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Mobile Design Considerations

Topics

- Designing mobile apps
  - Mobile devices are personal
  - Mobile devices interactions
- Mobile device capabilities
  - Hardware capabilities
  - Mobile networks
- Mobile user experience
  - Expectations are high, but attention may be low
  - Apps are experienced through touch, voice, location, ...
  - Mobile first

Mobile Devices

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Personal Devices

EXTREMELY PERSONAL

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Form factor

Small? Not necessarily...

Source: Design for Touch

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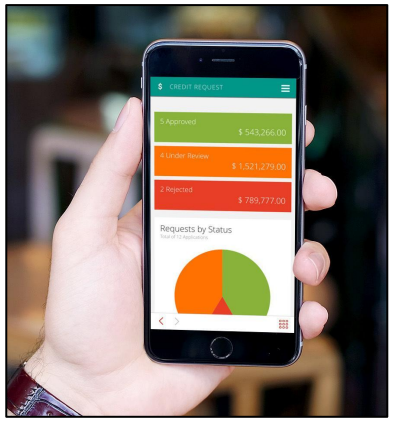
Inputs are different

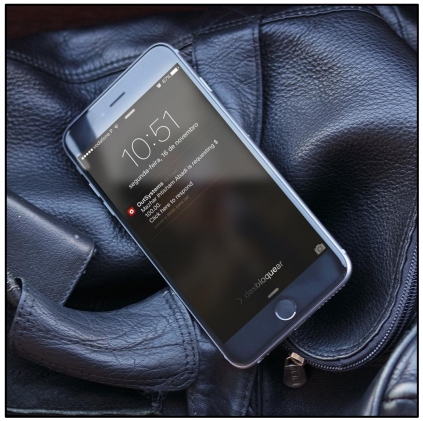
- Inputs are different…
  and more powerful!
  - Location detection (GPS)
  - Multi-touch sensors
  - Device motion
  - Video & image
    - Dual Camera
  - Audio: microphone
  - Light sensors
  - NFC: RFID Readers
  - Device connections: Bluetooth

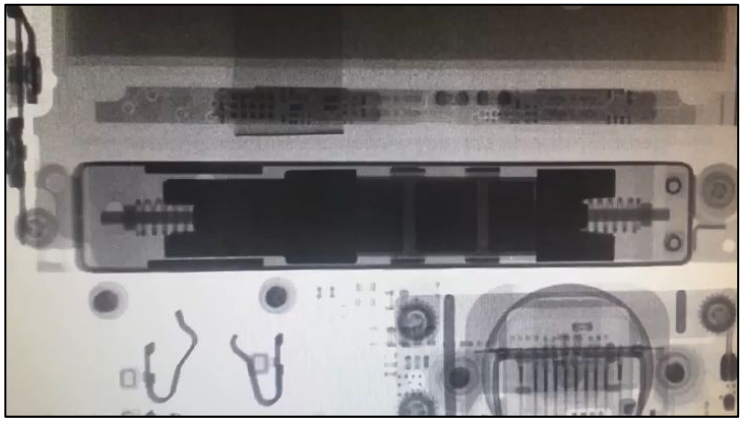
- User may not be familiar with them

Outputs are different

- Outputs are different
  - Display
    - Notifications
  - Audio
  - Vibration







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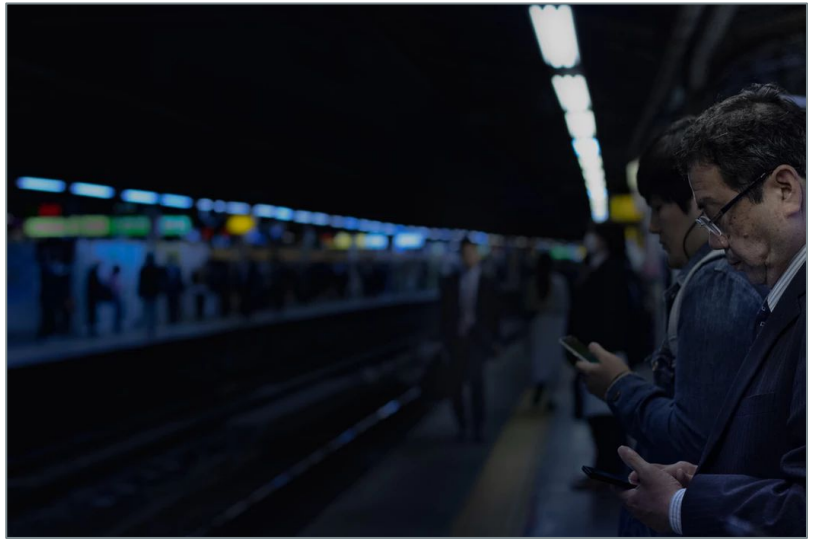
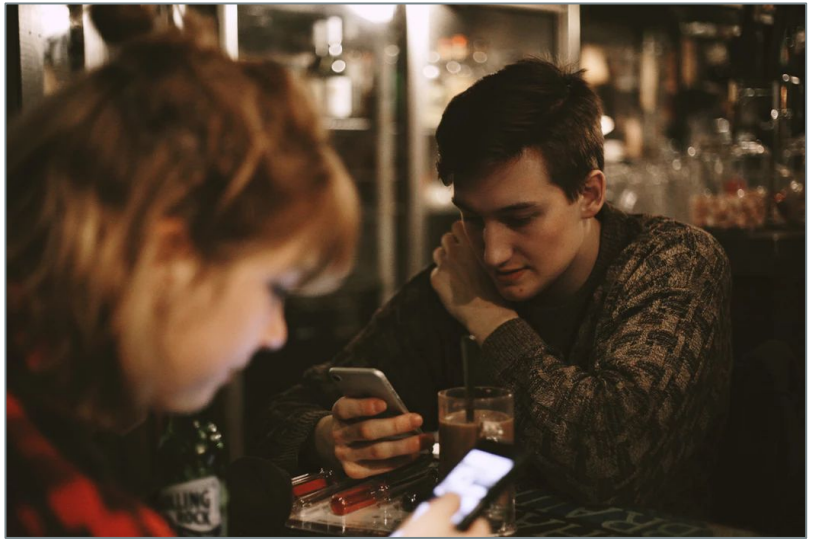
Context of usage

Mobile devices are used everywhere!

