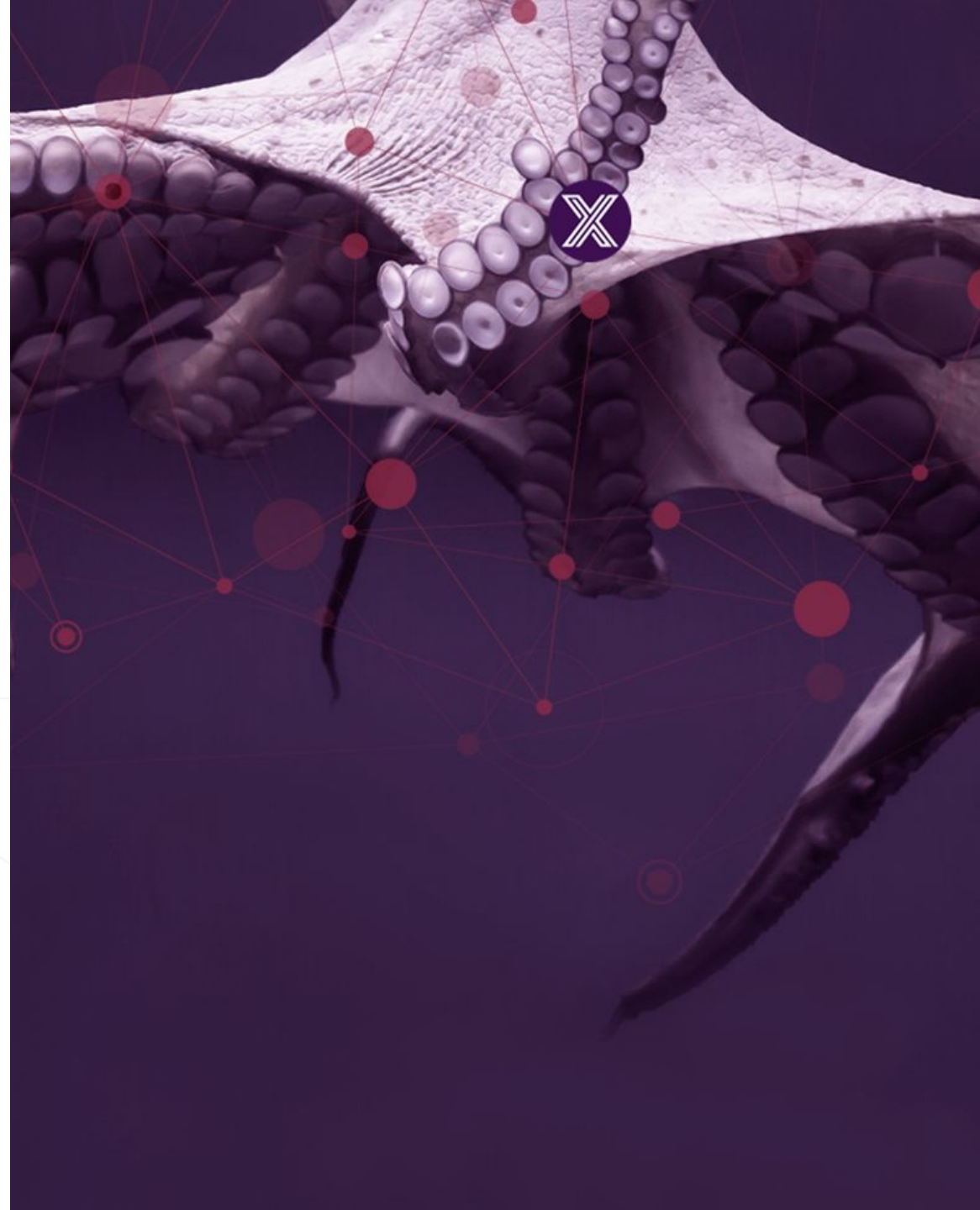


EDGE X FOUNDRY™

TSC Meeting

September 27, 2017



Meeting Logistics

Time: September 27, 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

Current quorum = 7 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

- IoT Solutions World Congress Update
- TSC Meeting Barcelona Agenda
 - Final Agenda Check and Proposed Time Allocation
- Core Working Group Updates
(Including Test, QA & Dev Ops, Applications and Device SDK)
 - Go Lang Update & First Performance Numbers
 - Arm Development Update
 - Google IoT Core Update
 - Build/Release Update
- Security Service Implementation Efforts
- TSC Meeting Boston California Release Planning
- AOB



