



EDGE X FOUNDRY™

# DevOps Working Group

Thursday April 11, 2019





















# Agenda

Time	Topic	Owner
10 min	Work Review (GitHub Project)	James Gregg
2 min	Backlog Review	James Gregg
10 min	Aqua: Microscanner - Image Vulnerability Scanner	James Gregg
10 min	Performance Testing / PR #9	Andy Foster / Cloud Tsai
10 min	Fuji Planning Discussion	James Gregg / Jim White
10 min	Opens	All
Attendees:		

# Attendees

Participants (10)

Find a participant

<b>JG</b>	James Gregg (Intel) (Me)	 
<b>AF</b>	Andrew Foster	 
	Colin Hutchinson	
<b>F</b>	Felix	 
<b>I</b>	ijohnson	 
<b>JW</b>	Jim White	 
<b>LG</b>	Lenny Goodell (Intel)	 
<b>LR</b>	Lisa Ranjbar (Intel)	 
<b>TC</b>	Trevor Conn	 
<b>V</b>	Vishwas (Intel)	 



# Work Review

Helpdesk Ticket #	Description	Details	Status
69830	codecov.io config needed for edgex-go repo	On Hold - See 69422	WIP
68377	failed job related to timeout waiting for SSH	Eric Ball follow up with the team that owns VEXHOST – no progress Issue is with building new arm images – doesn't affect edgex builds decision to leave it open for now.. Circle back with VEXHOST team	WIP
70612	EdgeX ARM Builds	EdgeX Jenkins builds for ARM take twice as long if not more than x_86	WIP  Removal of InfluxDB from device services seems to have improved build times for ARM builds
69422	need to extend sigul to include additional functionality	Eric Ball plans to include in current sprint with expected completion in time for Edinburgh release.  <i>This work is prioritized over codecov.io integration.</i>  – next release Thursday (today) to include the sigul enhancements Dockerized image with sigul	WIP  Note: Needed in order to test full Jenkins Pipeline for release automation user story

# Work Review (continued)

Helpdesk Ticket #	Description	Details	Status
69600	jenkins docs job fails for /edgex-go-docs-delhi-stage-docs lftools: command not found	<p>Broken Builds for Delhi Documentation – as reported by Michael Hall – ISSUE identified with lftools – Still seeing issues as of 3/20/19</p> <p>Decision: Root Cause Analysis – plan to have this fixed with release for next Thursday</p> <p>Help Needed – Works in Sandbox but not production - needs an extra set of eyes to look at this issue.</p> <p>Eric needs some help from LF team. Needs to check init scripts – didn't fix it.</p> <p>Latest error: 401 errors from lftools upload to nexus</p>	WIP

# Backlog Review

The screenshot shows a GitHub project page for 'edgexfoundry / ci-management'. The top navigation bar includes 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below the repository name, there are tabs for 'Code', 'Issues (7)', 'Pull requests (3)', 'Projects (1)', 'Wiki', and 'Insights'. The main content area is a Kanban board titled 'Tasks' with a filter search bar and 'Add cards', 'Fullscreen' options. The board is divided into four columns:

- 7 TODO**:
  - Automate the tagging of the go library modules (go-mod-core) #306 opened by jamesgregg
  - Automate the tagging of the go library modules (go-mod-registry) #307 opened by jamesgregg
  - Kong image for arm as build image for blackbox security testing edgexfoundry/blackbox-testing#185 Added by jamesgregg
  - 1 Reference Hide
  - Kong docker image is unable to pull at arm64 env #185 opened by weichou1229 in edgexfoundry/blackbox-testing
- 5 In Progress** (highlighted with a blue border):
  - Automate the tagging of the go library modules (go-mod-messaging) #305 opened by jamesgregg
  - Build Automation for device-virtual-go BLOCKED - WAITING FOR UPDATE FROM FELIX TING Added by jamesgregg
  - Sigul (GPG signed artifacts) - needs to be done with an automated (faceless service account does the actual signing on the artifact) #304 opened by jamesgregg
  - SPIKE: Static Code Analysis tooling for EdgeX
    - Explore available FOSS options for
- 1 Test/QA/Verification/Review**:
  - new repo for docker basebuild images - create in holding Added by jamesgregg
- 17 Done**:
  - Land new infrastructure for TIG stack #298 opened by jamesgregg
  - Blackbox test to verify sandbox connection to AWS hosted Influxdb endpoint #332 opened by jamesgregg
  - Snap job failing for California branch - need to remove California stream from jib #330 opened by jamesgregg
  - docker edgex mongo image #280 opened by JPWKU
  - JJB needed for new Application Functions SDK #327 opened by jamesgregg

