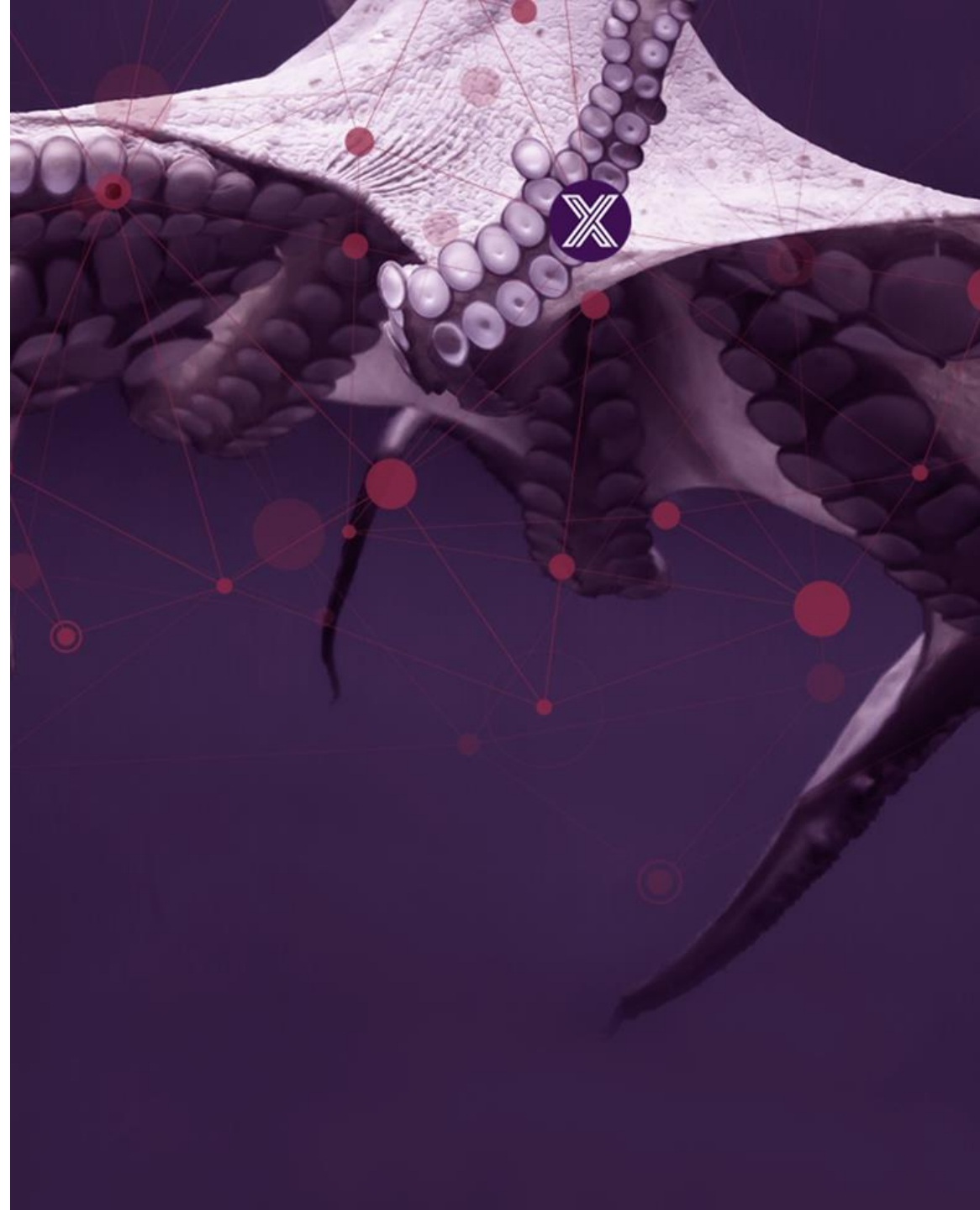


EDGE X FOUNDRY™

Vertical Solutions WG Meeting

April 9th, 2018



Meeting Logistics

Time: April 9th, 2018 5pm PST – 6pm PST

Join from PC, Mac, Linux, iOS or Android: <https://zoom.us/j/720151125>

Or iPhone one-tap :

