# Summary of Expert Testimony; Linus Torvalds

DON BAKER
JOE KINIRY
LENA SMITH
LOYOLA LAW SCHOOL
919 South Albany Street
Los Angeles, CA 90015
Attorneys for Defendants OPEN SESAME USERS GROUP,
DOES 1-1000, SCAPE GOAT


UNITED STATES DISTRICT COURT

WESTERN DISTRICT OF CALIFORNIA

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| CLOSED CORPORATION,<br>a California Corporation,<br><br>       Plaintiff,<br><br>       v.<br><br>OPEN SESAME USERS GROUP,<br>DOES 1-1000, SCAPE GOAT,<br><br>       Defendants.<br>_____ | )<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>) Case No.: CT-0001-DFO<br><br>**SUMMARY OF EXPERT TESTIMONY BY LINUS TORVALDS** |

## *QUALIFICATIONS AND MATERIALS USED*

1.  I am the creator of the original Linux kernel and have extensive experience in the development of open source operating systems.  I will discuss my educational background, work experience, etc.

2.  By virtue of the foregoing, I have personal knowledge of the facts set forth in this Declaration and, if called upon as a witness, could and would testify competently to these facts under oath.

## *OPEN SOURCE SOFTWARE DEVELOPMENT*

3.  Open Source Software (OSS) efforts are extremely important to the development of the Internet and the software industry.  Without OSS, the Internet would not exist.  All major protocols and technologies related to the creation and maintenance of the Internet were developed in early OSS models and remain so today.

4.  OSS development groups vary greatly in size.  Development may be accomplished by an individual programmer working to solve a universal problem, or a large, amorphous team of individuals scattered throughout the world.  There is typically no official "membership" to these development teams.

5.  Development of OSS is highly distributed.  Participants can be anywhere, work anywhere, speak any language, etc.  Participants don't contribute to only OSS efforts in their locale.  Rather, interest is entirely predicated on individual interest and expertise.

6.  Submissions such as pieces of code, documentation, suggestions, etc., are made by individuals (who needn't be developers or even users) to some forum such as a mailing list or newsgroup.  These inputs may then be incorporated into the OSS baseline by some subset of volunteers.

7.  Most OSS efforts use a Web site to distribute the current released and development versions of the project.  This site may also be used for archival purposes and access to code releases (in addition to FTP access).  The Open OSS effort uses an FTP server in Finland to distribute the latest Open source code and instructions for compiling it.

8. Code assets (source code, documentation, specifications, etc.) are often contained in a development repository. Typically, read-access to such repositories is open and anonymous. Write-access may be restricted to a subset of the development group.

9. Message boards which support public, and potentially anonymous, posts of new information are utilized for many OSS projects. Typically, such boards are accessed and manipulated through Web access as part of a project's Web site.

10. Until recently, the primary mechanism for code dissemination and project information was via NetNews or Usenet. Usenet is a semi-organized, topical, world-wide set of message boards (called newsgroups) that has asynchronous propagation. There are unmoderated and moderated newsgroups, as well as "official" and "unofficial" (alt.*) newsgroups.

11. Moderated newsgroups employ an individual or group of individuals to monitor messages posted to the newsgroup to prevent abuses. Such moderation of an OSS medium contradicts the point of OSS—all should be permitted to participate and express their ideas without bias. Using a moderated newsgroup to exclude residents of a particular locale would not be practical as exclusion of posts would be nearly impossible to validate as little or no relationship exists between source addresses and geography. Such exclusion efforts would also be easily circumvented by posting to another account or through any one of hundreds of newsgroup servers. It would also be perceived as "censorship" in the OSS community, resulting in a chilling effect on participation.

12. The existence of moderators creates a dramatic side-effect on newsgroup discussions because the moderators become bottlenecks through which the entire discussion must pass. For an extremely large newsgroup with a high volume of messages, this would greatly slow the rate of discussion.

13. It is not difficult to create a new newsgroup. New newsgroups are created every day. Even for official (comp) sites, only a limited number of people are needed to vote for the topic before it is approved. Even if a proposed newsgroup does not get enough votes (which is highly unlikely), there is no mechanism to enforce the vote and prevent the establishment of the newsgroup anyway.

