The Section 1201 Roundtable met in Room 1314, UCLA School of Law, located at 385 Charles E Young Drive East, Los Angeles, California 90095 at 10:00 a.m., Regan Smith, Deputy General Counsel of the U.S. Copyright Office, presiding.

PRESENT

REGAN SMITH, Deputy General Counsel of the U.S. Copyright Office
ANNA CHAUVET, US Copyright Office
STACY CHENEY, National Telecommunications and Information Administration
JOHN RILEY, US Copyright Office
JULIE SALTMAN, US Copyright Office
ALSO PRESENT

JAMES CLARENDON
CHRIS CONNELLY, Juelsgaard IP & Innovation Clinic
MICHAEL DEAMER, Samuelson Law, Technology & Public Policy Clinic
BROOKES DEGEN, Samuelson Law, Technology & Public Policy Clinic
STEVE ENGLUND, Entertainment Software Association
ALEX HANDY, Museum of Art and Digital Entertainment (MADE)
DAVID PETCHY
DYLAN SCHER, Juelsgaard IP & Innovation Clinic
ROBERT WALKER, Samuelson Law, Technology & Public Policy Clinic
KYLE WIENS, iFixit
J. MATTHEW WILLIAMS, Association of American Publishers, Entertainment Software Association, Motion Picture Association of America, Inc., and Recording Industry Association of America (Joint Creators II)
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MS. SMITH: Okay, I think we're ready to start and I don't know if anyone on the A/V teams needs to be alerted to that. So this is the warning that we are going to start.

All right, so welcome everybody. My name is Regan Smith. I'm Deputy General Counsel of the Copyright Office here for hearings on the section 1201 triennial rulemaking.

And before we start this hearing, which concerns video game preservation, we wanted to thank the UCLA Law School. This is, I guess, the fourth time that we've been able to host hearings here at UCLA Law School, and we're very appreciative that they have extended all these resources to us.

And in particular, we wanted to thank Professor David Nimmer, Professor Neil Netanel, Sue Akens who is the executive director of the Ziffren Center for Media, Entertainment, Technology and Sports Law, and Eisen Yoon, the program coordinator for the Ziffren Center.

Before we get started, we are privileged to have Professor Nimmer here who will say some opening remarks.

PROFESSOR NIMMER: I just wanted to take
the pleasure of welcoming everyone to UCLA. It is almost mind-boggling for me to reflect that 20 years have now elapsed since the passage of the DMCA and when the rulemaking was instituted. It was something completely unknown when Marybeth Peters called me when the second rulemaking was going on and asked if they could have a room at UCLA. We were very happy to accommodate the Copyright Office and to welcome them back many times since.

And I can only promise that whatever comes out of the rulemaking undertaken today, I will be analyzing it in due course. So I welcome you all, and I'm glad to have you here.

MS. SMITH: Thank you, Professor Nimmer. So as I just said, this concerns Class 8: Computer Programs -- Video Game Preservation. For the next few hours, we're going to be discussing whether or not to modify or expand an existing temporary exemption for which the Acting Register has determined it is already appropriate to recommended renewal of.

If you are new to these hearings, we are going to try to focus on areas where there may be gaps or conflicts in the legal or evidentiary bases and try to get to sort of the heart of disputes. We think it's important but this is a rather
complicated class and there's a lot of submissions. So if we ask you to sort of keep it snappy, you know, please try to be understanding. We're just trying to make sure everyone has a chance to say their piece and that we get to cover all of the issues.

If you wish to speak, just tilt your placard up and then we'll call on you in due course. And speak into the microphones. If you are speaking, because the court reporter is just looking at your backs, we ask that you do say your name each time so that he knows who is speaking. And I think that is about it. The microphones are always on, so if you're not called on, keep it quiet I guess. But other than that, I think we're ready to start.

First, we will introduce ourselves. If Mr. Cheney, you wish to start?

MR. CHENEY: Sure. My name is Stacy Cheney. I'm with the Office of Chief Counsel at NTIA. It's good to be here.

MR. RILEY: John Riley, Attorney Advisor, Copyright Office.

MS. CHAUVET: Anna Chauvet, Assistant General Counsel at the U.S. Copyright Office.

MS. SALTMAN: Julie Saltman, Assistant General Counsel at the Copyright Office.

MS. SMITH: And Mr. Degen?
MR. DEGEN: Yes. Brookes Degen. I'm a clinical student at the Samuelson Law, Technology & Public Policy Clinic.

MR. DEAMER: Michael Deamer of Samuelson Law, Technology & Public Policy Clinic.

MR. WALKER: Robert Walker. I'm the clinical supervising attorney for the Samuelson Law, Technology & Public Policy Clinic.

MR. CLARENDON: James Clarendon. I'm a software development manager at Amazon.

MR. PETCHY: David Petchy, veteran game developer.

MR. HANDY: Alex Handy, founder and director of The Museum of Art and Digital Entertainment.

MR. WILLIAMS: Matt Williams from MSK for AAP, ESA, MPAA, and RIAA.

MR. ENGLUND: Steven Englund from Jenner & Block for the Entertainment Software Association.

MS. SMITH: All right, great. So we have one exhibit, which is a presentation I think by MADE that we'd like to start out with, and then we'll begin by teeing up some questions.

(Whereupon, the above-referred to document
MS. SMITH: So Mr. Handy, it’s now yours. This is going to be called Exhibit 8-C because we've had two prior exhibits in our D.C. hearing regarding this class, all of which will be posted to our website promptly.

MR. HANDY: Thank you very much. Is this working? Thank you very much. I first wanted to say thank you to Mr. Cheney, Mr. Riley, Ms. Smith, Ms. Chauvet, and Ms. Saltman for doing this. Thanks for coming all the way out here to see us and listen to us. We really appreciate it.

So I'm going to keep it short. I'm not going to go through the whole slide deck. I wanted to explain who we are and I wanted to talk about a project that we actually did.

So first off, offline online worlds are lost. If they're not online, they don't exist. The Museum of Art and Digital Entertainment is a non-profit 501(c)(3), located in downtown Oakland.

We're dedicated to preserving the history of the video game industry. We have playable exhibits of significant works and various systems across the history of video games. We like to say that you can come in and play everything from
Pong through the Xbox 360. We feel that that's what the public wants.

We engaged with the public in a way for a long time with curated exhibits. We found out very quickly that 95 percent of the people who come in the door want to play Mario Kart and Duck Hunt on original equipment. They've got to have their Duck Hunt. So we gave the public what they wanted by allowing them to play the games they wanted in our facilities.

But we also have free programming classes for kids, community meet-ups. We do projects to restore old software. We find stuff all the time. It is remarkable how much of the games industry is in people’s garages. It's probably 80 percent of this industry's history is in people’s garages. It's a horrible state of affairs.

These are the some of the organizations doing preservation work in the world right now. Specifically in the United States, Stanford and the University of Michigan are very good, but they have library access only. National Video Game Museum down in Texas is the largest video game museum in the country. It is completely playable, you can play all their stuff.

Strong Museum, in Rochester, New York,
is humongous, has a spectacular group up there. There's Video Game History Foundation, which is about scanning old documents, doing really deep, investigative work but it has no facility. And there's the MADE, where we're doing pioneering work.

This is the state of institutional massively multiplayer online game preservation, virtual worlds. There was a paper in 2008 saying how to do it, which basically sort of shrugged and said you kind of can't. And then there's us. Nobody else is doing this work. And all the work that is being done in this space is being done by fan groups in completely illegal space.

This is Habitat. In 1986, Lucasfilm and America Online's predecessor, Quantum Link, launched the first virtual world, Habitat. It was playable on Commodore 64; the back end ran on a system called Stratus VOS, which even this pack of humongous nerds right here had never heard of. That's how rare this stuff was.

We had to find the original company, Stratus, and get them to send us equipment to make this thing work. We had the original source code from the original authors, which normally you can't get that, but Habitat's source code has probably been discussed in this law school many times. It
is public domain. It has been used in numerous online cases to invalidate virtual world patents because it predates everything.

As of 2013 when we started this project, Habitat existed as a two-hour video on YouTube and a bunch of screenshots and a bunch of blogs. That's it. You could not play this game. We brought it back. It is online right now, you can sign in and play this game. There are people in Germany playing this game right now. The Germans love this game. They have original Commodore 64s, playing this game on the internet.

But we allow people to play it with an emulator. You run a Commodore 64 emulator on your computer, you load the original game client, and you log into our server.

In order to make this work, there was a piece missing that AOL gave us --- was supposed to give us. And we could not get it from them because they just couldn't get past their own lawyers.

This piece of software was from 1985. It allowed a request from a server to be sent to the Commodore 64, and it told it what that meant. Not very useful intellectual property in the modern world, but AOL would not let us have this -- they pulled it off their tapes. They had the original
people who worked on it get this library for us. They were ready to give it to us. And then it went to legal, and they're like we're not letting any of this stuff go.

This is the ---

MS. SMITH: Did they give a reason why?

MR. HANDY: We never got a reason why.

We were told that they were going to do a big press release and release it all open source and do a big thing -- even more than we had asked. My guess is that it was totally fine in the AOL department. And then it went to the Verizon lawyers because Verizon owns AOL and it just -- they didn't even know what it was. They just said no.

The rest of the way on this project, Lucasfilm Games, which doesn't even exist anymore, had sold the game to Fujitsu. We talked to Fujitsu. Fujitsu loved this. They thought this was great. The guy who had negotiated the original contract was sitting next to the lawyer that I called about this and was like great, I'll go trace the contract. They basically waived it and said you can do whatever you want with this thing.

So we did work with the original rights holders there. The issue was, this like little tiny Lego block that we couldn't get out of AOL. And we
had to go around them. We had to re-engineer all
the way around them in order to make it work. And
that piece set us back a year and a half. This
project took four years.

And this is the -- this game is so simple.
The logic for playing this game is 32 kilobytes in
RAM. The graphics are 32 kilobytes in RAM. This
is the most simple virtual world ever. And it took
us four years to bring it back with the original
authors, the original source codes, the original
equipment, everything.

This work is so incredibly complicated
and complex that even if we have this exemption,
we still have mountains of work to go through. The
--

MS. SMITH: Would this exemption
request have affected your work on Habitat? And if
so, how?

MR. HANDY: On Habitat, it would have
allowed us to -- it would have probably saved us
time on that year and a half with AOL.

MS. SMITH: In what way?

MR. HANDY: We would not have been
coming to AOL from a position of begging. We would
have been coming to AOL from a position of being
able to say: can you help us with this? We have an
alternative. But if you were to help us with this, you'll be involved in the project.

    MS. SMITH: Sorry. Could you talk more specifically in terms of said current technology though?

    MR. HANDY: Oh, the technology?

    MS. SMITH: Right. Like what could you do that you cannot do because of section 1201? What access control would you be able to circumvent?

    MR. HANDY: So that piece that we were missing was the access control piece. So that was the piece --- okay. The original Q-Link is like a black box. And when I sign on to it, it would be like, here's my username. And the Q-Link intermediary would say okay, that username corresponds with this person who's paying $6.00 an hour to play the game.

    That intermediary piece is the whole thing we were missing. And without it, we had to go to a group that was implementing Q-Link all over again outside in a grey area, right. And that is the stuff we had to use. And we didn't want to. We wanted to use the original stuff, but we did not have an option because AOL couldn't get it to us.

    MS. SMITH: So what would you have done if this expansion to the exemption were adopted
instead?

MR. HANDY: We would have had more of a recourse for -- well first off, it would not have been a risk to use that grey area stuff, you know what I mean, the ---

MS. SMITH: That you used anyways though, right?

MR. HANDY: Yes, this is --

MS. SMITH: I'm not discounting that but just in terms of technologically, what you would have done differently. What circumvention would you have engaged in?

MR. HANDY: The circumvention that we would have engaged in would have replaced the login stuff. And we didn't actually have to do this in the end. So the issue being that AOL is not litigious against us doing it. They just wouldn't give us the stuff. Do you understand -- do you see what I mean? Like --

MS. SMITH: Well I mean I can't -- we cannot make AOL give you the stuff, right?

MR. HANDY: No, no, no. But we can circumvent their stuff now without having to worry about them coming back at us. Right? Like if -- now that we've done this, if we get this exemption, we're like -- we're safe. Right? And it literally
is that authentication piece that was missing, and then we had to go around in order to make this work. It would not have worked without it.

MS. SMITH: Okay, thank you. You can keep going.

MR. HANDY: I hope that -- is that enough technical?

MS. SMITH: Yes, that was helpful.

MR. HANDY: Okay. I can basically end pretty quickly here. I don't have to keep going. But I hope this -- this is what I really wanted to discuss. And I can answer all the questions you have about Habitat and the process here. The thing that must be understood about Habitat is this was like the absolute perfect scenario. We had the authors. We had the source code. We had the people from the server. It will probably never happen like that again. Do you see what I mean?

Like the people who made these games are older than the games themselves, at least by 20 to 30 years. And now these games are 30 to 40 years old. Without that knowledge on the staff, we would never have been able to bring back Habitat. We needed to do this when we did because Chip and Randy are, you know, they're in their 60s now. And you know, God knows what happens. And if they're gone,
that game is gone. Nobody can bring it back.

Because it was written in a time where you didn't write pretty word source code like Python like we have today where a source code can be easily written. This stuff's written in assembly. It's one step up from DOS -- 1's and 0's. It's really, really complicated stuff.

And Habitat was written in PL/1. That stands for Programming Language One. That's a really old programming language. And the only people who can still like even talk about that is IBM. Right? Like IBM will sell you some PL/1 stuff. You know? Nobody else will do any of the PL/1.

Really quickly I wanted to rebut a couple of the things that were said in the ESA and MPAA's rebuttals. First off, they were arguing that there's enough preservation institutions. No way. You can never have enough preservation institutions.

Look at this, HP's museum was in Santa Rosa. It's gone. Everything -- their history, all that paper burned down. Aardman Films in the U.K. that did Wallace and Gromit. They had all their stuff in one vault. Burned down.

The MPAA's entire history is basically
gone because of fires and archives. Three quarters of all films made in the silent film era are gone because they were kept in a film vault inside of a film studio nobody was allowed to go in. And they caught fire and burned. And that's it. They're gone. No more copies.

We can't let that happen to the video game industry. It's happening right now with virtual worlds. They're all gone. When they're taken off, that's it. They're gone. There's no recourse. There's no bringing it back.

Rob pointed out to me that there was a gentleman who's 70 years old who plays a game called Asheron's Call. Played it from launch to when they took it off 18 months ago. The guy's 70 years old. Talks to his kids in this game, his whole social interaction is through this game. They take it offline and he's got nothing. You know? These players generate half of the content in these games. These games exist but unless there's players in them, there's no reason to play them. So the players are like half the content. And when they're gone --

MS. SMITH: Are you seeking an exemption for preservation or for continued gameplay?

MR. HANDY: So this is for preservation.
MS. SMITH: Okay.

MR. HANDY: Like this is the grease trap to make sure the stuff isn't just vanishing. This is not about putting it back online and allowing that old guy to play it again.

MS. SMITH: So right -- I think he would not be able to benefit from the exemption.

MR. HANDY: You're right.

MS. SMITH: I just wanted to make that clear. I'm not saying, you know, what we're --

MR. HANDY: No, absolutely.

Absolutely.

MS. SMITH: Okay.

MR. HANDY: But without the exemption, it's all gone. There's nothing. We're just asking for sort of a grease trap to catch the stuff where the companies that owned it are gone. The servers are gone. The people that wrote it aren't working on it anymore. Nobody's making money on it. Nobody even knows it existed. Like Habitat is where we're starting, 1986. We want to start working forward from there.

A lot of people ask us: Is this for WoW? Is this for City of Heroes? Is this for Star Wars? Absolutely not. Maybe 50 years from now. Today we have a problem where basically everything in the
80s and 90s that was an online game is gone.

MR. CHENEY: I have a question for you on some of this. You just -- you indicated that a lot of the content online is user-generated. Is that part of your preservation efforts to --

MR. HANDY: We can't preserve that.

MR. CHENEY: That whole part of the game is gone, so you go back to basically ground zero where the game was pristine. Is that correct?

MR. HANDY: Yes. We go with whatever we have the ability to work with. There's a lot of questions about what revision of the server would you bring back? We usually don't have the ability to choose. You get what you get, whatever we have available.

MS. SMITH: Okay. So Mr. Handy, I think you've raised a lot of interesting questions.

MR. HANDY: Sure.

MS. SMITH: But we do want to be able to probe the whole group. So maybe if you can take a minute to wrap up the presentation and we'll sort of, you know, sit you back down or is that --

MR. HANDY: That's fine. That's fine.

MS. SMITH: Okay.

MR. HANDY: That's what I wanted to get through. Thank you very much.
MS. SMITH: Great. Okay, thank you.

Okay, before we dive into -- Oh I'll let Mr. Englund briefly speak and then we'll get to questions.

MR. ENGLUND: Yes, I'd like to just very briefly comment on a few of the points that Mr. Handy made. First, at both the onset and toward the end, he said if an online game is not online, it doesn't exist. And plainly, that's just not true. Right? The Habitat project he talked about, demonstrated that. Decades after the game went offline, the copyright owner had the source code and provided it to MADE. So plainly it did not turn into digital dust when the servers were shut down.

Second, Mr. Handy said early in his presentation that play is what the public wants and I think that's a critical point here for trying to make sense of this proposal. This is not a proposal about taking historic artifacts, putting them into a safe space so that a scholar can access it --

MS. SMITH: Well I'm actually confused about that because when I read their pleadings -- or their papers, it is -- that is what they seem to be looking for. And it's -- I wasn't really bothered by the fact that a museum might engage in preservation activities on the one hand and exhibition activities of other materials on the
other hand. It seems like, a fairly frequent occurrence at museums and archives.

MR. ENGLUND: In the back of our comments, we provided pictures of the main facility from its website and its shelves loaded with video games. It is not a scholarly place.

MS. SMITH: So one question for Mr. Handy is if this exemption were granted, the $10 play all day, would these games be part of that or not?

MR. HANDY: So even Habitat is not a part of that right now.

MS. SMITH: So is the answer no?

MR. HANDY: No. I mean it's not a hard no, I could see us having an exhibit on some of these things someday, but that's not what we're planning. No.

MS. SMITH: Actually how is it not a hard no? Because you have said it is limited to preservation uses and not built out a case for a non-infringing basis for exhibition purposes or the public performance. Right?

MR. HANDY: So certainly. What I'm saying that it's not a hard no is I don't want to say we will never exhibit one of these games that we preserve on our show floor. The purpose is to
eventually be able to. Maybe that's 30, 40 years down the road, I don't know. But for now, no. We just need to stop this stuff from vanishing.

And you know, yes that source code was available, but that source code was in personal hands. That source code was not in corporate hands. That source code was not in Disney's hands or, you know, Lucasfilms' hands. It was in the guys who wrote it, hands. And that's sort of what we're trying to help with. This is a very young field, video game preservation. And as I said, most of its history is in people's garages. And we can't allow that to continue.

MS. SMITH: Okay, I'll let Mr. Englund continue.

MR. ENGLUND: Yes, so my third point continuing to comment on Mr. Handy's original presentation, he said that nobody else is doing it. Or at least nobody else is doing it legally. And that MADE has restored precisely one game after four years of use. That sounds to me under the rubric of this proceeding, a lot like an individual case or a de minimis use. Not an instance where the anticircumvention provisions of 1201 are substantially impeding non-infringing activities.

Fourth, Mr. Handy talked about Habitat
and Habitat is a fascinating example to think about in the context of his proposal. Because as I understand the architecture of Habitat from the presentation a moment ago and from the comments, that the one piece of software that MADE was not able to get from the copyright owners is not actually software that is clearly covered by the proposed exemption. Because everything that is covered by the proposed exemption seems to have been provided by the copyright owners.

And MADE has variously described this missing piece of AOL software as communication software, billing software, possibly something that once was TPM controlling access to the software. But it wasn't controlling access to the software once the copyright owner provided it. It was an independent piece of third party software that was part of the service through which the game was provided. It's not video game software. And so peculiar in my view to be basing a proposed exemption based on the need to do some circumvention with respect to software that's actually not covered by the exemption.

Finally and briefly, Mr. Handy mentioned the HP museum or I think the comments referred to his archive, I tried to do a little bit
of looking into the reporting on the event and the Santa Rosa fire. There was initially after that event some fairly alarmist reporting, kind of consistent with Mr. Handy's comments.

It appears that HP subsequently issued a statement picked up in some further reporting that this was actually an archive that belonged to a spinoff of a spinoff of a spinoff. And I'm not completely clear what the story there is to the extent it might be relevant. And some historical documents were probably lost, but this is not the HP archive that's in Atlanta. It's not Mr. Hewlett's papers which are in the Stanford Library. So I think it's not particularly relevant but also not what has been described here.

MR. RILEY: Mr. Englund, before we move on, I have a brief question. You made a comment about the fact that the MADE charged an admittance fee to go and play games. Certainly there are museums that charge you to get in. Is what you're saying here, that it would affect the market or it's just a flat -- you don't want people to be paying to play games even in a preservationist context?

MR. ENGLUND: I think -- I've tried to study MADE's comments and figure out exactly what the proposal here is. And it seems to shift from
time to time. But if the proposal were to take a bunch of online games, restore them or recreate them, and put them in a public place for recreational game play for a charge, that sure sounds to me like something that's infringing. Entirely possible that the fair use analysis would be different if this were a more traditional museum type exhibition setting.

