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August 27, 2018

Marlene H. Dortch, Secretary
Donald Stockdale, Chief, Wireless Telecommunications Bureau
Kathy Harris, Mobility Division, Wireless Telecommunications Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

RE: WT Docket No. 18-197 / Comment of Ting Mobile, Inc.

Dear Secretary Dortch, Mr. Stockdale, and Ms. Harris:

We, Tucows, the company that offers Ting Mobile, would like to submit our unique insights on the proposed merger between T-Mobile and Sprint. We have seen first hand how the current competitive landscape - specifically, T-Mobile and Sprint chasing AT&T and Verizon and aggressively competing with each other for third place - has birthed and fostered a robust tier of challenger brands. We have seen how those challenger brands have transformed the industry and benefited consumers. Most importantly, we see how easily those challenger brands could become unsustainable or uncompetitive if the right protections are not put in place.

Our goal is neither to endorse nor to dissuade but simply to help this body better understand the very positive role Ting and other MVNOs play in the US mobile industry and the conditions that would be needed for us and others like us to continue to play that critical role in the event of a merger.

About Tucows. Tucows began as a website in the early 1990s, making Internet software available for download, in the days before the Internet was widely used by consumers. Our principal executive offices are located at 96 Mowat Avenue, Toronto, Ontario, M6K 3M1 Canada. We also have numerous offices in the United States and an office in Germany. Our primary web site address is <http://tucows.com>. As a publicly traded company, listed on the NASDAQ under "TCX," additional information about us and our operations is available in our regularly filed reports and disclosures.

Tucows' Lines of Business. We are a diversified Internet services company, with a mission to provide simple useful services that help people unlock the power of the Internet. We accomplish this by reducing the complexity our customers' experience as they access the

Internet (at home or on the go), use cellular voice communications, and enable other Internet services such as domain name registration, email and Internet hosting. We see our company as having three distinct lines of business:

- Internet registration and identity services (such as domain name registration, email services, and website hosting), through our OpenSRS, Enom, Hover, and EPAG brands;
- Mobile telephone services, through our Ting brand; and
- Fiber-based Internet access to the home, also through our Ting brand.

Interestingly, Tucows has a long history of success challenging monopolies and oligopolies. Our Internet registration and identity services business was born in 1999 when Network Solutions, which was, at that time, the sole registrar for all of the Internet's non-governmental generic top-level domains, was opened up to competition. We drove the wholesale price of domain names from \$35 per year to \$10, eliminating excess monopoly profits and helping Internet users.

This policy paper focuses on the second line of business, mobile telephony (hereafter “Ting Mobile”). Ting Mobile launched nationally in 2012 on the Sprint network. Ting added service on the T-Mobile network in 2014. Ting Mobile derives revenue from providing mobile phone service to individuals and small businesses through the Ting website. Ting provides customers with access to our provisioning and management tools, via the ting.com website, to purchase retail mobile phones and their associated network services nationally. Revenues are generated in the United States and service to customers is provided on a monthly basis with no fixed contract term. As of 30 June 2018, Ting managed mobile telephony services for approximately 282,000 subscribers across 163,000 accounts.

Our view on regulation. Ting is generally in favor of open markets and believes government should have a light touch in regulating markets. We are a company born of the Internet and have thrived in an environment that has had very little formal regulation.

In this regard it is worth noting that we have been very active participants in the Internet Corporation for Assigned Names and Numbers (“ICANN”) since its inception and have been involved in working for the Open Internet and the expansion of the domain name space even prior to the creation of ICANN in 1998. We have been longtime supporters of the U.S. approach to Internet governance and feel that this hands off approach was central to allowing the Internet to flourish.

We note that the Internet is a global resource and that there are currently not global governance mechanisms. Telecom networks are a national resource and are therefore different in subject matter.

We further note that the Internet is a set of protocols that are followed by global consensus. Telecom networks are core infrastructure that contain important elements of policy (spectrum policy, rights of way and much more) that frame and dictate their competitive structures.

