
AWS
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ENT211

Value of Blu Age automated refactoring with AWS Mainframe Modernization

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AWS Mainframe Modernization

MIGRATION, MODERNIZATION, EXECUTION, AND OPERATION OF MAINFRAME APPLICATIONS



Transform and expand **legacy-locked** business value using modern tooling

Break up and manage your **end-to-end migration** with infrastructure, software, and tools

Refactor or replatform legacy applications

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AWS Blu Age Automated Refactor

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AWS Blu Age introduction and experience

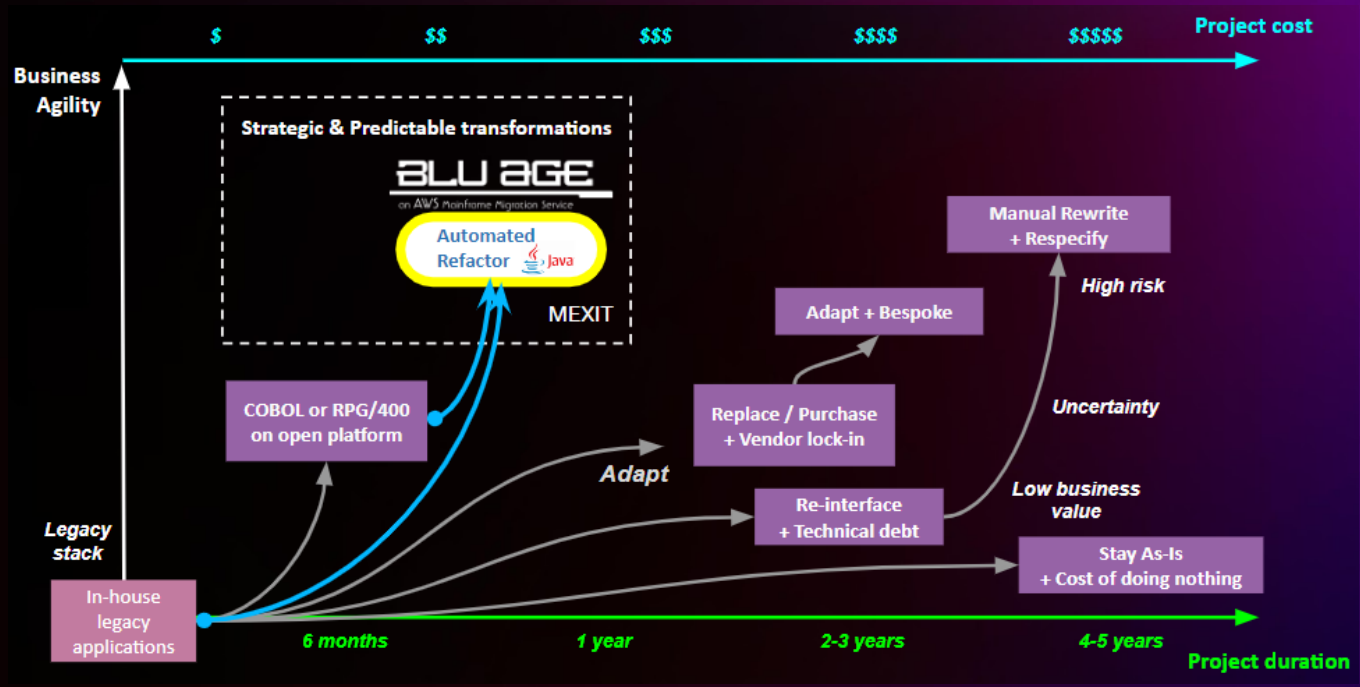
20 years of Blu Age maturity and experience integrated into the **AWS console**

Unique combination of best of both worlds: AWS Mainframe Modernization Blu Age Automated Refactor

A simple frontend implementing the end-to-end workflow of the transformation cycle

Mainframe and midrange managed by a single engine into a single process

- Automated analysis of codebase
- Centralization and monitoring of progress
- Transformation Center: a game changer
- Automate testing and verification of results



AWS Blu Age Refactor Quality Gate

- Codebase & DB Modernization completeness with AWS Blu Insights
- Functional equivalence with AWS Blu Age Compare
- Same or equivalent performance with same test dataset
- Code quality with SonarQube
- Test coverage with JaCoCo

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AWS Automated Refactor value proposition

Lessons learned

Manual tasks and rewrite are antipatterns

➔ Go for an industrial end-to-end and reliable process

Tools with no methodology is a pitfall

➔ Work backward to simplify complexity
➔ Go for an industrial process implementing repeatable tasks with a predictable quality

