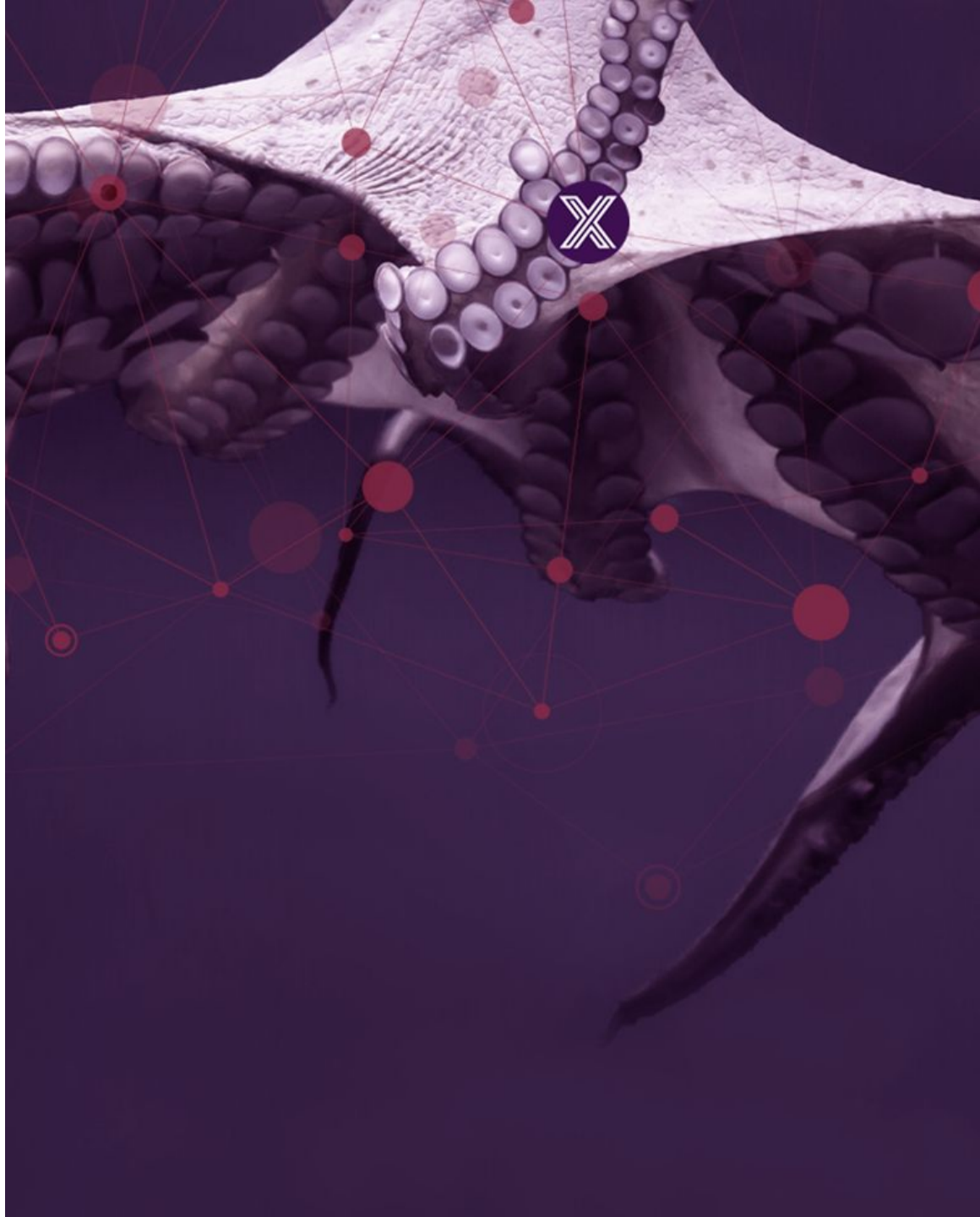
EDGE X FOUNDRY™

TSC Meeting

Nov 2, 2022



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Meeting Logistics

Time: Wednesdays 8am PDT – 9am PDT

Join from PC, Mac, Linux, iOS or Android: https://zoom.us/j/983155298

Or iPhone one-tap (US Toll): +14086380968,983155298# or +16465588656,983155298#

Or Telephone:

