

The background features a stylized illustration of a suspension bridge on the left and a city skyline on the right, both in shades of gray. The Tizen logo is prominently displayed in the upper center, with the letters 'T', 'I', 'Z', 'E', and 'N' in a white, 3D-style font. The letter 'Z' is highlighted with a blue gradient. To the right of the logo, the text 'DEVELOPER CONFERENCE MAY 7-9, 2012' is written in a white, sans-serif font.

TIZEN™ DEVELOPER
CONFERENCE
MAY 7-9, 2012

Converting Your Web App to Tizen

Cheng Luo

Agenda

- Web App Overview
- Tizen Web App
- Getting practical
- Add live weather

Web App Overview

Web App Landscape

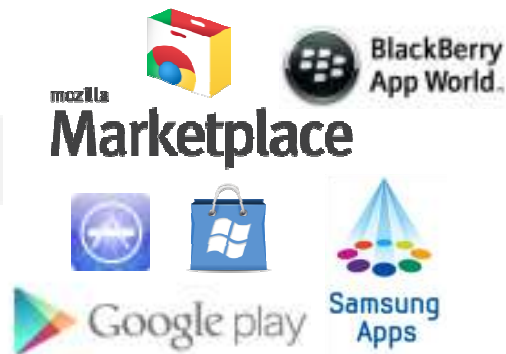
Platforms



Technologies



Distribution



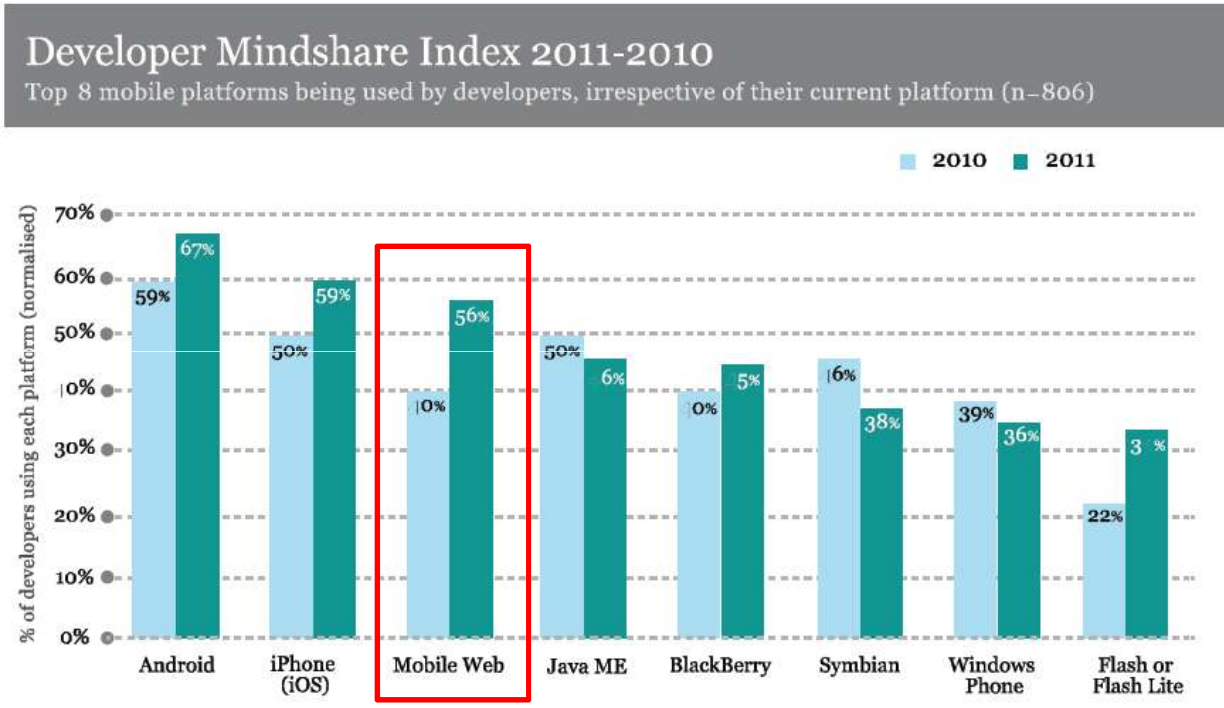
Standards



Packaging is an issue



But it is hot



source: Vision Mobile

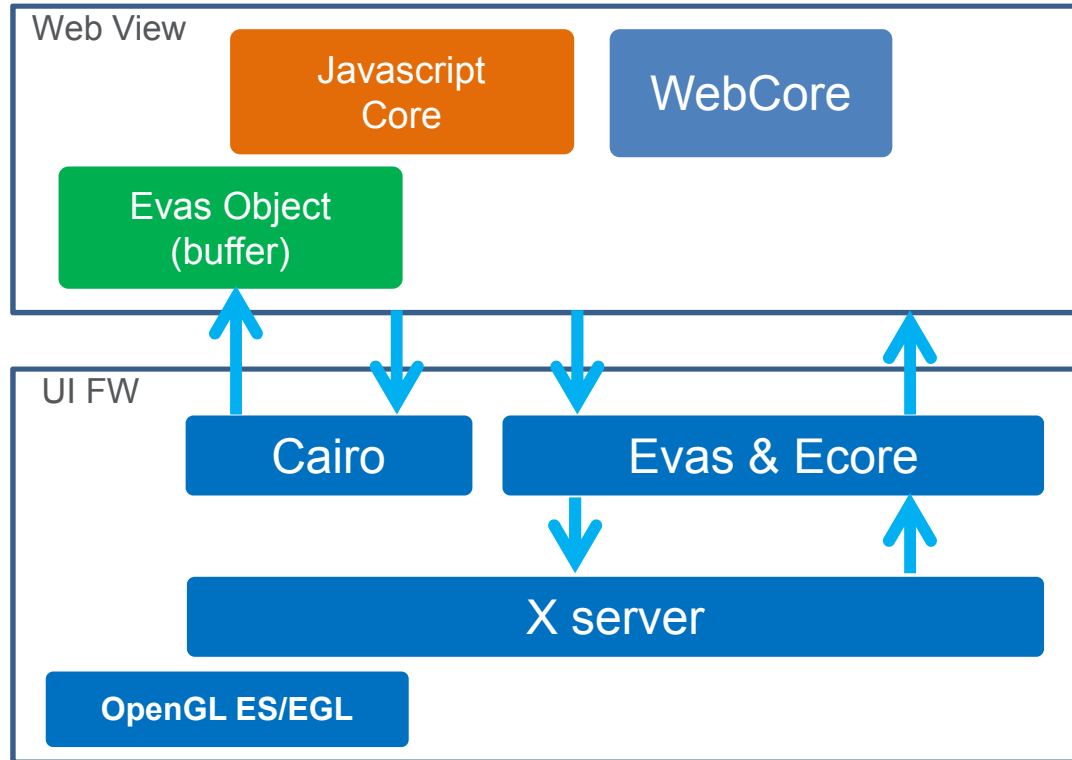
Tizen Web Application

Cross Platform Webkit?

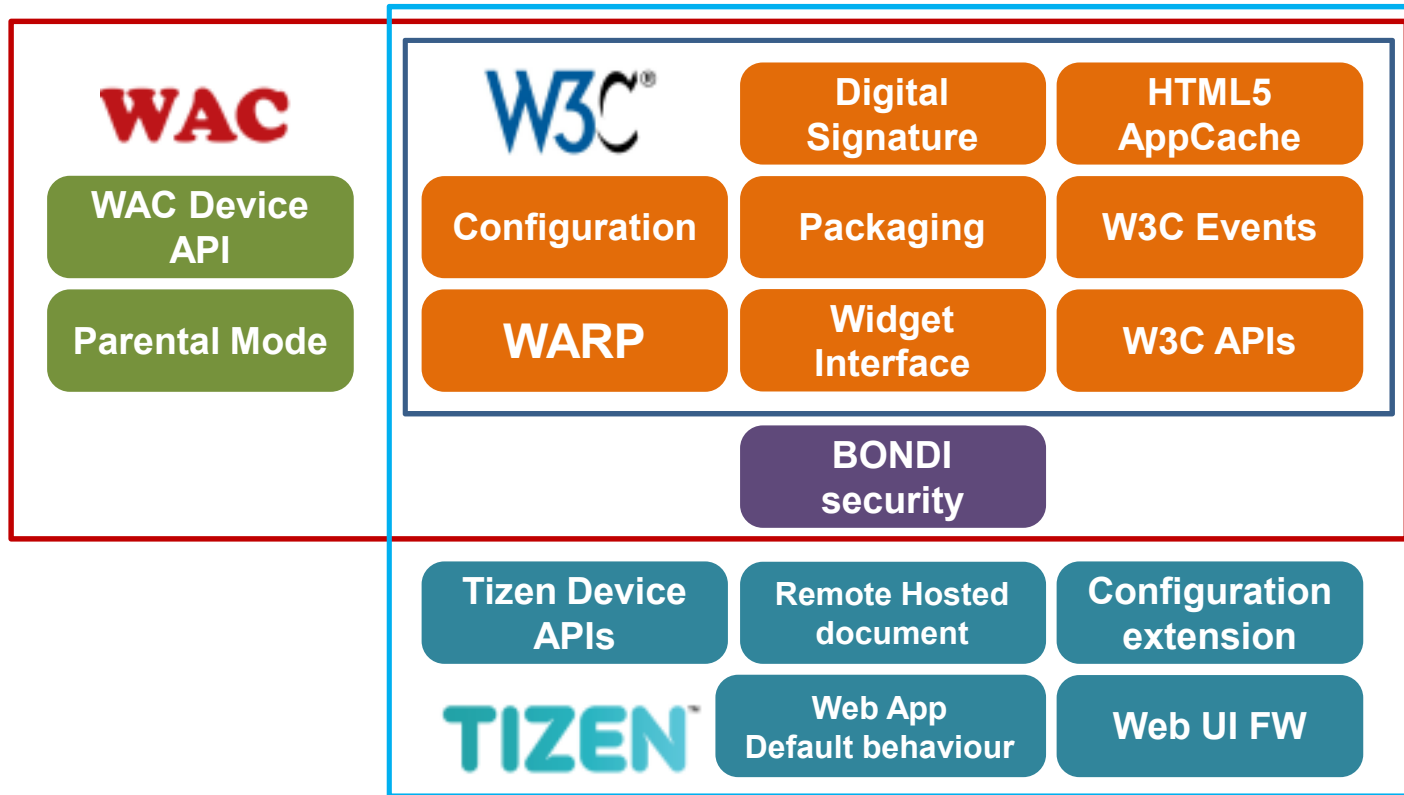
There is no “WebKit on Mobile!”

