Google™ 09 IO

Pixel Perfect Code: How to Marry Interaction & Visual Design the Android Way

Chris Nesladek
May 27, 2009

Post your questions for this talk on Google Moderator:
code.google.com/events/io/questions

Google™ 09 I|O

Note:

All examples that display a cursor are meant to represent a finger touching the screen. Our emulator can't do that...yet!

My goal today:

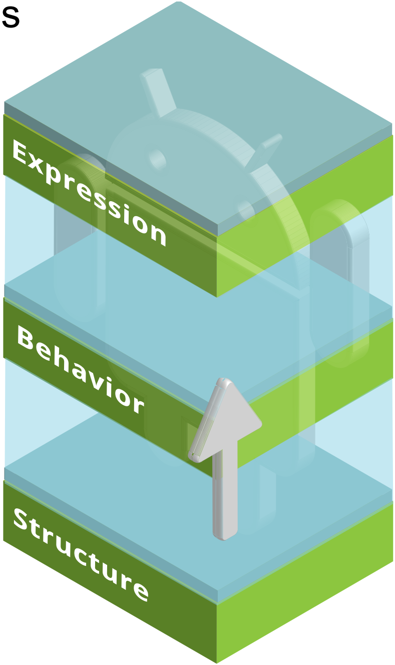
Help you use the Android framework to enable richer user experiences when building your applications.

Introduction

What we’re going to explore together today...

- Framework Structure & Flow
  - Five things that make us unique
- Framework Basics
  - Hardware & Software
  - Portrait & Landscape
  - Focus & Menus
- Onscreen Behavior
  - Bringing screens to life with what we offer
  - Expected interactions & unexpected delight
- Expression
  - The 20% test
  - Tips and Tricks
- What our plans are for the future

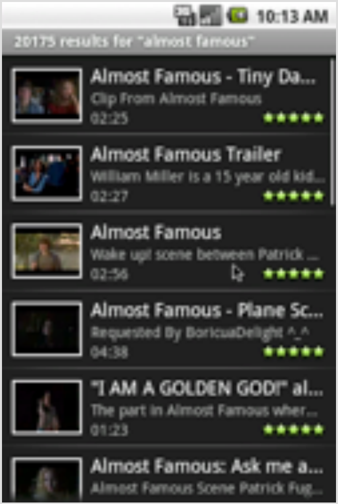
Core Principles



Framework Structure & Flow

What makes the Android User Experience unique

- Multi-tasking supported by background processing



10:13 AM

20175 results for "almost famous"

Almost Famous - Tiny Da...
Clip From Almost Famous
02:25 ★★★★★

Almost Famous Trailer
William Miller is a 15 year old kid...
02:27 ★★★★★

Almost Famous
Wake up! scene between Patrick ...
02:56 ★★★★★

Almost Famous - Plane Sc...
Requested By BoricuaDelight ^_^
04:38 ★★★★★

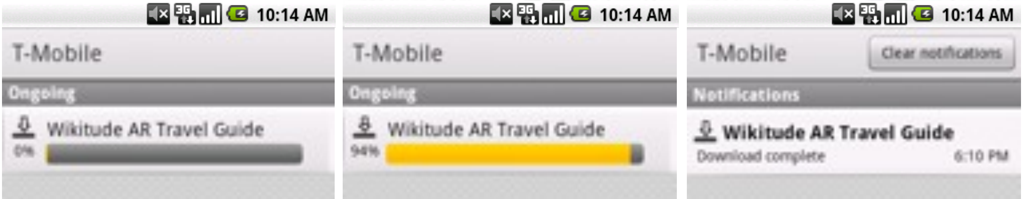
"I AM A GOLDEN GOD!" al...
The part in Almost Famous wher...
01:23 ★★★★★

Almost Famous: Ask me a...
Almost Famous Scene Patrick Fug...

Framework Structure & Flow

What makes the Android User Experience unique

- Ongoing and event-driven notifications



10:14 AM

T-Mobile

Ongoing

Wikitude AR Travel Guide

0%

10:14 AM

T-Mobile

Ongoing

Wikitude AR Travel Guide

94%

10:14 AM

T-Mobile

Notifications

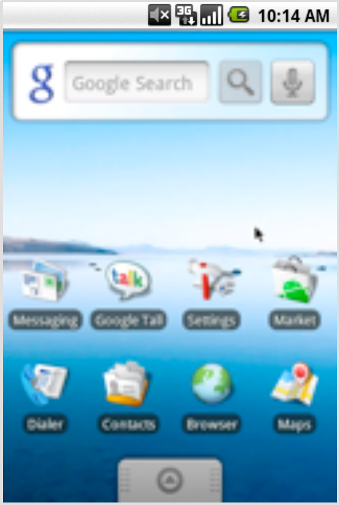
Wikitude AR Travel Guide

Download complete 6:10 PM

Framework Structure & Flow

What makes the Android User Experience unique

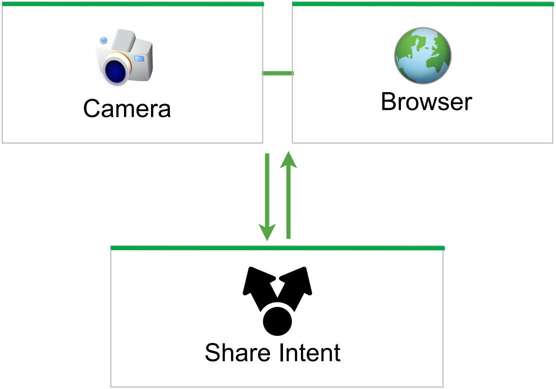
- Real-time data views through widgets and live folders



