Mobile UI

Cross-Platform Application Development
How Usability Has Shaped the Mobile UI

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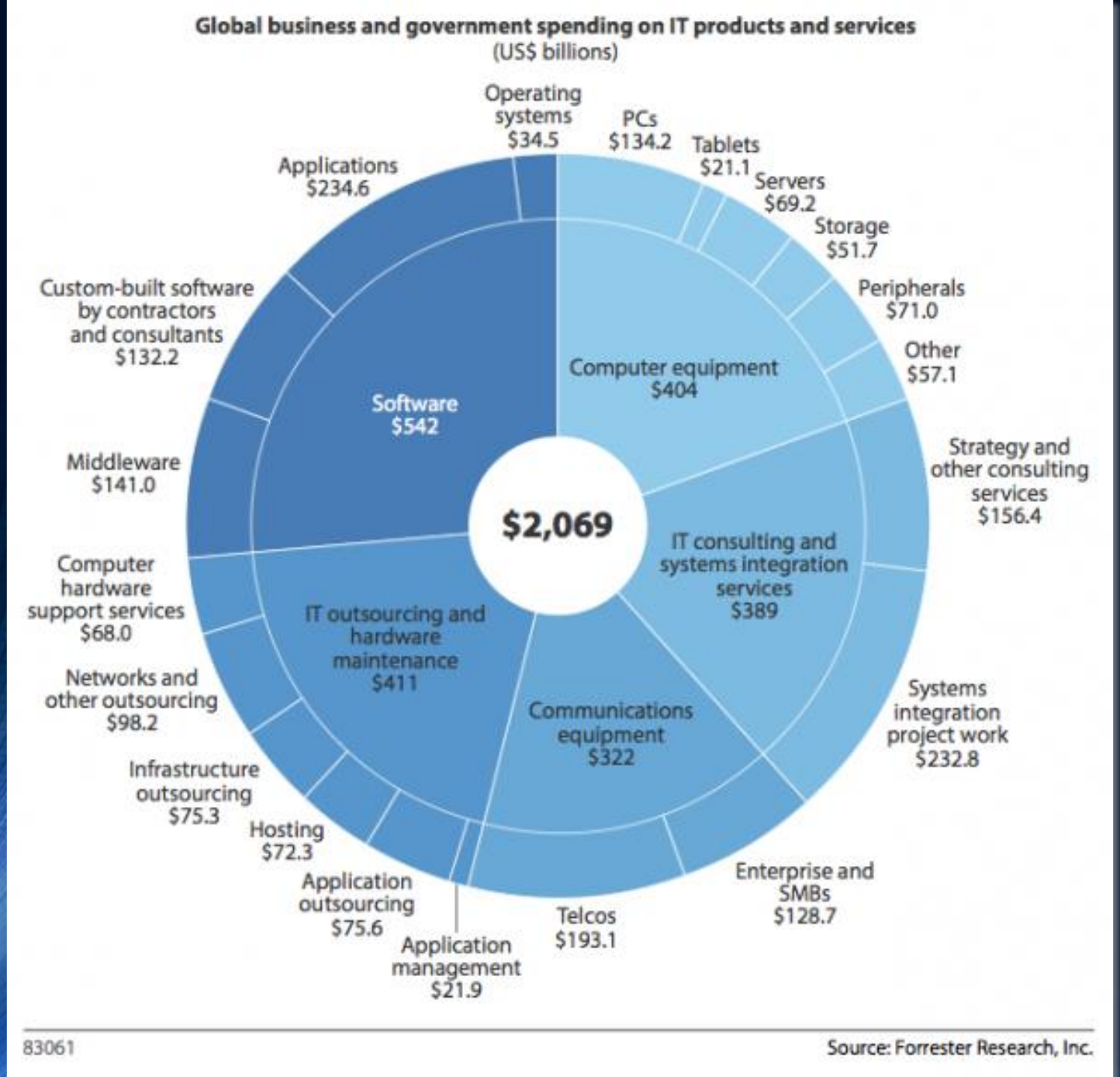
Mobile Computing

- Mobile devices account for ~ 30% of web traffic
- Mobile traffic up 80%+ YoY
- Mobile traffic in 2013 was 18x **total** traffic in 2000
- Smartphones still the biggest growth driver for Internet traffic
- Apple App Store revenue $10+ **billion** in 2013, Google ~ $4 **billion**



2013 IT Spending Estimates

Software is the largest component of IT spending

Mobile Application Development – Resource Demand

- Salary national average of $100k - $144k in 2014
- Compensation growth rate of 8% annually
- Fastest growing segment of Technology employment