MS. SMITH: Does anyone want to -- on the other side, I mean speak as to what it is?

MR. HANDY: I can speak to the MADE. Yes, the MADE does have shelves. It may not look like a traditional museum. That's because we're really poor.

MS. SMITH: No, no, no. I'm more focused -- this may be more of a lawyer question, I don't know, in terms of what the particular exemption request is. Because when I read it, it is to circumvent for preservation activities, not continued play which is a separate subpart. And it also wasn't clear that exhibition activities would be included because under the current exemption, they are excluded.

MR. HANDY: Yes --

MS. SMITH: Mr. Degen?

MR. DEGEN: Yes, sorry. Mr. Degen,
that is me. The language of the proposed exemption with regard to public exhibition is identical to the language of the current exemption. We're not asking for any sort of expansion in that regard. It's really not an issue legally in this hearing.

MS. SMITH: Okay. So in 2015, the Register said exhibition uses, the case hadn't been made. It's not included. And so if we have three categories of things that may be socially beneficial being arcade uses or continued play, exhibition uses -- when you look at it -- and preservation uses, it seems like it is only the third that is at stake. Does anyone disagree? Okay, all right.

MS. CHAUVET: Actually, one question I had because I -- with Habitat specifically, you said that it was like a very small, like virtual world that was needed -- sorry a persistent world was like a very small piece. So I guess my question is for these games that you want to preserve, how much of it would have been on the server so that you would need to get that from the copyright owner? Like is it like a small part of the game relatively speaking, or is it maybe 50/50 or maybe it depends? But I think it would be good to know that information.

MR. HANDY: Sure. Mr. Handy. Generally speaking, it varies from game to game.
But most of the time, the way that an MMO or an online world works is that the client has all the graphics, the sound, the maps, all of the sort of physical things and fancy things that make the game look good. And the server has all the telemetry, where you are, who that person is. Whether there's a monster next to you or not. But the actual like images of the monster are on the client's side.

And that's how it works on Habitat. Like all the graphics are on the client's side. The major difference with Habitat is the map. The world itself is server side. Usually like in a game like World of Warcraft or something, the map is on the client's side.

MS. SMITH: Mr. Clarendon?

MR. CLARENDON: To give you a little more insight into that, often times the Commodore 64 at the time, could only hold so much memory. But you had dozens of megabytes of data on that server. So it held hundreds or thousands of times what one individual client could hold in its memory at any given point in time.

MS. SMITH: Mr. Englund, I don't know if you have an idea, like maybe in terms of percentage where like 30 percent is on the client side and maybe 70 -- I just don't know.
MR. ENGLUND: I think it's not possible to provide one answer to that question.

MS. SMITH: Okay.

MR. ENGLUND: There are huge numbers of games in the marketplace with diversity of architectures. I didn't at a very high level disagree with Mr. Handy. I think that it tends to be the case that the assets are local and the logic is at the server, but every game is different.

MS. SMITH: So this exemption would only kick in if the server has been discontinued for six months. So I am assuming there is no circumvention to get to the server because it has been discontinued. What exactly are you circumventing and how do you put the game back together if the server has been taken off? Mr. Degen, yes?

MR. DEGEN: Yes. I did want to point out that in 2015 the ESA argued that there was no distinction between the single player games at issue in the hearings in 2015 and the multiplayer games. And that in their argument at that point, which they've now changed, the majority of data they argued was stored locally with the client, not on the server.

MS. SMITH: All right. I want to keep moving to focus on my question. What would be
circumvented under -- with this expansion, and how would the preservation be achieved? Mr. Clarendon?

MR. CLARENDON: Sure. So in many online games and mobile games in particular, like the game itself will have to call out to a server to say: Am I entitled to do this? Do I possess this content? Am I allowed to do this? And it needs to have that authentication from that remote server, come back and say yes you're okay to do this. Those -- if that server doesn't exist, you aren't able to access that content and that may block access to all the artistic merits.

MS. SMITH: So the content is stored locally, just the authentication check is preventing it from loading or playing?

MR. CLARENDON: Right. And there are times also that the client may ask the server what's going on. And the server may say hey, here's some additional content that I need to send to you.

MS. SMITH: So if this exemption were adopted, what would happen in that case if the external server is not there to send the additional content?

MR. CLARENDON: Often times it results in the player being blocked from getting a pass to even just the start screen.
MS. SMITH: Well right but the server has been shut down. So what you do? How would the preservation be achieved?

MR. CLARENDON: So what the exemption would do is -- we would be able to emulate that back end or alter the code that verified that authentication and admitted the player through in order to keep playing.

MS. SMITH: So how would you do that?

MR. CLARENDON: There's a number of ways we can do that. It depends on the types of communications. In particular, a lot of times we're doing HTTPS calls from the client's server. And if it -- we would intercept those calls essentially, acting as an intermediary, and send back authentication.

Another option might be we go in and we edit the client code itself to just simply skip those verifications from the server.

MS. SMITH: So what about in the case where it's not just the verification check, but it's actually needing additional content that would have been pushed through the external server that's no longer there.

MR. CLARENDON: Sure.

MS. SMITH: How would the game be played
MR. CLARENDON: So a lot of times -- and one of the groups that was mentioned earlier, the history museum, is doing exactly this. They've found old disks that had some of the content that had been downloaded prior. And then they go and they take that and they put that on that emulated server. So they can send that original data back through. But again, it's been recovered from old machines that otherwise would have been lost.

MR. RILEY: So how do you get access to those old disks or old machines?

MR. CLARENDON: Right. So you scour Yahoo auctions oftentimes in Japan, and you find some kid had downloaded this game in 1987. And he still has the floppy disk for it and you get it. You purchase it and you --

MR. RILEY: You're talking about the server side copy?

MR. CLARENDON: Oh, no. Not server side copy. You're talking about the client side copy in this case.

MR. RILEY: Okay. So how do you get -- we're talking about the server side has additional content. How are you going to lawfully access it?

MR. CLARENDON: You're reconstructing
it from other people who had downloaded it successfully.

MS. SMITH: Okay. I see Mr. Englund being patient. I think we just want to stick at this --

MR. CLARENDON: Sure.

MS. SMITH: -- and then we'll let you -- And I'm still going to ask Mr. Clarendon and then we'll get to Mr. Englund. I think this seems to be a key question. So this person in Japan on their floppy disk, they have downloaded contents from the server?

MR. CLARENDON: They were a player originally when the game first came out.

MS. SMITH: Sure.

MR. CLARENDON: Yes. And their game -- and that content came down to them. And so what we can do is we can say how did they produce that content? And we can go take that content that was downloaded and we can send it now to other people who are connected to the server.

MS. SMITH: And is the contention made that this is not infringing because under the first sale doctrine or how is it -- what is the non-infringement analysis for this?

MR. DEAMER: Mr. Deamer. The primary
argument we're making is that this is one game that
is being fair use of that game for preservation
purposes.

MS. CHAUVET: I think her question is
going more specifically to how the server copy is
being acquired? If you look at a lot of the existing
exemptions, that is a limitation. If a copy can be
made, it usually has to be done from a lawfully
acquired original copy. So we're trying to get at
are you -- would it be reasonable to limit this
exemption to a lawfully acquired original server
copy, which I don't know if it's possible.

MS. SMITH: It may be close to an offset.

MS. CHAUVET: Right. So I think we're
trying to understand how you're getting that and
is it or is it not lawful and is it fair use and
what your basis is for having that be the basis for
the exemption?

MR. WALKER: Robert Walker. So in a lot
of these cases, what you're actually doing and my
colleagues here who are the technical people can
correct me if I'm wrong, but it's not that you would
have access to the server copy that existed at that
time, but rather you would be creating a new emulated
server that functions like the original.

But as Mr. Clarendon was saying here,
you know, if you watch the calls that went out via HTTPS, basically what is the server looking for? And then what does it expect to receive back? Through a very time intensive trial and error process, you can actually replicate in a new installation, a server that is emulating what was going on originally from the server.

So effectively, you are building into the client the functionality that you need in order for it to work. You wouldn't necessarily have to have the original server side software to do that. It's a much more labor intensive process the way I just described it, but it is theoretically possible and it has been done.

MS. SMITH: So in the case where you don't have the server side software, how are you getting the expressive content that is typically saved on it? Is this through individual users who bit by bit have had it pushed to them? Is someone writing code from scratch to make it just look the same based on their memory? Are there clean rooms -- how is this done?

MR. HANDY: Mr. Handy. For example on Habitat, we rewrote the server from scratch. We did have the architecture laid out in the original source code. But because that original source code
was written for a server that doesn't even exist anymore, we had to rewrite it from scratch to run it in a modern environment. There are methods available to tweak that stuff out of the client.

So this exemption is not for World of Warcraft. And I'm going to use World of Warcraft as an example. World of Warcraft has expansions. Like they have the Pandaren Forest, right? They distributed that on a disk on a client. So that data is out there already. Somebody has a license to have that on their computer. The server side triggers that stuff and maybe pushes some stuff down. Generally -- like on Habitat, the stuff the server is pushing down, we did not include.

MS. SMITH: Right. I think we're focused on pushing the stuff down is the realm of the questioning --

(Simultaneous speaking.)

MR. HANDY: Right and what I'm saying is like on Habitat for the stuff that was pushed down, we didn't have it. We didn't include it. We built without it. We go around it, you know what I mean? These are big things. There are things you can take out.

MS. CHAUVET: So if you can take things out like that, why is circumvention necessary?
Like why can't you just --

MR. HANDY: The authentication piece.

We're not allowed to go around the DRM, the authentication pieces.

MS. SMITH: So is this a useful exemption for you if it allows you to bypass -- I swear Mr. Englund will be next because I think there is probably a lot he has wanted to comment on. But would this exemption be useful for you if it just allowed you to bypass the authentication checks but did not allow, I guess, or set a line against copyrightable content when something needed to be pushed down?

MR. HANDY: It's a different scenario for every game. So the narrower the exemption, the more likely we're going to hit up against something where there's a little piece beyond the authentication.

MS. SMITH: Yes, I understand that.

MR. HANDY: So it's a tough question to answer because like I said, we've only done the first one and there's thousands. And they're all different. And you know, some may have some strange pieces that we're not even accounting for here.

MS. SMITH: Right. So we just need to be very careful to understand what it is you're
seeking to do beyond authentication checks as opposed to -- right, especially if every game is different. So Mr. Englund, I will let you speak now.

MR. ENGLUND: Thank you. So first just very briefly to respond to Mr. Degen who a few minutes ago accused ESA of changing its position since 2015 and I don't think that's true. I believe the description of game architecture as between the client/server that I gave ten minutes ago is highly consistent with what we said in 2015.

To more fundamental points in the line of questioning the Office has been pursuing for the last several minutes, I think that's really the key issue here for considering this exemption. And I don't think you got satisfactory answers to the question of how it is proposed that people acquire the server side aspects of the games. You've heard one group of answers that essentially describes the current exemption where the server only performs an access control role. Well you don't need the new exemption to cover that.

MS. SMITH: Well I think that we said it's not for online game play. Right? So I think in this case it is like the current exemption and just the class of games you cannot do, but the actual
-- what you're circumventing that acts within
change.

MR. ENGLUND: You know I think the
distinction in terms of online games versus games
covered by the current exemption is whether the game
itself as opposed to the access control, sits in
part on the server. I think the current exemption
applies to games where the game itself is wholly
local and the server performs only an access control
function. I think at one point Mr. Clarendon was
describing that kind of scenario, but you don't need
this exemption for that.

MS. SMITH: Well I think -- I mean, what
if through the preservation activity, there is a
server set up that is just sort of facilitating --
the dummy authentication checks or something like
that? I don't know if that's covered under the
current exemption. And I don't know if that is
getting to the concerns expressed by ESA. I also
don't know if that's a realistic scenario or not
to be useful. I'm just trying to understand.

MR. ENGLUND: I believe that scenario is
what the current exemption is for where the game
is entirely local. Somebody has lawfully acquired
a copy of it but a server is required for
authentication. The current exemption permits
someone to set up a substitute authentication or preservation organization to set up a substitute authentication server.

So I think what distinguishes the new proposal from the current exemption is cases where some aspects of the game live on the server.

MS. SMITH: Okay. Keep going.

MR. ENGLUND: And as for that, you heard I could get another set of answers to your previous set of questions that concerned distributed emails. And things that have been downloaded 30 years ago to floppy disks. And I agree that is possible that could happen because some game elements are downloaded in the case of game play. But that again is not kind of the core of what is proposed here. Those elements sound a lot like stuff that might be subject to the current exemption.

I think the core of what is proposed here is what Mr. Handy described a bit ago when he said the game logic for an online game lives on the server and the case of Habitat, the map lives on the server. That piece of software is what we're talking about that distinguishes the proposed new class from the old class.

MS. SMITH: So in the example of Habitat, they were able to I guess acquire a copy
of the server side.

MR. ENGLUND: That's what I understand.

MS. SMITH: And that was with permission. Right? So if this exemption were to say there needed to be a lawfully acquired copy or something, does that mitigate the concerns to -- what's the infringement risk there?

MR. ENGLUND: Yes, right. I'm sure there's circumvention that needs an exemption at that point. What this proceeding is about is circumvention of technological protection measures that control access to works. If the copywriter gives you a copy of the work --

MS. SMITH: Sure. And they have said there could be a Lego block piece in-between, which when pressed, you've said maybe that's not a TPM-related issue and they've suggested maybe it is. And maybe we can get an answer as to whether that would fall under -- but I mean in this instance of just dealing with a Lego block piece, although you've gotten a server side copy lawfully --

MR. ENGLUND: Well I think the game copyright owner can only speak to its interest.

MS. SMITH: Right.

MR. ENGLUND: If the owner of the copyrighted game has handed over a copy of the source
code for the games and said go to it, it seems like any possible claim by the game copyright owner has been exhausted. So yes, in the case of Habitat, I gather this is billing or communication software that was owned by AOL or Verizon, the game copyright owner can't speak to that. But to the extent that, that little piece of software is a TPM controlling access to the game, I think the game copyright owner exhausted its right when it said here's the source code to have access.

Miss Smith: Mr. Petchy?

Mr. Petchy: Yes, I just want to bring up a point that the communication between the server and the application is a complex inter-relationship, especially if you're dealing with positioning characters in the field or two different people remotely. So I mean when I look at that, I mean I can see that as copyrightable material in its own right. And if one is getting in-between and essentially cutting the game in two and pulling one side off, one is already in the milieu of interfacing and violating the copyright.

Mr. Riley: So I'm curious as to whether you have any thoughts on how the exemption is currently working. Because we have had a little bit of discussion about maybe there could be a server
created and a game under the current exemption could have, you know, the call and answer of that server authenticated locally. But maybe a different interpretation could be that you as a preservationist amend either the game or the console or some combination to not ask the authentication question.

Is there -- can you talk in your knowledge about any kind of issues with the current exemption and is that working for you guys for those particular uses?

MR. HANDY: Yes, I can speak to that. The current exemption is working. One of the great things that I think the current exemption did is it allowed us to circumvent DRM protections on console games to allow them to bring back, like, online console games versus preservation. And because of this -- I think very much because of this exemption, Microsoft now offers all of its original Xbox games for sale on their marketplace. So you can go into an Xbox One marketplace, buy Halo 2, and play it online again.

If every company did that we wouldn't be here. Like Blizzard does a great job serving their stuff. I think the exemption sort of in a way pushed them to do that because they realized people
are out here trying to play these old Xbox games.

MR. RILEY: But for the ones -- for the companies that didn't do that, are you actually using the exemption to preserve the games? And how are you doing so?

MR. HANDY: So in terms of using the exemption to preserve games in the space if we need access to a game for historic purpose -- and there are people who come and do research at the museum and, you know, use our old games. And there are games we have had to use say a circumvented console in order to play the game. I can't necessarily speak about what it was because the various research projects. But we have a --

MS. SMITH: Can you name one game that has benefitted from the current exemption?

MR. HANDY: We've done this like twice, I think. But it's been -- we've been able to run a game that we had to circumvent the DRM in order to get the game just to load. Right? We're one organization. I can't speak to how any other groups have utilized this exemption. But to my mind, the existing exemption is useful and I don't know that it needs any tweaks aside from what we're trying to do with MMO stuff.

So in terms of like a game can't be played
without an online authentication server where there's DRM and it's on a console, that's -- I mean that's what it covers. That's what we've used it for and I think it works.

MR. RILEY: So are there any circumstances -- I think your submission talked about local area network play. Can you use the existing exemption to engage in any multiplayer play, whether or not on a local area server?

MR. HANDY: We haven't. I don't know that -- I never read the existing exemption as allowing that because that would mean that you replace the server. Right?

MS. SMITH: You can create a LAN. Right?

MR. HANDY: But if you're creating a LAN, like there's -- I mean -- So for example, if I put a bunch of Xbox's on a LAN, they can talk to each other because that's the way the game is designed. They're designed to pick each other up. So that's fine. That would -- You know if we had to do -- I don't know how the exemption would apply there. But there are other games where you can't do a LAN play. You would need an intermediary server to connect all of them even on a LAN. And we have not touched that because we have to replace
a server and that's not covered by the exemption.

MR. RILEY: I remember I played video games and if someone quit the game unexpectedly, the multiplayer play would shut down.

MR. HANDY: Oh yes, yes. This is -- That's the way it used to be. They've taken away LAN play. Nobody puts LAN play into their games now.

MR. RILEY: They were using the console as like a type of listen server, right? Is there something you can do under the current exemption to -- because remember you can jailbreak consoles --

MR. HANDY: Yes, yes, yes.

MR. RILEY: -- for exemption for preservationists.

MR. HANDY: It's a per game thing. Yes, games use to have LAN play built in. Like Blizzard still has the ability in all their games. And Blizzard is another terrific preservation organization. If everybody was like Blizzard, we would not be here. But their games allow it but 95 percent of modern PC and console games do not have LAN support anymore. They just don't do it. They do online play and then they connect you somehow.

Now like Halo 2 on Xbox did but that was
the Xbox, 2001. A long time ago. It's just not something that's on anybody's agenda for building in games anymore. There are a few that do it but literally it's a feature that's just been removed. You need servers for most of these things that have been made in the last ten to 15 years.

MS. SMITH: And you need the server -- what is the server doing, I guess? I guess Mr. Petchy's explained some of the copyrightable content --

MR. HANDY: Sure.

MS. SMITH: -- can be on both places. And that to me is one issue. And maybe another issue is -- I don't know if this is what you're saying so I'm trying to understand.

MR. HANDY: Sure.

MS. SMITH: Is using the external server to form -- I don't know, would you call it like the matchmaking --

MR. HANDY: Yes, matchmaking. Right.

MS. SMITH: -- the LAN would do, but you need to do this on a server instead of a LAN.

MR. HANDY: The LAN itself was not doing the matchmaking. Those individual clients were able to look for each other and find each other. Sort of a peer to peer kind of a thing. Again, that's
just a feature that takes a little bit of extra coding. And not many people use it, so they don't put it in anymore. I think James can talk to this too.

MR. CLARENDON: Yes. The other piece is that the server is also doing arbitration if two people try to occupy the same space at the same time, something in there needs to say no, that person gets the square and that other person is omitted. So that server code is executing its own logic too.

MS. SMITH: Is it necessary to emulate that for preservation activities if you're not able to -- you know, as opposed to continued play? I mean --

MR. CLARENDON: Yes, absolutely because otherwise you're breaking the rules of the game, which might say that two people cannot occupy the same space at the same time.

MS. SMITH: Okay.

MR. PETCHY: And other example would be if you're firing a bullet at your opponent, you've got to make sure that bullets hit them before you can move the game into the next stage. And that requires a bunch of transactions.

MS. SMITH: Thank you, Mr. Petchy. That's helpful. Mr. Williams?
MR. WILLIAMS: Yes, thank you. I think a lot of these questions, which are very targeted and helpful to hear the answers to, kind of get to the bottom of one of the big problems with the proposal. And that is, I think the reason EFF excluded this type of stuff last time. And the reason the Office said the fact that it was excluded was critical to its analysis is that although at the beginning of this proceeding, we established this is supposed to only be about preservation.

Preservation doesn't always mean what is being described. It doesn't mean emulation. It doesn't mean creating a derivative work so that you can kind of almost get to what it felt like to do something in the past when it was in the market as a commercial product. Usually preservation is more about actually reproducing or preserving the original.

And so this gets into all kinds of derivative work questions and issues that are not addressed by the current statutory limitations.

We talked some about this in Washington so I won't belabor it. But there's a whole process going on related to section 108 reform and what is legitimate preservation activity and where does it cross the line? And because as Steve said earlier,
it's not really true to say just because something's not currently commercially available that it no longer exists. We've got to be very careful about where those lines are drawn. So I would just express some caution on that issue.

The only other thing I wanted to mention is something that came up a little earlier. I think you were talking about well if the copyright owner has provided some of the server side content and endorsed the project would -- you know, would there be infringement -- it sounded to me if I understood correctly, like some of the copies that the proponents might be talking about, I'm not so sure that they are copies that were lawfully distributed. And whether technically server side content that somehow ended up stored in a computer, whether that was really lawfully distributed or acquired. I'm not sure how that content ended up resident on the device. But it seems like there's a little bit of a different section 117 license versus acquired question there.

