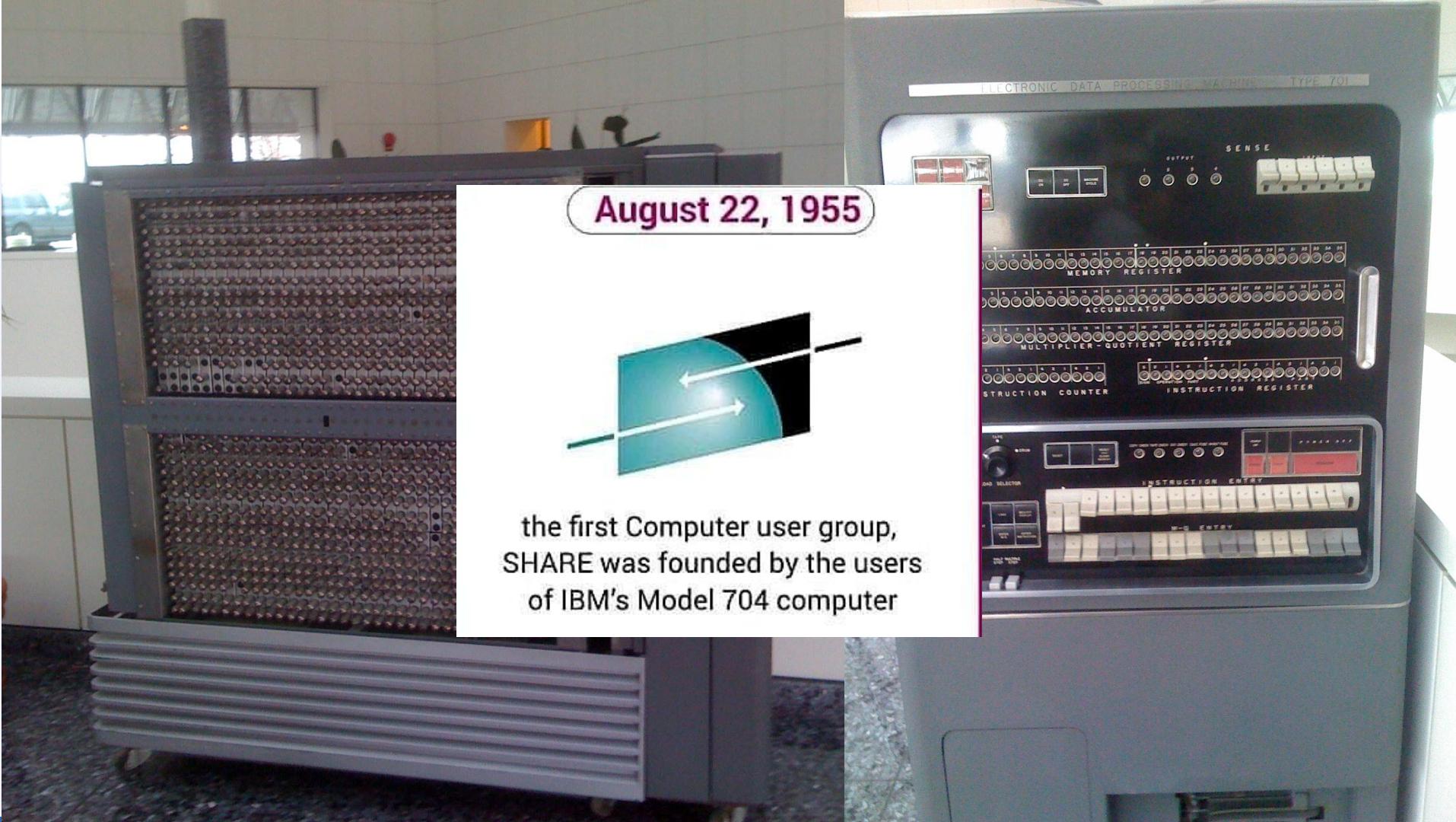




Creating a sustainable open  
source ecosystem for  
mainframe through the  
Open Mainframe Project

