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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

B.S.D. CROWN, LTD., *Plaintiff,* v. AMAZON.COM, INC., AMAZON WEB SERVICES, INC. and AMAZON.COM SERVICES, LLC, *Defendants*.	Case No. 3:24-cv-3503 **COMPLAINT FOR PATENT INFRINGEMENT** **DEMAND FOR JURY TRIAL**

AMAZON-1012
IPR2025-00057

Plaintiff B.S.D. Crown, Ltd. ("BSD") alleges as follows for its patent infringement Complaint pertaining to U.S. Patent No. 8,934,887 (**Ex. 1**)[1] against defendants Amazon.com, Inc. ("Amazon.com"), Amazon Web Services, Inc. ("AWS"), and Amazon.com Services LLC ("Amazon Services") (all defendants collectively, "Amazon").

INTRODUCTION

1. BSD, formerly known as Emblaze, Ltd. ("Emblaze"), was founded in 1994.[2] At that time, its business lines pertained to communications technology, including multimedia, messaging, mobile telephone handset hardware, and streaming.

2. BSD had many early successes. Its media streaming technology powered the first real time video broadcast over the internet using HTTP—the White House 1998 Easter Egg Roll, shown below:

Ex. 3, at 1.

3. This pioneering technology helped bring real-time video to most modern devices.

4. It also made BSD financially successful, achieving a market capitalization of $2.7 billion in the early 2000s.

5. BSD's technologies also extended to mobile communications. For example, BSD was praised by well-known technology giants: "[BSD] has demonstrated a superb mastery of

[1] A '887 Patent infringement chart (**Ex. 2**) is introduced in the counts of infringement, *infra* ¶¶ 60-64.

[2] Emblaze, in turn, was formerly known as Geo Interactive Media Group, Ltd. ("Geo"). Geo, Emblaze, and BSD remain the same company; only the name has changed.

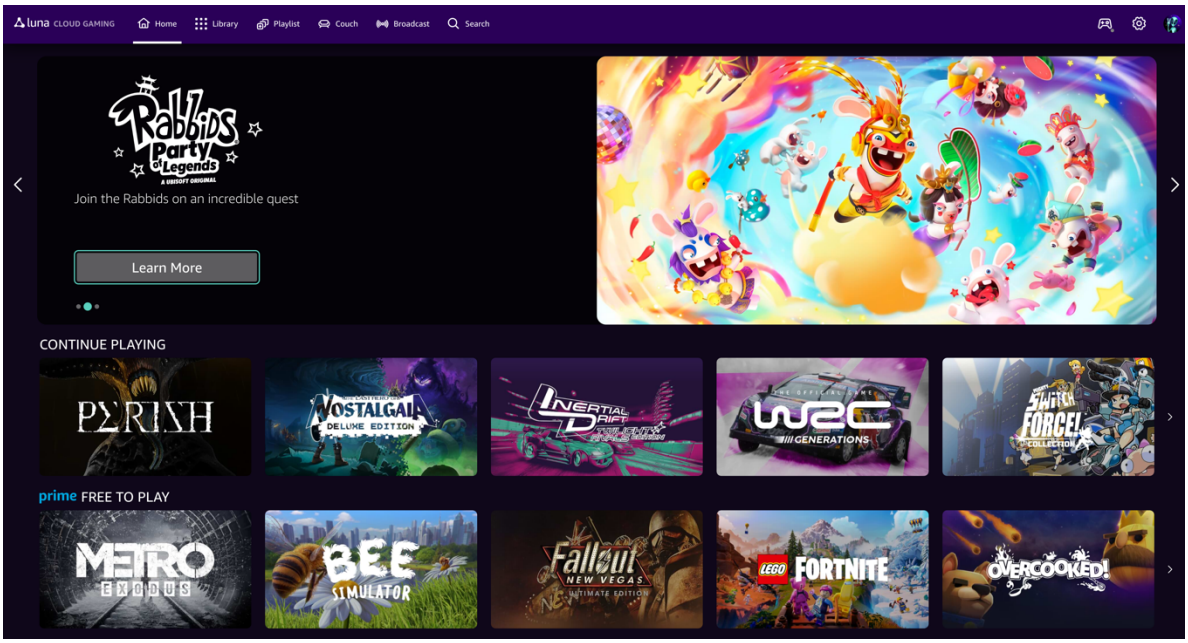
technology in delivering its Emblaze A2 video ASIC chip on time. In doing so, they have enabled [Samsung] to build the world's first streaming video cell phone in the year 2000, the start of the 21st Century." **Ex. 4**.

