



EDGE X FOUNDRY™

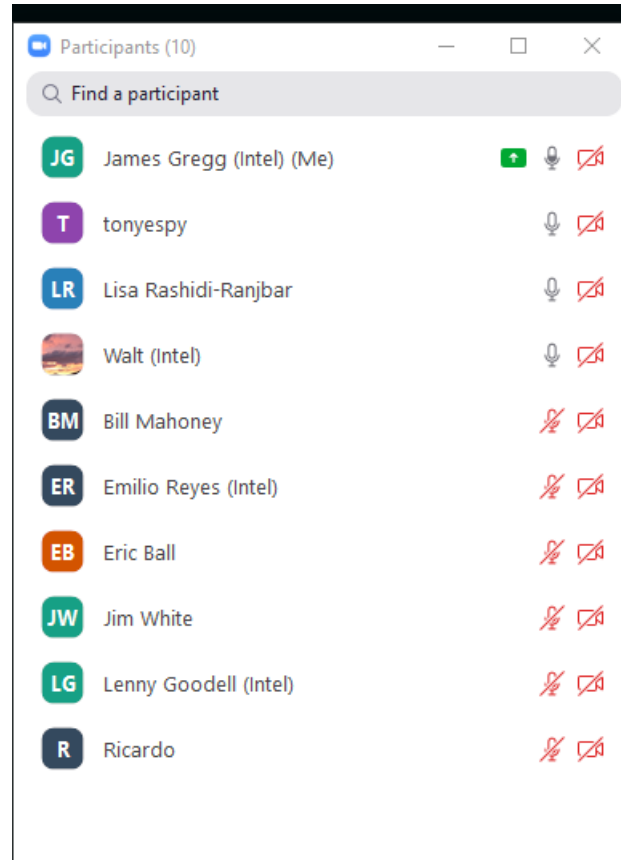
DevOps Working Group

Thursday June 11, 2020

Agenda

Time	Topic	Owner
15 Min	DevOps Updates (Hanoi)	James
15 Min	Geneva Dot Release	Lisa
10	Kanban Board Review	All
5 Min	AOB / Opens	All

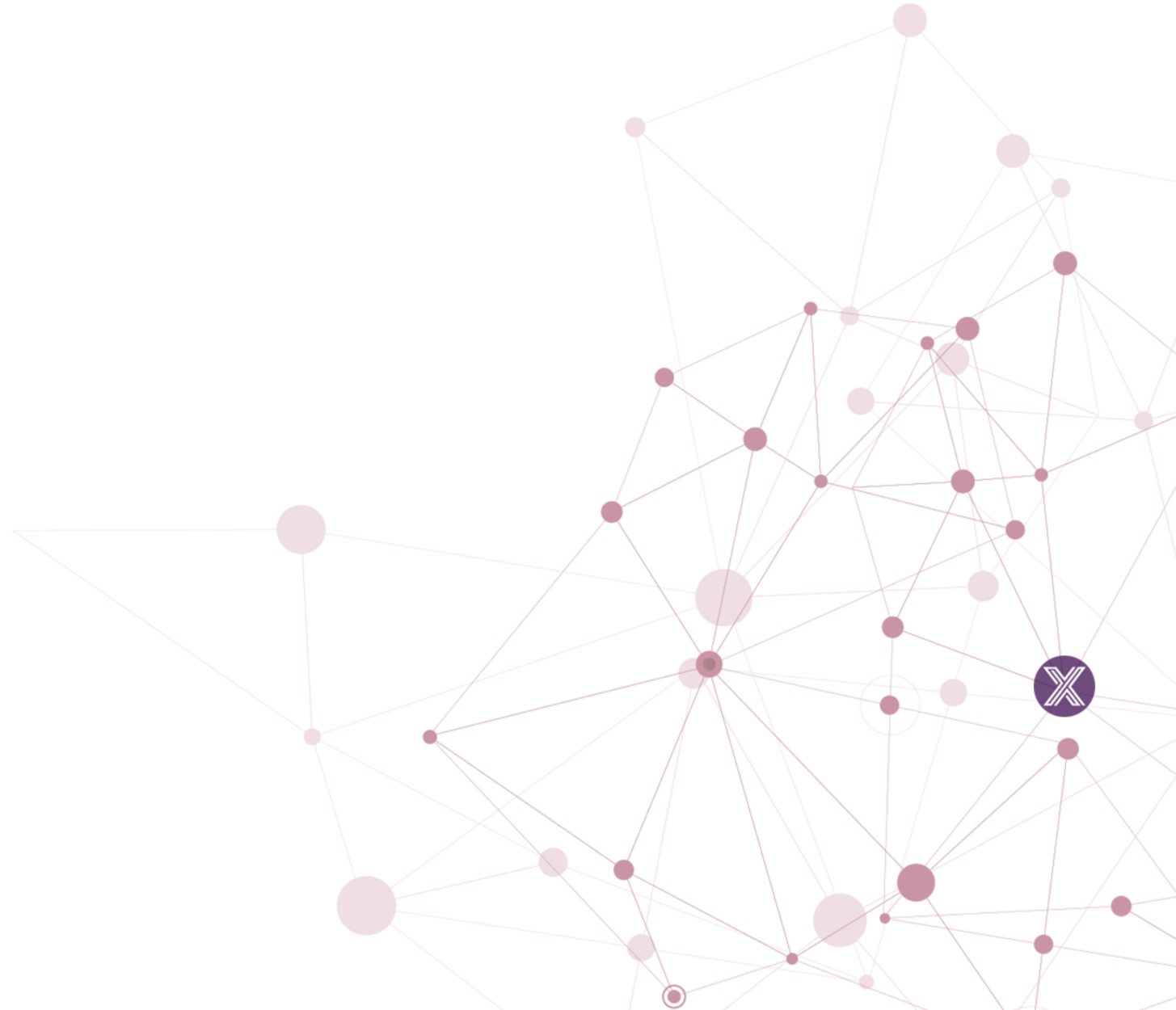
Attendees



Participants (10)