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IOT Solutions World Congress Updates

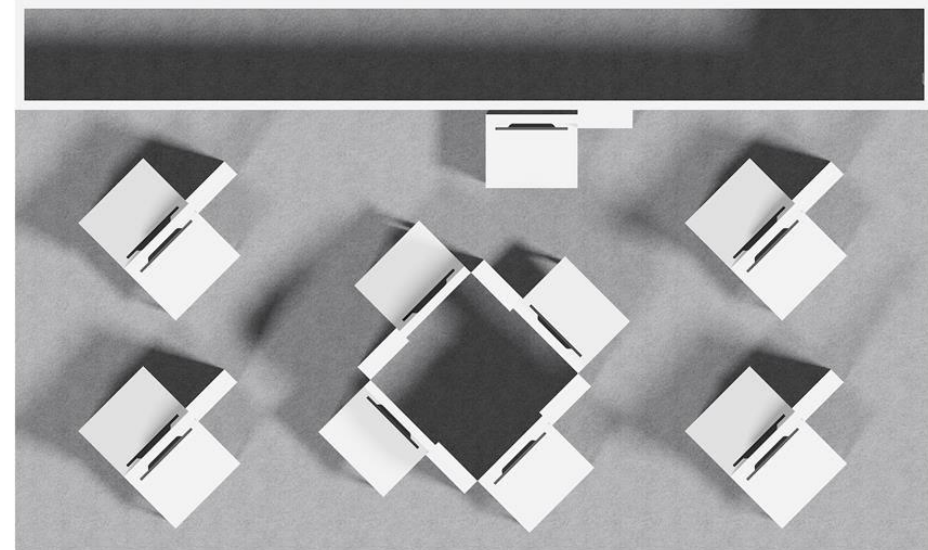
Brett Preston / Katie Schultz

IOT World Congress Updates

- TSC F2F meeting to be held Thursday, October 5 (last day of the conference)
 - All day meeting
 - Location: [Fira Congress Hotel \(200 m to the Fira Congress Grand Via\)](#)
 - Dial-in available
- More info will be posted to <https://wiki.edgexfoundry.org/display/FA/5+October+2017%3A+IOT+Solutions+World+Congress+Barcelona> as it becomes available
- Email info@edgexfoundry.org to be directly added to meeting invite
- RSVP to attend to bpreston@linuxfoundation.org

IOT World Congress Updates - Marketing

- Daily Happy Hour in booth from 3:00pm - 5:00pm
 - Serving beer, wine, cava, cheese and crackers





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TSC Meeting Barcelona 5th October Agenda

Keith Steele

Agenda (Proposed Times)

Barcelona Release (9-10am)

- Release/Availability Plan
- Performance against original plan
- Moved to California release task list
- Lessons Learned
- Upcoming Release Strategy
 - Discussion & Decisions
 - Late January or Early Feb 2018 - Specific date and any method of release to be discussed and ratified
 - Proposed for reaction/discussion/ratification
 - June 2018 - California @ IOT DevCon, Santa Clara, CA June 5-6 (<https://www.iot-devcon.com/>)
 - Nov 2018 - IoT Tech Expo (Santa Clara) or IoT World (London)

EdgeX Real Time & Samsung Proposal (11am-noon)

- Presentation from Samsung on potential new EdgeX real time track & Factory Automation Vertical market domain
- Discussion on new working groups
- Discussion on inclusion in California plan

California Preview Release (10am-11am)

- Go Services (core data, core metadata, command, export client, and elements of Go SDK) and Testing - Can Go services be “certified” as drop in replacements by our test framework(s) by that time?
- ARM versions of these and other services
- C SDK availability
- Demos
- Security and System Management API's
 - implementation strategy?
- California Release Target Functionality

California Release (1-3pm)

- Target deliverables
- First security and system management capabilities (what are they?)
- Footprint and performance targets (what are they and how achieved?)
- Full ARM support (what does this mean?)
- Additional OS support (which specific OS?)
- Additional north bound connectivity (to what?)
- Additional south bound connectivity (to what?)
- Additional SDK's?
- Real Time Version
- Vertical Domain Functionality

