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Bad Code Kills: 5 Essential Quality Gates You Need in Your CloudBees Core Pipeline

Eric Mizell
VP Solution Engineering, OverOps

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Today's Agenda

- Why Aren't Traditional Quality Practices Sufficient?
- 5 Static and Dynamic Quality Gates You Need in Your CloudBees Core Pipeline
  - #1: Static Analysis
  - #2: New Errors
  - #3: Critical Exceptions
  - #4: Resurfaced Issues
  - #5: Unique Error Volume
- Demo

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As teams increase speed with CI/CD workflows…

Quality becomes a greater challenge.

What’s your level of confidence when releasing new code to production?

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Why aren’t traditional quality practices sufficient?

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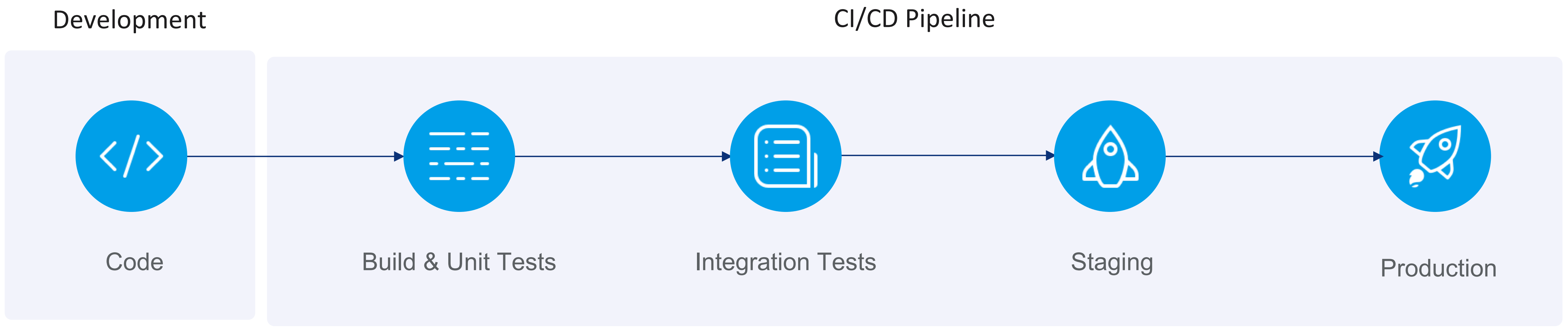
The Current Software Delivery Lifecycle



