

(Literal) World Domination

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Abstract

Computer and video games are big business. FOSS is already competing in the general software market against proprietary software and now that gaming is big business FOSS needs to compete in this area.

Many people, including strong FOSS proponents, believe that games is one area where open source can not compete. I hope to show why this theory is wrong and how FOSS is already winning this ongoing battle. This talk will also explain why you should care about FOSS games, even if you've never played a computer game.

Lastly, this talk will also hope to explain some tools and tips for making your game ideas reality. Come and read how FOSS games can lead to world domination in real life!

Why Are FOSS Games Important?

Pricewaterhouse Coopers forecasts annual revenue of \$37.5 billion for the game industry in 2008¹. FOSS is already competing in the general software market against proprietary software, and now that gaming is big business FOSS needs to compete there too.

Sadly, many people, including strong FOSS proponents, believe that gaming is one area where open source can not compete. Even more disappointingly, many FOSS advocates have a general attitude of apathy towards computer games. “*I don't play computer games*” or “*It's only entertainment*” are common reasons for this attitude. If people within our own community are apathetic, then why are FOSS games important?

¹ Los Angeles Times, (2007) ‘*Halo 3*’ guns for \$150 million, <http://articles.latimes.com/2007/sep/24/business/fi-halo24>

DRM Galore

As free software advocates and users, one of the most important freedoms that we associate with our modern personal computer is that of being able to use the PC how *we* want. We can create any type of software we wish, proprietary, insulting, obscene and, most importantly, FOSS software. We don't have to pay any corporation to develop on the PC or redistribute the software we create.

Yet, when you look at the video game console sector, you will see that none of these freedoms exist. Computer game consoles are full of DRM designed to restrict how they're used and who can use them. Every game developer pays a handful of console companies for the *privilege* of releasing games and software on their associated systems.

Systems exist, such as mod chips, to grant you the ability to modify your system, but why should you have to “hack” your property to access it? As well, in many parts of the world these chips are considered illegal and using them often makes it impossible to continue using your device for commercial games or to play online. There are also large groups lobbying to keep these systems illegal and pushing for enforcement of the extreme penalties for use.

At first it seems that some of this is changing with the Sony Playstation 3. All PS3s come with an option to “install other operating system” located in the system menu. However, the playing field is not even close to being equal. Other operating systems are restricted by hardware from accessing the 3d graphics accelerator, crippling any type of game development. This is a text book example of defective by design².

Despite this highly restrictive environment, consoles are flying off the shelves. People like to play games and are even willing to give up their freedoms for a few good hours of entertainment. It is vital that FOSS provide an equally compelling user experience if we want to attract more users.

Linux on the Desktop

Linux on the (average person's) desktop has been a hot topic in the FOSS world for a long time and games have a significant role to play in this area.

Taking a quick survey of all the computer-like devices that I use, almost every device I use daily runs Linux apart from one. I use Linux on my desktop at work, my laptop runs Linux, on my home server I use Linux and my ADSL router runs Linux. Guess what my desktop machine runs? Windows³! Why do I personally still use Windows? Computer games! Computer games are also one of the biggest reasons people still dual boot. It is a story I have often heard: many people who would otherwise only use FOSS still need Windows for computer game. Some instead purchase DRM laden gaming console.

If we want Linux on the desktop to succeed, users have to be able to play games on their computers. However, if we expect commercial game developers to take the Linux market seriously, Linux needs to have a larger presence on the desktop. It's a chicken and egg problem, but open source games provide a solution. Many people won't convert to Linux if they can't play a simple game of solitaire. If people can play games on their computers, they don't care what operating system they're using, making the lower cost of ownership of FOSS that much more attractive.

Why FOSS is Already Winning

The situation for FOSS games, however, is not all doom and gloom. FOSS is making headway from many different angles. There are already many FOSS games out there, many of which are high quality and available in many different genres. FOSS is also already being utilised in many commercial games development environments, both in the underlying tool chain and actual source code in the games themselves.

² Defective by Design, Free Software Foundation, <http://defectivebydesign.org/>

³ Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

The First Games were FOSS

The history of computer games, like that of software in general, is firmly rooted in free access to source code. Spacewar!, DUNGEN and MUD were all very early computer games whose source was shared among the many universities that had access to early computers. Having the source code allowed the games to be ported to many architectures and for new features to be added, driving early and rapid development. Following the same paradigm of general software, it was not until much later that proprietary and closed source games would become dominate.

