2014

GMIN 309 - TAWeb

MOBILE

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iTK
Créateur de logiciels experts pour l'agriculture

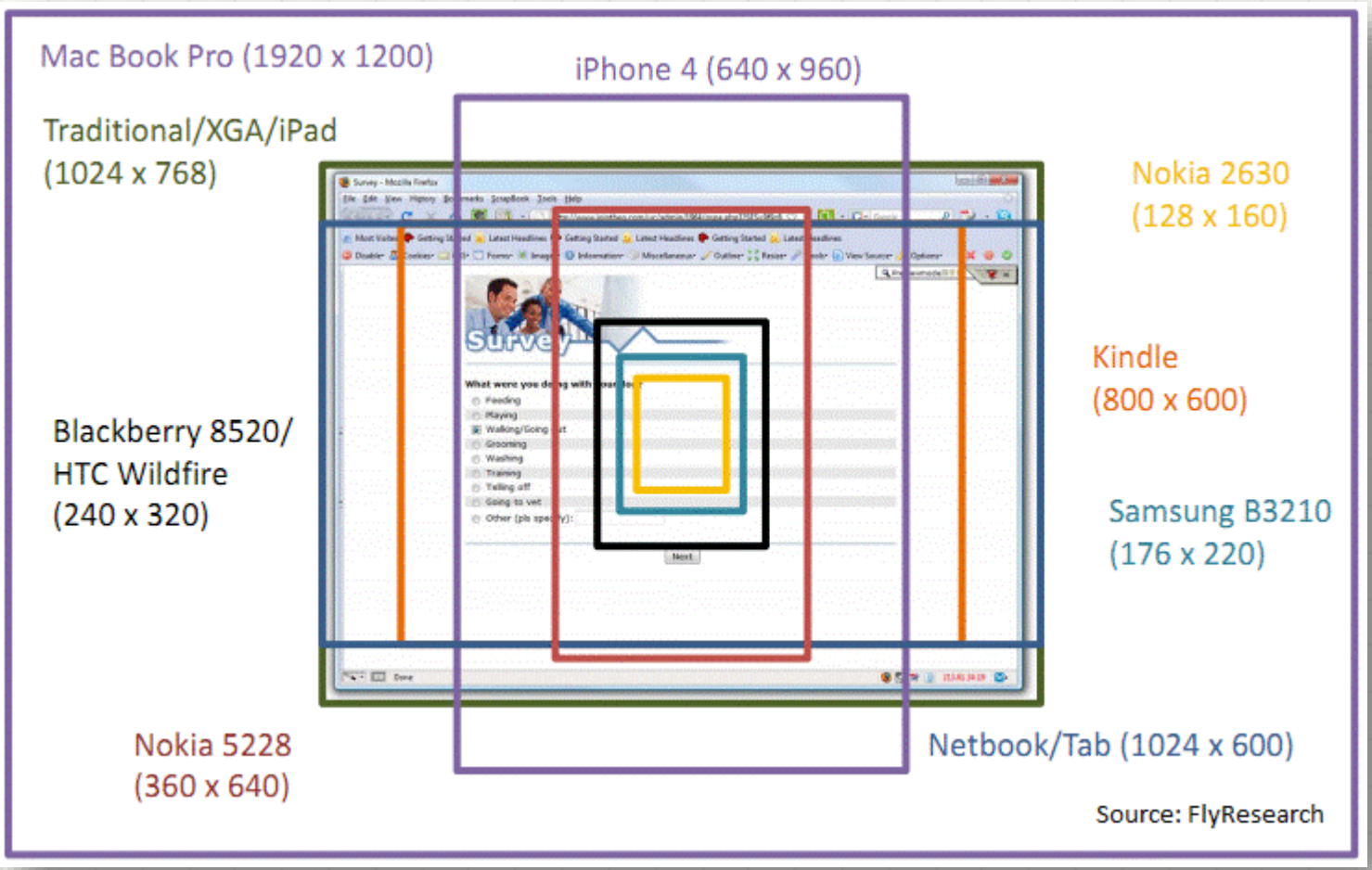
Sommaire (cours 5)

