

Unlocking the Wireless Safe: Opening Up the Wireless World for Consumers

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I. INTRODUCTION

Frustrated with the way that wireless carriers choose which applications they offer and which phones customers can use on their networks, a growing number of companies and interest groups are pushing to place these decisions in the hands of consumers. These groups want the FCC to take away some of the restrictive power that the wireless network operators hold over their networks in order to create an open network where consumers are free to use the handset of their choice and run any application they choose. The opposing wireless carriers want to retain the control they have historically retained over their wireless networks. The carriers would prefer to let the market, rather than the FCC, decide if consumers are actually demanding open networks. Internet phone service provider Skype Technologies (Skype) brought the first major initiative with its petition to the FCC asking for the application of the *Carterfone*¹ decision to the wireless industry. The FCC has yet to issue a ruling on this petition, and there have been many recent developments since June 2007 that may have an effect on the FCC's ultimate decision. This Note will track these developments relating to the open networks initiative and evaluate whether the relief that Skype is requesting is appropriate. In light of the current state of the wireless industry, the FCC should (1) require the carriers to provide technical standards detailing what kind of equipment and applications will be allowed to connect to their networks, (2) encourage the carriers to allow any devices which conform to be used by consumers, and (3) allow the carriers to continue to control what kinds of applications may connect to their networks.

II. BACKGROUND: SKYPE'S PETITION TO THE FCC

Skype is a Luxembourg-based company that offers telephone service sending voice conversations over the Internet using Voice-over-Internet Protocol (VoIP) technology.² Skype offers free calls between users calling from their computers and low rates on calls between computer users and landline and mobile phone users.³ Skype supplies the software that enables users to turn their computers into phones with the simple addition of a microphone. By filing its petition, Skype is essentially seeking to expand its market outside of computers by allowing consumers to use Skype from their wireless telephones. The low rates charged by Skype, and its position

1. Use of the Carterfone Device in Message Toll Telephone Service, *Decision*, 13 F.C.C.2d 420, 13 Rad. Reg. 2d (P & F) 597 (1968), (holding tariffs against interconnection devices unlawful) [hereinafter *Carterfone*].

2. See Skype, VoIP Explained, <http://www.skype.com/help/guides/voip/> (last visited Apr. 15, 2009).

3. See Skype, Prices - What's Free and What Costs a Little on Skype, <http://www.skype.com/prices/> (last visited Apr. 15, 2009).

as a competitor, make it an ideal party to challenge the wireless operator's practices and appeal to the FCC for relief.

Skype alleges that the wireless industry is not acting in the best interests of the consumer.⁴ It points to wireless network operator practices such as phone crippling⁵ and handset locking⁶ as evidence that the networks are acting inappropriately. Skype points to the European model of allowing users to change the Subscriber Identity Module (SIM) card of the phone when moving between networks in order to retain a local number while in different countries.⁷ In addition, Skype argues that the operators deny consumers the use of features and applications for reasons unrelated to harm to the network.⁸ Finally, users are often unknowingly limited through their terms of service, which can prohibit the use of programs—such as Skype—that might compete with the operators.⁹ All of these issues stem from the wireless network operator's near absolute control over what devices can connect to, and use, their network.

The relief Skype is requesting revolves around a previous FCC ruling concerning the wired telephone industry. In *Carterfone*, the FCC was asked to rule on tariff FCC No. 132, which provided that, “[n]o equipment, apparatus, circuit or device not furnished by the telephone company shall be attached to or connected with the facilities furnished by the telephone company, whether physically, by induction or otherwise.”¹⁰ The *Carterfone* was designed to connect to the base station of a mobile radio system.¹¹ The developer of the *Carterfone*, Thomas F. Carter, filed a formal complaint pursuant to Section 208 of the Communications Act of 1934¹² against AT&T. The examiner of that complaint found a need for the *Carterfone* device and, in addition, found that the *Carterfone* presented no “material

4. See Petition to Confirm a Consumer's Right to Use Internet Comm Software and Attach Devices to Wireless Networks at i, Skype Comm. S.A.R.L, RM-11361, (rel. Feb. 20, 2007), available at http://download.skype.com/share/skype_fcc_200702.pdf [hereinafter Skype Petition].

5. *Id.* at 14-15. Phone crippling means that an otherwise working function of the phone is disabled by the network operator. For example, the Nokia E62 phone is identical to the E61 except the Wi-Fi ability has been disabled. *Id.* at 14. Other examples include Bluetooth disabling. *Id.* at 15. The result of some of these disabling practices is that consumers are forced to pay fees for things that the phone could otherwise do for free.

6. *Id.* at 16. The phone is locked so that it can only work on one wireless network.

7. *Id.* at 17.

8. *Id.* at 18.

9. See *id.* at 18-19 (giving examples of Terms of Service Agreements expressly forbid the use of VoIP).

10. *Carterfone*, *supra* note 1, at 421 (quoting tariff F.C.C. No. 132 (filed Apr. 16, 1957)).

11. *Id.* at 420.

12. Communications Act of 1934, ch. 652, Title II, § 208, 48 Stat. 1073, (current version at 47 U.S.C. § 208 (2000)).

adverse effect” when used in connection with the telephone network.¹³ The FCC upheld the examiner’s finding, ruling that it was “unreasonable and unduly discriminatory” for the tariff to apply to devices such as the Carterfone.¹⁴ The FCC found that users have a right to attach devices to the telephone system as long as the device does not adversely affect the operations of the telephone company or the usefulness of the telephone system to other users.¹⁵ AT&T’s request that telephone companies be the sole arbiter to determine what may connect to the network was denied.¹⁶ The FCC did, however, give the telephone companies the right to issue reasonable standards that devices connecting to the network must meet.¹⁷ The FCC placed the burden of compliance with these and any revised standards upon the manufacturers of devices such as the Carterfone.¹⁸

Skype and its supporters point to the positive outcomes arising from the *Carterfone* decision as further reason for enforcing the decision’s principles in the wireless industry. The petition points out that the technical standards provided by the phone companies eventually led to the RJ-11 telephone jack, which in turn eventually gave us the dial-up modem.¹⁹ The ruling also led to end-to-end production or “innovation without permission” in the wired industry, which allowed software designers to build a single component of a finished service without first getting permission from the network operator.²⁰ This kind of innovation is the exact opposite of the permission-based approach that Skype alleges is present in the current wireless industry.²¹

In addition to *Carterfone* and the advantages deriving from its application, Skype points to two other FCC actions that support its petition.²² Skype believes that both the FCC’s Broadband Policy²³ and its 1992 Bundling Order²⁴ support the relief requested. The FCC’s Broadband

13. *Id.* at 423.

14. *Id.*

15. *Id.* at 424.

16. *Id.*

17. *Id.*

18. *Id.*

19. Skype Petition, *supra* note 4, at 9-10.

20. *Id.* at 12.

21. *Id.* at 13. Skype argues that presently, manufactures are forced to design equipment and applications based on what the networks ask for, rather than what consumers want. *Id.*

22. *Id.* at 6, 21.

23. Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Policy Statement*, FCC 05-151 (rel. Sept. 23, 2005) [hereinafter *Broadband Policy Statement*].

