

An Ethical Commentary on Software: Proprietary vs. Open-Source

By: Courtney Andrews, Eric Culp, Chad Shinsato

You just bought your first home from Microsoft Inc. Your new home was hyped up because of its new proprietary standards that make it more compatible with other Microsoft homes, more secure because its standards are closely guarded making their locks foolproof and easier to use since only Microsoft technicians will be able to help you with any problem.

A few weeks after purchasing your home, a light in the bedroom burns out. You grab your ladder to change the bulb when you find out there's no way to access it because Microsoft has installed a thick glass dome to protect their proprietary secrets. Then you remember the emergency hotline number Microsoft gave you. After calling you find out it'll cost \$60 for Microsoft to send a technician to fix the light bulb, and you will also have to leave your house unlocked so the technician can get in. The technician also warns you that it's a federal offence to break any security measures protecting their proprietary standards. You decline their service and secretly decide to try and fix it yourself.

After several attempts to peacefully open the glass dome you finally resort to a hammer and chisel. When you open the light fixture you discover that the bulb isn't measured in volts but in some new units called 'gates' and has a strange six prong connector. You scour the stores and internet for a six prong 300 gates light bulb, but the only place you can find one is the Microsoft website for \$20 each, plus an extra \$5 shipping and handling. Disgruntled you decide to leave the bulb and go buy a standing lamp.

You bring home your new lamp, but can't find an outlet that fits the power cord. You call technical support and find out that Microsoft doesn't support that brand of lamps, but you can get a free patch to fix the problem. After waiting five days the patch arrives, but the lamp still won't work. You call Microsoft and they apologize saying a new patch will be release in a few months to fix this problem.

Introduction

Fortunately this is not a real story, but it does exemplify some current issues with the software industry that need to be ethically examined. This paper explores the social justice of software. More specifically it compares the vastly different ethical implications of proprietary software and free open source software. These implications apply to all people who use software with a direct focus on those who are poor or disadvantaged in some way. As globalization increases, it is becoming more important that concepts of social justice and fairness include everyone. The paper shows that when software is proprietary, it unfairly excludes users who could benefit the most, but when software is free and open source it is a means to a just society for all.

Background

In order for a clear understanding of the arguments presented here it is necessary to define what is meant by proprietary software and free open-source software.¹

Proprietary software does not necessarily have to cost money. Software that costs no money can still be proprietary. If its use, redistribution, or modification is prohibited; requires you to ask for permission; or is restricted so much that you effectively cannot use it freely, it is proprietary.

Free software is software that comes with permission by the creator for anyone to use, copy, and distribute. This can be done by verbatim, with modifications, gratis, or for a fee. In particular, this means that source code of that software must be available.²

Because of the ambiguity of the word *free* in the English language many people tend to associate the word with cost, which is not the case here. One “should think of *free* as in *free speech*, not as in *free beer*.”³ The ‘freeness’ of the software is what is important to poor or disadvantaged members of society. It is this quality that allows them to take advantage of the benefits of that software, its use and knowledge, with minimal or no cost.

Software is unique from other traditionally produced products since it is digital, having no tangible form. This feature is important because unlike other resources or products produced, it is infinitely abundant. Once created, software may be copied, distributed and reproduced without ever affecting the original software owner’s copy. Currently, music, videos and other content are digital as well, but what separates software is its profound usefulness. Other digital media serve to provide enjoyment, whereas software is meant to create value and provide benefit to the user. Software has two distinct uses: the first is the tasks and outcomes that the direct use of the software produces, and the second is the understanding it can provide to create better software.

Most important to the individual, software allows a person to connect to the Internet, where they can find jobs, sell goods and services, find information, etc. The social benefits of computers/software are immense as well; control of defense and national security systems, airline travel, banking, and so forth. The benefits and positive empowerment of people that is inherent in software is immeasurable. In light of software’s unique abundance and its near unlimited usefulness, the fair and socially responsible thing to do is to make software free by making it open source.

What is *fair*? What is socially *just* or *unjust*? Fairness and social justice⁴ are about equality and treating people similarly. All people, regardless of race, creed, or nationality should be treated equally because every person is human.

There are many fundamental needs that each person requires to survive: food, water, shelter, and the like. In the modern world, humans are increasingly reliant on technology which widens the already existing social, economic, and financial gaps between those who have access to it and those who do not; this gap is called the Digital Divide.⁵ Technology is becoming necessary for the survival of societies and individuals. Lacking these general technologies found in society creates a barrier from entering the competitive job market. Essentially, technology and access to information are becoming as critical to survival as our fundamental needs. Therefore, every person deserves equal

access to information, technology, and excluding them from it is a social injustice. One could argue that everyone has equal access to information and technology, but many simply cannot afford them and therefore have not earned access. This may be true of certain luxuries, but technology and information, particularly software, are becoming crucial to human survival. It is under this notion that software is a necessity to human survival. Due to this, social and economic statuses are not 'good' reasons to treat individuals unequally. But, these are the reasons why individuals do not have equal access to proprietary software and all of its benefits. Free open source software is not restricted by social and economic statuses, which will create fairness because it is open for anyone and everyone to use. Therefore, free open source software is the only socially just form of software.

