

## INTERGRAPH CORP. V. INTEL CORP.

By *W. Greg Papciak*

The recent decision by the U.S. District Court for the Northern District of Alabama in *Intergraph Corp. v. Intel Corp.*<sup>1</sup> highlights the ongoing tension between intellectual property (“IP”) rights and antitrust law. The dispute arose when the parties could not agree to a cross-license that Intel had sought in response to litigation threats from Intergraph for patent infringement. Intel replied by cutting off its customer’s—Intergraph’s—supply of advanced chip samples and technical information for its patented microprocessors. The district court granted a preliminary injunction that required Intel to supply Intergraph with these materials, finding that they constituted essential facilities. Intel has undertaken an aggressive appeal of the decision, arguing that the injunction amounts to compulsory licensing.

The case marks the first time that a computer-related product has been held as an essential facility. Essential facilities doctrine in the *Intergraph* context adds confusion to the IP-antitrust interface with regard to issues such as refusals to license and access to de facto standards. I argue that the court’s use of essential facilities ultimately fails because it overextends the bounds of a narrowly confined doctrine. An analysis of the doctrine’s history reveals that its application here does not meet the requirements of a Sherman Act section 2 essential facilities claim. Use of the doctrine also excessively impacts the rights granted to Intel in its patents. Finally, the doctrine, as applied to this case, has the practical effect of maintaining an entity’s market power in its proprietary standard in a market that might be better served with open standards and increased competition.

### I. THE FACTUAL BACKGROUND TO THE DISPUTE

#### A. Intel—A Producer of High Performance Microprocessors

Intel Corporation is the world’s largest designer, manufacturer, and supplier of high performance microprocessors used in desktop computers, laptops, servers, and workstations.<sup>2</sup> Intel captured eighty-eight percent of

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1. 3 F. Supp. 2d 1255 (N.D. Ala. 1998).

2. *See id.* at 1259. Microprocessors, or “central processing units” (“CPUs”) control the central processing of data, as well as other integral systems, in personal computers. *See id.* at 1259. Many of the following representations are based on the district court’s

this global market's total revenue in 1996.<sup>3</sup> This market control has led to enormous revenues, profits, and brand recognition for Intel microprocessors.<sup>4</sup> Intel's position in the microprocessor industry includes demand-side externalities such that consumers often base their buying decision on inclusion of the Intel brand in the particular computer hardware that they purchase.<sup>5</sup> Intel's dominance has partly arisen due to its compatibility with Microsoft DOS and Windows-based operating systems.<sup>6</sup> Intel is currently best known for its Pentium line of chips that are among the fastest chips with high-end graphics capabilities.<sup>7</sup>

Intel maintains specialized relationships with the Original Equipment Manufacturers ("OEMs") incorporating Intel processors into their products.<sup>8</sup> Due to the complexity of CPUs, OEMs that rely on Intel processors must specifically design and manufacture their products in order "to meet the precise physical and technical requirements of the Intel architecture."<sup>9</sup> Beginning in 1997 with the Pentium II chip, Intel switched its microprocessor to a closed architecture,<sup>10</sup> thereby affecting the chips compatibility with other microprocessor architectures.<sup>11</sup> Intel had previously maintained an "open architecture"<sup>12</sup> in its line of CPUs that allowed competing chip manufacturers to produce chips compatible with Intel chips.<sup>13</sup> Now, Intel's

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findings of fact for the purpose of ruling on a preliminary injunction motion. The court stated that a full trial might produce contrary findings. *See id.*

3. *See id.* at 1260.

4. The company, for example, reported revenues of around \$25.1 billion and profits near \$6.9 billion for the fiscal year ending December 31, 1997. *See Intel Corporation's 1997 Annual Report* (visited Nov. 9, 1998) <<http://www.intel.com>>.

5. *See Intergraph*, 3 F. Supp. 2d at 1260-61.

6. *See id.* at 1261 n.14 ("Operating systems [and] microprocessors ... must be carefully matched to assure reliable optimum performance.").

7. *See id.* at 1261. Intel's upcoming generations of microprocessors, the Deschutes and Merced, possess even greater graphics capabilities and processing speeds. *See id.*

8. *See id.* at 1265.

9. *Id.* at 1261.

10. A closed architecture is any computer design with proprietary specifications that are not freely available, making it difficult for third-party vendors to create ancillary devices compatible with a closed architecture machine.

11. *See Intergraph*, 3 F. Supp. 2d at 1261-62 ("The Pentium II chip is mounted on its edge in the P6 Bus [in a Slot 1 Interface], which ... accepts microprocessors from no other manufacturer.").

12. An "open architecture" is "a system in which the specifications are made public in order to encourage third-party vendors to develop add-on products. The PC is an open architecture." *Intergraph Corp., Glossary of Terms for Intergraph Suit* (visited Nov. 9, 1998) <<http://www.intergraph.com/intel>>.

13. *See Intergraph*, 3 F. Supp. 2d at 1261 ("Intel chips, before the Pentium II, were mounted on flat sockets [or a Socket 7 design], the P7 Bus, that physically accepted

proprietary structure no longer physically accepts microprocessors from any other chip manufacturer.<sup>14</sup> Those hardware manufacturers making a commitment to use Intel chips must incorporate this closed design into their product.<sup>15</sup> As a practical matter, the incorporation of this closed design into hardware products causes OEMs like Intergraph, committed to the Pentium II architecture, not to have the ability to easily substitute chips from other chip manufacturers without incurring some redesign costs.<sup>16</sup>

### B. Intergraph—A Producer of Workstations with Intel CPUs

Intergraph Corporation, headquartered in Huntsville, Alabama, develops, manufactures, and sells computer hardware and software products.<sup>17</sup> Intergraph's primary products are advanced computer-aided designing systems known as "workstations."<sup>18</sup> From 1986-1993, Intergraph workstations were designed around a high powered microprocessor called the "Clipper."<sup>19</sup> In 1987, Intergraph acquired ownership of the Clipper technology when it purchased the Advanced Processor Division of Fairchild Semiconductor, a subsidiary of National Semiconductor.<sup>20</sup>

In the early 1990s, Intergraph became convinced that a soon-to-be-released Microsoft operating system, Windows NT, would come to dominate the high-end workstation market.<sup>21</sup> By 1992, Intel had established itself as the dominant supplier of microprocessors for the "open architecture PC market," which happened to be dominated by Windows-based operat-

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similar chips from other manufacturers."). Before the Pentium II, Intel widely licensed its chip architecture to competing manufacturers. This has now changed. For example, "[I]n return for a renewal of its patent cross-license, AMD agreed that Socket 7 was the last Intel processor interface that AMD would duplicate. This has forced AMD to find an alternative to the Slot 1 interface for its Pentium II-class chips." Michael Slater, *Taking on Intel: RED HERRING ONLINE* (visited Nov. 9, 1998) <<http://www.redherring.com/mag/issues60/intel.html>>.

