

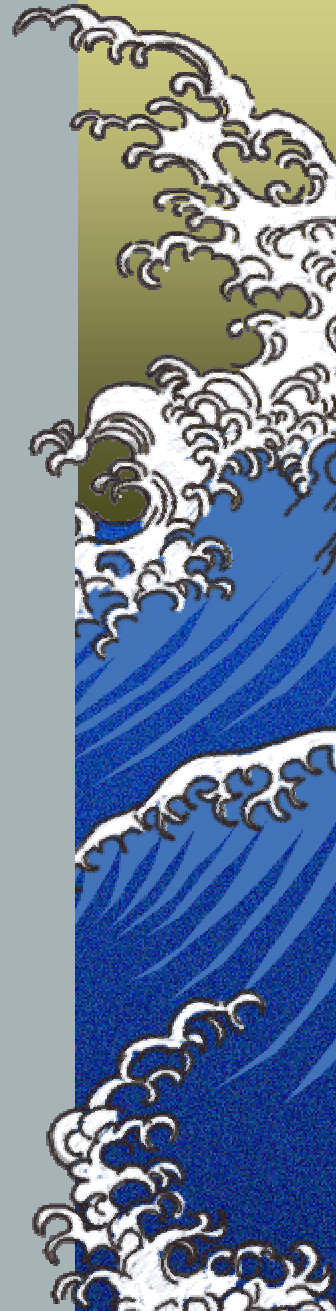
Beyond J2ME for Palm Devices

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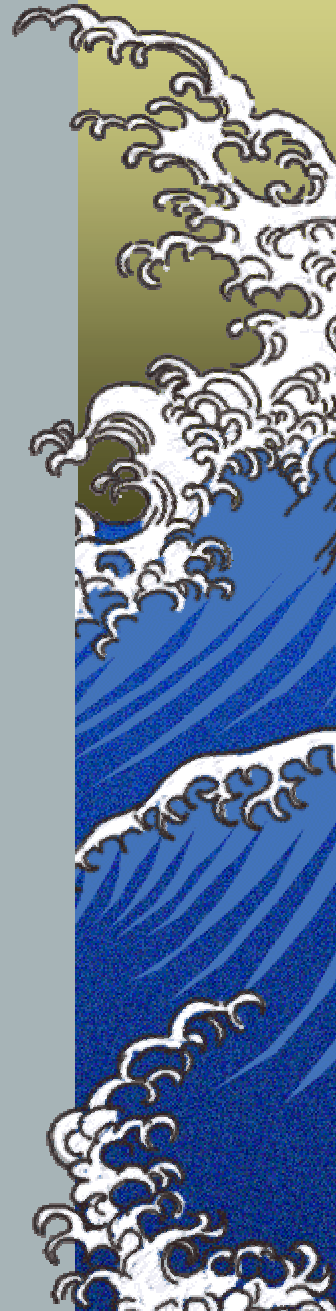
April 14, 2004

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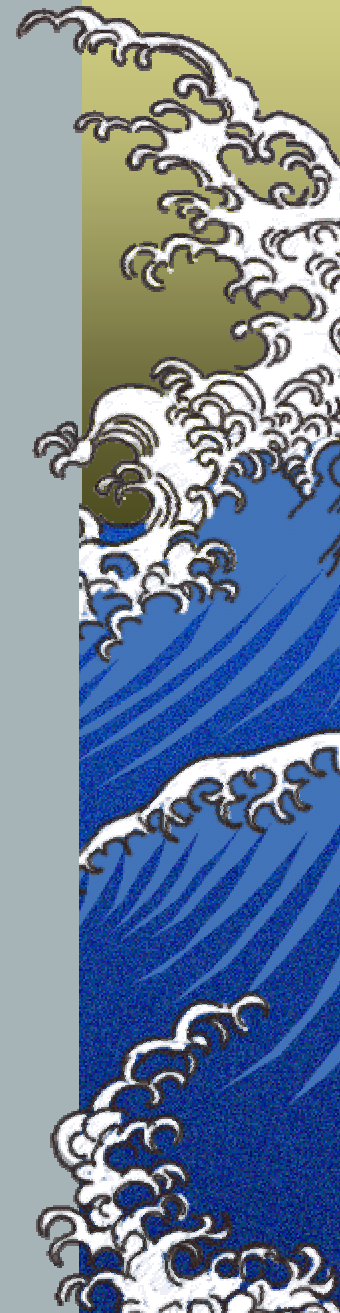
Agenda

