

UNITED STATES PATENT AND TRADEMARK OFFICE

---

**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

---

META PLATFORMS, INC.; INSTAGRAM, INC.; WHATSAPP LLC; META  
PLATFORMS TECHNOLOGIES, LLC; AND GIPHY, INC.

Petitioners

v.

VL COLLECTIVE IP LLC

Patent Owner

**U.S. Patent No. 7,266,682**

Case IPR2023-00923

**SUPPLEMENTAL DECLARATION OF DR. HENRY HOUH, PH.D.  
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW  
OF U.S. PATENT NO. 7,266,682**

## TABLE OF CONTENTS

|      |                         |   |
|------|-------------------------|---|
| I.   | INTRODUCTION .....      | 6 |
| II.  | QUALIFICATIONS .....    | 6 |
| III. | HANDLEY REFERENCE ..... | 7 |

## UPDATED LIST OF EXHIBITS

| Ex. No. | Description                                                                                                                                                                                                                                                                                                                              |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001    | U.S. Patent No. 7,266,682 (“the ’682 Patent” or “the Patent”)                                                                                                                                                                                                                                                                            |
| 1002    | Certified File History of U.S. Patent No. 7,266,682                                                                                                                                                                                                                                                                                      |
| 1003    | Declaration of Dr. Henry Houh, Ph.D. in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,266,682                                                                                                                                                                                                                  |
| 1004    | Curriculum Vitae of Dr. Henry Houh                                                                                                                                                                                                                                                                                                       |
| 1005    | M. Handley, J. Crowcroft, & C. Bormann, Very Large Conferences on the Internet: The Internet Multimedia Conferencing Architecture and the MBONE by, <a href="https://www.cl.cam.ac.uk/~jac22/otalks/cnisdn-article.pdf">https://www.cl.cam.ac.uk/~jac22/otalks/cnisdn-article.pdf</a> (“Handley”)                                        |
| 1006    | Erol Basturk, Mihir Bellare, Chee-Seng Chow, & Roch Guérin, Secure Transport Protocols for High-Speed Networks, <a href="https://cseweb.ucsd.edu/~mihir/papers/srtp.pdf">https://cseweb.ucsd.edu/~mihir/papers/srtp.pdf</a> (“Basturk”)                                                                                                  |
| 1007    | PacketCable 1.0 Architecture Framework Technical Report, <a href="https://community.cablelabs.com/wiki/plugins/servlet/cablelabs/alfresco/download?id=bddae471-01dd-43c8-8e59-d6547fcf4ffd">https://community.cablelabs.com/wiki/plugins/servlet/cablelabs/alfresco/download?id=bddae471-01dd-43c8-8e59-d6547fcf4ffd</a> (“PacketCable”) |
| 1008    | RTP: A Transport Protocol for Real-Time Application, IETF RFC 1889, <a href="https://datatracker.ietf.org/doc/html/rfc1889">https://datatracker.ietf.org/doc/html/rfc1889</a>                                                                                                                                                            |
| 1009    | Andrew S. Tanenbaum, Computer Networks (3 <sup>rd</sup> ed. 1996) (“Tanenbaum”)                                                                                                                                                                                                                                                          |
| 1010    | Declaration of Sylvia D. Hall-Ellis, Ph.D. in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,266,682                                                                                                                                                                                                            |
| 1011    | Reserved                                                                                                                                                                                                                                                                                                                                 |
| 1012    | Complaint, <i>VideoLabs, Inc., et al. v. Meta Platforms, Inc. et al.</i> , Civil Action No. 1-22-cv-00680 (D. Del.)                                                                                                                                                                                                                      |
| 1013    | Internet Protocol – RFC 791, DARPA Internet Program (September 1981)                                                                                                                                                                                                                                                                     |
| 1014    | Carrier Sense Multiple Access with Collision Detection, IEEE Standard 802.3, IEEE Standards for Local Area Networks (1985)                                                                                                                                                                                                               |