14. See *Intergraph*, 3 F. Supp. 2d at 1262 n.17. Intel stated at trial that it had licensed aspects of the Pentium II architecture (the P6 Bus, for example) to competitors such as IBM. See *id.* at 1262. Theoretically, then, competitors have the capability of producing Pentium II compatible microprocessors.

15. See *id.* at 1261.

16. See *id.* at 1262. The court stated that this proprietary structure "allow[s] Intel, by exercising its [IP] rights in its 'closed architecture,' to wield absolute power over who will and who will not be allowed to participate in that part of the high-end computer industry that is based upon the 'x86' microprocessor." *Id.*

17. See *id.* at 1263.

18. See *id.*

19. See *id.*

20. See *id.*

21. See *Intergraph*, 3 F. Supp. 2d at 1263-64.

ing systems.<sup>22</sup> In an effort to position itself in the Windows NT workstation market, Intergraph became an Intel OEM in 1993.<sup>23</sup> By late 1993, Intergraph had ceased development on the Clipper microprocessor and focused its efforts on making its workstations fully compatible with Intel Pentium microprocessors.<sup>24</sup> By 1994, Intel-based systems accounted for approximately three-quarters of Intergraph's hardware unit sales.<sup>25</sup> Two years later, this number had risen to 100 percent.<sup>26</sup>

### C. The Business Relationship of Intel and Intergraph

Intergraph became one of the first computer manufacturers to develop workstations based on Intel chips and Windows NT architecture.<sup>27</sup> Intel facilitated Intergraph's adoption of its technology by providing technical information about the Pentium architecture.<sup>28</sup> At this time in 1993, Intel freely shared this information with its OEMs.<sup>29</sup> When moving to a closed architecture with the release of the Pentium II in 1997, Intel required OEMs to sign comprehensive Non-disclosure Agreements ("NDAs") that covered the exchange of confidential product information used to assimilate the Pentium architecture into hardware products.<sup>30</sup> Intel controlled the terms of these agreements.<sup>31</sup>

In 1997, Intergraph pursued claims of patent infringement for the unlicensed use of technology related to the Clipper microprocessor in Intel chips against certain Intel OEMs and Intergraph competitors.<sup>32</sup> Many of these OEMs, in turn, approached Intel seeking indemnification for these claims.<sup>33</sup> Intel contacted Intergraph, and the parties began unsuccessful negotiations into a possible cross-license arrangement for use of certain

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22. *See id.* at 1264.

23. *See id.*

24. *See id.*

25. *See* Federal Trade Commission Complaint, In the Matter of Intel Corporation, ¶ 25 (Docket No. 9288) (June 8, 1998).

26. *See id.*

27. *See id.* ¶ 24.

28. *See Intergraph*, 3 F. Supp. 2d at 1265-66.

29. *See id.* at 1265.

30. *See id.*

31. *See id.* Among the relevant terms, the agreements provided that neither party had an obligation to disclose confidential information to the other, and could cease providing confidential information at any time, and either party could terminate the agreement at any time and without cause. *See id.* at 1265-66.

32. *See id.* at 1266.

33. *See id.*

patent rights held by the other.<sup>34</sup> Responding to the failed negotiations, Intel next attempted to add a provision for NDAs used in connection with future Intergraph projects.<sup>35</sup> The new provision required Intergraph to provide Intel with a royalty-free license to its microprocessor-related patents.<sup>36</sup> When Intergraph rejected this provision, Intel withdrew the proposed NDAs and cut off Intergraph's access to chip samples and technical information.<sup>37</sup>

## II. SUMMARY OF THE CASE

On November 17, 1997, Intergraph filed a complaint against Intel in the United States District Court for the Northern District of Alabama.<sup>38</sup> Intergraph later amended its complaint to assert twenty-three separate claims against Intel, including a single count for federal antitrust violations alleging that Intel had engaged in anti-competitive behavior in its relationship with Intergraph by withholding product samples and technical information.<sup>39</sup> The complaint further contained three claims for patent infringement related to Intel's use of Intergraph's Clipper technology.<sup>40</sup>

Four days later, Intergraph filed a motion to enjoin Intel from "cutting off or delaying its supply of computer chips and product information..."<sup>41</sup> Due to its reliance on Intel CPUs, Intergraph felt that it could not compete in the workstation market without such injunctive relief.<sup>42</sup> The Alabama court agreed and granted a preliminary injunction based on evidence of

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34. *See id.* at 1267. A set of IP antitrust guidelines issued by the Department of Justice and FTC state that "settlements involving the cross-licensing of [IP] rights can be an efficient means to avoid litigation and, in general, courts favor such settlements." *See* Antitrust Guidelines for the Licensing of Intellectual Property, reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,132, at 2.

35. *See Intergraph*, 3 F. Supp. 2d. at 1267.

36. *See id.*

37. *See id.* at 1267-68. There is some confusion in the record as to whether Intel refused technical information at this time, or whether it denied Intergraph access to this information only after this suit was filed. *See id.*

38. While speculative, the Alabama venue likely played some role in the decision strongly favoring Intergraph.

39. *See id.* at 1258.

40. *See id.* at 1258. Intel maintains that it has a valid license to the Clipper technology through a broad cross-licensing agreement executed with National Semiconductor prior to its transfer of the patent rights to Intergraph. *See* Intel Corporation's Motion for Summary Judgment on its License Defense (June 17, 1998) (No. CV 97-N-3023-NE).

41. *Intergraph*, 3 F. Supp. 2d at 1258.

42. *See id.* at 1263.

multiple antitrust and contract violations by Intel.<sup>43</sup> The ruling required Intel to supply Intergraph with the advanced products and technical information the court deemed necessary for Intergraph's competitive survival in the high-end workstation market.<sup>44</sup>

The court determined that Intel had monopoly power in two separate relevant markets: (1) a ninety percent monopoly in high performance (or "x86") microprocessors, and (2) a one hundred percent monopoly in Intel microprocessors.<sup>45</sup> The court stated that a market share in the sixty percent range "establishes a prima facie case of market power and creates a genuine issue of dangerous probability of monopolization."<sup>46</sup>

Among its conclusions of law, the court's application of essential facilities doctrine to Intel's chip architecture was apparently the first time a court has found that a computer-related product was an essential facility.<sup>47</sup> Judge Nelson defined a facility as essential "if it is otherwise unavailable and cannot be 'reasonably or practically duplicated.'"<sup>48</sup> The court reasoned that Intel's advanced chip samples and technical information were essential facilities because they were "vital to competitive viability and [Intergraph] cannot effectively compete in the relevant market without ac-

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43. *See id.* at 1291-93. The court held that Intergraph had a substantial likelihood of success on the following antitrust and contract violations against Intel: (1) possessing monopoly power that has been willfully acquired and maintained in violation of section 2 of the Sherman Act; (2) unlawful refusal to deal and denial of access to essential facilities; (3) unlawful monopoly leveraging; (4) unlawful coercive reciprocity; (5) use of patented technology to restrain trade; (6) retaliatory enforcement of non-disclosure agreements; and (7) entering agreements that are unlawful restraints of trade in violation of Section 1 of the Sherman Act. *See id.* at 1275-81.

