



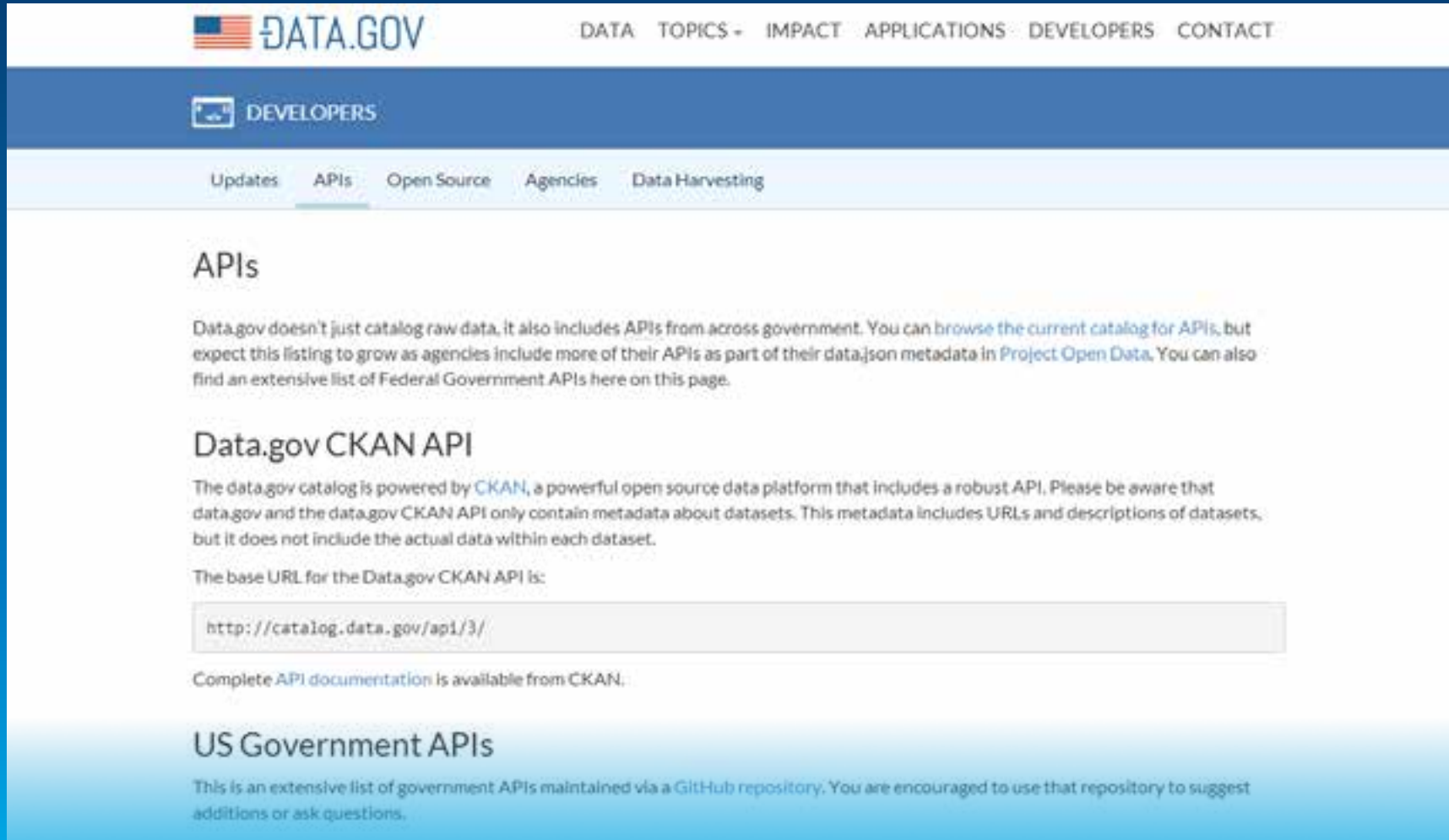
# Integrating the Census Data API with ArcGIS Web Applications

