Prime Guide to LF Edge For Current and New Members

Getting Started Guide
We are creating a common framework for hardware and software standards and best practices critical to sustaining current and future generations of IoT and edge devices.
LF Edge References

Key Contacts
Arpit Joshipura, Executive Sponsor
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Mike Woster, Membership
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Aaron Williams, Developer Advocate
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Key Resources
Web Site  https://www.lfedge.org/
Wiki  https://wiki.lfedge.org/
Mail Lists  https://lists.lfedge.org/
Slack  https://slack.lfedge.org/
Outreach Committee/Marketing:  https://lists.lfedge.org/g/outreach-committee
LF Edge Elected Leadership

Governing Board
› Chair: Melissa Evers-Hood, Intel
› Treasurer: Tom Nadeau, Red Hat
› General Member Representatives:
   › Cole Crawford, Vapor IO
   › Jim Xu, Zenlayer
   › Rob Hirschfeld, RackN

Technical Advisory Council (TAC)
› Chair: Jim St. Leger, Intel

Outreach / Marketing Committee
› Chair: Balaji Ethirajulu, Ericsson
LF Edge Project Leadership

Akraino Edge Stack
› TSC Chair / TAC Voting Member: Kandan Kathirvel, AT&T

Baetyl
› TAC Representative: Leding Li, Baidu

EdgeX Foundry
› TSC Chair: Keith Steele, IOTech
› TAC Voting Member: Jim White, IOTech

Fledge
› TAC Representative: Daniel Lazaro, OSIsoft

Home Edge
› TSC Chair: Myeonggi Jeong (MJ), Samsung

Open Glossary of Edge Computing
› TSC Chair: Matthew Trifiro, Vapor IO

Project EVE
› TSC Chair: Erik Nordmark, ZEDEDA
Introducing LF Edge
LF Anchor projects for Edge

Akraino and EdgeX Foundry are complementary open source projects addressing Telecom, Enterprise and IOT edge

EDGE VIRTUALIZATION ENGINE

EDGE STACK

EDGE Virtualization

EDGE VNFs, vEPC, MEC, distributed RAN, vRAN, BBU hotel, FMC, vCPE, AI/ML, IoT

PARTIAL EDGE

85% of operators plan VNF execution in DC Near CO

NOT EDGE

70% of operators plan VNF execution in DC Not Near CO

EDGE Interoperability framework

IOT Use Cases & Blueprints

Validated Blueprint

EDGE VNFs, vEPC, MEC, distributed RAN, vRAN

Data Center Near CO [Regional DC]

Data Center Not Near CO [Central DC]
Interoperability between IoT devices and applications

Application and network provisioning and orchestration

API coordination for intelligent orchestration of IoT edge workloads

Scope of LF Edge

Application
Interoperability

OS

Hypervisor

Device
Provisioning

Infrastructure

Device Edge  Control Edge  Gateways (Thin and Thick)  Industrial/ Telco  Radio Edge/HCI  MDC  Edge  On-Prem  DC Edge  Telco/Cloud  Edge

THE LINUX FOUNDATION

LF Edge
Open Source LF Edge

**IIoT Today**
Vertical data silos & platform lock-in
Data/edge sovereignty & control issues
Hardware-defined & unmanaged edge

**IIoT with LF Edge**
Open IoT data architecture, no lock-in
Data & edge belong to the enterprise
Software-defined & ubiquitous edge
LF Edge – New umbrella for Edge Projects

Aims to create an open source software stack that supports high-availability cloud services optimized for edge computing systems and applications.

Baetyl offers a general-purpose platform for edge computing that manipulates different types of hardware facilities and device capabilities into a standardized container runtime environment and API, enabling efficient management of application, service, and data flow through a remote console both on cloud and on prem.

Highly flexible open source software framework that facilitates interoperability between heterogeneous devices and applications at the IoT Edge, along with a consistent foundation for security and manageability regardless of use case.

An open abstraction engine that simplifies the development, orchestration and security of cloud-native applications on distributed edge hardware. Supporting containers, VMs and unikernels, EVE provides a flexible foundation for Industrial and Enterprise IoT edge deployments with choice of hardware, applications and clouds.

Fledge is an open source framework and community for the Industrial Edge. Architected for rapid integration of any IIoT device, sensor or machine all using a common set of application, management and security REST APIs with existing industrial "brown field" systems and clouds.

