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**COMPETITION AND MARKETS AUTHORITY
MICROSOFT / ACTIVISION MERGER INQUIRY**

**Notes of a call with NVIDIA
held via MS Teams
on Monday, 9 January 2023**

PRESENT:

FOR THE COMPETITION AND MARKETS AUTHORITY

- Martin Coleman - Chair
- John Thanassoulis - Member
- Ashleye Gunn - Member

FOR THE STAFF

- John Bardsley - Legal Adviser
- Katie Davidson - Assistant Director of Data Science
- Caitlin Emerson - Case Officer
- Francesco Fiori - Economics Adviser
- Max Hobbs - Economics Intern
- Sharon Mayor - Principal Case Officer
- Oliver Norden - Assistant Director, Economics
- Mohini Patel - Case Officer
- Colin Raftery - Senior Director
- Rebecca Saunders - Assistant Legal Director
- Luke Stringer - Economics Adviser
- Ricardo Zimbron - Project Director

FOR NVIDIA

- Ben Damstedt - Senior Director, Litigation
- Hyunseok Doh - External Legal Adviser
- Phil Eisler - Vice President, Cloud Gaming
- Jeff D Fisher - Senior Vice President, Gaming Products
- Azadeh Morrison - Senior Litigation Counsel
- Trevor Soames - External Legal Adviser
- Tim Teter - Executive Vice President and General Counsel

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1 Q. (Mr Zimbron) Hello, thank you for making yourself available to speak to us
2 today. My name is Ricardo Zimbron and I am a Project Director at the CMA. I
3 will take us through some administrative points to start with ahead of
4 substantive discussion.

5 When the CMA carries out a phase 2 merger investigation, which is what we
6 are in now, an independent group is appointed to be the decision makers, and
7 we have three of those group members today: Martin Coleman, Ashleye Gunn,
8 and John Thanassoulis. They are online at the moment. I am also joined by a
9 number of my colleagues here at the CMA case team who will introduce
10 themselves when they speak.

11 In terms of today's discussion, as we discussed in our correspondence with
12 you, we are investigating this merger, and any information that you can provide
13 to us could be useful for our investigation and help us to better understand the
14 markets that the Parties operate in.

15 We expect that this call will last around an hour. It is our standard practice to
16 record calls like this. This is so that we have a good record of the call and we
17 can check what was said without needing to revert back to you. We will make
18 a transcript of our call available to you, and you will be able to correct any
19 inaccuracies or flag any information that you think is confidential. The
20 information that you provide may inform our published reports, or be included
21 in an anonymised published summary of customer and competitor responses,
22 or be included in other documents that it may be necessary to share with the
23 parties or other parties, but we will discuss this with you should it be necessary.

24 Before we start, I am afraid I have to give a disclaimer, which is the warning
25 that we give in every call with every third party in every merger investigation,

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1 which is that it is a criminal offence to supply information to the CMA that is
2 false or misleading in a material respect if you do so knowingly or recklessly,
3 under section 117 of the Enterprise Act 2002. That means, if we ask any
4 questions and you do not know the answer, then it is fine not to give a response,
5 or get back to us later.

6 Do you have any questions on any of this before we get started?

7 A. (Mr Eisler) No.

8 Q. (Mr Zimbron) Thank you so much for joining us, and I guess it would be great
9 if you could just briefly introduce yourselves before we get started.

10 A. (Mr Teter) I am Tim Teter, I am the General Counsel. With me are two of my
11 colleagues in the Legal Department, Ben Damstedt and Azadeh Morrison, and
12 then I will let Jeff Fisher, who heads up our Gaming Team, and Phil Eisler, who
13 heads up the Cloud Gaming Team, introduce themselves.

14 A. (Mr Fisher) Hi, I am Jeff Fisher, I run the gaming business at NVIDIA, Senior
15 VP of Gaming.

16 A. (Mr Eisler) Hi, I am Phil Eisler, I am the Vice President and General Manager
17 of GeForce NOW Cloud Gaming at NVIDIA.

