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VIA ELECTRONIC SUBMISSION AND ELECTRONIC MAIL

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Chairman Julius Genachowski
Federal Communications Commission
445 12th Street S.W.
Washington, D.C. 20554

Re: Verizon’s Blocking of Google Wallet: Preserving the Open Internet, GN Docket No. 09-191; Broadband Industry Practices, WC Docket No. 07-52; Service Rules for 698-746, 747-762, and 777-792 MHz Bands, WT Docket No. 06-150; File No. EB-11-MDIC-0004

Dear Chairman Genachowski:

Two weeks ago, various news outlets reported that Verizon Wireless’s new Galaxy Nexus phone, an Android device that went on sale last Thursday, will not support Google Wallet, Google’s mobile payment application.¹

Based on what we know from press reports, it seems that Verizon Wireless is violating the open-devices and open-applications conditions in its legal licenses for part of the 700 MHz spectrum (the so-called “C-Block”) over which the company’s LTE network operates. There is, however, great uncertainty about what exactly is going on. I am writing to ask the Commission to investigate the situation as quickly as possible and to send a signal to the market – innovators, consumers, and licensees – that the openness conditions will be enforced.

The outcome of this case has important implications not only for the mobile payments market, but also for any application or service potentially available on a mobile network. First, Verizon’s behavior hurts Verizon customers, a full 35% of the mobile market, who are unable to use the very first mobile payment technology based on near-field communications that has come to market. These consumers are unable to use this application to pay for goods and

¹ Raphael (2011a); Efrati & Troianovski (2011); Balaban (2011).

services instead of using cash or a plastic card, and are unable to take advantage of the other features Google Wallet offers.

Second, Verizon's behavior hurts competition in the emerging, potentially huge market for mobile payments technologies and associated services. While the market is nascent today, analysts expect that by 2015, \$56.7 billion will be exchanged in mobile payment transactions.² Verizon has an incentive to undermine competition in mobile payments, and to eliminate any competitor's first-mover advantage, as it has partnered with AT&T and T-Mobile to launch a competing payment service called ISIS sometime next year.

Third, Verizon's actions hurt innovation, in mobile payments or even in *any* other mobile technology. They do so by shaking innovators' and investors' confidence that there will remain one significant part of the wireless Internet in which they can offer their applications or devices without fear of blocking and discrimination by carriers hoping eventually to offer competing products. Innovators and investors are already concerned about the lack of strong network neutrality rules for the mobile Internet. If even Google, one of the nation's largest corporations, can be blocked by the one wireless carrier that is subject to strong openness conditions, every mobile innovator and investor in the country will know that they are at the mercy of the carriers.

Finally, Verizon's conduct undermines the Commission's general approach towards mobile Internet openness by dismantling the protections for one part of the spectrum on which the FCC's "incremental" approach to regulation in this space is built. Without enforcement, the openness conditions are effectively moot. Verizon violated these conditions earlier this year when it blocked tethering applications. Now it is blocking Google Wallet. This emerging pattern of disregard for its license conditions challenges the FCC to follow through on its pledges in the Open Internet Order to enforce the openness conditions in the 700 MHz band and to monitor the mobile Internet space for abuses by licensees.

Thus, to protect users and innovators in the mobile payments market and in mobile broadband markets more generally and preserve the Commission's approach towards mobile Internet openness, swift action is needed.

My more detailed analysis is below. I file this letter as a professor of law and, by courtesy, electrical engineering at Stanford University whose research focuses on telecommunications platforms and innovation.³ I have had the privilege of testifying before the FCC several times on issues that raise similar concerns, and welcome the opportunity to discuss these important matters further.⁴

What is going on

Google Wallet is a mobile payment application that allows smartphone users to use their phone as a virtual wallet.⁵ In particular, it allows users to pay in participating stores by tapping their

² Marketwire (2010).

³ van Schewick (2010a).

⁴ See, e.g., van Schewick (2008); van Schewick (2010c); van Schewick (2010b).

⁵ Google (2011b).

phone on a card reader at the point of sale. The user's credit card information is stored on a chip called the "secure element" that is separate from the phone's operating system and hardware. Only specifically authorized programs can access the secure element. Usually, Google Wallet is one of these programs.⁶

Samsung developed the new Galaxy Nexus phone in close cooperation with Google.⁷ The phone has the necessary hardware (i.e., the secure element and the near-field communications antenna needed to communicate with readers) to support Google Wallet.⁸

While published facts are sparse, it seems that Verizon is making it impossible for Google Wallet to access the secure element. Without this access, Google Wallet cannot function as intended.

