IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT,	§	
Plaintiff,	§	
v.	§	**CIVIL ACTION NO. 6:20-cv-00916**
HUAWEI TECHNOLOGIES CO., LTD. AND HUAWEI TECHNOLOGIES USA INC.,	§	**JURY TRIAL DEMANDED**
Defendants.	§	

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development ("Brazos" or "Plaintiff"), by and through its attorneys, files this Complaint for Patent Infringement against Defendants Huawei Technologies Co. Ltd. and Huawei Technologies USA Inc. (collectively "Huawei" or "Defendants") and alleges:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 606 Austin Avenue, Suite 6, Waco, Texas 76701.

3. On information and belief, Defendant Huawei Technologies Co., Ltd. is a Chinese corporation that does business in Texas, directly or through intermediaries, with a principal place of business at Bantian, Longgang District, Shenzhen 518129, People's Republic of China.

4. Upon information and belief, Defendant Huawei Technologies USA Inc. is a corporation organized and existing under the laws of Texas that maintains an established place of business at 2391 NE Interstate 410 Loop, San Antonio, Texas 78217. Huawei Technologies USA, Inc. is authorized to do business in Texas and may be served via its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

5. Defendants operate under and identify with the trade name "Huawei." Each of the Defendants may be referred to individually as a "Huawei Defendant" and, collectively, Defendants may be referred to below as "Huawei" or as the "Huawei Defendants."

JURISDICTION AND VENUE

6. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§271, 281, 284, and 285.

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

8. This Court has specific and general personal jurisdiction over each Huawei Defendant pursuant to due process and/or the Texas Long Arm Statute, because each Huawei Defendant has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over each Huawei Defendant would not offend

traditional notions of fair play and substantial justice because Huawei has established minimum contacts with the forum. For example, on information and belief, Huawei Defendants have committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

9. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and 1400(b) because Defendants have committed acts of infringement in this judicial district and have regular and established places of business in this judicial district and in Texas. As non-limiting examples, on information and belief, Defendants have sold or offered to sell the Accused Products in this judicial district and have employees or agents that operate Huawei equipment in this judicial district, including at 189 CR 265, Georgetown, TX 78626, 1150 S. Bell Blvd., Cedar Park, TX 78613, 1399 S A W Grimes Blvd., Round Rock, TX 78664, 12335 IH 35, Jarrell, TX 76537, 1050 Rabbit Hill Rd., Unit #E, Georgetown, TX 78626, 1602 A W Grimes Blvd., Round Rock, TX 78664, 4120 IH 35 N, Georgetown, TX 78626, 900 CR 272, Leander, TX 78641, 1950 Crystal Falls Pkwy., Leander, TX 78641, 1101 N. Industrial Blvd., Round Rock, TX 78681, 506 McNeil Rd., Round Rock, TX 78681, 3210 Chisholm Trail Rd., Round Rock, TX 78681, 112 Roundville Ln., Round Rock, TX 78664, 202 Central Dr. W, Georgetown, TX 78628, 3595 E. Hwy. 29, Georgetown, TX 78626, 1402 W Welch St., Taylor, TX 76574, 3801 Oak Ridge Dr., Round Rock, TX 78681, 1957 Red Bud Ln. #B, Round Rock, TX 78664, 6603 S Lakewood Dr., Georgetown, TX 78633, 500 W Front, Hutto, TX 78634.

COUNT ONE - INFRINGEMENT OF U.S. PATENT NO. 7,406,074

10. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

11. On July 29, 2008, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,406,074 ("the '074 Patent"), entitled "Bundling messages in communication networks." A true and correct copy of the '074 Patent is attached as Exhibit A to this Complaint.

12. Brazos is the owner of all rights, title, and interest in and to the '074 Patent, including the right to assert all causes of action arising under the '074 Patent and the right to any remedies for the infringement of the '074 Patent.

13. Huawei makes, uses, sells, offers for sale, imports, and/or distributes in the United States, including within this judicial district, products such as, but not limited to, Huawei router (including but not limited to S5730 - SI) with VRP (Versatile Routing Platform) (collectively, the "Accused Products").

14. Huawei VRP supports BGP4, an inter-Autonomous System routing protocol. BGP-4 introduces mechanisms that allow aggregation of routes, including aggregation of AS paths.

15. In the Accused Products, the ethernet switch module of Huawei's SI series is built on the Huawei Versatile Routing Platform and supports RFC 4271 Border Gateway Protocol 4 & RFC 4760 Multiprotocol Extensions for BGP-4.

