

EDGE X FOUNDRY™

# TSC Meeting

August 1, 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: August 1, 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/zoomconference?m=mkFexUxEcqHlvXHw53PqScTDRvS48PiQ>

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

# TSC – Members Present Today

<u>Company</u>	<u>Name</u>	<u>Email</u>
IOTech	<b>Andy Foster</b>	<a href="mailto:andy@iotechsys.com">andy@iotechsys.com</a>
ForgeRock	<b>David Ferriera</b>	<a href="mailto:david.ferriera@forgerock.com">david.ferriera@forgerock.com</a>
Analog Devices	Doug Gardner	<a href="mailto:doug.gardner@analog.com">doug.gardner@analog.com</a>
Mainflux	Drasko Draskovic	<a href="mailto:drasko@mainflux.com">drasko@mainflux.com</a>
Mainflux	Janko Isidorovic	<a href="mailto:janko@mainflux.com">janko@mainflux.com</a>
The Linux Foundation	<b>Jeremy Phelps</b>	<a href="mailto:jphelps@linuxfoundation.org">jphelps@linuxfoundation.org</a>
Dell	<b>Jim White (TSC Vice Chair)</b>	<a href="mailto:james.white2@dell.com">james.white2@dell.com</a>
IOTech	<b>Keith Steele (TSC Chair)</b>	<a href="mailto:keith@iotechsys.com">keith@iotechsys.com</a>
Samsung	Moonki Hong	<a href="mailto:moonki1.hong@samsung.com">moonki1.hong@samsung.com</a>
IOTech	Steve Osselton	<a href="mailto:steve@iotechsys.com">steve@iotechsys.com</a>
Canonical	<b>Tony Espy</b>	<a href="mailto:espy@canonical.com">espy@canonical.com</a>
Dell	<b>Trevor Conn</b>	<a href="mailto:Trevor.Conn@dell.com">Trevor.Conn@dell.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

- Welcoming New Members
- WG Updates
- EdgeX Community Demo Update
- Next TSC F2F Meetings
- IIC/EdgeX Workshop
- Upcoming Events
- AOB



EDGE X FOUNDRY™

# Welcoming New Members

Keith Steele

# Welcoming New Members

**BASKING**

<https://basking.io/>



# California Release & Work Group Updates

Jim White



# Working Group Chair Updates

- Misc updates/announcements
- Around the horn
  - Core/Supporting - Trevor
  - Applications - Janko
  - Device Services - Steve
  - Test/QA - Andy
  - DevOps - Jeremy
  - Security - David
  - System Management - Jim
  - Vertical Solutions - Moonki
- Others

# Miscellaneous Announcements/Updates (8/1)

- EdgeX UI Go has been approved for inclusion in EdgeX
  - Moving from Holding to EdgeX org in GitHub
  - Team will be working with Jeremy on build/CI processes
  - Will be formally released with Delhi
- Looking for volunteers to help review some additional code in the holding area
  - Samsung OPC-UA device service

# Core Working Group (01-Aug-18) -- Part A

- 0.6.1 -- Additional services planned for inclusion
  - Notifications
    - Supporting blackbox tests ([PR #31](#))
      - Waiting on confirmation before merge, should be good to go.
    - Integration with master branch has begun
  - Scheduler (???)
    - Needs blackbox tests. Eric Cotter to engage IOtech resources.
    - Last minute difficulties. Inclusion uncertain.
  - Minor bug fixes
- Delhi items
  - RAML Audits started
  - Service dependency handling on bootstrap started
    - Completed in all core services and support-logging ([PR #438](#) pending)
  - Version #s for California (0.6.1) and master (0.7.0) have been merged

# Core Working Group (01-Aug-18) -- Part B

- EdgeX Persistence Project
- Call scheduled for Thursday, August 2 at 7am PDT
  - Email [info@edgexfoundry.org](mailto:info@edgexfoundry.org) to be added to meeting invite
- Agenda:
  - Document EdgeX persistence requirements
  - Outline potential persistence stores and architectures to meet the requirements
  - Research the options
  - Make a recommendation to the Core WG on persistence architecture and reference implementation for future releases of EdgeX
  - Define a strategy around multiple database support