-@ppk

Tizen EFL Webkit

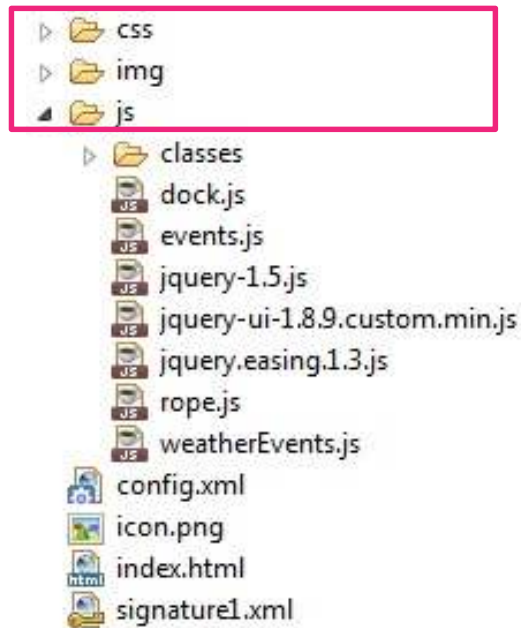


Other APIs



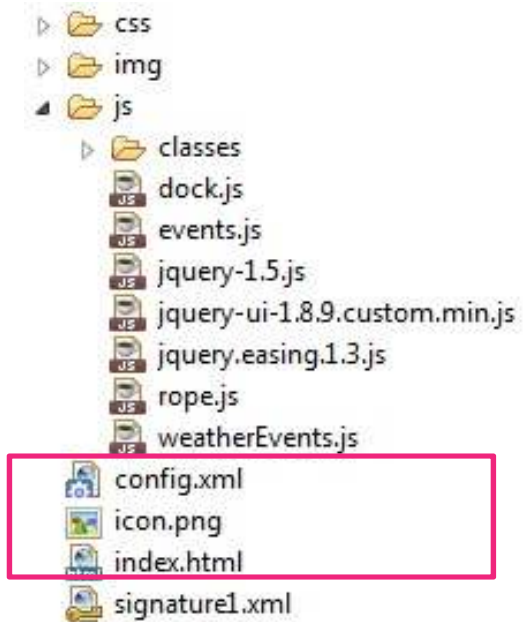
W3C Packaging

- **W3C Widget Packaging .wgt**



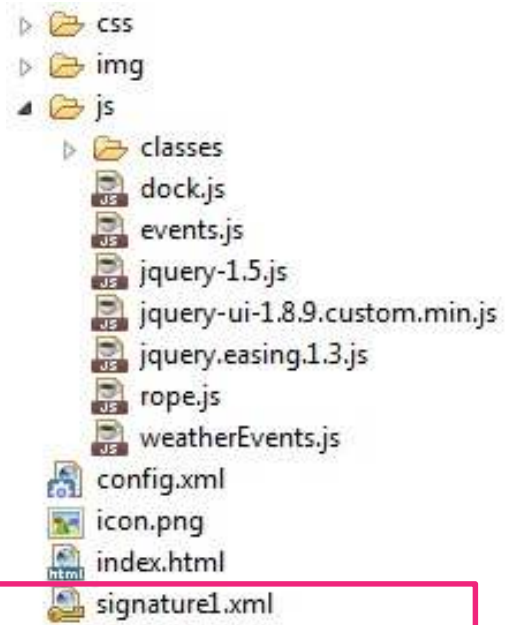
W3C Packaging

- W3C Widget Packaging .wgt



W3C Packaging

- W3C Widget Packaging .wgt



Types of Web App

Types of Web App

	Mobile Site /URL
User Interface	Generic UI
Distribution	Web Search Engine
Pros	No need to install/update No memory usage
Cons	Difficult to manage permissions