*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

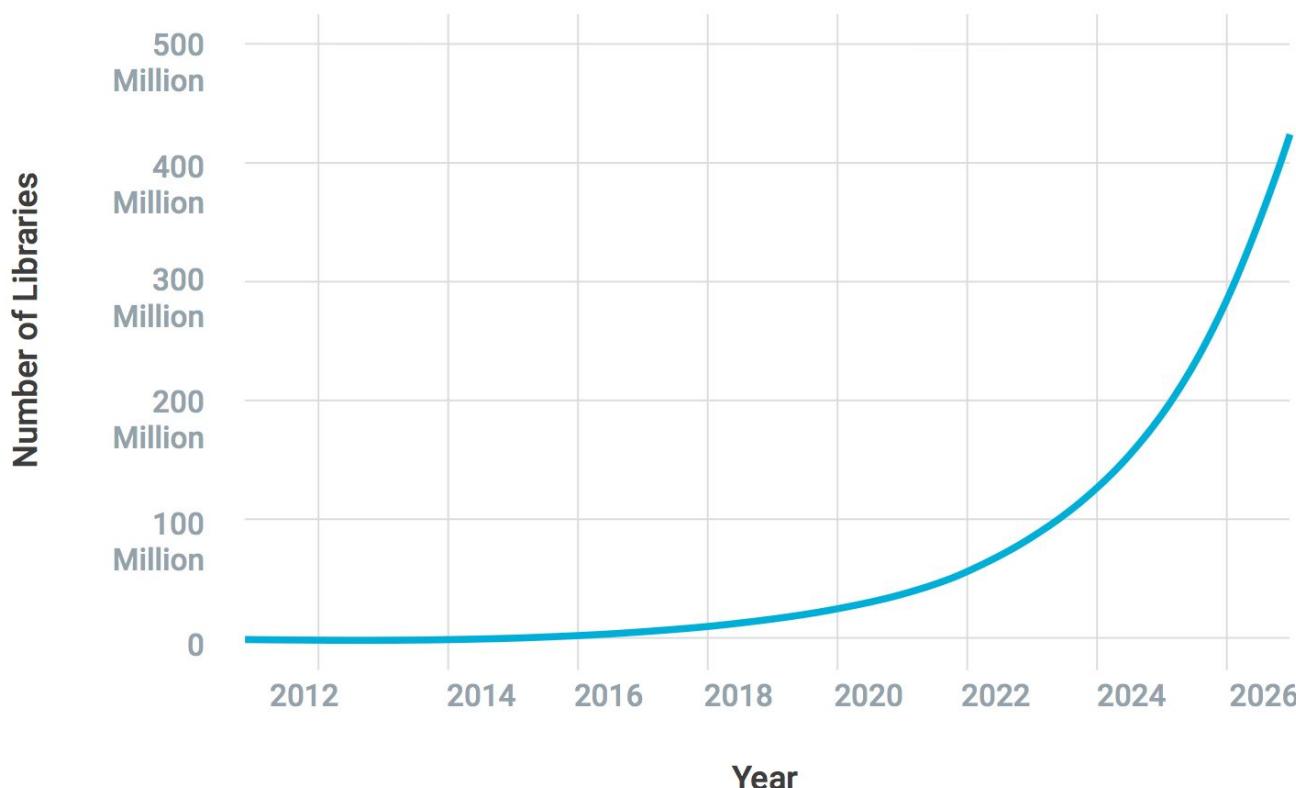
**2006**

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

**2013**

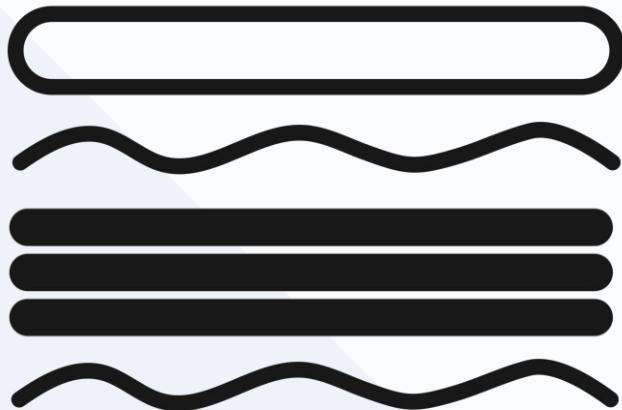
**Open  
Source  
ecosystem  
hits critical  
mass with  
OpenStack,  
KVM,  
PostgreSQL  
supported**

