CREATING A SINGLE, COHESIVE DIGITAL EXPERIENCE

Lessons from the transformation of VA.gov

Ad Hoc

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UNTIL RECENTLY, THE EXPERIENCE FOR VETERANS interacting with the U.S. Department of Veterans Affairs' (VA) benefits and services was spread out over multiple sites, with different designs and different logins. Veterans described the process as confusing and felt overwhelmed by the need to understand the VA's organizational structure to get things done.

Over the course of three years, Ad Hoc worked with VA to design, build, and launch the new VA.gov, with a single design and single sign-on for all Veteran benefits and services provided by VA. In building the new VA.gov, we sought to eliminate the confusion users felt by reimagining the VA's digital services as a single, cohesive experience, designed from the perspective of the people VA serves: Veterans, their families, and caregivers.

This paper outlines the principles, methods, and architecture we used to do this. Many federal agencies have a similarly fractured digital experience and could reuse the tools and techniques that made VA.gov successful to begin their own transformation.

MULTIPLE SITES WITH DIFFERENT DESIGNS AND CREDENTIALS → SINGLE DESIGN AND SIGN-ON

BEFORE YOU GET STARTED

Understand your users

Before you build anything, it's critical to understand the perspective of the people using your services. How do they think about your agency and the services you provide? What do they need?

To do this for VA, we spent a lot of time talking to Veterans. We observed them using the existing VA.gov site and asked them to navigate the process for various benefits. We noted where they ran into problems and listened to them describe what went wrong as they used existing services. These insights laid the foundation for the later design of VA.gov.

While it's critical to listen to the people using your services, don't worry about building a comprehensive picture of your users. Start with listening to them to make sure you get a clear picture of what they need, and use that to guide you. Ensure that you're checking in with users continually, and you'll learn how to talk and work with them to understand what they need.

250+ VETERAN AND STAKEHOLDER INTERVIEWS
allowed us to rapidly iterate based on user feedback

BEFORE YOU GET STARTED

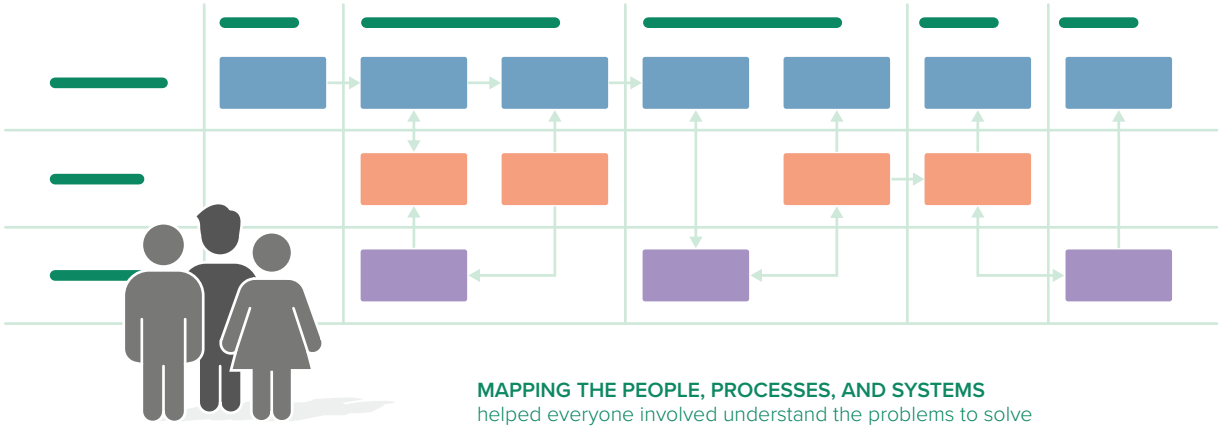
Understand your agency

Unless your agency is brand new or has entirely paper processes, you'll be dealing with a number of existing enterprise and legacy systems. It's critical to begin with a thorough understanding of these systems and how they work.

You won't have the time or resources to revamp everything, so you'll need to work with and rely upon existing systems.

