

Smart TVs

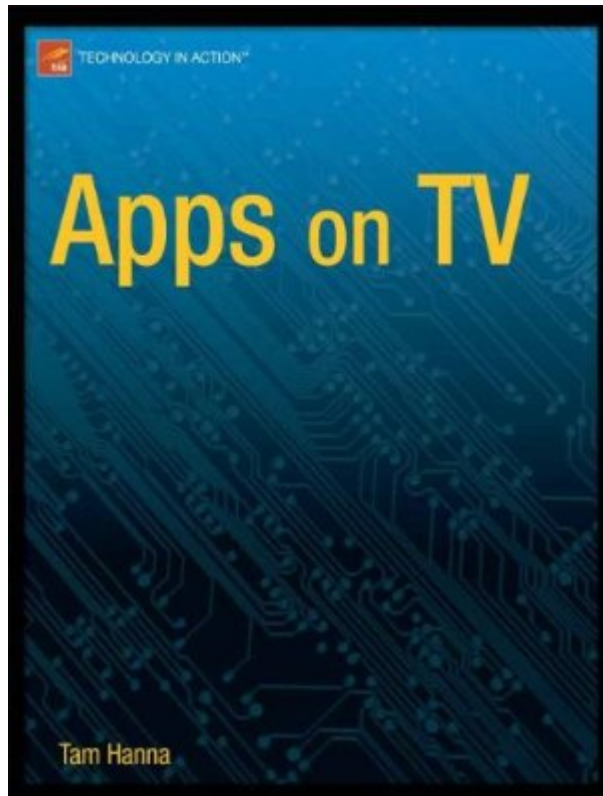


About /me

- Tam HANNA
 - CEO, Tamoggemon Ltd.
 - Runs web sites about mobile computing
 - Writes scientific books



My book



- Apps on TV
– By APress
- Expected: JAN 2012

Overview

- Why Smart TV?
- Players in Smart TV
- Google TV – WTF?
- Google TV – coding for it



Why Smart TV?