# Open Source Isn't Slowing Down Any Time Soon





## Open Source Code = ~ 90%

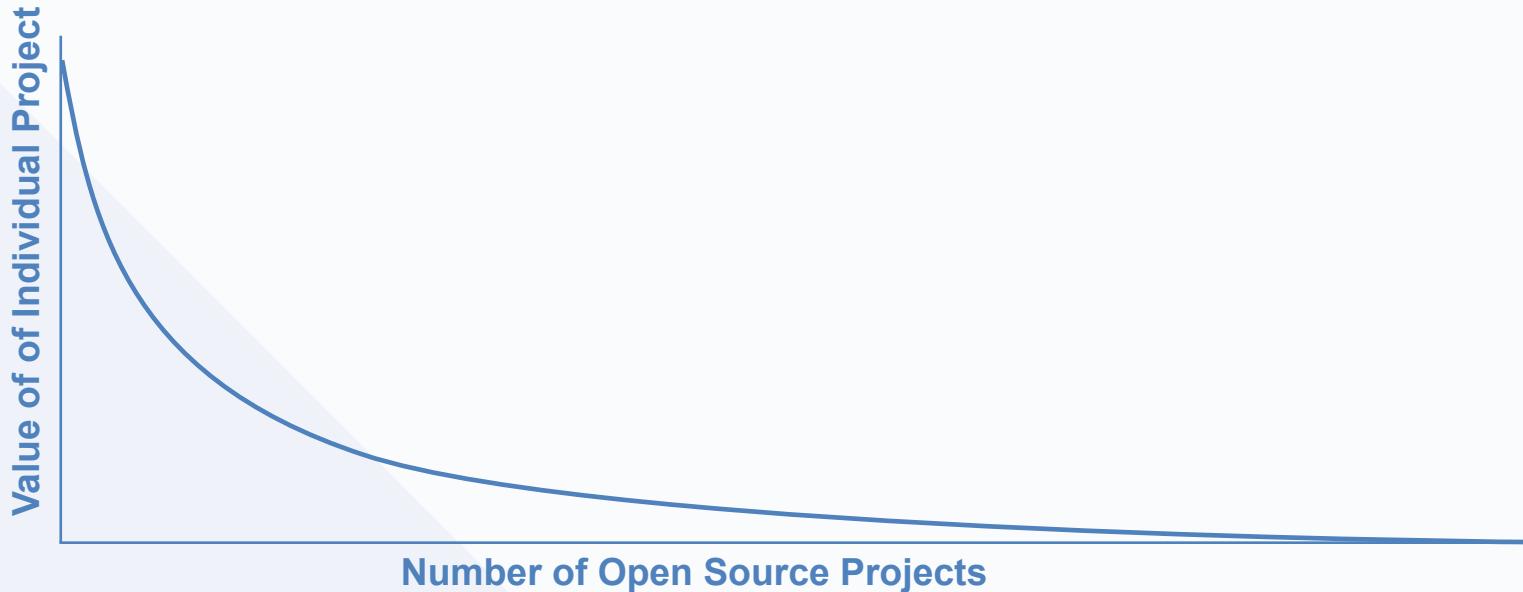


Use Open Source  
Libraries to Solve Problems  
Open Source Code (~70%)

Write Custom Code  
Custom Code (~10%)

Choose a Framework  
Open Source Code (~20%)

