9. Free software - Right choice for India

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Introducing Free Software

What is Free Software

Free Software is a category of software, which can be used, copied, studied and modified and redistributed by the user. The meaning of the word 'free' in free software is similar to its meaning in free speech, free people and free country and should not be confused with its other meaning associated with zero-cost. Therefore, in Indian languages, it is appropriate to call it Swatantra Software. In this document, we shall call it simply Free Software.

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:

- The freedom to run the program, for any purpose

- The freedom to study how the program works, and adapt it to your needs.

- The freedom to redistribute copies so you can help your neighbour

- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits

A program is free software if users have all of these freedoms. Thus, users should be free to redistribute copies, either with or without modifications, either gratis or charging a fee for distribution, to anyone anywhere. Being free to do these things means (among other things) that you do not have to ask or pay for permission.

Beginning of Free Software

In the early days of computing, it was customary for programmers to share software. The programs one person wrote could be made use of or modified by anyone else, which benefited everyone. Software development was thus a community effort.

In the late 1970s, however, software companies started imposing restrictions on users, and users were prevented from sharing, let alone modifying, programs. They did this by withholding the software's source code (human readable form of software) and/or by making them enter into restrictive (and at times, even humiliating) legal contracts such as user license agreements and non-disclosure agreements.

By the 1980s, restrictions on software became widespread, and the computing community was no longer free to co-operate in using and altering software for specific needs. This scenario forced Richard M. Stallman to initiate a creative resistance called the GNU projectwww.gnu.org in 1984. Today, it is a global movement with several thousand programmers and others involved in the development and use of Free Software.

The Free Software Movement in India

Free software was widely used in academic institutions in India for a long time. By the late 1990s, with the advent of Internet in the country, free software became more popular. Users groups started coming up in various part of the country. Indian developers started contributing to free software movement and India became an active player in this community.

The Free Software Foundation of India (FSF India) was inaugurated by Dr. Richard M. Stallman on July 21, 2001. FSF India strives to promote the concept of free software in our society. It also works for the development of free software in India. One of the major initiatives undertaken by FSF India is localisation[1] of free software for various Indian languages. Today the free operating system GNU/Linux is available in several Indian languages, including Hindi, Marathi, Tamil and Malayalam.

About GNU/Linux

GNU/Linux is currently the most popular Free operating system[2], although it is not the only one. Other Free OS's like FreeBSD are also widely used in specific situations. GNU/Linux has earned a reputation for stability, security and versatility.

GNU/Linux and other free operating systems are now being used heavily to deploy Internet servers. Free softwares like Apache are more popular than their proprietary counterparts. Day by day they are getting more and more acceptance.

GNU/Linux today comes with Graphical User Interfaces (GUI) which are very simple and interesting to use.[3] It comes with thousands of applications for common use. There is more than one word processor, even office suite, to choose from. Free email clients, web browsers, movie players and so on are available for day to day use.

Free Software and Developing Nations

The major contribution of Information Technology (IT) to society is the ease with which information can be accessed, copied or modified. But "owners" of proprietary software want to curb this freedom and withhold the potential social benefits of this technology by controlling what users (even governments) can do with software. In the Free Software Movement, we believe that computer users (including governments) should control the software they use. You should have the freedom to study what the program really does, to change it, to redistribute copies, and to publish improved versions. Free Software is software that lets the users have these freedoms. Non-free proprietary software keeps users divided and helpless.

In addition to its bad social effects, the cost of using proprietary software causes great harm in countries such as India where many people do not have a lot of money. Proprietary software tends to concentrate wealth, and thus increases poverty and contributes to the 'digital divide'. Free software does not mean the price is always zero - people often do pay for copies. But since people can redistribute free software to each other if they wish, those who are short of money can get it at zero price if they really want to.

Digital Exclusion and Free Software

The role of Information Communication Technologies (ICT) in common man's life is increasing. However, the majority of the Indian population is excluded from reaping its benefits. Major barriers here are cost of access to ICT infrastructures and lack of softwares in local language.

The cost of ICT applications is primarily due to two costs; the hardware cost and the software costs. While hardware costs have been coming down and are inevitable to a certain extent, software costs have acted as a major constraint in applying ICT applications in developing countries. Free software doesn't exclude people based on financial status. Using free software, the government can establish IT infrastructure at a lower cost. And access can be provided to every one.

