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February 18, 2015

Ex Parte

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Protecting and Promoting the Open Internet*, GN Docket No. 14-28

Dear Ms. Dortch:

On February 13, 2015 Declan Ganley and Vince D'Onofrio of Rivada Networks LLC ("Rivada") and I, on behalf of Rivada, met with Priscilla Argeris, Senior Legal Advisor to Commissioner Rosenworcel. On February 18, 2015, Mr. Ganley and Brian Carney of Rivada and I spoke with Louis Peraertz, Legal Advisor to Commissioner Clyburn.

In the meetings, we provided the FCC participants with copies of Rivada's November, 10, 2014 *ex parte* letter and presentation.[1] As stated in that letter, sales of transmission capacity through a particular eNodeB utilizing Rivada's Dynamic Spectrum Arbitrage Tiered Priority Access ("DSATPA"), whether of public safety or commercial spectrum, would not constitute "broadband Internet access service," as defined in 47 C.F.R. § 8.11(a) or as proposed in the *NPRM*. Rivada's wholesale sales of this transmission capacity, whether to carriers or edge providers, would not be a "mass-market retail service." The service Rivada sold would also not include reaching "all or substantially all Internet endpoints." Furthermore, because Rivada would be selling eNodeB capacity through an open auction mechanism, it would be inherently nondiscriminatory even if Section 202(a) applies. We also noted that to the extent a Rivada

[1] Letter from John T. Nakahata, Counsel to Rivada Networks LLC, to Marlene Dortch, Secretary, FCC, GN Docket No. 14-28 (filed Nov. 10, 2014) (attached hereto).

customer resold eNodeB capacity, for example, to permit middle-of-the-night meter reading or e-reader downloads, that would be a quintessential specialized service.[2]

Please contact me if you have any questions.

Sincerely,

John T. Nakahata
Counsel to Rivada Networks LLC

cc: Priscilla Argeris
Louis Peraertz

Attachment

[2] *See Preserving the Open Internet*, *Broadband Industry Practices*, FCC 10-201, 25 FCC Rcd. 17,905, 17,933 ¶ 47 and n.149 (2010).

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November 10, 2014

Ex Parte

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Protecting and Promoting the Open Internet*, GN Docket No. 14-28

Dear Ms. Dortch:

On November 6, 2014 Declan Ganley, Brian Carney, Chris Moore, and Vince D'Onofrio of Rivada Networks LLC ("Rivada") in addition to Paul Caritj and I, both of Harris, Wiltshire & Grannis, LLP, on behalf of Rivada, met with Scott Jordan, FCC Chief Technology Officer, and James Schlichting, Deputy Chief, and Chris Helzer, Chief Engineer, both of the Wireless Telecommunications Bureau. On the same day, we met separately with Louis Peraertz and Rebekah Goodheart, Legal Advisors to Commissioner Clyburn. On November 7, 2014 we met with Renee Gregory and Daniel Alvarez, Legal Advisors to the Chairman. Also on that day, Mr. Ganley, Mr. Carney, Mr. Moore, Mr. D'Onofrio, and I met separately with David Goldman, Senior Legal Adviser to Commissioner Rosenworcel.

In the meetings, we provided the FCC participants with the attached presentation. We discussed Rivada's Dynamic Spectrum Arbitrage Tiered Priority Access ("DSATPA") technology, and its potential to enable the transparent commoditization and commercial use of spectrum allocated. Among the first potential applications is FirstNet, because this technology enables commercial use of public safety spectrum while ensuring that public safety users are able to ruthlessly preempt commercial users of the spectrum when necessary. However, this technology is not limited to public safety spectrum, but could be used as well for federal or commercial spectrum.