6. BSD's mobile work culminated in the 2009 unveiling of its own Linux-based smart phone, the First Else:

7. BSD's streaming ambitions did not stop there. The company explored decoupling a mobile device user's experience from device hardware. The resulting innovation was improved mobile device function without the need for complex and expensive hardware.

8. BSD's novel system and method to eliminate the need for high-performance mobile hardware to run complex and graphics-intensive software resulted in filing for patent protection on May 31, 2012, which application issued as U.S. Patent No. 8,934,887 titled SYSTEM AND METHOD FOR RUNNING MOBILE DEVICES IN THE CLOUD (the "'887 Patent").

9. That prescient invention has now been adopted by at least Amazon. In or around September 2020, eight years after the application that led to the '887 Patent and over five and a half years after its issuance, Amazon.com announced its cloud gaming product, Luna. First offered by invitation only, Luna was officially launched to the public in the United States on or around March 1, 2022.



https://luna.amazon.com/ (last visited Jun. 2, 2024).

10. According to Amazon.com, "Powered by AWS, the world's most comprehensive and broadly adopted cloud platform, Luna brings gamers and developers together for new gaming experiences." **Ex. 5** at 1, *Introducing Amazon Luna*.

NATURE OF THE ACTION

11. This is a civil action for patent infringement arising under 35 U.S.C. § 100, *et seq.*, and in particular, § 271 pertaining to Amazon's implementations of Luna.

PARTIES

12. Plaintiff BSD is an Israeli company with a principal place of business at 4 Nachal Harif, Yavne, ISRAEL 8110602.

13. Defendant Amazon.com is a Delaware corporation with a principal place of business in Seattle, Washington. Amazon.com maintains a regular and established place of business in this district.

14. Defendant AWS is a Delaware corporation with a principal place of business in Seattle, Washington. AWS maintains a regular and established place of business in this district.

15. Defendant Amazon Services is a Delaware company with a principal place of business in Seattle, Washington. Amazon Services maintains a regular and established place of business in this district.

16. AWS and Amazon Services are wholly owned by Amazon.com and, at all times relevant to the allegations herein, have acted in concert with and/or at the direction of Amazon.com.

JURISDICTION AND VENUE

17. The Court has subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a) because it arises under the patent laws of the United States.

18. The Court has personal jurisdiction over Amazon.com. On information and belief, Amazon.com maintains a regular and established place of business at 475 Sansome St., San Francisco, CA 94111. Amazon.com has purposefully availed itself of the rights and benefits of the laws of this State and this district. On information and belief, with respect to the allegations outlined in this Complaint, Amazon.com also has committed acts of infringement in this district.

19. The Court has personal jurisdiction over AWS. On information and belief, AWS maintains a regular and established place of business at 475 Sansome St., San Francisco, CA 94111. AWS has purposefully availed itself of the rights and benefits of the laws of this State and this district. On information and belief, with respect to the allegations outlined in this Complaint, AWS also has committed acts of infringement in this district.

20. The Court has personal jurisdiction over Amazon Services. On information and belief, Amazon Services maintains a regular and established place of business in at least San Francisco,[3] CA and Palo Alto,[4] CA. Amazon Services has purposefully availed itself of the rights

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[3] Amazon Services is hiring employees for its San Francisco, CA office (Job Id. 2575894), https://www.amazon.jobs/en/jobs/2575894/head-of-design-and-research-ads (last visited Jun. 4, 2024).

