



EDGE X FOUNDRY™

DevOps Working Group

Thursday May 14, 2020

Agenda

Time	Topic	Owner
30 Min	Geneva Release - Opens	
10 Min	Hanoi / DevOps Updates	
10 Min	Snaps Discussion	All
10 Min	AOB / Opens	All

Attendees

Participants (11)

Find a participant

JG	James Gregg (Intel) (Me)		
LR	Lisa Rashidi-Ranjbar		
IJ	Ian Johnson		
TE	tony espy		
	Walt (Intel)		
BM	Bill Mahoney		
ER	Emilio Reyes (Intel)		
EB	Eric Ball		
EO	Ernesto Ojeda - Intel		
LG	Lenny Goodell (Intel)		
	Michael Johanson		



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

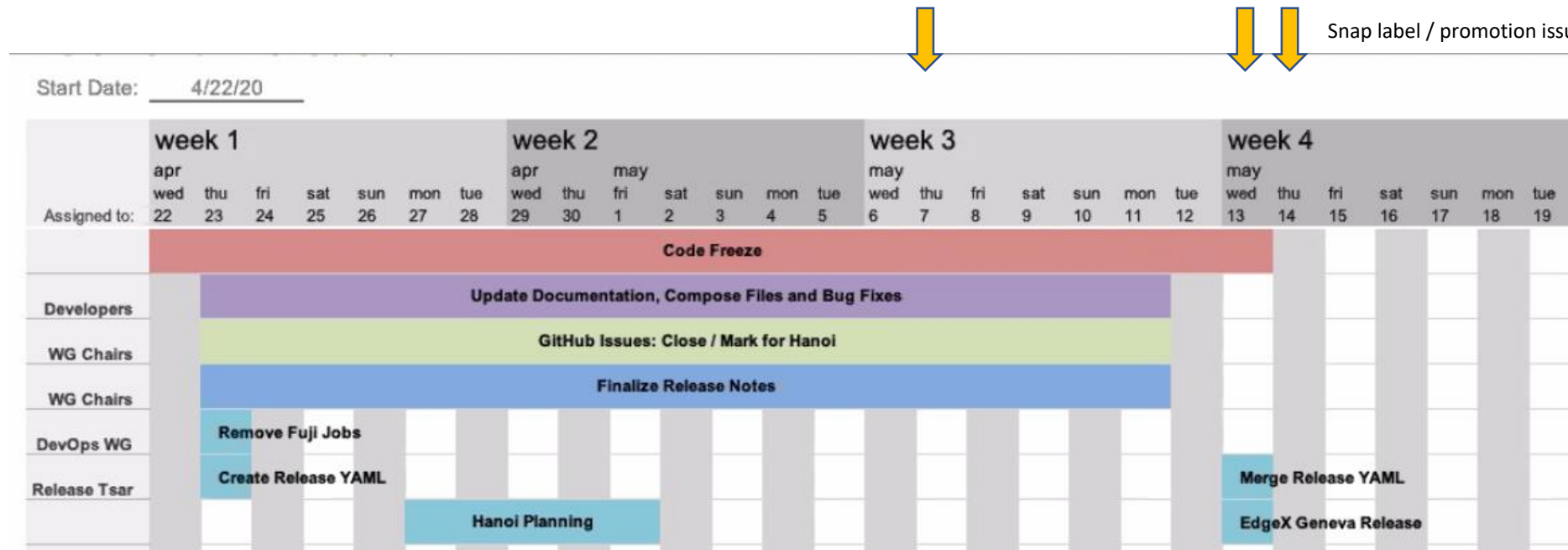
- should have been considered within review of **ADR007**

