How open-source projects are shaping the edge

Edge computing open source projects are an important part of accelerating edge adoption because of their role in standardising edge computing. As demand for edge services grows among enterprises, to accelerate edge deployments will require standardised ways of working, building, and managing applications at the edge. This article explores some of the leading open source edge projects.

David Gordon, Senior Consultant

June 2023

Players in the edge ecosystem need to ensure their offer to enterprise customers is simple and standardised. This entails simplicity of any edge solution at the point of use for an enterprise and standardisation across edge platforms so that applications can operate across edge platforms with no custom configuration requirements across them. Making edge software that is open source is a key enabler for ensuring simplicity and standardisation in working, building, and managing applications at the edge.

In this article, we explore some of the leading open source projects that are facilitating the standardisation and interoperability of edge computing.

LF Edge

Founded in: 2019

Key contributors: Telecoms operators, OEMs, network vendors, cloud computing software vendors

Parent organisation: Linux Foundation

LF Edge is an umbrella organisation aiming to establish an interoperable and open framework for edge that is vendor agnostic – independent of hardware, silicon, cloud, or the operating system. LF Edge facilitates a community across industries and advances projects that sit within its framework. For example, one of the projects in LF Edge's portfolio is FLEDGE which is an open source framework focussed on advancing the industrial edge to help accelerate the adoption of Industry 4.0.

EdgeX Foundry

Founded in: 2017

Key contributors: OEMs, cloud computing software vendors

Parent organisation: LF Edge

One of the advanced projects in the LF Edge portfolio EdgeX Foundry is a platform that translates data from edge devices and sensors for enterprise or cloud applications. Described as a 'transformation engine', EdgeX ensures a two-way formatting of data between edge devices or nodes and cloud or enterprise applications. EdgeX translates data from the edge to the application over network-based protocols in formats and structures that meet the needs of customers. Working in the other direction, from application to edge, it takes data from the application and delivers it to the edge nodes or devices for updates and control

EVE-OS

Founded in: 2019

Parent organisation: LF Edge

Another project within the LF Edge umbrella, EVE-OS is an open Linux-based operating system for distributed edge computing. One of the stated ambitions of the project is to underpin distributed edge just like Android revolutionized the mobile industry by creating a common platform. EVE-OS provides an open foundation that makes it easier for developers to create, manage, and secure edge computing devices. It also supports Docker containers, Kubernetes clusters, and virtual machines, giving developers the flexibility to choose any hardware, application, and cloud provider for their edge deployments.

GSMA Operator Platform Group

Founded in: 2020

Key contributors: Telecoms operators, network vendors, hyperscalers

Parent organisation: GSMA

The OPG (Operator Platform Group) is a community formed of over 50 operators and 35 non-operators and have established a shared platform to enable operators to offer their services and capabilities to customers and developers. The OPG define common requirements for the edge ecosystem's development.

In addition to the OPG, the GSMA Open Gateway initiative plays a complementary role by setting requirements for APIs to ensure interoperability within operator networks. Currently, the initiative's primary focus is on federated edge as the initial phase of platform development. By emphasising interoperability and standardisation, both the OPG and the GSMA Open Gateway contribute to creating an environment for operators, customers, and developers in the rapidly evolving 5G landscape.

MobiledgeX

Founded in: 2018

Key contributors: There are very few contributors, as evidenced on this github page with a maximum of 50 downloads

Parent organisation: Founded by Deutsche Telecom in 2018 and acquired by Google in 2022

MobiledgeX is an edge platform that matches application demand with edge supply based on the application requirements, geographic compliance constraints, and location. The platform reconciles the technical differences between many underlying platforms like public cloud and VMware to enable interoperability. While initially set up by Deutsche Telecom in 2018, MobiledgeX was acquired by Google in 2022 and Google stated its ambition to make MobiledgeX open source. However, since the acquisition there have not been notable developments on MobiledgeX as an open source platform. Merely being open source does not garuntee value to the ecosystem, there must be more of a focus on integration with other ecosystem players to be valuable. You can read more about Google's acquisition of MobileedgeX in our article here.

Edge Native working group

Founded in: 2019

Key contributors: Other edge platforms e.g., edgeworx, industry solution providers e.g., Bosch, Network vendors and OEMs

Parent organisation: The Eclipse Foundation

The Edge Native working group is a vendor neutral and code-first industry collaboration aimed at driving the broad adoption and evolution of open source software for edge computing. The working group's two flagship projects are Eclipse ioFog and Eclipse fog05. Eclipse ioFog focusses on the cloud-to-edge fabric, bringing Cloud Native architectures to the edge. Whereas Eclipse fog05 works at the far edge to deploy mission critical edge processing for real-time processing and communication, with successful deployment in robotics, smart factory, and telecommunications. The group is primarily focussed on creating an end-to-end software stack to support deployments of transformative technologies such as IoT and AI, and each project can be used in tandem to provide a full stack solution or work separately.

OpenInfra Foundation Edge Computing Group

Founded in: 2020

Parent organisation: The OpenInfra Project

The Edge Computing Group defines open source components and architectures for distributed edge. Based on open stack, it is an open source edge software that serves as a foundation for building and testing essential infrastructure components that can be deployed at various locations, including the network edge. It allows for the minimal services required at the edge while providing support for bare metal, container technologies, and virtual machines. One example of open source code that has been worked on by the group is StarlingX which is a cloud native distributed edge platform.

David Gordon is a Senior Consultant at STL Partners, specialising in private networks, edge and B2B growth strategies.

Get in touch with the author to learn more

david.gordon@stlpartners.com

Or visit STL Partners' Edge Hub

www.stlpartners.com/edge-computing