

THE CHANGING TECH OF GOVERNMENT

By Jacqueline Kazil

PyCaribbean, February 18, 2018

Speaker notes

- A lot has changed in government and Python has been a part of it.
- That is the story that I am going to share.

OR

HOW THE GOVERNMENT MADE ME A BETTER PROGRAMMER

Speaker notes

- During this talk I will highlight a series of lessons.
- These can be used in gov OR in private sector

Tech in government has changed a lot...

.. and so have I.

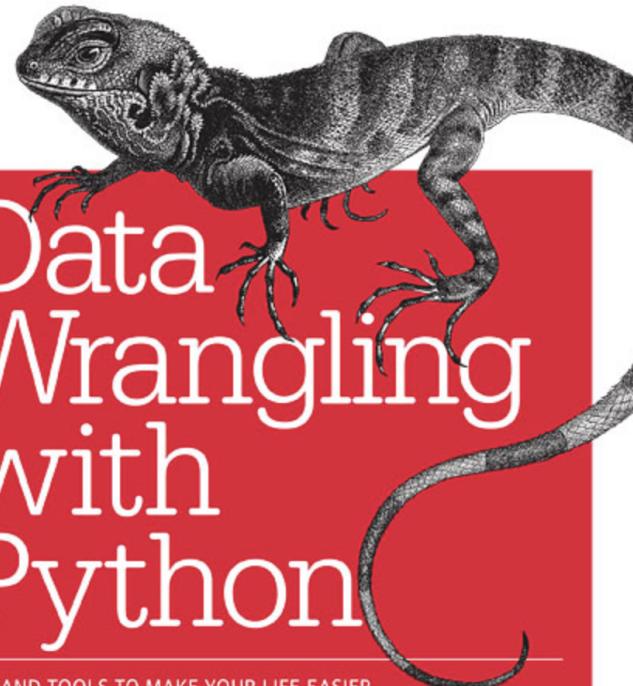
First, a little about myself...

- Worked in government from 2011 to 2015
- Presidential Innovation Fellow 2013 to 2014
- Python Software Foundation Board member
- PyLadies leader - internationally and in DC
- Board member of Byte Back
- PSF Fellow
- ... and other random things

Speaker notes

Byte Back is an organization that teach basic digital literacy skills in order to put individuals into living wage careers.

O'REILLY®



Data Wrangling with Python

TIPS AND TOOLS TO MAKE YOUR LIFE EASIER

Jacqueline Kazil & Katharine Jarmul

EL SENTINEL



EL SENTINEL FEB. 16, 2018

Trump viajará a Florida tras masacre

El presidente Donald Trump anunció el viernes su viaje a Florida, donde una pequeña población está de luto tras la masacre de 17 personas en una escuela secundaria. "Viajaré a Florida hoy a reunirme con algunas de las personas más valientes del mundo, pero personas cuyas vidas han sido totalmente..."



EL SENTINEL FEB. 16, 2018

Parkland dice "ya es suficiente violencia"

Mientras se programaban los servicios fúnebres para las víctimas de la matanza en la escuela secundaria Marjory Stoneman Douglas en Parkland, un grupo hastiado de la violencia en las calles con armas de alto poder planea una protesta singular con un poderoso mensaje "enough is enough" (ya es suficiente)....



EL SENTINEL FEB. 17, 2018

Más esbelto, Albert Pujols quiere tener más acción en 1B

Albert Pujols está más esbelto, y listo para desempolvar su guante de primera base. El toletero dominicano de 38 años quiere revertir la espiral negativa de su carrera, en parte contribuyendo con su defensa ahora que se ha recuperado de lesiones. Los Angelinos confían que

Speaker notes

Trabajé como periodista para un periódico español en el sur de Florida. Donde pretendo hablar español.



Speaker notes

I came to DC 10 years ago! These heads are from the baseball team in DC

Things have changed a lot!



Speaker notes

Went from journalist to civil servant. And had a baby.



Speaker notes

- 2011 to 2013
- This is not where the great big change happen
- When I walked in, this was a well functioning team
- There were pockets of this in government
- Tech stack was Python, Django, & Postgres

The team worked on lots of important things...



LIBRARY OF CONGRESS

Websites Down Feb. 16-19; Reading Rooms and Library Shop Closed Feb. 17 and 19

Due to a planned power outage, most of the Library's public websites (loc.gov and others) will be unavailable from **7 p.m. ET, Friday, Feb. 16 through Monday, Feb. 19**. The Copyright online registration system will be unavailable beginning **5 p.m., Thursday, Feb. 15** throughout the weekend.

[**Congress.gov**](#) will be available during the February 16-19 (Friday-Monday) planned maintenance. System data will be current, but Saved Searches and new Alert subscriptions will not be available.

On **Saturday, Feb. 17 and Monday, Feb. 19**, all reading rooms and research areas, Library Shop, Madison and Adams buildings will be closed to the public.

The Thomas Jefferson Building's Great Hall and exhibitions will be open to the public from 8:30 a.m. to 4:30 p.m. on Feb. 17 and 19. The Thomas Jefferson Building is located at 10 First St. S.E., Washington, DC 20540. The Young Readers Center in the Jefferson building will be open on Saturday, Feb. 17 only from 9 a.m. to 4:30 p.m. No food service will be available throughout the day, however the vending lounge in the Jefferson building cellar will be open.

The Architect of the Capitol will be conducting essential maintenance on the Capitol Hill campus from Friday, Feb. 16 through Monday, Feb. 19, resulting in a power outage that will require these closings.

Explore the Library of Congress on social media.



Speaker notes

Like this one.



