

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

ALTERWAN, INC.,  
Plaintiff,

v.

AMAZON.COM, INC. and  
AMAZON WEB SERVICES, INC.,  
Defendants.

C.A. No.

**JURY TRIAL DEMANDED**

**COMPLAINT**

This is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code, against Defendants Amazon.com, Inc. and Amazon Web Services, Inc. (together, “Amazon” or “Defendants”) that relates to six U.S. patents owned by AlterWAN, Inc. (“AlterWAN” or “Plaintiff”): 7,111,163, 7,318,152, 8,595,478, 9,015,471, 9,525,620, and 9,667,534 (collectively, the “Patents-in-Suit”).

**PARTIES**

1. Plaintiff AlterWAN is a California corporation with a principal place of business at 4709 Michelle Way, Union City, California 94587.

2. Defendant Amazon.com, Inc. is a Delaware corporation with its principal place of business at 410 Terry Avenue North, Seattle, Washington 98109. Amazon.com, Inc.’s registered agent for service in Delaware is Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808. Amazon.com, Inc. does business across the United States, including in the State of Delaware and in the District of Delaware.

3. Defendant Amazon Web Services, Inc. is a Delaware corporation and an Amazon.com, Inc. subsidiary with its principal place of business at 410 Terry Avenue North, Seattle, Washington. Amazon Web Services, Inc.'s registered agent for service in Delaware is Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808. Amazon Web Services, Inc. does business across the United States, including in the State of Delaware and in the District of Delaware.

4. Defendants make, use, import, sell and/or offer for sale their Amazon Virtual Private Cloud products and services.

### **JURISDICTION AND VENUE**

5. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.*, and more particularly 35 U.S.C. § 271.

6. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a) in which the district courts have original and exclusive jurisdiction of any civil action for patent infringement.

7. Amazon is subject to this Court's jurisdiction because it is incorporated in Delaware.

8. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1400(b) because each Defendant is incorporated in the State of Delaware.

### **BACKGROUND**

9. Richard Haney received his bachelor's degree in Industrial Technology in Electronics in 1974. He also obtained his Master's degree in Computer Science in 1981.

10. Mr. Haney began working in Wide Area Networking in the late 1970s. He ultimately formed his own company to develop and implement such systems for clients.

11. In 1999, Mr. Haney began working to address limitations in private networking technology. Private networks using private, dedicated hardware and private, dedicated routes offered guaranteed quality of service but were exceedingly expensive. Private networks that used the internet as a backbone were inexpensive but inefficient and unreliable, exhibiting problems of lack of reserved bandwidth and latency as well as poor data security.

12. Mr. Haney developed solutions to these limitations, Alternative Wide-Area Networks, that allow the internet to perform like a private network. These solutions provided users with privacy, latency, and bandwidth availability guarantees via a unified, global network that worked across internet service providers' infrastructure. He formed AlterWAN, Inc. in 2000 to develop and implement these solutions, and he filed his first patent application that same year.

13. AlterWAN technology uses planned, high bandwidth, low hop-count paths to route data packets between data sources and destinations even when they are geographically-separated. It solves the quality-of-service issues with prior-art networks by providing sufficient bandwidth and by predefining routes for private tunnel paths between points on the internet.

14. Participating service-providers can collaborate to provide data paths using routing tables to route designated packets through private tunnels and route other internet traffic along other paths. This technology uses the internet as a backbone and eliminates the prior technology restriction that the same telephone company or service provider provide all connections along a data path.

15. Mr. Haney implemented his solutions to improve a global corporate network that included locations in Germany, Japan, the United Kingdom, France, and numerous U.S. cities. The implementation reduced cost and network-latency issues. The AlterWAN technology also

eliminated the need to relay all data through the customer's corporate headquarters, which resulted in a more efficient corporate network.

16. In the ensuing years, Mr. Haney sought additional patents on various aspects of the technology he had invented. Today, AlterWAN owns seven U.S. patents covering its inventive, alternative wide-area network technology.

17. Mr. Haney remains AlterWAN's President and CEO and is the named inventor on each of AlterWAN's patents.

### **THE PATENTS-IN-SUIT AND CLAIMS-IN-SUIT**

18. AlterWAN is the owner of record and assignee of each of U.S. Patent Nos. 7,111,163 ("the '163 Patent") (attached as Exhibit A), 7,318,152 ("the '152 Patent") (attached as Exhibit B), 8,595,478 ("the '478 Patent") (attached as Exhibit C), 9,015,471 ("the '471 Patent") (attached as Exhibit D), 9,525,620 ("the '620 Patent") (attached as Exhibit E), and 9,667,534 ("the '534 Patent") (attached as Exhibit F) (collectively, the "Patents-in-Suit"). The following claims in the Counts below are example claims; at least these patent claims (and likely others) are infringed.

19. AlterWAN has the exclusive right to sue and the exclusive right to recover damages for infringement of the Patents-in-Suit during all relevant time periods.

20. On September 19, 2006, the '163 Patent, entitled "Wide Area Network Using Internet with Quality of Service," was duly and legally issued by the USPTO.

21. On January 8, 2008, the '152 Patent, entitled "Wide Area Network Using Internet with High Quality of Service," was duly and legally issued by the USPTO.

22. On November 26, 2013, the '478 Patent, entitled "Wide Area Network with High Quality of Service," was duly and legally issued by the USPTO.

23. On April 21, 2015, the '471 Patent, entitled "Inter-Autonomous Networking Involving Multiple Service Providers," was duly and legally issued by the USPTO.

24. On December 20, 2016, the '620 Patent, entitled "Private Tunnel Usage to Create Wide Area Network Backbone over the Internet," was duly and legally issued by the USPTO.

25. On May 30, 2017, the '534 Patent, entitled "VPN Usage to Create Wide Area Network Backbone over the Internet," was duly and legally issued by the USPTO.

26. The Patents-in-Suit claim elements and/or combinations of elements that overcame, at the time of invention, problems with private networking, including the high cost of dedicated private networks and the unpredictability of hop count, bandwidth availability, latency, and privacy inherent when using the internet to implement wide-area networks. By utilizing the claimed technology of the Patents-in-Suit, network operators can control hop count, latency, and bandwidth availability at relatively low cost by implementing secure private tunnels that use the internet as a backbone.

#### **AMAZON'S INFRINGING PRODUCTS AND SERVICES**

27. Amazon has been, and now is, directly infringing claims of the Patents-in-Suit under 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the below accused Amazon Virtual Private Cloud products/services in this District and elsewhere in the United States that include the systems and software claimed in the Patents-in-Suit and/or by using the methods claimed in the Patents-in-Suit, including, for example, Amazon's set-up, testing, demonstration, and operation of its Amazon Virtual Private Cloud products/services.

28. To the extent Amazon continues to provide these products and services and guidance to users, Amazon will be inducing the direct infringement of method claims of the Patents-in-Suit pursuant to U.S.C. § 271(b) at least by one or more of making, using, offering for

sale, selling and/or importing the below accused Amazon Virtual Private Cloud products/services in this District and elsewhere in the United States that were designed and intended to use and/or practice the methods and processes covered by the Patents-in-Suit. Further, Amazon user guides, including, for example, <https://docs.aws.amazon.com/vpc/latest/userguide/vpc-ug.pdf> and <https://docs.aws.amazon.com/directconnect/latest/UserGuide/dc-ug.pdf>, and other support materials and services and advertisement of features that are used and benefits that are achieved through use of the Patents-in-Suit will induce further infringement.

29. To the extent Amazon continues to provide these products and services and guidance to users, Amazon will possess specific intent to cause and encourage direct infringement of the Patents-in-Suit with affirmative intent or willful blindness that such activities occur and constitute direct infringement of the Patents-in-Suit.

**COUNT 1: INFRINGEMENT OF PAT. 7,111,163 CLAIM 7**

30. AlterWAN reasserts and realleges paragraphs 1 through 33 of this Complaint as though set forth fully here.

31. Claim 7 of the '163 Patent provides:

Preamble	A method comprising:
Element A	generating an Internet Protocol data packet (hereafter IP packet) having as its destination address an Internet Protocol address assigned to a computing device at the other end of a private, wide area network using the internet as a backbone (hereafter referred to as an AlterWAN private tunnel);
Element B	encrypting a payload portion of said IP packet to generate an encrypted IP packet;
Element C	generating a composite AlterWAN packet by encapsulating said encrypted IP packet in another IP packet having as its destination address an IP address of an untrusted side of a firewall which is at a destination site which is part of said AlterWAN private tunnel; and
Element D	routing said composite AlterWAN packet using a source router whose

	routing table has been configured to include a routing statement which recognizes said destination address of said composite AlterWAN packet and routes said composite AlterWAN packet via a dedicated data path to an AlterWAN data path,
Element E	said AlterWAN data path being defined as a high bandwidth, low latency, low hop count data path provided by one or more participating ISX/ISP internet service providers that links said source site and said destination site of said AlterWAN private tunnel, each participating ISX/ISP internet service provider being one which has been selected as having at least one high bandwidth, low latency, low hop count data path which can be used to transmit said composite AlterWAN data packet either from said source site to said destination site or to another participating ISX/ISP internet service provider and which has routers which either already contain or which are configured to contain predetermined routing statements when said participating ISX/ISP agrees to provide routing services as part of said AlterWAN data path,
Element F	said predetermined routing statements being ones which will recognize said IP destination address of each said composite AlterWAN data packets and cause said composite AlterWAN packets to be routed into said AlterWAN data path.

32. Amazon directly infringes claim 7 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

33. Upon information and belief based on other elements of the Amazon system described herein, logic at the VPC subnets provided by Amazon generates IP data packets, and at least some of these packets will have destination addresses assigned to a computing device located at the Customer Network.

34. The AWS system encrypts a payload portion of the received packet to generate an encrypted IP packet utilizing IPsec.

35. The VPC router generates a composite packet by encapsulating the encrypted IP

packet in another IP packet. Upon information and belief based on other elements of the Amazon system described herein, this encapsulated packet has a destination address of the Customer gateway device. When the Customer gateway is configured with a firewall, the destination address for the packet is the IP address of the firewall at the Customer Gateway.

36. In the non-NAT configuration, the VPC router is a source router with a routing table including an entry for packets having a destination address associated with the Customer gateway. The VPC router recognizes the Customer gateway address and routes the packet via the VPN connection using a Direct Connect connection.

37. In the NAT configuration, the VPC router includes an entry in its route table that issued by the VPC router to recognize destination addresses of incoming packets as associated with the Customer Gateway and routes recognized packets via the VPN connection using a Direct Connect connection.

38. The Site-to-Site VPN using AWS Direct Connect connections is a data path having a high-bandwidth, low latency, low hop count data path. The Direct Connect connection is provided by AWS Direct Connect Partners, which, upon information and belief based on other elements of the Amazon system described herein, are commonly ISX/ISP internet service providers.

39. Upon information and belief based on other elements of the Amazon system described herein, when the Direct Connect connection is configured, the Direct Connect Partners configure their routers to include route statements for identifying which Customer Gateway is the intended destination, and uses that route statement to route the packet to the Customer Gateway.

40. Additionally, given its awareness of the patent claim at least after this detailed



complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

41. The technology claimed in claim 7 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

42. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 2: INFRINGEMENT OF PAT. 7,318,152 CLAIM 1**

43. AlterWAN reasserts and realleges paragraphs 1 through 46 of this Complaint as though set forth fully here.

44. Claim 1 of the ’152 Patent provides:

Preamble	A machine-readable medium including instructions which when executed by a machine causes the machine to perform operations comprising:
Element A	establishing a path for transmitting data over a network between a source and a destination, the path to provide a level of latency and bandwidth for the data, wherein the establishing comprises,
Element B	selecting at least one router of at least one participating service provider along the route based on a non-blocking bandwidth for the data, a number of hops in the path or latency for the data; and
Element C	defining a route between the at least one router along the path.

45. Amazon directly infringes claim 1 by setting up, operating, and/or offering for

sale/selling access to its servers with code that meets every element in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using multiple AWS Direct Connect connections in both NAT and non-NAT configuration, regardless of the number of service-provider routers.

46. In one infringing configuration for VPCs with Site-to-Site VPN with multiple Direct Connect connections, each Customer Network has a single Direct Connect connection.

47. Another infringing configuration uses multiple Direct Connect connections for a single customer network.

48. Amazon Site-to-Site VPN establishes the paths in the route table associated with AWS Direct Connect connections using the BGP route information received from the customer gateway via route propagation. These Amazon Direct Connect paths provide a level of latency and bandwidth (e.g., 1G-10G connections) for the data.