Require commitment on results

➔ Offer transition at fixed price and for predictable planning

Legacy-agnostic workflow

AWS Blu Insights **Capture & Replay**

AWS Blu Insights **Codebase** analysis

AWS Blu Insights **Transformation Center**

- Powered by AWS Blu Age Velocity engine

AWS Blu Insights **Testing Management**

AWS Blu Age **Compare**

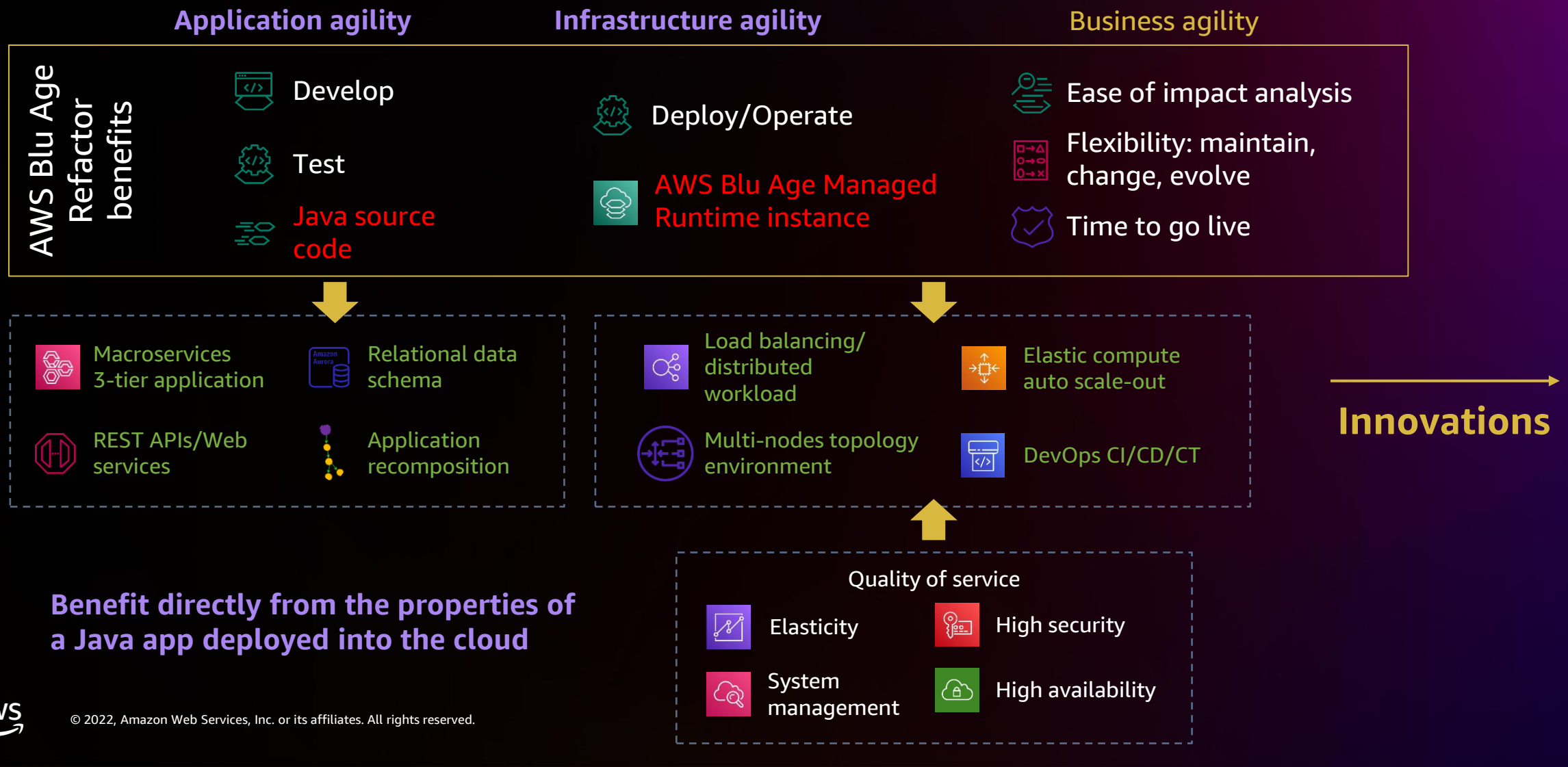
AWS Blu Age **Managed Runtime**

Focus on the outcome!

Java/Spring app in the **AWS Cloud**

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AWS Blu Age target-state value proposition: Technical and business

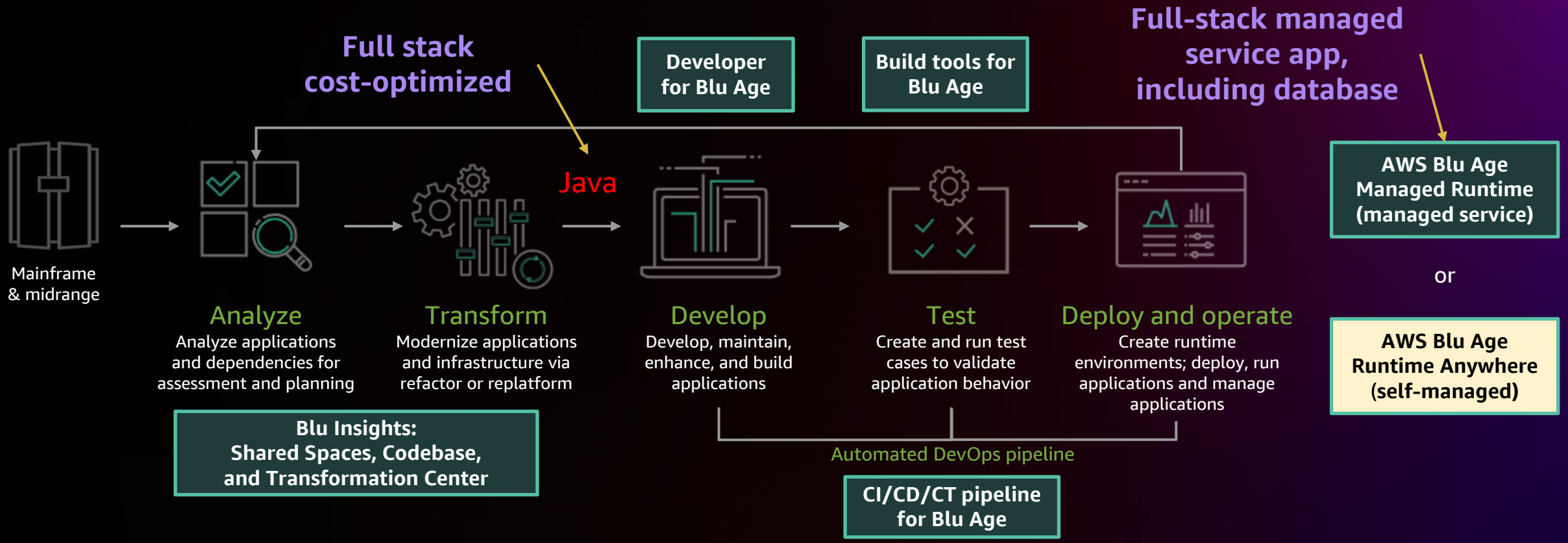


Benefit directly from the properties of a Java app deployed into the cloud

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AWS Mainframe Modernization service

"AWS Mainframe Modernization service is a platform for assess, migration, modernization, execution, and operation of mainframe applications."



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Jonas mainframe migration and modernization with AWS

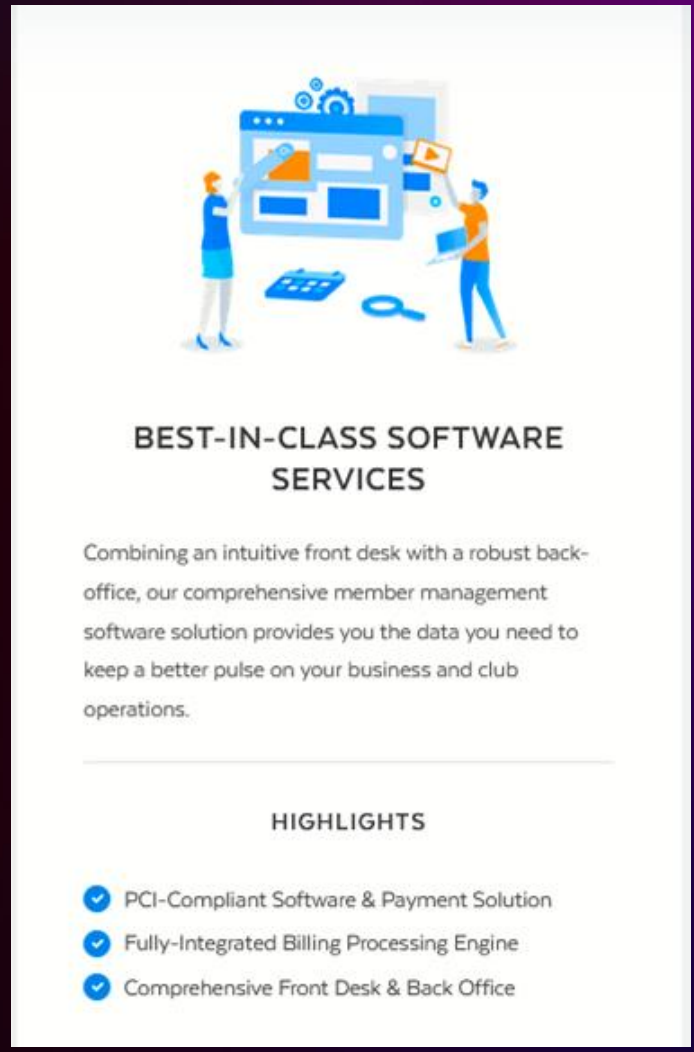
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Jonas Fitness introduction

- A leader in fitness software and billing services
- Over 30 years of experience in the industry
- Pioneer of electronic funds transfer (EFT) processing
- Recognized by customers and industry stakeholders
  - Provider of “software for life”
  - Ambassador for innovation, quality, and customer service

