

EDGE X FOUNDRY™

TSC Meeting

June 26th, 2024

edgexfoundry.org |  @edgexfoundry



Antitrust Policy Notice

- Linux Foundation meetings involve participation by industry competitors, and it is the intention of the Linux Foundation to conduct all of its activities in accordance with applicable antitrust and competition laws. It is therefore extremely important that attendees adhere to meeting agendas, and be aware of, and not participate in, any activities that are prohibited under applicable US state, federal or foreign antitrust and competition laws.
- Examples of types of actions that are prohibited at Linux Foundation meetings and in connection with Linux Foundation activities are described in the Linux Foundation Antitrust Policy available at <http://www.linuxfoundation.org/antitrust-policy>. If you have questions about these matters, please contact your company counsel, or if you are a member of the Linux Foundation, feel free to contact Andrew Updegrove of the firm of Gesmer Updegrove LLP, which provides legal counsel to the Linux Foundation.

Meeting Logistics

Time: Wednesdays 8am- 9am Pacific Time (Alternate Weeks)

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)

+1 855 880 1246 (US Toll Free)

+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



EdgeX TSC Members

Working Group Chairs:

- | | | |
|--------------------------|--|-----------------------------------|
| • Cloud Tsai (IOTech) | cloud@iotechsys.com | Core & Test/QA WG Chair |
| • Lenny Goodell (Intel) | leonard.goodell@intel.com | Applications & Analytics WG Chair |
| • Lindsey Cheng (IOTech) | lindsey@iotechsys.com | Device Services WG Chair |
| • Ernesto Ojeda (Intel) | ernesto.ojeda@intel.com | Dev Ops WG Chair |

At Large Members:

- Farshid Tavakolizadeh (Canonical)
- Corey Mutter (Eaton)
- Elizabeth Lee (Intel)
- Melvin Sun (Intel)
- James Butcher (IOTech)
- Darryl Mocek (Oracle)

Current quorum = 6 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

- Working Group Updates
- Latest plan on EdgeX 3.2 release
- Update on TSC members for 2024-2025
- Potential use of LF discretionary funds for EdgeX
 - Website enhancements - analysis complete
 - LF Edge Day at LF Open Source Summit Europe





EDGE X FOUNDRY™

Work Group Updates

Chairs

Working Group Chair Updates

- Around the working groups:
 - **Product Manager** - Cloud Tsai
 - **Applications** -
 - **Core** - Cloud Tsai (co-chair Melody Liu)
 - **Device Services** - Lindsey Cheng (co-chair Felix Ting)
 - **DevOps** -
 - **Release Czar** - Cherry Wang
 - **Outreach and Marketing**
 - **Certification** - Rodney Hess
 - **China Updates** - Melvin Sun
 - **LF Edge TAC** - Brad Corrion



Product Manager - Odessa

Cross Cutting Issues

Icebox (1)

- Lite Builds (no security features) via Build Tags

Backlog (3)

- **URIs For Files**
 - C services - **TBD**
- **OpenBao**
 - Initial alpha testing - **DONE**
 - Full testing with GA - **TBD**
- **Go 1.22 (Feb'24) and Alpine 3.19**
 - Released!!
<https://tip.golang.org/doc/go1.22>

In Progress (4)

- **Odessa Doc Refactoring**
 - Device Services
 - Device Commands - **DONE**
 - Device Definitions - **DONE**
 - Auto Events - **DONE**
 - BacNet - **TBD**
 - COAP - **TBD**
 - RFID LLRP - **TBD**
 - SNMP - **TBD**
 - Virtual - **TBD**
 - Refactor APIs Section - **TBD**
 - Refactor Security Section - **TBD**
 - Update EdgeX Diagram - **DONE**

- **Compiler flags to Strip Debug Info**
 - edgex-go - **DONE**
 - edgex-ui - **TBD**
 - App SDK and ASC - **DONE**
 - App LLRP & App Record Replay - **TBD**
 - Device SDK and Device Services used by TAF - **DONE**
 - Remaining Device Service - **TBD**

• **Zero Trust (OpenZiti)**

- go-mod-core-contracts - **DONE**
- go-mod-bootstrap - **DONE**
- edgex-go - **DONE**
- edgex-ui - **DONE**
- ekuiper - **DONE**
- edgex-compose - **WIP PR waiting for smoke test**
- docs - **WIP**
- edgex-helm - **TBD?**

