

# Mobile Web



# MOBILE WEB EVOLUTION

## WAP 1.0

Developed by Open Mobile Alliance

1998



defined a markup language, Wireless Markup Language (WML) and a scripting language, WMLScript.



## WAP 2.0

markup language XHTML Mobile Profile

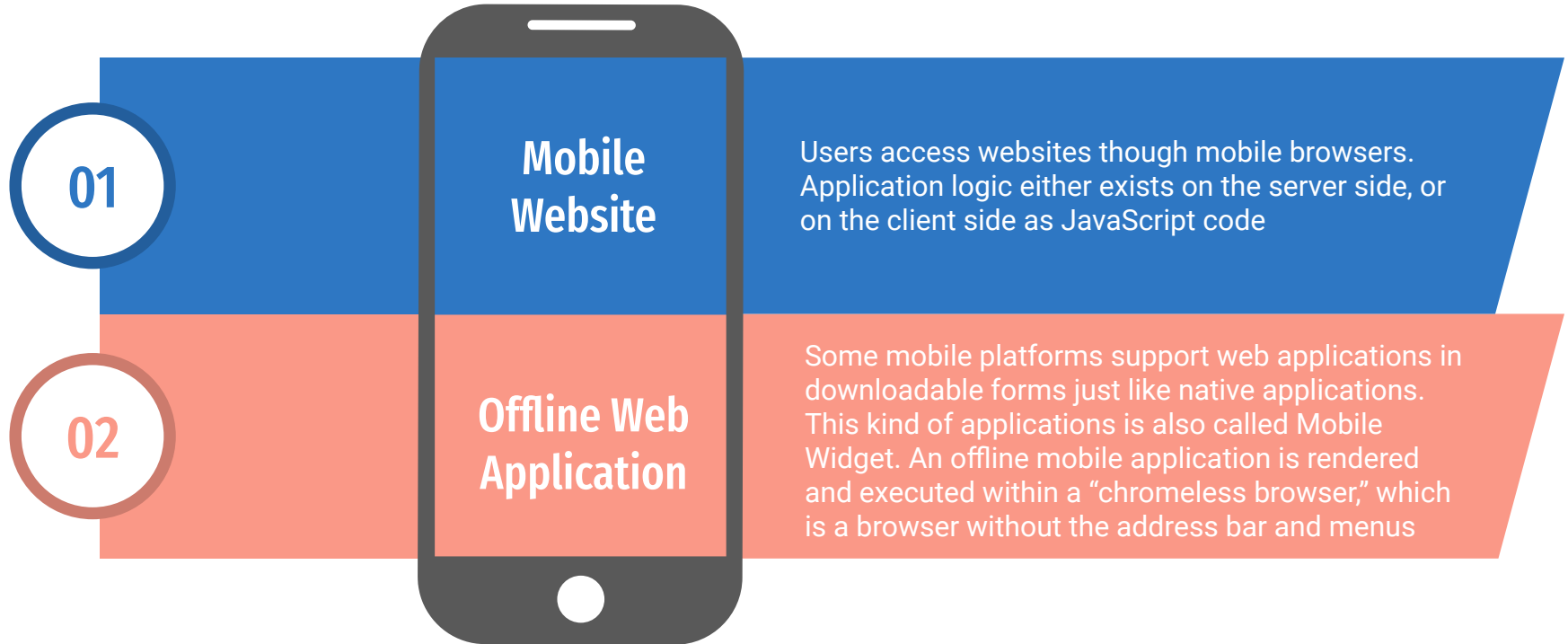
2002



introduced a subset of the Cascading Style Sheet (CSS) standard named Wireless CSS or WAP CSS



# Mobile Web applications



# BEING MOBILE FRIENDLY

## DEVICE DETECTION

Device type identity can be determined from the User-Agent field transmitted as an HTTP header from the browser.