US: +16699006833,,720151125# or +16465588656,,720151125#

Or Telephone:

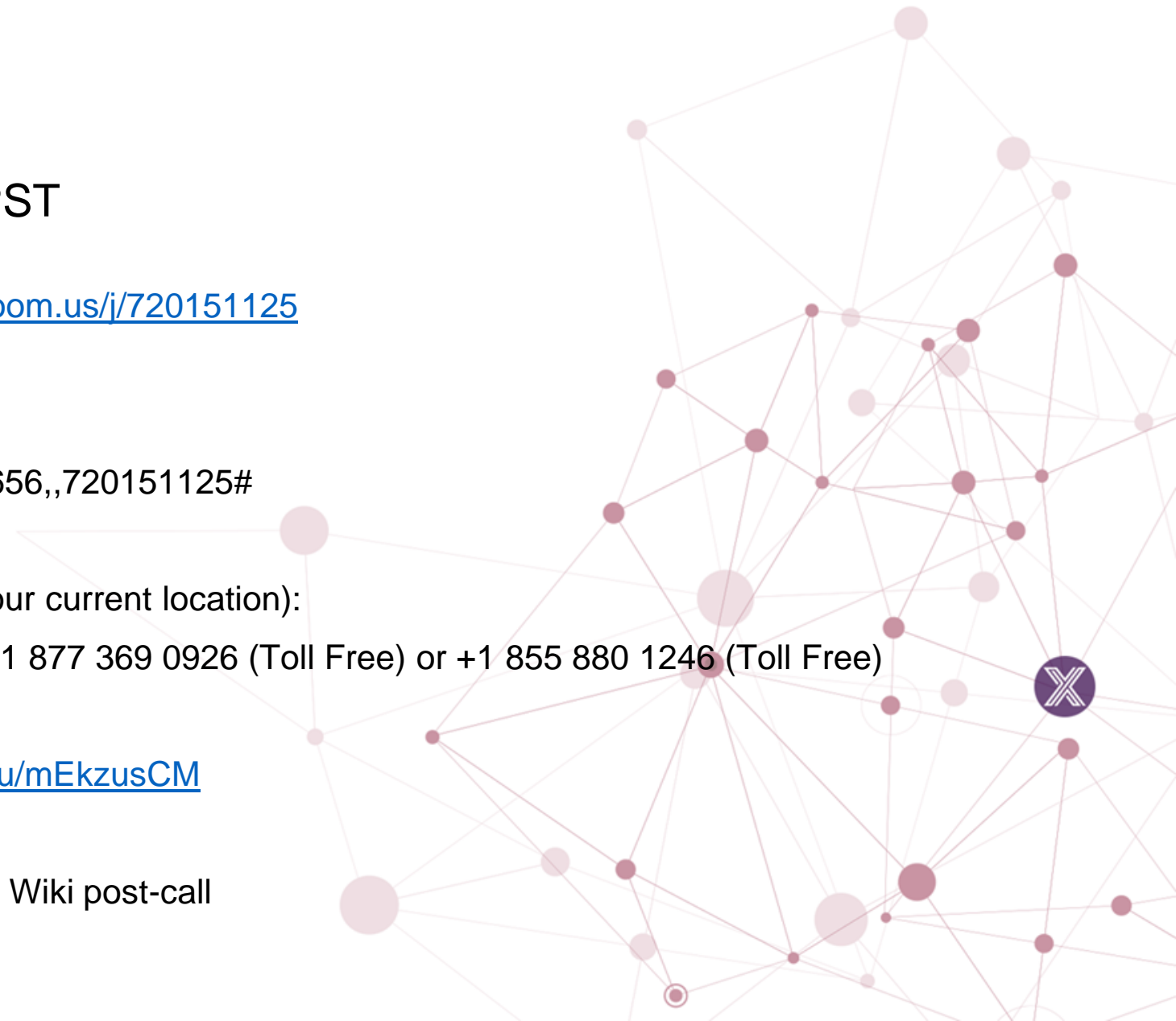
Dial(for higher quality, dial a number based on your current location):

US: +1 669 900 6833 or +1 646 558 8656 or +1 877 369 0926 (Toll Free) or +1 855 880 1246 (Toll Free)

Meeting ID: 720 151 125

International numbers available: <https://zoom.us/u/mEkzusCM>

** Vertical Sol. WG calls are recorded and added to Wiki post-call



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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.

