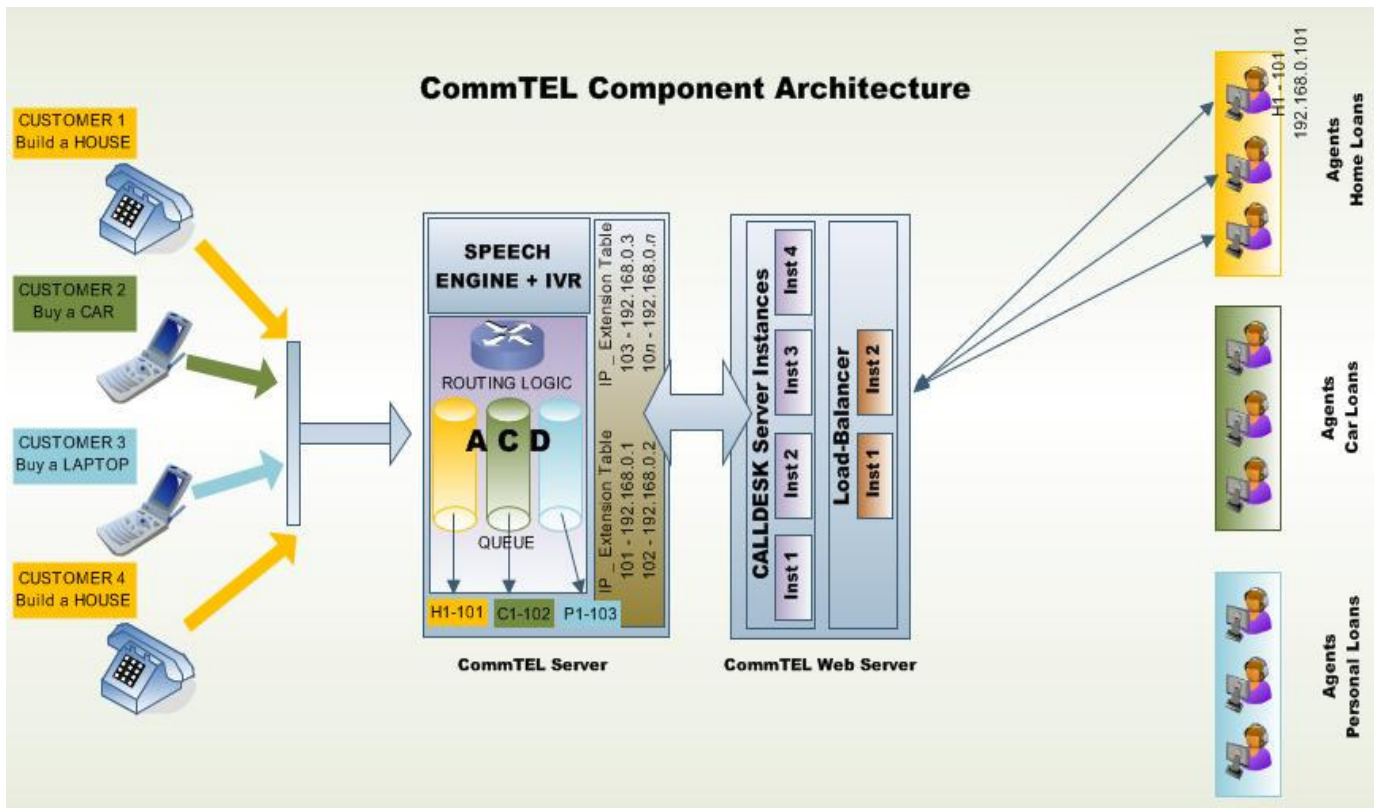


In the above-depicted scenario, 4 customers interested for some loan product dial in at the same time and are greeted by the IVR. This is a voice enabled IVR as available in CommTEL, where the caller doesn't have to remember option numbers and press them later (DTMF), the caller just says “Home” or “Car” or “Personal” as per requirement. The CommTEL now directs the call to the appropriate agent based upon their skill set, this intelligent expertise based routing is the main functionality of a call centre suite, called ACD (Automatic Call Distribution). The ACD is what differentiates a call centre from a PBX system.

