EXHIBIT A

UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF TEXAS

TYLER DIVISION

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BEDROCK COMPUTER TECHNOLOGIES, LLC,

       Plaintiff,

   -vs-   Case No. 6:09-cv-0029

SOFTLAYER TECHNOLOGIES, INC.,
CITIWARE TECHNOLOGY SOLUTIONS, LLC,
GOOGLE, INC., YAHOO! INC.,
MYSPACE, INC., AMAZON.COM INC.,
MATCH.COM, LLC and AOL LLC

       Defendants.

****

RED HAT, INC,

       Plaintiff,

   -vs-   Case No. 6:09-cv-00549

BEDROCK COMPUTER TECHNOLOGIES, LLC

       Defendants.

****

VIDEO DEPOSITION OF MARK T. JONES, Ph.D.

11:15 a.m. to 5:55 p.m.

September 29, 2010

Blacksburg, Virginia

Job No. 14183

REPORTED BY: Rhonda D. Tuck, RPR, CRR

 1   Deposition of MARK T. JONES, Ph.D., taken and

 2   transcribed on behalf of the Defendants, by and

 3   before Rhonda D. Tuck, RPR, CRR, Notary Public in

 4   and for the Commonwealth of Virginia at large,

 5   pursuant to Rule 30 of the Federal Rules of Civil

 6   Procedure, and by Notice to Take Depositions;

 7   commencing at 11:15 a.m., September 29, 2010, at

 8   Blacksburg, Virginia.

 9

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1 **I N D E X**

2 WITNESS:

3 MARK T. JONES, Ph.D.

4   Examination by Mr. Stern............   9

5   Examination by Mr. Bright.......... 159

6   Examination by Mr. Korn............ 210

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10   E X H I B I T S

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12

Defendants' Exhibit 17................... 13
13   Curriculum Vitae of Mart T. Jones, Ph.D.
  with cover sheet titled "Exhibit B"
14

Defendants' Exhibit 18................... 59
15   Declaration of Mark T. Jones, Ph.D.

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1 **BY MR. STERN::**

2   **Q.   Okay. And so just so we're clear,**

3 **there's nothing extraneous and nothing needed in**

4 **that area search table procedure from the word**

5 **search table procedure to alternate version of**

6 **search table procedure that would -- to render**

7 **this a hash algorithm, right?**

8   A.   I think we might be talking past one

9 another on the extraneous part. I would say it is

10 a hash algorithm if it has the features I

11 mentioned earlier. This is a hash algorithm, and

12 part of that hash algorithm is the on the fly

13 removal of expired records. I would still call

14 this a hash -- I mean, that's part of this hash

15 algorithm, so I think we might be talking past one

16 another on that part.

17   **Q.   Professor, since you've testified under**

18 **oath several times now that every hash algorithm**

19 **uses a particular hash function, would you please**

20 **tell me which hash function is used by the hash**

21 **algorithm described in the area you just**

22 **identified?**

23   A.   I didn't say particular. I said a hash

24 function.

25   **Q.   I understand. I'm asking you can you**

1 **tell me which hash function is used by the hash**

2 **algorithm you just identified. Is it modulo?**

3   A.   It's any hash function.

4   **Q.   Is it cryptographic?**

5   A.   It's any hash function.

6   **Q.   So the number of functions that could**

7 **be used by this hash algorithm is infinite?**

8   A.   I should know, but I don't know the

9 number. I would assume the number of prime

10 numbers is infinite, so within the family of

11 modulo, if the number of prime numbers is

12 infinite, then I would say that the number of

13 possible hash functions is infinite.

