

# Speech Technology Solutions & The Java Standard

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## Agenda

- **Speech:** Embedded multi-lingual speech technology is here for mobile devices –

Africa is fertile ground for the development of education, health, security, emergency communications, e-government applications.

Win-win for citizens, business and government

- **JSAPI2 (JSR113):** A global speech standard has been announced for **Embedded Platforms**
- **Java:** a world of developers and Internet information

*From Dr. Hamadoun Touré's first major address as Secretary-General at the ITU World Information Society Award Ceremony May 17, 2007:*

- "The development of **speech recognition** and **text-to-speech technologies** can revolutionize communications by giving access to the benefits of ICTs to users without reading and keyboard skills."

## Strategic Importance of Speech

- Universal Appeal, Applicability & Accessibility
  - Moves ICT Benefits closer to all people
  - Transcends Literacy Barriers
  - Transcends Language Barriers and builds bridges to local culture
- Potentially Revolutionary Educational Tool
- "Conversationalized" e-govt – creates new efficiencies and opens services to more people
- Aids and Stimulates Economic Growth
- Speech activated mobile communications – can save lives – security, emergency communications, health

## Speech Technologies:

### Recognition

(Speech-to-text)

- Accessibility: (*user says*) "I will now read chapter 3"
- Data entry: (*user says*) "39 widgets left in bin 27."
- E-mail: (*user says*) "Read the message from Steve."
- Calendar: (*user says*) "Is next Thursday open?"

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### Synthesis

(Text-to-speech)

- Learning: (*computer says*) "What is 8 times 7?"
- Work Flow: (*computer says*) "Pick up 4 Containers"
- Car Navigation: (*computer says*) "Take Exit 34 in ½ mile."
- System Alerts: (*computer says*) "Your fuel level is low."

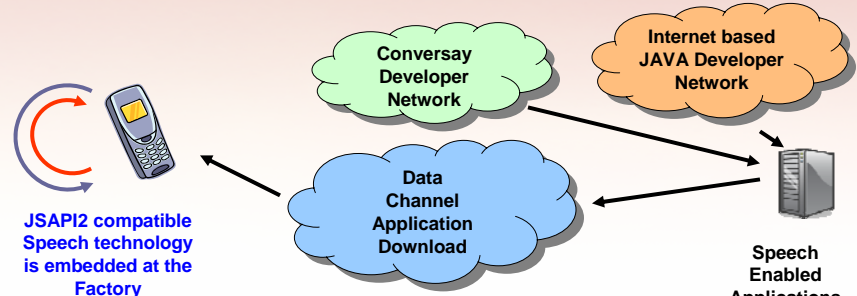
## Java

- Java provides **cross platform** capability
- 5 Billion Java devices (**including the Mars Rover!**); Of these, **1.83 Billion** are **Java-enabled cell-phones**; over 3 million Java programmers; Java is virtually on every website
- Java provides **application download-ability** on cell phones

## Java now has a Global Speech Standard

- JSAPI2 (or JSR113): Java Speech Application Programming Interface #2- Allows speech software to be embedded in the phone to run Speech-enabled Java applications.
  - Speech-to-text and Text-to-speech occurs IN THE PHONE on a Java program
- 6-year long Standards Effort – Expert Group led by Conversay
- Expert Group Members: Nokia, Motorola, IBM, Intel, Sun, etc.
- Early Release for developers at JavaOne, San Francisco, May 2007
- Final Release will be available in Q3 2007
- Primary Benefit: Cell Phone-Downloadable Speech-enabled Java Applications

## Embedded Speech Advantages



- Speech-Enabled Phones – JSAPI2 speech software is loaded at time of manufacture
- Great Accuracy (97%+)
- The Screen is involved
- No speech server required
- Application Server for speech enabled application Download

## What's next for Java & Speech

- Carriers request JSAPI2 (JSR113) compatible speech technology be loaded on the phone, at a marginal cost: permits applications by Java developers to be downloaded and run.
- Handset manufacturers will then release JSAPI2 models
- Developers will then be able to distribute their JSAPI2 Applications
- Differentiates carrier offerings, opens the door to new revenue streams, growth in data traffic, new government, enterprise and consumer opportunities.

## What can Governments do ?

*To speed expansion of multi-lingual speech-enabled access to ICT benefits*

- Become early adopters of embedded speech enabled systems
  - Conversationalize web sites for egovernment to expand access to gov't services
- Include multi-lingual embedded speech technology as a component of universal Access Criteria
- Encourage the development of download-able speech Standards based applications and growth of local development resources
- Provide information on JSAPI2 (JSR113) and on the speech application development process for various sectors – education, health, security, emergency communications, etc.



## Conclusions

- ❑ Embedded multi-lingual speech technology is here for mobile devices
- ❑ A global standard has been developed and announced
- ❑ Africa is fertile ground for pioneering new speech application development enterprises in multiple languages – requires a cooperative development effort
- ❑ Medium to Long Term Win-win for citizens, business and government

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