IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS

MORRIS ROUTING TECHNOLOGIES, LLC Plaintiff, v. VERIZON COMMUNICATIONS, INC, VERIZON SERVICES CORPORATION and CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS, Defendants.	Civil Action No. 4:24-cv-00626 JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Morris Routing Technologies, LLC ("MRT" or "Plaintiff"), for its Complaint against Defendants Verizon Communications, Inc., Verizon Services Corporation and Cellco Partnership d/b/a/ Verizon Wireless (individually each a "Defendant," and collectively "Verizon" or "Defendants") alleges the following:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq*.

THE PARTIES

2. Plaintiff MRT is a limited liability company organized under the laws of the State of Texas with a place of business at 1312 14TH St. Suite 204, Plano TX 75074.

3. Defendant Verizon Communications, Inc. ("VCI") is a corporation organized under the laws of Delaware. Since December 15, 1999, VCI has been registered to do business in

Texas under Texas SOS file number 0012992106. VCI may be served through its registered agent for service, CT Corporation System, 350 N. Saint Paul St., Dallas, Texas 75201.

4. Defendant Verizon Services Corporation ("Verizon Services") is a corporation organized under the laws of Delaware. Since November 16, 2001, Verizon Services has been registered to do business in Texas under Texas SOS file number 0800028641. On information and belief, Verizon Services is wholly owned by its corporate parent, VCI and may be served with process through its registered agent at CT Corporation System, 1999 Bryan St. Ste. 900, Dallas, Texas 75201.

5. Defendant Cellco Partnership d/b/a Verizon Wireless ("Cellco") is a partnership organized under the laws of Delaware. Upon information and belief, Cellco is wholly owned by its corporate parent, VCI. Cellco may be served through its registered agent, The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, DE 19801.

JURISDICTION AND VENUE

6. This is an action for patent infringement arising under the Patent Laws of the United States, Title 35 of the United States Code.

7. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

8. Venue is proper in this judicial district under 28 U.S.C. § 1400(b).

9. Verizon is subject to this Court's personal jurisdiction consistent with the principles of due process and/or the Texas Long Arm Statute.

10. This Court has general and specific personal jurisdiction over the Defendants under the laws of the State of Texas, due at least to their substantial business in Texas and in this judicial district, directly or through intermediaries, including: (i) at least a portion of the infringements alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct and/or deriving substantial revenue from goods and services

provided to individuals in the State of Texas. Verizon has purposefully availed itself of the privileges of conducting business in the State of Texas and in this judicial district. Venue is also proper in this district because Verizon has a regular and established place of business and has committed acts of infringement in this district.

11. For example, Verizon has regular and established places of business at: 1006 East End Boulevard N., Suite A, Marshall, Texas 75670; 1111 East Grand Avenue, Marshall, Texas 75670; 741 N Central Expressway, Plano, Texas 75075; 2330 Preston Road, Suite 500, Frisco, Texas 75034; 3220 East Hebron Parkway, Suite 114, Carrollton, Texas 75010; 5020 State Highway 121, The Colony, Texas 75056; 204 Central Expressway S, Suite 40, Allen, Texas 75013; and 500 East Loop 281, Longview, Texas 75605.[1]

12. Verizon also advertises in the Eastern District of Texas, including but not limited to advertising the geographic coverage of the Verizon Networks within this District. By way of example and without limitation, Verizon's website provides a "Wireless coverage map" that advertises Verizon's current 4G and 5G wireless coverage in and around Marshall, Texas.[2]

13. On information and belief, Verizon has numerous employees who work in Texas, including within the Eastern District of Texas. In addition to its many retail stores in Texas and in this District, Verizon also has corporate offices in Irving, Texas and Houston, Texas.

14. Verizon has solicited business in the Eastern District of Texas, has transacted business within this District, and has attempted to derive financial benefit from the residents of this District, including benefits directly related to Verizon's infringement of the Patents-In-Suit.

[1] *See, e.g.*, https://www.verizon.com/stores.
[2] *See, e.g.*, https://www.verizon.com/coverage-map/.

For example, Verizon has contracted with Ericsson to purchase and use network infrastructure equipment that is manufactured in Ericsson's Lewisville, Texas factory.[3]

15. Verizon's infringement has thus caused substantial injury to MRT, including in this judicial district.

BACKGROUND

The Inventions of the Patents-in-Suit

16. Mr. Robert Paul Morris is the inventor of U.S. Patent Nos. 10,367,737 ("the '737 patent"; Exhibit A), 10,382,327 ("the '327 patent"; Exhibit B), 10,389,624 ("the '624 patent"; Exhibit C), 10,389,625 ("the '625 patent"; Exhibit D), 10,404,582 ("the '582 patent"; Exhibit E), 10,411,997 ("the '997 patent"; Exhibit F), 10,419,334 ("the '334 patent"; Exhibit G), and 10,841,198 ("the '198 patent"; Exhibit H) (collectively, the "Patents-in-Suit"). True and correct copies of the Patents-in-Suit are attached as Exhibits A-H.

