Technical Advisory Council (TAC) Meeting

8 July 2025

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Meeting information

- ➔ Meeting to begin at 4:00 pm Central European Time
- ➔ Join the meeting at the link in your calendar in LFX Individual Dashboard
- ➔ Any problems with connectivity, you can contact John Mertic from the Linux Foundation at +1 234-738-4571
- ➔ Previous TAC Meeting notes, deck, and recording, at https://wiki.lfenergy.org/display/HOME/Technical+Advisory+Council#TechnicalAdvisoryCouncil-MeetingMinutes

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Agenda

All Times in Central European Time Zone

- 5:00 pm - 5:10pm - Opening and General Updates
  - TAC member updates and annual review date reminders
  - SIG updates and meeting schedule
  - Project Pipeline and Previously TAC approved projects stalled in LF onboarding (#390)
  - TAC Priorities 2025 review and update (#436)
- 5:10 pm - 5:30 pm - Annual Review: Grid eXchange Fabric (GXF) #8
- 5:30 pm - 5:50 pm - Annual Review: Real Time Data Ingestion Platform (RTDIP) #26
- 5:50 pm - 6:10 pm - Marketing/PR/Events updates
- 6:10 pm - 6:30 pm - Closing and Next Meeting

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Opening and General Updates

5:00 pm - 5:10 pm

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Technical Advisory Council (TAC)

voting representatives

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Antonello Monti

Chair

Professor

RWTH Aachen University

Art Pope

Member of Technical Staff

Google LLC

Boris DOLLEY

Director of OSPO and Sustainable IT Strategy

RTE (Reseau de Transport dElectricite)

Bryce Bartmann

Chief Digital Technology Advisor

Shell International Exploration & Production, Inc.

Clément Bouvier

Software engineer

RTE (Reseau de Transport dElectricite)

Jonas van den Bogaard

Vice Chair

Open Source Office Lead

Alliander

Maarten Mulder

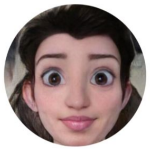
PO IoT Field Device Platforms

Alliander

Moise Kameni

Entreprise Architect and Head of Open Source Program Office

Hydro-Québec



Sophie Frasnedo

Software developer

RTE (Reseau de Transport dElectricite)

Travis Sikes

Data Science Manager

Recurve

Yixing Xu

Senior Program Manager, Energy Strategy

Microsoft Corporation

Projects

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TAC Meeting Schedule 2025

The TAC meetings are monthly, on the second Tuesday of the month at 8:00am US Pacific Time/11:00am US Eastern Time unless otherwise noted.

- ~~February 11~~
- ~~March 11~~
- ~~April 8~~
- ~~May 13~~
- ~~June 10~~
- **July 8**
- *September 2 (one week earlier)*
- *September 9 (joint meeting with GB - 4:00pm CET at LF Energy Summit)*
- October 14
- November 11
- December 9

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Project and Working Group Leads

Name	Chair
Arras	David Chassin
Battery Data Alliance	Gabe Hege
CitrineOS	Thana Paris
CoMPAS	Sander Jansen
Connected Data Specification - Customer Data Working Group (CDS WG1)	Daniel Roesler
Connected Data Specification - Power Systems Data Working Group (CDS WG2)	Stephen Suffian
Connected Data Specification - Registration Working Group (CDS WG3)	Daniel Roesler
covXtreme	Sachin Bhakar
CUPID (Controllable Unit Protocol Interface for DER)	
Dynaωo	Marco Chiaramello
EVerest	Marco Möller
FIDOPower	David Chassin
FledgePower	Romain Lebrun Thauront
FlexMeasures	Nicolas Höning
Grid Edge Interoperability & Security Alliance (GEISA)	Michael Stuber, Richard Lam
Grid eXchange Fabric (GXF)	Maarten Mulder
Grid Vantage	Alyona Teyber
Grid2Op	Benjamin Donnot
GridFM	François Mirallès
Hyphae	Arila Barnes
NODE Collective	Deandrea Salvador
OpenDSM	Travis Sikes
OpenLEADR	Arila Barnes, Stan Janssen, Hugo Van De Pol
OpenSTEF	Daan Van Es
OpenSynth	Gus Chadney
OperatorFabric	Frédéric Didier
ORES (Open Renewal Energy Systems)	Chris Xie
Power Grid Model	Peter Salemink
PowSyBL	Sophie Frasnedo
Real Time Data Ingestion Platform (RTDIP)	Bryce Bartmann
SC Decarbonisation Hub	Sachin Bhakar
SEAPATH	Eloi Bail
Shapeshifter	Robben Riksen
SOGNO	Antonello Monti
TROLIE	Christopher Atkins

