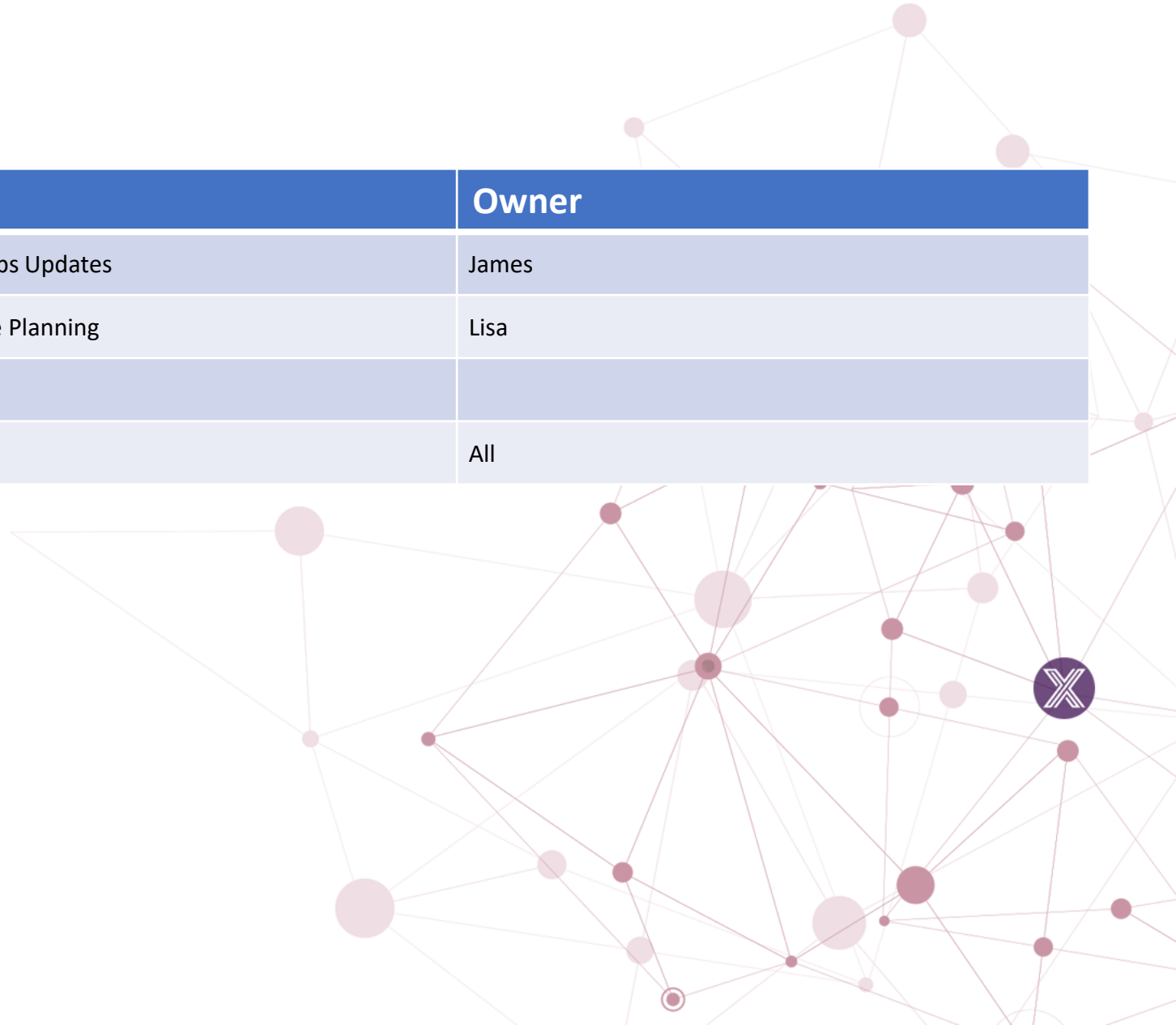
EDGE X FOUNDRY™

DevOps Working Group

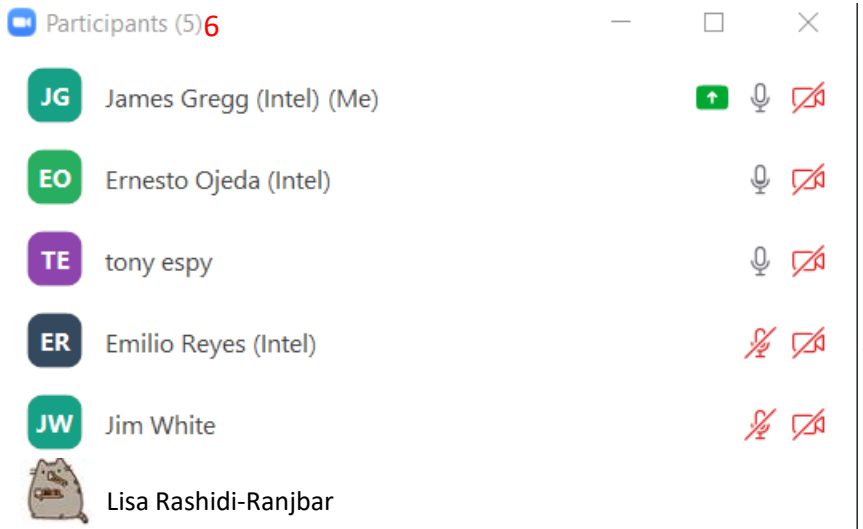
Thursday April 16, 2020

Agenda

Time	Topic	Owner
10 Min	Geneva / DevOps Updates	James
10 Min	Geneva Release Planning	Lisa
15 Min		
5 Min	AOB / Opens	All



Attendees


Participants (5)6
JG
James Gregg (Intel) (Me)
EO
Ernesto Ojeda (Intel)
TE
tony espy
ER
Emilio Reyes (Intel)
JW
Jim White
Lisa Rashidi-Ranjbar