Our view on mergers. Consistent with our view on regulation, we are generally in favor of a light regulatory touch with respect to mergers. In general, and particularly in today's global marketplace, scale and efficiency are important and mergers are a very important means of reaching scale.

We view networks, both fixed and mobile, as vitally important economic infrastructure and therefore something to which governments need be attentive. We also believe that networks are creatures of regulation. Telecom networks are born in a regulatory soup, not born out of whole cloth. They are never devoid of regulation. The incumbent(s) in virtually every telecom market in the world hold position due to a regulatory framework. When added to their place as core economic infrastructure, networks are markets where governments have a responsibility to nurture competition, innovation and affordability.

Even in this context, we prefer a regulatory approach that is as simple as necessary but not simpler.

Our view on this merger. In a general sense, we think the T-Mobile/Sprint merger makes strong business sense and will generally benefit most stakeholders. For greater clarity, we view the group of stakeholders as customers, employees and investors, in that order.

We believe customers will benefit from a more efficient, profitable company which will allow greater investment in building the current Sprint spectrum in particular. We are uncertain whether customers will benefit from lower prices as we have seen in Canada (with the most expensive mobile phone service in the world) that three competitors and no MVNO presence in the market leads to clear oligopolistic pricing and a minimum of competitive pricing pressures.

We believe that this merger will create business efficiencies which, naturally, will lead to significant job loss. We do expect the combined entity to provide a more stable employment



environment for the remaining employees and hope and expect that the terminated employees will generally end up in better long term employment situations.

We believe that investors will greatly benefit from the merger efficiencies and from the increased competitive capabilities of a combined entity.

Particularly in light of the operating histories and current market structures, We believe this merger makes excellent business sense and, *with the preservation of the appropriate competitive elements that the MVNO space provides*, can make excellent regulatory sense.

Our view of Networks. Underpinning any effort by regulators to create or maintain a regulatory framework should be a theory or view of telecom networks. We will share ours.

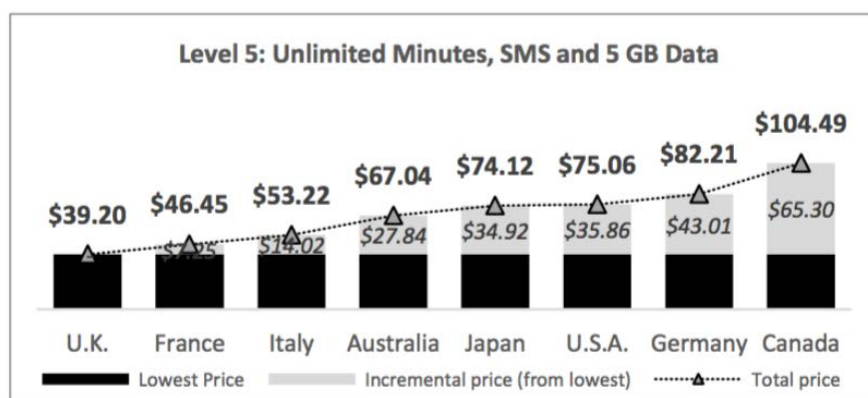
We view telecom networks as core economic infrastructure. We also believe that like infrastructure such as roads and the electric grid, the physical layer of telecom is a natural monopoly. This view was recognized to some extent by the Trump Administration's comments about 5G networks in January. We should be explicit that given the historical telecom infrastructure landscape and given the overlap in the Internet being provided by copper, coaxial, fiber and mobile networks, we do not view a natural monopoly in the physical layer as feasible in any way. We do believe this important idea should inform regulators however.

Importantly, we believe that the overlap and intersection between fixed (home or business) networks and mobile (phone or tablet while on the go) networks is misunderstood. Fixed networks are inherently superior to mobile networks as they require no overhead to manage mobility. Where they are seen as potential substitutes for each other, as in the United States, that perceived similarity is only due to the relatively poor performance of the fixed networks. The United States has among the best mobile networks in the world and is firmly in the middle to lower-middle of the pack in fixed networks.