• **Core Keeper - WIP**

- go-mod-core-contracts - **DONE**
- go-mod-registry - **DONE**
- go-mod-configuration - **DONE**
- edgex-go - **WIP PR waiting for review**
- edgex-compose - **TBD**
- docs - **TBD**

Done (0)

-



Applications WG Update

Newly Completed (0)

Newly added (0)

WIP (0)

Done for Odessa (16)

Backlog (3) <https://github.com/orgs/edgexfoundry/projects/50/views/2>

ICE BOX (0)

Next

- Compiler flags to Strip Debug Info
- Document Commands via MessageBus for App Services

eKuiper

- Latest is 1.12.7
 - <https://github.com/lf-edge/kuiper/releases/tag/1.12.7>
- 1.13.0 releasing this week.
 - <https://github.com/lf-edge/kuiper/milestone/23>
 - zero-trust will land in patch of 1.13

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



Application Services - Napa

Functions (built into SDK)

- Add Tags
- Batch
- Compression (GZIP & ZLIB)
- Conversion (XML & JSON)
- EventWrapper
- Encryption (AES256)
- 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)

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~~
- Direct Publish to MessageBus
- Received Topic
- Context Storage
- Service Metrics
- 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
- App Record and Replay

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



Core WG Update (June 26 2024)

[Core/QA Project Board](#)

- ❖ TAF - Performance 1 test failed - *edgex.2 Service Startup Time.Service Startup Time.StartupTime002* [arm64 platform only] - machine is running slower now, unless we increase the threshold
- ❖ Core/QA Progress
 - QA
 - [New issue] Add tests for core-keeper [#899](#)
 - Core
 - [WIP] Add Core Keeper Service [#4783](#)
 - [WIP] [Core Metadata] Add "parent" field to Device objects [#4769](#)
 - [WIP] [Zero Trust] Docs started [#1351](#)
 - [Done] Update the HiveMQ testing broker address in the getting started guide [#1354](#)
- ❖ Note
 - DB options for python SDK APP service
 - PostgreSQL
 - SQLite



OpenBao Project (Vault Replacement for EdgeX)

- Alpha release available: <https://github.com/openbao/openbao/releases/tag/v2.0.0-alpha20240329>
- Beta release available: <https://github.com/openbao/openbao/releases/tag/v2.0.0-beta20240618>
- GA release planned for July 16th
- EdgeX 3.2 to use OpenBao GA
 - Still requires documentation and more testing

- James is EdgeX contact for OpenBao and TSC member
- Alex Scheel (Kayfactor) voted as TSC Chair
- Project meetings are weekly (Thursday @ 8am Pacific Time for 30 mins)
- <https://wiki.lfedge.org/display/OH/Hashicorp+Vault+Replacement+Feature+Design+Candidate>
- Website: <https://openbao.org/>
- Docs: <https://openbao.org/docs/>



Device Services WG Update (26 June 2024)

- **Completed issues**

- device-sdk-go

- [Done] DeviceProfile provision state might be wrong [#1586](#)
- [Done] Bump dependencies to resolve CVEs in napa branch [#1576](#)

- **In progress issues**

- device-sdk-go

- Performance optimization: reduce the number of goroutine context switches [#1579](#)
 - Done with paper study (See PR [#1580](#))



Device Services - current/coming (as of v3.1)

Open Source connectors:

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

Open Source connectors (Future):

- UART in Go
- Siemens S7 in Go

IOTech commercial connectors:

- Modbus (TCP + RTU)
- BACnet (IP + MSTP)
- OPC-UA
- BLE
- Zigbee
- GPS
- CAN (+ J1939 Extensions)
- EtherCat
- EtherNet/IP
- Siemens S7
- PROFINET
- WebSockets
- MQTT
- REST
- ONVIF
- USB Cameras



DevOps WG and Release Czar

- V3.1.1 patch release for resolving CVEs is done
 - Thanks to all involved and stepping up to replace Ernesto and Bill
- V3.2 Release Date is now December 2024
 - James to arrange (re)planning call in next few weeks

Recent and Upcoming Releases

Napa (3.1)