Job Title	2013	2014	% Change
Administration			
Chief Information Officer (CIO)	$145,500 - $234,750	$153,000 - $246,750	5.1%
Chief Technology Officer (CTO)	$125,500 - $195,500	$132,250 - $205,750	5.3%
Chief Security Officer (CSO)	$119,750 - $179,250	$126,750 - $189,750	5.9%
Vice President of Information Technology	$127,750 - $186,500	$134,750 - $196,750	5.5%
Information Technology Manager	$ 94,000 - $135,000	$ 99,000 - $142,250	5.3%
Applications Development (a)			
Manager	$ 95,250 - $135,000	$100,500 - $142,250	5.4%
Project Manager	$ 83,500 - $124,000	$ 88,500 - $131,500	6.0%
Systems Analyst	$ 72,500 - $103,500	$ 76,250 - $108,750	5.1%
Applications Architect	$103,750 - $140,500	$109,750 - $148,750	5.8%
Business Systems Analyst	$ 71,000 - $103,250	$ 75,500 - $109,750	6.3%
CRM Business Analyst	$ 76,000 - $103,500	$ 80,000 - $109,000	5.3%
CRM Technical Developer	$ 84,000 - $112,250	$ 89,500 - $119,750	6.6%
Developer/Programmer Analyst	$ 64,750 - $114,500	$ 69,250 - $122,750	7.1%
ERP Business Analyst	$ 79,250 - $109,250	$ 83,750 - $115,250	5.6%
ERP Technical/Functional Analyst	$ 85,250 - $118,250	$ 90,000 - $125,000	5.7%
ERP Technical Developer	$ 88,250 - $122,000	$ 94,250 - $130,250	6.8%
Lead Applications Developer	$ 94,000 - $130,000	$ 99,750 - $137,750	6.0%
Mobile Applications Developer	$ 92,750 - $133,500	$100,000 - $144,000	7.8%
Technical Writer	$ 51,250 - $ 81,000	$ 53,000 - $ 83,500	3.2%

How is Mobile Different?

- Mobile changes the way we ***think***
  - Device characteristics and constraints
    - Form factor
    - Touch input
    - Screen size
    - Low bandwidth
    - Environment and expected usage
  - Mobile = Desktop (and vice versa)
    - Mobile interactions are different
- Mobile changes the way we ***live***
  - Convenience, immediate feedback and results
  - Mobile contexts and differences require different UI design

These differences define **Mobile Usability**

Early Mobile Problems (Pre iPhone)

- Traditional UI (web) did not translate
- Mobile 2004 = Desktop 1996
- Initial success rates < 40%
  - Painful load times
  - Impossible-to-touch targets
  - Restricted content (flash, image maps)
  - Scrolling, bloated pages

