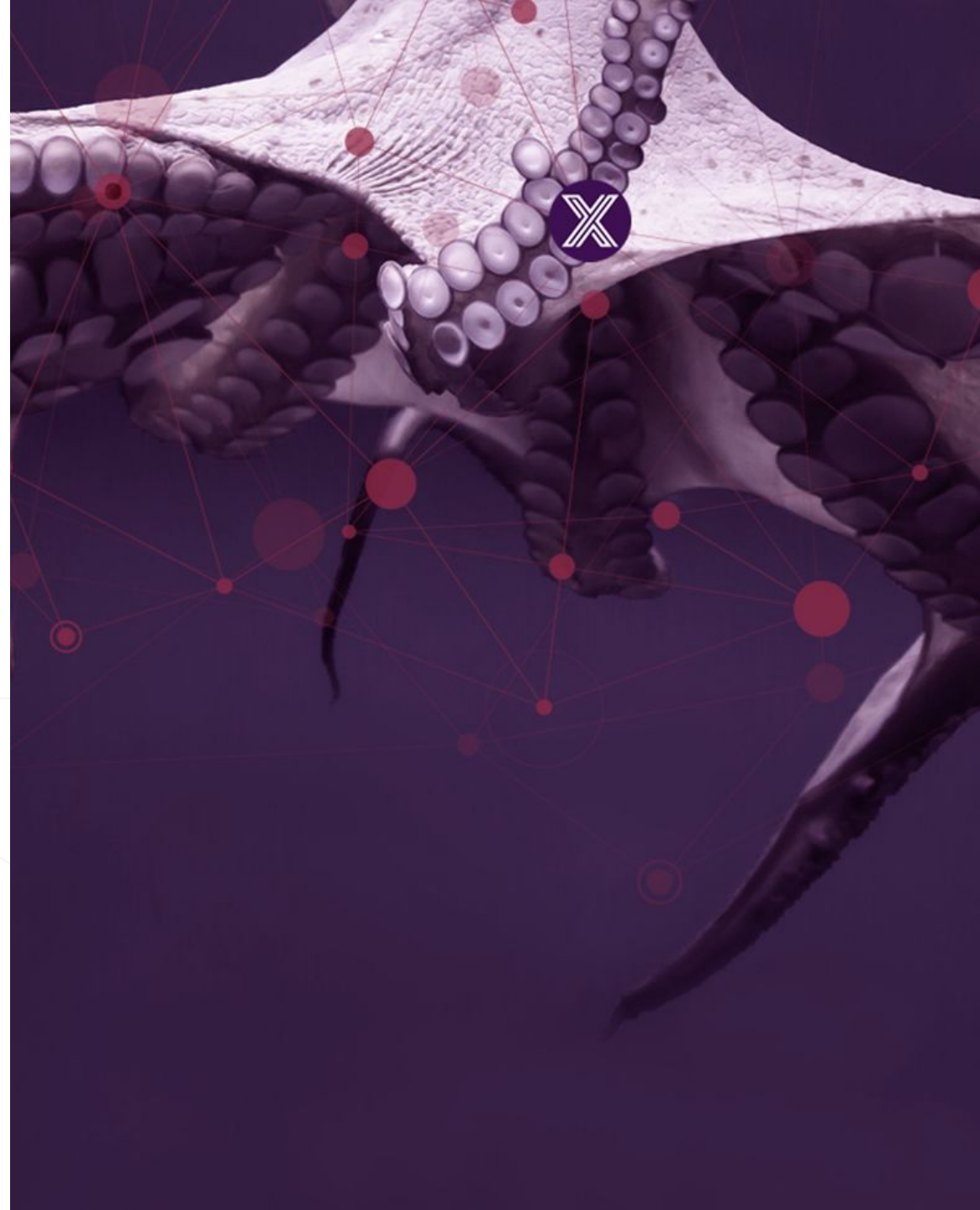


EDGE X FOUNDRY™

TSC Meeting

October 25, 2017



Meeting Logistics

Time: October 25, 2017 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)

