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6 Wilmington, DE 19806
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8 Attorneys for Plaintiff

9
10 UNITED STATES DISTRICT COURT
11 CENTRAL DISTRICT OF CALIFORNIA
12 SOUTHERN DIVISION
13

14 INTERNATIONAL LICENSE
15 EXCHANGE OF AMERICA, LLC,

16 Plaintiff,

17 v.

18 MOXA INC. and MOXA AMERICAS
19 INC.,

20 Defendants.
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23
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26
27
28

) Case No.: 8:20-cv-00758

) **COMPLAINT FOR PATENT
INFRINGEMENT**

) JURY TRIAL DEMANDED

1 **COMPLAINT FOR PATENT INFRINGEMENT**

2 Plaintiff International License Exchange of America, LLC (“ILEA” or
3 “Plaintiff”), for its Complaint against Defendants Moxa Inc. and Moxa Americas, Inc.
4 (collectively, “Moxa” or “Defendants”), alleges the following:

5 **NATURE OF THE ACTION**

6 1. This is an action for patent infringement arising under the Patent Laws of
7 the United States, 35 U.S.C. § 1 *et seq.*, seeking monetary damages and other relief
8 against Defendants due to their infringement of United States Patent Nos. RE44,775
9 (the “’775 patent”), RE45,065 (the “’065 patent”), RE45,081 (the “’081 patent”),
10 RE45,095 (the “’095 patent”), RE40,999 (the “’999 patent”), and 5,959,990 (the “’990
11 patent”), together the “patents in suit,” in accordance with 35 U.S.C. § 271.

12 **THE PARTIES**

13 2. Plaintiff is a corporation organized under the laws of the State of
14 Delaware with a place of business at 10 Balligomingo Rd., West Conshohocken, PA
15 19428.

16 3. On information and belief, Defendant Moxa Inc. is a corporation
17 organized under the laws of Taiwan, with a place of business at Fl. 4, No. 135, Lane
18 235, Baoqiao Rd. Xindian Dist., New Taipei City, 23145 Taiwan, R.O.C.

19 4. Upon information and belief, Defendant Moxa Americas Inc. is a
20 corporation organized under the laws of California, with a place of business at Moxa
21 Corporate Plaza 601 Valencia Ave, Suite 100, Brea, CA 92823, and can be served
22 through its registered agent Yi-Feng Lee, 601 Valencia Ave, Suite 100, Brea, CA
23 92823.

24 **JURISDICTION AND VENUE**

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

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

1 7. On information and belief, Defendants are subject to this Court’s specific
2 and general personal jurisdiction, pursuant to due process and the California long-arm
3 statute, CAL. CODE OF CIVIL PROCEDURE § 410.10, due at least to its business in
4 this forum, including at least a portion of the infringements alleged herein.
5 Furthermore, Defendant Moxa Americas Inc. is subject to this Court’s specific and
6 general personal jurisdiction because Defendant is a California corporation.

7 8. Plaintiff’s claims arise directly from Defendants’ business contacts and
8 other activities in the State of California and in the Central District of California:
9 Defendants are present within or have minimum contacts within the State of
10 California and the Central District of California; Defendants have purposefully availed
11 themselves of the privileges of conducting business in the State of California and in
12 the Central District of California; Defendants have sought protection and benefit from
13 the laws of the State of California; and, Defendants regularly conduct business within
14 the State of California and within the Central District of California.

15 9. Defendants directly or through intermediaries, make, use, offer for sale,
16 import, sell, advertise or distribute products and services in the United States, the
17 State of California, and the Central District of California. This Court also has
18 personal jurisdiction over Defendants because Defendants have committed acts of
19 patent infringement in California, including in this District.

20 10. Defendants have systematically and continuously harmed Plaintiff in this
21 jurisdiction by infringing one or more claims of the patents in suit.

22 11. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(a) & (c),
23 and 1400(b). On information and belief, Defendant Moxa Americas Inc. is a
24 California corporation. On information and belief, Defendant Moxa Americas Inc.
25 has committed acts of infringement in this district and has a place of business at Moxa
26 Corporate Plaza 601 Valencia Ave, Suite 100, Brea, CA 92823 in this district.

27 12. Venue is further proper as to Defendant Moxa Inc., which is organized
28 under the laws of Taiwan, in light of 28 U.S.C. § 1391(c)(3) which provides that “a

1 defendant not resident in the United States may be sued in any judicial district, and the
2 joinder of such a defendant shall be disregarded in determining where the action may
3 be brought with respect to other defendants.”

4 COUNT I – INFRINGEMENT OF U.S. PATENT NO. 5,959,990

5 13. The allegations set forth in the foregoing paragraphs 1 through 12 are
6 incorporated into this First Claim for Relief.

7 14. On September 28, 1999, U.S. Patent No. 5,959,990 (the “’990 patent”),
8 entitled “VLAN Frame Format,” was duly and legally issued by the United States
9 Patent and Trademark Office. A true and correct copy of the ’990 patent is attached
10 as Exhibit 1. The application leading to the ’990 patent is the ultimate priority
11 application for U.S. Pat. Nos. RE40999, RE44775, RE45065, RE45081, RE45095,
12 RE45121, RE45521, RE45598, RE45708, each of which recites subject matter
13 supported by the same written description.