This is particularly important when trying to understand the importance of "5G" technology (we will refer to this as 5G without quotes going forward but wish to be clear that there is no accepted definition of what 5G is, no clear timeline for its availability, and no clear indication of how it will be delivered). We also note that delivering 5G networks, whether fixed or mobile, requires much denser fiber than exists today. To us, the discussion of 5G, particularly the regulatory discussion, feels like a discussion about the importance of computing when the electrical grid is still not sufficient to support it. We strongly urge regulators to focus on fiber before focusing on 5G.

Viewing mobile networks as a solution to the problem of home broadband is to reinforce the deficiencies in home broadband in the United States. It does not bode well for the future when we have our economic competitors around the world, particularly in countries like China and Brazil, investing tens of billions of dollars in fiber to the home (“FTTH”), which necessarily requires dense fiber networks, while our market inches along.. In 2016, China added more FTTH connections *than there are homes in the United States*.

Cell phone bills around the world. While cell phone bills in the United States have decreased in recent years, even as cell phone usage has gone up, Americans still typically pay more than customers in Europe and Asia.



Nordicity Group Ltd. audited cell phone bills around the world in May 2017. For unlimited talk and text with 5 Gigabytes of data, a common package and usage profile, US cell phone bills were over twice as much as those in the UK and more than France, Italy, Australia and Japan.

In 2014, GSMA Intelligence counted 585 MVNOs operating in Europe, 129 in Asia Pacific and 107 in North America, indicating a strong negative correlation between operating MVNOs and bill size. In fact, Canada, which has no MVNOs, has the highest cell phone bills in the world.

An introduction to MVNOs. Ting Mobile is a Mobile Virtual Network Operator, often called by its acronym “MVNO.” As an MVNO, Ting Mobile does not own the wireless network infrastructure over which it provides services to its customers. Instead, Ting Mobile uses the network infrastructures owned and operated by Sprint Spectrum L.P. (“Sprint”) and T-Mobile USA, Inc. (“T-Mobile”). Ting Mobile first signed with Sprint in October 2011 and added T-Mobile in October 2014.

The MVNO Business. The MVNO concept originated in Europe in the late-1990s, springing out of a European Union regulation requiring any network service provider with a dominant market position to grant access to its network on a transparent, fairly priced, and non-discriminatory basis. See, Directive 95/62/EC of the European Parliament, 13 December 1995. The first attempt to use the EU Directive came in Scandinavia, but commercial negotiations failed and the parties initiated various regulatory challenges around the meaning and parameters of the new law. Seeing the challenges in Scandinavia, the UK's Office of Telecommunications opened a public consultation and provided regulatory leadership, resulting in Virgin Mobile becoming the first MVNO in 1999. When the Scandinavian MVNOs launched the following year, they proved immediately successful. Within three years, mobile rates to customers in Denmark had fallen by half.

In the United States, MVNOs were created by the network operators' desire to sell unused capacity, to increase market share through a reseller model of reaching new customers, and to ward off any regulatory mandate by proactively enabling third-party use of their networks. At present over 100 MVNOs service the United States market, each one run on one or more of the four major cellular networks: Sprint, T-Mobile, AT&T, and Verizon. McKinsey & Company, Inc. estimated in 2014 that MVNOs serviced fourteen percent of the United States market, which would not have changed meaningfully over the past few years. Although a big portion of that belongs to Mexican telecommunications giant América Móvil, with about 23 million subscribers on brands like StraightTalk and Tracfone, and a portion will increasingly belong to Comcast Corporation, with Xfinity Mobile, and Charter Communications, with Spectrum Mobile.

U.S.-based MVNOs have sought to differentiate themselves from the four dominant network providers through a variety of methods including: (a) different pricing models, including lower priced offerings; (b) improved customer service; (c) partnerships with U.S.-based retailers; and (d) opening retail stores in rural and underserved urban markets.