[4] Amazon Services is hiring employees for its Palo Alto, CA office (Job Id. 2631958), https://www.amazon.jobs/en/jobs/2631958/financial-analyst-ii-amz8197485 (last visited Jun. 4, 2024).

and benefits of the laws of this State and this district. On information and belief, with respect to the allegations outlined in this Complaint, Amazon Services also has committed acts of infringement in this district.

21. On information and belief, Amazon operates, at least, infringing gaming infrastructure through Luna in this district.

22. The legal entity that provides Luna is Amazon Services, as described by Luna's terms of use: "These terms are between you and Amazom.com Services LLC (together with its affiliates, "Amazon," "we" or "us"). https://www.amazon.com/gp/help/customer/display.html?nodeId=G5FYRVVJK7KFGQQN (last visited, Jun. 1, 2024).[5]

23. On information and belief, Amazon.com owns, controls, and operates servers that service Luna, such as at *ec2-52-53-254-88.us-west-1.compute.amazonaws.com* which are located within this district. This server address is held in the name of Amazon Technologies Inc. ("ATI"), a wholly-owned subsidiary of Amazon.com, which at all times relevant to the allegations herein, has acted in concert with and/or at the direction of Amazon.com:

Registrant:

Handle: AT-88-Z

Name: Amazon Technologies Inc.

Whois Server: whois.arin.net

Kind: org

Mailing Address: 410 Terry Ave N., Seattle, WA, 98109, United States

https://lookup.icann.org/en/lookup (last visited Jun. 2, 2024) (excerpt). The domain registration information shows that, on information and belief, operation (*e.g.*, abuse notification) is under the control of defendant AWS (*i.e.*, abuse@amazonaws.com), and administration is under the control of parent defendant Amazon.com (*i.e.*, ipmanagement@amazon.com). *Id.*

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[5] The legal entity that provides Amazon Prime, which offers games through Luna, is also Amazon Services as described by Amazon Prime's terms of use: "These Terms are between you and Amazon.com Services LLC and/or its affiliates ("Amazon.com" or Us") and govern our respective rights and obligations." https://www.amazon.com/gp/help/customer/display.html?nodeId=G2B9L3YR7LR8J4XP (last visited, Jun. 1, 2024).

24. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because, among other things, Amazon.com, AWS, and Amazon Services have regular and established places of business in this district, engaged in a substantial number of events giving rise to BSD's claims in this district, and have committed acts of infringement in this district.

FACTUAL BACKGROUND

The '887 Patent

25. After conceiving and developing the invention, BSD submitted its patent application to the United States Patent and Trademark Office ("PTO"), which issued the '887 Patent on January 13, 2015.

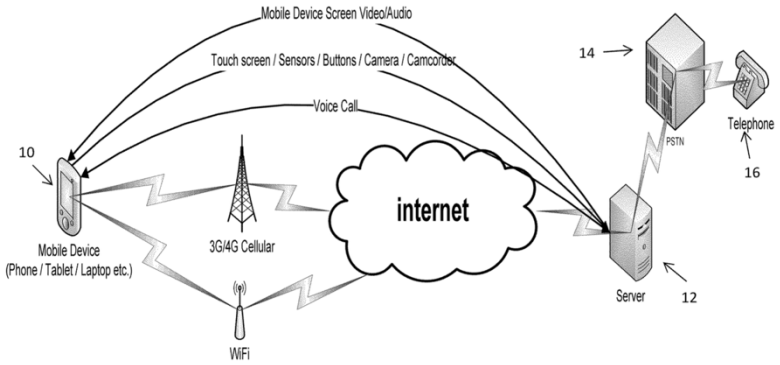
26. BSD is the assignee and owner of all right, title, and interest in and to the '887 Patent, including the right to assert all causes of action arising under the '887 Patent, and the right to all remedies for its infringement.