Dial: +1 408 638 0968 (US Toll) or +1 646 558 8656 (US Toll)

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+1 877 369 0926 (US Toll Free)

Meeting ID: 983 155 298

International numbers available: https://zoom.us/zoomconference?m=mkFexUxEcqHlvXHw53PqScTDRvS48PiQ

** TSC calls are recorded and added to Wiki post-call

TSC – Members Present Today

Company	Name	Email	Position
IOTech	Iain Anderson	iain@iotechsys.com	Device Services WG Chair
Intel	Ernesto Ojeda	ernesto.ojeda@intel.com	Dev Ops WG Chair
Intel	Bryon Nevis	bryon.nevis@intel.com	Security WG Chair
Intel	Lenny Goodell	leonard.goodell@intel.com	Applications & Analytics WG Chair
IOTech	Cloud Tsai	cloud@iotechsys.com	Core & Test/QA WG Chair

At Large Members:

Gavin Lu (VMWare), Farshid Tavakolizadeh (Canonical), Melvin Sun (Intel), James Butcher (IOTech), Tom Brennan (Eaton)

Current quorum = 7 members

Note: Quorum for TSC meetings requires at least fifty percent of all voting members of the TSC to be present. The TSC may continue to meet if quorum is not met, but will be prevented from making any decisions at the meeting. Except as provided in Section 7.c. and 8.a, decisions by vote at a meeting require a majority vote of those in attendance, provided quorum is met. Decisions made by electronic vote without a meeting require a majority vote of all voting members of the TSC.

Today’s Agenda

- OpenSSL Vulnerability Issues
- WG updates
- ADR and UCR updates
- Doc updates
- Miscellaneous - EdgeX TAC voting role (Henry Lau stepping down)

OpenSSL Vulnerability Issue

"The OpenSSL team plans to disclose the vulnerability at the time they release the 3.0.7 fix tomorrow, November 1 between 1300 and 1700 UTC. Details will be made public at that time"

- Seems no code changes required for EdgeX, more about updating the images with this dependency
- EdgeX and third party SW (Redis, Kong, Postgres, etc?). Expected timescales?
- Impact on 2.3 Levski release?
- Jakarta LTS patches needed?
- Currently expecting to continue with Minnesota Planning Week as planned

CVE Details

Bryon: Looks like they are walking back from CRITICAL. IMO we are not affected by either. Our Kong instance does not request client authentication, and thus a client would be unable to supply a malicious cert to the server. For the server cert, we can assume the administrator will not configure the box with a malicious one.

It's also been pointed out on the tech blogs that this only affects openssl 3.x branches, which hardly anyone uses yet (alpine stills ships with 1.x)

CVE-2022-3786 (OpenSSL advisory) [HIGH severity] 01 November 2022:

> A buffer overrun can be triggered in X.509 certificate verification, specifically in name constraint checking. Note that this occurs after certificate chain signature verification and requires either a CA to have signed a malicious certificate or for an application to continue certificate verification despite failure to construct a path to a trusted issuer. An attacker can craft a malicious email address in a certificate to overflow an arbitrary number of bytes containing the `.' character (decimal 46) on the stack. This buffer overflow could result in a crash (causing a denial of service). In a TLS client, this can be triggered by connecting to a malicious server. In a TLS server, this can be triggered if the server requests client authentication and a malicious client connects. Reported by Viktor Dukhovni.
>
> - Fixed in OpenSSL 3.0.7 (git commit) (Affected 3.0.0,3.0.1,3.0.2,3.0.3,3.0.4,3.0.5,3.0.6)

CVE-2022-3602 (OpenSSL advisory) [HIGH severity] 01 November 2022:

