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# THE USE OF QUIET TITLE AND DECLARATORY JUDGMENT PROCEEDINGS IN COMPUTER SOFTWARE OWNERSHIP DISPUTES

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## INTRODUCTION

Since the advent of microelectronic technology, businesses—whether organized as large corporations or sole proprietorships—have increasingly utilized computers to perform countless functions. Businesses invest considerable resources in the development of complex data bases<sup>1</sup> and computer software<sup>2</sup> designed to manage the underlying data. As a result, data bases and software often represent substantial business assets.<sup>3</sup> The utilization of complex data bases inspires the creation and exploitation of proprietary software, which are computer programs designed or modified for a specific business entity and purpose.<sup>4</sup>

Whether the business utilizes commercial or proprietary packages, each of the three principle software components—the process, the program, and the documentation—represents significant investments of engineering, scientific, and writing skills.<sup>5</sup> Business decision-makers and

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1. Data bases are "[bodies] of information organized in a logical manner such that [they] can be accessed either randomly and selectively or sequentially by a computer." Robert C. Dorr & William P. Eagles, *Resolving Claims to Ownership of Software and Computer-Stored Data—The Importance of Temporary Restraining Orders and Preliminary Injunctions*, 5 *COMPUTER/L.J.* 1, 6 (1984).

2. Although commentators recognize that the term "computer software" is not precise, a well-accepted definition suggests that the following three elements comprise computer software: (1) the underlying process or "algorithm" upon which the program is based; (2) the program itself coded in a programming language; and (3) the supporting documentation, including items such as flow-charts, instruction manuals, and other materials that explain the operation of the program. Michael S. Keplinger, *Computer Software—Its Nature and Its Protection*, 30 *EMORY L.J.* 483, 484-85 (1981) (citing *WORLD INTELLECTUAL PROPERTY ORGANIZATION*, PUB. NO. 814-E, *MODEL PROVISIONS ON THE PROTECTION OF COMPUTER SOFTWARE* (1978) [hereinafter *MODEL PROVISIONS*]). The Supreme Court has defined an algorithm as a "procedure for solving a given type of mathematical problem." *Diamond v. Diehr*, 450 U.S. 175, 186 (1981).

3. Jerry R. Selinger, *Protecting Computer Software in the Business Environment: Patents, Copyrights and Trade Secrets*, 3 *J.L. & COM.* 65, 65 (1983).

4. *Id.*

5. Keplinger, *supra* note 2, at 486.

corporate counsel must therefore prepare business and legal plans that consider the investments made in each of these categories and select legal mechanisms designed to protect the investments.<sup>6</sup> In the event that the selected means of protection fails, questions arise concerning "title" to the software asset.

Software title issues, however, are not limited to claims of misappropriation. Specifically, in consideration of the expense associated with developing and operating proprietary systems, businesses must also establish software ownership as a preventive measure. Software developers, licensees, and other purported owners therefore regularly seek advice concerning the question of software title. Moreover, although independent designers fashion proprietary software packages, corporations also develop proprietary software for internal use, with the potential for sale to third parties.<sup>7</sup> Questions of ownership thus arise from such activities as the purchase and sale of a corporation or its assets and from legal audits that reveal a potential conflict with respect to software title.

Computer software is comprised of both symbolic ideas and mechanical objects.<sup>8</sup> Unlike ownership disputes concerning real property or other readily identifiable articles, conflicts involving computer software focus, to some extent, on intangible property.<sup>9</sup> Legal counsel must consider the technical nature of computer software when selecting the appropriate method of protecting the client's interest in the software.<sup>10</sup> The technical complexities associated with computer software also cause problems when purported software "owners" ask courts, which are consistently pressed for time and generally unfamiliar with the intricacies of software issues, to resolve disputes concerning software title.

This Article considers whether quiet title and declaratory judgment proceedings constitute effective means of determining ownership to computer software. Section I describes the functions and limitations of three conventional methods of safeguarding ownership rights to computer software—patent, copyright, and trade secret protection. Section II sets forth the factual context of disputes concerning the ownership of computer software. The Article then presents, in Section III, the jurisdictional

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6. *Id.*

7. Selinger, *supra* note 3, at 65.

8. For a detailed discussion of the "dual nature" of computer software, see Duncan M. Davidson, *Protecting Computer Software: A Comprehensive Analysis*, 1983 ARIZ. ST. L.J. 611, 616 (1983); see also Raymond G. Areaux, Comment, *Computer Software Protection: From Infancy to Adolescence*, 31 LOV. L. REV. 301, 322 (1985) (noting the courts' confusion concerning the dual nature of software). Moreover, as one commentator noted:

Technology has blurred the once-clear line between hardware and software with "firmware," a hardware element, generally a semi-conductor chip, combined with software, such as a program coded into the chip's memory matrix, to produce a hybrid . . . . In their various forms, these devices perform a variety of functions, from storing programs and memory for electronic games to speeding up the operation of a large mainframe.

Joseph E. Root III, *Protecting Computer Software in the '80s: Practical Guidelines for Evolving Needs*, 8 RUTGERS COMPUTER & TECH. L.J. 205, 208 (1981) (citations omitted).

9. An in-depth presentation of the technical issues associated with computer software is beyond the scope of this article.

10. See Areaux, *supra* note 8, at 322.

and procedural issues associated with quiet title actions. Section IV considers the potential use and effectiveness of the declaratory judgment action in computer software disputes. The Article concludes that the declaratory judgment action and the quiet title action, as framed in the jurisdictions allowing the procedure to encompass personal property claims, present viable alternatives to resolving ownership disputes concerning computer software.

## I. TRADITIONAL METHODS OF PROTECTING COMPUTER SOFTWARE

Advocates for protecting computer software from misappropriation or for otherwise clarifying title to software—whether the individual advocate recommends patent, copyright, or trade secret protection—must address an underlying policy question.<sup>11</sup> Simply stated, software developers and other owners must determine which legal mechanism, or combination of mechanisms,<sup>12</sup> best protects their expensive technological investment without sacrificing incentives for future development or sanctioning the anti-competitive protection of socially valuable ideas.<sup>13</sup> Any appropriate protective scheme must adequately balance the social interest in the complete dissemination of technological information against the often competing economic interest in protecting property against misappropriation.<sup>14</sup>

### A. Patent Protection for Computer Software

#### 1. Statutory Requirements and Jurisdiction

Patent law theoretically provides the broadest scope<sup>15</sup> of protection for computer software because patents encompass both the development and use of the software product.<sup>16</sup> Federal law essentially gives the patentee a statutorily prescribed, seventeen-year monopoly on

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11. Generally, intellectual property rights are, by nature, "negative rights" that allow owners to prevent others from: (1) making, using, or selling the protected product (patent); (2) copying the protected item (copyright); and (3) improperly obtaining secret business information (trade secret).

As discussed below, patents and copyrights effectively license the software "owner" to monopolize the use of the software product. In contrast, trade secret law protects confidential business information that provides a competitive advantage.

12. See David A. Einhorn, *Copyright and Patent Protection for Computer Software: Are They Mutually Exclusive?*, 30 IDEA J.L. & TECH. 265 (1990) (stating that an analysis of relevant law reveals no sound justification for denying joint patent and copyright protection for computer software that is otherwise independently eligible for both forms of protection).

13. Davidson, *supra* note 8, at 634.

14. Areaux, *supra* note 8, at 311.

15. The broad scope of patent protection originates in the United States Constitution, which empowered Congress "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. I, § 8, cl. 8. Congress invoked this power by enacting patent statutes protecting inventors from the unauthorized use of their discoveries. 35 U.S.C. §§ 1-376 (1988). The copyright statutes, as codified in 17 U.S.C. §§ 101-810 (1988), protect the writings of authors.

16. Vibert L. Kesler & David E. Hardy, *Legal Protection of Software in the United States: A Status Report*, 10 INT'L BUS. LAW. 266, 267 (1982); see Selinger, *supra* note 3, at 66.

the rights to make, use, or sell the patented invention.<sup>17</sup> In order to qualify for this protection, an invention must be "new and useful,"<sup>18</sup> "novel,"<sup>19</sup> and "non-obvious."<sup>20</sup> In addition, the applicant must satisfy several procedural requirements before the Patent and Trademark Office (PTO) will issue the requested patent.<sup>21</sup> The federal

17. The statute provides in relevant part:

Every patent shall contain a short title of the invention and a grant to the patentee . . . for the term of seventeen years . . . of the right to exclude others from making, using, or selling the invention throughout the United States, and, if the invention is a process, of the right to exclude others from using or selling throughout the United States, or importing into the United States, products made by that process . . . .

35 U.S.C. § 154 (1988) (footnotes omitted). This statutory prohibition applies to "copyists" and persons who independently conceive of the patented invention. Selinger, *supra* note 3, at 66 (citing *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 490 (1974)).

18. 35 U.S.C. § 101 (1988) provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

19. 35 U.S.C. § 102 (1988) provides in part:

A person shall be entitled to a patent unless-

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant . . . in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent . . . or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another . . . .

20. 35 U.S.C. § 103 (1988) provides in part:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

21. 35 U.S.C. § 111 (1988) provides in part:

Application for patent shall be made, or authorized to be made, by the inventor . . . in writing to the Commissioner. Such application shall include (1) a specification as prescribed by section 112 of this title; (2) a drawing as prescribed by section 113 of this title; and (3) an oath by the applicant as prescribed by section 115 of this title. The application must be accompanied by the fee required by law. . . . Upon failure to submit the fee and oath within [the] prescribed period, the application shall be regarded as abandoned, unless it is shown . . . that the delay in submitting the fee and oath was unavoidable. The filing date of an application shall be the date on which the specification and any required drawing are received in the Patent and Trademark Office.

35 U.S.C. § 112 (1988) provides in relevant part:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

See 35 U.S.C. §§ 102(b), 113-15 (1988).

courts maintain exclusive jurisdiction<sup>22</sup> over claims for patent infringement.<sup>23</sup>

## 2. Significant Decisions

Initially, software developers seeking patent protection for computer software faced a seemingly insurmountable obstacle in the form of an early determination by the Court of Customs and Patent Appeals (CCPA)<sup>24</sup> and PTO that computer programs were unpatentable "mental steps."<sup>25</sup> The United States Supreme Court basically strengthened that finding when it first visited the matter of the patentability of computer software in 1972. In *Gottschalk v. Benson*,<sup>26</sup> the Court held that a patent claim relating to a method of converting one form of numerical representation to another was not a patentable "process" within the meaning of Section 101 of the Patent Act.<sup>27</sup> The patent claim was not limited to any particular art, technology, machinery, or end use, and purportedly covered any use of the method in a general-purpose digital computer.<sup>28</sup> The Court reasoned that a patent on the method of applying the algorithm would "wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself."<sup>29</sup> After *Benson*, the Supreme Court issued two other opinions concerning software issues, *Dain v. Johnston*<sup>30</sup> and *Parker v. Flook*,<sup>31</sup> both of which made a significant impact on the area of software patents.

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22. 28 U.S.C. § 1338(a) (1988) provides that "[t]he district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents, . . . copyrights, and trademarks."

23. See 35 U.S.C. § 271 (1988) (patent infringement).

24. Prior to the creation of the United States Court of Appeals for the Federal Circuit in 1982, the CCPA was the federal appellate court maintaining jurisdiction over the Patent Office. Since the district courts and their respective circuit courts of appeals heard suits for patent infringement, the non-uniformity of decisions in the circuits produced considerable "forum shopping" and concomitant uncertainty. The creation of the Federal Circuit eliminated conflicts between the circuits and reduced the need for Supreme Court certiorari review. PETER B. MAGGS ET AL., *COMPUTER LAW: CASES—COMMENTS—QUESTIONS* 186 (1992).

