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STS 145

Video Game Prospectus

Game and Game Console Emulation:

The Preservation of Video Game History

Thus far in our pursuit of knowledge surrounding the history of video games, we have covered several console systems as well as the games implemented for those systems. Atari, Nintendo, Sega, and Sony have brought the world another form of home entertainment in their game consoles. They in effect helped create and evolve the video gaming industry. Many of the old consoles and games have been lost or discarded as these developers release newer, flashier, upgraded hardware and software packages. Programmers around the world who remember these games are fighting to keep them alive. These coding gurus produce emulators, so called because they emulate the hardware and software systems of these old game consoles and their respective games. I intend to chart the rise of the emulation phenomenon, the motivation and agendas of emulator makers and users and touch on some of the practical and theoretical questions that emulation raises. It is not the wish of this author to delve deeply into the legal aspects of copyright disputes, but since these legal arguments affect the creation and distribution of emulators, readers will be indulged with a distillation of the controversy.

Origins of Emulation

When Al Alcorn, creator of the Pong! hardware, spoke at Stanford's History of Video Games lecture, he mentioned that even while the Atari systems were being produced, people were copying their circuitry to make the same games. These were the technical if not spiritual precursors to emulators, making expensive game consoles available to a wider population through cheaper copies. In David Sheff's Game Over, a documentation of Nintendo's rise to power, copyrighting and pirating issues enveloped Tetris as well as the Game & Watch hardware series. Knock-offs of Game & Watch modules could be found everywhere, and they became so prolific that people did not realize that they were imitations, to the point that a Nintendo executive was mistakenly given one of these knock-offs as a gift. Similar to the dynamics of emulation in software today, different developers were making competing versions of these popular games, allowing the sought-after technology and form to be enjoyed at the popular level..

Also detailed in the book was the impetuousness of Electronics Arts in setting out to reverse engineer Sega's 16 bit Genesis console system so that they could figure out how to write their own games for the system. This development was perhaps the next step in the evolution of emulation as it is known today, because unlike the mimicry of hardware used to create Pong! And Game & Watch rip-offs, this involved a fuller understanding of the software processes. That process of reverse engineering indeed must come into play in the development of the old game console emulators (and the emulators for newer game consoles as well). An interesting question is, considering that EA was able to reverse engineer in a legal fashion, could some of these game emulator writers also be writing their own games for old consoles in a legal fashion? Emulator enthusiast

Ron Fries, has been creating legal emulators that run on "Intel platforms, although some of [his] work has been ported by others to run on a Motorola platform." He helped to create Atari software emulators, adding sound capability to the current versions simulating a POKEY chip. That same POKEY emulator that he wrote "has since been used as a part of many computer and game system emulators, the most notable is MAME (Multiple Arcade Machine Emulator)."

Nostalgia

Undoubtedly, one of the prime motivators for emulation is that there is a great nostalgic appeal for both the emulator writer and the emulator user. Fries emphasizes that "the main reasons why [he] wrote emulators, why [he] picked what [he] emulated and what it gives to others is the same reason: the ability to relive a little of the past." Like many of his peers, Fries was an avid Atari player in his youth and wanted to relive the pleasure that that system had given to him. Emulator user Steve Hall claims to have "pretty much all of" the emulation systems and games available. He supports Fries conjecture regarding emulator players, stating that emulators are "a chance to relive cherished childhood memories by playing games [they] haven't seen in years." Clearly, nostalgia reigns among the reasons why players choose to use console system emulators, but it is also apparent that these players also play games they never had on the systems themselves. Markus, an avid Atari emulator user insists that playing games never played before "is part of the fun of emulation, [because] you get to see and play all those classic systems you were never able to, and compare them with those you did on an objective level." There are a lot of reasons that a player may not have ever had the chance to play

certain games on a console system: prices for game cartridges were often prohibitive

($49.99 was the common price for cartridges on NES, SNES, and Genesis, but prices

routinely reached $79.99), and kids had to be selective in their game choices. Also, some

games were of limited availability, only published in some countries, or for short periods

of time, so that and many players did not have access to them. Emulation has amended all

these ailments natural to a traditional consumer industry. Hall says that he also has played

"tons" of games he never owned, some of which he does not even like or which he would

not have played on the original systems. He claims, "They may be good to test the ability

of the emulator." Truly there are a great number of emulators out there that attempt to do

similar things, and undoubtedly, only a few of them really succeed and become popular

emulators. Many fail to catch on because of poor interfaces or buggy programs.

