



The Aereo dilemma and copyright in the cloud

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Abstract: Aereo is a cloud-based startup company that offers people the possibility to watch live (or nearly live) television on computing devices and smartphones. It was sued by the major US broadcasters for copyright liability and the case went to the Supreme Court where Aereo lost. It encapsulates a dilemma facing courts in the US and EU – that a ruling to shut down Aereo, on the basis that it is unlawful under copyright law, could threaten innovation in areas such as the cloud. The Aereo case turned on a narrow point of US copyright law, which this paper discusses. The core issue for this paper was to analyse the legal dispute between Aereo and the broadcasters as documented in the court papers, including transcripts of the hearing, and submissions in support of both parties. A key finding was that the technical design and characterisation of the service lay at the heart of the argument over copyright. The US courts deliberated at length as whether Aereo is more like a cable TV company, or is it merely an equipment provider, providing a digital video recorder in the cloud. The paper discusses whether technical design matters or whether the substantive effect could be the determining factor. The paper then broadens the perspective to examine the position of cloud service providers. It does so in general terms, using amicus curiae briefs and other documentation from the US court case, before concluding with a consideration of the EU position. An important finding is that the complexities of content acquisition, transmission and format-shifting will generate considerable legal uncertainty.

Keywords: Cloud services, Copyright, ABC Inc et al vs Aereo Inc, Intermediary liability

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INTRODUCTION

The case of *ABC et al versus Aereo*¹ concerned whether or not there is liability for copyright when 'live' free-to-air television programmes are transmitted to computer users over the internet, by means of a remotely operated third-party service. Aereo Inc. is a startup company based in the New York area that offers such a service. It enables people to watch broadcast television programmes, live or recorded, on devices such as smartphones, tablets or desktop computers. The service operates by means of thousands of coin-sized aerials mounted on a circuit board and housed in what is becoming known as 'the cloud' - that is, the servers are physically placed in a remote data centre that houses a facility on behalf of thousands of individual users. It actions the transmission of the broadcast solely at the command of the users, wherever they happen to be.

Aereo was sued by a consortium of broadcasting companies, including the major US networks ABC, CBS, NBC Universal, Fox and Disney as well as local broadcaster in the New Jersey area WNJU and the New York-based public service broadcaster, WNET². The broadcasters alleged that Aereo's service infringed their copyright³. After two-years of litigation, the United States Supreme Court ruled on 25 June 2014⁴ that it does infringe. The Supreme Court ruling overturned two earlier rulings in favour of Aereo first in the District Court⁵ and then in the Second circuit Court of Appeal⁶.

The case encapsulates a dilemma facing courts on both sides of the Atlantic - that a ruling to shut down Aereo, on the basis that it is unlawful under copyright law, could threaten innovation, notably for services in 'the cloud' (as defined above). Its particular interest lies in the strength of the legal arguments. In analysing the court documents, it is striking how this is not a typical copyright battle where little 'pirate' David is up against the corporate Goliaths. The case is cogently argued on both sides. It is David and Goliath where both have guns of equivalent fire-power, and what they are arguing about is a disruptive technology, that is potentially a game-changer. It poses a threat to an old business model because it begins to re-draw the lines for broadcast television distribution. Moreover, the cloud computing industry fears the imposition of liability for copyright using a legal test which, it argues, is both unreasonable and unworkable⁷.

This paper discusses how the case turned on a very narrow and specific point of United States copyright law, that might or might not apply in other jurisdictions. The legal question before the Supreme Court was whether or not Aereo is engaging in a performance when it transmits programming to its users, and whether that performance is public or private. Aereo denied any copyright infringement and stated that its service was designed in order to comply with copyright law. In fact, its service appears to have been designed to comply with case law from 2008, that permitted 'private' transmissions of broadcast programmes that had been recorded at the request of the user.

This paper also considers how the case will have wider implications for cloud service providers, including in the EU. Aereo is an example of a cloud computing service, run from a remote data centre, and offering users a facility for which they are prepared to pay. However, the perceived benefit that customers are paying for is the means of access to content, not the content itself. That is why the Aereo service puts pressure on the existing broadcast distribution model.

An important question considered by the US courts - and which was extensively argued in the

submissions to the courts - was how to characterise Aereo's service. Is it substantially similar to a cable TV company, re-transmitting broadcast programming, and sufficiently so to enable it to be characterised as a cable service? Or is it merely an equipment provider, supplying a remotely-controlled device that is functionally equivalent to a digital video recorder? The characterisation of the service would seem to be material to the legal position. A retransmission service would owe licence fee payments to the broadcast networks who owned the copyright. An equipment provider would have no such liability under US law. The determining factor in this case was its substantive effect rather than the technical design. Indeed, the Supreme Court ruling stated that the 'behind the scenes' technical design did not make a difference in this instances, although it might be subject to a different assessment in other cases yet to be heard⁹.

