

TransSMS: A Multi-Lingual SMS Tool

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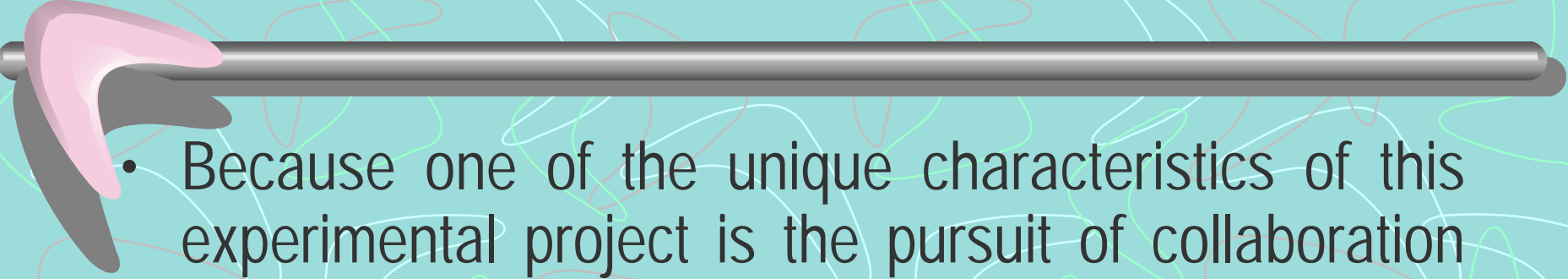
Introduction

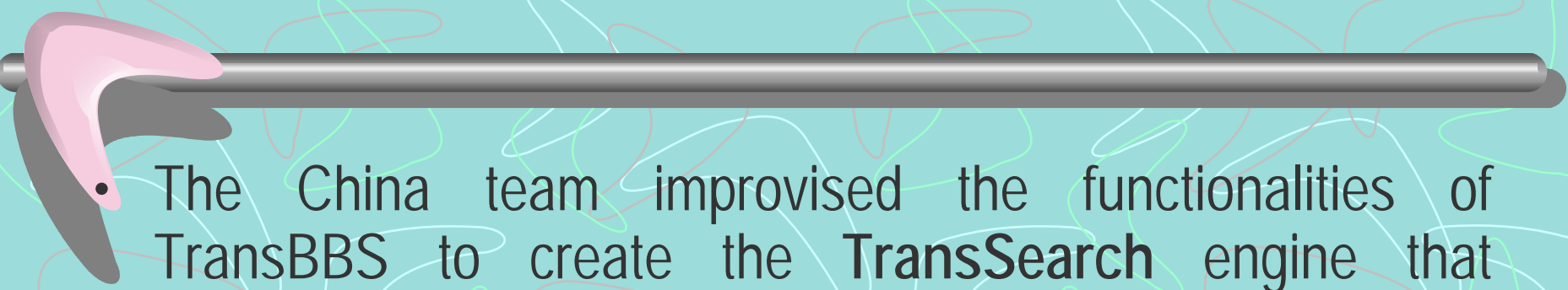
- TransSMS is a multilingual SMS solution developed under the Intercultural Collaboration Experiment 2002 (ICE 2002).
- ICE 2002 is an experiment headed by the Department of Social Informatics, Kyoto University, **Japan**, as an initiative to conduct an experiment on open source software development by multi-national teams in Asia.



- Participants:

- Fac. of Computer Science & IT, University of Malaya, **Malaysia,**
- Dept. of Computer Science & Engineering, Shanghai Jiaotong University, **China,**
- Dept. of Management & Computer Science, Handong University, **Korea.**


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- Because one of the unique characteristics of this experimental project is the pursuit of collaboration among heterogeneous groups across country borders, English was not used as a standard language.
 - One of the objectives of the experiment is to see if the participants are able to break the language barrier through the use of machine translation tools.
 - Two tools were provided by Kyoto University at the beginning of the experiment, i.e. TransBBS and TransWeb.

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- The China team improvised the functionalities of TransBBS to create the **TransSearch** engine that translates the query term into either one of the languages. The search results is translated into the selected language.
 - The Japan team developed **TransMail**, a web-based mail program to send messages among team members instead of using the bulletin board provided by TransBBS.
 - The Korea team devised a chat program called **TransChat** which functions like a normal chat program with capabilities to converse in multiple languages simultaneously.