Framework Structure & Flow

What makes the Android User Experience unique

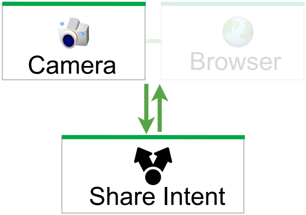
- Any application can pick and choose which intents they want to take



Framework Structure & Flow

What makes the Android User Experience unique

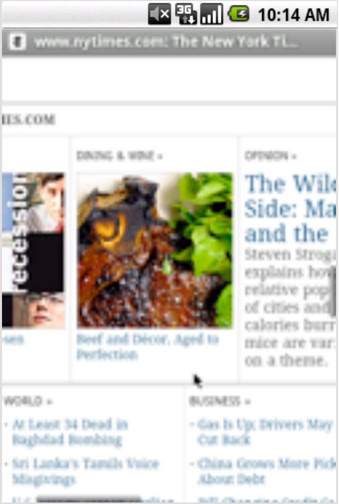
- Any application can pick and choose which intents they want to take



Framework Structure & Flow

What makes the Android User Experience unique

- Any application can allow the spread of data to other applications



10:14 AM

www.nytimes.com: The New York Ti...

IES.COM

DINING & WINE »

OPINION »

recession

sen

Beef and Décor, Aged to Perfection

The Wild Side: Ma and the

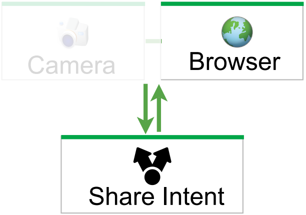
Steven Strog explains ho relative pop of cities and calories burr mice are var on a theme.

WORLD »

- At Least 34 Dead in Baghdad Bombing
- Sri Lanka's Tamils Voice Misgivings

BUSINESS »

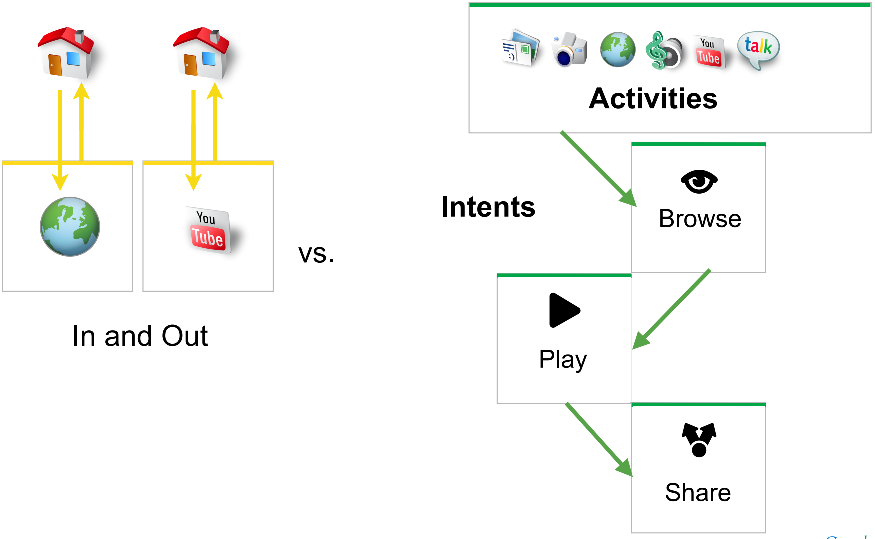
- Gas Is Up; Drivers May Cut Back
- China Grows More Pick About Debt



Framework Structure & Flow

What makes the Android User Experience unique

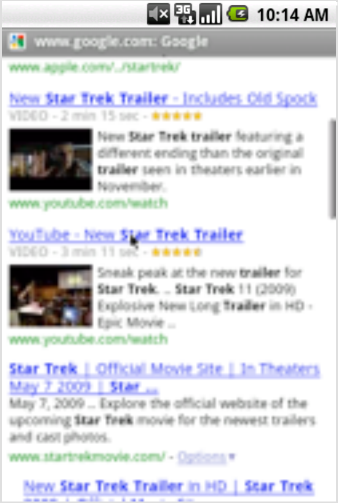
- Use the hooks, re-use of components from intents is easy



Framework Structure & Flow

What makes the Android User Experience unique

- Use the hooks, re-use of components from intents is easy



10:14 AM

www.google.com: Google

www.apple.com/.../startrek/

New Star Trek Trailer - Includes Old Spock

VIDEO - 2 min 15 sec - ★★★★★

New Star Trek trailer featuring a different ending than the original trailer seen in theaters earlier in November.

www.youtube.com/watch

YouTube - New Star Trek Trailer

VIDEO - 3 min 11 sec - ★★★★★

Sneak peak at the new trailer for Star Trek. ... Star Trek 11 (2009) Explosive New Long Trailer in HD - Epic Movie ...

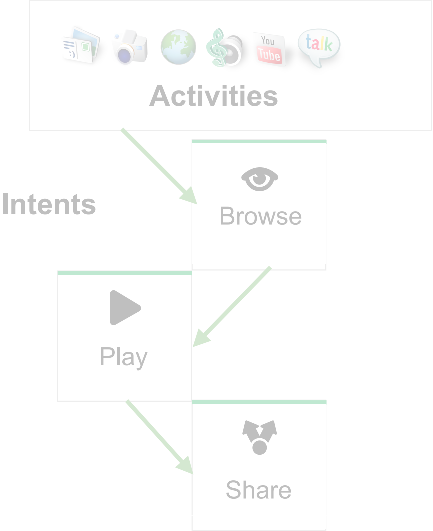
www.youtube.com/watch

Star Trek | Official Movie Site | In Theaters May 7 2009 | Star ...