# SPIKE: Aqua Microscanner

- OSS uses NVD database of CVEs  
<https://github.com/aquasecurity/microscanner>
- Jenkins Plugin  
<https://blog.aquasec.com/aqua-microscanner-free-Image-vulnerability-scanning-plug-in-for-jenkins>
- Free / Limited use - 20 scans per token per day
- Wrapper can be used to scan existing images  
<https://github.com/lukebond/microscanner-wrapper>
- Fails the build of the image if it finds any Critical CVEs in the image

```
    },  
    "vulnerability_summary": {  
      "total": 24,  
      "high": 2,  
      "medium": 22,  
      "low": 0,  
      "negligible": 0,  
      "sensitive": 0,  
      "malware": 0,  
      "score_average": 5.0708346,  
      "max_score": 9.3  
    },  
    "scan_options": {},  
    "initiating_user": "token",  
    "data_date": 1543020471,  
    "changed_result": false,  
    "function_metadata": {}  
  }  
}
```

```
    },  
    "vulnerability_summary": {  
      "total": 3,  
      "high": 0,  
      "medium": 3,  
      "low": 0,  
      "negligible": 0,  
      "sensitive": 0,  
      "malware": 0,  
      "score_average": 4.3,  
      "max_score": 4.3  
    },  
    "scan_options": {},  
    "initiating_user": "token",  
    "data_date": 1543020471,  
    "changed_result": false,  
    "function_metadata": {}  
  }  
}  
Removing intermediate container 5bfeaf66b9d7  
--> cf22e35afee2  
Successfully built cf22e35afee2  
Successfully tagged golang-microscanner-base:latest  
ad_jrgregg@rsddevops06:~/projects/edgexfoundry/ci-management/docker/golang-base$
```

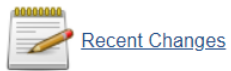
# Next Steps

- Continue the SPIKE with look at Clair / Klar
- Cost Analysis
- Scope the Work involved to implement in the CodePipeline
- Ian will share the process – post to DevOps Slack



# Performance Testing

## Pipeline performance-testing-master



### Stage View

	Start EdgeX Client	== EdgeX Host 1 ==	== EdgeX Host 2 ==	== EdgeX Host 3 ==	before test	== Start Test - JMeter ==	Shutdown container	== Clean edgeX Host 1 ==	== Clean edgeX Host 2 ==	== Clean edgeX Host 3 ==
Average stage times:	121ms	2min 3s	1min 46s	1min 46s	74ms	63ms	97ms	193ms	205ms	170ms
#5 Apr 10 01:41 No Changes	82ms	2min 24s failed			50ms failed	59ms failed	97ms	135ms failed	138ms failed	148ms failed
#4 Apr 10 01:30 No Changes	123ms	2min 30s failed			172ms failed	101ms failed	108ms	112ms failed	121ms failed	169ms failed
#3 Apr 10 01:25 No Changes	97ms	1min 44s failed	1min 44s failed	1min 44s failed	51ms failed	45ms failed	88ms	173ms failed	172ms failed	151ms failed
#2 Apr 10 01:23 No Changes	111ms	1min 39s failed	1min 39s failed	1min 39s failed	54ms failed	57ms failed	75ms	142ms failed	180ms failed	185ms failed