TransSMS

- TransSMS, developed by the Malaysian team, is a multilingual SMS solution that enables users from the 4 countries to send and receive messages in different languages.
- Languages supported are Malay, Japanese, Korean, Chinese and English.
- The service can be accessed via the Web or a Java enabled phone that has already downloaded the TransSMS client software.

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- 2 types of services:
 - the user may request for the translated text to be sent as SMS to a recipient.
 - request for a Call Back: the service center calls the sender and read the translation using a text to speech engine.



SMS Gateway

- <http://sms-wap.com>
- SMS were submitted to the gateway via a CGI Perl Script.
- Service supported multilingual SMS.
- Future version to adopt XML web services.



Multilingual SMS

- Converting double byte characters to Unicode.

UTF-8 : ABCαβ

Unicode: ABC αβ

Escaped : |*UTF8|ABC%26%23945;%26%23946;



TransSMS Web Client

Network

Telephone #

Msg Lang

Translate Into

Msg (160 char only)



Message to be translated

Network

Telephone #

Msg Lang

Translate Into

Msg (160 char only)

Hello. How are you ?

Translated message

Telephone #

Msg Lang

Translate Into

Msg (160 char only)

喂。你好吗？

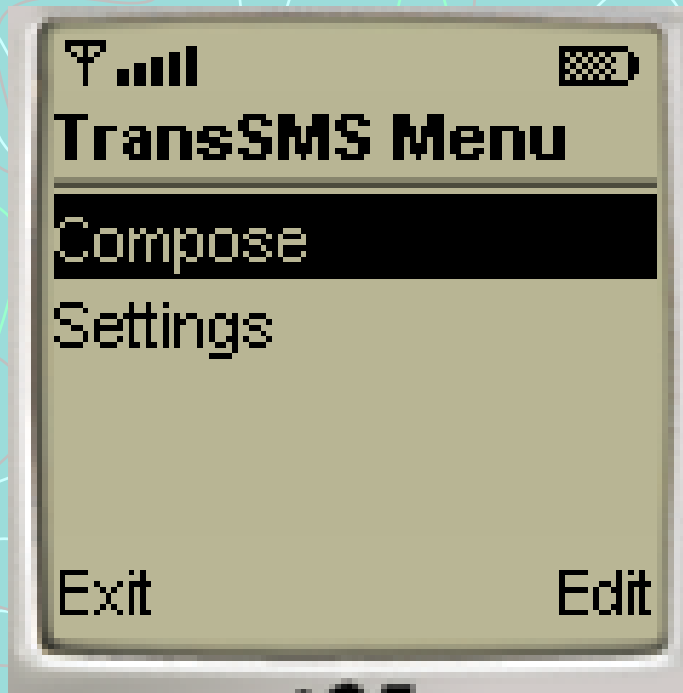


TransSMS Mobile Client

- The mobile client version is written using the micro edition of Java (J2ME).
- Users with web access on their mobile devices can navigate the main TransSMS site to download the TransSMS clients into their devices.
- The current version of the client utilizes the SMS technology to transmit to the server the required parameters.
- This can be modified to use web access to transmit the data for users with existing General Packet Radio Service (GPRS) connections or other various connections.