We urged that as the Commission considers how to address issues surrounding paid prioritization in retail, mass-market broadband Internet access that it be clear that it is not restricting wholesale sales of prioritized wireless bandwidth. Wholesale sales of commoditized bandwidth using Rivada's DSATPA technology do not fall within the scope of the NPRM's definition of "Broadband Internet access service" as it is not a retail service and does not in and of itself necessarily include the ability to "transmit data to and receive data from all or substantially all Internet endpoints." That would depend on how the commoditized bandwidth purchaser chose to use the bandwidth. In any event, the wireless commoditized bandwidth marketplace that DSATPA enables would be nondiscriminatory, as it transparently would allow any purchaser to procure bandwidth at specified times of day, location and priority, at the price dynamically determined by the market. No entity acts as a "gatekeeper" with respect to this

bandwidth. DSATPA therefore implicates none of the concerns currently under discussion in the Open Internet proceeding.

Please contact me if you have any questions.

Sincerely,

John T. Nakahata
Counsel to Rivada Networks LLC

cc: Daniel Alvarez
Renee Gregory
Rebekah Goodheart
Louis Peraertz
David Goldman
Scott Jordan
Jim Schlichting
Chris Helzer

Attachment

RIVADA
NETWORKS
DELIVERING INNOVATION
IN WIRELESS COMMUNICATIONS

RIVADA Networks Overview

- Rivada Networks' technologies enable public safety agencies to retain absolute control over their own dedicated broadband networks, while enabling the generation of valuable revenues from unused capacity, when available.
- Rivada's core technology, Dynamic Spectrum Arbitrage Tiered Priority Access (DSATPA) works out to the very edge of the network, allowing public safety absolute priority access with instant (millisecond) pre-emption in the event of an emergency situation – thus guaranteeing first responders access to the highest quality bandwidth capacity at the moment they need it most.
- Meanwhile, in the extended periods of time when the public safety broadband network has significant extra bandwidth to spare, DSATPA allows that capacity to be dynamically auctioned in a fully competitive 'on demand' process to competing commercial entities.
- DSATPA maximizes the efficiency of the radio spectrum bandwidth resource and unlocks the potential for more extensive high capacity broadband networks.
- Rivada has served public safety for a decade, helping to meet their unique and critical communications challenges. Our work has been recognized for helping to save lives during times of severe crisis, such as Hurricane Katrina and multiple other emergencies and disasters.

RIVADA NETWORKS

RIVADA's Approach

- Rivada plans to finance and build a public safety 4G LTE network built to carrier grade capacity and capable of providing services to the wider market.
- Rivada will use the large amounts of excess capacity on the public safety network to provide commercial service to wholesale customers on a competitive open market (no pre-picked winners*).
- The network will become a net generator of funding and will provide a positive cash return to FirstNet.
- The Rivada approach frees up existing communications spend (typically tens of millions of dollars annually per state).

** De-risks project from any potential legal challenge claiming unfair competition or bias*

RIVADA NETWORKS

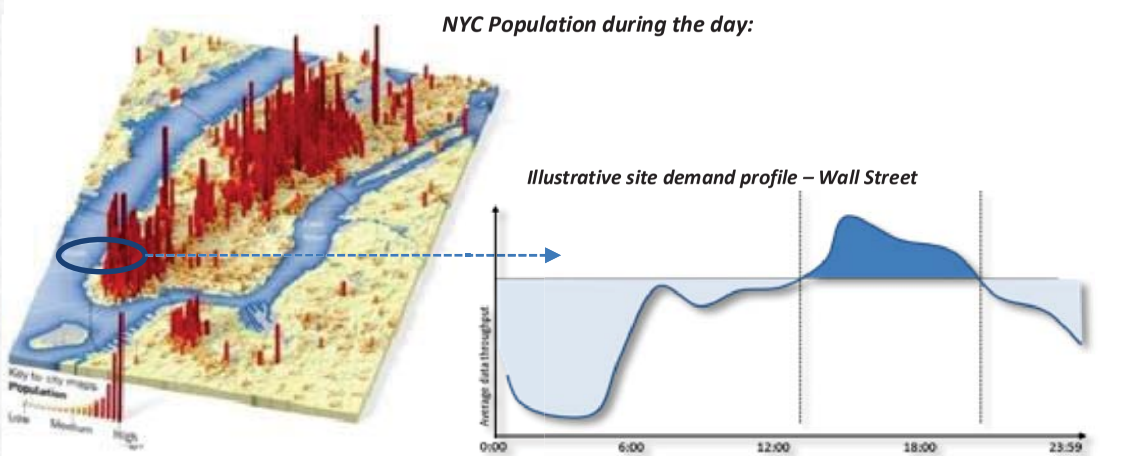
MNOs are currently struggling to deliver adequate capacity in specific areas where extreme demand exists and alternatives are limited