- Écrans
- Adaptabilité
- Évènements
- Navigation

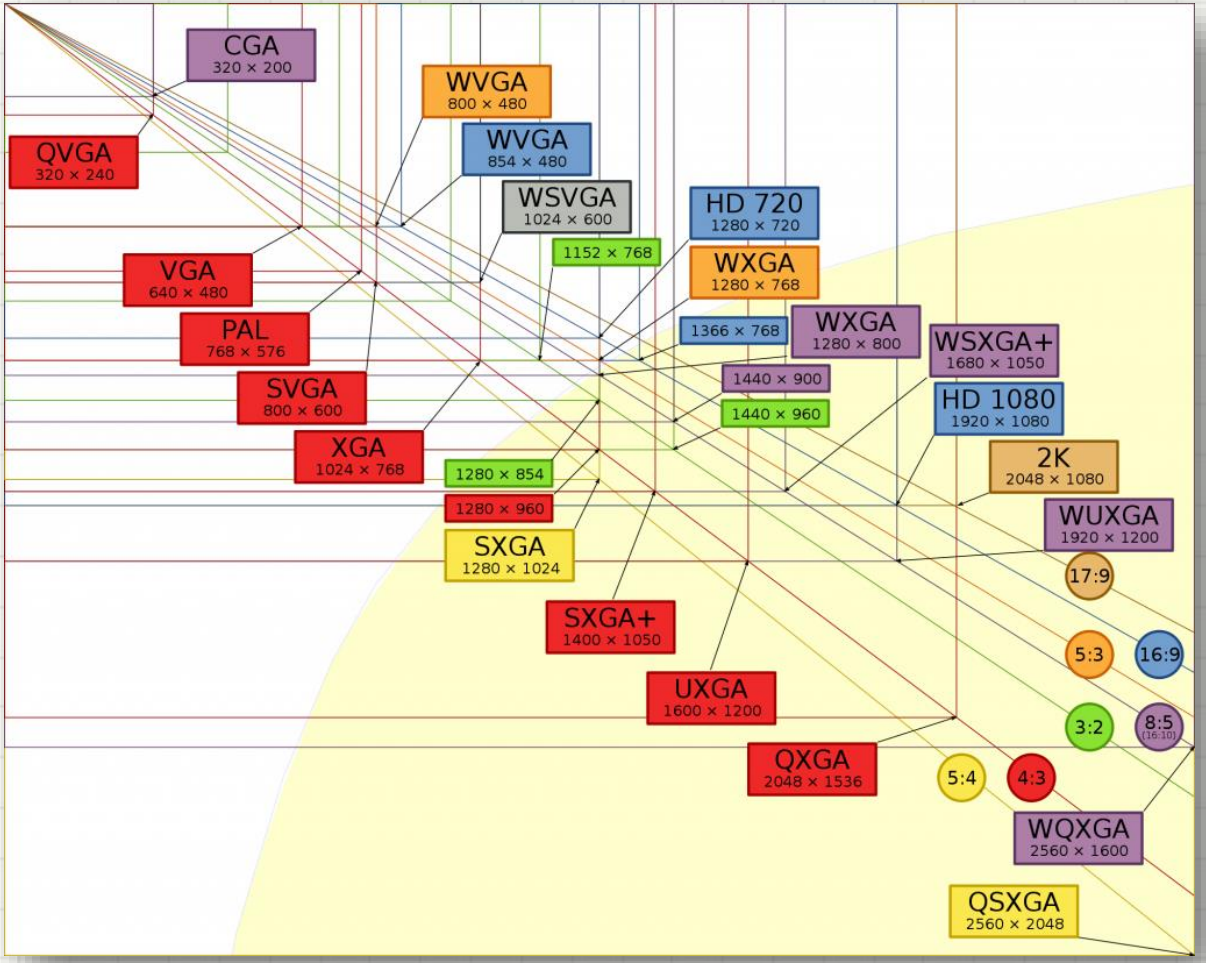
RÉSOLUTION

Jungle écrans

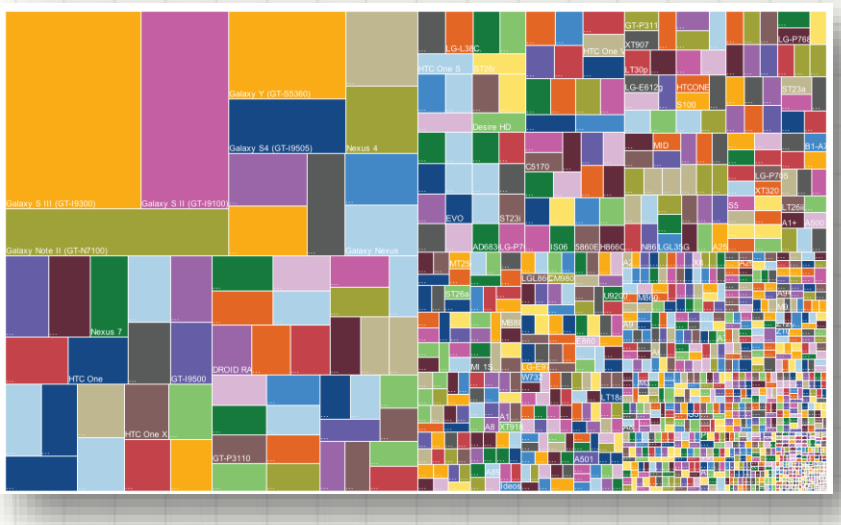
Jungle résolutions

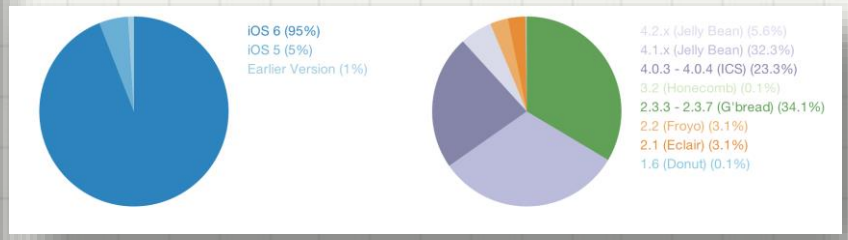


Résolutions d'écran



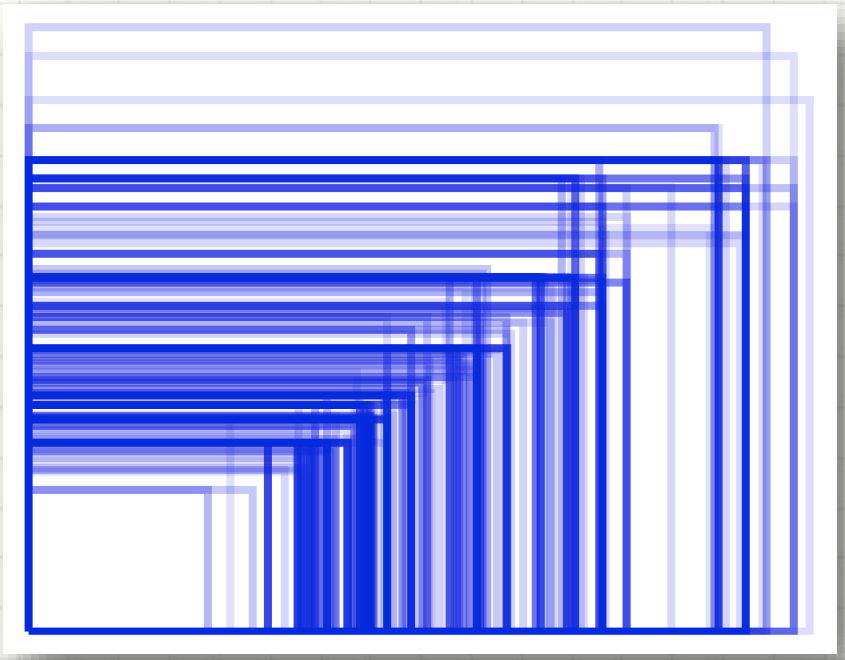
Fragmentation Android

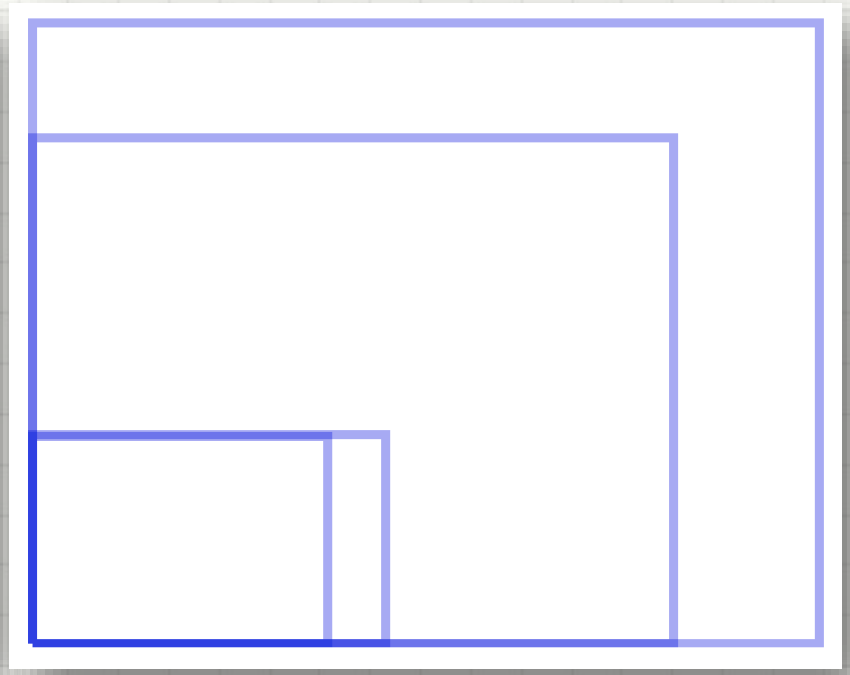




rapport Android Fragmentation 2013 de [OpenSignal]

Fragmentation Android

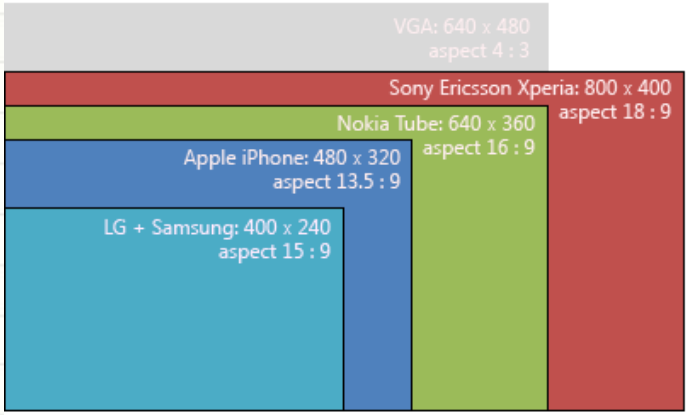




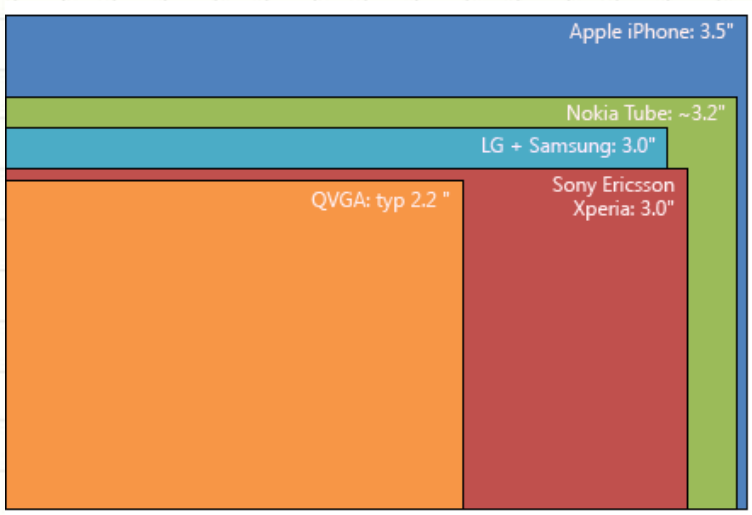
rapport Android Fragmentation 2013 de OpenSignal

