

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

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NATIONAL FOOTBALL LEAGUE, <i>et al.</i> ,	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Civil Action No. 00-120
	)	
TVRADIONOW CORPORATION, <i>et al.</i> ,	)	
	)	
Defendants.	)	

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**SUPPLEMENTAL DECLARATION OF BEN EDELMAN**

Ben Edelman states as follows:

1. My name is Ben Edelman. My office address is 1563 Massachusetts Avenue, Cambridge, Massachusetts 02138. I have personal knowledge of the matters set forth in this Declaration, which describes supplemental analysis I have performed to verify the conclusions in my initial Declaration of January 28, 2000. For convenience, the information set forth in my initial declaration is reproduced in paragraphs 1 to 16, and the supplemental work I have done is set forth in paragraphs 17 to 22 of this Supplemental Declaration.

2. I am a sophomore at Harvard College, and I work for the Berkman Center for Internet and Society at Harvard Law School as a systems administrator and multimedia specialist. I have previously worked as a computer purchasing consultant, a network designer and systems integrator, a custom software designer, a database specialist, and a designer of database-driven web sites. I have personal experience with RealMedia technology, which is the technology used by iCraveTV.com for transmission of television content over the Internet.

3. My experience includes four years as an Internet web server administrator. I have operated my own servers for three years, including a server receiving more than 10,000 hits per day. In addition, I have six years of experience with the TCP/IP protocol on which the Internet is based, including three years administering TCP/IP-based networks. In my experience as a webmaster and network administrator, I have been asked to review log files for a number of purposes, including determining the geographic origins of individuals and groups of users.

4. I have been asked to conduct an analysis by the National Football League, the National Basketball Association, and NBA Properties, Inc., regarding the geographic locations of users who view U.S. television content on the iCraveTV.com web site.

5. On the morning of Thursday, January 27, 2000, I was given access to a magnetic tape, which I understand was produced late the preceding day in Pittsburgh by the operators of the iCraveTV.com web site to the counsel for the NFL and the NBA. The tape contained log file data of iCraveTV.com. Because the data were recorded on magnetic tape rather than on commonly-used CD ROMs, the data were inaccessible until it was possible to obtain and install a special DLT tape drive. In addition, because the data were encoded in a proprietary backup file format rather than in a generic format, the data were inaccessible until it was possible to install the proprietary software necessary to extract usable data. I understand that a request to provide a limited sample of selected log file data in a generic format via Internet FTP, which would have been far more efficient, was not granted by iCraveTV.com in their initial production of data analyzed in my initial Declaration.

6. As a result of these several impediments, I was not able to begin to analyze the log file data until late in the afternoon of January 27, and I was required to continue analyzing the log file data late into the night of January 27.

7. The RealServer is the component of the iCraveTV.com web site that sends the video data stream containing television content to Internet users. Internet users then view the television content with RealPlayer software on their computers. The RealServer software automatically maintains log files, which record each occasion on which an Internet user has accessed the television content of the iCraveTV.com site. These log files record the numeric IP address from which each access occurs. This address, in turn, can be used to identify geographic origins of these accesses.

8. By comparing the numeric IP address to lookup tables available on the Internet, it is possible in most instances to "resolve" the IP address to a name, which is known as the fully-qualified domain name ("FQDN"). The FQDN includes not only the first and second level domain names, which identify the network (such as "att.net" or "ibm.com"), but also the specific machine on the network from which the user is accessing the Internet. Based on the FQDN, detailed geographic information is often available.

9. Although the media and formatting impediments discussed above and the size of the RealServer log files prevented me from examining all the log files in the extremely limited time available on January 27, at that time I was able to review the iCraveTV.com RealServer log files for accesses to television content from the ABC television affiliate station WKBW through the iCraveTV.com web site during the one-week period from January 2 through January 8, 2000 (0000 hours, January 2, 2000, to 0000 hours, January 9, 2000, Greenwich Mean Time).