> A buffer overrun can be triggered in X.509 certificate verification, specifically in name constraint checking. Note that this occurs after certificate chain signature verification and requires either a CA to have signed the malicious certificate or for the application to continue certificate verification despite failure to construct a path to a trusted issuer. An attacker can craft a malicious email address to overflow four attacker-controlled bytes on the stack. This buffer overflow could result in a crash (causing a denial of service) or potentially remote code execution. Many platforms implement stack overflow protections which would mitigate against the risk of remote code execution. The risk may be further mitigated based on stack layout for any given platform/compiler. Pre-announcements of CVE-2022-3602 described this issue as CRITICAL. Further analysis based on some of the mitigating factors described above have led this to be downgraded to HIGH. Users are still encouraged to upgrade to a new version as soon as possible. In a TLS client, this can be triggered by connecting to a malicious server. In a TLS server, this can be triggered if the server requests client authentication and a malicious client connects. Reported by Polar Bear.
>
> - Fixed in OpenSSL 3.0.7 (git commit) (Affected 3.0.0,3.0.1,3.0.2,3.0.3,3.0.4,3.0.5,3.0.6)

EDGE X FOUNDRY™

Work Group Updates

Chairs

Working Group Chair Updates

- Around the horn
  - Product Manager - Lenny Goodell
  - Applications - Lenny Goodell
  - Core - Cloud Tsai
  - Device Services - Iain Anderson
  - DevOps - Ernesto Ojeda
  - Release Czar - Bill Mahoney
  - Security - Bryon Nevis
  - PRC Updates - Melvin Sun and Gavin Lu
  - Outreach and Marketing
    - Certification - Rodney Hess
    - Vertical Solutions (and LF Edge TAC) - Henry Lau

Product Manager (11/01/22) - Levski

Cross Cutting Issues

Icebox (3)

- Lite Builds (no security features) via Build Tags
- Go 1.19 (**https://tip.golang.org/doc/go1.19**)
- Microservice Auth

Backlog (0)

-

In Progress (1)

- **Levski Change Logs**
  - go-mods - **DONE**
  - App SDK - **DONE**
  - APP Services - **DONE**
  - Go Device SDK - **DONE**
  - edgex-go - TBD
  - Device Services - TBD

Done (11)

- Commands via MessageBus (aka N/S MessageBus)
- Additional Metrics for Levski (more in Minnesota)
- NATS Make targets and compose
- Secure MQTT MessageBus
- Request new Consul token on Auth failures
- System Events (aka CPE) (UC/ADR/Impl)
- Go 1.18
- NATs MessageBus
- Explore goweight to see impact of individual libs (nothing actionable)
- eclipse/paho.mqtt.golang 1.4.1 (License update to v2.0)
- Securing Consul with Access Token

Applications WG Update (11/01/22) - Levski

Newly Completed (6)

- Client initialization breaks backward compatibility #1206
- Cloud Export example transform always error with "Unexpected type received" #133
- App SDK Levski change log
- ASC Levski change log
- App RFID LLRP Levski change log

New (0)

WIP (0)

Done for Levski (51)

Backlog (8)

- https://github.com/orgs/edgexfoundry/projects/50/views/2

Jakarta Bug:

- Updated value of perTopicPipeline didn't enabled before restarting service #1187 (**medium**)
  - Work around is to restart the service

ICE BOX (12)

- Leftovers not planned of completed for Levski and old low issues

3.0 ICE BOX (10)

Next

- Levski Release and Minnesota planning

eKuiper

- 1.7.0 has been released
  - https://github.com/lf-edge/ekuiper/releases/tag/1.7.0
- 1.7.1 in progress
  - https://github.com/lf-edge/ekuiper/milestone/13
  - Built with testing with latest WIP modules
  - Will provide image to Lenny to test with NATs enables
  - Will be released once have release modules from Edgex
  - Includes other fixes beyond support for Levski
- 1.8.0 is planned for January release
  - https://github.com/lf-edge/ekuiper/milestone/14

New Project Board: https://github.com/orgs/edgexfoundry/projects/50/views/2

Next meeting **November 29th, 2022 @ 3:30pm AZ**

Application Services - Levski

Functions (built into SDK)

- Add Tags
- Batch
- Compression (GZIP & ZLIB)
- Conversion (XML & JSON)
- PushToCore ** **DEPRECATED****
- **EventWrapper - NEW**
- Encryption (AES256)
- Encryption (AES) ** **DEPRECATED****
- Export
  - MQTT
  - HTTP POST & PUT
- Filtering
  - By Profile Name
  - By Device Name
  - By Source Name
  - By Resource Name
- JSONLogic
- Set Response Data
- **ToLineProtocol (transforms Metric DTO) - NEW**

