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**UNITED STATES COPYRIGHT OFFICE**



**Long Comment Regarding a Proposed  
Exemption Under 17 U.S.C. § 1201**

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**ITEM A. COMMENTER INFORMATION**

These comments are respectfully submitted by Public Knowledge. Public Knowledge is a nonprofit organization dedicated to representing the public interest in digital policy debates. Public Knowledge promotes freedom of expression, an open internet, and access to affordable communications tools and creative works.

Interested parties are encouraged to contact Meredith Rose (mrose@publicknowledge.org) as Public Knowledge’s authorized representative in this matter. Public Knowledge’s contact information is as follows:

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**ITEM B. PROPOSED CLASS ADDRESSED**

Proposed Class 8: Computer Programs—Video Game Preservation.

**ITEM C. OVERVIEW**

The current exemption codified at 37 CFR 201.40(b)(8) extends only to “video games that can be played by users without accessing or reproducing copyrightable content stored or previously stored on an external computer server.” The Register should recommend an expansion to this exemption for a number of reasons. First, multiplayer games are enjoying explosive popularity both as standalone games and as major elements of otherwise single-player games, making them a prime candidate for archiving. Current trends in the market indicate that the online multiplayer format will only expand, capturing a larger swath of the literal and cultural capital currently generated by the medium. Additionally, online multiplayer games are actually

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more susceptible to archival loss than “complete” games covered by the current exemption, as they can be disabled by server discontinuance or overwritten by mandatory patches and updates that change key elements of the game.

Second, multiplayer games have become hot topics of scholarship and criticism, not only in media studies, but among a diverse range of fields from epidemiology to economics to social psychology. Clearly, multiplayer games raise issues that are of interest to researchers and academics, and this interest weighs in favor of a need for preservation.

Finally, evolution in game development has increased reliance on server-side software while blurring the line between what the Office considers to be “complete” games under the current exemption, and online multiplayer formats. Locally hosted single-player games have begun to experiment with online capabilities, often incorporating minor or social elements that require communication with a multiplayer server. Although these games may look and feel like traditional single player games, they allow for player interactions in unexpected (and often mandatory) ways. As this design trend continues, more games will exist in the space between what the Office currently considers “single” and “multiplayer,” creating substantial ambiguity for archives and preservationists.

#### **ITEM D. TECHNOLOGICAL PROTECTION MEASURE(S) AND METHOD(S) OF CIRCUMVENTION**

Many modern video games require ongoing interaction with publisher-controlled servers to function as designed. In order to preserve this functionality, archivists and preservationists must circumvent software TPMs and install bespoke patches to enable the game software to self-authenticate, or to redirect the game to a separate archival server when the servers provided by the copyright owner are no longer operable. These patches—and the fixes required to design bespoke servers without access to the original server-side software—are immensely complex operations that require substantial time and resources to develop.

#### **ITEM E. ASSERTED ADVERSE EFFECTS ON NONINFRINGEMENT USES**

The Copyright Office recognized adverse effects on noninfringing uses of “complete” games in its 2015 rulemaking.<sup>1</sup> Those effects apply with equal or greater force to games requiring communication with an online multiplayer server for the following reasons.

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<sup>1</sup> U.S. COPYRIGHT OFFICE, SECTION 1201 RULEMAKING: SIXTH TRIENNIAL PROCEEDING TO DETERMINE EXEMPTIONS TO THE PROHIBITION ON CIRCUMVENTION: RECOMMENDATION OF THE REGISTER OF COPYRIGHTS (2015) (hereinafter “2015 Recommendations”) 346 (“To the extent that the shutdown of an authentication server bars access to a video game entirely, the record demonstrates that efforts to preserve video games will likely be impeded by the prohibition on circumvention.”)

