SRECON 2018

Bootstrapping an SRE Team:
Effecting Culture Change and Leveraging Diverse Skill Sets

AARON WIECZOREK
DevOps/SRE, Lawyer. @USDS.
@_a12k | aaron.wieczorek@va.gov
MAKING THE GOVERNMENT WORK FOR THE PEOPLE BY THE PEOPLE
DEFENSE DIGITAL SERVICE: Working on tech in the Pentagon and overseas to make life easier for military service members

DHS DIGITAL SERVICE: Modernizing our immigration system

HHS DIGITAL SERVICE: Quality Payment Program, Medicare, and Healthcare.gov

LOGIN.GOV: Single sign-on for the entire government

SBA DIGITAL SERVICE: Making life easier for small businesses

DIGITAL SERVICE AT VA: Revamping Veteran services

MAKING THE GOVERNMENT WORK FOR THE PEOPLE BY THE PEOPLE
MAKING THE GOVERNMENT WORK FOR VETERANS

Streamlining Appeals Processing for Veterans

Allowing Veterans to Track, Manage, and Discover Benefits Online

Letting Veterans Apply for Healthcare ONLINE
327,923

VETERANS APPLIED FOR HEALTHCARE

Since July 2016
WHERE IS THE DIGITAL SERVICE VA TEAM NOW?
WHAT DO I DO AT DSVA?

AVAILABILITY
99.978%
based on our continuous reachability monitoring

ERROR RATE
0.0138%
rate of requests our software does not handle successfully

https://www.vets.gov/scorecard/
WHAT DO I DO AT DSVA?
THE IDEA

Two separate applications, two separate software stacks, two DevOps teams.

What if we standardized on the same tech stack, on-call rotations, and more?
WHY CREATE AN SRE TEAM?

Many attributes of a software service that make it reliable are orthogonal to the domain of the software service.

It makes sense to have a group of people who specialize in the tools, processes, and best practices that make software services reliable.
TWO GOALS

TECHNOLOGICAL

CULTURAL
FIRST GOAL

- Jenkins
- Terraform
- AWS
- Ansible
- Kubernetes
APPLICATION SERVICES

- Reverse proxies
- Logging

BUILD/DEPLOYMENT SERVICES

- Shared build/deployment infrastructure.
  - Jenkins
  - BRD deployments
  - AWS resource limits
  - GitHub hooks
  - Immutable infrastructure

ACCESS CONTROL

- Onboarding/offboarding to systems.
  - Application Servers
  - AWS
  - GitHub
  - Jenkins
  - Jumpboxes

BUILD RESOURCES

- Base hardening of system and global configuration utilized for builds.
  - Gold AMI
    - VA root SSL certificates
    - SSH protocol/cipher configuration
  - Antivirus? Clamav? McAfee? (j/k with that last one)
  - Package caching? (npm, yum, pip, etc)
**DATABASES**

- Application state storage.
  - RDS
  - Elastcache

**NETWORK SERVICES**

- Network and AWS<>VA connections and Internet<>AWS connections.
  - Jumpboxes
  - NATs
  - Transit VPC
  - CSR
  - Forward proxies

**MONITORING SERVICES**

- Infrastructure/services for monitoring / incident surfacing and response.
  - Shared public/VA dashboards.
  - Prometheus
    - Application-specific
    - Shared (federated within peered “monitoring” VPC)
  - Sentry
  - Grafana
    - Other VA backend monitoring?
    - Public status dashboards
    - Shared service integration (Appeals Status API)?
    - Pagerduty

SERIOUSLY... CONT’D
Socialize SRE concepts through VA organization

Bring VA teams into SRE org on rotatations to learn
HOW DO WE GET FROM **THERE** TO **HERE**?

The first step is to get the SRE team to work for the two projects that we control.

Define the broad set of categories for which the SRE team should be responsible.

For each category, choose the best practices from amongst Vets.gov, Caseflow, and practice in the broader industry.

Figure out, schedule and implement the work needed to get vets.gov and Appeals running on as common a platform as possible.

Figure out a common on-call strategy.
AND THEN...

The next step is to take what we have and build the SRE team that can incorporate support for outside services.

Package the best practices and tools in a way that can be consumed by other VA services.

Move tools to a repo that is accessible by outside groups

Make the best practices documents more generic.

Scope, schedule and implement the work needed to make the tools more generic.

Design the engagement models for how the SRE team will interact with the outside services.
LESSONS LEARNED FROM GOAL 1: the transition to an integrated SRE team and changing the culture...
FIRST GOAL

CULTIVATE A CULTURE WHERE IT’S SAFE TO ASK QUESTIONS
FIRST GOAL

BE RESPECTFUL OF DIFFERING ABILITIES AND SKILLSETS
FIRST GOAL

IMPLEMENT A BLAMELESS POSTMORTEM CULTURE
FIRST GOAL

CELEBRATE SUCCESSES, EVEN SMALL ONES
LESSONS LEARNED FROM GOAL 2: evangelizing SRE to the larger (and skeptical) organization
SECOND GOAL

USE THE USDS VALUES TO EFFECT CULTURE CHANGE
The first step is building something, or creating a process, that people see works.

SRE, uptime calculations are great

Better: Vets.gov, Caseflow, hugely helpful, gives our team street cred, allows us to start small and build
HIRE AND EMPOWER GREAT PEOPLE

We can’t do the work without bringing in the people who best know how the work is done, people from SRE teams practicing.

This gives legitimacy to the broader VA when we can say things like, “Many of us were SREs in private industry.”
FIND THE TRUTH, TELL THE TRUTH

Lots of teams are doing things because that’s how they have always done them, and that has never changed.

It’s important to point out when processes haven’t worked, and give examples so people learn.
GO WHERE THE WORK IS

Coaching and working on things like release engineering and source control directly with the team, side by side in the room, is a huge win.

We fly around to different VA facilities and have deep dives with eng teams.
WHY SHOULD YOU CARE ABOUT OUR EXPERIENCE?
P.S. WE’RE HIRING!

AARON WIECZOREK
DevOps/SRE. Lawyer. @USDS.

@_a12k | aaron.wieczorek@va.gov