The S5730-SI series switches are next-generation standard gigabit Layer 3 Ethernet switches that provide flexible all-gigabit access and cost-effective fixed GE/10GE ports as well as 40GE uplink ports. The S5730-SI builds on next-generation high-performing hardware and the Huawei Versatile Routing Platform (VRP). The S5730-SI supports simplified operations and maintenance (O&M), intelligent stack (iStack), and flexible Ethernet networking. It also provides enhanced Layer 3 features and mature IPv6 features. The S5730-SI can be used in various scenarios. For example, it can be used as an access or aggregation switch on a campus network or as an access switch in a data center.

Source: https://e.huawei.com/us/material/networking/campusswitch/8b86e4522a5b465cb6538212ff6a539a

Network Protocol	IP Services	• Proxy ARP • 802.1q • Static DNS	• Static ARP • DHCP Server and Relay
	Non IP Services	• IPX	• DLSW
	IP Performance	• IP Fast Forwarding • Van Jacobson TCP Header Compression	
	Routing Protocol	• Static Route • OSPF	• Ripv1 & RIPv2 • BGP4

Source: https://docshare02.docshare.tips/files/13259/132591328.pdf

- RFC 3046 DHCP Option82
- RFC 3376 Internet Group Management Protocol, Version 3 (IGMPv3)
- RFC 3513 IP Version 6 Addressing Architecture
- RFC 3579 RADIUS Support For EAP
- RFC 4271 A Border Gateway Protocol 4 (BGP-4)
- RFC 4760 Multiprotocol Extensions for BGP-4
- draft-grant-tacacs-02 TACACS+
- RFC 6241 Network Configuration Protocol (NETCONF)
- RFC 6020 YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)

Source:

https://e.huawei.com/us/material/networking/campusswitch/8b86e4522a5b465cb6538212ff6a539a

16. In the Accused Products, a BGP speaker (a first component) is a router/switch that uses VRP (supporting BGP 4 protocol or RFC 4271). A BGP speaker (a first component) advertises multiple routes (or plurality of messages) as the UPDATE message (or bundled

message).

> BGP Identifier
> A 4-octet unsigned integer that indicates the BGP Identifier of the sender of BGP messages. A given BGP speaker sets the value of its BGP Identifier to an IP address assigned to that BGP speaker. The value of the BGP Identifier is determined upon startup and is the same for every local interface and BGP peer.
>
> BGP speaker
> A router that implements BGP.

Source: https://tools.ietf.org/html/rfc4271.

> For the purpose of this protocol, a route is defined as a unit of information that pairs a set of destinations with the attributes of a path to those destinations. The set of destinations are systems whose IP addresses are contained in one IP address prefix that is carried in the Network Layer Reachability Information (NLRI) field of an UPDATE message, and the path is the information reported in the path attributes field of the same UPDATE message.
>
> Routes are advertised between BGP speakers in UPDATE messages. Multiple routes that have the same path attributes can be advertised in a single UPDATE message by including multiple prefixes in the NLRI field of the UPDATE message.
>
> Routes are stored in the Routing Information Bases (RIBs): namely, the Adj-RIBs-In, the Loc-RIB, and the Adj-RIBs-Out, as described in Section 3.2.

Source: https://tools.ietf.org/html/rfc4271

17. In the Accused Products, the BGP4 protocol sends multiple routes (plurality of messages) as a single UPDATE message (bundled message) between BGP speakers.

> For the purpose of this protocol, a route is defined as a unit of information that pairs a set of destinations with the attributes of a path to those destinations. The set of destinations are systems whose IP addresses are contained in one IP address prefix that is carried in the Network Layer Reachability Information (NLRI) field of an UPDATE message, and the path is the information reported in the path attributes field of the same UPDATE message.
>
> Routes are advertised between BGP speakers in UPDATE messages. Multiple routes that have the same path attributes can be advertised in a single UPDATE message by including multiple prefixes in the NLRI field of the UPDATE message.
>
> Routes are stored in the Routing Information Bases (RIBs): namely, the Adj-RIBs-In, the Loc-RIB, and the Adj-RIBs-Out, as described in Section 3.2.

Source: https://tools.ietf.org/html/rfc4271.

18. In the Accused Products, multiple route messages (or plurality of messages) can consist of multiple "WITHDRAWN" routes (or at least two failure notifications), e.g., routes that are no longer available for use.