25. The "mental steps doctrine" provides that "claims to mental concepts which constitute the very substance of an alleged invention are not patentable . . . It is self-evident that thought is not patentable." *In re Abrams*, 188 F.2d 165, 168 (C.C.P.A. 1951). In order to circumvent the mental steps limitation, developers often acquired patent protection by uniting the computer hardware and software components and claiming that the combination was a patentable invention. Areaux, *supra* note 8, at 311.

26. 409 U.S. 63 (1972).

27. *Id.* at 71-72. The claim in question related to a method for converting binary-coded decimal numbers into equivalent pure binary numbers. *Id.* at 64-66.

28. *Id.* at 64. The Court stated that the applicants' process claim was "so abstract and sweeping as to cover both known and unknown uses of the [conversion method]." *Id.* at 68.

29. *Id.* at 72. The Court expressly restricted its holding to the particular facts of the case to avoid stating a general rule. Davidson, *supra* note 8, at 636; see *Benson*, 409 U.S. at 71 ("We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents . . . We have, however, made clear from the start that we deal with a program only for digital computers."). The *Benson* Court also relied on the Report of the President's Commission on the Patent System, which cited the inability of the Patent Office to examine program patent applications and recommended against the patentability of computer programs. *Benson*, 409 U.S. at 72-73.

30. 425 U.S. 219 (1976). In *Johnston*, the Court reversed the CCPA, which found that the bank record keeping system was patentable subject matter under 35 U.S.C. § 101. *Id.* at

The most recent Supreme Court case concerning an attempt to obtain a process patent for an invention that could be implemented in whole or in part by computer software involved a process for curing synthetic rubber that utilized a mathematical formula and a programmed digital computer. In the landmark case of *Diamond v. Diehr*,<sup>32</sup> the Court reviewed *Benson* and *Flook* and held that mathematical formulas alone do not warrant the protection of federal patent law,<sup>33</sup> a principle which one could not circumvent by attempting to limit the use of the formula to a particular application.<sup>34</sup>

The Court concluded, however, that the *Diehr* applicants sought patent protection for an industrial process, not a mathematical formula.<sup>35</sup> The applicants argued that they only desired to foreclose others from the use of the equation insofar as it was a part of the other steps in their claimed process.<sup>36</sup> The Supreme Court allowed the patent to issue and established that claims which implement or apply mathematical formulas in a process that, considered as a whole, performs a function that the patent laws were designed to protect, satisfy the requirements of Section 101 of the patent laws.<sup>37</sup>

### 3. Patent Licensing

Not every patent owner retains the monopolistic rights in an invention for the statutorily protected seventeen-year-period. A patent owner may enter into a license agreement, which formally evidences the complete or partial surrender of the rights in the invention to the licensee.<sup>38</sup> Although a patent license agreement necessarily involves the application

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230. The CCPA narrowly interpreted *Benson* by distinguishing apparatus claims from process claims. See *In re Johnston*, 502 F.2d 765 (C.C.P.A. 1974). Over strong dissents, the CCPA continued to narrowly construe *Benson* in subsequent program patent claims. See *In re Chatfield*, 545 F.2d 152 (C.C.P.A. 1976), cert. denied, 434 U.S. 875 (1977) (*Benson* only precluded process inventions where the claim would preempt all uses of an algorithm or mathematical formula); *In re Noll*, 545 F.2d 141 (C.C.P.A. 1976), cert. denied, 434 U.S. 875 (1977) (distinguishing apparatus claims from process claims). Without addressing the issue of whether the program was patentable subject matter under Section 101, the *Johnston* Court disposed of the case by holding that the invention was "obvious" and therefore unpatentable pursuant to Section 103. *Id.* at 149.

31. 437 U.S. 584 (1978). In *Flook*, the patent applicant sought patent protection, purportedly within the guidelines established in *Benson*, for a mathematical formula covering a narrowly defined range of potential uses. The Court was presented with the specific question of whether the identification of a limited category of useful, though conventional, "post-solution" applications of a formula allowed patent protection. *Id.* at 585. The Court rejected the applicant's argument that the identification of post-solution activity distinguished the claim from *Benson* and determined that the only novelty was the algorithm. *Id.* at 586. According to the Court, "[t]he notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance." *Id.* at 590.

32. 450 U.S. 175 (1981).

33. *Id.* at 191.

34. *Id.*

35. *Id.* at 187.

36. *Id.*

37. *Id.* at 192.

38. See ROBERT C. DORR & CHRISTOPHER H. MUNCH, PROTECTING TRADE SECRETS, PATENTS, COPYRIGHTS, AND TRADEMARKS § 5.9, at 202 (1990) (defined in the context of copyright

of the statutory rights to the underlying patent, such an agreement is not grounded in statute.<sup>39</sup> The patent license is a creature of common law and remains governed by general principles of state contract law.<sup>40</sup>

A patent owner may grant an exclusive or non-exclusive license.<sup>41</sup> An agreement conveying exclusive rights to a transferee, short of an assignment of full ownership, constitutes an "exclusive license."<sup>42</sup> In contrast, a "non-exclusive" patent license is generally issued to a number of different entities<sup>43</sup> and constitutes only an assurance of immunity from suit with respect to acts completed within the scope of the license.<sup>44</sup>

Whether a patent owner should grant an exclusive or non-exclusive license depends on several factors, including the nature of the invention and the extent to which the owner desires to market the product incorporating the patented invention. An exclusive license generally commands higher payments or royalties,<sup>45</sup> but over-all marketing conditions often make the granting of several non-exclusive licenses desirable to the patent-holder.

The patent licensor and licensee should both follow several practical guidelines when entering a license agreement. First, prior to negotiations, the licensor must investigate the financial and litigation history of the potential licensee.<sup>46</sup> Second, the licensor must offer a presentation of the licensed subject matter, including the results of the patent search and a copy of the patent application.<sup>47</sup> Third, the licensor must articulate its goals for licensing in the context of the relevant product and geographical markets.<sup>48</sup> Finally, the licensor should also clearly document performance

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licenses). The license simply constitutes either an oral or written grant of permission to use the otherwise exclusive work. *Id.*

39. RAYMOND C. NORDHAUS, *PATENT LICENSE AGREEMENTS: LAW AND FORMS* 2 (1967).

40. *Id.* (citing *L.L. Brown Paper Co. v. Hydroiloid, Inc.*, 32 F. Supp. 857, 868 (S.D.N.Y. 1939)).

41. *Id.* at 3; see *DORR & MUNCH, supra* note 38, § 2.34, at 92. Although the most common practice involves the grant of a license under an issued patent, a patent applicant may also properly assign or license rights to an invention prior to issuance by the Patent and Trademark Office. *NORDHAUS, supra* note 39, at 3.

42. HARRY R. MAYERS & BRIAN G. BRUNSVOLD, *DRAFTING PATENT LICENSE AGREEMENTS* 39 (2d ed. 1984). *Cf. DORR & MUNCH, supra* note 38, at 92 ("Exclusive licenses are akin to actual assignments and, in some cases, an exclusive license may constitute an actual assignment of the invention.").

43. *DORR & MUNCH, supra* note 38, § 2.34, at 92.

44. *MAYERS & BRUNSVOLD, supra* note 42, at 31-32. The term "cross-license" describes a reciprocal agreement in which (1) Party A grants a license to Party B and (2) at least part of the consideration provided by Party B is a license to Party A under Party B's patents. *Id.* at 35. The related term "package license" refers to the grant of rights associated with two or more patents in a single license agreement. See generally *NORDHAUS, supra* note 39, at 29-38.

45. *DORR & MUNCH, supra* note 38, at 92. In a patent license agreement, the licensor may seek payment in the form of a lump sum, royalty, installments, or a combination of the three. *Id.* at 93. Payments may also be tied to a number of factors including manufacturing quality, sales to wholesalers, and retail sales. *Id.*

46. *Id.* at 95.

47. *Id.*

48. *Id.*



standards and consider imposing penalties upon the failure of the licensee to effectively exploit the market.<sup>49</sup>

The licensee should also investigate several potential problem areas before entering a license agreement. The licensee should conduct an independent patentability and infringement search and retain counsel to analyze the results of the search and the entire PTO file of the patent.<sup>50</sup> The licensee should secure the relevant warranties of ownership and obtain a clear definition of terms from the licensor, including the market, territory and product specifications.<sup>51</sup> Finally, the licensee must review all payment obligations and allow enough time to comply procedurally with the payment terms.<sup>52</sup> If the parties investigate these areas of concern and document their respective expectations of performance prior to entering the license agreement, they may successfully avoid, or at least reduce the expenses of, subsequent litigation concerning the terms of the license.<sup>53</sup>

#### 4. Patent Summary

Although the Supreme Court has not specifically ruled on the patentability of computer software, *Diehr* extended patent protection to the processes underlying computer programs, provided that the algorithm constitutes only part of the patentable invention.<sup>54</sup> It follows that software owners may bring claims for patent infringement if the invention satisfies the statutory criteria. Since the Court rarely addresses the patentability of computer program inventions, however, the rulings of the Court of Appeals for the Federal Circuit will continue to influence decisions by businesses concerning the appropriate means of protecting proprietary software.<sup>55</sup> Accordingly, attorneys should follow the practical guidelines prepared by the PTO, which are derived from the holdings of the Federal Circuit, concerning the patentability of mathematical algorithms and computer programs.<sup>56</sup>

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49. *See id.* at 95-96 (setting forth several additional considerations relevant to the licensing context).

50. *Id.* at 96.

51. *Id.* at 97.

52. *Id.*

53. For detailed drafting considerations, see MAVERS & BRUNSVOLD, *supra* note 42; NORDHAUS, *supra* note 39.

54. *Id.*; *see also In re Bradley*, 600 F.2d 807 (C.C.P.A. 1979), *aff'd*, 450 U.S. 381 (1981) (recognizing a patent claim for software that enhanced the operation of a computer).

55. *See Keplinger, supra* note 2, at 492. Before a patent issues, and if no patent issues on an application, the PTO holds the patent application in confidence. 35 U.S.C. § 122 (1988). The disclosure requirements associated with issued patents, however, may reveal previously protected trade secrets. The patent process, therefore, remains unattractive to software developers skeptical of a method whereby the protected information becomes available for public inspection upon issuance. Kesler & Hardy, *supra* note 16, at 267.

56. *See MAGGS ET AL., supra* note 24, at 265.

## B. Copyright Protection for Computer Software

### 1. Statutory Requirements and Jurisdiction

Modern copyright protection developed from the common law right of an author to receive the benefits derived from the first publication of the work. By statute, the author of a copyrightable "writing" must register the original work<sup>57</sup> with the federal Copyright Office in accordance with Sections 701 and 702 of the Copyright Act.<sup>58</sup> The copyright grants the author a limited monopoly<sup>59</sup> on copying rights and other specified acts, but does not preclude independent origination by another individual.<sup>60</sup> The copyright only protects the author's tangible expression; it does not extend to underlying ideas, processes, systems, or methods of operation.<sup>61</sup> Using a common analogy for illustrative purposes, Leonardo da Vinci would hold the exclusive rights to publish copies of the Mona Lisa. The copyright protection, however, would extend only to the picture itself, not the idea behind the painting. Another artist could publish a different interpretation of the concept, and that publication would receive federal copyright protection upon creation.<sup>62</sup>

The author must also comply with several notice, deposit and registration requirements.<sup>63</sup> The author provides notice of the reservation of rights by inscribing each copy of the work with the word "copyright" or the symbol "©", accompanied by the author's name and date of reservation.<sup>64</sup> The basic methodology of actually enforcing the licensed protection under copyright law parallels that of patent law. A claim of copyright infringement will not automatically invoke federal jurisdiction when the in-

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57. See 17 U.S.C. § 102(a) (1988 & Supp. III 1992). Although copyright in a work technically subsists upon creation, the copyright legislation provides significant incentives for registration. See 17 U.S.C. § 412 (infringer pays reasonable attorney's fees), § 504 (providing statutory damages in lieu of actual damages), § 411 (copyright registration required before author may initiate suit for infringement); see also Selinger, *supra* note 3, at 77-78.

