JSR 248: Taking Java™ Platform, Micro Edition (Java ME) to the Next Level

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Goal of This Talk

Learn about Mobile Service Architecture (MSA) and the related Java™ Specification Requests (JSRs).

Learn what MSA provides to you as a mobile application developer.

Agenda

Mobile Service Architecture Initiative

MSA Building Blocks (Component JSRs)

Examples

Summary

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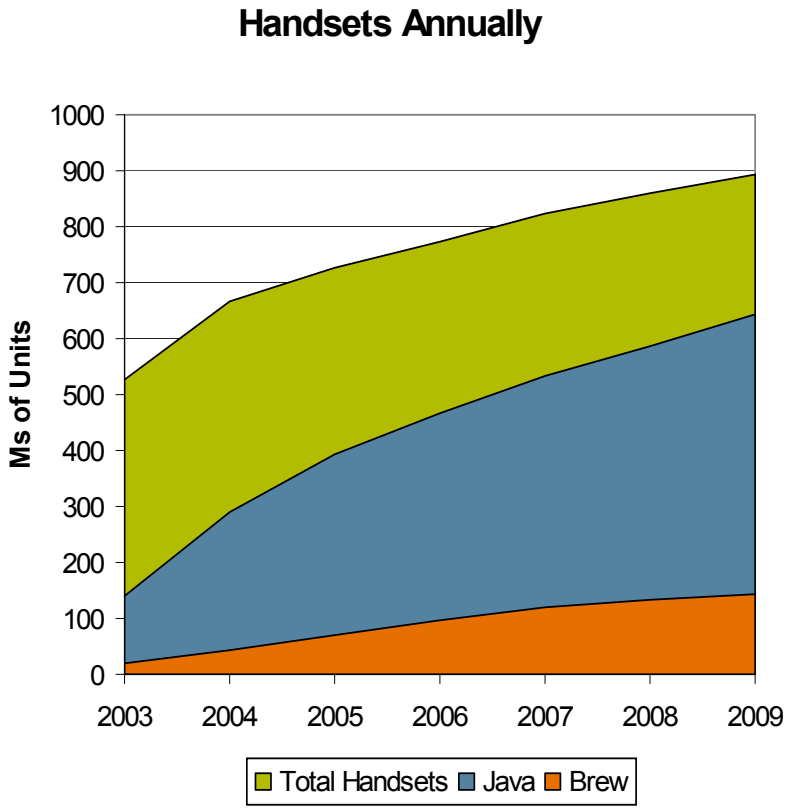
Summary

