

OSGi Alliance Community Event

**Your last mile to SOA and Web 2.0
- Lotus Expeditor for Device**

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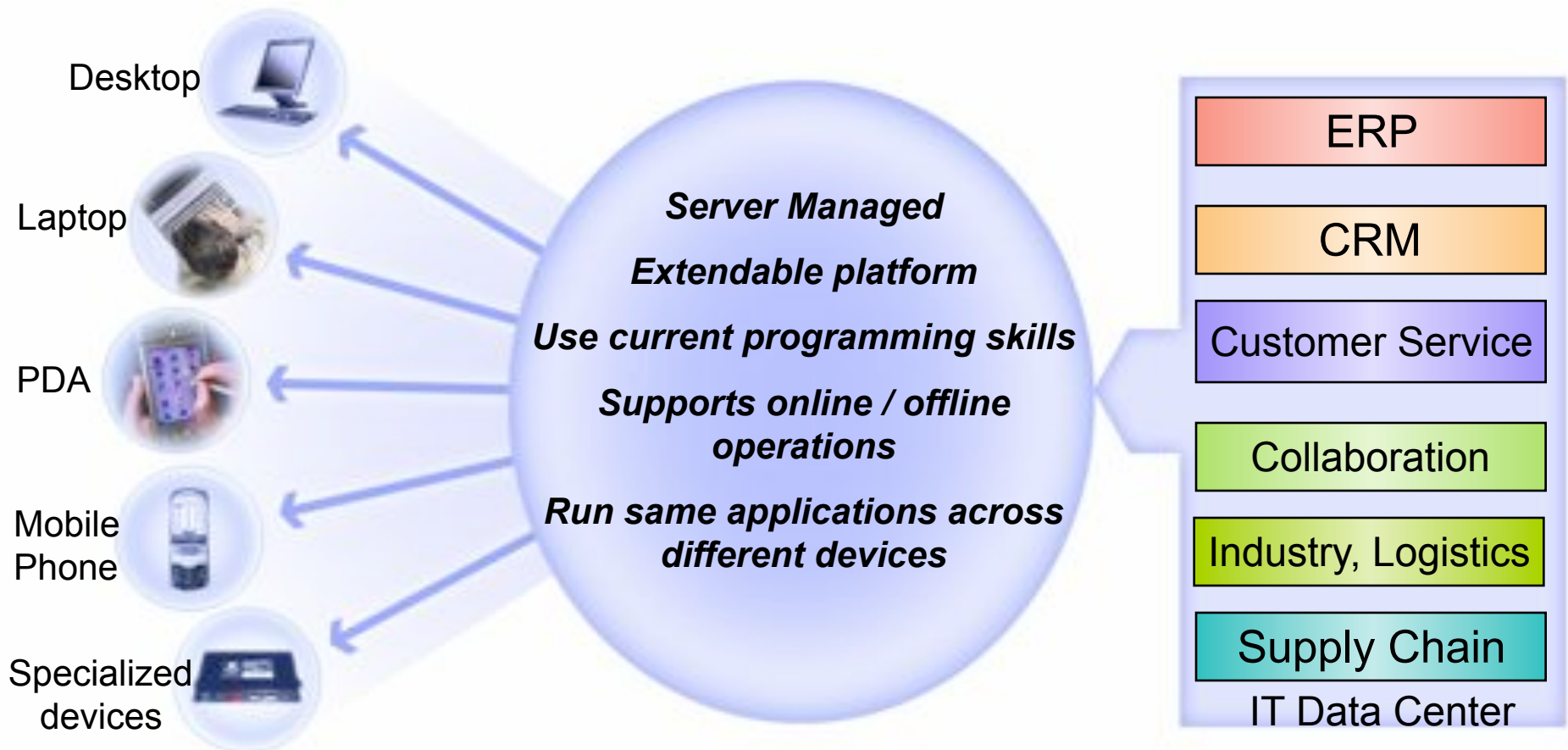
Agenda

- Lotus Expeditor Overview
- What is Lotus Expeditor for device
- Last mile to SOA
- Mobile Web 2.0
- Toolkit Demo



IBM's Server Managed Client Solution

- It supports multiple user experiences, access points, and forms of connectivity enabling flexible and cost effective access to people, business processes, applications, and content.



What is Lotus Expeditor

- A tool for developing powerful managed client applications on various platforms: desktops, laptops, tablets, and handheld devices.
- **Lotus Expeditor client**
 - Supports desktops, laptops, tablet computers, kiosks and mobile devices.
- **Lotus Expeditor server**
 - Allows you to centrally manage software deployed to the client and provides connectors to enterprise applications and data.
- **Lotus Expeditor toolkit**
 - Rapid application development and deployment of managed client applications.

