



EDGE X FOUNDRY™

# DevOps Working Group

Thursday March 5, 2020

























# Agenda

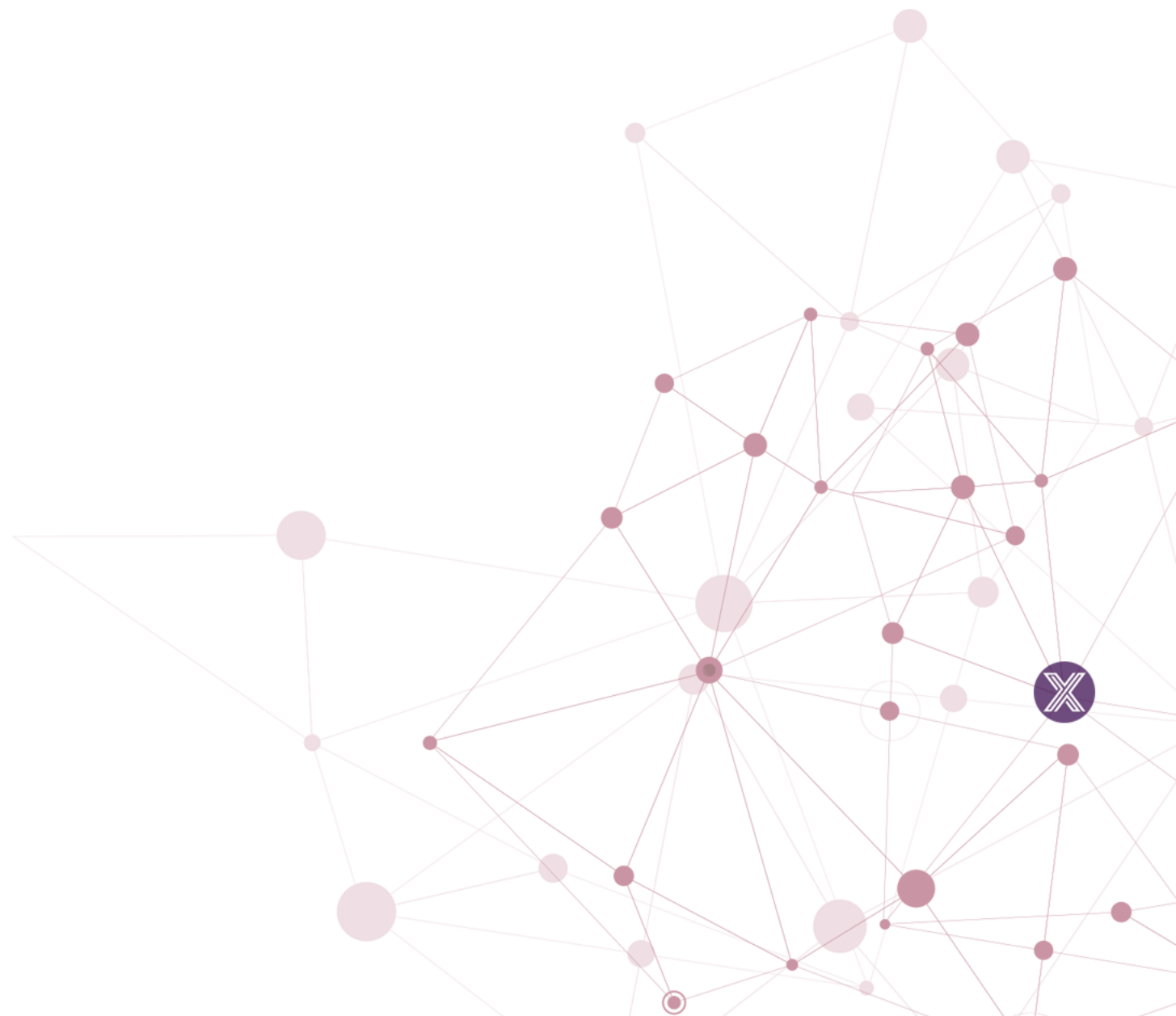
Time	Topic	Owner
10 Min	Geneva / DevOps Updates	James
20 Min	Snap Global Library	Ernesto
10 Min	GitHub Issues Automation	Ernesto
15 Min	Backlog Review (Time Permitting)	James
5 Min	AOB / Opens	All