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

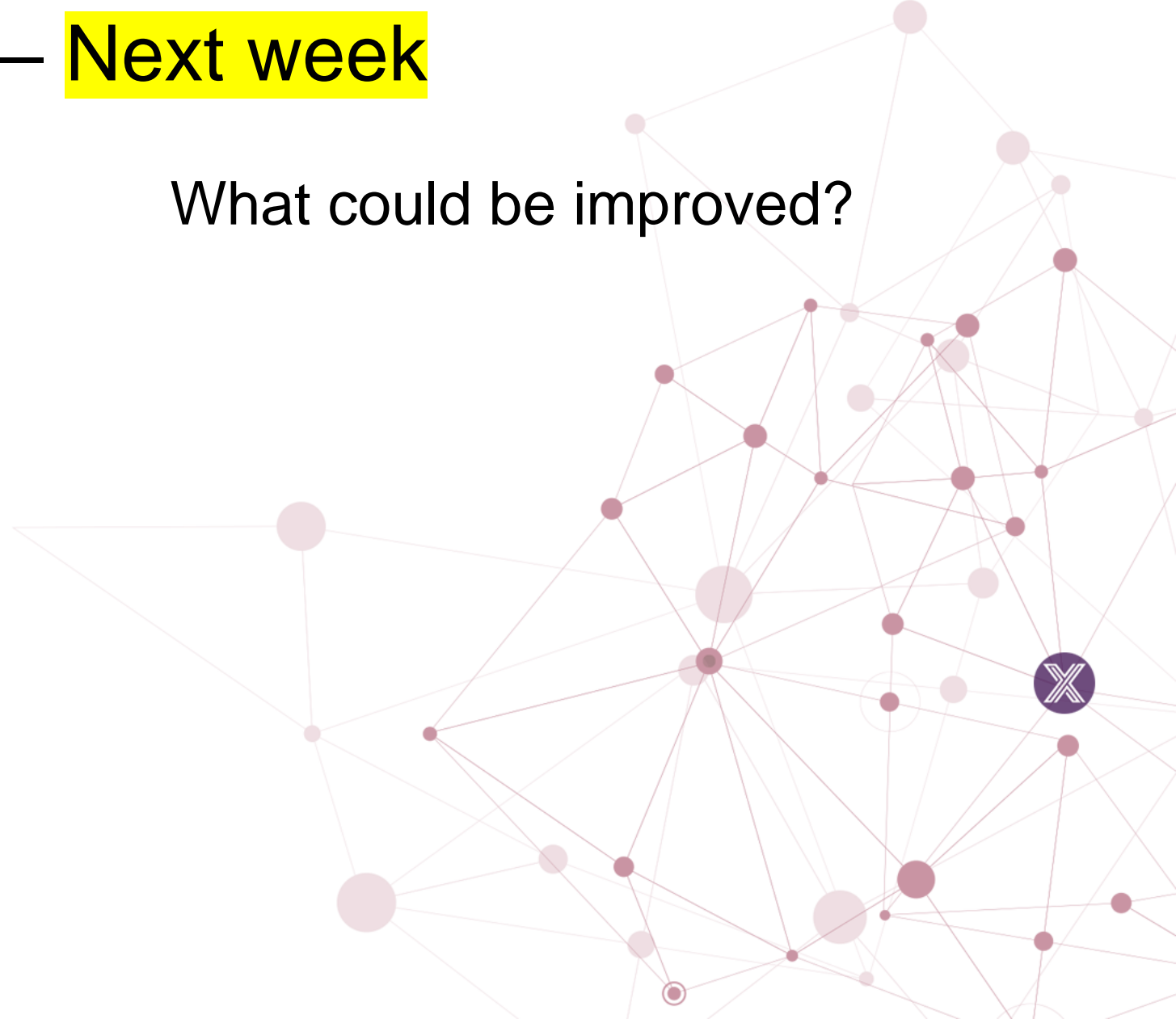


Timeline to be reviewed for Geneva Retrospective

Geneva Retrospective – Next week

What went right?

What could be improved?

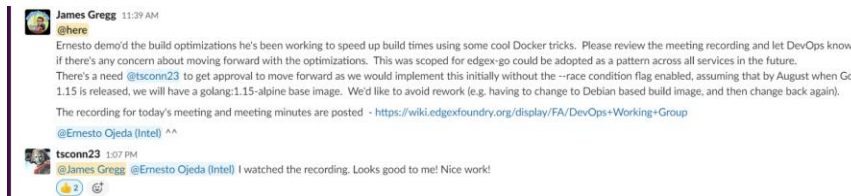


DevOps WG Update

Hanoi

• Performance Optimizations

- Build Optimizations for edgex-go
 - Explore completed and demo'd by Ernesto Ojeda with observable performance improvements in the build time
 - Trevor Conn / Core WG chair – gave green light in TSC call 05/13/20
 - Comments on review of last week's DevOps WG meeting in Slack – [#core](#) channel



• DevSecOps

- Community Bridge Feature Requests
 - Changes coming to the UI - removing export functionality of LICENSE data
- Updated Snyk CLI to address incorrect version of Go on Snyk portal
- Completed SDL milestones to allow for contribution of **ghmetrics** (automation of the paper study - [Issue #1947](#))
- Identified that Linux Foundation offers new tool - Nexus IQ (requires go.sum for all dependencies)
 - Next steps: Continue Discussion next week in [Architect's meeting](#)

• Other

- LFTools / Sigul latest version that supports Python 3.x
 - Need input from LF on alternative signing tool – LF to create a release and test, not looking at a replacement - **is sigul project abandoned?**
- GitHub Issue Labels - **ghsynch** – Refactor to Python Script [#26](#)
 - Refactored code and enhancements to include Milestones
 - Optimized to address API throttling issue

