

Cross Platform Development with HTML5

Building Applications for Multiple Platforms

Created by **Femi TAIWO** / @dftaiwo || **GDG Lagos**

Created Using reveal.js



Heads Up

Key Areas

- What
- Why
- When
- How

What is it?

Let's lay (or re-lay) a foundation



What is a platform?

A platform: hardware architecture and a software framework

Examples

Hardware:

- PCs
- Macintosh
- Video Game Consoles
- Mobile Devices
- Mainframe

Examples

Software Framework

- Adobe Air
- Java Platform (Micro, Standard,...)
- Mono
- .Net
- Silverlight
- Qt

Platforms

Examples

- Android
- Bada OS
- Blackberry OS
- Chrome OS
- Firefox OS
- iOS
- Maemo
- Tizen
- Linux | Ubuntu
- WebOS
- Windows 8
- Windows Mobile
- Windows Phone

Mobile Platforms

Operating system running on a smartphone, tablet, PDA, or other digital mobile devices.

Mobile Platforms - Brief History

1999 - Symbian Launched
2002 - Windows CE Smartphones
2002 - BlackBerry OS.
2005 - Maemo OS
2007 - Apple iOS
2007/2008 - Android 1.0
2009 - Palm WebOS
2009 - Samsung Bada OS
2010 - Windows Phone OS
2011 - MeeGo
2012 - Tizen - Samsung, Intel, Linux Foundation
2012 - Firefox OS
2013 - Ubuntu Touch
2013 - BB10 OS
2014 - ?

Foundation Laid

Next Slide to the Right

Types of Applications (Platform-Wise)

Native | Non-Native

Native Applications

What are they ?

Native Applications

Applications coded in a specific programming language

Programming Language

Language designed for programming computers

Programming Language

Thousands of them

Examples, anyone ?

Programming Language

Thousands of them

Examples : PHP, C++, Java, VisualBasic, C#, Python, Perl, Fortran, QBasic

Native Applications

A native app is an application written purely in platform-specific programming language

Single-Platform-Based Development

Native App Development

Warning: This is not exhaustive

Platform	Languages Supported	IDEs
Android	Java, C, C++	Android Studio, Eclipse, NetBeans
Blackberry	Java	Blackberry JDE, Eclipse
iOS	Objective-C	XCode, AppCode
Symbian	C++	Qt, Carbide, Borland
Windows	C#, Visual Basic, C, C++	Visual Studio

Non-Native

Non-Native

`!= 'Native Application'`

i.e Not Platform Specific Programming

Non-Native App

Better called "*Cross Platform App*"

Cross Platform Apps

**One Code Base.
Multiple Platforms**

Well, mostly from one code base

Cross Platform Apps

A cross platform app is an application written or compiled in a way that allows it to run on multiple platforms.

With or Without Special Preparation

Cross Platform Apps

Languages include

- C++
- C# (Mono)
- HTML
- Java
- Qt
- Realbasic
- Ruby
- Others?

Cross Platform Apps

Tools & IDEs

Phonegap (Cordova)* | Blackberry Webworks * | Ripple Emulator * |
Titanium Appcelerator* | MoSync (C) | MoSync Reload (C+H) |
Rhomobile (H+R) | Xamarin (C#) | CodeNameOne (J) | Oracle ADF
Mobile(J+H) | DragonRad (\$\$\$*\$) | Platform SDKs | & much more

* - HTML & Javascript based

Space for Examples

Pros of CPD

- Faster Deployment
- Lower Dev & Maintenance Cost
 - Easier Learning Curve
 - Easier Integration

Cons of CPD

- Non-Native Look
- Limited Feature Support
 - Slower Graphics API
 - Less Secure Storage

Quick Comparisons

Capability Metric	Winner
Rich User Experience	Native Wins
Performance	Native Wins
Cross Platform Development \$	CPD
Fragmentation	Similar Challenges
Update & Distribution Control	CPD
Device Hardware	Native
Bleeding Edge Features	Native
Security	Native
Learning Curve	CPD

Introducing Player 3!

{ Hybrid Apps }

Hybrid Apps

The best of both worlds

This type of application has cross-platform compatibility but can still access a phone's hardware.

Hybrid Apps

Built by combining a Cross Platform Language (e.g HTML5) and the Platform-Specific Language (Android Java)

Hybrid Apps

Use a regular IDE for HTML5 and Use the Platform SDK/IDE to build the rest

More on the HTML5 Parts

Tools & Libraries

More on the HTML5 Parts

Mark Zuckerberg: Facebook & Fastbook



Sencha Fastbook from **Sencha** on **Vimeo**.

Personal Case Studies -

Cinemaz - on Android, Windows 8, BB6, BB10

NewsBasket - on Android, BB10

NewsMix



Cinemaz

Displays the latest movies in theatres in Nigeria

Same Code Base for -

- Blackberry (versions 6,7,10)
- Android
- Symbian
- iOS*

**Ok.. enough of the talk.
How do I start?**

Setup

- Install Apache
- Install an IDE - NetBeans | | Eclipse | | IntelliJ | | Sublime Text
- *Setup npm from nodejs.org
- *Install Android SDK (ADT)
- *Install Blackberry Webworks
- *Install Nokia WebTools
- *Install Visual Studio Express for WP8
- *Install XCode
- Install Emulators

* - Optional Steps

Best Practices

- Minimalistic Approach
to EVERYTHING - Libraries, DOM and CPU-consumers
- Optimize Images
- Use PageSpeed Insights
- Minify resources - all HTML, CSS & Javascript files
- Enable Offline Mode
- Degrade Nicely
- Design Guidelines
- Screensizes
- T.E.S.T.
- Be touch-friendly
E.g Associate Labels with Fields
- 0<- External Files
- No TABLES
- Class Selectors not Descendant Selectors

Stellar Links

- **HTML5Rocks**
<http://html5rocks.com>
- **My Sample Projects On GitHub**
<http://github.com/dftaiwo>
- **NewsMix**
<http://github.com/dftaiwo/newsmix>
- **Comparison Charts**
<http://www.markus-falk.com/mobile-frameworks-comparison-chart>

Summary

HTML5 is great

Not Swedish Bitters

Project Dependent

It's young but powerful and growing

THE END