18 A. (Mr Doh) I am Hyunseok from Quinn Emanuel, Brussels.

19 A. (Mr Teter) It does not appear that Trevor Soames has joined us yet, but the
20 Quinn Team have told us that the CMA is interested in information, particularly
21 about cloud gaming and our perspective on cloud gaming, where we are and
22 where it is headed, so that is why we have Jeff and Phil here today. We have
23 put together a few slides but I will just give a brief one-minute overview of where
24 we are, and then, if it is okay with you, Phil can present our perspective, but as
25 Phil and Jeff will explain, we think cloud gaming is poised for success. It

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1 certainly cannot be dismissed as nascent or uncertain in any respect. The
2 technology is here. We have been working on it for many many years. The
3 customer gamer demand is here. Gamers worldwide use cloud gaming, and at
4 this point, what we and any cloud gaming service really needs is the content.
5 Gamers will not invest in cloud gaming without the content, but the demand is
6 there otherwise. The technology is there too. Today, as Phil will explain, AAA
7 games are really more important than ever. These games - oftentimes
8 multiplayer games - are massive endeavours that require huge investment and
9 developer time and money, in some respects. They are as complicated, in
10 terms of script, content and technology, as major motion pictures. So, those
11 AAA games are really critical, and Activision's library is one of the most popular
12 among gamers, especially gamers who crave the ability to use online gaming,
13 and many gamers view all or part of Activision Blizzard's portfolio really as a
14 'must have'. If they do not have it, they are not interested in signing up for a
15 service.

16 As you also probably have learned in your investigation, independent
17 publishers, like Activision, have fundamentally different incentives compared to
18 first party publishers. First-party publishers are publishers that are owned
19 entirely by a particular platform, so that would be the shops, the design teams
20 that Microsoft owns. Their incentives are completely different. If Activision or
21 any independent publisher stays independent, they have a strong incentive to
22 make their library available as widely as possible, including on services such
23 as GeForce NOW, but of course, if they are first-party owned, that incentive
24 disappears.

25 So, I think Ben-Jeff and Phil will now take us through it.

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1 A. (Mr Eisler) Thank you for that overview, Tim. [REDACTED]
2 [REDACTED]
3 First of all, [REDACTED] that the future of cloud gaming
4 is uncertain, and at NVIDIA we strongly disagree with that. We see continued
5 growth in cloud gaming, and NVIDIA certainly have been the leader in solving
6 the technical challenges of cloud gaming, and we believe that they are largely
7 solved at this point. We have had now four generations of cloud gaming
8 hardware that have come out, where we have made it better and better with
9 each generation, to the point now where it outperforms most PCs and consoles
10 in your home, even from a latency perspective, and we have achieved that by
11 putting more and more powerful GPUs in the Cloud. ~~To understand it~~ The major
12 part of any latency of a game is actually the game engine itself; the rest of the
13 system components, like your input or your display, are a small part of it, and
14 even the round trip delay of a network can be a small part of the overall delay.
15 In our first generation gaming, we were running the game engine in the Cloud
16 at 30 frames per second; then second generation we went to 60 frames per
17 second; third generation we went to 120 frames per second, and we just
18 announced at CES this year, our 4080 generation, that will be streaming up to
19 240 frames per second. That effectively has shrunk the time that it takes for
20 the game engine in the Cloud down to the point where it can more than
21 compensate for the round trip delay of the network, and actually deliver lower
22 latency for most gamers than they get on their home console or their home PC
23 or laptop. In fact, what we did at CES is we brought in about two dozen press
24 where we gave them a kind of a 'Pepsi challenge' with a local machine and a
25 cloud machine, and none of them could tell the difference; it just felt the same

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1 to them. So, we have really solved the latency problem of cloud gaming, and
2 from a technical standpoint, we think the market is ready to take off.
3 It has, of course, other benefits, in that it makes gaming more accessible, so
4 that you do not have to download and install the game and update the game,
5 so it is far more convenient. Affordability is a big factor too. There has been a
6 fairly publicised statement that Moore's Law is dead, and Moore's Law had
7 several aspects to it; the most famous one being that the number of transistors
8 doubles roughly every two years. Historically, the cost of transistors also came
9 down roughly by half, but that is no longer the case. The cost of transistors is
10 actually going up. At the same time, GPUs are needing more and more
11 transistors, and so the cost of each GPU generation is now going up, making it
12 more difficult for gamers to afford the latest generation GPU. So, one of the
13 benefits of cloud gaming is that, since it is a shared computing environment, it
14 offers the opportunity to give consumers lower cost access to the next
15 generation gaming hardware to play the newest games, and we are seeing
16 games start to take advantage of the bigger GPU's more memory, to the point
17 where in the future, we see games that might only run in the Cloud due to the
18 ability to store large amounts of data and have large memory and be able to
19 afford these larger and larger GPUs as we go forward. So, we think that cloud
20 gaming is a very important part of the future of video games in general.
21 We have been working at various stages. We started off with a beta. It was a
22 free beta. We had a large number of publishers who participated in that beta,
23 who were very interested in learning with us about cloud gaming, including
24 Activision, Bethesda and Microsoft with Minecraft, and so it was very popular,
25 and at some point we had to commercialise the service, so we came out of beta