49. AWS Direct Connect connections provide a level of latency and bandwidth (e.g., 1G or 10G connections).

50. AWS Site-to-Site VPN using Direct Connect uses BGP to select the appropriate router of the Direct Connect partner. AWS Direct Connect uses the BGP AS\_PATH value to select the router and define the route. AS\_PATH is an attribute of a path containing a list of routers in the path. AWS Site-to-Site VPN selects the Direct Connect path based on the shortest number of hops.

51. AWS Site-to-Site VPN defines the route between the Direct Connect routers in the path with the shortest AS\_PATH length (i.e., number of hops in the path) using BGP route propagation and best path selection.

52. Additionally, given its awareness of the patent claim at least after this detailed

complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

53. The technology claimed in claim 1 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

54. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 3: INFRINGEMENT OF PAT. 7,318,152 CLAIM 12**

55. AlterWAN reasserts and realleges paragraphs 1 through 58 of this Complaint as though set forth fully here.

56. Claim 12 of the ’152 Patent provides:

Preamble	A method comprising:
Element A	receiving a data packet from a device;
Element B	in response to a determination that the data packet is of a first type, encrypting a payload of the data packet, using a key for a tunnel in a network,
Element C	the tunnel including a router of a participating service provider that guarantee non-blocking bandwidth for the data packet; and
Element D	outputting the data packet for forwarding to a first router of the routers in the tunnel.

57. Amazon directly infringes claim 12 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations, as long as the tunnel comprises at least two service-provider routers.

58. The router receives data packets from VPC subnets.

59. If the data packet has a destination associated with the Site-to-Site VPN connection via AWS Direct Connect, it is determined to be of the first type, the AWS system encrypts the payload of the data packet using IPsec using the Pre-shared key for the Site-to-Site VPN connection.

60. AWS Direct Connect connections connect customer networks and routers of participating service providers that guarantee non-blocking bandwidth (e.g., 1G or 10G connections) using Dedicated or Hosted Connections.

61. The Virtual Private gateway outputs the data packet for forwarding to a first router of the routers in the tunnel (e.g., to AWS Direct Connect endpoint for forwarding to AWS Direct Connect location partner router). Upon information and belief based on other elements of the Amazon system described herein, a Direct Connect path will often involve at least two routers.

62. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its

customers to set up and use its systems to operate in an infringing manner.

63. The technology claimed in claim 12 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

64. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 4: INFRINGEMENT OF PAT. 7,318,152 CLAIM 15**

65. AlterWAN reasserts and realleges paragraphs 1 through 68 of this Complaint as though set forth fully here.

66. Claim 15 of the ’152 Patent provides:

Preamble	A system comprising:
Element A	a first router that is from one of a number of participating service providers, the first router coupled to route data packets from a source device for transmission to a destination device; and
Element B	a second router that is from one of the number of participating service providers, wherein a path is established from the source device to the destination device through the first router and the second router to route the data packets,
Element C	wherein the first router and the second router guarantee non-blocking bandwidth for the data packets.

67. Amazon directly infringes claim 15 by setting up, operating, and/or offering for sale/selling access to its AWS Virtual Private Cloud service when used in conjunction with at least one AWS Direct Connect connections in both NAT and non-NAT configurations, as long as the tunnel comprises at least two service-provider routers.

68. Amazon Direct Connect locations include partner routers coupled to route data packets from a source (e.g., AWS VPC subnets) to a destination device (e.g., devices within Customer network). On information and belief based on other elements of the Amazon system described herein, the “partner router” often is a service-provider router.

69. Upon information and belief based on other elements of the Amazon system described herein, routes from AWS to Customer networks through AWS Direct Connect partners will often include at least two service-provider routers. In order to provide 1G or 10G bandwidth for the connection, each router in the path must guarantee this bandwidth.

70. Direct Connect Dedicated and Hosted connections guarantee non-blocking bandwidth (e.g., 1G or 10G connection) for the data packets.

71. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

72. The technology claimed in claim 15 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

73. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 5: INFRINGEMENT OF PAT. 7,318,152 CLAIM 16**

74. AlterWAN reasserts and realleges paragraphs 1 through 77 of this Complaint as though set forth fully here.

75. Claim 16 of the '152 Patent provides:

Element A	The system of claim 15, wherein the first router and the second router are part of a public wide area network.
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76. Amazon directly infringes claim 16 by setting up, operating, and/or offering for sale/selling access to its AWS Virtual Private Cloud service when used in conjunction with at least one AWS Direct Connect connections in both NAT and non-NAT configurations, as long as the tunnel comprises at least two service-provider routers.

77. On information and belief based on other elements of the Amazon system described herein, when AWS Direct Connect partner routers are service-provider routers, they are part of a public wide area network.

78. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

79. The technology claimed in claim 16 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

80. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 6: INFRINGEMENT OF PAT. 7,318,152 CLAIM 17**

81. AlterWAN reasserts and realleges paragraphs 1 through 84 of this Complaint as though set forth fully here.

82. Claim 17 of the '152 Patent provides:

Element A	The system of claim 15, wherein the path is established based on a minimization of hop counts.
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83. Amazon directly infringes claim 17 by setting up, operating, and/or offering for sale/selling access to its AWS Virtual Private Cloud service when used in conjunction with multiple AWS Direct Connect connections in both NAT and non-NAT configurations, as long as the tunnel comprises at least two service-provider routers.

84. The VPC router will select the path using BGP best path selection based on the shortest AS\_PATH value, which is a minimization of hop counts.

85. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

86. The technology claimed in claim 17 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities,



provided a technological solution to a technological problem rooted in computer technology.

87. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 7: INFRINGEMENT OF PAT. 7,318,152 CLAIM 18**

88. AlterWAN reasserts and realleges paragraphs 1 through 91 of this Complaint as though set forth fully here.

89. Claim 18 of the '152 Patent provides:

Element A	The system of claim 15, wherein the path comprises a private tunnel.
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90. Amazon directly infringes claim 18 by setting up, operating, and/or offering for sale/selling access to its Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection, in both NAT and non-NAT configurations, as long as the tunnel comprises at least two service-provider routers.

91. When configured with a Site-to-Site VPN using the Direct Connect connection, that connection is a private tunnel.

92. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

93. The technology claimed in claim 18 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

94. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 8: INFRINGEMENT OF PAT. 7,318,152 CLAIM 20**

95. AlterWAN reasserts and realleges paragraphs 1 through 98 of this Complaint as though set forth fully here.

96. Claim 20 of the ’152 Patent provides:

Preamble	A method comprising:
Element A	receiving a data packet on an input port of a router that is part of a wide area network; and
Element B	performing the following operations, in response to a determination that an address of a source device or an address of a destination device of the data packet is within a selected group of addresses:
Element C	performing a look-up into a routing table that is applicable to the selected group of addresses; and
Element D	routing the data packet based on the look-up into the routing table at a non-blocking bandwidth.

97. Amazon directly infringes claim 20 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection, in both NAT and non-NAT configurations, regardless of the number of service-provider routers.

98. The VPC router receives a data packet from the VPC subnets. That router is a part of a wide area network, connected to the Internet, VPC subnets, and the customer corporate network.

99. On information and belief based on other elements of the Amazon system described herein, the VPC router determines what route table to use based on the packet's source address (e.g., which subnet sent the traffic). Each subnet is associated with a route table. The VPN subnet source addresses are the "selected group of addresses."

100. The VPC router performs a look-up in the route table associated with the packets having a source address for the VPN-only subnet.

101. The VPC router routes the data packet based on the look-up into the routing table. The VPC router matches the destination address of the packet with destination addresses in the route table, and routes the packet to the associated Target.

102. Amazon VPC Site-to-Site VPN is configured to utilize AWS Direct Connect connections, which provide non-blocking bandwidth (e.g., 1G or 10G connections).

103. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

104. The technology claimed in claim 20 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

105. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 9: INFRINGEMENT OF PAT. 7,318,152 CLAIM 22**

106. AlterWAN reasserts and realleges paragraphs 1 through 109 of this Complaint as though set forth fully here.

107. Claim 22 of the '152 Patent provides:

Element A	The method of claim 20, wherein the data packet is an Internet Protocol data packet.
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108. Amazon directly infringes claim 22 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection, in both NAT and non-NAT configurations, regardless of the number of service-provider routers.

109. Upon information and belief based on other elements of the Amazon system described herein, all data packets in the AWS VPC system are Internet Protocol data packets.

110. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

111. The technology claimed in claim 22 was not well understood, routine, or

conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

112. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 10: INFRINGEMENT OF PAT. 7,318,152 CLAIM 23**

113. AlterWAN reasserts and realleges paragraphs 1 through 116 of this Complaint as though set forth fully here.

114. Claim 23 of the '152 Patent provides:

Element A	The method of claim 20, wherein the wide area network is the Internet.
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115. Amazon directly infringes claim 23 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection, in both NAT and non-NAT configurations, regardless of the number of service-provider routers.

116. AWS Direct Connect uses the Internet, which is a wide area network.

117. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its

customers to set up and use its systems to operate in an infringing manner.

118. The technology claimed in claim 23 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

119. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 11: INFRINGEMENT OF PAT. 7,318,152 CLAIM 25**

120. AlterWAN reasserts and realleges paragraphs 1 through 123 of this Complaint as though set forth fully here.

121. Claim 25 of the ’152 Patent provides:

Preamble	An apparatus comprising:
Element A	an input port coupled to receive data packets from a first data path, the data packets having a source address and a destination address;
Element B	an output port coupled to a second data path; and
Element C	a routing table configured to cause the data packets to be routed at a non-blocking bandwidth through the output port to the second data path in response to a determination that the address of the source device or the address of the destination device are defined within a group of high bandwidth addresses.

122. Amazon directly infringes claim 25 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations, regardless of the number of service provider routers.

123. The VPC router includes an input port to receive data packets from a first data path (e.g., local connections to VPC subnets). On information and belief, based on other elements of the Amazon system described herein, these data packets have a source address. They also have a destination address.

124. The VPC router includes an output port coupled to a second data path (e.g., Amazon Site-to-Site VPN path utilizing Direct Connect connection).

125. Amazon VPCs include a routing table configured to cause the data packets from VPC subnets to be routed based on destination address.

126. In response to a determination that the data packet has a destination address associated with the VPN connection (e.g., 0.0.0.0/0 route table entry), the VPC router routes the packet via the Site-to-Site VPN using Direct Connect connections.

127. In another example, in response to a determination that the data packet has a destination address associated with the VPN connection (e.g., 172.16.0.0/12 CIDR block of addresses), the VPC router routes the packet via the Site-to-Site VPN using Direct Connect connections.

128. AWS Direct Connect connections are high bandwidth connections (e.g., 1G or 10G), and packets with destinations matching the Direct Connect connection in the route table have high bandwidth destination addresses.

129. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent

infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

130. The technology claimed in claim 25 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

131. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 12: INFRINGEMENT OF PAT. 7,318,152 CLAIM 26**

132. AlterWAN reasserts and realleges paragraphs 1 through 135 of this Complaint as though set forth fully here.

133. Claim 26 of the '152 Patent provides:

Element A	The apparatus of claim 25, wherein the input port is to receive data packets from devices having addresses that are not within the group of high bandwidth addresses.
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134. Amazon directly infringes claim 26 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations, regardless of the number of service provider routers.

135. In the non-NAT and NAT configuration, the VPC router's input port receives data with destination addresses not associated with the VPN connection, including packets from the Public subnet and packets from the VPN-only subnet with "local" destination addresses.



136. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

137. The technology claimed in claim 26 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

138. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 13: INFRINGEMENT OF PAT. 7,318,152 CLAIM 28**

139. AlterWAN reasserts and realleges paragraphs 1 through 142 of this Complaint as though set forth fully here.

140. Claim 28 of the '152 Patent provides:

Element A	The apparatus of claim 25, wherein the data packet comprises an encrypted payload.
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141. Amazon directly infringes claim 28 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations, regardless of the number of service provider routers.

142. On information and belief based on other elements of the Amazon system described herein, AWS servers include circuitry that encrypts packets with destination addresses associated with the VPN connection.

143. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

144. The technology claimed in claim 28 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

145. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 14: INFRINGEMENT OF PAT. 8,595,478 CLAIM 1**

146. AlterWAN reasserts and realleges paragraphs 1 through 149 of this Complaint as though set forth fully here.

147. Claim 1 of the '478 Patent provides:

Preamble	A method of operation in a router that is part of a wide area network, the method comprising:
Element A	filtering inbound data packets received on an input port of the router to identify data packets that correspond to a selected group of addresses relative to data packets that are not within the selected group of addresses; and
Element B	providing priority routing for the data packets in the selected group of addresses,
Element C	including performing a look-up into a routing table applicable to the selected group of addresses to identify one or more transmission paths that meet a minimum transmission requirement relative to other available transmission paths, and
Element D	routing the data packets to at least one cooperating service provider using one of the identified one or more transmission paths.

148. Amazon directly infringes claim 1 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT configurations.

149. In the standard NAT configuration with multiple Direct Connect connections, the VPC router filters inbound data packets received from the subnets on an input port to identify data packets with destination addresses that correspond to a selected group of destination addresses (e.g., addresses that correspond to the Direct Connect connections, 172.16.0.0/12) relative to data packets that are not within the selected group of addresses (e.g., local traffic and NAT traffic).

150. The VPC router provides priority routing for data with destination addresses associated with the VPN connection using AWS Site-to-Site VPN via an AWS Direct Connect connection, which is a dedicated network connection with 1G or 10G bandwidth.

151. In a multiple Direct Connect connection configuration, the VPC router performs a

look-up into a routing table applicable to the VPN-connection destination addresses to identify an AWS Direct Connect transmission path that meets a minimum transmission requirement relative to other available AWS Direct Connect transmission paths.

152. In one infringing configuration for VPCs with Site-to-Site VPN with multiple Direct Connect connections, each Customer Network has a single Direct Connect connection.

153. The VPC router selects the Direct Connect connection from the route table using BGP best path selection, which considers AS\_PATH length to determine which connection to use.

154. Another infringing configuration includes redundant AWS Direct Connect connections, and the VPC router selects the Direct Connect connection from the route table using BGP best path selection, which considers AS\_PATH length to determine which connection to use.

155. The VPC router routes the data packets to an AWS Direct Connect partner, which, upon information and belief based on other elements of the Amazon system described herein, is a service provider, using the selected route.

156. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

157. The technology claimed in claim 1 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

158. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 15: INFRINGEMENT OF PAT. 8,595,478 CLAIM 2**

159. AlterWAN reasserts and realleges paragraphs 1 through 162 of this Complaint as though set forth fully here.

160. Claim 2 of the '478 Patent provides:

Element A	The method of claim 1, wherein said packets contain an encrypted payload.
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161. Amazon directly infringes claim 2 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using multiple AWS Direct Connect connections in NAT configurations.

162. Amazon Site-to-Site VPN uses IPsec for encryption. IPsec encryption encapsulates an encrypted version of the data packet into the payload of another packet.

163. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its

customers to set up and use its systems to operate in an infringing manner.

164. The technology claimed in claim 2 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

165. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 16: INFRINGEMENT OF PAT. 8,595,478 CLAIM 3**

166. AlterWAN reasserts and realleges paragraphs 1 through 169 of this Complaint as though set forth fully here.

167. Claim 3 of the '478 Patent provides:

Element A	The method of claim 1, wherein the data packets are Internet Protocol data packets.
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168. Amazon directly infringes claim 3 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT configurations.

169. Upon information and belief based on other elements of the Amazon system described herein, data packets in the AWS VPC system are Internet Protocol data packets.

170. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent

infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

171. The technology claimed in claim 3 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

172. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 17: INFRINGEMENT OF PAT. 8,595,478 CLAIM 4**

173. AlterWAN reasserts and realleges paragraphs 1 through 176 of this Complaint as though set forth fully here.

174. Claim 4 of the '478 Patent provides:

Element A	The method of claim 1, wherein the wide area network includes at least one of the Internet, an Internet Private path, or a local loop.
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175. Amazon directly infringes claim 4 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT configurations.

176. The Wide Area Network of AWS Direct Connect is the Internet.

177. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its

customers to set up and use its systems to operate in an infringing manner.

178. The technology claimed in claim 4 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

179. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 18: INFRINGEMENT OF PAT. 8,595,478 CLAIM 5**

180. AlterWAN reasserts and realleges paragraphs 1 through 183 of this Complaint as though set forth fully here.

181. Claim 5 of the '478 Patent provides:

Element A	The method of claim 1, wherein the data packets includes at least one of audio, video, text or multimedia data.
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182. Amazon directly infringes claim 5 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT configurations.

183. Upon information and belief based on other elements of the Amazon system described herein, the AWS VPC system is configured to transmit data packets including audio, video, text, or multimedia data.

184. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific



intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

185. The technology claimed in claim 5 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

186. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 19: INFRINGEMENT OF PAT. 8,595,478 CLAIM 6**

187. AlterWAN reasserts and realleges paragraphs 1 through 190 of this Complaint as though set forth fully here.

188. Claim 6 of the ’478 Patent provides:

Preamble	A method comprising:
Element A	establishing a path for transmitting data over a wide area network including
Element B	defining a route set consisting of one or more data paths that connect to a cooperating service provider, each data path passing through a router along the path,
Element C	causing the router to filter incoming packets to identify traffic corresponding to a group of addresses, and
Element D	for the identified traffic, perform a look-up into a routing table dedicated to the group of addresses, the routing table representing available transmission paths that each satisfy a minimum transmission requirement relative to other available transmission paths; and
Element E	routing the identified traffic based on the routing table.

189. Amazon directly infringes claim 6 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT and non-NAT configurations.

190. The VPC router establishes a path for transmitting data over a wide area network (e.g., Internet) using BGP route propagation when there are multiple AWS Direct Connect connections.

191. BGP route propagation ultimately results in a route set (e.g., a route table) comprising one or more data paths that connect to an AWS Direct Connect partner, which, upon information and belief based on other elements of the Amazon system described herein, is a cooperating service provider.

192. The AWS Direct Connect location associated with the path includes at least one router. To the extent the claim is read to require multiple routers, on information and belief, based on other elements of the Amazon system described herein, the path often will include multiple routers.

193. In both the standard non-NAT configuration and the NAT configuration, the VPC router filters data packets received from the subnets to identify those that have destination addresses that correspond to a selected group of Customer addresses reachable via a VPN connection.

194. The VPC router performs a look-up into a routing from the BGP route propagation for the packets having a destination address corresponding to customer addresses reachable via a VPN connection.

195. The route table includes the Direct Connect connection path, which provides 1G

or 10G bandwidth (i.e., minimum transmission requirement).

196. The VPC router routes the traffic based on the routing from BGP route propagation.

197. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

198. The technology claimed in claim 6 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

199. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 20: INFRINGEMENT OF PAT. 8,595,478 CLAIM 14**

200. AlterWAN reasserts and realleges paragraphs 1 through 203 of this Complaint as though set forth fully here.

201. Claim 14 of the '478 Patent provides:

Element A	The method of claim 6, further comprising collecting information from traffic and aggregating the information in a manner adapted for usage-based billing.
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202. Amazon directly infringes claim 14 by operating its servers in a manner that

practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT and non-NAT configurations and employing usage-based billing for Site-to-Site VPN and Direct Connect products.

203. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

204. The technology claimed in claim 14 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

205. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 21: INFRINGEMENT OF PAT. 8,595,478 CLAIM 15**

206. AlterWAN reasserts and realleges paragraphs 1 through 209 of this Complaint as though set forth fully here.

207. Claim 15 of the '478 Patent provides:

Element A	The method of claim 6, where the data packets include at least one of audio, video, text or multimedia data.
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208. Amazon directly infringes claim 15 by operating its servers in a manner that

practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT and non-NAT configurations.

209. Upon information and belief based on other elements of the Amazon system described herein, the AWS VPC system is configured to transmit data packets including audio, video, text, or multimedia data.

210. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

211. The technology claimed in claim 15 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

212. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 22: INFRINGEMENT OF PAT. 8,595,478 CLAIM 16**

213. AlterWAN reasserts and realleges paragraphs 1 through 216 of this Complaint as though set forth fully here.

214. Claim 16 of the '478 Patent provides:

Element A	The method of claim 6, where the minimum transmission requirement includes a minimum bandwidth requirement, where the routing table
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	represents available transmission paths meeting the minimum bandwidth requirement, and where the method further comprises routing the identified traffic using at least one available transmission path meeting the minimum bandwidth requirement.
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215. Amazon directly infringes claim 16 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in NAT and non-NAT configurations.

216. VPC routers use the Direct Connect routes propagated using BGP and select a route using BGP best path selection, each of which satisfy a 1G or 10G bandwidth requirement.

217. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

218. The technology claimed in claim 16 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

219. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 23: INFRINGEMENT OF PAT. 8,595,478 CLAIM 18**

220. AlterWAN reasserts and realleges paragraphs 1 through 223 of this Complaint as

though set forth fully here.

221. Claim 18 of the '478 Patent provides:

Preamble	A method of routing traffic to be transmitted over a wide area network, comprising:
Element A	receiving at least one packet;
Element B	identifying a minimum transmission requirement associated with the at least one packet by matching the at least one packet to a set of one or more predetermined addresses;
Element C	identifying a set of one or more transmission paths from a table, the set of one or more transmission paths meeting the minimum transmission requirement;
Element D	selecting a transmission path between cooperating service providers from the set based on a minimized link cost; and
Element E	transmitting the at least one packet to a cooperating provider using the selected transmission path.

222. Amazon directly infringes claim 18 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

223. Amazon VPC systems route traffic over a wide area network (e.g., the Internet).

224. The VPC router receives packets from the VPC subnets with destinations associated with Amazon Site-to-Site VPN tunnels over Direct Connect connections.

225. The VPC router identifies a minimum transmission requirement associated with the incoming packet by matching the destination address of the packet to addresses in the VPC router's routing table associated with Direct Connect connections that were propagated using BGP. Each Direct Connect connection provides a minimum transmission requirement (e.g., 1G

or 10G bandwidth).

226. If a packet has a destination address not associated with the Direct Connect connections, such as a public website address for a packet coming from the Public Subnet in a non-NAT application, or a “local” address for a non-NAT configuration, the packet does not have a minimum transmission requirement, and will not be routed via the Direct Connect connections.

227. BGP route propagation provides predetermined routes associated with the Direct Connect connections to a route table associated with the Direct Connect connections.

228. If a packet destination address matches a Direct Connect connection, the packet will be routed by identifying a route on the routing table associated with those connections, which is a set of one or more transmission paths (e.g., Direct Connect connections). As described above, these transmission paths provide either 1G or 10G bandwidth (i.e., transmission requirement).

229. Amazon uses cooperating “partners,” which, on information and belief, based on other elements of the Amazon system described herein, are often service providers, to provide AWS Direct Connect connections.

230. The Virtual Private Gateway will use BGP to select a Direct Connect route from its route table based on a minimized link cost (e.g., current load or AS PATH length using BGP).

231. The VPC router transmits the packet to a Direct Connect partner, which, upon information and belief based on other elements of the Amazon system described herein, is a cooperating service provider, using the selected route from the route table.

232. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively



inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

233. The technology claimed in claim 18 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

234. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 24: INFRINGEMENT OF PAT. 8,595,478 CLAIM 19**

235. AlterWAN reasserts and realleges paragraphs 1 through 238 of this Complaint as though set forth fully here.

236. Claim 19 of the '478 Patent provides:

Element A	The method of claim 18, where identifying the set of one or more transmission paths meeting the minimum transmission requirement includes identifying transmission paths meeting a requirement associated with at least one of quality of service, latency, bandwidth, or hop count.
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237. Amazon directly infringes claim 19 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

238. The VPC router uses the Direct Connect routes propagated using BGP and select a route using BGP best path selection, each of which satisfy a 1G or 10G bandwidth requirement. The selected path will be the path with the shortest AS\_PATH length (hop count).

239. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

240. The technology claimed in claim 19 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

241. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 25: INFRINGEMENT OF PAT. 8,595,478 CLAIM 25**

242. AlterWAN reasserts and realleges paragraphs 1 through 245 of this Complaint as though set forth fully here.

243. Claim 25 of the '478 Patent provides:

Element A	The method of claim 18, where the link cost includes a hop count.
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244. Amazon directly infringes claim 25 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud

product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

245. The VPC router selects one of the Direct Connect paths based on the shortest AS\_PATH length. This is a hop count metric.

246. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

247. The technology claimed in claim 25 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

248. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 26: INFRINGEMENT OF PAT. 8,595,478 CLAIM 26**

249. AlterWAN reasserts and realleges paragraphs 1 through 252 of this Complaint as though set forth fully here.

250. Claim 26 of the '478 Patent provides:

Element A	The method of claim 18, where the minimized link cost comprises a shortest path length.
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251. Amazon directly infringes claim 26 by operating its servers in a manner that

practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

252. The VPC router selects one of the Direct Connect paths based on the shortest AS\_PATH length, which is the shortest path length.

253. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

254. The technology claimed in claim 26 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

255. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 27: INFRINGEMENT OF PAT. 8,595,478 CLAIM 27**

256. AlterWAN reasserts and realleges paragraphs 1 through 259 of this Complaint as though set forth fully here.

257. Claim 27 of the '478 Patent provides:

Element A	The method of claim 18, where the minimized link cost includes a minimal number of source-to-designation hops.
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258. Amazon directly infringes claim 27 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

259. The VPC router selects one of the Direct Connect paths based on the shortest AS\_PATH length, which is the minimal number of source-to-destination hops.

260. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

261. The technology claimed in claim 27 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

262. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 28: INFRINGEMENT OF PAT. 8,595,478 CLAIM 28**

263. AlterWAN reasserts and realleges paragraphs 1 through 266 of this Complaint as though set forth fully here.

264. Claim 28 of the '478 Patent provides:

Element A	The method of claim 18, embodied in a router, the router further comprising a first interface and a second interface, the method further
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	comprising receiving the at least one packet via the first interface and transmitting the at least one packet via the second interface.
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265. Amazon directly infringes claim 28 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

266. The router receives packets from an interface connected to the VPC subnets, and transmits the packets with a destination address for the VPN connection via the VPN connection.

267. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

268. The technology claimed in claim 28 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

269. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 29: INFRINGEMENT OF PAT. 8,595,478 CLAIM 30**

270. AlterWAN reasserts and realleges paragraphs 1 through 273 of this Complaint as though set forth fully here.

271. Claim 30 of the '478 Patent provides:

Element A	The method of claim 28, further comprising encrypting the at least one packet prior to the transmitting.
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272. Amazon directly infringes claim 30 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

273. Amazon Site-to-Site VPN uses IPsec for encryption.

274. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

275. The technology claimed in claim 30 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

276. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 30: INFRINGEMENT OF PAT. 8,595,478 CLAIM 31**

277. AlterWAN reasserts and realleges paragraphs 1 through 280 of this Complaint as though set forth fully here.

278. Claim 31 of the '478 Patent provides:

Element A	The method of claim 28, further comprising encapsulating an encrypted version of the at least one packet and adding a new destination address associated with a trusted site.
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279. Amazon directly infringes claim 31 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

280. Amazon Site-to-Site VPN uses IPsec for encryption, which involves encapsulating an encrypted version of the original packet and adding a destination address for the firewall at the Customer Gateway, which will decrypt and forward the encrypted packet to its original destination address.

281. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

282. The technology claimed in claim 31 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

283. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain



damages.

**COUNT 31: INFRINGEMENT OF PAT. 8,595,478 CLAIM 35**

284. AlterWAN reasserts and realleges paragraphs 1 through 287 of this Complaint as though set forth fully here.

285. Claim 35 of the '478 Patent provides:

Element A	The method of claim 28, where the router is adapted to run in a virtual private network (VPN) process, and where the method further comprises using the VPN process to encrypt the at least one packet, to encapsulate an encrypted version of the at least one packet and to add an IP address for a known destination firewall.
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286. Amazon directly infringes claim 35 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

287. Amazon Site-to-Site VPN uses IPsec for encryption, which involves encapsulating an encrypted version of the original packet and adding a destination address for the firewall of the Customer Gateway.

288. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

289. The technology claimed in claim 35 was not well understood, routine, or

conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

290. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 32: INFRINGEMENT OF PAT. 8,595,478 CLAIM 40**

291. AlterWAN reasserts and realleges paragraphs 1 through 294 of this Complaint as though set forth fully here.

292. Claim 40 of the '478 Patent provides:

Element A	The method of claim 18, where the table is a routing table that stores destination IP addresses.
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293. Amazon directly infringes claim 40 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service using multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

294. Route tables used in the AWS system are tables that store destination IP addresses.

295. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

296. The technology claimed in claim 40 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

297. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 33: INFRINGEMENT OF PAT. 8,595,478 CLAIM 51**

298. AlterWAN reasserts and realleges paragraphs 1 through 301 of this Complaint as though set forth fully here.

299. Claim 51 of the ’478 Patent provides:

Preamble	An apparatus, comprising:
Element A	a first interface operable to connect to a first network, the first interface operable to receive packets;
Element B	a router operable to identify those packets of the received packets corresponding to a set of one or more predetermined addresses, and to identify a set of one or more transmission paths associated with the set which meet a minimum transmission requirement and are operable to convey traffic destined for a cooperating service provider,
Element C	the router operable to select a specific transmission path from the set based on a minimized link cost; and
Element D	a second interface operable to route the packets corresponding to the set of one or more predetermined addresses using the specific transmission path.

300. Amazon directly infringes claim 51 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

301. The VPC router has a first interface operable to connect to the AWS VPC

network. This router receives packets from the subnets.

302. The VPC router identifies packets by matching the destination address of the packet to addresses in the VPC router's routing table associated with Direct Connect connections that were propagated using BGP.

303. Each Direct Connect connection provides a minimum transmission requirement (e.g., 1G or 10G bandwidth). AWS Direct Connect connections are operable to convey traffic destined for a cooperating "partner" service provider.

304. BGP route propagation provides predetermined paths associated with the Direct Connect connections to a route table associated with the Direct Connect connections.

305. AWS Direct Connect connections meet a minimum transmission requirement (e.g., 1G or 10G bandwidth) and are operable to convey traffic to AWS Direct Connect partner routers, which, upon information and belief based on other elements of the Amazon system described herein, are cooperating service provider routers.

306. When configured with multiple Direct Connect connections, the VPC router selects a specific transmission path from the set based on minimized link cost using BGP best path selection, which selects the path with the shortest AS\_PATH value (i.e., minimized link cost).

307. The VPC router includes a second interface to route packets corresponding to the AWS Direct Connect connections using the specific Direct Connect transmission path selected using BGP best path selection.

308. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific

intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

309. The technology claimed in claim 51 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

310. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 34: INFRINGEMENT OF PAT. 8,595,478 CLAIM 52**

311. AlterWAN reasserts and realleges paragraphs 1 through 314 of this Complaint as though set forth fully here.

312. Claim 52 of the '478 Patent provides:

Element A	The apparatus of claim 51, where the router is operable to identify transmission paths meeting a requirement associated with at least one of quality of service, latency, a bandwidth, or a hop count, and to select the specific transmission path from among the transmission paths meeting the requirement associated with at least one of quality of service, latency, the bandwidth of the hop count.
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313. Amazon directly infringes claim 52 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

314. Each Direct Connect route propagated using BGP meets a 1G or 10G bandwidth requirement. The VPC router selects one of the Direct Connect paths based on the shortest

AS\_PATH length, which is the minimal number of source-to-destination hops.

315. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

316. The technology claimed in claim 52 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

317. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 35: INFRINGEMENT OF PAT. 8,595,478 CLAIM 53**

318. AlterWAN reasserts and realleges paragraphs 1 through 321 of this Complaint as though set forth fully here.

319. Claim 53 of the '478 Patent provides:

Element A	The apparatus of claim 51, where the second interface includes at least one port to couple to a location using a dedicated line.
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320. Amazon directly infringes claim 53 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

321. The VPC router's second interface couples to the Direct Connect connections.

Direct Connect connections are dedicated lines.

322. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

323. The technology claimed in claim 53 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

324. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 36: INFRINGEMENT OF PAT. 8,595,478 CLAIM 55**

325. AlterWAN reasserts and realleges paragraphs 1 through 328 of this Complaint as though set forth fully here.

326. Claim 55 of the '478 Patent provides:

Element A	The apparatus of claim 51, where the minimized link cost includes a hop count.
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327. Amazon directly infringes claim 55 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

328. The VPC router uses the Direct Connect routes propagated using BGP and selects

a route using BGP best path selection. The selected path will be the path with the shortest AS\_PATH length (hop count).

329. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

330. The technology claimed in claim 55 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

331. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 37: INFRINGEMENT OF PAT. 8,595,478 CLAIM 56**

332. AlterWAN reasserts and realleges paragraphs 1 through 335 of this Complaint as though set forth fully here.

333. Claim 56 of the '478 Patent provides:

Element A	The apparatus of claim 51, where the minimized link cost comprises a shortest path length.
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334. Amazon directly infringes claim 56 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.



335. The VPC router selects one of the Direct Connect paths based on the shortest AS\_PATH length, which is the shortest path length.

336. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

337. The technology claimed in claim 56 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

338. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 38: INFRINGEMENT OF PAT. 8,595,478 CLAIM 57**

339. AlterWAN reasserts and realleges paragraphs 1 through 342 of this Complaint as though set forth fully here.

340. Claim 57 of the '478 Patent provides:

Element A	The apparatus of claim 51, where the minimized link cost includes a minimal number of source-to-designation hops.
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341. Amazon directly infringes claim 57 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

342. The VPC router selects one of the Direct Connect paths based on the shortest AS\_PATH length, which is the minimal number of source-to-destination hops.

343. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

344. The technology claimed in claim 57 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

345. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 39: INFRINGEMENT OF PAT. 8,595,478 CLAIM 59**

346. AlterWAN reasserts and realleges paragraphs 1 through 349 of this Complaint as though set forth fully here.

347. Claim 59 of the '478 Patent provides:

Element A	The apparatus of claim 51, where the second interface is a WAN interface.
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348. Amazon directly infringes claim 59 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

349. The VPC router connects to the Direct Connect connections via a WAN interface (e.g., the Internet).

350. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

351. The technology claimed in claim 59 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

352. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 40: INFRINGEMENT OF PAT. 8,595,478 CLAIM 60**

353. AlterWAN reasserts and realleges paragraphs 1 through 356 of this Complaint as though set forth fully here.

354. Claim 60 of the '478 Patent provides:

Element A	The apparatus of claim 51, further comprising a processor operable to incorporate virtual private network (VPN) data into the select data to be transmitted, where the processor is operable to encrypt packets corresponding to the set, to encapsulate an encrypted version of the at least one packet and to add an IP address for a known destination firewall.
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355. Amazon directly infringes claim 60 by setting up, operating, and/or offering for

sale/selling access to one or more connected devices in its Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

356. Amazon Site-to-Site VPN uses IPsec for encryption, which involves encapsulating an encrypted version of the original packet and adding a destination address for the Customer Gateway.

357. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

358. The technology claimed in claim 60 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

359. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 41: INFRINGEMENT OF PAT. 8,595,478 CLAIM 63**

360. AlterWAN reasserts and realleges paragraphs 1 through 363 of this Complaint as though set forth fully here.

361. Claim 63 of the '478 Patent provides:

Preamble	In an apparatus that receives IP packets and routes the IP packets across a wide area network to one or more locations, a method comprising:
Element A	storing a list of transmission paths associated with at least one transmission requirement;
Element B	determining whether incoming traffic represents prioritized traffic that is to be routed to a transmission path associated with the list;
Element C	for incoming traffic that is to be routed to a transmission path associated with the list, selecting a corresponding transmission path based on a shortest distance criteria, and
Element D	transmitting the traffic using the selected transmission path to a cooperating service provider,
Element E	where transmitting includes using at least one dedicated line;
Element F	for other incoming traffic, transmitting the traffic in a manner that does not include using the dedicated line.

362. Amazon directly infringes claim 63 by operating its servers in a manner that practices every step in the claimed method when providing Amazon Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in NAT and non-NAT configurations.

363. The VPC router stores a list of transmission paths (e.g., route table) associated with AWS Direct Connect connections using BGP route propagation when multiple Direct Connect connections are used. Each Direct Connect connection provides a 1G or 10G bandwidth, which is the transmission requirement.

364. In the standard non-NAT configuration, the VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table.

365. In the standard NAT configuration, the VPC router determines whether incoming

traffic represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table (e.g., 172.16.0.0/12).

366. When configured with multiple Direct Connect connections, the VPC router then selects a transmission path associated with a Direct Connect connection based on a shortest distance criterion using BGP best path selection, which selects the path based on the shortest AS\_PATH value.

367. The VPC router transmits the traffic using the selected Direct Connect connection path to a Direct Connect partner, which, upon information and belief based on other elements of the Amazon system described herein, is a cooperating service provider.

368. In the non-NAT configuration, the VPC router transmits the traffic that does not match the VPN connection using local routes, which do not use the Direct Connect connection, as well as for some data from the public subnet, via the Internet Gateway.