|             |                                                                                                                                                                                                                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1015</b> | David D. Clark & David L. Tennenhouse, Architectural Considerations for a New Generation of Protocols, Laboratory for Computer Science, M.I.T. (1990), <a href="https://dl.acm.org/doi/10.1145/99517.99553">https://dl.acm.org/doi/10.1145/99517.99553</a> .                                                |
| <b>1016</b> | Declaration of Dr. Jon Crowcroft                                                                                                                                                                                                                                                                            |
| <b>1017</b> | Supplemental Declaration of Dr. Henry Houh                                                                                                                                                                                                                                                                  |
| <b>1018</b> | Supplemental Declaration of Dr. Sylvia Hall-Ellis relating to Handley (EX 1005)                                                                                                                                                                                                                             |
| <b>1019</b> | Supplemental Declaration of Dr. Sylvia Hall-Ellis relating to PacketCable (EX 1007)                                                                                                                                                                                                                         |
| <b>1020</b> | Declaration of Nathaniel E. Frank-White                                                                                                                                                                                                                                                                     |
| <b>1021</b> | Web Archive of UCL Web Servers Search (August 16, 2000), available at <a href="https://web.archive.org/web/20000816095229/http://www.ucl.ac.uk/search/compass/">https://web.archive.org/web/20000816095229/http://www.ucl.ac.uk/search/compass/</a>                                                         |
| <b>1022</b> | Web Archive of Mark Handley's List of Papers, Publications, and Specifications (February 10, 1999) available at <a href="https://web.archive.org/web/19990210102149/http://north.east.isi.edu/~mjh/papers.html">https://web.archive.org/web/19990210102149/http://north.east.isi.edu/~mjh/papers.html</a>   |
| <b>1023</b> | Web Archive of Mark Handley's University of Southern California Information Sciences Institute Website (January 30, 1998), available at <a href="https://web.archive.org/web/19980130215743/http://north.east.isi.edu/~mjh/">https://web.archive.org/web/19980130215743/http://north.east.isi.edu/~mjh/</a> |
| <b>1024</b> | Web Archive of Dr. Jon Crowcroft's List of Papers (August 28, 1999), available at <a href="https://web.archive.org/web/19990828053320/http://www.cs.ucl.ac.uk/staff/jon/jons-papers.html">https://web.archive.org/web/19990828053320/http://www.cs.ucl.ac.uk/staff/jon/jons-papers.html</a>                 |
| <b>1025</b> | Web Archive of UCL's DARPA FTP Server (February 17, 2001), available at <a href="https://web.archive.org/web/20010217183731/http://www.cs.ucl.ac.uk/darpa">https://web.archive.org/web/20010217183731/http://www.cs.ucl.ac.uk/darpa</a>                                                                     |
| <b>1026</b> | Web Archive of Dr. Jon Crowcroft's UCL Website (December 3, 1998), available at <a href="https://web.archive.org/web/19981203112130/http://www.cs.ucl.ac.uk:80/s">https://web.archive.org/web/19981203112130/http://www.cs.ucl.ac.uk:80/s</a>                                                               |

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | taff/jon/                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>1027</b> | M. Handley, J. Crowcroft, C. Bormann, & J. Ott, <i>Very Large conferences on the Internet: the Internet multimedia conferencing architecture</i> , 31 COMPUT. NETWORKS 191 (1999),<br><a href="https://www.sciencedirect.com/science/article/abs/pii/S0169755298002621#preview-section-abstract">https://www.sciencedirect.com/science/article/abs/pii/S0169755298002621#preview-section-abstract</a> (last visited Sep 25, 2023). |
| <b>1028</b> | M. Handley, J. Crowcroft, C. Bormann, & J. Ott, <i>Very Large conferences on the Internet: the Internet multimedia conferencing architecture</i> , 31 COMPUT. NETWORKS, 191 (1999).                                                                                                                                                                                                                                                |

Unless otherwise noted, all emphasis added.

1. I, Henry Houh, declare as follows:

## **I. INTRODUCTION**

2. I am over the age of eighteen (18) and otherwise competent to make this Declaration.

3. I have been retained by Meta Platforms, Inc, Instagram, Inc., WhatsApp LLC, Meta Platforms Technologies, LLC, and GIPHY, Inc. (“Petitioners”) as an independent, technical expert consultant in this proceeding before the United States Patent and Trademark Office (“USPTO”). I am being compensated at my rate of \$680 per hour for my services. No part of my compensation is dependent on my opinions or on the outcome of this proceeding. I have no financial interest in any of the parties in this proceeding.

4. For the purposes of this *inter partes* review, I have been instructed to assume that the effective filing date of the Claims of the ’682 Patent challenged by the Petitioners in this *inter partes* review is no earlier than January 18, 2000.