Pixels par point

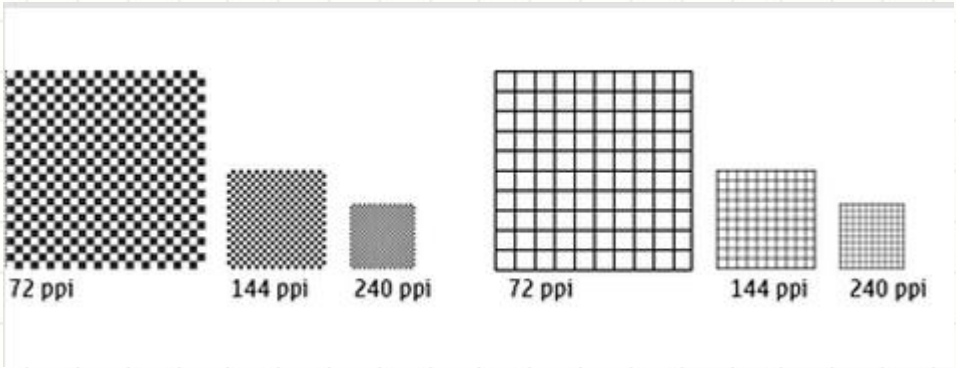
Pixel ratio



Résolution physique



Densité



Appareil	Taille écran	Résolution écran	Densité en PPI
iPhone 4G	3.5"	960x640	330
Nexus One	3.7"	800x480	252
HTC Evo 4G	4.3"	800x480	217
Palm Pre	3.1"	320x480	186
Kindle	6"	800x600	167
Zune HD	3.3"	480x272	167
iPhone 3GS	3.5"	480x320	164
iPad	9.7"	1024x768	132
PSP	4.3"	480x272	128

Évolution des densités

4K → 12 millions

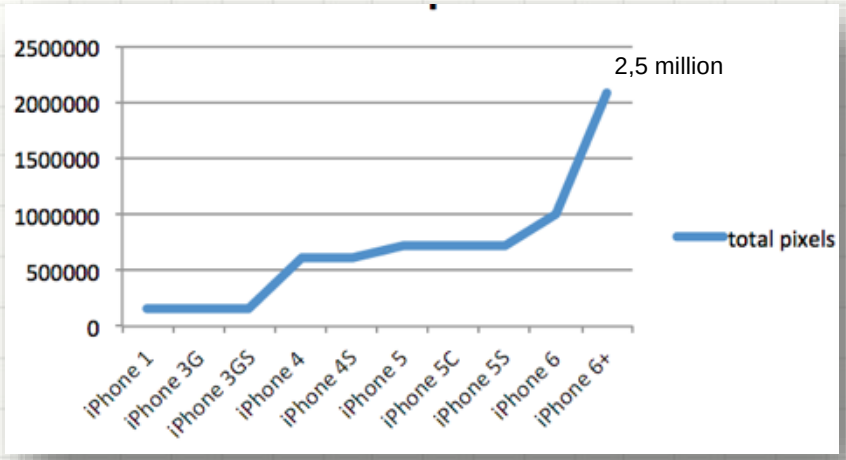


image issue de OpenSignal

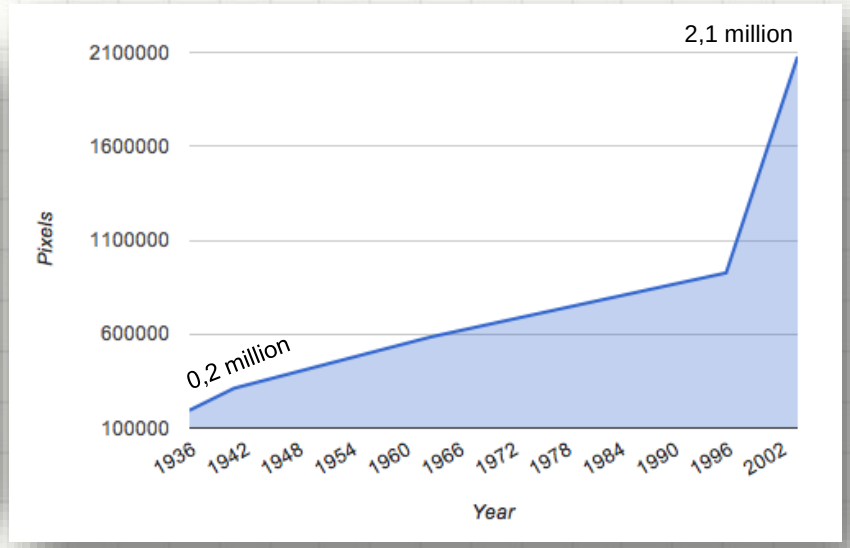
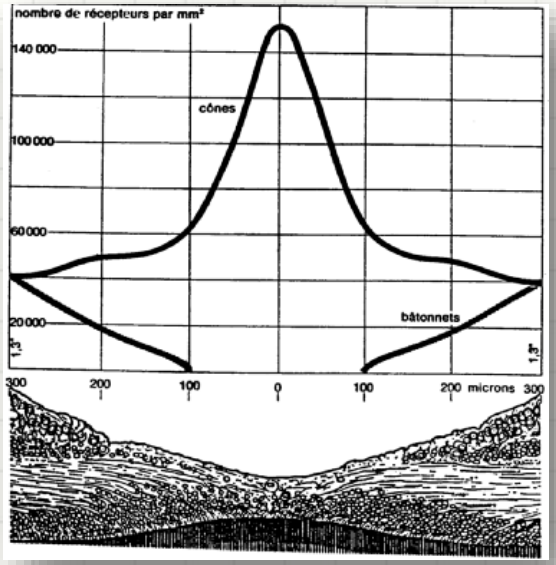


image issue de Tech Chomp

Jusqu'où ?

	Σ	◎
bâtonnets	120 M	noir & blanc
cônes	10 M	couleurs



distance	dpi max
6,3 cm	1 200 dpi
12,7 cm	600 dpi
20 cm	380 dpi
25,3 cm	300 dpi
30 cm	253 dpi
50 cm	152 dpi
76 cm	100 dpi
1 m	76 dpi
1,50 m	50 dpi
2 m	38 dpi

ADAPTATIVITÉ

Conventions

- Interface
  - OS
  - applications

- Interaction
  - logiciel
  - matériel

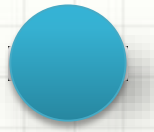
Résolution + Orientation

Densité : composants

Desktop monitor
@100 dpi
= 1.5” x 0.4”

Galaxy Tab
@160 dpi
= 0.9” x 0.25”

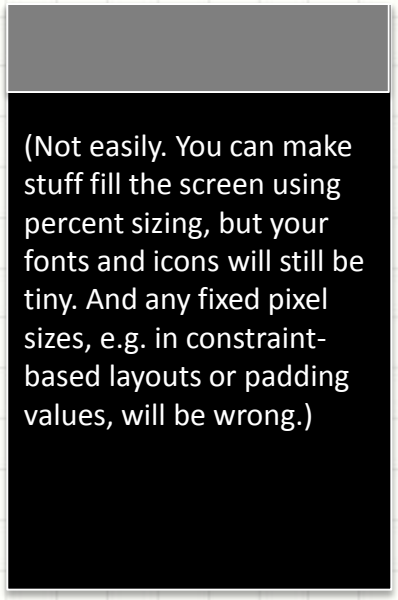
Droid 2
@240 dpi
= 0.6” x 0.17”



