Java ME & NetBeans Mobility

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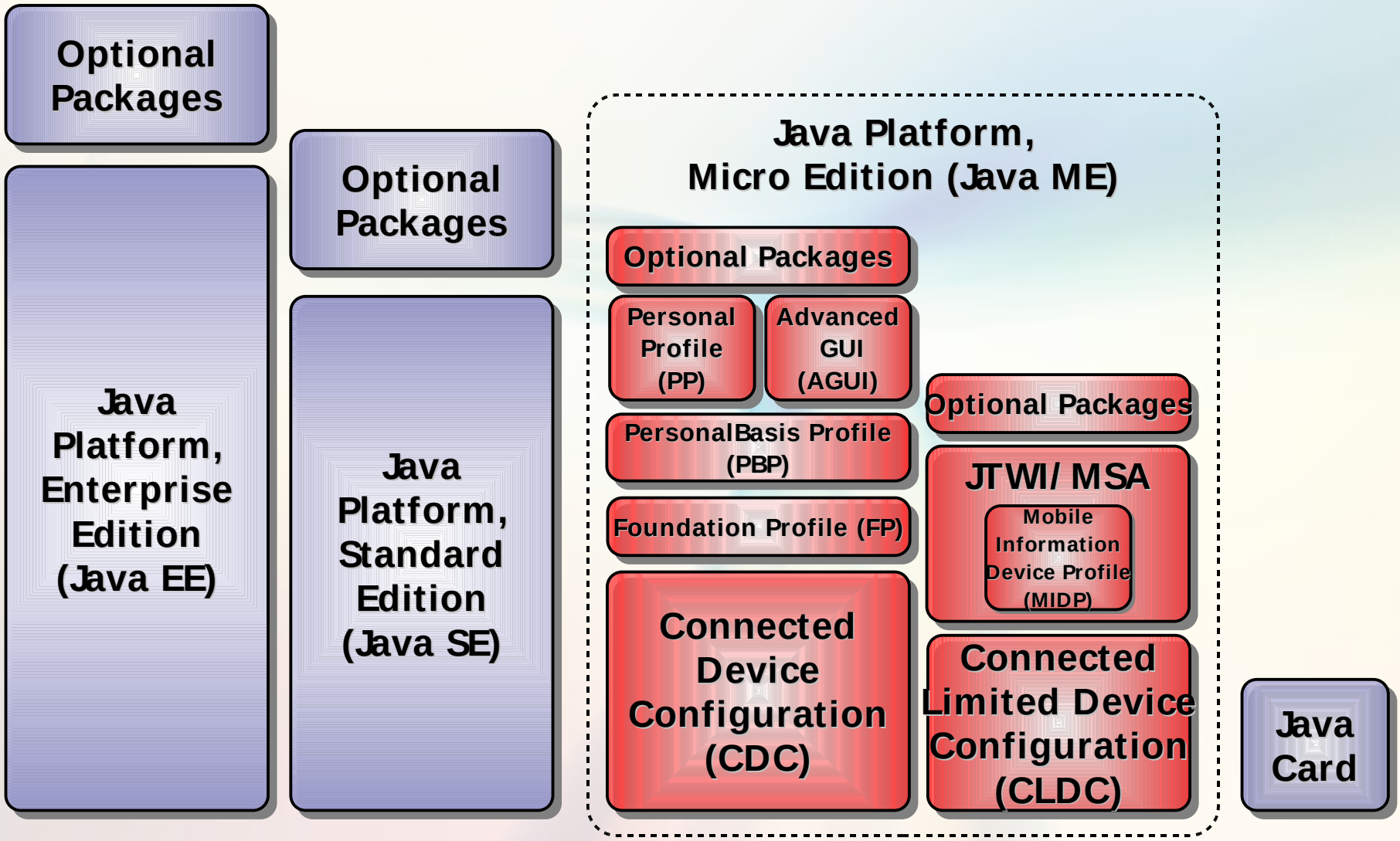
Agenda

- Java ME introduction
- Java ME applications
- NetBeans Mobility Edition
- Power of advanced features
- Demos, demos, demos
- Q/A

Java ME Brief Introduction

- A Java platform for consumer and embedded devices
- Defines configurations, profiles and optional packages
- Mobile phones usually use CLDC configuration and MIDP profile
- Devices using CDC configuration are coming to the market – Phones, Printers, IPTV, Blueray players