# Meeting Minutes

- Jim coordinated with ARM team and James shared build node details. ARM builds taking twice as long as non-ARM.
- Trevor recommended we ask a guest speaker to present to us what NVIDIA is doing with regards to some of the additional security validation processes they use which take advantage of some OSS tooling. Guest speaker will join DevOps WG on 4/18/19.
- Continue SPIKE on Image Scanning tools – Clair / Klar
- Performance Testing – Sandbox job implemented by IoTech team using Jenkins Pipeline – Good Job!
- Andy / QA-Testing WG will have additional scope of work for Fuji which will require DevOps help. New testing framework adoption should comprehend end to end architecture and logistics to fully implement device testing.



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# Fuji Planning

Scope Discussions

# Proposed Fuji – Test/QA/Documentation

## In

- More unit tests everywhere (better coverage)
- More black box tests
- Automated system level latency and throughout testing (e.g. device read to export or device read to analytics to device actuation)
- Automated Device Service testing (functional and performance for each Device Service e.g. Modbus DS)
- Propose additions???
- - performance testing

## Out

- Configuration testing
  - Existing testing uses a single static configuration
  - Need to identify and add additional testing configurations to automated blackbox testing
- Tracing
  - During testing, configuration
  - Candidate tools/technology based on OpenTracing standard: Zipkin, Jaeger
- Propose additions???

# Proposed Fuji Planning – DevOps

## In

- Static code analysis
- Code and artifact signing (covered in Edinburgh with sigul enhancements)
- Go Code formatting check – REMOVE (Worked into the developer flow)
- Propose additions???
- Pipeline transformation for EdgeX services
  - prioritize what gets worked in Fuji since it will be a smaller release
- - basebuild docker images published to Docker Hub or Nexus ??
- SonarQube – SonarCloud is already in play in the LF
- Additional Performance Testing
- Fix Documentation
- Technical Debt
  - Address proxy server timeouts / authentication issues
  - Basebuild docker images local to Jenkins
- Performance Issues (network timeouts) arm vs. non-arm builds (Verify jobs take a long time to start)
- Suggestion to rename all of the Jenkins “arm” jobs so as to differentiate 32bit / 64bit architectures.

## Out

- Alternate deployment/orchestration
  - Beyond Docker/Snaps
  - Kubernetes
  - Kata Containers
  - ...
- Propose additions???



# Backlog Review

- What else do we need to consider?
  - Backlog review
    - <https://wiki.edgexfoundry.org/display/FA/Backlog>
  - Edinburgh Roadmap review (what did we not get done)
    - <https://wiki.edgexfoundry.org/display/FA/Edinburgh+Release>
- New additions/opens
  - Jenkins Pipelines will require basebuild Docker images
  - Proxy Server Issues (Timeouts observed WW15 pulling from Docker Hub)
  - Real performance testing will require dedicated physical hardware set up on a lab so that the EdgeX stack (microservices) are orchestrated to the different appliances
    - Need physical hardware and physical location for real testing