Interoperable, flexible, and scalable edge computing services platform with a set of APIs that can also run with libraries and runtimes.

Uses common dictionary-making techniques to maintain a database of canonical definitions for components and concepts important to edge computing. By advocating for industry-wide adoption of common terms, the project seeks to improve dialog and understanding. The project also maintains the Edge Computing Landscape.
Bringing It All Together – LF Open Source Edge
With Complementary Standards, Ref Arch and Ref Implementations

Standards & Orgs for Edge

IoT Alliances & Consortiums

Other Edge Activities
Automating Cloud, Network & IOT/Edge Services

Services
- Cloud Services
- Residential Services
- Enterprise Services
- IOT/Edge/Al Services

Software & Automation
- Cloud Automation
- Telecom Network Automation
- Edge Automation

Infrastructure
- Enterprise
  - Software Defined Data Centers (SDDC)
- Data Centers
- Carrier Network
- Cloud Network
- Public/Hybrid
  - Cloud Service Providers
  - Cloud Hosting Providers
  - Private Cloud Providers
  - Web Service Providers

THE LINUX FOUNDATION
LF Edge: Key Takeaways

1. Harmonizing Open Source Edge Communities across IOT, Enterprise, Cloud & Telecom

2. Keeping LF Edge Open & Interoperable with
   › Hardware, Silicon, Cloud, OS, Protocol independence
   › Bringing the best of telecom, cloud and enterprise – location, latency & mobility
   › In collaboration with Consortiums/SDO (IIC, AECC, OEC, ETSI)

3. Hosted by the Linux Foundation similar to other Open Source Communities like CNCF (Kubernetes), LF Networking (ONAP) and many more.
LF Edge Governance

Board Committees (As Needed)
- Audit & Finance
- End User Advisory Group
- Compliance & Verification

Technical Advisory Council (TAC)
- Akraino TSC
- EdgeX TSC
- Home Edge TSC
- Project EVE TSC
- etc

Developer Communities

LF Edge Governing Board
- Strategy & Priorities
- Budget
- Marketing Strategy & Events
- Legal & overall governance

Outreach Committee
- WG project x
- WG project y

External Focus (SDO/OSS)
- Vertical Solutions focus (eg O&G, Retail, Industrial/Manuf, Home, Telecom, etc)
- Cross-project collaboration
- New Project Induction
- Developer Voice to GB

Annual Marketing Plan
- PR
- Events
- Content/Web
- Branding
- Market Development
**LF Edge Membership Structure, broad base – lower dues**

**Summary**
1. Premier Member, Annual cost for LF Edge $50,000 (similar to Akraino)
2. Simplified EdgeX general category to match LF levels
3. Dues for existing projects will be credited towards LF Edge or any LF projects.

<table>
<thead>
<tr>
<th>Level</th>
<th>Not Yet LF Member</th>
<th>Already LF Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premier</td>
<td>$70,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>General</td>
<td>$45,000 (USD) 5,000 and above</td>
<td>$25,000 (USD) 5,000 and above</td>
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<tr>
<td></td>
<td>$30,000 (USD) From 500 to 4,999</td>
<td>$15,000 (USD) From 500 to 4,999</td>
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<tr>
<td></td>
<td>$20,000 (USD) From 100 to 499</td>
<td>$10,000 (USD) From 100 to 499</td>
</tr>
<tr>
<td></td>
<td>$7,500 (USD) Up to 99</td>
<td>$2,500 (USD) Up to 99</td>
</tr>
</tbody>
</table>

*LF Edge membership also requires companies to corporate members of The Linux Foundation (similar to Akraino and EdgeX Foundry). A discount of $5,000 to $20,000 is available for existing Linux Foundation members who join LF Edge.*
LF Edge Membership – the benefits

Premier

Influence Strategic Direction of LF Edge & its projects (as a Voting GB member)
› Budget Influence/approval, how and where the project spends money.
› Direct Influence on messaging, developer events, training
› Influence the marketing, messaging, and positioning to best represent the project for your uses
› Marketing Committee Voting Seat

Direct Interaction with Leadership – within LF and across peers
› Premium access to the project ED/VP to understand business goals
› Premium access to the Operations staff. IT, Marketing, Operations, Leadership
› Participate in any Cross project strategy discussions on harmonization and future direction of Edge
› LF Leadership support to Keynote member events, participate in outreach (eg roadshows, events, conference meet ups etc..)

