

DEVOPS ENTERPRISE SUMMIT (DOES) 2023

Your Bureaucracy Our Tenacity

HOW WE ACHIEVED THE FIRST ONGOING AUTHORIZATION AND CONTINUOUS
AUTHORITY TO OPERATE (CATO) IN FEDERAL GOVERNMENT



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Platform Dept. of Veterans Affairs (VA)*

#mission-obsessed



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#prod-or-it-didn't-happen



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Today's Journey

- | What do we really mean by Bureaucracy
- | Criticality of Solving Problems in Government
- | The challenge of shifting left at the VA
- | Where we began
- | Our MVP experiment results
- | Where we need help

How many of us believe that **bureaucracy** is a major impediment to getting  done in most organizations?



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Merriam Webster | mid -18th century French philosophe, Vincent de Gournay

”

Bureaucracy is a system of managing an organization [government or business] by **strictly following** a fixed routine or procedure that **often results in delay.**



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When Bureaucracy is Bad

- Inefficient
- Goals are displaced
- Stifles innovation
- Fosters blind support
- Oversimplifies
- Not Enough
- Coercive
- Petrifying
- Risky by being risk-averse

When Bureaucracy is Good

- Fair
- Formality and Role Definitions
- Size and Scale
- Compliance and Grimaces
- Persistence of Memory
- Rational Results and Capitalism
- Green Eggs and Meaning

Bureaucracy we reject

Incentivizes an environment where “the way we work” detracts our people from achieving results, that continuously increase our overall value

“This is how we’ve always done it.”

“As long as I have what I need, I don’t care how it got here.” AKA “Not my problem”

Bureaucracy we embrace

Provides clarity, transparency, and structure, that optimizes for rapid and continuous adoption of change in pursuit of achieving greater value

“Value proposition is validated by our users/customers”

“Data and KPIs drive our changes to processes, products and services”

Criticality of Solving Problems in Government

IT ~~TAKES~~ REQUIRES HUMILITY



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VA Mission



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18M+

Veterans

390 K+

VA Employees

16K+

VA OIT Employee /
Contractors

WITH THE VA FOR MY
BENEFITS...
THIS ONE IS FOR WAITING
6 MONTHS FOR AN APPOINTMENT.

WOW,
GRANDPA...



**VETERANS
WAITING ON
BENEFITS
APPROVAL**

Over 41,000 VA Patients Warned of
Delayed Care Due to Troubled
Electronic Records System



Active duty and Air National Guard leadership from Fairchild Air Force Base, Wash., visit the Spokane Veterans Affairs Medical Center to meet veterans and the medical staff in Spokane Wash., Feb. 14, 2014.
(Staff Sgt. Alexandre Montes/U.S. Air Force photo)



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The challenge of shifting left at the VA

TENACITY ACHIEVES CONTINUOUS DELIVERY



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Brief historical context

2018

Launched Public API Platform

2021

Launched Delivery Platform

2022

Achieved Ongoing Authorization & cATO

2024+

Scale & Automate more cATO Capabilities



Unveil at
DOES 2024?



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Some helpful definitions

The National Institute of Science and Technology (NIST) develops cybersecurity standards, guidelines, best practices, and other resources to meet the needs of U.S. industry, federal agencies and the broader public.

Risk Management Framework (RMF) is a set of specifications, defined by NIST, to help organizations develop, test and deliver secure systems, as efficiently as possible

Authority to Operate (ATO) is a signed authorization, by an Authorizing Official (AO), for software to operate in a production environment. An ATO acknowledges compliance with RMF, and/or risk accepted for areas of non-compliance.