44. *See id.* at 1291-93.

45. *See id.* at 1275.

46. *Id.* at 1275-76 (citing *U.S. Anchor Mfg. v. Rule Indus.*, 7 F.3d 986, 999 (11th Cir. 1993)). The court also cited additional cases where market share in the eighty percent range constituted a finding of monopoly power. *See id.*

47. *See* Kevin J. Arquit et al., *Antitrust, Intellectual Property, Standards and Interoperability*, 524 PLI 157, 195 (1998). For a criticism of applying essential facilities doctrine to high technology products, see Richard J. Urowsky, *Market Definitions and "Standards"*, CA26 ALI-ABA 19, 28 (1996) ("High technology products can almost never be essential facilities because, unlike a bridge across a major river or a capital-intensive system of pipes or wires, they rarely consist of more than the intellectual effort that created them, and competitors' failure to innovate in response cannot constitute an antitrust violation.").

48. *Intergraph*, 3 F. Supp. 2d at 1278 (citing *City of Anaheim v. Southern Calif. Edison Co.*, 955 F.2d 1373, 1380 n.5 (9th Cir. 1992)). The court further stated that "reasonable and timely access to critical business information that is necessary to compete is an essential facility." *Id.* at 1278.

cess to them.”<sup>49</sup> Underlying this decision was the court’s opinion that Intel had locked Intergraph into the Pentium technology and it could not easily switch to an alternative microprocessor. The court, therefore, held that Intel had likely violated section 2 of the Sherman Act by denying an essential facility.<sup>50</sup> Intel appealed the decision shortly thereafter.<sup>51</sup> The appeal serves as a backdrop to the Federal Trade Commission’s current suit against Intel for antitrust violations.<sup>52</sup>

### III. THE ESSENTIAL FACILITIES DOCTRINE

#### A. The Origins and History of Essential Facilities Doctrine

The “essential facilities” doctrine<sup>53</sup> has a long and contentious history, and remains a much-disputed area of antitrust law.<sup>54</sup> The doctrine, in its simplest form, concerns an entity’s inability to gain access to a resource necessary to compete in a market because a controlling monopolist refuses to share this resource. Application of the doctrine requires the monopolist to share the facility in some form or another. The doctrine developed early

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49. *Id.* at 1277.

50. *See id.* at 1278. Section 2 of the Sherman Act states in relevant part:

Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, shall be deemed guilty of a felony, and on conviction thereof, shall be punished by fine not exceeding \$10,000,000 if a corporation.

15 U.S.C.A. § 2 (1994).

51. A ruling on the appeal will likely occur in the spring of 1999.

52. On June 8, 1998, the FTC charged Intel with violating section 5 of the FTC Act. The FTC alleged that certain conduct of Intel toward its OEMs constituted unlawful monopolization, unlawful attempts to monopolize, and unfair methods of competition. The FTC appears concerned that Intel maintains a pattern of anti-competitive behavior with certain customers—when customers assert patent violations against Intel, Intel cuts off their supply of information necessary to design their products and will only continue to supply such vital information if the customer agrees to a patent cross-license on terms favorable to Intel. A review of the FTC complaint shows that it is unlikely that the government suit will rest on essential facilities reasoning. *See* FTC Complaint, In the Matter of Intel Corporation, ¶ 25 (Docket No. 9288) (June 8, 1998).

53. The doctrine is, at times, also referred to as the “bottleneck” doctrine—meaning that competitive markets exist on both sides of the monopoly market and a refusal to share blocks competition in a related market. *See* 3A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 772b1 (1996) [hereinafter “AREEDA & HOVENKAMP”].

54. Many commentators, for example, have questioned whether the essential facilities doctrine is an appropriate arm of antitrust law. Areeda and Hovenkamp are especially critical of the doctrine, questioning whether such a doctrine, in fact, exists. *See id.* ¶ 772a.

in the twentieth century, as a section 1 violation of the Sherman Antitrust Act, in response to entities combining to control a facility, and subsequently excluding competitors from the facility.<sup>55</sup> The doctrine then evolved in the mid-twentieth century to cover single firm conduct in unilateral refusals to deal, a section 2 violation of the Sherman Act.<sup>56</sup>

The doctrine finds its origins in the U.S. Supreme Court case, *U.S. v. Terminal Railroad Association of St. Louis*.<sup>57</sup> The case involved the acquisition of a St. Louis rail bridge, as well as the bridge's approach and a nearby terminal, by the Terminal Railroad Association.<sup>58</sup> The acquiring Association consisted of many, but not all, of the operating rail companies in the area.<sup>59</sup> The conditions were such that it was "impossible for any railroad company to pass through, or even enter St. Louis ... without using the facilities controlled by the terminal."<sup>60</sup> The Association, with complete control of these "essential" facilities, had the power to exclude competitors.<sup>61</sup> The Court therefore ordered the Association to allow any existing or future railroads joint ownership in the facilities, or access to the facilities on fair terms.<sup>62</sup> *Terminal Railroad* continues to influence contemporary thinking about the doctrine's appropriate application, directing focus to the costs and barriers to entry in duplication of a particular facility.

The doctrine next expanded to cover unilateral refusals to deal by a monopolist, the type of situation addressed in *Intergraph v. Intel*.<sup>63</sup> Among the most influential of these cases are *United States v. Griffith*<sup>64</sup> and *Otter Tail Power Co. v. United States*.<sup>65</sup> The *Griffith* case did not involve an essential facility, but dictum from the opinion is frequently cited in support of the doctrine.<sup>66</sup> The *Griffith* dictum stated that "the use of monopoly

55. *See id.* Section 1 of the Sherman Act states that, "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States... is hereby declared illegal." 15 U.S.C.A § 1 (1994).

56. *See* 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 772a.

57. 224 U.S. 383 (1912).

58. *See* 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 772b1.

59. *See id.*

60. *Terminal Railroad*, 224 U.S. at 397.

