State of Open Source Networking and Edge

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GM, Networking, Edge & IOT

LF beyond Linux

Security	Let's Encrypt	CORE INFRASTRUCTURE INITIATIVE	OpenSSF Open Source Security Foundation	Falco	./rtp	CONFIDENTIAL COMPUTING CONSORTIUM	seL4 Security. Performance. Proof.	OPEN SECURITY CONTROLLER
Networking	LFNETWORKING	ONAP	OPEN DAYLIGHT	fd.io	Anuket	SONIC	DENT	DANOS
Cloud	CLOUD NATIVE COMPUTING FOUNDATION	kubernetes	argo	envoy	KUDO	Crossplane	CLOUD FOUNDRY	
Automotive	AUTOMOTIVE GRADE LINUX	ELISA ENABLING LINUX IN SAFETY APPLICATIONS	KernelCI					
Blockchain	HYPERLEDGER	HYPERLEDGER FABRIC	HYPERLEDGER SAWTOOTH	ACCORD PROJECT	ERGO	DIF		
Edge/IoT	LF EDGE	yocto PROJECT	Zephyr	ACRN	Dronecode	FLEDGE	SOUND OPEN FIRMWARE	OpenEEW
Web	node JS	OpenJS Foundation	GraphQL		appium	jQuery	REACTIVE FOUNDATION	DOJO	ESLint
AI	LF AI	ONNX		DELTA LAKE	ForestFlow	JanusGraph	kepler.gl	LUDWIG	soda Foundation
Film	ASWF ACADEMY SOFTWARE FOUNDATION	OpenColorIO	OpenVDB	OpenEXR	OpenTimelineIO	OpenEXR	OSL Open Shading Language		
CI/CD	cd CD.FOUNDATION	Jenkins	Spinnaker	TEKTON	TERN	StackStorm	Vitess	etcd	SPIRE
Energy	LF ENERGY	LF ENERGY RIAPS	LF ENERGY EM2	LF ENERGY POWSYBL	LF ENERGY GXF	LF ENERGY CoMPAS	LF ENERGY OPENEEMETER	LF ENERGY OPERATORFABRIC
Hardware	RISC-V	OpenPOWER	CHIPS ALLIANCE	UNIMATRIX	3MF CONSORTIUM			
Standards	ALLIANCE FOR OPEN MEDIA	OPENCHAIN	COMMUNITY DATA LICENSE AGREEMENT	JOINT DEVELOPMENT FOUNDATION	CLOUD INFORMATION MODEL	CHAOSS	OPEN MANUFACTURING PLATFORM	