This paper investigates the Aereo case with a special interest in what it could mean for cloud service providers. Does the technical design matter in copyright liability cases, and is the technical design or the substantive effect more likely to be the determining factor? And, drawing on the US court ruling and legal argument, this paper asks whether there are any insights from the Aereo case for EU cloud service providers.

CASE DETAILS

On 1 March 2012, a group of broadcasters filed a complaint against Aereo in the Southern District of New York, alleging that it was unlawfully capturing television signals over the air, some of which corresponded to programmes in which the plaintiffs hold copyright, and providing them to its own subscribers over the internet. The broadcasters group comprised the major US networks ABC, CBS, NBC Universal, Fox and Disney and certain subsidiary companies of theirs, as well as WNET, WPIX, Univision and Public Broadcasting Service. Their original complaint had asserted liability for copyright infringement including breach of both performance and reproduction rights, and contributory infringement¹⁰.

The claim regarding reproduction rights was almost immediately dropped, as was contributory infringement. A request for a preliminary injunction, filed on 13 March 2012, cited only the more limited claim of breach of performance rights in respect of the contemporaneous transmission of copyrighted programmes¹¹. In other words, the claim was limited to only those aspects of Aereo's service that enabled its subscribers to watch television programmes in real time. The allegation was that Aereo transmissions are a public performance of the broadcasters' programmes, and as such they attract liability for copyright. The significance of the demise of the reproduction rights claim was that it could be subjected to a successful challenge on the basis of the Sony Betamax verdict¹². However, this is precisely the point which Aereo appears to have pre-empted with its technical design and what makes this case so very intriguing.

After a two-day hearing in May 2012, the District Court handed down its ruling on 11 July 2012 where it found in Aereo's favour and denied the request for the injunction. The basis of the District Court's decision¹³ was an earlier ruling in the case of 'Cablevision'¹⁴ in 2008. In the opinion of the District Court, the case turned on whether or not 'Cablevision' was an applicable precedent¹⁵. In 'Cablevision', the Second Circuit appeal court had ruled that a remote facility operated by a cable television company, and permitting users to record and play back television programmes, did not infringe copyright. The basis of the Cablevision ruling was that each individual transmission from the Cablevision facility to the user, represented a private performance, and as such, was not in breach of copyright.

The District Court judgement was upheld by the Second Circuit Appeal Court on 1 April 2013. The Second Circuit concluded that Aereo's transmissions were not public performances, again

relying on the Cablevision precedent¹⁶. There was one dissenting opinion in favour of granting the injunction, arguing that Aereo's transmissions of live broadcasts equate to unlicensed transmissions to the public¹⁷. An application for a re-hearing *en banc* in the court of appeal was again denied on 16 July 2013 by a panel of judges, although, once again, there was one dissenting opinion¹⁸.

Hence the broadcasters failed to get an injunction in the lower courts. Their next move was to petition the US Supreme Court for a *Writ of Certiorari*¹⁹. In essence, they wanted a judicial review of the lower courts decisions. They were asking the court to agree with their position that Aereo violates the broadcasters exclusive right under the 1976 Copyright Act to publicly perform their copyrighted works²⁰, and that a 'public performance' as defined by Section 101 of the Copyright Act²¹ includes the transmission or re-transmission of those works. The exact question presented to the court was: "Whether a company 'publicly performs' a copyrighted television program when it retransmits a broadcast of that program to thousands of paid subscribers over the Internet."²²

The petition was filed on 11 October 2013, and the case was heard on 14 April 2014. In the judgement, handed down on 25 July 2014, the Supreme court held that Aereo engaged in public performance, and hence it did infringe the broadcasters' copyrights: "We must decide whether respondent Aereo Inc. infringes this exclusive right by selling its subscribers a technologically complex service that allows them to watch television programs over the Internet at about the same time as the programs are broadcast over the air. We conclude that it does."²³

However, out of the panel of nine judges, three dissented. They felt that the legal basis was not correct, because the judgement 'disregarded widely accepted rules for service provider liability' by which they meant it did not include a test for 'volitional conduct', for example, whether Aereo had made a deliberate choice of the content²⁴. However, the dissent stressed that this was not the same as saying that Aereo complied with copyright law.

CHARACTERISING AEREO - CABLE COMPANY OR DVR?

The Supreme Court came to its decision following an analysis of Aereo's technical design. The question at the heart of it concerned how should Aereo's service be properly characterised?²⁵ In a nutshell, what exactly is Aereo? There were two options put forward. The broadcasters claimed it was a re-transmitter of television programming, analogous to a cable service²⁶. Aereo claimed it was merely an equipment provider, supplying a remotely-controlled device that is functionally equivalent to a digital video recorder (DVR). The difference is that a retransmission service would owe licence fee payments to the broadcast networks who owned the copyright, whereas an equipment provider would have no such liability, as established by the Sony Betamax case in 1984¹².