61. *See* 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 772b1.

62. *See Terminal Railroad*, 224 U.S. at 411-12. An additional case highlighting the doctrine's roots in Section 1 is *Associated Press v. United States*, 326 U.S. 1 (1945) (holding that the admission policies of a news organization with 1200 newspapers must not discriminate against nonmembers competing with existing members).

63. *See* 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 772b3.

64. 334 U.S. 100 (1948).

65. 410 U.S. 366 (1973).

66. *See* Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841, 845 (1989).

power, however lawfully acquired, to foreclose competition, to gain a competitive advantage, or to destroy a competitor, is unlawful.”<sup>67</sup> This language helped to support later decisions such as *Otter Tail*, an essential facilities case arising from a monopolist power company’s refusal to supply power to municipalities that wanted to distribute power to consumers themselves, rather than through *Otter Tail*’s distribution services.<sup>68</sup> Some commentators limit the reach of *Otter Tail* by stressing the regulated nature of public utilities and the company’s natural monopoly stature.<sup>69</sup>

A later case in the single-firm context is *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*<sup>70</sup> The case arose from a small competitor’s (“Highlands”) participation in a joint lift-ticket program with the owner of the other three ski resorts in the area (“Aspen Skiing”).<sup>71</sup> Aspen Skiing later ended its participation in the program and refused to participate in any further marketing programs with Highlands.<sup>72</sup> The Supreme Court held that the monopolist owner had no legitimate business reason for discontinuing its participation in the program, and that doing so was an attempt to maintain its monopoly power.<sup>73</sup> As a monopolist, Aspen Skiing was forced to include Highlands in a joint lift-ticket program.<sup>74</sup>

## B. The Requirements of a Section 2 Essential Facilities Claim

A claim based on unilateral behavior must satisfy the basic requirements of section 2 of the Sherman Act. This requires finding that the entity in control of the facility (1) possessed monopoly power in the relevant

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67. *Griffith*, 334 U.S. at 107.

68. *See Otter Tail*, 410 U.S. at 366.

69. *See* 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 772b3. A “natural monopoly” refers to a market that can only support one efficient producer. This type of market is perhaps the most appropriate context in which to apply essential facilities doctrine. For criticism of the doctrine beyond a natural monopoly application, *See* David McGowan, *Regulating Competition in the Information Age: Computer Software as an Essential Facility under the Sherman Act*, 18 HASTINGS COMM/ENT L.J. 771, 805 (1996) (“In situations not involving natural monopoly the market will support more than one firm. Once this determination is made, the essential facilities doctrine has no role to play because an entrant may replicate the facility in question. So long as replication is possible, the claim that a competing facility would be too costly to build is entitled to no weight.”).

70. 472 U.S. 585 (1985). The Supreme Court did not address the Tenth Circuit’s use of essential facilities doctrine in affirming its decision because it found sufficient evidence that the defendant intended to create or maintain a monopoly. *See id.* The case has nevertheless had much influence on later essential facilities claims.

71. *See id.* at 585.

72. *See id.*

73. *See id.* at 586. *Aspen Skiing* marks the rise of the doctrine’s concern with the business justifications for the accused monopolist’s actions.

74. *See id.*

market, and (2) willfully acquired or maintained this monopoly power through anti-competitive conduct.<sup>75</sup> A market share of ninety percent "is enough to constitute a monopoly; [while] it is doubtful whether sixty or sixty-four percent would be enough."<sup>76</sup> Defining a relevant market identifies "producers that provide customers of a defendant firm with alternative sources for the defendant's product or service."<sup>77</sup>

In addition to the foregoing section 2 requirements, it is important to understand what it means for a facility to be "essential." Generally, essentiality requires a satisfaction of two elements.<sup>78</sup> First, the facility sought by a plaintiff must be vital to its competitive viability.<sup>79</sup> Deprivation of access to the facility should result in the collapse of the entity.<sup>80</sup> Second, the facility must be unobtainable from an alternative source to qualify as essential.<sup>81</sup> This includes an inability by the plaintiff to develop the facility itself.<sup>82</sup> This requirement is meant to increase competition in the applicable market by encouraging new development if at all possible.<sup>83</sup> The inability to duplicate the facility should result from more than a cost advantage that

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75. See *Intergraph*, 3 F. Supp. 2d at 1275. (citing *Eastman Kodak v. Image Technical Servs.*, 504 U.S. 451 (1992)).

76. *United States v. Aluminum Co. of America*, 148 F.2d 416, 424 (2d Cir. 1945).

77. 2A AREEDA & HOVENKAMP, *supra* note 53, ¶ 530a; see also *Eastman Kodak v. Image Technical Servs.*, 504 U.S. 451, 481-82 (1992) ("The relevant market for antitrust purposes is determined by the choices available to Kodak equipment owners.").

78. See 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 773b.

79. See *id.* ¶ 773b1; see also *Alaska Airlines v. United Airlines*, 948 F.2d 536, 544 (9th Cir. 1991) ("[P]laintiff must show more than inconvenience, or even some economic loss; he must show that an alternative to the facility is not feasible."); *Robinson v. Macgovern*, 521 F. Supp. 842, 913 (W.D. Pa. 1981), *aff'd*, 688 F.2d 824 (3d Cir. 1982) (stating that a facility is not essential if it merely creates difficulties for plaintiff or reduces its profits).

80. As Areeda and Hovenkamp state, "A patent dominating a relevant market...is essential to competing manufacturers, at least until it expires or an alternate method or product appears." 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 773b1. Therefore, a patent to the Pentium II can be essential to a competitor of Intel like AMD, but not Intergraph. Intergraph does not manufacture microprocessors at present. See *supra* text accompanying note 24.

81. See 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 773b2.

82. See *id.*; see also *MCI v. AT&T*, 708 F.2d 1081, 1132 (1982) (finding that a facility is not essential unless the plaintiff shows its inability practically to duplicate it).

83. See 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 773b2. Antitrust law seeks to provide remedies that encourage, rather than limit new competition.

the monopolist possesses due to an economy of scale.<sup>84</sup> Therefore, the doctrine tolerates reasonable, but not excessive, barriers to entry.

Next, the doctrine emphasizes monopoly leveraging into vertically related markets.<sup>85</sup> A monopolist's refusal to deal "may be unlawful because ... control of an essential facility ... can extend monopoly power from one stage of production to another, and from one market into another."<sup>86</sup> Control of the facility in the one market should therefore lead to a monopoly in the vertically related market. "If the facility is truly 'essential,' then the [upstream] monopoly facility also establishes a [downstream] monopoly."<sup>87</sup> The plaintiff should therefore show that it competes with the defendant in an upstream or downstream market in which the defendant has, or threatens to achieve, monopoly power.