LINUX FOUNDATION

The Linux Foundation builds ecosystems

Successful projects depend on members, developers, standards, and infrastructure to develop products that the market will adopt.
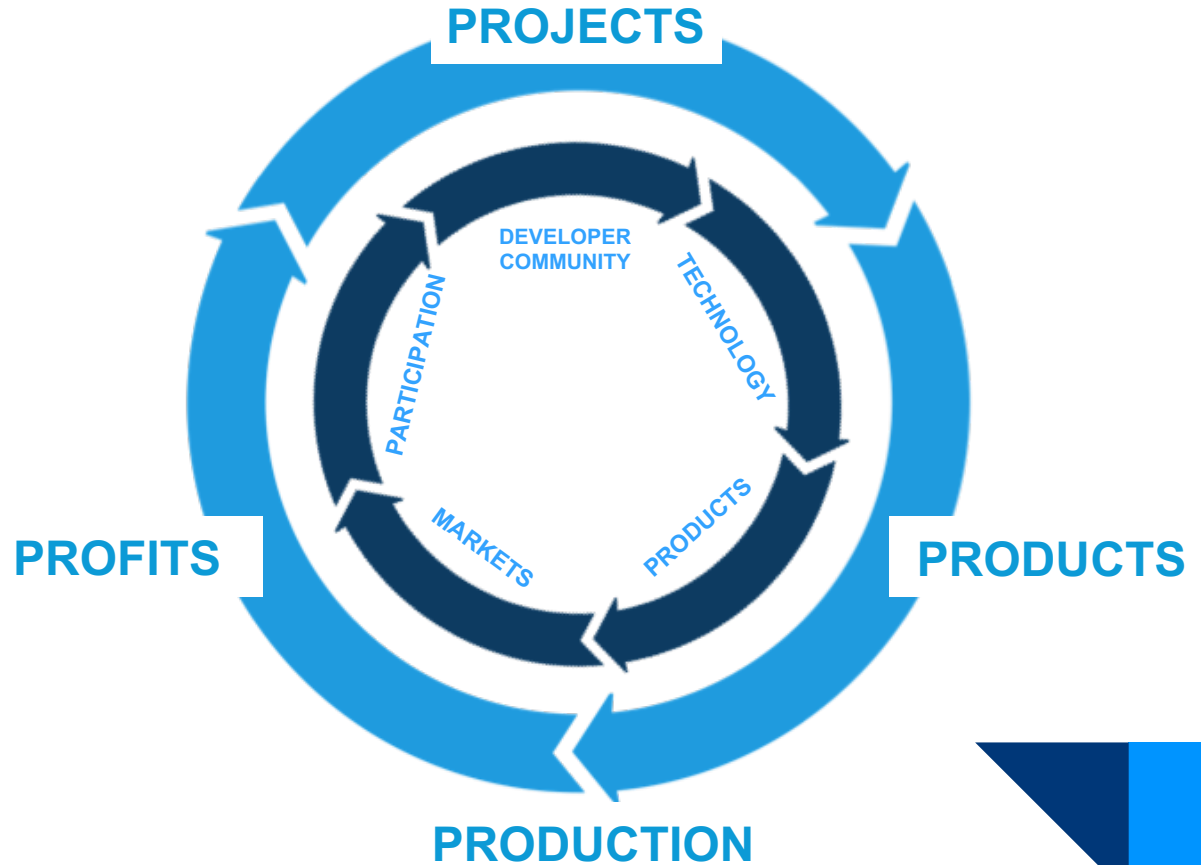
Open Source Software, Open Interop, Open API, Open Collaboration
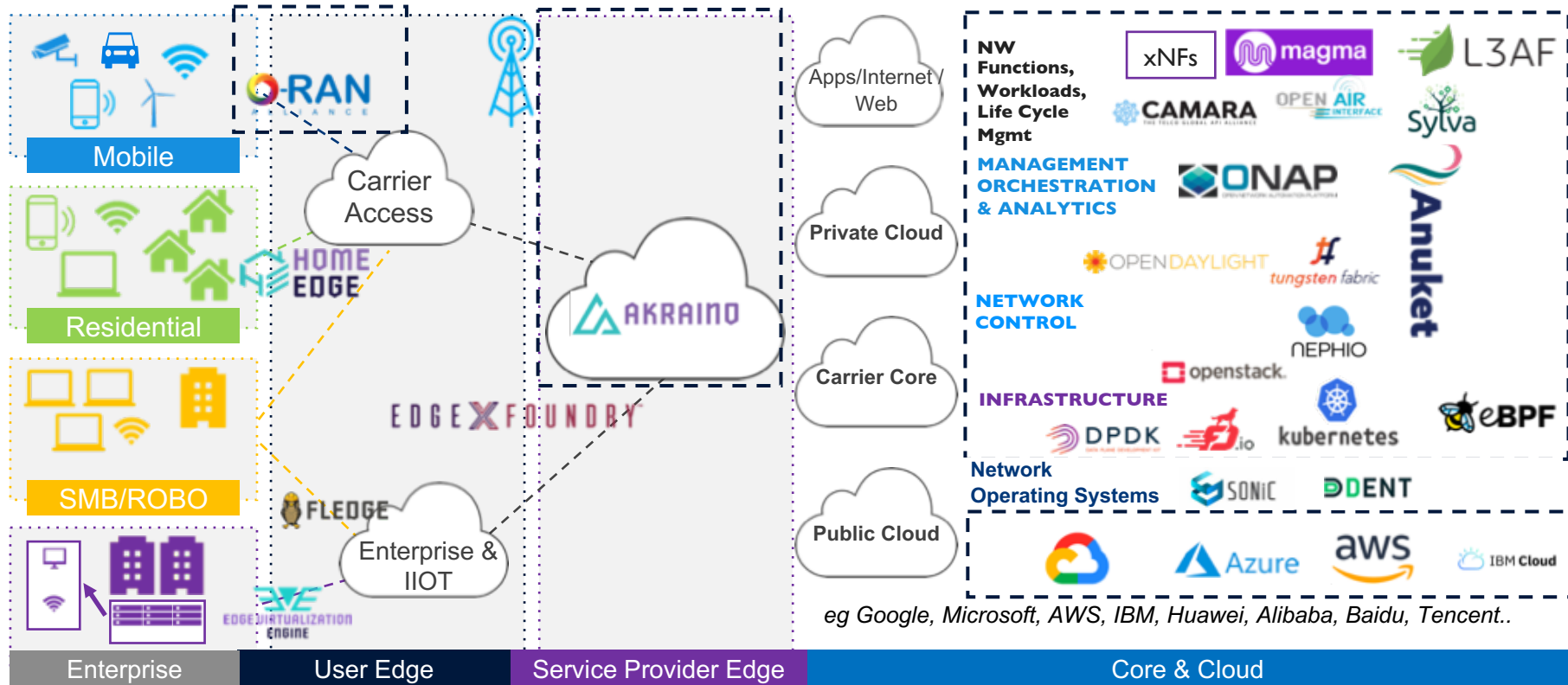
Open Source Foundations + Standards + Alliances