Today's Agenda

- Updates from Oil & Gas Project
- Updates from EdgeX Testbed Initiative
- AoB



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Updates from Oil & Gas Project

Alberto Dellabianca (NOV)

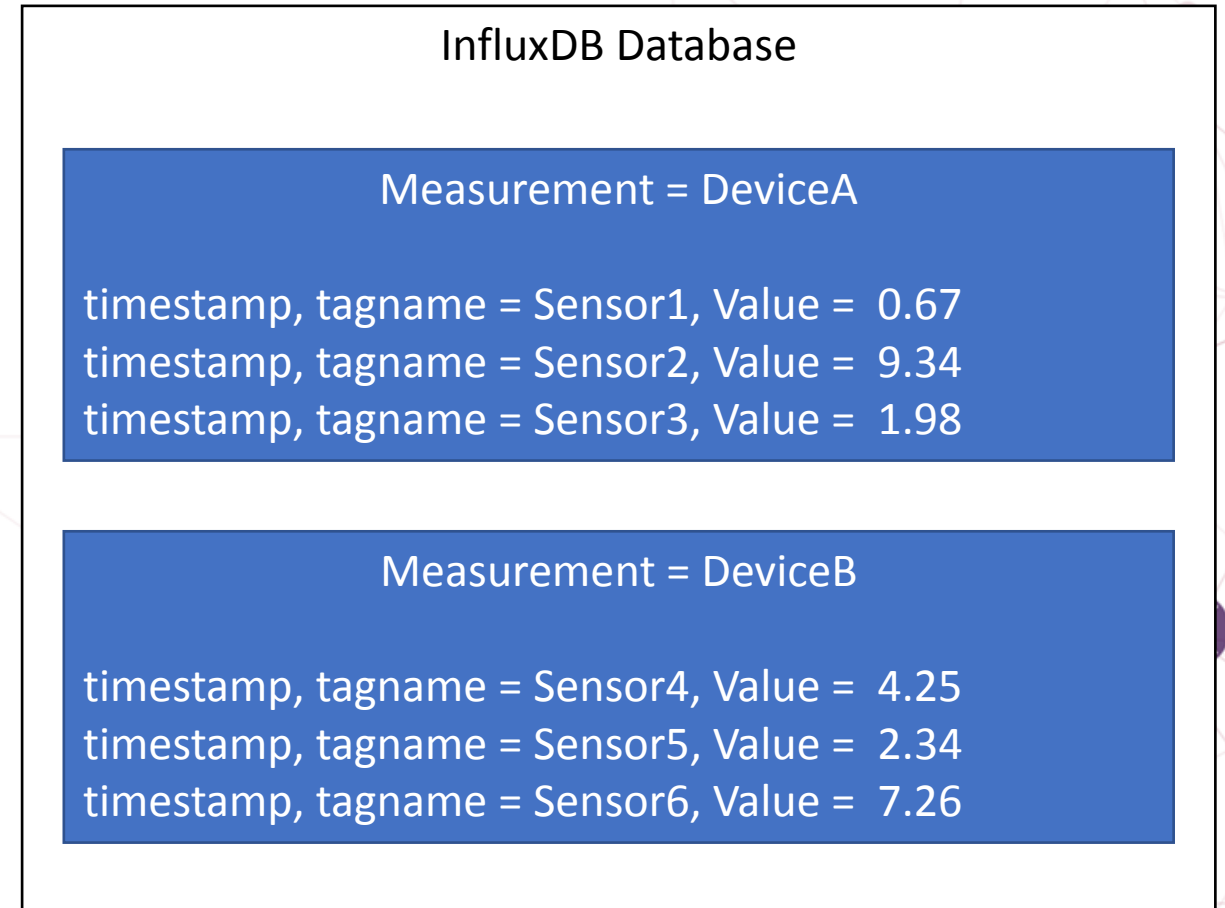
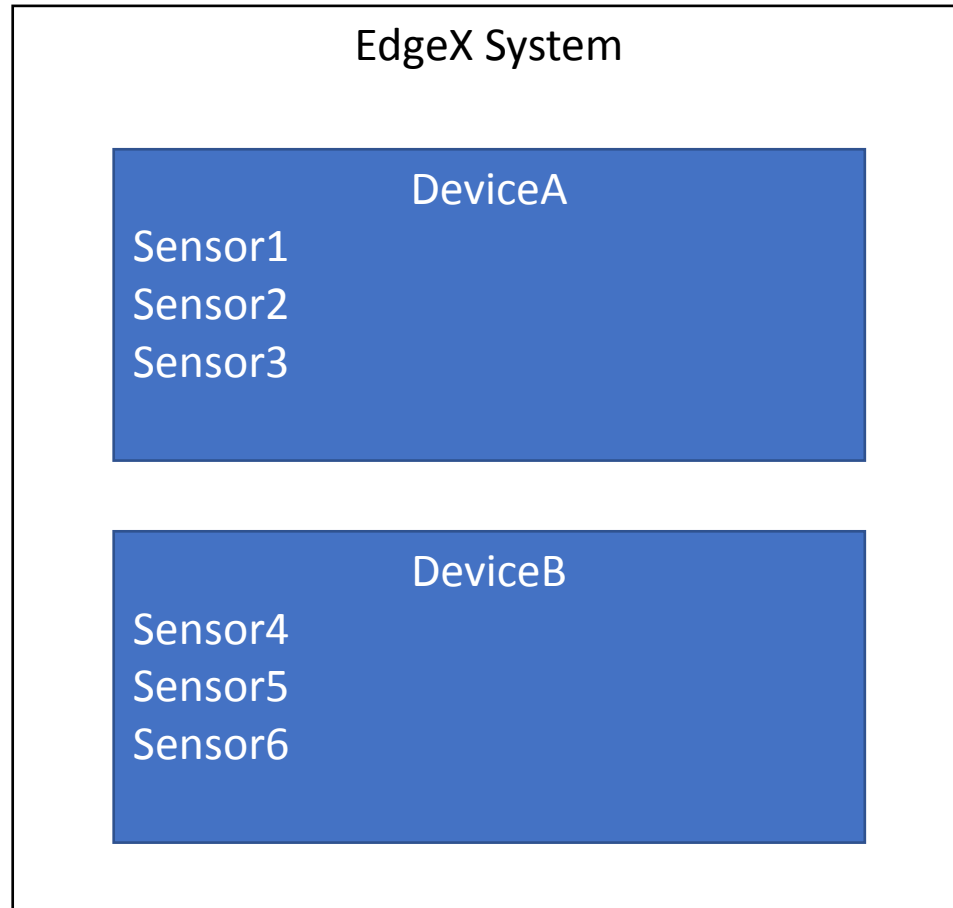
O&G Project Status Update