All you need to know today



Methods to achieve goals

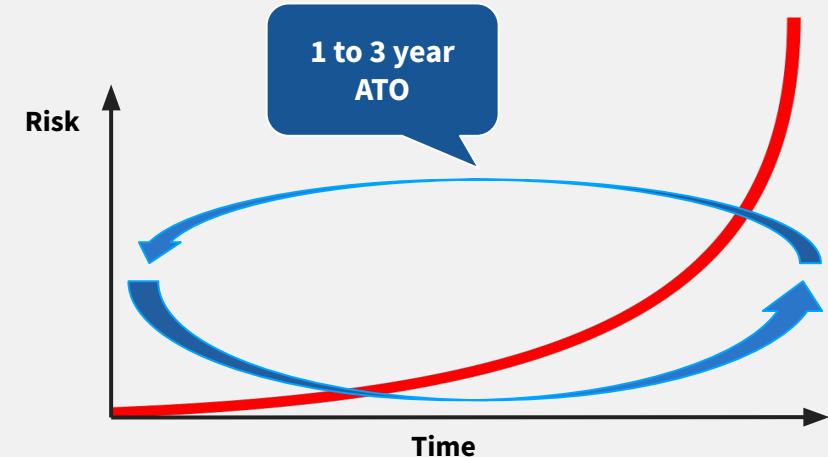
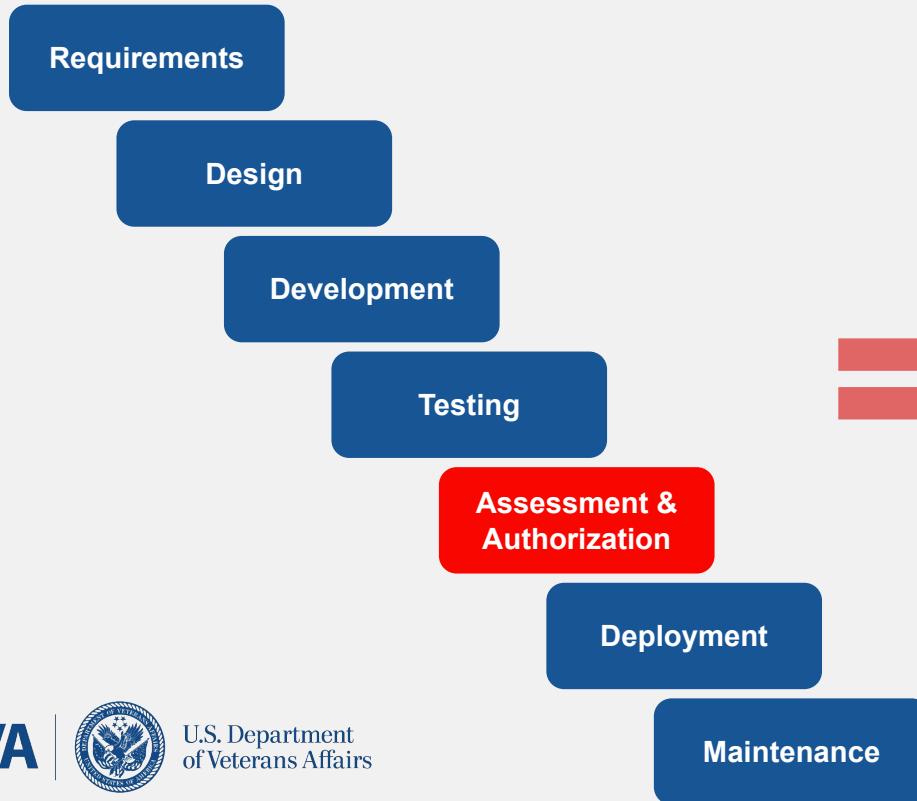


Non-linear, Flexible, Framework



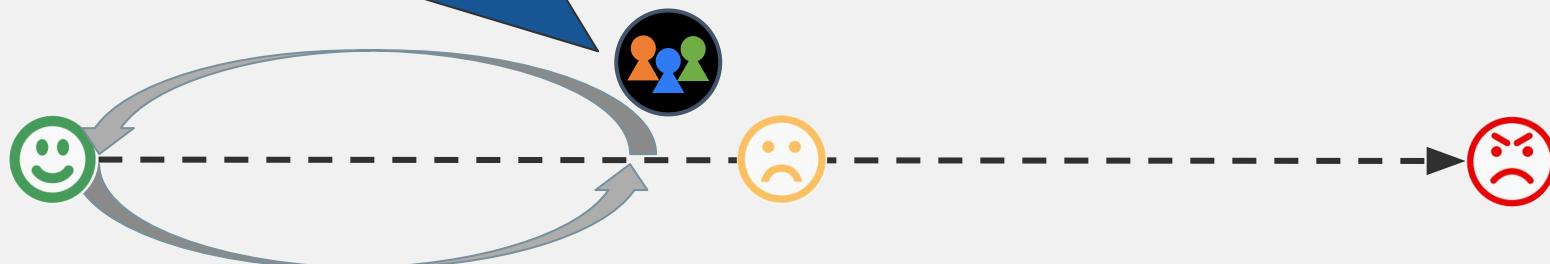
Permission

Traditional RMF approaches are optimized for traditional systems



High cost of security scans

Tedious intake forms and a siloed team managing security scans means days/weeks to complete, and leads to increased acceptance of unaddressed vulnerabilities



