

EDGE X FOUNDRY™

# TSC Meeting

January 24, 2018



# Meeting Logistics

Time: January 24, 2018 7am PST – 8am PST

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

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# TSC – Members Present Today

<u>Company</u>	<u>Name</u>	<u>Email</u>
IOTech	Andy Foster	<a href="mailto:andy@iotechsys.com">andy@iotechsys.com</a>
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Samsung	MyeongGi Jeong	<a href="mailto:myeong.jeong@samsung.com">myeong.jeong@samsung.com</a>
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Canonical	Tony Espy	<a href="mailto:espy@canonical.com">espy@canonical.com</a>
Samsung	Uze Choi	<a href="mailto:uzchoi@samsung.com">uzchoi@samsung.com</a>

Current quorum = 8 members

*Note: TSC meetings shall require a quorum of two-thirds of the TSC total members to take a vote or make a decision. If a TSC meeting fails to meet the quorum requirement, discussions may proceed, however there shall be no voting or decisions.*

# Today's Agenda

- Recap of TSC F2F Meeting (January)
- Upcoming Events
- AOB



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EdgeX Foundry  
Technical Face - to - Face Recap

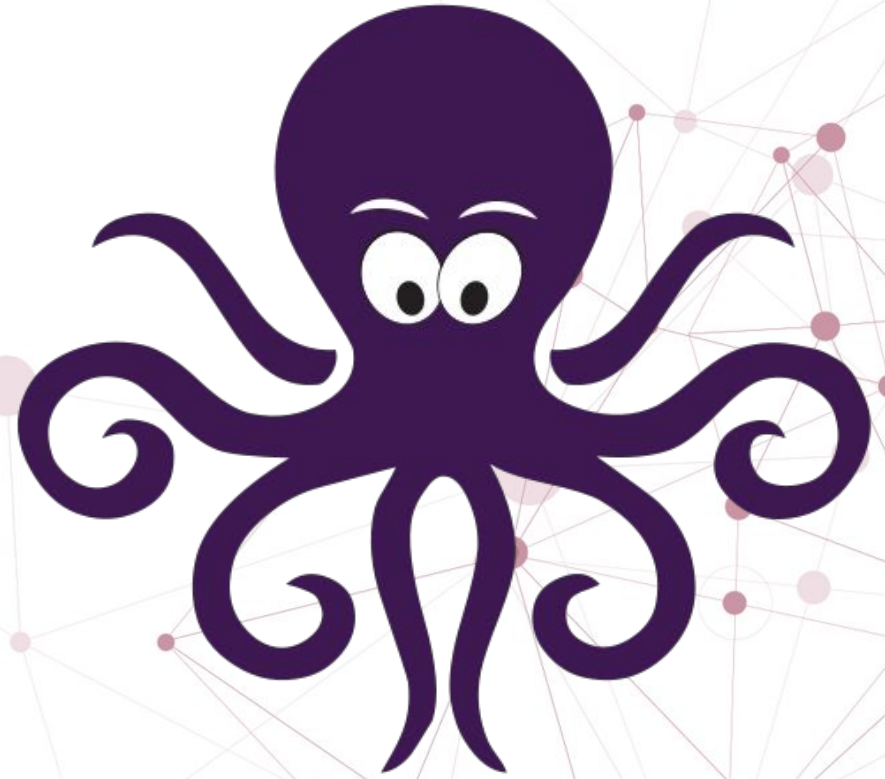
*Orlando, January 16-18, 2018*

# TSC F2F Highlights

- Some mismatch in objectives but overall great atmosphere
  - Mainly around ambition
- Lot of progress
- California roadmap defined
- Resourcing issues
  - Membership fees in people?
  - Systems Management a key area of concern
- Development Coordination
  - Project Manager/ Lead Architect
  - Coordination key this release integration of core/security/sysmanagement
- Interoperability demo (competition/paid for?)
- Next TSC Face to face – June, location tbd

