

UNITED STATES PATENT AND TRADEMARK OFFICE

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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TWITCH INTERACTIVE, INC.  
Petitioner

v.

RAZDOG HOLDINGS LLC  
Patent Owner

IPR2025-00307 and IPR2025-00308

**DECLARATION OF GEORGE EDWARDS, PH.D.**

IN REGARD TO THE PETITIONS FOR *INTER PARTES* REVIEWS OF

U.S. PATENT NO. 9,729,658 and U.S. PATENT NO. 10,334,068

## Table of Contents

|          |                                                              |           |
|----------|--------------------------------------------------------------|-----------|
| <b>1</b> | <b>Introduction.....</b>                                     | <b>5</b>  |
| <b>2</b> | <b>Summary of Qualifications .....</b>                       | <b>6</b>  |
| 2.1      | Educational Background.....                                  | 6         |
| 2.2      | Professional Experience.....                                 | 7         |
| 2.3      | Prior Testimony .....                                        | 10        |
| <b>3</b> | <b>Materials Considered .....</b>                            | <b>13</b> |
| <b>4</b> | <b>Scope of Opinion .....</b>                                | <b>14</b> |
| <b>5</b> | <b>Legal Standards .....</b>                                 | <b>15</b> |
| 5.1      | Overview.....                                                | 15        |
| 5.2      | Patent Claims .....                                          | 15        |
| 5.3      | Burden of Proof for Invalidity .....                         | 17        |
| 5.4      | Claim Construction .....                                     | 17        |
| 5.5      | Person of Ordinary Skill in the Art.....                     | 18        |
| 5.6      | Prior Art .....                                              | 18        |
| 5.7      | Anticipation.....                                            | 19        |
| 5.8      | Obviousness .....                                            | 19        |
| <b>6</b> | <b>Level of Ordinary Skill in the Art .....</b>              | <b>21</b> |
| <b>7</b> | <b>The Challenged Patents.....</b>                           | <b>22</b> |
| 7.1      | Overview of the Challenged Patents.....                      | 22        |
| 7.2      | Priority Date.....                                           | 25        |
| <b>8</b> | <b>Claim Construction.....</b>                               | <b>25</b> |
| 8.1      | “real time” .....                                            | 26        |
| 8.2      | “master web-page” .....                                      | 34        |
| <b>9</b> | <b>Summary of Opinions.....</b>                              | <b>35</b> |
| 9.1      | Deficiencies in the Prior Art .....                          | 36        |
| 9.1.1    | Darnell.....                                                 | 36        |
| 9.1.2    | Dasgupta .....                                               | 41        |
| 9.1.3    | Kim .....                                                    | 45        |
| 9.2      | The ‘658 Patent Is Not Obvious Over the Cited Prior Art..... | 46        |
| 9.2.1    | Ground 1A – Darnell and Kim (Claims 1–5, 7–11).....          | 46        |
| 9.2.1.1  | Independent Claim 1 .....                                    | 46        |

|           |                                                                                                                                                                                                                                                   |    |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 9.2.1.1.1 | 1[b1] “a master application...that includes software coded for organizing content data and content applications...viewable from the remote computer devices through the master server on the master web-page” .....                               | 46 |
| 9.2.1.1.2 | 1[b2] content “streamed to the master server simultaneously in real time...on a master webpage” .....                                                                                                                                             | 49 |
| 9.2.1.1.3 | 1[b3] "slide tool program for scrolling or paging through the content data or the content applications from the multiple content sources or service providers simultaneously and through the master server in real time from the master web-page" | 57 |
| 9.2.1.2   | Dependent Claims 2–5 .....                                                                                                                                                                                                                        | 60 |
| 9.2.1.2.1 | Dependent Claim 2 .....                                                                                                                                                                                                                           | 60 |
| 9.2.1.2.2 | Dependent Claim 3 .....                                                                                                                                                                                                                           | 62 |
| 9.2.1.3   | Independent Claim 7 .....                                                                                                                                                                                                                         | 64 |
| 9.2.1.3.1 | 7[a] "master application" .....                                                                                                                                                                                                                   | 65 |
| 9.2.1.3.2 | 7[c] “content data or content applications are simultaneously streamed to the master server...over the internet in real time to an account belonging to the user”                                                                                 | 65 |
| 9.2.1.3.3 | 7[c] “slide tool program for scrolling or paging through content data or content applications from multiple content data sources or service providers enabled by a user simultaneously on a web-page” .....                                       | 67 |
| 9.2.1.4   | Dependent Claims 8–11 .....                                                                                                                                                                                                                       | 68 |
| 9.2.1.4.1 | Dependent Claim 8 .....                                                                                                                                                                                                                           | 68 |
| 9.2.1.4.2 | Dependent Claim 9 .....                                                                                                                                                                                                                           | 68 |
| 9.2.1.4.3 | Dependent Claim 10 .....                                                                                                                                                                                                                          | 68 |
| 9.2.2     | Ground 1B – Darnell, Kim, and Dasgupta (Claims 6, 12–18).....                                                                                                                                                                                     | 71 |
| 9.2.2.1   | Dependent Claim 6 .....                                                                                                                                                                                                                           | 71 |
| 9.2.2.2   | Independent Claim 12 .....                                                                                                                                                                                                                        | 71 |
| 9.2.2.2.1 | 12[b2] “user navigates through the content data or content applications...through master web-page in real time” .....                                                                                                                             | 71 |
| 9.2.2.2.2 | 12[c] “user navigates through the content data or content applications...using a slide tool program” .....                                                                                                                                        | 72 |
| 9.2.2.3   | Dependent Claims 13–18 .....                                                                                                                                                                                                                      | 72 |
| 9.2.2.3.1 | Dependent Claim 15 .....                                                                                                                                                                                                                          | 72 |
| 9.2.2.3.2 | Dependent Claim 16 .....                                                                                                                                                                                                                          | 72 |
| 9.2.2.3.3 | Dependent Claim 17 .....                                                                                                                                                                                                                          | 73 |
| 9.2.3     | Ground 2A – Dasgupta and Darnell (Claims 1, 4–10).....                                                                                                                                                                                            | 73 |
| 9.2.3.1   | Independent Claim 1 .....                                                                                                                                                                                                                         | 73 |

|           |                                                                            |           |
|-----------|----------------------------------------------------------------------------|-----------|
| 9.2.3.1.1 | 1[b2] Content streamed ... simultaneously in real time on a master webpage | 73        |
| 9.2.3.2   | Dependent Claims 4-6.....                                                  | 80        |
| 9.2.3.2.1 | Dependent Claim 4 .....                                                    | 80        |
| 9.2.3.2.2 | Dependent Claim 5 .....                                                    | 80        |
| 9.2.3.2.3 | Dependent Claim 6 .....                                                    | 80        |
| 9.2.3.3   | Independent Claim 7 .....                                                  | 80        |
| 9.2.3.4   | Dependent Claim 8-10 .....                                                 | 82        |
| 9.2.3.4.1 | Dependent Claim 8 .....                                                    | 82        |
| 9.2.3.4.2 | Dependent Claim 9 .....                                                    | 82        |
| 9.2.3.4.3 | Dependent Claim 10 .....                                                   | 82        |
| 9.2.4     | Ground 2B – Dasgupta, Darnell, and Kim (Claims 2, 3, 11).....              | 82        |
| 9.2.4.1   | Dependent Claims 2-3 and 11 .....                                          | 82        |
| 9.2.4.1.1 | Dependent Claim 2 .....                                                    | 82        |
| 9.2.4.1.2 | Dependent Claim 3 .....                                                    | 83        |
| 9.2.4.1.3 | Dependent Claim 11 .....                                                   | 83        |
| 9.3       | The ‘068 Patent Is Not Obvious Over the Cited Prior Art.....               | 83        |
| 9.3.1     | Ground 1 – Darnell and Kim (Claim 1).....                                  | 83        |
| 9.3.1.1   | Independent Claim 1 .....                                                  | 83        |
| 9.3.2     | Ground 2 – Dasgupta and Darnell (Claim 1).....                             | 84        |
| 9.3.2.1   | Independent Claim 1 .....                                                  | 84        |
| <b>10</b> | <b>Conclusion .....</b>                                                    | <b>84</b> |

## 1 Introduction

1. I, George Edwards, Ph.D., have been retained on behalf of Razdog Holdings LLC (“Razdog” or “Patent Owner”) for the above-captioned *inter partes* review (IPR) proceedings filed by Twitch Inc. (“Twitch” or “Petitioner”). As an expert in computer science, I have been asked to provide analysis and opinions related to whether certain claims of U.S. Patent Nos. 9,729,658 (“the ’658 Patent”) and 10,334,068 (“the ’068 Patent”) (collectively, “the Challenged Patents”)<sup>1, 2</sup> are anticipated or rendered obvious by certain prior art asserted by Twitch.

2. I submit this declaration as a statement of the opinions I have formed and the factual basis for the opinions. I am prepared to testify as to the matters discussed in this declaration.

3. My opinions are based on my years of education, research, and experience, as well as my investigation and study of relevant materials. I may rely upon these materials, my knowledge and experience, and/or additional materials in providing my analysis or opinions these proceedings. Further, I may also consider additional documents and information in forming any necessary opinions, including documents

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<sup>1</sup> I understand that each Challenged Patent has been filed as Exhibit 1001 in each respective IPR proceeding, and their prosecution history has been filed as Exhibit 1003. For this reason, I will cite each Challenged Patent by its shorthand title, and the prosecution history as [Shorthand Patent No.] Prosecution History

<sup>2</sup> I understand that IPR2025-00307 relates to the ’658 Patent and that IPR2025-00308 relates to the ’068 Patent.

that may not yet have been provided to me. This declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials submitted in these proceedings.

4. My employer, Quandary Peak Research, is paid a consulting fee for my time working on this matter. I have no personal interest in this matter, and my compensation does not depend in any way on the opinions I express or the outcome. I am being compensated for my time at the rate of \$550 per hour.

## **2 Summary of Qualifications**

5. A detailed list of my qualifications is set forth in my curriculum vitae, a copy of which is attached as **Exhibit A**. Within the broad field of computer science, my specific areas of expertise encompass software engineering, distributed systems, software architecture, software analysis, computer programming, mobile device software, Internet and web applications, real-time systems, email and multimedia messaging services, streaming media, databases, and embedded software. Therefore, I believe I am qualified to express expert opinions related to the ‘658 Patent and the ‘068 Patent.

### **2.1 Educational Background**

6. I graduated *summa cum laude* with a Bachelor of Science degree in computer science from Vanderbilt University in 2003. As an undergraduate, I was awarded the

Vanderbilt School of Engineering Merit Scholarship. I spent one year in the master's program in computer science at Vanderbilt. During this time, I conducted research on application servers and code generators for distributed, real-time, and embedded ("DRE") systems, and I published my findings in several peer-reviewed conference papers and journal articles.

7. I attended graduate school at the University of Southern California, where I was a USC Viterbi School of Engineering Dean's Doctoral Fellow and Annenberg Graduate Fellow. I received an MS in computer science in 2006 and a PhD in computer science in 2010 from USC. My PhD research focused on the analysis of distributed systems, including mobile and web applications, streaming applications, and real-time applications. My research was funded by several government agencies, such as the Department of Defense and the NSA, and large companies, such as Bosch and Infosys. I presented my work at numerous conferences and in academic journals, industry magazines, and other publications. In 2008, I received the USC Computer Science Department's award for outstanding graduate student research.

## **2.2 Professional Experience**

8. I am the founder of Quandary Peak Research, Inc., where I hold the titles of President and Principal Computer Scientist. Quandary Peak is a software analysis company with offices and staff experts in the Los Angeles, Irvine, Austin, Nashville, Chicago, San Francisco, and Washington, D.C. areas. Quandary Peak's software

analysis services fall into three areas: (1) audits and compliance in highly regulated industries; (2) technical due diligence in mergers and acquisitions; and (3) litigation and intellectual property. In all three areas, Quandary Peak analyzes software and computer systems to answer questions about the development, structure, behavior, and quality of those systems.

9. In my role as President, I oversee and manage the company's software analysis services. In my role as Principal Computer Scientist, I perform software analysis on behalf of clients. I have analyzed and reverse-engineered a broad variety of complex, real-world software systems, including web applications, desktop applications, streaming media applications, real-time systems, mobile apps, and databases. I have conducted many investigations for various companies of the design and implementation of these distributed systems with respect to specific patent claims and other intellectual property considerations, such as copyright infringement and trade secret theft.

10. I was formerly employed as a Lecturer of Computer Science at the University of Southern California. In that capacity, I taught Requirements Engineering (CSCI 568), a graduate-level software engineering class, and Data Structures and Algorithms (CSCI 102), an undergraduate-level software design and programming class.

11. I also previously worked as a research scientist and software engineer at Blue Cell Software LLC, Intelligent Systems Technology, Inc., IBM, and The Boeing Company. During my time with Blue Cell, I built a simulation-based software design and modeling environment. While at IBM, I conducted research on next-generation mobile architectures, such as large-scale mobile device provisioning systems. At Boeing, I helped to design software for collecting and processing sensor data and geo-location data from military vehicles.