30 Day SLAs

Quarterly to
Annual Scan
Frequency

100s of
vulnerabilities
at a time



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Fragmented processes create waste



False sense of trust (and security)

Requirement implementations are captured in static documents, and then duplicated into a single source of truth. Assessments are scheduled for a week at the end of a project, to determine ATO readiness



Where we began

BALANCE PEOPLE. PROCESS. TOOLING.



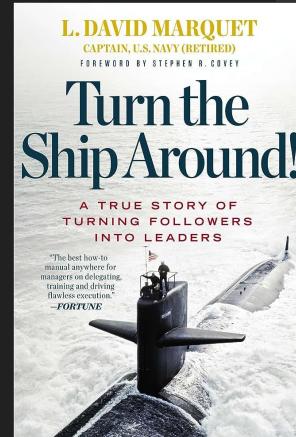
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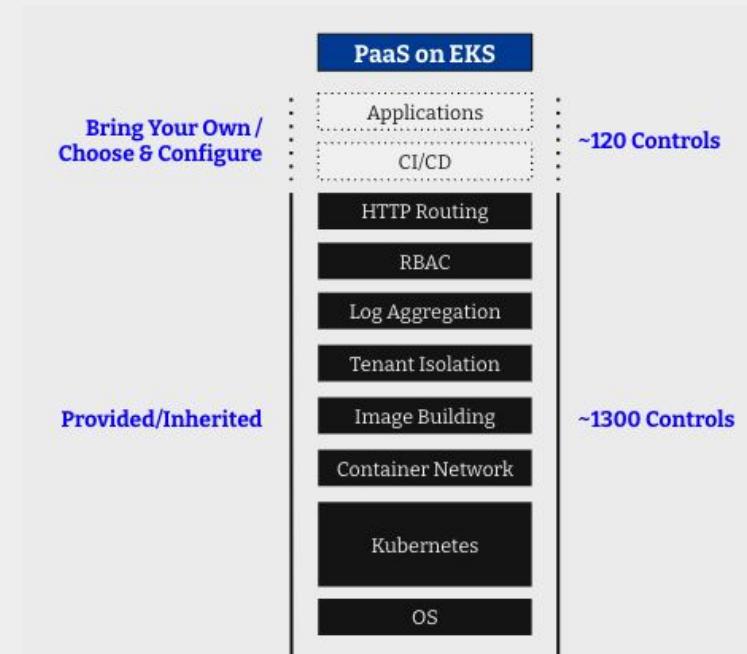
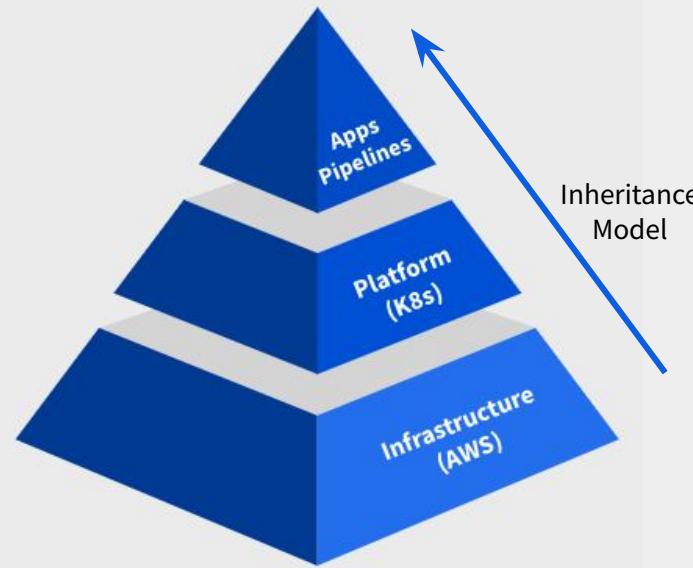
David Marquet