As with users, don't worry about getting all the details in one place up front. Find the people who can answer questions about how your agency operates, and involve them in your process going forward.

Once you have an understanding of the people that use your services, and the resources that you have in place at your agency, you're ready to start creating a new experience for the people you serve.

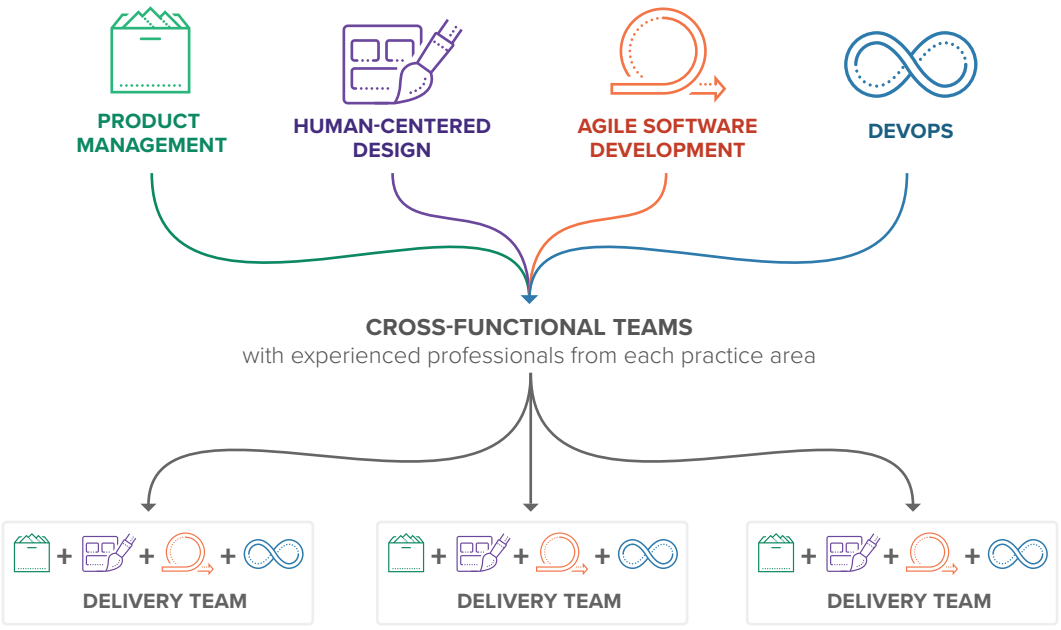


MAPPING THE PEOPLE, PROCESSES, AND SYSTEMS
helped everyone involved understand the problems to solve

Process

To deliver a transformed VA.gov, we combined several methodologies common in the consumer internet world: product management, human-centered design, agile software development, and DevOps.

Our team was made up of professionals with experience in each of these methodologies that work together to evolve solutions from idea to implementation.

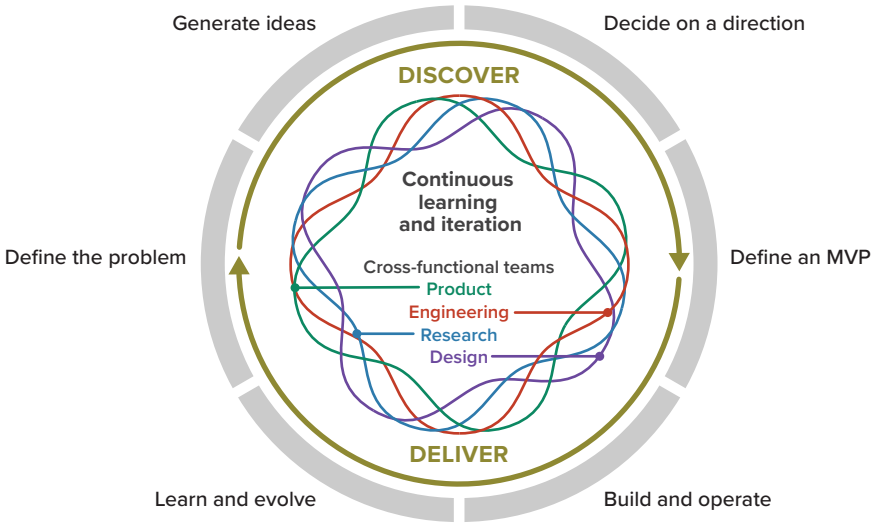


A cross-functional team brings together all the practices necessary to deliver an effective digital service. They work in unison to talk with users, develop solutions, and validate their work with the people who use the service.