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SIGs and SIG Leaders

Name	Chair
AI SIG	Alexandre Parisot
Digital Substations SIG	Jos Zenner, Maxime Pelletier
EV Charging SIG	Robert De Leeuw, Thana Paris
Grid Simulation and Modeling SIG	Thomas Van Dijk

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TAC Resources

- TAC Website - https://tac.lfenergy.org
  - Contains all the TAC policies and meeting materials, as well as guides to using the various LF Energy tools
- TAC Overview - https://github.com/lf-energy/foundation/blob/main/overview_deck/LF%20Energy%20TAC%20Overview.pdf
  - Guide for TAC members on their role and how to navigate LF Energy

Questions/feedback - let us know!

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Annual Review Schedule - TAC

Source: https://tac.lfenergy.org/process/review_cycle.html

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Name	Last Review Date	Next Review Date
Grid eXchange Fabric (GXF)	9/18/2024	7/8/2025
Real Time Data Ingestion Platform (RTDIP)	1/30/2024	7/8/2025
Battery Data Alliance	8/27/2024	9/2/2025
NODE Collective	4/2/2024	9/2/2025
OperatorFabric	7/16/2024	9/2/2025
Grid Edge Interoperability & Security Alliance (GEISA)		10/14/2025
GridFM	10/29/2024	10/14/2025
AI SIG	10/29/2024	11/11/2025
FlexMeasures	11/20/2024	11/11/2025
SC Decarbonisation Hub		11/11/2025
Connected Data Specification - Customer Data Working Group (CDS WG1)		12/9/2025
Connected Data Specification - Power Systems Data Working Group (CDS WG2)		12/9/2025
Connected Data Specification - Registration Working Group (CDS WG3)		12/9/2025
Digital Substations SIG		12/9/2025
TROLIE	9/6/2023	12/9/2025
EV Charging SIG		1/13/2026
Grid Simulation and Modeling SIG		1/13/2026
Grid2Op	2/11/2025	2/10/2026
Hyphae	2/11/2025	2/10/2026
OpenSynth	3/11/2025	3/10/2026
ORES (Open Renewal Energy Systems)	4/8/2025	4/14/2026
Shapeshifter	4/8/2025	4/14/2026
OpenDSM	5/13/2025	5/12/2026
SOGNO	5/13/2025	5/12/2026

Annual Review Schedule - SIG

SIG Leaders - please share how recent reviews have went, and let us know if the schedule/alignment is still correct - contact email support@lfenergy.org

Source: https://tac.lfenergy.org/process/review_cycle.html

Name	Last Review Date	Next Review Date	SIG
FledgePower	6/4/2024	5/13/2025	Digital Substations
Grid Vantage	9/26/2023	6/4/2025	Grid Simulation and Modeling
CoMPAS	6/25/2024	6/10/2025	Digital Substations
Dynaωo	1/30/2024	8/6/2025	Grid Simulation and Modeling
Arras	7/16/2024	10/1/2025	Grid Simulation and Modeling
CitrineOS	11/27/2024	11/26/2025	EV Charging
SEAPATH	1/14/2025	1/13/2026	Digital Substations
EVerest	1/22/2025	1/28/2026	EV Charging
OpenSTEF	2/5/2025	2/4/2026	Grid Simulation and Modeling
Power Grid Model	2/5/2025	2/4/2026	Grid Simulation and Modeling
covXtreme	4/2/2025	4/1/2026	Grid Simulation and Modeling
FIDOPower	6/4/2025	6/3/2026	Grid Simulation and Modeling