## **1. Multiplayer Games Make Up An Increasingly Large Segment of the Gaming Market, and are Uniquely Susceptible to Erasure**

Expanding the current exemption to cover online multiplayer games is critical because these games now occupy a vast share of the gaming market. Online functionality has become the new norm in high-budget game development, and this trend shows no sign of slowing between now and the 2021 triennial. Industry observers have noted “an overall shift among the biggest [developers of] single-player campaigns who are becoming more, if not entirely multiplayer-focused.”<sup>2</sup> “Local” multiplayer (in which two or more people played using the same copy of the game, on the same screen) has largely been phased out in favor of online modes, which allow developers to both sell more copies and bypass the design challenges of splitting a screen into multiple fragments. In the words of one publication, “[v]ideo game publishers, it appears, are putting an end to couch play.”<sup>3</sup> What was once a technological novelty has become the norm; of October 2017 sales data, 9 of the top 10 grossing PC games, and 9 of the top 10 grossing mobile games are online-only multiplayer games.<sup>4</sup>

### **A. The trend toward multiplayer will continue because it is lucrative and popular**

Online gaming generates an immense amount of revenue. In traditional single player games, a developer could sell the original game, and potentially extra “downloadable content” (or DLC) over the course of months following the game’s release. Online multiplayer *requires* players to remain engaged with developers by connecting to the game’s servers. This allows developers to not only farm an impressive amount of usage data, but to introduce regular content updates, and offer “microtransactions” in which customers can buy upgrades (often cosmetic) for small amounts of money.<sup>5</sup> Estimates put total revenue for only two categories of online game—“massively multiplayer online games” (MMOs) and strategy-based “multiplayer online battle arenas” (MOBAs)—at over \$24.4 billion in 2014, a number which continues to grow.<sup>6</sup>

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<sup>2</sup> Paul Tassi, *Are Video Games Becoming Too Focused On Multiplayer?*, FORBES: INSERT COIN (Nov. 10, 2014), <https://www.forbes.com/sites/insertcoin/2014/11/10/are-video-games-becoming-too-focused-on-multiplayer/#22a52ab07d12>.

<sup>3</sup> Chaim Gartenberg, *The future of gaming is lonely (and online only)*, THE VERGE (Jun. 25, 2015), <https://www.theverge.com/2015/6/25/8844073/goodbye-local-multiplayer-we-will-miss-you-and-the-goldeneye-days-of-yore>.

<sup>4</sup> Worldwide digital games market: October 2017, SuperData (Nov. 30, 2017), <https://www.superdataresearch.com/us-digital-games-market/>.

<sup>5</sup> For a more general discussion of microtransactions, see *Economics of Microtransactions in Video Games*, INTELLIGENT ECONOMIST (Dec. 8, 2017), <https://www.intelligenteconomist.com/economics-of-microtransactions/>.

<sup>6</sup> *Infographic: Global PC/MMO Gaming Revenues to Total \$24.4bn This Year*, NEWZOO (Nov. 17, 2014), <https://newzoo.com/insights/articles/pcmmo-gaming-revenues-total-24-4bn-2014/>.

Online games have also been the foundation of competitive gaming, or “eSports.” ESports have become so popular that in 2017, ESPN broadcast live coverage of international FIFA (video game) tournaments,<sup>7</sup> and ESPN.com inaugurated an eSports section of its website.<sup>8</sup> Industry analysts estimate that over 385.5 million fans—half of whom are enthusiasts—watched eSports events this year.<sup>9</sup> In a testament to the sheer size and popularity of the genre, in 2017 alone, organized eSports tournaments distributed over \$93.3 million in prize money and generated \$696 million in revenue—a number projected to grow to nearly \$1.8 billion by 2020.<sup>10</sup> The largest prize pool, for *Dota 2* tournament “The International 7,” was \$24.8 million dollars, with the winners receiving \$10.8 million (or 44%) of the whole pool.<sup>11</sup>

Increasingly available high-speed broadband has enabled more players to enjoy online games, and user data shows that gamers have embraced the format. Team-based competitive shooter *Overwatch* boasts 35 million players worldwide.<sup>12</sup> MMOs regularly boast populations above one million; the largest currently running MMO, *Final Fantasy XIV*, crested 10 million players in August of this year.<sup>13</sup> The culturally iconic *World of Warcraft* still boasted 7 million players in 2015, over a decade after its launch (and nine years after being lampooned in an Emmy-winning *South Park* episode).<sup>14</sup>

Even the day-to-day numbers are staggering. Sci-fi shooter *Destiny 2* clocked 1.2 million concurrent players on September 9 of this year. MOBA *League of Legends*, a fixture in

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<sup>7</sup> Edgar Alvarez, *ESPN strikes deal with EA to broadcast 'FIFA' eSports tournaments*, ENGADGET (Feb. 3, 2017), <https://www.engadget.com/2017/02/03/espn-ea-fifa-esports-broadcasts/>. See also Alex Gilyadov, *ESPN will air 18 hours of eSports coverage on July 17th*, ENGADGET (Jul. 12, 2016), <https://www.engadget.com/2016/07/12/espn-will-air-18-hours-of-esports-coverage-on-july-17/>.

