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**UNITED STATES DISTRICT COURT**

**FOR THE NORTHERN DISTRICT OF CALIFORNIA**

COMMSTECH LLC,

Plaintiff,

v.

ALLIED TELESIS, INC.,

Defendant.

Case No. 3:19-cv-04006

**COMPLAINT FOR PATENT  
INFRINGEMENT**

**JURY TRIAL DEMANDED**

1 Plaintiff Commstech LLC (“Commstech” or “Plaintiff”) hereby asserts the following  
2 claims for patent infringement against Defendant Allied Telesis, Inc. (“Allied” or “Defendant”),  
3 and alleges as follows:

4 **SUMMARY**

5 1. Commstech owns United States Patent Nos. 6,349,340, 7,769,028, and 7,990,860  
6 (collectively, the “Patents-in-Suit”).

7 2. Allied infringes the Patents-in-Suit by implementing, without authorization,  
8 Commstech’s proprietary technologies in a number of its commercial networking products and  
9 related software switches (collectively referred to herein as the “Accused Products”) including,  
10 inter alia, products that support the RFC 4607 specification related to “Source-Specific Multicast  
11 for IP” (e.g., Allied Telesis network switches, including the  
12 x310/x510/x530/x550/x610/x900/x930/x950 Series Switches, the DC2552XS/L3 Switch, the  
13 IE200/IE300 Series Switches, the IE510-28GSX Switch, the SwitchBlade x8100 Series Switches,  
14 the SwitchBlade x908 Switch, and the x530L-52GPX Switch) and products that support  
15 “Advanced QoS,” such as the Allied Telesis x900 Series Switches and advanced Allied Telesis  
16 routers that operate with the “AlliedWare Software” (e.g., AR415S/AR410S, AR440S/AT-  
17 AR441S, AR450S, AR725, AR745, AR750S, AR770S). *See, e.g.*, Advanced QoS White Paper  
18 at p. 15, *available at* [http://www.alliedtelesis.com/sites/default/files/documents/white-](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
19 [papers/adv-qos\\_wp.pdf](https://www.alliedtelesis.com/products/selector/switches); <https://www.alliedtelesis.com/products/selector/switches>. These  
20 Accused Products are marketed, offered and distributed throughout the United States, including  
21 in this District.

22 3. By this action, Commstech seeks to obtain compensation for the harm Commstech  
23 has suffered as a result of Allied’s infringement of the Patents-in-Suit.

24 **NATURE OF THE ACTION**

25 4. This is a civil action for patent infringement arising under the patent laws of the  
26 United States, 35 U.S.C. § 1 *et seq.*

27 5. Allied has infringed and continues to infringe, and at least as early as the filing  
28 and/or service of this Complaint, has induced and continues to induce infringement of, and has

1 contributed to and continues to contribute to infringement of, at least one or more claims of  
2 Commstech’s Patents-in-Suit at least by making, using, selling, and/or offering to sell its products  
3 and services in the United States, including in this District.

4 6. Commstech is the legal owner by assignment of the Patents-in-Suit, which were  
5 duly and legally issued by the United States Patent and Trademark Office (“USPTO”).  
6 Commstech seeks monetary damages for Allied’s infringement of the Patents-in-Suit.

7 **INTRADISTRICT ASSIGNMENT**

8 7. Pursuant to Local Rule 3-2(c), this case is subject to district-wide assignment  
9 because it is an Intellectual Property Action.

10 **THE PARTIES**

11 8. Plaintiff Commstech LLC is a Texas limited liability company with its principal  
12 place of business at 1708 Harrington Dr., Plano, Texas 75075. Commstech is the owner of  
13 intellectual property rights at issue in this action.

14 9. On information and belief, Defendant Allied Telesis, Inc. is a Delaware  
15 corporation with a principal place of business at 3041 Orchard Parkway, San Jose, California  
16 95134.

17 10. On information and belief, Allied directly and/or indirectly develops, designs,  
18 manufactures, distributes, markets, offers to sell and/or sells infringing products and services in  
19 the United States, including in the Northern District of California, and otherwise directs infringing  
20 activities to this District in connection with its products and services.

21 **JURISDICTION AND VENUE**

22 11. As this is a civil action for patent infringement arising under the patent laws of the  
23 United States, 35 U.S.C. § 1 *et seq.*, this Court has subject matter jurisdiction over the matters  
24 asserted herein under 28 U.S.C. §§ 1331 and 1338(a).

25 12. This Court has personal jurisdiction over Allied because Allied has (1) availed  
26 itself of the rights and benefits of the laws of the State of California, (2) transacted, conducted,  
27 and/or solicited business and engaged in a persistent course of conduct in the State of California  
28 (and in this District), (3) derived substantial revenue from the sales and/or use of products, such

1 as the Accused Products, in the State of California (and in this District), (4) purposefully directed  
2 activities (directly and/or through intermediaries), such as shipping, distributing, offering for sale,  
3 selling, and/or advertising the Accused Products, at residents of the State of California (and  
4 residents in this District), (5) delivered Accused Products into the stream of commerce with the  
5 expectation that the Accused Products will be used and/or purchased by consumers in the State of  
6 California (and in this District), and (6) committed acts of patent infringement in the State of  
7 California (and in this District).

8 13. This Court also has personal jurisdiction over Allied because it is registered to do  
9 business in California and has a regular and established place of business in the Northern District  
10 of California.

11 14. Venue is proper in this District under 28 U.S.C. § 1400(b).

12 **PATENTS-IN-SUIT**

13 **U.S. Patent No. 6,349,340**

14 15. U.S. Patent No. 6,349,340 (“the ‘340 Patent”) is entitled “Data multicast  
15 channelization,” and was issued on February 19, 2002. A true and correct copy of the ‘340 Patent  
16 is attached as Exhibit A.

17 16. The ‘340 Patent was filed on January 13, 2000 as U.S. Patent Application No.  
18 09/482,496.

19 17. Commstech is the owner of all rights, title, and interest in and to the ‘340 Patent,  
20 with the full and exclusive right to bring suit to enforce the ‘340 Patent, including the right to  
21 recover for past infringement.

22 18. The ‘340 Patent is valid and enforceable under United States Patent Laws.

23 19. The ‘340 Patent recognized several problems with existing high-speed network  
24 data distribution technology, such as multicast technology. Notably, the ‘340 Patent recognized  
25 that “[m]anagement of high-speed data across distributed data networks can involve two basic  
26 approaches,” both of which have several drawbacks. Exhibit A at 1:32-33.

27 20. For instance, the ‘340 Patent recognized problems with a “more common  
28 approach” referred to as the “client-based” approach, where “client nodes notify server nodes of

1 their interest in certain desired data,” and the “servers can individually distribute data packets to  
2 each interested, subscribing client.” *Id.* at 1:33-39. In this respect, the ‘340 Patent recognized  
3 that this “client-based” approach “tends to overburden the server as network demands grow.” *Id.*  
4 at 1:30-41. In particular, the ‘340 Patent discloses that “as additional client nodes are added to  
5 the network, the server not only must individually distribute the data packets to each interested  
6 client node, but also the server must individually distribute the data packets to each additional  
7 subscribing client node,” and thus, “as the client node list grows, so does the server’s workload.”  
8 *Id.* at 1:41-47.

9         21. The ‘340 Patent also recognized problems with another approach referred to as the  
10 “server-based” approach that uses multicast technology, in which “the server transmits the data  
11 packet to a multicast destination address identifying a particular multicast session,” and  
12 “[i]nterested client nodes merely subscribe to the multicast address, rather than the server, in order  
13 to receive the broadcast data.” *Id.* at 1:48-58. However, the ‘340 Patent recognized that “because  
14 all client nodes receive each broadcast data packet, regardless of the content of the data packet,  
15 each client node must filter unwanted data upon receipt of each data packet,” but “[c]lient nodes  
16 generally are uninterested in most of the broadcast data and, as a result, client nodes expend  
17 substantial processor resources identifying and discarding unwanted data packets.” *Id.* at 1:54-  
18 2:4. Further, the ‘340 Patent recognized that, although these existing approaches “allow[ ] a  
19 server to provide data at high data transmission rates to more client[ ] nodes,” these approaches  
20 can “limit the client node’s ability to filter unwanted data packets” given the client node’s  
21 “processor overhead.” *Id.* at 2:7-11.

22         22. To address one or more shortcomings of existing high-speed network data  
23 distribution technology, such as existing multicast technology that “challeng[ed] the client node’s  
24 ability to filter the unwanted data packets,” the ‘340 Patent discloses, inter alia, a “method for  
25 efficient filtering of unwanted data in a multicast network environment” that “satisfies the long-  
26 felt need of the prior art by applying a combination hardware and software solution which  
27 selectively filters multicast data by selectively disabling channels containing unwanted data.” *Id.*  
28 at 2:14-25. The ‘340 Patent’s “inventive arrangements” have “advantages over all other data

1 distribution methods” and provide “a novel and nonobvious method for receiving the benefits of  
2 multicasting while avoiding the drawbacks associated with such systems.” *Id.* at 2:26-30.

3 23. Indeed, the inventions of the ‘340 Patent improved the functionality of “client”  
4 computers operating in a multicast network environment by reducing the “substantial processor  
5 resources” expended by “client” computers using existing data filtering mechanisms, such as by  
6 reducing the resources expended by a “client” computer’s “network applications software.”  
7 Exhibit A at 6:9-47. In this respect, the inventions of the ‘340 Patent allow a “client” computer  
8 to “avoid excessive software filtering” that leads to “performance gain” that can be “significant.”  
9 *Id.* at 10:21-31.

10 **The Inventions Claimed in U.S. Patent No. 6,349,340 Improved Technology & Were Not**  
11 **Well-Understood, Routine, or Conventional**

12 24. Given the state of the art at the time of the inventions of the ‘340 Patent, including  
13 the deficiencies in network data distribution systems of the time, the inventive concepts of the  
14 ‘340 Patent cannot be considered to be conventional, well-understood, or routine. *See, e.g.,*  
15 Exhibit A at 1:32-2:17. Indeed, there was a long-felt need in the art at the time of the inventions  
16 of the ‘340 Patent that the claimed inventions of the ‘340 Patent addressed. *See, e.g., id.* at 2:20-  
17 26. In this respect, the ‘340 Patent discloses, among other things, an unconventional solution to  
18 problems arising in the context of network data distribution systems, namely, that “client”  
19 computers in such systems “expend[ed] substantial processor resources” filtering multicast data  
20 and this “processor overhead” inhibited the “client” computers’ ability to handle the increasing  
21 user demands for network data distribution systems to broadcast more data. *See, e.g., id.* at 2:1-  
22 17.

23 25. The inventions of the ‘340 Patent offered an unconventional, technological  
24 solution to such problems resulting in a “novel and nonobvious method for receiving the benefits  
25 of multicasting while avoiding the drawbacks associated with such [existing] systems.” Exhibit  
26 A at 2:25-30; *see also, e.g., id.* at 10:21-26 (“The inventive multicast channelization strategy can  
27 increase the bandwidth available to the expanding client node base by distributing the broadcast  
28 data across multiple channels,” such that “client nodes can selectively filter unwanted broadcast

1 data within the network interface circuitry of each client node.”). In this respect, the inventions  
2 of the ‘340 Patent improved the functionality of “client” computers operating in a multicast  
3 network environment. *See, e.g., id.* at 6:9-47, 10:21-31.