Types of Web App

	Mobile Site /URL	Hosted Style App
User Interface	Generic UI	Generic UI (jQueryMobile)
Distribution	Web Search Engine	Certain app stores
Pros	No need to install/update No memory usage	Only need manifest file Less maintenance Less memory usage
Cons	Difficult to manage permissions	Requires a hosting server

Types of Web App

	Mobile Site /URL	Hosted Style App	Packaged Style App
User Interface	Generic UI	Generic UI (jQueryMobile)	Generic UI/Native UI
Distribution	Web Search Engine	Certain app stores	Certain app stores
Pros	No need to install/update No memory usage	Only need manifest file Less maintenance Less memory usage	Offline launching Faster launching Access to device APIs
Cons	Difficult to manage permissions	Requires a hosting server	Needs Maintenance

Where is your app from?

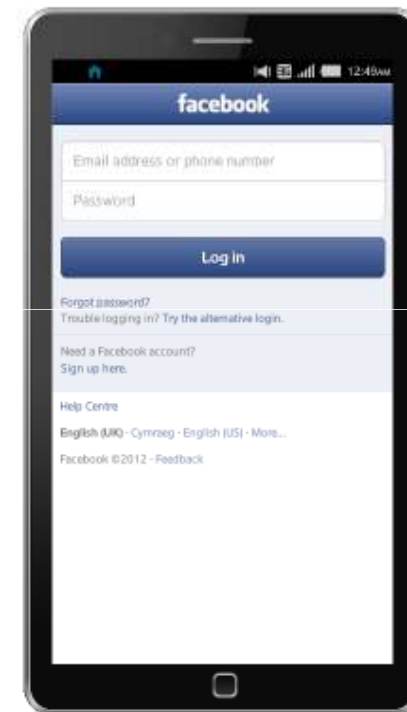
Mobile Web Page

config.xml

```
<?xml version="1.0" encoding="UTF-8"?>  
  
<widget xmlns="http://www.w3.org/ns/widgets"  
  xmlns:tizen="http://tizen.org/ns/widgets" version="2.0 Beta"  
  viewmodes="fullscreen" id="http://yourdomain/FacebookApp">  
  <icon src="icon.png"/>  
  <content src="http://m.facebook.com"/>  
  <name>FacebookApp</name>  
  <access origin = "*" />  
</widget>
```



Index.html file is generated automatically



Mobile Web Page

EASY

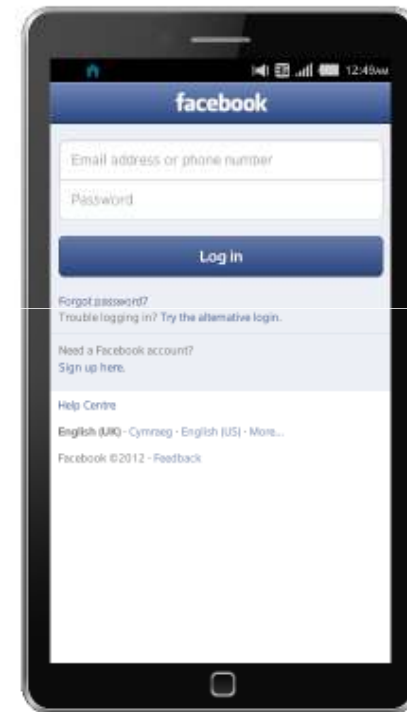
config.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<widget xmlns="http://www.w3.org/ns/widgets"
xmlns:tizen="http://tizen.org/ns/widgets" version="2.0 Beta"
viewmodes="fullscreen" id="http://yourdomain/FacebookApp">
<icon src="icon.png"/>
<content src="http://m.facebook.com"/>
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<access origin = "*" />
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Index.html file is generated automatically



Other Platforms

	WebOS Enyo	BlackBerry WebWorks	Tizen
Kernel	log, lang, job, marcozie, animation, Oop, Object, Component, UiComponent, Layout, Signal	Core API	tizen.Tizen, tizen.WebAPIError, Multicolumn layout (CSS3)