17. The Patents-in-Suit resulted from the pioneering efforts of Mr. Morris (hereinafter "the Inventor") in the area of segment-based routing ("SR"). These efforts resulted in the development of methods and apparatuses for improving the routing, provisioning and transport of data packets across networks in the 2012 timeframe using SR over Multiprotocol Label Switching ("MPLS") and IPv6 data planes (*see, e.g.,* '737 patent, col. 20:42-21:7), which are now referred to as "SR-MPLS" and "SRv6" respectively.

18. At the time of these pioneering efforts, the most widely implemented technology used to address network traffic engineering was IP-based forwarding using a distributed control

[3] *See, e.g.*, https://www.prnewswire.com/news-releases/ericsson-delivers-first-us-manufactured-commercial-5g-base-station-to-verizon-301100671.html; https://www.ericsson.com/en/press-releases/2021/7/ericsson-and-verizon-ink-landmark-multi-year-$8.3-billion-5g-deal; https://www.verizon.com/about/news/verizon-and-ericsson-collaborate-innovative-5g-feature-enhance-user-experience.

plane as well as constrained shortest-path forwarding. In traditional IP/MPLS networks, routing decisions are made based on destination IP addresses, and packet forwarding decisions are determined hop-by-hop based on routing tables.

19. MPLS introduced the concept of label switching, where packets are assigned labels at ingress routers and forwarded based on these labels rather than IP addresses, which can improve forwarding efficiency and allow for traffic engineering. However, explicit state information had to be maintained at all hops along an MPLS path, leading to scalability problems in the control plane and the data plane. Additionally, per-connection traffic steering did not take advantage of load balancing offered by equal cost multipath routing typically used in IP networks.

20. The Inventor conceived of the inventions claimed in the Patents-in-Suit as a way to improve addressing. (*See, e.g.,* '737 patent, col. 2:49-51.) Prior to the Inventor's efforts, Internet protocol dealt primarily with addresses and left mapping from names to addresses and mapping from local net addresses to routes to other protocol layers. The claimed inventions of the Patents-in-Suit establish new relationships between and among names, addresses and routes to improve network operations.

21. The claimed inventions of the Patents-in-Suit allow the source to choose a path and encode it in the packet header as a sequence of identifiers that identify segments. (*See, e.g.*, '737 patent, col. 19:18-21:7; col. 21:41-23:36; col. 33:41-34:21; Figs. 2, 9-11, 13.) Using the claimed inventions of the Patents-in-Suit, networks no longer need to maintain a per-application and per-flow state and need only obey the forwarding information provided in the packet. This results in a dramatic reduction in the per-flow state that needs to be maintained in network nodes supporting traffic engineered paths. For example, instead of relying on a complex network of

label-switched paths (LSPs) established by control protocols like LDP (Label Distribution Protocol) or RSVP-TE (Resource Reservation Protocol - Traffic Engineering), the inventions claimed in the Patents-in-Suit use source routing where a packet's path through the network is identified in the packet. (*See, e.g.*, '737 patent, col. 25:23-29:21; col. 31:14-31:24; col. 39:1-11; col. 42:7-24.)

22. The Inventor conceived of different ways to implement segment-based routing, including with MPLS-based and IPv6-based networks. For example, with the claimed inventions of the Patents-in-Suit, a segment identifier can be embodied as an MPLS label and a plurality of segment identifiers can be included in a sequence thereof. The first segment identifier of the sequence is processed and upon completion, such segment identifier is removed from the sequence. By removing reliance on label-switched paths established by control protocols, the network architecture is simplified and has greater scalability and flexibility.

23. In another example, the claimed inventions of the Patents-in-Suit extend IPv6 and allow SR over the IPv6 data plane. The claimed inventions enable use of multiple segment identifiers embodied as IPv6 addresses in headers and a plurality of segment identifiers embodied as a sequence of IPv6 addresses. A segment identifier is indicated by the destination address of the packet and a pointer another segment identifier. This allows even more precise control over packet forwarding and even greater flexibility and scalability.

24. With the inventions claimed in the Patents-in-Suit, network operators can specify explicit paths for packets to travel through the network and can also leverage IPv6's larger address space to improve scalability and define and manage greater numbers of explicit paths. This also allows the inclusion of service functions directly into the header providing for servicing chaining and integration of network functions. There is reduced need for state management in

routers and because packets carry their path information, it is more secure because of the difficulty attackers face manipulating or spoofing routing information now carried in the packet.

25. Using the claimed inventions, network bandwidth is used more effectively and performance is optimized. The control plane is greatly simplified and the amount of state information maintained by network nodes is reduced significantly. There is less reliance on complex configurations and protocols to control the flow of traffic through a network because operators can define explicit paths. (*See, e.g.,* '737 patent, col. 25:23-29:21; col. 31:14-31:24; col. 39:1-11; col. 42:7-24.) This facilitates service chaining where network operators define paths that include service nodes such as firewalls and intrusion detection systems, to improve security, and load balancers, to optimize performance. This results in costs savings by reducing the need for over-provisioning of network resources and improving the overall efficiency of the network infrastructure. There is lower latency and traffic is protected against link and node failures without requiring burdensome additional signaling requirements in the network while providing optimum backup paths.

