



EdgeX Planning Conference

Napa Release

Virtual Meeting

June 5th – 8th 2023

Conference Agenda

- June 5, Monday, 7am - Kick Off and Main Architecture Discussions
 - Introductions and Meeting Logistics
 - Conclude any Minnesota Issues
 - Napa Aims and Objectives
 - Project Administration: TSC membership and Release Cadence Review
 - Napa Architecture Discussions
- June 6, Tuesday, 9am - Architecture Discussions and Napa Scoping
 - Napa Architecture Discussions Cont
 - Winners EdgeX Awards 2023 (10am)
 - Napa Scoping by Working Group
- June 7, Wednesday, 7am - Complete Napa Scoping, Business and Marketing Topics, Lessons Learnt
 - Napa Scoping by Working Group Cont
 - Business and Marketing Topics
 - Project Process Improvements
 - Lessons Learnt, Continuous Evaluation, etc
- June 8, Thursday, 9am - Any Remaining Items
 - TBC

All times in
PT





Intros

Name, rank, serial number please



Day 1

Conference Agenda – Day 1

All times in
PT

- 7:00am - Introductions
- 7:15am - Minnesota release (any unfinished business, issues, etc)
- 7:30am - Napa Aims and Objectives release – high level agreement
- 7:45am - Project Administration: TSC membership and Release Cadence Review
- 8:00am - Napa Architecture Discussions
- 10:00am - Day 1 adjourn

If we have extra
time today, we
may bring more
topics forward





Minnesota Wrap-Up



Remaining Minnesota Release Items

- Still be done
 - Release of all Device Services? Which are still TODO?
 - Examples
 - Doc completion?
 - See some v2 references: <https://docs.edgexfoundry.org/3.0/getting-started/quick-start/>
 - Lenny added : <https://github.com/edgexfoundry/edgex-docs/pull/1107>
 - Performance metrics report
 - Others?
- Collateral / Marketing:
 - <https://www.edgexfoundry.org/software/releases/>
 - [LF Edge - Release Blog](#)
 - [Embedded Computing article](#)
- Issues/Concerns
 - None yet?
- Reminder we are still supporting EdgeX 2.1 (Jakarta) LTS until Nov 2023





Starting Napa





Napa



Napa Release Objectives/Size – As discussed in Prewire

- Minor Version - move to 3.1?
 - Expectation so far has been a stabilization release of the 3.0
 - Expecting to be the next LTS? Our previous LTS was a stabilized V2 (at version 2.1)
 - LTS Policy: <https://wiki.edgexfoundry.org/pages/viewpage.action?pageId=69173332>
 - Per LTS Policy, Jakarta will be supported period of 2 years (**to November 2023**) unless otherwise stipulated by the TSC
 - A November 2023 release (likely a 3.1) would be a candidate for LTS and continue that trend...
- Current major additions under consideration — all changes must consider V3 compatibility
 - URIs for Files
 - Common Config Completion
 - Data Modelling and Relationships
 - Zero Trust / Secure Distributed EdgeX (ADR)
 - Bring Your Own Vault (ADR)
 - Documentation Enhancements
 - Core Data Retention





Project Administration

- EdgeX TSC Membership Next Term
 - EdgeX Release Cadence and Naming
-



EdgeX TSC 2023-2024

- Current roles end 23rd June
- Disclaimer: all of the below are suggestions/ideas at this point
 - All roles are voted in under the meritocracy of EdgeX
 - A mixture of leadership continuity and new people is encouraged for the long-term future of the project
 - Would like to maintain 10 voting TSC members next time around
- Working Group Positions - nominations so far:
 - App WG – Lenny Goodell. Elizabeth Lee co-chair (both Intel)
 - Core WG – Cloud Tsai. Melody Liu co-chair (both IOTech)
 - Now includes Security
 - Devices WG - Lindsey Cheng. Felix Ting co-chair (both IOTech)
 - DevOps WG - Ernesto (Intel)
 - (Non-Voting) Outreach - **open**
- At-Large Roles - nominations so far
 - Farshid Tavakolizadeh (Canonical)
 - Tom Brennan(Eaton)
 - James Butcher (IOTech)
 - Melvin Sun (Intel)
 - Elizabeth Lee (Intel)
 - **open**
- EdgeX roles - nominations so far
 - TSC Chair - James
 - Product Manager - Lenny
 - Release Czar - Bill Mahoney(Intel)



EdgeX Awards

- Congratulations to all nominees

- Contribution Award

- Lenny Goodell (Intel)
- Cherry Wang (IOTech)
- Bruce Huang (IOTech)
- Melvin Sun (Intel)
- Laura Alvarez (IOTech)
- Cloud Tsai (IOTech)
- Bill Mahoney (Intel)
- TAF Team (IOTech Taiwan)

- TSC voting closed

- Two winners in each category to be announced by Kendall Waters Perez (LF Edge) tomorrow

- Innovation Award

- Lenny Goodell and Elizabeth Lee (both Intel)
- Vijay Annamalaisamy (HCL)
- Ernesto Ojeda (Intel)
- Bryon Nevis (Intel) **ineligible this year



EdgeX Cadence Check

- April/May & Oct/Nov to remain target release months?
 - Minnesota release (Brett) - May 2023 ✓
 - Napa release (Ernesto) - Nov 2023
 - Odessa release (Mengyi & Farshid) - April 2024
 - Palau release (Rodney) - Nov 2024
 - Queensland release (Bill) - April 2025
- Next Planning Meeting (likely Nov 2023)
 - With travel restrictions lifted – is a F2F possible?
 - Volunteers or suggestions on where to hold this meeting?
 - Consider a target conference or event?



