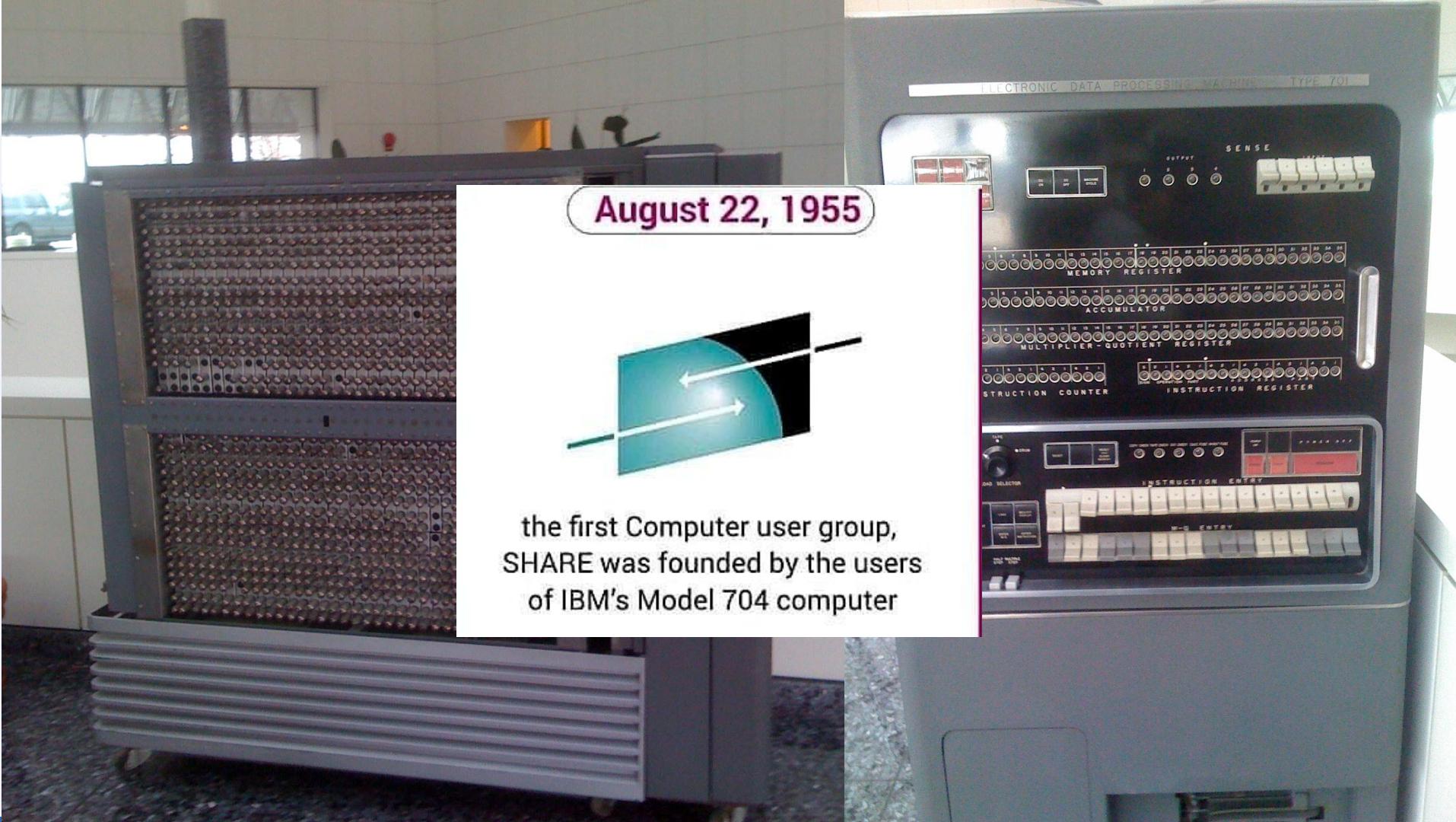




Creating a sustainable open
source ecosystem for
mainframe through the
Open Mainframe Project

*John Mertic
Director, Open Mainframe Project*



the first Computer user group,
SHARE was founded by the users
of IBM's Model 704 computer

From the heritage of the model 704 to the modern mainframe (IBM z15)



- Up to 190, 10 core 5.2ghz processors
(read more at
[https://en.wikipedia.org/wiki/IBM_z15_\(microprocessor\)](https://en.wikipedia.org/wiki/IBM_z15_(microprocessor)))
- Up to 40TB of RAIM (random array of independent memory)
- Heavy optimization for i/o bound workloads
- Hardware based encryption
- Fault tolerant, native hot swapping of hardware components (z stands for zero downtime)
- And....runs Linux and Open Source!