24. Bundling of Cellular Customer Premises Equipment and Cellular Service, *Report and Order*, 7 F.C.C.R. 4028 (1992) (giving wireless carriers permission to tie together handsets and services).

Policy states that consumers “are entitled to connect their choice of legal devices that do not harm the network” as well as being “entitled to run applications and use services of their choice, subject to the needs of law enforcement.”²⁵ If applied to the wireless industry, this policy promotes the same relief that Skype is requesting from the FCC. In addition, the 1992 Bundling Order provides that wireless companies must offer, in addition to bundled services, “unfettered, nondiscriminatory service to consumers irrespective of equipment.”²⁶ Skype asserts that the wireless companies are discriminating between customers based on the customer’s equipment, a violation of the requirements of the FCC’s order allowing the carriers to bundle handsets and service together.

From the *Carterfone* ruling, the FCC’s Broadband Policy, and the 1992 Bundling Order, Skype seeks three main forms of relief.²⁷ First, Skype wants the FCC to state clearly that the principles behind *Carterfone*—allowing users to connect all non-harmful devices to the network—will be applied to the wireless industry. Second, Skype requests that the FCC initiate a proceeding to determine whether the current practices by the wireless carriers are in line with those principles. Skype’s last request is the creation of a mechanism that will ensure the openness of the wireless networks.

III. ARGUMENT: TURN CARRIER FOCUS ONTO NETWORK INFRASTRUCTURE

The relief Skype is calling for has been challenged as inappropriate by both economists²⁸ and wireless network operators.²⁹ These groups believe that the current state of the market is sufficient to foster the innovation and competition that Skype states must come about through FCC regulation. Some even believe that application of the *Carterfone* principles to the wireless industry will have a negative effect for consumers.³⁰ In light of

25. *Broadband Policy Statement*, *supra* note 23, at 3; *see also* Skype Petition, *supra* note 4, at 6.

26. Skype Petition, *supra*, note 4, at 21.

27. *Id.* at ii.

28. *See e.g.*, Robert W. Hahn, Robert E. Litan & Hal J. Singer, *The Economics of “Wireless Net Neutrality”*, 3 J. COMPETITION L. & ECON. 399 (2007).

29. *See e.g.*, *Skype: Carterfone Plea Aims at Broader Innovation Policy*, TELECOMM. REP., June 15, 2007, available at 2007 WLNR 10616931 (Westlaw). CTIA-The Wireless Association General Counsel Michael Altschul has stated that the “best innovation policy is through the competitive markets” as opposed to the regulation sought by Skype. *Id.*

30. *See, e.g.*, *Free iPhone Campaign Launches, Open Access Battle Gears Up: Free Press Pressures Congress and the FCC To Require that Mobile Devices Will Work with Any Wireless Network, in Advance of the Upcoming Wireless Spectrum Auction*, COMMWEBNEWS.COM, July 16, 2007, available at 2007 WLNR 13571498. AT&T Spokesperson Michael Balmoris suggests that any open network will suffer from congestion because network bandwidth is a finite source. *Id.*

these arguments, the FCC should be careful in forcing the network operators into opening their networks, and should evaluate all the costs and benefits associated with doing so.

A. *The Time for Openness Is Now*

Skype believes that consumers and developers are ready for open networks. Carriers provide mobile phone service to over 200 million people in the United States.³¹ In fact, wireless phone service has surpassed traditional wired phone service in number of users.³² Along with this increase in users, there has been an increase in demand for mobile Internet, which allows users to access e-mail and surf the Internet from their mobile phones.³³ These developments prove that wireless technology has become increasingly important to consumers. It remains important that the FCC ensures the wireless industry is acting in accordance with the consumer's best interests.

1. Mobile Internet Is Developing Rapidly

Mobile Internet is one of the most important developments in the industry, and will only become more useful as the network infrastructure becomes more advanced. The technology for mobile Internet, and cell phones in general, develops rapidly. Because of this rapid development, many different technologies exist in the wireless market. Different carriers often use different technologies that are not compatible with rival carriers' equipment. The second-generation (2G) standards are still used, but rapidly replacing them are third-generation (3G) and fourth-generation (4G) standards.³⁴ 3G standards offer larger capacity on the networks by using better spectral efficiency.³⁵ 3G supports more voice and data users at higher speeds and less cost.³⁶ More recently, networks are developing 4G

31. See Skype Petition, *supra* note 4, at 3 (citing Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Eleventh Report*, FCC 06-142, at 96 tbl.1 (rel. Sept. 29, 2006)).

32. *Id.* at 3-4 (citing INDUS. ANALYSIS & TECH. DIV., FCC, LOCAL TELEPHONE COMPETITION: STATUS AS OF JUNE 30, 2006, 1 (2007), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270133A1.pdf).

33. *Id.* at 4.

34. Cheryl A. Tritt, *Telecommunications Future*, 920 PLI/Pat 133, 138-39 (2007). The main 2G systems are Global System of Mobile Communications (GSM), Code Division Multiple Access (CDMA), and Integrated Digital Enhanced Network (iDEN). *Id.*

35. *Id.* at 138.

36. *Id.* There are many different forms of 3G standards, including Wideband CDMA, Universal Mobile Telecommunications System (UMTS), High-Speed Downlink Packet Access (HSDPA) and Evolution-Data Optimized or Evolution-Data Only (EVDO). *Id.* at 138-39. Verizon Wireless and Sprint-Nextel use EVDO technology, while AT&T uses HSDPA. *Id.* at 139.

technology, which can offer even more capacity at greater speeds.³⁷ Sprint and Clearwire have developed a 4G technology called Worldwide Interoperability for Microwave Access (WiMAX), which was expected to launch commercially in 2008.³⁸ WiMAX is capable of transmitting data up to seventy megabytes per second from up to thirty miles away.³⁹ With these new technologies emerging, it is more important than ever that the wireless companies cooperate with developers in assuring that consumers are getting the most from their wireless service.

2. What Is Net Neutrality?

Skype based its requests for relief upon the movement toward wireless net neutrality. Net neutrality has two different definitions.⁴⁰ The narrow definition describes a wireless industry that prevents “wireless . . . network operators from blocking or impairing users’ access to lawful Internet sites and services.”⁴¹ This definition fits most closely with Skype’s proposal. The broader definition calls for the network operators to “offer strictly non-discriminatory pricing and service quality to all . . . consumers of Internet content, applications and services.”⁴² Skype’s plan is to relegate network operators to offering only service (not hardware) to consumers.⁴³

One of the main goals of net neutrality is the establishment of open networks. However, supporters and opponents have had trouble agreeing on what open actually means in this context. The FCC defines an “open platform” as one that gives consumers the right to use any equipment, content, application, or service without discrimination by the carrier.⁴⁴ Advocates for open access want the wireless industry to mimic the broadband model, wherein any computer can use any service provider and go to any website.⁴⁵ The network carriers believe that they are already open

37. *Id.* at 139. 4G systems are based on fully integrated end-to-end Internet Protocol (“IP”) technology. *Id.*

38. *Id.* at 139-40. WiMAX has been deployed in Portland and Baltimore with planned expansion to the cities of Atlanta, Chicago, Charlotte, Dallas/Fort Worth, Honolulu, Las Vegas, Philadelphia, and Seattle in 2009. *Clearwire Chooses Cities for Mobile WiMAX in 2009*, COMMWEBNEWS.COM, Mar. 6, 2009, available at 2009 WLNR 4380794 (Westlaw).

