Centurion: Internet Data Collection and Responsive Design

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Disclaimer: Any views expressed are those of the authors' and not necessarily those of the U.S. Census Bureau.

Background

- What is Centurion and why was it established?
  - A framework of reusable components for building web applications
  - Pre-2009: Decentralized Operations
    - technology, staff, infrastructure, design philosophy, security posture, etc.
  - 2009-Present: Centralization of Operations
    - Centurion (IT Directorate) - Corporate approach for all Internet data collections at the Bureau

Workload

- Current:
  - 70+ surveys in production
  - 30+ surveys currently in development
  - American Community Survey
  - Decennial census tests
  - TQA/CATI Components

Design Approach

- Best practices for coding applications following web standards (security, usability, 508, etc.)
  - Primarily aimed at desktop and laptop users
  - Still effective and functional on mobile devices (tablets, phones) but not screen optimized
- Most surveys are not designed “mobile first” at this point
  - Conversion is underway

Future Approach

- Information Technology Guiding Principles

Driving mobile-enabled operations

"As the American people transition to a mobile-centric society, the surveys we conduct … must be delivered in adaptable, mobile-friendly formats … that promote response. The Census Bureau must continue to innovate and provide new products and services that leverage the power and utility of mobile technology and use."

– U.S. Census Bureau Information Technology Guiding Principles

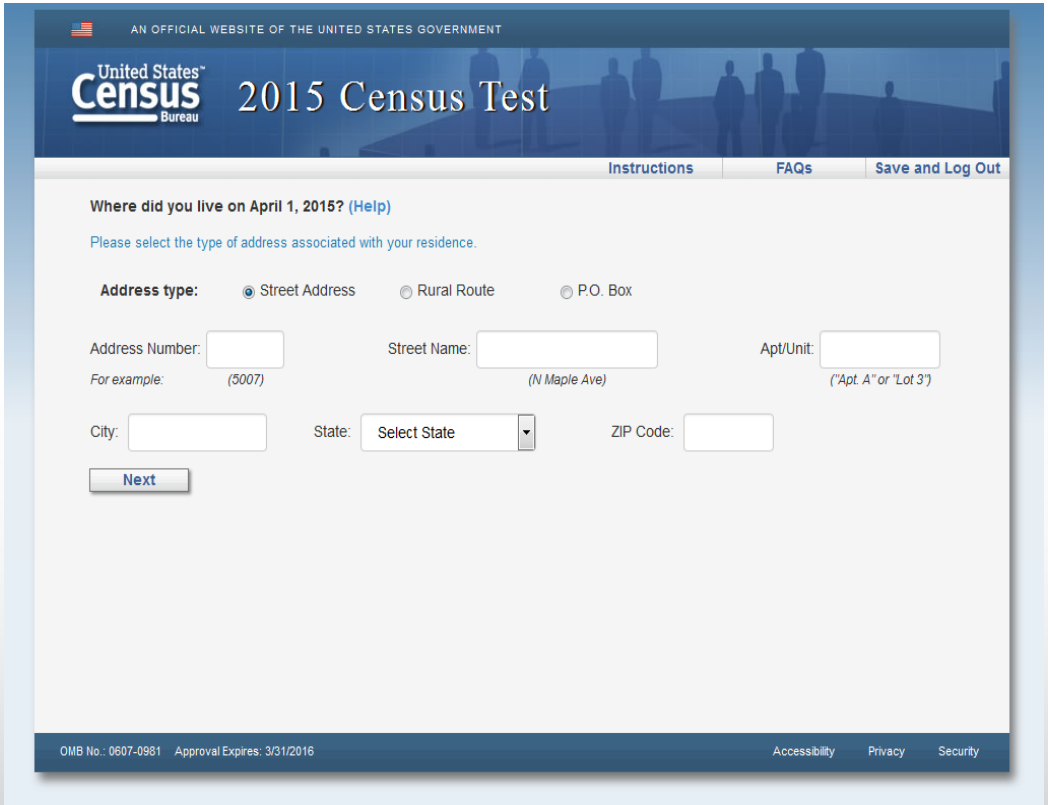
Mobile Web

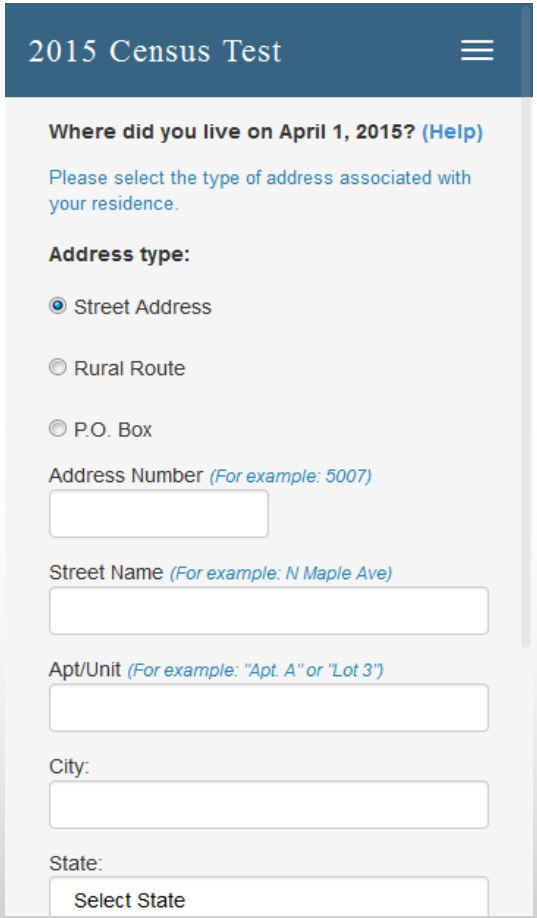
- **Approach:** Responsive web design: "… provide an optimal viewing experience—easy reading and navigation with a minimum of resizing, panning, and scrolling—across a wide range of devices (from desktop computer monitors to mobile phones)" - Wikipedia
- **Technology:** Bootstrap – Open Source HTML, Cascading Style Sheets(CSS), and Javascript(JS) framework for developing responsive, mobile first web applications/sites. (http://getbootstrap.com/)

Implementation and Challenges

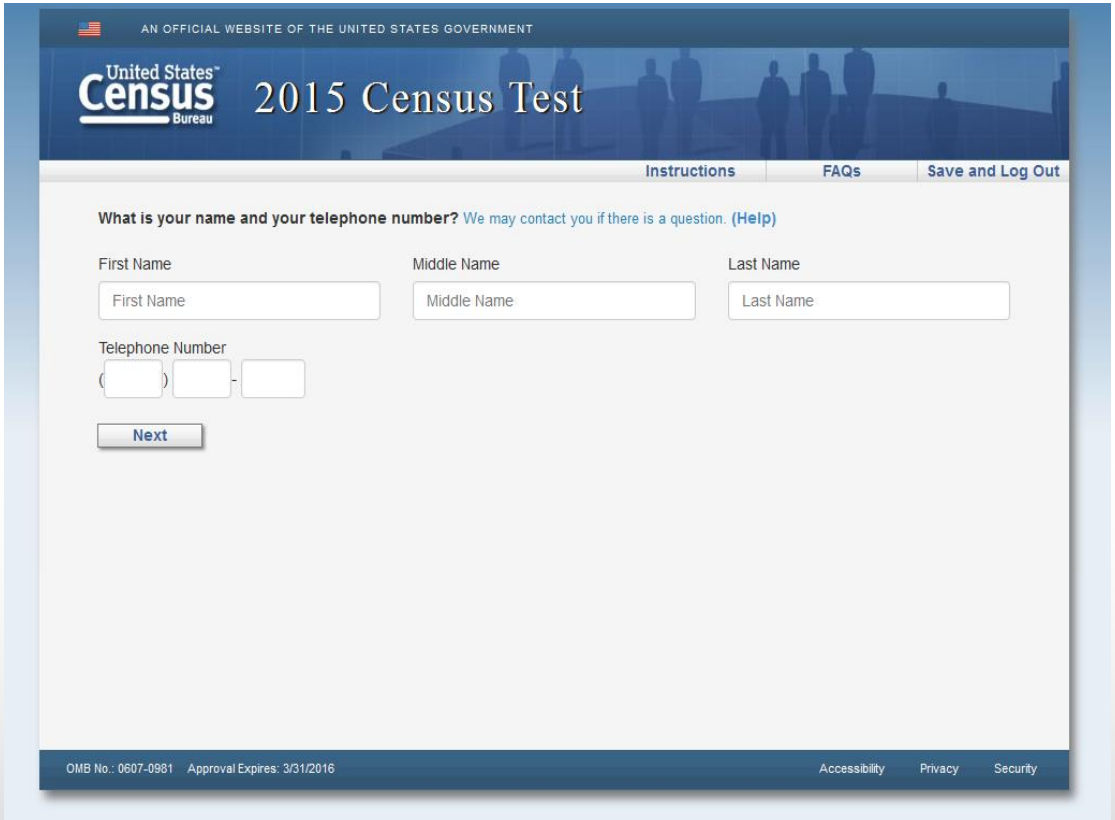
- 'Bootstrapping' the America Community Survey and the Decennial Census Tests
  - Current page layout is thrown away
  - Placement of page element
  - Add CSS for each possibility
  - Repeat above steps for each page
  - Test, test, and more testing