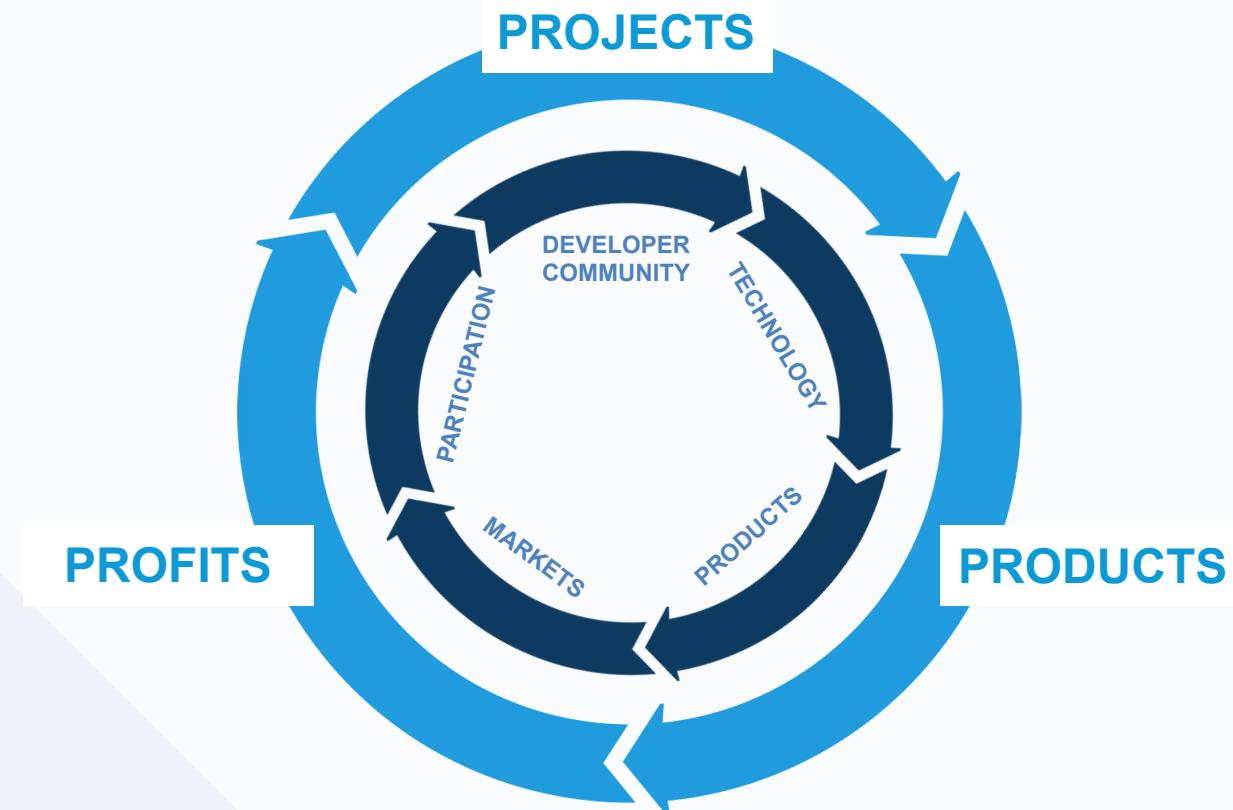
# The Real Question is Which Projects Matter?





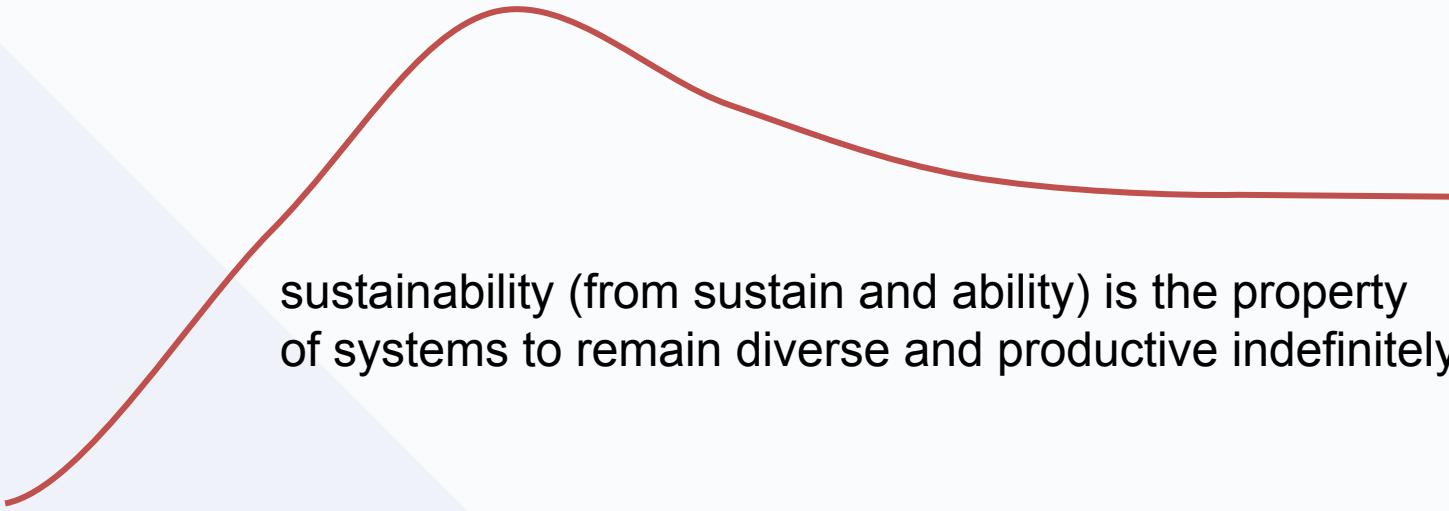
# Answer: Projects with sustainable ecosystems