58. 17 U.S.C. §§ 701-02 (1988 & Supp. III 1992).

59. For works created after 1977, copyright protection is extended for the author's lifetime plus fifty years. 17 U.S.C. § 302(a) (1988).

60. 17 U.S.C. § 106 (1988 & Supp. III 1992) provides:

Subject to sections 107 through 120, the owner of copyright under this title has the exclusive rights to do and to authorize any of the following: (1) to reproduce the copyrighted work in copies or phonorecords;

(2) to prepare derivative works based upon the copyrighted work;

(3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;

(4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; and

(5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly.

61. 17 U.S.C. § 102(b) (1988).

62. For a historical illustration of this concept, see *Baker v. Selden*, 101 U.S. 99 (1879) (copyright on book did not convey the exclusive right to use the bookkeeping concept explained in the copyrighted work).

63. See 17 U.S.C. §§ 401-12 (1988 & Supp. III 1992); 37 C.F.R. §§ 201.20, 202.2 (1992).

64. See 17 U.S.C. §§ 401-06 (1988 & Supp. III 1992).

fringement is merely incidental to the primary dispute over the ownership right.<sup>65</sup>

Since Congress did not license the judiciary to grant extra-statutory relief in these matters, courts have generally concluded that Congress intended to limit the remedies of aggrieved copyright holders to those provided in Sections 501-510 of the Copyright Act, including actions for copyright infringement.<sup>66</sup> The courts reason that remedies not expressly provided by the copyright statutes are remedies not intended.<sup>67</sup>

## 2. Legislative Developments

Congress secured for authors the exclusive rights to their respective writings by enacting the Copyright Act of 1909.<sup>68</sup> The Copyright Office subsequently announced guidelines governing the registration of computer programs in 1964, even though it was still unclear whether computer software was a copyrightable "writing" under the original legislation.<sup>69</sup> Congress considerably broadened the registration guidelines by enacting the Copyright Act of 1976,<sup>70</sup> which suggested that computer software was eligible for copyright protection.<sup>71</sup> The 1976 Act, however, did not specifically prescribe that computer software was copy-

65. 28 U.S.C. § 1338 (1988).

66. *See, e.g., Xerox Corp. v. Apple Computer, Inc.*, 734 F. Supp. 1542, 1549 (N.D. Cal. 1990). Moreover, Section 701 of the Copyright Act provides that "[a]ll administrative functions and duties under this title, except as otherwise specified, are the responsibility of the Register of Copyrights as director of the Copyright Office of the Library of Congress." 17 U.S.C. § 701 (1988). Section 702 authorizes the Copyright Office to establish regulations for the administration of its functions and duties. 17 U.S.C. § 702 (1988).

67. *Xerox*, 734 F. Supp. at 1549.

68. *See* U.S. CONST. art. I, § 8, cl. 8; Act of Mar. 4, 1909, ch. 320, 35 Stat. 1075.

69. The Copyright Office announced the guidelines in accordance with its policy of resolving questionable issues in favor of registration. *See* OFFICE OF THE REGISTER OF COPYRIGHTS, ANNOUNCEMENT SML-47 (May 1964). The Copyright Office accepted approximately 2,000 programs for registration under the 1909 Act between 1964 and 1977, most of which were registered by two mainframe manufacturers—IBM and Burroughs. Davidson, *supra* note 8, at 652 n.72 (citing CONTU FINAL REPORT at 38, 85 (July 31, 1978)) [hereinafter CONTU REPORT].

70. Act of Oct. 19, 1976, Pub. L. No. 94-553, 90 Stat. 2541, 2565 (codified as amended at 17 U.S.C. §§ 101-810 (1988)).

71. Dorr & Eagles, *supra* note 1, at 8. The original legislation incorporated the Supreme Court's decision in *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1 (1908) by providing that imperceptible forms of work were not copyrightable. *See* Davidson, *supra* note 8, at 652-53. Section 102(a) of the 1976 Act, however, broadened the subject matter of copyright protection. That section provides:

(a) Copyright protection subsists, in accordance with this title, in original works of authorship fixed in *any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.* Works of authorship include the following categories:

- (1) literary works;
- (2) musical works, including any accompanying words;
- (3) dramatic works, including any accompanying music;
- (4) pantomimes and choreographic works;
- (5) pictorial, graphic, and sculptural works;
- (6) motion pictures and other audiovisual works;
- (7) sound recordings; and
- (8) architectural works.

(b) In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or

rightable subject matter. As a result, the courts failed to reach a consensus with respect to the nature and scope of copyright protection for computer programs.<sup>72</sup>

Copyright protection for computer software remained problematic until Congress, acting on the recommendation of the National Commission on New Technological Uses of Copyrighted Works (CONTU),<sup>73</sup> passed the Software Protection Act of 1980,<sup>74</sup> which included provisions specifically extending copyright protection to computer programs.<sup>75</sup> The 1980 amendments plainly applied to software represented in "source code," but failed to address potential copyright questions concerning other forms of software translations. The courts were therefore required to resolve the question of whether copyright protection extended to computer programs expressed in binary form or "object code."<sup>76</sup>

### 3. Significant Decisions

Notwithstanding the seemingly broad reach of the copyright statutes, questions continually arise concerning the scope of copyright protection

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discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

17 U.S.C. § 102 (1988 & Supp. III 1992).

72. Dorr & Eagles, *supra* note 1, at 7 (citing *Apple Computer, Inc. v. Formula Int'l, Inc.*, 562 F. Supp. 775 (C.D. Cal. 1983), *aff'd*, 725 F.2d 521 (9th Cir. 1984)).

73. For an overview of the development of copyright protection for computer software, see John T. Soma et al., *A Proposed Legal Advisor's Roadmap for Software Developers: On the Shoulders of Giants May No Breachers of Economic Relationships nor Slavish Copiers Stand*, 68 DENV. U. L. REV. 191 (1991).

74. Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10, 94 Stat. 3015, 3028 (codified as amended at 17 U.S.C. §§ 101, 117 (1988)).

75. 17 U.S.C. § 101 (1988) provides that "[a] 'computer program' is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." 17 U.S.C. § 117 (1988) provides:

Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

(1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

(2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.

76. See *infra* text accompanying notes 79-90. "Object code" refers to the numerical language designed as the mechanical apparatus for operating a machine. See Davidson, *supra* note 8, at 620-21.

for computer software.<sup>77</sup> The cases concerning the copyright protection of computer software fall into three generations or waves.<sup>78</sup>

The first generation of cases addressed the copying of substantial portions of literal software elements, including object and source codes. In *Apple Computer, Inc. v. Franklin Computer Corp.*,<sup>79</sup> the Third Circuit held that computer software, whether an operating system program or application program expressed in object code or source code, constituted a literary work within the scope of copyright protection.<sup>80</sup> The court noted that the 1980 amendment to the Copyright Act firmly established the copyrightability of computer programs<sup>81</sup> and, citing the plain language of the Copyright Act and its legislative history, the court soundly rejected the alleged source code-object code distinction.<sup>82</sup>

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77. In a copyright infringement action, the plaintiff must establish: (1) ownership of a valid copyright; and (2) that the defendant copied the protected work. 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.01, at 13-5 (1992). The plaintiff may prove the copying element either through direct evidence of the copying or by showing that: (1) the defendant had access to the plaintiff's copyrighted work; and (2) the defendant's work was substantially similar to the plaintiff's copyrighted work. *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 701 (2d Cir. 1992) (citing *Walker v. Time Life Films, Inc.*, 784 F.2d 44, 48 (2d Cir.), cert. denied, 476 U.S. 1159 (1986)). See also *Warner Bros. v. American Broadcasting Cos.*, 654 F.2d 204, 207 (2d Cir. 1981); *Manufacturers Technologies, Inc. v. Cams, Inc.*, 706 F. Supp. 984, 990 (D. Conn. 1989).

78. *Soma et al*, supra note 73, at 198 (describing several cases in each "generation" and the potential impact of the respective holdings on software development and protection); see *David Bender, Computer Associates v. Altai: Rationality Prevails*, COMPUTER LAW., Aug. 1992 at 2, 3.

79. 714 F.2d 1240 (3d Cir. 1983), cert. dismissed, 464 U.S. 1033 (1984).

80. *Id.* at 1249. The appellate court also reversed the district court's ruling concerning irreparable harm. Although Apple occupied a more favorable financial position than Franklin, the Third Circuit observed that Apple's ability to withstand lost sales did not outweigh the strong presumption in copyright cases that any copying causes irreparable harm. *Id.* at 1254.

Apple sought a preliminary injunction to restrain Franklin from using, copying, selling, or otherwise infringing Apple's copyrights to fourteen computer programs. *Id.* at 1245. The disputed software consisted of various operating system programs, which generally manage the internal functions of the computer or facilitate the use of application programs. MAGGS ET AL., supra note 24, at 6. The district court denied Apple's motion for a preliminary injunction based, in significant part, on the view that operating system programs, in binary form, were not the proper subject of copyright protection. *Apple Computer, Inc. v. Franklin Computer Corp.*, 545 F. Supp. 812 (E.D. Pa. 1982).

The district court also determined that Apple failed to establish the "irreparable harm" requisite to the issuance of a preliminary injunction. *Id.* at 825. Although Franklin admittedly copied the operating system programs in an effort to manufacture and market "Apple-compatible" hardware, it defended the suit on the ground that the Apple programs, which were expressed in object code, were not subject to copyright protection. *Franklin*, 714 F.2d at 1245.

81. *Franklin*, 714 F.2d at 1248 (citing *Williams Elec., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870 (3d Cir. 1982)).

82. *Id.* Franklin also argued that an operating system program, in contrast to an application program, constitutes a process, system or method of operation that was per se excluded from copyright protection by the express terms of Section 102(b). *Id.* at 1250. 17 U.S.C. § 102(b) (1988) excludes from copyright protection any "idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work."

The court also noted that Section 102(b) codified a substantial part of the holding and dictum of *Baker v. Selden*, 101 U.S. 99 (1879), which held that copyright of a book did not grant the copyright owner the exclusive right to use the system explained in the book. *Franklin*, 714 F.2d at 1250. The court, however, determined that Franklin misconstrued the distinction between patentable and copyrightable subject matter. *Id.* at 1250-51. The court

In the second generation, the courts considered the extent to which the non-literal aspects of computer software, including the structure, sequence and organization (SSO) of programs, received copyright protection. In *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*,<sup>83</sup> a software copyright case, the Third Circuit established a test for distinguishing non-copyrightable idea from copyrightable expression.<sup>84</sup> The court concluded that the purpose or function of a computer program or other utilitarian work constitutes the idea, and the elements of the work unnecessary to the central purpose comprise copyrightable expression.<sup>85</sup> Where various means of achieving the desired purpose exist, the particular method utilized by the developer becomes the copyrightable expression.<sup>86</sup> The court held that after isolating the idea—the primary purpose of the software—copyright protection clearly extended beyond the literal code to the structure, sequence and organization of the program.<sup>87</sup>

In a recent second generation case, *Computer Associates International, Inc. v. Altai, Inc.*,<sup>88</sup> the Second Circuit presented an alternative analytical framework for distinguishing idea from expression and determining the substantial similarity of non-literal program structures.<sup>89</sup> When the court faced the threshold obstacle of separating non-copyrightable idea from

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observed that Apple did not seek to copyright the method that instructs the computer to perform operating functions, but rather the instructions themselves. *Id.* at 1251. The court stated that Franklin's challenge with respect to operating system programs as 'methods' or 'processes' seemed inconsistent with its concession that application programs were properly copyrightable because both types of programs instruct the computer to perform tasks. *Id.* Furthermore, the court found no statutory distinction between operating and application programs and rejected Franklin's argument for limiting copyright protection by program function. *Id.*

83. 797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987).