Advantage Over the Prior Art

26. The patented inventions disclosed in the Patents-in-Suits, provide many advantages over the prior art, and in particular improve the operations of networks using a path-based protocol address. (*See, e.g.,* '737 patent at col. 1:66-2:51.) One advantage of the patented invention is that fewer nodes, in particular path nodes, are required to maintain state information for each path in a network. (*See, e.g.,* '737 patent at col. 31:17-24.)

27. Another advantage of the patented invention is that utilizing path information in the packet header to route a packet through a network reduces or eliminates the need for additional protocols. (*See, e.g.,* '737, col. 42:14-16.)

28. Another advantage of the patented invention is that specific network paths may be specified using path information in the packet header, which allows precise traffic control and selective routing for various purposes such as reduced power consumption, decreased processing time or other cost-saving measures. (*See, e.g.,* '737 patent, col. 23:54-61; col. 51:30-36; col. 52:40-56.)

29. Yet another advantage of the patented invention is dynamic routing that responds to disruptions in the network by updating the routing path through the network in response. (*See, e.g.,* '737 patent at col. 35:62-36:18; col. 37:44-38:10; col. 50:40-54.) An operation command may be included in the header so that as the data packet is routed through a path node it is routed through a particular node capable of performing the operation identified by the command in the header. (*See, e.g.,* '737 patent at col. 47:53-58; col. 50:48-54.)

30. Because of these significant advantages that can be achieved through the use of the patented inventions, MRT believes that the Patents-in-Suit present significant commercial value for companies like Verizon. Indeed, SRv6 has been identified as a key enabling technology for 5G. SRv6 can replace GTP-U and also any underlay transport layers and be used as the only transport layer in 5G, dramatically simplifying network operations while providing greater traffic engineering control and enabling other capabilities such as service chaining and network slicing, a main feature of 5G.[4] SR is a key enabler for traffic engineering and network slicing technology and makes SRv6 "the protocol of choice for backhaul networks for 5G and beyond."[5] Network slicing is considered a critical technology. AT&T, T-Mobile and Verizon

[4] *See, e.g.*, https://www.segment-routing.net/images/ACG_Segment_Routing_201808.pdf.
[5] *See, e.g.*, https://www.ericsson.com/en/blog/2023/5/bright-future-of-srv6.

recently were awarded part of a $2B+ contract with the Department of Defense that included a requirement for network slicing.[6] The Verizon Networks support network slicing.[7]

Technological Innovation

31. The patented inventions disclosed in the Patents-in-Suit resolves technical problems related to traffic engineering in networks, particularly the complexity and scalability problems presented by the incredible growth in networking and the Internet. As the Patents-in-Suit patent explain, one of the limitations of the prior art as regards network routing was that the approach traditionally used for addressing and routing, and the effect on network latency. (*See, e.g.,* '737 patent, col. 1:66-2:51.)

32. The claims of the Patents-in-Suit do not merely recite the performance of some well-known business practice from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claims of the Patents-in-Suit recite inventive concepts that are deeply rooted in engineering technology, and overcome problems specifically arising out of how to efficiently and effectively manage network traffic with optimum utilization of network resources. (*See, e.g.*, '737 patent, col. 51:17-36.)

33. In addition, the claims of the Patents-in-Suit recite inventive concepts that improve the functioning of network hardware such as routers for transferring data packets through a network, particularly by reducing the demand on transit nodes and egress nodes to

[6] *See, e.g.*, https://washingtontechnology.com/contracts/2024/05/navy-chooses-7-27b-spiral-4-wireless-contract/396332/; https://www.govconwire.com/2024/05/navy-selects-7-vendors-for-2-7b-follow-on-wireless-mobility-services-contract/; https://sam.gov/api/prod/opps/v3/opportunities/resources/files/f976d6d888c843e2836fcad0e4b75483/download?&status=archived&token= (referring to network slicing at pg. 14).

[7] *See, e.g.*, https://www.verizon.com/about/news/verizon-major-step-network-slicing-capabilities; https://www.mobileworldlive.com/verizon/verizon-trials-network-slicing-for-public-safety-services/; https://support.tracfone.com/en/topics/5g/all/what-is-network-slicing/; https://www.verizon.com/about/news/verizon-network-transformation-provides-faster-upgrades.

maintain state information and reducing the number of protocols required. (*See, e.g.*, '737 patent, col. 42:7-16.)

34. Moreover, the claims of the Patents-in-Suit recite inventive concepts that are not merely routine or conventional use of transferring information. Instead, the patented invention disclosed in the Patents-in-Suit provides a new and novel solution to specific problems related to improving network performance and packet routing through networks that are scalable and dynamic.

35. And finally, the patented inventions disclosed in the Patents-in-Suit do not preempt all the ways that packet routing may be used to improve network trafficking, nor do the Patents-in-Suit patent preempt any other well-known or prior art technology.

36. Accordingly, the claims in the Patents-in-Suit recite a combination of elements sufficient to ensure that the claims in substance and in practice amount to significantly more than a patent-ineligible abstract idea.