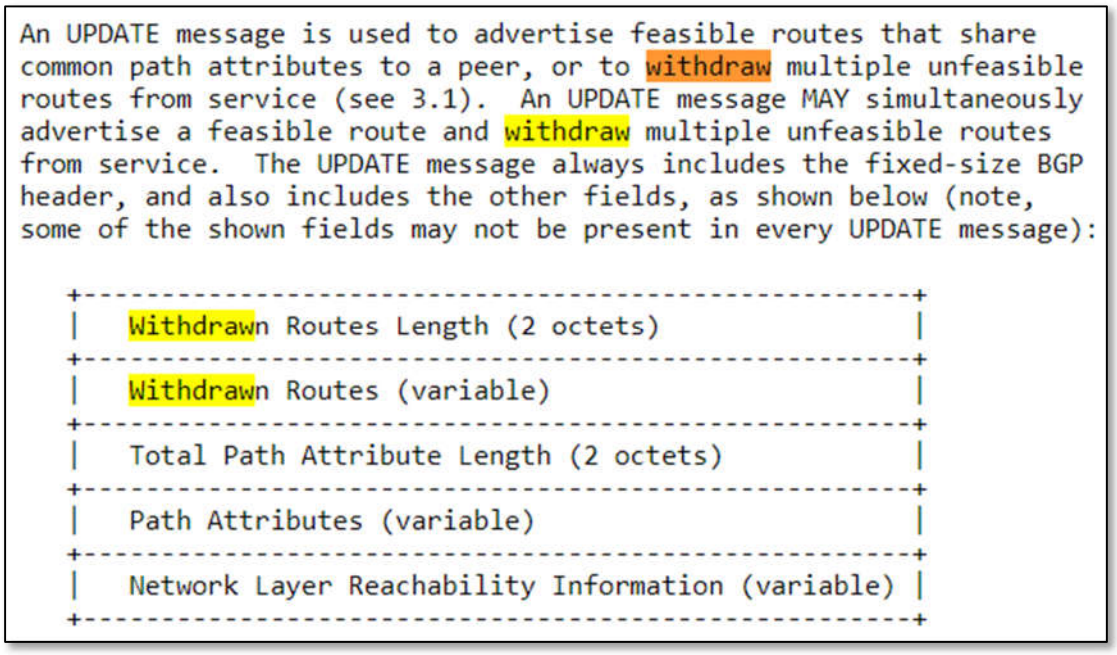
> BGP provides mechanisms by which a BGP speaker can inform its peers that a previously advertised route is no longer available for use. There are three methods by which a given BGP speaker can indicate that a route has been withdrawn from service:
>
> a) the IP prefix that expresses the destination for a previously advertised route can be advertised in the WITHDRAWN ROUTES field in the UPDATE message, thus marking the associated route as being no longer available for use,
>
> b) a replacement route with the same NLRI can be advertised, or
>
> c) the BGP speaker connection can be closed, which implicitly removes all routes the pair of speakers had advertised to each other from service.
>
> Changing the attribute(s) of a route is accomplished by advertising a replacement route. The replacement route carries new (changed) attributes and has the same address prefix as the original route.

Source: https://tools.ietf.org/html/rfc4271

19. The Accused Products have a bundled message made of a plurality of failure notifications.

20. In the Accused Products, the "UPDATE" message (or the bundled message) includes multiple withdrawn/unfeasible routes (a plurality of failure notifications) where each withdrawn route (each failure notification) corresponds to the failure of a different route path (a different connection) in the communication network.

An UPDATE message is used to advertise feasible routes that share common path attributes to a peer, or to withdraw multiple unfeasible routes from service (see 3.1). An UPDATE message MAY simultaneously advertise a feasible route and withdraw multiple unfeasible routes from service. The UPDATE message always includes the fixed-size BGP header, and also includes the other fields, as shown below (note, some of the shown fields may not be present in every UPDATE message):



Source: https://tools.ietf.org/html/rfc4271

21. In the Accused Products, the BGP speaker transmits the "UPDATE" message (or the bundled message) to its peers (or to a second component of the communication network). The "UPDATE" message includes multiple withdrawn routes (or multiple failure notifications), indicating that the route has been withdrawn from service.

> BGP Identifier
> A 4-octet unsigned integer that indicates the BGP Identifier of the sender of BGP messages. A given BGP speaker sets the value of its BGP Identifier to an IP address assigned to that BGP speaker. The value of the BGP Identifier is determined upon startup and is the same for every local interface and BGP peer.
>
> BGP speaker
> A router that implements BGP.