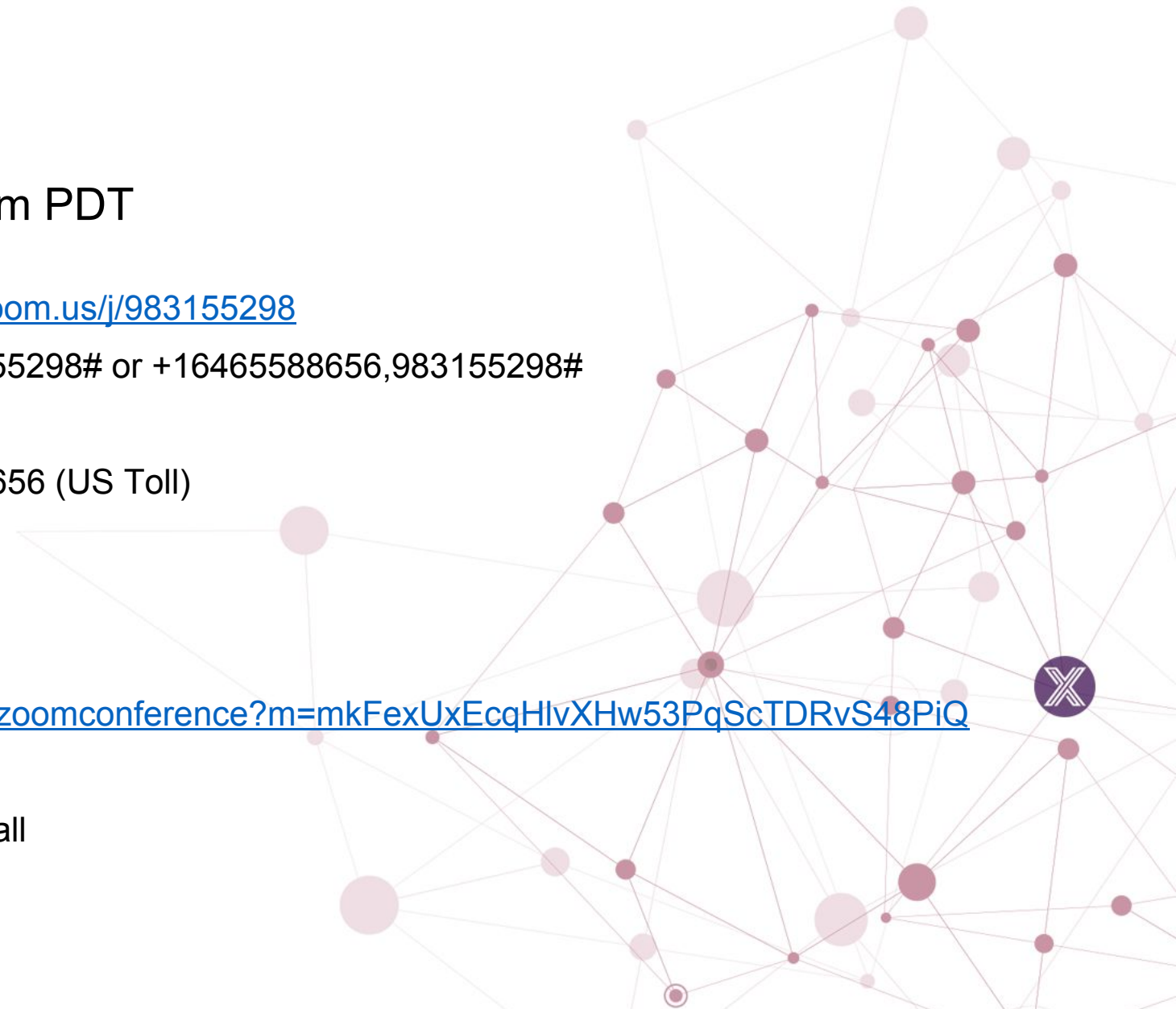
+1 855 880 1246 (US Toll Free)

+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



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.

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	keith@iotechsys.com
Samsung	MJ Jeong	myeong.jeong@samsung.com
VMware	Salim AbiEzzi	salim@vmware.com
Canonical	Tony Espy	espy@canonical.com
Samsung	Uze Choi	uzchoi@samsung.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

- Barcelona Release Update
- California Preview Release
- California Release Planning
- IIC/EdgeX Edge Symposium
- Support for Hackathons
- AOB



EDGE X FOUNDRY™

Barcelona Release Update

Barcelona Update

- Barcelona Release now available for download!

