

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner

v.

JENAM TECH, LLC,
Patent Owner

Patent No. 11,064,058

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,064,058**

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EX1056	IETF RFC 3168 “The Addition of Explicit Congestion Notification (ECN) to IP”
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EX1084	International Publication No. WO 2019/125260 to Stille et al.
EX1085	U.S. Patent No. 6,810,263 to Cheng et al.

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EX1086	U.S. Pre-Grant Publication No. 2006/0191003 to Bahk et al.
EX1087	U.S. Patent No. 10,951,742
EX1088	<i>Jenam Tech, LLC’s Second Amended Set of Infringement Contentions</i> regarding U.S. Patent No. 10,742,774 (March 17, 2021)
EX1089	<i>Jenam Tech, LLC’s Second Amended Set of Infringement Contentions</i> regarding U.S. Patent No. 10,306,026 (March 17, 2021)
EX1090	IETF RFC 1323 “TCP Extensions for High Performance”
EX1091	IETF RFC 2001 “TCP Slow Start, Congestion Avoidance, Fast Retransmit, and Fast Recovery Algorithms”
EX1092	Jacobson, “Congestion Avoidance and Control,” <i>Communications Architectures & Protocols, Computer Communications Review</i> , Volume 18, Number 4 (August 1988)

I. INTRODUCTION

Google LLC (“Petitioner”) requests *inter partes* review (“IPR”) of claims 1, 9, 11, 17, 18, 43, 46, and 52 (“the challenged claims”) of U.S. Patent No. 11,064,058 (“the ’058 patent”) (EX1001) assigned to Jenam Tech, LLC (“PO”). For the reasons below, the challenged claims should be found unpatentable and canceled.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Parties-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner identifies the following as the real parties-in-interest: Google LLC.¹

B. Related Matters

1. Related Lawsuit

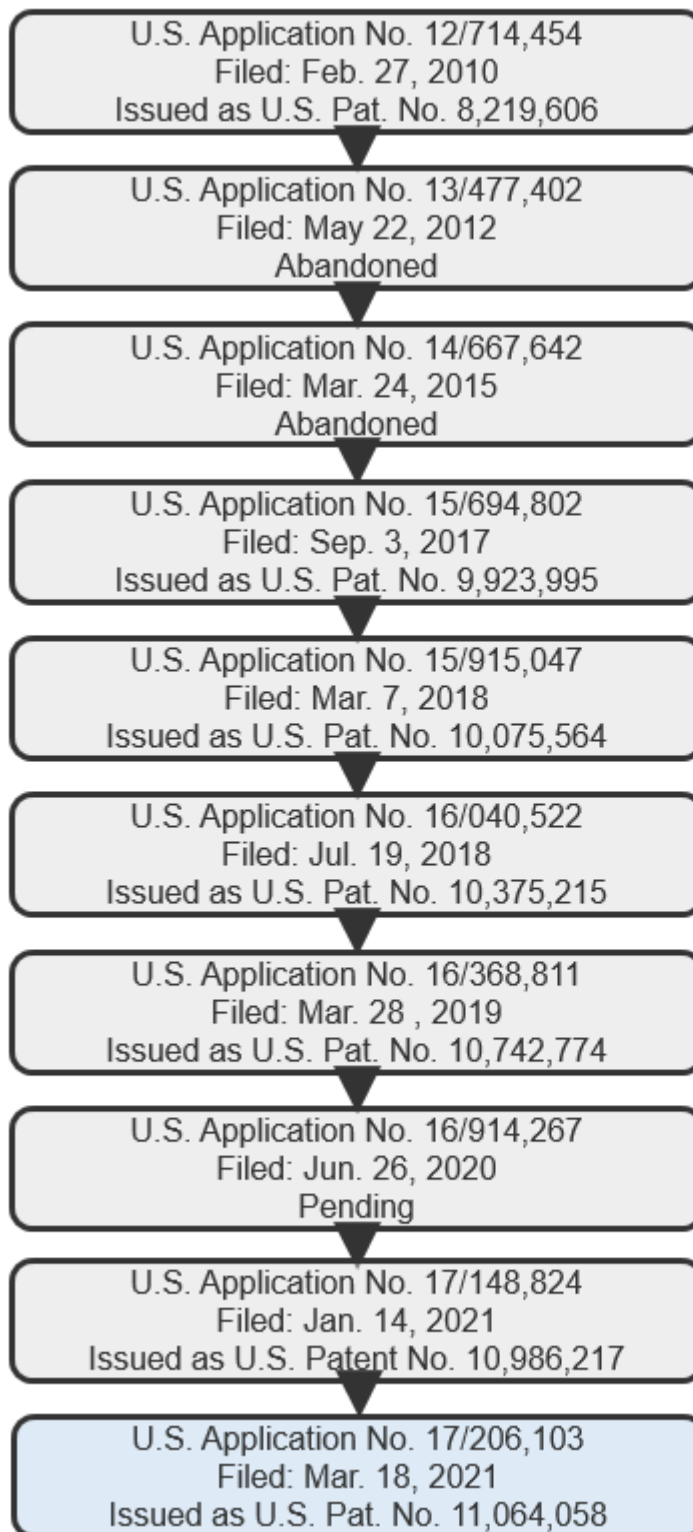
The ’058 patent is asserted in the following civil action: *Jenam Tech, LLC v. Google, LLC*, Case No. 4:22-cv-02836-JST (N.D. Cal.) (“836 action”). The 836 action has been related to another district court action captioned *Jenam Tech, LLC v. Google, LLC*, Case No. 4:21-cv-07994-JST (N.D. Cal.) (“994 action”) involving related patents. See Related Case Order (Dkt. No. 11) in 836 action.

¹ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

The following additional civil actions, involving additional related patents, have also been related to the 994 action: *Jenam Tech, LLC v. Google, LLC*, Case Nos. 4:22-cv-02837, -02838, -02839 (N.D. Cal.). See Related Case Order (Dkt. No. 11) in 836 action.

2. Related Applications

The '058 patent relates to several patents and/or patent applications, as shown in the purported priority chain below:



**Subject to this
IPR Petition**



As shown above, U.S. patent application no. 17/206,103 (“the ’103 application”) issued as the ’058 patent. (*See also* EX1001, cover (Related U.S. application data section), 1:8-57.) The ’103 application is a continuation of U.S. patent application no. 17/148,824, which issued as U.S. Patent No. 10,986,217 (“the ’217 patent”). The ’824 application is a continuation of U.S. patent application no. 16/914,267 (“the ’267 application”). The ’267 application is a continuation of U.S. patent application no. 16/368,811 (“the ’811 application”), which issued as U.S. Patent No. 10,742,774 (“the ’774 patent”). The ’811 application is a continuation of U.S. patent application no. 16/040,522 (“the ’522 application”), which issued as U.S. Patent No. 10,375,215 (“the ’215 patent”). The ’522 application is a continuation of U.S. patent application no. 15/915,047 (“the ’047 application”), which issued as U.S. Pat. No. 10,075,564 (“the ’564 patent”). The ’047 application is a continuation of U.S. patent application no. 15/694,802 (“the ’802 application”), which issued as U.S. Pat. No. 9,923,995 (“the ’995 patent”). The ’802 application is a continuation-in-part of U.S. patent application no. 14/667,642 (“the ’642 application”). The ’642 application is a continuation-in-part of U.S. patent application no. 13/477,402 (“the ’402 application”). The ’402 application is a continuation of U.S. patent application no. 12/714,454 (“the ’454 application”), which issued as U.S. Patent No. 8,219,606 (“the ’606 patent”).

The '103 application is related to U.S. application no. 12/714,063 (“the '063 application”), filed February 26, 2010. (EX1001, 1:64-2:2.)

3. Related IPRs

The following IPR and PGR petitions have been filed challenging patents related to the '058 patent (these additional patents are also at issue in the related 994 action):

- IPR2020-00845 (challenging claims of the '995 patent) (Final Written Decision issued with all challenged claims canceled; Final Written Decision affirmed on appeal); *see Jenam Tech, LLC v. Google LLC*, No. 2022-1085, slip op. at 2 (Fed. Cir. Apr. 11, 2023));
- IPR2020-00742 (challenging claims of the '995 patent) (“Unified -742 IPR”) (Terminated);
- IPR2021-00627 (challenging claims of the '215 patent) (Final Written Decision issued with all challenged claims canceled; Final Written Decision on appeal);
- IPR2021-00628 (challenging claims of the '564 patent) (Final Written Decision issued with all challenged claims canceled or disclaimed pre-institution; Final Written Decision on appeal);

- IPR2021-00629 (challenging claims of the '564 patent) (Judgment Granting Request for Adverse Judgment issued after all challenged claims disclaimed post-institution);
- IPR2021-00630 (challenging claims of U.S. Patent No. 10,075,565, “the '565 patent”) (Final Written Decision issued with all challenged claims canceled or disclaimed pre-institution; Final Written Decision on appeal);
- IPR2021-00867 (challenging claims of U.S. Patent No. 10,306,026, “the '026 patent”) (Final Written Decision issued with all challenged claims canceled; Final Written Decision on appeal);
- IPR2021-00868 (challenging claims of the '026 patent) (Final Written Decision issued with all challenged claims canceled or disclaimed pre-institution; Final Written Decision on appeal);
- IPR2021-00869 (challenging claims of U.S. Patent No. 10,069,945, “the '945 patent”) (Final Written Decision issued with all challenged claims canceled; Final Written Decision on appeal);
- IPR2021-00870 (challenging claims of the '945 patent) (Final Written Decision issued with all challenged claims canceled; Final Written Decision on appeal);
- PGR2021-00082 (challenging claims of the '774 patent) (challenged claim disclaimed by PO and institution denied in view of disclaimer);

- PGR2022-00013 (challenging claims of U.S. Patent No. 10,951,742, “the ’742 patent”) (challenged claims disclaimed by PO and institution denied in view of disclaimer); and
- Petitioner is concurrently filing an IPR petition challenging other claims of the ’058 patent.

C. Counsel and Service Information

Lead counsel: Naveen Modi (Reg. No. 46,224). Backup counsel: (1) Joseph E. Palys (Reg. No. 46,508), (2) Quadeer Ahmed (Reg. No. 60,835), Alexa J. Lowman (*pro hac vice* to be filed).

Service information is Paul Hastings LLP, 2050 M Street NW, Washington, DC 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email: PH-Google-Jenam-IPR@paulhastings.com. Petitioner consents to electronic service.

III. PAYMENT OF FEES UNDER 37 C.F.R. § 42.15(a)

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 50-2613.

IV. GROUNDS FOR STANDING

Petitioner certifies that the ’058 patent is available for review, and Petitioner is not barred/estopped from requesting review on the grounds herein.

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

A. Claim for Which Review Is Requested

Petitioner respectfully requests review of claims 1, 9, 11, 17, 18, 43, 46, and 52 (“the challenged claims”) of the ’058 patent, and cancellation of these claims as unpatentable.

B. Statutory Grounds of Challenge

The challenged claims should be canceled as unpatentable on the following grounds:

Ground 1: Claims 1, 9, 11, 17, 18, 43, 46, and 52 are unpatentable under AIA 35 U.S.C. § 103 over U.S. Publication No. 2011/0213820 to Morris (“Morris”) (EX1005) in view of IETF RFC 3261 “SIP: Session Initial Protocol” (“SIP”) (EX1006).²

The ’058 patent issued from an application filed March 18, 2021, which claims priority through a number of applications back to an application filed February 27, 2010. (EX1001, 1:8-57.) As explained below, the challenged claims of the ’058 patent are not entitled to an effective filing date prior to March 18, 2021. (*See infra* §X.)

² Other references discussed herein are provided to show the state of the art at the time of the alleged invention of the ’058 patent.

Morris published on September 1, 2011 and was filed February 27, 2010. SIP was published and publically available as early as July 2002. (*See infra* §XI.) Thus, both Morris and SIP qualify as prior art at least under 35 U.S.C. § 102(a)(1).

VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art at the time of the alleged invention of the '058 patent ("POSITA") would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with at least two years of work experience in the field of networking. (EX1002 ¶¶1-11, 16-64.)³ More education can supplement practical experience and vice versa. (*Id.*)

VII. OVERVIEW OF THE '058 PATENT

The '058 patent is directed to networking and the sharing of information for detecting an idle TCP connection. (EX1001, 2:57-59, 5:60-6:2.) Figure 7 illustrates such a process.

³ Petitioner submits the declaration of Dr. Bill Lin (EX1002), an expert in the field of the '058 patent. (EX1002 ¶¶1-11, 16-64; EX1003.)

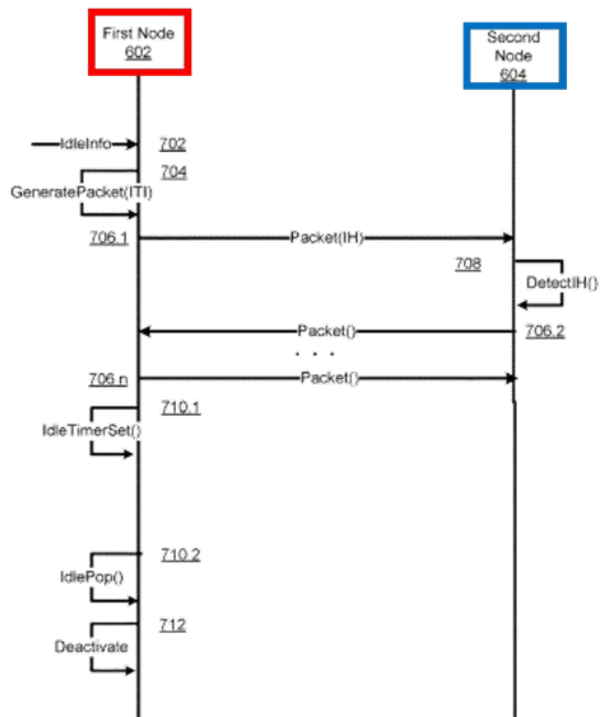


Fig. 7

(*Id.*, FIG. 7 (annotated); EX1002 ¶¶65-74.)

As discussed below, however, the challenged claims are rendered obvious over the prior art. (*See infra* §§IX-X; EX1002 ¶¶65-210; *see also id.* ¶¶20-64 (discussing technology background), citing, e.g., EXS. 1007-1009, 1011-1015, 1020-1028.)

VIII. CLAIM CONSTRUCTION

Under the applicable standard in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), claim terms are typically given their ordinary and customary meanings as understood by a POSITA at the time of the invention based on the claim

language, specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1313; *see also id.* at 1312–16. The Board, however, only construes the claims when necessary to resolve the controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015) (citation omitted). Petitioner submits that, for purposes of this proceeding, no term requires construction.⁴ (EX1002 ¶75.)

⁴ Petitioner reserves all rights to raise claim construction and other arguments in district court as relevant to those proceedings. A comparison of the claims to any accused products in litigation may raise controversies that are not presented here given the similarities between the references and the patent.

IX. DETAILED EXPLANATION OF GROUNDS

A. Ground 1: The Combination of Morris and SIP Render Obvious Claims 1, 9, 11, 17, 18, 43, 46, and 52

1. Claim 1

To assist the Board in navigating the mapping of the prior art to the arguably confusing claim language of claim 1, Petitioner initially notes that Morris discloses and/or suggests the features recited elements 1.a-c, 1.e, 1.g, and 1.i-j, which, *inter alia*, include features relating to a “second duration” for detecting a second time period (of a first type) in a first connection between an apparatus and a node, after the first connection is set up. The “second duration” is specified by metadata included in a first packet that is sent from the apparatus to the node to set up the first connection, as recited in element 1.f. As explained below with respect to claim elements 1.a-c, 1.e, 1.g, and 1.i-j, these elements relate to features that largely track the processes (and components to perform them) discussed by Morris (which is a pre-grant publication of the ’454 application, from which the ’058 patent claims priority). (See *e.g.*, Ex. 1005, FIGS. 2, 7 (below), ¶¶[0035], [0052], [0073], [0083], [0088], [0106]; *see also* §§II.B.2, X.)

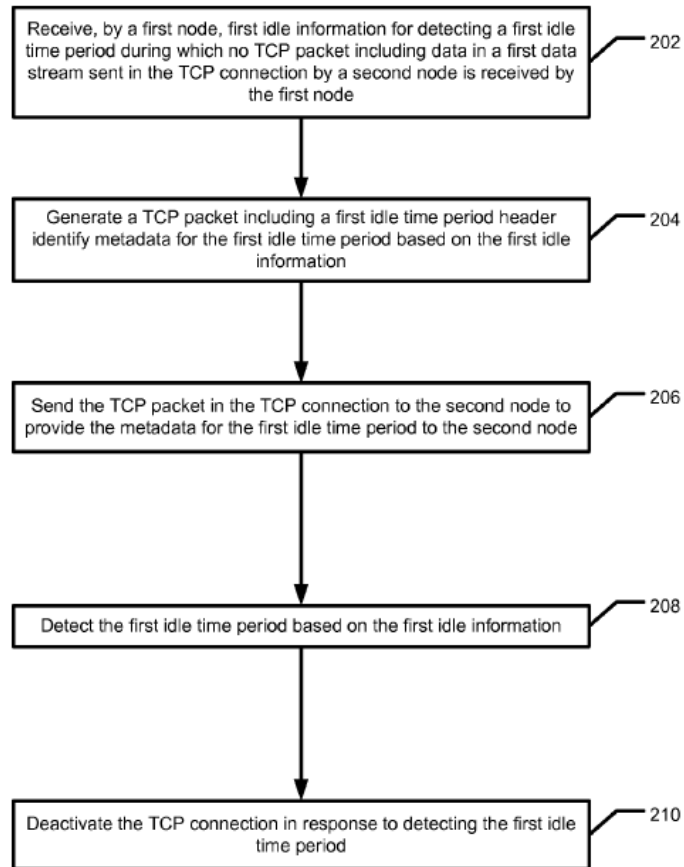


Fig. 2

(EX1005, FIG. 2.)