Early Mobile - iPhone

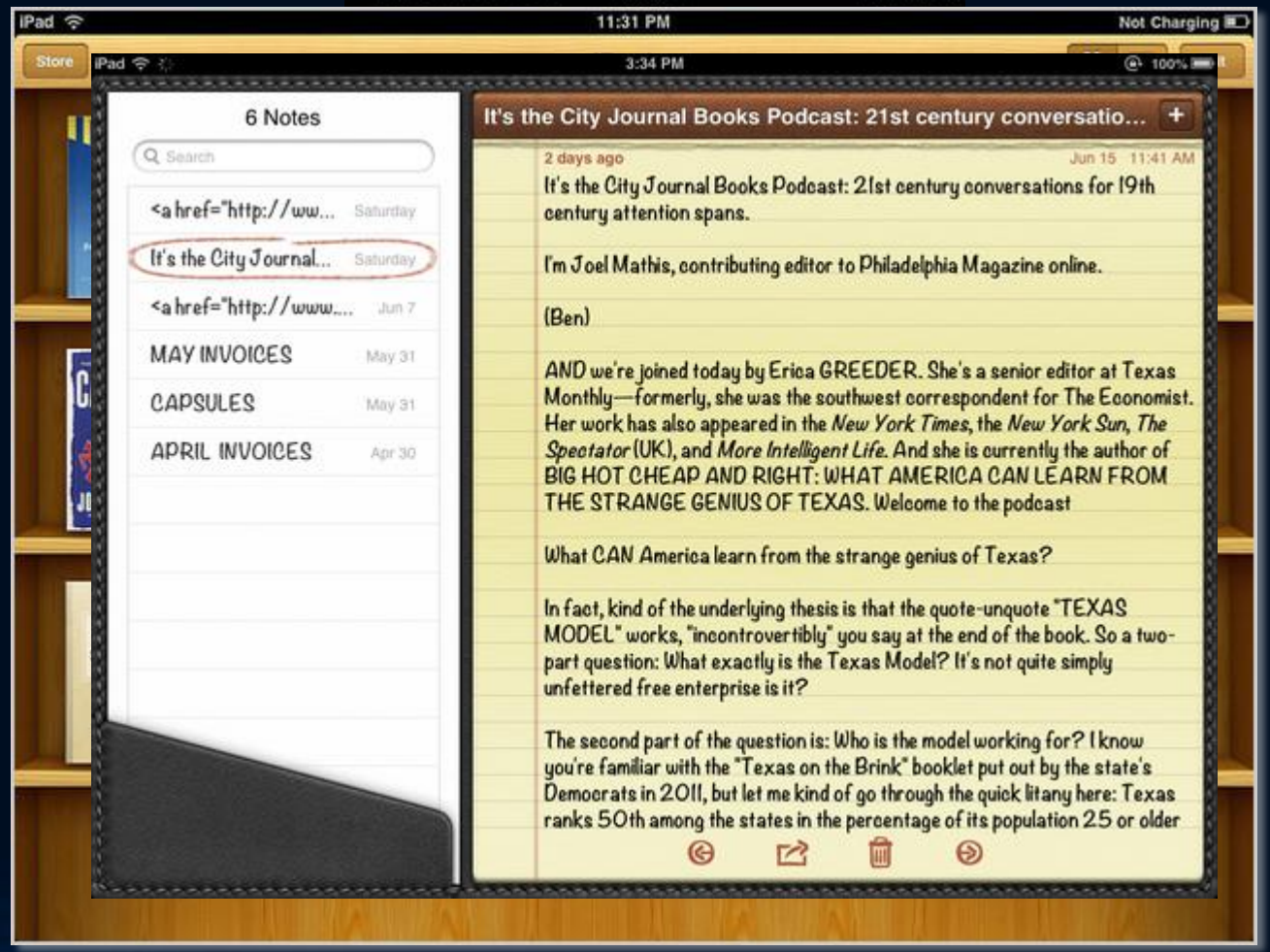
- First mobile device that attempted to specifically address mobile UI differences
  - Touch screen (swipe, pinch)
  - Large touch targets
  - Zooming, scrolling
  - Emphasis on affordances
  - Attention to detail

We're calling it… iPhone

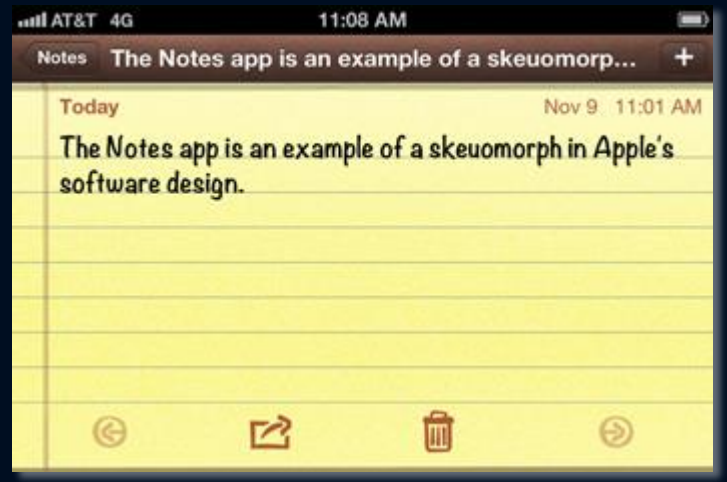
Mobile UI Design – Skeuomorphism

UI takes design cues from a similar object that exists in the real world

- Can make the UI more "relatable", provides several affordances
- Worked well for a complete new UI and device
- Provides an opportunity for beautiful design detail
- Gloss, shine, depth and light
- Emphasis on chrome