14. The Open group uses an unmoderated Usenet newsgroup (called Open Sesame) as their primary communication mechanism.

15. Most OSS teams are entirely self-funded. Participants make and charge no money for their efforts. Machine time or network availability is donated by individuals, or the companies for whom the individuals work, knowingly or unknowingly.

16. Individuals who participate in the Open Sesame Usenet newsgroup do so for an unlimited variety of personal reasons, including dissatisfaction with the operating performance of Views, dislike of Closed's restrictive business practices, or simply for fun. Not all individuals who post messages share a common goal.

17. Thousands of OSS development efforts exist around the world.

18. Most academic institutional research, and a great deal of industry R&D, fits into an OSS model. Many companies that produce proprietary (non-OSS) technologies rely on OSS products to create their commercial products. These companies typically cannot create such products via closed means due to the restrictions on such usage. Typically, this type of use can be divided into three categories: service-based models (e.g., Linus distributors, Cyclic), product-centric models (e.g., Bitstream, Ghostscript), and mixed models (e.g., Cygnus). There are also various licenses that exist in the OSS community, such as (L)GPL, BSD, SCSL, Apple, and Ghostscript.

19. The threat of litigation will have a chilling effect on OSS participation and development, and in turn, on industry and Internet innovation.

## *ELECTRONIC MAIL*

20. E-mail is not always reliable. Either the e-mail arrives completely or it does not arrive at all. If the message is not delivered, the sender may be alerted to this fact by a "mail undeliverable" message. For example, users of a Closed Barter ™ server for e-mail do not receive mail this way. In addition, some users utilize "gateway" mechanisms to retrieve changes to Web sites and posts to newsgroups via e-mail which can further reduce the likelihood that e-mail will be delivered.

21. There are no "return receipts" for e-mail messages. The best that can be accomplished is a message that informs the sender whether the e-mail was accepted by some mail server at some time. It cannot tell the sender if the message ever got to the desired user in question. These delivery status messages may themselves be unreliable by indicating that a message has been read when, in fact, it has not.

## NEWSGROUP MESSAGE DISTRIBUTION

22. Propagation of messages on the Usenet servers is uneven and unreliable. Just because a post was placed on a site at a given time does not mean that it will continue to be there from that point onward. Malicious action, hardware or software failure, and a host of other problems can cause the message in question to be unavailable to readers.

23. Off-topic messages (a.k.a. "spam") have been a problem on many newsgroup sites. Most sites allow the individual users to "tune" what types of, and how much, material they are shown. Participants may filter out certain topics and keywords, most notably, information with respect to Closed. All material posted to the newsgroup is not necessarily seen by participants.

24. Location of the news or Web server does not affect access to OSS data. There are no network boundaries, so physical location of an HTTP or FTP server has nothing to do with user access and use.

25. Newsgroup participants have no idea where a given server is located geographically.

26. Mirror servers exist throughout the world (Web or FTP) that may carry all or part of a newsgroup's content. Users of the newsgroup have no control over *what* content mirror servers duplicate and make available for distribution, *where* the servers are located, or *when* they distribute material.

27. Many so-called "passive" Web sites feature discussion forums similar to newsgroups, or otherwise facilitate communal exchange of information.

28. Licensing requirements for Open require that source code modifications be made public. This is accomplished by posting the modification incorporated into the Open baseline on the newsgroup.

The new baselined version of Open is then posted on the FTP server in Finland.

## *OSS PROJECT PARTICIPATION*

29. Individuals who contribute to Open code modifications may or may not remain anonymous. Credit for contributing to a given piece of OSS is usually only given when the contribution rises above some certain, project-specific bar of contribution. If a user donates less than that amount of code, no attribution is warranted. A majority of developers are anonymous insofar as their contributions fall below this bar. In addition, some employers attempt to restrict their developers' activities with respect to OSS projects. Most OSS developers view this as an impingement on their basic human rights and contribute anyway, but anonymously.

30. OSS developers work for free. Their group has no funds of its own, no treasurer, no bank account, etc.

Dated: October 14, 1999          _____
                                          Linus Torvalds