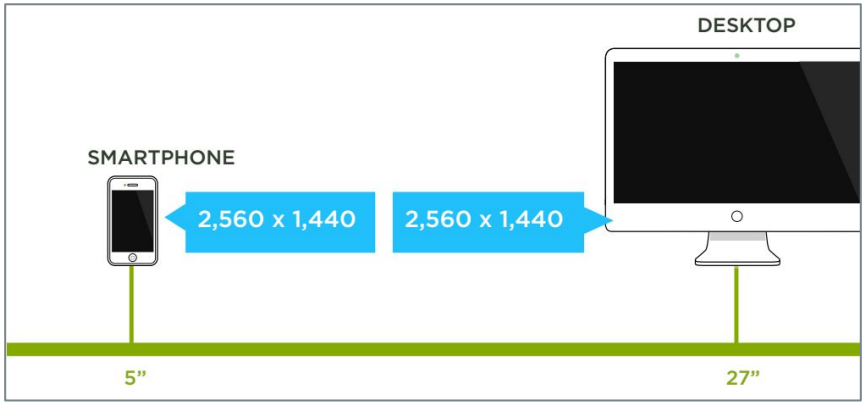




Device Capabilities

Processing Power

- Desktop computers have more processing power
  - Devices are limited by temperature and battery power
- Graphic processing power depends on device
  - 25%-50% of people (depending on the country) have 1920x1080 resolution or higher
  - Many devices have better resolutions than desktops!



Source: Screen time

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Different network deployments

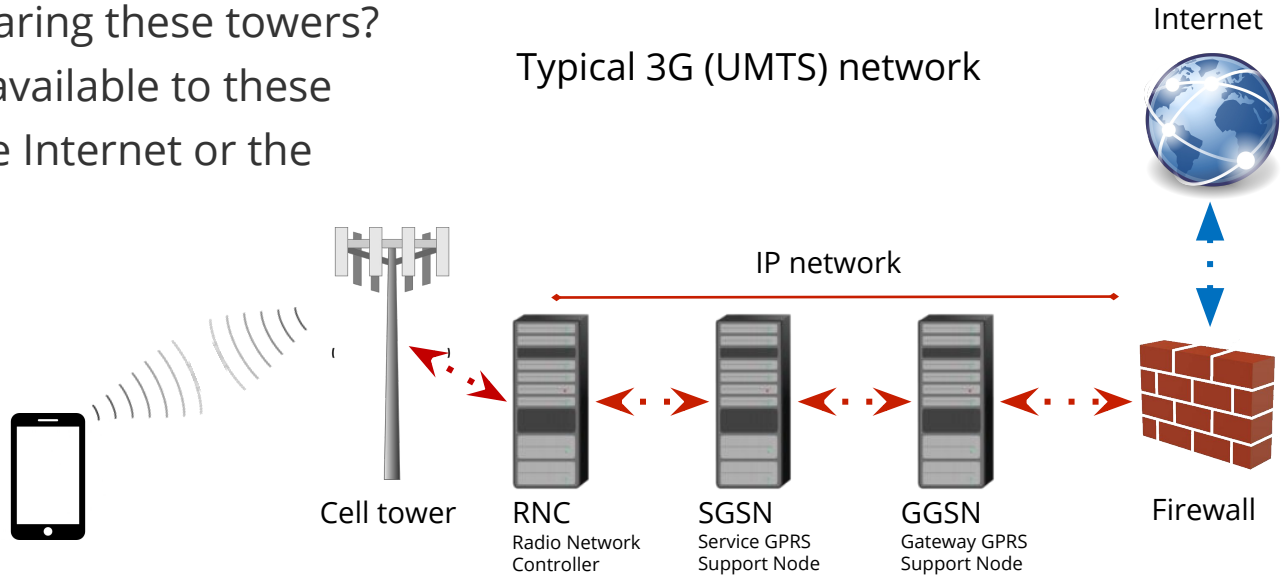
- Long-term Evolution (LTE) is the latest commonly deployed standard
  - 10 times faster than 3G
  - 30 countries have more than 80% of 4G availability
    - Only 5 of them have speeds over 40 Mbps
  - But it is **NOT** everywhere!
    - Still around 50 countries without LTE

- Availability will increase
  - Don’t assume LTE is everywhere
  - And there are other factors are in play

Mobile Networks

How mobile networks work under the hood?

- How many cell phone towers are in the vicinity?
- How many users are sharing these towers?
- What is the bandwidth available to these towers to connect to the Internet or the carrier's network?