“

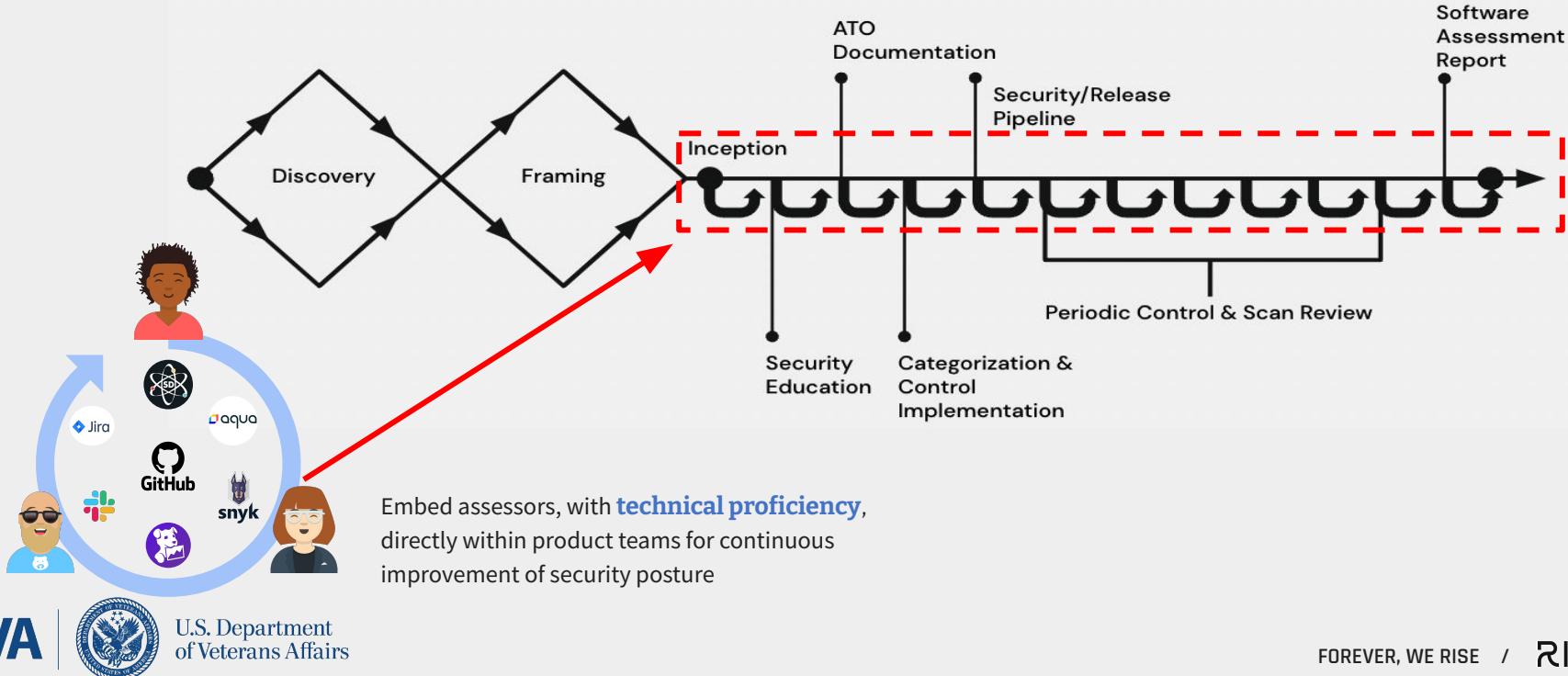
Don't move information to authority, **move authority to the information.**



Isolating authority through more explicit boundaries



Embed authority within product development teams



Grant authority to access all risk & decision data

SD Elements



Provides ongoing transparency of risk, as well as applicable security controls for a given product/application, and can be managed within team backlog management solutions.