Geneva release

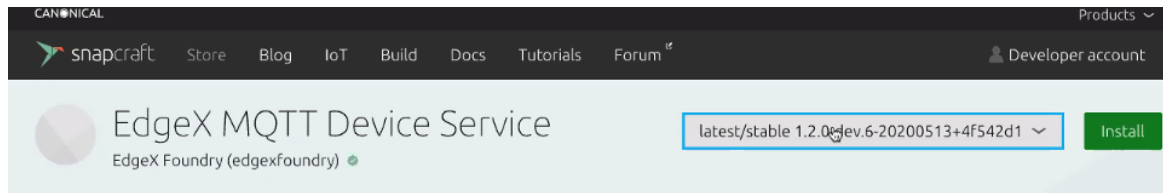
Completed	Work In Progress	Release Backlog
217 (G wrap-up /H new)	4	0

The screenshot displays the EdgeX Ffoundry Project dashboard with the following sections:

- Icebox:** Contains two issues: "edgeXSemver leaves command to caller but doesn't allow specifying the version/image to use" and "Create standard pipeline template Jenkinsfile for legacy java repos".
- New Issues:** Lists several open issues, including "EdgeX DevOps: Create code guidelines for Jenkins edgeX-global pipelines", "EdgeX DevOps: SPIKE - Needed to understand how to mock embedded functions (transitive calls)", and "Research Snyk findings for High / Medium CVEs as per CB Snyk report".
- Release Backlog:** Currently empty.
- In Progress:** Shows four items, including "New GitHub issue label creation Pipeline needs to be enhanced to include the creation of Milestones" and "EdgeX DevOps: Enhancement to the Jenkins Pipeline to add throttling to github issue label creation".
- QA/Code Review:** Features two items: "WIP: Add Geneva Release Manifest" and "Reduce the compose image size".
- Done:** A large list of 217 completed items, including "release(geneva): Release Go Device Services", "Revive old Jenkinsfile", and "release(geneva): Release Device Go SDK (v1.2.1)".

Meeting Minutes

- Snaps release needs some rework – can't manually retag in snapcraft
 - Need to fix labels - add story to backlog for Hanoi scope
 - Need to get cd to push to beta first - add story to backlog for Hanoi scope
- Issue identified with labels – cd is including the dev tag



Connect data MQTT to EdgeX using device-mqtt reference Device Service

The official reference EdgeX device-mqtt Device Service built using the device-sdk-go to interact with MQTT brokers. Initially the daemon in the snap is disabled - a device profile must be provisioned externally with core-metadata or provided to device-mqtt inside "\$SNAP_DATA/config/device-mqtt/res" before starting.

Details for EdgeX MQTT Device Service

License
Apache-2.0
Last updated

```
Processing.../released
```

Revision	Notes
110	-
110	-
110	-
239	-
942	-
1072	-
1072	-
1072	-
1072	-
1072	-
1072	-
1072	-
1072	-
1179	-



IMAGE HISTORY

#	ADD FILE ...	SIZE	COMMAND
1	ADD FILE ...	2.66 MB	
2	CMD ["@@"@"]	0 B	LABEL version:1.2.0-dev.6
3	ENV APP_PORT=8082	0 B	
4	EXPOSE 8082	0 B	
5	COPY ...	7.21 MB	
6	COPY ...	3.52 MB	
7	COPY ...	0 B	
8	LABEL ...	0 B	
9	WORKDIR ["@@"@"]	0 B	
10	LABEL ...	0 B	
11	LABEL ...	0 B	
12	LABEL ...	0 B	



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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*



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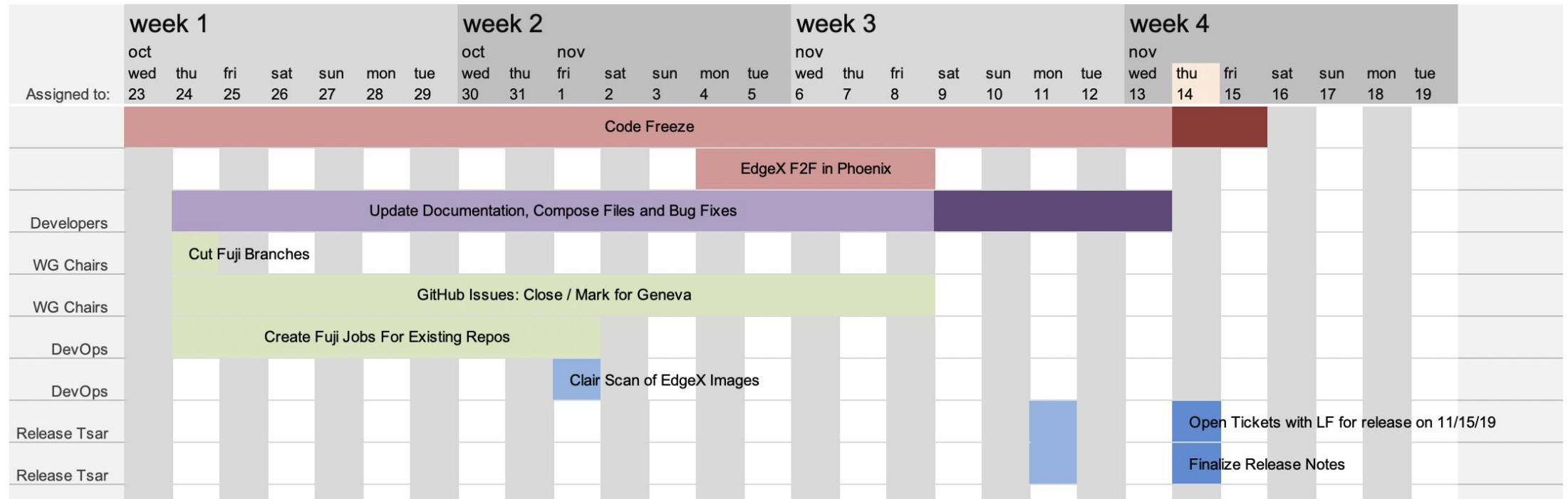
Geneva Planning

