Proposal to Improve Automated Customer Service at CLIENT

1. Introduction and Overview

1.1. Project Background

This document constitutes a proposal in keeping with CLIENT's requirements consisting of the following elements:

- IVR Audit and Benchmark
- Strategic Planning
- Detailed Design
- Wizard of Oz Usability Testing

These services in combination will accomplish the following:

- Establish quality indices and performance benchmarks and determine the best features of the existing call flows.
- Identify areas for improvement in transaction flow and application usability
- Achieve stakeholder consensus around a common IVR user interface plan
- Design a new call flow and script including expanded functionality where appropriate
- Test and validate this new design via Wizard of Oz methodology

1.2. Company Information

VAST Data Systems specializes in the application of computer telephony to improve customer service. In particular, VAST emphasizes improvement of self-service solutions based on interactive voice response (IVR) and speech recognition.

VAST uses an aggressive, iterative approach to solution design to achieve quick payback. Application and process improvements can often be implemented in a matter of weeks or months, generating sufficient benefits to recover incremental costs and fund further improvements. The goal is for each step to build on the one before. Nothing is thrown away.

VAST's ergonomics and systems integration professionals address client needs looking from the customer's perspective in, ensuring that processes and systems get the right information to the right person at the right time in a convenient and cost-effective manner. VAST is, and has always been, vendor neutral in its work with IVR.

VAST's extensive research covers interactive voice response and speech recognition implementation for all major industries. Currently, VAST is conducting user interface research across multiple languages and cultures. A key premise underlying VAST research is that IVR and

speech recognition technology is quite effective, but the lack of success with fielded applications results from problems at the user interface.

VAST has identified, solved, and validated solutions to user interface problems, for which we now have several patent applications pending. As a systems integrator, VAST combines user interface best practices with the highest standards for application development, resulting in some of the most effective implementations in the industry. VAST also published the best-selling book, *How to Build a Speech Recognition Application*, now in its second edition.

2. IVR Audit and Benchmarking

VAST will complete an in-depth analysis of the target IVR — that is the entire "customer experience" of calling the system via the telephone. The IVR Audit and Benchmarking seeks to identify strengths and weaknesses, and provides baseline performance measures which will be used as a reference throughout the proposed engagement.

For the IVR Audit and Benchmarking project to be successful, the following documentation and information will be provided to VAST:

Access Telephone Numbers and test account numbers

Logic flow diagrams, scripting and related design documentation for the existing system.

The methodology employed has been validated based on hundreds of previous audits and data collected by VAST during its extensive research and benchmarking projects over the past ten years. The purpose here is to provide an objective look at the observations and match them to the independent findings. In addition, the scores will be benchmarked using data we have collected from similar companies. In detail:

2.1. Call-In Evaluation

A Senior Analyst experienced in IVR auditing will complete VAST's standard *applications profile and survey process*. This proprietary process has been used to evaluate and record the quality of over 500 representative IVR systems in the United States. The key steps of this process are as follows:

The Analyst will place sufficient calls into the target system to navigate all available menus. In the course of these calls, the Analyst will record every individual option and the key(s) required to select it, as well as the nature of all available messages, prompts and transactions for English and Spanish language users.

Next, the Analyst will order at least one document where fax or mail-on-demand is offered. Where speech recognition is offered, the Analyst will navigate and record all options that are available through this technology for English and Spanish language users.

Thereafter, the Analyst will review all written observations from individual menus and post the findings to an evaluation summary sheet. This standardized summary, which addresses more than ***50 common characteristics***, will then be used to compute and record an overall quality score for the system.

2.2. Industry Benchmarking

Based on the above, the Analyst will complete an *analysis of evaluation findings*, which includes a comparison of system characteristics and quality scores with other representative IVR systems in VAST's IVR survey database. The results of this analysis are summarized and recorded.

2.3. Recommendations

Finally, the Analyst will formulate and record a set of *specific recommendations for improvement* for the IVR system. In making these recommendations, our Analyst will attempt to balance improved customer satisfaction with the ever present need to maximize return on investment.

The findings and recommendations from the IVR Audit and Benchmarking will be presented during the strategic planning session and incorporated into the final strategic planning report (both are described in the next section).