Early collaboration drives open source

1955

SHARE established
Historical root of
open source
movement

1975

**CBT Tape
project
founded**
One of the
oldest open
source
projects.

1999

**Linux
ported to
s390x by
community
effort from
Marist
University
and other
enthusiasts**

2001

**Major Linux
Distros
support
mainframe**
Initially
SUSE, but
followed by
Red Hat and
others

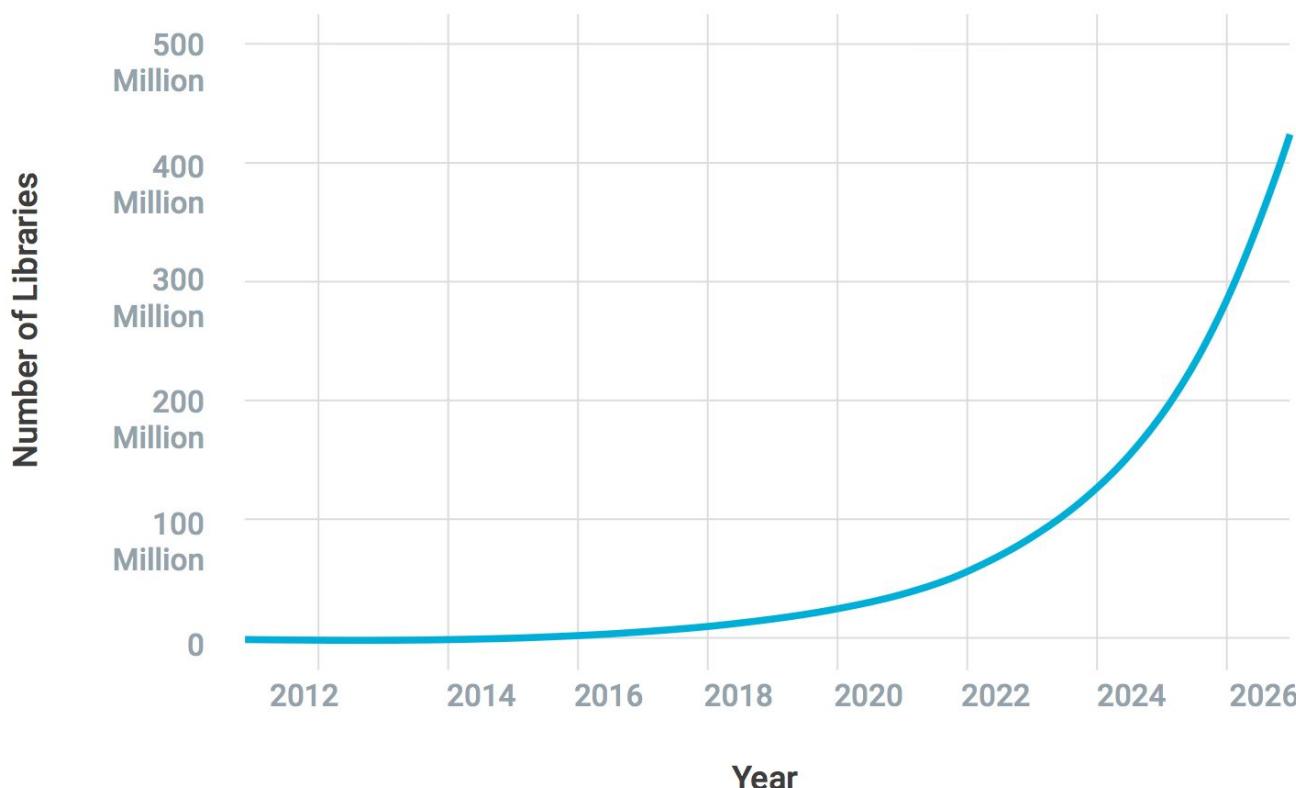
2006

**1,700
customers
using
Linux on
s390x in
production**
including
SAP, DB2,
and Oracle.

2013

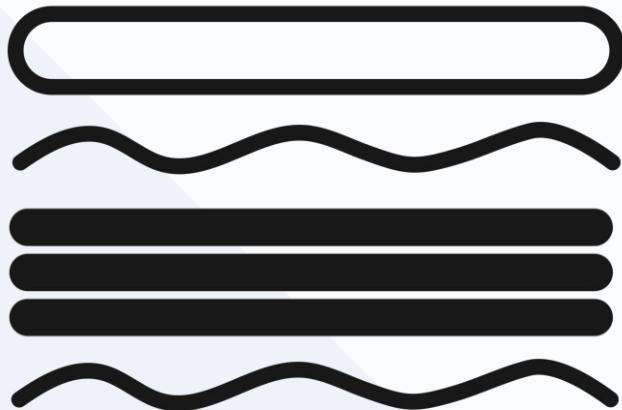
**Open
Source
ecosystem
hits critical
mass with
OpenStack,
KVM,
PostgreSQL
supported**