Find a participant

Initials	Name	Microphone	Video
JG	James Gregg (Intel) (Me)	On	Off
T	tonyespy	Off	Off
LR	Lisa Rashidi-Ranjbar	Off	Off
	Walt (Intel)	Off	Off
BM	Bill Mahoney	Off	Off
ER	Emilio Reyes (Intel)	Off	Off
EB	Eric Ball	Off	Off
JW	Jim White	Off	Off
LG	Lenny Goodell (Intel)	Off	Off
R	Ricardo	Off	Off



DevOps WG Update

- **Hanoi**
- **Performance Optimizations**
 - Build Optimizations for edgex-go - image promotion
 - Working on next sprint - grooming stories to align to the same process we used in Geneva to identify phases of the work
- **DevSecOps**
 - Continued explore of options for addressing Issue #1947 - vetting of OSS dependencies
 - Now looking at FOSSA since it's something being used by other LF projects (CNCF)
 - Community Bridge Feature Requests
 - Transitive dependencies for Go modules - findings don't match other tools like Sonatype
- **Other**
 - **githubsync - GitHub Automation to create labels used across all EdgeX Foundry repos**
 - New feature with the refactor (Python) the full sync takes ~5m to complete compared to ~2h17m before; half of that 5m is from building the python container.
 - **Self Service Committers**
 - Aric Gardner presented self-service committers as an option to move from the need to submit JIRA tickets for managing permissions on repos.
 - **Code Signing - lftools /sigul replacement**
 - LFTools / Sigul latest version that supports Python 3.x
 - LF is now considering an alternative signing tool (future horizon roadmap item – no timeframes)
 - LF encountered some of the challenges within their fork trying to refactor sigul to support the latest Python 3.x

Geneva Dot Release 1.2.1

- Branch only if it makes sense
 - If not branching = a mini code freeze
 - Reduces DevOps scope
- Target Date - Code on next Wed (1 Week)
- BB test
- Lenny updates Compose Files
 - James update Snyk portal

Go Decision for Geneva Dot Release

```

Geneva Dot Release 1.2.1
Wednesday, May 6, 2020 7:19 AM

Geneva Dot Release 1.2.1
Community C

...covered issues. TSC approved this dot release today (6/3/2020). Since we
...that will also be incorporated as a target of opportunity.
...schedule for the dot release:
...CPU consumption issue based on inappropriate interval)
...to be released with the fix as well.
...mult-go and device-modbus-go (Tony to provide issue and PRs)
...address gateway / security issues (addressing short term fixes for some of #222, #223, #224, #225 and #226 in edgex-ui-go)
...service (as part of edgex-go) to eliminate bug on removal of interval (#2554 and associated to issue #2520 and PR #2552)
...support-rulesengine for remote logging URL (#74)
...changes to go-mod-bootstrap to address issue #74 - empty vars being ignored especially as it relates to webserver host name & Consul callback issue
o This will also require artifact creation for all core/supporting services, device services, and app services that consume go-mod-bootstrap
  There are a few identified Snap changes that Tony has planned (Issues/PRs pending)
  There is a change to the app functions SDK (and therefore associated configurable app service) that Lenny/Mike have planned (Issues/PR pending)
Additionally, the Docker Compose files in developer-scripts will need to be update to use new dot release artifacts.
  Tentatively, the schedule to address this dot release is as follows
  Week of Jun 3-8: DevOps to triage impacted repositories, branch/tag as necessary
  Week of Jun 8-12: developers fixing bugs and testing bug fixes
  Week of Jun 15-19: Test/QA run blackbox tests to insure nothing else has been broken with the fixes/changes.
  Target Release Date: Jun 19 with an all clear from testing.
If you have additional issues that need to be incorporated or concerns about this schedule, please contact Lisa Ranjbar or myself as soon as possible.

Scope of repos affected:

Testing reading on Tuesday/Wednes/Thurs next week
Make decision based off that

edgex-go
edgex-ui-go (not branching)? Send email
device-sdk-go
device-matt-go
device-modbus-go
support-rulesengine (not branching)
go-mod-bootstrap (not branching)
app-service-configurable (not branching)
app-functions-sdk-go (not branching)
device-sdk-c - Iain
  
```

Meeting Minutes

Opens

- Need additional testing with blackbox testing – discussion in Core WG with Lenny adding to agenda topics
- DCO got stuck on PR yesterday. When this happens, the recommendation is to force push the same commit. This should kick it off again.
- Improved performance and faster builds should equate to less compute / decreased costs
 - Agreement to pursue some cost analysis with LF Edge / Linux Foundation
 - Cost Analysis data needed pre/post-transformation to new EdgeX Jenkins Pipelines
 - James to follow up with Brett Preston / Jim White offline

Decisions

- GO Decision on dot release
- We will hold off on self-service committers for now (future roadmap)

Hanoi release

EdgeX Foundry Project

Repositories 100 Packages People 73 Teams 100 Projects 13

DevOps WG
Updated 20 minutes ago

Filter cards + Add cards(1 new) Fullscreen

19 New Issues

- hanoi**
Hanoi
- Update edgeXReleaseDocker to update labels
edgex-global-pipelines#183 opened by jamesgregg
hanoi
Hanoi
- EdgeX DevOps: Create code guidelines for Jenkins edgex-global pipelines
edgex-global-pipelines#180 opened by jamesgregg
hanoi
Hanoi
- EdgeX DevOps: SPIKE - Needed to understand how to mock embedded functions (transitive calls)
edgex-global-pipelines#179 opened by jamesgregg
hanoi
Hanoi

Automated as **To do** Manage

2 Release Backlog

- Research Snyk findings for High / Medium CVEs as per CB Snyk report (edgex-global-pipelines)
edgex-global-pipelines#171 opened by jamesgregg
hanoi
Hanoi
- EdgeX DevOps: Implement experimental/stable tagging pattern for git-semver image consumption
edgex-global-pipelines#190 opened by jamesgregg
enhancement hanoi phase 1
Hanoi

3 In Progress

- Geneva Dot Release
cd-management#37 opened by jamesgregg
geneva
Hanoi
- EdgeX DevOps: Create global function to release API docs to SwaggerHub
edgex-global-pipelines#188 opened by jamesgregg
enhancement hanoi phase 1
Hanoi
- EdgeX DevOps: Implementation of the docker image promotion techniques (edgexBuild*) pipelines
edgex-global-pipelines#189 opened by jamesgregg
hanoi phase 1
Hanoi