84. *See id.* at 1235-38.

85. *Id.* at 1236. The court noted that "[t]his test is necessarily difficult to state, and it may be difficult to understand in the abstract." *Id.* at 1236 n.28.

Defendant Jaslow, with access to plaintiff Whelan's source code for a computer program designed for dental laboratory operations, developed and distributed a similar program in another programming language. *Id.* at 1225-27. Utilizing the court's test, the efficient management of a dental laboratory comprised the idea of the program. *Id.* at 1236 n.28.

86. *Id.* at 1236.

87. *Id.* at 1237-39. Although Whelan's framework for dissecting the software development process into its component parts remains useful to the idea/expression determination, the "idea equals purpose" rule proves unworkable in cases involving complex programs. *See Bender, supra* note 78, at 3 ("The Whelan distinction rule was so weighted toward the idea end of the spectrum as to render the framework generally useless.").

88. 982 F.2d 693 (2d Cir. 1992).

89. *Id.* at 706. The case developed after Altai recruited a Computer Associates (CA) employee to assist in designing a new version of an Altai program. *Id.* at 699. The former CA employee was "intimately familiar with various aspects of Adapter." *Id.* Moreover, the employee knowingly violated his contractual agreement with CA by removing copies of the source code for both the VSE and MVS versions of Adapter. *Id.* at 699-70. The employee developed a counterpart to Computer Associates' "Adapter" program for use in Altai's package by copying, without Altai's knowledge, portions of the Adapter source code. *Id.* at 700.

Altai marketed the resulting program, which was entitled "Oscar 3.4," as a component of its software package. *Id.* After learning of the misappropriation, however, Altai initiated a rewrite using clean-room conditions whereby the copied portions of Adapter were excised from the remainder of the Oscar 3.4 program. *Id.*

Computer Associates maintained that, despite Altai's rewrite of the Oscar code, the resulting program entitled "Oscar 3.5" remained substantially similar to the structure of its Adapter program. *Id.* at 702. Specifically, Computer Associates alleged copying based upon

copyrightable expression, it rejected the *Whelan* model of equating purpose and idea because the test relied heavily on metaphysical distinctions without placing enough emphasis on practical considerations.<sup>90</sup>

The court instead adopted a three-step analysis for determining whether the non-literal elements of two or more computer programs were substantially similar.<sup>91</sup> First, the court reduced the allegedly infringing program to its constituent parts by isolating each level of abstraction.<sup>92</sup> In this abstraction process, the court retraced each step in the design process to identify the ultimate function of the program.<sup>93</sup> In the second step—the filtration process—the court removed the non-copyrightable material including incorporated ideas, expressions incidental to the ideas and elements derived from the public domain.<sup>94</sup> The third and final element of the test constituted the search for impermissible copying and required a comparison of the remaining core of potentially protectable expression with the structure of the allegedly infringing program.<sup>95</sup> Applying this test to the structural components of Oscar 3.5, the court held that the evidence failed to establish the degree of substantial similarity requisite to a finding of copyright infringement.<sup>96</sup>

The third generation of software copyright cases further extended protection to non-literal elements, often focusing on the user interface.<sup>97</sup> In *Lotus Development Corp. v. Paperback Software International*,<sup>98</sup> the court addressed whether the non-literal elements of a computer program, particularly the program's user interface, were copyrightable.<sup>99</sup> The *Lotus* court refused to adopt a bright-line rule, choosing instead to develop another three-part balancing test to determine the copyrightability of non-literal components of computer software. The court first identified the underlying idea of the program for the purpose of distinguishing between the

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the substantial similarity of several non-literal program components (including flow charts, macros, lists of parameters and services) and the specific organization of modules. *Id.*

90. *Id.* at 706.

91. *Id.* The Second Circuit's "abstraction-filtration-comparison test" was based in part on the abstractions test set forth in *Nichols v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931). *Id.*

92. *Computer Associates*, 982 F.2d at 707.

93. *Id.*

94. *Id.* at 707-10.

95. *Id.* at 710-11.

96. *Id.* at 715. Specifically, the court found that the evidence failed to establish that the macros and parameter lists of the allegedly infringing Oscar 3.5 program were substantially similar to CA-Adapter. Moreover, the list of services was dictated by the nature of other programs with which it was designed to interact, and the respective programs' organizational charts were so simple and obvious that copyright protection could not attach. *Id.* For a detailed discussion of the Second Circuit's analysis, see Bender, *supra* note 78.

97. For an extensive analysis of the important software copyright cases, see Soma et al., *supra* note 73, at 198.

98. 740 F. Supp. 37 (D. Mass. 1990).

99. *Id.* at 42. Specifically, the issues presented to the *Lotus* court concerned: (1) whether and to what extent Lotus's spreadsheet program, "Lotus 1-2-3," was copyrightable; and (2) whether Paperback's competing program, "VP-Planner," infringed the copyrighted expression in Lotus 1-2-3 by impermissibly incorporating substantially similar elements. *Id.* The court focused on whether the non-literal elements of the program, including its overall organization, the structure of the command system and the presentation of information on the computer screen, were copyrightable subject matter. *Id.* at 46.

idea and the expression allegedly infringed.<sup>100</sup> Second, the court separated the expression from the idea and evaluated the individual elements of expression comprising the work to determine whether the expression was part of the public domain or otherwise limited to the functional requirements of the work.<sup>101</sup> Finally, the court determined whether the copyrightable expression identified in the second step constituted a substantial part of the product allegedly infringed.<sup>102</sup>

#### 4. Cancellation of Copyrights

Congress empowered the Copyright Office with the authority to cancel, as well as to grant, copyright protection. The Code of Federal Regulations describes the circumstances under which the Copyright Office will cancel a registration.<sup>103</sup> When the Copyright Office discovers after registration that a work is not copyrightable, either because the authorship is *de minimis* or the work does not contain authorship subject to copyright, it may cancel the registration.<sup>104</sup>

Although the threat of copyright invalidation would seem to present an effective deterrent to copyright misappropriation, the Copyright Office presently has no procedures for adjudicating factual controversies between parties. In the comments accompanying the proposed cancellation regulation, the Copyright Office explained that, as a general rule, it will initiate cancellation procedures only upon the discovery of a material error in the registration.<sup>105</sup> Since the Office is not prepared to resolve disputes concerning software ownership, aggrieved parties must resort to traditional infringement actions to adjudicate their respective claims.

#### 5. Copyright Licensing

A developer or other owner of a marketable computer program generally distributes software packages for use under a licensing agreement.<sup>106</sup> The license operates pursuant to state law and formally evidences the complete or partial relinquishment of the copyright owner's exclusive rights.<sup>107</sup> The copyright owner may grant a licensee the exclu-

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100. *Id.* at 60. In reaching this threshold determination through an abstraction analysis, the decision-maker focused "upon alternatives that counsel may suggest, or the court may conceive, along the scale from the most generalized conception to the most particularized, and choose some formulation [of idea]." *Id.*

101. *Id.* at 60-61. The court stated that "the decision-maker must focus upon whether an alleged expression of the idea is limited to elements essential to expression of *that* idea (or is one of only a few ways of expressing the idea) or instead includes identifiable elements of expression not essential to every expression of that idea." *Id.*

102. *Id.* at 60-61.

103. 37 C.F.R. § 201.7 (1988).

104. 37 C.F.R. § 201.7(c)(1) (1988).

105. The Copyright Office added that it "does not invite, and will generally not respond favorably to, requests to cancel a complete registration by a party other than the owner of the copyright."

106. Copyright owners receive royalties in exchange for the grant of technological and economic benefits associated with the license.

107. See DORR & MUNCH, *supra* note 38, § 5.9, at 202. The license is simply either an oral or written grant of permission to use the otherwise exclusive work. *Id.*



sive right to use the software product for a defined period of time or within a given area.<sup>108</sup> One benefit of an exclusive license is the licensee's standing to bring suit against infringers of the underlying copyright.<sup>109</sup> Although the licensee is not required to record the license as a prerequisite to initiating an infringement action under the Berne Convention Implementation Act of 1988,<sup>110</sup> recordation provides constructive notice of ownership.<sup>111</sup>

Many of the issues associated with the types and terms of copyright licenses mirror those discussed in the context of patent license agreements.<sup>112</sup> Perhaps the most common form of license outside of the mass-market context is the non-exclusive right to use the copyrighted work either for a single use or for inclusion in a single work.<sup>113</sup> Unlike the owner of an exclusive license, however, the owner of a non-exclusive license does not have the right to bring suit against infringers.<sup>114</sup> Moreover, the owner of a non-exclusive license must operate within the limitations of the license to avoid a potential infringement claim by the copyright owner.<sup>115</sup> Both parties to the license agreement, however, may greatly reduce the potential for litigation by following general licensing practice guidelines, including the investigation of financial histories, definition of product and geographical markets and documentation of performance standards, warranties of ownership and payment terms.<sup>116</sup>

## 6. Copyright Summary

Unlike patent law, the statutory scheme of copyright protection only prohibits copying, not independent creation by another person or entity.<sup>117</sup> Modern copyright law thus affords considerable protection for computer software as literary works of authorship, whether utilized as a distinct alternative or a supplement to patent protection.<sup>118</sup> The benefits of copyright protection include both the relatively low cost of obtaining the copyright and the normally straightforward and expeditious registration process.<sup>119</sup>

The copyright protects the specific expression of an idea, not the idea itself,<sup>120</sup> and, in the case of a dispute, the copyright owner has the burden

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108. *Id.* at 203.

109. *Id.* (citing 17 U.S.C. § 501(b) (1988)).

110. *See* 17 U.S.C. § 205 (1988).

111. DORR & MUNCH, *supra* note 38, at 203. The Berne Convention Implementation Act also makes it unnecessary to register a copyright; however, unless and until the copyright owner registers the copyright, the licensee may not record the exclusive license or other instrument of transfer. *Id.*; *see* 17 U.S.C. § 205(c)(2) (1988).

112. *See supra* text accompanying notes 38-53.

113. DORR & MUNCH, *supra* note 38, at 202.

114. *Id.* at 203. The recordation of a non-exclusive license would therefore serve no serious purpose.

115. *Id.*

116. *See supra* text accompanying notes 46-53.

117. Selinger, *supra* note 3, at 74.

118. *See generally* Einhorn, *supra* note 12.

119. Selinger, *supra* note 3, at 77.

120. *Id.* at 74.

of establishing unauthorized copying.<sup>121</sup> The benefits of copyright protection are reduced if the underlying idea represents the greatest value in the program and the form of expression (i.e., the specific program language) is easily circumvented.<sup>122</sup> If the value of the software resides in the particular form of expression, the copyright statutes generally provide the greatest protection.<sup>123</sup>

Despite the facial simplicity of the tests utilized in *Lotus* and the other copyright infringement cases, the complexities associated with computer software blur the boundary separating non-copyrightable idea and copyrightable expression.<sup>124</sup> The resulting imperfections of line-drawing and uncertainty associated with ad hoc judicial determinations may lead software developers to secure complementary patent protection for complex programs despite the complicated procedures and increased expense.<sup>125</sup>

Counsel to software developers should encourage clients to reduce potential infringement claims by following several routine procedures. First, counsel should alert developers of the idea-expression dichotomy, and suggest that software developers appropriately document the reasons: (1) why they wrote the software in the manner in which it was written; (2) why certain design decisions were made; and (3) why some decision choices were limited to a few or even one option.<sup>126</sup> In addition, if a development involves a software application similar to an existing program, counsel should determine whether any pre-existing economic relationship exists in order to identify and act to prevent attempts to obtain colorable title.<sup>127</sup> Finally, counsel should ensure that software developers do not merely clone existing programs, but instead seek to improve an existing product with substantially independent work.<sup>128</sup>

### C. Trade Secret Protection for Computer Software

#### 1. Definition and Application

Although the Uniform Trade Secrets Act<sup>129</sup> modified the definition, a trade secret generally comprises any "formula, pattern, device or compila-

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121. *Id.* at 75.