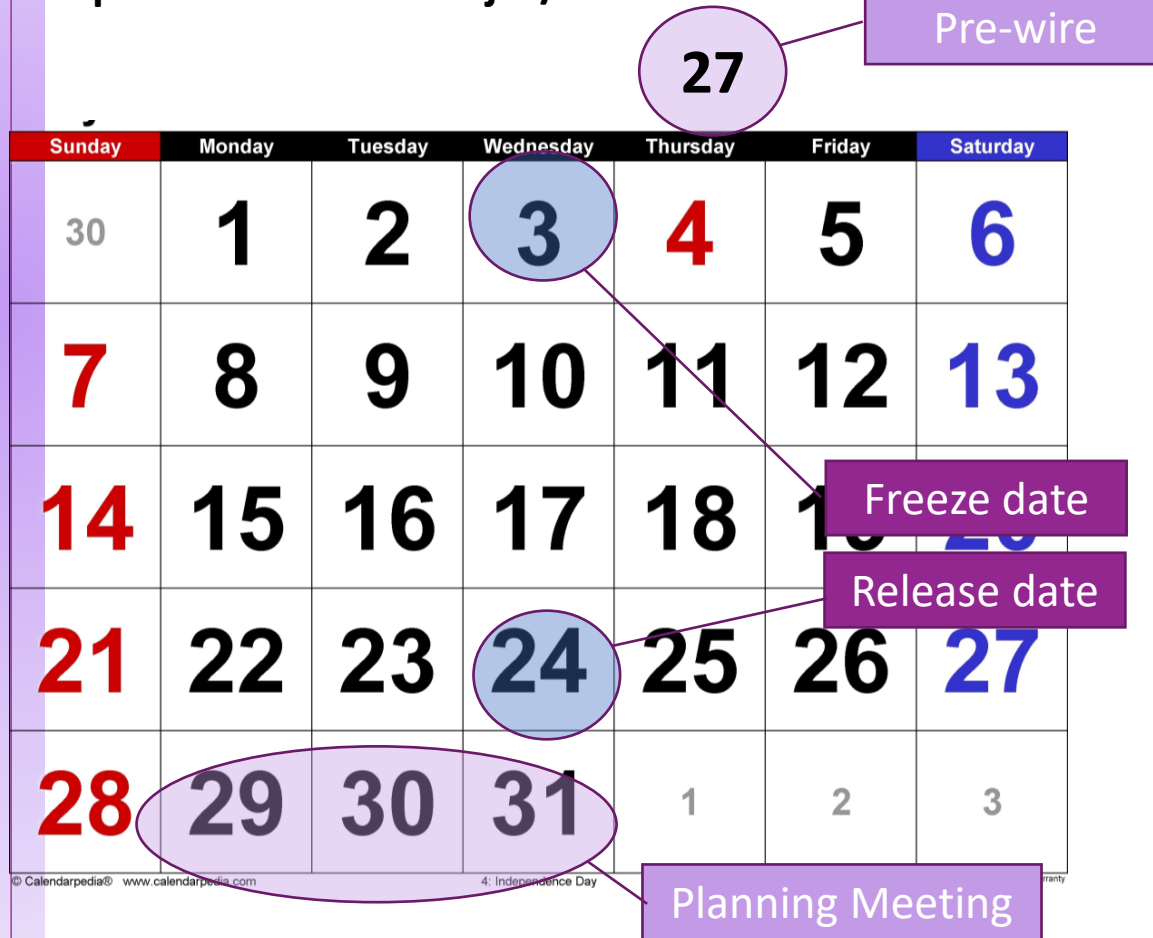
Release Timing Details

- EdgeX has a semi-formal release/planning schedule as follows:
- Generally attempt to select release date about 2 months in advance of the release
 - Typically April and October for spring/fall releases
 - Release date preferred to be a Wednesday
 - Adjust per circumstances and TSC review
- Release schedule for minor release
 - Freeze date 2 weeks in advance of release date
 - Prewire, Thursday prior to freeze date
- Release schedule for major or LTS release
 - Freeze date 3 weeks in advance of release date
 - Prewire, Thursday prior to freeze date
- Planning meeting – generally the week following the release
 - Virtual meeting: Monday – Wednesday, ~~with Thursday as possible extra day~~
 - In person: Tuesday-Thursday
 - If travel is necessary – planning meeting may need to be a week out
 - Include manual testing in the release schedule