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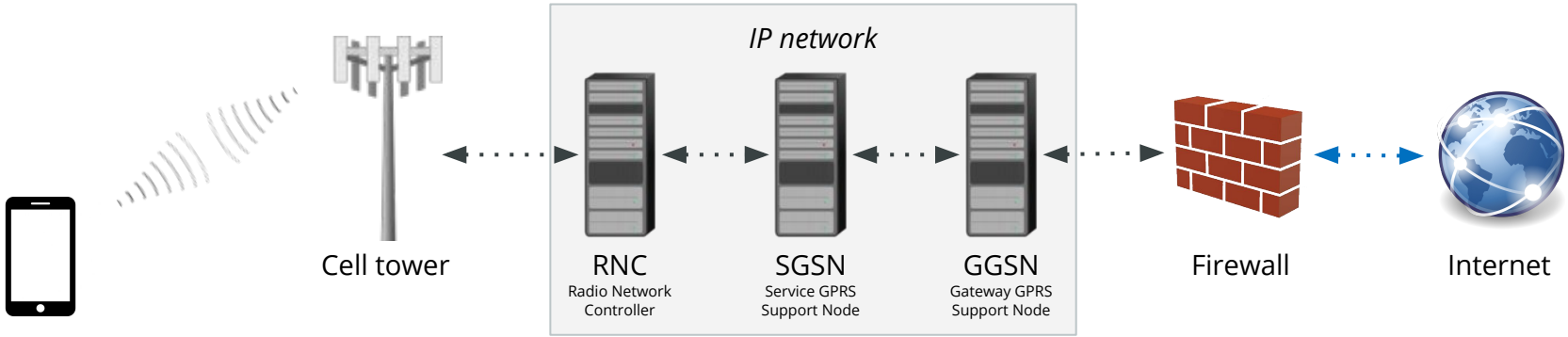
Mobile Networks

How mobile networks work depends on...

- How many cell phone towers are in the vicinity
- How many users are sharing these towers
- How much **bandwidth** is available for the towers to connect to the Internet or the carrier's network



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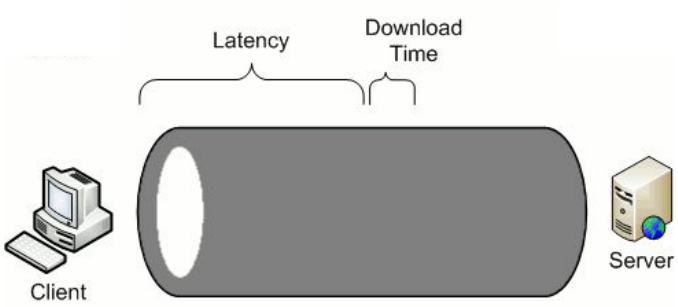
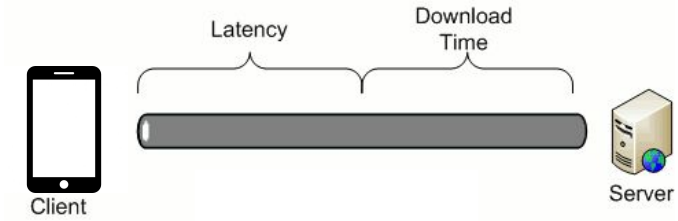
Network latency

LATENCY
function of the electrical circuits



Desktop
20 – 150ms
80 ms



Mobile
50 – 550ms
350 ms

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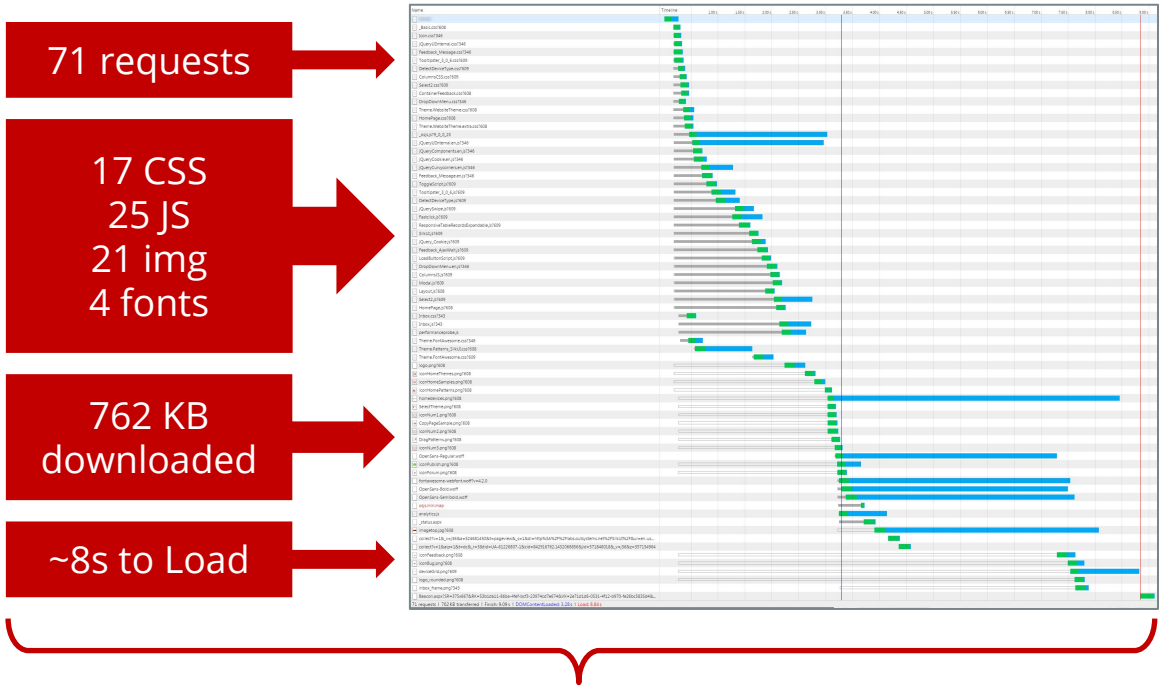
Requests per Page

How many requests are made to the server for a typical web app?