The Google Wallet application is not preloaded on the Galaxy Nexus phones offered by Verizon and is currently not available for download.⁹ But even if a user was able to download the Google Wallet application to the phone,¹⁰ the application would not work without access to the secure element.

Verizon has not explained the motivation for its behavior. There do not seem to be any technical reasons. In particular, the technology does not seem to pose any threats to the security or integrity of the wireless network. An earlier version of the phone, the Sprint Nexus S, which includes and supports Google Wallet, has been operating on Sprint's wireless network without any problems.¹¹

Google Wallet directly competes, however, with a mobile payment service called ISIS. ISIS, developed by a joint venture of Verizon, AT&T and T-Mobile, will launch in selected US markets sometime in 2012. Thus, Verizon's behavior towards Google Wallet looks like an attempt to either permanently prevent a competing mobile payment application from accessing Verizon's customers or, at least, to temporarily stall that competing application until Verizon's own application is launched.¹²

While no information about AT&T's or T-Mobile's approach towards Google Wallet has become public, it is likely that Google is running into the same type of problems with these

⁶ Google (2011c).

⁷ Raphael (2011b).

⁸ Balaban (2011); Balaban & Wood (2011).

⁹ Currently, Google Wallet is only available on the Sprint Nexus S, which comes preloaded with the Android software. Google (2011a).

¹⁰ One user seems to have been able to install a beta version of Google Wallet on an unlocked GSM / HSPA+ version of the Galaxy Nexus that he bought in the UK (Tofel (2011a); Tofel (2011b)). It is unclear whether the same approach would work on the Galaxy Nexus sold by Verizon. In any event, the steps the user followed to install Google Wallet are so complex and technical that they are beyond the capabilities of the vast majority of Android users. They are also likely to violate Verizon's Terms of Service, which makes unilateral attempts to operate Google Wallet on the Verizon Galaxy Nexus even more futile.

¹¹ Balaban (2011); Balaban & Wood (2011).

¹² Balaban (2011); Balaban & Wood (2011); Kim (2011b).

carriers. In this respect, it is quite telling that the only provider who currently offers an Android phone that supports Google Wallet is Sprint, which is not a member of the ISIS consortium.¹³

Why this violates the openness conditions

The openness conditions prohibit Verizon Wireless from denying, limiting, or restricting the ability of their customers to use the devices and applications of their choice on the part of its network that operates in the so-called C-Block of the 700 MHz spectrum.¹⁴ It seems that Verizon Wireless' actions "deny, limit or restrict" users' ability to use Google Wallet.

Verizon has published a denial:

Recent reports that Verizon is blocking Google Wallet on our devices are false. Verizon does not block applications.

Google Wallet is different from other widely-available m-commerce services. Google Wallet does not simply access the operating system and basic hardware of our phones like thousands of other applications. Instead, in order to work as architected by Google, Google Wallet needs to be integrated into a new, secure and proprietary hardware element in our phones.

We are continuing our commercial discussions with Google on this issue.¹⁵

Although the argument is not explicitly linked to the openness conditions, Verizon seems to claim that Google Wallet is not an "application," since it "needs to be integrated into a new, secure and proprietary hardware element in our phones." Given that it is not an application, Verizon appears to suggest that the openness conditions do not apply.

Fortunately, we need not worry about whether this argument makes sense or not, because another subsection of the openness conditions directly applies to this situation: According to §27.16 (e), "no licensee may disable features on handsets it provides to customers, to the extent such features" comply with "published technical standards reasonably necessary for the management or protection of the licensee's network."¹⁶ As the FCC's 700 MHz Second Report and Order explains in more detail, this provision is designed to prohibit carriers from requiring equipment manufacturers to disable certain capabilities in mobile devices.¹⁷

Wireless service providers subject to this requirement will not be allowed to disable features or functionality in handsets where such action is not related to reasonable network management and protection, or compliance with regulatory requirements. For example, providers may not "lock" handsets to prevent their transfer from one system to another. We also prohibit standards that block Wi-Fi access, MP3 playback

¹³ Balaban (2011); Balaban & Wood (2011); Kim (2011b); Svensson (2011).

¹⁴ 47 C.F.R. §27.16(b).

¹⁵ Raphael (2011c).

¹⁶ 47 C.F.R. §27.16(b,e).