3. Strategic Planning

VAST's Strategic Planning process is intended to clarify business and technology issues related to a complete redesign of the target IVR system and to ensure consensus on project priorities and approach.

Throughout this initial project, and in subsequent phases, VAST will emphasize ways to minimize customer service disruption during the recommended upgrades targeted for the application.

VAST will initially work remotely with client subject matter experts to complete a set of worksheets regarding the existing IVR systems and infrastructure at each call center. In addition, VAST will review any available planning documents and related information.

3.1. On Site Design Planning Session

A two-day design planning session will be led by VAST to develop the optimal approach to re-design. Client team members should include key internal stakeholders such as customer service managers, information technology and/or telecommunications managers, and marketing personnel.

The proposed topics for the on site design planning sessions are as follows:

3.1.1. Day One

IVR Design Objectives. The goal is to discuss and reach consensus on measures of success, including utilization, customer satisfaction, revenue, automation and timelines.

CSR Interviews and Observation. VAST will tour the call center, conduct a one-hour interview with key customer service representatives (CSR), and "double-jack" with CSRs to observe actual customer calls. The timing for this task will be adjusted to minimize disruption during the call center busy hours.

Customer Relationships. The team will determine the major reasons customers call, by customer segment if appropriate, the complexity of each transaction, caller's emotional state, relevant business strategies, sales opportunities, and whether self-service is appropriate. Requirements for new functionality not currently available will also be identified.

Usage Data Analysis. Transaction types and tasks that can be completed in the IVR vs. transfers to live answer or other alternatives will be determined and analyzed. Planning team members will evaluate any available customer feedback. Time-oriented shifts in calling patterns (e.g., by hour, day or month) will be determined. Repeat call patterns by customer segment will be determined. Call duration and cost will be estimated for ROI calculations.

3.1.2. Day Two

Technology Assessment: Issues to review include ANI/DNIS, network and/or PBX/ACD routing requirements, database and/or IVR platform issues including host availability, access methods, latency, and any requirements to support new transactions in the IVR.

Also discussed will be IVR capacity issues with increased utilization, IVR architecture and configuration options (premise-based vs. network), speech recognition, fax-back, text-to-speech, CTI and/or whisper transfer options and security or disclaimers required for information delivery.

Authentication. As required, VAST will also work with key stakeholders to develop recommendations for standardizing the authentication processes across other applications or call centers.

Design Issues. Using IVR best practices, industry standards, and the results from the IVR audit, the participants will agree on design enhancements to pursue. Considering IVR objectives and timelines, the team will prioritize items for initial vs. longer-term implementation. In particular, the team will prioritize items that will have the greatest impact in the shortest time.

High-Level Call Flow: Using major call types and agreements reached to this point, planning team members will develop and reach consensus on high-level call flow using *Post-It Note* process, including:

- What self-service capabilities will/won't be in the IVR?
  a. Basic organization of the system(s)
  b. Call flow screening options
- Placeholders for phased enhancements
- Possible uses of speech recognition

Timeline and Next Steps: Planning team members will also discuss implementation timeline and other details necessary to develop an initial budget estimates and a high level plan for any design or programming work to follow.

3.2. Strategic Plan Report

VAST will then develop a draft Strategic Plan Report. The goal will be to expedite initial implementation and payback. Placeholders may be included in the system to accommodate future enhancements with minimal disruption to the user interface. Both VAST and the client will then review the draft and reach consensus on the plan. VAST will then finalize the plan.

The Design Plan Final Report is not a detailed design, but rather a roadmap which spells out the goals, priorities and approach to the design. It is an essential planning tool to ensure an optimal design.

4. Detailed Design

All products that are used by customers have a component known as the "user interface." This is the part of the product that interacts directly with the user to get work done. Many products use knobs or buttons, display screens or meters to perform this important function. IVR systems accept caller input in the form of touch tones — and present machine information in the form of voice response. When VAST clients refer to "product design," "call flow," or "scripting," they

actually mean the design of the user interface — that is, the part of the product that can be touched, handled, observed, and judged.