Proposed Agenda Continued

Releases after California (3-3:30pm)

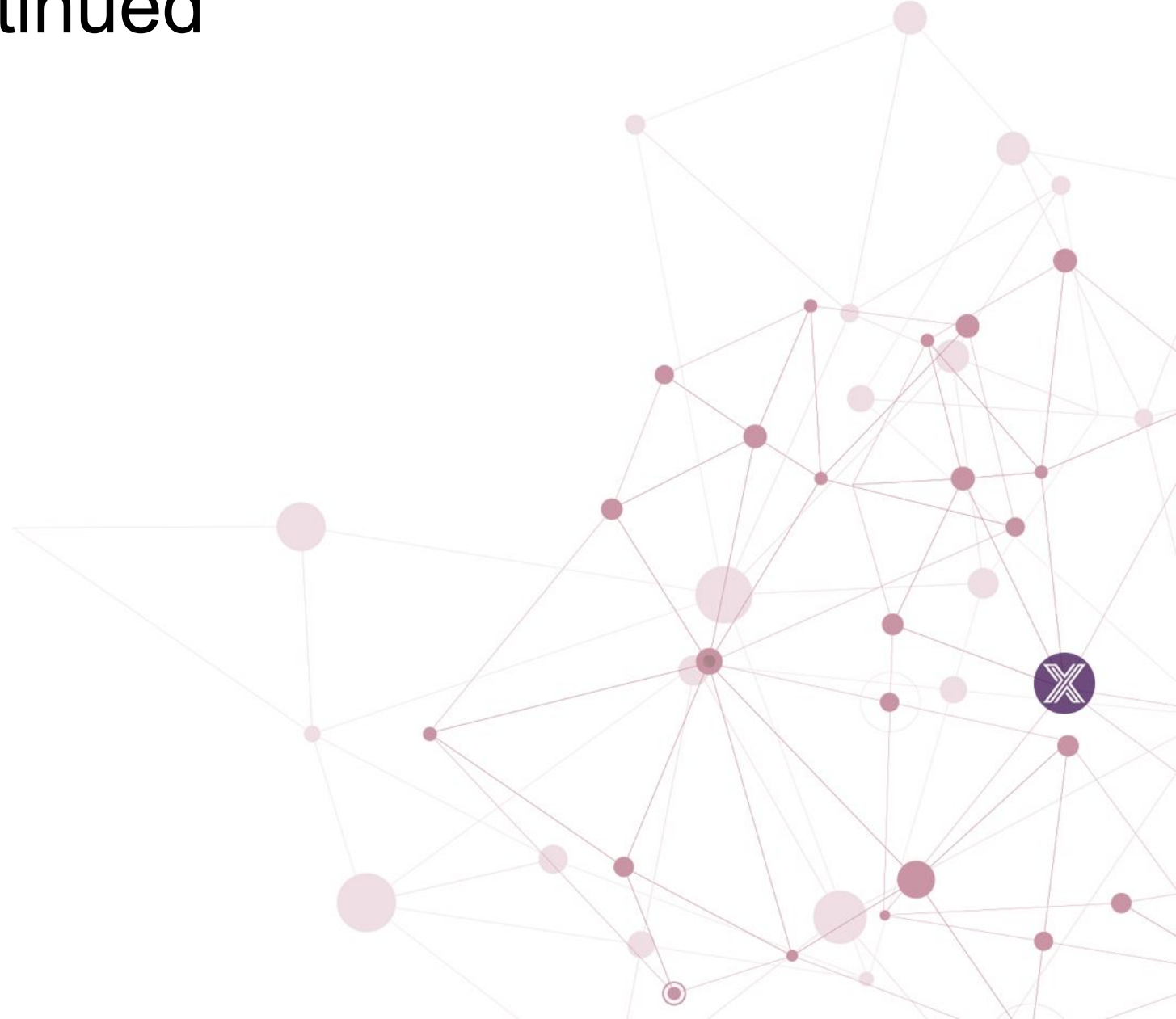
- Suggested Names
- Release Frequency
- High level roadmap template

Security and System Management (3:30-4:30pm)

- Current status
- What's needed for California
- How do we get there?