Internet Engineering Task Force (IETF) and Standard Setting Organizations

37. The IETF is a standards setting organization. It publishes technical documents referred to as RFCs that define technical foundations and specify application protocols.[8] Each RFC is a product of the IETF and represents the consensus of the IETF community.

38. The IETF has a working group, SPRING, which has published a number of RFCs related to SR, including RFC 8402, RFC 8660, RFC 8663, RFC 8754, RFC 8986, RFC 9256 and RFC 9352 (collectively "SR RFCs").

[8] https://www.ietf.org/process/rfcs/.

39. RFC 8402 is entitled "Segment Routing Architecture" and specifies an architectural framework and requirements for implementing SR, including both SR-MPLS and SRv6.[9]

40. RFC 8660 is entitled "Segment Routing with the MPLS Data Plane" and "specifies the forwarding behavior to allow instantiating SR over the MPLS data plane (SR-MPLS)."[10]

41. RFC 8663 is entitled "MPLS Segment Routing over IP" and "describes how SR-MPLS-capable routers and IP-only routers can seamlessly coexist and interoperate through the use of SR-MPLS label stacks and IP encapsulation/tunneling such as MPLS-over-UDP . . . ."[11]

42. RFC 8754 is entitled "IPv6 Segment Routing Header (SRH)" and "describes the SRH and how it is used by nodes that are Segment Routing (SR) capable."[12]

43. RFC 8986 is entitled "Segment Routing over IPv6 (SRv6) Network Programming" and "defines the SRv6 Network Programming concept and specifies the base set of SRv6 behaviors that enables the creation of interoperable overlays with underlay optimization."[13]

44. RFC 9256 is entitled "Segment Routing Policy Architecture" and "updates RFC 8402 as it details the concepts of SR Policy and steering into an SR Policy."[14] "SR Policy is an ordered list of segments (i.e., instructions) that represent a source-routed policy."[15]

[9] https://datatracker.ietf.org/doc/rfc8402/.
[10] https://datatracker.ietf.org/doc/html/rfc8660.
[11] https://datatracker.ietf.org/doc/html/rfc8663.
[12] https://datatracker.ietf.org/doc/html/rfc8754
[13] https://datatracker.ietf.org/doc/html/rfc8986
[14] https://datatracker.ietf.org/doc/html/rfc9256
[15] https://datatracker.ietf.org/doc/html/rfc9256

45. RFC 9352 is entitled "IS-IS Extensions to Support Segment Routing over the IPv6 Data Plane" and "describes the IS-IS extensions required to support SR over the IPv6 data plane."[16]

46. Numerous companies supply interoperable equipment and software solutions that support SR-capable networks and the requirements set forth in the SR RFCs.[17] Numerous companies also contributed to the SR RFCs, including Verizon[18, 19, 20, 21, 22, 23]. Verizon has also presented demonstrations regarding SR.[24]

47. In the context of 5G and wireless networks, multiple standard setting organizations and industry-based open source communities are involved in creating standards and ensuring interoperability which is critical given the diversity of components and services that are interconnected. One example is the 3rd Generation Partnership Project ("3GPP"). It is a standard setting organization that develops protocols for mobile telecommunications, including

[16] https://datatracker.ietf.org/doc/html/rfc9352
[17] *See, e.g.*, https://documentation.nokia.com/html/0_add-h-f/93-0073-HTML/7750_SR_OS_Router_Configuration_Guide/appen_standards.pdf; https://eantc.de/wp-content/uploads/2022/03/EANTC-InteropTest2022-TestReport.pdf; https://eantc.de/wp-content/uploads/2023/04/EANTC-InteropTest2023-TestReport.pdf; https://eantc.de/wp-content/uploads/2023/12/EANTC-MPLSSDNInterop2024-TestReport-v1.3.pdf (Nokia, Ericsson, Ribbon Communications, Juniper etc.).
[18] *See, e.g.*, https://www.rfc-editor.org/rfc/rfc8986.html#name-contributors (Nokia).
[19] *See, e.g.*, https://www.rfc-editor.org/rfc/rfc9256.html#name-contributors (T-Mobile's parent, Deutsche Telekom AG and Verizon).
[20] *See, e.g.*, https://www.rfc-editor.org/rfc/rfc8660.html#name-contributors (Nokia).
[21] *See, e.g.*, https://www.rfc-editor.org/rfc/rfc8663.html#name-contributors (Nokia, Verizon).
[22] *See, e.g.*, https://www.rfc-editor.org/rfc/rfc9352.html#name-contributors (Ericsson).
[23] *See, e.g.*, https://datatracker.ietf.org/doc/html/rfc8402 (Nokia, T-Mobile's parent, Deutsche Telekom AG).
[24] https://www.segment-routing.net/conferences/Paris23-Verizon-Gyan-Mishra/; https://www.segment-routing.net/conferences/Paris24-Verizon-Gyan-Mishra/ (focusing on SRv6).

the 5G standard and non-radio access to core networks and other interworking with non-3GPP networks.[25]