Slides, Meeting Recordings, Actions/Resolutions located at:  
<https://wiki.edgexfoundry.org/display/FA/16-18+January+2018%3A+Orlando+Technical+Meeting>

# Day 1





# California Preview Release

- We should be careful to call this a preview and not a release
  - Messaging and terminology is important to setting expectations
- Targeting Jan 31<sup>st</sup> as our preview availability
- Go Lang Export Services (Mainflux/Cavium) will have Consul integration
- We will have Docker compose files for Java and hybrid Java/Go for 0.5.0 artifacts
- From DevOps, have the cross compiling and artifact production by availability date
- Use tags for artifacts but not formal “release”
- There will be formal announcements from LF on the preview availability
- Blog posts will be created on the performance numbers

# Go v. Java (or other language) support

- There will be one reference implementation of the micro services offered by the EdgeX community
  - Meaning the community will (barring any other considerations) support one reference implementation at a time – which can be in any language
  - Community work on a service, or contribution of a new reference implementation will be weighed against the current reference implementation
  - Any implementation must meet the API and quality agreements for that service
  - Today the services are almost all Java. For California, the ref impl of core services and perhaps some of the export services will be in Go Lang
    - The preview availability will start to highlight this move
  - Organizations/individuals can choose to maintain and contribute other language implementations of services
    - These will be tested against the API/quality requirements
    - They will either be deemed sufficiently “better” by the TSC and become our reference implementation or they will be listed as alternate implementations for use by the community
    - Example: someone may continue to maintain the Java core services to make them API and functionality equivalent of the Go Core services. Because of the performance differences, these would not be “better” but could be otherwise equal and continue as alternate implementations
    - The TSC does not require the contributors maintain alternate implementations. If an alternate is not maintained close enough to the reference, it is moved to “archive” status by the TSC
- Security/Sys Mgmt work will have to be done to reference implementations – meaning 2 language implementations at this time
  - Core services (export services when deemed the ref impl) will need Go additions
  - Other services (logging, notification, etc.) would require Java additions at this time

# California Release – what's in

- Blackbox testing is highest QA/Dev Ops concern
  - Performance testing under that
- Arm native testing was high priority by TSC members, but not as high to community at large
- Final matter for voting TSC/board to decide
- Developing Device Service SDK in other language(s) – Go or C
  - SDK's are more important than developing more DS for other protocols
- A part of the Wiki (or EdgeX documentation set) should provide attestation as to who has tested EdgeX on which OS
  - This attestation specifies that Blackbox (and any other tests) have been run and what issues were encountered
  - Independent attestation does not imply any official community endorsement (or repudiation)
  - As a general statement, the community says EdgeX is and will continue to remain platform agnostic with regard to hardware and OS.
- We always, and forever more, seek and accept for consideration other contributions and will incorporate those into the release as possible

# California – what's out

*don't panic – this is just for California – these items will be moved to roadmap for Delhi??*

- Additional export connectors
  - Groups like NOV plan to offer InfluxDB and OSI Soft/Pi connectors
- Expose command information north bound (export of actuation information and APIs)
- Additional Device Services
  - Welcome DS from other vendors and 3<sup>rd</sup> party, but not the priority for this release
- Official OS support
  - Welcome companies to test and formalize their results, but no EdgeX official list of supported OS
- No official UI support
  - 3<sup>rd</sup> party provided

# Security California Release

- A OS reverse proxy will be selected and integrated to EdgeX
  - Integrate with AAA service (see below)
    - The implementation will offer both OAUTH and Basic Auth options
  - Use of the network layer to protect access
    - I.e. no changes to existing micro services at this time
  - Currently looking at Traefik for dev/test and possibly NginX for prod
  - This will be for HTTP/S only (meaning security for MQTT and other protocols will not yet be provided)
- An open source Authentication and Authorization server (s). (E.G., Keycloak, Dex, Hydra, ...) will be selected and integrated to EdgeX
  - Prod deployment models will require integration with centralized AAA. Initial solution will be to integrate with reverse proxy
- Data Protection Services via HashiCorps's Vault will be integrated with EdgeX
  - This will provide Key Management, Certificate Services, Encryption
  - API abstraction to allow 3rd party implementation/extensions
  - Some additional research/work needs to be finalized for California around license, external CA support, local crypto library, bootstrap provisioning, local secure store for bootstrap credentials, unattended startup
  - For the California release, the goal is to accomplish implementation without rework of the micro service APIs, with the possible exception of export services