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SIG Meeting Schedule for July

All SIG meetings can be found on the LF Energy calendar (calendar.lfenergy.org) as well as the SIG Calendar (sigcalendar.lfenergy.org)

Days/times listed are US Eastern Time

➔ **SIG Leaders - share any updates for your SIGs**

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Project Pipeline

- RTC-Tools is a mature, leading open-source solution for the operational optimization of water and energy systems. Contributed by Deltares and Shell. Submitted November 27, 2024; currently reviewing legal documents, and aim to have TAC review in Q3.
- CityLearn is an open source Farama Foundation Gymnasium environment for the implementation of advanced controllers for demand side building energy coordination and demand response in cities. It's focus is on residential buildings with the goal to shape the aggregated load profile using local and coordinated DERs. Submitted April 23, 2025; currently in LF Onboarding
- Global Granular Certificate Registry has the mission is to enable transparent and credible 24/7 carbon-free energy accounting and carbon impact reporting with seamless interoperability among energy-attribute registries worldwide—delivering the trustworthy data infrastructure that policymakers, market participants, and communities need to accelerate the clean energy transition. Submitted June 11, 2025; currently in LF Onboarding.

No longer in project onboarding

- LFC (Load Frequency Controller) provides TSO-s simple open source tool for aFRR reserves activation. Elering AS reached out indicating that they need pause moving forward due to internal misalignment.

Status for older projects in onboarding (https://github.com/lf-energy/tac/issues/390)

- Interconnect SIF - being renamed to 'LF Energy Semantic Energy Framework (LFE-SEF)'; finishing renaming work and getting logo going.
- OneNet Framework - reviewing paperwork for moving to LF Europe.
- PyELQ - closing out questions on project contribution agreement.

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TAC Priorities as aligned to with TAC

DONE

- ✓ Move to monthly TAC meetings instead of every 3 weeks
- ✓ Start office hours for SIG leaders to share best practices (working on date/time reschedule)
- ✓ Spin down Data Standards and Tooling and Grid Operations SIGs
- ✓ Move affected project annual reviews to the TAC
- ✓ Security Audits - TAC align on two projects to prioritize (EVerest, PowSyBL)
- ✓ Project workshops with LF Energy Summit (tentatively Sep 10-11 in Aachen, Germany)
- ✓ Revisit TAC Leadership structure
- ✓ Project landscape https://landscape.lfenergy.org/ - Update this to reflect the latest projects and how we want to message the ecosystem
- ✓ Include LFESS Working Groups in TAC annual review process.
- ✓ Process for projects to request resources/funding for cloud infrastructure (https://github.com/lf-energy/tac/issues/477)

CURRENT FOCUSES

- Documentation audit/support (https://github.com/lf-energy/tac/issues/546)
- Improve SIG support and interface to the TAC (https://github.com/lf-energy/tac/issues/544)

NEXT FOCUSES

- Security Audits - TAC to prioritize next project(s) to focus on (Determine prioritization for Security Audits #408)
  - Considering lighter weight "security threat model analysis" for Incubation level projects
- Project Lifecycle - Review and make adjustments to align with current project needs (last changes made in 2021)
  - Perhaps should we start with a project questionnaire?
- Assemble and execute on a plan to inject fresh energy and increase engagement with the TAC

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TAC Priorities Current Focuses action items

- Documentation audit/support
  - Brainstorm at https://github.com/lf-energy/tac/issues/546 - thank you all for your support!
  - Continue to add feedback.
  - Next steps is to cleanup and work on operationalizing the work.
- Improve SIG support and interface to the TAC (https://github.com/lf-energy/tac/issues/544)
  - SIG leader update segment added to TAC meeting
  - PMO will support SIG leaders in coordinating meetings and agendas, and attend each SIG meeting to help with notes.
  - SIGs being added to the annual review schedule for the TAC
  - Working on rescope EV Charging SIG to add new projects.