Open Source Isn't Slowing Down Any Time Soon





Open Source Code = ~ 90%

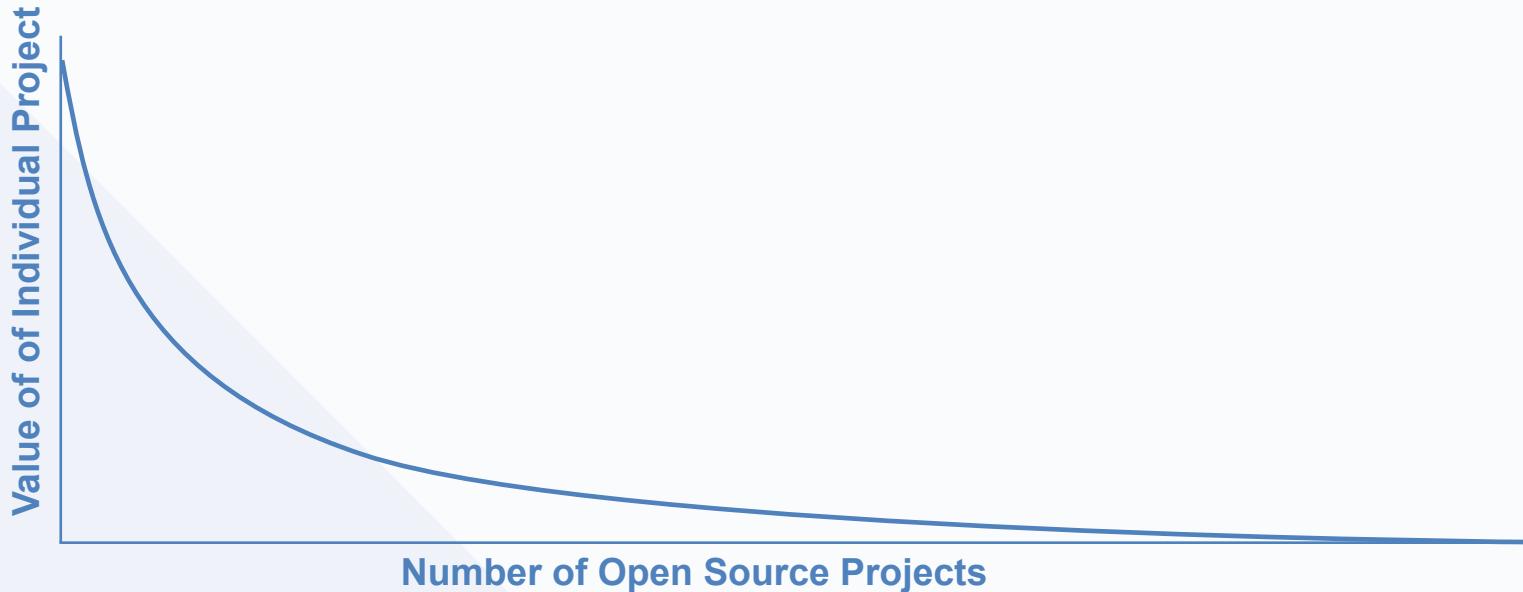


Use Open Source
Libraries to Solve Problems
Open Source Code (~70%)

Write Custom Code
Custom Code (~10%)

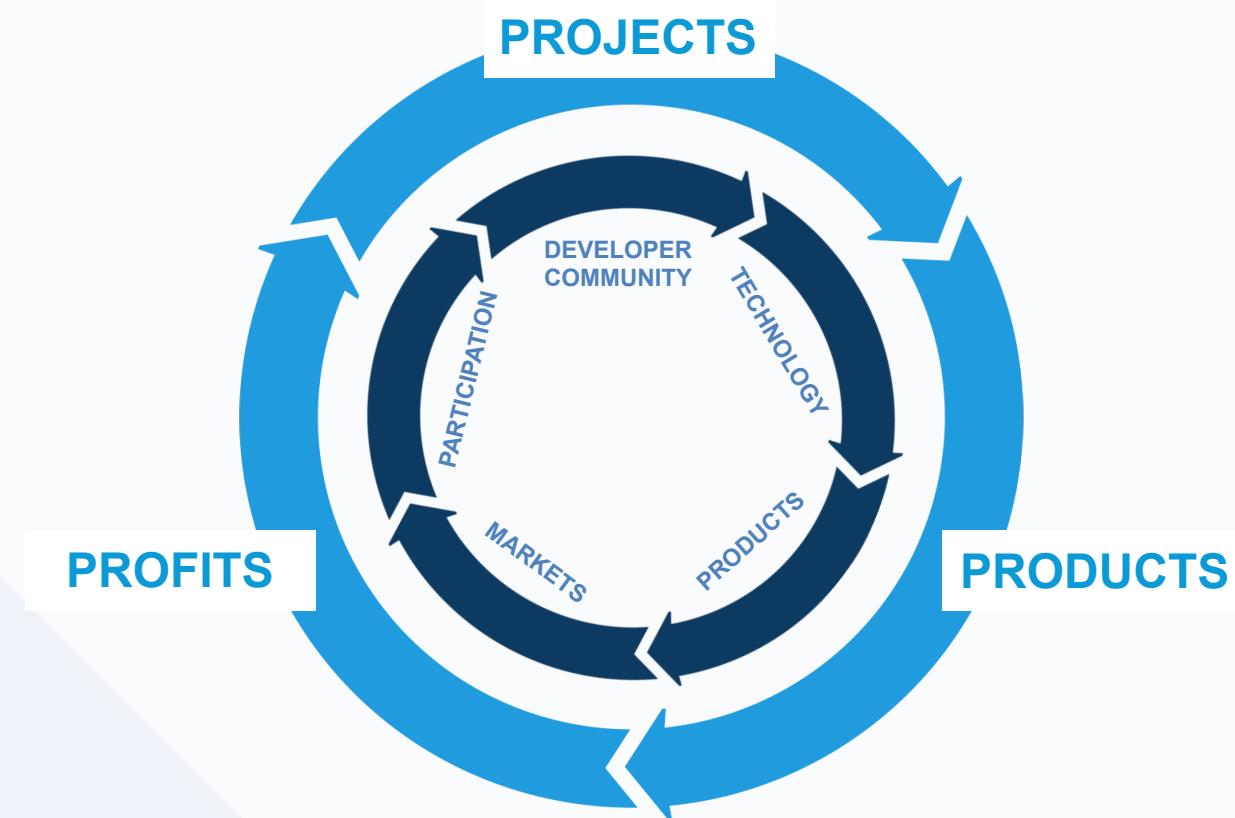
Choose a Framework
Open Source Code (~20%)

The Real Question is Which Projects Matter?



