

The Honorable Edward F. Shea

Thomas D. Adams
Celeste Mountain Monroe
KARR TUTTLE CAMPBELL
1201 Third Avenue, Suite 2900
Seattle, Washington 98101-3028
(206) 223-1313
Attorneys for North Central Regional Library District

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON
AT SPOKANE

SARAH BRADBURN, PEARL)	
CHERRINGTON, CHARLES)	
HEINLEN, and THE SECOND)	NO. CV-06-327-EFS
AMENDMENT FOUNDATION,)	
)	DECLARATION OF PAUL
Plaintiffs,)	RESNICK
)	
v.)	
)	
NORTH CENTRAL REGIONAL)	
LIBRARY DISTRICT,)	
)	
Defendant.)	
)	

I, Paul Resnick, declare as follows:

1. I am over the age of 18 and competent to testify to the matters set forth herein.

DECLARATION OF PAUL RESNICK -

1 2. I am a Professor at the University of Michigan School of
2 Information. (Attached hereto as **Ex. A** is a true and correct copy of my
3 curriculum vitae.)
4

5 3. In 2002, I conducted an assessment of the error rates on health-
6 related websites of several commercial Internet filters. That study was
7 published in JAMA, the flagship peer reviewed journal of the American Medical
8 Association. (Attached hereto as **Ex. B** is a true and correct copy of the above-
9 referenced JAMA article.)
10

11 4. A subsequent paper abstracting what I had learned about the
12 methods for conducting tests of filtering software was published in the
13 Communications of the ACM, the flagship publication distributed to all
14 members of the Association for Computing Machinery. (Attached hereto as
15 **Ex. C** is a true and correct copy of the above referenced ACM article.)
16
17

18 5. I was retained by NCRL to serve as an expert in the current
19 litigation.
20

21 6. I was asked to explain how the NCRL filtering software works. I
22 was also asked to assess the methods used in studying the error rates in the
23 filtering software NCRL uses as reported by Plaintiffs' expert, Mr. Bennett
24 Haselton.
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28 DECLARATION OF PAUL RESNICK -

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CV-06-327-EFS
#658040 v1 / 42703-001

Law Offices
KARR TUTTLE CAMPBELL
A Professional Service Corporation
1201 Third Avenue, Suite 2900, Seattle, Washington 98101-3028
Telephone (206) 223-1313, Facsimile (206) 682-7100

1 7. I was also asked to conduct a study of my own if I thought it would
2 yield greater insight into whether the NCRL filter block more than the content
3 they intended to block. I did conduct such a study and report on the methods
4 and results in a formal report. (Attached hereto as **Ex. D** is a true and correct
5 copy of my formal report, without appendices.)
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7
8 8. NCRL computers make use of the FortiGuard Web Filtering
9 Service offered by Fortinet, Inc.
10

11 9. FortiNet maintains a database of websites. Fortinet reports that it
12 includes more than 30 million sites, covering more than two billion individual
13 pages (URLs).
14

15 10. FortiNet assigns each web page to one of 76 categories based on its
16 dominant content, or to none of those categories. Some pages are additionally
17 assigned one of seven classes.
18

19 11. When a web site contains pages having content with different
20 dominant categorizations, each page is separately categorized.
21

22 12. The customer selects classes or categories to block or leave
23 unblocked.
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1 13. The Service is certified to comply with the Children's Internet
2 Protection Act. (Attached hereto as **Ex. E** is a copy of the certification
3 statement available on FortiNet's website.)
4

5 14. FortiNet provides a short description of the meaning of each
6 category and classification. FortiNet does not provide the details of its
7 procedures. Presumably, FortiNet uses a combination of automated algorithm
8 and human review.
9
10

11 15. Anyone may immediately find out FortiNet's current classification
12 of any particular web site or page (URL) by entering the URL in a form on the
13 FortiNet web site (<http://www.fortiguardcenter.com/webfiltering/webfiltering2>
14 .html).
15
16

17 16. Anyone may request that FortiNet review its classification of any
18 particular web site or page through the same area of the FortiNet web site.
19

20 17. To understand how the Fortiguard affects the Internet activity of an
21 NCRL patron, it is helpful to consider the sequence of steps that occur behind
22 the scenes each time a patron tries to visit a web page.
23