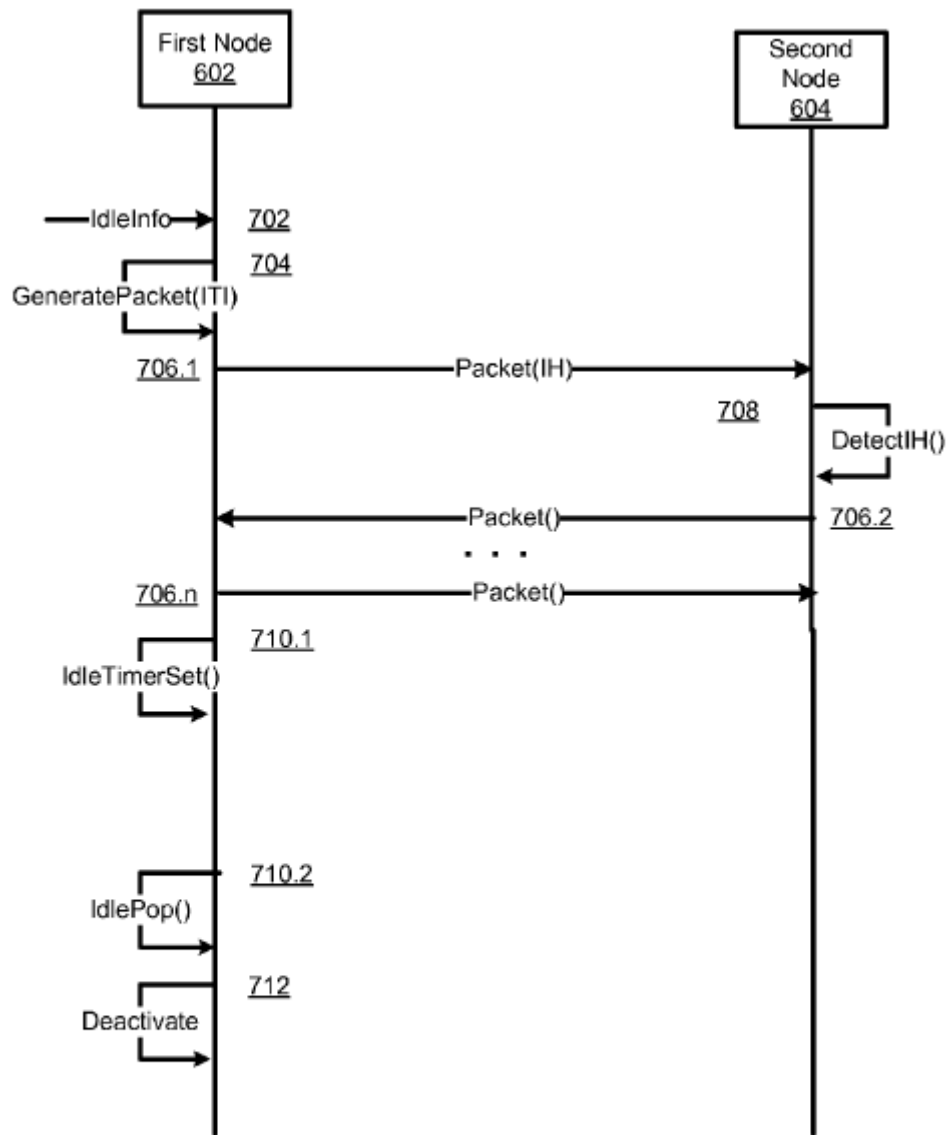


Fig. 7

(EX1005, FIG. 7.)

Morris, however, does not expressly disclose every feature recited in claim elements 1.d, 1.f, and 1.h, which relate, *inter alia*, to a “first duration” for detecting

a first time period (also of the first type) **during** at least a portion of the first connection including **a portion of the first connection setup** and require that a first packet used to setup the first connection is for use in a **protocol that is different from a transmission control protocol (TCP)**. (*See infra* §§IX.A.1.d, IX.A.1.f, IX.A.1.h.) But, as demonstrated below, a POSITA would have found it obvious to modify the processes/system of Morris to provide features consistent with those recited in elements 1.d, 1.f, and 1.h in light of the teachings/suggestions of SIP, in context of a POSITA’s knowledge at the time. (*Id.*)

a) An apparatus, comprising:

To the extent that the preamble of claim 1 is limiting, Morris discloses the limitations therein. (EX1002 ¶¶84-86.) For example, Morris is directed to “[m]ethods and systems ... for sharing information for detecting an idle TCP [transmission control protocol] connection.” (EX1005, ¶[0008]; *see also id.*, ¶¶[0005], [0006], [0009]-[0011].)

Morris discloses a hardware device 100 (“apparatus”) in Figure 1, exemplified by first node 602 or second node 604 in Figures 6-7, for carrying out its disclosed

method(s). (EX1005, ¶¶[0021]-[0023], [0040], [0126]-[0127], claims 11, 22; FIGS. 1, 6-7; *see also* EX1002 ¶¶76-78 (Morris overview).)⁵

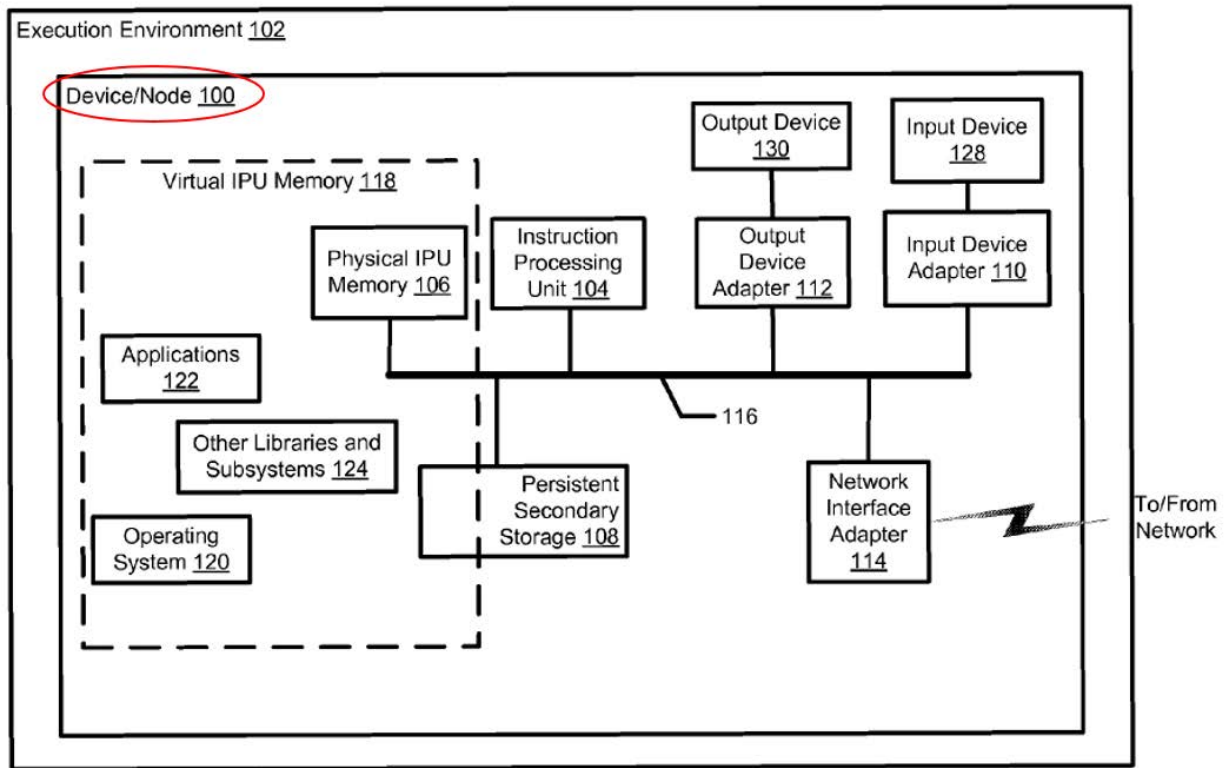


Fig. 1

(EX1005, FIG. 1 (annotated); EX1002 ¶¶85-86.)⁶

⁵ For purposes of its analysis, Petitioner maps the first node 602 in Morris to the “apparatus” in the preamble and the second node 604 to the “node” recited in claim element 1.g.

⁶ Morris also refers to the device 100 as node 100, as shown in Figure 1.

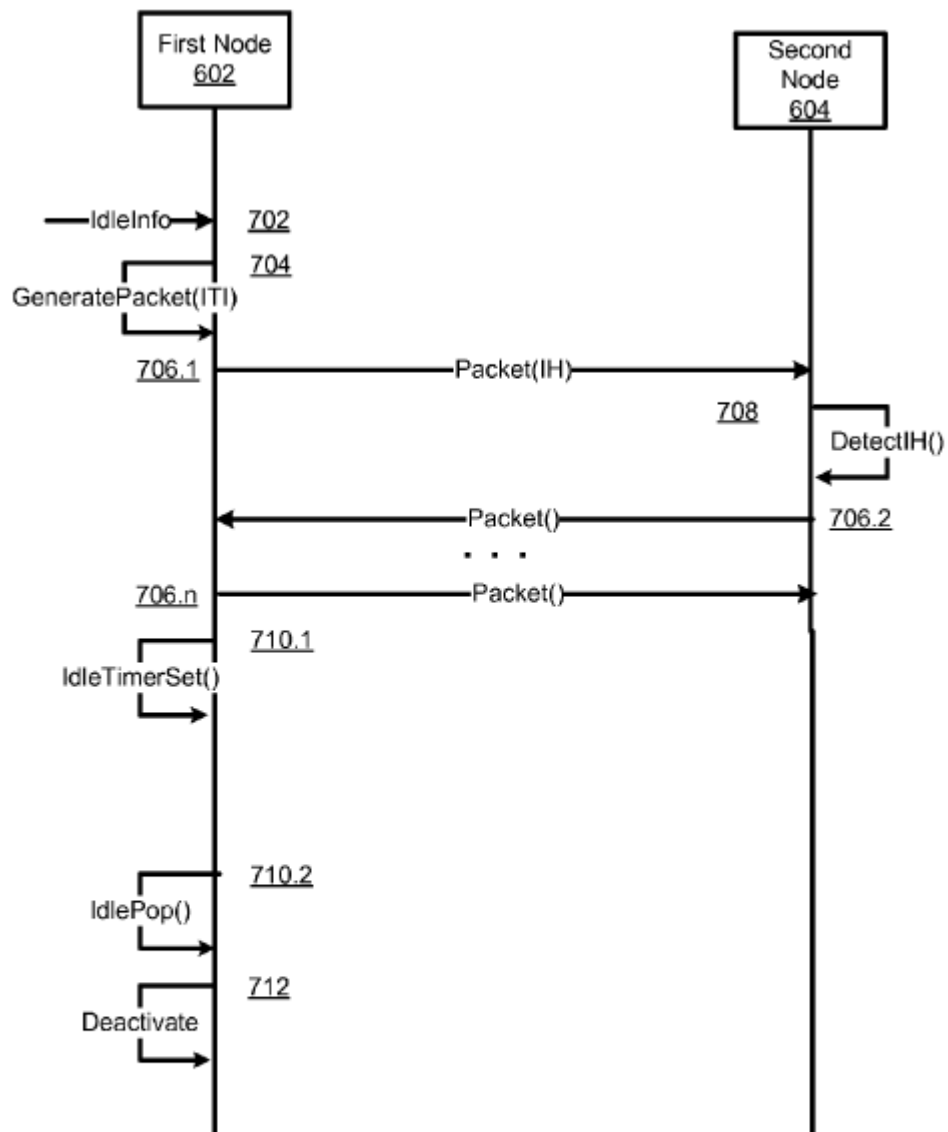


Fig. 7

(EX1005, FIG. 7.)

b) a non-transitory memory storing instructions; and

Morris discloses this limitation. (EX1002, ¶¶87-88.) For example, Morris discloses that its hardware device 100 (e.g., first node 602) includes instruction-processing unit (IPU) memory 106 and persistent secondary storage 108 (collectively, “non-transitory memory”) which stores instructions. (EX1005, ¶¶[0021]-[0028] (disclosing that the IPU 104 is an instruction execution machine which fetches instructions from memories 106 and/or 108), [0127], claims 11, 21-22.)

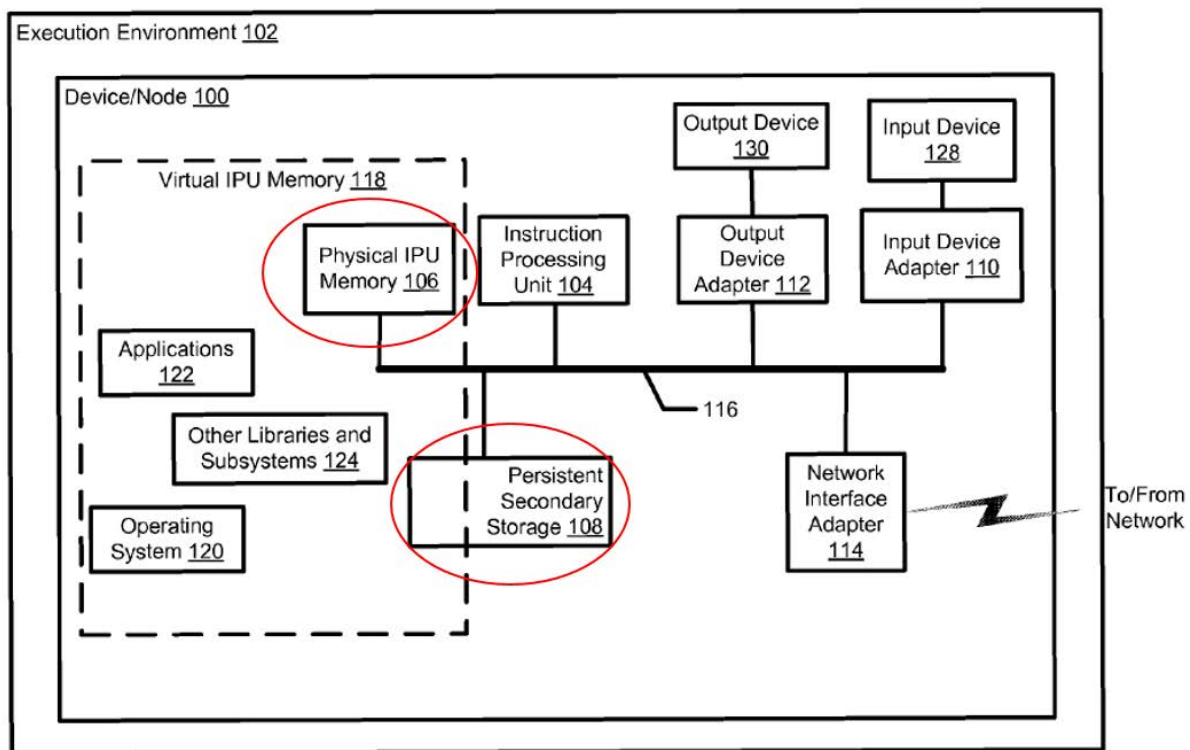


Fig. 1

(EX1005, FIG. 1 (annotated); EX1002, ¶¶87-88.)

- c) **one or more processors in communication with the non-transitory memory, wherein the one or more processors execute the instructions to:**

Morris discloses this limitation. (EX1002, ¶¶89-90.) For example, Morris discloses that its hardware device 100 (e.g., first node 602) includes IPU 104 which includes one or more microprocessors (“one or more processors”) in communication with the memories 106 and 108. (EX1005, ¶¶[0021]-[0028], [0127], claims 11, 21-22.)

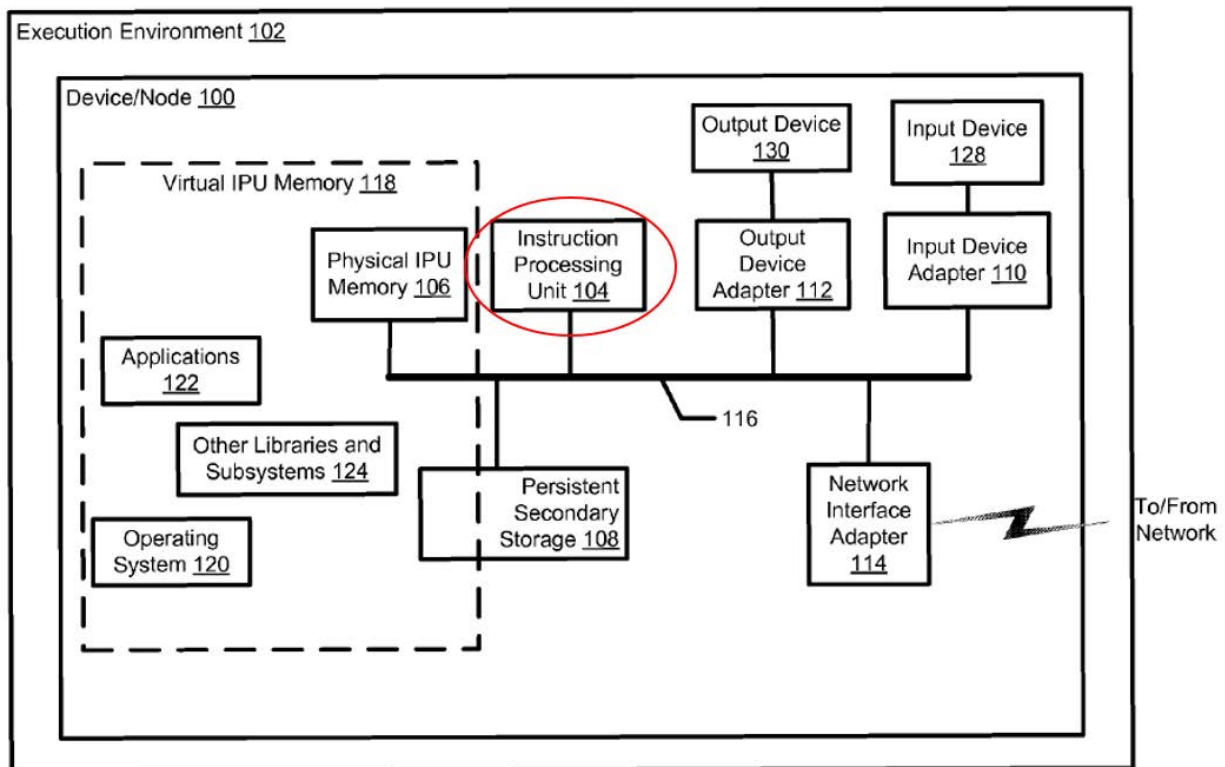


Fig. 1

(EX1005, FIG. 1 (annotated).)