# Applications WG (8/1/18)

- Preparing the proposal for redesign of Export Services to make them more scalable and modular. (Mainflux)
  - Need sync with Core, Security and Sys. Management WG
- Azure IoT Hub Account
  - infrastructure@edgexfoundry.org is set up (Brett, Andy, Jeremy, Janko)
- Google IoT Account
- Delhi Features and Work:
  - Update Export Client Example documentation - Thanks Jim
  - If enabled, mark pushed time after an event is sent in export distro
  - Add CouchDB implementation
  - Some bug fixing

# Device Services WG Update (7/25/18)

- Go SDK moving into foundry repository
- C SDK to follow
- Core data management proposal from Assaf Natanzon
  - Analysis of data handling issues
  - Further analysis to be done under Core working group

# Security (7/25/18)

- Delhi release work under way
  - Vault scripts replacement with golang
  - work with Tony to make changes for snap integration of security components
  - Began discussions about HW secure storage with Intel
- Questions on last weeks demo?

# System Management WG (8/1/18)

- Design work continues
  - System Management Agent (SMA)
  - System Management API (per service)
- Seeking review and commentary
- <https://wiki.edgexfoundry.org/display/FA/Phase+1%2C+System+Management+Delhi+Release>
- SMA API pretty well defined - starting implementation of the service
- No meeting Aug 7. Pick back up Aug 14.



# QA/Test WG Update (1/8/18)

- Current
  - Update blackbox tests for RAML changes to Go Notifications requested in [PR #31](#)
  - Modify blackbox tests to support any additional RAML changes
  - Add/support any new tests required for new Go Scheduler
  - Complete review and merge of 4 open blackbox PRs
- Next (Delhi)
  - Develop performance test strategy and automate tests
  - Review use of Postman/Newman as blackbox test framework, alternatives ?
  - Security testing ?

# DevOps WG (8/1/18)

- 1). Migration to LF arm infra is underway
- 2). Refactor of java service builds in progress
- 3). Will likely need until middle of next week before 0.6.1 can ship
- 4). Black box tests passing before we ship?
- 5). Volunteer to build aarch Dockerfiles for go services
- 6). Need all groups to rev version to desired cali dot release