¹⁷ FCC (2007), Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket No. 06-150, Second Report and Order, FCC 07-132 (*700 MHz Second Report and Order*), p. 80, para 199.

ringtone capability, or other services that compete with wireless service providers' own offerings.¹⁸

Thus, the FCC explicitly considered the possibility that certain functionalities or services may be based on certain hardware capabilities of the phone, and chose to prohibit carriers from disabling these capabilities. The secure element seems to be such a hardware element. Verizon is disabling Google Wallet's access to that element, making it impossible for Google to offer a mobile payments service that competes with Verizon's own mobile payment offering.

What the FCC should do

While it seems that Verizon's behavior towards Google Wallet is violating the openness conditions of its license, we don't know enough about what is going on to make this determination with certainty. So far, Google and Verizon have not commented publicly beyond their very brief, published statements.¹⁹ Thus, as a first step, the FCC should investigate the facts. Knowing the facts is the basis for sound policy making.

The FCC has the power and duty to investigate based on two sources:

- (1) the FCC's authority under Title III of the Communications Act to oversee and enforce the openness conditions in the 700 MHz band, and
- (2) the FCC's Open Internet Order.

While the Commission included only limited restrictions on blocking in the actual Open Internet rules, the text of the Open Internet Order made very clear that the Commission's decision not to adopt further rules for the mobile Internet in the Open Internet Order should not be interpreted as blessing discriminatory behavior that would violate the Open Internet rules for fixed broadband, but not for mobile broadband, and that the Commission would monitor developments and investigate incidents as they arise:

We emphasize that our decision to proceed incrementally with respect to mobile broadband at this time should not suggest that we implicitly approve of any provider behavior that runs counter to general open Internet principles. Beyond those practices expressly prohibited by our rules, other conduct by mobile broadband providers, particularly conduct that would violate our rules for fixed broadband, may not necessarily be consistent with Internet openness and the public interest.

We are taking measured steps to protect openness for mobile broadband at this time in part because we want to better understand how the mobile broadband market is developing before determining whether adjustments to this framework are necessary. To that end, we will closely monitor developments in the mobile broadband market, with a particular focus on the following issues: (1) the effects of these rules, the C Block conditions, and market developments related to the openness of the Internet as accessed through mobile broadband; (2) any conduct by mobile broadband providers that harms innovation, investment, competition, end users, free expression or the

¹⁸ *Ibid.*, p. 89, para 222.

¹⁹ Raphael (2011a); Raphael (2011c).

achievement of national broadband goals [...] *We will investigate and evaluate concerns as they arise. We also will adjust our rules as appropriate.*²⁰

Why it matters

Investigating what is going on and enforcing the openness conditions, if necessary, is crucial for protecting users and innovators in the mobile payments market and in the market for mobile broadband more generally.

1. Impact on the market for mobile payments and associated services

Verizon's behavior towards Google Wallet hurts consumers today. As a result of Verizon's conduct, the Galaxy Nexus, the flagship phone for the new generation of Android's operating system,²¹ comes to the market without an innovative payment application that observers view as one of two main contenders in the market for mobile payment services.²² Google Wallet is the first commercially available payment service that employs near-field communications technology to allow users to securely pay by tapping their phone. This technology is now unavailable to the 107,695,000 customers of Verizon Wireless, as well as to those who are considering switching to Verizon to take advantage of the company's 4G LTE network.

The behavior also threatens to undermine competition in the nascent market for mobile payments and associated services. Beyond mobile payments, Google Wallet and ISIS enable a rich array of services in the areas of mobile marketing and customer loyalty.²³ For example, Google not only stores credit card information, but also loyalty rewards, purchase points or offers for deals that users receive through Google Offers. While the market is nascent today, analysts expect that by 2015, \$56.7 billion will be exchanged in mobile payment transactions.²⁴

In this potentially huge, emerging market, Verizon's behavior excludes one of the main contenders (and currently the *only* contender) from access to Verizon's cell phone customers. Verizon, the largest carrier, has 35 percent of the market for wireless providers. Mobile payments technology faces a chicken and egg problem. The larger the number of users, the more likely it is that merchants are willing to make the investments necessary to support the technology, and vice versa. By excluding the technology that is first to market from access to a significant chunk of the market, Verizon can break or, at least, slow down, this virtuous cycle.