Another issue is support for local languages and culture. As free software comes with source code and the right to modify them, it is easy to add support for local languages. Local language support can be added to free software without depending on any one. Free software already has support for several Indian languages, and there are efforts to create support for several more. Local developers and local software companies are involved in this.

Free Software and development of local IT Industry

India has a strong IT industry which provides services to clients across the world. Most of them provide solutions on proprietary software provided mostly by various multi national companies. These platforms are like black boxes. We can use them but we can never know what goes on inside. We can only be users of these boxes. This scenario always limits the scope of development of local IT industry.

With free software, the local IT industry will be building on top of a knowledge pool created by people around the world. For example, the GNU/Linux Operating System is a collaborative work by people around the world. The local IT industry can learn from free software and use free software tools to develop new solutions. For example, a local company can make an Indian language version of the GNU/Linux OS

without permission from anyone else.

Proprietary software companies, which are interested only in maximising their profit and their long term survival, will not be interested in the development of the local IT industry. They aim to boost their profits by making the local industry depend on them for information and tools. They cannot be expected to support any local industry which could become a serious business threat to them.

Around the world there are several local IT industries coming up using Free Software - for instance, various GNU/Linux OS distribution companies in India, Brazil, China and Japan. Free Software Co-operatives in Brazil are very interesting entities. Small scale IT companies are formed in Brazil providing various free software based solutions. Another compelling reason for governments to support free software is to save their revenue and use their funds for developing local industry. In many of its e-governance programs, the Chinese governmenthttp://news.bbc.co.uk/1/hi/sci/tech/1749441.stm has taken steps in favour of local free software industry rather than foreign proprietary vendors. This has helped to reduce the cost of development, and to empower local IT industry. The French government http://www.itworld.com/Man/2685/IDG011126frenchopensource/ also has decided to support open standards and free software for promoting local small and medium scale software companies. This is particularly relevant for India also. The government is the major domestic consumer for the ICT industry in India. This is a good opportunity for the SME sector in the country. These industries can grow by using and developing free software, and in the process contribute towards global free software resources.

Empowering Local Business, Social organisations and E-Commerce.

In today's globalised and information intensive economy, the use of IT is essential for development. Industries and social organisations, whether small or large, are trying to harness the possibilities of new technologies. Unfortunately, the cost of access to technology is often very high for users from developing countries. Also, there is strong discrimination in terms of right to access of new technologies. Even though free software is not about the cost of software, the ideals behind it ensure that every one has access to it whether you can pay or not. One will be able to get free software for marginal or even zero cost from the Internet or the local free software community. This is of advantage to business and home users from countries like India. Various free softwares for ERP[4], CRM[5], Finance, E-Commerce etc. will add value to local industry. Organisations like UNCTAD have realised the importance of free software in trade and development. In its E-Commerce and Development Report 2003http://www.unctad.org/Templates/Page.asp?intItemID=2629&lang=1, the relevance of free software is discussed in detail.

Another important issue is discrimination in access to technology. Till recently, there were serious restrictions on the export of strong encryption technologies. This prevented proprietary software companies from USA from making these technologies available to people from other parts of the world. These kinds of discrimination does not happen in free software. It is very interesting to note the reasoning behind the German Federal Ministry of Economics and Technology's support to GNU PG, a free software for encryption. It sayshttp://www.gnupg.de/presse.en.html, "The funding will ensure both private and business users the availability of a highly secure cryptographic software at a reasonable price". By supporting GNU PG, the German government is making the software available not only to the citizens of Germany, but to businesses and people all around the world.

Free software and National Security.

With proprietary software it is almost impossible for the user to know what goes on inside the software. The user just has to trust the software. As a consequence, governments around the world are

deploying free software in sensitive areas. Since the source code is available for everyone to see, there is hardly any chance for malicious programs to get into free software. The decision by the German government to support the development of GNU PG encryption program is a good example for the trust people have in free software. Millions of people seeing free software ensures that it is secure.

Technological Independence

The freedoms guaranteed by free software ensure that the user is not tied to any one. He has the right to modify and use the software for his requirements. This is of importance to all states. Free software enables everyone to study how software works and to build on it. New solutions can be made by modifying what is available. Consider the case of the commonly used free office suite[6], Open Office. An Indian version of Open Office can be built without having to depend on others. The source code of Open Office is available for any Indian to study, modify and distribute. If India wants to modify GNU/Linux for its own needs, it does not have to ask permission from any organisation or entity. All these are impossible in the proprietary regime. Around the world governments see free software as the right tool for local development of technology, industry and economy, while, at the same time, contributing to the development of humanity through sharing of knowledge across the borders.