# Attendees

Participants (12)

Find a participant

JG	James Gregg (Intel) (Me)	 
EO	Ernesto Ojeda (Intel)	  
T	tonyespy	 
BM	Bill Mahoney (Intel)	 
D	Dhatri	 
EB	Eric Ball	 
JP	Jeremy Phelps	
JW	Jim White	 
LG	Lenny Goodell (Intel)	 
L	Lisa Rashidi-Ranjbar	 
TC	Trevor Conn	 
VS	Vishwas Sp	 



# DevOps WG Update

## Geneva

- Jenkins Transformation to Pipelines
  - Work continues on the transformation to Jenkins Pipelines
    - Lisa is exploring work to look into full automation of the release – WIP
      - “release-kraken” full automation of the release continues
      - demo last week in DevOps WG meeting
      - cd-management repo moved out of holding
      - Will need to coordinate working session with LF Release Engineering
    - Automation for the GitHub Issue labels - WIP
    - ARM builds now using new build agent - ubuntu18.04-docker-arm64-4c-16g
      - edgex-go build performance improved building faster for ARM
      - ~15 min average improvement which helps the whole pipeline
    - PR “recheck” now resolved with new Jenkins Plugin
    - git-semver unit testing - decided to fix existing code vs. rewrite - WIP
    - Update Iftools for ci-build images - WIP
    - Snap Global Library developed with plans to demo this week in DevOps WG meeting

## CommunityBridge - Advanced Snyk Reporting

- EdgeX Foundry added to the CommunityBridge Vulnerability Reporting
  - EdgeX Foundry added to the CommunityBridge Vulnerability Reporting
  - We now have Advanced Snyk Reports but working through multiple new issues

# CB Update: Snyk Advanced Reporting

**snyk** edgex-jenkins james.r.gregg@intel.com

Dashboard Reports Projects Integrations Settings Upgrade

### Dashboard

**All vulnerable projects** [See all projects](#)

- edgexfoundry/docker-edgex-mongo:latest
  - 20 H 44 M 72 L Updated 5 days ago
  - Dependencies: 113 • Source: Docker Hub
- edgexfoundry/docker-edgex-mongo:1.0.1
  - 20 H 44 M 72 L Updated 6 days ago
  - Dependencies: 113 • Source: Docker Hub
- edgexfoundry/docker-edgex-consul:1.1.0
  - 6 H 0 M 1 L Updated 3 days ago
  - Dependencies: 35 • Source: Docker Hub
- edgexfoundry/docker-edgex-mongo:1.1.0
  - 0 H 29 M 41 L Updated 3 days ago
  - Dependencies: 146 • Source: Docker Hub
- edgexfoundry/docker-edgex-volume:1.1.0
  - 0 H 7 M 30 L Updated 3 days ago
  - Dependencies: 90 • Source: Docker Hub

**Current security status**

- 46 HIGH SEVERITY
- 124 MEDIUM SEVERITY
- 216 LOW SEVERITY

[Learn about reports](#)

**Members (6)** [Manage members](#)

Better together. We offer unlimited accounts free of charge; invite people to join edgex-jenkins.

COMMUNITYBRIDGE VULNERABILITY DETECTION Apply Get Help

### My Projects

#### EdgeX Foundry

EdgeX Foundry is a vendor-neutral open source project hosted by The Linux Foundation building a common open framework for IoT edge computing. At the ...

**Vulnerability Report**

57 HIGH SEVERITY 51 Fixable	23 MEDIUM SEVERITY 18 Fixable	0 LOW SEVERITY 0 Fixable	84 TOTAL ISSUES 73 Fixable
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Scan Failed with Backend errors. Last scan Mar 4, 2020, 7:09:47 AM UTC -7 hours ago. Issues found [See details](#)

[Contributor Login](#)