24 18. A visit may be initiated either by directly entering a URL
25 (Universal Resource Locator) into the toolbar, by selecting a bookmarked
26 favorite from a menu, or by following a link from another page.
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1 19. Regardless of how a visit to a website is initiated, the same
2 sequence of events occurs in the background.
3

4 20. To illustrate, assume an NCRL patron enters the URL
5 <http://www.yahoo.com/nfl> in the toolbar. Once the URL address is typed, the
6 patron's computer attempts to establish a connection to the IP (Internet Protocol)
7 address of the destination host (or web server). It sends a message that it would
8 like to "get" whatever the server provides in response to this URL path, such as
9 an HTML (HyperText Markup Language) document or an image file.
10
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12 21. Because the patron's computer accesses the Internet through the
13 library's "Fortigate" filtering firewall unit, the patron's computer may not
14 receive the same response it would have had it been connected directly to the
15 Internet.
16
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18 22. If <http://www.yahoo.com/nfl> has been requested recently, by this
19 patron or another in the same branch, the Fortigate unit may have a copy of
20 Fortiguard's rating of the URL or the Yahoo server's response to that request. If
21 it does not, the Fortigate unit contacts the destination host (Yahoo) asking for
22 the same URL path the patron's computer requested, and the Fortigate unit
23 connects to a Fortiguard Rating Server to request the classification of the URL.
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1 23. The Fortiguard Rating Server, which is maintained by FortiNet,
2 responds to the Fortigate unit with two pieces of information, a “category” and a
3 “class.” For example, <http://www.yahoo.com/nfl> is in the category “sports” and
4 its class is “unclassified.”
5

6 24. Once the Fortigate unit receives the requested contents, it runs a
7 policy evaluator program that evaluates whether the URL is blocked or allowed
8 under the filtering profile in operation.
9

10 25. The policy evaluator first examines whether the URL is one that is
11 specifically exempt or blocked according to the explicit rules set by NCRL staff
12 and stored as part of the filtering profile. If a site is exempt or blocked, the
13 evaluator returns the result of that local rule.
14

15 26. If there is no explicit local rule, then the evaluator compares the
16 category returned (e.g. “sports”) to the set of blocked classifications in the
17 filtering profile. If either the category or classification is blocked, then the
18 policy evaluator determines that the requests access should be blocked.
19

20 27. If the Rating Server failed to return a category and classification,
21 NCRL has configured the policy evaluator to allow access to the URL.
22

23 28. As I understand it, the following categories are blocked under
24 NCRL’s current filtering profile: (1) hacking; (2) proxy avoidance; (3) phishing;
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1 (4) malware; (5) spyware; (6) gambling; (7) adult materials; (8) nudity/risqué;
2 (9) pornography; (10) webchat; (11) instant messaging. The following
3 classifications are also blocked: image search, video search; and spam URL.
4 The above-referenced categories and classifications are defined by Fortinet as
5 follows:
6
7

- 8 • **Hacking** - Website that depict illicit activities surrounding the
9 unauthorized modification or access to programs, computers,
10 equipment and websites;
- 11 • **Proxy Avoidance** – Websites that provide information or tools on
12 how to bypass Internet access controls and browse the Web
13 anonymously, includes anonymous proxy servers
- 14 • **Phishing**- Counterfeit web pages that duplicate legitimate business
15 web pages for the purpose of eliciting financial, personal or other
16 private information from the users
- 17 • **Malware** – Sites that are infected with destructive or malicious
18 software, specifically designed to damage, disrupt attack or
19 manipulate computer systems without the user’s consent, such as
20 virus or Trojan horse.
- 21 • **Spyware** – Sites that host software that is covertly downloaded to a
22 user’s machine to collect information and monitor user activity,
23 including spyware, adware, etc.
- 24 • **Gambling** – Site that cater to gambling activities such as betting,
25 lotteries, casinos, including gaming information, instruction and
26 statistics.
- 27 • **Adult Materials** – Mature content websites (18+ and over) that
28 feature or promote sexuality, strip clubs, sex shops, etc....excluding
sect education, content without the intent to sexually arouse.
- **Nudity/Risque** – Mature content websites (18+ and over) that
depict the human body in full or partial nudity without the intent to
sexually arouse.