Other Platforms

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Ajax	Async, json, cookie, xhr, Ajax	jQuery (get, parseJSON), XMLHttpRequest, local.storage	tizen.SuccessCallback, tizen.ErrorCallback, Web Workers, jQuery(get, parseJSON), XHR L2(W3C), local.storage

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Touch	dom, Control, platform, dispatcher, preview, modal, gesture, drag	Events, HTML	tizen.Application, Touch Events (W3C),

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UI	Touch, ScrollMath, ScrollStrategy, TouchScrollStrategy, Scroller	jQuery, Touch,	Touch Events (W3C), jQuery

Other Platforms

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UI	Touch, ScrollMath, ScrollStrategy, TouchScrollStrategy, Scroller	jQuery, Touch,	Touch Events (W3C), jQuery
UI Elements	Animator, transform, Icon, Button, IconButton, CheckBox, etc.	CSS APIs	Animations(CSS3), Transitions(CSS3), jQueryMobile, tizen-web-ui-fw.js

Other Platforms

CODE REWRITE

	WebOS Enyo	BlackBerry WebWorks	Tizen
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UI	Touch, ScrollMath, ScrollStrategy, TouchScrollStrategy, Scroller	jQuery, Touch,	Touch Events (W3C), jQuery
UI Elements	Animator, transform, Icon, Button, IconButton, CheckBox, etc.	CSS APIs	Animations(CSS3), Transitions(CSS3), jQueryMobile, tizen-web-ui-fw.js

HTML5 + device APIs

Test	Symb 1	Symb 2	Symb 3	Sap	iOS 2.0	iOS 3.0	iOS 4.0	And 1.0	And 1.6	And 2	And 3	Dolphin	BB6	BB7	Phantom	Palm 2.0	Palm 3.0	Bel 1.5	Opera 9.9	Obigo 1.0	Web
:first-child 111 points	static				static	yes		yes				yes				yes				yes	
<p>Static The browser doesn't correctly update the styles of the original element when another element is placed before it.</p>																					
rows[] 110 points	incorrect				yes			yes				yes				yes				yes	
<p><code>x.rows</code> A <code>nodeList</code> with all rows of table <code>x</code>.</p> <p>Incorrect The browser keeps to the source code order, where the <code>caption</code> is the second row.</p>																					
+ selector 108 points	static				static	yes		static	yes			yes				yes				yes	
<p>Static The browser doesn't correctly update the styles of the original element when another element is placed before it.</p>																					
getElementsByClassName() 102 points	no				yes			yes				yes				yes				yes	
<p><code>document.getElementsByClassName('test')</code> <code>document.getElementsByClassName('test test2')</code> The first expression returns a <code>nodeList</code> with all elements that have a <code>class</code> value that contains "test". The second one returns a <code>nodeList</code> with all elements that have a <code>class</code> value that contains both "test" and "test2" (in any order).</p>																					
querySelectorAll() 102 points weight 2	no				yes			yes				yes				yes				yes	
<p><code>document.querySelectorAll('.testClass')</code> <code>document.querySelectorAll('.testClass + p')</code> Returns a <code>nodeList</code> with all elements that have a <code>class</code> value that contains "testClass", or a <code>nodeList</code> with all paragraphs directly following such an element. Essentially, this method allows you to use CSS syntax to retrieve elements.</p>																					
:nth-of-type()	no				yes			yes				yes				yes				yes	

source: quirksmode.org

HTML5 + device APIs

GOOD LUCK

Test	Symb 1	Symb 2	Symb 3	Sap	iOS 2.0	iOS 3.0	iOS 4.0	And 1.0	And 1.6	And 2	And 3	Dolphin	BB6	BB7	Phantom	Palm 2.0	Palm 3.0	Bel 1.5	Opera 9.9	Obigo 1.0	Web	
:first-child 111 points	static				static	yes		yes					yes			yes				yes		
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:nth-of-type() weight 2	no				yes			yes					yes			yes				yes		

source: quirksmode.org

Getting practical

Let's Port Aura

- Configuration file
- Screen resolution
- Get Live weather forecast

Aura - playful weather forecast

- Demo video

After converting



Configuration

Namespace - BlackBerry

```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:rim="http://www.blackberry.com/ns/widgets" version="1.0.0"
rim:header="RIM-Widget:rim/widget">
  <name>Aura</name>
  <description>The Astonishing Weather App made with WebWorks.</description>
  <license>Copyright 2010-2011 Research In Motion Limited.</license>
  <feature id="blackberry.app" version="1.0.0" />
  <feature id="blackberry.ui.dialog" required="true" version="1.0.0" />
  <feature id="blackberry.invoke" required="true" version="1.0.0" />
  <feature id="blackberry.system" required="true" version="1.0.0" />
  <icon rim:hover="false" src="icon.png" />
  <icon rim:hover="true" src="icon.png" />
  <content src="index.html" />
  <access uri="http://www.mydomain.com" subdomains="true">
    <feature id="blackberry.app.event" required="true" version="1.0.0"/>
  </access>
  <rim:loadingScreen backgroundImage="img/SPLASH_screen.jpg" onLocalPageLoad="true" />
</widget>
```