14 15. The inventive embodiments of the ’990 patent resolve technical problems
15 related to virtual local area network (“VLAN”) and methods to format a data frame in
16 VLAN network devices. Such technologies are a required part of the IEEE 802.1Q
17 standard for VLAN tagging for ethernet frames and accompanying procedures used by
18 networking equipment (such as bridges, switches, or routers) in handling VLAN-
19 tagged frames. Thus, 802.1Q-certified local area networks and equipment, and
20 uncertified equipment that nonetheless implements the mandatory features of the
21 802.1Q standard, necessarily meet the claim limitations of the ’990 patent.

22 16. The claims of the ’990 patent do not merely recite the performance of
23 some business practice known from the pre-Internet world along with a requirement to
24 perform it on the Internet. Instead, the claims of the ’990 patent recite one or
25 more inventive concepts that are rooted in computerized electronic data
26 communications networks, and an improved method to operate such networks and to
27 maintain the interoperability of different physical configurations of such networks.
28

1 17. The claims of the '990 patent recite an invention that is not merely the
2 routine or conventional use of electronic devices for communications. Instead, for
3 example, the invention adds new features to integrate Ethernet and other protocols
4 together on a shared network. The '990 patent claims thus include improvements for,
5 for example, formatting data frames to yield a desired result.

6 18. The technology claimed in the '990 patent does not preempt all ways of
7 using computerized devices or transmitting information over networks, nor preempt
8 any other well-known or prior art technology.

9 19. Accordingly, each claim of the '990 patent recites a combination of
10 elements sufficient to ensure that the claim in practice amounts to significantly more
11 than a patent on an ineligible concept.

12 20. Plaintiff is the assignee and owner of the right, title and interest in and to
13 the '990 patent, including the right to assert all causes of action arising under the
14 patents and the right to any remedies for infringement of them.

15 21. Upon information and belief, Moxa directly infringed at least claim 1 of
16 the '990 patent by having made, used, sold, imported and/or provided for use without
17 authority within the United States, 802.1Q-compliant local area networks and
18 equipment performing a method to format a data frame in VLAN network devices; for
19 example, depending on the physical configuration of a VLAN, the embodiments
20 include a method to adjust the format of a data frame to reflect the characteristics of
21 the particular physical configuration of the VLAN (the "'990 Accused
22 Instrumentalities"). The '990 Accused Instrumentalities include at least the following
23 products: Moxa's Layer 2 and Layer 3 managed Ethernet switches, Layer 2 Smart
24 Switches, EN 50155 Routers, EN 50155 Switches, Rackmount Switches, Secure
25 Routers, and WLAN AP/Bridge/Client products.

26 22. In particular, claim 1 of the '990 patent generally recites a method in a
27 network device. The method includes transmitting, on a shared communications
28 medium coupled to the network device, a data frame associated with a virtual

1 network, comprising the steps of: a) transmitting a data frame having a type field
2 whose contents indicate the data frame comprises a virtual network identifier field;
3 and, b) transmitting the virtual network identifier field whose contents indicate the
4 virtual network associated with the data frame.

5 23. On information and belief, use of the '990 Accused Instrumentalities
6 reads on and infringes at least claim 1 of the '990 patent. (*See, e.g.*,
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
8 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
10 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
12 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
14 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
16 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
18 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
20 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
22 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
24 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
26 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
28 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
2 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
3 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
4 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
5 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
6 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
7 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
8 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
9 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
10 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
11 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
12 2019).)

13 24. On information and belief, the '990 Accused Instrumentalities are used,
14 marketed, provided to, and/or used by or for each of Moxa's partners, clients,
15 customers and end users across the country and in this District.

16 25. Plaintiff has been harmed by Moxa's infringing activities.

17 COUNT II – INFRINGEMENT OF U.S. PATENT NO. RE40,999

18 26. The allegations set forth in the foregoing paragraphs 1 through 25 are
19 incorporated into this Second Claim for Relief.

20 27. On November 24, 2009, U.S. Patent No. RE40,999 ("the '999 patent"),
21 entitled "VLAN Frame Format," was duly and legally issued by the United States
22 Patent and Trademark Office. A true and correct copy of the '999 patent is attached
23 as Exhibit 2. The '999 patent is part of a family of eleven U.S. patents stemming from
24 U.S. Pat. No. 5,959,990.

25 28. The inventive embodiments of the '999 patent resolve technical problems
26 related to virtual local area network ("VLAN") and methods to format a data frame in
27 VLAN network devices. Such technologies are a required part of the IEEE 802.1Q
28 standard for VLAN tagging for ethernet frames and accompanying procedures used by

1 networking equipment (such as bridges, switches, or routers) in handling VLAN-
2 tagged frames. Thus, 802.1Q-certified local area networks and equipment, and
3 uncertified equipment that nonetheless implements the mandatory features of the
4 802.1Q standard, necessarily meet the claim limitations of the '999 patent.

5 29. The claims of the '999 patent do not merely recite the performance of
6 some business practice known from the pre-Internet world along with a requirement to
7 perform it on the Internet. Instead, the claims of the '999 patent recite one or
8 more inventive concepts that are rooted in computerized electronic data
9 communications networks, and an improved method to operate such networks and to
10 maintain the interoperability of different physical configurations of such networks.

11 30. The claims of the '999 patent recite an invention that is not merely the
12 routine or conventional use of electronic devices for communications. Instead, among
13 other things, the invention adds new features to integrate Ethernet and other protocols
14 together on a shared network. The '999 patent claims thus include improvements for,
15 for example, formatting data frames to yield a desired result.

