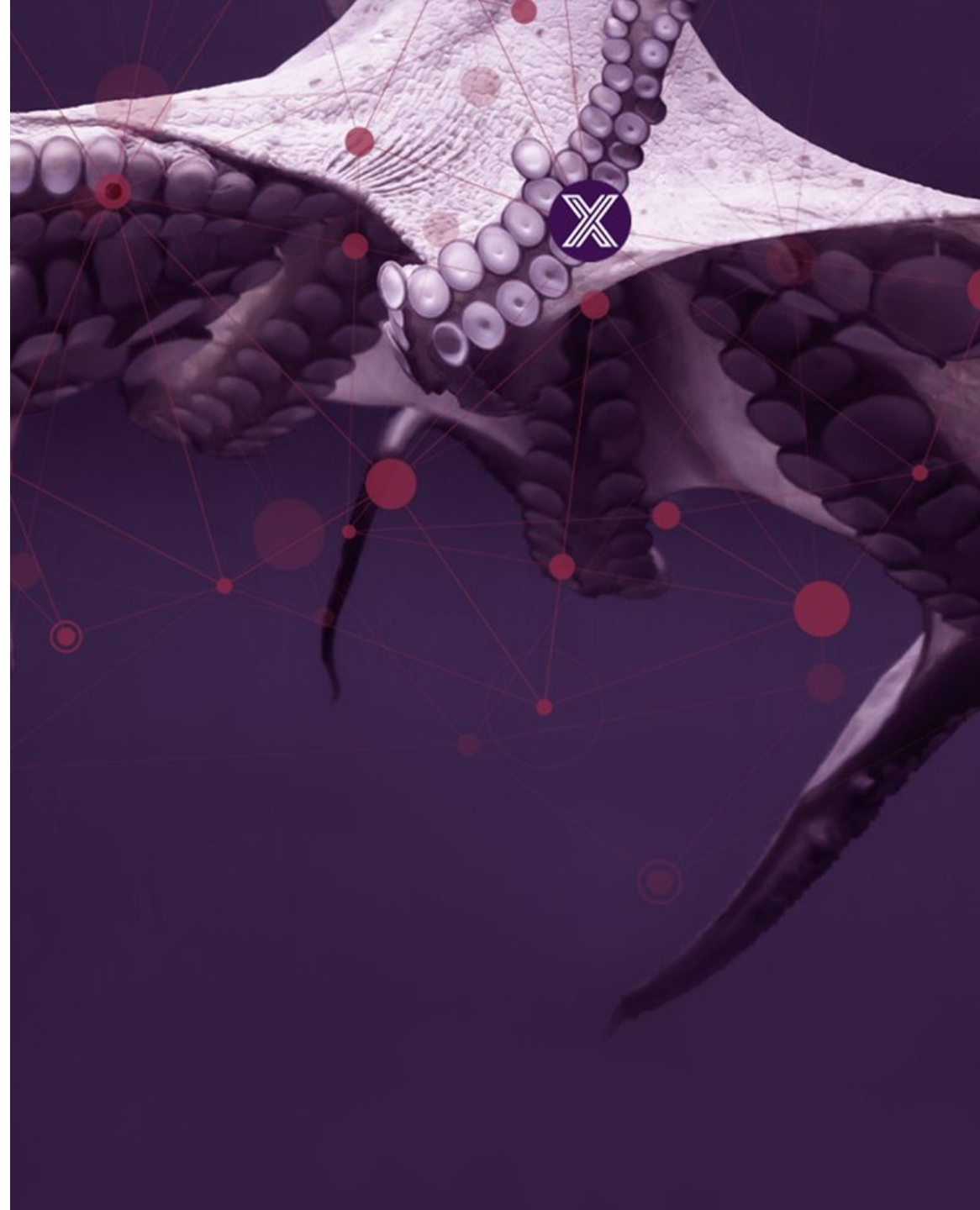


EDGE X FOUNDRY™

TSC Meeting

May 16, 2018



LF Antitrust Policy Notice

EdgeX Foundry 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 EdgeX Foundry 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: May 16, 2018 7am PDT – 8am 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)