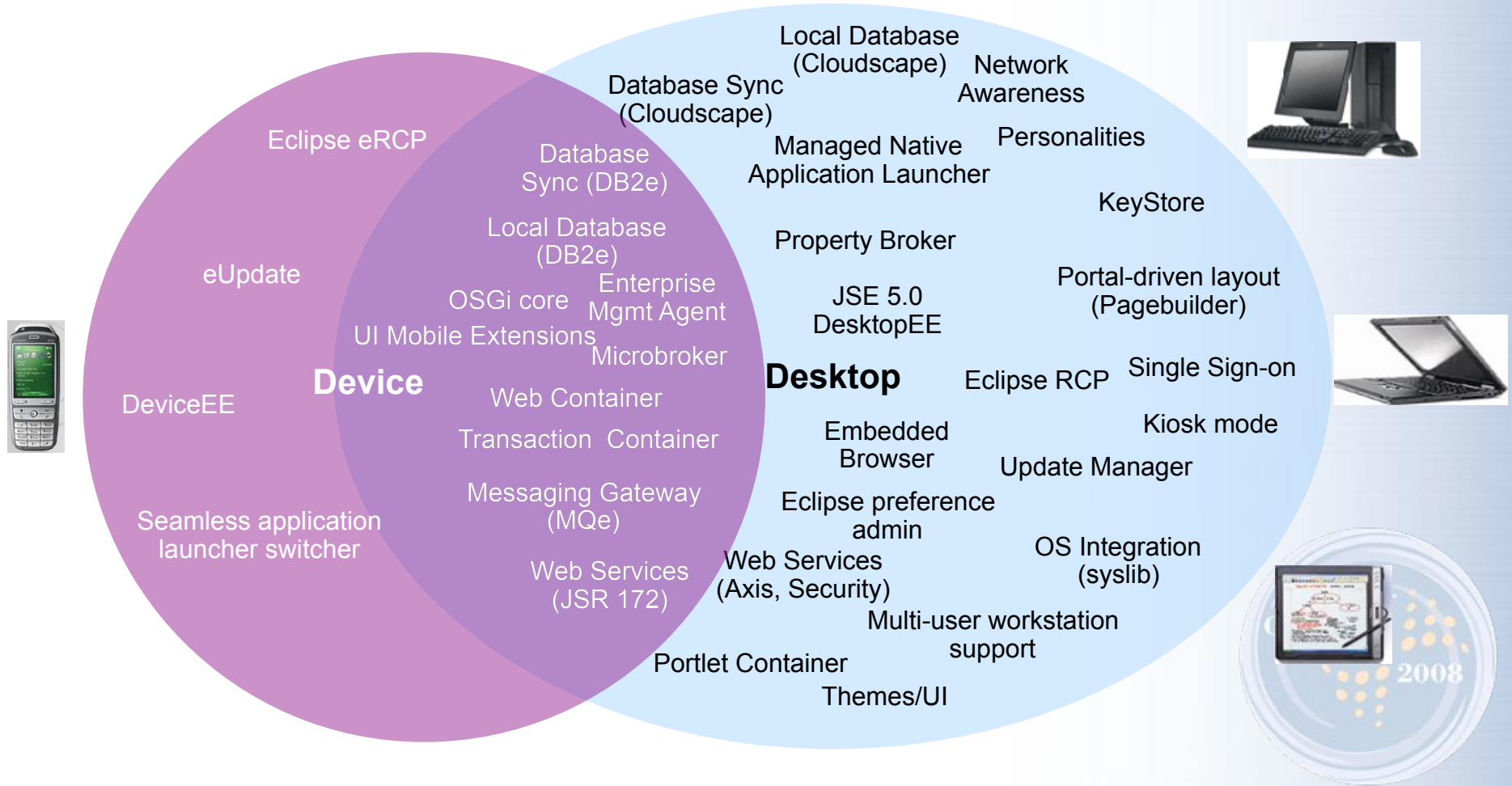


Why Expeditor : Built on Open Standards

- Built on Eclipse platform that has millions of users
- Large base of skilled developers and participating companies
- Developers can use their current programming skills and tools
- Compliant with open standards such as OSGi, Web services
- Able to interface with other standards based software



Lotus Expeditor Client Support



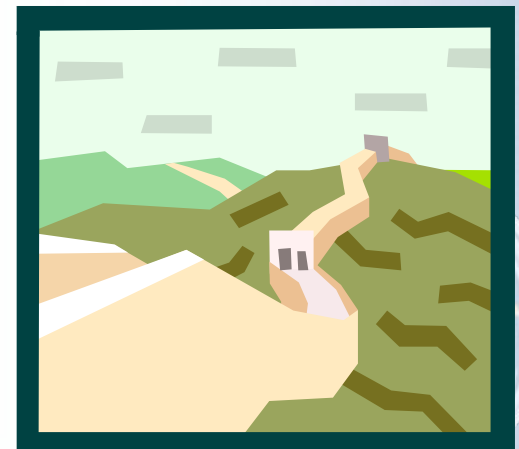
Lotus Expeditor as an Application Platform

- Use Lotus Expeditor to develop the following types of client applications:
 - Java
 - OSGi
 - Eclipse (RCP and eRCP)
 - Web
 - Embedded Transaction Applications
 - Portlets
 - Web Services
 - Database
 - Messaging