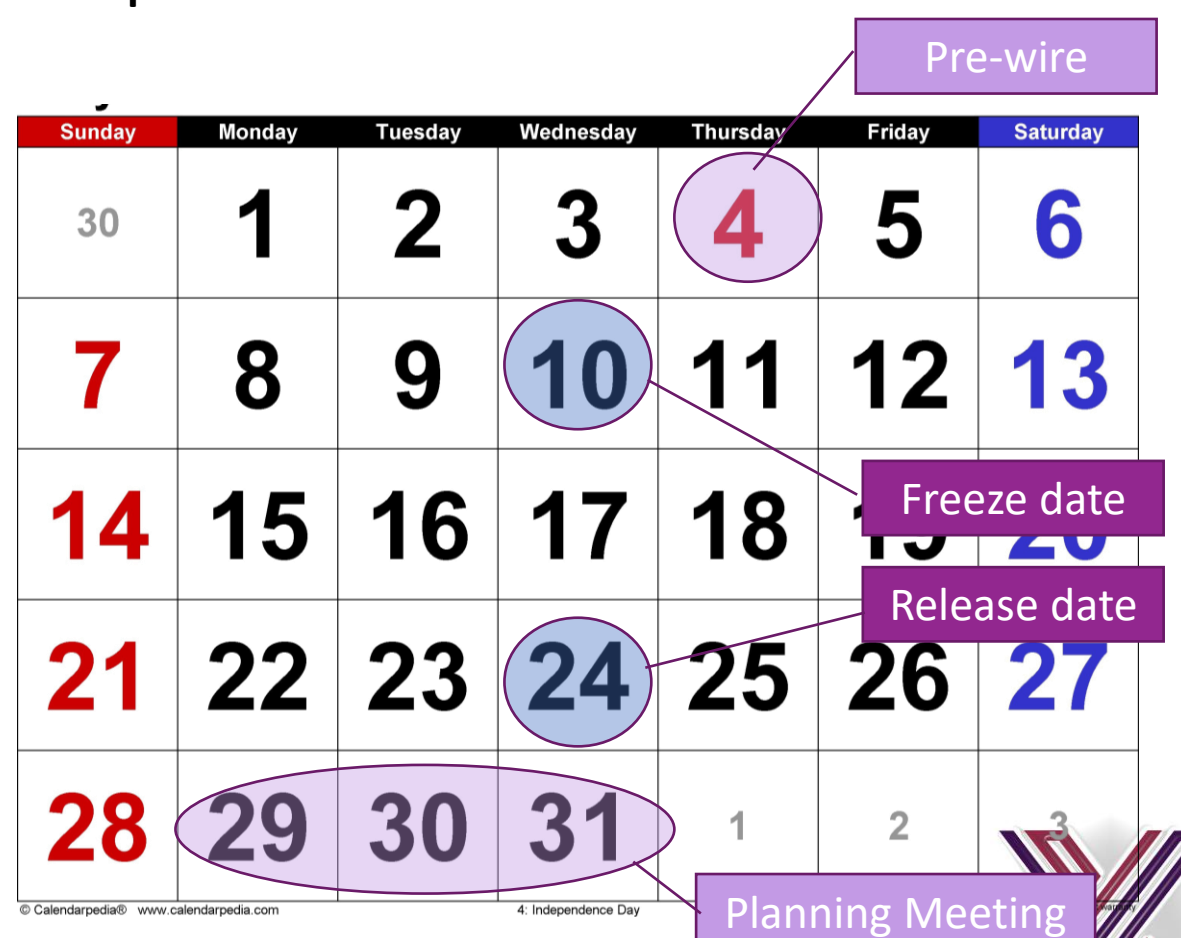


Formalized Release Timing/Planning

Example Calendar for Major/LTS Release



Example Calendar for Minor Release



Scoping Exercise

- Categories used in our Pre-Wire
 - **In scope**
 - It is “In scope” – must be done; no debate; near unanimous consent
 - Should not take (much) time in the planning meeting to discuss
 - **Under consideration**
 - It is definitely under consideration for the planning meeting and release
 - It is not in scope yet, but it worthy of some time to discuss; with a strong tendency to put it in scope
 - Has a majority of support to at least consider it; must be put in or out of scope at the end of the meeting
 - **Not sure/On the fence**
 - There are some that believe it should be under consideration or in scope but others are unsure or even against it.
 - To be reviewed and debated during the planning meeting as time permits; placed out of scope by default if not covered in the planning meeting
 - **Out of scope (Not discussing in this meeting)**
 - A majority believe this work will not be covered in the next release
 - A potentially valid need, but just not going to be accomplished for the next release (example: non-backward compatible change)
 - These items will not be discussed during the planning meeting but will be added to the backlog/roadmap
 - **Never in scope**
 - A majority believe this work will not be (ever) accomplished in EdgeX
 - Remove from the backlog or future scope (with rationale)
 - These items will not be discussed in planning meetings going forward



Architect's Topic / Prewire List

- In Scope
 - URIs for Files
 - Common Configuration Completion
 - EdgeX Data Modelling and Relationships
 - Zero Trust / Secure Distributed EdgeX (at least ADR)
 - Bring Your Own Vault (at least ADR)
 - EdgeX V3 Docs
- Under consideration
 - Core Data Retention
 - NanoMQ
- On the Fence
 - Notification Services Improvements



Items already set as “out of scope” or “never in scope”

Out of Scope - potentially valid, kept in backlog

- EdgeX Lite – build in/out features
- Real Hardware Testing
- Additional Metrics
- App Service Tensor Flow Transformations

Never in Scope - will not be accomplished, removed from discussion

- Support Multiple Triggers in App Services (contradictory to microservices architecture)



Planning Considerations

- Is there a champion / developer to drive the solution & get the work done
 - Who
 - Timeline
 - Dependencies
- What is high priority and what is a stretch goal?
 - T-shirt size it
 - Small – one release; one WG; one service; approximately one man to complete
 - Med – one release; many services;
 - Large – one release; all services; could take someone all release to finish
 - X-Large – multi-release and probably more than one service





In Scope



URIs for Files

- Better configuration capability
 - Potential to use a URI to specify an external configuration location (allowing for file, HTTP, HTTPS or other protocol access support)
 - URI mechanism may be used to point to device profiles, configuration files, UoM and other "configuration" information - i.e., this is not just about the "common" configuration files
 - This would even allow multiple EdgeX instances to use the same configuration or profile (multiple EdgeX instances using the same URI to use a shared profile for example)
 - Support better deployment scalability
- Previous Progress
 - UCR Approved - <https://docs.edgexfoundry.org/3.0/design/ucr/URIs-for-Files/>
 - ADR Approved - <https://docs.edgexfoundry.org/3.0/design/adr/0027-URIs%20for%20Files/>
- T-Shirt: Medium/Large
- Owner: Lenny. HTTP/HTTPS, security already outlined in ADR. Lenny to create a project board
- Testing: Cherry suggested for designing and implementing automation tests



Common Configuration – Things to Complete from 3.0?

- Biggest item completed in 3.0, but any more aspects to complete/improve?
 - UCR: <https://docs.edgexfoundry.org/3.0/design/ucr/Common%20Configuration/>
 - ADR: <https://docs.edgexfoundry.org/3.0/design/adr/0026-Common%20Configuration/>

1. One known bug to fix <https://github.com/edgexfoundry/go-mod-bootstrap/issues/534>

Decision: Out of scope for 3.1 (LTS, Stabilization, etc). Stretch: Analyse/design a better code solution for writable. Review again in 3.2 planning.

- Internal code refactoring (as needed to address the above issue)

2. Implement Common Config for C Devices

Decision: In scope, medium. Likely Felix to work on design and implementation. Assisted by Iain. Solution already solved in Go-Lang. Task is to factor into the C Device Service SDK.



