The power of Open Source technology and how India can benefit from it

After the spoken and written word, no other technology has made a greater impact than modern computing and the internet. And no other movement has contributed to these technologies more than the open source software (OSS) movement.

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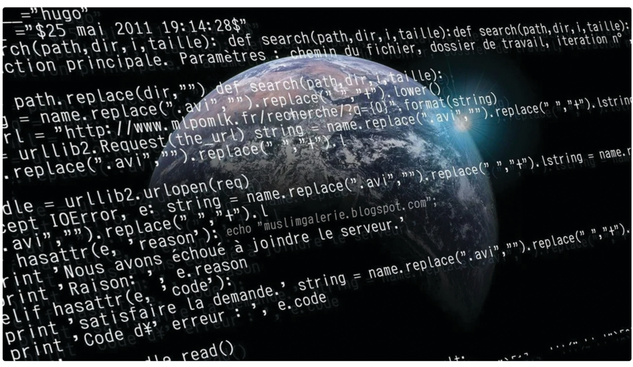

Quite simply, open source software is software with source code that anyone can inspect, modify, and enhance. (Pixabay)

With an increasingly tech-savvy population and the increasing rise in availability of open source platforms, the global open source services market is predicted to grow from $21.7B in 2021 to $50B by 2026. With North America and Europe dominating the global landscape, India's contribution to OSS services still lags behind, despite around 96% of the 600 million 4G subscribers in India using open source-based operating systems. This perfectly positions India to become an exciting base for OSS innovations. The potential in India is certainly there, but enterprises need to help drive awareness of the importance of OSS, driving investments in people and skills, initiatives and assets.

Working collaboratively, and sharing creative solutions, with a wider circle of contributors, has certainly proved successful for Indian organisations, such as Zerodha and the Covid-19 Project-India. Using OSS, it has provided organizations with greater visibility of industry insights, faster problem-solving turnaround times, and the ability to pool resources. The evolution of the OSS culture of transparency is all about gaining and sharing experiences so that innovative tech is brought to life at speed - a win-win for all. But let's start with understanding what we mean by 'open source software'.

Understanding Open Source Software

Quite simply, open source software is software with source code that anyone can inspect, modify, and enhance. Source code is the part of the software that normal user's don't typically see, but that programmers have to write to build the software. Authors of open source software make their source code public so that other programmers can learn from it, improve it, make it more secure and even profit from it.

This is a very different approach compared to proprietary or "closed source" software. In other words, authors of proprietary software retain exclusive control over it and do not make the source code open to the public. As an example, Microsoft Windows is proprietary operating system (OS) software, whereas Linux is an open source OS. Any developer can head over to GitHub and start contributing to the Linux project or even fork it for themselves.

To put the impact of OSS in perspective, more than 81% of all web servers on the internet run on open source web servers (Apache or Nginx), and more than 70% of servers in the world are powered by Linux (the open source operating system core written by Linus Trovalds in 1991).

Linux is probably the most important OSS on Earth - it runs on every Android phone and tablet and powers pretty much every service you consume on the internet, be it streaming a movie on Netflix or hailing a cab on Uber. Not only that, NASA's rover named Perseverance also runs Linux, plus NASA has also open-sourced the Space Flight framework that powers Perseverance. That's how pervasive OSS is in today's world and in every facet of modern living.

Open Source Software in action

While the foundations of the open source movement were rooted in altruism and to a certain degree to "stick it to the man", there are now established and proven models to fully commercialize open source software and communities. In the last three decades, approximately 200 companies were founded with an open source core, and these companies have raised more than $10B in capital and went on towards even larger mergers and acquisitions.

Support and Services - Redhat and MySQL were the first companies to offer paid support and services for their free software. This was the most basic way to monetize free software and worked very well for these companies. MySQL was acquired by Sun (which was later acquired by Oracle) for $1B. Redhat was acquired by IBM most recently for $34B.

Open Core - As the name suggests this is a freemium model where the core of your software is offered for free for anyone to use but where certain value added features are kept proprietary and sold as add-ons. These add-ons are usually enterprise grade features such as added security, integrations (like Single Sign On) and other 'nice to have' features. ERPNext, a free and open-source integrated Enterprise Resource Planning software used by manufacturers, distributors and services companies is a great example.

SaaS - This has become ubiquitous over the last decade where companies offer the same OS software as a hosted cloud offering. This takes the pain away from developers on the effort involved in hosting the software in a secure and scalable environment. It also let's developers quickly experiment with cutting edge services and allows them to go to market quicker. Companies like Confluent (Kafka) and Elastic (Elasticsearch) are good examples following this model.

How enterprises can benefit with Open Source

No vendor lock-in - As opposed to proprietary software, there is no vendor lock in OSS. Enterprise customers do not need to pay a perpetual or subscription license fee to a vendor, and are free to experiment, adopt and replace an open source software at will. This is a very significant consideration for a company, since any inertia to upgrade a part of it's technologically stack could end up with dire consequences.

Community of developers - A nice side effect of open source software is that any successful project would have a thriving community of developers contributing to it. Enterprise companies would never struggle in finding the right talent when adopting such a technology. As an example NodeJS, a popular open source web server, has millions of developers around the world proficient in building large scalable applications on it.

Microsoft, which has traditionally been a closed source proprietary company, has now decided to open source it's main server technology, called .NET core. That is a 180-degree change for a company whose CEO, Steve Ballmer, called Linux "a cancer" in 2001. Microsoft now has wide support to run Linux on it's own Azure public cloud. And that's not all: the tech giant bought the largest open source collaboration platform GitHub in 2018 for $7.5B. That's a very small price to pay for the largest community of developers on the planet.

Secure software - Enterprises view OSS as more secure - and they should. Since the code is available for everyone to see and scrutinize, so are the vulnerabilities. Once a vulnerability has been reported, the entire army of developers comprising the community work together to quickly resolve it. This is different from proprietary software where just like the code, the vulnerabilities are a secret too. The transparency and community that open source projects leverage, makes them way more credible than their closed source counterparts.

India perfectly positioned for OSS innovations

As one may have gathered, the developer community is the key factor that predicates the success of an open source project. Once a project has a critical mass of developers contribution to, maintaining and evangelizing a technology or project (product market fit), that's when it is time to realize the transformative and commercial impact of the project (value market fit)

As per GitHub COO Erica Brescia, India is the fastest-growing country in terms of new developers contributing to open source projects. As of March 2021, India has 5.8 million developers contributing to open source projects on GitHub. A large number of these developers are younger devs and students. There is no better way for developers to learn coding best practices, and how to program, than to contribute to popular projects. Not only do they get the chance to get their code reviewed by some of the best developers in the world, but the satisfaction of contributing to a project that impacts millions of people worldwide also has its own reward.

The Government of India has implemented the Digital India Program and has laid out a policy on adoption of OSS. This, together with the Indiastack which are a set of APIs that empower developers to truly digitize India leveraging Aadhaar, UPI, Didgilocker, etc. India is set up for a new digital revolution that will leapfrog India by empowering developers to build a new wave of applications in finance, education and agriculture.

While the Indian private sector has done extremely well in the software services sector over the last few decades, and more recently has had very good success with SaaS companies like Freshworks, Zoho, and Postman, there is still a lot to be desired from the open source ecosystem. I believe we are making the right moves towards this and it's simply an evolutionary path. As our workforce becomes more sophisticated, and awareness about open source grows, I am confident that India will emerge as a software superpower that the world looks to in areas of deep technology.

This article has been written by Kabir Chandhoke, COO, SourceFuse Technologies

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