10. Accesses to the RealServer during this period represent occasions on which Internet users requested and received video streams containing television content. Accesses to the iCraveTV.com home page or other portions of the web site not involving the delivery of an actual video stream would be reflected in the web server log, but not in the RealServer log.

11. Various statistical packages are readily available for analyzing and summarizing the content of web server and RealServer log files. I used one such readily available program, known as WebTrends Log Analyzer v5.0a, on the RealServer log file for the television station and time period referred to above. By running the standard report generator provided with this program, I generated the report attached to this Declaration as Exhibit 1. As shown on this report, the iCraveTV.com RealServer log for accesses to television content from the ABC television affiliate station WKBW through iCraveTV.com from January 2-8, 2000, show 16,851 "hits," representing 11,435 "visitor sessions." (Some users were identified by the log analyzer as having requested a connection to the same video stream more than once during a given session.) According to the standard log analysis routine of the WebTrends Log Analyzer software, the percentage of these visitor sessions during the stated period that originated in the United States was at least 57.05%. In addition, 16.39% of visitor sessions were of unknown origin, and 26.55% were of "international" (non-U.S.) origin.

12. Log analysis software such as WebTrends derives the country of origin from the domain name from which the access occurs. In some instances, a domain name will be associated with a network registered in a particular country, and the access will be recorded as coming from that country, but the user will actually be accessing the network from another country. As a result, the WebTrends report of countries of origin may not always correspond to the actual geographic location of the particular user. For example, the aol.com network is registered in the United States, even though some of its users are outside the United States. However, I have been informed by aol.com technical documentation and network engineers that -- because of the network design and proxy server system used by aol.com -- all web accesses from aol.com users in Canada are in fact routed through network equipment that is physically

located in Virginia. Thus, television content streamed to aol.com users in Canada on iCraveTV.com must pass through the United States en route.

13. Although a network registered in one country may have users in another country, many fully-qualified domain names provide detailed information from which it can be determined with reasonable certainty that a particular access is in fact from a particular country. As noted above, the FQDN includes not only the first and second level domain names, such as "att.net" or "ibm.com," but the specific machine, such as "103.norfolk-06-07rs16rt.va.dial-access.att.net" or "ss03.nc.us.ibm.com," both of which are actual examples of FQDNs taken from the iCraveTV.com logs.

14. To confirm that at least a very substantial portion of the accesses to the iCraveTV.com RealServer during the specified period were in fact from within the United States, on January 27 I conducted a detailed review of such accesses during the eight-hour period from 1700 hours on January 8, 2000, to 0100 hours on January 9, 2000, Greenwich Mean Time. Because the raw IP addresses in the RealServer log file were not resolved to FQDNs, I first resolved the IP addresses using logresolve, a program for that purpose freely available on the Internet. I then visually inspected the FQDNs in the individual log file entries. By searching for identifying factors that I have found to be reliable indicators of specific geographic location, I extracted, in the very limited time available to me and for this sample period, a list of accesses that can be traced, with reasonable certainty, to geographic locations within the United States. I attach as Exhibit 2 the extracted list of accesses, which is taken directly from the RealServer log file, except that in each entry I have substituted for the raw IP address the FQDN that I obtained using the logresolve program and in that I have omitted additional data from the log file not

relevant for these purposes. The extract in Exhibit 2 is by no means an exclusive list of U.S. accesses during the eight-hour time period noted above.

15. On the basis of the foregoing analysis, I was able to conclude with reasonable certainty in my initial Declaration of January 28 that a substantial number of Internet users who accessed the television programming from ABC affiliate station WKBW through the iCraveTV.com web site during the afternoon of January 8, 2000, Toronto time, were located in the United States. In addition, the foregoing analysis could have readily been performed by iCraveTV.com itself using the same commonly-available tools and methods I used.

16. Based on my experience as a server administrator and the evidence that a substantial number of Internet users located in the United States accessed the television content on the iCraveTV site on January 8, 2000, I find it highly unlikely that there has been any date on which the iCraveTV site has been operational on which television content on the site was not accessed by Internet users located in the United States.