EdgeX Data Modelling and Relationships

1. Parent/Child Devices – In scope: Small

- Add optional relationship metadata property that indicates a parent device to build hierarchical relationships between devices (often required at the northbound side for groupings management and presentation)
 - ADR not required, not cross cutting. Eaton to raise a usual issue/PR and document the need here. Wouldn't be handled by the Device SDKs, limited to Core Metadata

2. Extending Device Data – ~~Last year scope: Large~~

- Means to extend a southbound device's profile with new resources (e.g., min, max, alarms, trends) that are added and managed by a higher-level service (e.g., analytics, utility or exporter)
 - ADR required since this is Core Metadata and Core Command related, potentially device SDKs – Eaton to action
- 2.a Adding virtual device resource. <https://github.com/edgexfoundry/device-sdk-go/issues/1272>
- Decision: Update UCR to describe the virtual device resource concept which can address this point. Scope: Small

3. Provision Watch via Device Metadata Last year scope: Small/Med

- Allow device provision watchers to utilize both device metadata (e.g., serial number, MAC address, etc) and the existing protocol properties as needed
 - General enhancement on provisioning; ADR not required. Eaton to raise an issue/PR as normal
- UCRs for all of the above approved in the Lesvki cycle



Zero Trust / Secure Distributed EdgeX (OpenZiti Integration)

- How to authenticate EdgeX microservices running across different nodes
- Nice article: [Bryon's LinkedIn Post](#)
- Possible help from Clint Dovholuk of NetFoundry?
 - See Clint's demo: <https://www.youtube.com/watch?v=ARuGmzNuz-w>
 - In this prototype, OpenZiti client libraries have been directly linked in to EdgeX's basic microservices and have replaced the standard TCP/IP listeners and dialers that most REST-based microservice architectures rely on. The demo also includes a "Zitifed" a third-party component, the eKuiper rules engine, which was done with only a few lines of code. The Zitifed services have no open HTTP ports that can be attacked, and all inbound REST calls are authenticated by an OpenZiti-linked identity. Only the OpenZiti control plane and edge router components bear the risk of exposed ports.
- ADR: In Scope
- Implementation: Stretch. Like to see code changes, code size increases



Bring Your Own Vault (BYOV)

- Supporting adopters that wish to run EdgeX in an environment that has (or will have) an existing Vault instance not setup by EdgeX
- UCR Approved: <https://docs.edgexfoundry.org/3.0/design/ucr/Bring-Your-Own-Vault/>
- ADR next? In Scope. Jim to own, Bryon to contribute
- Implementation in Napa? No, deemed too much potential change for LTS



EdgeX V3 Docs

- Especially important for a stabilization / LTS release
- Already better: new commit policy updates the documentation with every code change
- Known Areas for Improvement:
 - Replace all v2 refs in the v3 docs – tickets added <https://github.com/edgexfoundry/edgex-docs/issues/1105> and <https://github.com/edgexfoundry/edgex-docs/issues/1106>
 - Device Services restructure
 - C Device SDK
 - C Device Services
 - Security restructure, easier to use/find. AppServices/DeviceServices sections
 - Metrics location
 - Elizabeth – to create a documentation issue with thoughts and ideas. Jim to take forward perhaps as an ADR
- Agree: Documentation refactor/enhancements is an important item for Napa. Likely Medium Scope





Under Consideration



Core Data Retention

- Desire to have Core Data serve more as a cache, i.e., keeping only latest n readings
- UCR Approved: <https://docs.edgexfoundry.org/3.0/design/ucr/Core-Data-Retention/>
- During Minnesota planning, we decided ADR not needed. Documentation also important
- Implementation is with Core WG and just in Core Data. Not at odds with stabilization/LTS
- T-Shirt size: small
- In Scope, priority dependent





Day 2

Conference Agenda – Day 2

All times in
PT

- 9:00am - Napa Architecture Discussions cont...
- 10:00am - EdgeX Awards 2023 – Naming the winners (Kendall)
- 10:15am - Napa Scoping by Working Group
- 12:00pm - Day 2 adjourn



Day 1 Summary

- Napa release will be a 3.1 minor release
 - November 2023 target release
 - A stabilization release of the 3.0
 - Will be the next LTS, replacing 2.1 which per [LTS policy](#), will be supported period of 2 years (to November 2023)
 - Quick TSC vote to confirm this.... **Approved via TSC vote during the meeting**
- Architecture issues discussed so far
 - Covered main “In Scope” items from Prewire (see table on next slide)
 - Next, we will address “Under consideration” and “On The Fence” items



Day 1 Scoping Summary

Theme / Title	In Scope	Priority	T-Shirt	Notes
URIs for Files	✓	High	M/L	Well-defined UCR and ADRs already. Owner: Lenny, Testing: Cherry
Common Config - Support for C Devices	✓	Med	M	Owner: Felix, support from Iain
Common Config - Design for addressing the limitation with removing settings from writable / code refactor	STRETCH (Design)	Low	S	Out of scope to implement for 3.1
Modelling & Relationships – Parent/Child Devices	✓	Med	S	Limited to Metadata. Owner: Eaton
Modelling & Relationships – Virtual Device Resources	✓	Med	S	Limited to Device SDKs and Metadata. Owner: Eaton
Modelling & Relationships – Device Metadata in Provision Watchers	✓	Med	S/M	Limited to Device SDKs and Metadata. Owner: Eaton
Zero Trust / Secure Distributed EdgeX (OpenZiti Integration)	✓ (ADR)	High	S	ADR owner Bryon. Out of scope to implement for 3.1
Bring Your Own Vault	✓ (ADR)	High	S	ADR owner Jim. Out of scope to implement for 3.1
EdgeX V3 Docs Enhancements	✓	High	M	Elizabeth (list issues) and Jim (perhaps ADR)
Core Data Retention	✓	Med	S	Limited to Core Data. Owner: Cloud (Core WG)



NanoMQ <https://nanomq.io/>

- EMQ (the company behind EdgeX rules engine eKuiper) have built a lightweight message broker called NanoMQ
 - Claimed to be extremely lightweight and very fast (compared to Mosquitto and HiveMQ)
 - Implements Sparkplug, includes an embedded rules engine, brokerless options
 - EMQ pushing to start another LF Edge open source project
 - Could/should EdgeX consider NanoMQ as an internal messaging option (alongside Redis Pub/Sub and Mosquitto)?
 - LF Edge community and support/maintenance benefits
 - Other thoughts?
- EMQ presented at architects meeting in May. Recording here: <https://wiki.edgexfoundry.org/display/FA/Architects%27+Meeting>
- May depend on resourcing
- Need to consider security
- Crawl 3.1 – changes in compose-builder to swap in NanoMQ (documented as experimental option). Obtain performance details having done this. Beyond 3.2 consider if/how a more complete integration can look including security.