- ▶ *Device Application Development*
- ▶ *Quick Review of MIDP*
- ▶ *MIDP vs. Palm*
- ▶ *WebSphere Device Developer
Custom Environment*
- ▶ *Demos*
- ▶ *Questions*



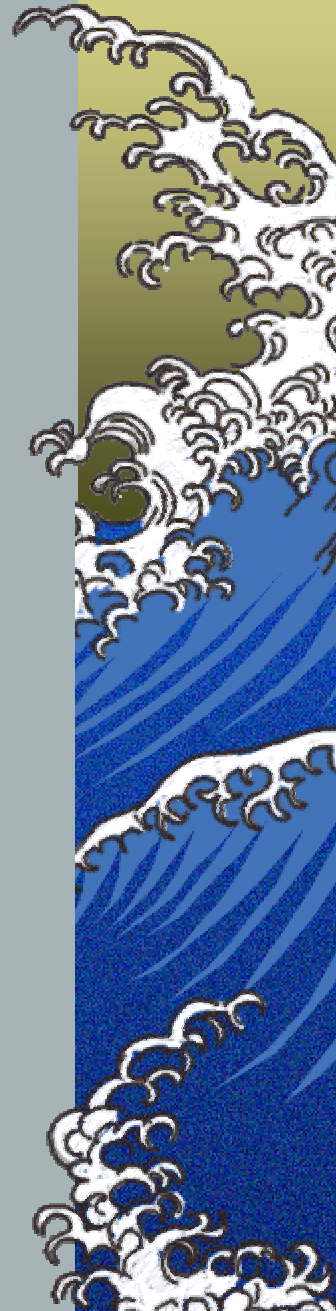
Device Application Development

- ▶ *Primary development language for most handheld device is C/C++*
- ▶ *C/C++ are useful languages but there are good reasons we have evolved beyond them*



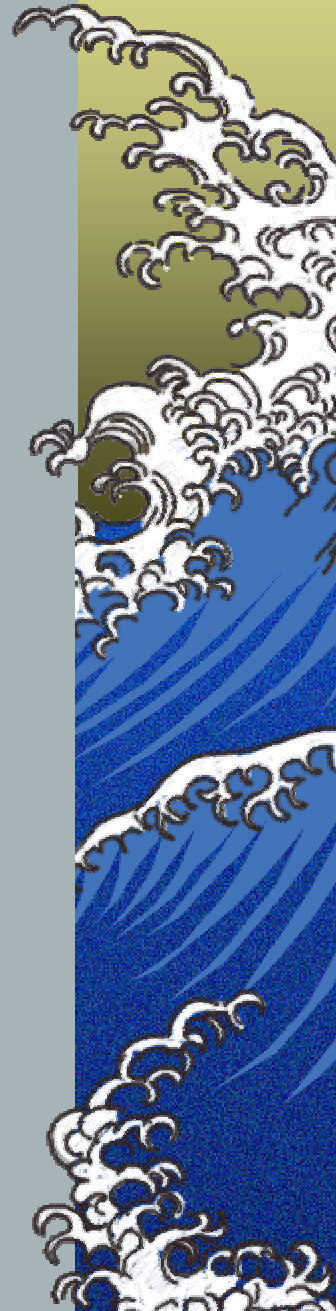
Device Application Development (cont.)