Automated as **In progress** Manage

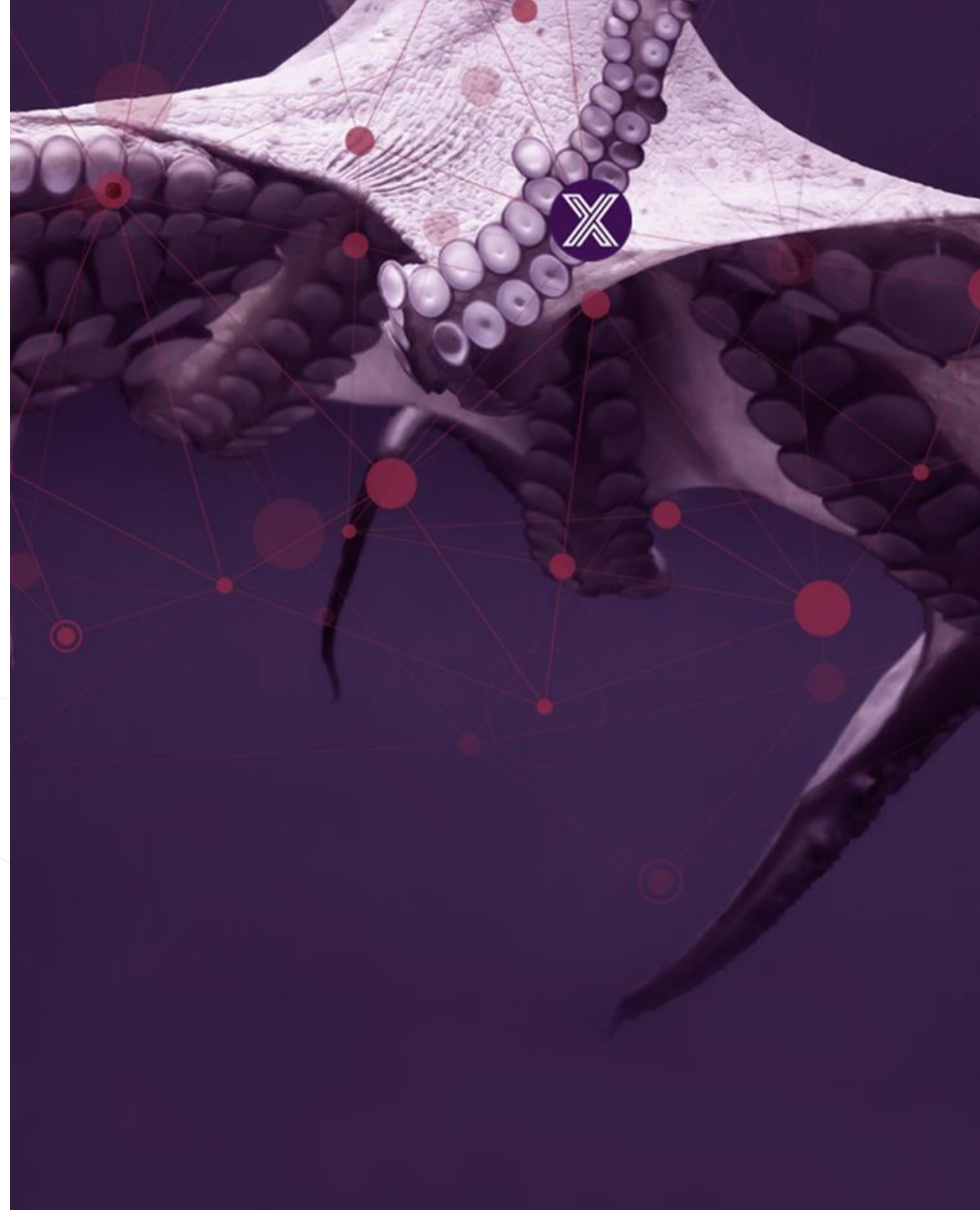
238 Done

- SPIKE: Explore use of Buildkit for Docker images
cd-management#23 opened by jamesgregg
hanoi wontfix
Hanoi
- EdgeX DevOps: Enhancement to the Jenkins Pipeline to add throttling to github issue lable creation
cd-management#18 opened by jamesgregg
f2f-hanoi hanoi
Hanoi
- New GitHub issue label creation Pipeline needs to be enhanced to include the creation of Milestones.
cd-management#19 opened by jamesgregg
f2f-hanoi hanoi
Hanoi
- Update Jenkinsfile to include snap
app-service-configurable#79 opened by Iranjbar
geneva
Hanoi

Automated as **Done** Mana

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Backup



Future Discussion Topic

What's considered a release artifact (need to discuss and bottom out on release artifact definition)

- Reference ADR007

What's allowed to be released out of “*release cadence*”?

- What things are part of a release?
- What should be more guarded?
- What does it mean to go to true CD?
- What is the formal (documented) process for “dot release” defined?
- What's needed to make this happen?



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Hanoi Planning

Scope Discussions

DevOps Scope of Work - Hanoi

- Performance Optimizations
 - Jenkins Pipeline optimizations for edgex-go
 - Explore options from LF for supporting Jenkins on K8s – completed roadmap review within Geneva
 - Explore alternatives to containerization within the builds
 - Explore use of BuildKit to simplify creation of x86/ARM build images so they share a single manifest when published to Docker Hub / Nexus
 - Explore use of Kanico
 - Explore Complete – **Will not Work**
 - Requires use of K8s persistent volumes and dedicated build agents which are long lived
- Performance of the Build Environment
 - ~~Monitoring / Alerting optimizations (Continuous Improvement Opportunity)~~
- Technical Debt
 - ~~Caching Dependencies — speed it up (upstream dependencies)~~
Reference Linux Foundation roadmap
- ~~Open Horizons Enablement~~
 - ~~Shared Infra with Open Horizons~~
 - ~~Build Automation for OH~~
- Stretch Goals
 - Code Coverage for Jenkins Global Libraries (codecov.io)
 - Snap improvements – build optimizations
 - Support for **-race** flag with goals to address with Go 1.15 ...*but there are options*

DevOps WG Recap (Geneva)

Geneva (May 2020):

- DevOps Jenkins Pipeline Transformation
 - 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
 - Automation of the labels across the project
 - GitHub Tracker (Kanban board) – utilized weekly with built in workflow
 - 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

Geneva Freeze and Release

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**

Will not be versioning go modules

Do we need blackbox tests to be an “artifact” of a release?