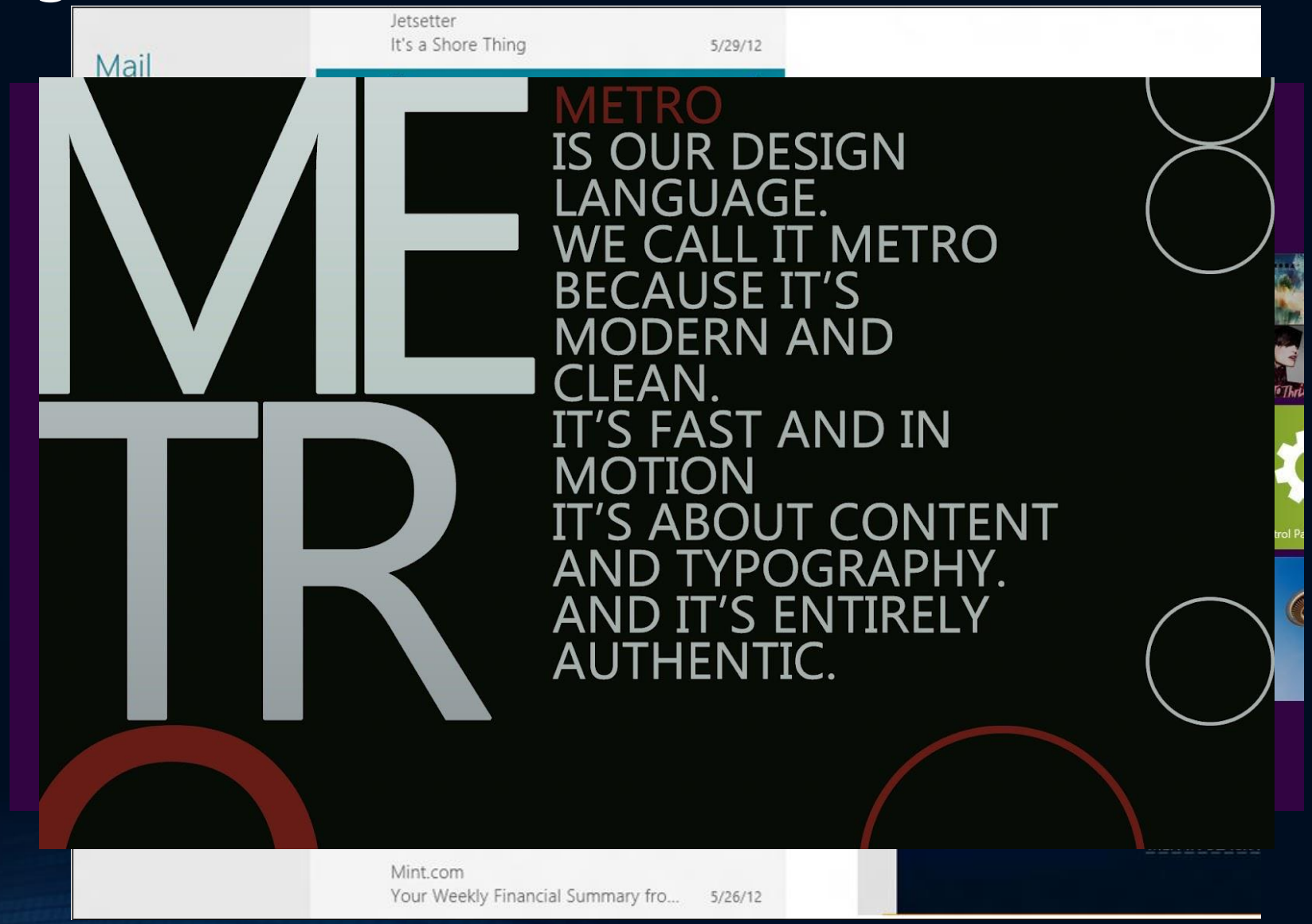
Skeuomorphism Problems



- Distracting
  - Chrome may be more detailed (beautiful) than the content
- Navigation difficulties
  - More difficult to tell what is "clickable"
- Not always a clear relationship between the UI and the real object
  - Skeuomorphic breakdown
- Typography