Features

- Store and Forward
- Batch and Send
- Web Server
- Configurable App Service
- Vault Integration for Secrets
- MQTT Event triggers
- Filter by Topics
- Custom Triggers
- Publish Topics and URL Placeholders
- Structure Custom Configuration
- Background Publishing
- Received Topic
- Context Storage
- Service Metrics - **NEW**
- Clients
  - Logging, Event
  - Command
  - Device, DeviceService
  - DeviceProfile
  - Notification
  - Subscription
  - Registry

Reference/Example App Services

(built on top of SDK)

Released Services

- App Service Configurable
- App RFID LLRP Inventory

Examples

- Simple Filter
- Simple Filter and MQTT Export
- Simple Filter and HTTP Export
- Simple CBOR
- Cloud Export
- Cloud Event Transformation
- Secret Retrieval
- JsonLogic
- Send Command
- Convert & Publish
- Custom Target Type
- IBM Watson IoT (ASC Profile)
- Custom Trigger
- Influx DB & Flege Exports
- Camera Management - **NEW**

Core WG Snapshot (2 Nov 2022)

- TAF:
  - Functional tests:
    - Non-Security **605** tests - all passed / Security **606** tests - all passed
  - Integration tests:
    - Non-Security **120** tests - all passed / Security **123** tests - all passed
  - Performance tests:
    - Non-Security **10** tests - all passed / Security **10** tests - all passed
- Backward compatibility tests with Jakatar release have been verified on x86 and arm64 locally
- The verification of REST call capability to send out events has been included in the TAF integration test
- Manually verified two the same device service can work normally

Core Project Board Status

- 0 New Issues (-6)
- 0 Release Backlog (-8)
- 0 In Progress/QA (+0)
- 102 Levski Done (+4)
- 37 Icebox (+14)

QA/Test Project Board Status

- 0 New Issues (+0)
- 0 Release Backlog (+0)
- 3 In Progress/QA (-1)
- 20 Done (+1)
- 1 Icebox (+0)

Next meeting: Tuesday November 8th @ 5 PM Pacific Daylight Time

Device Services WG Update (2 November 2022)

Release status:

- usb-camera and grove will slip
- updating default configuration files for consistency

New potential for Minnesota:

- Enhancement to REST device service (bi-directional)

Next meeting: November 7th

Device Services - current/coming (as of v2.3)

Open Source connectors (Current):

- Modbus (TCP/RTU) in Go
- Virtual Device in Go
- SNMP in Go
- MQTT in Go
- BACnet (IP & MSTP) in C
- ONVIF and USB Cameras in Go
- REST in Go
- Grove in C (v1 only)
- CoAP in C
- LLRP / RFID in Go
- GPIO in Go

Open Source connectors (Future):

- UART in Go
- OPC-UA in Go

Commercial connectors (Current):

- BLE in C
- Zigbee in C
- GPS in C
- CAN in C
- CANOpen in C
- MEMS in C
- EtherCat in C
- EtherNet/IP in C
- PROFINET in C
- OPC-UA in C
- OPC-UA Pub/Sub in C
- Siemens S7 in C
- File reader in C
- WebSockets in Go

There are additional commercial MQTT (Go), Modbus (C), REST (Go), ONVIF (C) and BACnet (in C) that have added features over the community editions

DevOps WG Update (11-02-2022)