12. I have authored over thirty scholarly journal articles, magazine articles, conference papers, and book chapters on various topics related to software engineering and distributed systems. I have co-authored many peer-reviewed papers specifically related to software design, source code analysis, web applications, mobile devices, and cloud computing.

13. I have delivered numerous invited lectures, seminars, and technology demonstrations related to software design and analysis for university courses, research symposia, conferences, workshops, and industry events in the field of computer science. I have also served as a reviewer, committee member, or panelist for over a dozen computer science journals, magazines, and conferences.

### 2.3 Prior Testimony

14. On July 17, 2013, I testified by deposition in the matter of *Essociate, Inc. v. Neverblue Media, Inc.*, a patent case in the U.S. District Court for the Central District of California.

15. On November 25, 2013, I testified in U.S. District Court for the Eastern District of Virginia as an expert in mobile devices in a patent infringement matter, *Porto Technology Co., Ltd. and Porto Technology, LLC v. Cellco Partnership d/b/a Verizon Wireless and Verizon Services Corp.*

16. On June 9, 2014, I testified by deposition in the matter of *SecurityBase.com v. Jeffrey Essick, et al.*, a breach-of-contract suit brought in the Superior Court of California for the County of Orange.

17. I testified both by deposition (on June 17, 2014) and in U.S. District Court for the District of Kansas (on June 24, 2014) in the matter of *AgJunction, LLC v. Agrian, Inc. et al.*, a copyright and trade secret case.

18. I testified both by deposition (on October 12, 2015) and in U.S. District Court for the Southern District of California (on December 7 and 8, 2015) in the matter of *Anthony Johnson v. Storix, Inc.*, a copyright infringement matter.

19. On August 15, 2016, I testified by deposition in the matter of *Backflip Software, Inc. v. Cisco Systems, Inc. et al.*, a breach-of-contract suit brought in the Superior Court of California for the County of Santa Clara.

20. On July 12, 2017, I testified by deposition in the matter of *Implicit, LLC v. Trend Micro, Inc.*, a patent case in the U.S. District Court for the Eastern District of Texas.

21. On December 8, 2017, I testified by deposition in the matter of Farmers Edge Inc., Farmers Edge (US) Inc., and Farmers Edge (US) LLC v. Farmobile, LLC, Jason G. Tatge, Heath Garrett Gerlock, and Randall Thomas Nuss, a trade secret misappropriation case in the U.S. District Court for the District of Nebraska.

22. On December 14, 2017, I testified by deposition in the matter of *Vesta Corporation v. Amdocs Management Limited, et al.*, a trade secret misappropriation case in the U.S. District Court for the District of Oregon.

23. On December 18, 2017, I testified by deposition in the matter of *eBay, Inc. V. MasterObjects, Inc.*, an *inter partes* review proceeding before the Patent Trial and Appeal Board of the United States Patent and Trademark Office.

24. On May 23, 2018, I testified in U.S. District Court for the District of Nebraska in the matter of Farmers Edge Inc., Farmers Edge (US) Inc., and Farmers Edge (US) LLC v. Farmobile, LLC, Jason G. Tatge, Heath Garrett Gerlock, and Randall Thomas Nuss.

25. On June 28, 2018, and May 25, 2021, I testified by deposition in the matter of *Bryndon Fisher v. The United States of America*, a class action lawsuit in the U.S. Court of Federal Claims.

26. On December 5-6, 2019, I testified by deposition in the matter of *American National Manufacturing, Inc. v. Sleep Number Corporation*, an *inter partes* review proceeding before the Patent Trial and Appeal Board of the United States Patent and Trademark Office.

27. On August 9, 10, and 11, 2022, I testified in the matter of *Farmobile, LLC v. Farmers Edge, Inc.*, a patent case in the Federal Court of Canada.

28. On August 11, 2023, January 19, 2024, and January 29, 2024, I testified by deposition in the matter of *AGI SureTrack LLC v. Farmers Edge Inc. and Farmers Edge (US) Inc.*, a patent case in the U.S. District Court for the District of Nebraska.

29. On July 9 and 10, 2024, I testified by deposition in the matter of *InQuisient, Inc. v. Service Now, Inc.*, a patent case in the U.S. District Court for the District of Delaware.

30. On August 22, 2024, I testified by deposition in the matter of *LQK Corporation v. Overall Parts Solutions*, a breach-of-contract case in the Court of Chancery of the State of Delaware.

31. On October 30, 2024, I testified by deposition in the matter of *Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. v. Fendgo, LLC*, an *inter partes* review proceeding before the Patent Trial and Appeal Board of the United States Patent and Trademark Office.

32. On December 3, 2024, I testified by deposition in the matter of *Microsoft Corporation v. InterDigital Patent Holdings, Inc.*, an *inter partes* review proceeding before the Patent Trial and Appeal Board of the United States Patent and Trademark Office.

33. On January 31, 2025, I testified by deposition in the matter of *Entangled Media, LLC v. Dropbox, Inc.*, a patent case in the U.S. District Court for the Northern District of California.

34. On April 1, 2025, I testified by deposition in the matter of *Ferid Allani v. Apple, Inc.*, a patent case in the U.S. District Court for the Western District of Texas.

### **3 Materials Considered**

35. In forming my opinions, I have considered:

- U.S. Patent Nos. 10,334,068 and 9,729,658 and their file histories.
- Twitch’s Petition for *Inter Partes* Review of the U.S. Patent No. 9,729,658 (IPR2025-00307) and the materials cited therein.
- Twitch’s Petition for *Inter Partes* Review of the U.S. Patent No. 10,334,068 (IPR2025-00308) and the materials cited therein.
- Exhibits 1001 to 1050 to the IPR2025-00307 Petition.
- Exhibits 1001 to 1048 to the IPR2025-00308 Petition.
- Razdog’s Preliminary Responses in IPR2025-00307 and IPR2025-00308;

- Twitch’s Preliminary Replies in IPR2025-00307 and IPR2025-00308;
- Razdog’s Preliminary Sur-Replies IPR2025-00307 and IPR2025-00308; Decision Granting Institution of Inter Partes Review in IPR2025-00307 (“’658 Inst. Dec.”).
- Decision Granting Institution of Inter Partes Review in IPR2025-00308 (“’068 Inst. Dec.”).
- My education, training, and experience in the field.
- Other materials cited in this declaration.

#### **4 Scope of Opinion**

36. I understand that Petitioner challenges claims 1-18 of the ‘658 Patent in IPR2025-00307 and claim 1 of the ‘068 Patent in IPR2025-00308 (collectively, the “Challenged Claims”).

37. I have been asked to provide my opinions regarding whether claims 1-18 of the ‘658 Patent are unpatentable based on the following grounds:

- Ground 1A: whether claims 1-5 and 7-10 are rendered obvious by Darnell and Kim;
- Ground 1B: whether claims 6 and 12-18 are rendered obvious by Darnell, Kim, and Dasgupta;
- Ground 2A: whether claims 1 and 4-10 are rendered obvious by Dasgupta and Darnell;

- Ground 2B: whether claims 2-3 and 11 are rendered obvious by Dasgupta, Darnell, and Kim.

38. I have also been asked to provide my opinions regarding whether claim 1 of the '068 Patent is unpatentable based on the following grounds:

- Ground 1: whether claim 1 is rendered obvious by Darnell and Kim;
- Ground 2: whether claim 1 is rendered obvious by Dasgupta and Darnell.

39. This Declaration, including the exhibits hereto, sets forth my opinion on these topics. I reserve the right to respond to additional evidence and or opinions offered by Petitioner in these IPRs.

## **5 Legal Standards**

### **5.1 Overview**

40. I am not an attorney or a legal expert. The legal standards I applied in reaching the conclusions expressed throughout this declaration were provided to me by counsel. In preparing this declaration, I have endeavored to faithfully apply these legal standards. I do not intend to offer opinions on the law. Below, I describe the law I applied in developing my opinions expressed herein.

### **5.2 Patent Claims**

41. Patent claims describe the invention made by the inventors and describe what the patent owner owns and what the owner may prevent others from doing. Claims

may describe products, such as machines or chemical compounds, or processes for making or using a product. Claims are usually divided into parts or steps called limitations.

42. There are two types of claims: independent claims and dependent claims. An independent claim sets forth all the requirements that must be met in order to be covered by that claim. Thus, it is not necessary to look at any other claim to determine what an independent claim covers. A dependent claim does not itself recite all of the requirements of the claim but refers to another claim for some of its requirements. In this way, the claim depends on another claim. The law considers a dependent claim to incorporate all of the requirements of the claims to which it refers. The dependent claim then adds its own additional requirements. To determine what a dependent claim covers, it is necessary to look at both the dependent claim and any other claims to which it refers.

43. In that case, the dependent claims incorporate the limitations of the independent claim upon which they depend, and if a reference fails to disclose any of the limitations of an independent claim, the claims which depend on that claim cannot be made invalid by that reference. As a result, any of the references at issue in this proceeding that fail to disclose all of the limitations of an independent claim necessarily also fail to disclose all of the limitations of claims which depend on that claim.

### **5.3 Burden of Proof for Invalidity**

44. I understand that the party challenging the validity of an issued United States patent in an IPR bears the burden of proving invalidity through facts supported by a preponderance of the evidence. I understand that a “preponderance of the evidence” means evidence sufficient to prove that a fact is more likely true than it is not.

### **5.4 Claim Construction**

45. I understand that the first step in determining validity is to properly construe the claims. I further understand that, in this proceeding, the Board must determine the scope of the claims by using the same claim construction standard that United States District Courts use. Under this standard, words of a claim are given their “ordinary” and “customary” meaning as understood by a person of ordinary skill in the art at the time of the invention. I understand that such a person looks to the claims, specification, and file history in understanding the meaning of the claim terms. I understand that in limited circumstances, treatises and dictionaries may also be consulted to determine the meaning attributed by a person of ordinary skill in the art at the time of the alleged invention. Except as noted below, I have followed this approach in my analysis and have applied the ordinary and customary meaning of the terms throughout my analysis in this declaration.

46. I reserve the right to amend or alter my analysis and opinions in view of the claim constructions adopted by the Board.

## **5.5 Person of Ordinary Skill in the Art**

47. I understand that a POSITA is a hypothetical person who is presumed to have known the relevant art at the time of the invention and to whom an expert in the relevant field could assign a routine task with reasonable confidence that the task would be successfully carried out. Such a person would have the capability of understanding scientific and engineering principles applicable to the pertinent art. I understand that factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the following: the educational level of the inventor; the type of problems encountered in the art; prior art solutions to those problems; the rapidity with which innovations are made; the sophistication of the technology; and the educational level of active workers in the field. I understand that a person of ordinary skill in the art is not a real person, but rather is a hypothetical individual having the qualities reflected by the factors above. This hypothetical person has knowledge of art in the relevant field and takes from each reference what it would teach to a person of ordinary skill in the art.

## **5.6 Prior Art**

48. In this declaration, I may use the phrase “prior art” when describing specific references. However, my use of this phrase should not be interpreted as agreement that the item(s) described qualify as prior art under the patent laws. I merely use this phrase to address the items labeled as “prior art” by Petitioner and its expert.

## **5.7 Anticipation**

49. I understand that a patent claim can be found invalid as anticipated if each and every element of the claim, as properly construed, is found either explicitly or inherently in a single prior art reference. However, I also understand that in order to anticipate a patent claim, the reference itself must actually qualify as prior art. If the single prior art reference does not disclose any one claim limitation, then that claim is not anticipated. I further understand that the single prior art reference cannot merely disclose each element; rather, it must disclose all of the elements as arranged in the claim.

50. I understand that for a claim to be anticipated, each claim limitation must be disclosed in a single prior art reference, and the claimed arrangement or combination of those limitations must also be disclosed in that same prior art reference. I understand that for a reference to be anticipatory, the reference must contain an enabling disclosure. I understand that merely naming or describing the subject matter is insufficient if it cannot be produced without undue experimentation.

## **5.8 Obviousness**

51. I understand that a patent claim can be found invalid as obvious if the differences between the claim and the prior art references would have been obvious to a person of ordinary skill in the art at the time of the invention, taking into account (1) the scope and content of the prior art, (2) the differences between the prior art

and the claims, (3) the level of ordinary skill in the art, and (4) any objective indicia of non-obviousness.

52. To be obvious in light of multiple prior art references, there must be a reason either to combine the two or more prior art references to achieve the claimed invention. I understand that this reason may come from a teaching, suggestion, or motivation to combine or may come from the reference or references themselves, the knowledge or “common sense” of one skilled in the art, or from the nature of the problem to be solved, and may be explicit or implicit from the prior art as a whole. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

53. I understand that if the teachings of a prior art reference would lead one skilled in the art to make a modification that would render another prior art device inoperable, then such a modification would generally not be obvious. I understand that if a proposed modification would render the prior art device unsatisfactory for its intended purpose, then the proposed modification would generally not be obvious.