- The biggest hurdle!
- Number of requests to the server should be much smaller than in web apps



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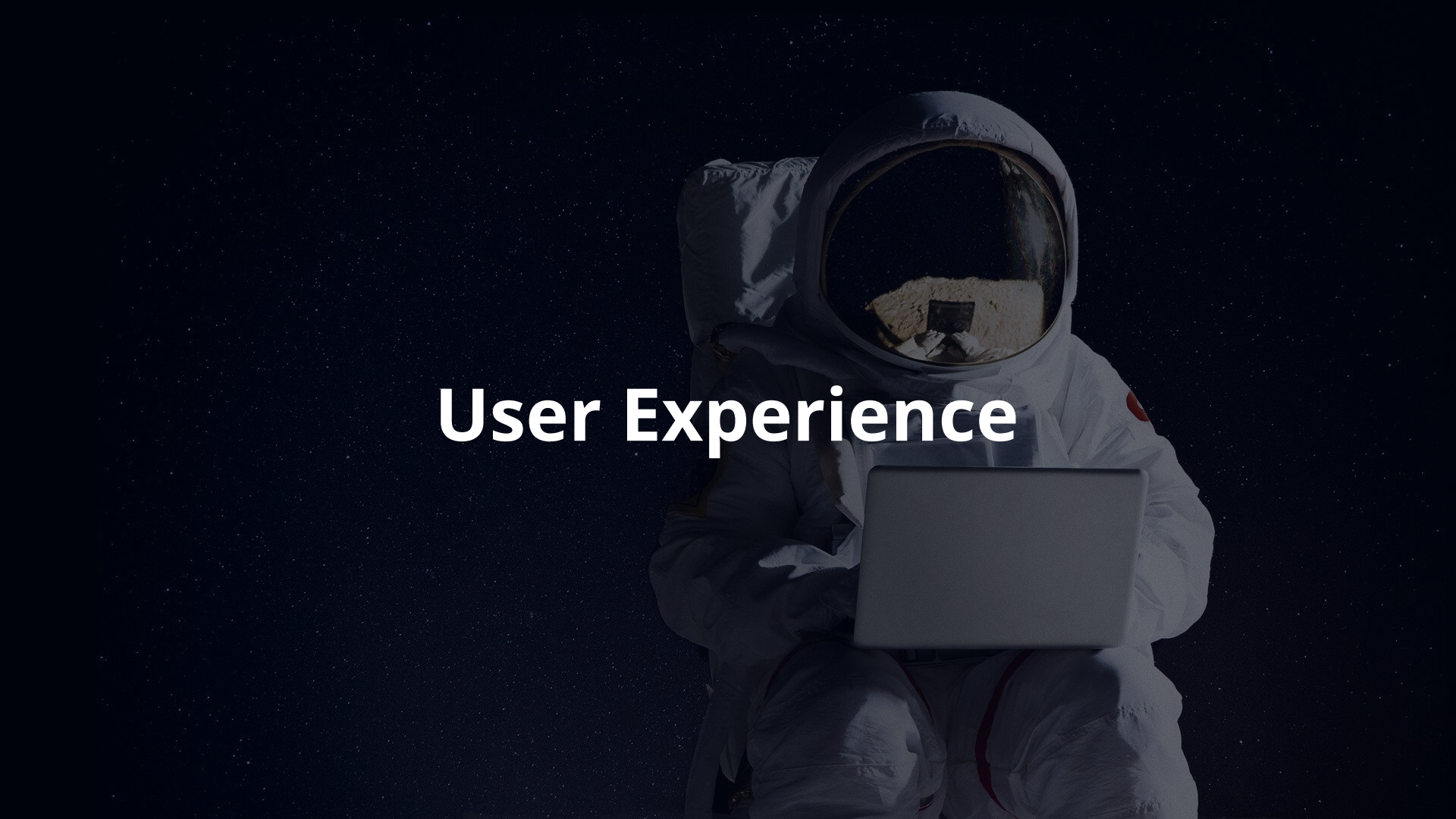
User Experience



Many mobile apps fail, why?

- Lack of consistency
- Slow to change and adapt
- Poor strategy
- Brand recognition
- Keep it simple
- Building mobile customer engagement
- Not enough Marketing
- Incompatible User Experience
- Not considering the complete journey
- Not solving a real world problem
- Not understand the target audience
- Not sure about the Mobile Platform
- Too many or too less features
- Making it too complex for the users
- Neglecting the backend support
- Not using App Optimization Techniques
- Failure listening to Users' Feedback

Source: Wired and Net solutions

Many mobile apps fail, why? UX related issues

- **Lack of consistency**
- Slow to change and adapt
- **Poor strategy**
- Brand recognition
- **Keep it simple**
- **Building mobile customer engagement**
- Not enough Marketing
- **Incompatible User Experience**
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- **Failure listening to Users' Feedback**

Source: Wired and Net solutions

App design is very important

- **Any place, any time**

Mobile phones are **portable**

↓

portable = interruptible

↓

attention is fragmented

↓

sessions are short

↓

Users have **attention span** equivalent of a **6 years old**

Source: image from Mobile Input and text from Mobile User Experience: Limitations and Strenghts

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Interacting with devices: Where? When?