48. The O-RAN ALLIANCE is another example. It is an open technical organization founded in 2018 and Verizon is a member.[26] Its "mission is to encourage the industry towards more intelligent, open, virtualized and fully inter-operable mobile networks."[27] It publishes specifications and supports integration and testing while working with other standard setting organizations to ensure compatibility.[28]

49. The European Telecommunications Standards Institute ("ETSI") is another standard setting organization that develops global standards that ensure interoperability between wireless networks, network operators and devices. ETSI is part of 3GPP.[29] ETSI publishes O-RAN specifications[30] and also publishes documents created by Industry Specification Groups (ISGs), such as Group Specifications, which provide technical requirements and explanatory material and are produced and approved by specific ISGs.[31] Eight different Verizon companies are members of ETSI and various ISGs within ETSI.[32]

50. Verizon has stated the following about ETSI:

> Verizon admits that the European Telecommunications Standards Institute (ETSI) is an independent, non-profit standard development organization (SDO) that

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[25] *See, e.g.*, https://www.3gpp.org/about-us/introducing-3gpp; https://www.3gpp.org/ftp/Information/presentations/Newcomers_quick-start/Newcomers_slides.pdf.
[26] *See, e.g.*, https://www.o-ran.org/membership.
[27] *See, e.g.*, https://assets-global.website-files.com/60b4ffd4ca081979751b5ed2/64bee579b5449cafb9f0f889_Governance%20of%20O-RAN%20ALLIANCE%20e.V.%20in%20Compliance%20with%20WTO%20Principles-v02.pdf.
[28] *Id.*
[29] *See, e.g.*, https://www.3gpp.org/ftp/Information/presentations/Newcomers_quick-start/Newcomers_slides.pdf.
[30] *Id.*
[31] *See, e.g.*, https://www.etsi.org/standards/types-of-standards.
[32] https://www.etsi.org/membership.

> promulgates globally-accepted standards for the telecommunications industry. Verizon admits that ETSI is one of several organizational partners of the Third Generation Partnership Project (3GPP), and that 3GPP created the technical specifications for 3G, 4G, and 5G. Verizon admits that ETSI and its members have developed global standards and that an objective of ETSI is to "produce and perform the maintenance of the technical standards . . . which are necessary to achieve a large unified European market for telecommunications, ICT, other electronic communications networks and services and related areas.[33]
> . . .
>
> The European Telecommunications Standards Institute (ETSI) is a standard development organization (SDO) that promulgates globally-accepted standards for the telecommunications industry. ETSI has more than 900 members from more than 60 countries. In 1998, ETSI and other SDOs founded and became organizational partners of the Third Generation Partnership Project (3GPP). 3GPP created the technical specifications for 3G, 4G, and 5G.[34]

51. In May 2024, 3GPP and ETSI published a technical specification entitled "5G; Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and Stage 3" as 3GPP TS 28.541 version 18.7.0 Release 18 and ETSI TS 128 541 V18.7.0 (2024-05).[35] That requirements document specifies that the allowed tunnelling mechanism attribute for a network slice includes SRv6.[36]

52. One ETSI ISG is the Fifth Generation Fixed Network ISG, which focuses on the "evolution of the fixed network needed to match and further enhance the benefits that 5G has brought to mobile networks and communications" and addresses, among other things, "end-to-end full stack slicing."[37]

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[33] *Asus Technology Licensing Inc. v. Cellco Partnership d/b/a Verizon Wireless*, No. 2:23-cv-00488, Dkt. 17 at 5 (¶23) (E.D. Tex. Dec. 26, 2023).
[34] *Id.* at 16 (¶7 counterclaims).
[35] *See, e.g.*, https://www.etsi.org/deliver/etsi_ts/128500_128599/128541/18.07.00_60/ts_128541v180700p.pdf.
[36] *Id.* at pg. 396.
[37] *See, e.g.*, https://www.etsi.org/committee/1696-f5g

53. The Fifth Generation Fixed Network (F5G) ISG produced and approved a Group Specification that "specifies the End-to-End network architecture, features and related network devices/elements' requirements for F5G, including on-premises, Access, IP and Transport Networks."[38] It lists IETF RFC 8402 and IETF RFC 8986 as normative references.[39] ETSI normative references are necessary for the application of the standard in which they are mentioned.[40]

54. The F5G Group Specification states that "Segment Routing is the preferred technology for implementing slicing in the aggregation network."[41] It specifies that "SRv6 shall be used as the bearer connection on the IP/Ethernet fabric Underlay Plane,"[42] "[t]he OLT shall support slicing per VLAN, SRv6 and OTN on the uplink port(s),"[43] "[t]he IP Network shall support SRv6 Best Effort (BE)" and "should support SRv6 Traffic Engineering (TE)."[44]

55. A different ETSI ISG, the Network Functions Virtualization ("NFV") ISG, produced and approved a Group Specification specifying performance metrics and methods for benchmarking networks in NFV infrastructure ("NFVI").[45] It states that "[p]rotocols like VLAN, VXLAN, GRE, VXLAN-GPE, SRv6 and SFC NSH are needed in NFVI