14   **Q.   So in your view, the number of hash**

15 **algorithms that can be used in this patent in the**

16 **means-plus-function claims is infinite?**

17   A.   No.

18   **Q.   Well, you said the hash algorithm would**

19 **use any one of an infinite number of hash**

20 **functions, right?**

21   A.   Right.

22   **Q.   Okay. Just so we're clear, it's your**

23 **view that the hash algorithm that's identified**

24 **would use any one or more of an infinite number of**

25 **hash functions?**

1   A.   Yes.

2   **Q.   Okay. And it's your testimony that the**

3 **area we just went through, the area, that part of**

4 **that includes the search for the -- I'm sorry, the**

5 **on the fly deletion or removal of records, right?**

6   A.   Yes.

7   **Q.   Can you tell me the section of the**

8 **pseudocode that does that?**

9   A.   That's where -- there's a line that

10 begins, if P up arrow, and if the record contents,

11 if that's expired, then it calls a procedure that

12 will remove that from the link list.

13   **Q.   Where does that end?**

14   A.   I'm sorry. It's those two lines.

15   **Q.   Okay. And the phrase that starts else**

16 **begins, what does that do?**

17   A.   There we are -- that's part of -- the

18 else begin is if it's not expired, then check to

19 see if the contents match the -- the key that's

20 being searched for.

21   **Q.   Now, in table 3, what you previously**

22 **identified in table 3, the box that says hash**

23 **search key --**

24   A.   Yes.

25   **Q.   Do you see that? The function that**

1 takes place in that box all precedes the search

2 for and the deletion of the expired records,

3 right? Do you see where it says hash the search

4 key?

5   A.   Yes.

6   Q.   The hash the search key according to

7 figure 3 all takes place before the search for the

8 identification and the removal of the expired

9 records, right?

10   A.   It's part of that process. It's taking

11 it to the correct link list. You couldn't do the

12 search without that.

13   Q.   Well, I understand that, but this is --

14 you testified this is a search procedure

15 identified in Exhibit 3, right?

16   A.   Yes.

17   Q.   Let me see if I get this straight,

18 Professor, is it your sworn testimony that it's

19 your view that the hash function operates not just

20 within box 31 on figure 3 but operates all the way

21 to stop on box 37?

22   A.   No.

23   Q.   Okay. The hash function operates

24 within box 31, right?

25   A.   That's correct.

1   **Q.   Just so it's clear, the hash function**

2   **operates within box 31, right?**

3   A.   Yes.

4   **Q.   Now, in the area that you just**

5   **identified, the search table procedure, where does**

6   **the hash function operate? What lines reflect the**

7   **operation of the search of the hash function**

8   **operating on the search table procedure?**

9   A.   It's the line after the word begin that

10   is indexed colon equals hash.

11   **Q.   Yes?**

12   A.   That's the line where the hash function

13   is called.

14   **Q.   And where does that end?**

15   A.   It's the semicolon on that line.

16   **Q.   Okay. So just so we're clear, the hash**

17   **function -- I want to make sure that we're**

18   **absolutely clear about this. In the area called**

19   **search table procedure, the hash function is**

20   **denoted by the language that reads begin, skip a**

21   **line, index, full colon, equal, hash, paren,**

22   **record underscore key, closed paren, semicolon?**

23   A.   It's after the begin. It doesn't

24   include begin. But otherwise, that's correct.

25   **Q.   Okay. That's fine. So then the hash**

1   **function is denoted in the pseudocode by the**

2   **phrase index, full colon, equal sign, hash, paren,**

3   **record, underscore key, semicolon, right?**

4   A.   Yeah.

5   **Q.   Okay. That is what denotes the hash**

6   **function, right?**

7   A.   Yes.

8   **Q.   You'll agree with me that that line**

9   **doesn't say anything about modulo arithmetic?**

10   A.   That's correct.

11   **Q.   It doesn't say anything about**

12   **cryptographic?**

13   A.   That's correct.

14   **Q.   That line doesn't describe what**

15   **particular hash function is being used, right?**

16   A.   That's correct.

17   **Q.   And then what other lines in this**

18   **particular -- in this area between search table**

19   **procedure and until the alternative version of**

20   **search table procedure, what other lines would**

21   **represent what's taking place in the area**

22   **corresponding to Figure 3 from the box 32 onward?**

23   A.   Do you want me to go box by box, or

24   just give you a range?

