I am the Landau Professor in Technology and the Economy in the Department of

Economics at Stanford University, and a Senior Fellow at the Stanford Institute for Economic

Policy Research (SIEPR). At SIEPR, I have served as the Director of the Center for Employment

and Economic Growth and as the Director of the Technology and Economic Growth Program. I

competition. While on leave from Stanford, I have served as Deputy Assistant Attorney General

for Economic Analysis in the United States Department of Justice. My areas of specialization

include Industrial Economics, particularly the economics of high technology industries and the

demand for new products. I have written books, book chapters and peer-reviewed articles on the

economics of technological change. I have been involved in studies of competition in a number of

industries and in studies of competition, innovation and user needs in high technology industries.

A focus of my research has been on properly measuring changing product quality, characterizing

Since the 1980s, my research has centered on innovation and demand for computer-

competition in product-differentiated industries and analyzing the demand for high technology

related technologies. A substantial portion of my academic research has focused on how

consumers and businesses purchase and use these technologies. As part of that research effort, I

have closely followed the trade press and data on the pricing, products and sales of both computer

hardware and software. In the 1990s, I had a leadership role in the Stanford Computer Industry

Project, one of the industry study centers funded by the Sloan Foundation, most recently as the

Director. This large project involved faculty and graduate students from Stanford's engineering

am also a Senior Fellow at the National Bureau of Economic Research, participating in the

Productivity and the Industrial Organization Programs that study technical progress and

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I. Timothy F. Bresnahan, declare as follows: **QUALIFICATIONS**

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products and services.

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and business schools and the Economics Department.

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I have served as an expert witness and provided written and oral testimony in prior matters, most of which involve claims related to new technologies. For example, I have served as an expert for IBM in SCO Group Inc v. IBM, for Hewlett Packard in Schultz et al. v. Hewlett

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SUMMARY III.

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in my Curriculum Vitae attached as Appendix A.

Packard, and for Intel in Neubauer et al. v. Intel et al. A complete list of recent testimony appears

ASSIGNMENT AND MATERIALS CONSIDERED

- I have been retained by counsel for RealNetworks to assess the claim made by the 4. Studios that the presence of RealDVD in the market would cause harm to the plaintiffs in this matter (the "Studios"). I understand that RealNetworks has an additional DVD copying technology (code name "Facet") that has been added to the case. I understand that the Studios may claim harm from the presence of Facet in the market, and I have also been asked to address this issue.
- 5. In connection with this matter, I have reviewed various documents, including: declarations and other legal filings submitted by the parties; the deposition testimony of James Brennan, Elizabeth Coppinger and Michael Dunn; the expert report of Larry Gerbrandt; and studies, reports and public press on RealDVD, other DVD copying technologies and new digital media products.

- 6. I understand that the Studios have claimed that the presence of RealDVD in the market will lead to reduced sales and rentals of DVDs. Based on my research to date and my knowledge of economics. I have reached the following conclusions:
 - Distribution of the RealDVD product will not increase pirating of copyrighted materials.
 - Distribution of the RealDVD product will raise, not lower, the demand for purchased DVDs.
 - Distribution of the RealDVD product will not harm the Studios' legitimate economic interest in introducing new products.
- 7. My conclusion that the RealDVD product will not increase pirating of copyrighted materials follows from an economic analysis, presented in detail below, of the demand for RealDVD by different types of consumers. The RealDVD product will be used by consumers to make backup or convenience copies of DVDs they have purchased. The RealDVD product will not be demanded by consumers who choose to steal copyrighted materials, since those consumers

have access to and use cheaper and, from their unlawful perspective, better, products to unlawfully obtain and distribute copyrighted material.

- 8. My conclusion that distribution of the RealDVD product will raise, not lower, the demand for DVDs follows from an economic analysis of the demand for RealDVD and for DVDs by consumers. In the language of economics, using RealDVD and buying DVDs are not substitutes, they are complements. Using RealDVD raises the consumer's value of DVDs and thus raises demand for DVDs.
- 9. My conclusion that distribution of the RealDVD product will not harm plaintiffs' legitimate economic interests in introducing new products is based on an economic analysis of the markets in which the new products compete and of the distinct market in which RealDVD competes. The new products described by the Studios are new ways to distribute, or new features associated with the distribution of, movies. RealDVD is not a new way to distribute movies but instead it is a complement to movies purchased on DVD by the user. However, I do agree with the Studios that to the extent that the Studios' new products also include second-copy functionality, that functionality is a substitute for RealDVD.
- Finally, my three main conclusions about the impact of RealDVD apply equally to Facet, namely: distribution of the Facet product will not increase pirating of copyrighted materials; distribution of Facet will raise, not lower, the demand for purchased DVDs; and distribution of Facet will not harm the Studios' legitimate economic interest in introducing new products.

