carahsoft.

DevSecOps Conference

August 17, 2023

carahsoft.

Thank You to Our Sponsors

PLATINUM

SECOND FRONT SYSTEMS

ATLASSIAN

VERACODE

GOLD

aqua

EDB™

Red Hat

vmware®

SILVER

sonatype

KASTEN by Veeam

BRONZE

ASK SAGE

aws

CloudBees.

Contrast SECURITY

dynatrace

elastic

Flosum

ForgeRock.

GitLab

HashiCorp Federal

invicti

Katalon

LINEAJE

LaunchDarkly

Mattermost

opentext™ Cybersecurity

paloalto® NETWORKS

RISE8

SecurityCompass

carahsoft.

Welcoming Remarks

Francis Rose

Host & Co-Founder

Fed Gov Today

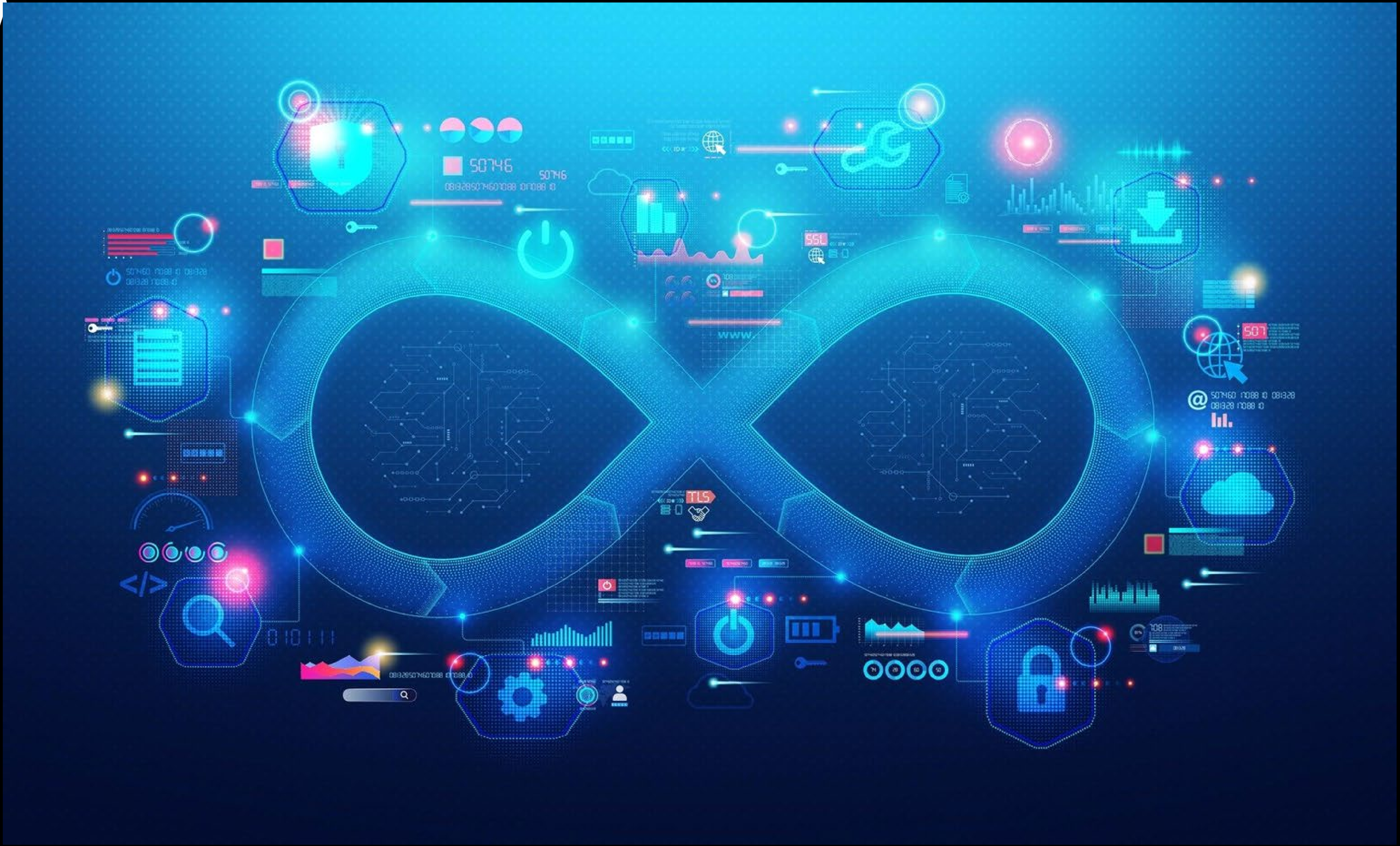
carahsoft.

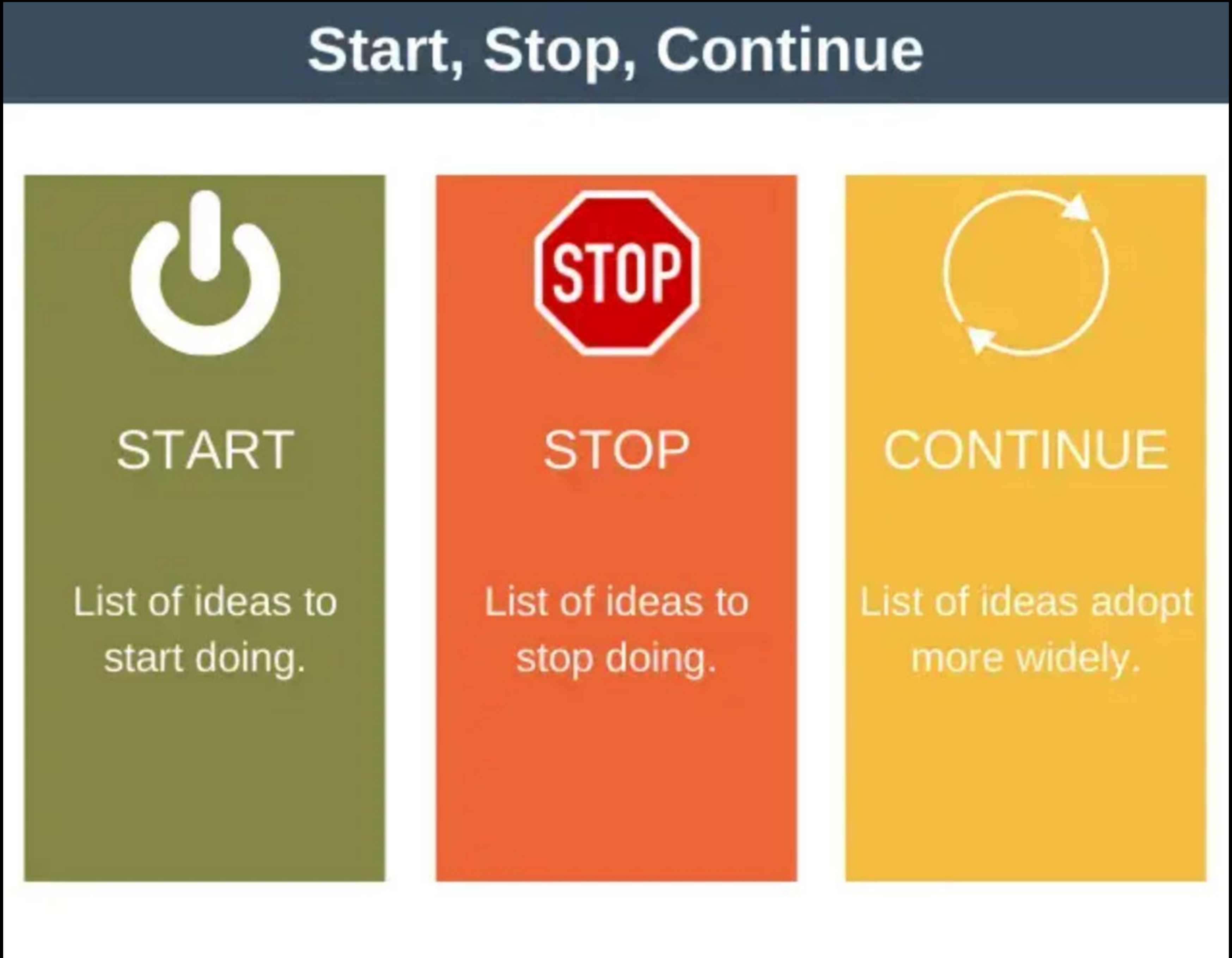
Keep/Start/Stop: Retro on a Decade of DSO

Paul Puckett

Chief Executive Officer

Clarity Innovations


50746
50746
SSL
www
507
TLS
</>
0 10 1 1 1



Start, Stop, Continue

START

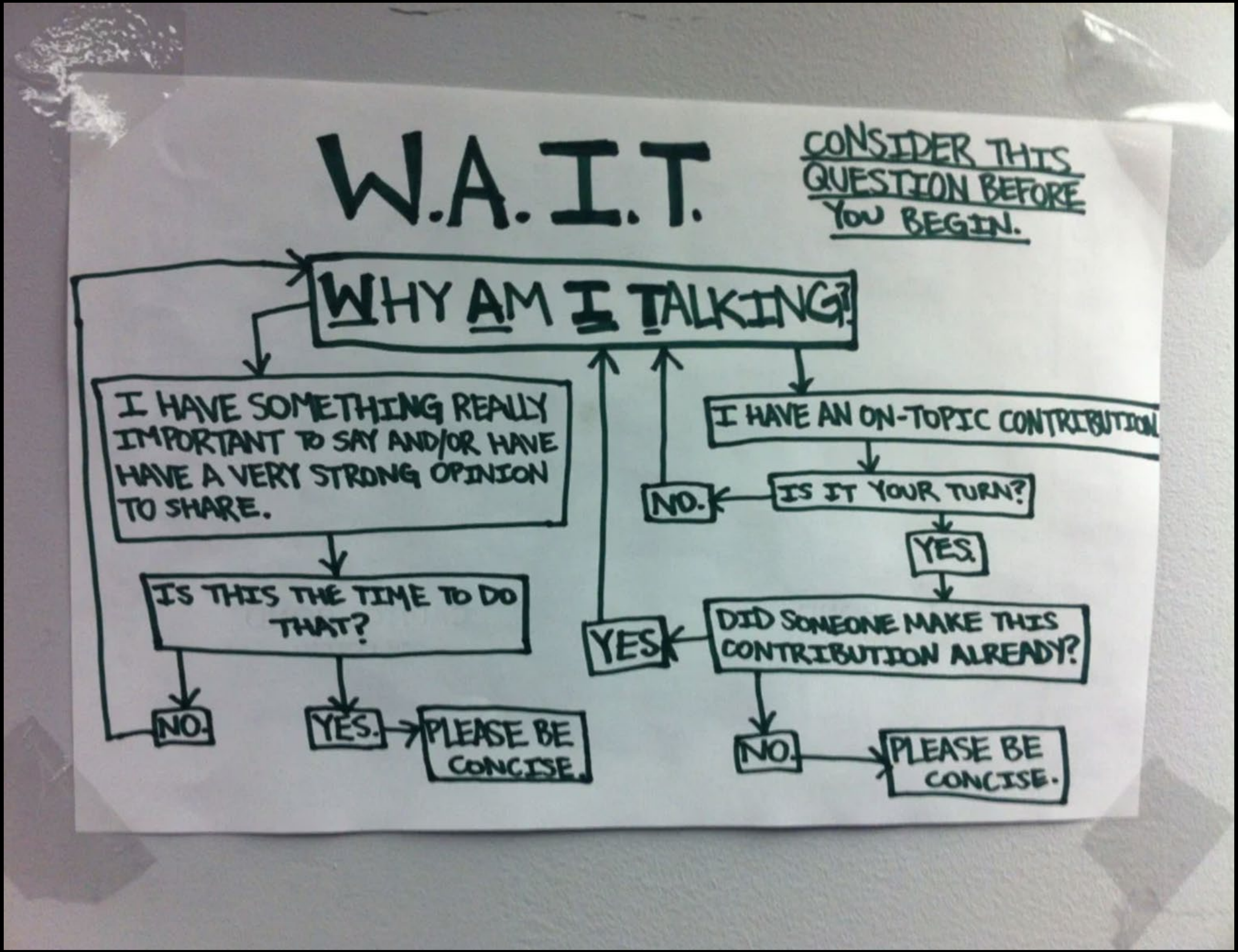
List of ideas to start doing.

STOP

List of ideas to stop doing.

CONTINUE

List of ideas adopt more widely.



W.A.I.T.

CONSIDER THIS QUESTION BEFORE YOU BEGIN.

WHY AM I TALKING?

I HAVE SOMETHING REALLY IMPORTANT TO SAY AND/OR HAVE HAVE A VERY STRONG OPINION TO SHARE.

IS THIS THE TIME TO DO THAT?

NO.

YES.

PLEASE BE CONCISE.

I HAVE AN ON-TOPIC CONTRIBUTION

IS IT YOUR TURN?

NO.

YES.

DID SOMEONE MAKE THIS CONTRIBUTION ALREADY?

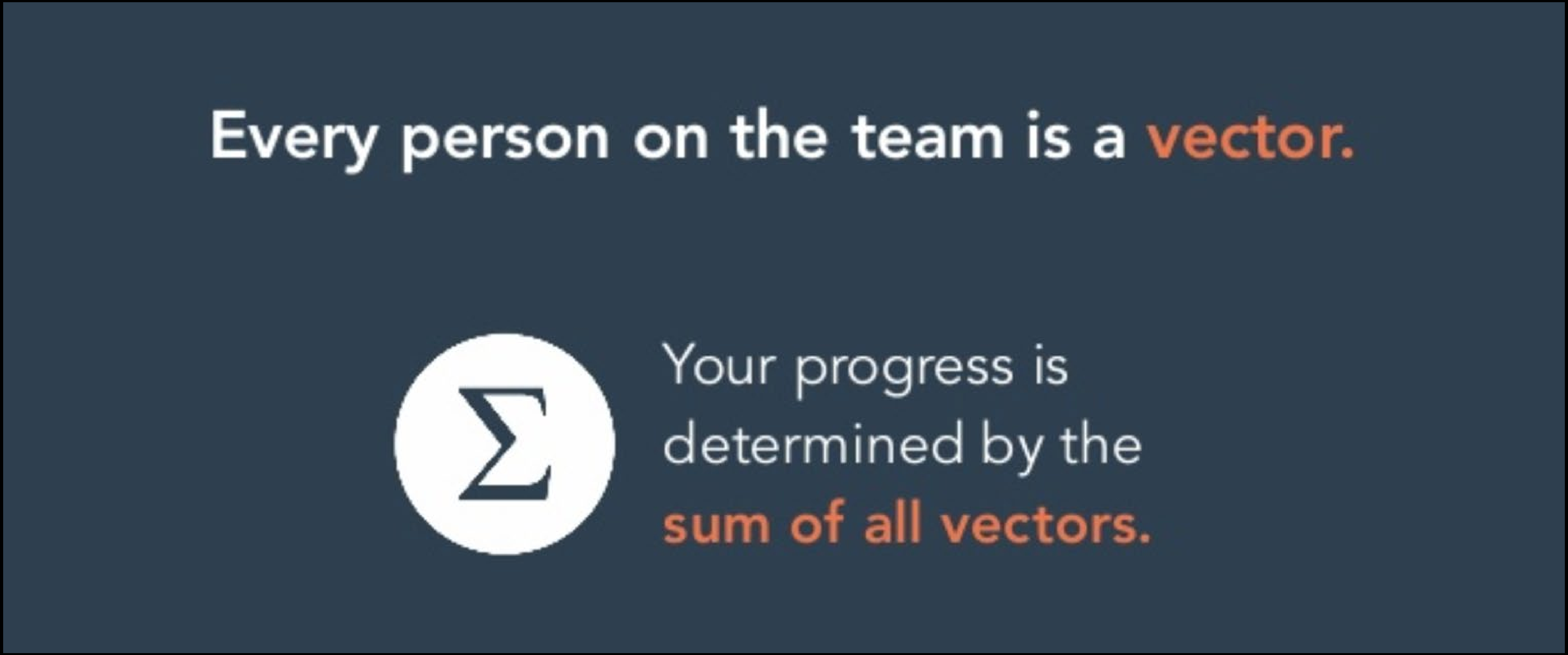
YES

NO.

PLEASE BE CONCISE.

KEEP BAHRAIN CLEAN

DO NOT SPIT

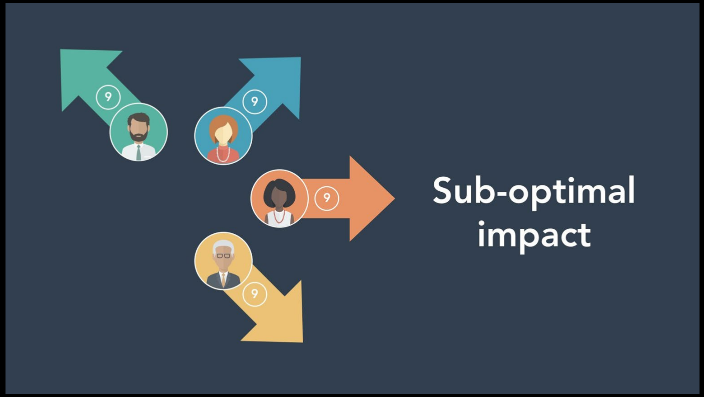


Every person on the team is a vector.

Your progress is determined by the sum of all vectors.

https://www.linkedin.com/pulse/aligning-vectors-how-optimize-impact-dharmesh-shah/

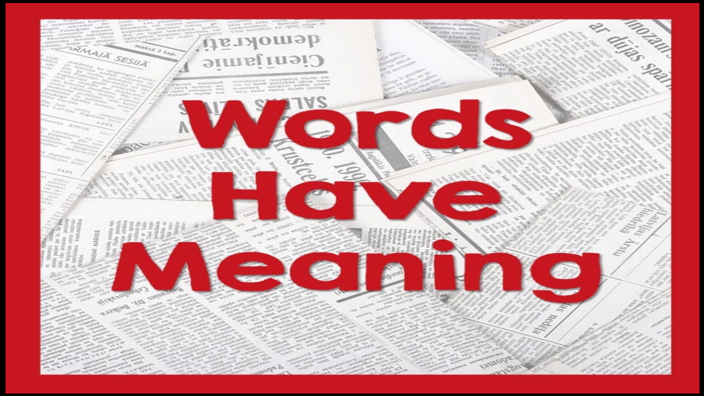
If we want to go from



To

vectors aligned = maximum impact

Then we need to agree



DevSecOps -
A methodology in which development, cybersecurity and IT operations teams are mutually incentivized in their cultures, practices, tooling, and processes

DevSecOps -
A methodology in which development, cybersecurity and IT operations teams are mutually incentivized in their cultures, practices, tooling, and processes **in order to continuously field business value**, often in the form of software, without sacrificing quality, stability, or security.

What business are you really in?