25   **Q.   Is it accurate to say that -- well, why**

1 **Q. It refers to the fact that someone**

2 **would have to use a hash function but doesn't**

3 **identify the code associated with that hash**

4 **function, right?**

5 A. That's correct.

6 **Q. And you've testified that the hash**

7 **function that could be used for this particular**

8 **algorithm could be one of any number of hash**

9 **functions, correct?**

10 A. That's correct.

11 **Q. In fact, according to you, it could be**

12 **any number of -- well, it could be almost an**

13 **infinite set of hash functions, right?**

14 A. Yes.

15   MR. CURRY: Counsel, are you at a good

16 stopping point? I'm just getting a little

17 hungry is all.

18   MR. STERN: Are we break for -- how

19 much time do you want to break for lunch?

20   MR. CURRY: It's up to you. It's your

21 depo.

22   MR. STERN: I'll ask the witness.

23   THE WITNESS: I think if we did 45

24 minutes, a half hour, however long it takes to

25 eat downstairs.

1   **the use of removing expired records dynamically**

2   **based on the determination of a maximum number of**

3   **records to be removed?**

4   A.   This will remove all the records until

5   the search key is found in the list.

6   **Q.   So is it accurate that neither the**

7   **search table procedure identified in Column 11**

8   **through 12 and the alternate version of search**

9   **table procedure specifically address dynamically**

10   **determining a maximum number of records to be**

11   **removed in the access link list of records?**

12   A.   That's correct.

13   MR. STERN: I'm done. I've got to

14   catch a flight. I'm going to yield to my

15   colleagues here.

16   MR. BRIGHT: Take a few minutes.

17   THE VIDEOGRAPHER: The time is

18   approximately 3:39 p.m., and we're off the

19   record.

20

21   (Break in proceedings.)

22

23   THE VIDEOGRAPHER: The time is

24   approximately 3:48 p.m., and we're back on the

25   record.

1

2   E X A M I N A T I O N

3 **BY MR. BRIGHT::**

4   **Q.   Bear with me, I will try to avoid any**

5   **duplicative questioning, but I just wanted to note**

6   **for the record there may be instances where I need**

7   **to sort of establish a foundational question?**

8   MR. CURRY: I understand to a certain

9   point, but get into the same -- you know,

10   style Q and A I'm going to be instructing.

11

12 **BY MR. BRIGHT:**

13   **Q.   Now, sir, do you agree that the**

14   **means-plus-function elements in the claims in the**

15   **'120 patent are implemented by a general purpose**

16   **computer?**

17   A.   I believe the structure includes a

18   general purpose computer, the structure that I

19   identified.

20   **Q.   Let me ask you this way: Do you agree**

21   **that the corresponding structures for the**

22   **means-plus-function elements in the claims of the**

23   **'120 patent are computer algorithms?**

24   A.   Running on a general -- you know, part

25   of the structure identified is computer algorithm

1 on a general purpose computer.

2   **Q.   Okay. But at least a part of the**

3 **necessary structure for implementing the**

4 **means-plus-function elements in the claims in the**

5 **'120 patent is a computer algorithm?**

6   A.   Yes.

7   **Q.   And in forming your opinions about the**

8 **corresponding computer algorithms for the**

9 **means-plus-function elements, did you reach an**

10 **understanding of the recited functions in those**

11 **claim elements?**

12   A.   Yes, I did.

13   **Q.   Now, I think you said in your**

14 **declaration that the specification must recite**

15 **some structure corresponding to the claim to**

16 **means. Do you recall that?**

17   A.   Not those specific words, but I would

18 certainly agree that the specification needs to

19 disclose a structure for the means-plus-function

20 claim terms.

