

Simulated Virtual Market Place By Using *voiscape* Communication Medium

Yasusi Kanada

Central Research Laboratory, Hitachi, Ltd.

Higashi-Koigakubo 1-280, Kokubunji, Tokyo 185-8601, Japan

kanada@crl.hitachi.co.jp

1 What is voiscape?

- **Voiscape is an auditory-display-based voice communication medium.**

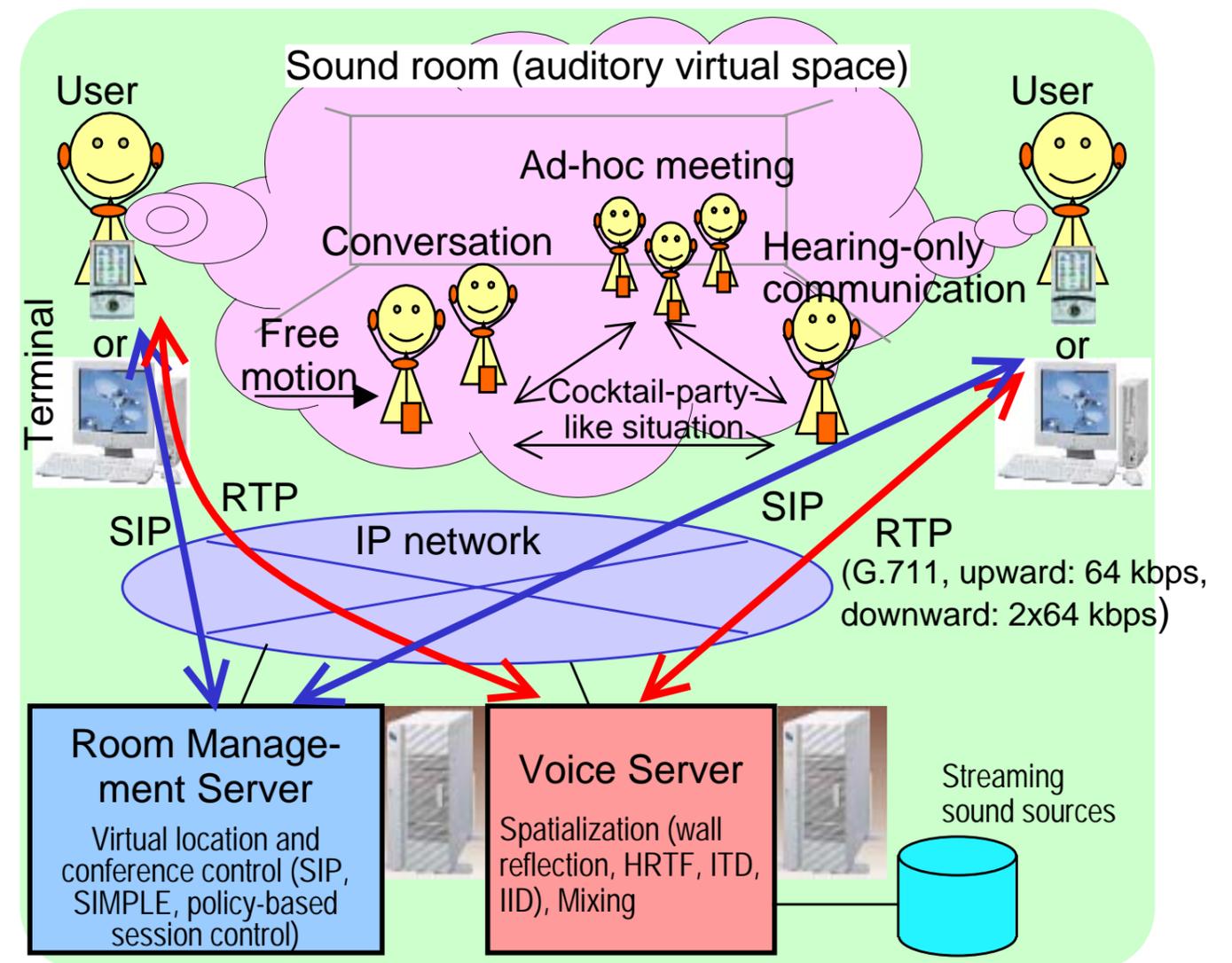
- Users can select and enter an auditory virtual space called a **sound room** at anytime.
- Directions and distances in the sound room are expressed by spatialized audio (by simulated reflections of the room walls and an HRTF (Head-Related Transfer Function)).
- Users can move freely in the room using a pointing device. (The virtual locations are independent of the real locations.)