The user interface is difficult to design under the best of circumstances — calling for specialized skills that are difficult to hire, train, and retain. But the challenge becomes much greater when the application uses audio or speech recognition. Such specialized skills are best outsourced for most organizations. By contracting with VAST to provide and manage these resources, the client acquires best of breed quality at a fraction of the cost that would be required to pull the work in house.

VAST will design and optimize the target IVR user interface as a DTMF (touch-tone) interface. VAST will use an iterative, peer-review process to ensure adherence to best practices.

This will involve the following:

4.1. Joint Application Design Sessions (JAD)

VAST will meet with client Subject Matter Experts to clarify and reach consensus on in-depth details associated with various self-service transactions. This includes location and method for accessing data, data field lengths, filed names, exception conditions, etc.

The purpose of these JAD sessions is to take into account how business rules effect the operation of the IVR system. (What are the conditions to allow triggers for phone-based late payment applications, for example). This is a crucial step, because VAST designers need to understand the discretion that agents have so it can be replicated it in the target IVR System.

4.2. Call Flow Logic Development

Based on the business rules, access methods and exception conditions discovered in the JAD sessions, and based on the high-level design recommendation from the Strategic Plan, VAST ergonomics specialists will then create draft Call Flow Logic documentation. This includes:

- Documented call flow, including menu options, levels, and locations of functions, using Visio.
- High-level functional dialogue optimized for DTMF input
- Finalization of the draft call flow with client stakeholders.

4.3. Scripting

Once the call flow is approved, greeting, menu and system prompts will be scripted, including scripting for error messages. The user requirements documentation (call flow, scripting) will be in a format suitable for application development.

Here are a few examples of the level of detail VAST ensures in the Scripting part of a Detailed Design:

- Proper ordering of subjects and actions to eliminate specific-to-general violations;
- Tapering of prompts to eliminate redundant instructions;
- Elimination of “shop talk” in favor of words callers will understand;
- Use of crisp, non-rambling sentences and paragraphs;
- Sparing use of “help” messages;
- Suggestions on the proper use of prosody (inflection of words at the end of a sentence);
- Suggestions on the number of milliseconds of silence between sentences; and

- The overall use of proven best practices for DTMF (touch-tone) systems.

5. Usability Testing with Video and "Wizard of Oz"

With the Wizard of Oz methodology, the user interface can be tested very early in the planning process to refine the dialogue design before significant resources are consumed with application development. Wizard of Oz involves a human "wizard" acting as the. In particular, it is important to observe and assess what choices the caller makes while using the system.

VAST proposes one two-day round of usability testing of the proposed design with a total of 16 subjects. Each participant session will take about one hour, and will cover three to four tasks. Both phase one and phase two designs will be tested.. VAST design experts will be focused on two success measures: 1) Task Completion; and 2) Positive User Feedback.

VAST recommendations will primarily take the form of revisions to the dialogue design and scripting requirements. If appropriate, some requirement changes may be implemented and tested in real-time. VAST usability testing includes:

5.1. Develop Wizard Model

VAST will develop appropriate test methodology and the Wizard of Oz dialogue model so that pre-recorded voice messages can be played to the caller based on the Wizard's interpretation of the touchtone input. This will be based on Detailed Design developed above. VAST will record prompts in the voice of the "Wizard" for maximum flexibility in making on-the fly changes or migrating from recorded prompts to live responses on the fly.

5.2. Develop Task Sheets, Scenarios & Questionnaires for Test Subjects

VAST will work with the client to determine what tasks are most important to include with the testing. VAST will develop the appropriate task sheets in order to provide subjects with specific instructions on how to access the Wizard system and what work we wish for them to accomplish (subjects will believe they are calling in to a live system). Participants will be asked both general questions and questions specifically related to the tasks they test.

5.3. Recruit Test Subjects

VAST will recruit test subjects, and to the degree possible, participants will mirror the diversity of the client customer base (age, gender, ethnicity, income levels, etc.). Participants will need to complete an Information Form that includes consent to be videotaped. Subjects are given a general overview of the test purpose, and description of tasks to be accomplished.