Main Menu



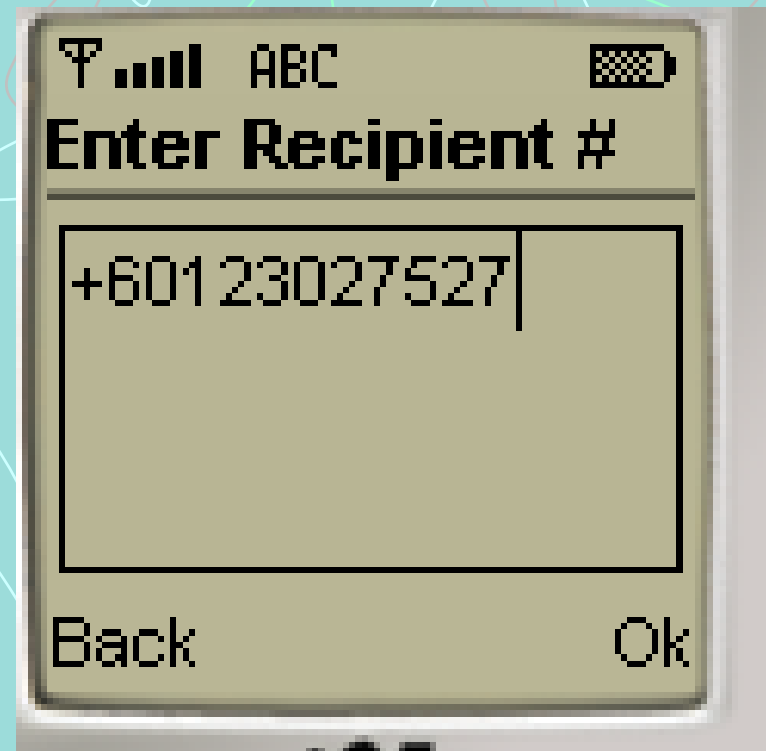
Composing a message





Option Menu

Enter the recipient's phone





Language setting



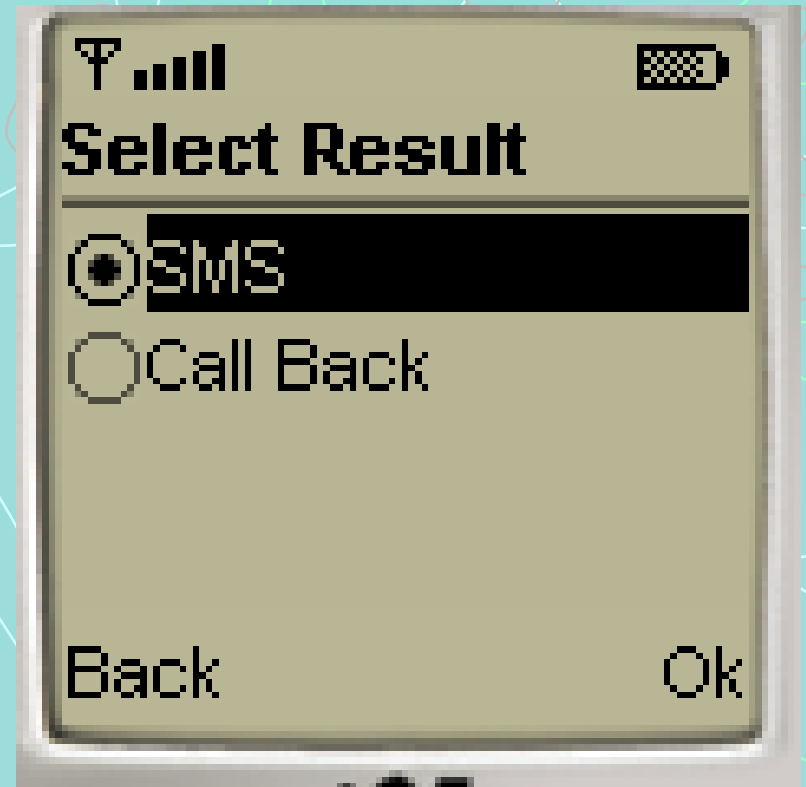
Selecting a language





Result format

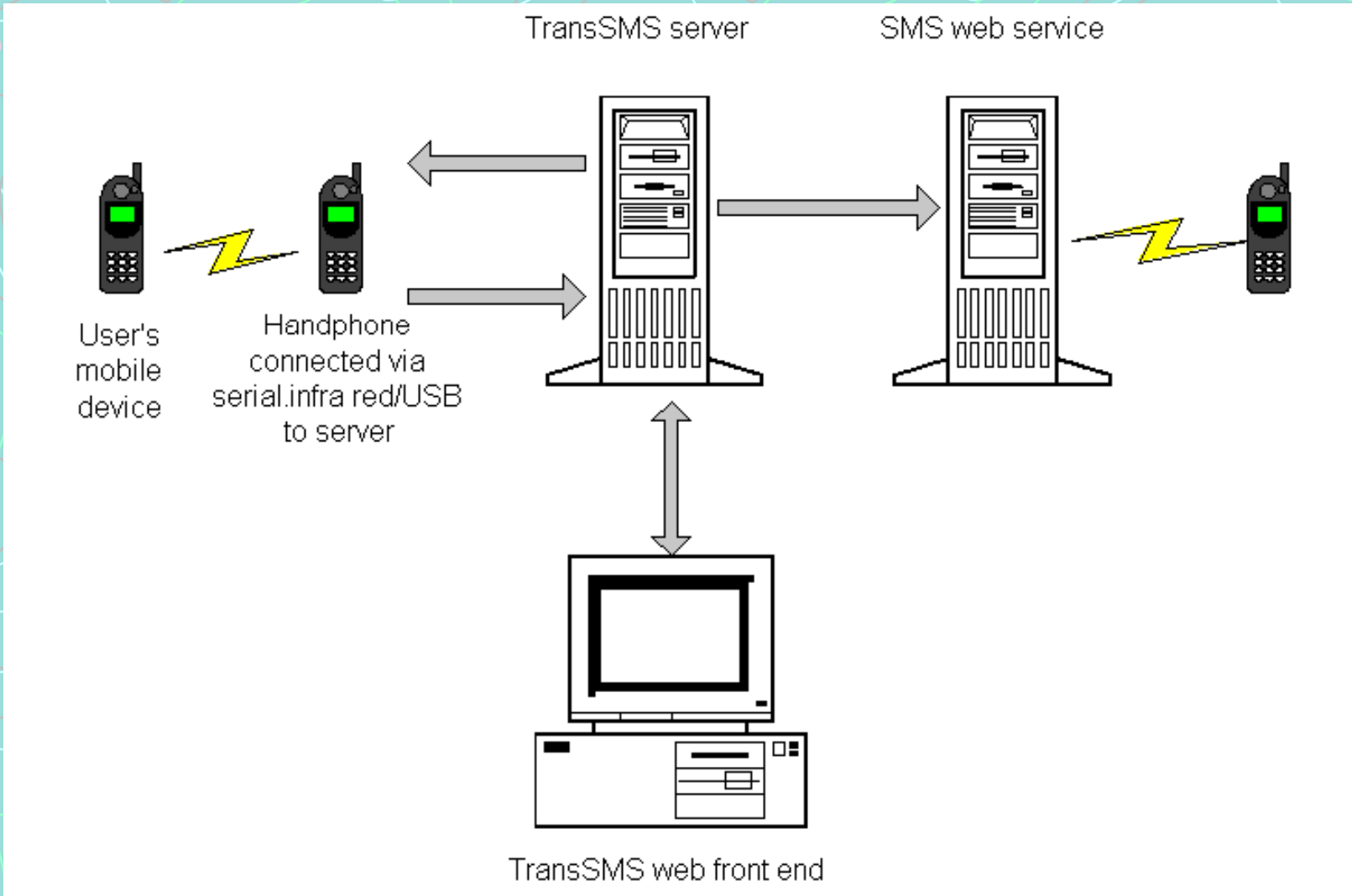
Selecting result format

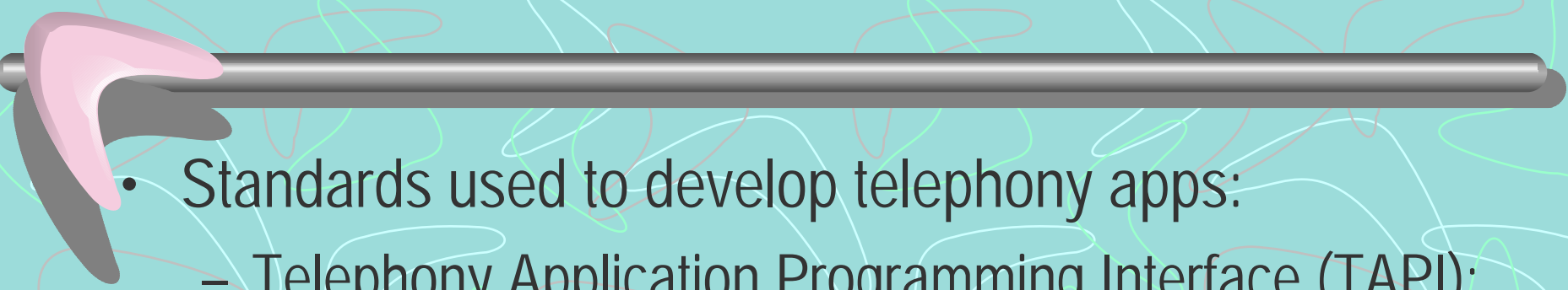


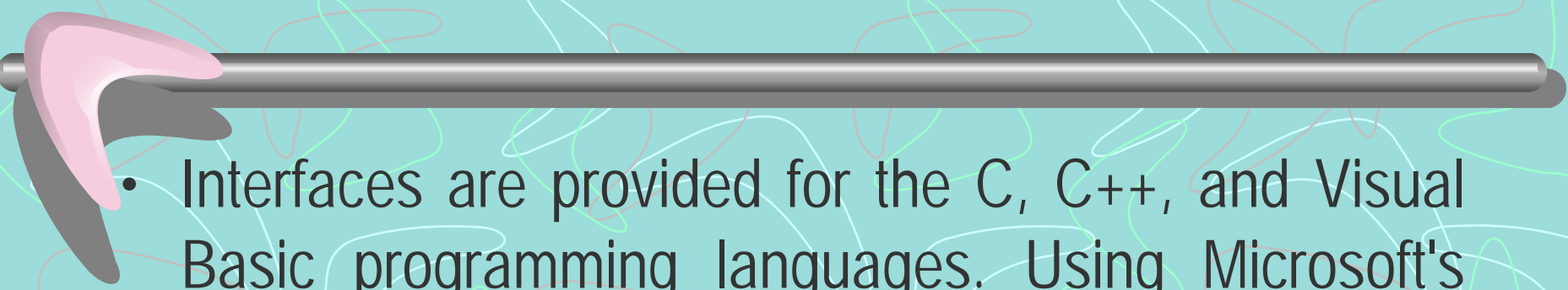



TransSMS Server


- The server connect to a mobile phone either by an infrared or a serial cable connection.
- A Component Object Model (COM) is used to process incoming SMS.
- Each SMS is parsed in order to filter the abbreviations and to translate the messages.
- If the result format requested is SMS, the translated message is relayed to the appropriate recipient.
 - Either by using the connected mobile phone to send an SMS or using an SMS web service.



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- Standards used to develop telephony apps:
 - Telephony Application Programming Interface (TAPI): a standard program interface that lets the computer "talk" over telephones or video phones to people or phone-connected resources elsewhere in the world.