Lotus Expeditor for Device

- Extend your service coverage to be borderless

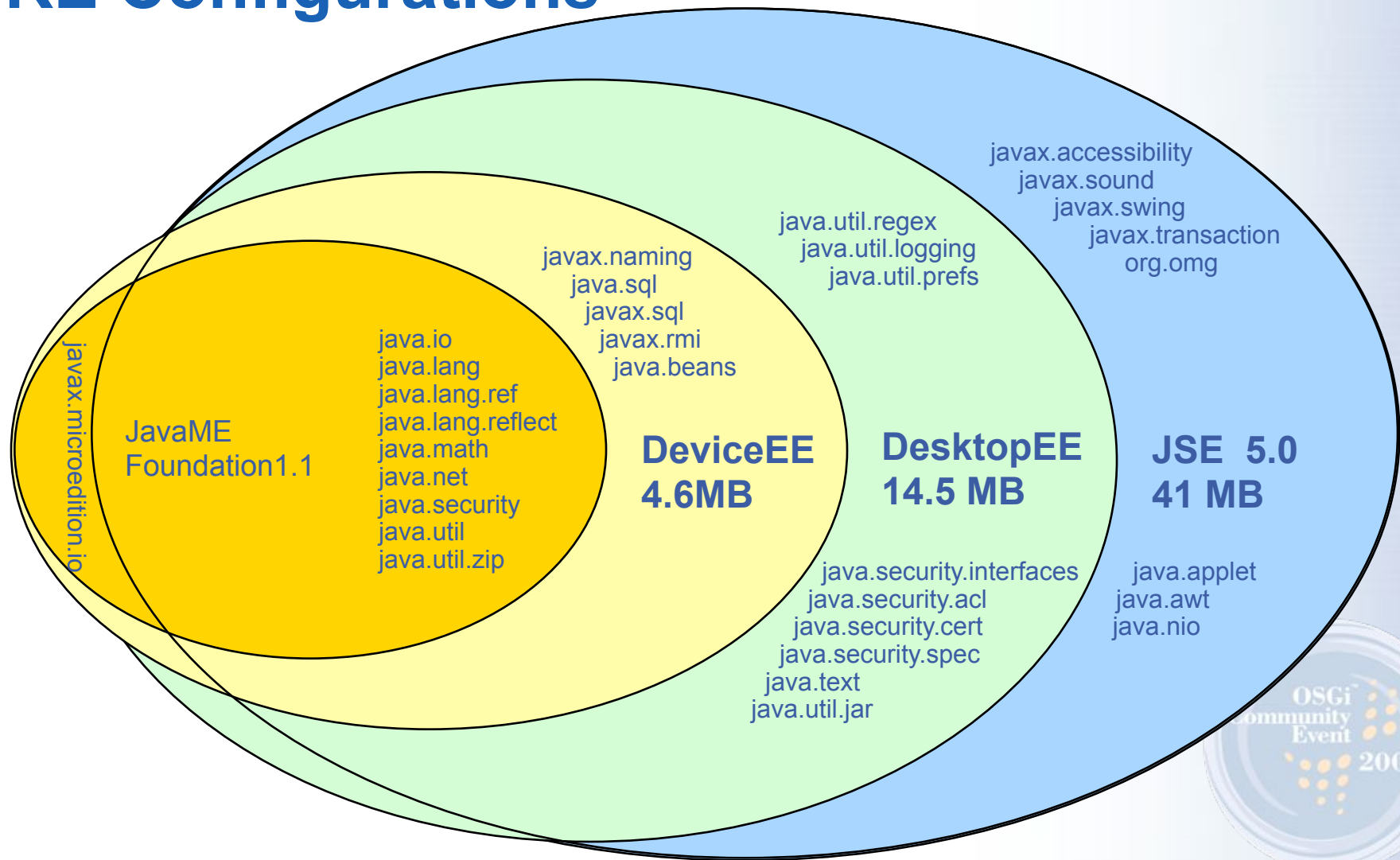


What's in the platform?

- Core Platform
 - JVM and DeviceEE (based on JavaME[®] CDC/Foundation 1.1)
 - OSGi Service Platform R4
 - Eclipse eRCP 1.0.3
 - Application Manager
 - Enterprise Management Agent
- Optional Components
 - Provided via update site
 - Install only what's needed