16 31. The technology claimed in the '999 patent does not preempt all ways of
17 using computerized devices or transmitting information over networks, nor preempt
18 any other well-known or prior art technology.

19 32. Accordingly, each claim of the '999 patent recites a combination of
20 elements sufficient to ensure that the claim in practice amounts to significantly more
21 than a patent on an ineligible concept.

22 33. Plaintiff is the assignee and owner of the right, title and interest in and to
23 the '999 patent, including the right to assert all causes of action arising under said
24 patents and the right to any remedies for infringement of them.

25 34. Upon information and belief, Moxa had and continued to directly
26 infringe at least claims 1 and 7 of the '999 patent by having made, used, sold,
27 imported and/or provided for use without authority within the United States, 802.1Q-
28 compliant local area networks and equipment performing a method of identifying a

1 virtual network associated with a data frame in VLAN network devices (the “’999
2 Accused Instrumentalities”). The ’999 Accused Instrumentalities include at least the
3 following products: Moxa’s Layer 2 and Layer 3 managed Ethernet switches, Layer 2
4 Smart Switches, EN 50155 Routers, EN 50155 Switches, Rackmount Switches,
5 Secure Routers, and WLAN AP/Bridge/Client products.

6 35. In particular, claim 1 of the ’999 patent generally recites a method of
7 identifying a virtual network associated with a data frame when transmitting the data
8 frame between a communications medium and a shared communications medium;
9 where the method comprises: a) receiving the data frame from the communications
10 medium, where the data frame includes a first type field and a data field; b) inserting a
11 second type field at a location within the data frame preceding the first type field, a
12 value of the second type field indicating the data frame include a virtual network
13 identifier field, c) inserting the virtual network identifier field at a location between
14 the second type field and the first type field; d) assigning a first value to the virtual
15 network identifier field, the first value corresponding to the virtual network; and
16 e) transmitting the data frame over the shared communications medium.

17 36. On information and belief, use of the ’999 Accused Instrumentalities
18 reads on and infringes at least claim 1 of the ’999 patent. (*See, e.g.*,
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-
20 routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-
22 switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-
24 switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-
26 switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-
28 switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
2 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
3 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
4 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
6 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
8 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
10 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
12 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
14 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
16 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
17 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
18 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
19 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
20 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
21 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
22 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
23 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
24 2019).)

25 37. Claim 7 of the '999 patent generally recites the method of identifying a
26 virtual network associated with a data frame when transmitting the data frame
27 between a communications medium and a shared communications medium, where the
28 method comprises: a) receiving the data frame from the communications medium, the

1 data frame including a length field and a data field; b) inserting a type field at a
2 location within the data frame preceding the length field, a value of the type field
3 indicating the data frame includes a virtual network identifier field; c) inserting the
4 virtual network identifier field at a location between the type field and the length field,
5 d) assigning a first value to the virtual network identifier field, the first value
6 corresponding to the virtual network; and e) transmitting the data frame over the
7 shared communications medium.

8 38. On information and belief, use of the '999 Accused Instrumentalities
9 reads on and infringes at least claim 7 of the '999 patent. (*See, e.g.*,
10 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
11 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
12 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
13 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
14 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
15 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
16 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
17 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
18 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
19 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
20 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
21 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
22 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
23 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
24 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
25 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
26 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
27 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
28 <https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet->

1 switches/rackmount-switches/iks-g6824a-series (last accessed April 14, 2020);
2 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
3 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
4 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
5 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
6 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
7 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
8 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
9 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
10 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
11 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
12 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
13 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
14 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
15 2019).)

16 39. On information and belief, the '999 Accused Instrumentalities are used,
17 marketed, provided to, and/or used by or for each of Moxa's partners, clients,
18 customers and end users across the country and in this District.

19 40. Plaintiff has been harmed by Moxa's infringing activities.

20 COUNT III – INFRINGEMENT OF U.S. PATENT NO. RE44,775

21 41. The allegations set forth in the foregoing paragraphs 1 through 40 are
22 incorporated into this Third Claim for Relief.

23 42. On February 25, 2014, U.S. Patent No. RE44,775 ("the '775 patent"),
24 entitled "VLAN Frame Format," was duly and legally issued by the United States
25 Patent and Trademark Office. A true and correct copy of the '775 patent is attached
26 as Exhibit 3. The '775 patent is part of a family of eleven U.S. patents stemming from
27 U.S. Pat. No. 5,959,990.
28

1 43. The inventive embodiments of the '775 patent resolve technical problems
2 related to virtual local area network ("VLAN") and methods to format a data frame in
3 VLAN network devices. Such technologies are a required part of the IEEE 802.1Q
4 standard for VLAN tagging for ethernet frames and accompanying procedures used by
5 networking equipment (such as bridges, switches, or routers) in handling VLAN-
6 tagged frames. Thus, 802.1Q-certified local area networks and equipment, and
7 uncertified equipment that nonetheless implements the mandatory features of the
8 802.1Q standard, necessarily meet the claim limitations of the '775 patent.