Platform

The base system of CommTEL needs Linux as the OS. Rest of the components are either Web based or Java based, hence in either situation these applications run on Linux platforms.

Architecture of CommTEL



Architecture Overview

The components along with their functionalities are explained below –

Speech Engine

This is the “Reception Area” or “Front Office” of the CommTEL. It receives the call and provides a voice enabled interface to the caller. It has a pre-trained and configurable call attending system, which can give a customizable welcome message to the caller. This gives the “personal touch” to the call and gives the “always-on” feel to the caller.

IVR

Once the caller is presented with the welcome message, the IVR then steps in and presents the menu with the relevant options and the corresponding “spoken” responses for those options. As the CommTEL IVR is speech-enabled and not simply DTMF-based, therefore it is also equipped with an intelligent speech recognition algorithm with requisite depth of grammar for generating required confidence levels for the recognition

of the “spoken” responses from the caller, which is very crucial for self-service of calls, otherwise all calls will land with the agents and will unnecessary clog the system.

ACD

The ACD is the heart of the CommTEL system, or for that matter any call centre platform, as already mentioned the ACD is what differentiates between a PBX and a call centre suite like CommTEL. The ACD is responsible for the routing of the calls in accordance to the skill / expertise areas of the agents.

As in a typical call center, different campaigns by different clients (also known as tenants) might be running simultaneously and varying number of agents might be trained on the different campaigns or related products and services. Hence it is very crucial that all calls coming in, must be properly routed to the correct set of agents for effective and useful call handling.

Its also possible that all agents available for a particular campaign are busy attending calls, in that scenario the incoming call will be placed in a QUEUE and dispatched to any agent the moment they are “ready”.

The ACD can use any of the 5 strategies mentioned below to distribute calls among available agents:

- Ring all - ring all available agents until someone answers
- Round robin - take turns ringing each available agent
- Least recent - ring the agent which was least recently called by this queue
- Fewest calls - ring the agent with the fewest completed calls from this queue
- Random - ring a random agent

CallDesk

This is the integrated agent desktop for the CommTEL system. CallDesk in itself is also available as an independent Web based agent interface that can work on top of most of the CTI platforms available today. It has 3 sub-components the CallDesk Server Instance, the Load Balancer and the CallDesk Client (Agent interface).

CallDesk Server – this component uses a concept called “server push” to ensure that any asynchronous communication between the Server and the Client takes place, without requiring the client to “poll” the server continuously. Any event that is received by the server is “pushed” to the appropriate client by the server. This delivers a significant performance boost to the CallDesk system.

CallDesk Client – this is the GUI that the agent / supervisor uses to handle calls. It provides all the standard functionalities that are required for effective, streamlined, efficient call handling. The supervisor mode features facilities like in-call “coaching” and “barge-in” to help and monitor call-handling agents. The client uses AJAX framework, hence it does not require any reloading of web page to reflect any change in state of any control on the page.

Load Balancer – the utility of this component comes due to the high scalability of the CallDesk system. To meet increased demand, multiple instances of the Server might be created; this is necessary because 1 instance of the server can support 50 simultaneous agent connections (limitation of IIS), obviously to

support more agents multiple instances are needed. The Load Balancer's job is to distribute the agent connections optimally among all the instances.

Additional components

Depicted above is the base installation of the CommTEL system which provides the bare minimum call centre functionality. But there are components which introduce added crucial features and benefits for the efficiency and profitability of the call centre. As CommTEL has a modular architecture, these components can be added on the fly as and when required.

SmartBilling

It is a billing component for outbound campaigns, which can integrate with the CommTEL system and generate cost calculations on a very atomic level. It can be used to generate analytics, which could be tenant or campaign or agent specific. The ensuing data can be integrated with the agent performance evaluation metrics to actually display the contributions of the agent in terms of cost benefits to the call centre, which is the ultimate measure of performance.

VoiceREC

It's a call logger or recording system, meant to implement quality assurance measures for the call handling procedures of the call centre. It is another important tool that contributes towards the agent training and performance evaluations. The tool provides for –

On-demand call recording – the supervisor can start recording of any active call in a completely non-intrusive manner.