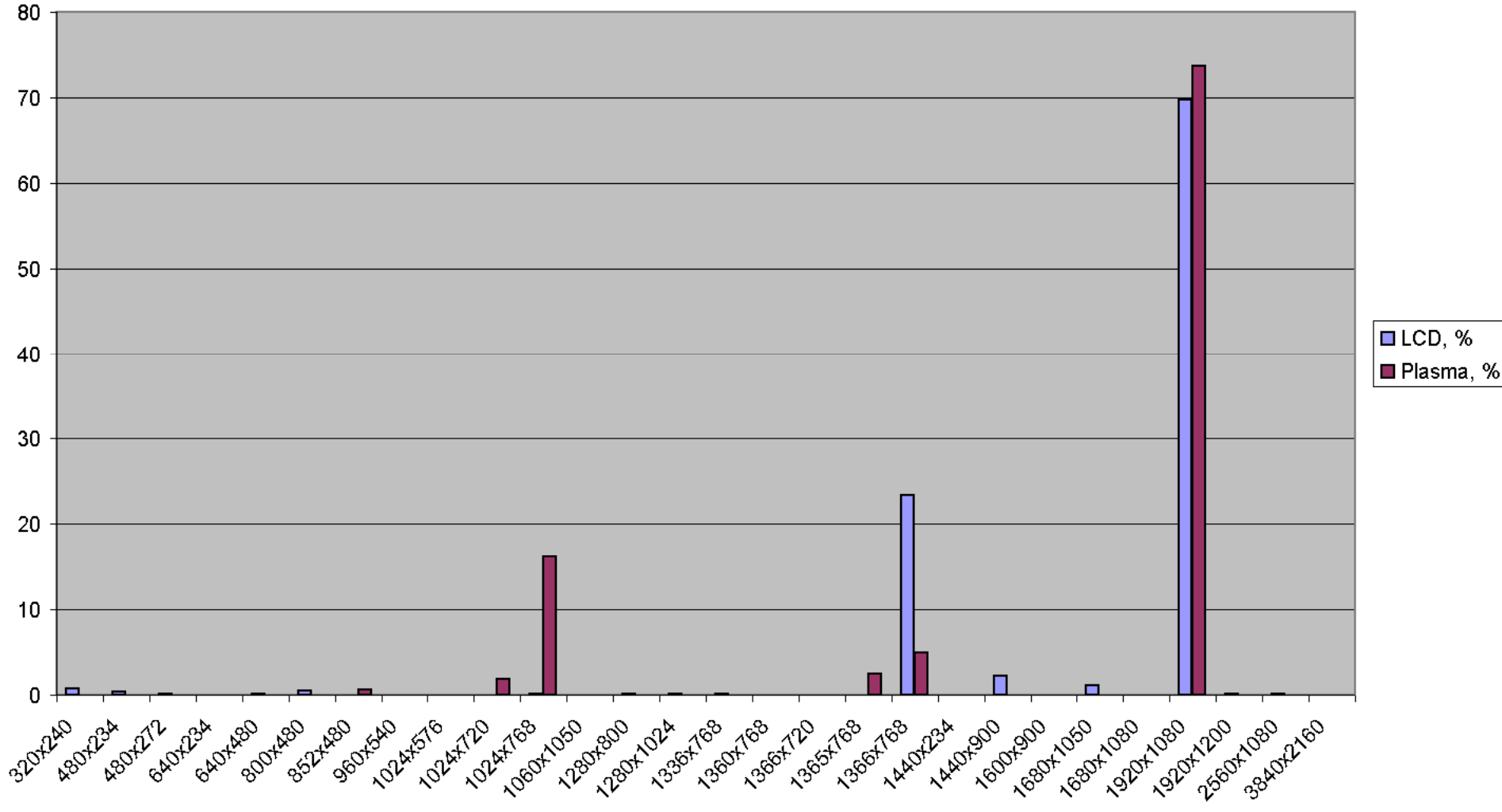
Margin pressure

- TV is cut-throat market
- Gain customers via
 - Price
 - Marketing
- Lose them after purchase

TVs live long

- Where is TV Gingerbread update?
- HD switch already done
 - See chart

Resolutions



Game consoles

- Can be sold at a loss
 - Sony
- Continuous revenue stream
- Idea: **let's go smart**

Why go smart?

- Continuous revenue stream
 - Buy. Some. Apps!
- Can not be cloned easily
 - IP patents

TV + / -

- Casual
- Social
- Widely distributed
- Poor interaction
- Big viewing distance



Players in Smart TV

Nintendo / Sony

- Established console makers
- Sony
 - No published program for small houses
- Nintendo
 - “No interest in casual developers”

Microsoft

- Xbox 360
 - C# based
 - No Silverlight (yet)
- Publishing via XNA
 - Limited to some countries

Samsung

- Incumbent in Smart TVs
 - See Bratislava
- HTML5 / JavaScript based solution
 - Smells like bada

Google

- GoogleTV
- Android for television

Others

- Viera Cast, LG, etc
- Custom Android set-top boxes
- Closed systems
- HTML5
- etc etc etc

T-Mobile

Google TV

WTF



What is it

- Android device with TV output
- Tries to “enhance” TV content



★ boardwalk empire



Search TV and web video

for 'boardwalk empire'



Boardwalk Empire, Boardwalk Empire

Sun 9/19 6:00 PM | HBO



"Boardwalk Empire" (2009)

imdb.com/title/tt0979433



Boardwalk Empire

Series



Search the web

for 'boardwalk empire'

Television, meet search engine.

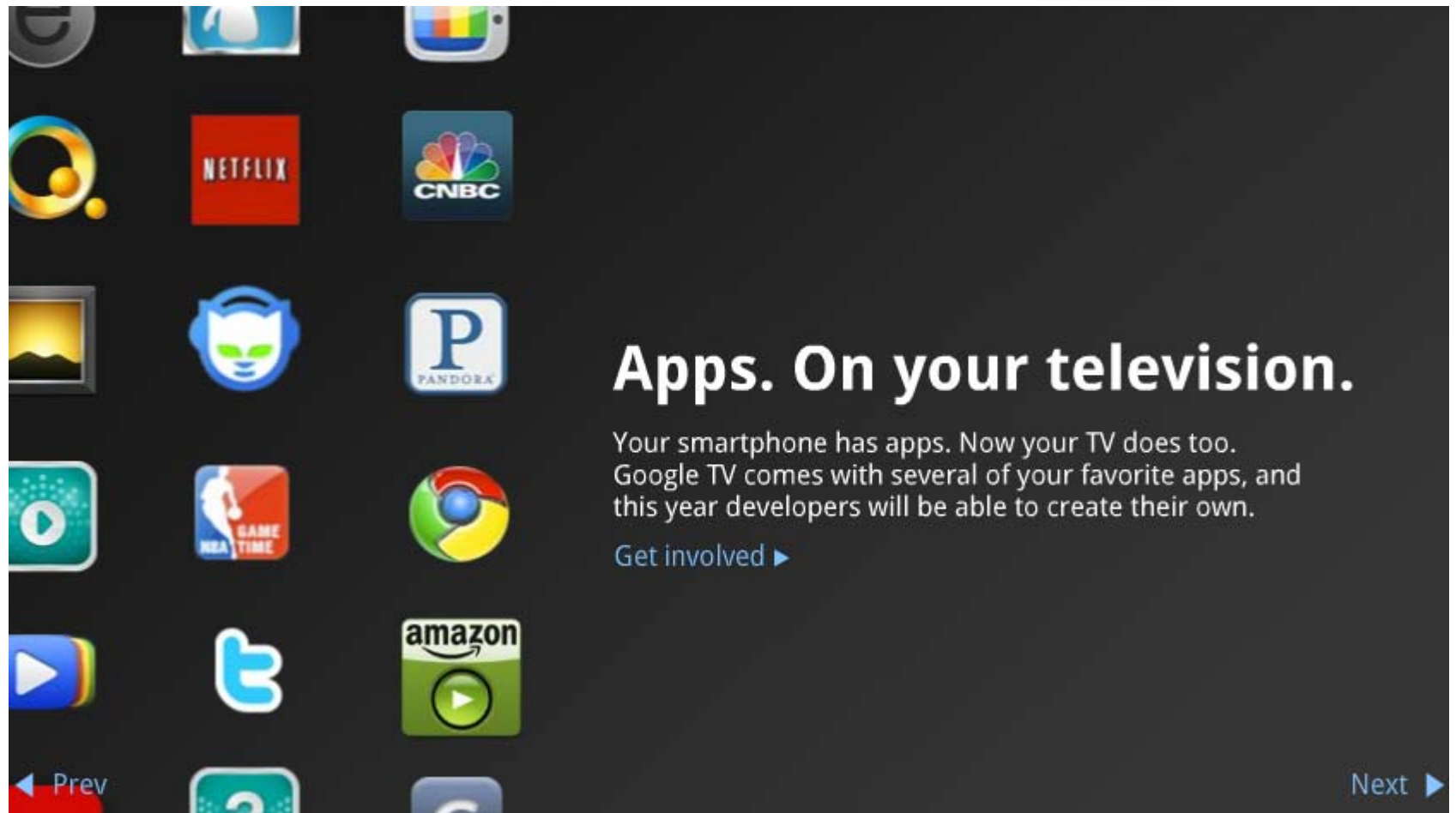
Google TV lets you search across every channel, every app, and the entire web, simultaneously.