<sup>8</sup> <http://www.espn.com/esports/>

<sup>9</sup> NEWZOO, 2017 GLOBAL ESPORTS MARKET REPORT (2017) 17, available at <https://newzoo.com/insights/trend-reports/global-esports-market-report-2017-light/>.

<sup>10</sup> *Id.* at 20, 14.

<sup>11</sup> *The International 7 prize pool breaks records*, ESPN.COM (Aug. 6, 2017), [http://www.espn.com/esports/story/\\_/id/20267648/the-international-7-prize-pool-breaks-records](http://www.espn.com/esports/story/_/id/20267648/the-international-7-prize-pool-breaks-records). For a more general discussion of eSports, see Eric Van Allen and Maddy Myers, *The State Of Esports In 2017*, KOTAKU: COMPETE (Dec. 14, 2017), <https://compete.kotaku.com/the-state-of-esports-in-2017-1821304905>.

<sup>12</sup> Brian Crecente, *'Overwatch' Player Count Continues to Soar, Game Hits 35M Users*, ROLLING STONE: GLIXEL (Oct. 16, 2017), <https://www.rollingstone.com/glixel/news/overwatch-player-count-continues-to-soar-game-hits-35m-users-w509080>.

<sup>13</sup> Alex Newhouse, *Final Fantasy 14 Crosses 10 Million Players*, GAMEPOT (Aug. 9, 2017), <https://www.gamespot.com/articles/final-fantasy-14-crosses-10-million-players/1100-6452413/>.

<sup>14</sup> Ben Gilbert, *Against all odds, 'World of Warcraft' still has over 7 million players*, BUSINESS INSIDER (May 8, 2015), <http://www.businessinsider.com/world-of-warcraft-still-has-over-7-million-players-2015-5>.

eSports, “has boasted of an eight-figure daily active user count for about five years now”<sup>15</sup> and, in 2014, had over 27 million unique players *daily*.<sup>16</sup> While still remarkable, these kinds of figures are becoming increasingly common; *Minecraft*, a blockbuster “sandbox” game, has experienced multiple million-player days, while shooter *Overwatch* fielded more than 7 million unique players in its first week of operation alone.<sup>17</sup>

**B. Server shutdowns and mandatory software updates have raised preservation concerns that are unique to multiplayer online games.**

It is difficult to quantify the number of multiplayer servers that have been shut down in recent years. However, Electronic Arts’ “Online Services Shutdown” list is one illustrative example. As the title suggests, the list contains the name of every game for which multiplayer server support has been discontinued since prior to 2013.<sup>18</sup> The list—which is littered with popular franchises such as *FIFA World Cup*, *Nascar*, and *The Sims*—currently stands at 319 games and servers discontinued since 2013, or just over one game per week since 2012.<sup>19</sup>

Game updates can also pose problems for archivists seeking to preserve a specific iteration of a popular game. MMO *World of Warcraft* has, over its 12-year lifespan, implemented a series of updates that has substantially changed the underlying mechanics of the game, in addition to updating its “look and feel” for to account for modern processors. In the process, the original iteration of the game, commonly known as “vanilla WoW,” was lost. A handful of players set out to recreate the experience, writing server-side code from scratch, and opened a free-to-play server named “Nostalrius” that emulated vanilla WoW with a high degree of accuracy.<sup>20</sup> Although the server was (predictably) shuttered in April of 2016 after *WoW*’s developer Blizzard sent the operators a cease-and-desist notice, Nostalrius sparked a debate

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<sup>15</sup> Owen S. Good, *Destiny 2 racks up 1.2 million players online*, POLYGON (Sep. 10, 2017), <https://www.polygon.com/2017/9/10/16283336/destiny-2-concurrent-players-million>.

<sup>16</sup> Paul Tassi, *Riot's 'League of Legends' Reveals Astonishing 27 Million Daily Players, 67 Million Monthly*, FORBES: INSERT COIN (Jan. 27, 2014), <https://www.forbes.com/sites/insertcoin/2014/01/27/riots-league-of-legends-reveals-astonishing-27-million-daily-players-67-million-monthly/>.