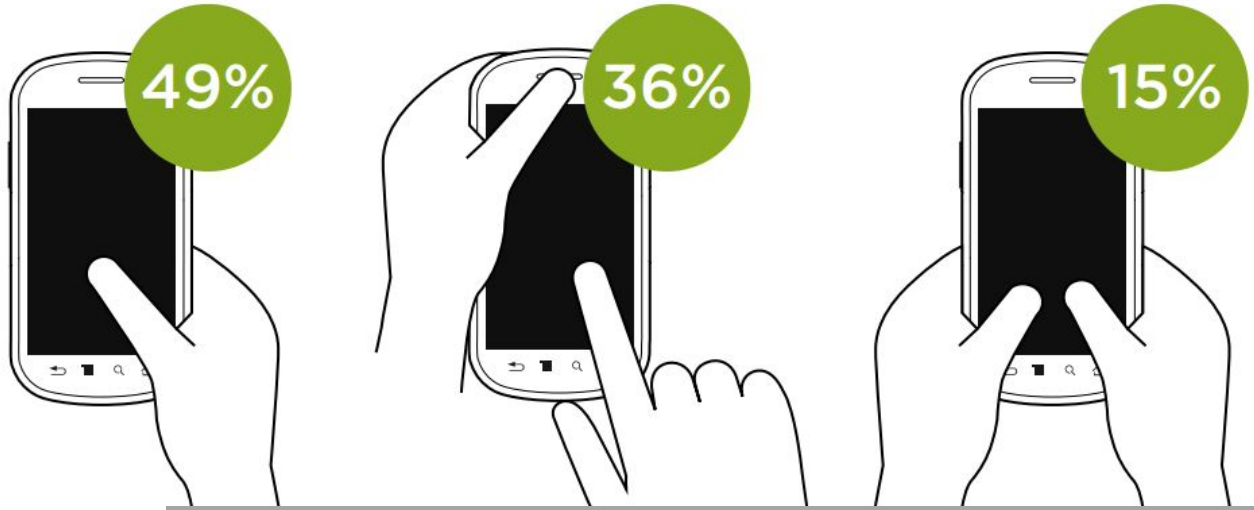
- Any place, any time

Interacting with devices: How?

- Any place, any time
- **Used with hands**

Interacting with phones

- Any place, any time
- **Used with hands**



1,333 observations of people using mobile devices on the street

Source: Read and Write in Mobile

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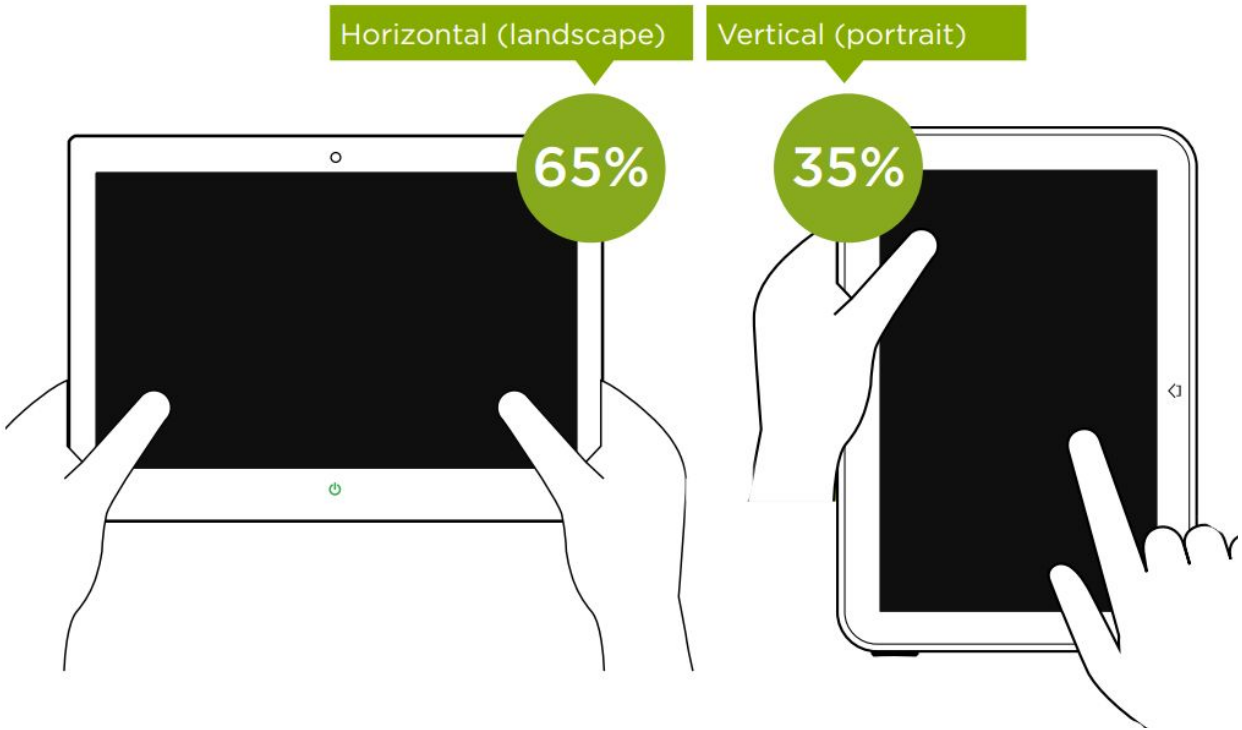
Interacting with tablets