Pipeline Related

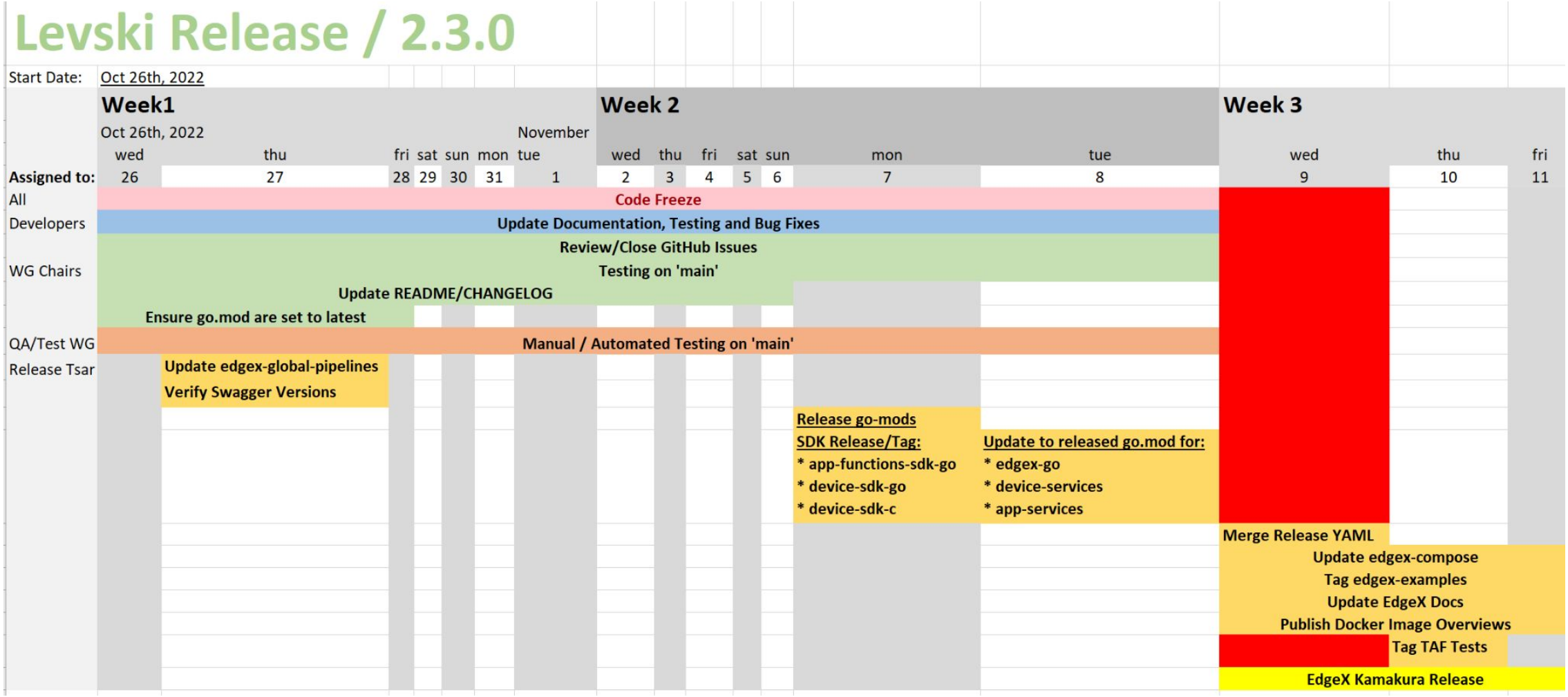
- #412 [Complete] Update edgeXReleaseDocs pipeline after latest changes
- #413 [Complete] Update Swagger API version on release
- #284 [Complete] Update edgexfoundry DockerHub Overviews for Kamakura

Other

- OpenSSL Critical Vulnerability
- https://snyk.io/blog/new-openssl-critical-vulnerability/
  - Potential patch release, LTS patch release
  - Update base images once openssl 3.0.7 patch is available if needed

Next DevOps WG Meeting: Tuesday, November 22, 2022 @ 9AM PST

Release Czar (2022-10-26)



EdgeX Release Process: https://wiki.edgexfoundry.org/display/FA/Release+Checklist

Security WG Update

Next Meeting: 11/9 (i.e. next week)