+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/join?j=983155298>

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

TSC – Members Present Today

<u>Company</u>	<u>Name</u>	<u>Email</u>
IOTech	Andy Foster	andy@iotechsys.com
Analog Devices	Doug Gardner	doug.gardner@analog.com
Mainflux	Janko Isidorovic	janko@mainflux.com
Dell	Jason Shepherd	Jason.A.Shepherd@dell.com
The Linux Foundation	Jeremy Phelps	jphelps@linuxfoundation.org
Dell	Jim White	james.white2@dell.com
IOTech	Keith Steele (TSC Chair)	keith@iotechsys.com
Samsung	Moonki Hong	moonki1.hong@samsung.com
Samsung	MyeongGi Jeong	myeong.jeong@samsung.com
VMware	Salim AbiEzzi	salim@vmware.com
Canonical	Tony Espy	espy@canonical.com

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

- Working Group Updates
- Next TSC F2F Meetings
- EdgeX Test Beds
- IIC Liaison Updates & Opportunities
- EdgeX Developer Advocate & Project Evangelist
- Use Case Campaign
- Upcoming Events
- AOB



Working Group Updates

Keith Steele

Working Group Updates

- Core Working Group is recommending the following with regard to California Release
 - Version: 0.6.0 (still not 1.0 since we lack system management and other required features)
 - Release date: June 29th
 - Dev Complete date: June 15th (when code should be in and more testing is the focus)
- Ongoing work
 - Naming & availability work on core & supporting services (per earlier design doc)
 - Cleanup of core & supporting services
 - Config-seed-go work
 - Support-notifications (should be done for California)

Other Working Group Chair Updates

- Around the horn
 - Applications - Janko
 - Device Services - Tony
 - Test/QA - Andy
 - DevOps - Jeremy
 - Security - Doug
 - System Management - Salim
 - Vertical Solutions - Moonki
- Others

Application WG Update

- Looks like we will have more export connectors than planned for California Release:
 - Azure IoT export connector - WIP
 - XMPP export connector - WIP
 - ThingsBoard IoT export connector - WIP - Contribution from ThingsBoard
 - Brightics IoT export connector - development to start in June 2018.
 - Google IoT export connector - waiting for resources, development is expected to start in first week of June 2018.

QA/Test Working Group Updates

Blackbox Testing

- Currently running blackbox tests against both Java and Go services – tests are finding bugs and differences between implementations that we are in the process of fixing
- Need to decide whether we change RAML and update Java code to be consistent for California
- Have created new blackbox tests for Logging and Rules Engine
- Still need to add tests for Notifications, Scheduling, Export Client and Device Service

Security Functionality Testing

- Still need to create test plan/strategy and identify resources to implement tests for California Security functionality

Documentation

- Additional updates/improvements made to new documentation and merged changes into repo

DevOps Working Group Updates

1. License and Copyright built into images now for distribution.
2. Full publishing of go bins and images from edgex-go.
3. Made contribution to blackbox-testing (fetch images from nexus).
4. Email notifications from blackbox-testing failures ([subscribe](#)).

TO DO:

1. Copy attribution files from edgex-go into image and bin tar.
2. California branch cutting and final release (are we releasing Java services?)



EDGE X FOUNDRY™

Next TSC F2F Meetings

Keith Steele

EdgeX TSC F2F Meeting(s)

- [Tuesday & Wednesday 5th/6th June](#) -- Location VMWare Palo Alto, California
 - **RSVP by June 1** at <https://goo.gl/forms/fzunofabMiliT5Ht1>
 - Current registration count: 21 in-person; 5 dial-in
 - Hotel Options:
<https://wiki.edgexfoundry.org/download/attachments/12124391/vmw-pa-hotels.pdf?version=1&modificationDate=1522861814000&api=v2>
- Tuesday & Wednesday 23rd/24th October -- Location Edinburgh, UK
 - Rather than booth, target [CFP submissions](#) (CFP closes July 1)
 - **RSVP at** <https://goo.gl/forms/QR3WgP4ybB5KUT3w2>
 - Current registration count: 0 in-person; 0 dial-in
 - Hotel/Travel:
<https://events.linuxfoundation.org/events/elc-openiot-europe-2018/attend/venue-travel/>
- Following meeting would be in Asia at Samsung Facilities?