PROCESS

Product management

Product management enables us to focus on delivering outcomes. What VA cares the most about is that Veterans are able to actually use and benefit from the services they provide. Using a product-based approach, instead of a project-based approach that focuses on completing a list of tasks, enabled us to experiment with finding the solutions that worked best for the people that depend on VA for services. It ensured we identified the problems that were most pressing to real people and focused our efforts on creating experiences that solved them. It also encouraged us to think of what we're building as something that needed continued care and attention, so that it continued to be useful to people as their needs and expectations evolve.

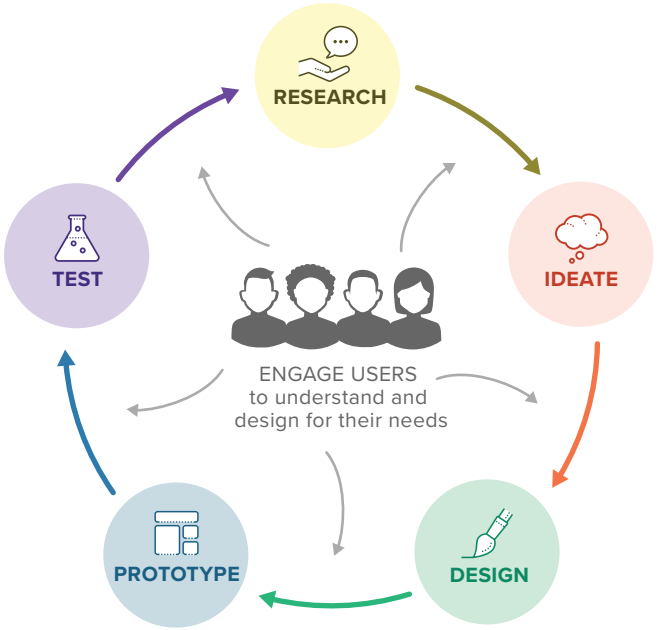


Ad Hoc's approach consists of two main phases — discover and deliver. Cross-functional teams made up of experts from our four practice areas, product, engineering, research, and design, help agencies define the problem, explore solutions, build new experiences, and collect feedback that informs future iterations.

PROCESS

Human-centered design

We used human-centered design to put Veterans and their families at the center of the process. We talked with the people who depend on VA to understand how they thought about VA and the services they provide. Their input guided us in designing the experience of VA.gov and often revealed a different way of thinking about the solution. As we designed, prototyped, and built VA.gov, we continued to test with people who would be using these services to ensure we were investing in building the right experiences for them.

