# Development of a toolkit handling multiple speech-oriented guidance agents for mobile applications

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## ABSTRACT

In this study, we propose a toolkit to handle multiple speech-oriented guidance agents for mobile applications. The basic architecture of the toolkit is server-and-client architecture. We assumed the servers are located on a cloud-computing environment, and the clients are mobile phones, such as the iPhone. It is difficult to develop an omnipotent spoken dialog system, but it is easy to develop a spoken dialog agent that has limited but deep knowledge. If such limited agents could communicate with each other, a spoken dialog system with wide-ranging knowledge could be created.

## INTRODUCTION / BACKGROUND

- A Toolkit for developing a Spoken Dialog System (SDS)
  - Server-and-Client architecture
  - Each server can communicate with the other servers
- Aim of this study
  - SDS as a "generalist" is constructed by a huge amount of SDSs as a "specialist"
  - Specialist: Task-dependent dialog, location-dependent dialog, etc.
- Approach
  - Single main agent ("generalist") and multiple sub agents ("specialists")
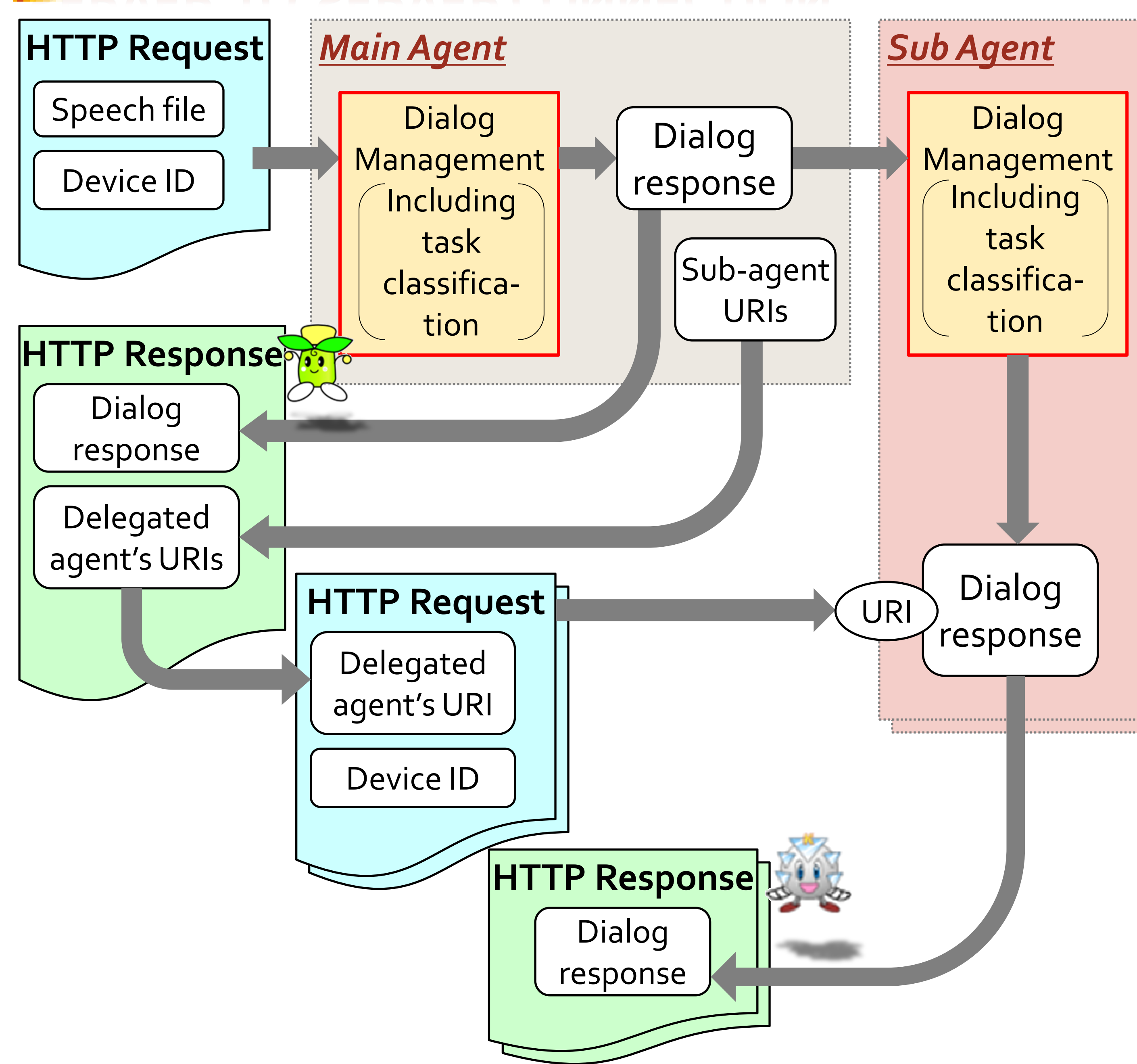  - Client system: iTakemaru (Takemaru-kun for iPhone)
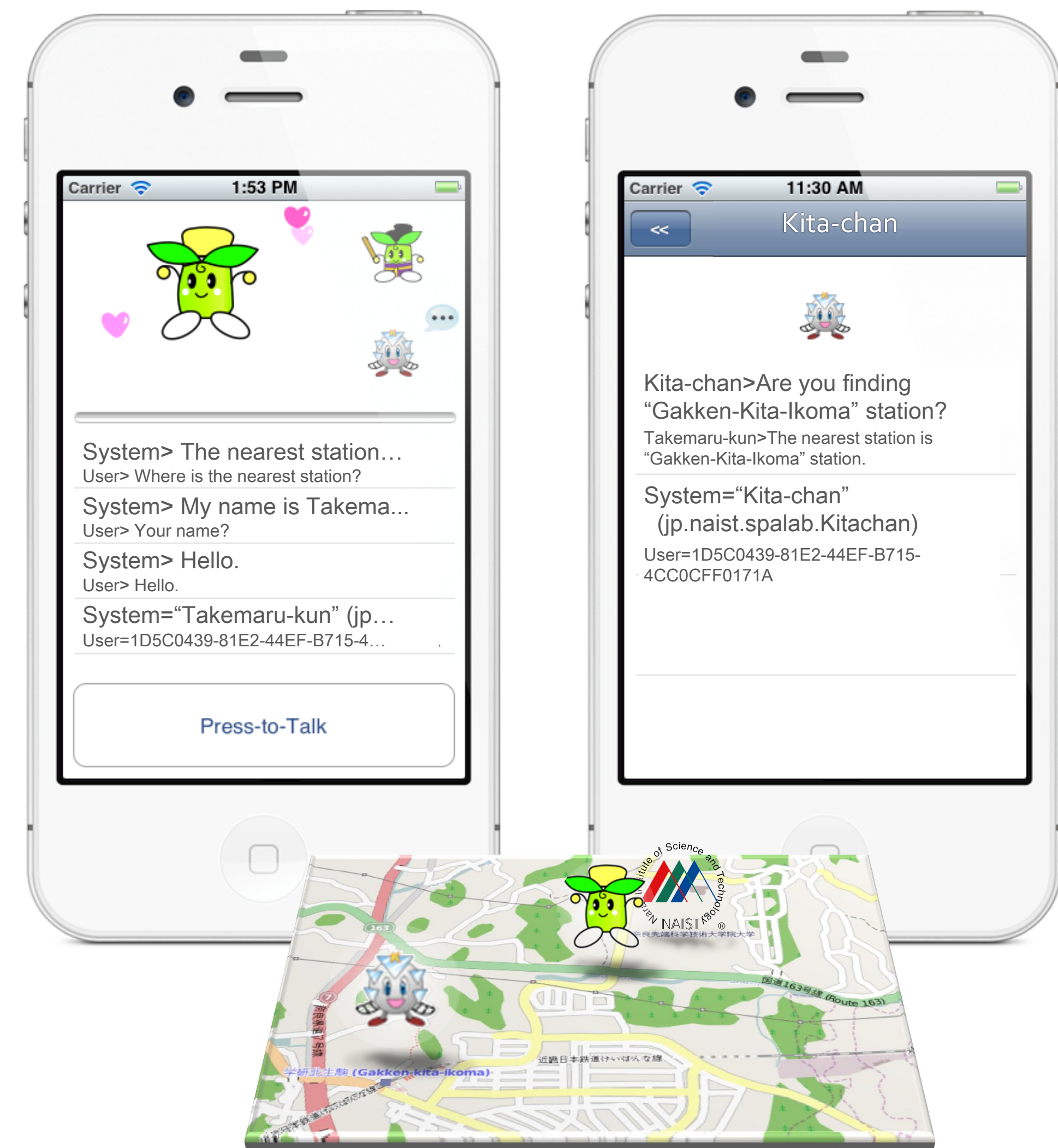


