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"The role of technology in reducing illegal filesharing: A university perspective"

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Mr, Chairman and members of the Committee, I am pleased to appear today to share some of the experiences of the University of Utah in reducing the illegal sharing of digital copyrighted materials. My name is Charles Wight, and I currently serve as Associate Vice President for Academic Affairs and Undergraduate Studies at the University of Utah. In this capacity I am responsible for, or I am otherwise engaged in, creating and implementing a wide range of university policies dealing with educational technology, online courses, Internet security, copyright policy, institutional data access, and student behavior.

Copyright law is essential to many of the core functions of universities. Faculty, staff and students enjoy protection of the intellectual property that is created every day through the process of scholarly research. Teachers also derive enormous benefit from the doctrine of Fair Use (sections 107 through 118 of the Copyright Act, Title 17 of United States Code), which permits limited free use of copyrighted materials for nonprofit educational purposes. Therefore, we are concerned whenever members of our university community are engaged in activities that violate the copyrights of others.

The University of Utah employs two independent technology solutions on its campus network to address the problem of illegal file sharing. The first is continuous monitoring of network traffic to identify high-bandwidth users in all areas of campus. The second is a network monitoring program called Audible Magic, which detects and blocks transmission of unencrypted copyrighted music and video recordings from computers in the student residence halls. The decision to use these technologies for detecting suspected cases of copyright abuse through peer-to-peer file sharing was made by its Chief Information Officer, Dr. Stephen Hess, in consultation with the university administration and the university's Information Technology Council, a broadly based oversight committee composed of faculty and staff from all major areas of the campus. The university's Information Security Office (ISO) implements the policies.

The ISO network monitoring software automatically generates daily reports for the manager of each local area network (LAN), typically for a department or college within the university. The report lists all of the computers connected to that LAN for which the volume of outgoing network traffic exceeded 1 gigabyte (GB) over a 24 hour period. Each LAN manager is responsible for assessing the type of information being sent and whether the use of network resources is consistent with university policy and applicable laws. In most cases, the traffic is associated with legitimate teaching and

research functions of the university. However, in some cases, LAN managers are able to identify computers that are transmitting large amounts of data inappropriately. It is the responsibility of the LAN manager to isolate the offending computer from the campus network and to contact the user or administrator of the machine to make a detailed assessment of the situation.

The ISO also runs Audible Magic network monitoring software in the local area network serving our student residence halls, where the potential for illegal file sharing is high. The software is designed to detect transmission of copyrighted materials registered with Audible Magic by looking for particular patterns of bits crossing the network, somewhat like software designed to detect computer viruses. Whenever Audible Magic detects the transmission of a protected work, the transmission is automatically reset, preventing the protected work from being shared. Additionally, network access is cut off automatically if the total volume of outgoing network traffic from a student computer in the residence halls exceeds 2 GB per day.

Currently, the ISO deals with suspected cases of abuse of network resources about 2 or 3 times each week. Approximately 70% of the instances occur in the area of our network that serves the student residence halls. If the ISO finds that a user violated the university's Information Resources Policy (http://www.admin.utah.edu/ppmanual/1/1-15.html), then the ISO representative reviews that policy with the user. The user must then provide a signed statement agreeing to abide by the policy as well as applicable federal and state laws. Only then is the user's access to the network restored. Students who violate the policy more than once are referred to the Dean of Students and the Student Behavior Committee for disciplinary action.

This two-pronged technology solution has been effective for minimizing the amount of illegal copyright violations on campus through peer-to-peer file sharing. In the past 10 years, there have been only three instances in which it was necessary to permanently revoke a user's access to the university network. Since we began using the Audible Magic network monitoring software more than 2 years ago, the number of copyright abuse notices received from the Recording Industry Association of America (RIAA) and the Motion Picture Association of America (MPAA) has declined by more than 90%. The strategy also pays financial dividends for the university. By focusing attention on high-bandwidth users, the university has saved enormous amounts of money that would have otherwise been required to build network capacity to support illegal activities. Our ISO currently spends only about 3 person-hours per week dealing with network abuse issues. Without the two technology solutions in place, it is likely that it would require at least one additional full-time employee to respond to complaints.

It is important to note that there is no software or other network monitoring technology that can identify illegal transmission of copyrighted material with 100% reliability. Audible Magic only detects transmission of works that are registered with the company. Furthermore, it cannot detect the transmission if the session is encrypted (e.g., with the BitTorrent peer-to-peer file sharing software). Monitoring network traffic volume can identify large bandwidth users, but does not necessarily indicate illegal

activities. That is why it is important to employ at least 2 independent strategies (*e.g.*, network traffic volume and Audible Magic) for detecting suspected violations. It is equally important to reserve judgment in each case until after making personal contact with the user or administrator of a suspect computer to assess whether or not the use of university network resources is appropriate.

In conclusion, the University of Utah currently employs a two-part strategy of monitoring local network traffic volume across its entire network and operating file sharing detection software in the local area networks serving the student resident halls. This strategy is largely, though not 100%, effective for identifying inappropriate peer-to-peer file sharing activities involving copyright infringement. The strategy protects the privacy of individuals while at the same time flagging suspicious activities electronically. When suspected cases of network abuse are detected, university officials follow up with individual computer users to determine whether or not the activity is appropriate, and they take any actions necessary to ensure that our network resources and the Internet are used responsibly.

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Professor Charles Wight has been a member of the University of Utah faculty since 1984. His primary academic appointment is in the Chemistry Department, where he and his research group perform research on the chemical reactions and combustion of high explosives and solid rocket propellants. Chuck is the Deputy Director of the University of Utah Center for Simulation of Accidental Fires and Explosions, a large multi-disciplinary center for high-performance computing and simulation. Chuck serves as Associate Vice President for Academic Affairs and Undergraduate Studies. In this role, he is responsible for operating the university's Continuing Education unit, its General Education program, and for development of policies for educational technology and online courses. He serves on the university's Academic Leadership Team and assists the Chief Information Officer, Dr. Stephen Hess, in the development of institutional policies regarding institutional data access and security. In 2001, Chuck chaired a committee that wrote the current institutional policy governing copyright ownership for works created using University of Utah resources.