May 7, 2009 ... Explore the official website of the upcoming Star Trek movie for the newest trailers and cast photos.

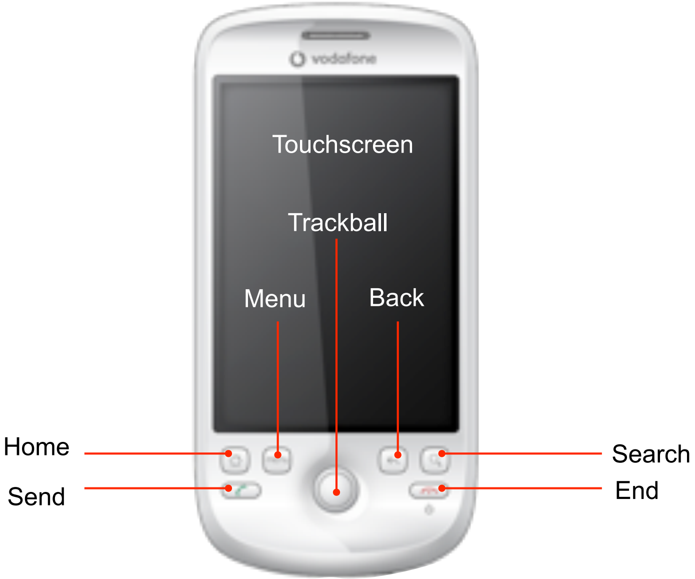
www.startrekmovie.com/ - Options ▾

New Star Trek Trailer in HD | Star Trek



Framework Basics

- The representative Android device is a happy marriage of hardware and software



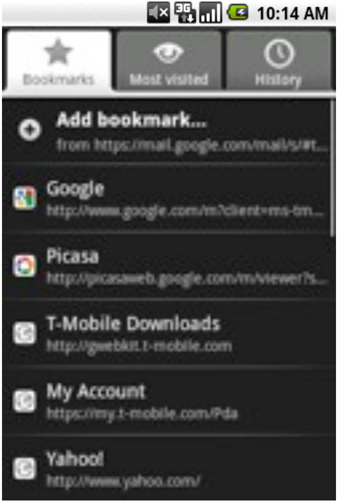
Framework Basics

- Portrait & Landscape

- – Definitely keep it in mind
- – SDK can support different screen sizes and densities
- – 99% of our building block layouts will accommodate landscape

Framework Basics

- Portrait & Landscape



Add bookmark...
from https://mail.google.com/mail/s/#t...

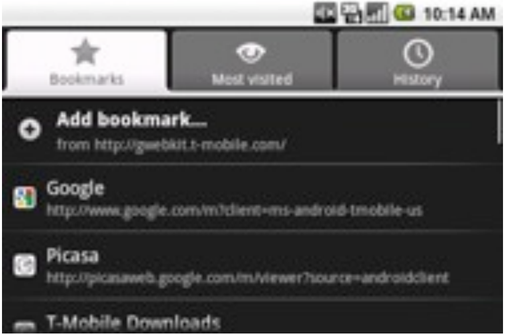
Google
http://www.google.com/m?client=ms-tm...

Picasa
http://picasaweb.google.com/m/viewer?s...

T-Mobile Downloads
http://gwebkit.t-mobile.com

My Account
https://my.t-mobile.com/Pda

Yahoo!
http://www.yahoo.com/



Add bookmark...
from http://gwebkit.t-mobile.com/

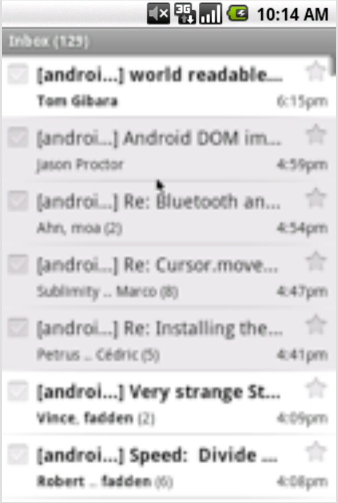
Google
http://www.google.com/m?client=ms-android-tmobile-us

Picasa
http://picasaweb.google.com/m/viewer?source=androidclient

T-Mobile Downloads

Framework Basics

Focus & Menus



10:14 AM

Inbox (129)

☐ [androi...] world readable...
Tom Gibara 6:15pm

☐ [androi...] Android DOM im...
Jason Proctor 4:59pm

☐ [androi...] Re: Bluetooth an...
Ahn, moa (2) 4:54pm

☐ [androi...] Re: Cursor.move...
Sublimity .. Marco (8) 4:47pm

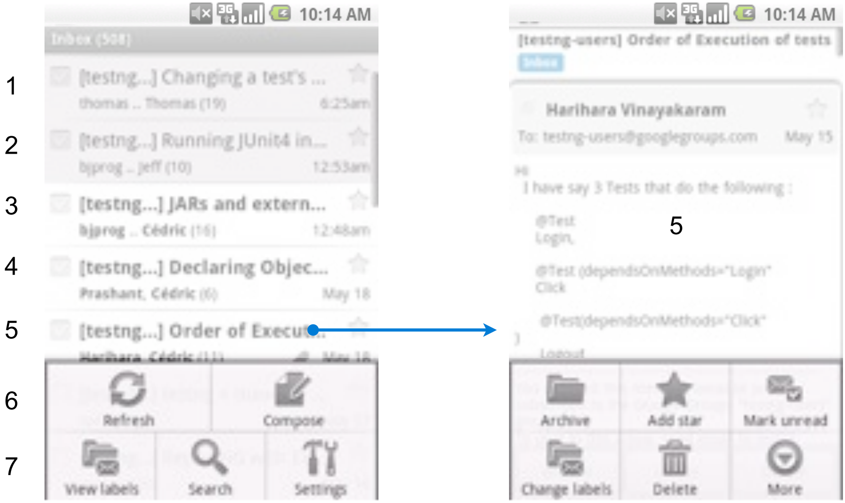
☐ [androi...] Re: Installing the...
Petrus .. Cédric (5) 4:41pm