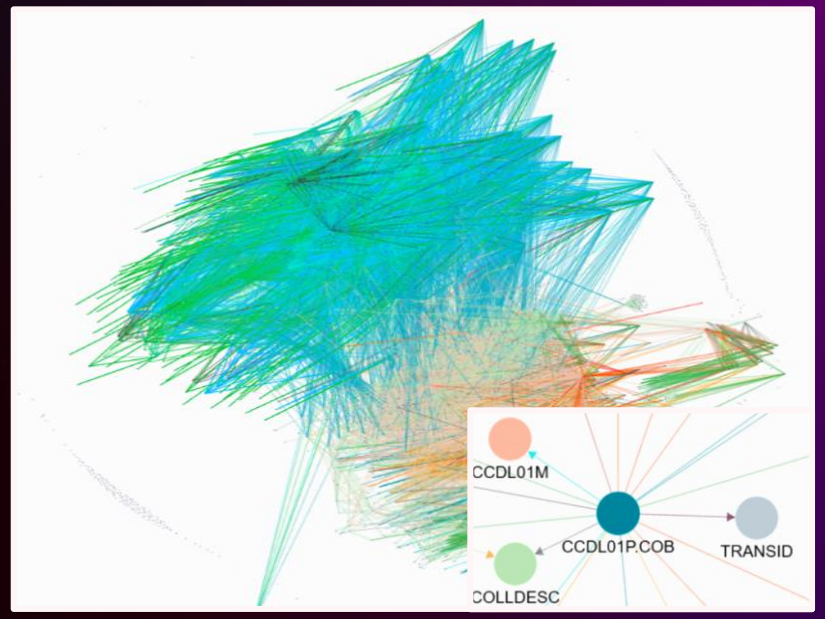


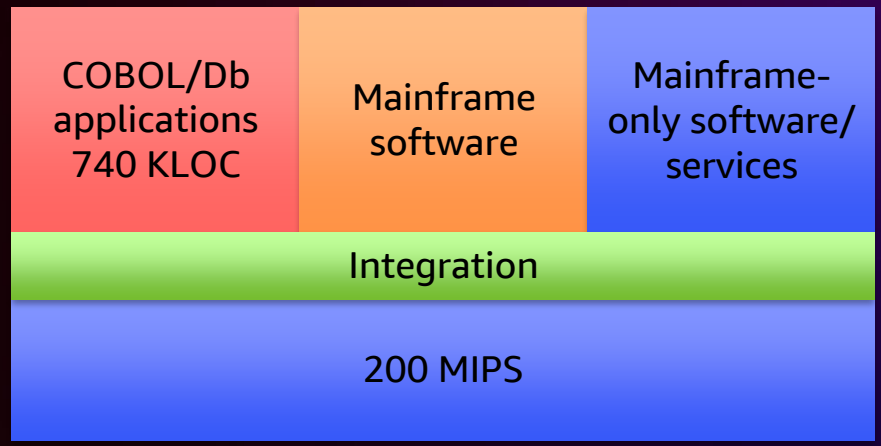
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Goals

- Maintain Jonas Fitness' IT edge
  - Payment processing application
  - Increase agility to improve time to market
  - Reduce tech debt by
    - Moving from monolithic mainframe to cloud
    - Using modern productivity tools and services
    - Converting to a modern Java/cloud workforce
  - Increase long-term application sustainability
  - Reduce operational costs

Application interrelationships





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Jonas requirements

- Must run in AWS Cloud
- Maintainable, high-quality Java application using Amazon Aurora PostgreSQL-Compatible Edition
- Functionally equivalent to their existing application
- Equal or better performance to their existing application
- Replacement of the current vault tokenization solution
- Modernization of Stored Procedures to use REST APIs



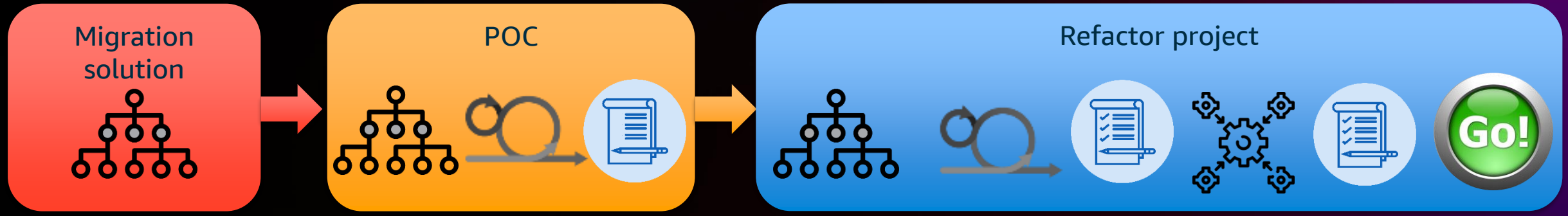
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Modernization journey

BLU AGE
an AWS Mainframe Migration Service

POC 11/2021 to 01/2022

Refactor Project 03/2022 to 11/2022



- Technology
- Process

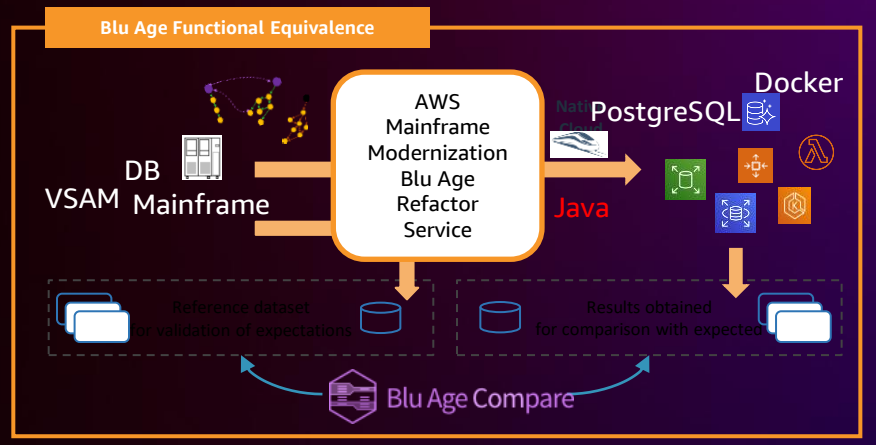
- Verify refactor process
- Ensure quality and maintainability
- Validate the new KMS tokenization process

- Joint team formed
- AWS environment defined
- COBOL/Db refactored to Java/Aurora PostgreSQL-Compatible
- Integration tasks all delivered
- Functional equivalence, SIT, UAT testing