- ▶ *Java is better than C/C++
(Let's not be ashamed to say it!)*
- ▶ *There are few choices for using Java to
develop for handhelds, specifically Palm
devices.*
 - ▶ *MIDP is the “officially promoted” choice*
 - ▶ *OpenSource: Waba, Jump, ...*
 - ▶ *IBM J9 VM Custom Environment*



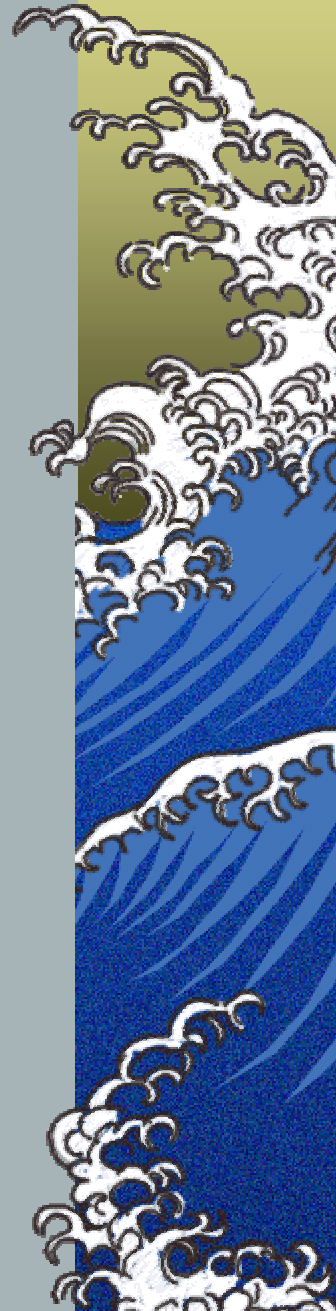
Device Application Development (cont.)

- ▶ *MIDP is disappointing and frustrating*
 - ▶ *CLDC/MIDP is unsuitable for Palm devices, was intended for less-feature-rich devices*
 - ▶ *CDC/Foundation Profile/Personal Profile are considered unimplementable on the existing Palm OS*
 - ▶ *Many language features are missing*