◀ Prev

Next ▶

Browse the whole web. Not just some of it. All of it.





Apps. On your television.

Your smartphone has apps. Now your TV does too. Google TV comes with several of your favorite apps, and this year developers will be able to create their own.

[Get involved](#) ▶

◀ Prev

Next ▶

*Eastbound
a DOWN*



Use your phone as a remote control.

Control the TV with your phone, and even use your voice to search.





◀ Prev

Next ▶



TV gets a homepage.

The home screen is customizable, giving you quick access to your favorite channels, apps, and websites.

LPBB
WAS (-)  95
ATL (-)  105
FINAL

LPBB
SAC (-)  90
CLE (-)  97
FINAL

LPBB
POR (-)  118
NYK (-)  90
FINAL

LPBB
PHI (-)  96
IND (-)  107
FINAL

LPBB
DET (-)  103
CHI (-)  110
FINAL

LPBB
MIN (-)  109
MEM (-)  102
FINAL

NBA TV
DEN (-)  123
HOU (-)  125
FINAL

LPBB
CHA (-)  87
MIL (-)  86
FINAL

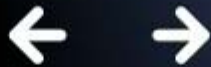
LPBB
NOH (-)  91
SAS (-)  103
FINAL

LPBB

TV. Web. Or both.

Switching between TV and web is seamless.
You can even watch both at the same time.





True Blood |

Search and record.

If you're a DISH Network subscriber, you'll enjoy enhanced features like recording and DVR access right from the search bar.

[Learn more about DISH \(R\)](#) ▶

Record this program

True Blood

HBO 9/19 9:00 - 10:00 PM

Local waitress Sookie Stackhouse (Anna Paquin), however, knows how it feels to be an outcast. "C with the ability to listen in on people's thoughts,

[All episodes](#)

[Next](#) ▶

◀ [Prev](#)

Set-top box



TV set



What's inside

- Android 3.1
 - Shipped with 2.1
 - Updated OTA
- Manufacturers not talkative
 - Revue: said to have 1.2GhZ Atom (!!!)
 - Chinese clones: Cortex A8

Google TV

Coding for it



It's Android

- HoneyComb apps should run, minus
 - Touchscreen (d-oh)
 - FakeTouch
 - NDK
 - Some phone related features

New screen layout?

- Uses large layout (NOT xlarge!!)
 - xhdpi = 1080p / tvdpi = 720p
- Be flexible
 - Different screen sizes, overscan
- Must add dpad tags
- Handle media keys?

DPad tags

```
<Button android:text="8"  
    android:id="@+id/button8"  
        android:layout_height="fill_parent"  
        android:layout_weight="0.4"  
    android:layout_width="wrap_content"  
        android:nextFocusUp="@+id/button5"  
        android:nextFocusDown="@+id/button2"  
        android:nextFocusLeft="@+id/button7"  
        android:nextFocusRight="@+id/button9">  
</Button>
```

Specific features

- Switch channels
 - Check legality!!!
- Get TV programme
- More here:
 - http://code.google.com/intl/de/tv/android/docs/gtv_googletv_specific.html

Targeting

- TV Only:
 - `<uses-feature
android:name="com.google.android.tv"
android:required="true"/>`
- No TV
 - Require touchscreen feature

Emulation?

- Google TV Emulator
 - Based on KVM emulation
- Requires:
 - INTEL CPU (!!!) with VT
 - AMD support: v14 of SDK tools
 - NATIVE Linux host with KVM

Emulator - II

- Cheaper way: standard emulator with 3.1
 - Screen size: 1152x648
 - SD Card: 10MB
 - Abstracted LCD Density: 213
 - DPad support: yes
 - Keyboard lid support: no
 - Touchscreen: no
 - VM application heap: 48
 - Device RAM: 256

Emulation - III

- Use a real Google TV
- USB not permitted
- Use remote debugging via IP



BBQ!