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Annual Review: Grid eXchange Fabric (GXF) #8

5:10 pm - 5:30 pm

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Annual Review for Grid eXchange Fabric

Maarten Mulder & Robert Tusveld - Alliander

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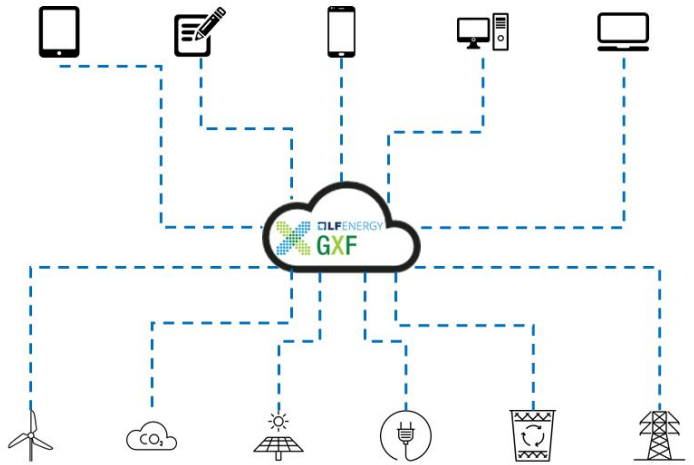
Grid eXchange Fabric

Grid eXchange Fabric (GXF) is a software platform that enables hardware monitoring and control in the public space. GXF provides several functions out of the box and provides scalability & high availability, high security, a generic design, and no vendor lock-in. GXF is currently deployed in several public use cases, including microgrids, smart metering, public lighting, and distribution automation.

GXF is open, independent, and driven by its community, developed using open-source best practices and designed to use open standards. This enables third parties to develop new and innovative solutions. The trade-off is flexibility and freedom. Unlike closed proprietary software, open-source software can be altered and extended by any developer familiar with the source code. This grants organizations freedom from "vendor lock-in," assures long-term viability, and creates industry opportunities for support, consulting, and training.



Mission: The platform to connect with any digital device to collect data and support functions.

Scope: To communicate with digital devices for example in the business-critical security zone.

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Incubation Project review criteria

To be considered for the Incubation Stage, the project must meet the following requirements:

- Have an open and documented technical governance
- Complete and approve the Technical Charter and agree to transfer any relevant trademarks to The Linux Foundation or its affiliate, LF Projects, LLC, and to assist in filing for any relevant unregistered ones.
- Have achieved and maintained an OpenSSF Best Practices Badge at the 'Passing' level.
- Have had a successful license scan with any critical issues remedied - Done
- Have a defined project mission and scope – Slide 2
- The project's functional architecture is built out in the LF Energy ArchiMate tool thanks to Prince Singh
- An overview of the project's architecture and features defined onGitbook
- The project roadmap is defined
- Community and contributor growth assessment will be presented
- Receive the affirmative majority vote of the TAC.

