Fledge

Status

- **Current Project Stage:** Stage 2 - Growth
- **Website:** https://www.lfedge.org/projects/fledge/
- **Wiki:** Fledge Home
- **TAC Sponsors:** Bill Hunt (Dianomic) and Daniel Lázaro Cuadrado (OSIsoft)

- Originally applied under the name FogLAMP. Final Open Source Project Name: Fledge.
- Presented during the Wednesday, May 15 TAC call: Meeting Recording (https://zoom.us/recording/share/W1uvEbNhqYh34ZWMNheFJB5xJrVAPqtVZwPH9zalw2uwIumekTziMw)
- TAC supermajority approval reached on June 21, 2019.
- Governing Board Strategic Planning Committee approval reached on June 27, 2019.

Project Proposal - Project Introduction:

Required Information	Responses (Please list N/A if not applicable)
Name of Project	FogLAMP
Project Description (what it does, why it is valuable, origin and history)	What does FogLAMP do? FogLAMP is an Industrial Internet of Things (IIoT) open source project and an essential Fog Computing component. FogLAMP uses a pluggable modular architecture to easily connect any/all sensors, machines and IIoT devices, manage their data and forward it to historians (like OSIsoft's PI), enterprise systems and the cloud. Why it is valuable? FogLAMP's modern architecture eliminates the expensive proprietary DCS, PLC, SCADA, sensor silos that make integrating and analyzing data from multiple systems so difficult for industrial manufacturers and plants. By using a consistent set of RESTful APIs to develop, manage and secure all your IIoT applications, FogLAMP is the vendor unifying solution. Developers and operators no longer face complexity and fragmentation issues when building their IIoT applications as they gather and process more sensor data to automate and transform business. Origin/History? The company Dianomic was conceived by Pat Kennedy (OSIsoft) and Dave Mount (Kleiner Perkins) then founded by Bill Hunt and Tom Arthur in 2017. Dianomic believes that existing software solutions do not meet the needs of today's IIoT developer for building fast, easy, scalable, secure systems from sensors to clouds for industrial applications and data.
Statement on alignment with Foundation Mission Statement	Create a unified community for Open Source Edge that: • fosters cross-industry collaboration across IOT, Telecom, Enterprise and Cloud ecosystems • enables organizations to accelerate adoption and the pace of innovation for edge computing • seeks to facilitate harmonization across LF Edge projects FogLAMP is conceived, architected and licensed to "create a unified open source community for edge computing". Specifically, FogLAMP is focused on the industrial edge found in manufacturing and plant operations with a go-to-market focus starting with "Process Manufacturing" including industries like oil and gas, energy, pharma, transmission -distribution, water and waste. The architecture has the developer in mind using microservice modularity and plugins for quick adoption. Developers familiar with Python or C should be able to rapidly learn, utilize and contribute to FogLAMP.

High level assessment of project synergy with existing projects under LF Edge, including how the project compliments /overlaps with existing projects, and potential ways to harmonize over time. Responses may be included both here and/or in accompanying documentation. .	FogLAMP is working closing with Zededa and project Eve. We also see many opportunities with Akraino since our verticals are starting to roll out 5G and private LTE networks. EdgeX and FogLAMP seem to have overlap from a feature perspective but we are not sure how much exists from a market perspective. In industrial plants, control systems (SCADA, PLCs, DCSs, CNC, etc) are very secure and expensive systems. Their life expectancy is measured in decades. For this reason, FogLAMP avoids control features similar to brown field historians. EdgeX has extensive control features so it is likely focused on markets where data mgt and integrated control are required
Link to *current* Code of Conduct	http://dianomic.com/contributor-code-of-conduct/
Sponsor from TAC, if identified (a sponsor helps mentor projects)	Bill Hunt, Dianomic Daniel Lazaro, OSIsoft
Project license	Apache 2
Source control (GitHub by default)	https://github.com/foglamp/FogLAMP
Issue tracker (GitHub by default)	https://github.com/foglamp/FogLAMP
External dependencies (including licenses)	