James Tedrick

Demo Theater

# U.S. Government Data APIs

<https://www.data.gov/developers/apis>



The screenshot shows the Data.gov website's 'DEVELOPERS' section. At the top, there is a navigation bar with links for DATA, TOPICS +, IMPACT, APPLICATIONS, DEVELOPERS, and CONTACT. Below this is a sub-navigation bar with links for Updates, APIs (which is highlighted), Open Source, Agencies, and Data Harvesting. The main content area features a heading 'APIs' followed by a paragraph explaining that Data.gov includes APIs from across government and provides a catalog for them. Below this is a section titled 'Data.gov CKAN API' which explains that the catalog is powered by CKAN and provides the base URL for the API: `http://catalog.data.gov/api/3/`. The final section is titled 'US Government APIs' and mentions a GitHub repository for suggestions and questions.

# Census Data API

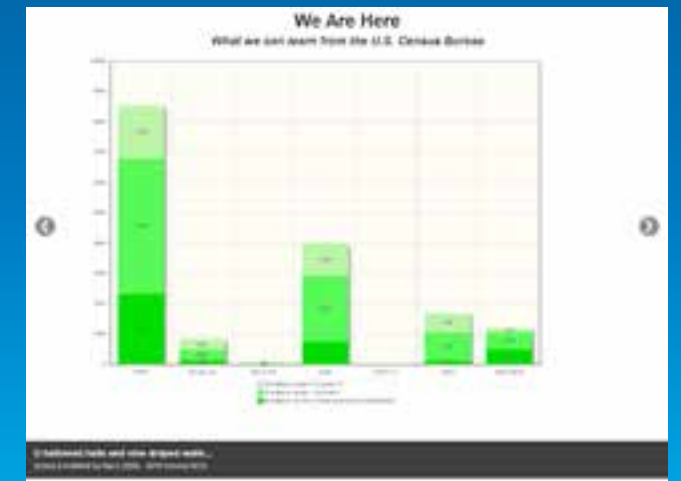
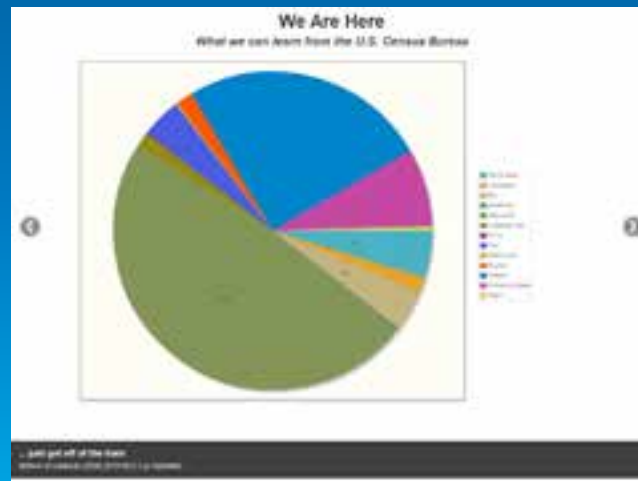
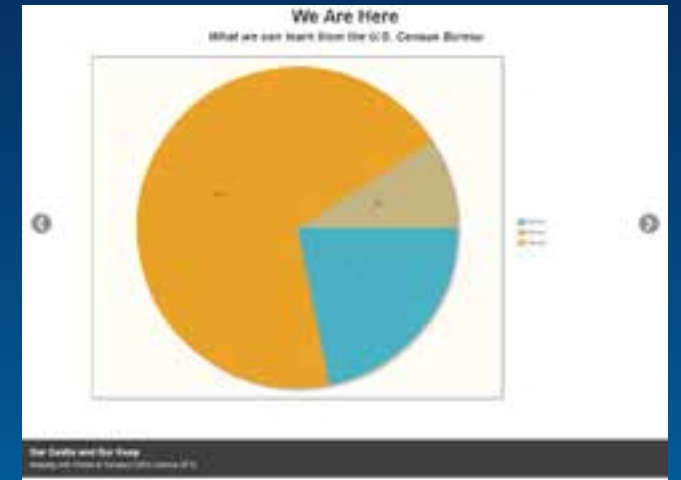
<http://www.census.gov/developers/>