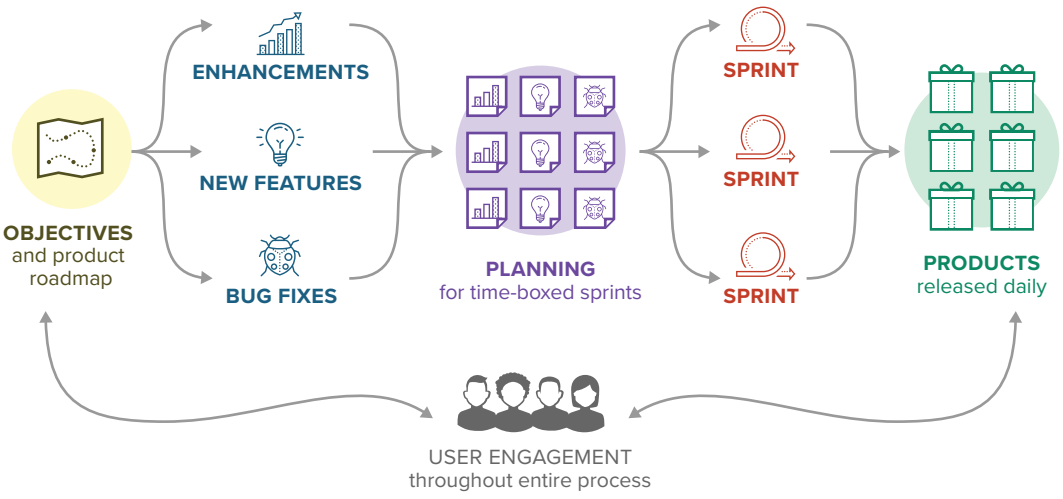


Engaging users at every step of the design and development process is a great way to prioritize features and align on the direction of your solution.

PROCESS

Agile software development

We used agile software development to structure how we built and delivered new features. We released new features on VA.gov on a daily basis and created feedback loops to quickly get input from people using the site. We worked with our VA product owners to prioritize new features and bug fixes that were most impactful to the people using the site. Our agile process also enabled us to adapt and respond to changes in requirements or strategy.



A process that combines agile software development, human-centered design, and DevOps and is led by a product management approach allows teams to stay flexible and focused on high-value tasks.

PROCESS

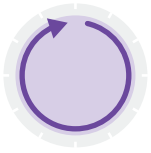
DevOps

By using DevOps to automate our infrastructure and deployment processes, we were able to move rapidly and make changes with confidence. Deploying to a cloud environment means we can program everything from the infrastructure to new code releases, greatly speeding up development and enabling us to deliver value quickly. Without automating testing and deployments, we wouldn't have been able to keep pace with the needs of our users.

THE VA API DEVELOPMENT EXPERIENCE

7 MINUTES
to run all tests on pull requests with "preview instances" allowing reviewers to try out the site without deployment

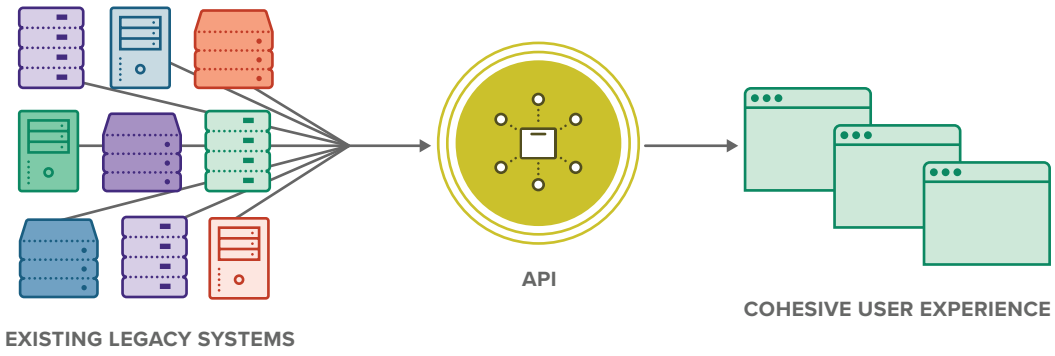
19 MINUTES
from code commit to deployment on dev.va.gov



AUTOMATIC DAILY RELEASES TO PRODUCTION
with knowledge that all tests are passing

Architecture

The technical architecture used for VA.gov was designed to create a cohesive experience for Veterans as they access VA services. Each piece of the architecture was designed to align VA.gov with canonical web application architectures and help achieve a specific program goal. We wanted to use existing systems, so we didn't have to start from scratch or impact existing business operations, but we didn't want those systems' performance to impact the user experience.