27. Prior to the inventions of the '887 Patent, evolving software design, such as more lifelike graphics, better user interfaces, and improved audio, required constant upgrades to at least central processing units (CPU), graphics capabilities, and memory. That is, to enjoy the latest software, users needed the latest mobile device hardware.

28. This business model, of cyclical software and hardware upgrades, was economically inefficient. For consumers, new and better mobile devices drained the pocketbook. For software developers, this mobile device arms race required software to account for the constantly expanding universe of mobile device hardware and operating systems (Android, iOS, Windows, etc.). For hardware manufacturers, it meant predicting the hardware needs of consumers for at least the next smartphone cycle – lest they fall behind the competition.

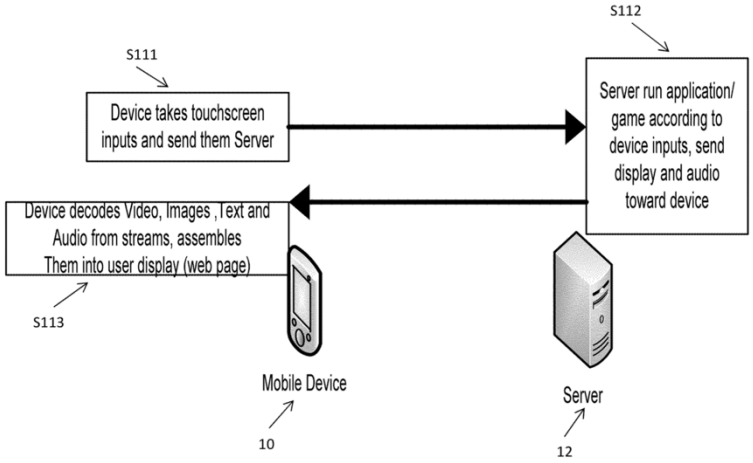
29. The '887 Patent sought to solve these problems by mitigating mobile device hardware and software upgrades through a novel streaming solution. Here, mobile devices would act as an input/output interface with software operating at servers (to which the mobile devices are connected). The servers would handle ever increasing data intensive tasks and send back processed data streams to mobile devices for reproduction thereon. This approach offered a functional and operational improvement as it relieved the need for constant upgrading and maintenance of

expensive mobile device hardware, a benefit to consumers, software developers, and even possibly mobile device manufacturers.



Ex. 1 at Fig. 2.

30. Among several other improvements, the ’887 Patent had applications to cloud gaming, where user experience has historically been rife with problems.



Ex. 1 at Fig. 11.

31. For example, the cloud gaming user experience is heavily influenced by the delay between a user’s input on a controller and the action appearing on the screen. This delay is known as “latency.” In fact, Amazon.com asserts that latency is “one of the single highest priorities for a game developer to ensure a smooth experience for players.” **Ex. 6** at 1, *Using Amazon CloudWatch Internet Monitor for a Better Gaming Experience* (Apr. 25, 2023).

32. One embodiment of the ’887 Patent, which seeks to ensure a good user experience, describes running game software in which a mobile device receives user inputs (*e.g.* game control

information) and sends those signals to a server for processing and execution. The server returns information (*e.g.*, audio, video, and game control information) to the mobile device across separate channels as "streams," each with its own Quality of Service ("QoS"), encoding, and bandwidth requirements, which results in a better and smoother gaming experience.

33. The innovative use of separate data streams in the '887 Patent affects the user experience, for among other reasons, because it influences latency. By separating different streams of data, certain information, like game controls (*e.g.*, buttons, joysticks, and pads) can optimally be configured for low latency. For example, controller input information may be prioritized over audio, which a user may not perceive as a meaningful degradation of game play. Even video resources could be altered in the form of a lower encoding rate to maximize available processor and network resources to minimize game play lag, *i.e.*, latency.

