

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

WORLDS INC.,
Patent Owner.

Case IPR2021-00277
Patent 8,082,501

SUPPLEMENTAL DECLARATION OF MICHAEL ZYDA, D.SC.

I, Michael Zyda, declare as follows:

1. I have been retained on behalf of Microsoft Corporation to offer technical opinions relating to U.S. Patent No. 8,082,501 (the '501 Patent), and prior art references relating to its subject matter.

2. I was previously retained by Bungie Inc. to provide opinions with respect to the '501 Patent in relation to IPR2015-01319. I submitted two declarations in that proceeding: a first dated June 1, 2015 (Ex. 1002) ("First Declaration"), and a second dated March 4, 2015 (Ex. 1038) ("Second Declaration"). I was also deposed in that proceeding, a transcript of which was submitted as Ex. 2016. I stand by the testimony I gave in that proceeding, and incorporate it herein. I provide the following testimony to explain additional opinions I have with respect to the '501 Patent and related prior art.

I. ADDITIONAL GROUNDS BASED ON COMBINATIONS OF FUNKHOUSER AND DURWARD

3. In my First Declaration, I presented and explained three grounds based on combinations including Funkhouser (Ex. 1005) as the primary reference. *See* Ex. 1002, ¶¶ 68-157. Since I submitted that first declaration, I am aware that a district court issued an order in which it construed various terms of the '501 Patent. Ex. 1032. One of the claim terms construed in that order was "participant condition," which is recited in claim elements [1.2], [12.4], and [14.2]. Ex. 1032, 14-18. For

example, independent claim 1 recites “receiving, by the client device, position information associated with fewer than all of the other user avatars in an interaction room of the virtual space, from a server process, wherein the client device does not receive position information of at least some avatars that fail to satisfy a participant condition imposed on avatars displayable on a client device display of the client device.” Ex. 1001, 19:27-33 (emphasis added).

4. The district court construed the term “participant condition” to mean “a condition set by the client.” Ex. 1032, 18. In construing the term, the court explained:

“conditions” constitute additional limits and that in the ‘501 and ‘998 patents: “(1) the client receives position information for less than all of the other users’ avatars, and (2) at least some, but not necessarily all, of the avatars for which the client does not receive position information are ones that failed to satisfy a ‘participant condition’ or ‘condition.’” D. 63 at 25-26. The “conditions” contemplated in the ‘501 and ‘998 patents then must be distinct from the server conditions described in the specification and are properly construed to be consistent with the user or client conditions contemplated by the specification, including user ID and “other variables in addition to proximity.” ‘690, D. 62-2 at 10. And while the specification explicitly considers that there may be a wide range of variables that a client might set, nothing in the patent record suggests that the server will set these additional conditions.

Id. at 17-18.

5. My previous declarations did not explicitly address this construction. Having considered the district court’s construction, its relationship to claim elements [1.2], [12.4], and [14.2], and the three Funkhouser-based grounds I set forth in my First Declaration, it is my expert opinion that a POSITA would have found claim elements [1.2], [12.4], and [14.2]—and thus independent claims 1, 12, and 14 overall—obvious in light of the teachings of Funkhouser, particularly when considered in light of the teachings of Durward (Ex. 1008).

6. As I described in my First Declaration, Funkhouser describes “[s]erver-based message culling [that] is implemented using precomputed line-of-sight visibility information.” Ex. 1005 at 03. Funkhouser’s “RING servers can cull messages using high-level geometric algorithms and knowledge regarding a multiplicity of highly dynamic entity attributes (e.g., location, orientation, velocity, etc.) and interaction types (e.g., visibility, sound, collision, etc.). Ex. 1005 at 03. In this regard, Funkhouser’s client devices clearly receive messages (e.g., messages including updated position information) associated with fewer than all of the other user avatars, and Funkhouser’s servers accomplish this by culling messages based (at least in part) on the proximity of the first user’s avatar to the other users’ avatars.

7. However, the district court’s construction additionally requires that the claimed client device not receive position information of at least some avatars that

fail to satisfy “other variables in addition to proximity.” Ex. 1032, 18. Though not a focus of my previous explanation of the Funkhouser grounds in my First Declaration, Funkhouser also describes culling messages based on variables in addition to proximity, as required by the district court’s construction. Specifically, Funkhouser describes that an “extension” to its system uses “multiresolution simulation to reduce network traffic and client behavioral simulation processing.” Ex. 1005 at 07. Under multiresolution simulation, “time critical computing algorithms can be used to determine an ‘optimal’ set of messages to send to each client based on network connection bandwidths, workstation processing capabilities, and many other real-time performance factors” *Id.* Thus, in addition to proximity, Funkhouser’s servers can use real-time performance factors such as network connection bandwidths and workstation processing capabilities to cull messages.

8. While not explicitly described by Funkhouser, a POSITA would have found it obvious that the client device would have set at least some of these real-time performance factors. For example, the client device is in the best position to assess, set, and communicate to the server the “workstation processing capabilities” of the client. At the time of the ’501 patent, a POSITA would have known that relevant workstation processing capabilities would have included, for example, the client workstation’s clock rate, amount of available memory, network interface details,

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