- Decennial Census Data 1990, 2000, 2010
- American Community Survey (ACS) – 1,3,5 year
- Future Population Estimates
- Economic Indicators (Time Series)
- Economic-Wide Key Statistics, by industry 2007, 2012

The screenshot shows the 'Developers' section of the US Census Bureau website. At the top, there is a navigation bar with the US Census Bureau logo and a search bar. Below the navigation bar, there are several tabs: 'Topics' (with sub-links for Population, Economy, and Geography), 'Geography' (with sub-links for Maps, Geographic Data, and T. Lists), 'Library' (with sub-links for Encyclopedias, Publications, and Data Tools, Downloads), 'About the Bureau' (with sub-links for News, Events, Blog), and 'Downloads' (with sub-links for News, Events, Blog). The main content area is titled 'Developers' and features a sidebar on the left with links for 'About this Section', 'App Gallery', 'Data Sets', 'Geography', 'News', and 'Updates'. The main content area includes a 'Request a KEY' button, a 'Latest' section with filters for 'Updates', 'News', and 'Data Sets', and a list of recent updates. The updates include: 'Now available: 2008-2012 ACS 5-Year Summary Files and Data Profiles' (December 18, 2012), 'Introducing iHealth Mobile Application (built on ACS data from our API)' (November 26, 2012), and 'Census Bureau's API Updated with 2010-2012 ACS Statistics' (November 18, 2012). A 'View All Updates' button is located at the bottom of the updates list.

# We Are Here!

<http://bit.ly/CensusAPIdemo>



# What does it do?

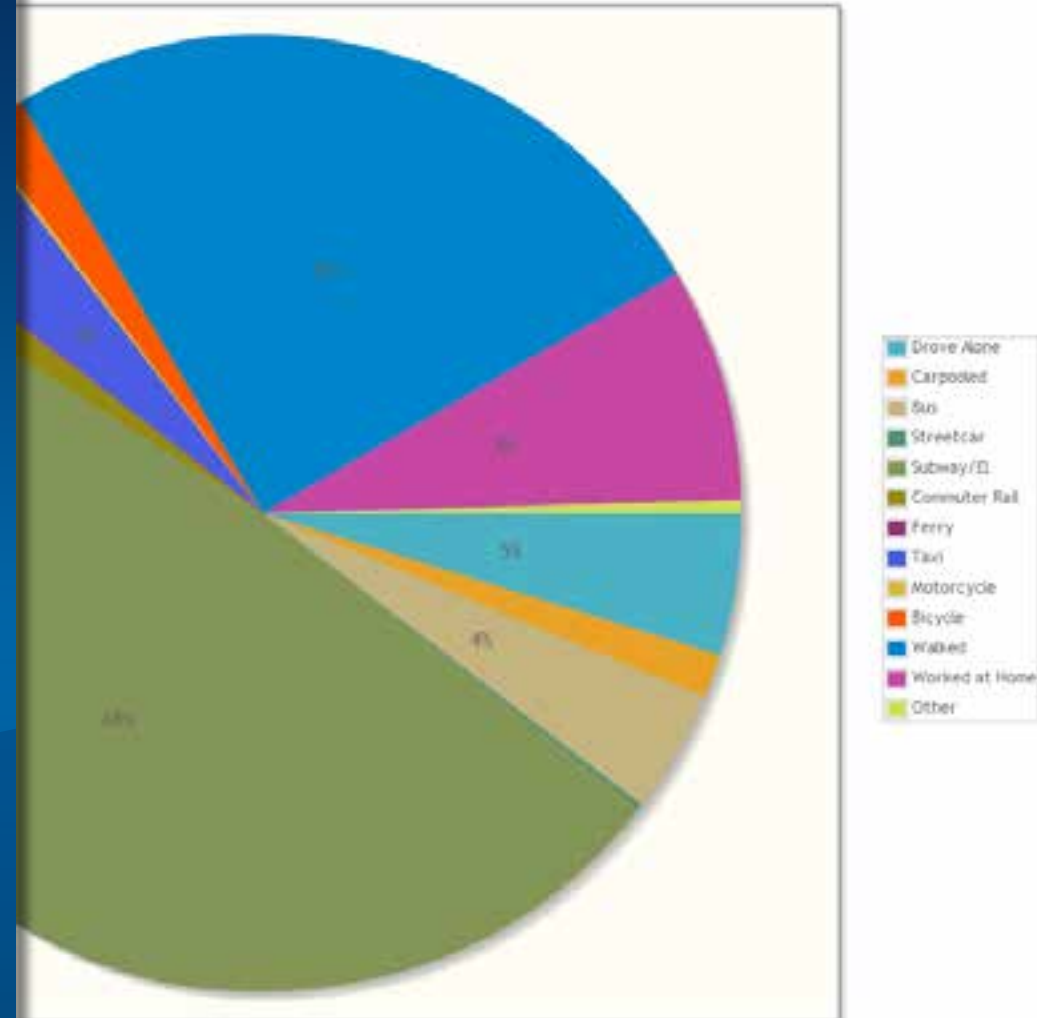
1. Get your location
2. Find the block groups within 1 mile
3. Get data from the Census API
4. Chart!