TSC Elections in Jan/Feb meeting (4:30-5pm)

- Formal Process
- What to know
- How accomplished





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Core Working Group Updates

Jim White & WG Leads

Go Lang Development (toward pre-California)

- Project group now meeting regularly
 - Establishing Go style guidelines
 - Determining Go version to use
 - Exploring Go libraries (what to use/what to discourage)
 - Dealing with “vendoring” - use of other 3rd party packages
 - Examining the build process (how it changes)
- Contact Jim White or Brett Preston to be added to the group meetings
- Looking to release code into the public around end of year

Core Metadata in Go (Dell's first full Go microservice)

Initial performance numbers and footprint (final numbers will be released at Barcelona)

Measure	Go	Java
Executable/JAR Footprint	11.7 MB	42.4 MB
Container Footprint	17.2 MB	153 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

Arm Development

- Cavium has “ported” all mircoservices (save 1) to Arm
 - Created Arm 64 Dockerfiles
 - Fischertechnik DS not ported (driver availability)
 - Working with Cavium team to produce blog post highlighting this work
- Need a build/test environment
 - LF does not provide
 - Samsung may be able to help
- Assistance from some additional organizations possible

Google IoT Core Northbound Interface

- Contribution by Schlumberger (Menlo Park)
 - Working with Google team
 - Works within Export Services
 - Addition to Export Distribution Microservice
 - Includes unit tests
- Available with Barcelona release (above MVP)!
- Working with developer to provide user guide & potential blog post

Build/Release Update

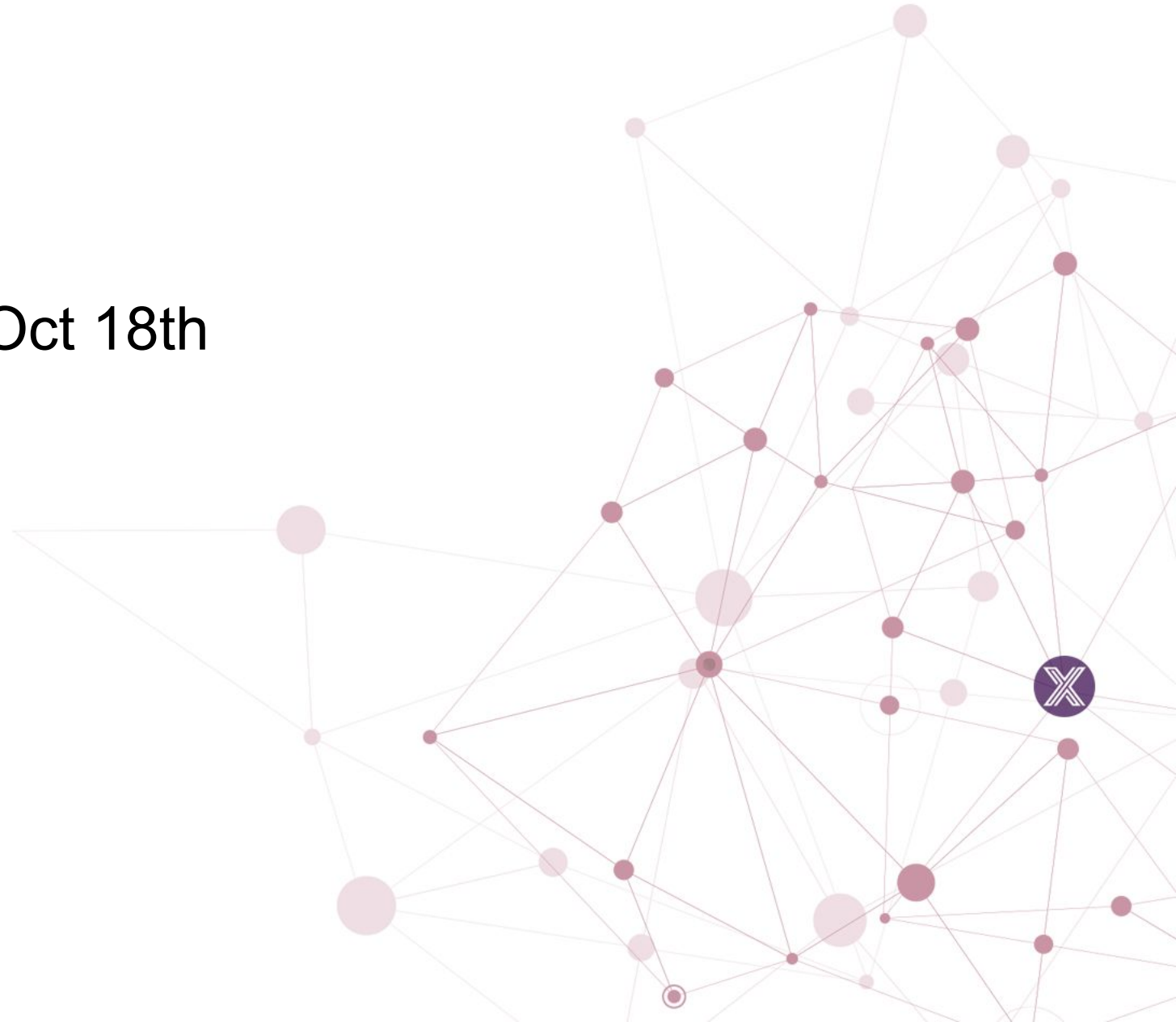
- Welcome Jeremy Phelps!
- Build process now creating Docker containers (thanks Tyler Cox & Jeremy)
 - Code changes trigger Container images placed in LF Nexus repository (snapshot images)
 - Nightly staging builds for containers (still a few issues being worked)
 - Post Barcelona, developer tagged containers will be pushed to Docker Hub
- Release processes and tools being put in place
 - Based on ONAP Project (for now)
 - <https://wiki.edgexfoundry.org/pages/viewpage.action?pageId=4588075&src=contextrnavpagetreemode>
- Working on adding black box testing to continuous integration process