# Security Roadmap (beyond California)

- The existing Security Roadmap still generally stands and serves to outline future work
- More requirements need to be captured from customers to sharpen the roadmap going forward (task for the Security WG)
  - For example, the current roadmap is focused on securing the EdgeX “gateway” and remains the priority
  - In the future (perhaps by Delhi) a roadmap around securing EdgeX’s devices will be outlined
  - This may include research and considerations around specific technology like enrollment over secure transport (EST)
  - Additionally, input from IIC, OpenFog and other IoT related consortia will be mined for both security requirements and EdgeX security roadmap items

# Performance Targets (for California)

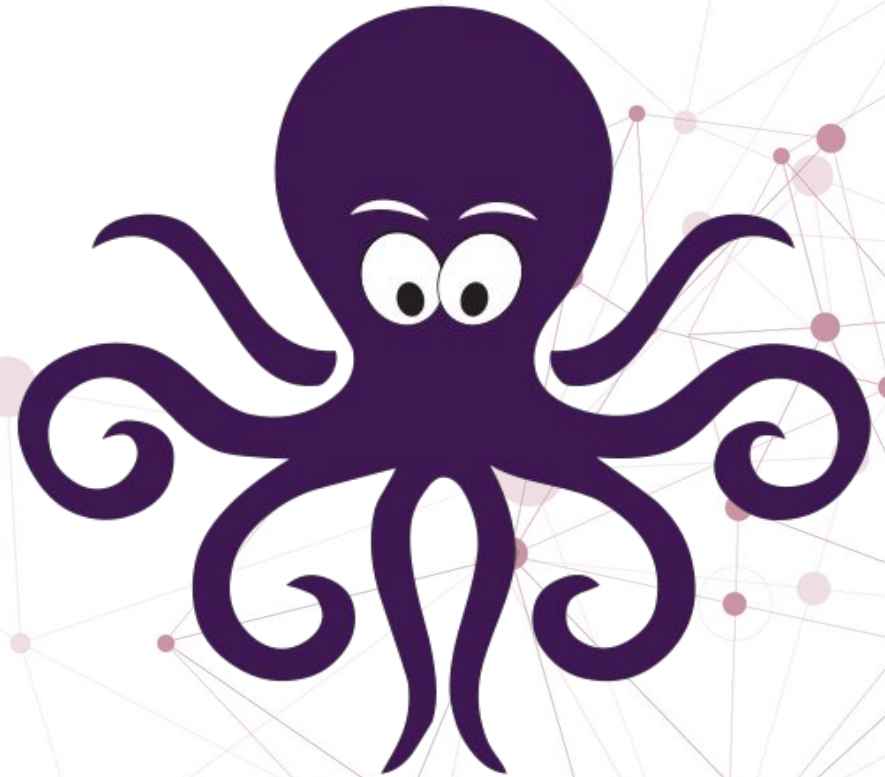
- More requirements need to be collected from end customers for specific use cases and target platforms
- For purposes of a baseline and to establish targets for the Test/QA working groups to build performance tests against, we establish a “developer community” target platform
- The target is to run all of EdgeX (all the services to include the virtual device service) on a Raspberry Pi 3 (1 GB RAM, 64bit CPU, at least 32GB storage space, running Raspbian Linux distro)
  - This is not an endorsement of the platform as our favorite or otherwise endorse platform
  - It only suggests the general characteristics of a “developer community” target platform
  - This may not be entirely feasible without all Go replacements, but is the target and the development community will report back when/where this is not possible
  - For example, it is unlikely the target security implementation will fit on this size platform
- Additional “developer community” targets
  - Startup in 1 minute or less (post OS boot – from micro service start to all services up and available)
  - Throughput for one piece of data (with one IP device connected by hardwire – versus wifi) from data ingestion at the Device Service layer, through Core Data, to Rules Engine and back down through Command Service finally to Device Service for actuation will be < 1 second