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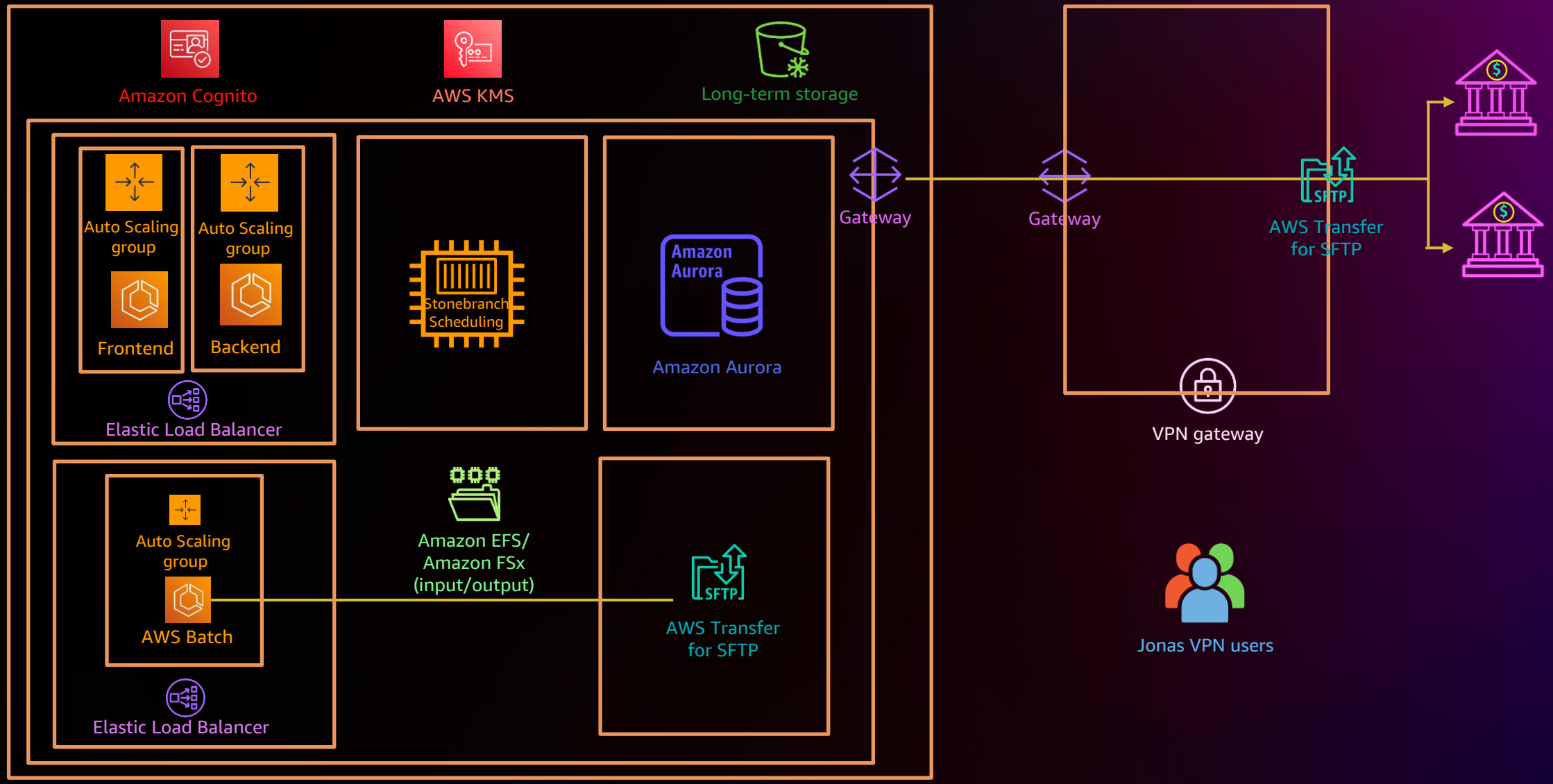
Refactor solution technical highlights

- AWS Mainframe Modernization Transformation center to refactor the application
  - Refactor of COBOL/Db to Java/Aurora PostgreSQL-Compatible
  - AAA rating for maintainability/security/reliability
  - Automation of test cases to verify functional equivalence
  - Equal or better performance
  - API-enabled architecture
- Support for defining the best AWS environment
  - Leveraged AWS Cloud architects
  - AWS CDK to define the Jonas AWS Cloud environment
- Jonas and AWS have worked closely together to ensure a successful project



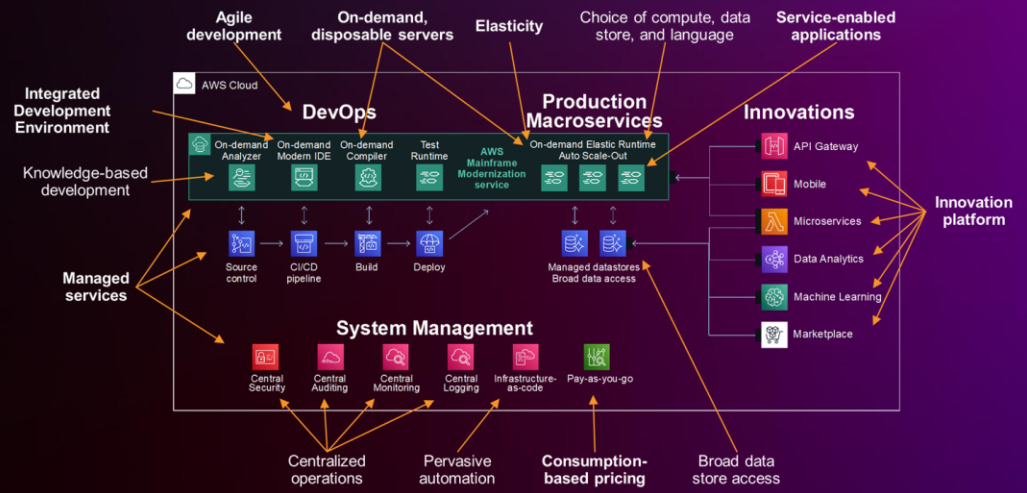
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AWS target environment



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Modernization on AWS



- Sunset mainframe
- CI/CD – speed of delivery/automated testing
- Establish cloud first development
- Easier interfacing with other applications and customers via API enablement
- Greater application sustainability and value by recovering existing business IP
- Reinvest savings into keeping our technology edge

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AWS Mainframe Modernization service technical highlights

Xavier Plot

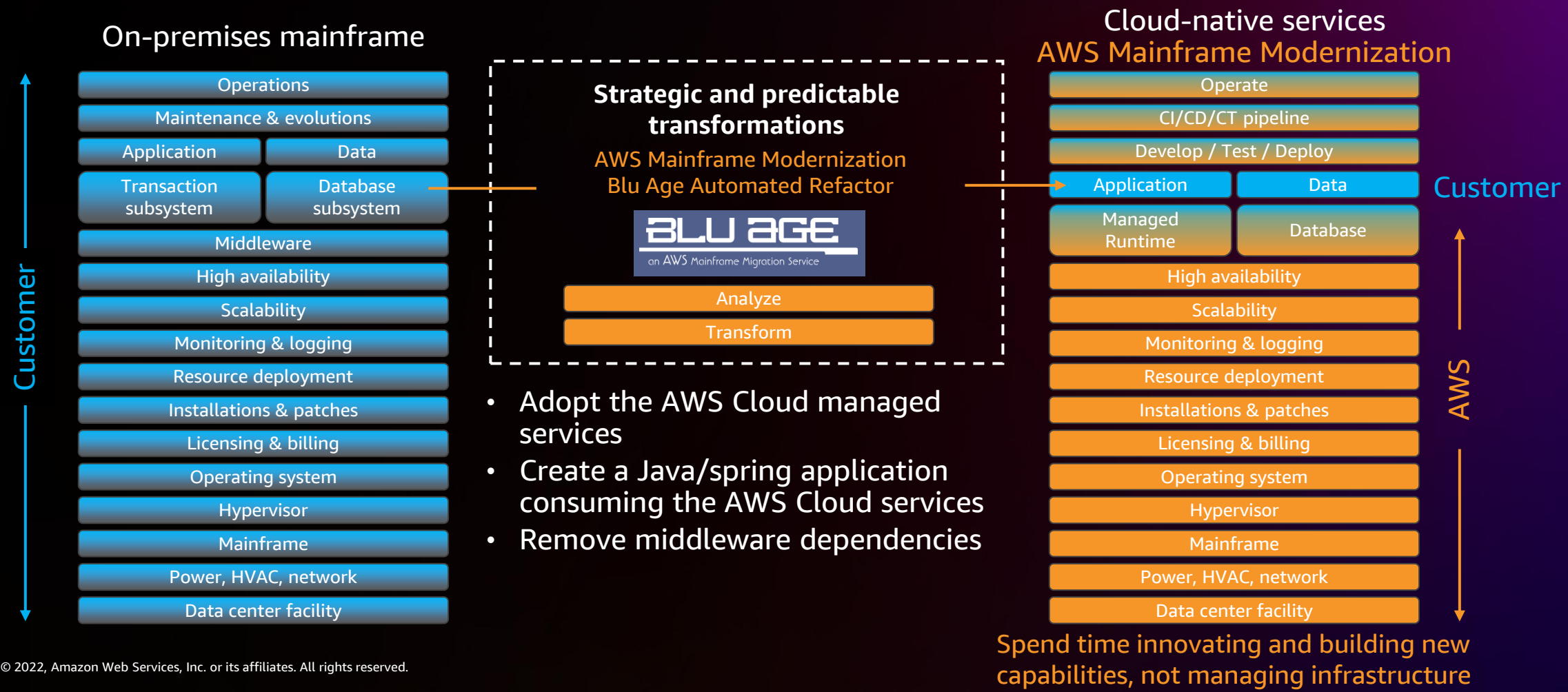
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AWS Mainframe Modernization