Barcelona Release Highlights

- Released Oct 20th (see <https://wiki.edgexfoundry.org/display/FA/Barcelona>)
- API review and 60+ company onboarding
- Code hardening and increased tests (more than doubled the tests)
- Bug fixes and unused code clean up
- Google IoT Core export service connector (provided by Schlumberger)
- MQTTS export service connector (provided by Beechwood)
- 6 new device services (BACNet, Modbus, BLE, MQTT, SNMP, serial)
- Blackbox testing (provided by IoTech)
- CI and release processes and facilities
 - Checkstyles in place
- Additional elements that were not officially part of the MVP
 - first Go micro service & performance numbers (provided by Dell)
 - ARM builds (provided by Cavium)

Core Metadata in Go (first full Go microservice)

Initial performance numbers and footprint

Measure	Go	Java
Executable/JAR Footprint	11.7 MB	42.4 MB
Container Footprint	16.2 MB	165 MB
Memory Usage (On Startup)	4.3 MB	221 MB
Memory Usage (Under Load)	9.2 MB	230 MB
CPU Usage (Steady State)	0.15%	0.30%
CPU Usage (Under Load)	5.0% - 15.0%	6.0% - 15.0% (spiked at 90% for heavy load)
Startup Speed	0.14 Seconds	12.55 Seconds
Response Speed (Ping)	0.0011 Seconds	0.0022 Seconds
Response Speed (Post)	0.0091 Seconds	0.0137 Seconds
Response Speed (Get)	0.0038 Seconds	0.0062 Seconds



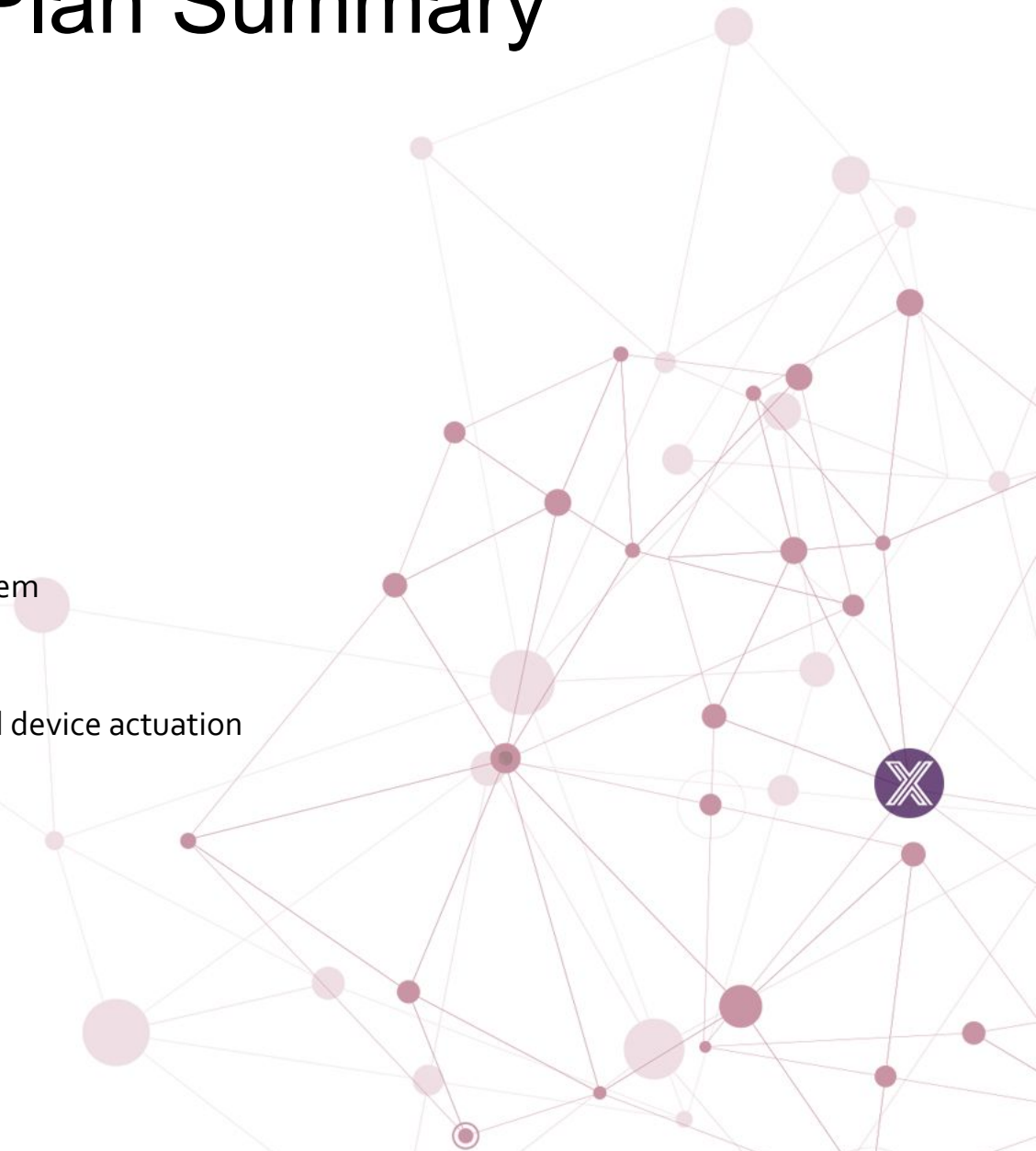
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California Preview Release

