LF Edge TAC
Technical Advisory Council

30 June 2021

THE LINUX FOUNDATION
Meeting Details

› June 30, 2021 (@ 7:00am PDT)
› Meeting Info:
  › Meeting URL: https://zoom.us/i/94796108342?pwd=VjlaMTBxcXFQ3pVcU85NTjvWkxaZz09
  › Calendar Subscription: https://lists.lfedge.org/g/TAC/calendar
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<td>Baidu</td>
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<td>Jim St. Leger (TAC Chair)</td>
<td>Sharad Mishra</td>
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<td>Charter</td>
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<td>Ericsson</td>
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<td>Andrew Wilkinson</td>
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<td>Futurewei</td>
<td>Chaker Al-Hakim</td>
<td>Deepak Vij</td>
<td>Tencent</td>
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## LF Edge TAC

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<td>Wipro</td>
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<td>ZEDEDA</td>
<td>Erik Nordmark</td>
<td>Roman Shaposhnik</td>
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Topics

1. TAC Community Lab Subcommittee: Budget Approval request - Lincoln Lavoie (10 min)
2. 5G Super Blueprint - Chaker Al-Hakim (10 min)
3. Project Update: EdgeX 2.0 Release (Ireland), EdgeX Ready - Jim White (20 min)
4. Project Update: Baetyl integration with EdgeX - Leding Li (15 min)
5. Upcoming Events / Next Meeting (5 min)
TAC Community Lab Subcommittee: Budget Approval request
Lincoln Lavoie
TAC Community Lab Subcommittee: Budget Approval request

- Ask: The annual support contracts for the Cisco equipment: ISR44 (terminal server), Mgmt Switch, and TOR Switch
  - Need: Mgmt Switch and TOR Switch are shared across all labs for all the PODs. If one goes down, the lab goes out of service
- Cost: Renewal of support is $2,935.74 total for 1 year (July to June). Note, the newest TOR switch is not due for renewal until the January time-frame (about $1k)
  - Falls within the 2021 equipment/support approved budget
- Subcommittee Proposal: The lab proposes the renewal of these support agreements, which includes hardware replacement / coverage in event of failures
- Lab 2021 Budget included $3,200 allocation for support contracts (planned for 3 devices), did not account for the additional TOR switch added in January 2021
  - Lab 2021 spend-to-date $40,396.60

- **Action Item:** TAC Vote to approve
5G Super Blueprint
Chaker Al-Hakim
5G Super Blueprint

› Home: https://wiki.lfnetworking.org/display/LN/LFN+Demo%3A+5G+Super+Blueprint
› Clickable dashboard: https://safratech.net/5g-bp/
› Best way to ensure adequate/accurate LF Edge Project Representation is to join the discussion (links below)
› LFN Demo group split into two workstreams that will meet in the same timeslot on alternating weeks. The next meeting is the group working on improving the blueprint. Please attend and give your feedback.

› Group Communications
› Mailing List: https://lists.lfnetworking.org/g/lfn-demo. Please subscribe to remain up to date on demo evolution and planning.
› Bi-Weekly Meeting Calendar: https://lists.lfnetworking.org/g/lfn-demo/calendar. Get the meeting information here.
› Slack Channel: https://join.slack.com/t/lfn-demo/shared_invite/zt-nkmmn4gh-Z5wUZNgo_tOJ958s31PGTQ. See and contribute to the latest technical conversations here.
› Meeting Agenda/Minutes: https://wiki.lfnetworking.org/x/GgADAw. Catch up on the latest and see what’s coming up.
› Questions: Email: superblueprint@lfnetworking.org
Project Update: EdgeX 2.0 Release (Ireland), EdgeX Ready
Jim White
Project Update: EdgeX 2.0 Release (Ireland), EdgeX Ready

EdgeX's 8th release
Available June 30th
› Some documentation, examples, migration assistance coming this summer

Our 2nd Major release
› Major releases include significant new features and non-backward compatible changes
Ireland Major Feature Summary

› All new API set for each of the micro services (the V2 APIs)
› Simplified Device Profiles (specification for “things”)
› Device service to App Service via Message Bus
   › Core data and persistence are optional and secondary subscribers
› Improved security
   › Standardized secret provider for all services
   › Enable Consul API through the API Gateway
   › Secure Consul access
   › Streamlined and stabilized the security bootstrapping process
› New device services (“thing” connectors)
   › GPIO, LLRP, CoAP
› New GUI (based on Anjular JS)
› Elimination of tech debt (ex: port assignment)
Why a new API set (the V2 APIs)?