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Speaker notes

And this one. This one is my favorite.

Lesson: If you are not on the cloud, you need to move, otherwise someone will take screenshots of your downed website and share it at a conference.

Speaker notes

- This is why LOC is having these problems.
- The work doesn't matter as much I had the honor to work in the corner of government that was functioning well.
- However,...

Lesson: A team only functions as well as the environment in which it is run.

Speaker notes

- Hence why you are seeing the projects ast they are today.
- If you don't give you people the proper tools, they can't do their job.

WHY WOULDN'T SOMEONE MOVE TO THE CLOUD?

Speaker notes

- Because they are afraid of risk
- & they have issues w/ buecracy

Managing data centers is hard. If that is not your business, pay someone else to do it for you.

If fact, deploying code is one of the hardest things to do in government.

It can take six months to more than a year.

Speaker notes

- Why?
- Because if you don't deploy, then you won't have problems.
- It is easier to say 'no' than to say 'yes'

LESSON: CHESTERTON'S FENCE



Speaker notes

- Just because the fence doesn't have a clear purpose, work to understand it.
- First understand the historical context first - it can help you in the long run.
- Deploying is hard, because people are risk averse in government.
- Same reason for the cloud.
- "if it is not broken, then why fix it?"

Automated deployments to the cloud == less risk.

Speaker notes

- Because if there is an issue, you can deploy a fix quickly

Many small deployments are less risky than one single,
large deployment.

$$A - B < A - C$$

Speaker notes

- Because the changes are incremental.
- The delta between A & B is less than A & C.
- Each change has less impact.

We can learn a lot about the way tech worked (or didn't work) through its devs and deployment processes.

REGULATION

Less regulation <-----> More regulation

Speaker notes

- Less regulation == Your cousin wins the contract
- More regulation == Your friend wins the contract, because they are the only ones who can navigate.
- Neither your cousin or your friend are experts in the work.
- Which means you end up with situations like...

FEMA Contract Called for 30 Million Meals for Puerto Ricans. 50,000 Were Delivered.

[Leer en español](#)

By PATRICIA MAZZEI and AGUSTIN ARMENDARIZ FEB. 6, 2018



Speaker notes

- One person won this contract and hired a wedding company to make the meals.
- They made 50,000 out of 30 million that were required.
- Why would you hire a wedding cater & not someone who works in truly massive meal preparation

[Get Coverage](#)[Keep or Update Your Plan](#)[See Topics ▾](#)[Get Answers](#)

Search

SEARCH

2018 Open Enrollment is over. Still need health insurance?

You can enroll in or change plans if you have certain life changes, or qualify for Medicaid or CHIP

[SEE IF I CAN ENROLL](#)[SEE IF I CAN CHANGE](#)

Looking for coverage for a small business? [Learn more](#)



NEED TO SUBMIT DOCUMENTS?

[SEE HOW](#)

Speaker notes

- Slow, locks up users, drops them, bad data.
- This system requires special consideration, b/c secure data.
- 55 contractors -- all were confident in their system, but no end to end testing
- I don't know what happened, but I imagine somewhere I dev said... this is not going to work.

MEANWHILE...



Consumer Financial
Protection Bureau

Q Search

! Submit a Complaint

Consumer Tools

Practitioner Resources

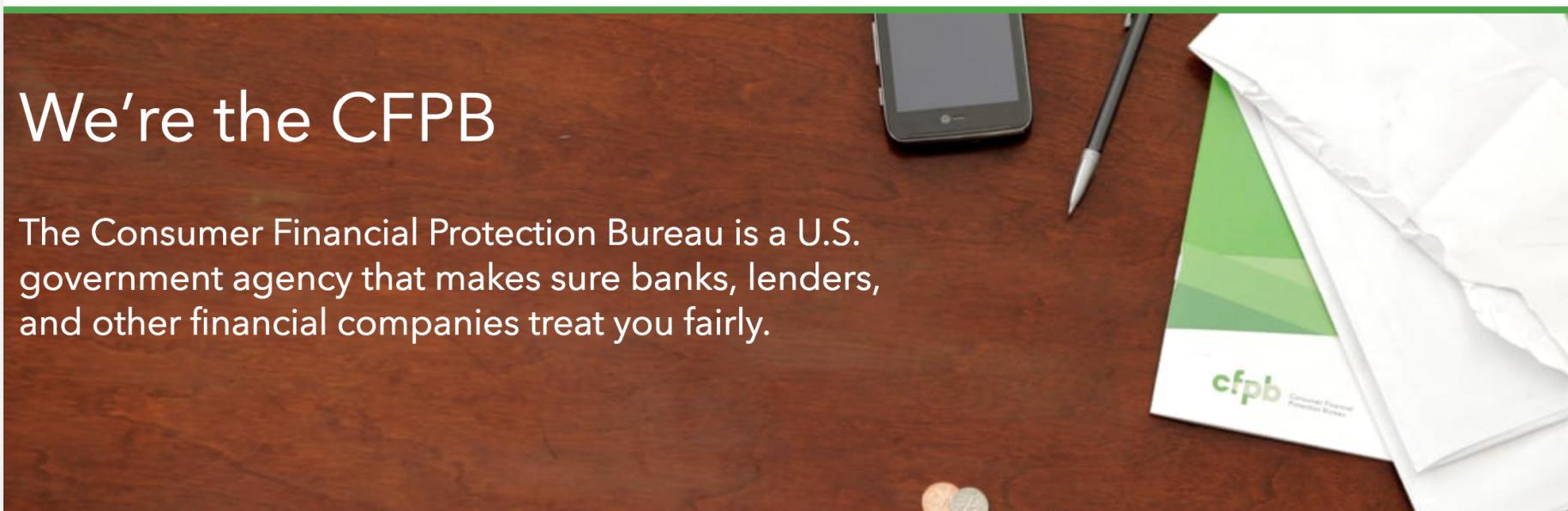
Data & Research

Policy & Compliance

About Us

We're the CFPB

The Consumer Financial Protection Bureau is a U.S. government agency that makes sure banks, lenders, and other financial companies treat you fairly.