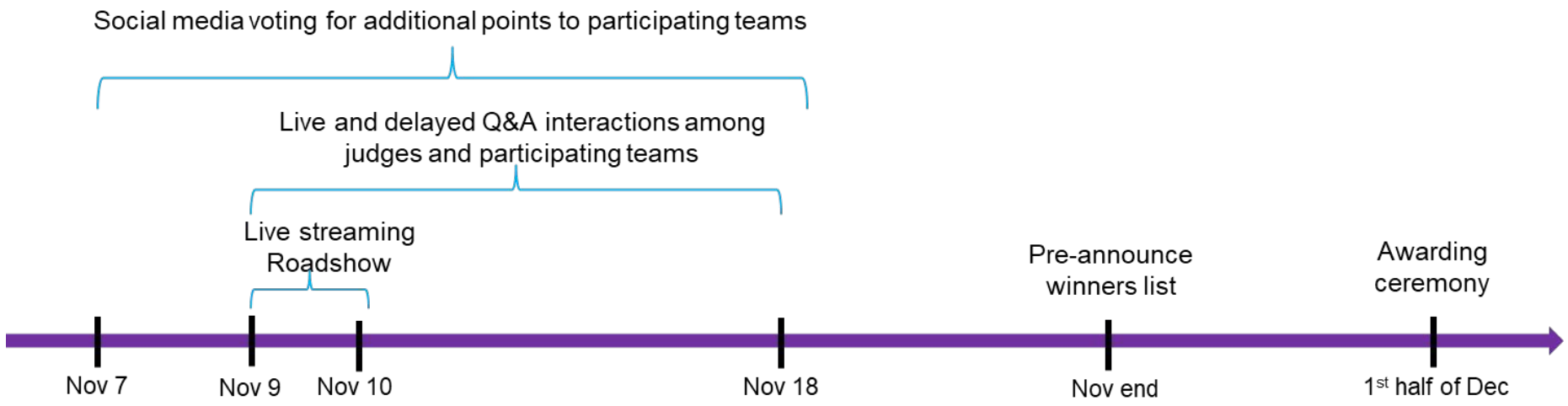
- OpenSSL issue (see earlier slide); mostly affects container artifacts.
- New version of microservice authentication UCR & ADR up for review
  https://github.com/edgexfoundry/edgex-docs/pull/659
  (OpenZiti too complex to support; proposing simple JWT-based solution instead)
- Concerned that go-playground/validator is crossing into “unmaintained” territory
  - Problems with Github actions since May ‘20; CVE-2022-32149 still not patched
  - Could do a go.mod version override instead to x/text/language v0.3.8
- Continuing to work in background to whittle down BluBracket false positives

Security Project Board Status

- 1 New Issues (-1)
- 0 Release Backlog (-1)
- 4 In Progress/QA (-1)
- 2 In review (0)
- 48 Done (+3)

EdgeX China Update

- Timeline of EdgeX Challenge China 2022



- EdgeX invited to join COScon (China Open Source conference) 2022 on Oct 29th.

EdgeX China community channels:

- Website: https://cn.edgexfoundry.org/
- OSChina: https://www.oschina.net/group/edgex-foundry
- CSDN: https://blog.csdn.net/edgexfoundry
- Zhihu: https://www.zhihu.com/people/edgex-foundry
- Bilibili: https://space.bilibili.com/550595847

EdgeX China Challenge Accepted Use Cases

Health, Education and Consumer

h01	Animal behavior recognition in animal farm to analyze health information, through processing data collected from IPC, temperature sensors, infra imaging, noise detectors
h03	Patient recovery self-practicing & training
h06	5G SASE based capsule bank all-in-one station
h08	CV based medical aesthetics customer evaluation
h09	CV based eye disease screening and evaluation
h10	Interactive mobile robot for retail stores
h12	Facial recognition based smart campus management system (IPCam, access control, borrowing & returning books in Libraries, …)
h13	CV based customer analytics in shopping mall
h15	Pest and disease identification and management in agriculture
h16	Indoor light & energy management for hospital and schools
h20	CV based heatmap analysis in Museum
h21	Photos taking and sharing system
h22	Smart kitchen management system
h23	CV based smart classroom management
h24	Smart ambulance
h27	Integrated device connector
h29	Video surveilliance and security management in gasline retail station (connecting IPCam, IP speaker)