Open Source Software Foundations

✓ Linux Foundation & its sub-foundations (LFN, LF Edge, CNCF, Magma, ORAN, LF Energy...)

✓ Open Infrastructure Foundation (Openstack, Magma, OAI)

✓ Eclipse Foundation (Edge)

✓ ONF (SD-Core, Fixed BB)

● Others (Single Vendor/Open)

Standards/Specs/Ref Arch/API
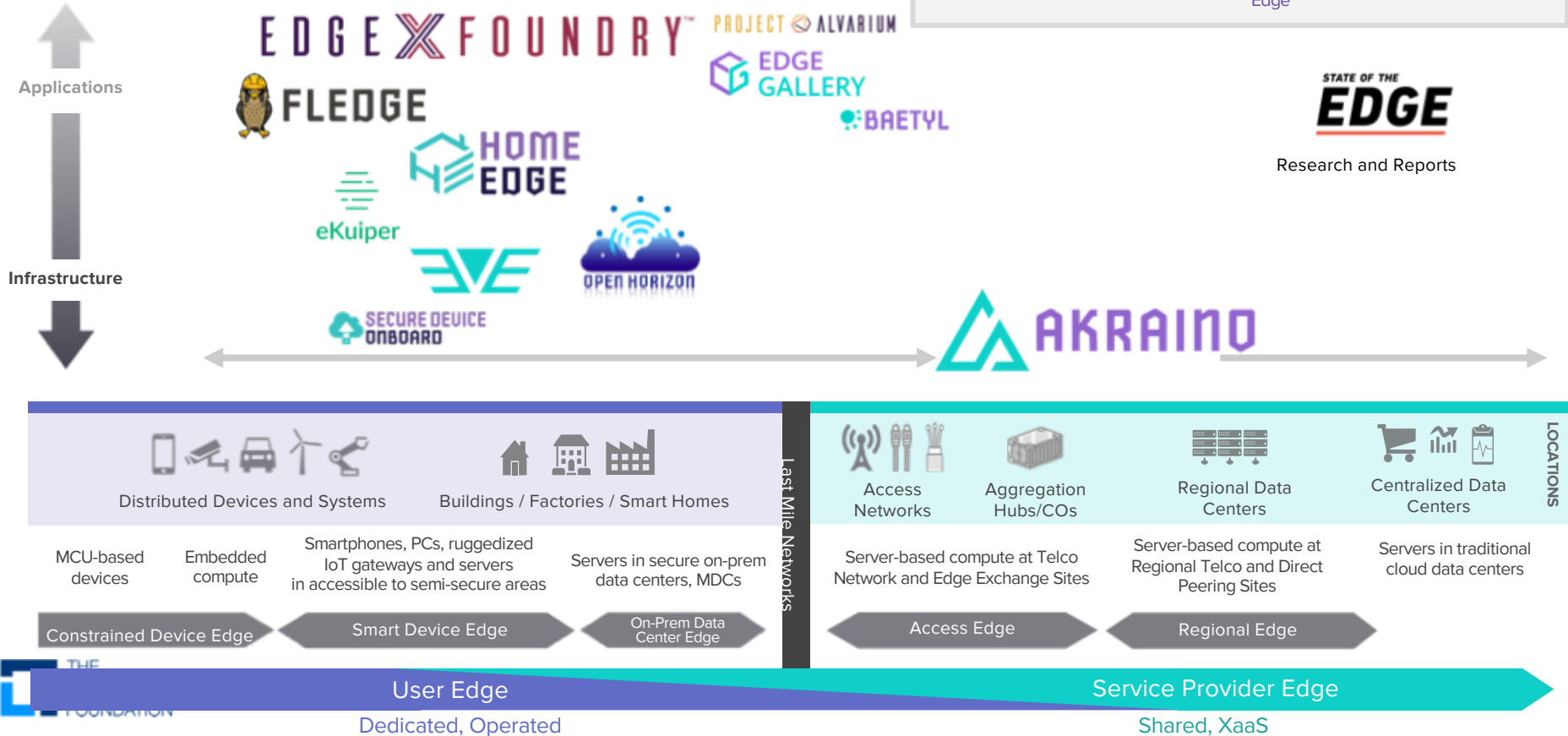
✓ GSMA (LFN, OPG, CAMARA)

✓ ETSI (Edge, Core)

✓ 3GPP

✓ ORAN Alliance (RAN)

✓ NGMN (Disagg, Green, 6G)

✓ TMForum (API)

✓ MEF (API)

✓ TIP (Open hardware)

✓ IETF (Lower Layers)

✓ OCP (Co-Design hardware-software)