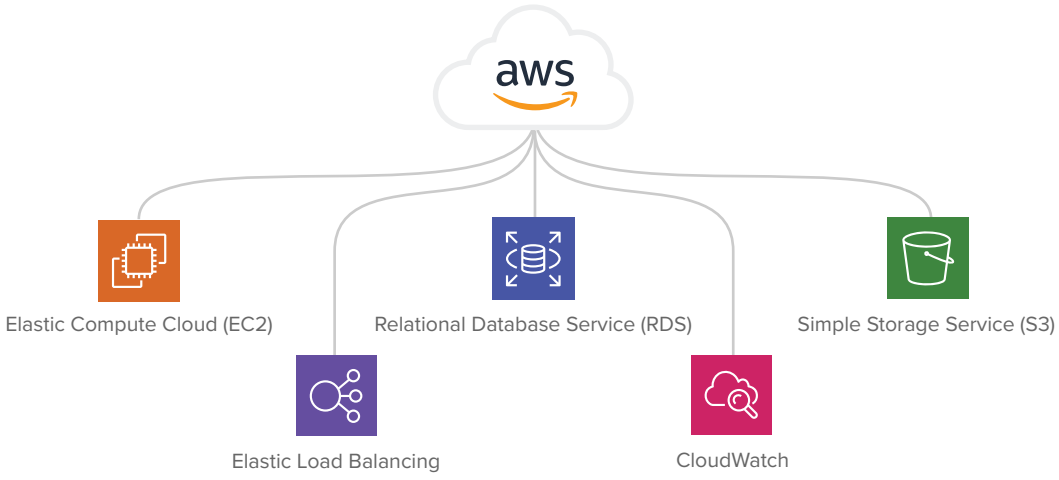


Creating an API layer between VA's existing systems and the user-facing website let the development team build on a modern platform, while leveraging VA's enterprise and legacy systems for business logic and operations.

ARCHITECTURE

Infrastructure

We built VA.gov using Amazon Web Services, which provides a fully-programmable set of cloud services that enabled us to automate all of our testing and deployments. It makes it simple to test new features or bug fixes in non-production environments before releasing to the public. Amazon Web Services also allows for easy, automated scaling, ensuring that our services can expand as demand grows and contract to save resources when demand lessens. Without Amazon Web Service's fully-programmable cloud services, we would not have been able to support the development cadence or rapid release of new features to live users.



Amazon Web Service's programmable tools help teams speed development to quickly deploy features that meet the needs of users.

ARCHITECTURE

Front-end

To create a cohesive user experience, we built the front end of VA.gov as a single-page web application using React.js, a component-based front-end web framework. We also created the VA Design System, based off the U.S. Web Design System, to ensure a cohesive visual and interaction experience across all the services within VA.gov.

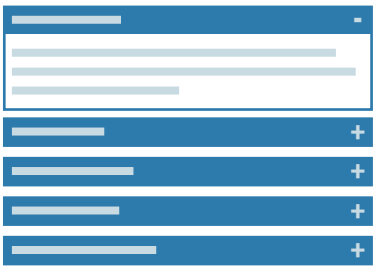
The code for the VA front-end website is here:
https://github.com/department-of-veterans-affairs/vets-website

The U.S. Web Design System can be found here:
https://designsystem.digital.gov/

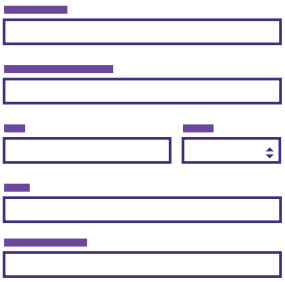
The VA Design System is here:
https://design.va.gov/

COLOR PALETTE

ACCORDION COMPONENT



FORM PATTERNS



The VA Design System is a library of consistent, compliant, and accessible design patterns that developers could use to quickly create cohesive designs across applications.