## **II. QUALIFICATIONS**

5. A detailed overview of my qualifications is provided in EX1003 at paragraphs 16–26. My qualifications are also explained in more detail in my *curriculum vitae*, which is included in previously submitted EX1004. EX1004 also includes a list of my publications and patents.

### III. Handley Reference

6. From the period between December 21, 2022, through January 17, 2023, I spent time on various days searching for prior art references in support of this petition for *inter partes* review relating to U.S. Patent No. 7,266,682.

7. On or before January 15, 2023, I personally identified and retrieved an article with the name “cnisdn-article.pdf” from the following URL: <https://www.cl.cam.ac.uk/~jac22/otalks/cnisdn-article.pdf>. The URL is a part of the academic website<sup>1</sup> of Dr. Jon Crowcroft, a named co-author of the article. This article was authored by M. Handley, J. Crowcroft, and C. Bormann and titled *Very large conferences on the Internet: the Internet Multimedia Conferencing Architecture and the MBONE*. This article was included as EX1005 in the Petition for IPR2023-00923 and in my supporting declaration (EX1003).<sup>2</sup>

8. On January 17, 2023, while in the process of confirming the public accessibility date of EX1005, I identified a publication with substantially the same title and authors as EX1005 on Elsevier’s ScienceDirect website available at <https://www.sciencedirect.com/science/article/abs/pii/S0169755298002621>. (hereinafter, the “ScienceDirect Publication”). The ScienceDirect Publication was

---

<sup>1</sup> Dr. Jon Crowcroft’s personal academic website, University of Cambridge, <https://www.cl.cam.ac.uk/~jac22/> (last visited Sept. 26, 2023).

<sup>2</sup> See *Meta Platforms, Inc. f/k/a Facebook, Inc. et al v. VL Collective IP LLC*, IPR2023-00923, Paper 3 (PTAB May, 24, 2023); see also *See Meta Platforms, Inc. f/k/a Facebook, Inc. et al v. VL Collective IP LLC*, IPR2023-00923, EX1003 (PTAB May, 24, 2023).

titled *Very large conferences on the Internet: the Internet multimedia conferencing architecture* and included M. Handley, J. Crowcroft, C. Bormann, and J. Ott as authors. The ScienceDirect Publication is attached hereto as EX1027.

9. I compared the Abstract, Introduction, and Section Snippets of EX1027 as available on Elsevier's ScienceDirect web page and found them to be nearly identical to EX1005. It was, and still is, my opinion that EX1005 and EX1027 are substantially identical.

10. Elsevier's ScienceDirect website indicated that the ScienceDirect Publication was published in COMPUTER NETWORKS, Volume 31, Issue 3 at pages 191-204 on February 11, 1999, bearing the same title and authors.

11. Further, I have reviewed a scanned physical copy of *Very Large conferences on the Internet: the Internet multimedia conferencing architecture* as authored by M. Handley, J. Crowcroft, C. Bormann, J. Ott and as physically published in COMPUTER NETWORKS, Volume 31, Issue 3 at pages 191-204 on February 11, 1999. This scanned physical copy is attached hereto as EX1028. EX1028 was retrieved from the Karl F. Wendt Engineering Library at the University of Wisconsin – Madison.

12. I have compared the articles in EX1027 and EX1028 and found them fully identical. I have also compared EX1027 and EX1028 to EX1005 and found that every citation to EX1005 in Petition No. IPR2023-00923 and in my supporting

declaration (EX1003) to be fully included in both EX1027 and EX1028.<sup>3</sup> I have prepared Attachment 1, which lists all relied upon citations from EX1005, where they are located in EX1005, and where they are located both in Petition and in my supporting declaration EX1003. In parallel, Attachment 1 also lists citations from EX1027 and EX1028 that are identical to those found in EX1005.