- Any place, any time
- **Used with hands**



Source: Read and Write in Mobile

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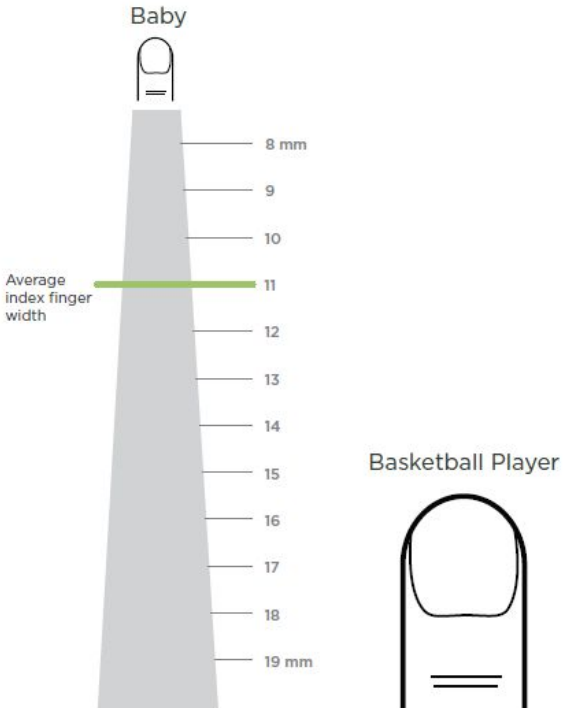
Interacting with devices: Hands? Not exactly

- Any place, any time
- **Used with hands**

Fingers are the selector

- Any place, any time
- **Used with ~~hands~~ big fat fingers**



Source: Design for Touch

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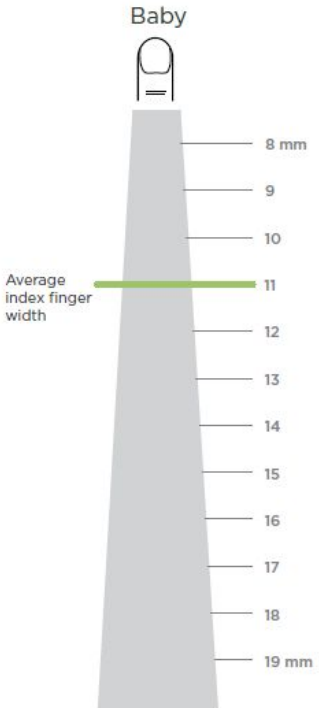
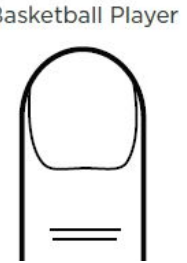
Fingers are NOT small or precise

- Any place, any time
- **Used with ~~hands~~ big fat fingers**

7 mm = 40 pixels

2 mm padding (10 pixels) between targets





Source: Design for Touch

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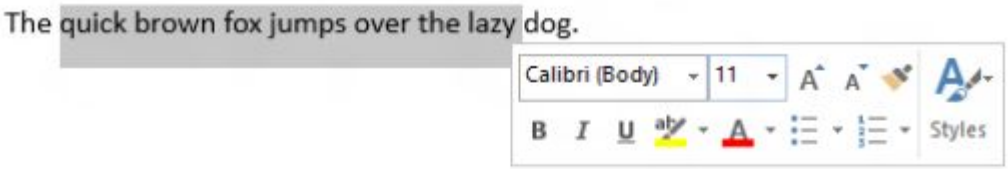
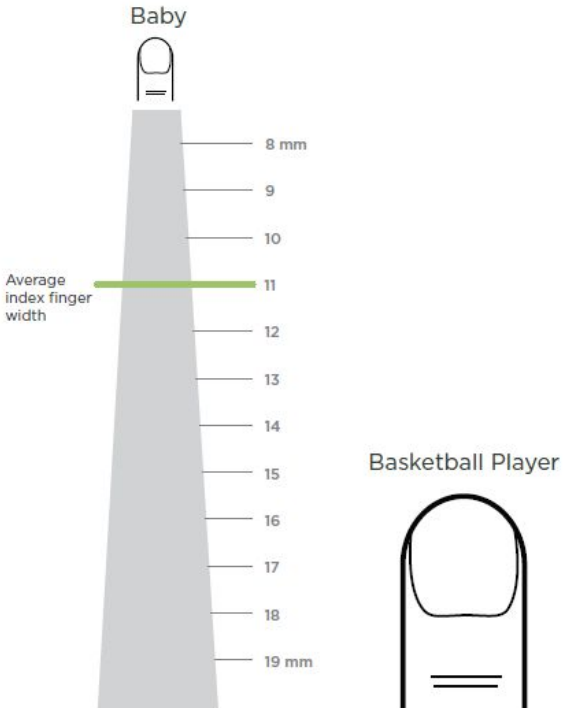
Typical User Interfaces are small