369. In the NAT configuration, the VPC router transmits traffic that does not match the VPN connection using local routes or the NAT gateway, neither of which use the Direct Connect connection.

370. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

371. The technology claimed in claim 63 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

372. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 42: INFRINGEMENT OF PAT. 8,595,478 CLAIM 64**

373. AlterWAN reasserts and realleges paragraphs 1 through 376 of this Complaint as though set forth fully here.

374. Claim 64 of the '478 Patent provides:

Element A	The method of claim 63, where the shortest distance criteria is based on hop count.
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375. Amazon directly infringes claim 64 by operating its servers in a manner that practices every step in the claimed method when providing Amazon Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in NAT and non-NAT configurations.

376. The VPC router uses the Direct Connect routes propagated using BGP and selects a route using BGP best path selection. The selected path will be the path with the shortest AS\_PATH length (hop count).

377. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent

infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

378. The technology claimed in claim 64 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

379. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 43: INFRINGEMENT OF PAT. 8,595,478 CLAIM 65**

380. AlterWAN reasserts and realleges paragraphs 1 through 383 of this Complaint as though set forth fully here.

381. Claim 65 of the '478 Patent provides:

Element A	The method of claim 63, where the method further comprises encrypting and encapsulating traffic to be routed to a transmission path associated with the list.
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382. Amazon directly infringes claim 65 by operating its servers in a manner that practices every step in the claimed method when providing Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN utilizing multiple AWS Direct Connect connections in NAT and non-NAT configurations.

383. Amazon Site-to-Site VPN uses IPsec for encryption, which involves encapsulating an encrypted version of the original packet and adding a destination address for the Customer Gateway at the end of the selected Direct Connect path.



384. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

385. The technology claimed in claim 65 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

386. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 44: INFRINGEMENT OF PAT. 8,595,478 CLAIM 67**

387. AlterWAN reasserts and realleges paragraphs 1 through 390 of this Complaint as though set forth fully here.

388. Claim 67 of the '478 Patent provides:

Element A	The method of claim 63, where selecting the corresponding transmission path further comprises using at least one of a quality of service parameter, a latency parameter, a bandwidth parameter, or a hop count parameter to select the corresponding transmission path.
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389. Amazon directly infringes claim 67 by operating its servers in a manner that practices every step in the claimed method when providing Amazon Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in NAT and non-NAT

configurations.

390. The VPC router uses the Direct Connect routes propagated using BGP and selects a route using BGP best path selection, each of which satisfy a 1G or 10G bandwidth requirement. The selected path will be the path with the shortest AS\_PATH length (hop count).

391. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

392. The technology claimed in claim 67 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

393. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 45: INFRINGEMENT OF PAT. 9,015,471 CLAIM 1**

394. AlterWAN reasserts and realleges paragraphs 1 through 397 of this Complaint as though set forth fully here.

395. Claim 1 of the ’471 Patent provides:

Preamble	An apparatus, comprising:
Element A	an interface to receive packets;
Element B	circuitry to identify those packets of the received packets corresponding to a set of one or more predetermined addresses, to identify a set of one or

	more transmission paths associated with the set of one or more predetermined addresses, and to select a specific transmission path from the set of one or more transmission paths; and
Element C	an interface to transmit the packets corresponding to the set of one or more predetermined addresses using the specific transmission path;
Element D	wherein each transmission path of the set of one or more transmission paths is associated with a reserved, non-blocking bandwidth, and
Element E	the circuitry is to select the specific transmission path to be a transmission path from the set of one or more transmission paths that corresponds to a minimum link cost relative to each other transmission path in the set of one or more transmission paths.

396. Amazon directly infringes claim 1 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

397. The VPC router has a first interface operable to connect to the AWS VPC network. This router receives packets from the subnets.

398. The VPC router comprises a virtual-software router running on circuitry that identifies packets by matching the destination address of the packet to addresses in the VPC router's routing table associated with Direct Connect connections that were propagated using BGP. Each Direct Connect connection provides a minimum transmission requirement (e.g., 1G or 10G bandwidth).

399. BGP route propagation provides predetermined paths associated with the Direct Connect connections to a route table associated with the Direct Connect connections.

400. When configured with multiple Direct Connect connections, the VPC router selects a specific transmission path from the set based on minimized link cost using BGP best path selection, which selects the path with the shortest AS\_PATH value (i.e., minimized link

cost).

401. The VPC router includes an interface to route packets corresponding to the AWS Direct Connect connections using the specific Direct Connect transmission path selected using BGP best path selection.

402. In the non-NAT configuration, the VPC router transmits traffic for the VPN-only subnet with a “local address” that does not match the VPN connection using local routes, which do not use the Direct Connect connection, as well as for some data from the public subnet, via the Internet Gateway.

403. In the standard NAT configuration, the VPC router determines whether incoming traffic from the VPN-only subnet represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table (e.g., 172.16.0.0/12).

404. Propagated Direct Connect paths are associated with a reserved, non-blocking bandwidth (e.g., 1G or 10G bandwidth).

405. When configured with multiple Direct Connect connections, the VPC router selects a specific transmission path from the set based on minimized link cost using BGP best path selection, which selects the path with the shortest AS\_PATH value (i.e., minimum link cost).

406. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its

customers to set up and use its systems to operate in an infringing manner.

407. The technology claimed in claim 1 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

408. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 46: INFRINGEMENT OF PAT. 9,015,471 CLAIM 2**

409. AlterWAN reasserts and realleges paragraphs 1 through 412 of this Complaint as though set forth fully here.

410. Claim 2 of the '471 Patent provides:

Preamble	The apparatus of claim 1, wherein:
Element A	the set of transmission paths is limited to paths that include at least a path segment connecting a cooperating third party service provider.

411. Amazon directly infringes claim 2 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

412. The BGP propagated Direct Connect transmission paths each include at least a path segment connecting to a Direct Connect partner, which upon information and belief based on other elements of the Amazon system described herein, is a cooperating service provider.

413. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific

intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

414. The technology claimed in claim 2 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

415. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 47: INFRINGEMENT OF PAT. 9,015,471 CLAIM 3**

416. AlterWAN reasserts and realleges paragraphs 1 through 419 of this Complaint as though set forth fully here.

417. Claim 3 of the ’471 Patent provides:

Preamble	The apparatus of claim 1, wherein:
Element A	the minimum link cost is dependent on at least one of quality of service, latency, a bandwidth, and a hop count; and
Element B	the circuitry is to select the specific transmission path dependent on provision of at least one of maximum quality of service, minimal latency, maximum and minimum hop count, relative to other transmission paths, if any, in the set of one or more transmission paths.

418. Amazon directly infringes claim 3 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

419. The minimum link cost is dependent on hop count (AS\_PATH length).

420. The VPC router selects a specific transmission path based on the length of the AS\_PATH, which is a minimum hop count relative to other paths.

421. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

422. The technology claimed in claim 3 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

423. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 48: INFRINGEMENT OF PAT. 9,015,471 CLAIM 4**

424. AlterWAN reasserts and realleges paragraphs 1 through 427 of this Complaint as though set forth fully here.

425. Claim 4 of the '471 Patent provides:

Element A	The apparatus of claim 1, wherein the interface to transmit the packets is to use at least one port to couple to a destination using a dedicated line.
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426. Amazon directly infringes claim 4 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

427. Upon information and belief based on other elements of the Amazon system described herein, the VPC router uses at least one port to couple to the Direct Connect connection.

428. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

429. The technology claimed in claim 4 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

430. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 49: INFRINGEMENT OF PAT. 9,015,471 CLAIM 6**

431. AlterWAN reasserts and realleges paragraphs 1 through 434 of this Complaint as though set forth fully here.

432. Claim 6 of the '471 Patent provides:

Element A	The apparatus of claim 1, wherein the minimum link cost includes a hop count.
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433. Amazon directly infringes claim 6 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service



utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

434. The VPC router uses AS\_PATH length to determine the minimum link cost, which is a hop count.

435. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

436. The technology claimed in claim 6 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

437. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 50: INFRINGEMENT OF PAT. 9,015,471 CLAIM 7**

438. AlterWAN reasserts and realleges paragraphs 1 through 441 of this Complaint as though set forth fully here.

439. Claim 7 of the '471 Patent provides:

Element A	The apparatus of claim 1, wherein the minimized link cost comprises a shortest path length.
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440. Amazon directly infringes claim 7 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service

utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

441. BGP route selection using AS\_PATH length is a shortest path length.

442. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

443. The technology claimed in claim 7 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

444. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 51: INFRINGEMENT OF PAT. 9,015,471 CLAIM 10**

445. AlterWAN reasserts and realleges paragraphs 1 through 448 of this Complaint as though set forth fully here.

446. Claim 10 of the ’471 Patent provides:

Preamble	The apparatus of claim 1, wherein:
Element A	the circuitry is to transmit virtual private network (VPN) data represented by packets corresponding to the set of one or more predetermined addresses, using the specific transmission path; and
Element B	the circuitry is to encapsulate an encrypted version of the VPN data in another packet having an IP address for a known destination firewall.

447. Amazon directly infringes claim 10 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service configured to use Amazon Site-to-Site VPN utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

448. The VPC router will transmit VPN data packets based on a determination that the packet is associated with the VPN connection in both NAT and non-NAT configurations.

449. Amazon Site-to-Site VPN uses IPsec for encryption. IPsec encryption encapsulates an encrypted version of the data packet into another packet with a destination address associated with the Customer Gateway.

450. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

451. The technology claimed in claim 10 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

452. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 52: INFRINGEMENT OF PAT. 9,015,471 CLAIM 12**

453. AlterWAN reasserts and realleges paragraphs 1 through 456 of this Complaint as

though set forth fully here.

454. Claim 12 of the '471 Patent provides:

Preamble	The apparatus of claim 1, wherein:
Element A	the circuitry is to receive packets intended for a private tunnel connection as well as packets intended for a public network; and
Element B	the circuitry is further to compare at least one of a source address or destination address of a received packet with content of a table,
Element C	determine whether the received packet represents prioritized traffic dependent on whether the received packet is associated with an address in the set of one or more predetermined addresses,
Element D	if the received packet does represent prioritized traffic, to identify the minimum link cost, to identify the set of one or more transmission paths, and to select the specific transmission path, and
Element E	if the received packet does not represent prioritized traffic, to select a transmission path that is not part of the set of one or more transmission paths.

455. Amazon directly infringes claim 12 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service configured to use Amazon Site-to-Site VPN utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

456. The VPC router receives packets both intended for the VPN connection from the VPN-only subnet as well as packets intended for the Internet from the Public subnet.

457. The VPC router uses route tables to compare destination addresses with route table entries.

458. In the standard non-NAT configuration, the VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address to the

addresses associated with the Direct Connect connections in the route table.

459. In the standard NAT configuration, the VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table (e.g., 172.16.0.0/12).

460. When configured with multiple Direct Connect connections, the VPC router then selects a transmission path associated with a Direct Connect connection based on a shortest distance criterion using BGP best path selection, which selects the path based on the minimum link cost, which is the shortest AS\_PATH value.

461. In the non-NAT configuration, the VPC router transmits the traffic that does not match the VPN connection using local routes, which do not use the Direct Connect connection, as well as for some data from the public subnet, via the Internet Gateway. These routes are not a part of the set of VPN paths.

462. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

463. The technology claimed in claim 12 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

464. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain

damages.

**COUNT 53: INFRINGEMENT OF PAT. 9,015,471 CLAIM 14**

465. AlterWAN reasserts and realleges paragraphs 1 through 468 of this Complaint as though set forth fully here.

466. Claim 14 of the '471 Patent provides:

Preamble	An apparatus that receives IP packets and routes the IP packets across a wide area network to one or more locations, comprising:
Element A	storage to store a list of transmission paths associated with a reserved, non-blocking bandwidth;
Element B	circuitry to determine whether incoming traffic is represents priority traffic that is to be routed to a transmission path associated with the list;
Element C	circuitry to for incoming traffic that is to be routed to a transmission path in the list, select a specific transmission path based on a minimum link cost relative to any other transmission path in the list and transmit the traffic using the specific transmission path via at least one dedicated line,
Element D	for other incoming traffic, transmit the other incoming traffic in a manner that does not include using the at least one dedicated line.

467. Amazon directly infringes claim 14 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

468. The VPC router comprises storage and stores a list of transmission paths (e.g., route table) associated with AWS Direct Connect connections using BGP route propagation when multiple Direct Connect connections are used.