4 26. Indeed, it was not well-understood, routine, or conventional at the time of the  
5 inventions of the ‘340 Patent to perform the following functions, alone and/or in combination  
6 with one another: (i) selecting from among a plurality of multicast communications channels a  
7 source communications channel for receiving requested multicast data, (ii) enabling the selected  
8 source communications channel, (iii) receiving the requested multicast data through the enabled  
9 source communications channel, (iv) forwarding the requested multicast data to requesting  
10 processes, and (v) disabling the selected source communications channel when the requesting  
11 processes indicate that no further data is requested to be received over the selected source  
12 communications channel. *See, e.g., Exhibit A at Claims 1, 8, 14.* Moreover, it was not well-  
13 understood, routine, or conventional at the time of the inventions of the ‘340 Patent to perform  
14 one or more of the following functions alone and/or in combination with one or more of the  
15 preceding functions: (i) receiving from one or more processes in a client node a request for  
16 multicast data, (ii) identifying a multicast data source for each requested data, and (iii) disabling  
17 an enabled selected source communications channel when the requesting client node process  
18 indicates that no further data is requested to be received from the identified multicast data source  
19 over the selected source communications channel and no other requesting client node processes  
20 have indicated a continuing need for further data to be received from the identified multicast data  
21 source over the selected source communications channel. *See, e.g., id.* at Claims 1, 8, 14.

22 27. Further, it was not well-understood, routine, or conventional at the time of the  
23 inventions of the ‘340 Patent to perform one or more of the following functions alone and/or in  
24 combination with one or more of the unconventional functions set forth in paragraph number 25:  
25 (i) filtering, from multicast data received through an enabled source communications channel,  
26 unwanted/unrequested multicast data, (ii) discarding the unwanted/unrequested multicast data,  
27 and (ii) forwarding the filtered multicast data to one or more requesting processes. *See, e.g.,*  
28 *Exhibit A at Claims 3, 9, 15.*

1           28.     These are just exemplary reasons why the inventions claimed in the '340 Patent  
2 were not well-understood, routine, or conventional at the time of the invention of the '340 Patent.

3           29.     Consistent with the problems addressed by the '340 Patent being rooted in network  
4 data distribution systems, the '340 Patent's inventions naturally are also rooted in that same  
5 technology that cannot be performed solely with pen and paper or in the human mind. Indeed,  
6 using pen and paper or a human mind would not only ignore, but would run counter to, the stated  
7 technical solution of the '340 Patent noted above and the technical problems that the '340 Patent  
8 was specifically designed to address. Likewise, at least because the '340 Patent's claimed  
9 inventions address problems rooted in network data distribution systems, these inventions are not  
10 merely drawn to longstanding human activities.

11   **U.S. Patent No. 7,769,028**

12           30.     U.S. Patent No. 7,769,028 ("the '028 Patent") is entitled "Systems and methods  
13 for adaptive throughput management for event-driven message-based data," and was issued on  
14 August 3, 2010. A true and correct copy of the '028 Patent is attached as Exhibit B.

15           31.     The '028 Patent was filed on June 21, 2006 as U.S. Patent Application No.  
16 11/471,923.

17           32.     Commstech is the owner of all rights, title, and interest in and to the '028 Patent,  
18 with the full and exclusive right to bring suit to enforce the '028 Patent, including the right to  
19 recover for past infringement.

20           33.     The '028 Patent is valid and enforceable under United States Patent Laws.

21           34.     The '028 Patent discloses, among other things, "a method for communicating data  
22 including prioritizing data by assigning a priority to the data, analyzing a network to determine a  
23 status of the network, and communicating data based at least in part on the priority of the data  
24 and the status of the network." Exhibit B at Abstract. The '028 Patent also discloses "Quality of  
25 Service (QoS)," which "refers to one or more capabilities of a network to provide various forms  
26 of guarantees with regard to data this is carried." *Id.* at 4:16-18. The '028 Patent states that "[t]he  
27 primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and  
28 latency (required by some real-time and interactive traffic), and improved [data] loss



1 characteristics.” *Id.* at 4:27-31.

2 35. In discussing QoS, the ‘028 Patent recognized various shortcomings of existing  
3 QoS systems. As one example, the ‘028 Patent states that “[e]xisting QoS systems cannot provide  
4 QoS based on message content at the transport layer” of the Open Systems Interconnection (OSI)  
5 seven-layer protocol model. Exhibit B at 5:1-2. Indeed, the ‘028 Patent explains that the  
6 “Transmission Control Protocol (TCP),” which is a protocol at the transport layer, “requires  
7 several forms of handshaking and acknowledgements to occur in order to send data,” and “[h]igh  
8 latency and [data] loss may result in TCP hitting time outs and not being able to send much, if  
9 any, meaningful data over [] a network.” *Id.* at 1:57-60, 3:53-57. As another example, the ‘028  
10 Patent states that “[c]urrent approaches to QoS often require every node in a network to support  
11 QoS, or at the very least, for every node in the network involved in a particular communication  
12 to support QoS,” but such approaches to QoS “do[] not scale well because of the large amount of  
13 state information that must be maintained at every node and the overhead associated with setting  
14 up such connections.” *Id.* at 4:35-39, 4:46-49. As yet another example, the ‘028 Patent states  
15 that “[d]ue to the mechanisms existing QoS solutions utilize, messages that look the same to  
16 current QoS systems may actually have different priorities based on message content,” but “data  
17 consumers may require access to high-priority data without being flooded by lower-priority data.”  
18 *Id.* at 4:61-67.

19 36. In discussing the shortcomings of the prior art, the ‘028 Patent recognized that  
20 “[t]here is a need for systems and methods for providing QoS on the edge of a [] data network,”  
21 and “a need for adaptive, configurable QoS systems and methods in a [] data network.” Exhibit  
22 B at 5:17-20. The claimed inventions of the ‘028 Patent provide such systems and methods.

23 **The Inventions Claimed in U.S. Patent No. 7,769,028 Improved Technology & Were Not**  
24 **Well-Understood, Routine, or Conventional**

25 37. Given the state of the art at the time of the inventions of the ‘028 Patent, including  
26 the deficiencies with existing QoS systems for computer networks, the inventive concepts of the  
27 ‘028 Patent cannot be considered to be conventional, well-understood, or routine. *See, e.g.,*  
28 Exhibit B at 1:57-60, 3:53-57, 4:35-39, 4:46-49, 4:61-67, 5:1-2, 5:17-20. The ‘028 Patent

1 discloses, among other things, an unconventional solution to problems arising in the context of  
2 communications networks that relied on existing QoS systems, namely, that such QoS systems  
3 did not scale, were not adaptive or configurable to different network types or architectures, and  
4 could not provide QoS based on message content at the transport layer, among other deficiencies.

5 *See, e.g., id.*

6 38. To address one or more deficiencies with existing QoS systems, the inventions of  
7 the '028 Patent offered a technological solution that facilitated providing an improved technique  
8 for communicating data over a network, which helped to control jitter and latency and improve  
9 data loss, among other benefits. In particular, the inventions of the '028 Patent provided a  
10 specific, unconventional solution for prioritizing data as part of and/or at the top of the transport  
11 layer, dynamically changing rules for assigning priority to data, and communicating data based  
12 at least in part on the priority of the data and the status of the network. *See, e.g., id.* at Claims 1,  
13 13, 17; 7:29-31. In this respect, the inventions of the '028 Patent improved the technical  
14 functioning of computers and computer networks by reciting a specific technique for prioritizing  
15 data communications over a network. *See, e.g., id.* at 4:11-37, 4:57-5:9.

16 39. Indeed, it was not well-understood, routine, or conventional at the time of the  
17 invention of the '028 Patent for a communication device to (i) prioritize data by assigning priority  
18 to data, where the prioritization occurs either as part of and/or at the top of the transport layer, (ii)  
19 analyze a network to determine a status of the network, (iii) select a mode based on the status of  
20 the network, (iv) change rules for assigning priority to the data based on the mode, and (v)  
21 communicate the data based at least in part on the priority of the data and the status of the network,  
22 where the data is communicated at a transmission rate metered based at least in part on the status  
23 of the network. *See, e.g.,* Exhibit B at Claim 1. Moreover, it was not well-understood, routine,  
24 or conventional at the time of the invention of the '028 Patent for a communication device to  
25 receive the data at a node on the edge of the network. *See, e.g.,* Exhibit B at Claim 5. It was also  
26 not well-understood, routine, or conventional at the time of the invention of the '028 Patent for a  
27 communication device to receive the data at least in part from an application program and/or  
28 communicate the data to an application program. *See, e.g., id.* at Claims 6, 12. Further, it was

1 not well-understood, routine, or conventional at the time of the invention of the '028 Patent for a  
2 communication device to assign the priority to the data based at least in part on message content  
3 of the data, protocol information of the data, or a user defined rule. *See, e.g., id.* at Claims 7-9.

4 40. Additionally, it was not well-understood, routine, or conventional at the time of  
5 the invention of the '028 Patent for a communication system to include (i) a data prioritize  
6 component adapted to assign a priority to data, where the prioritization occurs either as part of  
7 and/or at the top of the transport layer, (ii) a network analysis component adapted to determine a  
8 status of the network, (iii) a mode selection component adapted to select a mode based at least on  
9 the status of the network, and (iv) a data communications component adapted to communicate  
10 the data based at least in part on the priority of the data and the status of the network, where the  
11 data prioritization component is adapted to assign priority to the data based on prioritization rules  
12 that are selected based on a selected mode, and where the data is communicated at a transmission  
13 rate metered based at least in part on the status of the network. *See, e.g., Exhibit B* at Claims 13,  
14 17. It was also not well-understood, routine, or conventional at the time of the invention of the  
15 '028 Patent for a communication system to include a data organization component adapted to  
16 organize the data with respect to other data based at least in part on the priority of the data. *See,*  
17 *e.g., id.* at Claim 14.

18 41. These are just exemplary reasons why the inventions claimed in the '028 Patent  
19 were not well-understood, routine, or conventional at the time of the invention of the '028 Patent.

20 42. Consistent with the problems addressed being rooted in QoS systems for computer  
21 networks, the '028 Patent's inventions naturally are also rooted in that same technology that  
22 cannot be performed solely with pen and paper or in the human mind. Indeed, using pen and  
23 paper or a human mind would not only ignore, but would run counter to, the stated technical  
24 solution of the '028 Patent noted above and the technical problems that the '028 Patent was  
25 specifically designed to address. Likewise, at least because the '028 Patent's claimed inventions  
26 address problems rooted in QoS systems for computer networks, these inventions are not merely  
27 drawn to longstanding human activities.

28 **U.S. Patent No. 7,990,860**

1           43.     U.S. Patent No. 7,990,860 (“the ‘860 Patent”) is entitled “Method and system for  
2 rule-based sequencing for QoS,” and was issued on August 2, 2011. A true and correct copy of  
3 the ‘860 Patent is attached as Exhibit C.

4           44.     The ‘860 Patent was filed on June 16, 2006 as U.S. Patent Application No.  
5 11/454,220.

6           45.     Commstech is the owner of all rights, title, and interest in and to the ‘860 Patent,  
7 with the full and exclusive right to bring suit to enforce the ‘860 Patent, including the right to  
8 recover for past infringement.

9           46.     The ‘860 Patent is valid and enforceable under United States Patent Laws.