DevOps WG Update

Geneva

- Jenkins Transformation to Pipelines
  - Work continues on the transformation to Jenkins Pipelines
    - Multiple stories related to release automation for Geneva - WIP
      - Add edgex-global-pipeline version information in the pipeline log - DONE
      - Implement Snap stages for x86 and ARM (Issue #155)- DONE
      - Integrate edgeXSnap function into edgeXBuildGoApp and edgeXBuildCApp (Issue #125)- WIP
      - Identified a bug in the way we're linting the groovy code for edgex global pipelines - WIP
      - Reviewed LF roadmap 2020-beyond
        - self service committers
        - self service repo creation
        - K8s support for CI Validation Only
        - support for CI/CD for projects that want their own SaaS based build automation (Azure DevOps)
        - continued support of solutions already implemented (Clair, TIG stack, SonarCloud, Snyk integrations)
      - Still have multiple stories to get the snap release functionality into the release automation
      - Resolved issue with missing GPG key on Jenkins service account - Thank you Eric Ball / Linux Foundation
      - LFTools / Sigul latest version that supports Python 3.x - *RISK*
        - Need input from LF on alternative signing tool / No update ww16

Hanoi

- Pre-Planning and some backlog grooming with additional scope related to release automation
  - Backlog grooming discussed in 04/02/20 DevOps WG meeting with decision to drop some of the backlog work items since
  - Moved Bluetooth device service into Hanoi per TSC discussion on 04/15/2020

Geneva Freeze and Release dates

TSC approved

- Freeze: 12pm GMT, April 22 (Wed, week before planning meeting)
- Release: 12pm GMT, May 13 (Wed two weeks after planning meeting)

See Geneva release notes for details (on Slack)

REMINDER:
We will NOT be branching off master for the Geneva release.