54. I understand that it is improper to use hindsight in making the obviousness determination.

55. I understand that some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness must be made. For

example, I understand that there may be no rational underpinning to support the legal conclusion of obviousness where systems are already complete and the party challenging validity seeks to mix and match components, which each exist in the separate systems, from these complete systems.

## **6 Level of Ordinary Skill in the Art**

56. As explained below, I have been asked to assume the Challenged Patents claim priority to October 12, 2010. My analysis reflects the views of a POSITA in the field of the Challenged Patents as of October 12, 2010. I understand that in the institution decision the Board defined a POSITA as a person with at least a bachelor's degree in computer science and two years' experience working in cloud computing or a similar field, or a master's degree in computer science or similar field. For purposes of this Declaration, I have applied this definition of a POSITA. As of October 12, 2010, I qualified as a POSITA under this definition.

57. Also, I note that in its Patent Owner Preliminary Response, Patent Owner stated, "The level of ordinary skill in the art as of the priority date for the inventions claimed in the '658 Patent is a person with a bachelor's degree in electrical engineering or computer science, and approximately 3 years of experience working with content management systems and graphical user interfaces; or a more advanced degree such a master's or doctorate with proportionally less work experience." Although I have applied the definition of a POSITA that was adopted by the Board

in its institution decision, I note that none of my opinions in this declaration would change if the definition of a POSITA proposed by the Patent Owner in its Patent Owner Preliminary Response were adopted. As of October 12, 2010, I also qualified as a POSITA under that definition.

## **7 The Challenged Patents**

### **7.1 Overview of the Challenged Patents**

58. The '658 Patent is titled “System for Managing Web-Based Content Data and Applications.” ('658 Patent, Cover.) The '068 Patent is titled “System for managing web-based swipe module tool and software for scrolling and paging through content data and applications.” ('068 Patent, Cover.) I understand that the '068 Patent is a continuation of the '658 Patent. ('068 Patent, Cover.) The '068 Patent shares its specification with the '658 Patent. My analysis of the specifications of the Challenged Patents is therefore the same. I will provide citations to the '658 Patent in this section.

59. The Challenged Patents relate to “managing and migrating through web-based content data in a cloud-based computing environment from multiple content data sources through a single point of access and/or user interface from a remote computing device” ('658 Patent, 1:28-35). The patents describe that “cloud-based computing provides computation, software, data access, and storage services that do not require a user to have knowledge of the physical location and configuration of

the system and architecture that delivers the content data and/or services.” (’658 Patent, 1:39-45). They further state that “most cloud-based computing systems and architectures include a master server that networks to other service provider servers and streams content data to the master server that is then accessed through the remote computing device.” (’658 Patent, 1:47-50). The inventors identify a limitation in such systems because they “require multiple log-in procedures for accessing the multiple sources of content data and/or services and/or do not provide for the ability to manage the content data and/or services from multiple sources through a single user interface.” (’658 Patent, 1:53-58).

60. To address this problem, the Challenged Patents are “directed to a cloud-based computer system and architecture for managing and migrating through web-based content data and content applications from multiple content data sources or service providers in real time.” (’658 Patent, 1:57–62). A key feature of the inventions is the “master server that acts as a single point access and supports a user interface,” which “is preferably an icon-based master web-page viewable over the master server from a remote computing device.” (’658 Patent, 2:30–35, 2:38–42). The master web-page is “‘dynamic’ in the sense that the master web-page displays streaming content data and content applications from the multiple content data sources in real time.” (’658 Patent, 2:56–59). A user “logs into the master server over the internet/intranet from a remote computing device,” and the “master content

application software” that runs on the server “is coded for organizing content data and content applications from the multiple content sources or service providers on a single master web-page.” (’658 Patent, 2:47–54).

61. The Challenged Patents further explain that the “master content application software... is further configured to program the remote computing device with code to operate a slide tool,” and that “the slide tool allows a user to scroll or page through the content data and/or content applications in real time from [the] master server on a master web-page from the remote computer device” (’658 Patent, 2:60–65). The specification emphasizes that “unlike prior art cloud-based computing system and architectures, the present invention is capable of being integrated directly into the content applications from the multiple content data sources or service providers and... is capable of providing for the ability to migrate through the content data on the dynamic master web-page in real time” (’658 Patent, 2:66–3:4).

62. The Challenged Patents also disclose a “remote tool... configured [to] deliver a subset of content data or applications to a third party enabled remote computing device to allow access only to the content data and/or applications that match an authorized user and/or target audience” (’658 Patent, 3:28–33), as well as a “tool box” that “provides for the capability to include lock-out controls, collect history analytics and have subsets of accessible content data or content applications” (’658 Patent, 5:50–52). The master server can record and store “user history

analytics” that may be “used [to] select promotions, advertisement, news and other information that targets the user based on the operations performed and/or the content data sources or service providers that are used” (’658 Patent, 3:13–23).

63. Taken together, the Challenged Patents describe a cloud-based system centered on a real-time, dynamic master web-page that aggregates and displays content from multiple sources, allows a user to navigate between that content through a slide tool program executed from the remote device, and includes a tool box and analytics features for managing, organizing, and targeting content through the master server. These “real time” and “master web-page” aspects are repeatedly emphasized in the specification as the key elements distinguishing the claimed invention from prior art aggregators and navigators.

## **7.2 Priority Date**

64. I understand that the Challenged Patents claim priority to provisional applications filed on October 12, 2010, and February 22, 2011. I have been asked to assume that the Challenged Patents claim priority to October 12, 2010, for purposes of these proceedings.

## **8 Claim Construction**

65. As indicated above, I understand that claims are to be construed in this proceeding using the same claim construction standard as used in United States District Courts. Under this standard, words of a claim are given their “ordinary” and

“customary” meaning as understood by a POSITA at the time of the invention in light of the claims, specification, and file history. As further indicated above, I understand that in treatises and dictionaries may be consulted in limited circumstances to determine the meaning attributed by a POSITA at the time of the alleged invention. Except as noted below, I have followed this approach in my analysis and have applied the ordinary and customary meaning of the terms throughout my analysis in this declaration.

66. I understand that Petitioner and its expert assert that all the claim terms of the Challenged Claims should be given their plain and ordinary meaning as understood by a POSITA at the time of the invention and that, except as noted below, have not provided any specification constructions. Except as noted below, in this declaration I have given the claim terms of the Challenged Claims their plain and ordinary meaning, as would have been understood by a POSITA at the time of the alleged invention, which I understand to be October 12, 2010 for all Challenged Claims.

### **8.1 “real time”**

67. I understand that the Board preliminarily construed the term “real time” in the Challenged Claims to mean “content and applications are streamed to a master server from its respective sources as soon as it is available and without significant delay to a user.” ’658 Inst. Dec. at 18; ’068 Inst. Dec. at 16. In my opinion, this

construction focuses on transmission to a master server, and as discussed below, does not account for the various contexts in which the term “real time” occurs in the Challenged Claims. For example, this construction does not account for certain claims’ user-facing context on the master web-page.

68. The Board “preliminarily agree[d] with Petitioner that a person of ordinary skill in the art considering the claims and the intrinsic record of the ’658 patent in its entirety, would understand that the use of the term ‘real time’ in the ’658 patent claims means:

- 1) streaming content data and content applications to the master server simultaneously in real time from their respective servers (claim 1[b2]) and scrolling or paging through the content data or the content applications . . . simultaneously and through the master server in real time (claim 1[b3]);
- 2) content data or content applications are simultaneously streamed to the master server . . . over the internet in real time...the multiple content sources or service providers are received, displayed, or organized... (claim 7[c]); and
- 3) navigating through the content data or content applications . . . in real time from the remote computer (claim 12[b2]).” ’658 Inst. Dec. at 15-16.

As a POSITA, I read each use of “real time” in each of claims 1, 7, and 12 as tied to a user-visible operation on the master web-page, not merely to background transfers between servers.

69. Further, the Board “preliminarily agree[d] with Petitioner that a person of ordinary skill in the art considering the claims and the intrinsic record of the ’068 patent in its entirety, would understand that the use of the term ‘real time’ in the ’068 patent claims means: 1) streaming content data and content applications to the master server simultaneously in real time from their respective servers (claim 1[b2]) scrolling or paging through the content data or the content applications . . . simultaneously and through the master server in real time (claim 1[b3]).” ’068 Inst. Dec. at 14.

70. I disagree with the Board’s construction of the term “real time” because, in my opinion as a POSITA at the time of the invention, “streaming” involve incremental delivery of data that is used contemporaneously by the user on the master webpage, not the retrieval of fully completed items after database storage.

71. Reading the claims in context, a POSITA would treat the phrase “streamed to the master server ... in real time ... on a master web-page” as an integrated clause: “to the master server” (destination), “in real time” (temporal quality), “from their respective servers” (sources), and “on a master web-page” (display context) all modify the same operation, streamed.

72. From both grammar and system design, a POSITA would read the clause in claim 1 of the ’658 Patent as one continuous streaming process. “Real time” therefore characterizes the observable behavior on the page—the content appears

and updates without perceptible delay to the user—rather than merely characterizing when a server receives data.

73. Across the independent claims of the Challenged Patents, each occurrence of “real time” aligns with user-visible streaming, scrolling/paging, or navigation through the master web-page, not with a server-only action:

74. ‘658 Patent, claim 1: “streamed to the master server . . . in real time . . . on a master web-page”;

75. ‘658 Patent, claim 1: “scrolling or paging through . . . in real time from the master web-page”;

76. ‘658 Patent, claim 7: “streamed to the master server . . . in real time to an account belonging to the user” (a user-facing context tied to that user’s page);

77. ‘658 Patent, claim 12: “user navigates . . . through master web-page in real time”;

78. ‘068 Patent, claim 1: “streamed to the master server . . . in real time . . . on a master web-page;”

79. ‘068 Patent, claim 1: “scrolling or paging through . . . in real time from the master web-page.”

80. A POSITA would recognize this consistency as deliberate drafting and would not switch the locus of “real time” from the master web-page to an upstream transmission step in some claims but not others.

81. The specification confirms the user-facing meaning of “real time.” Every time the specification uses “real time” to describe the invention, it does so in connection with display and user interaction on the master webpage (*e.g.*, live display, scrolling/paging/navigation, simultaneous presentation). *See, e.g.*, ‘658 Patent, 2:47-65, 2:66-3:4, 5:21-26, 6:35-41. In my opinion, a POSITA would read those passages as describing a dynamic user interface/master webpage that is fed by multiple sources and updated as data becomes available so that the user experiences real time content.

82. I have reviewed the prosecution histories of the ‘658 Patent and ‘068 Patent. In my opinion, the applicant distinguished asynchronous aggregators that retrieve content and later display stored items, in favor of simultaneous, live presentation on a single page. *See, e.g.*, Ex.1003 at 134-35, 179. A POSITA would therefore understand “real time” in these patents to capture real time transmission and display on the master webpage, allowing a user to view, scroll or page through, or navigate real time content on the master webpage itself.

83. I understand that Petitioner and Dr. Martin defined “simultaneously” and “real time” to mean “content from more than one source that is sent to the server as it becomes available.” *E.g.*, Ex.1002 at ¶¶178, 423. I disagree with this definition. I do not believe a POSITA would understand these terms in the Challenged Patents to relate solely to the speed at which content is sent from a source to the master server.

Dr. Martin’s interpretation omits the display context that anchors the claims and specification. By stopping at “sent to the server,” Dr. Martin’s formulation drops the phrase “on a master web-page,” which is part of the same streaming clause. A POSITA would not sever the phrase “in real time” from that display context. In my opinion, one aspect of the claimed system’s novelty is that the system allows a user to view and navigate content from multiple sources on a single user interface in real time. A model in which content arrives at a server “as available,” but is not streamed on the master webpage, does not meet what a POSITA would recognize as “real time” in the Challenged Patents.

84. I disagree that the portions of the ‘658 Patent and ‘068 Patent cited by Dr. Martin support his interpretation of “real time.”

85. Dr. Martin cites column 1, lines 43-46 of the ‘658 Patent and asserts that the description “means that content updates and transmissions occur with minimal lag, which a POSITA would have recognized to ensure users can access the most current data from multiple sources in real time.” Ex.1002 at ¶179; *see also id.* at ¶424. In my opinion, a POSITA would read this portion of the patent as a high-level background statement about network-delivered services. It does not define “real time” and it does not describe server-only transmission. If anything, it aligns with the patent’s user-facing focus because “delivery ... in real time” describes what the user receives (via the master webpage). Additionally, in order for a user to “access

the most current data from multiple sources in real time,” the data must be made available to the user on the master webpage, not merely transmitted to a server.