The essence of Aereo's claim is that it records, stores and replays television broadcasts, operated by remote access. The user logs in over the internet, from where she is able to control it as if it were a private piece of equipment at home. Users can make copies of over-the-air television programmes, which they can store on for their personal use, to view either immediately or at any time of their choosing in the future. The choice of what and when to watch is the user's choice, not Aereo's.

As stated above, Aereo's equipment is located in a remote data centre - the 'cloud' - which

houses thousands of tiny, coin-sized²⁷, micro-television aerials on circuit boards. When users log on, they are dynamically assigned to one of the aerials, meaning that they do not get the same aerial each time, but they will always get an aerial dealing only with their request. It is these aerials that pick up the over-the-air television signals and deliver them to Aereo's system, which transcodes the signal. The transcoded data is sent to the server, which creates a copy in real time and saves an individual copy of it for the user on their own section of hard drive. Each of these micro-aerials functions independently, so if a hundred users request the same programme, it will be transcoded and saved a hundred times. For users requesting to watch a programme, 'live', the system incorporates a six to seven second buffer²⁸ between the signal being received by the Aereo aerials and the programme being transmitted onwards over the internet.

The technical design enabled Aereo to claim that it was delivering private performances and not a public one because it transmitted direct from an aerial dedicated to an individual user to that user's computer, and not distributed to many users via a communal aerial. Moreover, Aereo could claim that because each transmission can only be initiated by an individual user, therefore each copy is unique to them, *for their own private use*, hence it is nothing more than a remotely-controlled piece of equipment that resides in the 'cloud' and should be characterised as a 'virtual digital video recorder'. *It is merely a supplier of equipment, albeit that the equipment is remotely accessible.*

Unsurprisingly, the broadcasters' case was based on an contrary interpretation of Aereo's technical design. They argued that Aereo's thousands of micro-antennas function collectively as a single antenna²⁹ suggesting that thousands of individual transmissions comprised, in aggregation, a single mass transmission. If thousands of people watch the Super Bowl at the same time, then, they argued, it must be a public transmission³⁰. The capture and re-transmission of the same programme, thousands of times simultaneously was the critical factor³¹. On that basis, they characterised Aereo as analogous to a cable television company. In its ruling, the Supreme Court agreed with this characterisation: "having considered the details of Aereo's practices, we find them highly similar to those of the [cable television] systems [...]Insofar as there are differences, those differences concern not the nature of the service that Aereo provides so much as the technological manner in which it provides the service"⁹.

CHARACTERISATION AND LIABILITY

Both of the possible characterisations are credible and the matter presented a conundrum. The decision on characterisation was all-important because it determined the answer to the ensuing copyright liability question put to the Supreme Court³²: whether or not Aereo is engaging in a 'public performance', in the context of United States copyright law?

The Supreme Court ruling was founded in United States copyright law Section 101 of the 1976 US Copyright Act³³ which defines a public performance as one being "*to transmit or otherwise communicate a performance to the public by means of any device or process, whether the members of the public capable of receiving the performance or display receive it in the same place or in separate places and at the same time or at different times*". The critical text for this case is in the next clause, sometimes referred to as the 'transmit' clause, which states that "*to transmit a performance or display is to communicate it by any device or process whereby images or sounds are received beyond the place from which they are sent*". Hence, transmission via electronic equipment may be a 'public performance'. The transmit clause had been inserted by Congress in 1976 for the purpose of addressing copyright infringement by the

(then) new cable companies which were re-transmitting broadcast programming without a licence³⁴. The aim of the provision was to bring the cable companies into the copyright fold. However, the law was carefully crafted so that licences would only be due if a performance was public and would not apply to individuals using their own or rented equipment. Lawmakers in 1976 were attempting to address situations where people would have their own roof-top antenna, and sought to avoid turning millions of people into infringers for transmitting the signal to their own television sets, whilst capturing the cable companies doing mass re-transmissions³⁵. Of course, the 1976 lawmakers could not have foreseen the development of a service like Aereo, and the legal tensions created by this law have fuelled heated arguments in the Aereo case.

The law on which Aereo has apparently based its technical design was case law from 2008, re-interpreting the transmit clause. This was the 'Cablevision' case³⁶, concerning a digital video recording facility provided by a cable company on its own premises, and accessed remotely by the users. The ruling implied that so long as 'no two people can receive the same transmission of a performance', then the performance right is not violated³⁷. Aereo's technical design interpreted this ruling in the sense that if every transmission is an individual one, then it does not breach the performance right. That appears to be the reason why it designed the system with thousands of tiny aerials, individually-allocated, and with user- initiated transmissions and user-specific streams. On that basis, Aereo claimed that its system offers a remotely controlled private device, and as such it does not engage in a public performance. Its users "create, play and transmit" the performance³⁸. It is lawful, because the performance rights provision enables lawful, private performances³⁹. It's notable that Aereo emphasised "the same unique copy decoded exclusively" for one subscriber. The Second Circuit Appeal Court concurred with this view in its decision: "We conclude that Aereo's transmissions of unique copies of broadcast television programs created at its users' requests and transmitted while the programs are still airing on broadcast television are not 'public performances' of the Plaintiffs' copyrighted works under Cablevision"⁴⁰.