- Any place, any time
- **Used with ~~hands~~ big fat fingers**





Source: Design for Touch

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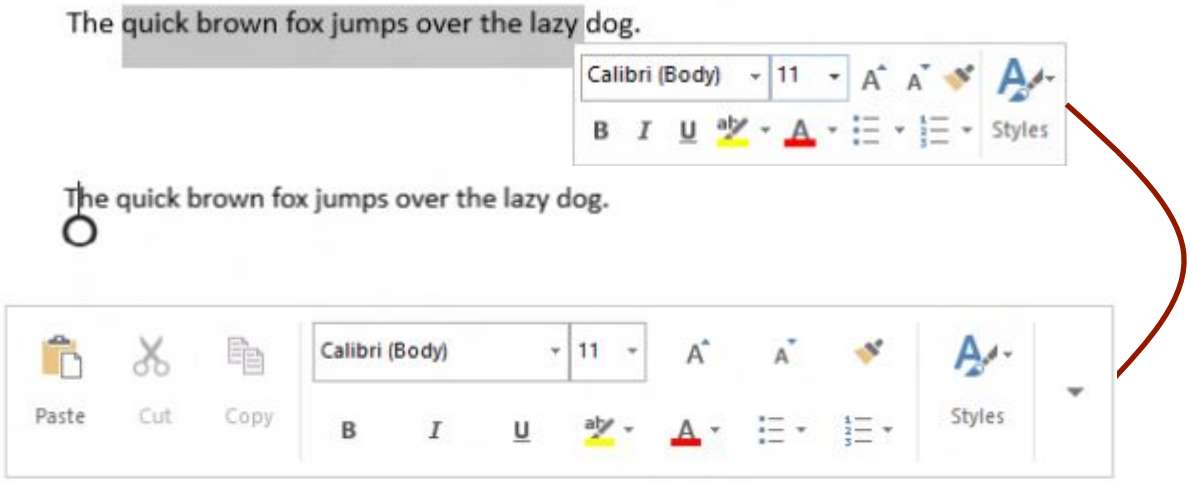
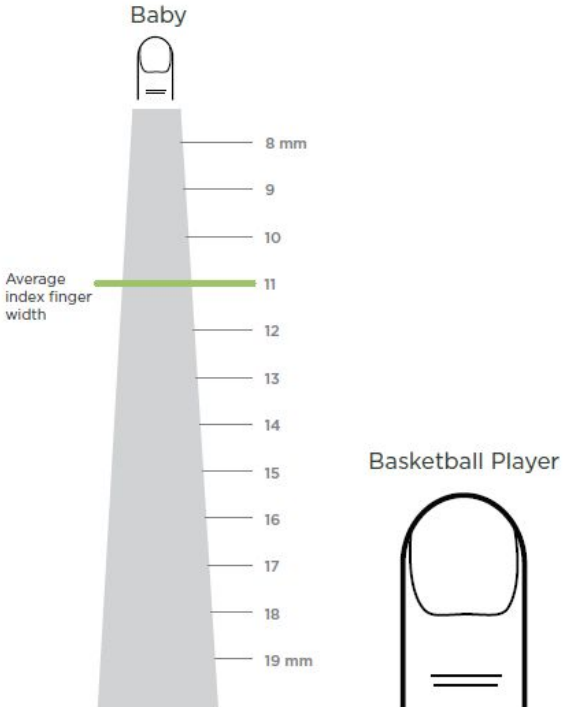
Design interfaces for touch

- Any place, any time
- **Used with ~~hands~~ big fat fingers**





Source: Design for Touch

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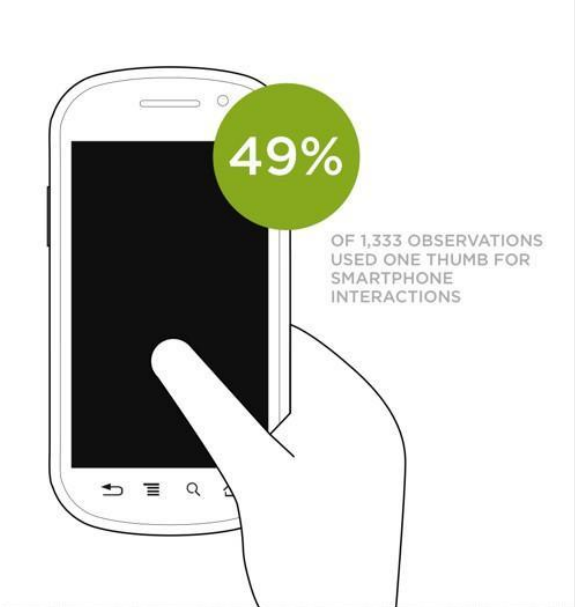
Reachability with thumb

- Any place, any time
- **Used with ~~hands~~ big fat fingers**



Source: How to design for thumbs

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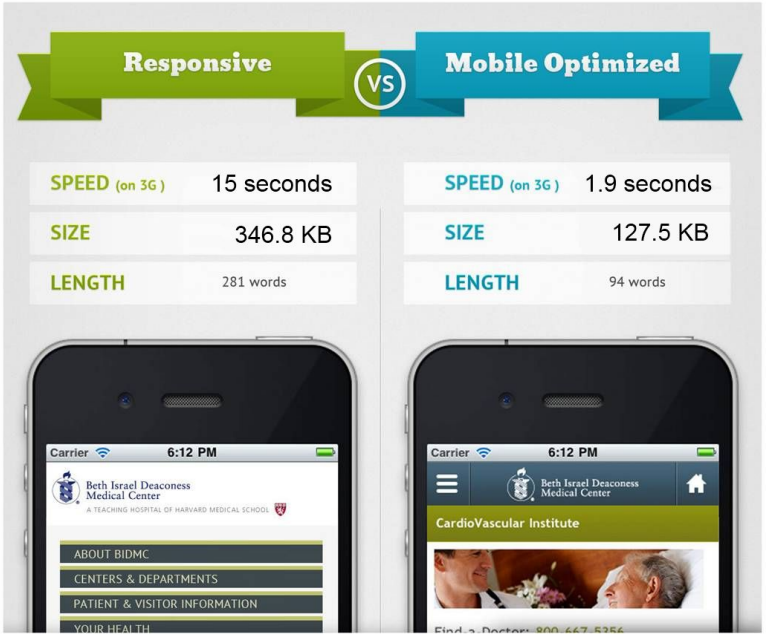
Responsive Web Design (RWD) or Mobile

- Any place, any time
- Used with ~~hands~~ big fat fingers
- **RWD is not always the right answer**

"responsive web design isn't intended to serve as a replacement for mobile web sites"