- **Multiple conversations and streaming sounds can coexist in a sound room.**

- Two or more users can talk each other; a user can easily see who said what even when two users speak simultaneously.
- Users can enjoy cocktail-party-like situation; a user can freely choose users to speak and/or sound sources, i.e., music or other streaming sounds.

- **VPII, a voiscape prototype, has been developed.**

- The **Room Management Server** controls sessions and propagates virtual presence by using SIP (Session Initiation Protocol) and SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions).
- The **Voice Server** collects and spatializes the sounds from the users, mixes them for each user, and delivers the mixed sounds.



Concept and system structure of voiscape

2 The user interface: map-based virtual space navigation

- The user agent (UA) runs on PDAs (Sharp Zauruses) and Microsoft Windows PCs.
- The UA then displays a **map** of the sound room, shown on the right.
- The user can move in the room by using **cursor keys** or other pointing devices.

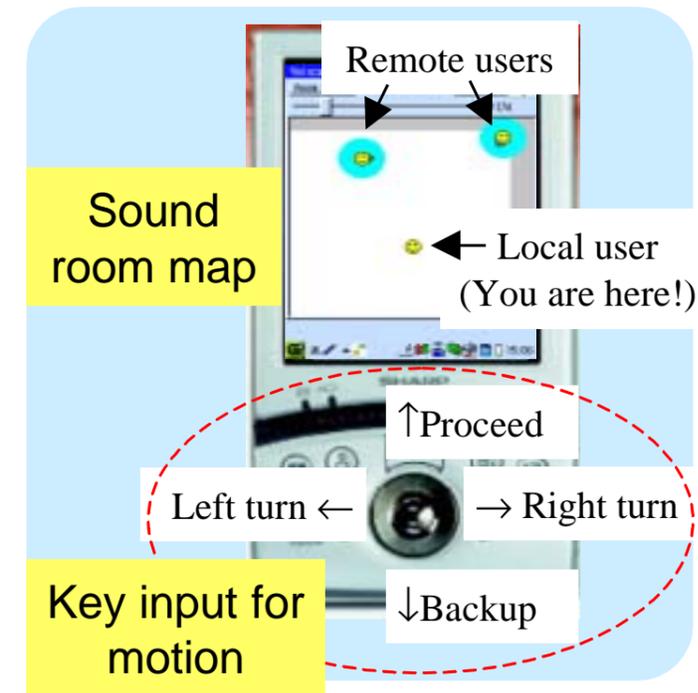
3 Virtual Market Demo

A virtual market with simulated shops and customers is demonstrated.