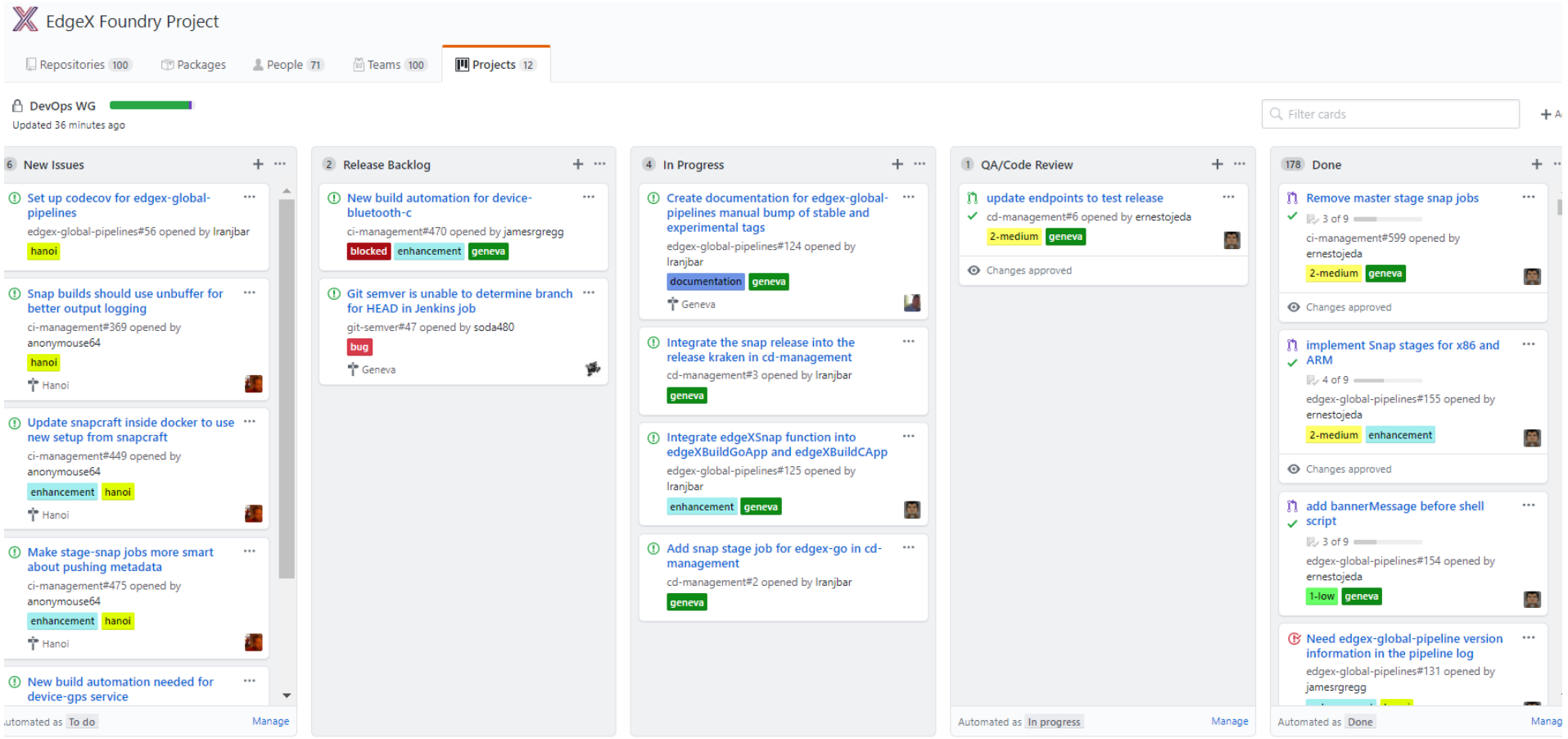
Includes **EVERYTHING**

Release Artifact Status

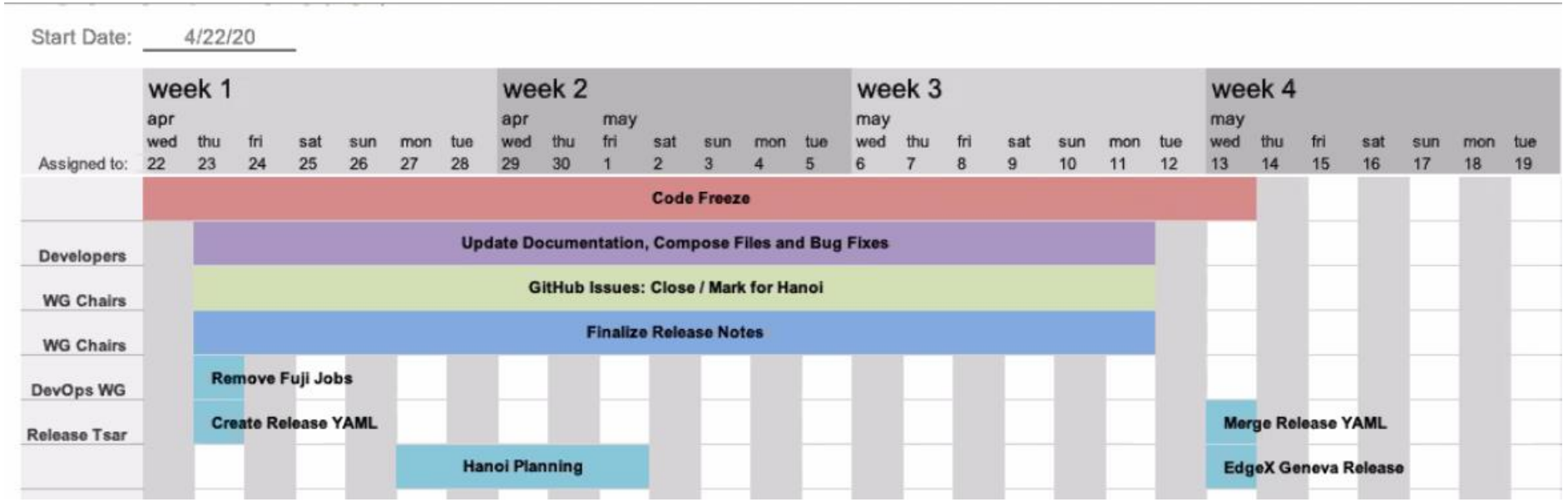
- Docker images are staging to Nexus we are good to go here.
- We have some broken snap jobs for the following repos:
  - device-grove-c << Geneva Snap??
    Tony says to assign to him and can be done post-release
  - device-mqtt-go - WIP
  - device-modbus-go – *WIP – Missing version file but Ernesto is addressing*
  - edgex-ui-go << Geneva Snap??
    Per Tony – was never released to stable channel (beta hasn't been updated)
    Suggestion to include in main edgex

Geneva release

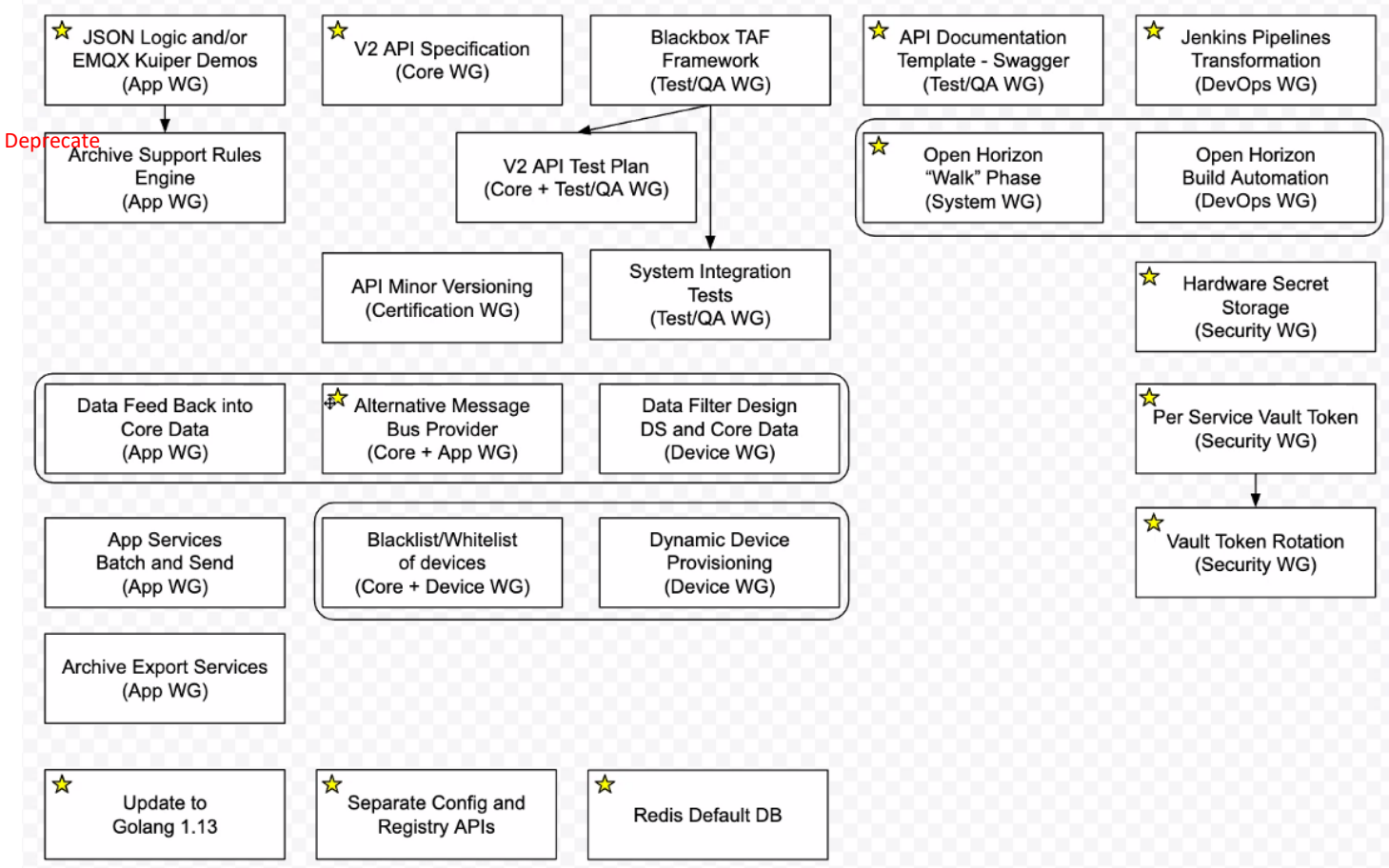
Completed	Work In Progress	Release Backlog
178	4	1