# Snap Global Library + Release-Kraken

```
44 def _snapRevision = config.snapRevision ? : ''
45 def _snapName = config.snapName
46
47 def _snapStoreLoginSettings = config.snapStoreLoginSettings ? : 'EdgeX'
48
49 def envVars = []
50
51 envVars << "JOB_TYPE=${_jobType}"
52 envVars << "SNAP_REVISION=${_snapRevision}"
53 envVars << "SNAP_CHANNEL=${_snapChannel}"
54
55 // find the snapcraft.yaml in the snapBase dir and return the name of the snap if not specified
56 if(!_snapName) {
57   _snapName = sh(script: "grep -Po 'name: \\K(.*)' \\$(find $_snapBase | grep snapcraft.yaml)", returnStdout: true)
58 }
59
60 // if not null or empty
61 if(_snapName) {
62   envVars << "SNAP_NAME=${_snapName}"
63 } else {
64   error('Could not determine snap name. Please verify the snapcraft.yaml file and try again.')
65 }
66
67 def cfgFile = []
68
69 if(env.SILO == 'production') {
70   cfgFile = [configFile(fileId: _snapStoreLoginSettings, variable: 'SNAP_STORE_LOGIN')]
71 }
72
73 withEnv(envVars) {
74   configFileProvider(cfgFile) {
75     if(env.SILO == 'production') {
76       sh 'cp $SNAP_STORE_LOGIN $WORKSPACE/edgex-snap-store-login'
77     }
78
79     sh """
80     docker run --rm -u 0:0 --privileged \
81       -v $WORKSPACE/build \
82       -w /build \
83       -e JOB_TYPE \
84       -e SNAP_REVISION \
85       -e SNAP_CHANNEL \
86       -e SNAP_NAME \
87       $_snapBuilderImage
```

```
github.com/edgexfoundry/cd-management/pull/1/files
Add Jenkinsfile and initial skeleton for the EdgeX Release #1
Changes from all commits - File filter... - Jump to... - Review changes -
0 / 5 files viewed
release/sample-service.yaml
13 + dockerDestination:
14 +   - 'https://nexus3.edgexfoundry.org/..'
15 +   - 'https://hub.docker.com/..'
16 + snap: true
17 + snapDestination: 'https://snapcraft.org/..'
18 + snapChannel: 'geneva'
release/test-service.yaml
... @@ -0,0 +1,18 @@
1 + ---
2 + name: 'test-service'
3 + version: 'v1.2.0'
4 + releaseName: 'geneva'
5 + releaseStream: 'master'
6 + repo: 'https://github.com/edgexfoundry/sample-service.git'
7 + gitTag: false
8 + gitTagDestination: 'https://github.com/edgexfoundry/sample-service.git'
9 + dockerImages: true
10 + dockerSource:
11 +   - 'https://nexus3.edgexfoundry.org/..'
This conversation was marked as resolved by Iranjbar Show conversation
12 +   - 'https://nexus3.edgexfoundry.org/..'
13 + dockerDestination:
14 +   - 'https://nexus3.edgexfoundry.org/..'
15 +   - 'https://hub.docker.com/..'
16 + snap: true
17 + snapDestination: 'https://snapcraft.org/..'
18 + snapChannel: 'geneva'
```

# GitHub Issues Label Automation

## Use Case

A user has a GitHub repo `edgexfoundry/my-template` where they manage a master list of labels. They now want to copy ALL the labels found in `edgexfoundry/my-template` to ALL repositories under the `edgexfoundry` org.

## Triggers

- Manual (User initiated)
- Cron (Weekly)

## Script Usage

### github-copy-label.sh

#### Env Vars

- `GH_TOKEN_PSW` (Required) - The GitHub personal access token used to authenticate GitHub Commands
- `GH_BASE_URL` (Optional) - GitHub API URL. Can be changed to point to a different GitHub API endpoint i.e. GitHub Enterprise

```
./github-copy-label.sh [SRC_GITHUB_ORG] [SRC_GITHUB_REPO] [BLACKLIST_REPOS]
```

#### Example

```
export GH_TOKEN_PSW=*****
./github-copy-label.sh "edgexfoundry" "my-template" "ci-management|sample-service"
```

## Demo

- Labels from `edgex-go` were applied to `cd-management`

The image shows two side-by-side screenshots of GitHub repository labels. The left screenshot is for the repository `edgexfoundry/edgex-go` and displays a list of 36 labels. The right screenshot is for `edgexfoundry/cd-management` and displays a list of 27 labels. Both screenshots show a 'Labels' tab with a search bar and a list of labels with their corresponding issue counts. The labels are color-coded and include descriptions. The labels are: '1-low', '2-medium', '3-high', 'app-services', 'bug', 'california dot - 0.6.1', 'california', 'ci', 'core-services', 'device-services', and 'documentation'. The labels are applied to issues in the `cd-management` repository.