Social Ownership of knowledge

Digital information technology contributes to the world by making it easier to store, retrieve, copy and modify information. Computers promise to make this easier for all of us. However, the system of copyright gives software programs "owners", most of who aim to withhold software's potential benefit from the rest of the public. They would like to be the only ones who can copy and modify the software that we use. The copyright system is not appropriate in many

fields, including software. It grew up with printing, a technology for mass production copying. Copyright fits in well with this technology because it restricted only the mass producers of copies. It did not take freedom away from readers of books. An ordinary reader, who did not own a printing press, could copy books only with pen and ink, and few readers were sued for that, even if anyone tried to copy by hand. Digital technology is more flexible than the printing press: when information is in the digital form, you can easily copy it to share it with others. This is a benefit that the new technology gives, and it is this benefit that is being withheld from society when copyright laws meant for an older technological environment are enforced. This very flexibility makes a bad fit with a system like copyright. That is the reason for the increasingly nasty and draconian measures now used to enforce software copyright.

An additional threat is now being posed to software developers (whether proprietary or free) in the form of software patents. While software patents have been implemented in the US, this is being seriously debated in the European Union. Many groups, including the Free Software Movement, are opposing the introduction of software patents because of the serious restrictions they can impose on innovation in software development. There is bound to be pressures on India from large proprietary software companies to implement software patents. The Government of India has to take care that we do not fall into the trap.

Applying Free Software

Education

Free Software can be a valuable resource in education. Not only can it be technically or pedagogically superior to proprietary alternatives, but it can also promote values we want students to attain through education, like:

- Freedom
- Cooperation

Indian culture always stood for these values. Sharing of knowledge and its use for development is an integral part of our society. We tell our children that Knowledge is something which increases through sharing. We encourage our children to help each other in learning by sharing acquired knowledge. Proprietary software tells the opposite. It sees knowledge as an economic commodity only. For them, Knowledge is something to be controlled for economic advancement.

IT education with proprietary softwares, with secret code, often reduces to a mystic ritual rather than a logical art. Though it serves the interests of proprietary companies, society will suffer in the long run.

Considering the fact that education plays an important role in defining the future society, it is essential that we avoid proprietary technologies and promote free software. The Government should adopt a policy of not using proprietary technologies in schools and colleges. We should create an empowered society with free software.

Local language computing

As most of the development in software takes place in the developed countries, and English has become a universal language, most software talk only English. This restricts the English-illiterate population in India from benefiting from ICT, and will contribute to increasing the digital divide.

By taking free software and adding support for local language, the benefit of ICT can be taken to a larger section of Indian population. Community efforts are underway to add local language support in free software. Free software support is available for many Indian languages like Hindi, Malayalam, Tamil, Bengla and so on. Government initiatives in this regard can help in accelerating these efforts. Government organisations like CDAC should make their work in local language computing available to society as free software.

E-Governance

E-Governance is an area where free software plays an important role. There are social and practical reasons which favour free software in governments. As e-governance is going to reach all citizen of this country, the choice of technology has to be made after a careful study. Some of the issues specific to e-governance are outlined in the bill proposed in the Peruvian Congress by Congressmen Edgar Villenueva. The e-governance system should address the following needs

- Free Access of citizens to public information

- Permanence of public data

- Security of the State and of the citizens

To guarantee free access to information for citizens, it is indispensable that the format for data storage not be tied to a sole provider. The use of standard and open formats guarantees this free access, making possible the creation of compatible software.

To guarantee the permanence of public data, it is indispensable that the use and maintenance of software do not depend on the goodwill of the providers, nor of monopoly conditions imposed by them. It can be guaranteed only by the availability of the source code.

To guarantee national security, it is vital to have systems that are devoid of elements that allow remote control or the transmission of non-desired information to third-parties. Therefore, it is required to have systems whose source code is freely accessible to the public, so that its inspection be allowed by the State, the citizens and a great number of freelance experts in the world.