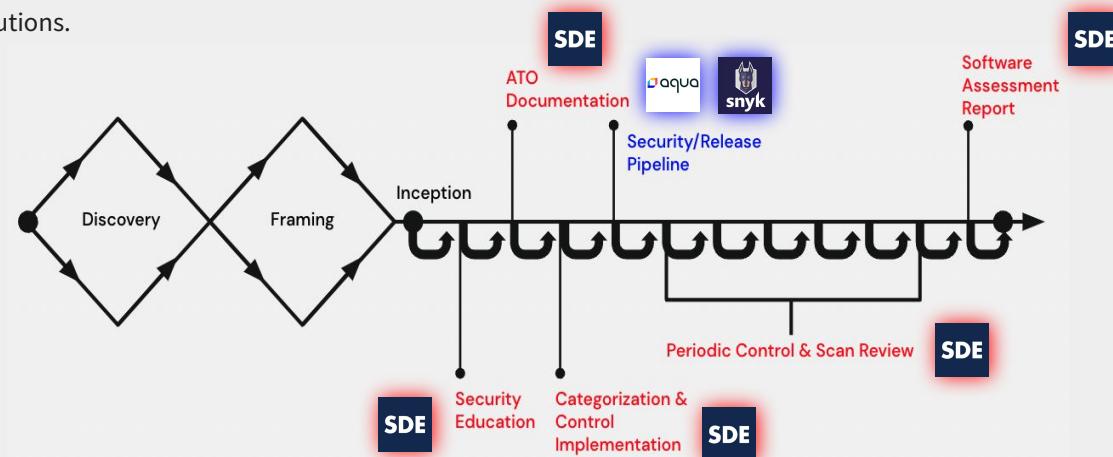
Snyk

Find and automatically fix vulnerabilities in your code, open source dependencies, containers, and infrastructure as code with industry-leading security intelligence.



Aqua

Aqua protects applications from development to production, across VMs, containers, and serverless workloads, up and down the stack.





UP TO DATE DOCUMENTATION AND
REAL-TIME FEEDBACK LOOPS

NOW THATS SOMETHING I'VE
NOT SEEN IN A LONG TIME

Align everyone to incremental & iterative risk planning

Risk Profile Changes Release-Over-Release



Project Survey

Model the Products/Apps by customizing the Blank settings below. If you complete the project settings but are unsure of certain answers, you can make assumptions and then change the project settings at a later time.

Application General !

Data Privacy Analysis !

Platform and Language

Features and Functions

Protocols

Compliance Requirements

Development/Test Tools

Deployment

Changes Since Last Release

General Changes

Changes Since Last Release

User Input/Output Changes

- Changes to hardware design
- Changes to servers/frameworks and/or configuration
- Changes to authentication
- Changes to session management
- New transactions / use cases
- Changes to inbound/outbound interfaces
- Changes to processes/activities

BACK TO PROFILE CANCEL UNDO CHANGES SAVE CONTINUE TO DIAGRAM CONTINUE TO SUMMARY



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Leads to clear & actionable tasking

Actionable Backlog



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BACK TO PROFILE

CANCEL UNDO CHANGES SAVE CONTINUE TO DIAGRAM CONTINUE TO SUMMARY

ATOMS Countermeasures

ACTIVITIES (48) REQUIREMENTS (40) ARCHITECTURE & DESIGN (8) DEVELOPMENT (22) DEPLOYMENT (1) TESTING (0)

Status Priority Countermeasure Show only Highest Risk Requirements Only countermeasures

| | | |
|------------|----|---------------------------------------|
| Incomplete | 10 | CT55: Compliant Management |
| Incomplete | 10 | CTS4: Personnel Sanctions |
| Incomplete | 10 | CT52: Personnel Transfer/ Termination |
| Incomplete | 10 | CTS1: Personnel Screening |
| Incomplete | 10 | CT50: Position Risk Designation |
| Incomplete | 10 | CT48: Media Use |



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More efficient validation & feedback

Verifiable Evidence

Project Survey
Model the Products/Apps by customizing the Blank settings below. If you complete the project settings but are unsure of certain answers, you can make assumptions and then change the project settings at a later time.

General Changes

- Changes Since Last Release**
- User Input/Output Changes**
- Platform and Language**
- Features and Functions**
- Protocols**
- Compliance Requirements**
- Development/Test Tools**
- Deployment**
- Changes Since Last Release**

BACK TO PROFILE

CONTINUE TO DIAGRAM **CONTINUE TO SUMMARY**

SD ELEMENTS Reporting GitHub Teams Library Manage

ATOMS Countermeasures

| ACTIVITIES (4) | REQUIREMENTS (40) | ARCHITECTURE & DESIGN (8) | DEVELOPMENT (22) | DEPLOYMENT (1) | TESTING (0) |
|----------------|-------------------|---------------------------------------|------------------|----------------|-------------|
| Incomplete | Priority ↓ | Countermeasure | | | |
| Incomplete | 10 | CT55: Compliant Management | | | |
| Incomplete | 10 | CT54: Personnel Sanctions | | | |
| Incomplete | 10 | CT52: Personnel Transfer/ Termination | | | |
| Incomplete | 10 | CT51: Personnel Screening | | | |
| Incomplete | 10 | CT50: Position Risk Designation | | | |
| Incomplete | 10 | CT48: Media Use | | | |