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[38] *See, e.g.*, ETSI GS F5G 014 V1.1.1 (2023-05) *available at* https://www.etsi.org/deliver/etsi_gs/F5G/001_099/014/01.01.01_60/gs_F5G014v010101p.pdf at sec. 1.
[39] *Id.* at sec. 2.1 ([5] amd [6]).
[40] *See, e.g.*, https://portal.etsi.org/Services/editHelp/Search/FAQs/Normative-informative-references.
[41] *See, e.g.*, ETSI GS F5G 014 V1.1.1 (2023-05) *available at* https://www.etsi.org/deliver/etsi_gs/F5G/001_099/014/01.01.01_60/gs_F5G014v010101p.pdf at sec. 5.4.1.11.
[42] *Id.* at 5.4.3.1.2.
[43] *Id.* at [R-54]
[44] *Id.* at [R-89] and [R-90].
[45] *See, e.g.*, ETSI GS NFV-TST 009 V3.4.1 (2020-12) *available at* https://www.etsi.org/deliver/etsi_gs/NFV-TST/001_099/009/03.04.01_60/gs_NFV-TST009v030401p.pdf.

deployments."[46] AT&T, Verizon T-Mobile, Nokia, Ericsson and Samsung are members of the NFV ISG along with T-Mobile's parent company, Deutsche Telekom AG.[47] The Group Specification was "produced and approved by the Fifth Generation Fixed Network (F5G) ETSI Industry Specification Group (ISG) and represents the views of those members who participated in this ISG."[48]

56. In October 2023, the NFV ISG also published a Group Report that analyzed SRv6 and SR-MPLS and discussed RFC 8402, RFC 8754, RFC 8986 and RFC 9256.[49]

57. Verizon, T-Mobile and AT&T were also part of the Open Networking Foundation ("ONF").[50] When Verizon joined, it stated "we hope to advance open source SDN and NFV solutions based on ONOS and to help shape the future of this ecosystem."[51] The ONF SDN fabric specification, which is part of ONOS, requires the use of SR-MPLS.[52] On information and belief, companies such as Verizon have implemented SR solutions according to the ONF specifications.[53]

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[46] *Id.*
[47] *See, e.g.*, https://portal.etsi.org/TB-SiteMap/NFV/NFV-List-members
[48] *See, e.g.*, ETSI GS NFV-TST 009 V3.4.1 (2020-12) *available at* https://www.etsi.org/deliver/etsi_gs/NFV-TST/001_099/009/03.04.01_60/gs_NFV-TST009v030401p.pdf.
[49] *See, e.g.*, ETSI GR NFV-IFA 035 V5.1.1 (2023-10) *available at* https://www.etsi.org/deliver/etsi_gr/NFV-IFA/001_099/035/05.01.01_60/gr_NFV-IFA035v050101p.pdf.
[50] *See, e.g.*, https://opennetworking.org/member-listing/ (AT&T and T-Mobile); https://www.datacenterknowledge.com/open-source-software/verizon-latest-telco-to-join-onos-open-source-sdn-project.
[51] https://www.datacenterknowledge.com/open-source-software/verizon-latest-telco-to-join-onos-open-source-sdn-project.
[52] *See, e.g.*, https://docs.sd-fabric.org/master/specification.html.
[53] *See, e.g.*, https://wiki.onosproject.org/pages/viewpage.action?pageId=39813572; https://wiki.onosproject.org/display/ONOS/1.15-SR+Routing; https://www.geeksforgeeks.org/open-networking-operating-system-onos-in-software-defined-networks/; https://www.gsma.com/solutions-and-impact/gsma-open-gateway/wp-

Verizon's Networks and Accused Instrumentalities

58. Verizon operates one or more networks including fixed-line, wireless and Public Safety networks (collectively the "Verizon's Networks").[54] Its networks are operated under various brand names including "Verizon," "Frontline" and "Tracfone." Verizon's networks include 5G stand-alone networks. Verizon also supports multiple MVNOs.

59. The Verizon Networks include networks complying with O-RAN and include virtualized functionality (NFV) and disaggregated functionality.[55] This includes the Verizon Cloud Platform, 5G SA cores, and vRAN.[56] On information and belief, Verizon relies on multiple vendors including Ericsson, Nokia, Juniper and Samsung among others for network infrastructure components for the Verizon Networks that support SR and the SR RFCs.[57]

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content/uploads/2023/05/The-Ecosystem-for-Open-Gateway-NaaS-API-development.pdf (at pg. 5).

[54] *See, e.g.*, https://www.verizon.com/business/verizonpartnersolutions/; https://www.verizon.com/business/resources/systems-integrator-partners/; https://www.verizon.com/business/solutions/public-sector/public-safety/.

[55] *See, e.g.*, https://www.mobileworldlive.com/featured-content/top-three/verizon-migrates-commercial-traffic-onto-sa-5g-core/; https://www.verizon.com/about/news/verizon-and-ericsson-collaborate-innovative-5g-feature-enhance-user-experience; https://www.verizon.com/about/news/verizon-moves-commercial-traffic-5g-core; https://www.verizon.com/about/news/verizon-advances-o-ran-technology.