Potential EdgeX Development Plan Summary

Targeting 3 major releases - Jun 2018 through Jun 2019

- Jun 2018 (“California”)
 - Multi-hardware/OS support
 - Near real-time capable and small footprint
 - Security services and APIs
 - Additional north and south side connectors
- Oct 2018 (“Delhi”)
 - EdgeX system management APIs and connectivity to cloud based control system
 - Microservice OTW/OTA upgrades
 - Multiple language device service SDKs
 - North-side services framework for customizing north side data exfiltration and device actuation
- April 2019 (“Tokyo”)
 - Certification program, processes and testing tools
 - Include user interfaces and data visualization
 - Start of east/west EdgeX communications (failover and device activation)



California Preview Release

- Delivery - Jan 2018
- Focus: Go Service replacements/performance demonstration
 - Core Data, Metadata, Command (Dell)
 - Export Client (Mainflux)
 - SDK elements (Canonical)
 - Potentially Config/Registry (Samsung)
 - Potentially Export Distro (Cavium)

California Preview Release (continued)

- Java SDK refactor/simplification
- Improvements of Test Framework
 - Full Blackbox testing (all APIs)
 - Go services be “certified” as drop in replacements by our test framework(s)
 - Integration of Blackbox testing to CI process
- Potentially documentation additions/changes
- Complete/refine CI/Release processes and systems (ex: dev release containers)
 - ARM build process and ARM versions of services
- Firm up Azure IoT Hub connector - as stretch goal
- C based Device SDK
- Web oriented demos
- Strategy doc for Security and System Management API's
- California Release Target Functionality List



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California Release

California Release June 2018

- EdgeX security services and APIs
 - Authentication/authorization protocols surrounding all APIs
 - Protecting data at rest and motion
 - Security testing framework
 - Code signing
- Reduced footprint – EdgeX’s 10 major microservices collectively running in under 1GB of memory
- Near real-time EdgeX microservices – capable of data collection and actuation at the edge in under 250ms
- EdgeX running and available on Intel and Arm-based architectures
- EdgeX running (and tested) on Windows 10/7, Windows 10 IoT, MacOS, Red Hat Enterprise Linux v7, CentOS v7.3, Ubuntu Desktop 16, and Debian v8.
- EdgeX out-of-the-box exports to Azure IoT Hub, Google IoT Cloud, AWS IoT and IBM Watson IoT
- EdgeX device services that support use of Modbus, BACnet, BLE, SNMP, MQTT, OPC-UA, CANbus, and Zigbee devices/sensors with EdgeX.

California Release Security & System Management

- Planned Security Features
 - API Manager
 - Key Management
 - Secure micro service-to-micro service communications
- System Management Features
 - Base Micro service APIs to support (start, stop, restart)
 - Expose bootstrapping Configuration/Registry service
 - Device management

January 16-18, 2018 - Orlando, FL

- Wiki page:
<https://wiki.edgexfoundry.org/display/FA/16-18+January+2018%3A+Orlando+Technical+Meeting>
- Venue search underway [targeting completion by EOW]
- RSVP by emailing info@edgexfoundry.org
 - Note if you plan to attend in-person or by dial-in



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EdgeX/Industrial Internet Consortium (IIC) Edge Symposium

Keith Steele

EdgeX/IIC Edge Symposium

IIC/EdgeX Joint Workshop Coordination [Owner: Keith]