Namespace - Tizen

```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:tizen="http://tizen.org/ns/widgets" version="2.0 Beta"
viewmodes="fullscreen" id="http://YourDomain.com/Aura">
  <icon src="icon.png"/>
  <content src="index.html"/>
  <name>Aura</name>
  <author/>
  <license/>
  <feature name="http://tizen.org/api/contact" required="true"/>
  <feature name="http://tizen.org/api/geocoder" required="true"/>
  <feature name="http://tizen.org/api/tizen" required="true"/>
  <access origin="http://api.wunderground.com/" subdomains="true"/>
  <tizen:setting rotation-lock="landscape" indicator-presence="disable" backbutton-presence="disable" />
</widget>
```

Feature - BlackBerry

```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:rim="http://www.blackberry.com/ns/widgets" version="1.0.0"
rim:header="RIM-Widget:rim/widget">
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  </access>
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</widget>
```

Feature - Tizen

```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:tizen="http://tizen.org/ns/widgets" version="2.0 Beta"
viewmodes="fullscreen" id="http://YourDomain.com/Aura">
  <icon src="icon.png"/>
  <content src="index.html"/>
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```

Access URL - BlackBerry

```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:rim="http://www.blackberry.com/ns/widgets" version="1.0.0"
rim:header="RIM-Widget:rim/widget">
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  <feature id="blackberry.ui.dialog" required="true" version="1.0.0" />
  <feature id="blackberry.invoke" required="true" version="1.0.0" />
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```
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  <access origin="http://api.wunderground.com/" subdomains="true"/>
  <tizen:setting rotation-lock="landscape" indicator-presence="disable" backbutton-presence="disable" />
</widget>
```

Settings - BlackBerry

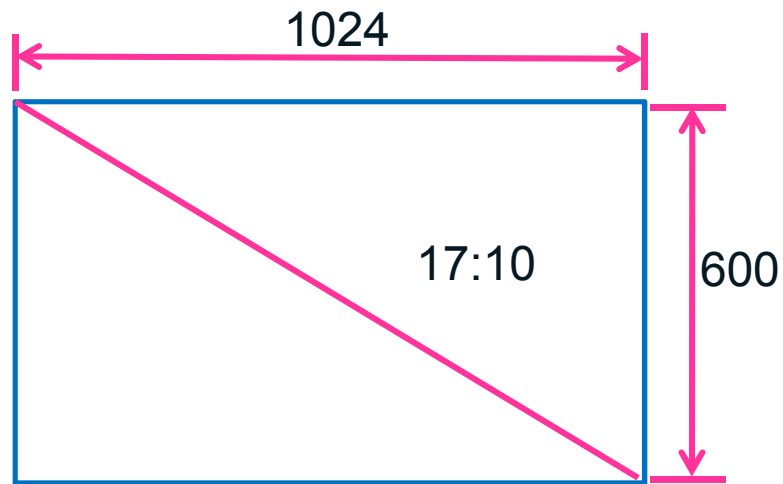
```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:rim="http://www.blackberry.com/ns/widgets" version="1.0.0"
rim:header="RIM-Widget:rim/widget">
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  <rim:loadingScreen backgroundImage="img/SPLASH_screen.jpg" onLocalPageLoad="true" />
</widget>
```


Settings - Tizen

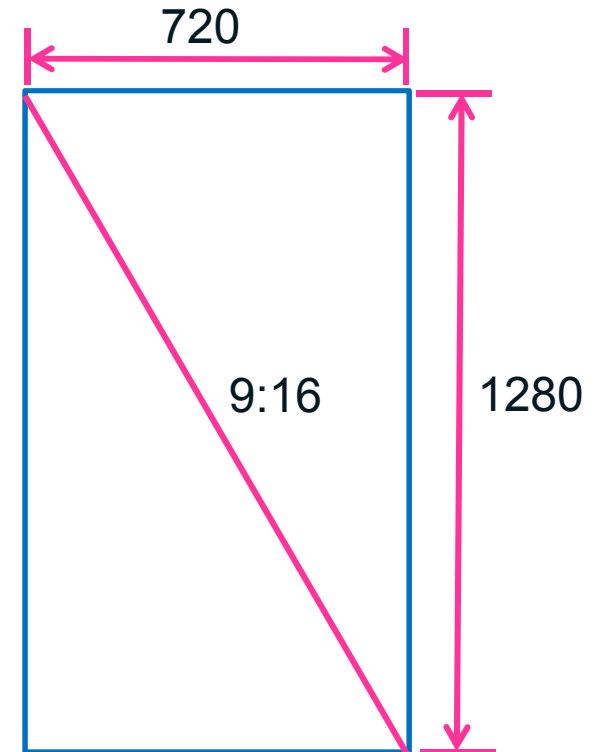
```
<widget xmlns="http://www.w3.org/ns/widgets" xmlns:tizen="http://tizen.org/ns/widgets" version="2.0 Beta"
viewmodes="fullscreen" id="http://YourDomain.com/Aura">
  <icon src="icon.png"/>
  <content src="index.html"/>
  <name>Aura</name>
  <author/>
  <license/>
  <feature name="http://tizen.org/api/contact" required="true"/>
  <feature name="http://tizen.org/api/geocoder" required="true"/>
  <feature name="http://tizen.org/api/tizen" required="true"/>
  <access origin="http://api.wunderground.com/" subdomains="true"/>
  <tizen:setting indicator-presence="disable" backButton-presence="disable" />
</widget>
```

Screen Resolution

User Experience



Playbook (WSVGA)



Tizen (HD)

Full Screen - PlayBook

