Microsoft + Open Source + SDV

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Building together in open source

Open. Collaborative. Flexible.
Tech companies born with an open source mentality get it. It’s our ability to work together that makes our dreams believable and, ultimately, achievable. We must learn to build on the ideas of others.”

—Satya Nadella, CEO
Microsoft
Open source is changing software development

>80% of companies say they’ve increased the usage of open source in the past year\(^1\)

78% of code in codebases was open source\(^2\)

96% of applications leverage open source\(^2\)

\(^1\)Perforce 2023. OS Report 2023. OpenLogic by Perforce
\(^2\)Synopsys 2022. Open Source Security and Risk Analysis
Open source is the biggest differentiator for organizations

30% more innovative

+20% developer satisfaction and retention rates

How Microsoft does open source
Open source is at the core of Microsoft

150k
Unique open source components

>52k
Microsoft employees have GitHub accounts associated with Microsoft identity

11.8M
components in use
Microsoft’s contributions to open source

**Linux**
- Linux Integration Services
- IPE
- LISA testing framework
- SMB3/CIFS & NFS

**Cloud Native**
- Moby & Kubernetes
- Dapr & OAM
- Akri
- Helm & CNAB
- Open Service Mesh
- KEDA

**Data + AI**
- Spark & YARN
- PostgreSQL
- Pandas
- TensorFlow
- ONNX

**Languages**
- Node.js
- Python
- Rust
- Go
- PHP
- Java (OpenJDK)

**Web**
- TypeScript
- Webpack
- Babel
- Vue.js
- Bootstrap
- Svelte
Microsoft's Open Source Software Policy

Company-wide documented policy to make it easy for Microsoft developers to use open source

Using open source

Contributing to open source

Releasing open source software

We share some of our policy publicly on the opensource.microsoft.com site under "Our program"
Extensive set of tools and services to help us do this

Open Source Compliance Tools

GitHub Enterprise
GitHub Actions and Azure Pipelines
Component Governance
GitHub bots
Self-service GitHub open source portal
ClearlyDefined
CLA Assistant
GitHub Data Crawling
Business Review process in Azure Boards
Microsoft joins Rust Foundation

Microsoft is joining industry partners as founding members of the Rust Foundation, a new independent organization established to steward the Rust programming language and ecosystem and support Rust’s maintainers.
Open-Source Partner Engagement
How does an open-source project work?
Why do you build an open-source community?
Maintainers Share Innovation Outbound

Published outbound using an open-source license

There can be NO expectation of anything in return

Projects have culture; Governance is the documentation of that (software) culture
There can be no expectation of anything in return, but building community can enable and encourage contribution – capturing inbound innovation back to the project.

Communities can evolve their governance (e.g., Kubernetes vs Linux)
There is NO Community
Except for the one you build
Why do we build nonprofits?
Project Growth Hits a Natural Ceiling Based on Risk

Two Problems Occur For Small Projects:
1. Personal liability becomes a problem for Maintainers
2. Companies engaging to consume/contribute need more ownership stability/neutrality and provenance

Two Different Problems Occur With Industry Partner Projects:
1. The originating company may need to signal neutrality (giving up asset control) via a neutral non-profit third party
2. Partners may need anti-trust protections in place to hold discussions
Solve for these Risk Problems with Nonprofits

Nonprofits provide legal structure for managing risk together

Building the Software
(Sharing Innovation Outbound)

Building the Community
(Capturing Innovation Inbound)

Building the Nonprofit
(Remove Risk, Hold Assets, Collect and Distribute Funds, Anchor the message with partners)
ESDV - Microsoft Contributions and Engagements

1 OSS Contributions

- SDV.DEV
  Modern DevOps with GitHub and Azure ARM64

- SDV.OPS
  Observability & Monitoring Control Plane

- SDV.EDGE
  Eclipse Chariot*  
  Eclipse Ibeji*
  Pub/Sub Service
  Cloud Sync Digital Twin

2 Co-Dev Collaboration

- GM
  uProtocol

- Bosch
  Digital Auto

- Mercedes-Benz Tech Innovation
  Seat Massage Use Case with Eclipse Chariot

- SOAFAE
  ARM Modern DevOps

3 Community Leadership

- SDV Landscape
- SDV Platform Distribution
- SDV Reference Architecture
- Vehicle SW Orchestration & Scheduling
- Programming Models
- Confidential Computing
- Observability & Monitoring
- Testing & Validation

*released
"It’s a great reminder I think of what’s unique and core to Microsoft. These 400,000 partners who are going to create 10M+ jobs over the next 4 years, and for every dollar Microsoft makes, there’s ten dollars that’s made in the partner ecosystem. ... We are very, very anchored as a platform company. **Our job number one, two, and three is to create more opportunity for our partners.**"

– Satya Nadella, July 2021, ‘Inspire’ Bloomberg interview