39. Tritt, *supra* note 34, at 139. WiMAX is “expected to become a last mile solution for broadband access, including last mile delivery of video programming.” *Id.*

40. *Id.* at 158.

41. *Id.*

42. *Id.*

43. Skype Petition, *supra* note 4, at 29.

44. Adam Bender, ‘Open Access’ Definitions Differ Among Carriers, Lobby Groups, COMM. DAILY, Jan. 4, 2008, available at 2008 WLNR 421482 (Westlaw).

45. *Id.* Michael Altschul postulates that FCC action is unnecessary because consumers can access any applications while connected to the network through wireless modem devices that can attach to laptop computers, and because 4G service will allow further

and any further openness should come as a result of consumer demand, rather than FCC regulation.⁴⁶ Regardless of whose definition is correct, or which will eventually become the standard, the debate concerning the costs and benefits of openness remain.

B. *Is Opening the Networks Going To Help the Consumer?*

The merits of Skype's petition, and of the movement toward open networks, are hotly contested by the network operators and supporters of the current wireless market. Supporters of the carriers believe that it is precisely the lack of regulation of the industry that is its greatest attribute.⁴⁷ Carriers also state that open networks will lead to increases in handset price and congestion of wireless networks.⁴⁸ Both economists and carriers believe that wireless networks will open when consumer demand leads them to it.⁴⁹ In the face of this opposition, proponents of open networks must provide solid arguments if they are to prevail.

1. *Is Carterfone Properly Applicable to the Wireless Industry?*

First, opponents of Skype's petition attack its main rallying point: the *Carterfone* decision. Mainly, opponents argue that the current state of competition in the market precludes the need for regulation.⁵⁰ Opponents have stated, "it is impossible to link *Carterfone* sensibly to the modern wireless telecommunications industry," believing that the telephone industry monopoly distinguishes it from the wireless industry.⁵¹ The argument that the two industries are not linked by competition fails to address the similarities in the power the industries hold over attaching

growth in allowing any application to attach to the networks. *Skype: Carterfone Plea Aims at Broader Innovation Policy*, *supra* note 29.

46. Bender, *supra* note 44.

47. See, e.g., *Google's Android Is Creating Some 'Strange Bedfellows' CTIA and Public Knowledge, Normally on Opposite Sides on Wireless Issues, Are Each Hailing Google's Mobile Phone Brainchild -- For Very Different Reasons*, COMMWEBNEWS.COM, Nov. 6 2007, available at 2007 WLNR 21946573 (Westlaw). CTIA president and CEO Steve Largent has stated, "[b]ecause the government has never dictated a single technology or business model, companies big and small are constantly entering the wireless marketplace to put forward innovative mobile products and services that consumers want and need." *Id.*

48. *Skype: Carterfone Plea Aims at Broader Innovation Policy*, *supra* note 29.

49. *Id.*; see generally Hahn, Litan & Singer *supra* note 28. This is contradicted by the many interest groups that have supported Skype's petition and are calling for more openness in the wireless industry. Cf. *Open Access Plans of Wireless Carriers Dont [sic] Dispel Doubts*, IP NETWORK POL'Y REP., Jan. 4, 2008, available at 2008 WLNR 237278 (Westlaw).

50. See, e.g., George S. Ford, Thomas M. Koutsy, & Lawrence J. Spiwak, *Wireless Net Neutrality: From Carterfone to Cable Boxes*, 920 PLI/Pat 391, 398 (2007).

51. *Id.* at 397. However, this argument ignores the recent trend of mergers in the wireless industry.

devices to the network. While it is true that there is nothing about the present situation that *mandates* application of *Carterfone* to the wireless industry, it is not unbelievable that doing so would be a step in the right direction for wireless consumers. The principle of allowing all non-harmful devices to attach to the network must be applied differently to the wireless industry than the telephone networks. Therefore, it is important to analyze each part of the Skype requested relief to determine its appropriateness.

2. Wireless Carriers Should Be Forced to Allow Any Handset to Attach to Any Network

The first ramification of applying *Carterfone* principles to the wireless industry is the requirement that network operators allow consumers to attach any handset to the operator's network. Skype claims that the carriers force the handset manufacturers into alliances with the carriers under the current regime.⁵² Because most handsets are only available on one carrier's network, the carriers force consumers to make the choice between the handset they covet and the wireless carrier's prices and service they value more. At the very least, Skype believes that these trade practices require an inquiry into whether the 1992 Bundling Order is being followed by the wireless companies.⁵³ Finally, Skype is wary of leaving the open handset initiative to market forces, stating that it is unlikely that wireless carriers will offer open handsets on their own, especially when doing so will open the door to competing services.⁵⁴

Supporters of Skype also call for less control by the network carriers over handsets. Gene Kimmelman, the director of Consumers Union, suggests "[y]ou're never going to get a competitive market if the device you use is controlled by one company and you have to spend an arm and a leg to shift to alternatives."⁵⁵ Free Press, in a written statement, stated, "[b]ad policies have created an unhealthy wireless industry where companies like AT&T and Verizon are gatekeepers over the mobile Internet with the power to block competition and chain devices to their slow-speed networks."⁵⁶ Furthermore, Free Press feels that simply

52. Skype Petition, *supra* note 4, at 22.

53. *Id.* at 23.

54. *Id.* at 24. Skype compares the wireless companies' reluctance to move towards open handsets to the reluctance of the companies to allow wireless local number portability (LNP). There, the FCC forced the industry to accept the LNP rules because there were too many economic disincentives for a company to be the first to offer LNP to its customers. *Id.* (citing Verizon Wireless's Petition for Partial Forbearance from the Commercial Mobile Radio Services Number Portability Obligation, *Memorandum Opinion and Order*, 17 F.C.C.R. 14972, para. 21 (2002)).

55. Leslie Cauley, *Skype: 'Locked' Phones Unfair, Says Rivals Limit Competition*, USA TODAY, June 6, 2007, at 4B, available at 2007 WLNR 10509624 (Westlaw).

56. *Free iPhone Campaign Launches*, *supra* note 30.

unlocking handsets—allowing them to be used on more than just one network—is not enough because that will only leave consumers with a market where the large companies can push out the small companies.⁵⁷

Economists focus on the presence of effective competition as a reason for forestalling regulation of the wireless industry. The authors of *The Economics of “Wireless Net Neutrality”* lay out four general principles they feel must be followed when proposing regulatory intervention: (1) there must be clear evidence of market failure, (2) there must be clear evidence that the intervention is likely to be better than the status quo, (3) all the benefits and costs are taken into account, and (4) the proposal should draw lessons from earlier regulation of that market.⁵⁸ The authors feel that proponents of open networks have failed to establish these four principles and as such, the FCC should deny their proposals for open networks.⁵⁹

While these principles seem sound when laid out abstractly, putting them to use in the situation at hand does not give us a clear answer. What is a “market failure”? Open network proponents believe that the current wireless market has failed the consumer by not offering the choice and flexibility that the market is capable of giving. A requirement that the supporters of open networks offer clear evidence of the benefits is an impossible standard when applied to a market where testing the scheme is not easily done without government intervention.⁶⁰ As to drawing lessons from earlier regulation, Skype based its Petition substantially on the effectiveness of *Carterfone* in its application to the wired telephone industry.