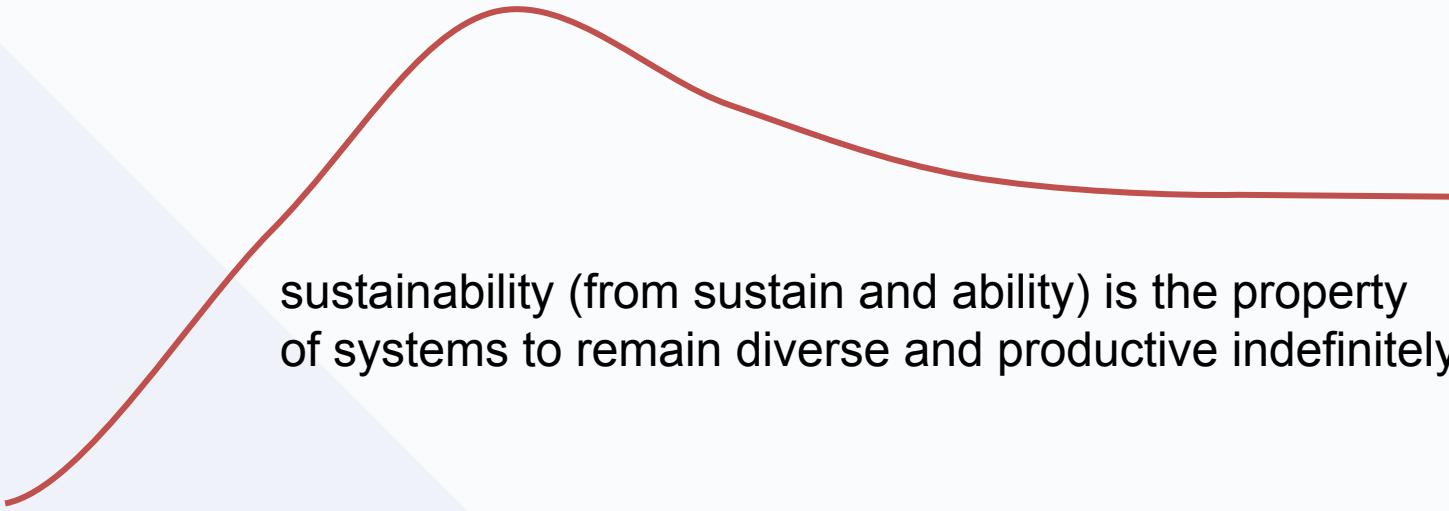
Answer: Projects with sustainable ecosystems

Successful projects depend on members, developers, standards and infrastructure to develop products that the market will adopt