In Progress CT288: VA Standard MOU/ISA

Todd Pritt • Jan 26, 2023, 3:27 pm
A working draft of the MOU is available at the following link:
[REDACTED]

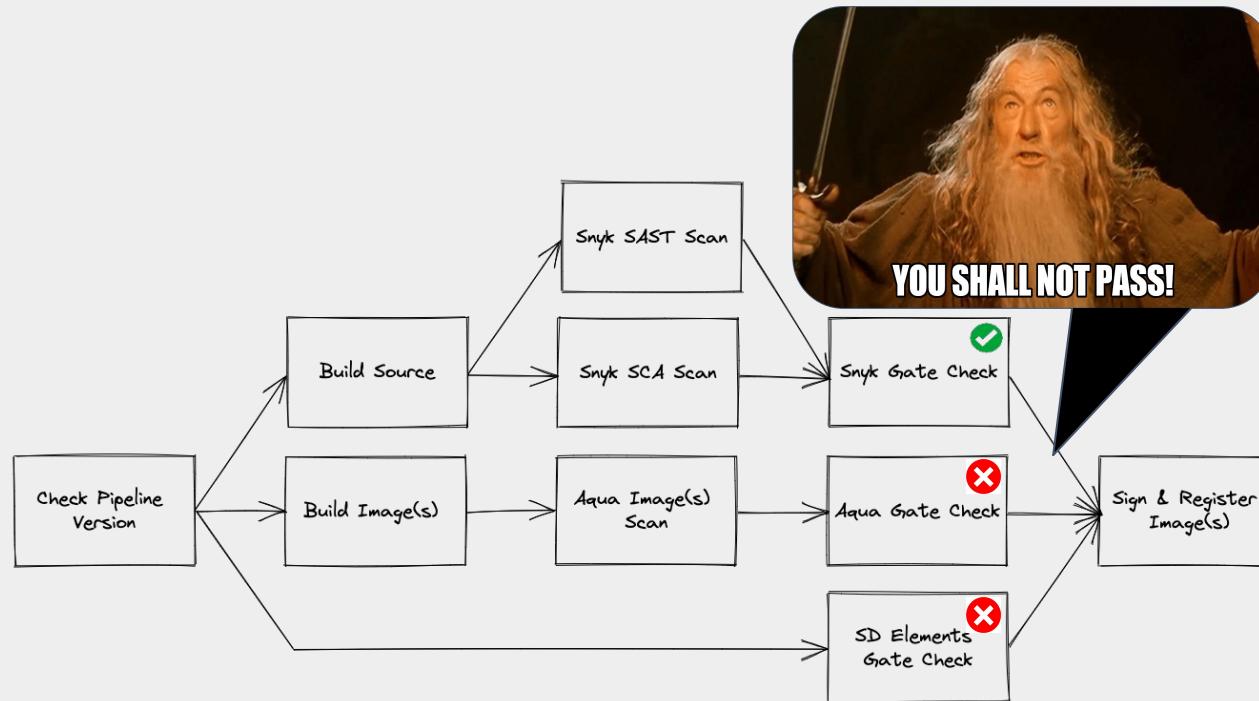
Rob Monroe • Feb. 13, 2023, 1:23 pm
Vulnerability description:
Criteria - For any VA system to connect with an external system, an MOU/ISA is required.
Condition - [REDACTED]
Cause - MOU/ISA requires significant time to produce and approve, so this SDE Countermeasure has been flagged as potential risk.
Risk & Impact - Low & Low, documentation of how systems are integrating vs. how the actual implementation demonstrates working software and expected outcomes will reduce risk to an acceptable level.
Mitigation - [REDACTED]
Responsible FOC - Todd Pritt
Assumed Completion Date - 1/20/2024

Todd Pritt • Jan 26, 2023, 1:23 pm
Expecting to POAM the MOU while drafting the MOU/ISA document (currently in progress).

