

Federal Circuit Again Scrutinizes Reasonable Royalties in Patent Damages in *VirnetX v. Cisco Systems and Apple*

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EI Vice President Thomas R. Varner has experience in complex litigation involving intellectual property and other issues. He has also conducted extensive research in technology licensing across a wide range of industries.

The Federal Circuit's recent decision in *VirnetX, Inc., et al., v. Cisco Systems, Inc. and Apple Inc.* (Fed. Cir. Sept. 16, 2014) is one in a series of court decisions addressing reasonable royalties in patent infringement cases. The *VirnetX* decision addresses the suitability of certain apportionment methodologies and the use of an economic game-theory model, the Nash Bargaining Solution (NBS), to determine a reasonable royalty rate.

In *VirnetX*, the plaintiff claimed that Apple's products using its FaceTime and VPN On Demand features infringed four of VirnetX's patents. VirnetX's damages expert presented three opinions, one based on VirnetX's policy of licensing its patents at 1% to 2% of the entire sales price of licensed products, and two using a starting point of a 50/50 profit split derived from the NBS.

VirnetX's damages expert relied on the entire value of the infringing products as the royalty base in calculating damages. The Federal Circuit stated that even if this value was the "smallest salable patent-practicing unit" the expert still had to determine the value of the patented features as distinct from the unpatented features: "[A] patentee's obligation to apportion damages only to the patented features does not end with the identification of the smallest salable unit if that unit still contains sufficient unpatented features."

The Federal Circuit went on to address the use of the NBS. The NBS was developed by John Nash in the 1950s to provide, in Professor Nash's words, a "theoretical discussion" for evaluating the outcome of a two-person negotiation. The NBS assumes that the parties' preferences can be defined and follow certain rules, each party has perfect knowledge of the other's alternatives and preferences, and the parties are equal in "bargaining skill." Prof. Nash showed that the solution to this idealized bargaining game is one in which the parties equally split the incremental benefit from the bargain.

The Federal Circuit stated that VirnetX's expert failed to establish "that the premises of the [NBS] theorem actually apply to the facts of the case at hand." Consequently, use of the NBS was as "inappropriate" as the 25% Rule of Thumb that the Federal Circuit rejected in *Uniloc USA, Inc. v. Microsoft Corp.*

The *VirnetX* decision reinforces the importance of carefully analyzing the contribution of patented features to infringing products. Moreover, the *VirnetX* decision shows that experts who attempt to use the NBS to determine damages will face careful scrutiny from the courts about whether the assumptions underlying the NBS match that of a hypothetical negotiation for the patented technology.

Also In This Issue

Mandatory Interconnection: Should the FCC Serve as Internet Traffic Cop?

Hal J. Singer examines whether the Federal Communications Commission (FCC) should mandate interconnection agreements among providers of Internet content and access. He finds no reason why the FCC should compel access at regulated rates, given the level of competition in telecommunications and the success of private negotiations to conclude such agreements. Moreover, mandatory interconnection may have serious social costs, such as discouraging investment and unraveling existing interconnection agreements. An alternative, less-invasive policy for protecting these intermediaries would be to rely on the antitrust laws. An excluded network can get relief under the antitrust laws if it can establish monopoly power (presumably in terminating access) and antitrust impact (in the form of higher prices or reduced output in some relevant product market).

Wrongful Death Damages and Personal Consumption Offsets

Laura A. Malowane discusses the proper methodology for determining damages in wrongful death cases. In such matters, economic damages commonly include the lifetime employment earnings the deceased would have contributed to the family left behind. Even if the deceased did not work outside the home, economic damages may take account of the value of household and childcare services that the individual would have contributed to the family. These services, and earnings from outside employment, represent the economic contribution of the deceased individual to the family. To determine the family's economic damages, a deduction to these contributions must be made for the amount of family income that the deceased would have consumed. The net figure represents economic damages to the family in wrongful death litigation.

Mandatory Interconnection: Should the FCC Serve as Internet Traffic Cop?

Hal J. Singer

To date, interconnection agreements between the networks that constitute the Internet have been privately negotiated without a regulatory backstop. The vast majority of these negotiations have gone without a hitch. While transit companies, such as Cogent and Level 3, have complained about the quality of interconnection with certain Internet service providers (ISPs), those disputes largely do not affect consumers. Such disputes only rarely result in a prolonged service disruption. Yet several parties, including public-interest advocates and Netflix, have suggested that the Federal Communication Commission (FCC) should be allowed to mandate interconnection among these “core” networks.

The interconnection controversy is distinct from but related to the FCC’s ongoing effort to deal with “net neutrality.” Net neutrality rules are designed to protect “edge” providers, such as content providers, application providers, and device makers. They address the management of traffic within an ISP’s network, rather than the movement of traffic between networks. Nonetheless, in its May 2014 Notice of Proposed Rulemaking, the FCC sought comment on how it can ensure that an ISP “would not be able to evade open Internet rules by engaging in traffic exchange practices that would be outside the scope of the rules as proposed.”