- Joint call held with OMG earlier this week
- IIC Chair Richard Soley wants to increase activity in IIC Edge track
- Agreed we will hold joint Edge Symposium either a one day or half day event
- Targeting Reston IIC Meeting in February 2018 for 1st meeting with follow on meeting in Europe (May IIC meeting)
- Targeting Single track meeting room 75-100 attendees
- Current EdgeX organising committee [Jim Clardy](#), [Jason Shepherd](#), [Keith Steele](#), [Salim](#), [Riaz](#), [Jeremy](#)
- Possible areas for collaboration/Workshop: Vertical Domain Edge Testbeds, Quantifying IIOT ROI, Security collaboration, Edge Platform variants, Leveraging Open Source, standardization/certification etc
- Actions: [OMG to come back with suggested date](#), [Jim Clardy to get us on IIC Edge Call to discuss event](#)
- **Actions: [Salim to get in touch with edge working group at IIC \(testbed in IIC vertical domain\)](#)**



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Support for Hackathons

How can you help?

- 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

Hackathon Events

- Nov 17th, University of Helsinki, called Edge Hackathon (<http://ceacs.eu/Hackathon.html>). 60+ people
- Dec 1st, regional Startups and Entrepreneurs summit in Cairo.
- Jim White and Tyler Cox putting together hackathon starter kit.
- More coming



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AOB / Reminders

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-beta/22298339/>
- YouTube:
<https://www.youtube.com/channel/UC30DbbsoqbkGJYJ5omJJsng>

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)
 - 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

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

Thursdays @ alternating times (6pm & 9am EDT)

Calls resuming post-Barcelona release

Email info@edgexfoundry.org to request to be added directly to meeting invite

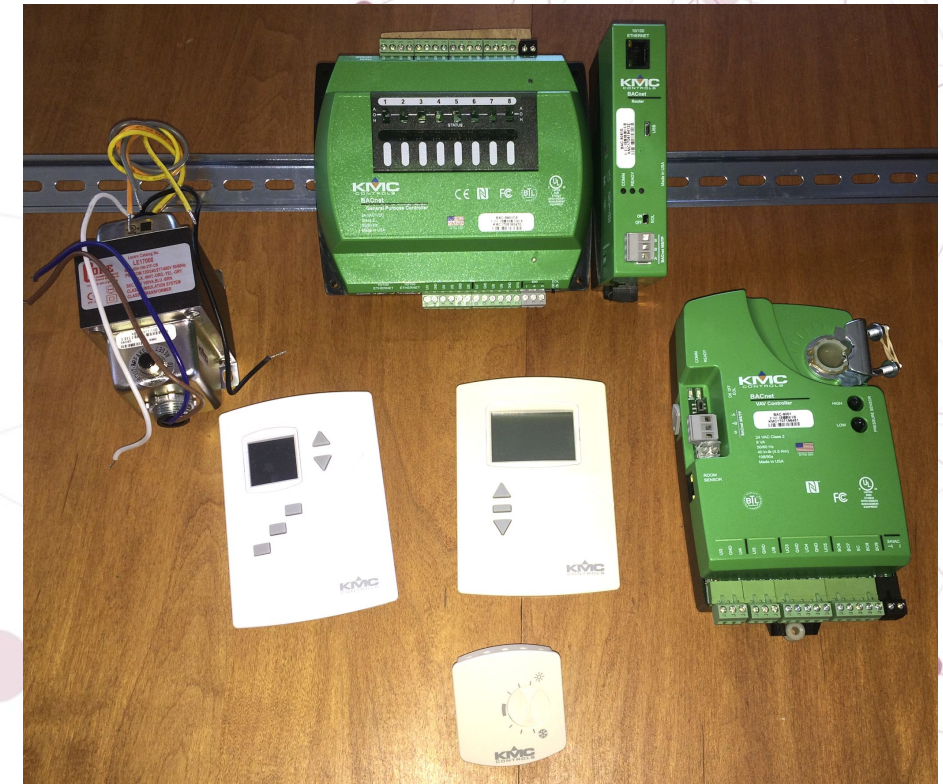
Previous call recordings are available on the [Wiki](#)

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!!