 - Speech Application Programming Interface (SAPI): an application program interface (API) provided with the Microsoft Windows operating system that allows programmers to write programs that offer text-to-speech and speech recognition capabilities.

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- Interfaces are provided for the C, C++, and Visual Basic programming languages. Using Microsoft's COM architecture, SAPI is the most widely used speech application program interface used today.

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- If a Call Back format via a web is requested (basic read command), a component utilizing Microsoft's Speech Application Programming Interface (SAPI) will speak the translation into a wave file.
 - The user is then prompted to download and play the file in order to listen to the translation.
 - This method ensures the speech content is accessible by all users and need not require any special SAPI plug-ins installed.
 - A Call Back request from a mobile device requires the server to call the sender's phone via Microsoft's Telephony Application Programming Interface (TAPI) and read the translation to the user using SAPI.

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- The streaming of the wave file to users via the web is a multithreaded process ensuring that the server can handle simultaneous requests for various translations.
 - The Call Back feature for mobile devices is initially designed to work as a queue.
 - Requests are queued and dialed one at a time as the current server setup only involves a single phone connection.



Conclusion

- The main objective of this project is to develop an enhanced SMS service that can be used by telecommunication companies in the four countries to provide a value-added service to customers.
- This technology can be used by telcos all around the world to improve the quality of their service as well as increase the number subscribers.
- The service will give an upper hand to telcos that have a vision of bringing the citizens of the world closer together.

A hand holding a pencil, positioned at the top left of the slide, with the pencil extending horizontally across the top. The background is a light blue color with a pattern of colorful, abstract, scribbled lines in shades of green, red, and white.

Thank you for your attention.

Questions?