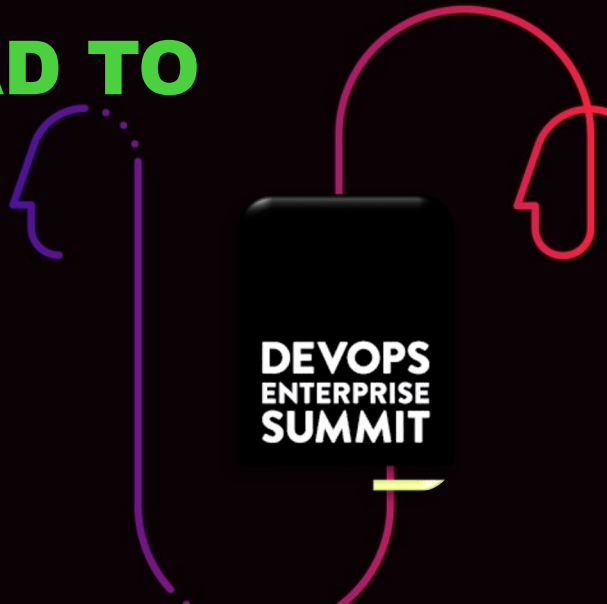
FIS

INSIDE THE CHANGE AT FIS

A GLOBAL ENTERPRISE'S ROAD TO DEVOPS MASTERY

Paving the Road to DevSecOps @ FIS



INTRODUCTION

Fidelity Information Systems (FIS), is a leading provider of technology solutions for financial institutions and businesses of all sizes and across any industry globally. We enable the movement of commerce by unlocking the financial technology that powers the world's economy. Our employees are dedicated to advancing the way the world pays, banks and invests through our trusted innovation, absolute performance and flexible architecture. We help our clients use technology in innovative ways to solve business-critical challenges and deliver superior experiences for their customers. Headquartered in Jacksonville, Florida, FIS ranks #241 on the 2021 Fortune 500 and is a member of Standard & Poor's 500® Index.

Opus Technologies (formerly Opus Consulting Solutions) focuses on shaping the future of payments technology. With experience building highly innovative solutions and products, Opus offers technology proficiency in API management, AI and Analytics, Cloud, and DevSecOps with unmatched domain expertise in Payments, Fintech, and Banking. Opus partners with the world's most recognized brands providing digital transformation solutions while driving innovation in payments.

HOW CUSTOMERS THINK ABOUT TECH IS CHANGING; GIVEN FIS HISTORY, WE FACE CHALLENGES TO FULLY MEET THEIR NEEDS

OUR BACKGROUND

- **FIS** has grown through **acquisitions**
- **Acquisitions** have resulted in duplicated platforms and products
- **Efforts are underway to modernize the target state** But many of our strategic **products** remain built for a **previous era**:
  - **Monolithic architecture**
  - **Redundant capabilities**
  - **Limited service and API orientation**
  - **Ticket Based, Manual Processes**

CHALLENGES WE FACE

- Lengthy time to **deliver functionality**
- Slow to innovate
- Slow time to live to **onboard customers**
- Products take more people and resources to **support**
- Legacy technologies **pose security and talent challenges**
- Testing is predominantly **manual**
- Customers can't consume our products the way they want to as a **service or via API's**
- A lack of standard **metrics** to measure maturity

CUSTOMERS' EMERGING NEEDS

- **Software** consumed **as a service**
- Expect a higher rate of **rapid** delivery of new features
- Unconstrained and **customizable customer experience**
- **Open architecture allowing interoperability** of FinTech's, 3rd parties, banks, and vendors
- **Banks expect to participate outside their ecosystem** through embedded finance and API-based integrations

OPERATION JOINED ARROW' MISSION AND GUIDING PRINCIPLES

Dramatically improve and accelerate our ability to adopt an agile culture by empowering teams to continuously deliver high-quality, secure software at scale while lowering the Total Cost of Ownership resulting in improved customer experiences and satisfaction.

THE ROAD TO DEVSECOPS

Phase 1 (2022)
Continuous Integration
(48 platforms)
COMPLETE

Phase 2 (2023)
Continuous Delivery Pilot
(4 platforms)
In Process

Phase 3 (2023/24)
Continuous Delivery
(47 platforms)
Planned

CI / CD & DevSecOps Maturity Dashboard

Banking Development DevSecOps Enablement Team, Agile LACE, & SRE CoE

Future Forward DevSecOps & CICD Delivery Pipeline SWAT (Process, Tools, Metrics)

CTO & CISO Support (Tools, Automation, Infrastructure, Pipelines, SRE)

Past attempts failed as it was too much to change for all the platform and support teams to undertake at once. By breaking up the migrations into phases we have achieved success at scale.