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](#)

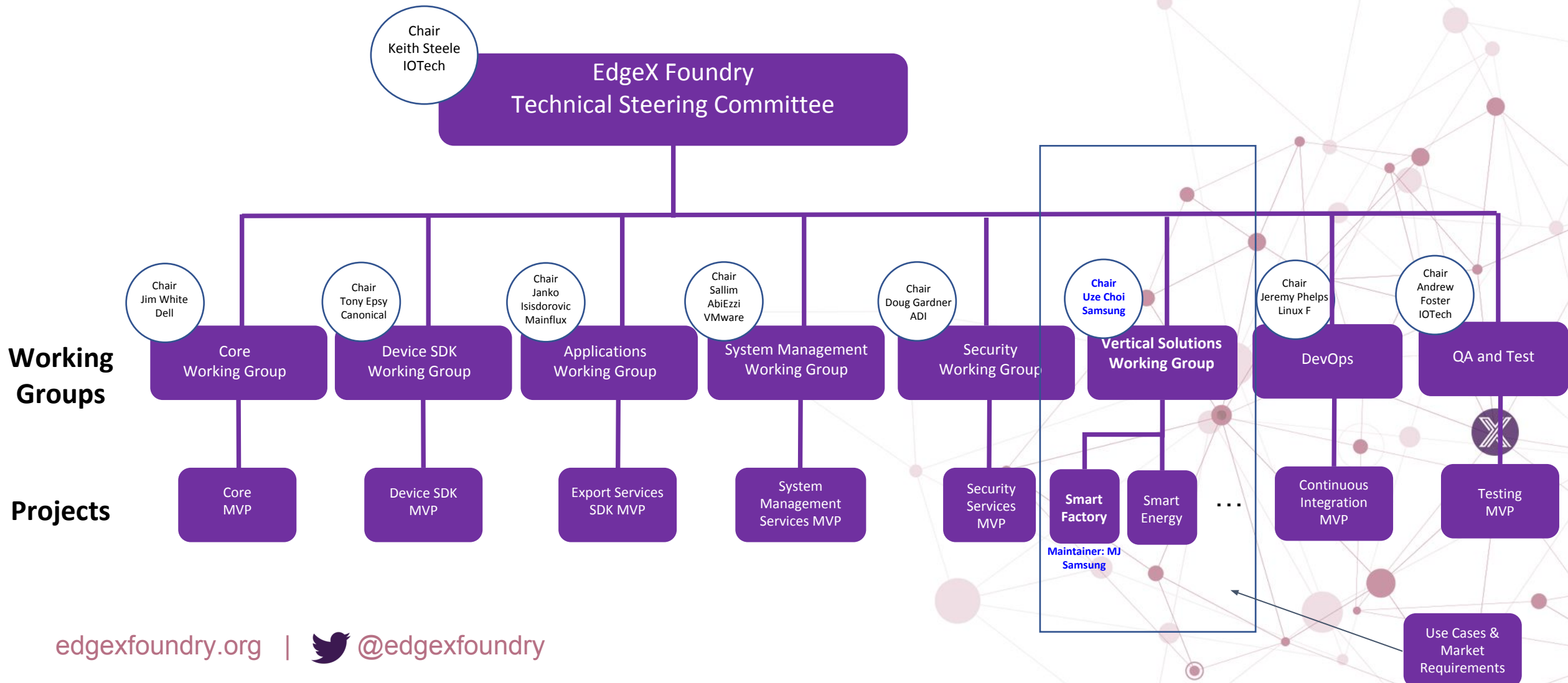
EdgeX ▾

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

Related topics:



TSC 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: November 1, 2017**



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Security Work Group Update

Security WG

Key Management API - Open Questions

- Keys
 - Key Store and Retrieval is needed by other EdgeX microservices
 - Create and update key attributes
 - Register keys (import keys created outside of service)
 - Should we allow all keys or only certain keys to be passed out to other microservices?
 - How and what are the usage cases?
- CA
 - Internal CA (simple out of the box implementation) [Step 1]
 - External CA (provide the ability to connect to Ext CA via same API) [Step 2]
 - Certificate status queries via OCSP
- Encrypt/Signing Services
 - As part of key mgmt svc or a separate service
 - Encrypt/Decrypt
 - MAC
 - Sign/Verify

Security Work Group Meeting Today post this call

11:00 am EST

Meeting Time

- Security Working Group meetings are open to the public, and are held weekly.
- Security Working Group meetings are held on Wednesday's at 8am PDT (find your local time [here](#))
- To be added directly to the meeting invitation, please email info@edgexfoundry.org
-
- -----
-
- Dial-In Info:
- Join from PC, Mac, Linux, iOS or Android: <https://zoom.us/j/576218946>
- Or iPhone one-tap (US Toll): +14086380968,,576218946# or +16465588656,,576218946#
- 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: 576 218 946
- International numbers available: https://zoom.us/join?m=t6UX5OTIE0SFrk-9MMnBPbFjE3dZ_xx



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Thank You