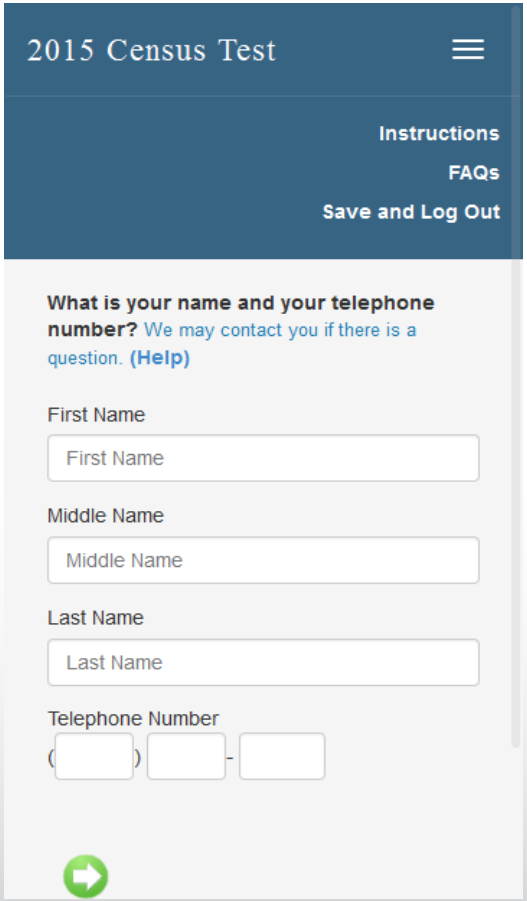
Examples


AN OFFICIAL WEBSITE OF THE UNITED STATES GOVERNMENT
United States Census Bureau
2015 Census Test
Instructions
FAQs
Save and Log Out
Where did you live on April 1, 2015? (Help)
Please select the type of address associated with your residence.
Address type:
Street Address
Rural Route
P.O. Box
Address Number:
For example: (5007)
Street Name:
(N Maple Ave)
Apt/Unit:
("Apt. A" or "Lot 3")
City:
State:
Select State
ZIP Code:
Next
OMB No.: 0607-0981 Approval Expires: 3/31/2016
Accessibility
Privacy
Security