```
.stage {  
width:1024px;  
height:600px;  
//...  
}
```

```
#main {  
width:1024px;  
height:600px;  
//...  
}
```

```
.daystate {  
width:1024px;  
height:600px;  
// ...  
}
```

Full Screen - Tizen HD

```
.stage {  
width:1280px;  
height:720px;  
// ...  
}  
  
#main {  
width:1280px;  
height:720px;  
// ...  
}  
  
.daystate {  
width:1280px;  
height:720px;  
// ...  
}
```

Screen Ratio - PlayBook

```
#city {  
  position: absolute;  
  bottom: 0;  
  left: 0;  
  width: 1024px;  
  height: 268px;  
  background-image: url('../img/city_day_0SVG.svg');  
  background-position: bottom;  
  background-repeat: no-repeat;  
  -webkit-backface-visibility: hidden;  
}
```

```
#cityshadow {  
  background-image: url('../img/city_shadow.png');  
  background-repeat: no-repeat;  
  width: 817px;  
  height: 104px;  
  position: absolute;  
  top: 501px;  
  left: 119px;  
  z-index: 900;  
}
```

Screen Ratio - Tizen HD

```
#city {
  position: absolute;
  bottom: 0;
  left: 0;
  width: 1280px;
  height: 335px;
  background-image: url('../img/city_day_0SVG.svg');
  background-position: bottom;
  background-repeat: no-repeat;
  background-size: auto 100%;
  -webkit-backface-visibility: hidden;
}

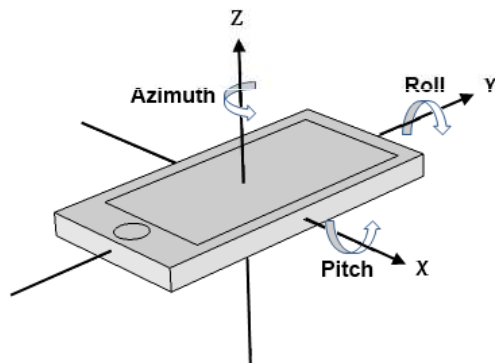
#cityshadow {
  background-image: url('../img/city_shadow.png');
  background-repeat: no-repeat;
  width: 1280px;
  height: 130px;
  position: absolute;
  top: 600px;
  left: 0px;
  z-index: 900;
  background-size: auto 100%;
}
```

CSS3

```
/*CSS for Tizen HD device*/  
@media screen and (orientation: landscape) and (min-width: 1280px){  
  .stage {  
    width:1280px;  
    height:720px;  
    ...  
  }  
  ...  
}  
  