For instance, the User-Agent of iPhone with iOS 5.0 is,  
*Mozilla/5.0 (iPhone; CPU iPhone OS 5\_0 like Mac OS X)*  
*AppleWebKit/534.46 (KHTML, like Gecko)*  
*Version/5.1 Mobile/9A334 Safari/7534.48.3*

WURFL is an open source project which offers a device database in XML format



## VIEWPORT META TAG

It informs browsers that the site is optimized for mobile. It gives more information regarding how content should fit on the device's screen. A mobile website should set the initial scale to 1.0 and disallow user scaling.

```
<meta name='viewport' content='user-scalable=no,  
width=device-width, initial-scale=1.0,  
maximum-scale=1.0' />
```

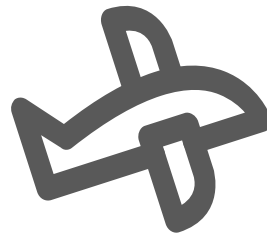
# BEING MOBILE FRIENDLY

## CSS MEDIA QUERIES

With CSS3 Media Queries, developers can add expressions to media type.

For example the following statement applies the style sheet "small-devices.css" to a device with screen width less or equals to 480 pixels.

```
<link rel="stylesheet" type="text/css"
media="only screen and (max-device-width: 480px)"
href="small-device.css" />
```



## ORIENTATION DETECTION

In iOS and Android, one can detect screen orientation and orientation changes by listening for the *window.orientationchange* event and querying *window.orientation* for the angle, respectively.

For smart phone browsers that do not support device orientation events directly, one can listen for the *window.onsize* event and distinguish portrait vs. landscape modes by checking *window.screen.height* and *window.screen.width*.

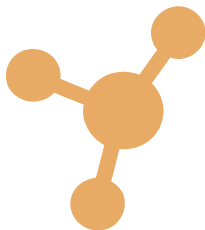
# BEING MOBILE FRIENDLY

## TOUCH AND GESTURE EVENTS

As iOS and Android added touch event APIs to their browsers, a W3C working group started work on a specification for touch events.

There are three basic touch events:

- touchstart: a finger is placed on a DOM element
- touchmove: a finger is dragged along a DOM element
- touchend: a finger is removed from a DOM element



## OPEN NATIVE APPLICATIONS

HTML links can be used to launch phone calls or SMS functions as shown in the following statements:

```
<a href="tel:01234567890">Call us</a>
```

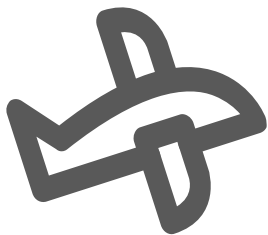
```
<a href="sms:01234567890">Text us</a>
```

Link tags can also be used to open other native applications.

# BEING MOBILE FRIENDLY

## BROWSER FRAGMENTATION

One of the key challenges for web development is to ensure support for all different browsers. A broader range of browsers is available for mobile devices. Some browsers are proxy based; meaning content rendering and logic processing Examples of proxy-based browsers are Nokia Browser for Nokia Series 40 phones, Opera Mini, and UC Browser. Delivering mobile sites that work well across different mobile browsers is very challenging despite all standardization efforts.



## DATA OPTIMIZATION

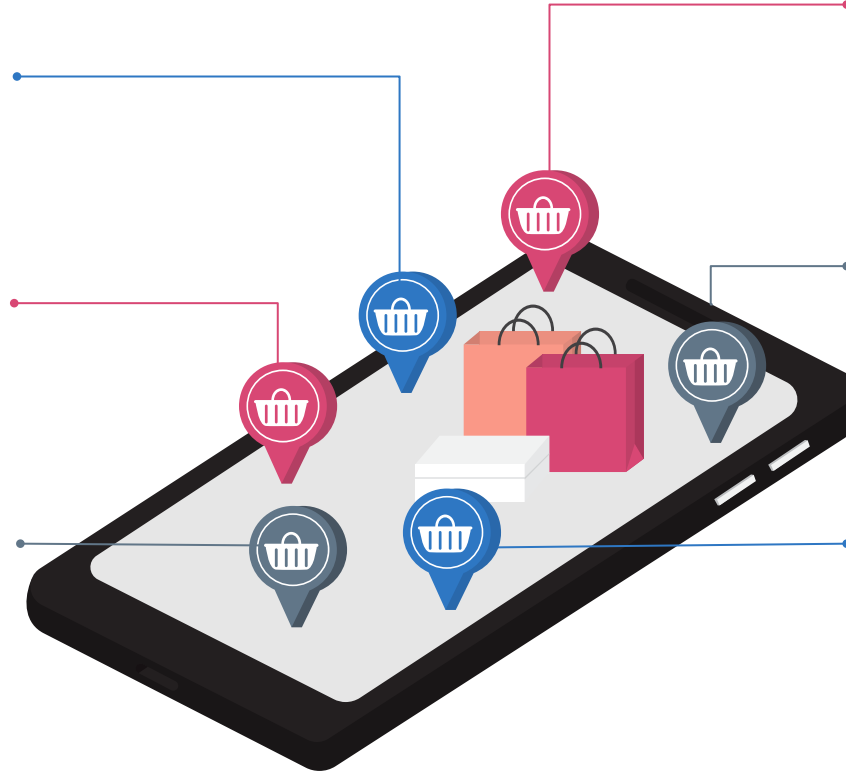
Data optimization remains important for Mobile Web as wireless data services continue to have relatively limited bandwidth and higher latency compared to its fixed Internet counterpart. It is a good practice to set up the mobile application web server to automatically remove indentations and other unneeded empty spaces from HTML. There are tools available to compress or minify JavaScript and CSS files. Minifying JavaScript also serves another purpose and achieves an often desired benefit, code obfuscation.