Java ME Brief Introduction



Java ME Applications

- Application Lifecycle
  - CLDC/MIDP – MIDlet
  - CDC – Xlet, Main or Applet
- MIDlet
  - Managed by AMS, similar to Applet but with some differencies
- Xlet
  - Similar to MIDlet, allows communication between Xlets
- Applet and Main are same models as Java SE application model

Differencies & Limitations

- Using libraries
  - CLDC/MIDP – can to use user libraries, all libraries should be merged before preverification
  - CDC – usage of user libraries is defined by underlying platform
- Build process
  - CLDC platform requires process called preverification (stack map verification) during build
- Limitations
  - CLDC does not have reflection, custom classloaders

Tools - NetBeans Mobility

- Until NetBeans 6.0 add on – Mobility Pack
- Starting NetBeans 6.0 included in NetBeans Mobility Edition or Full Edition with support for both CLDC and CDC devices
- Includes Sun Java Wireless Toolkit
- Rich set of examples
- Over 1.000.000 cumulative downloads
- Open source project - http://mobility.netbeans.org
  - Platform for Java ME tools

Tools - NetBeans Mobility

- Ant based build system
  - With specific extensions for Java ME/CLDC and CDC
  - Project can be built outside IDE
  - Extensible – user defined targets
- Bundled Sun Java Wireless Toolkit 2.5.2
- Support for 3-rd party emulators
  - Automatic detection
  - Nokia, Sony Ericsson, Motorola, Siemens and others
  - Special / custom platforms can be added as well
- Advanced testing support