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# Edinburgh Release

Release Planning

# Edinburgh Dates

- Freeze Date – May 28
- Release Date – June 20







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# Future Agenda Topics

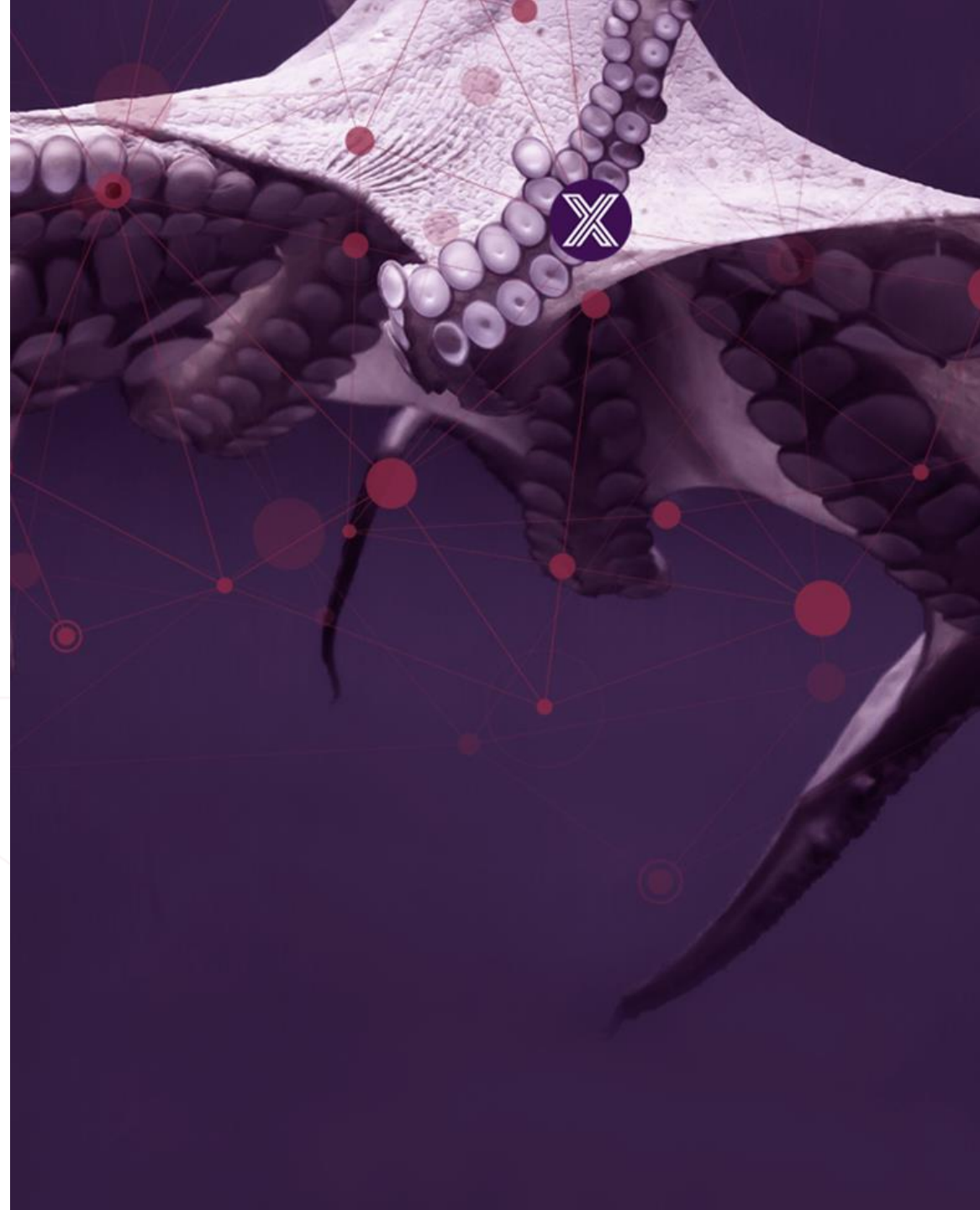
WW14	Documentation migration – edgex-go user documentation
WW14	Topics for Fuji F2F Jenkins Pipelines for EdgeX services
WW15	Review Aqua Microscanner – Image scanning tool for Vulnerabilities
WW16	NVIDIA – Security tooling within CodePipeline (Trevor request) 4/18/19
WW18	<a href="#">Athens Project</a> – proxy server for go package dependencies
	Community Involvement

The background features a detailed illustration of an octopus in shades of purple and blue. A network of red lines and dots is overlaid on the octopus, suggesting a digital or IoT theme. A small circular logo with a white 'X' on a dark blue background is positioned near the octopus's head.