On The Fence



Notification Service Improvements

- Suggested Improvements
 - Currently only email or HTTP; Better to provide support for sending notifications via SMS, web sockets or message protocol (like MQTT or Redis Pub/Sub)
 - Request to make using/sending notifications easier. Today, a developer must write code directly into a service to be able to send a notification. Is there a way to do some notifications by configuration? At the very least, better examples need to be provided on how to use the notification service
 - Also needed is a way for the rules engine to trigger notifications.
- T-shirt size: Last year: Small/Medium, self-contained
- Scope: Out of scope for 3.1

Ideas:

- Perhaps build on the back of an “alarm” service – Jim’s requirements work
- Pipeline function to send notification via Support Notifications (see App Services WG later)
- eKuiper/rules integration





Napa Scope



Caveats / Notes

- Items in the pages following are options at this point
- May be research or design tasks for this release
 - May be partial implementation
- No level of effort has been determined
- No priority has been assigned
- NOTE: scope does not include tasks and work items that come from the main architectural discussions earlier
 - These need to be added and scoped as well



General

- Upgrade Go Version. Minnesota currently at 1.20. Next version (1.21) ?
 - Likely August. Important for TLS to have latest
In scope, dependent on its release date. Smoke tests help
- Replace any poorly supported 3rd party libs – these on previous lists:
 - ~~bitbucket.org/bertimus9/systemstat~~
 - github.com/armon/cirbuf
 - github.com/go-logfmt/logfmt
 - github.com/mitchellh/consulstructure
 - github.com/pascaldekloe/goe (For Consul)
 - github.com/ryanuber/columnize (For Consul)
 - github.com/sean-/seed (For Consul)
 - Cloud comments that these may not be poorly supported, rather they are simple and haven't needed maintenance
 - Jim to help verify list
- More metrics across the microservices
 - Should be user/request driven – already said out of scope
 - lastConnected / lastReported – already removed but value in their data, possible query too. Move to Device Services WG. Define requirements and aims for 3.1
- Helm Charts as release artifacts
 - Move example Helm Chart to its own edgex-helm repo
In Scope
 - Maintain and release as we do with edgex-compose
Out of Scope
- General project management enhancements
 - See later
- Check LTS Feature List – next slide
 - Need to check/update the LTS page and what is in LTS 3.1



LTS Services and Restrictions

- Review Confluence Page:
<https://wiki.edgexfoundry.org/pages/viewpage.action?pageId=70948690>
- Any LTS items we should add, remove, amend for the 3.1 LTS ?
- James to create copy of page and suggest wording for Napa 3.1
- To be reviewed by the group nearer the release



Core Working Group

- Core
 - URIs for Files – main architecture item (already covered)
 - Core Data Retention - main architecture item (already covered)
 - Common config writable mechanism code refactoring (design: stretch, implementation: out of scope)
 - Full characters support for all the DTO names [#4053](#). T-Shirt:S
 - Spaces, percentages chars etc.
 - Currently implemented in device resources, now apply to name field in other DTOs
 - Move all the common API into go-mod-bootstrap [#478](#). T-Shirt: S
 - Replacement for Gorilla/MUX package [#4247](#) In Scope: Complete analysis ASAP. Want implementation for 3.1 LTS. High Priority. T-Shirt: M
- Test QA
 - Add tests to use Chinese and special character in DTO names [#836](#) In Scope
 - Fuzzing tests for different services – In Scope for a first set of fuzzing tests or a subset of services. Valina to assist
 - Automation tests for Core Data Retention and Persistent In Scope
 - More automated testing In Scope
 - Test CORS support (header validity, secure, non-secure) [#850](#) Priority: L
 - Test multiple device services of same type [#851](#) (App Services already done) Priority: M
- GUI – Waiting on Thundersoft feedback and resources
 - RulesEngine Rules Bug [#550](#)
 - Add Provision Watcher Tab to Metadata section
- Icebox – mostly don't warrant architectural discussion
 - Websocket support for support-notifications [#2304](#)
 - Error occurs sometimes "couldn't create database client" when repeating to restart services [#4005](#)
 - [Tech-Debt] Refactor the knowSecrets in compose-builder/makefile to use script or function [#284](#)
 - Support for EdgeX holding services via a fork in the edgexfoundry-holding organization [#233](#)
 - Add support for services to notify systemd socket when ready [#1301](#)
 - Support automatic migration of Devices between Device Services [#1451](#)
 - Module exploration - remove or replace github.com/kr/logfmt [#2616](#)
 - Various noted fuzzing errors



Security (Owned by Core WG)

- Main Items
 - Zero Trust / Secure Distributed EdgeX (OpenZiti integration). Already said: ADR: In Scope, Implementation: Out of Scope
 - Bring Your Own Vault. Already said: ADR: In Scope, Implementation: Out of Scope
 - Simplify running EdgeX in distributed secure mode (start with UCR)
 - Avoid need to create SSH tunnel
 - Improve documentation for Security (part of Docs review)
 - eKuper API security is not enabled when EdgeX is running in secure mode [#4538](#) – see OpenZiti work
 - Enable eKuiper to make authenticated EdgeX API calls [#4539](#) – see OpenZiti work
 - Fuzz testing for REST/MQTT interfaces [#714](#)
- Tech Debt
 - edgex-vault logs contain errors about revoking consul token leases [#3544](#) – Tech debt to be looked at
 - Refactor the anonymous function inside secretstore-setup for init Vault [#3182](#) (Covered by BYOV)
 - Integrate spiffe / delayed start into snap build [#4527](#) – Out of scope for 3.1
- OSSF Silver Items (Already “passing”)– (Bryon suggests lower priority than Fuzz testing - all nice to have)
 - Enable forced credential rotation in secrets-config utility [ossf silver] [#4227](#)
 - Formal policy on new functionality testing [ossf silver] [#899](#)
 - Others