469. Each Direct Connect connection provides a 1G or 10G bandwidth and is a reserved, non-blocking bandwidth.

470. The VPC router comprises a virtual-software router running on circuitry that

determines whether incoming traffic represents priority traffic that is to be routed to a transmission path associated with the BGP propagated AWS Direct Connect route table based on the destination address of the incoming traffic matching Customer addresses associated with AWS Direct Connect connections.

471. In the standard non-NAT configuration, the VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address for data from the VPN-only subnet to the addresses associated with the Direct Connect connections in the route table.

472. In the standard NAT configuration, the VPC router also determines whether incoming traffic from the VPN-only subnet represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table.

473. When configured with multiple Direct Connect connections, the VPC router then selects a transmission path associated with a Direct Connect connection based on a shortest distance criterion using BGP best path selection, which selects the path based on the shortest AS\_PATH value.

474. Direct Connect connections are dedicated lines.

475. In the non-NAT configuration, the VPC router transmits traffic for the VPN-only subnet with a “local” address that does not match the VPN connection using local routes, which do not use the Direct Connect connection, as well as for some data from the public subnet, via the Internet Gateway.

476. In the NAT configuration, the VPC router transmits traffic from the VPN-only subnet that does not match the VPN connection using local routes or the NAT gateway, neither

of which use the Direct Connect connection.

477. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

478. The technology claimed in claim 14 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

479. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 54: INFRINGEMENT OF PAT. 9,015,471 CLAIM 15**

480. AlterWAN reasserts and realleges paragraphs 1 through 483 of this Complaint as though set forth fully here.

481. Claim 15 of the '471 Patent provides:

Element A	The apparatus of claim 14, wherein the minimum link cost is based on hop count.
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482. Amazon directly infringes claim 15 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

483. The VPC router uses AS\_PATH length to determine the minimum link cost,



which is a hop count.

484. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

485. The technology claimed in claim 15 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

486. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 55: INFRINGEMENT OF PAT. 9,015,471 CLAIM 16**

487. AlterWAN reasserts and realleges paragraphs 1 through 490 of this Complaint as though set forth fully here.

488. Claim 16 of the '471 Patent provides:

Element A	The apparatus of claim 14, wherein the circuitry is further to encrypt and encapsulate at least some of the priority traffic to be routed to a transmission path associated with the list.
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489. Amazon directly infringes claim 16 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service configured to use Amazon Site-to-Site VPN utilizing multiple AWS Direct Connect connections

in both NAT and non-NAT configurations.

490. Amazon Site-to-Site VPN uses IPsec for encryption. IPsec encryption encapsulates an encrypted version of the data packet into another packet with a destination address associated with the Customer Gateway.

491. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

492. The technology claimed in claim 16 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

493. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 56: INFRINGEMENT OF PAT. 9,015,471 CLAIM 18**

494. AlterWAN reasserts and realleges paragraphs 1 through 497 of this Complaint as though set forth fully here.

495. Claim 18 of the '471 Patent provides:

Element A	The apparatus of claim 14, where the circuitry is to select the specific transmission path dependent on at least one of a quality of service parameter, a latency parameter, a bandwidth parameter, and a hop count parameter.
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496. Amazon directly infringes claim 18 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

497. The VPC selects the Direct Connect connection based on a hop count parameter.

498. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

499. The technology claimed in claim 18 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

500. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 57: INFRINGEMENT OF PAT. 9,015,471 CLAIM 20**

501. AlterWAN reasserts and realleges paragraphs 1 through 504 of this Complaint as though set forth fully here.

502. Claim 20 of the '471 Patent provides:

Preamble	The apparatus of claim 14, wherein:
Element A	the circuitry is to receive packets intended for a private tunnel connection as well as packets intended for a public network; and
Element B	the circuitry is further to compare at least one of a source address or

	destination address of a received packet with content of the list,
Element C	determine whether the received packet is part of the prioritized traffic dependent on whether the received packet is associated with an address represented by the content of the list,
Element D	if the received packet is part of the prioritized traffic, to identify the minimum link cost and to select the specific transmission path, and
Element E	if the received packet is not part of the prioritized traffic, to select a transmission path that is not in the list.

503. Amazon directly infringes claim 20 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service configured to use Amazon Site-to-Site VPN utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

504. The VPC router receives packets both intended for the VPN connection from the VPN-only subnet as well as packets intended for the Internet from the Public subnet.

505. The VPC router uses route tables to compare destination addresses with route table entries, including the list of Direct Connect connections propagated using BGP as described in claim 14.

506. In the standard non-NAT configuration, the VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table.

507. In the standard NAT configuration, the VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table (e.g., 172.16.0.0/12).

508. When configured with multiple Direct Connect connections, the VPC router then

selects a transmission path associated with a Direct Connect connection based on a shortest distance criterion using BGP best path selection, which selects the path based on the minimum link cost, which is the shortest AS\_PATH value.

509. In the non-NAT configuration, the VPC router transmits the traffic that does not match the VPN connection using local routes, which do not use the Direct Connect connection, as well as for some data from the public subnet, via the Internet Gateway. These routes are not a part of the list of VPN paths.

510. In the NAT configuration, the VPC router transmits traffic that does not match the VPN connection using local routes or the NAT gateway, neither of which use the Direct Connect connections.

511. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

512. The technology claimed in claim 20 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

513. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 58: INFRINGEMENT OF PAT. 9,015,471 CLAIM 21**

514. AlterWAN reasserts and realleges paragraphs 1 through 517 of this Complaint as though set forth fully here.

515. Claim 21 of the '471 Patent provides:

Preamble	The apparatus of claim 14, wherein:
Element A	the priority traffic comprises packets associated with a set of one or more predetermined addresses; and
Element B	the circuitry to determine whether incoming traffic is represents priority traffic is to compare an incoming packet with the set of one or more predetermined addresses, to detect existence of a match between the incoming packet and an address in the set of one or more predetermined address, and to identify the incoming packet as priority traffic in the event of a match.

516. Amazon directly infringes claim 21 by setting up, operating, and/or offering for sale/selling access to one or more connected devices in its Virtual Private Cloud product/service utilizing multiple AWS Direct Connect connections in both NAT and non-NAT configurations.

517. The VPC router determines whether incoming traffic represents prioritized traffic by matching the destination address to the addresses associated with the Direct Connect connections in the route table.

518. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

519. The technology claimed in claim 21 was not well understood, routine, or

conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

520. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 59: INFRINGEMENT OF PAT. 9,525,620 CLAIM 1**

521. AlterWAN reasserts and realleges paragraphs 1 through 524 of this Complaint as though set forth fully here.

522. Claim 1 of the ’620 Patent provides:

Preamble	A method of routing packets, implemented on at least one computer, the method comprising:
Element A	receiving inbound traffic and sorting the inbound traffic into first and second groups dependent on whether a destination address of the inbound traffic matches a destination associated with a predetermined private tunnel;
Element B	routing the first group of traffic over at least one first route reserved for the predetermined private tunnel; and
Element C	routing the second group of traffic over at least one second route;
Element D	wherein the at least one second route is to be exclusive to the at least one first route and the predetermined private tunnel.

523. Amazon directly infringes claim 1 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

524. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect

connections, which are predetermined private tunnels between Amazon and a customer network.

525. The Amazon VPC router receives inbound traffic from VPC subnets with VPN connections and sorts that traffic based on the destination address. Some of that traffic is sorted into a group to be sent to the customer gateway via the VPN connection based on that address. When Amazon provides Direct Connect services to that customer, that VPN connection comprises a predetermined private tunnel.

526. Amazon VPC routers use Route Tables to route packets. These tables contain destination address and route pairs. The VPC router compares the destination of the incoming packet against the route table to identify matching addresses and route the packet over the appropriate connection based on the destination address.

527. Amazon's documentation details at least one configuration for a VPC with a subnet whereby Amazon routes some subnet data via the VPN private tunnel and other subnet data via other routes.

528. When the VPN connection includes a NAT gateway or instance to allow the subnet to send packets over an internet connection, the route table specifies an address associated with the customer destination via the VPN private tunnel, and that other addresses for different destinations are routed elsewhere, such as the Internet or within the VPC, both via routes unrelated to the VPN private tunnel. This configuration is only one example of an infringing configuration.

529. Upon information and belief based on other elements of the Amazon system described herein, other similar configurations with a VPC subnet with both a VPN and Internet connection of some form will have a route table with addresses for both the VPN connection and the Internet connection and infringe.



530. In a non-NAT or similar configuration, the VPC router receives data packets from the VPN-only subnet. Addresses other than those designated as “local” are associated with the predetermined private tunnel, the VPN connection.

531. Amazon VPCs support VPN connections using AWS Site-to-Site VPN. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections to provide this functionality. AWS Direct Connect connections are predetermined private tunnels between Amazon and a customer network. The Direct Connect connection is through the internet from a source firewall to a destination firewall.

532. AWS Direct Connect connections bypass internet service providers in the network path, thereby comprising a low-hop-count path.

533. AWS Direct Connect connections are predetermined high bandwidth paths providing up to 10Gbps bandwidth.

534. In the NAT or similar configuration, the router routes packets with destination addresses matching addresses associated with the VPN connection in the route table over the VPN connection.

535. In the non-NAT or similar configuration, the VPC router routes traffic from the VPN-only subnet with a destination address other than those associated with the local route via the predetermined private tunnel (i.e., VPN connection).

536. In the NAT or similar configuration, the router routes traffic with destination addresses that do not match the VPN address in the route table over the NAT gateway or interface.

537. In the non-NAT or similar configuration, the VPC router routes the traffic with a destination address matching the local address in the route table along a local route back to the

local subnet.

538. In the NAT or similar configuration, the VPC router routes either via the Internet gateway via NAT or the local route, both of these routes being exclusive to the VPN connection route.

539. In the non-NAT or similar configuration, the route from the router to the VPN-only subnet is exclusive to the first route and predetermined private tunnel, the VPN connection.

540. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

541. The technology claimed in claim 1 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

542. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 60: INFRINGEMENT OF PAT. 9,525,620 CLAIM 2**

543. AlterWAN reasserts and realleges paragraphs 1 through 546 of this Complaint as though set forth fully here.

544. Claim 2 of the '620 Patent provides:

Preamble	The method of claim 1, wherein sorting the inbound traffic comprises
Element A	examining header information of said packets,
Element B	comparing a network destination address from said header information with a predetermined destination address, and
Element C	associating said packets with the second group of traffic when the network destination address of said packets does not match the predetermined destination address.

545. Amazon directly infringes claim 2 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in the NAT configuration.

546. In the NAT or similar configuration, the VPC router compares the destination address, and when that address does not match those related to the VPN, the router treats the packet as part of a second group, one that will not go through the VPN connection.

547. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

548. The technology claimed in claim 2 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

549. As a direct and proximate result of Amazon's acts of patent infringement,

AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 61: INFRINGEMENT OF PAT. 9,525,620 CLAIM 9**

550. AlterWAN reasserts and realleges paragraphs 1 through 553 of this Complaint as though set forth fully here.

551. Claim 9 of the '620 Patent provides:

Element A	The method of claim 1, wherein routing the first group of traffic further comprises encrypting the first group of traffic.
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552. Amazon directly infringes claim 9 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

553. The AWS system encrypts packets with destinations associated with the VPN connection.

554. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

555. The technology claimed in claim 9 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

556. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 62: INFRINGEMENT OF PAT. 9,525,620 CLAIM 10**

557. AlterWAN reasserts and realleges paragraphs 1 through 560 of this Complaint as though set forth fully here.

558. Claim 10 of the '620 Patent provides:

Element A	The method of claim 9, wherein routing the second group of traffic further comprises not encrypting the second group of traffic.
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559. Amazon directly infringes claim 10 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

560. Upon information and belief, including the documentation regarding encryption of packets falling within the first group and the absence of documentation related to encrypting local and public Internet traffic in the second group, the AWS system does not encrypt packets in that second group.

561. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

562. The technology claimed in claim 10 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

563. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 63: INFRINGEMENT OF PAT. 9,525,620 CLAIM 14**

564. AlterWAN reasserts and realleges paragraphs 1 through 567 of this Complaint as though set forth fully here.

565. Claim 14 of the ’620 Patent provides:

Preamble	An apparatus, comprising:
Element A	circuitry to receive inbound traffic;
Element B	circuitry to sort the inbound traffic into first and second groups dependent on whether a destination address of the inbound traffic matches a destination associated with a predetermined private tunnel;
Element C	circuitry to route the first group of traffic over at least one first route reserved for the predetermined private tunnel; and
Element D	circuitry to route the second group of traffic over at least one second route;
Element E	wherein the at least one second route is to be exclusive to the at least one first route and the predetermined private tunnel.