Speaker notes

- While I was at LOC, the agency was started in 2011 in response to the financial crash of 2008 to protect consumers.
- They set an example for what tech should be like in government.
- However, they also had a clean slate.
- Much of their work was and is in Python!
- I almost went to work there in 2013, but didn't.

President Obama wanted to bring "Silicon Valley" entrepreneurs and engineers into government.

So, he appointed Todd Park as the second CTO of the U.S. in March 2012.

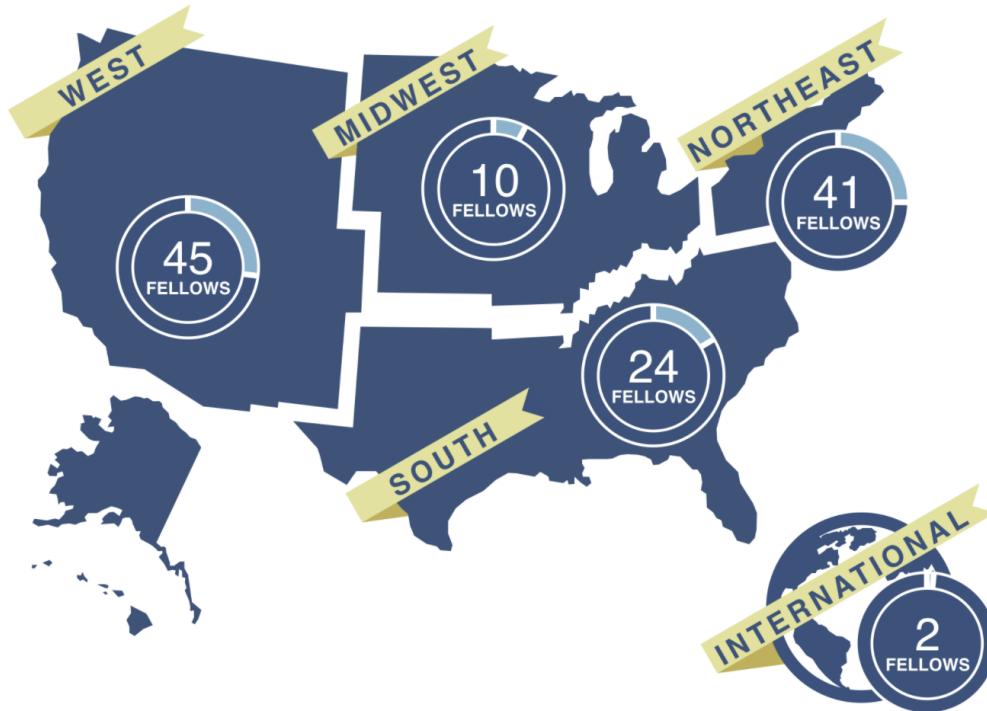
TODD CREATED THE PRESIDENTIAL INNOVATION FELLOWS (PIF)

- Inspired by Code for America
- Short "tours of duty" to work on projects with the potential to save lives, money, create jobs, and make government more efficient
- There were 18 fellows in the first round, now...

Speaker notes

- The purpose was to attract talent and try to get them to stay after they finished their "tour of duty"