10          47.     The ‘860 Patent discloses, among other things, “a method for communicating data  
11 over a network to provide Quality of Service,” including “prioritizing the data, and  
12 communicating the data based at least in part on the priority.” Exhibit C at Abstract. According  
13 to the ‘860 Patent, “Quality of Service (QoS)” “refers to one or more capabilities of a network to  
14 provide various forms of guarantees with regard to data that is carried.” *Id.* at 4:16-18. The ‘860  
15 Patent states that “[t]he primary goal of QoS is to provide priority including dedicated bandwidth,  
16 controlled jitter and latency (required by some real-time and interactive traffic), and improved  
17 [data] loss characteristics.” *Id.* at 4:27-32.

18          48.     Like the ‘028 Patent, the ‘860 Patent recognized various shortcomings of existing  
19 QoS systems. As one example, the ‘860 Patent states that “[e]xisting QoS systems cannot provide  
20 QoS based on message content at the transport layer” of the Open Systems Interconnection (OSI)  
21 seven-layer protocol model. Exhibit C at 5:2-3. Indeed, the ‘860 Patent explains that the  
22 “Transmission Control Protocol (TCP),” which is a protocol at the transport layer, “requires  
23 several forms of handshaking and acknowledgements to occur in order to send data,” and “[h]igh  
24 latency and [data] loss may result in TCP hitting time outs and not being able to send much, if  
25 any, meaningful data over [] a network.” *Id.* at 1:57-60, 3:53-57. As another example, the ‘860  
26 Patent states that “[c]urrent approaches to QoS often require every node in a network to support  
27 QoS, or at the very least, for every node in the network involved in a particular communication  
28 to support QoS,” but such approaches to QoS “do[] not scale well because of the large amount of

1 state information that must be maintained at every node and the overhead associated with setting  
2 up such connections.” *Id.* at 4:36-39, 4:47-50. As yet another example, the ‘860 Patent states  
3 that “[d]ue to the mechanisms existing QoS solutions utilize, messages that look the same to  
4 current QoS systems may actually have different priorities based on message content,” but “data  
5 consumers may require access to high-priority data without being flooded by lower-priority data.”  
6 *Id.* at 4:64-5:1.

7 49. In discussing the shortcomings of the prior art, the ‘860 Patent recognized that  
8 “[t]here is a need for systems and methods for providing QoS on the edge of a [] data network,”  
9 and “a need for adaptive, configurable QoS systems and methods in a [] data network.” Exhibit  
10 C at 5:19-22. The claimed inventions of the ‘860 Patent provide such systems and methods.

11 **The Inventions Claimed in U.S. Patent No. 7,990,860 Improved Technology & Were Not**  
12 **Well-Understood, Routine, or Conventional**

13 50. Given the state of the art at the time of the inventions of the ‘860 Patent, including  
14 the deficiencies with existing QoS systems for computer networks, the inventive concepts of the  
15 ‘860 Patent cannot be considered to be conventional, well-understood, or routine. *See, e.g.,*  
16 Exhibit C at 1:57-60, 3:53-57, 4:36-39, 4:47-50, 4:64-5:2, 5:19-22. The ‘860 Patent discloses,  
17 among other things, an unconventional solution to problems arising in the context of  
18 communications networks that relied on existing QoS systems, namely, that such QoS systems  
19 did not scale, were not adaptive or configurable to different network types or architectures, and  
20 could not provide QoS based on message content at the transport layer, among other deficiencies.  
21 *See, e.g., id.*

22 51. To address one or more deficiencies with existing QoS systems, the inventions of  
23 the ‘860 Patent offered a technological solution that facilitated providing an improved technique  
24 for communicating data over a network, which helped to control jitter and latency and improve  
25 data loss, among other benefits. In particular, the inventions of the ‘860 Patent provided a  
26 specific, unconventional solution for prioritizing data as part of and/or at the top of the transport  
27 layer by sequencing the data based at least in part on a user defined rule. *See, e.g., id.* at Abstract,  
28 Claims 1, 13, 17. In this respect, the inventions of the ‘860 Patent improved the technical

1 functioning of computers and computer networks by reciting a specific technique for prioritizing  
2 data communications over a network. *See, e.g., id.* at 4:11-37, 4:57-5:9.

3 52. Indeed, it was not well-understood, routine, or conventional at the time of the  
4 invention of the '860 Patent for a communication device to include (i) a network analysis  
5 component configured to determine a network status from a plurality of network statuses based  
6 on analysis of network measurements, and determine at least one of an effective link speed and a  
7 link proportion for at least one link, (ii) a mode selection component configured to select a mode  
8 from a plurality of modes that corresponds with at least one of the plurality of network statuses  
9 based on the determined network status, where each of the plurality of modes comprises a user  
10 defined sequencing rule, (iii) a data prioritization component configured to operate at a transport  
11 layer of a protocol stack and prioritize the data by assigning a priority to the data, where the  
12 prioritization component includes a sequencing component configured to sequence the data based  
13 at least in part on the user defined sequencing rule of the selected mode, (iv) a data metering  
14 component configured to meter inbound data by shaping the inbound data at the data  
15 communications system for the at least one link, and meter outbound data by policing the  
16 outbound data at the data communications system for the at least one link, and (v) a data  
17 communication component configured to communicate the data based at least in part on the  
18 priority of the data, the effective link speed, and/or the link proportion. *See, e.g., Exhibit C* at  
19 Claims 1, 15, 20.

20 53. Moreover, it was not well-understood, routine, or conventional at the time of the  
21 invention of the '860 Patent for the user defined sequencing rule mentioned above to be  
22 dynamically reconfigurable. *See, e.g., Exhibit C* at Claim 5. It was also not well-understood,  
23 routine, or conventional at the time of the invention of the '860 Patent for a communication device  
24 to receive the data at least in part from an application program operating on the node, or pass the  
25 data at least in part to an application program operating on the node. *See, e.g., id.* at Claims 6,  
26 12. Further, it was not well-understood, routine, or conventional at the time of the invention of  
27 the '860 Patent for a communication device to prioritize the data by differentiating the data based  
28 at least in part on message content, protocol information, or a user defined differentiation rule.

1 *See, e.g., id.* at Claims 8-11.

2 54. These are just exemplary reasons why the inventions claimed in the ‘860 Patent  
3 were not well-understood, routine, or conventional at the time of the invention of the ‘860 Patent.

4 55. Consistent with the problems addressed being rooted in QoS systems for computer  
5 networks, the ‘860 Patent’s inventions naturally are also rooted in that same technology that  
6 cannot be performed solely with pen and paper or in the human mind. Indeed, using pen and  
7 paper or a human mind would not only ignore the stated technical solution of the ‘860 Patent  
8 noted above and the technical problem that the ‘860 Patent was specifically designed to address.  
9 Likewise, at least because the ‘860 Patent’s claimed inventions address problems rooted in QoS  
10 systems for computer networks, these inventions are not merely drawn to longstanding human  
11 activities.

12 **COUNT I: INFRINGEMENT OF U.S. PATENT NO. 6,349,340**

13 56. Commstech incorporates by reference and re-alleges paragraphs 15-29 of this  
14 Complaint as if fully set forth herein.

15 57. Defendant Allied has infringed and is infringing, either literally or under the  
16 doctrine of equivalents, the ‘340 Patent in violation of 35 U.S.C. § 271 *et seq.*, directly and/or  
17 indirectly, by making, using, offering for sale, or selling in the United States, and/or importing  
18 into the United States without authority or license, products that support the RFC 4607  
19 specification related to “Source-Specific Multicast for IP” (*e.g.*, Allied Telesis network switches,  
20 including the x310/x510/x530/x550/x610/x900/x930/x950 Series Switches, the DC2552XS/L3  
21 Switch, the IE200/IE300 Series Switches, the IE510-28GSX Switch, the SwitchBlade x8100  
22 Series Switches, the SwitchBlade x908 Switch, and the x530L-52GPX Switch) (collectively  
23 referred to herein as the “Accused ‘340 Products”). *See, e.g.*,  
24 <https://www.alliedtelesis.com/products/selector/switches>.

25 58. As just one non-limiting example, set forth below (with claim language in bold  
26 and italics) is exemplary evidence of infringement of Claim 1 of the ‘340 Patent in connection  
27 with the Accused ‘340 Products. This description is based on publicly available information.  
28 Commstech reserves the right to modify this description, including, for example, on the basis of



1 information about the Accused ‘340 Products that it obtains during discovery.

2 ***1(a): A method for receiving requested multicast data over a plurality of multicast***

3 ***communications channels comprising:***—Allied makes, uses, sells, and/or offers to sell a

4 device or system that practices the method of receiving requested multicast data over a plurality

5 of multicast communications channels in accordance with Claim 1. For instance, the Accused

6 ‘340 Products support the RFC 4607 specification related to “Source-Specific Multicast for IP”

7 that discloses the method recited in Claim 1. *See, e.g.,*

8 [9 \[datasheets/x610\\\_series\\\_ds\\\_revzf.pdf\]\(https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x610\_series\_ds\_revzf.pdf\) \(expressly disclosing “RFC 4607”\);](https://www.alliedtelesis.com/sites/default/files/documents/</a></p></div><div data-bbox=)

10 [https://www.alliedtelesis.com/sites/default/files/ie510-28gsx\\_ds\\_rev.pdf](https://www.alliedtelesis.com/sites/default/files/ie510-28gsx_ds_rev.pdf) (same). In particular,

11 RFC 4607 defines a “source-specific multicast service” (“SSM”) as “[a] datagram sent with

12 source IP address S and destination IP address G in the SSM range [that] is delivered to each

13 host socket that has specifically requested delivery of datagrams sent by S to G, and only to

14 those sockets.” Holbrook, Source-specific multicast for IP, RFC 4607 (2006), p. 5, *available at*

15 <https://tools.ietf.org/pdf/rfc4607.pdf>; *see also*

16 [17 \[pimsm\\\_feature\\\_overview\\\_guide.pdf\]\(https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/pimsm\_feature\_overview\_guide.pdf\) at p. 1 \(disclosing “two multicast protocols” “PIM-SM”](https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/</a></p></div><div data-bbox=)

18 and “PIM-SSM”).

19 ***1(b): selecting from among the plurality of multicast communications channels a source***

20 ***communications channel for receiving said requested multicast data;***—Allied makes, uses,

21 sells, and/or offers to sell a device or system that selects from among the plurality of multicast

22 communications channels a source communications channel for receiving said requested

23 multicast data. For instance, the Accused ‘340 Products support the RFC 4607 specification,

24 which discloses a plurality of multicast communication channels, where each “channel is

25 identified (addressed) by the combination of a unicast source address and a multicast

26 destination address in the SSM range” (*e.g.*, “S, G = (192.0.2.1, 232.7.8.9),” “S, G = (192.0.2.2,

27 232.7.8.9)”). *Id.* at p. 6; *see also, e.g., id.* at pp. 3-4 (“The network service identified by (S,G),

28 for SSM address G and source host address S, is referred to as a ‘channel’); *id.* at p. 6 (“We



1 use the term ‘channel’ to refer to the service associated with an SSM address,” and “[a] channel  
2 is identified by the combination of an SSM destination address and a specific source, *e.g.*, an  
3 (S,G) pair.”). In particular RFC 4607 discloses that “[t]he IP module interface to upper-layer  
4 protocols is extended to allow a socket to ‘Subscribe’ to . . . a particular channel identified by  
5 an SSM destination address and a source IP address.” *Id.* at p. 5; *see also, e.g., id.* at p. 6 (“The  
6 receiver operations allowed on a channel are called ‘Subscribe (S,G)’ and ‘Unsubscribe  
7 (S,G)’”); *id.* at p. 7 (“If reception of the same channel is desired on multiple interfaces,  
8 Subscribe is invoked once for each”); *id.* at p. 8 (“An incoming datagram destined to an SSM  
9 address MUST be delivered by the IP module to all sockets that have indicated (via Subscribe)  
10 a desire to receive data that matches the datagram’s source address, destination address, and  
11 arriving interface.”); <https://www.alliedtelesis.com/documents/routing-protocols-guide> at p. 427  
12 (“The term subscribe is used to refer to the act of a host requesting to receive a certain group  
13 from a certain source (a channel).”);  
14 [https://www.alliedtelesis.com/sites/default/files/documents/fea  
15 ture-guides/pimsm\\_feature\\_overview\\_guide.pdf](https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/pimsm_feature_overview_guide.pdf) at p. 33 (disclosing that “[i]f the group address  
16 is in the SSM range, the router will verify that a specific source or sources have been included  
17 in the IGMP join, and “[i]f a specific source or sources has been included in the IGMP join,  
18 then the router will forward a PIM (S,G) join towards the source IP address.”).