Technical and Roadmap Direction Influence (through the technical community)
› TAC (Technical Advisory Council) voting seat
› Find like-minded companies/developers to build a coalition to get an idea accepted and prioritized by the community
› Aid the developers in actions they can take to improve their standing, position, and influence in the community., etc.

Brand Momentum – ability to show Leadership in Open Source which drives end user adoption and talent.
› Open Source Brand Affinity, prove to your customers that you are a leader in the project, hire talented software engineers

General

Learning and Engaging to create the largest Open Source Edge shared technology roadmap
› Work together across company lines and industries
› Participate in elected board seat process

Marketing & Thought Leadership
› Logo on the website once your membership has been announced. LF will support with quotes on Press releases related to the project
› Marketing Committee comprised of a representative from each Member company. General Members may appoint a representative as an observer of the Marketing Committee meetings on a non-voting basis. The objective of this Committee is shaping the marketing direction for edge. The Linux Foundation will do the heavy lifting, so this is more to oversee and shape the discussion/direction with the other Members for the Marketing efforts. This person can also funnel all Marketing information back to your organization so that the key stakeholders are in the loop.
› Participate in our hosted projects and attend our events, meetups, and roadshows

Technical Steering Committee & Technical Community
› TSC meetings are open to the public and we encourage all members of the technical community to participate in the discussion moving forward.
Join Us!

Contact Mike Woster, mwoster@linuxfoundation.org

LF Edge, bringing Edge initiatives together

IOT+Telecom+Cloud+Enterprise
Akraino Edge Stack

Brief Description
Akraino Edge Stack aims to create an open source software stack that supports high-availability cloud services optimized for edge computing systems and applications.

Contributed by
AT&T in February 2018

Key Contacts
Kandan Kathirvel, AT&T, TSC Chair, TAC Voting Member
Tina Tsou, Arm, TSC Vice-Chair

Key Links
Web Site  https://www.lfedge.org/projects/akraino
Wiki      https://wiki.akraino.org/
Gerrit    https://gerrit.akraino.org/r/#/q/status:open
Documentation https://wiki.akraino.org/display/AK/Documentation
Mail Lists https://lists.akraino.org/g/main
Slack     https://slack.lfedge.org/
           (#akraino / #akraino-blueprints / #akraino-devprojects / #akraino-help / #akraino-tsc)
Technical Steering Committee (TSC)
Blueprints
Calendar
Baetyl

Brief Description

Baetyl (pronounced “Beetle”) offers a general-purpose platform for edge computing that manipulates different types of hardware facilities and device capabilities into a standardized container runtime environment and API, enabling efficient management of application, service, and data flow through a remote console both on cloud and on prem. Baetyl also equips the edge operating system with the appropriate toolchain support, reduces the difficulty of developing edge calculations with a set of built-in services and APIs, and provides a graphical IDE in the future.

Contributed by

Baidu in August 2019

Key Contacts

Leding Li, Baidu, TAC Representative

Key Links

Web Site  https://baetyl.io/
GitHub  https://github.com/baetyl/baetyl
Documentation  https://baetyl.io/en/docs/overview/What-is-Baetyl
Mail Lists  https://lists.lfedge.org/g/main/subgroups
Slack  https://slack.lfedge.org/ (#baetyl / #baetyl-tsc)
WeChat  https://baetyl.cdn.bcebos.com/Wechat/Wechat-Baetyl.png
EdgeX Foundry

**Brief Description**

EdgeX, your data liberated! Highly flexible open source software framework that facilitates interoperability between heterogeneous devices and applications at the IoT Edge, along with a consistent foundation for security and manageability regardless of use case.

**Contributed by**

Dell in April 2017

**Key Contacts**

Keith Steele, IOTech, TSC Chair
Jim White, IOTech, TSC Vice-Chair

**Key Links**

- Web Site: [https://www.lfedge.org/projects/edgexfoundry/](https://www.lfedge.org/projects/edgexfoundry/)
- Wiki: [https://wiki.edgexfoundry.org/](https://wiki.edgexfoundry.org/)
- GitHub: [https://github.com/edgexfoundry](https://github.com/edgexfoundry)
- Documentation: [https://docs.edgexfoundry.org/](https://docs.edgexfoundry.org/)
- Mail Lists: [https://lists.edgexfoundry.org/g/main/subgroups](https://lists.edgexfoundry.org/g/main/subgroups)
- Slack: [https://slack.edgexfoundry.org/](https://slack.edgexfoundry.org/)
- Getting Started Guide: [https://docs.edgexfoundry.org/Ch-GettingStarted.html](https://docs.edgexfoundry.org/Ch-GettingStarted.html)
Fledge

Brief Description
Fledge is an open source framework and community for the Industrial Edge. Architected for rapid integration of any IIoT device, sensor or machine all using a common set of application, management and security REST APIs with existing industrial "brown field" systems and clouds.