86. Next, Dr. Martin cites column 4, lines 1-3 of the ‘658 Patent and argues “[t]his setup indicates that content is dynamically available and must be readily retrievable by the master server” because “[t]he expectation of prompt retrieval suggests that content updates from each service provider would appear on the master server concurrently, given the system’s design to integrate various feeds into a cohesive, accessible interface.” Ex.1002 at ¶¶ 180, 425. The portion of the patent cited by Dr. Martin defines “content data” originating on source servers. It does not use the term “real time” and says nothing about the timing of transmission or display. Dr. Martin infers “prompt retrieval” equals “real time to the server,” but the passage does not say that, and a POSITA would not read a definition of the data’s source as an instruction to relocate the “real time” requirement from the user-visible page to an upstream server transfer. Technically, noting that data resides on provider servers is immaterial to whether the user sees it in real time on the master webpage.

87. Dr. Martin next relies on column 4, lines 4-6 of the ‘658 Patent and asserts “[t]his description shows that as content updates on a source server, the master application, which organizes and displays content on the master web page, retrieves this content promptly to ensure users experience minimal delay when viewing updated data.” Ex.1002 at ¶¶ 181, 426. This portion of the patent relates to “content

applications” but says nothing about “real time” or the master server. Regardless, in my opinion, Dr. Martin’s description actually supports my interpretation of “real time” because retrieving content and displaying it on the master webpage promptly ensures that users experience minimal delay when viewing updated data. In other words, streaming content in “real time” in the context of the Challenged Patents refers to both transmitting content to the master server *and* displaying it on the master webpage.

88. A POSITA would also recognize that a system architecture premised on retrieve-merge-store-later display (as in Darnell) does not ensure users experience minimal delay when viewing updated data. Such systems introduce snapshot behavior bounded by the retrieval interval and client refresh. While such systems may in some instances retrieve content promptly, they do not ensure users experience minimal delay when viewing content because such systems do not display content concurrently with data arrival.

89. Dr. Martin concludes that “a POSITA would have understood ‘simultaneously’ and ‘real time’ as describing a system where content from multiple sources is updated and displayed as soon as it becomes available.” Ex.1002 at ¶¶181, 426. In my opinion, Dr. Martin is correct that “real time” refers to a system where content is *both updated and displayed* as soon as it becomes available, *i.e.*, streamed to the master server *on a master webpage*. However, where I disagree is his attempt

to equate that behavior with “content sent to the server as available.” Transmitting content to the server is necessary but not sufficient because the claims require that the content appear on the master webpage in real time. In a system like Darnell’s, the server may receive an update “as available,” but the user will not see the update until the next client refresh or request. A POSITA would not recognize such a system as real-time.

90. To summarize, in my opinion a POSITA would understand “real time” in the Challenged Patents to mean user-visible updating on the master web-page as content becomes available, not merely that upstream servers send data promptly to a master server. The claim text, its repeated use across claims, and the specification’s focus on display, navigation, and simultaneous presentation all support this understanding. Dr. Martin’s interpretation omits the display context and relies on passages that, when read technically, either do not address timing at all or affirm that real-time behavior is about what the user sees on the master web-page.

## **8.2 “master web-page”**

91. I understand that the Challenged Patents state that “[a] dynamic user web-page or master web-page is a web-page viewable remotely from a remote computing device via log-in server or master server and which displays a slide tool that scrolls or pages through content data and/or content application from multiple content data sources and/or service providers in real time.” ’658 patent, 4:20-25; ’068 patent,

4:32- 37. I have applied this definition of “master web-page” in my analysis. Consistent with a POSITA’s understanding, this makes the master web-page the user-facing locus where “real time” streaming is perceived and navigated. I have applied this definition in my analysis.

## **9 Summary of Opinions**

92. In my opinion, based on my review of the Challenged Patents, the cited references, and the understanding of a person of ordinary skill in the art at the time of the invention, the Petitioner has not met its burden to show that the asserted grounds disclose or render obvious the claimed inventions, for the reasons summarized below:

- The Challenged Patents disclose a cloud-based architecture centered on a dynamic “master web-page” that displays content and applications on a single, user-facing page that updates as data arrives from from multiple providers.
- The cited combinations (Darnell/Kim; Darnell/Kim/Dasgupta; Dasgupta/Darnell) do not teach or suggest the required real-time streaming display on a master web-page.
- Darnell is an item-based, retrieve–merge–store feed aggregator that delivers lists of completed items and contains no disclosure of

incremental transfer of portions of a larger whole to a master web-page.

- Dasgupta presents a navigator/guide UI (set-top paradigm) and does not disclose a dynamic, server-orchestrated master web-page that presents multiple external sources in real time.
- Kim is invoked only for analytics and does not cure the missing “real-time,” “incremental transfer,” “display,” or “master web-page” components.

93. Consequently, the cited prior art does not disclose or render obvious the claimed inventions of the Challenged Patents.

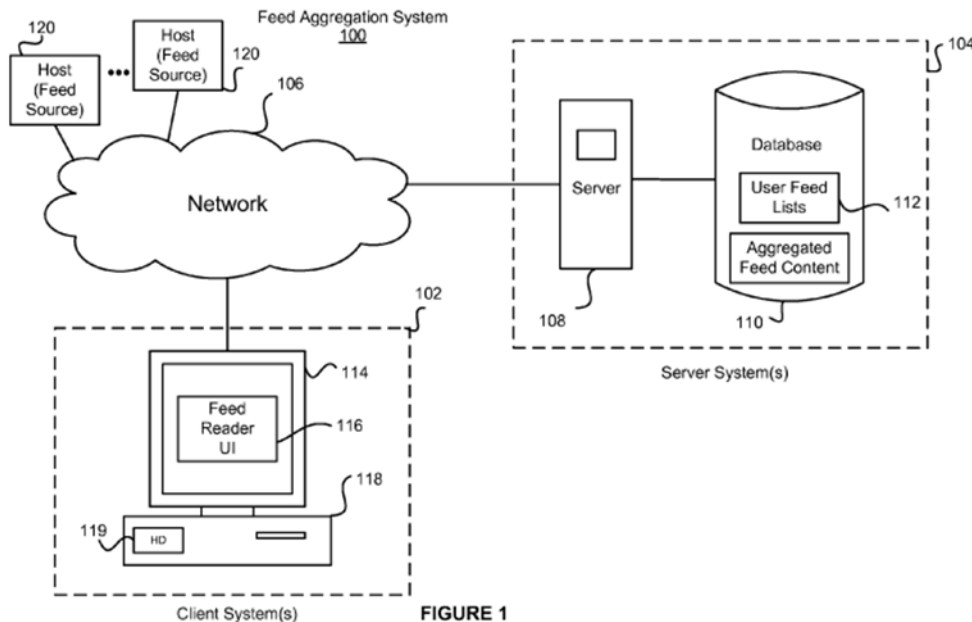
## **9.1 Deficiencies in the Prior Art**

### *9.1.1 Darnell*

94. Darnell’s system aggregates and manages content feeds on a server and delivers organized collections of content to users upon request. Ex.1004, [0011]. Darnell’s system collects content items from feed sources, stores the content items on a database, and transmits an ordered list of content items from the database to a client in response to a client request. *See id.* From a POSITA’s perspective, this is a classic two-stage, request-driven feed system: (i) server-side collection and merging into storage; and (ii) client-initiated retrieval of stored items for presentation. Darnell’s architecture is centered on fully uploaded, item-level aggregation prior to

any delivery to the user, not on user-visible streaming that includes incremental transfer to a master web-page. In practice, the system disclosed by Darnell requires each “item” to be fully published before it can be presented to the user and only upon user request. Darnell lacks any disclosure related to incremental transfer.

95. Darnell’s content feed aggregation system (100) includes a server system (104) coupled to client systems (102) and hosts/feed sources (120) by a network (106), as shown below. *Id.*, [0032].



*Id.*, Fig.1. The server system (104) includes a server (108) and a database (110). *Id.*, [0033]. Server (108) retrieves content feeds from feed sources (120). *Id.* “The server system 104 stores content items in the content feeds in the database 110.” *Id.*, [0034]. Users interface with the server system (104) via a feed reader user interface (116). *Id.*, [0040]. A POSITA would recognize the feed reader UI 116

as a client-side list view of results returned from the server's database, rather than a server-hosted page that displays real time content as upstream sources send new data.

96. Darnell does not provide streamed content to a user's feed reader user interface in real time. Instead, Darnell first retrieves and stores fully completed, entire content items in a persistent database, and only thereafter makes summaries, titles, or excerpts available to the user as part of a static list. Although Darnell states that content items themselves can be included in the content feed, that disclosure still refers to completed, unitary feed items that are retrieved, merged, and stored as whole objects before any portion is delivered to the user. The full content remains unavailable unless and until the user issues a separate, manual request that triggers a "fetch" operation for that specific item, without capability for partial or incremental transfer of a series of portions/pieces/parts of a whole and Darnell provides no capability for partial, incremental, or progressive delivery of portions of a larger whole. In this model, the user sees only stored, itemized entries that are delivered periodically or on demand, not content that is streamed or displayed incrementally in real time on a master web-page. According to Darnell, "[t]he feed reader user interface transmits a list of content feed subscriptions, or modifications to a list of content feed subscriptions, to the server system 104 for storage at the database 110" and "[t]he feed reader user interface 116 presents content items stored

at the database 110 to the user based on the user's list of content feed subscriptions.”

*Id.* Darnell depicts this process in Figure 9A (below), which shows “a flow diagram illustrating process 900 for retrieving and storing content items for subsequent transmission to client computer 400.” *Id.*, [0106].

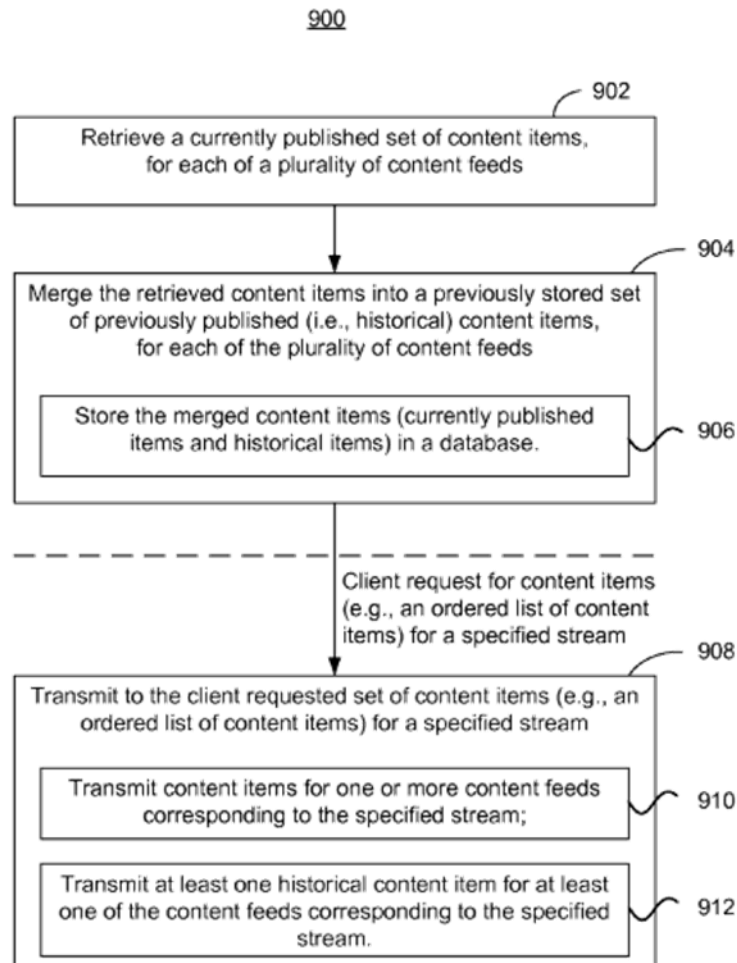


**Figure 9A**

*Id.*, Fig.9A (annotated).

97. Notably, Darnell uses the word “stream” only in the sense of a logical sequence of discrete, completed feed content items—such as RSS entries, posts,

headlines, or articles—delivered in batches after being retrieved, merged, and stored in a database. In Darnell, a “stream” is simply a chronological list of atomic content items, each of which must be fully retrieved and stored before any portion is delivered or displayed. The “stream” in Darnell is therefore item-based, pull-driven, and database-dependent, consistent with periodic feed aggregation and user-initiated fetch operations—and contains no disclosure of incremental transfer of partial content items to a master web-page. By contrast, a POSITA would understand that the Challenged Patents use “streaming” at the time of the invention to involve incremental delivery of content. For example, with streamed data, the beginning of the data may become viewable (or otherwise “consumable” by the receiving entity) while later portions are still being transmitted or generated by the content source. A POSITA evaluating Darnell would look for (but not find) disclosure that any portion of a larger whole is delivered to the page while the remainder continues to arrive. The Challenged Patents repeatedly tie “streaming” to a “dynamic” master web-page that displays content from multiple sources simultaneously in real time—not lists of completed items updated only after complete storage of content items on the server.