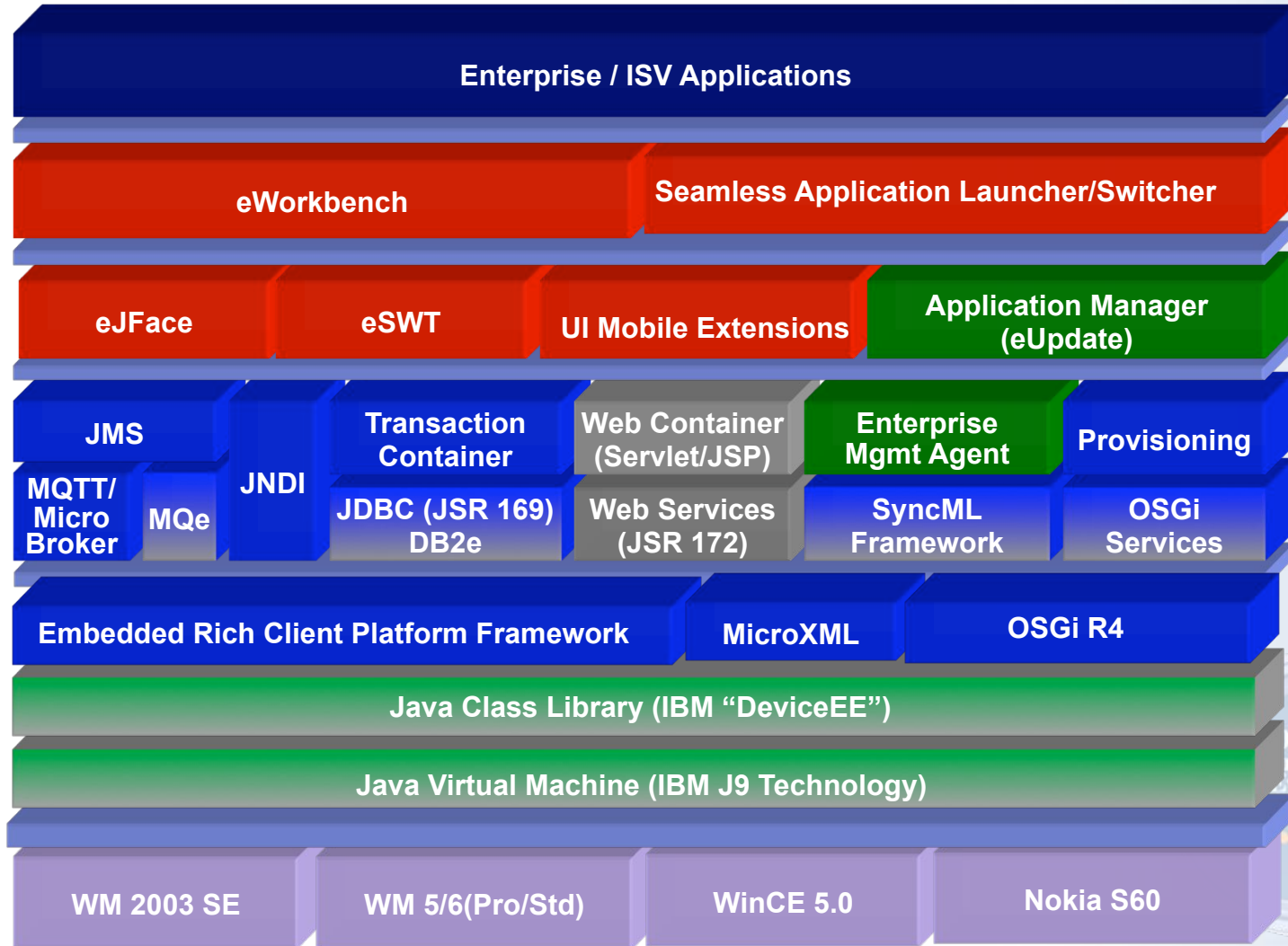
JRE Configurations



Device Architecture

IBM JavaME

 Expeditor Value Add
 Supported Devices



What Devices are supported?

- Support for following devices:
 - Microsoft[®] Windows Mobile[®] 2003SE, 5 (PPC & Phone), 6 (Classic & Pro & Std)
 - Microsoft WinCE[®] 5 Professional
 - Nokia[®] S60 Platform
 - HW requirements: 16MB FS/16MB RAM available
 - Devices under test: Symbol MC70, MC9090, iPAQ (hx4700, hx2790), i-mate JASJAR, Nokia E90, HTC S710, HTC S730 and others
- Microsoft Windows XP[®] and Vista for development



OSGi – The Core of Lotus Expeditor

- Broadly accepted community standard
- The most suitable cross-platform runtime for use in mobile handsets.
- Run multiple applications in a single JVM
- Dynamically install/update/uninstall bundles & apps
- Share code and services
- Complementary to other technologies and standards
- Lightweight footprint