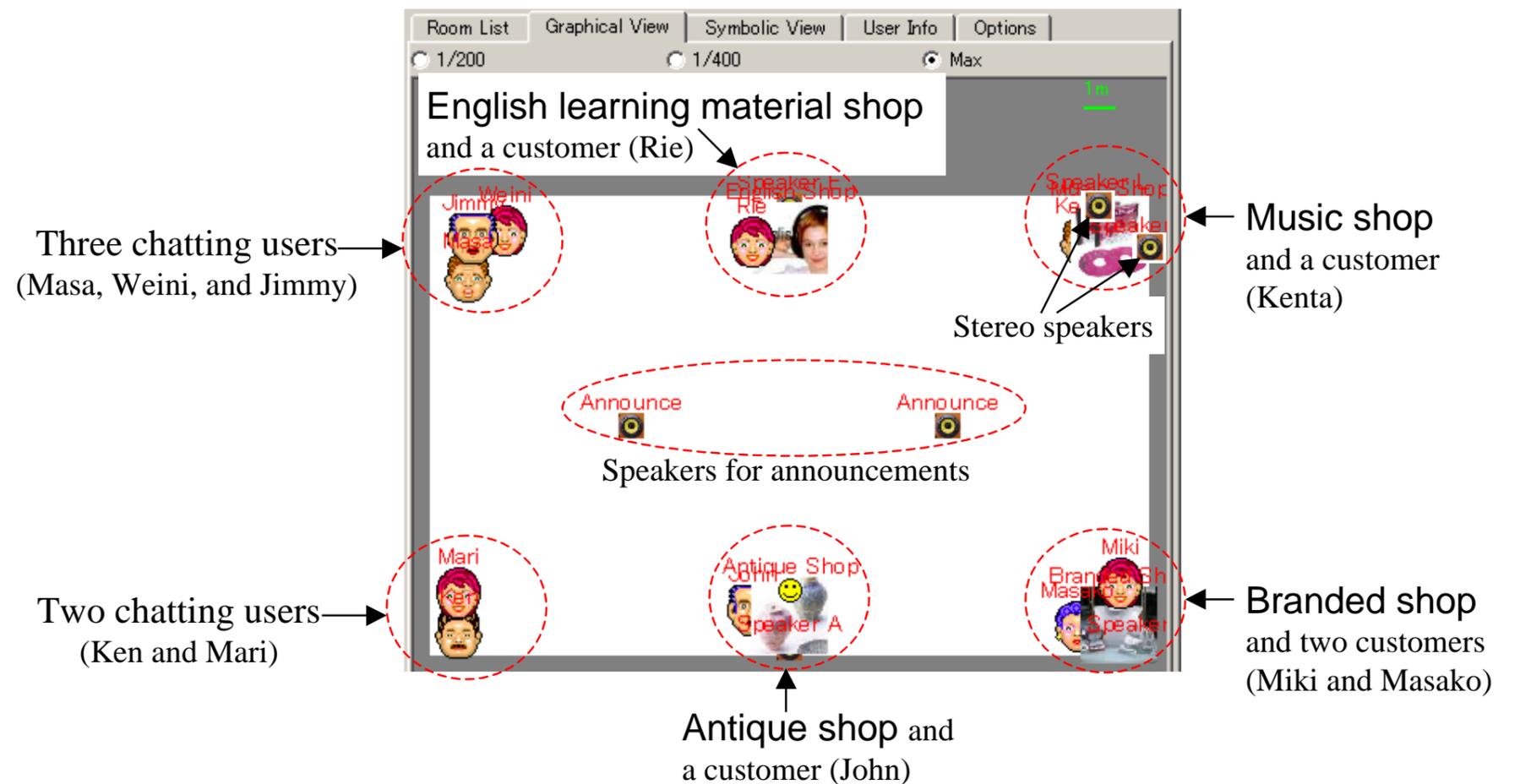
- There are four simulated shops (merchants): a branded shop, an antique shop, a music shop, and an English learning material shop.
- There are ten simulated customers; five of them are talking with the merchants and other five are talking each other.
- There are four music sources; one of them (in the music shop) is (simulated) stereo.

What you can do here:

- You can feel the atmosphere of the virtual market; you can hear all the voices at one location.
- You can walk close to a shop and hear the conversation and music going there.
- You can talk each other by using the UAs; there are three PDA UAs and one Windows UA.
- You can choose another room: simulated meeting rooms, music rooms, or a speech room.



VPII user interface



Virtual market map