Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)
	)
Reporting on Border Gateway Protocol Risk Mitigation Progress	) PS Docket No. 24-146
	)
	)
Secure Internet Routing	) PS Docket No. 22-90

COMMENTS
OF
WTA – ADVOCATES FOR RURAL BROADBAND

WTA – Advocates for Rural Broadband ("WTA") hereby submits its initial comments with respect to the Commission's *Notice of Proposed Rule Making*, FCC 24-62, released June 7, 2024 in the captioned proceedings (*"NPRM")*.

WTA is a national trade association that represents approximately 400 rural local exchange carriers ("RLECs") that provide voice and broadband communications services predominately by wire but also by radio to some of the most rural, remote, rugged, sparsely populated and expensive-to-serve areas of the United States. WTA members have long constructed and operated rural voice and broadband communications networks – very often as providers of last resort – in high-cost farming, ranching, mining, mountain, forest and desert areas, as well as on Native American reservations and other Tribal Lands. The typical WTA member company serves fewer than 5,000 customers per service area and has fewer than 50 employees.

WTA's RLEC members have been taking significant steps and have been incurring substantial capital and operating expenses to implement cybersecurity measures to protect not only their networks and customers, but also the nation and general public. WTA members have been reviewing and trying to understand the Commission's proposed Border Gateway Protocol ("BGP") Routing Security Risk Management Plan requirements, and are seeking guidance to assist them in

complying with the BGP rules that are ultimately adopted in this proceeding. Their initial questions and concerns include: (1) the need for a clear delineation regarding the Tier 2 or Tier 3 Internet service provider ("ISP") status of RLECs that primarily deliver Internet access to end customers but have some ancillary involvement in the sale or resale of Internet transit so that such RLECs can accurately determine and meet their BGP obligations; (2) the need for clarification of the BGP compliance responsibilities and alternatives for RLECs and other ISPs where an upstream transit provider does not provide Route Origin Authorization ("ROA") registration and maintenance; (3) the need for clarification of the requirements and responsibilities for negotiating or renegotiating provisions for the registration of ROAs in current and future transit and other interconnectivity service contracts; and (4) the need to consider the substantial likely equipment, maintenance, monitoring and consultant costs of implementing the proposed BGP rules in addition to cursory estimates of management and BGP Routing Security Risk Management Plan development costs.

Clear Delineation of Tier 2 versus Tier 3 Classification

Virtually all of WTA's RLEC members are primarily engaged in delivering broadband Internet access service ("BIAS") to end customers and ultimately utilize and pay higher-tier service providers for transit services to access the rest of the Internet.

Many RLECs purchase middle mile transit service from one or more transport service providers that carry their BIAS traffic along one or more routes (many RLECs utilize at least two redundant routes for reliability) to and from Internet Exchange Points ("IXPs") or third-party transit networks. These RLECs clearly appear to be Tier 3 ISPs.

However, other RLECs that are primarily engaged in delivering BIAS to end customers and that ultimately purchase transit services from higher-tier service providers are also engaged in

the provision of transit services to third parties within their service areas and to themselves and third parties outside their service areas. For example, some RLECs have constructed and operate transport facilities to take their BIAS traffic and that of other ISPs beyond the boundaries of their RLEC service territories to and from IXPs or third-party networks. Other RLECs provide transit services through portions of their service areas to other ISPs (including other RLECs, cable television providers, and fixed and mobile wireless service providers), or lease excess capacity on their fiber circuits to other ISPs for transit purposes. Still other RLECs participate in joint ventures that operate and maintain fiber rings and other state and regional transit networks that provide transit services to multiple ISPs. In most of such joint ventures, the individual RLEC members do not have *de jure* or *de facto* control over the entity or its transit network, but have a voice in transit network operations and share in any profits. WTA believes that these various transit operations of RLECs are ancillary to their predominant business of providing BIAS services to customers, and that they should be classified as Tier 3 ISPs for purposes of BGP compliance. In addition, although these RLEC operations and joint ventures provide limited ancillary transit services, virtually all must ultimately acquire transit services from higher-tier service providers for access to the rest of the Internet.