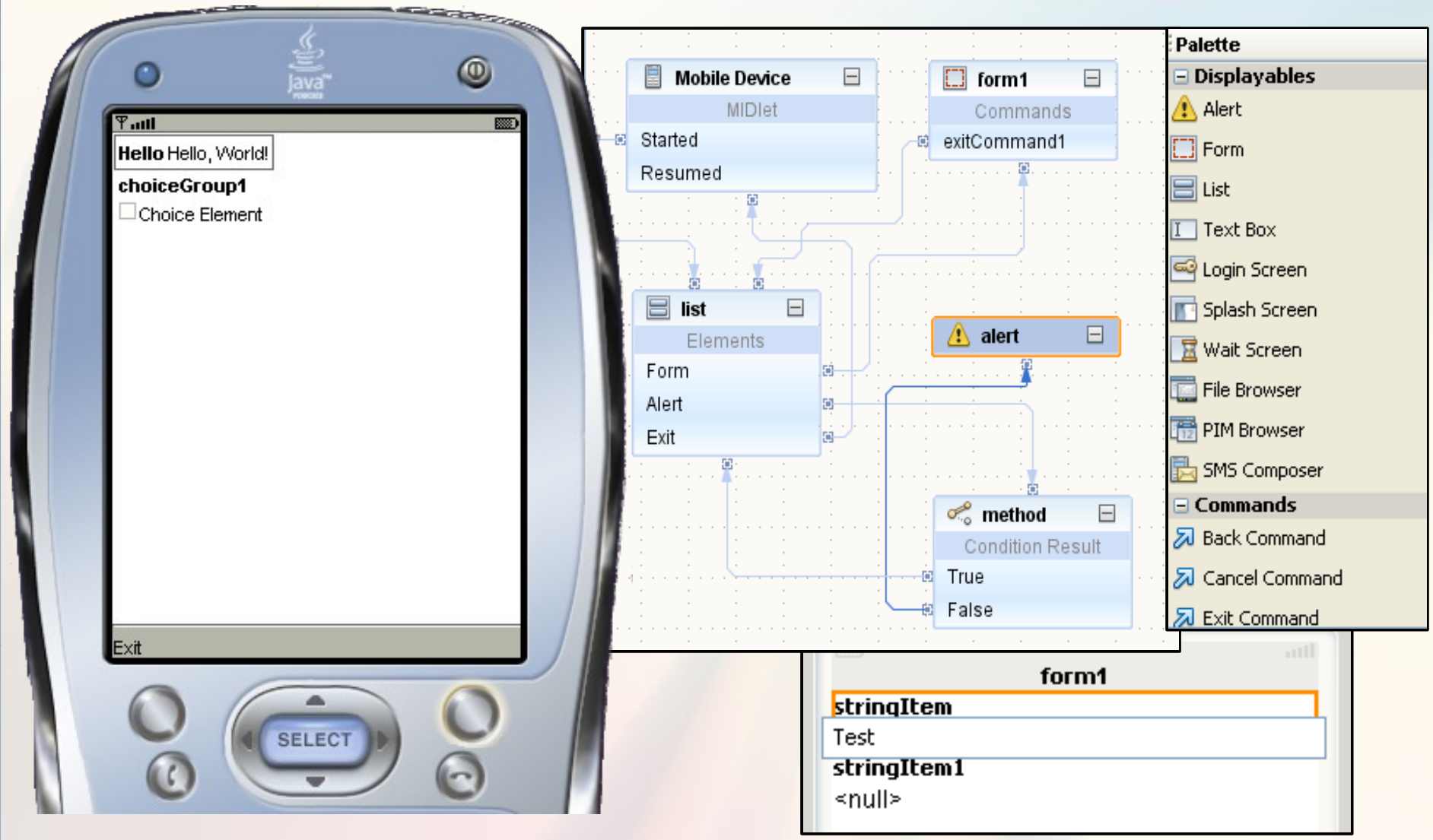
Customer Pain Points

- Increasing Developer Productivity
  - Decreasing Complexity
  - Enabling Interoperability
  - 44% of mobile devs target 11+ devices for each app
  - Maintaining Costs
- Using the tools
  - NetBeans Mobility Pack
- By further standardization
  - Java Technology for Wireless Industry (JTWI, JSR 185)
  - Mobile Service Architecture (MSA, JSR 248, 249)

Visual Designer for MIDP

- New, powerful Visual Designer for Java ME / MIDP
- Flow editor
  - Design your application flow using a visual tool
- Screen editor
  - Visually edit the individual screens of the application
- Source editor
  - Add/Edit application business logic
- Custom components
  - Splash screen, Wait screen, Table item, SVG support