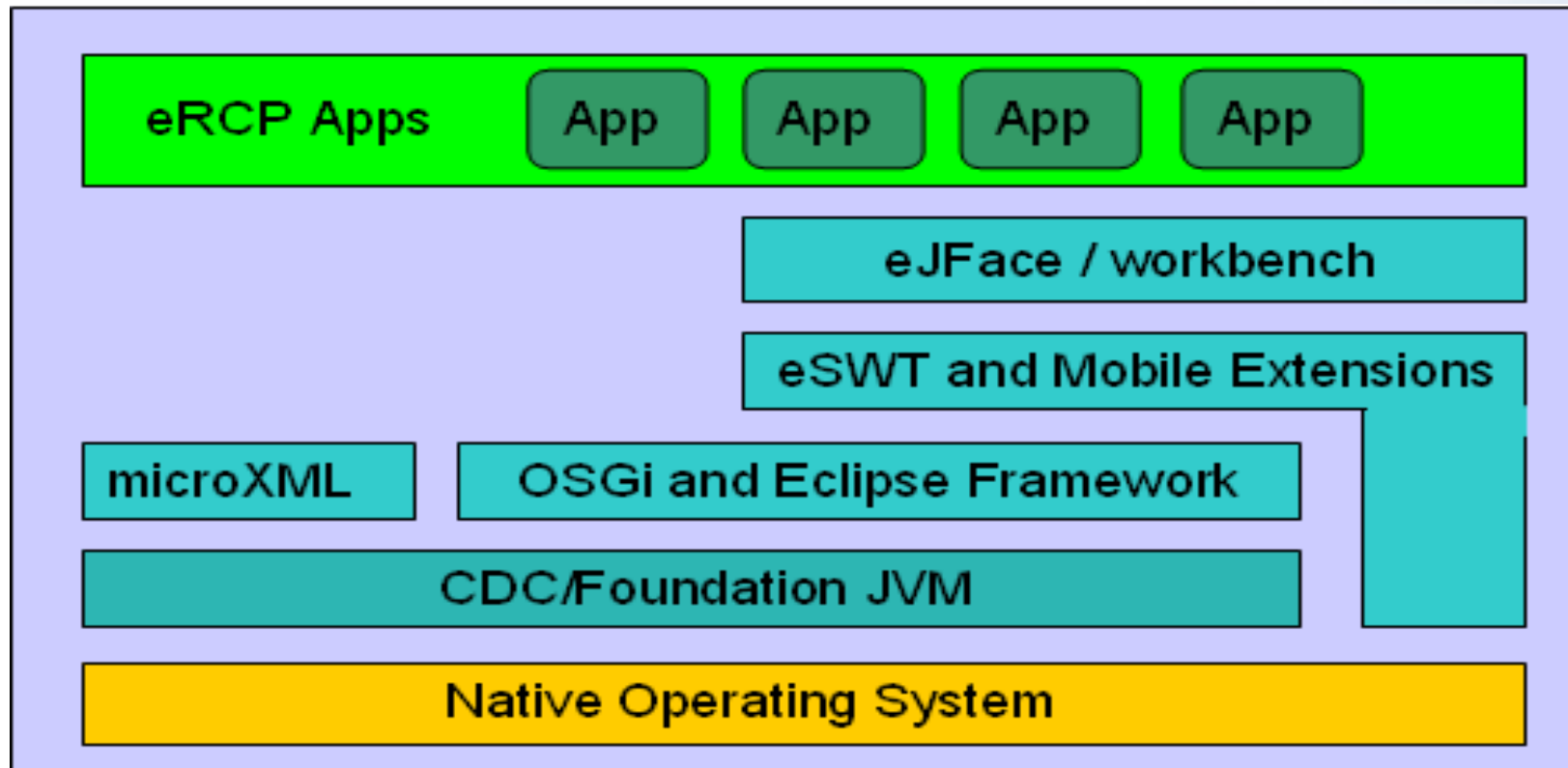


Eclipse eRCP

- Embedded version of the popular Eclipse Rich Client Platform
- Open source project of Eclipse
- Reduces RCP size/function to fit on devices (~3MB)
- Runs on JavaME CDC/Foundation Profile
- Utilizes same OSGi Platform as RCP
- Adds components to enable application binary compatibility across a wide range of devices
- Mature project that is being adopted in many industry projects



eRCP Architecture

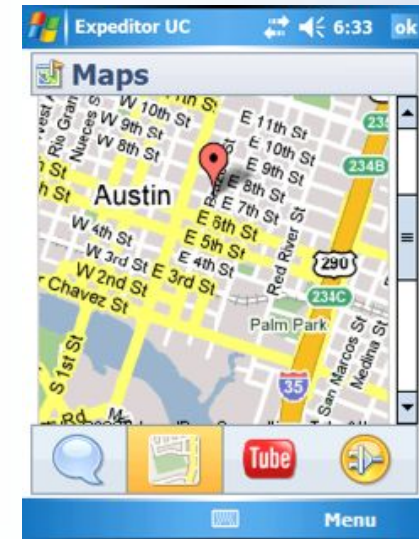
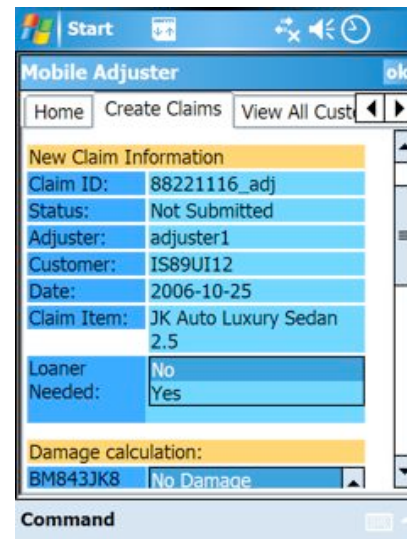
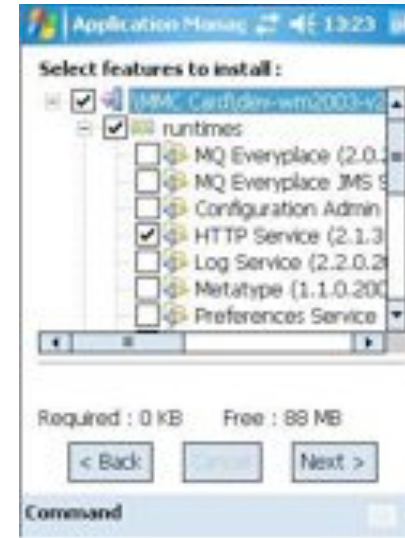


Rich UI

- eSWT
 - Basic widgets
 - Basic graphical support
 - Embedded browser
 - Table, Tree
 - Layouts
- eSWT Mobile Extensions
 - Widgets and function specifically for mobile devices
- eJFace
 - MVC style widgets and resource manager