Defining DSO in context of the outcome - the mission

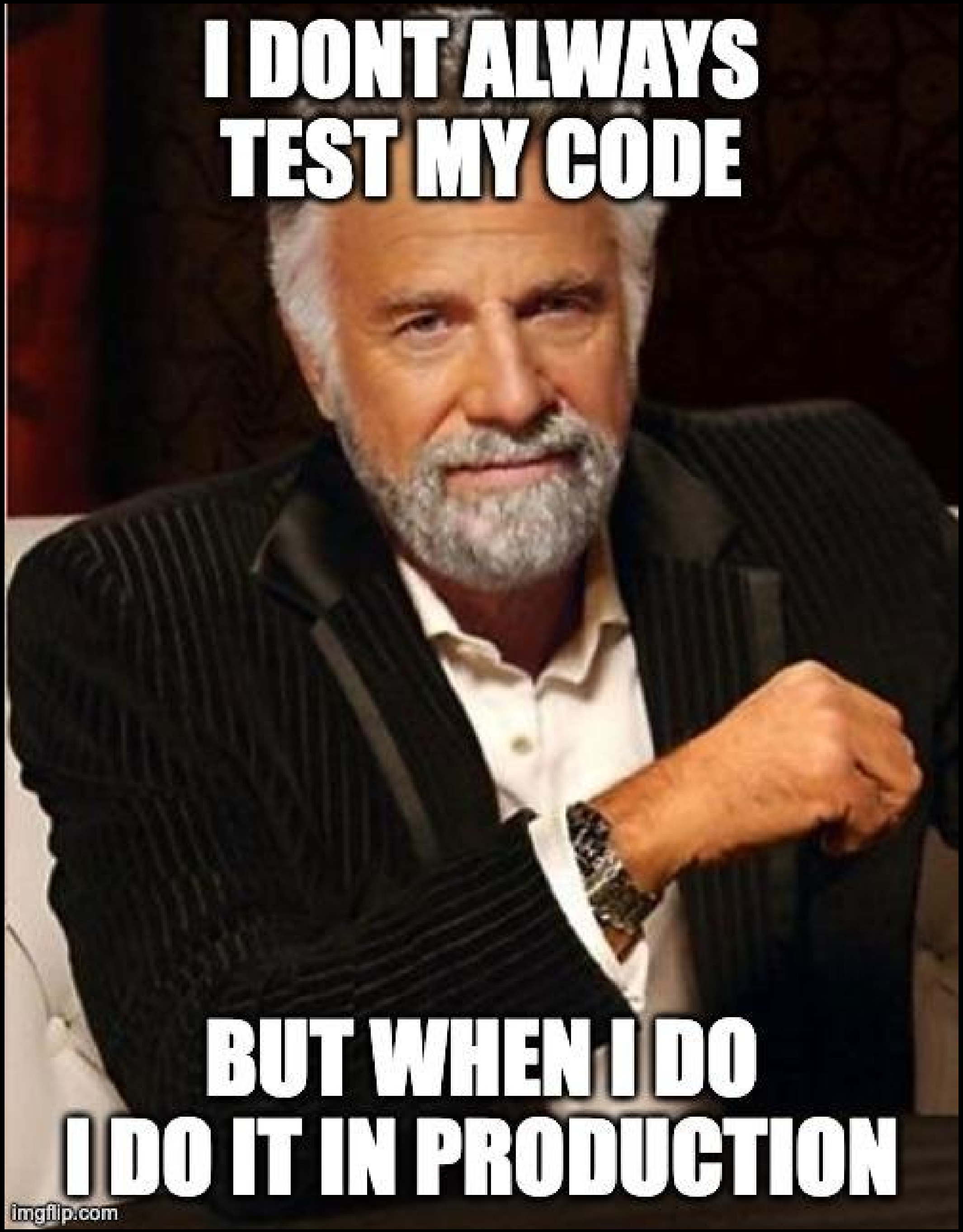
Defining DSO in context of the outcome - the mission

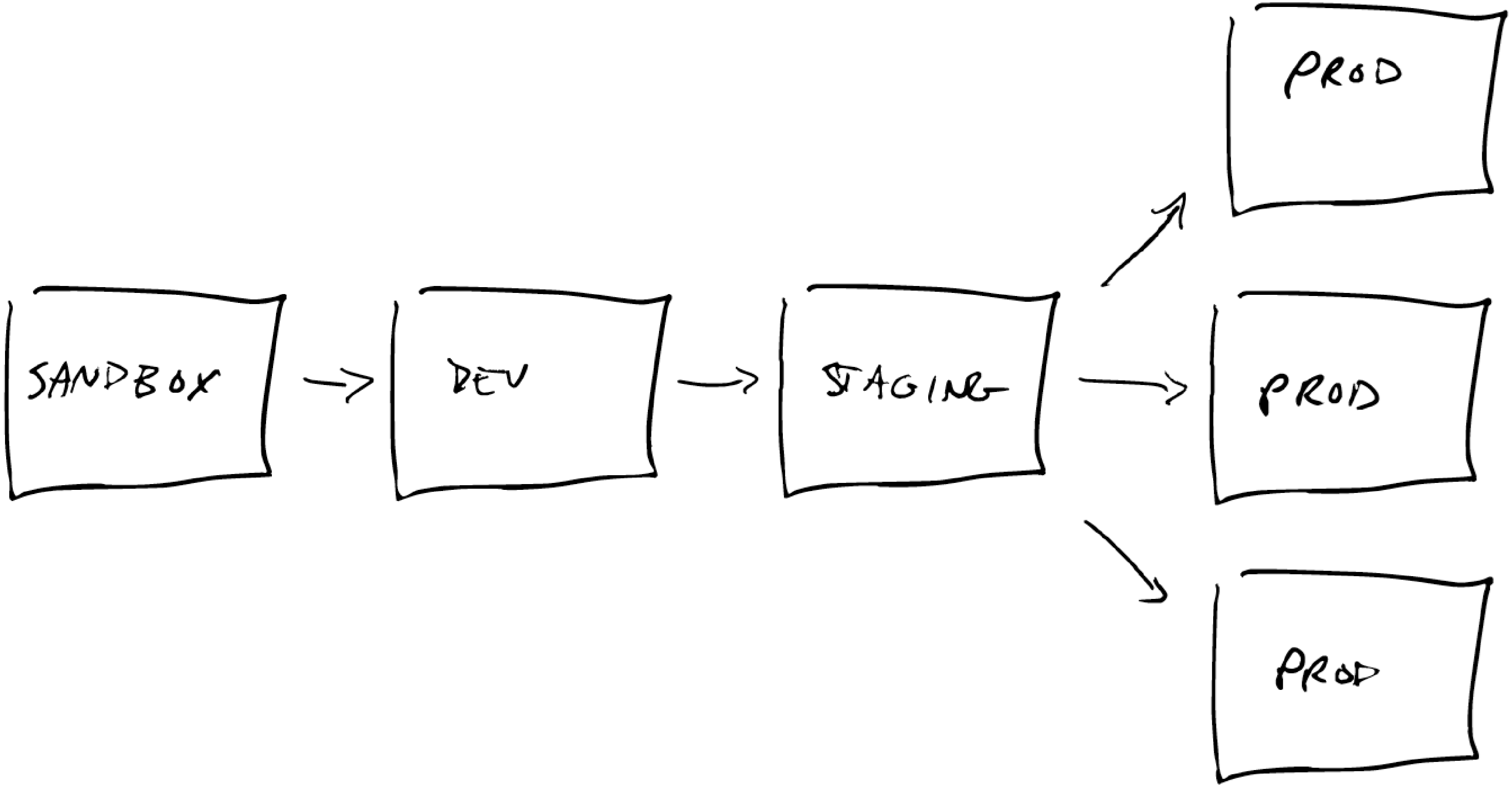
Defining DSO about CI/CD or technology products

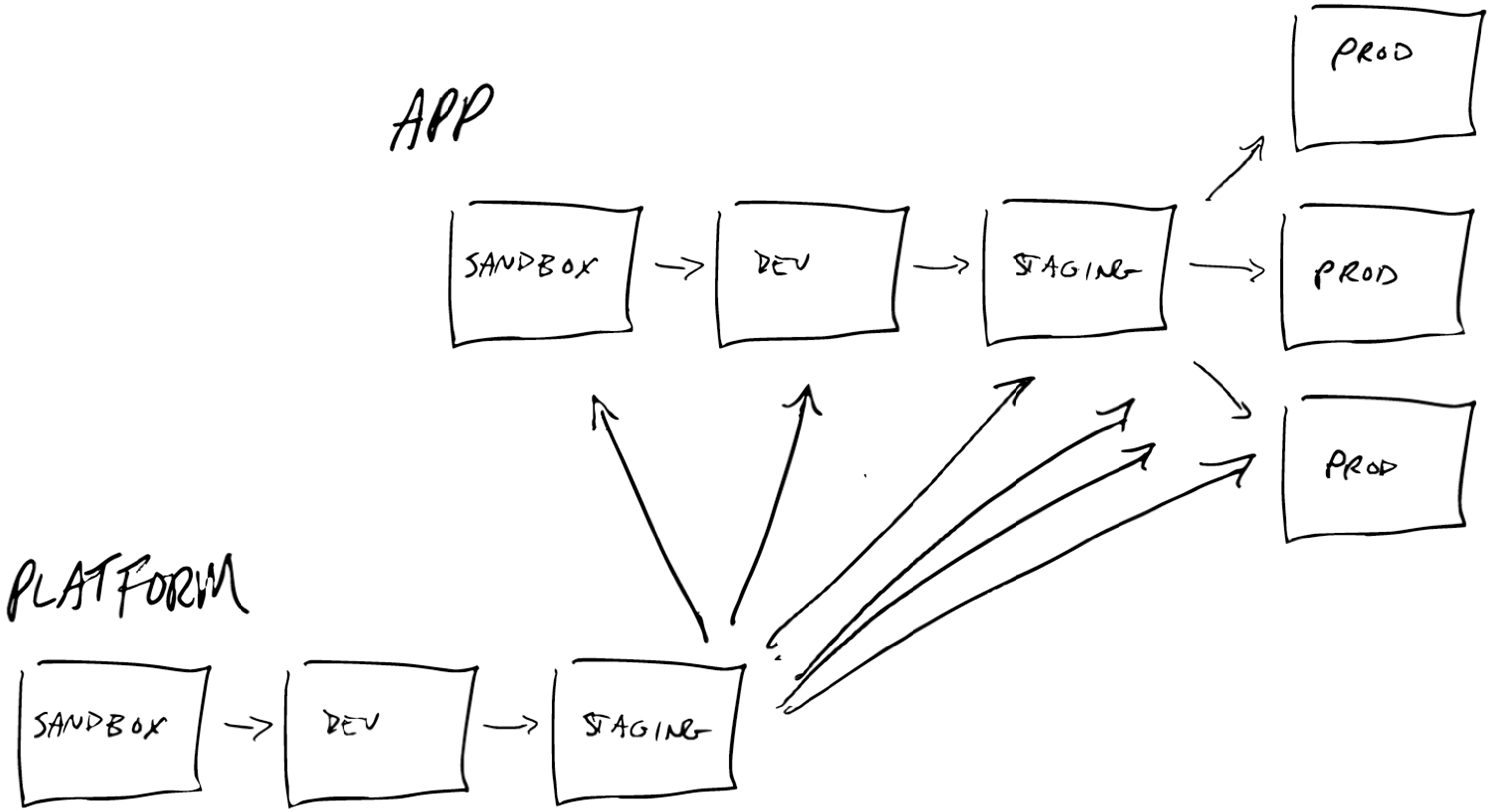
Defining DSO in context of the outcome - the mission

Defining DSO about CI/CD or technology products

Aligning on definitions so we are all starting together


I DONT ALWAYS
TEST MY CODE
BUT WHEN I DO
I DO IT IN PRODUCTION
imgflip.com

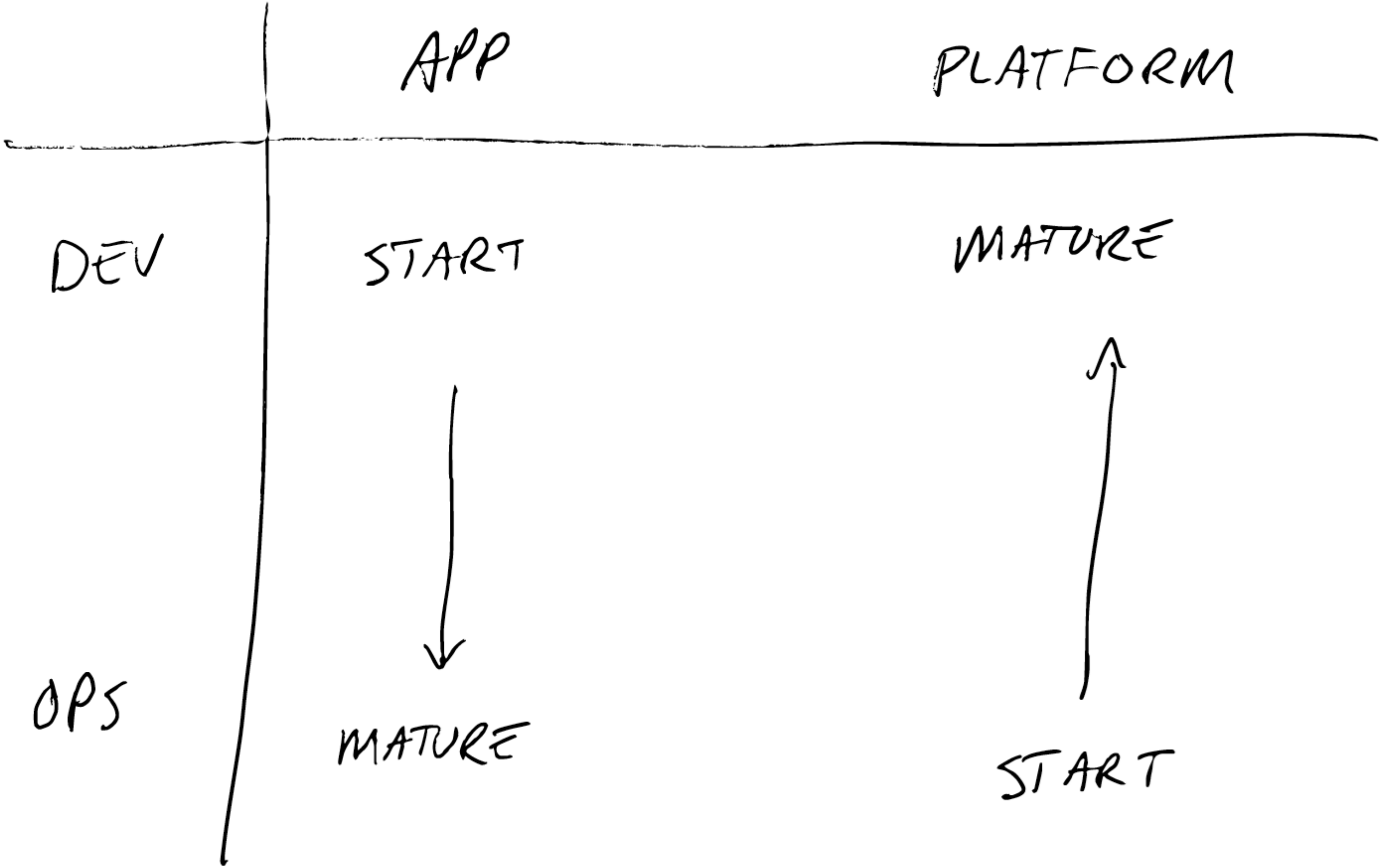

SANDBOX
DEV
STAGING
PROD
PROD
PROD


APP
SANDBOX
DEV
STAGING
PROD
PROD
PROD
PLATFORM
SANDBOX
DEV
STAGING

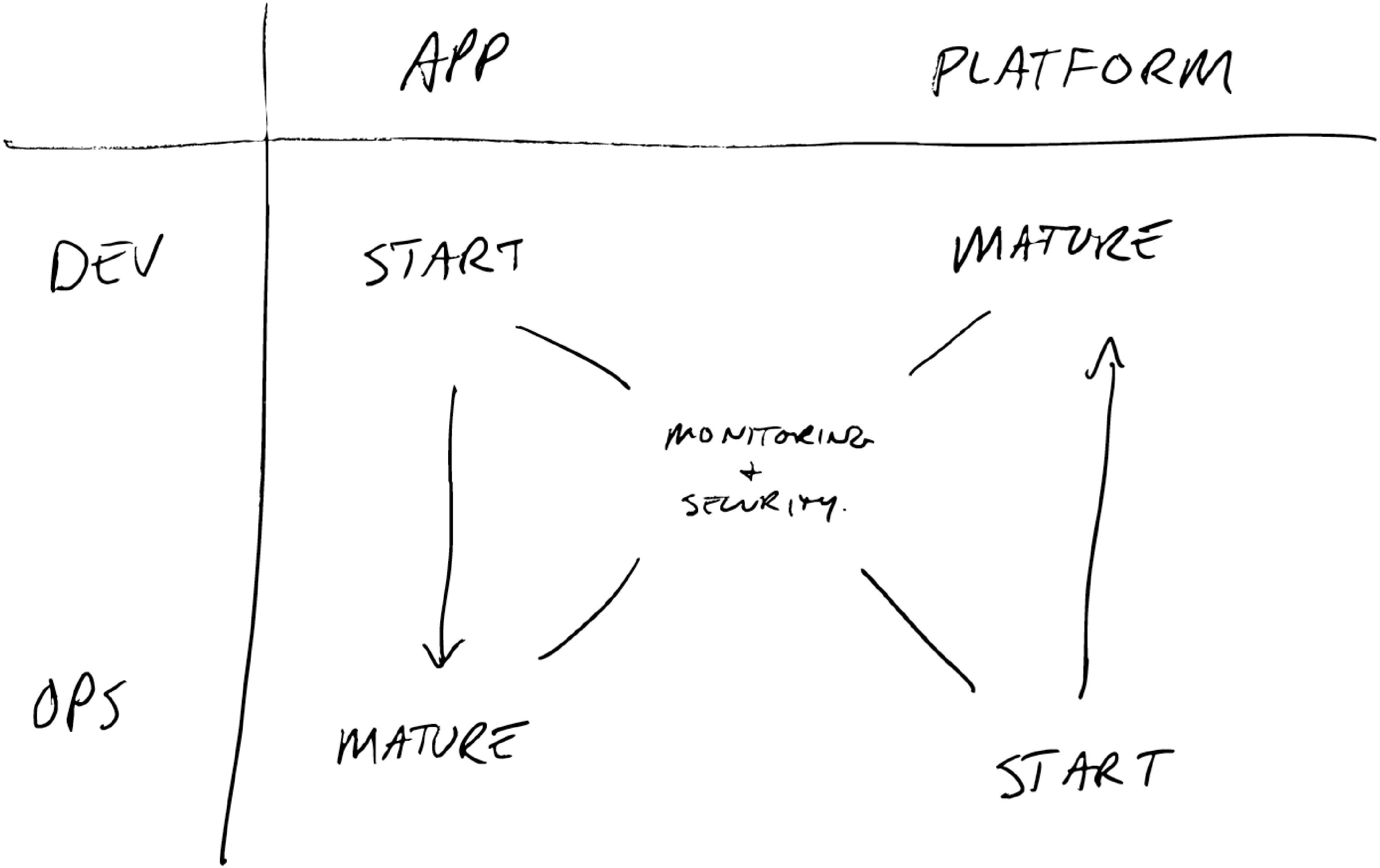
Every developer facing service is a production environment

	APP	PLATFORM
DEV		
OPS		

	APP	PLATFORM
DEV	START	
OPS		START



	APP	PLATFORM
DEV	START	MATURE
OPS	MATURE	START


APP
PLATFORM
DEV
START
MATURE
MONITORING
+
SECURITY.
OPS
MATURE
START

Treating every app dev facing service as production

Treating every app dev facing service as production

Platform testing in application dev

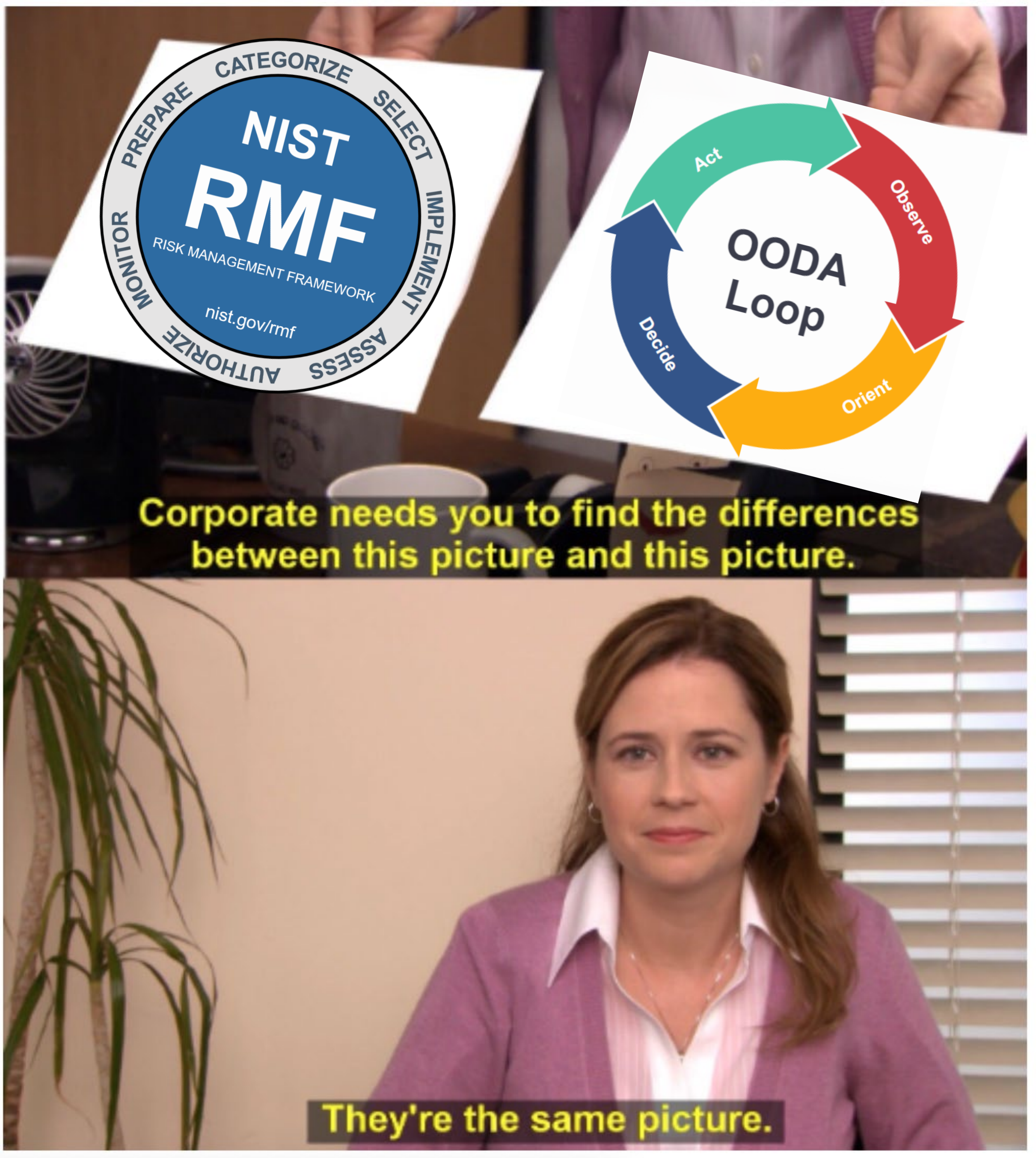
Treating every app dev facing service as production

Platform testing in application dev

Platform as a product

cATO ⇨ cRMF

LETS TALK ABOUT SEC BABY
imgflip.com


CATEGORIZE
SELECT
IMPLEMENT
ASSESS
AUTHORIZE
MONITOR
PREPARE
NIST
RMF
RISK MANAGEMENT FRAMEWORK
nist.gov/rmf
Act
Observe
Orient
Decide
OODA Loop
Corporate needs you to find the differences between this picture and this picture.
They're the same picture.