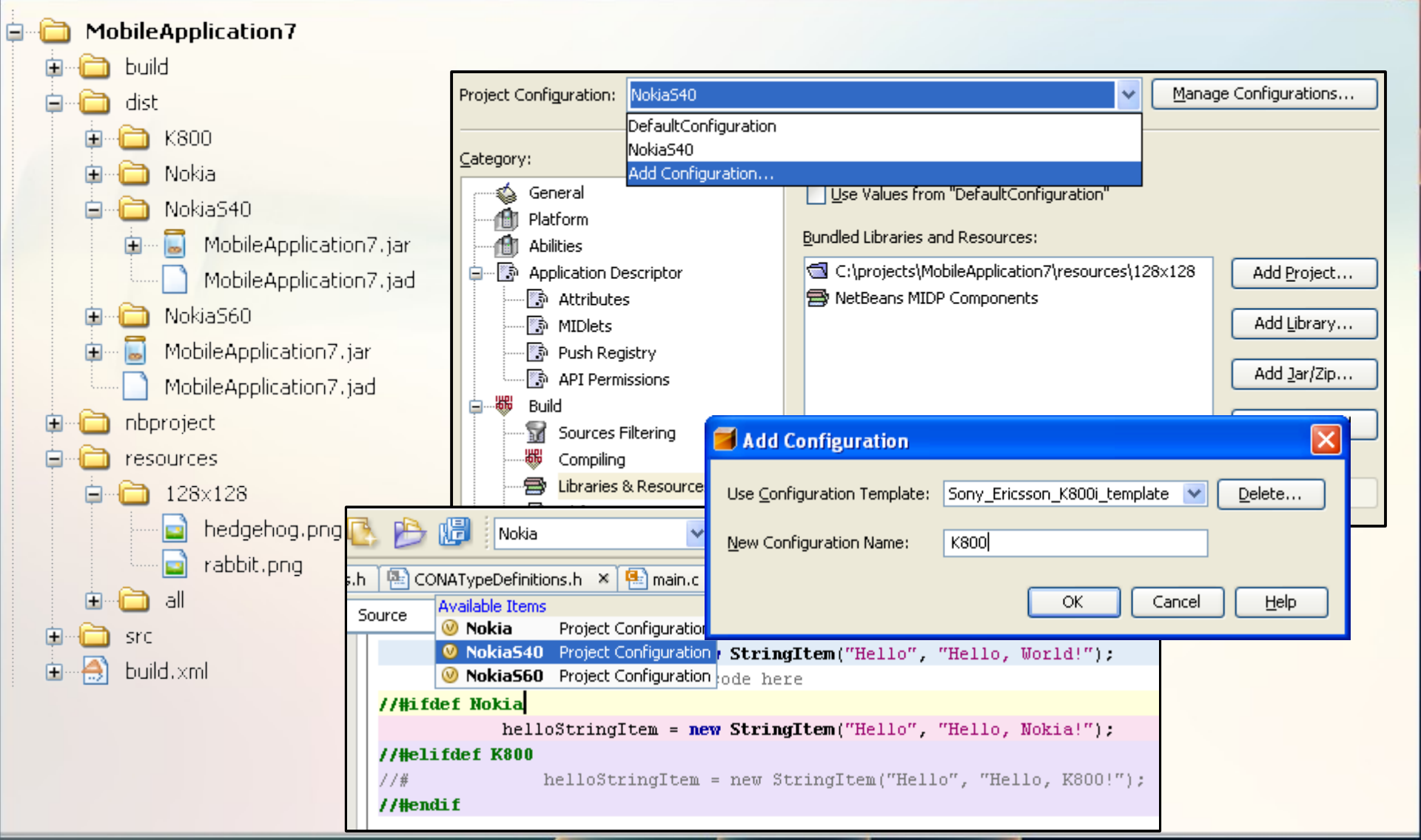
Drag & Drop w/ Visual Mobile Designer



Application Porting Features

- Helps with porting of applications on real devices
  - Devices exist in many variations – screen size, multimedia with different codecs support
- Application configuration
  - Every configuration represents one set of files
  - Settings can be modified for each configuration
- Commenting preprocessor
  - Comments out non-active blocks
  - Integrated with editor, highlighting and code completion
- Build selected or all configurations in one step

Application Porting



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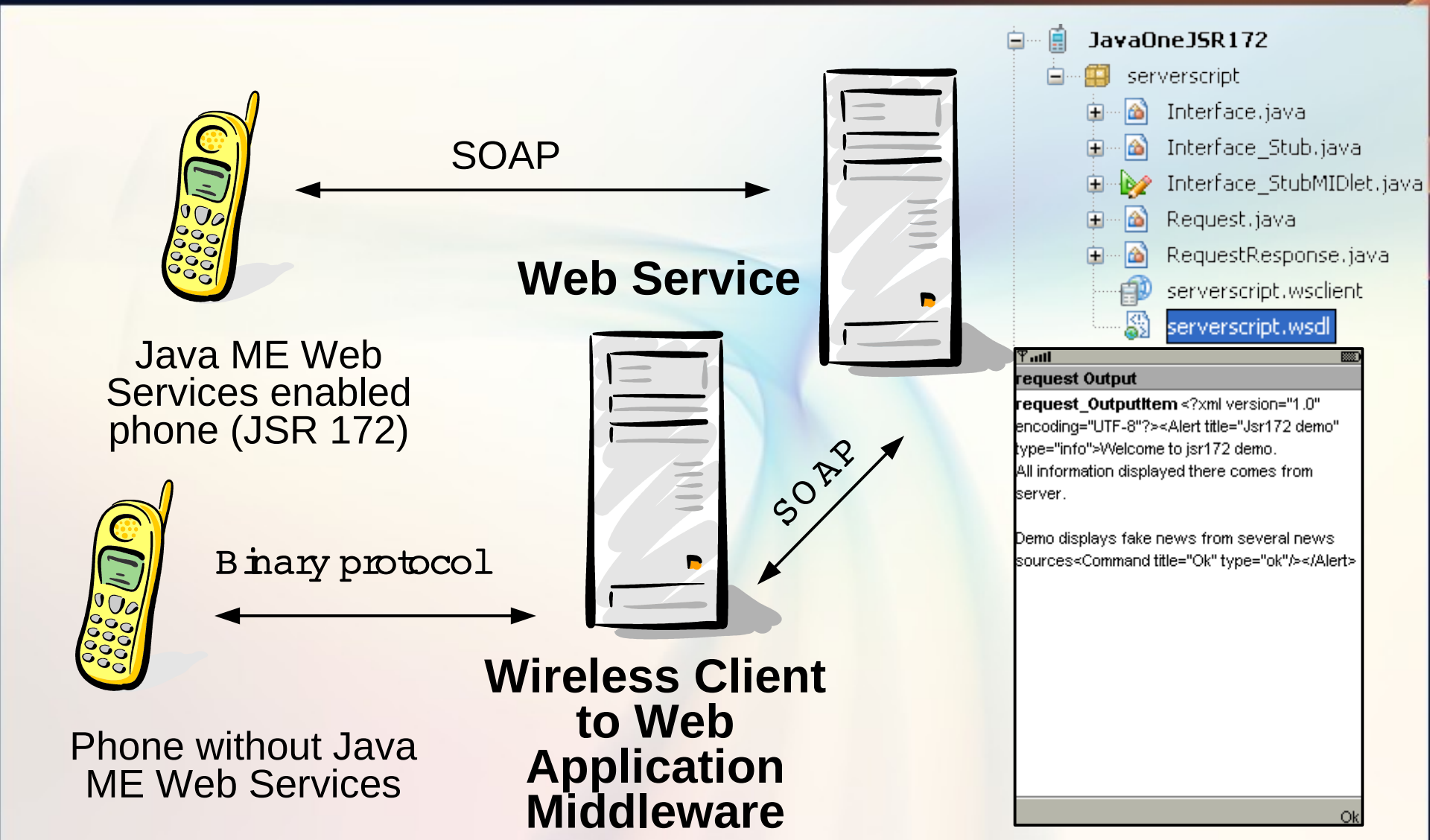
Advanced Features