Screenshots



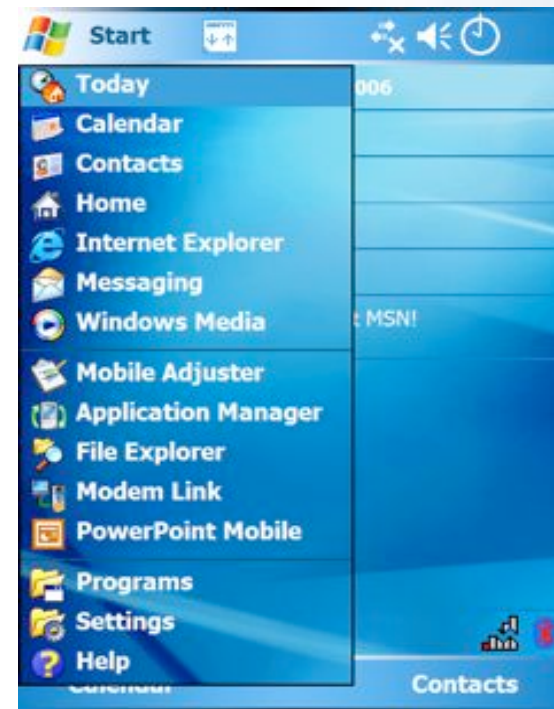
Why is eRCP important?

- There are a **HUGE** number of devices out there that are becoming quite capable Java application platforms
- Brings OSGi to devices
- Has extensive rich UI capabilities that are lacking in MIDP
- Higher level of device abstraction and integration
- eRCP can be the next step up from MIDP
- Great platform for mobile mash-ups



Device Integration

- Seamless integration with native desktop



Footprint and performance

- **Improvement in Lotus Expeditor for Device 6.2**
 - Provide platform builder to customize the runtime
 - Jxed classes improve startup time and ram usage
 - Early-start option: Start the runtime when device is started up
- **Performance Indices:**
 - RAM Usage: 8.9 MB
 - Startup Time of entire stack with application manager: 19s
 - Startup Time when early-start option is enabled: less than 3s

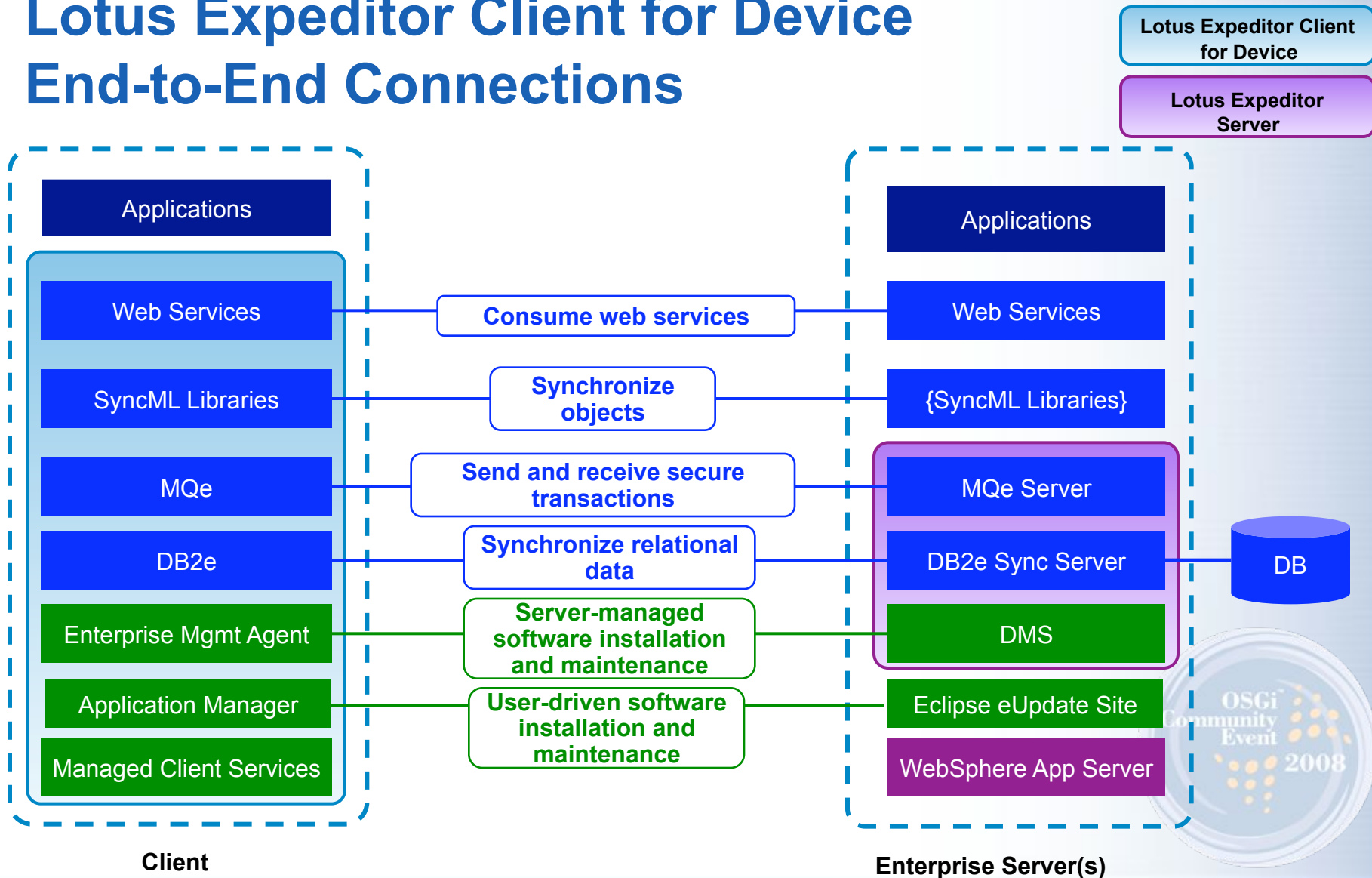


Last mile to SOA

- Managing everything ubiquitously



Lotus Expeditor Client for Device End-to-End Connections



OSGi and web services

- JSR-172 compliant
- Only Web Services consumer is provided
- Client applications can consume Web Services in a secure manner
- Web services application can be encapsulated as OSGi bundle to plug into Expeditor runtime