# Let's Peek Inside!

## We Are Here

*What we can learn from the U.S. Census Bureau*



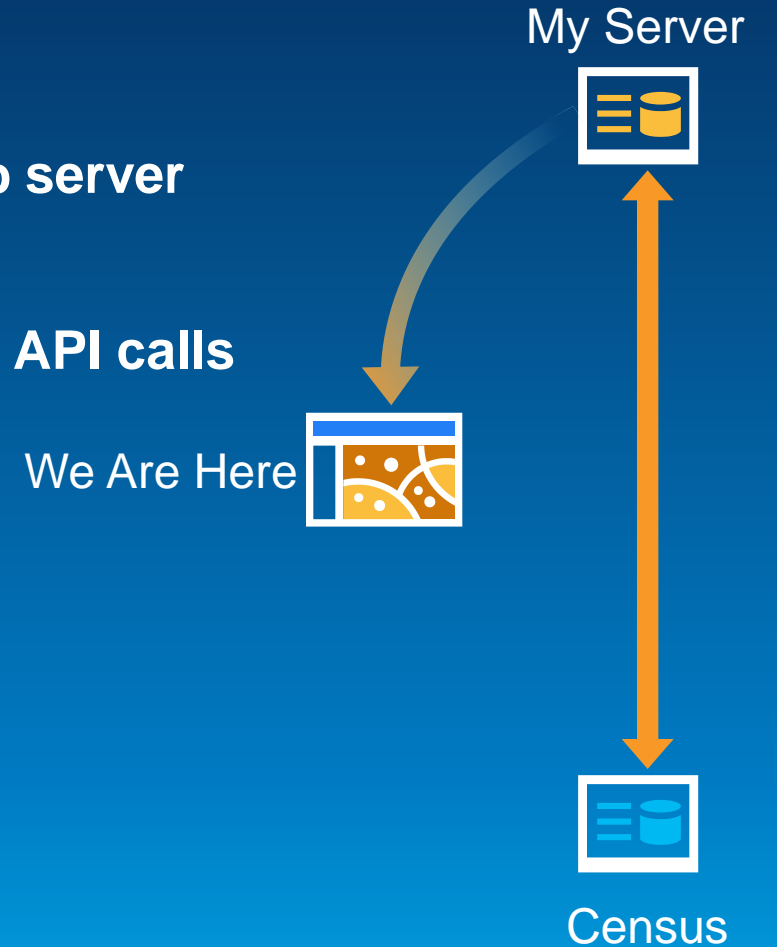
# Joining APIs

- **FIPS as unique ID between APIs**
- **Census data comes in as an array of rows (think CSV file)**
  - Transform each row into an object with keys from first row
- **Didn't need to actually create joint objects, but simple**
  - ArcGIS Objects – add extra fields to attributes of each graphic
  - Census objects – add geometry to object

```
[
- [
  "POP",
  "DATE",
  "state",
  "county"
],
- [
  "54571",
  "1",
  "01",
  "001"
],
- [
  "54571",
  "2",
  "01",
  "001"
],
- [
  "54613",
  "3",
  "01",
  "001"
],
- [
```