# HTML5

Better semantic tags such as `<article>`, `<nav>`, `<menu>` and `<footer>`

`<video>` and `<audio>` tags, embedding video and audio content in web pages

DOM Storage is an extension of the cookie function. It is a way to persist key/value pairs in a secure manner.



New `<input>` form types such as “email”, “date”, “tel”, “number”. On supported OS's, the device will display different corresponding form of soft keyboard

Geolocation API provides a standard way to query user's location with JavaScript

CSS3 aesthetic features like rounded corners, gradients, shadows, transition, transform and animations. Canvas API, which brings full-control of the colors, vectors and pixels on the script to JavaScript



# WEBKIT

It is an open source browser engine originally developed by Apple and licensed through the LGPL and BSD licenses.

Symbian was the first mobile platform to make use of WebKit in 200

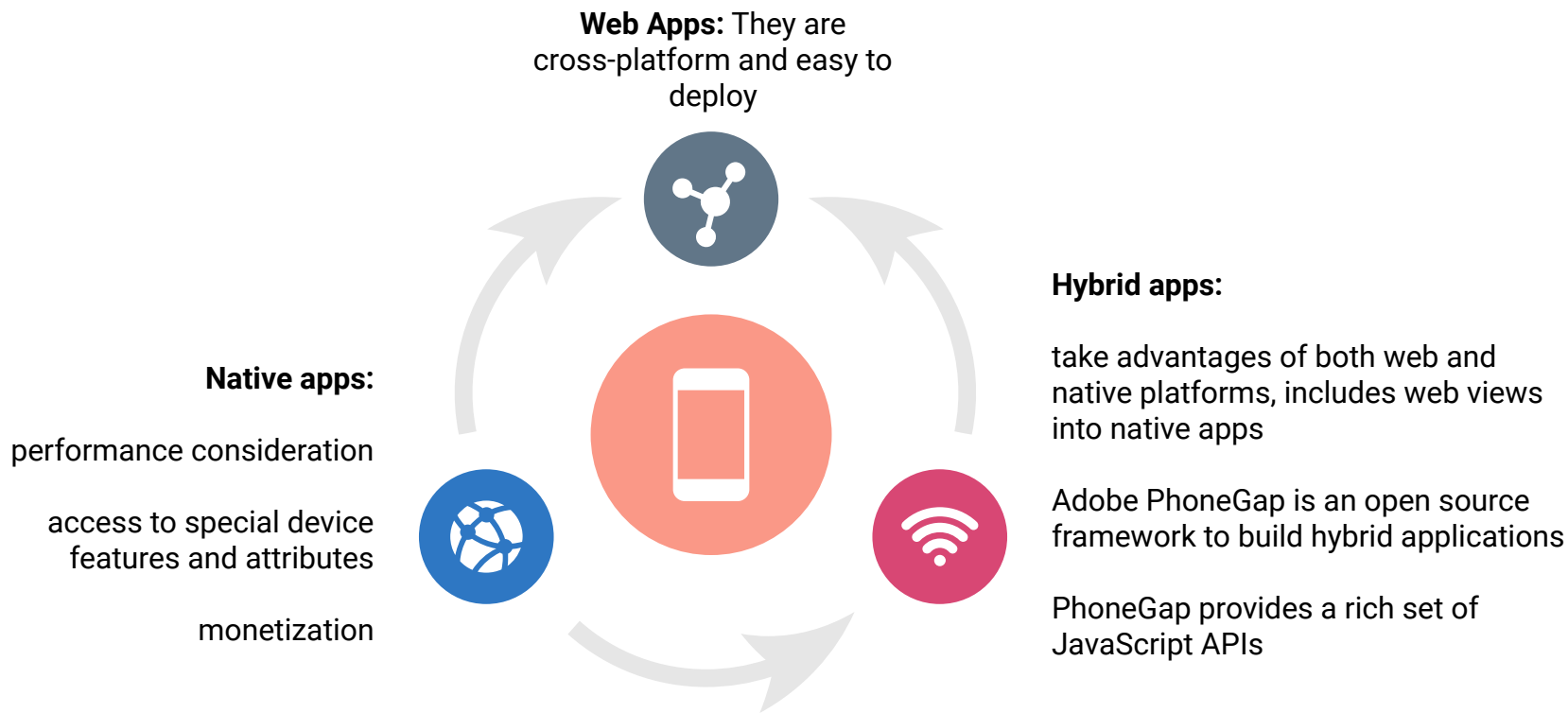


incomplete list of mobile browsers: Safari on iOS, Android browser, New browser on Blackberry, Symbian browser, Amazon Silk Browser

WebKit adds many extensions to CSS.

```
<link rel='stylesheet' href='highRes.css'  
media='only screen and  