9 44. The claims of the '775 patent do not merely recite the performance of
10 some business practice known from the pre-Internet world along with a requirement to
11 perform it on the Internet. Instead, the claims of the '775 patent recite one or
12 more inventive concepts that are rooted in computerized electronic data
13 communications networks, and an improved method to operate such networks and to
14 maintain the interoperability of different physical configurations of such networks.

15 45. The claims of the '775 patent recite an invention that is not merely the
16 routine or conventional use of electronic devices for communications. Instead, among
17 other things, the invention adds new features to integrate Ethernet and other protocols
18 together on a shared network. The '775 patent claims thus include improvements for,
19 for example, formatting data frames to yield a desired result.

20 46. The technology claimed in the '775 patent does not preempt all ways of
21 using computerized devices or transmitting information over networks, nor preempt
22 any other well-known or prior art technology.

23 47. Accordingly, each claim of the '775 patent recites a combination of
24 elements sufficient to ensure that the claim in practice amounts to significantly more
25 than a patent on an ineligible concept.

26 48. Plaintiff is the assignee and owner of the right, title and interest in and to
27 the '775 patent, including the right to assert all causes of action arising under said
28 patents and the right to any remedies for infringement of them.

1 49. Upon information and belief, Moxa had and continued to directly
2 infringe at least claims 43, 44, 49, and 50 of the '775 patent by having made, used,
3 sold, imported and/or provided for use without authority within the United States,
4 802.1Q-compliant local area networks and equipment performing a method of
5 receiving a data frame in VLAN network devices (the "'775 Accused
6 Instrumentalities"). The '775 Accused Instrumentalities include at least the following
7 products: Moxa's Layer 2 and Layer 3 managed Ethernet switches, Layer 2 Smart
8 Switches, EN 50155 Routers, EN 50155 Switches, Rackmount Switches, Secure
9 Routers, and WLAN AP/Bridge/Client products.

10 50. In particular, claim 43 of the '775 patent generally recites a method of
11 receiving a data frame in a network device comprising a port coupled to a shared
12 communications medium; where the method comprises: a) receiving destination and
13 source media access control addresses; b) receiving a virtual network type field having
14 a value indicating that a virtual network identifier field will be transmitted, and
15 c) receiving the virtual network identifier field having a value including reading the
16 virtual network identifier field in accordance with the virtual network type field value
17 to determine the value.

18 51. On information and belief, use of the '775 Accused Instrumentalities
19 reads on and infringes at least claim 43 of the '775 patent. (*See, e.g.*,
20 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
21 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
22 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
23 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
24 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
25 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
26 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
27 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
28 <https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet->

1 switches/layer-2-managed-switches/eds-516a-series (last accessed April 14, 2020);
2 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
3 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
4 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
5 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
6 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
7 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
8 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
9 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
10 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
11 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
12 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
13 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
14 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
15 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
16 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
17 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
18 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
19 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
20 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
21 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
22 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
23 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
24 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
25 2019).)

26 52. Claim 44 of the '775 patent depends from claim 43 and recites the added
27 limitation wherein the receiving operations occur in an order of: receiving a
28 destination media access control address, receiving a source media access control

1 address, receiving a virtual network type field, then receiving a virtual network
2 identifier field.

3 53. On information and belief, use of the '775 Accused Instrumentalities
4 reads on and infringes at least claim 44 of the '775 patent. (*See, e.g.*,
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
6 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
8 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
10 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
12 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
14 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
16 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
18 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
20 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
22 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
24 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
26 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
28 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
2 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
3 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
4 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
5 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
6 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
7 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
8 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
9 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
10 2019).)

11 54. Claim 49 of the '775 patent depends from claim 43 and recites the added
12 limitation wherein receiving destination and source media access control addresses,
13 receiving a virtual network type field and receiving a virtual network identifier field
14 comprises receiving a data frame comprising the destination and source media access
15 control addresses, the virtual network type field and the virtual network identifier
16 field, the method further comprising forwarding at least part of the received data
17 frame on a port selected based at least in part on the value of the virtual network
18 identifier field.

19 55. On information and belief, use of the '775 Accused Instrumentalities
20 reads on and infringes at least claim 49 of the '775 patent. (*See, e.g.,*
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
22 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
24 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
26 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
28 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
2 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
3 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
4 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
6 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
8 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
10 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
12 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
14 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
16 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
18 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
19 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
20 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
21 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
22 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
23 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
24 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
25 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
26 2019).)

27 56. Claim 50 of the '775 patent depends from claim 49 and further recites
28 wherein when the port selected based at least in part on the value of the virtual

1 network identifier field is connected to a dedicated communications medium,
2 forwarding at least part of the received data frame comprises: a) removing the virtual
3 network type field and the virtual network identifier field from the data frame; and
4 b) forwarding the data frame without the virtual network type field and without the
5 virtual network identifier field on the selected port of the network device.

6 57. On information and belief, use of the '775 Accused Instrumentalities
7 reads on and infringes at least claim 50 of the '775 patent. (*See, e.g.*,
8 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
9 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
10 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
11 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
12 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
13 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
14 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
15 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
16 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
17 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
18 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
19 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
20 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
21 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
22 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
23 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
24 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
25 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
26 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
27 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
28 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)

1 switches/rackmount-switches/pt-g7728-series (last accessed April 14, 2020);
2 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
3 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
4 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
5 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
6 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
7 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
8 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
9 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
10 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
11 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
12 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
13 2019).)