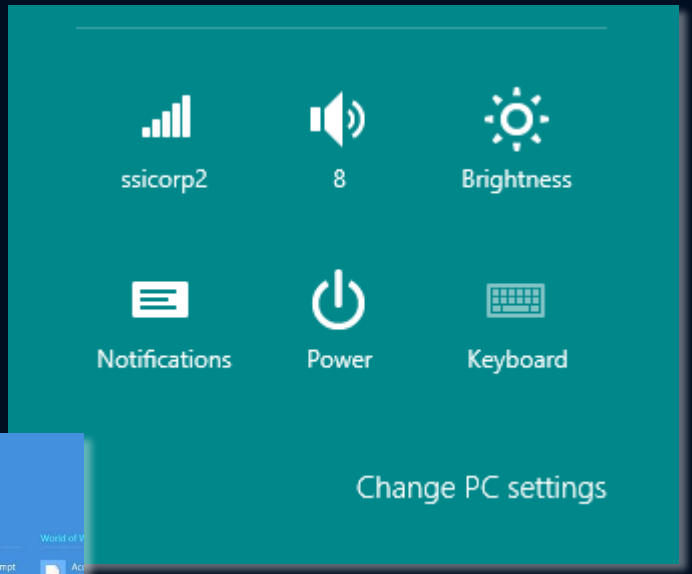
Mobile UI Design – Metro

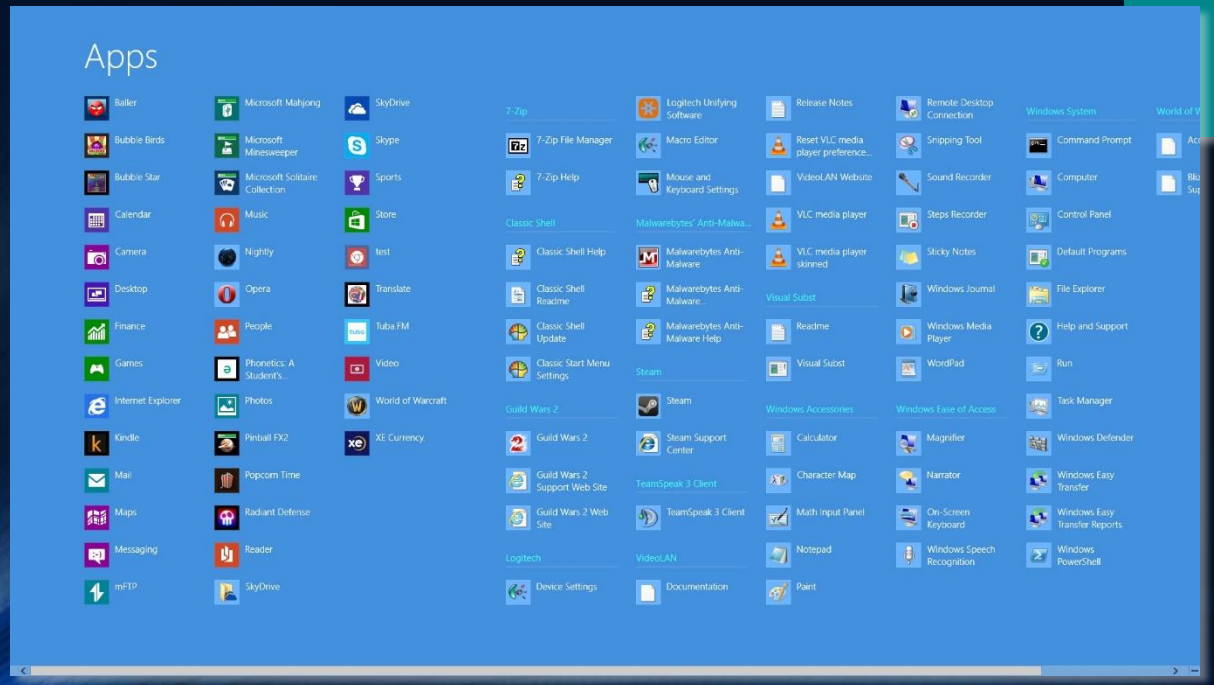
- "Content over Chrome"
- Attempt at clarity, to aid in visual "scanning"
- Emphasis on typography, content
- "Flatter" de-emphasized chrome
- Square, whitespace, and flat are okay
- High contrast colors for content