☐ [androi...] Very strange St...
Vince, fadden (2) 4:09pm

☐ [androi...] Speed: Divide ...
Robert .. fadden (6) 4:08pm

Framework Basics

Main menus are global; they relate to an activity as a whole



[testng...] Changing a test's ...
thomas .. Thomas (19) 6:25am

[testng...] Running JUnit4 in...
bjprog .. jeff (10) 12:53am

[testng...] JARs and extern...
bjprog .. Cédric (16) 12:48am

[testng...] Declaring Objec...
Prashant, Cédric (6) May 18

[testng...] Order of Executi...
Harihara, Cédric (11) May 18

[testng-users] Order of Execution of tests

Harihara Vinayakaram

To: testng-users@googlegroups.com May 15

Hi

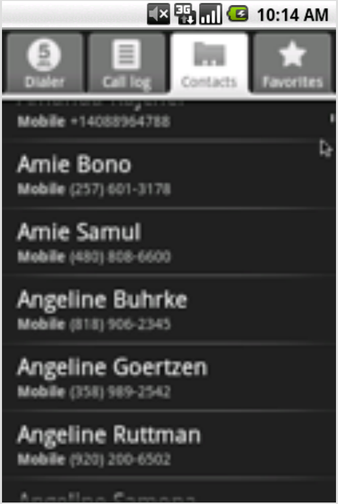
I have say 3 Tests that do the following :

```
@Test
Login,

@Test (dependsOnMethods="Login"
Click

 @Test(dependsOnMethods="Click"
)
 Logout
```

More menu fits 5 if 6 use more

Framework Basics

Contextual menus aka Long Press are focused on a specific item



Mobile +14088964788

Amie Bono
Mobile (257) 601-3178

Amie Samul
Mobile (480) 808-6600

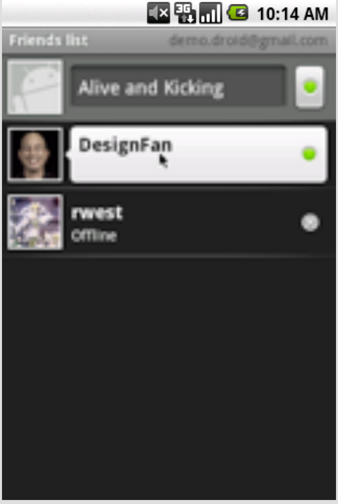
Angeline Buhrke
Mobile (818) 906-2345

Angeline Goertzen
Mobile (358) 989-2542

Angeline Ruttman
Mobile (920) 200-6502

Framework Basics

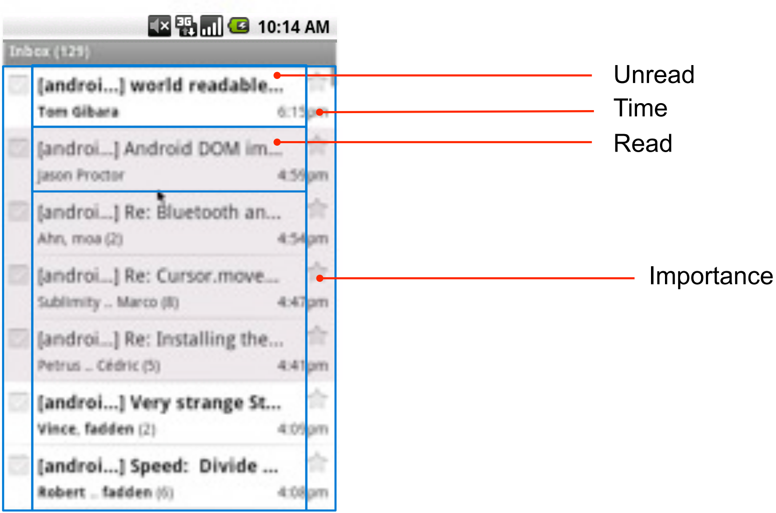
More menus let you add less relevant tertiary information



Framework Structure

A basic example

- Gmail



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[androi...] Re: Installing the...
Petrus .. Cédric (5) 4:41pm