Recruiting industry leaders to serve as change agents



122
Fellows

28
Agencies

presidentialinnovationfellows.gov

Speaker notes

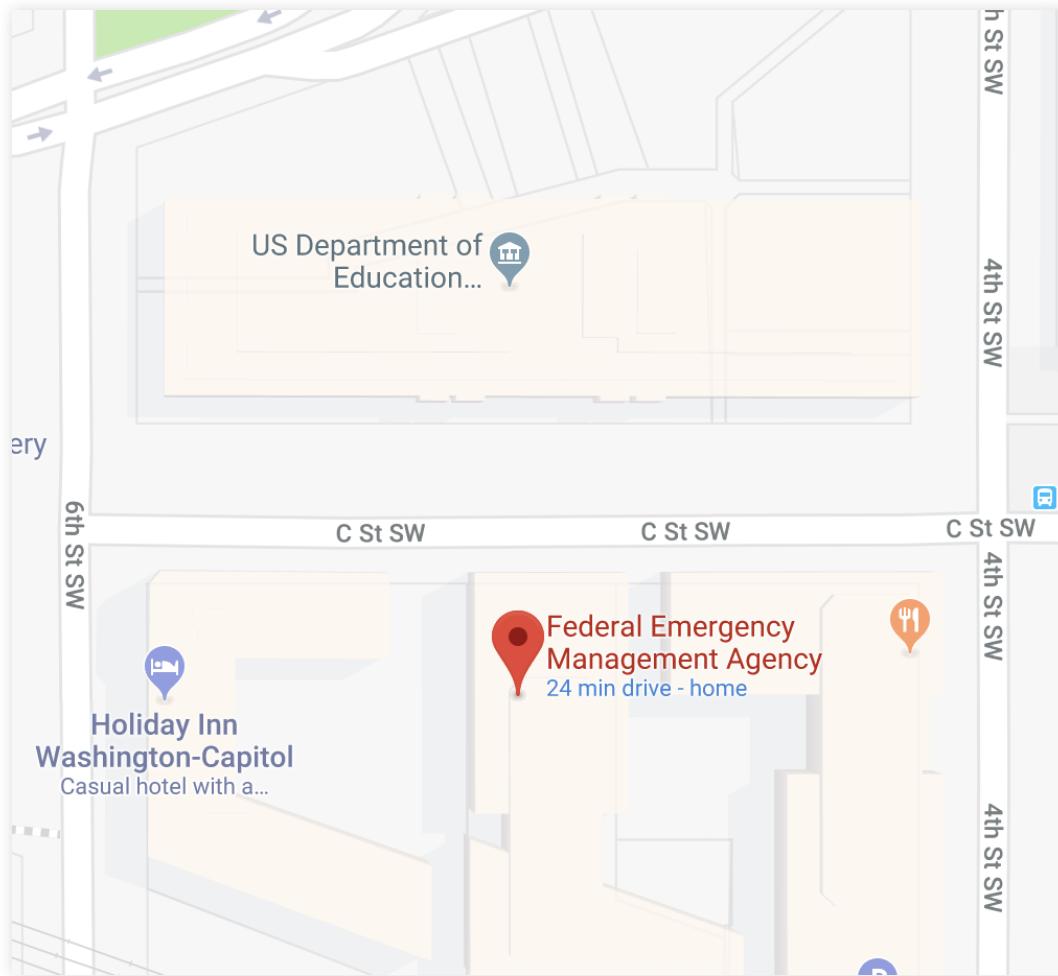
- 122 Fellows as of late Early 2018

Lesson: Create a fellowship and give the fellows lots of freedom and air cover to attract top talent.

Application due during PyCon 2013

Speaker notes

- Heard about the PIF program during a happy hour from one of those 18.
- I wasn't going to submit, but the application was easy, so I did.
- I received 3 interviews, 2 offers

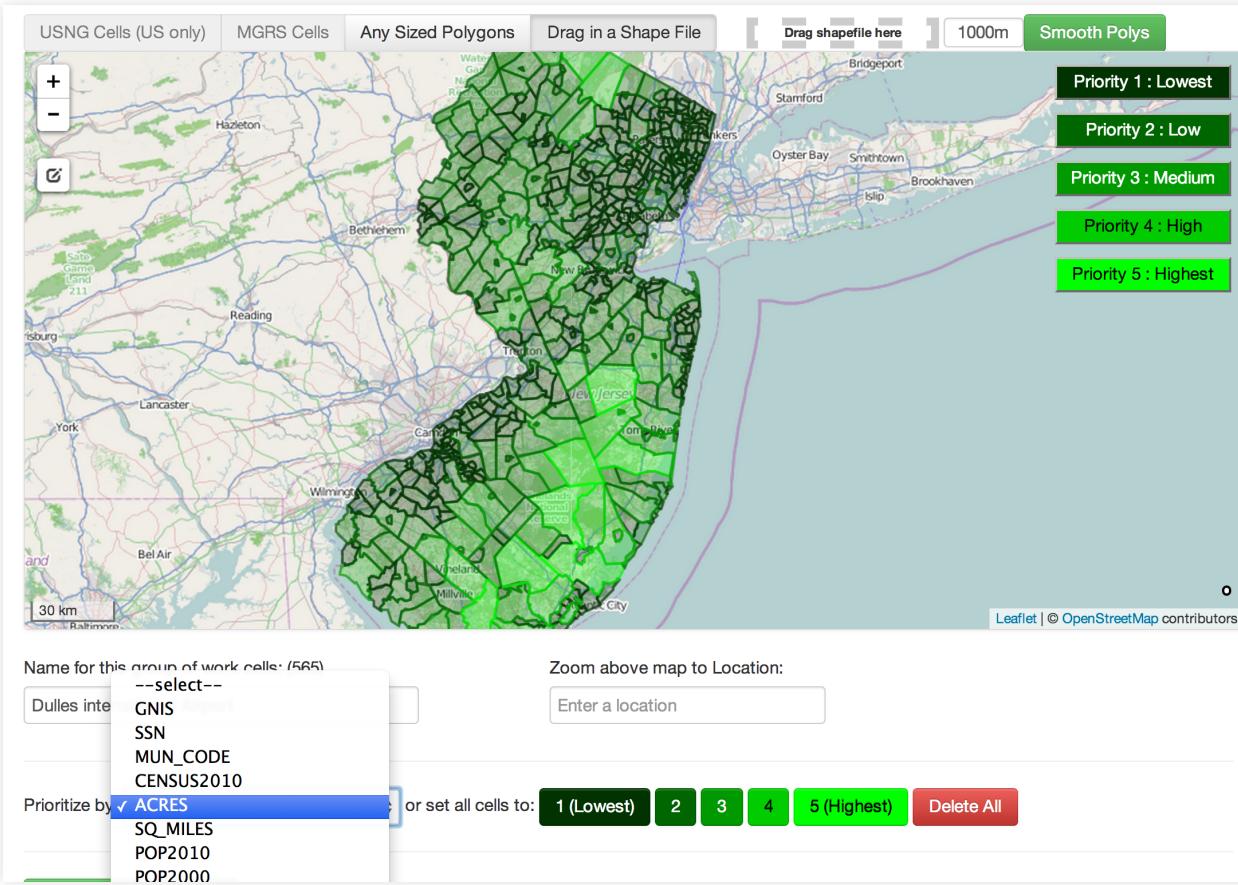


Speaker notes

- Those two offers were across the street from each other.
- The good news is that if I wasn't happy at FEMA, Dept of education told me to stop by on my home

Lesson: Do not *not* pursue an opportunity. Apply for anything that interests you.