Contributed by
Dianomic and OSIsoft in September 2019

Key Contacts
Daniel Lazaro, OSIsoft, TAC Representative

Key Links
Web Site  https://www.lfedge.org/projects/fledge/
GitHub  https://github.com/fledge-iot
Documentation  https://fledge-iot.readthedocs.io/
Mail Lists  https://lists.lfedge.org/g/fledge
            https://lists.lfedge.org/g/fledge-tsc
Slack  https://slack.lfedge.org/
       (#fledge / #fledge-help / #fledge-tsc)
Home Edge

Brief Description
Interoperable, flexible, and scalable edge computing services platform with a set of APIs that can also run with libraries and runtimes.

Contributed by
Samsung Electronics in June 2019

Key Contacts
Myeonggi Jeong (MJ), Samsung, TSC Chair

Key Links
Web Site  https://www.lfedge.org/projects/homeedge/
Wiki     https://wiki.lfedge.org/display/HOME/Home+Edge+Project
GitHub   https://github.com/lf-edge/edge-home-orchestration-go
Mail Lists https://lists.lfedge.org/g/homeedge-tsc
Slack    https://slack.lfedge.org/ (#homeedge / #homeedge-tsc)
Technical Steering Committee (TSC)
https://wiki.lfedge.org/pages/viewpage.action?pageId=1671336
Open Glossary of Edge Computing

Brief Description
Uses common dictionary-making techniques to maintain a database of canonical definitions for components and concepts important to edge computing. By advocating for industry-wide adoption of common terms, the project seeks to improve dialog and understanding. The project also maintains the Edge Computing Landscape.

Contributed by
Vapor IO and Packet in June 2018

Key Contacts
Matthew Trifiro, Vapor IO, TSC Chair

Key Links
Web Site  https://www.lfedge.org/projects/openglossary/
GitHub  https://github.com/lf-edge/glossary
Mail Lists  https://lists.lfedge.org/g/glossary-tsc
            https://lists.lfedge.org/g/glossary-wg-landscape
Slack  https://slack.lfedge.org/
            (#glossary / #glossary-landscape / #glossary-taxonomy / #glossary-tsc)
Landscape  https://www.stateoftheedge.com/projects/landscape/
Open Glossary of Edge Computing [v0.9.0-Beta]
https://edge.docsend.com/view/7rm4d3d
Calendar  https://lists.lfedge.org/g/glossary-wg-landscape/calendar
Project EVE

Brief Description
An open abstraction engine that simplifies the development, orchestration and security of cloud-native applications on distributed edge hardware. Supporting containers, VMs and unikernels, EVE provides a flexible foundation for Industrial and Enterprise IoT edge deployments with choice of hardware, applications and clouds.

Contributed by
ZEDEDA in January 2019

Key Contacts
Erik Nordmark, ZEDEDA, TSC Chair

Key Links
Web Site  https://www.lfedge.org/projects/eve/
Wiki  https://wiki.lfedge.org/display/EVE/Project+EVE
GitHub  https://github.com/lf-edge/eve
Documentation  https://github.com/lf-edge/eve/tree/master/docs
Mail Lists  https://lists.lfedge.org/g/eve-tsc
Slack  https://slack.lfedge.org/ (#eve / #eve-help)
Getting Involved with LF Edge Projects and Committees
## Ways to Get Involved with the LF Edge Projects