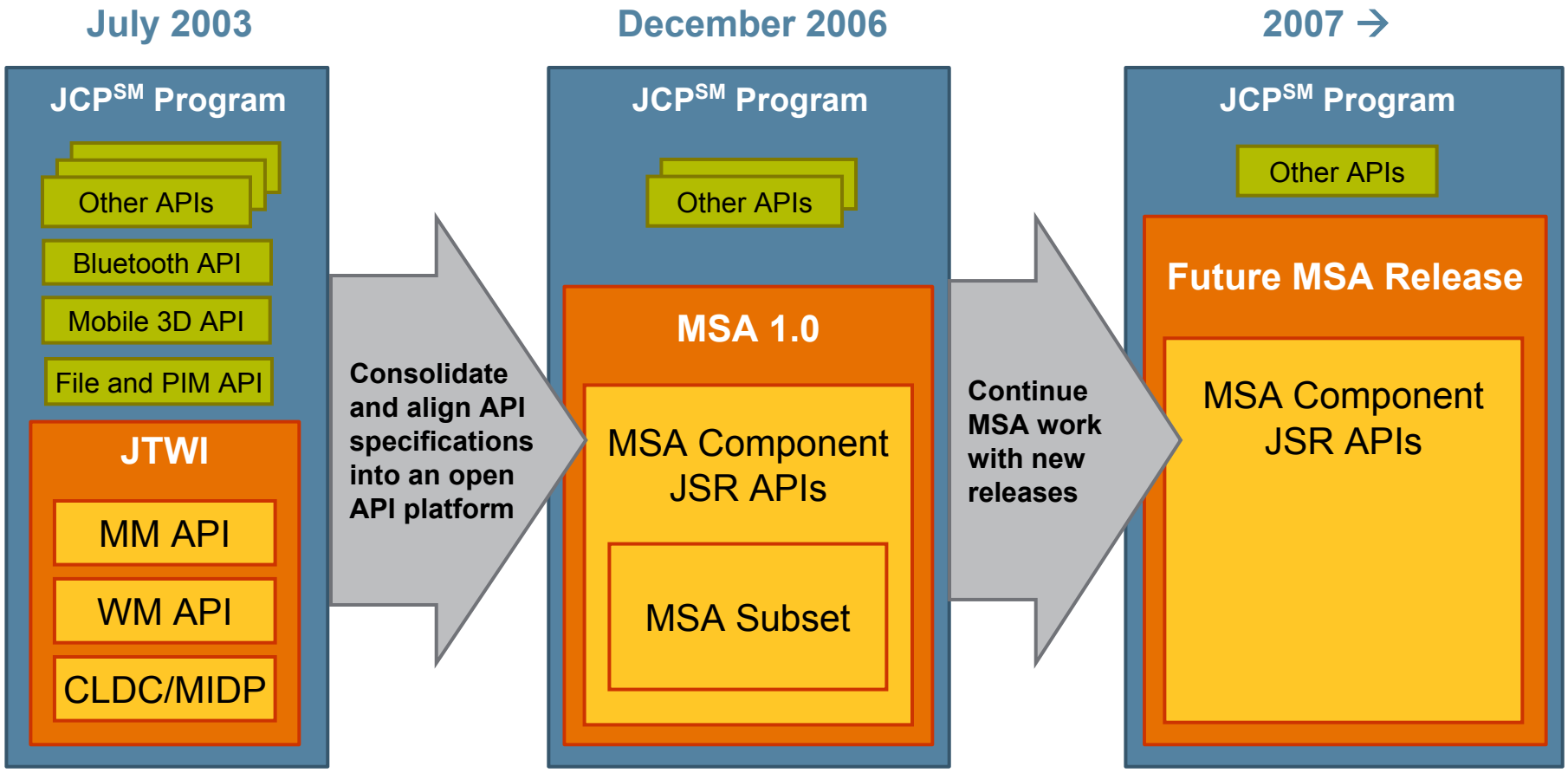
Java Technology Deployment Globally

- 220 operators worldwide have deployed services based on Java technology[1]
- 400 million mobile Java technology-enabled devices on the market[6]
- 635+ Java technology-enabled handset models by 35+ vendors on the market[3,5]
- 350,000 Java technology developers focusing on mobile[3]
- 50,000+ mobile Java applications on the market[4]
- 1 million mobile Java technology developer toolkits downloaded[1]
- 23 million mobile Java technology downloads globally per month[1]



Sources: (1) Nokia, Sept. 2006; (3) Sun Microsystems, June 2005; (4) Strategy Analytics, April 2006; (5) Informa; Sept. 2006; (6) Sun, Mar. 2007

MSA Initiative—Simplifying the Java API Landscape



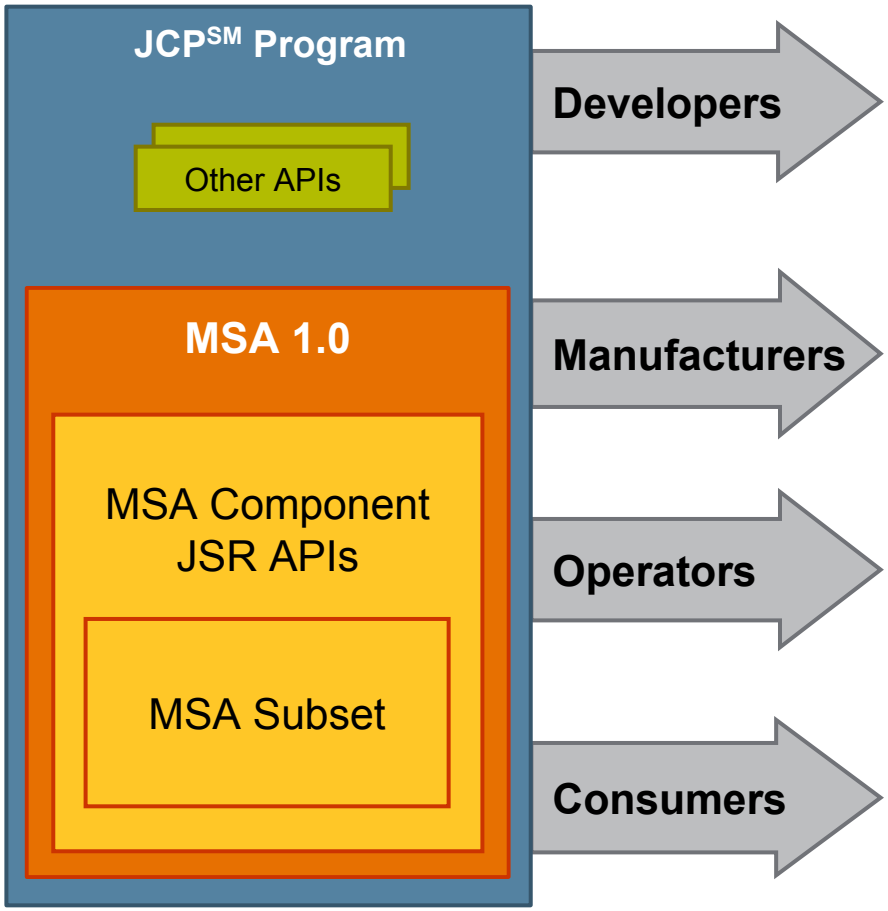
JCP^SM = Java Community Process^SM
JTWI = Java Technology for the Wireless Industry