[androi...] Very strange St...
Vince, fadden (2) 4:09pm

[androi...] Speed: Divide ...
Robert .. fadden (6) 4:08pm

Unread

Time

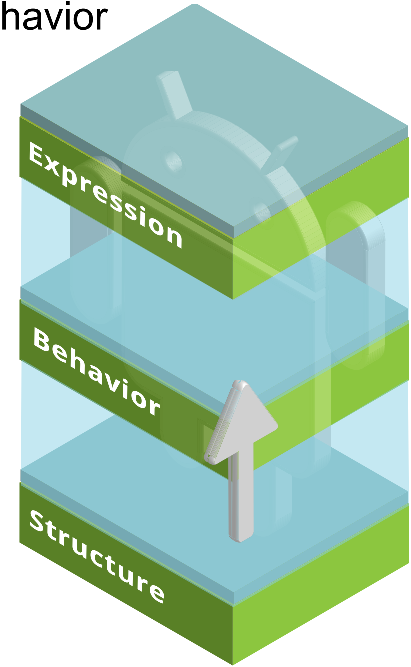
Read

Importance

Some things to keep in mind

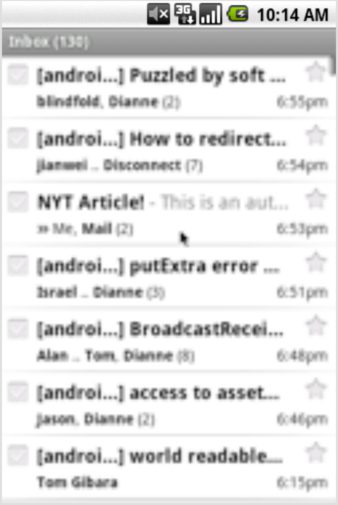
- Design for speed and simplicity
  - Keep hierarchy as flat as possible
  - Minimize onscreen actions
  - Load data rather than asking a user to wait to see a fully fleshed out page aka lazy load
- Think about activity streams as opposed to linear actions
  - Design your app to have hooks across the framework
    - Make it so users can act on the data they see

Onscreen Behavior



Onscreen Behavior

Bringing screens to life with what we offer



10:14 AM

Inbox (130)

[androi...] Puzzled by soft ...
blindfold, Dianne (2) 6:55pm

[androi...] How to redirect...
Jianwei .. Disconnect (7) 6:54pm

NYT Article! - This is an aut...
» Me, Mail (2) 6:53pm

[androi...] putExtra error ...
Israel .. Dianne (3) 6:51pm

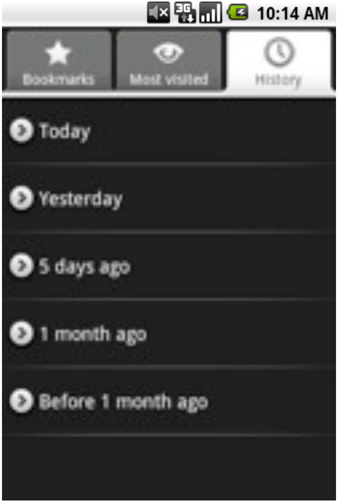
[androi...] BroadcastRecei...
Alan .. Tom, Dianne (8) 6:48pm

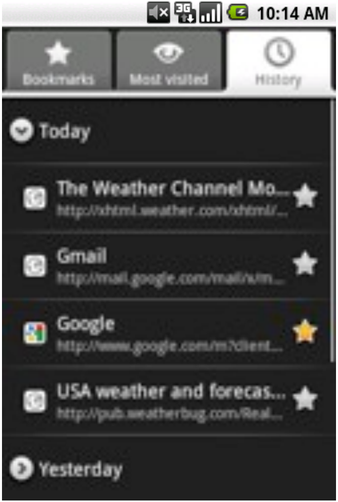
[androi...] access to asset...
Jason, Dianne (2) 6:46pm

[androi...] world readable...
Tom Gibara 6:15pm

Onscreen Behavior

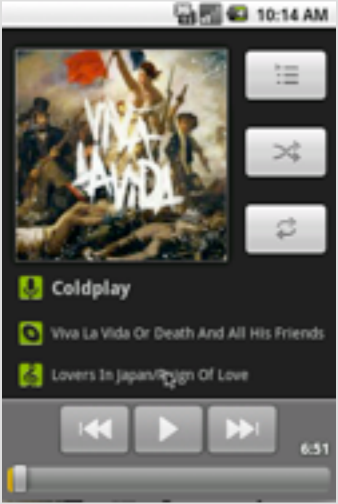
Bringing screens to life with what we offer

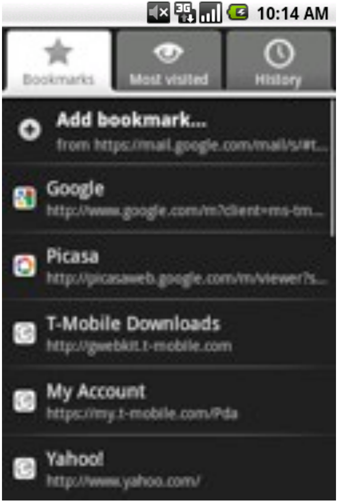



10:14 AM
Bookmarks
Most visited
History
Today
The Weather Channel Mo...
http://xhtml.weather.com/xhtml/...
Gmail
http://mail.google.com/mail/s/m...
Google
http://www.google.com/m?client...
USA weather and forecas...
http://pub.weatherbug.com/Real...
Yesterday

Onscreen Behavior

Bringing screens to life with what we offer


10:14 AM
Coldplay
Viva La Vida Or Death And All His Friends
Lovers In Japan/Reign Of Love
6:51



Add bookmark...
from https://mail.google.com/mail/s/#t...

Google
http://www.google.com/m?client=ms-tm...

Picasa
http://picasaweb.google.com/m/viewer?s...

T-Mobile Downloads
http://gwebkit.t-mobile.com

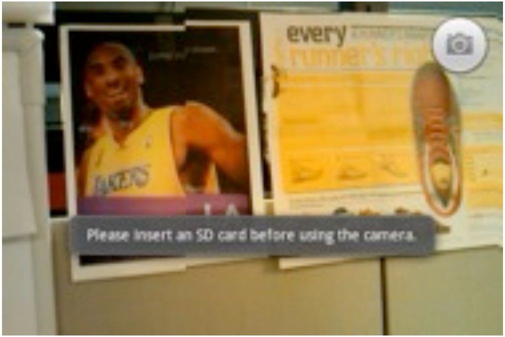
My Account
https://my.t-mobile.com/Pda

Yahoo!
http://www.yahoo.com/

Onscreen Behavior

Bringing screens to life with what we offer

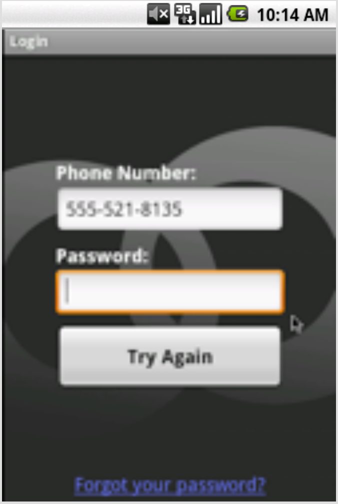
- A word about Toasts



Please insert an SD card before using the camera.