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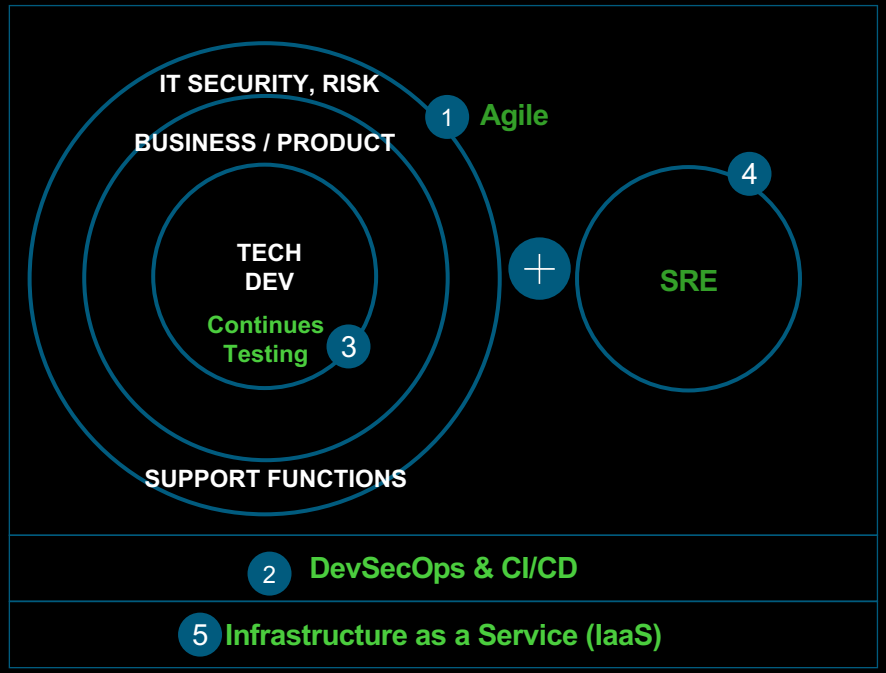
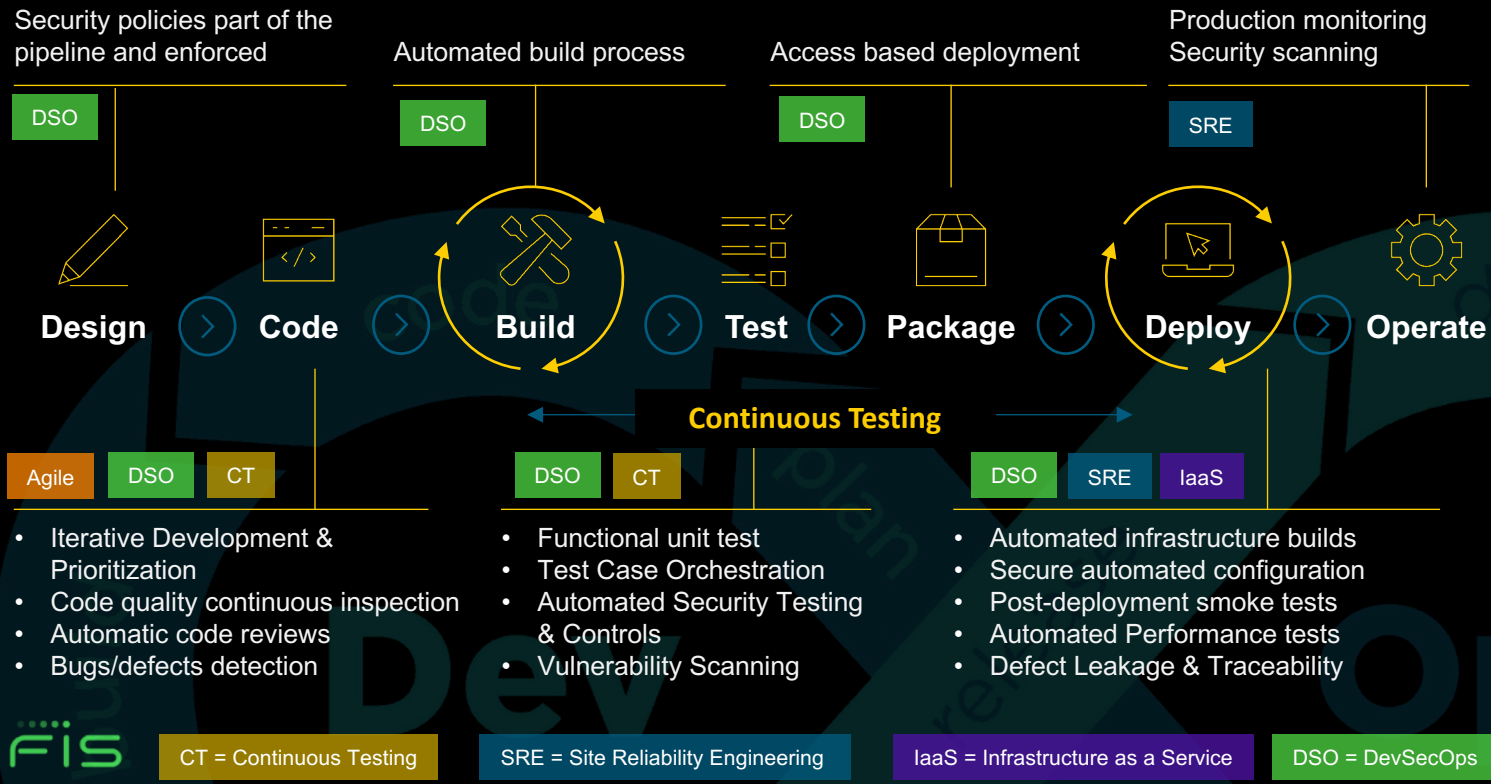
WORKING AS ONE TEAM TO TRANSFORM FIS



