

Google™



Honeycomb Highlights

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Chet Haase @chethaase

May 10, 2011

Questions <http://goo.gl/mod/8NZp>

Feedback <http://goo.gl/hD5M9>

Hashtags [#io2011](#), [#Android](#)

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Honeycomb and Get It

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Honeycomb

- The tablet release
- User improvements
- Developer improvements

The Tablet Release

- Tablet != Phone
- Screen size
- Input
- More memory, faster CPU, multi-core
 - But more pixels...
- GPU!

Honeycomb

- The tablet release
- User improvements
- Developer improvements

UI Improvements

- Home screen, new 'Holo' theme
- Keyboard
- Text selection
- USB device connectivity
- Action Bar, System Bar
- Recent Apps

New and Improved Applications

- New
 - Books
 - Movie Studio
- Improved
 - Market
 - Browser
 - Contacts
 - Music
 - Gmail
 - ...

New Widgets

- Richer
- More interactive
- Books, Bookmarks, Gmail, Calendar, ...

Demo

Honeycomb

- The tablet release
- User improvements
- Developer improvements

Fragments

- Like mini-activities
- For flexible screen format situations
 - landscape vs. portrait
 - large vs. small

Fragments



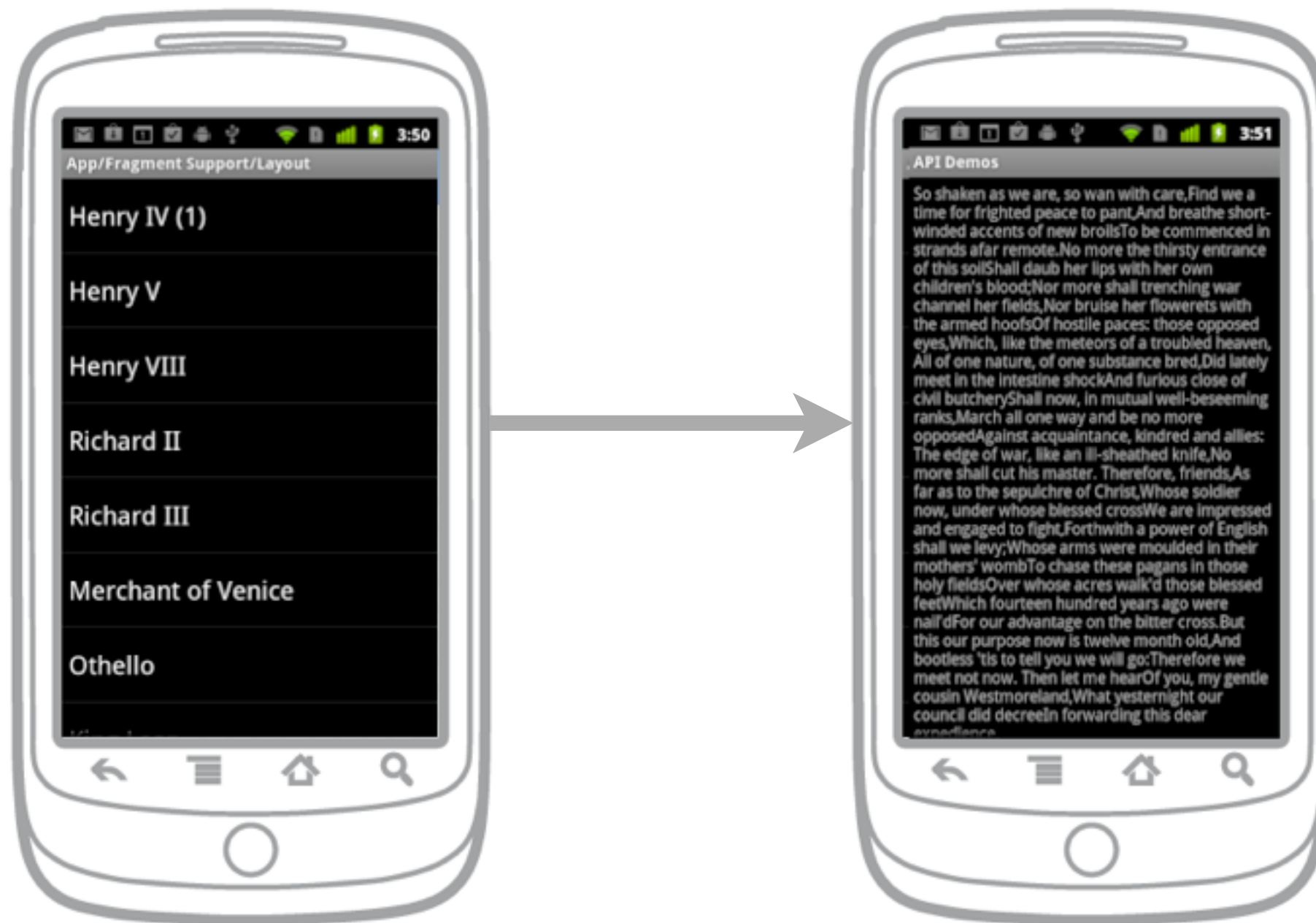
Fragments

- Single activity, multiple fragments



Fragments

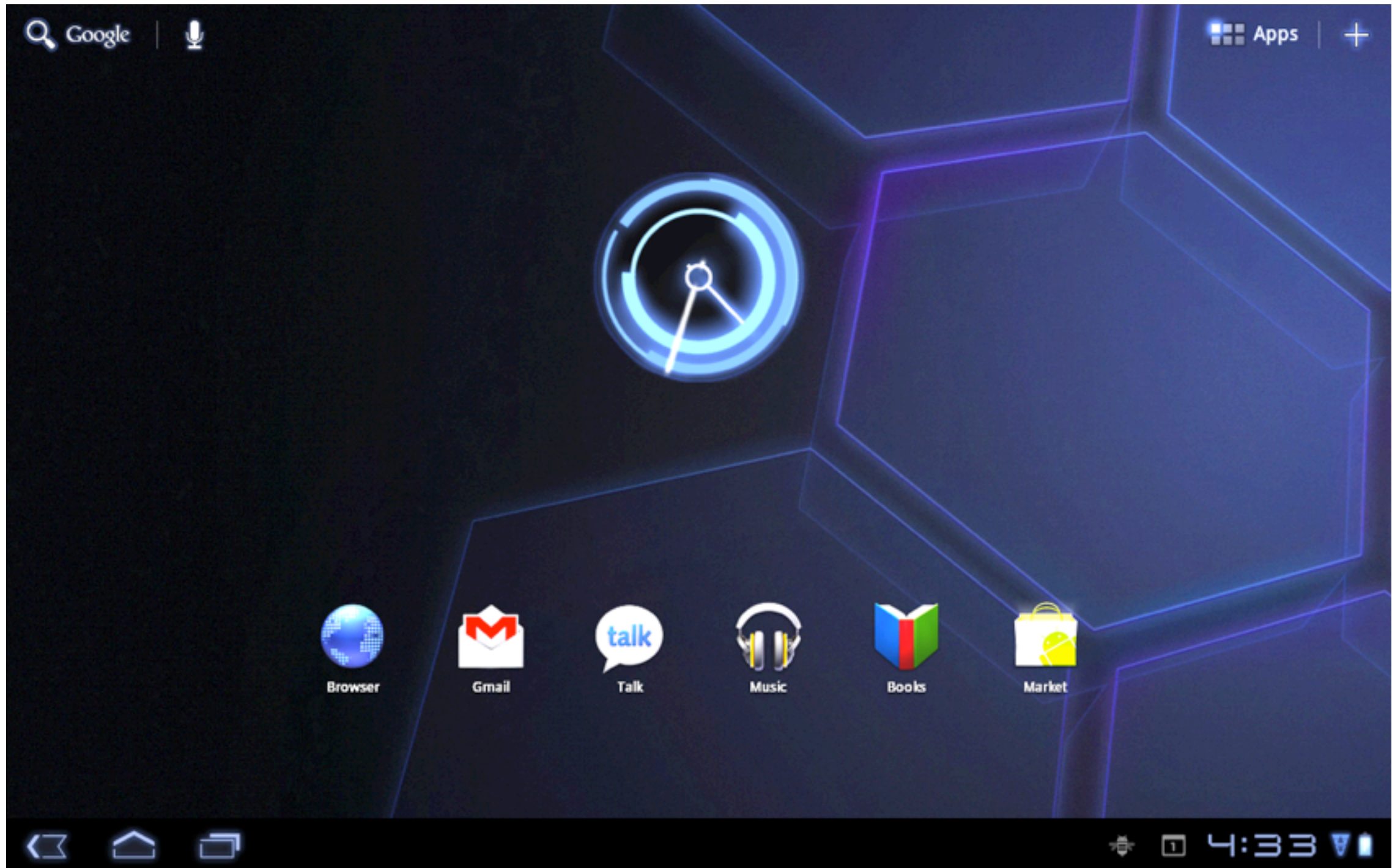
- Separate activities



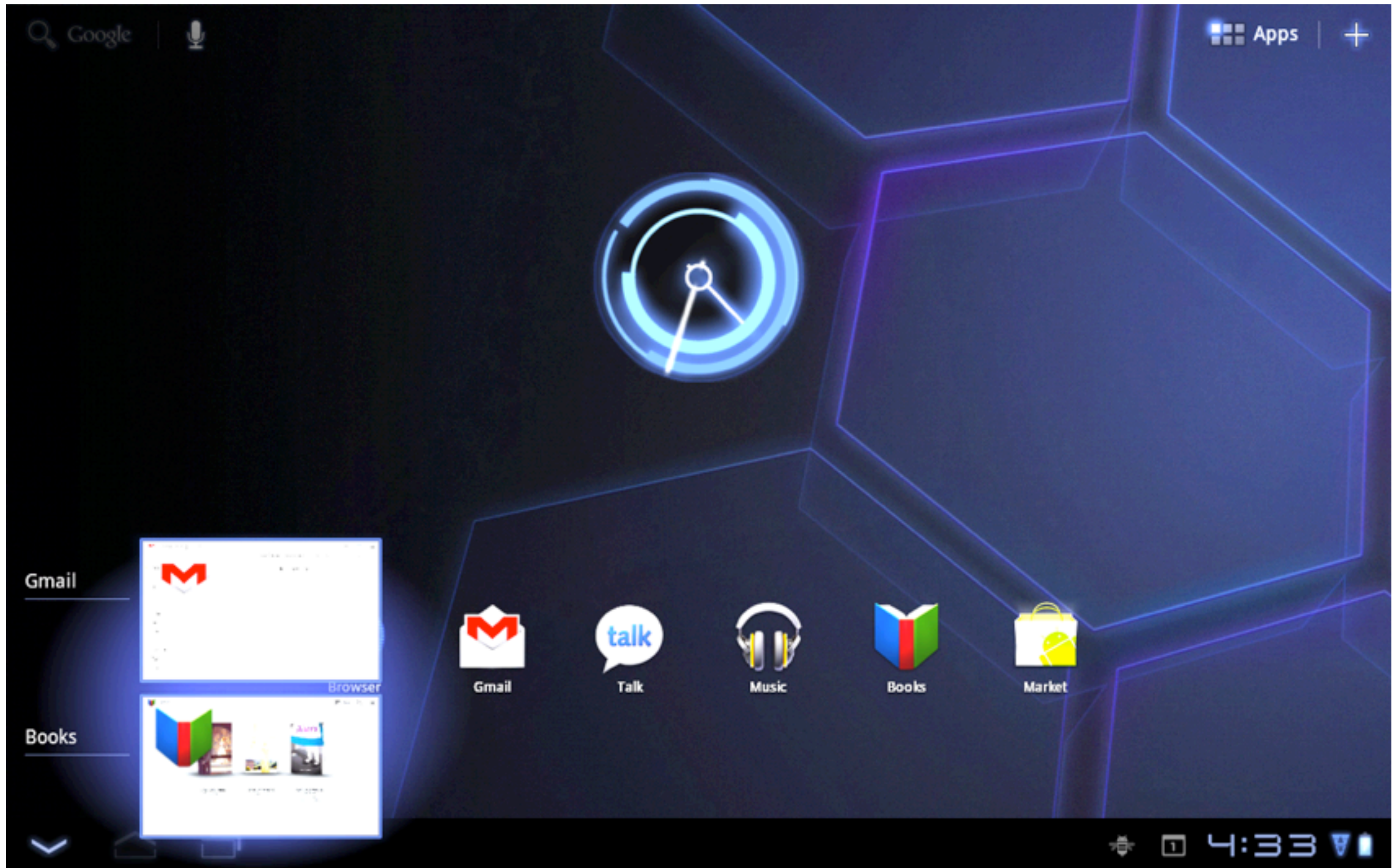
Fragments: For More Info

- Read Dianne Hackborn's *The Android 3.0 Fragments API*
 - android-developers.blogspot.com
- Get “Android Compatibility package” in the SDK Updater
 - Fragments now available in 1.6+ !!!!