# Initial Issues

- **Cross-domain requests** – required a proxy on my web server
- **API limitations** – only 5 variables per request
- **Working across multiple counties & states** – separate API calls



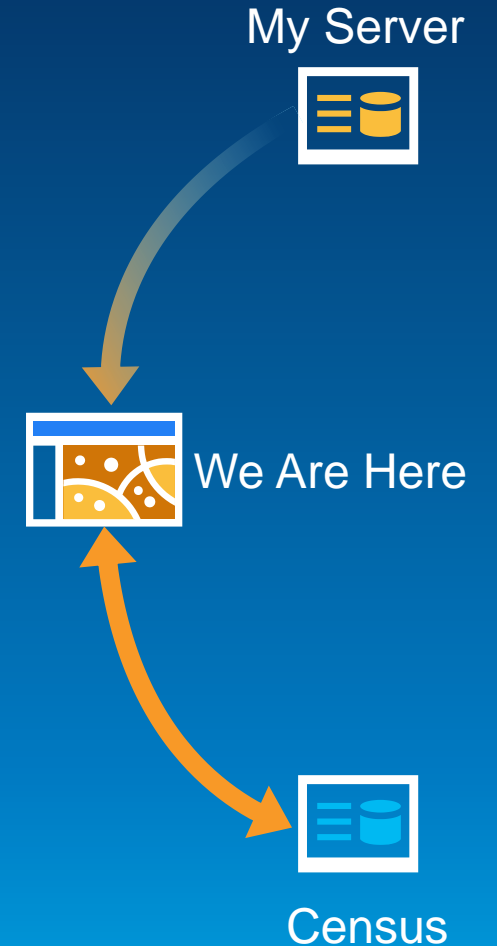


## Initial Issues

- Cross-domain requests – required a proxy on my web server
- API limitations – only 5 variables per request
- Working across multiple counties & states – separate API calls

## APIs evolve (aka 1 year later)

- CORS enabled Census API – cross domain solved
- API limitations removed – fewer requests
- Data Description tools in beta



# Getting Started

- **Census API:** <http://www.census.gov/developers/>
- **TIGERweb Services:**  
[http://tigerweb.geo.census.gov/tigerwebmain/TIGERweb\\_main.html](http://tigerweb.geo.census.gov/tigerwebmain/TIGERweb_main.html)  
<http://tigerweb.geo.census.gov/arcgis/rest/services/TIGERweb>

## Related Sessions – Search for ‘Census’

- **Tuesday: National Statistical Organizations Industry Focus (Hilton, Indigo 206)**
  - **The Applications of Data, 12:00 – 1:00**
  - **Dissemination and Analysis of Census Data, 3:15 – 4:30**
- **Wednesday**
  - **TW: Using ArcGIS to Support Healthy Communities and Open Health Data Portals  
10:15 – 11:30, Room 31C**
  - **DT: Mapping in Excel Using US Census TIGERweb Service as Custom Location Type  
10:30 – 11:00, Federal Showcase**
  - **DT: US Census Bureau Demographic Data Viz Tools  
11:30 – 12:00, Federal Showcase**
  - **Panel: Calling all Business, Government and Community Decision Makers - Help  
Census Bureau Innovate its Data Products and Services  
1:30 – 2:45, Marina E**

## Related Sessions – Search for ‘Census’

- **Thursday**

- **TW: Using ArcGIS to Support Healthy Communities and Open Health Data Portals**  
8:30 – 9:45, Room 32A
- **Paper Session: Census Bureau Innovative Tools and Products for 2020 Decennial**  
10:15 – 11:30, Room 30A
- **Paper Session: Research and Analysis Using Census data**  
3:15 – 4:30, Room 30C

# Thank you...

- Please fill out the session survey:

**Offering ID: 2212**

**Online – [www.esri.com/ucsessionsurveys](http://www.esri.com/ucsessionsurveys)**



Understanding our world.