With regard to handsets particularly, the authors of *The Economics of “Wireless Net Neutrality”* rely on the opinion of Judge Denise Cote of the Southern District Court of New York in *In re Wireless Telephone Service Antitrust Litigation*.⁶¹ In her opinion, Judge Cote ruled that no individual wireless provider had the market strength to prevent an unaffiliated handset maker from entering the market by tying the purchase of the handset to wireless subscription.⁶² She also stated that just because the wireless carriers sold the majority of handsets did not mean that handset makers

57. *Id.* Free Press also indicts the wireless industry for its “broken promises on broadband deployment and innovation [leaving] us with a slow, expensive network and a vast digital divide.” *Id.*

58. Hahn, Litan & Singer, *supra* note 28, at 402.

59. *Id.* at 402-03.

60. All the more reason to applaud the FCC’s decision to offer the C Block only to a buyer willing to operate it in an open manner. *See infra* Part III.C.1.

61. Hahn, Litan & Singer, *supra* note 28, at 415 (citing *In re Wireless Telephone Service Antitrust Litigation*, 385 F. Supp. 2d 403 (S.D.N.Y. 2005)).

62. *See generally In re Wireless Telephone Service*, 385 F. Supp. 2d. at 417; *see also* Hahn, Litan & Singer *supra* note 28, at 415.

could not sell through outside distributors.⁶³ In light of this evidence, the authors argue that the belief of open network advocates that wireless providers are capable of stifling handset development by forcing the linking of handsets to one carrier is misguided.⁶⁴

In fact, the authors seem to think that it is the handset makers that actually hold the power in the handset manufacturer/network operator relationship.⁶⁵ The handset makers exercise this power by entering into exclusive contracts to ensure that wireless operators promote their handsets.⁶⁶ In their main example, the authors point to the extraordinary terms Apple was able to obtain in its contract with AT&T regarding the iPhone.⁶⁷ In the contract, Apple asked for the following: (1) AT&T would not brand the iPhone, (2) AT&T would share a portion of the monthly subscriber fees with Apple, (3) Apple would be in control of where the iPhone was sold, (4) Apple would have sole power to decide whether to replace or repair malfunctioning phones, and (5) Apple would be free to sell its phones to anyone outside of the United States.⁶⁸ If it is indeed the handset makers that are requesting exclusive contracts with the carriers, then open network application will not offer consumers more choice because the manufacturers will continue to offer their handsets only on one network.

Alternatively, one can look at Apple's demands as a list of reasons for lessening or eliminating the carrier's control over handsets. It seems anomalous that it would take a company as large as Apple to be able to offer a phone free from a brand with the carrier's name. The fact that Apple chose to make that a part of their contract shows that they do not wish to have their product associated with the carrier. Apple wants customers to attribute the quality of the phone to Apple and not the carrier. The last three demands are all rights that a handset maker would already retain if the networks were open and developers were free to market phones without being bundled with a carrier. The fact that the iPhone is only allowed to work on the AT&T network is one of the major factors behind the movement toward open networks.⁶⁹

The carriers have their own arguments against open networks as well. Verizon Chief Operating Officer Denny Strigl states that Skype's proposal is unrealistic because phones in the United States operate on many

63. *In re Wireless Telephone Service*, 385 F. Supp. 2d. at 411.

64. *See* Hahn, Litan & Singer, *supra* note 28, at 415.

65. *Id.* at 419-20.

66. *Id.*

67. *Id.* at 430.

68. *Id.*

69. *Free iPhone Campaign Launches*, *supra* note 30. A campaign by Free Press has a logo with the iPhone connected by shackle to a ball in the form of the AT&T logo. *Id.*

separate, non-overlapping systems.⁷⁰ In order for manufacturers to offer phones that can operate on different networks, they would have to make a device that could handle several different technical standards, which is “simply not practical.”⁷¹ CTIA-The Wireless Association⁷² General Counsel Michael Altschul believes that implementing Skype’s requests will actually lead to increased handset prices because the networks currently subsidize the cost of handsets with long-term contracts.⁷³ AT&T Spokesperson Michael Balmoris believes that handsets are essential to competition in the wireless market as one of the main ways that the networks compete for customers.⁷⁴ In addition, AT&T does not allow any phones to connect to its network that do not meet its standards of spectral efficiency.⁷⁵ Verizon Wireless believes that customers prefer the convenience of having the same company offer the handset and service, even as it is the first carrier to offer an open network.⁷⁶

Open network proponents must see the hollowness of these arguments. The mere fact that it is not practical to offer a phone that can connect to more than one network does not mean that it is impossible, or that it cannot become easier in the future. Eliminating the handset subsidy may lead to an increase in handset prices in the short run, but with more competition amongst the handset manufacturers, those prices will lessen while providing consumers with more choices and increased innovation. Some have suggested that carriers use the handset subsidy as a justification for minimum service periods and high early termination fees, both of which make it hard for consumers to switch services; however, it is hard to link these justifications directly to the subsidy.⁷⁷ Additionally, it is important to note that it might be better for the consumer if the networks competed with each other solely on the basis of the network services they offer, rather than what phones they have contracted to allow to connect to their network. Moreover, while it is certainly the carrier’s prerogative (currently) to choose the applications consumers can utilize on its network, it is preferable that consumers choose a provider based on more than simply the

70. See Cauley, *supra* note 55.

71. *Id.*

72. In 2004, the Cellular Telecommunications & Internet Association changed its name to CTIA-The Wireless Association. Wireless Timeline 2000’s, <http://www.ctia.org/content/index.cfm/AID/10392> (last visited Apr. 15, 2009).

73. Skype: *Carterfone Plea Aims at Broader Innovation Policy*, *supra* note 29.

74. *Free iPhone Campaign Launches*, *supra* note 30.

75. *Id.*

76. Heather Forsgren Weaver, *Verizon Wireless Announces ‘Any Apps, Any Device’ Option*, COMM. DAILY, Nov. 28, 2007, available at 2007 WLNR 23704057 (Westlaw).

77. Levine & Blaszak, *Wireless Carriers To Enterprise Customers: “We Never Promised You A Rose Garden”*, BUS. COMM. REV., Dec. 1, 2007, at 64.

phones offered on that network. Networks should compete over service; let the handset manufactures compete over phones.