In order to enable RLECs to accurately determine and meet their proposed and future BGP obligations, the Commission is requested to specify that RLECs that primarily deliver Internet access to end customers but have some ancillary involvement in the sale or resale of Internet transit are Tier 3 ISPs for purposes of compliance with the ultimate BGP rules. In the alternative, if the Commission determines that some RLECs with ancillary transit operations should be clarified as Tier 2 ISPs, it should establish a "bright line" standard to allow RLECs to readily determine their status. For example, the Commission could adopt a standard that would classify an RLEC with

ancillary transit operations as a Title 3 ISP if a specific majority (*e.g.* fifty-one percent (51.0%) or more) of its revenues were generated by its delivery of BIAS to end customers.

WTA recognizes that the distinction between Tier 2 and Tier 3 ISP status may not have a material regulatory impact with respect to proposed BGP plan reporting and maintenance obligations at this time, but believes that the classification issue should be clarified in order to avoid uncertainties and ambiguities if BGP regulation evolves during the future.

Compliance Where Upstream Provider Does Not Employ Route Origin Authorization

As WTA understands the situation, ISPs have obtained their current IPv4 address blocks from a variety of different sources, including from the American Registry for Internet Numbers ("ARIN") and from various companies that lease IPv4 addresses that they long ago obtained from the Internet Assigned Numbers Authority ("IANA"). There appears to be a problem because ROA is contained within the Resource Public Key Infrastructure ("RPKI") and ISPs currently can only obtain RPKI from ARIN. It is WTA's understanding that ARIN will provide RPKI only for IPv4 addresses that it controls. That means that ISPs that do not have addresses that were received from and controlled by ARIN will not have ROA for such non-ARIN addresses. And without ROA, Route Origin Verification ("ROV") will not work. WTA does not understand how a BGP Routing Security Risk Management Plan can be developed and implemented with this issue.

RLECs and other smaller ISPs can make the equipment and operational changes to implement BGP, but their efforts would appear to be ineffective if one of the upstream transit providers does not employ ROA. What alternatives are available that would allow effective BGP plans to be developed and implemented when not all upstream transit providers have access to ROA? Can and will the Commission intervene to convince ARIN to provide RPKI and ROA to service providers that have non-ARIN IPv4 addresses? Given that RLECs and other smaller ISPs

have no direct relationship with transit providers beyond those with which they directly interconnect (and may not even know their identity as routes constantly change), it is not clear how such RLECs and other ISPs could arrange for routing only via upstream providers that employ ROA – either voluntarily or pursuant to a Commission mandate. Will RLECs with upstream routes that include non-ROA providers be exempted from developing and implementing BGP plans?

WTA emphasizes that it is seeking guidance to assist its RLEC members in their efforts to comply with the BGP rules that are ultimately adopted in this proceeding. Unfortunately, RLECs have no control or influence over the upstream transit providers with which they indirectly interconnect, and need an industry or Commission ROA solution if their BGP upgrades and plans are to be effective.

Transit Service Provider Contract Provisions

WTA members and other RLECs have a variety of traffic exchange and interconnection arrangements with respect to their BIAS services. Some obtain middle mile transport services from large incumbent local exchange carriers and other transport service providers. Many of these middle mile arrangements began as tariffed common carrier services; many have subsequently evolved into website price list arrangements or into formal or implied contracts. Other RLECs interconnect directly with state or regional fiber rings or transport networks. Some of these fiber networks are joint ventures in which the RLECs are minority owners; others are owned and operated by unrelated third parties. Some of these arrangements are governed by formal or implied contracts and others by joint venture, limited liability company and other entity organizational documents and bylaws. Still other direct traffic exchange and interconnection may entail leases, sharing and other formal and informal, contractual and non-contractual arrangements.