EDGE X FOUNDRY™

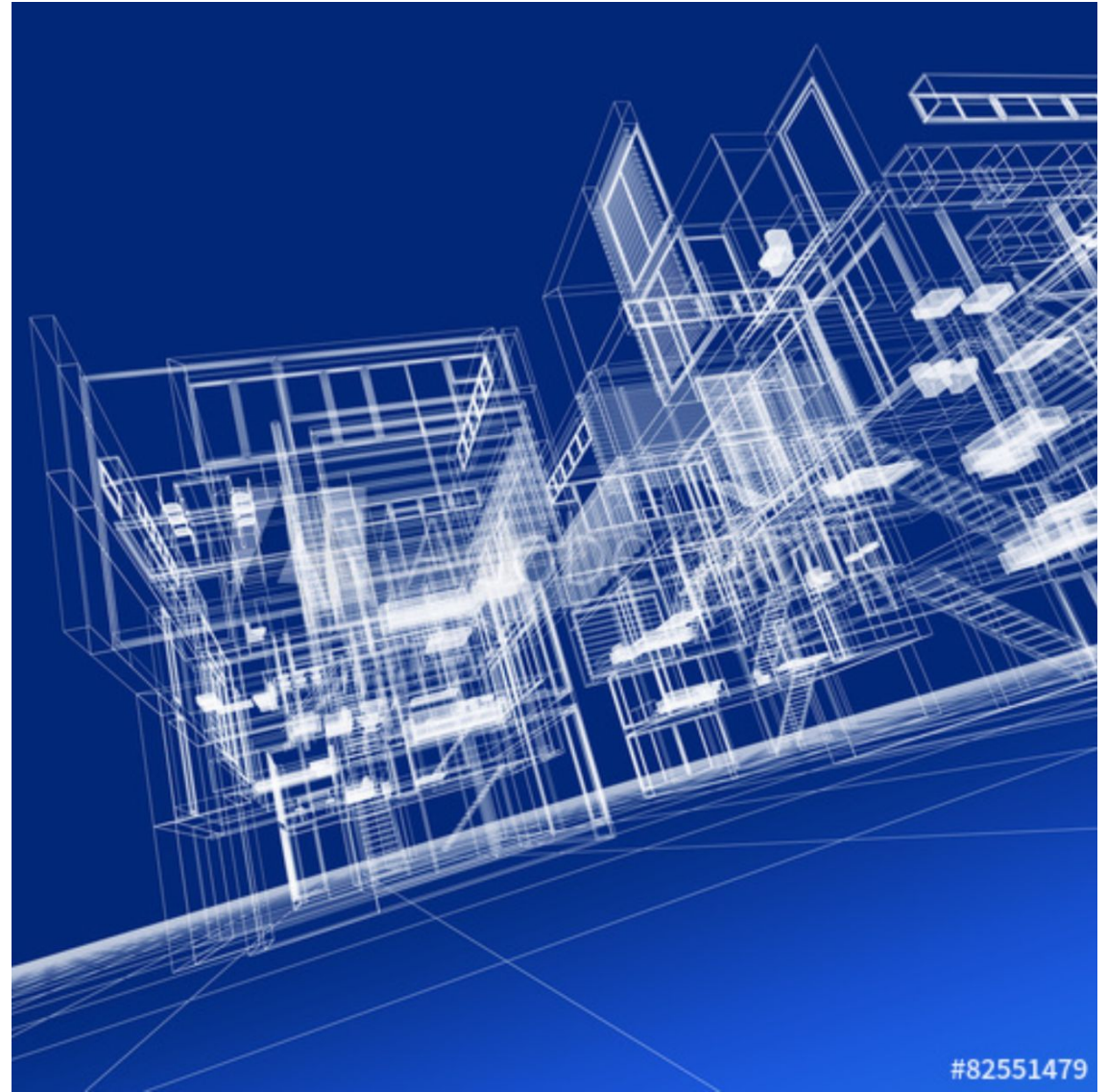
# EdgeX Community Demo Update

Keith Steele

EDGE X FOUNDRY™

## Community Demonstrator:

Showcasing the value of  
EdgeX in a number of  
Building Automation Use  
Cases



#82551479

# Key Demo Requirements

- Demo should convey an overall vendor-neutral position
- The overall goal is to showcase EdgeX's flexibility and ability to bring together heterogeneous solution components.
- Highlight the HW and OS-agnostic, loosely-coupled nature of the platform by featuring a series of tiered devices and gateways based on x86 and ARM silicon running several OS choices.
- Device services running on both smart sensors connecting direct to cloud and hosted on a gateway.
- Demonstration of Edge Analytics capability
- Support sensors/devices with a variety of wired and wireless protocols..
- Promote the horizontal flexibility but also put in context with 2-3 specific use cases, typically differentiated by the types of devices and applications utilized with the core.

# Demonstrator Mock Up

First Roll Out: IoT Solutions World Congress

Date: 16-18 October 2018

Location: Barcelona

Exhibitor: EdgeX Foundry

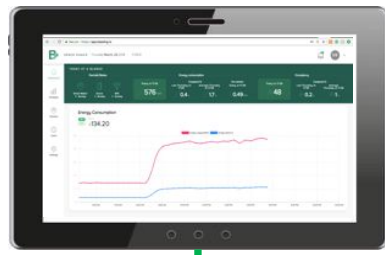


Easy to comprehend and showcases flexibility of the Edge X platform

Open, Inviting, Easily Accessible



# Demo Architecture



Basking Demo will show analytics deployed on both the Cloud and at the edge.



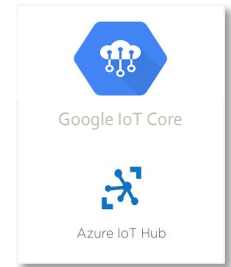
Basking IOT Backend

Demo will show EdgeX deployment on both x86 and ARM GW hardware. All gateways shown already supported by IOtech.