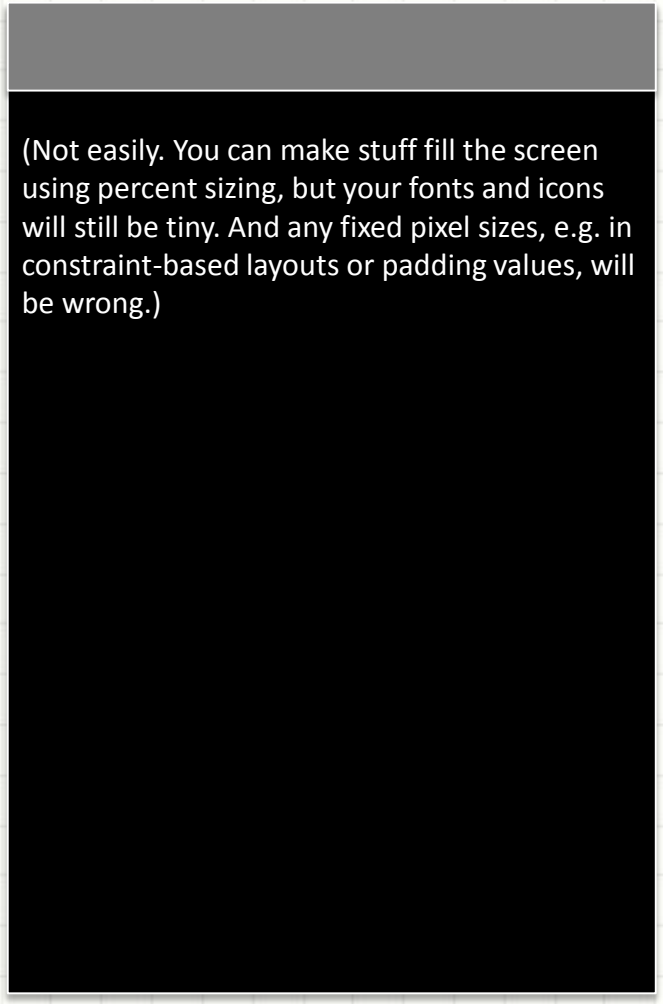
iPhone 4
@320 dpi
= 0.46” x 0.13”

Densité : texte & placement

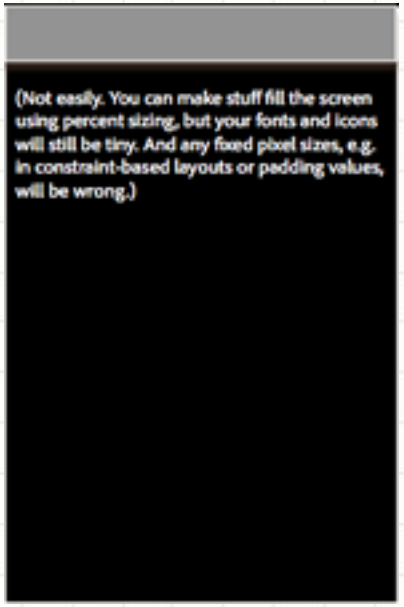
320x480 @160dpi



640x960 (at same density)



640x960 @320dpi

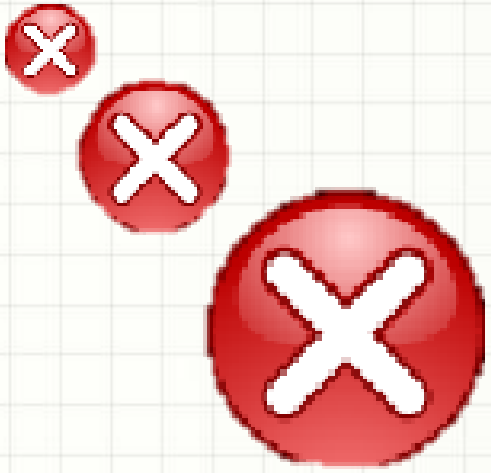


Densité : images

Ipsum

Ipsum

Ipsum

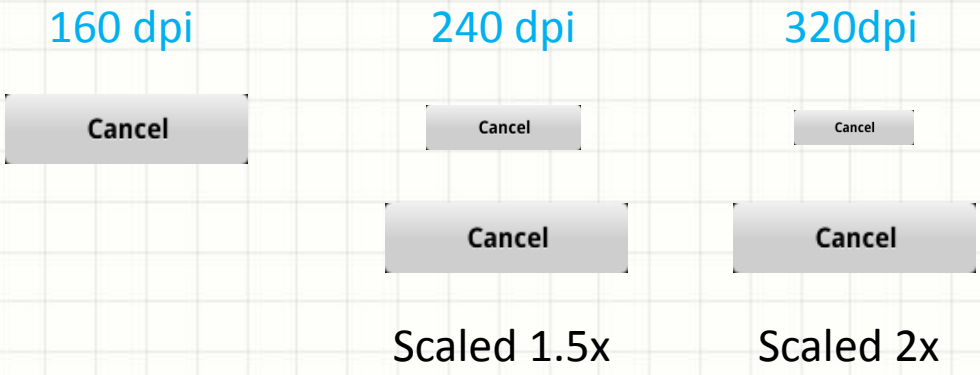


Vectors
scale up well
(scaling down can be bad)
Outlines may blur slightly

Text
scales up well
(Flash scales font size)

Bitmaps
do not scale up well

Solution : mise à l'échelle

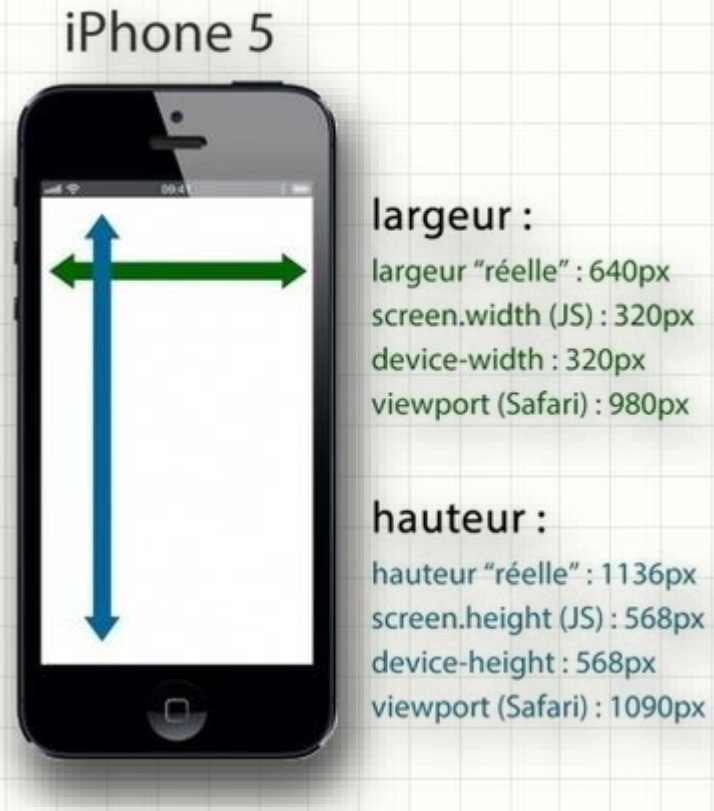



```
<meta name="viewport" content="width=device-width, user-scalable=no">
<meta name="viewport" content="maximum-scale=1.6, minimum-scale=0.25">
<meta name="viewport" content="initial-scale=1, maximum-scale=1">
```

```
window.devicePixelRatio
```

http://viewportsizes.com/

Comment les navigateurs mentent



- $zoom = \frac{device-width}{viewport}$
- balise viewport
  - width *device-width*
  - heigth *device-height*
  - initial-scale *1.0*
  - minimum-scale
  - maximum-scale
  - user-scale
- pixel ratio

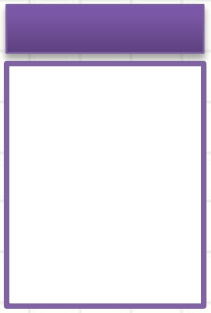
Et pas de la même manière

	iPhone	iPad	Android Sam-sung	Android HTC	Chrome	Opera Presto	BlackBerry	IE
ideal viewport size	320 x 480	768 x 1024	400 x 640	360 x 640	601 x 962	240 x 320	342 x 570	320 x 480
	There is no right or wrong here. The values depend on the device, and all values are reasonable.							
width=device-width Does `width=device-width` give the layout viewport the width of the ideal viewport?	portrait	portrait	yes	yes	yes	yes	yes	yes
	• Safari applies the portrait width (320 or 768) to both landscape and portrait modes.							
initial-scale=1 Does `initial-scale=1` give the layout viewport the width of the ideal viewport?	yes	yes	yes	yes	yes	yes	yes	portrait
	• IE10 applies the portrait width (320) to both landscape and portrait modes.							
screen.width/height Do `screen.width/height` give the dimensions of the ideal viewport?	portrait	portrait	no	no	width	width	yes	no
	• Safari always gives the portrait ideal viewport. • Chrome and Opera give the available height (screen height minus toolbars and such). Width is correct, though. • Android and IE give the physical number of pixels on the screen.							

