Mastering Open Source: The Path to Mastering Software

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Agenda

• How did we get here?

• 4 core elements to mastering open source

• Samsung’ experience

• What did we learn?
Historical perspective: How did we get here?
Gerstner: IBM to invest $1 billion in Linux next year

NEW YORK -- IBM (ibm) chairman and CEO Louis Gerstner said IBM is planning to invest $1 billion in Linux in 2001, and another $4 billion in "e-sourcing" over the next three years. During his Tuesday morning ebusiness Expo and Conference keynote address here in New York, Gerstner outlined IBM's strategy aimed at allowing the company to take a leadership role in the next chapter of e-business.

By ZDNet Editors | December 12, 2000 -- 00:00 GMT (16:00 PST) | Topic: IBM
Ericsson Research

What is Linux? What is the GNU GPL?
Why Software Is Eating The World

By MARC ANDREESSEN
August 20, 2011
Software drives all industries

Almost everything we do on a daily basis is shaped by software.
IBM and Linux: The next billion dollars

IBM is renovating its Power computers by investing a billion dollars into making it a full-fledged Linux line for Big Data, cloud, data analytics, and the datacenter.

By Steven J. Vaughan-Nichols for Linux and Open Source | September 17, 2013 -- 02:40 GMT (19:40 PDT) | Topic: Data Centers
THE WALL STREET JOURNAL.

Open Source ‘Eating’ Software World: Samsung

By RACHAEL KING
May 5, 2014 5:51 pm ET

San Francisco, Calif. — Samsung Electronics Ltd. is aiming for more of a leadership role in various open source projects partially because so many of its products—from refrigerators to mobile devices—now depend on open source software.
“Every industrial company will become a software company.”

Jeff Immelt
CEO, General Electric
Microsoft Job Search

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☐ Title

☐ Senior Software Engineer OSTC

Development (engineering)

Since CEO Satya Nadella publicly declared "Microsoft loves Linux" in 2014, Microsoft has been taking big steps in embracing Linux and open source. Many of our products and technologies have become cross-platform, such as .Net core, VS Code, Powershell, etc. More and more products now support Linux, including Hyper-V, SQL Server, Operations Management Suite, etc. And Visual Studio as well as many of our Azure cloud services support non-MS languages such as Java, NodeJS, Python, etc. Many open... More
The rise of foundations – organizing open source R&D

Formal structures to enable collaboration across companies with competing commercial interests.
The rise of collaboration projects
Saying no to open source is like ...
Companies must master open source if they are to master software.
Essential elements to master open source

- Community
- Contribution
- Compliance
- Consumption
CONTRIBUTIONS PROGRAM ELEMENTS

Organizations
- The Linux Foundation
- OpenChain
- SPDX
- Open Compliance Program
- TODO Group
- Software Freedom Law Center
- Open Source Initiative
- Free Software Foundation
- Software Freedom Conservancy

Contribution
- Policy and process on project contributions
- Guidelines and contribution training
- Contribution Approval Team
- Increased participations in key open source projects

Dedicated Group
- Establish open source group
- Hire from open source projects
- Support open source foundations
- Host open source events
- IT infra to support open source development
- Establish/recognize open source career path

Open Standards
- Participate in relevant open standards
- Consider open sourcing internal technology as reference implementation
- Support communities of projects you depend on

Executive Sponsor + Financial Commitment
Samsung’s Experience
15 years open source journey

- **Getting a taste of Open Source** (Embedded Linux)
- **Increased Adoption**
- **Proliferation**

Today: Which product doesn’t use open source software?
How Open Source Ate Samsung, and Lessons for Smaller Companies

SCOTT GOERING – APRIL 10, 2017
A push towards software innovation

• More open and transparent collaboration
• Better programming skills
• Better software and system design skills
• Better integration skills
• Modular and scalable coding skills
• Software re-use skills
• Continuous testing and integration cycles
We continue to build, refine, and scale our open source infrastructure.
Inner Sourcing

• We also kicked off several inner sourcing efforts.

• We see inner sourcing as:
  – A bridge between consumption and contribution;
  – A method to sharpen your open source skills internally before stepping into upstream contributions.
What have we learned?
Key dimensions to enterprise open source strategy

- Project & Community
- Product
- Culture

Open Source Strategy
Focused open source upstream development enables better products

**Direct product enablement**
- Fulfill open source development requests from R&D and product teams.
- Upstream internal code into open source projects.
- Implement and upstream related drivers.
- Support open source compliance efforts.

**Indirect product enablement**
- Stabilize upstream projects used by products.
- Participate in internal policy discussions and decisions representing the open source perspective.
- Effectively influence the upstream projects via thought leadership and code contributions.

**Upstream dev enables better products**
- Less work for product teams.
- Minimized cost to maintain source code and internal branches.
- Better quality code.
- Faster development cycles.
- More stable code bases for products.
- Better reputation for the company in upstream projects.
Challenges – We need to adapt to collaborative development practices

**Culture**
- Development model
- Collaboration
- Transparency
- Meritocracy
- Team formation
- Hiring practices
- Right success metrics

**Processes**
- Governance
- Usage
- Compliance
- Contribution
- Approvals
- Operational model

**Tools**
- IT infrastructure
- Development tools
- Tracking metrics
- Knowledge sharing
- Code reuse

*It takes time, perseverance, and persistence.*
(years/patience/determination)
Guiding principles that enterprises need to embrace

You can’t hire all the smart people in the world. We need to find ways to collaborate with them.

Open source R&D creates significant value. Internal R&D claims portion of that value.

You don’t need to create the project to benefit from it.

Practice what you preach: openness and collaboration.
Key elements to succeed

1. Focus your contributions on upstream projects that would directly benefit your strategy and products. (Internal ROI justification).
2. Be the upstream partner for product teams.
3. Grow open source talent in specific technology areas relevant to your products. Convert your existing developers to contributors.
4. Improve internal participation with relevant open source foundations and their projects.
5. Encourage and enable your developers to attend and speak at conferences, network with peers, share ideas and be visible.
Mastering open source is an on-going journey and not a destination.
Why an ongoing journey?

• Open source leadership can’t be given.
  – It must be earned.
  – You earn it by consistent participation and contribution.

• Open source leadership can not be taken away.
  – You lose it by lack of participation and contributions.
How to improve learning?

• Create a feedback loop:
  – Create a way to more accurately spot errors and identify improvements that are having an effect on learning.

• Deliberate practice:
  – Focus very deliberately on the sub-skills that make up an overall skill.

• Practice (active) participatory methods of learning:
  – Discuss
  – Practice
  – Teach
Mastery is accelerated enormously by adopting and excelling at consumption, compliance, inner sourcing, and contribution.
Mastering Open Source

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