- Modified table with Gap analysis based on feedback from Schlumberger
 - <https://wiki.edgexfoundry.org/pages/viewpage.action?pageId=7602886>
- New company participating in the group: Pioneer Energy
- Progress on Golang code contribution for Export Services

Export Service to InfluxDB (1/2)

- Not so critical anymore since core-data now supports InfluxDB as backend natively
- Decided to use go client instead of REST calls
 - <https://github.com/influxdata/influxdb/tree/master/client/v2>
- So far it was implemented reading senML messages from a MQTT broker and sending data to InfluxDB. Will have to be adapted to use 0MQ & other EdgeX Export Services facilities

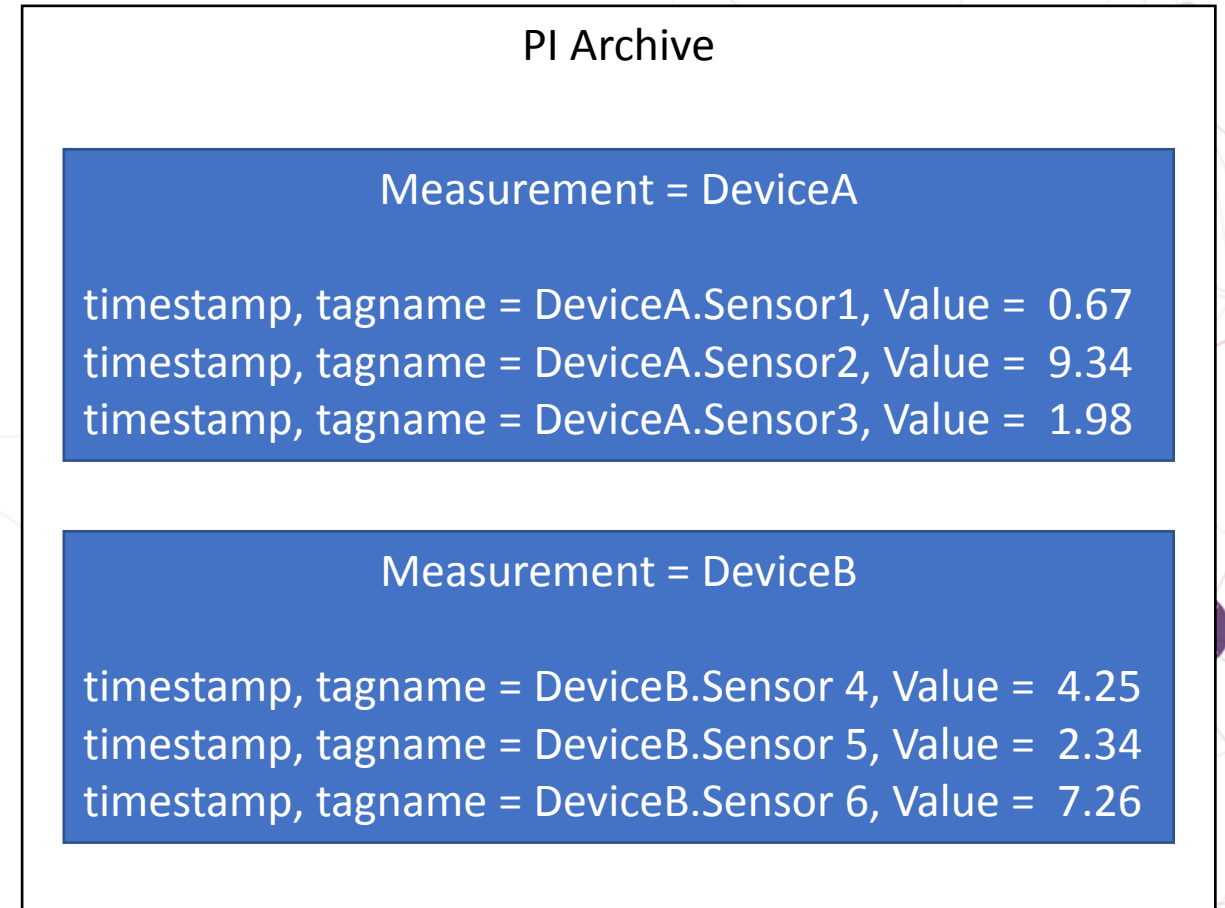
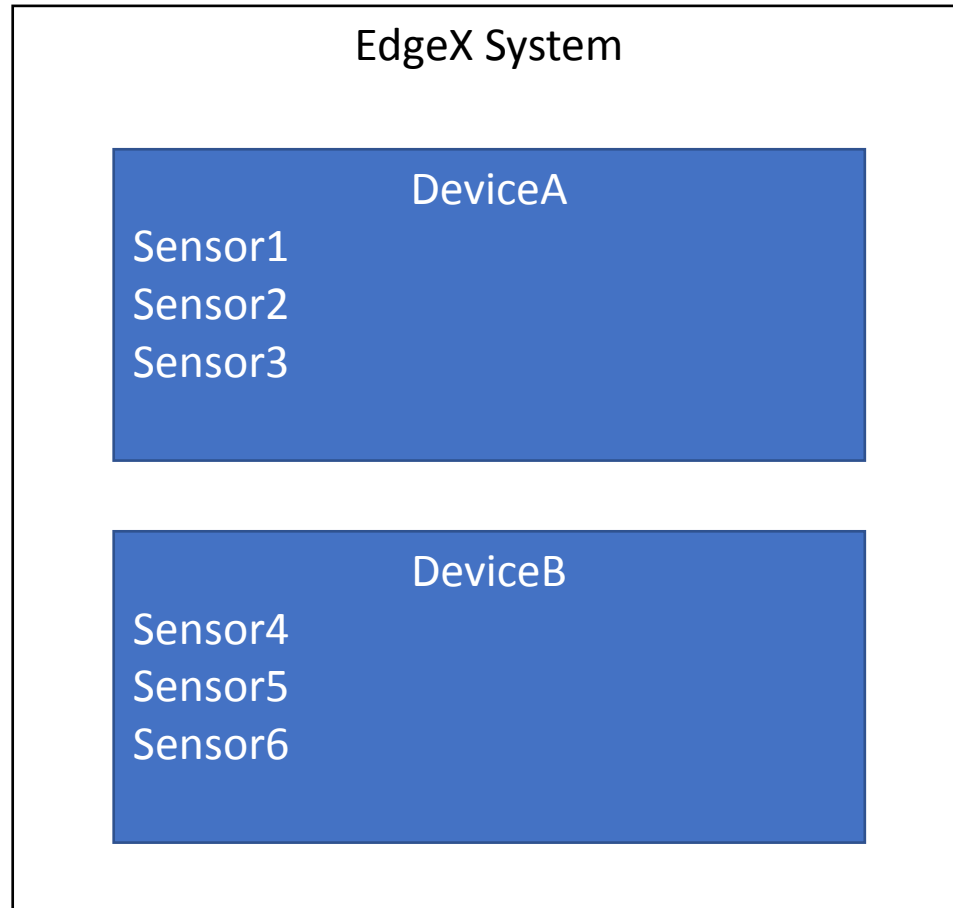
Export Service to InfluxDB (2/2)