IV. THE REALDVD PRODUCT AND DVD COPYING TECHNOLOGY

Based on my personal experience, having reviewed the declarations of Dr. Edward F. Felten and others in this case, and an examination of product reviews in the public press, I see that there are many technologies currently available that copy DVDs. Unlike RealDVD, many of these technologies make copies that can be freely recopied and shared because they remove the CSS encryption. Unlike RealDVD, many of these technologies permit consumers to play copies on various platforms, including mobile devices like Apple iPods and Sony PSPs (PlayStation

Portable consoles).¹ In contrast, RealDVD creates an encrypted copy that can be played only from the hard drive on which it was initially copied and then solely by the RealDVD software licensed to the RealDVD account holder. Furthermore, many of the technologies that are available and used to make DVD copies are available at no cost.² RealDVD, in contrast, must be purchased.

V. THE DEMAND FOR REALDVD VS THE DEMAND FOR UNLAWFUL RIPPING

- The economy contains both consumers who abide by the law with regard to copyrighted materials and other consumers who steal copyrighted materials, sometimes through networks of thieves. As an economist, I think of products as a bundle of attributes that are assessed by potential purchasers. These attributes include the price of the product and its technological and aesthetic characteristics, for example. One product attribute is whether the service provided by the product is lawful. Consumers have different tastes, tastes that lead them to place different values on a product's attributes. Just as consumers differ in how they value color, portability or ease of use, they differ in how they value a product's compliance with the law.
- Many consumers choose to purchase and/or rent copyrighted DVDs and refrain from making unlawful copies even though the technology to do so is readily available on the market. For example, a 2008 survey on "Consumer Home Piracy" sponsored by Macrovision, a company which offers anti-copying technology and therefore might be expected to emphasize the prevalence of copying, estimated that 75% of U.S. consumers do not copy DVDs. Further, many of the survey respondents who copied DVDs may have been making legal copies. The presence of another technology, RealDVD, that enables them to play DVDs without the disc present, is

Monson, Kyle, "7 Tools for Ripping Your DVDs," 9/11/08, PC Magazine, accessed 9/25/08, http://www.pcmag.com/print_article2/0,1217,a%253D231870,00.asp; SoftPowerReviews, "Best 5 DVD Ripper Reviews" (Free Press Release: August 27, 2008). Last accessed on October 1, 2008 at http://www.free-press-release.com/news/print-1219816969.html; Downloadatoz.com, "Top 10 DVD Ripper Reviews" (Global Press Release Distribution: May 15, 2008) available at http://www.prlog.org/10071977-top-10-dvd-ripper-reviews.html.

² Monson, Kyle, "7 Tools for Ripping Your DVDs," 9/11/08, PC Magazine, accessed 9/25/08, http://www.pcmag.com/print_article2/0,1217,a%253D231870,00.asp.

³ Macrovision, "Consumer Piracy Study, Results for US and UK, DVD Copying – Studios," June 12, 2008, MPAA-FOX-0002786–2829. See MPAA-FOX-0002829.

unlikely to change their taste for respecting copyrights. Instead, some of these consumers may choose to purchase RealDVD because this software offers them a number of benefits for their own content.

- 14. For example, some consumers would value making copies of their libraries of existing DVDs for which digital copies are not available from the Studios. In addition, travelers value convenience uses, families with children value backup and videophiles value the ability to "peruse their collection."
- 15. The consumer benefits of RealDVD, as indicated on the RealDVD website (http://www.realdvd.com/features), include:
 - Go anywhere: Play any of your DVDs straight from your authorized laptop or portable hard drive.
 - Protect your discs: Using RealDVD keeps your discs safe no more scratches, skips, blips, or lost titles.
 - Watch everything: Save your entire DVD collection to your PC or portable hard drive, then play them back without the discs.
 - Become a film buff: Dig deeper into your movies with detailed plot synopses and cast lists. Plus get more info and photos via links to Film.com.
 - Never lose your place: RealDVD remembers where you are, so you can stop, shut down and come back later without losing your spot in the movie.
 - Save Battery Power: RealDVD saves up to 12% of your battery power versus watching a movie that's spinning in your laptop.
 - Let your kids play: Parental Controls allow you to control the types of movies children can access.
- Benefits from using RealDVD include having a backup of the DVD and convenience. These benefits increase the value of purchased DVDs to the consumer. Because RealDVD will make purchased DVDs more valuable, it will increase the demand for purchased DVDs.
- 17. Other consumers place little value on respecting copyright protection. For these consumers, RealDVD offers no benefit that is not already available to them from the products already on the market.