Additionally, the doctrine favors application when it is the "only realistic mechanism for making a market more competitive," because of the drastic nature of the remedy and its opposition to antitrust's basic goals.<sup>88</sup> Therefore, an inquiry as to a facility's essentiality should require a "showing that unless the facility is shared, the market is unlikely to become more competitive."<sup>89</sup> This condition provides a strong limiting principle on the doctrine's application.<sup>90</sup>

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84. *See id.* Areeda and Hovenkamp reason that this is appropriate because monopolists naturally possess some cost advantages over competitors, otherwise the monopoly could easily be copied and its advantage would disappear. *See id.*

85. *See, e.g.,* *Alaska Airlines v. United Airlines*, 948 F.2d at 544-45 (stating that a facility is essential "only if control of the facility carries with it the power to eliminate [the defendant's] competition in the downstream market."). *Cf. In Re Independent Service Organizations Antitrust Litigation*, 989 F. Supp. 1131, 1135 (D. Kan. 1997) ("There is no unlawful leveraging of monopoly power when a patent holder merely exercises its rights inherent in the patent grant [to unilaterally refuse to license its patent].").

86. *MCI*, 708 F.2d at 1133 (holding that AT&T's refusal to grant MCI access to local Bell facilities constituted the denial of an essential facility).

87. 3A AREEDA & HOVENKAMP, *supra* note 53, ¶ 771a.

88. *See id.* ¶ 773b3. Antitrust law fundamentally strives to prevent the occurrence of monopolies by encouraging competition in the monopolist's market. Essential facilities doctrine stands contrary to this basic objective by requiring access to a facility that can support a monopoly in the relevant market. Sharing facilities also removes an incentive for the entity hurt by the monopolist to develop or locate an alternative product, an action that could help weaken the monopoly held in the relevant market. *See id.* ¶ 771b.

89. *Id.* ¶ 773b3.

90. Areeda and Hovenkamp, for example, consider only three situations where the doctrine might be appropriate: (1) where there is a natural monopoly and rivals can be accommodated without the inefficient duplication of a facility; (2) where a price-regulated monopoly exists and essential facilities lessens the utility's statutory monopoly; and (3) where a publicly owned and subsidized facility available to private entities cannot be practically duplicated. *See id.* ¶ 771c. *Intergraph* raises the issue of whether essential

*MCI v. AT&T* summarizes the current elements of an essential facilities claim.<sup>91</sup> First, a monopolist must control an essential facility (as defined above).<sup>92</sup> Second, a competitor to the monopolist must be unable to duplicate the essential facility as a practical matter.<sup>93</sup> Third, the monopolist must then deny use of the facility.<sup>94</sup> Finally, providing access to the facility must be a feasible option for the monopolist.<sup>95</sup>

#### IV. DISCUSSION

##### A. The *Intergraph* Context as a Section 2 Essential Facilities Claim

###### 1. The Section 2 Sherman Act Prerequisites – Intel’s Monopoly Power in the Relevant Market

The court’s section 2 essential facilities analysis required finding that Intel possessed monopoly power in the relevant market.<sup>96</sup> The relevant market, in this case, should consist of all the products or suppliers that could provide Intergraph with a reasonable substitute for Intel microprocessors.<sup>97</sup> The court defined two relevant markets: (1) the market for high performance microprocessors, and (2) the market for Intel processors.<sup>98</sup>

The court stated that the market for high performance microprocessors consisted of CPUs supplied to high-end workstations.<sup>99</sup> When looking at Intel’s share of this market, however, the court erred by instead describing its market share in “x86” CPUs.<sup>100</sup> It found that Intel had a ninety-percent share of this market.<sup>101</sup> The “x86” CPU market and the CPU market for high-end workstations are clearly different markets.<sup>102</sup> The entire “x86”

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facilities should also be applied in markets that do not rise to the level of natural monopolies, but application of the doctrine serves to benefit consumers. Markets with de facto standardization and network effects might provide an opportunity for such an application.

91. See *MCI*, 708 F.2d at 1132-33.

92. See *id.*

93. See *id.*

94. See *id.*

95. See *id.*

96. See *supra* text accompanying notes 75-77.

97. See *U.S. v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 404 (1956) (“The market is composed of products that have reasonable interchangeability.”).

98. See *Intergraph*, 3 F. Supp. 2d at 1275.

99. See *id.*

100. See *id.*

101. See *id.*

102. See Reply Brief of Defendant-Appellant Intel Corporation at 15, *Intergraph Corp. v. Intel Corp.* (Fed. Cir. 1998) (“A conclusion by the district court that Intel has a

CPU market includes both low-end CPUs, and high-end CPUs suitable for Intergraph workstations. Low-end "x86" processor technology does not support Windows NT and Intergraph workstations. The court made only a single reference to Intel's market power in workstation CPUs, stating that Intel-Windows workstations, as of trial, "outsell RISC-Unix by a ratio of about two to one."<sup>103</sup> It is debatable whether this imprecise market share of sixty-six percent constitutes monopoly power as a matter of law.<sup>104</sup>

With regard to the second relevant market, the market for Intel CPUs, the court stated that under established antitrust principles a single manufacturer's product can constitute a separate relevant market.<sup>105</sup> This is perhaps a more appropriate market measure here because Intel maintains a closed standard in its CPU architecture.<sup>106</sup> For this reason, there is no immediately viable substitute for companies "locked-in" to the Intel technology like Intergraph unless they redesign their systems to support other chips. The appropriateness of Intel CPUs as a relevant market rests therefore on whether reasonable interchangeability precludes the redesign costs facing Intergraph. The *Intergraph* court concluded that a reasonable alternative did not exist when it defined Intel CPUs as a relevant market.

## 2. *Essential Facilities Requirements in the Intergraph Context*

As presented above, many distinct elements should be present to successfully invoke the doctrine.<sup>107</sup> First, essentiality required finding that Intel chips are (1) unobtainable from an alternative source, and (2) vital to Intergraph's competitive survival.<sup>108</sup> The *Intergraph* court properly concerned itself with the costs facing Intergraph in switching from the Pentium II architecture to an alternative architecture.<sup>109</sup> The court estimated that it takes "two or more years and millions of dollars to design

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90% share of the alleged x86 CPU market, which includes low-end microprocessors, simply does not establish Intel's share of the high-end market.").