Taking into account all these aspects, it is clear that free software is the ideal solution for e-governance. As free software belongs to society, it guarantees all the factors mentioned above. In addition to those mentioned here, issues like digital exclusion, cost of software, etc. also favour the adoption of free software in e-governance. We request the Government of India

to make it a point to use only free software to develop IT solutions and to distribute developed work as free software so that society at large can benefit from the work. Government contracts should ensure that work done with its funds are available to the public under free software licenses.

Micro enterprise

The Government of India says in it's policy that it will support the development of small scale industry and self-employmenthttp://www.aicc.org.in/common-minimum-programme.htm:

"Along with vastly expanding credit facilities for small-scale industry and self-employment, the UPA government will ensure that the services industry will be given all support to fulfil its true growth and employment potential. This includes software and all IT-enabled services, trade, distribution, transport, telecommunications, finance and tourism."

Free software provides an ideal choice in the development of small scale industry in software and IT-enabled services. Free software removes barriers in accessing software. It reduces the startup cost of small scale industries. Government intervention in developing and promoting free software-based micro enterprises in the country will contribute to social and economic development. Training programs and R & D efforts in free software and IT-enabled services will be of benefit.

The Government of Brazil has taken up model initiatives in this regard. They have several programs to promote cooperatives working in the free software sector. These small industries provide support to e-governance initiatives. They have contributed towards local technological development and employment. The Government of India also can look into the possibilities of starting similar initiatives here.

Social Sector

ICT can contribute significantly to social organisations, whether private NGOs or public organisations like hospitals, community libraries, etc. Unfortunately, since these organisations often work with meagre resources they fail to gain the benefits from these new technologies. Free software can help these organisations. Free software Geographical Information Systems like GRASS and Mapserver can be of use in the development of endemic surveillance systems. These map-based spatial analysis systems could be used for the development of decision support systems for rural development planning. Koha is an excellent tool which can help libraries to automate their working. Use of Information technology by these groups is very important as they usually address the weak and underprivileged in society.

Using free software is also a kind of self help for these social organisations. These organisations can share the developments with each other, thereby magnifying the benefit of ICT. As the cost of development is shared, it will benefit everyone. This is also the most sustainable form of software development because of shared cost, better resource management and maximum utilisation of work done. Organisations like UNESCO have understood the importance of free software in social development. They are trying to promote initiatives like the Cuban information network for public health, called Infomed, which is based on free software. More development sector organisations are following this step.

Science and Technology

The policy statement of the Government of India states:

"The UPA government will follow policies and introduce programmes that strengthen India's vast science and technology infrastructure. Science and technology development and application missions will be launched in key areas, covering both global leadership and local transformation. The UPA government will mobilise the skills and expertise of Indian scientists, technologists and other professionals working abroad for institution building and other

projects in the country."

IT has become an important tool in all areas of scientific and technological endeavour. Whether for research in physical or natural sciences, or technology, or for implementing technological projects, computers and software have come to play a major role. It is therefore important that the government take a decision to make use of Free Software for all such work. There are several reasons for this:

Free Software builds capability: Proprietary software permits the user to do only what the software company allows the user to do. This, more often than not, hides what exactly the software does. In other words, the user can only mechanically follow a given set or steps to do what can be done (not necessarily what he wants to do). On the other hand, with Free Software, it is often possible to decide what one wants to do and to find the way to do it. In cases where the software currently does not support a particular action, it is possible to make use of available expertise to add the required feature.

Free Software enables easy exchange of information: Proprietary softwares use file formats that are also proprietary and non-standard. As a consequence, it becomes necessary to often convert information from one file format to another, leading to wastage of time and energy and, possibly, loss of information. Free Software uses only open formats that are accessible by everyone. The information developed by one group can therefore be easily given to and accessed by another without difficulty.

These are in addition to the general features of Free Software mentioned earlier, like the freedoms it gives, low or no cost, and so on.

Governments for Free software.

Across the world, governments have realised the importance of free software. There are several initiatives in the world which benefit from the freedom in computing provided by free software movements. The following are a few representative initiatives from different countries in different continents.

Latin America

Latin American governments have realised importance of free software in their national development and has taken several important policy level initiatives to promote it. Some of the initiatives are given below.