Release Plan

Code Freeze: Oct 2nd

Code Testing/QA: Oct 2nd/Oct 18th

Code Release: Oct 20th





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Security Implementation

Doug Gardner & Jim White

How do we kick start security implementation

- Working groups continue to define security and system management requirements
 - Define the architecture/design of these sub-systems
 - Explore how/where open source starts and value proposition begins
- Everyone recognizes the need for some security footprint for California release
 - Can we jumpstart some implementation effort?
 - Pick up some “low hanging fruit” without impeding WG efforts
 - Address / test some security infrastructure

Security Implementation Proposals

Offered & accepted to Security WG on 9/20

#1 – start the development of the Inbound Connection Manager with Fuse Security Service (post Barcelona)

- Will require implementation team

#2 – provide an API proposal for microservice security APIs (for intercommunications and other microservice security needs) to security group for reaction and then implementation (post Barcelona)

- Initial API work to be done by Jim W & Steve O (IoTech)



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Next TSC Face to Face

Jim White for Keith Steele

Proposed early 2018 TSC Face-to-Face Meeting

- Proposed to hold meeting in late January
 - To coincide with Pre-California release of Go services and other additions
 - Focus on California Release
- Venue to be determined
 - ADI offered Boston again (convenient but cold)
 - ADI offices in Florida may also be consideration
 - Other offers?
- Should release be made at industry event?
- Discussion/thoughts on next F2F?