MS. SMITH: I mean I think that proponents are only articulating a 107 basis. And in the instance where, content has been -- different content has been pushed to different users and they're sort of trying to put the puzzle pieces
together and stitch up the functionality but not, you know, paint broad swaths of the universe. Can you talk to whether you think that -- how the 107 analysis would play out?

MR. WILLIAMS: Sure and I mean, we addressed this some in our comments and I think Steve might want to address that more in length. But when you're talking about these types of adaptations of copyright, both software that includes both functional elements and expressive elements, I don't think it's enough to just say, we're interested in preservation and therefore we satisfy section 107 factors. The copyright owner still has a right to the market, regardless of whether they're choosing temporarily to withdraw work from the marketplace. That doesn't mean the fourth factor would automatically weigh in favor of someone else creating a derivative work in the meantime.

And if you look at the new Oracle opinion, you know, it's a narrower reading, I think, than the Office had made in the past of the 9th Circuit interoperability cases. And I don't think this activity, if I am understanding it correctly, fits within those cases because in those cases, there was only intermediate copying to study only the functional elements. Then they created their
own new expression to enable interoperability.

Whereas this is not that as I understand it. As best they can, they attempt to copy the original expression during the process. So I don't think it fits squarely within the prior interoperability cases.

Commercial, noncommercial factors, you know, are in some ways impacted by what level of access they're providing to the public. And, you know, these fees for entry, and I understand that at least on the face of their pleadings, they're trying to limit some of those things and say, well it's not really about public performance. Or, it's not about -- we're not going to charge admission for these particular games.

But then if you start -- and I'm sure you'll get to do this -- but if you start looking at, well, how are you actually going to enable all these affiliates to --

MS. SMITH: We are going to get to that.

MR. WILLIAMS: -- conduct, that really impacts the fair use analysis as well, I think. And would involve unauthorized public performance as I understand it and probably unauthorized adaptations as well.

MS. SMITH: Mr. Englund?
MR. ENGLUND: Yes, so I agree with Mr. Williams and will just provide a very little bit of gloss by way of response to a couple things from folks further down the panel.

First, I think that Mr. Handy a few minutes ago suggested that the current exemption has pushed Microsoft, or the game companies, to re-release games. I disagree with that analysis of cause and effect. And what we are seeing in the marketplace is the maturation of the video game industry. And just like the motion picture industry, games now have re-release cycles. There is demand for classic games and copyright owners are in the business of satisfying consumer demand by re-releasing their works.

I think that is a reason not to grant the exemption, rather than a reason to grant the exemption. Copyright generally permits copyright owners to decide how to commercialize their works.

MS. CHAUVET: Mr. Englund, just a thought --

MR. ENGLUND: Yes?

MS. CHAUVET: -- maybe you can speak to this, but, like, how do companies determine when they're going to pull a game from the market? Like, what would be their reason for pulling a game and
making it not commercially available anymore?

    MR. ENGLUND: When there isn't much
demand for it. The video game companies are in the
business of giving consumers games that they will
enjoy to play. But there is inevitably a falloff
at some point in the life of a game, and when the
market falls off to the point that there is very
little demand, it makes more sense to put those
resources into creating new games than to keeping
existing ones on.

    MS. CHAUVET: So if there's no
commercial market and so the game is pulled, how
-- if they go ahead and decide to preserve a game
that's not commercially available anymore because
there's no demand for it -- how is that impacting
or having an adverse effect on the market under the
fourth fair use factor?

    MR. ENGLUND: So first, the fact that
server support is discontinued for now doesn't mean
that there isn't a future market. And copyright
normally allows copyright owners to realize future
markets for their works. We've seen it with many
re-introductions of games, some of which are
described in our comments. That is something that
video game copyright owners do.

    Within the specific subject matter of
this exemption, you know, the critical piece of software that this exemption concerns is the server software. And that software is unpublished work that the proponents want to either obtain or recreate, then have it out in the wild. And you know, that creates a potential for market harm too because that’s a copyrighted work that the copyright owners have not previously seen fit to distribute.

MR. RILEY: So Mr. Englund, you also -- your companies also engage in their own preservation activities. How do you make that decision compared to when there is no market for the game or what you just talked about, which is in the context of games being abandoned? How do you make the decision of when to preserve games?

MR. ENGLUND: Video game companies generally preserve their games. If you spend millions of dollars creating a game, you don't routinely throw it out.

MR. RILEY: Okay. In a museum then --- preserving the games on their own versus preserving the games in a museum?

MR. ENGLUND: It -- so, video game companies have also supported various efforts to work with museums and archives, some of which are described in our comments. For example, ESA
recently contributed 2,500 games to the Library of Congress.

MR. RILEY: But they are certainly not preserving all of their games. And these are the types of games that kind of are at issue here. You know, is there a decision to not preserve these games because of the technological challenges, or because of the market may develop for these, or -- in ESA's own preservation activities, how do you make those decisions?

MR. ENGLUND: Copyright owners preserve their games. And there have been discussions here of companies that have eventually gone out of business and maybe assets have been lost and bankruptcy and so forth. But just like motion picture studios do not typically discard all copies of their motion pictures when the theatrical run ends, video game companies do not routinely throw away the video games they've created.

MS. SMITH: Well, so MADE's reply included an index of companies that have gone out of business. Do you have any knowledge as to whether their assets have been protected or preserved?

MR. ENGLUND: I don't have a response for any particular company. You know, very often
I'm under the impression that, you know, assets are disposed of in ways that -- that leads to there being successor copyright owners, so potentially they are preserved.

MR. RILEY: I understand that ESA doesn't represent all video game companies, but is there sort of a blanket or umbrella approach that your companies and others talk about, about preserving games? Is there coordination between your different companies to do so?

MR. ENGLUND: There is some level of coordination. ESA worked with a number of key video game companies in connection with the Library of Congress gift that I mentioned a few minutes ago.

MS. SMITH: Has -- in your knowledge, has ESAs number of companies ever refused a preservation request? And what I'm getting at specifically is not due to a commercial aspect, but MADE says there's some instances where a game may have some social value for preservation purposes, but it might not be a corporate priority or it might be even at odds. And they give an example of a video game that included part of the Quran and thus was interesting from a social perspective but the video game company did not have, I guess, incentive for preserving it.
MR. ENGLUND: I don't know the facts of that particular situation, but I think it is speculative on MADE's part that video game companies are discarding their assets. Copyright owners do not routinely discard their assets.

MR. RILEY: Before we move on, because I know a lot of the proponents are anxious to respond to some of what you said. I did want you to have the opportunity to follow up on what Ms. Smith said in terms of the question Mr. Williams answered.

Is the 107 analysis different for games that are completely lawfully acquired where they're given by the copyright owner and there might be a piece that's missing versus the 107 analysis? I just want to give you the -- for games that were not completely lawfully acquired and were reconstructed. I just want to give you the opportunity to respond more to that if you'd like.

MR. ENGLUND: Yes. So, that is really the essence of this class, right? And we address that at some length in our written comments, but I think the fair use analysis is completely different, where we're talking about server software that has not previously been distributed.

The -- what is being proposed here is essentially recreating the logic of the game, the
rules of the game, in the case of Habitat, were subject to this, the map of the game, key expressive elements of the game that are being acquired without permission, without paying, that is a commercial use. It is not a transformative use, particularly to the extent that it's making the game playable exactly the way that it was playable. These are core expressive aspects to the game.

Somebody down the line here earlier referred to the rule that the players can't occupy the same space. What happens when a player shoots another player? That's the essence of the game. It's not the graphic elements of the game, but it is the essence of the game. And the proposal here is to obtain that software and simulate that software, and that is copying of expression.

The server software is a substantial part of the game, and putting the server software out into the wild where previously it's been undistributed --

MS. SMITH: I think you're not putting the software into the wild necessarily. You may be recreating it, which in this case, is your position that some unauthorized derivative work is not likely to be a fair use or --

MR. ENGLUND: It's at least a copy,
perhaps a derivative work. But yes, they're trying
to simulate the original game. It is just like any
other kind of copying that is not purely mechanical.

MR. CHENEY: Mr. Englund, do you have
evidence that -- you've been talking about some of
this in the wild, and that seems to be a fear here.
Is there evidence now that preservation efforts of
what these game assets in the wild you talk about
use server assets?

MR. ENGLUND: Well, I can't cite a
specific example. But this is a very substantial
broadening that's been proposed here. We've not
talked yet about affiliates and the comments from
MADE propose a very broad concept of affiliate
access, and then walk that back a little bit in the
reply comments.

But it's kind of not clear what's being
proposed, but I think the proposal is to have dozens,
hundreds of people working from their homes,
presumably with copies of game software, because
otherwise, it doesn't seem like you'd need to
mention affiliates.

MR. RILEY: I think the question is
under the existing exemption, is there any evidence
of infringement or other problems?

(Simultaneous speaking.)
MR. RILEY: They don't have affiliate archivists yet.

MR. ENGLUND: That is why we did not oppose the existing renewal with the existing exemption.

MR. RILEY: Mr. Petchy?

MR. PETCHY: Yes, I just wanted to bring up about preservation. In the 90's, in my experience, out of this part of a company called Mindscape, at the time one of the largest producers of CD-ROMs in the world, and I can absolutely guarantee that 30 to probably 40 percent of all the titles were never preserved. And the only thing that was generally ever preserved was the final binary that was actually shipped. The original source code is lost, as Handy mentions, you know, in garages and in peoples computers and various other places. And --

MR. CHENEY: Mr. Petchy, why was that lost or how was that lost? You said that --

MR. PETCHY: Well, let's put it -- in the function of the company, you know, at that, time especially in this company, I had -- was trying to get people to use source control, you know, to somehow keep this -- that was new, you know? And it barely worked. I mean, project after project
refused or did something else and, you know, it wasn't until this last decade that, you know, things have improved much. And those were the companies that have survived.

You know, there's been annihilation everywhere. Mindscape itself was sold seven times until finally it vanished, and bits and pieces of IP all over the place. There was no desire to keep it and no incentive. And it's only recently, you know, that -- I mean I was staggered when I went into MADE and I was like, oh my God, I haven't seen this stuff in 20 years. I thought it was all going to the garbage heap.

MS. SMITH: Do you know from these older games that you're talking about, whether these copies in the garages and such are -- the owner of the garage's ability to give it out or subject to some sort of --

(Simultaneous speaking.)

MS. SMITH: I see where Mr. Farmer said that part of Habitat got blocked by Legacy IP interests, and I also see that the exemption is not, you know, in one reading trying to overcome those IP interests, right? Is trying to just circumvent and then when things are lawfully okay or permitted under IP, connect together. So what is your
understanding of like the business status of things stuck in garages?

MR. PETCHY: Well, that's very much over-the-map. You know, often people, you know, companies will be working on a project and then it's cancelled halfway through, and they end up with a version of the software at a certain state and then it involves someone else --

MS. SMITH: Does the company own it, then?

MR. PETCHY: Well, it's hard to say who ends up owning it in a certain sense because the original company itself is gone.

MR. RILEY: But that's not the type of work we're talking about here. Not works that have never been completed, right?

MR. PETCHY: Well, this is a point I was thinking about a lot because you know, software, there's a point when you say it's finally done. And then you've got a binary. Then you've got a hard copy, and that's what goes generally out to the public.

But then there are previous versions that occur, you know? And then the modifications version 1.1, bug fixes, you know? And then as the software project evolves over time and it may take
two years to write this thing and at various
different levels and then -- I've seen many changes
in projects, you know, over the course of two years
that dramatically affect the nature of the work and
the software. And that can just end up in places.
You know, just put it in a file box and people don't
think about it, you know, until someone says hey,
wow, look at this. We can actually do something
with it, and -- but where's the owners?

And you know, I don't know legally what
happens when a company goes away and still holds
a copyright. And if there's no one there to hold
the company. So --

MR. RILEY: But you're not suggesting
that unpublished works should be subject to this
exemption, are you?

MR. PETCHY: No. I'm just giving an
example of what the process is like. Why things
disappear. You know, why, you know, why they need
to be preserved.

I mean from my case, just to see my art,
you know, wow, it's on the wall again. You know,
I mean, it was a wonderful experience. And then I
think of all the other people that worked on that
project. There were, you know, 30 of us, you know,
pouring our guts out for two years and you know,
no one owns anything anymore but it's there. It's still there and it's being preserved. And that's extremely exciting to me, you know, because you know, the artists are the ones that put this together. And you know, the marketing people are the ones that own it, but if they don't sell it, if they don't put it out there, it's gone and we're gone.

MS. SMITH: Okay. I'm going to let Mr. Williams briefly respond to that, then go to either Mr. Deamer or Mr. Degen or both of you. I know you've been quite patient.

MR. WILLIAMS: Thank you. Yes, I think some of that was probably just kind of use of plain language. But as Steve said, a lot of this would qualify as unpublished material. If it's always been resident on a server and not distributed to the public in copies, that is unpublished material. And so that does impact the fair use analysis.

I think it also is important relating back to the question about if demand has gotten low enough that a copyright owner has decided to temporarily back out of the market, does that mean there is no market under the fourth factor? And I don't think that's the right way to look at it because it's likely or potential markets. And
clearly, when you've had a game that's had some
success, you're seeing lots of these games
reintroduced.

And sometimes a demand grows in the
future such that you can now afford to support a
product that you couldn't before. And, you know,
there's all kinds of older films for example that
aren't in the theaters for years and years, and then
all of the sudden, there's a cult demand and they
start coming back into the theaters. And so there
is a potential market there at the very least, even
if there's not enough demand that the copyright
owner decides to continue meeting it in today's
market.

MS. SMITH: Okay, thank you. Mr. Deamer or Mr. Degen?

MR. DEAMER: Yes, thank you. I'd like
to first make a quick comment on the published versus
unpublished. At least one federal court has said
that server-side information can be considered
published works.

MS. SMITH: Which case are you referring
to?

MR. DEAMER: This is Archie MD versus --
think it's Elsevier. It's S.D.N.Y. 2017. So
there's at least some suggestion that there's a
question, at least in the law, about the nature of
the servers --- that information -- about whether
or not it's published or not. And that would
obviously have a factor in the fair use evaluation.

The other thing I was going to quickly
note regarding preservation is that the MPAA, which
it was with ESA on their briefs, has suggested
specifically to the Copyright Office in a previous
report that the reason that they preserve things
is based on monetary reasons specifically. And
because of that, it's very difficult to see other
reasons that they can provide for preserving other
than those sort of market impulses.

MS. SMITH: Which report by MPAA?

MR. DEAMER: This is Pre-72. This is
the Pre-72 copyright report. It's also in the reply
comment for us.

The last thing I put is actually a
comment Mr. Englund made earlier that I think
deserves one last sort of evaluation. Which is the
idea -- it was a two-fold idea about circumvention
itself. Courts are now suggesting that it's a much
broader understanding of what circumvention can be
in the video game and server industries. So even
the architecture of the game itself could be
considered some form of circumvention. So the idea of --

MS. SMITH: Sorry. So what case law supports --

MR. DEAMER: This is Blizzard v. MDY, the 9th Circuit where they said that even sort of the architecture of the game itself could be considered a form of TPM.

And lastly I would suggest that while there's a suggestion about considering whether or not this information comes from garages or is located -- in that, once it's given by the copyright owner, that there would be no inherent liability. But I would remind us that according to some federal courts, and this is also Blizzard, there is independent liability just on violating circumvention as one part of a giant circuits claim. So the non-federal circuit decision -- the non-nexus requirement.

MS. SMITH: Right, but in that instance, they circumvented -- they said it was circumvention without permission. Right? So if you're getting these copies under the permission of the copyright owner, wouldn't that also --

(Simultaneous speaking.)

MR. DEAMER: Presumably but it's an
independent right independent of the copyright owner itself, correct? It would be -- the copyright technically would not apply to traditional Title 17 things according to that report. There's no nexus requiring those.

   MS. SMITH: Right, but if the copyright owner gives you permission to engage in circumvention, although it is separate from a 106 right, you are also permitted to do that, right?

   MR. DEAMER: I would presume that the information that Alex is typically given is something to the effect of, we give you this copyrighted material and -- not necessarily -- we also say which -- every aspect of a piece -- of TPM would be invested.

   MR. WALKER: And I would just jump in here to say that again, if we think about the Habitat example, the TPM that was part of the overall server architecture was not actually owned by the copyright owner of Habitat. So they could not authorize the circumvention of that piece of dial-up billing code that was controlled by AOL, which is absolutely essential to the functioning of the game. It had to be circumvented to make it work. But that was a piece of the code that was owned by a third party.

   You can see this coming up in all sorts
of instances, say, imagine an API or something else
where there's lots of -- there's a web of copyright
interests that are existing on the server side and
you may have a -- a game developer could authorize
certain pieces of this, but not all of them. And
it could be that there were access controls that
they do not have the copyright to.

MS. SMITH: And what would you say -- ESA
said this on the written comments and Mr. Englund
said this today too, that that would fall outside
of the proposed exemption because it's not
protecting the video game, the billing software
example.

MR. WALKER: I'm sorry. You're saying
that, that would fall outside the exemption?

MS. SMITH: Is that what you had said,
Mr. Englund?

MR. ENGLUND: Yes. I mean it's not a
video game. It's billing software for an online
service. And I assume in the architecture of the
original online service protected access to
everything on the service and not just to Habitat.
So it doesn't look to me like it is part of the
exemption here.

MR. CHENEY: Let me ask a follow-up.
But if it prevents game play, is it not then a TPM
that's preventing game play -- even if it's asking for billing information, is it still not a TPM preventing the game play? And I think that's the question at issue here. It may be in something else, but it's still controlling the game play. So is that not a TPM that we're talking about?

MR. ENGLUND: I think it is possible to me that it was a TPM that 30 years ago protected access to the AOL predecessor service where conducted billing operations on that service. And perhaps at that time was a TPM protecting access to Habitat also. I think it is not a TPM protecting access to Habitat once the copyright owner of Habitat hands you a copy of the server software and says preserve it. Make it playable. Do whatever you want to with it. And it's not a video game. And this is an exemption for video games.

MS. SMITH: What would you say, Mr. Walker and maybe also --

(Simultaneous speaking.)

MR. WALKER: I think this is -- this is a distinction without a difference. Because the point here is that the -- whatever this billing software authentication piece is, that has been incorporated into the game, it is a TPM that is controlling access to the game. And it is a
roadblock to the game's preservation in a functional form. You know, just because of the fact that this may have a dual use of serving some other function with regards to an online service, it's been integrated into the game. It's part of its architecture. It has to be circumvented in order for the game to be brought back.

It's not like there exists -- certainly not in the case of Habitat and I would -- well I can only speak to the case of Habitat. There was no pure version of Habitat that could exist without this piece that was functioning as a TPM, being integrated into it. That had to be backed up. That had to be circumvented in order for the game to be recreated.

Again, that was a year and a half process that the MADE had to do. Had they not had to do that, they would have gotten the game preserved much quicker. So the idea that somehow you can, you know, bifurcate between games and server access, that maybe at some point in the past acted as TPMs but don't act as TPMs now, that does not reflect the reality of how these games are architected and what the needs are for preservationists moving forward.

MS. SMITH: Mr. Englund, do you want to
respond to that? I know we're kind of --

MR. ENGLUND: Right.

MS. SMITH: -- getting into the weeds on
Habitat, but it seems like --

(Simultaneous speaking.)

MR. ENGLUND: I will respond to that.

So then if you'll allow me a couple of other brief points. So somebody down the line here said that billing software had been integrated into the game. And I understand it's architecture only from the proponent's comments. But it sure doesn't look to me from the comments like it was integrated into the game in a meaningful way.

It feels to me more like operating system software. In the case of PC games of course, there is operating system software that they run on here. Habitat was made available through an online service. So of course there was a software that powered that service.

MS. SMITH: Can I pause you right there? Does anyone want to talk about -- Mr. Handy, I guess.

MR. HANDY: Yes, certainly. The actual server itself -- I mean, the access to the service that this thing was providing -- first off, the operating system involved is Stratus VOS. QLink ran on top of Stratus VOS. This isn't like an
operating system. I mean, QLink provided access to things just like AOL. You could play chess. You could play checkers. There's a bunch of games it provided access to. There was also chat, but mostly people played like chess, checkers, backgammon, Habitat. I mean, it's a big game service.

I wouldn't call it an operating system. An operating system is documented and designed for people to integrate with. QLink is ridiculously unfriendly. The server goes 23 and the client is supposed to go, oh I know what 23 means. There's no niceness about how it's going back and forth. It's not -- like an operating system, you design it with APIs so people can build things on top of it. QLink's a black box. The guys who wrote Habitat were at the QLink headquarters writing this thing into their system while they were building QLink stuff. Like these things were built at the same time, completely integrated.

So the idea like QLink is some kind of operating system is a little --

MS. SMITH: So is it protecting many things or access to a variety of things such as chess, chat and Habitat? Or was it --

(Simultaneous speaking.)

MR. HANDY: It mediated access to a
variety of things.

MS. SMITH: It mediated access to a variety of things.

MR. HANDY: You know, in 1986, a variety of things. Probably ten things, you know? But the system itself is nothing like an operating system. It really is kind of a matchmaker, intermediary authentication system.

MS. SMITH: Okay. Mr. Englund, you wanted to finish, then Mr. Degen.