<sup>17</sup> Good, *supra*.

<sup>18</sup> Because the earliest category is simply labeled “Pre-2013,” it is hard to determine the exact earliest shutdown on the list.

<sup>19</sup> ELECTRONIC ARTS, *Online Service Updates: Online Services Shutdown, Pre-2013*, <https://www.ea.com/service-updates/pre-2013>.

<sup>20</sup> Luke Plunkett, *Blizzard Shuts Down Fans Running Old Vanilla WoW Server*, Kotaku (Apr. 6, 2016), <https://kotaku.com/blizzard-shuts-down-fans-running-old-vanilla-wow-server-1769511691>.

about the tension between preservation, and mandatory updates that can overwrite software at any time.<sup>21</sup>

## **2. Multiplayer games have become popular topics for scholarship and comment, and their preservation is critical to comprehensive archiving**

Multiplayer games, with their enormous and engaged user populations, have become mainstays of popular culture. A 2006 episode of *South Park* lampooning *World of Warcraft* (and the game's players) won an Emmy. The episode also garnered critical acclaim, with one critic noting that “fans of *South Park* undoubtedly see this episode as a topical parody of one of the largest cultural phenomenon[a] in a while - can seven million people be wrong?”<sup>22</sup>

Multiplayer games have also become vehicles for serious academic research in a surprising range of fields. Economists have used MMOs to study market emergence for over a decade. In 2001, a professor at California State University, Fullerton studied market development in Norrath, the fictional world of MMO *Everquest*, and found that the fantasy economy was “richer” than China and India.<sup>23</sup> In fact, if Norrath were a real nation, it would net a per-capita GNP of \$2,266—“comparable to the 77th richest country on Earth and ranking it between Russia and Bulgaria.”<sup>24</sup>

Epidemiologists<sup>25</sup> and terrorism researchers<sup>26</sup> have also used *World of Warcraft* to study human behavior in outbreak scenarios, modeling disease progression by tracking the

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<sup>21</sup> See, e.g., Meredith Rose, *Erasing the Past: When (and How) a Groundbreaking Game Disappears for Good*, Medium (Apr. 29, 2016), <https://medium.com/@PublicKnowledge/erasing-the-past-when-and-how-a-groundbreaking-game-disappears-for-good-9ea089a703cb>.

<sup>22</sup> Dan Iverson, *South Park: “Make Love, Not Warcraft” Review*, IGN (Oct. 5, 2006), <http://www.ign.com/articles/2006/10/05/south-park-make-love-not-warcraft-review>.

<sup>23</sup> EDWARD CASTRONOVA, VIRTUAL WORLDS: A FIRST-HAND ACCOUNT OF MARKET AND SOCIETY ON THE CYBERIAN FRONTIER, CESifo Working Paper Series No. 618 (December 2001), available at <https://ssrn.com/abstract=294828>.

<sup>24</sup> David Becker, “*EverQuest*” spins its own economy, CNET (Jan. 25, 2002), <https://www.cnet.com/news/everquest-spins-its-own-economy/>. For a more general discussion of the benefits of using MMOs for economic research, see Robert Shapiro, *Fantasy Economics*, SLATE (Feb. 4, 2003), [http://www.slate.com/articles/business/the\\_dismal\\_science/2003/02/fantasy\\_economics.html](http://www.slate.com/articles/business/the_dismal_science/2003/02/fantasy_economics.html).

<sup>25</sup> Eric T. Lofgren & Nina H. Fefferman, *The untapped potential of virtual game worlds to shed light on real world epidemics*, 7 LANCET 625 (2007), available at <http://www.sciencedirect.com/science/article/pii/S1473309907702128>. See also Ran Balicer, *Modeling infectious diseases dissemination through online role-playing games*, 18 EPIDEMIOLOGY 260 (2007), available at [ftp://ftp.inf.puc-rio.br/pub/docs/Estudos\\_de\\_Metrias/Internet\\_Estudos/Aula%208%20Leitura-Modeling%20Infectious%20Diseases%20Dissemination.pdf](ftp://ftp.inf.puc-rio.br/pub/docs/Estudos_de_Metrias/Internet_Estudos/Aula%208%20Leitura-Modeling%20Infectious%20Diseases%20Dissemination.pdf).

