Case Study

Multilingual Simultaneous Interpretation in Microsoft Teams

SpringCT partnered with a leading Unified Communications provider to develop an innovative MS Teams application designed to support multilingual simultaneous interpretation during meetings. The primary objective was to enable seamless communication by allowing participants to subscribe to an interpreter's audio stream in real time. This feature bridges language barriers, ensuring participants can engage effectively in their preferred language without interruptions, fostering inclusivity and global collaboration.

Product Features

The MS Teams application integrates seamlessly into the Teams environment, offering the following functionalities:

- **Real-Time Interpretation**
  Supports live audio translation by human interpreters during meetings and events.
- **Multi-Language Support**
  Participants can subscribe to their preferred interpreter's audio channel for translated meeting audio.
- **Dynamic Audio Switching**
  Users can toggle between the original meeting audio and the interpreter's translation as needed.
- **Effortless Integration**
  Requires minimal setup, ensuring a smooth and quick onboarding experience for users.
- **Cross-Platform Availability**
  Works seamlessly across Teams desktop, web, and mobile applications.

Key Technical Achievements

- **OAuth and Microsoft Accounts Integration**
  Managing secure authentication and permissions for interpreters and participants while ensuring a smooth login experience.
- **Real-Time Audio Synchronization**
  Ensuring that the interpreter's voice aligns with the original meeting audio without significant latency.
- **Teams App Permissions**
  Configuring appropriate permissions for accessing Teams audio streams and ensuring compliance with Microsoft policies.
- **Dynamic Audio Channels**
  Developing a scalable system to manage multiple audio channels for interpreters and participants simultaneously.
- **User Experience**
  Designing an intuitive interface to allow participants to subscribe, switch, and control audio channels easily.

Technologies Used

- **Frontend (Teams App):** React + TypeScript, Microsoft Teams JavaScript client library (TeamsJS)
- **Backend:** Node.js + TypeScript, Azure Web PubSub for real-time audio streaming

- **Azure Services:** Azure Communication Services, Azure App Service, and Azure Kubernetes Service (AKS) for orchestration.
- **Audio Processing:** Integrated with audio codecs and APIs for optimized performance and minimal latency.

Results

The MS Teams multilingual interpretation application delivered significant value to the customer:

- Global Collaboration: Enabled seamless communication in multilingual meetings, enhancing inclusivity and decision-making across global teams.
- Operational Efficiency: Reduced reliance on external interpretation setups, saving time and administrative overhead.
- Improved User Experience: Provided participants with greater flexibility to engage in meetings, regardless of their language preferences.

Conclusion

SpringCT’s MS Teams application for multilingual simultaneous interpretation demonstrates the power of integrating real-time human translation into modern communication tools. By overcoming technical challenges and delivering a scalable, user-friendly solution, the application has set a benchmark for inclusive collaboration in multilingual business environments. The success of this initiative reflects SpringCT's commitment to empowering teams with cutting-edge technology solutions.