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AOB / Reminders

Brett Preston

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

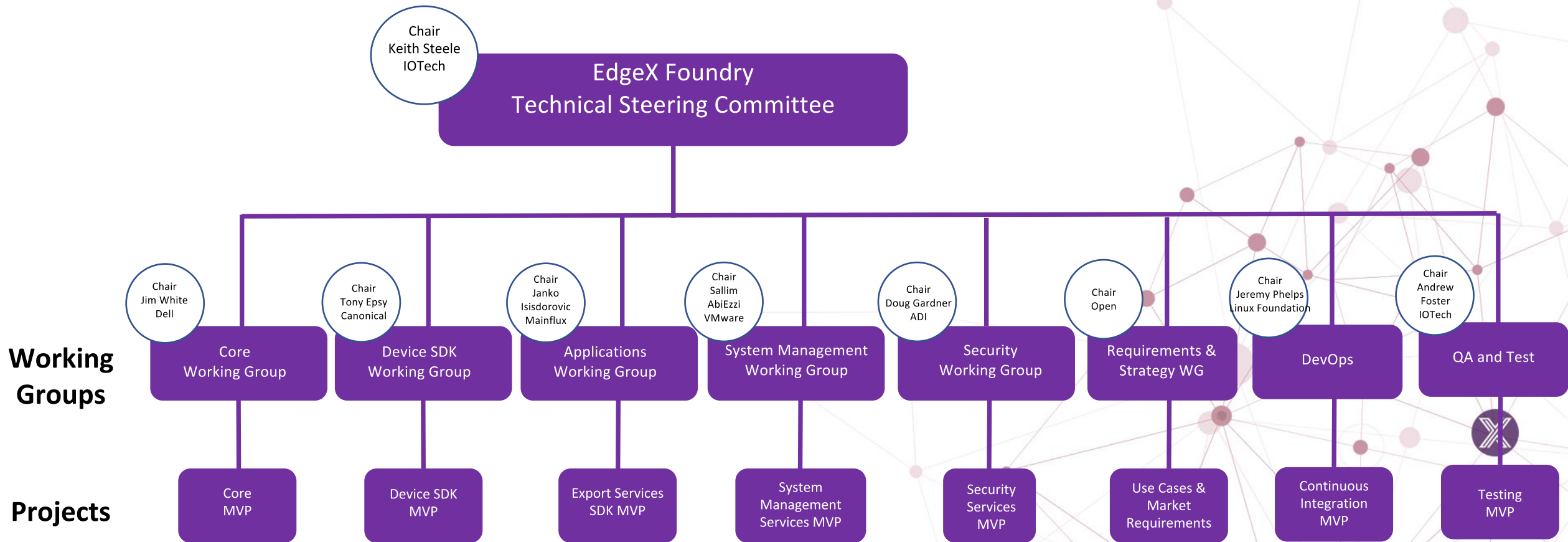
Thursdays @ alternating times (6pm & 9am EDT)

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](#)

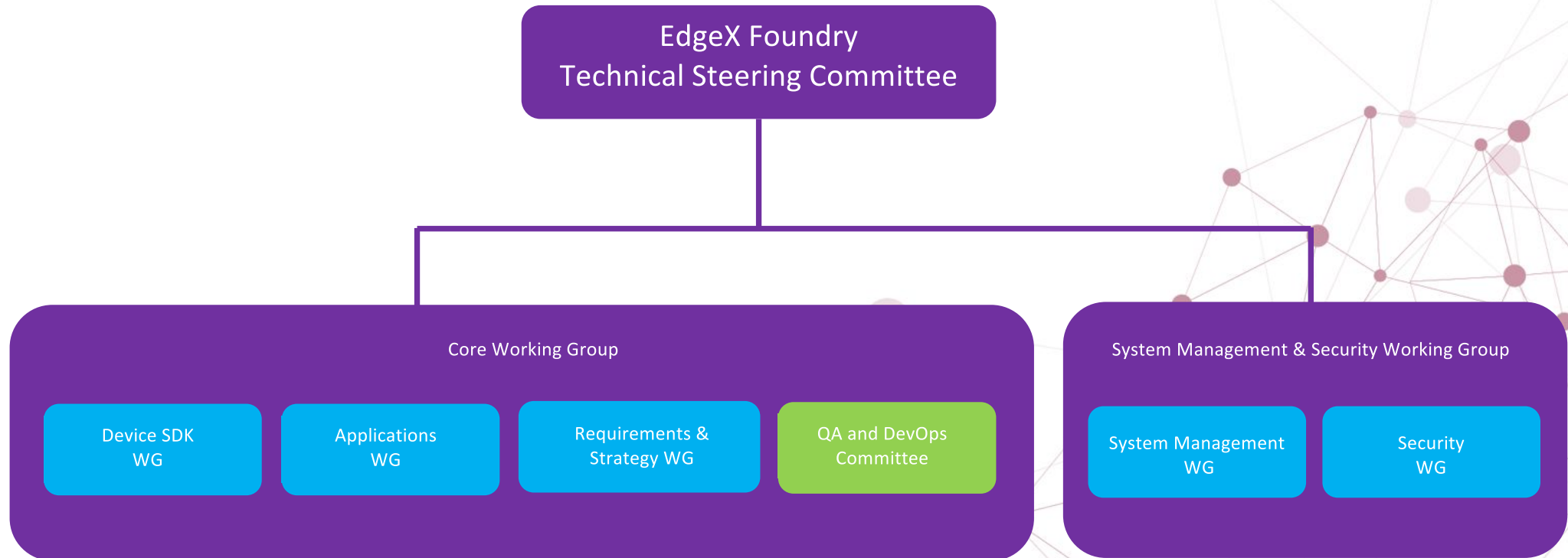
EdgeX Project Organization



TSC and WGs Meeting Structure June 2017

Combined Meetings during MVP 'Design Phase'