MSA Initiative— Five Steps Towards a Platform

- **Selecting JSRs** to form the MSA platform
  - Deciding on necessary functionality, time-to-market, overall resource requirements, end-to-end availability, etc.
- **Specifying clarifications** to reduce ambiguity and fragmentation
  - Some JSRs are targeting a wider scope by providing options
  - Interaction of JSRs is not always specified
  - Some early implementations showed room for improvement
- **Specifying additional requirements**
  - Protocols, media types, security, hardware, etc.
- **Providing compliancy testing tools**
  - Technology Compatibility Kit (TCK)
  - Reference Implementation (RI)
- **Providing a consistent licensing framework**
  - Predictable licensing conditions for all component JSRs

Source: Mobile Services Architecture Specification, Version 1.0

MSA Initiative—Industry Benefits



Developers

- Wider interoperability
- Ease of development and porting
- Increased market and revenue opportunity

Manufacturers

- More developers → more applications → More demand for compatible devices

Operators

- More applications, increased service usage
- Increased revenues

Consumers

- Enhanced user experience through a wide choice of compatible applications
- Improved service quality

Outlook on Future Development

- MSA initiative is an ongoing process
  - New releases will be available every 18 to 24 months
  - MSA is not a static initiative but goes in sync with current market and business needs
- MSA Advanced (JSR 249) is in specification phase
  - Addresses advanced mobile handsets
  - Backwards compatible with JSR 248
  - Provides additional features
- New release of MSA will follow up on the success of JSR 248
  - Around 16 new component JSRs are finalized or about to be finalized
  - Next major release of MIDP is already under development

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MSA Building Blocks (Component JSRs)

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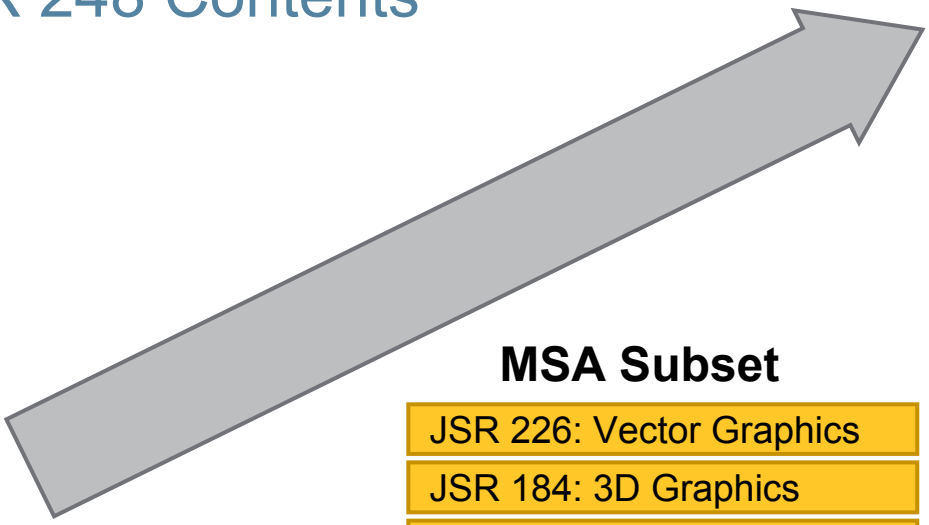
MSA and MSA Subset