/*CSS for BlackBerry PlayBook*/  
@media screen and (max-width: 1024px){  
  .stage {  
    width:1024px;  
    height:600px;  
    ...  
  }  
  ...  
}
```

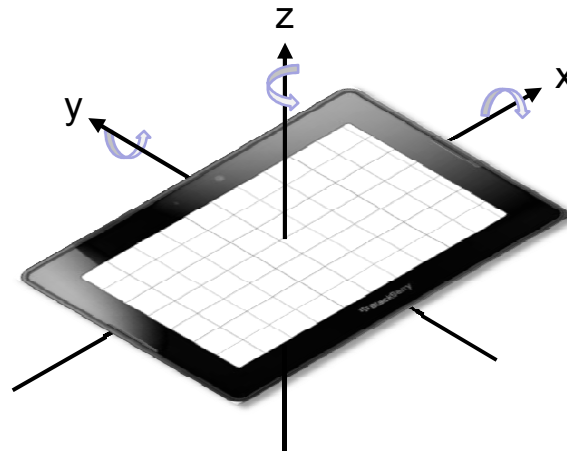

Device Orientation

- The original Aura web app is designed for the Playbook's "portrait" mode
- The physical logic of rope movement is implemented in this orientation

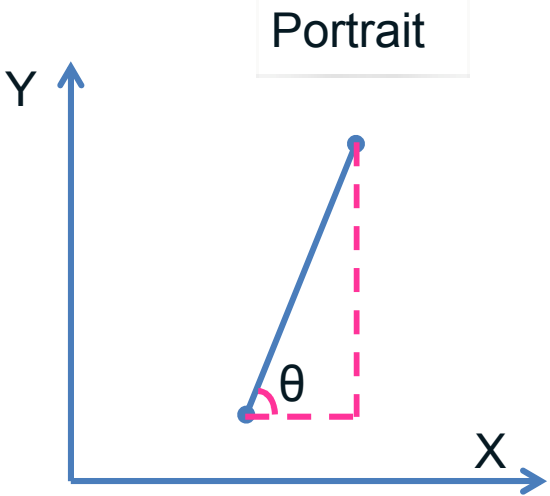


```
var acc = new Vector(0,0);  
acc.x = event.accelerationIncludingGravity.x;  
acc.y = event.accelerationIncludingGravity.y;
```

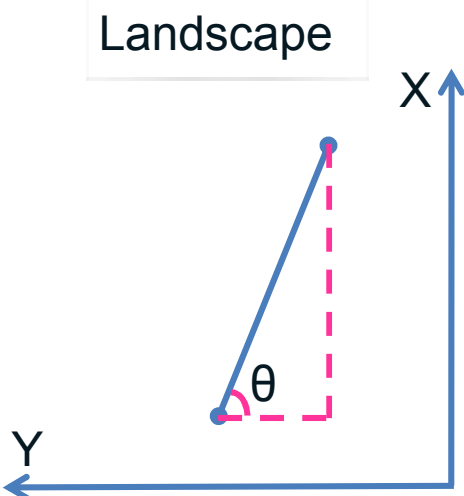
PlayBook Implementation



User Experience



```
var accAngle = Math.atan2(-acc.y, acc.x);
```



```
var accAngle = Math.atan2(-acc.x, acc.y);
```

Add Live Weather

HTML5 - Geolocation

```
function getGeolocation() {
    if(navigator.geolocation)
    {
        try {
            watch = navigator.geolocation.watchPosition(currentLocationHandler, errorHandler);

        } catch (e) {
            // TODO: handle exception
        }
    }
    else {
        document.getElementById("coordinates").innerHTML = "not supported!";
    }
}
```

```
function currentLocationHandler(pos) {
    document.getElementById("coordinates").innerHTML = "Latitude: " + pos.coords.latitude + " Longitude: " +
pos.coords.longitude;
}
```

jQuery - get live weather

```
function RetrieveWeatherFromWeatherUnderground()
{
    var jsoninfo = $.ajax({
        url: 'http://api.wunderground.com/api/908e975d9f62b409/hourly10day/q/CA/San_Francisco.json',
        type: 'GET',
        dataType: 'jsonp',
        success: function (jsondata) {

            $.each(jsondata.hourly_forecast, function myfunc(key, value)
            {
                ParseWeatherUndergroundData(value);
            });
        },
        error: function (request, error)
        { //handle error here },
        complete: function(jsoninfo, status)
        { //handle request completed here }
    });
}
```



Remember to add the URL to access property of config.xml file

Implement AJAX callback

```
function ParseWeatherUndergroundData(values)
{
    weatherForecast.dates[dayindex].weatherHour[hourindex].temperature = parseInt(values.temp.metric);

    // convert the weather condition returned by WeatherUndeground into that used by Aura
    newCondition = ConvertWeatherCondition(values.condition);
    weatherForecast.dates[dayindex].weatherHour[hourindex].type = newCondition;
}
```

Wrap up

- Web Application Landscape
 - Crowded
 - Different packaging formats
- Tizen Web Application
 - Rely on open standards (W3C, Khronos), not forking it
 - Rich APIs include both HTML5 and device specific APIs
- When porting HTML5 web apps
 - Configuration file, resolution and ratio
 - Ensure user experience for particular device

Food for thought

There is still a gap between native and web apps, but it's getting smaller

The browser cannot do everything for you, not because of the technology, but politics

Real cross platform experience for web apps is not here yet, but it will come

Thank You

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