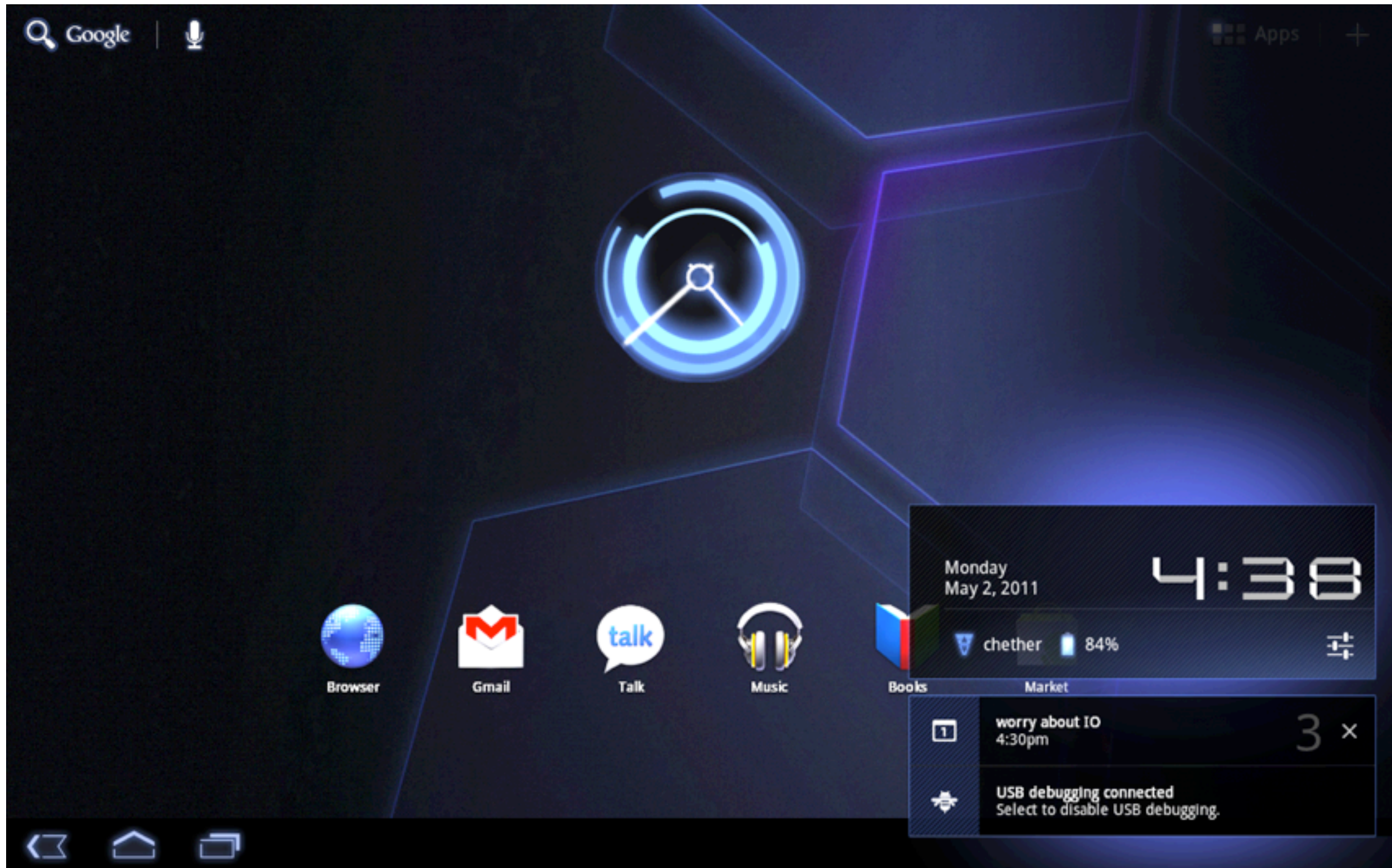
System Bar



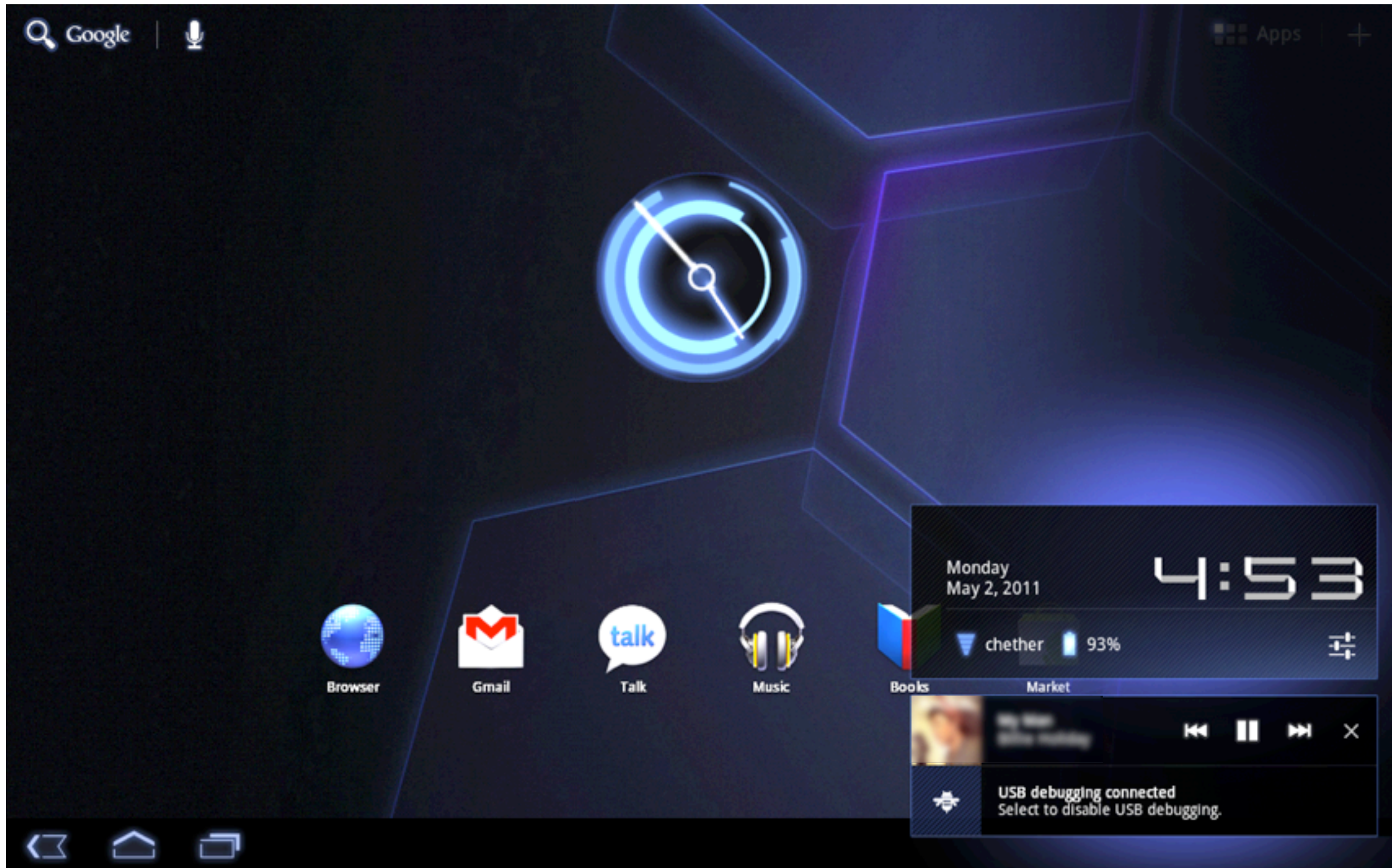
System Bar



System Bar



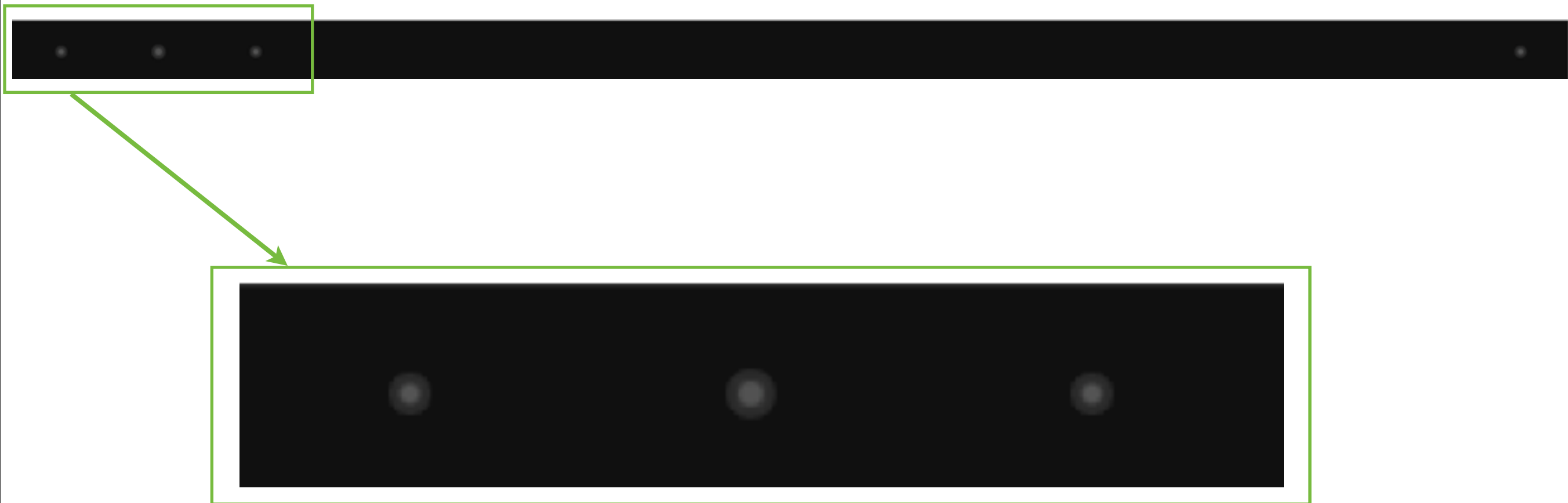
System Bar



System Bar: Always On



System Bar: Always On



Action Bar

Home/Up Navigation

Actions



Action Bar

Home/Up Navigation

Actions

Overflow



Action Bar

Home/Up Navigation

Actions



Action Bar

Contextual ActionBar



Action Bar

```
@Override  
public boolean onCreateOptionsMenu(Menu menu) {  
    MenuInflater inflater = getMenuInflater();  
    inflater.inflate(R.menu.actions, menu);  
    return true;  
}
```

Action Bar

```
<menu>
```

```
  <item android:id="@+id/action_edit"  
        android:icon="@android:drawable/ic_menu_edit"  
        android:showAsAction="always"  
        android:title="@string/action_bar_edit" />
```

```
  <item android:id="@+id/action_share"  
        android:icon="@android:drawable/ic_menu_share"  