# System

## BASE ARCHITECTURE OF SERVER SYSTEM
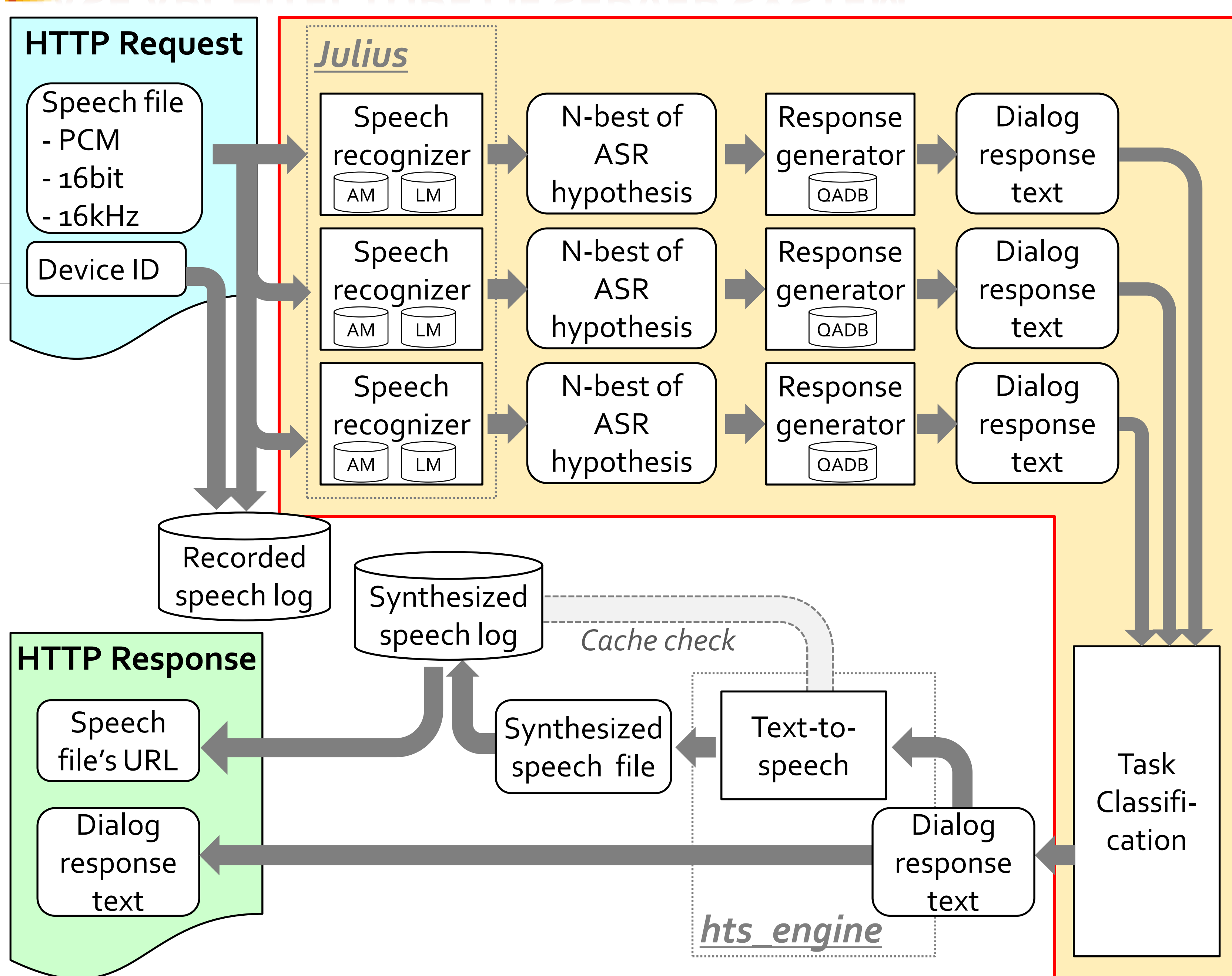


## SERVER-TO-SERVER CONNECTION



# Conclusion / Future works

- Development of a toolkit handling multiple speech-oriented guidance agents for mobile applications
  - Single main agent and multiple sub agents
- Selection of subagents
- Location specific service using GPS (or A-GPS)
- Experiments/Evaluations under real environment

| Web 1.0 | Web 2.0 | Web 3.0 *Now* | Web 4.0? |
|---|---|---|---|
| ◆ Information publishing (one-side) <br> ◆ URI is mainly used as URL <br> ◆ Hyper-linking: definition for implicitly relationships between resources <br> ◆ Bookmark (Favorite): Tools for remembering the resource's URI | ◆ Information publishing (interactive) <br> ◆ Concept of usability and sharing was being important <br> ◆ Wiki-wiki, Web-API, Mash-up services, Information Tagging, etc. | ◆ Information publishing (collaborative) <br> ◆ Cloud: access to user's data from any places <br> ◆ Social: information sharing with others <br> ◆ SNS, Cloud computing, Crowd sourcing, etc. | ◆ Information explosion: rapidly increasing in the amount of published information; e.g. "Total Recall" <br> ◆ Technology of Information Retrieval will be having more importance <br> ◆ Librarian (Concierge) of each database or websites may be promising <br> ◆ Lifelog, MyLifeBits (Microsoft), etc. |