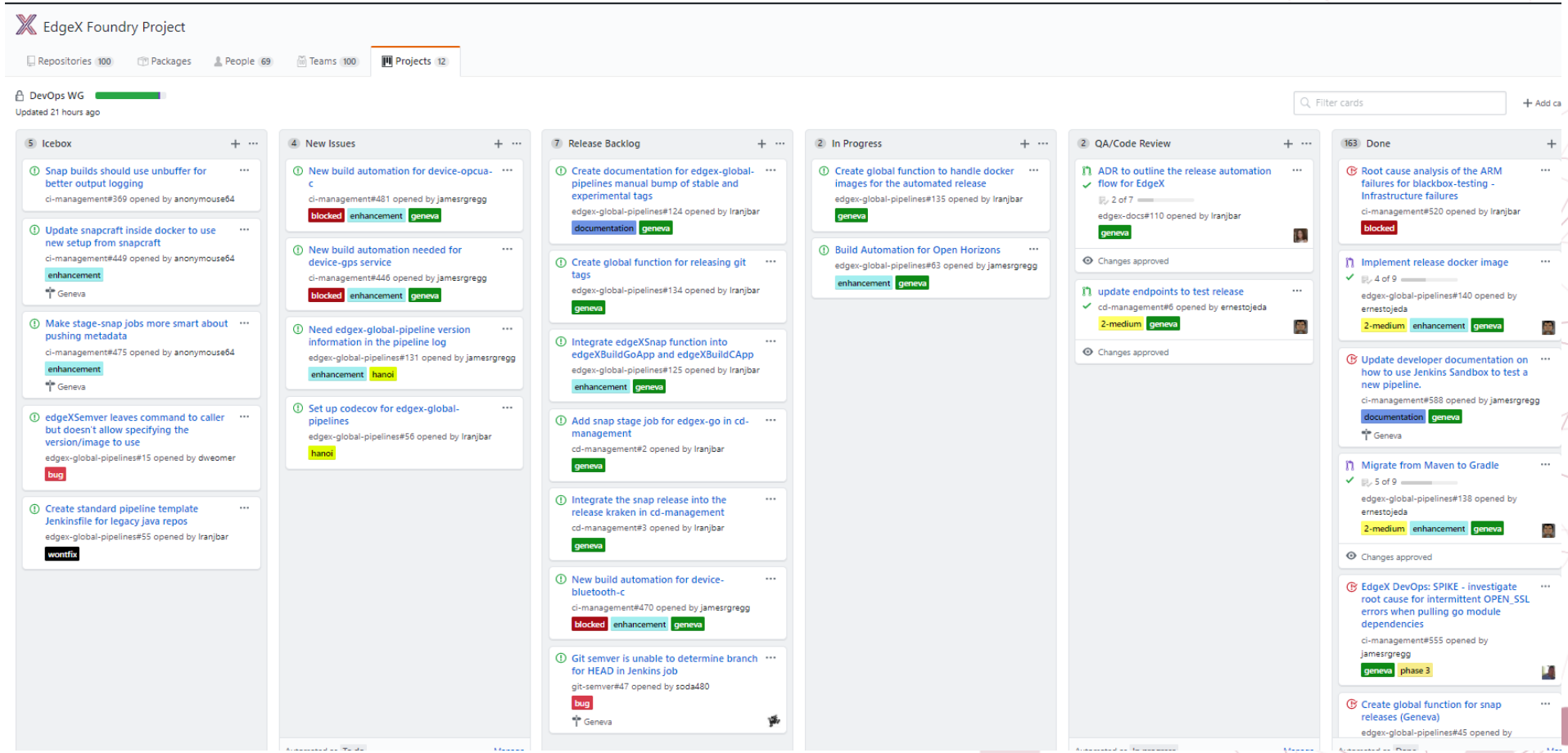
Geneva Release Schedule



Geneva Dependency

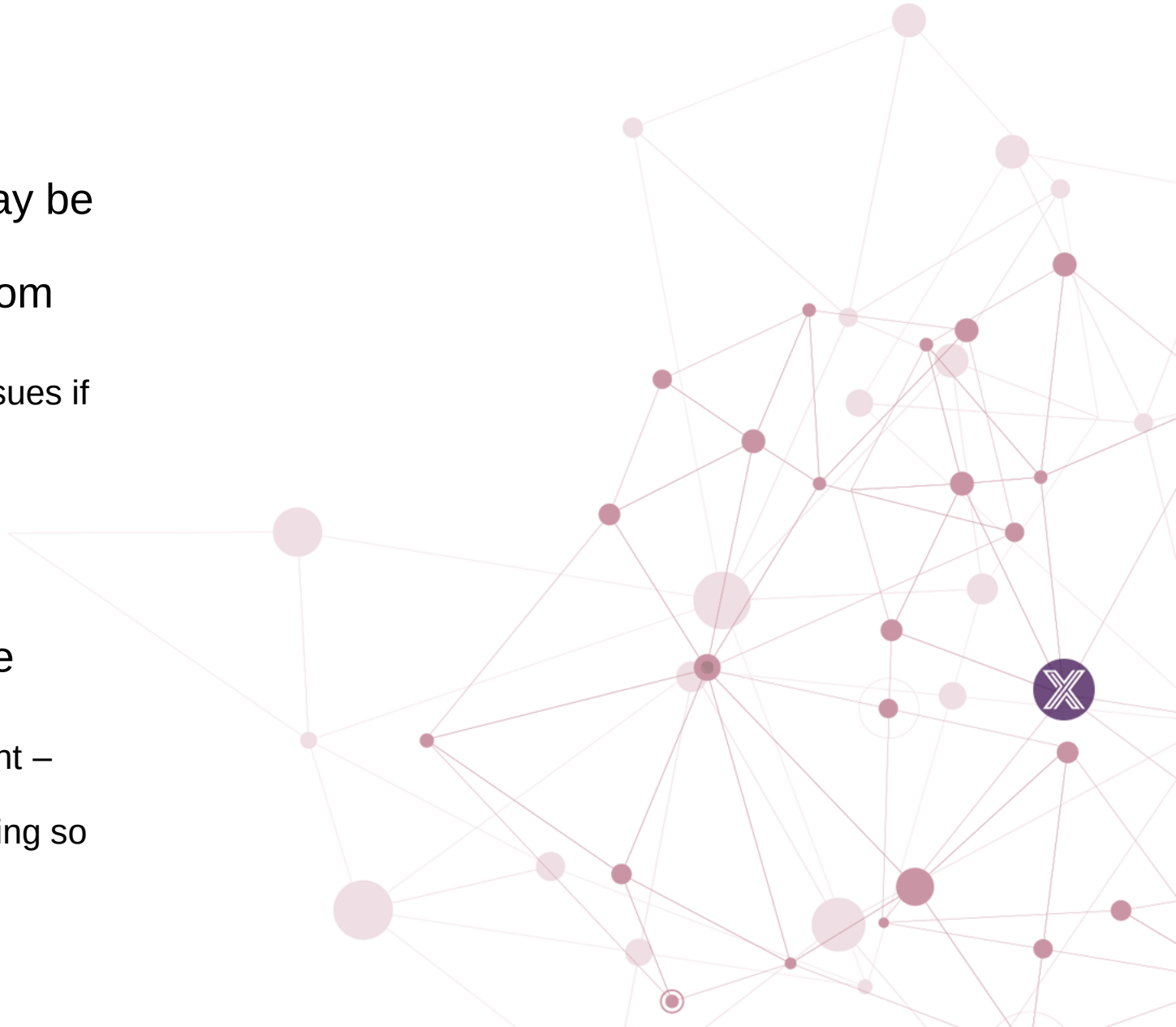


Backlog Review



Meeting Minutes

- Some issues with snap build failures may be network relelated as the failures are occurring when pulling dependencies from apt repos
  - Ernesto / Tony to work offline on the snap issues if we continue to see the issues
- Tony would like to own the work for the device-grove-c snap development
  - Assign Issue to Tony Espy
- DevOps is making good progress on the Pipelines to support snap releases
  - Risk reduced given the focus in this last sprint – Good job Ernesto, Emilio, Lisa, Bill!!
    Thank you Tony Espy for helping out and being so responsive to the team.



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