Don't let imposter syndrome get in the way of your goals.



Speaker notes

- My mission: disaster response and recovery.
- Get money into the hands of people who need it.
- This project used in disasters in Moore, Oklahoma & Colorado Floods.
- But also internationally: Typhoon Maysak, Nepal Earthquake, Saipan - Typhoon Soudelor

Lesson: Rewrite versus build upon -- carefully consider your path and make sure you are not being biased.

Speaker notes

- The project was originally written in Ruby -- but after a careful evaluation, it was best to rewrite in Django / Python.

MEANWHILE...

Speaker notes

- As I was finishing my tour of duty, there was a group of folks looking to make the work that PIFs were doing more permanent, because one person for 6 months to one year wasn't enough.
- During its 2nd year, the PIFs was operationalized inside the G.S.A. and there was growing discussion about how to bring folks in for longer than 6-12 months.



Speaker notes

- 18F is a digital consultancy FOR the U.S. government INSIDE the U.S. government.
- 2014
- GSA is a federal agency that employs about 20,000 people across the country. It handles government wide policy, real estate, procurement, and is basically the admin & operations team for the federal government.

And they used Python, Javascript, and Ruby

What were the goals of 18F?

Speaker notes

- 18F will transform how the U.S. Government builds and buys digital services -- remember those contract issues?
- builds and buys in a human-centered, design-centric, agile, open, and data-driven way.

Delivery is the strategy.

Speaker notes

- 18F was influence by GDS (Government Digital Services)
- As Mike Bracken of the UK's Government Digital Service says, "the strategy is delivery."

Lesson: Always be shipping.

Speaker notes

- If you are not shipping code, then what are you doing?

As I mentioned earlier, software deployment is hard in government... so is hiring.

Speaker notes

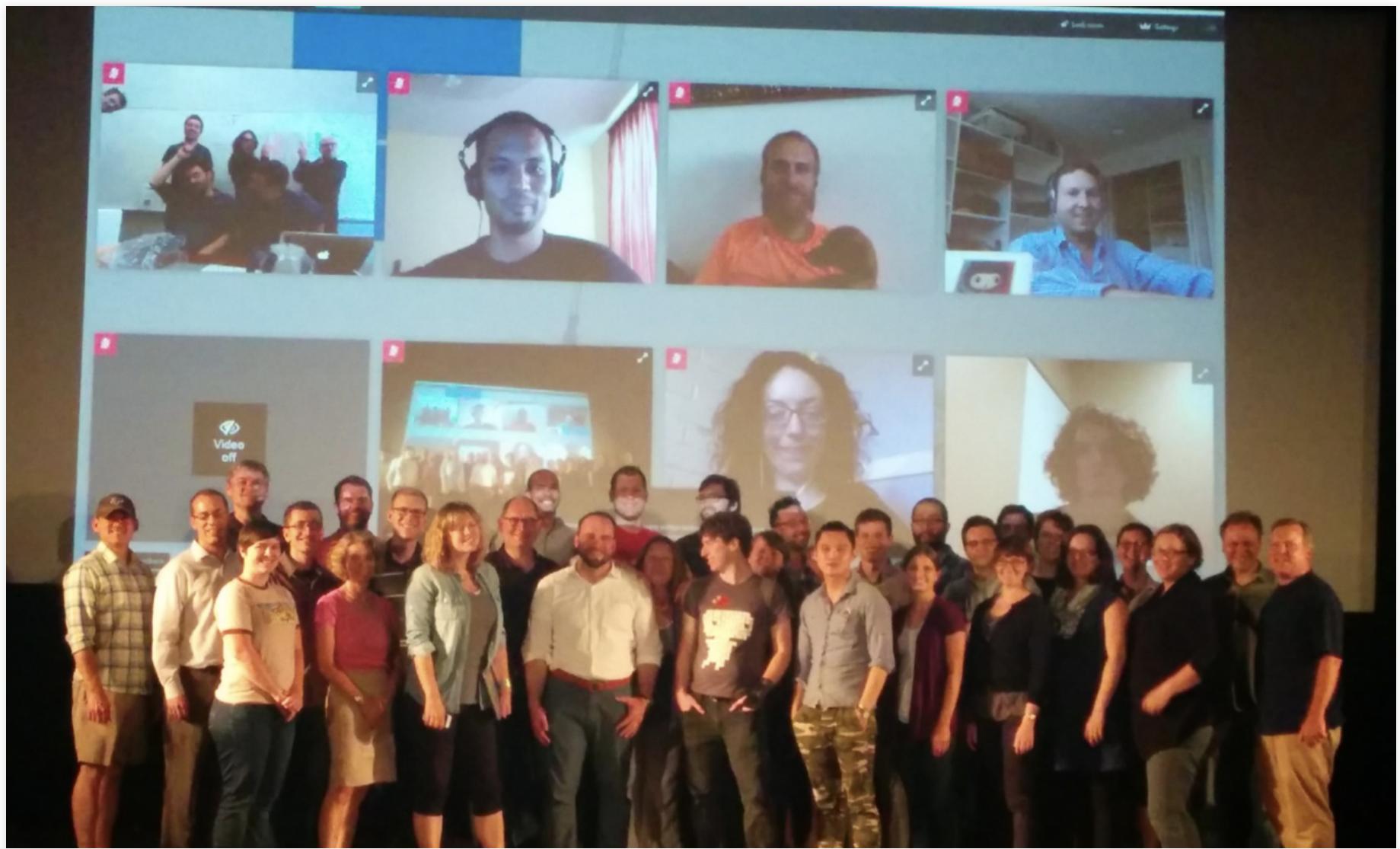
- hiring can take as long as 6 to 9 months

To make 18F work and to make it successful, we were
"Hacking Bureaucracy".