# Generals

- More requirements from the “user” or customer community are needed across the board as more POC and real implementations using EdgeX take shape
- We need a “feedback loop” that invites the EdgeX community to share their deployment activity, lessons learned and requirements
- This topic is pushed to the TSC and board for consideration on how to implement
  - The LF has many projects that institute something like this for possible consideration



Day 2



# System Management

- Affirmed 2 system management elements for California release:
  - System management API (action, alerts, metric) as discussed and outlined [here](#)
  - System management Agent
- More design work needs to occur around this work
- For the purposes of discussion going forward, this is called Application (as in EdgeX micro service application) Management
- The broader, post-California system management functionality requires more discussion (see F2F deck as well as [here](#)).
  - This may require the addition of another project
  - For the purposes of discussion going forward, this is called Application and System Management
  - System management includes platform and device management

# California Resource Discussion

Security: lead David F & Riaz Z with help from ForgeRock, Dell Technologies/RSA and Beechwood (Rodney) engineers

Core/App WGs: except for changes based on Security/System Management, no large work

Device Service Go and C SDK: Canonical (Tony) with Cavium on Go SDK, IoTech on C SDK  
With some sore of demo device service created (but not full 6 DSs done by these SDK)

DevOps Native Arm testing: Jeremy with Cavium assistance. Cavium also to provide Arm test environment

Test/QA: Andy Foster (IoTech) expand black box tests to all services and set up performance tests

System management: no lead, no resources identified at this time

**Delivery manager:**

# Documentation for California

- IoTech (Andy F) to have:
  - Docs in GitHub
  - Autobuild to generate docs through CI process
- Relook of RAML choice, auto generation of API docs, to be covered in Core WG

# Roadmap Discussion

- For each road map item, we need a small paragraph that describes each (Jim White action item)
- Clean up of current road maps (to be done by Jim W)
  - Message infrastructure (based on outcomes of architecture discussions)
  - DS SDKs moved up to California
  - Role orchestration under system management
  - Fold some of the topics under “fog” as appropriate
  - Multitenancy - add report of data flowing, fine grain instrumentation

# Roadmap Discussion

- New or updated items
  - Technical Debt/Refactor (what and when) - need to put some dates next to architectural discussions tomorrow
    - Device service rewrites (ex: BLE, Bacnet)
  - Disruptive testing (start by Delhi)
  - Cert Process - want to have outlined by Delhi
    - Probably will include different levels of certification (micro service, versus “box”, etc.)
  - Virtualization/fault tolerance/resiliency/decentralized peer-to-peer capability (post Delhi)
  - Resiliency, in general, is something we need to work on more for all releases
  - Distributed ledger/blockchain (post Delhi)

# Deemed Not in scope of EdgeX

- Security monitoring
- network management
- secure boot/HRT
- platform attestation (show measurements of trusted

# Code Contribution Process

- Per picture on whiteboard
- Jim W. to write up and get feedback
- Get TSC approval



# Deployment/orchestration

- More to be discussed today
- Options/opinions to be considered
  - We want to envibe the ecosystem; make it easier for customers
    - We need a stake in the ground and Kubernetes appears to be leader
  - We don't want to make a technical bet and get it wrong
    - Remember Kura and OSGI
  - We want to provide “support” for Docker/Docker Compose; we offer community “recipes” for other options (Kubernetes, no containerization, etc.) somewhat like [was done for PCF](#)