development and spread of an in-game pandemic known as “Corrupted Blood.”<sup>27</sup>

Neurobiologists have used studies of compulsive MMO players to model everything from self-image deficits<sup>28</sup> to seizure progression.<sup>29</sup>

The social sciences also use MMOs as living laboratories. Psychologists and addiction scientists have produced MMO-based research on cognitive overload<sup>30</sup> and to develop predictive modeling for addiction susceptibility.<sup>31</sup> Cognitive development specialists have used the genre to suggest ways in which individuals can develop social skills through online gaming,<sup>32</sup> while educators have examined the format as a potential new venue for online learning.<sup>33</sup> Even ethicists have used the game as a laboratory, studying conflict management and communicative behavior.<sup>34</sup>

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<sup>26</sup> David Thier, *World of Warcraft Shines Light on Terror Tactics*, WIRED (Mar. 20, 2008), <https://www.wired.com/2008/03/wow-terror/>. The author also notes the game’s “history of in-game terrorist activity”; early players, he notes, “found a curse in a high-level dungeon that would turn them into living bombs. They would then teleport to major cities and detonate themselves, killing nearby players. These suicide bombers gradually began to target areas where large number of players gathered, usually at auction houses or banks. Eventually, attacks occurred with enough frequency that some players simply avoided dangerous cities.”

<sup>27</sup> Kyle Orland, *GFH: The Real Life Lessons Of WoW's Corrupted Blood*, GAMASUTRA (May 20, 2008), [https://www.gamasutra.com/php-bin/news\\_index.php?story=18571](https://www.gamasutra.com/php-bin/news_index.php?story=18571).

<sup>28</sup> JULIA DIETER ET AL., AVATAR'S NEUROBIOLOGICAL TRACES IN THE SELF-CONCEPT OF MASSIVELY MULTIPLAYER ONLINE ROLE-PLAYING GAME (MMORPG) ADDICTS, 129 BEHAVIORAL NEUROSCIENCE 8 (2015) [https://www.researchgate.net/publication/268787766\\_Avatar%27s\\_Neurobiological\\_Traces\\_in\\_the\\_Self-Concept\\_of\\_Massively\\_Multiplayer\\_Online\\_Role-Playing\\_Game\\_MMORPG\\_Addicts](https://www.researchgate.net/publication/268787766_Avatar%27s_Neurobiological_Traces_in_the_Self-Concept_of_Massively_Multiplayer_Online_Role-Playing_Game_MMORPG_Addicts)

<sup>29</sup> YAO-CHUNG CHUANG, MASSIVELY MULTIPLAYER ONLINE ROLE-PLAYING GAME-INDUCED SEIZURES: A NEGLECTED HEALTH PROBLEM IN INTERNET ADDICTION, 9 CYBERPSYCHOLOGY & BEHAVIOR 451 (2006), available at <https://doi.org/10.1089/cpb.2006.9.451>.

<sup>30</sup> CHEE SIANG ANG ET AL., A MODEL OF COGNITIVE LOADS IN MASSIVELY MULTIPLAYER ONLINE ROLE PLAYING GAMES, 19 INTERACTING WITH COMPUTERS 167 (2006), available at <https://www.sciencedirect.com/science/article/pii/S0953543806001135>.

<sup>31</sup> CHRISTOPHER S. PETERS & L. ALVIN MALESKY, JR., PROBLEMATIC USAGE AMONG HIGHLY-ENGAGED PLAYERS OF MASSIVELY MULTIPLAYER ONLINE ROLE PLAYING GAMES, 11 CYBERPSYCHOLOGY & BEHAVIOR 481 (2008), available at <https://pdfs.semanticscholar.org/6682/0a87edef6bccabe636a5d6cf27431bebcd3f.pdf>

<sup>32</sup> NICOLAS DUCHENEAUT & ROBERT J. MOORE, MORE THAN JUST ‘XP’: LEARNING SOCIAL SKILLS IN MASSIVELY MULTIPLAYER ONLINE GAMES, 2 INTERACTIVE TECHNOLOGY & SMART EDUCATION 89 (2005), available at <http://www.socialinformation.org/readings/MMORPG/social%20Skills%20in%20MMOG.pdf>

<sup>33</sup> MARCUS D. CHILDRESSA & RAY BRASWELL, USING MASSIVELY MULTIPLAYER ONLINE ROLE-PLAYING GAMES FOR ONLINE LEARNING, 27 DISTANCE EDUCATION 187 (2006), available at <http://www.socialinformation.org/readings/MMORPG%20learning/MMROPG%20for%20Online%20learning.pdf>.