Moreover, as discussed below, Morris discloses that the one or more processors execute the instructions set forth in claim elements 1.d-1.j, as claimed. (See *infra* §§IX.A.1.d-j; EX1002 ¶¶89-90.)

- d) identify, at the apparatus, first information on which at least a first duration for detecting a first type of time period is based, the first type of time period being started in response to detecting at least one of a received packet or a sent packet;**

Morris in combination with SIP discloses or suggests this limitation. (EX1002, ¶¶91-115.)

As noted at the outset of §IX, during connection setup when the metadata for the “second duration” is being sent by the apparatus to the node, the “first duration” recited in claim element 1.d is used to detect a first time period (of a first type). (See claim elements 1.d and 1.h.) After the connection setup, and after a use of the first duration is changed to a use of the second duration, the second duration is used to detect a second time period (also of the first type). (See claim element 1.i.; EX1002 ¶¶91-92.)

Morris is directed to sharing metadata regarding idle time information (e.g., for the second duration) during connection setup and then, after the connection is set up, using the idle time information to detect a time period (e.g., a timeout) that subjects the connection to deactivation. (See *infra* §§IX.A.1.f-g, IX.A.1.i.) Morris does not disclose detecting such a time period based on the claimed first duration

during the connection setup itself. (EX1002 ¶93; *see infra* §X.B.2.) However, it would have been obvious to a POSITA to consider and implement detection of a time period using the first duration during the connection setup, based on the teachings of SIP (EX1006) and the knowledge of a POSITA.

SIP, like Morris, is directed to a protocol in the networking field for enabling communication between two nodes. For example, SIP discloses the Session Initiation Protocol, which is an application-layer protocol for creating, modifying, and terminating sessions (between nodes) such as telephone calls, multimedia distribution, or multimedia conferences. (EX1006, Abstract, 8; *see also* EX1002, ¶¶79-83 (SIP overview).) Like Morris, SIP discloses that it enables Internet endpoints to agree on a characterization of a session (EX1006, 8-9) including “negotiation of session parameters to establish the session” (EX1006, 10-11; *see also* EX1005, ¶¶[0005], [0008]-[0011]; EX1002 ¶94.)

Both SIP and Morris also disclose respective three-way handshake procedures to establish communication between nodes. (EX1006, 16, 125; EX1005, ¶[0076].) Thus, SIP discloses networking features in the same technical field as Morris including negotiation of communication parameters and so a POSITA would have had reason to consider the teachings of SIP when implementing Morris. (EX1002 ¶¶95-96.)

As part of its protocol, SIP discloses an INVITE Client Transaction (ICT). (EX1006, 125-129 (§17.1.1).) SIP discloses that this ICT involves setting up the session using a three-way handshake where the client transaction sends an INVITE, the server transaction sends responses, and the client transaction sends an acknowledgment (ACK). (EX1006, 125; *see also id.*, 10-16.) Figure 5 shows the state machine for the ICT. (EX1006, 125; EX1002 ¶¶95-96.)

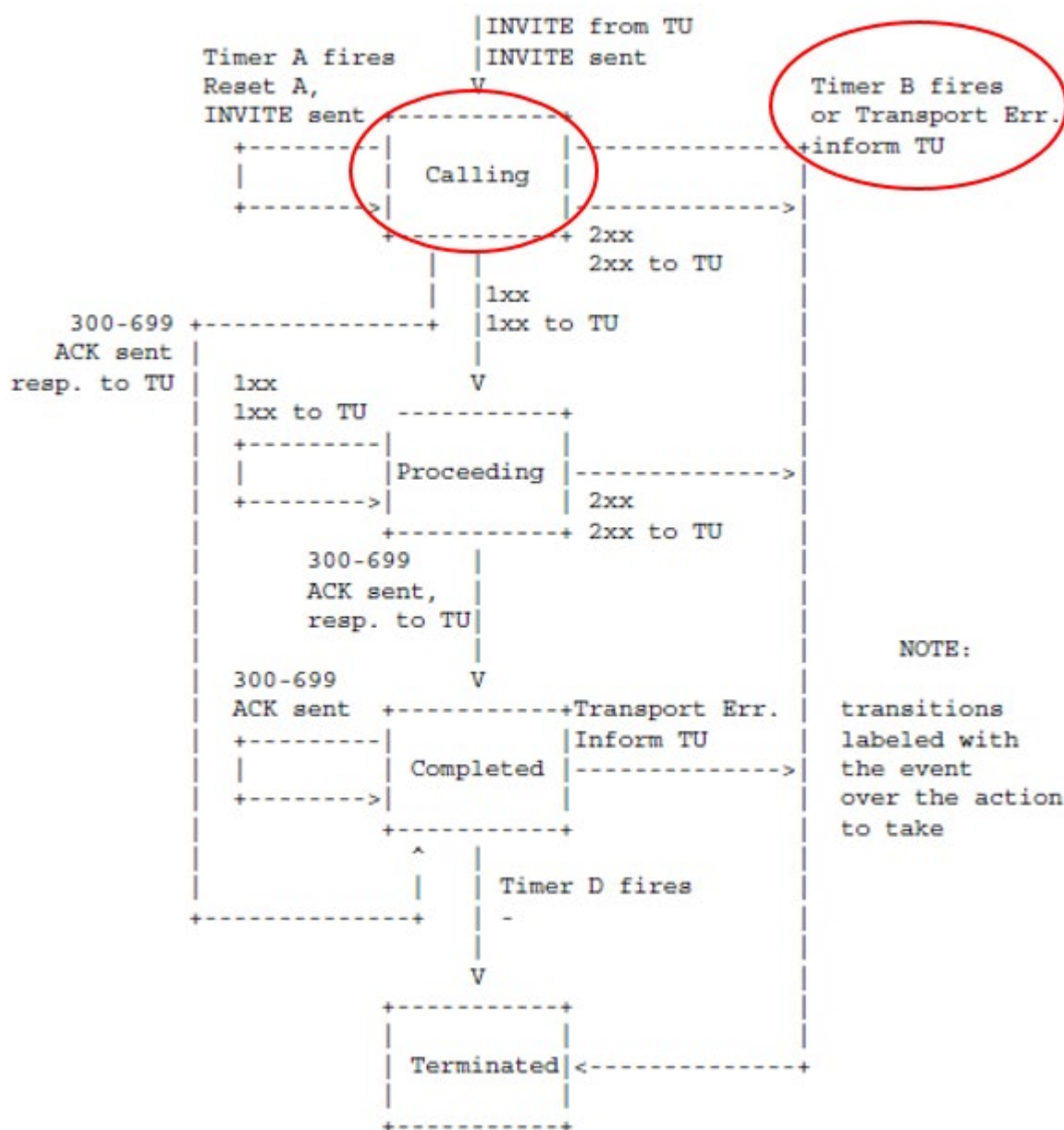


Figure 5: INVITE client transaction

(EX1006, 128 (FIG. 5 (annotated)).)

As shown, the ICT includes an initial “calling” state that a transaction user (TU) enters when the TU initiates a new transaction by sending an INVITE request (i.e., begin the handshake procedure). (EX1006, 125.) Upon the sending of the

INVITE request, the client transaction instance for the TU starts timer B which controls transaction timeouts and optional timer A (which controls retransmissions). (*Id.*)⁷ Timer A is set to a value of T1, and timer B is set to a value of “64*T1 seconds,” where “T1 is an estimate of the round-trip time (RTT)” between the client and server. (*Id.*, 125-126) The value of timer B allows for a certain number of retransmissions (e.g., seven) in case an unreliable transport protocol like UDP is used. (*Id.*, 126; EX1002 ¶97.)

When no response message to the INVITE request is received by the requesting TU for the duration of timer B such that the response message would have caused the calling state to advance to a subsequent state like a “proceeding” state or a “completion” state, timer B expires. (EX1006, 126, FIG. 5.) Upon expiration of timer B, the client transaction informs the TU that a timeout has occurred and

⁷ Depending upon the implementation of the transport layer, timer A (which controls retransmissions of the INVITE message) is also started. (EX1006, 125-126.) For example, when the transport layer is implemented using an unreliable transport protocol like UDP, timer A must be started. (*Id.*) Timer A is not required for a transport layer implemented using a reliable transport protocol like TCP. (*Id.*; see also *id.*, 10; EX1035, 1.)

proceeds to the “terminated” state. (*Id.*) The client transaction is destroyed “the instant it enters the ‘Terminated’ state.” (*Id.*, 128; EX1002 ¶98.)

As such, SIP discloses a mechanism to detect a timeout during the setup of a communication between two nodes using timer B, and closing the communication upon the timeout detection. A POSITA would have been motivated to consider and draw from such teachings of SIP when implementing Morris. (EX1002 ¶99.)

For example, Morris discloses negotiating the value of an idle time period (ITP) during connection setup and modifying timeout attributes for the established connection based on the negotiated ITP to detect timeouts. (*See, e.g.*, EX1005, FIGS. 1-7, ¶¶[0035]-[0040], [0069], [0082]-[0083].) Morris does not disclose detecting any timeouts during connection setup. However, Morris is concerned with wasting network bandwidth and resources by unnecessarily keeping communication between two nodes open due to idleness or underactivity or a connectivity problem (e.g., dead connection). (EX1005, ¶¶[0003]-[0005].) Thus, a POSITA would have been motivated to draw from the teachings of SIP, which discloses detecting a timeout when no response to an initial setup message is received and terminating the communication between the nodes. (EX1002 ¶100.)

In light of SIP’s teachings a POSITA would have been motivated to configure Morris’ apparatus, including the instructions stored in its non-transitory memory (*see* claim elements 1.b-c), such that the instructions included identifying, at the

apparatus, a value (“first information”) on which at least preliminary ITP information (“first duration for detecting a first type of time period”) is based. (EX1002 ¶101.) Like SIP, a POSITA would have considered identifying a value for the preliminary ITP information based on a round-trip time between the communicating nodes (e.g., first/second nodes 602/604 in Figure 7) like the value $64 * T1$ on which the timer B is based in SIP. (*Id.*; EX1006, 125-126.) Alternatively, a POSITA would have considered identifying a value for the first duration based on a timeout parameter from a prior connection or connection attempt between the nodes. (EX1002 ¶¶101-102; EX1083, Abstract, [0013], [0026], [0034], [0039]; EX1084, 7:5-17, 6:33-7:3; EX1085, 2:1-17, 2:33-44, 5:15-29, 6:37-57, claims 1, 22).)

In either case, a POSITA would have considered a value for the preliminary ITP information which would have allowed for a certain number of retransmissions of the initial setup packet in case the initial transmission was not successful. (EX1002 ¶103; EX1006, 126; EX1008, 45 (describing retransmission timeout in the context of an established TCP connection); EX1086, [0064].) Each of these would further motivate a POSITA to add the ability of detecting a timeout based on the preliminary ITP information when no response to an initial setup message is received and terminating the communication between the nodes to the disclosures of Morris. (EX1002 ¶¶103-104.)

For example, with respect to the alternate approach related to using a parameter from a prior connection, Morris teaches that ITP information negotiated during the connection setup and used, e.g., to set a timeout for the established connection may be based on information in an ITP header in a previously received packet in the same connection. (EX1005, [0058], [0094], claims 7, 12; *see also id.*, [0095] (disclosing the ITP may be dynamic).) Based on these teachings, it would have been obvious to further configure Morris such that an ITP from a previous connection between the nodes would have been saved and used during a new connection setup between the nodes until a new ITP value is negotiated during the new connection setup, as this was a known concept at the time of the alleged invention. (EX1002 ¶¶105-106.)

Like SIP, the proposed modification to Morris would have involved starting the preliminary ITP in response to detecting at least one of a received packet or a sent packet such as in response to detecting a packet sent to initiate connection setup in Morris. (EX1005 ¶[0076].) And once a value for the ITP is negotiated during connection setup and the connection is established, the Morris-SIP system would have updated the preliminary ITP information to the negotiated ITP information such that the negotiated ITP information would have been used to detect a similar timeout in the established connection, as discussed below. (EX1002 ¶¶106-107.)

For example, in the proposed modification, the preliminary ITP information (set, e.g., based on the round-trip time or a saved parameter from a previous connection) would have been used to configure a user-timeout type of timeout similar to Morris, i.e., SIP's Timer B ("first type of time period") such that it would have been initiated upon sending of the initial connection setup packet in Morris' TCP-based connection establishment procedure. (EX1005 ¶¶[0069], [0076], [0120]; EX1002 ¶108.)

Such a user timeout type of timeout would have been initiated at the sending node upon the sending of a non-empty packet and would run at least until an acknowledgment (ACK) associated with the sent packet is successfully received at the sending node. (EX1002 ¶109; EX1005 ¶[0069]; EX1018, 3.)⁸ This type of user timeout operates similar to the Timer B in SIP, as detection of both of them leads to the closing of the connection. (EX1002 ¶109.)

⁸ While RFC 793, which describes TCP and upon which the Morris disclosure is based, does not describe initiating a timeout similar to a user timeout during connection setup, it would have been obvious to modify Morris to include such a mechanism in the Morris-SIP system, as discussed below. (EX1002 ¶109.)

Thus, while SIP's Timer B runs during connection setup and Morris's TCP user timeout runs after the connection is set up, a POSITA would have considered both SIP's Timer B and Morris' user timeout to be similar types of timeouts as they function similarly (e.g., they are both initiated upon the sending of a packet and if no response to the packet is received for the timeout duration, the connection is deactivated, as recited in claim elements 1.h-i). (EX1002 ¶110.) As such, when implementing SIP's teachings regarding Timer B used for timeout detection during connection setup in Morris' system/method, as discussed herein, a POSITA would have also drawn from Morris's teachings regarding implementation of the similar TCP user timeout in Morris. (*Id.*) And the "first type of time period" (claim elements 1.d, 1.f-i) in the Morris-SIP combination is a type of time period characterized by, e.g., starting upon the sending of a response-eliciting packet (like Morris's ACK-eliciting packets or SIP's Invite message) and if no response to the sent packet is received for the duration of the time period, leading to deactivation of the connection. (*Id.*; *see also infra* §§IX.A.1.f-i.)

A POSITA would have found it obvious and would have known how to modify Morris to incorporate SIP's teachings as proposed above, for the reasons discussed above and below. (*See, e.g.*, EX1006, 125-127, FIG. 5; EX1002 ¶111) For example, the use of detecting a timeout during setup or establishment of communication between two nodes and closing down the communication upon

timeout detection was well-known at the time of the alleged invention. (*See, e.g.*, EX1019 ¶¶[0182]-[0183], [0189], [0410], FIGS. 8G, 21; EX1034 ¶¶[0010], [0019]-[0026]; EX1086, [0064]; EX1002 ¶111.)

A POSITA would have recognized that networking concepts implemented on one layer of the network stack (such as the timeout detection mechanism during session establishment setup in the application layer in SIP) could have been implemented on another layer of the network stack. (EX1019 ¶¶[0182]-[0183], [0189], [0410], FIGS. 8G, 21; EX1002 ¶¶111-112.) Indeed, the timeout detection mechanisms (like those discussed below in claim elements 1.h-1.i) could have been implemented on an application layer (or another layer other than a transport layer). (EX1002 ¶¶111-112; *see also infra* §IX.A.1.f.)

In this regard, a connection or session between two communicating nodes is not limited to the transport layer, but can exist on other layers as well, and the problems associated with such connections like wasted bandwidth apply regardless of the layer. (EX1002 ¶112.) In the networking field, protocols often mix and match concepts from other protocols including the use of timeout mechanisms. (EX1002, ¶112; EX1009, 101-102; EX1007, 1:14-28, 1:49-50, 1:63-2:7, 4:8-11, 4:25-37, 5:21-28; EX1028, 16:66-7:2, 20:36-41, 23:45-59.). Thus, a POSITA would have understood that certain problems and mechanisms regarding the establishment and management of connections between two nodes may be common regardless of

whether the connection is at the transport layer or the application layer, and therefore a POSITA would have considered solutions to such problems irrespective of the layer. (EX1002 ¶112.)

In view of the foregoing, a POSITA would have had the capability and knowledge to implement, and found it obvious to try, the above modification to include a timeout detection mechanism during connection setup in Morris (as taught by SIP) while ensuring that Morris' apparatus performed properly. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Therefore, a POSITA would have had a reasonable expectation of success that the combined Morris-SIP system would have been operated as expected. (EX1002 ¶113.)⁹ *See also Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379-81 (Fed. Cir. 2023).

The above modification would have been a mere combination of known technologies (e.g., SIP's disclosed concept of detecting a timeout during communication establishment between nodes incorporated into Morris' disclosed systems/methods for establishing connections while allowing for negotiation of connection parameters), according to known methods (e.g., timeout detection

⁹ The proposed modification would have resulted in the Morris-SIP system implementing a protocol different from TCP. (*See infra* §IX.A.1.f.)

mechanisms during connection setup as widely known in the networking field), to achieve predictable results (e.g., the ability to detect and shut down idle, underactive, or dead link during connection setup, and applying the negotiated communication parameter(s) to detect a lack of activity in the connection after connection establishment). (EX1002 ¶114.) *See KSR*, 550 U.S. at 416–18.

Therefore, the Morris-SIP system discloses or suggests claim element 1.d. (EX1002 ¶115.)¹⁰

e) allocate a resource for a first connection;

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶116.) For example, Morris discloses allocating a resource for a first connection. (EX1005 ¶[0109] (disclosing that during deactivation, “a resource allocated for maintaining and/or activating the TCP connection” is released), claim 18; *see also id.* ¶¶[0003]–[0004] (describing network bandwidth as an example of connection resource).)

¹⁰ A POSITA would have had the same motivation, skills, capabilities, and expectation of success, as described above for element 1.d in configuring the one or more processors in the combined Morris-SIP system/process to execute the instructions for perform the features recited in the remaining claim elements. (*See, e.g., infra* Sections IX.A.1.e-j, IX.A.2-7.)