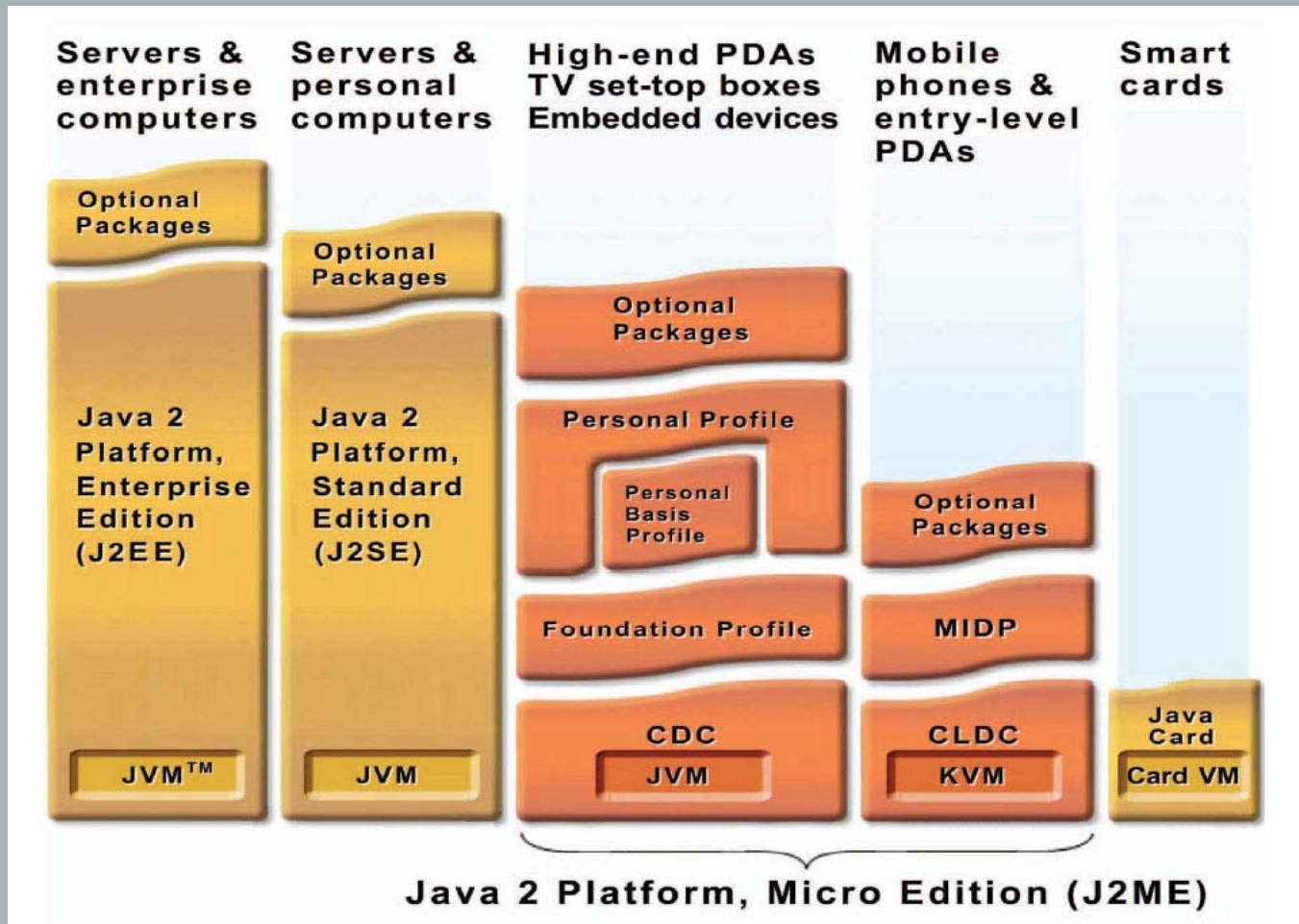


Device Application Development (cont.)

- ▶ *Any application development requires you to understand the details of the device and it's native OS (if any).*



Dangerous & Confusing Java World



Quick MIDP Review

▲ Mobile Information Device Profile

Memory

- *128kb NV RAM*
- *8kb NV RAM for persistent data*
- *32kb RAM for VM*

runtime

Display

- *Screen-size: 96x54*
- *Display depth: 1-bit*
- *Pixel shape: 1:1*

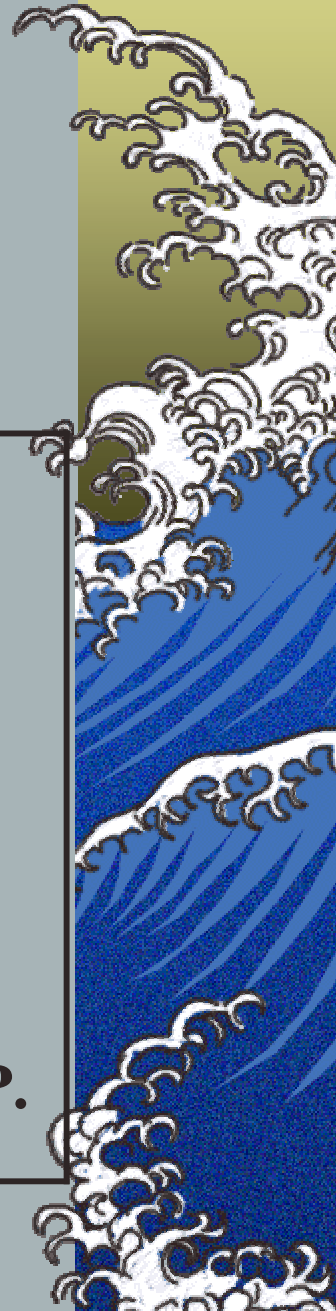
Input (one or more)

- *“one-handed-keypad”*
- *“two-handed-keypad”*
- *touch screen*

Networking

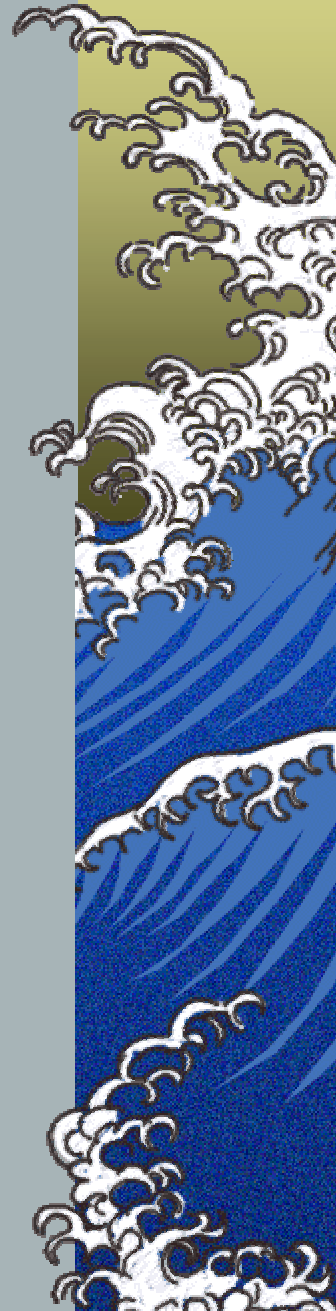
- *Two-way, wireless, possibly intermittent, limited bandwidth*