Open Alliances & Consortiums
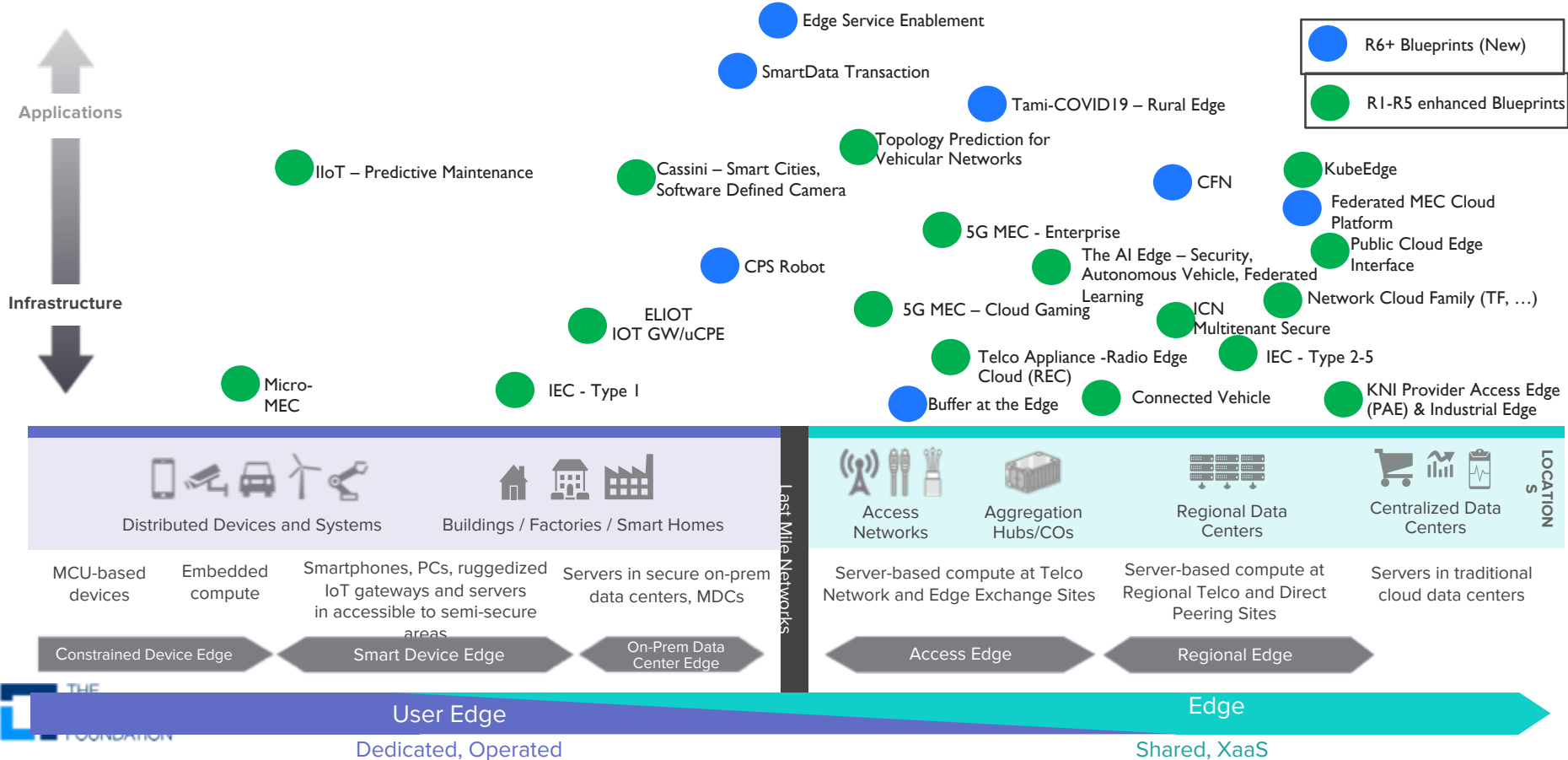
✓ AECC

✓ IIC

✓ Digital Twin Consortium

✓ IOTA Foundation

✓ Open-IX

✓ Several Vertical specific

Collaboration has increased significantly across foundations, SDOs, Alliances and Consortiums

THE LINUX FOUNDATION

LF Edge Projects

Applications

Infrastructure

EDGE X FOUNDRY

FLEDGE

HOME EDGE

eKuiper

EVE

OPEN HORIZON

SECURE DEVICE ONBOARD

PROJECT ALVARIUM

EDGE GALLERY

BAETYL

STATE OF THE EDGE

Research and Reports

AKRAINO

Distributed Devices and Systems	Buildings / Factories / Smart Homes		Access Networks	Aggregation Hubs/COs	Regional Data Centers	Centralized Data Centers	LOCATIONS

Last Mile Networks

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	Server-based compute at Telco Network and Edge Exchange Sites	Server-based compute at Regional Telco and Direct Peering Sites	Servers in traditional cloud data centers

Constrained Device Edge	Smart Device Edge	On-Prem Data Center Edge	Access Edge	Regional Edge

User Edge

Dedicated, Operated

Service Provider Edge

Shared, XaaS

Akraino R6+ Blueprints

Vertical Market Adoption of End to End Open Source Software

OPEN NETWORKING, EDGE AND IOT MARKET ADOPTION

Industrial Manufacturing	Energy (Oil, Gas Utilities)	Commerce & Retail	Home	Automotive	Fleet & Transportation	Logistics	Building Automation	Cities & Government	Healthcare