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- 1 • **Pornography** – Mature content websites (18+ or older) which
- 2 present or display sexual acts with the intent to sexually arouse and
- 3 excite.
- 4 • **Webchat** – Websites that promote Web chat services.
- 5 • **Instant Messaging** – Websites that allow users to communicate in
- 6 “real-time” over the Internet.
- 7 • **Image Search** – Website providing search of images or photos or
- 8 the result of image or photo searches.
- 9 • **Video Search** – Websites providing search of video clips or the
- 10 result of video searches.
- 11 • **Spam URL** – Websites or webpages whose URLs are found in
- 12 spam emails. These web pages often advertise sex sites, single
- 13 clubs and other potentially nuisance or offensive materials.

14 29. To estimate the amount of over blocking (blocking of sites that

15 should be allowed under the library’s policy), I conducted a test based on the

16 URLs actually visited at NCRL branch libraries during the week of August 23-

17 29, 2007.

18 30. I believed conducting the test based on URLs actually visited was

19 more meaningful than testing a random sample from the universe of all domain

20 names, for several reasons. First, it allows for estimation of the overall impact

21 on patron browsing, because it provides an estimate of how frequently blocks

22 occur, in addition to assessing whether those blocks were in error. Second,

23 patrons tend to visit more popular sites than a random sample of sites would

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1 include, and I expected that FortiNet would make fewer classification errors on
2 more popular sites.

3
4 31. The complete test set consisted of 2380 distinct URLs, 2180 that
5 would be blocked under NCRL's current filtering policy. The test set included
6 all 289 URLs for complete web pages that were blocked during the week; the
7 other URLs were for images, movies, or other elements that a web browser
8 would display as part of a web page that it had already displayed.

9
10
11 32. In order to assess the reliability of the test, two individuals –
12 referred to as "raters" - evaluated the items on the blocked pages. These raters
13 did not talk to one another at all about each other's ratings. They also had no
14 idea how the Internet filter had categorized the web pages, in order to keep them
15 from being biased. Furthermore, some non-blocked sites were included in the
16 set so the raters did not assume that a site should fit into one of the "blocked"
17 categories.

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19
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21 33. Once all the ratings were complete by the two raters, Dr. Derek
22 Hansen, a colleague of mine, independently rated all of the webpages where
23 there was a disagreement between the first two raters or where one of the raters
24 had "flagged" the site as difficult to rate.

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1 34. Dr. Hansen was not able to see the other raters' classifications so
2 that his rating would be truly independent. Similarly, Fortinet classifications
3 were not provided to Dr. Hansen, so not to bias him.
4

5 35. In the one week period examined by myself and my colleagues,
6 across all NCRL branches, only 20 complete pages were incorrectly blocked
7 amount more than 60,000 requests for complete pages.
8

9 36. The study revealed that less than 1/3000 (1/30th of 1%) of patron
10 requests for webpages resulted in incorrect blocks.
11

12 37. In reviewing the particular web-pages and full-size images that
13 were blocked in error, I did not detect any pattern that would suggest the errors
14 were systematically biased toward any particular kind of content. In particular, I
15 did not find any reason to believe particular categories were being blocked,
16 other than those NCRL explicitly chose to block.
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19 38. Other findings and conclusions are contained in my formal report,
20 attached hereto as **Ex. D**.
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1 I declare under penalty of perjury under the laws of the United States of
2 America that the foregoing is true and correct.

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4 Dated this ^{4th} 30 day of January, 2008 at Ann Arbor, Michigan.

5 
6 Paul Resnick
7 Paul Resnick
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CERTIFICATE OF SERVICE

I hereby certify that on February 4, 2008, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system which will send notification of such filing to the persons listed below:

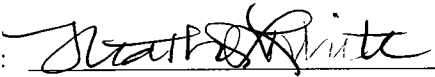
Duncan Manville
1629 2nd Ave. W
Seattle, WA 98119

Aaron Caplan
ACLU of Washington
705 Second Ave., Ste. 300
Seattle, WA 98103

Notice has been delivered by U.S. Mail to:

Catherine Crump
American Civil Liberties Union
Foundation
125 Broad Street, 17th Floor
New York, NY 10004

KARR TUTTLE CAMPBELL

By: 
Heather L. White
hwhite@karrtuttle.com

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