19 ***1(c): enabling said selected source communications channel;***—Allied makes, uses, sells,  
20 and/or offers to sell a device or system that enables the selected source communications  
21 channel. For instance, the Accused ‘340 Products support the RFC 4607 specification, which  
22 discloses that “[t]he IP module interface to upper-layer protocols is extended to allow a socket  
23 to ‘Subscribe’ to . . . a particular channel identified by an SSM destination address and a source  
24 IP address,” and subscribing to a particular channel comprises selecting a source  
25 communications channel and also enabling the selected source communications channel.  
26 Holbrook, Source-specific multicast for IP, RFC 4607 (2006), p. 5, *available at*  
27 [https://tools.ietf.org/  
28 pdf/rfc4607.pdf](https://tools.ietf.org/pdf/rfc4607.pdf); *see also, e.g., id.* at p. 6 (“The receiver operations allowed on a channel are

1 called ‘Subscribe (S,G)’ and ‘Unsubscribe (S,G)’); *id.* at p. 7 (“If reception of the same  
2 channel is desired on multiple interfaces, Subscribe is invoked once for each”); *id.* at p. 8 (“An  
3 incoming datagram destined to an SSM address MUST be delivered by the IP module to all  
4 sockets that have indicated (via Subscribe) a desire to receive data that matches the datagram’s  
5 source address, destination address, and arriving interface.”); *see also*  
6 <https://www.alliedtelesis.com/documents/routing-protocols-guide> at p. 427 (“The term  
7 subscribe is used to refer to the act of a host requesting to receive a certain group from a certain  
8 source (a channel).”); [https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/pimsm\\_feature\\_overview\\_guide.pdf](https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/pimsm_feature_overview_guide.pdf)  
9 at p. 33 (disclosing that “[i]f the group address  
10 is in the SSM range, the router will verify that a specific source or sources have been included  
11 in the IGMP join, and “[i]f a specific source or sources has been included in the IGMP join,  
12 then the router will forward a PIM (S,G) join towards the source IP address.”).. Indeed, RFC  
13 4607 discloses that “‘interface’ is a local identifier of the network interface on which reception  
14 of the channel identified by the (source-address, group-address) pair is to be *enabled* [e.g.,  
15 subscribed] or disabled [e.g., unsubscribed].” *Id.* at p. 7 (emphasis added); *see also*  
16 <https://www.alliedtelesis.com/documents/routing-protocols-guide> at p. 427 (“In essence, PIM SSM is PIM Sparse  
17 Mode without Rendezvous Points. Because hosts know the source from which they wish to  
18 receive streams . . . Fortunately, the process of joining the Source Path Tree (SPT) already  
19 involves sending PIM joins that specify the source address from which the router wishes to  
20 receive the stream – i.e. (S,G) Joins. So, PIM is already set up for supporting SSM.”); *id.* at p.  
21 429 (“if the request is a Source-Specific request, then immediately join the SPT for the channel  
22 being requested.”).

24 ***1(d): receiving said requested multicast data through said enabled source communications***  
25 ***channel;***—Allied makes, uses, sells, and/or offers to sell a device or system that receives the  
26 requested multicast data through the enabled source communications channel. For instance, the  
27 Accused ‘340 Products support the RFC 4607 specification, which discloses that “[a]n  
28 incoming datagram destined to an SSM address MUST be delivered by the IP module to all

1 sockets that have indicated (via Subscribe) a desire to receive data that matches the datagram’s  
2 source address, destination address, and arriving interface.” Holbrook, Source-specific  
3 multicast for IP, RFC 4607 (2006), p. 8, *available at* <https://tools.ietf.org/pdf/rfc4607.pdf>; *see*  
4 *also, e.g., id.* (“When the first socket on host H subscribes to a channel (S,G) on interface I, the  
5 host IP module on H sends a request on interface I to indicate to neighboring routers that the  
6 host wishes to receive traffic sent by source S to source-specific multicast destination G.”);  
7 [https://www.alliedtelesis.com/  
8 sites/default/files/documents/feature-guides/pimsm\\_feature\\_overview\\_  
9 guide.pdf](https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/pimsm_feature_overview_guide.pdf) at pp. 33-34 (“To join multicast group 232.1.1.1 each PC must send an IGMPv3 join  
10 with the source IP address specified. The join will be a (S,G) join, for example  
11 (85.1.1.1,232.1.1.1). The router will receive the IGMP join and check if the group address is in  
12 the SSM range.”); <https://www.alliedtelesis.com/documents/routing-protocols-guide> at p. 427  
13 (“In essence, PIM SSM is PIM Sparse Mode without Rendezvous Points. Because hosts know  
14 the source from which they wish to receive streams . . . Fortunately, the process of joining the  
15 Source Path Tree (SPT) already involves sending PIM joins that specify the source address  
16 from which the router wishes to receive the stream – i.e. (S,G) Joins. So, PIM is already set up  
17 for supporting SSM.”).

18 ***1(e): forwarding said requested multicast data to requesting processes; and,***—Allied makes,  
19 uses, sells, and/or offers to sell a device or system that forwards the requested multicast data to  
20 requesting processes. For instance, as noted above, the Accused ‘340 Products support the RFC  
21 4607 specification, which discloses that “[a]n incoming datagram destined to an SSM address  
22 MUST be delivered by the IP module to all *sockets* that have indicated (via Subscribe) a desire  
23 to receive data that matches the datagram’s source address, destination address, and arriving  
24 interface.” Holbrook, Source-specific multicast for IP, RFC 4607 (2006), p. 8, *available at*  
25 <https://tools.ietf.org/pdf/rfc4607.pdf> (emphasis added); *see also, e.g., id.* (“When the first socket  
26 on host H subscribes to a channel (S,G) on interface I, the host IP module on H sends a request  
27 on interface I to indicate to neighboring routers that the host wishes to receive traffic sent by  
28 source S to source-specific multicast destination G.”). In particular, RFC 4607 defines a

1 “socket” as “an implementation-specific parameter used to distinguish among different  
2 requesting entities (*e.g.*, programs or processes or communication end-points within a program  
3 or process) within the requesting host.” *Id.* at p. 5; *see also* [https://www.alliedtelesis.com/  
4 documents/routing-protocols-guide](https://www.alliedtelesis.com/documents/routing-protocols-guide) at p. 429 (“if the request is a Source-Specific request, then  
5 immediately join the SPT for the channel being requested.”);  
6 [https://www.alliedtelesis.com/sites/default/files/documents/  
7 feature-guides/pimsm\\_feature\\_overview\\_guide.pdf](https://www.alliedtelesis.com/sites/default/files/documents/feature-guides/pimsm_feature_overview_guide.pdf) at p. 33 (“If they have been requested to  
8 send a stream (S1,G), but not a stream to the same group, from a different source (S2,G), they  
9 will forward (S1,G), but not (S2,G).”).

10 ***1(f): disabling said selected source communications channel when said requesting processes***  
11 ***indicate that no further data is requested to be received over said selected source***  
12 ***communications channel.***—Allied makes, uses, sells, and/or offers to sell a device or system  
13 that disables the selected source communications channel when the requesting processes  
14 indicate that no further data is requested to be received over the selected source  
15 communications channel. For instance, the Accused ‘340 Products support the RFC 4607  
16 specification, which discloses that “[t]he IP module interface to upper-layer protocols is  
17 extended to allow a socket to . . . ‘Unsubscribe’ from a particular channel identified by an SSM  
18 destination address and a source IP address,” and unsubscribing from a particular channel  
19 disables the particular channel to indicate that no further data is requested to be received over  
20 the particular channel. Holbrook, Source-specific multicast for IP, RFC 4607 (2006), p. 5,  
21 *available at* <https://tools.ietf.org/pdf/rfc4607.pdf>; *see also, e.g., id.* at p. 8 (disclosing that “[a]n  
22 incoming datagram destined to an SSM address MUST be delivered by the IP module to all  
23 sockets that have indicated (via Subscribe) a desire to receive data that matches the datagram’s  
24 source address, destination address, and arriving interface,” but “MUST NOT be delivered to  
25 other sockets” (*e.g.*, sockets that have Unsubscribed)). Indeed, as noted above, RFC 4607  
26 discloses that “‘interface’ is a local identifier of the network interface on which reception of the  
27 channel identified by the (source-address, group-address) pair is to be enabled [*e.g.*, subscribed]  
28 or ***disabled*** [*e.g.*, unsubscribed].” *Id.* at p. 7 (emphasis added); <https://www.alliedtelesis.com/>

1 documents/routing-protocols-guide at p. 427 (“[W]hen a host indicates that it no longer wishes  
2 to receive that channel, it is said to *unsubscribe* from the channel.”) (emphasis in original).

3 59. Additionally, Allied has been and/or currently is an active inducer of infringement  
4 of the ‘340 Patent under 35 U.S.C. § 271(b) and contributory infringer of the ‘340 Patent under  
5 35 U.S.C. § 271(c).

6 60. Allied knew of the ‘340 Patent, or at least should have known of the ‘340 Patent,  
7 but was willfully blind to its existence. On information and belief, Allied has had actual  
8 knowledge of the ‘340 Patent since at least as early as the filing and/or service of this Complaint.

9 61. Allied has provided the Accused ‘340 Products to its customers and, on  
10 information and belief, instructions to use the Accused ‘340 Products in an infringing manner  
11 while being on notice of (or willfully blind to) the ‘340 Patent and Allied’s infringement.  
12 Therefore, on information and belief, Allied knew or should have known of the ‘340 Patent and  
13 of its own infringing acts, or deliberately took steps to avoid learning of those facts.

14 62. Allied knowingly and intentionally encourages and aids at least its end-user  
15 customers to directly infringe the ‘340 Patent.

16 63. Allied’s end-user customers directly infringe at least one or more claims of the  
17 ‘340 Patent by using the Accused ‘340 Products in their intended manner to infringe. Allied  
18 induces such infringement by providing the Accused ‘340 Products and instructions to enable and  
19 facilitate infringement, knowing of, or being willfully blind to the existence of, the ‘340 Patent.  
20 On information and belief, Allied specifically intends that its actions will result in infringement  
21 of one or more claims of the ‘340 Patent, or subjectively believe that their actions will result in  
22 infringement of the ‘340 Patent, but took deliberate actions to avoid learning of those facts, as set  
23 forth above.