› Elimination of 4 years of tech debt
› Provide response objects and consistent status across the APIs
› Allow tracking of data through the system (correlation id)
› Setting EdgeX up for new modes of service-2-service communications
› Allow for more security to be added to the exchange
Data Flow in EdgeX

EdgeX 1.x

EdgeX 2.0
New GUI

- Built on Anjular.js
  - Technology more aligned to industry standards
- Appropriate EdgeX branding
- Covers all services
- Much better UX
- For dev/test/demos but allows others to extend it for production
Non-code Work in this release

- Upgraded/Improved EdgeX Web Site
- Improved contribution review process
  - 4 new organizations contributing under this process
- Use of conventional commits for code contributions
  - Providing professional looking release notes and change logs
- Vetting process for 3rd party dependencies
- Open Retail Reference Architecture Project started under EdgeX
- Liaisons
  - Digital Twin Consortium
  - AgStack
- Explosion of adopters in PRC
  - “EdgeX PRC TSC” started
EdgeX Ready Program

› Launched with EdgeX 2.0
› Allowing adopters to demonstrate their ability to work with EdgeX
  › Signal to community that you have a certain level of EdgeX expertise and knowledge
› Self-application/assessment process
  › With community oversight
  › Community providing tools/templates to help
› Requirements
  › Get and run an instance of EdgeX (and associated services)
  › Create and validate a device profile.
  › Use the profile with an EdgeX device service to provision a device and send sensor data into EdgeX.
› Requires adopters to be EdgeX Foundry members
  › Get “badged” on successful submission
› [https://wiki.edgexfoundry.org/display/FA/EdgeX+Ready](https://wiki.edgexfoundry.org/display/FA/EdgeX+Ready)
Jakarta Planning

- Semi-annual roadmap and planning session just completed
- Fall Release - code named Jakarta
  - Likely EdgeX 2.1
  - Stabilization release
    - No significant architecture changes
    - Only backward compatible changes
    - Careful with adding new features
- Long Term Support Release
  - Our first LTS
  - Current plan is to support it for 2.5 years (30 months)
  - Any critical or high priority issue or CVE will be fixed and ported into the LTS release
- Emphasis on expanded testing
  - Test all configuration options
  - Test optional service removal
  - More integration/end-to-end testing
  - More performance #’s
Project Update: Baetyl integration with EdgeX
Leding Li
More Cloud-Native
More Remote Management
More Tools & Services
Baetyl new release, v2.2

- Support for working with EdgeX Foundry
- Support for Kubernetes DaemonSet applications
- New API definition for Edge Cluster
- New API definition for remote logging and debugging
- New API definition for GPU bounding and monitoring
- More system modules
Baetyl and EdgeX Foundry

Edge Side
- App Deployment
- ML Inference
- IoT & Digital Twin
- Baetyl
- Local K8S

Cloud Side
- App Definition
- GPU Bounding
- Instance Group
- Baetyl-Cloud
- Cloud K8S

Data Uploading
- Log & Diagnostic
- Training Sample
- Runtime Status
- etc

Knowledge Downloading
- Application
- ML Model
- Device Control
- etc
Distribute EdgeX from Cloud to the Edge

- **EdgeX Envolve**
  - Original running as Docker-Compose file
  - Restructured as K8S Deployment YAML file

- **Baetyl-Cloud**
  - Submit EdgeX YAML file as a new Application Definition
  - Specify edge node selector, eg. region=Asia
  - Do a baetyl-deploy

- **Baetyl**
  - Always connected to baetyl-cloud in TLS
  - Receive a “baetyl-deploy” message and decode YAML file
  - Do a kubectl-apply to local K8S cluster
A demo in practise

Presented at Baidu’s Developer Conference on June 4
- Baidu - Baetyl v2.2 preview
- Intel - EdgeX integration preview
- JiangXing.ai - Security Monitoring Platform based on EdgeX
Upcoming External Events

› The Global Open Source Technology Conference (GOTC): 9-10 July, 2021 - Shenzhen/Shanghai
› OSPOCon: 27-29 September, 2021 - Seattle, WA (and Virtual)
  › CFP closed (notifications July 19)
› Open Source Summit / Embedded Linux Conference: 27-30 September, 2021 - Seattle, WA (and Virtual)
  › CFP closed (notifications July 19)
› IoT Solutions World Congress: 5-7 October, 2021 - Barcelona, Spain
  › Moved to 10-12 May, 2022
› Open Networking & Edge Summit North America: 11-12 October, 2021 - Los Angeles, CA + Virtual
  › CFP closed (notifications July 26)
  › Interest in having some type of community gathering event? At a point to make a call yet?
› KubeCon + CloudNativeCon North America: 12-15 October, 2021 - Los Angeles, CA + Virtual
  › CFP closed (notifications August 2)

› Discussions around upcoming events occur in the LF Edge Outreach Committee
› Members may subscribe at: https://lists.lfedge.org/g/outreach-committee

Full list of LF events available at: https://events.linuxfoundation.org/
Additional LF Edge events available at: https://www.lfedge.org/events/
LF Live: Mentorship Series + LFX Webinar Series