Data and control

Data via API and MQTT connection directly to the Cloud



Data and control

Data

Data and control

Data

Wired & wireless protocol devices



CoolMasterNet Modbus TCP HVAC controller



EnOcean Temperature sensor



Deuta EnOcean Lighting Controller



EnOcean Light Level sensor



Salto Klay API enabled Access management



API enabled Voltaware Energy monitor

Climate control

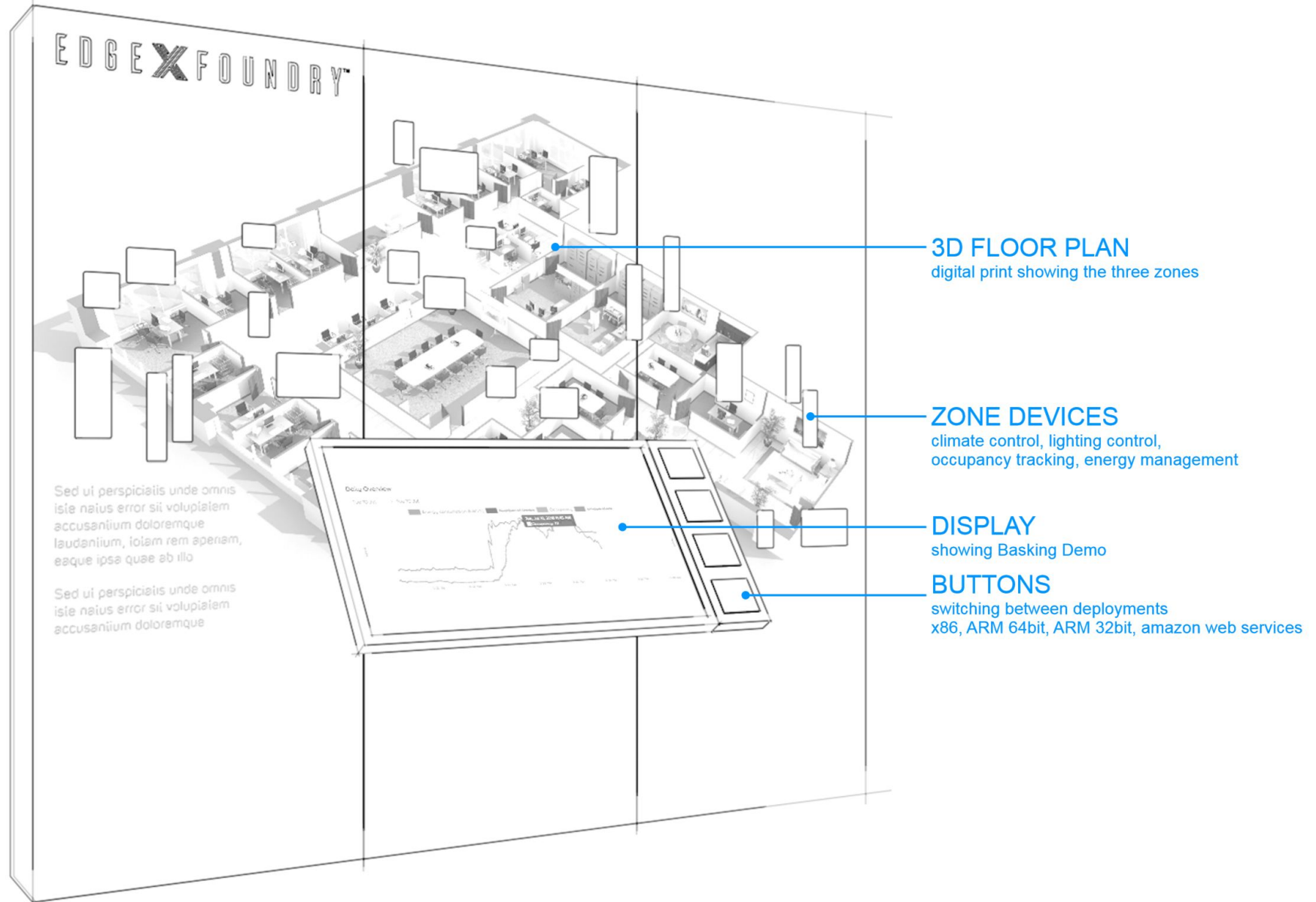
Lighting control

Occupancy tracking

Energy Management



# Stand Design





# Showcasing EdgeX in the Demonstrator

- Heterogeneous EdgeX southbound connectivity and interoperability to sensors and controllers with wired and wireless protocols
- Edge Analytics capability including data analysis and command response using the standards EdgeX rules engine
- Heterogeneous Northbound connectivity to the cloud, including AWS, Google and Azure
- EdgeX deployment on x86 and ARM 32 bit and 64 bit GW hardware also demonstrated EdgeX distributed capability
- Several Use Cases showcased within the Buildings Automation Market Segment illustrating EdgeX horizontal capability
- Highly professional trade show stand allowing EdgeX to be prominent and professional versus other exhibitors



Google IoT Core



Azure IoT Hub



# Smart Building Demo Consisting of 3 Parts

## The Edge intelligence

- EdgeX devices services connected to sensors and controllers with wired and wireless protocols



- EdgeX analytics including data analysis and event response
- EdgeX export services to the cloud, specifically AWS
- EdgeX deployment on both x86 and ARM GW hardware.
- Other sensors and devices are connected directly to the cloud, integrating their data with the EdgeX-connected devices

## The Cloud backend

- Cloud backend running on Amazon web services, where the building automation software is hosted



- Connect to the EdgeX export services for Data and commands exchange
- IOT services for the devices connected directly to the cloud



- Allocation of devices properties, statuses, control options.