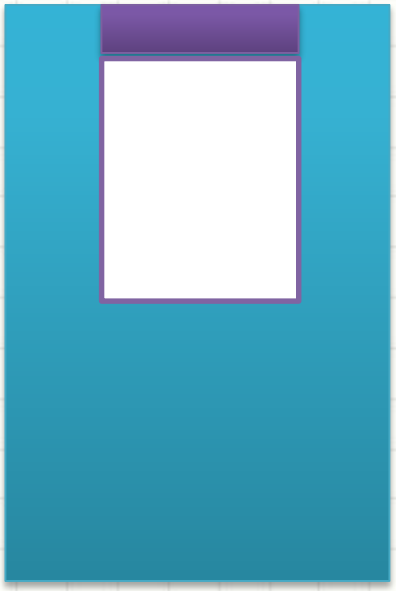
tableau issue de quirksmode.org

Solution : placement relatif

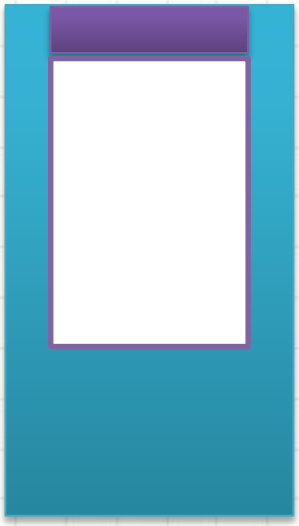
Droid Pro
320 x 480 @160dpi



iPhone 4
640 x 960 @320dpi
= 320 x 480 @160dpi



Droid 2
480 x 854 @240dpi
= 320 x 570 @160dpi



Solution : multi-sources

```
<s:Button>
    <s:icon>
        <MultiDPIBitmapSource
            source160dpi="@Embed('assets/refresh160.png')"
            source240dpi="@Embed('assets/refresh240.png')"
            source320dpi="@Embed('assets/refresh320.png')"/>
    </s:icon>
</s:Button>
```

```
@media screen and (resolution: 160dpi) { … }
@media screen and (resolution: 240dpi) { … }
@media screen and (resolution: 320dpi) { … }
```

```
function getPPI() {
  var div = document.createElement("div");
  div.style.width = "1in"; // absolute size
  var body = document.getElementsByTagName("body")[0];
  body.appendChild(div);
  var ppi = document.defaultView.getComputedStyle(div, null)
              .getPropertyValue('width');
  body.removeChild(div);
  return parseFloat(ppi);
}
```

window.devicePixelRatio

ÉVÈNEMENTS UTILISATEUR

Types d’évènements

- MouseEvent
  - souris
- TouchEvent
  - doigts
  - stylet
- PointerEvent [candidat]
  - détails

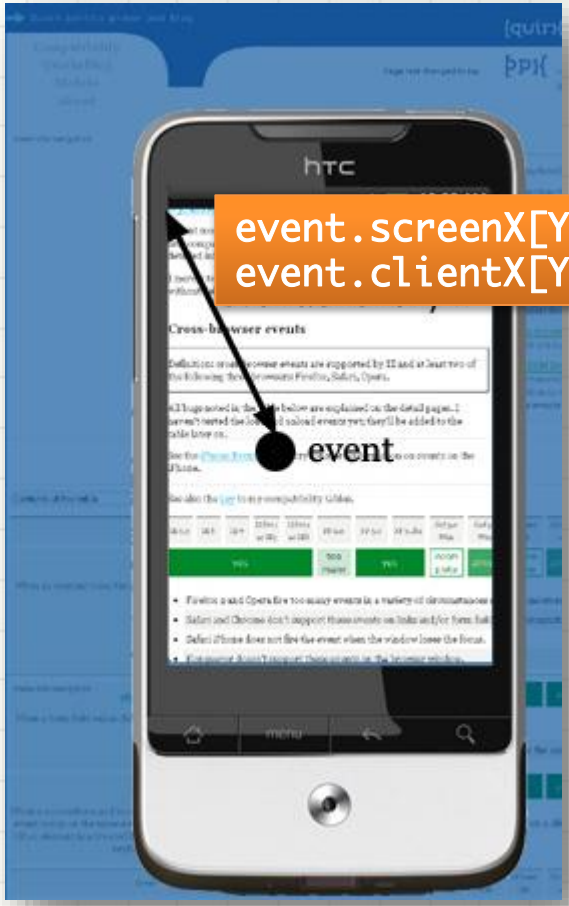
«The user agent may **dispatch both** touch events and mouse events in response to the same user input.

[…] the touchstart event type must be dispatched before any mouse event types for that action. […]

If a Web application can process touch events, it can intercept them, and no corresponding mouse events would need to be dispatched by the user agent. If the Web application is not specifically written for touch input devices, it can react to the subsequent mouse events instead. »

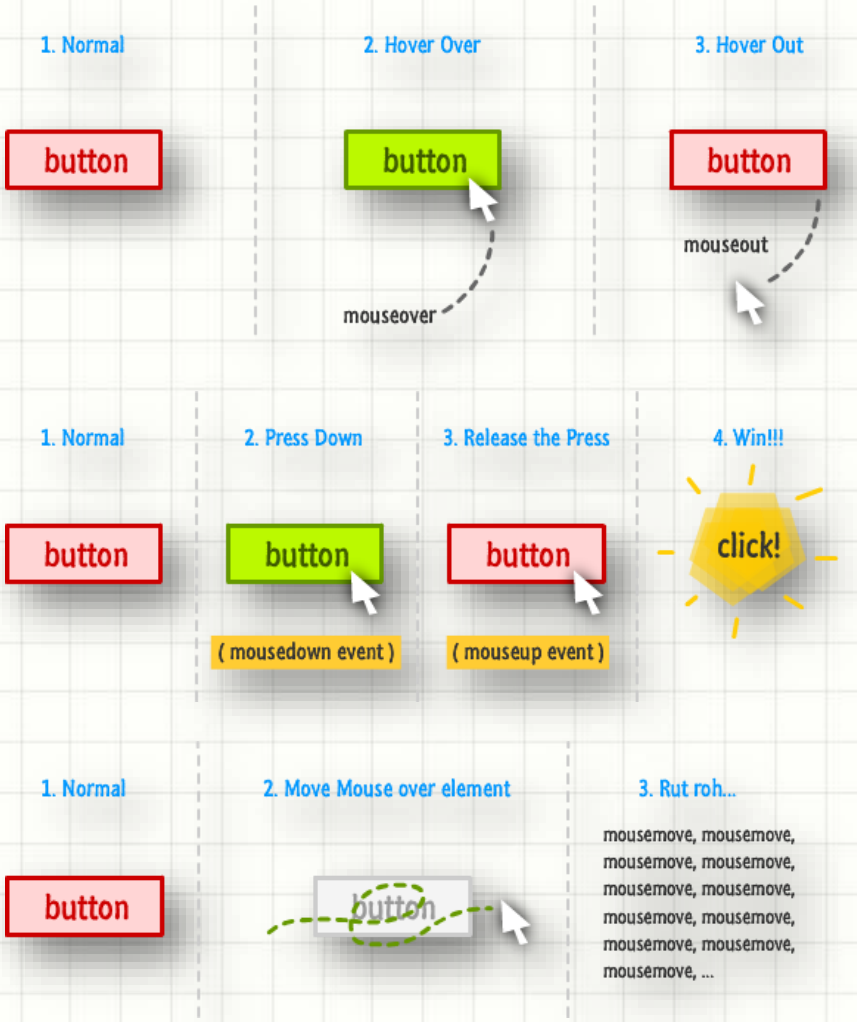
-- W3C

Et le viewport ?