Computers and software provide juxtaposition in the sense that one is entirely useless without the other; thus a claim must be made about the importance of software over hardware. However, they are not one and the same, and both have exclusive properties; computers are tangible goods that are limited in number, software is abundant and easily reproduced. Both hardware and software previously were scarce in developing nations, but recently there are numerous charitable organizations⁶ that are donating computers to these nations. These computers, while outdated compared to current standards, are still functional, but often have aging versions of proprietary operating systems and applications on them. This is a problem for three reasons: aging proprietary operating systems are not well supported; the users become unfairly locked into proprietary formats because they don't have a choice of what is on the computers given to them; the users do not have the financial resources to upgrade to expensive newer versions of the operating system. Because of the efforts of these organizations computers are becoming more widely available, but the software remains an obstacle. As the number of computers increases, their price decreases and at the same time the value to the consumer running the software increases.

Ethical Implications of Software Power and Unfair Lock-In

Keeping in mind then that software is what is most important when it comes to technology dissemination in disadvantaged areas; there is currently a choice to be made when it comes to acquiring software. One can either pay the high cost of proprietary software or use open source software at no cost. So why argue that all software be open source if the choice already exists? If some people are willing to pay for proprietary software why not let them, and those who can't afford it can use open source. Free open source software is the fair and socially just option because it provides equal opportunities for everyone regardless of economic or social status. Another equally important reason is that proprietary software creates an unfair balance of power in favor of the companies who produce it and unjustly puts society at their mercy. The power stems from the proprietary nature of the software itself: once users have created their files and systems based on proprietary platforms and formats, they become unfairly locked into continuing their use of proprietary software. User's information and data is then in a format that can only be handled by the software in which it was created, and switching to something else bears the high cost of starting over. In the business world, this is called Vendor Lock-In. It is a strategic method of retaining customers, but is unfair and unjust to customers who are only trying to implement a software solution. As new technologies are discovered,

the user must purchase the new version of the proprietary software in order to take advantage of them. Additionally, these new versions of software are only released when the company has sufficiently profited from the last one. And because of this lock-in that occurs, users are forced to pay the high costs of proprietary software. So because of these issues of fairness, proprietary software should not be an option and all software should be free and open source.

Benefits of Software

Another primary issue associated with proprietary software is its cost. Many people in developing nations cannot afford the software and so therefore it is unjust because it does not treat all people equally. Those who cannot afford the software are excluded from its use and benefits. Free open source software on the other hand is typically available at no cost, so there is no unfair balance of power created by lock-in and it allows everyone a fair and equal opportunity to take advantage of it. One of the most important benefits of software is that it enables people to access the Internet. The benefits of having access to the Internet are too numerable to list here, but the most important is the access to information. "For any community to function efficiently and productively, a basic minimum stock of usable information is essential. Every society needs to acquire, store, and exchange this basic stock of information to allow it to survive."⁷ The Internet is perhaps the cheapest and most effective way for communities to achieve these informational goals. This is especially important in poor and underdeveloped areas of the world that would benefit the most from access to information. The Internet can provide educational resources to schools that can not afford the high cost of text books. The Global Text Project⁸ is an online effort in which academic textbooks are written and their entire content is openly and freely available on line for the purpose of supplying information and learning materials to poor nations. The people living in these areas can not take advantage of these types of resources without computers and software. The amount of money that schools in impoverished areas have to spend on technology is very limited, so if they do not have to pay the high costs of proprietary software they could potentially use the money to purchase more or better computers which provides opportunities to more people.

Another benefit of Internet access is the availability of other economic markets. Take for example a village in Africa that creates crafts and sells them to tourists. If the people in this community had access to the Internet, they could sell their crafts to people all over the world and their market would no longer be limited to the tourists. They can then generate more wealth that they can use to stimulate their local economy as well as the economies on the Internet. However, free access to software allows people to create wealth, not only for themselves, but also for other people around the world. These remunerations are available to anyone, but many people are prohibited from tapping into them due to high software costs. The fair thing is to make sure everyone has equal access to software, subsequently all software should be free and open source so that no one is excluded from the benefits it provides.