F2F meeting

Proposed agenda posted:

<https://wiki.edgexfoundry.org/display/FA/5-6+June+2018%3A+Palo+Alto+Technical+Meeting>

Proposed Delhi Scope & Architectural issues discussed:

<https://wiki.edgexfoundry.org/download/attachments/12124391/EdgeX-F2F-PaloAlto.pdf?version=1&modificationDate=1525910749000&api=v2>

Comments and suggestions welcome

We have only 2 days - we have to keep our agenda focused

Proposed 2 Day Agenda

Day 1 - Delhi planning day

- **Welcome and intro by Mike McDonough (VMWare): 9-9:45am**
- **Architecture day tee-up: 10-noon**
 - Review and explanation of upcoming items
- **Delhi Planning – what's in/out: 1-3:30pm**
 - Scope definition
- **TSC & WG chair upcoming voting: 3:30-4:30pm**
 - LF review of rules and procedures for upcoming voting

Day 2 – Architecture issues day

- **Architecture discussion and decisions: 9am-2:30pm**
- **Business Issues/Discussion: 2:30-3:30pm**
- **Wrap up and action items: 3:30-4:30pm**

Focus of meeting: Scope Delhi

- Suggest 4 main implementation targets
 - Initial System Management APIs and agent
 - DS SDKs (Go/C) & some replacement DSs
 - Next wave of security features
 - Suggest ACL, secure non-HTTP comms
 - Improve testing
 - Better/more unit, complete black box and performance

High level Delhi Scope

What's In

- System management API in all services
- Sys mgmt agent
- Base service (started with refactor)
 - Service naming
 - Availability
 - Common config/reg
 - Service tracing (OpenTracing API)
- Service outage & notifications
 - Resiliency in face of non-availability of services
- ACL (for reverse proxy use)
- Secure non-Http comms
 - MQTT outbound/inbound
 - 0MQ outbound
- Complete the initial SDKs (Go & C)
 - Complete new virtual device service
- Refactor some existing DS
 - Modbus
 - BACNet
 - MQTT

High level Delhi Scope (cont.)

- Unit tests coverage of a majority of the code

 - Core/support service refactors as

 - examples

- Blackbox testing for all services

 - Integrate in CI

 - Reporting on failed tests

- Performance Tests

 - Meeting RP3 targets

- Replace any remaining Java services

 - Scheduler

- Configuration categorized/grouped

- Review and incorporate all the outstanding code contributions

 - UI

 - Scheduler

 - Samsung code

 - ...

Proposed Architectural Discussions

- Focus on Delhi release work
 - Address other architecture items if time permits
- Divide the discussion into two sections
 - Technical Debt - what code in the existing system needs fixed or refactored in Delhi
 - Enhancements - what can we add to improve EdgeX for Delhi

Proposed Architectural Tech Debt Discussions

- Re-architect Go Export Distro
 - More modular/SDK like
 - More scalable solution
- Upgrade Consul
 - Based on conversation with HashiCorp
- Automate API documentation
 - Replace or augment RAML with Swagger, TOML, etc.

Proposed Architectural Enhancements Discussion

- ARM 32 support
- Device services that downsample
 - Scale back readings sent when data is pumped to fast
- Min/Max limit on accepting command
- Data transformation and/or filtering at DS level
- Additional DS connectivity
 - CANBus
 - Profinet
- Alternate deployment / orchestration
 - Kubernetes vs Composee or Snaps

Proposed Business Issues

- Marketplace for value-add microservices and its implications
 - Will we need a new EdgeX microservice acting as license server?
- Certification process
 - When do we start to outline?
 - Levels
 - What does it incorporate?
 - Security certification

Agenda & Topics

Feedback Welcome!



EDGE X FOUNDRY™

EdgeX Test Beds

Keith Steele

EdgeX Test Beds

- Discussion on EdgeX Test Beds
- Test Bed Collaboration
- Wanxiang submitted a testbed in IIC, using EdgeX as edge computing platform - OMPAI