- f) **generate a first packet including a first parameter field identifying first metadata for use in determining a second duration for detecting the first type of time period, the first packet for use in a protocol that is different from a transmission control protocol (TCP);**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶¶117-121.) For example, the Morris-SIP combination discloses generating a packet (“first packet”) including an ITP header (“first parameter field”) identifying first metadata (e.g., a value) for use in determining negotiable ITP information (“second duration”) for detecting the user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B (“first type of time period”). (EX1005, [0073]-[0081] (describing this feature with respect to block 204 in Figure 2 and exemplary packet with ITP header 820 in Figure 8), [0082] (similarly describing this feature with reference to message 704 in Figure 7), claims 11, 22.)¹¹

¹¹ Petitioner references the ITP information included in the first packet in Morris being mapped to the “second duration” as “negotiable” ITP information to distinguish it from the “preliminary” ITP information being mapped to the “first duration” in element 1.d. (EX1005, [0005], [0094], [0105], [0124].)

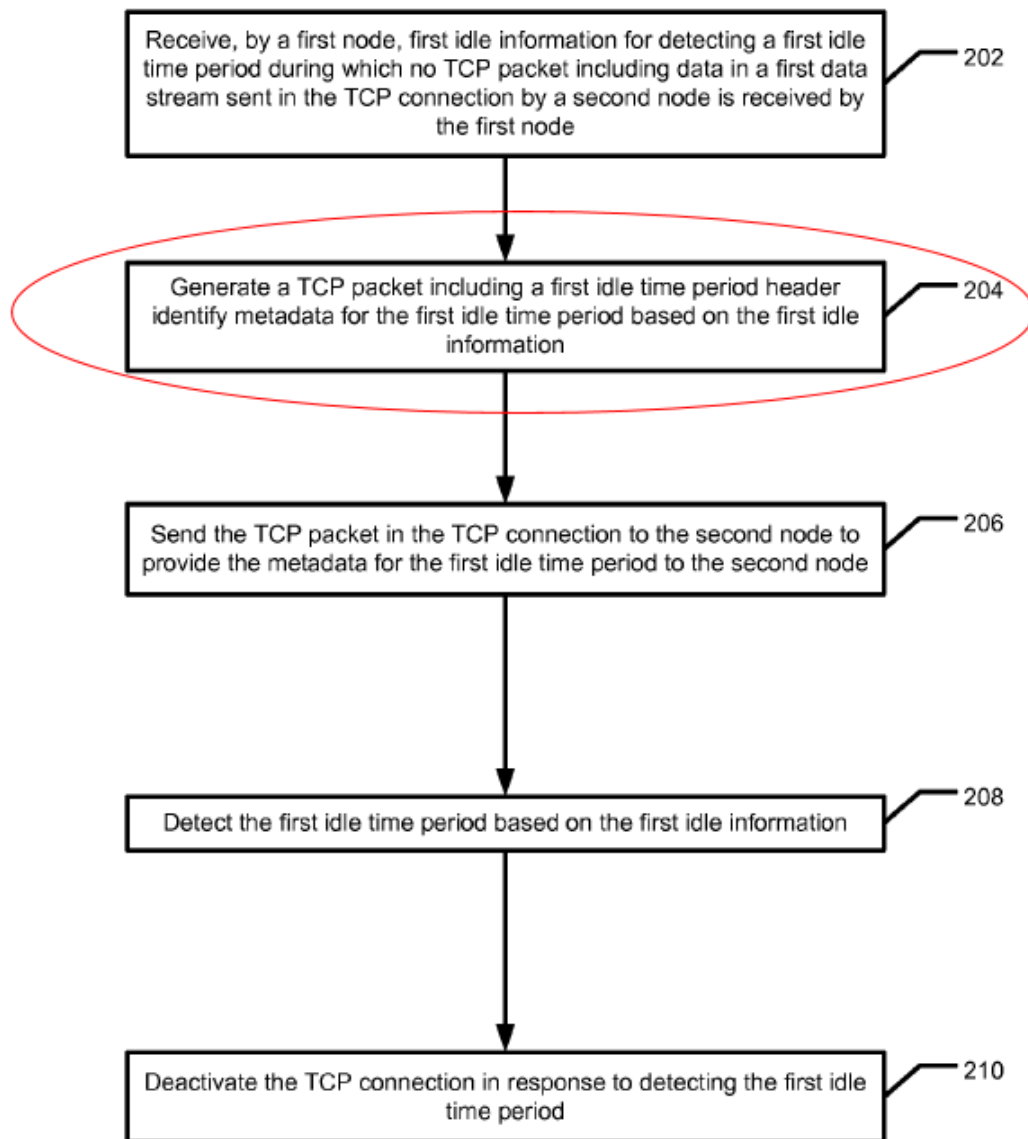


Fig. 2

(EX1005, FIG. 2 (annotated).)

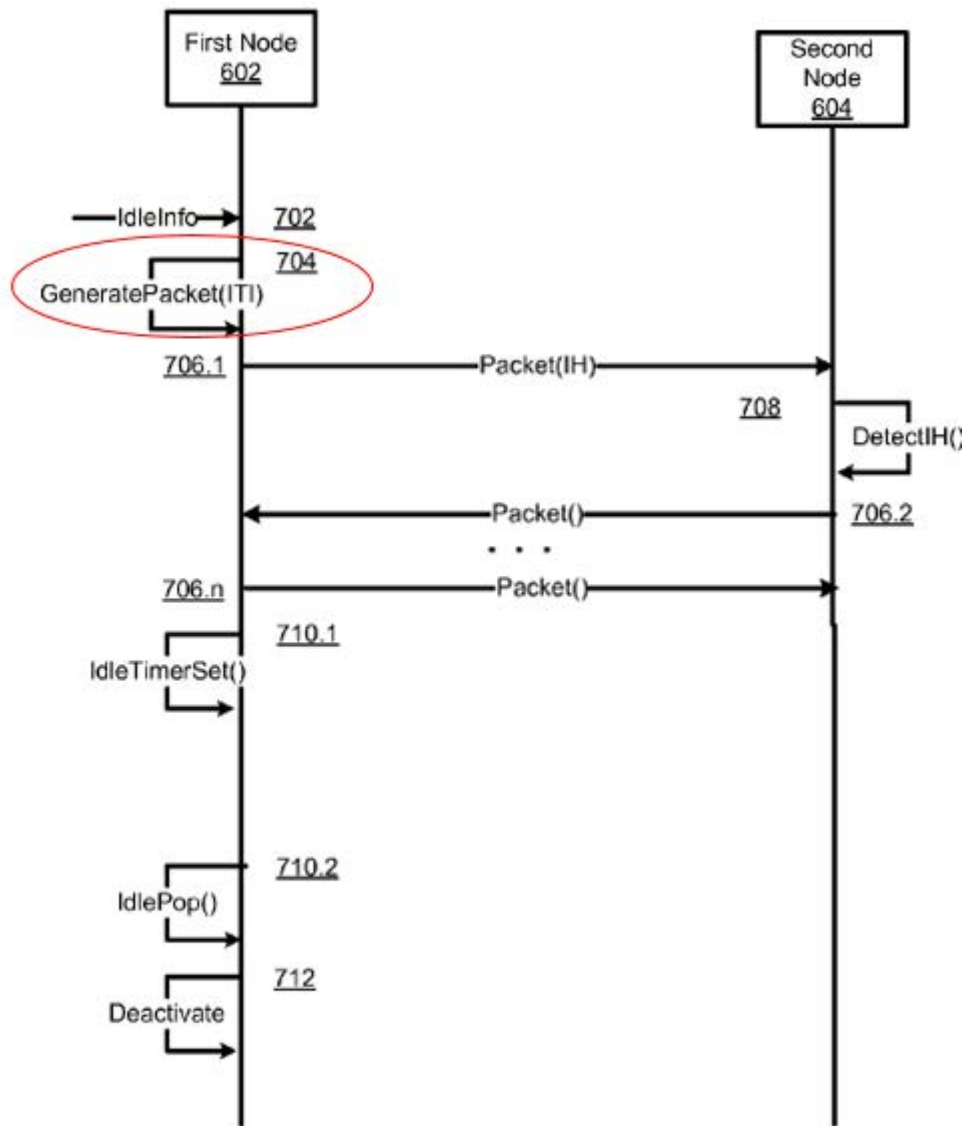


Fig. 7

(EX1005, FIG. 7 (annotated).)

The Morris-SIP combination further teaches that the first packet is for use in a protocol that is different from a TCP for at least two reasons. (EX1002 ¶118.)

First, the combined Morris-SIP system implements a protocol different from TCP by inclusion of a mechanism to detect inactivity during connection setup in the Morris system based on SIP's teachings, as explained above with respect to claim element 1.d. (EX1002 ¶119; *supra* §IX.A.1.d.) This is because TCP (as defined by RFC 793) does not disclose the option (e.g., by using the options field in a TCP header) to introduce the mechanism taught by the Morris-SIP system. (EX1005, [0002], [0051], [0078], [0109]; *see generally* EX1008; *see also infra* §§IX.A.3.a, X.A.1.) Thus, the Morris-SIP system implements a protocol that is different from TCP for establishing a connection. (EX1002 ¶119; *see also infra* §X.A.)

Second, the combined Morris-SIP system implements a protocol different from TCP based on PO's understanding of the claims. According to PO, the "protocol that is different from a TCP" in claim 1 encompasses a TCP-variant protocol. For example, claim 53 of the '058 patent, which depends from claim 1, recites that "the protocol [that is different from a TCP] includes a TCP-variant protocol." (EX1001, 30:11.) In patents related to Morris which share substantially the same specification as Morris, PO has characterized and claimed Morris' above-noted TCP-based disclosures in the context of a TCP-variant protocol using TCP-variant packets in a TCP-variant connection. (*See, e.g.*, EX1037, claim 1; EX1036,

claim 1; EX1087, claim 78.)¹² In addition, PO has further asserted that its TCP-variant protocol encompasses a UDP-based protocol, which is not a TCP-based protocol. (*See, e.g.*, EX1088, 2, 5; EX1089, 2, 5; EX1017, 252-259.)¹³ Thus, in light of claim 53 stating that the protocol different from TCP includes a TCP-variant protocol and PO's understanding that Morris teaches TCP-variant protocols, to the extent that the Board finds that the Morris-SIP combination encompasses a TCP-variant protocol, it still teaches that the first packet is for use in a protocol that is different from the TCP, to the extent this feature can be understood. (EX1002 ¶120)

Therefore, the Morris-SIP combination discloses or suggests claim element 1.f. (EX1002 ¶121.)

¹² Petitioner does not agree that the claims reciting the TCP-variant features in PO's asserted patents are compliant with 35 U.S.C. § 112. (*See, e.g.*, EX1080, 68-74.)

¹³ Petitioner's references to PO's infringement allegations are not indicative of any concession that any accused instrumentality infringes any asserted claim of PO's patent(s).

- g) set up the first connection, by sending, from the apparatus to a node, the first packet to provide the first metadata to the node, for use by the node in determining the second duration for detecting the first type of time period;**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶122.) For example, the Morris-SIP combination discloses setting up the first connection, by sending, from the first node 602 (“apparatus”) to a second node 604 (“node”), the first packet to provide the first metadata to the second node 604, for use by the second node 604, in determining the negotiable ITP information (“second duration”) for detecting the user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B (“first type of time period”). (EX1005, [0083]-[0084] (describing this feature with respect to block 206 in Figure 2 and message 706.1 in Figure 7), claims 11, 22.)

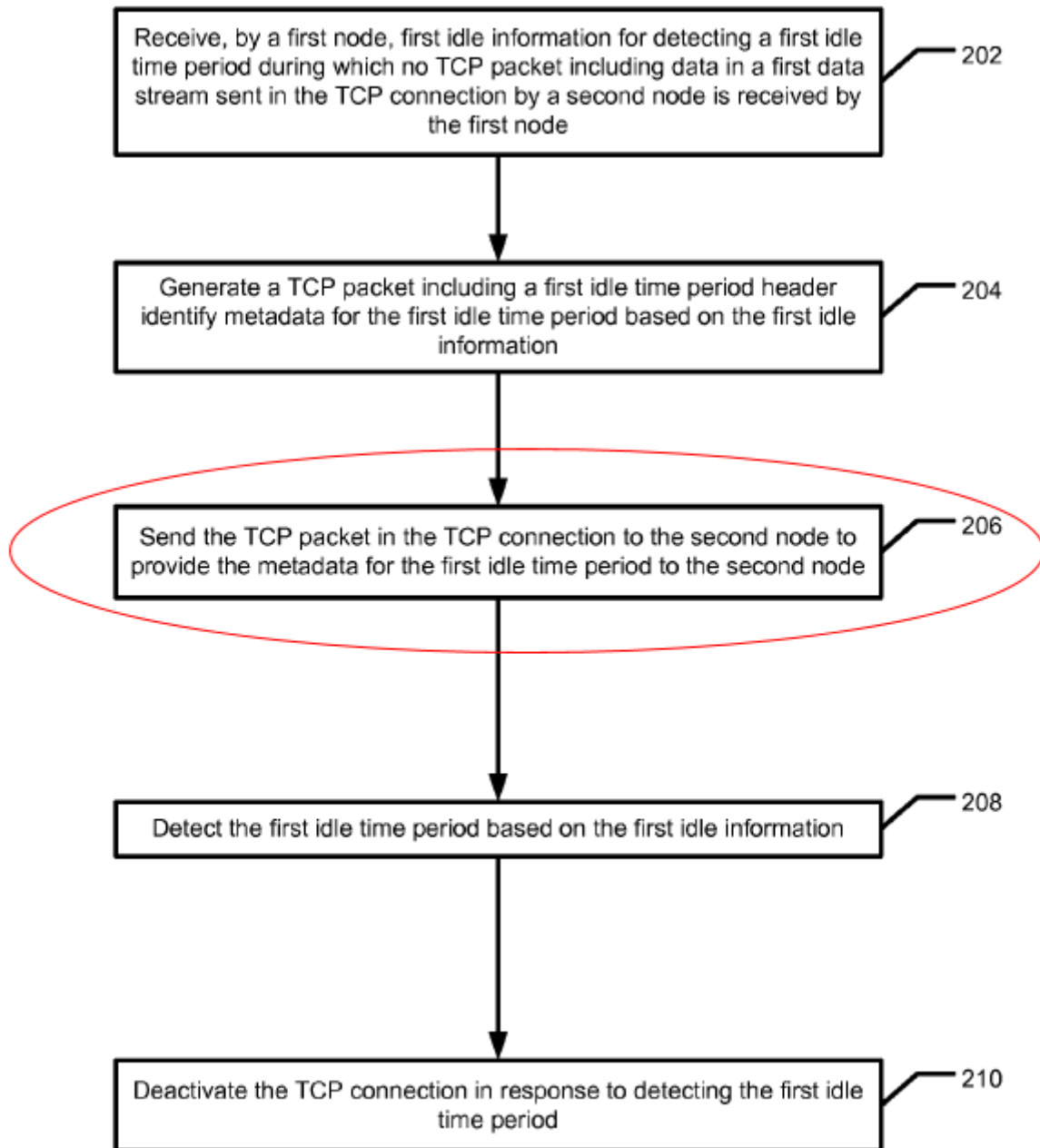


Fig. 2

(EX1005, FIG. 2 (annotated).)

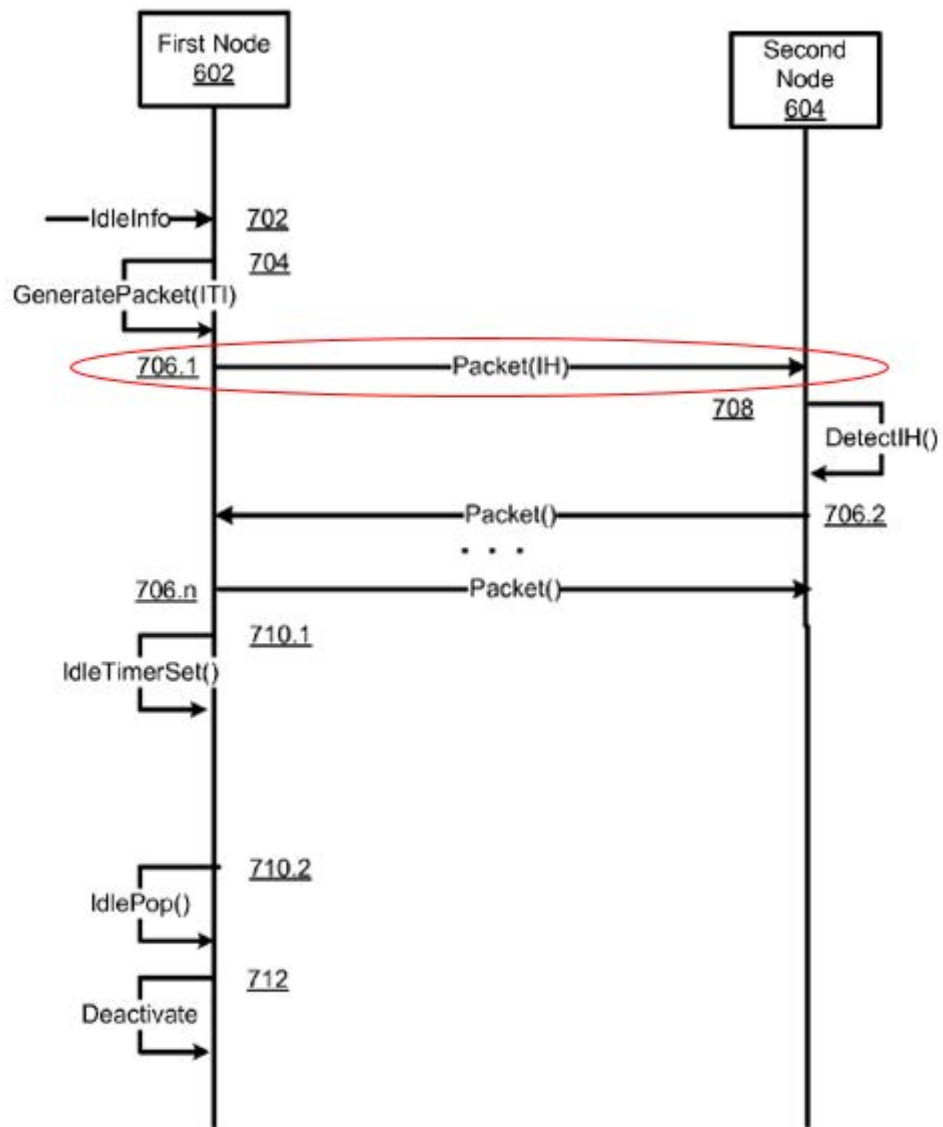


Fig. 7

(EX1005, FIG. 7 (annotated).)