13. I understand from personal knowledge and experience, as an academic and author myself, and based on knowledge provided to me by colleagues in the field, including publishers, other academics, and librarians, that authors routinely post articles or papers on their personal or academic websites prior to submitting them to conferences and journals or during the process of journal publication. These versions, typically linked to a web page maintained by the author and publicly available free of charge, are the basis for the published versions. These published versions may contain additional edits and citations as requested by editors or publishers. In my opinion, this is the scenario that occurred with respect to EX1005. I have reviewed Dr. Crowcroft's declaration, EX1016, and my opinion is consistent with his understanding of the series of events leading to the publication of EX1027 and EX1028. Namely, Dr. Crowcroft posted EX1005 on his academic website, which was subsequently edited by the publisher before being formally published in COMPUTER NETWORKS Volume 31, Issue 3, and is virtually

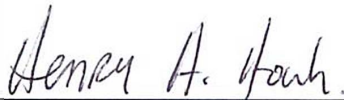
---

<sup>3</sup> See Attachment 1.

identical in substance as well as identical for the portions relied upon in the petition and my declaration.

14. As such, as of January 17, 2023, it was my understanding, based on the nearly identical titles, overlapping authorship, and my analysis of EX1005 to EX1027 (which is identical to EX1028), that EX1005 was publicly accessible and available at least as of the publication date of EX1027, February 11, 1999.

Date: January 18, 2024. By:

  
Henry H. Houh

# Attachment 1

| Pg. #s<br>(Where cited<br>in petition and<br>Houh Declaration)              | EX1005                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Corresponding<br>pg. #'s     | EX1027 & EX1028                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EX1005 at pg. 8 is cited at Petition pg.11 and Declaration ¶ 65             | “[r]eal-time applications such as audio and video need to be able to buffer real-time data at the receiver for sufficient time to remove the jitter added by the network.”                                                                                                                                                                                                                                                                                                                                                                        | EX1027 and EX1028 at pg. 197 | “[r]eal-time applications such as audio and video need to be able to buffer real-time data at the receiver for sufficient time to remove the jitter added by the network.”                                                                                                                                                                                                                                                                                                                                                                  |
| EX1005 at pg. 13 is cited at Petition pg.12 and Declaration ¶ 67            | “This is nicely illustrated by the multicast of the Rolling Stones concert in 1994 which was billed as being the first live concert on the Mbone. In fact, this honour goes to a little known band called Severe Tire Damage who had multicast an impromptu concert a year previously. To make their point, just before the Stones were due to go on stage, Severe Tire Damage suddenly (sic) started broadcasting one of their songs live to the same multicast group. Clearly commercial broadcasters want to avoid occurrences like this one.” | EX1027 and EX1028 at pg. 202 | “This is nicely illustrated by the multicast of the Rolling Stones concert in 1994 which was billed as being the first live concert on the Mbone. In fact, this honour goes to a little known band called Severe Tire Damage who had multicast an impromptu concert a year previously. To make their point, just before the Stones were due to go on stage, Severe Tire Damage suddenly started broadcasting one of their songs live to the same multicast group. Clearly commercial broadcasters want to avoid occurrences like this one.” |
| EX1005 at pg. 2 is cited at Petition pg. 14 and Declaration ¶ 72            | “multimedia information must be transmitted in packets”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EX1027 and EX1028 at pg. 192 | “multimedia information must be transmitted in packets”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| EX1005 at pg. 4 is cited at Petition pg. 14 and Declaration ¶ 72            | “the internet has provided so-called best-effort delivery of datagram traffic from senders to receivers”                                                                                                                                                                                                                                                                                                                                                                                                                                          | EX1027 and EX1028 at pg. 194 | “the Internet has provided so-called best-effort delivery of datagram traffic from senders to receivers”                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| EX1005 at pg. 1 is cited at Petition pg. 14 and Declaration ¶¶ 59, 72       | “including audio, video, shared whiteboards and other applications.”                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | EX1027 and EX1028 at pg. 192 | “including audio, video, shared whiteboards and other applications.”                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| EX1005 at pg. 8 is cited at Petition pg. 15 and Declaration ¶¶ 76, 101, 165 | “transport protocol for real-time flows”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | EX1027 and EX1028 at pg. 198 | “transport protocol for real-time flows”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| EX1005 at pg. 8 is cited at Petition pg. 15 and Declaration ¶¶ 76,          | “provides a standard format packet header which gives media specific timestamp data, as well as payload format information and sequence numbering amongst                                                                                                                                                                                                                                                                                                                                                                                         | EX1027 and EX1028 at pg. 198 | “provides a standard format packet header which gives media specific timestamp data, as well as payload format information and sequence numbering                                                                                                                                                                                                                                                                                                                                                                                           |

