A Perspective on Open Source, Xastir, Amateur Radio and Linux

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Linux and the Open Source way of thinking have recently been in hot debate throughout the world. Open fighting on this subject has brought out merits on either side of this discussion. Each point of view is applicable in different ways. This is my attempt to discuss how Open Source may be used to benefit Amateur Radio, and how I have used these ideas in my own project.

What is Open Source

Open Source can be briefly described as a freely open development of a piece of software or any product containing computer code. That is, one where the author or producer, gives out his/her code and/or schematics for those interested in using that product or software. The idea is to give anyone interested all the information that was used to produce that product or software. In this case, Open Source can refer to knowledge of the inner workings of a product.

Differences in the definition of Open Source are where the battles come in to play. On one end of the spectrum, some feel that Open Source also means free in all terms: freely available source, free to down load, free to use in any way. Some feel that this is the only way software should be distributed, and that large companies, such as Microsoft, are surely evil for asking money for their software, and even more so because they don't give the software's code out for all to see. On the other end of the spectrum are those who feel that there should, be limits on what users have rights to, and want to see income for their time and hard work.

Over time, I think that people will discover that there is a way to incorporate all of these views, as each has its own applications. Commercial ventures can limit their licenses to benefit from Open Source without freely giving their product to users; hobbyists can work their particular ideals into a license to accomplish their goals. Open Source should be considered the means of getting people involved with a project and allowing anyone to help the project grow and change. This can be accomplished according to the preferences of each project's creators.

Allowing many different people the opportunity to add their knowledge to your project can be a great resource. Having them add code, fix problems, or work on documentation can save you time and add new ideas and perspectives. With Open Source, contributors to the project tend to work on their own areas of expertise or interest, which allows you to concentrate on what you want to do with the project and the things that you enjoy. It also forces you into the role of project manager or team leader, where you decide which properties to add and what new directions the project will take.

In every flavor of an Open Source development, no matter what perspective, source code or major parts of it are freely open. It is merely the end user license that has differences in restrictions.

Open Source and Linux

L:inux is an operating system that has also been in hot debate. It is a well-known example of what Open Source thinking can do: Linux was thought up by one man, then grown by thousands, gaining the strength to seemingly threaten even the multi-billion dollar company, Microsoft. Being able to make that claim is a feat on the same scale as that of those flaky startups, Microsoft and Apple computer, who revolutionized the computer industry in their time. Just as Apple and Microsoft created then, Open Source ideals have created a new way of thinking that may bring on a revolution of new possibilities.

When Linux was first developed, it was just part of a solution. It was the core part of an operating system, but it lacked many of the things that people would need to use it. Even before Linux, GNU was formed, with a mission to build a Unix-like operating system that was completely free. This was a strange idea at the time, but suddenly GNU had most of the pieces that Linux was missing, such as services, compilers and support-level software. In turn GNU found that Linux provided the necessary operating system. The two together form the basis of the Linux system, while hundreds and thousands of other pieces make up the rest. A large group of people, spread around the world, are freely making Linux what it is today, and making it better all the time. The idea was not new, but the idea of developing a project of this type on such a large scale certainly was new!

A. common interest and Open Source ideals have brought together a great resource of people with real knowledge to build upon an open-code base. In this environment their many egos and talents collide, and somehow they manage to produce something. People with new ideas place them out for all to discuss; programmers create a product; others fix the mistakes they left behind; still others make it run faster and add new features; together they inspire those that can port it to other operating systems; somewhere in between are the artists who make it look nicer and work better. All these people work together, and in the process create a standard on a global level, all in plain view.

How can Hams Benefit

In some ways HAM radio is uniquely suited for Open Source projects. HAM is specifically aimed at the art and science of communication. Open Source is also about communication and doing collaborative work. Its ideals bring into play open standards for communications between unlike systems. Most of the Internet's ability to communicate across diverse machines is based on open software ported from one platform to another. Programs we use every day (like sendmail, pop3d, old NCSA httpd, Rpd, and more recently Apache and perl) were created in the spirit and ideals of Open Source and were distributed, almost solely, with source code. Any one who down loaded these programs could freely modify the application, fix problems or add functionality to better suit their needs. Those who couldn't add to the code benefited as well by receiving faster fixes, more stable code, and new features. These are things that small groups working on weekends or evenings can particularly benefit fi-om. Freely available source code can bring many small groups or individuals together to form larger groups with the same interests, which would benefit almost any project.