24 64. Additionally, Allied contributorily infringes at least one or more claims of the ‘340  
25 Patent by providing the Accused ‘340 Products and/or software components thereof, that embody  
26 a material part of the claimed inventions of the ‘340 Patent, that are known by Allied to be  
27 specially made or adapted for use in an infringing manner, and are not staple articles with  
28 substantial non-infringing uses. The Accused ‘340 Products are specially designed to infringe at

1 least one or more claims of the '340 Patent, and their accused components have no substantial  
2 non-infringing uses. In particular, on information and belief, the software modules and code that  
3 implement and perform the infringing functionalities identified above are specially made and  
4 adapted to carry out said functionality and do not have any substantial non-infringing uses.

5 65. At least as early as the filing and/or service of this Complaint, Allied's  
6 infringement of the '340 Patent was and continues to be willful and deliberate, entitling  
7 Commstech to enhanced damages.

8 66. Additional allegations regarding Allied's knowledge of the '340 Patent and willful  
9 infringement will likely have evidentiary support after a reasonable opportunity for discovery.

10 67. Allied's infringement of the '340 Patent is exceptional and entitles Commstech to  
11 attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

12 68. Commstech is in compliance with any applicable marking and/or notice provisions  
13 of 35 U.S.C. § 287 with respect to the '340 Patent.

14 69. Commstech is entitled to recover from Allied all damages that Commstech has  
15 sustained as a result of Allied's infringement of the '340 Patent, including, without limitation, a  
16 reasonable royalty.

17 **COUNT II: INFRINGEMENT OF U.S. PATENT NO. 7,769,028**

18 70. Commstech incorporates by reference and re-alleges paragraphs 30-42 of this  
19 Complaint as if fully set forth herein.

20 71. Defendant Allied has infringed and is infringing, either literally or under the  
21 doctrine of equivalents, the '028 Patent in violation of 35 U.S.C. § 271 *et seq.*, directly and/or  
22 indirectly, by making, using, offering for sale, or selling in the United States, and/or importing  
23 into the United States without authority or license, products that support "Advanced QoS," such  
24 as the Allied Telesis x900 Series Switches and advanced Allied Telesis routers that operate with  
25 the "AlliedWare Software" (*e.g.*, AR415S/AR410S, AR440S/AT-AR441S, AR450S, AR725,  
26 AR745, AR750S, AR770S) (collectively referred to herein as the "Accused '028 Products"), that  
27 infringe at least one or more claims of the '028 Patent. *See, e.g.*, Advanced QoS White Paper at  
28 p. 15, *available at* <http://www.alliedtelesis.com/>

1 sites/default/files/documents/white-papers/adv-qos\_wp.pdf.

2 72. As just one non-limiting example, set forth below is exemplary evidence of  
3 infringement of Claim 17 of the '028 Patent in connection with the Accused '028 Products. This  
4 description is based on publicly available information. Commstech reserves the right to modify  
5 this description, including, for example, on the basis of information about the Accused '028  
6 Products that it obtains during discovery.

7 **17(a): A non-transitory computer-readable medium including a set of instructions for**  
8 **execution on a computer, the set of instructions including:**—Allied makes, uses, sells, and/or  
9 offers to sell a non-transitory computer-readable medium including a set of instructions for  
10 execution on a computer that include the functions recited in Claim 17. For instance, the  
11 Accused '028 Products support “Advanced QoS” for “end-to-end data delivery.” See Advanced  
12 QoS White Paper, pp. 1, 3, available at [http://](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
13 [www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos\\_](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
14 [wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf). In particular, Allied discloses that advanced Allied Telesis routers that operate with the  
15 “AlliedWare operating system” provide “advanced Quality of Service (QoS) and traffic shaping  
16 features.” AR415S Datasheet at p. 2, available at  
17 [https://www.alliedtelesis.com/sites/default/files/](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/ar415s_datasheet_rev_1.pdf)  
18 [documents/datasheets/ar415s\\_datasheet\\_rev\\_1.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/ar415s_datasheet_rev_1.pdf). Similarly, Allied discloses that its Layer 3+  
19 switches include “[c]omprehensive low-latency wire-speed QoS [that] provides flow-based  
20 traffic management with full classification, prioritization, traffic shaping and min/max  
21 bandwidth profiles.” See, e.g., x900 Series Datasheet at p. 2, available at  
22 [https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900\\_series\\_rev\\_zb.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf).

23 **17(b): a data prioritization routine configured to assign a priority to data, wherein the**  
24 **prioritization occurs at least one of: in a transport layer of a network communications**  
25 **protocol stack of a data communication system, and at a top of the transport layer of the**  
26 **network communications protocol stack of the data communication system;**—Allied makes,  
27 uses, sells, and/or offers to sell a non-transitory computer-readable medium including a set of  
28 instructions comprising a data prioritization routine configured to assign a priority to data,



1 where the prioritization occurs at least in a transport layer of a network communications  
2 protocol stack of a data communication system (*i.e.*, Layer 4). For instance, the Accused ‘028  
3 Products support “Advanced QoS” that includes a data prioritization routine configured to  
4 assign a priority to data. *See, e.g.*, Advanced QoS White Paper at p. 13, *available at*  
5 [http://www.alliedtelesis.com/sites/default/files/documents/white-papers/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
6 [adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf). (“With priority scheduling the **queues are assigned a set of priorities** and  
7 packets are always sent from the highest-priority queue first with very little delay.”) (emphasis  
8 added); *id.* at p. 4 (“[T]he Ethernet switching equipment must be able to give relative priorities  
9 to different traffic types . . .”); *id.* at p. 5 (disclosing new features available with Advanced  
10 QoS); *see also* x900 Series Datasheet at p. 2, *available at*  
11 [https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900\\_series\\_rev\\_zb.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf)  
12 (“Comprehensive low-latency wire-speed QoS provides flow-based traffic management with  
13 full classification, **prioritization**, traffic shaping and min/max bandwidth profiles.”) (emphasis  
14 added); AR415S Datasheet at p. 2, *available at* [https://www.alliedtelesis.com/sites/](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/ar415s_datasheet_rev_1.pdf)  
15 [default/files/documents/datasheets/ar415s\\_datasheet\\_rev\\_1.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/ar415s_datasheet_rev_1.pdf) (disclosing “Mixed Scheduling”  
16 which includes “priority scheduling”). Moreover, Allied explains that “[q]ueue management is  
17 fundamental to QoS” because it “ensures that traffic is dealt with as its priority requires.” QoS  
18 White Paper at p. 10, *available at* [https://www.alliedtelesis.com/sites/default/](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf)  
19 [files/documents/white-papers/qos\\_wp.pdf](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf). Allied further explains that priority queueing  
20 “ensures that high priority traffic is always given priority over other traffic, and thereby suffers  
21 less delay.” *Id.* According to Allied, the prioritization of data occurs at least at the transport  
22 layer of the network communications protocol stack (*i.e.*, Layer 4). *See, e.g.*, Advanced QoS  
23 White Paper at p. 11, *available at* [http://www.alliedtelesis.](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
24 [com/sites/default/files/documents/white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“Allied Telesis high-end  
25 Layer 3+ switches provide full classification and re-marking capabilities based on the DiffServ  
26 CodePoint (DSCP) as well as source and destination Layer 2 (MAC), Layer 3 (IP / IPX), and  
27 **Layer 4(TPC / UDP port)** addresses.”) (emphasis added). Allied touts that its “very advanced  
28 classification capability operating in the data plane of Allied Telesis’ switches enables very



1 advanced traffic classification based on the type of traffic, its source, and priority.” *Id.*; *see also*  
2 *id.* (“Traffic classification is complemented by extensive queuing capability, with eight priority  
3 queues at the output ports . . .”).

4 **17(c): a network analysis routine configured to determine a status of a network;**—  
5 Allied makes, uses, sells, and/or offers to sell a non-transitory computer-readable medium  
6 including a set of instructions comprising a network analysis routine configured to determine a  
7 status of a network. For instance, the Accused ‘028 Products support “Advanced QoS” that  
8 includes a network analysis routine configured to determine how congested a network is with  
9 respect to bandwidth, which may involve “measuring the bandwidth profile” that “specifies the  
10 average rate of ‘committed’ and ‘excess’ Ethernet packets allowed into the SP’s network at the  
11 switch port.” Advanced QoS White Paper at pp. 5-6, *available at* [http://www.alliedtelesis.com/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
12 [sites/default/files/documents/white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf). The network analysis routine of  
13 the Accused ‘028 Products may then “require packets to be coloured” to “indicate a packet’s  
14 level of conformance with a bandwidth profile.” *Id.* at p. 5; *see also, e.g.*, Advanced QoS White  
15 Paper at p. 8, *available at* [http://www.alliedtelesis.com/sites/default/files/documents/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
16 [white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“The algorithm decides which particular packets are within the  
17 bandwidth limits, and which are in excess of the limit.”); *id.* at p. 6 (disclosing that “[i]f the  
18 packets conform to the committed rate of the bandwidth profile, they are marked green, “[i]f the  
19 packets are over of the committed information rate and below the excess rate of the bandwidth  
20 profile, they are marked yellow, and “[i]f the packets do not conform to either the committed or  
21 the excess rates of the bandwidth profile, they are marked red and are usually discarded  
22 immediately.”); *id.* at p. 11 (“If the switch is congested, the queues may fill up and no more  
23 packets can be added, so even high priority packets can be dropped from the end of queues.”);  
24 *id.* at p 12 (“When congestion occurs, RED curves enable packets to be dropped before the  
25 egress queue exceeds the allocated maximum length.”); QoS White Paper at p. 10, *available at*  
26 [https://www.allied](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf)  
27 [telesis.com/sites/default/files/documents/white-papers/qos\\_wp.pdf](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf) (disclosing “‘graceful’  
28 dropping of lower priority packets via the RED mechanism when severe congestion occurs,

1 dropping progressively more and higher priority packets, until congestion is eased.”). In this  
2 respect, a network analysis routine of the Accused ‘028 Products is configured to determine a  
3 status of a network.

4 ***17(d): a mode selection routine configured to select at least one mode based at least in***  
5 ***part on the status of the network; and***—Allied makes, uses, sells, and/or offers to sell a non-  
6 transitory computer-readable medium including a set of instructions comprising a mode  
7 selection routine configured to select at least one mode based at least in part on the status of the  
8 network. For instance, the Accused ‘028 Products support “Advanced QoS” that includes a  
9 mode selection routine configured to select at least one mode based at least in part on the status  
10 of the network. *See* Advanced QoS White Paper at p. 11, *available at*  
11 [http://www.alliedtelesis.com/sites/default/files/documents/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
12 [white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf). In particular, Allied explains that “if there are multiple traffic  
13 classes passing through the device, each with different bandwidth limits, it is possible for an  
14 over-limit traffic class to make use of bandwidth made available by another traffic flow that is  
15 well below its bandwidth limit[, b]ut, if all traffic flows are at or above their limit, then the  
16 shaping process will make sure the flows do not encroach on each other’s allocated bandwidth.”  
17 *Id.* In this respect, Allied discloses that “[t]he most common method used to achieve this  
18 selective admission of packets into the egress queues is called Random Early Detection/Discard  
19 (RED).” *Id.* According to Allied, “[w]hen congestion occurs, RED curves enable packets to be  
20 dropped before the egress queue exceeds its allocated maximum length.” *Id.* at p. 12.