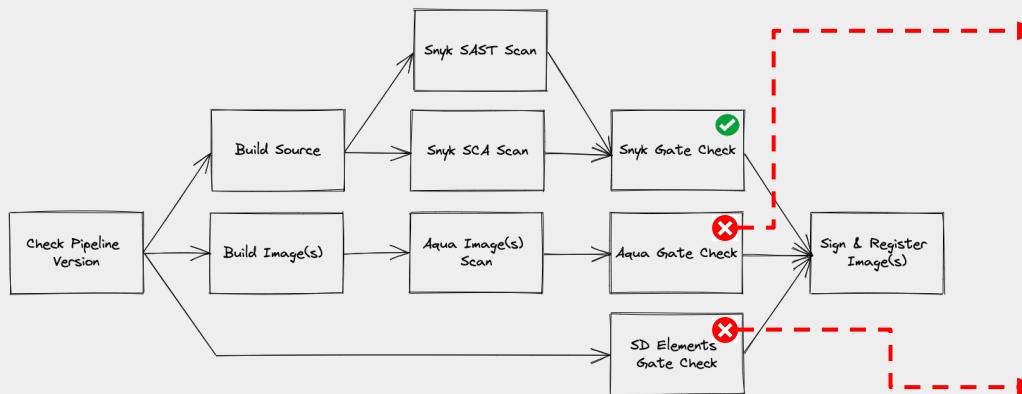
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Shift as much authority to pipeline policy-as-code



Engineer user experience (UX) matters



Run Aqua On Demand / aqua-gate-check summary

Aqua Gate Check Summary

Note: More vulnerabilities may exist in Aqua that have not yet been remedied and acknowledged. The following vulnerabilities have fix versions available and have not yet been acknowledged.

Image: [REDACTED]

Note: Hyperlink can only be accessed if you are on Citrix or utilizing GFE.

| Severity | Description | Remediation | Fix Version | Vulnerability Name |
|----------|--|--|-------------|--------------------|
| High | A parsing issue with binary data in protobuf-java core and lite versions prior to 3.21.7, 3.20.3, 3.19.6 and 3.16.3 can lead to a denial of service attack. Inputs containing multiple instances of non-repeated embedded messages with repeated or unknown fields causes objects to be converted back-and-forth between mutable and immutable forms, resulting in potentially long garbage collection pauses. We recommend updating to the version mentioned above. | Upgrade package protobuf-java to version 3.21.7 or above. | 3.16.3 | CVE-2022-3791 |
| High | A vulnerability was discovered in the indexOf function of JSONParserByteArray in JSON Smart versions 1.3 and 2.4 which causes a denial of service (DoS) via a crafted web request. | Upgrade package json-smart to version 2.5 or above. | 2.4.5 | CVE-2021-31684 |
| High | In FasterXML jackson-databind before 2.14.0-rc1, resource exhaustion can occur because of a lack of a check in primitive value deserializers to avoid deep wrapper array nesting, when the UNWRAP_SINGLE_VALUE_ARRAYS feature is enabled. Additional fix version in 2.13.4.1 and 2.12.17.1 | Upgrade package jackson-databind to version 2.12.7.1 or above. | 2.12.7.1 | CVE-2022-42503 |

SDE Countermeasures Summary for project: [REDACTED]

| SD Elements Attribute | Value |
|---|----------------------|
| Current Project Risk Policy | Requirements Round 3 |
| Gate Check Percentage Completion | 72.40% |
| Total Project Countermeasures | 192 |
| Incomplete Countermeasures | 1 |
| In progress Countermeasures | 52 |
| Countermeasures Completed by App Team | 139 |
| Countermeasures Missing App Assessor Verification | 2 |

Our MVP experiment results

OUTCOMES OVER OUTPUTS



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Faster time to market (successes and failures!?)

Digital Health Platform

Achieved 100% adoption rate with soft-launch Veteran user group connecting Fitbit devices to va.gov. Initial Clinician user group also confirmed the data was value-add for medical visits.

Automated Benefits Delivery - Virtual Regional Office

Exceeded congressionally mandated delivery timeline expectations, and reduced claims processing for hypertension and asthma by 80+ days.