Meeting Groups



- Please register Interest for working groups where you'd like to participate: Mail lists @ <https://lists.edgexfoundry.org/mailman/listinfo>
- You will automatically receive notifications of all meetings and events

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

Project Resources

Quick links to most commonly used Community Resources

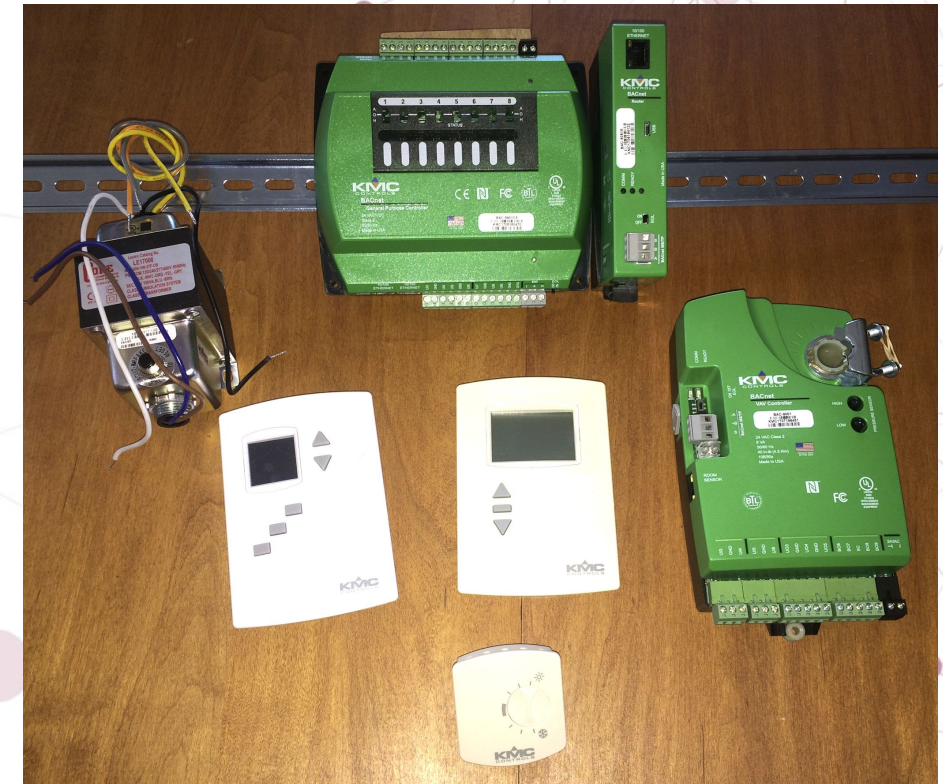
- Code: <https://github.com/edgexfoundry>
- Documentation: <https://wiki.edgexfoundry.org/>
- Discussion: <https://chat.edgexfoundry.org/>
- Mail Lists: <https://lists.edgexfoundry.org/mailman/listinfo>
- Twitter: <https://twitter.com/EdgeXFoundry>
- LinkedIn: <https://www.linkedin.com/company-beta/22298339/>

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!!



Upcoming Events

- [IOT Solutions World Congress Barcelona](#)
 - **3-5 October 2017**
 - **EdgeX Foundry Booth featuring Members + Demos**
 - [Canonical](#)
 - [CloudPlugs](#)
 - [Cumulocity](#)
 - [Dell / RSA](#)
 - [ForgeRock](#)
 - [IOTech](#)
 - [Linaro](#)
 - [NetFoundry](#)
 - [Neustar](#)
 - [RFMicron](#)
 - [Vantig](#)
 - [VMware](#)
 - EdgeX Members receive discounted [Registration](#)
 - Email info@edgexfoundry.org for discount code

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: October 5, 2017 (F2F with dial-in available)**



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Thank You