- **QA/ Test WG doesn't require signed tags, but since release kraken can be used to automate the creation of the tag, it would be a signed tag**
- **If there's a need to patch Geneva, the tagged blackbox tests would be used**
- **Since blackbox tests wasn't previously considered a “release artifact” does it get tagged? – YES it does**

Decision: We now need to consider blackbox tests as a formal artifact. Tag would be generated at the time of the formal release

Geneva Release Schedule

New scope – consider blackbox tests as artifact of the release

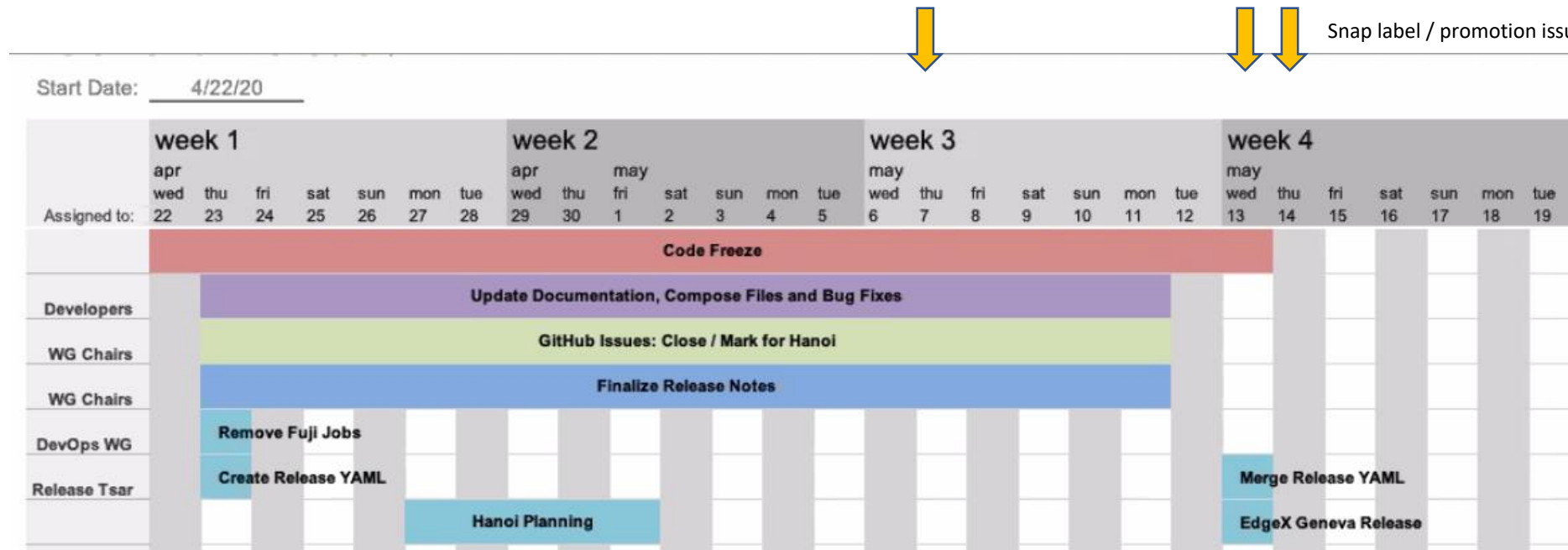
- should have been considered within review of **ADR007**

Green light decision to release

- TSC meeting late in the day
- Multiple issues worked throughout the day

support-rules-engine

Snap label / promotion issue identified



Timeline to be reviewed for Geneva Retrospective

Geneva Retrospective

What went right?

- Smoother release – no branching at code freeze equated to efficiency
- Whole DevOps team was responsive
- Developers embraced the opportunity to create the Jenkinsfiles themselves
- Great collaboration and cross pollination of the information
- Linux Foundation was very helpful and responsive in the release – easier and supported well
- Use of JIRA tickets helped with response times on support / help needed from LF release engineer
- Andrew Grimberg came into the DevOps wg for a roadmap discussion
- Automation of the release went well – good coordination
- Phased approach of the work helped align to sprint cadence
- ADR practice helped with communications across the project
- Ernesto recognized for work on the snaps
- Lisa recognized the good communication / teamwork with Emilio / Ernesto
- Tony / Ian helped with review of the snap automation code – THANK YOU!!
- Risk acceptance / Risk taken - It worked!!
- Dry Run on release automation functionality
- Tony / Ian were responsive wrt Snap store issues – THANK YOU!!

What could be improved?

- Communication gaps
 - support-rules-engine issue related to a change in plan
 - **DEPRECATION** (Define process needed ??)
- Snap release process could be better understood
 - Need full path to production for snap release process
 - release to beta candidate channel >> stable
 - Time crunch in the end could be root cause for the snap release issue
 - Might need TAF testing for snaps
 - No real hw testing (Akraino community lab – University of New Hampshire)
 - Canonical presentation on how they do hw testing with snaps
 - Need functional testing for snap automation
 - Need to figure out an example service (sample-service)
 - Inability to properly test in a sandbox, test environment
 - Help needed from LF to support ability
 - Release Kraken Improvements (re-label / tagging)
 - Idempotency
 - Need to specify a commit (might be an edge use case but better)
 - Set up of the snap YAML
 - Manual release of documentation needs fixed
 - Snap store issues (503 error) – length of time to build snaps