- Client-Server application development
  - Wireless Connection Bridge (web svcs, EJBs, etc.)
  - Web Services Client Generator (JSR 172)
- MIDP localization support
- OTA testing
  - Simulating real mobile devices
- Distributed with ProGuard for code obfuscation and optimization
- Deployment support
- Application signing

Client-Server Connection Solutions



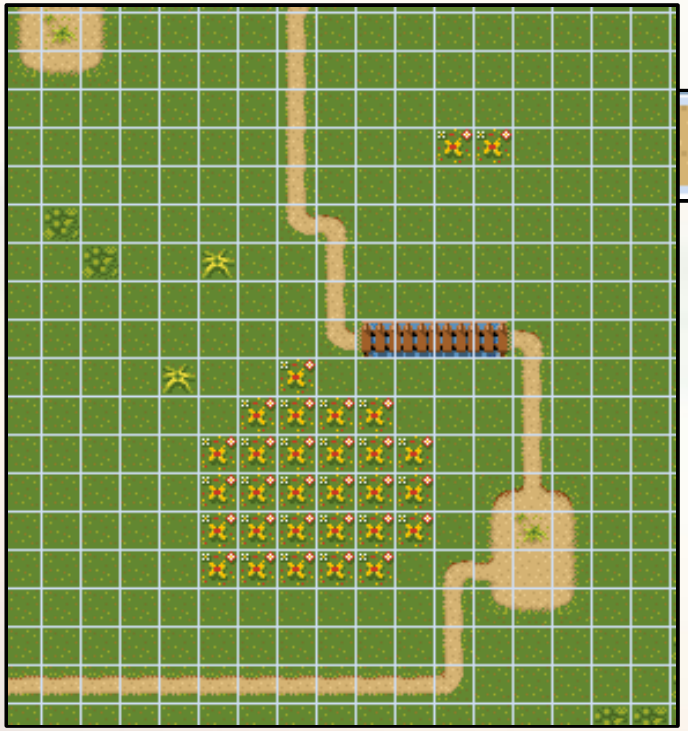
SVG-T in NetBeans Mobility Edition

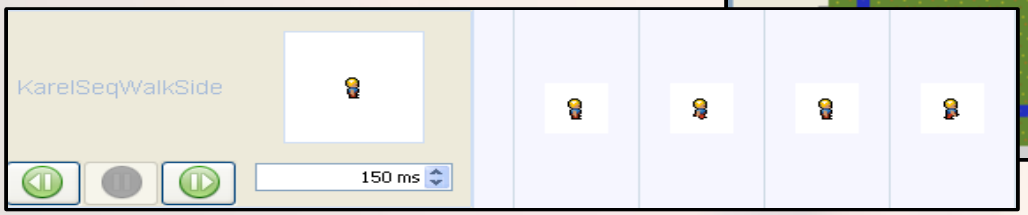
- Support for SVG-T files and development
  - Scalable Vector Graphics Tiny 1.1 (JSR-226)
- SVG-T composer, viewer and navigator
  - Explore SVG-T content
  - Run animations
  - Basic edition of SVG-T files
- Extended Visual Designer
  - Use new SVG components to create rich application UI
  - SVG Menu, SVG Splash Screen, SVG Wait Screen, SVG Image, SVG Animator

Game Designer Highlights

- Visual Drag'n'Drop application designs
  - Uses MIDP 2.0 Game API's
- Build individual Tiled Layers and Sprites
  - Import prepared graphics
- Manipulate overall Scenes layout
  - By moving individual layers
- Support for Sprite timing
- Simplifies basic blocks building for game developers