1. **Agile** enables the operating model shifts (E.g., end to product teams, OKRs, product-based funding) & Value Stream Analysis
2. **DevSecOps** architects a robust CI/CD Delivery Pipeline and assists with the migration of applications to the new pipelines
3. **Continuous Testing** establishes a fully automated continuous testing framework that will improve speed and quality.
4. **SRE** creates better integration of application operations (SRE) with development and rationalizes L2/L3 while improving performance
5. **IaaS** enables the adoption of infrastructure and network as a service, and streamlines the ticketing process

The Agile, SRE, Continuous Testing, and IaaS teams are independent of this initiative and there will be effort needed to coordinate activities to ensure maximum benefits.

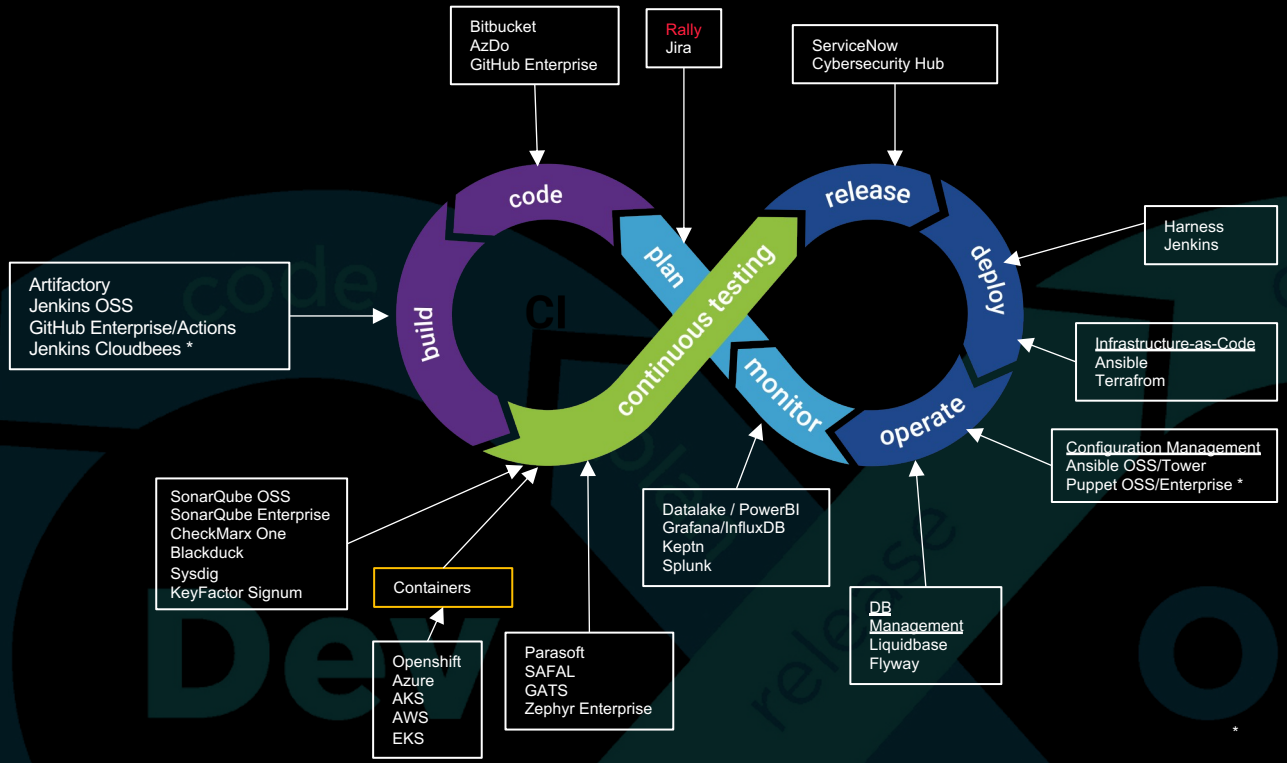
TARGET STATE - AUTOMATION EMBEDDED IN END-TO-END CI/CD DELIVERY PIPELINE



Benefits of an automated CI/CD delivery pipeline

- Faster time to market with higher quality and lower risk
- All migration steps are fully automated – zero manual tickets
- Dev Teams empowered to deliver as fast as they are able
- Rapid feedback loops built-in
- Frees the developer to focus on building code, not chasing tickets
- Improved collaboration and communications

TARGET CI/CD TOOLCHAIN TO ENABLE AUTOMATION

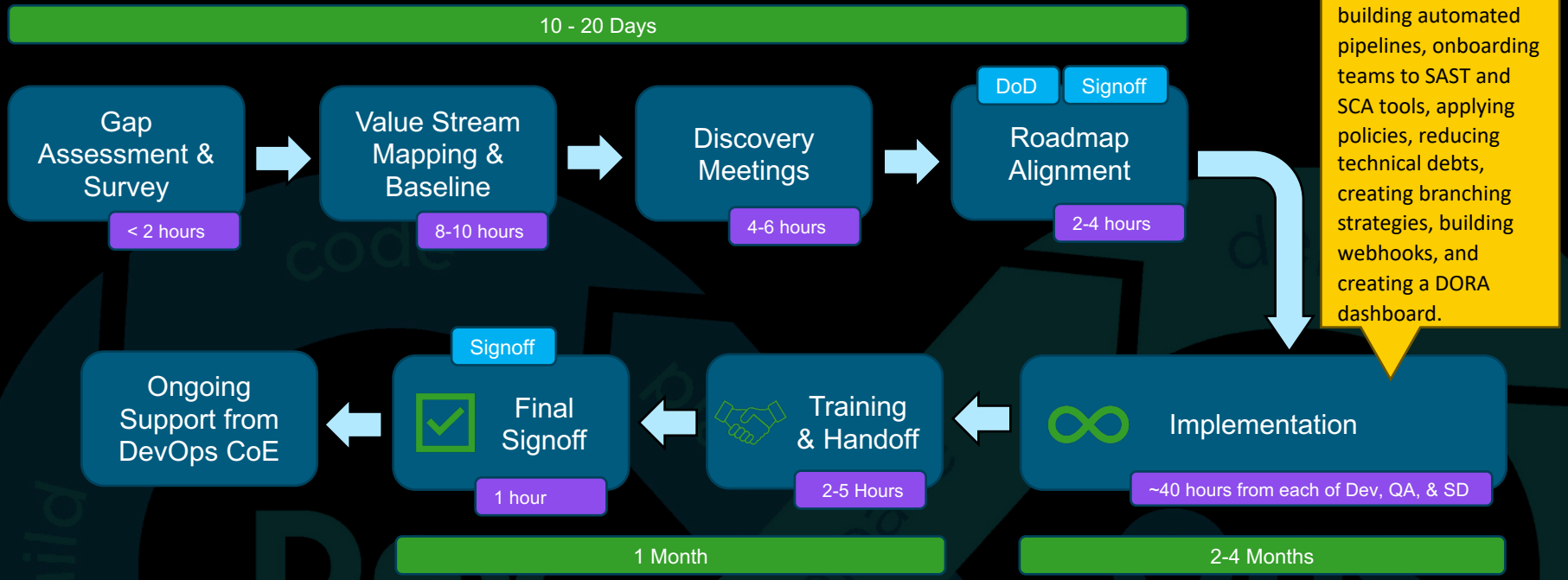


THE OJA MIGRATION APPROACH

Our goal is to keep have a light touch, with as little disruption to the development team as possible, however, we will need some development time commitment.

