UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK
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CAPITOL RECORDS, LLC,

                        Plaintiff,

                - against -

REDIGI, INC. ,

                     Defendant.
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Civil Action No: 12 CIV 0095
(RJS)

DECLARATION LARRY RUDOLPH (aka Lawrence S. Rogel) IN FURTHER SUPPORT OF REDIGI'S MOTION FOR SUMMARY JUDGMENT

I, **LARRY RUDOLPH** (aka Lawrence S. Rogel), pursuant to 28 U.S.C. § 1746, declare under the penalty of perjury, as follows:

1.   I am Chief Technical Officer and a founder of ReDigi Inc ("ReDigi").

2.   This declaration is submitted in further support of ReDigi's motion for summary judgment against Capitol Records LLC's ("Capitol").

A.   MIGRATION VS. DELETION

3.   The ReDigi Media Manager makes extensive use of operations in a personal computer operating system that manage the files, which is referred to as the file system. Understanding the underlying behavior of these uses first requires an explanation of fundamental file system concepts that are part of modern, popular Microsoft and Apple computers.

4.   Non-volatile computer storage devices, such as disk drives, flash memory, and Solid State Drive (SSD) can read, write, and overwrite data many times, but differ from volatile memory, such as RAM, in that data is retained even when disconnected from a power supply and

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data is read or written in blocks that are 512 or 1024 bytes. Initially, they mostly contain zeros and the basic structure of some file system.

5.   Files are stored on the disk as a chain of blocks starting with a main file information block, containing current file size, pointers to data blocks, a reference count, and more. A directory, otherwise known as a folder, is just a special file that contains a list of file names and pointers to the corresponding file information block. A full file path is a list of directories and the file name. The reference count contains the number of full file paths pointing to this file.

6.   A journal file system is one long sequence of file operations that is used to construct the file in RAM.

7.   A file creation consists of allocating a file information block on disk and appending a file name to some directory that points to this file information block. The reference count is set to one.

8.   Data is often written to the end of a file, which may cause additional blocks to be linked to the file.

9.   Copying a file depends on what agent issues the file copy command. At the user level, it may create an entry in some directory file that points to this file and increase the file's reference count. A copy by a program reads data from a file and writes it to a new file. A file system copy, replicates each and every block of the file and their associated pointers.

10.   Deleting a file depends on what agent issues the file delete command.

11.   When a user deletes a file, the file name is deleted or removed from the directory and added to a special directory, such as the trash can or recycle bin. Nothing happens to the file itself.

12.   When a program deletes a file, the file name is removed from the directory and the reference count is reduced by one. When the reference count reaches zero, a file system delete occurs.

13.   When the file system deletes a file, the file information block and all the blocks it points to, directly or indirectly, are placed on the list of free blocks to be reused by future file operations.

14.   Emptying a trash can or recycle bin causes a program deletion of all the files in that directory. If any of the files end up with reference counts of zero, a file system delete happens.

15.   A file truncate operation reduces the size of the file. If the reduction causes a whole data block at the end of the file to be unneeded, that block is released and returned to the free list. The ReDigi migration process each truncates the file by the size of a block each time.

16.   Truncating a file block by block until it has zero length is not the same thing as a program delete of a file. The program delete operation, to which Jacobson appears to refer, places all the file blocks on the free list in one operation, making it easy to recreate the file with a disk recovery program. This is completely unlike the truncation operation which happens through ReDigi's migration process.

17.   In a journal file system, a program delete will have one entry in the log indicating that the file has been deleted, while each truncate operation will also have one log entry. However, a music file of 10 Megabytes being migrated will have thousands of file truncate log entries.

18.   The ReDigi Migration procedure reads a block and immediately, within billionths of a second, truncates the block. After thousands of these read and truncate operations, the file is of zero length.

19.   In ReDigi Migration, one can see the file size shrink to zero on the user's device while simultaneously the file size in the Cloud Locker increases correspondingly. In contrast, a program copy and delete operation happens in two steps, with the delete occurring only after there are two distinct files at two different locations that are duplicates.

20.   Claiming that a ReDigi Migration is the same as copy and delete, as Doug Jacobson claims in paragraph 8 of his declaration, is like saying increasing Alice's bank account by a dollar each day for a year is the same as transferring the whole of $365 amount in one transaction. Although the net amount of increase is the same, the process by which it happens is clearly different, and has different ramifications i.e. how much money Alice has access to at any given moment during that year.

21.   In paragraph 14 of his declaration, Jacobson declares that "This step involves truncating the file…This extra step is nothing more than a method to delete the file on the user's hard drive one block at a time." As explained above, Jacobson is wrong: a truncation operation is not the same as a program delete. A sequence of read, truncate, and send operation, accomplishes all the salient features of a move. This is not possible with a program delete operation of the full file.