Missing from much of this debate is an analysis of the social costs and benefits associated with mandatory interconnection. Economic history shows that sector-specific interconnection obligations and antitrust enforcement serve as complements in partially deregulated industries. Antitrust enforcement acts as a substitute for sector-specific interconnections obligation in fully deregulated industries. Because the Telecommunications Act of 1996 set the communications sector on a deregulatory path nearly 20 years ago, has the time come to rely on antitrust to adjudicate interconnection disputes on the Internet?

The original basis for mandatory interconnection was to address a monopoly problem in long-distance phone service. While we may not have arrived at a competitive nirvana, there is no debate as to whether the communications



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market may be fairly characterized as a monopoly nearly 20 years after the 1996 Act. In light of evidence of falling broadband prices and expanding output, it is a stretch to defend an interconnection obligation as a means to address monopoly. But perhaps there is some other compelling basis for interconnection not rooted in monopoly? One recent article cites several notable interconnection disputes and argues the mandatory interconnection serves as an “anti-fragmentation policy” that prevents service disruptions, reduces transaction costs, and fosters efficient integration.

A study from the Progressive Policy Institute reviewed six major interconnection disputes in the United States and their associated impact on Internet customers. Three of the six disputes did not lead to service outages, and even those that did were resolved within a week. No doubt exists that such disruptions could be costly if they are not resolved quickly. When assessing the purported benefits of mandatory interconnection, however, the relevant question

is whether, in the absence of a regulatory obligation, the likelihood of such a disruption is significantly greater than zero. One estimate of that probability is the historical frequency of disputes that lead to service disruptions. And the historical disruption rate seems very small. Thus, even assuming high associated disruption costs, the expected cost of not imposing an interconnection obligation is likely small.

Against these suggested benefits, one must weigh the social costs of imposing mandatory interconnection obligations on ISPs. There are at least three potential disadvantages. First, mandatory interconnection could undermine the incentive of ISPs to expand or enhance broadband networks. If a telecom believed that it could not be compensated for upgrading its capacity (either switching from DSL

“Assuming the social costs of mandatory interconnection exceed the benefits, what might an alternative, less-invasive policy look like?”

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Wrongful Death Damages and Personal Consumption Offsets

Laura A. Malowane

In wrongful death litigation, economic experts are often asked to put a dollar value on the economic losses to the family left behind. While such economic damages usually encompass the lost employment earnings the deceased would have contributed to the family, they can also include the loss of household and childcare services that the deceased provided. These losses represent, in economic terms, the contribution of the deceased individual to the family. To fully evaluate the net economic loss to the family from a wrongful death, however, an adjustment to these contributions must be made for the amount of household income that the deceased would have consumed. The net of these amounts represents economic damages in wrongful death litigation.

For individuals in the labor force at the time of death, valuing the loss of earnings involves an estimate of lost wages for the remaining time of the deceased individual's expected participation in the workforce, i.e. his or her "work life." Government-derived work life tables can help determine how long an individual was likely to have worked, but specific facts about the deceased may also affect the estimated work life. For example, a person in failing health or with a history of dropping in and out of the workforce may have a shorter future work life than the government tables indicate is the average for the population.

Forecasting lost future wages necessitates examining not only the individual's earnings at the time of death, but also the security of the income stream and the expected growth in earnings over time. In regards to earnings growth, a logical starting point is to examine the individual's past earnings and how they have changed during his or her working life. Other factors, such as what stage of his or her career the individual was in, can also be important. Economic studies have shown that, in general, a person's earning capacity increases most dramatically in the early parts of his or her career, then levels off in later years. A person's education and field of employment may also play a role in the calculations. For example, a tenured college professor likely has a more stable future income stream than a professional athlete.

If the deceased did not work outside the home, economic damages may involve a calculation of the value that the in-



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dividual would have contributed to the home and to the family left behind. Examples of household services include cleaning the home, yard work, and household maintenance. If children are in the home, then the individual may have contributed to their childcare in many ways, such as meal preparation, laundry, driving, and tutoring. Valuing these household and childcare services is not always easy, but a good indicator is how much the deceased individual would have earned performing these same types of services outside the home. Thus, the person's education and geographic area are factors to consider. Finally, valuing household services not only involves estimating contributions in hours and dollar value to the family at the time of the individual's death, but also examining how these contributions can be expected to have changed over time. For example, a 30 year-old caregiver of three young children is likely to contribute more services to the household than a 68-year old with no children at home and failing health.

To fully determine net economic damages, one must deduct the amount of family income that the deceased would have consumed. The deceased's personal consumption would have included food, medical expenses, and clothes, among other items. Some elements of familial consumption would not decline with the death of a member, and no adjustment should be made for those elements. Examples of consumption expenses that would not decline might include many housing expenditures, such as property taxes and heat, and car payments if the family has only one car.