<sup>34</sup> DOROTHY E. WARNER & MIKE RAITER, SOCIAL CONTEXT IN MASSIVELY-MULTIPLAYER ONLINE GAMES (MMOGS): ETHICAL QUESTIONS IN SHARED SPACE, 4 INTERNATIONAL REVIEW OF INFORMATION ETHICS 46 (2005), available at <http://fiz1.fh-potsdam.de/volltext/ijie/06142.pdf>



### ***3. The Distinction Between “Single Player” and “Multiplayer” is Becoming Increasingly Harder to Draw***

Moreover, the line between “single player” and “multiplayer” has become increasingly blurred in recent years. Many games now exist on a spectrum, with dedicated multiplayer at one end, and connected single player at the other.

Take, for example, the wildly popular iOS game *Animal Crossing: Pocket Camp*. The mechanics of the game and its progression are all single-player. At no point in active gameplay must the player actually interact with another human being. However, players can engage (if they so choose) in light social networking elements, such as trading fruit, visiting other players’ campsites, and tapping a button to lend assistance in certain tasks. These functions are optional, and ancillary to the core game play. Despite this, the game requires a continuous, open connection to Nintendo’s servers, so that the game can synch inventory data and enable social networking functionality when the player wants it. Any loss of connection results in an error message with a suggestion to retry the connection when you have service. The result is a kind of “background multiplayer” mode; multiplayer elements are not a critical (or even substantial) part of the game, but the multiplayer server connection remains mandatory. The game generated over \$10 million in sales in its first week.<sup>35</sup>

Another example is the *Souls* titles, a series of largely traditional sword-and-sorcery action adventure games. Players progress through a single-player game world by killing progressively more difficult monsters, collecting loot, and making their character stronger. However, the game features a number of unique elements that allow players to communicate with one another across individual games. Players can, for example, leave messages on the landscape, and those messages will appear in other players’ games. When a player dies, other players will stumble across a blood stain in the location of their death, and can “activate” the blood stain to see a shadow of that player in their final moments. They can also opt to “summon” the ghostly form of another player into their game for assistance—or, on rare occasions, “invade” another player’s game to fight them and attempt to derail their progress. There is no voice chat, so even when players briefly come face-to-face (or face-to-ghost), players can only communicate with one another through pre-recorded phrases and set gestures. The series had sold over 13 million copies by mid-2016,<sup>36</sup> and received widespread critical acclaim.<sup>37</sup>

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<sup>35</sup> Jared O’Neill, *Animal Crossing: Pocket Camp Has Surpassed \$10 Million in Sales*, NINMOBILENEWS (Dec. 1, 2017), <https://ninmobilenews.com/news/2017/12/01/animal-crossing-pocket-camp-has-surpassed-10-million-in-sales/>.

<sup>36</sup> Sal Romano, *Dark Souls III tops three million shipments, Dark Souls series tops 13 million*, GEMATSU (May 10, 2016), <https://gematsu.com/2016/05/dark-souls-iii-tops-three-million-shipments-dark-souls-series-tops-13-million>



These and other games are largely single-player as traditionally understood, and, at first blush, would appear to fall within the existing exemption. However, design choices underlying minor features prevent them from being “complete” games in the Office’s current understanding. This result is not only counterintuitive, but, as games evolve, will make the working boundaries of the current exemption untenable.

#### **4. Conclusion**

Online multiplayer games are a dominant force in the art form, and, despite their immense financial and cultural success; unique challenges in archiving; value to researchers and scholars; and evolving functionality, preservation under the current exemption for these games is difficult-to-impossible. Given the above, the Office should expand the current exemption as proposed.

#### **DOCUMENTARY EVIDENCE**

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<sup>37</sup> See, e.g., *Game of the Year 2009*, GAMESPOT (Dec. 25, 2009), <https://www.youtube.com/watch?v=YgYBivaVco8>.