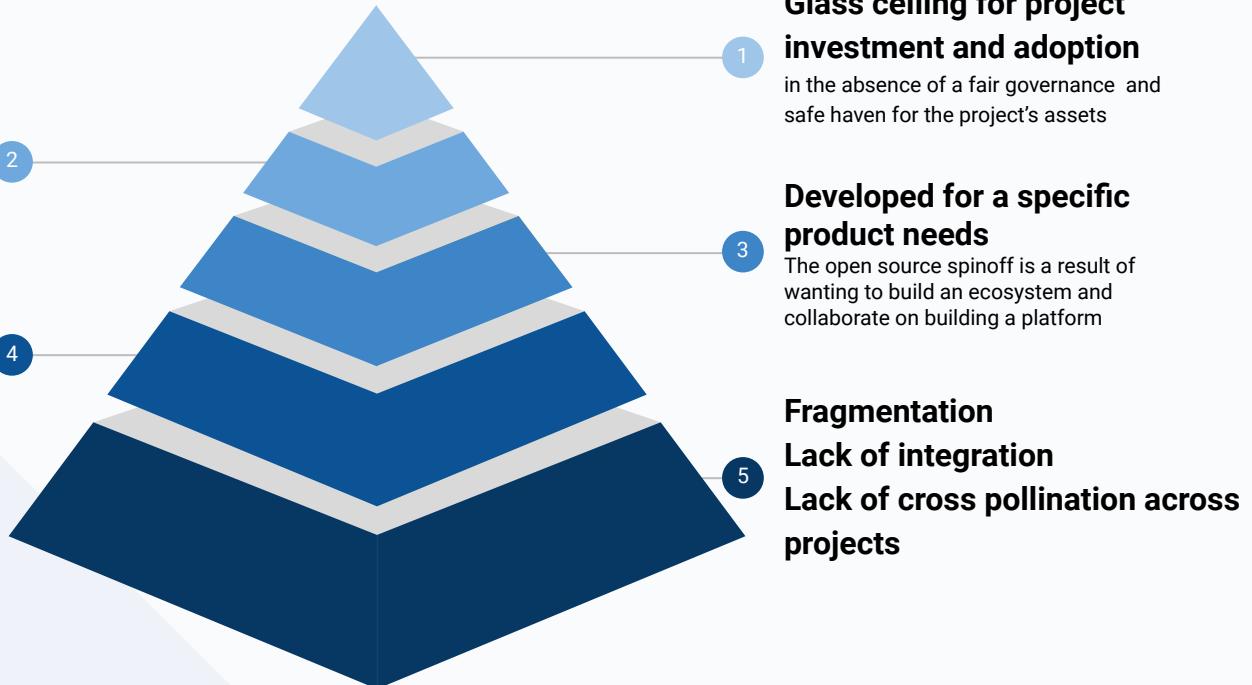




Sustainability is about longevity



Open Source on Mainframe - Ecosystem Challenges





Innovation accelerates under Open Mainframe Project

2015

Open Mainframe Project launched at LinuxCon Seattle, along with LinuxONE and IBM contributions of seed code for ADE

2016

First summer interns port Alpine Linux, contribute to open source tooling.

2018

Zowe launched
First ever open source project launched on z/OS

2019

Doubling of hosted projects with launch of 5 new projects

2020

Growth and maturity of ecosystem with new projects in COBOL, Education, open source discovery, and more





Mission of the Open Mainframe Project:

Build community and adoption of Open Source on the mainframe

- **Eliminating barriers** to Open Source adoption on the mainframe
- **Demonstrating value** of the mainframe on technical and business levels
- **Strengthening collaboration** points and resources for the community to thrive

Eliminating barriers to Open Source adoption on the mainframe



- Engaged as central expert in demonstrating the mainframe as a viable open source platform, with compelling advantage.
- Promotion of modern application and workload examples on the mainframe
- Growing career opportunities and academic community engagement
- Hosting and participating in local programming and promotion of Open Source on the mainframe
- Sponsorship of global initiatives and contests to grow enthusiasm for the platform

Demonstrating value of the mainframe on technical and business levels



- Showcase of technical and business case studies through blogs, white papers, and other media.
- Champion software and hardware solutions with clients

Strengthening collaboration points and resources for the community to thrive



- Engagement through hosted projects and independent projects by members
- Visibility to tools, resources, and community forums to tackle technical challenges
- Career opportunities from internships through retirement

Creating spaces for mainframe community open source collaboration

Graduated Open Mainframe Projects



Incubating Open Mainframe Projects



Open Mainframe Project Working Group



Learn about all Open Mainframe projects at <https://www.openmainframeproject.org/projects>

Open Mainframe Landscape

2021-01-04T18:04:40Z 779b6b7

See the interactive landscape at
[I.openmainframeproject.org](https://openmainframeproject.org)

Greyed logos are not open source

Linux

z/VM

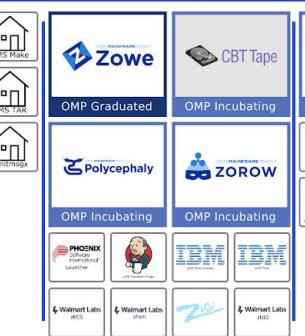
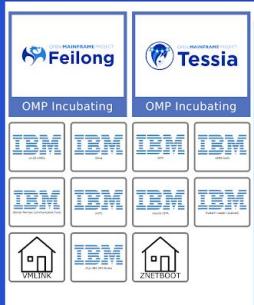
z/OS

Tools

Learning and Mentoring

Other

Projects



This landscape is intended as a map to explore open source projects within the mainframe industry, and also shows the member companies of the Open Mainframe Project.

API Mediation Layer ZOWE V1

App Framework
ZOWE V1

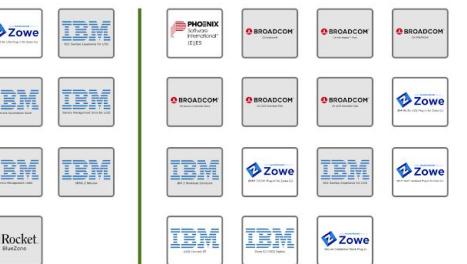
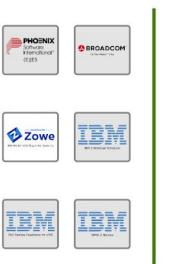
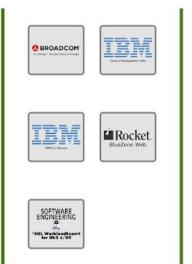
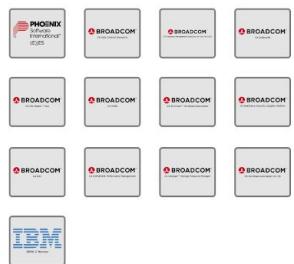
CLI ZOWE V1