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## Upcoming Events

Brett Preston

# Upcoming Events - Confirmed

- [IIC Members Meeting](#) - Progress update in Test Bed Track, February 5-8, 2018, Virginia [Salim]
- [Embedded World](#), February 27 - March 1, 2018, Germany
  - Speakership
- [Industry of Things World USA](#), March 8-9, 2018, San Diego
  - Speakership
- [OpenIoT Summit](#), March 12 - March 14, 2018, Portland
  - Bronze Sponsorship, including booth presence
  - CFP responses submitted for Sessions/Lab
- [IoT Build](#), March 27-28, 2018, San Francisco
  - Speakership and panel
- [Hannover Messe](#), April 23-27, Germany
  - Member booth - confirmed so far: Dell, RSA (other members in progress)
- [Internet of Things World](#), May 14-17, 2018, Santa Clara
  - Panel



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## AOB / Reminders

Brett Preston

# Project Contributions Welcome!

- Our objective is to make EdgeX use & deployment pervasive!
- EdgeX success is 100% dependent on the vibrancy of a proactive community
- Getting Involved
  - Project membership growing - want to join contact Philip DesAutels at LF ([pdesautels@linuxfoundation.org](mailto:pdesautels@linuxfoundation.org))
  - First Priority is the MVP - potential contributors please contact [keith@iotechsys.com](mailto:keith@iotechsys.com) (people, equipment, technology)
  - If interested in adding new projects please contact the relevant working group chair

# Project Resources

Quick links to most commonly used Community Resources

- Code: <https://github.com/edgexfoundry>
- Documentation: <https://wiki.edgexfoundry.org/>
- Discussion: <https://chat.edgexfoundry.org/>
- Mail Lists: <https://lists.edgexfoundry.org/mailman/listinfo>
- Twitter: <https://twitter.com/EdgeXFoundry>
- LinkedIn: <https://www.linkedin.com/company/22298339/>
- YouTube: <https://www.youtube.com/c/EdgeXFoundry>

# EdgeX - Where to learn more

- EdgeX Foundry Wiki

<https://wiki.edgexfoundry.org/display/FA/EdgeX+Foundry+Project+Wiki>

- EdgeX Foundry Rocket Chat

<https://chat.edgexfoundry.org/home>

- [Weekly EXF Technical Spin up calls](#) by Jim White, Dell ([james\\_white2@dell.com](mailto:james_white2@dell.com))

30 minute deep-dive topics followed by 30 minute open Q&A

Call recordings are available on the [Wiki](#)

# EdgeX in Market

- Page showcases momentum in the project, including solutions already available
- <https://www.edgexfoundry.org/edgex-in-market/>
- Email [info@edgexfoundry.org](mailto:info@edgexfoundry.org) if you have any additions



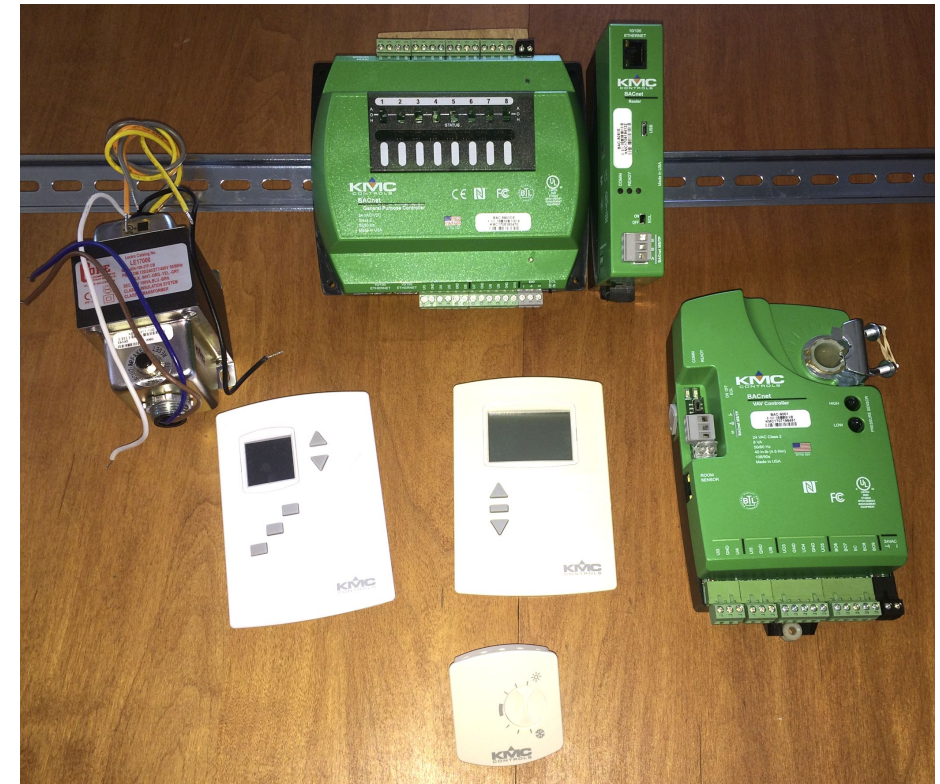
# What is the Device Exchange?

