DevOps Working Group

Thursday March 12, 2020
## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Owner</th>
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<tbody>
<tr>
<td>10 Min</td>
<td>Geneva / DevOps Updates</td>
<td>James</td>
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<tr>
<td>20 Min</td>
<td>Continuous Delivery (cd-management) ADR (release-kraken)</td>
<td>Lisa</td>
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<tr>
<td>10 Min</td>
<td>Geneva Release – Accomplishments &amp; Remaining Work</td>
<td>James / Lisa</td>
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<td>15 Min</td>
<td>Lftools / sigul issue (signing for Geneva)</td>
<td>James</td>
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<tr>
<td>5 Min</td>
<td>AOB / Opens</td>
<td>All</td>
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Attendees

Participants (8)
DevOps WG Update

Geneva

• Jenkins Transformation to Pipelines
  • Work continues on the transformation to Jenkins Pipelines
    • “release-kraken” full automation of the release - WIP
    • Linter for edgex-global-pipelines - WIP
    • Update to Jenkins Pipeline documentation - WIP
      • PR under review
    • git-semver bug fix - WIP
  • Automation for the GitHub Issue labels - WIP
    • Seeing job failures related to cron job - ssh credentials error to GitHub
    • Needs further investigation and possible help from LF Release Engineering
  • Update lftools for ci-build images
    • Defect identified lftools:latest which supports python3 includes sigul which doesn’t
    • LF Release Engineering plans to issue a PR back to the sigul project and hopes that they will accept it
    • Seeking alternatives for github tag signing
  • Snap Global Library developed with plans to implement after review
  • Stretch Goal - Implement code coverage via codecov.io for edgex-global-pipelines
    • Explore completed with decision made to not continue with implementation for Geneva
    • Will revisit for possible Hanoi scope

CommunityBridge - Advanced Snyk Reporting

• EdgeX Foundry added to the CommunityBridge Vulnerability Reporting
  • EdgeX Foundry added to the CommunityBridge Vulnerability Reporting
  • CB fixed a number of the issues identified (sorting, search, filtered out archived repo per the settings toggle)
DevOps WG Update (Geneva)

Geneva (~Apr 2020) Focus:

- DevOps Jenkins Pipeline Transformation completed
  - Introduced new Jenkins Global Libraries for build automation
    - Includes test framework for Groovy code
    - Explore underway to look into code coverage of Groovy code using Codecov.io
  - Semantic Versioning using Intel contributed utility (git-semver) enhanced to include test framework
  - Continuous Delivery via "release-kraken"
  - Developer Enablement – GitHub Project Tracker, GitHub Issue label creation automated, gitcommit linter implemented *
  - New ci-build images and global libraries developed to support Jenkins Pipelines
  - New life cycle policies implemented on Linux Foundation Nexus repositories
  - Developer Documentation created for new Jenkins Pipelines
  - Improved performance of all builds to include collaboration with Linux Foundation to drive performance improvements for ARM builds (~15 mins build performance improvements using a new flavor of LF build nodes)
    - X86 build nodes (VM) uses 4cpu – 2gb
    - Arm64 build nodes (VM) now uses 4 cpu – 16gb

DevSecOps scope includes:

- Snyk Advanced Reporting via Community Bridge - $8K savings on licensing for developer licenses
- Snyk Docker Hub image scans with weekly reports of new vulnerabilities
- Snyk CLI of Go integrated into scan stage of Jenkins Pipelines
- Clair image scans within scan stage of Jenkins Pipelines
- DevOps contributed code fixes to address CVEs found in images based on Snyk reporting
- Lftools updated to use latest version – code signing, git tag signing, Docker image signing
Backlog Review
Meeting Minutes

Lftools / sigul - identified issues with validation within LF release process - continuous improvement opportunity

Next sprint focus is on delivery of CD-Management
  • Need to include the validation (QA/Test)
  • LTS support
Hanoi Planning