Package	Provider	Licence
boost libraries	https://www.boost.org/users/license.html	Boost Licence
rapidjson	Tencent	MIT
Simple-Web-Server	Ole Christian Eidheim	MIT
libssl-dev	openssl.org	Apache 2.0
libuuid		BSD
libpq-dev	PostgreSQL	PostgreSQL
libz-dev	http://zlib.net/	None
python-dbus		MIT
python3-dev		PSF
aiohttp		Apache 2.0
aiphttp_cors		Apache 2.0
chardet		LGPL
pyjwt		MIT
pyjq		MIT

Release methodology and mechanics	Agile 6 week Sprints
Names of initial committers, if different from those submitting proposal	
Current number of code contributors to proposed project	26
Current number of organizations contributing to proposed project	Dianomic OSIsoft JEA

Briefly describe the project's leadership team and decision-making process	Bill Hunt, Co-founder/CTO Dianomic Mark Riddoch, Chief Architect Dianomic Richard Beeson, CTO OSIsoft Original architecture and feature set for FogLAMP 1.0 was a joint project between OSIsoft and Dianomic. FogLAMP's current roadmap prioritization follows typical product life-cycle best practices taking inputs from users, community, customers, prospects, partners and contributors. Some features have been the result of professional service engagements with Dianomic that will generally get a high priority.
Preferred maturity level (see stages here)	FogLAMP is applying for stage 2 maturity. It may be stage 3 since it has production deployments and referenceable customers. See solution papers and videos. https://dianomic.com/solutions/aircraft-manufacturing/ https://dianomic.com/solutions/electric-transmission-distribution/

For Projects applying at the Growth (Phase 2) or Impact Stage (Phase 3), please outline how your project successfully meets /exceeds the requirements as defined under each category. Responses may be included both here and/or in accompanying documentation.	Stage 2 Requirements
	
	• Development of a growth plan, to be done in conjunction with their project mentor(s) at the TAC.
	  ○ Yes
	• Document that it is being used in POCs.
	  ○ https://dianomic.com/solutions/aircraft-manufacturing/
	  ○ https://dianomic.com/solutions/electric-transmission-distribution/
	• Demonstrate a substantial ongoing flow of commits and merged contributions.
	  ○ Total commits: 11,579.
	  ○ Commits since January 2019: 3,241.
	  ○ Commits in last 30 days: 941.
	• Demonstrate that the current level of community participation is sufficient to meet the goals outlined in the growth plan.
	  ○ Dianomic has 11 contributors working full time the remaining 15 are outside of Dianomic.
	• Demonstrate evidence of, or a plan for, interoperability, compatibility or extension to other LF Edge Projects.
	  ○ Project Eve Demo
	• Since these metrics can vary significantly depending on the type, scope and size of a project, the TAC has final judgement over the level of activity that is adequate to meet these criteria.
	  ○ ok
	• Receive a two-thirds supermajority vote of the TAC and a majority vote of the Governing Board to move to Growth Stage.
	  ○ ok

List of project's official communication channels (slack, irc, mailing lists)	groups.google.com/forum/#!forum/foglamp
Link to project's website	https://github.com/foglamp https://dianomic.com/
Links to social media accounts	https://www.facebook.com/Dianomic-243749069484821/ https://www.linkedin.com/company/dianomic/about/ https://twitter.com/DianomicSystems https://www.crunchbase.com/organization/dianomic
Existing financial sponsorship	Dianomic Inc.
Infrastructure needs or requests	None
Currently Supported Architecture	ARM, x86
Planned Architecture Support	GPU/TPU processing ML (example), Camera feed example: Infrared
Project logo in svg format (see https://github.com/lf-edge/lfedge-landscape#logos for guidelines)	Coming soon...
Trademark status	N/A

Does the project have a Core Infrastructure Initiative security best practices badge? (See: https://bestpractices.coreinfrastructure.org)	No
Any additional information the TAC and Board should take into consideration when reviewing your proposal?	No

Stage 1: At Large Projects (formerly 'Sandbox')