- h) in response to detecting, based on the first duration and an absence of one or more packets and by the apparatus during at least a portion of the first connection including at least a portion of the first connection set up, a first time period of the first type of time period, at least partially close the first connection, by releasing, by the apparatus, the resource allocated for the first connection;**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶123.) For example, this feature is taught for at least the reasons explained in claim element 1.d. (*See supra* §IX.A.1.d.) For example, the Morris-SIP system discloses that in response to detecting, based on the preliminary ITP information (“first duration”) and an absence of an ACK packet acknowledging the sent first packet in element 1.g (“one or more packets”) and by the first node 602 during at least a portion of the first connection including at least a portion of the first connection setup, a preliminary ITP (“first time period”) of the user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B (“first type of time period”), at least partially close the first connection, by releasing, by the first node 602, the resources allocated for the first connection. (EX1005, [0088]-[0089] (describing block 208 in Figure 2 relating to detection of the ITP at first node), [0092]-[0093] (similar), [0096]-[0097] (describing detection of ITP at first node 602 by way of messages 710.1 and 710.2 in Figure 7), [0106]-[0109] (describing block 210 in Figure 2 and message 712 in

Figure 7 which relate to first node 602 at least partially closing the connection by releasing resources allocated for the connection).)

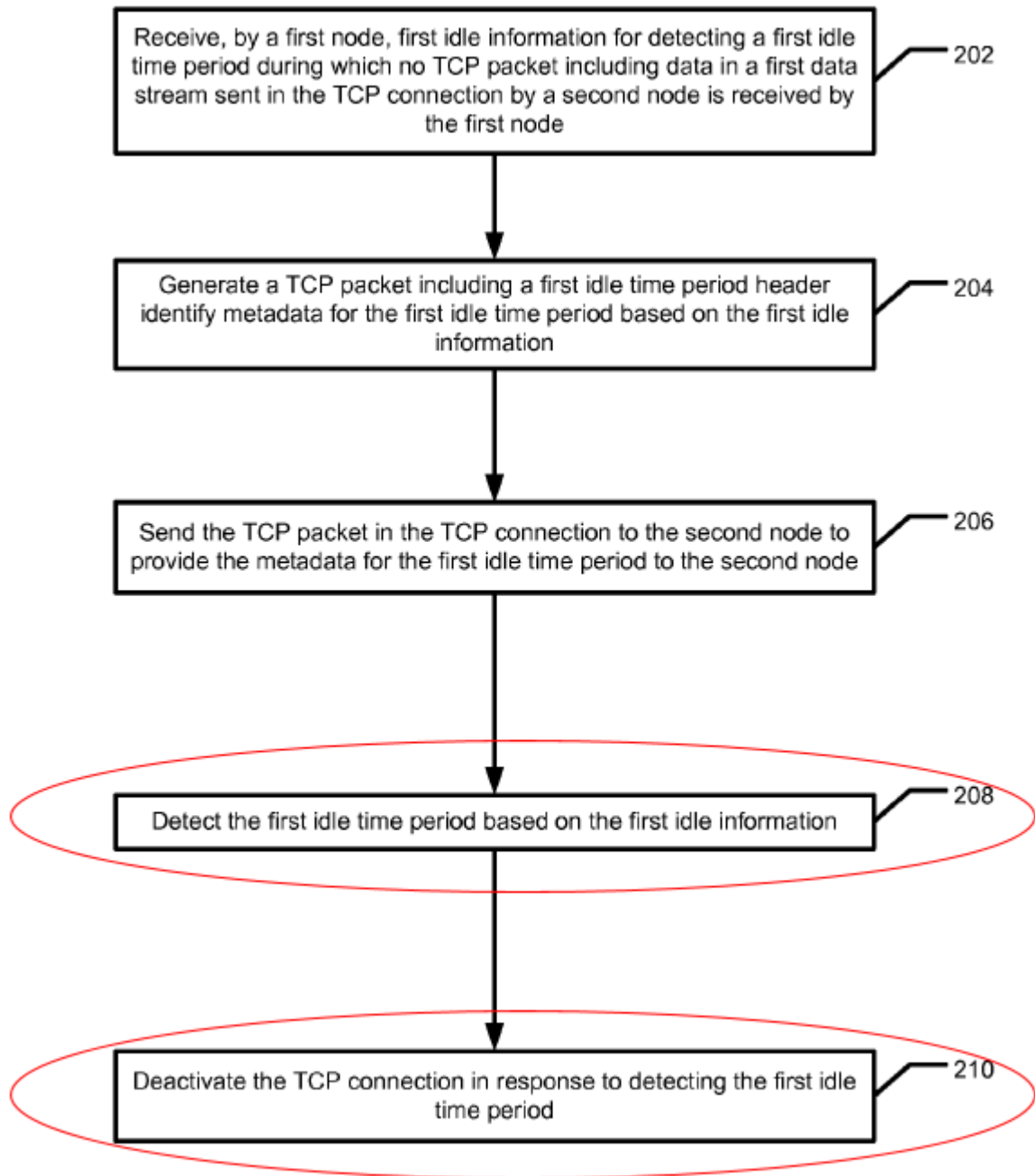


Fig. 2

(EX1005, FIG. 2 (annotated).)

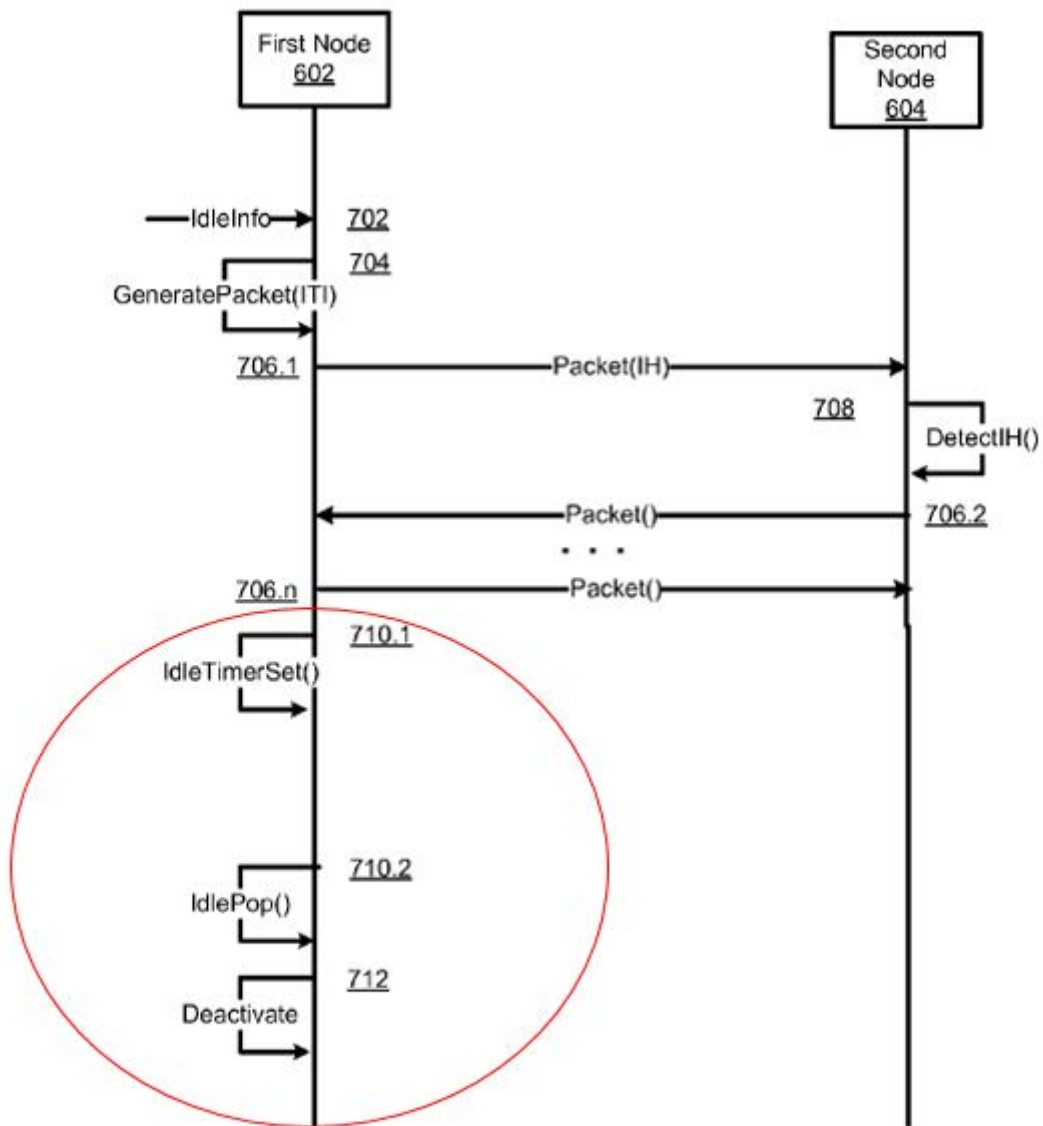


Fig. 7

(EX1005, FIG. 7 (annotated).)

- i) **in response to detecting, based on the second duration and an absence of at least one packet and by the apparatus after the first connection set up and a use of the first duration is changed to a use of the second duration, a second time period of the first type of time period, at least partially close the first connection, by releasing, by the apparatus, the resource allocated for the first connection, such that, during the second time period of the first type of time period, a packet including no application data is capable of being sent or received without a second time period timer being reset; and**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶¶124-126.) For example, the Morris-SIP combination discloses that in response to detecting, based on the negotiable ITP information (“second duration”) and an absence of at least one ACK packet (“at least one packet”) acknowledging a previously sent ACK-eliciting packet and by the first node 602 (“apparatus”) after the first connection setup (e.g., after the three-way handshake) and a use of the preliminary ITP information (“first duration”) is changed to a use of the negotiable ITP information (“second duration”), a negotiated ITP (“second time period”) of the user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B (“first type of time period”), at least partially close the first connection, by releasing, by the first node 602, the resources allocated for the first connection. (EX1005, [0088]-[0089], [0092]-[0093], [0095], [0096]-[0097], [0106]-[0109], [0105], [0124], claims 11, 22.)

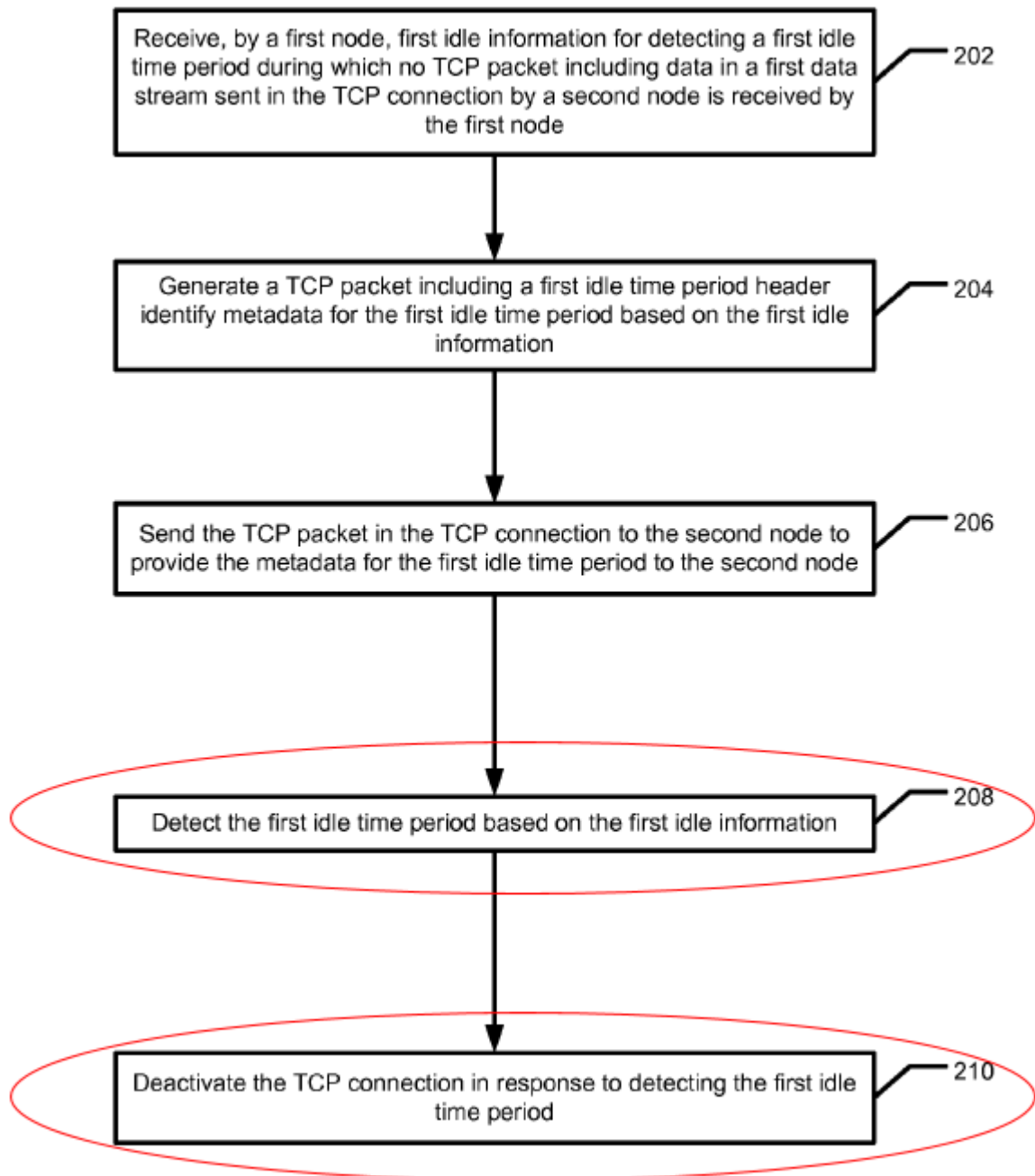


Fig. 2

(EX1005, FIG. 2 (annotated).)

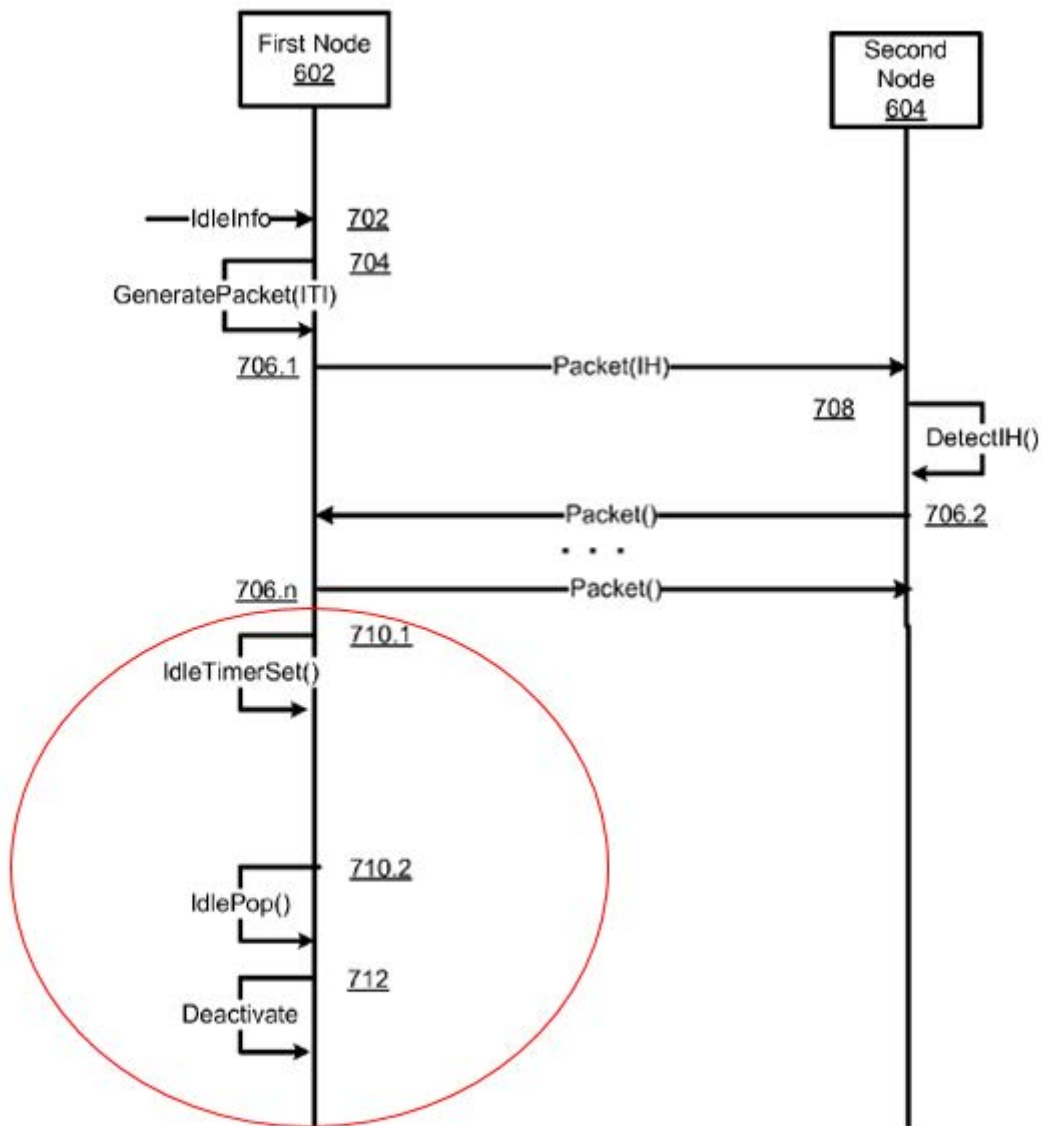


Fig. 7

(EX1005, FIG. 7 (annotated).)

