Web Enabled Service Implementation
- Telephone Directory Prototype
User Requirement Specifications

Project Manager:
Chia-Chu Chiang, Ph. D.

Project Team Members:
Benjamin Balogh
David Miller
Matthew Reed

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The following signatures are required for approval of this document.

___________________________________________ ______________________
Benjamin A. Balogh Date
Project Programmer

___________________________________________ ______________________
David C. Miller Date
Project Programmer

___________________________________________ ______________________
Matthew W. Reed Date
Project Programmer

___________________________________________ ______________________
Chia-Chu Chiang Date
Project Manager
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1 Introduction

1.1 Purpose

The purpose of this document is to provide a precise representation of all materials necessary to develop a software engineering prototype of a web enabled telephone directory application. This document will satisfy the functional, performance, security, design, and verification requirements for development of this prototype. This document is intended to provide design information to our client (C-CC, Limited [C-CCL]), for software review and approval. It provides our company (Rock Software Engineering, Inc. [RSE]) with the building blocks for software design.

1.2 Scope

This document will describe in detail the specifications and deliverables for the Access Point product. This prototype for the Access Point product will encompass the Access Point Web Enabled Service and Access Point Telephone Directory Application.

The final package will include the following materials:

- Software Products:
  - Access Point Web Enabled Service
    - Source Code
    - Compiled Executables
  - Access Point Telephone Directory Application
    - Source Code
    - Compiled Executables

- Deliverables:
  - Requirements and Specification Document
  - Project Plan Document
  - Design Document
  - Source Code and compiled bytecode for the web service
  - Source code and compiled bytecode for the back-end application
  - Testing Documentation
  - Technical documentation for future use of developed software
  - Project Experience and Risks Document

This Access Point prototype will conform to these C-CCL imposed limitations:

- Obtained Software is Open Source compliant
- Prototype Development on a C-CCL owned server
- Software Development follows Object-Oriented [OO] Model
- After submission C-CCL will have all information necessary to build a full version of Access Point based on this prototype.
1.3 Definitions

**Access Point** –
Name of the final software produced for this project.

**Backend Application** –
An application that runs on a server, which accesses a database of information and returns results to the user. The application is invoked when the user logs in to the web service and requests information from the database or issues a command.

**C-CC, Limited [C-CCL]** –
Fictional Client being used for this prototype. Stands for Chia-Chu Chiang, Limited.

**Client Group** –
A series of individual users to the system associated with a particular client. For this prototype, only one Client Group will be created.

**Object Oriented Model [OO]** –
The use of a class of programming languages and techniques based on the concept of an “object” which is a data-structure encapsulated with a set of routines called “methods” which operate on the data.

**Open Source** –
A method and philosophy for software licensing and distribution designed to encourage use and improvement of software written by volunteers by ensuring that anyone can copy the source code and modify it freely. For our purposes, “Open Source” will be interchangeable with “GNU”

**Rock Software Engineering, Incorporated [RSE]** –
Fictional company developing the requirements specification document. Comprised of the Project Team members listed on the title page.

**Server** –
A computer accessed remotely by the end-user, used for running applications and storing/retrieving data.

**User/End User** –
An individual accessing the web service, usually an employee of the client company.

**Web Enabled Service** –
Software based solution that allows the end user to run applications and store or retrieve information remotely via the Internet, often through a standard web browser.
1.4 References


“http_load - multiprocessing http test client”,


Interview with Chris Morris, IBM WebSphere Developer, Ascendant Technologies, April 20th, 2006.


1.5 Overview

This document is divided into three Document Sections and one Appendix to describe the specifications and requirements for the development of the Access Point product.

Introduction:
- Provides an overview of the SRS Documentation

Overall Description:
- Product Perspective
- Product Functions
- User Characteristics
- Constraints
- Assumptions and Dependencies

Specific Requirements:
- Functional Requirements
- External Interface
- Performance
- Design Constraints
- Attributes
2 Overall Description

2.1 Product Perspective

2.1.1 External Interfaces
The User will initiate interaction with the Access Point Web Enabled Service through any standard web browser.

The web interface will provide an initial page designed for User Login. From this page the user will be presented with the list of Applications they can use, the Submission Page for each Application, and a page displaying the results of previous Application runs.

2.1.2 Software Interfaces
Access Point product will interact with the following software:
- C-CCL machine’s Web Server Application.
- Access Point Web Enabled Service
- Access Point Telephone Directory Application
- Internal Logical Database

2.1.3 Hardware Interfaces
The Prototype will be completely housed within the C-CCL server and accessed by the End User’s computer.

2.2 Product Functions

2.2.1 Client Recognition
Clients recognitions should encompass the following minimal recognition features:

2.2.1.1 Client Group
- The Client Group that will encompass ALL User Activity within the system.
- All User activity shall occur through Individual User IDs setup within the Client Group.

2.2.1.2 User Recognition
- All User IDs shall be assigned to an individual user. Any activity from this individual user will be tracked in association with the Client Group.
- User System Information shall be gathered and logged for User Recognition purposes.
2.2.1.3 Contractual Agreements

- A Client Agreement shall be created, signed, and returned before a Client Group will be established and initial data entered into the Web Enabled System.
- A User Agreement shall be created, and electronically signed upon the first use of a new account by each individual user in the Client Group. This User Agreement will be reaffirmed via electronic signature upon each Password change.
- All Agreements shall be considered a lawful contract and to protect RSE from legal recourse based on any breaches of contract.