18. Survey data from the Macrovision-sponsored study show that some people use existing DVD copying technologies to do illegal things. This behavior will be unaffected by RealDVD. In particular, those people would not use RealDVD because it lacks the features they want and need to engage in those activities. The same survey shows that some people use existing DVD copying technologies may be engaged in legal, fair use copying. RealDVD would be a good economic substitute for those consumers because it has the features they desire.

19. The Studios claim that RealDVD should be blocked from the market because it will lead to an increase in piracy. As I have pointed out, the flaw in this argument is that there are technologies already on the market that enable piracy and do so much more effectively than RealDVD can. In addition, the Studios are introducing technologies that enable copying. If the introduction of additional technologies of this type inevitably leads to an increase in piracy, as they claim, the Studios would have no incentive to supply these technologies. The Studios' decision to supply these technologies is yet another piece of evidence that RealDVD will not increase the amount of piracy that occurs.

VI. DISTRIBUTION OF THE REALDVD PRODUCT WILL NOT HARM THE STUDIOS' LEGITIMATE ECONOMIC INTEREST IN INTRODUCING NEW PRODUCTS

The Studios have described a number of new digital media products, such as movies distributed on a disc with a "Digital Copy version," movies distributed online with a "Burn-to-DVD feature," movies distributed on Blu-ray discs and potentially on DVDs with a "Managed Copy" capability, and movies distributed on flash media. 4 The Studios assert that the distribution of RealDVD will undercut their legitimate economic interest in selling these products.

⁴ For additional descriptions of "Digital Copy" and "Managed Copy" see also: NPD Group, "The NPD Group: Digital Copy Feature on DVDs and Blu-ray Discs Resonates with U.S. Consumers," December 10, 2008; Chiarella, Chris, "Digital Copy, Blu-ray, DVD and DRM: What's Up With That?," Big Picture Big Sound (July 7, 2008) http://www.bigpicturebigsound.com/printer_digital-copy-dvd-drm-blu-ray-1603.shtml (Accessed December 16, 2008); Lacey, Gord, "Hands-On with Digital Copy." TV Guide (January 25, 2008). http://www.tvguide.com/dvd-news/Hands-On-Digital-Copy-9008.aspx (Accessed December 16, 2008); "Digital Copy: New DVDs and Blu-ray Discs Bundled With iPod-Friendly Files," Washington Post, http://voices.washingtonpost.com/posttech/2008/04/digital_copy_new_dvds_and_blur.html (Accessed December 16, 2008).

Indeed, they characterize RealNetworks as making an "attempt to usurp for itself the value of the growing digital marketplace." The Studios' claims in this regard are incorrect.

- 21. To the extent the new products described by the Studios are new ways to distribute, or new features associated with the distribution of, movies, RealDVD does not compete with those products. RealDVD is not a new way to distribute movies but instead it is a complement to movies purchased on DVD by the user. What RealDVD does is enable the consumer to exercise what I assume is her legitimate "fair use" right to make a backup or a convenience copy of movies she has purchased. Enabling the consumer to exercise her legal rights may be inconvenient for the Studios, particularly in those instances in which the products that the Studios are introducing include the same second-copy functionality as RealDVD, but it does not harm their legitimate economic interest in introducing new products.
- 22. Finally, there is considerable consumer demand for RealDVD and products like it, which allow consumers to make lawful backup copies of DVDs that they own. The Studios' attempt to keep RealDVD out of the marketplace thus harms consumers by withholding an innovative and inexpensive product that satisfies this demand.

I declare under penalty of perjury under the laws of the state of California that the foregoing is true and correct.

Executed this 18th day of March, 2009 in Menlo Park, California.

Timothy F. Bresnahan