Pre-configured call recording – the configurations can be set for a specific time or campaign or day or agent. The recording will be done for that configured duration only.

CRM

The CallDesk has a unique functionality that it can integrate with most available CRM products in the market, including Oracle Forms 9i. It can also integrate with any custom-built CRM or ERP package that might be already running in the company. We can also develop the CRM component, in case it does not exist, as because a call centre without an integrated CRM is of no use, as calls cannot be effectively handled if the customer's information is not available with the agent.

Features

As a critical interface between the customer and company, the contact centre is the only tool available today to improve customer loyalty and consequently business and profitability growth. Other than this a contact centre is a critical element of any organisation today augment operational efficiency.

A checklist of a modern day call centre desirables –

Pressures	Actions	Capabilities	Enablers
<ul style="list-style-type: none"> The need to improve efficiency while reducing costs 	<ul style="list-style-type: none"> Implement IVR / Speech recognition and self-service Setup a home based distributed agent network 	<ul style="list-style-type: none"> Access to the internet for all agents Call / Issue routing capability Online knowledge management systems 	<ul style="list-style-type: none"> Call Routing and Scheduling Automatic Call Distribution (ACD) Computer Telephony Integration (CTI) Integrated Voice Response (IVR) Knowledge Management Order & service management VoIP Technology Workforce Management Call Recording

Speech enabled IVR

CommTEL system comes along with a speech enabled IVR component, which can be trained to provide self-help services to callers in an auto-attendant mode of working. Speech enabled services provide a better call experience to the callers, because of the ease of accessing required service options without having to remember numbers and then pressing them once announcement is over.

Intelligent skills-based routing

CommTEL's ACD component provides for intelligent and privileged routing of calls depending on not only skills and / or campaign, but also on the basis of priority, for example, "privileged" customers or "gold class" customers etc, who would usually be high net-worth individuals or be very crucial to the company and be always accessible to an agent without having to wait in queues.

Self-service

The CommTEL is equipped with intelligent self-service modules, which again are enabled through the speech – based IVR system.

Distributed agents

Another crucial feature of CommTEL is that it supports agents working from physically discreet locations and not necessarily from within the physical call centre premises. This helps to implement a virtual call centre setup for the company. Only this feature can be optimally utilized if the company is willing to provide the agents with required bandwidth and connectivity at their physical locations.

Integrated agent desktop

CommTEL has an integrated Web based agent desktop (CallDesk) which provides all the call handling features that are required by the agent. It features a non-intrusive supervisory mode which allows supervisors to do in-call "coaching" to ensure maximum 1st call resolutions.

In-built cost calculations for out-bound campaigns

CommTEL can be equipped with a billing system (SmartBilling) which enables the company to do cost calculations on the basis of the usage of the system. As this is applicable for outbound solutions, the company can now calculate the

expenses incurred for agents, campaigns or tenants. The billing component is highly configurable and capable of generating user-defined reports.

Call handling Quality checks

CommTEL can be equipped with a voice logging system, which can provide – on-demand as well as pre-defined call recording. This helps in quality assurance measures taken by the company as well as for agent training and performance evaluation.

Integration with enterprise-wide CRM or ERP applications

CommTEL can integrate with any existing enterprise wide CRM or ERP application. The integration UI is displayed through the agent desktop (CallDesk), hence the agent can access complete information about the caller, while handling the call.

Benefits

Always on and Always open feel

The speech enabled auto-attendant gives a very professional feel to the communications and public interfacing activities of the company. It provides for a uniform call receiving experience. Moreover it is very caller friendly, as it does not require the caller to remember any extension numbers, just saying the name after the beep is enough in most cases.

Reduce caller churn

The CommTEL allows for flexible self service configurations, which helps to reduce caller churn. Many a times callers have to wait in queue for information which does not need any human intervention, like balances, etc and in most cases callers disconnect out of frustration due to long waiting periods. This can be reduced with CommTEL's intelligent routing system.