Steps of RMF

Prepare

Categorize

Select

Implement

Assess

Authorize

Monitor

Steps of RMF In Plain Language

Are we ready to do it?

What are you doing?

If you’re doing that you need to also do this.

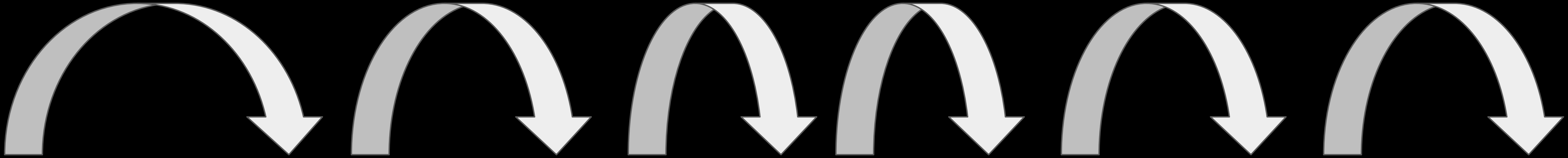
Do it.

Did you do it?

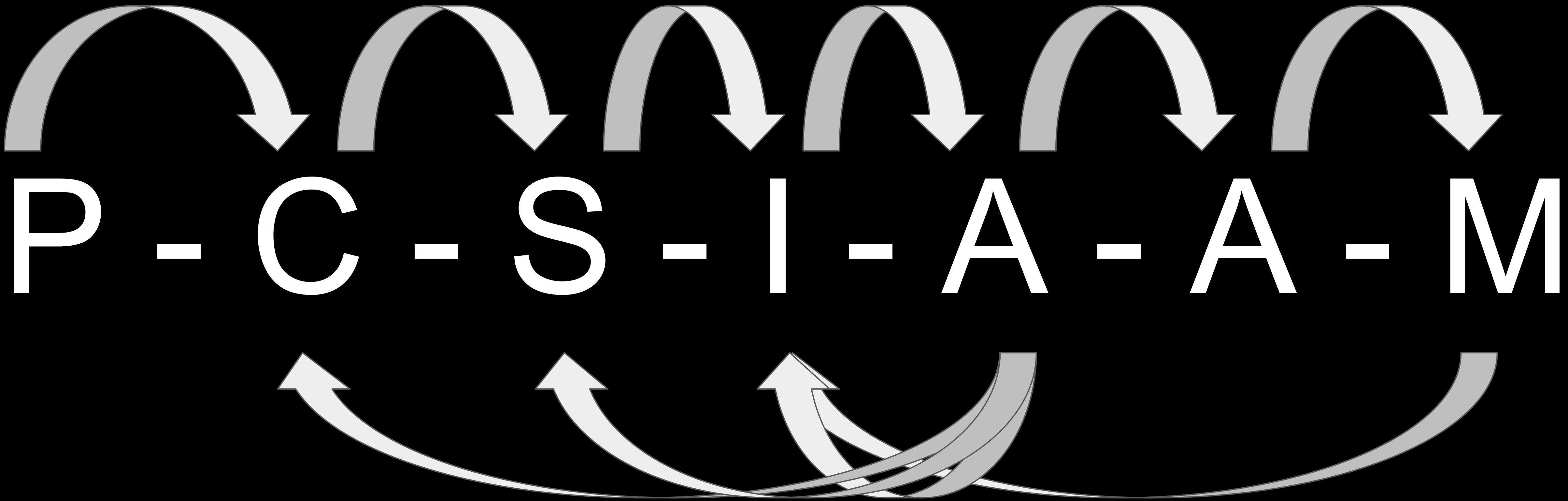
You did it!

Let’s make sure you keep doing it.

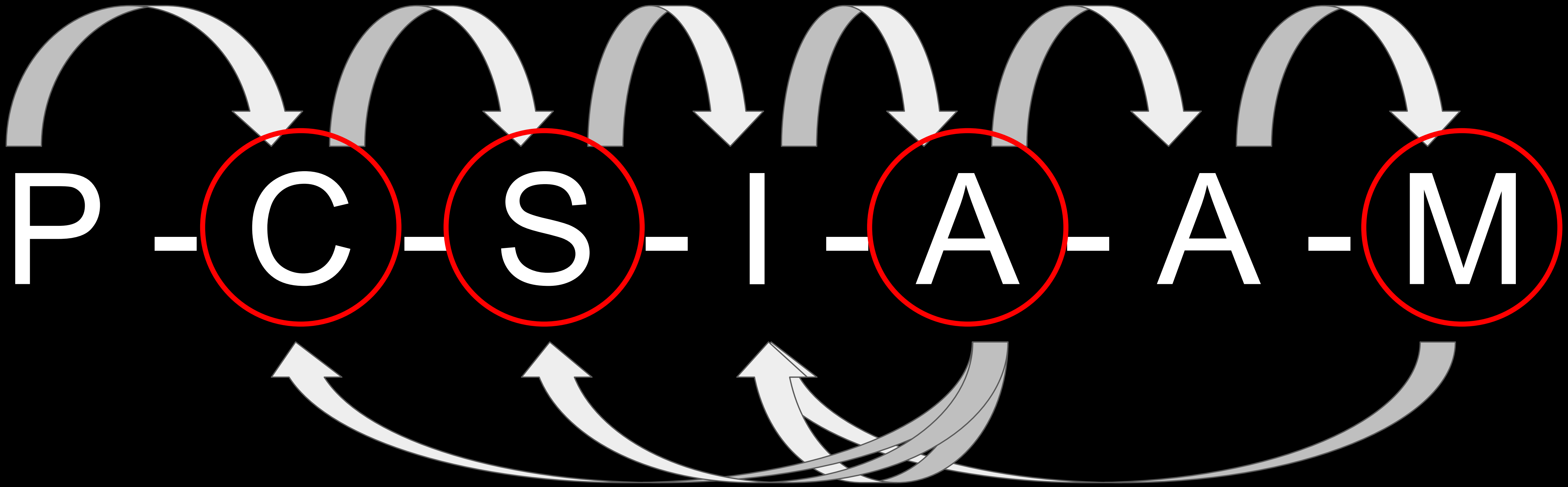
P - C - S - I - A - A - M



P - C - S - I - A - A - M

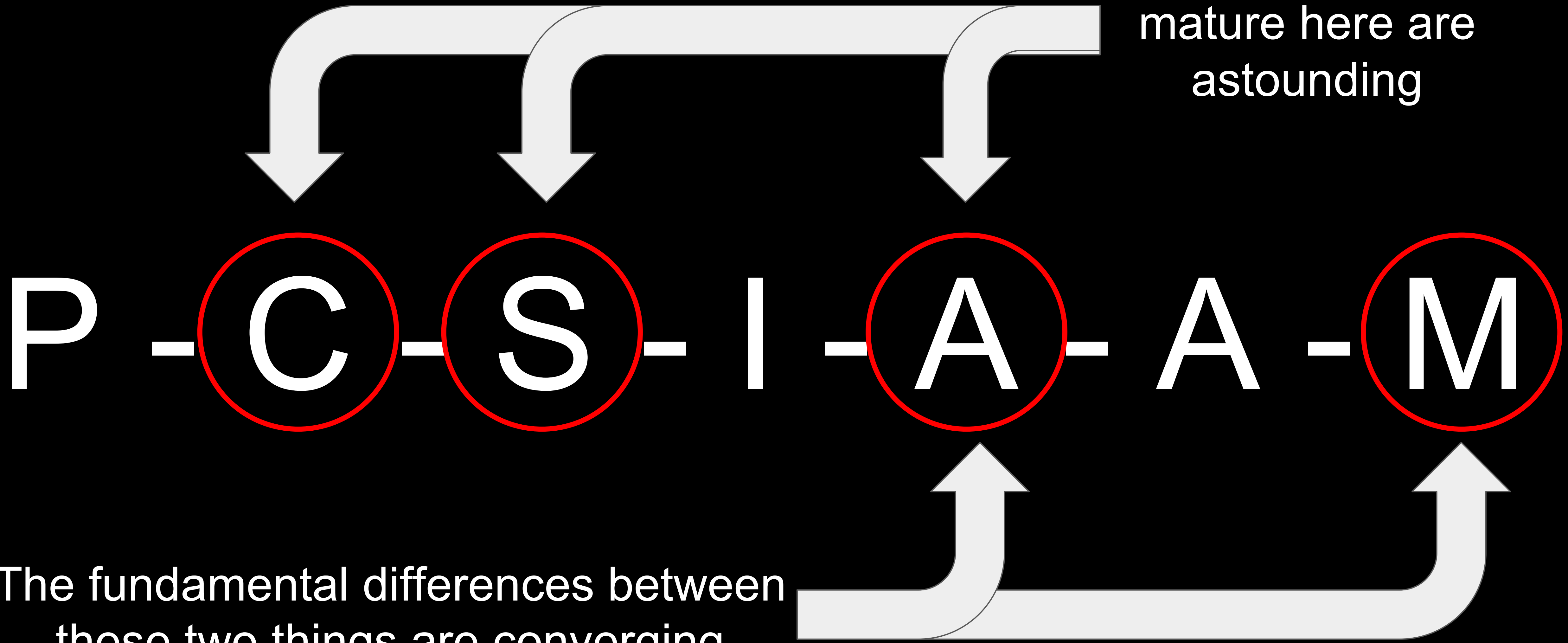


P - C - S - I - A - A - M

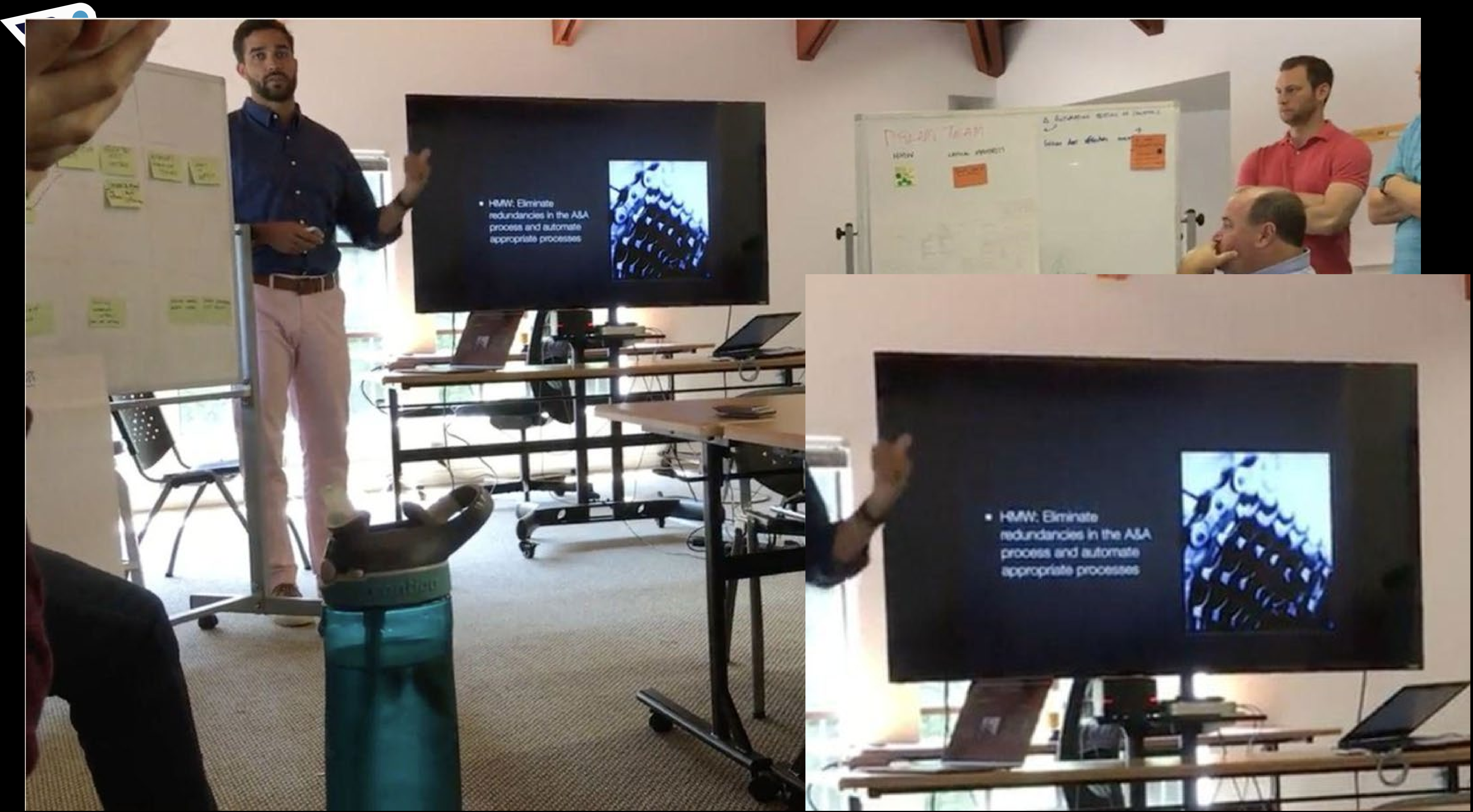


P - C - S - I - A - A - M

The opportunities to mature here are astounding



The fundamental differences between these two things are converging


HMW: Eliminate redundancies in the A&A process and automate appropriate processes
Design Team

Incorporating cybersecurity engineers to automate SCA

Incorporating cybersecurity engineers to automate SCA

STOP

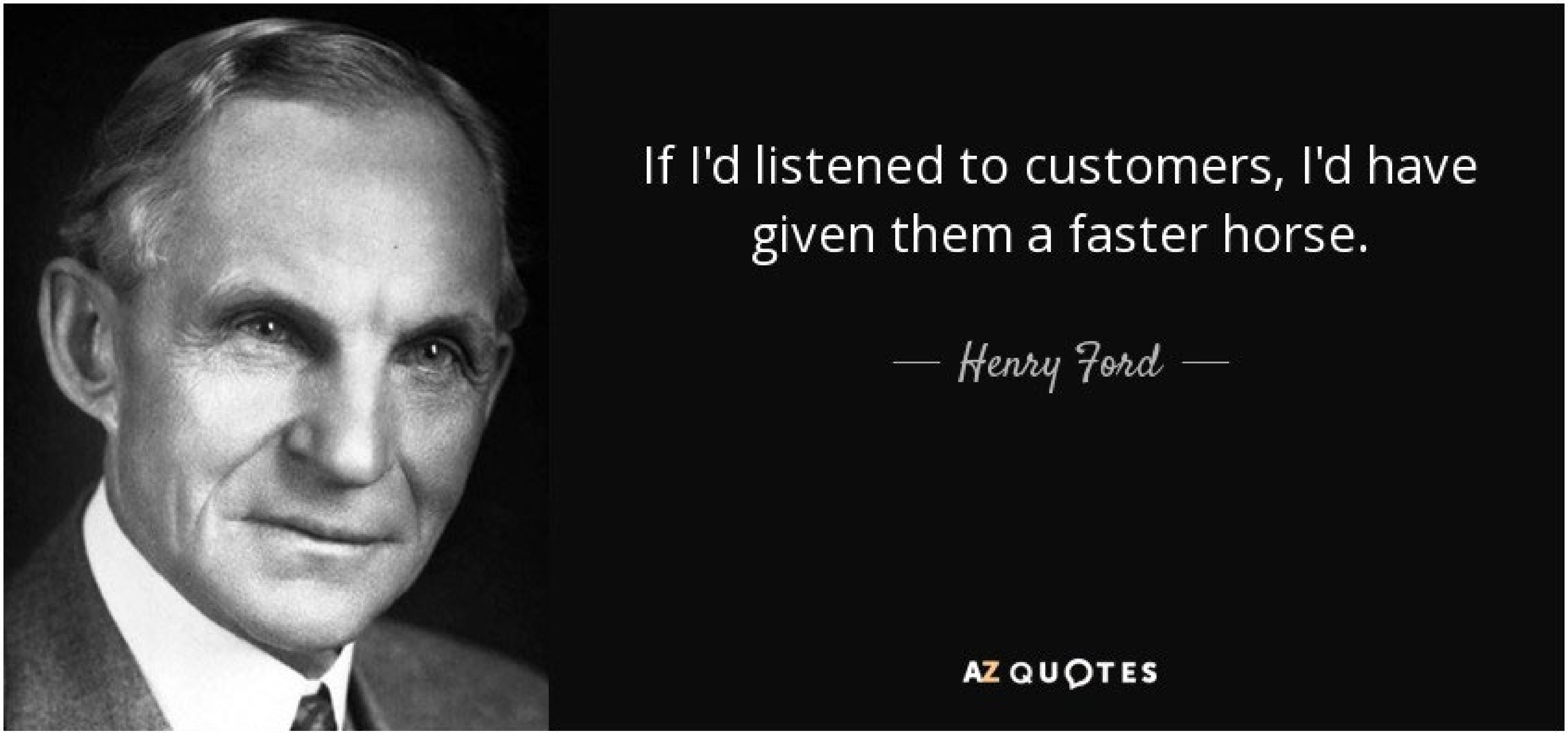
Ignoring the other steps of the RMF in DSO

- Incorporating cybersecurity engineers to automate SCA
- Ignoring the other steps of the RMF in DSO
- Sharing repositories of tests for security control inheritance

PRODUCT

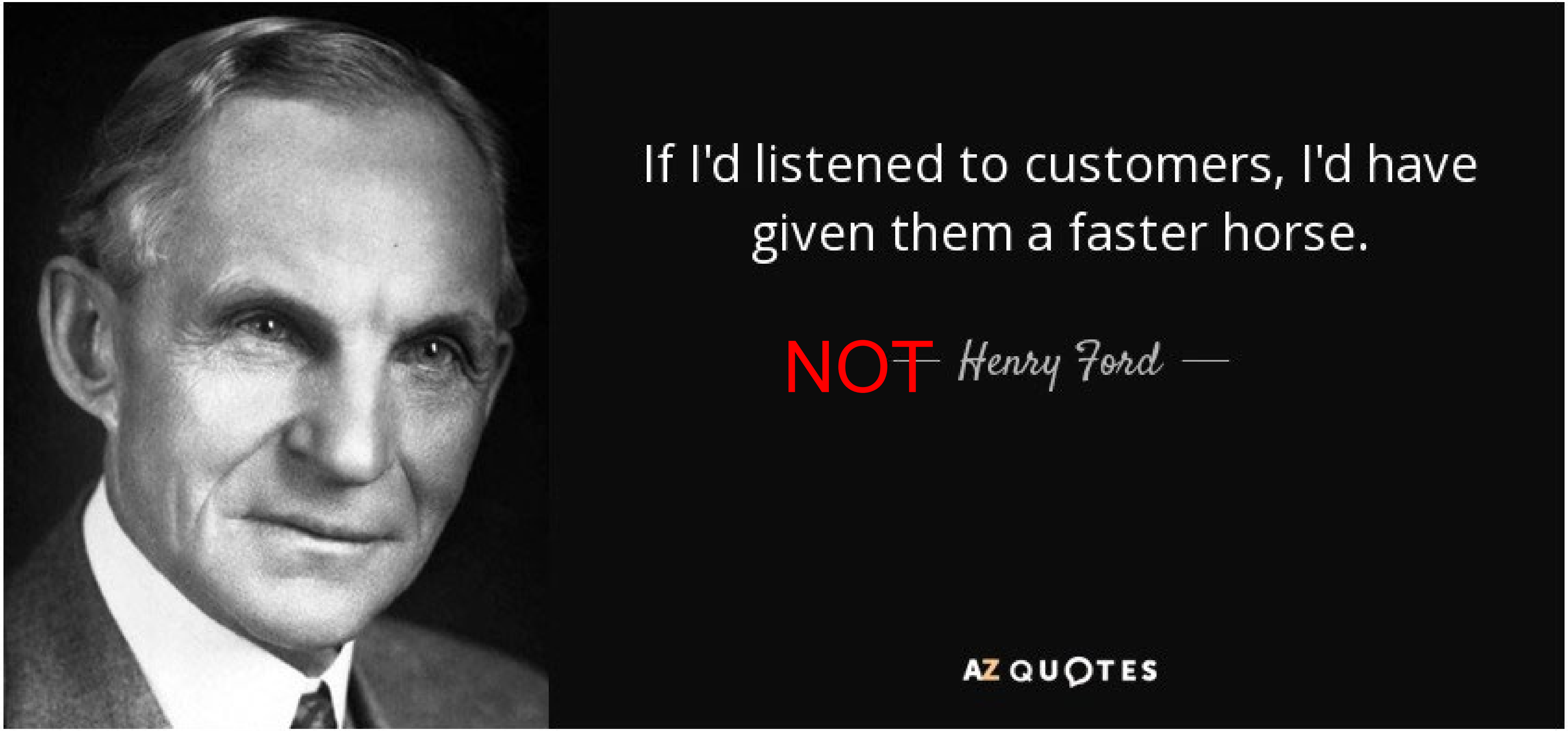
PRODUCT

USER



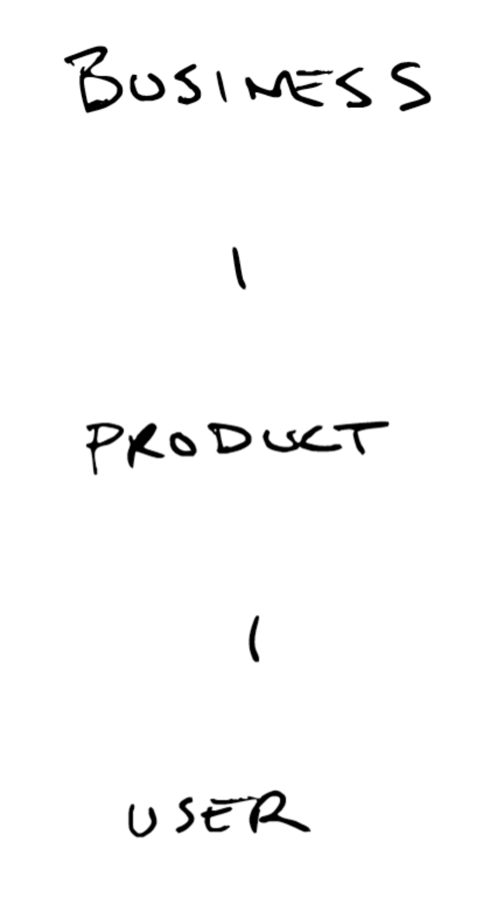
If I'd listened to customers, I'd have given them a faster horse.