- Integration of data sources and create time series of device operational data
- Rules engine for automation of services

## The Dashboard frontend

- Climate control based on occupancy, temperature level, user preferences
- Light control based on occupancy, ambient light level, user preferences
- Energy reading and management based on live energy data, and correlation with occupancy for efficiency analysis
- Occupancy tracking
- Visualization and insights
- Notifications based on events and rules
- Automation of device operations based on events or user set preferences



EDGE X FOUNDRY™

Next TSC F2F Meetings

Keith Steele

# EdgeX TSC F2F Meeting(s)

- Wednesday & Thursday 24th/25th October -- Location Edinburgh, UK -- [Wiki page](#)
    - Working Group technical meetups on Tuesday, October 23
  - **RSVP at <https://goo.gl/forms/QR3WgP4ybB5KUT3w2>**
    - Current registration count: 15 in-person; 0 dial-in
    - Tuesday Working Group Counts
      - Applications: 5
      - Security: 5
      - Systems Mgmt: 1
  - Hotel/Travel: <https://events.linuxfoundation.org/events/elc-openiot-europe-2018/attend/venue-travel/>
  - For Wednesday night dinner/activity, Scotch whisky tasting!!
    - RSVP is required. RSVP as part of TSC registration above.
- 
- April 2019 -- Location Seoul or Suwon (South Korea)



EDGE X FOUNDRY™

# IIC Updates

Keith Steele

# IIC/EdgeX Workshop

**Sept 10-14**

**Chicago, IL**

- Tuesday, September 11, 2018: 9am to 12:30pm Central Time
- Hyatt Regency O'Hare in Chicago
- <https://www.iiconsortium.org/member-meetings.htm>

Next Steps:

- Content Planning (see Agenda on next slide)
- Need to finalize who from the EdgeX Community is planning to attend
  - **Requested:** RSVP at <https://goo.gl/forms/PJpYWYn9TfrscfOq1>
    - Current RSVP count: 0

**Note:** Just FYI and for planning considerations for those traveling to Chicago: At the same time as IIC meeting, there is also Hannover Messe USA and Intelligent Transportation Forum (ITS) happening in Chicago. On Friday 9/15, IIC and ITS are planning some joint activities.  
<https://hannovermesseusa.com/>