IIC Updates & Opportunities

James Clardy

IIC Liaison Updates and Opportunities

- Chicago F2F - September 12, 2018
 - Latest update (March 21): Kickoff meeting between both teams scheduled for May 16 at 12pm PDT - **who's on point at EdgeX?**
 - Hosted by IIC Security WG (Email sven.schrecker@intel.com, wael.william.diab@huawei.com)
 - EdgeX Liaison: James Clardy
 - If you'd like to contribute, please email info@edgexfoundry.org to be added to EdgeX-IIC liaison mail list
 - Need to propose Agenda Topics/Speakers
 - Example: <http://www.iiconsortium.org/liaison-workshop.htm>
 - Primary goal: Educate people about EdgeX, alignm to IIC Member goals / needs
 - Potential Agenda Items:
 - 1. Introductory presentation EdgeX (including architecture overview)
 - 2. IIC Reference Architecture
 - 3. System Management, Security - How does this align to IISF and IIC Endpoint Security Best Practices?
 - 4. Overview of Vertical Activities - alignment to IIC testbeds?
 - 5. Presentations from IIC - what's desired by EdgeX Members?
 - 6. Representatives from member companies to present use cases; how they fit in, what they are contributing (examples: Samsung, RSA)
 - 7. Map EdgeX to IIC
 - Session length? TBD - (IIC/oneM2M workshop was 3.15 hours)
 - Indicated interest in participating (as of May 11): Keith Steele, Doug Gardner, Riaz Zolfonoon, Salim AbiEzzi
 - Email info@edgexfoundry.org to register interest



EDGE X FOUNDRY™

Seeking: EdgeX Developer Advocate &
Project Evangelist

Brett Preston

EdgeX Developer Advocate & Project Evangelist

- The EdgeX Foundry Project (EdgeX) is seeking a project evangelist and developer advocate to help grow and support the global EdgeX community
- Technical skills include: You are hands-on with EdgeX and Embedded technologies
- If you know of anyone, send them our way (link below)
- Full information available at <https://www.edgexfoundry.org/jobs/>

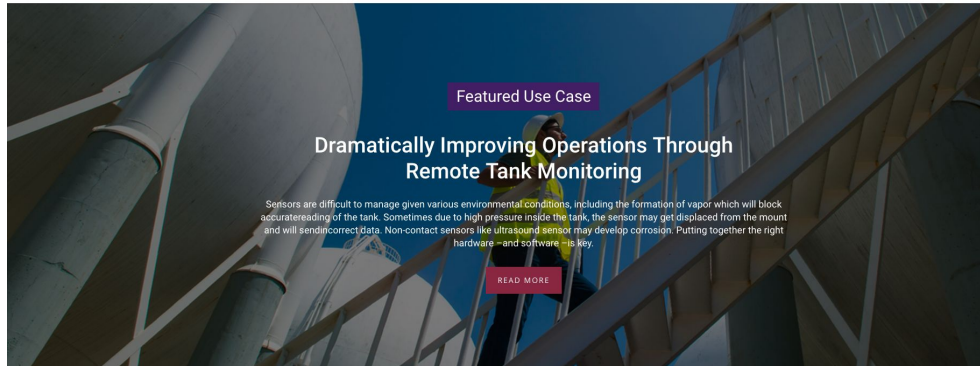


EDGE X FOUNDRY™

Use Case Campaign

Brett Preston

EdgeX Use Case Campaign



Use Cases

- Draft site is available for review:
 - <https://www.edgexfoundry.org/use-cases/>
 - all passwords set to UseCase!
- Seeking volunteers to help work in EdgeX connection
 - EdgeX specific use cases
 - examples of how EdgeX helps with a use case; which can include how a third party applies their commercial value add
 - email usecases@edgexfoundry.org to sign up

Use Cases

Enterprises, government agencies and service providers are starting to experience the benefits of implementing large-scale IoT and Industrial IoT projects. Whether they are reducing the cost of operations, improving safety on work sites and in factories, or building their own connected products to remain closer to their customers, bringing value to them, decision makers need solid business cases to attract funding.

EdgeX Foundry's technology ecosystem makes it easier to roll out robust enterprise IoT and Industrial IoT systems with less risk, given more predictable, proven integration of multiple elements at the very edge of the network, from silicon to sensors, from connectivity to cloud, with security and reliability ensured along the entire system.

EdgeX Foundry's members are working across vertical industries on exciting projects we will share here, along with use cases to stimulate thinking and support creativity and innovation, with practical use cases that stand to save businesses money, while making them more competitive and profitable in an increasingly hyper-connected, digital world.