JSR 248 Contents



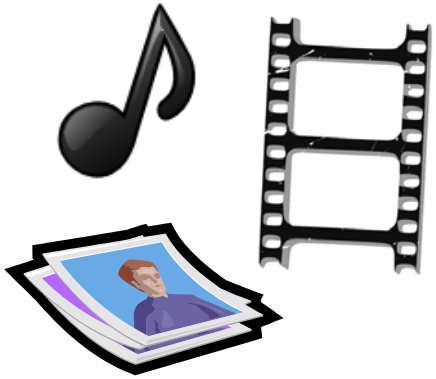
JTWI—JSR 185	MSA Subset	MSA
JSR 120: Messaging 1.0	JSR 226: Vector Graphics	JSR 238: Internationalization
JSR 135: Mobile Media	JSR 184: 3D Graphics	JSR 234: Multimedia Supplements
JSR 118: MIDP	JSR 082: Bluetooth *	JSR 229: Payment
JSR 139: CLDC	JSR 075: File and PIM	JSR 211: Content Handler
	JSR 205: Messaging 2.0	JSR 180: SIP
	JSR 135: Mobile Media	JSR 179: Location *
	JSR 118: MIDP 2.1	JSR 177: Security and Trust *
	JSR 139: CLDC / CDC	JSR 172: Web Services
		JSR 226: Vector Graphics
		JSR 184: 3D Graphics
		JSR 082: Bluetooth *
		JSR 075: File and PIM
		JSR 205: Messaging 2.0
		JSR 135: Mobile Media
		JSR 118: MIDP 2.1
		JSR 139: CLDC / CDC

Source: Mobile Service Architecture Specification, Version 1.0
* JSR or part of it is conditionally mandatory.

JSR 135: Mobile Media

MSA Component JSR

- Features
  - Sampled audio
    - Playback and capture
  - Synthetic audio
    - Playback and generation
  - Video
    - Playback and capture
  - Still image capture
- Included in all MSA devices

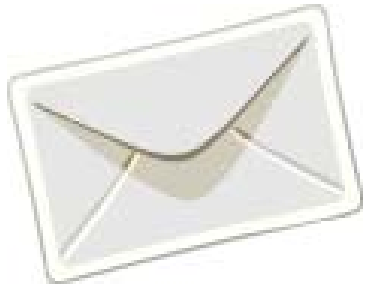


Source: Mobile Media API, Version 1.1

JSR 205: Messaging

MSA Component JSR

- Features
  - SMS (Text) message send and receive
  - MMS (Multimedia) message send and receive
- Included in all MSA devices



Source: Wireless Messaging API 2.0, Version 2.0

JSR 75: File and PIM

MSA Component JSR

- Features
  - File API
    - Accessing device file system
    - Supports removable media, such as memory cards
  - PIM API
    - Accessing calendar
    - Accessing contacts
- Included in all MSA devices

Source: PDA Optional Packages for the J2ME™ Platform, Version 1.0

JSR 82: Bluetooth

MSA Component JSR

- Features
  - Bluetooth service/device discovery and communication
  - OBEX
- Included in all MSA devices supporting Bluetooth

Source: Java™ APIs for Bluetooth™ Wireless Technology, Version 1.1

JSR 184: 3D Graphics

MSA Component JSR

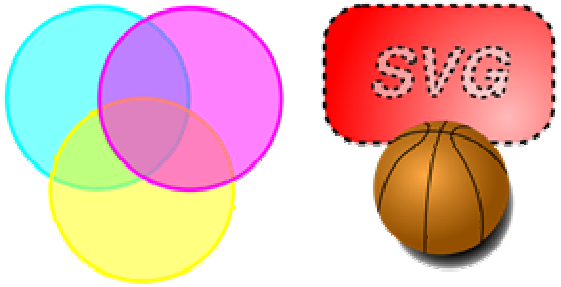
- Features
  - 3D Graphics API
  - 3D Graphics file format
- Included in all MSA devices

Source: Mobile 3D Graphics API for J2ME™, Version 1.1

JSR 226: Vector Graphics

MSA Component JSR

- Features
  - API for SVG Tiny 2D vector graphics format
    - Loading 2D content
    - Modifying 2D content through API calls
    - Rendering and playing 2D content
    - Interacting with 2D content using event listeners
- Included in all MSA devices