103. See *Intergraph*, 3 F. Supp. 2d at 1264 n.26.

104. See *supra* note 76 and accompanying text for a discussion of required market share for monopoly power.

105. See *Intergraph*, 3 F. Supp. 2d at 1275; see also *Eastman Kodak v. Image Technical Servs.*, 504 U.S. 451, 482 (1992) ("Because service and parts for Kodak equipment are not interchangeable with other manufacturers' service and parts, the relevant market from the Kodak equipment owner's perspective is composed of only those companies that service Kodak machines.").

106. The court found that Intel is presently the only manufacturer producing microprocessors with the "necessary speed and graphics handling capabilities that also will 'fit' the P6 Bus." *Intergraph*, 3 F. Supp. 2d at 1262 n.17.

107. See *supra* text accompanying notes 78 to 95.

108. See *supra* text accompanying notes 78 to 84.

109. See *Intergraph*, 3 F. Supp. 2d at 1262.

and develop a motherboard and graphics subsystem to accept and take advantage of a CPU such as the Pentium II or any possible alternative.”<sup>110</sup> This developmental handicap that Intergraph faces is perhaps the strongest argument for applying the essential facilities doctrine here. In addition to such time and cost factors, a different processor might not support the graphics capabilities that Intergraph seeks in its workstations. Intergraph realistically does not have an immediately viable alternative to Pentium II chips.<sup>111</sup> The barriers to entry are sufficiently high to apply the doctrine.<sup>112</sup>

The opinion, however, does not clearly establish that the advanced chip samples and information are vital to Intergraph’s long-term survival. Whether or not denial of access to Intel CPUs would bankrupt Intergraph is a highly speculative inquiry. The workstation market is an area with rapidly changing technologies and products. In the short term, a switch to an alternative CPU architecture would likely have adverse effects on Intergraph. In the long run, however, there is nothing to suggest that Intergraph could not endure such a switch, ending its dependence on Intel.<sup>113</sup>

For Intel’s CPU architecture to be truly essential, Intel’s monopoly in the relevant market should lead to a monopoly in a downstream market in which it competes with Intergraph.<sup>114</sup> The court found that Intel “designs, manufactures, and supplies ... graphics subsystems to provide graphic

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110. *Id.*

111. The most immediate substitute possibly available to Intergraph might be the Alpha processor. The court’s speculation about the Alpha processor’s unavailability as an alternative because of its acquisition by Intel is misleading. *See id.* at 1261 n.16. As part of its settlement with Digital, Intel did acquire an Alpha manufacturing plant and chip design facilities for \$700 million. However, the FTC ordered Digital to license the Alpha technology to other chip companies. Actual and prospective licensing deals exist with multiple chip manufacturers. *See Tom Quinlan, FTC Adds Condition to Intel-DEC Settlement Acceptance, San Jose Mercury News* (visited Dec. 9, 1998) <<http://www5.mercurycenter.com/business/center/ftc042498.htm>>.

112. There are, however, arguments to be made that the barriers to entry do not rise to the level of the bridge in *Terminal Railroad*. *See supra* text accompanying notes 57 to 62. A major distinction between *Terminal Railroad* and *Intergraph* is that the creation of alternatives to Intel CPUs does not amount to waste or duplication, but rather would improve competition in a market that is not a natural monopoly. Additionally, Intergraph already faces design costs with each new Pentium II chip it incorporates into its product. Incurring a certain amount of cost to find an alternative is therefore reasonable.

113. Intergraph has been accustomed to coping with financial difficulties in the past. It is a company with a history of operating losses independent of its current dispute with Intel (i.e., 1993—net loss of \$116 million, 1994—net loss of \$70 million, 1995—net loss of \$45 million, 1996—net loss of \$69 million, 1997—net loss of \$70 million). *See Intergraph Corp., Intergraph 1997 Annual Report* (visited Nov. 9, 1998) <<http://www.intergraph.com>>.

114. *See supra* text accompanying notes 85-87.

functions for computers and workstations,” and that this is also an important product area for Intergraph.<sup>115</sup> The court found that Intel’s behavior toward Intergraph might be an attempt to use “its monopoly power in the ‘x86’ CPU market to obtain a monopoly in the graphics subsystem market.”<sup>116</sup>

The court’s findings of fact about Intel’s market position in graphic substations,<sup>117</sup> though, were thin. The court defined graphics subsystems as “critical systems ... which provide high performance 2D or 3D graphics capabilities.”<sup>118</sup> The court described a possible acquisition by Intel of a graphics chip producer and a joint development relationship Intel with a 3D graphics company.<sup>119</sup> The court further related Intel’s MMX graphics technology.<sup>120</sup> Taken together, however, this information poorly defines this market and provides no evidence that Intel intends, possesses, or threatens monopoly power in this market. The court appeared to overstate Intel’s graphics substation activity to reach its desired outcome.

Finally, essential facilities doctrine favors application when it is the only realistic mechanism for making the facility’s market more competitive.<sup>121</sup> Utilization of the doctrine here should therefore have pro-competitive effects on the workstation CPU market. The use of the doctrine, though, clearly falters in this regard. Giving Intergraph access to the advanced chip samples and information does nothing to enhance competition in the workstation processor market.<sup>122</sup> Applying the essential facilities doctrine to this case maintains Intel’s market position and fails to encourage the production of alternatives to Intel chips.

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115. See *Intergraph*, 3 F. Supp. 2d at 1270 (citing Patterson Supp. Aff. ¶¶ 7-9). Clearly, microprocessors are moving to integrate graphics capabilities into chips. For example, AMD’s new line of chips, the K6-2 and K6-3, contain a new feature, 3DNow that speeds 3D graphics. See Michael Slater, *Taking on Intel: RED HERRING ONLINE* (visited Nov. 9, 1998) <<http://www.redherring.com/mag/issues60/intel.html>>.

116. *Intergraph*, 3 F. Supp. 2d at 1270.

117. See *id.*

118. *Id.*

119. See *id.*

120. See *id.* MMX stands for multi-media extensions.

121. See *supra* text accompanying notes 88 to 90; see also McGowan, *supra* note 69, at 775 (“Antitrust ... seeks to protect competition, not competitors.”).

122. Of course, competition in workstations and graphics substations may be reduced if Intergraph becomes insolvent as a result of losing its access to Intel chips.