API Mediation
Layer 2019

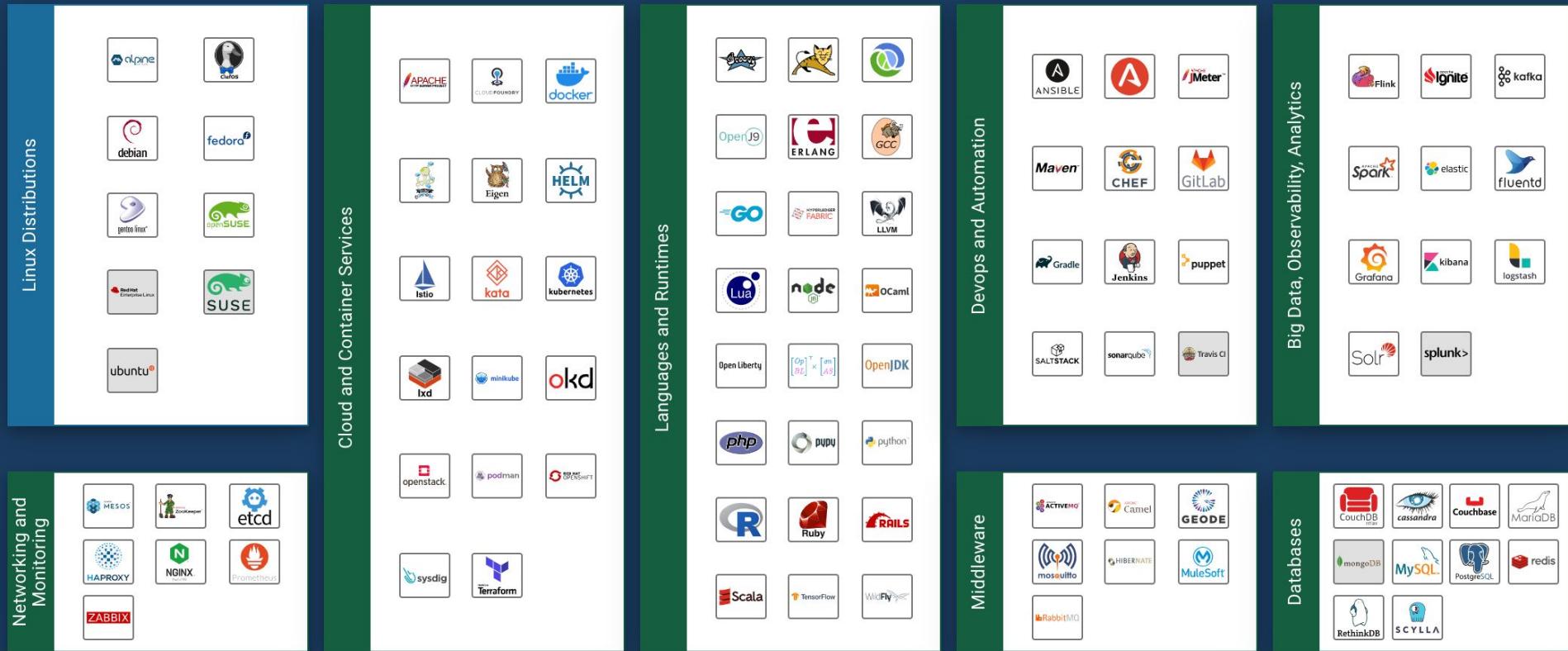
App Framework
2019

CLI 2019

Zowe Conformant



Supported Broad Open Source projects on mainframe



Connecting z/OS to enterprise devops with Zowe



Major Problem

- Modernize integration with z/OS based applications and services
- Bridge the talent gap by enabling modern development stacks on z/OS

How OMP Innovated

- 2018 Open Mainframe Project added Zowe
- 2019 Zowe reached 1.0, launched Zowe Conformant to enable downstream ecosystem
- Investments in collaboration, ecosystem development, and infrastructure

Results - 2020

- 20000+ Commits, 200+ committers all time
- Zowe gaining significant mindshare in DevOps community
- 20+ Zowe Conformant offerings

Modernize z/VM integration with cloud technologies



Major Problem

- Users want to manage their mainframes with the same modern cloud technologies used across the enterprise.
- z/VM integration with technologies such as OpenStack have long been a challenge.
- Contribution base was IBM only, making it challenging to get wider adoption

How OMP Innovated

- 2019 Open Mainframe Project added Feilong
- Feilong TSC elects co-chairs from SUSE and Velocity Software
- Building open CI/CD infrastructure and development environment

Results - 2020

- SUSE, Velocity Software, Vicom Infinity, and ICU IT engaging in addition to IBM
- New innovations and integrations being created in the community to upstream.
- Hub of innovation and collaboration within the project community.

Bringing together the COBOL community



Major Problem

- **COBOL talent is critical to our society, and the need has amplified in the COVID-19 pandemic.**
- **Enabling the next generation to have COBOL skills done in isolation, causing repeated efforts and lower uptick.**

How OMP Innovated

- Launched COBOL Programming Course as an open source project in April 2020
- Created collaboration forums and ways that COBOL talent can advertise their availability

Results - 2020

- “Calling all COBOL Programmers” forum has had over 1700 individuals make themselves available in less than 3 months
- COBOL Programming Course has 1.7k stars and 300+ forks in less than 3 months, along with 17 contributors from several organizations.

Bringing next generation through open source



Major Problem

- Aging tenured mainframe talent, with a growing mainframe talent gap and skills decline in next generation talent.
- Needing to help connect students with opportunities in mainframe, aligning the interests in open source

How OMP Innovated

- Launched first mentorship program in 2016 with 7 mentees.
- Connected within the mainframe and broad open source community to ensure mentorship work has upstream project value.
- Enabled universities to also leverage the program within class work; successful with VCU and Western University (Ontario)

Results - 2020

- 40+ mentees completed the program, with broader classwork focus reaching 100+ more.
- Upstream work has included ports of Alpine Linux, contributions to HyperLedger, OpenStack, CloudFoundry, Kubernetes, and more.
- Several mentees are now employed in mainframe roles with IBM, SUSE, ADP, and more.