        android:showAsAction="ifRoom"  
        android:title="@string/action_bar_share" />
```

```
</menu>
```

Action Bar

```
<menu>
```

```
<item android:id="@+id/action_edit"  
      android:icon="@android:drawable/ic_menu_edit"  
      android:showAsAction="always"  
      android:title="@string/action_bar_edit" />
```

```
<item android:id="@+id/action_share"  
      android:icon="@android:drawable/ic_menu_share"  
      android:showAsAction="ifRoom"  
      android:title="@string/action_bar_share" />
```

```
</menu>
```

Renderscript

- Native code for fast graphics, computation
- Platform-independent
- Syntax based on C99
- Uses GPU, CPU, multi-core
- Used in Books, YouTube, Live Wallpapers

RenderScript: HelloWorldRS.java

```
public class HelloWorldRS {  
  
    private ScriptC_helloworld mScript;  
  
    public void init(RenderScriptGL rs, Resources res) {  
        mScript = new ScriptC_helloworld(rs, res,  
            R.raw.helloworld);  
        rs.bindRootScript(mScript);  
    }  
  
    public void onActionDown(int x, int y) {  
        mScript.set_gTouchX(x);  
        mScript.set_gTouchY(y);  
    }  
  
}
```

RenderScript: helloworld.rs

```
int gTouchX;
int gTouchY;

void init() {
    gTouchX = 50.0f;
    gTouchY = 50.0f;
}

int root(int launchID) {

    rsgClearColor(0.0f, 0.0f, 0.0f, 0.0f);
    rsgFontColor(1.0f, 1.0f, 1.0f, 1.0f);
    rsgDrawText("Hello World!", gTouchX, gTouchY);

    return 20;
}
```


RenderScript

- Read Jason Sams's RenderScript articles
 - android-developers.blogspot.com
- Play with the SDK RenderScript samples

Graphics Acceleration

- OpenGL acceleration for most graphics operations
 - `Canvas.drawLine()`, `Canvas.drawBitmap()`, ...
- Used in Launcher, Gmail, Contacts, Calendar, YouTube, Browser, Maps, Settings, ...