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Hanoi Planning

Scope Discussions

Hanoi - DevOps

- Performance Optimizations
  - Jenkins Pipeline optimizations for edgex-go
  - Explore options from LF for supporting Jenkins on K8s
- Performance of the Build Environment
  - Monitoring / Alerting optimizations (Continuous Improvement Opportunity)
- Technical Debt
  - Caching Dependencies – speed it up (upstream dependencies)
- Open Horizons Enablement
  - Shared Infra with Open Horizons
  - Build Automation for OH
- Stretch Goals
  - Code Coverage for Jenkins Global Libraries (codecov.io)
  - Snap improvements
  - Support for –race flag

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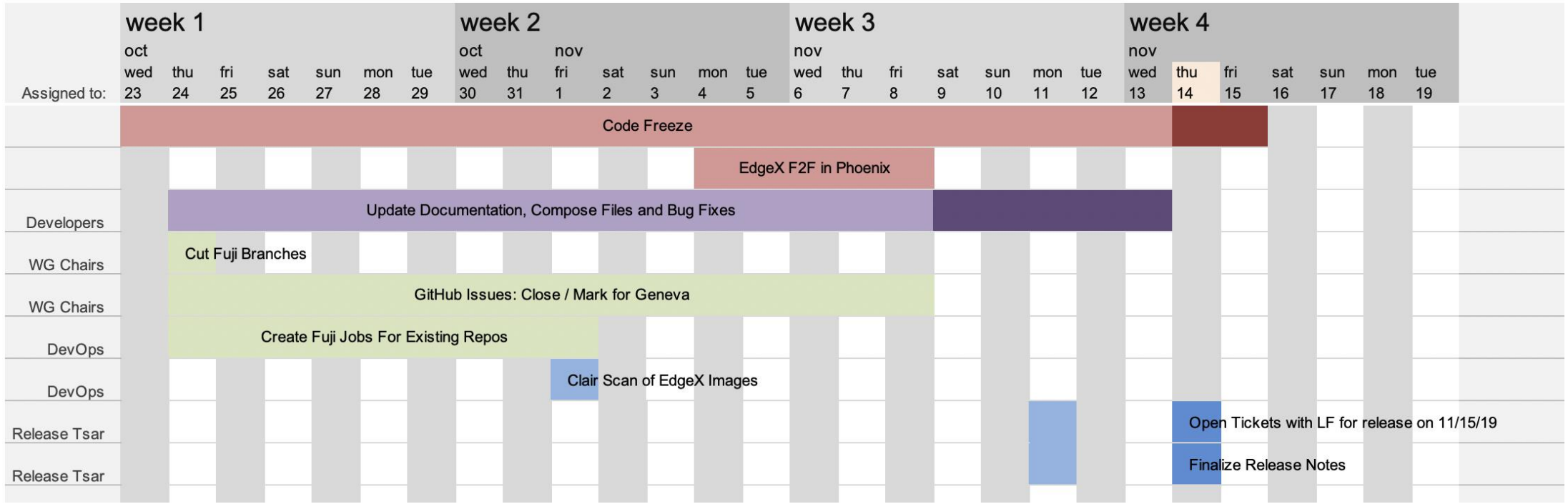
Geneva Planning