21 Specifically, Allied discloses that “red packets start being dropped when only a small amount of  
22 data has been backed up in the egress queues, yellow packets start getting dropped when the  
23 queues are backed up a bit more, and the green packets start to be dropped when the congestion  
24 is quite severe.” *Id.*

25 ***17(e): a data communications routine configured to communicate the data based at***  
26 ***least in part on the priority of the data and the status of the network, the data prioritization***  
27 ***routine being configured to assign priority to the data based on prioritization rules, wherein***  
28 ***the prioritization rules are selected based upon the selected mode, wherein the data is***

1 *communicated at a transmission rate metered based at least in part on the status of the*  
2 *network.*—Allied makes, uses, sells, and/or offers to sell a non-transitory computer-readable  
3 medium including a set of instructions comprising a data communications routine configured to  
4 communicate the data based at least in part on the priority of the data and the status of the  
5 network, where the data prioritization component is adapted to assign priority to the data based  
6 on prioritization rules that are selected based upon the selected at least one mode, and where the  
7 data is communicated at a transmission rate metered based at least in part on the status of the  
8 network. For instance, the Accused ‘028 Products support “Advanced QoS” that includes such  
9 a data communications routine and data prioritization component. *See* Advanced QoS White  
10 Paper at p. 11, *available at* [http://www.alliedtelesis.com/sites/default/files/documents/white-](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
11 [papers/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
12 [adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“[I]f there are multiple traffic classes passing through the device, each with  
13 different bandwidth limits, it is possible for an over-limit traffic class to make use of bandwidth  
14 made available by another traffic flow that is well below its bandwidth limit[, b]ut, if all traffic  
15 flows are at or above their limit, then the shaping process will make sure the flows do not  
16 encroach on each other’s allocated bandwidth.”); *see also id.* at pp. 5-6 (disclosing “Bandwidth  
17 metering”). According to Allied, “[w]henver there are packets in the highest-priority queue,  
18 they are transmitted; they do not have to wait for lower priority queues to be process,” and thus,  
19 “if there is so much traffic coming into the higher priority queue that it always has packets to  
20 send, then queues below it will never get a chance to send any packets.” *Id.*; *see also id.* at p. 4  
21 (“[T]he Ethernet switching equipment must be able to give relative priorities to different traffic  
22 types . . .”); *id.* at p. 11 (“Each egress port has a set of egress queues, which are allocated  
23 different priorities or weights.”). Moreover, Allied discloses that “[i]f more than one traffic  
24 class is sending packets to one egress queue and the total bandwidth allowed from all of these  
25 traffic classes needs to be limited, a **bandwidth limit** can be assigned to the common egress  
26 queue.” *Id.* at p. 14. (emphasis added). According to Allied, “[t]his bandwidth limit is known  
27 as applying a virtual bandwidth to the egress queue,” which “enables users to prevent some  
28 traffic flows from starving others, and if some of the traffic flows are quiet, then others are able

1 to use a bigger slice of the virtual bandwidth and send more of their non-conformant packets.”  
2 *Id*; see also *id.* at pp. 5-6 (disclosing “bandwidth metering”).

3 73. Additionally, Defendant Allied has been and/or currently is an active inducer of  
4 infringement of the ‘028 Patent under 35 U.S.C. § 271(b) and contributory infringer of the ‘028  
5 Patent under 35 U.S.C. § 271(c).

6 74. Allied knew of the ‘028 Patent, or at least should have known of the ‘028 Patent,  
7 but was willfully blind to its existence. On information and belief, Allied has had actual  
8 knowledge of the ‘028 Patent since at least as early as the filing and/or service of this Complaint.

9 75. Allied has provided the Accused ‘028 Products to its customers and, on  
10 information and belief, instructions to (i) use the Accused ‘028 Products in an infringing manner  
11 and/or (ii) make an infringing device, while being on notice of (or willfully blind to) the ‘028  
12 Patent and Allied’s infringement. Therefore, on information and belief, Allied knew or should  
13 have known of the ‘028 Patent and of its own infringing acts, or deliberately took steps to avoid  
14 learning of those facts.

15 76. Allied knowingly and intentionally encourages and aids at least its end-user  
16 customers to directly infringe the ‘028 Patent.

17 77. Allied’s end-user customers directly infringe at least one or more claims of the  
18 ‘028 Patent by using the Accused ‘028 Products in their intended manner to infringe. Allied  
19 induces such infringement by providing the Accused ‘028 Products and instructions to enable and  
20 facilitate infringement, knowing of, or being willfully blind to the existence of, the ‘028 Patent.  
21 On information and belief, Allied specifically intends that its actions will result in infringement  
22 of one or more claims of the ‘028 Patent, or subjectively believe that their actions will result in  
23 infringement of the ‘028 Patent, but took deliberate actions to avoid learning of those facts, as set  
24 forth above.

25 78. Additionally, Allied contributorily infringes at least one or more claims of the ‘028  
26 Patent by providing the Accused ‘028 Products and/or software components thereof, that embody  
27 a material part of the claimed inventions of the ‘028 Patent, that are known by Allied to be  
28 specially made or adapted for use in an infringing manner, and are not staple articles with

1 substantial non-infringing uses. The Accused '028 Products are specially designed to infringe at  
2 least one or more claims of the '028 Patent, and their accused components have no substantial  
3 non-infringing uses. In particular, on information and belief, the software modules and code that  
4 implement and perform the infringing functionalities identified above are specially made and  
5 adapted to carry out said functionality and do not have any substantial non-infringing uses.

6 79. At least as early as the filing and/or service of this Complaint, Allied's  
7 infringement of the '028 Patent was and continues to be willful and deliberate, entitling  
8 Commstech to enhanced damages.

9 80. Additional allegations regarding Allied's knowledge of the '028 Patent and willful  
10 infringement will likely have evidentiary support after a reasonable opportunity for discovery.

11 81. Allied's infringement of the '028 Patent is exceptional and entitles Commstech to  
12 attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

13 82. Commstech is in compliance with any applicable marking and/or notice provisions  
14 of 35 U.S.C. § 287 with respect to the '028 Patent.

15 83. Commstech is entitled to recover from Allied all damages that Commstech has  
16 sustained as a result of Allied's infringement of the '028 Patent, including, without limitation, a  
17 reasonable royalty.

18 **COUNT III: INFRINGEMENT OF U.S. PATENT NO. 7,990,860**

19 84. Commstech incorporates by reference and re-alleges paragraphs 43-55 of this  
20 Complaint as if fully set forth herein.

21 85. Defendant Allied has infringed and is infringing, either literally or under the  
22 doctrine of equivalents, the '860 Patent in violation of 35 U.S.C. § 271 *et seq.*, directly and/or  
23 indirectly, by making, using, offering for sale, or selling in the United States, and/or importing  
24 into the United States without authority or license, products that support "Advanced QoS," such  
25 as the Allied Telesis x900 Series Switches and advanced Allied Telesis routers that operate with  
26 the "AlliedWare Software" (*e.g.*, AR415S/AR410S, AR440S/AT-AR441S, AR450S, AR725,  
27 AR745, AR750S, AR770S) (collectively referred to herein as the "Accused '860 Products"), that  
28 infringe at least one or more claims of the '028 Patent. *See, e.g.*, Advanced QoS White Paper at

1 p. 15, available at [http://www.alliedtelesis.com/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
2 sites/default/files/documents/white-papers/adv-qos\_wp.pdf.

3 86. As just one non-limiting example, set forth below (with claim language in bold  
4 and italics) is exemplary evidence of infringement of Claim 15 of the '860 Patent in connection  
5 with the Accused '860 Products. This description is based on publicly available information.  
6 Commstech reserves the right to modify this description, including, for example, on the basis of  
7 information about the Accused '860 Products that it obtains during discovery.

8 ***15(a): A processing device for communicating data, the processing device including:***—Allied  
9 makes, uses, sells, and/or offers to sell a processing device for communicating data in  
10 accordance with Claim 15. For instance, the Accused '860 Products support “Advanced QoS”  
11 for “end-to-end data delivery.” See Advanced QoS White Paper at pp. 1, 3, available at  
12 [http://www.alliedtelesis.com/sites/default/files/documents/white-papers/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
13 [adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf); *id.* at p. 5 (disclosing new features available with Advanced QoS). In  
14 particular, Allied discloses that advanced Allied Telesis routers that operate with the  
15 “AlliedWare operating system” provide “advanced Quality of Service (QoS) and traffic shaping  
16 features.” AR415S Datasheet at p. 2, available at  
17 <https://www.alliedtelesis.com/sites/default/files/documents/data>  
18 [sheets/ar415s\\_datasheet\\_rev\\_1.pdf](https://www.alliedtelesis.com/sites/default/files/documents/data). Similarly, Allied discloses that its Layer 3+ switches  
19 include “[c]omprehensive low-latency wire-speed QoS [that] provides flow-based traffic  
20 management with full classification, prioritization, traffic shaping and min/max bandwidth  
21 profiles.” See, e.g., x900 Series Datasheet at p. 2, available at [https://www.alliedtelesis.com/](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf)  
22 [sites/default/files/documents/datasheets/x900\\_series\\_rev\\_zb.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf).

23 ***15(b): a network analysis component of the processing device configured to: determine a***  
24 ***network status from a plurality of network statuses based on analysis of network***  
25 ***measurements, and***—Allied makes, uses, sells, and/or offers to sell a processing device that  
26 comprises a network analysis component configured to determine a network status from a  
27 plurality of network statuses based on analysis of network measurements. For instance, the  
28 Accused '860 Products support “Advanced QoS” and includes a network analysis component

1 configured to determine how congested a network is with respect to bandwidth, which may  
2 involve “measuring the bandwidth profile” that “specifies the average rate of ‘committed’ and  
3 ‘excess’ Ethernet packets allowed into the SP’s network at the switch port.” Advanced QoS  
4 White Paper at pp. 5-6, *available at* [http://www.alliedtelesis.com/  
5 sites/default/files/documents/white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf). The network analysis component  
6 of the Accused ‘860 Products may then “require packets to be coloured” to “indicate a packet’s  
7 level of conformance with a bandwidth profile.” *Id.* at p. 5; *see also, e.g.*, Advanced QoS White  
8 Paper at p. 8, *available at* [http://www.alliedtelesis.com/sites/default/files/documents/  
9 white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“The algorithm decides which particular packets are within the  
10 bandwidth limits, and which are in excess of the limit.”); *id.* at p. 6 (disclosing that “[i]f the  
11 packets conform to the committed rate of the bandwidth profile, they are marked green, “[i]f the  
12 packets are over of the committed information rate and below the excess rate of the bandwidth  
13 profile, they are marked yellow, and “[i]f the packets do not conform to either the committed or  
14 the excess rates of the bandwidth profile, they are marked red and are usually discarded  
15 immediately.”); *id.* at p. 11 (“If the switch is congested, the queues may fill up and no more  
16 packets can be added, so even high priority packets can be dropped from the end of queues.”);  
17 *id.* at p 12 (“When congestion occurs, RED curves enable packets to be dropped before the  
18 egress queue exceeds the allocated maximum length.”); QoS White Paper at p. 10, *available at*  
19 [https://www.allied  
20 telesis.com/sites/default/files/documents/white-papers/qos\\_wp.pdf](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf) (disclosing “‘graceful’  
21 dropping of lower priority packets via the RED mechanism when severe congestion occurs,  
22 dropping progressively more and higher priority packets, until congestion is eased.”). In this  
23 respect, a network analysis component of the Accused ‘860 Products is configured to determine  
24 a network status from a plurality of network statuses based on analysis of network  
25 measurements.