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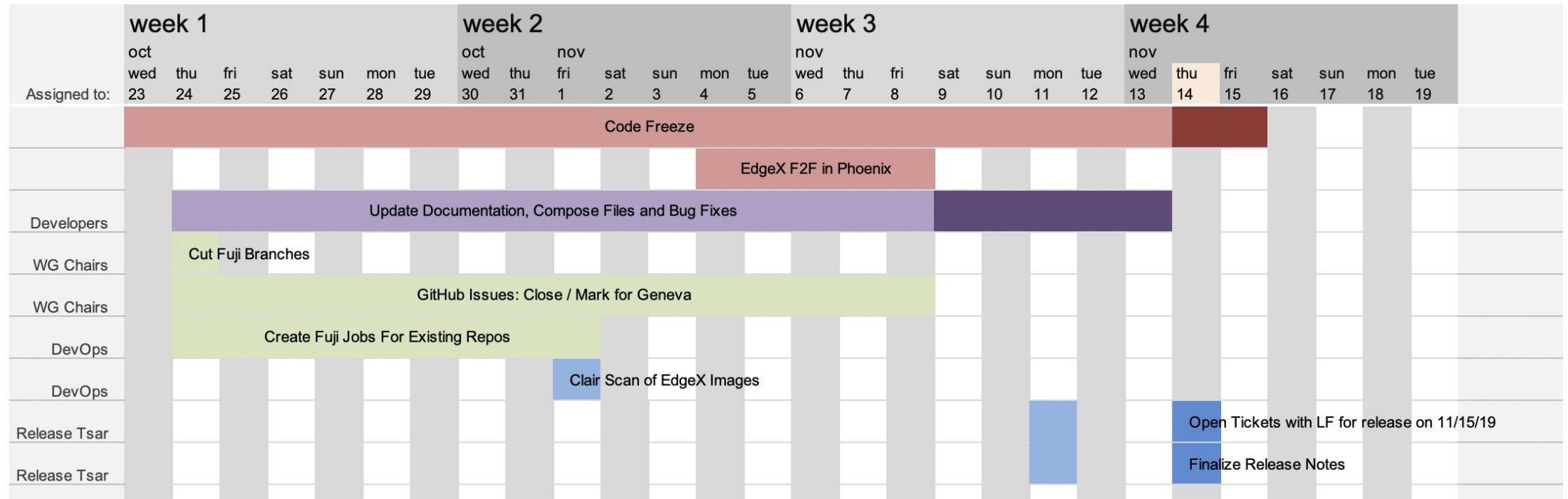
Geneva Planning