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1 and started charging. I think our first rate was 5 dollars a month. At that point,
2 I think we had proven the technology to everyone, so everyone was happy with
3 the technology, and [REDACTED]

4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 Activision was the one who removed their titles at that point, as well as several
11 others. ~~Bethesda was another, as well as several other publishers.~~ Now, over
12 time, many of them have come back to the platform, including Ubisoft and
13 Electronic Arts, recognising that GeForce NOW does offer the proposition of
14 expanding their markets to new platforms. It serves largely people with
15 underpowered computers, people who have an older computer or laptop, or a
16 computer with integrated graphics that cannot run the new games, so they can
17 get GeForce NOW and basically level up their computer. It also services a lot
18 of people who run platforms that are not Microsoft Windows, so it is very popular
19 in the Mac market because it provides compatibility with PC games to the Mac
20 market. It provides compatibility to Chromebooks offered by Google, and so it
21 really enables people on a lot of different platforms to get access. For that
22 reason, we have had a number of publishers continuing to join us, and we have
23 had healthy discussions with many publishers who are actively considering
24 re-joining us, including Activision prior to the announcement of the acquisition.
25 I mentioned performance earlier. We have been increasing steadily and,

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1 generally, we have been able to offer greater performance than the latest
2 consoles. In our last generation, we went up to 120 frames per second. On
3 the current generation, we are now streaming at 240 frames per second, and
4 that ability to stream at twice the frame rate enables us to have the game engine
5 latency to compensate for the round trip delay of the network, so that it feels
6 like people are just playing locally. That slide was an image of that
7 announcement from CES.

8 In terms of the market researchers, Newzoo is one active one that tracks the
9 cloud gaming market. There are several others that have similar forecasts.

10 [REDACTED] I think
11 their author was trying to describe cloud gaming as 'not a market'. I do not
12 know where that is coming from; it is very definitely a market. It is tracked by, I
13 believe, three or four different market research houses, all with forecasts for
14 growth. It is active in countries around the world. In fact, China is one of the
15 most active countries for this market, with multiple participants. People like
16 Tencent in China are participating in it, and there are different forecasts for each
17 region around the world, and it is really forecasted to become a major market
18 in the next five years going forward.

19 I mentioned earlier about Moore's Law, and the fact that there are multiple
20 aspects to Moore's Law. One was the doubling of transistors roughly every two
21 years, but also associated with that was that the cost of transistors would
22 roughly be cut in half so that you could get more performance at the same price
23 with each generation, but what happened is that, as we have been chasing
24 more and more transistors, it is getting more expensive, so the providers, like
25 TSMC, have had to raise the price per transistor for everyone, and so, now the

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1 cost of transistors has been going up for the last few generations, while the
2 transistor counts are still going up, which means that for GPUs which have one
3 of the larger dies and the bigger transistor budgets, the costs are going up, and
4 so that leans into the benefit of cloud gaming, that in a shared computing
5 environment, people will be able to afford it more easily. Also for the client
6 devices, they are having to economise on the number of transistors that they
7 can dedicate to GPUs, which means that they are not as able to play the latest
8 games. So, it is going to make, we think, more and more sense, because of
9 the end of Moore's Law, to have bigger GPUs in the Cloud, streaming to clients
10 that have lighter GPU transistor budgets.

11 I mentioned earlier that NVIDIA has largely solved the technical challenges of
12 cloud gaming, including latency. One thing I forgot to mention is that we are
13 not doing it just by ourselves; I think the network industry is also helping. With
14 the deployment of fibre more broadly around the world, the advances of
15 DOCSIS on the cable side have increased bandwidth. Nielsen's Law, which is
16 alive and well, says that the end users' bandwidth is doubling every couple of
17 years, but in addition to the bandwidth improvements, they are also reducing
18 ~~improving latency inconsistency~~. There is something called 'Low Latency
19 DOCSIS', and a similar standard for 5G wireless, as well as over fibre optics,
20 that is focusing on low latency, low loss, so there are new standards coming
21 that are going to improve latency and consistency, which will also benefit cloud
22 gaming on the network side, so we are supported by the entire network industry,
23 from the equipment manufacturers to the service operators of broadband and
24 mobile, that are making the networks better and better able to deliver high
25 bandwidth with great consistency, which is fantastic for improving the end

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1 quality of cloud gaming.