images issue de quirksmode.org

MouseEvent



- [related]target
- screen[X,Y]
- client[X,Y]
- page[X,Y]
- [alt,ctrl,meta,shift]Key
- bouton[s]

images issues de kirupa.com

TouchEvent

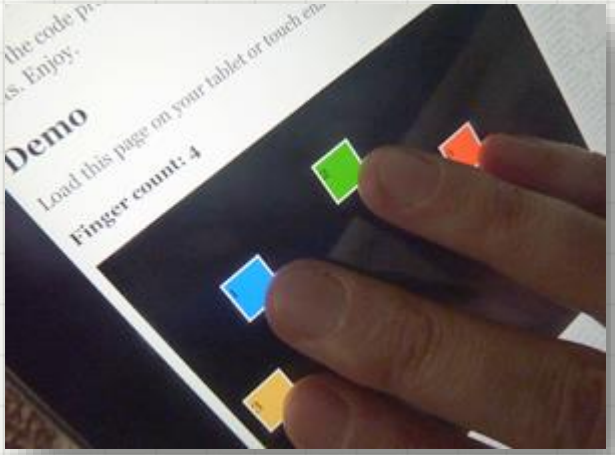
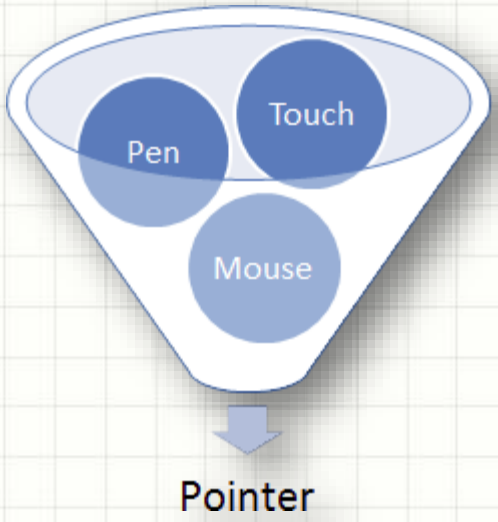


image issue de tomicloud.com

- [alt,ctrl,meta,shift]Key
- [target]touches
  - identifier
  - target
  - screen[X,Y]
  - client[X,Y]
  - page[X,Y]
- changedTouches

gestures ➔ pro !

[Draft 22/10/14] PointerEvent



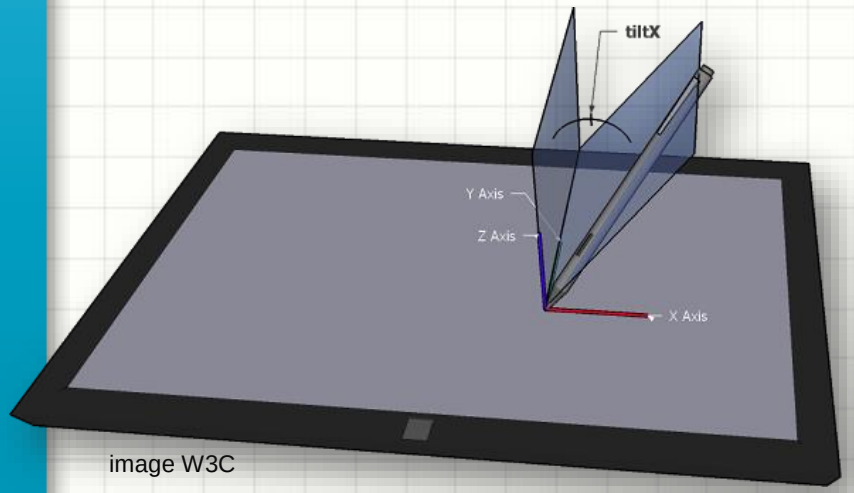


image W3C

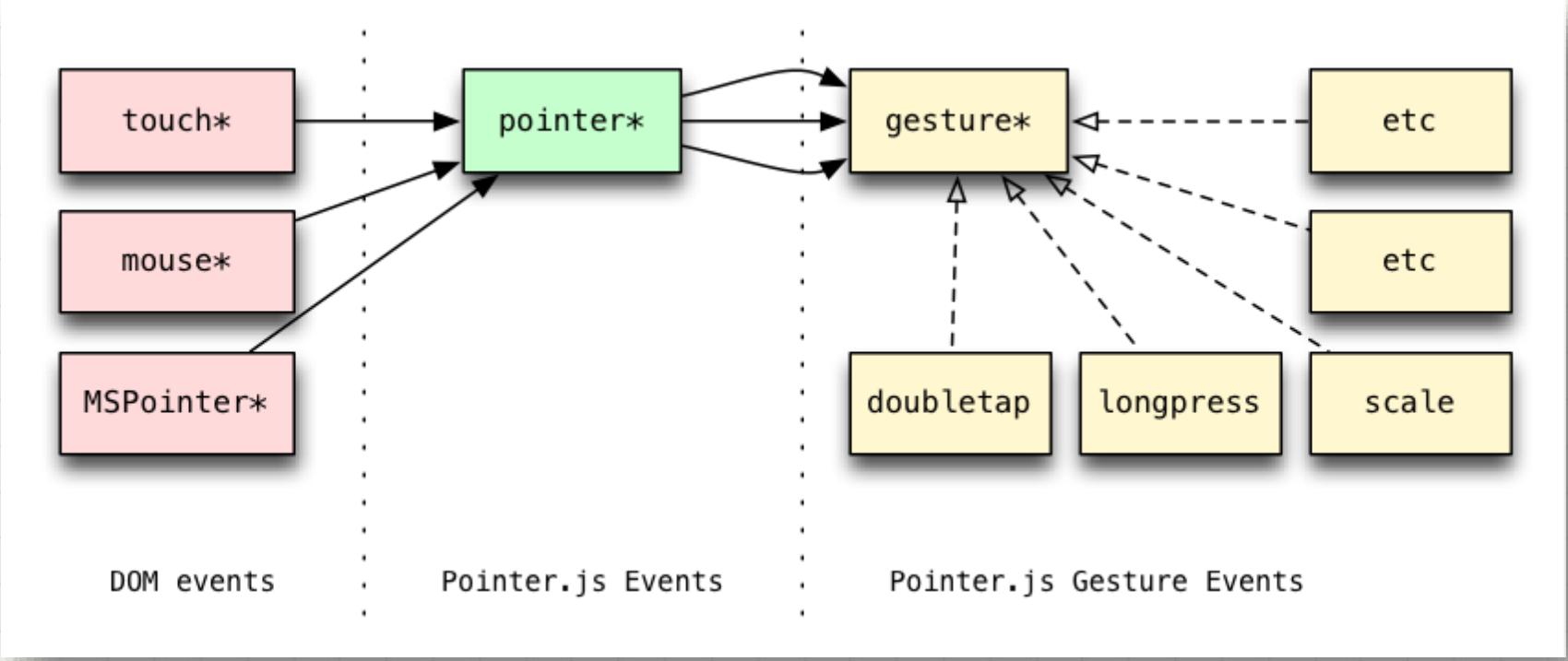
- :MouseEvent
  - [related]target
  - [screen,client,page][X,Y]
  - [alt,ctrl,meta,shift]Key
  - bouton[s]
- pointer[Id,Type]
- width/height
- pressure/tilt[X,Y]
- isPrimary

Pour les contrôler tous ?