Ethan Marcotte



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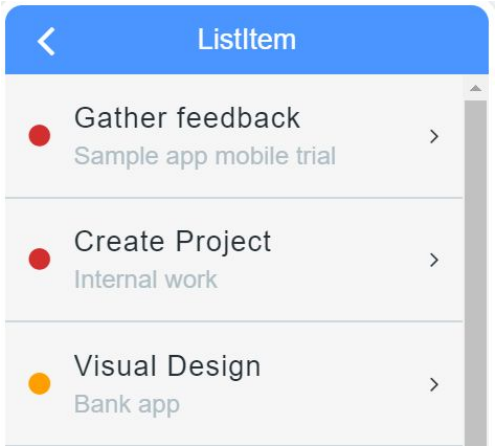
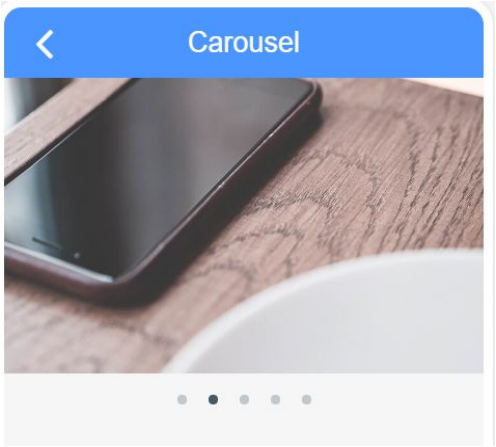
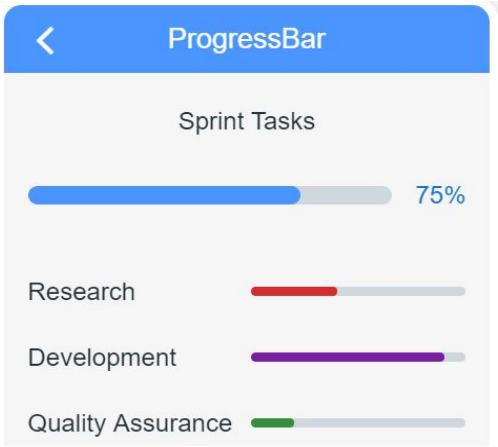
Mobile patterns have emerged

- Any place, any time
- Used with ~~hands~~ big fat fingers
- RWD is not always the right answer
- **Use known mobile patterns**







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Different types of Apps

- Any place, any time
- Used with ~~hands~~ big fat fingers
- RWD is not always the right answer
- Use known mobile patterns
- **Personal vs. Work apps**

B2C apps

- Customer oriented apps
- Distributed in public stores
- Needs lot of UX/UI investment

B2E apps

- Enterprise apps
- Distributed internally
- Only used by Employees
- Can have less investment in UX/UI
  (typical assumption)

BYOD Policy

- Any place, any time
- Used with ~~hands~~ big fat fingers
- RWD is not always the right answer
- Use known mobile patterns
- **Personal vs. Work apps**

BYOD Policy

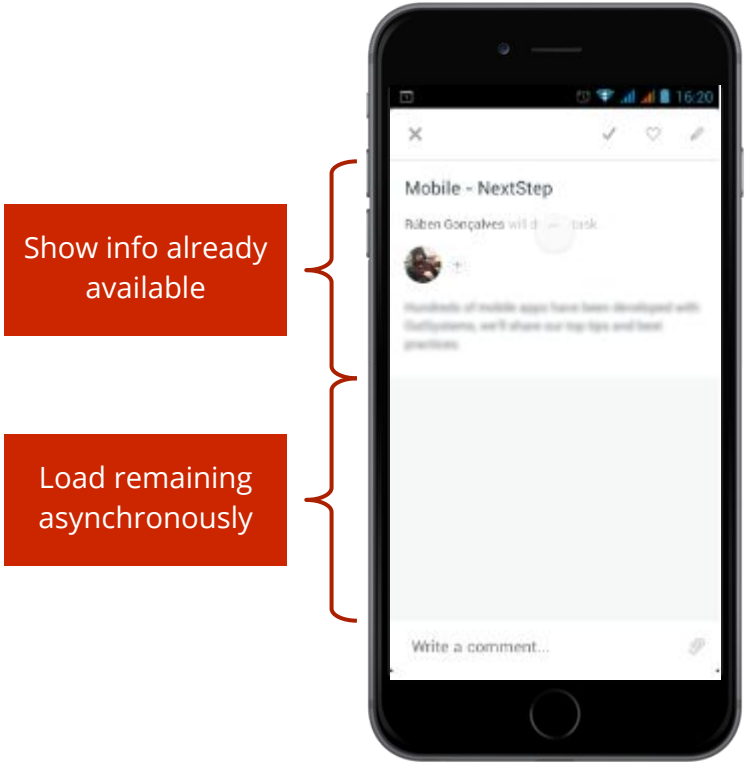
User’s device will have B2E and B2C apps installed

Comparison and high expectations are inevitable

Design for perceived performance

- Any place, any time
- Used with ~~hands~~ big fat fingers
- RWD is not always the right answer
- Use known mobile patterns
- Personal vs. Work apps
- **Design for perceived performance**

How quickly a software feature **appears** to perform its task



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Summary

- Designing mobile apps
  - Mobile devices are personal
  - Mobile devices interactions
- Mobile device capabilities
  - Hardware capabilities
  - Mobile networks
- Mobile user experience
  - Expectations are high, but attention may be low
  - Apps are experienced through touch
  - Mobile first


Mobile Design
Considerations
Thank You!