14 58. On information and belief, the '775 Accused Instrumentalities are used,
15 marketed, provided to, and/or used by or for each of Moxa's partners, clients,
16 customers and end users across the country and in this District.

17 59. Plaintiff has been harmed by Moxa's infringing activities.

18 COUNT IV – INFRINGEMENT OF U.S. PATENT NO. RE45,081

19 60. The allegations set forth in the foregoing paragraphs 1 through 59 are
20 incorporated into this Fourth Claim for Relief.

21 61. On August 19, 2014, U.S. Patent No. RE45,081 ("the '081 patent"),
22 entitled "VLAN Frame Format," was duly and legally issued by the United States
23 Patent and Trademark Office. A true and correct copy of the '081 patent is attached
24 as Exhibit 4. The '081 patent is part of a family of eleven U.S. patents stemming from
25 U.S. Pat. No. 5,959,990.

26 62. The inventive embodiments of the '081 patent resolve technical problems
27 related to virtual local area network ("VLAN") and methods to format a data frame in
28 VLAN network devices. Such technologies are a required part of the IEEE 802.1Q

1 standard for VLAN tagging for ethernet frames and accompanying procedures used by
2 networking equipment (such as bridges, switches, or routers) in handling VLAN-
3 tagged frames. Thus, 802.1Q-certified local area networks and equipment, and
4 uncertified equipment that nonetheless implements the mandatory features of the
5 802.1Q standard, necessarily meet the claim limitations of the '081 patent.

6 63. The claims of the '081 patent do not merely recite the performance of
7 some business practice known from the pre-Internet world along with a requirement to
8 perform it on the Internet. Instead, the claims of the '081 patent recite one or
9 more inventive concepts that are rooted in computerized electronic data
10 communications networks, and an improved method to operate such networks and to
11 maintain the interoperability of different physical configurations of such networks.

12 64. The claims of the '081 patent recite an invention that is not merely the
13 routine or conventional use of electronic devices for communications. Instead, among
14 other things, the invention adds new features to integrate Ethernet and other protocols
15 together on a shared network. The '081 patent claims thus include improvements for,
16 for example, formatting data frames to yield a desired result.

17 65. The technology claimed in the '081 patent does not preempt all ways of
18 using computerized devices or transmitting information over networks, nor preempt
19 any other well-known or prior art technology.

20 66. Accordingly, each claim of the '081 patent recites a combination of
21 elements sufficient to ensure that the claim in practice amounts to significantly more
22 than a patent on an ineligible concept.

23 67. Plaintiff is the assignee and owner of the right, title and interest in and to
24 the '081 patent, including the right to assert all causes of action arising under said
25 patents and the right to any remedies for infringement of them.

26 68. Upon information and belief, Moxa had and continued to directly
27 infringe at least claims 17, 21, and 25 of the '081 patent by having made, used, sold,
28 imported and/or provided for use without authority within the United States, 802.1Q-

1 compliant local area networks and equipment performing a method to transmit a data
2 frame associated with a virtual network in VLAN network devices (the “’081 Accused
3 Instrumentalities”). The ’081 Accused Instrumentalities include at least the following
4 products: Moxa’s Layer 2 and Layer 3 managed Ethernet switches, Layer 2 Smart
5 Switches, EN 50155 Routers, EN 50155 Switches, Rackmount Switches, Secure
6 Routers, and WLAN AP/Bridge/Client products.

7 69. In particular, claim 17 of the ’081 patent recites a method of transmitting
8 a data frame associated with a virtual network between a communications medium
9 and a shared communications medium; where the method comprises: at a first network
10 device coupled to the shared communications medium, a) receiving the data frame
11 from the communications medium, the data frame comprising a destination MAC
12 address, a source MAC address and a data field; b) inserting a type field at a location
13 within the data frame between the MAC addresses and the data field, a value of the
14 type field indicating that the data frame comprises a virtual network identifier field;
15 c) inserting the virtual network identifier field at a location between the type field and
16 the data field; d) assigning a value to the virtual network identifier field, the value
17 corresponding to the virtual network, and e) transmitting the data frame over the
18 shared communications medium; and at a second network device comprising a port
19 coupled to the shared communications medium: a) receiving the data frame,
20 comprising: i) receiving the destination and source media access control addresses;
21 ii) receiving the type field having the value indicating that the data frame comprises a
22 virtual network identifier field; and iii) receiving the virtual network identifier field
23 including reading the virtual network identifier field in accordance with the value of
24 the type field to determine the value of the virtual network identifier field; and
25 b) transmitting the data frame at least toward the virtual network corresponding to the
26 value of the virtual network identifier field.

27 70. On information and belief, use of the ’081 Accused Instrumentalities
28 reads on and infringes at least claim 17 of the ’081 patent. (*See, e.g.,*

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
2 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
3 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
4 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
6 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
8 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
10 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
12 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
14 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
16 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
18 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
20 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
22 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
24 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
26 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
27 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
28 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std

1 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
2 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
3 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
4 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
5 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
6 2019).)