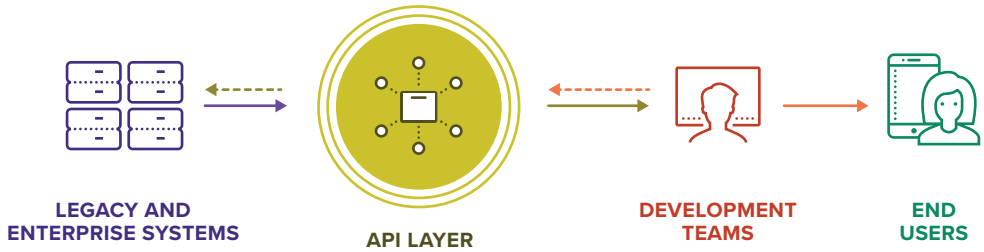
ARCHITECTURE

API abstraction layer

We built VA.gov on top of existing VA enterprise and legacy systems. This allowed us to focus on transforming the user experience without having to revisit internal operations or processes. By creating an abstraction layer between the user experience and the enterprise systems, we could easily combine information from multiple systems and determine where VA needed to invest to address unmet user needs.

We built our API in Ruby on Rails, but any web framework will work. We've also built APIs in Go and Node.js. We then used Kong to add an API management layer on top of the API to open up VA services to third-party development teams.

The code for the VA.gov API is here:
https://github.com/department-of-veterans-affairs/vets-api



Creating an API layer improved the speed and effectiveness of the development teams while minimizing the impact on existing systems.

ARCHITECTURE

Identity verification and authentication

Most digital services benefit from enabling users to verify their identity and create credentials, such as a username and password, so they can return later, login, and continue using a service. If you have more than one service, requiring users to create multiple credentials is cumbersome and creates a disjointed experience.

For VA.gov, we wanted a single point of entry for all VA services, where Veterans could both verify their identity and authenticate any time they wanted to use VA services. We also wanted to allow Veterans to login with credentials they already had, either from other VA services or from other common online services.

For identity verification, we used ID.me. Their identity verification process is well-designed and easy for most people to navigate, and some Veterans already had an account with ID.me. The service also allowed people to use their credentials from common social services like Google and Facebook or other VA credentials like MyHealtheVet or DS Logon. ID.me acted as a broker for these services and wrapped them in a secure, two-factor authentication that met VA and federal standards.

Using a federated identity provider makes it easier for people using your service to sign up with a login they already have and reduces the cost of maintaining those credentials internally.

ARCHITECTURE

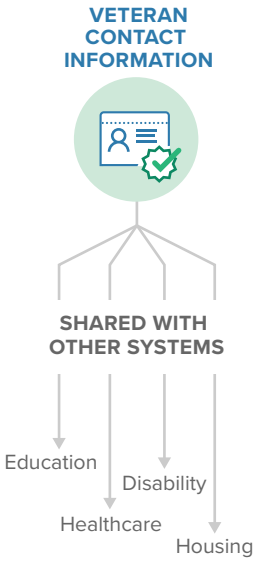
Core services

Core services promote a consistent experience across a suite of services. Look for the interactions or information that spans multiple services, and make them available via core services.

A great example of a core service is notifications. Imagine if everyone built their own notifications service. Users would get emails that were designed differently or were sent from different email addresses. Some services might offer SMS notifications, while others wouldn't. Creating a core notification service lets every part of your agency create a consistent experience for your users.

At VA, one of the most important shared pieces of information is a Veteran's contact information. Different VA systems had different information for many Veterans. By centralizing contact information and creating a service that other applications could use, we were able to ensure consistent data for the agency and make things simpler for Veterans.

Creating core services also lets your application teams focus on delivering new features for users, rather than reinventing the wheel for functionality common to other applications.



By centralizing core services, your agency can provide streamlined, accurate data to multiple systems while simplifying the experience for users.

Measuring success

It's common to structure and measure the success of digital services in terms of output. We come up with a list of requirements that must be completed, set a team to go about implementing them, and determine if they were successful or not based on how much they get done. This mindset unfortunately overlooks the core purpose of digital service, which is to provide outcomes for the people that use them.

It's more effective to measure success based on a digital service's ability to help people achieve the outcomes they desire. Reorienting your measure of success around outcomes instead of output, shifting from a project- to a product-mindset, will also encourage your team to focus on identifying problems, rather than starting with solutions in search of a problem.

To gauge success for VA.gov, we looked at the services VA provided to Veterans and measured the increase in usage of those services.