	Mouse Events	Touch Events	Pointer Events
Supports mouse		1	
Supports single-touch	2		
Supports multi-touch			
Supports pen, Kinect, and other devices	2		
Provides over/out/enter/leave events and hover			
Asynchronous panning/zooming initiation for HW acceleration			
W3C specification		3	3
Usable cross-browser on mobile devices			4
Usable cross-browser on desktop devices			4

image Microsoft News

Autre ?

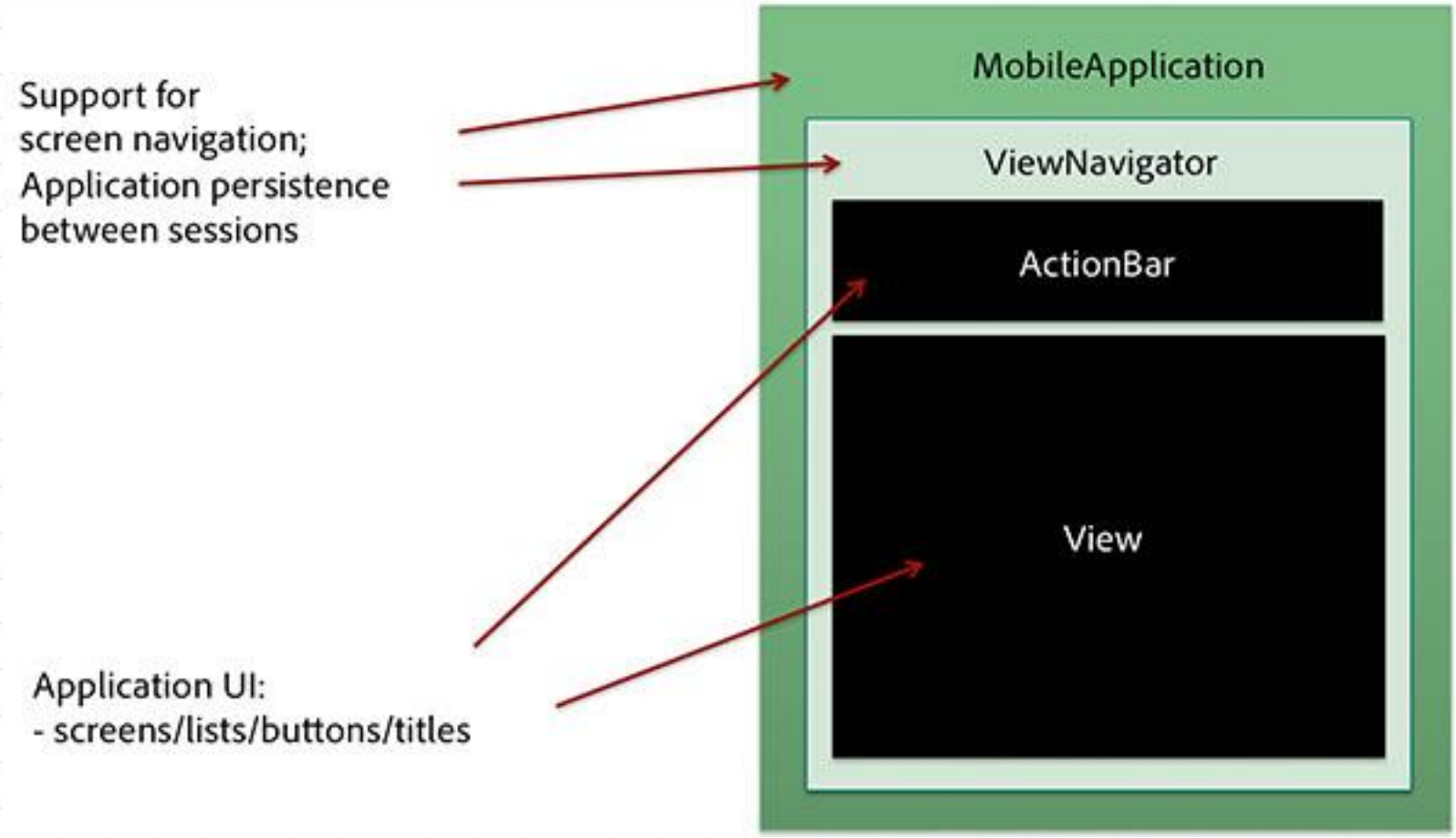

touch*
mouse*
MSPointer*
pointer*
gesture*
etc
etc
doubletap
longpress
scale
DOM events
Pointer.js Events
Pointer.js Gesture Events

NAVIGATION

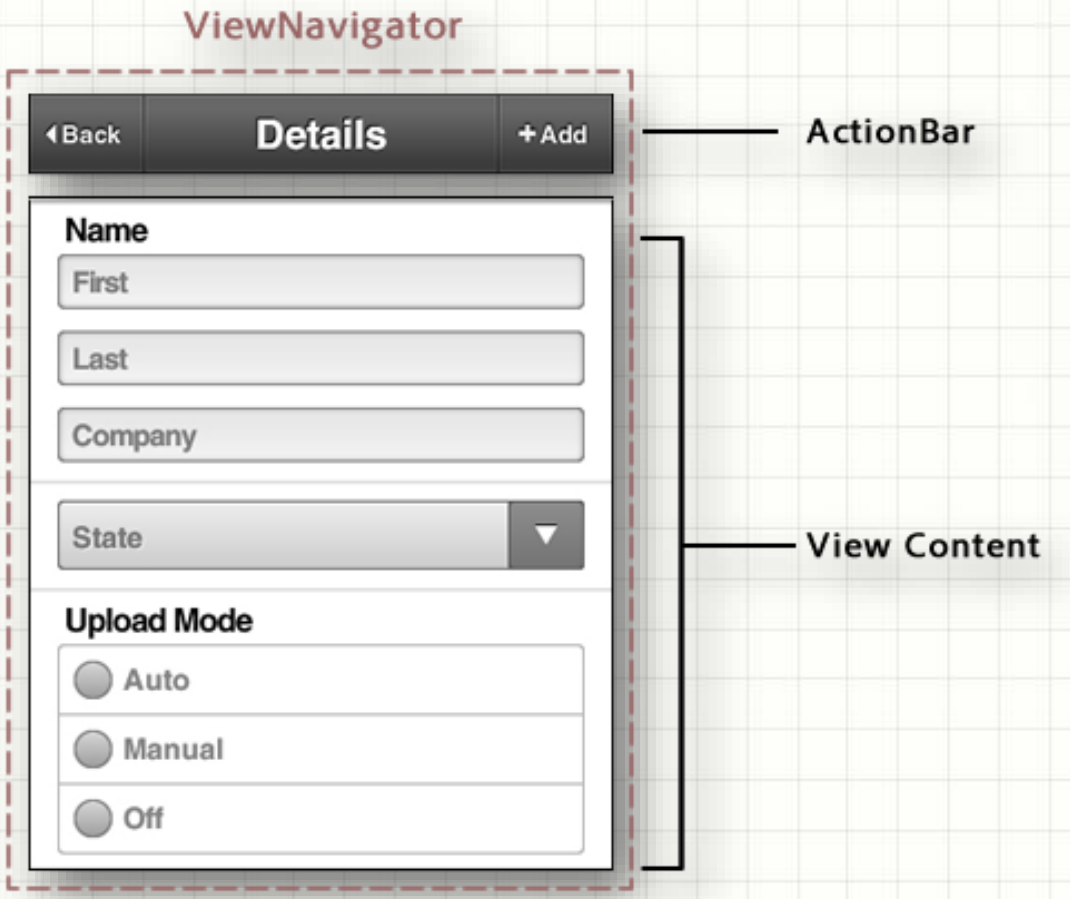
Vue mobile et navigation

- Persistance des données
  - interruption
- Navigation par vues
  - vue unique
  - empilage et dépilage
- Boutons supplémentaires
  - retour
  - accueil / home
  - …