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



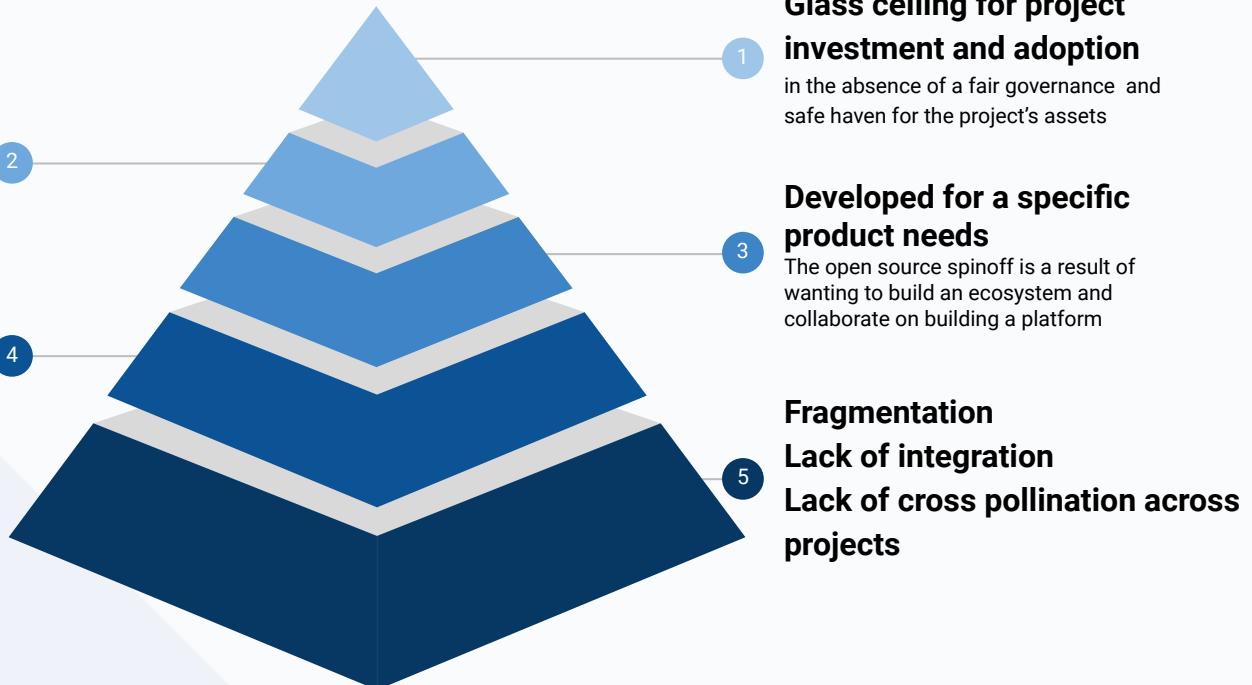


# Sustainability is about longevity



sustainability (from sustain and ability) is the property of systems to remain diverse and productive indefinitely.