Source: https://tools.ietf.org/html/rfc4271

> BGP provides mechanisms by which a BGP speaker can inform its peers that a previously advertised route is no longer available for use. There are three methods by which a given BGP speaker can indicate that a route has been withdrawn from service:
>
> a) the IP prefix that expresses the destination for a previously advertised route can be advertised in the WITHDRAWN ROUTES field in the UPDATE message, thus marking the associated route as being no longer available for use,
>
> b) a replacement route with the same NLRI can be advertised, or
>
> c) the BGP speaker connection can be closed, which implicitly removes all routes the pair of speakers had advertised to each other from service.
>
> Changing the attribute(s) of a route is accomplished by advertising a replacement route. The replacement route carries new (changed) attributes and has the same address prefix as the original route.

Source: https://tools.ietf.org/html/rfc4271

22. In the Accused Products, the BGP speaker (the first component) follows procedures defined in RFC4271 (BGP-4 standard) when generating the "UPDATE" message (or bundled message) that is to be sent to a peer (or the second component) unless the BGP speaker advertises its ability to send multiple paths for <AFI, SAFI> and also receives similar reception capabilities from the peer. In case of the ability to send multiple paths, the speaker generates route update for <AFI, SAFI>. The peer acts accordingly to process (or recover) the "UPDATE" message (or bundled message).

> A BGP speaker MUST follow the procedures defined in [RFC4271] when generating an UPDATE message for a particular <AFI, SAFI> to a peer unless the BGP speaker advertises the ADD-PATH Capability to the peer indicating its ability to send multiple paths for the <AFI, SAFI>, and also receives the ADD-PATH Capability from the peer indicating its ability to receive multiple paths for the <AFI, SAFI>, in which case the speaker MUST generate a route update for the <AFI, SAFI> based on the combination of the address prefix and the Path Identifier, and use the extended NLRI encodings specified in this document. The peer SHALL act accordingly in processing an UPDATE message related to a particular <AFI, SAFI>.

Source: https://tools.ietf.org/html/rfc7911

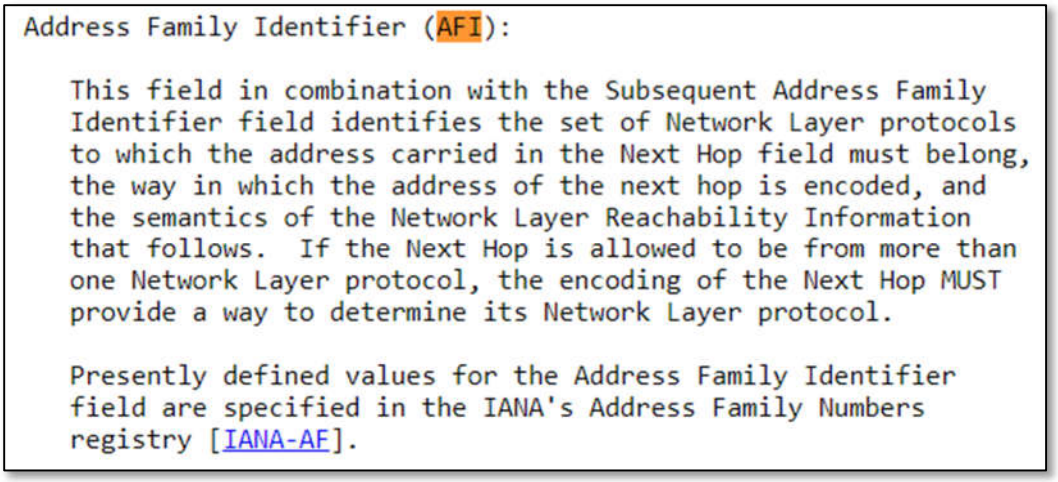
23. In the Accused Products, if the exchange of capabilities is successful, then BGP speaker will be able to process (or recover) all BGP updates properly.

> The only explicit indication that the encoding described in Section 3 is in use in a particular BGP session is the exchange of Capabilities described in Section 4. If the exchange is successful [RFC5492], then the BGP speakers will be able to process all BGP UPDATES properly, as described in Section 5. However, if, for example, a packet analyzer is used on the wire to examine an active BGP session, it may not be able to properly decode the BGP UPDATES because it lacks prior knowledge of the exchanged Capabilities.

Source: https://tools.ietf.org/html/rfc7911.