Legal Obstacles to Emulation

Game emulator developers are a numerous and varied community, just as in the

original development of games and consoles. One might think that this condition might

produce a wide variety of sources to draw upon. Unfortunately, due to the dubious

legality of some of the emulation systems, emulation developers are difficult to track

down. Emulator developers for Nintendo systems or other still-potent videogame vendors

are harder to reach, and public statements from the original big companies themselves is

difficult to get a hold of. UltraHLE (Ultra High Level Emulator) was an emulator created

for the PC using 3dfx's GLIDE[1] technology that plays games made for the N64.

Apparently two programmers, calling themselves Reality Man and Epsilon, wrote the

emulator. UltraHLE is renowned now for being the highest quality emulator that came

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[1] Thanks for this correction and information by Rene Patnode (TA for History of Computer Games Course)

out thus far in the history of emulators. Malcolm Maclachlan of *TechWeb News* says that while "UltraHLE wasn't the first Nintendo64 emulator…it was the best so far." Furthermore, "it was so good that it may have forever changed Nintendo's method of dealing with the emulator community." Nintendo was understandably upset, since people could download for free a near-perfect replica of a product that they had spent years an millions of dollars designing, and wanted to capitalize on. Nintendo's actions up until then had been to go after ROM (games on which the emulators run) creators and not the emulator's creators. In contrast with the past, Nintendo was looking to bring a lawsuit against UltraHLE's creators. Only a couple of hours after release, the emulator was taken down by its authors, seemingly both out of fear and conscience. In a closing statement to the public, Reality Man said, "The UltraHLE project was a technical demo, an experiment to see if N64 emulation really is possible and an attempt to advance the state of the art in emulation. It was not designed to be a tool for piracy." In truth, the emulation community itself seems to not seek to promote piracy at all. Jonathan LaCour, an emulator writer, also wants people to see the "technical beauty of emulation." LaCour goes on to emphasize that "No emulator is designed as a tool for piracy! In fact, nearly every emulation author gives their emulator away for free, simply because they are only interested in the technical side of emulation." Nemu64, another Nintendo 64 emulator, warns people quite strongly "not to even think about" asking for game ROMs, and they instead point to some invented games they created to test their emulator's capabilities.

What Emulation Does for the Video Game Community

These home computer-based emulators offered another route for game players to experience gaming technology new and old without having to buy another system or track down expensive collector's items. These emulators are produced and distributed through the Internet and FTP sites so that indeed anyone with a browser and an ISP (Internet Service Provider) can enjoy the emulated game systems. While UltraHLE ultimately stopped being distributed, many loyal fans still collect original articles about the software from <u>Time</u> and other respected publications on their sites. UltraHLE was both revered and detested by the emulation community. Its technical prowess was stunning, but the stir and bad media that came upon the community was an unwelcome exchange. But unlike UltraHLE, many emulators continue to thrive and contribute actively to the emulation community. MAME is an emulator that runs classic arcade games on the PC, it was launched in 1996 by Nicola Samoria. The MAME website claims that it has over 100 developers for the emulator. They claim on their web page that while MAME "allows people to enjoy the long-lost arcade games and even some newer ones, the main purpose of the project is to document the hardware (and software) of the arcade games. There are already many dead arcade boards, whose function has been brought to life in MAME. Being able to play the games is just a nice side-effect."

Preservation of technology and ideas is a gargantuan incentive for many in the emulator community. An emulator user signed Rio says he "feels that [he] is helping to preserve games/systems/OS's that would be gone forever if not for the EMU lovers of the world." Video games are fast becoming a large part of our culture. It is important that preservation occurs now so that in the future when video games have become as

integrated as film into our culture, there can be education of how such an integral part of society evolved. Rio believes that emulation "is the same as a history book or a museum…the most respected emulator writer will not work on (or at the very least will not release) an emulator for a 'living' computer/game system." This comment reinforces the point that the emulation community is not interested in piracy. Indeed, their cause appears to be very noble – a conservation of historical artifactsRio goes on to say that "one day when [his] kids are playing on their PS361 and the X Box20, [he'll] call them over and teach them the history and let them play games from the Intellevision all the way to the most recent generation of dead/dieing game systems." And so new generations of video game players can play the classic games that inspired the games and consoles of today. But perhaps the emulated games will never be appreciated fully by the new generation of gamers, due to the great contrast in graphics quality and game play sophistication when compared with contemporary games; in this case, after the original console players move on, the old console systems may well be lost despite successful emulation efforts. Such disappointment might be analogous to sticking a nine year old in front of a TV showing *Citizen Kane* when he has been watching the amazing visual effects and and more palatable action of a movie like *The Matrix*. Even MAME's text that comes with its emulator states that MAME's "main purpose is to be a reference to the inner workings of the emulated arcade machines. This is done for educational purposes and to prevent many historical games from sinking into oblivion once the hardware they run on stops working. Of course to preserve the games, you must also be able to actually play them." This point is correct, because it would be hard to merely tell people about the original video games, just as it would be difficult to gain much insight