34. The importance of this lag mitigation cannot be understated. Amazon describes it as one of the "single highest priorities . . . to ensure a smooth experience for players." *Supra* at ¶ 31. Lower latency means a game responds faster to user input, which is crucial in action games where even a fraction of a second can determine a match outcome.

35. Together with separate encoding and decoding rates, Quality of Service parameters, and bandwidth assessments, the '887 Patent teaches, and on information and belief, Amazon implements, techniques to enhance cloud based game play.

36. In addition to user experience, the '887 Patent describes at least two other benefits of the inventions taught therein.

37. First, the cloud-oriented architecture of the '887 Patent allows gamers to use their existing mobile hardware, whatever it is. Amazon has recognized this benefit by asserting that "[b]ecause video and audio stream onto local devices, gamers can enjoy interactively playing with others, and *there's no requirement for specific high-end gaming hardware*." **Ex. 6** at 1, *Using Amazon CloudWatch Internet Monitor for a Better Gaming Experience* (Apr. 25, 2023) (emphasis added).

38. Second, the '887 Patent benefits software developers because code need only be written for one environment – namely, that of a cloud-based instance and a corresponding

server(s). Here, too, Amazon acknowledges the improvements provided by the ’887 Patent: “Luna empowers game developers to easily reach multiple endpoints *from a single source*.” **Ex. 5** at 1, *Introducing Amazon Luna* (emphasis added).

39. Just as BSD’s media streaming technology did for video, BSD’s cloud-based mobile device method and system described in the ’887 Patent has done for gaming: improved technology. Here, the ’887 Patent has enhanced the gaming experience on a wide variety of devices, not just the newest and most powerful ones.

40. BSD’s innovation, which, on information and belief, is implemented in Luna, provides “a cloud gaming service that lets you play games on devices you already own including: supported . . . Fire tablets, Windows PC, Chromebook, and Mac devices, and web apps available on iPhone, iPad, [and] Android devices. . . . Cloud gaming enables you to play games on devices you already own, without the need to purchase a gaming console or gaming PC. Games live in the cloud, so there are no lengthy downloads, installs, or updates required.” **Ex. 7**, https://www.amazon.com/luna/landing-page (last visited Jun. 2, 2024).

41. Moreover, as with the ’887 Patent’s user experience, Luna’s games are of a “high-quality,” that can be enjoyed on users’ “favorite devices without . . . expensive hardware . . .” **Ex. 8** at 1, *Introducing Luna—Amazon’s New Cloud Gaming Service Where it’s Easy to Play on the Devices You Already Own* (Sep. 24, 2020).

Amazon’s Infringement

42. On information and belief, Luna, through its use of AWS Luna instance(s) and corresponding servers, infringes the ’887 Patent.

43. Inspection of Luna’s process demonstrates that its implementation infringes the ’887 Patent, whether the game content is provided by Amazon, through Amazon by third parties, or through third-party in system separate subscription (including, but not limited to, Ubisoft Entertainment SA (“Ubisoft”) and Jackbox Games, Inc. (“Jackbox”)).

44. As described by Amazon, the Luna instance (and corresponding server(s)) receives input information from mobile devices, including Fire tablets, PCs, iPhones, and more.

45. On information and belief, AWS processes the input information using Luna's Windows based EC2 G4 instance and corresponding server(s).

46. After processing the input information, the Luna instance (and corresponding server(s)) produces a stream of user interface information, which is to be used by the hardware component of the mobile device in reproducing display, audio, and hardware action at the mobile device.

47. The Luna instance (and corresponding server(s)) then sends the stream of user interface information, which includes different types of data, such as video, audio, and tactile feedback, to the mobile device.

48. The video, audio, and action of the controller, including haptic feedback, is then reproduced at the mobile device.

Amazon.com's Knowledge of the Patent

49. Amazon.com had knowledge of the '887 Patent by at least 2017.

50. On information and belief, ATI prosecutes and holds patents on behalf of itself and Amazon.com across numerous areas of technology.