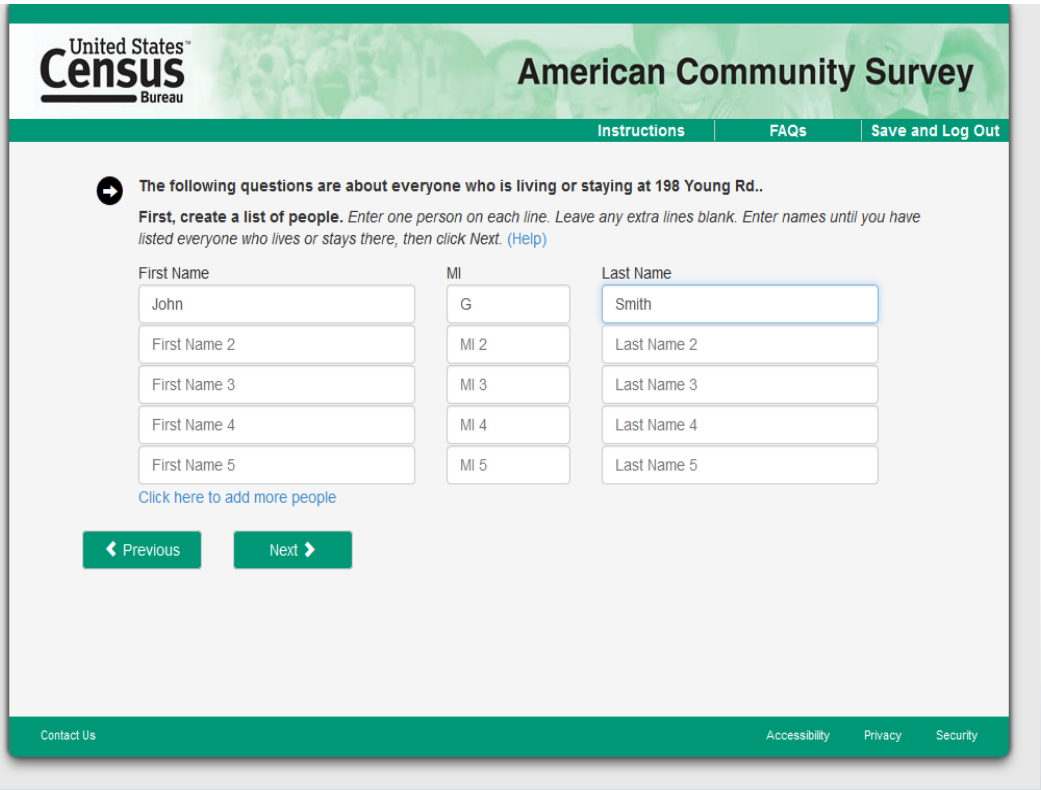

2015 Census Test
Where did you live on April 1, 2015? (Help)
Please select the type of address associated with your residence.
Address type:
Street Address
Rural Route
P.O. Box
Address Number (For example: 5007)
Street Name (For example: N Maple Ave)
Apt/Unit (For example: "Apt. A" or "Lot 3")
City:
State:
Select State

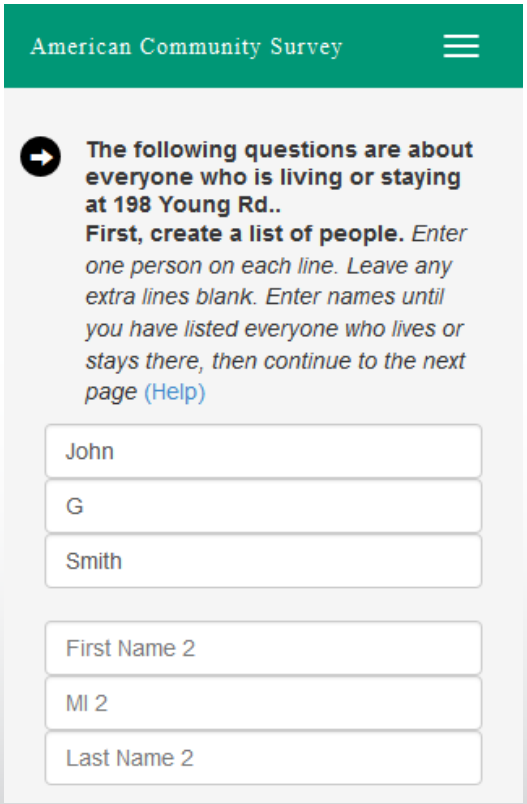
Examples


AN OFFICIAL WEBSITE OF THE UNITED STATES GOVERNMENT
United States Census Bureau
2015 Census Test
Instructions
FAQs
Save and Log Out
What is your name and your telephone number? We may contact you if there is a question. (Help)
First Name
Middle Name
Last Name
First Name
Middle Name
Last Name
Telephone Number
( ) -
Next
OMB No.: 0607-0981 Approval Expires: 3/31/2016
Accessibility
Privacy
Security

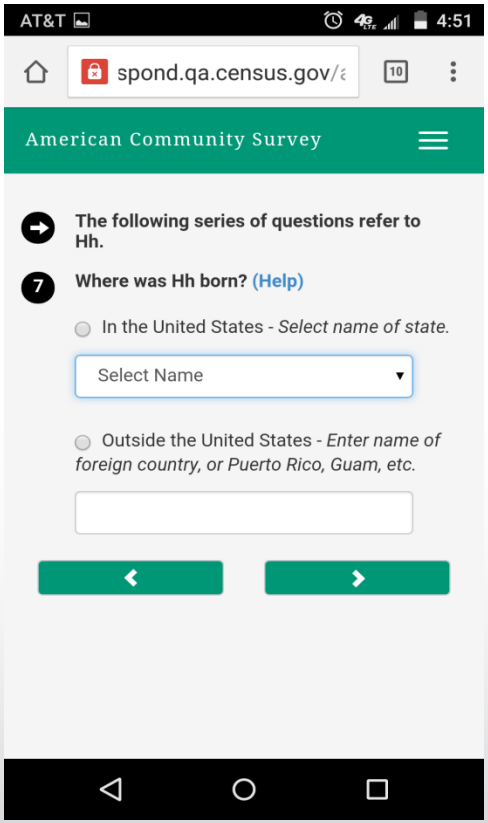

2015 Census Test
Instructions
FAQs
Save and Log Out
What is your name and your telephone number? We may contact you if there is a question. (Help)
First Name
First Name
Middle Name
Middle Name
Last Name
Last Name
Telephone Number
( ) -