[56] *See, e.g.*, *id.*; https://www.openstack.org/videos/summits/denver-2019/verizon-cloud-platform-operating-and-evolving-openstack-at-scale.

[57] *See, e.g.*, https://www.mobileworldlive.com/featured-content/top-three/verizon-migrates-commercial-traffic-onto-sa-5g-core/ (Ericsson, Samsung, Nokia); https://news.samsung.com/us/samsung-verizon-charge-ahead-with-vran/; https://www.samsung.com/global/business/networks/insights/press-release/0726_verizon-and-samsung-complete-fully-virtualized-5g-data-session-on-c-band-spectrum/; https://images.samsung.com/is/content/samsung/assets/global/business/networks/insights/white-paper/network-slicing/200420_Samsung_Network_Slicing_Final.pdf; https://www.juniper.net/us/en/customers/verizon-case-study.html#:~:text=Juniper%20solutions%20are%20used%20across,a%20seamless%20path%20to%20800G; https://www.juniper.net/documentation/us/en/software/junos/standards/topics/concept/segment-routing.html;

60. On information and belief, the Verizon Networks support the functionality specified in the SR RFCs ("Accused Instrumentalities").

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 10,367,737

61. The allegations set forth in the foregoing paragraphs are incorporated into this First Claim for Relief.

62. On July 30, 2019, U.S. Patent No. 10,367,737 ("the '737 patent"), entitled "ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS" was duly and legally issued by the United States Patent and Trademark Office.

63. Plaintiff is the assignee and owner of the right, title and interest in and to the '737 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

64. The '737 patent is valid and enforceable. A true and correct copy of the '737 patent is attached as Exhibit A.

65. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the '737 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the "Accused Instrumentalities").

66. Exemplary infringement analysis showing infringement of claim 1 of the '737 patent is set forth in Exhibit I. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the '737 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis.

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https://documentation.nokia.com/sr/24-3/7750-sr/books/common/dita_standards_2.html; https://www.ericsson.com/49c6e5/assets/global/eridoc/405880/1-28701-FGC1013863UEN.pdf.

Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the '737 patent.

67. The Accused Instrumentalities infringed and continue to infringe claim 1 of the '737 patent during the pendency of the '737 patent.

68. MRT has been harmed by Verizon's infringing activities.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 10,382,327

69. The allegations set forth in the foregoing paragraphs are incorporated into this Second Claim for Relief.

70. On August 13, 2019, U.S. Patent No. 10,382,327 ("the '327 patent"), entitled "METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ROUTING USING HEADERS INCLUDING A SEQUENCE OF NODE SCOPE-SPECIFIC IDENTIFIERS" was duly and legally issued by the United States Patent and Trademark Office.

71. Plaintiff is the assignee and owner of the right, title and interest in and to the '327 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

72. The '327 patent is valid and enforceable. A true and correct copy of the '327 patent is attached as Exhibit B.

73. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the '327 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the "Accused Instrumentalities").

74. Exemplary infringement analysis showing infringement of claim 1 of the '327 patent is set forth in Exhibit J. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the '327 patent. MRT

reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the '327 patent.

75. The Accused Instrumentalities infringed and continue to infringe claim 1 of the '327 patent during the pendency of the '327 patent.

76. MRT has been harmed by Verizon's infringing activities.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 10,389,624

77. The allegations set forth in the foregoing paragraphs are incorporated into this Third Claim for Relief.

78. On August 20, 2019, U.S. Patent No. 10,389,624 ("the '624 patent"), entitled "SCOPED IDENTIFIER SPACE ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS" was duly and legally issued by the United States Patent and Trademark Office.

79. Plaintiff is the assignee and owner of the right, title and interest in and to the '624 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

80. The '624 patent is valid and enforceable. A true and correct copy of the '624 patent is attached as Exhibit C.

81. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the '624 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the "Accused Instrumentalities").

82. Exemplary infringement analysis showing infringement of claim 1 of the '624 patent is set forth in Exhibit K. This infringement analysis is necessarily preliminary, as it is

provided in advance of any discovery provided by Verizon with respect to the '624 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the '624 patent.

83. The Accused Instrumentalities infringed and continue to infringe claim 1 of the '624 patent during the pendency of the '624 patent.

84. MRT has been harmed by Verizon's infringing activities.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 10,389,625

85. The allegations set forth in the foregoing paragraphs are incorporated into this Fourth Claim for Relief.

86. On August 20, 2019, U.S. Patent No. 10,389,625 ("the '625 patent"), entitled "ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR USING SPECIFIC IDENTIFIERS TO TRANSMIT DATA" was duly and legally issued by the United States Patent and Trademark Office.

87. Plaintiff is the assignee and owner of the right, title and interest in and to the '625 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

88. The '625 patent is valid and enforceable. A true and correct copy of the '625 patent is attached as Exhibit D.

89. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the '625 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the "Accused Instrumentalities").

90. Exemplary infringement analysis showing infringement of claim 1 of the ’625 patent is set forth in Exhibit L. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the ’625 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the ’625 patent.