(-webkit-min-device-pixel-ratio: 2)' />
```

# WEB VS. NATIVE VS. HYBRID



# OFFLINE WEB APPLICATION

01

## HTML5 APPCACHE



AppCache is a new feature of HTML5.

It uses a manifest to determine which resources in the web application should be cached by the browser.

To make the cached app appear closer to a native app, an application icon can be added to the application grid in iOS and Android based on a meta tag from HTML.

02

## W3C WIDGET



The goal of W3C Widget Packaging and Configuration specification is to propose a standard method for building and packaging widgets.

Widgets are ZIP packages containing at least two files: Configuration file (config.xml) and resource files (HTML, CSS, JavaScript and image files).

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## WAC



The Wholesale Applications Community is an open global alliance that is creating a unified and open platform based on standard Web applications.

WAC's promise is to allow developers to write applications that are usable across a variety of devices, OS's and networks.

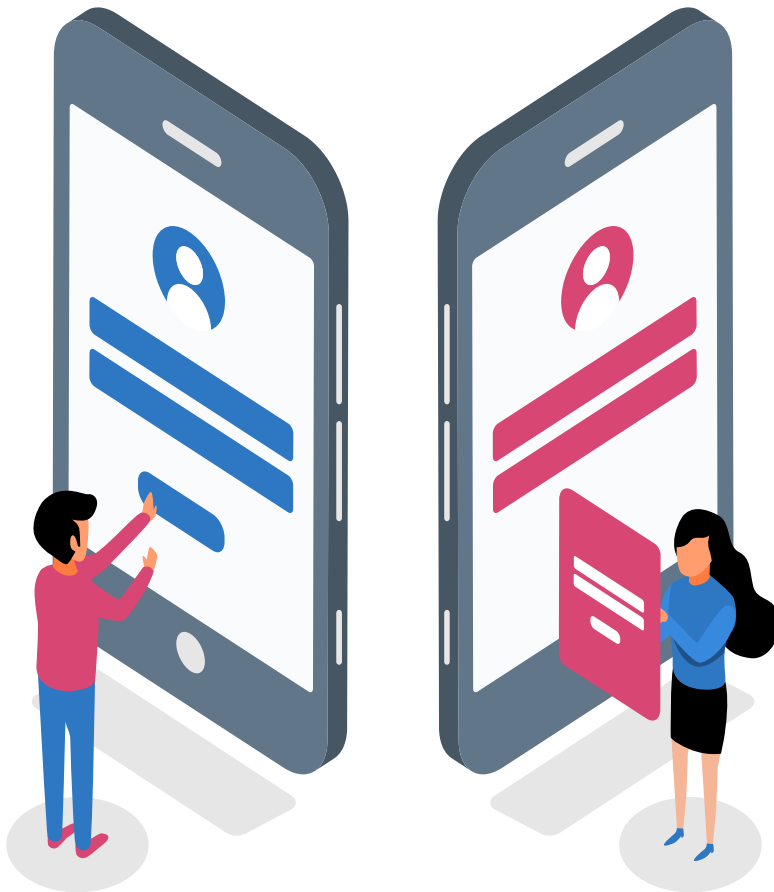
# MOBILE WEB APPLICATION FRAMEWORKS

## jQuery Mobile

It is based on jQuery and jQuery UI foundation.

