Can India Ever Become A Global FOSS Hub?

The open source trend is catching on in the IT and electronics space in India, with enterprises and SMEs taking the plunge. So, will India be the next FOSS hub? Or will the lack of a supportive ecosystem around FOSS come in the way of fulfilling such ambitions?

Free and open source software (FOSS) technology is creating a sensation in the Indian technology world. With IT and electronics companies aggressively adopting open source, sectors like the Indian government, SMEs, retail, BFSI, etc, are warming up to the benefits of free and open source software. Many are betting on India becoming the next FOSS hub. But does India have the ecosystem that could make this dream a reality?

Stumbling blocks like a dearth of advocacy, the Indian government still being FOSS-shy, and the fact that FOSS is still at a very nascent stage within the country might make India's emergence as a FOSS hub seem like a distant dream. However, this dark cloud has a silver lining. FOSS solution providers in India are realising the need for a give-and-take relationship with the community; the Indian consumer is maturing; virtual platforms/events are fostering collaboration; and the education industry is waking up to the new demands from the IT industry.

How far is India from becoming a FOSS hub?

Most FOSS advocates and experts believe that though India has taken long strides towards becoming a global FOSS hub,

we are not quite there yet, and still have a long trek ahead. A crucial reason for that is the FOSS ecosystem. "Though FOSS in India is growing at a faster rate than in the past, the FOSS ecosystem will take time to mature, as awareness of the potential of FOSS is yet to cross the threshold level. Training and certification bodies have grown, and [so has] the use of FOSS on servers—but the user base in India is still not large enough," says J A Bhavsar, CIO, ITM Group.

So what's hindering the development of a strong and supportive FOSS ecosystem? "A FOSS ecosystem consists of numerous stake-holders—educational institutions like schools and colleges, government, FOSS solution providers, consumers and the FOSS community. Though we have large volumes of people in India who are now aware of FOSS, we remain largely consumers. Poor community participation, lack of proper revenue/business model, lack of well established governance model in leveraging FOSS, very few India based ISVs have all hindered the eco system. Creating awareness is just the first step, and resolves only one dimension of building the ecosystem. We still have a long way to go," says Jyothi Bacche, head, Open Source Practice, MindTree.

Stakeholders in the FOSS ecosystem

Participants in the Indian FOSS ecosystem fall into three broad categories:

- Producers, including developers and those who are contributing back to FOSS projects. Examples are the JBoss India chapter and the MySQL Indian community.
- Consumers—basically those that use FOSS, including SMEs, large enterprises, and government.
- Facilitators, like academia and FOSS solution providers, who connect producers and consumers, and build a demand-and-supply chain around FOSS.

All these stake-holders need to play their role for the ecosystem to mature, and for India to become a FOSS hub.

Producers—critically required

Every nation has its own indigenous technology-related

Talent—a major bottle-neck within the ecosystem

The lack of a large talent pool is a big hindrance for companies that use FOSS. Speaking based on his experience in embedded systems, Sridharan Mani, director and CEO, American Megatrends, says, "The industry is seeking the best embedded talent, to develop and deliver solutions to clients the world over. But acquiring suitable candidates and training them with the desired skill-sets is a huge effort, involving time, resources and investment. To make India an 'open embedded' hub, we need to start at the basics—our education system. For instance, our curriculum for embedded engineering programs should encourage students to learn through examples; innovations should be recognised to promote original thinking; more weight should be given to practicals; and there should be a platform for students to come together, showcase their talents, compete and brainstorm—probably something on the lines of the Science Olympiad."

To address these talent-related issues, FOSS vendors are providing the much-needed challenging and learning environment for developers to grow. For instance, Aspire Systems encourages its employees to actively participate in community forums and contribute back to the community. Their 'Wisdom curve' sessions help employees learn new open source tools and keep abreast with the latest open source skillsets. Similarly, American Megatrends (AMI) is working on building a talent pool that is well-equipped with FOSS skills for innovation and research. "We have been recognising such talent over the years. We provide fresh engineers in embedded technology an opportunity to live through real-life projects in a simulated environment, through our AMI Challenge (an internal competition). We also encourage employees to share their knowledge through embedded technology presentations, white-papers and case studies," says Mani.