Metro Problems

- Fewer affordances
- Loss of information scent
- Applied to desktop



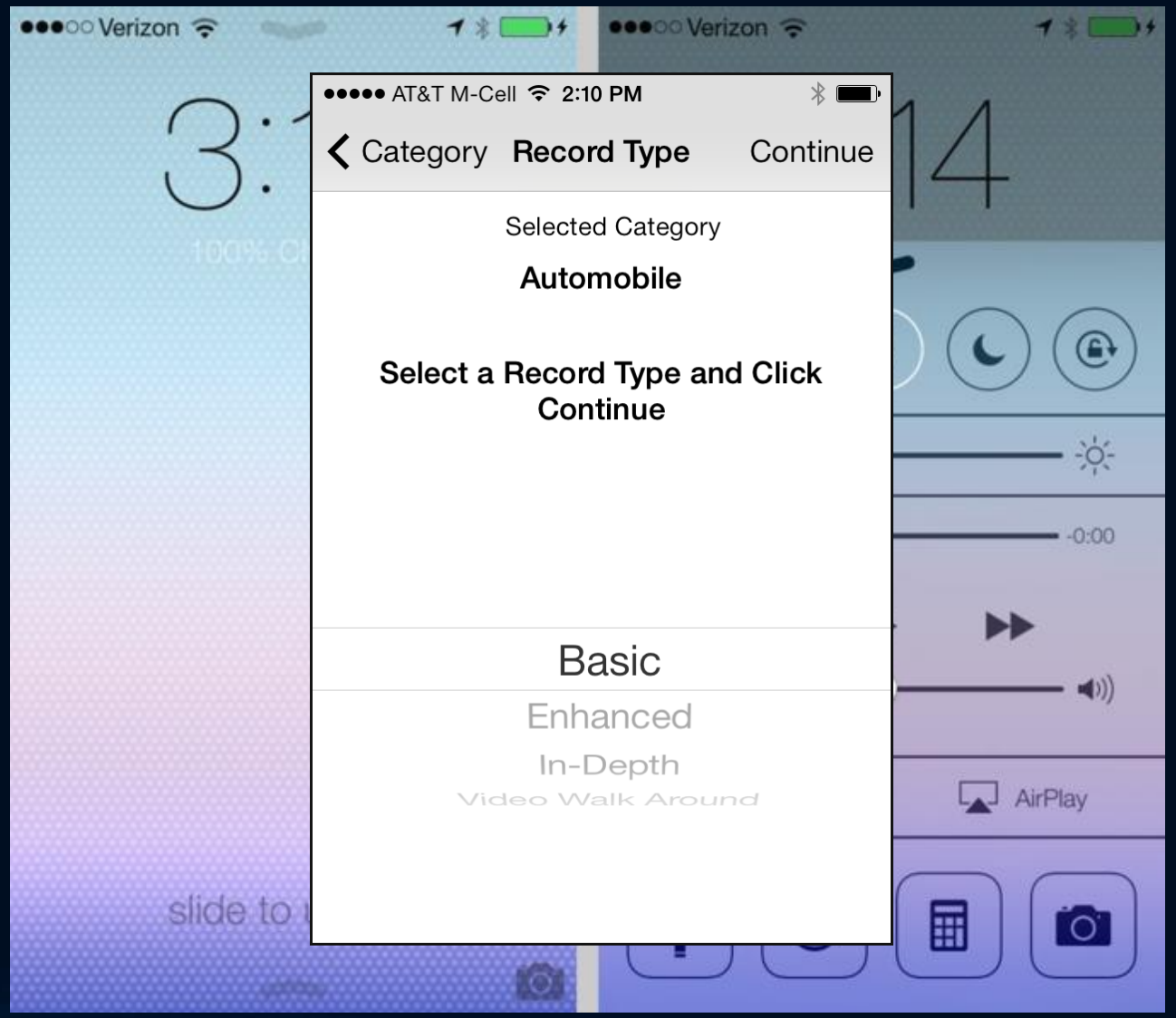


Mobile UI Design – iOS 7

- Chrome de-emphasis, loss of Skeuomorphism
- Attempt to clarify content, aid scanning
- Bolder, meaningful colors (contrast)
- Larger typography
- Attempt to add in information scent