Goals of Software

In most instances, the primary goal of proprietary software is to make money. This is why the software that companies produce is proprietary. The code is protected by

intellectual property rights and can therefore be exploited to make a profit. Software companies, like most other companies, have this as their primary goal: maximize profits for their shareholders. Outside of following the laws of the societies in which they operate, proprietary software companies are responsible only to their shareholders and no one else. This becomes a problem in certain cases where proprietary software companies control overwhelmingly large shares of their markets. This creates an unfair balance of power over society as so many users rely on the products of these companies. Because of the proprietary formats, new users who want to do business or collaborate with existing users of proprietary software must also use the proprietary software, and the power of the software companies grows in a reinforcing loop. This is not fair to society because the software companies act in the best interests of their shareholders and not in the best interests of the society that they hold power over.

Typically software companies do not exploit this power, because in the long run it would be bad for business. However, as society grows through globalization and sheer population growth, it is no longer enough for companies to simply follow the laws and passively interact with society. Software companies need to have a responsibility to society in addition to their shareholders, they need to actively be doing ‘good.’ Doing ‘good’ is doing what is fair and socially just for everyone. All members of society need to have the same opportunities, and to not be excluded because they do not have the financial resources to be included. This is particularly important in the case of software from which so much value can be created. All members of society need to have equal access to software. Free open-source software does this. It gives everyone equal access to software along with the benefits and opportunities created by it by allowing people to use, share and reproduce it as long as it remains *free*. Like proprietary software companies, free software must still be responsible to its shareholders, but instead the shareholders are all members of society. So, by giving equal access to everyone, there is no way that power over others can be gained or exploited; therefore, social justice is achieved. Free software allows all users to have the same access and rights.

Intellectual Property Rights

The profit goal of proprietary software is a legal right that is secured by the Intellectual Property Rights laws of societies. Intellectual Property Rights have been established to give exclusive rights to the developers of the property and therefore, a means of profiting from it. It is a widely held belief that Intellectual Property Rights are necessary to stimulate innovation and invention; people will create and innovate only if they can profit from it.⁹ Although not an ethical issue, but important to countering argument against it, the idea that Intellectual Property Rights lead to innovation and development must be addressed. In other businesses and industries this might be true, but free open source software is already being produced and widely used.¹⁰ The open source model of production is primarily seen in software, but it is spreading to other products.¹¹ So it is not necessarily true that innovation and development are encouraged by the rights to profit.

Intellectual Property Rights in software create a situation known as the “Tragedy of the Anticommons.” Michael Heller, who is credited with initially coining the term, defines it as “multiple owners are each endowed with the right to exclude others from a scarce resource, and no one has an effective privilege of use.”¹² Software is not exactly a

scarce resource, and proprietary software companies are using it effectively to create profits for themselves. However, in light of the fact that software has so many benefits, and is an infinitely abundant resource that is potentially available to everyone with a computer, reveals that as a resource it is not being used as effectively as it could. In other words, its use by everyone is prevented by the goal of profit, so it is only effectively used by a small group of individuals.

In the case of software, it is not in the best interest of society to grant exclusive rights. These rights come at the cost of everyone else's benefits. In other words, once the software is created, potentially every single person who has access to a computer could benefit from it. This is not an issue of fairness because it is most certainly fair for people to be able to profit from their work; instead it is an issue of utility. From a simple utilitarian perspective, utility is some thing or action that creates the greatest happiness. In the case of software, which can potentially benefit everyone, the greatest utility is created by making software a free and open source. The utility (monetary reward) experienced by the relatively few individuals who create proprietary software, is by far outweighed by the utility (benefits from and value created by software) experienced by all the people who have potential access to it.

Fairness of Income from Software

If software is created as free and without means of profiting from it, this creates a question of fairness in regards to the developers of proprietary software; many of whom make their living by developing it. If the software is free, then it cannot be bought or sold at a profit in the traditional sense; therefore, developers cannot make a living from it. Is this fair to the developers that they spend their time and efforts producing something that they can not make a living from? Even though the benefits to society are so great, it would not be fair to expect software developers to expend their time and energy without being rewarded. But this is not the point of free open source software. The developers who create free and open code do so for their own personal reasons, whatever they may be.¹³

If all software was to be created as free open source software, then the current production model of software companies would dissolve. Software would be produced in different ways and the incomes and revenues of the people working in the software industry would be generated in new ways that is not the typical model of producing and selling a product. Red Hat, one of the most successful and profitable open source companies, is one example of a new business model based on open source software. Red Hat employs approximately 1800 people world wide and in 2006 generated 278 million dollars in revenue.¹⁴ Red Hat does not sell software, but instead sells subscriptions and support for their Red Hat Enterprise Linux, which is developed in conjunction with open source community developers.¹⁵ Red Hat is evidence that money can be made from open source software.