26 ***15(c): a network analysis component of the processing device configured to: determine at***  
27 ***least one of an effective link speed and a link proportion for at least one link;***—Allied makes,  
28 uses, sells, and/or offers to sell a processing device that comprises a network analysis



1 component configured to determine at least one of an effective link speed and a link proportion  
2 for at least one link. For instance, the Accused ‘860 Products support “Advanced QoS” and are  
3 “capable of accurately shaping traffic to conform to set bandwidth limits, so they can then offer  
4 specific bandwidth profiles.” Advanced QoS White Paper at p. 4, *available at*  
5 <http://www.allied>  
6 [telesis.com/sites/default/files/documents/white-papers/adv-qos\\_wp.pdf](http://www.allied.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf); *see also* x900 Series  
7 Datasheet at p. 2, *available at* [https://www.allied](https://www.allied.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf)  
8 [telesis.com/sites/default/files/documents/datasheets/x900\\_series\\_rev\\_zb.pdf](https://www.allied.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf) (disclosing that its  
9 Layer 3+ switches include “[c]omprehensive low-latency wire-speed QoS [that] provides flow-  
10 based traffic management with full classification, prioritization, traffic shaping and min/max  
11 bandwidth profiles.”). In particular, “Advanced QoS” supports “bandwidth metering,” which  
12 “requires a bandwidth profile that specifies the average rate of ‘committed’ and ‘excess’  
13 Ethernet packets allowed into the [Service Provider]’s network at the switch port. *Id.* at 5.  
14 Allied explains that “[p]ackets that are transmitted up to the ‘committed’ rate are allowed into  
15 the provider’s network,” and “[p]ackets sent above the ‘committed’ rate and below the ‘excess’  
16 rate are allowed into the provider’s network but are delivered without any service performance  
17 objectives.” *Id.* at p. 6. According to Allied, “[i]f packets conform to the committed rate of the  
18 bandwidth profile, they are marked green and delivered in accordance with the service  
19 performance objective,” “[i]f the packets are over the committed information rate and below the  
20 excess rate of the bandwidth provide, they are marked yellow,” and “[i]f the packets do not  
21 conform to either the committed or the excess rates of the bandwidth profile, they are marked  
22 red and are usually discarded immediately.” *Id.*; *see also id.* at p. 7 (disclosing “the maximum  
23 number of bytes allowed”). Moreover, Allied explains that “if there are multiple traffic classes  
24 passing through the device, each with different bandwidth limits, it is possible for an over-limit  
25 traffic class to make use of bandwidth made available by another traffic flow that is well below  
26 its bandwidth limit[, b]ut, if all traffic flows are at or above their limit, then the shaping process  
27 will make sure the flows do not encroach on each other’s allocated bandwidth.” *Id.*; *see also id.*  
28 at p. 4 (“Ethernet switching equipment must be capable of accurately shaping traffic to conform



1 to set bandwidth limits, so they can then offer specific bandwidth profiles.”). In this respect, the  
2 Accused ‘860 Products are configured to determine at least an effective link speed and/or a link  
3 proportion for at least one link.

4 ***15(d): a mode selection component of the processing device configured to select a mode from***  
5 ***a plurality of modes based on the determined network status, wherein each of the plurality of***  
6 ***modes corresponds with at least one of the plurality of network statuses, wherein each of the***  
7 ***plurality of modes comprises a user defined sequencing rule,***—Allied makes, uses, sells,

8 and/or offers to sell a processing device that comprises a mode selection component configured  
9 to select a mode from a plurality of modes based on the determined network status, where each  
10 of the plurality of modes corresponds with at least one of the plurality of network statuses, and  
11 where each of the plurality of modes comprises a user defined sequencing rule. For instance,  
12 the Accused ‘860 Products support “Advanced QoS” and comprises a mode selection  
13 component configured to select at least one mode based at least in part on the status of the  
14 network. *See* Advanced QoS White Paper at p. 11, *available at*

15 <http://www.alliedtelesis.com/sites/default/files/>

16 [documents/white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf). In particular, Allied explains that “if there are  
17 multiple traffic classes passing through the device, each with different bandwidth limits, it is  
18 possible for an over-limit traffic class to make use of bandwidth made available by another  
19 traffic flow that is well below its bandwidth limit[, b]ut, if all traffic flows are at or above their  
20 limit, then the shaping process will make sure the flows do not encroach on each other’s  
21 allocated bandwidth.” *Id.* In this respect, Allied discloses that “[t]he most common method  
22 used to achieve this selective admission of packets into the egress queues is called Random  
23 Early Detection/Discard (RED).” *Id.* According to Allied, “[w]hen congestion occurs, RED  
24 curves enable packets to be dropped before the egress queue exceeds its allocated maximum  
25 length.” *Id.* at p. 12. Specifically, Allied discloses that “red packets start being dropped when  
26 only a small amount of data has been backed up in the egress queues, yellow packets start  
27 getting dropped when the queues are backed up a bit more, and the green packets start to be  
28 dropped when the congestion is quite severe.” *Id.* Moreover, Allied discloses that “very

1 advanced classification capability operating in the data plane of Allied Telesis' switches enables  
2 very advanced traffic classification based on the type of traffic, its source, and priority,” which  
3 “means that network providers can roll out different service levels to their customers based on  
4 service charge, as well as implement admission control . . . .” QoS White Paper at p. 11,  
5 *available at* [https://www.alliedtelesis.com/sites/default/files/  
6 documents/white-papers/qos\\_wp.pdf](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf); *see also id.* (“Operating above these is the Allied Telesis  
7 SNMP management system,” which provides “a[] Graphical User Interface.”); Advanced QoS  
8 White Paper at p. 11, *available at*  
9 [http://www.alliedtelesis.com/sites/default/files/documents/white-papers/  
10 adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“The service provider defines the particular 802.1p/DSCP values used to  
11 indicate different packet colours.”); *see also id.* at p. 4 (“A bandwidth profile outlines the  
12 service guarantees that the SP will provide by defining the traffic types and amounts of each  
13 traffic type that subscribers can send into the SP’s network.”);  
14 [https://www.networkcomputing.com/  
15 wireless-infrastructure/qos-best-practices-better-bandwidth-management/  
16 477227828](https://www.networkcomputing.com/wireless-infrastructure/qos-best-practices-better-bandwidth-management/477227828) (“Quality of Service (QoS) offers administrators the ability to prioritize certain data  
17 traffic as it traverses a corporate network.”). In this respect a given mode comprises a  
18 sequencing rule defined by a user.

19 ***15(e): a data prioritization component of the processing device configured to prioritize data***  
20 ***by assigning a priority to the data, wherein the prioritization component includes a***  
21 ***sequencing component configured to sequence the data based at least in part on the user***  
22 ***defined sequencing rule of the selected mode;***—Allied makes, uses, sells, and/or offers to sell  
23 a processing device that comprises a data prioritization component configured to prioritize data  
24 by assigning a priority to the data, where the prioritization component includes a sequencing  
25 component configured to sequence the data based at least in part on the user defined sequencing  
26 rule of the selected mode. For instance, the Accused ‘860 Products support “Advanced QoS”  
27 and include such a data prioritization component. *See, e.g.,* Advanced QoS White Paper at p.  
28 13, *available at* <http://www.alliedtelesis.com/sites/>

1 default/files/documents/white-papers/adv-qos\_wp.pdf. (“With priority scheduling the *queues*  
2 *are assigned a set of priorities* and packets are always sent from the highest-priority queue first  
3 with very little delay.”) (emphasis added); *id.* at p. 4 (“[T]he Ethernet switching equipment  
4 must be able to give relative priorities to different traffic types . . .”); *id.* at p. 5 (disclosing new  
5 features available with Advanced QoS); *see also* x900 Series Datasheet at p. 2, *available at*  
6 [https://www.alliedtelesis.com/sites/default/files/documents/](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf)  
7 [datasheets/x900\\_series\\_rev\\_zb.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/x900_series_rev_zb.pdf) (“Comprehensive low-latency wire-speed QoS provides  
8 flow-based traffic management with full classification, *prioritization*, traffic shaping and  
9 min/max bandwidth profiles.”) (emphasis added); AR415S Datasheet at p. 2, *available at*  
10 [https://www.alliedtelesis.](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/ar415s_datasheet_rev_1.pdf)  
11 [com/sites/default/files/documents/datasheets/ar415s\\_datasheet\\_rev\\_1.pdf](https://www.alliedtelesis.com/sites/default/files/documents/datasheets/ar415s_datasheet_rev_1.pdf) (disclosing “Mixed  
12 Scheduling” which includes “priority scheduling”);  
13 [https://www.networkcomputing.com/wireless-infrastructure/qos-best-practices-better-](https://www.networkcomputing.com/wireless-infrastructure/qos-best-practices-better-bandwidth-management/477227828)  
14 [bandwidth-management/477227828](https://www.networkcomputing.com/wireless-infrastructure/qos-best-practices-better-bandwidth-management/477227828) (“Quality of Service (QoS) offers administrators the ability  
15 to prioritize certain data traffic as it traverses a corporate network.”). Moreover, Allied explains  
16 that “[q]ueue management is fundamental to QoS” because it “ensures that traffic is dealt with  
17 as its priority requires.” QoS White Paper at p. 10, *available at*  
18 [https://www.alliedtelesis.com/sites/default/files/documents/white-papers/](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf)  
19 [qos\\_wp.pdf](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf). Allied further explains that priority queueing “ensures that high priority traffic is  
20 always given priority over other traffic, and thereby suffers less delay.” *Id.* Furthermore,  
21 Allied discloses that “[i]f more than one traffic class is sending packets to one egress queue and  
22 the total bandwidth allowed from all of these traffic classes needs to be limited, a bandwidth  
23 limit can be assigned to the common egress queue.” *Id.* at p. 14. According to Allied, “[t]his  
24 bandwidth limit is known as applying a virtual bandwidth to the egress queue,” which “enables  
25 users to prevent some traffic flows from starving others, and if some of the traffic flows are  
26 quiet, then others are able to use a bigger slice of the virtual bandwidth and send more of their  
27 non-conformant packets.” *Id.*

28 **15(f): a data metering component of the processing device configured to: meter inbound data**