> The meaning and use of the fields are as follows:
>
> Address Family Identifier (AFI):
>
> This field is the same as the one used in [RFC4760].
>
> Subsequent Address Family Identifier (SAFI):
>
> This field is the same as the one used in [RFC4760].
>
> Send/Receive:
>
> This field indicates whether the sender is (a) able to receive multiple paths from its peer (value 1), (b) able to send multiple paths to its peer (value 2), or (c) both (value 3) for the <AFI, SAFI>.
>
> If any other value is received, then the capability SHOULD be treated as not understood and ignored [RFC5492].

Source: https://tools.ietf.org/html/rfc7911



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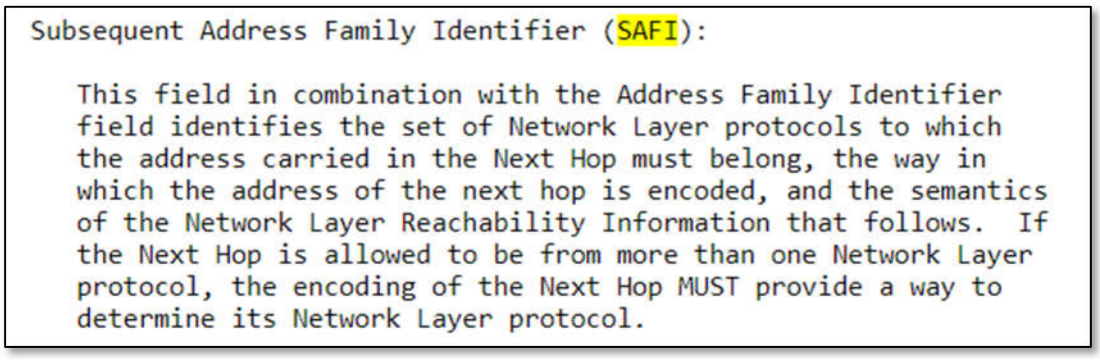
Address Family Identifier (AFI):

   This field in combination with the Subsequent Address Family
   Identifier field identifies the set of Network Layer protocols
   to which the address carried in the Next Hop field must belong,
   the way in which the address of the next hop is encoded, and
   the semantics of the Network Layer Reachability Information
   that follows.  If the Next Hop is allowed to be from more than
   one Network Layer protocol, the encoding of the Next Hop MUST
   provide a way to determine its Network Layer protocol.

   Presently defined values for the Address Family Identifier
   field are specified in the IANA's Address Family Numbers
   registry [IANA-AF].
```

Source: https://tools.ietf.org/html/rfc4760.



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Subsequent Address Family Identifier (SAFI):

   This field in combination with the Address Family Identifier
   field identifies the set of Network Layer protocols to which
   the address carried in the Next Hop must belong, the way in
   which the address of the next hop is encoded, and the semantics
   of the Network Layer Reachability Information that follows.  If
   the Next Hop is allowed to be from more than one Network Layer
   protocol, the encoding of the Next Hop MUST provide a way to
   determine its Network Layer protocol.
```

Source: https://tools.ietf.org/html/rfc4760

24. In the Accused Products, routes (including the "WITHDRAWN" routes) that are updated in the "UPDATE" message are stored in the Routing Information Base (RIBs) of the BGP speaker (first component or Router). Each FIB is programmed by one or more routing information bases (RIB). Therefore, convergence of FIBs means convergence of RIBs.

> For the purpose of this protocol, a route is defined as a unit of information that pairs a set of destinations with the attributes of a path to those destinations. The set of destinations are systems whose IP addresses are contained in one IP address prefix that is carried in the Network Layer Reachability Information (NLRI) field of an UPDATE message, and the path is the information reported in the path attributes field of the same UPDATE message.
>
> Routes are advertised between BGP speakers in UPDATE messages. Multiple routes that have the same path attributes can be advertised in a single UPDATE message by including multiple prefixes in the NLRI field of the UPDATE message.
>
> Routes are stored in the Routing Information Bases (RIBs): namely, the Adj-RIBs-In, the Loc-RIB, and the Adj-RIBs-Out, as described in Section 3.2.