— Henry Ford —

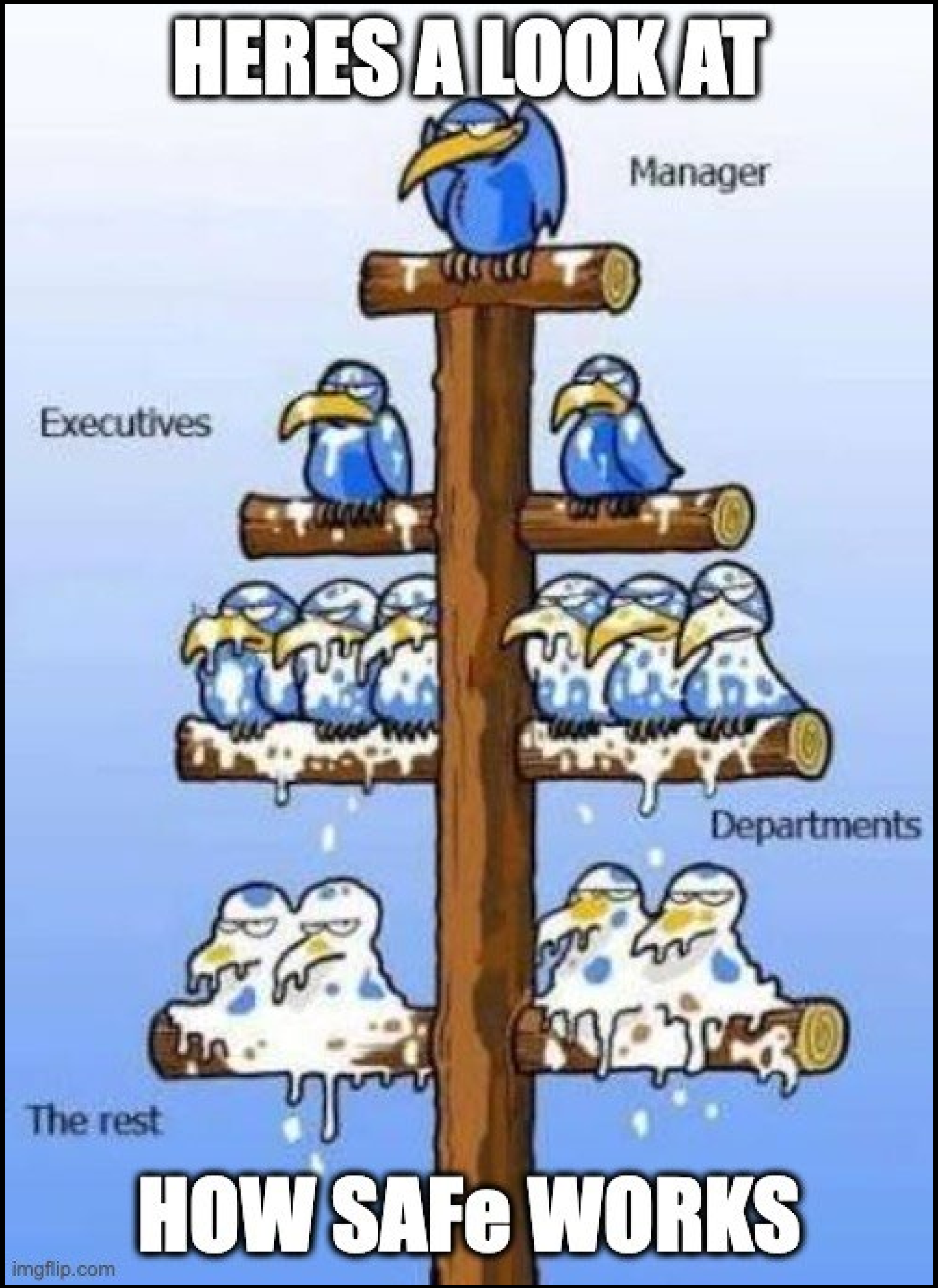


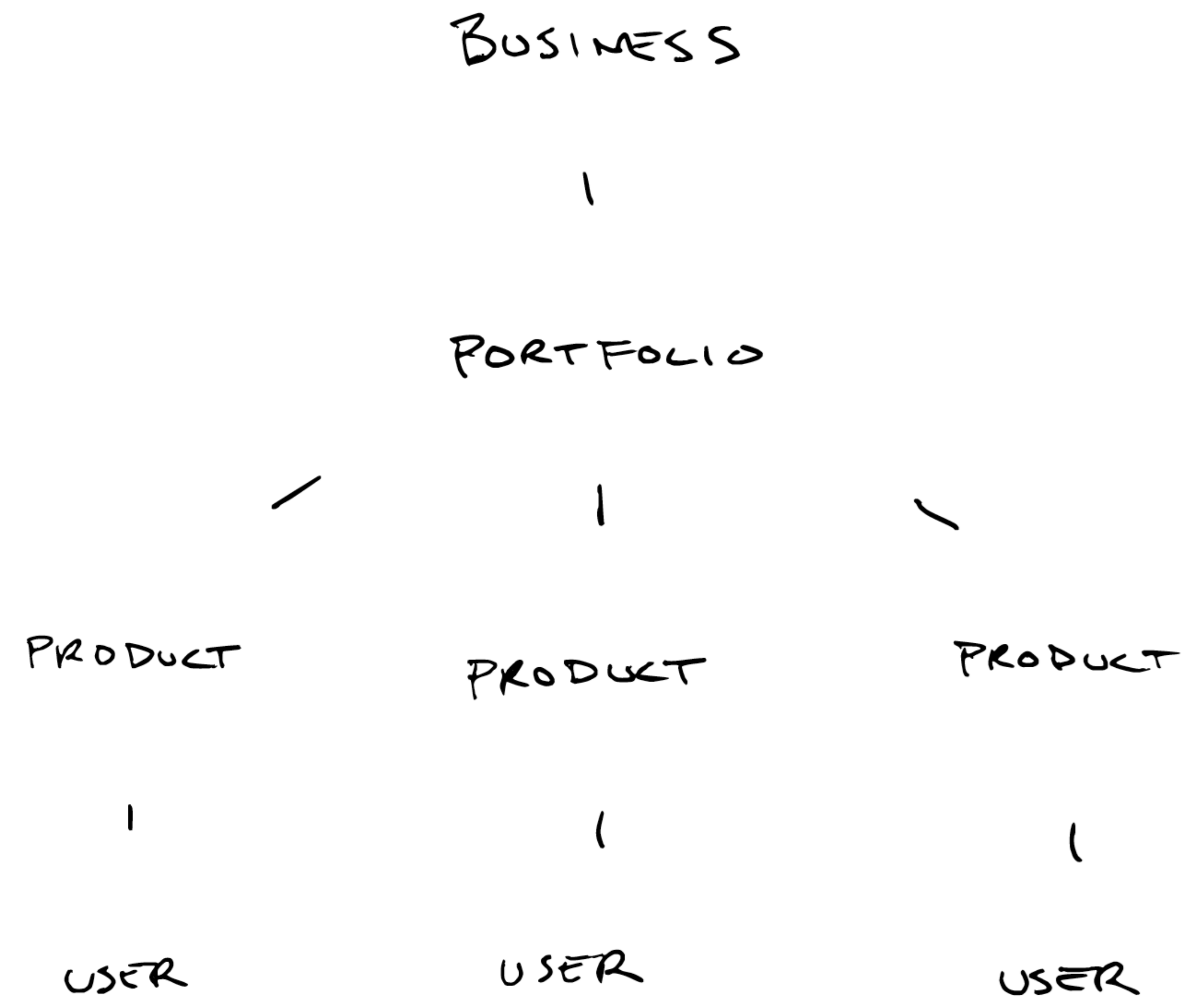
If I'd listened to customers, I'd have given them a faster horse.

NOT — Henry Ford —

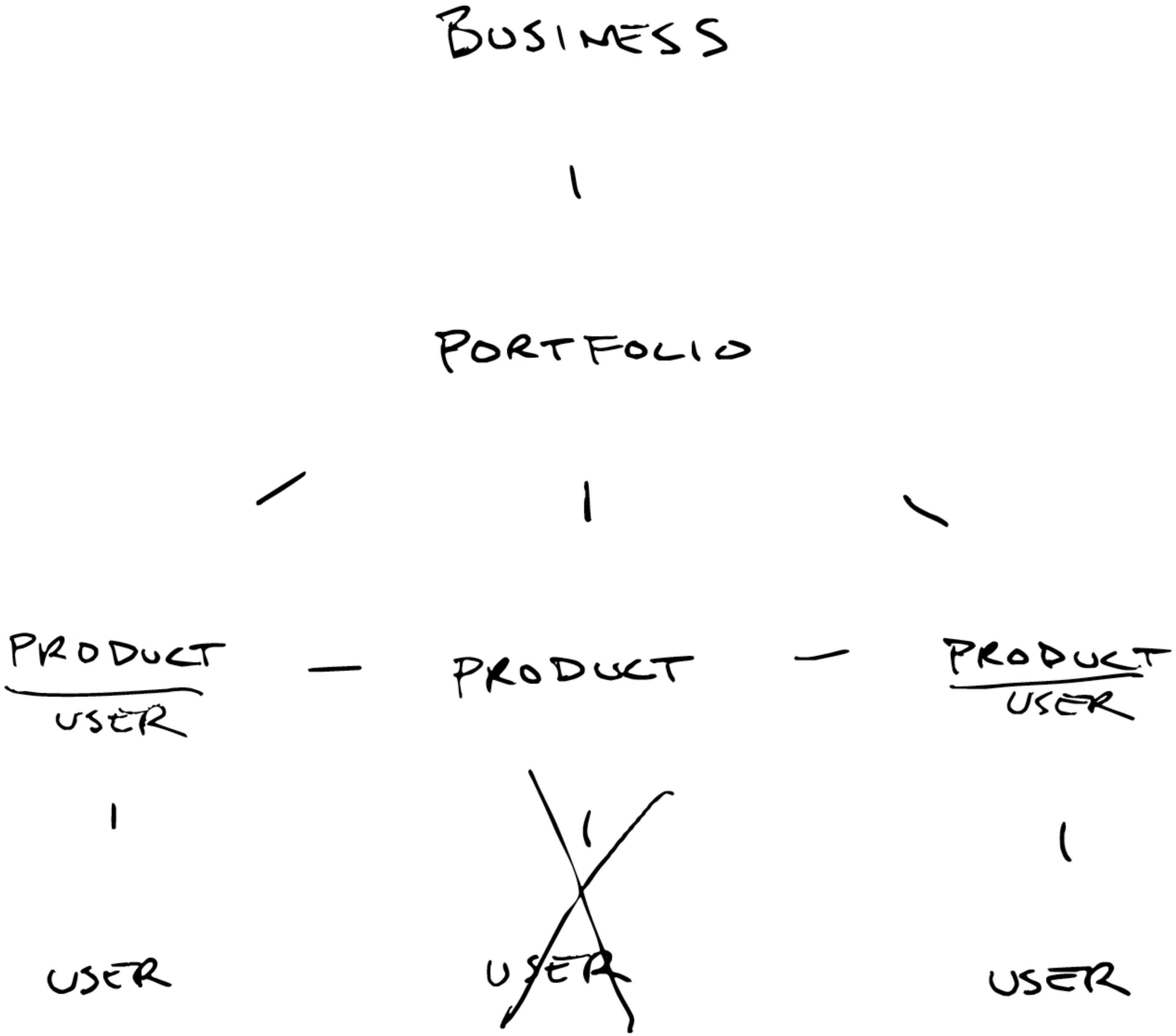

BUSINESS
PRODUCT
USER

Product managers exist to align top-down strategic goals of the business and bottom-up tactical feedback of the user


HERES A LOOK AT
Manager
Executives
Departments
The rest
HOW SAFe WORKS
imgflip.com


BUSINESS
PORTFOLIO
PRODUCT
PRODUCT
PRODUCT
USER
USER
USER

Portfolio managers exist to deconflict product dependencies while aligning strategic business goals and tactical product team feedback


BUSINESS
PORTFOLIO
PRODUCT
USER
PRODUCT
PRODUCT
USER
USER
~~USER~~
USER

Other products can be users too.
Don’t ignore their user experience.

Balancing the strategic and the tactical for your business

Balancing the strategic and the tactical for your business

Treating every product with autonomy from strategic goals

Balancing the strategic and the tactical for your business

Treating every product with autonomy from strategic goals

Having a product mindset for how capabilities are delivered

Words have meaning

Every appdev facing service is production

Don’t ignore the security OODA loop

Balance the strategic and the tactical

Let’s stay in touch
ppuckett@clarityinnovates.com

Tyler Sweatt
Chief Executive Officer
Second Front

Anwar Chirakkattil
Chief Technology Officer
Kobayashi Maru,
USSF/SSC

Donald “Chee” Gansberger
Software Director
AFWERX Autonomy Prime

Bryon Kroger
Chief Executive Officer
Rise8

carahsoft.

Dive Into DevSecOps with Aqua

Jessy McDermott

Partner Solution Architect

Aqua Security

aqua

Dive into DevSecOps with Aqua

Jessy McDermott

Solutions Architect

August 17, 2023

aqua

we stop attacks

on cloud native applications

we guarantee it

Gain Total Lifecycle Visibility & Stop Attacks with Aqua

Federal agencies can understand their security risk posture, gain total lifecycle visibility, reduce risks, stay ahead of problems and be able to stop cloud native attacks - guaranteed - with the industry's most fully integrated CNAPP solution– the Aqua Platform.

aqua

The Pioneer of Cloud Security

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

100M+
download of our solutions

30M
images scanned daily

1.5M
workloads protected every day

1st
to deliver complete cloud native security

10
US patents for cloud native security

40%
Fortune 100 customers

Complexity

The Cloud Native Security Dilemma

Aqua Solutions align to two components of the product build lifecycle of cloud applications

Code and Build

Deploy and Run

Lifecycle visibility

Cloud misconfigurations

Tooling issues

Software supply chain attacks

Top Agency Cloud Security Challenges

Known and unknown vulnerabilities

Code issues and misconfigurations

Sophisticated attacks

Advanced malware

We Stop Attacks on Cloud Native Applications – Guaranteed.

100M+
download of
our solutions

30M
images scanned
daily

1.5M
workloads protected
every day

1st
to deliver complete
cloud native security

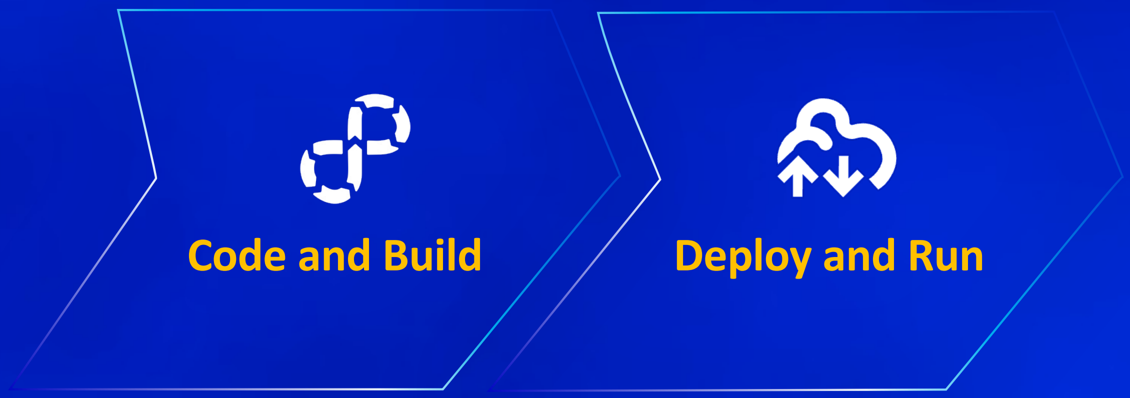
10
US patents for
cloud native security

40%
Fortune 100
customers

We Stop Cloud Native Attacks with the Industry's *Only* $1M Cloud Native Protection Warranty.

Secure your agency's cloud native apps like your business depends on it.

CNAPP: Defining the Cloud Security Solution



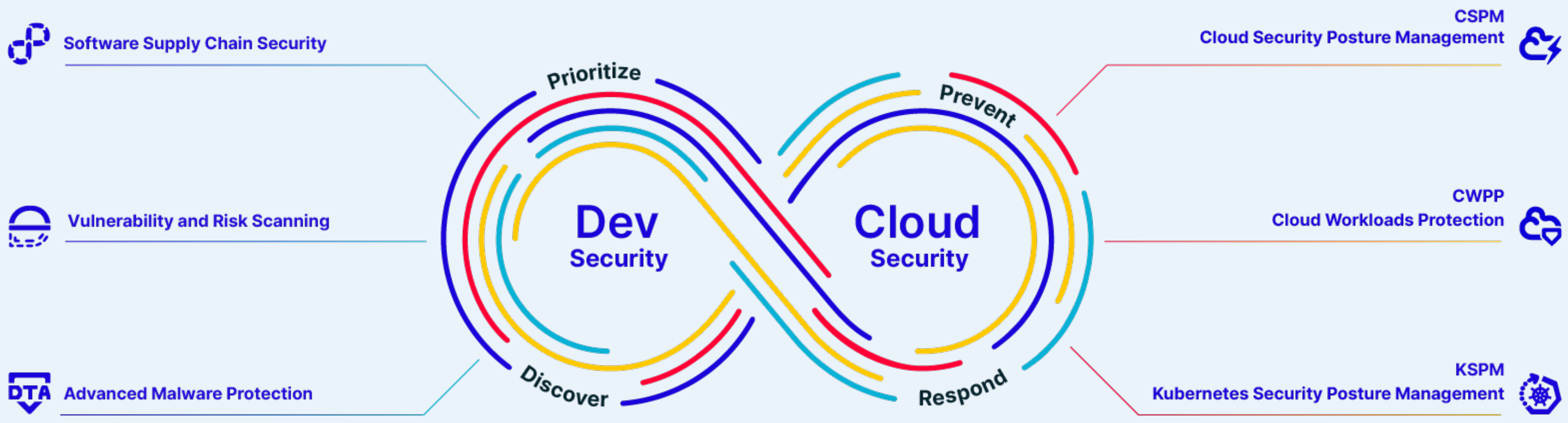
Code and Build

Deploy and Run

“Optimal security of cloud-native applications requires an integrated approach that starts in development and extends to runtime protection.”