22.   In paragraph 16 of his declaration, Jacobson declares "In fact, if the electronic file had somehow been "moved" as ReDigi claims, there would be no need for the deletion operation at all." Regardless of the non-technical nature of Jacobson's declaration that treats all types of deletions the same, he is wrong. The truncate operations performed by the ReDigi Media

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Manager result in a zero length file. The Media Manager does not have to execute a program delete operation on the file name; it does so as a service to the user who would be confused by a zero length file.

23. It is also evident that during the ReDigi Migration, any computer crash or network disruption results in a loss of the file – it being neither on the user's drive nor in the ReDigi Cloud Locker. In contrast unlike ReDigi's system, with Jacobson's copy-then-delete protocol, the file is not lost as the copy is only deleted after the file is safely stored elsewhere.

24. The term "delete" not only has a technical definition depending on what is doing the delete, but also a layman's use. When speaking non-technically, the term is interchangeable with removal. For example, I may delete a person from a guest list for a party.

25. Capitol's motion has taken statements made during my deposition out of context and has tried to argue that my statements confirm that two copies of an Eligible File must exist because one has to be deleted. This is not the case. Capitol's use and interpretation of the word "delete" is simply wrong. I was surprised that Capitol tried to make this argument in their opposition papers and took my words out of context because during my deposition I clearly explained that the word "delete" had technical and non-technical meanings and that different actions happen when a file is deleted. I told Mr. King during the deposition that depending on the level at which we are discussing "delete" has different meanings. I further explained that with reference to ReDigi's technical process as the file is being transferred it is disappearing from a user's machine. *See* 7/20/12 Adelman Decl., Ex. 10, Rogel Tr. 67:9-71:8.

26. Capitol's attorney Mr. King also asked me questions about ReDigi's user interface. Obviously, because of the proprietary nature of ReDigi's system, we do not explain all of our technical processes to users. Moreover we have tried to make our user interface easy to

understand by our users—who are lay persons. In order for a song to be offered for sale in the ReDigi Marketplace, it is required that there be no copies of that song on the seller's computer. In my deposition, I was asked about the popup message displayed by the ReDigi Manager: "confirmation display will show you the songs you selected and any copies of those songs located on your computer, all of which will be deleted upon upload to your ReDigi cloud." Rogel Tr. 131.

27.   Since I was being asked questions about ReDigi's system in terms of the non-technical dialogue ReDigi's system has with its users, I answered the questions in terms of this dialog with the (non-technical) user. I was confirming the fact that the ReDigi Manger tells the user that all the copies of the songs will be deleted from the user's computer. My use of the term "delete" in my answers to this series of questions are in terms of a layman's explanation. After the file is uploaded, there will be no copies on the user's machine. In no way was I implying that ReDigi's system uses a copy and delete function and I did not need to make that clear *again* as I had already expressly explained that was not how ReDigi's upload process works.

28.   There is no contradiction in my answers. As explained above, after the migration is complete and the file has zero length, a program delete of the file name, which is now pointing to no data, is performed as a convenience to the user. There is no reason to elaborate on the distinction, the file name of the uploaded file has been deleted from the list of file names in the containing directory.

B.   WHAT IS ACTUALLY HAPPEING ON A COMPUTER'S DISK DRIVE

29.   A typical disk drive with a traditional operating system can be "defragemented" which moves the file blocks and updates all the associated relevant pointers in order to improve disk performance.

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30. A typical disk drive with a journal file system, such as supplied with new Microsoft and Apple operating systems, contains a log of all file operations and updates. The operating system reads the journal entries and recreates the files in memory. Periodically, the journal is compacted, for example, to remove all journal entries associated with a file-system deleted file. Again, a music file will be copied from one disk location to another. The files on the hard drive are not usable in this journal form, but must be recreated each time in memory.

31. New hybrid disk drives contain tens of gigabytes of flash memory and terabytes of magnetic disk storage. Depending on use, files are copied, moved, and reallocated to different parts of the flash and magnetic storage as a standard practice of their use.

32. Flash memory or Solid State Disk (SSD) drives also move the location of blocks in order to avoid misbalanced wear, as each block of flash can only be written a few hundred thousand times before failing to hold a charge.

WHEREFORE, for the foregoing reasons ReDigi respectfully requests that this Court grant ReDigi's motion for summary judgment.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 23, 2012 in Cambridge Massachusetts

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LARRY RUDOLPH (aka Lawrence S. Rogel)

8/23/12