Scope Discussions

Fuji Release

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

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



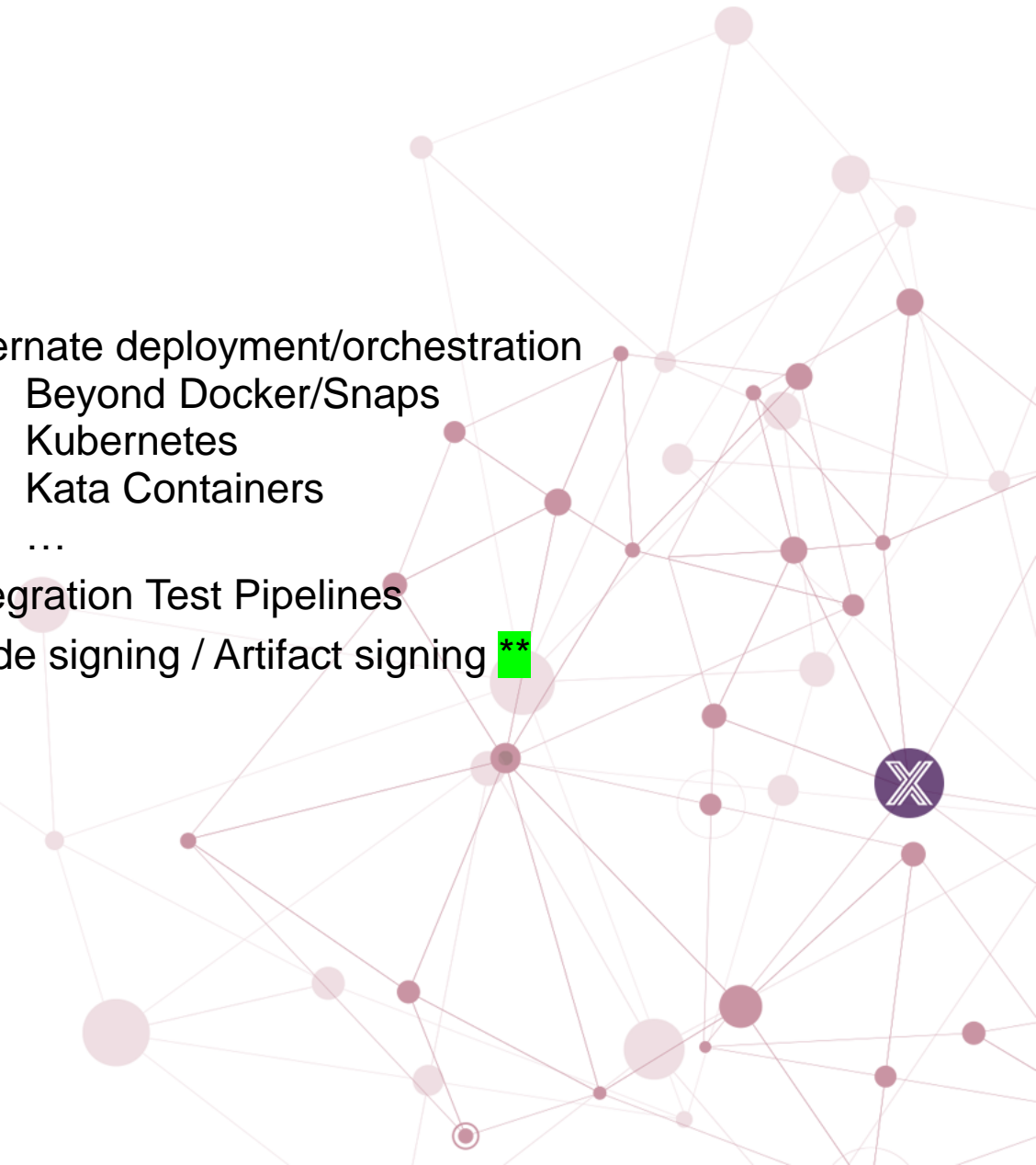
Geneva – DevOps

In

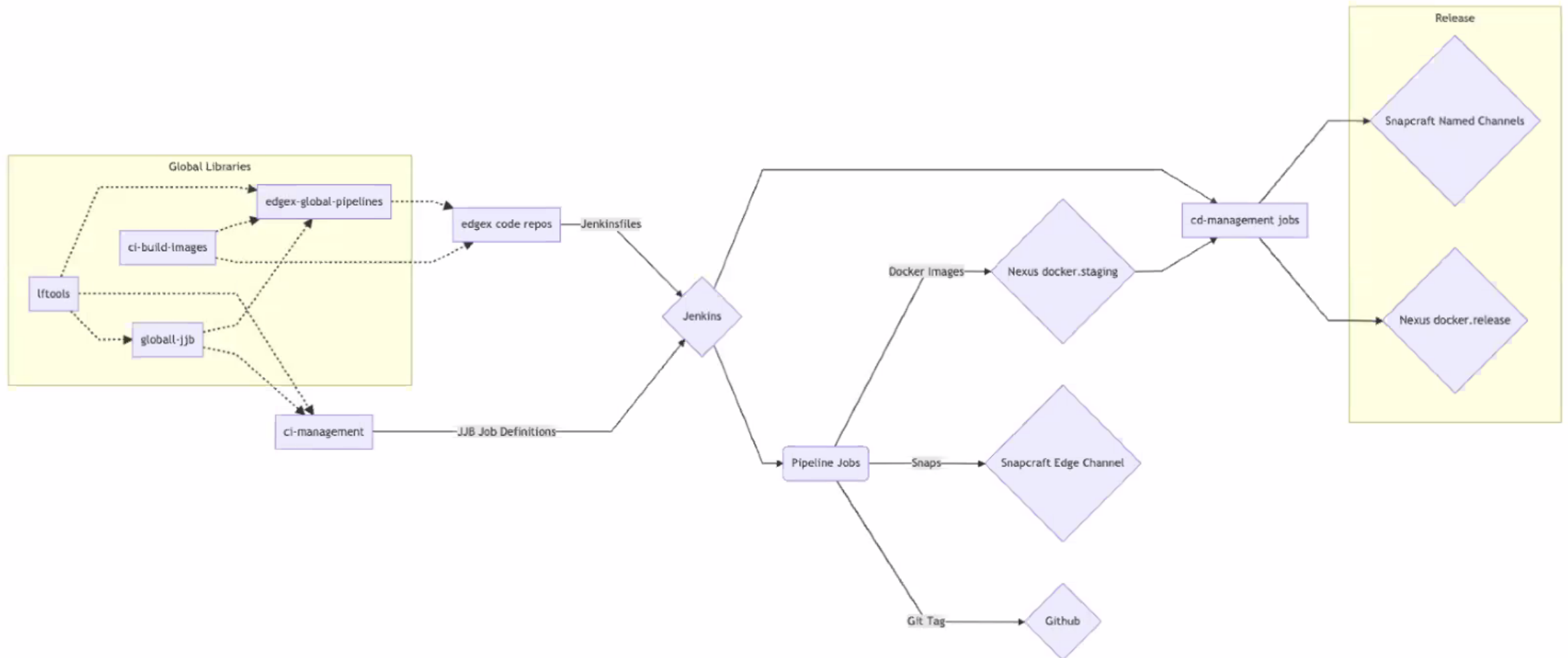
- Full Pipeline transformation for EdgeX services
 - Convert Jenkins JJB Freestyle jobs to Jenkins Pipelines
- Introduce GitHub Org Plugin
- Simplified Jenkinsfile
- Global Libraries to support Jenkins Pipeline transformation
- Add Unit testing to global-libraries (uncommitted) **
- Snyk integration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