# 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



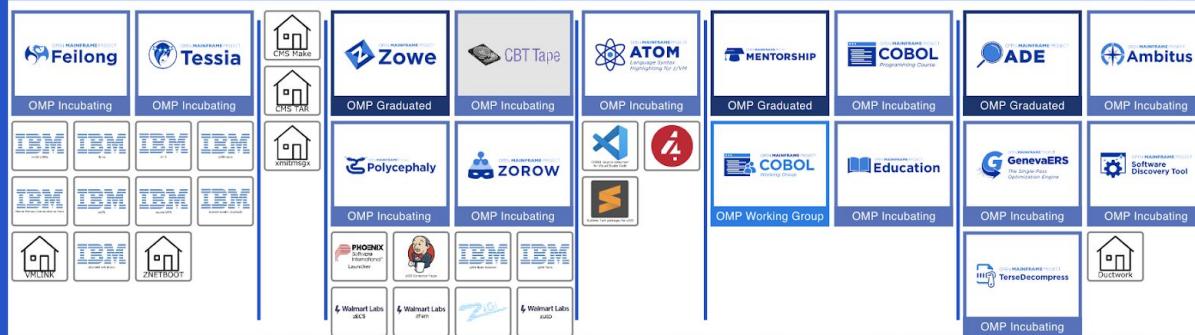
Incubating Open Mainframe Projects



Open Mainframe Project Working Group



Linux      z/VM      z/OS      Development Tools      Learning and Mentoring      Other



API Mediation Layer ZOWE V1

App Framework  
ZOWE V1

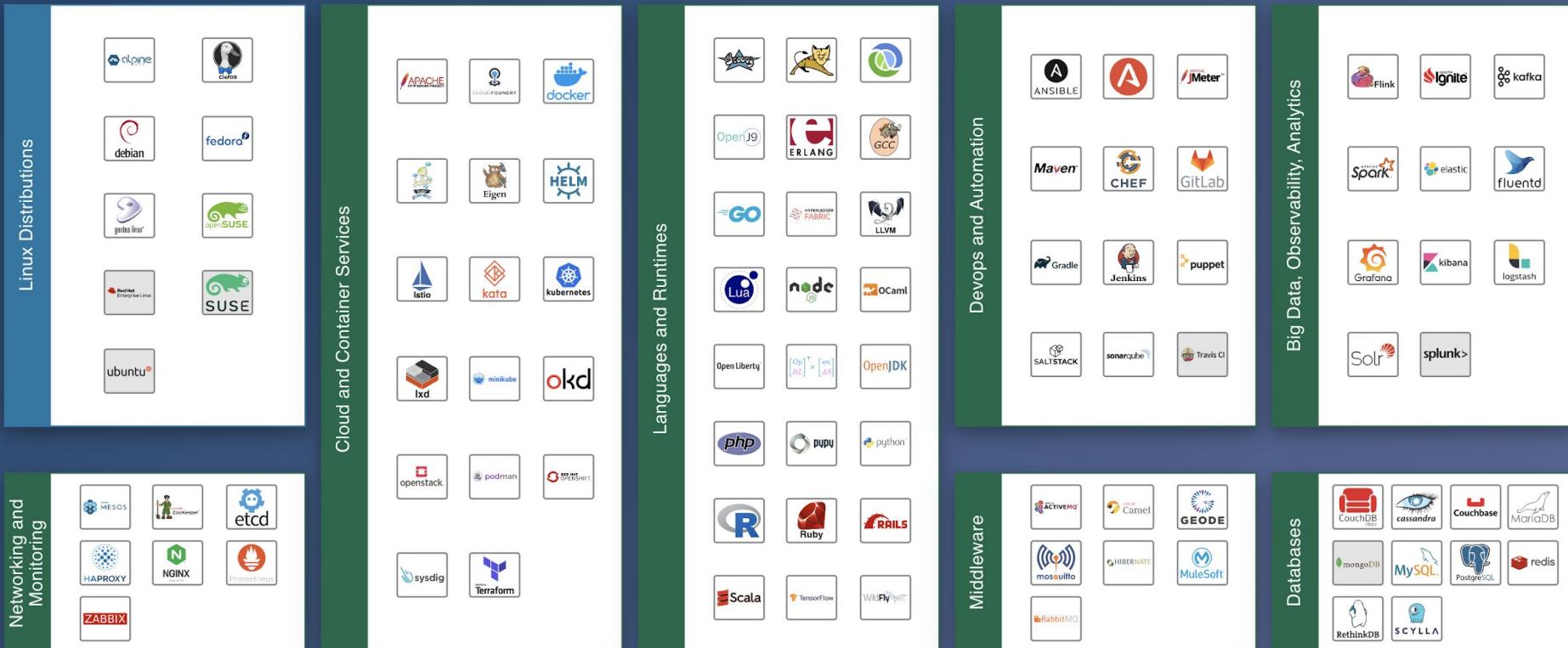
CLI ZOWE V1

API Mediation  
Layer 2019App Framework  
2019

CLI 2019

Zowe Conformant





# 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 curved glass and steel facade, viewed from below.	Three people in a office setting, one standing and two seated at a desk, looking at a laptop screen displaying a chart.	A close-up of a person's hands writing on a piece of paper with a pen.	Three people in a meeting room, one standing and two seated, looking at a whiteboard.