AN AWS CLOUD-NATIVE SERVICE

Born in the cloud, fully-managed, automated infrastructure and middleware
AWS Cloud-native = operated with AWS Console, APIs and CLI (not a managed service provider (MSP) offering)

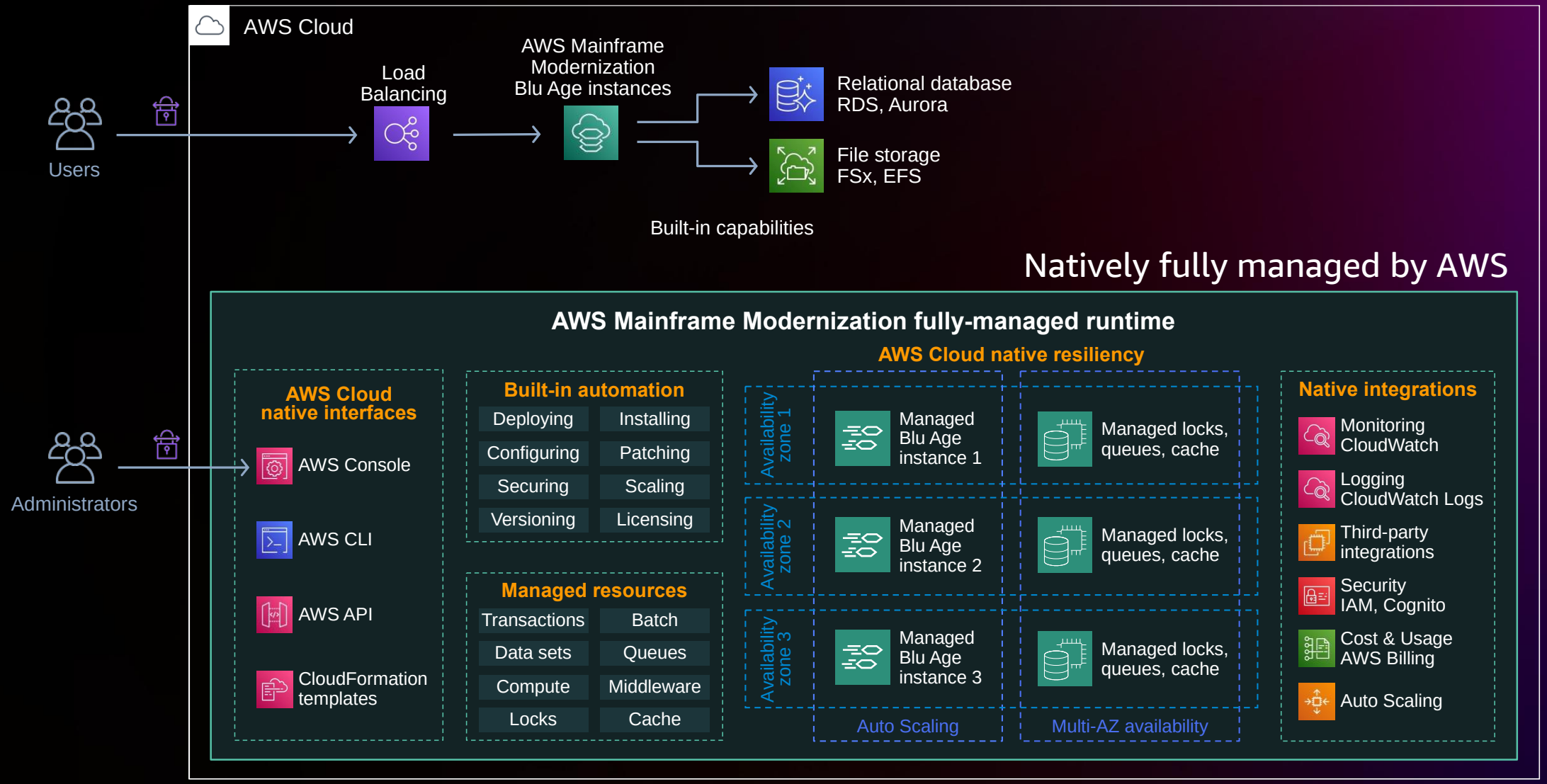


- Adopt the AWS Cloud managed services
- Create a Java/spring application consuming the AWS Cloud services
- Remove middleware dependencies

Spend time innovating and building new capabilities, not managing infrastructure

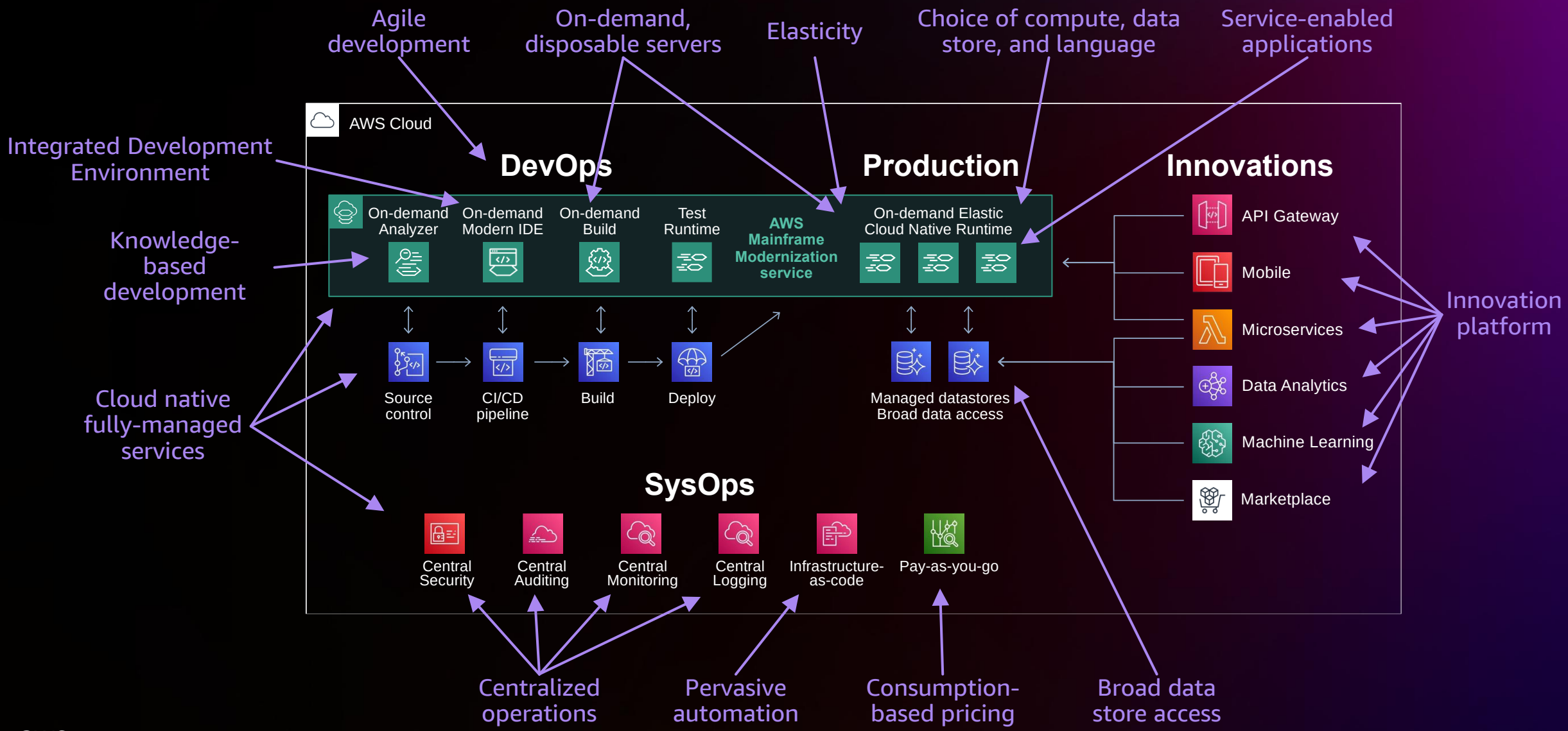
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AWS Blu Age Managed Runtime instance