› Extra Boot Configuration and Boot-time Tracing: 13 July, 2021

› Join the LF Live: Mentorship Series mailing list and be alerted when new sessions are added!
  ➔ Sign up available at the bottom of https://events.linuxfoundation.org/lf-live-mentorship-series/

› Full list of LF Webinars (upcoming/recorded) available at https://linuxfoundation.org/webinars/
Next Meeting
Next Meeting

› Next Meeting: Wednesday, July 14 @ 7am PT
  › Topics
    › On deck: SDO (6/4/2021) > scheduled for July 14
    › Annual Reviews Due
      › SDO (6/4/2021) > scheduled for July 14
      › Fledge (7/19/21) > scheduled for July 28
      › EdgeX Foundry (8/26/21)
  › Future Topics
    › Open Retail Reference Architecture (July?)
    › Akraino R5
    › Other major Project Releases / Announcements on the horizon?
    › Certification Programs
    › LTS Releases
Thank You
Backup/Resources
Upcoming Project Events

› TBA

› Projects can add their events to this list by sending the Wiki page listing the information to info@lfedge.org
LF Edge Projects

Stage 1:
At Large Projects
Baetyl, eKuiper, Secure Device Onboard

Stage 2:
Growth Projects
EVE, Fledge, Home Edge, Open Horizon, State of the Edge

Stage 3:
Impact Projects
Akraino, EdgeX Foundry

Research and Reports

LOCATIONS
Aggregation Hubs/COs
Centralized Data Centers
Regional Data Centers
Servers in traditional cloud data centers

NETWORKS
Last Mile Networks
Access Networks
Aggregation Hubs/COs
Regional Data Centers

APPLICATIONS
Distributed Devices and Systems
Buildings / Factories / Smart Homes

INFRASTRUCTURE
MCU-based devices
Embedded compute
Smartphones, PCs, ruggedized IoT gateways and servers in accessible to semi-secure areas
Servers in secure on-prem data centers, MDCs

User Edge
Dedicated, Operated

Service Provider Edge
Shared, XaaS
Reminder to Projects to please review and update as needed

https://wiki.lfedge.org/display/LE/Upcoming+Release+Calendar

Upcoming Release Calendar

- Release dates are subject to change.
- For the latest information on each project's upcoming releases, or access to prior releases, please visit:
  - Akraino - https://wiki.lfedge.org/display/AKR/Releases
  - BatyX - https://github.com/batyx/batyx/releases
  - EVE - https://github.com/lf-edge/eve/releases > waterfall release model
  - Fledge - https://github.com/edge-cloud/fledge/releases
  - Open Horizon - https://github.com/open-horizon/trix/releases
  - Secure Device Onboard - https://github.com/secure-device-onboard/release/releases
CII Best Practices Badge

- Identifies a set of best practices for OSS projects, focusing on security
- Provides a mechanism for projects to self-certify that they meet these criteria
  - Automation helps & prevents some false answers
- Full presentation here:
- Website where projects can receive a badge here:
  - [https://bestpractices.coreinfrastructure.org](https://bestpractices.coreinfrastructure.org)
- EdgeX Foundry, Home Edge and Open Horizon badging already in progress!
- LF Edge Wiki tracks badge progress here: [https://wiki.lfedge.org/](https://wiki.lfedge.org/)
- Proposal: All LF Edge projects be encouraged to get a CII Best Practices badge
TAC - Focus Areas for 2020 (what to emphasize / de-emphasize in 2021?)

Target areas identified for the TAC to direct focus, beyond PLD/Project Review

1. **Architecture (Tech > LF Edge) - Output: TBD** *(White paper?)*
2. APIs Document, Align and Publish
3. SDO/Consortiums expansion
4. **Forcing function - Use Case or Deployment > Demo across all projects**
5. Technical overlap/unification
6. Cross Project Collaboration
7. IT Efficiencies

Out of Scope for the TAC (for now)

1. Vertical Solutions (End User / SIG Program)
   a. At Board/SPC level
LF Edge TAC - Focus Areas for 2021: Continued Discussion

› One idea raised was for deeper (technical) solution briefs around Use Cases and Deployments
  › Would require commitment (volunteers) from the TAC, Projects, as well as the SPC
› (from prior discussion) White Papers
  › LF Edge level or Project level?
  › General (2020 introduced taxonomy/Projects) or Specific? (e.g. Security, Telemetry)
  › Who would be the audience?
  › Post publishing, vehicle for feedback? Success metrics?
› Other initiatives?
  › Open Edge Services Catalog - creation and cross-project support
  › Common way to document APIs for all the projects
Linux Foundation edX and Training Courses

› Business Considerations for Edge Computing: https://www.edx.org/course/business-considerations-for-edge-computing

› Getting Started with EdgeX Foundry (LFD213): https://training.linuxfoundation.org/training/getting-started-with-edgex-foundry-lfd213/

› Full list of courses available at https://training.linuxfoundation.org/
Pushed to Next Meeting