Participating Open Source Projects include

alpine linux
Alpine Linux

cleos
Sine Nomine Associates

CLOUD FOUNDRY
Cloud Foundry Foundation

debian
Debian

Eigen
INRIA

fedora
The Fedora Project

gentoo linux™
Gentoo

GCC
Free Software Foundation

LLVM
LLVM Foundation

Lua
Linaro

[Op] [BL]	[en] [AS]	PostgreSQL
OpenBLAS	en AS	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



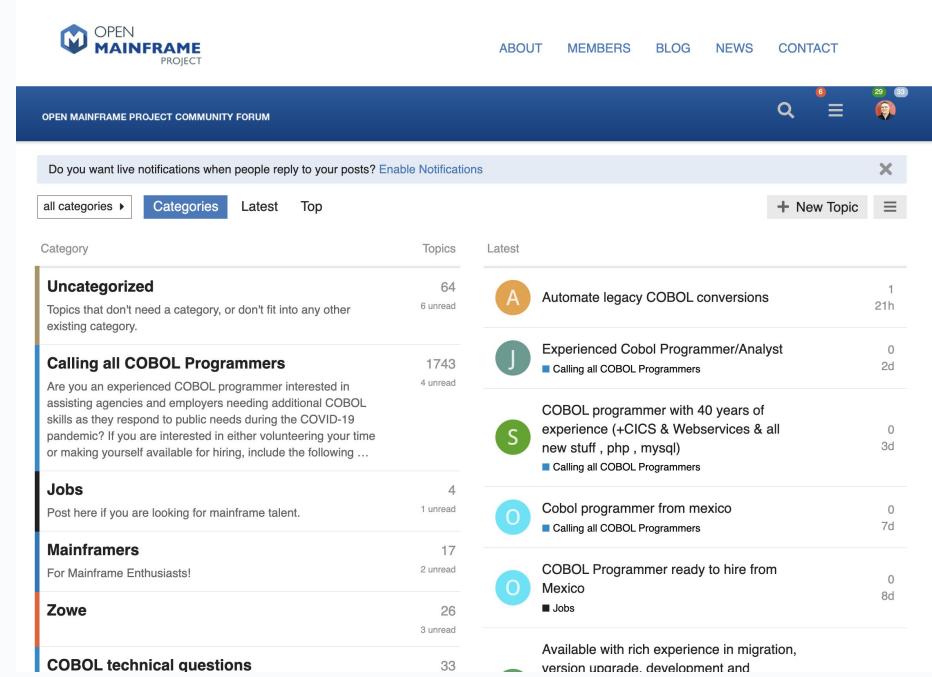
Annual Open Mainframe Summit

<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

41

18

40+

300+

30,000+

years since  
launch

Supporting  
Organizations

Hosted Projects and  
Working Groups

Mentees  
Sponsored

Project  
Contributors

Project  
Contributions

 Academic Mainframe Consortium	 Albany State University	 ASG Technologies Group, Inc.	 ADP	 Beijing Institute of Technology	 CA Technologies	 Canonical	 Coburg University of Applied Sciences and Arts	 East Carolina University	 European Mainframe Academy	 Guide Share Europe - UK Region
 GT Software	 Guide Share Europe	 HCL Technologies	 Hogeschool Gent	 HTL Donaustadt	 IBM	 Goethe University Frankfurt	 YADRO	 Leipzig University	 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	 Vicom Infinity	 Virginia Commonwealth University	 University of Western Ontario	 William Paterson University of New Jersey	 Xidian University	 Zoss Team LLC	 EPSI l'École d'ingénierie informatique			

# 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](http://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](mailto: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](mailto:membership@openmainframeproject.com)

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