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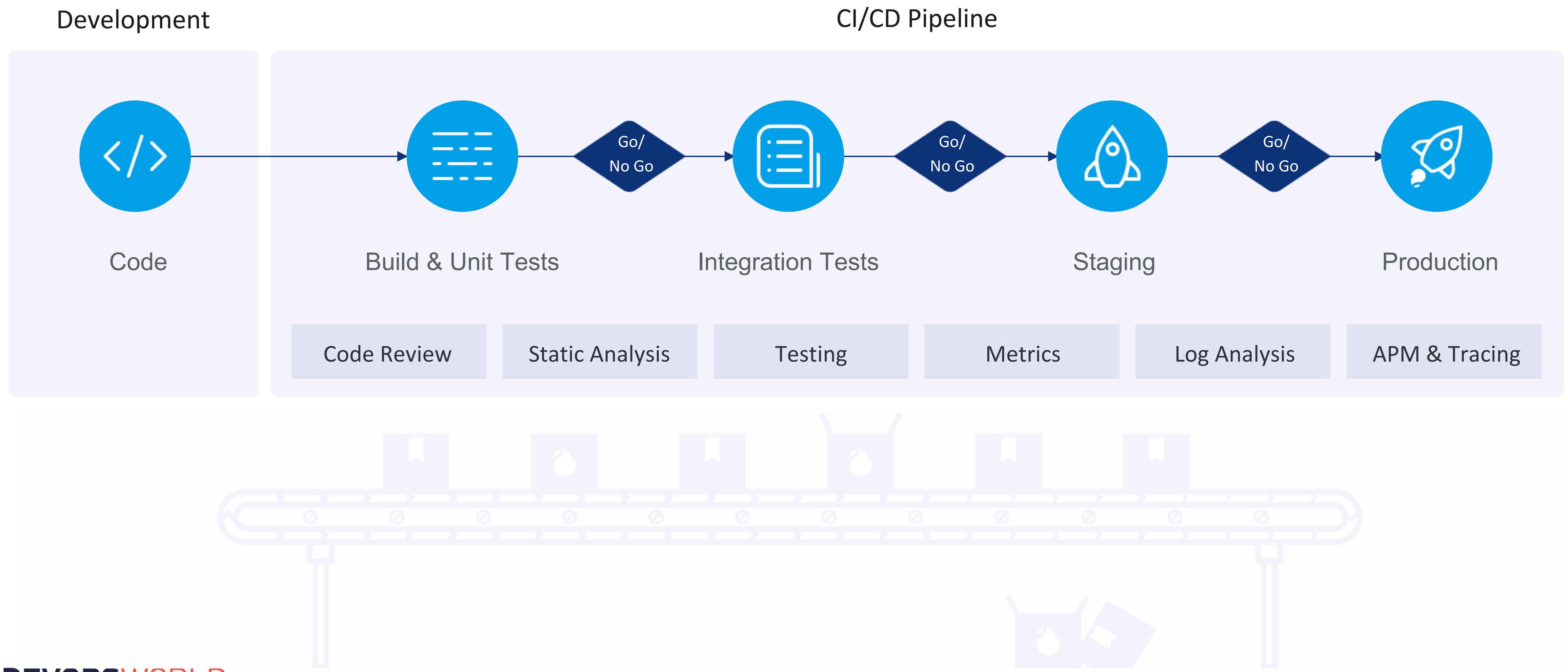
How Do You Ensure Reliability Across the Pipeline Today?



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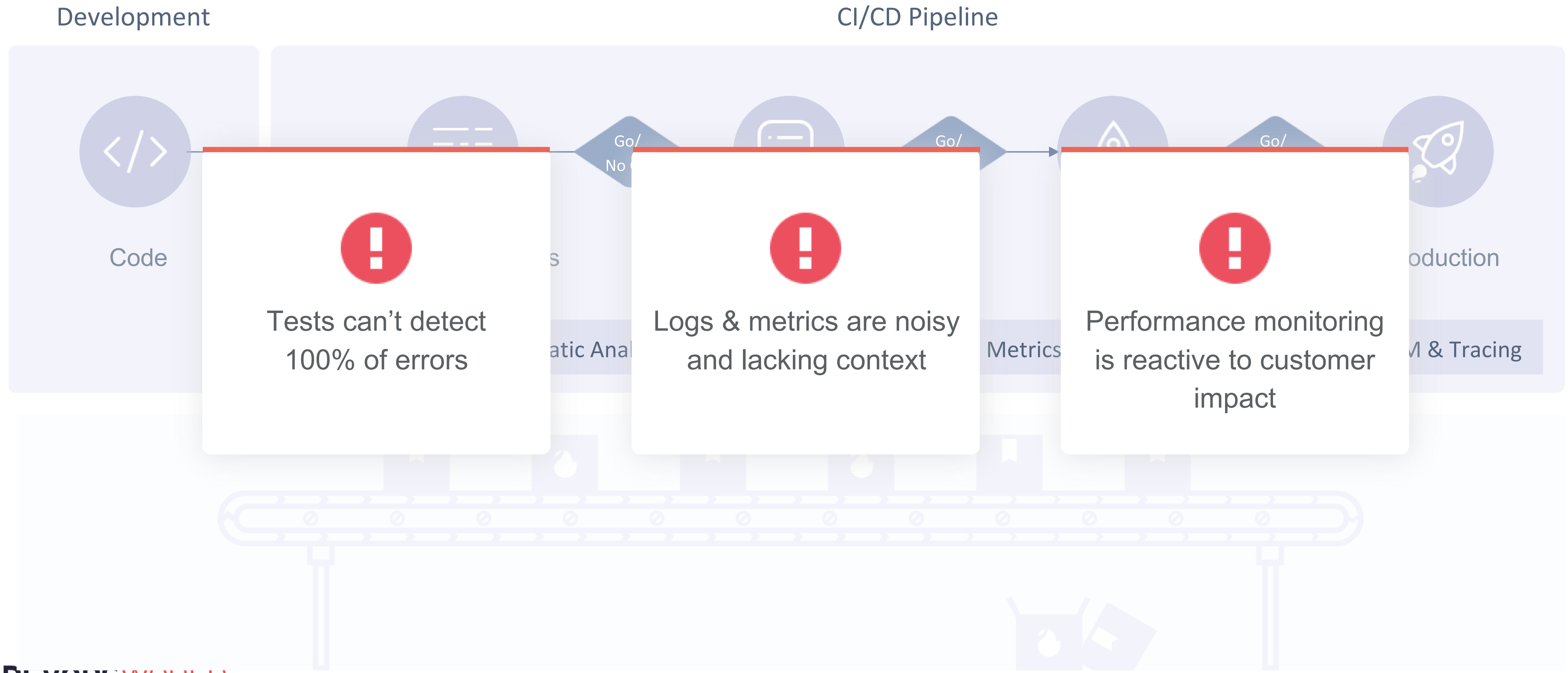
Yet Code Still Breaks!