<table>
<thead>
<tr>
<th>Participate in the development efforts: Review and submit code patches, report bugs, request new features, etc.</th>
<th>Attend developer events for LF Edge projects</th>
<th>Contribute to documentation</th>
<th>Provide your testing and deployment feedback via appropriate project channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Join the projects’ mailing lists and participate in the discussions</td>
<td>Start a local User Group Meetup</td>
<td>Join the LF Edge Technical Advisory Council (TAC) calls and subscribe to the TAC mailing list</td>
<td>Contribute to the Open Glossary of Edge Computing</td>
</tr>
</tbody>
</table>
## Ways to Engage with LF Edge Marketing and PR

| Co-promotion of project related updates, releases, and news via LF Edge social media accounts | Attend Outreach Committee meetings and participate in LF Edge driven marketing and outreach activities | Publish use cases, case studies, white papers, and deployment insights | Marketing and PR support for demos at meetups and events |
| Host vendor neutral content via LF Edge blog site | Get support for artwork, web site, content creation, etc., related to LF Edge and its projects | Contribute to the LF Edge Landscape Project | Coordination at events – speaking proposals, booth attendance, demos, etc. |
| Volunteer for planning initiatives such as developing annual marketing plan, preparing for major event, etc. | Identify LF Edge speaking opportunities in your region and help secure speakers from the LF Edge community | Help secure user stories about LF Edge based deployments. | Volunteer to host LF Edge Day |
## Ways to Get Involved with the TAC

<table>
<thead>
<tr>
<th>Support TAC leadership in inviting speakers</th>
<th>Attend TAC Bi-weekly calls, participate in the discussion, volunteer</th>
<th>Share success stories, opportunities and challenges with the broader technical community to seek input from peers</th>
<th>Identify opportunities for collaboration on common interests and initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support technical leadership for harmonization efforts with other open source communities within and beyond LF Edge</td>
<td>Support TAC in hosting and sponsors intra-project and inter-project in-person developer events for LF Edge projects</td>
<td>Support TAC in evaluating new projects for inclusion in LF Edge</td>
<td>Support TAC Chair who works with the Governing Board to highlight the Projects’ collective opportunities and any resource needs</td>
</tr>
</tbody>
</table>
Display Your LF Edge Membership Badge

These badges are available (svg and png) from the LF Edge GitHub: https://github.com/lf-edge/artwork

Members can display membership badges on booth collateral and on their website.
Enhance Your Open Source Knowledge

Free Courses
› A Beginner’s Guide to Open Source Software Development
› Compliance Basics for Developers
› Fundamentals of Professional Open Source Management

Paid Courses
› Introduction to Open Source Development, Git, and Linux
› DevOps for Network Engineers
Upcoming External Events

› **IoT Build**: May 12-13, 2020 - Santa Clara
   › LF Edge will host a few speaking sessions on May 12 in the afternoon - details to come!

› **Open Source Summit North America**: 22-24 June, 2020 - Austin, TX
   › CFP Closed. Schedule announced March 26.

› **IIOT World**: 30 June, 2020 - Virtual
   › Jim White: “Using Open Source Technology to Manage IoT/Edge Solutions.”

› **Open Networking & Edge Summit North America**: August/Sept/Oct time frame - Los Angeles, CA
   › ONES Unconference Track

› **Open Source Summit Japan**: 15-16 September, 2020 - Tokyo, Japan
   › CFP Open: [https://events.linuxfoundation.org/open-source-summit-japan/program/cfp/](https://events.linuxfoundation.org/open-source-summit-japan/program/cfp/)

› **FutureNet**: 22-23 September, 2020 - London
   › Mike Woster: “Achieving a common architecture: the holy grail or fantasy?”

› **Open Networking & Edge Summit Europe**: 30 September - 1 October, 2020 - Antwerp, Belgium
   › CFP Open: [https://events.linuxfoundation.org/open-networking-edge-summit-europe/program/cfp/](https://events.linuxfoundation.org/open-networking-edge-summit-europe/program/cfp/)

› **Open Source Summit Europe**: 26-28 October, 2020 - Dublin, Ireland
   › CFP Open: [https://events.linuxfoundation.org/open-source-summit-europe/program/cfp/](https://events.linuxfoundation.org/open-source-summit-europe/program/cfp/)

Full list of LF events available at: [https://events.linuxfoundation.org/](https://events.linuxfoundation.org/)
Additional LF Edge events available at: [https://www.lfedge.org/events/](https://www.lfedge.org/events/)
Stay Connected for the Latest Updates

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https://twitter.com/Lf_edge
LF Edge
(www.lfedge.org)

Bringing Edge Initiatives Together

IOT | Telecom | Cloud | Enterprise