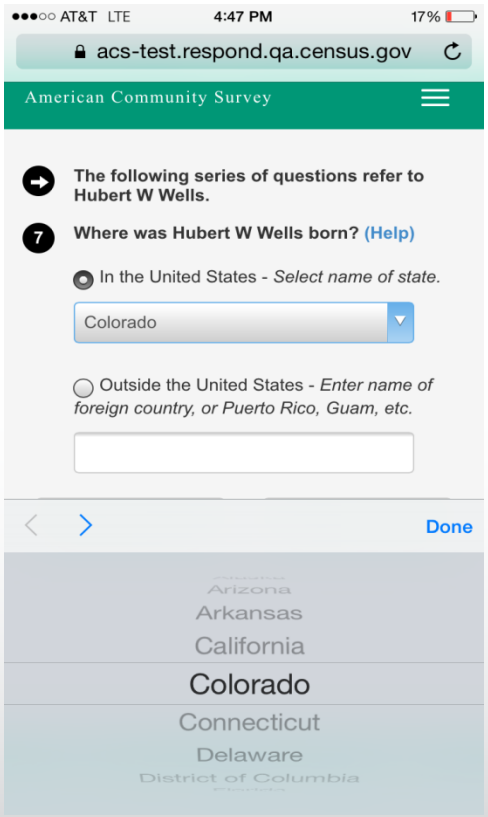
Examples

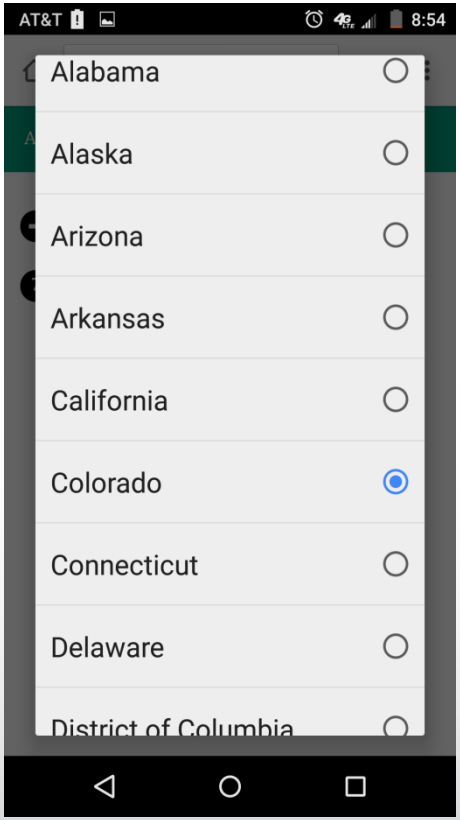

United States Census Bureau
American Community Survey
Instructions
FAQs
Save and Log Out
The following questions are about everyone who is living or staying at 198 Young Rd..
First, create a list of people. Enter one person on each line. Leave any extra lines blank. Enter names until you have listed everyone who lives or stays there, then click Next. (Help)
First Name
MI
Last Name
John
G
Smith
First Name 2
MI 2
Last Name 2
First Name 3
MI 3
Last Name 3
First Name 4
MI 4
Last Name 4
First Name 5
MI 5
Last Name 5
Click here to add more people
Previous
Next
Contact Us
Accessibility
Privacy
Security


American Community Survey
The following questions are about everyone who is living or staying at 198 Young Rd..
First, create a list of people. Enter one person on each line. Leave any extra lines blank. Enter names until you have listed everyone who lives or stays there, then continue to the next page (Help)
John
G
Smith
First Name 2
MI 2
Last Name 2

Examples


AT&T 4:51
spond.qa.census.gov/
American Community Survey
The following series of questions refer to Hh.
7 Where was Hh born? (Help)
In the United States - Select name of state.
Select Name
Outside the United States - Enter name of foreign country, or Puerto Rico, Guam, etc.