- Release Date - 2023-11-15

Napa patch (3.1.1)

- Release Date - 2024-06-14

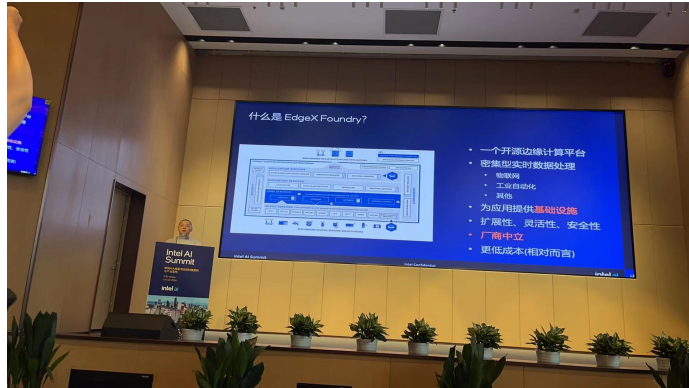
Odessa (3.2)

- December 2024



Outreach and EdgeX China Update

- As a Stage 3 LF project, EdgeX Foundry has “discretionary funds” available to utilize as we see fit
 - See later
- China: EdgeX promoted at Intel Edge AI developer events in May & June, totalling 3.5k onsite & online participants





EDGE X FOUNDRY™

EdgeX 3.2 Plan

3.2 Release Plan

- EdgeX 3.1 “Napa” released in November 2023 remains the most recent major release (it is also the current LTS release). We released a 3.1.1 last week to address some third party CVEs that emerged
- The TSC voted to agree to delay the 3.2 originally planned for May this year until the end of the year. The key features planned are not quite ready (OpenBao, CoreKeeper and OpenZiti)
- Meanwhile another constituent part of EdgeX, Redis, also announced its own OSS license switch. We are currently considering Valkey and/or Postgres as new DB within the platform, and considering what can be achieved in the 3.2 and/or next major release
- We are also evaluating the impact to the LTS supportability and possible need for an early new release
- Due to the above, we will hold an EdgeX Planning Meeting for the revised EdgeX 3.2 release soon



Odessa Deliveries Summary

Theme / Title	In Scope	Priority	T-Shirt	Notes
Replace Hashicorp Consul with EdgeX-Core-Keeper WIP	✓	High	L	Work to update/review/approve core-edgex-keeper (code, docs, tests). Owner: IOTech and Eaton
Replace Hashicorp Vault with Open-Bao Alpha looks good. Need surety on full preview and requires testing and documentation time	✓	High	S	Liaise with Open-Bao group for delivery timing but expecting to be drop-in replacement. Only docker-compose changes needed
Zero Trust / Secure Distributed EdgeX (OpenZiti Integration) WIP	✓	High	M/L	ADR (now approved). Impl largely by Clint
Continue EdgeX Documentation redesign WIP	✓	High	M/L	Device Services, Security and API section
URI for Files - Parity for C Device Services SDK Out	✓	High	S	Implementation is clear. Owner: Felix. Assistance and reference impl from Elizabeth (Go)
Modelling & Relationships – Virtual Device Resources Deprioritised by Eaton	Now Out	Med	S	Limited to Device SDKs and Metadata. Owner: Eaton
Modelling & Relationships – Protocol Info in Device Definitions Out	✓ (UCR)	Med	S	UCR owner Oracle. ADR & Impl TBC
Modelling & Relationships – Device Functions Out	✓ (UCR)	Med	S	UCR owner Oracle. ADR & Impl TBC
Modelling & Relationships – Parent/Child Devices Eaton WIP	✓ (STRETCH)	Low	S	Limited to Metadata. Owner: Eaton. Progress via attending Devices WG. Does a UCR need to be updated here?
Modelling & Relationships – Device Metadata in Provision Watchers Out	✓ (STRETCH)	Low	S/M	Limited to Device SDKs and Metadata. Owner: Eaton
NanoMQ – Add security to our NanoMQ option Out	✓ (STRETCH)	Low	S	Continue communication with EMQ team





EDGE X FOUNDRY™

TSC 2024-2025

EdgeX TSC 2024-2025

Working Group Chairs:

- | | |
|---------------------------|-----------------------------------|
| 1. Cloud Tsai (IOTech) | Core & Test/QA WG Chair |
| 2. Lenny Goodell (Intel) | Applications & Analytics WG Chair |
| 3. Lindsey Cheng (IOTech) | Device Services WG Chair |
| 4. Ernesto Ojeda (Intel) | Dev Ops WG Chair |

At Large Members:

5. Farshid Tavakolizadeh (Canonical)
6. Corey Mutter (Eaton)
7. Elizabeth Lee (Intel)
8. Melvin Sun (Intel)
9. James Butcher (IOTech)
10. Darryl Mocek (Oracle)

Non-Voting Roles:

- | | |
|----------------------------|-----------------|
| • Cloud Tsai (IOTech) | Product Manager |
| • Cherry Wang (IOTech) | Release Tsar |
| • Brad Corrión (IOTech) | LF Edge TAC |
| • Rodney Hess (Beechwoods) | Certification |
| • Melvin Sun (IOTech) | China Rep |

- Plan to consolidate 4 WGs into a single EdgeX Technical WG
 - Proposal to be chaired by Cloud Tsau
 - Proposal to be co-chaired and assisted by Melody and Felix (non-voting)
- New members TBC
 - 3-4 large companies in wings
 - Some community users and advocates/evangelists stepping forward
 - Any others?
- How many At-Large members makes sense?
- James happy to continue as TSC Chair
- Elections required when more people than positions





EDGE X FOUNDRY™

LF Discretionary Funds

Discretionary Funds

- As a Stage 3 LF project, EdgeX Foundry has “discretionary funds” available to utilize as we see fit
 - Aim is to help the project grow and be sustainable
 - Up to \$10,000 per year Jan-Dec, no rollover
 - English and Chinese website: \$3660.17 this year
 - Not planning EdgeX awards this year
 - -> \$6339.83 remaining for 2024.
 - Open to ideas and suggestions from the TSC for utilizing these funds - marketing, events, etc



Website Enhancements

- Enhanced user experience
 - Masthead updates: improved first impression and perception of the website
 - Dynamic elements: Increased interactivity, more time spent on page
- Improved readability and accessibility
 - Optimised titles: better content hierarchy and easier to scan
 - Bold highlights and colour contrast: better emphasis and readability
- Elevated brand perception
 - Changing in diagram and title colours: strengthened brand identity and recognition
- Increased conversion potential (downloads)
 - Clear CTA buttons: improved visibility and easier access to download
 - Updated diagrams: clarified information for better understanding and decision-making

Initial analysis is done - see slides



~~LinkedIn Campaigns~~

- Awareness Campaign
 - Bring high-quality traffic to the website: LinkedIn allows great targeting segmentation
 - Increase brand visibility: show EdgeX ads to large-size relevant companies
 - Increase downloads: relevant audience members would be likely to download the software
 - Create retargeting audience: this campaign would allow to retarget those who have clicked on the ad for future campaigns
- Contact Form Campaign
 - Relevant users reached: using the previous campaign for a retargeting audience
 - User information: lead generation allows to get key information about users
 - Gather feedback: users will Contact Us with questions about the software, giving information about what features need improvement or where the user normally requires support, helping with future development roadmap

Recommended against



Events

- LF Open Source Summit, Europe
 - Vienna, Austria
 - 16-18 September 2024
- Benefits of attending:
 - Access relevant audience
 - Brand exposure
 - Speaking opportunity
 - Connect with industry leaders
 - Generate interest and generate downloads
 - Gain feedback from attendees



LF EDGE DAY

THURSDAY, 19 SEPTEMBER

Time: 9:00 – 12:30
Location: Austria Center Vienna
Registration Cost: \$10

LFEDGE

LF Edge Day, a co-located event at Open Source Summit Europe, represents an exciting opportunity for developers, technologists, and community leaders engaged in the edge computing domain. This dedicated day aims to bring together the vibrant LF Edge community for a series of in-depth discussions, collaborative workshops, and insightful sessions focusing on the latest innovations, technologies, and trends in edge computing. By fostering an environment of collaboration and knowledge-sharing, LF Edge Day seeks to enhance the growth and sustainability of open source edge computing, making it an essential rendezvous for anyone looking to shape the future of this rapidly evolving field.





EDGE X FOUNDRY™

Thank You