Energy and Industrial

e04	Smart lighting
e07	Smart management system for oil & gas production
e09	Industrial product appearance inspection
e10	Energy management in smart cities
e12	Bridge & waterway monitoring
e13	5G MEC+AI based power equipment patrol inspection
e14	Video analytics on the edge
e15	EdgeX-based digital edge management system for production sites
e18	Smart energy management platform
e19	Smart energy management in office building
e20	Power Plant & mine Inspection
e26	Data-driven energy optimization services for building central air conditioning systems
e27	Campus fire warning
e30	Access & security management of office building
e31	Fire monitoring & alarm system
e32	Non-secure mode API gateway
e33	Timber storage management
e34	Smart city camera monitoring
e35	5G general edge platform
e36	Vibration monitoring platform

Outreach WG (11/1/22)

Ready/Certification

- No updates

Events

- Discussed events at the last meeting
  - Desire to have Edge F2F next spring (nice if it could be collocated with other LF event)
  - COVID policy not impacting travel, but budget restraints are
    - Will likely restrict travel to country of origin (no or little intl travel)
  - Based on outcome of PRC Hackathon, possibility to revisit in 2023 for US or Europe

WebSite Changes (order or priority)

- SEO work nearly complete - updating some member low-content pages
- WIP - Google Search Console
- Issue with docs search being addressed by LF

Next meeting Nov 7 - 9am PDT
Topics - what to bring up in planning meeting?

UCR & ADR Review (as of 11/1/22)

UCR/ADR Name	***Status***	***Owner***	***Work Group***
Hybrid App-Device Services (UCR)	As agreed in Prewire, UCR/ADRs not required. Eaton to contribute code when ready	Tom-Eaton	DS
Core Data Cache	~~Original ADR: https://github.com/edgexfoundry/edgex-docs/pull/723~~ New UCR for review: https://github.com/edgexfoundry/edgex-docs/pull/884	Jim White	Core
Global Common Configuration	Initial UCR for review: https://github.com/edgexfoundry/edgex-docs/pull/892	Lenny	Core
URI reference (profiles, config, etc.)	EdgeX 3.0 item (not in scope now; may be sub part of global config)	Lenny	Core
Microservice authentication	UCR and ADR for review: https://github.com/edgexfoundry/edgex-docs/pull/659	Bryon	Security

Document work (as of 10/18/22)

~~#731 M [V2 migration guide fix event/reading DTO]~~ - done

#732 L [role based access for Mosquitto]

#781 L [Metrics docs]

#843 M [SE indexing old docs]

#855 - L [extend Go SDK API docs]

#859 - L [version warning popup]

#860 - L [update UI secty docs]

#864 - M [metadata population by DS at startup]

~~#866 - L [n-s messaging]~~ - done

Nice to have

#392 M [timestamps]

#714 L [images to LFS]

#642 L [export to cloud]

#667 L [build containers]

#489 M (with #121, #21) [consume/send binary]

Miscellaneous - EdgeX Representative at LF TAC

- LF Technical Advisory Council (TAC) facilitates communication and collaboration among multiple Technical Projects
    - More info here: https://wiki.lfedge.org/pages/viewpage.action?pageId=1671298
- Our current representative for EdgeX Henry Lau (HP) is moving within the HP organization and no longer involved in edge/IoT computing
- We need to elect a new voting representative for EdgeX (and an alternate if possible)
- Role includes - attending the bi-weekly meetings, having a voice for EdgeX at LF, voting on technical matters relating to technical management of the LF projects, etc
- James is nominating Jim White for this role. Other nominations welcome. TSC vote required

Miscellaneous

- Minnesota Planning Meeting Schedule:
  - **Mon Nov 14th** 7am - 10am PT Business Topics and Architecture Tee up
  - **Tues Nov 15th** 9am - 12pm PT Cadence & Process Check, Architecture Topics
  - **Wed Nov 16th** 7am - 10am PT Minnesota Scoping Part 1
  - **Thurs Nov 17th** 9am - 12pm PT Minnesota Scoping Part 2 and Levski lessons learned
  - Will cancel all other EdgeX Calls that week
  - Registration page now live: **https://bit.ly/MinnesotaPlanning**
- EdgeX Web Site (and docs) statistics dashboard
  - https://datastudio.google.com/reporting/4c1ac7f0-6e24-4eb7-9d1a-da497288bd2b
  - or bit.ly/EdgeXWebStats

Thank You