- Gartner® Report: Cloud-Native Application Protection Platforms (CNAPP)

Diving Into DevSecOps -- One Platform: Unified Cloud Security from Code to Cloud & Back


Software Supply Chain Security
Vulnerability and Risk Scanning
DTA
Advanced Malware Protection
Prioritize
Dev
Security
Discover
Prevent
Cloud
Security
Respond
CSPM
Cloud Security Posture Management
CWPP
Cloud Workloads Protection
KSPM
Kubernetes Security Posture Management

Four Steps to Cloud Security with Aqua

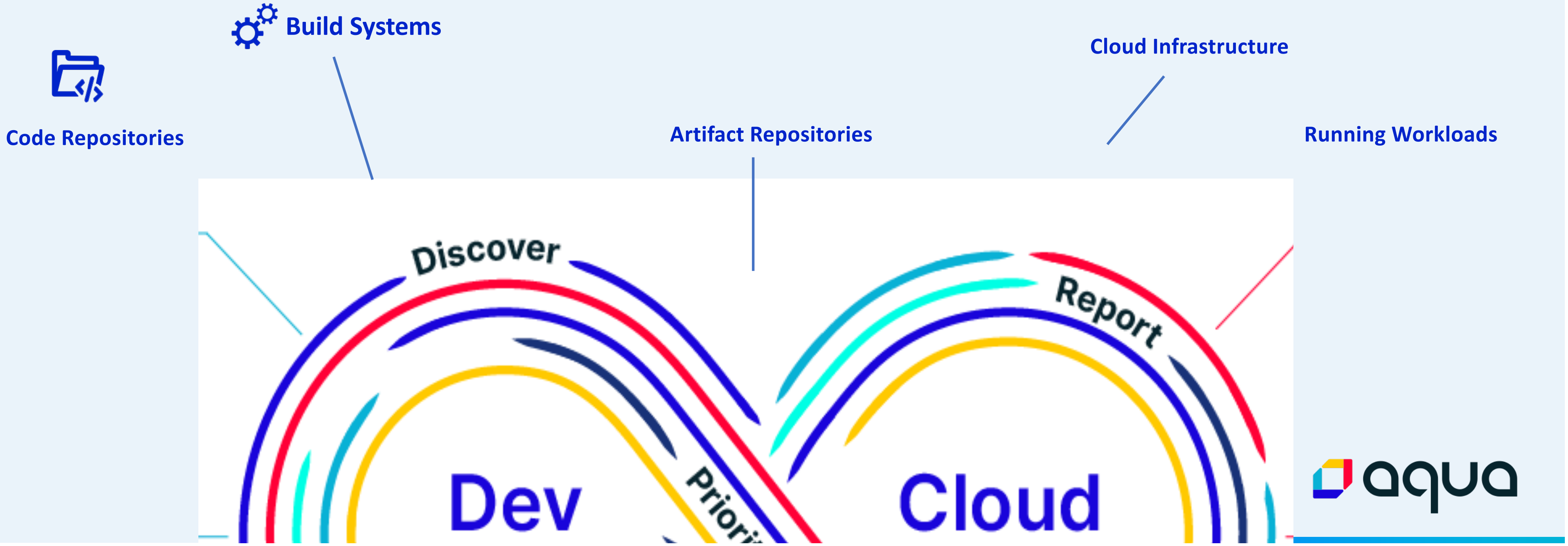
<table>
<tr><th></th><th>Code and Build</th><th>Deploy and Run</th></tr>
<tr><td><b>Step 1 | Discover</b>
Continuous visibility from code to production</td><td colspan="2">✓</td></tr>
<tr><td><b>Step 2 | Prioritize</b>
Comprehensive prioritization across the lifecycle</td><td colspan="2">✓</td></tr>
<tr><td><b>Step 3 | Prevent</b>
Fixing and preventing issues in the software supply chain</td><td>✓</td><td></td></tr>
<tr><td><b>Step 4 | Respond</b>
Solving issues and stopping attacks in production</td><td></td><td>✓</td></tr>
</table>

aqua

Step 1. Continuous Visibility from Dev to Cloud

Connect your accounts in minutes

Instantly connect, auto discover, regularly scan, and manage results with the world's best security scanner, **Trivy**



Step 2. Comprehensive Prioritization Across the Lifecycle

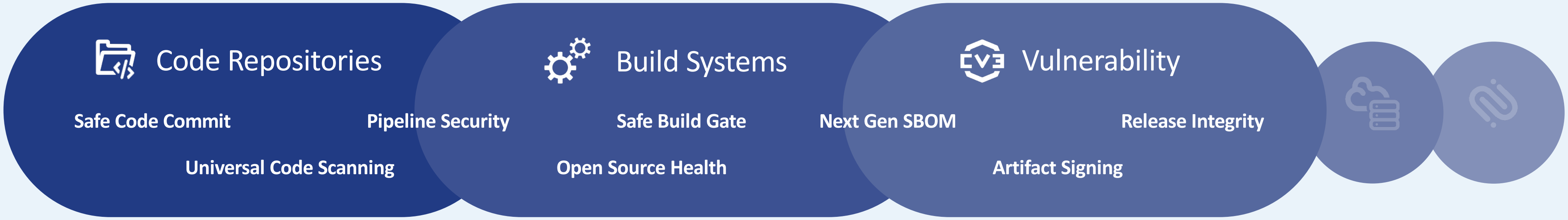
Rapidly identify, prioritize and fix single and compound threats

Secrets
Open source
Vulnerability
Misconfiguration
Failure

One prioritized list, one source of truth,
and one automated response with the only code to
production integrated cloud security platform

Step 3. Fixing and Preventing Issues in the Software Supply Chain

Instantly Evaluate and Fix



Code Repositories

Build Systems

Vulnerability

Safe Code Commit

Pipeline Security

Safe Build Gate

Next Gen SBOM

Release Integrity

Universal Code Scanning

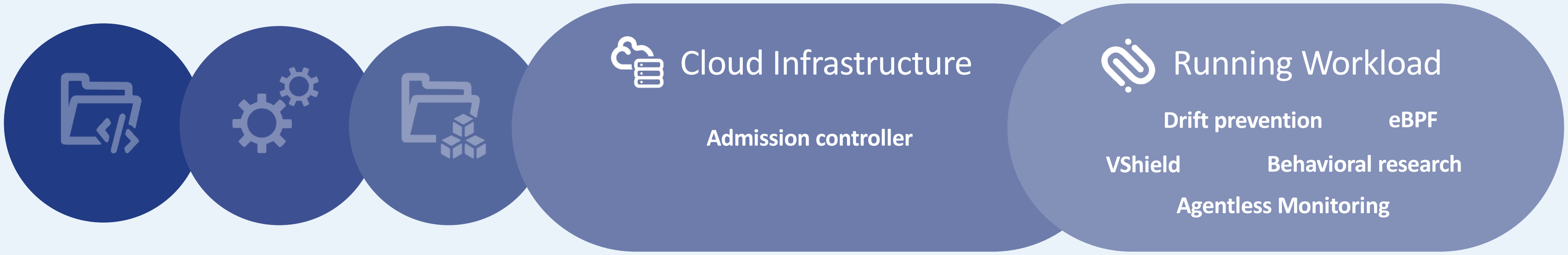
Open Source Health

Artifact Signing

Connect to systems, scan and fix, deploy gates,
and set integrity rules with the only complete software
supply chain solution

Step 4. Solving Issues and Stopping Attacks in Production

Protect production in minutes, enhance over time



Cloud Infrastructure

Admission controller

Running Workload

Drift prevention

eBPF

VShield

Behavioral research

Agentless Monitoring

Agentless monitoring, lightning protection,
and custom policies with the only cloud native protection platform
guaranteed to stop cloud native attacks

aqua

Securing the World’s Largest Organizations & Government Agencies

U.S.ARMY
FEDERAL AVIATION ADMINISTRATION
Capital One
DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
FIDELITY BRAVERY INTEGRITY
UNITED STATES NAVY
amazon
DEPARTMENT OF VETERANS AFFAIRS
UNITED STATES OF AMERICA
BOEING
U.S. HOUSE OF REPRESENTATIVES
E PLURIBUS UNUM
U.S. SECURITIES AND EXCHANGE COMMISSION
MCMXXXIV
NETFLIX
DEPARTMENT OF EDUCATION
UNITED STATES OF AMERICA

aqua

Top Partnerships and Awards

aws

Microsoft Azure

Google Cloud

vmware

Red Hat

IBM

THE CHANNEL CO. CRN CLOUD 100 2022

NAMED AS ONE OF THE 100 INNOVATIVE CYBERSECURITY COMPANIES Expert Insights

SC 2022 awards EUROPE SHORTLISTED

CYBERSECURITY BREAKTHROUGH AWARDS

FINALIST 2022 CISO CHOICE AWARDS Partner in Success

AQUA SECURITY

BOSTON BUSINESS JOURNAL THE LIST 2022 BEST PLACES TO WORK BPTW Aqua Security

Thanks

aqua

carahsoft.

Looking to the Future of DevSecOps and Agile Practices

Ben Straub

Head of Public Sector Sales

Atlassian

Alex Mcfarland

Technical Lead, Project Vulcan

DISA

Navin Vembar

Principal Engineer

Atlassian

Arjuna Rivera

Senior Solution Engineer

Atlassian

Networking Lunch

carahsoft

Application Modernization Outcomes with VMware Tanzu

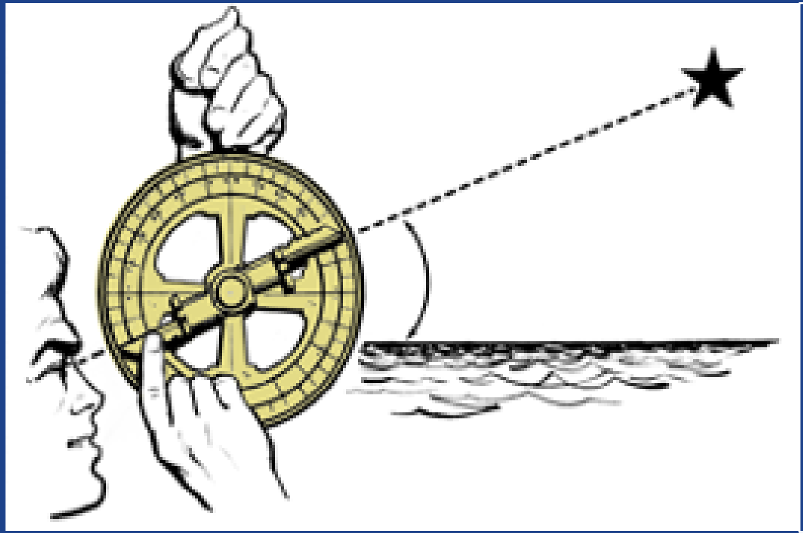
John Gozzi

Tanzu Solution Engineering Lead – Public Sector

VMware

How can Tanzu help your organization?

Tanzu Public Sector’s North Star



Rapidly and Securely Deliver Software to Production that Improve Mission Outcomes

Tanzu Empowers Agencies to …

Develop

Modern Apps that Deliver Immediate Value

Application Development

Iterative Development Best Practices

Agile, User Centered Design, Modern App Team Structure, SWIFT Methodology

Modern Application & Data Architectures

Applications designed to be highly scalable, resilient, and portable

Go Fast Forever

Enable Developers through Paired Programming while working on a real development project

Tanzu Empowers Agencies to …

Deploy

Apps securely with a Great Developer Experience

DevSecOps

Golden Path to Prod with Embedded Security

As developers commit code a supply chain is triggered automatically, providing a continuous path to production. Security steps are baked in to empower control inheritance.

Developer Efficiency & Experience

Bring Simplicity and Ease of Use to Developers via a Developer Portal & Organization-Approved App Starters

Deploy Apps Anywhere

Single approach to deploying modern applications across any cloud and on-premise environment.

Tanzu Empowers Agencies to …

Operate

Container Platforms Across Edge, Datacenter & Cloud

Platform Operations

Secure Container Platforms

Provide container orchestration platforms across Edge, Datacenters & Clouds

Centralized Container Platform Management

A single approach to Identity & Access Management, Security Policies, Data Protection, Secrets Management and Shared Services delivery.

One Control Plane, Any Cloud

Consistently Lifecycle & Manage both on-premise, edge and Cloud container platforms.

Tanzu Empowers Agencies to …

Develop

Modern Apps that Deliver Immediate Value

Deploy

Apps securely with a Great Developer Experience

Operate

Container Platforms Across Edge, Datacenter & Cloud

Innovation Velocity

“A Software Factory”

Thank You

carahsoft.

Thank You to Our Sponsors

PLATINUM

SECOND FRONT SYSTEMS

ATLASSIAN

VERACODE

GOLD

aqua

EDB™

Red Hat

vmware®

SILVER

sonatype

KASTEN by Veeam

BRONZE

ASK SAGE

aws

CloudBees.

Contrast SECURITY

dynatrace

elastic

Flosum

ForgeRock

GitLab

HashiCorp Federal

invicti

Katalon

LINEAJE

LaunchDarkly

vmware

Confidenti

Mattermost

opentext™ Cybersecurity

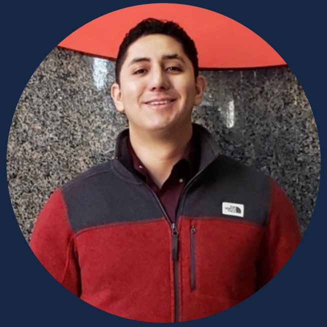
paloalto® NETWORKS

RISE8

SecurityCompass

carahsoft.

DevSecOps - Vulnerabilities to Velocity



Arian Salgado
Solutions Architect
Red Hat

Luis Acosta
Solutions Architect
Red Hat

Red Hat Secure Software Supply Chain

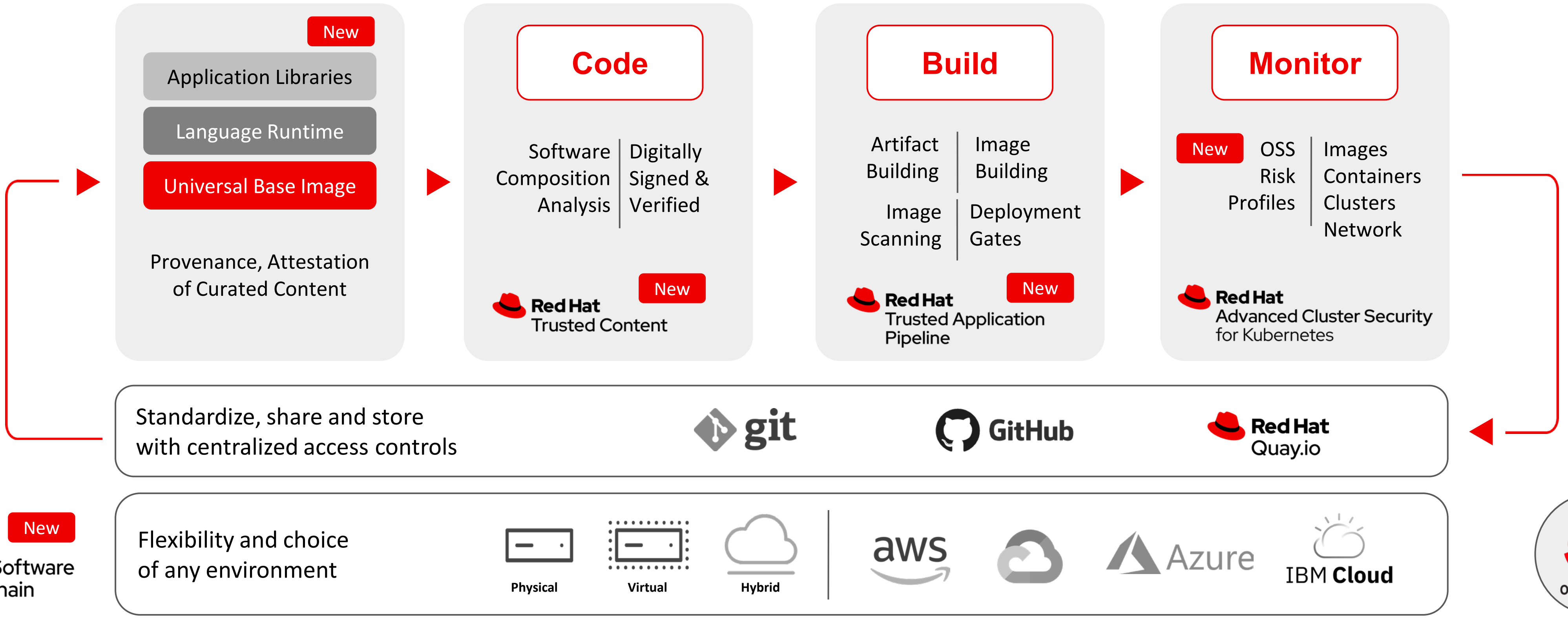
From vulnerabilities to velocity

Arian Salgado
Solution Architect
arian@redhat.com

Luis Acosta
Solution Architect
lacosta@redhat.com

Code, build, and monitor with a Trusted Software Supply Chain

With integrated security guardrails at every phase of the software development lifecycle



New

Application Libraries

Language Runtime

Universal Base Image

Provenance, Attestation of Curated Content

Code

Software Composition Analysis | Digitally Signed & Verified

New

Red Hat Trusted Content

Build

Artifact Building | Image Building

Image Scanning | Deployment Gates

New

Red Hat Trusted Application Pipeline

Monitor

New OSS Risk Profiles | Images Containers Clusters Network

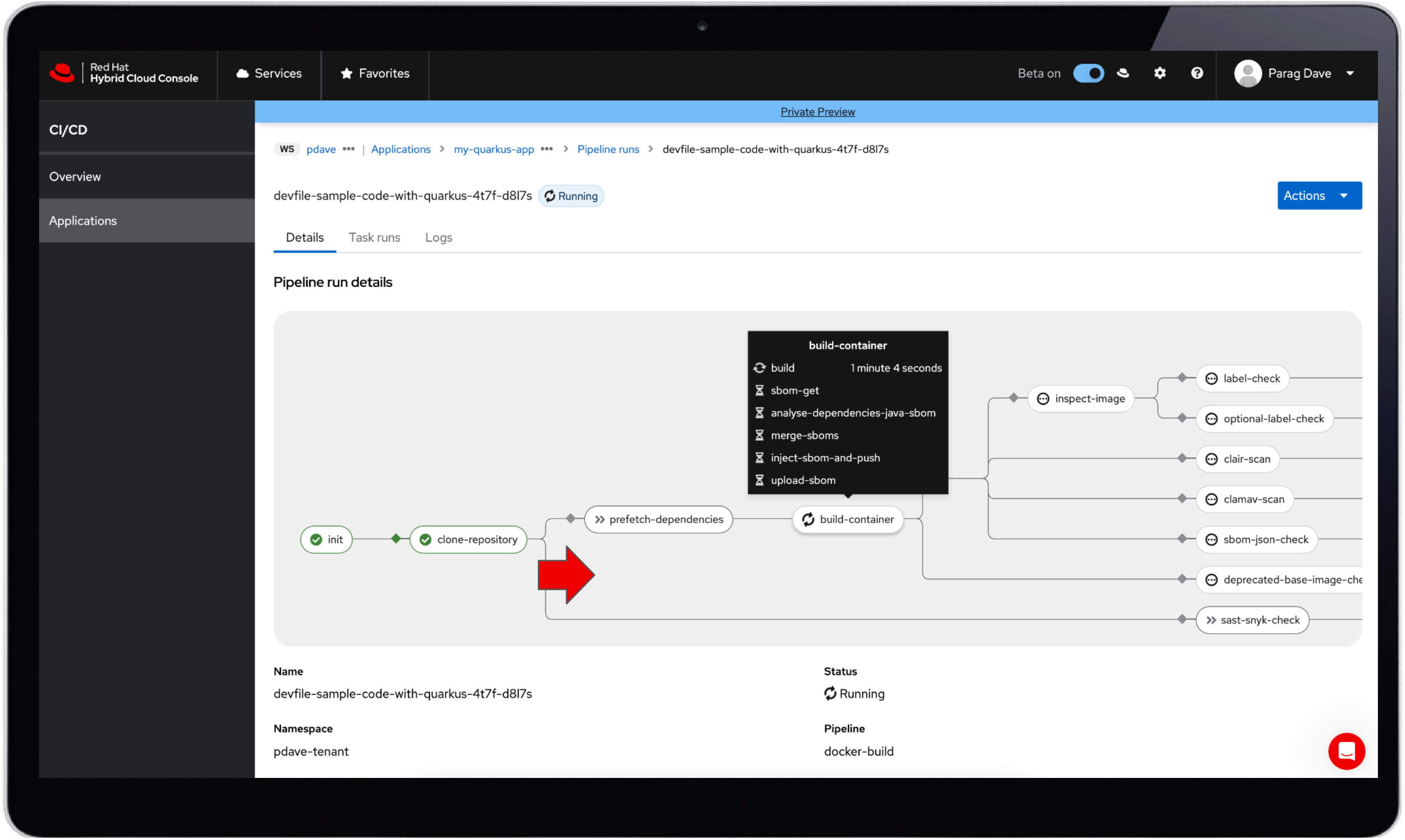
Red Hat Advanced Cluster Security for Kubernetes

Standardize, share and store with centralized access controls

Flexibility and choice of any environment

Red Hat Trusted Software Supply Chain New

- Onboard in minutes



devfile-sample-code-with-quarkus-4t7f-d8l7s Running

Pipeline run details

build-container

- build 1 minute 4 seconds
- sbom-get
- analyse-dependencies-java-sbom
- merge-sboms
- inject-sbom-and-push
- upload-sbom

Name
devfile-sample-code-with-quarkus-4t7f-d8l7s

Status
Running

Namespace
pdave-tenant

Pipeline
docker-build

Sign up today

- Choose Red Hat for your trusted software supply chain + DevSecOps
- Learn how Red Hat Trusted Software Supply Chain can help: **red.ht/trusted**

Darryl Peek II
Senior Director, Public Sector Channels & Alliances
Elastic

Ian Eishen
Director, Global Public Sector
Aalyria

Bonnie Evangelista
Senior Procurement Executive, Tradewinds Execution Lead
Chief Digital and Artificial Intelligence

Joseph (Mike) McWilliams
Director of Staff and Acquisition Program
Department of the Air Force Office of Small Business

carahsoft.

Removing Barriers by Leveraging Scalable PaaS

TJ Rowe

Vice President of Sales

Second Front

carahsoft

Harnessing the Power of Automation, AI and Machine Learning in DevSecOps and Software Factories

Johnny Wong

Senior Director, Solutions Architecture

Veracode

John Zangardi

Chief Executive Officer

Redhorse Corporation

(Former DHS CIO, Acting DoD CIO, & Navy CIO)

Networking Break

carahsoft.

carahsoft.

Thank You to Our Sponsors

PLATINUM

SECOND FRONT SYSTEMS

ATLASSIAN

VERACODE

GOLD

aqua

EDB™

Red Hat

vmware®

SILVER

sonatype

KASTEN by Veeam

BRONZE

ASK SAGE

aws

CloudBees.

Contrast SECURITY

dynatrace

elastic

Flosum

ForgeRock

GitLab

HashiCorp Federal

invicti

Katalon

LINEAJE

LaunchDarkly

Mattermost

opentext™ Cybersecurity

paloalto® NETWORKS

RISE8

SecurityCompass

carahsoft.