98. Darnell’s server computer retrieves a currently published set of content items for a content feed and merges the retrieved content items into a previously stored set of previously published content items referred to as historical content items. *Id.*, [0106]. According to Darnell, “[t]he merged content items are stored in a database

(906), such as feed content database 520.” *Id.*; see also *id.*, [0108] (describing process for determining if content item is inserted into database). “[F]eed tracker module 516” only retrieves content items from storage “periodically and/or as content feeds are updated” (*id.*, [0074]), which occurs when a user “attempt[s] to scroll beyond the end of the displayed list.” *Id.*, ¶ [0112]. In response to such periodic or user-initiated requests, server computer 500 transmits to client computer 400 an ordered list of content items for a specified stream. *Id.*, [0109]; see also *id.*, [0112] (user initiated “fetch” command prompts client computer to fetch fully uploaded, already-stored content items from server computer). A POSITA would further note Darnell’s “continuation token” pagination (Figs. 9A–9C) is a pull pattern—tokenized batching is a hallmark of request/response lists, and does not disclose partial or incremental transfer of portions of a larger whole. Accordingly, Darnell’s system does not disclose a system that enables incremental transfer of content items before they are fully delivered to the server and therefore does not disclose streaming content in real time but instead merges and stores complete content items in a database and provides them only upon a specific, manual user request.

#### 9.1.2 Dasgupta

99. Dasgupta discloses media content access systems teaches graphical user interface (“GUI”) enhancements for browsing and accessing media content such as in set-top boxes, such as television programs, pay-per-view programming, video-on-

demand programming, and audio programming. Ex.1006, 1:7-14, 1:64-66. Dasgupta's focus is on improving GUIs on set-top boxes that display media channel or program guides by displaying advertisements together with a channel guide including "a plurality of channel icons representing a plurality of media content channels through which media may be accessed." *Id.*, 1:64-2:16. Dasgupta explicitly indicates that the channel icons on the channel guide "provide launching points through which interactive portals associated with media content providers distributing media content via the media content channels can be accessed." *Id.*, 2:17-24. A POSITA would therefore understand the guide as a launcher UI that presents identifiers and hands off to a provider portal, not an interface that streams multi-source, real time content.

100. Architecturally, Figure 2 (below) of Dasgupta depicts a system (200), which includes a media content delivery subsystem (202), access subsystem (204), and media content provider subsystem (208). *Id.*, Fig.2.

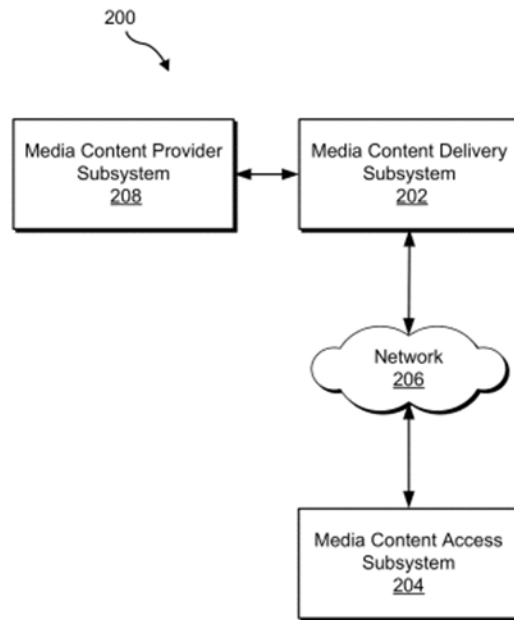


**Fig. 2**

*Id.* Access subsystem (204) facilitates access by a user to media content received from delivery subsystem (202). *Id.*, 7:38-40. Media content provider subsystem (208) provides media content to delivery subsystem (202) for distribution. *Id.*, 7:44-48.

101. Dasgupta's GUI includes "a graphical representation of a channel guide 702 and one or more graphical representations of one or more advertisements (704) . . . displayed together with channel guide 702 in GUI 700." *Id.*, 13:9-14. Further, "channel guide 702 may include a two-dimensional grid matrix view of a plurality

of channel icons, which are associated with a plurality of media content channels.”

*Id.*, 13:15-17. Channel icons “function as a launching point for an interactive portal associated with the corresponding media content channel.” *Id.*, 13:24-30 (emphasis added).

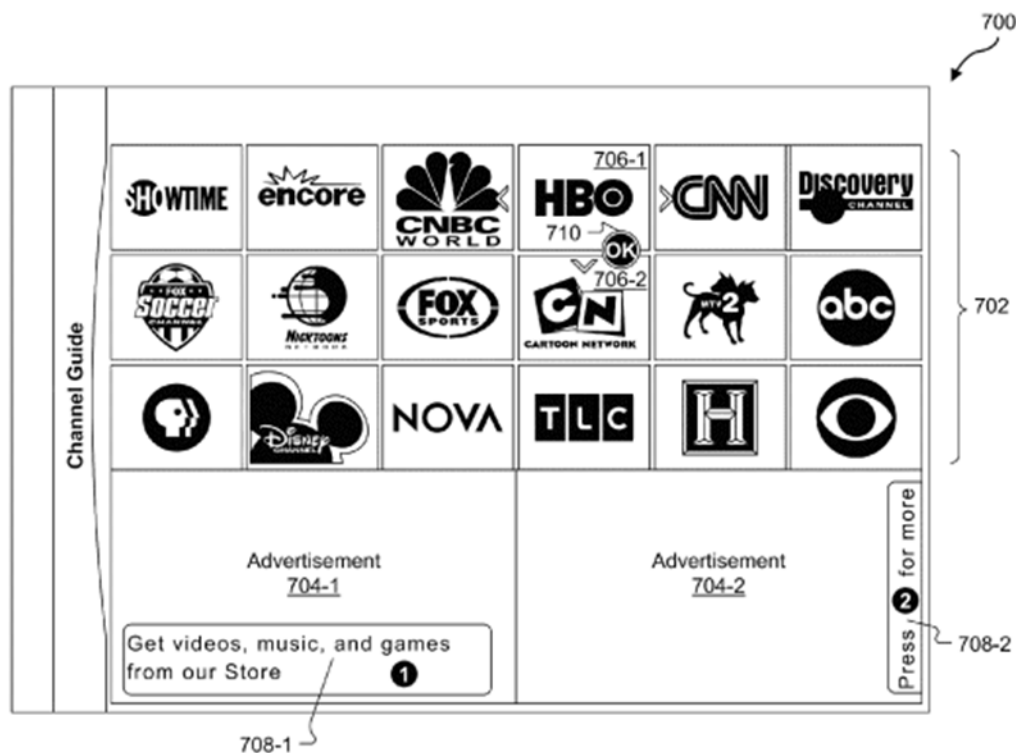


**Fig. 7**

*Id.*, Fig.7. Dasgupta indicates that the channel icons are static and serve as “links” to access a media content channel’s “interactive portal.” *Id.*, 13:31-35. A user can only access media content upon accessing a channel’s “interactive portal,” “including content that is controlled by the media content provider providing content for distribution.” *Id.*, 13:36-40; *see also id.*, 5:41-6:6. A POSITA would not treat a

launcher grid as rendering real-time content “on” the guide. By design, any stream would begin after navigation, within the provider’s “interactive portal.”

102. The GUI may also display advertisements (704-1, 704-2). *Id.*, 13:41-51. The system is “configured to automatically select and insert one or more advertisements 704 in GUI 700 when the GUI 700 is launched.” *Id.*

### 9.1.3 *Kim*

103. Petitioner’s reliance on Kim is minimal with respect to the independent claims of the Challenged Patents. Kim is invoked only in connection with the “analytics”-related limitations, and Petitioner does not rely on Kim to supply any of the core claim elements that are otherwise missing from Darnell or Dasgupta. Notably, Petitioner makes no assertion that Kim discloses, remedies, or meaningfully contributes to the “real-time,” “streaming,” “display,” or “master webpage” requirements recited in the independent claims.

104. In my opinion, Kim is inconsequential to the patentability analysis for institution purposes. The relevant question is whether Petitioner’s primary references—Darnell and Dasgupta—teach or suggest the fundamental limitations that define the claimed invention. Because those references do not disclose the key elements recited in the independent claims, and because Petitioner does not even contend that Kim supplies what is missing, Kim adds nothing that would alter the outcome. Accordingly, the validity issues rise or fall on Darnell and Dasgupta alone.

For these reasons, my analysis below focuses on why those primary references fail to establish a reasonable likelihood that any of the challenged claims are unpatentable.

## **9.2 The ‘658 Patent Is Not Obvious Over the Cited Prior Art**

### *9.2.1 Ground 1A – Darnell and Kim (Claims 1–5, 7–11)*

#### **9.2.1.1 Independent Claim 1**

105.I understand that Petitioner asserts that independent claim 1 of the ‘658 Patent would have been obvious over Darnell (Ex. 1004) in view of Kim (Ex. 1005). For the reasons below, it is my opinion that a person of ordinary skill in the art (“POSITA”) would not have found claim 1 obvious in view of these references, either alone or in combination.

9.2.1.1.1 1[b1] “a master application...that includes software coded for organizing content data and content applications...viewable from the remote computer devices through the master server on the master web-page”

106.The ‘658 Patent explains that the “master content application software is coded for organizing content data and content applications from multiple content sources or service providers on a single master web-page” (‘658 Patent, 2:53–56). The specification further provides that this “master content application software,” or master program, runs on the cloud-based master server and manages the presentation

of multiple content sources in a unified, icon-based interface, all “in real time” (’658 Patent, 2:56–59). This functionality is integral to the invention’s single-point-of-access architecture, which enables simultaneous management of heterogeneous data streams on a dynamic master web-page.

107. Dr. Martin asserts that “a POSITA would have understood that Darnell’s server system 104, for example as implemented in a single computer, is a master server because it aggregates feeds from multiple sources and distributes them to clients” (Martin Declaration, ¶ 160). He further opines that “Darnell describes server system 104 as equipped with memory 504, which stores several programs, modules, and data structures, collectively functioning as a master application,” and that “Darnell’s server system 104 also communicates with multiple feed sources 120, which represent various content sources or service providers.” (Martin Declaration, ¶¶ 165–166, 169).

108. In my opinion, a POSITA would not have equated the disclosures in Darnell and Kim with the “master content application software” described in the ’658 Patent. Darnell describes a system in which “for each of a plurality of content feeds, a currently published set of content items for a respective content feed is retrieved” and “the retrieved content items are merged into a previously stored set of previously published content items,” after which “in response to a request from the client, an ordered list of content items for a specified stream is transmitted to the client.”

(Darnell, ¶ 11). This process aggregates and stores feed data but does not dynamically organize or display live content from multiple sources in real time as required by the '658 Patent. Darnell's operation is reactive to individual client requests, returning static lists of content items rather than maintaining an active, continuously updating master web-page accessible to multiple users.

109.Darnell's architecture further confirms this difference. Figure 5 depicts a "Server Computer 500" with "Memory 504," a "Feed Tracker Module 516," "Subscriptions Database 518," "Feed Content Database 520," "Reader Application Interface 524," and "User Preferences Database 526" (Darnell, Fig. 5). These components store and retrieve feed data, but they do not provide the kind of centralized, real-time orchestration of heterogeneous web content contemplated by the '658 Patent. The '658 Patent's master application "[organizes] content data and content applications from the multiple content sources or service providers on a single master web-page" that streams in real time ('658 Patent, 2:56-59). Darnell's disclosure is limited to data retrieval and aggregation without any real-time streaming or dynamic presentation.

110.Kim likewise fails to remedy these deficiencies. Kim describes "a content feed application 100" that "analyze[s] content to determine its traits, [classifies] the content based on its traits" and "present[s] the content in a user interface tailored to the classification." (Kim, Abstract; ¶¶ 29–33). This system is a local client-side

classification tool; it does not integrate or organize content from multiple external providers into a real-time, cloud-based master web-page. A POSITA would have recognized that Kim's and Darnell's systems are both siloed and asynchronous, lacking the live, centralized organization required by the claimed master application.

111. For these reasons, I disagree with Dr. Martin's conclusion that "Darnell discloses or suggests a "master application" that is stored in the memory of a master server and executed by a processor, containing software designed to organize content data and applications sourced from multiple content providers." (Martin Declaration, ¶ 166). Neither Darnell nor Kim teaches or suggests the "master content application software" that "organiz[es] content data and content applications from multiple content sources or service providers on a single master web-page" that is "dynamic" and operates "in real time" as required by the '658 Patent ('658 Patent, 2:47-54; 2:56-59).

9.2.1.1.2 1[b2] content "streamed to the master server simultaneously in real time...on a master webpage"

112. Claim 1 requires "content data and content applications...streamed to the master server simultaneously in real time from their respective servers on a master web-page." As explained above, a POSITA would understand this to mean that content is streamed: (1) to the master server; (2) simultaneously in real time; (3) from their respective servers; *and* (4) on a master web-page.

113. The '658 Patent expressly defines the “master web-page” as a “*dynamic*” webpage that “displays streaming content data and content applications from the multiple content data sources in real time” ('658 Patent, 2:56–59) and that “the server accesses the multiple content data sources or provider[s] through their respective servers in the cloud-based computing environment based on enabled user or account preferences,” such that the content which is displayed on the master web-page is determined according to user account preferences and specific to the user’s account ('658 Patent, 2:47–60). The specification contrasts this arrangement with prior systems that “[require] multiple log-in procedures for accessing the multiple sources of content data and/or services and/or do not provide for the ability to manage the content data and/or services from multiple sources through a single user interface.” ('658 Patent, 1:51–56). In my opinion, these disclosures establish that the claim language requires continuous, concurrent delivery of live content from multiple providers to a unified, server-hosted page that is tailored to the user and remains updated while the user navigates it.