Aereo does not dispute that it designed its service around this point of law, but positions it positively, saying instead that it designed the service deliberately in order to comply with copyright law. Either way, it is clear that what Aereo has done, is to engineer a system that technically should meet the criteria of the Cablevision judgement. Aereo further argued that, on the basis of its technical design, the reproduction right, rather than the performance right, is the applicable one. Of course, Aereo would benefit from that positioning. Under the US 'fair use' doctrine, users are entitled to make copies for private use and when they watch the programme, they are merely accessing their own personal recording of the programme⁴¹. Aereo does not control when the programme goes out, instead the users individually decide when to access their private copy. For the same reason as in the Sony Betamax⁴² case, they are engaged in a private performance. Hence Aereo cannot be held liable for copyright infringement by its users on the basis of the reproduction right. As already noted, the broadcasters dropped their claim of reproduction right infringement when they filed in the District court.

In summary, the point was that a cable transmission is a public performance for the purpose of US copyright law, and so characterising Aereo as a cable television service, would clearly put it within the remit of the 'public performance' provision. If the alternative characterisation were used - a remote digital video recorder - then the performances would all be private ones, and it would be outside the scope of this provision. This was the problem that the courts had to decide on.

There were two different approaches to establish Aereo's liability, and they resulted in two different conclusions. One approach, taken by the District court, placed the emphasis on the 'behind the scenes' technical design, concluding with the injunction being denied. The other approach taken by the Supreme Court ruling, placed more emphasis on the substantive effect of the aggregation of multiple streams. It held that the Aereo service had a 'substantial similarity' and an 'overwhelming likeness' to a cable company service, the only difference being that a cable company is constantly transmitting whereas Aereo only comes alive when the user logs in. Viewed in terms of the regulatory objectives of the US copyright code, the Supreme Court felt that the 'behind the scenes' technical differences did not differentiate Aereo from cable companies: "we conclude that when an entity communicates the same contemporaneously perceptible images and sounds to multiple people, it transmits a performance to them regardless of the number of discrete communications it makes."⁴³

However, in the dissenting opinion the technical design was once again the decider. The dissent felt that because Aereo makes no pre-selection of content and the Aereo system does not relay any programme until the user tells it to, it does not perform; and because it does not perform, it cannot be held directly liable for infringing copyright. This is (under US law) the *volitional conduct test*. The dissenting opinion also questioned the notion of 'substantial similarity' - or 'cable TV look-alike'. Just because it looks a lot like a cable TV system, it does not mean it is one⁴⁴ and, according to the dissent, the judgement provided no criteria for the future interpretation of this decision. Hence, it leads to uncertainty for the cloud computing industry.

THE AEREO DILEMMA AND CLOUD LIABILITY

The Aereo case, with its highly polarised positions, can be viewed as the "latest skirmish in the long-running copyright battles"⁴⁵. The US broadcasters are feeling the heat created by Aereo, which they see as a threat to their business model. Broadcasters rely on their ability to charge fees for retransmission, in order to recoup their investment in programming⁴⁶. Free to air broadcasting is funded by advertising and by other means such as re-transmission fees. Although advertising revenue is important to them, they argued that they increasingly rely on re-transmission fees, where Aereo poses a 'direct assault', not only because it was not paying these fees, but because of 'consequential disruption', as some cable companies were demanding to re-negotiate their fees. A counter-argument is that the broadcasters are threatening progress in a way that 'imperils'⁴⁷ cloud providers.

The cloud companies are fearful of a 'ruinous liability'⁴⁸ and the established broadcast industry is complaining that these new innovations 'upend settled industry expectations and established law'⁴⁹. The Supreme Court was mindful of this fight - "are we somehow catching other things that really will change life and shouldn't, such as the cloud?" - and troubled by the possibility that its decision could have negative consequences for both industries: "Do you put them out of business, or do they have to go and negotiate with every copyright holder?"⁵⁰

The Supreme Court has attempted to narrow the scope of its ruling, such that it is limited to the specifics of the Aereo situation. However, based on arguments expressed in the *amicus curiae* briefs submitted to the court, it will leave cloud providers in a position of legal uncertainty.

For example, the court's decision to run with the substantive effect of multiple individual 'performances', means that the aggregation factor will be important, but it will not be straightforward to apply this rationale in other cases. The most obvious question arising out of

the ‘guilt by resemblance’ verdict is ‘when is a cloud provider acting like a cable company’?⁵¹ The basis on which a court would determine when re-transmission of audiovisual material from the cloud is substantially similar to a cable transmission is a critical point raised by the judgement. Cloud providers cannot be certain where the trigger point is for liability, if the same work is being transmitted to multiple recipients. What happens if multiple users accessed the same recording, even if they had recorded it, uploaded it or stored it quite separately at different times? It is not clear whether the aggregate of those users accessing that recording could trigger a copyright liability. There is a similar question posed by those cloud providers, who for reasons of technical efficiency, operate by storing a single master copy of a recording, in instances where multiple users have uploaded it⁵². It is also not clear whether it would make a difference if the time-shift were longer – until after a live broadcast had ended for example.