Scope Discussions

Fuji Release

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

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



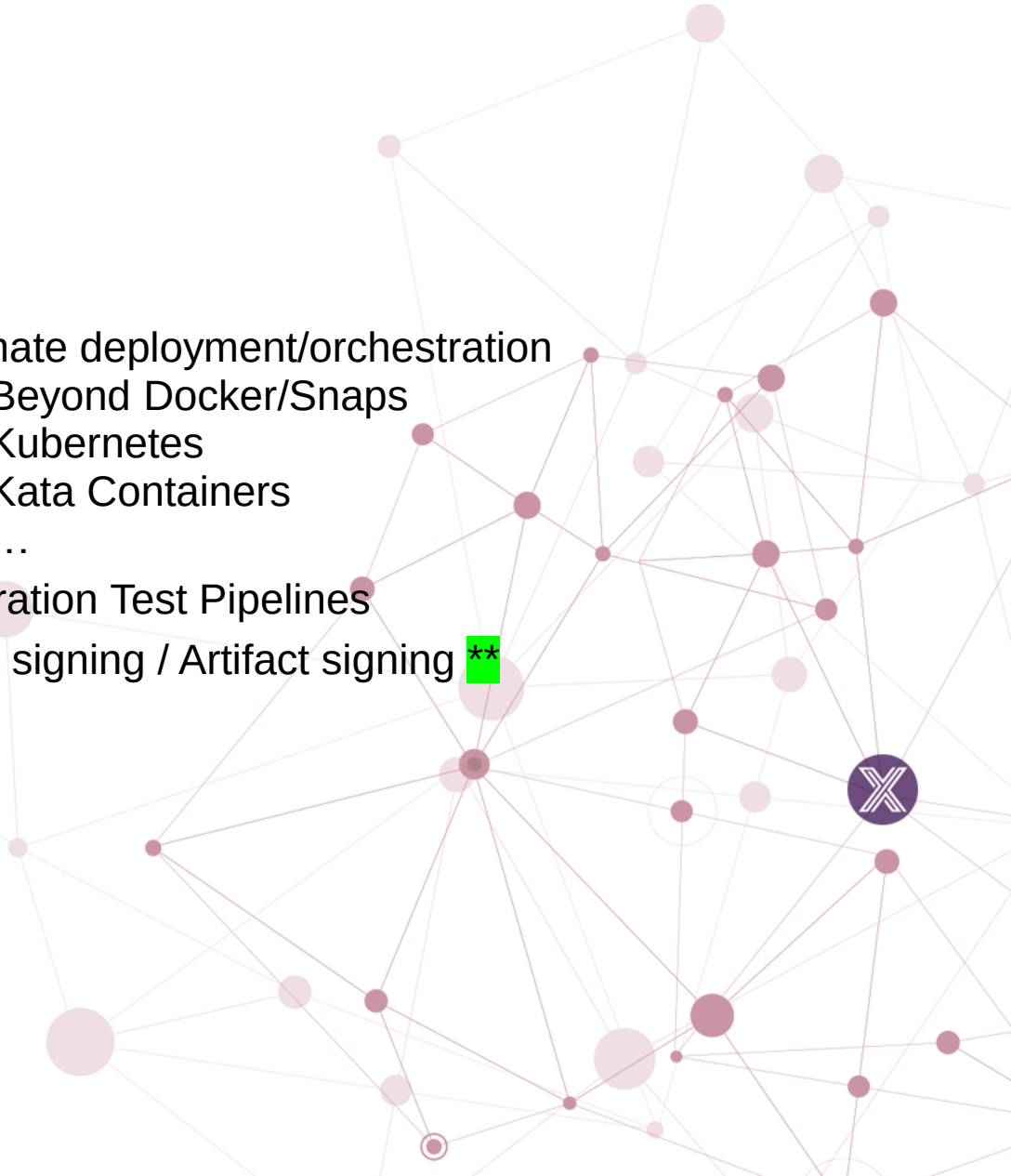
Geneva – DevOps

In

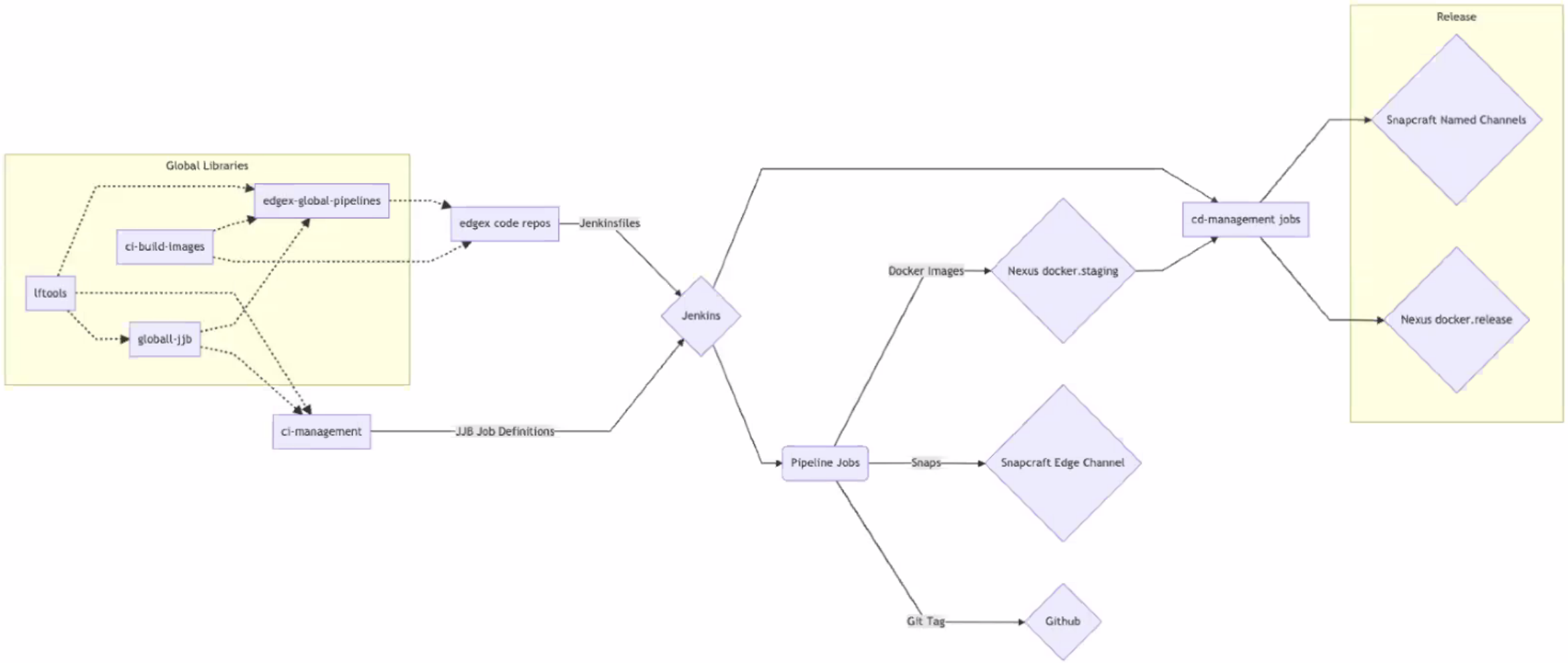
- Full Pipeline transformation for EdgeX services
  - Convert Jenkins JJB Freestyle jobs to Jenkins Pipelines
- Introduce GitHub Org Plugin
- Simplified Jenkinsfile
- Global Libraries to support Jenkins Pipeline transformation
- Add Unit testing to global-libraries (uncommitted) **
- Snyk integration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