LESSON: "HACKHING THE BUREAUCRACY" ACCORDING TO HILLARY HARTLEY

- Find innovators inside of the government who have solved similar problems.
- Engage the stakeholders early and often.
- Set up an MVP to get started quickly & iterate.
- Make sure you are working with real users.
- Always stay aligned with the rules of the bureaucracy.
- Formalize the process/solution for reuse.

Lesson: It's okay to hack your way around the rules,
but you must stay aligned with them. - Hillary Hartley



Speaker notes

18F grew to over 150 people in about 1.5 years.

CORE TENANTS OF OPERATION AT 18F

The needs of the user should drive all decisions.

Lesson: Everything is an API to everything else. - Jon Bodner

Speaker notes

- Every engineer needs to learn User research

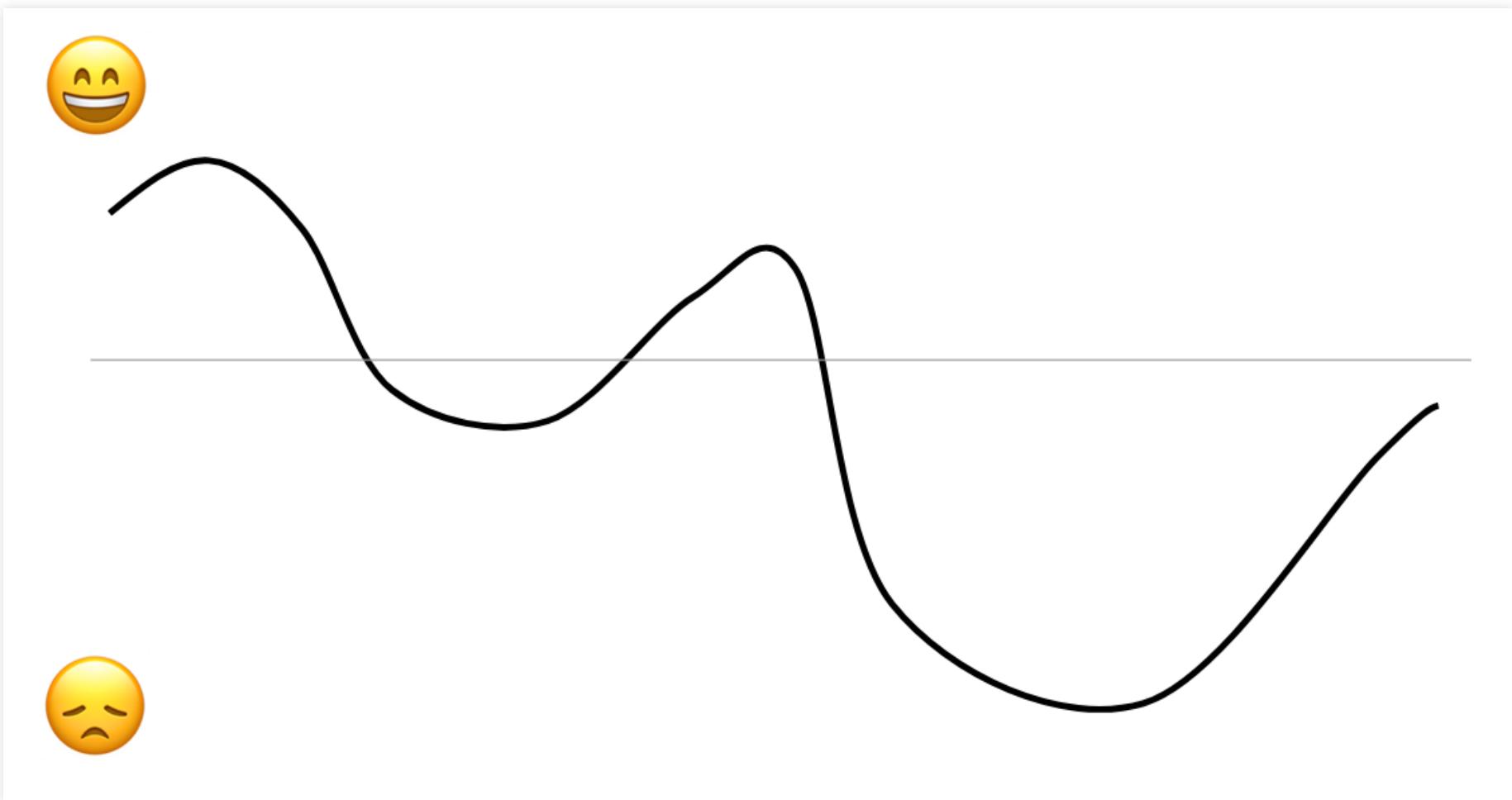


methods.18f.gov

Speaker notes

- These are great for engaging users and bringing human-centered design to engineering.
- Here are some examples....

JOURNEY MAP



AFFINITY MAP

Models need
to be tested

Getting
Started is
hard

Tutorial has
bugs

Unclear on
how to build
plug-ins

What is
core vs
private?

Sample
models need
more docs

How do I
build a
model?

Speaker notes

- <https://docs.google.com/presentation/d/1vluruOSOV2LZHbVbWkKZExmOhCJ8dQM4UmS6uAqYNO0/edit#slide=id.g1>

AFFINITY MAP

Tutorial has bugs

Getting Started is hard

Sample models need more docs

How do I build a model?

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Unclear on how to build plug-ins

What is core vs private?