Acceleration: The Complex API Details

Acceleration: The Complex API Details

```
<application android:hardwareAccelerated="true">
```

Acceleration: The Complex API Details

```
<application android:hardwareAccelerated="true">
```

- Opt-in via AndroidManifest.xml
- Selectively disable at Activity, Window, or View level

More Details

- Come to *Accelerated Android Rendering*
 - Tomorrow 10:45
- Read *Android 3.0 Hardware Acceleration*
 - android-developers.blogspot.com

Animation Framework

- New system built on “property animation”
 - Any object, any property, any type
- New properties on **View**
 - alpha, translationX/Y, scaleX/Y, rotation, ...

Animation Framework

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- New properties on **View**
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```
ObjectAnimator.ofFloat(target, “alpha”, 0f).start();
```


Demo

PhotoAlbum Animations

```
if (mPanelVisible) {  
    mPanelAnimator = ObjectAnimator.ofFloat(mPanel, "x", 0.0f);  
} else {  
    mPanelAnimator = ObjectAnimator.ofFloat(mPanel, "x", -mPanel.getWidth());  
}  
mPanelAnimator.start();
```

PhotoAlbum Animations

```
mPanel.setLayerType(View.LAYER_TYPE_HARDWARE, null);

if (mPanelVisible) {
    mPanelAnimator = ObjectAnimator.ofFloat(mPanel, "x", 0.0f);
} else {
    mPanelAnimator = ObjectAnimator.ofFloat(mPanel, "x", -mPanel.getWidth());
}
mPanelAnimator.start();

mPanelAnimator.addListener(new AnimatorListenerAdapter() {
    @Override
    public void onAnimationEnd(Animator animation) {
        mPanel.setLayerType(View.LAYER_TYPE_NONE, null);
    }
});
```

PhotoAlbum Animations

```
if (mPanelAnimator != null && mPanelAnimator.isRunning()) {
    mPanelAnimator.reverse();
    return;
}
mPanel.setLayerType(View.LAYER_TYPE_HARDWARE, null);

if (mPanelVisible) {
    mPanelAnimator = ObjectAnimator.ofFloat(mPanel, "x", 0.0f);
} else {
    mPanelAnimator = ObjectAnimator.ofFloat(mPanel, "x", -mPanel.getWidth());
}
mPanelAnimator.start();

mPanelAnimator.addListener(new AnimatorListenerAdapter() {
    @Override
    public void onAnimationEnd(Animator animation) {
        mPanel.setLayerType(View.LAYER_TYPE_NONE, null);
    }
});
```

For More Information

- Read *Animation in Honeycomb*
 - android-developers.blogspot.com
- Check out the animation demos in the SDK

And Much, Much More...

- Clipboard
- Drag and Drop
- HTTP Live Streaming
- Pluggable DRM framework
- Encrypted storage
- New/improved components
 - DatePicker, NumberPicker, StackView, CalendarView, ...
- Tools
 - UI Builder, code completion, ...
 - *Android Development Tools, Wednesday@3*

More in Android 3

More in Android 3.1

New!

USB: Beyond keyboards

External camera support

Resizable widgets

RTP API

Performance optimizations

ViewPropertyAnimator

The Future

- Honeycomb was optimized for tablets
 - But we're working on bringing the Honeycomb UI and functionality to smaller screen devices
- More, better, fancier, faster, lovelier

For More Information

- At Google IO
 - *Android USB Accessory Mode*: **Tuesday 1:15**
 - *Fireside Chat*: **Tuesday 2:30**
 - *Android UIs for Phones and Tablets*: **Wednesday 12:30**
 - *Android Development Tools*: **Wednesday 3:00**
 - *Memory Management for Android Apps*: **Wednesday 4:15**
- After Google IO
 - Android Developers Blog: android-developers.blogspot.com
 - Romain's blog: curious-creature.org
 - Chet's blog: graphics-geek.blogspot.com

Q & A

Questions <http://goo.gl/mod/8NZp>
Feedback <http://goo.gl/hD5M9>
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