# Backlog Review

- <https://github.com/orgs/edgexfoundry/projects/18>

Discussion regarding new device services

- need to still consider new build automation for device-ble service needs to be approved within Device WG and moved out of holding
- other services may still be WIP for Geneva - blocked

OH DevOps support is still unknown - blocked



# Meeting Minutes

## Snap Global Library for Geneva

- Review PR with inputs from Tony Espy as a reviewer
- Sandbox testing needs to be completed
- Process for new snaps discussed with the following plan
  - Lisa created stories for the snap integrations into the pipelines but essentially we are going to modify edgeXBuildGoApp to add a new stage to detect whether the codebase is "snappable". If it is it will just invoke the edgeXSnap function. On each merge to master the snap would be pushed to the snap store "latest/edge" channel.
  - The other integration will be for edgex-go. We will create a new pipeline branch in cd-management that will run nightly and will build and push that snap to the snap store latest/edge channel.
  - The edgex-go pipeline is pretty much done already on the sandbox as part of my testing out the global function

edgex-go pipeline is about 80% complete

Snyk Advanced Reporting has been turned over to the SIR team

Discussed plans to “release when ready” just the patched images to address High Severity / Critical CVEs

- No issue to release dot releases just the images which are stand alone (mongo, consul etc...)

Decision to move forward with the implementation of the GitHub Issues label automation

No objections from anyone and +1 votes from TSC members on the call

Branch protections needed on device-rest-go

- Submit a JSD ticket asking LF to set the branch protections needed



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# 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
- Monitoring
- Alerting
- Caching Dependencies
- Shared Infra with Open Horizons – Add On Build Automation for OH



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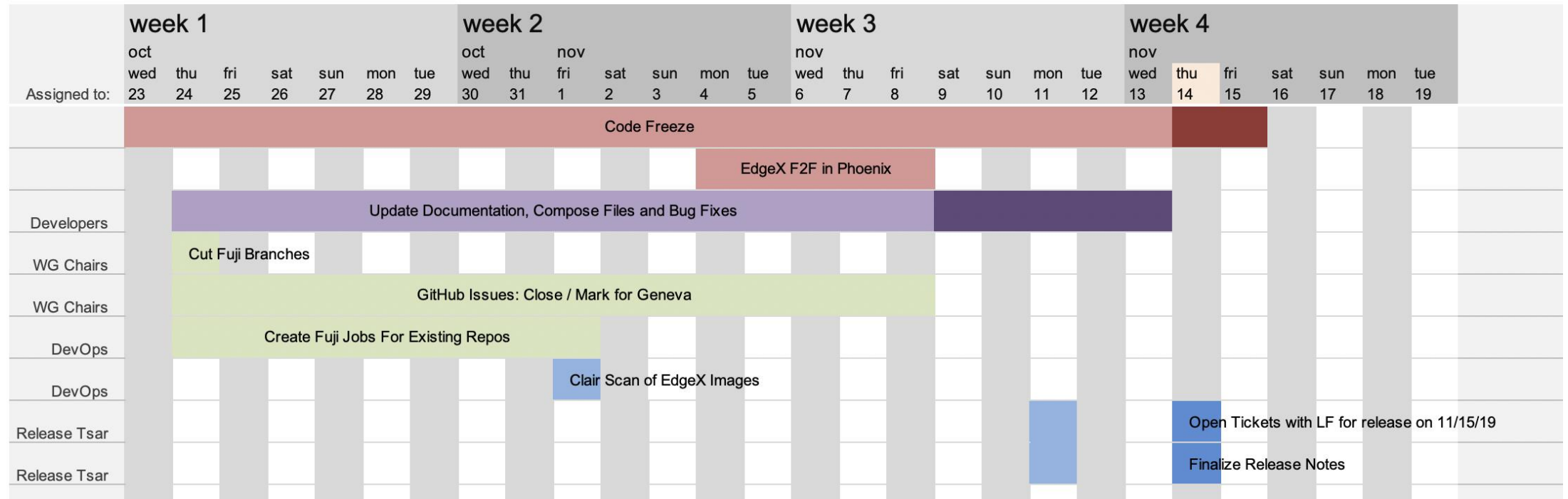
# Geneva Planning