Cloud providers who merely store the users’ own legally-acquired content and do not offer it to users should not be affected by copyright liability. However, cloud providers point out that such a rule is not simple to apply because of the innovative functionality that may be designed into their services⁵³. Some offer straightforward storage of users’ own content, but others also offer content. In either case, the complexities of content acquisition, transmission and format-shifting may make it difficult to legally determine the liability. The ‘first contact’ of the user with the content could be a factor, meaning that if the cloud service provides the user with access to the content, then the liability may be triggered. The location of the equipment could be a factor. Services that provide equipment for the end-users premises may escape liability because it will be clear that there is a private performance and it will not be possible to aggregate these individual performances, triggered from individual, geographically separate premises.

THE EU POSITION ON COPYRIGHT AND CLOUDS

The Aereo case distills the challenges that cloud providers and rights-holders for Aereo-like services face in the EU. Cloud liability for copyright is hovering on the EU horizon. The precise legal formula that both enabled and caught out Aereo does not exist, since the EU copyright rules are differently structured compared with those in the US, but there are already moves to bring cloud services into the copyright fold. For example, in 2012, the European Commission called for flexible copyright licencing arrangements for cloud computing services⁵⁴.

The applicable EU law regarding copyright is the 2001 copyright directive, and there are two relevant provisions that are implicated by Aereo-like services delivering television viewing to computer screens and smartphones. The directive incorporates a right to ‘*authorise or prohibit the making available to the public*’ of copyrighted works ⁵⁵ and it also contains a reproduction right, with a private copying exception ⁵⁶. In contrast to US law, the *making available right* unambiguously includes broadcast transmissions: ‘*for broadcasting organisations, of fixations of their broadcasts, whether these broadcasts are transmitted by wire or over the air*’. The accompanying recital states that the provision is intended to apply to ‘interactive on-demand transmissions’. It would therefore seem to preclude an Aereo-like service being able to avoid paying broadcasting fees, and in that regard it enshrines a similar intention to the US Supreme Court judgement.

In the context of Aereo-like services, the private copying exception is the legal test applied to determine liability for infringement of the reproduction right. The private copying exception differs from the US ‘fair use’ doctrine, because it is an exception to the author’s right to control the distribution and reproduction of their work. It was designed for an analogue world, and the

intention was to enable copies of copyrighted works to be legally made for personal use. It does not transfer easily into the cloud computing environment, where private copying for personal use may include a variety of activities including time-shifting, format-shifting or uploading⁵⁷.

It is interesting to look for parallels between EU case law and the US Supreme Court position. There are some EU cases that suggest the courts are struggling with similar issues. For example, the dichotomy of reproduction rights versus making available (or transmission rights) vested in Aereo-like services is recognised. In the case of *Save.tv*⁵⁸, that came before the German courts, the test for the application of the private copying exception was user initiation - in other words, whether the user requests the copy and sets off the process. In 2011, the *Oberlandesgericht Dresden* (Dresden Court of Appeal) found that an online video recorder, where the user initiated the recording process, did not infringe the reproduction right and that the copies it created were lawful for private use. The question of re-transmission rights was more complex. Notably, *Save.tv* had tried to legally obtain those rights but had failed due to contractual issues with the relevant collecting society. However, the German courts have not been consistent and in 2012 a ruling by the *Landgericht München* (Munich District court) went against *Save.tv* and in favour of the broadcaster, on the basis that that the service was more than just a private copying facility.

The French courts took a different line. In the case of *Wizzgo*, concerning an online digital video recorder, the Paris *Tribunal de grande instance* did not accept that the private copying applied, and issued a series of injunctions and a fine. The court ruled that no exception can be claimed when a copy evidently has an economic value⁵⁹.

The private copying exception brings more bad news for cloud providers, because it is associated with a levy intended to compensate copyright owners for alleged revenue losses. The levy was originally intended to be imposed on the manufacturers of the equipment used to create the copies, but there are proposals to apply it to cloud services, as suggested by the Vitorino report for the European Commission in January 2013⁶⁰. In 2014 the European Commission consulted on the imposition of private copying levies to cloud services⁶¹. The response from industry, both rights-holders, including representatives of broadcast and film companies, and the technology companies, was against this proposal preferring instead a system of direct licencing⁶². The Commission, in a leaked internal draft⁶³, highlighted the issues that a direct licencing system could raise. According to the Commission, the *making available right* is deficient in that it does not specify what is covered (such as uploading content) nor where the act of making content available is legally located (which could be in the country where it is uploaded or the country where it is accessed).