AT&T LTE 4:47 PM 17%
acs-test.respond.qa.census.gov
American Community Survey
The following series of questions refer to Hubert W Wells.
7 Where was Hubert W Wells born? (Help)
In the United States - Select name of state.
Colorado
Outside the United States - Enter name of foreign country, or Puerto Rico, Guam, etc.
Done
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia

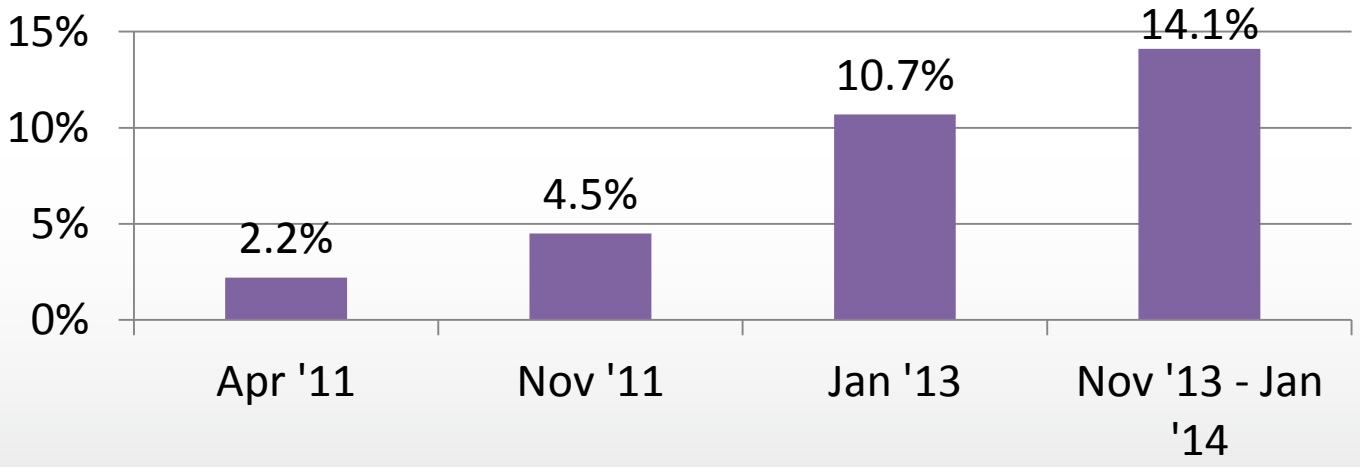

AT&T 8:54
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia

Mobile Development Challenges

- Device and O/S differences
- Transition from traditional survey design
- Development and testing time
- Technology rapidly changing
- Customer service – help desk

American Community Survey
(Mobile Usage)

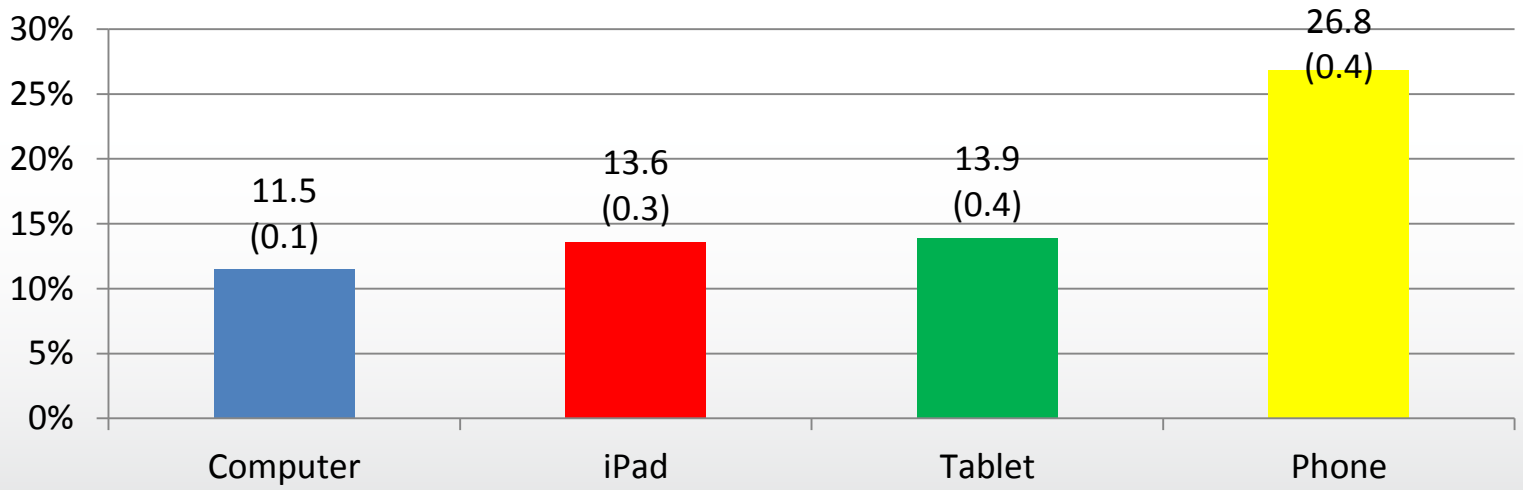
Percent of mobile respondents increasing rapidly