In particular, after the connection is set up which involves the apparatus sharing the negotiable ITP information with the node using the first packet (claim elements 1.f-g), the preliminary ITP information (“first duration”) being used to

detect a timeout during the connection setup would have been updated (“changed”) to the negotiable ITP information (“second duration”) included in the sent packet. In the proposed combination, the reason for sharing the negotiable ITP information in the packet sent to the second node is to set a timeout attribute like the user timeout (and like SIP’s Timer B) to a negotiated value. (EX1002 ¶125; EX1005, [0008], [0069], [0072], [0086].)

The Morris-SIP combination further discloses or suggests that during the negotiated ITP (“second time period”) of the user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B (“first type of time period”), an empty packet (“a packet including no application data”) is capable of being sent or received without a timer associated with the negotiated ITP (“second time period timer”) being reset. (EX1005, [0101].)¹⁴ For example, Morris discloses that “an empty TCP packet may be received **while** a potential idle time period is being monitored.” (*Id.*) An empty packet is a packet that would not have included any application data. (EX1002 ¶126.) Morris further discloses that in response to receiving an empty packet, the

¹⁴ Petitioner assumes for purposes of its analysis here that the “second time period timer” is related to the claimed second time period, which Petitioner maps to a negotiated ITP.

timer associated with the negotiated ITP may or may not be reset “based on whether or not a received empty TCP packet matches a specified condition.” (EX1005, [0102].) Thus, if the received empty packet does not match a specified condition, it is a packet including no application data that is “capable” of being received without the timer associated with the negotiated ITP being reset, as claimed.

- j) **in response to detecting, based on a third duration, a third time period of a second type of time period that is detected based on one or more criteria that is different from that on which detection of the first time period and the second time period of the first type of time period are based, perform at least one action, where the third duration is determined based on a first algorithm that is different from a second algorithm on which a determination of the second duration is based.**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶¶127-131.)¹⁵ For example, the Morris-SIP combination discloses that in response to detecting, based on a duration of a keep-alive period (“third duration”), a keep-alive period (“third time period”) of a keep-alive type of time period (“second type of time period”), send at least one keep-alive packet (“perform at least one action”). (EX1005, [0086]; *see also id.*, [0069]-[0071], [0085], [0099], claim 14.)

¹⁵ The analysis of this limitation is not impacted by Petitioner’s alternative mappings of the “first packet” in element 1.f.

The Morris-SIP combination further discloses or suggests “a third time period of a second type of time period that is detected based on one or more criteria that is different from that on which detection of the first time period and the second time period of the first type of time period are based.” For instance, the detection of the preliminary ITP and the negotiable ITP (“the first time period and the second time period”) would have been based on a timer or other mechanism associated with a timer similar to the user timeout (and like SIP’s Timer B) in the Morris-SIP combination, where the criteria involves monitoring for acknowledgments to previously sent data packets. (EX1002 ¶128; EX1005, [0092]; EX1018, 3.) On the other hand, detection of the keep-alive period (“third time period”) of the keep-alive type of time period (“second type of time period”) would have been based on a timer or other mechanism associated with the keep-alive type of time period, where the criteria involves monitoring for any non-empty packets sent or received in the connection (i.e., criteria different than the criteria used to detect the user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B). (EX1002 ¶128; EX1005, [0086].)

The Morris-SIP combination further discloses or suggests that the duration of the keep-alive timer (“third duration”) is determined based on a first algorithm that is different from a second algorithm on which a determination of the negotiable ITP information (“second duration”) is based. (EX1002 ¶129.) For example, Morris

discloses that “one or more algorithms for generating a duration of time for detecting an idle time period may be associated with identifiers.” (EX1005 ¶[0061].) While Morris does not explicitly disclose using different algorithms to determine the claimed second and third durations, it would have been obvious to configure the Morris-SIP system this way. For example, the received negotiable ITP in the first packet (claim element 1.f) may further include and/or reference a first algorithm identifier. (EX1002 ¶129; EX1005 ¶[0061].) Based on this first algorithm identifier, a duration generator for performing the identified algorithm would have been determined by the system to determine a duration of the ITP that can be used to configure a user-timeout type of timeout similar to Morris, i.e., SIP’s Timer B (“first type of time period”). (EX1002 ¶¶129-130; EX1005 ¶[0061].) Similarly, the duration of the keep-alive timer (or the keep-alive timer itself) may further include and/or reference a second algorithm identifier identifying a different algorithm, based on which the keep-alive timeout may be configured. (EX1002 ¶¶129-130; EX1005 ¶[0061].)

Given the different mechanisms by which the user timeout/SIP’s Timer B and keep-alive timeout operate, a POSITA would have expected to configure their durations differently including by using different algorithms, as Morris itself envisions using algorithm identifiers associated with its idle time periods. (EX1002 ¶¶130-131; EX1005 ¶[0061].) A POSITA would have known that there are a limited

number of options in setting these types of timeouts, i.e., setting them to the same value or different values depending upon the operational objectives of the system. (EX1002 ¶131.) For example, in one implementation, it would have been obvious to use different algorithms to set the keep-alive timeout and the user-timeout type of timeout similar to Morris, i.e., SIP's Timer B such that the keep-alive timeout expires before the user timeout type of timeout as suggested by Morris. (EX1005, [0086]; *see also infra* §IX.A.4.b.1.) This would allow the system to attempt to keep the connection alive before the longer timeout is detected (and thereby prevent deactivation). A POSITA would have thus had a reasonable expectation of success in the modified Morris-SIP system operating properly. (EX1002 ¶131.)

2. Claims 9, 11

- a) 9: The apparatus of claim 1, wherein the apparatus is configured such that the second duration is capable of being different from the first duration.**
- b) 11: The apparatus of claim 9, wherein the apparatus is configured such that the second duration is the same as the first duration, despite being capable of being different from the first duration.**

The Morris-SIP combination discloses or suggests the limitations of claims 9 and 11. (EX1002, ¶¶132-135.) As discussed above, the preliminary ITP information (“first duration”) is set based on, e.g., the round-trip time or a saved parameter from a previous connection. (*See supra* §IX.A.1.d.) The negotiable ITP information (“second duration”) is determined using the first metadata included in the first packet

sent from the apparatus to the node. (*See supra* §§IX.A.1.f-g.) Indeed, Morris teaches that “a duration of an [ITP] **may be static and/or may be dynamic.**” (EX1005, [0095].) Thus, the second duration is “capable” of being different from (or the same as) the first duration.

For instance, the apparatus in the Morris-SIP system may identify first data in the first packet that reflects a new round-trip-time between the apparatus and the node than the previously calculated one or may determine to use the same round-trip-time as before. (EX1002 ¶133; *see supra* §IX.A.1.d.) Similarly, the apparatus in the Morris-SIP system may decide to propose the same or a different second duration than the first duration based on other attributes recognized by Morris such as “a measure of network latency, a measure of network congestion, an indication of the availability of a particular resource, a user specified attribute, a security attribute, an energy usage attribute, a user attribute such as role of the user, and/or a measure of bandwidth supported by NIC 508 and/or a physical network medium operatively coupled to NIC 508.” (EX1005, [0062].)

Morris further discloses that the exchange of the ITP information in the packets between the first node 602 and second node 604 “may simply be informational” (as opposed to a negotiation). (*Id.*, [0105].) In this scenario, the first node 602 (apparatus) would have the ability to propose a new value for the second duration but may determine to keep the same value for the second duration as the

first duration, and then share that same value with the second node 604 for informational purposes (so second node 604 is aware of the time period being used by first node 602 that would lead to potential connection closure). (EX1002 ¶134.) It would have been obvious to set second duration the same as the first duration (despite having the capability to change it) in certain scenarios such as reconnection between nodes after a first connection between the nodes dropped momentarily. (EX1002 ¶134; EX1083, Abstract, [0013], [0026], [0034], [0039].) In such a scenario, the nodes may agree to use the same duration agreed upon before if, e.g., the connection environment has not changed and/or the nodes wish to avoid another round of negotiation which would consume further network resources. (EX1002 ¶¶134-135; *see supra* §IX.A.1.d.)

3. Claim 17

- a) **The apparatus of claim 1, wherein the apparatus is configured such that the first connection is not a Transmission Control Protocol (TCP) extension connection, and the first connection is not a TCP extension connection that involves a TCP extension.**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶¶136-137.) As explained above with respect to claim element 1.f, the apparatus of the Morris-SIP combination is configured such that it implements a protocol different from TCP, and thus the first connection is not a TCP extension connection that involves a TCP extension. (*See supra* §IX.A.1.f.)

Indeed, a TCP extension typically refers to the use of TCP options in a TCP header. (EX1005, [0080]; EX1090, 7.) The Morris-SIP system differs from TCP by including a mechanism to detect inactivity during connection setup, regardless of whether such a mechanism is implemented using TCP options (although Morris or RFC 793 do not disclose this possibility). (*See supra* §IX.A.1.f.) Thus, for this additional reason, the first connection in the Morris-SIP system is not a TCP extension connection involving a TCP extension. (EX1002 ¶137.)

4. Claim 18

a) The apparatus of claim 1, wherein the apparatus is configured such that:

The Morris-SIP combination discloses or suggests this limitation, as the Morris-SIP system is configured to the features set forth below in elements 18.b-c. (EX1002, ¶138; *see infra* §§IX.A.4.b-c.)

b) the third time period of the second type of time period:

(1) includes an acknowledgment (ACK) time period, and

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶139.) For example, Morris teaches that the keep-alive period (“third time period”) of the keep-alive type of time period (“second type of time period”) includes at least a time period needed to acknowledge a sent packet (“an acknowledgment (ACK) time period”). (EX1005, [0086]; *see also* EX1009, 101 (§4.2.3.6).) The keep-alive

period would have included at least the ACK time period because in a system designed to include the keep-alive option like the Morris-SIP system, the keep-alive time period would have been configured to wait for at least the amount of time expected for a previously sent data packet to be acknowledged. (EX1005, [0086]; EX1009, 101 (§4.2.3.6).)

- (2) **is configured such that the one or more criteria requires that the third time period of the second type of time period is started based on an ACK-eliciting packet being sent, and is detected based on an absence of a received ACK packet,**

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶140.) As discussed above, the criteria for detecting the keep-alive period (“third time period”) of the keep-alive type of time period (“second type of time period”) involves monitoring for any non-empty packets sent or received in the connection. (*See supra* §IX.A.1.j.) The keep-alive mechanism is designed to detect periods of idleness in a connection. (EX1009, 101 (§4.2.3.6).) Thus, a keep-alive period (administered, e.g., by a keep-alive timer) would have been configured to be started at the time a packet such as an ACK-eliciting packet is sent because that marks the start time of a period of idleness in the connection (e.g., a time where no packets are sent or received in the connection). (EX1002 ¶140; EX1005, [0086].) And in a scenario where no packet including a received acknowledgement packet is detected for the duration of the keep-alive period (“an absence of a received ACK packet”),

the keep-alive period would have been detected (e.g., with the keep-alive timer expiring). (EX1005, [0086], [0099].)

(3) where the at least one action does not include connection closure; and

The Morris-SIP combination discloses or suggests this limitation. (EX1002, ¶141.) As discussed above, the at least one action includes sending a keep-alive packet, which is not a “connection closure,” as claimed. (*See supra* §IX.A.1.j; EX1005, [0086], [0099].)

c) the first and second time periods of the first type of time period:

(1) do not include an ACK time period,

The Morris-SIP combination discloses or suggests this limitation, to the extent it can be understood. (EX1002, ¶¶142-145.) It is unclear how the first and second time periods do not include an ACK time period (e.g., an expected time period to receive an acknowledgment to a sent data packet), when detection of the first and second time periods is based on an absence of one or more packets and leads to at least a partial closure of the first connection, as set forth in claim elements 1.h-i. As explained above, such time periods would take into consideration the expected amount of time to receive an acknowledgment to a previously sent data packet (e.g., the round-trip time). (*See supra* §§IX.A.1.d, h-i.)

Thus, as best as this limitation can be understood, the first and second time periods of the first type of time period do not include **only** an ACK time period, e.g., the first and second time periods include **at least more than** the ACK time period. (EX1002 ¶143.)

This is consistent with PO's understanding, as it maps the first and second time periods to the idle time periods for 0-RTT and 1-RTT times in the accused UDP-based protocol (the QUIC protocol). (EX1032, 17-24.) Those idle time periods in the QUIC protocol allegedly lead to connection closure (*id.*), and the idle time periods include at least three times the probe timeout (PTO)—the PTO is described by PO as indicating the expected time for an acknowledgment to be received. (*Id.*, 18.) Thus, PO's understanding of the first and second time periods encompasses time periods that do not include **only** an ACK time period, e.g., the first and second time periods include **at least more than** the ACK time period. (EX1002 ¶144.)

The Morris-SIP combination similarly teaches that the preliminary ITP ("first time period") and the negotiated ITP ("second time period") do not include only an ACK period, for the reasons previously explained. (*See supra* §IX.A.1.d.) For example, a POSITA would have considered a value for the preliminary ITP which would have allowed for a certain number of retransmissions of the initial setup packet in case the initial transmission was not successful (e.g., due to network

issues). (*Id.*; EX1006, 126; EX1008, 45 (describing retransmission timeout in the context of an established TCP connection).) Similarly, a POSITA would have considered a value for the negotiated ITP to allow for multiple retransmissions of packets being sent during an established connection to account for potential network issues. (EX1005, [0005], [0062]; EX1006, 126; EX1008, 45; EX1002 ¶145.)

(2) where the absence of one or more packets and the absence of at least one packet each include the absence of a received packet type that is not limited to a received ACK packet type.

The Morris-SIP combination discloses or suggests this limitation for at least two reasons. (EX1002, ¶¶146-149.)

First, the analysis of claim elements 1.h-i showed that the absence of at least one acknowledgment packet (ACK packet) received in response to a previously sent data segment (“the absence of one or more packets and the absence of at least one packet”) served as part of the basis for detecting the first and second timeouts. (*See supra* §§IX.A.1.h-i.) However, the absence of packets is not limited to a received ACK packet type in the Morris-SIP combination. For example, when an interruption in communication occurs, such as a disconnection in the network service or in a physical network medium (EX1005, [0004]-[0005], [0062]), packets from one node do not reach the other node in either direction. (EX1002 ¶147.) Thus, when the first node 602 and/or the second node 604 are experiencing connectivity issues such that

one or both of them are disconnected, the absence of packets would have included an absence of all packet types (and not limited to a received ACK packet type) and such an absence of packets would have led to detection of the first/second time periods (assuming the other conditions specified in claim elements 1.h-i are met). (EX1002 ¶147; EX1005, [0004]-[0005], [0062].) As an exemplary operational scenario, the Morris-SIP system would have been configured such that the first node 602 would have detected the first/second time periods based on the first/second durations, respectively, along with an absence of any received packet type (e.g., a data packet, a keep-alive packet, a retransmission packet, or an acknowledgment packet), since none of these packets could have been received by the first node 602 if it was disconnected from the network. (EX1002 ¶147; EX1005, [0004]-[0005], [0010], [0062], [0106], [0108]-[0109] (discussing deactivation of connection upon ITP detection).)

Second, it would have been obvious to further configure the Morris-SIP system such that the first and second time periods of the first type of time period are detected based on the absence of a received packet type that is not limited to a received ACK packet type, as claimed. (EX1002 ¶148.) In particular, a POSITA would have been motivated to configure the Morris-SIP system such that the first/second time periods would have been detected based on an absence of any received packet type. (*Id.*) By configuring the first and second timeouts to be

detected based on the absence of additional packet types (e.g., a received data packet or keep-alive packet or a received retransmission packet), the Morris-SIP system would have been allowed to survive intermittent periods of disconnection or other network connectivity issues where the acknowledgment packet is not received but other packets may be received. (EX1002 ¶¶148-149; EX1018, 1-8; *see also* §IX.A.1.d.)

A POSITA would have had a reasonable expectation of success in configuring the Morris-SIP system this way as Morris already discloses other timeout types like the keep-alive timeout which is configured in a similar way, as discussed above (e.g., to generally detect idleness in a connection based on detecting different packet types). (EX1002 ¶¶148-149; EX1005, [0002]-[0003], [0069], [0085]-[0086], [0120], claims 2, 13; *see supra* §§IX.A.1.j; IX.A.4.b.1-3.)

5. Claim 43

- a) **The apparatus of claim 1, wherein the apparatus is configured such that the one or more packets and the at least one packet include all packet types of received packets.**

The Morris-SIP combination discloses or suggests this limitation for at least the same reasons as those given above with respect to element 18.c.2. (EX1002, ¶150; *supra* §IX.A.4.c.2.)

6. Claim 46

- a) The apparatus of claim 1, wherein the apparatus is configured such that the one or more packets and the at least one packet include a plurality of packet types of received packets.**

The Morris-SIP combination discloses or suggests this limitation for at least the same reasons as those given above with respect to element 18.c.2. (EX1002, ¶151; *supra* §IX.A.4.c.2.)

7. Claim 52

- a) The apparatus of claim 1, wherein the apparatus is configured such that at least one of the absence of at least one packet or the absence of one or more packets is detected in a set of operational scenarios not limited to specific scenarios involving only a subset of possible disconnection events.**

The Morris-SIP combination discloses or suggests this limitation, to the extent it can be understood, for the reasons given above with respect to elements 1.h-i. (EX1002, ¶152.) Specifically, as explained above, the absence of at least one acknowledgment packet received in response to a previously sent data segment (“the absence of one or more packets and the absence of at least one packet”) served as part of the basis for detecting the first and second timeouts. (*See supra* §§IX.A.1.h-i.) The absence of an acknowledgment packet would have been detected “in a set of operational scenarios not limited to specific scenarios involving only a subset of possible disconnection events,” as claimed. For instance, the first and second nodes

602/604 may communicate under normal circumstances (both during the connection setup time as relating to the first time period detection of element 1.h and after connection establishment as relating to the second time period detection of element 1.i), e.g., where there are no network connectivity issues between the first and second nodes. (EX1005, [0104], [0108], FIG. 7; EX1002 ¶152.) Under such scenarios, the absence of at least one acknowledgment in response to a previously sent data packet for the duration of the first time period (during connection setup) or for the duration of the second time period (after connection establishment) would have led to detection of the first and second time periods, respectively. (EX1002 ¶152.)