Pervasive messaging

- MQe (MQ Everyplace)
 - Provides **point-to-point** messaging service for once-only, ensures messaging delivery and supports offline operations
- Micro Broker
 - Supports **publish** and **subscribe** messaging for one-to-many messaging
 - Offers message notification, event service, quality of service level and durable subscription
- Either MQe or Micro Broker fulfills SOA connectivity requirement by providing end-to-end messaging service



DB2e and DB2e sync server

- An embedded database solution helps service providers deploy **offline** service to mobile users
- DB2e enables an integrated database solution for enterprise to enter to mobile SOA world



Platform Management

- Local Management
 - User uses Application Manager
 - Install features from local or remote update sites
 - Easy update of installed features
 - Remove installed features
- Remote Management
 - Enterprise Management Agent runs on device
 - Polls enterprise server for jobs
 - Install/Update/Remove features & bundles
 - Query & Set properties
 - Install/Remove native files
- These extend SOA coverage to mobile devices in a managed manner



Web 2.0 on mobile

- Connecting people everywhere

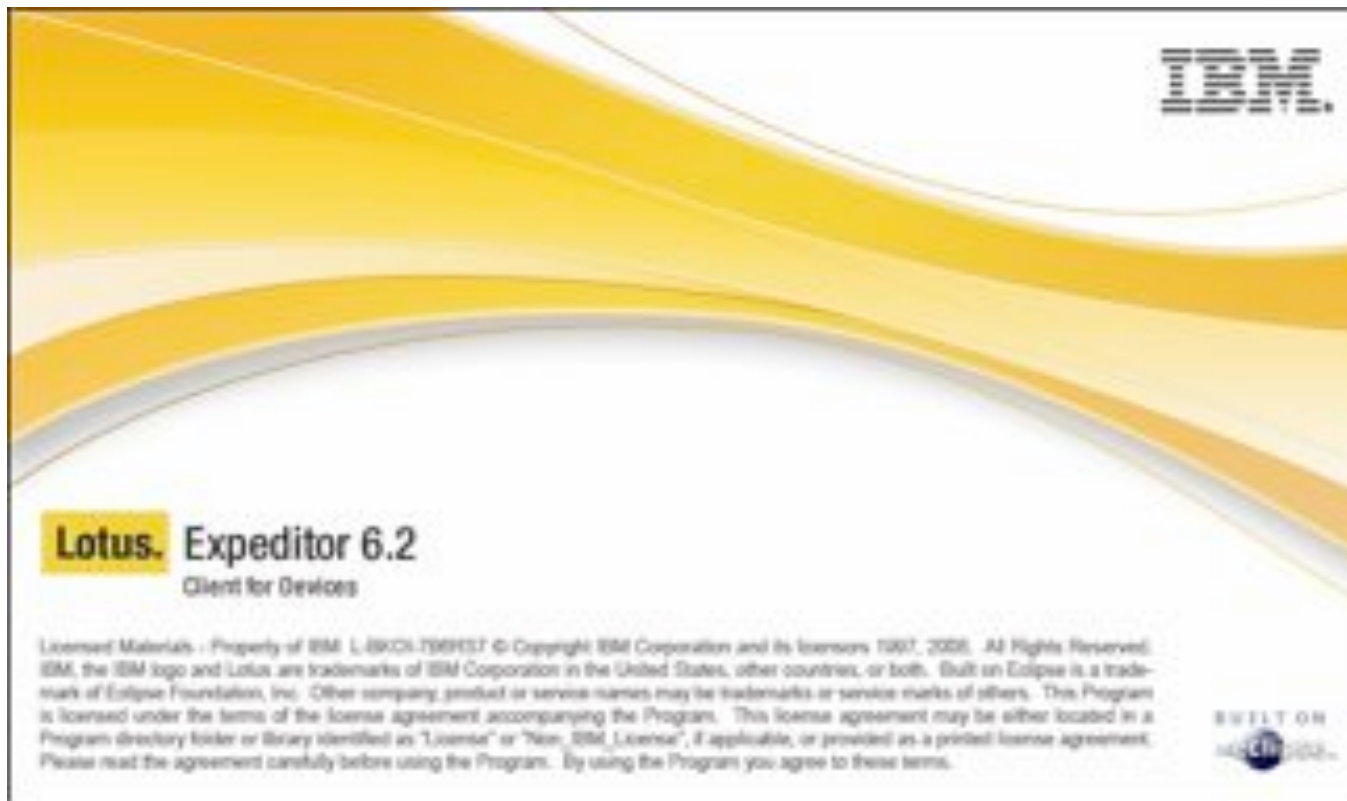


Mobile Mashup



+

WebKit

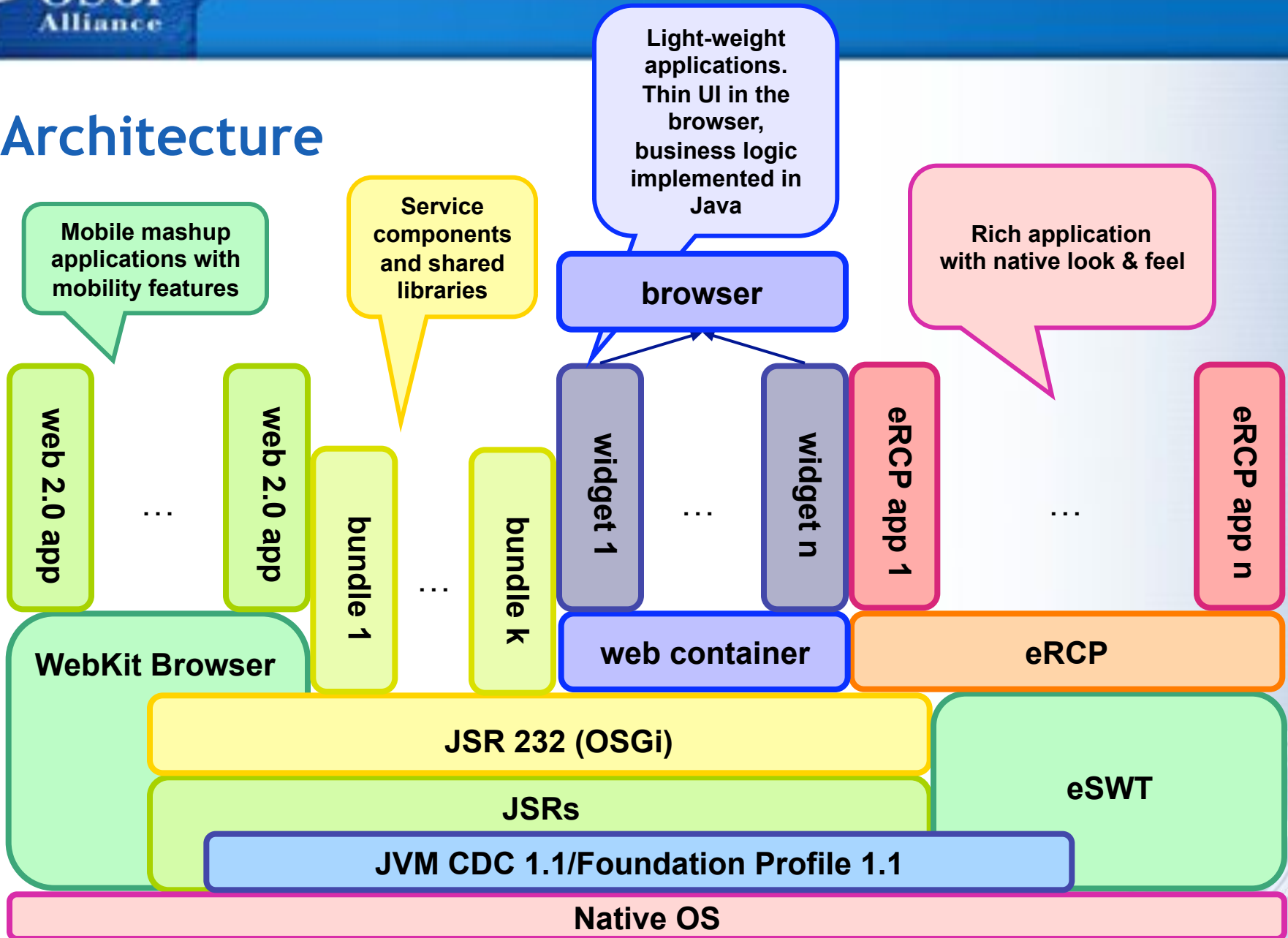


WebKit runtime as an Expeditor service

- Introduction of Web 2.0 application model