Application mobile

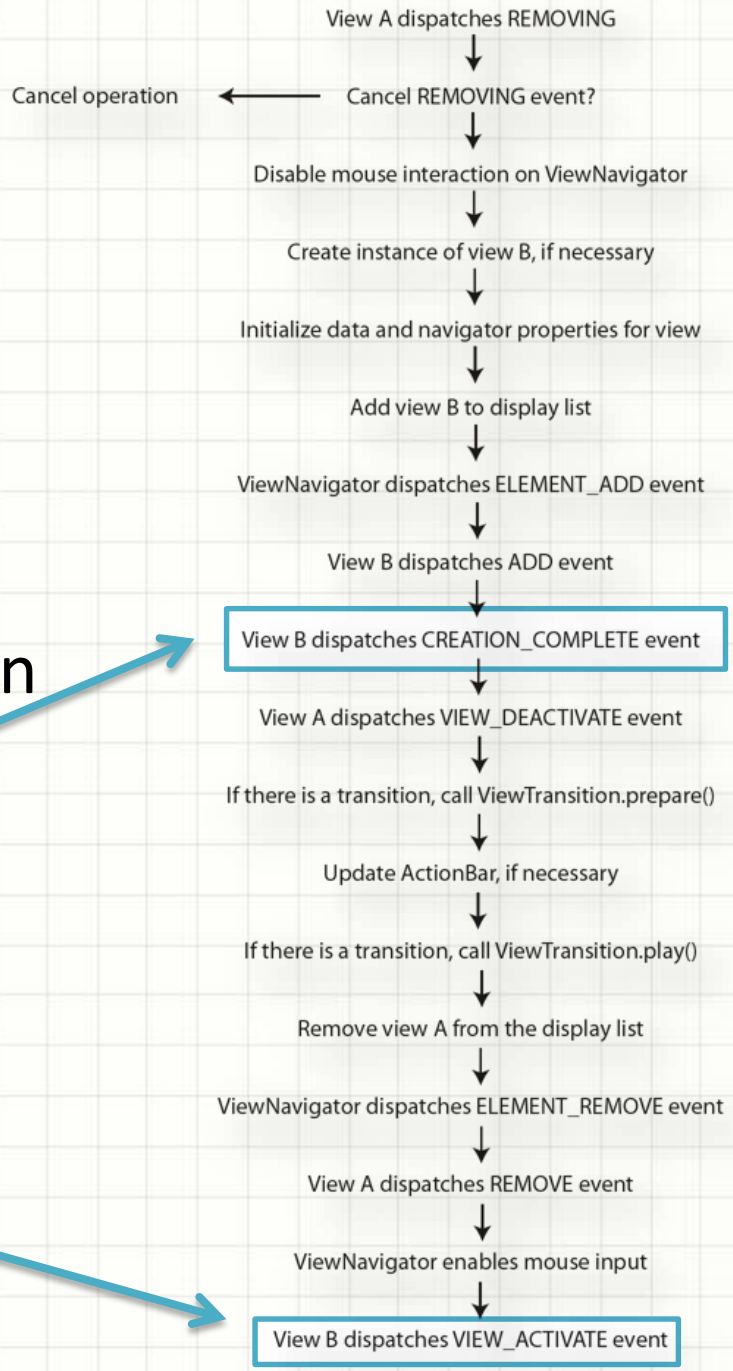


Vue mobile

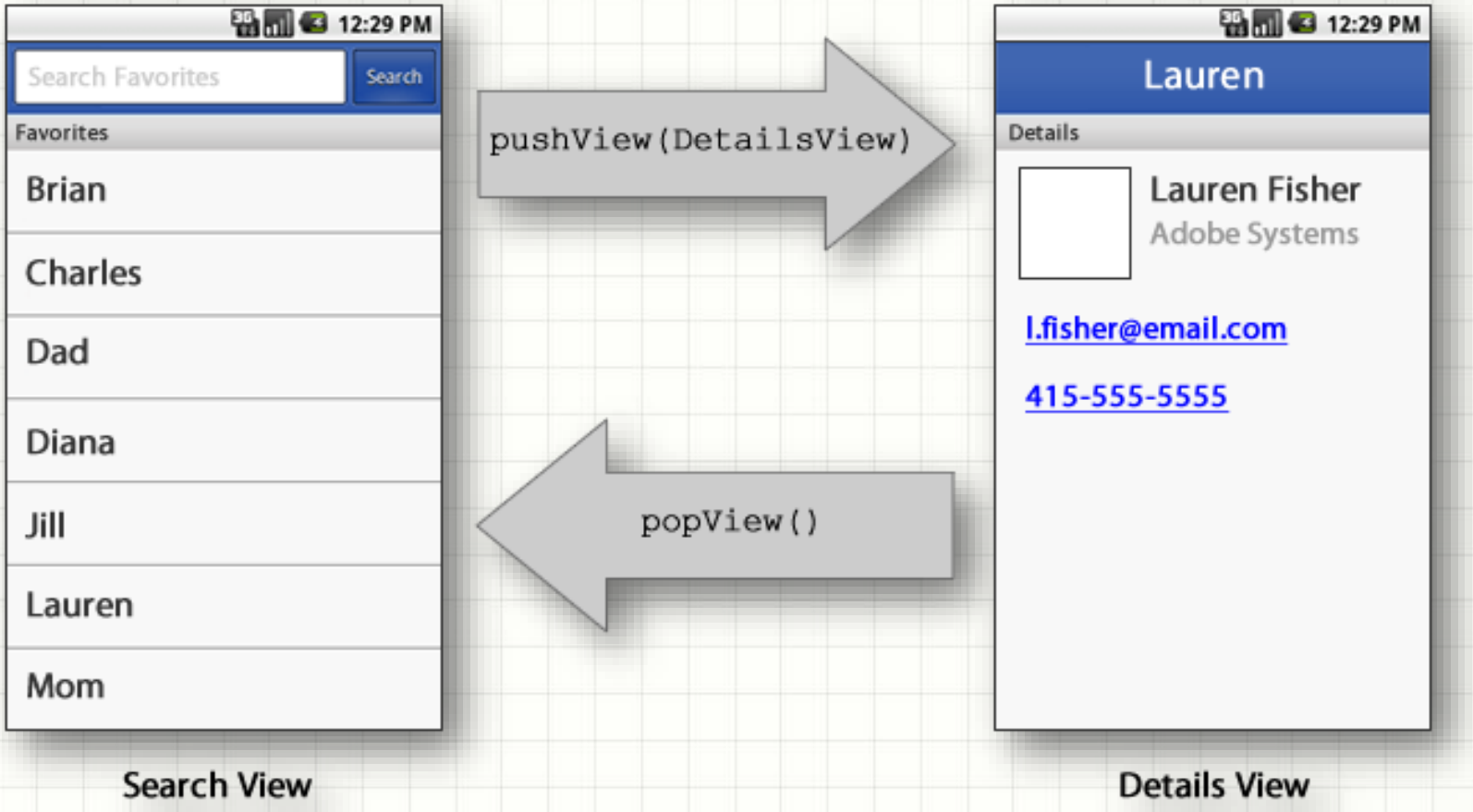

ViewNavigator
Back
Details
+Add
ActionBar
Name
First
Last
Company
State
View Content
Upload Mode
Auto
Manual
Off

Évènements

- toujours en préparation
  - création terminée
- Prêt
  - vue affichée



Empilage des vues



VOUS AVEZ DES QUESTIONS ?

TD/TP

- partie 1 : une règle graduée en taille réelle
  - HTML / CSS / JS / JQuery
  - informations : taille, ppi, dpi, pixel ratio …
  - une règle en CSS ou en image
  - taille réelle : 1cm sur l'écran ≈ 1cm réel
- partie 2 : ajustement
  - règle ajustable (mouse + touch)
- partie 3 : sur mobile
  - packaging (PhoneGap, …) ou via url