Scope Discussions

Fuji Release

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

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



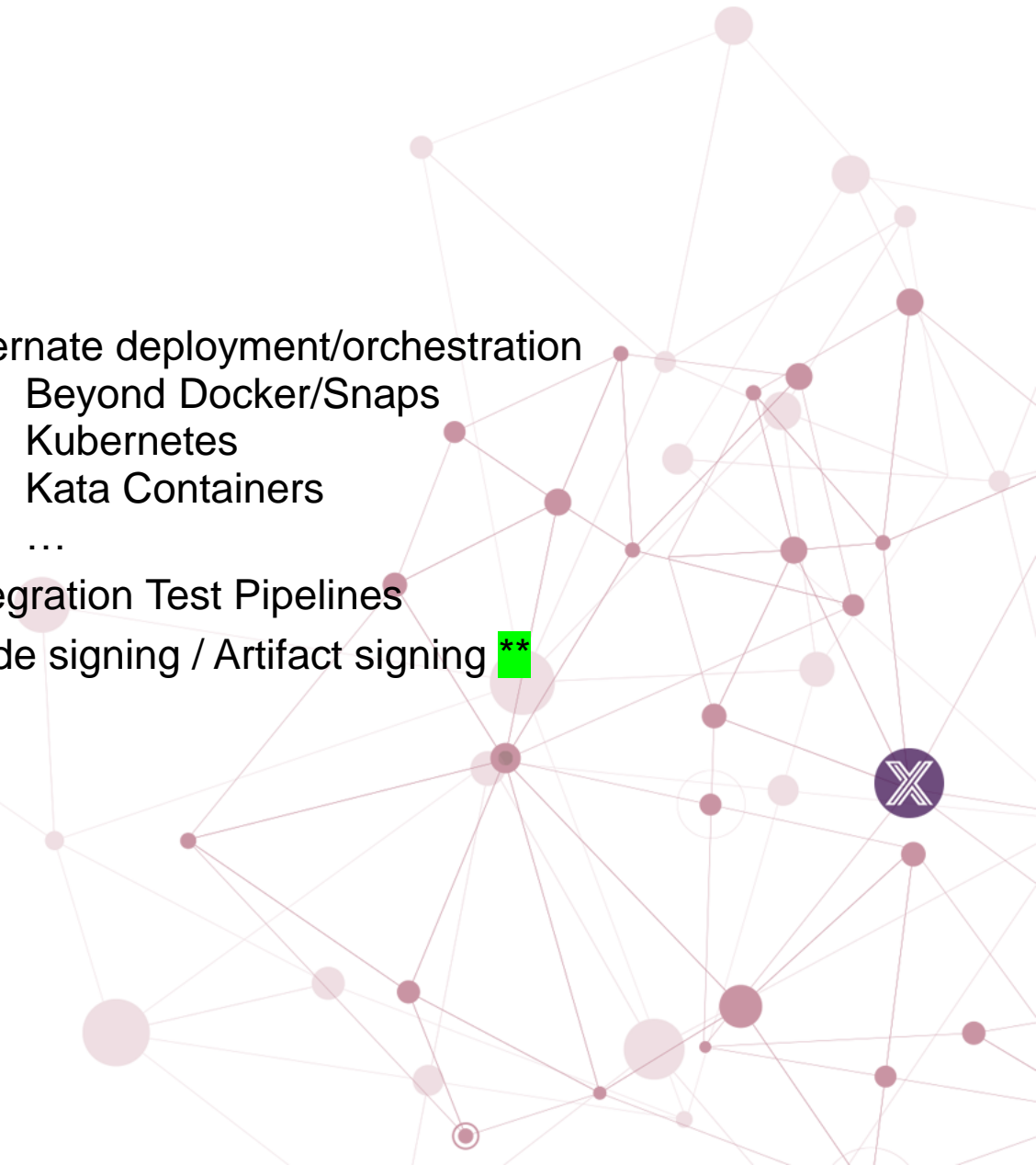
Geneva – DevOps

In

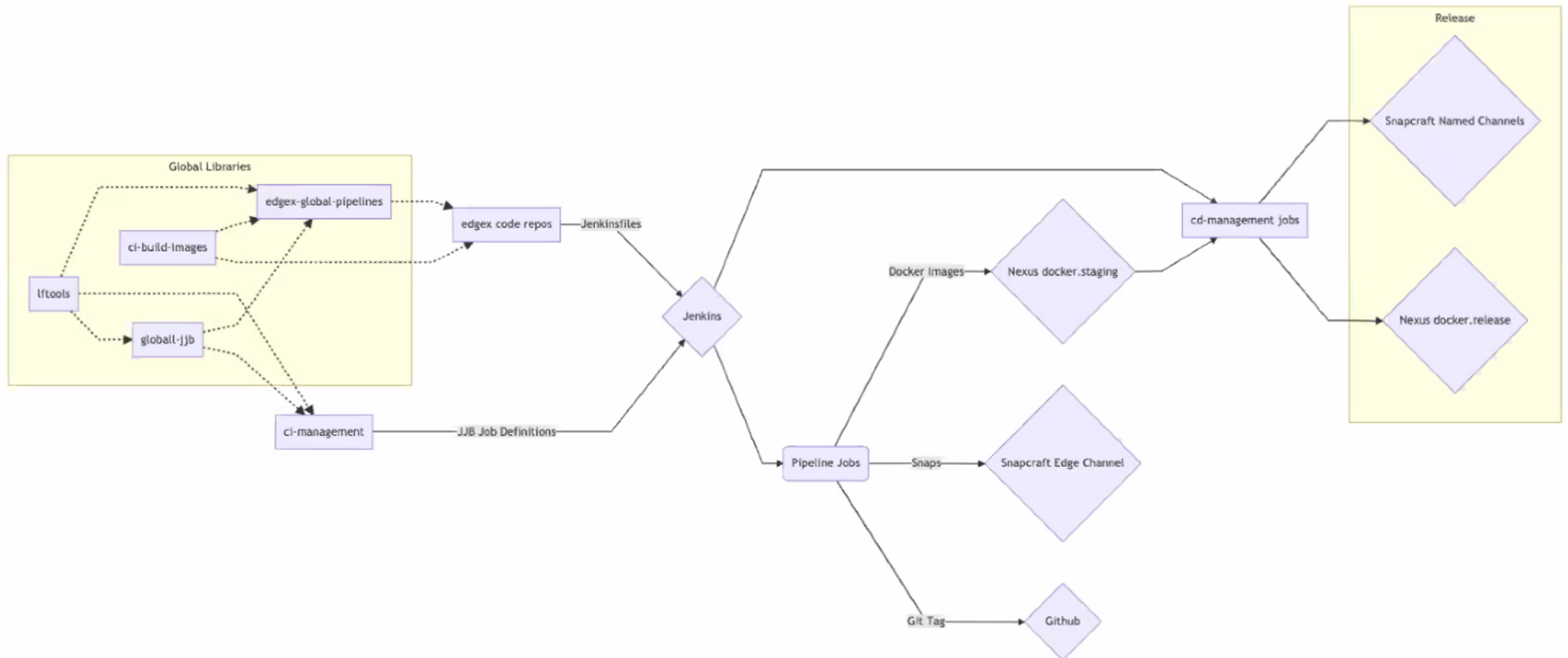
- Full Pipeline transformation for EdgeX services
 - Convert Jenkins JJB Freestyle jobs to Jenkins Pipelines
- Introduce GitHub Org Plugin
- Simplified Jenkinsfile
- Global Libraries to support Jenkins Pipeline transformation
- Add Unit testing to global-libraries (uncommitted) **
- Snyk integration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

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

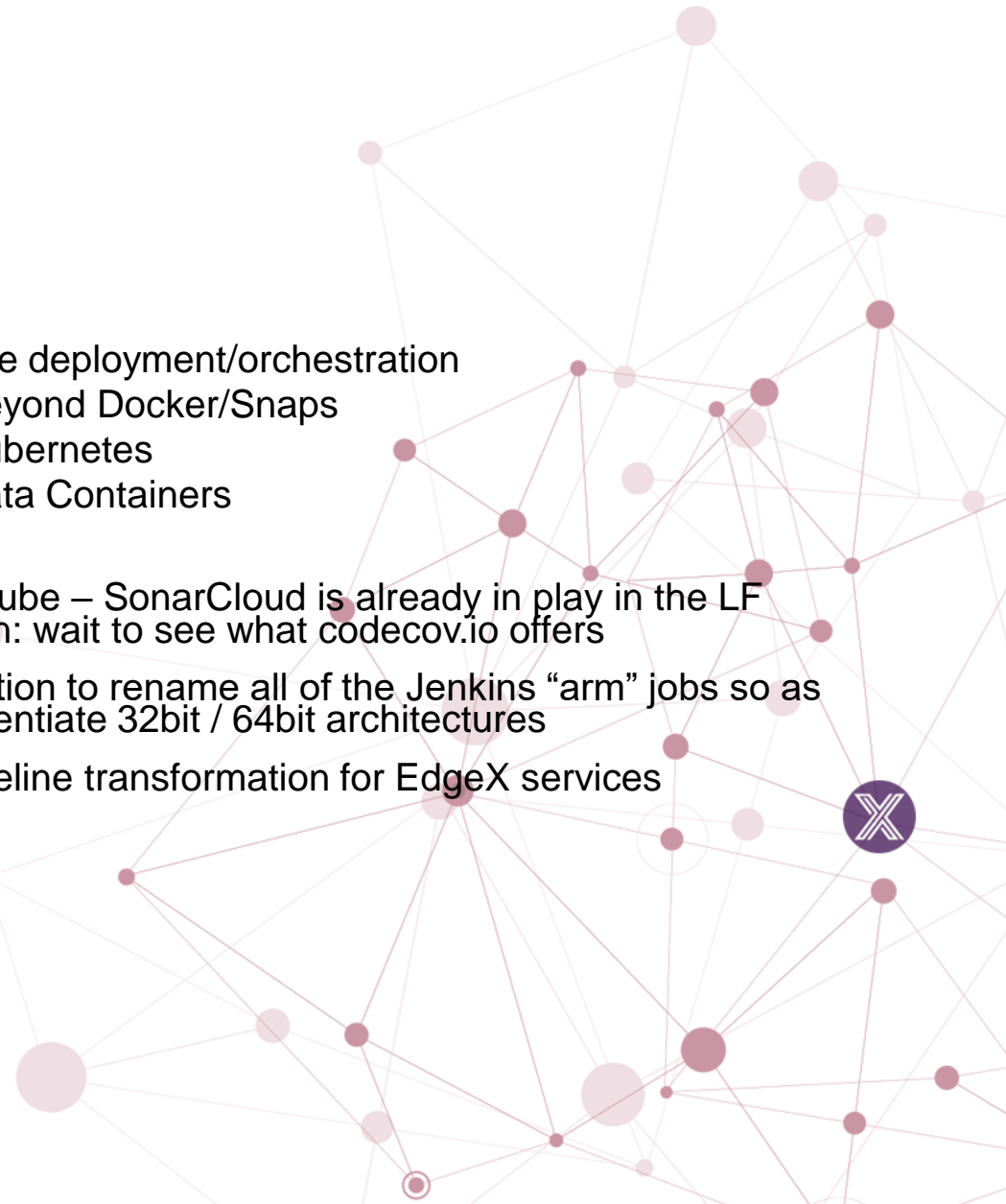
- Static code analysis tool identified and integrated into the EdgeX Jenkins Pipeline for Docker image scanning (Clair Server)