7 71. Claim 21 of the '081 patent recites a method of transmitting a data frame
8 associated with a virtual network between a communications medium and a shared
9 communications medium, where the method comprises: at a first network device
10 coupled to the shared communications medium: a) receiving the data frame from the
11 communications medium, the data frame comprising a destination MAC address, a
12 source MAC address and a data field; b) inserting a type field at a location within the
13 data frame between the MAC addresses and the data field, a value of the type field
14 indicating that the data frame comprises a virtual network identifier field; c) inserting
15 the virtual network identifier field at a location between the type field and the data
16 field; d) assigning a value to the virtual network identifier field, the value
17 corresponding to the virtual network; and e) transmitting the data frame over the
18 shared communications medium; and at a second network device comprising a port
19 coupled to the shared communications medium: a) receiving the data frame,
20 comprising: i) receiving the destination and source media access control addresses;
21 ii) receiving the type field having the value indicating that the data frame comprises
22 the virtual network identifier field; and iii) receiving the virtual network identifier
23 field having the value associated with the virtual network including reading the virtual
24 network identifier field in accordance with the value of the type field to determine the
25 value associated with the virtual network; and b) transmitting the data frame at least
26 toward the virtual network corresponding to the value of the virtual network identifier
27 field.

28

1 72. On information and belief, use of the '081 Accused Instrumentalities
2 reads on and infringes at least claim 21 of the '081 patent. (*See, e.g.*,
3 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
4 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
6 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
8 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
10 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
12 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
14 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
16 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
18 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
20 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
22 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
24 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
26 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
28 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);

1 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
2 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
3 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
4 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
5 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
6 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
7 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
8 2019).)

9 73. Claim 25 of the '081 patent recites a method of transmitting a data frame
10 associated with a virtual network between a communications medium and a shared
11 communications medium, where the method comprises: at a first network device
12 coupled to the shared communications medium: a) receiving the data frame from the
13 communications medium, the data frame comprising a destination MAC address, a
14 source MAC address, an original type or length field and a data field; b) inserting a
15 type field at a location within the data frame between the MAC addresses and the
16 original type or length field, a value of the type field indicating that the data frame is
17 associated with a virtual network, and that the data frame comprises a virtual network
18 header including a virtual network identifier field and at least one other field, the
19 virtual network identifier field having a value corresponding to the virtual network;
20 c) inserting the virtual network header at a location between the type field and the data
21 field; d) assigning a value to the virtual network identifier field, the value
22 corresponding to the virtual network; and e) transmitting the data frame over the
23 shared communications medium; and at a second network device coupled to the
24 shared communications medium: a) receiving the data frame, the data frame
25 comprising the type field and the virtual network header; b) reading the type field and
26 determining that the data frame is associated with a virtual network; c) in response to
27 determining that the data frame is associated with a virtual network, reading the value
28 of the virtual network identifier field to determine the virtual network with which the

1 data frame is associated; and d) transmitting the data frame at least toward the virtual
2 network corresponding to the value of the virtual network identifier field.

3 74. On information and belief, use of the '081 Accused Instrumentalities
4 reads on and infringes at least claim 25 of the '081 patent. (*See, e.g.*,
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
6 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
8 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
10 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
12 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
14 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
16 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
18 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
20 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
22 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
24 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
26 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
28 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
2 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
3 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
4 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
5 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
6 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
7 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
8 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
9 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
10 2019).)

11 75. On information and belief, the '081 Accused Instrumentalities are used,
12 marketed, provided to, and/or used by or for each of Moxa's partners, clients,
13 customers and end users across the country and in this District.

14 76. Plaintiff has been harmed by Moxa's infringing activities.

15 COUNT V – INFRINGEMENT OF U.S. PATENT NO. RE45,065

16 77. The allegations set forth in the foregoing paragraphs 1 through 76 are
17 incorporated into this Fifth Claim for Relief.

18 78. On August 5, 2014, U.S. Patent No. RE45,065 ("the '065 patent"),
19 entitled "VLAN Frame Format," was duly and legally issued by the United States
20 Patent and Trademark Office. A true and correct copy of the '065 patent is attached
21 as Exhibit 5. The '065 patent is part of a family of eleven U.S. patents stemming from
22 U.S. Pat. No. 5,959,990.

23 79. The inventive embodiments of the '065 patent resolve technical problems
24 related to virtual local area network ("VLAN") and methods to format a data frame in
25 VLAN network devices. Such technologies are a required part of the IEEE 802.1Q
26 standard for VLAN tagging for ethernet frames and accompanying procedures used by
27 networking equipment (such as bridges, switches, or routers) in handling VLAN-
28 tagged frames. Thus, 802.1Q-certified local area networks and equipment, and

1 uncertified equipment that nonetheless implements the mandatory features of the
2 802.1Q standard, necessarily meet the claim limitations of the '065 patent.

3 80. Plaintiff is the assignee and owner of the right, title and interest in and to
4 the '065 patent, including the right to assert all causes of action arising under said
5 patents and the right to any remedies for infringement of them.

6 81. Upon information and belief, Moxa had and continued to directly
7 infringe at least claims 17 and 28 of the '065 patent by having made, used, sold,
8 imported and/or provided for use without authority within the United States, 802.1Q-
9 compliant local area networks and equipment performing a method to transmit a data
10 frame associated with a virtual network in VLAN network devices (the "'065 Accused
11 Instrumentalities"). The '065 Accused Instrumentalities include at least the following
12 products: Moxa's Layer 2 and Layer 3 managed Ethernet switches, Layer 2 Smart
13 Switches, EN 50155 Routers, EN 50155 Switches, Rackmount Switches, Secure
14 Routers, and WLAN AP/Bridge/Client products.