Since Hams commonly communicate (or at least attempt to) with people all over the globe, using Open Source thinking can make projects available to many more people. Anyone can make modifications so

those programs or devices work with their native language and local equipment. If there are standards to follow, doesn't it make sense to have them available to all Hams, not just to the ones who can work in the English language? In the APRS(tm) arena alone, how many others can't use the system because it is not in their native language? And since Ham radio is about communication, doesn't it make sense to allow anyone the ability to use and add to these projects?

Recent predictions that Ham radio is getting stale, that it is not interesting enough to recruit new Hams, make this issue even more important. Open Source allows people who may not be programmers or even involved in Ham radio an opportunity to look at some technology. Those who play with the code or device may find the talent within and make a contribution, creating more interest in Ham radio. It may even make some of us a little smarter in the process. Open Source provides the benefit of spreading knowledge, allowing technology that is usually hidden to become available to anyone who cares. If one person is inspired to add to the community effort, then many more interesting projects may develop to entice people. This can only add wealth to the Ham community and to the hobby.

Commercial Projects

Most groups opposed to Open Source projects feel that their intellectual property is at risk. This certainly may be the case in most industries. The Open Source model may not function well in all business environments. Commercial businesses selling products to the Amateur Radio community, on the other hand, may owe their existence to the hobbyists themselves While this doesn't happen in all cases, there are many occasions when the devices available were inspired by a Ham or a group such as TAPR, BayCom, or the Ottawa Amateur Radio Club. It is the work and inspiration of many individual people that grant us such wealth in Amateur Radio operation- Many companies were started thanks to such people who had the good sense to add to the community.

Companies can use the Open Source model to allow Hams to help find errors and resolve them. As Hams have done in the past with solving electronic quirks in equipment and kits, now too can they find software quirks. As more and more equipment has the need for computers and embedded controllers, so too the need arises for people to spot software problems, This industry serves a community perfectly suited to this type of open exchange. Rather than the company using resources tracking down some obscure bug, we may find that some Ham has the answer the company didn't see. The company gets an easy fix and more time for other business, and we all get a better product. And as laws have protected companies' electronic designs in the past,so too can new and existing laws protect their software.

My Project, Xastir

Xastir came about for two reasons. First, I wanted to build a tracking station for my local balloon group. Second, I use Linux and didn't see any signs of getting a typical APRS(tm) program, that is, one with graphic display, maps and messaging. Also by typical I mean with source code according to the Unix/Linux model. If such a program was available, for which I could modify the source code, I would have gladly paid the registration fee and sent my meager additions to the author. Since there was not so much as a binary version on the horizon, I proceeded on my own.

Xastir stands for X windows Amateur Station Tracking and Information Reporting, and is an APRS(tm)-like program. Although it is unfinished, it does fulfill a need and many people in the Ham community are using it. This project wasn't necessarily going to be an Open Source project. I was writing it for myself and my club, but due to the many requests for a Linux version of APRS(tm), I finally decided to make my project available for all to see. It is distributed as Open Source to reap the benefits of this model, both for me and for any other person interested in this project.

This project is fairly young and has been Open Source for a very short time, but I have received nothing but positive response from the community. Many have helped this project along with little things here and there, offering what knowledge or code additions they could provide. Hams from around the world have conveyed interest, all offering what ever help they can. From Germany, a Ham sent suggestions and code to help me change my software to function within a Unix-type file standard. From various locations in the United States, I have received faxes and code pieces for adding Weather Station decoding. In the North West US, I hear that my program has been ported to BSD and Sparc, with progress on a Solaris version. All of these contributions will help me add to my software.

With the source code available conversions to various languages can be worked on. Unknown types of weather equipment, TNC's, operating systems, and local preferences can be added. It should allow more talented people than myself a base to work from and improve upon.

Conclusion

Open Source can mean many things to many people. At its core is the idea that with freedom of open code development, benefits will come from interested users and programming professionals. These can affect a project's development in more ways then just the code itself Time and trouble from bugs in development can be reduced by some members of the community interested in your project. Larger teams can be formed to better test and implement your requirements. Open knowledge can better your project and inspire others to create their own.

APRS(tm) is a Trademark of Bob Bruninga