Several factors affect the estimate of what the deceased would have consumed in the future but for his or her death. In general, an individual's personal consumption is partly based on the number of individuals within the family as well as the total income of the family. As the number of people in the household declines (that is, as children move out of the house), the percentage of income used for personal consumption by remaining household members generally increases.

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Mandatory Interconnection

to fiber or increasing the density of a fiber network) due to restrictions on what it could charge for paid peering, then it might abandon or curtail the investment decision. Second, mandatory interconnection could undermine the incentive of transit providers to extend their reach into the last mile. Just as mandatory interconnection (and unbundling) undermined the Competitive Local Exchange Carriers' incentive to invest in their own facilities, regulated interconnection rates could deter transit or even content providers from building the last-mile connections. Third, mandatory interconnection could unravel paid arrangements between large content providers and ISPs if better terms could be secured via intermediary networks through regulation.

Assuming the social costs of mandatory interconnection exceed the benefits, what might an alternative, less-invasive policy look like? To the extent that content providers (as well as application, service, and device providers) could be protected by an effective Open Internet regime, including a "minimum level of access" established by the no-blocking rule, the only remaining class of providers that could benefit from mandatory interconnection would consist of intermediaries that operate at the core of the network, such as standalone Content Delivery Networks (CDNs) or transit providers. The rationale for protecting these intermediaries—who aggregate content across several content providers and deliver the package to ISPs—is less compelling than the rationale for protecting content providers, who cannot be expected to monetize their investment because they generate positive spillovers, such as information and artistic content, that can be viewed as

"public goods."

Although intermediaries might be marginalized without regulatory protection on transactions involving large content providers—Netflix and Google have developed their own CDNs—consumers are unlikely to benefit from rules that reinsert the presence of intermediaries. Moreover, these intermediaries might not need interconnection revenues to thrive. For example, Level 3 acknowledged in a first quarter 2014 earnings call that Netflix is "not even in our top 30 customers, so the revenue impact is relatively small." Small and mid-sized content providers will continue to rely on third party CDNs and transit providers in the absence of mandatory interconnection.

Finally, transit providers, CDNs, and other intermediary networks can avail themselves of antitrust courts if ISPs refuse to deal as a means of extending their (alleged) market power into adjacent markets. To be fair, antitrust cases do not proceed quickly, and with the exception of cases like Aspen Skiing and AT&T, antitrust rarely imposes mandatory obligations to interconnect, other than as a remedy for an independent antitrust violation. In *Trinko*, the Supreme Court recognized that antitrust has only weakly embraced affirmative duties to interconnect. Nonetheless, in *Otter Tail*, the Supreme Court found antitrust liability for an electric utility company's failure to interconnect with another utility even though the Federal Power Commission could order such interconnection. Accordingly, excluded networks should have a reasonable chance of prevailing as long as they can establish monopoly power (presumably in terminating access) and antitrust impact (in the form of higher prices or reduced output in some relevant product market).

Wrongful Death

Some economists and other litigation experts have argued that future personal consumption of a deceased individual should only be an offset in damages calculations if the decedent earned money working outside the home. Such an argument has no economic rationale. The foundation for wrongful death damage calculations is to make the remaining family whole in an economic sense. Since the deceased would have consumed part of the family's income whether or not he or she worked outside the home, there is no reason to treat the two situations any differently.

An assessment of damages in wrongful death litigation must consider all aspects of the economic losses to the family left behind. The deceased's economic contribution to the family may have taken the form of employment earnings, household services or childcare services. Once the dollar value contributed to the household by the deceased individual has been calculated, a deduction must be made for the amount of family income that would have been consumed by the deceased individual. The net figure represents the economic damages to the family in wrongful death litigation.

EI News and Notes

New EI Office to Focus on Labor Economics

EI recently opened a new office in Tallahassee, Florida. The four Ph.D. economists based in that office have expertise in areas of labor economics, such as wage and hour analysis, employment discrimination and disparate impact. They also have significant experience in litigation. To introduce our new economists and expand upon their interests, we will publish a special issue of *Economists Ink* this winter focusing on labor and employment.

Study of the Computer and Video Games Industry

The Entertainment Software Association released a study of the U.S. computer and video game industry that was prepared by EI Principal Stephen E. Siwek. The study, "Video Games in the 21st Century: The 2014 Report," quantifies the role the U.S. entertainment software industry plays in the American economy. In 2012, the rapidly-growing industry added more than \$6.2 billion to the U.S. economy and directly or indirectly employed over 146,000 people. Total compensation for workers directly employed in the industry was over \$4 billion.

Competition in Converged Communications Markets.

EI Senior Economist Kevin Caves filed an expert declaration with the Federal Communications Commission. Dr. Caves analyzed competition in today's converged communications markets. His declaration focused on the price-disciplining effects of intermodal alternatives and on the framework for competitive analysis adopted by the Commission in its 2010 Phoenix Order. His conclusions were informed by extensive evidence of competition, including econometric work that confirmed that the cross-price elasticity between wireless and wireline telephony was positive and statistically and economically significant. The declaration formed part of USTelecom's petition for regulatory forbearance.

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