21   **Q.   Now, if you could turn to your**

22 **declaration which has been marked as Defendants'**

23 **Exhibit 18, and specifically to Page 3 at the top.**

24   A.   I'm there.

25   **Q.   Do you see where you've said I further**

1   A.   I'm there.

2   **Q.   So do you agree that the word hashing**

3   **in this means-plus-function element is functional**

4   **language?**

5   A.   I'm not -- are you asking whether it's

6   part of the function? I guess I'm not quite sure

7   what you're saying by functional language.

8   **Q.   I guess another way to ask it, the**

9   **hashing word in the hashing means element, does**

10   **that hashing word convey any structure to you?**

11   A.   It's identifying -- the hashing means

12   is what -- the name they're using for this means.

13   Hashing itself -- the fact that they're using the

14   word hashing there isn't conveying a particular

15   structure.

16   **Q.   So, again, the word hashing and the**

17   **hashing means is functional language, right?**

18   MR. CURRY: Objection to form.

19   THE WITNESS: I guess I'm not quite --

20   I still don't -- the word functional language

21   or phrase functional language, I'm not sure of

22   the exact definition of that.

23

24   **BY MR. BRIGHT::**

25   **Q.   Well, let me try and get us on the same**

1 machine would execute, I'd have to read up --

2 haven't seen it done and haven't done it myself,

3 but I certainly know that it can be done.

4   **Q.   And would there -- is it possible that**

5 **one of ordinary skill in the art would actually**

6 **come up with another way of expressing the hashing**

7 **algorithm mathematically that would also be**

8 **correct?**

9   A.   You mean hashing algorithm like, say, I

10 took the search table procedure and implementing

11 the data structures and was able to express that

12 mathematically might someone else do that

13 differently?

14   **Q.   Yes.**

15   A.   They could use different notation,

16 certainly.

17   **Q.   Besides different notation, would it be**

18 **possible that one of ordinary skill in the art**

19 **would come up with a different mathematical**

20 **expression for the algorithm?**

21   A.   I don't know, and I haven't thought

22 about it enough to -- I don't even know what my

23 result would be. I know how to proceed, but I

24 don't know what my result would be, so I don't

25 know if it would be the only one.

1   Q.   Just to close the loop on something you

2   testified about earlier, you mentioned that you

3   were familiar with the -- I think the Knuth

4   textbook, correct?

5   A.   Yes.

6   Q.   And that's cited in the '120 patent,

7   correct?

8   A.   Yes.

9   Q.   Did you see anything in that textbook

10   with which you disagreed?

11   MR. CURRY: Objection. Form.

12   THE WITNESS: I know there's certainly

13   errors in it because I know that it's its

14   practice to pay people for corrections, but I

15   didn't come across anything that jumped out at

16   me.

17

18 BY MR. BRIGHT::

19   Q.   Okay. And when you say errors,

20   typographical error as soon as are those the

21   nature of the errors you're talking about?

22   A.   Oh, you might make an error in -- it

23   might be something more than typographical.

24   Anytime you write -- this is one of a three-volume

25   set that's a massive work, particularly in that

1

2 **BY MR. BRIGHT::**

3   **Q.   In your last answer when you say parts**

4 **of a hashing algorithm, which parts?**

5   A.   I'll have to go specifically to my

6 report just to indicate which boxes, for example,

7 in Figure 3, and then which lines in the search

8 table procedure, in the alternative search table

9 procedure as well as the lines and specification

10 that indicate which parts I'm talking about. I

11 think the best ones to look at are Figures 3 in

12 the search table procedure.

13   **Q.   Okay. Is it fair to say that it's your**

14 **opinion that the corresponding structure for the**

15 **record search means includes a hashing function?**

16   A.   Includes the use of a hashing function,

17 yes.

18   **Q.   Now, if you would, turn to Claim 2 in**

19 **the '120 patent.**

20   A.   I'm there.

21   **Q.   The means for dynamically determining**

22 **maximum number for the record search means to**

23 **remove in the access link list of records is what**

24 **I'm focused on now. Do you see that?**

25   A.   Yes, I do.