MR. ENGLUND: Yes, just to briefly respond to a couple of things. First, a few minutes ago, Mr. Deamer referred to the Archie against Elsevier case and I think he is significantly overreading it. I understand that case to have found that a distribution of certain animations occurred because the copyright owner provided them to a database provider to be made available through a database. That sounds like delivery of a copy.

I don't think that suggests to you that public performance of video games through a server is a distribution or publication. In fact, the definition of publication in section 101 says that public performance is not a distribution. And certainly software that is never handed over to anybody and then is used to render public
performances of video games doesn't seem like it's been published. The -- well, I think that's sufficient for now.

MS. SMITH: Mr. Degen?

MR. DEGEN: Yes. I wanted to bring attention just to the limited nature of our proposed exemption and how that relates to the 107 analysis. I think it's important to note that we followed exactly the Copyright Office's guidelines provided in 2015 regarding what preservation is and that is an extremely favored purpose under the first factor.

And also because of the very limited use we're proposing allowed under the proposed exemption, there is no market harm really imaginable from a game that's only accessible in one place by a limited number of scholars.

MS. CHAUVET: Though you do add the language to the public when you're talking about distribution and making it available. So to whom would museums be making this available to, if not the public?

MR. DEGEN: Yes.

MS. CHAUVET: I'm sorry, is not just the public. So it implies it's being -- it's going to be given to someone, just not members of the public. And I guess my question is who are these museums
going to be giving this to?

MR. DEGEN: Researchers.

MS. SMITH: And what are the ways you would do that and why is that necessary?

MR. DEGEN: Yes, I mean I'll let Alex speak to that.

MR. CLARENDON: Okay, so --

MS. SMITH: Just a second. I think that gets into the larger affiliate archivist issue, which is in fact where we want to go. But we're going to let Mr. Clarendon speak first before moving to that.

MR. CLARENDON: Sure. Yes, I wanted to correct the record on what game companies do when they're archiving with two anecdotes. In 2012, I was working for 2K Games up in Nevada and they were seeking to reissue their megahit BioShock after a period of about five years. The problem was, was that no archive of that game existed and nobody had actually put in the time to build an archive for that.

We had to scour people's machines, artists, engineers, everybody's machines to find the missing pieces and put it back together. The version that was re-released was not the same version that had been originally released because
of that.

Similarly in 2015, I was working on some mobile titles and I had to archive them. I got into the middle of archiving one of them for preservation and found that some of the code was proprietary to the developer. So we were the publisher and the developer had code in there that they did not want preserved as part of that. That it was proprietary to them, so I could not archive that code as part of it. There would be no way to recreate the code without getting their archive and somehow merging it in with ours.

MS. SMITH: So in your view, would the exemption alter that or not?

MR. CLARENDON: It was just to correct the assertion that many companies are archiving things --

MS. SMITH: Right.

MR. CLARENDON: -- properly. And that it often does require a lot of sources to actually get something close to the truth of what was really released.

MS. SMITH: But if the company was not allowing you access or you're unable to get a lawful access to it, I mean even if the exemption were granted, it doesn't seem like that would solve that
particular situation. Is that correct?

MR. CLARENDON: I'll let Mr. Handy answer that.

MR. HANDY: He's not trying to say this is about the exemption. He's just showing that --

MS. SMITH: Okay.

MR. HANDY: -- the game industry is really bad at preserving its history.

MR. CLARENDON: Or blocks because of legal --

MR. HANDY: And I just wanted to really quickly if I could insert that the collaboration between companies for preservation, the only collaboration that I've heard of is actually that Activision, EA, and Ubisoft give us stuff. So Electronic Arts gave us all their old floppies that they would have for replacement disks. Activation gave us some computers. Ubisoft has given us games.

But like that's the level at which they're collaborating -- very, very small amount with us. And we're hoping to expand that over time but like that's kind of it. And some of the other museums but not as much as we would hope.

MS. SMITH: I think really just the last question until we move on to access including affiliates and a good question Ms. Chauvet asked
is how does this exemption necessarily help that
if you still have IP interests that are going to
prevent you from completing some of these
preservation --

(Simultaneous speaking.)

MR. HANDY: It's always going to be a
challenge. It's going to be a huge problem. It's
always going to be a huge problem. We need anything
we can do to help make it easier.

MS. SMITH: But how will it help? Can
you give me an example of a specific game you would
like to --

(Simultaneous speaking.)

MR. HANDY: Oh my God. I can give you
20 --

(Simultaneous speaking.)

MS. SMITH: Would that be in the
exemption?

MR. HANDY: Yes.

MS. SMITH: Particularly requests will
allow you to do something you can't do --

MR. HANDY: Certainly. Neverwinter Nights
for 1991 in America Online. One of the first actual
online role-playing games. Again, tangled up with
America Online and a third-party rights holder, plus
Dungeons and Dragons. All three of those people at
the table is going to be real hard to get.

There are multiple other Neverwinter Nights in modern days but --

MS. SMITH: So if this exemption were granted --

MR. HANDY: Yes.

MS. SMITH: -- you can circumvent something but you still don't have access to if those companies are not giving you permission to use some of their IP. How will you preserve the game?

MR. HANDY: I'll work with the original artists who have preserved that as much as they can. And if they don't have the actual source codes or we don't have access to the source codes, we will work with them to re-create the original server in a clean room, you know, like seriously difficult, complicated manner of figuring out the server from poking the client to see what happens when you say this.

It's a really complex process but that's what we have to do. I mean nobody else is preserving it. It's going to be gone. And all the rights holders involved in the game, nobody cares about a 2D online Dungeons and Dragons game that takes like a minute a half to load a screen. Right? Like these games are really slow and old and
inaccessible. There's a number of games I can cite if you want or we can go on.

MS. SMITH: Well maybe in the interest of time, we'll let Mr. Williams --

MR. WILLIAMS: Thank you. Yes, just very quickly. I want to push back a little bit on the notion that it's only commercial interest that inspire copyright owners to preserve their works. I think there are a lot of preservation activities that are supported by copyright owners. There's a National Film Preservation Board. There's a National Recording Preservation Board. There have been numerous gift agreements from motion picture studios and record labels for the Library of Congress.

And I understand from ESA members as well and there's some specifics in ESAs filing about things that they have done. I don't recall all of them off the top of my head. But there are some in the filing. So as we try to express in our comments, you know, we do support preservation efforts and I think our member companies have tried to invest in those efforts. So I don't think it's entirely accurate to say that only MADE is doing this and no one else is doing it.

MS. SMITH: Okay.
MR. WILLIAMS: I can't tell you that the entire market for preservation is doing it but --

MS. SMITH: All right. I think in the interest of time, we're going to move on to affiliate archivists and the access if someone wants to answer --

MR. HANDY: You're going to start off with --

MS. SMITH: What's that?

MR. HANDY: I would like to start off on this discussion.

MS. SMITH: So is it your contention that this exemption, that you would like this to be expanded would allow access to researchers or other people with an affiliation to MADE to play the game after it is preserved who are not within the physical premises?

MR. HANDY: The affiliate status is designed to allow us to -- now Mr. Englund before said that we would have dozens and hundreds of people working on these. Oh my God, I would be so excited if we could have that many people. The people who can do this work are extremely rare. Think about like the streetcars in San Francisco that go down the street on Market Street are preserved by volunteers who come in and fix them.
You can't just be some knucklehead off the street, right? You need to know how to like sew leather or how to restore linoleum on a 1930s train, right? These are very rare people. The idea of affiliate status is to allow us to get these people, to allow them to work with us on these projects and not extend any kind of risk to them. I don't want somebody who's working on one of these projects for us to get sued for copyright infringement or some other thing out of the blue.

MS. SMITH: After the game is preserved, would the affiliates have access to the game to continue to play it outside of the physical premises of MADE for example?

MR. HANDY: The affiliates would have to maintain access to continue to keep the game running and keep it playable. But we would not open source -- like it wouldn't be public access to just, you want to be an affiliate? Great. Come on in and play it. The idea would be that people who are working on the game who are physically in the guts of making the game work, will have to be able to play it in order to test it.

MS. SMITH: So I'm sure someone will correct me if I say something in a way that they would characterize differently. But my
understanding is, in software development, you might have a lot of people working on the development stage. And once it's down, it drops to a maintenance stage, which would be less people. Would you see affiliates as something like that or would every affiliate who is working on the game for preservation, once preserved, also have the ability to continue to play it outside of the physical premises?

MR. HANDY: So let me give you an example on Habitat. Since we launched Habitat --

MS. SMITH: Can you answer the question?

MR. HANDY: Yes. Well I'm --

MS. SMITH: This is a question of, what you're seeking to do for the bounds of what does it mean to be an affiliate? It's more of like a legal or a policy question.

MR. HANDY: Sure, sure, sure. We would focus on affiliates being physically working on the game. The idea is not to allow them to continue to have access to the game if they're done working on it. The idea is to allow them to have access on the game so they can see if what they did changed and worked in the game.

This is not -- if you sign on as affiliate status, you do like one line of code contribution,
you can now access the game. That's not the design. That's not what we're after. This is entirely so that we can get proper intelligent people who can do this work, involved and they are very, very rare.

But I can say on Habitat, since launch, we've had more people involved because we've had to build out the world. We've had to rebuild and reconstruct the map from forensic evidence. And that has brought in more people to help and work on it. So the team has actually gotten larger after launch because there's actually more work to do to keep the server running, to keep new people coming in and show them how to do it.

To add -- one of things we've added to Habitat is a second screen experience. So while we have modified the original game, what we've added is a museum experience. So if I walk into the main room in the game, a second screen with a browser will come up and say, you're now in the fountain. This is where people would congregate and talk about et cetera, et cetera, et cetera. There's a lot of work to be done like that after the initial shipping of a project. And that's sort of our desire.

So no, affiliate status would not be, you contributed a little bit and get to play the game. Affiliate status would be you are working on
MR. PETCHY: I just wanted to add, very likely should multiple projects appear, one's not going to descend to a maintenance level. One will probably find affiliates that are specialized at certain levels of expertise in graphics or a server person or someone like that. So they may be actually most likely working on multiple projects in their own particular area of expertise.

MS. CHAUVET: So just to follow up on the question I asked before. So because you added the language, "to the public," so the video game is not going to be distributed or made available to the public outside the physical premises? Is that meant just to limit it to these affiliates? Is that what your goal was?

MR. HANDY: Yes, yes. The purpose is to -- we're not going to just turn this onto the internet. This exemption is not so we can just bring the game back online for everybody. This exemption is so we can preserve it in a working fashion for future generations who will perhaps think this is the most important thing ever. We don't get to choose what they think is the most important ever. They -- you know, the future chooses that.

MR. RILEY: So just to be clear, these
affiliate archivists are working remotely in most cases?

MR. HANDY: Yes. Yes.

MR. RILEY: You put in the qualification that they could be supervised. What does that mean?

MR. HANDY: Well, oh, you can't just throw a bunch of people on a software project without supervision. Nothing would work. You have to have very strict supervision in software.

The way it works is like, right now, with Habitat there are issues that need to be addressed, right? Like you go into this screen. If you load a chainsaw, it crashes. That's an issue. It needs to be addressed.

And a supervisor would say, you, over there, you take this issue and go work on it. And would say, okay, you three guys over here, are the map people. I need you to go build that area and keep track of it and keep track of your work. It's a fully functional software project, which has to have managers.

MR. RILEY: So what about supervision in terms of cutting through all this, I think the concern is that these affiliate archivists, if they have all the information to recreate the server-side software and then ultimately the game, they can turn
around and play this game at their own homes or in
other places other than in a preservation context.

What type -- is there any type of
supervision that contemplates making sure that they
don't do that? And can you give any contemplation
to those concerns?

MR. HANDY: So, I mean, you have to look
at this like if you're building a roller coaster,
you've got to ride it, see if it works, right? But
that doesn't mean you got to live on the roller
coaster, go on it every day.

So the access controls can be
controlled, like if we load this to Git, we can
control on the allow so you can replicate the whole
Git repository. I'm sorry, source control. If we
had a source control system with this in it, we can
control that source control system.

We can limit people to very specific
portions of it. We can keep it so that you can't
download the whole thing if we wanted to. There are
ways to put controls in on this.

MS. REGAN: So do you have current
controls in the --

MR. HANDY: We use GitHub and GitHub
allows you to have those controls. We don't have
those controls on Habitat because we don't need
them, but we can institute those controls if we need to.

MS. CHAUVET: So why can't you just hire them as employees or like part-time employees? Well, I mean, it could be like at a certain like lower salary or whatever. I'm just wondering why the affiliate language is necessary versus just having more -- because that really has to do with your relationship with them.

MR. HANDY: Yes, certainly.

MS. CHAUVET: So why can't you just develop more of a formalized relationship and keep the language the way that it is in the existing exemption?

MR. DEAMER: I'd be happy to answer that. So the language is premised -- Mr. Deamer. The language is premised on the section 108 working group and the idea that we felt that some supervision is absolutely necessary, but that these sort of rigid sort of suggestions that were provided by the ESA would limit the ability to do anything.

And it's the same, why you wouldn't have -- the question of why you wouldn't necessarily have an employment contract. It's the same reason why the SFMOMA wouldn't necessarily have all of their people that are helping them have employment
I think that the idea is that we would follow sort of a sort of reasonable sort of supervision sort of structure and that the concern we have primarily is that when the structure becomes too rigid, it really pushes out smaller museums that are doing important work, out of the ability to do that.

So where you only have, basically, the New York MoMA museum is able to afford to be able to participate in these types of important preservation processes. And from everything we've seen, they do not have sort of the bandwidth to consider it.

MS. SMITH: Would you be willing to assume the more granular recommendations of the 108 study group?

MR. DEAMER: Some of the recommendations of the 108 study group are extreme. This is not a Copyright Office --- so this was the group that was sponsored. I believe one of them is to remove all sovereign immunity restrictions, which seems a little extreme to me, personally. That being said, I think that the basic overview is relatively reasonable.

MR. RILEY: What about the existing
section 108 exemption which requires you to not remove the works from outside the premises of a library? Would that cause you concern?

MR. DEAMER: The Copyright Office has suggested that the current language is stuck in time, which we agree with. I'm not sure how well the current 108 language purports into this space. That being said, Alex, I think you have a better understanding of what type of -- what you would need in order to have volunteers.

MR. RILEY: Yes, I mean, that is a little worrying. The volunteers do have to have chunks of code on their local machines in order to edit them. I mean, would could go around it if we had to. It wouldn't kill us. There are things like online IDEs that you can use. You open up the web browser and you edit the code in a browser.

So like we could, but I mean, that's also, that's like saying, you know, you can't use your tools that you brought, Mr. Carpenter. You've got to use our tools over here. And Mr. Carpenter's not going to happy about that. You know what I mean?

MS. SMITH: I don't. I mean, so the recommendations say things such as the agreement between the library, the archives, and the contractor preserves a meaningful ability on the
part of the rights holders to obtain redress for infringement. Is that something you'd be willing to assume?

MR. HANDY: I actually don't understand what that means in legalese.

MS. SMITH: I think it means if the contractor is engaging in copyright infringement, there is a way for the copyright holder to be able to take action on that.

MR. HANDY: Okay, yes. No, I mean, that's fair. We don't want these affiliates to be breaching the copyright rules. We have no intention of allowing them to -- I mean, there would be repercussions if they were to distribute or do anything. I mean --

MS. SMITH: Right, but it would be the library or the archives, assuming --

MR. HANDY: Assuming.

MS. SMITH: -- like taking on an assumption to mediate that and deal with it --

MR. HANDY: Yes.

MS. SMITH: -- would be your responsibility.

MR. HANDY: Yes, we -- that's our job.

MS. SMITH: In layman's terms.

MR. HANDY: That's our job is to, you
know, we've got to watch these people and control them and make sure that they're in line. And if they do something wrong, it's our liability.

MR. PETCHY: I just wanted to add that it's a common practice and I've even had the entire Windows XP source code on my laptop, buildable, and sitting on a plane on the other side of the world. So it's not uncommon, I mean, to have access to the crown jewels, so to speak. MR. RILEY: And you're saying you didn't have permission to do that or --

MR. HANDY: No, no. I had permission. It just, but just as an example, I mean, you know, to have, you know, Microsoft's entire source code on your laptop and not necessarily, realizing the value, and so other people, but still, as a consultant, you know --

MR. HANDY: It's how software is developed.

MS. SMITH: I mean, I think one difference is you do that as a consultant, with permission to have the crown jewels. And this exemption would potentially allow the distribution to, I guess people who sign up as an affiliate and it is not yet to me quite clear what that criteria needs to be.
So if we hear a little bit more to understand, it might be going beyond your experience, which I think that is helpful for you to share, sure. Any thoughts about that?

MR. DEAMER: So I think specifically, Alex, you can give a good conversation about, for instance, with Neverwinter Nights, what type of experiences and experience in sort of a resume, you would need in order to go through that.

MR. HANDY: Oh, an affiliate would have to prove -- for the Neverwinter Night project, in theory, an affiliate would have to have deep understanding of C, not modern C, C from 1988 which is a totally different dialect of C without any of the capabilities that modern people are used to.

They would have to have a full understanding of the internal workings of America Online and the basis of a QLink. They would have to have a completely functional understanding of the Gold Box engine which runs the Dungeons and Dragons games. They would have to have an understanding of server/client dynamics and the ability to program in client-server fashion. They'd have to understand assembly language because there's a whole bunch of assembly language in those old games.
It's an insane -- one of the analogies that I really like was if there's a law against building a Large Hadron Collider in your backyard and we remove that law, does that change anything for anybody? That's kind of what is going on here, pretty small --

MS. SMITH: So how do you determine whether someone would be an affiliate? Do they take a test? Do they fill out a form? How do you determine --

MR. HANDY: We'd have to see how their technical chops were. You know, we would sit down.

MS. SMITH: How do you do that?

MR. HANDY: So, for example, on the Habitat project, we literally sat down with a guy who had a resume. One of the guys who worked on it, he had a resume. He'd done a bunch of talks on YouTube about Commodore 64 development. And so that was his resume. Now there's another guy who we brought in who literally just was interested, right, and so we gave him very low level jobs that like you don't have that much technical chops to do.

But that's still like, you know, 10 percent of the work versus the 90 percent that the guy with the technical chops did. Honestly, we
don't do like a formal interview process. We talk to them. What do you do? What do you know about this? What are your processes? What can you come up with?

MS. SMITH: Do they sign any agreement with MADE?

MR. HANDY: We do have volunteer agreements that we have signed, but those are generally -- right now those are like general volunteer liability agreements. There's nothing specifically targeted to this kind of work. I'm totally not against adding that kind of an agreement. I'm not sure how we would write that agreement, but I think we could have some help.

MS. SMITH: So --

MR. WALKER: Yes, yes, and then certainly -- let me just jump in on here because I want to sort of circle off the things that have just been said here.

The MADE, in its thinking, period, is that if someone is operating in a supervised capacity, that means that they, A, would not be engaging in infringement or unlawful activity that we've specifically said that this needs to be limited to lawful preservation activities as we have defined it here. And that the supervision step
would, as was suggested a second ago, would mean that liability flows up to the MADE were that not -- were the supervision inadequate.

So the whole point about it here is that you want to find people who have this deep knowledge and skill set. And quite frankly, like to Alex's point a second ago, we would love to be able to hire these people as employees. It's just simply the fact that if you're talking about an organization like the MADE or like some of the other players that are in this space, that are non-profits, that are operating on small budgets, the volunteer labor that you get is of tremendous value and you just can't hire people with this kind of pedigree to particularly get the amount of time that's necessary on these projects. It would be cost prohibitive.

So the idea is to create a structure that very much mirrors the kind of control and supervision and liability assumption that would come from an employee-type relationship. And again, this is flowing out of the recommendations that came out of the section 108 study report.

We're, again, all these instances, we are trying to mirror back the guidance that the Copyright Office has given us either in the previous rulemaking or in other documents about how do you
engage in a legitimate preservation exercise that applies to the digital realm.

And you know, obviously 108 is an imperfect vehicle for that because it does not anticipate the type of uses we have. It's just simply too old when it was -- when it was adopted. But the idea here is to -- to try to work within what the -- what the Register said last round was, you know, that this demonstrates Congress' intent with regards to what preservation activities should be. So that is the general idea here.

And we feel like the affiliates is not -- saying the affiliates have this -- they're a part of the user class for this exemption, does not change the nature of the work here at all. This is merely just an acknowledgment of the fact that you do need expert engagement outside of the particular employees of any institution.

MS. CHAUVET: So can you speak to any specific examples where you have been prevented, under the existing exemption, from using an affiliate that you needed for a specific project? Because the current exemption does not extend to the affiliates?

MR. HANDY: We have not come up against it, but in our evaluations of gains that are at risk,
there are a great deal -- there are a large number
of games that we seek are at risk but are also out
in a gray area. And those people are working to
bring those back as a fan group.

And --- you know they're totally -- it's
an illegal thing. They're not supposed to be doing
it, right. We would like to have some way to engage
with those people, because they have the technical
knowledge, if we want to bring back that game. Do
you see what I mean? Like there are some people out
there who are already doing this in a gray area.

We'd like to be able to tap into their
knowledge and use them to do it properly, not
necessarily on the things they're already working
on, but anything similar.

MR. WALKER: Another example of this that
we mentioned in our reply brief is the game Grim
Fandango, which was done by the copyright owners
themselves. And they had to go outside, to the fan
community, in order to remaster their own game. So
this leads to affiliate arguments without the
exemption currently, but there are real-world
cases right now that publishers are dealing with
themselves.