- A great way to put your products in the hands of other members so they can help build a better EdgeX!

•<https://wiki.edgexfoundry.org/display/FA/Device+Exchange>



Special thanks to [Dave Bohlman](#) and [KMC Controls](#) for making this awesome kit and how-to guide available to members!!



# Hackathon Events

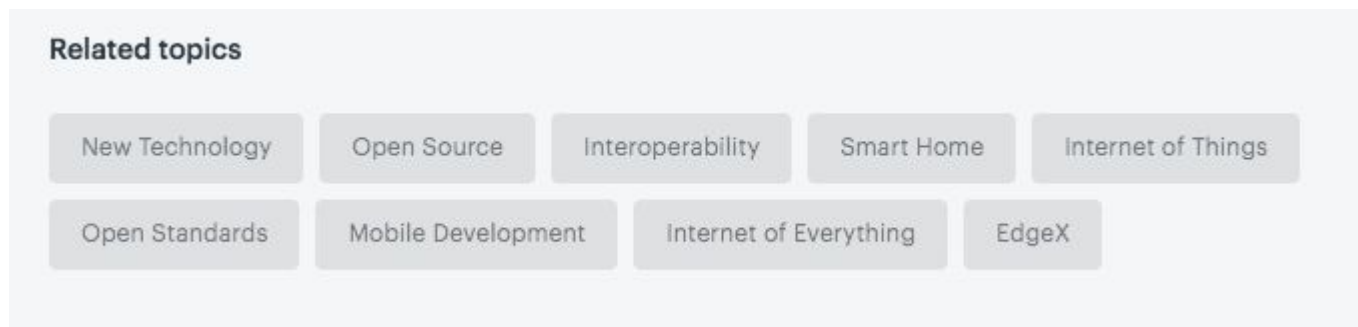
- Jim White and Tyler Cox putting together hackathon starter kit.
- More coming