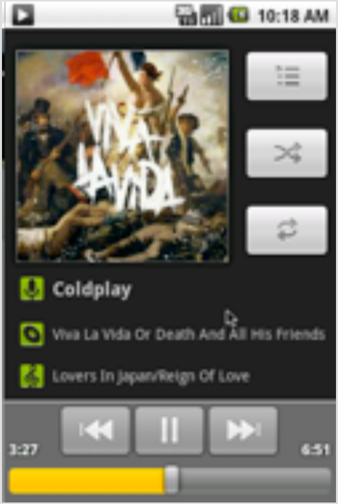
Onscreen Behavior

Expected interaction and unexpected delight

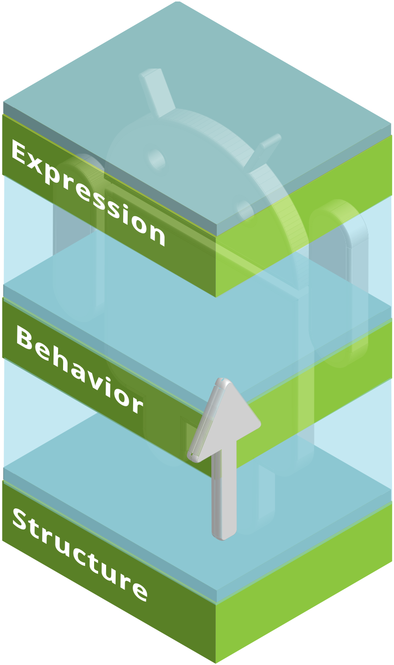


Onscreen Behavior

Expected interaction and unexpected delight

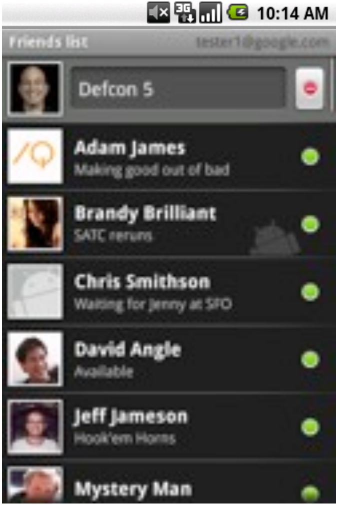

10:18 AM
Coldplay
Viva La Vida Or Death And All His Friends
Lovers In Japan/Reign Of Love
3:27
6:51

Expression



Expression

- The aesthetics of an application help call attention to the key tasks you have made the core of your application experience



10:14 AM

Friends list tester1@google.com

Defcon 5

Adam James
Making good out of bad

Brandy Brilliant
SATC reruns

Chris Smithson
Waiting for Jenny at SFO

David Angle
Available

Jeff Jameson
Hook'em Horns

Mystery Man

Expression

Tips and Tricks

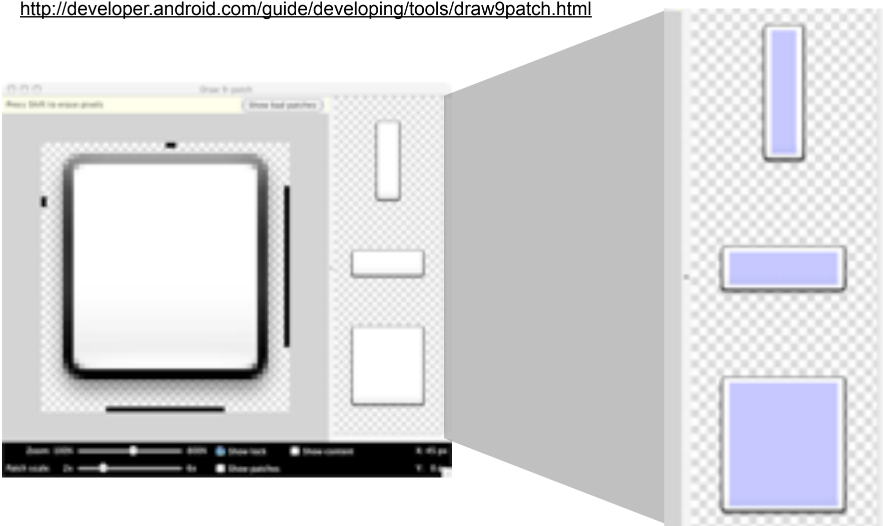
- API demos are a great place to start your toolkit

Expression

Tips and Tricks

- Consider using 9 patches or 9 patch techniques when you can

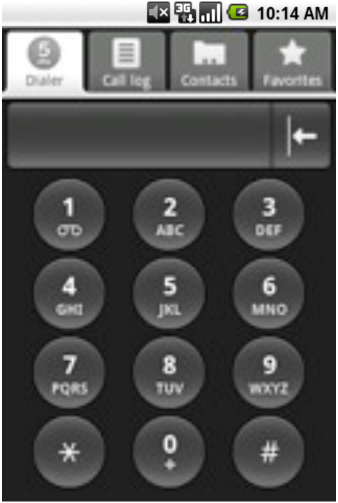
http://developer.android.com/guide/developing/tools/draw9patch.html



Expression

Tips and Tricks

- Want to reduce banding in gradients?