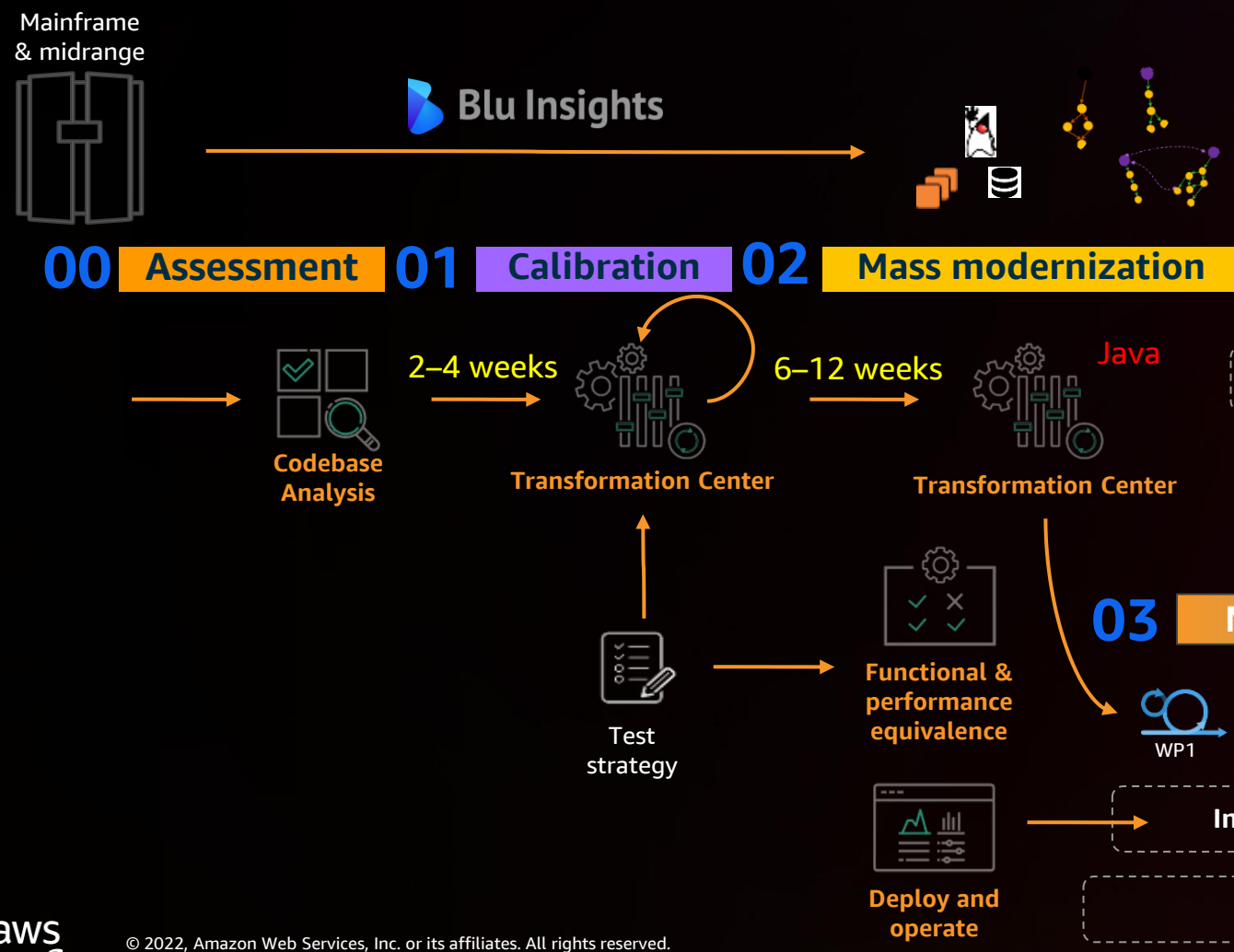
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Agility benefits from a Java app into the AWS Cloud



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AWS Blu Age Automated Refactor project methodology



- Fixed-price engagements
- Milestone-based
- Driven by LOC and TCs

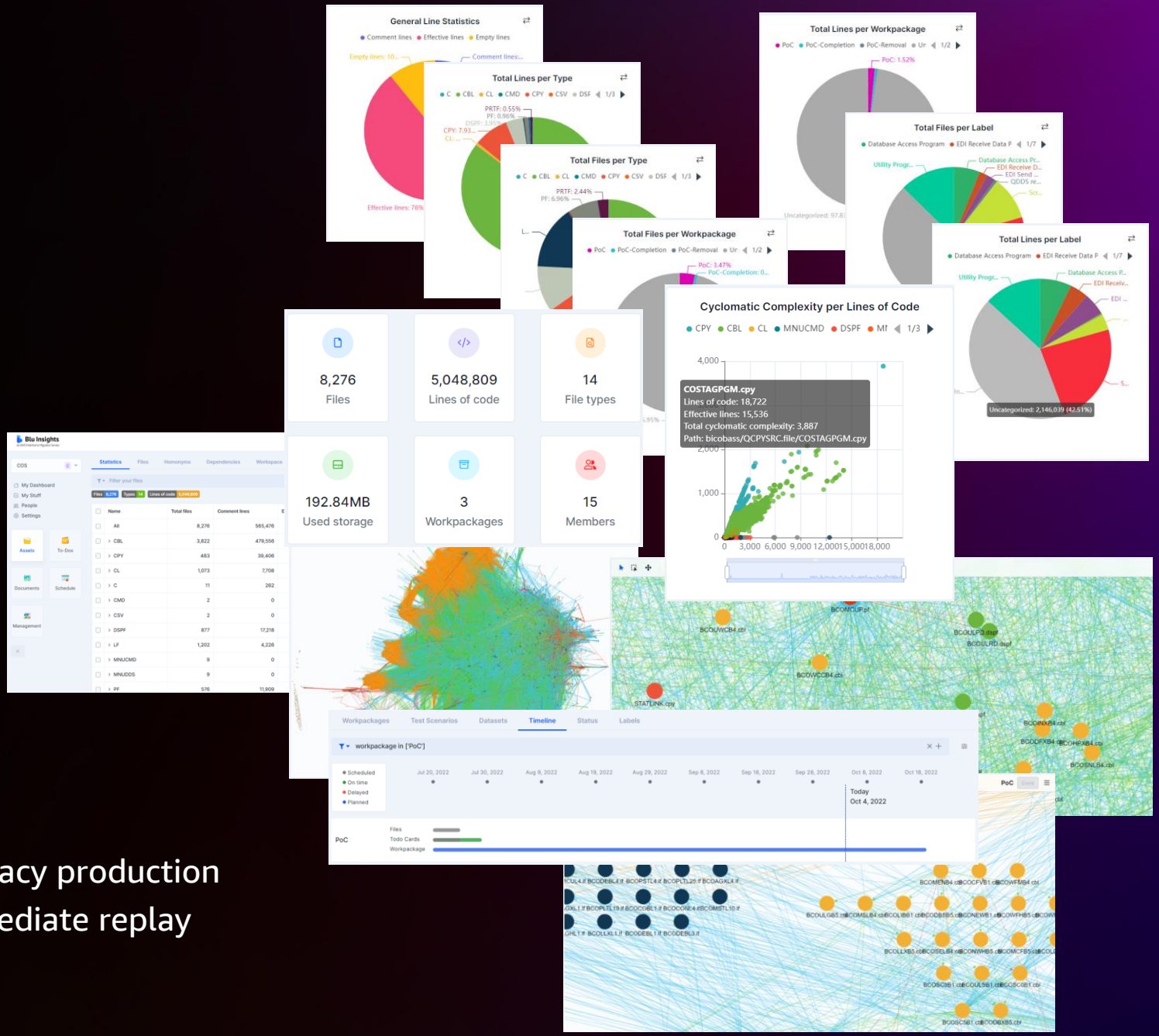
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AWS Blu Insights Codebase Analysis