Device Services

- New/Updating Device Services
 - UART DS on V3 (currently code for V2 but not yet released) – HCL willing to do the upgrade – aiming for V3.0 release version
 - HCL - CAN Device Service (new) – In Scope V3.1
 - HCL - BLE Device Service (update holding version) - In Scope V3.1
- Some low priority fixes/enhancements were pushed to 3.1... what were they?
 - Wrong port for GPIO [#956](#)
 - device-coap failing with HTTP 409 Conflict [#45](#)
 - device-coap error processing file [#46](#)
 - Most smaller items that don't need discussion here
- Remaining areas where C Device SDK is missing features:
 - Common Config – Already In Scope
 - NATS Support – Stretch for 3.1
 - Secure operation with delayed service start – Out of scope 3.1
- More Device Service Documentation
 - Structural updates and SDK lacking API info etc
- Icebox – all seem to need user pull and/or resources
 - Handle both JSON request bodies as well as CBOR request bodies [#488](#)
 - DS operatingState doesn't go down post DS stop (C) [#356](#)
 - Implement size constraints for devices and profiles [#18](#)
 - Support regular expressions in assertions [#839](#)
Real-world UCR needed
 - DS Filtering implementation (ADR already in place)
 - Downsampling - Throttling device data send based on ability to consume/use



Application Services

- In Scope
 - Record and Reply Implementation – In Scope. T-Shirt Med. Prio:Low
 - ParameterObjects & HTTPRequestHeaders parameter for ASC HTTP Export In Scope. T-Shirt Small. Prio:High
- Under Consideration
 - Add pipeline function to send notification via Support Notifications. Out of Scope
 - Add ability to set MQTT Will options for external MQTT server connections. In Scope. T-Shirt Med. Prio:Low
 - Add support for regular expressions in filters In Scope. T-Shirt Small. Prio:Low
- Out of scope
 - [LLRP] Add LLRP Inventory specific service metrics
 - Additional App Service metrics
- Any more from Icebox?





Day 3



Conference Agenda – Day 3

All times in
PT

- 7:00am - Napa Scoping by Working Group (only DevOps WG remains)
- 7:15am - Business and Marketing Topics
- 8:00am - Project Process Improvements
- 9:00am - Lessons Learnt, Evaluation, etc
- 10:00am - Day 3 adjourn



Scoping Summary - Architecture Issues

Theme / Title	In Scope	Priority	T-Shirt	Notes
URIs for Files	✓	High	M/L	Well-defined UCR and ADRs already. Owner: Lenny, Testing: Cherry
Common Config - Support for C Devices	✓	Med	M	Owner: Felix, support from Iain
Common Config - Design for addressing the limitation with removing settings from writable / code refactor	STRETCH (Design)	Low	S	Out of scope to implement for 3.1
Modelling & Relationships – Parent/Child Devices	✓	Med	S	Limited to Metadata. Owner: Eaton
Modelling & Relationships – Virtual Device Resources	✓	Med	S	Limited to Device SDKs and Metadata. Owner: Eaton
Modelling & Relationships – Device Metadata in Provision Watchers	✓	Med	S/M	Limited to Device SDKs and Metadata. Owner: Eaton
Zero Trust / Secure Distributed EdgeX (OpenZiti Integration)	✓ (ADR)	High	S	ADR owner Bryon. Out of scope to implement for 3.1
Bring Your Own Vault	✓ (ADR)	High	S	ADR owner Jim. Out of scope to implement for 3.1
EdgeX V3 Docs Enhancements	✓	High	M	Elizabeth (list issues) and Jim (perhaps ADR)
Core Data Retention	✓	Med	S	Limited to Core Data. Owner: Cloud (Core WG)
NanoMQ (Provide as Experimental Feature)	✓	Low	S	Adds option in compose-builder to obtain performance metrics, ahead of a decision for 3.2



DevOps

Main Items – all small, all in scope

- Named/Vanity (i.e minor 3.x) tag automation on release
- Generate GitHub releases on tag creation via GitHub actions
- POC gotesttools/gotestfmt for better unit test output in Jenkins pipelines
- Address missing commits in changelog due to issue with ! in the commit type
- Fully Automate DockerHub description/overview updates
- Go version upgrades
- Misc release automation cleanup

From the Icebox

- None 😊





Business Topics



Business Topic Agenda

- EdgeX Web Site
 - Current stats and status (See Slide)
- Developer Evangelism (Jim/James)
 - Social Media (See Slide)
 - Encourage EdgeX references regarding adoption/usage
 - More written notes? - e.g., Eaton's use case document
 - More adopter series? Elizabeth to present potential adopter series in future. Edge CV/AI related.
 - More Tech Talks? How-To videos?
 - More Hackathon Events? Intel's EdgeX Coding Competition is ongoing
 - Return to in-person events in 2023? LF OS Summit in Bilbao, Spain (September 2023)? Others?
- Future of the Outreach WG?
 - Wider topic – how best to accomplish Outreach work?



EdgeX Website Update

SEO status at Lesvki Release (late 2022):

- IOTech responsible for
 - [Release updates](#)
 - [Tech Talks updates](#)
 - Reporting of site stats including docs site
 - In Google [data studio](#)
- Technical SEO Audit undertaken throughout Q1
 - Many thanks to Laura Álvarez (IOTech)
 - Original recommendations shown (a lot of TODOs)

INDEX	ITEM CHECKED	ACTION	RESPONSIBILITY	STATUS
2	Code Validation	An HTML validation check on the homepage shows 90 Errors and 14 warnings. We should review the errors and fix them if possible.	Capitan	TO DO
3	Accessibility	A check on the homepage scores 54/100 on https://www.webaccessibility.com/ . We should review and implement any improvements if possible.	Capitan	TO DO
4	Clean Index	Some pages are empty and need to be removed. Some pages are low-quality pages and need more content to be added.	Members	TO DO
5	Title Tags & Meta Descriptions	The Titles and Meta Descriptions are not <u>optimized</u> . Some of them are missing and others need review.	IOTech	DONE
7	Image Alt Text	All images on the website are missing the Alt Text. This needs to be added to include keywords and relevant descriptions.	IOTech	TO DO
8	Site Structure	Some floating pages are not <u>organized</u> and the best practice is to group them into relevant categories.	IOTech	DONE
9	Heading Tags	48% of pages are missing an H1, and others need to be <u>optimized</u> .	IOTech	DONE
13	Noindex Tags	Some pages have a <u>noindex</u> tag. These pages should be reviewed to check if the tag should be removed.	IOTech	DONE
14	XML Sitemap	The XML sitemap is present on the website. However, the wrong sitemap is submitted to GSC and needs to be updated.	IOTech	DONE
18	Mobile & Desktop Core Web Vitals	As the Google Search Console property was recently created, a couple of weeks of data will be needed to check this.	Waiting for results	TO DO
19	Mobile & Desktop Page Speed	The mobile website has a ranking of 47/100 and the desktop website 68/100. We should try to implement the <u>recommendations</u> set out by Google if possible.	IOTech	TO DO