Moreover, so far neither AT&T, which has 32 % of the market, nor T-Mobile, which has 10 % of the market, offer Android phones that support Google Wallet. Like Verizon, they have no incentive to support a technology that will compete with their own mobile payment

²⁰ FCC (2010), *Preserving the Open Internet*, GN Docket No. 09-191; Broadband Industry Practices, WC Docket No. 07-52, Report and Order, FCC 10-201 (*Open Internet Report and Order*), p. 58, paras 104-105, emphasis added.

²¹ Raphael (2011b).

²² Kim (2011a).

²³ Kim (2011a).

²⁴ Marketwire (2010).

technology.²⁵ If Sprint, with 17 % the nation's third largest wireless carrier, remains the only carrier that supports Google Wallet, the technology will be dead upon arrival.²⁶

2. Impact on the market for mobile Internet applications and on the Commission's policy towards mobile Internet openness

The impact of Verizon's conduct reaches beyond mobile payments. The openness conditions for the C-Block are a centerpiece of the FCC's approach to mobile Internet openness. In 2007, the Commission adopted these conditions to ensure that even if market forces would not be sufficient to allow users to use the applications and devices of their choice and to provide application developers and device manufacturers with guaranteed access to users (a question that the Commission did not resolve at the time), at least a part of the valuable 700 MHz spectrum remained open for applications and devices.²⁷ The Commission deliberately chose the C-Block, a large 22 MHz block, for the openness conditions to "provide sufficient potential market penetration to attract investment and achieve economies of scale in the equipment market place."²⁸

The Commission's approach to mobile network neutrality in the Open Internet Order fundamentally relied on the existence of these conditions. As the Commission made clear in the Order, the existence of openness conditions in the C Block of the 700 MHz band was an important reason to proceed more incrementally with respect to mobile broadband and adopt more limited rules for mobile than for wireline broadband.²⁹ Reflecting the importance of the openness conditions, the FCC explicitly reaffirmed its commitment to enforcing these conditions as part of the Open Internet Order.³⁰

For the second time in one year, Verizon seems to engage in conduct that violates the openness conditions. In June 2011, various news outlets reported that Verizon Wireless had asked Google to disable tethering applications in Google's mobile application store, the Android Market.³¹ Tethering applications allow users to use laptops or other devices over their mobile Internet connection by attaching them to their smart phones. In early June, Free Press filed a complaint with the FCC alleging that this behavior violates the C-Block conditions.³²

This pattern of behavior threatens mobile Internet users and innovators alike. By ignoring the openness conditions in the C-Block, Verizon deprives consumers of the ability to use the

²⁵ Balaban (2011); Balaban & Wood (2011); Kim (2011b).

²⁶ Kovach (2011).

²⁷ FCC (2007), 700 MHz Second Report and Order, p. 80-83, paras 198-204.

²⁸ FCC (2007), 700 MHz Second Report and Order, p. 82, para 204.

²⁹ FCC (2010), Open Internet Report and Order, p. 58, paras 104-106 ("We expect our observations of how the 700 MHz open platform rules affect the mobile broadband sector to inform our ongoing analysis of the application of openness rules to mobile broadband generally." *Ibid.*, p. 54, footnote 297; "We are taking measured steps to protect openness for mobile broadband at this time in part because we want to better understand how the mobile broadband market is developing before determining whether adjustments to this framework are necessary. To that end, we will closely monitor developments in the mobile broadband market, with a particular focus on the following issues: (1) the effects of these rules, the C Block conditions, and market developments related to the openness of the Internet as accessed through mobile broadband [...]. *Ibid.*, p. 58, para 105).

³⁰ FCC (2010), Open Internet Report and Order, p. 58, para 106.

³¹ Ziegler (2011); Kellex (2011); Reardon (2011).

³² Free Press (2011).

applications of their choice in the one part of the wireless Internet that the FCC intended to stay open.

How the Commission approaches these incidents – whether it swiftly investigates them or whether it chooses to stay silent – will also send an important signal to innovators who consider developing new mobile applications or devices and to the investors who fund them. So far, the existence of the openness conditions promised innovators and their investors access to at least a part of the market that, by design, was large enough to achieve substantial market penetration and realize economies of scale. If the Commission does not act, this promise becomes moot. After all, the existence of openness conditions does not matter if they are not enforced. Thus, in the face of Verizon’s repeated violations, Commission inaction will seriously undermine innovators’ and investors’ confidence that there will remain one significant part of the wireless Internet in which they can offer their applications without fear of blocking and discrimination. By investigating both incidents, the Commission can prevent this outcome from happening.

Very truly yours,

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