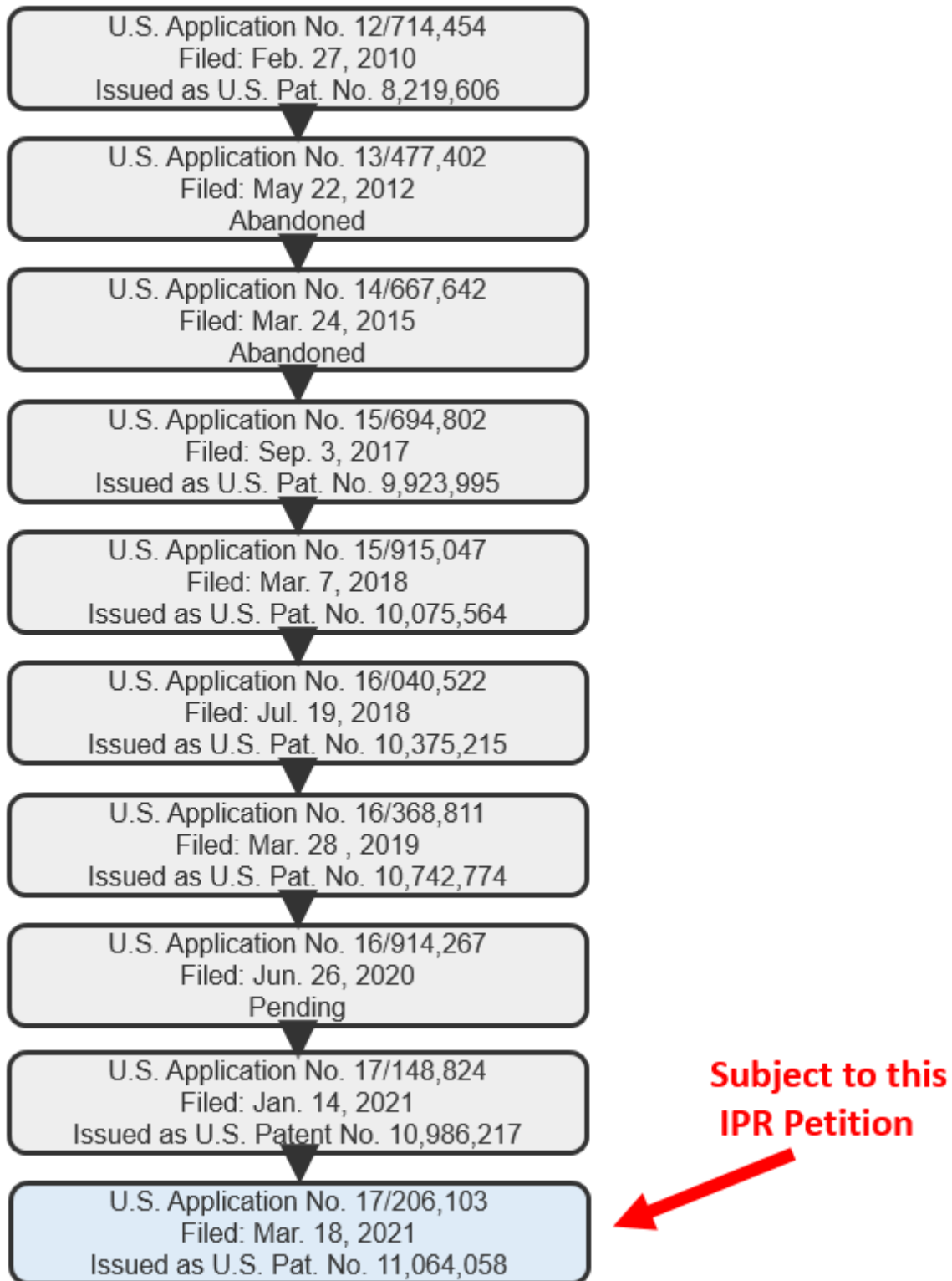
Detection of the at least one acknowledgment packet would have occurred in scenarios not limited to disconnection events, because even when there are no disconnection events, the lack of receipt of an acknowledgment packet would have been detected because, e.g., a timer or other mechanism associated with the detection of the first/second time periods would have expired when no such acknowledgment packet was received for the duration of the associated time period. (EX1005, [0104], [0108], FIG. 7; EX1002 ¶153.) One example scenario involves a packet sent from the first node getting corrupted by the time it reaches the second node such that the second node cannot properly process the packet and acknowledge it (such that the sent packet is considered lost). (EX1008, 8, 19-21, 44.) The corrupted packet may be discarded by a router or the receiving node due to the checksum test failure. (*Id.*)

In this case, the receiving node would not send a responsive acknowledgment packet to the sending node, thereby leading to an absence of acknowledgment packets even though the nodes are not disconnected. (*Id.*)

Another example scenario involves network congestion, which also leads to lost packets. (EX1002 ¶154.) In particular, if a router between the sending and receiving nodes is experiencing network congestion such that it cannot forward all the packets it receives from the sending node to the receiving node, the router may drop some of the packets that it cannot forward to the receiving node. (EX1005, [0004], [0062]; EX1091, 2; EX1092, 1-3, 12, 17.) Thus, in this scenario as well, if the packet sent by the sending node is dropped along the transmission line due to network congestion (e.g., at the router), the receiving node would not send a responsive acknowledgment packet, thereby leading to an absence of acknowledgment packets even though the nodes are not disconnected. (*Id.*)

X. EARLIEST EFFECTIVE FILING DATE OF '058 PATENT

The '058 patent relates to several patents and/or patent applications, as shown in the purported priority chain below:



(See also *supra* §II.B.2.)

However, the priority applications do not provide written description support for at least two features required by each of the challenged claims, as required by §112. (EX1002, ¶¶155-157.) Thus, the earliest possible effective filing date of the challenged claims is no earlier than March 18, 2021, the filing date of U.S. Application No. 17/206,103 (“the ’103 application”), from which the ’058 patent issued.

A. The ’058 Patent and Its Priority Applications Do Not Provide Written Description Support For the “First Packet for Use in a Protocol That Is Different From A Transmission Control Protocol (TCP)” Features (All Challenged Claims)

Independent claim 1 of the ’058 patent recites “the first packet for use in a protocol that is different from a transmission control protocol (TCP).” (EX1001, 21:44-48.)

Independent claim 1 recites features relating to the use of a first packet in a protocol that is different from TCP (generally referred to herein as the “non-TCP” features). The claim recites using the first packet to, e.g., set up a connection between an apparatus and a node, i.e., the claims encompass scenarios where the first packet is used in a protocol that does not utilize TCP at all and establishes non-TCP connections. (EX1002 ¶¶158-160.) This is consistent with PO’s infringement claim chart, which maps the non-TCP features to a UDP-based protocol, which does not use TCP at all. (EX1032, 13-16.)

A POSITA would not have understood that the named inventor of the '058 patent had possession of the claimed invention, including the non-TCP features set forth in claim 1 at the time the '103 application was filed because the as-filed specification of the '103 application and the specifications of the '058 patent's priority applications (in the chart above) do not support these features. (EX1002 ¶¶158-160.)

1. The '103 Application and Its Priority Applications Are Limited to TCP-Based Embodiments

The '103 application and its priority applications (except for the '642 application) share substantially the same as-filed specifications.¹⁶ (EX1002 ¶¶161-176.) Exhibits 1040, 1050-1054, and 1077-1078 are computer-generated redlines comparing the as-filed specifications of these priority applications including the '103 application (EX1004, EXS1038-1039, EXS1044-1048, EX1075). As shown in exhibits 1040, 1050-1054, and 1077-1078, other than the changes to the summary

¹⁶ The '642 application is directed to different subject matter and has little, if anything, in common with the subject matter of the '058 patent family. (EX1002 ¶161; EX1043, 108-111 (¶¶[0001]-[0006]); EX1049, 1, 3; *see also* EXS1038-1039, 1041, 1062-1074.) In any event, the '642 application does not describe any non-TCP features at-issue here. (EX1002 ¶161.)

sections in each of the priority applications (which were updated to reflect the claims being presented for examination), the specifications of the applications are substantially similar.

The disclosures of these priority applications (including the '103 application), however, do not describe any non-TCP-based features (e.g., the use of a non-TCP-based protocol to set up a non-TCP connection using non-TCP packets)—the disclosures are limited to using the options field in a TCP header defined by RFC 793. (EX1002 ¶162.) The discussion below primarily focuses on how the '454 application but the remaining applications in the priority chain are similarly defective given their specifications are substantially similar.

Coming to the '454 application, it uses the term “TCP” nearly 400 times, including, for instance, in the specification (310 times), claims (72 times), abstract (3 times), and figures (14 times). (*See generally* EX1038 ('454 application), 99-106, 111-118, 120-165.) Not once does the '454 application refer to a protocol that is different/separate from TCP (e.g., non-TCP) or a non-TCP connection/packet. (*Id.*; EX1002 ¶163.)

In particular, the '454 application only discloses setting up a **TCP connection** (i) using the three-way handshake described in RFC 793 or (ii) in other unspecified ways. (EX1038, 147 (¶[0076]); EX1002 ¶¶164-167.) Nowhere does the '454 application describe setting up a connection using a packet that is for use in a

protocol different/separate from a TCP-based protocol (e.g., a UDP-based protocol which does not utilize TCP at all). (*See generally* EX1038; EX1002 ¶¶164-167.)

A POSITA would not have understood that the disclosures in the '454 application limited to TCP embodiments would have been interchangeable with non-TCP embodiments.¹⁷ (EX1002 ¶168.) For example, a POSITA would have understood that a protocol that does not utilize TCP at all (like the UDP-based protocol noted in PO's infringement chart) would operate in a different environment with its own set of rules regarding at least (i) the setup of a connection between two nodes in a network, (ii) how the devices would communicate with each other, (iii) the packet structure used for communication, and (iv) detection of timeouts that would cause the connection to close. (EX1002 ¶168; EX1060, 1, EX1027, 1, EX1061, 1.) However, the '454 application does not provide any explanation regarding how its disclosed techniques for sharing idle time information in a TCP options field of a TCP packet during setup of a TCP connection would have extended

¹⁷ Whether it would have been obvious to configure a TCP-based system such that it would operate in a non-TCP environment, as discussed above with respect to claim elements 1.d and 1.f, is irrelevant as a matter of law. *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. GE*, 264 F.3d 1111, 1119 (Fed. Cir. 2001).

to an altogether different environment with its own rules regarding connection setup, connection operation, packet structure, and timeout detection. (EX1002 ¶168.)

For example, nowhere does the '454 application describe (or inform a POSITA) how its disclosures limited to TCP embodiments may be extended to the non-TCP features like generating a packet for use in a protocol that is completely different/separate from TCP (e.g., protocols for establishing UDP connections), as encompassed by the claim features set forth in some variation in claim 1. (EX1002 ¶169.) Thus, the '454 application does not provide written description support for the non-TCP features set forth in claim 1. (*Id.* ¶¶169-171.)

While the '454 application discusses that “[a]n equivalent or analog of an ITP header may be included in a footer of a protocol packet in **an extension and/or variant of the current TCP**” (EX1038, 147 (¶[0080])), such extensions or variants are mentioned solely within the context of a TCP packet:

Those skilled in the art will recognize given this disclosure that an **ITP header** may have other suitable formats and **may be included in a TCP packet in structures and locations other than those specified for TCP options in RFC 793**. An equivalent or analog of an ITP header may be included in a footer of a **protocol packet in an extension and/or variant of the current TCP**.

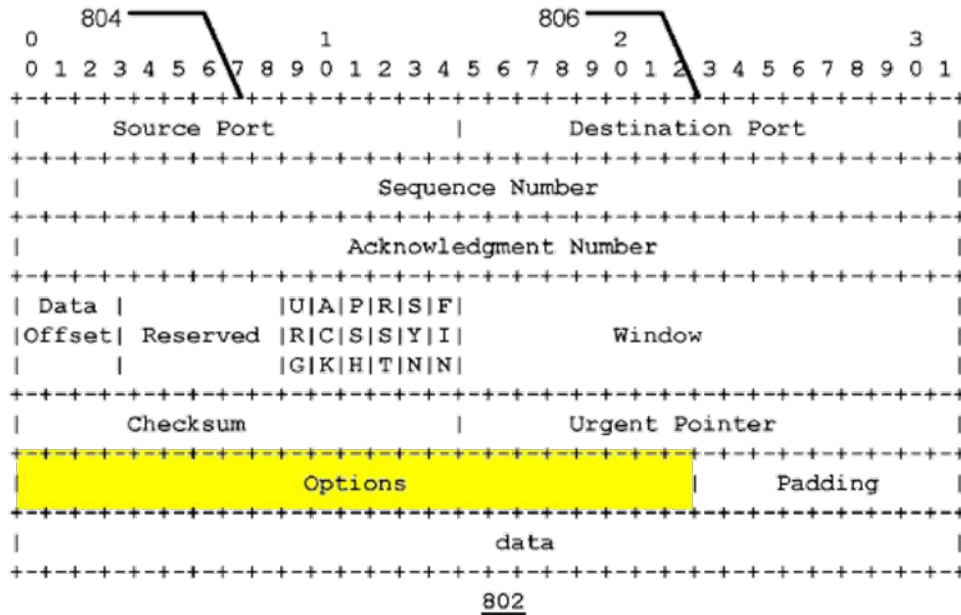
(*Id.*, 147 (¶[0080]); EX1002 ¶¶169-171.)

Even if a TCP extension or variant as vaguely described here is encompassed by the non-TCP features, the scope of the non-TCP features encompasses protocols that do not utilize TCP at all (e.g., a UDP-based protocol), as discussed above. Thus, this description is insufficient to satisfy the written description requirement because the full scope of the non-TCP features is not supported. (EX1002 ¶¶171-172.) *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed Cir. 2005).¹⁸

To the extent any embodiment is disclosed in relation to the above features, it relates to using a TCP options field in a **conventional TCP packet structure provided by RFC 793** to share idle time information between nodes. (EX1038, 147

¹⁸ Under PO's interpretation, non-TCP features would encompass various other protocols (e.g., protocols based on XTP or IPX/SPX along with UDP-based protocols), none of which are described in the '058 patent family disclosures, much less in the context of the features set forth in the '058 patent claims. (EX1002 ¶172 n.22; *see also id.*, ¶55; EX1016, 1, 7-8.) In a proceeding involving the related '995 patent (EX1010), issuing from the '802 application, PO's declarant also confirmed that 'non-TCP' encompasses protocols "other than TCP" or protocols that are "not TCP." (EX1029, 81:6-25, 87:2-88:2.)

(¶¶[0076]-[0079]).) Figure 8 below, “adapted from RFC 793,” illustrates this configuration. (*Id.*, FIG. 8, ¶¶[0078]-[0079].)



(*Id.*, FIG. 8 (cropped and annotated); EX1002 ¶173; *see also* EX1008, FIG. 3.)

Thus, for the reasons above, the '454 application and the other applications in the priority chain sharing substantially similar specifications do not provide any support for the non-TCP features recited in claim 1 of the '058 patent. (EX1002 ¶¶174-176.)

2. Materials Incorporated by Reference in the Priority Applications Do Not Support the Non-TCP Features

The priority applications purport to incorporate U.S. Application No. 12/714,063 (“the '063 application”) (EX1041) and RFC 793 (EX1008). (*See, e.g.*, EX1038 ('454 application), 120 (¶¶[0001]-[0002]), 90 (IDS citing RFC 793); EX1002 ¶¶177-180.) However, the '063 application does not disclose the claimed

non-TCP features recited in claim 1 of the '058 patent. (*See generally* EX1041, 137-201; *see also* EX1042 (computer-generated redline comparing the '063 and '454 applications); EX1002 ¶¶177-178.) RFC 793 likewise does not describe the non-TCP features. (EX1002 ¶¶179-180; EX1008, 4; *see also* EX1002 ¶179 n.23 (discussing EXS1056-1059).)

3. Mere Introduction of Non-TCP Type Terms In Summaries and Claims of Some Priority Applications Does Not Support the Non-TCP Features

Terms such as “non-TCP,” “different from TCP,” or “separate from TCP” started appearing in the summaries and claims of some of the priority applications, starting from the '802 application filed September 3, 2017. As discussed below, the introduction of such terms this way, without more, is insufficient for written description support here. The discussion below focuses on how the '802 application does not provide adequate written description support for the non-TCP features, as it is the earliest application in the priority chain where non-TCP terms were introduced (the other later filed applications in the priority chain are defective for similar reasons).¹⁹ (EX1002 ¶181-193.)

¹⁹ Even if the '058 patent is entitled to a 2017 priority date based on the introduction of non-TCP type terms at that time (it is not), the references relied upon for Ground

The '802 application introduced the non-TCP connection and non-TCP packet terms only (i) in its summary section of the specification and (ii) in the claims. (EX1044, 17-18 (¶¶[0012]-[0013]), 70-77; *see also id.*, 100 (substitute specification contains no new matter), 105-106 (¶¶[0012]-[0013]).) Indeed, other than the changes to the summary of the '802 application, the specifications of the '802 application and the earliest priority application, i.e., the '454 application, are substantially similar. (EX1050 (computer-generated comparing the '454 and '802 applications)); *see also id.*, 2-5 (¶¶[0009]-[0017]); EX1002 ¶182.)