For its part, Ting has distinguished itself by (a) allowing customers to bring their own device to Ting, without having to purchase or subsidize a new device; (b) providing a full suite of online tools to allow customers to buy, manage and track their service to a much greater extent than was available before, thereby eliminating the need for costly physical premises (c) implementing unique pricing models, with no long-term commitment, that allow customers to pay for the voice minutes, data, and texts that they actually use, which typically results in lower costs for a significant segment of the market; and (d) providing best-in-the-world (as measured by NPS) customer service, where calls are answered on the first ring by live support representatives trained and empowered to handle a support request without hand-off to another person.

MVNO Impact and Innovation. MVNOs were first credited with slashing phone bills in Europe. In [The global MVNO footprint: a changing environment \(2015\)](#), MVNO GSMA Intelligence asserted:

“MVNOs have long been encouraged in Europe by regulators as a way to increase competition and reduce prices, and their presence has been one of the contributing factors to the steady decline in consumer revenues in the region. Over the three years to Q3 2014, ARPU in Europe fell by seven percent on average per annum, against a backdrop of economic recession, price cutting by newer entrants to the MNO market (e.g. Free Mobile in France, Three in multiple markets) and OTT competition as well as MVNO activity.”

This phenomenon has clearly been repeated in the United States in the past few years as MVNOs have proliferated and **Ting Mobile** (with our a la carte, pay-for-what-you-use model), **FreedomPop** (offering free service at low ends), **Mint Mobile** (huge discounts on multi-month pre-paid plans) and others have forced the carriers to decrease prices, eliminate unfair pricing practices (hidden fees, huge breakage) and increase usage allowances.

Beyond just price pressure, US MVNOs have innovated and inspired imitation to help millions of customers of major carriers and MVNOs alike get better user experiences and value.

Republic Wireless (smartphones automatically switching to Wi-Fi when it is available for both data and calling), **Google Fi** (seamless switching between Wi-Fi and multiple networks) and **Karma** (public sharing of network data between strangers) inspired the entire industry to research and develop products and features that save customers money and expand and improve coverage.

Solavei (peer to peer marketing) forced the industry to sweeten rewards for customer referrals. **TPO** and **Credo** (revenues shared with charitable and political causes) pushed carriers to introduce giving in their models and bolster and promote their own charitable contributions.

ROK Mobile integrated a streaming music service into their offering before T-Mobile made streaming music, Netflix and other lifestyle add-ons central to their Uncarrier campaign.

Ting Mobile educated people about the trap of device subsidies before T-Mobile followed.

Ting Mobile introduced a simple, online path for new customers to bring their own device to the service (rather than have to buy a new one) and launched an early termination fee (ETF) reimbursement program, making it easier and more affordable than ever for customers to move between providers. In the past few years, carriers have made these standard practices.

Ting Mobile (with our usage alerts and stops), **Kajeet** (parental controls) and **Consumer Cellular** (simple dashboards for seniors) made web interfaces and mobile apps more useful and usable and even made monthly bills easier to read, with all the carriers following suit.

Ting Mobile even [made humans cool again](#), eliminating phone menus and transfers from our customer support before T-Mobile started boasting the [exact same benefits](#).

It is worth noting that while all this inspiration and imitation has helped the carriers improve their customer experiences, satisfaction and retention, it has hardly evened the score:

Consumer Reports US Cell Phone Provider Reader Satisfaction Scores

	<u>2016</u>	<u>2017</u>	<u>2018</u>
Consumer Cellular	89	89	89
Ting	88	89	88
Project Fi (Google)		90	88
Republic Wireless	87	85	86
T-Mobile	73	76	78
Verizon	70	72	73
AT&T	68	70	70
Sprint	67	70	70

Still, the impact of US MVNOs goes far beyond our own accomplishments or our meager market share. True MVNO challenger brands, not including telco giants like América Móvil, Comcast and Charter, perhaps service 5-10% of the market. The pressure we put on incumbents to get smarter, work harder, offer more and charge less benefit the entire market.