BRING YOUR SOURCE CODE . . .

- **Estimates** and business case (volumes)
- Automatic **classification** of artifacts
- Cyclomatic **complexity**
- **Dependencies** analysis
- **Missing artefacts** identification
- Monolith **decomposition** into vertical slices
- POC and project **scoping**
- Central place for TODOs to follow up on shared tasks and documents
- **Recomposition** to build a test strategy
- **Timeline** to monitor and report **progress** by connecting it to the CI/CD/CT pipeline
- Standard **dashboards**
- Versioning for **code refresh** and resync with legacy production
- Legacy **screen-based scenario capture** for immediate replay

Lines and artefacts statistics per type, work package, etc.



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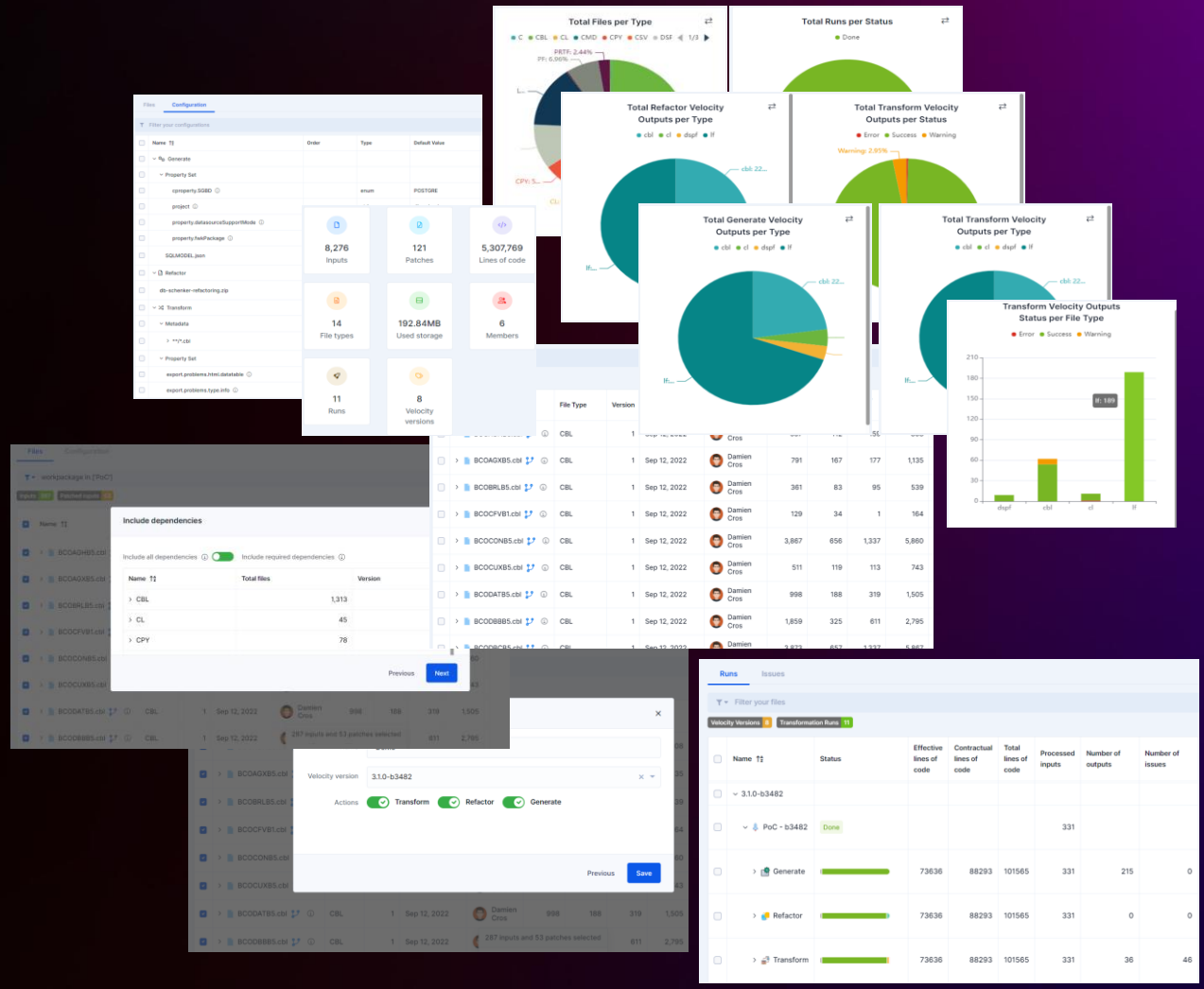
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AWS Blu Insights Transformation Center

. . . THEN OBTAIN YOUR JAVA

From legacy language to Java in 3 steps

- Inputs
  - Patch allows us to fix inputs to progress faster
  - Configuration of the generated code
- **Transform**
  - Model-to-model approach
  - Relearn from legacy into a model
  - Recognize legacy pattern
  - Map them to target into a new model
- **Refactor**
  - Ad hoc refactoring on new model
  - Specific in-house legacy patterns
  - Expand legacy naming for meaningfulness
  - Refactor of legacy duplication
- **Generate**
  - Adaptable templates to converge with customer coding style and requirements
  - If issues: no manual touch on generated code, go to Transform or Refactor instead for new rules



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Mainframe Modernization develop, deploy, and test from the console