Zynga India also does its bit to motivate the Indian FOSS community. "We do hackathons, code jams, etc, wherein multiple developers can come in and contribute. Further, our hiring strategy is open source friendly; about 90 per cent of our team comes from the open source world creating a large demand for FOSS skill sets," says Kadavil. EnterpriseDB employs seven key PostgreSQL contributors, including Pavan Deolasee, who is a major contributor to the development of HOT (Heap-Only-Tuples), one of the most important performance improvement features in PostgreSQL 8.3.
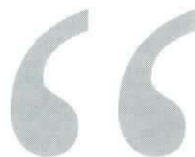
"Companies that use FOSS to build products ought to credit FOSS when advertising their products; this can help create a healthy awareness and prove the utility and widespread application of FOSS."

Rohit Kumar Rai, sales director, India, SE Asia and Australia, EnterpriseDB

Gokul Muralidharan, open source
expert, Aspire Systems

Deepak Gupta, associate vice
president, technology, GlobalLogic

Naveen Shenoy, MD and founder,
Shenoy Systems

Maharajan Veerabahu, project
manager, e-con Systems

problems, including those due to its geography, local language, and social conditions. A strong local FOSS community can ensure that these issues are resolved faster, removing barriers to the adoption of FOSS, and thus increasing users' (and potential users') confidence in FOSS. This is true of India as well, and it is critical for us to be strong on the FOSS production front.

The good news is that India has a growing FOSS community. However, there are issues like community efforts being scattered, or not being in tune with Indian needs, and sometimes even lacking in consistence.

The nascent Indian community

The Indian FOSS community is still small, because technology companies, developers and other stake-holders like educational institutes are still developing the culture of contributing back to the community. "The efforts of user groups are not unified, nor is the community well-structured. The community spirit is yet to take root in educational institutes," says Bhavsar.

Satish Mohan, director, Software Engineering, Red Hat Software Services (India), adds, "India has rather unique technological needs, …due to a range of issues from diversity of languages to infrastructure gaps. Thus, there is a need for Indian contributors to solve such indigenous problems. For instance, a while back, Mozilla Firefox had problems with printing in the Indic locale, and it required Indian contributors to step forward to fix the problem. We did resolve the issue eventually, but it took more time than it would have if we had a more active base of contributors in India."

Bacche attributes the community participation problem to the socio-economic context in India. "When it comes to community contribution, India's presence is pretty nascent; part of the reason is the socio-economic context that our engineers live in. If we look at software engineers in the US, they can easily decide to take a sabbatical and contribute solely to the community. They do not look for a salary or inspiration, as the spirit to contribute is deep-rooted in them, and contributing to the community is a career for many. In India, most engineers would like to contribute back and build a community however as additional work, rather than a career. The socio-economic context plays a major role in building a healthy community and to establish the FOSS supply and demand chain."

So what is expected of stake-holders like technology companies and technology associations, many of whom are still quiet about their involvement with FOSS? "There is a need for them to come out in the open and publicly affirm their support for the FOSS community. Industry associations

"Just the implementation of a policy that mandates the use of FOSS in large government projects will spur the demand and consumption of FOSS."