114. Darnell, by contrast, describes a retrieve–merge–store workflow followed by on-request delivery of lists. Darnell states that the server retrieves “a currently published set of content items for a respective content feed” for each of a plurality of content feeds, merges the retrieved content items “into a previously stored set of previously published content items,” stores the content items in a persistent database,

and only then “in response to a request from the client” transmits “an ordered list of content items for a specified stream,” which may include “at least one historical content item” (Darnell, ¶ 11; Fig. 9A; *see also* Darnell, ¶ 106 (“[t]he merged content items are stored in a database (906), such as feed content database 520.”)).

115.Darnell’s description of the process “for *retrieving and storing content items for subsequent transmission* to client computer” further shows this retrieve-merge-store approach. (Darnell, ¶ 106 (emphasis added), Fig.9A). As described by Darnell, a server computer retrieves a currently published set of content items for a content feed and merges the retrieved content items into a previously stored set of previously published content items. *Id.* “The *merged content items are stored in a database (906)*, such as feed content database 520,” prior to transmitting an ordered list of content items to the user. *Id.* (emphasis added).

116.In my opinion, Darnell’s process of merging content items and then storing content items in a persistent database on Darnell’s server before being transmitted to a user is not streaming content “to the master server simultaneously in real time...on a master webpage” as required by claim 1.

117.In Darnell, content items are atomic in the sense that each feed item (whether text, image, audio, or video) must be fully transferred to, merged within, and stored in the server’s database before any portion becomes available to the user for viewing and consumption. This architecture inherently introduces a latency gap between

transmission and availability. A feed-based system that only delivers discrete, fully completed “items” cannot satisfy a POSITA’s understanding of real-time streaming on the master web-page, where the beginning of a data stream becomes available to the viewer while the remainder is still in transit. A POSITA would look for disclosure that the transfers occur incrementally and Darnell provides no such disclosure.

118. By contrast, “streaming in real time” in the context of the Challenged Patents refers to incremental transfer and continuous rendering. In other words, the live delivery of data segments such that the user perceives an uninterrupted flow of content. This aligns with the understanding of POSITA from the concept of “streaming” as well as the use of the term “streaming” in technical and patent literature: computer files are transmitted and displayed as they are received, not stored to completion before presentation. “Streaming” implies some degree of partial or incremental transfer of a series of portions/pieces/parts of a whole. A POSITA assessing Darnell would therefore ask whether the reference discloses partial or incremental transfer of a series of portions/pieces/parts of a whole to that page; it does not. In this sense, a system that buffers or merges entire feed items into a database before serving them is non-streaming. Even if Darnell’s backend merging and fetch operations occur “without significant delay,” the resulting delivery

remains discrete and pull-based, not continuous or perceptually real-time with incremental delivery of content.

119. In short, Darnell's feed-tracking and database-merge operations may be configured to deliver updated content, but they remain discrete, item-based transactions—not real-time streaming. The Challenged Patents' claims, read in light of their specifications, require an architecture that continuously transfers and renders data with capability for delivering data incrementally such that the display updates concurrently with transmission, not upon completion of a storage and fetch cycle.

120. Further, Darnell's Figures 9A–9C show paginated delivery controlled by a “continuation token” returned with the results and used when the user “scroll[s] to [the] end” to fetch additional items (Darnell, Fig. 9C). More specifically, Darnell explains that the server transmits the ordered list of content items stored in the database to a user “*[i]n response to a request from a client computer 400.*” (Darnell, ¶ 106 (emphasis added)). Scrolling beyond the end of a displayed list of content items in Darnell's system “prompts[s] client computer 400 to fetch from server computer 500 an additional set of content items, corresponding to the specified stream, to display to the user.” (Darnell, ¶ 112).

121. In my opinion, a POSITA would have understood Darnell's approach to be asynchronous, request-driven fetching of feed entries that have already been incorporated into server-side storage. Darnell's content items aren't streamed in real-

time to a master web page because there is no disclosure in Darnell that the transfers occur incrementally not simultaneous streaming of content in real time from multiple sources to a master web-page, as claim 1 requires.

122.Darnell’s client-side interaction model also confirms the absence of real-time streaming to a unified master web-page. The figures describing user interaction depict a “display [of an] ordered list of content items,” a “redisplay [of the] ordered, scrolled list,” and status changes such as “change the status of the first item from unread to read” when the item “scrolls off the top of the list,” with the client then “transmit[ting] to [the] server information indicating that the item has been read” (Darnell, Figs. 2A–2D). These disclosures describe local list navigation with occasional status updates, not a server-orchestrated page that is kept live with data streams arriving from multiple external providers in real time as claim 1 of the ’658 Patent requires.

123.Dr. Martin opines that “Darnell discloses or suggests” this limitation by characterizing “simultaneously” and “real time” “to mean that the content from more than one source is sent to the server when it is available,” stating that “these terms signify that the content from multiple sources is transmitted to the server when it becomes available, without significant delay between content sources” (Martin Declaration, ¶ 178). As explained further above, in my opinion a POSITA would have understood that “real time” as used in the ’658 Patent is not satisfied merely

because data from multiple sources are transmitted to a server without significant delay. Claim 1 requires content “streamed to the master server simultaneously in real time...on a master web-page,” which a POSITA would understand to mean that content must be streamed: (1) to the master server; (2) simultaneously in real time; *and* (3) on a master web-page. Thus, transmitting content to the server when it becomes available, as Dr. Martin suggests, is not enough.

124. Moreover, the patent expressly teaches that the master web-page itself “displays streaming content data and content applications from the multiple content data sources in real time” and that the master program “allows a user to scroll or page through the content data and/or content applications in real time from [the] master server on a master web-page” (’658 Patent, 2:56–65). In other words, “real time” in the context of the ’658 Patent refers to the dynamic and continuous display of live streaming content on the user-facing master web-page, not to the timing of feed retrievals occurring on the server backend.

125. The dissent in the Institution Decision correctly recognized the requirements of the master web-page and “real time,” explaining that “the claim requires that, in addition to the server receiving the content as it becomes available, the content be ‘streamed to the master server ... in real time ... on a master web-page,’ not just added to the server’s database.” (’658 Inst. Dec., Opinion Dissenting, P. 6). In my opinion, this interpretation is consistent with the claim language and specification of

the 658 Patent. Further, the dissent emphasized, “I fail to see how the fact that the master application ‘organizes’ the content data and applications means that they are not also ‘streamed to the master server ... in real time ... on a master web-page.’” (Institution Decision, Opinion Dissenting, P. 6). The dissent further noted that the “plain language of the claim also requires that the real time streaming be to ‘the master web page,’” and that the specification confirms this by describing the master web-page as “‘dynamic’ in the sense that [it] displays streaming content data and content applications ... in real time” (Institution Decision, Opinion Dissenting, P. 7). This analysis is consistent with my POSITA understanding as discussed above and I agree with this reasoning.

126. In my view, Darnell’s description of merging feed items with “previously published” items and serving ordered lists upon request, often including “historical content item[s],” is fundamentally at odds with the claim requirement that the content data and applications be streamed “simultaneously in real time” on a “dynamic” master web-page (Darnell, ¶ 11; Figs. 9A–9C); (’658 Patent, 2:56–59; 3:1–6). A POSITA would not read Darnell’s batched, token-based pagination as teaching or suggesting the capability to deliver data incrementally with partial or incremental transfer of a series of portions/pieces/parts of content items to achieve the continuous, concurrent streaming model recited and described in the ’658 Patent.

127. In sum, the record shows that the claim calls for a unified web interface that the master server keeps live by “simultaneously” receiving and presenting multiple providers’ content “in real time,” whereas Darnell retrieves and normalizes feeds into storage and then returns on-demand, paginated lists that may include historical entries (’658 Patent, 2:56–59; 3:1–6); (Darnell, ¶ 11; Figs. 9A–9C). It is therefore my opinion that the Darnell reference does not disclose or suggest the “streamed ... simultaneously in real time ... on a master web-page” requirement of claim 1, and that a POSITA would not have considered Darnell to satisfy or render obvious this limitation.

9.2.1.1.3     1[b3] "slide tool program for scrolling or paging through the content data or the content applications from the multiple content sources or service providers simultaneously and through the master server in real time from the master web-page"

128. The ’658 Patent teaches that “the master program is configured to program the remote computing device with code to operate a slide tool” and that “the slide tool allows a user to scroll or page through the content data and/or content applications in real time from [the] master server on a master web-page from the remote computer device” (’658 Patent, 2:62–65). The same passage sits within the invention’s description of a “dynamic” master web-page that “displays streaming content data and content applications from the multiple content data sources in real

time” (’658 Patent, 2:56–59). In my opinion, a POSITA would understand this limitation to require server-programmed code that enables real-time navigation of live, server-delivered content on the master web-page itself, not merely local scrolling of already-fetched items on a client UI.

129. Dr. Martin addresses this limitation directly and explains that “Darnell’s feed reader UI 116 is received from server system 104 executing modules and data structures (the master application) as a program (e.g., webpage) for execution on the processor (programs a processor) of the client system(s) (the remote computer devices)” and notes that the ’658 Patent describes “a slide tool that scrolls or pages through content data” (Martin Declaration, ¶ 188). He further writes that “Darnell’s disclosure supports this understanding, describing a feed reader user interface that includes a scrollbar 320 used to navigate an ordered list 310 of content items from various feeds. Darnell, ¶ 54. This scrollbar is embedded within the user interface webpage and operates as a slide tool that enables a user to scroll through the content in real time as the feed reader dynamically updates and displays content from multiple sources” (Martin Declaration, ¶ 189). He then adds that “the feed reader module 420 script within the HTML enables a user to scroll through the content items served from the server. Id., ¶ 67” and concludes that this is “like the architecture described in the ’658 patent, where the master server ‘programs’ the client-side device to display the feed reader user interface, which includes a scroll

bar allowing continuous, real-time access to updated content.” (Martin Declaration, ¶ 190).

130. In my opinion, a POSITA would not equate Darnell’s client-side scrollbar with the “slide tool program” described in the ’658 Patent. The Patent requires that the master program “program the remote computing device with code to operate a slide tool” and that the user be able to “scroll or page through the content data and/or content applications in real time from [the] master server on a master web-page” (’658 Patent, 2:62–65). That language ties the tool’s operation to the master server and to the presentation of live, server-streamed content on the master web-page itself. By contrast, Darnell’s interface depicts a list view that the client scrolls locally, with the server supplying additional items on request and receiving status updates after the fact. The presence of a “scrollbar 320” and embedded scripts in a client-rendered page does not, by itself, amount to a server-programmed slide tool that controls real-time streaming presentation from multiple sources on a unified master web-page as taught by the ’658 Patent.

131. A POSITA would also recognize that Darnell’s pagination model fetches further items using tokens as the user navigates, which is consistent with request–response retrieval and local list rendering rather than continuous, server-orchestrated presentation of simultaneously streamed sources. Even accepting that Darnell’s UI may be delivered as a webpage with client scripts, that disclosure does not show the

master program programming the client with slide-tool code that enables scrolling or paging “in real time from [the] master server on a master web-page” as claimed (’658 Patent, 2:62–65). In my opinion, Darnell therefore does not disclose or suggest limitation [1b3], and a POSITA would not understand Darnell to satisfy this requirement.

#### 9.2.1.2 Dependent Claims 2–5

##### 9.2.1.2.1 Dependent Claim 2

132. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 2—which include those same limitations—is likewise not taught or suggested by the cited references.

133. Moreover, the ’658 Patent recites that “the content sources or service providers include one or more personal content account and at least one or more social media account belonging to the user” (’658 Patent, claim 2). The specification further explains that “the master web-page includes features for displaying and migrating through personal content data, such as those provided by networking web-sites and e-mail web-sites.” (’658 Patent, 2:40-46). In my opinion, a POSITA would understand this limitation to describe a system in which the master server integrates content from the user’s authenticated personal accounts, such as email or social networking accounts, into the same unified master web page that aggregates other content data. The system of the ’658 Patent does more than aggregate public data

feeds; it securely combines private, user-specific content streams into a single access point.

134. Dr. Martin opines that “Darnell in combination with Kim discloses or suggests these additional limitations” (Martin Declaration, ¶ 226). He cites Kim’s disclosure of aggregating “various forms of content, including both email and blog posts, which are commonly associated with user accounts and social media” and asserts that “a POSITA would have understood that this email content originates from a user-specific email account, thereby meeting the limitation of ‘personal content’ associated with the user.” Dr. Martin also points to Kim’s statement that certain blog posts are “categorized as personal” in metadata and concludes that these posts represent social media content because “an author of a blog post in Kim is able to socially interact with readers who leave comments” (Martin Declaration, ¶¶ 226–227).