122. *Id.*

123. *Id.*

124. Judge Learned Hand once stated that "nobody has ever been able to fix [the] boundary [between idea and expression], and nobody ever can." *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931). Sixty-three years later, Judge Hand's statement holds true.

125. See Summary of Computer Associates International, Inc. v. Altai, 1992 U.S. App. LEXIS 14305, 10 COMPUTER LAW MONITOR 510, 511 (1992).

126. Soma et al., *supra* note 73, at 226.

127. *Id.*

128. *Id.*; see Margaret L. Pittman, *What the Judge Sees is What You Get: The Implications of Lotus v. Paperback for Software Copyright*, 37 WAYNE L. REV. 1527, 1573-75 (1991). In light of the *Lotus* decision, the author suggests "the cautious use of 'clean room' techniques, competition on the basis of performance rather than compatibility, and the security of a development license." *Id.* at 1575.

129. UNIFORM TRADE SECRETS ACT, § 1(4), 14 U.L.A. 541 (1980) [hereinafter UNIFORM ACT].

tion of information" used in business that provides the owner with an opportunity to obtain a competitive advantage.<sup>130</sup> By definition, information disclosed to the public or otherwise generally known by persons who may obtain economic value from the disclosure or use of the information cannot constitute a trade secret.<sup>131</sup> Computer software is well-suited for trade secret protection because a trade secret encompasses the underlying concepts of an invention or process in addition to the specific expression of those concepts.<sup>132</sup> Prior to the enactment of the 1980 software amendments and the development of patent protection for computer software, the law of trade secrets afforded the basic foundation for safeguarding computer software.<sup>133</sup> The relatively broad trade secret protection gave the holder the right to grant licenses to use either the concept or the application without the loss of protected rights.<sup>134</sup>

Trade secret protection differs in several respects from the safety afforded by patent and copyright laws. Patent and copyright law are governed by federal law; trade secret protection is governed by state law. In addition, patent and copyright laws protect, through the grant of limited monopoly power, the developer's interest in the computer software while allowing society to benefit from the dissemination of valuable information.<sup>135</sup> Trade secret law, in contrast, serves to maintain secrecy and thereby retain the exclusive right to the technology for the software developer.<sup>136</sup>

## 2. Scope of Trade Secret Protection

Trade secret protection is founded on principles of contract law and generally exists in the form of contractual covenants in employment and license agreements restricting the unauthorized transfer, use, or disclo-

130. RESTATEMENT OF TORTS § 757 cmt. b (1939) (this Restatement section also suggests six factors for determining whether information may receive protection as a trade secret).

Section 1 of the Uniform Act refined the Restatement definition and provides in part:

(4) "Trade secret" means information, including a formula, pattern, compilation, program, device, method, technique, or process, that:

(i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and  
(ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

UNIFORM ACT, § 1(4).

Applying such a definition, courts have found that chemical formulas, industrial processes, pricing information and data base information such as customer lists constitute trade secrets under the proper factual circumstances. Selinger, *supra* note 3, at 80-81.

131. UNIFORM ACT, § 1(4)(i).

132. See *ILG Indust., Inc. v. Scott*, 273 N.E.2d 393, 395 (Ill. 1971); *MIGRIM, TRADE SECRETS*, § 2 at 26 (1980).

133. See *MAGGS ET. AL*, *supra* note 24, at 301; *Areaux*, *supra* note 8, at 319; see also Selinger, *supra* note 3, at 81 (Before the enactment of 17 U.S.C. § 301, trade secrets were recognized either as a complement to copyright protection or the sole form of protection for software).

134. *Management Science Am. v. Cyberg Sys., Inc.*, 6 Computer L. Serv. Rep. 921 (N.D. Ill. 1978). See David Bender, *Protection of Computer Programs: The Copyright/Trade Secret Interface*, 47 U. PITT. L. REV. 907, 938 (1986) (trade secret licensing has become widespread on both a domestic and international basis).

135. See *supra* text accompanying notes 12-14.

136. See *infra* text accompanying notes 148-56.

sure of the software.<sup>137</sup> The software owner gains several advantages by utilizing trade secret protection, whether as the sole form of protection or a complement to another method.<sup>138</sup> The primary strength of trade secret protection is that it gives the owner the ability to protect both unpublished programs and the underlying ideas and concepts embodied in the algorithm.<sup>139</sup> Provided the requisite secrecy is maintained, the holder benefits because the indefinite duration of protection for trade secrets exceeds the statutory limits associated with patent and copyright protection.<sup>140</sup>

The trade secret approach does, however, have some basic disadvantages.<sup>141</sup> Perhaps the most problematic drawback is the difficulty in establishing and maintaining secrecy.<sup>142</sup> Although the standards for determining issues such as the loss of secrecy vary by jurisdiction,<sup>143</sup> it appears universally true that proprietors lose trade secret protection once the information enters the public domain. Software owners therefore must usually rule out the potential for wide distribution of computer programs under this approach; generally, only software developers engaging in limited distribution benefit from trade secret protection.<sup>144</sup> In addition, proprietors may lose the secrecy element through employee turnover.<sup>145</sup> Detection of this form of misappropriation remains difficult and software employers rarely win lawsuits against former employees.<sup>146</sup> Proprietors should therefore secure nondisclosure contracts or noncompetition agreements from key employees.<sup>147</sup>

### 3. Licensing and Internal Protection of Trade Secrets

Trade secret information can be licensed, but the potential licensor must incorporate provisions in the agreement that are not characteristic of a patent or copyright license. Trade secret licensing requires additional consideration because the secret nature of the underlying information differs from the public material embodied in a patent or copyright license. A trade secret license agreement must include provisions for the maintenance of secrecy and non-disclosure in relation to the subject matter of

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137. Kesler & Hardy, *supra* note 16, at 267; *see infra* text accompanying notes 179-80.

138. Dorr & Eagles, *supra* note 1, at 12 (noting the use of trade secret protection in conjunction with copyright law).

139. *See id.* at 13; Root, *supra* note 8, at 226.

140. Trade secrets have an indefinite, and possibly perpetual, term. DORR & MUNCH, *supra* note 38, § 1.7, at 9. *See* Dorr & Eagles, *supra* note 1, at 12-13; 17 U.S.C. § 302(a) (1988) (copyright endures during author's life plus fifty years, or if the copyright owner is a corporation, for a term of seventy-five years after the year of first publication); 35 U.S.C. § 154 (1988) (patent protection endures for a period of 17 years).

141. Kesler & Hardy, *supra* note 16, at 267.

142. *See* Selinger, *supra* note 3, at 86; Root, *supra* note 8, at 227.

143. Kesler & Hardy, *supra* note 16, at 267. This problem increases in importance when applied on an international scale. *Id.*

144. Root, *supra* note 8, at 227.

145. *See* Selinger, *supra* note 3, at 86; Root, *supra* note 8, at 227.

146. Root, *supra* note 8, at 227.

147. For a discussion of several preventive measures, *see* Selinger, *supra* note 3, at 86; *see infra* text accompanying notes 149-54; *see also* Bender, *supra* note 134 (trade secret licensing widespread).

the agreement, whether the subject matter concerns general customer information or software-specific material.<sup>148</sup> Notwithstanding the decision to license trade secret information, the proprietor business must continually protect the trade secret from misappropriation.

The implementation of a comprehensive internal trade secret program weighs strongly in favor of the business when the court addresses a misappropriation claim against an outsider or former employee.<sup>149</sup> Not surprisingly, the failure to exercise effective control over corporate trade secrets or the inability to demonstrate such control will likely result in the loss of trade secret protection.<sup>150</sup> The basic elements of a corporate trade secret program should include: (1) physically securing business operations from outsiders;<sup>151</sup> (2) controlling access by suppliers, vendors and visitors;<sup>152</sup> (3) creating "technological fingerprints";<sup>153</sup> and (4) properly marking and categorizing documents.<sup>154</sup>

A planned business program focuses on securing trade secret information from external forces. Perhaps the greatest risk of trade secret theft, however, involves materials and knowledge possessed by existing employees.<sup>155</sup> The protection of the business's trade secrets, therefore, constitutes an essential part of the contractual employment agreement, whether the employee serves in a managerial or technical position.<sup>156</sup>

#### 4. Federal Preemption of State Trade Secret Law

The possibility of federal preemption remains the major obstacle concerning the use of state trade secret protection for computer software.<sup>157</sup> Under the federal preemption doctrine, when Congress manifests an intent to regulate a specific field of commercial activity, the courts construe the federal statute to prevent the states from enacting legislation or

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148. HOWARD C. ANAWALT & ELIZABETH F. ENAYATI, 1991 LICENSING LAW HANDBOOK § 4.03[4], at 210 (1991).

149. See DORR & MUNCH, *supra* note 38, § 1.9, at 11.

150. *Id.* at 6-7 (citations omitted).

151. *Id.* at 12. Security measures include electronic surveillance, document destruction/retention programs, employee access procedures and the use of restricted areas. *Id.* at 12-13.

152. *Id.* at 12. Businesses should enforce a single entrance/exit policy and utilize a "log-in" procedure requiring visitors, vendors and repair and service personnel to provide basic information concerning the nature of their visit. If an outsider requires access to sensitive areas, businesses should consider the use of "visitor agreements" concerning trade secret protection. *Id.* at 13-15.

153. *Id.* at 12. The incorporation of intentional mistakes and buried instructions or identifiers in software programs provide evidence of misappropriation in subsequent litigation. *Id.* at 17.

154. *Id.* at 12. Businesses should identify material using a trade secret legend in order to protect the ideas and concepts contained in the document. The expression embodied in the particular document should also receive the overlapping protection of federal copyright law. *Id.* at 15.

155. *Id.* at 18.

156. See *id.* at 18-29 (providing detailed guidance for employee-related protective measures including pre-employment clearance, employee education, termination procedures, and the use of covenants not to compete).

157. Bender, *supra* note 134, at 924. For an extensive analysis of the federal preemption issue, including discussions of the relevant case law and legislative history, see Bender, *supra* note 134; Selinger, *supra* note 3.

promulgating regulations in that field.<sup>158</sup> The federal Copyright Act, through the application of Section 301, thus preempts all state law relating to copyright or any exclusive right otherwise within the scope of federal copyright protection.<sup>159</sup>

The majority view maintains, however, that Section 301 of the federal Copyright Act fails to pre-empt most of state trade secret law, at least as it applies to computer software.<sup>160</sup> The majority position contends that the law of trade secrets, in most of its manifestations, does not satisfy two of the three preemption conditions set forth in Section 301: "equivalency, subject matter type, and subject matter aspect."<sup>161</sup> Computer software clearly constitutes a literary work for the purposes of Sections 101 and 102 and thus meets the requirement of "subject matter type." An analysis of the remaining two preemption conditions reveals differences in the protection afforded by copyright and trade secret law that weigh against a determination of preemption.<sup>162</sup>

First, trade secret rights are generally not "equivalent" to the rights protected by federal copyright law because the two forms of protection differ in relation to the conduct prohibited and the classes of persons whose acts are proscribed.<sup>163</sup> With respect to prohibited conduct, the Copyright Act forbids the unauthorized copying of the author's work, while state trade secret law prevents the wrongful disclosure or use of trade secrets.<sup>164</sup> Although the delineation concerning the classes of proscribed persons remains less clear, authors may generally secure copyright protection against persons engaging in the prohibited conduct.<sup>165</sup> Trade secret protection, in contrast, is available only against persons placing

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158. Dorr & Eagles, *supra* note 1, at 12.