It provides a set of easy-to-use APIs for DOM traversing and manipulation, event handling, animation, advanced effects and AJAX.

For jQuery Mobile, developers write regular HTML as presentation layer of the content, then add jQuery Mobile to provide enhancements such as effects and animations.



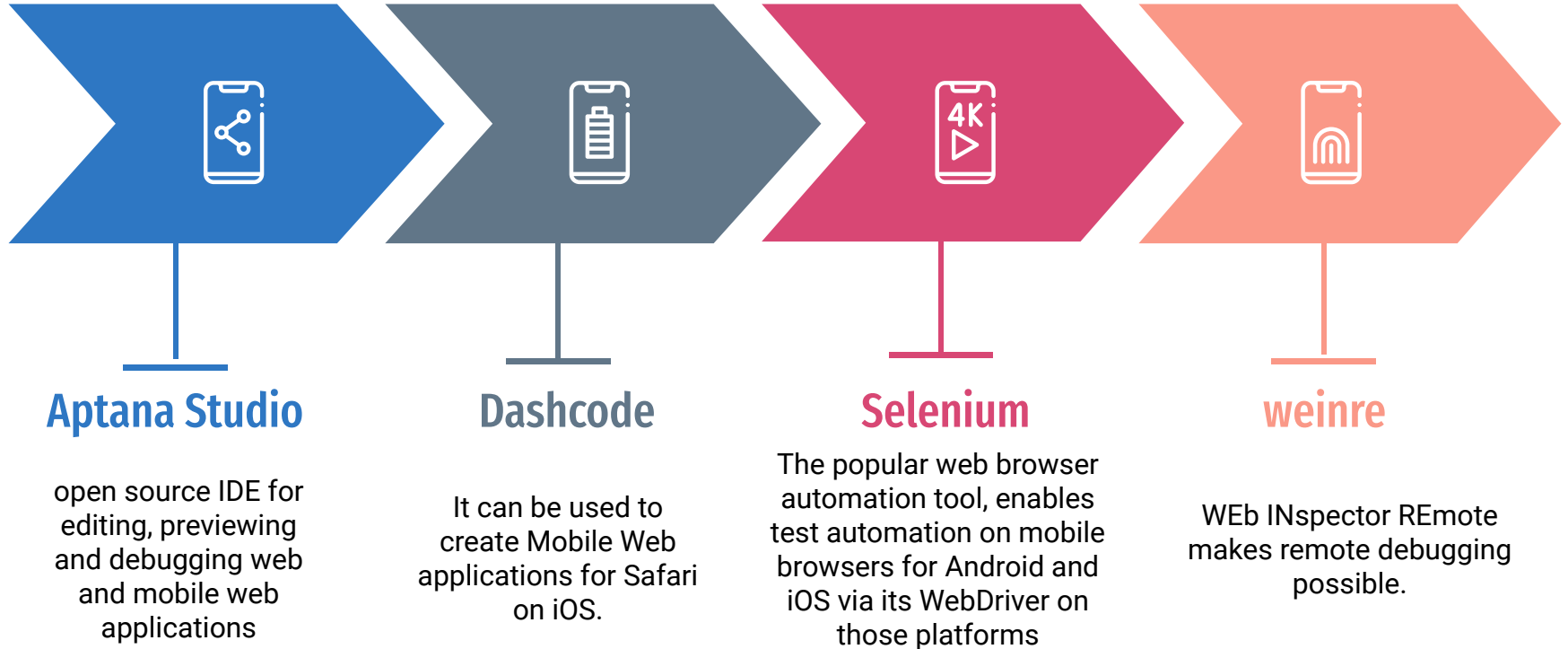
## Sencha Touch

. Sencha Touch is the mobile counterpart to the Ext JS framework.

It provides a rich set of UI components, storage and data binding facilities using JSON and HTML5 offline storage, and more.

For Sencha Touch developers create interface programmatically with JavaScript.

# DEVELOPMENT TOOLS



# Thank You

