User Interface

Technology Domain
Roadmap & Strategy

22 February 2010
Scott Weiss, UI Technology Manager
scottweiss@symbian.org
**Definition**
The User Interface Domain offers UI Frameworks providing visual and application controls, animation and transition effects, graphics drawing, text and font rendering, input method processing and display management.

**Key Drivers**
User experience is a key differentiator among OEMs.

**Primary Stakeholders:**
- **Device Creators**
- **Developers interested in designing and customising mobile UIs**
- **Operators wanting to customise mobile UIs**
- **End users**
User Interface Vision

The Symbian community develops a scalable, flexible, and attractive UI framework in order to create innovative, enjoyable, and intuitive personal mobile user experiences. We achieve excellence through collaboration and continuous evolution.
The UI Technology domain consists of middleware and OS level enablers, combined with a subset of the core applications. Homescreeen and Profile are included.

Related Technology Domains:
- Personal Communications
- Multimedia
- Productivity

Have a look at those too, for the full Symbian UI story.
User Interface – S^3 Packages

Application
- ScreenSaver
- HomeScreen
- GraphicsUIs
- Profile
  Applies Profiles (theme, flight mode...)
- HelpApps
- Speech RecognitionUIs
- TechView
  Test Tools

Middleware
- HomeScreen Services
- Haptics Services
  Tactile Feedback
- Input Methods
  Predictive Text
- SVG Tiny
  Vector Graphic Rendering
- UI Accelerator
  Transitions and Effects
- Classic UI
  UI Controls
- UI Resources
  Themes, Fonts, Graphics, Layouts...

OS Layer
- Graphics
- Text and Localisation
  Text Rendering

Copyright © 2010 Symbian Foundation
**Current Packages**

**Apps:** Screen Saver, Home Screen, Profile, Help, Tech View, Graphics UIs, Speech Recognition UIs

**MW:** Home Screen Services, Haptics Services, Input Methods, Classic UI, SVGT, UI Accelerator, and UI Resources

**OS:** Graphics, Text & Localisation

**Upcoming Changes**

NGA, Orbit, and Direct UI require removal of Classic UI and UI Accelerator, planned for Symbian^4, among other as-yet unanticipated changes
**Stakeholder Needs**

**Device Creators**

**Flexibility:** Ability to differentiate the UI and to innovate on display and input methods for any combination of touch and non-touch devices. Applications need to be easy to interface with, enhance or replace for differentiation purposes, such as the camera and music player.

**Usability:** The UI framework needs to enable and inspire compelling, consistent user experiences.

**Performance:** UI actions and transitions need to be responsive and adapt to different device capabilities.

**Royalty-Free:** Third party IP requirements bring unforeseen costs to the BOM and licensing complexity.

**Developers**

**Flexibility:** Opportunity to leverage and extend built-in UI services to create new and exciting applications.

**Usability:** UI controls, templates, and effects need to be intuitive, easily deployed, and customised.

**Enjoyability:** The development environment for UI creation must be enjoyable. UI services need to inspire and enable compelling and innovative applications.

**Performance:** User interface widgets and effects must perform consistently, with minimal tuning effort.

**Operators**

**Flexibility:** Ability to differentiate the look-and-feel, as well as to integrate portfolio-consistent services in a seamless and easy manner.

**Usability:** Good and consistent usability prevents and facilitates customer support calls.

**Enjoyability:** Great user experiences will attract and retain customers, as well as increase ARPU.

**End users**

**Flexibility:** Ability to personalise their phones with themes and profiles, and to add applications with cool UIs.

**Usability:** The UI framework drives intuitive, consistent applications.

**Enjoyability:** A UI that is a delight to use, bringing a sense of fun and satisfaction to the user experience.

**Performance:** A snappy UI that responds quickly and never lags behind user expectations.
Objectives

**General Objectives**
There are a number of general objectives common to the entire platform, such as UX competitiveness, royalty-free services, battery life and performance improvement.

**Flexibility**
The user interface must be easily customisable and applications easily upgraded without significant re-coding efforts.

**Usability**
User interfaces on the handset must be easy to use and easy to learn, as well as easy to design and implement.