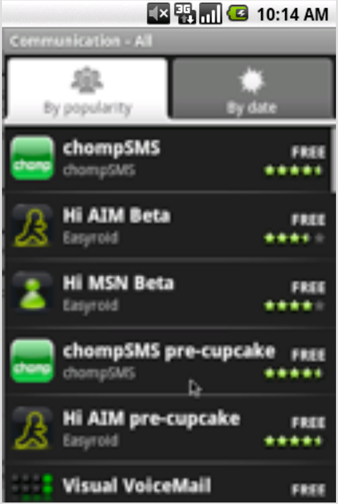


```
 <nine-patch xmlns:android="http://
schemas.android.com/apk/res/android"
      android:src="@drawable/
activity_title_bar"
      android:dither="true"
  />
```

Expression

Tips and Tricks

- Marquee is an option for long text strings



chompSMS FREE
chompSMS

Hi AIM Beta FREE
Easyroid

Hi MSN Beta FREE
Easyroid

chompSMS pre-cupcake FREE
chompSMS

Hi AIM pre-cupcake FREE
Easyroid

Visual VoiceMail FREE

```
<TextView

android:layout_width="wrap_content"
android:layout_height="wrap_content"
    android:singleLine="true"
    android:ellipsize="marquee"
    android:fadingEdge="horizontal" />
```

Expression

Tips and Tricks

- Consider using the built-in scalable pixel units typography

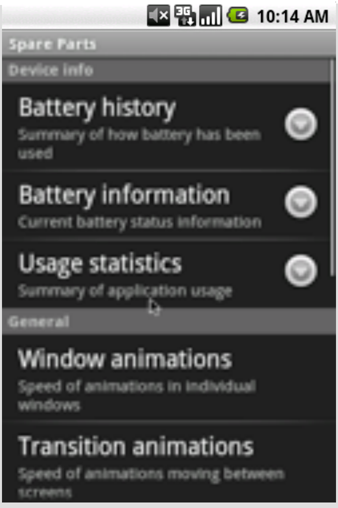
```
android:textAppearance="?android:attr/textAppearanceLarge"
android:textAppearance="?android:attr/textAppearanceMedium"
android:textAppearance="?android:attr/textAppearanceSmall"

<TextView
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:textAppearance="?android:attr/
textAppearanceMedium" />
```

Expression

Tips and Tricks

- Consider using the built-in scalable pixel units typography



10:14 AM

Spare Parts

Device info

Battery history

Summary of how battery has been used

Battery information

Current battery status information

Usage statistics

Summary of application usage

General

Window animations

Speed of animations in individual windows

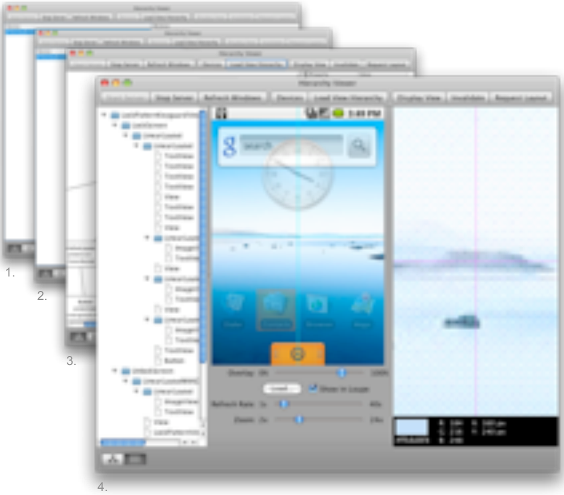
Transition animations

Speed of animations moving between screens

Expression

Tips and Tricks

- Want to match a pixel perfect layout? Use Hierarchy Viewer



Picture 1. Select the device, a window (leave the selection blank to grab the focused window) and click "Load View Hierarchy"

Picture 2. In the new view, click the second button from the left, at the bottom of the window (the one with a grid) to enter the PixelPerfect tool

Picture 3. This tool shows, from left to right, the view hierarchy, a live view of the device, a live zoomed view of the device. Clicking a View object on the left shows its bounds in the live view. You can control the refresh rate and the zoom level. Click the Load button to load an overlay and choose the pixel perfect file

Picture 4. The pixel perfect shows on top of the live view, you can control the translucency of the overlay and you can click the "Show in loupe" box to display the overlay in the zoomed view on the right

Expression

Tips and Tricks

- Want to learn more?
  - Check out Romain Guy, Joe Onarato, and David Sparks's presentations
  - Today
    - David: Mastering the Android Media Framework, 4:15pm Moscone West Rm 7
  - Tomm.
    - Romain: Turbo-charge your UI 2:30 Moscone West Rm 7
    - Joe: Supporting Multiple Binaries 3:45pm Moscone West Rm 4

Our plans for the future

We're continuing to innovate with each release

- UI Guidelines
  - First section of living UI Guidelines is available online today

- Make sure to update the SDK
  - All assets we use are in source tree and available for use
  - We've recently published Icon and Widget Guidelines as well that provide the links to these assets
    - go to http://android-developers.blogspot.com/

Q & A

Post your questions for this talk on Google Moderator:
code.google.com/events/io/questions