Dev Team Time Commitment

Milestone



Our **Opus** Partners did the heavy lifting by migrating code, building automated pipelines, onboarding teams to SAST and SCA tools, applying policies, reducing technical debts, creating branching strategies, building webhooks, and creating a DORA dashboard.

Platforms were migrated in four waves. Total time was just under a year.

OPUS TECHNOLOGIES – FIS OJA PARTNER

‘BEHIND THE SCENES’ CHALLENGES

Right People, Right Skills

- Rapidly ramp up personnel - 0 to 65 DevOps Practitioners in 45 – 60 days
- Breeze through FIS onboarding process
- Retention
  - Lingering global pandemic
  - Rising resource costs
  - Demanding work
  - Remote and global workforce

Adjusting to FIS Culture(s)

- Align with OJA Leadership, Vision and Strategy
- Align and Embrace with FIS’ internal tools & processes
- Headwinds to accept change across the enterprise
- Mid project – leadership change, budget calibrated.
- Many FIS orgs to please, OJA, CISO, CIO, SRE, Quality, IT Security, Tech Dev, Outside Consulting firm

OPUS TECHNOLOGIES – FIS OJA PARTNER

‘BEHIND THE SCENES’ CRITICAL SUCCESS FACTORS

Executive Commitment

Putting together the best core team to work for the entire project.

Establish Trust & Confidence

Embrace Dan Wakeman’s vision and direction. Be the Team. Ensure quick wins

Full Transparency

Communicate, communicate and communicate good, bad, ugly

Meaningful & Relevant Reporting

Continuous reporting for leadership and for FIS Tech Teams at large

Extensive documentation

Developing white papers, handbooks, solution architectures & implementation guides.

Proactive Consultancy

On how to reduce technical debt within transformation establishing pedigree within FIS teams for OJA

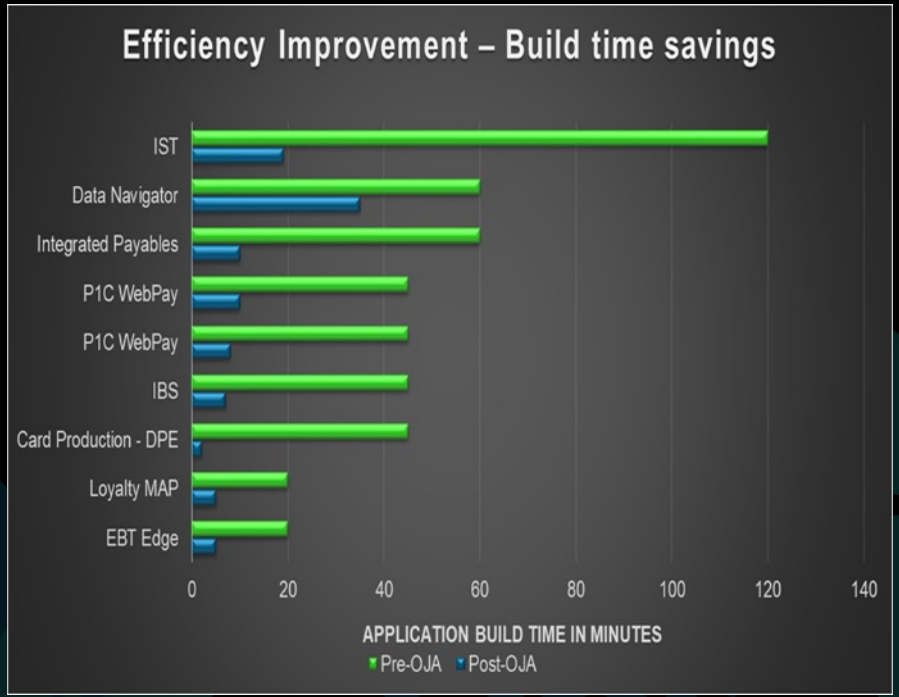
OJA PHASE 1 - COMPLETED

Phase 1 paved the way for DevOps by migrating 48 strategic banking platforms consisting of nearly 300 applicants across ~5,000 staff to Continuous Integration.