WTA understands the Commission's desire for universal and ubiquitous RPKI, ROA and ROV implementation to improve BGP security. However, there appear to be questions about the Commission's ability to require specific contract provisions and modifications, and about the scope and effectiveness of contractual mandates. Leaving aside the basic jurisdictional issues raised by the recent Supreme Court decision in *Looper Bright Enterprises v. Raimondo*, Nos. 22-451 and 22-1219, released June 28, 2024, it is not clear how the Commission can proceed effectively and efficiently to mandate contractual solutions requiring ROA deployment in the present environment of formal and informal, contractual and non-contractual arrangements.

To date, the Commission has not engaged in substantial regulation of Internet Protocol ("IP") interconnection, or developed a substantial jurisprudence or case law addressing IP interconnection issues. In fact, in its recent *Declaratory Ruling, Order, Report and Order, and Order on Reconsideration* (Safeguarding and Securing the Open Internet, *et al.*), WC Docket Nos. 23-320 and 17-108, FCC 24-52, released May 7, 2024, at para. 398-420, the Commission rejected proposals that it decline to forbear from the application of the negotiation and arbitration provisions of Sections 251 and 252 of the Communications Act to IP interconnection.

It is not clear to WTA how the Commission would mandate the ROA contract provisions that service providers would place in their revised current contracts and future contracts with the downstream providers whom they provide with IPv4 addresses and transit service. Would such upstream service providers be required to use specific Commission-prescribed language or would they be able to draft and impose their own language and requirements? What rights would RLECs and other downstream providers have to negotiate and obtain revisions of the contract provisions proposed by their upstream transit providers? Will the Commission establish timetables for the compliance of downstream providers with ROA contract provisions? Or will such timetables be

mandated by upstream providers or subject to negotiation between upstream and downstream providers? What recourse will upstream and downstream providers have if they cannot agree upon specific ROA provisions and/or implementation timetables? What recourse will downstream providers have if their upstream transit provider refuses to negotiate revised or future ROA provisions?

It is not clear at this point whether the Commission can mandate ROA contract provisions or how much of the industry would be subject to such mandates. However, if the Commission proceeds with ROA contract mandates or requirements, it will need to address many of the specifics regarding how such ROA contract provisions must be worded, negotiated and implemented, and how the inevitable disputes and impasses will be resolved.

BGP Cost Estimates

BGP plan implementation appears to entail costs far greater than the management and staff time necessary to prepare and file BGP implementation plans and reports. For example, BGP routes appear to change frequently, such that hardware, software and staff monitoring are likely to be needed to validate the security of new routes and to minimize or prevent the improper or malicious insertion of erroneous and spoofed routes. These equipment and personnel costs will be substantial, and will far exceed the costs of BGP implementation plans and reports. For example, it appears likely that routers will require hardware and software upgrades to implement evolving BGP protocols and protections, and that the costs of such router upgrades can run in the $50,000 to $100,000 range per router.

Conclusion

WTA's RLEC members have been taking substantial steps and incurring significant capital and operating expenses to implement cybersecurity measures to protect their networks and

customers, as well as the nation and general public. WTA and its members are reviewing the Commission's proposed BGP requirements, and seeking guidance regarding compliance with the ultimately adopted BGP rules. As an initial matter, WTA seeks clear delineation regarding the Tier 2 versus Tier 3 ISP status of RLECs that primarily deliver BIAS to end user customers but have some ancillary involvement in the sale or resale of Internet transit so that such RLECs can accurately determine and meet their initial and future BGP regulatory status and obligations. WTA also seeks clarification of the BGP compliance responsibilities and alternatives for RLECs and other ISPs where an upstream transit provider does not provide ROA registration and maintenance. WTA further requests elaboration of the legal status as well as the nature, scope, content and negotiation mechanics of the ROA registration provisions that may be required to be included in certain current and future transit and other interconnectivity service contracts. Finally, WTA believes that BGP implementation is likely to be far more expensive than estimated because it will include substantial equipment, maintenance, monitoring and consultant costs in addition to management certification and BGP plan development and reporting costs.

Respectfully submitted,
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