159. 17 U.S.C. § 301 (1988) provides in relevant part:

(a) On or after January 1, 1978, all legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106 in works of authorship that are fixed in a tangible medium of expression and come within the subject matter or copyright as specified by sections 102 and 103, whether created before or after that date and whether published or unpublished, are governed exclusively by this title. Thereafter, no person is entitled to any such right or equivalent right in any such work under the common law or statutes of any State.

(b) Nothing in this title annuls or limits any rights or remedies under the common law or statutes of any State with respect to—

(1) subject matter that does not come within the subject matter of copyright as specified by sections 102 and 103, including works of authorship not fixed in any tangible medium of expression; or

(2) any cause of action arising from undertakings commenced before January 1, 1978; or

(3) activities violating legal or equitable rights that are not equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106.

160. Bender, *supra* note 134, at 936.

161. *Id.* at 936-37.

162. *Id.* at 937.

163. *Id.* See Selinger, *supra* note 3, at 85 (the trade requirement involving the breach of a confidence or improper acquisition defines rights that are qualitatively different from those provided by the federal copyright laws).

164. Bender, *supra* note 134, at 937.

165. *Id.*

themselves in a confidential, contractual or fiduciary relationship with the proprietor of the trade secret.<sup>166</sup>

Second, copyright and trade secret laws differ concerning the requisite "subject matter aspect." Federal copyright protection extends only to the author's expression, not the concepts and information embodied in the expression. State trade secret law, however, constitutes a viable means of protecting the underlying ideas, algorithms, concepts and principles embodied in the expression, which in this case is the computer software.<sup>167</sup>

The courts should narrowly construe Section 301 of the federal Copyright Act and limit preemption to those instances where trade secret protection for computer software satisfies the three statutory preemption conditions.<sup>168</sup> Proprietors currently employ the law of trade secrets to protect technological and commercial information licensed by, or maintained within, the organization.<sup>169</sup> If courts readily apply the doctrine in areas not warranting preemption, including the context of computer software, owners would lose protection for valuable rights secured by state law.<sup>170</sup>

## II. FACTUAL CONTEXT OF SOFTWARE OWNERSHIP DISPUTES

A developer or other owner may discover that another person, perhaps a competitor or former employee, has claimed colorable title to the owner's proprietary software. This problem will be exacerbated if the offending party has taken action that would lead to the perfection of the software title. An adverse claimant may seek such perfection of title either by applying for patent protection or by following the relatively simple copyright registration procedures, which require the placement of a copyright legend on the program. An adverse claimant may also establish a colorable interest by simply incorporating the software into his operation, treating it as proprietary, and claiming trade secret protection.

Persons or entities may assert colorable title in a number of ways. Among these might be the following hypothetical situations: (a) a previous owner of the "protected property" might claim a retention of rights in the property, predicated such claim on a faulty sale process; (b) a programmer who worked on the development of the software might contend that he or she was engaged under terms of the engagement as an independent contractor relationship rather than as an employee, that the terms of the engagement contract called for delivery of a product other than the software in question, and that, he or she therefore retained the ownership rights in that software; (c) a former employee may argue that the key de-

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166. *Id.*

167. Dorr & Eagles, *supra* note 1, at 12; Bender, *supra* note 134, at 937.

168. *Id.* at 938.

169. *Id.* (quoting *Painton & Co. v. Bourns, Inc.*, 442 F.2d 216 (2d Cir. 1971)). Proprietors also rely on trade secret law in maintaining rights to information kept within the enterprise.

*Id.*

170. *Id.*

velopment work leading to the final product was done off-site and on his or her own time, and that the associated work product was merely shared with the employer to facilitate the employer's then-current needs. While there are undoubtedly many other scenarios giving rise to claims of colorable title, each of the foregoing illustrates a circumstance giving rise to the need to establish marketable title.

Since the disclosure and publication requirements associated with patent and copyright law may reduce or destroy the value of otherwise "secret" business assets, patents and copyrights may fail as preventive measures where the owner of confidential software technology desires to maintain secrecy. The title issue thus concerns the ability of a proprietary software owner to preserve secrets associated with the software or otherwise resolve the question of ownership after the breach of the secrecy. Declaratory judgment proceedings or state statutes that extend quiet title actions to disputes involving personal property constitute means of resolving such questions of software ownership.

### III. TRADITIONAL QUIET TITLE ACTIONS

#### A. *Nature and Purpose*

The best approach to resolving ownership disputes concerning real property is to bring an action requesting the court to "quiet the title" to the property. The effect of such a "quiet title" action is two-fold: (1) it judicially defines the instant ownership of the property; and (2) it "cuts-off" future adverse claims of ownership.<sup>171</sup> When properly brought before the court, the joined parties may fully litigate the question of title and define their respective rights in relation to the property as of the time that the plaintiff brought the action.<sup>172</sup> The court enters a decree assigning the title, or any part thereof, to the property in controversy to the party holding the superior claim.<sup>173</sup>

The court, however, will generally not address ancillary issues<sup>174</sup> such as the rights of persons not joined as parties<sup>175</sup> or the validity of title proceedings originating in another court.<sup>176</sup> Furthermore, the court will not examine the validity of alleged "clouds" on a title where it appears that, even if such "clouds" were removed, title would still lie in the defendant.<sup>177</sup>

Although the nature of a quiet title action appears to provide an "equitable" remedy, matters affecting title to realty constitute actions "in law," and historically courts of equity lacked jurisdiction to effect title. As a result, quiet title actions are generally deemed to lie in equity only when it

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171. *Rawlinson v. Oregon Textile Mach.*, 99 P.2d 999 (Or. 1940).

172. *Stricker Land & Timber Co. v. Hogue*, 61 F. Supp. 825 (D. La. 1945).

173. *Dolen v. Black*, 67 N.W. 760 (Neb. 1896).

174. *Snook & Wells v. Holmes*, 193 P.2d 487 (Cal. Dist. Ct. App. 1948).

175. *Bray v. Germain Inv. Co.*, 98 P.2d 993 (Colo. 1940); *Turner v. Bank of Am. Nat'l Trust & Sav. Ass'n*, 27 P.2d 383 (Cal. Dist. Ct. App. 1933).

176. *Woods v. Monroe*, 17 Mich. 238 (1868).

177. *Masterson v. Cranitch*, 19 N.Y. Wkly. Dig. 55 (1883).



otherwise would be necessary to bring multiple suits in order to achieve the desired "quieting."

"Quiet title" suits are therefore legal actions which must be supported by statute, and all federal and state jurisdictions have enacted appropriate enabling legislation or court rules. Although the quiet title provisions are not uniform in every jurisdiction, each provides claimants with a vehicle for curing technical failures of record title by supplying the missing connection in a derivative chain of title. In addition, holders of property may seek quiet title decrees in an effort to establish record ownership after obtaining legal title through foreclosure or adverse possession.<sup>178</sup> Notwithstanding a claimant's particular reason for initiating an action, however, statutes and rules allowing suits to quiet title eliminate the need for multiple petitions and provide a single form of action to adjudicate the ownership rights concerning a specific parcel of property.

### B. *Statutory Authority*

As a threshold matter, claimants must examine the statute or rule governing quiet title actions in the controlling jurisdiction in order to determine the scope of the proceeding and remedy. Quiet title legislation generally provides only a rule of procedure for determining parties' respective rights under a substantive provision, rather than creating substantive rights.<sup>179</sup> In addition, the majority of jurisdictions limits quiet title actions to disputes concerning real property, and courts generally allow quiet title actions to resolve personal property disputes only where authorized by statute or court rule or, because of exceptional circumstances or conditions, the remedy at law would prove inadequate.<sup>180</sup>

Claimants must examine the statute controlling quiet title actions within the jurisdiction in order to determine which court holds the authority to adjudicate issues of title.<sup>181</sup> Such an examination will also identify the nature of, and limits upon, quiet title proceedings within that jurisdiction.<sup>182</sup> Modern courts do not hear a large number of quiet title

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178. In fact, such a use of the action is classic, in those instances wherein the legal title holder's right to possession of the property is challenged by another. In this regard, the Colorado enabling statute is typical:

An action may be brought for the purpose of obtaining a complete adjudication of the rights of all parties thereto, with respect to any real property and for damages, if any, for the withholding of possession. The court in its decree shall grant full and adequate relief so as to completely determine the controversy and enforce the rights of the parties. The court may at any time after the entry of the decree make such additional orders as may be required in aid of such decree.

COLO. R. CIV. P. 105(a) (1988).

179. See WILLIS V. CARPENTER, COLORADO REAL ESTATE PRACTICE 1992, ch. 14, at 478 (1992).

180. See *Carter Oil Co. v. Owen*, 27 F. Supp. 74 (D. Ill. 1939); *Ellis v. Dixie Highway Special Road & Bridge Dist.*, 138 So. 374 (Fla. 1931).

181. See *Martin v. Pacific Southwest Royalties*, 106 P.2d 443 (Cal. Dist. Ct. App. 1940).

182. While the enabling statutes vary in scope and detail, one or more courts within a jurisdiction hold the power to: (1) determine all the rights and claims of the parties relating to the subject matter in controversy; and (2) make such disposition of the case as will afford complete relief in order to safeguard the interests of all the parties. See CAL. CIV. PROC. CODE §§ 760.010-764.010 (West 1992) (procedural requirements).

suits and generally confine the actions to the determination of existing rights<sup>183</sup> in particular property when the system of recordation of title has failed.<sup>184</sup>

The enabling statutes that control quiet title actions within the several states vary in detail, but some level of court in most jurisdictions is given the power to "determine all the rights and claims of the parties relating to the subject matter [concerning the issue of title] and make such disposition of the case as will afford complete relief in order to safeguard the interests of all the parties."<sup>185</sup> This statutory language ordinarily means that the court is empowered to act as necessary to define the title, estate and interests of the parties, and that all future claims of title are subject to the court's definition.<sup>186</sup>

### 1. Federal Law

Of primary importance to disputes concerning the ownership of computer software is whether the relevant authority allows actions to quiet title to personal property. On the federal level, quiet title actions proceed under the Quiet Title Act,<sup>187</sup> which established a procedure similar to those developed by the majority of the states. The procedure available under the Quiet Title Act is expressly limited to disputes concerning real property; the procedure is not available to resolve controversies involving personal property.<sup>188</sup> The Act establishes a basis for the adjudication of title only when the claimant names the United States as a defendant.<sup>189</sup> These restrictions preclude the application of the federal statute to disputes concerning the ownership of computer software.

### 2. State Law

Although virtually every state has enacted some form of quiet title legislation or court rule, each statute or rule varies in terms of scope and procedure. The clear majority of state jurisdictions limit the availability of quiet title actions to controversies involving the title to real property,<sup>190</sup> but some states expressly allow quiet title actions for personal property.<sup>191</sup>

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183. *Victoria Hosp. Assoc. v. All Persons*, 147 P. 124 (Cal. 1915).

184. *Taylor v. Focks Drilling & Manuf. Corp.*, 62 P.2d 903 (Kan. 1936).

185. *Kellogg v. Schauble*, 273 F. 1012 (D. Miss. 1921).