**** Any device with these capabilities can host the MIDP.**



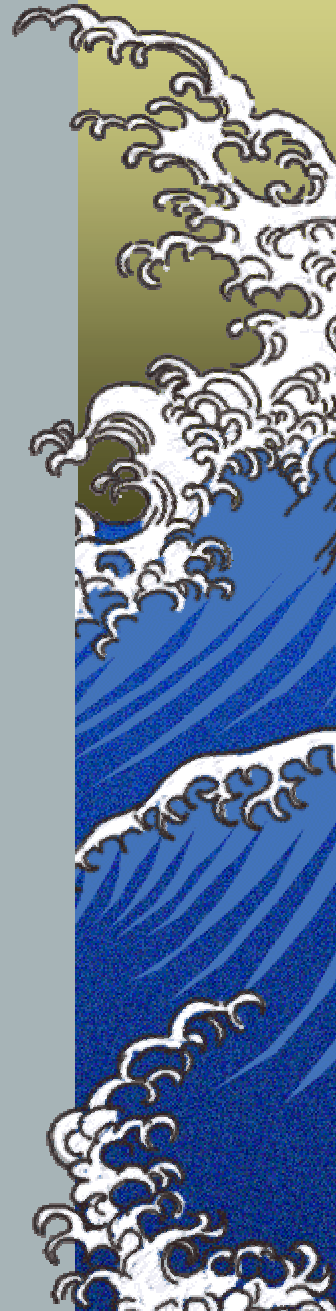
MIDP vs. Palm

- ▶ *Palm devices are very powerful*
- ▶ *Native Palm apps have common Look-&-Feel*
- ▶ *MIDP offers limited UI Components*
- ▶ *These UI Components are more suited to the least-common-denominator device — e.g., the cell phone display.*



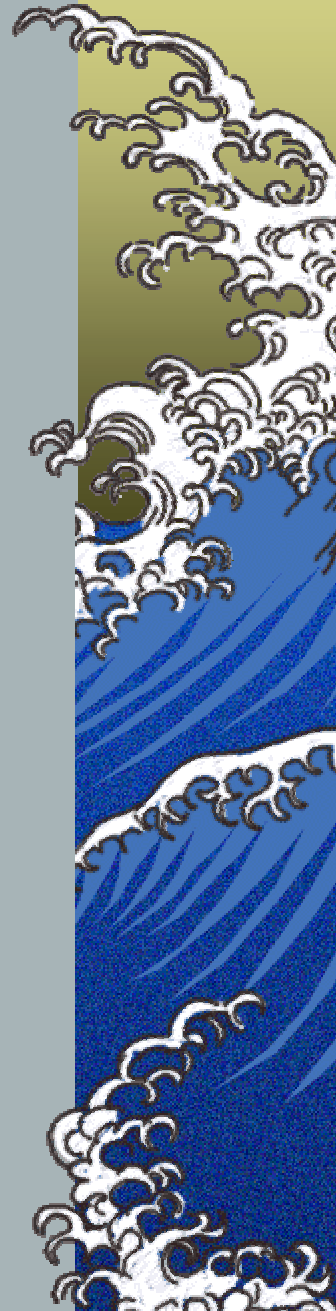
MIDP vs. Palm (cont.)