Notably, the introduction of the “non-TCP” terms in the summary section and claims of the as-filed '802 application simply replaces the term “TCP” with “non-TCP” but otherwise generally discloses and claims systems and methods similar to those disclosed in the earlier TCP-based applications. (*Compare, e.g.*, EX1044, 17-18 (¶¶[0012]-[0013]) (the new “non-TCP” embodiments in summary section) *with* EX1038, 122-123 (¶¶[0008]-[0009]) (the TCP embodiments disclosed in the '454 application); *compare* EX1044, 70-77 (the “non-TCP” claims) *with* EX1038, 100-106 (the TCP-based claims in the '454 application).) In other words, other than

1 (Morris and SIP) would still qualify as prior art with respect to the '058 patent. (*See supra* Section V.B.)

including the term “non-TCP” in the summary and claims, the ’802 application includes **no explanation** regarding what is meant by “non-TCP” and how the disclosed techniques for sharing of information for detecting an idle TCP connection could be applied to non-TCP protocols for establishing non-TCP connections using non-TCP packets. (EX1002 ¶183.)

Therefore, a POSITA would not have understood based on the disclosure of the ’802 application that the named inventor of the ’058 patent would have had possession of the subject matter set forth in claim 1. (EX1002 ¶¶184-186).²⁰

The only mention of the word “non-TCP” in the ’802 application specification is in the summary section, which spans two paragraphs. (EX1044, 16-18 (¶¶[0011]-[0012]).) The summary section, however, explicitly states that any disclosure in this section is a “simplified summary of the disclosure in order to provide a basic understanding to the reader” and that “it **does not** identify key/critical elements of the invention or delineate the scope of the invention.” (EX1044, 16 (¶[0009]).) It

²⁰ As noted above in Section X.A.1, whether the “non-TCP” terms encompass TCP extensions or variants is irrelevant because the ’058 patent disclosure must provide written description support for the full scope of these terms, which includes protocols that do not utilize TCP at all.

further states that “[i]ts **sole purpose** is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.” (*Id.*) Accordingly, the mere fact that two paragraphs in the summary section of the specification for the ’802 application refer to a “non-TCP connection” does not show that the named inventor had possession of the “non-TCP connection” elements of the claimed invention at the time of the ’802 application as 35 U.S.C. § 112(1) requires. (EX1002 ¶¶187-188.)

As these disclosures would be insufficient to disclose even verbatim claim language, they cannot support the claims in the ’058 patent. *See also Driessen v. Sony Music Ent’t*, 640 Fed. App’x 892, 896 (Fed. Cir. 2016). As discussed, far from describing the non-TCP features set forth in claim 1 in any detail, none of the disclosures of the ’058 patent family even include language mirroring the language of claim 1 (which, in any case, would be insufficient for written description support). (EX1002 ¶189.)

The originally-filed claims of the ’802 application reciting “non-TCP” features also do not provide written description support for claim 1 of the ’058 patent for similar reasons. (EX1002 ¶191.) In particular, they recite “non-TCP” features in the context of nodes connected via a “non-TCP” connection and exchanging information in “non-TCP” packets. (EX1044, 70-77.) However, the claims fail to provide any detail regarding any connections that do not use TCP. (EX1002 ¶191).

And as discussed above, other than generally mentioning the term “non-TCP” in the summary section, the ’802 application does not provide any explanation regarding how its disclosed techniques for sharing idle time information in a TCP options field of a TCP packet during setup of a TCP connection would have extended to an altogether different environment with its own rules regarding connection setup, connection operation, packet structure, and timeout detection. (EX1002 ¶191.)

Accordingly, nothing in the four corners of the specifications of the ’802 application and the later filed applications in the priority chain (including the ’103 application), which all share substantially similar specifications, demonstrates that the named inventor was in possession of the non-TCP-based features recited in claim 1. (EX1045, 84-86 (¶¶[0012]-[0013]), 137-144 (original-filed claims); EX1046, 168-173 (¶¶[0010]-[0013]), 221-226 (original-filed claims); EX1047, 229-234 (¶¶[0010]-[0013]), 220-225 (original-filed claims); EX1048, 30-34 (¶¶[0010]-[0013]), 83-88 (original-filed claims), EX1075, 208 (¶[0010]), 251-258 (original-filed claims); EX1004, 211 (¶[0010]), 254-261 (original-filed claims).) (EX1002 ¶192.)

Notably, the first time the features set forth in claim 1 appeared in the ’058 patent family was during prosecution of the ’103 application (which issued as the ’058 patent) by way of an Examiner’s amendment entered June 7, 2021 in the Notice

of Allowance, after the March 18, 2021 filing date of the '103 application. (EX1004, 7-48 (new claim 31 corresponding to issued claim 1); EX1002 ¶192.)

Thus, the originally-filed disclosures of the '058 patent family, including the '058 patent itself, do not disclose the specific features set forth in claim 1. (EX1002 ¶193.) Accordingly, to the extent the '058 patent is entitled to any filing date, it is not entitled to an effective filing date earlier than March 18, 2021, i.e., the filing date of the '103 application.

4. Dependent Claims 9, 11, 17, 18, 43, 46, and 52 Are Not Supported

Claims 9, 11, 17, 18, 43, 46, and 52 depend from independent claim 1. Therefore, claims 9, 11, 17, 18, 43, 46, and 52 do not comply with the requirements of 35 U.S.C. § 112(a) for at least the reasons discussed above with respect to independent claim 1. (EX1002 ¶194.)

B. The '058 Patent and Its Priority Applications Do Not Provide Written Description Support For Detecting a Time Period During At Least A Portion of the First Connection Setup (All Challenged Claims)

Independent claim 1 recites features relating to (i) detecting a time period during a portion of the connection setup and (ii) at least partially closing the connection based on the detection (generally referred to herein as the “*time period detection during connection setup*” features). (EX1001, 21:54-61.) The *time period detection during connection setup* feature encompasses scenarios where the time

period (e.g., a timeout) is detected and the connection is partially closed during the connection setup time. (EX1002 ¶¶195-197.) This is consistent with Patent Owner’s infringement contentions, which map the *time period detection during connection setup* feature to the accused product applying timeout parameters for an “idle timeout” from a previous connection to a new connection even before the new connection is established. (EX1032, 10-11 (“Remembered transport parameters [from a previous connection] apply to the new connection until the handshake completes.”), 19-21.)

A POSITA would not have understood that the named inventor of the ’058 patent had possession of the claimed invention, including the *time period detection during connection setup* features set forth in claim 1 at the time the ’103 application was filed because the as-filed specification of the ’103 application and the specifications of the ’058 patent’s priority applications (shown below) do not support these features. (EX1002 ¶197.)



**Subject to this
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(See also *supra* §II.B.2.)

1. The '103 and '824 Applications Do Not Support the Time Period Detection During Connection Setup Features of Claim 1

A variation of the *time period detection during connection setup* features set forth in the challenged claims were introduced in the priority chain of the '103 application by way of the original claims presented in the '824 application filed January 14, 2021. (EX1075, 251-252.) The original claims in the '824 application included a variation of the *time period detection during connection setup* feature—they differed in that they did not include the condition of “an absence of one or more packets” as part of the basis for detecting the first time period and “releasing...the resource” as part of partially closing the connection. (See, e.g., *id.*, 254-255, 207-208 (similar language in summary section of specification).) (EX1002 ¶198.)

The '103 application also claims similar to the original claims from the '824 application when filed on March 18, 2021. (EX1004, 251-252 (original claim 1), 210-211 (summary).) Then, by way of an Examiner’s amendment entered with the Notice of Allowance on June 7, 2021, the originally filed claims were canceled and new claims were added to the '103 application which generally track the language of the issued claims of the '058 patent, including claim 1. (EX1004, 7-9 (new claim 31 corresponding to issued claim 1); EX1002 ¶199.)

However, the '103 and '824 applications, which share the same specification, do not provide written description support for the *time period detection during*

connection setup features set forth in the challenged claims. (EX1002 ¶200.) The discussion below focuses on the '824 application as it is earlier in the priority chain, and provides corresponding cites to the '103 application which is similarly defective.²¹

The '824 application discloses detection of time periods **after** a TCP connection is set up (established) for purposes of detecting idle time periods and closing such idle TCP connections. (*Id.*) For example, like the priority applications, the '824 application discloses by way of its background that “there exists a need for methods, systems, and computer program products for sharing information for detecting **an idle TCP connection.**” (EX1075 ('824 application), 207 (¶[0008]); *see also* EX1004 ('103 application), 210 (¶[0008]); EX1048 ('267 application), 27 (¶[0008]); EX1047 ('811 application), 229 (¶[0008]); EX1046 ('522 application), 168 (¶[0008]); EX1045 ('047 application), 83 (¶[0008]); EX1044 ('802 application), 154 (¶[0008]); EX1039 ('402 application), EX1038 ('454 application),

²¹ Notably, in response to a similar challenge by Petitioner regarding lack of written description support for these features in a related patent, PO disclaimed the challenged claims. (*See* EX1079, 2-3; EX1080, 57-68; EX1002 ¶207 n.25 (citing EXS1055, 1076).)

122 (¶[0008]).) A POSITA would have understood that a “TCP connection” is only established **after two nodes exchange initial messages to set up the TCP connection.** (EX1002 ¶201; EX1075 (’824 application), 229 (¶¶[0075]-[0081]), 221-222 ((¶[0051]); EX1004 (’103 application), 232-233 (¶¶[0075]-[0081]), 224-225 (¶[0051]).)

The ’824 application discloses examples of timeouts in a TCP connection that may be modified based on the idle information shared during the connection setup. (EX1075 (’824 application), 226 (¶[0068]), 246 (¶[0119]); EX1004 (’103 application), 230 (¶[0068]), 249 (¶[0119]).) And while the ’824 application discloses that “[t]he specified ‘three-way handshake’ and other patterns of message exchange for setting up a TCP connection include packets that are considered to be in the TCP connection for purposes of this disclosure” (EX1075, 229 (¶[0081])), the ’824 application does not describe when its disclosed timeouts are detected and does not provide written description support for any detection of such timeouts and partial closure of the connection during the connection setup, let alone for a non-TCP protocol, as claimed. (EX1002 ¶202; EX1004, 232-233 (¶[0081]).)

As discussed below, a POSITA would have understood that these timeouts described by the ’824 application disclosure, such as the TCP keep-alive option, TCP user timeout, and retransmission timeout, are initiated based on data being sent or received, and RFC 793 makes clear that data cannot be exchanged between nodes

until after connection establishment (i.e., **after** the connection is set up). (EX1002 ¶203.) Thus, detection of any of these timeouts would occur only after the connection is established since data exchange would occur only after the connection is established. (*Id.*) A POSITA, therefore, would not have understood that the '824 application discloses the claimed invention, including the *time period detection during connection setup* features set forth in claim 1 at the time the '824 application (or the '103 application) was filed. (*Id.*)

In particular, the '058 patent family, including the '824 and '103 applications, rely on RFC 793 for TCP implementation details. (*See, e.g.*, EX1075, 206 (¶[0004]), 221 (¶[0050]), 229 (¶[0075]), 230 (¶[0083]); EX1004, 209 (¶[0004]), 224 (¶[0050]), 232 (¶[0075]), 233-234 (¶[0083]).) RFC 793 discloses that “[w]hen two processes wish to communicate, their TCP’s **must first establish a connection.**” (EX1008, 9; *see also id.*, 31-32; EX1075, 229 (¶¶[0075]-[0080]).) RFC 793 discloses that data is sent or received between nodes after the TCP connection is established. (EX1008, 44 (“Once the connection is established data is communicated by the exchange of segments”).) In other words, RFC 793 does not disclose detecting any time period during the time the TCP connection is being set up (e.g., during the time the messages in the three-way handshake are being exchanged). (EX1002 ¶204.)

Therefore, the as-filed '103 and '824 applications do not provide written description support for the *time period detection during connection setup* features. (EX1002 ¶¶205-207.)

2. The Priority Applications Do Not Support the Time Period Detection During Connection Setup Features of Claim 1

As discussed above, the disclosures of the priority applications (other than the '642 application) are substantially similar to each other. (*See supra* §X.A.1.) Thus, the priority applications do not provide any additional explanation regarding the *time period detection during connection setup* features set forth in the challenged claims. (EX1002 ¶¶208.)²² Thus, claim 1 lacks written description support. To the extent the '058 patent is entitled to any filing date, it is not entitled to an effective filing date earlier than March 18, 2021, i.e., the filing date of the '103 application.

3. Dependent Claims 9, 11, 17, 18, 43, 46, and 52 Are Not Supported

Claims 9, 11, 17, 18, 43, 46, and 52 depend from independent claim 1. Therefore, claims 9, 11, 17, 18, 43, 46, and 52 do not comply with the requirements of 35 U.S.C. § 112(a) for at least the reasons discussed above with respect to independent claim 1. (EX1002 ¶¶209-210.)

²² The '063 application also does not disclose these features. (*See generally* EXS1041-1042.)

C. Both The Non-TCP Features and The Detecting a Time Period During At Least A Portion of the Connection Setup Features Must Be Supported For Priority

To the extent the Board finds that the non-TCP features discussed in section X.A are properly supported and/or the time period detection during connection setup features in section X.B are properly supported, the '058 patent would still not be entitled to priority unless both these features are properly supported working together as there is no support for a time period detection during the connection setup in a non-TCP connection. For the reasons stated above, that is not the case here.

XI. SIP IS A PRINTED PUBLICATION

SIP (RFC 3261) is a standards document published by the Internet Engineering Task Force (IETF), and is prior art under at least 35 U.S.C. § 102(a)(1) as it was published at least as early as July, 2002. The declaration of Sandy Ginoza, Director of the RFC Production Center at IETF, confirms SIP was published, disseminated, and reasonably available to the public by July, 2002. (EX1081 ¶¶1-3, 11.)

RFCs like SIP were at the time, and continue to be, Internet standards documents published and disseminated to the public by IETF through various media so that others may comment on them. (*Id.* ¶¶7-10.) Since 1998 (including 2002 and today), the IETF publishes an RFC on its public website, and publication announcements were sent to all subscribers of an IETF mailing list. (*Id.* ¶7.) Anyone

could have subscribed to IETF mailing lists (EX1082, 2), and the archives of all IETF mailing lists are publicly available on IETF's website (EX1081 ¶7).

SIP was published by the IETF in July, 2002. (*Id.* ¶11.) In 2002, a POSITA could have learned about SIP in various ways, such as through announcements on the IETF announce mailing list, searching the public website of the IETF where the uploaded documents were indexed, or review of the archives of the IETF announce mailing list. (*Id.*, ¶¶7-8, 11.) Collectively, this demonstrates that SIP was published and publicly available in 2002.

XII. THE RELATED LITIGATION PROVIDES NO BASIS FOR DISCRETIONARY DENIAL

The *Fintiv* factors do not justify denying institution. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (P.T.A.B. Mar. 20, 2020) (precedential).

The **first factor** (stay) favors institution, as the parallel litigation is stayed pending resolution of IPRs of related patents. (EX1031, 3-4, 6; *see also generally* EX1030.) The Federal Circuit recently affirmed the Board's decision finding all challenged claims unpatentable in one related IPR. *Jenam Tech, LLC v. Google LLC*, No. 2022-1085, slip op. at 2 (Fed. Cir. Apr. 11, 2023)). In the remaining IPRs, the challenged claims have either been disclaimed by Jenam or found unpatentable by the Board. Jenam has appealed the final written decisions in those IPRs, and briefing is scheduled to commence in July, 2023. The Federal Circuit's decisions in

those appeals cannot be expected before early 2024, at the earliest. Thus, the status of the parallel litigation is unlikely to change at the time the Board issues its institution decision in this case (late 2023).

The **second factor** (proximity) favors institution as no trial date is set in the parallel litigation. (EX1033, 3.)

The **third factor** (investment) also favors institution. The district court case was in the early stages before it was stayed. The parties have not exchanged infringement contentions or invalidity contentions. Discovery has not begun and no claim construction has occurred. (EX1033, 3.)

The **fourth factor** (overlap) also favors institution. Given the related litigation will likely be stayed when the IPR trial will be instituted, and will likely be stayed through much of the course of the IPR trial, there is a low chance of any overlap of issues between this case and the related litigation. Moreover, the district court has indicated that it would receive the benefit of the PTAB's expertise and guidance regarding the other related IPRs, and it will similarly benefit from the PTAB's decisions in this case. (EX1033, 4 n.3.)

While the **fifth factor** (parties) may weigh slightly in favor of denial, because the Petitioner and PO are the same parties as in district court, based on a "holistic view," the factors favor institution. *Samsung Elecs. Co. Ltd. v. Dynamics Inc.*, IPR2020-00505, Paper 11 at 15 (P.T.A.B. Aug. 12, 2020).

The **sixth factor** also favors institution. Even if the Board determines that the above factors favor denial (which they do not), the Board should not discretionarily deny institution, because this petition presents compelling merits. *See Commscope Tech. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4-5 (P.T.A.B. Feb. 27, 2023) (precedential). As discussed above, an earlier patent application (Morris) in the '058 patent's priority chain qualifies as prior art with respect to the '058 patent, and thus most of the claim features are undeniably taught by Morris. (*See supra* §§IX-X.) And the proposed Morris-SIP combination is a straightforward combination of well-known features at the time of the alleged invention. (*See supra* §IX.) There is also a significant public interest against "leaving bad patents enforceable," and institution will further that interest. *Thryv, Inc v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1374 (2020). This is especially true here given all challenged claims in PO's related patents have so far been either disclaimed or found unpatentable. (*See supra* §II.B.3.)

XIII. CONCLUSION

For the reasons given above, Petitioner requests institution of IPR for the challenged claims based on each of the specified grounds.

Respectfully submitted,

Dated: May 18, 2023

By: /Naveen Modi/

Petition for *Inter Partes* Review
Patent No. 11,064,058

Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 11,064,058 contains, as measured by the word processing system used to prepare this paper, 13,862 words. This word count does not include the items excluded by 37 C.F.R. § 42.24 as not counting towards the word limit.

Respectfully submitted,

Dated: May 18, 2023

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF SERVICE

I hereby certify that on May 18, 2023, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 11,064,058 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on PAIR:

The Caldwell Firm, LLC
Patrick Caldwell (Reg. No. 44580)
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