Export Service to Osisoft PI (1/2)

- Implemented using batch writes via HTTPS rest endpoint (PI Web API)
- Will work with Osisoft engineering team to convert it to use OMF in May for high throughput
- So far it was implemented reading senML messages from a MQTT broker and sending data to PI. Will have to be adapted to use 0MQ & other EdgeX Export Services facilities

Export Service to Osisoft PI (2/2)





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Updates from EdgeX Testbed Initiative

Moonki Hong (Samsung)

Participants (Special Interest Group)

- IOTech
- Samsung
- Wanxiang Group

You are always welcome to co-work with us in the SIG.

- *Schneider-Electric (Not a member of EdgeX and IIC)*

Motivation

- EdgeX has been gaining more and more momentum in public.
- Common platform has been improved more and more this year.
- Industry wants feasibility of EdgeX in a practical deployment.
- There have been a lot of gaps reported in terms of specific verticals.
- Needs to setup a practical testbed powered by EdgeX platform.
- First come, first go: Implementation base, starts with Smart Factory.

Definition of Edge (as of now)

- Configurable Edge Data Platform in factory automation
- S/W defined, guarantees dynamics (flexibility) w.r.t. changing reqs.
- Security hardening, modular and intelligent platform.
- Vendor neutrality: compatible to any cloud, inc. on-premise.

Highlighted Work Items

- Team-up a Special Interest Group both in EdgeX & IIC
- Promotion us to IIC Community and others
- Whitepaper publication as intermediate milestone
- Set-up a viable laboratory infra for a testbed
- Encourage feature extensions and Microservice “market place”
- Complete establishment of EdgeX-powered IIC testbed
- Recruit more and more participants into the testbeds
- Expands collaboration with top-tier organizations

Testbeds Details

- Ground rule : Employ the existing EdgeX platform with feature extensions for a specific verticals
- Any interesting members can lead a separate testbed with a separate lab, but it might be better to promote it with the “EdgeX” brand
- Vertical Sol. WG are encouraging...
 - Providing as many laboratory infrastructures as possible.
 - Providing as many feature extensions as possible from EdgeX.