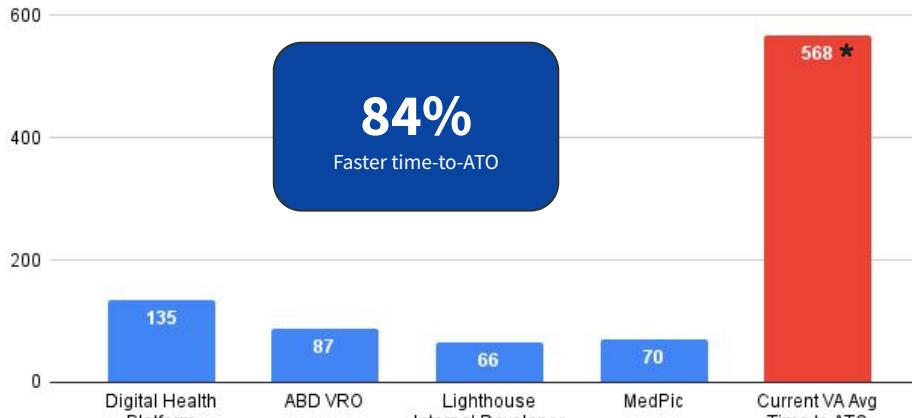
VA Developer Hub

Enabled a modern, self-serviceable, standard API catalog for internal software development at the VA. (will not support OIT TPT API catalog initiative)

MedPic

Invalidate a software product idea for Clinicians managing prescriptions in just 3 months, instead of the VA's avg time to ATO.

Time to Achieve an ATO Comparison



*data last confirmed 9/20/2023 on VA IS Operations: FISMA Systems Status Reporting dashboard



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VA Application Information System Owner

“

“Going in I thought cATO was an attempt to fast-track ATO’s by avoiding VA processes and documentation altogether. Now I believe it’s a ***more humanistic approach that emphasizes automation, transparency and trust*** to support our modern SDLC process”



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Increased security vulnerability sense of urgency

Before

30 Days

To complete and report scan results

Quarterly to Annual Scan Frequency

100s of vulnerabilities at a time

After

< 3 Days

Onboard and Complete First Security Scan

< 9 Min

Pipeline Runtime

< 6 Days

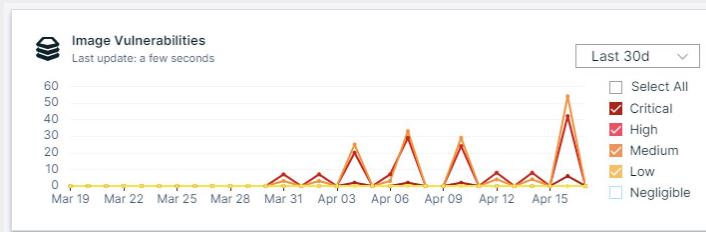
Remediate First Vulnerability

< 16 Hrs

Scan Frequency

24/7

Runtime Monitoring



"I love that I get vulnerability checks in minutes instead of days, approaches to fixing the problem, and that I can do all of this from my software configuration management tool!"

~ Engineer user of SecRel



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Increased assessment frequency and decreased POA&M count & aging

Before

Quarterly/Annually
security impact
analysis

Assessed once per
ATO cycle
(1-3 years)

10s - 100s
Avg POA&M count per
system

22 Mo
Overall Avg POA&M Age

After

3 Wks

Avg time between security
impact surveying

Daily

Control assessment
feedback

2

Avg POA&M count per
system

5 Mo

Overall Avg POA&M Age



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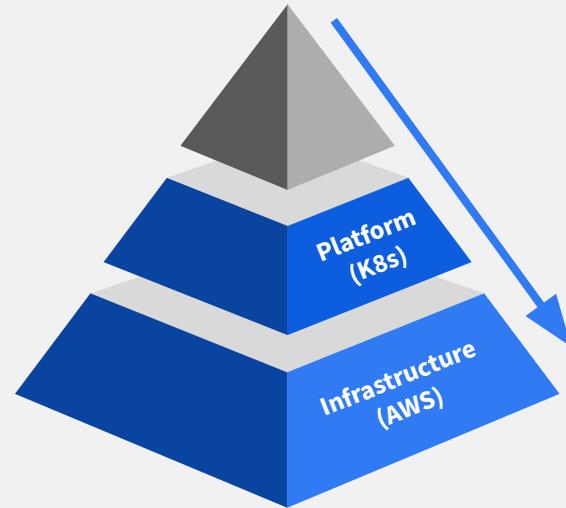
WHERE WE NEED HELP



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Expanding cATO Impact & Coalition of Practitioners



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Get in touch with us!



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Rise 8



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*Deputy Director,
Lighthouse API & Delivery Platform*

Dept. of Veterans Affairs (VA)



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