Scope Discussions
Hanoi - DevOps

- Performance Optimizations for EdgeX-Go Jenkins Pipelines
- Code Coverage for Jenkins Global Libraries (codecov.io)
- Kubernetes - Explore options from LF for supporting Jenkins on K8s
- Validation / Testing - Simplify testing
- Semantic Versioning – revisit need to refactor git-semver
- Performance of the Build Environment
- Monitoring
- Alerting
- Technical Debt
- Caching Dependencies – speed it up (upstream dependencies)
- Shared Infra with Open Horizons – Add On Build Automation for OH
Geneva Planning

Scope Discussions
Fuji Release

- Freeze: Oct 23rd (Wednesday)
- Release: Nov 15th (Friday)
Geneva – DevOps

In
• Full Pipeline transformation for EdgeX services
  • Convert Jenkins JJB Freestyle jobs to Jenkins Pipelines
• Introduce GitHub Org Plugin
• Simplified Jenkinsfile
• Global Libraries to support Jenkins Pipeline transformation
• Add Unit testing to global-libraries (uncommitted) **
• Snyk integration for edgex services
  • As part of Jenkins Pipeline conversion
• Slack integration with Jenkins pipelines
• Nexus Cleanup / Lifecycle Policy

Out
• Alternate deployment/orchestration
  • Beyond Docker/Snaps
  • Kubernetes
  • Kata Containers
  • …
• Integration Test Pipelines
• Code signing / Artifact signing **
Geneva Transformation: Architecture
How long does it take? Is this all Geneva scope?

Geneva Transformation

Phase 1
- Research Spikes
- Plugin Setup and Configuration
  - Jenkinsfile
  - Jenkinsfile.sandbox

Phase 2
- Jenkinsfile templates
- Implementation details get solidified
- Refactor existing pipelines to use new templates

Phase 3
- Existing Job Migration

Full Transformation by Geneva Release - April 2020
Fuji Planning

Scope Discussions
Fuji – DevOps

In

• Static code analysis tool identified and integrated into the EdgeX Jenkins Pipeline for Docker image scanning (Clair Server)

  Explore SAST for true static code analysis to include additional tooling such as Fortify / Coverity

• Code and artifact signing with semantic versioning

• Fix Documentation – edgex-go
  • Create a new repo for edgex-docs

• Build Performance Optimizations
  • Pipelines for EdgeX Foundry base build images
  • Basebuild images managed locally within Nexus
  • Leverage PyPi Proxy for local pip dependencies
  • ARM builds – optimization leveraging different high CPU build nodes / OS (ARM Team)

Out

• Alternate deployment/orchestration
  • Beyond Docker/Snaps
  • Kubernetes
  • Kata Containers
  • …

• SonarQube – SonarCloud is already in play in the LF
  Decision: wait to see what codecov.io offers

• Suggestion to rename all of the Jenkins “arm” jobs so as to differentiate 32bit / 64bit architectures

• Full Pipeline transformation for EdgeX services
# EdgeX DevOps Commitments (Fuji)

<table>
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<tr>
<th>Scope of Work</th>
<th>Status</th>
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<tbody>
<tr>
<td>Add static artifact analysis into the EdgeX Jenkins Pipeline</td>
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<tr>
<td>(analysis of Docker /runtime artifacts, not the source code)</td>
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<tr>
<td>Add code and artifact signing with semantic versioning</td>
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<tr>
<td>Conduct build performance optimizations by:</td>
<td></td>
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<tr>
<td>• Adding Pipelines for EdgeX Foundry base build images</td>
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<tr>
<td>• Allow base build images to be managed locally within Nexus</td>
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<tr>
<td>• Leverage PyPi Proxy for local pip dependencies</td>
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<tr>
<td>Explore static code analysis like Checkmarx, Coverity, GuardRails, Synk,</td>
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<tr>
<td>SonarQube</td>
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- Clair Server landing no longer at risk for Fuji
  - LF committed to implement on AWS and fund with expected completion next week
- gitsemver along with lftools used for artifact signing and semantic versioning
- Jenkins build performance optimizations for base build images completed
- All base build images will now be stored in Nexus (Snapshot):10003
- PyPi enabled as part of Edinburgh scope
- Initial review of GuardRails showed that the product was identifying issues which were not applicable for microservices architecture
## Past / Future Agenda Topics

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<td>WW37</td>
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