Lab Facilitation

- Testbeds for IIC approval
 - In Wanxiang Group : specially targeting automotive manufacturing
 - In Samsung or *Schneider-Electric*
 - Collaboration with testbed providers : Participate as associate member
- Independent testbeds for EdgeX Foundry
 - Separate testbed in US or EU (TBD)
- Else

Technical Approach

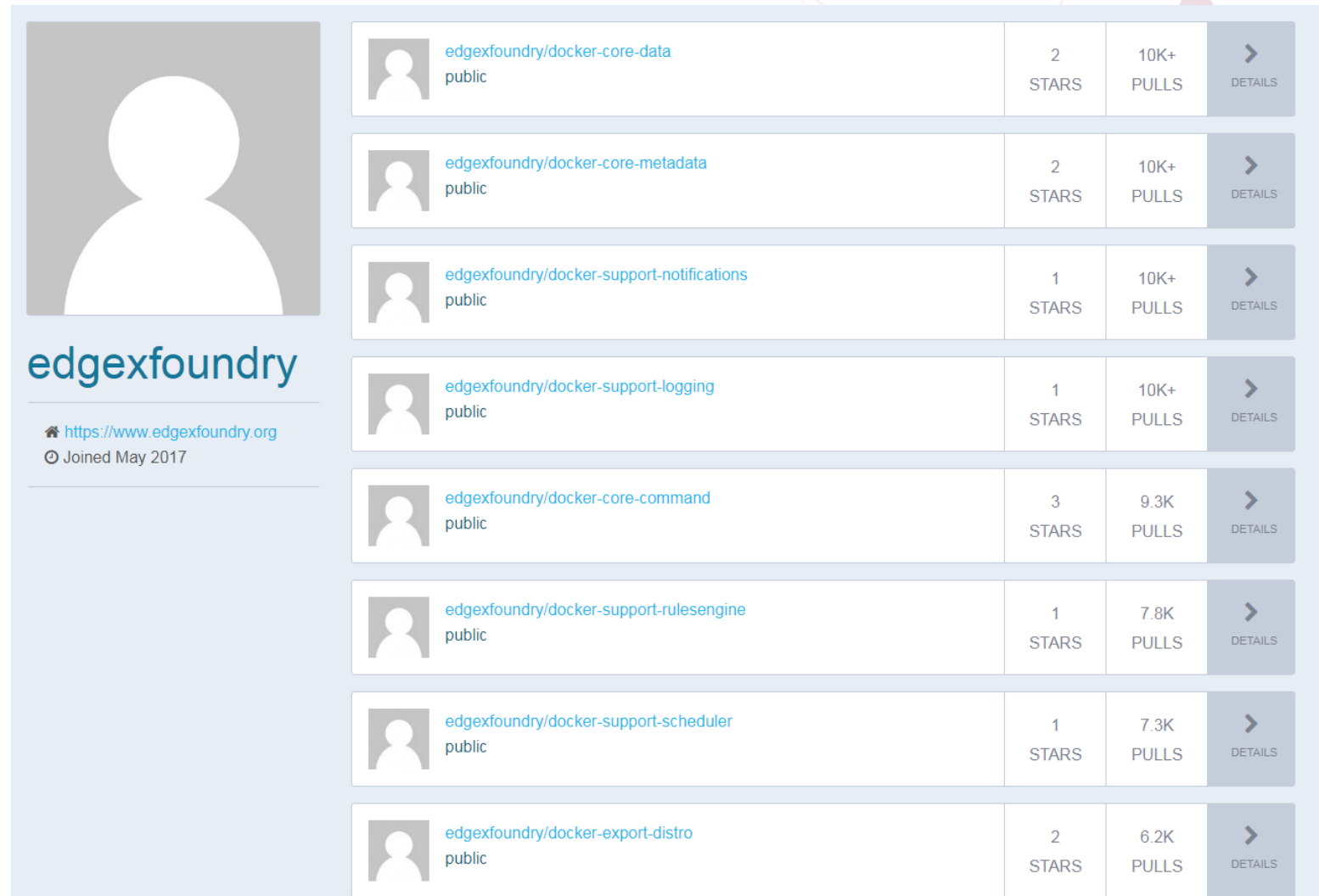
- In a Github pipeline : Smart Factory
 - OPC-UA protocol S/W and Microservices
 - eZMQ – Data transmission based on message queue among Microservices
 - Pharos – Service deployment manager and agent
 - Data processing runtime and workflow
- Any other : Gap analysis & candidates for contributions
 - Mostly from Oil & Gas, but welcome from other domains
- Data models : depends on the individual participants
 - AutomationML : Samsung preferred
 - MTConnect : NOV preferred
 - Wanxiang Group : still evaluating (based on OPC-UA)

“Docker-Hub” as EdgeX “Marketplace”?