MR. RILEY: So if there was a
requirement that the affiliate archivist -- you
could have affiliate archivists but they must act
like volunteers and be located at the MADE, that
would be ineffective for you?

MR. HANDY: Yes, no, the brains that we
need are, like probably have about a 2,000-mile
radius around them of no brains. You know what I
mean? Like they're out there. The guy we used for
the Habitat project's from Germany.

MR. CHENEY: So let me follow up on
something that -- Mr. Deamer? Part of your name is
blocked out, I'm sorry.

One of the things that concerns me about
one of the things that he talked about and things
that have come up here a little bit is that, as you
talked about the tools that these experts need,
describe that a little bit.

Because some of the things that he talked
about in just bringing those in are, seems like
they're game assets that they're bringing in or
things that they've been working on that they had
access to, that they're bringing in to help with
your project.

And that seems like that may be outside
of what we're talking about. Or at least that would
be a concern, I would think, to the content
community. For them, as their experts or their
tools that they're bringing game assets that they preserved somehow to help you in your preservation project. So can you help us with that?

MR. HANDY: I'm going to let James talk about tools because tools is really complicated.

MR. CLARENDON: Sure. So it's not just game assets there. It's going to be also understanding of the languages used at the time, as Alex alluded to, but we're also looking at a combination of hardware that may no longer be available and that only a few fans may still have access to it.

We're looking at compilers. We're looking at operating systems. We're looking at linkers. We're looking at development environments. We're looking at custom shell scripts that assemble everything together, custom art tools, custom audio tools -- all those things are going to be unique, and a lot of them are already out of date.

Even some of the tools that I was using five years ago are no longer in use and are hard to find access to. So you need access to those original tools to be able to recreate the content, the code and content, necessary for those.

MR. CHENEY: And I guess what I'm trying
to get at is, is that are you getting those from employing these affiliates? In other words, are you going to those affiliates because they have some of these things you can't get otherwise?

MR. HANDY: No, it's not for data. It's for brains.

MR. PETCHY: Yes, I was going to, because you mentioned they may be bringing game assets in. So I think, in reflecting on tools, and tools are extremely important in game design. Usually you build an opponent of application for tools or you build a game as the tool.

So like for instance, we had 3D worlds that you had, if you were building the world, you'd be in there. And then we networked it up and these walls started moving and the artist was sitting there working on the walls. So, I mean, these things are part of the game. They're integral.

So in the sort of inverse sense of copy, you know, of an asset, the tool produces an image, but that tool can only produce images like that, for instance. So you may end up with a situation where you have the fan community and they're redeveloping a tool. And you want to use it. You're going to make your own assets out of it, but the tool itself is sort of a construction of the actual
game itself in a certain sense.

MR. HANDY: The affiliate status is not designed for tools. It's designed for human beings.

MR. DEAMER: Okay. And one last point on that, I should distinguish that we make a distinction between a legal definition of tools in 1201 versus the type of tools they're talking about when it comes to video game design and the idea of being able to access this content in the first place. So --

MR. HANDY: Yes, a lot of the tools James just mentioned, early bugs, standard stuff like compilers, linkers, things like -- these are standard software development tools. Everybody uses them. They're not -- there's a lot of open source stuff that will be used.

MR. RILEY: I wanted to give -- thank you for your patience -- wanted to give Mr. Williams and Mr. Englund a chance to respond.

MR. WILLIAMS: Yes, thank you. There's been a whole lot said, so it's going to be hard to respond to all in the remaining time. And I want Steve to have some time. But a few points.

MS. SMITH: I think we can go a little bit over if we need to. And so we do want to make
sure you get time to respond.

MR. WILLIAMS: Thank you. I think this affiliates issue is crucial so I guess I'll start with that. At the beginning of the presentation, Mr. Handy said that these fan groups who have set up unauthorized servers are involved in completely infringing activity. Now he's saying they're the very people that he wants to incorporate as part of this affiliate program.

I credit that he's not out to try to cause anyone harm, but I think the drafting on this is going to be almost impossible for you to draft something that only allows for legitimate conduct and doesn't risk a lot of harm.

One example I'll give, and it's of a different degree, but in the hearings in Washington we learned that an officially enrolled student now just means you've got a Facebook account and you click, I want to join that class online and all of a sudden an exemption applies to you.

And so here I don't know how you would define a subset of people. I don't know if just clicking through the terms of use is enough to really give much protection. And that becomes even more risky when you're talking about the tools issues that Mr. Cheney was talking about.
The 2015 recommendation, the Copyright Office said it was quite concerned that when you start expanding this outside of the realm of -- in a physical location inside of a museum, that somehow there will be some trafficking of tools going on.

I'm still not entirely clear on all the types of circumvention involved. But if the museum is having to distribute these tools to people who are spread all around the world, apparently not even in the United States, how those tools get used can become problematic. And if they're --

MS. SMITH: Do you have a thought on what Mr. Deamer was saying, that there's a difference between, you know, tools other than 1201 and some of the tools being discussed here?

MR. WILLIAMS: I don't have any reason to doubt that there's many things that could be described as tools. What I would refer to as tools would be actually things that get you through an access control without permission.

If there are other things that, in the software universe, are described as tools, then we'd look to the statute to address that. I, again, just want to say that Mr. Riley asked about, well, what about the current parameters of section 108, and would those be good enough.
I think under the current provision, if you're dealing with an unpublished work, it has to be currently in your collection. This material is not, for the most part, currently in their collections. It's on a remote server that somehow they have to get at in order to access it.

And then with published works, there's another provision. But again, a lot of this material is unpublished. So if you wanted to try to stay within existing 108, as you have pushed to try to do, for the most part, in other contexts, I think this is a typical fit.

I think I'll defer the rest to Steve. But this, especially this issue of defining affiliates just seems like a real hornet's nest to me. If he's saying the people he wants to go and talk to are already involved in doing all of this, even though it's completely infringing and even though they know that they don't have permission under the law, incorporating them into this program just seems to be almost inevitably to result in misuse of the content once it's all compiled and put together, especially with this continuing access that they say will be necessary.

MR. ENGLUND: So I'll try to catch a number of things that were said during the last 15
minutes by the proponents. First, despite 15 minutes of program question by the Office, I think it remains fairly elusive, at least in my mind, to who these affiliates are or what they do, how many of them there are.

We've heard from Mr. Handy that there are very few of them and they've got super high skills, except when there's some low skill effort so that you can bring in somebody who's an eager volunteer. And you need a lot of people to help build out the map and Habitat.

So Mr. Handy kind of poo-poo'd my reference to dozens earlier, but I think that actually came from one of their comments, although I couldn't find it just now.

I think it seems, when we hear Mr. Handy describing building out the map and Habitats, it's reasonable to assume that, for one project at the MADE, there were probably dozens of these affiliates. But that's a lot of people to try to supervise. And we have not heard about how, at least very clear answers, about how they are going to be selected.

Second, the MADE's reply comments, talking about the security of the simulated server software, talked about it being located on a
physically isolated server. And I think we've heard from Mr. Handy that's not true.

They're going to have dozens of affiliates making remote access to a server to access the software.

MS. SMITH: Yes, actually, I noticed that from the written comments too. So, Mr. Handy, do you want to clarify?

MR. HANDY: Yes, sure. That's a restriction we're -- we're talking about ideal versus what can be done. We could totally do it on a LAN, like you said. We could do it with just people coming to the facility. If that's what the restriction has to be in order to make everybody happy, we could do that. But that would be really hard.

And I basically was saying, like with that example, the idea was we have finished building this game. This game is now air-gapped on a LAN inside the museum. Development process, yes, we would have to go out and touch things, but that's touching like the source code and that would occasionally have to get into the server.

But ideally having this thing done would have it somewhere on a box nobody can touch, over there in the corner. If you wanted to see it for
research purposes, you can go and see it. That's
-- and again, that's not --

MS. SMITH: That's different from your
model that you were talking about earlier where any
affiliate can come in as, you know, the maintenance
level doesn't take very much effort.

MR. HANDY: That's the development,
during the development process. So one of the key
things to remember here is that the process of
bringing a game back -- if it's not Habitat, it's
going to be six, seven, eight years. It can take
forever.

During that time, people will have to
come in and work on the game. And they will have
an incomplete game to sign into. When it is done,
when we get to a point where we don't need to continue
to work on it, then we can put it on the computer
over there, nobody can touch it.

When it's in an incomplete state, I don't
know who's going to want to play it anyway. It's
not like we're distributing access to something
that's going to be a playable, fun game. It's going
to be, okay, we got region up and there's one vendor.
Now we have to add all the other NPCs.

And it's not going to be a complete game
when these people, affiliates, are using it. It's
going to be a piecemeal, broken thing.

MS. SMITH: Mr. Englund, did you want to continue?

MR. ENGLUND: Yes, so again, this is all, just seems very elusive. Every time you ask a question, you kind of get a different answer. I think Mr. Handy was distinguishing between the development phase and the maintenance phase and saying once the development phase ends, we go into maintenance, then we can keep it on a physically isolated server.

But ten minutes ago he explained how we need people to maintain the software once it's up. So it just isn't clear to me what the proposal here is. But it sometimes at least seems like it involves having people in Germany remoting into a server with access to the server source code. And that seems like a problem.

More generally, I think this highlights that the proponents' reply comments contain a lot of limitations on the use that aren't actually found in their proposed regulations that were set forth in the initial comments.

MS. SMITH: But were the Office to take those reply comments seriously and those limitations seriously, does that lessen some of the
concerns that the ESA puts forward?

MR. ENGLUND: Yes, in the sense that all of the limitations clearly make, reduce the level of risk, I think the limitations do not address the fundamental challenge here that what is preventing circumvention or what is preventing restoration of online games is, that they're powered by unpublished software that is not distributed.

And access, hacking some TPM isn't going to bring that back. So I think the exemption is not warranted here. But if an exemption were to be granted it should have the kinds of limitations that were discussed in the reply comments.

MR. RILEY: Do any of the proponents want to address more of the concerns that, obviously in the last proceeding, the Register was concerned about the trafficking issues that could be at issue here. In this case, addressing them to the issue we've been talking about of affiliate archivists.

MR. DEAMER: Yes, I'll do my best with 1201(a) (1) and (a)(2)(B). So I think ultimately our position with the idea of anti-trafficking is that these, the role that those other aspects of don’t have are nebulous at best.

There's currently a circuit split. We don't think that ultimately, where it currently is,
in the state of the law, should add any sort of ultimate deciding value in whether or not to grant the exemption or not. I'm happy to answer like follow-up additional questions but that's our top level understanding about anti-trafficking and 1201(a)(2) and 1201(b).

MR. WALKER: And let me just jump in here too. On a practical level, I think we need to reiterate that what we're talking about when we talk about tools, or what my colleagues here, who are the technologists are talking about, talking about tools, is they're not talking about circumvention tools that if, released into the wild, could be applicable to other games, right.

We're talking about very bespoke tools that were used as part of the software development process in order to preserve a game, right. So even, an example, because like I can see the quizzical look on your face --

MS. SMITH: Well, no. I thought Mr. Handy was saying they weren't bespoke before. So maybe I mistook --

MR. HANDY: No, no. They're -- okay, we're talking about two totally different things. We have a complete collision of name space here. We have, in software, we call this a collision of
name space.

Tools in software that we are talking about here, nothing to do with circumvention. The tools that he's talking about specifically is just a tool for circumvention which, there is no tool for circumvention. Circumvention is open it up, rip it out. It's not use this piece of software to circumvent. There's no --

MS. SMITH: What about prohibits trafficking or distribution in tools of circumvention?

MR. HANDY: Okay.

MS. SMITH: So I'll contemplate that there is such a thing for sure.

MR. HANDY: Well, yes, and that is a spurious argument. There is no way in God's green earth anybody's going to write a circumvention tool that lets you circumvent any MMO's authentication thing. That's just ridiculous.

Every game is totally different. You've got to do it specifically to each game. There's no such thing as a tool that does circumvention for everything.

Now there may be a perception of that because there's things you can do on a console to circumvent, right. This is completely different.
There is absolutely no way that the circumvention tools that we developed for Habitat would be useful for anything other than Habitat.

MR. RILEY: It's still for each game though, right?

MR. HANDY: Yes, each game you'd have it.

MR. RILEY: The archivists need to share these technologies between themselves to restore access to the game?

MR. HANDY: Yes, I suppose they would.

MR. DEAMER: So this comes up on another thing, so this is also considering whether or not this would be considered the archivist would be considered part of the MADE and whether or not you can traffic between people within the same organization. Presumably if you have a contract and they're volunteers, they would be part of it and 1201(a)(2) and that trafficking wouldn't apply.

MS SMITH: I have a question, if the archivist, if this volunteer, is part of the MADE isn't it then unnecessary to add this language of affiliate archivists at any rate?

MR. DEAMER: I think the ultimate argument with that is that it expands the idea of who can participate directly.
MR. WALKER: Yes, I mean, again, this goes back to our point about, we're talking about institutions that exist and that can function only through volunteer labor and so the idea that, we could, and of course we could get into an employment law discussion about how at what point you become part of an institution. But the idea here, at least in theory, was to allow flexibility for these projects to proceed in a lawful way without having to create an ex-ante set of bureaucratic hurdles.

Which again, the idea here is we are trying to do this very much in good faith and to create a set of circumstances where preservation can be done by legitimate institutions in a lawful way that do not have the resources necessary to hire a bunch of highly skilled developers to do this on that basis.

MR. WALKER: And the 108 study group report does acknowledge that institutions already have volunteers that could or could not apply as affiliates in and of themselves. So it certainly is a nebulous area and yes, so according to the study group this is sort of the average for this.

MS. SMITH: Thank you. Mr. Englund, did you want to respond to Mr. Walker or Mr. Deamer on that specifically?
MR. ENGLUND: Yes, so I will respond to that so then hopefully one of the points in the previous colloquy that again what's proposed here with in terms of what the affiliates will actually do remains pretty elusive. It -- this is a proceeding about circumvention, what is proposed is exemption to the prohibition on circumvention so presumably the proposal to add affiliates means that it is contemplated that the affiliates will circumvent and we've now talked about one way that they might circumvent which is exchanging circumvention technologies among themselves. That sounds like a trafficking violation to me.

As I read the proposed rule, it sounds like another way that they might circumvent, at least in the case of console games, is to jailbreak their home consoles under color of the exemption that was granted to the preservation institutions so that they can do the work on those consoles which then give them in their home, under limited supervision of the preservation organization, a jailbroken console that could be used for future piratical purposes.

And so I think there's certainly some risk here in the terms of what the folks are doing, and we just haven't heard very concrete responses
in terms of what circumvention the affiliates will do. Returning to the previous colloquy on supervision, I think the other proponents here agree that the liability for what affiliates do would have to flow to the preservation organization.

That is an important step but I think it remains critically important that the kinds of limitations and conditions that you were asking about at one point, Ms. Smith, from the 108 Report be included to ensure that there is effective supervision and I still don't understand how a small organization in Oakland supervises dozens of affiliates across the country.

MS. SMITH: In terms of what the written comments are on the proposed regulatory language. So Mr. Walker is saying, we've sort of tried to do this the right way. Ensure there's effective supervision, that all the content has been lawfully accessed and there may be sort of a disconnect or a fear there is a disconnect between the language Mr. Walker is saying and what you think might happen on the ground. Do you think that's fair or do you think there's a problem with Mr. Walker's proposal?

MR. ENGLUND: Well I think the language of the rule that is proposed in the initial comments opens up the opportunity for affiliates to do
circumvention and doesn't have a lot of limitations on it. And so that puts us in the position of speculating about what kinds of circumvention they might do.

MS. SMITH: So, here's our question though for the proponents because I didn't see in the written comments any suggestion that it would be necessary for the affiliates to circumvent the console would it or would it not and if so, what's the need?

MR. DEAMER: I believe the 2015 exemption specifically permitted jailbreaking consoles as I think Mr. Riley said earlier. We're not, that's not at issue with this specific, we're not addressing that.

MS. SMITH: What about the affiliates?

MR. RILEY: Right, what Mr. Englund's saying is that the Office issued that, in part, because there were no affiliates. There was a limited universe of people who could have access to these jailbroken consoles. How does this change things? And I think Mr. Englund's assertion is it does. You're going to respond?

MR. WALKER: So I would, I would just say simply to this fact that the ESA and others have offered no examples, factually or really
hypothetically otherwise, that the jailbreaking that was permissible by institutions under the 2015, the current exemption, has caused any problem, market harm, that there's anything, so again the idea here is that --

MR. RILEY: In previous proceedings they offered extensive evidence that jailbreaking of consoles is directly related to piracy, maybe not in the preservationist context but we're talking about expanding the preservationist context to these affiliate archivists which is more akin to the general public and that's the concern.

MR. WALKER: So I think that it's incorrect to say that we're expanding the preservationist context because again, we're talking about affiliates working under the supervision of eligible libraries and museums and archives who are explicitly engaged in lawful preservation work. So the idea that, you know, again, that last time it was determined and there's been no evidence to show otherwise that this would not be a problem in the context of preservation work therefore we don't think that's there's any reason why to think that supervised archivists doing the same that eligible institutions are allowed to do currently is going to create any problem in the
MS. SMITH: Okay, so I appreciate that perspective. I find it helpful in terms of factually what is needed to make a useful exemption. It sounds like the position is that, yes, it will be necessary for the affiliate archives to jailbreak the consoles. Is that correct? Mr. Handy?

MR. HANDY: Well, just on a technical point. We're not even considering console MMOs, so if they're left out of this it doesn't affect us. We're looking at 20, 30 year old games that were not on consoles or even computers and the circumvention that we're doing is for the authentication piece. Right? Not jailbreaking consoles.

MS. SMITH: Right. And it seems somewhat late-breaking so if jailbreaking of consoles for affiliate archivists is excluded does that make ESA lessen is that a helpful limitation?

MR. ENGLUND: Well, so the short answer is yes, but generally this highlights that there's perhaps a disconnect between the proposed rule and the real ask here. I think we just heard Mr. Handy say that this is about preserving games that are decades old and not even console games, but we've got a proposed rule that's about preserving games
that have had service support discontinued for only six months and potentially are console games and so excluding console games would help.

There are a lot of things that would help. Tailoring the regulation to the ask would help. Although again, I don't think that the exemption is warranted based on the circumstances here in terms of TPMs actually preventing restoration of games.

MS. SMITH: Let's let Mr. Handy respond.

MR. HANDY: Sure. I'm really speaking about how we intend to use it. There may be other organizations that will use it the other way.

MS. SMITH: And we appreciate that but you've provided such valuable detailed information that I think this is why we're asking so many questions about the MADE since it's, you know, so involved in this space.

MR. HANDY: No, I'm happy to answer. There's not -- nobody's doing this institutionally. I didn't mean nobody's doing preservation. I meant nobody's doing virtual world preservation institutionally. There are no institutions doing this, aside from us.

MS. SMITH: So the Internet Archive, filed a comment, do you have any sense whether they
would be wanting to make use of this eventually?

MR. HANDY: Probably not. I know them very well. Their thing is just save it all, not sit down and fix it. You know what I mean?

MS. SMITH: Okay, so all right.

MR. HANDY: I'm sure they would help if I asked. We're very close with them. But they have a different goal.

MS. SMITH: I was just wondering if we're talking about the concept of supervision, if there was any other institution we could point to that might have a published policy.

MR. HANDY: Well, we could talk to the Computer History Museum. We can talk to the Strong Museum of Play, at Rochester, New York. We could talk to the video game -- I mean, there are a lot of organizations that are beginning to do software preservation. It's a very messy field.

It's a weird area that is unknown. But if you need to talk to other organizations, I can introduce you to some other organizations that are doing this.

MS. SMITH: Okay, thank you. Mr. Williams?

MR. WILLIAMS: Thank you. I mean, I'll defer to Steve on the question about the limitation
excluding consoles and the impact -- that, of course, makes it better from our perspective, I think, but still not good enough.

I still think if you walk through the fair-use factors they don't come out favorably for the reasons we say in our comments.

And we were hearing a minute ago that while -- it's not a risk to expand console jailbreaking to affiliates because you already have allowed this to be done in the museum which of course we initially opposed but didn't oppose the renewal of.

It makes a big difference I think because of what was said today and last week. There are already people in the marketplace engaged in infringing conduct. Mr. Handy referred to it -- and the witness last week referred to it and so I'm glad to hear they're willing to exclude jailbreaking but the fact that some of the folks who might become affiliates are already out there engaged in infringement increases the threat of jailbreaking. But also just enabling these folks access to these games, which under the exemption maybe they're only allowed to do very specific things with, but given that they've already proven that they don't really care so much about what the regulations say or what
the law says, the risk of harm seems to be quite high.

MS. SMITH: And I guess following with that, because if there's no employee/employer relationships let's say you have an affiliate who does go rogue who starts engaging in infringing activity, what recourse do you have? What can you do to actually prevent that person from doing it?

MR. DEAMER: I mean not only would they be immediately terminated, as Alex mentioned in his previous comments, the copyright owners would have every recourse available to them under the law, including statutory damages, including circumvention procedures.

I mean they would be treated as any other member of the public that engaged in illegal conduct. The idea of the exemption is to provide a way to preserve abandoned online video games. And when people go outside of this exception, as they have in certain other cases, that violates the exemption and that's against the regulations.