**Enjoyability**
Users must delight in the use of their handsets. The UI must be fun without being confusing or cumbersome. Business devices must be especially straightforward.

**Performance**
User interface rendering, effects, animations, and transitions need to appear to be instantaneous.

**Consistency**
The platform needs to facilitate implementation in the cases where stakeholders require UI consistency.
How are we doing?

- **General Objectives**
  - New opportunities opening up

- **Flexibility**
  - Space to grow

- **Usability**
  - Big improvements in S^3!

- **Enjoyability**
  - Symbian^3 breaks new ground

- **Performance**
  - Good & getting even better!

- **Consistency**
  - On top of things

This analysis pertains to the User Interface domain only.
**Symbian UI Roadmap Overview**

**Symbian^2: Subtle UI Enhancements**
- Homescreen widget support enhancements
- More keypads supported (QWERTY & half-QWERTY, 12-digit)
- Several transitions built into the platform
- Kinetic Scrolling built in

**Symbian^3: Substantial Enhancements**
- New Graphics Architecture offers gradients, transparency, layering, and transitions
- Multiple pages support from the Home Screen
- Gesture support (tap, double tap, long tap, drag, and pinch)
- Support for Adobe Flash™ Home Screen widgets—even full screen
- Change dual-tap UI to single-tap UI
- Symbian platform default theme overhaul

**Symbian^4: Gorgeous New UI**
A fantastic evolution of the Symbian’s UI:
- Toolbar replaces soft keys
- Menu always present and available with persistent Back button
- Widgets of any size and any position
**Video Outputs**
Single or Multiple Displays
TV-out

**Screen Resolution**
nHD (640x360)

**Graphics**
Bitmap font
Vector font support
* Advanced font effects
2D and 3D accelerated graphics
* EGL 1.4
* OpenGL ES 1.1
* OpenVG 1.1

**System GUI Frameworks**
Flexible application and UI frameworks
Control and windowing environments
Home Screen MiniView and multiple pages
Support for Adobe Flash widgets, even full screen

**Input Methods**
12-digit keypad
Full and Half QWERTY
Virtual (on-screen) keyboards
Combined input (Keypad/Keyboard, Keyboard/Touch)
Handwriting support
Gestural input

**Interaction Features**
Single tap UI
Clipboard support (Cut-Copy-Paste)
Homescreen widgets
Kinetic (flick gesture-based) scrolling
Basic tactile feedback
# New Features in Symbian^3

## Substantial Enhancements

<table>
<thead>
<tr>
<th>Feature</th>
<th>Target Objectives</th>
<th>Contributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avkon graphics acceleration</td>
<td>Performance</td>
<td>Nokia</td>
</tr>
<tr>
<td>Open GL ES 2.0 and OpenVG 1.1 APIs and backends</td>
<td>Performance</td>
<td>Nokia</td>
</tr>
<tr>
<td>Homescreen multiple views support</td>
<td>Enjoyability</td>
<td>Nokia</td>
</tr>
<tr>
<td>Soft keys embedded into dialogs</td>
<td>Usability</td>
<td>Nokia</td>
</tr>
<tr>
<td>Gesture support for tap, double-tap, long-tap, drag, and flick. Multi-touch support for pinch gesture.</td>
<td>Usability and Enjoyability and Consistency</td>
<td>Nokia</td>
</tr>
<tr>
<td>Support for Adobe Flash™ Homescreen widgets—even full screen</td>
<td>Flexibility, Enjoyability and Consistency</td>
<td>Nokia</td>
</tr>
<tr>
<td>Single tap enhancement to the UI</td>
<td>Flexibility, Enjoyability and Consistency</td>
<td>Ixonos</td>
</tr>
<tr>
<td>Default platform theme overhaul</td>
<td>Enjoyability</td>
<td>Symbian</td>
</tr>
</tbody>
</table>
Symbian is invigorating the platform by providing a fresh, attractive default theme.

A new wallpaper, icons, clock, and full “chrome” are included.

As a fully open source solution, device and theme creators are free to innovate on and contribute to this theme.