Shan Kadavil, country manager, Zynga (India)

Vishwas Mudagal, CEO, Castle Rock Research

Sridharan Mani, director and CEO, American Megatrends India

J A Bhavsar, CIO, ITM Group

Rahul De', Hewlett-Packard chair professor, quantitative methods and information systems area, Indian Institute of Management, Bangalore

such as NASSCOM and CII, which play a major role in defining the technology policy in India, must also come out in favour of FOSS, or at least take a firm position on FOSS," says Rahul De, Hewlett-Packard Chair Professor, Quantitative Methods and Information Systems, IIM, Bangalore. Companies should take a firm stand in not only using FOSS, but also contributing back to the community. "It is about creating both the consumers and producers to create demand and supply in the FOSS ecosystem. India cannot have many consumers of FOSS unless there is an increase in the developers and facilitators contributing back to the community. Having said that, there has been a rapid increase in contributors on FOSS projects in India. For instance, recently a number of open source projects dedicated to the efficiency of Indian scripting have gathered momentum," adds Shan Kadavil, country manager, Zynga (India).

Removing the obstacles

Steps are being taken, especially by technology veterans, to inspire the developer fraternity and make contribution a mass activity in India. "A good balance between cooperation and strong, competent leadership can ensure a large and strong FOSS community. However, it is difficult, and can take years—as is evident from many successful projects," says Rohit Kumar Rai, sales director, India, SE Asia and Australia, EnterpriseDB.

IT companies are increasingly contributing back to the community. "As IT companies, we know about the different kinds of FOSS software, and understand the need to participate in leveraging it internally and externally. IT companies must sponsor user groups and communities developing FOSS software, and also have business models around FOSS, to make the ecosystem sustainable for the community," says Bacche.

Companies like Red Hat, EnterpriseDB, MindTree, Intel, Zynga, etc, have seriously taken on the onus to build the community in India. For instance, within Red Hat India, there is a large team of I18N and L10N experts who work with the community to help in making FOSS projects available in more than a dozen Indian languages. This team

also works with the growing community of contributors to Fedora India. EnterpriseDB, too, is working on a strategy to enhance local contributions. "We hold training classes in India, and hire remote DBAs for customers. We are also looking at adding activities that provide incentives for people to get involved in the community, and make local contributions to the PostgreSQL project. Our objective is to ensure that the local community has both easy access to PostgreSQL, and the ability to contribute back to the community," says Rai.

MindTree, on the other hand, is working on sharing knowledge to improve community participation. "We sponsor the JBoss user group. I head the Bangalore chapter of JBoss, where we hold monthly meetings. It is open to anyone who wants to talk about the Red Hat or JBoss stack. This close association with the community has helped us engage with popular authors of open source software, and organise 'Tech Talks' for the community whenever they travel to India. For instance, we recently invited the FOSS community in Bangalore for a session with Gavin King, the author of Hibernate," says Bacche.

Zynga India has also been actively contributing back to the Membase open source project (co-founded by Zynga), while Intel India has played a crucial role in the MeeGo project and in building the community at the university and college level. "We work on increasing awareness about the importance of contributing to the community, by showing the developers how open source opens one to peer review, which helps enhance their skill-sets. Further, we collaborate with colleges, giving them access to our open source tools, webinars, etc, to generate ideas among students and sow the seeds of community building at the grass-roots level," says Narendra Bhandari, director (Asia Pacific), Intel Software and Services Group. By fostering a culture for contributing, India could evolve into being a prolific FOSS creator, rather than a mere consumer.

A consumer base—crucial to generate demand

Another crucial component of the Indian FOSS ecosystem is the consumer. Merely having a growing contributor community is not good enough. For any growth, the demand and supply

dynamics need to be in sync. Thus, a bullish consumption trend is essential for the growth of the FOSS ecosystem. Where does India stand on the FOSS consumption front? We do have an expanding base of consumers, ranging from the government, big enterprises and SMEs spanning across verticals like retail, BFSI and manufacturing. Yet, issues like inadequate advocacy and unsatisfactory government support remain a hindrance to wide-scale FOSS adoption in India.