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# EdgeX DevOps Discussion

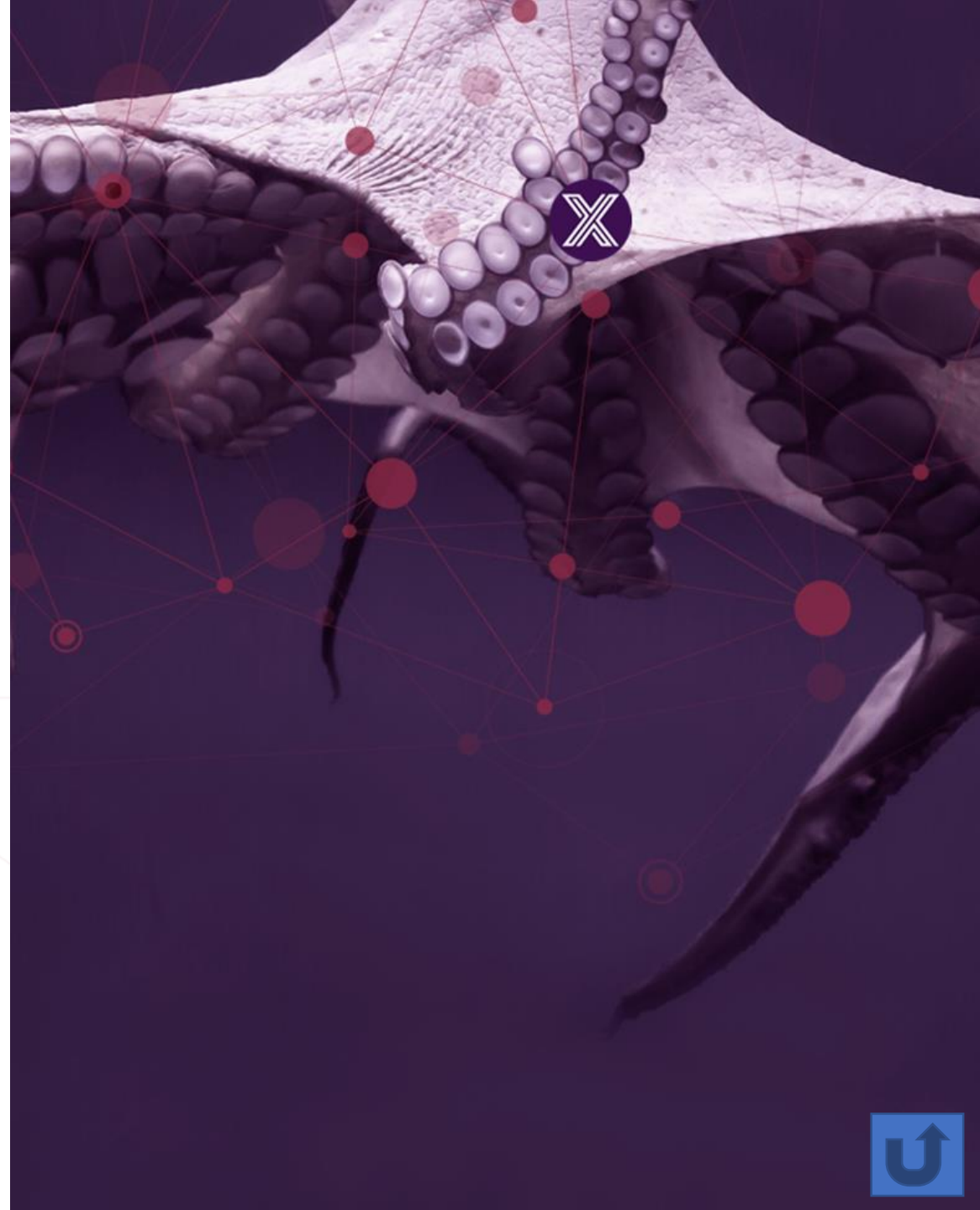
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# Future Roadmapping

Beyond Fuji

# Future Roadmaps

- What moves to Geneva
  - What's the major theme(s) for spring release
- Do we have plans for Hanoi
- What are some big rocks we want to set out as markers for the next few releases