|                                                                                          |                                                                                                                                                                                                                                                                                |                                  |                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 101                                                                                      | other things”                                                                                                                                                                                                                                                                  |                                  | amongst other things.”                                                                                                                                                                                                                                                          |
| EX1005 at pg. 2 is cited at Petition pg. 17 and Declaration ¶¶ 78, 167                   | “security measures may be required to actually enforce the conference policy, e.g., to control who is listening and to authenticate contributions as actually originating from a specific person.”                                                                             | EX1027 and EX1028 at pg. 192     | “security measures may be required to actually enforce the conference policy; for example, to control who is listening and to authenticate contributions as actually originating from a specific person.”                                                                       |
| EX1005 at pg. 12 is cited at Petition pgs. 17, 26-27 and Declaration ¶¶ 78, 96, 168      | “is to communicate between some defined set of users”                                                                                                                                                                                                                          | EX1027 and EX1028 at pg. 201     | “is to communicate between some defined set of users”                                                                                                                                                                                                                           |
| EX1005 at pg. 12 is cited at Petition pgs. 17, 26-27 and Declaration ¶¶ 78, 96, 168      | “strict privacy can [] be enforced...through adequate end-to-end encryption.”                                                                                                                                                                                                  | EX1027 and EX1028 at pg. 201     | “strict privacy can [] be enforced...through adequate end-to-end encryption”                                                                                                                                                                                                    |
| EX1005 at pg. 12 is cited at Petition pg. 21 and Declaration ¶¶ 78, 87, 105, 168         | “RTP specifies a standard way to encrypt RTP and RTCP packets using private key encryption schemes such as DES [18]. It also specifies a standard mechanism to manipulate plain text keys using MD5 [19] so that the resulting bit string can be used as a DES key.”           | EX1027 and EX1028 at pg. 201-202 | “RTP specifies a standard way to encrypt RTP and RTCP packets using private key encryption schemes such as DES [23]. It also specifies a standard mechanism to manipulate plain text keys using MD5 [24] so that the resulting bit string can be used as a DES key.”            |
| EX1005 at pg. 13 is cited at Petition pgs. 22, 25 and Declaration ¶¶ 55, 68, 88, 96, 105 | “secured broadcasts can be performed by encrypting a hash (digitally signing) of each packet with the senders private key of a public private key pair. The public key is then given to the receivers, and they discard (and prune if possible) any packets that are unsigned” | EX1027 and EX1028 at pg. 202     | “secured broadcasts can be performed by encrypting a hash (digitally signing) of each packet with the senders private key of a public-private key pair. The public key is then given to the receivers, and they discard (and prune if possible) any packets that are unsigned.” |
| EX1005 at pg. 9 n.2 is cited at Petition pg. 26 and Declaration ¶ 96                     | “a conference policy that restricts conference membership can be implemented using encryption and restricted distribution of encryption keys”                                                                                                                                  | EX1027 and EX1028 at pg. 199 n.4 | “a conference policy that restricts conference membership can be implemented using encryption and restricted distribution of encryption keys”                                                                                                                                   |
| EX1005 at pg. 12 is cited at Petition pgs. 26-27 and Declaration ¶ 78, 96, 168           | “the application requirement (conference policy) is to communicate between some defined set of users, then strict privacy can only be enforced in any case through adequate end-to-end encryption”                                                                             | EX1027 and EX1028 at pg.201      | “the application requirement (conference policy) is to communicate between some defined set of users, then strict privacy can only be enforced in any case through adequate end-to-end encryption.”                                                                             |
| EX1005 pg. 1 is cited at Petition pg. 35 and Declaration ¶¶ 130, 165                     | “the real interest in using the internet for audio and video should come from the prospect for a single ubiquitous communications network that not only                                                                                                                        | EX1027 and EX1028 at pg. 191     | “the real interest in using the Internet for audio and video should come from the prospect for a single ubiquitous communications network that not only                                                                                                                         |

|  |                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                           |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | allows traditional telephony services, but also video, shared collaboration tools, and through IP Multicast, multi-party conferences and multimedia sessions that scale from small group meetings through to television sized audiences.” |  | allows traditional telephony services, but also video, shared collaboration tools, and through IP Multicast, multi-party conferences and multimedia sessions that scale from small group meetings through to television-sized audiences.” |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|