2 Now that the technical issues have been solved, the only remaining barrier to
3 the growth of cloud gaming is access to the critical content. Gaming is very
4 much a hit driven business, where the Top 50 games are 75 per cent of what
5 people play. Although there are thousands of games out there, they are
6 definitely not all equal. There are definitely 'tentpole' games that drive
7 consumer adoption, and Activision has many of those titles. Call of Duty has
8 certainly always been a critical platform - one that the console vendors have
9 paid tens of millions of dollars to get marketing rights for exclusivity, to sway
10 gamers to one platform or the other. Also, on the PC side, the Blizzard titles
11 are very important as well, like World of Warcraft and Overwatch are also critical
12 titles that we see on our PC gaming charts for what gamers play, and I think
13 that, between the Microsoft library, the Bethesda library and the Activision
14 Blizzard library, Microsoft will control a large swath of the most critical 'tentpole'
15 titles for swaying gamers, and so this is really the last barrier to the growth of
16 cloud gaming. [REDACTED]

17 [REDACTED]
18 [REDACTED]
19 There has been quite a bit of talk about what happened to Stadia. They took a
20 different strategy to GeForce NOW. Just to recap, GeForce NOW's strategy is
21 very much to be an extension of PC gaming. So, we run Windows in our Cloud
22 servers and that gives us easy compatibility with all of the thousands of games
23 that have been developed over the years for PC gaming, but the flip side of that

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
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6 [REDACTED]
7 [REDACTED] [REDACTED]
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9 [REDACTED]

10 Google chose a different path. They decided, "Okay, instead of paying this high
11 rent to Microsoft, we will run Stadia on Linux and start working with publishers
12 to port the games". That proved to be hugely expensive and hugely time-
13 consuming. They were paying tens of millions of dollars per publisher and
14 spending one to two years to port titles. So, in the end, they ended up with very
15 few titles and a cost model that just was not sustainable, and eventually decided
16 to stop the business. In addition to that, they ended up with titles that were kind
17 of an island. In a multiplayer world, you want to be connected to the rest of the
18 players out there, so with the GeForce NOW System, since it is PC-based, you
19 are connected to all of the millions of PC players out there for matchmaking,
20 but the Stadia titles ended up being their own island with not enough volume to
21 have efficient matchmaking, so they were unable to make a go of it, by not
22 paying the rents to use Microsoft Windows on their cloud servers, and the lack
23 of content ended up killing them. This is just more feedback from editors
24 knowledgeable in the industry about the dearth of titles, and that eventually
25 leading to their demise because they elected to go with a strategy that was not

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1 using Microsoft Windows.

2 The importance of the Activision Blizzard title is very critical in the industry in
3 general and to cloud gaming in particular. There are many accolades about the
4 Call of Duty franchise. It is true that they do have some years when they have
5 more success and some years when they have less success, depending on
6 what they are releasing, but certainly the free-to-play version of Warzone has
7 been extremely successful. We see that continuing to be among the top
8 games. [REDACTED]

9 [REDACTED]
10 [REDACTED] They are very critical. Although there
11 is a lot of focus in discussion about Call of Duty, from a PC perspective and
12 cloud gaming perspective, we think that the Blizzard titles are equally viable.
13 Overwatch, World of Warcraft and Diablo are also extremely important titles to
14 the PC gaming industry and to the future of cloud gaming. If those were
15 foreclosed and not available on cloud gaming, I think it would severely hamper
16 the growth of cloud gaming.

17 [REDACTED]
18 [REDACTED] We
19 have about 1,500 titles now, so it is true, [REDACTED] there are a lot of
20 titles to choose from, but titles are not equal. The small indie titles do not make
21 up for a Call of Duty or an Overwatch, and so consumers really want to play
22 those critical titles. It is often based on friend networks, that if their friends are
23 playing Call of Duty, you cannot give them a substitute title, because that is
24 where their friends are. It is based on what they view by watching Twitch
25 videos, and so there is a lot of marketing and hype and brand awareness of

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1 these tentpole franchises, and you have just got to have the most critical titles.

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 Q. (Mr Fiori) Phil, hi, my name is Francesco Fiori, I am an Economist. [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 A. [REDACTED]

20 [REDACTED]

21 [REDACTED]

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23 [REDACTED]

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[REDACTED]

Q. (Mr Fiori) Thank you.

Q. (Mr Thanassoulis) John Thanassoulis here, I am one of the Members of the Panel. Thank you for a great presentation. [REDACTED]

[REDACTED]

[REDACTED]

A. [REDACTED]

[REDACTED]

[REDACTED]

Q. [REDACTED]

[REDACTED]

A. [REDACTED]

Q. (Mr Thanassoulis) Got it. Thank you.

A. [REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

You can see here that we do provide a service where a lot of users, as I mentioned earlier, have these older laptop computers with usually integrated graphics that just cannot run the games - they run them at like seven frames per second which is basically unplayable - so switching over to GeForce NOW

1 they can run them at 60 or 120 frames per second and get much better latency
2 and playing experience, so we do help a lot of people typically who do not have
3 the funds to buy a gaming computer or a new console to play these games with
4 their friends.