Criteria	Data
2 TAC sponsors to champion the project & provide mentorship as needed	Bill Hunt, Dianomic Daniel Lazaro, OSIsoft
A presentation at an upcoming meeting of the TAC, in accordance with the project proposal requirements	Presented on May 15, 2019
Adherence to the Foundation IP Policy	Ok
Upon acceptance, At Large projects must list their status prominently on website/readme	Ok

Project Proposal - Taxonomy Data:

Functions (Provide, Consume, Facilitate, or N/A; Add context as needed)

Functions	(Provide, Consume, Facilitate, or N/A; Add context as needed)
APIs	Provide, Consume, Facilitate - Microcontroller Example - South Microservice (esp8266)
Cloud Connectivity	Provide, Consume and Facilitate - North repos, GCP, OSI-OMF
Container Runtime & Orchestration	Consume - (debian, rpm, docker, Project Eve)
Data Governance	Provide and Facilitate - Auditing logs and asset tracking.
Data Models	Provide, Consume and Facilitate
Device Connectivity	Provide, Consume and Facilitate
Filters/Pre-processing	Provide and Facilitate
Logging	Consume
Management UI	Provide, Consume and Facilitate
Messaging & Events	Provide, Consume and Facilitate
Notifications & Alerts	Provide, Consume and Facilitate
Security	Provide, Consume and Facilitate
Storage	Provide, Consume and Facilitate - Buffering

Deployment & Industry Verticals (Support, Possible, N/A; Add context as needed)

Deployment Type	(Support, Possible, N/A; Add context as needed)
Customer Devices (Edge Nodes)	Support
Customer Premises (DC and Edge Gateways)	Support

Telco Network Edge (MEC and Far-MEC)	Possible
Telco CO & Regional	Possible
Cloud Edge & CDNs	Possible
Public Cloud	N/A
Private Cloud	N/A

Deployment & Industry Verticals (or X; Add context as needed)

Directly applicable Industry/Verticals use cases	(or X; Add context as needed)
Automotive / Connected Car	X
Chemicals	
Facilities / Building automation	
Consumer	X
Manufacturing	- Production deployments
Metal & Mining	- PoCs
Oil & Gas	- PoCs
Pharma	- PoCs
Health Care	X
Power & Utilities	- Production deployments
Pulp & Paper	
Telco Operators	X
Telco/Communications Service Provider (Network Equipment Provider)	X
Transportation (asset tracking)	X
Supply Chain	X
Preventative Maintenance	- Production deployments (Not a vertical)
Water Utilities	- PoCs
Security / Surveillance	X
Retail / Commerce (physical point of sale with customers)	X
Other - Please add if not listed above (please notify TAC-subgroup@lists.lfedge.org when you add one)	

Deployments (static v dynamic, connectivity, physical placement) - (or X; Add context as needed)

Use Cases	(or X; Add context as needed)
Gateways (to Cloud, to other placements)	
NFV Infrastructure	X
Stationary during their entire usable life / Fixed placement edge constellations / Assume you always have connectivity and you don't need to store & forward.	X
Stationary during active periods, but nomadic between activations (e.g., fixed access) / Not always assumed to have connectivity. Don't expect to store & forward.	X

Mobile within a constrained and well-defined space (e.g., in a factory) / Expect to have intermittent connectivity and store & forward.	
Fully mobile (To include: Wearables and Connected Vehicles) / Bursts of connectivity and always store & forward.	

Compute Stack Layers and Cloud Stack Layers (architecture classification) - (Provide, Require, or N/A; Add context as needed)

Compute Stack Layers	(Provide, Require, or N/A; Add context as needed)
APIs	Provide
Applications	Provide
Firmware	Require
Hardware	Require
Orchestration	N/A
OS	Require
VM/Containers	Require

Cloud Stack Layers	(Provide, Require, or N/A; Add context as needed)
Applications	N/A
Configuration (drive)	N/A
Content (management system)	N/A
IaaS	N/A
PaaS	N/A
Physical Infrastructure	N/A
SaaS	N/A

Attachments (LF Edge PPT template is below):

lf_edge_MASTER.pptx