As of publication (February 2010), the theme is in Beta.
### Scoped Items for Symbian^4

**Gorgeous New UI**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Target Objectives</th>
<th>Contributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qt replaces Avkon</td>
<td>Usability and Flexibility</td>
<td>Nokia</td>
</tr>
<tr>
<td>UI Extensions for Mobile—was “Orbit” (UI controls &amp; structure)</td>
<td>Usability, Enjoyability, and Consistency</td>
<td>Nokia</td>
</tr>
<tr>
<td>Direct UI (redesigned applications)</td>
<td>Usability, Enjoyability, and Consistency</td>
<td>Nokia</td>
</tr>
</tbody>
</table>
**Items for Contribution to Symbian^4 UI**

*Under consideration by the Councils*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Target Objectives</th>
<th>Contributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Printing Framework: approved!</td>
<td>Usability</td>
<td>K Three</td>
</tr>
<tr>
<td>Social Mobile Framework</td>
<td>General Objectives</td>
<td>Sasken</td>
</tr>
</tbody>
</table>
Symbian^4 UI Model

- Contacts Application
- Core System Applications
  - UI Extensions for Mobile (UI Controls)
  - Third Party Applications
    - Games
  - Widgets
- Contacts Homescreen Widget
- Terrific flexibility is built into the system!
- Application Engines
- Qt
**S^4 Goals for Orbit & Direct UI Proposals**

**Flatten Hierarchies**: The two softkey-driven UI creates a deep hierarchy for users to traverse.

**Restructure Commands**: Many features exist as separate applications, when they would be better organised within settings groups or in existing applications.

**Reduce the Number of Taps**: Flattening the user interface will result in fewer taps to reach desired functions and features.

**Improved Internetworking and Task Switching**: Moving between applications will be easier than ever.

**Homescreen as Most Valuable Real Estate**: The Symbian homescreen has been improving steadily. Orbit takes the homescreen to a new level.
The Symbian Library contains a set of collections.

This consistent UI pattern is used throughout the S^4 UI for a better user experience.
S^4 UI Architecture

Second order commands live in the Menu

Third order commands live in the Settings

Long-press on an object brings up a Context Menu

First order commands live in the Toolbar
S^4 Differentiation Opportunities

New theming capabilities are coming, with a reduced set of assets and easier tooling.

Widgets can be placed anywhere and can be any size.

Widgets can provide alternative UIs to system applications quickly and easily.

Homescreen Widgets
(Qt, Web RunTime and Adobe Flash™)
Titlebar Region
Controlled by the System. Contains three interactive elements:

1) Universal Indicators button shows network signal strength & battery strength, touch to invoke notification panel
2) Title/Menu shows application title, touch invokes dropdown Options menu
3) Back button, touch to back navigate through the application’s back stack then Home or Task Switcher (depends on how application was entered)

Content Region
Controlled by the Application. Contains arbitrary contents:

1) Can be populated with one or more content items. When the content displayed is within a hierarchy, the optional Label Field placed below the Titlebar notes the user’s location.
2) Content panel has a configurable scrollbar
3) Toolbar is optional, max 4 buttons, can have extensions
Titlebar may autodismiss with application toolbar.
Default animation is up and off screen.

Application toolbar may autodismiss with titlebar.
Default animation is down and off screen.
## Contribution Opportunities

<table>
<thead>
<tr>
<th>Feature</th>
<th>Target Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible UI</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Predictive text input technology</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Speech input technology</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Fonts and type technology</td>
<td>General Objectives</td>
</tr>
<tr>
<td>UI Brainstorm items</td>
<td>Enjoyability, Usability <em>and</em> Consistency</td>
</tr>
<tr>
<td><a href="http://symbianuibrainstorm.wordpress.com">http://symbianuibrainstorm.wordpress.com</a></td>
<td></td>
</tr>
<tr>
<td>Non-touch UI for S^4+</td>
<td>Usability <em>and</em> Consistency</td>
</tr>
<tr>
<td>Sensor support at the UI level</td>
<td>Flexibility, Usability, Enjoyability</td>
</tr>
</tbody>
</table>
Thank you!