



THE U.S. DIGITAL SERVICE

# SRECON 2018

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

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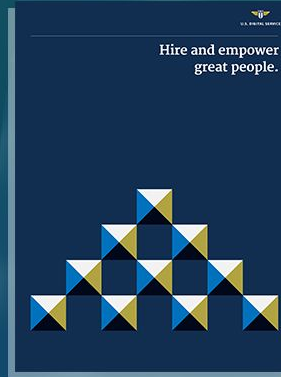
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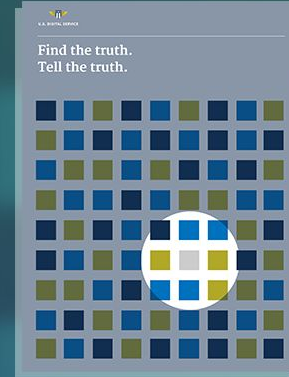


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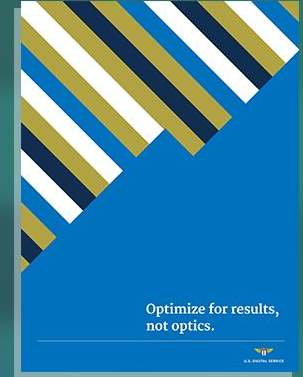
MAKING THE **GOVERNMENT**  
**WORK FOR THE PEOPLE**  
**BY THE PEOPLE**



Hire and empower  
great people.



Find the truth.  
Tell the truth.



Optimize for results,  
not optics.



Go where the work is.



Create  
momentum.



Design with users,  
not for them.



**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 VETERANS**

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Streamlining Appeals Processing for Veterans

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Allowing Veterans to Track, Manage, and Discover Benefits Online

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Letting Veterans Apply for Healthcare **ONLINE**