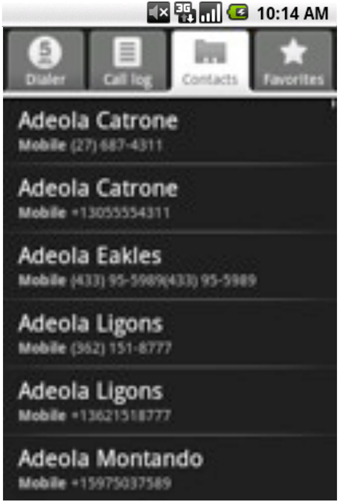
Appendix

Reading materials

- Books
  - Designing Interfaces: Patterns for Effective Interaction Design Jenifer Tidwell
  - Information Architecture for Designers Peter Van Dijck
  - The Visual Display of Quantitative Information Edward Tufte
  - The Elements of Typographic Style Robert Bringhurst
  - The Elements of Color Johannes Itten
  - Icon Design Steve Caplin
- Websites
  - http://www.patternlanguage.com
  - http://www.designinginterfaces.com
  - http://www.37signals.com/gettingreal
  - http://www.welie.com/

Toolkit starter templates

- Views
  - Lists
  - Expandable lists
  - Tabs



Adeola Catrone
Mobile (27) 687-4311

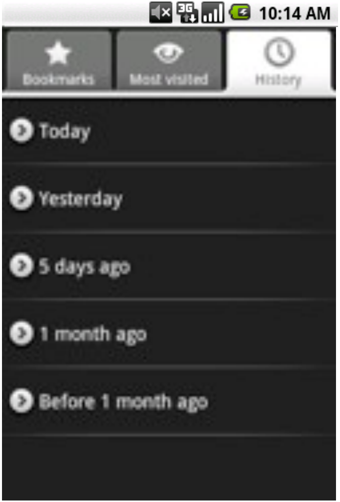
Adeola Catrone
Mobile +13055554311

Adeola Eakles
Mobile (433) 95-5989(433) 95-5989

Adeola Ligons
Mobile (362) 151-8777

Adeola Ligons
Mobile +13621518777

Adeola Montando
Mobile +15975037589



Today

Yesterday

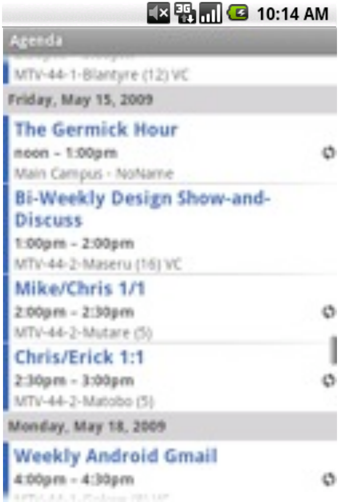
5 days ago

1 month ago

Before 1 month ago

Toolkit starter templates

- Views
  - Controls



MTV-44-1-Blantyre (12) VC

Friday, May 15, 2009

The Germick Hour
noon - 1:00pm
Main Campus - NoName

Bi-Weekly Design Show-and-Discuss
1:00pm - 2:00pm
MTV-44-2-Maseru (16) VC

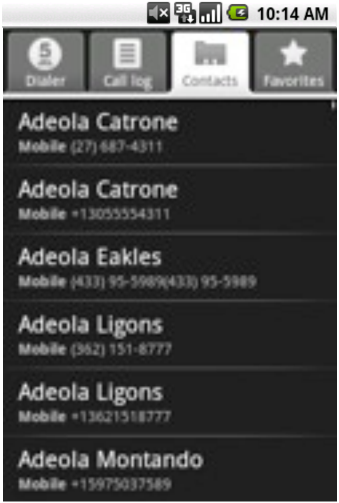
Mike/Chris 1/1
2:00pm - 2:30pm
MTV-44-2-Mutare (5)

Chris/Erick 1:1
2:30pm - 3:00pm
MTV-44-2-Matobo (5)

Monday, May 18, 2009

Weekly Android Gmail
4:00pm - 4:30pm

Light Theme



Adeola Catrone
Mobile (27) 687-4311

Adeola Catrone
Mobile +13055554311

Adeola Eakles
Mobile (433) 95-5989(433) 95-5989

Adeola Ligons
Mobile (362) 151-8777

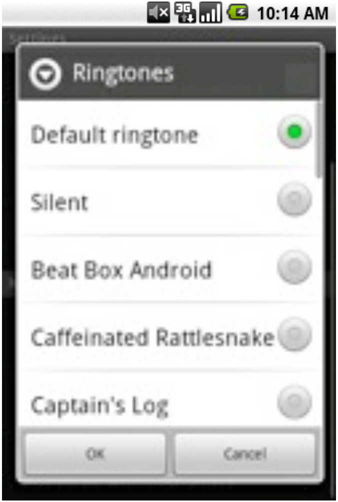
Adeola Ligons
Mobile +13621518777

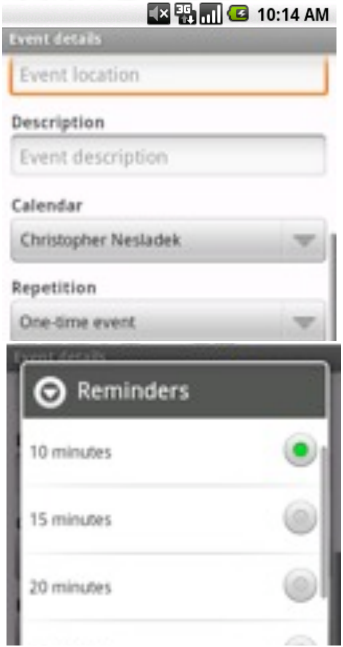
Adeola Montando
Mobile +15975037589

Dark Theme

Toolkit starter templates

- Apps
  - Dialogs, Pulldowns





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