# Agenda

- 1. Introductions and Workshop Overview (10 min)**  
Speakers: Sven Schrecker, SWG Chair, Wael William Diab, Liaison WG Chair, Jason Shepherd: EdgeX (title)
- 2. Overview of the IIC Liaison Working Group (10)**  
Speaker: Wael Diab, Senior Director, Huawei Technologies
- 3. Overview of EdgeX Foundry Initiatives/Activities (10)**  
Speaker: Keith Steele (title)
- 4. IIC Security Initiatives (30)**  
Speakers:
- 5. EdgeX Architecture/Security Overview (30)**  
Speakers: Jim White/ David Ferriera
- 6. Break (15)**
- 7. Joint IIC/EdgeX Activities (15)**  
Speakers: TBD
- 8. Panel Discussion & Q/A on Collaboration/Way Forward(55)**  
Moderator: Sven Panelists: all presenters
- 9. Closing (5)**

**Total: 3 hrs**



EDGE X FOUNDRY™

## Upcoming Events



# Upcoming Events - Confirmed

- [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 11, 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
- [IOT Solutions World Congress](#), October 16-18, 2018, Barcelona
  - CFP and Call for Testbeds have closed. Email [pr@edgexfoundry.org](mailto:pr@edgexfoundry.org) if you were selected so that we can track/promote
  - EdgeX has secured a booth (call for booth staff volunteers will follow)
    - Community Demo will debut at the show
  - Who is planning to be on-site?
    - Brett Preston (LF), Keith Steele (IOTech), Michael Hall (LF) ...

# 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
  - Schedule announced August 14
- [ELC / OpenIoT Summit Europe](#), October 22 - 24, 2018, Edinburgh, UK
  - Community Partner: Save 15% on Attendee Registration with discount code OSSEU18COM15
  - Schedule announced August 14