Secondary liability was not addressed in the Aereo case, although the dissenting opinion suggested that if it had been considered, then the outcome for Aereo would have been different because 'volitional conduct'⁶⁴ in selecting content would have been an important criteria. Under EU law, secondary liability sits within the Copyright directive in Article 8.3, that works together with the E-commerce directive⁶⁵ Article 12-15, which set up a regime of exemptions from liability. It gives the copyright owners the possibility to take out an injunction against an intermediary. However, this injunction can only be applied where the intermediary has no involvement in the process of selecting content and where it has been notified of the existence of copyrighted content but has failed to remove it expeditiously.

CONCLUDING REMARKS

Overall, Aereo's strength was also its weakness, and the Aereo ruling provides little comfort to cloud providers on either side of the Atlantic, suggesting that the liability issues that may arise in future will have to be determined in court on their own merits: "questions involving cloud computing, remote storage, DVRs, and other novel issues not before the court, as to which 'Congress has not plainly marked the course, should await a case in which they are squarely presented.'"

Without doubt, the case muddies the waters⁶⁶ regarding copyright liability, offering cloud providers little clarity⁶⁷. It presents a vision of legal uncertainty, especially if other courts follow the Supreme Court example and use the substantive effect as the determining factor. It does suggest that cloud innovators will likely find themselves judged against legal tests designed for the analogue age. But there is a bigger principle at stake concerning the future of innovation, as the US Supreme Court highlighted. Broadcast programmes used to be distributed through networks of towers straddling the country and ugly black dishes on the front of houses. Now it can be done by thousands of coin-sized aerials on a circuit board. This is an intensely disruptive and game-changing technology⁶⁸. There are similarities with the piano rolls cases⁶⁹ of the late nineteenth and early twentieth century, where technological innovation challenged the existing regime, and ultimately it was down to legislation to re-calibrate the balance⁷⁰. Then, as now, it concerned the future of two industries, the establishment clashing with innovators, and this underlying dilemma will challenge legislators and the judiciary for some time to come.

FOOTNOTES

1. Case no. 13-461, In the Supreme Court of the United States, American Broadcasting Companies Inc. et al vs Aereo Inc F//K/A Bamboom Labs Inc, Petition for Writ of Certiorari. Hearing date 1 April 2014. Ruling 25 June 2014. 13 October 2013.
2. WNET operates under charter to create educational programming and transmits as channel 13.
3. Case no. 13-461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, p 1-36.
4. Case no. 13-461, ABC Inc v Aereo Inc., Opinion of the court, 25 June 2014.
5. United States District Court S.D. New York, American Broadcasting Cos. v. Aereo, Inc 874 F. Supp. 2d 373 (S.D.N.Y. 2012).
6. United States Court of Appeals, Second circuit, WNET, Thirteen v. Aereo, Inc., 712 F.3d 676, Argued: Nov. 30, 2012. Decided: April 1, 2013.
7. See for example, Case no. 13-461, ABC Inc v Aereo Inc., Brief of the BSA / The Software Alliance as Amicus Curiae in support of neither party, March 2014. p 13-21; and also see Case no. 13-461, ABC Inc v Aereo Inc. Brief Of Computer & Communications Industry Association And Mozilla Corporation As Amici Curiae In Support Of Respondent, 2 April 2014, p 11.
8. Case no. 13-461, ABC Inc v Aereo Inc., Opinion of the court, 25 June 2014, p 12-13.
9. a. b. Case no. 13-461, ABC Inc v Aereo Inc., Opinion of the court, 25 June 2014, p 17.

10. United States District Court S.D. New York, American Broadcasting Cos. v. Aereo, Inc 874 F. Supp. 2d 373 (S.D.N.Y. 2012), 11 July 2012, Opinion, Alison J Nathan, District Judge in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013. Appendix B p 60a.

11. Ibid, p 61a.

12. a. b. Sony Corp. of America v. Universal City Studios, Inc., 464 U. S. 417 (1984).

13. United States District Court S.D. New York American Broadcasting Cos. v. Aereo, Inc, 874 F. Supp. 2d 373 (S.D.N.Y. 2012), Inc., July 11, 2012., Opinion, Alison J Nathan, District Judge, in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013. Appendix B p 59a.

14. Cartoon Network LP, LLLP v. CSC Holdings, Inc., 536 F.3d 121 (Second Circuit.2008), cert. denied, 557 U.S. 946 (2009) (known as the ‘Cablevision’ case).

15. United States District Court S.D. New York, American Broadcasting Cos. v. Aereo, Inc 874 F. Supp. 2d 373 (S.D.N.Y. 2012), July 11, 2012., Opinion, Alison J Nathan, District Judge, in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013. Appendix B p 74a - 75a.

16. United States Court of Appeals, Second circuit, WNET, Thirteen v. Aereo, Inc., 712 F.3d 676, in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, Appendix A p 1a-38a.

17. United States Court of Appeals, Second circuit, WNET, Thirteen v. Aereo, Inc., 712 F.3d 676, in ABC Inc v Aereo Inc., in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, Appendix A Judge Chin dissent, p 39a-58a.

