Juni Mukherjee
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The Twelve-Factor Pipeline
Every business is a software business, and under pressure to innovate constantly. This increased velocity introduces new business risks.

CloudBees is building the world’s first end-to-end automated software delivery system, enabling companies to balance governance and developer freedom.

https://www.cloudbees.com
• Introduction to pipelines

• 12 factors applied to pipelines

• Pipeline analytics and insights

• Jenkins X (what happened to Jenkins?)
DevOps World

Jenkins World

The Event for Everything Jenkins & DevOps

September 16-19, 2018
San Francisco, CA

October 23-25, 2018
Nice, France
Agenda

- **Introduction to pipelines**
- 12 factors applied to pipelines
- Pipeline analytics and insights
- Jenkins X (what happened to Jenkins?)
<table>
<thead>
<tr>
<th>Product Owners</th>
<th>Inception and Preparation</th>
<th>Epic/Story Preparation and Execution</th>
<th>Story Execution in CD Pipeline</th>
<th>Continuous Delivery Dashboard</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>User Story and Acceptance Criteria</td>
<td>Source Control</td>
<td>Cyclomatic Complexity</td>
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<tr>
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<td></td>
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<td>Source Control</td>
<td>Code Duplication</td>
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<td>Source Control</td>
<td>Repeat Offenders</td>
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<td>MTTR broken Pipelines</td>
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<td>Source Control</td>
<td>Average age and MTTR</td>
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<td>Source Control</td>
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<td>Times2Code</td>
</tr>
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<td>Source Control</td>
<td>Checkin2GoLive</td>
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<td>Source Control</td>
<td>Concept2Cash</td>
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Software Development, Testing and Delivery

Customer

Dev  QA  Tools  Infrastructure  Platform  Release  InfoSec  Ops

Check In 2 Go Live!
Continuous Everything
Segregation of Duties (SoD)

US Government

Judicial  Executive  Legislative
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Factor I: Codebase
One codebase tracked in revision control, many deploys
Factor II: Dependencies
Explicitly declare and isolate dependencies

Check In 2 Go Live!
Factor III: Config
Store config in the environment
Factor IV: Backing services
Treat backing services as attached resources
Factor IV (continued): Backing services
Treat backing services as attached resources
Factor V: Build, release, run
Strictly separate build, release and run stages
Factor VI: Processes
Execute the app as one or more stateless processes
The 12-factor app is completely self-contained

One app can become the backing service for another app
Customer Supplier Pattern with consumer-driven contract

Intranet Model - Producer is aware of all Consumers
Factor IX: Disposability
Maximize robustness with fast startup and graceful shutdown

Conformist Pattern with producer-driven contract

Internet Model - Producer is not aware of all consumers
Factor X: Dev/prod parity
Keep dev/test, staging, and prod similar

1. Time
2. Personnel
3. Tools
Factor XI: Logs
Treat logs as event streams
Factor XII: Admin processes
Run admin/management tasks as one-off processes
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Factor XII (continued): Admin processes
Run admin/management tasks as one-off processes

Pipeline deploys on Dev
Pipeline deploys on Stage
Pipeline deploys in Production

Pipeline failures due to Unit Tests
Pipeline failures due to Functional Tests
Pipeline failures due to Performance Tests
Pipeline failures due to Security Vulnerabilities

Pipeline failures in Dev
Pipeline failures in Stage
Pipeline failures in Production
# of Escaped Defects

Business Value Per Sprint
Not # of releases
Not # of tests executed

Stability Index = Fn (CheckIn2GoLive, # of Escaped Defects, Customer Delight, ...)

Code Quality = Fn (Cyclomatic Complexity, Code Duplication, Unit Test Coverage)

CheckIn2Dev
CheckIn2Stage
CheckIn2GoLive!
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Jenkins X = CD + Kubernetes

Business value that Jenkins X brings to organizations

https://www.cloudbees.com/blog/ @cloudbees
Jenkins X = CD + Kubernetes

Under the hood of Jenkins X

https://www.cloudbees.com/blog/ | @cloudbees
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Presented by cloudbees
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Thank you!