- ▶ *MIDP Standard disallows JNI for security reasons*
- ▶ *Therefore, MIDP deficiencies cannot be compensated for by accessing the native OS*



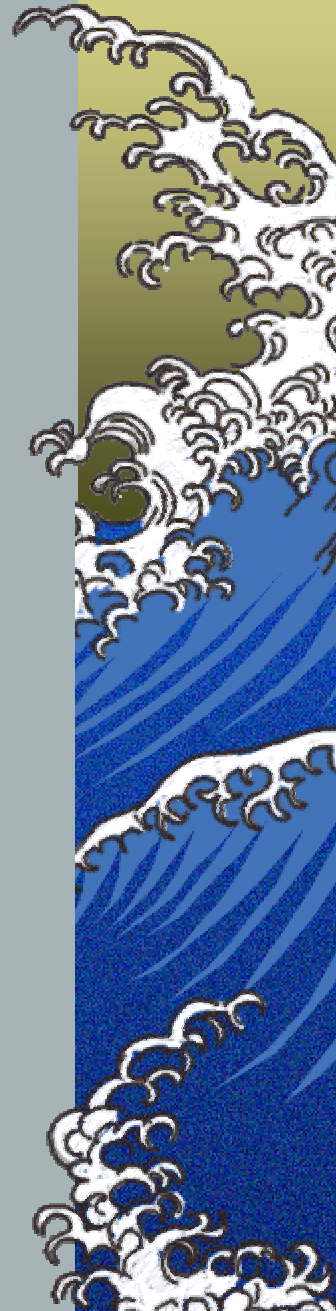
WSDD Custom Environment

- ▶ *Provides more feature rich solution than MIDP*
- ▶ *Allows access to native device features*
 - ▶ *Most PalmOS functions are provided via JNI bridge*
 - ▶ *You can build/reuse native C/C++ libraries*
- ▶ *IBM's J9 VM is derived from a common code base across all supported platforms*



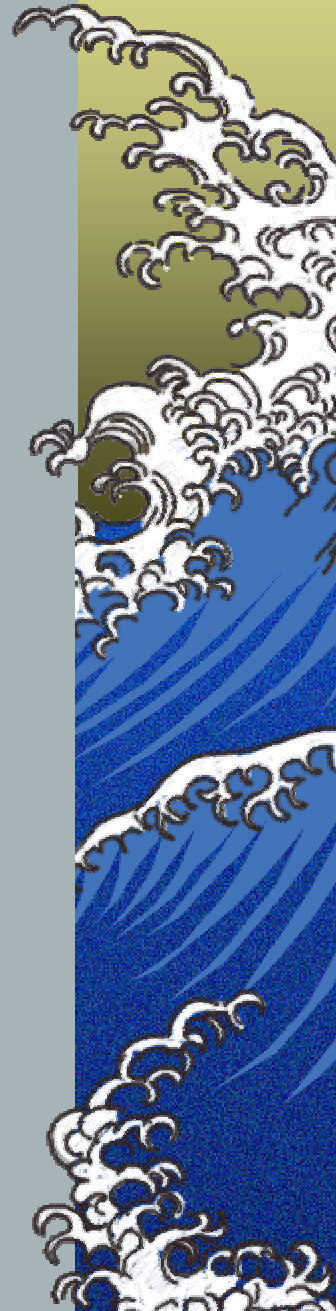
WSDD Custom Environment

- ▶ *Java Class Libraries (JCL) scaled for purpose and size*
 - ▶ JCL Xtreme — ~150 KB, min. functionality
 - ▶ JCL Core — ~400 KB, reasonable functionality
 - ▶ JCL Gateway — ~700 KB, extends Core, adds URL and Security
 - ▶ JCL Gateway Plus — ~1 MB, Serialization and Collections
 - ▶ JCL RM — (~1 MB, extends GP, with Resource Management & Memory Space support.
 - ▶ JCL Max — (~2 MB) is available for situations where memory utilization is a lesser issue and you require advanced functionality.



WCE (cont.)

- ▶ *Most effective use is in understanding Palm OS development and libraries*
- ▶ *This allows you to leverage existing Palm code and utilities, namely the resource editor*



Where to Get More Information

- ▶ *WSDD Home Page*
 - ▶ *www.ibm.com/software/wireless/wsdd/*
- ▶ *Palm Java Developer Program*
 - ▶ *pluggedin.palmone.com/*
- ▶ *Traditional Palm Development*
 - ▶ *www.palmsource.com/developers/*
- ▶ *Palm OS Programming:
The Developers Guide, O'Reilly*