18. United States Court of Appeal, Second Circuit, WNET, Thirteen v Aereo, Inc., Denial of Rehearing, 722 F.3d 500 (2d Cir. 2013) in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, Appendix C, Judge Chin dissent, p 128a - 155a.

19. Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013.

20. 17 U.S.C. 106.

21. 17 U.S.C. § 101. The relevant elements of the clause, as cited in the petition are: Except as otherwise provided in this title, as used in this title, the following terms and their variant forms mean the following: A “device”, “machine”, or “process” is one now known or later developed. 1) To “perform” a work means to recite, render, play, dance, or act it, either directly or by means of any device or process or, in the case of a motion picture or other audiovisual work, to show its images in any sequence or to make the sounds accompanying it audible. 2) To perform or display a work “publicly” means— (1) to perform or display it at a place open to the public or at any place where a substantial number of persons outside of a normal circle of a family and its social acquaintances is gathered; or (2) to transmit or otherwise communicate a performance or display of the work to a place specified by clause (1) or to the public, by means of any device or process, whether the members of the public capable of receiving the performance or display receive it in the same place or in separate places and at the same time or at different times. 3) To “transmit” a performance or display is to communicate it by any device or process whereby images or sounds are received beyond the place from which they are sent.

22. Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, see page i.
23. Case no. 13–461, ABC Inc v Aereo Inc., Opinion of the court, 25 June 2014, p 1.
24. Case no. 13–461, ABC Inc v Aereo Inc., Scalia, J dissenting, p 12. Justice Thomas and Justice Alito joined in the dissent.
25. United States District Court S.D. New York American Broadcasting Cos. v. Aereo, Inc, 874 F. Supp. 2d 373 (S.D.N.Y. 2012), July 11, 2012., Opinion, Alison J Nathan, District Judge, in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013. Appendix B p 62a.
26. Case no. 13–461, ABC Inc v Aereo Inc., Brief for Respondent, Aereo Respondent Brief, 12 December 2013, p 12.
27. For a detailed description of Aereo’s system and how it works, read the District Court’s account in United States District Court S.D. New York 874 F. Supp. 2d 373 (S.D.N.Y. 2012) 11 July 2012, Opinion, Alison J Nathan, District Judge, in Case no. 13–461, ABC Inc v Aereo Inc. Petition for Writ of Certiorari, 13 October 2013. Appendix B, p 62a - 73a.
28. United States District Court S.D. New York American Broadcasting Cos. v. Aereo Inc., 874 F. Supp. 2d 373 (S.D.N.Y. 2012)., 11 July 2012, Opinion, Alison J Nathan, District Judge, in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013. Appendix B, p 67a.
29. United States District Court S.D. New York, American Broadcasting Cos. v. Aereo, Inc 874 F. Supp. 2d 373 (S.D.N.Y. 2012) 11 July 11 2012, Opinion, Alison J Nathan, District Judge, in Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013. Appendix B, p 67a.
30. Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, p 2, & p 21-22.
31. For a colourful interpretation of the legal position from the plaintiff’s perspective, see for example Case no. 13–461, ABC Inc v Aereo Inc., Brief of Time Warner Inc. and Warner Bros Entertainment Inc, as Amici Curiae in support of Petition for Writ of Certiorari. 12 November 2013.
32. Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, see page i
33. 17 U.S.C. § 101. For the relevant text in full, see *ibid* Footnote 21.
34. Case no. 13–461, ABC Inc v Aereo Inc., Opinion of the court, 25 June 2014, p 4-6.
35. United States Court of Appeals, Second circuit, WNET, Thirteen v. Aereo, Inc., 712 F.3d 676, Argued: Nov. 30, 2012. Decided: April 1, 2013 in Petition for Writ of Certiorari, 13 October 2013, Appendix A, p 34a.
36. *Ibid* Footnote 15 Cartoon Network v CSC Holdings (the Cablevision case).
37. Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, p 11-

12.

38. Case no. 13–461, ABC Inc v Aereo Inc., Brief for respondent, 26 March 2014, p 19.

39. Case no. 13–461, ABC Inc v Aereo Inc., Brief for respondent, 26 March 2014, p 16.

40. United States Court of Appeals, Second circuit, WNET, Thirteen v. Aereo, Inc., 712 F.3d 676, Argued: Nov. 30, 2012. Decided: April 1, 2013 in Petition for Writ of Certiorari, 13 October 2013, Appendix A, p 37a.

41. Case no. 13–461, ABC Inc v Aereo Inc., Brief for respondent, 26 March 2014, p 2, p 9.

42. Sony Corp. of America v. Universal City Studios, Inc., 464 U. S. 417 (1984). The ‘Sony’ relevance is expounded in Case no. 13–461, ABC Inc v Aereo Inc. Brief Of 36 Intellectual Property And Copyright Law Professors As Amici Curiae In Support Of Respondent.