186. *Milton E. Giles & Co. v. Bank of Am. Nat'l Trust & Sav. Ass'n*, 117 P.2d 943 (Cal. Dist. Ct. App. 1941); *Goodfellow v. Barritt*, 20 P.2d 740 (Cal. Dist. Ct. App. 1933).

187. 28 U.S.C. 2409(a) (1988).

188. *Id.*

189. *Id.*

190. Colorado's rule governing quiet title actions is illustrative of the majority position. Rule 105 of the Colorado Rules of Civil Procedure provides:

An action may be brought for the purpose of obtaining a complete adjudication of the rights of all parties thereto, with respect to any *real property* and for damages, if any, for the withholding of possession. The court in its decree shall grant full and adequate relief so as to completely determine the controversy and enforce the rights of the parties. The court may at any time after the entry of the decree make such additional orders as may be required in aid of such decree.

COLO. R. CIV. P. 105 (1988) (emphasis added).

191. Utah's quiet title statute is representative of the minority position. That statute provides that:

In those jurisdictions which have extended the legal remedy to encompass personal property, purported owners of computer software may use these broad-based statutory provisions in cases involving adverse claims to software. Other states have addressed the issue by enacting a statutory scheme with a separate provision governing controversies involving personal property.<sup>192</sup>

### C. *Need for an Alternative Method of Resolution*

In instances where the owner of confidential software technology desires to maintain secrecy, the disclosure and publication requirements associated with patent and copyright law may destroy the value of the property. In these cases, the use of patents and copyrights fails as an effective method of ownership control. The concern in this situation involves the ability of the owner of proprietary software to either preserve secrets associated with the software or otherwise resolve the question of ownership once the sought-after secrecy has been breached. State statutes that extend quiet title actions to disputes involving personal property constitute a means of resolving such questions of software ownership.

### D. *Procedural Issues*

In order to prevail in a quiet title action, most statutes require the claimant to demonstrate vested title on the strength of his or her own claim, rather than on the weakness of the defendant's right or title.<sup>193</sup> If neither party carries the burden of establishing title, the court will likely refuse to quiet the title in the name of either party. Although such action will result in the denial of relief, the court subordinates the societal interest in clarifying ownership rights to prevent an inequitable resolution of the controversy.

The California quiet title statute, which allows the court to decide adverse claims to personal property, provides a procedural model for resolving potential software disputes.<sup>194</sup> California's rules of civil procedure govern such requirements unless the applicable statute or rule specif-

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An action may be brought by any person against another who claims an estate or interest in real property or *claim to personal property* adverse to him, for the purpose of determining such adverse claim.

UTAH CODE ANN. § 78-40-1 (1992) (emphasis added); *see also* CAL. CIV. PROC. CODE § 760.020(a) (West 1992) and IDAHO CODE § 6-401 (1992).

192. For example, the Montana code provides in relevant part:

Any person claiming title to *personal property*, whether in actual possession thereof or not, may bring an action in the district court of any county wherein such personal property or any part thereof is situated against any person or persons claiming any interest therein by reason of alleged ownership . . . and by a decree of such court may have established and determined finally the rights of all claimants to such personal property.

MONT. CODE ANN. § 70-2-201 (1991) (emphasis added).

193. *See* CARPENTER, *supra* note 179, at 479.

194. *See* CAL. CIV. PROC. CODE §§ 760.010-.060 (West Supp. 1993).

ically prescribes an alternative forum.<sup>195</sup> As in any civil suit, the plaintiff must adhere to the relevant pleading<sup>196</sup> and service<sup>197</sup> requirements and bring the quiet title action in the appropriate jurisdiction and venue.<sup>198</sup> The plaintiff must also join the relevant parties, whether known or unknown,<sup>199</sup> when filing the complaint or risk the imposition of limitations

195. CAL. CIV. PROC. CODE § 760.060 (West Supp. 1993) provides that “[t]he statutes and rules governing practice in civil actions generally apply to actions under this chapter except where they are inconsistent with the provisions of this chapter.”

196. CAL. CIV. PROC. CODE § 761.020 (West 1992) provides in part:

The complaint shall be verified and shall include all of the following:

(a) A description of the property that is the subject of the action. In the case of tangible personal property, the description shall include its usual location . . .

(b) The title of the plaintiff as to which a determination under this chapter is sought and the basis of the title . . .

(c) The adverse claims to the title of the plaintiff against which a determination is sought.

(d) The date as of which the determination is sought. If the determination is sought as of a date other than the date the complaint is filed, the complaint shall include a statement of the reasons why a determination as of that date is sought.

(e) A prayer for the determination of the title of the plaintiff against the adverse claims.

The defendant’s answer must include: (1) any claims by the defendant; (2) any facts tending to controvert the plaintiff’s allegations; and (3) a statement of any new matter constituting a defense. CAL. CIV. PROC. CODE § 761.030 (West Supp. 1993). The defendant may also seek affirmative relief by filing a cross-complaint in the action. CAL. CIV. PROC. CODE § 761.040 (West Supp. 1993).

197. For an example of a typical service requirement, see CAL. CIV. PROC. CODE § 763.010 (West Supp. 1993).

198. The California Code also provides an example of the jurisdiction and venue requirements. CAL. CIV. PROC. CODE § 760.040 (West 1992) (entitled “Jurisdiction; equitable relief”) provides:

(a) The superior court has jurisdiction of actions under this chapter.

(b) The court has complete jurisdiction over the parties to the action and the property described in the complaint and is deemed to have obtained possession and control of the property for the purposes of the action with complete jurisdiction to render the judgment provided for in this chapter.

(c) Nothing in this chapter limits any authority the court may have to grant such equitable relief as may be proper under the circumstances of the case.

CAL. CIV. PROC. CODE § 760.050 (West Supp. 1993) (entitled “Venue”) provides in part: Subject to the power of the court to transfer actions, the proper county for the trial of an action under this chapter is:

. . . .  
(b) Where the subject of the action is personal property, the county in which the personal property is principally located at the commencement of the action or in which the defendants, or any of them, reside at the commencement of the action.

199. CAL. CIV. PROC. CODE § 762.010 (West Supp. 1993) provides “[t]he plaintiff shall name as defendants in the action persons having adverse claims to the title of the plaintiff against which a determination is sought.” CAL. CIV. PROC. CODE § 762.020 (West Supp. 1993) provides in relevant part that “(a) If the name of a person required to be named as a defendant is not known to the plaintiff, the plaintiff shall so state in the complaint and shall name as parties all persons unknown in the manner provided in Section 762.060.” In turn, CAL. CIV. PROC. CODE § 762.020 (West 1992) provides in part:

(a) In addition to the persons required to be named as defendants in the action, the plaintiff may name as defendants “all persons unknown, claiming any legal or equitable right, title . . . or interest in the property described in the complaint adverse to plaintiff’s title, or any cloud upon plaintiff’s title thereto,” naming them in that manner.

(b) In an action under this section, the plaintiff shall name as defendants the persons having adverse claims that are of record or known to the plaintiff . . .

(c) If the plaintiff admits the validity of any adverse claim, the complaint shall so state.

on the resulting title.<sup>200</sup> The aggrieved party bears the burden of establishing colorable title to the software by presenting testimony of product developers and key employees and by producing relevant documents, including the software codes.<sup>201</sup>

The court will dispose of the claims in a manner that affords complete relief to the aggrieved party within the scope of the pleadings.<sup>202</sup> If properly raised by the pleadings, the parties may fully litigate the question of software title according to the existing conditions and rights to the product.<sup>203</sup> The court, however, will only make a determination of superior title as it relates to the named parties,<sup>204</sup> with the result that strangers to the proceeding may hold the "true" title to the subject software.<sup>205</sup>

#### E. *Potential Resolution and Effect*

An increased application of the quiet title action to challenges concerning title to personal property would allow attorneys to resolve disputes concerning software protected by *any* of the three traditional methods. Owners could seek to quiet title to software otherwise protected by a patent or copyright if the statutory remedies proved inadequate. Perhaps of greater importance, however, is the potential effectiveness of the quiet title action in software disputes based on the misappropriation of trade secrets. Owners of proprietary software who had relied solely on trade

200. CAL. CIV. PROC. CODE § 762.040 (West 1992).

201. The court renders judgment in accordance with the evidence and law. See CAL. CIV. PROC. CODE § 764.010 (West Supp. 1993).

202. See *id.*

203. CAL. CIV. PROC. CODE § 760.030 (West Supp. 1993) provides:

(a) The remedy provided in this chapter is cumulative and not exclusive of any other remedy, form or right of action, or proceeding provided by law for establishing or quieting title to property.

(b) In an action or proceeding in which establishing or quieting title to property is in issue the court in its discretion may, upon motion of any party, require that the issue be resolved pursuant to the provisions of this chapter to the extent practicable.

CAL. CIV. PROC. CODE § 764.010 (West 1992) provides for a hearing in which the court examines and determines the plaintiff's title against the claims of the defendant. The court renders its judgment in accordance with the evidence and law. *Id.*

204. CAL. CIV. PROC. CODE § 764.030 (West Supp. 1993) (emphasis added) provides: The judgment in the action is *binding and conclusive* on all of the following persons, regardless of any legal disability:

(a) All persons known and unknown *who were parties* to the action and who have any claim to the property, whether present or future, vested or contingent, legal or equitable, several or undivided.

(b) Except as provided in Section 764.045, all persons who were not parties to the action and who have any claim to the property which was not of record at the time the lis pendens was filed or, if none was filed, at the time the judgment was recorded.

205. CAL. CIV. PROC. CODE § 764.045 (West Supp. 1993) provides in part:

[T]he judgment does not affect a claim in the property or part thereof of any person who was not a party to the action if any of the following conditions is satisfied:

(a) The claim was of record at the time the lis pendens was filed or, if none was filed, at the time the judgment was recorded.

(b) The claim was actually known to the plaintiff . . . . Nothing in this subdivision shall be construed to impair the rights of a bonafide purchaser or encumbrancer for value dealing with the plaintiff or the plaintiff's successors in interest.

Although this provision is more relevant to actions concerning real property, by definition the statute could apply to actions involving personal property.

secret protection could avail themselves of a cost-effective procedure to resolve the question of ownership when a challenge arose. Moreover, the quiet title action may serve as a precursor to securing patent or copyright protection.

#### IV. DECLARATORY JUDGMENT ACTIONS

##### A. *Nature and Purpose*

Although a "restricted" quiet title jurisdiction may preclude an aggrieved software owner from initiating a quiet title proceeding, a declaratory judgment action will most likely be available to the owner. Similar to the quiet title action, a declaratory judgment ruling defines the relative rights of the disputing parties with respect to the property at issue.<sup>206</sup> When the underlying dispute concerns rights of ownership, the declaratory judgment proceeding allows the parties to effectively adjudicate their alleged ownership interests in the same manner as a quiet title action.<sup>207</sup>

The declaratory judgment action differs in some respects from the quiet title proceeding. In a quiet title action, the plaintiff seeks to prevent a prospective interloper from taking financial advantage of his or her previous access to the "secret." The quiet title plaintiff's desire to take action will most often arise before the interloper has demonstrated any solid intent to benefit from the prior access. In such a situation, a court has nothing to consider with respect to a "quieting of the title" because there is nothing to "quiet" unless and until there is a colorable challenge to the ownership of the property.<sup>208</sup> An action for a declaratory judgment, on the other hand, is not limited in this respect, because the purpose of the action is to allow the court to determine the rights of the parties.<sup>209</sup>

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206. The Colorado enabling statute, similar to § 1 of the Uniform Declaratory Judgment Act is typical: "Courts of record within their respective jurisdictions have power to declare rights, status, and other legal relations whether or not further relief is or could be claimed." COLO. REV. STAT. § 13-51-105 (1987). For interpretation of this portion of the Act, see *Lane v. Page*, 251 P.2d 1078 (Colo. 1952).