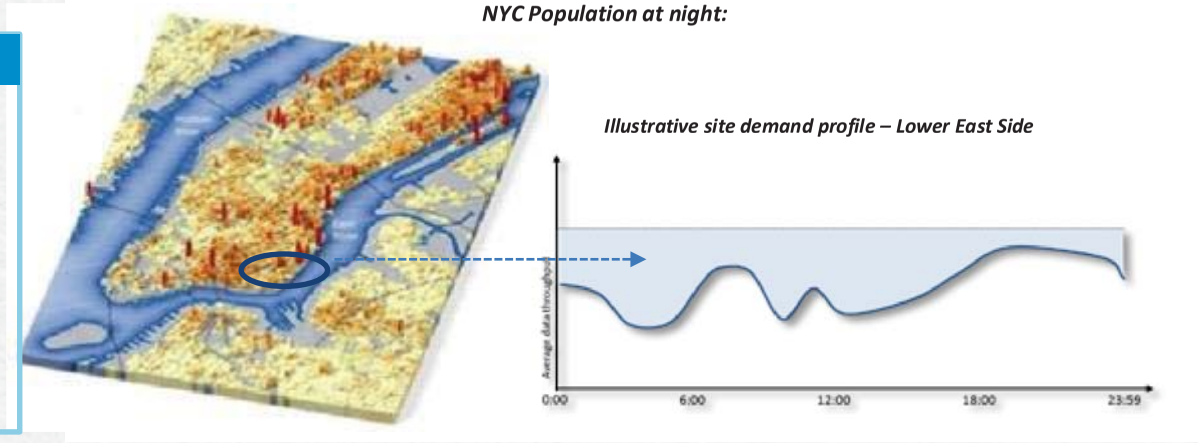
Extreme demand exists at certain times & places

- Local extremes in traffic pattern are driven by population density and usage patterns
- To manage extreme subscriber density, operators deploy additional spectrum, split sites or build sites
- Adding additional macro sites is becoming increasingly cost prohibitive in these areas and operators do not always see the justifiable business case (e.g. stadiums)
- Peak demand traffic patterns will often be very similar for all operators

Manageable demand exists elsewhere

- In less densely populated areas of the city, operators have built capacity to handle less extreme traffic patterns
- Nighttime traffic for all carriers in many locations is low. Many devices are offloading to Wi-Fi
- Time-shifting data usage has been difficult to do except in store-and-forward applications





RIVADA NETWORKS

Dynamic Spectrum Arbitrage

- The technology enables a spectrum holder to dynamically lease radio spectrum to the highest competitive bidder, while retaining complete control of the network and the ability to instantly take spectrum back as and when needed.
- The spectrum holder can retain the ability to pre-empt spectrum as needed (e.g. public safety spectrum).
- The approach presents a win-win opportunity for spectrum holders and spectrum users.
- The competitive nature of this approach levels the playing field and means that carriers and non-traditional players have the same opportunity to access the network. There is no “gatekeeper” since use is mediated by a transparent, open market.
- DSA technology unlocks the potential for supply and demand economics to bolster the quality, quantity and coverage of wireless broadband services.