Overcoming advocacy shortcomings

Appropriate advocacy is essential for the success of FOSS and its ecosystem. In India, most users like developers and hobbyists are attracted to FOSS because it is free of cost, and not for its benefits like software freedom, opportunities for collaboration and participation, etc. "Open source is still equated with 'free' instead of 'freedom', in India. With awareness levels still being low, one isn't sure whether the ecosystem has grown out of this nascent stage," says Naveen Shenoy, MD and founder, Shenoy Systems. In a country where pirated copies of proprietary software are freely available, the 'free of cost' argument of FOSS is not a strong one, feels Bhavsar, who says there is need for proper advocacy to build consumer confidence related to the use of FOSS.

But how does one develop smart and strong advocacy around FOSS? To build up a local ecosystem of supporting organisations and businesses, the benefits of open source need to be communicated effectively. And the benefits stretch beyond lower or no licensing costs, to include direct access to programmers for mentoring, review, feature requests, innovation, better security, and access to source code. Take Zynga, for instance: it serves games to around 250 million users a month, and the amount of data transferred per day is close to two petabytes, i.e., data content of about 32 lakh video CDs put together. Zynga chose open source software since proprietary technology could not scale to the needs of its ever growing user base and also innovate at the pace required to be the leader in the social gaming market. To sustain the huge scale of data transfer, it switched to FOSS, which gave it flexibility and scalability without any performance issues. Such success stories need to be highlighted to boost the spread of FOSS.

Bacche, however, feels the advocacy limitation at another level. "Though customers in India are changing their vision of open source software, acknowledging benefits other than costs, the lack of independent software vendors (ISVs) is hampering consumption. There is a need for a governance model around FOSS especially when it comes to understanding licenses and integration issues. Advocacy at this level is needed to help consumers adopt software smoothly," says Bacche.
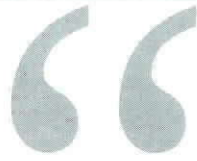
> "There is a need for Indian contributors to solve indigenous problems. For instance, a while back, Mozilla Firefox had problems with printing in the Indic locale, and it required Indian contributors to step forward to fix the problem."

Satish Mohan, director, software engineering,
Red Hat Software Services (India)

"Companies that use FOSS to build products ought to credit FOSS when advertising their products; this can help create a healthy awareness and prove the utility and widespread application of FOSS," says Rai. Further, advocacy at the root level is also important. "The CBSE syllabus avoiding the explicit mention of proprietary products, and universities adopting/discussing FOSS topics, are some credit-worthy advocacy initiatives. Further, discussion and debates around ODF versus OOXML are healthy initiatives to improve advocacy," says Mohan.

The role of the government

FOSS consumption in India is still restricted. The government can play a crucial role here. "The government has to be involved at the adoption, appreciation and contribution level in order to make India emerge as a FOSS hub. Not only should it become a large consumer, but it should also create a supportive environment through the right policies for FOSS companies to grow. We also need more FOSS projects to be initiated by the government (like the UK government, which has been instrumental in initiating FOSS projects)," says Bacche.

Others feel that just by becoming a large consumer, the government will help the Indian ecosystem mature. "The Indian government becoming a large consumer would be the 'big bang' for the FOSS community, because if you have a large consumer base like the government, it would automatically result in a heavy demand for FOSS developers. The ecosystem will figure out how to train them and gear them for the task, thereby fostering the Indian community. Just the implementation of a policy that mandates the use of FOSS in large government projects will spur the demand and consumption of FOSS," says Kadavil. Rai adds, "By proactively using FOSS to cut costs and spread the reach of its services, the Indian government will not only generate revenues (for FOSS companies), but will raise awareness and hence the demand for FOSS products and services."

Facilitators: connecting producers and consumers

Commercial and non-commercial entities that contribute by way of talent and ideas, and provide significant resources in terms of hardware, networking, and other goods and services that are used in the process of software development, are very important for the FOSS ecosystem. They are needed to connect the producers and consumers, giving each of them a much-needed push. So how mature are Indian FOSS facilitators? With numerous efforts being made by FOSS vendors and educational institutes to collaborate—through conferences, virtual platforms and events, India has reached a certain maturity level—but there is always scope for improvement!