Commercial Games use FOSS

FOSS is also making headway from a totally different direction. It is hard to find a computer game these days which doesn't have some type of FOSS involved in it's development. This goes for the tiny games found on mobile phones all the way up to the "Triple A" titles for PCs and consoles. Civilisation IV, Eve Online, Battlefield 2, Command & Conquer: Red Alert 3 and Freedom Force (all Triple A titles) have used FOSS components in their games. Eve Online is completely scripted in stackless Python, and the company has made significant contributions to the stackless code base. The list of Eve Online developers and stackless committers is strikingly similar.

While cost per line of code is a significant reason that FOSS is making large inroads into commercial game development, a number of other factors are making a bigger impact. Ease of development and use has becoming increasingly important, which has lead to FOSS scripting languages like Python being used. The general purpose nature of these languages also means that it is much easier to hire developers than it would be for more specialised (and proprietary skillset driven) domain areas. Stability matters as well, especially important for online games where they must be up 24 hours a day, 7 days a week. Like the Internet in general, the majority of MMORPGs run on a FOSS platform.

Numbers

Raw numbers show us that FOSS games can and already are competing against commercial games. Table 1, below, shows the sales figures of the top commercial computer games in 2007 while Table 2 shows the number of downloads for the top FOSS computer games hosted on SourceForge. FOSS games are the clear winner when comparing sales verses downloads, assuming a one-to-one person/user correlations between sales and downloads.

Though, it might be said comparing "sale figures" to "downloads" is not a fair comparison. It costs almost nothing to download a FOSS game, while many commercial games cost upwards of \$AUD90-\$AUD130. Downloads for the latest Star Wars game were recently reported:

"A demo of the latest Star Wars game has broken download records, combined with PlayStation Network downloads, the figure comes to 2.3 million."⁴

yet a figure of 2.3 million would put this record breaker in the 6th place on the FOSS table, below *Tux Racer* and above *BZFlag*.

4 Digital Spy (2008) 'Force Unleashed' breaks download record, <http://www.digitalspy.co.uk/gaming/a130106/force-unleashed-breaks-download-record.html>

Rank	Title	Sales
1	World of Warcraft: Burning Crusade	2,250,000
2	World of Warcraft	914,000
3	The Sims 2: Seasonal Expansion Pack	433,000
4	Call of Duty 4: Modern Warfare	383,000
5	Command & Conquer 3: Tiberium Wars	343,000
6	Sim City 4 Delux	284,000
7	The Sims 2	281,000
8	The Sims 2 Bon Voyage Expansion Pack	271,000
9	Age of Empires III	259,000
10	The Sims 2 Pets Expansion Pack	236,000

Table 1: Top Ten PC Games of 2007⁵

Rank	Title	Downloads
1	StepMania	4,981,902
2	Frets on Fire	4,897,639
3	SpeedSim	4,682,791
4	Battle for Wesnoth	2,456,926
5	Tux Racer	2,404,024
6	BZFlag	1,816,950
7	Cube game & 3D engine	1,700,676
8	Nexuiz	1,650,558
9	Sauerbraten game & engine	1,500,436
10	DooM Legacy ⁶	1,433,504

Table 2: Top Ten FOSS Games on SourceForge⁷

Dispelling the Myth: Awesome FOSS Games

Australian Personal Computer magazine has run a number of articles on FOSS computer games, the most recent being “Top 5 best (free) open source games.” While all the examples of FOSS game reviews and catalogues are too numerous to list here, there are plenty places to find them. Some of the more comprehensive collections include:

- Freshmeat – Games <http://freshmeat.net/browse/80/>
- Linux Game Tome <http://www.happypenguin.org/>
- Wikipedia http://en.wikipedia.org/wiki/Category:Open_source_video_games
- Freegamer Blog <http://freegamer.blogspot.com/>

5 NPD Group (2007), *Market Research for the Film, Music, PC Games, Video Games and Video Industry*, NPD data retrieved from <http://www.shacknews.com/onearticle.x/50939>

6 Multi platform port of the old commercial game DOOM

7 “Number of downloads” from SourceForge project statistics pages as of July 4th, 2008

Making Games Happen In Real Life

Hopefully you are now excited about FOSS computer games, and you may even have this great idea which will change computer gaming forever. Perhaps there is a computer game you wish worked slightly differently. While the same rules for FOSS projects apply equally to game projects, there are a few areas where FOSS games require particular attention.