about the inner workings of any pop culture movement merely from hearing someone else talk about their experiences. This is especially true of video games, a technology in which success is intrinsically tied up with playability. That is just what emulator fans hope to preserve – the experiences that one gets from playing Super Mario or Pong!. Unfortunately, herein lies the contradiction in the emulation community.

Flaws in the Illusion

Emulator enthusiasts stress that emulation is about historical preservation and technical genius, and they insist that preservation cannot be complete without recreation of the games as well as the systems; at the same time, they refuse to allow games to be distributed with their emulation systems, and they frown upon those that use them with their systems. Often these emulation fanatics complain about "how lame the warezers are" (LaCour). "Warezers" is a term used to denote people who trade pirated goods. However, in this case, it seems that by following the very argument of emulator designers, the warezers are in fact playing an important role in keeping history alive themselves. If no one played the games, they could be forgotten and the hardware dismissed as inconsequential; the experience, the true life force of the game systems, would be silenced. There is a reason why there are no emulators of 19th century cotton gins on the Internet. But in fact, most people who use emulators often have had the systems and games themselves before. Some people still have their old hardware systems, but in order to preserve those machines, in their memory they try to play their games on emulators (AtariGames.com). Others find themselves using the newer emulators as decision-making tools on what new system or game to buy.

Finding Emulators

       With all the legal tape and fear surrounding the emulation community, it seems incredible that emulators can still be widely found by a general public. Most emulator users say that they find their emulators and ROMs on the Internet, often through major search engines like Google. In actuality, the emulators themselves are quite easy to find. People post those for download without much fear of legal retribution. But on the other hand, ROMs are almost never posted. ROMs are difficult to find, as web pages lead a ROM seeker to many dead links. Many private servers also have access to illegal ROMs that people can download after getting an appropriate login and password. There are also many people who try to profit off the emulation community by packaging up many emulators and ROMs onto a cd and selling it to ease the ROM seeker's frustration.

Irreplaceability

       Of course, no one disputes the notion that emulators can never really take the place of the machines themselves. The control devices of a PC are clumsy in comparison with those of an actual gaming system. A pair of gamers playing Bomberman on the Nesticle emulator (an emulator for the original Nintendo Entertainment System) might frequently get frustrated with their assigned keyboard keys, since a combination of bomb dropping from one player and moving by the other player causes a setting to change that distorts the graphics of the game. "Nothing compares to the real deal because you can't replicate the look and feel of the real deal on a PC or a Mac" (AtariGames.com). A keyboard will not feel like the controls that Pong! used originally. A computer monitor,

with its sharply delineated pixels, does not give the crude sprites that same appearance as the comparatively low-resolution television screen. But emulators still deliver much excitement, nostalgia, and entertainment value. Rio explains that what the essence of what emulators do is give "the sounds, the sights, the thrills of your old and new favorite [games and systems]." Emulators are doing their best to keep the game experiences thriving.

Conclusion

I believe that it is necessary to write about emulators because they have acquired such an underground image. In other words, people in the emulation community are afraid to openly talk about their experiences because they are afraid of legal repercussion. This makes the topic of emulators both semi-mystical and mystifying. Furthermore, the lack of press coverage I have found giving the emulator community's perspective indicates to me that emulation is an issue that needs to be addressed in new ways. People need to hear the voice of the developers story in order to fully understand how emulators affect the game industry. The emulators I have mentioned thus far are some of the more popular ones. Nesticle is a widely popular emulator created by a group calling itself BloodLust. BloodLust members themselves are extremely unresponsive to inquiries about their emulation efforts, and I can only guess that they fear I am some undercover cop or lawyer trying to entrap them in piracy lawsuits. It has been unfortunate that legal issues scared away many people from answering my questions, and scared others out of answering them with depth and conviction. The emulation community needs to speak out and be heard. Many of their websites complain about the bad media they have had, but

they cannot get rid of a general public image of illicit behavior unless they educate the public through generally accepted and widespread means. Though they fear misunderstanding, they must come to terms with the media if they hope to have any say in their public perception.

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