Educational institutions

Non-commercial entities like educational institutions play a crucial role as facilitators, as the use of FOSS in classrooms/production applications helps raise awareness, creates demand for FOSS products and processes, and develops the right talent pool. Besides this, educational institutions are the prime force in encouraging intellectual contributions back to the community.

"Academia makes considerable use of IT and hence should take the initiative to promote the use of FOSS, both at the network level, as well as among the students. They could begin by making the student/user machines dual-boot, and based on the comfort levels, move completely to FOSS," says Bhavsar, who runs the entire network at ITM on FOSS tools—where all user machines, including student laptops, are dual-boot installations. "Exposing students at the university level to real-life FOSS projects is crucial. Educational institutions, in close association with the government (as large-scale users) and corporations can provide students such exposure," adds Kadavil.

FOSS vendors

By getting together for the common good, whenever possible, FOSS solution providers can promote FOSS—pushing a unified message about what it stands for and the benefits it offers consumers. In addition, they often hire community members to work full-time on challenging projects. They play a crucial role in developing the ecosystem.

Fostering collaboration

FOSS vendors help foster collaboration, which indirectly stimulates demand and confidence in consumers. "When there is a need for a particular solution, one FOSS partner in the ecosystem can possibly resolve one part of the problem, while another partner can contribute its core strength towards solving another part of the problem. For example, in the embedded domain, when we design a product, we look for partners with exposure and experience in high-end Linux GUI applications—those who can write applications on the Linux embedded systems we build. A proper ecosystem and interaction among the Indian FOSS companies would help Indian companies pitch in with more integrated solutions, and thereby, help India emerge as a desired FOSS destination," adds Maharajan Veerabahu, project manager, e-con Systems. Numerous efforts like conducting conferences, events and virtual platforms are helping bring about such collaboration between stake-holders.

Virtual platforms

Virtual forums help bring together potential collaborators. For example, online forums, like FOSSyellowpages.com, allow FOSS companies to interact with prospective clients and partners, and job sites like fossjobs.in help connect the talent pool with companies working on FOSS. "Both the portals are very good initiatives to not only make India a FOSS powerhouse, but also address the FOSS consumer's concern about the lack of an adequate ecosystem supporting FOSS," says Deepak Gupta, associate vice president, technology, GlobalLogic. "FOSSyellowpages.com comes in very handy for customers to find the right companies that build solutions on FOSS platforms. This is sure to bridge the huge gap in identifying partners for development, and will encourage ISVs to pick FOSS platforms for their development. Along with that, dedicated FOSS job sites help find those with niche skill-sets and experience, which is critical for a company using FOSS," adds Gokul Muralidharan, open source specialist, Aspire Systems.

Events and conferences

Events and conferences provide a forum that brings members of an ecosystem together, to showcase its strength to consumers. It also helps project a unified and sharply focused message about FOSS or a particular FOSS project. Says Vishwas Mudagal, CEO, Castle Rock Research India, "One needs to constantly upgrade one's skills and knowledge to create world-class products, especially when the FOSS world is progressing every second. Events like the Ruby Conference India create tremendous awareness about FOSS among professionals and companies, giving the community an opportunity to learn about the latest advances in FOSS by interacting with experts in the field. We intend to host many such events in Bangalore and Kolkata in the coming months. A few of these events will be hosted entirely by Castle Rock, to push the FOSS community." There are an increasing number of FOSS events that are changing the perception of the FOSS community globally as well. "Events like FOSS.in, GNUnify, and Freed help connect the community, and increase the level of participation. From a business perspective, LinuxAsia in its earlier and current incarnation, OSI (Open Source India) Days, has potential," says Mohan.

So, strengthening the links between consumers, facilitators and producers in the FOSS ecosystem will help build a buzz around open source, and drive India towards becoming a FOSS powerhouse. **END**

By: Vanisha Joseph

The author loves to experiment, and writing for *LINUX For You* is her latest experiment—so beware! Just a minute, she also happens to be a journalist during the day