Open Mainframe innovation thrives here



- OMP provides a vendor-neutral home for mainframe-centric open source projects
 - Code hosting/infrastructure
 - Governance
 - Legal/Trademark defense
 - Ecosystem development
- LF staff support project communities establishing guidelines and best practices to enable diverse community growth and adoption
- Our philosophy creates natural collaboration opportunities between mainframe-centric open source projects

Project lifecycle, guidance, and proposal process openly defined at
<https://www.openmainframeproject.org/projects/lifecycle>



Supporting open source
on mainframe beyond
hosted projects

Sustained mainframe support in the broad open source community through the Supported Projects program



Infrastructure	Developer support	Market awareness	Governance/IP Home
A photograph of a modern building with a glass and steel frame, viewed from below looking up at the sky.	Three people in a office setting, one standing and two seated, looking at a laptop screen displaying a chart or graph.	A person's hands writing on a piece of paper next to an open laptop.	Three people in a meeting room, one standing and two seated, looking at a whiteboard or document.

Participating Open Source Projects include

alpine linux	cleos	CLOUD FOUNDRY	debian	Eigen	fedora	gentoo linux™	GCC	LLVM	Lua	[Op] ^T BL × [en] AS	PostgreSQL
Alpine Linux	Sine Nomine Associates	Cloud Foundry Foundation	Debian	INRIA	The Fedora Project	Gentoo	Free Software Foundation	LLVM Foundation	Linaro	OpenBLAS	PostgreSQL



Telling the “mainframer” story

- Monthly interview series that highlights diversity in mainframe
- Showcases why people have mainframe in their careers and their views of the technology and career field
- Read and listen at
<https://www.openmainframeproject.org/news/podcast>



openmainframe.org

Bringing together the open source and mainframe conversation



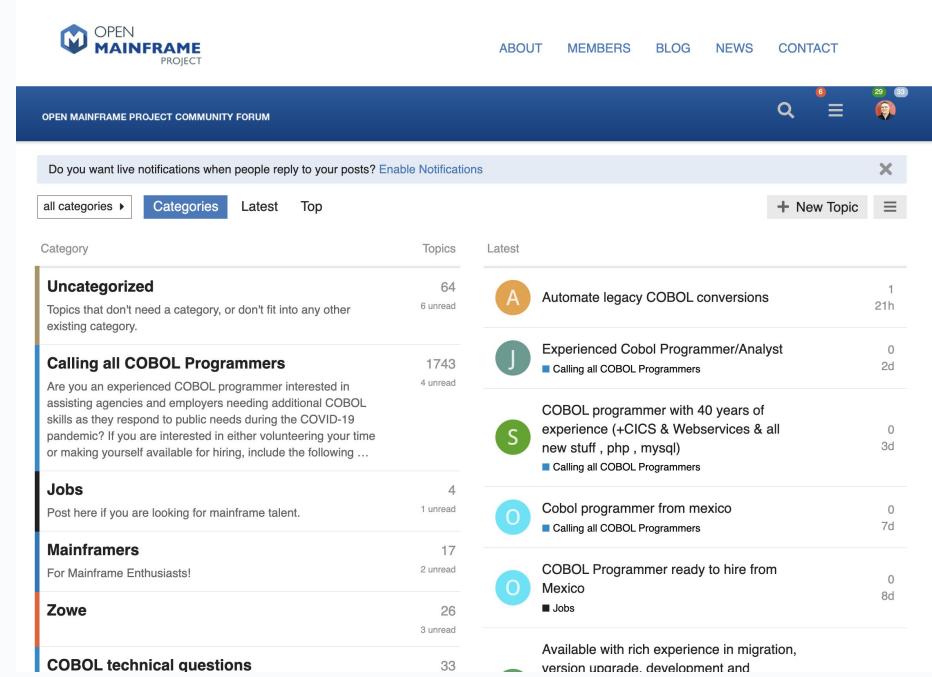
Annual Open Mainframe Summit

<https://events.linuxfoundation.org/open-mainframe-summit>



Slack Channel

<https://slack.openmainframeproject.org/>



A screenshot of the Open Mainframe Project Community Forum. The header includes the project logo and links for About, Members, Blog, News, and Contact. Below the header is a search bar and a user profile icon. The main area shows a list of forum categories and their posts:

Category	Topics	Last Post
Uncategorized	64 6 unread	A Automate legacy COBOL conversions 1 21h
Calling all COBOL Programmers	1743 4 unread	J Experienced Cobol Programmer/Analyst 0 2d
Jobs	4 1 unread	S COBOL programmer with 40 years of experience (+CICS & Webservices & all new stuff , php , mysql) 0 3d
Mainframers	17 2 unread	O Cobol programmer from mexico 0 7d
Zowe	26 3 unread	O COBOL Programmer ready to hire from Mexico 0 8d
COBOL technical questions	33	Available with rich experience in migration, version upgrade, development and