- Access to native function from browser, eg. GPS, phone call, etc.
- Pros :
 - Enable mashup of eSWT applications and browser-based applications
 - Support offline application
 - Optionally could be a standalone light-weight eclipse-based browser
- Cons:
 - Heavy solution: 8MB ROM + 9MB RAM
 - Porting effort is required: WebKit + Lotus Expeditor (mostly java)



Architecture



Demo of Lotus Expeditor Toolkit

- To develop and deploy application onto device



Lotus Expeditor Toolkit

- Use Eclipse IDE
 - Developers can apply desktop development skills to devices
 - Reuse code already written
 - Take advantage of plentiful books and articles
 - Enjoy a vibrant community of a million+ developers
- Easily develop for device on a desktop machine
 - Use device runtime for Win32
 - Use integrated device emulators
- Remotely deploy and debug applications
 - Use breakpoints, watches, etc
 - Step through source code



Toolkit Demo – Debug on device



Reference

- Lotus Expeditor official site
<http://www-306.ibm.com/software/lotus/products/expeditor/>
- Lotus Expeditor infocenter
<http://publib.boulder.ibm.com/infocenter/ledoc/v6r1/index.jsp>
- Lotus Expeditor introduction
<http://www.ibm.com/developerworks/lotus/library/expeditor-intro/>
- WebKit
<http://webkit.org/>
- eRCP
<http://www.eclipse.org/ercp>





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