5 A. (Mr Fisher) On GeForce NOW, I would say [REDACTED] or more of our
6 customers who are on a PC, so really do not have the capability to play most
7 of these games; they are on integrated graphics laptops, Chromebooks, Macs,
8 so this does extend access to gaming for 10 or 20 dollars a month, for a
9 2,000 dollar gaming PC, to really low-end clients and gamers who do not have
10 the funds or the capability to buy high-end PCs.

11 A. (Mr Eisler) John, did you have a question?

12 Q. (Mr Thanassoulis) Yes, I do. That was a really interesting comment. [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]

18 A. [REDACTED]
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[REDACTED]

A. (Mr Fisher) But Phil, I think you would agree with me, the vast majority of our customers are not folks who have a high-end gaming PC. The vast majority are folks who are new into gaming or do not have a high-end PC.

A. (Mr Eisler) That is very true, and internationally as well, when we go into developing countries, like Turkey or Brazil, GeForce NOW is extremely popular where people just do not have the means to afford new generation consoles and so forth, so there is kind of a socio-economic group that benefits from cloud gaming the most, I would say, where they cannot afford these gaming PCs or consoles, which, as I said, because of the end of Moore's Law, are getting more and more expensive; they are not getting cheaper.

Q. (Mr Thanassoulis) Thank you.

A. (Mr Eisler) We mentioned that the importance of content is king, and we have a Developer Relations Team that interfaces with the global game publishing industry, with hundreds of publishers that they interact with on a daily basis. We have been working for more than five years to get them to join GeForce NOW, and we have had 1,500 games join - I think around 500 publishers. [REDACTED]

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Q. [REDACTED]

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Q. (Mr Zimbron) Thank you.

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[REDACTED]

A. [REDACTED]

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18 [REDACTED]

19 That is the end of the formal presentation.

20 Q. (Mr Zimbron) That was really helpful. Thank you very much for that. I am sure
21 the team have quite a few questions. We have heard a lot about cloud gaming
22 from various participants in the industry. One recurring theme is the question
23 of whether or not using GPUs - and given the cost of GPUs that are required to
24 run these games - cloud gaming services can really be profitable. What are
25 your views on that?

1 A. (Mr Eisler) It can be profitable. [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 A. [REDACTED]
9 [REDACTED]
10 [REDACTED]
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14 Q. [REDACTED]
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17 A. [REDACTED]
18 Q. [REDACTED]
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[REDACTED]

Q. (Mr Zimbron) That is really interesting. Just as a matter of interest [REDACTED]

[REDACTED]

[REDACTED] - you mentioned the issues that Google ran into when trying to use an alternative, using Linux - did you ever consider using a different operating system, for example, using Linux and having a Proton layer? Is that something that you would consider, and if not, why not?

A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The problem with it is it runs into a lot of compatibility issues. It kind of works 95 per cent of the time, but the last 5 per cent can sort of kill you. In particular, we found that the Wine Proton is not very compatible with anti-cheat systems in games. One of the problems with multiplayer online games has been cheating, so people install programs to give them an advantage, and then it discourages the community, so it is very bad for the business of game publishers, so there is a large industry of anti-cheat vendors; some publishers do it themselves but there are some third-party companies like EasyAntiCheat

1 or BattlEye, and they tend to be very invasive into the computer in that they
2 need to make sure that no cheating software is installed, and so, while the basic
3 game engine can be run through a Wine Proton layer, often the anti-cheat
4 software will not run and the game will shut down. [REDACTED]
5 [REDACTED] and I think the example was given of the steam deck and
6 Valve Steam has been a big proponent of Wine and their version of Proton, but
7 I think if you go and look through the compatibility, they have a whole website
8 dedicated to compatibility, so you know that it is a problem, and they rate them
9 from 'fully compatible' to 'partially compatible' to 'not compatible', and when you
10 take that across thousands of games, it is not a small undertaking. [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 Q. (Ms Davidson) Can I ask for a quick follow-up? [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 A. [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 [REDACTED]

1 [REDACTED]
2 [REDACTED]

3 Q. (Ms Davidson) And could that work happen at the publisher/developer side or
4 would it need to happen on the Cloud platform?