ENTERPRISE NETWORKING

1. Private Networks 5G/LTE
2. Workloads across Multi-clouds
3. End to end visibility and monitoring

SERVICE PROVIDERS

1. Built on end to end open source 5G & edge
2. Developing countries with 5G and edge
3. Global connectivity

END USERS, GOVERNMENTS

1. Built on Open Source projects
2. Open Solutions and Blueprints
3. Unified Cloud, Enterprise, Telco

5G SUPER BLUEPRINTS BUILT ON END TO END OPEN SOURCE PROJECTS

O-RAN ALLIANCE   EVE   HOME EDGE   AKRAINO   EDGEXFOUNDRY   FLEDGE   Anuket

.io   ONAP   OPEN DAYLIGHT   kubernetes   DPDK DATA PLANE DEVELOPMENT KIT   tungsten fabric   magma

THE LINUX FOUNDATION

Multi-Collaboration in an Open World Takes Center Stage With 5G Super Blueprints

Learn more: https://www.lfnetworking.org/5g-super-blueprint/
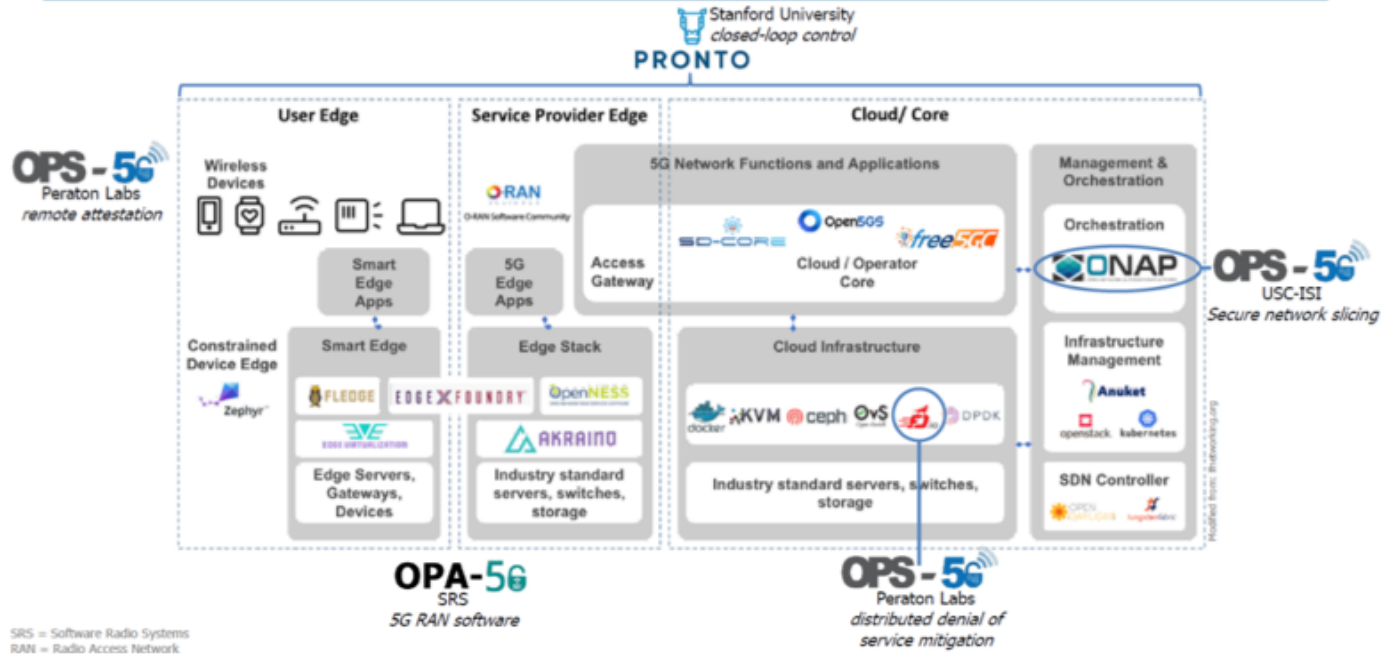
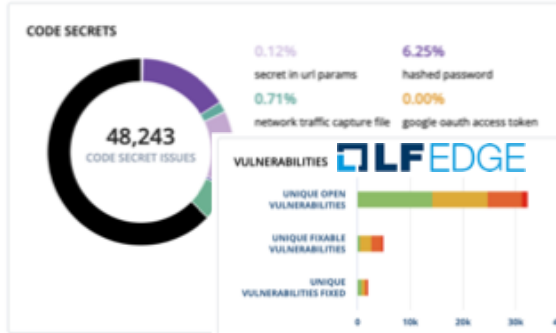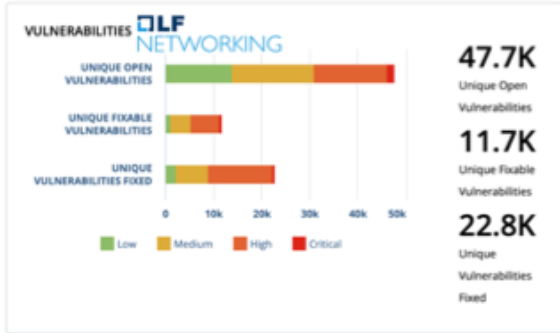Read the FAQ: https://wiki.lfnetworking.org/display/LN/5G+Super+Blueprint+FAQ