1 *by shaping the inbound data for the at least one link, and meter outbound data by policing*  
2 *the outbound data for the at least one link; and*—Allied makes, uses, sells, and/or offers to sell  
3 a processing device that comprises a data metering component configured to meter inbound  
4 data by shaping the inbound data for the at least one link, and meter outbound data by policing  
5 the outbound data for the at least one link. For instance, the Accused ‘860 Products support  
6 “Advanced QoS” and includes a data metering component configured for “shaping” data  
7 packets. *See* Advanced QoS White Paper at p. 11, *available at*  
8 [http://www.alliedtelesis.com/sites/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp)  
9 [default/files/documents/white-papers/adv-qos\\_wp](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp). Specifically, Allied discloses that “[t]he  
10 *shaping* process uses rules to decide which packets are allowed to enter the egress queues  
11 instead of simply dropping all the red packet.” *Id.* (emphasis added). Allied explains that “[i]n  
12 this way, if there are multiple traffic classes passing through the device, each with different  
13 bandwidth limits, it is possible for an over-limit traffic class to make use of bandwidth made  
14 available by another traffic flow that is well below its bandwidth limit[, b]ut, if all traffic flows  
15 are at or above their limit, then the shaping process will make sure the flows do not encroach on  
16 each other’s allocated bandwidth.” *Id.*; *see also* QoS White Paper at p. 11, *available at*  
17 [https://www.alliedtelesis.com/sites/default/files/documents/white-papers/](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf)  
18 [qos\\_wp.pdf](https://www.alliedtelesis.com/sites/default/files/documents/white-papers/qos_wp.pdf) (“At the entry to the network a policy is applied to the classified flows. This  
19 *shapes* the traffic to meet the requirements of the particular flow.”) (emphasis added); The  
20 Handbook of Computer Networks, Distributed Networks, Network Planning, Control,  
21 Management, and New Trends and Applications at p. 346 *available at* [download.library1.org/](http://download.library1.org/main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20Bidgoli-The%20Handbook%20of%20Computer%20Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%2C%20Management%2C%20and%20New%20Trends%20and%20Applications-Wiley%20%282007%29.pdf)  
22 [main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20](http://download.library1.org/main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20Bidgoli-The%20Handbook%20of%20Computer%20Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%2C%20Management%2C%20and%20New%20Trends%20and%20Applications-Wiley%20%282007%29.pdf)  
23 [Bidgoli-The%20Handbook%20of%20Computer%20](http://download.library1.org/main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20Bidgoli-The%20Handbook%20of%20Computer%20Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%2C%20Management%2C%20and%20New%20Trends%20and%20Applications-Wiley%20%282007%29.pdf)  
24 [Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%](http://download.library1.org/main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20Bidgoli-The%20Handbook%20of%20Computer%20Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%2C%20Management%2C%20and%20New%20Trends%20and%20Applications-Wiley%20%282007%29.pdf)  
25 [2C%20Management%2C%20and%20New%20Trends%20and%20Applications-](http://download.library1.org/main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20Bidgoli-The%20Handbook%20of%20Computer%20Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%2C%20Management%2C%20and%20New%20Trends%20and%20Applications-Wiley%20%282007%29.pdf)  
26 [Wiley%20%282007%29.pdf](http://download.library1.org/main/1055000/19ed533ea3d2d9a5a9645bb2a2689800/%28Volume%203%29%20Hossein%20Bidgoli-The%20Handbook%20of%20Computer%20Networks%2C%20Distributed%20Networks%2C%20Network%20Planning%2C%20Control%2C%20Management%2C%20and%20New%20Trends%20and%20Applications-Wiley%20%282007%29.pdf) (“Traffic shaping can be done at the source prior to entrance into  
27 the network or within the network.”) In this respect, the Accused ‘860 Products are configured  
28 to meter inbound data by shaping the inbound data. Moreover, the Accused ‘860 Products

1 support “Advanced QoS” and includes a data metering component configured for “policing”  
2 data packets. *See* Advanced QoS White Paper at p. 11, *available at*  
3 [http://www.alliedtelesis.com/sites/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp)  
4 [default/files/documents/white-papers/adv-qos\\_wp](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp). For instance, as noted above, Allied  
5 discloses that “[i]f packets conform to the committed rate of the bandwidth profile, they are  
6 marked green and delivered in accordance with the service performance objective,” “[i]f the  
7 packets are over the committed information rate and below the excess rate of the bandwidth  
8 provide, they are marked yellow,” and “[i]f the packets do not conform to either the committed  
9 or the excess rates of the bandwidth profile, they are marked red and are usually discarded  
10 immediately.” *Id.* at p. 6. According to Allied, “the immediate discarding of red-marked  
11 packets is a choice known as *policing*.” *Id.* at p. 11 (emphasis added); *see also*  
12 <https://searchunifiedcommunications.techtarget.com/tip/Policing-and-shaping-within-QoS>  
13 (“Policing drops or remarks traffic that exceeds limits, but shaping regulates the traffic back to a  
14 defined rate by delaying or queuing the traffic.”). In this respect, the Accused ‘860 Products are  
15 configured to meter outbound data by policing the outbound data.

16 ***15(g): a data communication component of the processing device configured to communicate***  
17 ***the data based at least in part on at least one of: the priority of the data, the effective link***  
18 ***speed, and the link proportion;***—Allied makes, uses, sells, and/or offers to sell a processing  
19 device that comprises a data communication component configured to communicate the data  
20 based at least in part on the priority of the data, the effective link speed, and/or the link  
21 proportion. For instance, the Accused ‘860 Products support “Advanced QoS” and includes  
22 such a data communications component. *See* Advanced QoS White Paper at p. 11, *available at*  
23 [http://www.alliedtelesis.com/sites/default/files/documents/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)  
24 [white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“[I]f there are multiple traffic classes passing through the device,  
25 each with different bandwidth limits, it is possible for an over-limit traffic class to make use of  
26 bandwidth made available by another traffic flow that is well below its bandwidth limit[, b]ut, if  
27 all traffic flows are at or above their limit, then the shaping process will make sure the flows do  
28 not encroach on each other’s allocated bandwidth.”). According to Allied, “[w]henver there

1 are packets in the highest-priority queue, they are transmitted; they do not have to wait for  
2 lower priority queues to be process,” and thus, “if there is so much traffic coming into the  
3 higher priority queue that it always has packets to send, then queues below it will never get a  
4 chance to send any packets.” *Id.* Moreover, Allied discloses that “[i]f more than one traffic  
5 class is sending packets to one egress queue and the total bandwidth allowed from all of these  
6 traffic classes needs to be limited, a bandwidth limit can be assigned to the common egress  
7 queue.” *Id.* at p. 14. According to Allied, “[t]his bandwidth limit is known as applying a  
8 virtual bandwidth to the egress queue,” which “enables users to prevent some traffic flows from  
9 starving others, and if some of the traffic flows are quiet, then others are able to use a bigger  
10 slice of the virtual bandwidth and send more of their non-conformant packets.” *Id.*

11 ***15(h): wherein at least the data prioritization component is configured to operate at a***

12 ***transport layer of a protocol stack.***—Allied discloses that the data prioritization component is

13 configured to operate at a transport layer of a protocol stack (*i.e.*, “Layer 4). *See, e.g.*,

14 Advanced QoS White Paper at p. 11, *available at*

15 [http://www.alliedtelesis.com/sites/default/files/documents/](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf)

16 [white-papers/adv-qos\\_wp.pdf](http://www.alliedtelesis.com/sites/default/files/documents/white-papers/adv-qos_wp.pdf) (“Allied Telesis high-end Layer 3+ switches provide full

17 classification and re-marking capabilities based on the DiffServ CodePoint (DSCP) as well as

18 source and destination Layer 2 (MAC), Layer 3 (IP / IPX), and ***Layer 4(TPC / UDP port)***

19 addresses.”) (emphasis added). Allied touts that its “very advanced classification capability

20 operating in the data plane of Allied Telesis’ switches enables very advanced traffic

21 classification based on the type of traffic, its source, and priority.” *Id.*; *see also id.* (“Traffic

22 classification is complemented by extensive queuing capability, with eight priority queues at the

23 output ports . . .”).

24 87. Additionally, Defendant Allied has been and/or currently is an active inducer of  
25 infringement of the ‘860 Patent under 35 U.S.C. § 271(b) and contributory infringer of the ‘860  
26 Patent under 35 U.S.C. § 271(c).

27 88. Allied knew of the ‘860 Patent, or at least should have known of the ‘860 Patent,  
28 but was willfully blind to its existence. On information and belief, Allied has had actual

1 knowledge of the '860 Patent since at least as early as the filing and/or service of this Complaint.

2 89. Allied has provided the Accused '860 Products to its customers and, on  
3 information and belief, instructions to use the Accused '860 Products in an infringing manner  
4 while being on notice of (or willfully blind to) the '860 Patent and Allied's infringement.  
5 Therefore, on information and belief, Allied knew or should have known of the '860 Patent and  
6 of its own infringing acts, or deliberately took steps to avoid learning of those facts.

7 90. Allied knowingly and intentionally encourages and aids at least its end-user  
8 customers to directly infringe the '860 Patent.

9 91. Allied's end-user customers directly infringe at least one or more claims of the  
10 '860 Patent by using the Accused '860 Products in their intended manner to infringe. Allied  
11 induces such infringement by providing the Accused '860 Products and instructions to enable and  
12 facilitate infringement, knowing of, or being willfully blind to the existence of, the '860 Patent.  
13 On information and belief, Allied specifically intends that its actions will result in infringement  
14 of at least one or more claims of the '860 Patent, or subjectively believe that their actions will  
15 result in infringement of the '860 Patent, but took deliberate actions to avoid learning of those  
16 facts, as set forth above.

17 92. Additionally, Allied contributorily infringes at least one or more claims of the '860  
18 Patent by providing the Accused '860 Products and/or software components thereof, that embody  
19 a material part of the claimed inventions of the '860 Patent, that are known by Allied to be  
20 specially made or adapted for use in an infringing manner, and are not staple articles with  
21 substantial non-infringing uses. The Accused '860 Products are specially designed to infringe at  
22 least one or more claims of the '860 Patent, and their accused components have no substantial  
23 non-infringing uses. In particular, on information and belief, the software modules and code that  
24 implement and perform the infringing functionalities identified above are specially made and  
25 adapted to carry out said functionality and do not have any substantial non-infringing uses.

26 93. At least as early as the filing and/or service of this Complaint, Allied's  
27 infringement of the '860 Patent was and continues to be willful and deliberate, entitling  
28 Commstech to enhanced damages.



1 94. Additional allegations regarding Allied’s knowledge of the ‘860 Patent and willful  
2 infringement will likely have evidentiary support after a reasonable opportunity for discovery.

3 95. Allied’s infringement of the ‘860 Patent is exceptional and entitles Commstech to  
4 attorneys’ fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

5 96. Commstech is in compliance with any applicable marking and/or notice provisions  
6 of 35 U.S.C. § 287 with respect to the ‘860 Patent.

7 97. Commstech is entitled to recover from Allied all damages that Commstech has  
8 sustained as a result of Allied’s infringement of the ‘860 Patent, including, without limitation, a  
9 reasonable royalty

10 **PRAYER FOR RELIEF**

11 WHEREFORE, Commstech respectfully requests:

- 12 A. That Judgment be entered that Allied has infringed at least one or more claims of  
13 the Patents-in-Suit, directly and/or indirectly, literally and/or under the doctrine of  
14 equivalents;
- 15 B. An award of damages sufficient to compensate Commstech for Allied’s  
16 infringement under 35 U.S.C. § 284, including an enhancement of damages on  
17 account of Allied’s willful infringement;
- 18 C. That the case be found exceptional under 35 U.S.C. § 285 and that Commstech be  
19 awarded its reasonable attorneys’ fees;
- 20 D. Costs and expenses in this action;
- 21 E. An award of prejudgment and post-judgment interest; and
- 22 F. Such other and further relief as the Court may deem just and proper.
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1 Respectfully submitted,

2

3 Dated: July 12, 2019

FEINBERG DAY KRAMER ALBERTI LIM  
TONKOVICH & BELLOLI LLP

4

*and*

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LEE SULLIVAN SHEA & SMITH LLP

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By: */s/ M. Elizabeth Day*

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M. Elizabeth Day

9

*Attorneys for Plaintiff*  
*Commstech LLC*

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**DEMAND FOR JURY TRIAL**

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Plaintiff demands trial by jury for all issues so triable pursuant to Fed. R. Civ. Pro. 38(b)

14

and Civil L.R. 3-6(a).

15

Dated: July 12, 2019

FEINBERG DAY KRAMER ALBERTI LIM  
TONKOVICH & BELLOLI LLP

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*and*

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By: */s/ M. Elizabeth Day*

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M. Elizabeth Day

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*Attorneys for Plaintiff*  
*Commstech LLC*

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