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"> • 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

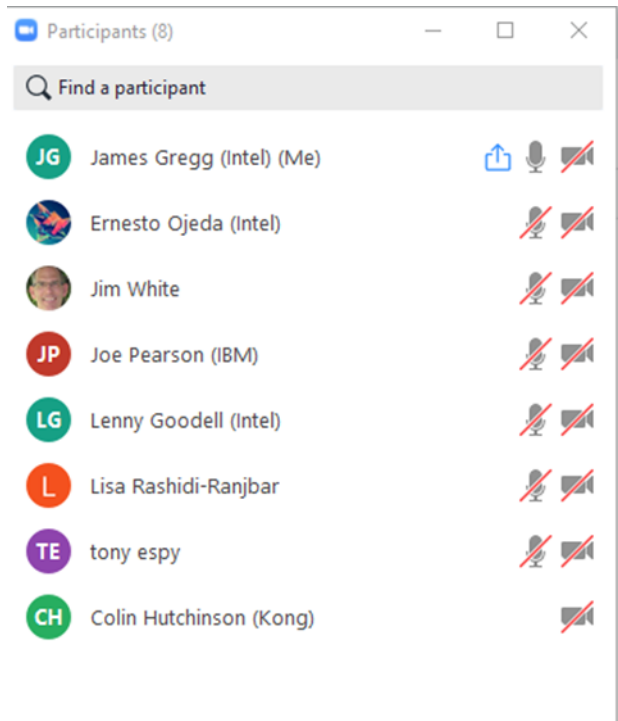


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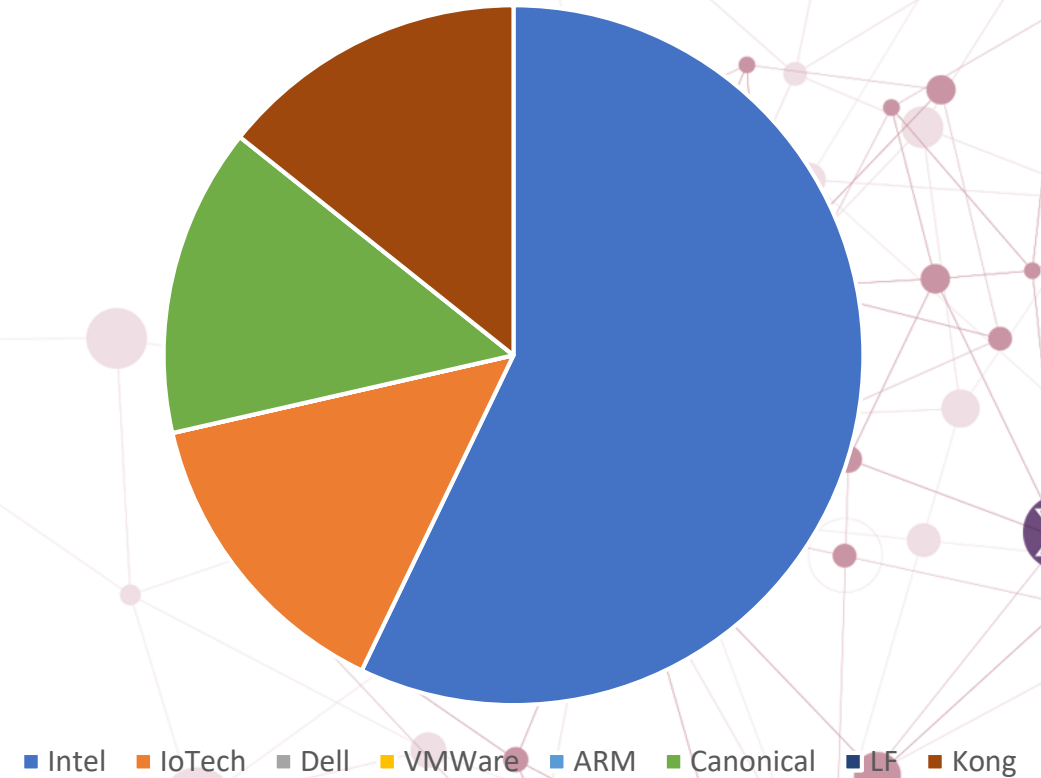
Past / Future Agenda Topics

	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
	Explore use of Buildkit
	Explore use of Kaniko
	Snyk Dashboard Review