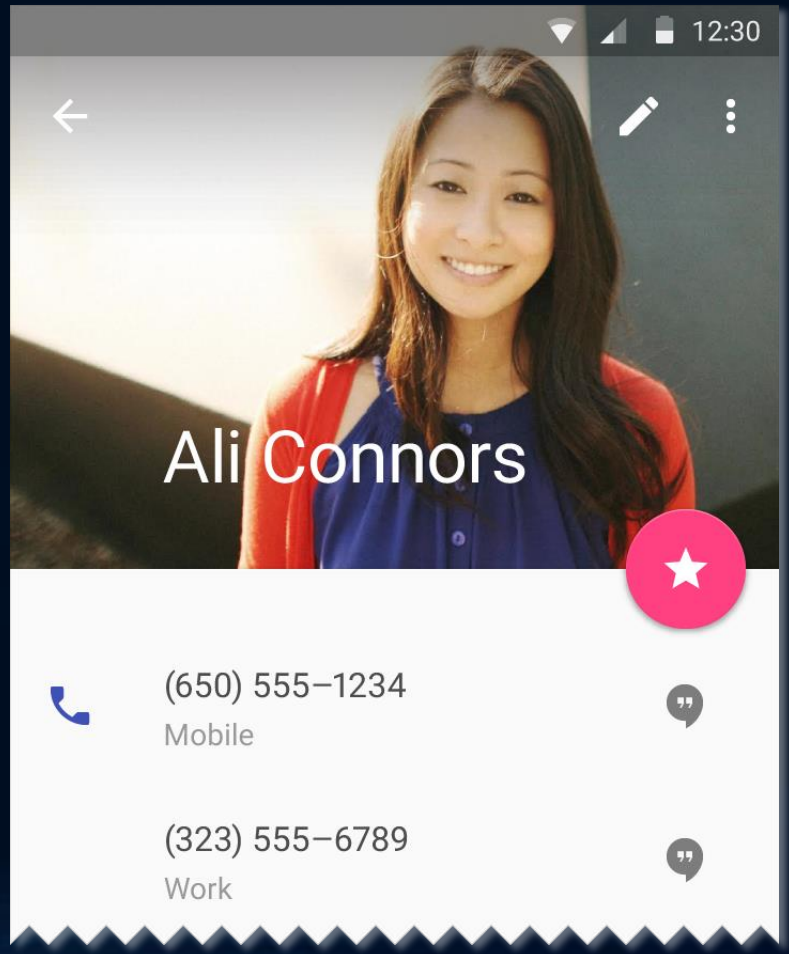
iOS7 Problems

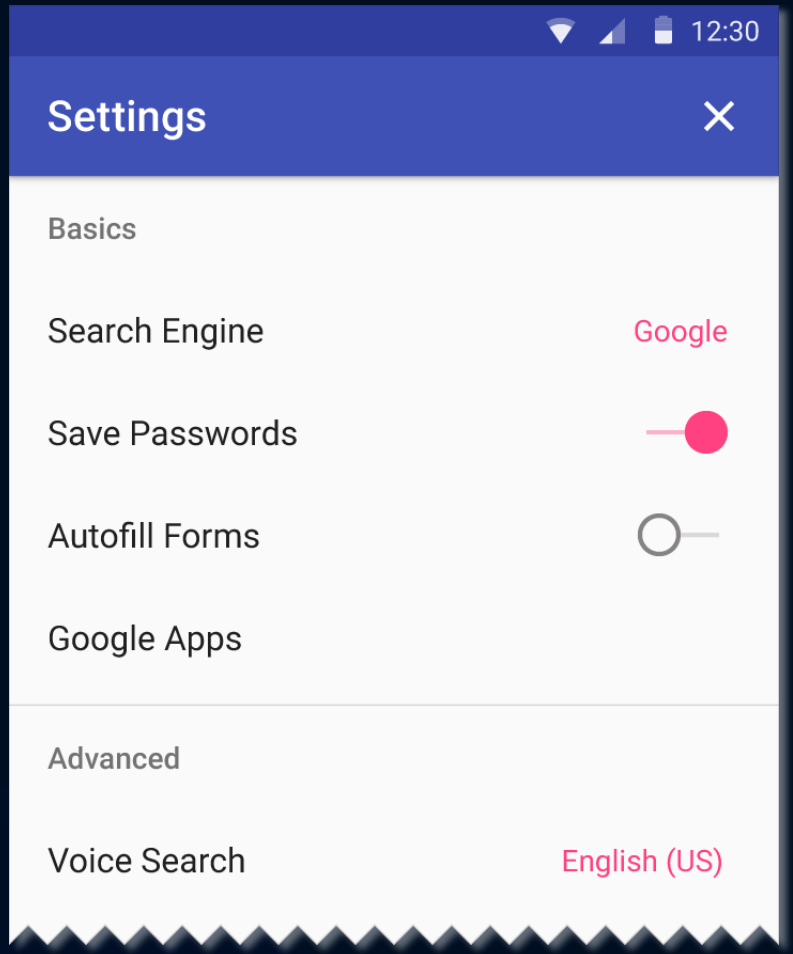
- Loss of some affordances
- Loss of some information scent
- Inconsistent use of color (developers)
- Inconsistent fonts



Mobile UI Design – Material Design

- Google's update 2014
- Follows iOS 7 & Metro
- Adds "depth" to elements: **Flat 3d**
- **Animations** to add information scent
- "Paper" surface returns some affordances