DOT VOTE

● Tutorial has bugs

● Getting Started is hard

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How do I build a model?

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DOT VOTE

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While we are on the topic of giving back...

SOME MORE PROJECTS THAT ~~STATE & LOCAL GOVERNMENTS~~ ANYONE CAN USE

1. Analytics hub
2. Quick mini-sites for content
3. Market research for procurement
4. Help small businesses find opportunities

bit.ly/7projectsBy18F

Speaker notes

- Let's move on to the next core value...

Open By Default

Speaker notes

- 18F opens everything by default
- Sadly the government does not.



Open Source Initiative

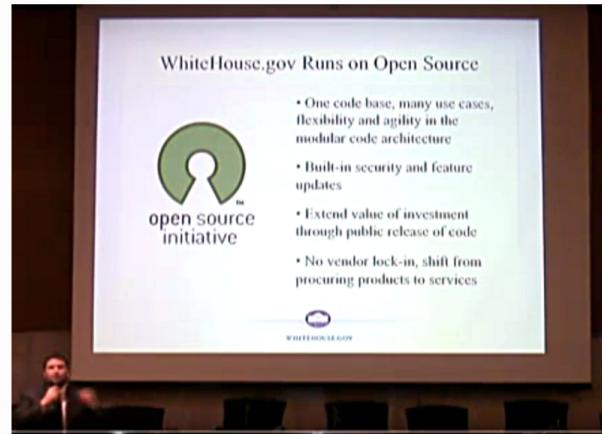
ABOUT ▾ LICENSES ▾ MEMBERSHIP ▾ COMMUNITY ▾ RESOURCES ▾ NEWS & EVENTS ▾

Open Source for Government

Many local, regional, and national governments are engaged with open source software and communities. Below are only a few resources that may help departments and agencies understand the value of open source software and development communities within the public sector, as well as how public institutions can engage with, and implement similar initiatives to realize the greatest returns for their citizens and governments.

Table of Contents:

- Press and media coverage related to open source software in government
- Reports on the adoption of open source software in government
- References of open source software in public policy and law



opensource.org/personas/government

Speaker notes

- This is a list of policies, news, and laws in select countries.

GitHub and Government

[Who's using GitHub](#)

[Peer Group](#)

[Accessibility](#)

[Contact](#)

Who's using GitHub?

Government agencies at the national, state, and local level use GitHub to share and collaborate. If you don't see your organization on this list, follow the instructions below to add it!

government.github.com/community

Speaker notes

- You can see what governments are building & which are on github.

Lesson: Not all projects will work for all countries.
People are different.

Example: Estonia versus United States

Speaker notes

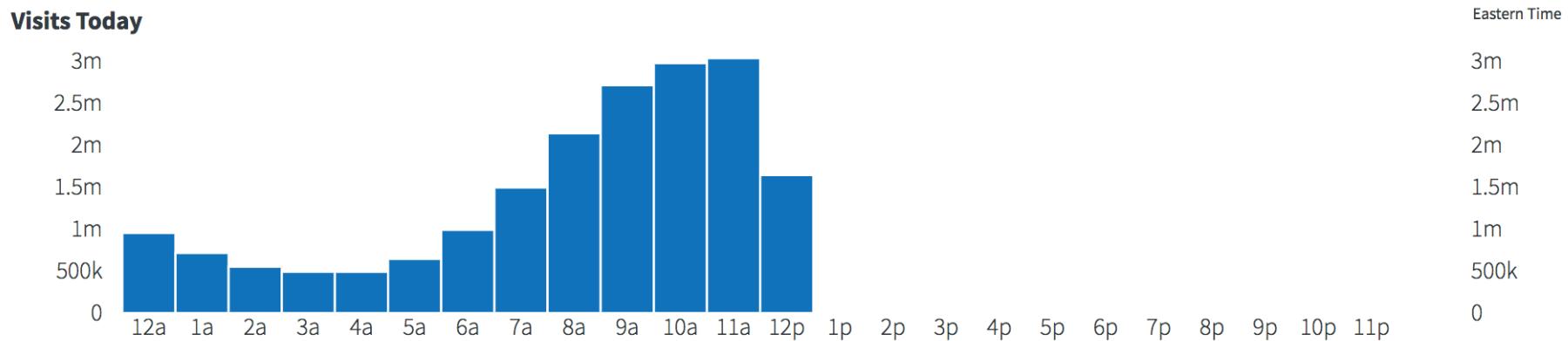
- Estonia is a leader in the digital gov space.
- They created a digital identity for their people & now everyone uses it.
- If the U.S. did this the same time that Estonia did, people in the U.S. may have freaked out, b/c culturally they like their privacy.
- On to the next core value...

Be Data Driven.