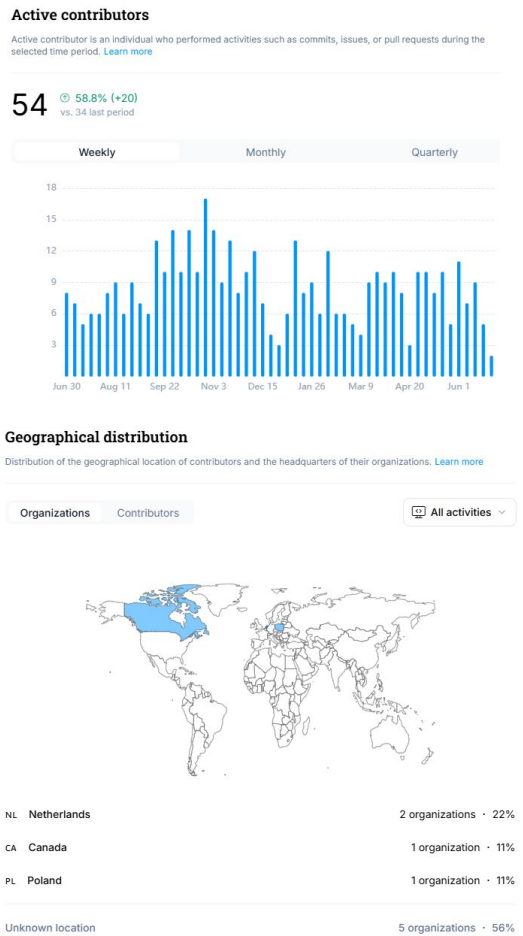
Past year

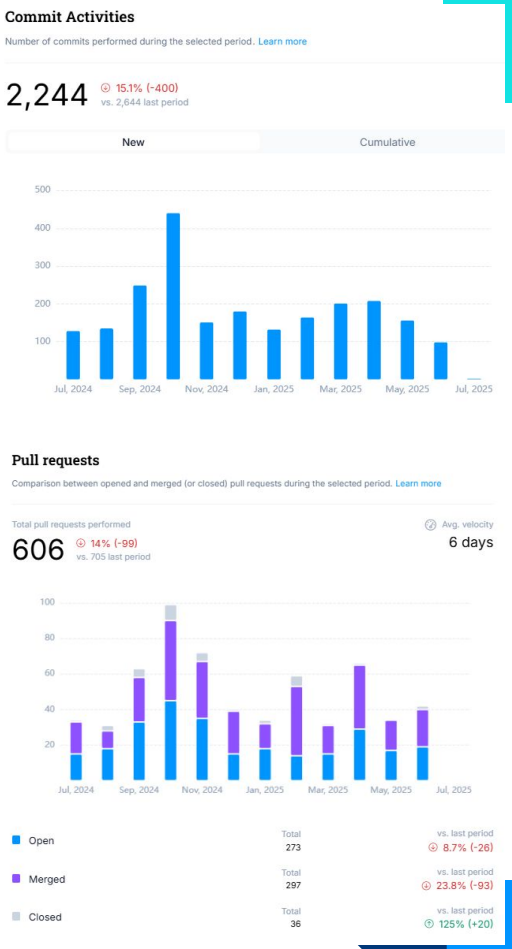
- Stable contributor strength
- Stable commits growth

- Ambition make a step in the direction of the Graduation Stage
- To busy with infrastructure changes

Incubation Project review criteria:

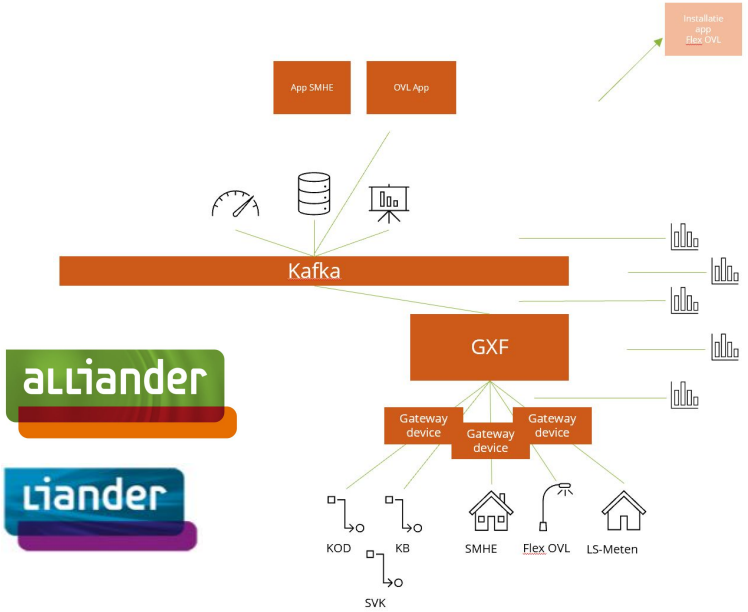
- License scan 3 (old) findings explained





Organizations contributing and/or using in production

- Alliander is Maintainer and deliver the GXF solutions to Liander.
- At the moment there are no other users/contributors.