Tests can't detect 100% of errors

Logs & metrics are noisy and lacking context

Performance monitoring is reactive to customer impact

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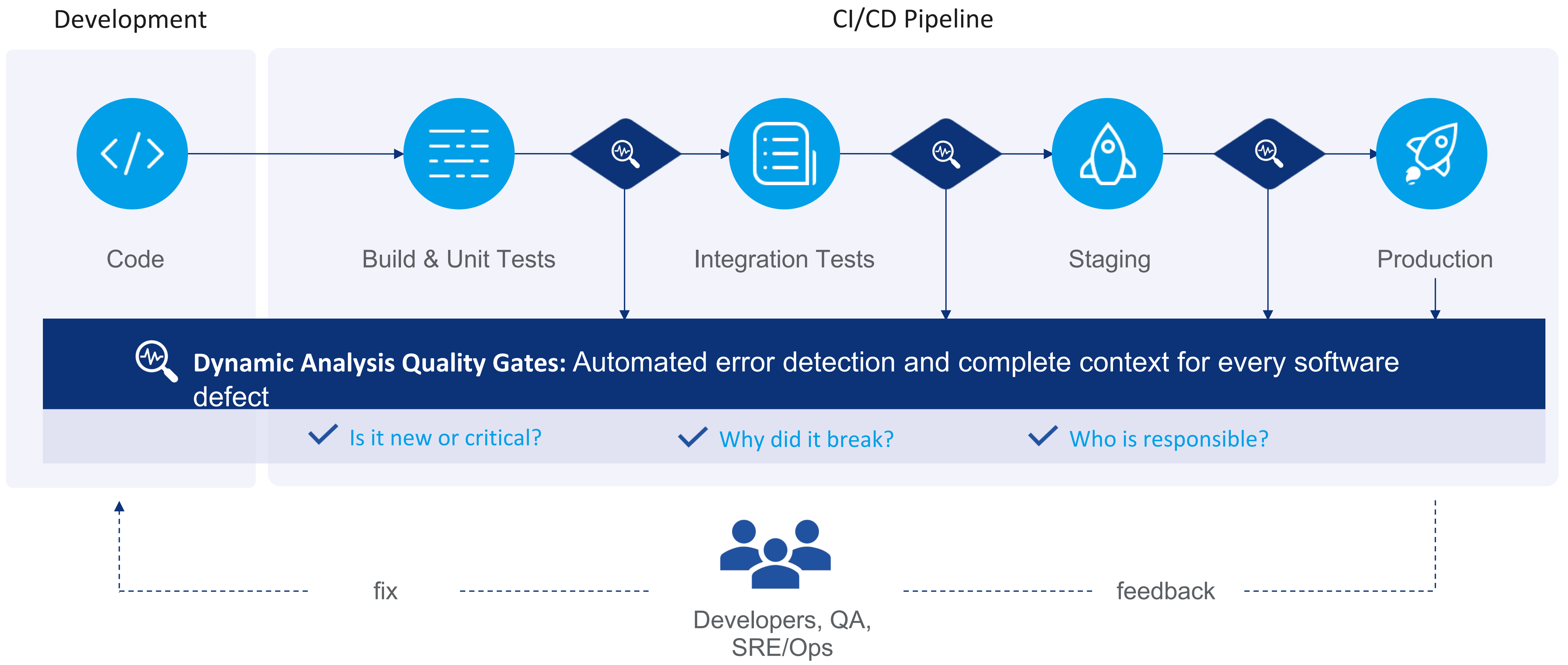
Introducing Dynamic Analysis Quality Gates