15 82. In particular, claim 17 of the '065 patent recites a network device for
16 transmitting a data frame to a virtual network associated with the data frame between
17 a communications medium and a shared communications medium, where the network
18 device comprises: at least one respective port connected to each of the
19 communications medium and the shared communications medium; and a processing
20 unit configured a) to receive the data frame, the data frame comprising a type field,
21 and a virtual network header including a virtual network identifier field and at least
22 one other field, the type field having a value indicating that the data frame is
23 associated with a virtual network, and the virtual network identifier field having a
24 virtual network identifier field value corresponding to the virtual network; b) to read
25 the type field and determine that the data frame is associated with a virtual network;
26 c) in response to determining that the data frame is associated with a virtual network,
27 to read the virtual network identifier field value to determine the virtual network with
28

1 which the data frame is associated; and d) to transmit the data frame at least toward
2 the virtual network corresponding to the virtual network identifier field value.

3 83. On information and belief, use of the '065 Accused Instrumentalities
4 reads on and infringes at least claim 17 of the '065 patent. (*See, e.g.*,
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
6 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
8 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
10 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
12 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
14 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
16 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
18 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
20 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
22 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
24 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
26 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
28 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);

1 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
2 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
3 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
4 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
5 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
6 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
7 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
8 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
9 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
10 2019).)

11 84.Claim 28 of the '065 patent recites a network device for transmitting a data
12 frame to a virtual network associated with the data frame between a communications
13 medium and a shared communications medium, where the network device comprises:
14 at least one respective port connected to each of the communications medium and the
15 shared communications medium; and a processing unit configured: a) to receive the
16 data frame, the data frame comprising a type field, and a virtual network header
17 having an associated format and including a virtual network identifier field, the type
18 field having a value indicating which of a plurality of formats the associated format is
19 and that the data frame is associated with a virtual network, and the virtual network
20 identifier field having a virtual network identifier field value corresponding to the
21 virtual network; b) to read the type field and determine that the data frame is
22 associated with a virtual network and determine the format; c) in response to
23 determining that the data frame is associated with a virtual network and determining
24 the format, to read the virtual network identifier field in accordance with the
25 determined format to determine the virtual network with which the data frame is
26 associated; and d) to transmit the data frame at least toward the virtual network
27 corresponding to the virtual network identifier field value.

28

1 85. On information and belief, use of the '065 Accused Instrumentalities
2 reads on and infringes at least claim 28 of the '065 patent. (*See, e.g.*,
3 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
4 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
5 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
6 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
7 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
8 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
9 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
10 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
11 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
12 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
13 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
14 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
15 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series)
16 [switches/layer-2-managed-switches/pt-7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/pt-7728-series) (last accessed April 14, 2020);
17 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
18 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
19 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
20 [switches/layer-2-smart-switches/sds-3008-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series) (last accessed April 14, 2020);
21 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
22 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
23 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
24 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
25 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
26 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
27 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
28 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);

1 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
2 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
3 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
4 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
5 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
6 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
7 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
8 2019).)

9 86. On information and belief, the '065 Accused Instrumentalities are used,
10 marketed, provided to, and/or used by or for each of Moxa's partners, clients,
11 customers and end users across the country and in this District.

12 87. Plaintiff has been harmed by Moxa's infringing activities.

13 COUNT VI – INFRINGEMENT OF U.S. PATENT NO. RE45,095

14 88. The allegations set forth in the foregoing paragraphs 1 through 87 are
15 incorporated into this Sixth Claim for Relief.

16 89. On August 26, 2014, U.S. Patent No. RE45,095 ("the '095 patent"),
17 entitled "VLAN Frame Format," was duly and legally issued by the United States
18 Patent and Trademark Office. A true and correct copy of the '095 patent is attached
19 as Exhibit 6. The '095 patent is part of a family of eleven U.S. patents stemming from
20 U.S. Pat. No. 5,959,990.

21 90. The inventive embodiments of the '095 patent resolve technical problems
22 related to virtual local area network ("VLAN") and methods to format a data frame in
23 VLAN network devices. Such technologies are a required part of the IEEE 802.1Q
24 standard for VLAN tagging for ethernet frames and accompanying procedures used by
25 networking equipment (such as bridges, switches, or routers) in handling VLAN-
26 tagged frames. Thus, 802.1Q-certified local area networks and equipment, and
27 uncertified equipment that nonetheless implements the mandatory features of the
28 802.1Q standard, necessarily meet the claim limitations of the '095 patent.

1 91. The claims of the '095 patent do not merely recite the performance of
2 some business practice known from the pre-Internet world along with a requirement to
3 perform it on the Internet. Instead, the claims of the '095 patent recite one or
4 more inventive concepts that are rooted in computerized electronic data
5 communications networks, and an improved method to operate such networks and to
6 maintain the interoperability of different physical configurations of such networks.

7 92. The claims of the '095 patent recite an invention that is not merely the
8 routine or conventional use of electronic devices for communications. Instead, among
9 other things, the invention adds new features to integrate Ethernet and other protocols
10 together on a shared network. The '095 patent claims thus include improvements for,
11 for example, formatting data frames to yield a desired result.

12 93. The technology claimed in the '095 patent does not preempt all ways of
13 using computerized devices or transmitting information over networks, nor preempt
14 any other well-known or prior art technology.