5 A. (Mr Eisler) It is possible in the future. There is definitely a bit of a 'chicken and
6 the egg' problem with cloud gaming, in that at its current size, although it is
7 probably getting up to medium size now with millions of active users, it is not in
8 the tens of millions of ~~sizes~~ users where it's a must support directly by the
9 publishers, [REDACTED]

10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED] [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]

23 Q. (Mr Zimbron) This is all quite interesting in terms of the costs that would be
24 involved in this and the size that you need to be in order to get publishers to
25 actually do some of this work, [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 A. [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]

15 Q. (Mr Zimbron) That makes sense.

16 Q. (Mr Stringer) Luke Stringer here, Economist on the Case Team. Just going
17 back to Proton, you mentioned some of the issues with its effectiveness, do you
18 think that with further investment and more use of Proton for gaming, that those
19 issues could be reduced and the performance of Proton could improve?

20 A. (Mr Eisler) I think the problems are solvable for some of the games but probably
21 not all of the games. A large part of it is, as I mentioned, working with the anti-
22 cheat providers to make them more friendly with Proton, [REDACTED]
23 [REDACTED] and the whole anti-cheat space is very
24 tricky because, if you make changes, you have to make sure that they do not
25 allow exploits by the cheaters, so that is where it becomes tricky because you

1 have got to do it in a way that does not break the purpose of anti-cheat in the
2 first place, and I mentioned, there is not one single anti-cheat program, there
3 are many of them, and so it has to be done multiple times with different anti-
4 cheat programs, [REDACTED]
5 [REDACTED] If you want to get a good look at that, I recommend going
6 looking at the steam deck compatibility list, and you can see how they are
7 struggling with it; some games are fully supported, particularly Valve's own
8 games because they have their internal publishers to do so; there are some
9 games that are partially supported and some games that are fully supported,
10 so you can see how they are struggling with it working through a list of games,
11 and so I think we will end up in a similar place where it will work for some of the
12 games and not for other games.

13 Q. (Mr Stringer) And lastly, do you think it is possible that as Microsoft makes
14 updates to Windows or to DirectX that that could have a negative impact on the
15 performance of Proton?

16 A. [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]

22 Q. (Mr Thanassoulis) What would it do to your business, do you think, if the merger
23 goes ahead, if Microsoft put Activision's games for cloud gaming exclusively on
24 their own platform, on Game Pass or something similar, so that your customers,
25 if they wanted to play Activision games on PC over the Cloud, then they have

1 to go and subscribe to Microsoft, what would that do to your business?

2 A. [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]

16 Q. [REDACTED]
17 [REDACTED]

18 A. [REDACTED]
19 [REDACTED]
20 [REDACTED]

21 Q. (Mr Thanassoulis) And then a follow-up. [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]

25 A. [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]

10 Q. (Mr Thanassoulis) That is very helpful, thank you.

11 A. (Mr Teter) Jeff, could you just touch on briefly some of the unique features that
12 NVIDIA GPUs support, like ray tracing, for example, and how GFN is able to
13 bring those things to users that maybe some of the older PCs or consoles
14 obviously cannot?

15 A. (Mr Fisher) I can start and you can jump in, Phil. Consoles are on a five to
16 seven year upgrade cycle, that is when the technology is upgraded. Low-end
17 PCs, integrated graphics, just have very little graphics capability. On the
18 GeForce side, every one to two years, we roll out a new architecture that
19 delivers new hardware in the hands of gamers and to developers - developers
20 need new hardware to advance the state of the games, make them more
21 visually rich, more multiplayer, bigger worlds - and over the last four years,
22 some of the newest technology we brought to gaming is technology that came
23 from the movie-rendering industry, called 'ray tracing', and all of the realistic
24 scenes that you see rendered in Avatar have been rendered offline. They take
25 about several hours to a day per frame to be rendered on high performance

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1 computers. We have brought that technology into the PC, called 'real time ray
2 tracing', and you can now render those realistic scenes in real time at 60-120
3 frames per second with our latest hardware. Our model on GeForce NOW is
4 to bring that hardware to cloud gamers with every generation, and what started
5 as a 2080, which was our technology from 2018, to a 3080, which is our
6 technology from 2020, to a 4080, which is our technology that we just
7 announced last year, is almost immediately available to cloud gamers. Our
8 business model is more about renting a gaming PC in the cloud than it is
9 building a walled garden of hardware and software that you are locked into a
10 specific ecosystem. We are leveraging the Windows PC ecosystem with cloud
11 gaming, as are a number of other folks in the industry. Does that answer your
12 question, Tim?