5.4. Data Collection and Extraction of Video Clips

The actual on-site testing will be conducted in the Austin Texas facility of VAST Labs. Alternately, the client will be responsible for test facilities in other locations, as required. Two co-located rooms with telephones are required. VAST will provide all other equipment. Test sessions will be videotaped. VAST will extract representative video clips to illustrate key findings and recommendations. The client is encouraged to attend the test sessions and may also have access to the raw video data.

5.5. Perform Analysis and Design Change Recommendations

After the data collection phase and "on-the-fly" design tuning is completed, VAST design experts will analyze the data from the video clips and link user behaviors and completion data to break points in the proposed design. Best practices recommendations will be mapped to each

significant linkage to the Video and Wizard test data. Final updates to the Detailed Design will then be made.

6. Knowledge Transfer

A key aspect of this effort will be to ensure appropriate knowledge transfer to client personnel to reduce and eventually eliminate the need to rely on outside services for user interface design. VAST knowledge transfer to the client's team will take the form of detailed documentation reviews and on-the-job training of client personnel in user interface design, and usability testing.

7. Deliverables

7.1. Strategic Planning Deliverables

- IVR audit and benchmarking findings and recommendations
- On site planning session
- Strategic Plan Final Report

7.2. Detailed Design Deliverables

- Detailed call flow documentation in the form of Visio file(s), consisting of pages of technical flow charts.
- Detailed scripting

7.3. Wizard of Oz Usability Testing Deliverables

- Wizard of Oz Usability Testing Final Report
- Final Design Changes in the form of edited Visio Charts, scripting and/or grammar

8. Fees & Timing

A project kick off conference will be held to refine the methodology described in this document, establish an initial project timeline, identify key stakeholders and subject matter experts, make arrangements for delivering required information to VAST, and to schedule on site meetings.

VAST will complete this project for a fixed-price fee of ------ plus reasonable and customary travel expenses, usability testing recruitment fees and test subject stipends, as follows:

Payment milestones are shown in the following:

Table 1—Payment Milestones

Invoice Date	Amount Due
Due upon project approval	
Due upon completion of strategic plan	
Due upon submittal of draft design	
Due on completion of WOZ testing	
Due upon delivery of final detailed design	

9. Assumptions

The following assumptions apply to this document.

9.1. Access to Personnel

VAST will arrange for the project kick off conference upon project approval. VAST will have access to key client personnel (all key stakeholders in project) in order to receive timely input to keep the project on track.

9.2. Access to Critical Data

VAST will have access to all relevant documentation on the current systems, including test accounts and phone numbers.

9.3. Project Delays

Delays outside of VAST's control that exceed 30 days may increase VAST's costs and cause a change in fees.

9.4. Work Site

Much of VAST's work will also be done off-site. VAST will assign a project manager to act as single point of contact for client. Ongoing communication will be handled by phone, fax, and e-mail. Both parties agree to develop and maintain a complete list of project personnel to ensure timely communication.

9.5. Intellectual Property

VAST will maintain ownership of its pre-existing intellectual property, including designs and methodologies. Anything created specifically for client will be owned by client. To the extent there is pre-existing VAST intellectual property included in the deliverable; VAST grants a perpetual right to use by client for same.

9.6. Customer Reference

Upon successful completion of the project, client agrees to act as a reference for VAST. This may be in the form of a formal reference letter or contact with VAST prospects.

9.7. Insurance

All VAST personnel will be covered by $1,000,000 each of general liability and professional liability insurance, purchased at VAST's expense (existing policies).

10. Terms & Validity

10.1. Terms

VAST's terms are net 30 invoice date.

10.2. Validity

This proposal is valid for 30 days from the most current date printed in the footer of this document.

10.3. Contact Information

Questions regarding this document should be directed to Director of Call Center Solutions at (nnn)nnn-nnnn. Email messages should be sent to vern@vastdatasystems.com.

10.4. Address of Record

VAST's address of record is: 2410 San Ramon Valley Blvd, Suite 225, San Ramon, CA 94583.

AGREED AND ACCEPTED BY:

ENTERPRISE INTEGRATION GROUP

By: _____ Date: September 16, 2004
Director of Call Center Solutions

CLIENT

By: _____
Print name

Title: _____
Print Title

Signature: _____ Date: _____