MR. HANDY: Thank you. Mr. Handy. And this is one thing I want to keep pointing out is these guys in these gray area games -- I don't want them for the game they're working on. I want them because they know what they're doing. I need their
brains and they've already done this type of stuff. There are not many people out there who can reverse engineer and MMO server. You can probably count them on two hands in the United States.

But if there's like two of them I can't use, well, that's a lot less people I can access, you know. Obviously we want people to stay within the exemptions. These people who are doing this in great areas are not doing it to be scofflaws and make money, they're doing it because they love the game and they want it back. There's no other reason to spend three years of your life rebuilding something you're going to get sued over, right? Like these people are motivated, they're intelligent. They just need to come over here and work within the laws with us.

Right now they're scofflaws and it's a real shame that people who desperately love these video games and dedicate their lives to them are having to break the law in order to go back and play those games.

MR. RILEY: I'm just curious, you've thrown out a couple of different kind of colloquial numbers. How many people would be needed to restore one game?
MR. HANDY: Habitat was a team of about a dozen -- mostly not full-time but heavy contributors within the larger sort of being a total of about 20. This is the simplest virtual world ever made and it took four years.

So a larger game would take a larger team but I'll tell you, we're not going to find more than a dozen people to work on one of these things. This is extremely specialized knowledge. And just because you love a video game -- and just pointing out that there are low-level tasks. Yes, we have some little low-level tasks but when they're done still 90 percent of the work has to be done by gentlemen like these two right here who are the few and far between.

MR. RILEY: So hypothetically, let's say you've got all you want under the exemption, how many games could you restore a year?

MR. HANDY: None, because the four years -- give me five, I can do one. Like I said, Habitat took four years. I anticipate the next game will take five. The next game will probably take six or seven because we're going forward in time.

And like I said, this is like a large Hadron collider project. The four years -- we could have shortened it by a year and a half with this
exemption but it still would've been two and a half years, right? This is a huge undertaking.

This is not something somebody does because they just feel like it. This is something you dedicate your life to. It is incredibly complex work and I cannot even begin to get into the technical details of the stuff that they did on Habitat to make this game come back.

We have people who are at the tops of video games companies working on Habitat because they love it. That's the level of intelligence that is required.

MR. RILEY: Mr. Englund?

MR. ENGLUND: So, several things. First, just a moment ago what Mr. Handy said -- something about these affiliates want to be involved because they want the games back. They want to be able to play their favorite games again and that's -- once again, that illustrates the fundamental tension in this proposal.

We can all pretend that this is about the server in the reading room that's accessible only by scholars, but very little indication that that's really true. But people are putting in four, five, six years doing these projects not because some scholar 30 years from now might potentially
look at it and want to write an article.

People are doing this because they want to play the games.

MR. RILEY: But let me ask you this, don't you need players to play the games so you can study them?

MR. ENGLUND: I think, yes -- that's I think a reason to question whether this preservation activity is useful, scholarly because the experience -- a scholar's future experience of a virtual world with nobody in it --

MS. SMITH: I mean, I think, the Copyright Office has acknowledged that there's a value to preservation of video games, right? I think everyone in this panel has, right?

MR. ENGLUND: Yes, but I think you really ought to look at this proposal with some skepticism because time and again the proponents keep coming back to the idea that people want to play these games.

I think you've got to question whether it's really about the abstract possibility that 30 years from now some scholar may want to go to the back room of the museum and play the game.

Two other points -- just to return to the question of console jailbreaking very briefly,
it's one thing to have the hacked jailed -- the jailbroken console locked up in the curatorial area of a museum -- one of them with no public access, very different to have a dozen or 20 or however many you think the number is of consoles in people's homes that are jailbroken for participation of project.

Next so there was some talk, I believe, by Mr. Deamer of a few moments ago about copyright owners having sufficient rights under law and they would terminate affiliates who misbehaved. And I'd like to emphasize that that really isn't a very effective right.

Failure to volunteer isn't a strong disincentive to misbehavior by the volunteer. And copyright owners are unlikely to have an effective enforcement remedy against misbehaving volunteers -- we don't know who they are. They're scattered around the country.

We don't understand what their rules are. So I think if you were to grant exemption, I don't think you should because I think the case has not been made, but our agreement earlier in this panel that the preservation organization be liable for misbehavior by the affiliates would be a critical, important piece.

MS. SMITH: Mr. Degen?
MR. DEGEN: Yes. I do want to point out that the focus of this hearing is on the proposed exemption of the laws of preservation. That the MADE is also interested in doing other work legally with game creators to do more broad preservation does not affect anything that has to do with the hearings today and I think the focus should be on this limited use that we're seeking legal cover for.

MS. SMITH: Thank you. Mr. Deamer?

MR. DEAMER: And just following up, continuing on that, the idea that copyright enforcement mechanisms aren't sufficient are also outside the idea of a proposed exemption if the statutory damages provision of the copyright act is not sufficient for copyright owners then they should try to find another way outside of this thing to continue to argue that.

MS. SMITH: Okay. I think this has been a great discussion. I'll let Mr. Handy speak and if there's anyone else who wants to make a closing comment because we're little bit long on time.

MR. HANDY: I have just a quick closing comment that actually addresses the preservation issue. This idea that maybe somebody someday will be interested in virtual world. The reason the MADE exists is because I found a bunch of games that were
never released for the Atari 2600 at a flea market out there. It was not only one game, it was like 12 revisions of the game. We could see the process. When I went to Rembrandt's house in Amsterdam, you go and you see how they made the paints -- the things that he painted with -- the equipment, what his life was like. That's what we're doing here. We're trying to preserve the process.

Now the game that I found and that shows this process is called Cabbage Patch Kids: Adventures in the Park -- not a game that anybody would have said has any kind of historic value in 1984 when it was released.

But now because it shows the development process on the Atari 2600 it has intense value. We do not get to choose what the future thinks is important. The future gets to choose that and if we don't preserve it they don't get it.

MS. SMITH: Anyone else? Okay. Thank you all very much for all of your comments. I think, what time are we reconvening? 1:30 to discuss Class 5. Thanks very much, all.

(Whereupon, the above-entitled matter went off the record at 12:19 p.m. and resumed at 1:30 p.m.)
MS. SMITH: All right, thanks, everyone. I think we're going to start the next panel, which is Class 5, so I assume the streaming is working and we'll just get on with it.

So welcome, thank you for coming. This is Class 5 -- Unlocking. My name's Regan Smith, and I'm Deputy General Counsel of the Copyright Office.

We're here to consider whether or not to expand a current temporary exemption for which the Acting Register has determined it is appropriate to recommend renewal. So we're looking at whether it should be modified.

And, I think that we'll start by introducing ourselves on this side, and then if you can state your name and your affiliation.

MR. CHENEY: Stacy Cheney, I'm a Senior Attorney-Advisor at NTIA, National Telecommunications and Information Administration.

MR. RILEY: John Riley, Attorney-Advisor, Copyright Office.

MS. CHAUVET: Anna Chauvet, Assistant General Counsel at the Copyright Office.

MS. SALTMAN: Julie Saltman, Assistant General Counsel at the Copyright Office.

MR. SCHER: Dylan Scher, Stanford's
And who are you here representing?

MR. SCHER: The Institute of Scrap Recycling Industries.

MS. SMITH: Thank you.

MR. CONNELLY: Hi, Chris Connelly, also with the Stanford Juelsgaard IP & Innovation Clinic representing ISRI.

MS. SMITH: Thank you.

MR. WIENS: Kyle Wiens. I'm the founder of iFixit.

MS. SMITH: Thank you. And, I guess, one thing I should mention is tip your placard up if you'd like to speak. It's not a large panel, so I think everyone will get an opportunity to say what they wish to say.

But, if you can repeat your name for the court reporter when you start speaking, I think that will be helpful. So all right, we'll get started.

MS. SALTMAN: So right off the bat, I just wanted to clarify exactly what ISRI is asking for here. In your comments, you included language for two possible proposed exemptions, one that would expand the current exemption to include new devices and another that would expand it to include
all devices.

But, I noticed in the language for both of those, you included a clause that asks for -- that specifically encompasses including individual and bulk circumvention.

The current exemption, which has been -- the Register has already approved renewal based on the streamlined process, has -- includes bulk circumvention, so is there a reason you included that language?

MR. CONNELLY: We don't think that language is actually changing the effect of the regulation. We included it purely as a clarification.

But, as you said and our understanding of the existing regulation is that it does include bulk circumvention, and we're happy to leave it there.

MS. SALTMAN: Okay, great, thanks. And then are you, just to clarify because you included sort of like separate -- separate exemptions, are you also looking for sort of a third exemption, which would include unlocking of all devices both new and used? Just to clarify, that's what you're asking for in the all devices exemption?

MR. CONNELLY: That's correct. So
we're asking for basically two modifications to the existing exemption. The first is deleting the word used so that new devices would be included.

And the second is getting rid of those four categories so that it would simply apply to all wireless devices.

MS. SALTMAN: Okay, great. Thank you. Let's address sort of each issue in turn. So I want to start with new devices. So particularly in your reply comment, you provided some evidence of the types of situations where this exemption could have an impact.

So that would be in your reply comment, you mentioned retailers who would resell sort of like phones that had been -- that were, that had been bought from another retailer who had an excess of those phones. Is that the only use you're looking to protect with this exemption, or do individual consumers ever need this kind of an exemption?

MR. CONNELLY: Sure. So we think the adverse effects are the same regardless of whether they're new or used phones. Our examples are sort of just demonstrating that the recyclers now receive requests to recycle new phones.

This has effects for the recyclers and
for the original consumers who are looking to sell them because it affects fair price.

MS. SALTMAN: Do the recyclers receive requests to do bulk circumvention of new phones?

MR. CONNELLY: Sure. So we provided in our submission some evidence that there are situations where there are thousands of phones that are being looked at where they are new.

And then we provided examples where deals of over 1,000 phones fell through, because they were locked to particular carriers.

MS. SALTMAN: And is there evidence of the need to unlock other devices other than phones that are new? Is there a need for it?

MR. WIENS: Sure. I can answer that. The reverse logistics ecosystem is much more vast than you would expect. Retailers, I mean, in your files, you have an 8.8 percent return rate on cell phones. You see that 5 to 10 percent return rate on all products.

And so there's not just the recyclers, there's also the world of return processors, where they'll buy those 5 percent returns from Walmart and then they're taking those products and they're selling them where they can.

In many cases, they have contractual
requirements not to resell those products in the same market, so they have to export them outside the U.S. and resell them overseas.

But, if it has a cellular connection, and it can't be used on the U.S. carrier, then those products have a value of basically scrap value, rather than -- rather than the functional value of the device.

A certain example would be, I was in a recycler the other day, and I saw a whole bunch of smart watches with cellular connections. They were brand new devices that had made it back to the recycler.

And, it turned out there was a software glitch, and so they were able to patch them and restore them to working functionality, but then they can't resell them in the U.S.

MS. SMITH: Just before, I think Ms. Saltman has a follow-up question, but for the court reporter, I think we've drifted from providing names.

MR. WIENS: Kyle Wiens.

MS. SMITH: Is it okay? Do you need everyone to say their names before talking? Okay, we're good. So we are good. So keep going, I just wanted to make sure. Sorry.
MS. SALTMAN: Thanks. Mr. Wiens, could you walk me through how -- the types of TPMs that need to be circumvented here and how that's done?

MR. WIENS: Sure. So usually -- there's relatively few companies that make these cellular basebands. So you've got a company like Broadcom that makes the cellular baseband.

The lock is actually in the software that's on that baseband chip. So we're talking about a chip the size of a postage stamp or half the size of a postage stamp.

It's a relatively specific lock. And, I think, as we've been talking about, different kinds of devices, as we'll talk about in vehicles over the next few days, which is the idea that there's one monolithic lock.

There's really like locks inside locks inside locks. And so this is specifically the lock is on the software on the baseband processor, which has, it's the cellular modem.

It's the thing that has all of the smart bits to talk to the various, the cell frequencies. It's actually interesting. There's almost more money tied up in patent licensing on that chip then there is in the actual cost of manufacturing the chip.
It's a couple dollars in patent licensing for the 4G technology for that chip, which is why in the -- in the reuse market we see people will actually take a cell phone, and they'll desolder the cellular baseband chip off that cell phone, and they'll integrate that in a new product.

If they want make a cellular-connected television or something, they'll buy old chips, because it's cheaper to take the old chip then to pay the patent licensing again.

MS. SALTMAN: So to unlock this chip, is that -- are you circumventing the same access control that would give you access to all the content on the phone, or is it embedded in the chip?

MR. WIENS: It's embedded in the chip. Sometimes you have to break through another lock in order to get to this lock.

MS. SALTMAN: Okay.

MR. WIENS: It's -- but, you're modifying a bit on that baseband.

MS. SALTMAN: Okay. And so the content that it's protecting is solely related to the chip?

MR. WIENS: Is the software that runs the baseband processor.

MS. SALTMAN: Okay. Great, thanks.

MR. WIENS: And it's a general purpose
computer just like anything else. You'd like to think it's, I mean, it has some special silicon, but everything these days is a 32-bit microcontroller.

MS. SALTMAN: So Mr. Connelly and Mr. Scher, this question starts with you. In the last rulemaking, the Register declined to exempt unlocking of new devices because there was universal agreement that the exemption should be fashioned to avoid a concern, to avoid facilitating trafficking.

And I understand that this is not the kind of trafficking that's contemplated in 1201, but it nevertheless is a concern that was raised in the last rulemaking. Is there any new evidence in the record that we should consider with respect to this concern?

MR. SCHER: I don't think there is any specific new evidence about phone trafficking, but as was said, this is not necessarily a copyright issue.

There is no opposition this time, which seems to suggest and reinforce the link, that there is not a large link between copyright, phone trafficking and unlocking.

Additionally, as we explained in our
2015 submissions, opponents of phone trafficking have been very successful bringing lawsuits without relying on DMCA claims.

There were no examples of cases where we found success under the DMCA where there wasn't also success under another kind of claim like fraud or tortious interference.

And, I think it's important to remember that when there was opposition about trafficking, TracFone specifically said that as long as there are comments in the record that make it clear that the exemption is not seeking to immunize and insulate traffickers that's sufficient.

The Register acknowledged that, and I think there is no reason that the Copyright Office can't do the same in this triennial.

MS. SALTMAN: Do you -- what would your position be on an exemption that allowed unlocking of new devices but not in bulk, so only on an individual device basis?

MR. SCHER: So it's important for ISRI to be able to do it in bulk because they represent bulk recyclers.

MR. WIENS: Whereas my community is more doing it one device at a time. I'm also a member of ISRI, so I have a lot of friends that
MR. CONNELLY: I think, too, just to move back briefly if I may, this came up at the very beginning of this panel where we observed that the current exemption in place does include both individual and bulk circumventing.

So we would be very disappointed on behalf of our client in this unopposed proceeding to take a step back like that. That would be -- be something we're very much opposed to.

MS. SMITH: So to be clear, we're not looking to debate whether or not to renew the current exemption or take a step back, but for each modification that we're looking at, we're looking to make sure that there is a basis that the Office can decide whether there's an adverse effect on a non-infringing use, whether that -- whether there is a reason to deviate from the presumption that there will be the prohibition.

So in terms of extending it to new and keeping the bulk qualification, that's sort of a new thing, so I think that's why we're asking those questions, if that makes sense.

MR. CONNELLY: Oh, okay, I see. So as long as we're not saying we're going to get rid of
the exemption for used devices in bulk --

MS. SMITH: Right. We're not trying to question that --

MR. CONNELLY: It would just be tailoring it for new. Okay.

MS. SMITH: We're trying to say, you know, can you show us, and it sounds like Mr. Wiens has an example of stores where there is a surplus of returned goods, I guess, and other examples where there's a need such that the 1201 currently is having an adverse effect on something people want to do, because if there's not a need to do it or a desire, then the presumption that the prohibition on circumvention maintains.

MR. WIENS: Right. So another example would be around we're seeing every home security or commercial security device has some kind of telephone connectivity so it can phone call if it's being broken into.

And we're also seeing in this like rapid pace. I mean, every year, the smart home marketplace changes. So last training we discussed Revolv, which was a smart home system that Nest bought. After Nest bought them, they shut the servers down.

So you can very easily imagine a
situation where you have a home security system. A company shut it down, they're not supporting it anymore. A recycler is going to end up with the 10,000 remnant units.

Can't use them with the original cellular connectivity but may be able to swap out the SIM cards, use one of the open carriers and then resell with the license.

MS. SMITH: Is it not possible in that example to get permission to -- to go from one carrier to the next?

MR. WIENS: Yeah so the surprising thing about what recyclers do is that they never interact with the manufacturers. So even if -- so let's say these smart home systems are sold at Best Buy.

Best Buy may have the contract with Nest or Google when they're buying those things, but then when Best Buy is done with them or they get all these returns, they'll give them to a return processor or to a recycler.

That processor has no contractual relationship or commercial relationship in any with the manufacturer or the carrier. And so they would never -- they wouldn't have a business relationship.

They wouldn't have any leverage to be
able to say, hey, I've got all of these 10,000 smart home systems that would be very valuable to me. Why should the manufacturer give them the unlock codes?

The incentive is in the manufacturer's favor to take those devices off the market entirely. It's in the recycler's best interest to unlock them and resell them.

MS. SMITH: In the scenario you're describing, is it the manufacturer who has the unlock codes or the carrier or both?

MR. WIENS: Either.

MR. CHENEY: So I -- I have a question to probe a little bit more on the example that you're using. It would seem to me that if a product was purchased and went out of the store and was returned to the store, wouldn't that be classified used under the current exemption?

MR. CONNELLY: So it would not. For the purposes of copyright law, used is specifically defined as having been previously connected to a wireless network.

So that's one of the problems we run into is that if these devices are returned without having been connected, they are for 1201 purposes new devices.

MR. CHENEY: So in the -- so let me probe
just a bit more on that. In the previous exemption, there was a definition of used. Right? Used for purposes of this exemption, when it has previously been lawfully acquired and activated.

So you -- you point to the second part, but what if we eliminated that second section and just said lawfully acquired rather than just say new or used, but it's all lawfully acquired devices -- wireless devices? Would that satisfy your clients in this case?

MR. CONNELLY: I think that would be a change we very much would like to see, yes. I don't think that would get quite everything our client wants to see, but we certainly do think that would be a very -- a positive step.

MR. CHENEY: Can you give me an example of something that would not be covered that you think should be by that language?

MR. CONNELLY: I cannot come up with an example of that.

MR. WIENS: Can you give me the full sentence that you're imagining?

MR. CHENEY: Sure it's a -- so right now it says, "'used' for purposes of this exemption when it has previously been lawfully acquired and activated on the wireless telecommunications
network...."

So we would eliminate the second half, so it's never been activated, but it's been lawfully acquired. So it seems to me that the transactions you're talking about --

MR. CONNELLY: As long as it's --

MR. CHENEY: -- are lawfully acquired transactions. Right? So you're -- you're going to Best Buy, a reseller is going to Best Buy. They're acquiring these in bulk or a handful of them even, and then they're repurposing these. So it seems to me, does that -- does that fit the definition you think is lawfully acquired?

MR. CONNELLY: I think -- yes, I think it does insofar as our concerns are associated with the reverse logistics industry. I think that would solve our client's concerns.

MR. SCHER: Yes. I just wanted to say I think that definitely works as long as it's clear in the exemption that that's not necessarily the definition of used, because I think that it's just sort of confusing in terms of plain language.

Because if you get a child a gift for Christmas and you don't open it and then on Christmas Day, they open it, they wouldn't say, thank you for the used Xbox.
So as long as it's clear that that's what the definition means and maybe it's not the definition of used, but the definition of what's being acceptable in the exemption, I think that's fine.

MR. CHENEY: All right so in -- you can imagine perhaps the language instead of saying used should say lawfully acquired. Right? Because it would be directly substitutable. Right?

So that could be potentially the language of the exemption rather than used or new or just all devices, just say lawfully acquired devices.

MR. WIENS: I think that makes sense.

MS. SALTMAN: Okay, let's move on -- I'm sorry, let's move on to all devices. So in your comments, you talk about various types of devices, and it would be helpful for us to go through each of these types of devices and get a little bit more evidence on the record about sort of the types of TPMs at issue, the adverse effects of the current exemption, potential non-infringing uses.

So let's start with child monitors. Mr. Wiens, do you have experience with these devices?

MR. WIENS: Well, they're similar to
security systems --

MS. SALTMAN: Okay.

MR. WIENS: -- so I would lump them into the same kind of boat, or I mean, I have a -- I have a friend who has a ranch. He has a game camera with a cellular connectivity, and so every time a critter walks by, every time a deer walks by, it texts him a picture of -- of the deer.

MS. SMITH: I actually have a question. The child monitors in the -- in the proceedings are apparently sold in the form of a watch or an amulet, so why isn't this already permitted as a wearable device in the current exemption.

I didn't think that was a very useful example since it doesn't seem to be something that you need a new exemption for.

MR. WIENS: I haven't seen where you may --

MS. SMITH: Well, maybe this is more dedicated towards ISRI what -- what you meant when you said child monitor or tracker. Maybe that's different than what Mr. Wiens is describing?

MR. CONNELLY: Right. So I would concede that child monitors that come in the form of smart watches are included in the current exemption.
I think possibly our examples of some of the automobile GPS trackers we also discussed in that same section are -- are better examples on that point.