135. In my opinion, a POSITA would not have understood the combination of Darnell and Kim to teach or suggest the claimed integration of “personal” and “social media” accounts belonging to the user. Kim’s aggregator operates by collecting syndicated feeds such as RSS, which are publicly available data streams that do not require user authentication (Kim, ¶¶ 21–22, 33, 36–39). Although Kim mentions email as one possible content type, there is no disclosure of any mechanism for logging into a personal email account or social media profile. Instead, Kim’s system

merely organizes content from accessible feeds into categories, including “personal,” based on metadata (Kim, ¶ 42). The presence of the word “personal” in Kim’s metadata does not imply that the system accesses private or user-specific accounts.

#### 9.2.1.2.2 Dependent Claim 3

136. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 3—which include those same limitations—is likewise not taught or suggested by the cited references.

137. Moreover, Claims 3 and 11 depend from independent claims 1 and 7, respectively. Claim 3 specifies that the “personal content account” of claim 2 is “an e-mail account,” while claim 11 specifies that one of the “content sources or service providers” includes “an e-mail web-site belonging to the user” (’658 Patent, claims 3 and 11). The specification of the ’658 Patent explains that the claimed master server architecture provides access to “personal content data, such as those provided by networking web-sites and e-mail web-sites” (’658 Patent, 2:42–46). In my opinion, these dependent claims describe the system’s capability to integrate and display authenticated email content belonging to the user through the master server, in real time, on the master web-page.

138. Dr. Martin asserts that “the Darnell–Kim combination discloses or suggests the additional limitations of dependent claims 3 and 11,” reasoning that “Kim

describes ‘a user’s email account’ as a type of personal content account” and that “a POSITA would have recognized an email account as a standardized and common type of personal content account” (Martin Declaration, ¶ 234). He also explains that a “POSITA would have understood the term ‘e-mail web-site’ to refer to a content source for email, such as a web-based interface for accessing email content” (Martin Declaration, ¶ 235).

139. In my opinion, neither Darnell nor Kim discloses or suggests integrating a user’s personal email account or email website as claimed. Kim’s disclosure of email appears in the context of aggregating email content via the use of an “email application 120 [which] receives many emails (each an item of content)” such that “[e]ach of these emails may have defining characteristics or traits” that may be used to “group them, display them, or enable their selection.” (Kim, ¶ 39-41); however, it does not describe authenticating or retrieving private user emails. Kim’s aggregator processes feed-based content, not messages from user-specific accounts. Darnell similarly retrieves “content items for a specified stream” (Darnell, ¶ 11), which refers to public or syndicated data sources, not private email servers.

140. A POSITA would understand that the ’658 Patent’s claims go beyond simple aggregation by requiring a master server capable of accessing “personal content data” such as that provided by “e-mail websites” (’658 Patent, 2:42-46). Darnell and Kim do not disclose the login-based, account-specific integration necessary to access

email accounts or webmail services belonging to the user. Accordingly, I disagree with Dr. Martin's conclusion that the Darnell–Kim combination discloses or suggests these limitations. Neither reference teaches the authenticated, user-specific email functionality described in the '658 Patent.

#### 9.2.1.3 Independent Claim 7

141.I understand that Petitioner asserts that Independent Claim 7 of the '658 Patent would have been obvious over Darnell (Ex. 1004) in view of Kim (Ex. 1005). For similar reasons discussed above regarding claim 1, it is my opinion that a POSITA would not have found Claim 7 obvious in view of these references, either alone or in combination.

142.I note that Dr. Martin contends that claim 7 is "analogous" to claim 1 and that he provides a table comparing limitations of claim 7 with "substantially similar limitations" of claim 1. (Martin Declaration, ¶¶ 214-15). For many limitations of claim 7, Dr. Martin simply incorporates his analysis of corresponding limitations of claim 1. Although I disagree with Dr. Martin's characterization of claim 7 as "analogous" to claim 1, I agree that claims 1 and 7 contain several overlapping limitations. Therefore, for the reasons I previously discussed above regarding claim 1 and the reasons discussed below, it is my opinion that the combination of Darnell and Kim would not have rendered obvious claim 7.

9.2.1.3.1 7[a] "master application"

143.Claim 7 recites “a master server with a memory and a processor for storing and executing a master application.” As explained above in Section 9.2.1.1.1, it is my opinion that Darnell fails to teach or suggest a “master application” as claimed and described in the ‘658 Patent.

9.2.1.3.2 7[c] “content data or content applications are simultaneously streamed to the master server...over the internet in real time to an account belonging to the user”

144.Claim 7 recites “content data or content applications are simultaneously streamed to the master server from servers of multiple content data sources or service providers over the internet in real time to an account belonging to the user.” As explained above, a POSITA would understand this to mean that content is streamed: (1) to the master server; (2) simultaneously in real time; (3) from servers of multiple content data sources or service providers; (4) over the internet; **and** (4) to an account belonging to the user.

145.The ‘658 Patent describes that “[a]n account belong[ing] to the user” is an account through which a user accesses a master webpage. *See, e.g.*, ‘658 Patent, 6:7-18. Thus, in order to stream content in real time to an account belonging to the user, the content must be accessible on the master webpage in real time. Therefore, in my opinion, Darnell does not disclose streaming content “to the master server...in real

time to an account belonging to the user” in claim 7 for the same reasons discussed above regarding streaming content “to the master server simultaneously in real time...on a master webpage” in claim 1. *See supra*, Section 9.2.1.1.2.

146. Dr. Martin asserts “a POSITA would have understood that Darnell teaches content streaming in real time to a user’s account” because “Darnell discloses a ‘user’s feed reader account’ which consolidates content items that a user has either marked as read or unread and categorized or tagged with specific labels and characteristics, thereby creating a distinct ‘account’ experience.” (Martin Declaration, ¶¶ 221-22). Further, according to Dr. Martin, “upon login, users access their customized feed reader account with content tailored to their specifications” and “the remote computer initiates content access by sending a ‘login cookie’ to the server” that authorizes “the specific account to receive content updates in real time.” *Id.* Thus, according to Dr. Martin, content does not update on the user’s feed reader account until the user logs into the account on a remote computer. In my review of Darnell and Dr. Martin’s testimony, I understand that Darnell’s user account does not receive updated content until the user authenticates and the client issues a request to retrieve items for display. *See, e.g.*, Ex. 1004 ¶¶ 92, 99-100 (login/authentication), ¶ 106 (“for subsequent transmission to client computer”), ¶ 109 (“[i]n response to a request from a client computer...”), ¶ 112 (client “fetch” when scrolling to end)). In my opinion, a POSITA would not consider such a request-driven model to be

“streaming ... in real time to an account,” because the account does not receive (and the user cannot view) updates until the client logs in and pulls a new list.

147. Further, the presence of account-level metadata (e.g., read/unread flags, labels, or tags) in Darnell merely reflects how previously retrieved items are categorized for that user. (Martin Declaration, ¶¶ 221-23). A POSITA would understand that metadata does not convert the system into one that streams content “to an account.” The metadata is applied after retrieval and has no bearing on whether the account is receiving live, concurrent updates on a master web-page. *See* Ex. 1004 ¶¶ 84, 92, 99, 105.

9.2.1.3.3     7[c] “slide tool program for scrolling or paging through content data or content applications from multiple content data sources or service providers enabled by a user simultaneously on a web-page”

148. Claim 7 recites a “slide tool program for scrolling or paging through content data or content applications from multiple content data sources or service providers enabled by a user simultaneously on a web-page.” As explained above in Section 9.2.1.1.3, it is my opinion that Darnell fails to teach or suggest a “slide tool program” as claimed and described in the ‘658 Patent.

#### 9.2.1.4 Dependent Claims 8–11

##### 9.2.1.4.1 Dependent Claim 8

149. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 8—which include those same limitations—is likewise not taught or suggested by the cited references.

##### 9.2.1.4.2 Dependent Claim 9

150. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 9—which include those same limitations—is likewise not taught or suggested by the cited references.

##### 9.2.1.4.3 Dependent Claim 10

151. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 10—which include those same limitations—is likewise not taught or suggested by the cited references.

152. Moreover, Claim 10 depends from claim 7 and specifies that “the user interface is an icon-based master web-page” (’658 Patent, claim 10). The specification of the ’658 Patent explains that the “master server acts as a single point access and supports a user interface” and that this interface “is preferably an icon-based master web-page viewable over the master server from a remote computing device” (’658 Patent, 2:35–43). The patent further teaches that the “master web-page is dynamic in the sense that the master web-page displays streaming content data

and content applications from the multiple content data sources in real time” (’658 Patent, 2:56–59). A POSITA would understand that the term “icon-based master web-page” refers to the dynamic graphical user interface generated and maintained by the master server, which displays streaming content and content applications represented by selectable icons.

153. Dr. Martin asserts that “Darnell discloses features that support this limitation” because “the feed reader interface typically include[s] icons, menu items or the like for reviewing and managing the user’s content feed subscriptions, including removing and adding content feed subscriptions, and optionally labeling a respective content feed subscription with one or more user defined labels” (Martin Declaration, ¶ 249, citing Darnell ¶ 60). He also references Darnell’s Figures 3A–3D and states that “Darnell’s interface includes interactive icons that operate as navigational tools, providing a streamlined experience within the master web-page” (Martin Declaration, ¶ 249). Dr. Martin further relies on Kim’s disclosure that “traits may be indicated by graphics, icons, or other indicia and be selected with a single user action” (Kim, ¶ 58), and concludes that a POSITA “would have understood from the combined teachings of Darnell and Kim that an icon-based master web-page offers an organized, efficient approach for managing and accessing content feeds” (Martin Declaration, ¶¶ 250–251).

154. In my opinion, neither Darnell nor Kim discloses or suggests the “icon-based master web-page” required by the ’658 Patent. The icons and menu items described in Darnell appear within a local feed reader interface and relate to basic content management functions such as adding or removing subscriptions and labeling feeds (Darnell, ¶ 60). Darnell’s system is not a “master web-page” generated by a cloud-based master server, and its interface does not present streaming content data or content applications “in real time” as required by the claims (’658 Patent, 2:56–59). The icons in Darnell are user-interface elements within a standalone client application, not a representation of dynamic, real-time content displayed through the master server on a master web-page.

155. Kim’s “icons” similarly appear in the context of a client-side interface that allows a user to organize and view content items according to traits or attributes (Kim, ¶ 58). These icons are not associated with a master server or a dynamic, cloud-based webpage architecture. The ’658 Patent distinguishes its invention by combining both the dynamic, real-time streaming of content from multiple sources and the icon-based interface into a unified master web-page viewable over the master server. Darnell and Kim, individually or in combination, do not teach or suggest such a configuration. A POSITA would therefore not have understood the cited references to disclose or render obvious the “icon-based master web-page” required by claim 10.

*9.2.2 Ground 1B – Darnell, Kim, and Dasgupta (Claims 6, 12–18)*

9.2.2.1 Dependent Claim 6

156. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 6—which include those same limitations—is likewise not taught or suggested by the cited references.

9.2.2.2 Independent Claim 12

157. I understand that Petitioner asserts that Independent Claim 12 of the '658 Patent would have been obvious over Darnell (Ex. 1004) in view of Kim (Ex. 1005) and Dasgupta (Ex. 1006). For similar reasons discussed above regarding claim 1, it is my opinion that a POSITA would not have found Claim 12 obvious in view of these references, either alone or in combination.

9.2.2.2.1 12[b2] “user navigates through the content data or content applications...through master web-page in real time”

158. Claim 12 recites “a user navigates through the content data or content applications from the multiple content sources or service providers through master web-page in real time.” For the reasons explained above regarding the meaning of “real time” and “master web-page” and the deficiencies of Darnell and Dasgupta, the cited references do not teach or suggest a user navigating through content via the master web-page in real time. The combinations describe either list-based retrieval

(Darnell) or a static guide/launcher (Dasgupta), not a dynamic, server-orchestrated master web-page that continuously displays live streams from multiple sources

9.2.2.2.2 12[c] “user navigates through the content data or content applications...using a slide tool program”

159.Claim 12 recites “a user navigates through the content data or content applications...using a slide tool program.” As explained in §9.2.1.1.3, the slide tool program is code provided by the master server that enables real-time scrolling/paging of live content on the master web-page. Darnell’s client-side scrollbar over a stored list of items and Dasgupta’s channel-icon navigator do not disclose such a server-programmed slide tool operating in real time on the master web-page.

9.2.2.3 Dependent Claims 13–18

9.2.2.3.1 Dependent Claim 15

160.Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 15—which include those same limitations—is likewise not taught or suggested by the cited references.

9.2.2.3.2 Dependent Claim 16

161.Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 16—which include those same limitations—is likewise not taught or suggested by the cited references.

9.2.2.3.3 Dependent Claim 17

162. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 17—which include those same limitations—is likewise not taught or suggested by the cited references.