Source: American Community Survey 2011 Internet Tests and 2013-2014 production

American Community Survey
(Breakoffs)

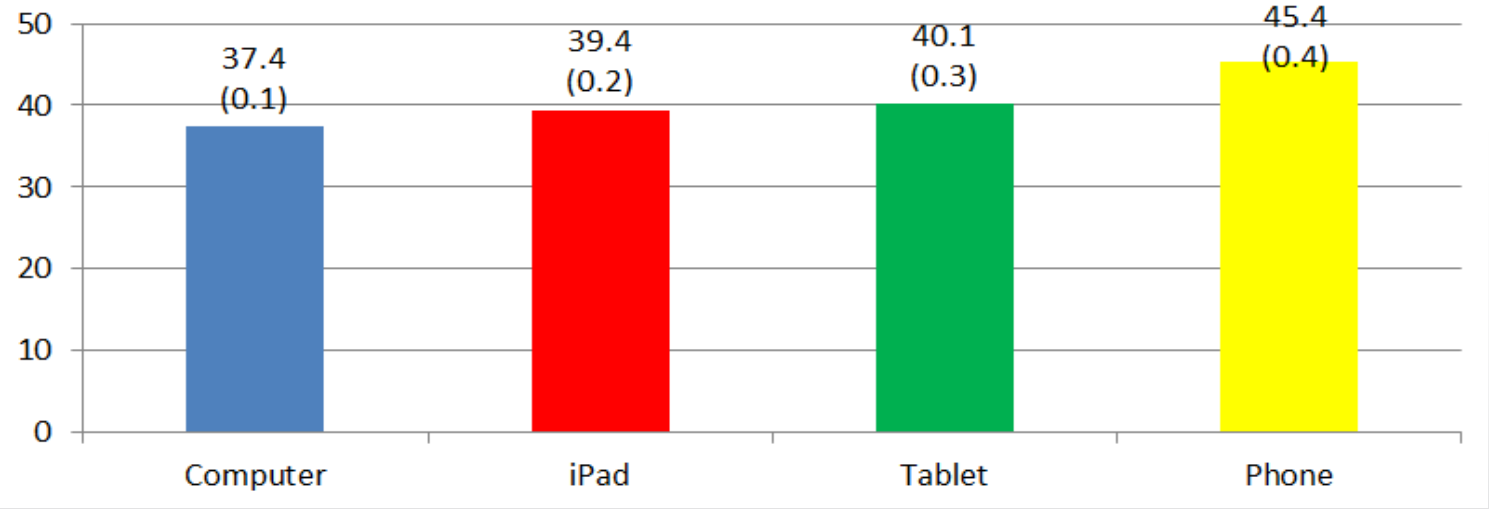
Breakoff rates are higher among mobile respondents



Source: American Community Survey 2011 Internet Tests and 2013-2014 production

American Community Survey
(Completion Time)

Completion time is longer among mobile respondents



Source: American Community Survey 2011 Internet Tests and 2013-2014 production

American Community Survey
(Mobile Demographics)

Demographic characteristics of mobile respondents:

- Different than computer respondents
- Consist of some hard to interview groups
  - Younger
  - Less educated (phone specifically)
  - Minorities (African American and Hispanic)
  - Renters (phone specifically)

Challenges of Paradata Analysis

- Difficulty parsing the useragent string
- What to do with hybrid tablets or phablets?
- Are we comparing apples to apples across studies?