Key Achievements in the past year:

- LS-meten **3.000** devices in production
- SMHE **6.000.000+** devices in production
- Flex ovl CI/CD ready container based **20.000** devices in production
- KOD for integrated battery powered device production will start in the next year

Next year

- Developing new chains for distribution automation.
  - Cathodic protection
  - Fault detection
  - Medium Voltage measurements
- Technology improvements (security scan).
- Growth plan for coming years.
  - Discussion with hardware supplier
  - Simplify our code base

- Internal discussion about Open Source for our frond end applications.
- Improve documentation.

Early Adoption Project review criteria

- Demonstrate growth in the project's community.
  - Stable contributor strength
  - Stable commits growth
- Technical Governance of the project is operational.
  - Internal steering committee is in place
  - Achievement of the OpenSSF Best Practice badge at the 'Silver' Level
- Development of a growth plan, to be done in conjunction with their project mentor(s) at the TAC.
  - The release plan depends on the roadmap and future plans of Alliander
  - Focus on continuous quality improvement

>> Our proposal is to remain in the early adoption stage for the coming year.

Areas the project could use help on

- We could use assistance with reviewing documentation.

Feedback on working with LF Energy

- It's good to see the community is growing. Well done!

Annual Review: Real Time Data Ingestion Platform (RTDIP) #26

5:30 pm - 5:50 pm

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LF ENERGY RTDIP

Easy access to high volume, historical and real time process data for analytics applications, engineers, and data scientists wherever they are.

Use Cases

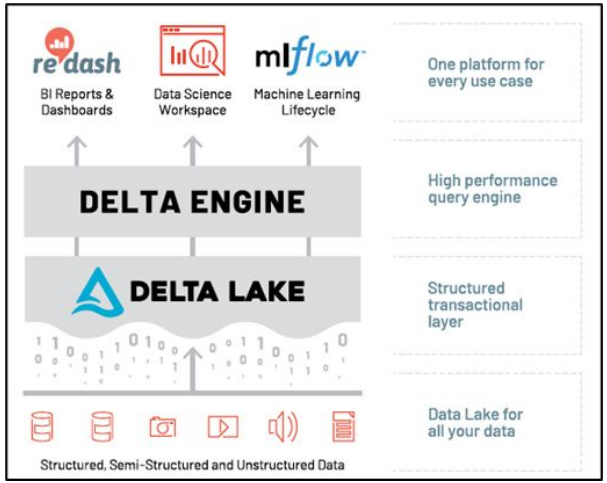
- Process time series data for preventive maintenance management, monitoring and production optimization

Technical Summary

Key components are:

- The Delta Ingestion engine used to process streaming data from streaming sources and files stored in cloud storage into Delta format.The data ingested is typically sourced from Pi Historians, OPC UA Servers, IoT Devices 2.
- Python SDK that enables data consumers to read and query raw, sampled, interpolated or time weighted averages of the data stored in Delta3.
- REST APIs that are wrappers forthe Python SDK that enable developers in non-python languages to consume the data

Contributed by Shell



Learn more at rtdip.io

Edge & Distributed Intelligence

System Management
Data Management

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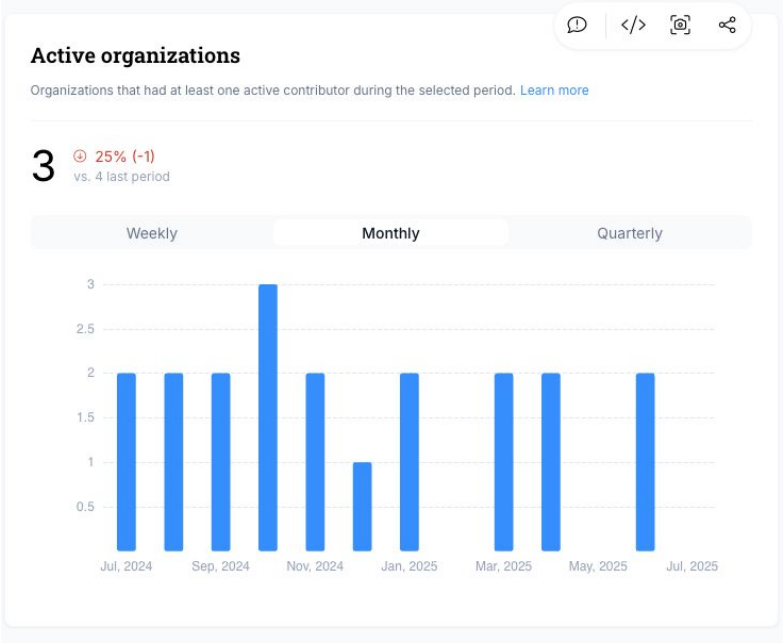
Contributions