9.2.3 *Ground 2A – Dasgupta and Darnell (Claims 1, 4–10)*

9.2.3.1 Independent Claim 1

163. I understand that Petitioner asserts that Independent Claim 1 of the '658 Patent would have been obvious over Dasgupta (Ex. 1006) in view of Darnell (Ex. 1004). It is my opinion that a person of ordinary skill in the art (“POSITA”) would not have found Claim 1 obvious in view of these references, either alone or in combination. The proposed combination does not disclose or suggest the claim limitations requiring a master server that organizes and streams multiple sources of content in real time through a dynamic master web-page. These limitations form the technological core of the claimed system and are fundamental to the real-time, cloud-based functionality of the invention.

9.2.3.1.1 1[b2] Content streamed ... simultaneously in real time on a master webpage

164. Claim 1[b2] requires that “content data and content applications from multiple content sources or service providers [be] streamed to the master server simultaneously in real time ... on a master web-page and [be] viewable ... through

the master server on the master web-page” (’658 Patent, Claim 1b2). The specification explains that the master server “acts as a single point access and supports a user interface,” which “is preferably an icon-based master web-page viewable over the master server from a remote computing device” (’658 Patent, 2:35–43). A direct description of the master web-page describes it as “viewable remotely from a remote computing device via log-in server or master server and which displays a slide tool that scrolls or pages through content data and/or content application from multiple content data sources and/or service providers in real time.” (’658 Patent, 4:21–27). The patent repeatedly emphasizes that the master web-page provides a unified interface for “displaying and scrolling or paging through content data and/or content application[s] from multiple content sources in real-time.” (’658 Patent, 3:49–52). The “real time” aspect refers to a continuously updated, cloud-based presentation of live content on the master web-page, not merely data transferred using an internet protocol. A POSITA would therefore understand that “real time” requires the system to present continuously updated data on the interface as it is received by the master server.

165.Dr. Martin opines that “Dasgupta discloses or suggests this limitation” because “provider subsystem 208 transmits media content to delivery subsystem 202, which is then distributed to media content access subsystem 204 via network 206,” and that by “using HTTP, subsystem 202 can provide web-based content

aggregation directly to subsystem 204 by sending structured data ... rendered on the client device.” (Martin Declaration, ¶¶ 323–325). Dr. Martin concludes that “subsystem 202, acting as the master server, organizes and distributes content as web pages viewable on subsystem 204 over HTTP, creating a ‘master web-page’ accessible on remote devices through the master server.” (Martin Declaration, ¶ 325).

166. In my opinion, regardless of whether Dasgupta’s use of HTTP could theoretically support a webpage transmission, the reference does not disclose the claimed master web-page as described in the ’658 Patent. The master web-page is not merely a communication medium; it is a unified, cloud-based interface through which the user “access[es], display[s], and organiz[es] content data on a web-page” in “real time” (’658 Patent, 4:33–39; 2:56–65). Dasgupta, by contrast, describes a set-top box system where “provider subsystem 208” sends audio-visual content to a “delivery subsystem 202” for redistribution to “media content access subsystem 204” over a broadband network (Dasgupta, 7:3–19; 7:36–43). That system transmits pre-encoded television signals for playback, not dynamically aggregated content streams presented on a single, interactive interface. The reference explains that content is carried “over frequency bands” and that “each frequency band corresponds to a separate content stream” (Dasgupta, 9:25–10:24), which reflects conventional channel-based delivery. This is fundamentally different from the ’658

Patent’s depiction of multiple data sources being streamed “simultaneously in real time” through a single, dynamic master web-page accessible to a remote user through the master server (’658 Patent, 2:56–59; 6:60–7:3).

167. The dissent in the Institution Decision correctly recognized that the claim requires more than the use of a protocol such as HTTP, explaining that “the claim requires that, in addition to the server receiving the content as it becomes available, the content be ‘streamed to the master server ... in real time ... on a master web-page,’ not just added to the server’s database,” and emphasizing, “I fail to see how the fact that the master application ‘organizes’ the content data and applications means that they are not also ‘streamed to the master server ... in real time ... on a master web-page.’” (Institution Decision, Opinion Dissenting, P. 6). The dissent further noted that the “plain language of the claim also requires that the real time streaming be to ‘the master web page,’” and that the specification confirms this by describing the master web-page as “‘dynamic’ in the sense that [it] displays streaming content data and content applications ... in real time” (Institution Decision, Opinion Dissenting, P. 7). The same opinion further explained that “the plain language of the claim also requires that the real time streaming be to ‘the master web page,’” and that “the specification is simply confirming what [‘real time’] means.” (Institution Decision, Opinion Dissenting, P. 7). The concept of “real time” in the ’658 Patent thus involves both the immediacy of data delivery and its live

presentation within the unified interface managed by the master server. I agree with this reasoning.

168. Dasgupta's disclosure does not meet these requirements. Its delivery subsystem 202 is a content distributor within a closed cable system, not a master server generating a unified, dynamic, cloud-based interface. The fact that communications "may employ protocols such as TCP/IP or HTTP" (Dasgupta, 7:20–29) does not demonstrate that the content is streamed "in real time ... on a master web-page" as required by the claim and described in the specification. Dasgupta's system distributes static media signals for playback; it does not organize, present, or allow user interaction with multiple real-time content streams through a dynamically updating, interactive master web-page as taught by the '658 Patent. For these reasons, a POSITA would not have understood Dasgupta to teach or suggest limitation 1[b2].

169. Additionally, in my opinion, even if Dasgupta were interpreted as disclosing a "master web-page," it does not describe a system that provides content streamed in real time on such a page as required by claim 1. Dasgupta's disclosure concerns a graphical interface operating on a set-top box that presents a static channel guide composed of icons and advertisements. Ex. 1006, 13:5–51. As shown in Figure 7, the channel icons (702) are merely graphical identifiers—typically logos of media providers—and function as static links, not as dynamically updated content. A

POSITA would understand these icons as navigation controls in which a user must select an icon to launch an “interactive portal” for that provider, and only within that separate portal can the user access the provider’s actual media stream. *Id.*, 13:24–40; 5:42–45. This click-through mechanism is fundamentally inconsistent with “real-time” streaming content as described in the ’658 Patent, where content from multiple sources is viewable and scrollable on a single page without user-initiated navigation between sources.

170. Dasgupta’s advertisements likewise are not “real-time content data or applications.” A POSITA would recognize that the ’658 Patent distinguishes live content feeds and applications from advertising elements, which it describes separately as materials that may target a user based on prior activity. Ex. 1001, 3:13–23; 6:41–48. In Dasgupta, the advertisements 704 are static visual prompts inserted automatically when the GUI launches, sometimes linked to a virtual store accessible only after specific user input. Ex. 1006, 13:52–60. These prompts do not convey or execute live data and would not have been understood by a POSITA as “real-time” content or applications under the patent’s usage.

171. Finally, Petitioner’s argument that Dasgupta streams content “in real time on a master web-page” misapprehends the claim requirement. The cited disclosures—provider subsystem 208 transmitting media to delivery subsystem 202—describe content transport between subsystems, not real-time presentation to

the user on a web-page interface. Ex. 1006, 7:3–43. A POSITA would view these network transfers as back-end delivery steps typical of broadcast systems, not as evidence that content is rendered or streamed “on” the channel guide. Dasgupta’s GUI merely displays static icons and advertisements; it does not continuously update or display multiple live feeds on a single interface as required by the claimed invention.

172. Claim 1 of the ’658 Patent also requires “a slide tool program for scrolling or paging through the content data or the content applications from the multiple content sources or service providers simultaneously and through the master server in real time from the master web-page.” In my opinion, because Dasgupta does not disclose a “master web-page” or content “streamed to the master server...in real time...on a master web-page,” Dasgupta likewise does not disclose scrolling or paging through content in real time from the master web-page. Moreover, in my opinion, simply scrolling static channel icons or advertisements does not constitute “scrolling or paging through” content data or applications “in real time from the master web page” for the same reasons.

### 9.2.3.2 Dependent Claims 4-6

#### 9.2.3.2.1 Dependent Claim 4

173. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 4—which include those same limitations—is likewise not taught or suggested by the cited references.

#### 9.2.3.2.2 Dependent Claim 5

174. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 5—which include those same limitations—is likewise not taught or suggested by the cited references.

#### 9.2.3.2.3 Dependent Claim 6

175. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 6—which include those same limitations—is likewise not taught or suggested by the cited references.

### 9.2.3.3 Independent Claim 7

176. For the reasons set forth in §9.2.3.1.1 (claim 1[b2]) and §9.2.1.3 (claim 7), the combination of Dasgupta with Darnell does not disclose or suggest content data or applications simultaneously streamed to the master server in real time to a user account, nor a slide tool program that enables real-time navigation on a master web-page. Dasgupta's guide UI is a launcher, not a dynamic master web-page, and Darnell's retrieve-merge-store model delivers lists of completed items on request.

177. The '658 Patent describes that “[a]n account belong[ing] to the user” is an account through which a user accesses a master webpage. *See, e.g.*, the '658 Patent, 6:7-18. Thus, in order to stream content in real time to an account belonging to the user, the content must be accessible on the master webpage in real time. Therefore, in my opinion, Dasgupta does not disclose streaming content “to the master server...in real time to an account belonging to the user” in claim 7 for the same reasons discussed above regarding streaming content “to the master server simultaneously in real time...on a master webpage” in claim 1. *See supra*, Section 9.2.3.1.1.

178. In addition, Dasgupta’s architecture lacks any concept of a user-specific account to which content is “streamed.” The system provides the same channel guide to any authorized device; user identity plays no role in when or how content is delivered. A POSITA would therefore understand that no content is “streamed ... in real time ... to an account belonging to the user.” The only “interaction” associated with a user is the manual selection of a channel icon, after which playback occurs within the content provider’s separate portal—outside any unified master web-page environment.

#### 9.2.3.4 Dependent Claims 8-10

##### 9.2.3.4.1 Dependent Claim 8

179. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 8—which include those same limitations—is likewise not taught or suggested by the cited references.

##### 9.2.3.4.2 Dependent Claim 9

180. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 9—which include those same limitations—is likewise not taught or suggested by the cited references.

##### 9.2.3.4.3 Dependent Claim 10

181. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 10—which include those same limitations—is likewise not taught or suggested by the cited references.

#### 9.2.4 *Ground 2B – Dasgupta, Darnell, and Kim (Claims 2, 3, 11)*

##### 9.2.4.1 Dependent Claims 2-3 and 11

##### 9.2.4.1.1 Dependent Claim 2

182. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 2—which include those same limitations—is likewise not taught or suggested by the cited references.

#### 9.2.4.1.2 Dependent Claim 3

183. Because the prior art does not disclose the limitations of the independent Claim 1, the dependent Claim 3—which include those same limitations—is likewise not taught or suggested by the cited references.

#### 9.2.4.1.3 Dependent Claim 11

184. Because the prior art does not disclose the limitations of the independent Claim 7, the dependent Claim 11—which include those same limitations—is likewise not taught or suggested by the cited references.

### **9.3 The ‘068 Patent Is Not Obvious Over the Cited Prior Art**

#### *9.3.1 Ground 1 – Darnell and Kim (Claim 1)*

##### 9.3.1.1 Independent Claim 1

185. The ‘068 patent shares the specification and real-time, dynamic master webpage paradigm described for the ‘658 patent. *See supra* §7.1. For each of the same reasons detailed in §9.2.1.1 (incorporated herein), Darnell + Kim does not render obvious claim 1 of the ‘068 patent. In particular, for the reasons discussed above, Darnell, alone or in combination with Kim, does not teach or suggest: (1) “a master application...”; (2) content “streamed to the master server simultaneously in real time...on a master webpage”; or (3) “a slide tool program for scrolling or paging through the content data or the content applications from the multiple content

sources or service providers simultaneously and through the master server in real time from the master web-page.”

### *9.3.2 Ground 2 – Dasgupta and Darnell (Claim 1)*

#### *9.3.2.1 Independent Claim 1*

186. For the reasons set out in §9.2.3.1 (and incorporated here), Dasgupta + Darnell does not render obvious claim 1 of the '068 patent. In particular, for the reasons discussed above, Dasgupta, alone or in combination with Darnell, does not teach or suggest: (1) content “streamed to the master server simultaneously in real time...on a master webpage”; or (2) “a slide tool program for scrolling or paging through the content data or the content applications from the multiple content sources or service providers simultaneously and through the master server in real time from the master web-page.”

## **10 Conclusion**

187. For the reasons above, it is my opinion that Petitioner has not met its burden to show that the Challenged Claims would have been obvious at the time of the invention. The Petition and Martin Declaration do not demonstrate that combining the cited references in the manner proposed would result in a system that satisfies the claim limitations of the Challenged Patents.

188. I hereby declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct, and that all statements made of my

IPR2025-00307 Re U.S. Patent No. 9,729,658  
IPR2025-00308 Re U.S. Patent No. 10,334,068

own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements are punishable by fine or imprisonment or both. See 18 U.S.C. Section 1001.

Dated: October 20th, 2025



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George Edwards, PhD