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DIGITAL SERVICE at VA

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DIGITAL SERVICE at VA

327,923

VETERANS APPLIED FOR **HEALTHCARE**

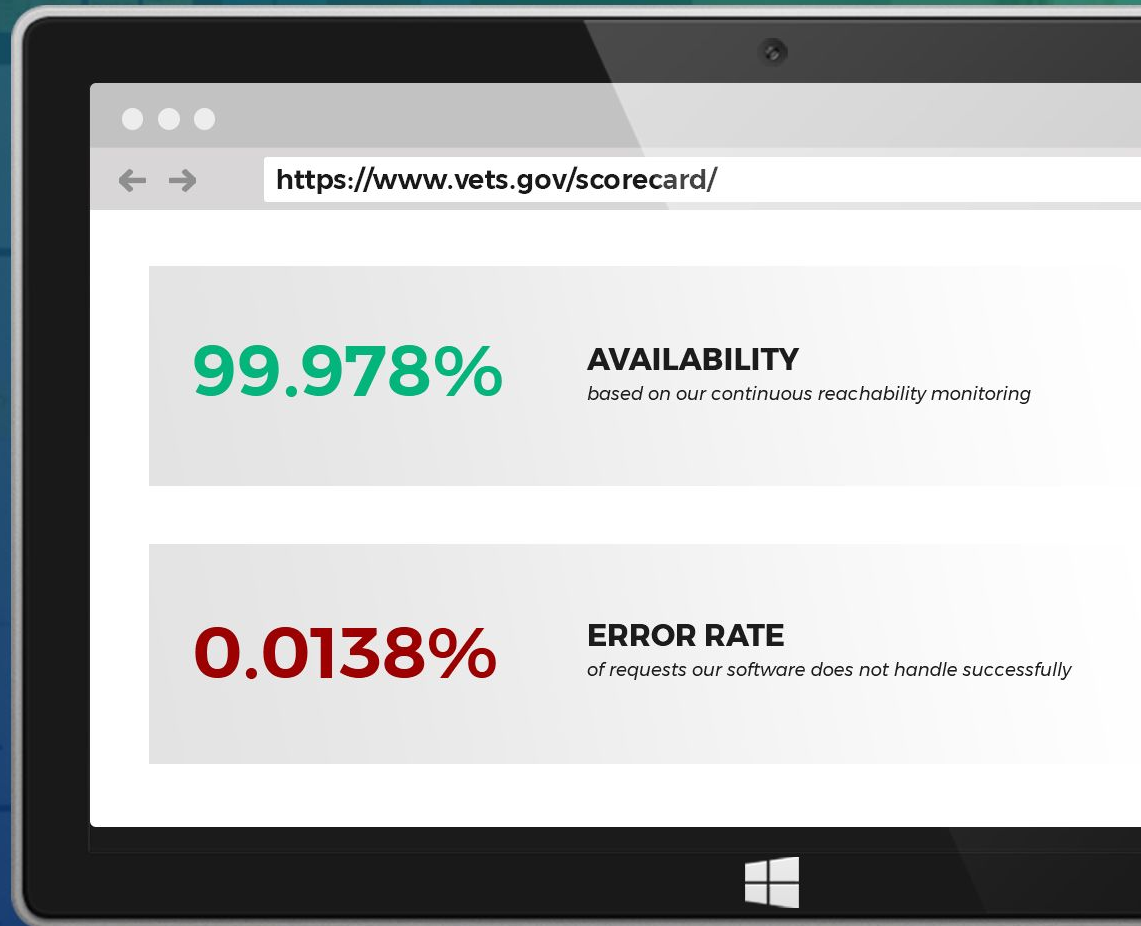
*Since July 2016*



DIGITAL SERVICE at VA

**WHERE IS THE  
DIGITAL SERVICE VA TEAM NOW?**

# WHAT DO I DO AT **DSVA**?





# WHAT DO I DO AT DSVA?





VA | Vets.gov

**VETS.GOV:**  
*Portal for Veterans to manage, discover, and apply for benefits online*



**Caseflow**

**CASEFLOW/APPEALS:**  
*Modernizing the VA Appeals Process*

**OUR TEAMS**



DIGITAL SERVICE at VA

## 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?*

VA | Vets.gov



Caseflow





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# 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.*

VA | **Vets.gov**



**Caseflow**

# TWO GOALS



**TECHNOLOGICAL**



**CULTURAL**





# FIRST GOAL



Jenkins



Terraform



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? Clamnav? McAfee? (j/k with that last one)
- ▶ Package caching? (npm, yum, pip, etc)

THERE ARE A LOT OF  
**CONSIDERATIONS**  
& WAYS OUR TEAMS  
**DIVERGED...**



## DATABASES

Application state storage.

- ▶ RDS
- ▶ ElastiCache



## NETWORK SERVICES

Network and AWS<>VA connections and Internet<>AWS connections.

- ▶ Jumpboxes
- ▶ NATs
- ▶ Transit VPC
- ▶ CSRs
- ▶ 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**



# SECOND GOAL

*Socialize SRE concepts  
through VA organization*

*Bring VA teams into SRE org  
on rotations to learn*



# HOW DO WE GET FROM **THERE TO HERE?**

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

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

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

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

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Figure out a common on-call strategy.

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## AND THEN...

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

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

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Move tools to a repo that is accessible by outside groups

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Make the best practices documents more generic.

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

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Design the engagement models for how the SRE team will interact with the outside services.

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# FIRST GOAL

LESSONS LEARNED FROM GOAL 1:

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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**



# FIRST GOAL

IMPOSTER SYNDROME IS REAL





# SECOND GOAL

LESSONS LEARNED FROM GOAL 2:

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evangelizing SRE to the larger  
(and skeptical) organization

# USE THE USDS VALUES TO EFFECT CULTURE CHANGE



## SECOND GOAL





# SECOND GOAL

## CREATE MOMENTUM

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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



# SECOND GOAL

# HIRE AND EMPOWER GREAT PEOPLE

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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"





# SECOND GOAL

## FIND THE TRUTH, TELL THE TRUTH

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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



# SECOND GOAL

## GO WHERE THE **WORK IS**

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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



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**WHY SHOULD YOU CARE  
ABOUT OUR EXPERIENCE?**



THE U.S. DIGITAL SERVICE

**P.S. WE'RE HIRING!**

**AARON WIECZOREK**  
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