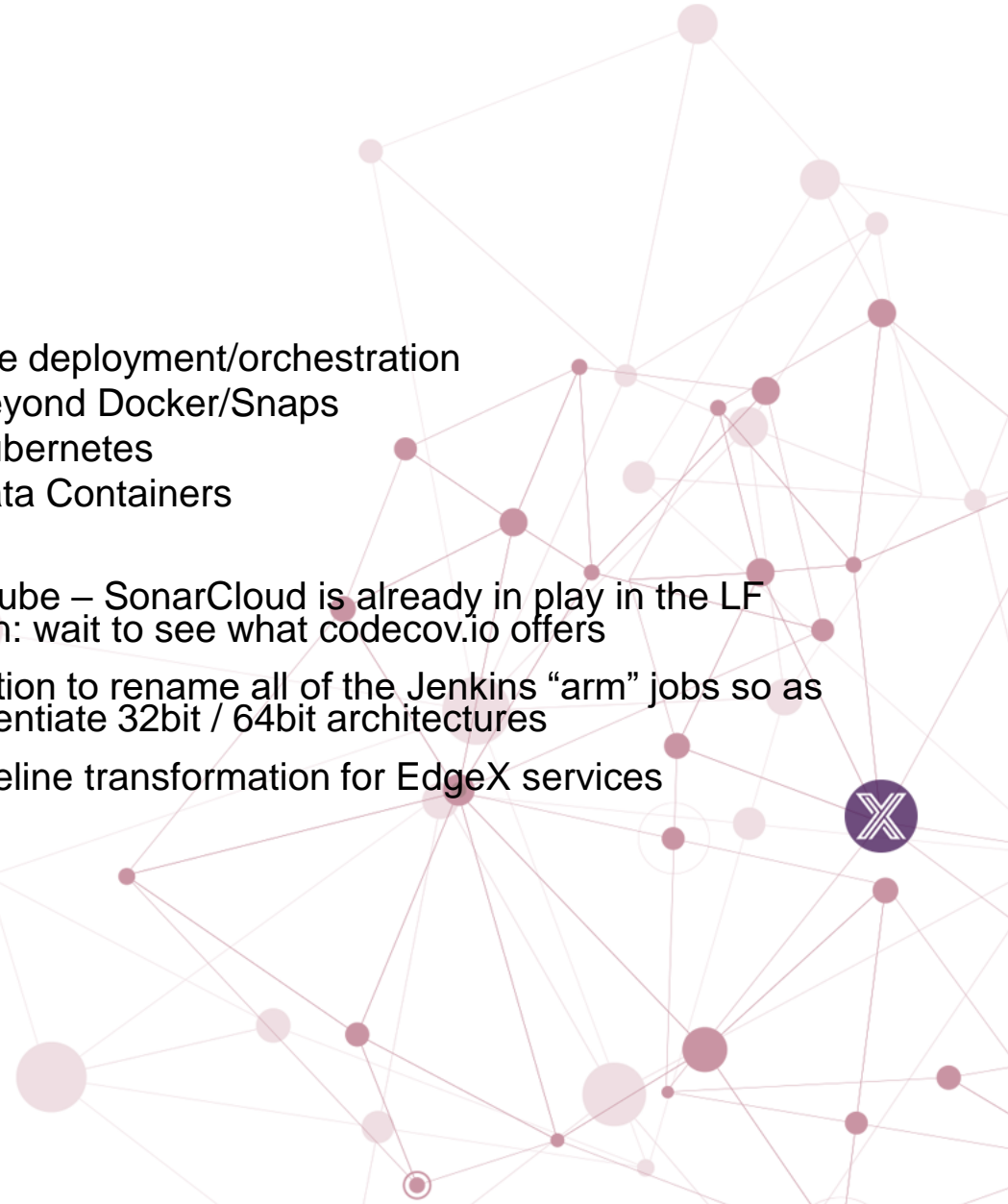
- Static code analysis tool identified and integrated into the EdgeX Jenkins Pipeline for Docker image scanning (Clair Server)