Postgres for Kubernetes and Cloud - with DataSecOps and DevSecOps

Gregory Pochodaj

Principal Architect

EDB

EDB™

@EnterpriseDB.com

EDB is the Leading Postgres community contributor alongside a vibrant

Beyond Postgres community

3 of 7 Postgres Core Team Members, 7 Committers, 40+ Contributors

EDB is Driving innovation and foundation of Postgres

EDB experts shape the direction of the technology

Containers

Performance Enhancements

30% of Postgres Code Contributed

Secure Encrypted Database

Security Enhancements

EDB has Unparalleled expertise in Postgres on-prem and cloud solutions

>300 Dedicated Postgres engineers

Oracle Compatible

Gregory.Pochodaj@EnterpriseDB.com

EDB™ Principal Architect – SE
Information Architecture & Governance
Azure, AWS, IBM, Kubernetes

Postgres Available most Anywhere and Everywhere

from self-managed -to- fully managed DBaaS in the cloud

Private

Hybrid

Multi-cloud

Public

Bare Metal

Virtual Machines

Containers

BIG ANIMAL

- Same applications
- Faster innovation
- Performance and scalability
- Stability, security and control
- Seamless integration

Linux	macOS	Windows	BSD	Solaris
Debian	Red Hat/Rocky/CentOS	SUSE	Ubuntu	Other Linux
kubernetes	Microsoft Azure	aws	Google Cloud	Linux on IBM Z mainframe

EDB

Public Sector Leaders Adopting Postgres

United States Army

Missile Defense Agency · Department of Defense

National Security Agency · United States of America

Defense Threat Reduction Agency · United States of America

Joint Chiefs of Staff

United States Navy

Defense Information Systems Agency

Department of Justice · Federal Bureau of Investigation · Fidelity Bravery Integrity

United States Environmental Protection Agency

United States Federal Communications Commission

GSA

USAC
Universal Service Administrative Company®

U.S. AIR FORCE

NSW GOVERNMENT | Transport for NSW

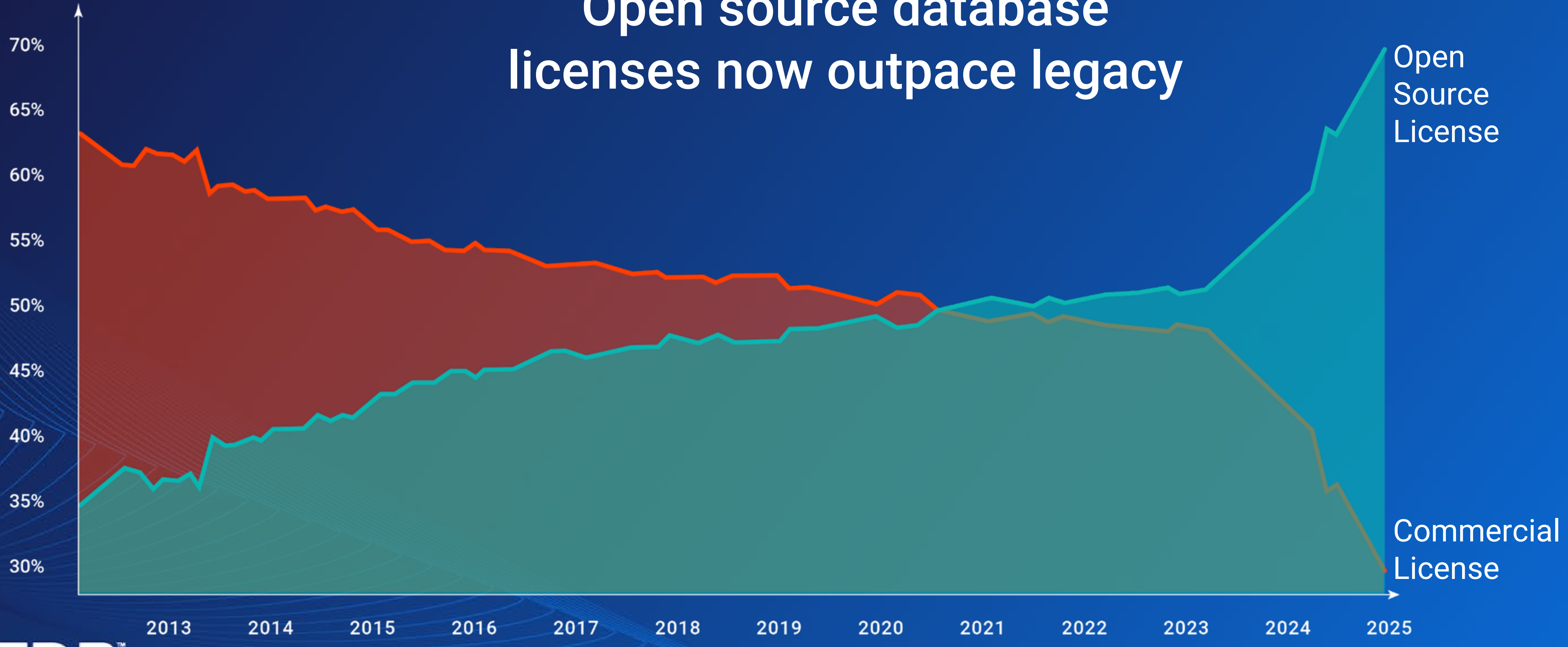
U.S. AIR FORCE · Department of Defense · United States of America
DevSecOps Platform Stack
(continuously evolving)
Integrity - Service - Excellence

Australian Government
Defence

Australian Government
Services Australia

NEW ZEALAND
CUSTOMS SERVICE
TE MANA ĀRAI O AOTEAROA

The Tipping Point has already happend



source: db-engines, IDC

PostgreSQL Integration Tree (2021)

DevSecOps Integration

PostgreSQL

Application Integration

- Drivers
- Development Frameworks

  (Python, Java, Other Programming Languages - logos)

Java, RAILS, django, python, alteryx, React, redash, node, Vue.js, tableau PARTNER

Data Integration

- Integration Tools
- Migration Tools

MySQL, mongoDB, ORACLE GOLDEN GATE, hadoop, IBM DataStage, talend, Qlik, pentaho, EDB, HVR, Informatica, APACHE INCUBATOR, Superset

Development Tools

- Graphical Development Environments
- Command Line

pgAdmin, EDB, DBeaver, Quest, JetBRAINS, ORACLE SQL Developer, Navicat

Deployment Tools

- Database Change Deployment
- Postgres Deployment

Red Hat OpenShift Container Platform, docker, kubernetes, Progress, CHEF, Terraform, Liquibase.org, ANSIBLE, puppet, FLYWHEEL, SUSE

Security Environments

- Authorization
- Authentication
- Encryption
- Auditing

THALES, LDAP.com, CYBERTEC, Active Directory, okta, tenable

High Availability and Disaster Recovery Tools

- Replication and failover
- Backup and recovery

sorint.oss, repostor, EDB, IBM Tivoli, Pgpool-II, Microsoft Azure, aws, Google

Management Tools for Monitoring, Alerting and Tuning

- General management tools
- Speciality Postgres tools

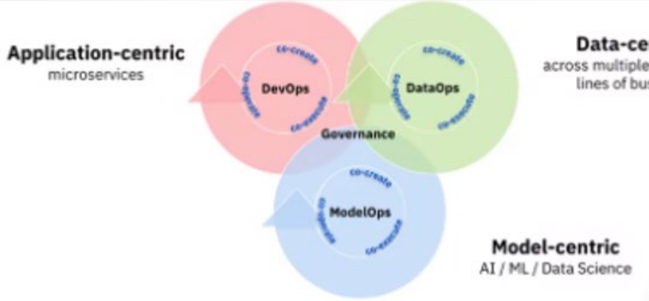
New Relic, Prometheus, SignalFx, EDB, WAVEFRONT, Grafana, DATADOG

Infrastructure Integration

- OS and compute
- Network
- Storage

redhat. LINUX, debian, Linux, Microsoft, ubuntu, Google Cloud, aws, Microsoft Azure

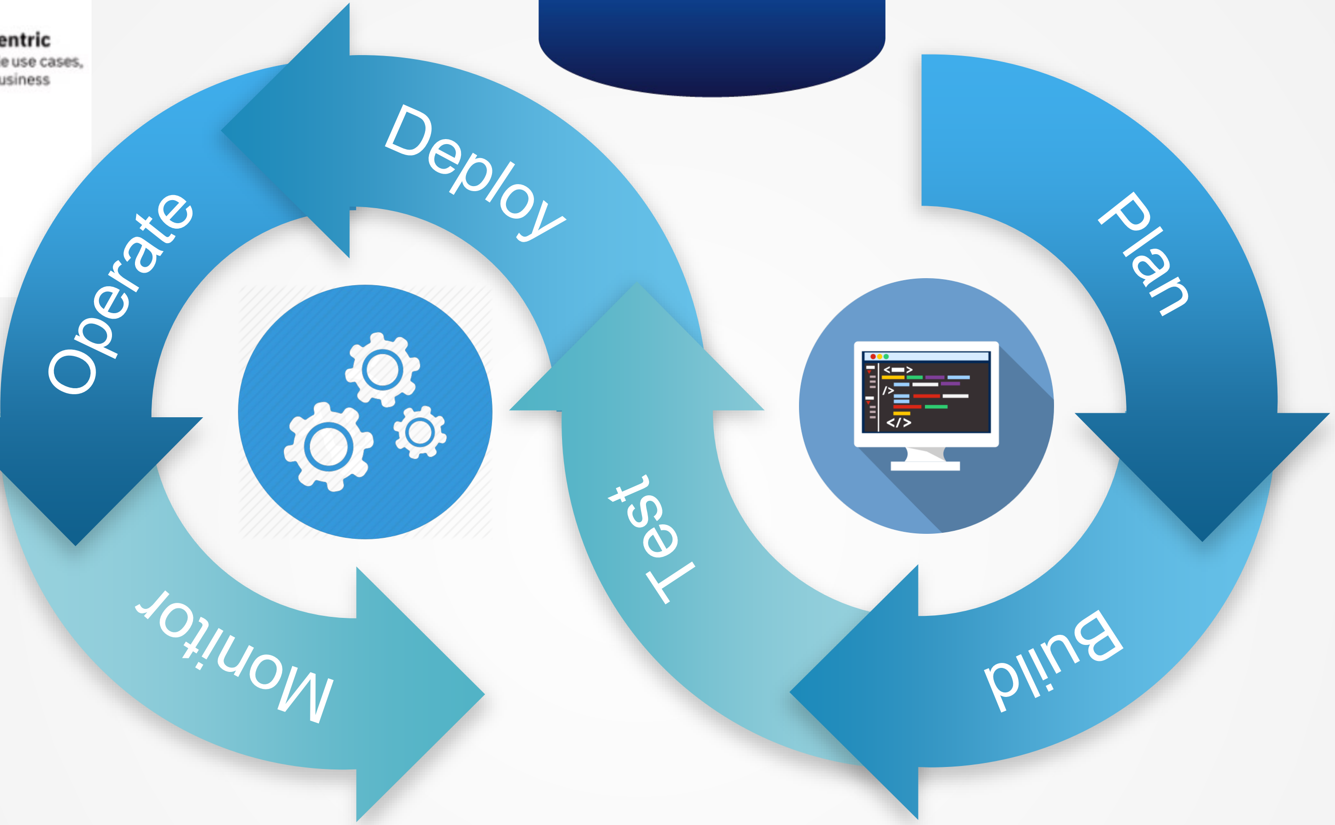
DevSecOps goals with EDB Postgres products



CI (Continues Integration)
Flexible server
Easily re-initialized and refreshed

CD (Continues Delivery)
Infrastructure as Code (Kubernetes)
Deployment Service

CM (Continues Monitoring)
Logs Server (ELK stack)
Infrastructure Monitoring
Metric Server (Prometheus)
Alert Manager(Prometheus)

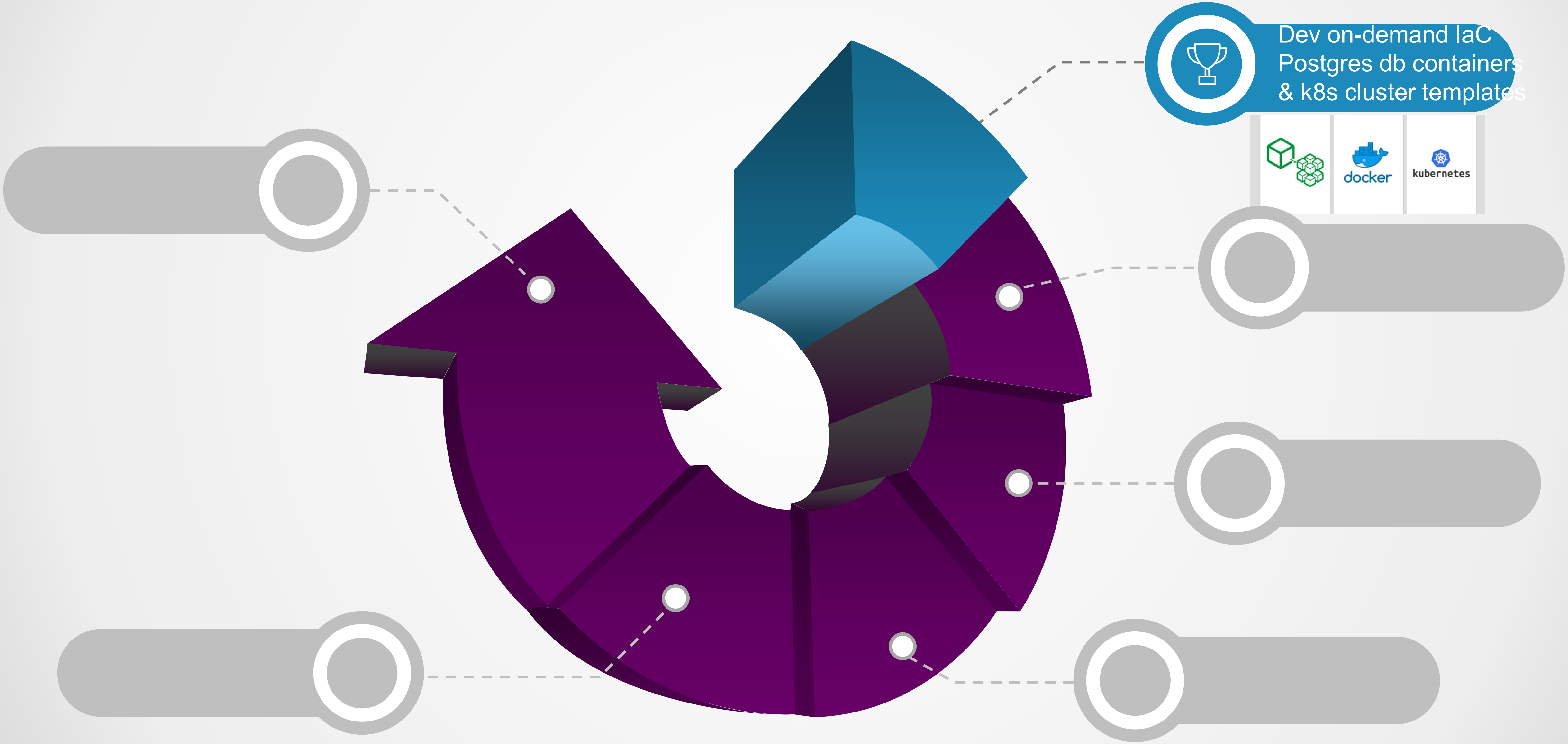


Dev empowered
to create and refresh env
on-demand & on their own
…per procedures built by Sec and Ops

Multi-Layered Security
built-in
by policy

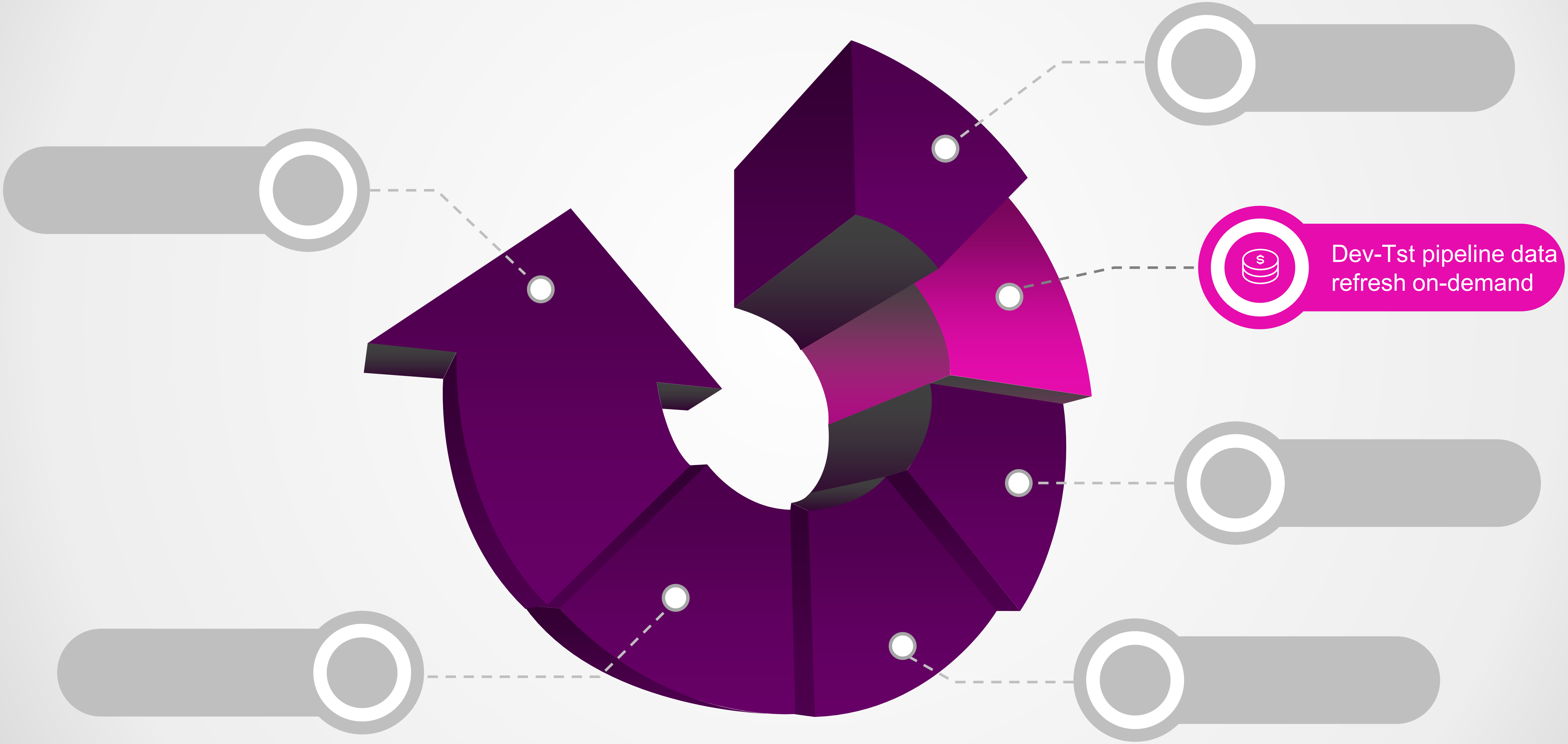
Ops IaC and auto-DBA
to reduce bottlenecks and cost

DevSecOps results with EDB Postgres products



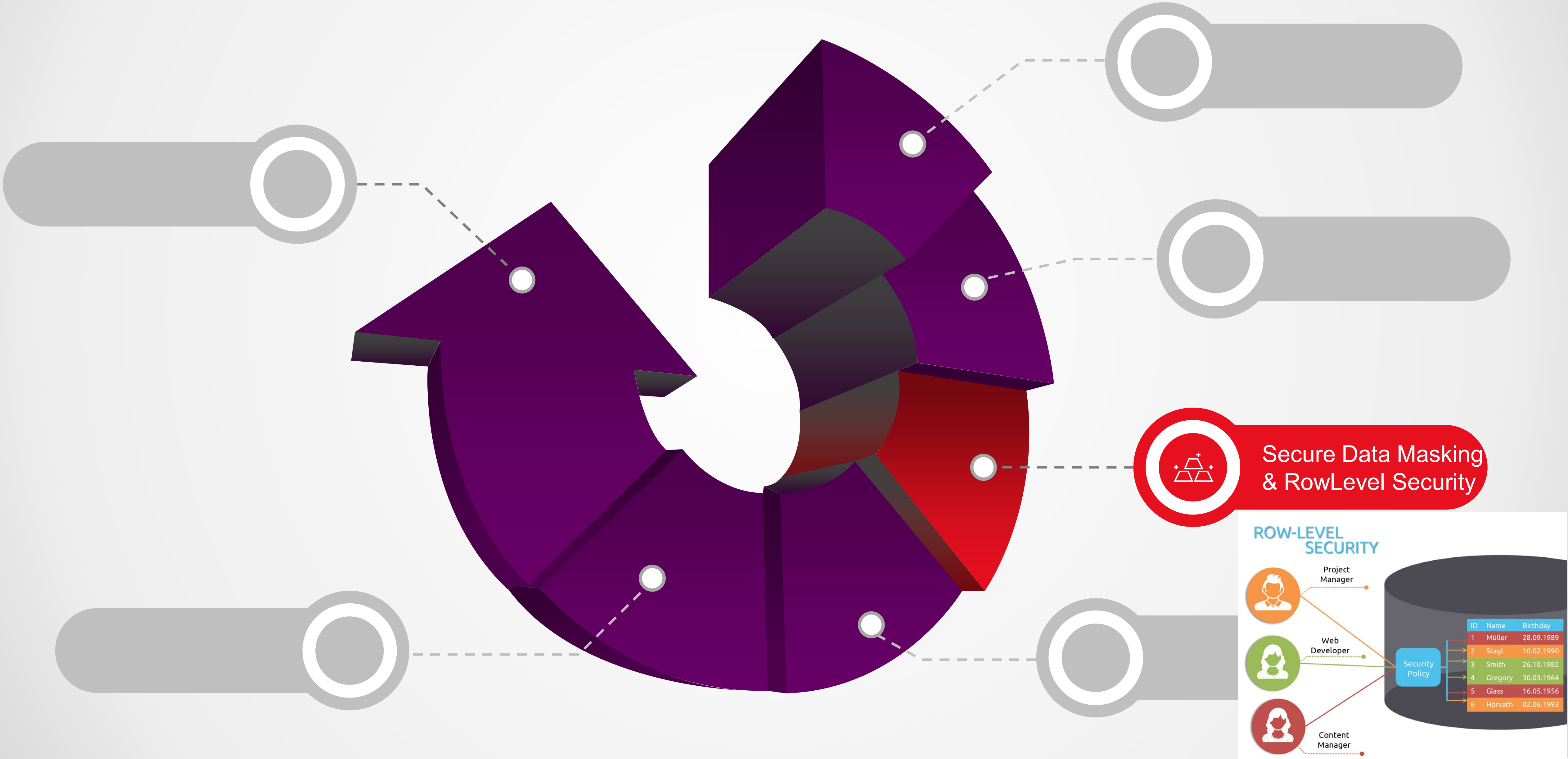
Dev on-demand IaC
Postgres db containers
& k8s cluster templates