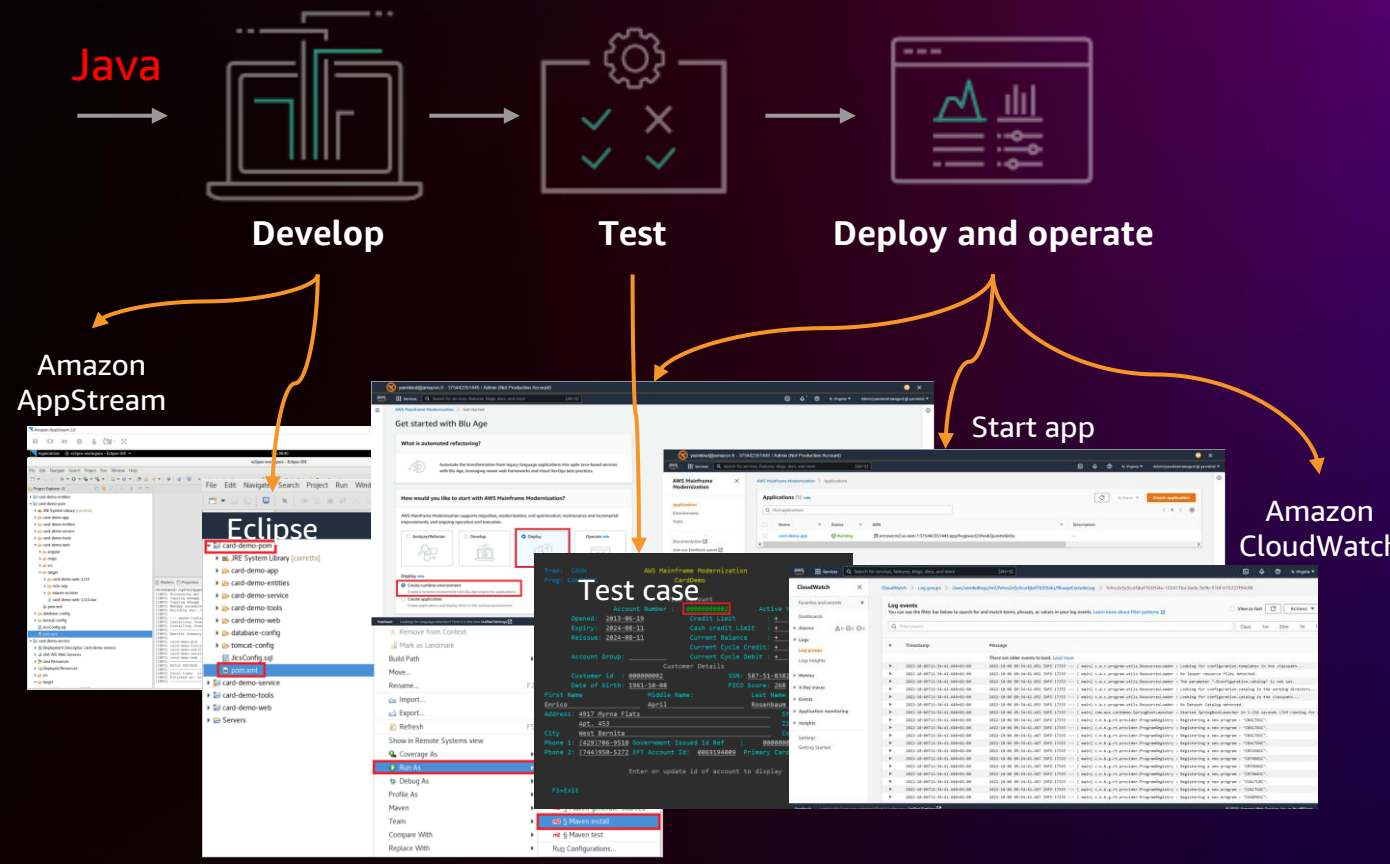
. . . THEN RUN FUNCTIONAL AND PERFORMANCE EQUIVALENCE

Data modernization stream
- Data schema modernization (from legacy to DDL)
- Datasets migration (reference and expected)

Code modernization stream using test cases
- Get modernized artifacts (Java/Angular/Groovy/ Configuration) from SCM
- Compile, build, and package

Deploy
- Configure databases (JICS/BlueSAM/etc.)
- Deploy frontend on static website (http or ng server)
- Configure web container server (Tomcat)
- Deploy backend on server (or Eclipse for dev)

Test
- Run test case scenario on migrated data
- Automated results check with expected data, performance, and logs



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How to engage?

Customers opting for a strategic change: Refactor to Java

Deliver

(AWS Blu Age)

AWS Blu Age experts and experienced SDEs

Support

Deliver

(Professional Services)

AWS Partners
(GSIs or ISVs or AWS ProServe)
Accredited individuals

Sharing exact same repeatable and scalable mechanisms



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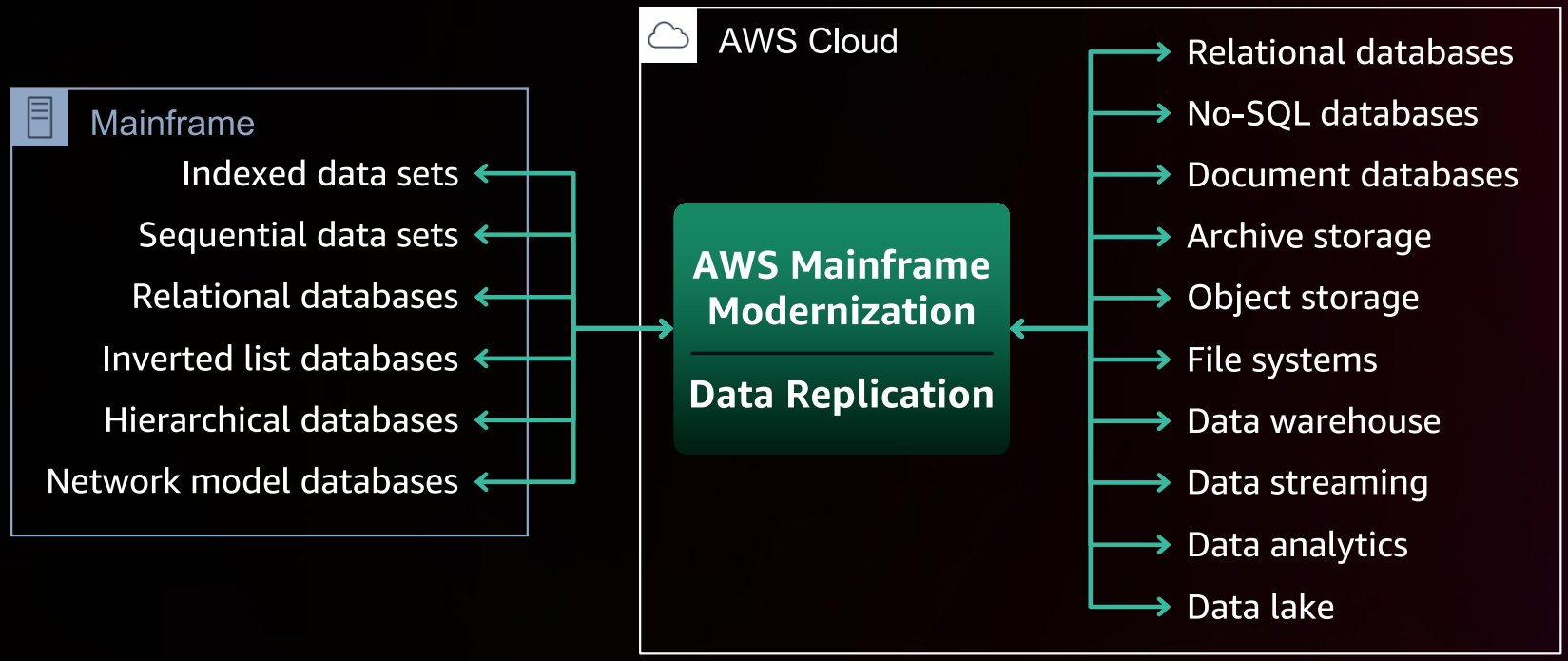
Announcement

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AWS mainframe data integration and modernization NEW

Unleash data-based innovations leveraging choice of AWS services:

- Precisely Data Replication for AWS Mainframe Modernization



Use cases:

- Data analytics
- New channels
- Processing offload
- Data science, AI/ML
- Augmentation patterns
- Large migration transitional architectures

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Session ID	Title	Session type
ENT207	Unlock Mainframes with AWS augmentation patterns	Chalk talk
ENT211	Value of Blu Age automated refactoring with AWS Mainframe Modernization	Breakout
ENT317	Automated refactoring of a mainframe application with AWS Blu Age	Workshop
ENT324	How Georgia-Pacific is accelerating modernization & improving resilience	Breakout

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Thank you!

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