View All

Agriculture

Oil & Gas

Manufacturing

Retail

Smart City

Smart Building



Agriculture: Precision Irrigation

DECREASING WATER USAGE,
IMPROVING CROP YIELD, AND
ENSURING FOOD SECURITY



Oil & Gas: Tank Monitoring

DRAMATICALLY IMPROVING
OPERATIONS THROUGH REMOTE
TANK MONITORING



*Retail: Inventory Optimization
& Theft Detection*

MAJOR GAINS IN RETAIL SHELF
INVENTORY OPTIMIZATION AND



EDGE X FOUNDRY™

Upcoming Events

Brett Preston

Upcoming Events - Confirmed

- [Connectivity Expo](#), May 21-24, 2018, Charlotte, North Carolina
 - Galeal Zino, NetFoundry
- [LinuxCon + ContainerCon + CloudOpen China](#), June 25 - 27, 2018, Beijing
 - Community Partner: Save 15% on Attendee Registration with discount code LC318COM15
 - **New:** Meetup being planned. More information to follow shortly.
- [Open Source Summit North America](#), August 29 - 31, 2018, Vancouver, Canada
 - Community Partner: Save 15% on Attendee Registration with discount code OSSNA18COM15
- [EdgeX / IIC Workshop](#), September 12, 2018, Chicago, IL
 - Hosted jointly by:
 - IIC Security (Chair: Sven Schrecker, Intel)
 - Liaison Working Group (Chair: Wael William Diab, Huawei)
 - EdgeX Liaisons: James Clardy, NetFoundry, Riaz, Salim AbiEzzi VMware
- [Open Networking Summit Europe](#), September 25 - 27, 2018, Amsterdam, Netherlands
 - Community Partner: Save 15% on Attendee Registration with discount code ONSEU18COM15
 - CFP open through June 24 / Submit your EdgeX talk [here](#)

Upcoming Events - Confirmed (continued)

- [Open Source Summit Europe](#), October 22 - 24, 2018, Edinburgh, UK
 - Community Partner: Save 15% on Attendee Registration with discount code OSSEU18COM15
 - CFP open through July 1 / Submit your EdgeX talk [here](#)
- [ELC / OpenIoT Summit Europe](#), October 22 - 24, 2018, Edinburgh, UK
 - CFP open through July 1 / Submit your EdgeX talk [here](#)

Event Participation Opportunities

IOT Solutions World Congress

- <http://www.iotsworldcongress.com/>
- October 16-18, 2018
- Barcelona
- [Call For Papers](#) (CFP closed April 30)
 - EdgeX Submitted:
 - Security issues and practices in the IoT Edge Computing Era
 - How to build open source IoT ecosystems
 - Jim White submitted a response
- [Call For Testbeds](#) (Call for Testbeds closes June 11)
 - Submitted: ---
- Email info@edgexfoundry.org if you submit for CFP or Testbeds so that we can track



EDGE X FOUNDRY™

AOB / Reminders

Brett Preston

Upcoming WG Chair/TSC Elections

- Start thinking about nominations. Rules:
 - There shall be a nomination and election period for electing Contributors or Maintainers to the TSC.
 - Voting Members of the TSC must be Contributors or Maintainers in the Project.
 - The Contributors and Maintainers of each Working Group shall elect a Working Group Chair for their Working Group. Each Working Group Chair will serve as a voting member of the TSC.
 - All Contributors and Maintainers in the Project shall elect three TSC at-large representatives to serve as voting members of the TSC.
 - Additionally, Platinum members of the Project when not otherwise represented as a voting member of the TSC, may appoint one representative to serve as a voting member of the TSC.
 - No member or group of Related Companies shall have more than 3 votes on the TSC.

TSC Elections

- **Election Process In summary:**
- Current TSC terms run through 6/24/2018, will initiate elections at next TSC meet.
- The Contributors and Maintainers of each Working Group shall elect a Working Group Chair for their Working Group. Each Working Group Chair will serve as a voting member of the TSC.
- All Contributors and Maintainers in the Project shall elect three TSC at-large representatives to serve as voting members of the TSC.
- The voting members of the TSC will elect a TSC Chair annually, who will serve as a voting member of the Governing Board, and will liaise between the Governing Board and technical leadership of the EdgeX Foundry Project. The TSC Chair... must be representative of a member company.