DevSecOps results with EDB Postgres products



Dev-Tst pipeline data refresh on-demand

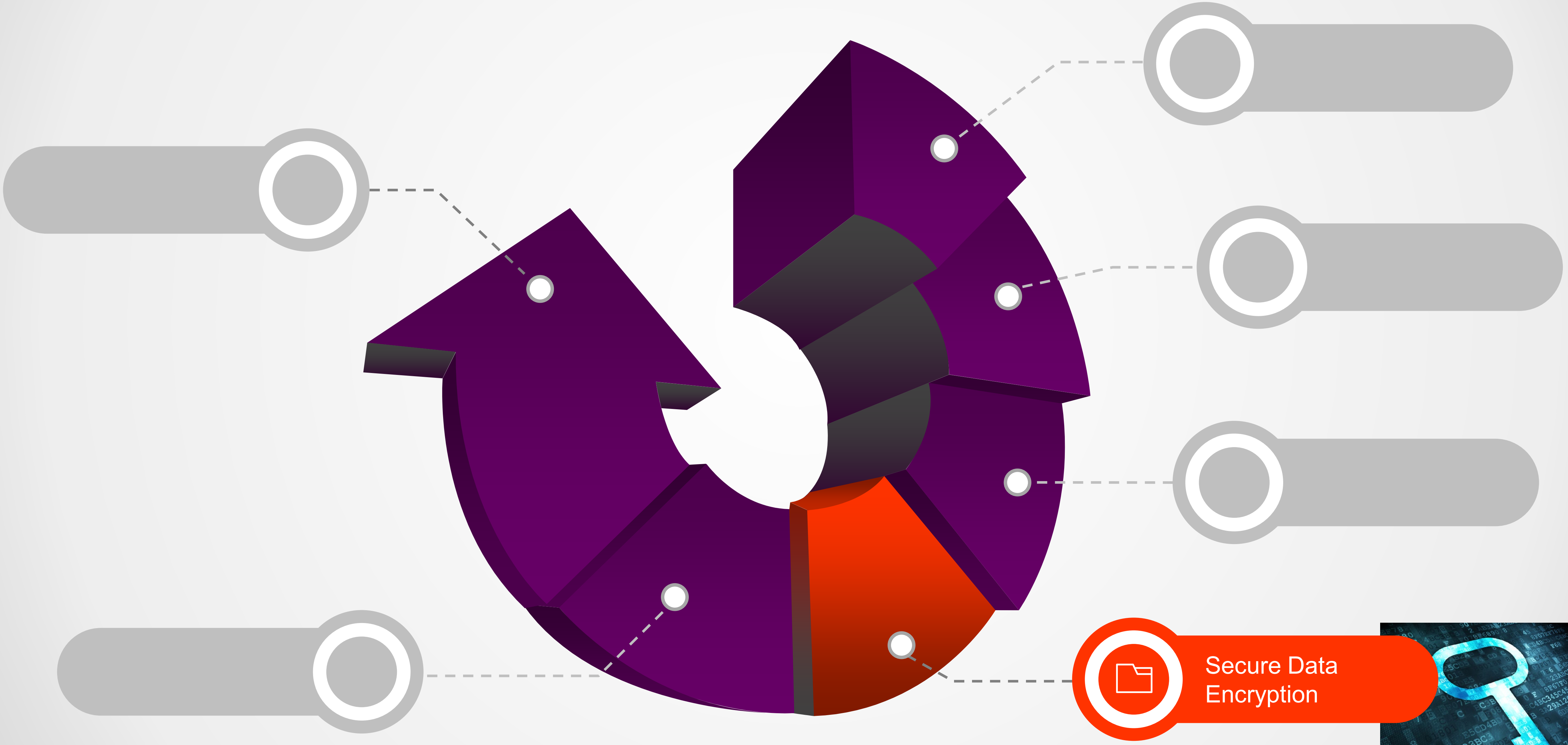
DevSecOps results with EDB Postgres products



Secure Data Masking & RowLevel Security

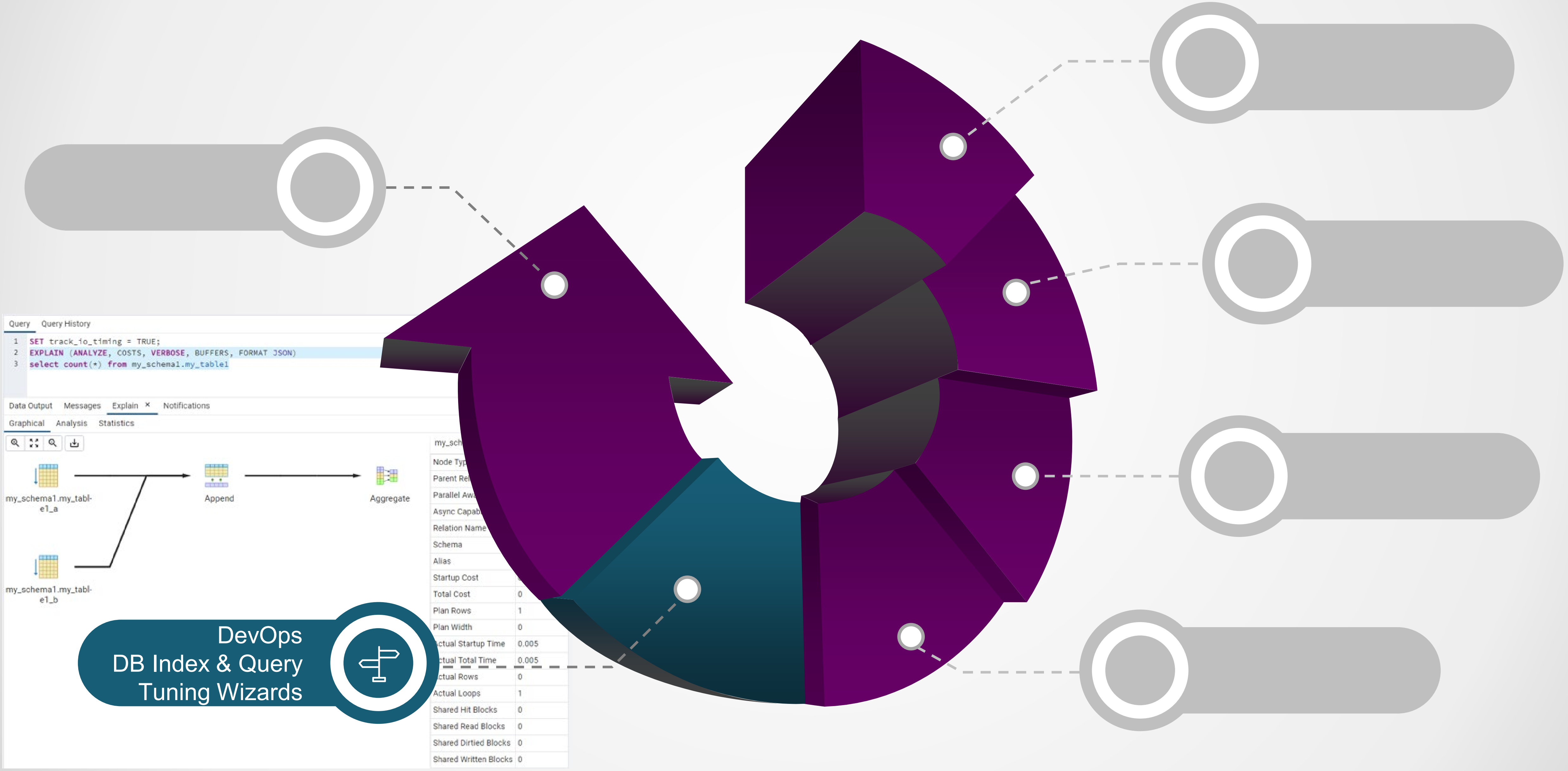
ID	Name	Birthday
1	Müller	28.09.1989
2	Stagl	10.02.1990
3	Smith	26.10.1982
4	Gregory	30.03.1964
5	Glass	16.05.1956
6	Horvath	02.06.1993

DevSecOps results with EDB Postgres products



Secure Data Encryption

DevSecOps results with EDB Postgres products

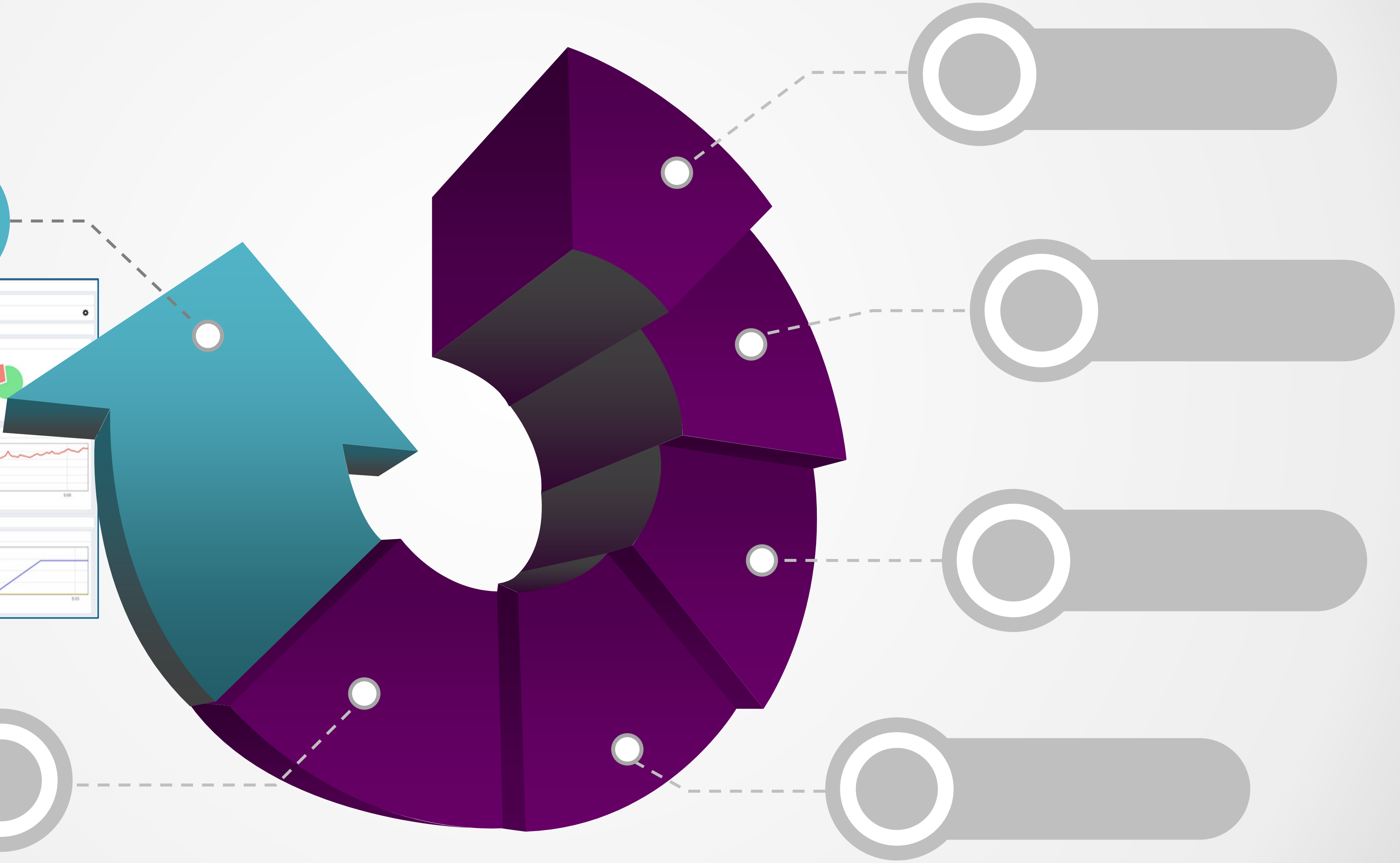


```
SET track_io_timing = TRUE;
EXPLAIN (ANALYZE, COSTS, VERBOSE, BUFFERS, FORMAT JSON)
select count(*) from my_schema1.my_table1
```

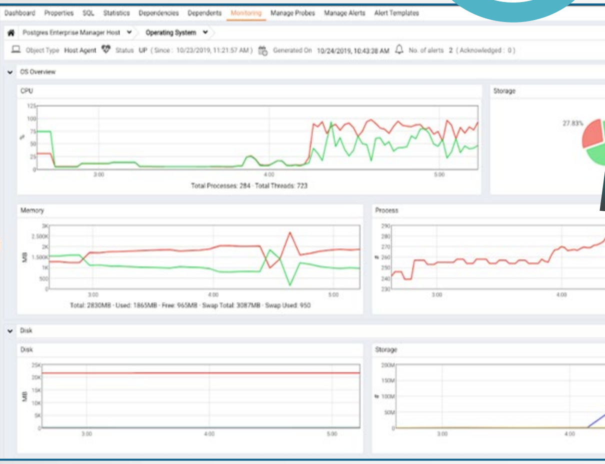
Node Typ	
Parent Rel	
Parallel Aw	
Async Capab	
Relation Name	
Schema	
Alias	
Startup Cost	
Total Cost	0
Plan Rows	1
Plan Width	0
ctual Startup Time	0.005
ctual Total Time	0.005
ctual Rows	0
Actual Loops	1
Shared Hit Blocks	0
Shared Read Blocks	0
Shared Dirtied Blocks	0
Shared Written Blocks	0

DevOps
DB Index & Query
Tuning Wizards

DevSecOps results with EDB Postgres products



Ops Centralized Monitoring & Admin & Schema Mngmnt



Object Type Host Agent Status UP (Since : 10/23/2019, 11:21:57 AM) Generated On 10/24/2019, 10:43:38 AM No. of alerts 2 (Acknowledged : 0)

OS Overview

CPU

Total Processes: 284 · Total Threads: 723

Storage

Memory

Total: 2830MB · Used: 1865MB · Free: 965MB · Swap Total: 3087MB · Swap Used: 950

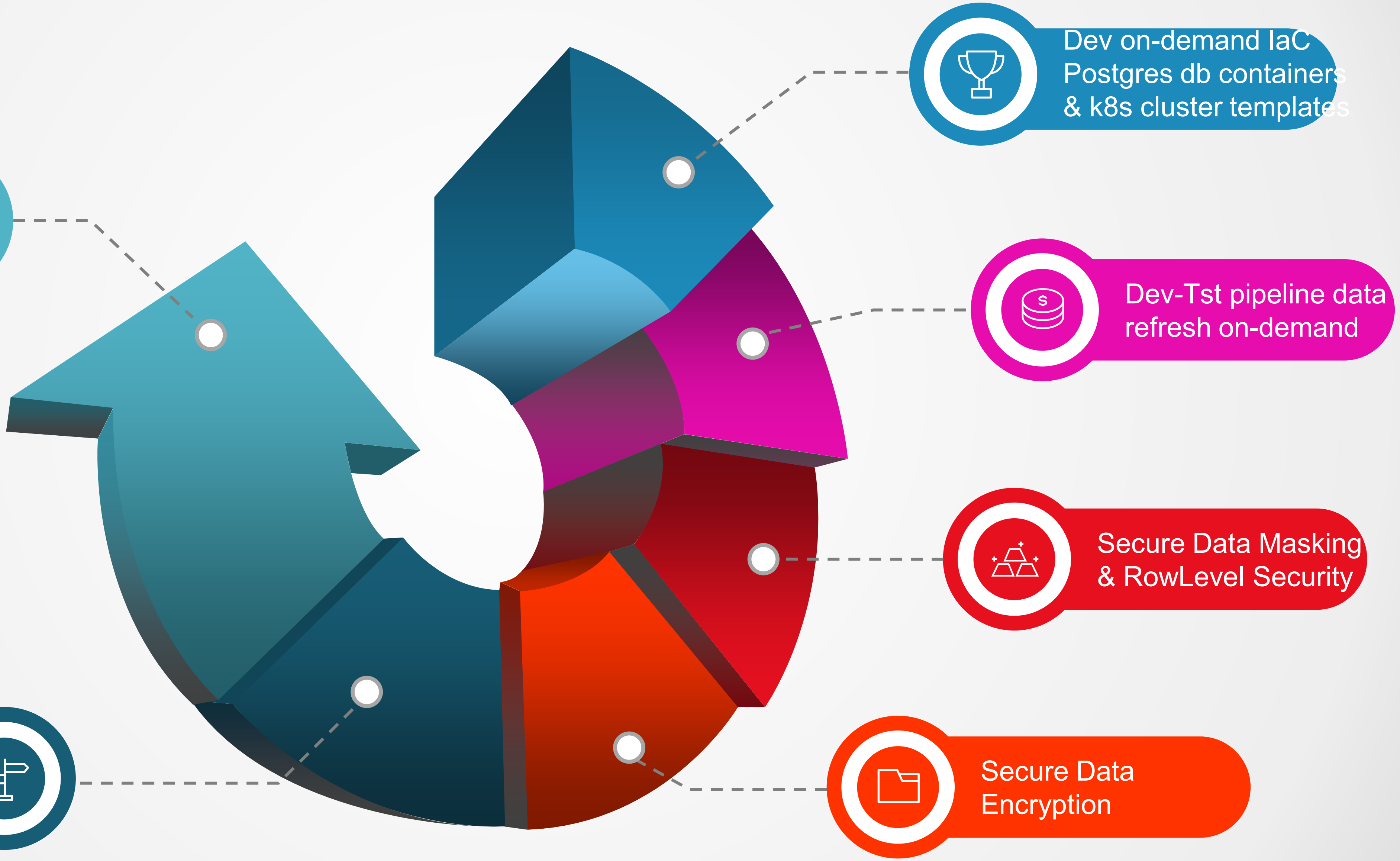
Process

Disk

Disk

Storage

DevSecOps results with EDB Postgres products



Dev on-demand IaC Postgres db containers & k8s cluster templates

Dev-Tst pipeline data refresh on-demand

Secure Data Masking & RowLevel Security

Secure Data Encryption

DB Index & Query Tuning Wizards

Ops Centralized Monitoring & Admin & Schema Mngmnt

U.S. AIR FORCE

“Infrastructure as Code” Benefits

The “Infrastructure as Code” is a critical DevSecOps ingredient that production environments do not drift from development/testing environments. No human should make changes in production environments. Changes should only be made in source code and redeployed by the CI/CD pipeline.

- No drift between environments, whether classified/disconnected/Cloud/on-premise
- Immutable,
- Replicable,
- Automated,
- No human in production environments: reduces attack surface (disable SSH etc.), insider threat and configuration drifts,
- Everything is code: including playbooks, networking, tests, configuration etc.