MS. SALTMAN: Okay. Let's start with those then. So my first question about those types of devices is sort of just like I'm trying to understand exactly what type of device you're talking about.

Are these like devices that are part of the car? Like when you buy the car, it comes with like an OnStar system, for example? Or are you -- are you contemplating a separate device that you would buy separately and like add on to your car?

MR. CONNELLY: So these are separate devices, and we gave two examples. We have Sync Up Drive, which is T-Mobile's device, and we have Verizon's Hum, and those are stand-alone devices you would buy for addition to an existing car.

MS. SALTMAN: Okay. And when you buy the device, do you contract directly with like T-Mobile, for example and -- to obtain a cellular plan for this device? How -- how does that work?

MR. CONNELLY: It's not clear to me exactly how that would work in terms of whether it could possibly be added to an existing plan or you
could contract for a plan for that.

But, the important thing to keep in mind for us is we have no -- we have nothing to say about contract basically. What would -- the exemption we're asking for would not in any way impair the contract rights that a carrier might have.

All we're asking is that if a consumer were to have the occasion or a recycler were to have the occasion of wanting to unlock these devices, they could so without being in violation of the DMCA.

MS. SMITH: So I think a question is we need to know it is possible to unlock it and go from one carrier to another. Because if it's not, it's not 1201 that is the cause of the -- use that is sought to be made if the exemption were granted.

MR. WIENS: There's no -- I mean that the -- we're using standard cellular networks, so the only thing that limits it to one carrier or another is the baseband's lock on the -- on the cell carrier's signal.

From a technical perspective, any cellular device that can talk on 3G can talk on anything as long as you're talking on, it's got the frequencies built in.

It's going to be more limited by the frequencies, but there -- almost every carrier,
there are multiple carriers on any given frequency.

MS. SALTMAN: So you -- so you're saying essentially if you could unlock one of these devices from T-Mobile, say, and you have a cell -- cellular plan with AT&T, you'd be able to connect it to your cellular plan without sort of adding anything to your AT&T plan?

MR. WIENS: Whether AT&T would like you, but yes.

MS. SALTMAN: I mean, I guess that's sort of a question -- that's a question that we need some evidence on.

MR. WIENS: Right. Well, so what we're seeing is all the cell carriers are excited about IoT, because it's more data that they can charge people for.

So if you have a device that you want to connect to any carrier that's going to transmit data, they're happy to take your money to connect the device to it.

So -- from a technical perspective, absolutely, anything that has cellular connectivity can be switched from one carrier to another. If there's a baseband lock on it, you have to bypass that lock, and then you can. Will another carrier welcome you? Absolutely.
MS. SALTMAN: And --

MS. SMITH: Is --

MS. SALTMAN: Oh, go ahead.

MS. SMITH: I mean, can any of you tie that into the automobile, truck or train example?

MR. WIENS: Yeah. So where -- where we're seeing these GPS trackers happen, and everybody is excited about them, is the insurance companies are paying for it.

Because the insurance companies can get a device in your car and track your usage, then they can profile you. They can say you're a risky driver or you're not a risky driver.

So you see this with teen drivers a lot. You have a 16-year-old. They're going to give you a discount on your car insurance if you put a tracker, and it's phoning home on how hard they're braking.

But, you can imagine, your kid turns 18, you don't want that anymore, maybe you switch insurance carriers. Your new insurance carrier is using Verizon instead of AT&T.

They're going to charge you for another device. If you could switch the device that you have that you're not using anymore, to the new carrier, that would be beneficial.
MS. SMITH: Do you know if that has happened? Like is there a refusal to switch carriers in the example of the car tracker for insurance purposes?

MR. WIENS: I haven't seen that yet. I mean, this is a relatively new category, and these devices. I mean, it's only in the last, what, six months or a year that both T-Mobile and Verizon have been pushing these devices really hard.

So I think we're -- we're anticipating where the market's going to be going over the next year or two. But, the market moves so quickly that I can -- I can see a lot of, you're going to end up with hardware being abandoned.

It's kind of like your DSL modem. You know, you sign up for a -- for a plan with Charter and then you move and you want to use the same modem with Comcast, and they won't let you.

There's no -- nothing different about the modem, you just want to be able to switch it over.

MS. SMITH: Do you --

MR. CONNELLY: Like to, sorry, to --

MS. SMITH: No, it's fine.

MR. CONNELLY: -- Mr. Wiens' point about how fast this is moving. As we were preparing
our reply comment in January -- we're only talking three months ago -- T-Mobile launched what it bills as the first nationwide NB-IoT plan.

So this happening just three months ago, it's very, very difficult to come before the Copyright Office and say, here's a list of examples of consumers who've been in this position and haven't been able to switch carriers.

Our concern and the reason we believe it is very important that this exemption be granted now is that this is moving so incredibly fast that if people have to wait three years, it's going to stifle innovation.

We've seen studies suggesting that by 2021, there'll be over 900 million things connecting to the IoT only using cellular technology. That's not including Bluetooth or WiFi or anything of this sort.

And there was an AT&T white paper actually that came out just last year, 2017, starting out by observing that virtually anything can be connected to the internet.

Well, if we take that seriously, and that's not on our say-so or ISRI's say-so, that's on AT&T's say-so, it doesn't seem reasonable that people of all these kinds of devices, virtually
anything, will have to wait every three years and separately come before the Copyright Office with their GPS trackers or their widget makers or whatever the case may be.

MS. SALTMAN: But it's different, right, because a lot of those things might connect to the internet, which might not involve the type of unlocking you're asking for here.

Like I was actually going to ask, are these sort of GPS tracking devices, can they connect via Bluetooth or via like a wireless internet or a network you create on your cell phone?

Is there a way to sort of like get around this issue without having to trigger the exemption?

MR. WIENS: They tend to be very simple devices that don't even have screens or buttons. You just put the SIM card in and plug it into your car.

So there -- and just from a cost perspective, they're not going to want to put a WiFi chip or a Bluetooth chip on these devices. So in terms of the car trackers, they'd only talk on the cellular network.

MS. SALTMAN: Okay.

MR. SCHER: And I'll just add, I don't think that there is any evidence or reason to believe
any of the reasons that the Register has acknowledged that voluntary unlocking from carriers might not be accessible to consumers, that there is any reason why that analysis would change for these GPS trackers.

MS. SMITH: Well, that was based on an in-extensive record, so I think we're also looking to see some examples that there is a competitor to T-Mobile, for example.

MR. SCHER: Well, in terms of the GPS trackers, we put in multiple devices that go in cars, and we provided you the evidence about child trackers, although we acknowledge that those are wearable devices to demonstrate that parents have an interest in changing their carriers for things that are focused on child safety like these car trackers.

So we don't have specific examples that demonstrate to you, here's somebody who wanted to change their Verizon Hum, and they were unable to.

But, there's little reason to think that the voluntary carrier unlocking would be sufficient especially now that we just have the recently announced DOJ investigation suggesting that there's collusion between some major carriers in terms of trying to make it harder to unlock from
MR. WIENS: I don't know if you saw that story. That story came out on Friday that the FTC has launched an investigation into the -- the eSIM development process that's -- that's being -- that's happening through the GDSM Association.

And the FTC is accusing AT&T and Verizon and maybe some of the other carriers of colluding and preventing competition in the marketplace.

So this has actually got the manufacturers that we suspect are behind this FTC complaint saying, hey, in the technical process of developing eSIM, which is just a virtualized software SIM card, that they're seeing anti-competitive practices.

MS. SMITH: Is that related to whether or not they would allow unlocking to go from one carrier or another? Because I had thought that there was sort of some voluntary cooperation to promote that, at least in the smartphone market.

MR. WIENS: Yeah. No this is very specifically solely related to the ability to move from one carrier to another. So the development of the eSIM, we're moving from a physical SIM card to a virtual SIM card.

The carriers want to continue to be carriers.
allowed the same kind of locks that they have now and clearly there's been disagreement in the eSIM development process over how that will go.

MS. SMITH: So are you considering eSIM a TPM or is eSIM a separate sort of obstacle to get by?

MR. WIENS: I would consider the TPM to be at the baseband layer, and the SIM card or the eSIM to be underneath that.

MS. SMITH: So if the eSIM would prevent unlocking, does that help you or hurt this exemption if you're also stopped by that?

MR. WIENS: I would think that this exemption would cover unlocking the baseband, whether the baseband was identifying the cell carrier via a SIM card or an eSIM.

So my -- my interpretation of how it would work is that this would sit over the top of whatever kind of TPM there is.

MS. SMITH: I guess what I'm getting at is we've said one thing we're looking at is whether the prohibition on circumvention is causing, has a causal relationship to the adverse effect. And if the eSIM is separately preventing unlocking, that may not be the case.

MR. WIENS: I don't think it would be
separate. I think it would just be another way of implementing it.

MR. SCHER: I also gather that's new technology --

MR. WIENS: It's relatively new, but you have, I mean, Google's new phones have -- have eSIM. I'm not -- I haven't dived into enough of the detail of how eSIM is built, but my guess is that a circumvention of an eSIM TPM would be the same as a circumvention of a SIM TPM.

I mean it's -- it's -- the TPM is on the baseband, and the SIM is just what's telling the baseband what signals to be looking for.

MR. CONNELLY: I just want to clarify, I didn't raise that to suggest that there is eSIM in the GPS trackers. I was just providing that as updated evidence that voluntary carrier unlocking might be insufficient aside from the previous reasons that we've written about in our past submissions, such as it being a very complex process and that major carriers have escape hatches where they might not unlock your phone even if you meet all of the necessary requirements.

MS. SALTMAN: Do you have -- is there evidence in the record of that happening?

MR. SCHER: So that was from our 2015
submissions where we dove more into that issue where
we explained why voluntary carrier unlocking was
not necessarily sufficient in terms of used phones.
So we didn't like re-go through all of that analysis
in our 2018 submissions.

MS. SALTMAN: Yes, and --

MR. SCHER: But, I can point you to the
specific pages where we made those arguments.

MS. SALTMAN: Well, and the Register
deprecated to grant the exemption you were asking for
--

MR. SCHER: No, in 2015 --

MS. SALTMAN: -- with respect to all
devices.

MR. SCHER: Well, in 2015, we were
focused explicitly on used phones.

MS. SALTMAN: Okay.

MR. SCHER: And the Register also
acknowledged that consumers may have trouble taking
advantage of voluntary carrier unlocking policies
because of the conditions imposed by certain
wireless carriers. That was on page 165.

MS. SMITH: So I just have one more
question on the eSIM since it's new to me. We can
go to some of the other categories. But, are you
saying if you circumvent the TPM that is protecting
an eSIM, you will be able to successfully unlock a device?

MR. WIENS: Yes.

MS. SMITH: Yes. Okay, thank you.

MS. SALTMAN: So relatedly, and this might be just a short question, but the tracking devices in trucks and trains, do those operate the same way that the car devices do?

MS. SMITH: I want to ask one thing talking about OnStar as well would be helpful, because I think the GPS tracker that you --

MR. WIENS: Right.

MS. SMITH: -- connect to your car is separate from OnStar, so your initial comments raised where you talked about OnStar and then the reply talks about the trackers.

MS. SALTMAN: Yes, right. Well, so okay, let's handle OnStar first. So --

MR. WIENS: Maybe, can we do that second?

MS. SALTMAN: Sure.

MR. WIENS: Because that one's more complicated.

MS. SALTMAN: Okay.

MR. WIENS: Sorry.

MS. SALTMAN: No, no that's okay.
Let's do trains and trucks first.

MS. SMITH: We're going to get to crops, seed and soil monitors.

MS. SALTMAN: Yes. Can't give that up.

MR. CONNELLY: I was waiting for that.

MS. SALTMAN: All right.

MR. WIENS: So you guys want to take that?

MR. CONNELLY: So trains and trucks? I don't believe we have much information on record about trains and trucks. We would simply include those as a couple of examples of the broad utility that the IoT does have.

And to the extent that those technologies do connect to wireless telecommunications network, that's really what we kept returning to as our touchstone is that we want a cabin not according to trucks and trains out, cars in, some arbitrary classification, but trackers that do connect to telecommunication networks.

MR. WIENS: I think the category of product you're looking at there is a fleet management system, where you have a moving truck company. They have 200 trucks.

And they want to put trackers or I mean, all of the long-haul trucks use this where they
actually have remote speed limiters so that their
drivers can't go past 65 miles an hour on the
freeway. Those are all I think in this category of
device.

MS. SMITH: And those are built into the
vehicles?

MR. WIENS: Those are after-market
devices that are added on. Generally, they're
after-market.

MS. SALTMAN: And is there a need to
switch the carrier for those types of devices?

MR. WIENS: I put them in the same
category as, let's say you bought 200 of these for
your semi-truck fleet and then you want to switch
software companies and want to keep your hardware.

You can see how maybe the new company
has an arrangement with a different carrier. It's
hypothetical. I don't have a specific fleet
management friend.

MS. SMITH: Okay. Is it clear that the
fleet management company in this hypothetical
situation has purchased the built-in cellular
modems --

MR. WIENS: I --

MS. SMITH: -- that he leased?

MR. WIENS: Yes, good question. I'm
familiar with, I think, both models where sometimes
it's just provided as part of the monthly service
that you're paying, and they bundle the hardware
and the cellular connectivity all as one. And then
others where there's a device that you're buying.

MS. SALTMAN: All right. So let's move
on to the OnStar systems. I just want to clarify
again, is this an add-on product, because I know
some cars do have like integrated OnStar systems.
Are you asking with respect to those as well?

MR. WIENS: Yes. I mean, we're talking
anything with a cellular device.

MR. CONNELLY: That's correct. I would
include automobiles. We really don't see why it
should be a violation of the DMCA if all that's being
done is unlocking to switch carriers.

We're not talking about anything else,
any other tampering or jailbreaking or hacking,
only unlocking to switch carriers.

MS. SALTMAN: But, to be able to unlock
to switch carriers for an integrated OnStar system,
would you have to circumvent sort of like the car?

Because, you know, like cars have many
layers of software now. Would you have to sort of
circumvent some of the other layers of the car's
software to get to what you need to do to unlock
to connect to the carrier?

MR. WIENS: Potentially.

MS. SALTMAN: Okay. And, I mean, by unlocking those systems, could you potentially have access to the car's entertainment system?

MR. WIENS: It's interesting if you think about all the things that a car wants to talk to us, I think there's a connection for it. It wants to talk for the purposes of an OnStar-type like driver assist. It wants to talk for the purpose of providing a WiFi hotspot potentially for downloading new maps.

And so the vehicle manufacturers, the way it has worked out is instead of having three or four separate cellular modems in the car, they have one. And that one almost always lives in the telematics and the entertainment module.

MS. SALTMAN: Okay. So it sounds like it's possible or likely that you would have to unlock the telematics and entertainment system module to unlock to switch carriers for the OnStar system?

MR. WIENS: That's possible.

MS. SALTMAN: And, I mean, you know, we'll talk about this more on Wednesday in the Repair section, but in that exemption, you know, there's been a lot of evidence regarding whether or not
unlocking those systems both exposes creative
ccontent to infringement and also could create
security concerns.

MR. WIENS: Right.

MS. SALTMAN: So can you speak to that?

MR. WIENS: Yes, well, I would say let's
focus on specifically what we want to accomplish,
which is, you know, you have a car that is locked.
Let's say it's got a WiFi hotspot, and it's locked
to a carrier.

Should consumers be able to bypass the
TPM to do that? I would say, yes. Now, is it
possible or can it be possible for car manufacturers
to design these things in such a way that you can
bypass that lock without bypassing the other locks?
I would think, absolutely.

So if there is a side effect that there
is a security challenge or that there's another lock
you have to bypass to get to it, that's a result
of the vehicle manufacturer's decision designing
the product.

MS. SMITH: So when you're the owner of
a car that has OnStar, do you have to pay your carrier
AT&T, Verizon, whomever to use OnStar?

MR. WIENS: You pay GM for the OnStar
service and then GM is paying the carrier. For a
hotspot, which almost all new cars these days have WiFi hotspots built into them, you're paying the carrier.

And you may not have options on which carrier that your car is talking to depending on how, so for example, I just rented a car. I pay ungodly amounts of money every month for cellular service, including for various devices.

I rent a car. It's got a WiFi hotspot. WiFi hotspot doesn't work. There's no way for me to get that WiFi hotspot. Even though I've got a SIM card that I could put in there, there's no way for me to get the WiFi hotspot in my rental car working.

And this is true across almost every car that's being rented in the U.S. is that they have WiFi hotspots that are not functioning.

MS. SALTMAN: And why does it not work?

MR. WIENS: Because I have a different, I don't have a way of putting my SIM card from a different carrier than whatever carrier that car is locked to.

There's literally a SIM card inside that you can pop the engine and stick your SIM card in.

MS. SALTMAN: Go ahead.

MR. RILEY: I was going to say, maybe a
rental car is not the best example.

MR. WIENS: Potentially, because I don't own that, yes. So you imagine I buy a car. It's locked to Verizon and then I want to sell it to somebody in Canada or I want to go and work in Canada for a couple of months.

There's no Verizon in Canada. I'd have to unlock it and move it to Rogers. So it's changing, the value of the device, same thing as all the arguments about the value of cell phones in the after-market, the value of vehicles in the after-market is going to be dependent on whether the cellular connectivity can be changed from one carrier to another.

MR. RILEY: Actually, I had a question about that. Before you mentioned that the difference between being able to switch SIM cards or not is the difference between a device being usable and it being recyclable as scrap.

But, there's an example in other proponent's reply comments where it talks about a price differentiation between you get more money if you can put it on a different network.

Which one is more accurate? Is it this one saying that if you can't switch networks, the device is going to be scrap? Or is it there are
different networks and you get different prices when you recycle them? Which one is kind of a better example?

MR. SCHER: Well, I think it depends on the situation. Like the example that I'm moving to Canada, that's a device that wouldn't be usable in Canada, but --

MR. RILEY: I'm talking about the recycling context, though.

MR. WIENS: The recyclers have a kind of economic threshold that the device has to be over. So let's say that a Sprint device is going to work 25 percent less than an AT&T device.

If that 25 percent is now below the threshold of what it costs them in labor to process the device, that's why it would move into the scrap pile compared to resale.

MR. RILEY: I appreciate that. I wonder if we could get any response from the recycling proponents.

MR. SCHER: No, that's accurate. We provided one example where a sale for T-Mobile phones couldn't go through because it was locked to a T-Mobile device.

MR. RILEY: And it wouldn't go through at a price or it wouldn't go through at all?
MR. SCHER: It was not profitable enough for the recycler, so he had to decline the deal, and those devices were then not resold as far as we know.

MR. CONNELLY: Right, that's my understanding as well. So I think what Mr. Wiens has just told you is entirely consistent with what we said, and that example is on our page 1.

It's Joe Clayton of ARCOA. And there just wasn't enough money in the deal for him, that the whole deal fell through. So my understanding is what happens when there's not enough money in it for a recycler, it's then scrap. So I think we're telling you two sides of the same thing.

MR. RILEY: And, I think you understand the nature of my question about what the adverse effect is, and it's different if you can't use it at all in a recycling setting versus if you can't sell it for the price you want.

MR. CONNELLY: Well, perhaps I'm just not quite following, because in the recycling setting, if the recycler can't get an adequate price to let him turn a profit, then the recycler can't do anything with the phones at all.

MR. RILEY: And you're saying that for these other devices that would be a common problem?
MR. CONNELLY: Right. That would be or that will certainly become one in the next two years as we're heading rapidly toward 900 million plus connected devices by the time the next triennial is convened.

MR. RILEY: Okay, thank you.

MS. SALTMAN: One more question about OnStar. Mr. Wiens, you said that the contract that provides connectivity to an OnStar device is probably between GM and a carrier.

So by unlocking, you're cutting GM out of the equation? So if you were unlocking your OnStar device, you would no longer pay GM for that service, you'd be paying another wireless carrier directly? Is that how it works?

MR. WIENS: Right. Or someone like AAA. AAA would like to compete with GM on OnStar, and they'd like to replace the OnStar button with a AAA button.

And then you'd be paying AAA and then whichever cellular carrier that AAA negotiated with.

MS. SMITH: Sorry, how would they replace the button?

MR. WIENS: Well, they'd just make, I mean, so that would be -- this probably has more
to do with what we'll talk about Wednesday, but the idea is, I mean, you've got this telematics feed. We're very quickly going to break outside today's discussion.

The telematics feed is piped to GM and then they're providing it to their network of service centers and in the case of the OnStar button specifically because that's a service-related function then that would be piping it to AAA and their roadside assistance.

MS. SMITH: And so your testimony is that if I buy a car where the car's WiFi requires me to have a subscription to AT&T, but my, you know, phone or home subscription, I use Verizon, I can't switch it to Verizon without unlocking it?

MR. WIENS: Right.

MR. RILEY: I mean, I guess kind of the question is, is this really going to be useful for OnStar, because OnStar is a little bit of a different example in that it's a service, right?

MR. WIENS: Yes.

MR. RILEY: OnStar is a service?

MR. WIENS: Yes. I would focus on the WiFi hotspot. I think that's more relevant to this exemption and what you would want to be, I mean, almost every car has WiFi hotspots and then you can
tack on to your data connection.
And you can imagine the consumer would want to have one wireless bill, not two and then one could be with whatever their existing carrier is, not whatever the contract, whatever the --

MS. SALTMAN: And does that work that same as OnStar, where so like if you buy a GM car, you pay GM for the connectivity of the WiFi?