# Hackathons: How can you help?

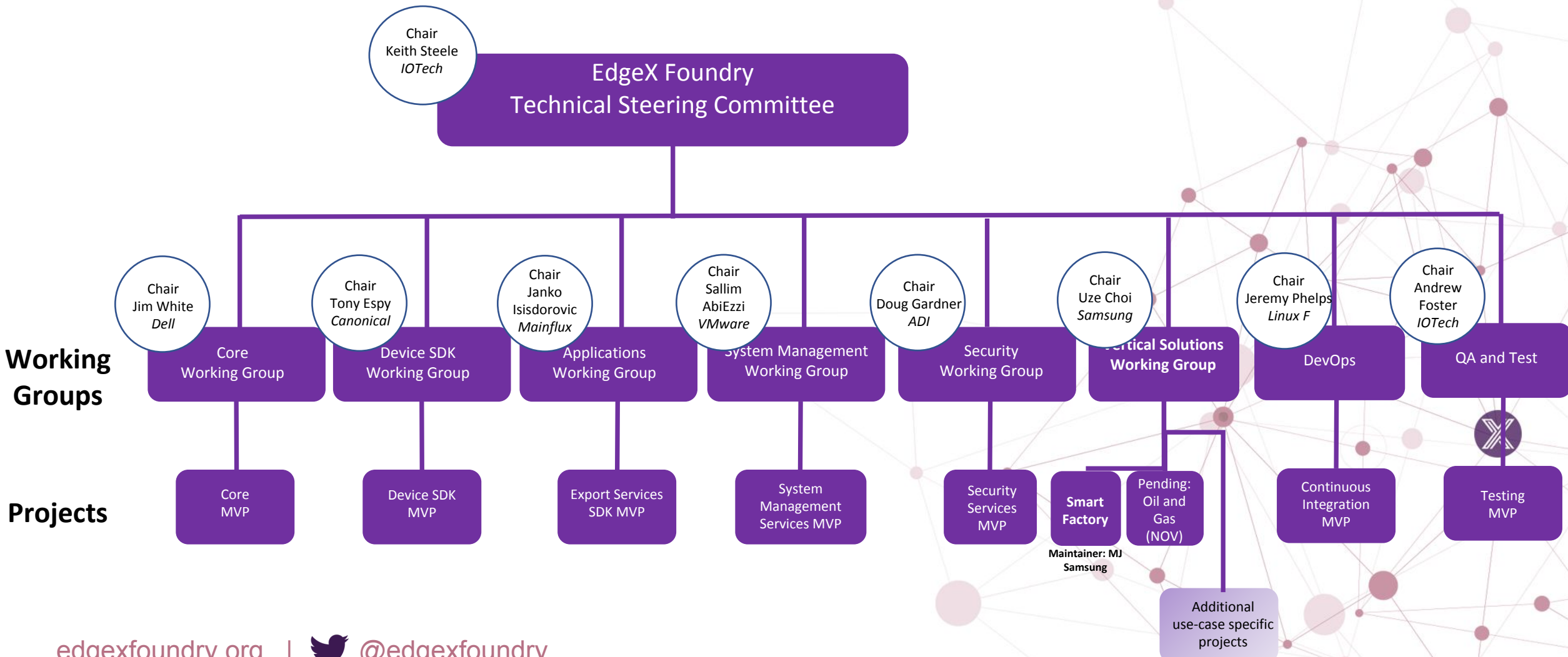
- <https://wiki.edgexfoundry.org/display/FA/Hackathons>
- Provide any local volunteers onsite to help with technical work, potentially help judge, etc. (see list below of known hackathons coming up and locations)
- Sponsor breakfast/lunch/dinner for the participants (usually things like donuts/coffee, pizza lunch or cater sandwiches)
- Sponsor \$ rewards (incentives) for teams that successfully implement projects (these could even be projects that particular sponsors want to see accomplished - we just need them scoped appropriately so as to be something that can be accomplished in a 2 day period)
- Help provide or resource hackathon winner prizes
- Sponsor or provide any swag (t-shirts, mugs, etc.)
- Provide marketing assistance

# Meetups

- Help us grow awareness!
- Present, and Tag, EdgeX in your local IoT Meetups
- <https://www.meetup.com/topics/edgex/>
- Email [info@edgexfoundry.org](mailto:info@edgexfoundry.org) for assistance



# EdgeX Project Organization



# Marketing

- **CTA:** If your company will be demoing technologies that utilize the EdgeX framework, please email [events@edgexfoundry.org](mailto:events@edgexfoundry.org) so that we can add to <https://www.edgexfoundry.org/events/>
- **CTA:** If your company will be presenting EdgeX at an upcoming event/webinar/other, please email [pr@edgexfoundry.org](mailto:pr@edgexfoundry.org) so that we can help promote

# AOB/Cadence

- Meeting Cadence Reminder
  - Currently held weekly at 7am PST on Wednesday's
  - Calls without TSC quorum will still be used to review issues
  
- **Next Meeting: January 31, 2018**



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Thank You