Source: https://tools.ietf.org/html/rfc4271

> The forwarding information base (FIB) is the actual information that a routing/switching device uses to choose the interface that a given packet will use for egress. For example, the FIB might be programmed such that a packet bound to a destination in 192.168.1.0/24 should be sent out of physical port ethernet1/2. There may actually be multiple FIB's on a device for unicast forwarding vs multicast RPF checking, different protocols (ip vs mpls vs ipv6) but the basic function is the same - selection criteria (usually destination) mapping to output interface/encapsulation. Individual FIB's may also be partitioned to achieve concurrent independent forwarding tables (i.e. vrf's).
>
> Each FIB is programmed by one or more routing information bases (RIB). The RIB is a selection of routing information learned via static definition or a dynamic routing protocol. The algorithms used within various RIB's will vary - so, for example, the means by which BGP or OSPF determines potential best paths vary quite a bit. The means by which multiple RIB's are programmed into a common (set) of FIB's in a box will vary by implementation but this is where concepts like administrative distance are used (e.g. identical paths are learned via eBGP and OSPF, the eBGP is usually preferred for FIB injection). Again, RIB's may also be potentially partitioned to allow for multiple vrf's, etc.

Source: https://networkengineering.stackexchange.com/questions/38588/rib-vs-fib-differences#:~:text=The%20forwarding%20information%20base%20(FIB,packet%20will%20use%20for%20egress.&text=The%20RIB%20is%20a%20selection,or%20a%20dynamic%20routing%20protocol.

25. In the Accused Products, the above information (RFC 7477) detailing BGP FIB convergence/restoration is limited to IPv4 and IPv6 as defined in RFC 4271 and RFC 4760. Both RFCs are supported by switch modules built on Huawei VRP operating system. Re-convergence of RIBs (or restoration processing for a plurality of connections) is performed by the BGP peer (or second component) based on RFC 7477.

RFC 7747 BGP Convergence Methodology April 2016

1. Introduction

This document defines the methodology for benchmarking data-plane Forwarding Information Base (FIB) convergence performance of BGP in routers and switches using topologies of three or four nodes. The methodology proposed in this document applies to both IPv4 and IPv6, and if a particular test is unique to one version, it is marked accordingly. For IPv6 benchmarking, the Device Under Test (DUT) will require the support of Multiprotocol BGP (MP-BGP) [RFC4760] [RFC2545]. Similarly, both Internal BGP (iBGP) and External BGP (eBGP) are covered in the tests as applicable.

The scope of this document is to provide methodology for BGP FIB convergence measurements with BGP functionality limited to IPv4 and IPv6 as defined in [RFC4271] and MP-BGP [RFC4760] [RFC2545]. Other BGP extensions to support Layer 2 and Layer 3 Virtual Private Networks (VPNs) are outside the scope of this document. Interaction with IGPs (IGP interworking) is outside the scope of this document.

Source: https://tools.ietf.org/html/rfc7747

26. In the Accused Products, updating a peer (the second component) about the 'withdrawn routes' using "UPDATE" messages is done by a BPG speaker (or the first component) or a router that implements BGP. Therefore, both the peer and speaker are part of a switch node in the communication network.

BGP Identifier
A 4-octet unsigned integer that indicates the BGP Identifier of the sender of BGP messages. A given BGP speaker sets the value of its BGP Identifier to an IP address assigned to that BGP speaker. The value of the BGP Identifier is determined upon startup and is the same for every local interface and BGP peer.

BGP speaker
A router that implements BGP.

Source: https://tools.ietf.org/html/rfc4271

27. In view of preceding paragraphs, each and every element of at least claim 1 of the '074 Patent is found in the Accused Products.

28. Huawei has and continues to directly infringe at least one claim of the '074 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale,

importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

29. Huawei has received notice and has had actual or constructive knowledge of the '074 Patent since at least the date of service of this Complaint.

30. Since at least the date of service of this Complaint, through its actions, Huawei has actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the '074 Patent throughout the United States, including within this judicial district, by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- https://e.huawei.com/us/material/networking/campusswitch/8b86e4522a5b465cb6538212ff6a539a

31. Since at least the date of service of this Complaint, through its actions, Huawei has contributed to the infringement of the '074 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '074 Patent. The Accused Products are especially made or adapted for infringing the '074 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '074 Patent.

JURY DEMAND

Brazos hereby demands a jury on all issues so triable.

REQUEST FOR RELIEF

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that Huawei infringes one or more claims of the '074 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that Huawei has induced infringement and continues to induce infringement of one or more claims of the '074 Patent;

(C) Enter judgment that Huawei has contributed to and continues to contribute to the infringement of one or more claims of the '074 Patent;

(D) Award Brazos damages, to be paid by Huawei in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the infringement by Huawei of the '074 Patent through the date such judgment is entered in accordance with 35 U.S.C. §284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. §284;

(E) Declare this case exceptional pursuant to 35 U.S.C. §285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: October 2, 2020

Respectfully submitted,

/s/ James L. Etheridge

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