51. On March 11, 2013, ATI filed U.S. Patent App. No. 13/794,595 (the "'595 Application"), entitled "AUTOMATED DATA CENTER SELECTION." Knobbe, Martens, Olson & Bear, LLP ("Knobbe Martens") of Irvine, CA filed the '595 Application.

52. On November 15, 2017, as part of the prosecution of the '595 Application, Knobbe Martens, on behalf of ATI, submitted an Information Disclosure Statement ("IDS") (**Ex. 9**) that cited as a prior art reference, the application (2013/0324099 A1) that led to the '887 Patent. Notably, the '887 Patent had issued almost three years prior to the November 15, 2017 IDS; but the IDS provides no explanation as to why it cited the application rather than the issued patent.

53. On March 11, 2013, ATI filed U.S. Patent App. No. 13/794,600 (the "'600 Application"), entitled "APPLICATION MARKETPLACE FOR VIRTUAL DESKTOPS." Knobbe Martens of Irvine, CA also filed the '600 Application.

54. On January 24, 2018, as part of the prosecution of the '600 Application, Knobbe Martens, on behalf of ATI, submitted an IDS (**Ex. 10**) that cited as a prior art reference, the

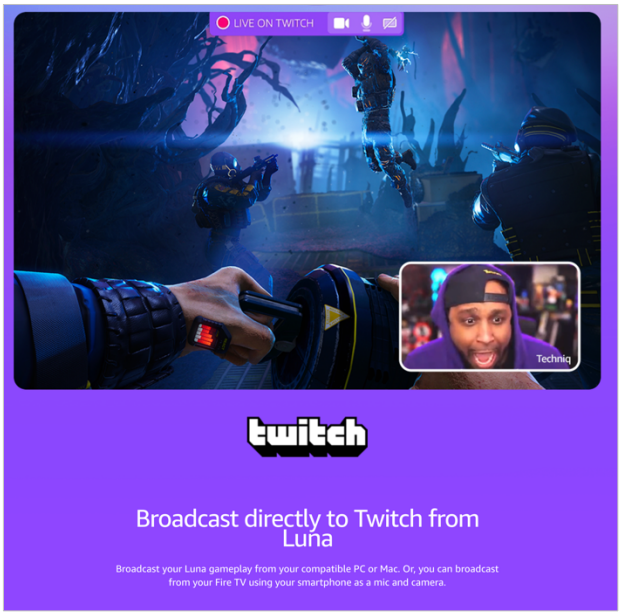
application (2013/0324099 A1) that led to the ’887 Patent. Again, the ’887 Patent had issued over three years prior to the January 24, 2018 IDS, but the IDS provides no explanation as to why it cited the application rather than the issued patent.

55. On information and belief, Amazon.com knew, or should have known, of the ’887 Patent and that the methods and processes for running mobile devices in the cloud disclosed in the ’887 Patent (and its application) was foundational to the Luna cloud gaming methods and processes.