2.5 MILLION+
UNIQUE ACTIVE USER ACCOUNTS

100,000+
AVERAGE TRANSACTIONS EVERY WEEKDAY

95% ↓
REDUCTION OF LOGIN HELP REQUESTS
after redesigning the login process through user research and testing

54% ↓
REDUCTION IN WAIT TIME FOR VETERANS
for our new disability claims process, lowering the average time to process from 97 to 45 days

5 → 2.8
REDUCTION IN PAGE LOAD TIME
measured in seconds

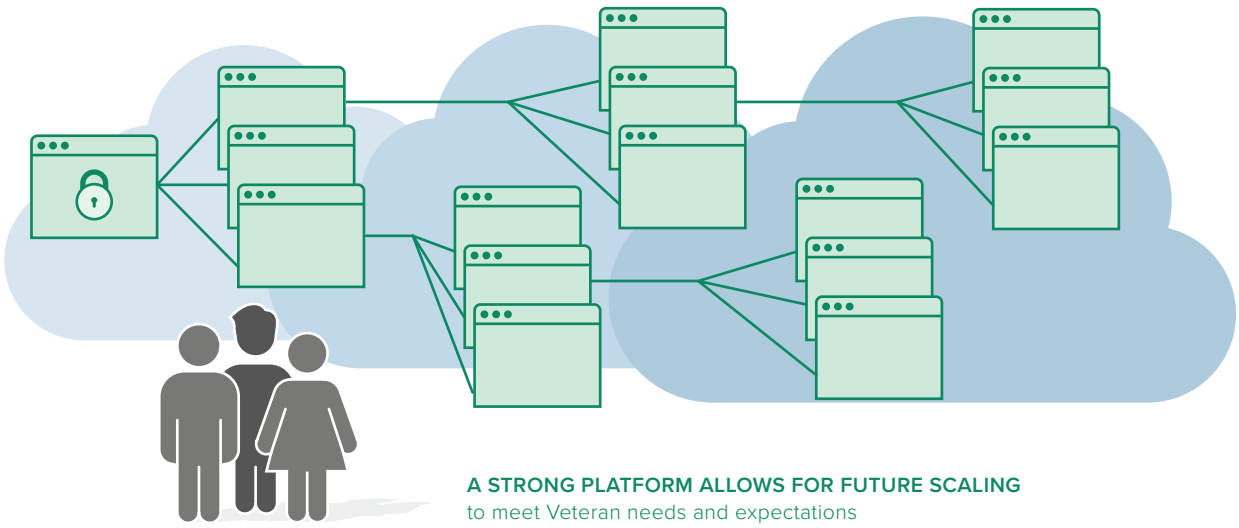
5% ☺
INCREASE IN USER SATISFACTION

There are many other examples of how we measured success by focusing on outcomes. The end result is our team is motivated to find the highest-impact problems, and then design and test solutions to find what works best for the people using them.

The future

Launching the new VA.gov with 20+ new enhanced digital services for Veterans was only the first step. VA continues to build and improve services for Veterans. VA is also investing in transforming VA.gov from a site into a platform, so that other parts of the VA organization can build and deploy services for Veterans that have the same cohesive design and experience and use the same single sign-on. This effort is critical to scaling the impact of the new VA.gov to Veterans.

VA continues as well to talk with Veterans to understand their needs. As time goes on, Veterans' expectations may change, especially with the rapid evolution of consumer technology. For VA to stay relevant and effective in serving Veterans, a continued dialogue to understand their perspective is critical. This also helps VA prioritize and target the places within their enterprise that warrant investment. Sometimes, critical features that Veterans need are not possible with the existing underlying legacy or enterprise systems, and they require an investment by VA to update a legacy system or scale an enterprise service. This dialogue ensures that the investments VA makes in modernizing its information technology are all focused on one top-level goal: improving service to Veterans and their families.



A STRONG PLATFORM ALLOWS FOR FUTURE SCALING
to meet Veteran needs and expectations

Let’s talk

hello@adhoc.team

https://adhoc.team