## B. Essential Facilities Doctrine in the *Intergraph* Context Weakens Intel's Patent Rights

A troubling aspect of the court's granting of a preliminary injunction was its relative disregard for Intel's patent rights.<sup>123</sup> The court stated that "Intel has no legitimate [IP] basis with which it can refuse to supply Intel microprocessors and technical information, especially since Intel has been doing so for the last four years on a mutually beneficial basis."<sup>124</sup>

This statement, however, clearly contradicts the rights granted to Intel by the Patent Act. Section 154 of the Patent Act gives the patentee the "right to exclude others from making, using, offering for sale, or selling the invention throughout the United States."<sup>125</sup> This right to determine the use of a patent serves the goal of encouraging innovation through the creation and development of new inventions. The exclusionary right has even stronger justification where the patent owner must incur considerable expense to develop its invention. A patent owner has a greater incentive to bear such costs when assured strong proprietary control in the subject matter. The Patent Act additionally holds that no patent owner can be deemed guilty of patent misuse for a refusal to license the patent.<sup>126</sup> The use of essential facilities doctrine in this context effectively weakens the bundle of rights granted to Intel in its patents. The *Intergraph* case raises the question of whether a (monopolist) patent owner should ever have a duty to license its IP.

Generally, antitrust law imposes no duty upon a patent owner to license its IP.<sup>127</sup> However, an IP owner engaging in anti-competitive be-

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123. See amicus brief filed by the Computer Technology Industry Association on behalf of Intel Corp. and cited in Reply Brief of Defendant-Appellant Intel Corporation at 4, *Intergraph Corp. v. Intel Corp.* (Fed. Cir. 1998) ("The District Court's decision severely undermines the [IP] rights that every company in the industry relies upon as the cornerstone of their business. If allowed to stand, the opinion would have a detrimental effect upon technological innovation, investment in research and development, and growth throughout the computer industry.").

124. *Intergraph*, 3 F. Supp. 2d at 1279.

125. 35 U.S.C. § 154 (1994); see also U.S. CONST. art. I, § 8, cl. 8.

126. See 35 U.S.C. § 271(d)(4) (1994) ("No patent owner otherwise entitled to relief shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having ... refused to license or use any rights to the patent.").

127. See Robert P. Taylor, *Antitrust Issues Arising from Refusals to License Patents and Copyrights*, 483 PLI/PAT 793, 805 (1997) (citing *Datagate v. Hewlett Packard*, 60 F.3d 1421, 1427 (9th Cir. 1995)); see also IP Guidelines, *supra* note 34, at 4 ("Nor does ... market power impose on the [IP] owner an obligation to license the use of that property to others.").

havior is not immune from antitrust liability.<sup>128</sup> Courts have found antitrust liability in the context of IP rights most often as a section 2 unlawful monopolization claim or a section 1 illegal tying arrangement.<sup>129</sup>

The Ninth Circuit in *Image Technical Services v. Eastman Kodak*<sup>130</sup> recently held that an owner of IP could face antitrust liability for a unilateral refusal to deal. The court stated that “§ 2 of the Sherman Act prohibits a monopolist’s ... refusal to deal if that conduct harms the competitive process in the absence of legitimate business justification.”<sup>131</sup> Therefore, it is useful to focus on Intel’s business justifications for its actions with Intergraph.<sup>132</sup> Intel apparently did not terminate its relationship with Intergraph until just after the suit was filed.<sup>133</sup> One can argue that Intel had a legitimate business justification in no longer treating Intergraph as a preferred customer when faced with possibly expensive litigation. It is under-

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128. See, e.g., *United States v. Colgate*, 250 U.S. 300 (1920) (stating that a company cannot unilaterally refuse to deal if it has a purpose to create or maintain a monopoly); *Image Technical Servs. v. Eastman Kodak*, 125 F.3d 1195, 1216 (9th Cir. 1997) (“[I]ntellectual property rights do not confer an absolute immunity from antitrust claims.”); FTC, *Intel Abuses its Monopoly Power in Violation of Federal Law* (visited Nov. 9, 1998) <<http://www.ftc.gov>> (“Innovation is critical to economic progress, and patents play a crucial role in encouraging that innovation.... Intel’s great contributions to this country’s economic growth have been encouraged and protected by patents.... But if Intel can use its monopoly position ... to prevent other firms from enforcing their own patents, [they] will have little incentive to invent new features to challenge Intel....”).

129. See Taylor, *supra* note 126, at 807-08; see also *Oahu Gas Serv., Inc. v. Pacific Resources Inc.*, 838 F.2d 360, 368 (9th Cir. 1988) (“Because of monopolist’s special position the antitrust laws impose what may be characterized as affirmative duties. These duties are not absolute, however, they arise only when there is no justification for refusing to aid a competitor.”).

130. 125 F.3d 1195 (9th Cir. 1997) (finding that Kodak had used its monopoly power in an anti-competitive manner). A recent decision refused to follow *Image Technical Services*. See *In Re Independent Service Organizations Antitrust Litigation*, 989 F. Supp. 1131, 1134 (D. Kan. 1997). The court found that “where a patent or copyright has been lawfully acquired, subsequent conduct permissible under the patent or copyright laws cannot give rise to any liability under the antitrust laws.” *Id.* at 1134. Under this reasoning, Intel’s decision to withhold technical information from Intergraph is within its patent rights, and no basis for antitrust liability exists.

131. *Image Technical Servs.*, 125 F.3d at 1209.

132. See *supra* note 73 and accompanying text. The *Intergraph* court found that Intel had no legitimate business purpose in refusing to deal with Intergraph in the manner that it had previously. See *Intergraph*, 3 F. Supp. 2d at 1270. The court stated that antitrust laws protect customers and purchasers in cases when a monopolist refuses to deal in order to frustrate litigation. See *id.* at 1277. The court also stated that the patent litigation brought by Intergraph “should be resolved without linking it to the supply of products and information that are essential to Intergraph’s business survival.” *Id.* at 1270.

133. See *id.* at 1267-68.

standable that a defendant in this situation would be less than fully accommodating in its business relationship with the plaintiff. Intel additionally had a contract basis for ending the supply of advanced chips and information, relying on termination without cause provisions in the agreements.<sup>134</sup> Owners of IP would also appear to have legitimate justification to determine the fair value of their patents. Intel attempted to enter a broad cross-licensing agreement with Intergraph. Intel apparently deemed the fair value of its patents—with the extensive yearly research and development costs incurred by Intel to improve upon its technologies—as worthy of a royalty-free license to Intergraph's Clipper technology. Intergraph ceased development on the Clipper technology three years prior to the trial.<sup>135</sup> The opinion also produced no evidence that Intergraph's Clipper technology possessed any licensing value.<sup>136</sup> Intergraph's refusal to agree to the cross-licensing arrangement appears to provide Intel with some basis for refusing to continue business as usual with Intergraph. Intel's behavior appears to be motivated more by its dispute with Intergraph, than by "a scheme of willful acquisition or maintenance of monopoly power."<sup>137</sup>

### C. The Argument that Essential Facilities Might Pertain to Markets with Standards and Network Effects Does Not Apply to *Intergraph*

Many commentators have suggested the application of essential facilities doctrine to technology products that serve as standards and possess network effects.<sup>138</sup> Network externalities or network effects arise when "the utility that a user derives from consumption of a good increases with

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134. See *id.* at 1265-66.