3. Allow Consumers To Use Whatever Applications They Wish as Long as They Do Not Harm the Network.

The next step in the open network initiative is forcing the networks to allow consumers to use whatever applications they choose while connected to the wireless network. Skype finds this aspect of open networks particularly appealing, as the prospective use of Skype on the wireless network would increase its prospective customer base immensely.⁷⁸ Others envision the wireless network working similarly to broadband, with consumers entirely in control of how they use the Internet, subject only to bandwidth limitations. Transferring pictures from phones to computers, printing pictures, and Wi-Fi capability are examples of features valued by consumers but not network operators.⁷⁹ Businesses are unhappy with the kinds of services offered by the wireless companies, which give little value to those who use their phones mainly for work.⁸⁰

The authors of *The Economics of "Wireless Net Neutrality"* believe strongly that carriers do not offer most applications because there is not sufficient demand.⁸¹ In addition, the authors believe that Skype's ultimate goal, a phone enabled with VoIP, is inefficient.⁸² It is likely that the cost of an unlimited data plan plus VoIP service would greatly exceed the cost of a regular wireless plan, likely requiring a user to use two to three times the average number of minutes in order to break even.⁸³ The alternative, a VoIP enabled phone connected to a laptop with a wireless card, is written

78. Skype has recently been approved as an application that can run on the iPhone. See Robert Poe, *What Skype Will — and Won't — Do for iPhone*, VoIP News, Apr. 1, 2009, <http://www.voip-news.com/feature/skype-for-iphone-040109/>. This application has been restricted to run only while the phone is connected via WiFi. The application may not run over AT&T's network.

79. *But see* Hahn, Litan & Singer, *supra* note 28, at 433 (pointing to changes in consumer needs as compelling these trends).

80. *See generally* Levine & Blaszkak, *supra* note 77. Wireless companies have "focused on value-added services for consumers—e.g., games, ringtones, and video streaming—that have no practical application in the business environment." *Id.* at 64.

81. Hahn, Litan & Singer, *supra* note 28, at 433.

82. *Id.* at 434. Business analysts suggest that this is incorrect. For example, Levine & Blaszkak suggest that businesses would be receptive to a phone enabled with Wi-Fi capable of using VoIP over the corporate WAN's or Internet. *See* Levine & Blaszkak, *supra* note 77, at 63. VoIP would offer an alternative to the carriers who fail to offer price schemes conducive to business such as a flat per-minute rate without a minimum per-user requirement. *Id.*

83. Hahn, Litan & Singer, *supra* note 28, at 434.

off as too cumbersome to be effective.⁸⁴ The authors also suggest that the likely reason that more phones are not Wi-Fi compatible is the shorter battery life of a Wi-Fi enabled phone compared to an identical phone without it.⁸⁵ Finally, the authors believe that supporting application innovation, which would be encouraged by the open network initiative, would likely occur at the cost of reducing innovation at the “core” of the network.⁸⁶

While it may be true that carriers do not offer the majority of applications because of low demand, consumers should still be able to choose which applications they use. Instead of allowing the networks to be the ultimate deciders of what the market dictates, the application developers should choose what to offer to consumers. With the cost of developing a program for a cell phone being relatively low, an open application environment would allow consumers to choose which applications to use rather than forcing consumers to use those applications included with their handset/service combination.

In addition, the authors downplay the usefulness of Wi-Fi enabled phones, especially when combined with the use of VoIP.⁸⁷ A Wi-Fi enabled phone can connect to the Internet through any wireless hotspot, instead of going through the carrier’s wireless network. When used in conjunction with VoIP, the consumer could potentially use a carrier for calls made when out of range of a wireless hotspot, while still taking advantage of the price of VoIP when Wi-Fi is available.⁸⁸ Finally, it is counterintuitive that an increase in application innovation, if separated from network control, would lead to decreased innovation at the infrastructure level of the wireless networks. By taking away the incentive for the networks to compete with each other at the application level, the wireless networks would be forced to compete for customers based on the efficiency and pricing of their service.

The network operators have a more practical fear if an open application regulation were to be enforced: congestion. Operators fear that allowing consumers to use any and all applications will affect the

84. *Id.* at 443-44 (“Because a VoIP phone connected to a laptop connected to a wireless card (three devices) is a poor substitute for a traditional mobile telephone (one device), any restrictions on attachments are more likely motivated by legitimate operational concerns, and should therefore be allowed.”).

85. *Id.* at 436.

86. *Id.* at 411.

87. *Id.* at 434-435.

88. Skype offers free calls from Skype-to-Skype and calls from Skype to landline or mobile phones at two cents per minute. Price - What’s Free and What Costs a Little, *supra* note 3.

performance of the network for other users.⁸⁹ Mainly, opponents of open applications point to the FCC's Broadband Policy of giving network operators the power to manage their networks as a necessary corollary with allowing open applications.⁹⁰ If consumers can use any applications, then the networks must have the power to limit how much of their resources a person can use, thus protecting users who are not hoarding bandwidth.⁹¹

Regardless of whether the principles of *Carterfone* or the FCC's Broadband Policy are applied, the real question is who will be in control of defining "harm to the network." Surely, Skype and supporters of open networks would like the FCC to implement a narrow definition of harm, likely limiting harmful application to those that are illegal or could carry viruses. The better choice may be to leave the decision of what is harmful to the networks, allowing them to prohibit bandwidth-intensive applications that slow their networks and cause problems for many users for the benefit of the few.

4. Networks Should Share Their Limitations on Users as Well as Provide Technical Standards for Developers.

Requiring networks to develop technical standards for distribution to developers, as well as forcing them to share their limitations on users, is probably the most important corollary to unlocking handsets and allowing any applications. As Skype has pointed out in its petition, the release of limitations and technical standards will provide transparency in the wireless industry.⁹² Skype would prefer that an FCC-created forum establish the technical standards, rather than the network operators themselves as was mandated in the *Carterfone* decision.⁹³ The purposes of these collected standards are to "1) enhance consumer choice; 2) increase price competition from software-defined services; 3) forward innovation; and 4) preserve network integrity."⁹⁴ Technical standards released by such a commission would make application development easier by providing the

89. *Skype: Carterfone Plea Aims at Broader Innovation Policy*, *supra* note 29. CTIA-The Wireless Association, General Counsel Michael Altschul stated "[s]pectrum is both a finite and shared resource." *Id.* Additionally, he points out the Slingbox (a device for watching your home television while away) "can absorb so much bandwidth in a particular cell cite that it can hamper service quality for other consumers using the same cell site." *Id.*

90. *Some Neutrality Supporters Hope Headlines Spur FCC Action*, COMM. DAILY, Nov. 16, 2007, available at 2007 WLNR 22996499 (Westlaw).

91. *See id.*

92. Skype Petition, *supra* note 4, at 6.

93. *Id.* at 31. Skype would have this forum consist of representatives from the carriers, device manufacturers, mobile operating system developers, consumer groups and application developers. *Id.* This forum would be overseen by members of the FCC's Office of Engineering and Technology. *Id.*

94. *Id.*

boundaries for programs allowed to access the network. However, with the prevalence of different technologies present in the wireless industry,⁹⁵ it is probably more efficient for the FCC to require each carrier to write up its own technical standards for attachment or application on its network.

In addition to the release of technical standards, developers could use the details concerning limitations on the amount of bandwidth/spectrum that an individual may use, as well as any types of expressly forbidden programs. Armed with this knowledge, developers could offer programs that would be useful to consumers without burdening the network or causing users to violate their terms of service.⁹⁶

Oponents of open networks can challenge this requirement as useless if Skype's proposal for unlocking handsets and allowing any application is denied by the FCC. Should the FCC choose to allow the carriers to maintain the status quo, they would not need to release technical standards because they would continue to exercise absolute control over what devices and applications may access their networks.⁹⁷ The authors of *The Economics of "Wireless Net Neutrality"* argue that wireless operators should not be compelled to disclose limits on devices and bandwidth uses because doing so may "undermine their images."⁹⁸ Despite these arguments, it is hard to contend that the release of technical standards for devices as well as applications would not benefit consumers at little cost to the carriers.