TSC Elections

Definitions

- i. Contributors: anyone in the technical community that contributes code, documentation or other technical artifacts to the EdgeX Foundry Project codebase.
- ii. Maintainers: Contributors who have the ability to commit code and contributions to a project's main branch on the EdgeX Foundry Project. A Contributor may become a Maintainer by a majority approval of the existing Maintainers.

Process

- Typically managed over email.
- Working Groups manage their own elections. LF can support if needed.
- Once the TSC has been put in place, the new TSC will take nominations for Chair. If there is more than one nomination, there will be a vote.
- One week for a nomination period, and one week for voting (if needed).

TSC Elections: Proposed Timing

- Wednesday, May 30: WG Chairs for new term named
- Friday, June 1 - Friday, June 8: TSC At-large Nominations
- Tuesday, June 5 - Wednesday, June 6: TSC F2F Meeting (Palo Alto)
- Friday, June 8 - Friday, June 15: TSC At-large Elections
- Monday, June 18 - Friday, June 22: TSC Chair Nominations
- Sunday, June 24: End of current TSC term
- Monday, June 25: 1st day new TSC
- Monday, June 25 - Friday, June 29: TSC Chair Voting

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 Brett Preston at LF (bpreston@linuxfoundation.org)
 - First Priority is the MVP - potential contributors please contact 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)
30 minute deep-dive topics followed by 30 minute open Q&A
Call recordings are available on the [Wiki](#)

Meetups: Reimbursement Program

- <https://wiki.edgexfoundry.org/pages/viewpage.action?pageId=7602724>
- Wiki page built for the community to leverage
- Encourage community to begin introducing EdgeX in your local Meetup groups
- EdgeX Foundry will fund/sponsor the talk in which EdgeX is scheduled to be presented
 - Up to \$250 for F&B, once per Meetup group, per quarter
- Let us help drive traffic to your event! Email pr@edgexfoundry.org once Meetup has been scheduled
- Post-event, please consider doing a blog about the event

Meetups

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

Related topics

New Technology

Open Source

Interoperability

Smart Home

Internet of Things

Open Standards

Mobile Development

Internet of Everything

EdgeX

EdgeX ▾

Find out what's happening in EdgeX Meetup groups around the world and start meeting up with the ones near you.

Related topics:



EdgeX in Market

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

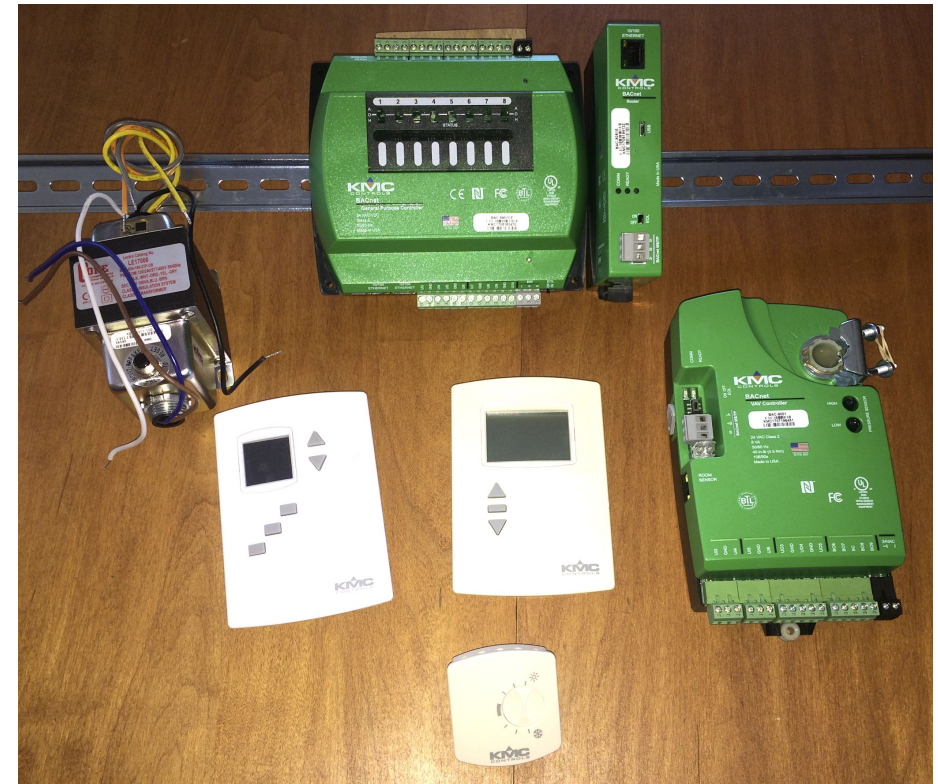
What is the Device Exchange?