91. The Accused Instrumentalities infringed and continue to infringe claim 1 of the ’625 patent during the pendency of the ’625 patent.

92. MRT has been harmed by Verizon’s infringing activities.

COUNT V – INFRINGEMENT OF U.S. PATENT NO. 10,404,582

93. The allegations set forth in the foregoing paragraphs are incorporated into this Fifth Claim for Relief.

94. On September 3, 2019, U.S. Patent No. 10,404,582 (“the ’582 patent”), entitled “ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS USING AN OUTSIDE-SCOPE IDENTIFIER” was duly and legally issued by the United States Patent and Trademark Office.

95. Plaintiff is the assignee and owner of the right, title and interest in and to the ’582 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

96. The ’582 patent is valid and enforceable. A true and correct copy of the ’582 patent is attached as Exhibit E.

97. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the ’582 patent by making, using, selling, importing and/or providing and

causing to be used a Segment Routing Standard-Compliant Appliances (the "Accused Instrumentalities").

98. Exemplary infringement analysis showing infringement of claim 1 of the '582 patent is set forth in Exhibit M. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the '582 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the '582 patent.

99. The Accused Instrumentalities infringed and continue to infringe claim 1 of the '582 patent during the pendency of the '582 patent.

100. MRT has been harmed by Verizon's infringing activities.

COUNT VI – INFRINGEMENT OF U.S. PATENT NO. 10,411,997

101. The allegations set forth in the foregoing paragraphs are incorporated into this Sixth Claim for Relief.

102. On September 10, 2019, U.S. Patent No. 10,411,997 ("the '997 patent"), entitled "ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS USING A REGION SCOPED NODE IDENTIFIER" was duly and legally issued by the United States Patent and Trademark Office.

103. Plaintiff is the assignee and owner of the right, title and interest in and to the '997 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

104. The '997 patent is valid and enforceable. A true and correct copy of the '997 patent is attached as Exhibit F.

105. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the ’997 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the “Accused Instrumentalities”).

106. Exemplary infringement analysis showing infringement of claim 1 of the ’997 patent is set forth in Exhibit N. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the ’997 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the ’997 patent.

107. The Accused Instrumentalities infringed and continue to infringe claim 1 of the ’997 patent during the pendency of the ’997 patent.

108. MRT has been harmed by Verizon’s infringing activities.

COUNT VII – INFRINGEMENT OF U.S. PATENT NO. 10,419,334

109. The allegations set forth in the foregoing paragraphs are incorporated into this Seventh Claim for Relief.

110. On September 17, 2019, U.S. Patent No. 10,419,334 (“the ’334 patent”), entitled “INTERNET PROTOCOL ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS” was duly and legally issued by the United States Patent and Trademark Office.

111. Plaintiff is the assignee and owner of the right, title and interest in and to the ’334 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

112. The ’334 patent is valid and enforceable. A true and correct copy of the ’334 patent is attached as Exhibit G.

113. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the ’334 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the “Accused Instrumentalities”).

114. Exemplary infringement analysis showing infringement of claim 1 of the ’334 patent is set forth in Exhibit O. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the ’334 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the ’334 patent.

115. The Accused Instrumentalities infringed and continue to infringe claim 1 of the ’334 patent during the pendency of the ’334 patent.

116. MRT has been harmed by Verizon’s infringing activities.

COUNT VIII – INFRINGEMENT OF U.S. PATENT NO. 10,841,198

117. The allegations set forth in the foregoing paragraphs are incorporated into this Eighth Claim for Relief.

118. On November 17, 2020, U.S. Patent No. 10,841,198 (“the ’198 patent”), entitled “ROUTING METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS” was duly and legally issued by the United States Patent and Trademark Office.

119. Plaintiff is the assignee and owner of the right, title and interest in and to the ’198 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them, including all past infringement.

120. The ’198 patent is valid and enforceable. A true and correct copy of the ’198 patent is attached as Exhibit H.

121. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the ’198 patent by making, using, selling, importing and/or providing and causing to be used a Segment Routing Standard-Compliant Appliances (the “Accused Instrumentalities”).

122. Exemplary infringement analysis showing infringement of claim 1 of the ’198 patent is set forth in Exhibit P. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Verizon with respect to the ’198 patent. MRT reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the ’198 patent.

123. The Accused Instrumentalities infringed and continue to infringe claim 1 of the ’198 patent during the pendency of the ’198 patent.

124. MRT has been harmed by Verizon’s infringing activities.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, MRT demands a trial by jury on all issues triable as such.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff MRT demands judgment for itself and against Verizon as follows:

A. An adjudication that the Verizon has infringed the Patents-in-Suit;

B. An award of damages to be paid by Verizon adequate to compensate MRT for Verizon’s past infringement of the Patents-in-Suit, and any continuing or future infringement

through the date such judgment is entered, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

C. A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of MRT's reasonable attorneys' fees; and

D. An award to MRT of such further relief at law or in equity as the Court deems just and proper.

Dated: July 8, 2024

DEVLIN LAW FIRM LLC

/s/ Timothy Devlin

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