135. See *id.* at 1264 n.25.

136. However, the very fact that Intergraph has brought litigation for patent infringement of the Clipper technology suggests that it deems the technology to have some worth. Intel has since brought counterclaims for patent infringement. Therefore, cross-licensing would remove patent infringement challenges to both sides.

137. *Eastman Kodak v. Image Technical Servs.*, 504 U.S. 451, 483 (1992).

138. See e.g., Teague I. Donahey, *Terminal Railroad Revisited: Using the Essential Facilities Doctrine to Ensure Accessibility to Internet Software Standards*, 25 AIPLA Q.J. 277 (1997); Peter S. Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329, 1366 (1987) ("In light of the strong network externalities flowing from compatibility, computer operating systems serve as 'essential facilities' in computer hardware markets."). Antitrust is struggling to find its proper role in technology markets with networks effects and de facto standards, as evidenced by the current federal actions against Intel and Microsoft. For a discussion of current litigation against Microsoft, see Michael Woodrow De Vries, Note, *Unites States v. Microsoft*, 14 BERKELEY TECH. L.J. 303 (1999).

the number of other agents consuming the good.”<sup>139</sup> Goods with network effects often become the “de facto” standard in a market.<sup>140</sup> A “de facto” standard “results when a market gives dominance to a single technology or design and leads subsequent developers to build analogous or at least compatible systems in order to capitalize on the popularity and familiarity of the de facto ... standard.”<sup>141</sup> A standard technology with demand-side externalities encourages users to join the network, thereby increasing the network’s overall value to consumers. Antitrust would attempt to advance the network effects by ensuring that manufacturers seeking to incorporate the standard into downstream products have access to the monopolist’s product on reasonable terms. Essential facilities doctrine would act as the antitrust basis for guaranteeing entrance to the particular network economy.

Intel CPUs fit into the network effects continuum as virtual networks.<sup>142</sup> Intel chips have collateral relationships with products having network externalities in actual and virtual networks (e.g., compatibility with the Windows operating system and applications written solely for Wintel<sup>143</sup> architecture). Intel chips, at present, provide inherent value to consumers that increases with each additional user of identical and/or interoperable goods. Intel’s proprietary Pentium II CPUs also qualify as a de facto standard, evidenced by downstream manufacturers capitalizing on Intel’s popularity by incorporating Intel chips into their own products.<sup>144</sup>

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139. Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985).

140. A standard helps to establish a common mode of interaction among products or points in a network. See Arquit, *supra* note 47, at 161-62.

141. Raymond T. Nimmer, *Standards, Antitrust and Intellectual Property*, 449 PLI/PAT 121, 123 (1996). A network environment might naturally favor the existence of a single producer for reasons of compatibility and standardization.

142. Network markets fall into one of three areas on a continuum—actual networks, virtual networks, and simple positive feedback phenomena. See Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 488-500 (1998). Virtual networks are goods that “provide inherent value to consumers that increases with the number of additional users of identical and/or interoperable goods.” The virtual network good threshold requires at least “strong positive feedback effects tied to functional compatibility.” *Id.* at 491.

143. “Wintel” is an acronym for Windows and Intel denoting a computer with Intel architecture running a form of the Windows Operating System.

144. While Intel chips qualify as a de facto standard, it is not without competitors challenging it for the high-end microprocessor market. See Michael Slater, *Taking on Intel: RED HERRING ONLINE* (visited Nov. 9, 1998) <<http://www.redherring.com/mag/issues60/intel.html>> (highlighting AMD’s opportunity to compete with Intel “across the breadth of Intel’s product line”).

Assuming Intel's Pentium II architecture is a de facto standard due solely to demand-side externalities, an argument exists to apply essential facilities doctrine to the *Intergraph* context—providing access to producers of complementary goods. Intel's position as a de facto standard, however, has resulted from a variety of factors, including not only consumer preference for the Intel brand, but also affirmative acts by Intel to promote its market position as a standard. Intel's switch from an open to a proprietary standard has clearly been an important factor in increasing its control of the CPU market. Without an open standard to encourage other manufacturers to produce competing chips, Intel's closed standard maintains its dominant market position. Intel's Pentium II proprietary standard, in a sense, amounts to a forced standard.<sup>145</sup>

Essential facilities doctrine in the *Intergraph* context—applied only to a producer of complementary goods in a downstream market—encourages the Pentium II as a proprietary de facto standard, thereby maintaining Intel's monopolization of workstation CPUs and high-end CPUs generally. Antitrust should not seek this outcome in a market that might be better off with open standards and increased competition. Essential facilities doctrine is therefore ultimately inappropriate in this context.

## V. CONCLUSION

Essential facilities doctrine is a drastic remedy that requires exacting standards for application. With this in mind, no one can fault the *Intergraph* court for a lack of creativity in its novel application of essential facilities doctrine. Its use of essential facilities doctrine undermines the rights granted to Intel by the Patent Act. Furthermore, essential facilities doctrine here does nothing to improve competition in workstation CPUs and fails to encourage the production of alternatives to Intel's Pentium II proprietary architecture. *Intergraph* appeared, moreover, to provide some

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145. Just as antitrust can require a monopolist to provide an essential facility, perhaps it can also legitimately require a defendant to move from a proprietary to an open architecture where the move increases competition and benefits consumers. Lemley & McGowan present a novel theory termed "open systems estoppel" that might apply here. See Lemley & McGowan, *supra* note 141, at 590 ("Firms that announce open architecture in order to induce the production of complementary goods that help the firm establish itself as a standard could be estopped from 'closing' future iterations of their software in the event third parties invested capital and brought value to the network as a whole through the creation of complementary goods."). *Intergraph* became an Intel OEM in 1993, when Intel more freely licensed its Socket 7 interface to other chip manufacturers. Intel then all but stopped licensing the new Slot 1 interface when releasing the Pentium II in 1997, removing competing chip manufacturers from the Intel standard.

business justification for Intel's actions when it filed litigation against both Intel and its customers. Finally, while there is increasing acceptance of applying essential facilities doctrine to markets with de facto, proprietary standards and network effects, the courts must reserve its application for product areas that truly favor only a single producer or situations where it helps open the standard to competitors, thereby increasing competition in the facility. Use of the doctrine here satisfies neither of these objectives. If the court wants to sanction Intel's behavior, it should find a basis other than essential facilities doctrine by which to do so. The Federal Circuit Court of Appeals should, therefore, reverse the district court's grant of a preliminary injunction to the extent it is based on essential facilities reasoning.



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