17. As noted in paragraphs 12 and 13 of my initial Declaration, the WebTrends Log Analyzer v5.0a software that was used to generate the report analyzing the geographic origin of "hits" recorded on the iCraveTV.com RealServer log files determines the country of origin from the domain name from which the access occurs, and it may be inaccurate in some instances if a user in one country is accessing the site through a network with a domain name registered in a different country. This fact should not obscure the fact that the WebTrends Log Analyzer software is widely recognized to provide useful information concerning the geographical distribution of traffic on a site. The WebTrends Log Analyzer has been purchased and used by many companies; the company's Internet profile states that "more than half the Fortune 500 companies are WebTrends customers." (<http://www.webtrends.com/corporate/profile.htm>). The

WebTrends software has won a number of industry awards, including most recently as one of the Software Products of the Year in the January 2000 issue of Windows NT Systems, a magazine for Windows NT system management and administration. ([http://www.ntsistemas.com/db\\_area/archive/2000/01/401fe1.shtml](http://www.ntsistemas.com/db_area/archive/2000/01/401fe1.shtml))

18. Since January 27 I have also conducted a further analysis of the FQDNs for accesses to the iCraveTV.com RealServer to confirm the findings I reported in paragraph 14 and Exhibit 2 of my initial Declaration. A review of RealServer access logs for station WIVB in Buffalo during the time that CBS affiliate was broadcasting the NFL playoff games on January 15 and 16 also showed a substantial number of "hits" from users clearly in the United States (e.g., dt0c1nf8.tampabay.rr.com, nor-91-121.Reshall.Berkeley.edu, resnet 224-162.resnet.buffalo.edu, richardson-bp-205.dartmouth.edu). A similar review of the access log for a randomly-chosen evening of prime time broadcasting on WIVB on January 15 similarly showed a substantial number of "hits" from clearly U.S. locations (e.g., as-119-80.ashton.indiana.edu, gdffw1.denver1.Level3.net, a24b25n251client166.hawaii.rr.com, student-02cpj.williams.edu).

19. The geographical origin for a number of the accesses recorded in these logs, and the logs reviewed in paragraph 14, could not be determined simply from a visual examination of the FQDNs for these hits. I examined an arbitrarily chosen and essentially random subset of those FQDNs and was able to determine that the large majority of such accesses were very likely to have originated from the United States. For example, the first ten such FQDNs I examined for the playoff game broadcasts showed accesses by a user of an only-American ISP and a user of a mostly-American ISP; four accesses from IP addresses that the IP-WHOIS lookup service reported as registered to the U.S. (two in California, one each in New York and Vermont); a

large all-or-mostly-American company; a visitor from AOL's operations center in Virginia; an AOL subscriber of uncertain location; and a single Canadian ISP. When this information is combined with the many accesses clearly from the U.S. based on a simple visual examination of the FQDNs for such accesses, all of the RealServer access logs I have examined indicate that U.S. "hits" accounted for something more than 40% of total accesses, and during some time periods probably over 50% of the total.

20. As this discussion illustrates, it is not readily possible to determine with absolute certainty the geographical location of each and every visitor to the iCraveTV RealServer. It is possible to determine with certainty, however, that a substantial number of accesses were from U.S. locations. It is also possible to determine that a sizable additional number of individual visitors were much more likely than not to have come from the United States. When a large group of such much-more-likely-than-not cases are considered together, it can be concluded with virtual certainty that, by the simple law of averages, the large majority of the group were U.S. visitors.

21. The further work I have done since January 27 confirms and strengthens the conclusions stated in my initial declaration of January 28. It is essentially certain that a substantial number of Internet users who accessed the iCraveTV television programming were from the United States. Both the results produced by the WebTrend Log Analyzer software program and the results of my own analysis of the log files support this conclusion.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on this \_\_\_\_th day of February, 2000.

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Ben Edelman