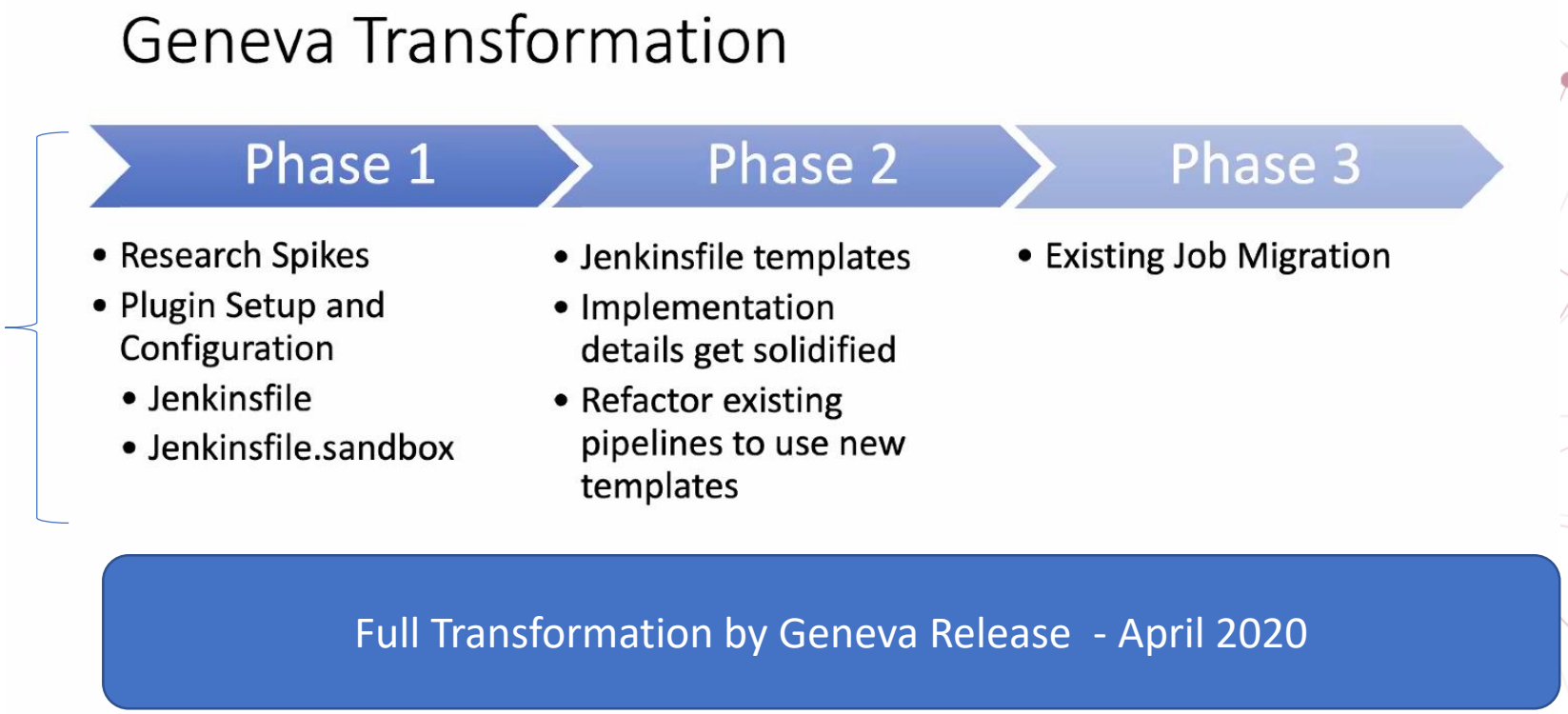


Geneva Transformation: Architecture



How long does it take? Is this all Geneva scope?