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Organizations contributing and/or using in production

FAU
Friedrich-Alexander-Universität
Erlangen-Nürnberg

onward

databricks

J.P.Morgan

innowatts™

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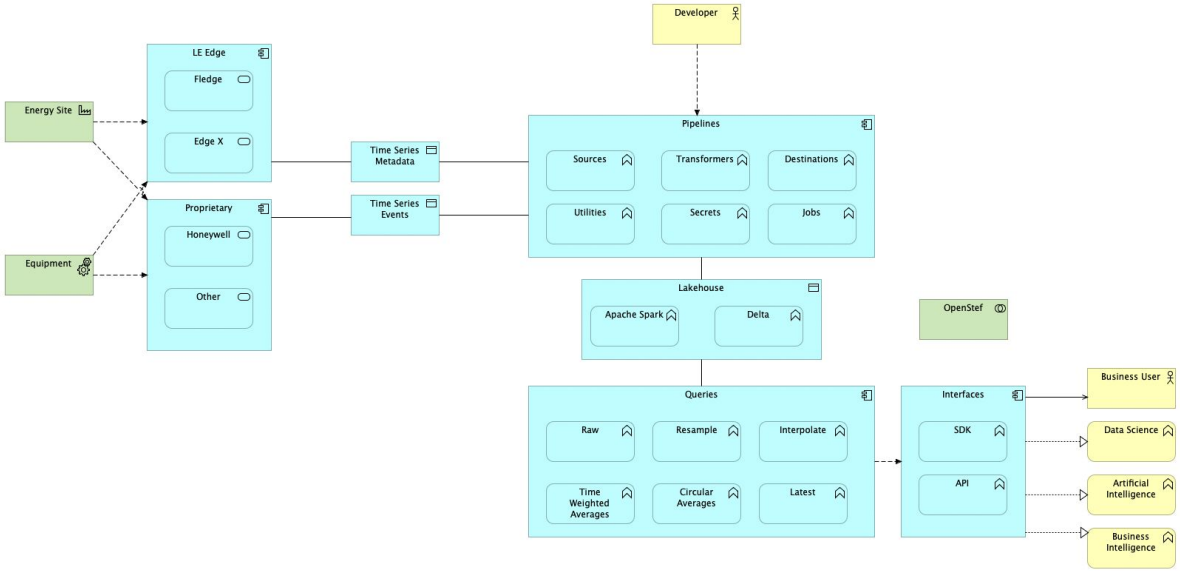
ArchiMate Architecture Diagram



Key Achievements in the past year

- RTDIP is deployed at **86** energy sites globally, including:
  - 9 Wind & Solar Renewable sites
  - 20 Energy & Chemical manufacturing plants
  - 8 Integrated Gas processing sites
  - 12 Research sites
  - 37 Exploration platforms
- Ingests 8 million sensors in real time into a Lakehouse containing ~10trln time series data points at Shell
- ~1.2mln pypi total downloads
- Worked with Apache Spark community on Python Custom Data Sources and Variant Types functionality in Spark 4.0 and LF project Delta.io on Liquid Clustering in Delta 4.0
- 2 commercialization deals signed for industry protocol connectors that produce data that can leverage RTDIP

Community Building Activities

Friedrich-Alexander-Universität Erlangen-Nürnberg

[RTDIP Data Quality Checker Project]