Networking and Edge - Open source security
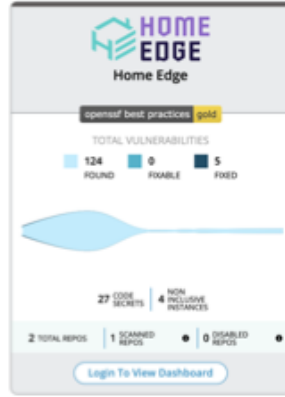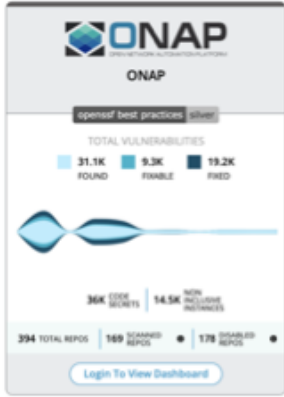
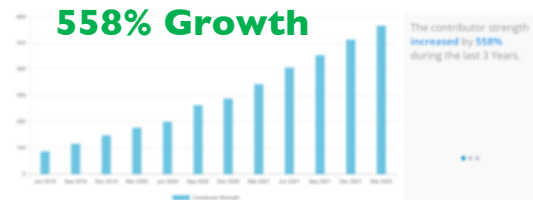Networking & Edge Projects on track as leading examples of secure open source

https://security.ffx.linuxfoundation.org/#/

Key Projects/Umbrella momentum - Contributions Growth

magma — 558% Growth — The contributor strength increased by 558% during the last 3 Years.

LF EDGE — 153% Growth — The contributor strength increased by 153% during the last 3 Years.

DPDK — 6K% Growth — The contributor strength increased by 5.59K% during the last 10 Years.

LF NETWORKING — 106% Growth — The contributor strength increased by 106% during the last 5 Years.

DENT — 110% Growth — The contributor strength increased by 110% during the last 3 Years.
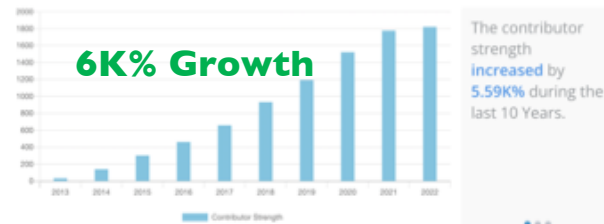
O-RAN Software Community — 830% Growth — The contributor strength increased by 830% during the last 3 Years.

Source: LFX Insights

Call to Action

1. Expand your horizon on how end to end solutions are driving use of Open source projects

2. Participate in LF Networking, LF Edge and several OSS projects

3. Join the open revolution for your non-differentiated software

https://www.lfnetworking.org/