Having developed FOSS computer games for over 12 years, I've come up with some helpful tips make your project more successful. I'm going to use Thousand Parsec, my own project, to illustrate some of these tips. While a single point of data does not make a generalisation, the drastic changes these strategies had on my project anecdotally demonstrate the usefulness of these ideas in running your project.

Release Early!

This one can be problematic. Releasing too early will give you reputation of producing vapour ware, but unlike Duke Nukem Forever⁸, FOSS games find this reputation much easier to overcome. The bigger danger is getting too much publicity at the early stages, which can lead to the project becoming overwhelmed the weight of many newcomers.

Releasing as soon as you have something which is basically playable is a very good goal. A release gives new developers something to start with and whet their appetite to improve the code. Like all software, FOSS games are unlikely to ever be “100% finished,” so trying to wait until everything's perfect means you will never release.

Release Often!

Releasing often is a strategy goal to follow. Every time we do a Thousand Parsec release, no matter how soon after a previous one, we get a whole set of new developers. The spike in interest is clearly seen in our web traffic and download statistics. We also see a marked increase in people appearing in our IRC channel after releases. For a lot of people, releases are the only time when they will take the time to look at your project.

Yet not releasing often is a trap that I keep falling into with Thousand Parsec. We go to implement some big change and don't end up doing a release for 1-2 years. When this occurs it is clearly seen in our statistics as a slow decay in traffic, downloads and developer appearances. You definitely know that it has been too long between releases when someone pops up on your mailing list asking if your project is dead.

Immediately post release is a great time to implement the next idea, and gives you a topic around which to focus your efforts.

Promote Your Project

A huge portion of the money spent on creating a successful commercial computer games is spent on marketing. Halo 3 had a marketing budget of \$15-\$20 million dollars versus \$30 million dollars in development costs⁹. Marketing is equally important for FOSS computer games; it can be the difference between a successful project and one which fades into the background, a fact that is often overlooked. We have found marketing to be even more important for computer game projects than other FOSS projects.

When a person is looking for normal software, they have an issue to solve; when looking for computer games, they are looking to be entertained. Failing to “package” your software attractively means it won't be used.

There are some very simple things which you can do to help promote your project. Thousand Parsec now has some very cool looking business cards which we hand out any time I tell someone about the project. It gives a person something to jog their memory when they are thinking “now what was that project called again?”. These

⁸ http://en.wikipedia.org/wiki/Duke_Nukem_Forever

⁹ <http://articles.latimes.com/2007/sep/24/business/ft-halo24>

are cheap to produce and have actually increased the number of people who join our IRC channel after the developer team speaks with them at conferences.

Thousand Parsec has also created a bunch of swag such as t-shirts which we send to various people who contribute. Tangible rewards helps to draw casual developers into the realm of core committers, as they feel like they are part of something – wearing the team's colours as it were.

Make it Easy to Install

As mentioned previously, *when a person is looking for normal software, they have an issue to solve, when looking for computer games they are looking to be entertained.* Your game being hard to install is going to quickly make the vastly majority of people look elsewhere for their entertainment.

Since Thousand Parsec started creating Windows binaries, Debian packages and Mac DMGs, our download numbers have dramatically increased. It has also been clear that most developers have tried the binaries before becoming interested in patching.

I Don't Have Time!

Even if you only have a limited amount of time to contribute to FOSS, there are still plenty of ways to get involved. There are a number of great competitions which run over short periods. These are great ways to spend time trying something new or taking a break from your normal routine. Some of the most innovative games I have seen have come out of these short contests:

- Pyweek 7 days <http://www.pyweek.org/>
- Ludum Dare 48 hours <http://www.imitationpickles.org/ludum>
- PyDay 24 hours <http://groups.google.com/group/pyday>

Conclusion

I hope this paper has given you some insight into why FOSS computer games are vital to the success of the FOSS community and armed you with useful strategies for creating your own games. There are plenty of places to find more information. Please see both the footnotes and the references section for some great places to get started.

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