- 9 students
- **Challenge:** To support the advancement of the Real-Time Data Ingestion Platform (RTDIP) by contributing to the development of innovative, open-source components focused on ensuring data quality. The mission includes creating tools to detect missing data, outliers, duplicates, and irregularities in real-time data streams, while aligning with RTDIP's development guidelines to promote robust, scalable, and collaborative solutions.
- **Result: 12 Data Quality validators, 3 data monitoring & 3 transformers components developed**

onward

[The Energy-Efficient Ghosts of Holiday Past]

- 195 teams participated
- $30,000 prize
- **Data**: NREL's End-Use Load Profiles for the US Residential Building Stock
- **Challenge:** Forecast the load for the remaining days of December. Specifically, predict the load for three particular elements (two heating-related loads and one plug load), each of which will surge by 30% during the Party due to increased usage. Account for additional decorative electric devices (holiday lights, holiday inflatables, etc.) during the event, with a fixed total power rating of 2kW. **Use RTDIP functionality somewhere in your solution**

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Marketing/PR/Events Updates

5:50 pm - 6:10 pm

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Marketing and PR Updates

- Webinars
  - EVerest webinar just took place
  - SEAPATH looking at a mid-September webinar
  - OpenLEADR also considering a webinar
- Project News
  - FlexMeasures Releases v0.26, with Relaxed Scheduling and Cleaner Asset Pages
  - The 6th Power Grid Model Meetup – Our First Full-Day Event and a Growing Community
  - OperatorFabric v4.8.0 Improves Custom Screen Features
- Content
  - Contributed article on adjusted ambient ratings for power lines (TROLIE)
    - Meeting the challenge of FERC Order 881: Why open source matters for AAR implementation - Utility Dive
  - PowSyBl case study with LF Europe slated to publish before Open Source Summit Europe
  - Ambassadors are collaborating on a new white paper on open source for energy systems
    - Targeting release in the summer
  - New member-only newsletter launched last week
- Use this form to submit any comms/marketing support requests
- See media coverage spreadsheet or website for recent articles

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LF Energy Summit Europe

- https://events.linuxfoundation.org/lfenergysummit/
- Sep 10-11 in Aachen, Germany
- Agenda is now live with ~75 sessions
- Two demo stations have been added in the foyer
  - Interested projects should apply for a time slot at a demo station at https://docs.google.com/forms/d/e/1FAIpQLSdO29TtdYPM-vGAfuciGe4WC-M4Eo8HLcpsBXeQ4UbztPtxlA/viewform?usp=dialog
- 130 registered attendees so far (target 350)
- Help us promote the event! Marketing kit
- Joint board/TAC meeting on 9 September at 16:00
  - Board and voting TAC members can register for LFE Summit Europe for free with code LFES25GBTAC (do not share this code)

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Other 2025 LFE-hosted Events

- LF Energy Summit North America
  - Oct 3, 2025 – Montréal, Québec
  - Goal: at the end of CIGRE, provide a forum for North American LFE community members to convene in person. Also, attract new collaborators to the community.
  - Draft agenda is here; anticipating publication soon
  - Registration is open
- OSPOlogy Live France
  - Nov 5-6 (tentative) - Lyon, France
  - Hosted by RTE
  - This is actually organized by the TODO Group in partnership with LF Energy.
  - Goal: educate utilities and other energy stakeholders on open source best practices
  - Currently in planning phase with TODO Group and RTE

Upcoming Event CFPs

Europe

- Energy Tech Summit - April 15-16 - Bilbao - Speaking submissions due September 29

Closing and Next Meeting

6:10 pm - 6:30 pm

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Next TAC Meeting

The next meeting of the LF Energy TAC is scheduled for September 2, 2025 at 8:00 am US Pacific Time/11:00 am US Eastern Time/5:00 pm Central European Time. Agenda will include:

- General Updates
- Annual Review: OperatorFabric #71
- Annual Review: Battery Data Alliance #57
- Annual Review: NODE Collective #108
- Marketing/PR/Events update

To add agenda items, go to https://github.com/lf-energy/tac/issues/new/choose. You can review the TAC Agenda at https://github.com/orgs/lf-energy/projects/2/views/1

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