Question 1

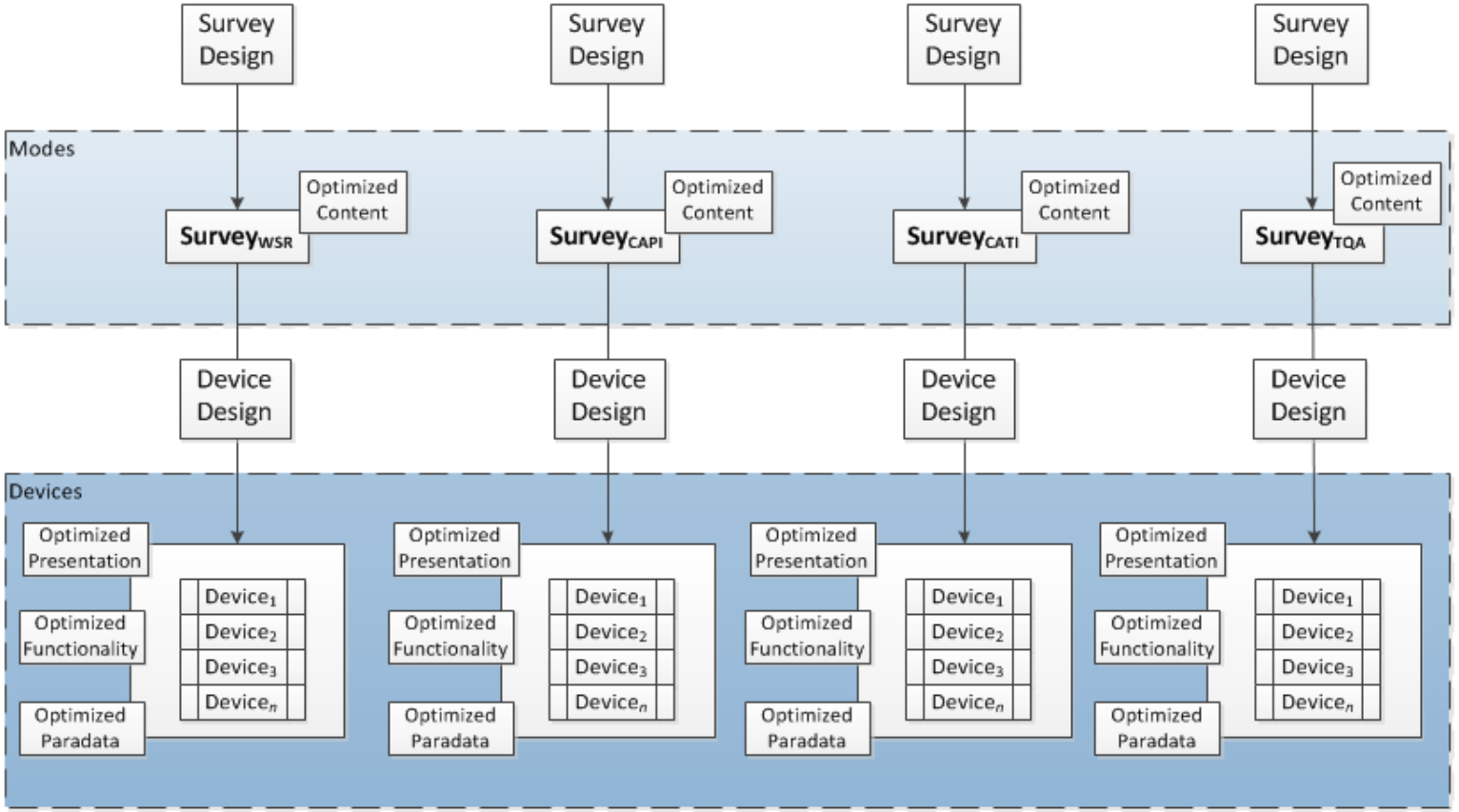
- The literature suggests that to truly optimize an instrument, it must be built for the smallest common denominator. Given we are dealing with established government surveys, this is not possible so we are trying to fit lengthy questions in a mobile environment. Would it make sense to alter some of these questions on mobile devices to make them truly 'optimized'?

Question 2

- In surveys that are optimized for mobile, we often see large buttons where each response option is enclosed in a box that the respondent can click. These surveys are typically shorter and have simple response options. Given the complexity of our response options and differentiation between buttons and check boxes (to differentiate select one vs select all), does the button approach make sense?

Question 3

- Is there an industry standard for parsing the user-agent string?

Question 4

Is this the future?