13 A. (Mr Teter) Yes. The point I wanted to make sure that the panel understood is
14 that GeForce NOW is not providing some second-class experience, by any
15 stretch of the imagination. Folks who use GeForce NOW can enjoy things that
16 you could not even imagine, even on your console or your PC five years ago.
17 With ray tracing availability, you've got some incredibly premium experiences
18 that you are able to get now on any client device, thanks to GeForce NOW, and
19 so when folks say, "Well, gee, is it going to be successful? [REDACTED]
20 just to echo your point, Jeff, I think there is no question that it will be, for two
21 reasons: (1) is the economies of scale and our ability to provision a single large
22 GPU in the Cloud for multiple users; and (2) we have technical features that
23 nobody else does, frankly. Ray tracing is a huge one, and as you get more and
24 more publishers supporting ray tracing, more and more games supporting that,
25 that is another strong inducement for people to say, "Hey, I've got a Mac right

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1 now, I've got an old PC, I really really really want to play GeForce games but I
2 can't afford my own gaming PC, I'm going to sign up for GeForce NOW and I'm
3 willing to pay for it." I think that is the trajectory that is absolutely inevitable.

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 A. (Mr Fisher) Let me just add a bit to that. [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED] so we are bringing 4080s and that class of gaming to new customers
14 of ours, and we truly believe in that model, and we have GeForce NOW running
15 around the globe. That is one point. We do believe that this is an opportunity
16 to expand access, simplicity and, ultimately, reduce cost, and democratise
17 gaming by moving it to the Cloud. The other point I want to make is that we
18 have seen that in our other businesses, with Compute. Ultimately, sharing
19 GPUs is the model to extend high performance computing to even enterprise
20 class customers, and ultimately, we are investing in this on the gaming side,
21 because it is inevitable that the client side will slowly erode and all these gamers
22 will ultimately move into the Cloud because of the economics. So, as Tim said,
23 we fully believe in this model.

24 Q. (Mr Thanassoulis) I think you separated out mobile phones earlier, so I just
25 wondered if your service had a minimum pixel size for the screen, or is it

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1 something that customers could play on a tablet, if it connects to the Internet,
2 and therefore on a high-end mobile phone, or actually do you have a minimum
3 pixel size?

4 A. (Mr Eisler) We do not have any real pixel size restrictions on our mobile
5 devices, so we scale to the different pixel resolutions of phones and tablets.

6 Q. (Ms Davidson) Are controllers always needed? Is it not touch-control enabled?

7 A. (Mr Eisler) We have a mixture. We started out requiring a kind of Bluetooth
8 controller, the wrap-around phone ones, or you can have just a straight Xbox
9 compatible one, but we found that to be quite limiting because not everybody
10 has a controller in their pocket, [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED] so we are able to stream the PC version from
23 the Cloud and get the simplified integrated touch controls into the game itself,
24 and in doing so, [REDACTED], and that was done,
25 of course, at the time when Apple removed Fortnite from the iPhone, and so we

1 were part of bringing Fortnite back to the iPhone, and that became quite popular
2 by having those integrated touch controls.

3 Since then, [REDACTED]
4 [REDACTED] so Genshin Impact is a game from Mihoyo out of China, which also
5 has integrated touch controls on GFN. It plays very well, and we have a handful
6 of other games. So there are I think about 10 games all together that have
7 integrated touch controls. The rest are best played with a connected Bluetooth
8 controller, and then there are now some dedicated cloud gaming mobile
9 devices that have integrated display and controller. There is one from Logitech
10 that is Nintendo Switch-like, but it is really designed for cloud gaming. Razer
11 has another one, so there are a couple of those dedicated mobile gaming
12 devices as well.

13 THE CHAIR: Hi, I am Martin Coleman, Chair of the Inquiry Group. Thank you very
14 much for your presentation in answering that question, which was very helpful.
15 I just wanted to follow-up on a response you gave John. John asked you about
16 what would happen if Microsoft put Activision games exclusively for cloud
17 gaming onto its own platform, and you made the point that gamers are not going
18 to switch games. Another thing they might do is multihome, they might just
19 have more than one subscription, and you see that, for example, in video
20 streaming, that tends to be people who cannot get all their content on one
21 platform, so they will multihome. Do you see that as part of the future?