48 Platforms – CI Completed	Federated Shared Library - Modular approach	75% Reduction in Build Time
CI Reference Architecture, Playbook	CI for Mainframe Systems	DevOps CI Maturity Dashboard
Standardized Source Code Management and Branching strategy	Standard Ci Tool Sets for DevOps across FIS	Enabled Platforms to break monoliths
Detailed Wiki & Customized Training Videos	Improved Compliance and Security	Reduced Technical Debt

OJA PHASE 1 & 2 RESULTS

- The first phase reduced build times by an average of 70%.
- The second phase improved the DevOps maturity by one level, Lead Time for Changes by 22%, and productivity by 12%.



MEASURING DEVOPS MATURITY

Measuring the Impact of DevOps Transformation with a Comprehensive, Real-Time Dashboard

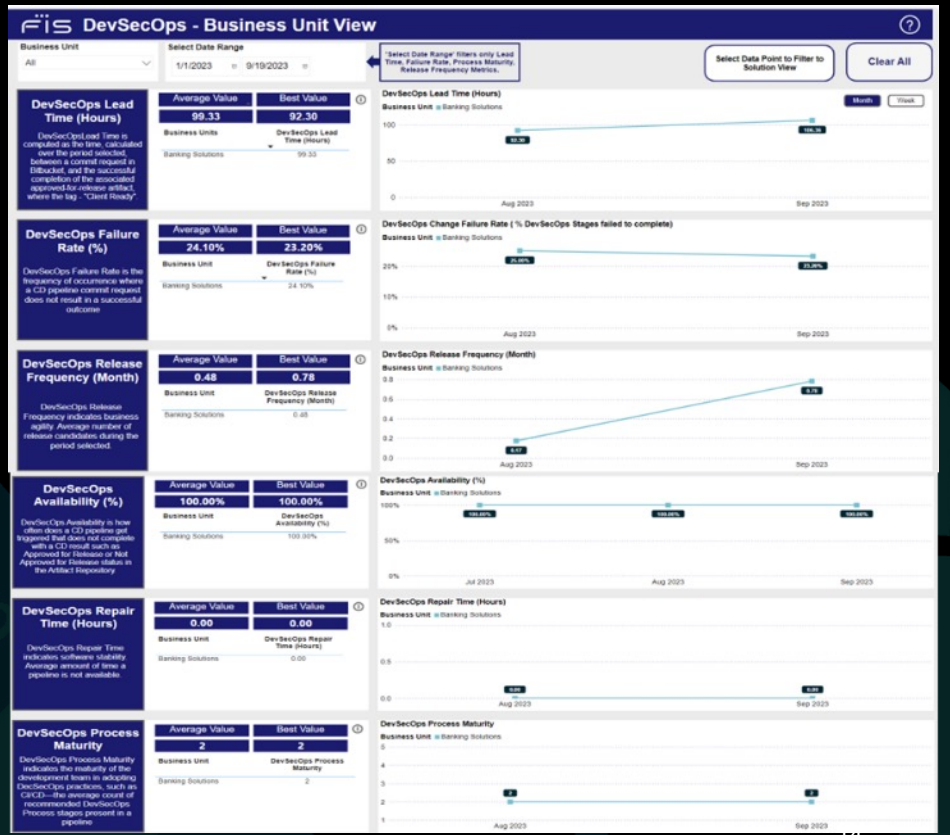
DORA Output Metrics

- CD Lead Time* - Time from code commit to UAT
- CD Release Frequency- # Releases per month
- CD Failure Rate - % of commits failed to release
- CD Repair Time – Hour to recover CD pipeline failures

Additional Metrics

- CD Availability - % of time CD pipeline is available
- CD Maturity – Five-level rating against a standard
- Developer Flow Metrics

Fueled with real-time telemetry data from the CI/CD Delivery Pipeline tools, with views for multiple user personas, teams can understand their current level of maturity and work towards higher levels of maturity.



ASK OF THE DEVOPS COMMUNITY

- How are others automating governance into their CI/CD Delivery Pipelines?
- Examples of how AI can further benefit DevSecOps?
- Are others making use of InnerSourcing, and if so, what are the benefits to DevOps?