Phase 1
Work in Progress
Q3 2019



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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: • Adding Pipelines for EdgeX Foundry base build images • Allow base build images to be managed locally within Nexus • Leverage PyPi Proxy for local pip dependencies	
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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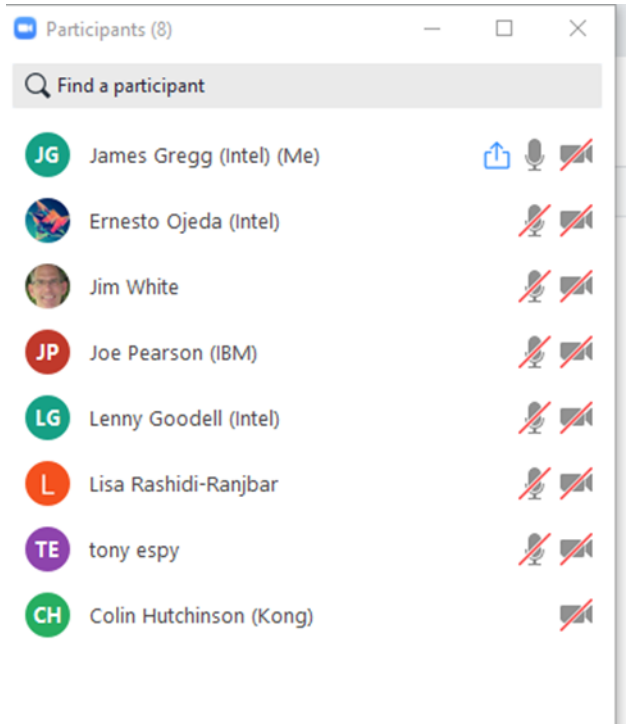
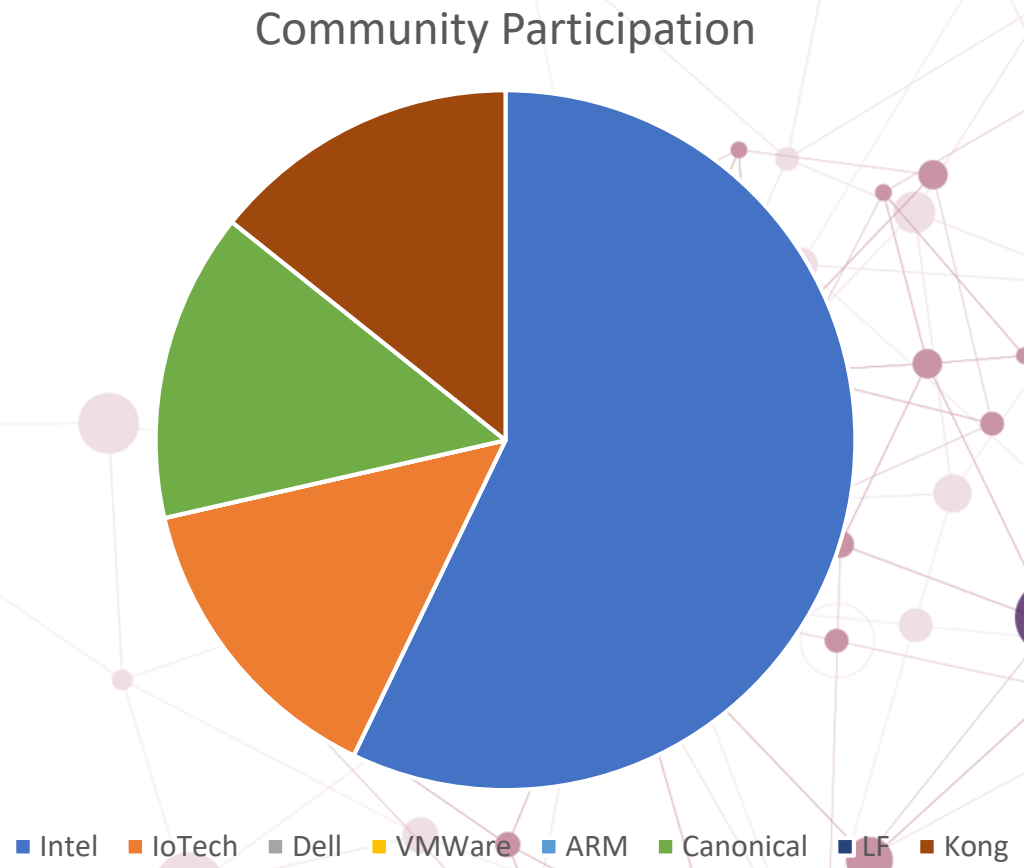
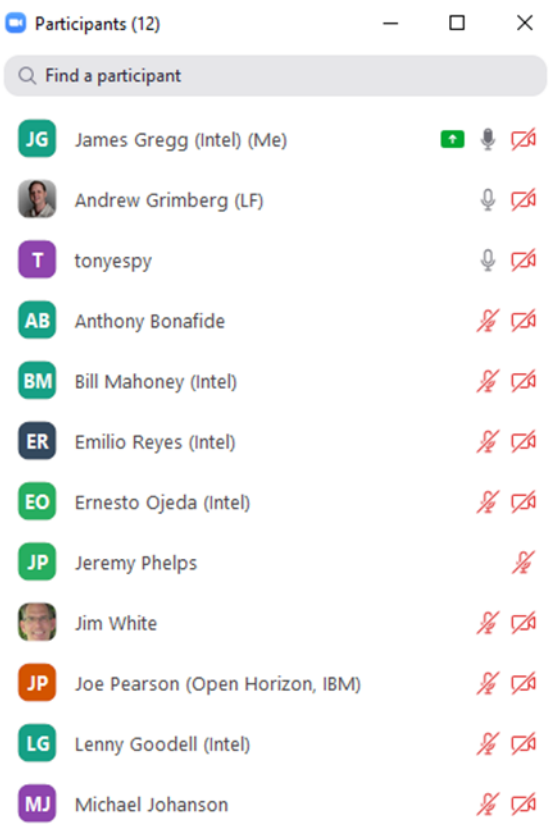
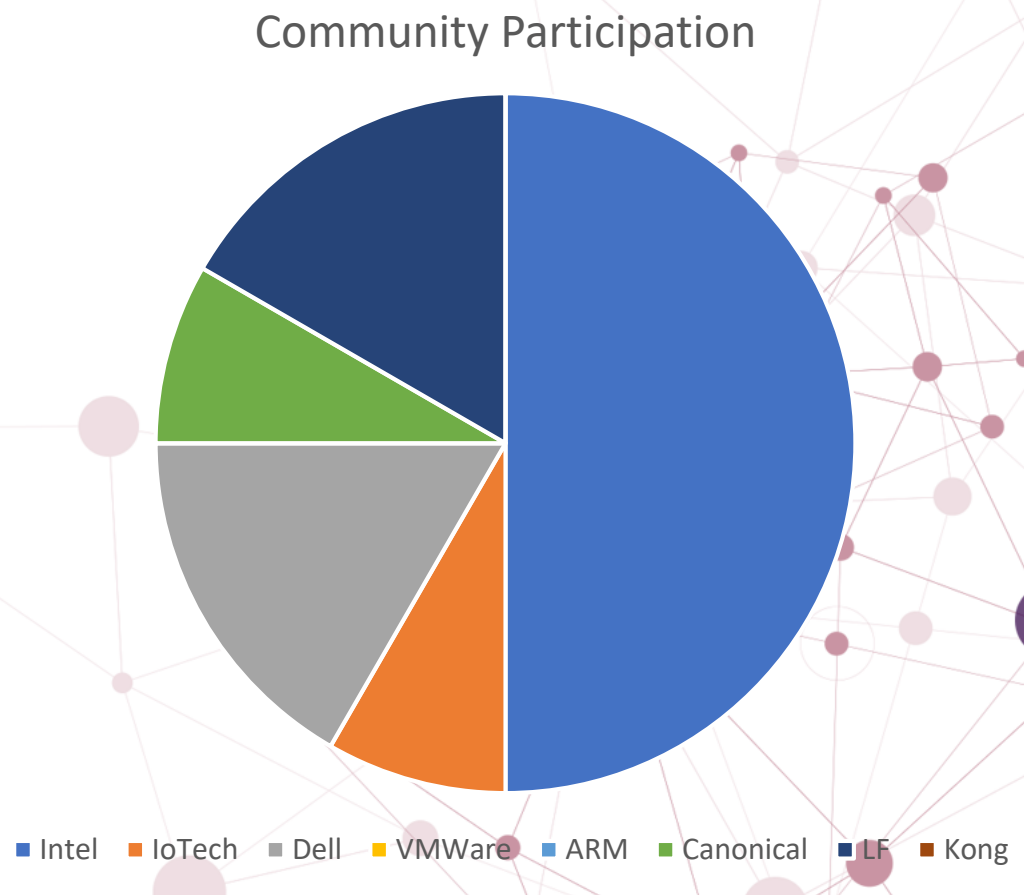
Past / Future Agenda Topics

	Size change to use Ubuntu / Debian base build images to support –race flag for Go Lang
	Clair scan findings – Discussion developer community if we want to break the build when there's findings - Bring into Security WG for discussion
	Open Horizons enablement
	Alignment to new LF roadmap self-service offerings – EdgeX use case for handling holding repositories
	Release automation - key learnings and sharing with LF

Attendees & Community Participation – ww14





Attendees & Community Participation – ww15