22 A. (Mr Eisler) It is certainly possible. I do not know how friendly that is to
23 consumers. That has been part of the console market business model for a
24 while, and Sony has some exclusives, Microsoft has some exclusives, Nintendo
25 has some exclusives, and a gamer who wants to play everything is forced to

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1 buy all of them, and the PC market has always been different from that. It has
2 been more open. It has been just one PC platform with all the content available.
3 What is going to happen with Cloud in the next few years is those things are
4 going to merge, so I think if we can bring the console behaviour with exclusives
5 in the markets, then we are going to force consumers to buy all the services to
6 play them all. If we have more of a PC-centric model to it, where it is open,
7 then consumers are not forced to buy all of them, so I think it just goes back to
8 affordability. I think people who are more well off will be able to afford to
9 multihome, but because cloud gaming is not cheap - it is going to be 10 to 20
10 dollars a month - not all households can afford to multihome, but some probably
11 can afford it.

12 A. (Mr Teter) If I can just add one point to that? I think that you need a critical
13 mass of subscribers in order for this kind of service to be economically viable,
14 and in order to have a critical mass of subscribers, you have to have a sufficient
15 amount of content, and so, at some level, [REDACTED]

16 [REDACTED]
17 [REDACTED]

18 [REDACTED] It is not just about whether consumers would be interested in paying for
19 multiple subscriptions, it is about whether there are enough of them who are
20 willing to play.

21 Q. [REDACTED]
22 [REDACTED]

23 A. [REDACTED]
24 [REDACTED]
25 [REDACTED]

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Q. [REDACTED]

[REDACTED]

[REDACTED]

A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Q. (Ms Davidson) Thank you.

Q. [REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

A. (Mr Eisler) I think one thing is that Call of Duty itself goes through cycles where they launch every two years, and then in between launches it goes up and it goes down, so I think that we do see that the Call of Duty demand rises and falls through time, as they have different marketing events and product

[REDACTED]

Q. [REDACTED]

A. [REDACTED]

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[REDACTED]

Q. (Mr Fiori) Okay, thank you.

Q. [REDACTED]

A. [REDACTED]

A. [REDACTED]

A. [REDACTED]

A. (Mr Soames) And also, if I may, I appreciate that time is running out for the meeting, and to Ricardo and colleagues, many apologies for not joining right at

1 the beginning. I had major problems with the web version of Teams, so I am
2 not able to download the app because of the abuse of Microsoft's dominant
3 position in relation to my client, Slack, and I cannot have it on my computer, but
4 might I just make an observation related to confidentiality if I may, which is
5 something I would like to have said at the beginning, but obviously the
6 presentation that has been made by Phil, plus the Q&A, contains confidential
7 elements which would comprise specified information under the Enterprise Act,
8 the disclosure of which, to Microsoft and Activision, would cause significant
9 harm to the legitimate interests of NVIDIA. Obviously, we want to work with
10 you and obviously you need to make available, in due course, of course,
11 whatever you consider to be appropriate in your provisional findings and also
12 perhaps the transcript of this meeting. We obviously need to have the
13 opportunity of identifying those things that have been said which we,
14 respectfully will submit, are confidential in relation to both Microsoft and
15 Activision. We also fully appreciate that you are bound by the guidance given
16 by the CAT in the Meta case, which obviously is a gloss on your guidelines, but
17 to the extent that you ultimately consider that any of the claims that we have
18 made -- still, nevertheless, that information needs to be provided to the notifying
19 parties as part of your statutory duty, then we would be wanting to engage with
20 you to ensure that any such disclosure is done within the context of
21 confidentiality, that would only accessible to the external counsel of Microsoft.
22 We are obviously happy to provide more information as to why certain issues
23 are confidential, [REDACTED]

24 [REDACTED]

25 [REDACTED]

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[REDACTED]

Q. (Mr Zimbron) Yes, that is all well, Trevor, thank you, and we will go to the usual process if we intend to rely on any of this information. Unless anyone has any final questions? No. Well, thank you very much again. This has been enormously helpful, and as I said, we will let you know what, if anything, we intend to rely on in our process and will be in touch in due course.

A. (Mr Soames) Thank you very much.

A. (Mr Eisler) Thank you, everyone.

A. (Mr Fisher) Thanks for your time.

Q. (Mr Zimbron) Thank you.

Key to punctuation used in transcript

--	Double dashes are used at the end of a line to indicate that the person's speech was cut off by someone else speaking
...	Ellipsis is used at the end of a line to indicate that the person tailed off their speech and didn't finish the sentence.
- xx xx xx -	A pair of single dashes are used to separate strong interruptions from the rest of the sentence e.g. An honest politician – if such a creature exists – would never agree to such a plan. These are unlike commas, which only separate off a weak interruption.
-	Single dashes are used when the strong interruption comes at the end of the sentence, e.g. There was no other way – or was there?