MR. WIENS: No, in that case, you're paying the carrier directly.

MS. SALTMAN: Okay. So --

MR. WIENS: I think.

MS. SALTMAN: I mean, why would you need to circumvent to switch carriers in that case?

MR. WIENS: Some of them are locked to, so you know, GM says, hey, you buy our car and you can have wireless service through Verizon. It's like if you buy an iPad that's locked to Verizon --

MS. SALTMAN: I see.

MR. WIENS: -- it's the same deal. You buy the iPad from Apple, it's locked to Verizon. You pay Verizon by the month. If you can unlock it, then you can use it on AT&T, but it came locked.

MS. SALTMAN: I see.

MS. SMITH: So you described the TPMs as
like locks upon locks upon locks, where is the lock for the WiFi in the car, where does that sit?

MR. WIENS: It's the same. It's at that baseband processor level. It's the same lock.

MS. SMITH: So if you unlock it, sorry, does that get to the telematic system, does that get to OnStar or is that something --

MR. WIENS: Well, this comes down to the design of the vehicle and the design of the systems, so it's going to depend on which input into the system that you're talking about.

MS. SMITH: Is there --

MR. WIENS: The hope would be that you could narrowly just unlock the baseband and not touch the rest of the vehicle, because I'm an engineer. I just want to move my car from one carrier to another.

MS. SMITH: Right.

MR. WIENS: So I prefer it not to impact the rest of those locks.

MS. SALTMAN: Do you have any sort of concrete examples of cars where it's possible to do that?

MR. WIENS: I don't.

MS. SALTMAN: Okay. Regarding sort of the Internet of Things, which we've sort of touched
on a little bit, how many of these devices, I know there like countless devices and we don't have time today to go through every single one of them, but how many of them only connect to cellular data and don't connect to WiFi, like that, you know, your average consumer uses? Can you give me just sort of like a sense of the landscape?

MR. CONNELLY: Sure. So as of 2015, there were 265 million devices connected to the IoT by cellular technology only, not including Bluetooth, WiFi, whatever.

And that number I cited earlier, 910 million by 2021, that likewise is analysts' projection of devices that will connect by cellular technology.

MS. SALTMAN: And can you give me some examples of devices that we haven't talked about yet today?

MR. CONNELLY: Devices that we haven't talked about today? I know a lot of them might be industrial IoT. It's hard for me to talk specific devices, but manufacturing devices is one thing.

And just the other examples we listed. You could imagine even something like bridges and tunnels. I don't want to speculate too much, but these are all things that anytime someone or a
corporation or municipality, whatever, might want
to monitor what's going on with a particular device
or particular place, whatever, those are potential
applications for the IoT.

MS. SALTMAN: Mr. Wiens, do you have
anything to add?

MR. WIENS: Yes. Traffic lights
oftentimes have cellular, so they can phone home
if they're having a fault. I have a friend that is
building a -- he does telemetry on natural gas
pipelines.

And they found that the cellular
connectivity was too expensive and so they're
building an alternative mesh network for getting
the telemetry out.

So the cost and the availability of IoT
data is significant. There are cell carriers like,
Ting is a virtual MVNO cell carrier, where they sell
SIM cards. It's Ting, T-I-N-G.

They resell the data from I'm not sure
which of the main carriers, and they're only
targeting IoT devices. And so you can go and you
can get a SIM card from them effectively for free
and then you just pay by the megabyte for how much
information that you use.

And their entire business model is
predicated on a wide spectrum of these devices coming out. I mean, yes, we can talk about more examples and in three months, there will be more examples. We're at the base level of a power locker here.

MS. SMITH: We hear you. There are a lot of things in the Internet of Things for sure. We're not contesting that. But, in these examples that you've talked about bridges, natural gas pipelines or traffic lights, who owns them?

MR. WIENS: Well, in the case of a natural gas pipeline, it would be the natural gas company or the Halliburton that's doing the installation.

MS. SMITH: Well, then they're probably not wanting you to unlock them, are they? It's the lessee who would.

MR. WIENS: I mean, it comes down to flexibility. So maybe when you buy them initially they're locked. I don't know, I mean it's always --

MS. SMITH: Maybe they're very large and expensive complicated transactions.

MR. WIENS: Right, right. Are they going to come locked or is it going to be unlocked? I don't know. That depends on the decision that the
manufacturer makes at the time.

You can imagine that they want to bundle. A typical business model is to do what GM is doing with OnStar and to bundle the cellular connectivity with a service that they're providing.

And then, in order to be able to move from one service to another, you'd like to, but now you've got this cellular TPM that's locking you into that service kind of inadvertently.

MS. SALTMAN: Okay. But, it doesn't sound like we have any evidence of this actually happening, the exemption impacting one of these sort of like large manufacturers or oil pipeline.

MR. WIENS: I don't have an example of that.

MR. CONNELLY: I don't have one at hand. I think it really is just too early in the development of this technology. So we may be in a situation we might contend now is too early, three years might be too late just because this is moving so incredibly quickly. That's our client's concern.

MS. SALTMAN: With respect to sort of more consumer devices, which I think we had sort of, it seemed like we were more focused on those in part in your comment, do you have any examples
of consumer devices that individuals would want to
unlock to switch carriers through Internet of
Things devices?

MR. WIENS: Home security systems are
the most frequently used ones that I would think
of.

MS. SALTMAN: Okay.

MR. WIENS: And commercial security
systems.

MS. SMITH: And you said Nest, you gave
Nest as an example or maybe this is --

MR. WIENS: Yes, I don't know if Nest,
does Nest have a cellular-connected, yes, their
new --

MS. SMITH: I mean --

MR. WIENS: Yes, they do, because their
new security system --

MR. SCHER: T-Mobile is the exclusive
cellular backup of the Nest.

MR. WIENS: Okay.

MR. CONNELLY: All right. So that's
one example of the cellular provider locking down
an IoT device, as in we're the exclusive backup
provider. This only came out in January, though,
so there's just not much available out there being
that it's only been three months since they've been
MR. RILEY: And, I don't have Nest, so this is more like a device that is not paired with a service. Is that right? It's less like OnStar and more like -- I know that Nest is a wireless --

MR. WIENS: Yes, so this is --

MR. RILEY: -- temperature control.

MR. WIENS: It's a security system, so it is paired with a service, because the service is the security monitoring. So when they say Nest backup, that's the like, we're going to call the police if your security system goes off. And so usually that's a monthly service that you're paying for.

MS. SMITH: Is this T-Mobile service something if I was interested in buying that I would, you know, have my subscription through Nest and then I would separately pay T-Mobile for the backup service? Is that your understanding of how it's operated?

MR. CONNELLY: That's my understanding, yes. And just to be more clarifying of something I said earlier, we're talking about the Nest Secure, so you're probably familiar with the Nest as a smart thermostat.

This is the security system. So the
Nest Secure is the Nest branded security system. That's why T-Mobile is claiming to be the exclusive backup rider for it.

I believe you would pay T-Mobile separately and that's just based on by own review of T-Mobile's website. Not having signed up, I can't promise you that for certain. But that's sure how it looked to me.

MS. SALTMAN: So as we talk about all these different kinds of devices, you know, one concern that the Register had in the last rulemaking was that there just wasn't a sufficient evidentiary record for so many of these types of devices.

And, I think that could be an issue in this record as well just because there are so many devices that are sort of encompassed in the idea of the Internet of Things.

So one thing we were thinking about is are there categories of devices or are there qualitative descriptions of devices that we could grant an exemption for that would address, you know, sort of like the most common issues?

I mean, and so one potential category of devices would be portable devices. Do you think that that would, I mean, does that meaningfully expand the scope of the exemption to address the
types of devices you're concerned about?

MR. CONNELLY: I believe it would, yes. And the reason I say that is just because one thing we've thought a lot about were concerns that the NTIA raised during the 2015 rulemaking that the line distinguishing a mobile phone from other devices is increasingly disappearing.

And as the NTIA said, it really doesn't make a lot of sense for the size of the screen or the form of a device to be determinant when I can surf the internet on my phone, and I can make a call on my laptop, why are we distinguishing as a matter of the DMCA?

So our ask was wireless devices connecting to a telecommunications network. If as you suggested, it was portable wireless devices that connect to a mobile telecommunications network, I think that would be a great step in the right direction and would make a lot more sense.

As for having all these different kinds of devices, you know, what's a phone, what's a tablet, what's a laptop, that they all kind of blend together.

MS. SMITH: But, are laptops locked, because phones and tablets are already permitted?

MR. CONNELLY: Right. Phones and
tablets are already permitted. I'm not certain if they are --

MS. SMITH: Right.

MR. WIENS: There's definitely 4G laptops. I don't know if --

MS. SMITH: I think we concluded they were not in 2015, so I don't know if something has changed.

MR. WIENS: Yes, I know of 4G laptops. I haven't looked to see if there are locks on them.

MS. SMITH: Okay. I mean, because I would sort of push back, Mr. Connelly. One reason that the Copyright Office has chosen to distinguish is they've said that there could be an effect on the fourth factor under the fair use analysis, whether there's an effect in the market for the copyrighted works.

And that may vary depending upon device to device. And there's really no treatment of that in the written comments, which are pretty thin.

So it would be helpful if you could address that, because that's something the Copyright Office has suggested might affect the analysis of whether these uses are likely to be non-infringing and why we've looked to specific examples, you know, and concluded that many are
likely to be non-infringing. But that is why we have looked at specific examples in the past.

MR. CONNELLY: Well, we do not believe that the analysis would differ based on the type of device. And the reason we say that is due to the nature of the copyrighted work as you say in the fourth factor.

The copyrighted work at issue here is the code that is involved in the locking on these TPMs. I'm not even sure what the market for that code or the market for a TPM looks like.

So if we're talking about the market for a phone or for a laptop or for a tractor, that's not the copyrighted work itself. So we believe the fourth factor does favor granting this exemption just because I haven't seen anyone come forward and say that the reason this exemption should not be granted is because of the effect on the market for the copyrighted TPM.

That's just not what's at issue. It's business models of phones and laptops and farming devices, which is not the purpose of copyright law to govern.

MR. WIENS: One thing that might simplify this is to think about the actual copyrighted work that we're talking about, which
is the baseband software that Qualcomm wrote that's on this.

But, it's the same licensing fee, it's the same product. It doesn't matter if it's in a tractor or a natural gas plant or in a cell phone or in a car. It's the same chip.

And it's probably the same Broadcom part number and the same licensing fees, the same amount of money that Broadcom got paid. And you don't see Qualcomm here saying, we oppose, you know, unlocking our devices in specific situations. They got paid, they're happy. They're going to get paid a lot more over the next three years.

MS. SALTMAN: So are there any other sort of qualitative categories or descriptions that you think you presented evidence, you know, enough evidence on to support an exemption both with respect to the fair use factors and also the adverse effects of the current exemption?

MR. CONNELLY: I think portable devices was a great suggestion. I cannot think off the top of my head of any other ways I would craft that, but if the Copyright Office is inclined to grant a broader than existing but now when we've asked for exemption, we would certainly love the opportunity to maybe submit language if that would
be a possibility trying to cabin this appropriately.

MS. SALTMAN: Do you think an exemption that included, or do you think the fact that a consumer contracts with a carrier for the coverage is sort of like a characteristic that would qualitatively describe a meaningful category of devices?

So not devices where you're paying GM or something, but where you're actually contracting with a carrier to get the coverage for the device?

MR. CONNELLY: I don't think so. That to me just feels like it's too reliant on contract law, which is really not. What we, I think, want to see an exemption that focuses more on the devices themselves or on the technologies that devices use.

I would have to think more about it. But, yes, I'm not sure, can I even maybe pay some of these services, prepaid or month-to-month? Would those not be covered by a contract? Those would be the sorts of concerns I would have.

MR. WIENS: If I'm a recycler, I'm getting products that I wouldn't know necessarily what kind of arrangement was set up ahead of time. I just know I've got a device that has a SIM card in it, and I want to be able to swap that out and
sell it to Canada.

MS. SMITH: I guess maybe we can find a different example, but I'm back on the OnStar example where you're not having a contract or a relationship with the carrier directly. You're doing it through an intermediary, in that case, GM.

Say you successfully unlock it, and you switch something to a different carrier. Are you then able to still receive the OnStar services that you're no longer paying for?

MR. WIENS: I don't know enough about the technical implementation of OnStar to answer that. I would think being an internet guy, I build internet services in the cars and IP address on the internet, that it ought to be able to talk to any network out there.

OnStar was kind of an early technology, and it may have some like funky proprietary way that they integrated that, but let's say there was some new kind of clean room we were building that today or it was Tesla, for example, the way that they do their telematics, I would think it wouldn't matter what cellular connection it was talking over.

MS. SMITH: So in that case, it seems like before you've had to pay money to someone who is providing you a different service than the
Broadcom lock. Right? They're providing you whatever you get with OnStar, some of which might be copyrightable works and now you're no longer paying for it, because you've switched to a different server and sort of cut them out. Is that right?

MR. WIENS: Sure.

MR. CHENEY: This has all been very fascinating. I want to go back to the portable that we talked about earlier. Portable is currently in the exemption. Right?

So I think I'm the exemption that was talked about. Possibility there. I want to probe a little bit more on that because if you just do portable devices, does that exclude the car that we're talking about now?

The OnStar-type device, does that exclude that? But, it includes the mobile hotspot. And it sounds like that's integrated, which is not necessarily mobile or a portable device. Right?

MR. CONNELLY: That's an excellent question.

MR. CHENEY: We drove in the car here. We were moving it.

MR. CONNELLY: I would think cars are portable.
MS. SMITH: Maybe we covered this in 2015.

MR. CHENEY: We did cover this in 2015.

MS. SMITH: A car is portable, but it's not in that way.

MR. CHENEY: Right. So I think that was an important point that we made in 2015, right, in this discussion was the definition of portable becomes very important here, right?

So there's four categories currently listed. Right? And a lot of what you're talking about here seems to be if you come down and just say, C, which is portable mobile connectivity devices, such as mobile hotspots, removal wireless broadband modems and similar devices.

That seems to me to be pretty broad here. So I'm not convinced entirely that some of the things you're listing aren't already included in that broad category as it's already listed.

So you're talking about farm implemented equipment. Right? Those are portable devices that are put in the fields to measure whatever out there, right, the soil content or rain or whatever it might be.

Those seem to be portable mobile connectivity devices, such as, which allows a lot
of other things, and similar devices. Would that not be included in the current exemption?

    MR. WIENS: I'm sorry, is the definition of car being portable being like a human cannot lift it?

    MR. CHENEY: I think generally that's what we talked about last time, right, that you can't carry it in your pocket. But, a lot of these portable devices that are in the fields --

    MR. WIENS: But, those implements are not necessarily a 1,000 pound machine that you attach to a tractor.

    MR. CHENEY: That is the --

    MR. WIENS: Some farm implements or the tractor itself has a cellular connection on it.

    MR. CHENEY: So in those cases, those would be excluded if they're attached to the tractor or they're not a third-party device attached to the tractor.

    And I think that's part of why I wanted to probe a little bit, because we talked about modems or other things, or not modems, but GPS devices, a lot of those are third-party devices that you connect. Right?

    MR. WIENS: Right.

    MR. CHENEY: Those seem to fit into that
portable category and that seem to be within the current exemption now.

MR. WIENS: I mean, there's a need to unlock far more devices than that. So an example, there's a company called Farmobile, and they make an attachment that plugs into the tractor that has a cellular modem in it that pulls that data off the tractor and sends it to the cloud so the farmer can have the data on his iPad.

They're effectively bypassing the cellular lock that's on the tractor, because the tractor already has a cellular modem. It's already providing all that data to John Deere, just like OnStar is providing it to GM.

The only way that they were able to get around it was basically to add another cellular modem to the tractor that they can control.

MS. SMITH: Do you think that activity is already permitted by the current exemption for vehicles?

MR. WIENS: It depends on how specific your definition of TPM is in that. Does that include the cellular lock on the vehicle?

MS. SMITH: I mean, I just think it may be already permitted.

MR. CHENEY: I think if you read the two
together, right, and these aren't intended to be exclusive. Right?

MR. WIENS: Right.

MR. CHENEY: If you say that you're allowed to do the TPM for the cellular lock and then you're allowed to do it for the repair of the automobile, perhaps there's a way that those are working together already without having this additional level.

MR. WIENS: This one can be performed by third parties and the other one cannot? Is that true?

MR. CHENEY: That may be a difference.

MR. WIENS: I mean, it's really all about can the farmer's mechanic do it for him, right?

MR. CHENEY: So this one includes in the current language, undertaken by the owner of any device or by another person at the direction of the owner, right, which seems to me --

MR. WIENS: On this one, but not on the existing tractor.

MR. CHENEY: On the existing tractor one I think that's right. That's one of the proposed changes there.

MS. SMITH: We'll get to that Wednesday.
MR. CHENEY: Yes. So I don't think these are meant to be completely exclusive. In other words, if they can work together, why not? Right?

MR. WIENS: Sure. But then I would encourage drafting this in such a way that it would include the tractor.

MR. CHENEY: So you would include more than just portable devices?

MR. WIENS: I would, yes.

MS. SMITH: So what --

MR. CHENEY: Is there a definition for something like that that we could do? I'm sorry talking about --

MR. WIENS: Well, I'd go to the language that they suggested in their filing.

MR. CHENEY: It should be all wireless devices.

MS. SALTMAN: But, is there language that you think if we didn't feel we had the record to make that change, is there a language that you would suggest that would encompass the kind of farm or agricultural devices that you're talking about?

MR. SCHER: I don't think we have specific language picked out for the specific examples that we offered. Of course, we are using
these as examples of IoT devices that demonstrate that we need it for all devices.

We would like the exemption to be expanded to as many devices as possible, so we are just seeking the most expansive language reasonable.

MR. CHENEY: And I appreciate that. Sometimes it's hard in these cases where you come in and say, all IoT devices. The imagination is amazing here. Right? There's a lot of things that are available.

So that makes it hard to figure out what's in this category. Right? So a lot of your uses seem to be industrial- or farm-related uses. Would that be a way to define this category that would be satisfactory?

So you think about half of your categories all fit in to something like that, industrial or farm type uses. Would that be something that would be satisfactory here?

MR. CONNELLY: I think that could be one of the categories we'd like to see. We'd also be very interested in a category such as consumer electronics. I think probably that's even more so important to our client than the industrial uses.

But, it is very difficult to think of
how to draft this to catch what we want to catch. And I sense the Copyright Office is not buying our suggestion of using the technology, the telecommunications network, using that as the cabining principle.

But, if we don't use that then do we say, consumer electronics and industrial IoT devices and agricultural IoT devices. We think that would be great.

It's just very difficult and that's with this expanding so quickly, it's just almost impossible to think of not only all the devices out there today, but all the devices that will be there in two years eleven months ----- a rough job.

MS. SMITH: Can you speak on this agricultural example, which, you know, I appreciate you're here, Mr. Wiens, but this was not in ISRI's papers.

This is the first we're hearing of it, right, where you say is locking something to go to an iPad, and you'd like to divert it to have an, I guess, after-market competitor.

Is it taking data, is it taking copyrighted material? What is being unlocked or what is being used after there is unlocking?

MR. WIENS: Sure. So this is wireless
telemetry, so we talk about telematics on Wednesday. This is data coming off of the vehicle.

In the case of an agricultural implement, it is actual data that's relative to how the farm or how the machinery is operating on the field.

So for example, if you have the RPM of a tractor over time on a field, that can give you information you need to calculate soil density. And that soil density is very helpful for planning planting seed and pesticide spraying and all kinds of other things.

So that information is available to farmers in John Deere's online portal, and you have to pay a monthly fee on top of your purchase of the tractor for access to their online portal.

There's a huge amount of innovation that people would like to perform on top of that in addition to what John Deere has done, but they are a locked Apple-style ecosystem.

And so that's where Farmobile comes in, creates an alternative ecosystem and pipes all of that data that's coming live off the tractor.

I was talking with a farmer, who was using the system, and he was looking at it, and it was actually feeding real-time data of the amount
of grain that was in the hopper.

And he was looking at it. The number wasn't going up, and he knew his son was out in the field collecting grain, and the amount of grain that was in the hopper wasn't going up.

And he thought, something is broken with the sensor, went out in the field. It turns out the son had left the gate open on the back of the hopper, and all the grain was just spilling out onto the field.

That's an example of like very useful real-time information that it was the kind of innovation that Deere didn't provide, but that Farmobile was able to.

MS. SMITH: So I think that's useful, but that is also probably a sign that we're veering too much into the --

MR. WIENS: Sure.

MS. SMITH: -- automobile/vehicle, you know, so we should maybe conclude this one, and we'll look forward to picking that part up again on Wednesday.

MR. WIENS: If I could leave one final thought, it would be we're trying to provide evidence of all these different areas, but we're not seeing harm that is caused by people bypassing
this particular lock.

    I would argue that this is a lock that
in the benefit to society is almost best that it's
always bypassed. So if you're thinking about where
should the burden of proof fall, let's look at where
is the signs of societal damage that has been caused
by people unlocking cell phones or cellular modems?

    MS. SMITH: All right. Anything else?
No? All right. Thank you very much for all of your
comments.

    (Whereupon, the above-entitled matter
went off the record at 5:44 p.m.)