43. Case no. 13–461, ABC Inc v Aereo Inc., Opinion of the court, 25 June 2014, p 14.

44. Case no. 13–461, ABC Inc v Aereo Inc., Scalia, J dissenting, p 6-11.

45. Case no. 13–461, ABC Inc v Aereo Inc., Scalia, J dissenting, p 1.

46. Case no. 13–461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, p 32-34.

47. Case no. 13–461, ABC Inc v Aereo Inc., Brief for Respondent, 26 March 2013, p 2.

48. Case no. 13–461, ABC Inc v Aereo Inc., Brief for Respondent, 26 March 2013, p 20.

49. Case no. 13–461, ABC Inc v Aereo Inc., United States Court of Appeal, Second Circuit, WNET, Thirteen v Aereo, Inc., Denial of Rehearing, 722 F.3d 500 (2d Cir. 2013) in Petition for Writ of Certiorari, 13 October 2013, Appendix C, Judge Chin dissent, p 155a.

50. Case no. 13–461, ABC Inc v Aereo Inc., Official – subject to final review, [Transcript Of Hearing], Alderson Reporting Company, 22 April 2014, p17, lines 12-15 and p 53, lines 8-10.

51. Case no. 13–461, ABC Inc v Aereo Inc., Scalia, J dissenting, p 10.

52. See Case no. 13–461, ABC Inc v Aereo Inc., Brief of the BSA / The Software Alliance as Amicus Curiae in support of neither party, March 2014, p 18, p 22; and Brief Of Computer & Communications Industry Association And Mozilla Corporation As Amici Curiae In Support Of Respondent, 2 April 2014, p 20.

53. Brief Of Computer & Communications Industry Association And Mozilla Corporation As Amici Curiae In Support Of Respondent, 2 April 2014, p 11-12.

54. European Commission, Unleashing the Potential of Cloud Computing in Europe, 27 September 2012 [COM(2012) 529 final].

55. Directive 2001/29/EC Article 3, and Recital 25. See also Recital 26, which calls for collective licencing arrangements to facilitate the collection of licence fees for music used in on-demand broadcast transmissions

56. Directive 2001/29/EC Article 2 and Article 5.2(b).

57. Kretschmer, Martin (2011) Private Copying and Fair Compensation: An empirical study of copyright levies in Europe, Intellectual Property Office, p 34.

58. Matzneller, Peter. RTL Loses Dispute with Save.tv in IRIS Legal Observations of the European Audio-visual Observatory, July 2011; and Matzneller, Peter. Munich District Court Upholds ProSieben-Sat.1 Complaint Against Save.tv Online Video Recorder, in IRIS Legal Observations of the European Audio-visual Observatory, August 2012. See also Lerner, J, Lost in the Clouds: The Impact of Copyright Scope on Investment in Cloud Computing Ventures, Harvard Business School, Law & Economics Seminar, Winter Quarter 2013, pp 11-13.

59. See: The Response of European Digital Rights to: the [European Commission's Green Paper on the Online Distribution of Audiovisual Works](#)

60. António Vitorino, Recommendations resulting from the Mediation On Private Copying And Reprography Levies, 31 January 2013, (Vitorino report) p 5, p 16.

61. European Commission, Public Consultation on the review of the EU copyright rules, 5 March 2014, Question 66.

62. See responses to question 66 from the Motion Picture Association(p55) & EDiMA (p 18-23); and also BSA(p 36-38).

63. European Commission, [White Paper: A Copyright Policy for Creativity and Innovation in the European Union](#). The document is undated and marked 'Internal draft'. It was leaked via a [Dropbox link](#) which in turn was circulated by the website IPKat: Eleonora Rosati, [Super Kat-Exclusive: here's Commission's draft White Paper on EU copyright](#), 23 June 2014.

64. Case no. 13-461, ABC Inc v Aereo Inc., Scalia, J dissenting, p 11.

65. Directive 2000/31/EC

66. Stoel Rives, Attorneys at Law, Copyright Law Alert_ Copyright Worries for Cloud Service Providers Following Aereo Decision, 26 June 2014.

67. Case no. 13-461, ABC Inc v Aereo Inc., Brief Of Computer & Communications Industry Association And Mozilla Corporation As Amici Curiae In Support Of Respondent, 2 April 2014, p 20.

68. For the petitioner's perspective on the disruption caused to their industry, see Case no. 13-461, ABC Inc v Aereo Inc., Petition for Writ of Certiorari, 13 October 2013, p 33; for the respondent's perspective, see Case no. 13-461, ABC Inc v Aereo Inc., Brief for Respondent, Aereo Respondent Brief, 26 March 2014, p 3-8.

69. For an account of the piano rolls cases and the disruptive technology of the early recorded music industry, see: Wu, Timothy,(2004) Copyright's Communications Industry, in Michigan Law Review, 103, p 297-303.

70. Case no. 13-461, ABC Inc v Aereo Inc., Brief of the BSA / The Software Alliance as Amicus Curiae in support of neither party, March 2014, p 25.