C. *Recent Developments in the Wireless Industry*

Since Skype filed its petition with the FCC, there have been many major occurrences in the wireless industry that affect whether the FCC should grant the relief that Skype is requesting. Most importantly, the FCC has put an important portion of spectrum up for sale, contingent on the buyer using the spectrum in accordance with open network standards mandated by the FCC.⁹⁹ In addition, business wireless consumers are discontent with the services provided by the major wireless carriers, potentially putting more pressure on the wireless companies to reform or

95. For a short list of the many different 3G wireless technologies, see *supra*, note 36.

96. Verizon's unlimited data plan contained a clause stating that using more than five gigabytes of bandwidth during a month would result in service termination. See Hahn, Litan & Singer, *supra* note 28, at 445.

97. See *infra* Part III.C.1. The carriers would be wise to abandon this argument and focus on convincing the FCC that each carrier should supply its own set of technical standards.

98. Hahn, Litan & Singer, *supra* note 28, at 444-45.

99. *Federal Communications Commission Oversight Hearing Before the S. Comm. on Commerce, Science, & Transportation*, 110th Cong. (2007) (statement of Comm'r Kevin Martin, Chairman, FCC) [hereinafter *Written Statement of Kevin Martin*], available at http://commerce.senate.gov/public/_files/MartinSenateTestimony121307final.pdf.

give in to the push for open networks and more competitive pricing schemes.¹⁰⁰ Perhaps in response to the increase in support for Skype's petition, the wireless carriers are beginning to change their stance on open networks, with most announcing that they either offer open networks, or believe that they have always offered open networks.¹⁰¹ Finally, Internet-giant Google is at the forefront of a movement called the Open Handset Alliance, credited for bringing about the FCC's requirements of openness for the 700 MHz spectrum.¹⁰²

Another major development in the industry, which certainly undercuts the urgency of the Skype petition, is the recent announcements by many of the wireless carriers that they are moving towards openness. While some of the announcements are more groundbreaking than others, when taken collectively, they will certainly make the FCC pause when debating if regulation of the wireless carriers directly is necessary.

1. Verizon Wins Auction; Announces "Any Apps, Any Device" Plan

The 700 MHz Auction may end up being a turning point in the battle for open networks. The FCC uses auctions as its primary means for assigning commercial spectrum.¹⁰³ The 700 MHz is an important swath of spectrum; its ability to penetrate walls easily as well as carry significant amounts of information at low power makes it ideal for wireless use.¹⁰⁴ The spectrum was always going to bring in a fair amount of money for the FCC, but the real stir came about when the FCC announced that a 22 MHz block of the spectrum, named the C Block, would only be available to a bidder willing to offer it on an "open" basis.¹⁰⁵

In a statement to the Senate Committee on Commerce, Science & Transportation, then-FCC Chairman Kevin Martin outlined the FCC's reasons for offering the C Block as an open platform.¹⁰⁶ He emphasized that the "winner . . . will be required to provide a platform that is more open to devices and applications."¹⁰⁷ These requirements "giv[e consumers] greater choice and control over their wireless experience."¹⁰⁸

100. See generally Levine & Blaszak, *supra* note 77.

101. See Bender, *supra* note 43.

102. *Android Is Creating Strange Bedfellows*, *supra* note 46.

103. Tritt, *supra* note 34, at 140.

104. *Id.* at 142. FCC Chairman Kevin Martin called the 700 MHz auction "the single most important opportunity for us to add another more open broadband platform." Written Statement of Kevin Martin, *supra* note 99, at 2.

105. Tritt, *supra* note 34, at 143-44.

106. See Written Statement of Kevin Martin, *supra* note 99, at 12.

107. *Id.*

108. *Id.*

He emphasized that consumers would “be able to use the wireless device of their choice and download whatever software they want.”¹⁰⁹ He chastised the carriers for forcing consumers to throw out their prior phones whenever they choose to switch wireless carriers.¹¹⁰ Finally, Martin pointed out the advantages enjoyed by wireless consumers in other countries, focusing primarily on the ease of changing carriers and Wi-Fi connectivity on more phones.¹¹¹

In March of 2008, the FCC concluded its auction of the 700 MHz spectrum, with Verizon Wireless and AT&T being among the winners of the largest blocks.¹¹² Verizon bought the C Block spectrum, which covers the entire nation, as well as other licenses for 102 markets across the country.¹¹³ The cost of these licenses was upward of \$9.4 billion.¹¹⁴ Verizon intends to use this spectrum to deploy a high-speed wireless data network in 2010.¹¹⁵ Sources report that both Verizon and AT&T will use these frequencies to utilize “Long Term Evolution” technology.¹¹⁶ Neither Verizon nor AT&T has yet to discuss their specific open network plans for these blocks of spectrum. Because these mandatory open networks will not become operable for some time, open network supporters will not, and should not, rest on their laurels in pursuing FCC regulation.

Prior to winning the C Block, and in perhaps the most startling move by any of the carriers, Verizon announced that they would offer consumers the choice to use any application or device on its network.¹¹⁷ Verizon had previously been one of the most outspoken of the carriers against opening the networks.¹¹⁸ It is likely that Verizon changed its stance in anticipation

109. *Id.*

110. *Id.*

111. *Id.*

112. Grant Gross, *700MHz Spectrum Winners Detail Plans: Verizon and AT&T Plan to Use Their Spectrum for High-Speed 4G Networks, While Qualcomm Will Use Its Winnings to Expand Its FLO TV Service*, INFOWORLD, Apr. 4, 2008, http://www.infoworld.com/article/08/04/04/700MHz-spectrum-winners-detail-plans_1.html.

113. *Id.*

114. *Id.* In addition, AT&T spent roughly \$6.6 billion on 227 licenses in the 12 MHz section, which has similar in characteristics to the 22 MHz of spectrum acquired by Verizon Wireless. *Id.*

115. *Id.*

116. Stephen Lawson, *Spectrum Auction Unlikely to Shift Carrier Balance: Consumers Won't Really Benefit From the Auction to Spectrum for Some Time, and It Will be Up to Carriers to Determine the Best Tradeoff Between Speed and Subscriber Base*, INFOWORLD, Apr. 7, 2008, http://www.infoworld.com/article/08/04/07/Spectrum-auction-unlikely-to-shift-carrier-balance_1.html. Both companies expect this technology to increase the speed of their mobile internet offering. *See id.*

117. *See* Weaver, *supra* note 76.