Source: Scalable 2D Vector Graphics API for J2ME™, Version 1.0

JSR 172: Web Services

MSA Component JSR

- Features
  - XML Package
    - Subset of Java Platform, Standard Edition (Java SE) Java API for XML Processing (JAXP) 1.2
    - Supports SAX 2.0 (no support for DOM)
    - Supports XML namespaces
    - Optional DTD validation
    - No support for XSLT
  - Web Services Package
    - Subset of Java SE platform Java API for XML-based RPC (JAX-RPC) 1.1
- Included in MSA full set devices

Source: J2ME™ Web Services Specification, Version 1.0

JSR 177: Security and Trust

MSA Component JSR

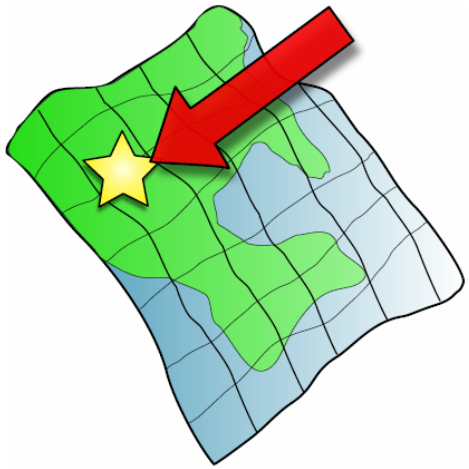
- Features
  - SATSA-APDU Optional Package
    - Communication with ISO7816-4 compliant smart cards using the APDU protocol
  - SATSA-JCRMI Optional Package
    - Java Card™ RMI client API
  - SATSA-PKI Optional Package
    - Generation of digital signatures and basic user credential management
  - SATSA-CRYPTO Optional Package
    - Subset of Java SE platform Cryptography API
- Inclusion in MSA
  - SATSA-CRYPTO in MSA full set devices
  - SATSA-APDU and SATSA-PKI in MSA full set devices with an applicable security element (such as smart card)

Source: Security and Trust Services API for J2ME™, Version 1.0

JSR 179: Location

MSA Component JSR

- Features
  - Location info
    - Obtaining the current location
    - Calculating distances between locations, etc.
    - Different location methods and supported; for example, internal GPS and external GPS accessory
  - Landmark support
    - Landmark = Point of Interest (POI)
    - Storing and retrieving landmarks
    - Shared between multiple applications on the device



- Included in MSA full set devices with an internal or external location module (accessory)

Source: Location API for J2ME™, Version 1.0.1

JSR 180: SIP

MSA Component JSR

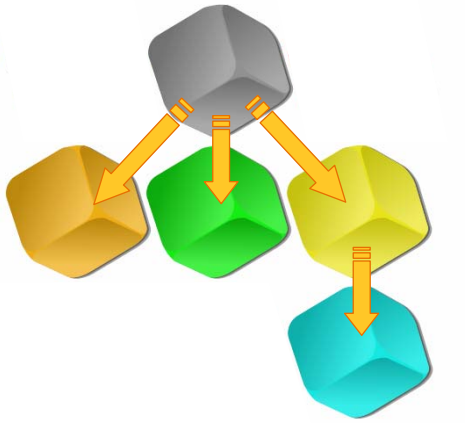
- Features
  - Support for sending and receiving SIP (Session Initiation Protocol) messages
  - P2P communication over the network
- Included in MSA full set devices

Source: SIP API for J2ME™, Version 1.0.1

JSR 211: Content Handler

MSA Component JSR

- Features
  - Launching external applications from Java applications
  - Launching Java applications to handle content
    - For example: browser launching MIDlets to handle new media types
- Included in MSA full set devices



Source: Content Handler API, Version 1.0

JSR 229: Payment

MSA Component JSR

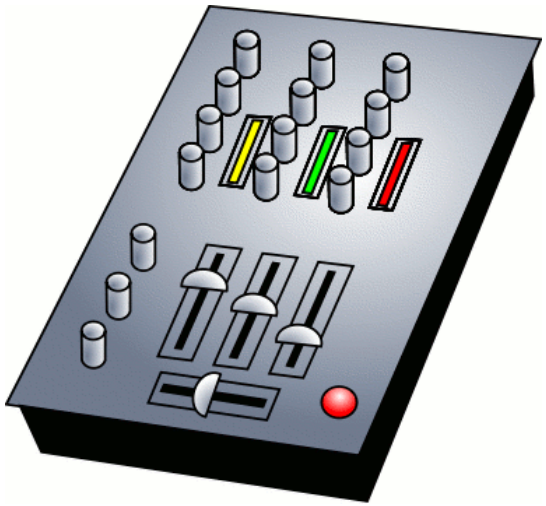
- Features
  - Initiating mobile payment transactions
  - Hides the payment infrastructure complexities from the application
  - Support for multiple underlying payment methods (e.g., premium rate SMS)
- Included in MSA full set devices