Scope Discussions

# Fuji Release

- Freeze: Oct 23<sup>rd</sup> (Wednesday)
- Release: Nov 15<sup>th</sup> (Friday)

Start Date: 10/23/19 (with extension)



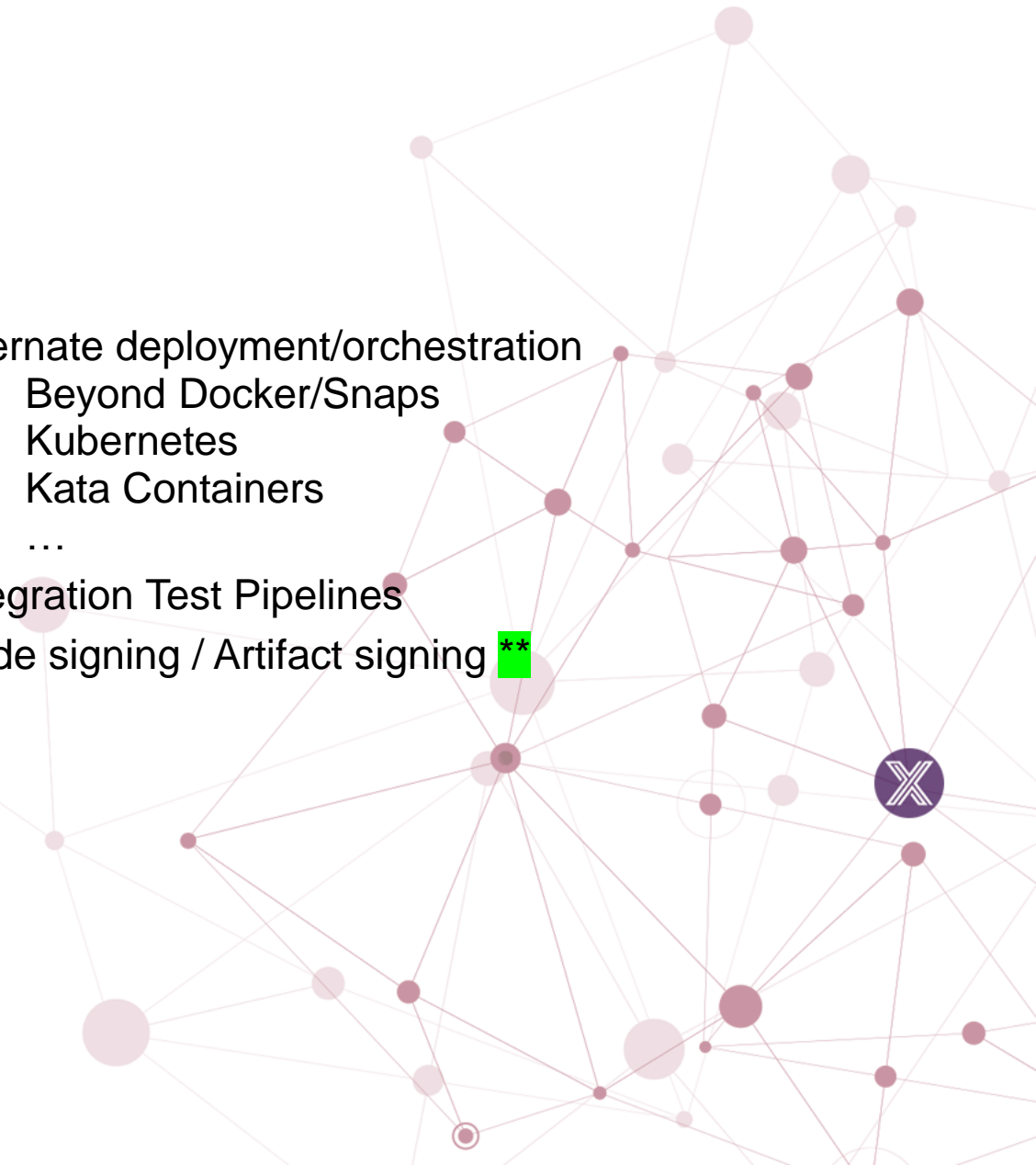
# Geneva – DevOps

## In

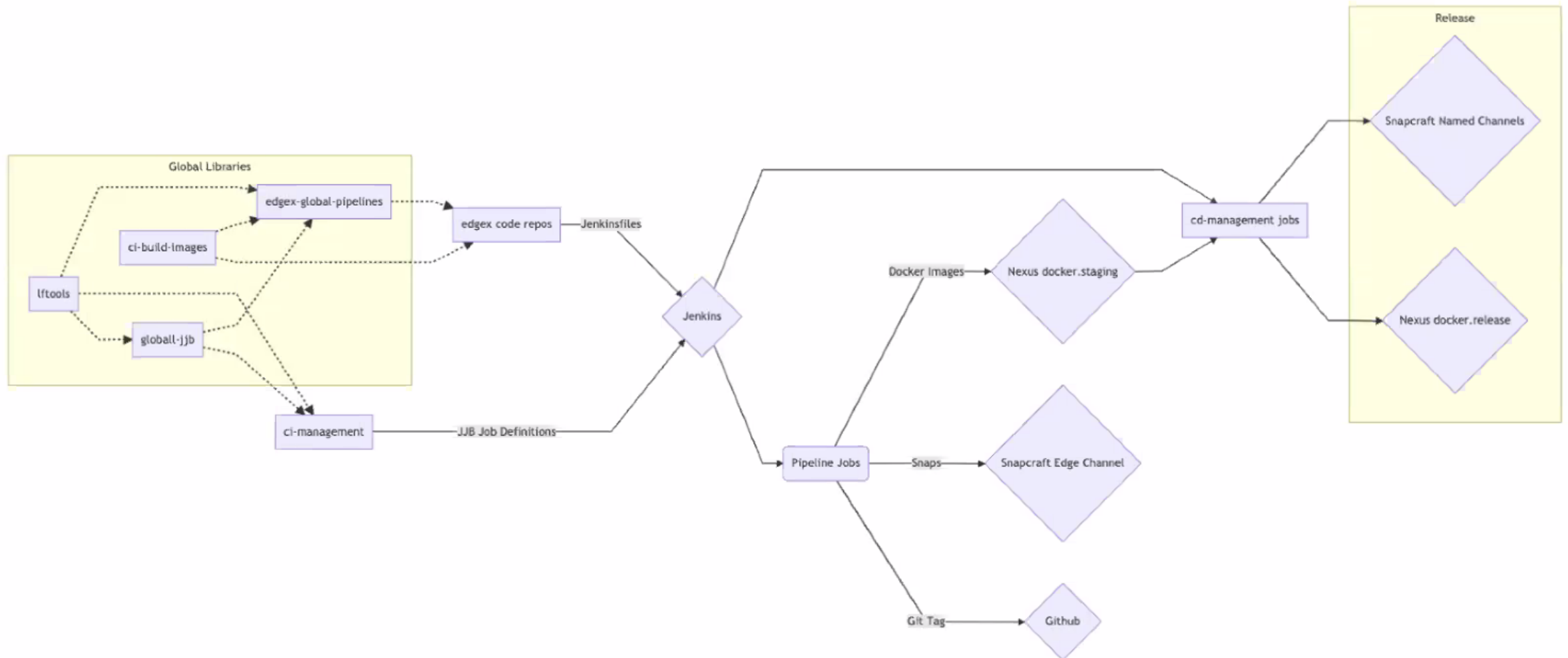
- Full Pipeline transformation for EdgeX services
  - Convert Jenkins JJB Freestyle jobs to Jenkins Pipelines
- Introduce GitHub Org Plugin
- Simplified Jenkinsfile
- Global Libraries to support Jenkins Pipeline transformation
- Add Unit testing to global-libraries (uncommitted) \*\*
- Snyk integration 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  
Work in Progress  
Q3 2019