Iron Bank – DoD Centralized Artifacts Repository (DCAR)
https://repo1.dso.mil/dsop/jfrog/artifactory/artifactory-oss

Postgres for Kubernetes

Container Images and Kubernetes Operators

Dev-Prd IaC

EDB Postgres Advanced Server and Postgres container images

Docker container images containing the Database server with only the Postgres service exposed

Sec built-in

Security

Ensure Postgres and Kubernetes Pod Security best practices implemented by default

Ops auto-pilot

EDB Postgres for Kubernetes Operator

Responsible for deploying and managing Postgres and EDB Postgres Advanced Server containers and maintaining the desired state

IaC

Container Images and Kubernetes Operators

Immutable Containers

```
[podman/docker] run \
  --name postgres \
  -p 5432:5432 \
  -e POSTGRES_USER=postgres \
  -e POSTGRES_PASSWORD=postgres \
  -d postgres
```

Quickly and Easily create Postgres for Kubernetes Cluster

```
cat <<EOF | kubectl apply -f -
apiVersion:
postgresql.k8s.enterprisedb.io/v1
kind: Cluster
metadata:
  name: cluster-example
spec:
  instances: 3
  imageName:
quay.io/enterprisedb/postgresql:15.3

  storage:
    size: 1Gi
EOF
```

pre-initialize the database with your refreshed test data

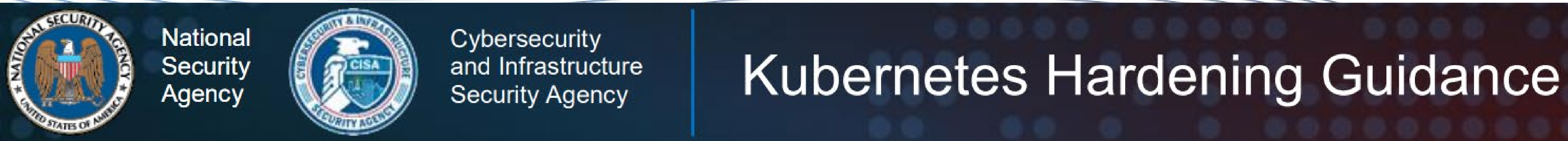
```
bootstrap:
   pg_basebackup:
     source: source-db
 storage:
   size: 1Gi

 externalClusters:
 - name: source-db
   connectionParameters:
     host: source-db.foo.com
     user: streaming_replica
   password:
     name: source-db-replica-user
     key: password
```

Sec Built-in

NSA - National Security Agency
CISA - Cybersecurity and Infrastructure Security Agency
Cybersecurity Technical Report

EDB Postgres for Kubernetes adheres to CNCF and CISA Best Practices

https://www.cisa.gov/resources-tools/resources/free-tools-cloud-environments
https://media.defense.gov/2022/Aug/29/2003066362/-1/-1/0/CTR_KUBERNETES_HARDENING_GUIDANCE_1.2_20220829.PDF
https://www.nsa.gov/Press-Room/News-Highlights/Article/Article/2716980/nsa-cisa-release-kubernetes-hardening-guidance



National Security Agency

Cybersecurity and Infrastructure Security Agency

Kubernetes Hardening Guidance

Ops Auto-Pilot

Container Images and Kubernetes Operators

Deploy anywhere

Lightweight, immutable PostgreSQL containers

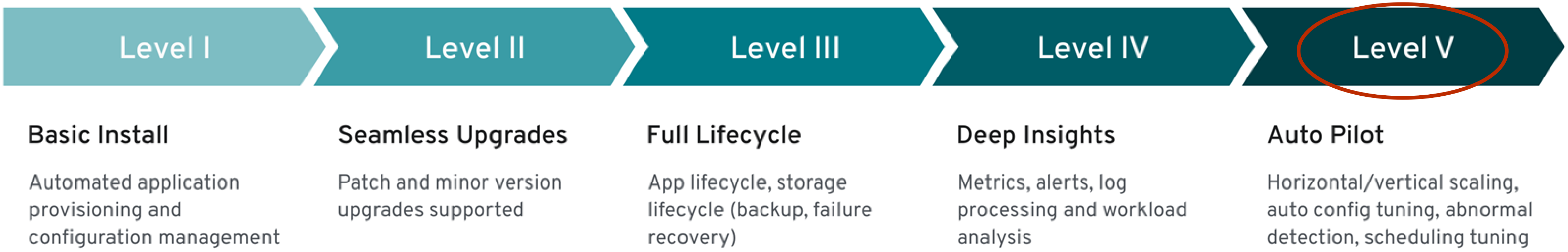
Automate DBA Tasks

Failover, switchover, backup, recovery, and rolling updates

Avoid lock-in

Operator and images are portable to any cloud

Ops built-in to the EDB Kubernetes Operator - "Level V – Auto Pilot"



Basic Install

Automated application provisioning and configuration management

Seamless Upgrades

Patch and minor version upgrades supported

Full Lifecycle

App lifecycle, storage lifecycle (backup, failure recovery)

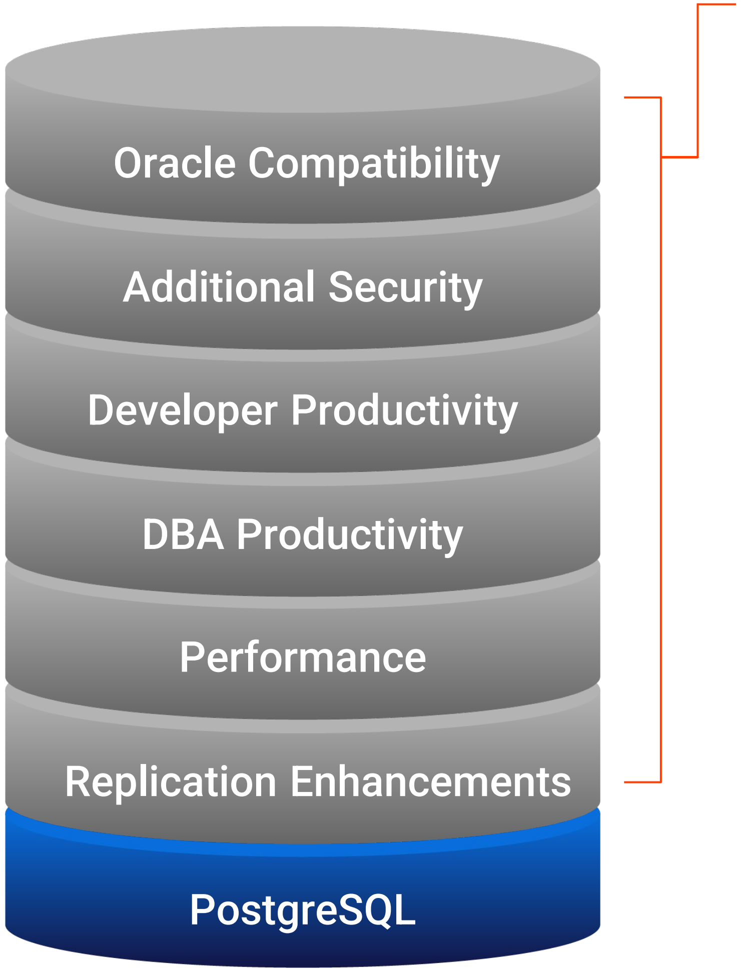
Deep Insights

Metrics, alerts, log processing and workload analysis

Auto Pilot

Horizontal/vertical scaling, auto config tuning, abnormal detection, scheduling tuning

EDB Postgres Advanced Server (EPAS)



EDB Postgres Advanced Server

- **Oracle Compatibility -** Compatibility for schemas, data types, indexes, users, roles, partitioning, packages, views, PL/SQL triggers, stored procedures, functions, and utilities
- **Additional Security –** TDE-Transparent Data Encryption, Password policy management, session tag auditing, data redaction, SQL injection protection, and procedural language code obfuscation
- **Developer Productivity -** Over 200 pre-packaged utility functions, user-defined object types, autonomous transactions, nested tables, synonyms, advanced queueing
- **DBA Productivity** - Throttle CPU and I/O at the process level, over 55 extended catalog views to profile all the objects and processing that occurs in the database
- **Performance -** Query optimizer hints, SQL session/system wait diagnostics
- **Replication Enhancements** - Enables EDB Postgres Distributed functionality such as Group Commit, Commit at Most Once and Eager all-node synchronous replication, timestamp-based snapshots, estimates for replication catch-up times, selective backup of a single database, hold back freezing to assist resolution of UPDATE/DELETE conflicts, multi-node PITR

EDB Postgres Multi-Layered Security

Transparent Data Encryption

Virtual private databases

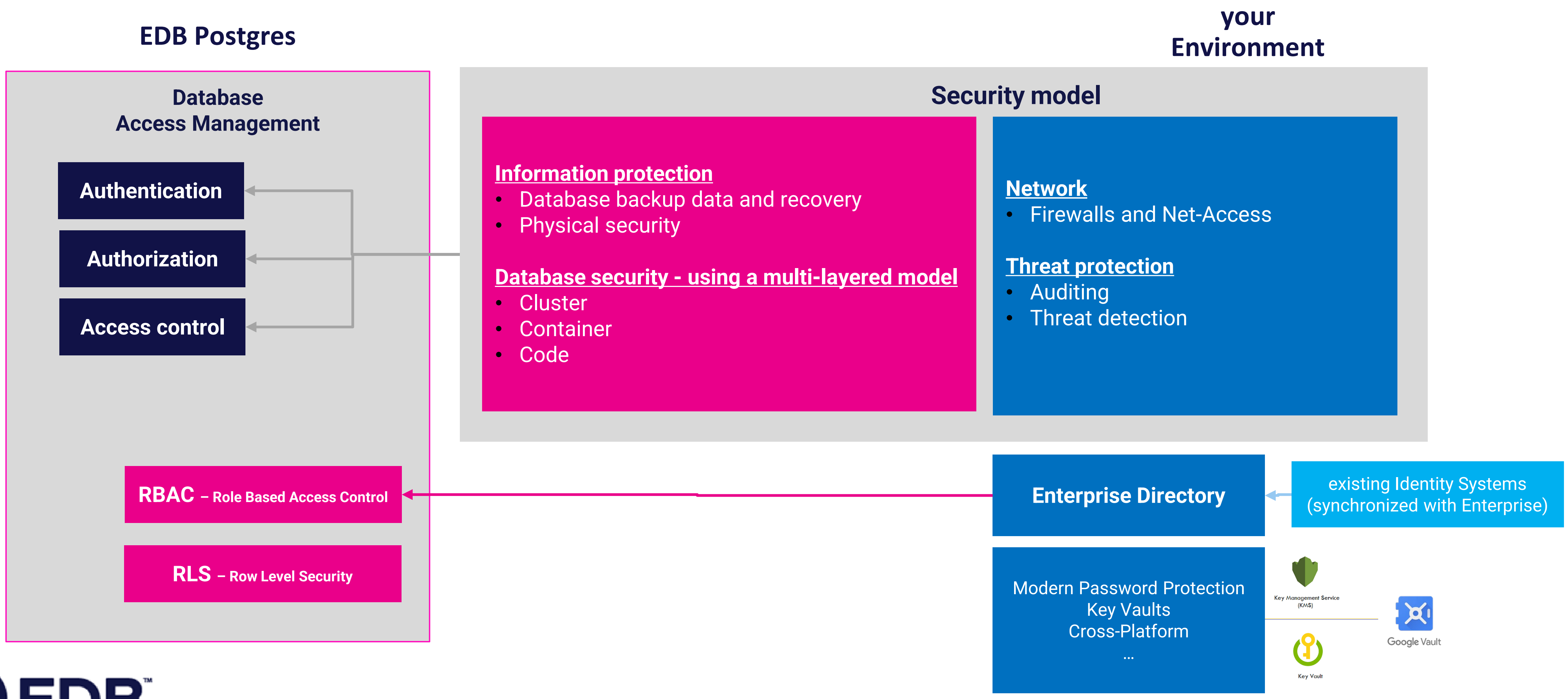
Data redaction

LDAP sync

EDB Postgres Multi-Layered Security is Integrated and Shared with your existing Security

multi-layer security architecture typical components:

- Secure physical access to the host (perhaps most important)
- Limited access to your general corporate network
- Limited access to the database host
- Limited access to the database application
- Limited access to the data contained within



EDB Postgres

Database Access Management

- **Authentication**
- **Authorization**
- **Access control**

RBAC – Role Based Access Control

RLS – Row Level Security

your Environment

Security model

Information protection

- Database backup data and recovery
- Physical security

Database security - using a multi-layered model

- Cluster
- Container
- Code

Network

- Firewalls and Net-Access

Threat protection

- Auditing
- Threat detection

Enterprise Directory

existing Identity Systems (synchronized with Enterprise)

Modern Password Protection
Key Vaults
Cross-Platform
…

Ops and EDB Postgres Enterprise Manager

Deep insights into your Postgres deployment

Manage from one interface

One place to visualize and manage everything Postgres

Monitor system health

Built-in dashboards and customizable alert thresholds

Optimize database performance

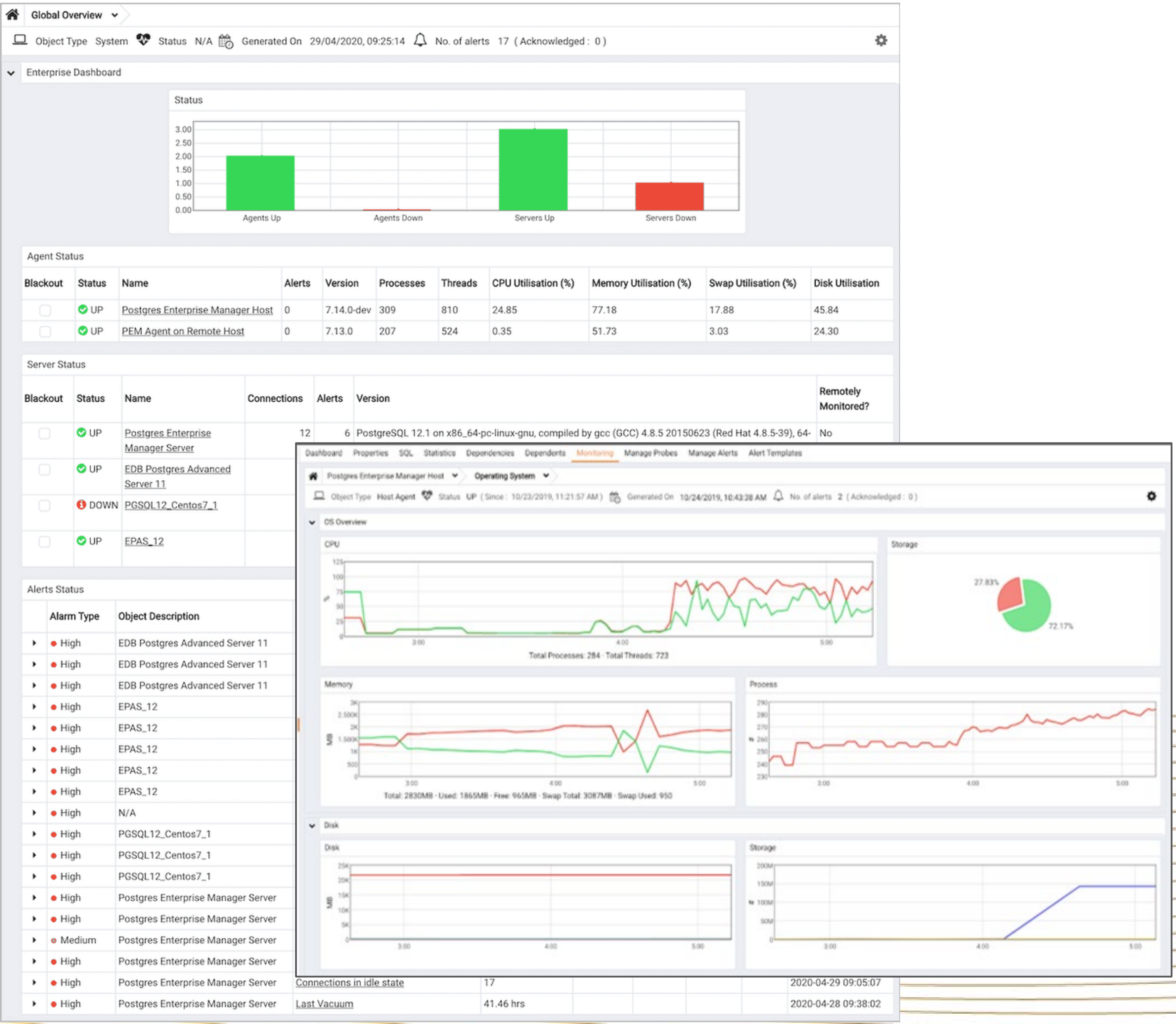
In-depth diagnostics for database reports and tuning

Reduce admin burden

Accomplish bulk changes and routine tasks

Postgres Enterprise Manager

Manage, monitor, and tune Postgres at scale



Agent Status

Blackout	Status	Name	Alerts	Version	Processes	Threads	CPU Utilisation (%)	Memory Utilisation (%)	Swap Utilisation (%)	Disk Utilisation
□	✓ UP	Postgres Enterprise Manager Host	0	7.14.0-dev	309	810	24.85	77.18	17.88	45.84
□	✓ UP	PEM Agent on Remote Host	0	7.13.0	207	524	0.35	51.73	3.03	24.30

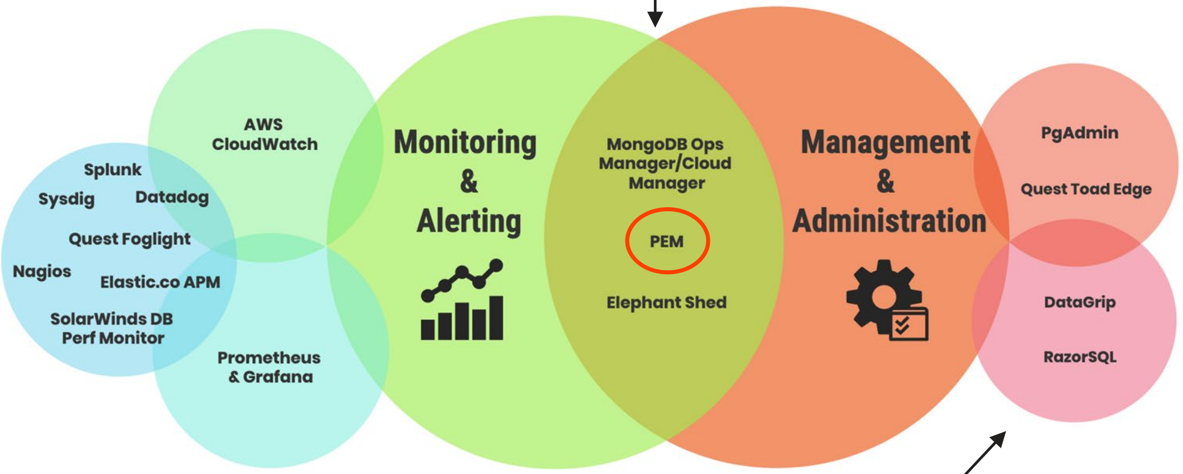
Server Status

Blackout	Status	Name	Connections	Alerts	Version	Remotely Monitored?
□	✓ UP	Postgres Enterprise Manager Server	12	6	PostgreSQL 12.1 on x86_64-pc-linux-gnu, compiled by gcc (GCC) 4.8.5 20150623 (Red Hat 4.8.5-39), 64-	No
□	✓ UP	EDB Postgres Advanced Server 11				
□	DOWN	PGSQL12_Centos7_1				
□	✓ UP	EPAS_12				

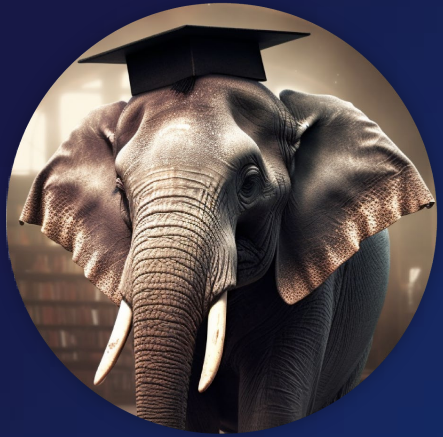
Alerts Status

Alarm Type	Object Description			
● High	EDB Postgres Advanced Server 11			
● High	EDB Postgres Advanced Server 11			
● High	EDB Postgres Advanced Server 11			
● High	EPAS_12			
● High	EPAS_12			
● High	EPAS_12			
● High	EPAS_12			
● High	EPAS_12			
● High	N/A			
● High	PGSQL12_Centos7_1			
● High	PGSQL12_Centos7_1			
● High	PGSQL12_Centos7_1			
● High	Postgres Enterprise Manager Server			
● High	Postgres Enterprise Manager Server			
● Medium	Postgres Enterprise Manager Server			
● High	Postgres Enterprise Manager Server			
● High	Postgres Enterprise Manager Server	Connections in idle state	17	2020-04-29 09:05:07
● High	Postgres Enterprise Manager Server	Last Vacuum	41.46 hrs	2020-04-28 09:38:02

Manage and Monitor PostgreSQL environments



Most tools focus on subset of capabilities



EDB™ and we are by your side every step of the way.

EDB Postgres Training **FREE** from the World's Top Postgres Experts

https://www.enterprisedb.com/training

DevSecOps training :

https://software.af.mil/training
https://software.af.mil/dsop/documents

EDB™

ASSISTANT SECRETARY OF ACQUISITION ★ CHIEF SOFTWARE OFFICE ★

Gregory.Pochodaj@EnterpriseDB.com

Principal Architect – SE

Information Architecture & Governance
Azure, AWS, IBM, Kubernetes
Certified and Experienced Consultant

Thank You !

EDB™

DevSecOps

… Just Do It

… step by step

measurement of movement is defined as :

Nothing happens without movement

Move in practical steps

Don’t wait for sudden movements

If you *change* your **position** - you have **velocity**

If you *change* your **velocity** - you have **acceleration**

if you *change* your **acceleration** - you have **jerk**

don’t fall … **Let’s Fly !**

Unleashing DevSecOps Excellence through Securing Software Early

Matt Schmidt
Public Sector Sales Director
Kasten by Veeam

David Sperbeck
DevSecOps Capability Lead
GDIT

Andrew Fichter
Director, VA Lighthouse Developer Experience
US Department of Veterans Affairs

James “Guideaux” Crocker
Chief Technology Officer, HNII
United States Air Force

Networking Reception

carahsoft

carahsoft.

CPE CREDIT

To ensure you receive your onsite CPE credit, you must complete this survey at the conclusion of the event.

carahsoft.

carahsoft.

Thank You to Our Sponsors

PLATINUM

SECOND FRONT SYSTEMS

ATLASSIAN

VERACODE

GOLD

aqua

EDB™

Red Hat

vmware®

SILVER

sonatype

KASTEN by Veeam

BRONZE

ASK SAGE

aws

CloudBees.

Contrast SECURITY

dynatrace

elastic

Flosum

ForgeRock®

GitLab

HashiCorp Federal

invicti

Katalon

LINEAJE

LaunchDarkly

Mattermost

opentext™ Cybersecurity

paloalto® NETWORKS

RISE8

SecurityCompass