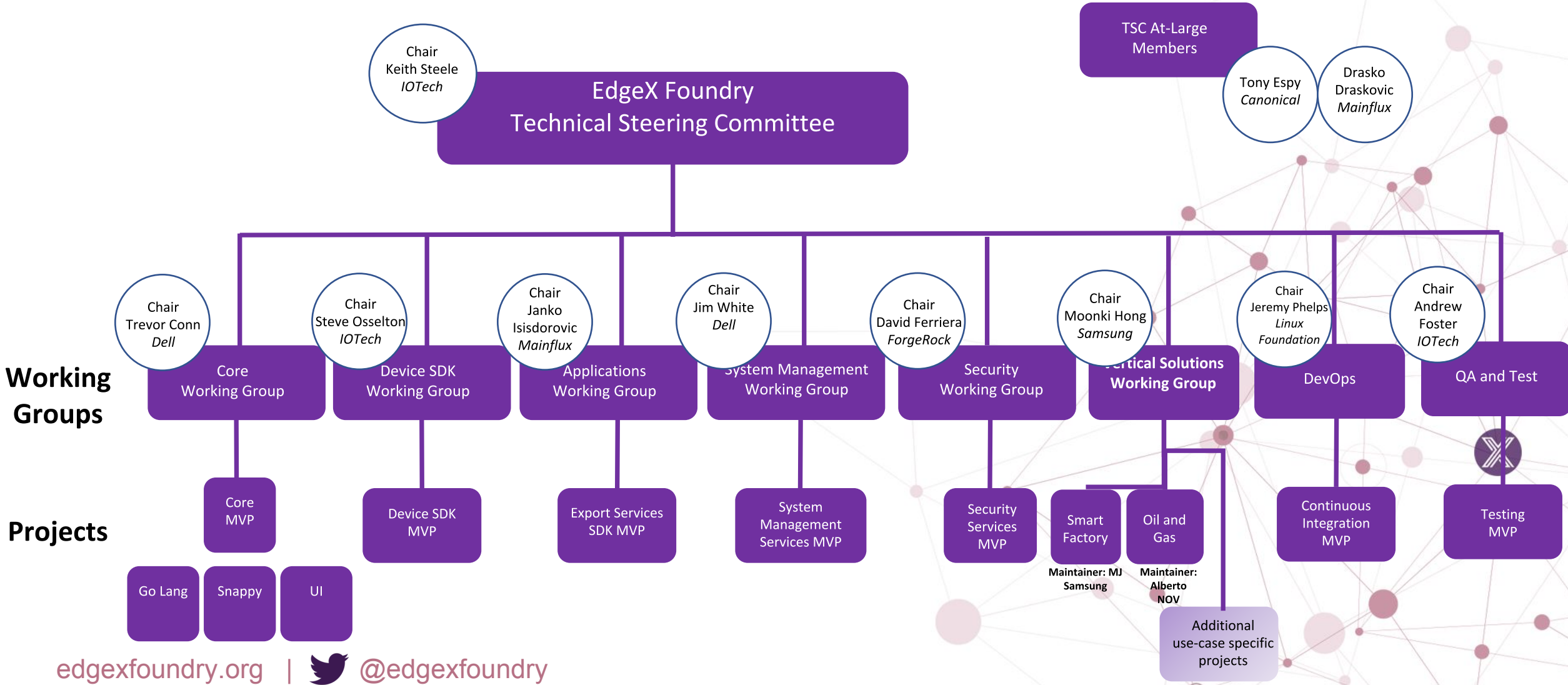
EDGE X FOUNDRY™

AOB / Reminders

# 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: August 8, 2018**

# EdgeX Project Organization



# Marketing

- **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

# 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

# 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](mailto:bpreston@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](#)

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

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

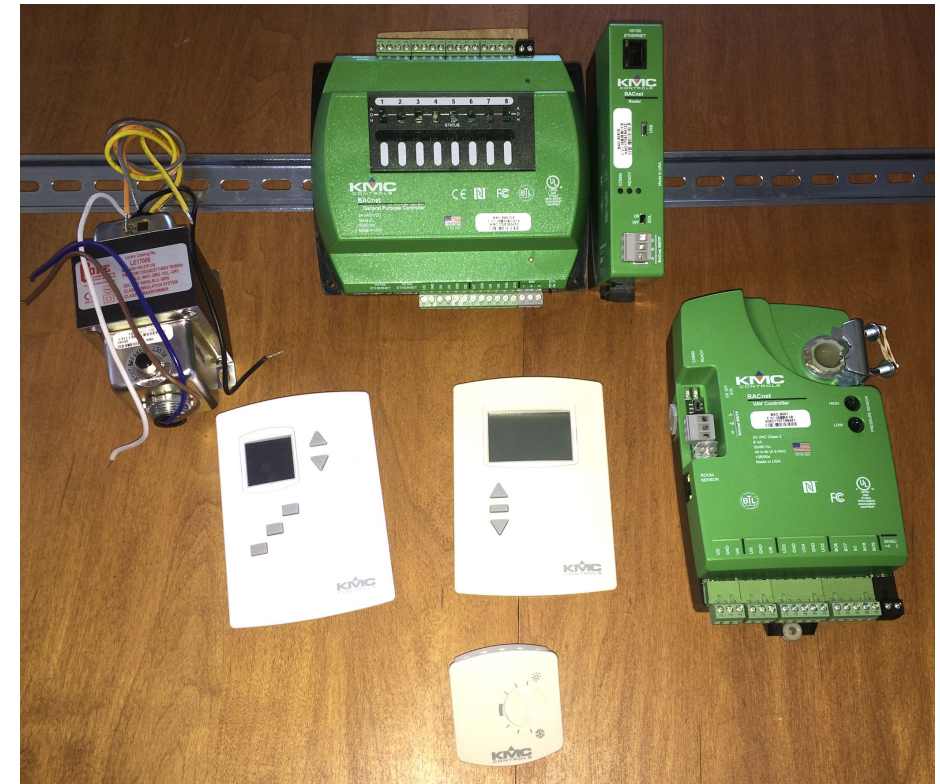
# What is the Device Exchange?

- 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](mailto:info@edgexfoundry.org) for assistance



## EdgeX ▾

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

Related topics:



# 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](mailto:pr@edgexfoundry.org) once Meetup has been scheduled
- Post-event, please consider doing a blog about the event

# 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



EDGE X FOUNDRY™

Thank You