118. Verizon had challenged the open platform requirements of the 700 MHz auction as unconstitutional. Tritt, *supra* note 34, at 144.

of winning the C Block, which comes with open network restrictions. Verizon refers to the new option as “bring your own,” and consumers taking this option will be able to attach any CDMA device to the Verizon Network.¹¹⁹ Handset devices will not be the only thing allowed either. Gaming devices and household electronics can connect so long as they meet the standards provided by Verizon.¹²⁰ In addition, Verizon is the first to test devices submitted at the manufacturer’s expense.¹²¹ Verizon CEO Lowell McAdam stated that its new option is “a transformation point in the 20-year history of mass-market wireless devices.”¹²²

Other carriers are offering their own declarations of openness. Sprint Nextel claims that its own network has been open since “a long, long time ago.”¹²³ Sprint Nextel currently works with application and content developers participating in its Application Developers Program and anticipates that its upcoming WiMAX network will be open to any certified devices.¹²⁴ Sprint also has plans to offer a new service that will allow consumers to use VoIP technology from their handsets to place calls within their homes.¹²⁵ AT&T claims that it is the most open carrier in the United States because it uses GSM technology.¹²⁶ AT&T will allow customers whose service contracts have ended to use their phone on another network by unlocking it.¹²⁷ T-Mobile is another provider that believes it has been open for a long time, pointing to the fact that it allows consumers to use unlocked iPhones on its network.¹²⁸

Despite these proclamations by the wireless carriers, consumer groups are doubtful that the openness espoused by the carriers is the same as the openness desired by Skype and its supporters. The Public Interest Spectrum Coalition (PISC) is taking a “believe it when we see it” type of approach to

119. Weaver, *supra* note 76. Devices that use different technology, such as GSM, will be unable to attach to the Verizon network. *Id.*

120. *Id.* Verizon published the specifications at its Open Development Conference held on March 19, 2008. See Verizon Wireless Open Development, <https://www22.verizon.com/opendev/webcast/webcast.aspx> (last visited Apr. 15, 2009).

121. Weaver, *supra* note 76.

122. *Id.*

123. Bender, *supra* note 43. Sprint Nextel Government Affairs Senior Vice President Bob Foosaner responded to Verizon’s announcement by proclaiming, “welcome to the party.” *Id.*

124. *Id.*

125. See Levine & Blaszkak, *supra* note 77. The service will be offered at a flat rate, with unlimited local and long distance VoIP calling from home. *Id.*

126. Bender, *supra* note 43. GSM handsets can move freely between networks by switching the SIM card. *Id.*

127. *Id.*

128. *Id.* T-Mobile refers to these as “gray phones.” *Id.*

the recent slew of announcements.¹²⁹ In particular, PISC is unconvinced that the Verizon announcement is anything more than an empty proclamation.¹³⁰ Without seeing the technical standards, certification process for independent handsets, or pricing for customers who do not want bundled services, PISC believes that the announcement is merely something to persuade the FCC that direct regulation is unnecessary.¹³¹ Harold Feld of Media Access Project speculates that it is precisely the looming specter of regulation by the FCC that is prompting these companies to suddenly trumpet their openness.¹³² Public Knowledge President Gigi Sohn downplayed the importance of the Verizon announcement, stating that an open network will not be a reality until all of the carriers participate.¹³³

The recent announcements should certainly give the FCC pause as to whether industry-wide regulation will be necessary in bringing about open networks. Verizon's decision to offer its services to any handset and any application is a huge step in the right direction. In the tradition of allowing market forces to work undisturbed by the government, the FCC would likely prefer that open networks come through initiatives from the carriers themselves, rather than force it upon them through regulation.

2. Google's Android and the Open Handset Alliance

In November of 2007, Google shocked many when it announced that it was entering the mobile phone market with an ambitious plan.¹³⁴ Google's plan had two prongs: (1) Android, its open-source platform for mobile devices, and (2) the Open Handset Alliance (OHA), which is a consortium of companies from various phases of the wireless industry who are "strongly committed to greater openness in the mobile ecosystem."¹³⁵

129. See *Open Access Plans of Wireless Carriers Dont [sic] Dispel Doubts*, *supra* note 49. PISC is a coalition including Public Knowledge, Consumer Federation of America, Consumers Union, Educause, Free Press, the Media Access Project, the New America Foundation, and U.S. PIRG. *Id.*

130. *Id.*

131. *Id.*

132. Weaver, *supra* note 76. "[T]his isn't the invisible hand of the market but much more the visible hand of Washington pushing things in the right direction." *Id.*

133. *Id.*

134. Paul Krill, *Google Android Leaves Sun Wondering: Sun VP Gosling Says No Business Offered for Much-Hyped Mobile Platform; Thus No Position Can Be Taken*, INFOWORLD, Jan. 23, 2008, http://www.infoworld.com/article/08/01/23/Google-Android-leaves-Sun-wondering_1.html.

135. Open Handset Alliance – Overview, http://www.openhandsetalliance.com/oha_overview.html [hereinafter OHA – Overview] (last visited, Apr. 15, 2009). The OHA includes among its members Sprint Nextel, T-Mobile, LG Electronics, Inc., Motorola, Inc., and Samsung Electronics. See Open Handset Alliance – Members, http://www.openhandsetalliance.com/oha_members.html (last visited Apr. 15, 2009).

In particular, Android would be a groundbreaking offering, “built from the ground up with the explicit goal to be the first open, complete, and free platform created specifically for mobile devices.”¹³⁶ Android would offer all the necessary requirements for operators, handset manufacturers, and developers to create services, devices, and software all while working on the same operating system.¹³⁷ Google and other members of the OHA believe that Android will play a significant role in developing breakthroughs in the mobile market.¹³⁸

Members of the OHA, as well as outsiders, believe that Android can revolutionize the way that innovations come about in the wireless industry. The OHA believes that the open nature of Android will lead to faster discoveries and more timely responses to the needs of consumers.¹³⁹ These factors should lead to less expensive handsets and applications, as well as making these products easier to use and more consumer friendly.¹⁴⁰ Lower-cost handsets presumably would mean lower service costs because network operators would no longer need to subsidize handsets. Handset manufacturers potentially would be able to spend less time on the development of handsets, and be better able to differentiate their products from their competitors.¹⁴¹ Developers will be able to create new

136. OHA – Overview, *supra* note 135.

137. *Id.* “Android™ delivers a complete set of software for mobile devices: an operating system, middleware and key mobile applications.” Open Handset Alliance – Android Overview, http://www.openhandsetalliance.com/android_overview.html [hereinafter OHA – Android Overview] (last visited Apr. 15, 2009).

138. Google Chairman and CEO Eric Schmidt has said,

This partnership will help unleash the potential of mobile technology for billions of users around the world. A fresh approach to fostering innovation in the mobile industry will help shape a new computing environment that will change the way people access and share information in the future. Today’s announcement is more ambitious than any single ‘Google Phone’ that the press has been speculating about over the past few weeks. Our vision is that the powerful platform we’re unveiling will power thousands of different phone models.

Open Handset Alliance – Member Quotes, http://www.openhandsetalliance.com/member_quotes.html (last visited Apr. 15, 2009). Sprint Nextel President of Strategic Planning and Corporate Initiatives Keith Cowan is similarly confident that his company is blazing new trails:

Sprint continues to be a catalyst for transforming the mobile environment into one that is more open and customer-driven. Our participation in the Open Handset Alliance is a clear indication of Sprint’s commitment to breaking down barriers and enabling developers to create and deliver applications that customers want. This new mobile ecosystem model will drive innovation, personalize the mobile experience and ultimately increase wireless data usage.