2.2.2 Client Billing Features

Billing structure will be based on a simple flat monthly fee structure. That monthly fee will cover a predetermined number of uses of the web service, with a per-use fee for every use of the web service over the monthly limit. The monthly subscription fee and overage fee are to be determined.

2.3 User Characteristics

We assume the users of this prototype will receive training in using Access Point. These users will be provided with documentation in regards to reference materials, instructions, and general Internet requirements.

2.4 Constraints

The following are the general constraints associated with the development of this Web Enabled Telephone Directory Prototype:

- All software obtained for use in this prototype will conform to Open Source standards.
- The hardware for development of this prototype will be limited to a predefined C-CCL owned server.

2.5 Assumptions and Dependencies

The following are assumptions and dependencies associated with the development of this Web Enabled Telephone Directory Prototype:

- Any user of this web-enabled service will have access to a computer with the capability of accessing the Internet.
- Clients will provide the data necessary to populate the entries within the telephone directory.
- User Queries of the Application will be limited to a maximal number of 10,000 records returned. Performing larger queries will not comply with RSE’s predefined Performance Metrics.
3 Specific Requirements

3.1 External Interfaces

3.1.1 User Login/Password
Description: User action to initialize the Access Point system.
Source: Client / Web Browser
Valid Range: 100 % match on stored data
Units of Measure: ASCII Characters
Timing: Initiation
O/I Relationships: Required to Access other Data
Results in Development of User Activity Logs
Input Formats: Text Box
Data Format: ASCII Characters
End Message: Success/Fail Messages

3.1.2 Search Query
Description: User action to use Telephone Directory System.
Source: Client / Web Browser
Valid Range: Masking & Wildcard matching
Units of Measure: ASCII Characters
Timing: Pre-condition to Application Processing
O/I Relationships: Requires Valid Login
Source for Query Results
Results in Development of User Activity Logs
Input Formats: Text Box
Data Format: ASCII Characters
End Message: Success/Fail Message
Submit Query

3.1.3 Query Results
Description: Output from Telephone Directory System.
Source: Backend Application
Valid Range: Match Input Specifications
Units of Measure: ASCII Characters
Timing: Post-condition to Application Processing
O/I Relationships: Requires Valid Login
Search Query Required for Processing
Results in Development of User Activity Logs
Input Formats: Defined by Search Query
Data Format: ASCII Characters
End Message: Success/Fail Message
Return Query Results
3.1.4 **User Activity Logs**

- **Description:** Logging of all user Activities on System.
- **Source:** Backend Application, Web Service, Database
- **Valid Range:** N/A
- **Units of Measure:** Records
- **Timing:** Concurrent to User Activities
- **O/I Relationships:** User Login, Search Query Required for Processing, Results of Query, All System Activity [Warnings/Errors]
- **Input Formats:** Table
- **Data Format:** ASCII Characters / Record Field Definitions
- **End Message:** None from Client perspective
3.2 Functions

3.2.1 Access Point Web Enabled Service

Access Point will be available from the Internet. The user will not be required to download any programs. They will access and successfully login to the web site and choose the application they wish to run.

All information sent to and received from the web site will be transferred in a secure manner.

3.2.2 Access Point Telephone Directory Application

The backend application for this project will be a Client Telephone Directory that will store the following information:
- Name
- Work number

Users will be able to display this information through a simple search feature allowing the user view an individual record by providing the necessary search criteria.

3.2.3 User Activity Monitoring

All activities performed by an individual user will be tracked and reported at the client, and user levels. These logs shall track any information deemed necessary to positively identify the user.

The Access Point product will track user access to the Client data by recording the number of times each individual user has successfully accessed the Access Point Telephone Directory Application. This information is monitored for the purposes of client billing.

3.2.4 User Login

All users will login using an individually assigned User ID and Password. The user will not have access to any Client data without a successful login.
3.3 Performance Requirements

This web-enabled service will be able to handle multiple concurrent users clients at any time and from any location where Internet access is available.

Under normal server load conditions, the web service should be returning results in a timely manner.

- Single records returned within 5 seconds.
- Less than 100 records returned within 10 seconds.
- Results of greater than 100 records within 1 minute.

3.4 Logical Database Requirements

The following information will be kept in client-based database instances:

- Client Information
- User Information
- User Activity Logs
- Client Telephone Directory data

3.5 Design Constraints

All obtained software should abide by the Open Source Software Standards. Prototype will be created using an existing server owned by C-CCL. All coded developed for Access Point will conform to the OO model.

3.6 Software System Attributes

3.6.1 Reliability

For this project the Access Point product will have been fully tested at the time of delivery to minimize the number of potential errors within the service.

3.6.2 Availability

Any User defined for a specific Client will have access to Access Point through any of the following standard web browser:

- Internet Explorer
- Mozilla
- Netscape
3.6.3 **Security**

The Access Point Product will incorporate several specifically outlined Security Features:

3.6.3.1 *Interface Security*
- All User IDs shall be assigned to an individual user. Any activity from this individual user will be tracked and associated with the Client Group.

3.6.3.2 *Data Security*
- All interaction between Access Point and Client Users shall occur through Encrypted data transfers.
- All data must be stored in a location that is not accessible by any other Client.
- User Password Information shall be stored in an individual-level encrypted format.

3.6.4 **Maintainability**

All software will be written in an OO fashion to assist in modularizing for modification purposes.

3.6.5 **Portability**

The Access Point product prototype will not be built with portability considerations included. The entire web enabled solution will be developed using Open Source tools, Java, and a Linux Operating System.