Competitive Factors for MVNOs. Each of the more than one hundred MVNOs in the United States, including Ting Mobile, exists and operates at the pleasure of one of the big four network operators: Sprint, T-Mobile, AT&T, or Verizon. While MVNOs operate under contracts with their back-end network provider(s), no law or regulation requires the network operator to

renew that contract or to renew it on commercially reasonable terms. Each MVNO operates under peril that its business could change, or end, if its network provider decided to wind up or substantially alter its MVNO business. This provides the network providers significant leverage in contract negotiation.

The negotiating leverage for the MVNO operators, including Ting Mobile, is the possibility that the MVNO could migrate its customers to a different network provider. Having an alternative provider in case of need was one of the primary drivers in Ting Mobile's decision to diversify on both the Sprint and T-Mobile networks. MVNOs wishing to migrate their business to a new provider, however, face a number of challenges. First and foremost, they need a network provider able and willing to take the new business. Business consolidation among the four network providers will limit this choice. Second, they face technical challenges in device compatibility, as some devices only support networks based on GSM or CDMA, and any switch requires changing SIM cards or buying a new device.

Another factor at play is that MVNOs have no guarantee that similarly-situated competitors pay the same rates or have the same contractual rights. An individual MVNO's rates and rights are a function of the contract it can negotiate, not a regulatory-based level playing field as exists in most other countries with a vibrant MVNO market. Nothing prohibits a network provider from providing better deals to subsidiary or sister-company MVNOs or providing promotional or preferential pricing to some but not all MVNOs on their network platform.

Again, the primary check on these factors is the threat of competition: the ability of the MVNO to use an alternative provider.

Consequences of Consolidation. In theory, consolidation of provider networks could provide benefits to MVNOs. The benefits could include (a) simplification of the technical implementation and billing, as a single provider would provide a single-point solution; (b) lower costs if the MVNO were deemed to be a larger customer of the consolidated entity and eligible for lower rates, if rates were based on numbers of users on the network platform; and (c) simplification of support and customer management.

None of these benefits, however, are either particularly material or likely outcomes of this merger. Unlike the benefits from competition, which happen naturally under the "invisible hand," the benefits of consolidation are for the combined company to give to its MVNO partners by contract. With two providers, Ting Mobile could compare pricing and policies. With two

providers, Ting has the ability to enroll new customers on the lowest cost platform. Rates changes can be held in check, at least in part, because Sprint and T-Mobile can compete against each other for business from Ting Mobile.

We had chosen Sprint and T-Mobile as our service providers originally for a variety of reasons, including price, device compatibility, territorial coverage, protocol coverage (CDMA and GSM), and MVNO-friendly policies and practices. These factors were not the same for both companies. In some cases, Sprint is stronger than T-Mobile. In other cases, T-Mobile has advantages. Mostly, we chose to add T-Mobile as a second network in 2014 in order to have diversity of supply and to have some leverage with our suppliers in hopes of balancing an unequal bargaining position.

In combination, a new Sprint/T-Mobile entity should continue to provide diverse support for geography, protocols, and device support. Sprint and T-Mobile, however, have different approaches to pricing and MVNO policies and support generally, and they have not announced which practices will prevail in a post merger company.

Supplier Lock-In. A critically important factor that can hinder competition and limit innovation is supplier lock-in for MVNOs. “Lock-in” is a function of device incompatibility and the technical limitations of the current SIM cards. If an MVNO such as Ting wanted to switch vendors it would require each existing subscriber to either swap out the SIM card or to switch to a new phone completely. Each of these efforts would necessarily cause some portion of the customer base to switch cellular providers altogether, or “churn.” This churn would be significant enough to make a vendor switch of cellular networks, even for a small company like Ting Mobile, cost in excess of ten million dollars in lost customers.