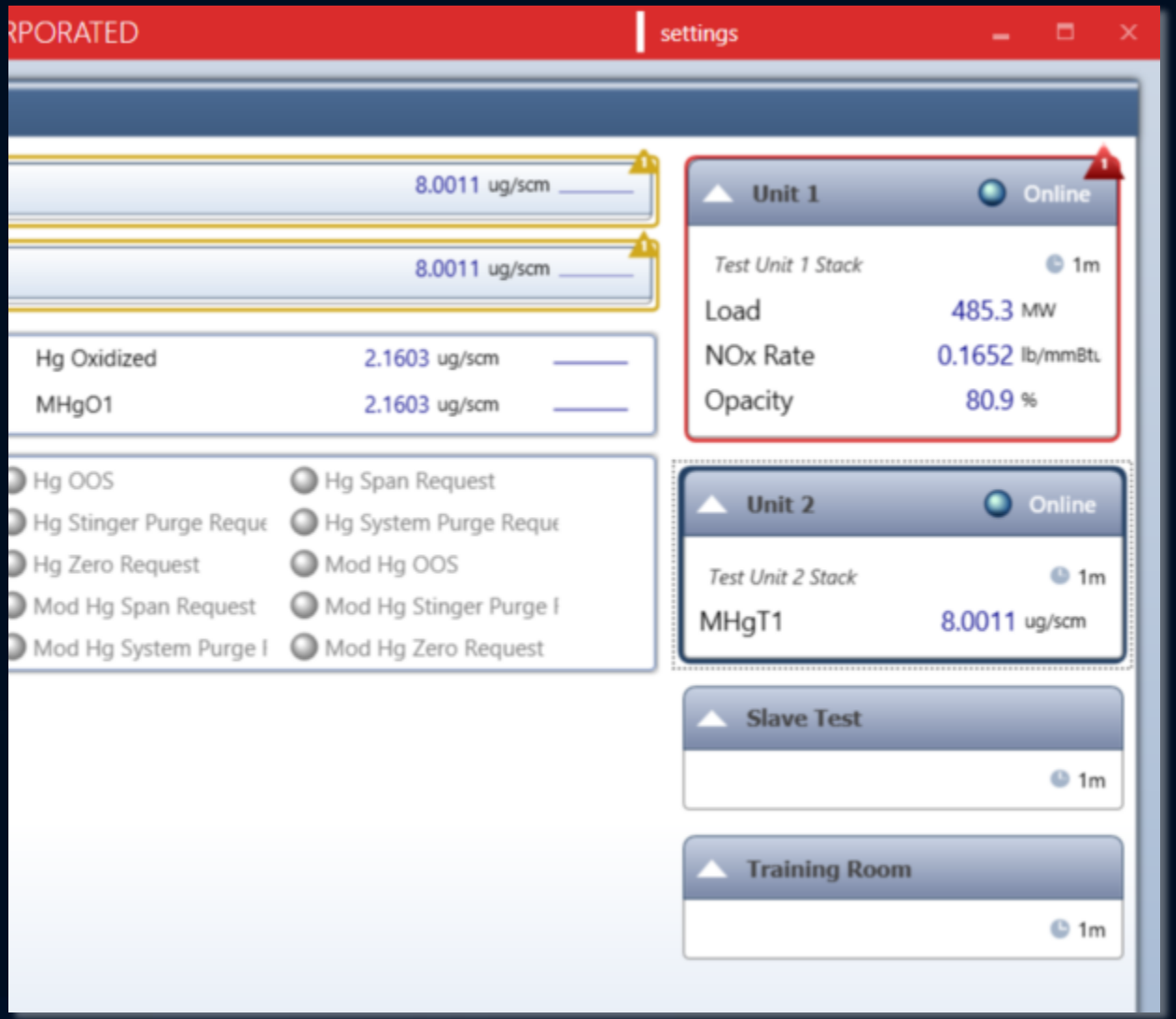
Material Design Example: Instagram Concept

This a concept by Emmanuel Pacamalan

UI Design – HPHMI

High Performance Human Machine Interface

- Used to convey large amounts of information in as little space as possible
- Everything should have **visual** meaning
- Primarily used in control systems



Mobile UI Design – Best Practices

- Follow your target OS guidelines where possible
- Avoid un-necessary UI elements (chrome)
- Colors have meaning -- use them sparingly and on-purpose
- Optimize for your device and expected use
- Provide affordances, information scent, and feedback
- Design for quick, efficient use, your app is not the most important!

Mobile UI Design – Don'ts

- Excessive elements or uniform text (prevents scanning)
- No navigation or non-layered navigation
- Inconsistencies
- Up-front registration or instructions
- Reduced functionality
- Never use un-expected sound
- Don't ask the user for too much

Mobile App Design – Cross Platform

- Must stress UI / UX
  - The most important factor in retention
- "Hybrid" apps
  - May be an option for smaller cross-platform applications
- Cross platform toolkits (Xamarin, Xamarin Forms, Cordova)
- Re-usable architecture / framework
  - Multi-layer architecture may allow some re-use

Mobile UI Future

- Animations bubble?
- Gestures
- Voice interaction
- TV, wearables, cars