Source: Payment API, Version 1.1.0

JSR 234: Multimedia Supplements

MSA Component JSR

- Builds on Mobile Media API (JSR 135)
- Features include:
  - Audio effects and 3D audio
  - Image post-processing and encoding
  - Camera controls
  - Radio tuner control
- Included in MSA full set devices



Source: Advanced Multimedia Supplements API, Version 1.0

JSR 238: Internationalization

MSA Component JSR

- Allows developers to internationalize their MIDlets
- Features
  - Locale-specific formatting of dates, times, numbers (including percentages), and currency amounts
  - Retrieving application- and device-specific resources
  - Locale-specific collation (sorting) of strings
- Included in MSA full set devices

Source: Mobile Internationalization API (JSR-238), Version 1.0

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MSA Building Blocks (Component JSRs)

Examples

Summary

MSA for Games

- JSR 184 (3D Graphics)
  - 3D world creation and manipulation
- JSR 135 (Mobile Media)
  - Sounds
  - Video clips
- JSR 82 (Bluetooth)
  - P2P gaming over local connections
- JSR 180 (SIP)
  - P2P gaming over the network
- JSR 229 (Payment)
  - Payment of new game levels

MSA for Mapping Applications

- JSR 226 (Vector Graphics)
  - Map data visualization
- JSR 179 (Location)
  - Finding the current position
  - Storing/retrieving points of interest
- JSR 172 (Web Services)
  - Requesting business addresses
- JSR 75 (File and PIM)
  - Storing and caching map data
  - Storing and retrieving addresses
- JSR 238 (Internationalization)
  - Localizing the application

MSA for Information Client Applications

- JSR 172 (Web Services)
  - Accessing and parsing data
- JSR 205 (Messaging)
  - Sending info to friends
- JSR 211 (Content Handler)
  - Launching the browser to view URLs
- JSR 75 (File and PIM)
  - Storing and caching data
  - Retrieving friends' phone numbers for message sending
- JSR 238 (Internationalization)
  - Localizing the application

MSA for Multimedia Applications

- JSR 234 (Multimedia)
  - Still image, video, and audio capture
  - Video/audio playback
- JSR 205 (Messaging)
  - Sending media to friends (images, video, audio, text)
- JSR 179 (Location)
  - Location metadata for media
- JSR 75 (File and PIM)
  - Saving media

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- MSA provides a rich, predictable Java platform for mobile application development
- MSA 1.0 devices start shipping in 2007
  - Many component APIs already in the current devices
- MSA Initiative continues to steer the evolution of Java ME platform in mobile devices
  - Predictable new releases planned every 18–24 months
- Application development can start now!

Start Developing Now!

- Documentation
  - Mobile Service Architecture (JSR 248)
    - http://jcp.org/en/jsr/detail?id=248
  - Mobile Service Architecture Advanced (JSR 249)
    - http://jcp.org/en/jsr/detail?id=249
  - Component JSRs
    - http://jcp.org
- Tools to get started
  - Tools and documentation by Nokia
    - http://www.forum.nokia.com/java
  - Sun Java Wireless Toolkit for CLDC 2.5
    - http://java.sun.com/products/sjwtoolkit/download-2_5.html

For More Information

- Other sessions
  - **TS-5628:** Developing Flashy Mobile Applications, Using SVG and JSR 226
  - **TS-5642:** What to Do With APDU? (Security and Trust Services API)
  - **TS-5585:** Whiz-Bang Graphics and Media Performance for Java Platform, Micro Edition (Java ME) Applications
  - **TS-5913:** Tools for Developing Advanced Mobile Multimedia Applications
- BOFs
  - **BOF-5610:** MSA Recipes: How to Develop Rich Java Platform, Micro Edition (Java ME) Applications, Using MSA Ingredients
  - **BOF-5697:** Take the Guessing Out of the Java Platform, Micro Edition (Java ME) Future: Latest JSRs Predict Exciting Technology Developments Ahead
  - **BOF-5851:** Unleasing Mobile 3-D: Insider Secrets
  - **BOF-5677:** A Hands-on Introduction to Scalable Vector Graphics and JSR 226

Q&A

Send your improvement ideas and comments to:

jsr-248-comments@jcp.org

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