Improving Competition for Mobile Network Service. The primary check on price and service offerings from mobile network providers to MVNOs is the ability of the MVNO to select an alternate provider and migrate the customer base from one provider to another. [At present, changing providers for any individual customer is not trivial. It typically involves ensuring device and geographic compatibility from carrier to carrier, physically replacing the SIM card inside the mobile device, and then resetting the device to the new provider network or often replacing the phone in its entirety. While this burden is manageable for an individual customer, it is significant, and perhaps insurmountable, for an MVNO, which has customers on a variety of devices, all needing to physically replace a SIM card and reset their devices within a time-limited run-off period provided by the losing carrier. It risks losing 10’s of thousands of customers.]

Important things that can be done to protect the space. The two biggest threats to the MVNO sector are non-competitive pricing and vendor lock-in.

Right now, Sprint and T-Mobile are the two most active suppliers in the MVNO space and have been since our entry into the market in 2011. As far as we know, AT&T primarily only supplies a very small number of very large MVNOs. Verizon has recently entered the market in a significant way but due to the difficulty in switching suppliers is yet to make a significant impact. An important first step for regulators in the very short term is to require long runoff periods wherein existing MVNO suppliers allow an MVNO to maintain their current pricing, independent of volume commitments, for a time period sufficient to migrate to another supplier. Otherwise, the lock-in and relative power of the network supplier is overwhelming.

Next, the technology currently exists for SIM cards that allow for connecting to multiple networks. This technology, sometimes called “eSim” technology, is in use today by an MVNO, Google Fi. Google Fi is using this technology with both Sprint and T-Mobile. They are able to do so because Google is a large enough company to have sufficient leverage to get Sprint and T-Mobile to allow them to use it. Ting Mobile, and hundreds of other MVNOs are not. Ensuring that a combined T-Mobile/Sprint allowed MVNOs to use these SIMs, without restrictions on what networks they connected to, would go to great lengths to allow sufficient competition to protect the market in the short term.

Longer term this should not be necessary as we hope and expect eSIM technology to proliferate in the market in the 2020-2021 timeframe. We should note that eSIM technology has been around for awhile and that OEMs such as Apple and Samsung have been pushing for it's adoption for some time. The carriers have no incentive to allow it as it makes it much easier for consumers to switch mobile suppliers as it obviates any issues with phone compatibility. And of course phones make up a material percentage of the total cost of ownership of a mobile phone service.

Regulators should ensure that T-Mobile/Sprint allow and support eSIM technology without limitation, other than for testing for technical compatibility and ensure that testing is not used as a gating item.

Conclusion. We believe that perhaps the most important thing that regulators should examine with this merger is the preservation of the health of the MVNO sector. We believe that a healthy MVNO sector will create enough competitive pressure on the remaining three competitors that the consumer will benefit greatly.

Failure to ensure the health of the MVNO sector creates the real risk of the U.S. mobile phone market looking like Canada's market, with three oligopolistic competitors moving price in lockstep and combining to leave Canadians with the most expensive mobile phone service in the world. While the U.S. today is more expensive than most of the rest of the world, it does *not* want to become even more expensive and less competitive. Higher prices create a deterrence to mobile innovation and disproportionately impact rural and lower income Americans.

We urge any regulatory agency evaluating this merger to:

- Make sure carriers support any SIM card innovation that allows MVNOs and their customers to use multiple networks;
- In particular, to ensure eSIM adoption;
- Ensure longer run off periods when transitioning from one provider to another - we suggest two to three years (a typical device replacement cycle), for MVNOs that wish to switch carriers; and,
- Adopt any other measures that might nurture and protect the MVNO space.

In conclusion, we are generally in favor of this merger and believe it provides more benefit than detriment to stakeholders. It does, however, disproportionately impact the competitive landscape in the MVNO space which is responsible for the bulk of innovation and competitive price pressure in the category. The regulators need to protect this vital, small element of the US mobile phone market or risk becoming like Canada.

Very truly yours,



Elliot Noss, CEO