Dynamic Analysis Quality Gates: Automated error detection and complete context for every software defect

- ✓ Is it new or critical?
- ✓ Why did it break?
- ✓ Who is responsible?

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5 Static & Dynamic Quality Gates You Need in Your CloudBees Core Pipeline

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Quality Gate 1: Static Analysis

Can the code run? Does it follow best practices in readability/security?

✓ **Pass:**
No style issues or code smells detected. No known security vulnerabilities

✗ **Fail:**
Release introduces a new code smell or security vulnerability

Example Scenario:

In a recent change, you forgot to close a file descriptor which may cause memory leakage or you didn't wrap an if statement with parenthesis.

With static analysis, you can catch resource leaks and code style issues.

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Dynamic Quality Gate 2: New Errors

Did the release introduce any errors that didn't previously exist?

✓ **Pass:**
No new errors are detected

✗ **Fail:**
Release introduces a new error never previously seen

Example Scenario:

Your latest release in a mission-critical Java app introduces a 'ResourceNotFoundException' in a database that has never before experienced this issue.

Using the New Errors Quality Gate, CloudBees automatically marks the release as unstable and blocks it from moving forward to production.

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Dynamic Quality Gate 3: Critical Exceptions

Did the release introduce any severe/showstopping errors?

✓ **Pass:**
No critical exception types detected

✗ **Fail:**
The release introduces one or more predefined critical errors. In a Java application, some examples could be:

- NullPointerException
- IndexOutOfBoundsException
- InvalidCastException

Example Scenario:

Your latest release for a Java application introduces a ‘NullPointerException.’

Using the Critical Exceptions Quality Gate, CloudBees/Jenkins automatically marks the release as unstable and blocks it from moving forward to production.

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Dynamic Quality Gate 4: Resurfaced Errors

Did an error that was previously resolved appear again in the current release?

✓ **Pass:**
No previously resolved errors are detected

✗ **Fail:**
Release resurfaces a previously resolved issue

Example Scenario:

You encounter a ParseException in a new release that you had previously addressed and resolved.

Using the Resurfaced Errors Quality Gate, CloudBees/Jenkins automatically marks the release as unstable and blocks it from moving forward to production.

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Dynamic Quality Gate 5: Unique Error Volume

Did the release introduce an unusually high number of many discrete errors?

✓ **Pass:**
Total number of unique errors falls below the standard baseline

✗ **Fail:**
Release introduces an unusually high number of unique errors

Example Scenario:

Your latest release introduces 12 unique events. Your baseline value is set to 10 events.

Using the Unique Error Volume Quality Gate, CloudBees/Jenkins automatically marks the release as unstable and blocks it from moving forward to production.

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Demo

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Questions?

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