EdgeX Website Update

- Everything actioned
 - Code Validation
 - Accessibility
 - Clean Index
 - Image Alt Text
 - Mobile & Desktop Vitals
 - Mobile & Desktop Speed
- Except members section which needs updated text

SEO status at Minnesota Release:

SUMMARY

INDEX	ITEM CHECKED	ACTION	RESPONSIBILITY	STATUS
2	Code Validation	An HTML validation check on the homepage shows 90 Errors and 14 warnings. We should review the errors and fix them if possible.	Capitan	DONE
3	Accessibility	A check on the homepage scores 54/100 on https://www.webaccessibility.com/ . We should review and implement any improvements if possible.	Capitan	NOT NEEDED
4	Clean Index	Some pages are empty and need to be removed. Some pages are low-quality pages and need more content to be added.	Members	TO DO
5	Title Tags & Meta Descriptions	The Titles and Meta Descriptions are not optimized. Some of them are missing and others need review.	IOTech	DONE
7	Image Alt Text	All images on the website are missing the Alt Text. This needs to be added to include keywords and relevant descriptions.	IOTech	DONE
8	Site Structure	Some floating pages are not organized and the best practice is to group them into relevant categories.	IOTech	DONE
9	Heading Tags	48% of pages are missing an H1, and others need to be optimized.	IOTech	DONE
13	Noindex Tags	Some pages have a noindex tag. These pages should be reviewed to check if the tag should be removed.	IOTech	DONE
14	XML Sitemap	The XML sitemap is present on the website. However, the wrong sitemap is submitted to GSC and needs to be updated.	IOTech	DONE
18	Mobile & Desktop Core Web Vitals	The Google Search Console property reported good results and no actions are needed.	IOTech	DONE
19	Mobile & Desktop Page Speed	The mobile website has a ranking of 47/100 and the desktop website 68/100. We should try to implement the recommendations set out by Google if possible.	IOTech	DONE



EdgeX Website Update – Keyword Research

- https://docs.google.com/spreadsheets/d/1IYqcTwwEXzgVa9ftO8-dcQE0DD_jvVTPo2UkDdsxqIU/edit#gid=0

Brief Summary from Laura:

- 'first ranking' column is where we started, before making the changes
- 'current ranking' column shows this month's results
- 'changes since last month's' column shows the difference from last month, as I didn't want a massive spreadsheet with all month's results
- This is creating some changes in traffic and users, as it is starting to show the page in different keywords as it did before

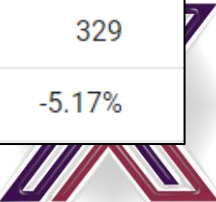
Theme	Keywords	Searches / Month	EdgeX Foundry		
			First Ranking	Current Ranking	Changes since last month
LF Edge	linux foundation	27000	-	-	-
	linux foundation edge	50	14	8	-4
	lf edge companies	<10	-	10	0
	lf edge projects	<10	22	13	8
EdgeX Foundry	lf edge x	<10	-	2	0
	edgex	1300	1	1	0
	edgex foundry	720	1	1	0
	edge x	480	1	1	0
	edge x foundry	70	1	1	0
	edgex foundry community	<10	1	1	0
	edgex ecosystem	<10	-	1	0
	edgex levski	<10	-	3	-2
	edgex foundry levski	<10	-	3	-2
	edgex platform	<10	-	1	0
edgex foundry members	<10	-	1	0	
Edge IoT	edge iot	2900	85	58	12
	iot edge computing	1300	-	90	11
	edge iot platform	40	-	4	0
	edge iot middleware platform	<10	-	2	0
Edge Software / Computing	edge computing	74000	-	-	-
	edge solutions	2900	-	-	-
	edge computing technology	1600	-	-	-
	edge software	1300	-	20	9
	edge cloud computing	1000	-	-	-
	edge computing solutions	880	-	-	-
	edge computing platform	390	-	65	1
	edge computing systems	140	-	-	-
Open Source / Software	edge software solutions	50	-	29	-1
	edge software platform	10	10	12	-5
	open source software	49500	-	-	-
Open Source / Software	open source platform	1300	-	-	-
	open source software platform	90	72	79	-8



EdgeX Website Update – Traffic Analysis

- SEO changes and content additions seems to be leading to positive results:
- Comparing data from May and February (before and after changes on the keywords)
- Overall traffic has improved, but specifically organic traffic is getting better results than it was before, and it is the first source of traffic, followed by direct

Session default channel group ▾ +		↓ <u>Users</u>	<u>Sessions</u>	<u>Engaged sessions</u>
⇅ SHOW ALL ROWS				
		2,207 vs. 2,099 ↑ 5.15%	3,848 vs. 3,509 ↑ 9.66%	2,031 vs. 1,761 ↑ 15.33%
1	Organic Search			
	1 May - 31 May 2023	1,357	2,564	1,435
	1 Feb - 28 Feb 2023	1,151	2,037	1,140
	% change	17.9%	25.87%	25.88%
2	Direct			
	1 May - 31 May 2023	582	794	312
	1 Feb - 28 Feb 2023	681	936	329
	% change	-14.54%	-15.17%	-5.17%



Social Media

- EdgeX now running its own Social Media
 - Posting 2-3 times a week (thanks to Gavin, Laura and IOtech team for help)
 - If you have a post you'd like to make, let Jim/James/Gavin know
- Stats and Study (Thanks Jim)
 - LinkedIn
 - Good Engagement rate 2-3%
 - Good Click through rate 2-5%
 - Good Impressions #: 1K good, 5K great
 - Twitter
 - 0.5% good; 1% is great
 - Impressions in 100's
 - Our engagement rate around 3% month over month
 - Takeaways
 - LinkedIn better than Twitter for volume, impressions, quality of traffic
 - Dos
 - Release announcements
 - Highlight feature or value
 - Real use case/demonstration/reference
 - Offer or announce something of value/something new
 - Quick poll can provide good impression #s (not as high click through)
 - Don'ts
 - (Repetitive) Event announcements
 - Repeat content
 - Non-EdgeX product
 - Adopter replays (of the week)
 - Highlight the obvious (docs location, video location)
 - Tell me something I already know or repeat something over and over, tell me something outside of the project I don't care about