15 94. Accordingly, each claim of the '095 patent recites a combination of
16 elements sufficient to ensure that the claim in practice amounts to significantly more
17 than a patent on an ineligible concept.

18 95. Plaintiff is the assignee and owner of the right, title and interest in and to
19 the '095 patent, including the right to assert all causes of action arising under said
20 patents and the right to any remedies for infringement of them.

21 96. Upon information and belief, Moxa had and continued to directly
22 infringe at least claim 17 of the '095 patent by having made, used, sold, imported
23 and/or provided for use without authority within the United States, 802.1Q-compliant
24 local area networks and equipment performing a method to transmit a data frame
25 associated with a virtual network in VLAN network devices (the "'095 Accused
26 Instrumentalities"). The '095 Accused Instrumentalities include at least the following
27 products: Moxa's Layer 2 and Layer 3 managed Ethernet switches, Layer 2 Smart
28

1 Switches, EN 50155 Routers, EN 50155 Switches, Rackmount Switches, Secure
2 Routers, and WLAN AP/Bridge/Client products.

3 97. In particular, claim 17 of the '095 patent recites a method of transmitting a
4 virtual network identifier in a data frame transmitted on a shared communications
5 medium, where the method comprises: a) transmitting a destination address field
6 containing a destination address for the data frame; b) transmitting a source address
7 field containing a source address associated with the data frame; c) transmitting a
8 virtual network type field having a value indicative that the data frame is associated
9 with a virtual network; d) transmitting a virtual network identifier field having a value
10 indicative of the virtual network with which the data frame is associated, the value
11 being in one of a plurality of formats as indicated by the value of the virtual network
12 type field; e) transmitting a length field having contents indicating a length of a data
13 field; and f) transmitting the data field.

14 98. On information and belief, use of the '095 Accused Instrumentalities
15 reads on and infringes at least claim 17 of the '095 patent. (*See, e.g.*,
16 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series)
17 [routers/en-50155-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/en-50155-routers/tn-5900-series) (last accessed April 14, 2020);
18 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series)
19 [switches/en-50155-switches/tn-g6500-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/en-50155-switches/tn-g6500-series) (last accessed April 14, 2020);
20 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series)
21 [switches/layer-3-managed-switches/eds-828-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/eds-828-series) (last accessed April 14, 2020);
22 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series)
23 [switches/layer-3-managed-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-3-managed-switches/iks-g6824a-series) (last accessed April 14, 2020);
24 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series)
25 [switches/layer-2-managed-switches/eds-516a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/eds-516a-series) (last accessed April 14, 2020);
26 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series)
27 [switches/layer-2-managed-switches/ics-g7528a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/ics-g7528a-series) (last accessed April 14, 2020);
28 [34](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-</p></div><div data-bbox=)

1 switches/layer-2-managed-switches/pt-7728-series (last accessed April 14, 2020);
2 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series)
3 [switches/layer-2-managed-switches/tn-5500a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-managed-switches/tn-5500a-series) (last accessed April 14, 2020);
4 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/layer-2-smart-switches/sds-3008-series)
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6 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series)
7 [switches/rackmount-switches/iks-g6824a-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/iks-g6824a-series) (last accessed April 14, 2020);
8 [https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series)
9 [switches/rackmount-switches/pt-g7728-series](https://www.moxa.com/en/products/industrial-network-infrastructure/ethernet-switches/rackmount-switches/pt-g7728-series) (last accessed April 14, 2020);
10 [https://www.moxa.com/en/products/industrial-network-infrastructure/secure-](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series)
11 [routers/secure-routers/tn-5900-series](https://www.moxa.com/en/products/industrial-network-infrastructure/secure-routers/secure-routers/tn-5900-series) (last accessed April 14, 2020);
12 [https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series)
13 [bridge-client/wlan-ap-bridge-client/awk-1137c-series](https://www.moxa.com/en/products/industrial-network-infrastructure/wireless-ap-bridge-client/wlan-ap-bridge-client/awk-1137c-series) (last accessed April 14, 2020);
14 *see also* the IEEE Standard for Local and metropolitan area networks: Media Access
15 Control (MAC) Bridges and Virtual Bridge Local Area Networks, IEEE Std
16 802.1QTM-2011 (Revision of IEEE Std 802.1Q-2005), 31 August 2011 (*e.g.* p. 1, 23,
17 98, 103-105, 149-150, 1269); IEEE Std 802.1QTM-2014; IEEE Std 802.3TM-2012
18 (*e.g.* p. 53); IEEE 802.1Q VLAN Tutorial (Graham Shaw, *available at*
19 <http://www.microhowto.info/tutorials/802.1Q.html> (last accessed June 11, 2019));
20 <https://wiki.openwrt.org/doc/howto/wireless.security.8021x> (last accessed June 11,
21 2019).)

22 99. On information and belief, the '095 Accused Instrumentalities are used,
23 marketed, provided to, and/or used by or for each of Moxa's partners, clients,
24 customers and end users across the country and in this District.

25 100. Plaintiff has been harmed by Moxa's infringing activities.

26 JURY DEMAND

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

PRAYER FOR RELIEF

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

A. An adjudication that Moxa has infringed the '990, '999, '775, '081, '065, and '095 patents;

B. An award of damages to be paid by Moxa adequate to compensate Plaintiff for Moxa's past infringement of the '990, '999, '775, '081, '065, and '095 patents, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

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

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

Dated: April 17, 2020

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