The government of Brazil has decided to make use of free software for their IT needs. They are in the process of migrating all their information infrastructures to free software. Through projects like UNIVATES http://www.univates.br and SOLIS http://www.solis.coop.br, Brazilian universities are promoting the development of free software locally and creating small enterprises based on the same. Several cities like Sao Carlos use free software for e-Governance programs. There are several free software based community Internet centreshttp://news.bbc.co.uk/1/hi/technology/3250876.stm being established across the country for public use.

Economic sanctions and other issues contributed towards Cuba's greater adoption of free software in e-governance. The Information network of the Ministry of Public Health called Infomedhttp://www.sld.cu is based on free software. This is one of the first large scale free software based e-gov initiate. Organisations like UNESCO are trying to promote this system in other South American countries.

Other Latin American countries like Mexico, Peru, Argentina, etc. are using free software for various needs.

Asia

In Asia free software has made its presence felt in both public and private sectors. Unlike Latin America there is no strong government level policy support for free software, in Asia. Still it is being used extensively in Asia.

In India, President Dr. A P J Abdul Kalam has publicly stated his support for free software. He specifically mentions national security issues which

proprietary software introduces. e-Governance initiatives are using free software in several states in India. Indian academic institutions have been familiar with free software for long. Major public sector organisations in India like VSNL, BSNL and NIC are using and developing solutions in free software.

It has been reported that the Government of China is supporting the development of a local GNU/Linux distribution. The government is preferring free software solutions over proprietary solutions due to economic and security reasons.

Work on free software localisation for various Asian language is being done in almost all the Asian countries. This will further promote free software in the region.

Europe and North America

Free software development happens mostly in the industrialised countries in Europe and North America. The leadership they have in technology lead to this situation. Higher level of connectivity and access to software also would have contributed.

Governments in industrialised countries are adopting free software due to practical reasons, like better quality and security. At the same time, lobbying by proprietary interest groups is very intense in these countries.

The regional government In Extremadura, Spain, has charted out a development program based on free software. As part of this, they have deployed 80,000 computers running free software desktopshttp://www.gnome.org/press/releases/extremadura.html. They are further developing e-governance solutions and local industry based on free software.

Due to national security reasons the Government of Germany prefers free software over proprietary alternativeshttp://lwn.net/Articles/17930/. As mentioned earlier in this note, the German government is supporting the development of free software for secure e-mail communications. The

world wide network of the German Federal Foreign Office is deployed using free softwarehttp://europa.eu.int/ida/en/document/2204/470. This network covers around 200 countries and employs 10,000 people. Cities like Munich are shifting to free software.

Due to reasons like cost, interoperability and transparency the Government of France is preferring free software over proprietaryhttp://petition.eurolinux.org/pr/pr15.html?LANG=en. The French Agency for e-Government (ATICA) has been given the task of looking into free software. Italy is also following France by the way of introducing legislations which stipulate the use of free software in public institutions http://www.publiweb.com/pi/09041021.shtml.

The US government also is using free software heavily. And many major free software service companies exist there. The use of free software by the Government is also contributing to the development of more free software. Private companies are also working on the development of free software.

Africa

Free software is helping Africa to benefit from new information technologies. Various developmental projects in Africa use free software. Recently, the South African government came up with a law which stipulated the use of free software in public institutionshttp://news.zdnet.co.uk/software/0,39020381,2129893,00.htm. Brazil and South Africa are working closely on free software and social developmenthttp://www.softwarelivre.org/news/2742. The CSIR of Soth Africa has a major programme for using free software in computer literacy programmes, enterprise resource planning and many other areas.

Conclusion

The material given above, hopefully makes it clear that the adoption of Free Software is the most ideal for any country, especially a developing country like India. It has advantages in security, stability and technology.

When we consider the fact that proprietary software makes us dependent, and takes away precious financial resources from our country, in addition to its other drawbacks, we are left with only Free Software as an option. The Free Software Foundation of India has been campaigning for the use of Free Software in the government and all its agencies, and there haas been slow progress.

In this context, we request you to use your good offices to argue for the use of Free Software only for governmental purposes.

Footnotes

... localisation[1]

> Localisation means making the software capable of handling local languages effectively

... system[2]

> operating system is basics software required for using a computer

... use.[3]

> A GUI helps computer users to give instructions and run programmes by using a mouse to select them from a menu instead of having to remember the commands and typing them.

... ERP[4]

> Enterprise Resource Planning

... CRM[5]

> Customer Relations Management