310,328

people on government websites now

Visits Today



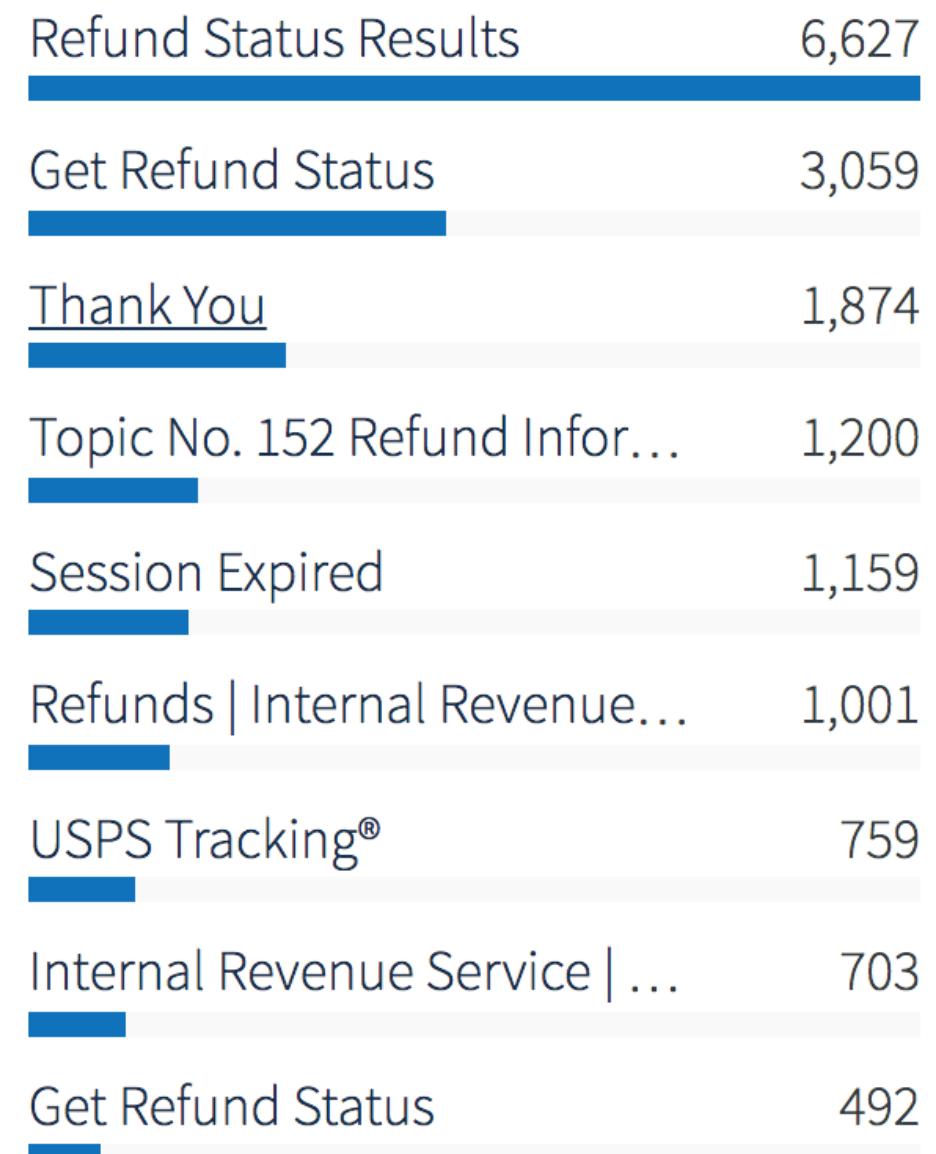
Eastern Time

Visits in the Past 90 Days

There were **2.69 billion** visits over the past 90 days.

Speaker notes

- This is one the tools available that I mentioned earlier.
- It publishes your analytics to the world.
- There were 2.68 billion visits over the past 90 days.



Speaker notes

- It is tax time for Americans and they are looking for refunds from the government.

National Weather Service 468

Latest Earthquakes 460

Speaker notes

Weather, earthquakes, etc are popular as well.

Case Status Online - Case ...

360

Speaker notes

- No matter what time of year, USCIS is always on this list.
- It is one of the highest touch points of gov
- While other people will interact once a year with IRS, they will come back to this page 10 times.

Lesson: Don't assume you know what people want. Use data.

Speaker notes

- I wouldn't have guessed that USCIS would consistently be most popular.
- With dot voting as a data point -- we might have guessed the winner of that as well.
- And the last core value...

Be Agile.

Speaker notes

- Not going to spend a lot of time on this.
- There are plenty of talks on this topic out there.

Lesson: Explicitly write this into your contract and be prepared to cancel the contract when other parties want to practice waterfall or agile-fall.

Speaker notes

- Once I had a partner hand me 86 pages of requirements before we event started coding.
- They said they were "agile".
- They didn't want to practice agile.
- Nope. Not doing it.



THE U.S. DIGITAL SERVICE

Speaker notes

- Lastly, I wanted to give a shout out to USDS.
- They were a sister org that we worked with.
- Oversimplified they were like the fire fighters and we were like the delivery team.

Digital Service Plays

1. Understand what people need
2. Address the whole experience, from start to finish
3. Make it simple and intuitive
4. Build the service using agile and iterative practices
5. Structure budgets and contracts to support delivery
6. Assign one leader and hold that person accountable
7. Bring in experienced teams
8. Choose a modern technology stack
9. Deploy in a flexible hosting environment
10. Automate testing and deployments
11. Manage security and privacy through reusable processes
12. Use data to drive decisions
13. Default to open

playbook.cio.gov

Speaker notes

- They summed up a lot of what was happening in gov in a great play book

And where are they now?



Speaker notes

- According to Fed Scoop -- 24.5% of 18F talent has left.
- 18F is now under the procurement / contracts arm of the agency
- However, there is a new office of American Innovation?



Meet the Presidential Innovation Fellows (And Learn Why President Obama Just Made This Program Permanent)

Speaker notes

- last bill signed into law by President Obama made statutory the Presidential Innovation Fellows
- The last act as president was for Obama to make the program permanent



Speaker notes

- A bunch of tech employees went to 18F
- The current government is not fond of the agency -- views it as too much regulation

Lastly...



Speaker notes

- During the making of this talk a bird told me that they were in definitely moving to the cloud.



Questions?



Speaker notes

- YAY! LOC!!!!
- Finally... if you are interested in working in Puerto Rico, they are talking about making changes!