The question of fairness to developers still remains, is the open source model fair to the developers of proprietary software? Without the ability to profit from selling software, proprietary developers would not be out of a job, but would instead be in different jobs. It is almost certain that the use of computers and technology will not go away. One theory is that in the future, businesses; industries; and governments will drive the innovation of new software rather than proprietary software companies developing it

for a profit. Businesses will still have goals that they want to achieve through using software and instead of purchasing a software product; they will purchase the services of developers to develop the software for them even if the code is open. This model would be beneficial in many ways because business would get a better, more customized software solution and developers would still have jobs developing software. With all codes being an open source, developers could produce better software by being able to focus on innovation rather than solving problems that have already been solved in other code.

There are additional ethical implications of the incomes and revenues generated from software production. Currently, the wealth generated by software production goes to the individuals who produce it and rightfully so. However, once software is created, *everyone* has the potential to benefit from it. These benefits come in two forms: the outcomes of the software's intended use, and opportunities to profit from it as in the case of Red Hat. Presently there is great disparity in the distribution of wealth amongst all of the people who have the potential to profit from software. The software industry is a multi-billion dollar industry and most of that wealth is held by a relatively few people,¹⁶ particularly those people associated with proprietary software companies. If software is proprietary, it creates utility, in the form of money¹⁷, for the individuals who own it. With open source software, then everyone has an equal chance at deriving utility from it; and therefore, the software can provide the greatest amount of utility, in the form of money and happiness.

Consider two people who have each received ten dollars. The first person lives in the United States and makes 50,000 dollars per year. The second person lives in a village somewhere in Africa and makes less than 100 dollars per year. Given this situation, the person in Africa will receive the greatest utility from the ten dollars. The amount remains the same between the two people, but because one of them is significantly poorer than the other, the ten dollars has a greater impact on the person from Africa, whose existence is very difficult because of a very limited financial situation. Therefore, if all people have equal opportunities to profit from software, the wealth created by software can be distributed more uniformly. Greater utility is created relative to the amount of money generated, because the incomes are being made by many people rather than the few who would otherwise own the software.

Software and the Environment

Several of the ethical implications of proprietary software discussed here have been in regards to financial resources. One final matter to be addressed is the effects of proprietary software on the environment and how those impacts also have ethical implications. In the year 2007, environmental issues are becoming increasingly important as we face the facts that the planet's natural resources are limited and outcomes of human actions have direct effects on the environment and on the earth itself. This in turn affects people and their ability to survive in their environment. Because of this cause and effect relationship, anything one does negatively to the environment is a negative action against the inhabitants of that environment. So, by this logic, as humans, everyone has a moral obligation to not harm the environment, lest they be harming society itself. Furthermore, as an individual living on the earth, one has a moral duty to respect the rights of all other individuals and protect the shared environment.

What does this have to do with software? In many cases, proprietary software requires the hardware to have a certain capacity.¹⁸ A situation is created where individuals may have perfectly functional computers, but they must discard them in order to take advantage of the new software or even to become compatible with others. The waste from computers is in most cases particularly hazardous. Cathode Ray Tube monitors contain large amounts of lead, which if disposed of improperly, can contaminate soil and water sources.¹⁹ The computers themselves contain numerous other potentially hazardous chemicals.²⁰ Not only is there hazardous waste created from the old computers, but precious resources are used to create new ones unnecessarily because there is no reason why proprietary software companies cannot create new software to run on older hardware.

Free open source software is typically designed to handle all makes and models of computers. This not only includes makes and models, but old hardware and new hardware. There are distributions of the Linux operating system that are known to run on computers that are ten years old²¹, thereby extending the life of the computer significantly. Free open source software allows users to use their old hardware longer, which reduces the need to purchase new computers, and in turn reduces the need to unnecessarily use up the earth's natural resources.

Conclusion

When software is proprietary it is unethical from a standpoint of social justice. It unfairly excludes those who could benefit the most from its use; it widens the gap between those who have financial and economic resources and those that don't, and in some cases proprietary software puts an undue burden on the environment. Currently the free open source community is very small compared to that of proprietary software, but it is appearing more and more often in the news and building momentum as businesses and governments are considering it as a viable option for their computer infrastructures. The more individuals, governments, and businesses use open source software, the better it will be. The greater impact it will have and the more it will benefit those who are poor and less-fortunate and therefore it will lead to a more socially just society.

Works Cited

¹ There is a division between the 'Free Software' and 'Open-Source Software' camps. The difference has to do with the different licenses applied to the software. For the purposes of this paper the two are the same, so they will be used interchangeably.

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<http://www.redhat.com/rhel/>
- ¹⁶For instance Bill Gates and Paul Allen, who according to Forbes are the #1 and #19 richest people in the world, respectively, holding nearly 80 billion dollars between the two of them.
- ¹⁷We consider money to be utility in the sense that it allows people to fulfill their basic needs thereby providing the ability to obtain happiness. People who are starving or unable to afford health care when they are sick are generally no happy.

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²¹ A distribution of Linux called Damn Small Linux has been known to run on “10-year-old Pentium 150MHz with only 96MB memory” as tested by Russ Ethington.