### 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





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# Fuji Planning

Scope Discussions

# Fuji – DevOps

## In

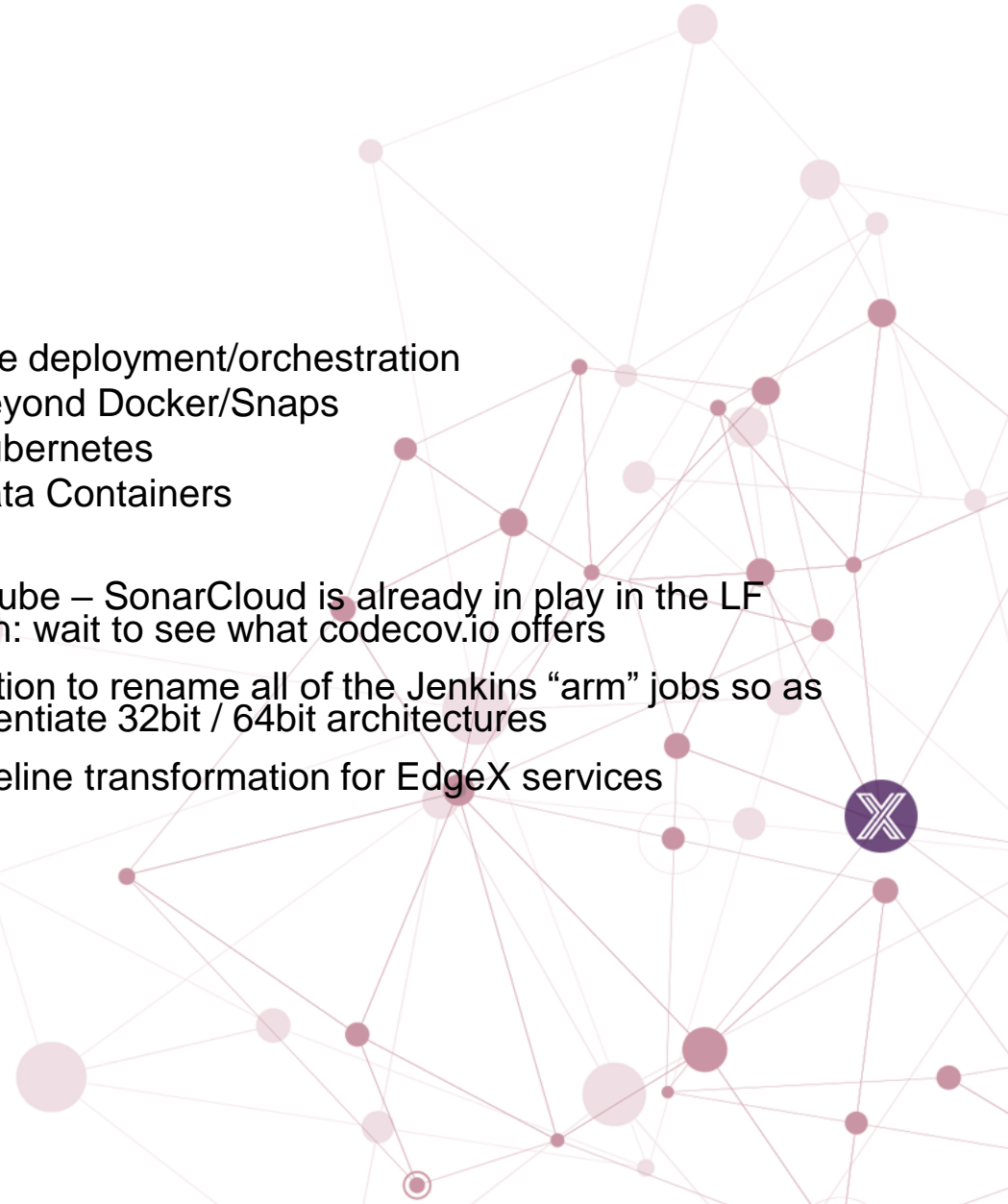
- Static code analysis tool identified and integrated into the EdgeX Jenkins Pipeline for Docker image scanning (Clair Server)

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)

Scope of Work	
Add static artifact analysis into the EdgeX Jenkins Pipeline (analysis of Docker /runtime artifacts, not the source code)	
Add code and artifact signing with semantic versioning	
Conduct build performance optimizations by: <ul style="list-style-type: none"> <li>• Adding Pipelines for EdgeX Foundry base build images</li> <li>• Allow base build images to be managed locally within Nexus</li> <li>• Leverage PyPi Proxy for local pip dependencies</li> </ul>	
Explore static code analysis like Checkmarx, Coverity, GuardRails, Synk, SonarQube	

- 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



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# Past / Future Agenda Topics

WW36	
WW37	