566. Amazon directly infringes claim 14 by setting up, operating, and/or offering for sale/selling access to its servers that meet every claimed element when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

567. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections, which are predetermined private tunnels between Amazon and a customer network.

568. The Amazon VPC router comprises a virtual software router running on circuitry that receives inbound traffic from the VPC subnets with VPN connections.

569. The VPC router circuitry receives inbound traffic from the VPC subnets with VPN connections and sorts that traffic based on the destination address.

570. Some of that traffic is sorted into a group to be sent to the customer gateway via the VPN connection based on that address. When Amazon provides Direct Connect services to that customer, that VPN connection comprises a predetermined private tunnel.

571. Amazon VPC routers use Route Tables to route packets. These tables contain destination address and route pairs.

572. The VPC router compares the destination of the incoming packet against the route table to identify matching addresses and route the packet over the appropriate connection based on the destination address.

573. Amazon's documentation details at least one configuration for a VPC with a subnet whereby Amazon circuitry routes some subnet data via the VPN private tunnel and other subnet data via other routes.

574. When the VPN connection includes a NAT gateway or instance to allow the subnet to send packets over an internet connection, the route table specifies an address associated with the customer destination via the VPN private tunnel, and that other addresses for different destinations are routed elsewhere, such as the Internet or within the VPC, both via routes unrelated to the VPN private tunnel. This configuration is only one example of an infringing configuration.

575. Upon information and belief based on other elements of the Amazon system described herein, other similar configurations with a VPC subnet with both a VPN and Internet connection of some form will have a route table with addresses for both the VPN connection and the Internet connection and will infringe.

576. In a non-NAT or similar configuration, the VPC router circuitry receives data packets from the VPN-only subnet. Addresses other than those designated as “local” are associated with the predetermined private tunnel, the VPN connection.

577. Amazon VPCs support VPN connections using AWS Site-to-Site VPN. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections to provide this functionality. AWS Direct Connect connections are predetermined private tunnels between Amazon and a customer network. The Direct Connect connection is through the internet from a source firewall to a destination firewall.

578. AWS Direct Connect connections bypass internet service providers in the network path, thereby comprising a low-hop-count path.

579. AWS Direct Connect connections are predetermined high bandwidth paths providing up to 10Gbps bandwidth.

580. In the NAT or similar configuration, the router circuitry routes packets with destination addresses matching addresses associated with the VPN connection in the route table over the VPN connection.

581. In the non-NAT or similar configuration, the VPC router circuitry routes traffic from the VPN-only subnet with a destination address other than those associated with the local route via the predetermined private tunnel (i.e., VPN connection).

582. In the NAT or similar configuration, the router circuitry routes traffic with



destination addresses that do not match the VPN address in the route table over the NAT gateway or interface.

583. In the non-NAT or similar configuration, the VPC router circuitry routes the traffic with a destination address matching the local address in the route table along a local route back to the local subnet.

584. In the NAT or similar configuration, the VPC router routes either via the Internet gateway via NAT or the local route, both of these routes being exclusive to the VPN connection route.

585. In the non-NAT or similar configuration, the route from the router to the VPN-only subnet is exclusive to the first route and predetermined private tunnel, the VPN connection.

586. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

587. The technology claimed in claim 14 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

588. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 64: INFRINGEMENT OF PAT. 9,525,620 CLAIM 15**

589. AlterWAN reasserts and realleges paragraphs 1 through 592 of this Complaint as though set forth fully here.

590. Claim 15 of the '620 Patent provides:

Element A	The apparatus of claim 14, wherein the circuitry to sort the inbound traffic comprises circuitry to extract a network destination address from header information of said packets, circuitry to compare the network destination address from said header information with a predetermined destination address, and circuitry to associate said packets with the second group of traffic when the network destination address of said packets does not match the predetermined destination address.
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591. Amazon directly infringes claim 15 by setting up, operating, and/or offering for sale/selling access to its servers that meet every claimed element when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in the NAT configuration.

592. In the NAT or similar configuration, the VPC router compares the destination address, and when that address does not match those related to the VPN, the router treats the packet as part of a second group, one that will not go through the VPN connection.

593. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

594. The technology claimed in claim 15 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities,

provided a technological solution to a technological problem rooted in computer technology.

595. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 65: INFRINGEMENT OF PAT. 9,525,620 CLAIM 16**

596. AlterWAN reasserts and realleges paragraphs 1 through 599 of this Complaint as though set forth fully here.

597. Claim 16 of the '620 Patent provides:

Element A	The apparatus of claim 15, wherein the circuitry to associate comprises at least one processor and instructions stored on non-transitory machine readable media, said instructions when executed to cause the at least one processor to associate said packets with the second group of traffic when the network destination address of said packets does not match the predetermined destination address.
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598. Amazon directly infringes claim 16 by setting up, operating, and/or offering for sale/selling access to its servers that meet every claimed element when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

599. Upon information and belief based on other elements of the Amazon system described herein, the AWS servers comprise at least one processor and instructions stored in memory that cause the processor to operate in the claimed manner, as shown with respect to claim 15.

600. Additionally, given its awareness of the patent claim at least after this detailed

complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

601. The technology claimed in claim 16 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

602. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 66: INFRINGEMENT OF PAT. 9,525,620 CLAIM 27**

603. AlterWAN reasserts and realleges paragraphs 1 through 606 of this Complaint as though set forth fully here.

604. Claim 27 of the '620 Patent provides:

Preamble	An apparatus comprising instructions stored on non-transitory machine-readable media, the instructions when executed to cause at least one processor of a computer to:
Element A	receive inbound traffic and sort the inbound traffic into first and second groups dependent on whether a destination address of the inbound traffic matches a destination associated with a predetermined private tunnel;
Element B	route the first group of traffic over at least one first route reserved for the predetermined private tunnel; and
Element C	route the second group of traffic over at least one second route;
Element D	wherein the at least one second route is to be exclusive to the at least one first route and the predetermined private tunnel.

605. Amazon directly infringes claim 27 by setting up, operating, offering for sale/selling access to its servers with instructions that meet every claimed element when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

606. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections, which are predetermined private tunnels between Amazon and a customer network.

607. The Amazon VPC router receives inbound traffic from VPC subnets with VPN connections and sorts that traffic based on the destination address.

608. Some of that traffic is sorted into a group to be sent to the customer gateway via the VPN connection based on that address. When Amazon provides Direct Connect services to that customer, that VPN connection comprises a predetermined private tunnel.

609. Amazon VPC routers use Route Tables to route packets. These tables contain destination address and route pairs.

610. The VPC router compares the destination of the incoming packet against the route table to identify matching addresses and route the packet over the appropriate connection based on the destination address.

611. Amazon's documentation details at least one configuration for a VPC with a subnet whereby Amazon routes some subnet data via the VPN private tunnel and other subnet data via other routes.

612. When the VPN connection includes a NAT gateway or instance to allow the subnet to send packets over an internet connection, the route table specifies an address associated with the customer destination via the VPN private tunnel, and that other addresses for different destinations are routed elsewhere, such as the Internet or within the VPC, both via routes unrelated to the VPN private tunnel. This is only one example of an infringing configuration.

613. Upon information and belief based on other elements of the Amazon system described herein, other similar configurations with a VPC subnet with both a VPN and Internet connection of some form will have a route table with addresses for both the VPN connection and the Internet connection and will infringe.

614. In a non-NAT or similar configuration, the VPC router receives data packets from the VPN-only subnet. Addresses other than those designated as "local" are associated with the predetermined private tunnel, the VPN connection.

615. Amazon VPCs support VPN connections using AWS Site-to-Site VPN. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections to provide this functionality. AWS Direct Connect connections are predetermined private tunnels between Amazon and a customer network. The Direct Connect connection is through the internet from a source firewall to a destination firewall.

616. AWS Direct Connect connections bypass internet service providers in the network path, thereby comprising a low-hop-count path.

617. AWS Direct Connect connections are predetermined high bandwidth paths providing up to 10Gbps bandwidth.

618. In the NAT or similar configuration, the router routes packets with destination addresses matching addresses associated with the VPN connection in the route table over the VPN connection.

619. In the non-NAT or similar configuration, the VPC router routes traffic from the VPN-only subnet with a destination address other than those associated with the local route via the predetermined private tunnel (i.e., VPN connection).

620. In the NAT or similar configuration, the router routes traffic with destination addresses that do not match the VPN address in the route table over the NAT gateway or interface.

621. In the non-NAT or similar configuration, the VPC router routes the traffic with a destination address matching the local address in the route table along a local route back to the local subnet.

622. In the NAT or similar configuration, the VPC router routes either via the Internet gateway via NAT or the local route, both of these routes being exclusive to the VPN connection route.

623. In the non-NAT or similar configuration, the route from the router to the VPN-only subnet is exclusive to the first route and predetermined private tunnel, the VPN connection.

624. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively

inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

625. The technology claimed in claim 27 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

626. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 67: INFRINGEMENT OF PAT. 9,525,620 CLAIM 1**

627. AlterWAN reasserts and realleges paragraphs 1 through 630 of this Complaint as though set forth fully here.

628. Claim 1 of the ’620 Patent provides:

Preamble	A method of routing packets, implemented on at least one computer, the method comprising:
Element A	receiving inbound traffic and sorting the inbound traffic into first and second groups dependent on whether a destination address of the inbound traffic matches a destination associated with a predetermined private tunnel;
Element B	routing the first group of traffic over at least one first route reserved for the predetermined private tunnel; and
Element C	routing the second group of traffic over at least one second route;
Element D	wherein the at least one second route is to be exclusive to the at least one first route and the predetermined private tunnel.



629. Amazon directly infringes claim 1 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with a Transit Gateway and Amazon Site-to-Site VPN via at least one AWS Direct Connect connection.

630. The Transit Gateway receives inbound traffic from the VPCs and sorts that traffic based on the destination address. Some of that traffic is sorted into a group to be sent to the customer gateway via the VPN connection based on that address. When Amazon provides Direct Connect services to that customer, that VPN connection comprises a predetermined private tunnel.

631. Amazon Transit Gateways use Route Tables to route packets. These tables contain destination address and route pairs. The VPC router compares the destination of the incoming packet against the route table to identify matching addresses and route the packet over the appropriate connection based on the destination address.

632. Amazon VPCs support VPN connections using AWS Site-to-Site VPN. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections to provide this functionality. AWS Direct Connect connections are predetermined private tunnels between Amazon and a customer network. Direct Connect connection is through the internet from a source firewall to a destination firewall.

633. AWS Direct Connect connections bypass internet service providers in the network path, thereby comprising a low-hop-count path.

634. AWS Direct Connect connections are predetermined high bandwidth paths providing up to 10Gbps bandwidth.

635. The Transit Gateway routes packets with destination addresses matching

addresses associated with the VPN connection in the route table over the VPN connection.

636. The Transit Gateway routes traffic with a destination address matching an address for a VPC in the route table along a local route back to another VPC.

637. The routes from the Transit Gateway to the VPCs are exclusive to the first route and predetermined private tunnel, the VPN connection.

638. The “local” routes to and from the VPCs are exclusive to the VPN connection to the Customer gateway.

639. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

640. The technology claimed in claim 1 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

641. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 68: INFRINGEMENT OF PAT. 9,525,620 CLAIM 9**

642. AlterWAN reasserts and realleges paragraphs 1 through 645 of this Complaint as though set forth fully here.

643. Claim 9 of the ’620 Patent provides:

Element A	The method of claim 1, wherein routing the first group of traffic further comprises encrypting the first group of traffic.
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644. Amazon directly infringes claim 9 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with a Transit Gateway and Amazon Site-to-Site VPN via AWS at least one Direct Connect connection.

645. The AWS system encrypts packets with destinations associated with the VPN connection.

646. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

647. The technology claimed in claim 9 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

648. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 69: INFRINGEMENT OF PAT. 9,525,620 CLAIM 10**

649. AlterWAN reasserts and realleges paragraphs 1 through 652 of this Complaint as though set forth fully here.

650. Claim 10 of the '620 Patent provides:

Element A	The method of claim 9, wherein routing the second group of traffic further comprises not encrypting the second group of traffic.
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651. Amazon directly infringes claim 10 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with a Transit Gateway and Amazon Site-to-Site VPN via at least one AWS Direct Connect connection.

652. Upon information and belief, including the documentation regarding encryption of packets falling within the first group and the absence of documentation related to encrypting local traffic in the second group, the AWS system does not encrypt packets in that second group.

653. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

654. The technology claimed in claim 10 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

655. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 70: INFRINGEMENT OF PAT. 9,525,620 CLAIM 14**

656. AlterWAN reasserts and realleges paragraphs 1 through 659 of this Complaint as though set forth fully here.

657. Claim 14 of the '620 Patent provides:

Preamble	An apparatus, comprising:
Element A	circuitry to receive inbound traffic;
Element B	circuitry to sort the inbound traffic into first and second groups dependent on whether a destination address of the inbound traffic matches a destination associated with a predetermined private tunnel;
Element C	circuitry to route the first group of traffic over at least one first route reserved for the predetermined private tunnel; and
Element D	circuitry to route the second group of traffic over at least one second route;
Element E	wherein the at least one second route is to be exclusive to the at least one first route and the predetermined private tunnel.

658. Amazon directly infringes claim 14 by setting up, operating, offering for sale/selling access to its servers that meet every claimed element when providing the Amazon Virtual Private Cloud product/service in conjunction with a Transit Gateway and Amazon Site-to-Site VPN via at least one AWS Direct Connect connection.

659. The Transit Gateway comprises a virtual software router running on circuitry that receives inbound traffic from the VPCs.

660. The Transit Gateway receives inbound traffic from the VPCs and sorts that traffic based on the destination address. Some of that traffic is sorted into a group to be sent to the customer gateway via the VPN connection based on that address. When Amazon provides Direct Connect services to that customer, that VPN connection comprises a predetermined private tunnel.

661. Amazon Transit Gateways use Route Tables to route packets. These tables contain destination address and route pairs. The VPC router compares the destination of the incoming packet against the route table to identify matching addresses and route the packet over the appropriate connection based on the destination address.

662. Amazon VPCs support VPN connections using AWS Site-to-Site VPN. Amazon Site-to-Site VPN is configured to utilize AWS Direct Connect connections to provide this functionality. AWS Direct Connect connections are predetermined private tunnels between Amazon and a customer network. The Direct Connect connection is through the internet from a source firewall to a destination firewall.

663. AWS Direct Connect connections bypass internet service providers in the network path, thereby comprising a low-hop-count path.

664. AWS Direct Connect connections are predetermined high bandwidth paths providing up to 10Gbps bandwidth.

665. The Transit Gateway routes packets with destination addresses matching addresses associated with the VPN connection in the route table over the VPN connection.

666. The Transit Gateway routes traffic with a destination address matching the address of a VPC in the route table along a local route back to that VPC.

667. The routes from the Transit Gateway to the VPCs are exclusive to the first route and predetermined private tunnel, the VPN connection.

668. The “local” routes to and from the VPCs are exclusive to the VPN connection to the Customer gateway.

669. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively

inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

670. The technology claimed in claim 14 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

671. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 71: INFRINGEMENT OF PAT. 9,525,620 CLAIM 27**

672. AlterWAN reasserts and realleges paragraphs 1 through 675 of this Complaint as though set forth fully here.

673. Claim 27 of the '620 Patent provides:

Preamble	An apparatus comprising instructions stored on non-transitory machine-readable media, the instructions when executed to cause at least one processor of a computer to:
Element A	receive inbound traffic and sort the inbound traffic into first and second groups dependent on whether a destination address of the inbound traffic matches a destination associated with a predetermined private tunnel;
Element B	route the first group of traffic over at least one first route reserved for the predetermined private tunnel; and
Element C	route the second group of traffic over at least one second route;
Element D	wherein the at least one second route is to be exclusive to the at least one first route and the predetermined private tunnel.

674. Amazon directly infringes claim 27 by setting up, operating, offering for sale/selling access to its servers with instructions that meet every claimed element when providing the Amazon Virtual Private Cloud product/service in conjunction with a Transit Gateway and Amazon Site-to-Site VPN via at least one AWS Direct Connect connection.

675. The Transit Gateway receives inbound traffic from the VPCs and sorts that traffic based on the destination address. Some of that traffic is sorted into a group to be sent to the customer gateway via the VPN connection based on that address. When Amazon provides Direct Connect services to that customer, that VPN connection comprises a predetermined private tunnel.

676. Amazon Transit Gateways use Route Tables to route packets. These tables contain destination address and route pairs. The VPC router compares the destination of the incoming packet against the route table to identify matching addresses and route the packet over the appropriate connection based on the destination address.

677. The Transit Gateway routes packets with destination addresses matching addresses associated with the VPN connection in the route table over the VPN connection.

678. The Transit Gateway routes traffic with a destination address matching the address for a VPC in the route table along a local route back to another VPC.

679. The routes from the Transit Gateway to the VPCs are exclusive to the first route and predetermined private tunnel, the VPN connection.

680. The “local” routes to and from the VPCs are exclusive to the VPN connection to the Customer gateway.

681. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively



inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

682. The technology claimed in claim 27 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

683. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

#### **COUNT 72: INFRINGEMENT OF PAT. 9,667,534 CLAIM 1**

684. AlterWAN reasserts and realleges paragraphs 1 through 687 of this Complaint as though set forth fully here.

685. Claim 1 of the '534 Patent provides:

Preamble	A method of routing packets at a machine associated with a first network, the method comprising:
Element A	receiving packets from one or more third party sources;
Element B	identifying the received packets as either associated with a virtual private network or not associated with the virtual private network;
Element C	encapsulating packets identified as associated with the virtual private network and routing the encapsulated packets via a dedicated connection to a specific destination associated with the first network; and
Element D	routing the packets received from the one or more third party sources which are not associated with the virtual private network exclusively over

	at least one second connection, different than the dedicated connection;
Element E	wherein the method further comprises storing a first routing table and at least one second routing table, wherein one or more routes identified by the first routing table are mutually-exclusive to one or more routes identified by the at least one second routing table, wherein routing the encapsulated packets includes using only one or more routes of the first routing table to route the encapsulated packets, and wherein routing the packets which are not associated with the virtual private network includes using only one or more routes of the at least one second routing table.

686. Amazon directly infringes claim 1 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

687. The “first network” is the Virtual Private Network, which runs from the VPC router, through the Virtual Private Gateway, and Direct Connect locations, to the Customer gateway.

688. The VPC router receives packets from the Public and VPN-only subnets storing third party data.

689. The VPC router identifies the received packets as either associated with the VPN connection or not based on the packet’s source and destination addresses.

690. If the packet is from the Public subnet, the packet is not associated with the virtual private network. If the packet is from the VPN-only subnet, the VPC router looks to the route table to determine based on the destination address.

691. In the non-NAT configuration, packets with a source address of the VPN-only subnet and with a destination address matching the VPN connection are identified as associated with a virtual private network.

692. In the NAT or similar configuration, packets received from the VPN-only subnet with destination addresses matching the VPN connection are identified as associated with the virtual private network.

693. Amazon encrypts packets from the VPN-only subnet with destination addresses associated with the VPN connection and, therefore, associated with the virtual private network, using IPsec. Encryption is a form of encapsulation.

694. The VPC router routes the encapsulated packets via the AWS Direct Connect connection, which is a dedicated connection, to the AWS Direct Connect Partner location. The AWS Direct Connect Partner location is associated with Amazon Web Services.

695. The encapsulated packets are routed via the Direct Connect connection to the Customer Gateway, which is a part of the VPN.

696. The VPC router routes the packets received from the Public subnet, and, therefore, not associated with the virtual private network, over the Internet Gateway.

697. In a non-NAT configuration, the VPC router routes packets received from the VPN-only subnet with a destination address associated with the “local” route and, therefore, not associated with the virtual private network, via the local connection. Both the Internet Gateway and local connection are different from the VPN connection.

698. In a NAT configuration, the VPC router routes packets received from the VPN-only subnet with destination addresses associated with the local connection or the NAT via the local connection and NAT connection, respectively. Both of these connections are different from the VPN connection.

699. The VPC router stores route tables associated with the subnets.

700. The VPN-only subnet uses the “Main route table” and the Public subnet uses the

“Custom route table.” The Main route table includes a route to the VPN connection, which is not present in the Public subnet’s Custom route table.

701. The packets from the VPN-only subnet will be routed using the Main route table, which includes a route for the VPN connection. Packets received from the Public subnet will be routed using the Custom route table.

702. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

703. The technology claimed in claim 1 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

704. As a direct and proximate result of Amazon’s acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 73: INFRINGEMENT OF PAT. 9,667,534 CLAIM 6**

705. AlterWAN reasserts and realleges paragraphs 1 through 708 of this Complaint as though set forth fully here.

706. Claim 6 of the ’534 Patent provides:

Preamble	The method of claim 1, wherein:
Element A	the machine is associated with a first endpoint of the first network;

Element B	the specific destination corresponds to a second endpoint of the first network;
Element C	the dedicated connection connects said first endpoint with the second endpoint of the first network;
Element D	identifying includes examining header information for received packets, comparing a network destination address from said header information with a predetermined destination address outside of the first network, and determining that packets are associated with the virtual private network when the network destination address matches the predetermined destination address; and
Element E	the specific destination is to forward packets associated with the virtual private network from the first network toward the network destination address.

707. Amazon directly infringes claim 6 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct Connect connection in both NAT and non-NAT configurations.

708. The VPC router is an endpoint of the Virtual Private Network.

709. The Customer Gateway is a destination endpoint of the Virtual Private Network.

710. The Site-to-Site VPN connection using AWS Direct Connect connects the VPC router endpoint to the Customer gateway endpoint of the Virtual Private Network.

711. The VPC router identifies the received packets as either associated with the VPN connection or not in the following manner. If the packet is from the Public subnet, the packet is not associated with the virtual private network. If the packet is from the VPN-only subnet, the VPC router looks to the route table to determine based on the destination address. The destination address is for a location within the corporate network and beyond the Customer Gateway, which is outside the VPN network.

712. The Customer Gateway forwards packets to devices at the Customer Network.

713. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

714. The technology claimed in claim 6 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

715. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

**COUNT 74: INFRINGEMENT OF PAT. 9,667,534 CLAIM 8**

716. AlterWAN reasserts and realleges paragraphs 1 through 719 of this Complaint as though set forth fully here.

717. Claim 8 of the '534 Patent provides:

Element A	The method of claim 1, wherein encapsulating packets identified as associated with the virtual private network includes encrypting those packets using an encryption key corresponding to a decryption key known a priori to the destination associated with the first network.
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718. Amazon directly infringes claim 8 by operating its servers in a manner that practices every step in the claimed method when providing the Amazon Virtual Private Cloud product/service in conjunction with Amazon Site-to-Site VPN using at least one AWS Direct

Connect connection in both NAT and non-NAT configurations.

719. If the data packet has a destination associated with the Site-to-Site VPN connection via AWS Direct Connect, it is determined to be of the first type, the AWS system encrypts the payload of the data packet using IPsec using the Pre-shared key for the Site-to-Site VPN connection.

720. Additionally, given its awareness of the patent claim at least after this detailed complaint, Amazon is inducing infringement of this claim under 35 U.S.C. § 271(b) by actively inducing its customers and end-users to directly infringe every claim limitation with the specific intent to encourage such infringement and knowing that the acts induced constitute patent infringement by designing its systems to operate in an infringing manner and encouraging its customers to set up and use its systems to operate in an infringing manner.

721. The technology claimed in claim 8 was not well understood, routine, or conventional at the time that the application was filed and, by improving computer capabilities, provided a technological solution to a technological problem rooted in computer technology.

722. As a direct and proximate result of Amazon's acts of patent infringement, AlterWAN has been and continues to be injured and has sustained and will continue to sustain damages.

### **JURY DEMAND**

AlterWAN demands a trial by jury on all issues that may be so tried.

### **REQUEST FOR RELIEF**

WHEREFORE, Plaintiff AlterWAN requests that this Court enter judgment in its favor and against Defendants as follows:

- A. Adjudging, finding, and declaring that Amazon has infringed the above-identified claims of each of the Patents-in-Suit under 35 U.S.C. § 271;
- B. Awarding the past and future damages arising out of Amazon's infringement of the Patents-in-Suit to AlterWAN in an amount no less than a reasonable royalty, together with prejudgment and post-judgment interest, in an amount according to proof;
- D. Adjudging, finding, and declaring that the Patents-in-Suit are valid and enforceable;
- E. Awarding attorney's fees, costs, or other damages pursuant to 35 U.S.C. §§ 284 or 285 or as otherwise permitted by law; and
- F. Granting AlterWAN such other further relief as is just and proper, or as the Court deems appropriate, including an accounting of post-verdict infringing sales.

Dated: August 19, 2019

Respectfully submitted,

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