Process Improvements



Process Improvements - Agenda

- EdgeX Meetings – Days and Times check
- UCR and ADR process
- Issue and PR process
- Community Chat: GitHub Discussions
- Third-Party Libraries
- EdgeX Project Boards
- Example Repo Tagging – decision: change tagging process to have examples work against specific releases – like the rest of the repos and dev cycle



EdgeX Meeting Times

- Mondays
 - Device Services @ 8am PT. **Plan to make bi-weekly and alternate between 8am and 4pm PT.**
 - Outreach/Marketing @ 9am PT (3rd Monday each month)
 - ~~UI Project Group @ 7pm PT~~
- Tuesdays
 - DevOps @ 9am PT (2nd Tuesday each month)
 - Application Services WG @ 3:30pm AZ Time (alternate weeks)
 - Core @ 4pm PT
- Wednesdays
 - TSC / Architect's Meetings @ 8am PDT (alternate weeks)
 - ~~Security @ 9am PDT~~
- Thursdays
 - No meetings
- Friday
 - China Project Meeting 12:00am (1st Friday each month)

- Any Changes
 - More/less frequent?



ADR / UCR Process

- During Levski cycle we added Use Case Record (UCRs) to the process
 - <https://docs.edgexfoundry.org/3.0/design/Process/>
 - Aim was to better agree needs and requirements before diving into Architectural Design Records (ADRs)
 - Believe this is working well for us? Any suggested tweaks?



Issue and PR Process

- Any issues with Issues to report?
- Are we under-defining the Issue/Case creation template?
- Lenny: Ensure the commit messages are descriptive and concise. They appear in the changelogs. “WIP” in commit message when fixing a bug introduced in current cycle. Action: Lenny to introduce “wipfix” as a commit type.
- Lenny: Committers need to better review PRs (message and template etc) to ensure standards are followed. PR checklist to have committers checklist section. Action Lenny/Elizabeth at TSC or Architects Meetings



Community Chat: GitHub Discussions

- In last cycle migrated away from Slack to GitHub Discussions as the main community communication mechanism
- <https://github.com/orgs/edgexfoundry/discussions>
- Daily questions posted with much discussion – thanks to all contributors!!
- Suggestions for refining the process / management of discussions:
 - Mark discussions as closed when resolved
 - Mark specific comments as “answers” – Stack Overflow style
 - Keep conversations specific to original question. Open new discussions when needed
 - Promote “Show and Tell” section for EdgeX adopters / use cases
- How to ensure questions raised result in awareness of requirements/needs?
 - Just ask the person raising the question to create an issue (if needed) and reference the discussion.
- Other thoughts/comments?



3rd party library support

- We have a process in place to review and vet 3rd party libraries being used by the project
 - We perform a “paper study” to explore the use, ongoing development status, upkeep, and contributors to a library
- In many cases, 3rd party libraries have less than ideal maintenance records, use, etc.
 - But often, there are few or no alternatives to using a library we might otherwise reject
- What to do about this going forward?
 - Fork and maintain libraries (at least those with potential support issues) in EdgeX
 - Only do this when the library team is not responding to an issue
 - Try to provide assistance to these library projects
 - This is our main recourse for issues
 - Do nothing – hope for the best; react to issues as they arise
 - We have and maintain our vendor copy
 - Default – as long as there are no issues



EdgeX Project Boards - <https://github.com/orgs/edgexfoundry/projects>

- Time for all to transition to Napa boards – By End of June?
 - Remove the Dones
 - Clean out In progress, QA Review, etc.
 - Move appropriate Icebox items back to the Backlog (leave issues not going to be addressed in the Icebox)
- Start a new Napa Documentation update (or rename Minnesota)
- Feedback on the different project boards that are being used?
 - Most working groups use “new” GitHub boards
 - Time to migrate all remaining boards from “classic” to “new”
 - Some old boards to delete/close – e.g. Certification WG, Kamakura Docs, etc



Manual Release Testing

- <https://wiki.edgexfoundry.org/display/FA/Manual+Testing>
- Generally adding these tests to TAF / Automation, e.g.
 - Persistence on/off (persistence = false pass through) is covered
 - Test different combinations/permutations of app functions in app services - MQTT and HTTP export functions are covered
 - Test running of multiple app services
- Plan to add a checklist for future manual release testing





Lessons Learnt, Continuous Evaluation, etc



Lessons Learned in Levski (What we said last time)

- Positives

- Release Checklist works well
- UCR helps focus our aims before diving into tech details
- We hit all our main 2.3 implementation targets
- Docs released on schedule (done as went along)
- Security process worked well, e.g., handling CVEs
- Automated testing continues to rise
- Seamless transitioning of people

- Areas of improvement

- Better Commit messages for change logs
- We should make architectural decisions earlier in the cycle
 - 1 month frequency too low
 - Can we do these more ad-hoc and on-demand
 - More expectation of moving through the UCR/ADR/Impl process in a timely manner
- Alternate TSC and Architect's Meetings on the Wednesday



Lessons Learned in Minnesota

- Positives

- V3 Breaking Changes were handled smoothly. TAF and management of breaking changes etc
- Doc changes and migration guide, all done within the time
- Managed workload well to hit the release targets
- Release process gets better

- Areas of improvement

- Continue to improve on commit messages
- Continue to improve documentation
- More community coding members
- Awareness of different support options for a wide range of requirements people have



Planning Meeting Lessons Learned

- Release Planning Meeting
 - Any lessons learned?
 - Any thing that could be done better?
 - Start doing, continue doing, stop doing?
 - What worked well and what did not?





Day 4



Conference Agenda – Day 4

- 9:00am - Topics TBC
- 12:00pm - Day 4 adjourn

All times in
PT



Thank You

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