Attendees & Community Participation – ww14




























Community Participation



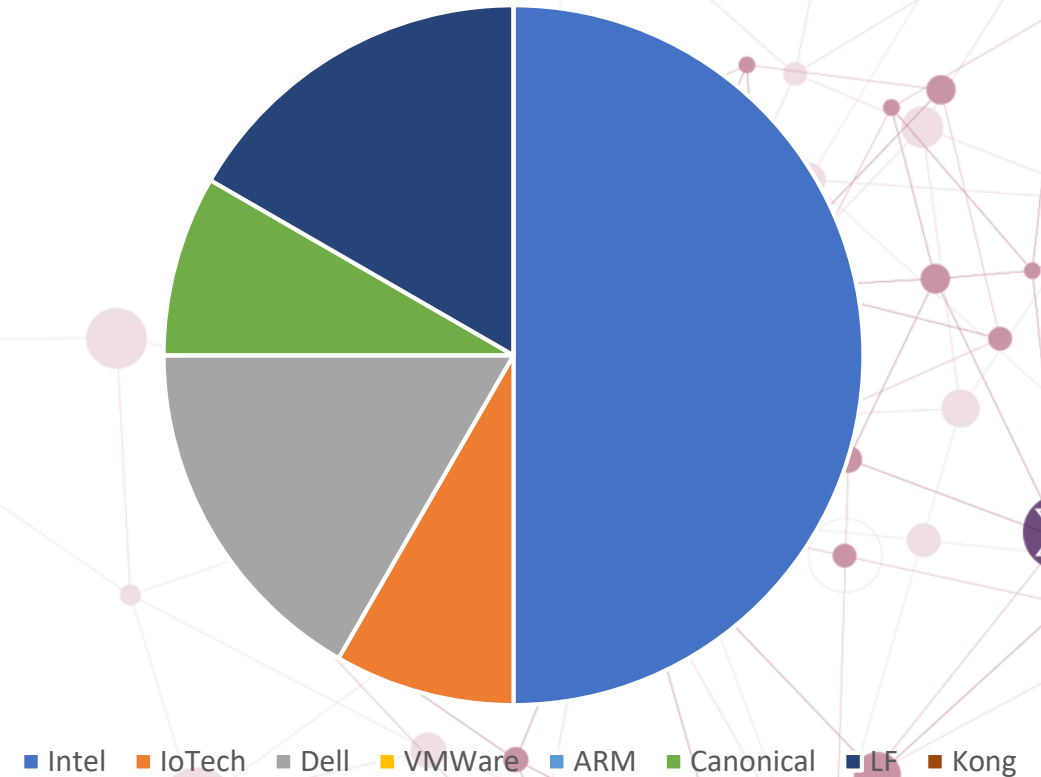
Attendees & Community Participation – ww15

Participants (12)

Find a participant

- JG** James Gregg (Intel) (Me)  
-  Andrew Grimberg (LF)  
- T** tonyespy  
- AB** Anthony Bonafide  
- BM** Bill Mahoney (Intel)  
- ER** Emilio Reyes (Intel)  
- EO** Ernesto Ojeda (Intel)  
- JP** Jeremy Phelps 
-  Jim White  
- JP** Joe Pearson (Open Horizon, IBM)  
- LG** Lenny Goodell (Intel)  
- MJ** Michael Johanson  


Community Participation



Attendees & Community Participation – ww16

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

— □ ×

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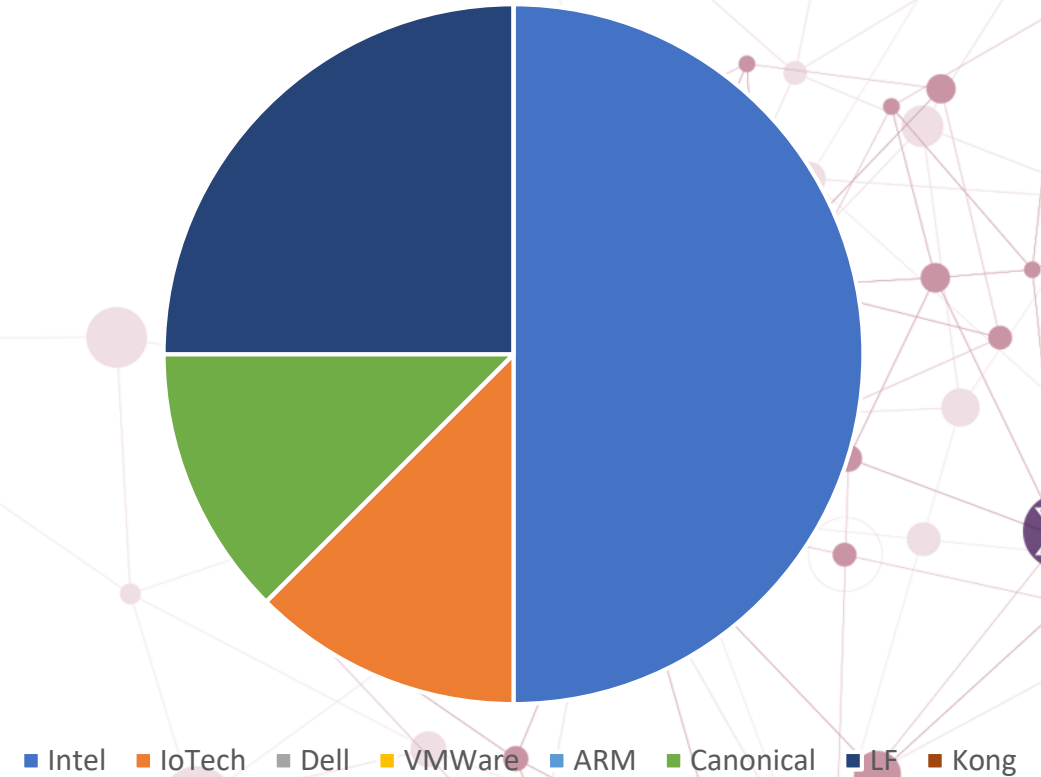
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Community Participation



Attendees & Community Participation – ww17

Participants (8)

Find a participant

- JG** James Gregg (Intel) (Me) +
- L** Lisa Rashidi-Ranjbar
- MJ** Michael Johanson
- TE** tony espy
- BM** Bill Mahoney
- ER** Emilio Reyes (Intel)
- LG** Lenny Goodell (Intel)
- WM** Walt M

Community Participation