Priority-based customer handling

In varying campaigns there might be customers who have been categorized into “privileged” categories for specialized handling by agents trained specifically for that purpose, thereby enabling the company to better relationships with high-net worth customers.

ROI

The CommTEL system is the correct answer to organisations who seriously want to achieve better ROI. Due to its architecture and core platform, CommTEL gives 2 distinct advantages to companies on the verge of setting up a call centre, which are –

- a. **Low initial investment** – because of the core platform being Open Source, costs are mostly for the integrations and deployment, hence investments required is drastically lesser than proprietary systems.
- b. **System expansion with business expansion** – the modular architecture and possibility of integrating added components on the fly means that system growth can be directly proportional to business

growth, which nobody minds, once the call centre becomes a profit generating unit.

Business enabling asset not a “cost of doing business”

The CommTEL is not something that a company will have just because it is unavoidable. It's a productivity tool as important to an organization as is the business team.

Converged services

The CommTEL helps the company to put forward to a unified customer handling face to the caller. The caller can access the company by any mode suitable, could be – call, SMS, chat, email or speech-based self-service, this makes caller comfortable to use all possible channels of communicating instead of only calling up the toll-free number and thereby reducing call handling loads.

Future

IP telephony is the future, because with the days to come, people would want to have unlimited convergence between all devices they use – PCs to Laptops to Mobiles to Phones to Databases to the Net. IP based telephony is only option available and CommTEL is the ideal call centre platform which leverages IP telephony to the max.

System requirements

The system requirements for installing CommTEL can be generically listed as below –

CommTEL Connectivity Requirements	
Line	ISDN PRI 30 channels or E1 card
PCI Card	E1 Card 2 / 4 port depending on requirement (PCI Express)

CommTEL Server	
Processor	Intel Core 2 Duo Processor @ 3.4 GHz
Memory	2 GB RAM
PCI Express Slot	2 or 4
E1 Card	1 (Model TE 220)
HDD	160GB HDD
OS	Linux

CommTEL Web Server	
Processor	Intel Core 2 Duo Processor @ 3.4 GHz
Memory	2GB RAM
Storage	160GB HDD
OS	Windows 2003 Server

CommTEL Agent Machines	
Processor	Intel Core 2 Duo Processor @ 3.4 GHz
Memory	512 MB RAM
Storage	40GB HDD
OS	Windows XP

These are requirements mentioned above are generic in nature, ideally suited for 50 to 100 agents centre. For increased number of agents or functionalities changes to the specs might be required.

Market Analysis

The market criticality of a system like CommTEL arises from the basic market demand of a call centre and the basic market truth that call centre solutions have been traditionally highly investment intensive. Due to the prohibitive costs of setting up a call centre, companies particularly in the SMB segment could not go for it. CommTEL as already mentioned does away with this.

According to IDC the world wide revenues from customer care services is experiencing a CAGR of around 12.7% hitting revenues of around USD 83.5 billion by 2009 with figures only expected to post greater levels

Future Prospects

Multi-lingual speech support – the CommTEL as of now supports only the English language, development is on for integration of at least 14 other Indian languages. Not only that integration with language is possible as long as the corresponding language packs are available.

Reference Documents

The CommTEL user guides and reference documents are available at the URL mentioned below. Please feel free to refer to them –

<http://122.161.0.215:3080/twiki/bin/view>

Contact information

For more information on the CommTEL system and your suggestions and customization requirements are most welcome. It helps us to provide a CommTEL solution suited exactly to your requirements. Please contact us at the following detail

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Appendix 1 – Information about E1 Cards

Below listed are some of the globally reputed manufacturers of the E1 cards. The mentioning of names of the vendors should not be construed as any effort on our part to advertise these cards or brands.

Likewise we do not have any liability towards any person or organization using these cards on the basis of their mention here. This is just for information.

Digium

Model	TE220
Description	Digium TE220 Dual Span T1/E1 PCI Express Card

Pricing information will be part of a formal business proposal, which will be generated for business enquiries.

If you look forward to discussing a solution for your Call centre setup needs, please feel free to contact at arindam.chakravorty@lakshyasolutions.com