Assignment 5: Architecture Change
Voice Driven Web

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1 Introduction

The purpose of this assignment is to train you in coping with changes to the system specification, e.g. as a result of changed or emerging customer requirements. When addressing these system changes, you also provide a "stress test" of your architecture and your architecture decisions.

In this document we describe change requests for the Voice Driven Web system. For this assignment you need to select and address at least four of them and motivate why you do not address the remaining.

For details on what we expect you to deliver, please see the overall Assignment Descriptions document.

2 Change Requests

Request 1: "We seek him here. . . "

Modern phones enables more of the system to be run on the handheld side rather than on the server. Among other things, this enables the system to cater for more concurrent users. To conform to this request, all ASR and TTS needs to be done on the client (handheld) side, and the communication to the server needs to be restricted to data (messages) (e.g. a request and a JSON response).

Request 2: "We seek him there"

As a contrast, this request restricts all interaction to touch-tone (DTMF), using pre-recorded responses. Thus, the emphasis and the load is shifted to responsive media servers.

Request 3: "Those Frenchies seek him everywhere."

This is a dynamic synthesis of the two previous requests, where some users may have a locally installed client, others use the voice driven web system, and when the load reaches a certain threshold the system resorts to pre-recorded messages and DTMF.

Request 4: Javert looking over your sholder

It shall be possible to monitor the system on-the-fly. This includes monitoring the number of current and past users, their (average) location, the services they use in the system, average connection time, etc.

Request 5: Tower of Babel

The weather service is extended to support both questions and answers in multiple languages (For this first extension, the system is extended to support English, French, and Kinyarwanda). More languages are expected.

Request 6: Macro-Smalltalk

The system is extended to enable users to, via the voice interface, set up small "programs" of activities they often request together. For example, a farmer might want to know the rain forecast as well as the current prize on maize. These programs are stored with the caller's phone number and a name (e.g. "forecast and prizes on maize") as key, but can also be shared to other phone numbers.