Id.

139. *See* OHA – Overview, *supra* note 135.

140. The OHA believes that its product will be easy for developers to use and develop commercially viable applications. *See* Open Handset Alliance – FAQ, http://www.openhandsetalliance.com/android_faq.html (last visited Apr. 15, 2009).

141. *See id.*

applications rapidly because of the “comprehensive platform that gives them full access to the device . . . [and] rich built-in libraries that bring powerful and well-developed functionality that can easily be integrated into applications.”¹⁴²

The OHA has already provided examples of things that Android will be capable of doing, and developers are already salivating at the myriad of possibilities. The OHA has stated that “an application can call upon any of the phone’s core functionality such as making calls, sending text messages, or using the camera,”¹⁴³ which means the innovation possibilities are endless. Potential applications include utilizing unused cell phone computing power to create supercomputers,¹⁴⁴ friend-finding applications using cell phone location technology, and services that track the location of buses to alert riders when their bus is near the stop.¹⁴⁵ Importantly, Android does not make any distinction between the phone’s core applications and those developed by outsiders.¹⁴⁶ This means that users have full power to customize their phone to whatever specifications they desire. Many anticipate that Android will work on other consumer electronics, allowing people to take advantage of the dormant computing power of their televisions and other electronic devices.¹⁴⁷

Android is not devoid of potential pitfalls. Many believe that Android will not be successful without broad adoption by handset manufacturers as well as the public.¹⁴⁸ Many also fear that the open nature of Android will lead to the same problem with viruses that infect personal computers.¹⁴⁹

142. *Id.*

143. *See* OHA – Android Overview, *supra* note 137.

144. Olga Kharif, *A Warm Welcome for Android: The Mobile Software Platform Was Late to Market But Has Won a Strong Developer Following, Thanks to Its Flexibility and Google’s Financial Might*, BUS. WK. ONLINE, Jan. 23, 2008, http://www.businessweek.com/technology/content/jan2008/tc20080121_579060.htm.

145. *NMA MOBILE: Open Sesame*, NEWMEDIA, Jan. 10, 2008, at 26, *available at* 2008 WLNR 1539857 (Westlaw).

146. *See* OHA – Android Overview, *supra* note 137. The OHA argued:

They can all be built to have equal access to a phone’s capabilities providing users with a broad spectrum of applications and services. With devices built on the Android Platform, users are able to fully tailor the phone to their interests. They can swap out the phone’s homescreen, the style of the dialer, or any of the applications. They can even instruct their phones to use their favorite photo viewing application to handle the viewing of all photos.

Id.

147. *See* Kharif, *supra* note 144.

148. *See, e.g., NMA MOBILE: Open Sesame, supra* note 145. Many others believe that Android-based phones will be unable to make much headway in the smartphone market. *See, e.g.,* Kharif, *supra* note 144.

149. For example, Rich Holdsworth, co-founder and CTO of Wapple, a mobile development company, states that “[p]otentially what they have done is say anyone in the

There is also speculation that companies will be reluctant to use Android because the process is so different from the normal method of development.¹⁵⁰ In addition, “[c]ompanies that build and sell Android phones could always choose to revise it to lock out any tinkering by their customers.”¹⁵¹

Android has not impressed everyone, as it neither supports Bluetooth technology nor has Wi-Fi capability.¹⁵² Others believe that Google’s lack of a firm business plan concerning Android makes its viability suspect; in the words of Sun Microsystems Vice President James Gosling, “[u]nless the day comes when they say what they’re going to do with it, it’s just a bag of code sitting out there.”¹⁵³

It is hard to deny that the OHA and Android will benefit consumers. While some may question whether Google will ultimately be successful, even the announcement of Google’s endeavor has spurred other companies to become more open. Android offers consumers what might be their best chance to experience complete openness in the wireless industry.

IV. CONCLUSION

While the recent developments by the carriers and outside parties in advocating open networks is helpful for Skype in showing why open networks will be advantageous, anything less than direct FCC intervention in Skype’s favor is a loss for Skype. The carriers may be willing to pursue openness on their own terms, but it is highly doubtful that those terms would allow any room for Skype, a direct competitor with wireless phone service, to push its way onto the carriers’ networks. However, especially when examining the wireless industry as a whole, the FCC should take care before initiating any sort of major regulation. The C Block experiment will provide a telling example of whether open networks are a viable option outside supporter rhetoric. The FCC is likely encouraged by the recent changes in the carriers’ stances on open networks. Despite these hopeful signs, Skype and supporters of open networks have presented some persuasive arguments that a more urgent change in the way the current

world can write an application that hooks directly into the core of the phone. That could be dangerous.” *NMA MOBILE: Open Sesame*, *supra* note 145.

150. See, e.g., Rob Pegoraro, *THE GEAR HUNTER: Google Let Freedom Ring*, *NEWSDAY*, Jan. 22, 2008, at B02, available at 2008 WLNR 1211406 (Westlaw).

151. *Id.*

152. Kharif, *supra* note 144.

153. Krill, *supra* note 134. As of December 2008, only one Android-based phone, the T-Mobile G1, was available in the United States, but many companies have plans to release their own versions in 2009. See Martin Perez, *Multiple Android Phones Expected in 2009*, *INFORMATIONWEEK*, Dec. 22, 2008, http://www.informationweek.com/news/personal_tech/smartphones/showArticle.jhtml?articleID=212501692.

carriers run their networks could provide benefits for both consumers and developers.

First and foremost, the benefits of requiring the carriers to provide technical standards for potential devices and applications to connect to their networks far outweigh the costs. These standards would benefit developers by providing them with a clear blueprint for what kind of devices and technology will be accepted by each carrier, and would allow the developers to focus their innovations to conform to the network needs. More focused development will lead to more useful devices and applications for consumers. Providing technical standards is not a large burden for the carriers, and such a requirement will help them work with developers more closely as new technologies are shepherded into the wireless industry.

The FCC should force the carriers to relinquish some control over what kinds of handsets can attach to their networks. Wireless operators focus too much on competing with other operators based on the phones they sell—rather than on the quality of service they provide. Regulation requiring the carriers to accept all phones that meet their technical standards would allow consumers to choose from a wider variety of phones, as well as allow them to change networks without sacrificing the phone they currently own.

However, the FCC should be wary of forcing carriers to allow all applications to run on their networks. Until technology catches up with the demand for more bandwidth, allowing users to run bandwidth-intensive applications without restrictions will likely result in poor service for many users. In Skype's case, the burden should be on Skype to show that their program will not be harmful to the network in terms of bandwidth usage. The FCC should heed this warning and continue to allow the carriers to choose which applications consumers may use on their wireless networks. Allowing carriers to determine what will harm their networks is a productive way for the FCC to maintain the integrity of the wireless networks.

The FCC has an important role in the upcoming years to mold the wireless industry. It needs to foster development and innovation while maintaining incentives for the carriers to invest in wireless infrastructure and strengthen their networks. The best way to do this is to require carriers to create technical standards for developers and limit the power carriers have over devices consumers use to access wireless networks.