Community Forums

<https://community.openmainframeproject.org/>

5

40

16

40+

300+

30,000+

years since
launch

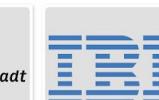
Supporting
Organizations

Hosted Projects and
Working Groups

Mentees
Sponsored

Project
Contributors

Project
Contributions

 Academic Mainframe Consortium	 ADP	 Albany State University	 Beijing Institute of Technology	 Broadcom	 Canonical	 hochschule coburg university of applied sciences	 East Carolina University	 EPSI	 European Mainframe Academy
 Guide Share Europe	 Guide Share Europe - UK Region	 GT Software	 HCL	 Hogeschool Gent	 htl donaustadt	 IBM	 Goethe University Frankfurt	 Marist College	 Micro Focus
 North Carolina Agricultural and Technical State University	 Phoenix Software International	 precisely	 Red Hat	 Rocket Software	 SHARE EDUCATE • NETWORK • INFLUENCE	 SOFTWARE ENGINEERING	 South China University of Technology	 SUSE	 University of Bedfordshire
 University of Washington	 University of Wolverhampton	 Leipzig University	 Vicom Infinity	 VCU	 Western University of Canada	 William Paterson University	 Xidian University	 YADRO	 Zoss Team

How to participate in Open Mainframe Project



Open participation for all interested in Mainframe and Open Source

Community discussion and collaboration - both virtually and at regional events.

16 Shared R&D open source projects and working groups - or bring your project to be hosted here

Corporate sponsorship for showing stewardship in the community



Learn more about the Open Mainframe Project

- Find out more and subscribe to our newsletter at www.openmainframeproject.org
- Discover and participate in any of our 16 hosted projects and working groups at <https://www.openmainframeproject.org/projects>
- Organizational membership opportunities at <https://www.openmainframeproject.org/about/join> or email at membership@openmainframeproject.com
 - If you are ready to pursue corporate members, complete the paperwork at <https://joinnow.openmainframeproject.org>



Thank you!



Membership



Membership Benefits (I)

Industry Leadership

- Shape the Open Source Mainframe market
- Network with other members of Open Mainframe Project
- Participate in Open Mainframe Project event and speaking opportunities
- Join Open Mainframe Project Projects
- Serve on the the Governing Board to help shape investments of Linux and Open Source on Mainframe (Platinum only)

Marketing Opportunities

- Benefit from and participate in Open Mainframe Project marketing efforts
- Engage with your peers on the marketing committee
- Feature your products and applications that leverage Linux and Open Source on Mainframe at key industry events, website and marketing collateral
- Use Open Mainframe Project branding assets in promotion of your product
- Discounted sponsorship opportunities for Open Mainframe Project



Membership Benefits (2)

Technology Leadership

- Contribute to and influence the direction of Open Mainframe Project technical investments
- Drive leadership for future enhancements and extensions that matter for your business
- Ability to guide feature sets in requirements documents and future technology roadmaps
- Support and drive community work by being a voting member of the Technical Steering Committee (Platinum only)

Learning and Engaging

- Engage and collaborate with the membership community to enhance your Open Source/Linux on Mainframe roadmap.
- Work together across company lines and industries.
- Create products & apps secure in the knowledge that they will be interoperable in across enterprise class architectures.
- Ability to serve as an Open Mainframe Project Advocate at events and in the community.

Additional benefits from Linux Foundation membership



The Linux Foundation members' benefits aren't just a list of "this is what you get as a member" -- rather the range of benefits vary in value and relevance based on the company. Some highlights include...

- An invite to our member-exclusive [Linux Foundation Member Summit](#), fosters collaboration, innovation, and partnerships among the leading projects and organizations working to drive digital transformation with open source technologies.
- Ability for your legal counsel to participate in bi-monthly legal calls and the annual [Linux Foundation Legal Summit](#), helping connecting them to their peers and advancing your organization's open source licensing, litigation, compliance, and best practices.
- Introductions to other Linux Foundation members and hosted projects that are of interest to you to expand business opportunities.
- Employees at your organization are eligible for a 20% discount to [Linux Foundation events](#) (use code LFMEM20 when registering).
- Receive a discount of 5-7% for sponsoring [Linux Foundation Events](#). Sponsorships offer a valuable way to reach the community of Open Source Developers, Engineers, C-level Executives and more.

Let us know how we can help connect you to these opportunities!

Corporate, Academic, Associate Membership Levels



Level	Annual Fee	Board Seat	TSC Seat	Marketing Committee	Notes
Platinum	\$120,000	Yes	Voting	Yes	Initial 2-year participant commitment
Platinum End-User	\$30,000	Yes	Voting	Yes	Initial 2-year participant commitment
Silver	3,000 employees or more = \$30,000 1,000 < 3,000 employees = \$25,000 500 < 1,000 employees = \$20,000 100 < 500 employees = \$12,000 < 100 employees = \$7,000	1 per 10	Non Voting	Yes	
Academic	Free	1 per 10	Non Voting	Yes	Restricted to academic institutions
Associate	Free	No	Non Voting	Yes	Non-profits, open source projects

To join Open Mainframe Project, go to <https://www.openmainframeproject.org/about/join> or email at membership@openmainframeproject.com

Listed fees include Linux Foundation Silver membership. If you are already a Linux Foundation Member, reduced pricing is available.