Amazon’s Intertwined Services

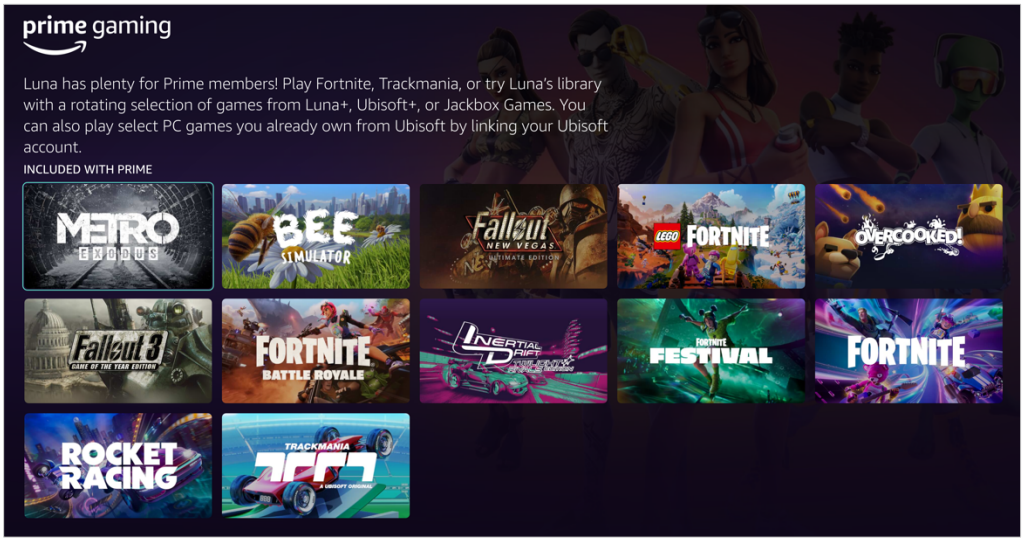
56. Amazon.com’s products and services are deeply intertwined amongst its subsidiaries.

57. For example, Amazon.com streams Luna games over its wholly owned subsidiary, Twitch Interactive, Inc.:



Ex. 7.

58. Moreover, defendant subsidiary Amazon Services, which is the legal entity that provides Prime and Luna, has combined Amazon Prime with Luna games:



https://luna.amazon.com/primegaming (last visited Jun. 1, 2024). Moreover, the above screen capture demonstrates that Amazon Services encourages the streaming of at least third-party Ubisoft and Jackbox games.

59. More specifically concerning defendant AWS and Twitch, on information and belief, Twitch is part of defendant AWS. For example, although Twitch is putatively a separate company, Twitch's former CEO Emmett Shear confirmed that Twitch is part of AWS: **Ex. 11**, at 4.

> **So Twitch is part of AWS?**
>
> That's right. We're technically inside of AWS, but we are very independent and still with our own separate company. But that's the part of Amazon we are closest to.

COUNT ONE

Patent Infringement By Amazon

60. BSD incorporates by reference each of the preceding paragraphs of this Complaint.

61. Amazon has directly infringed and is currently directly infringing at least claims 11 and 17 of the '887 Patent, pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, through its making, using, selling and/or offering for sale, without authority, products and services that embody one or more claims of the '887 Patent, including Luna. For example,

Amazon's infringement of exemplary claims 11 and 17 of the '887 Patent is shown in the chart attached hereto. **Ex. 2**, Infringement Chart.

62. Upon information and belief, Amazon's Luna is provided with streaming content by Amazon and/or third parties, but regardless of the content provider, Luna practices each and every step of at least claims 11 and 17 of the '887 Patent.

63. Upon information and belief, Amazon controls or practices each and every element of at least claims 11 and 17 of the '887 Patent.

64. Amazon's infringement of the '887 Patent has injured BSD's intellectual property rights in an amount to be determined at trial.

PRAYER FOR RELIEF

WHEREFORE, BSD respectfully prays for relief as follows:

A. Judgment that Amazon has infringed one or more claims of the '887 Patent;

B. An award of damages pursuant to 35 U.S.C. § 284 in an amount sufficient to compensate BSD for the harm caused by Amazon's infringement, not less than a reasonable royalty for the use made of the invention, along with pre- and post-judgment interest;

C. An order for an accounting of damages from Amazon's infringement(s);

D. Declare this case exceptional and award BSD its costs, expenses, and attorneys' fees pursuant to 35 U.S.C. § 285; and

E. Such other and further relief as the Court deems just and proper.

JURY DEMAND

Pursuant to Federal Rule of Civil Procedure 38(b) and Civil Local Rule 3-6(a), BSD hereby demands a trial by jury on all issues so triable.

Dated: June 11, 2024

By: /s/ Francisco Villegas

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Damir Cefo (*pro hac vice, to be filed*)
Mark W. Halderman (*pro hac vice, to be filed*)
Evan M. Rosenbaum
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