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

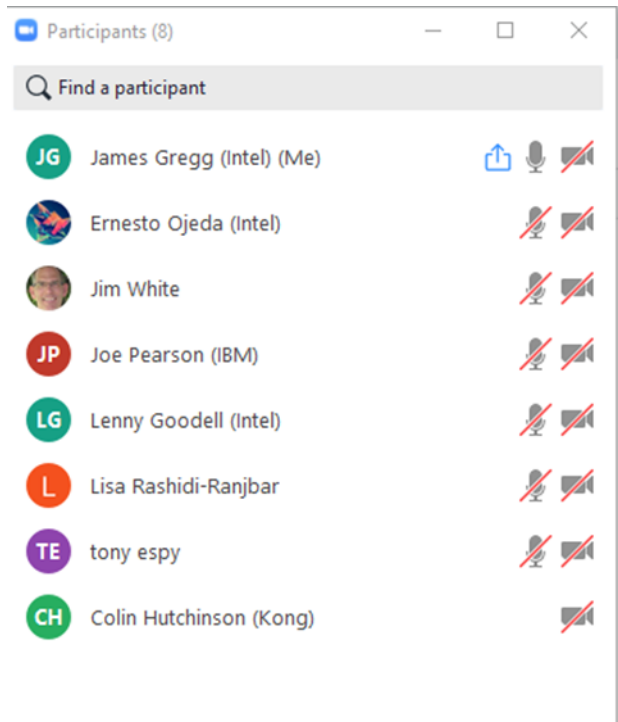


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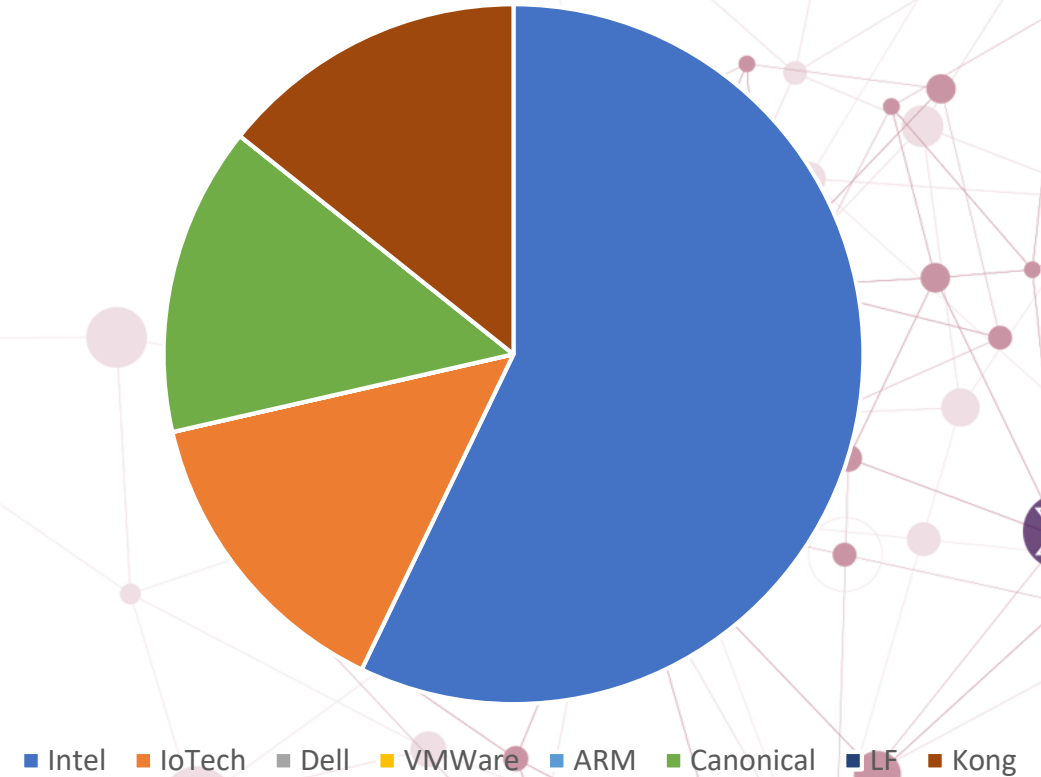
Past / Future Agenda Topics

	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



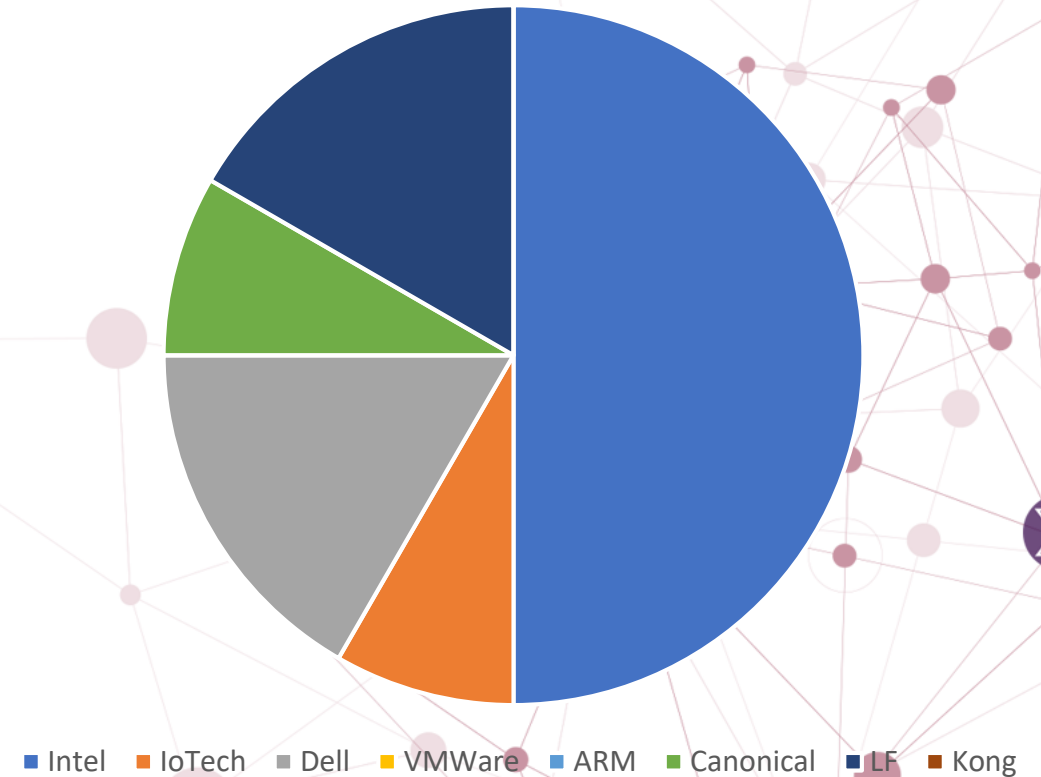
Attendees & Community Participation – ww15