- 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!!



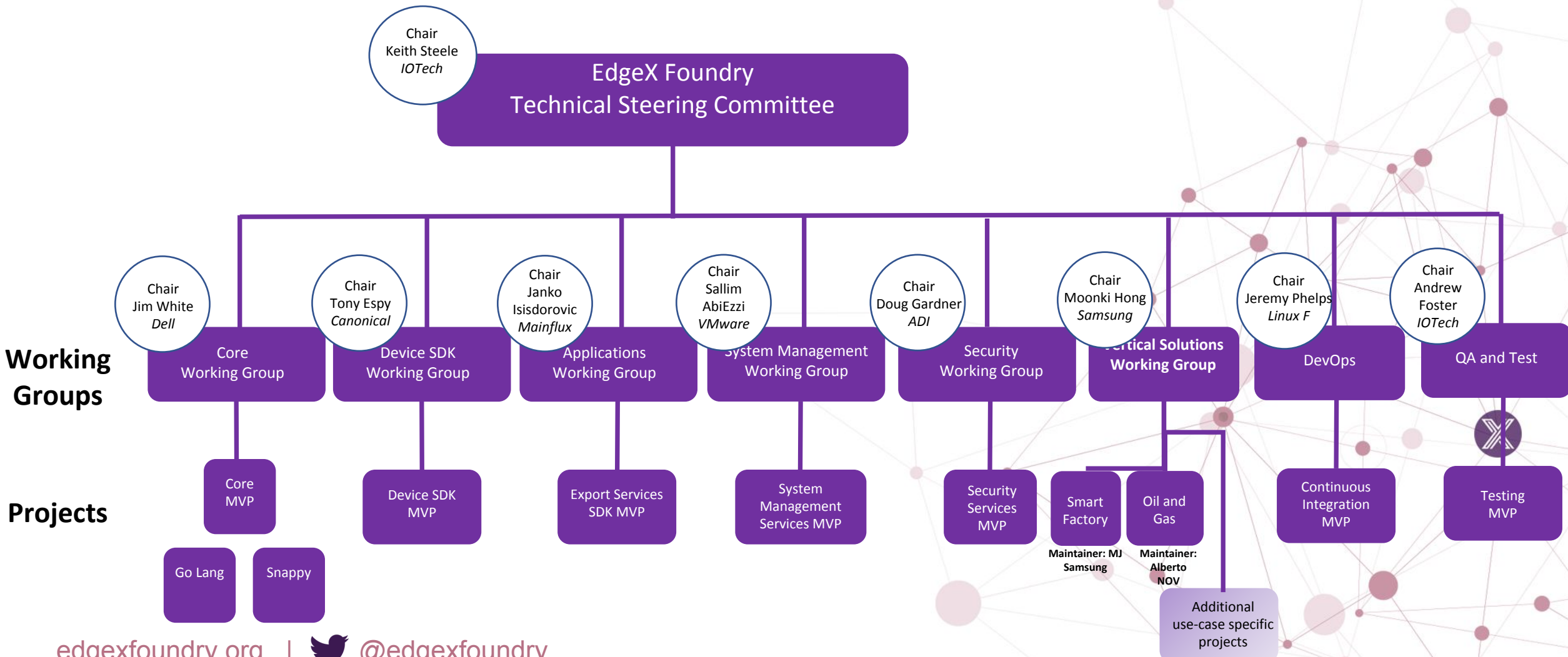
Hackathon Events

- 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

EdgeX Project Organization



Marketing

- **CTA:** If your company will be demoing technologies that utilize the EdgeX framework, please email 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 so that we can help promote

AOB/Cadence

- Meeting Cadence Reminder
 - Currently held weekly at 7am PDT on Wednesday's
 - Calls without TSC quorum will still be used to review issues

- **Next Meeting: May 23, 2018**



EDGE X FOUNDRY™

Thank You