Game Designer





Advanced Testing

- Testing is important, but complex issue in Java ME
- Many devices, careers networks and bradings
- Initial testing can be done using emulator SDK's and JMUnit
- Complex testing requires testing on real devices and networks
  - High cost to maintain devices for development
  - Requires additional support infrastructure
  - Can be out of scope for smaller development teams

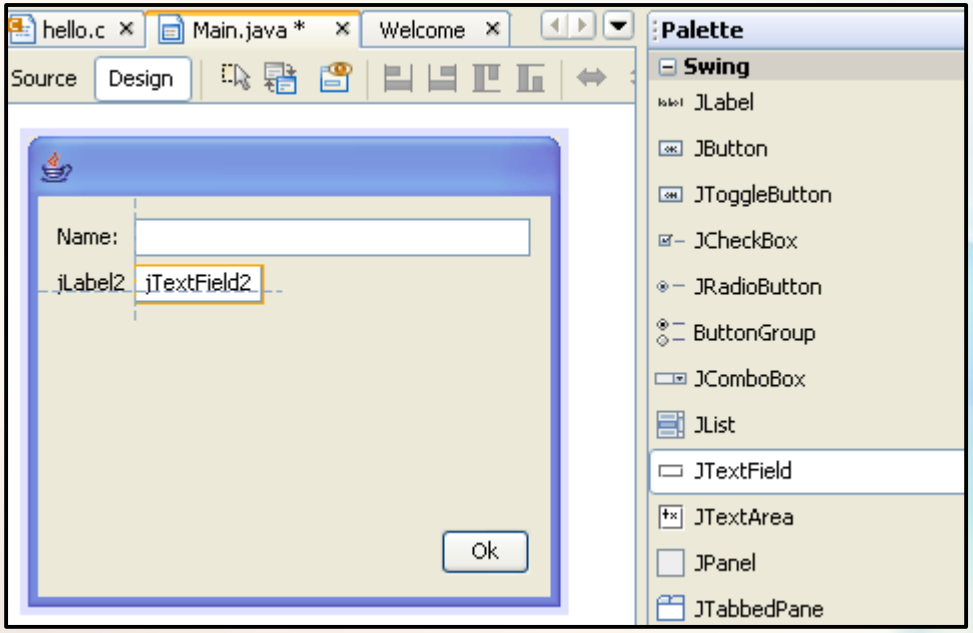
Testing using DeviceAnywhere

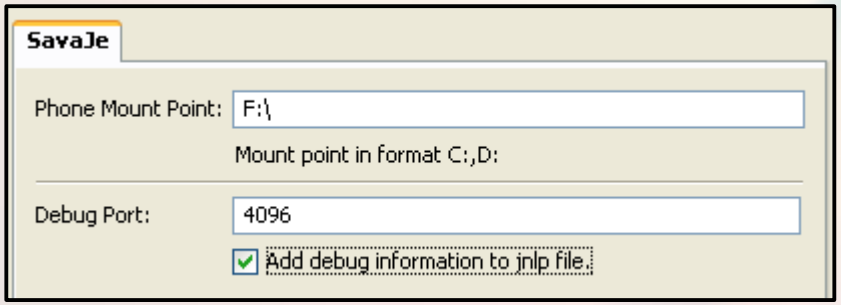
- Unique service allows testing on remote devices
- No need to buy devices for in house testing
- Access to pre-release handsets
- Developer is testing real device in real network
- Advantage for developer who are building apps for third country careers
- Build in support for deployment in NetBeans Mobility Edition

Support for CDC Configuration

- Starting NetBeans 6.0, CLDC and CDC support is included within one Mobility Edition
- Solution for Java ME CDC application development
- Matisse Visual Designer available for GUI development (Advanced GUI - JSR 209 Swing subset, Personal Profile)
- Supports Sony Ericsson CDC Platform 1, Nokia S80, SavaJe devices, RICOH SDK/J printers, NSIcom CrEme VM support (Windows CE and Windows Mobile Platforms)

Using Matisse on CDC platform





Summary

- NetBeans Mobility Edition is a complete solution for mobile application development and deployment
- Supports broad set of emulators and devices
- Features for both power users and beginners
- Visual manipulation for both CLDC/MIDP UI and Game API's
- Advanced testing features
- Questions, Requirements, Ideas? - send comments to users@mobility.netbeans.org

Questions & Answers

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