- EdgeX has been providing its own public Docker-Hub for docker images with respect to the existing EdgeX Microservices.
- Idea: What about expanding this to provide “Vertical specific” microservices images to attract more customers into EdgeX?
 - It plays a role of “Market Place” or “App store” powered by EdgeX.
 - Can be linked to the contributed Microservices in Github or
 - Can be existed independently regardless of the source code existence, which is closer to commercial products from EdgeX member companies.
- It can be encouraged by those who want to establish the testbed with the available service images from EdgeX “Marketplace” as well!

[Ref.] Docker-Hub for EdgeX Foundry

- <https://hub.docker.com/u/edgexfoundry/>



The screenshot displays the Docker Hub profile for 'edgexfoundry'. It features a profile picture placeholder, the name 'edgexfoundry', a website link 'https://www.edgexfoundry.org', and a join date of 'May 2017'. Below this is a list of eight public repositories, each with a star count and a pull count.

Repository Name	Stars	Pulls
edgexfoundry/docker-core-data	2	10K+
edgexfoundry/docker-core-metadata	2	10K+
edgexfoundry/docker-support-notifications	1	10K+
edgexfoundry/docker-support-logging	1	10K+
edgexfoundry/docker-core-command	3	9.3K
edgexfoundry/docker-support-rulesengine	1	7.8K
edgexfoundry/docker-support-scheduler	1	7.3K
edgexfoundry/docker-export-distro	2	6.2K

[Ref.] Marketplace from Acumos AI Project

- <https://marketplace.acumos.org/#/marketPlace>

The screenshot displays the Acumos AI Marketplace interface. The top navigation bar includes the Acumos AI logo, The Linux Foundation Projects logo, and links for HOME, MARKETPLACE, and DOCUMENTATION. A search bar and a SIGN button are also present.

The main content area is titled "Marketplace" and shows "Showing - 7 Models". The models are displayed in a grid format, each with a thumbnail image, a title, author, date, and a "New" badge. The models are:

- TechM-Sentiment Analysis by Acumos Admin | on 03/28/2018 | New (5 stars, 174 views, 80 downloads)
- TechM-Customer Segmentation by Acumos Admin | on 03/28/2018 | New (5 stars, 70 views, 32 downloads)
- TechM-Cross-sell Analysis by Acumos Admin | on 03/28/2018 | New (5 stars, 48 views, 15 downloads)
- ATT-Image Classification by ATT Admin | on 03/28/2018 | New (5 stars, 122 views, 54 downloads)
- ATT-Face Privacy filter by ATT Admin | on 03/28/2018 | New (5 stars, 46 views, 18 downloads)
- ATT-Face Detect by ATT Admin | on 03/28/2018 | New (5 stars, 148 views, 48 downloads)
- ATT-Image Mood Classifier by ATT Admin | on 03/28/2018 | New (5 stars, 59 views, 29 downloads)

The left sidebar contains a "BROWSE BY" section with a search bar and a "Filter By Category" section with checkboxes for Classification, Data Sources, Data Transformer, and Prediction. There is also a "Tags" section with buttons for Customer Segmentation, Cross Sell, Image, Face, and Sentiment.

At the bottom right, there is a button labeled "View More ML Solutions".

Milestone (as of now)

- Freeze of Use Case, Edge definition, and R&R
- Code release for vertical specific extension
 - California ('18.6), Delhi ('18.10)
- Docker-Hub based Market place launch
- Whitepaper publication
- Joint Tech Workshop
 - EdgeX + OPC Foundation ('18.7) @ Samsung (Korea) : under negotiation
 - EdgeX + IIC ('18.9) @ IIC 3Q meeting (USA) : Confirmed
- Testbed setup



'18.Apr.

'18.Jun./Oct.

'18.Jun.

'18.Jun.

'18.Jul./Sep.

'18.Oct.



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Thank You