207. That is, as it applies here, insofar as the ownership interests in question arose as a result of a contractual relationship between the parties. The Colorado enabling statute, similar to § 2 of the Uniform Declaratory Judgment Act is typical: "Any person interested under a deed, will, written contract, or other writings constituting a contract . . . may have determined any question of construction or validity arising under the instrument . . . [or] contract . . . and obtain a declaration of rights, status, or other legal relations thereunder." COLO. REV. STAT. § 13-51-106 (1987). This application lies in the present instance because of the provision following: "A contract may be construed either before or after there has been a breach thereof." COLO. REV. STAT. § 13-51-107 (1987); similar to § 3 of the Uniform Declaratory Judgment Act. For a specific example of an adjudication of contractual rights prior to breach, see *Hartford Ins. Group v. District Ct. for the Fourth Jud. Dist.*, 625 P.2d 1013 (Colo. 1981).

208. This consequence springs from the fact that a decree to quiet title is in fact a decree to define relative ownership rights, and where the court is unable to decide the question of those relative ownership rights, such a decree is improper. *Citizen's State Bank of Waterville, Kan. v. Paul*, 239 P. 880 (1925).

209. See *supra* note 207 and accompanying text.

### B. *Declaratory Judgments in Federal Court*

Declaratory judgment actions are controlled within the federal courts by Rule 57 of the *Federal Rules of Civil Procedure*. Declaratory judgments may be brought "between citizens of different states," under the authority enumerated in Article III, Section 2 of the U.S. Constitution. Congress, acting under that grant of authority, has determined that a citizen of one state can bring action against a citizen in another state under this "diversity jurisdiction" of the federal courts if the controversy arose from a cause of action grounded in state law and if the damages claimed are in excess of a statutory amount.<sup>210</sup> Currently, the "amount-in-controversy" requirement is \$50,000,<sup>211</sup> which the purported owner will likely establish in the situation where there was substantial "secondary" activity affecting the trade secret.

The lack of a colorable challenge to title, however, may serve as a bar to a declaratory judgment action in federal court as a result of the "case or controversy" requirement of the United States Constitution.<sup>212</sup> Under this clause, the federal courts may only hear those matters that have matured into an actual controversy. Since the usual software title dispute does not present a defined controversy, a declaratory judgment action will probably not lie for such matters in the federal courts. Plaintiffs, however, could bring the majority, if not all, of those actions in state court, because all states have statutes in place enabling the courts to determine and define rights before a controversy actually arises.

### C. *Declaratory Judgments in State Court*

States have enacted their own statutes authorizing declaratory judgment actions, and a potential plaintiff would look to the enabling statute in the applicable jurisdiction in order to determine the scope and form of the action. The first step in such an examination would be to determine whether the jurisdiction imposed a "case or controversy" limitation as found in the federal constitution.<sup>213</sup> The majority of the state constitutions contain no such limitation.<sup>214</sup>

Second, the potential plaintiff must examine the jurisdiction's rule concerning declaratory judgment actions. Each state has enacted its own statute authorizing declaratory judgment actions, but most of the state enabling statutes, unlike those enabling quiet title actions, are modeled after the Uniform Declaratory Judgment Act.<sup>215</sup>

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210. 28 U.S.C. § 1332 (1988).

211. 28 U.S.C. § 1332 (1988).

212. U.S. CONST. art. III, § 2.

213. U.S. CONST. art. III, § 2.

214. For example, the Colorado Constitution allows courts increased latitude in accepting cases and an action seeking such a declaration need not be delayed until the owner has suffered, or is about to suffer, damages as a result of the compromise of the trade secret. COLO. R. Civ. P. 57(c) (1988) (stating that "[a] contract may be construed either before or after there has been a breach thereof").

215. 28 U.S.C. § 2201 (1988). The enabling statute in Colorado, which was revised in 1973 to conform with the Uniform Declaratory Judgment Act, is typical of the state provi-

The potential plaintiff's ability to bring a declaratory judgment action depends on whether the complaint implicates an issue arising out of a contract.<sup>216</sup> This should not present an overwhelming problem, however, because almost every fact scenario giving rise to the type of software dispute under consideration involves access to a trade secret that was prohibited by contract. Since the "cloud" on the title most likely arose when a contractual relationship existed, the owner will probably not be precluded from bringing a declaratory judgment action.<sup>217</sup>

#### D. *Jurisdiction Over the Parties*

The nature of actions affecting either title to personal property, such as the monopolistic right to software technology, or rights under a contract are *in personam* actions rather than *in rem* proceedings, such as the adjudication of title to real estate. As a result, a court will only adjudicate a matter with respect to the parties properly before the court. If a declaratory judgment action is to be effective in determining title, the owner of the software should first identify *all* potential "problem" sources or defendants, including entities whose claim to the secret might exist as a result of a "secondary contact" with the party causing the original problem.<sup>218</sup> Only by joining these persons or entities as parties in the action can the owner ensure that each of the sources of future "problems" are bound by the outcome of the suit.

Once all the potential sources of "clouds" on the title are identified and enjoined, the next matter concerns the determination of whether the court has *personal* jurisdiction over the defendants.<sup>219</sup> In most cases, the

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sions. The statute, which was incorporated into the *Colorado Rules of Civil Procedure*, states in part:

Any person interested under a deed, will, written contract, or other writings constituting a contract, or whose rights, status, or other legal relations are affected by a . . . contract . . . may have determined any question of construction or validity arising under the instrument, statute, ordinance, contract, or franchise and obtain a declaration of rights, status, or other legal relations thereunder.

COLO. REV. STAT. § 13-51-101 (1987); COLO. R. CIV. P. 57(b) (1988).

216. See *supra* note 207 and accompanying text.

217. The language of the Colorado rule, as adapted from the Uniform Act, suggests its application in this context. The provision states in part, "[t]his Rule is declared to be remedial; its purpose is to settle and to afford *relief from uncertainty and insecurity* with respect to rights, status, and other legal relations; and is to be liberally construed and administered." COLO. R. CIV. P. 57(k) (1988) (emphasis added).

218. The language of the Colorado statute as adapted from section 11 of the Uniform Declaratory Judgments Act reads as follows: "When declaratory relief is sought, all persons shall be made parties who have or claim any interest which would be affected by the declaration, and no declaration shall prejudice the rights of persons not parties to the proceeding." COLO. REV. STAT. § 13-51-115 (1987).

219. The Supreme Court applied the Fourteenth Amendment to establish the principal that a given court must have personal jurisdiction over the parties in order that action ordered by that court have validity:

Since the adoption of the Fourteenth Amendment to the Federal Constitution, the validity of such judgments may be directly questioned, and their enforcement in the State resisted, on the ground that proceedings in a court of justice to determine the personal rights and obligations of parties over whom that court has no jurisdiction do not constitute due process of law.

*Pennoyer v. Neff*, 95 U.S. 714, 733 (1877).



court will have personal jurisdiction because the fact scenarios involving software disputes result from the in-state domicile or other presence of the defendant. If such a basis for jurisdiction does not exist in a given situation, it is difficult to imagine a situation that would give rise to a "cloud on the title" which would not also give rise to the forum state having personal jurisdiction over the defendant based on "minimum contacts." This would certainly be true for all claimants to colorable title whose claim springs from personal contact with the owner of the software. However, an owner seeking to adjudicate his or her claim of superior title may have difficulty obtaining personal jurisdiction over "derivative" or secondary claimants.

Absent the sufficient "presence" of the potential defendant in the forum state to establish jurisdiction of the courts of that state over the person of the "interloper," the owner may use the state's "long-arm" statute to establish the requisite jurisdiction. Such statutes, which grew out of the Supreme Court's holding in *International Shoe v. Washington*,<sup>220</sup> represent the state legislatures' attempts to grant to their respective state courts the power to "reach out" and exercise jurisdiction over parties who do not otherwise maintain a sufficiently strong "presence" in the state to justify personal jurisdiction. The problem such statutes present in the situation currently under consideration is that, in order to establish jurisdiction, they generally require either "tortious conduct" toward the plaintiff citizen or a sustained economic presence within the state. In other words, the statute requires the existence of the very situation that the owner either does not want—prior damage as a result of a breach of the secret—or may not have—a provable, sustained financial tie to the State.

#### CONCLUSION AND PRACTITIONER'S GUIDE

Software developers traditionally employ one or more of three conventional methods of safeguarding ownership rights to computer software—patent, copyright and trade secret protection. The benefits derived from each form of protection depend largely on the owner's needs and the specific nature and application of the software.<sup>221</sup> Attorneys should therefore consider the following factors when developing a package of protection for computer software:

- (1) *The target market.* If the owner intends to produce the product for general distribution, the attorney should consider patent and copyright protection. If the only concern, however, is the in-house use of a proprietary software package, the attorney should recommend trade secret protection to safeguard the owner's interests.
- (2) *The importance of the underlying algorithm.* The owner may consider securing a patent as a means of complementing another form of protection or otherwise restricting the market to facilitate effective trade secret protection.

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220. 326 U.S. 310 (1945).

221. Selinger, *supra* note 3, at 66.

(3) *The costs and benefits associated with each form of protection.* The attorney must consider the intended use of the software and allocate the client's resources efficiently.<sup>222</sup>

If the selected method of protection fails, the attorney should consider initiating a quiet title action or seeking a declaratory judgment as a means of resolving the question of software ownership. Because of the statutory limitations in the majority of jurisdictions concerning personal property claims, however, attorneys may not implement the quiet title action as a universal approach to resolving software ownership disputes. Accordingly, just as attorneys evaluate relevant factors in selecting the means of protecting computer software, counsel should weigh the following elements when considering an action to quiet software title:

(1) *The scope of the applicable statute or court rule in the relevant jurisdiction.* The threshold inquiry concerns whether the existing source allows, by the language of the statute or judicial interpretation, an action to quiet title to personal property.

(2) *The procedural requirements.* The attorney must adhere to the procedural rules concerning pleadings, venue and joinder of parties.

(3) *The effect of an action to quiet title.* The court will characterize the result in terms of superior title by limiting the title determination to the joined parties, in contrast to awarding absolute title, which would foreclose unknown adversary interests.

A distinct minority of jurisdictions currently allow adverse claimants to initiate quiet title actions involving personal property. The widespread availability of the quiet title action as a means of resolving software ownership disputes therefore rests primarily with the majority of state legislatures and judiciaries. Unless state legislatures and courts expand the scope of the quiet title action beyond its historical application to interests in real property, few software owners will realize the relative simplicity and effectiveness of the procedure.

Although the quiet title approach remains unavailable in a majority of jurisdictions, each state allows an action for a declaratory judgment, which defines title to personal property in a manner analogous to the protection afforded by a quiet title action. The software owner may then use the declaratory judgment ruling as the foundation for obtaining an injunction or other appropriate relief against adverse parties making unauthorized use of the trade secret. In addition, the owner may bring a legal action for conversion against any unauthorized recipient of the software or any of the parties to the declaratory judgment proceeding who violate the terms of the ruling before the owner obtains an injunction. In the rare situation in which control of the trade secret has eroded to the point that a federal

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222. See Root, *supra* note 8, at 229-30. Considering the ease and scope of protection and the available remedies, one commentator suggests that attorneys seek copyright protection for nearly all computer programs. *Id.* at 229. The author reasons that, even if the owner employs primary means of coverage other than copyright, the complementary copyright may prove invaluable because "the client will have erected a foundation of enforceable rights to fall back upon should those [primary] means fail." *Id.* at 229-30.

diversity action is both jurisdictionally appropriate and required to protect the secret, the size of the claim will likely satisfy the federal amount-in-controversy requirement.