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

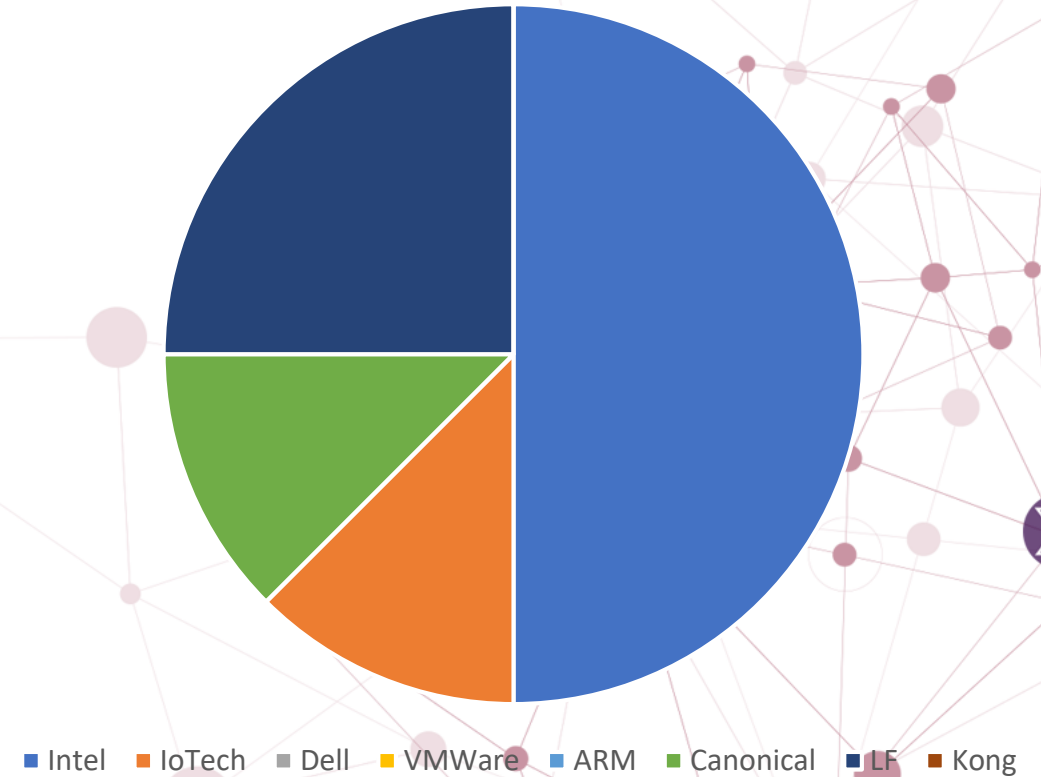
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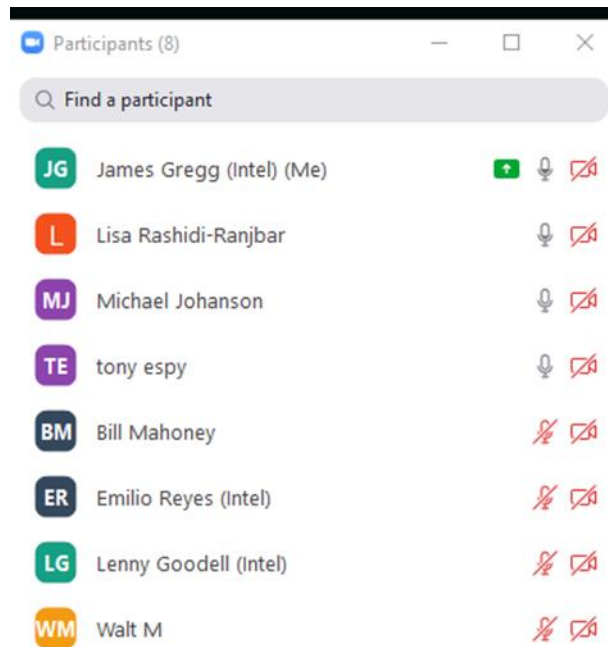
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Community Participation



Attendees & Community Participation – ww17



Community Participation