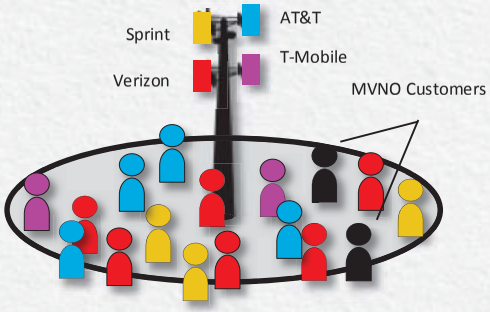
RIVADA NETWORKS

The opportunity in urban and suburban / rural locations is to become a shared, interoperable resource for MNOs and MVNOs

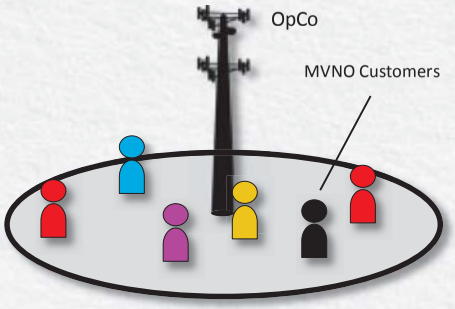
Operators have different motivations in suburban & rural areas than they do in urban areas

	Dense Urban and Urban	Suburban and Rural
Carrier need	• Additional capacity • In-building coverage	• Service coverage • Technology coverage
Carrier obstacles	• Site scarcity • Build costs • Signal interference • Site-build complexity	• Return on investment (subscribers/site) • Rural operator roaming interoperability
How OpCo can help	• Provide access to additional bandwidth in congested areas • Utilize low-band spectrum to penetrate buildings • Utilize public means to develop sites	• Act as a shared resource for all operators to improve site economics, given interoperability • Provide broadband services to unserved or underserved population

Illustrative urban scenario



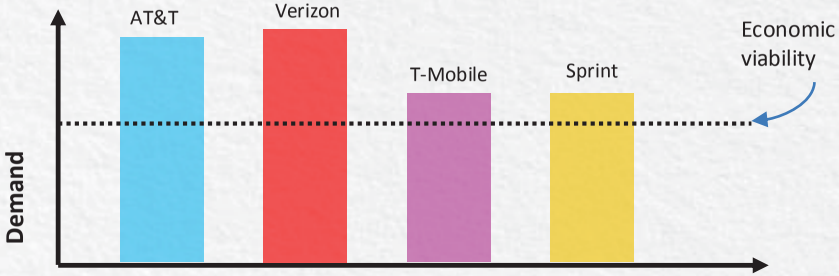
Illustrative rural scenario



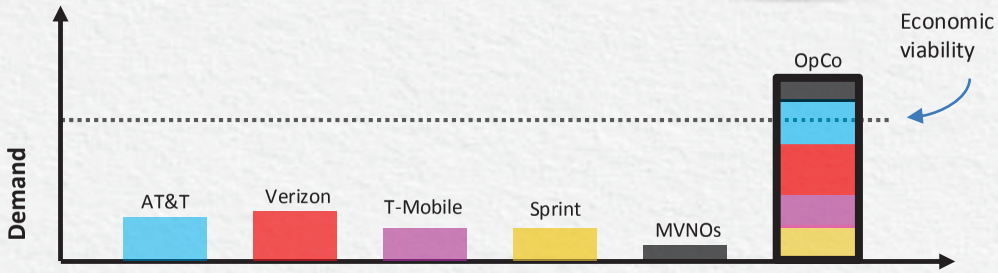
It is more likely that a shared resource model in rural areas will make more economic sense

- Operators are currently reluctant to build in rural areas because there are not enough of their subscribers to support a business case, however, their total demand may justify investment

Illustrative urban scenario



Illustrative rural scenario



RIVADA NETWORKS

4 Crucial Points About Our Technology

ADDRESSES EVER INCREASING DEMAND

It has a high market value, because demand for it is growing exponentially.

ELIMINATES UNUSED BANDWIDTH

There is a massive amount of unused bandwidth on cellular networks at certain times of day.

MAXIMIZES BANDWIDTH EFFICIENCY

Rivada has worked out how to sell this bandwidth – in specific locations for fixed durations.

REDUCES BARRIERS TO ENTRY

A dynamic market for wireless bandwidth allows new entrants to get started without massive infrastructure investments.

RIVADA NETWORKS

UNUSED BANDWIDTH

IS HIGHLY VALUABLE